MobileNext Broadband Gateway

Statements and Commands Reference Guide

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Junos Documentation and Release Notes

For a list of related Junos documentation, see http://www.juniper.net/techpubs/software/junos/.

If the information in the latest release notes differs from the information in the documentation, follow the *Junos Release Notes.*

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at http://www.juniper.net/techpubs/.

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using the Junos operating system (Junos OS) and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using Junos OS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at http://www.juniper.net/books.

Objectives

This guide provides an overview of the mobility features of the Junos OS on the MobileNext Broadband Gateway and describes how to configure these properties on the mobile platform.

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NOTE: For additional information about Junos OS—either corrections to or information that might have been omitted from this guide—see the software release notes at http://www.juniper.net/.

Audience

This guide is designed for mobile network administrators who are configuring and monitoring a Juniper Networks MX Series router functioning as a MobileNext Broadband Gateway.

To use this guide, you need a broad understanding of networks in general, the Internet in particular, networking principles, and network configuration. You must also be familiar with one or more of the following Internet routing protocols:

- Border Gateway Protocol (BGP)
- Distance Vector Multicast Routing Protocol (DVMRP)
- Intermediate System-to-Intermediate System (IS-IS)
- Internet Control Message Protocol (ICMP) router discovery
- Internet Group Management Protocol (IGMP)
- Multiprotocol Label Switching (MPLS)
- Open Shortest Path First (OSPF)
- Protocol-Independent Multicast (PIM)
- Resource Reservation Protocol (RSVP)
- Routing Information Protocol (RIP)
- Simple Network Management Protocol (SNMP)

Personnel operating the equipment must be trained and competent; must not conduct themselves in a careless, willfully negligent, or hostile manner; and must abide by the instructions provided by the documentation.

Supported Platforms

For the features described in this document, the following platforms are supported:

- MX240 Routers
- MX960 Routers
- MX480 Routers

Documentation Conventions

Table 1 on page xxvii defines notice icons used in this guide.

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Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

Table 2 on page xxvii defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the**configure** command: user@host> **configure**
`Fixed-width text like this`	Represents output that appears on the terminal screen.	`user@host>` **show chassis alarms** `No alarms currently active`
Italic text like this	• Introduces or emphasizes important new terms. • Identifies book names. • Identifies RFC and Internet draft titles.	• A policy *term* is a named structure that defines match conditions and actions. • *Junos OS System Basics Configuration Guide* • RFC 1997, *BGP Communities Attribute*
Italic text like this	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# **set system domain-name** *domain-name*
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	• To configure a stub area, include the **stub** statement at the**[edit protocols ospf area area-id]** hierarchy level. • The console port is labeled **CONSOLE**.
< > (angle brackets)	Enclose optional keywords or variables.	**stub <default-metric** *metric***>;**

Table 2: Text and Syntax Conventions *(continued)*

Convention	Description	Examples
| (pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	**broadcast | multicast** (***string1*** **|** ***string2*** **|** ***string3***)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	**rsvp { # Required for dynamic MPLS only**
[ ] (square brackets)	Enclose a variable for which you can substitute one or more values.	**community name members [** ***community-ids*** **]**

Indention and braces ({ })	Identify a level in the configuration hierarchy.	[edit]
		routing-options {
		static {
		route default {
		nexthop *address*;
		retain;
		}
		}
		}

; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
GUI Conventions		
Bold text like this	Represents graphical user interface (GUI) items you click or select.	• In the Logical Interfaces box, select **All Interfaces**. • To cancel the configuration, click **Cancel**.
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select **Protocols>Ospf**.

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to **techpubs-comments@juniper.net**, or fill out the documentation feedback form at https://www.juniper.net/cgi-bin/docbugreport/ . If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version (if applicable)

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract,

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or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf .
- Product warranties—For product warranty information, visit http://www.juniper.net/support/warranty/ .
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: http://www.juniper.net/customers/support/
- Search for known bugs: http://www2.juniper.net/kb/
- Find product documentation: http://www.juniper.net/techpubs/
- Find solutions and answer questions using our Knowledge Base: http://kb.juniper.net/
- Download the latest versions of software and review release notes: http://www.juniper.net/customers/csc/software/
- Search technical bulletins for relevant hardware and software notifications: https://www.juniper.net/alerts/
- Join and participate in the Juniper Networks Community Forum: http://www.juniper.net/company/communities/
- Open a case online in the CSC Case Management tool: http://www.juniper.net/cm/

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://tools.juniper.net/SerialNumberEntitlementSearch/

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at http://www.juniper.net/cm/.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see http://www.juniper.net/support/requesting-support.html.

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PART 1

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CHAPTER 1

Configuration Statement Hierarchy

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- [edit unified-edge pcef] Hierarchy Level on page 39
- [edit unified-edge resource-management] Hierarchy Level on page 40

[edit access] Hierarchy Level

```
access {
  radius {
    traceoptions {
      file radius;
        flag send-detail;
        flag recv-detail;
```

```
                level all;
                server {
                    server name;
                }
            }
        servers server-name {
                address address;
                    source-interface interface {
                        ipv4-address address;
                    }
                    accounting-port port-number;
                    accounting-secret password;
                    allow-dynamic-requests ;
                    authentication-port port-number;
                    dead-criteria retries retry-number interval seconds;
                    dynamic-requests-secret password;
                    retry attempts;
                    revert-interval time;
                    secret password;
                    timeout seconds;
                }
            }
        network-elements name {
                    server name {
                        priority priority ;
                    }
                algorithm ( direct | round-robin);
                    maximum-pending-reqs-limit number ;
                }
            }
        network-element-groups name {
                network-element name {
                    mandatory;
                    }
                    broadcast;
                }
            }
    }
}
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit access address-assignment] Hierarchy Level

```
address-assignment {
    mobile-pool-groups {
        group-name {
            [pool-name];
        }
    }
    mobile-pools {
        name {
            ageing-window ageing-window;
            default-pool;
```


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```
            family (inet | inet6) {
              network {
                [network-prefix] {
                  allocation-prefix-length allocation-prefix-length;
                  external-assigned;
                  range {
                    [name] {
                      external-assigned;
                      high high;
                      low low;
                    }
                  }
                }
              }
            }
            pool-prefetch-threshold  pool-prefetch-threshold;
            pool-snmp-trap-threshold pool-snmp-trap-threshold;
            service-mode service-mode-options;
          }
        }
      }
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit access diameter] Hierarchy Level

```
diameter {
  applications {
    dcca-gy {
      <maximum-pending-requests requests>;
    }
    pcc-gx {
      <maximum-pending-requests requests>;
    }
  }
  <firmware-version version>;
  network-element element-name {
    function (pcc-gx | dcca-gy);
    peer peer-name {
      priority priority-number;
      <timeout timeout>;
    }
  }
  origin {
    host hostname;
    realm realm-name;
  }
  peer peer-name {
    address address;
    connect-actively {
      <capabilities-exchange-timeout timeout>;
      <port port-number>;
      <repeat-timeout seconds>;
      <retry-timeout timeout>;
```

```
        <timeout timeout>;
        transport transport-name;
      }
      <disconnect-peer-timeout timeout>;
      incoming-queue {
        size size;
      }
      outgoing-queue {
        <high-watermark watermark>;
        <low-watermark watermark>;
        size size;
      }
      <watchdog-timeout timeout>;
    }
    <product-name product-name>;
    traceoptions {
      file filename;
      flag flag;
      level all;
      peer {
        peer-name;
      }
    }
    transport transport-name {
      address address;
      <routing-instance routing-instance-name>;
    }
    <vendor-id vendor-id>;
  }
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit class-of-service] Hierarchy Level

```
class-of-service {
  interfaces {
    mif. number {
      unit logical-unit-number {
        ingress-rewrite-rules {
          [dscp (rewrite-rule-name | default)];
          [dscp-ipv6 (rewrite-rule-name | default)];
          [inet-precedence (rewrite-rule-name | default)];
          }
        }
        rewrite-rules {
          [dscp (rewrite-rule-name | default)] {
            protocol [(gtp-inet-both | gtp-inet-outer)];
          }
          [dscp-ipv6 (rewrite-rule-name | default)] {
            protocol [(mpls | gtp-inet-both | gtp-inet-outer)];
          }
          [inet-precedence (rewrite-rule-name | default)] {
            protocol [(gtp-inet-both | gtp-inet-outer)];
          }
```


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```
            }
          }
        }
      }
    }
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit interfaces ams] Hierarchy Level

```
interfaces amsx {
  hold-time {
    ...
  }
  layer2-policer {
    ...
  }
  load-balancing-options {
    high-availability-options {
      many-to-one {
        preferred-backup preferred-backup;
      }
    }
    member-failure-options {
      drop-member-traffic {
        enable-rejoin;
        rejoin-timeout rejoin-timeout;
      }
      redistribute-all-traffic {
        enable-rejoin;
      }
    }
    member-interface interface-name;
  }
  multi-chassis-protection {
    ...
  }
  services-options {
    ...
  }
  traceoptions {
    ...
  }
  unit interface-unit-number {
    dial-options {
      (dedicated | shared);
      ipsec-interface-id ipsec-interface-id;
    }
    family family;
    load-balancing-options {
      preferred-active interface-name;
    }
  }
}
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit interfaces apfe] Hierarchy Level

```
interfaces apfex {
   anchoring-options {
      apfe-group-set apfe-group-set;
      primary-list {
         [anchoring-device-name];
      }
      secondary anchoring-device-name;
      warm-standby;
   }
   hold-time {
      ...
   }
   layer2-policer {
      ...
   }
   multi-chassis-protection {
      ...
   }
   traceoptions {
      ...
   }
}
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit interfaces mif] Hierarchy Level

```
interfaces mif {
   description description;
   disable;
   mtu mtu-size;
   multi-chassis-protection { ... }
   no-traps;
   traceoptions { ... }
   unit interface-unit-number {
      clear-dont-fragment-bit;
      description description;
      disable;
      family family-name {...}
      filter {
         input input-filter;
         output output-filter;
      }
      (no-traps | traps);
   }
}
```


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Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit routing-instances <name> system] Hierarchy Level

```
system {
  services {
    dhcp-proxy-client {
      dhcpv4-profiles profile-name {
        bind-interface interface-name;
        dead-server-retry-interval interval-in-seconds;
        dead-server-successive-retry-attempt number-of-attempts;
        dhcp-server-selection-algorithm (highest-priority-server | round-robin);
        lease-time time-in-seconds;
        pool-name pool-name;
        retransmission-attempt  number-of-attempts;
        retransmission-interval interval-in-seconds;
        servers ip-address {
          priority value;
        }
      }
      dhcpv6-profiles profile-name {
        bind-interface interface-name;
        lease-time time-in-seconds;
        pool-name pool-name;
        retransmission-attempt  number-of-attempts;
        retransmission-interval interval-in-seconds;
      }
      traceoptions {
        ...
      }
  }
}
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit services hcm] Hierarchy Level

```
hcm {
  tag-attribute [attr-name];
  tag-rule rule-name {
    term term-name {
      from {
        destination-address {
          (any-unicast | any-unicast except);
          [prefix];
        }
        destination-address-range {
          [high address low address] [except];
        }
        destination-port-range {
          [high port-number low port-number];
        }
```

```
            destination-ports [value];
            destination-prefix-list {
              (prefix-name | prefix-name except);
            }
          }
          then{
            count;
            tag tag-name {
              encrypt {
                hash algorithm;
                prefix hash-prefix;
              }
              tag-attribute tag-attr-name;
              tag-header header;
              tag-separator separator;
            }
          }
        }
      }
      tag-rule-set rule-set-name {
        [rule rule-name];
      }
    }
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit services ip-reassembly] Hierarchy Level

```
ip-reassembly {
  profile profile-name {
    max-reassembly-pending-packets number;
    timeout in-seconds;
  }
  rule <rule-name> {
    match-direction direction;
  }
}
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit services service-set] Hierarchy Level

```
service-set service-set-name {
  interface-service {
    load-balancing-options {
      hash-keys {
        egress-key (destination-ip | source-ip);
        ingress-key (destination-ip | source-ip);
        resource-triggered;
      }
    }
    service-interface interface-name.unit-number;
  }
```


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```
    ip-reassembly-rules {
        [rule-name];
    }
    next-hop-service {
        inside-service-interface interface-name.unit-number;
        outside-service-interface interface-name.unit-number;
        outside-service-interface-type interface-type;
        service-interface-pool name;
    }
    [pcef-profile profile-name];
    [tag-rule-sets rule-set-name];
    [tag-rules rule-name];
    service-set-options {
        subscriber-awareness;
    }
}
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge] Hierarchy Level

Each of the following topics lists the statements at a subhierarchy of the **[edit unified-edge]** hierarchy.

- [edit unified-edge aaa] Hierarchy Level on page 11
- [edit unified-edge cos-cac] Hierarchy Level on page 13
- [edit unified-edge diameter-profiles] Hierarchy Level on page 15
- [edit unified-edge gateways] Hierarchy Level on page 17
- [edit unified-edge local-policies] Hierarchy Level on page 38
- [edit unified-edge mobile-options] Hierarchy Level on page 38
- [edit unified-edge pcef] Hierarchy Level on page 39
- [edit unified-edge resource-management] Hierarchy Level on page 40

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge aaa] Hierarchy Level

```
unified-edge {
    aaa {
        traceoptions {
        }
        mobile-profiles {
            map-name {
                radius {
                    authentication {
                        network-element name;
                    }
```

```
accounting {
  network-element name;
    network-element-group group-name;
    stop-on-failure;
    stop-on-access-deny;
  send-accounting-on;
  trigger {
    interim-interval minutes;
      no-cos-change;
      no-deferred-ipv4-address-update;
      no-ms-timezone-change;
      no-plmn-change;
      no-rat-change;
      no-sgw-change;
      no-user-location-information-change;
    }
}
options {
  nas-identifier-prefix identifier-value;
}
attributes {
  ignore {
    output-filter;
      framed-ip-netmask;
    input-filter;
  }
  exclude {
    accounting-authentic [accounting-start | accounting-interim |
      accounting-stop];
    accounting-delay-time [accounting-start | accounting-interim |
      accounting-stop];
    accounting-terminate-cause [accounting-stop];
    all-3gpp [access-request | accounting-start | accounting-stop |
      accounting-interim];
    called-station-id [access-request | accounting-start | accounting-interim |
      accounting-stop];
    calling-station-id [access-request | accounting-start | accounting-interim |
      accounting-stop];
    charging-id [access-request | accounting-interim | accounting-start |
      accounting-stop];
    event-timestamp [accounting-start | accounting-interim | accounting-stop];
    ggsn-address [access-request | accounting-interim | accounting-start |
      accounting-stop];
    gprs-negotiated-qos [access-request | accounting-interim | accounting-start
      | accounting-stop];
    imeisv [access-request | accounting-start];
    imsi [access-request | accounting-start | accounting-stop |
      accounting-interim];
    imsi-mcc-mnc [access-request | accounting-start | accounting-stop |
      accounting-interim];
    input-gigapackets [accounting-interim | accounting-stop];
    input-gigawords [accounting-interim | accounting-stop];
    input-packets [accounting-interim | accounting-stop];
    nas-identifier [access-request | accounting-interim | accounting-start
      |accounting-stop];
```


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```
                nas-ip-address [access-request | accounting-on |accounting-off |
                  accounting-start | accounting-interim | accounting-stop];
                nas-port-type [access-request | accounting-interim | accounting-start |
                  accounting-stop];
                nsapi [access-request | accounting-interim | accounting-start |
                  accounting-stop];
                output-gigapackets [accounting-interim | accounting-stop];
                output-gigawords [accounting-interim | accounting-stop];
                output-packets [accounting-interim | accounting-stop];
                selection-mode [access-request | accounting-interim | accounting-start |
                  accounting-stop];
                sgsn-mcc-mnc [access-request | accounting-start | accounting-interim |
                  accounting-stop];
                user-location-info [access-request | accounting-start | accounting-stop |
                  accounting-interim];
              }
            }
          }
        }
      }
    }
  }
```

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11
- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge cos-cac] Hierarchy Level

```
unified-edge {
  cos-cac {
    classifier-profiles {
      name {
        description description;
        qos-class-identifier qci-value {
          forwarding-class class-name;
          loss-priority (high | low);
        }
      }
    }
    cos-policy-profiles {
      name {
        aggregated-qos-control {
          maximum-bit-rate-downlink {
            mbr-downlink;
            reject;
            upgrade;
          }
          maximum-bit-rate-uplink {
            mbr-uplink;
            reject;
            upgrade;
          }
        }
        allocation-retention-priority {
```

```
            priority-value;
            reject;
          }
          default-bearer-qci {
            qci-value;
            reject;
            upgrade;
          }
          description description;
          pdp-qos-control {
            guaranteed-bit-rate-downlink {
              gbr-downlink;
              reject;
              upgrade;
            }
            guaranteed-bit-rate-uplink {
              gbr-uplink;
              reject;
              upgrade;
            }
            maximum-bit-rate-downlink {
              mbr-downlink;
              reject;
              upgrade;
            }
            maximum-bit-rate-uplink {
              mbr-uplink;
              reject;
              upgrade;
            }
            qci qci-value {
              maximum-bit-rate-downlink {
                mbr-downlink;
                reject;
                upgrade;
              }
              maximum-bit-rate-uplink {
                mbr-uplink;
                reject;
                upgrade;
              }
            }
          }
          policer-action {
            gbr-bearer {
              exceed-action (drop | transmit);
              violate-action (set-loss-priority-high | transmit);
            }
            non-gbr-bearer {
              violate-action (set-loss-priority-high | transmit);
            }
          }
        }
      }
      gbr-bandwidth-pools {
        name {
```


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```
            downgrade-gtp-v1-gbr-bearers;
            maximum-bandwidth maximum-bandwidth;
          }
        }
        resource-threshold-profiles {
          name {
            bearers-load {
              high {
                percentage percentage;
                priority-level priority-level;
              }
              low {
                percentage percentage;
                priority-level priority-level;
              }
            }
            cpu {
              high {
                percentage percentage;
                priority-level priority-level;
              }
              low {
                percentage percentage;
                priority-level priority-level;
              }
            }
            description description;
            memory {
              high {
                percentage percentage;
                priority-level priority-level;
              }
              low {
                percentage percentage;
                priority-level priority-level;
              }
            }
          }
        }
      }
```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge diameter-profiles] Hierarchy Level

```
diameter-profiles {
  gx-profile profile-name {
    <attributes> {
      exclude {
        an-gw-address;
        default-eps-bearer-qos;
        packet-filter-information;
        packet-filter-operation;
        rat-type;
```

```
            }
            include {
                gx-capability-list;
                rule-suggestion;
            }
        }
        <request-timeout seconds>;
        targets {
            target-name {
                <destination-host hostname>;
                destination-realm realm-name;
                network-element element-name;
                priority priority-value;
            }
        }
    }
    gy-profile profile-name {
        <attributes> {
            exclude {
                all-3gpp-avps;
                cc-selection-mode;
                dynamic-address-flag;
                pdn-connection-id;
                ps-information;
                qos-information;
                serving-node-type;
                start-time;
                stop-time;
                user-equipment-info;
                user-location-information;
                username;
            }
            include {
                credit-instance-id;
                cumulative-used-service-unit;
                framed-ip-address;
                framed-ipv6-prefix;
                gprs-negotiated-qos;
                mscc-qos-information;
                service-start-timestamp;
            }
        }
        <request-timeout seconds>;
        targets {
            target-name {
                <destination-host hostname>;
                destination-realm realm-name;
                network-element element-name;
                priority priority-value;
            }
        }
    }
}
```


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Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge gateways] Hierarchy Level

Each of the following topics lists the statements at a sub-hierarchy of the **[edit unified-edge gateways]** hierarchy.

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11

- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level

```
ggsn-pgw gateway-name {
  anchor-pfe-ipv4-nbm-prefixes maximum-ipv4-prefixes;
  anchor-pfe-ipv6-nbm-prefixes maximum-ipv6-prefixes;
  apn-services {
    apns {
      [name] {
        aaa-profile aaa-profile;
        address-assignment {
          aaa;
          allow-static-ip-address {
            no-aaa-verify;
          }
          dhcp-proxy-client {
            aaa-override;
          }
          dhcpv4-proxy-client-profile {
            logical-system logical-system;
            pool-name pool-name;
            profile-name profile-name;
            routing-instance routing-instance;
          }
          dhcpv6-proxy-client-profile{
            logical-system logical-system;
            pool-name pool-name;
            profile-name profile-name;
            routing-instance routing-instance;
          }
          inet-pool {
            exclude-pools [value];
            group group;
            pool pool;
          }
          inet6-pool {
            exclude-v6pools [value];
            group group;
```

```
        pool pool;
      }
      local {
        aaa-override;
      }
    }
    allow-network-behind-mobile;
    apn-data-type (ipv4 | ipv4v6 | ipv6);
    apn-type (real | virtual | virtual-pre-authenticate);
    block-visitors;
    charging {
      default-profile default-profile;
      home-profile home-profile;
      profile-selection-order [profile-selection-method];
      roamer-profile roamer-profile;
      visitor-profile visited-profile;
    }
    description description;
    dns-server {
      primary-v4 primary-v4;
      primary-v6 primary-v6;
      secondary-v4 secondary-v4;
      secondary-v6 secondary-v6;
    }
    idle-timeout idle-timeout;
    idle-timeout-direction (both | uplink);
    inter-mobile-traffic {
      (deny | redirect redirect);
    }
    local-policy-profile local-policy-profile;
    maximum-bearers maximum-bearers;
    mobile-interface mobile-interface;
    nbns-server {
      primary-v4 primary-v4;
      secondary-v4 secondary-v4;
    }
    network-behind-mobile {
      imsi imsi {
        prefix-v4 [ipv4-prefix];
        prefix-v6 [ipv6-prefix];
      }
    }
    p-cscf{
      [address];
    }
    restriction-value restriction-value;
    selection-mode {
      (from-ms | from-sgsn | no-subscribed);
    }
    service-mode service-mode-options;
    service-selection-profile service-selection-profile;
    session-timeout session-timeout;
    user-options {
      override-pco;
      password password;
      (use-apnname | use-imsi | use-msisdn | user-name username);
```


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```
            }
            verify-source-address {
                disable;
            }
            wait-accounting;
        }
    }
}
call-rate-statistics {
    history history;
    interval interval;
}
charging {
    cdr-profiles profile-name {
        description string;
        enable-reduced-partial-cdrs;
        exclude-attributes {
            apn-ni;
            apn-selection-mode;
            cc-selection-mode;
            dynamic-address;
            list-of-service-data;
            list-of-traffic-volumes;
            lrsn;
            ms-time-zone;
            network-initiation;
            node-id;
            pdn-connection-id;
            pdppdn-type;
            pgw-plmn-identifier;
            ps-furnish-info;
            rat-type;
            record-sequence-number;
            served-imeisv;
            served-msisdn;
            served-pdppdn-address;
            served-pdp-address-extension;
            serving-node-plmn-identifier;
            start-time;
            stop-time;
            user-location-information;
        }
        node-id (hostname | hostname-spic | ipaddress-spic);
        report-requested-apn;
    }
    charging-profiles profile-name {
        cdr-profile profile-name;
        default-rating-group rg-num;
        default-service-id id-num;
        description string;
        profile-id id-num;
        service-mode maintenance;
        transport-profile profile-name;
        trigger-profile profile-name {
            rating-group [value];
        }
```

```
}
gtpp {
  destination-port port-number;
  down-detect-time duration;
  echo-interval duration;
  header-type (long | short);
  n3-requests requests;
  no-path-management;
  pending-queue-size value;
  peer peer-name {
    destination-ipv4-address address;
    destination-port port-number;
    down-detect-time duration;
    echo-interval duration;
    header-type (long | short);
    n3-requests requests;
    no-path-management;
    pending-queue-size value;
    reconnect-time duration;
    source-interface interface-name [ipv4-address address];
    t3-response response-interval;
    transport-protocol (tcp | udp);
    version (v0 | v1 | v2);
  }
  reconnect-time duration;
  source-interface {
    interface-name;
    ipv4-address address;
  }
  t3-response response-interval;
  transport-protocol (tcp | udp);
  version (v0 | v1 | v2);
}
local-persistent-storage-options {
  cdrs-per-file value;
  disable-replication;
  disk-space-policy {
    watermark-level-1 {
      notification-level (both | snmp-alarm | syslog);
      percentage value;
    }
    watermark-level-2 {
      notification-level (both | snmp-alarm | syslog);
      percentage value;
    }
    watermark-level-3 {
      notification-level (both | snmp-alarm | syslog);
      percentage value;
    }
  }
  file-age {
    age;
    disable;
  }
  file-creation-policy (shared-file | unique-file);
  file-format (3gpp | raw-asn);
```


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```
    file-name-private-extension string;
    file-size {
      size;
      disable;
    }
    traceoptions {
      file file-name <files number> <match regular-expression> <no-world-readable |
        world-readable> <size size>;
      flag flag;
      level (all | critical | error | info | notice | verbose | warning);
      no-remote-trace;
    }
    user-name string;
    world-readable;
  }
  traceoptions {
    file {
      file-name;
      files number;
      size size
      (no-world-readable | world-readable);
    }
    flag flag;
    level (all | critical | error | info | notice | verbose | warning);
    no-remote-trace;
  }
  transport-profiles profile-name {
    description string;
    offline {
      charging-function-name function-name;{
      charging-gateways {
        cdr-aggregation-limit value;
        cdr-release (r7 | r8 | r9 | r99);
        mtu value;
        peer-order {
          [peer charging-gateway-peer-name];
        }
        persistent-storage-order {
          local-storage;
        }
        switch-back-time seconds;
      }
      container-limit value;
      sgsn-sgw-change-limit value;
    }
    online {
      all-rgs-on-termination;
      charging-function-name function-name;
      diameter-profile profile-name;
      no-mscc-in-ccrt;
      quota-request-on-first-packet
      send-ccri-on-first-packet
      service-context-id service-context-id;
      session-failover-not-supported;
      single-mscc;
      tx-timeout timeout;
```

```
    }
    service-mode maintenance;
  }
  trigger-profiles profile-name {
    charging-method (both | none | offline | online);
    description string;
    offline {
      exclude {
        dcca-events;
        ms-timezone-change;
        plmn-change;
        qos-change;
        rat-change;
        sgsn-sgw-change;
        user-location-change;
      }
      time-limit value;
      volume-limit {
        value;
        direction (both | uplink);
      }
    }
    online {
      cc-failure-handling {
        block-traffic-pending-reauth-no-quota;
        initial-request {
          convert-to-offline {
            grant-grace-quota;
          }
          disable-online-charging;
          grant-grace-quota;
        }
        override;
        result-code-based-action {
          authorization-rejected {
            blacklist {
              retry-timer;
            }
          }
          credit-control-not-applicable {
            convert-to-offline {
              grant-grace-quota;
            }
          }
          credit-limit-reached {
            blacklist {
              retry-timer;
            }
          }
          end-user-service-denied {
            convert-to-offline {
              grant-grace-quota;
            }
            disable-online-charging;
          }
          user-unknown {
```


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```
                convert-to-offline {
                  grant-grace-quota;
                }
                disable-online-charging;
              }
            }
            update-request {
              convert-to-offline {
                grant-grace-quota;
              }
              disable-online-charging;
              grant-grace-quota;
            }
          }
          grant-quota {
            cc-octet-both volume-quota-both;
            cc-octet-downlink volume-quota-dl;
            cc-octet-uplink volume-quota-ul;
            cc-time time-quota;
          }
          measurement-method (none | time | volume | volume-and-time);
          quota-threshold {
            threshold;
            override;
          }
          quota-holding-time time-in-seconds;
          quota-validity-time time-in-seconds;
          reporting-level {
            override;
            (rating-group | service-identifier);
          }
          requested-service-unit {
            always-include;
            cc-octet-both volume-quota-both;
            cc-octet-downlink volume-quota-dl;
            cc-octet-uplink volume-quota-ul;
            cc-time time-quota;
            include-quota-holding-time;
          }
        }
        tariff-time-list {
          tariff-time;
        }
      }
    }
    diameter {
      network-element {
        element-name {
          session-pics {
            group {
              group-name {
                [session-pic interface-name];
              }
            }
          }
        }
```

```
    }
  }
  gtp {
    control {
      dscp-code-point value;
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      forwarding-classclass-name;
      interface {
        interface-name;
        v4-address v4-address;
      }
      n3-requests requests;
      no-response-cache;
      path-management (disable | enable);
      response-cache-timeoutt interval-in-seconds;
      t3-response response-interval;
    }
    data {
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      error-indication-interval seconds;
      interface {
        interface-name;
        v4-address v4-address;
      }
      path-management (disable | enable);
    }
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    gn {
      control {
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-classclass-name;
        interface {
          interface-name;
          v4-address v4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
      }
      data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
          interface-name;
          v4-address v4-address;
        }
```

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```
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-address v4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    gp {
      control {
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-classclass-name;
        interface {
          interface-name;
          v4-address v4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
      }
      data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
          interface-name;
          v4-address v4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-address v4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    interface {
      interface-name;
      v4-address v4-address;
```

```
}
n3-requests requests;
path-management (disable | enable);
peer-group name {
  control {
    support-16-bit-sequence;
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  n3-requests requests;
  path-management (disable | enable);
  peer {
    [ip-addr-prefix];
  }
  routing-instance routing-identifier;
  t3-response response-interval;
}
peer-history number;
s5 {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    support-16-bit-sequence;
    t3-response response-interval;
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    t3-response response-interval;
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-address v4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
```


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```
        t3-response response-interval;
    }
    s8 {
        control {
            dscp-code-point value;
            echo-interval interval;
            echo-n3-requests requests;
            echo-t3-response response-interval;
            forwarding-classclass-name;
            interface {
                interface-name;
                v4-address v4-address;
            }
            n3-requests requests;
            path-management (disable | enable);
            support-16-bit-sequence;
            t3-response response-interval;
        }
        data {
            echo-interval interval;
            echo-n3-requests requests;
            echo-t3-response response-interval;
            interface {
                interface-name;
                v4-address v4-address;
            }
            n3-requests requests;
            path-management (disable | enable);
            t3-response response-interval;
        }
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
            interface-name;
            v4-address v4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
    }
    t3-response response-interval;
    traceoptions {
        file filename {
            files files;
            (no-world-readable | world-readable);
            size size;
        }
        flag {
            flag;
        }
        level level;
        no-remote-trace;
    }
}
home-plmn {
```

```
    [mcc mcc mnc mnc];
}
inline-services {
    ip-reassembly {
        service-set {
            service-set-name;
        }
    }
}
ip-reassembly-profile {
    profile-name;
}
ipv6-router-advertisement {
    current-hop-limit current-hop-limit;
    disable;
    maximum-advertisement-interval maximum-advertisement-interval;
    maximum-initial-advertisement-interval maximum-initial-advertisement-interval;
    maximum-initial-advertisements maximum-initial-advertisements;
    minimum-advertisement-interval minimum-advertisement-interval;
    reachable-time reachable-time;
    retransmission-timer retransmission-timer;
    router-lifetime router-lifetime;
}
local-policy-profile local-policy-profile;
maximum-bearers maximum-bearers;
preemption {
    enable;
    gtpv1-pci-disable;
    gtpv1-pvi-disable;
}
service-mode maintenance;
service-selection-profiles {
    profile-name {
        term name {
            from {
                anonymous-user;
                domain-name domain-name;
                charging-characteristics charging-characteristics;
                imei imei;
                imsi imsi;
                maximum-bearers maximum-bearers;
                msisdn msisdn;
                pdn-type (ipv4 | ipv4v6 | ipv6);
                peer peer;
                peer-routing-instance peer-routing-instance;
                plmn {
                    except;
                    mcc mcc mnc mnc;
                }
                rat-type (eutran | geran | hspa | utran | wlan);
                roaming-status (home | roamer | visitor);
            }
            then {
                accept;
                apn-name apn-name;
                charging-profile charging-profile;
```


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```
                pcef-profile pcef-profile;
                redirect-peer redirect-peer;
                reject;
            }
        }
    }
}
software-datapath {
    traceoptions {
        file filename {
            files files;
            match match;
            size size;
            (no-world-readable | world-readable);
        }
        flag {
            flag;
        }
        level level;
        no-remote-trace;
    }
}
system {
    pfes {
        [interface interface-name];
    }
    service-pics {
        [interface interface-name];
    }
    session-pics {
        [interface interface-name];
    }
}
traceoptions {
    file filename {
        files files;
        match match;
        (no-world-readable | world-readable);
        size size;
    }
    flag {
        flag;
    }
    level level;
    no-remote-trace;
}
}
```

Related Documentation

- [edit unified-edge gateways] Hierarchy Level on page 17
- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge gateways sgw <gateway-name>] Hierarchy Level

```
sgw gateway-name {
```

```
anchor-pfe-default-bearers-percentage default-bearers-percentage;
anchor-pfe-guaranteed-bandwidth anchor-pfe-guaranteed-bandwidth;
anchor-pfe-maximum-bearersmaximum-bearers;
call-rate-statistics {
  history history;
  interval interval;
}
charging {
  cdr-profiles profile-name {
    description string;
    enable-reduced-partial-cdrs;
    exclude-attributes {
      apn-ni;
      apn-selection-mode;
      cc-selection-mode;
      dynamic-address;
      list-of-service-data;
      list-of-traffic-volumes;
      lrsn;
      ms-time-zone;
      network-initiation;
      node-id;
      pdn-connection-id;
      pdppdn-type;
      pgw-address-used;
      pgw-plmn-identifier;
      ps-furnish-info;
      rat-type;
      record-sequence-number;
      served-imeisv;
      served-msisdn;
      served-pdppdn-address;
      served-pdp-address-extension;
      serving-node-plmn-identifier;
      sgw-change;
      start-time;
      stop-time;
      user-location-information;
    }
    node-id (hostname | hostname-spic | ipaddress-spic);
    report-requested-apn;
  }
  charging-profiles profile-name {
    cdr-profile profile-name;
    default-rating-group rg-num;
    default-service-id id-num;
    description string;
    profile-id id-num;
    service-mode maintenance;
    transport-profile profile-name;
    trigger-profile profile-name {
      rating-group [value];
    }
  }
  global-profile {
    default-profile default-profile;
```


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```
    home-profile home-profile;
    profile-selection-order [profile-selection-method];
    roamer-profile roamer-profile;
    visitor-profile visitor-profile;
  }
  gtpp {
    destination-port port-number;
    down-detect-time duration;
    echo-interval duration;
    header-type (long | short);
    n3-requests requests;
    no-path-management;
    pending-queue-size value;
    peer peer-name {
      destination-ipv4-address address;
      destination-port port-number;
      down-detect-time duration;
      echo-interval duration;
      header-type (long | short);
      n3-requests requests;
      no-path-management;
      pending-queue-size value;
      reconnect-time duration;
      source-interface interface-name [ipv4-address address];
      t3-response response-interval;
      transport-protocol (tcp | udp);
      version (v0 | v1 | v2);
    }
    reconnect-time duration;
    source-interface {
      interface-name;
      ipv4-address address;
    }
    t3-response response-interval;
    transport-protocol (tcp | udp);
    version (v0 | v1 | v2);
  }
  local-persistent-storage-options {
    cdrs-per-file value;
    disable-replication;
    disk-space-policy {
      watermark-level-1 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
      watermark-level-2 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
      watermark-level-3 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
    }
    file-age {
      age;
```

```
        disable;
      }
      file-creation-policy (shared-file | unique-file);
      file-format (3gpp | raw-asn);
      file-name-private-extension string;
      file-size {
        size;
        disable;
      }
      traceoptions {
        file file-name <files number> <match regular-expression> <no-world-readable |
          world-readable> <size size>;
        flag flag;
        level (all | critical | error | info | notice | verbose | warning);
        no-remote-trace;
      }
      user-name string;
      world-readable;
    }
    traceoptions {
      file {
        file-name;
        files number;
        size size
        (no-world-readable | world-readable);
      }
      flag flag;
      level (all | critical | error | info | notice | verbose | warning);
      no-remote-trace;
    }
    transport-profiles profile-name {
      description string;
      offline {
        charging-function-name function-name;{
        charging-gateways {
          cdr-aggregation-limit value;
          cdr-release (r7 | r8 | r9 | r99);
          mtu value;
          peer-order {
            [peer charging-gateway-peer-name];
          }
          persistent-storage-order {
            local-storage;
          }
          switch-back-time seconds;
        }
        container-limit value;
      }
      service-mode maintenance;
    }
    trigger-profiles profile-name {
      description string;
      offline {
        exclude {
          ms-timezone-change;
          plmn-change;
```


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```
            qos-change;
            rat-change;
            sgsn-mme-change;
            user-location-change;
          }
          sgsn-mme-change-limit value;
          time-limit value;
          volume-limit {
            value;
            direction (both | uplink);
          }
        }
        tariff-time-list {
          tariff-time;
        }
      }
    }
    gtp {
      control {
        ddn-delay-sync (disable | enable);
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-classclass-name;
        interface {
          interface-name;
          v4-addressv4-address;
        }
        n3-requests requests;
        no-response-cache;
        path-management (disable | enable);
        response-cache-timeoutt interval-in-seconds;
        t3-response response-interval;
        ttl-value ttl-value;
      }
      data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        error-indication-interval seconds;
        indirect-tunnel (disable | enable);
        interface {
          interface-name;
          v4-addressv4-address;
        }
        num-gtpu-end-markers num-gtpu-end-markers;
        path-management (disable | enable);
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-addressv4-address;
      }
```

```
n3-requests requests;
path-management (disable | enable);
peer-history number;
s11 {
   dscp-code-point value;
   echo-interval interval;
   echo-n3-requests requests;
   echo-t3-response response-interval;
   forwarding-classclass-name;
   interface {
      interface-name;
      v4-addressv4-address;
   }
   n3-requests requests;
   path-management (disable | enable);
   t3-response response-interval;
   ttl-value ttl-value;
}
s12 {
   echo-interval interval;
   echo-n3-requests requests;
   echo-t3-response response-interval;
   interface {
      interface-name;
      v4-addressv4-address;
   }
   path-management (disable | enable);
}
s1u {
   echo-interval interval;
   echo-n3-requests requests;
   echo-t3-response response-interval;
   interface {
      interface-name;
      v4-addressv4-address;
   }
   path-management (disable | enable);
}
s4 {
   control {
      dscp-code-point value;
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      forwarding-classclass-name;
      interface {
         interface-name;
         v4-addressv4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
      ttl-value ttl-value;
   }
   data {
      echo-interval interval;
```


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```
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
          interface-name;
          v4-addressv4-address;
        }
        path-management (disable | enable);
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-addressv4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    s5 {
      control {
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-classclass-name;
        interface {
          interface-name;
          v4-addressv4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
        ttl-value ttl-value;
      }
      data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
          interface-name;
          v4-addressv4-address;
        }
        path-management (disable | enable);
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-addressv4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
```

```
    s8 {
      control {
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-classclass-name;
        interface {
          interface-name;
          v4-addressv4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
        ttl-value ttl-value;
      }
      data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
          interface-name;
          v4-addressv4-address;
        }
        path-management (disable | enable);
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-addressv4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    t3-response response-interval;
    traceoptions {
      file filename {
        files files;
        (no-world-readable | world-readable);
        size size;
      }
      flag {
        flag;
      }
      level level;
      no-remote-trace;
    }
  }
  home-plmn {
    [mcc mcc mnc mnc];
  }
  idle-mode-buffering {
    disable;
```


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```
        expire-timer time-in-seconds;
    }
    inline-services {
        ip-reassembly {
            service-set {
                service-set-name;
            }
        }
    }
    ip-reassembly-profile {
        profile-name;
    }
    local-policy-profile local-policy-profile;
    maximum-bearers maximum-bearers;
    preemption {
        enable;
    }
    remote-delete-on-peer-fail;
    service-mode
    software-datapath {
        traceoptions {
            file filename {
                files files;
                match match;
                size size;
                (no-world-readable | world-readable);
            }
            flag {
                flag;
            }
            level level;
            no-remote-trace;
        }
    }
    system {
        pfes {
            [interface interface-name];
        }
        session-pics {
            [interface interface-name];
        }
    }
    traceoptions {
        file filename {
            files files;
            match match;
            (no-world-readable | world-readable);
            size size;
        }
        flag {
            flag;
        }
        level level;
        no-remote-trace;
    }
}
```

Related Documentation

- [edit unified-edge gateways] Hierarchy Level on page 17
- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge local-policies] Hierarchy Level

```
unified-edge {
  local-policies {
    policy-name {
      cos-policy-profile name;
      classifier-profile name;
      description description;
      dl-bandwidth-pool name;
      resource-threshold-profile name;
      roamer-classifier-profile name;
      roamer-cos-policy-profile name;
      ul-bandwidth-pool name;
      visitor-classifier-profile  name;
      visitor-cos-policy-profile name;
    }
  }
}
```

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11
- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge mobile-options] Hierarchy Level

```
unified-edge {
  mobile-options {
    traceoptions {
      file filename {
        files files;
        match match;
        (no-world-readable | world-readable);
        size size;
      }
      flag {
        flag;
      }
      no-remote-trace;
    }
  }
}
```

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11
- Notational Conventions Used in Junos OS Configuration Hierarchies

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[edit unified-edge pcef] Hierarchy Level

```
unified-edge {
  pcef {
    event-trigger-profiles profile-name {
      ip-can-change;
      plmn-change;
      rai-change;
      rat-change;
      sgsn-change;
      tft-change;
      ue-timezone-change;
      user-location-change;
    }
    flow-descriptions flow-identifier {
      direction (uplink | downlink | both);
      local-port-range {
        low lower-boundary high upper-boundary;
      }
      local-ports number;
      no-send-to-ue;
      protocol number;
      remote-address;
      remote-port-range {
        low lower-boundary high upper-boundary;
      }
      remote-ports number;
    }
    pcc-action-profiles profile-name {
      allocation-retention-priority {
        preemption-capability (enable | disable);
        preemption-vulnerability (enable | disable);
        priority-level value;
      }
      charging {
        application-function-record-info {
          af-charging-identifier identifier;
        }
        charging-method (online |offline | online-offline | none);
        measurement-method (volume | time | volume-time | event);
        rating-group number;
        service-identifier number;
        service-id-level-reporting;
      }
      gate-status (uplink | downlink | uplink-downlink | disable-both);
      guaranteed-bit-rate uplink value downlink value;
      maximum-bit-rate uplink value downlink value;
      qci value;
    }
    pcc-rules rule-name {
      from {
        application-groups [application-name];
        applications [application-name];
        flows [flow-identifier];
```

```
            nested-applications [application-name];
          }
          then {
            pcc-action-profiles profile-name;
          }
        }
        pcc-rulebases rulebase-name {
        [pcc-rule rule-name number];
        profiles profile-name {
          dynamic-policy-control {
            diameter-profile gx-profile-name;
            event-trigger-profile profile-name;
            failure-handling {
              failure-action (continue | continue-and-retry | terminate);
              pcc-rules pcc-rule-name precedence precedence-number;
              pcc-rulebases pcc-rulebase-name;
            }
            pcc-rulebases [rulebase-name];
            pcc-rules [rule-name precedence-number];
            release (r8 | r9);
            session-failover-not-supported;
          }
          static-policy-control {
            activate-dedicated-bearers [[qci-value]];
            pcc-rules [rule-name number];
            pcc-rulebases [rulebase-name];
          }
        }
      }
    }
```

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11
- Notational Conventions Used in Junos OS Configuration Hierarchies

[edit unified-edge resource-management] Hierarchy Level

```
unified-edge {
  resource-management {
    client {
      traceoptions {
        file filename {
          files files;
          match match;
          (no-world-readable | world-readable);
          size size;
        }
        flag {
          flag;
        }
        no-remote-trace;
      }
    }
    server {
      traceoptions {
```


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```
            file filename {
                files files;
                match match;
                (no-world-readable | world-readable);
                size size;
            }
            flag {
                flag;
            }
            no-remote-trace;
        }
    }
  }
}
```

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11
- Notational Conventions Used in Junos OS Configuration Hierarchies

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CHAPTER 2

AAA Configuration Statements

aaa

Syntax

```
aaa {
  traceoptions {
  }
  mobile-profiles {
    map-name {
      radius {
        authentication {
          network-element name;
        }
        accounting {
          network-element name;
            network-element-group group-name;
            stop-on-failure;
            stop-on-access-deny;
          send-accounting-on;
          trigger {
            interim-interval minutes;
              no-cos-change;
              no-deferred-ipv4-address-update;
              no-ms-timezone-change;
              no-plmn-change;
              no-rat-change;
              no-sgw-change;
              no-user-location-information-change;
            }
        }
        options {
          nas-identifier-prefix identifier-value;
        }
        attributes {
          ignore {
            output-filter;
              framed-ip-netmask;
            input-filter;
          }
          exclude {
            accounting-authentic [accounting-start | accounting-interim | accounting-stop];
              accounting-delay-time [accounting-start | accounting-interim |
                accounting-stop];
              accounting-terminate-cause [accounting-stop];
              all-3gpp [access-request | accounting-start | accounting-stop |
                accounting-interim];
              called-station-id [access-request | accounting-start | accounting-interim |
                accounting-stop];
              calling-station-id [access-request | accounting-start | accounting-interim |
                accounting-stop];
              cg-address [access-request | accounting-start | accounting-stop |
                accounting-interim];
              event-timestamp [accounting-start | accounting-interim | accounting-stop];
              imeisv [access-request | accounting-start];
              imsi [access-request | accounting-start | accounting-stop | accounting-interim];
```


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```
                imsi-mcc-mnc [access-request | accounting-start | accounting-stop |
                  accounting-interim];
                input-filter [accounting-start | accounting-stop];
                input-gigapackets [accounting-interim | accounting-stop];
                input-gigawords [accounting-stop];
                nas-identifier [access-request | accounting-start | accounting-interim |
                  accounting-stop];
                nas-ip-address [access-request |
                  accounting-on|accounting-off|accounting-start | accounting-interim |
                  accounting-stop];
                nas-port [access-request | accounting-start | accounting-stop];
                nas-port-id [access-request | accounting-start | accounting-interim |
                  accounting-stop];
                nas-port-type [access-request];
                output-filter [accounting-start | accounting-stop];
                output-gigapackets [accounting-interim | accounting-stop];
                output-gigawords [accounting-stop];
                sgsn-mcc-mnc [access-request | accounting-start | accounting-interim |
                  accounting-stop];
              user-location-info [access-request | accounting-start | accounting-stop |
                accounting-interim];
            }
          }
        }
      }
    }
  }
```

Hierarchy Level [edit unified-edge]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the authentication, authorization, and accounting (AAA) services provided using groups of external RADIUS servers. The Broadband Gateway supports a framework for providing AAA services to mobile subscribers.

Options The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*

accounting

Syntax

```
accounting {
  network-element name;
    network-element-groupgroup-name;
    stop-on-failure;
    stop-on-access-deny;
  send-accounting-on;
  trigger {
    no-cos-change;
      no-deferred-ipv4-address-update;
      no-ms-timezone-change;
      no-plmn-change;
      no-rat-change;
      no-sgw-change;
      no-user-location-information-change;
    }
}
```

Hierarchy Level

[edit unified-edge aaa mobile-profiles *map-name* radius]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify RADIUS accounting-related parameters. You can specify either the network element or the network element group to which the accounting requests are sent. In addition, the triggers that can initiate interim accounting records to be sent can be controlled.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- radius on page 64

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accounting-port

Syntax accounting-port *port-number*;

Hierarchy Level [edit access profile *profile-name* radius-server *server-address*],
[edit access radius-server *server-address*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the port number on which to contact the accounting server.

Options ***port-number***—Port number on which to contact the accounting server. Most RADIUS servers use port number 1813 (as specified in RFC 2866).

Required Privilege Level admin—To view this statement in the configuration.
admin-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

accounting-secret

Syntax accounting-secret *password*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the **secret** password to be used when sending accounting requests to the RADIUS server. If the **secret** password is different from the authentication secret password, specify the **accounting secret** by using this option.

Default Use the same password used for authentication requests.

Options ***password***—Password for accounting requests.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

address

Syntax address *address*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the IPv4 address of the RADIUS server to which the authentication and accounting requests are sent.

Options ***address***—IPv4 address of the RADIUS server.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

algorithm

Syntax algorithm *(direct | round-robin)*;

Hierarchy Level [edit access radius network-elements *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify an algorithm to decide which RADIUS server is used for the next request.

Options ***direct***—Default method in which there is no load balancing. The gateway always uses the highest-priority server to send requests. The other servers are used as backup.

round-robin—This method provides for load balancing in which the gateway sends requests to different high-priority servers in a rotating fashion. Lower-priority servers are used as backup.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- network-elements on page 60

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allow-dynamic-requests

Syntax allow-dynamic-requests;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify this option to receive dynamic requests from the RADIUS server.

NOTE: If you allow dynamic requests from this RADIUS server, the combination of the address and source interface must be unique so that only one RADIUS server in the same VRF can be associated with any incoming dynamic requests.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- servers on page 68

attributes

Syntax

```
attributes {
  ignore {
    output-filter;
      framed-ip-netmask;
    input-filter;
  }
  exclude {
    accounting-authentic [accounting-start | accounting-interim | accounting-stop];
      accounting-delay-time [accounting-start | accounting-interim | accounting-stop];
      accounting-terminate-cause [accounting-stop];
      all-3gpp [access-request | accounting-start | accounting-stop | accounting-interim];
      called-station-id [access-request | accounting-start | accounting-interim |
        accounting-stop];
      calling-station-id [access-request | accounting-start | accounting-interim |
        accounting-stop];
      cg-address [access-request | accounting-start | accounting-stop | accounting-interim];
      event-timestamp [accounting-start | accounting-interim | accounting-stop];
      imeisv [access-request | accounting-start];
      imsi [access-request | accounting-start | accounting-stop | accounting-interim];
      imsi-mcc-mnc [access-request | accounting-start | accounting-stop |
        accounting-interim];
      input-filter [accounting-start | accounting-stop];
      input-gigapackets [accounting-interim | accounting-stop];
      input-gigawords [accounting-stop];
      nas-identifier [access-request | accounting-start | accounting-interim |
        accounting-stop];
      nas-ip-address [access-request | accounting-on|accounting-off|accounting-start |
        accounting-interim | accounting-stop];
      nas-port [access-request | accounting-start | accounting-stop];
      nas-port-id [access-request | accounting-start | accounting-interim | accounting-stop];
      nas-port-type [access-request];
      output-filter [accounting-start | accounting-stop];
      output-gigapackets [accounting-interim | accounting-stop];
      output-gigawords [accounting-stop];
      sgsn-mcc-mnc [access-request | accounting-start | accounting-interim |
        accounting-stop];
    user-location-info [access-request | accounting-start | accounting-stop |
      accounting-interim];
  }
}
```

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the RADIUS attributes to be ignored by the broadband gateway in Access-Accept messages that the AAA profile receives. You can also specify which RADIUS attributes must be excluded by the gateway from specific types of RADIUS messages that the AAA profile generates.

The remaining statements are explained separately.

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Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- radius on page 64

authentication

Syntax

```
authentication {
   network-element name;
}
```

Hierarchy Level
[edit unified-edge aaa mobile-profiles *map-name* radius]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.

Description
Specify the network element to be used for authentication. If the network element is not specified, authentication requests for the access point name (APN) pointing to that profile is not be triggered.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- radius on page 64

authentication-port

Syntax
authentication-port *port-number*;

Hierarchy Level
[edit access radius servers *server-name*]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.

Description
Specify the port number to which the RADIUS authentication requests are sent.

Default
The default port number is 1812.

Options
port-number—Port number to which the RADIUS authentication requests are sent.

Required Privilege Level
access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

dead-criteria-retries

Syntax dead-criteria retries *retry-number* interval *seconds*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Release 11.2.

Description Specify the criteria used to mark a RADIUS server dead. If the number of retries exceeds the *retry-number* within an interval of *seconds*, then the RADIUS server is marked dead.

Default If this attribute value is not specified, then the dead server detection option is disabled.

Options ***retry-number***—Number of retries with set values.

seconds—Time interval in seconds.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

dynamic-requests-secret

Syntax dynamic-requests-secret *password*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the secret password used for dynamic requests. The secret password has to be specified to receive dynamic requests from the RADIUS server.

Default Use the same password that is used for authentication requests.

Options ***password***—Password for dynamic requests.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

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exclude (RADIUS)

Syntax

```
exclude {
  accounting-authentic [accounting-start | accounting-interim | accounting-stop];
  accounting-delay-time [accounting-start | accounting-interim | accounting-stop];
  accounting-terminate-cause [accounting-stop];
  all-3gpp [access-request | accounting-start | accounting-stop | accounting-interim];
  called-station-id [access-request | accounting-start | accounting-interim | accounting-stop];
  calling-station-id [access-request | accounting-start | accounting-interim |
    accounting-stop];
  charging-id [access-request | accounting-interim | accounting-start | accounting-stop];
  event-timestamp [accounting-start | accounting-interim | accounting-stop];
  ggsn-address [access-request | accounting-interim | accounting-start | accounting-stop];
  gprs-negotiated-qos [access-request | accounting-interim | accounting-start |
    accounting-stop];
  imeisv [access-request | accounting-start];
  imsi [access-request | accounting-start | accounting-stop | accounting-interim];
  imsi-mcc-mnc [access-request | accounting-start | accounting-stop | accounting-interim];
  input-gigapackets [accounting-interim | accounting-stop];
  input-gigawords [accounting-interim | accounting-stop];
  input-packets [accounting-interim | accounting-stop];
  nas-identifier [access-request | accounting-interim | accounting-start |accounting-stop];
  nas-ip-address [access-request | accounting-on |accounting-off | accounting-start |
    accounting-interim | accounting-stop];
  nas-port-type [access-request | accounting-interim | accounting-start | accounting-stop];
  nsapi [access-request | accounting-interim | accounting-start | accounting-stop];
  output-gigapackets [accounting-interim | accounting-stop];
  output-gigawords [accounting-interim | accounting-stop];
  output-packets [accounting-interim | accounting-stop];
  selection-mode [access-request | accounting-interim | accounting-start | accounting-stop];
  sgsn-mcc-mnc [access-request | accounting-start | accounting-interim | accounting-stop];
  user-location-info [access-request | accounting-start | accounting-stop |
    accounting-interim];
}
```

Hierarchy Level

[edit unified-edge aaa mobile-profiles *map-name* radius attributes]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support for the **charging-id**, **ggsn-address**, **gprs-negotiated-qos**, **nsapi**, and **selection-mode** attributes introduced in Junos OS Mobility Release 11.4W.

Description

Configure the gateway to exclude the specified attributes from the specified type of RADIUS message.

Not all attributes are available in all types of RADIUS messages. By default, the gateway includes the specified attributes in RADIUS Access-Request, Acct-On, Acct-Off, Acct-Start, and Acct-Stop messages.

Options

RADIUS attribute type—RADIUS attribute or Juniper Networks VSA number and name.

- **accounting-authentic**—Exclude the RADIUS attribute 45, Acct-Authentic.
- **accounting-delay-time**—Exclude the RADIUS attribute 41, Acct-Delay-Time.

- **accounting-terminate-cause**—Exclude the RADIUS attribute 49, Acct-Terminate-Cause.
- **all-3gpp**—Exclude all 3GPP attributes.
- **called-station-id**—Exclude the RADIUS attribute 30, Called-Station-ID.
- **calling-station-id**—Exclude the RADIUS attribute 31, Calling-Station-ID.
- **charging-id**—Exclude the RADIUS attribute 3GPP VSA 26-2, 3GPP-CHARGING-ID.
- **event-timestamp**—Exclude the RADIUS attribute 55, Event-Timestamp.
- **ggsn-address**—Exclude the RADIUS attribute 3GPP VSA 26-7, 3GPP-GGSN-ADDRESS.
- **gprs-negotiated-qos**—Exclude the RADIUS attribute 3GPP VSA 26-5, 3GPP-GPRS-NEG-QOS.
- **imeisv**—Exclude the 3GPP-IMEISV attribute from the access-request or accounting-start request sent to the RADIUS server.
- **imsi**—Exclude the 3GPP-IMSI attribute from the requests sent to the RADIUS server.
- **imsi-mcc-mnc**—Exclude the RADIUS attribute 3GPP VSA 26-8, 3GPP-IMSI-MCC-MNC.
- **input-gigapackets**—Exclude the RADIUS attribute 26-42, Acct-Input-Gigapackets.
- **input-gigawords**—Exclude the RADIUS attribute 52, Acct-Input-Gigawords.
- **input-packets**—Exclude the RADIUS attribute 47, Acct-Input-Packets.
- **nas-identifier**—Exclude the RADIUS attribute 32, NAS-identifier.
- **nas-ip-address**—Exclude the RADIUS attribute, NAS-IP-address.
- **nas-port-type**—Exclude the RADIUS attribute 61, NAS-Port-Type.
- **nsapi**—Exclude the RADIUS attribute 3GPP VSA 26-10, 3GPP-NSAPIe.
- **output-gigapackets**—Exclude the RADIUS attribute 26-43, Acct-Output-Gigapackets.
- **output-gigawords**—Exclude the RADIUS attribute 53, Acct-Output-Gigawords.
- **output-packets**—Exclude the RADIUS attribute 48, Acct-Output-Packets.
- **selection-mode**—Exclude the RADIUS attribute 3GPP VSA 26-12, 3GPP-SELECTION-MODE.
- **sgsn-mcc-mnc**—Exclude the SGSN-MCC-MNC attribute from the requests sent to the RADIUS server.
- **user-location-info**—Exclude the RADIUS attribute 3GPP VSA 26-22, 3GPP-USER-LOCATION-INFO.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- attributes on page 50

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ignore

Syntax

```
ignore {
   output-filter;
   framed-ip-netmask;
   input-filter;
}
```

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius attributes]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure so that the specified attribute in RADIUS Access-Accept messages is ignored.

Options

output-filter— Ignore this attribute in the Access-Accept message.

framed-ip-netmask—Ignore this attribute in the Access-Accept message.

input-filter—Ignore this attribute in the Access-Accept message.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- attributes on page 50

maximum-pending-reqs-limit

Syntax maximum-pending-reqs-limit *number*;

Hierarchy Level [edit access radius network-elements *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the maximum number of requests that can be queued to the network element. When the pending request queue is full, any additional requests are dropped. If the number of pending requests reaches 80 percent of the maximum, a **flow control on** message is generated. When the number of pending requests subsequently drops to 60 percent of the maximum, a **flow control off** message is generated.

Options ***number***—Maximum number of pending requests.

Required Privilege Level
access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- network-elements on page 60

mobile-profiles

Syntax

```
mobile-profiles {
  map-name {
    radius {
      authentication {
        network-element name;
      }
      accounting {
        network-element name;
          network-element-group group-name;
          stop-on-failure;
          stop-on-access-deny;
        send-accounting-on;
        trigger {
          no-rat-change;
            no-sgw-change;
            no-cos-change;
            interim-interval minutes;
            no-plmn-change;
            no-user-location-information-change;
            no-ms-timezone-change;
            no-deferred-ipv4-address-update;
          }
      }
      options {
        nas-identifier-prefix identifier-value;
      }
      attributes {
        ignore {
          output-filter;
            framed-ip-netmask;
          input-filter;
        }
        exclude {
          accounting-authentic [accounting-start | accounting-interim | accounting-stop];
            accounting-delay-time [accounting-start | accounting-interim | accounting-stop];
            accounting-terminate-cause [accounting-stop];
            all-3gpp [access-request | accounting-start | accounting-stop |
              accounting-interim];
            called-station-id [access-request | accounting-start | accounting-interim |
              accounting-stop];
            calling-station-id [access-request | accounting-start | accounting-interim |
              accounting-stop];
            cg-address [access-request | accounting-start | accounting-stop |
              accounting-interim];
            event-timestamp [accounting-start | accounting-interim | accounting-stop];
            imeisv [access-request | accounting-start];
            imsi [access-request | accounting-start | accounting-stop | accounting-interim];
            imsi-mcc-mnc [access-request | accounting-start | accounting-stop |
              accounting-interim];
            input-filter [accounting-start | accounting-stop];
            input-gigapackets [accounting-interim | accounting-stop];
            input-gigawords [accounting-stop];
```


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```
                nas-identifier [access-request | accounting-start | accounting-interim |
                  accounting-stop];
                nas-ip-address [access-request | accounting-on|accounting-off|accounting-start
                  | accounting-interim | accounting-stop];
                nas-port [access-request | accounting-start | accounting-stop];
                nas-port-id [access-request | accounting-start | accounting-interim |
                  accounting-stop];
                nas-port-type [access-request];
                output-filter [accounting-start | accounting-stop];
                output-gigapackets [accounting-interim | accounting-stop];
                output-gigawords [accounting-stop];
                sgsn-mcc-mnc [access-request | accounting-start | accounting-interim |
                  accounting-stop];
              user-location-info [access-request | accounting-start | accounting-stop |
                accounting-interim];
            }
          }
        }
      }
    }
```

Hierarchy Level [edit unified-edge aaa]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the sections under mobile-profiles that control the access and accounting request information sent to the RADIUS server. It also contains sections to specify the network element or network element group to which the request must be sent.

Options The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- aaa on page 44

network-element

Syntax network-element *name*;

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius accounting]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the network element to be used for accounting. If the accounting network element is not specified, accounting requests for the access point name pointing to that profile is not be triggered.

Options ***name***—Name of the network element.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- accounting on page 46

network-element-group

Syntax network-element-group *group-name*;

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius accounting]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the network element group used for accounting. The network element group allows to send the same accounting record to multiple RADIUS network elements. You can specify either a network element or a network element group for accounting.

Options ***group-name***—Name of the network element group.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- accounting on page 46

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network-element-groups

Syntax

```
network-element-groups name {
    network-element name {
      mandatory;
      }
      broadcast;
    }
  }
```

Hierarchy Level [edit access radius]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure a group of network elements. A network element group can have a maximum of four network elements. You can optionally configure the broadcast attribute in a network element. However, if broadcast is configured, then there should be a minimum of one network element that is flagged as mandatory. Network element-groups are used for accounting records and is used only for accounting in the AAA profile.

Options

mandatory—Indicates that a response is mandatory from a specified network element before any services can be provided to the subscriber.

broadcast—Broadcasts the accounting messages to all of the network elements in the group. If you configure the broadcast parameter, you should specify the mandatory parameter for at least one of the network elements in the group.

name—Name of the network element group.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- radius on page 62

network-elements

Syntax

```
network-elements name {
        server name {
           priority priority;
        }
      algorithm ( direct | round-robin);
        maximum-pending-reqs-limit number;
      }
    }
```

Hierarchy Level [edit access radius]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify a network element that is a load-balanced group of RADIUS servers providing authentication, authorization, and accounting services for mobile subscribers accessing an APN. The RADIUS servers have two priorities: 1 or 2. You can have multiple servers with the same priority in a network element. All requests are sent to the highest priority server in the network element based on the algorithm (direct or round-robin).

Options ***name***—Name of the network element.

priority—Relative priority for the first server.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- radius on page 62

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options

Syntax

```
options {
  nas-identifier-prefix identifier-value
    nas-ip-address gw-address;
  nas-port-type type;
}
```

Hierarchy Level

[edit unified-edge aaa mobile-profiles *map-name* radius]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the attributes that are included as part of different request messages sent to the RADIUS server.

Options

nas-identifier-prefix *identifier-value*—Specify the prefix that is used in the NAS identifier attribute. Each services PIC appends a unique suffix and that appended value will be used as the NAS identifier in the RADIUS requests.

nas-ip-address *gw-address*—The IP address to be used for the NAS IP address attribute when sending the requests to the RADIUS server.

nas-port-type *type*—The NAS port type (wireless or virtual) that is used in RADIUS requests.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- radius on page 64

radius (Access)

Syntax

```
radius {
  traceoptions {
    file radius;
      flag send-detail;
      flag recv-detail;
      level all;
      server {
        server name;
      }
    }
  servers server-name {
      address address;
        source-interface interface {
          ipv4-address address;
        }
        accounting-port port-number;
        accounting-secret password;
        allow-dynamic-requests ;
        authentication-port port-number;
        dead-criteria retries retry-number interval seconds;
        dynamic-requests-secret password;
        retry attempts;
        revert-interval time;
        secret password;
        timeout seconds;
      }
    }
  network-elements name {
        server name {
          priority priority ;
        }
      algorithm ( direct | round-robin);
        maximum-pending-reqs-limit number ;
      }
    }
  network-element-groups name {
      network-element name {
        mandatory;
        }
        broadcast;
      }
    }
}
```

Hierarchy Level [edit access]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify multiple RADIUS servers with their attributes. The RADIUS servers are distinguished by unique names. You can also group a set of RADIUS servers into a network element. A network element is a load-balanced group of RADIUS servers that provides authentication, authorization, and accounting services for mobile subscribers accessing

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an access point name. Additionally, you can group a set of network elements into a network element-group.

Options

name—Name of the server.

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*

radius

Syntax

```
radius {
  authentication {
    network-element name;
  }
  accounting{
    network-element name;
      network-element-groupgroup-name;
      stop-on-failure;
      stop-on-access-deny;
    send-accounting-on;
    trigger {
      no-rat-change;
        no-sgw-change;
        no-cos-change;
        interim-interval minutes;
        no-plmn-change;
        no-user-location-information-change;
        no-ms-timezone-change;
        no-deferred-ipv4-address-update;
      }
  }
  options {
    nas-identifier-prefix identifier-value;
  }
  attributes {
    ignore {
      output-filter;
        framed-ip-netmask;
      input-filter;
    }
    exclude {
      accounting-authentic [accounting-start | accounting-interim | accounting-stop];
        accounting-delay-time [accounting-start | accounting-interim | accounting-stop];
        accounting-terminate-cause [accounting-stop];
        all-3gpp [access-request | accounting-start | accounting-stop | accounting-interim];
        called-station-id [access-request | accounting-start | accounting-interim |
          accounting-stop];
        calling-station-id [access-request | accounting-start | accounting-interim |
          accounting-stop];
        cg-address [access-request | accounting-start | accounting-stop |
          accounting-interim];
        event-timestamp [accounting-start | accounting-interim | accounting-stop];
        imeisv [access-request | accounting-start];
        imsi [access-request | accounting-start | accounting-stop | accounting-interim];
        imsi-mcc-mnc [access-request | accounting-start | accounting-stop |
          accounting-interim];
        input-filter [accounting-start | accounting-stop];
        input-gigapackets [accounting-interim | accounting-stop];
        input-gigawords [accounting-stop];
        nas-identifier [access-request | accounting-start | accounting-interim |
          accounting-stop];
```


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```
            nas-ip-address [access-request | accounting-on|accounting-off|accounting-start |
              accounting-interim | accounting-stop];
            nas-port [access-request | accounting-start | accounting-stop];
            nas-port-id [access-request | accounting-start | accounting-interim |
              accounting-stop];
            nas-port-type [access-request];
            output-filter [accounting-start | accounting-stop];
            output-gigapackets [accounting-interim | accounting-stop];
            output-gigawords [accounting-stop];
            sgsn-mcc-mnc [access-request | accounting-start | accounting-interim |
              accounting-stop];
          user-location-info [access-request | accounting-start | accounting-stop |
            accounting-interim];
        }
      }
    }
```

Hierarchy Level [edit unified-edge]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify multiple RADIUS servers with their attributes. The RADIUS servers are distinguished with unique names.

Options The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- aaa on page 44

retry

Syntax retry *attempts*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the number of attempts that the gateway is allowed to contact a RADIUS authentication or accounting server when it does not receive a response to its initial request.

Options ***attempts***—Number of attempts that the gateway is allowed to contact a RADIUS server.

Range: 1 through 10

Default: 3

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

revert-interval

Syntax revert-interval *time*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the amount of time the gateway waits after a server has become unreachable. After the configured time, the server is marked active and is used to send requests in accordance with its order and priority in the network element.

Options ***time***—Duration after which a dead server is marked active.

Default: 300 seconds

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

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secret

Syntax secret *password*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify a default password to be used for authentication or accounting. This is a mandatory statement.

Options ***password***—Password to use.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*

send-accounting-on

Syntax send-accounting-on;

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius accounting]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure different services PICs to send the accounting on the RADIUS message to the accounting network element on initialization. If this attribute is not configured, the accounting on the message is not sent by default.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- accounting on page 46

servers

Syntax

```
servers server-name {
    address address;
      source-interface interface {
        ipv4-address address;
      }
      accounting-port port-number;
      accounting-secret password;
      allow-dynamic-requests ;
      authentication-port port-number;
      dead-criteria retries retry-number interval seconds;
      dynamic-requests-secret password;
      retry attempts;
      revert-interval time;
      secret password;
      timeout seconds;
    }
  }
```

Hierarchy Level [edit access radius]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the RADIUS servers to which RADIUS authentication and accounting requests are sent when user equipment sessions are established.

Options *server-name*—Name of the server.

The remaining statements are explained separately.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- radius on page 62

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source-interface

Syntax source-interface *interface* [ipv4-address *address*];

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the source interface on the gateway from which the RADIUS requests are sent to the RADIUS server. This is a mandatory statement.

Options ***interface***—Source interface that sends the RADIUS packets.

address—IPv4 address of the RADIUS server.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

stop-on-access-deny

Syntax stop-on-access-deny;

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius accounting]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the gateway to send an accounting stop message when authentication fails for a user.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- accounting on page 46

stop-on-failure

Syntax stop-on-failure;

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius accounting]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the gateway to send an accounting stop message when the gateway fails to bring up the user equipment session.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- accounting on page 46

timeout

Syntax timeout *seconds*;

Hierarchy Level [edit access radius servers *server-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the amount of time that the gateway waits to receive a response from a RADIUS server before retrying the request.

Options ***seconds***—Amount of time to wait.
Range: 1 through 90 seconds
Default: 3 seconds

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Overview of AAA on the Broadband Gateway*
- servers on page 68

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traceoptions (RADIUS)

Syntax

```
traceoptions {
  file radius;
    flag send-detail;
    flag recv-detail;
    flag timeout;
    flag state;
    level all;
    server {
      server name;
    }
  }
```

Hierarchy Level [edit access radius]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Trace options related to RADIUS servers.

Options

file radius— Name of the file to receive the output of the tracing operation. The packets that are transmitted to and received from the RADIUS server are logged to the specified filename.

flag send-detail—All the attributes that are included in the RADIUS requests are logged to the specified file.

flag recv-detail—All the attributes that are included in the RADIUS response are logged to the file.

flag timeout—Set this flag to log events related to response timeouts.

flag state—Set this flag to trace the RADIUS server state changes.

level all—Various levels of information that can be logged, for example—debug, info, warning, and critical.

server—Server to be traced.

Required Privilege Level
access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- radius (Access) on page 62

traceoptions

Syntax

```
traceoptions {
   file filename;
   level all;
   flag ( init | config | general | request | response | high-availability | all);
}
```

Hierarchy Level [edit unified-edge aaa]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Define tracing operations for the AAA configuration.

Options

file *filename*— Name of the file to receive the output of the tracing operation. The packets that are transmitted to and received from the RADIUS server are logged to the specified filename.

level all—Various levels of information that can be logged, for example, debug, info, warning, and critical.

flag init—Trace initialization-related events.

flag config—Trace config-related events.

flag general—Trace general events.

flag request—Trace request-related events.

flag response—Trace response-related events.

flag high-availability—Trace high-availability-related events.

flag all—Trace all the flag-related events.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- aaa on page 44

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trigger

Syntax

```
trigger {
  no-cos-change;
    no-deferred-ipv4-address-update;
    no-ms-timezone-change;
    no-plmn-change;
    no-rat-change;
    no-sgw-change;
  no-user-location-information-change;
}
```

Hierarchy Level [edit unified-edge aaa mobile-profiles *map-name* radius accounting]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the conditions under which the interim accounting records are sent to the accounting servers. By default, the broadband gateway sends the interim accounting records when various trigger conditions are met.

If you want to suppress the gateway from sending the interim accounting records for certain trigger conditions, such trigger condition can be specified in the **trigger** statement. If you want to have the gateway send periodic interim accounting records, configure **interim-interval** statement. By default, all these triggers are enabled. To skip generating the interim accounting record, configure the appropriate statement. To generate periodic interim updates, you must configure **interim-interval** statement.

Options

interim-interval *minutes*—Set the gateway not to send the interim updates at the specified interval. If you do not set this option, periodic sent updates are not sent.

no-cos-change—Set the gateway not to send the accounting-interim update on a CoS change. If you do not set this option, the accounting-interim update is sent on a CoS change.

no-deferred-ipv4-address-update—Set the gateway not to send the accounting-interim update on a deferred IPv4 address update. If you do not set this option, the accounting-interim update is sent on a deferred IPv4 address update.

no-ms-timezone-change—Set the gateway not to send the accounting-interim update on an MS-Timezone change. If you do not set this option, the accounting-interim update is sent on an MS-Timezone change.

no-plmn-change—Set the gateway not to send the accounting-interim update on a PLMN change. If you do not set this option, the accounting-interim update is sent on a PLMN change.

no-rat-change—Set the gateway not to send the accounting-interim update on a RAT change. If you do not set this option, the accounting-interim update is sent on a RAT change.

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no-sgw-change—Set the gateway not to send the accounting-interim update on an S-GW change. If you do not set this option, the accounting-interim update is sent on an S-GW change.

no-user-location-information-change—Set the gateway not to send the accounting-interim update on a User Location Information change. If you do not set this option, the accounting-interim update is sent on a User Location Information change

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Overview of AAA on the Broadband Gateway*
- accounting on page 46

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CHAPTER 3

Address Assignment Configuration Statements

address-assignment (MobileNext Broadband Gateway)

Syntax

```
address-assignment {
  mobile-pool-groups {
    group-name {
      [pool-name];
    }
  }
  mobile-pools {
    name {
      ageing-window ageing-window;
      default-pool;
      family (inet | inet6) {
        network {
          [network-prefix] {
            allocation-prefix-length allocation-prefix-length;
            external-assigned;
            range {
              [name] {
                external-assigned;
                high high;
                low low;
              }
            }
          }
        }
      }
      pool-prefetch-threshold  pool-prefetch-threshold;
      pool-snmp-trap-threshold pool-snmp-trap-threshold;
      service-mode service-mode-options;
    }
  }
}
```

Hierarchy Level

[edit access],
[edit routing-instances *instance-name* access]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the mobile pools and mobile pool groups that are used by the broadband gateway to assign addresses to subscribers. You can configure both IPv4 and IPv6 mobile pools and mobile pool groups.

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- [edit access address-assignment] Hierarchy Level on page 4
- *Configuring Address Assignment on a Broadband Gateway APN*
- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*

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- *Example: Simple Unified Edge Configuration*
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

ageing-window (Mobile Pools)

Syntax ageing-window *ageing-window*;

Hierarchy Level [edit access address-assignment mobile-pools *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the time up to which IP addresses from the configured mobile pools should not be reused. Addresses from deleted packet data protocol (PDP) contexts or bearers are not reused by the broadband gateway until the time specified.

Default If you do not configure a value, then the default is used.

Options ***ageing-window***—Time, in seconds, up to which addresses should not be reused.

Range: 1 through 65,535 seconds

Default: 2 seconds

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- mobile-pools on page 83
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

allocation-prefix-length (Mobile Pools)

Syntax allocation-prefix-length *allocation-prefix-length*;

Hierarchy Level [edit access address-assignment mobile-pools *name* family inet network *network-prefix*],
[edit access address-assignment mobile-pools *name* family inet6 network *network-prefix*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet network *network-prefix*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet6 network *network-prefix*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the prefix length for address allocation in mobile pools. The allocation prefix length determines the size of the address allocation block (or chunk) assigned to each session PIC on the broadband gateway.

The default configuration for mobile pools is to assign 1024 addresses (prefix length 22 for IPv4 and 54 for IPv6) in each address allocation block. When the mobile pools are relatively small, the default configuration may not allow for all session PICs to be assigned an address block from which to allocate IP addresses. The prefix length specified using the **allocation-prefix-length** statement overrides the default prefix length. If the configured prefix length is smaller than the default prefix length, then this increases the chances that all session PICs are allocated an address block.

NOTE:

- If you configure this statement, then you cannot configure the external-assigned statement.
- The allocation prefix length cannot be less than the corresponding network prefix length. For example, if the network prefix length is 24 (for IPv4), the allocation prefix length cannot be 23 or 22.

Options ***allocation-prefix-length***—Prefix length for the address allocation.

Range:

- 32 (1 address) to 22 (1024 addresses) for IPv4 addresses
- 64 (1 address) to 54 (1024 addresses) for IPv6 addresses

Default:

- 22 (1024 addresses) for IPv4 addresses
- 54 (1024 addresses) for IPv6 addresses

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

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Related Documentation

- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- network (Mobile Pools) on page 84
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

default-pool (Mobile Pools)

Syntax

default-pool;

Hierarchy Level

[edit access address-assignment mobile-pools *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the mobile pool as a default pool. The broadband gateway uses the default pool to assign IP addresses to subscribers when a mobile pool or mobile pool group is not explicitly specified in the address assignment configuration for the access point name (APN).

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- address-assignment (APN) on page 128
- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- mobile-pools on page 83
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

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external-assigned (Mobile Pools)

Syntax

external-assigned;

Hierarchy Level

[edit access address-assignment mobile-pools *name* family inet network *network-prefix*],
[edit access address-assignment mobile-pools *name* family inet6 network *network-prefix*],
[edit access address-assignment mobile-pools *name* family inet network *network-prefix* range *name*],
[edit access address-assignment mobile-pools *name* family inet6 network *network-prefix* range *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet network *network-prefix*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet6 network *network-prefix*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet network *network-prefix* range *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet6 network *network-prefix* range *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify that the addresses in the associated network prefix or range are assigned by an external authority—for example, by the authentication, authorization, and accounting (AAA) server or statically by the user equipment. You can specify this either for the network prefix or for a range under the network prefix.

NOTE: **If you configure this statement, then you cannot configure the allocation-prefix-length statement.**

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- network (Mobile Pools) on page 84
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*
- range (Mobile Pools) on page 87

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family (Mobile Pools)

Syntax

```
family (inet | inet6) {
  network {
    [network-prefix] {
      allocation-prefix-length allocation-prefix-length;
      external-assigned;
      range {
        [name] {
          external-assigned;
          high high;
          low low;
        }
      }
    }
  }
}
```

Hierarchy Level

[edit access address-assignment mobile-pools *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the protocol family information for the mobile pool. Mobile pools must have either **inet** (IPv4) or **inet6** (IPv6) configured.

NOTE: A mobile pool can have either inet (IPv4) or inet6 (IPv6) configured but not both.

Options

inet—IP version 4 (IPv4).

inet6—IP version 6 (IPv6).

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- mobile-pools on page 83
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

mobile-pool-groups

Syntax

```
mobile-pool-groups {
  group-name {
    [pool-name];
  }
}
```

Hierarchy Level

[edit access address-assignment],
[edit routing-instances *instance-name* access address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the mobile pool groups that are used by the broadband gateway to assign addresses to subscribers. You can configure both IPv4 and IPv6 pool groups.

Mobile pool groups are a collection of one or more mobile pools. All the mobile pools in a mobile pool group should be of the same protocol family—**inet** or **inet6**. In addition, none of the mobile pools in a mobile pool group should be marked as a default.

Options

group-name—Name of the mobile pool group.

Range: Up to 63 characters

pool-name—Name of the mobile pool. To specify multiple mobile pools, include the ***pool-name*** statement multiple times.

NOTE: **The mobile pool that you specify must be previously configured on the broadband gateway in the same routing instance as the mobile pool group.**

Range: Up to 63 characters

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- address-assignment (MobileNext Broadband Gateway) on page 76
- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*
- mobile-pools on page 83

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mobile-pools

Syntax

```
mobile-pools {
  name {
    ageing-window ageing-window;
    default-pool;
    family (inet | inet6) {
      network {
        allocation-prefix-length allocation-prefix-length;
        [network-prefix] {
          external-assigned;
          range {
            [name] {
              external-assigned;
              high high;
              low low;
            }
          }
        }
      }
    }
    pool-prefetch-threshold  pool-prefetch-threshold;
    pool-snmp-trap-threshold pool-snmp-trap-threshold;
    service-mode service-mode-options;
  }
}
```

Hierarchy Level

[edit access address-assignment],
[edit routing-instances *instance-name* access address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the mobile pools that are used by the broadband gateway to assign addresses to subscribers. You can configure both IPv4 and IPv6 mobile pools and various other parameters related to address assignment.

Options

name—Name of the mobile pool.

Range: Up to 63 characters

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- address-assignment (MobileNext Broadband Gateway) on page 76
- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*
- *Example: Simple Unified Edge Configuration*

network (Mobile Pools)

Syntax

```
network {
  [network-prefix] {
    allocation-prefix-length allocation-prefix-length;
    external-assigned;
    range {
      [name] {
        external-assigned;
        high high;
        low low;
      }
    }
  }
}
```

Hierarchy Level

[edit access address-assignment mobile-pools *name* family inet],
[edit access address-assignment mobile-pools *name* family inet6],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet6]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the network prefix for the mobile pool for IPv4 or IPv6 addresses. The broadband gateway uses the network prefix to assign IP addresses to mobile subscribers. In addition, if an address range is configured under the network prefix, then addresses are allocated only from the specified range.

NOTE: **At least one network prefix must be configured.**

Options

network-prefix—Network prefix (IPv4 or IPv6).

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- family (Mobile Pools) on page 81
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

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pool-prefetch-threshold (Mobile Pools)

Syntax pool-prefetch-threshold *pool-prefetch-threshold*;

Hierarchy Level [edit access address-assignment mobile-pools *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the pool usage threshold in the mobile pool for pre-fetching addresses. The pre-fetch threshold is used when the pool is configured with prefixes, and when prefixes are added to an existing pool.

Options ***pool-prefetch-threshold***—Pre-fetch threshold percentage.

Range: 1 through 100

Default: 80

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- mobile-pools on page 83
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

pool-snmp-trap-threshold (Mobile Pools)

Syntax pool-snmp-trap-threshold *pool-snmp-trap-threshold*;

Hierarchy Level [edit access address-assignment mobile-pools *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the pool usage threshold in the mobile pool for generating SNMP traps. When the percentage of addresses used in the mobile pool exceeds the specified threshold, a notification is sent indicating that the specified threshold has been crossed. After reaching the specified threshold, when the percentage of addresses used in the mobile pool drops 20 percent below the threshold, the notification indicating that the specified threshold was exceeded, is cleared.

Options ***pool-snmp-trap-threshold***—Threshold percentage.

Range: 1 through 100

Default: 80

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway*
- mobile-pools on page 83
- *Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway*

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range (Mobile Pools)

Syntax

```
range {
  [name] {
    external-assigned;
    high high;
    low low;
  }
}
```

Hierarchy Level

[edit access address-assignment mobile-pools *name* family inet network *network-prefix*],
[edit access address-assignment mobile-pools *name* family inet6 network *network-prefix*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet network *network-prefix*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name* family inet6 network *network-prefix*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the address ranges within the network prefix of the mobile pool. This configuration is optional. If a range is specified, then the broadband gateway assigns addresses only from the specified range.

NOTE: **If you specify a range, then the high and low statements are mandatory.**

Options

high *high*—Upper address (IPv4) or prefix (IPv6) of the range.

low *low*—Lower address (IPv4) or prefix (IPv6) of the range.

name—Name of the address range.

Range: Up to 63 characters

Syntax: The name must be unique within a mobile pool.

The remaining statement is explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- network (Mobile Pools) on page 84

service-mode (Mobile Pools)

Syntax service-mode *service-mode-options*;

Hierarchy Level [edit access address-assignment mobile-pools *name*],
[edit routing-instances *instance-name* access address-assignment mobile-pools *name*]

Description Specify that the mobile pool should be in maintenance mode. You do this if you want to carry out maintenance tasks like deleting or modifying a mobile pool and so on. See the *Maintenance Mode* chapter in the *MobileNext Broadband Gateway Configuration Guide* for a list of the maintenance tasks that can be carried out when the mobile pool is in maintenance mode.

When in the Maintenance Mode Active Phase, all the valid attributes on the object can be modified. In other cases, only the non-maintenance mode attributes can be modified.

Options ***service-mode-options***—Specify the service mode. Currently, **maintenance** mode is the only option supported.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Changing Address Attributes in the Mobile Address Pool*
- *Deleting a Mobile Address Pool*
- mobile-pools on page 83

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CHAPTER 4

Anchor Packet Forwarding Engine Redundancy and Aggregated Multiservices High Availability Configuration Statements

pfes

Syntax

```
pfes {
   [interface interface-name];
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* system],
[edit unified-edge gateways sgw *gateway-name* system]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* system]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Specify the interfaces used for anchoring subscribers in the Packet Forwarding Engine in the broadband gateway.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Anchor Session DPCs and PFEs*
- system (MobileNext Broadband Gateway Interfaces) on page 119

service-pics

Syntax

```
service-pics {
  [interface interface-name];
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* system]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the interfaces used for anchoring mobile subscriber-aware services in the broadband gateway.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- system (MobileNext Broadband Gateway Interfaces) on page 119

session-pics

Syntax

```
session-pics {
  [interface interface-name];
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* system],
[edit unified-edge gateways sgw *gateway-name* system]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* system]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the interfaces used for the mobile control plane in the broadband gateway.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Anchor Session DPCs and PFEs*
- system (MobileNext Broadband Gateway Interfaces) on page 119

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anchoring-options (Aggregated Packet Forwarding Engine)

Syntax

```
anchoring-options {
  apfe-group-set apfe-group-set;
  primary-list {
    [anchoring-pfe-name];
  }
  secondary anchoring-pfe-name;
  warm-standby;
}
```

Hierarchy Level

[edit interfaces *interface-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the options for anchor Packet Forwarding Engine redundancy. The redundancy options are configured at the level of the Packet Forwarding Engine. The type of redundancy supported is many-to-one (N:1), which means that one Packet Forwarding Engine acts as the backup for one or more (N) Packet Forwarding Engines.

When Packet Forwarding Engines are configured for redundancy, then one or more Packet Forwarding Engines are configured as primary, and one Packet Forwarding Engine is configured as secondary (standby) and acts as the backup for the primary Packet Forwarding Engines.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Interface Redundancy*
- *Configuring Interface DPCs or MPCs for User Mobility Traffic*
- *Example: Configuring Broadband Gateway Redundancy*
- interfaces (Aggregated Packet Forwarding Engine) on page 104

apfe-group-set (Aggregated Packet Forwarding Engine)

Syntax apfe-group-set *apfe-group-set*;

Hierarchy Level [edit interfaces *interface-name* anchoring-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify that the anchor Packet Forwarding Engines configured for redundancy should belong to an aggregated Packet Forwarding Engine group set. An aggregated Packet Forwarding Engine group set is used to associate two or more **apfe** interfaces such that they share the same fate.

For example, consider three FPCs (FPC0, FPC1, and FPC2) with two Packet Forwarding Engines (PFE0 and PFE1) on each FPC. Assume that you configure an aggregated PFE interface apfe0 with FPC0-PFE0 and FPC1-PFE0 as primary members, FPC2-PFE0 as the secondary (backup), and an **apfe-group-set** called group-1. In addition, you configure an aggregated Packet Forwarding Engine interface apfe1 with FPC0-PFE1 and FPC1-PFE1 as primary members, FPC2-PFE1 as the secondary (backup), and the **apfe-group-set** as group-1.

Now, consider a scenario where FPC0-PFE0 (in apfe0) switches to FPC2-PFE0 (also in apfe0). Because apfe0 and apfe1 are part of the same apfe group set (group-1), FPC0-PFE1 (in apfe1) alo switches over to the corresponding backup, that is, FPC2-PFE1.

NOTE: The **apfe-group-set** is configured at the **apfe** level. Since the **apfe** interfaces have Packet Forwarding Engine interfaces (**pfe-**) as their members, the **apfe-group-set** configuration groups interfaces at the Packet Forwarding Engine level.

Default If you do not configure the **apfe-group-set** statement, then the **apfe** interface that you configure behaves as a standalone entity and is not influenced by other **apfe** interfaces configured on the broadband gateway.

Options ***apfe-group-set***—Name of the apfe group set.

Range: Up to 32 characters

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- anchoring-options (Aggregated Packet Forwarding Engine) on page 91
- *Configuring Interface Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*

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dedicated (IPsec)

Syntax dedicated;

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number* dial-options]

Release Information Statement introduced before Junos OS Release 7.4.

Description Specify that Dynamic End Point (DEP) IP Security (IPsec) tunnels are supported in dedicated logical interface (**ifl**) mode for the aggregated multiservices (AMS) interface. In dedicated **ifl** mode, each DEP IPsec tunnel is mapped to one AMS **ifl**.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- dial-options (IPsec) on page 93
- shared (IPsec) on page 118

dial-options (IPsec)

Syntax

```
dial-options {
   (dedicated | shared);
   ipsec-interface-id ipsec-interface-id;
}
```

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number*]

Release Information Statement introduced before Junos OS Release 7.4.

Description Configure the parameters to support Dynamic End Point (DEP) IP Security (IPsec) tunnels on the aggregated multiservices (AMS) interface. DEP IPsec tunnels are supported in two modes: dedicated logical interface (**ifl**) mode and shared **ifl** mode.

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- unit (Aggregated Multiservices) on page 120

drop-member-traffic (Aggregated Multiservices)

Syntax

```
drop-member-traffic {
   enable-rejoin;
   rejoin-timeout rejoin-timeout;
}
```

Hierarchy Level

[edit interfaces *interface-name* load-balancing-options member-failure-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify whether the broadband gateway should drop traffic to a multiservices PIC when it fails.

- For one-to-one (1:1) mobile control plane redundancy, this configuration is valid only when both multiservices PICs have failed.
- For many-to-one (N:1) high availability (HA) for service applications (application-level gateway [ALG], Network Address Translation [NAT], and stateful firewall), this configuration is valid only when two or more multiservices PICs have failed.

The remaining statements are explained separately.

NOTE: **If you configure the drop-member-traffic statement, then you cannot configure the redistribute-all-traffic statement; that is, they are mutually exclusive.**

Default

If this statement is not configured, then the default behavior is to drop member traffic with a rejoin timeout of 120 seconds. If the member does not come back online within this time, then it must be manually brought back into the AMS interface, using the **request interface load-balancing revert** command.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- member-failure-options (Aggregated Multiservices) on page 109
- request interface load-balancing revert (Aggregated Multiservices) on page 720

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enable-rejoin (Aggregated Multiservices)

Syntax enable-rejoin;

Hierarchy Level [edit interfaces *interface-name* load-balancing-options member-failure-options drop-member-traffic],
[edit interfaces *interface-name* load-balancing-options member-failure-options redistribute-all-traffic]

Release Information Statement introduced in Junos OS Mobility Release 11.2W. Support for the **[edit interfaces *interface-name* load-balancing-options member-failure-options drop-member-traffic]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Enable the failed member to rejoin the aggregated multiservices (AMS) interface after the member comes back online.

- For one-to-one (1:1) mobile control plane redundancy, this configuration is used in case both members fail, and it allows the members to rejoin the **ams** interface automatically.
- For many-to-one (N:1) high availability (HA) for service applications (application-level gateway [ALG], Network Address Translation [NAT], and stateful firewall), this configuration allows the failed members to rejoin the pool of active members automatically.

Default If you do not configure this option, then the failed members do not automatically rejoin the **ams** interface even after coming back online. For this reason, the inactive member cannot be the backup for the active member (even after it comes back online) unless the **request interface load-balancing revert** command is explicitly issued to return the inactive member to the active state.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- drop-member-traffic (Aggregated Multiservices) on page 94
- *Example: Configuring Broadband Gateway Redundancy*
- redistribute-all-traffic (Aggregated Multiservices) on page 115
- request interface load-balancing revert (Aggregated Multiservices) on page 720

family (Aggregated Multiservices)

Syntax family *family*;

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure protocol family information for the logical interface.

Options ***family***—Protocol family. Currently, only one option, **inet** (IP version 4 suite), is supported.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- unit (Aggregated Multiservices) on page 120

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high-availability-options (Aggregated Multiservices)

Syntax

```
high-availability-options {
  many-to-one {
    preferred-backup preferred-backup;
  }
}
```

Hierarchy Level

[edit interfaces *interface-name* load-balancing-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the high availability options for the aggregated multiservices (AMS) interface. This configuration is mandatory for mobile control plane redundancy. For service applications, if only the load-balancing feature is being used, then this configuration is optional.

- For one-to-one (1:1) mobile control plane redundancy, the preferred backup multiservices PIC, in hot standby mode, backs up one multiservices PIC.
- For many-to-one (N:1) high availability support for service applications (application-level gateway [ALG], Network Address Translation [NAT], and stateful firewall), the preferred backup multiservices PIC, in hot standby mode, backs up one or more (N) active multiservices PICs.

NOTE: In both cases, if one of the active multiservices PICs goes down, then the backup replaces it as the active multiservices PIC. When the failed PIC comes back up, it becomes the new backup. This is called floating backup.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- load-balancing-options (Aggregated Multiservices) on page 106

interface (Packet Forwarding Engine)

Syntax [interface *interface-name*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* system pfes],
[edit unified-edge gateways sgw *gateway-name* system pfes]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* system pfes]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the interface representing the Packet Forwarding Engine used for anchoring subscribers in the broadband gateway. The following conditions are applicable to the Packet Forwarding Engine interfaces configured here:

- The aggregated Packet Forwarding Engine interfaces (**apfe**) specified in this statement must already be defined at the **[edit interfaces]** hierarchy level.
- For a broadband gateway configured as a Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW), the Packet Forwarding Engine interfaces must have **mobility ggsn-pgw** as their forwarding package at the **[edit chassis fpc *fpc-slot* pfe *pfe-id* forwarding-packages]** hierarchy level.

  NOTE: If the specified Packet Forwarding Engine interface is an **apfe** interface, then all the member interfaces of the **apfe** interface must have **mobility ggsn-pgw** as their forwarding package (at the **[edit chassis fpc *fpc-slot* pfe *pfe-id* forwarding-packages]** hierarchy level).

- For a broadband gateway configured as a Serving Gateway (S-GW), the Packet Forwarding Engine interfaces must have **mobility sgw** as their forwarding package at the **[edit chassis fpc *fpc-slot* pfe *pfe-id* forwarding-packages]** hierarchy level.

  NOTE: If the specified Packet Forwarding Engine interface is an **apfe** interface, then all member interfaces of the **apfe** interface must have **mobility sgw** as their forwarding package (at the **[edit chassis fpc *fpc-slot* pfe *pfe-id* forwarding-packages]** hierarchy levels).

- If a Packet Forwarding Engine interface is a member of an **apfe** interface, then that interface cannot be directly specified here. For example, if **pfe-2/0/0** is a member interface of **apfe** interface **apfe0**, then **pfe-2/0/0** cannot be directly specified here.

Options *interface-name*—Name of the interface representing the Packet Forwarding Engine.

Syntax: The interface must be a valid Packet Forwarding Engine interface (**apfe** or **pfe-**); for example, **apfe0** or **pfe-1/0/0**.

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Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pfes on page 89
- *Configuring Interface Redundancy*
- *Configuring Interface DPCs or MPCs for User Mobility Traffic*
- *Example: Configuring Broadband Gateway Redundancy*
- show unified-edge ggsn-pgw system interfaces on page 732
- show unified-edge sgw system interfaces on page 734

interface (Services PIC)

Syntax [interface *interface-name*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* system service-pics]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the interface representing the services PIC used for anchoring services-related subscriber sessions in the broadband gateway. The following conditions are applicable to the services PIC interfaces configured here:

- The aggregated multiservices interfaces (**ams**) specified in this statement must already be defined at the **[edit interfaces]** hierarchy level.
- The services PIC must have the **jservices-hcm**, **jservices-mss**, and **jservices-crypto-base** packages configured at the **[edit chassis fpc *slot-number* pic *pic-number* adaptive-services service-package extension-provider]** hierarchy level.
- If a services PIC interface is a member of an aggregated multiservices interface, then that member interface cannot be specified here. For example, if **mams-2/0/0** is a member interface of the aggregated multiservices interface **ams0**, then **ms-2/0/0/** cannot be directly specified here.

NOTE: If an aggregated multiservices interface (for example ams0) is used for HTTP header enrichment, then load balancing is performed to anchor subcriber-aware services in one of the member interfaces. Otherwise, load balancing is not performed.

Options *interface-name*—Name of the interface representing the services PIC.

Syntax: The interface must be a valid multiservices interface (**ams** or **ms-a/b/0**, where **a** is the Flexible PIC Concentrator [FPC] slot number and **b** is the PIC slot number); for example, **ams0** or **ms-1/0/0**.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- service-pics on page 90
- show unified-edge ggsn-pgw system interfaces on page 732

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interface (Session PIC)

Syntax [interface *interface-name*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* system session-pics],
[edit unified-edge gateways sgw *gateway-name* system session-pics]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* system session-pics]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the interface representing the session PIC used for the mobile control plane in the broadband gateway. The following conditions are applicable to the session PIC interfaces configured here:

- The aggregated multiservices interfaces (**ams**) specified in this statement must already be defined at the **[edit interfaces]** hierarchy level.
- The session PIC must have the **jservices-mobile** package configured at the **[edit chassis fpc *slot-number* pic *pic-number* adaptive-services service-package extension-provider]** hierarchy level.
- If a session PIC interface is a member of an aggregated multiservices interface, then that member interface cannot be specified here. For example, if **mams-2/0/0** is a member interface of the aggregated multiservices interface **ams0**, then **ms-2/0/0/** cannot be directly specified here.

Options *interface-name*—Name of the interface representing the session PIC.

Syntax: The interface must be a valid multiservices interface (**ams** or **ms-a/b/0**, where **a** is the Flexible PIC Concentrator [FPC] slot number and **b** is the PIC slot number); for example, **ams0** or **ms-1/0/0**.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Anchor Session DPCs and PFEs*
- session-pics on page 90
- show unified-edge ggsn-pgw system interfaces on page 732
- show unified-edge sgw system interfaces on page 734

interfaces (Aggregated Multiservices)

Syntax

```
interfaces interface-name {
  load-balancing-options {
    high-availability-options {
      many-to-one {
        preferred-backup preferred-backup;
      }
    }
    member-failure-options {
      drop-member-traffic {
        enable-rejoin;
        rejoin-timeout rejoin-timeout;
      }
      redistribute-all-traffic {
        enable-rejoin;
      }
    }
    member-interface interface-name;
  }
  unit interface-unit-number {
    dial-options {
      (dedicated | shared);
      ipsec-interface-id ipsec-interface-id;
    }
    family family;
    load-balancing-options {
      preferred-active interface-name;
    }
  }
}
```

Hierarchy Level [edit]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the aggregated multiservices (AMS) interface. The AMS interface provides the infrastructure for load balancing and high availability (HA).

The high availability feature is used for mobile control plane redundancy and for service applications (application-level gateway [ALG], Network Address Translation [NAT], and stateful firewall). The load-balancing feature is currently used only for service applications. For service applications, load balancing can be used with or without high availability. Mobile control plane load balancing is done by the ingress Packet Forwarding Engine.

NOTE: The interfaces must be valid aggregated multiservices interfaces (ams); for example, ams0 or ams1, and so on. The ams infrastructure is supported only in chassis with Trio-based modules and Multiservices Dense Port Concentrators (MS-DPCs).

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The remaining statements are explained separately.

Options

interface-name—Name of the aggregated multiservices interface (**ams**); for example, **ams0** or **ams1**, and so on.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*

interfaces (Aggregated Packet Forwarding Engine)

Syntax

```
interfaces interface-name {
  anchoring-options {
    apfe-group-set apfe-group-set;
    primary-list {
      [anchoring-pfe-name];
    }
    secondary anchoring-pfe-name;
    warm-standby;
  }
}
```

Hierarchy Level

[edit]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the aggregated Packet Forwarding Engine interface (**apfe**) used for anchor Packet Forwarding Engine redundancy on the broadband gateway. The type of redundancy supported is many-to-one (N:1), which means that one Packet Forwarding Engine acts as the backup for one or more (N) Packet Forwarding Engines.

When Packet Forwarding Engines are configured for redundancy, then one or more Packet Forwarding Engines are configured as primary, and one Packet Forwarding Engine is configured as secondary (standby) and acts as the backup for the primary Packet Forwarding Engines.

NOTE: **The interfaces must be valid apfe interfaces; for example, apfe0 or apfe1.**

The remaining statements are explained separately.

Options

interface-name—Name of the aggregated Packet Forwarding Engine interface (**apfe**); for example, **apfe0** or **apfe1**, and so on.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- [edit interfaces apfe] Hierarchy Level on page 8
- *Configuring Interface Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*

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ipsec-interface-id (IPsec)

Syntax ipsec-interface-id *ipsec-interface-id*;

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number* dial-options]

Release Information Statement introduced before Junos OS Release 7.4.

Description Configure the IP Security (IPsec) interface identifier for a group of Dynamic End Point (DEP) peers.

Options ***ip-sec-interface-id***—IPsec interface identifier.

Range: 1 through 63 characters

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- dial-options (IPsec) on page 93

load-balancing-options (Aggregated Multiservices)

Syntax

```
load-balancing-options {
  high-availability-options {
    many-to-one {
      preferred-backup preferred-backup;
    }
  }
  member-failure-options {
    drop-member-traffic {
      enable-rejoin;
      rejoin-timeout rejoin-timeout;
    }
    redistribute-all-traffic {
      enable-rejoin;
    }
  }
  member-interface interface-name;
}
```

Hierarchy Level

[edit interfaces *interface-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the high availability (HA) options for the aggregated multiservices (AMS) interface.

The following modes of high availability are supported with AMS:

- One-to-one (1:1) mobile control plane redundancy—In this case, one active multiservices PIC is backed up by one standby multiservices PIC in hot standby mode.
- Many-to-one (N:1) high availability for service applications (application-level gateway [ALG], Network Address Translation [NAT], and stateful firewall)—In this case, one multiservices PIC is the backup (in hot standby mode) for one or more (N) active multiservices PICs. If one of the active multiservices PICs goes down, then the backup replaces it as the active multiservices PIC. When the failed PIC comes back online, it becomes the new backup. This is called floating backup mode.

NOTE: **In hot standby mode, the operational state of subscribers anchored on the active multiservices PIC (or PICs) is actively synchronized with the standby multiservices PIC.**

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

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Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- interfaces (Aggregated Multiservices) on page 102

load-balancing-options (IPsec)

Syntax

```
load-balancing-options {
  preferred-active interface-name;
}
```

Hierarchy Level

[edit interfaces *interface-name* unit *interface-unit-number*]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure the preferred active member to be used for load balancing the Dynamic End Point (DEP) IP Security (IPsec) tunnels on the aggregated multiservices (AMS) interface. The DEP IPSec tunnels are distributed across the members configured for the AMS interface. However, the active next hop corresponds only to the preferred active member configured here. All other next hops are on standby and no traffic is directed to those members.

The remaining statement is explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- unit (Aggregated Multiservices) on page 120

many-to-one (Aggregated Multiservices)

Syntax

```
many-to-one {
   preferred-backup preferred-backup;
}
```

Hierarchy Level

[edit interfaces *interface-name* load-balancing-options high-availability-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the initial preferred backup for the aggregated multiservices (AMS) interface.

NOTE: The preferred backup must be one of the member interfaces (mams–) that have already been configured at the [edit interfaces *interface-name* load-balancing-options] hierarchy level. Even in the case of mobile control plane redundancy, which is one-to-one (1:1), the initial preferred backup is configured at this hierarchy level.

The remaining statements are explained separately.

Options

preferred-backup *preferred-backup*—Name of the preferred backup member interface. The member interface format is **mams-a/b/0**, where **a** is the Flexible PIC Concentrator (FPC) slot number and **b** is the PIC slot number.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- high-availability-options (Aggregated Multiservices) on page 97

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member-failure-options (Aggregated Multiservices)

Syntax

```
member-failure-options {
  drop-member-traffic {
    enable-rejoin;
    rejoin-timeout rejoin-timeout;
  }
  redistribute-all-traffic {
    enable-rejoin;
  }
}
```

Hierarchy Level [edit interfaces *interface-name* load-balancing-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the possible behavior for the aggregated multiservices (AMS) interface in case of failure of more than one active member.

NOTE: The **drop-member-traffic** configuration and the **redistribute-all-traffic** configuration are mutually exclusive.

Table 3 on page 109 displays the behavior of the member interface after the failure of the first multiservices PIC. Table 4 on page 110 displays the behavior of the member interface after the failure of two multiservices PICs.

NOTE: The AMS infrastructure has been designed to handle one failure automatically. However, in the unlikely event that more than one multiservices PIC fails, the AMS infrastructure provides configuration options to minimize the impact on existing traffic flows.

Table 3: Behavior of Member Interface After One Multiservices PIC Fails

High Availability Mode	Member Interface Behavior
One-to-one (1:1) mobile control plane redundancy	Automatically handled by the AMS infrastructure
Many-to-one (N:1) high availability support for service applications	Automatically handled by the AMS infrastructure

Table 4: Behavior of Member Interface After Two Multiservices PICs Fail

High Availability Mode	Configuration	rejoin-timeout	enable-rejoin	Behavior when member rejoins before rejoin-timeout expires	Behavior when member rejoins after rejoin-timeout expires
One-to-one (1:1) mobile control plane redundancy	**drop-member-traffic**	Configured	Not configured	The traffic is dropped since both members are down. The first member to rejoin becomes the active member. The second member to rejoin becomes the backup. This behavior is handled automatically by the AMS infrastructure.	The traffic is dropped since both members are down. Both members are moved to the inactive state. An explicit **request interface load-balancing revert** command is required to make both members rejoin the AMS.
One-to-one (1:1) mobile control plane redundancy	**drop-member-traffic**	Configured	Configured	The traffic is dropped since both members are down. The first member to rejoin becomes the active member. The second member to rejoin becomes the backup. This behavior is handled automatically by the AMS infrastructure.	The traffic is dropped since both members are down. The first member to rejoin becomes the active member. The second member to rejoin becomes the backup. This behavior is handled automatically by the AMS infrastructure.
One-to-one (1:1) mobile control plane redundancy	**redistribute-all-traffic**	Not applicable	Not configured	The traffic is dropped since both members are down. Both members are moved to the inactive state. An explicit **request interface load-balancing revert** command is required to make both members rejoin the AMS.	
One-to-one (1:1) mobile control plane redundancy	**redistribute-all-traffic**	Not applicable	Configured	The traffic is dropped since both members are down. The first member to rejoin becomes the active member. The second member to rejoin becomes the backup. This behavior is handled automatically by the AMS infrastructure.	
Many-to-one (N:1) high availability support for service applications	**drop-member-traffic**	Configured	Not configured	The existing traffic for the second failed member is *not* redistributed to the other members. The member is moved to the discard state. If the member comes back up before the rejoin timeout expires, the traffic is restored to the member and the	The existing traffic for the second failed member is *not* redistributed to the other members. The first member rejoins the AMS automatically. However, the other members who are rejoining are moved to the inactive state. An explicit **request interface load-balancing revert**

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Table 4: Behavior of Member Interface After Two Multiservices PICs Fail *(continued)*

High Availability Mode	Configuration	rejoin-timeout	enable-rejoin	Behavior when member rejoins before rejoin-timeout expires	Behavior when member rejoins after rejoin-timeout expires
				member is moved to the active state.	command is required to make these members rejoin the AMS.
Many-to-one (N:1) high availability support for service applications	**drop-member-traffic**	Configured	Configured	The existing traffic for the second failed member is not redistributed to the other members. The first member to rejoin becomes an active member. The second member to rejoin becomes the backup. This behavior is handled automatically by the AMS infrastructure.	The existing traffic for the second failed member is not redistributed to the other members until the rejoin timeout expires. Once the rejoin timeout expires, the traffic is redistributed to the other members. The first member to rejoin becomes an active member. The second member to rejoin becomes the backup. This behavior is handled automatically by the AMS infrastructure.
Many-to-one (N:1) high availability support for service applications	**redistribute-all-traffic**	Not applicable	Not configured	The traffic is dropped since both members are down. Both members are moved to the inactive state. An explicit **request interface load-balancing revert** command is required to make both members rejoin the AMS.	
Many-to-one (N:1) high availability support for service applications	**redistribute-all-traffic**	Not applicable	Configured	Before rejoin, the traffic is redistributed to existing active members. After a failed member rejoins, the traffic is load-balanced again. This may impact existing traffic flows.	

The remaining statements are explained separately.

Default If **member-failure-options** are not configured, then the default behavior is to drop member traffic with a rejoin timeout of 120 seconds. If the member does not come back online within this time, then it must be manually brought back into the AMS interface, using the **request interface load-balancing revert** command.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- load-balancing-options (Aggregated Multiservices) on page 106
- request interface load-balancing revert (Aggregated Multiservices) on page 720

member-interface (Aggregated Multiservices)

Syntax

member-interface *interface-name*;

Hierarchy Level

[edit interfaces *interface-name* load-balancing-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the member interfaces for the aggregated multiservices (AMS) interface. You can configure multiple interfaces by specifying each interface in a separate statement.

- For mobile control plane redundancy, which supports one-to-one (1:1) redundancy, you must specify only two interfaces.
- For high availability service applications (application-level gateway [ALG], Network Address Translation [NAT], and stateful firewall) that support many-to-one (N:1) redundancy, you can specify two or more interfaces.

NOTE: **The member interfaces that you specify must be members of aggregated multiservices interfaces (mams-) on the broadband gateway.**

The remaining statements are explained separately.

Options

interface-name—Name of the member interface. The member interface format is **mams-a/b/0**, where **a** is the Flexible PIC Concentrator (FPC) slot number and **b** is the PIC slot number.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- load-balancing-options (Aggregated Multiservices) on page 106

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preferred-active (IPsec)

Syntax preferred-active *interface-name*;

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number* load-balancing-options]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the preferred active member to be used for load balancing the Dynamic End Point (DEP) IP Security (IPsec) tunnels on the aggregated multiservices (AMS) interface. The following conditions are applicable for the preferred active member configured here:

- The preferred active member should already be configured as a member of the AMS interface. (To configure a member interface under AMS, use **set member-interface *interface-name*** at the **[edit interfaces *interface-name* load-balancing-options]** hierarchy level.)
- The preferred active member must not be already configured as the preferred backup for the AMS interface.
- If you configure load balancing, then the configuration of the preferred active member is mandatory.

Options *interface-name*—Name of the member of AMS interface (**mams-**); for example, **mams-1/0/0**.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- load-balancing-options (IPsec) on page 107

primary-list (Aggregated Packet Forwarding Engine)

Syntax

```
primary-list {
   [anchoring-pfe-name];
}
```

Hierarchy Level

[edit interfaces *interface-name* anchoring-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the primary Packet Forwarding Engines for anchor Packet Forwarding Engine redundancy.

You can configure the **primary-list** to contain multiple Packet Forwarding Engines. However, all Packet Forwarding Engines configured under a **primary-list** must have the same forwarding capabilities. In addition, the Packet Forwarding Engine configured as the backup (using the **secondary** statement) to the primary Packet Forwarding Engines must have the same forwarding capabilities as the primary Packet Forwarding Engines.

NOTE: We recommend that you do not configure the active (primary) and backup Packet Forwarding Engines on the same FPC. Therefore, if a Packet Forwarding Engine on an FPC is configured as a primary, then the other Packet Forwarding Engines on that FPC should *not* be configured as a backup (secondary).

Options

anchoring-pfe-name—Name of the Packet Forwarding Engine interface. The Packet Forwarding Engine interface format is **pfe-a/b/0**, where a is the Flexible PIC Concentrator (FPC) slot number, and b is the PIC slot number; for example, **pfe-2/1/0**.

NOTE: The Packet Forwarding Engine interface must have the **forwarding-packages** statement configured at the **[edit chassis fpc fpc-slot pfe pfe-id]** hierarchy level.

To configure multiple primary Packet Forwarding Engines, include the **anchoring-pfe-name** statement multiple times.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- anchoring-options (Aggregated Packet Forwarding Engine) on page 91
- *Configuring Interface Redundancy*
- *Configuring Interface DPCs or MPCs for User Mobility Traffic*
- *Example: Configuring Broadband Gateway Redundancy*

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- secondary (Aggregated Packet Forwarding Engine) on page 117

redistribute-all-traffic (Aggregated Multiservices)

Syntax

```
redistribute-all-traffic {
  enable-rejoin;
}
```

Hierarchy Level

[edit interfaces *interface-name* load-balancing-options member-failure-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Enable the option to redistribute traffic of a failed active member to the other active members.

- For one-to-one (1:1) mobile control plane redundancy, since both members have failed, the traffic is dropped.
- For many-to-one (N:1) high availability support for Network Address Translation (NAT), the traffic for the failed member is automatically redistributed to the other active members.

The remaining statement is explained separately.

NOTE: **If you configure the redistribute-all-traffic statement, then you cannot configure the drop-member-traffic statement; that is, they are mutually exclusive.**

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- member-failure-options (Aggregated Multiservices) on page 109

rejoin-timeout (Aggregated Multiservices)

Syntax rejoin-timeout *rejoin-timeout*;

Hierarchy Level [edit interfaces *interface-name* load-balancing-options member-failure-options drop-member-traffic]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the time by when a failed member should rejoin the aggregated multiservices (AMS) interface automatically. If the failed member does not rejoin by the configured time, then the member is moved to the "inactive" state and the traffic meant for this member is dropped.

If the member does not come back online within this time, then it must be manually brought back into the AMS interface, using the **request interface load-balancing revert** command.

Default If you do not configure a value, the default value of 120 seconds is used.

Options ***rejoin-timeout***—Time, in seconds, by which a failed member must rejoin.

Default: 120 seconds

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- drop-member-traffic (Aggregated Multiservices) on page 94
- *Example: Configuring Broadband Gateway Redundancy*
- request interface load-balancing revert (Aggregated Multiservices) on page 720

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secondary (Aggregated Packet Forwarding Engine)

Syntax secondary *anchoring-pfe-name*;

Hierarchy Level [edit interfaces *interface-name* anchoring-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the secondary Packet Forwarding Engine for the anchor Packet Forwarding Engine redundancy. The secondary Packet Forwarding Engine acts as the standby (backup) for one or more primary Packet Forwarding Engines and takes over as the active Packet Forwarding Engine when a primary Packet Forwarding Engine fails.

The Packet Forwarding Engine configured as the secondary (backup) to the primary Packet Forwarding Engines (configured using the **primary-list** statement) must have the same forwarding capabilities as the primary Packet Forwarding Engines.

NOTE: We recommend that you do not configure the active (primary) and backup Packet Forwarding Engines on the same FPC. Therefore, if a Packet Forwarding Engine on an FPC is configured as a primary, then the other Packet Forwarding Engines on that FPC should *not* be configured as a backup (secondary).

Options ***anchoring-pfe-name***—Name of the Packet Forwarding Engine interface. The Packet Forwarding Engine interface format is **pfe-a/b/0**, where a is the Flexible PIC Concentrator (FPC) slot number, and b is the PIC slot number; for example, **pfe-1/1/0**.

NOTE: The Packet Forwarding Engine interface must have the **forwarding-packages** statement configured at the **[edit chassis fpc fpc-slot pfe pfe-id]** hierarchy level.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- anchoring-options (Aggregated Packet Forwarding Engine) on page 91
- *Configuring Interface Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- primary-list (Aggregated Packet Forwarding Engine) on page 114

shared (IPsec)

Syntax shared;

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number* dial-options]

Release Information Statement introduced before Junos OS Release 7.4.

Description Specify that Dynamic End Point (DEP) IP Security (IPsec) tunnels are supported in shared logical interface (**ifl**) mode for the aggregated multiservices (AMS) interface. In shared **ifl** mode, one AMS **ifl** is shared by multiple DEP IPsec tunnels.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- dedicated (IPsec) on page 93
- dial-options (IPsec) on page 93

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system (MobileNext Broadband Gateway Interfaces)

Syntax

```
system {
  pfes {
    [interface interface-name];
  }
  service-pics { #P-GW only
    [interface interface-name];
  }
  session-pics {
    [interface interface-name];
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Specify the different interfaces used to service the subscriber and for anchoring subscriber information in the broadband gateway.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- *MobileNext Broadband Gateway Chassis Overview*

unit (Aggregated Multiservices)

Syntax

```
unit interface-unit-number {
  dial-options {
    (dedicated | shared);
    ipsec-interface-id ipsec-interface-id;
  }
  family family;
  load-balancing-options {
    preferred-active interface-name;
  }
}
```

Hierarchy Level

[edit interfaces *interface-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the logical interface on the physical device. You must configure a logical interface to be able to use the physical device.

The remaining statements are explained separately.

Options

interface-unit-number—Number of the logical unit.

NOTE: **Unit 0 is reserved and cannot be configured under the aggregated multiservices interface (ams).**

Range: 1 through 16,384

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Session DPC Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*
- interfaces (Aggregated Multiservices) on page 102

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warm-standby (Aggregated Packet Forwarding Engine)

Syntax warm-standby;

Hierarchy Level [edit interfaces *interface-name* anchoring-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the anchor Packet Forwarding Engine redundancy in warm standby mode. In this mode, the secondary Packet Forwarding Engine takes over the role of the primary Packet Forwarding Engine that fails.

In warm standby mode, the subscriber sessions are programmed only after the switchover from the primary Packet Forwarding Engine to the secondary Packet Forwarding Engine. Based on the subscriber traffic, the programming for some sessions is expedited if needed.

NOTE: When you configure warm standby mode and if one primary Packet Forwarding Engine on an FPC switches to a secondary Packet Forwarding Engine on another FPC, then all primary Packet Forwarding Engines on the first FPC will switch to the corresponding secondary Packet Forwarding Engines on the second FPC by default.

Default If you do not include this statement, then **warm-standby** mode is the default.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- anchoring-options (Aggregated Packet Forwarding Engine) on page 91
- *Configuring Interface Redundancy*
- *Example: Configuring Broadband Gateway Redundancy*

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CHAPTER 5

APN Configuration Statements

aaa (APN Address Assignment)

Syntax aaa;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the address assignment option so that the authentication, authorization, and accounting (AAA) server assigns IP addresses for subscribers. If you include the **aaa** statement, then the broadband gateway uses the IP address returned by the AAA server as part of the subscriber authentication. The configuration in the AAA profile specified for the APN determines the AAA server that will assign addresses to subscribers.

NOTE:

- If you include the **aaa** statement, you cannot include the **dhcp-proxy-client** or **local** statements.
- The IP address assigned by the AAA server must be previously configured on the gateway either in a mobile pool or a mobile pool group at the **[edit access address-assignment]** or **[edit routing-instances instance-name access address-assignment]** hierarchy levels. In addition, the mobile pool must be configured as external assigned by including the **external-assigned** statement at the **[edit access address-assignment mobile-pools]** or the **[edit routing-instances instance-name access address-assignment mobile-pools]** hierarchy levels.
- For IPv4 addresses, the AAA server must be configured to send the IPv4 address in the Framed-IP-Address attribute-value pair (AVP) in the Access Accept Response message to the broadband gateway; for example, the Framed-IP-Address AVP can be set to “192.168.0.10”.
- For IPv6 addresses, the AAA server must be configured to send the IPv6 address in the Framed-IPv6-Prefix AVP in the Access Accept Response message to the broadband gateway; for example, the Framed-IPv6-Prefix AVP can be set to “2000:DB8::”.

Default If you omit the **aaa** statement, the default address assignment option is **local**. This means that the IP addresses are assigned by the broadband gateway using the mobile pool or mobile pool group configured on the access point name (APN). If a mobile pool or a mobile pool group is not specified, then the default mobile pool is used to assign the IP address. The default mobile pool is configured in the routing instance that is associated with the mobile interface of the APN.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

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Related Documentation

- address-assignment (APN) on page 128
- address-assignment (MobileNext Broadband Gateway) on page 76
- *Enabling Address Assignment by the RADIUS Server*
- *Configuring Address Assignment on a Broadband Gateway APN*

aaa-override (APN Address Assignment)

Syntax aaa-override;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcp-proxy-client],
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment local]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify that the IP address returned by the authentication, authorization, and accounting (AAA) server overrides the address from the subnet or prefix returned from the Dynamic Host Configuration Protocol (DHCP) server, or the address obtained from the mobile pool or mobile pool group locally configured on the broadband gateway. If the AAA server provides the address for the user equipment (UE), then the broadband gateway does not assign an address from the subnet or prefix, which is returned from the DHCP server for this APN, or the address obtained from the locally configured mobile pool or mobile pool group.

NOTE:

- The IP address assigned by the AAA server must be previously configured on the gateway either in a mobile pool or a mobile pool group at the **[edit access address-assignment]** or **[edit routing-instances instance-name access address-assignment]** hierarchy levels. In addition, the mobile pool must be configured as external assigned by including the **external-assigned** statement at the **[edit access address-assignment mobile-pools]** or the **[edit routing-instances instance-name access address-assignment mobile-pools]** hierarchy levels.
- For IPv4 addresses, the AAA server must be configured to send the IPv4 address in the Framed-IP-Address attribute-value pair (AVP) in the Access Accept Response message to the broadband gateway; for example, the Framed-IP-Address AVP can be set to “192.168.0.10”.
- For IPv6 addresses, the AAA server must be configured to send the IPv6 address in the Framed-IPv6-Prefix AVP in the Access Accept Response message to the broadband gateway; for example, the Framed-IPv6-Prefix AVP can be set to “2000:DB8::”.

Default If you do not configure this statement, then the IP address from the subnet or prefix returned from the DHCP server, or the address obtained from the mobile pool or mobile pool group locally configured on the broadband gateway, is used depending on the configuration.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

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Related Documentation

- *Configuring AAA-Assigned Addresses to Override Locally or DHCP-Assigned Addresses*
- dhcp-proxy-client (APN Address Assignment) on page 150
- local (APN Address Assignment) on page 167

aaa-profile (APN)

Syntax

aaa-profile *aaa-profile*;

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the authentication, authorization, and accounting (AAA) profile to be used for the access point name (APN). The AAA profile is used to authorize whether a default bearer or a primary packet data protocol (PDP) context can be activated for a subscriber. In addition, the AAA profile is also used to pass the subscriber's accounting information to the AAA server.

NOTE: The AAA profiles should already be configured on the broadband gateway.

Options

aaa-profile—Name of the AAA profile.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*
- *Example: Configuring Broadband Gateway APNs*

address-assignment (APN)

Syntax

```
address-assignment {
  aaa;
  allow-static-ip-address {
    no-aaa-verify;
  }
  dhcp-proxy-client {
    aaa-override;
  }
  dhcpv4-proxy-client-profile {
    logical-system logical-system;
    pool-name pool-name;
    profile-name profile-name;
    routing-instance routing-instance;
  }
  dhcpv6-proxy-client-profile{
    logical-system logical-system;
    pool-name pool-name;
    profile-name profile-name;
    routing-instance routing-instance;
  }
  inet-pool {
    exclude-pools [value];
    group group;
    pool pool;
  }
  inet6-pool {
    exclude-v6pools [value];
    group group;
    pool pool;
  }
  local {
    aaa-override;
  }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the address assignment parameters for an access point name (APN). These parameters are used by the broadband gateway to assign IP addresses to mobile devices.

The following methods of allocating IP addresses are supported by the broadband gateway:

- AAA—IP addresses are allocated by the authentication, authorization, and accounting (AAA) server.
- DCHP—IP addresses are allocated by the broadband gateway using the IP addresses returned by the Dynamic Host Configuration Protocol (DHCP) server. The broadband gateway uses the information configured in the DHCP proxy client profile to access the IP address returned by the DHCP server.

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- Local—IP addresses are allocated by the broadband gateway using a local mobile pool or mobile pool group configured on the APN. If a mobile pool or a mobile pool group is not specified, then the default mobile pool is used to assign the IP address. The default pool is configured in the routing instance that is associated with the mobile interface of the APN.

NOTE: You can configure the **address-assignment** statement only if the APN type is **real**.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- address-assignment (MobileNext Broadband Gateway) on page 76
- apns on page 139
- apn-type on page 138
- *Configuring Address Assignment on a Broadband Gateway APN*
- *Example: Configuring Broadband Gateway APNs*

allow-network-behind-mobile

Syntax allow-network-behind-mobile;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that support for network behind mobile is allowed for the access point name (APN). The broadband gateway acts as the IP anchor for devices that are behind the user equipment and forwards traffic to and from these devices

NOTE:

- If you intend to obtain network-behind-mobile prefixes from the RADIUS server, this is the only step required. However, you must configure the RADIUS server based on the following information:
  - For IPv4 routes, the RADIUS server must be configured to send the Framed-Route attribute-value pair (AVP) as part of the Access Accept Response message to the broadband gateway.
  - For IPv6 routes, the RADIUS server must be configured to send the Framed-IPv6-Route AVP as part of the Access Accept Response message to the broadband gateway.
  - The format of the Framed-Route and Framed-IPv6-Route AVP is as follows: "*Host_IPAddr*[*/SubnetMask*] *GW_IPAddr* [*Metric*]", where:
    - *Host_IPAddr*—IPv4 or IPv6 address of the destination host or network.
    - *SubnetMask*—(Optional) Subnet mask.
    - *GW_IPAddr*—IP address of the broadband gateway.
    - *Metric*—(Optional) Metric (number of hops) for this route.

    An example of a Framed-Route AVP is Framed-Route="192.168.1.0/24 192.168.1.1 1", and an example of a Framed-IPv6-Route AVP is Framed-IPv6-Route="2000:0:0:106::/64 2000::106:a00:20ff:fe99:a998 1".
- In addition, if you intend to assign an IP address to the user equipment using the RADIUS server, then you must configure the RADIUS server to return the Framed-IP-Address AVP or the Framed-IPv6-Prefix AVP for IPv4 and IPv6 addresses, respectively. For more information, see *Configuring Address Assignment on a Broadband Gateway APN*.

Default If you do not configure this statement, then support for network behind mobile is disabled by default.

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Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring the Networks Behind the Mobile Equipment Feature*
- network-behind-mobile on page 173
- *Networks Behind the Mobile Device Overview*

allow-static-ip-address (APN Address Assignment)

Syntax

```
allow-static-ip-address {
  no-aaa-verify;
}
```

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.

Description
Specify that the static IP address provided by the user equipment (UE) is allowed by the broadband gateway. The gateway obtains the IP address of the user equipment from the Create Session Request message.

The remaining statement is explained separately.

Default
If you omit the **allow-static-ip-address** statement, then the static IP address provided by the user equipment is not allowed by the broadband gateway.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- address-assignment (APN) on page 128
- *Configuring Address Assignment on a Broadband Gateway APN*

anchor-pfe-ipv4-nbm-prefixes

Syntax anchor-pfe-ipv4-nbm-prefixes *maximum-ipv4-prefixes*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of IPv4 prefixes (for devices behind the user equipment) allowed for each anchor Packet Forwarding Engine on the MobileNext Broadband Gateway. This configuration allows you to restrict the memory used for IPv4 prefixes (for network behind mobile) in order to prevent the IPv4 prefixes from using the main route memory of the anchor Packet Forwarding Engine.

NOTE: Even if you configure the **anchor-pfe-ipv4-nbm-prefixes** statement, this does not guarantee that the configured number of IPv4 prefixes will be supported. It is possible that the anchor Packet Forwarding Engine will reject the creation of a prefix due to lack of available memory. If sufficient memory is available, then the anchor Packet Forwarding Engine conforms to the number of prefixes configured.

Options ***maximum-ipv4-prefixes***—Maximum number of IPv4 prefixes, in multiples of thousand, per anchor Packet Forwarding Engine.

Range: 16 through 128,000 thousand IPv4 prefixes

Default: 64,000 IPv4 prefixes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Networks Behind the Mobile Equipment Feature*
- network-behind-mobile on page 173

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anchor-pfe-ipv6-nbm-prefixes

Syntax anchor-pfe-ipv6-nbm-prefixes *maximum-ipv6-prefixes*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of IPv6 prefixes (for devices behind the user equipment) allowed for each anchor Packet Forwarding Engine on the MobileNext Broadband Gateway. This configuration allows you to restrict the memory used for IPv6 prefixes (for network behind mobile) in order to prevent the IPv6 prefixes from using the main route memory of the anchor Packet Forwarding Engine.

NOTE: Even if you configure the **anchor-pfe-ipv6-nbm-prefixes** statement, this does not guarantee that the configured number of IPv6 prefixes will be supported. It is possible that the anchor Packet Forwarding Engine will reject the creation of a prefix due to lack of available memory. If sufficient memory is available, then the anchor Packet Forwarding Engine conforms to the number of prefixes configured.

Options ***maximum-ipv6-prefixes***—Maximum number of IPv6 prefixes, in multiples of thousand, per anchor Packet Forwarding Engine.

Range: 4 through 128,000 IPv6 prefixes

Default: 16,000 IPv6 prefixes.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Networks Behind the Mobile Equipment Feature*
- network-behind-mobile on page 173

apn-data-type

Syntax apn-data-type (ipv4 | ipv4v6 | ipv6);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the type of addresses (IPv4, IPv6, or both IPv4 and IPv6) that the access point name (APN) can allocate for sessions attaching to the APN.

Default If you do not specify a value, the default value is **ipv4**; that is, the APN allocates only IPv4 addresses for sessions attaching to that APN.

Options

ipv4—Allocate only IPv4 addresses for sessions attaching to the APN.

ipv4v6—Allocate both IPv4 or IPv6 addresses (or only an IPv4 or an IPv6 address) for sessions (based on the request) attaching to the APN.

ipv6—Allocate only IPv6 addresses for sessions attaching to the APN.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

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apn-services

Syntax

```
apn-services {
  apns {
    [name] {
      aaa-profile aaa-profile;
      address-assignment {
        aaa;
        allow-static-ip-address {
          no-aaa-verify;
        }
        dhcp-proxy-client {
          aaa-override;
        }
        dhcpv4-proxy-client-profile {
          logical-system logical-system;
          pool-name pool-name;
          profile-name profile-name;
          routing-instance routing-instance;
        }
        dhcpv6-proxy-client-profile{
          logical-system logical-system;
          pool-name pool-name;
          profile-name profile-name;
          routing-instance routing-instance;
        }
        inet-pool {
          exclude-pools [value];
          group group;
          pool pool;
        }
        inet6-pool {
          exclude-v6pools [value];
          group group;
          pool pool;
        }
        local {
          aaa-override;
        }
      }
      allow-network-behind-mobile;
      apn-data-type (ipv4 | ipv4v6 | ipv6);
      apn-type (real | virtual | virtual-pre-authenticate);
      block-visitors;
      charging {
        default-profile default-profile;
        home-profile home-profile;
        profile-selection-order [profile-selection-method];
        roamer-profile roamer-profile;
        visitor-profile visited-profile;
      }
      description description;
      dns-server {
        primary-v4 primary-v4;
```

```
            primary-v6 primary-v6;
            secondary-v4 secondary-v4;
            secondary-v6 secondary-v6;
          }
          idle-timeout idle-timeout;
          idle-timeout-direction (both | uplink);
          inter-mobile-traffic {
            (deny | redirect redirect);
          }
          local-policy-profile local-policy-profile;
          maximum-bearers maximum-bearers;
          mobile-interface mobile-interface;
          nbns-server {
            primary-v4 primary-v4;
            secondary-v4 secondary-v4;
          }
          network-behind-mobile {
            imsi imsi {
              prefix-v4 [ipv4-prefix];
              prefix-v6 [ipv6-prefix];
            }
          }
          p-cscf{
            [address];
          }
          restriction-value restriction-value;
          selection-mode {
            (from-ms | from-sgsn | no-subscribed);
          }
          service-mode service-mode-options;
          service-selection-profile service-selection-profile;
          session-timeout session-timeout;
          user-options {
            override-pco;
            password password;
            (use-apnname | use-imsi | use-msisdn | user-name username);
          }
          verify-source-address {
            disable;
          }
          wait-accounting;
        }
      }
    }
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

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Description

Configure the access point name (APN) selection function for the broadband gateway. The APN selection function determines whether the broadband gateway is responsible for servicing the subscriber. If the gateway is responsible, then the APN selection function selects the Packet Data Network (PDN) service that is applicable for the subscriber. You can configure different parameters related to the device, network, and subscription to provide an enhanced selection function.

The APN selection function determines which APN and service types a Mobile Station (MS) or user equipment (UE) device should use.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- *Configuring APNs on the MobileNext Broadband Gateway Overview*
- *Example: Configuring Broadband Gateway APNs*

apn-type

Syntax apn-type (real | virtual | virtual-pre-authenticate);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the type of access point name (APN). The following APN types are supported:

- **real**—Configure the APN as **real** if the APN name sent in the GTP Create message will be used for creating the session.
- **virtual**—Configure the APN as **virtual** if the APN name sent in the GTP Create message will be mapped to a different (real) APN. The mapped (real) APN is then used to set up the session. A service selection profile must be configured so that the virtual APN can be mapped to a real APN.
- **virtual-pre-authenticate**—Configure the APN as **virtual-pre-authenticate** if the APN name sent in the GTP Create message will be mapped to a different (real) APN. The mapping in this case is provided by the authentication, authorization, and accounting (AAA) server in the authentication (Access Accept) message. You must configure AAA authentication for this APN so that the virtual APN can be mapped to a real APN.

Default If you do not specify a value, the default value is **real**.

Options **real**—Specify that the APN is a real APN.

virtual—Specify that the APN is a virtual APN.

virtual-pre-authenticate—Specify that the APN is a virtual APN that will be mapped to a real APN using AAA authentication.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

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apns

Syntax

```
apns {
  [name] {
    aaa-profile aaa-profile;
    address-assignment {
      aaa;
      allow-static-ip-address {
        no-aaa-verify;
      }
      dhcp-proxy-client {
        aaa-override;
      }
      dhcpv4-proxy-client-profile {
        logical-system logical-system;
        pool-name pool-name;
        profile-name profile-name;
        routing-instance routing-instance;
      }
      dhcpv6-proxy-client-profile{
        logical-system logical-system;
        pool-name pool-name;
        profile-name profile-name;
        routing-instance routing-instance;
      }
      inet-pool {
        exclude-pools [value];
        group group;
        pool pool;
      }
      inet6-pool {
        exclude-v6pools [value];
        group group;
        pool pool;
      }
      local {
        aaa-override;
      }
    }
    allow-network-behind-mobile;
    apn-data-type (ipv4 | ipv4v6 | ipv6);
    apn-type (real | virtual | virtual-pre-authenticate);
    block-visitors;
    charging {
      default-profile default-profile;
      home-profile home-profile;
      profile-selection-order [profile-selection-method];
      roamer-profile roamer-profile;
      visitor-profile visited-profile;
    }
    description description;
    dns-server {
      primary-v4 primary-v4;
      primary-v6 primary-v6;
```

```
        secondary-v4 secondary-v4;
        secondary-v6 secondary-v6;
      }
      idle-timeout idle-timeout;
      idle-timeout-direction (both | uplink);
      inter-mobile-traffic {
        (deny | redirect redirect);
      }
      local-policy-profile local-policy-profile;
      maximum-bearers maximum-bearers;
      mobile-interface mobile-interface;
      nbns-server {
        primary-v4 primary-v4;
        secondary-v4 secondary-v4;
      }
      network-behind-mobile {
        imsi imsi {
          prefix-v4 [ipv4-prefix];
          prefix-v6 [ipv6-prefix];
        }
      }
      pcef-profile profile-name
      p-cscf{
        [address];
      }
      restriction-value restriction-value;
      selection-mode {
        (from-ms | from-sgsn | no-subscribed);
      }
      service-mode service-mode-options;
      service-selection-profile service-selection-profile;
      session-timeout session-timeout;
      user-options {
        override-pco;
        password password;
        (use-apnname | use-imsi | use-msisdn | user-name username);
      }
      verify-source-address {
        disable;
      }
      wait-accounting;
    }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the access point name (APN) for the broadband gateway. The APN is a unique identifier used by the broadband gateway to identify each attached IP network, which is called an APN network or a Packet Data Network (PDN). The APN determines authorization and address allocation methods, charging rules, several types of timeouts, and various other parameters that characterize the user session to an IP network.

The remaining statements are explained separately.

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Options *name*—Name of the APN.

Range: Up to 100 characters

Syntax: Can contain only letters, numbers, decimal points, and dashes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apn-services on page 135
- *Configuring APNs on the MobileNext Broadband Gateway Overview*
- *Configuring General APN Parameters on the Broadband Gateway*
- *Example: Configuring Broadband Gateway APNs*

block-visitors

Syntax block-visitors;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the access point name (APN) to block visitors who do not belong to the home public land mobile network (HPLMN) from connecting to the APN.

When the broadband gateway receives a Create Session Request message from a subscriber's user equipment (UE), the gateway compares the mobile country code (MCC) and the mobile network code (MNC) in the message with the list of configured MCCs and MNCs for the home PLMN. If the user equipment does not belong to the home PLMN, then the gateway rejects the session and the user equipment is blocked from connecting to the APN.

Default If you do not specify a value, the visitors are allowed by default.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

count (HTTP Header Enrichment)

Syntax count;

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* then]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Enable the collection of statistics for the configured term. The collection of statistics for a term is disabled by default.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- then (HTTP Header Enrichment) on page 199

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charging (APN)

Syntax

```
charging {
  default-profile default-profile;
  home-profile home-profile;
  profile-selection-order [profile-selection-method];
  roamer-profile roamer-profile;
  visitor-profile visited-profile;
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the charging profiles for the access point name (APN) that will be used to charge the different types of subscribers who access the APN on the broadband gateway. The **profile-selection-order** configuration indicates the order of preference for the source of the charging profile. If the **profile-selection-order** configuration indicates **static**, then the charging profiles specified are used to charge a subscriber.

NOTE: **The charging profiles must already be configured on the broadband gateway.**

When a subscriber session is created on the APN, a charging profile is applied to the session depending on the type of subscriber (home, visitor, or roamer). The home public land mobile network (HPLMN) configured on the broadband gateway is used to determine the type of subscriber:

- If the subscriber's International Mobile Subscriber Identity (IMSI), mobile country code (MCC), and the mobile network code (MNC) do not match the corresponding values configured for the HPLMN, then the subscriber is deemed a visitor and the **visited-profile** is applied. If the **visited-profile** is not configured, then the **default-profile** is applied.
- If the subscriber's IMSI, MCC, and MNC match the corresponding value configured for the HPLMN, but the subscriber's Routing Area Identity (RAI) does not match the corresponding RAI configured for the HPLMN, then the subscriber is deemed a roamer and the **roamer-profile** is applied. If the **roamer-profile** is not configured, then the **default-profile** is applied.
- If the subscriber is neither a visitor nor a roamer, then the subscriber is deemed a home subscriber and the **home-profile** is applied. If the **home-profile** is not configured, then the **default-profile** is applied.

NOTE: **In the absence of a charging profile from all sources, the subscriber session is created without charging enabled.**

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- charging-profiles on page 237

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default-profile

Syntax default-profile *default-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging], [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the default profile. If the **profile-selection-order** configuration indicates **static**, and if the corresponding charging profile applicable to the type of subscriber (home, visitor, or roamer) has not been specified, then the default profile is applied.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines the type of subscriber by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE) and compares these with the corresponding values configured for the home public land mobile network (HPLMN). Depending on whether a subscriber is a home subscriber, a visitor, or a roamer, the **home-profile**, **visited-profile**, or **roamer-profile** is applied. If the applicable profile is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options ***default-profile***—Name of the default profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

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description (APN)

Syntax description *description*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Enter a description for the access point name (APN).

Options ***description***—Description of the APN.

Range: Up to 80 characters

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

destination-address (HTTP Header Enrichment)

Syntax

```
destination-address {
   (any-unicast | any-unicast except);
   [(prefix | prefix except)];
}
```

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the IP address to which to apply the HTTP header extension information.

Once this criteria and the other match criteria specified for term are matched, then the actions specified for the term are applied.

Options **any-unicast**—Specify that any unicast address is matched.

any-unicast except—Specify that all addresses except unicast addresses are matched.

prefix—Specify the IP prefix for the addresses that are matched.

***prefix* except**—Specify that the addresses except the ones specified in the IP prefix are matched.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring HTTP Header Enrichment*
- from (HTTP Header Enrichment) on page 157

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destination-address-range (HTTP Header Enrichment)

Syntax

```
destination-address-range {
   [high address low address] [except];
}
```

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the destination IP address range to which HTTP header enrichment is applied. You can specify multiple address ranges by including the **destination-address-range** statement multiple times.

Options

high *address*—Upper limit of the address range.

low *address*—Lower limit of the address range.

except—Specify that addresses that are not in the specified address range are matched.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- from (HTTP Header Enrichment) on page 157

destination-port-range (HTTP Header Enrichment)

Syntax

```
destination-port-range {
   [high port-number low port-number];
}
```

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the destination port range to which the HTTP header enrichment is applied. You can specify multiple port ranges by including the **destination-port-range** statement multiple times.

Options

high *port-number*—Upper limit of the port range.

low *port-number*—Lower limit of the port range.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- from (HTTP Header Enrichment) on page 157

destination-ports (HTTP Header Enrichment)

Syntax destination-ports [*value*];

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the destination ports to which the HTTP header enrichment is applied. You can specify multiple ports by including the **destination-ports** statement multiple times.

Options *value*—Port number.

Range: 0 through 65,535

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- from (HTTP Header Enrichment) on page 157

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destination-prefix-list (HTTP Header Enrichment)

Syntax

```
destination-prefix-list {
   [(prefix-name | prefix-name except)];
}
```

Hierarchy Level

[edit services hcm tag-rule *rule-name* term *term-name* from]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify the destination prefix list to which the HTTP header enrichment is applied. You can specify multiple prefix lists by including the **destination-prefix-list** statement multiple times.

Options

prefix-name—Name of the prefix list.

NOTE: **The prefix list must already be defined at the [edit policy-options prefix-list] hierarchy level.**

***prefix-name* except**—Specify that the destination addresses not in the specified prefix list are matched.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- from (HTTP Header Enrichment) on page 157

dhcp-proxy-client (APN Address Assignment)

Syntax

```
dhcp-proxy-client {
  aaa-override;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the address assignment option so that the IP subnet returned by the Dynamic Host Configuration Protocol (DHCP) server is used by the broadband gateway when it assigns IP addresses for subscribers. If this option is configured, then you must configure a DHCP (IPv4 or IPv6) proxy client profile on the broadband gateway. The broadband gateway uses the information configured in the DHCP proxy client profile to obtain the IP subnet returned by the DHCP server.

The remaining statements are explained separately.

Default

If you omit the **dhcp-proxy-client** statement, the default address assignment option is **local**. This means that the IP addresses are assigned by the broadband gateway using the mobile pool or mobile pool group configured on the APN. If a mobile pool or a mobile pool group is not specified, then the default mobile pool is used to assign the IP address. The default mobile pool is configured on the routing instance that is associated with the mobile interface of the APN.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- address-assignment (APN) on page 128
- *Configuring Address Assignment on a Broadband Gateway APN*
- *Example: Configuring Broadband Gateway APNs*

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dhcpv4-proxy-client-profile (APN Address Assignment)

Syntax

```
dhcpv4-proxy-client-profile {
  logical-system logical-system;
  pool-name pool-name;
  profile-name profile-name;
  routing-instance routing-instance;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the Dynamic Host Configuration Protocol (DHCP) IPv4 proxy client profile for the access point name (APN). The broadband gateway uses the DHCP proxy client profile to obtain the subnet or the prefix from the DHCP server for the APN. The subnet or the prefix is managed locally and a single IP address is provided to the user equipment (UE) in the Create Session Response message.

NOTE: If you selected **dhcp-proxy-client** as the mode of address assignment for the broadband gateway, then you must configure a DHCP (IPv4 or IPv6) proxy client profile.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- address-assignment (APN) on page 128
- *Configuring Address Assignment on a Broadband Gateway APN*
- *Enabling DHCP on a Broadband Gateway APN*

dhcpv6-proxy-client-profile (APN Address Assignment)

Syntax

```
dhcpv6-proxy-client-profile {
  logical-system logical-system;
  pool-name pool-name;
  profile-name profile-name;
  routing-instance routing-instance;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the Dynamic Host Configuration Protocol (DHCP) IPv6 proxy client profile for the access point name (APN). The broadband gateway uses the DHCP proxy client profile to obtain the subnet or the prefix from the DHCP server for the APN. The subnet or the prefix is managed locally and a single IP address is provided to the user equipment (UE) in the Create Session Response message.

NOTE: If you selected **dhcp-proxy-client** as the mode of address assignment for the broadband gateway, then you must configure a DHCP (IPv4 or IPv6) proxy client profile.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- address-assignment (APN) on page 128
- *Configuring Address Assignment on a Broadband Gateway APN*
- *Enabling DHCP on a Broadband Gateway APN*

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dns-server (APN)

Syntax

```
dns-server {
   primary-v4 primary-v4;
   primary-v6 primary-v6;
   secondary-v4 secondary-v4;
   secondary-v6 secondary-v6;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the IP addresses of the Domain Name System (DNS) servers for the access point name (APN).

During the creation of a session, the user equipment (UE) may request the broadband gateway for the DNS server address. Typically, the gateway obtains this information from the authentication, authorization, and accounting (AAA) server. If the DNS server address is not available from the AAA server, then the gateway sends the DNS server addresses configured for the APN to the user equipment.

Options

primary-v4 *primary-v4*—IPv4 address of the primary DNS server.

primary-v6 *primary-v6*—IPv6 address of the primary DNS server.

secondary-v4 *secondary-v4*—IPv4 address of the secondary DNS server.

secondary-v6 *secondary-v6*—IPv6 address of the secondary DNS server.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

encrypt (HTTP Header Enrichment)

Syntax

```
encrypt {
   hash algorithm;
   prefix hash-prefix;
}
```

Hierarchy Level

[edit services hcm tag-rule *rule-name* term *term-name* then tag *tag-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify the transform to be applied to the header for the HTTP header enrichment. This allows subscriber attributes to be added in a way that is obscured from the user.

NOTE: **If you include this statement, then you also must configure hash and prefix statements.**

Options

hash *algorithm*—Specify the hashing algorithm. Currently, only **md5** is supported.

prefix *hash-prefix*—Specify the prefix key (up to 63 characters). The prefix key is concatenated with the specified tag attribute and hashed. The resulting hash value is then inserted into the HTTP header.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- tag (HTTP Header Enrichment) on page 191

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exclude-pools (APN Address Assignment)

Syntax exclude-pools [*value*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment inet-pool]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the IPv4 mobile pools to exclude from the specified mobile pool group for this access point name (APN). The IP addresses in the excluded mobile pools are not used by the broadband gateway during IP address assignment to subscribers.

NOTE: **This configuration is valid only when you specify a mobile pool group for the APN.**

Options ***value***—Name of the mobile pool to exclude.

To specify multiple mobile pools to exclude, include the **exclude-pools** statement multiple times.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- inet-pool (APN Address Assignment) on page 164

exclude-v6pools (APN Address Assignment)

Syntax exclude-v6pools [*value*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment inet6-pool]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the IPv6 mobile pools to exclude from the specified mobile pool group for this access point name (APN). The IP addresses in excluded mobile pools are not used by the broadband gateway during IP address assignment to subscribers.

NOTE: **This configuration is valid only when you specify a mobile pool group for the APN.**

Options ***value***—Name of the mobile pool to exclude.

To specify multiple mobile pools to exclude, include the **exclude-v6pools** statement multiple times.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- inet6-pool (APN Address Assignment) on page 165

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from (HTTP Header Enrichment)

Syntax

```
from {
  destination-address {
    (any-unicast | any-unicast except);
    [prefix];
  }
  destination-address-range {
    [high address low address] [except];
  }
  destination-port-range {
    [high port-number low port-number];
  }
  destination-ports [value];
  destination-prefix-list {
    (prefix-name | prefix-name except);
  }
}
```

Hierarchy Level

[edit services hcm tag-rule *rule-name* term *term-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify the match criteria for the term. If all the conditions specified in the match criteria are met, then the actions specified in the **then** statement are applied.

NOTE: You must configure this statement and include at least one match criterion.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- term (HTTP Header Enrichment) on page 198

group (APN Address Assignment)

Syntax

group *group*;

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment inet-pool],
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment inet6-pool]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify a previously configured mobile pool group (IPv4 or IPv6) for the access point name (APN). The broadband gateway uses the mobile pool group to assign IP addresses locally to subscribers.

NOTE: **You can specify either a mobile pool group or a mobile pool, but not both.**

Default

If neither a mobile pool nor mobile group is specified, then the default mobile pool is used to assign the IP address. The default mobile pool is configured in the routing instance that is associated with the mobile interface of the APN.

Options

group—Name of the mobile pool group.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- inet-pool (APN Address Assignment) on page 164
- inet6-pool (APN Address Assignment) on page 165
- mobile-pool-groups on page 82

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hcm (HTTP Header Enrichment)

Syntax

```
hcm {
  tag-attribute [attr-name];
  tag-rule rule-name {
    term term-name {
      from {
        destination-address {
          (any-unicast | any-unicast except);
          [prefix];
        }
        destination-address-range {
          [high address low address] [except];
        }
        destination-port-range {
          [high port-number low port-number];
        }
        destination-ports [value];
        destination-prefix-list {
          (prefix-name | prefix-name except);
        }
      }
      then{
        count;
        tag tag-name {
          encrypt {
            hash algorithm;
            prefix hash-prefix;
          }
          tag-attribute tag-attr-name;
          tag-header header;
          tag-separator separator;
        }
      }
    }
  }
  tag-rule-set rule-set-name {
    [rule rule-name];
  }
}
```

Hierarchy Level [edit services]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the parameters required to support Hypertext Transfer Protocol (HTTP) header enrichment on the broadband gateway.

The broadband gateway can support content added to the HTTP headers sent back and forth as part of the client-server exchange for mobile subscribers accessing Web-based services. You configure HTTP header enrichment as a service for an access point name (APN).

The remaining statements are explained separately.

Required Privilege Level
interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- [edit services hcm] Hierarchy Level on page 9
- *Configuring HTTP Header Enrichment*

home-profile

Syntax
home-profile *home-profile*;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging],
[edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description
Specify the profile that should be used to charge home subscribers. If the **profile-selection-order** configuration indicates **static**, then this profile is used for home subscribers.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines whether the subscriber is a home subscriber by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE). If the subscriber's International Mobile Subscriber Identity (IMSI), MCC, and MNC belong to the same PLMN to which both the GGSN or P-GW and the S-GW belong, then the subscriber is deemed a home subscriber and the **home-profile** is applied. If the **home-profile** is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options
home-profile—Name of the home profile.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

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idle-timeout (APN)

Syntax idle-timeout *idle-timeout*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the idle timeout for the access point name (APN). The idle timeout is the duration that the packet data protocol (PDP) context or bearer waits to receive a data packet before timing out. After the idle timeout expires, the broadband gateway takes down the PDP context or bearer. Setting the idle timeout ensures that if no data is being sent for the duration specified, then the PDP context and bearers can be taken down, and the gateway's resources can be freed.

Options ***idle-timeout***—Idle timeout for the APN.

Range: 0 through 300 minutes

Default: 0 minutes indicates that idle timeout will not be detected. PDP contexts or bearers will remain active indefinitely even if there is no data being transmitted.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*
- idle-timeout-direction (APN) on page 162

idle-timeout-direction (APN)

Syntax idle-timeout-direction (both | uplink);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the direction of the traffic (uplink or both uplink and downlink) to be considered for idle timeout for the access point name (APN).

NOTE: The **idle-timeout-direction** is applicable only if you have configured an *idle-timeout* value.

Default If you do not specify an option, **both** is considered the default timeout direction; that is, the idle period is detected in both the uplink and downlink direction.

Options **both**—Detect the idle periods for data traffic flowing in both uplink and downlink directions.

uplink—Detect the idle periods for data traffic flowing only in the uplink direction.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*
- idle-timeout (APN) on page 161

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imsi (Network Behind Mobile)

Syntax

```
imsi imsi {
  prefix-v4 [ipv4-prefix];
  prefix-v6 [ipv6-prefix];
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* network-behind-mobile]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify the International Mobile Subscriber Identity (IMSI) of the user equipment (UE). The broadband gateway uses the IMSI to map the configured prefixes to a GPRS tunneling protocol (GTP) tunnel and forwards the traffic to the devices behind the user equipment.

NOTE: If you configure the **imsi** statement, you must specify either the IPv4 prefix, the IPv6 prefix, or both prefixes.

The remaining statements are explained separately.

Options

imsi—IMSI of the user equipment.

To configure multiple IMSIs, include the **imsi** statement multiple times.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Networks Behind the Mobile Equipment Feature*
- network-behind-mobile on page 173

inet-pool (APN Address Assignment)

Syntax

```
inet-pool {
  exclude-pools [value];
  group group;
  pool pool;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the IPv4 mobile pool or mobile pool group that will be used by the broadband gateway to assign IP addresses locally to subscribers. If you specify a mobile pool group, you can also configure a set of mobile pools to be excluded from the access point name (APN).

You configure the **inet-pool** if you selected **local** as the mode of address assignment for the broadband gateway.

NOTE: **You can specify either a mobile pool group or a mobile pool, but not both.**

The remaining statements are explained separately.

Default

If neither a mobile pool nor a mobile group is specified, then the default mobile pool is used to assign the IP address. The default mobile pool is configured in the routing instance that is associated with the mobile interface of the APN.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- address-assignment (APN) on page 128
- *Configuring Address Assignment on a Broadband Gateway APN*

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inet6-pool (APN Address Assignment)

Syntax

```
inet6-pool {
  exclude-v6pools [value];
  group group;
  pool pool;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the IPv6 mobile pool or mobile pool group that will be used by the broadband gateway to assign IP addresses locally to subscribers. If you specify a mobile pool group, you can also configure a set of mobile pools to be excluded from the access point name (APN).

You configure the **inet6-pool** if you selected **local** as the mode of address assignment for the broadband gateway.

NOTE: **You can specify either a mobile pool group or a mobile pool, but not both.**

The remaining statements are explained separately.

Default

If neither a mobile pool nor mobile group is specified, then the default mobile pool is used to assign the IP address. The default mobile pool is configured in the routing instance that is associated with the mobile interface of the APN.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- address-assignment (APN) on page 128
- *Configuring Address Assignment on a Broadband Gateway APN*

inter-mobile-traffic (APN)

Syntax

```
inter-mobile-traffic {
   (deny | redirect redirect);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the inter-mobile traffic options for the access point name (APN).

Inter-mobile traffic refers to the traffic between two user equipment (UE) that are anchored on the broadband gateway. You can either deny inter-mobile traffic, which means that the gateway will drop the inter-mobile traffic, or redirect the inter-mobile traffic through the configured IP address.

Options

deny—Do not allow inter-mobile traffic.

redirect *redirect*—IPv4 address to which the inter-mobile traffic should be redirected.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

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local (APN Address Assignment)

Syntax

```
local {
  aaa-override;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the address assignment option so that the broadband gateway assigns IP addresses locally to subscribers. The gateway assigns addresses using the mobile pool or mobile pool group previously configured on the access point name (APN).

NOTE: **An APN can have a mobile pool or a mobile pool group configured, but not both.**

The remaining statement is explained separately.

Default

If you do not specify any option, the default address assignment option is **local**. If a mobile pool or a mobile pool group is not specified, then the default mobile pool is used to assign the IP address. The default mobile pool is configured in the routing instance that is associated with the mobile interface of the APN.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- address-assignment (APN) on page 128
- *Configuring AAA-Assigned Addresses to Override Locally or DHCP-Assigned Addresses*

local-policy-profile (APN)

Syntax local-policy-profile *local-policy-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify a local policy for the access point name (APN) on the broadband gateway. The local policy is a combination of the quality-of-service (QoS) policy (**cos-policy-profile**), the classifier policy (**classifier-profile**), and the resource threshold policy (**resource-threshold-policy**). The local policy specified for the APN takes precedence over the one specified for the gateway.

NOTE: **The local-policy-profile must already be configured at the [edit unified-edge] hierarchy level.**

Default If you do not specify a local policy for the APN, then the local policy specified for the gateway is applied.

Options ***local-policy-profile***—Name of local policy profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- local-policy-profile (Broadband Gateway) on page 598

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logical-system (APN Address Assignment)

Syntax

logical-system *logical-system*;

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv4-proxy-client-profile],
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv6-proxy-client-profile]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the logical system where the Dynamic Host Configuration Protocol (DHCP) proxy client profile (IPv4 or IPv6) is defined.

Default

If you do not configure this statement, then the default logical system configured is used.

Options

logical-system—Name of the logical system where the DHCP proxy client profile is defined.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- dhcpv4-proxy-client-profile (APN Address Assignment) on page 151
- dhcpv6-proxy-client-profile (APN Address Assignment) on page 152
- *Enabling DHCP on a Broadband Gateway APN*

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maximum-bearers (APN)

Syntax maximum-bearers *maximum-bearers*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum number of bearers or packet data protocol (PDP) contexts allowed for the access point name (APN). The maximum number of bearers specified for the APN takes precedence over the corresponding value specified for the gateway.

Default If you do not configure the **maximum-bearers** for the APN, then the maximum bearers allowed for the APN is limited by the **maximum-bearers** configured for the gateway.

Options ***maximum-bearers***—Maximum number of bearers for the APN.

Range: 1000 through 12,000,000 bearers

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*
- *Configuring the Maximum Number of Bearers*
- maximum-bearers (Broadband Gateway) on page 602

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mobile-interface (APN)

Syntax mobile-interface *mobile-interface*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the mobile interface for the access point name (APN).

NOTE: **You can configure the mobile-interface statement only if the APN type is real.**

A class of subscribers is represented by a logical interface (**ifl**) template. This logical interface template is configured in the mobile interface (**interfaces mif**) hierarchy level. The APN is associated with the mobile logical interface (**mif**) template through this configuration. Therefore, all subscribers in this APN will execute the common features, such as a firewall, in the **mobile-ifl** context.

NOTE: **The configuration of a mobile interface is mandatory.**

Options ***mobile-interface***—Mobile interface name.

NOTE: **The interface must be defined as a mobile interface (mif-) in the broadband gateway interface hierarchy.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- apn-type on page 138
- *Configuring General APN Parameters on the Broadband Gateway*
- *Configuring Mobile Interfaces for APNs*
- interfaces (Mobile Interface) on page 671

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nbns-server (APN)

Syntax

```
nbns-server {
   primary-v4 primary-v4;
   secondary-v4 secondary-v4;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the NetBIOS name server (NBNS) servers for the access point name (APN).

During the creation of a session, the user equipment (UE) may request the NBNS server address from the broadband gateway. Typically, the gateway obtains this information from the authentication, authorization, and accounting (AAA) server. If the NBNS server address is not available from the AAA server, the gateway sends the NBNS server addresses configured for the APN to the user equipment.

Options

primary-v4 *primary-v4*—IPv4 address of the primary NBNS server.

secondary-v4 *secondary-v4*—IPv4 address of the secondary NBNS server.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

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network-behind-mobile

Syntax

```
network-behind-mobile {
  imsi imsi {
    prefix-v4 [ipv4-prefix];
    prefix-v6 [ipv6-prefix];
  }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the configuration for network behind mobile for the access point name (APN). The broadband gateway acts as the IP anchor for devices that are behind the user equipment and forwards traffic to and from these devices. The broadband gateway determines the network prefixes or IP addresses for the devices behind the user equipment either from the prefixes configured for the APN or from the Access Accept messages from the authentication, authorization, and accounting (AAA) server.

The remaining statements are explained separately.

NOTE: You must enable support for network behind mobile for the APN by including the **allow-network-behind-mobile** statement at the **[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]** hierarchy level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- allow-network-behind-mobile on page 130
- *Configuring the Networks Behind the Mobile Equipment Feature*
- *Example: Configuring the Networks Behind the Mobile Device Feature*
- *Networks Behind the Mobile Device Overview*

no-aaa-verify (APN Address Assignment)

Syntax no-aaa-verify;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment allow-static-ip-address]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify that the static IP address provided by the user equipment (UE) is not verified by the broadband gateway.

Default If you omit the **no-aaa-verify** statement, then the static IP address provided by the user equipment is verified with the authentication, authorization, and accounting (AAA) server during the authentication phase.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- allow-static-ip-address (APN Address Assignment) on page 131
- *Configuring Address Assignment on a Broadband Gateway APN*

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p-cscf (APN)

Syntax

```
p-cscf {
   [address];
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the IPv4 or IPv6 address of the proxy-call session control function (P-CSCF) server, which is used for IP Multimedia Subsystem (IMS) calls.

During the creation of a session, the user equipment (UE) can request the P-CSCF server's address from the broadband gateway. Typically, the gateway obtains this information from the authentication, authorization, and accounting (AAA) server. If the P-CSCF server's address is not available from the AAA server, the gateway sends the P-CSCF server's address configured for the APN to the user equipment.

Options

address—IP address (IPv4 and/or IPv6) of the P-CSCF server.

To specify multiple addresses, include the **p-cscf** statement multiple times.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

prefix-v4 (Network Behind Mobile)

Syntax prefix-v4 [*ipv4-prefix*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* network-behind-mobile imsi *imsi*]

Description Configure the IPv4 prefixes for the devices behind the user equipment.

NOTE:

- If you configure the **imsi** statement, you must specify either the IPv4 prefix, the IPv6 prefix, or both prefixes.
- You can configure maximum of 32 prefixes (only IPv4, only IPv6, or both IPv4 and IPv6).
- By default, the IPv4 prefixes configured using this statement take precedence over the information returned by the authentication, authorization, and accounting (AAA) server. However, if the access point name's address assignment is configured to use the local pool and if the **aaa-override** statement is also specified, then the prefixes configured using this statement are overwritten by the information obtained from the AAA server.

Options ***ipv4-prefix***—IPv4 prefix of the device.

To configure multiple IPv4 prefixes, include the **prefix-v4** statement multiple times.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Networks Behind the Mobile Equipment Feature*
- imsi (Network Behind Mobile) on page 163

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prefix-v6 (Network Behind Mobile)

Syntax prefix-v6 [*ipv6-prefix*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* network-behind-mobile imsi *imsi*]

Description Configure the IPv6 prefixes for the devices behind the user equipment. The MobileNext Broadband Gateway uses these prefixes to forward traffic to and from the devices behind the user equipment.

NOTE:

- If you configure the **imsi** statement, you must specify either the IPv4 prefix, the IPv6 prefix, or both prefixes.
- You can configure maximum of 32 prefixes (only IPv4, only IPv6, or both IPv4 and IPv6).
- By default, the IPv6 prefixes configured using this statement take precedence over the information returned by the authentication, authorization, and accounting (AAA) server. However, if the access point name's address assignment is configured to use the local pool and if the **aaa-override** statement is also specified, then the prefixes configured using this statement are overwritten by the information obtained from the AAA server.

Options ***ipv6-prefix***—IPv6 prefix of the device.

To configure multiple IPv6 prefixes, include the **prefix-v6** statement multiple times.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Networks Behind the Mobile Equipment Feature*
- imsi (Network Behind Mobile) on page 163

pool (APN Address Assignment)

Syntax pool *pool*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment inet-pool],
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment inet6-pool]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify a mobile pool (IPv4 or IPv6) for the access point name (APN). The broadband gateway uses the mobile pool to assign IP addresses locally to subscribers. The mobile pool that you specify must already be configured on the broadband gateway.

NOTE: You can specify either a mobile pool or a mobile pool group, but not both.

Default If neither a mobile pool nor mobile group is specified, then the default mobile pool is used to assign the IP address. The default mobile pool is configured in the routing instance that is associated with the mobile interface of the APN.

Options ***pool***—Name of the pool.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- inet-pool (APN Address Assignment) on page 164
- inet6-pool (APN Address Assignment) on page 165
- mobile-pools on page 83

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pool-name (APN Address Assignment)

Syntax pool-name *pool-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv4-proxy-client-profile],
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv6-proxy-client-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the name of the pool to be sent to the Dynamic Host Configuration Protocol (DHCP) server. The DHCP server returns a subnet or prefix for the access point name (APN) from the specified pool or from a different pool, based on the configuration of the DHCP server. This parameter is optional.

Options ***pool-name***—Name of the pool to be sent to the DHCP server.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- dhcpv4-proxy-client-profile (APN Address Assignment) on page 151
- dhcpv6-proxy-client-profile (APN Address Assignment) on page 152
- *Enabling DHCP on a Broadband Gateway APN*

profile-name (APN Address Assignment)

Syntax profile-name *profile-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv4-proxy-client-profile],
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv6-proxy-client-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the Dynamic Host Configuration Protocol (DHCP) proxy client profile (IPv4 or the IPv6) for the access point name (APN). The profile name under a specific or the default logical system, and a specific or the default routing instance are used when the gateway requests the DHCP server for subnets for the APN.

NOTE: The proxy client profile must be previously configured on the broadband gateway. This configuration is done when you configure address pools for mobile subscribers.

Options ***profile-name***—Name of the DHCP proxy client profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- dhcpv4-proxy-client-profile (APN Address Assignment) on page 151
- dhcpv6-proxy-client-profile (APN Address Assignment) on page 152
- *Enabling DHCP on a Broadband Gateway APN*
- mobile-pools on page 83

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profile-selection-order (APN)

Syntax profile-selection-order [*profile-selection-method*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the order of the methods used to select a charging profile applicable for a subscriber's session. You can specify a maximum of three profile selection methods—**radius**, **static**, or **serving**. If the first choice is not available, then the next choice is considered, and so on.

For example, consider a scenario where the profile selection order is **radius**, **serving**, and **static**. Since **radius** is the first choice, the charging profile provided by the authentication, authorization, and accounting (AAA) server will be used. If the AAA server does not provide a charging profile ID in the Authentication Accept message, then the next choice (**serving**) is considered. If the Serving GPRS Support Node (SGSN) does not provide a charging profile ID in the charging characteristics information element (IE) within the GPRS tunneling protocol (GTP) Create Session message, then the next choice (**static**) is considered. With the **static** option, the charging profiles that you specified on the access point name (APN) are used to charge the subscriber based on subscriber's status (home, visitor, or roamer).

NOTE: **If the charging profile cannot be selected by any of the methods specified, then charging is disabled for that subscriber.**

Options ***profile-selection-method***—One or more profile selection methods, listed in the order in which they should be tried. The method can be one or more of the following:

- **radius**—Use the charging profile sent by the AAA server.
- **serving**—Use the charging profile sent by the SGSN or the Serving Gateway (S-GW).
- **static**—Use the charging profile configured locally for the APN on the broadband gateway.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- charging (APN) on page 143

restriction-value (APN)

Syntax restriction-value *restriction-value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the restriction value for the access point name (APN) based on the applications allowed on this APN and on other APNs configured on the broadband gateway. When you configure a restriction value for an APN, the restriction value determines the traffic that can be sent by a subscriber on that APN to other APNs. For example, subscribers cannot send Wireless Application Protocol (WAP) or Multimedia Messaging Service (MMS) messages to subscribers on an APN that does not support MMS or WAP.

Table 5 on page 182 displays the valid restriction values that you can configure.

Table 5: Valid Restriction Values for APNs

Maximum APN Restriction Value	Type of APN	Application Example	Allowed Restriction Values on Other APNs
0	Not applicable (no restriction)	Not applicable (no restriction)	All
1	Public Type 1	WAP or MMS	1,2, or 3
2	Public Type 1	Internet or other Packet Data Network (PDN)	1 or 2
3	Private Type 1	Corporate network MMS	1
4	Private Type 2	Corporate network without MMS	None

Options ***restriction-value***—Restriction value for the APN.

Range: 0 through 4

Default: 0 indicates that there are no restrictions on the traffic sent from one APN to another.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring the Restriction Value on a Broadband Gateway APN*

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roamer-profile

Syntax roamer-profile *roamer-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging], [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the profile that should be used to charge roaming subscribers. If the **profile-selection-order** configuration indicates **static**, then this profile is used for roaming subscribers.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines whether the subscriber is a roamer by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE). If the subscriber's International Mobile Subscriber Identity (IMSI), MCC, and MNC belong to the same PLMN as the GGSN or P-GW, but the S-GW belongs to a different PLMN, then the subscriber is deemed a roamer and the **roamer-profile** is applied. If the **roamer-profile** is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options ***roamer-profile***—Name of the roamer profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

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routing-instance (APN Address Assignment)

Syntax routing-instance *routing-instance*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv4-proxy-client-profile],
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv6-proxy-client-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the routing instance where the Dynamic Host Configuration Protocol (DHCP) proxy client profile (IPv4 or IPv6) is defined.

Default If you do not configure this statement, then the default routing instance configured is used.

Options ***routing-instance***—Routing instance where the DHCP proxy client profile is defined.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Address Assignment on a Broadband Gateway APN*
- dhcpv4-proxy-client-profile (APN Address Assignment) on page 151
- dhcpv6-proxy-client-profile (APN Address Assignment) on page 152
- *Enabling DHCP on a Broadband Gateway APN*

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rule (Tag Rule Set)

Syntax [rule *rule-name*];

Hierarchy Level [edit services hcm tag-rule-set]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the tag rule that should be a part of the tag rule set.

NOTE: **The tag rule must already be defined at the [edit services hcm] hierarchy level.**

Options ***rule-name***—Name of the tag rule.

To specify multiple tag rules, include the **rule** statement multiple times.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- tag-rule-set (HTTP Header Enrichment) on page 196

selection-mode (APN)

Syntax

```
selection-mode {
   (from-ms | from-sgsn | no-subscribed);
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the access point name (APN) to support the use of the Selection Mode information element (IE) in the Create Session Request or the Create Packet Data Protocol (PDP) Context message. The broadband gateway accepts or rejects the activation of the bearer or the PDP context depending on the **selection-mode** configured. Table 6 on page 186 displays the selection mode IE values and their descriptions.

The following selection mode options can be configured for the APN:

- **from-ms**—If you configure this option, then the broadband gateway allows the Create Session Request or Create PDP Context message with the selection mode IE value of 1.
- **from-sgsn**—If you configure this option, then the broadband gateway allows the Create Session Request or Create PDP Context message with the selection mode IE value of 2 or 3.
- **no-subscribed**—If you configure this option, then the broadband gateway rejects the Create Session Request or Create PDP Context message with the selection mode IE value of 0.

Table 6: Selection Mode Values

Description	Value
MS-provided or network-provided APN, subscription verified	0
MS-provided APN, subscription not verified	1
Network-provided APN, subscription not verified	2
For future use. NOTE: This selection mode should not be sent. However, if it is received, then its value is interpreted as 2.	3

Default If you do not configure this statement, then the broadband gateway allows the Create Session Request or Create PDP Context message with the selection mode IE value of 0.

Options **from-ms**—Admit subscribers with a mobile-station-provided APN without a verified subscription.

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from-sgsn—Admit subscribers with a network-provided APN without a verified subscription.

no-subscribed—Reject subscribers with a mobile-station-provided or a network-provided APN, with a verified subscription.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

service-mode (APN)

Syntax
service-mode *service-mode-options*;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.

Description
Specify that the access point name (APN) should be in **maintenance** mode. You do this if you want to carry out maintenance tasks like deleting an APN or changing the APN type and so on. See the *Maintenance Mode* chapter in the *MobileNext Broadband Gateway Configuration Guide* for a list of the maintenance tasks that can be carried out when the APN is in maintenance mode.

When in the **Maintenance Mode Active Phase**, all the valid attributes on the object can be modified. In other cases, only the non-maintenance mode attributes can be modified.

Options
service-mode-options—Specify the service mode. Currently, **maintenance** mode is the only option supported.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- apns on page 139
- *Configuring the Mobile Interface of an Access Point Name*
- *Deleting an Access Point Name*
- *Example: Changing Access Point Name Values*
- *Modifying an Access Point Name*

service-selection-profile (APN)

Syntax service-selection-profile *service-selection-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the service selection profile to be used for the access point name (APN). Service selection profiles specify the selection criteria that determine which subscribers use the APN or are serviced by the broadband gateway.

NOTE: The service selection profile must be previously configured on the broadband gateway at the **[edit unified-edge gateways ggsn-pgw *gateway-name*]** hierarchy level.

Options ***service-selection-profile***—Service selection profile for the APN.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring APN Service Selection on a Broadband Gateway*
- service-selection-profiles on page 659

service-set-options

Syntax

```
service-set-options {
  subscriber-awareness;
}
```

Hierarchy Level [edit services service-set *service-set-name*]

Release Information Statement introduced in Junos OS Release 10.1.

Description Specify the service set options to apply to a service set. These options are used to indicate to the mobility control plane infrastructure that the services PIC should be programmed with the subscriber data on receipt of a Create Subscriber Request message.

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- service-set (Aggregated Multiservices) on page 638

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session-timeout (APN)

Syntax session-timeout *session-timeout*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the session timeout for the access point name (APN). The session timeout is the period that a default bearer or a primary packet data protocol (PDP) context is active (with or without receiving data packets) before timing out. When the configured session timeout expires, the broadband gateway deactivates the default bearer or the primary PDP context.

Options ***session-timeout***—Session timeout for the APN.

Range: 0 through 720 hours

Default: 0 hours indicates that session timeout will not be enabled for the APN.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

subscriber-awareness (Service Set Options)

Syntax subscriber-awareness;

Hierarchy Level [edit services service-set *service-set-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Enable subscriber awareness on the service set.

To provide subscriber-aware services, you must configure the **subscriber-aware** statement on the service set. This is a prerequisite for obtaining mobility subscriber-aware services on the service set. For subscriber-aware HTTP header enrichment (HTTP HE) services for mobility, the service set containing the HTTP HE rules must be configured as subscriber-aware.

Configuring a service set as subscriber-aware allows services to obtain subscriber-specific information. In the case of HTTP HE, the subscriber-specific information is the Mobile Station ISDN (MSISDN) number or the International Mobile Subscriber Identity (IMSI) of the mobile subscriber. Configuring a service set as subscriber-aware enables the HTTP HE service to correlate the HTTP connections with the correct subscriber and insert the subscriber's corresponding IMSI or MSISDN into the HTTP header, as configured in the HTTP HE rules.

Default If you do not include the **subscriber-awareness** statement, then mobility subscriber-aware services cannot be provided.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- service-set-options on page 188

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tag (HTTP Header Enrichment)

Syntax

```
tag tag-name {
  encrypt {
    hash algorithm;
    prefix hash-prefix;
  }
  tag-attribute tag-attr-name;
  tag-header header;
  tag-separator separator;
}
```

Hierarchy Level

[edit services hcm tag-rule *rule-name* term *term-name* then]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure the tags to be applied to the HTTP headers matching the criteria specified in the **from** statement. If you configure a tag, you must include the **tag-header** statement.

The remaining statements are explained separately.

Options

tag-name—Name of the tag.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- then (HTTP Header Enrichment) on page 199

tag-attribute (HTTP Header Enrichment)

Syntax tag-attribute [*attr-name*];

Hierarchy Level [edit services hcm]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the list of tag attributes to be used for the tag rules for HTTP header enrichment.

These attributes are stored in the subscriber database for mobile subscribers. Once these attributes are configured, they can be used in the tag rules. HTTP tag rules can be configured to choose one or more of these attributes to insert in the HTTP header.

Options *attr-name*—Tag attribute. To specify multiple attributes at one time, include the attributes in square brackets ([]). The supported mobile attributes are **imsi** and **msisdn**.

Values: Up to 63 characters

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring HTTP Header Enrichment*
- hcm (HTTP Header Enrichment) on page 159

tag-attribute (HTTP Header Enrichment Tag)

Syntax tag-attribute [*tag-attr-name*];

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* then tag *tag-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the tag attribute (for the tag header and separator) to insert into the HTTP header.

NOTE: **The tag attribute specified here must already be defined at the [edit services hcm] hierarchy level.**

Options ***tag-attr-name***—Tag attribute.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring HTTP Header Enrichment*
- tag (HTTP Header Enrichment) on page 191

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tag-header (HTTP Header Enrichment)

Syntax tag-header *header*;

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* then tag *tag-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the tag header for the tag to be inserted into the HTTP header. This is a required configuration.

Options *header*—Tag header.

Values: Up to 63 characters

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- tag (HTTP Header Enrichment) on page 191

tag-rule (HTTP Header Enrichment)

Syntax

```
tag-rule rule-name {
  term term-name {
    from {
      destination-address {
        (any-unicast | any-unicast except);
        [prefix];
      }
      destination-address-range {
        [high address low address] [except];
      }
      destination-port-range {
        [high port-number low port-number];
      }
      destination-ports [value];
      destination-prefix-list {
        (prefix-name | prefix-name except);
      }
    }
    then{
      count;
      tag tag-name {
        encrypt {
          hash algorithm;
          prefix hash-prefix;
        }
        tag-attribute tag-attr-name;
        tag-header header;
        tag-separator separator;
      }
    }
  }
}
```

Hierarchy Level [edit services hcm]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the tag rules that the broadband gateway uses to determine which HTTP headers are enriched with the appropriate tags.

Options *rule-name*—Name of the tag rule.

Values: 1 through 63 characters

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- hcm (HTTP Header Enrichment) on page 159

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tag-rules (HTTP Header Enrichment)

Syntax [tag-rules *rule-name*];

Hierarchy Level [edit services service-set *service-set-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify one or more tag rules to apply to a service set.

The tag rules are matched in the order that they are configured. If a rule is matched, then the actions specified in the tag rule are applied and the subsequent tag rules are skipped.

Options ***rule-name***—Name of the tag rule.

You can specify multiple tag rules by including the **tag-rules** statement multiple times.

NOTE: **The tag rules must already be defined at the [edit services hcm] hierarchy level.**

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- service-set (Aggregated Multiservices) on page 638

tag-rule-set (HTTP Header Enrichment)

Syntax

```
tag-rule-set rule-set-name {
   [rule rule-name];
}
```

Hierarchy Level [edit services hcm]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the tag rule set for HTTP header enrichment. You do this to group multiple configured tag rules into one tag rule set.

Options ***rule-set-name***—Name of the tag rule set.

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring HTTP Header Enrichment*
- hcm (HTTP Header Enrichment) on page 159

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tag-rule-sets (HTTP Header Enrichment)

Syntax [tag-rule-sets *rule-set-name*];

Hierarchy Level [edit services service-set *service-set-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify one or more tag rule sets to apply to a service set. If you have multiple tag rules to match, you can combine them together into a single tag rule set that can then be used across multiple service sets.

Options ***rule-set-name***—Name of the tag rule set.

You can specify multiple tag rule sets by including the **tag-rule-sets** statement multiple times.

NOTE: **The tag rule set must already be defined at the [edit services hcm] hierarchy level.**

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring HTTP Header Enrichment*
- service-set (Aggregated Multiservices) on page 638

tag-separator (HTTP Header Enrichment)

Syntax tag-separator *separator*;

Hierarchy Level [edit services hcm tag-rule *rule-name* term *term-name* then tag *tag-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the tag separator for the tag to be inserted into the HTTP header.

Options *separator*—Tag separator.
Syntax: 1 character
Default: / (forward slash)

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring HTTP Header Enrichment*
- tag (HTTP Header Enrichment) on page 191

term (HTTP Header Enrichment)

Syntax

```
term term-name {
  from {
    destination-address {
      (any-unicast | any-unicast except);
      [prefix];
    }
    destination-address-range {
      [high address low address] [except];
    }
    destination-port-range {
      [high port-number low port-number];
    }
    destination-ports [value];
    destination-prefix-list {
      (prefix-name | prefix-name except);
    }
  }
  then{
    count;
    tag tag-name {
      encrypt {
        hash algorithm;
        prefix hash-prefix;
      }
      tag-attribute tag-attr-name;
      tag-header header;
      tag-separator separator;
    }
  }
}
```

Hierarchy Level [edit services hcm tag-rule *rule-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the term (for the tag rule) that can be used to determine which HTTP headers are enriched. Multiple terms can be configured for a tag rule. Terms are evaluated in the order they are configured for a tag rule. If a data packet matches the criteria in any of the terms, then the actions specified in the **then** statement are applied. The data packet must match all the match conditions specified in a **from** statement. Once a term matches for a data packet, however, further terms are not evaluated. If no terms match, then the HTTP header is not enriched.

NOTE: **You must configure at least one term for the tag rule.**

The remaining statements are explained separately.

Options ***term-name***—Identifier for the term.

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Range: 1 through 32,767

Required Privilege Level
interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring HTTP Header Enrichment*
- tag-rule (HTTP Header Enrichment) on page 194

then (HTTP Header Enrichment)

Syntax

```
then {
  count;
  tag tag-name {
    encrypt {
      hash algorithm;
      prefix hash-prefix;
    }
    tag-attribute tag-attr-name;
    tag-header header;
    tag-separator separator;
  }
}
```

Hierarchy Level
[edit services hcm tag-rule *rule-name* term *term-name*]

Release Information
Statement introduced in Junos OS Mobility Release 11.4W.

Description
Specify the actions to be taken if the criteria specified in the tag rule are matched. All the actions specified here are applied when the criteria match.

NOTE: **You must configure this statement and include at least one action to be taken for the tag rule term.**

The remaining statements are explained separately.

Required Privilege Level
interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring HTTP Header Enrichment*
- hcm (HTTP Header Enrichment) on page 159

user-options (APN)

Syntax

```
user-options {
   override-pco;
   password password;
   (use-apnname | use-imsi | use-msisdn | user-name username);
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure a default username and password for the non-transparent access point name (APN) to authenticate anonymous users or all users (if the **override-pco** statement is configured) who are setting up sessions on the broadband gateway.

When a Create packet data protocol (PDP) Context Request or a Create Session Request message is received without the Protocol Configuration Options (PCO) Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP) information, the user options configured for the APN are used for user authentication with the authentication, authorization, and accounting (AAA) server.

If the PCO PAP or CHAP information is included in the received Create PDP Context Request or the Create Session Request message, then the username and password information is obtained from the PCO PAP or CHAP information. This username and password combination overrides the user options that you configured. You can override the username and password obtained from the PCO PAP or CHAP in the Create PDP Context Request or Create Session Request message by including the **override-pco** statement.

NOTE: **The information about the AAA server is obtained from the AAA profile that you specify for the APN.**

Options **password *password***—Password for user authentication.

Range: Up to 32 characters

use-apnname | use-imsi | use-msisdn | user-name *username*—Choose the type of username to be used for authenticating anonymous users or all users (if the **override-pco** statement is configured) in the APN:

- **use-apnname**—Use the APN name as the username to authenticate users.
- **use-imsi**—Use the International Mobile Subscriber Identity (IMSI) of the user's device as the username to authenticate users.
- **use-msisdn**—Use the Mobile Station ISDN (MSISDN) number of the user's device as the username to authenticate users.
- **user-name *username***—Default username to be used for authentication.

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override-pco—Override the username and password obtained from the PCO PAP or CHAP with the username and password configured for the APN.

NOTE: **If you configure this statement you must configure the password statement and one of the use-apnname, use-imsi, user-name, or use-msisdn statements.**

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- apns on page 139
- *Configuring User Options on a Broadband Gateway APN*

verify-source-address (APN)

Syntax

```
verify-source-address {
  disable;
}
```

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.

Description
Configure the verification of the IP address of the user equipment (UE) for the access point name (APN). The broadband gateway checks whether the source IP address in the data transfer packets from the user equipment is the same address that has been allocated by the gateway.

Default
If this statement is not configured, then the source IP address of the user equipment is always verified by the broadband gateway.

Options
disable—Disable the verification of the source IP address of the user equipment. The broadband gateway does not verify the source IP address of the user equipment during data transfers.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

visitor-profile

Syntax visitor-profile *visitor-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging], [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the profile that should be used to charge visiting subscribers. If the **profile-selection-order** configuration indicates **static**, then this profile is used for visiting subscribers.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines whether the subscriber is a visitor by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE). If the subscriber's International Mobile Subscriber Identity (IMSI), MCC, and MNC do not belong to the PLMN to which both the GGSN or P-GW and the S-GW belong, then the subscriber is deemed a visitor and the **visitor-profile** is applied. If the **visitor-profile** is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options ***visitor-profile***—Name of the visitor profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

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wait-accounting (APN)

Syntax wait-accounting;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the user equipment (UE) sessions to wait for the accounting response from the authentication, authorization, and accounting (AAA) server, before sending the Create Session Response or Create packet data protocol (PDP) Response to the Serving Gateway (S-GW) or the serving GPRS support node (SGSN).

If the APN is enabled for AAA accounting, then the broadband gateway, which receives the Create Session Request or Create PDP Context Request message from the user equipment, sends an Accounting Start message containing the subscriber's Mobile Station ISDN (MSISDN) number and IP address to the AAA server. Typically, the gateway does not wait for the accounting response from the AAA server before sending the Create Session Response or Create PDP Context Response message.

However, when **wait-accounting** is enabled, the gateway will send the Create Session Response or Create PDP Context Response message after it receives the Accounting Start Response message from the AAA server.

Default If you do not configure this statement, then the gateway does not wait for the accounting response from the AAA server before sending the Create Session Response or Create PDP Context Response message to the S-GW or SGSN.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- apns on page 139
- *Configuring General APN Parameters on the Broadband Gateway*

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CHAPTER 6

Charging Configuration Statements

all-rgs-on-termination (Transport Profiles—Online)

Syntax all-rgs-on-termination;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that the broadband gateway reports both active and inactive rating groups to the Online Charging System (OCS) on bearer termination.

An inactive rating group refers to a rating group for which the broadband gateway has received quota preemptively from the OCS, but for which the associated rule is not yet installed by the policy and charging enforcement function (PCEF). If you include the **all-rgs-on-termination** statement, the preemptive quota is returned on bearer termination.

NOTE: **If you do not include the all-rgs-on-termination statement, then, by default, the broadband gateway reports only the active rating groups to the OCS on bearer termination.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Online Charging*
- *Configuring Transport Profiles for Online Charging*
- online (Transport Profiles) on page 290

always-include (Trigger Profiles—Online)

Syntax always-include;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online requested-service-unit]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that the broadband gateway always includes the Requested-Service-Unit (RSU) attribute-value pair (AVP) in the Credit Control Request (CCR) messages to the Online Charging System (OCS). By default, the broadband gateway includes the RSU AVP in CCR messages sent to the OCS requesting for quota, except in the following cases:

- If the quota holding time has elapsed, the broadband gateway returns the quota to the OCS and does not request for more quota.
- If the **send-ccri-on-first-packet** statement has not been included, and if the **quota-request-on-first-packet** statement is configured, the broadband gateway sends a CCR-I message to the OCS, to authorize the bearer, without the RSU AVP included.

NOTE: **If you configure both the always-include and include-quota-validity-time statements, the always-include statement takes precedence.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- requested-service-unit (Trigger Profiles—Online) on page 310

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authorization-rejected (Credit Control Failure Handling)

Syntax

```
authorization-rejected {
  blacklist {
    retry-timer;
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the action to be performed when the Online Charging System (OCS) sends a Diameter Authorization Rejected message to the broadband gateway. You can also specify that the rating group is blacklisted and that the gateway retries with the OCS after a configured time elapses.

The remaining statements are explained separately.

Default

If you do not include this statement, then the session is terminated by default if the gateway receives a Diameter Authorization Rejected message from the OCS.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- result-code-based-action (Credit Control Failure Handling) on page 311

blacklist (Credit Control Failure Handling)

Syntax

```
blacklist {
  retry-timer;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action authorization-rejected],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action credit-limit-reached]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify that the rating group is blacklisted based on the result code (authorization rejected or credit limit reached) received from the Online Charging System (OCS).

You can also specify a time after the rating group is blacklisted after which the gateway retries with the OCS for authorization.

Options

retry-timer—Time, in seconds, after which the gateway retries with the OCS.

Range: 120 through 3,866,040 seconds

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- authorization-rejected (Credit Control Failure Handling) on page 207
- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- credit-limit-reached (Credit Control Failure Handling) on page 242
- *Online Charging Overview*

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block-traffic-pending-reauth-no-quota (Credit Control Failure Handling)

Syntax block-traffic-pending-reauth-no-quota;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling]

Description Specify that the broadband gateway blocks traffic for a rating group (category) pending reauthorization, when the quota is exhausted.

Default If you do not include this statement, then the gateway allows traffic by default, when the quota is exhausted.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cc-failure-handling (Trigger Profiles—Online) on page 210
- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*

cc-failure-handling (Trigger Profiles—Online)

Syntax

```
cc-failure-handling {
  block-traffic-pending-reauth-no-quota;
  initial-request {
    convert-to-offline {
      grant-grace-quota;
    }
    disable-online-charging;
    grant-grace-quota;
  }
  override;
  result-code-based-action {
    authorization-rejected {
      blacklist {
        retry-timer;
      }
    }
    credit-control-not-applicable {
      convert-to-offline {
        grant-grace-quota;
      }
    }
    credit-limit-reached {
      blacklist {
        retry-timer;
      }
    }
    end-user-service-denied {
      convert-to-offline {
        grant-grace-quota;
      }
      disable-online-charging;
    }
    user-unknown {
      convert-to-offline {
        grant-grace-quota;
      }
      disable-online-charging;
    }
  }
  update-request {
    convert-to-offline {
      grant-grace-quota;
    }
    disable-online-charging;
    grant-grace-quota;
  }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

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Description

Configure the options that determine what the broadband gateway does during credit control failure.

If the Online Charging System (OCS) responds with a result code that is not successful, then the actions configured for the **result-code-based-action** statement are performed. If the OCS does not respond to the Credit Control Request (CCR) messages, then the other actions configured in the **cc-failure-handling** statement are performed.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- online (Trigger Profiles) on page 291

cc-octet-both (Trigger Profiles—Online)

Syntax cc-octet-both *volume-quota-both*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online grant-quota],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online requested-service-unit]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the volume quota (in bytes) for both uplink and downlink directions.

If the volume quota is configured for **grant-quota** and if the **grant-grace-quota** statement is configured, then the gateway uses the configured value to grant grace quota. If the volume quota is configured for **requested-service-unit**, the broadband gateway uses the configured value to request quota from the Online Charging System (OCS).

Options ***volume-quota-both***—Volume quota for both the uplink and downlink directions.

Range: 1,048,576 through 9,223,372,036,854,775,807 bytes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- grant-quota (Trigger Profiles—Online) on page 274
- *Online Charging Overview*
- requested-service-unit (Trigger Profiles—Online) on page 310

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cc-octet-downlink (Trigger Profiles—Online)

Syntax cc-octet-downlink *volume-quota-dl*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online grant-quota],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online requested-service-unit]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the volume quota (in bytes) for the downlink direction.

If the volume quota is configured for **grant-quota** and if the **grant-grace-quota** statement is configured, then the gateway uses the configured value to grant grace quota. If the volume quota is configured for **requested-service-unit**, the broadband gateway uses the configured value to request quota from the Online Charging System (OCS).

Options ***volume-quota-dl***—Volume quota for the downlink direction.

Range: 1,048,576 through 9,223,372,036,854,775,807 bytes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- grant-quota (Trigger Profiles—Online) on page 274
- *Online Charging Overview*
- requested-service-unit (Trigger Profiles—Online) on page 310

cc-octet-uplink (Trigger Profiles—Online)

Syntax cc-octet-uplink *volume-quota-ul*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online grant-quota],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online requested-service-unit]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the volume quota (in bytes) for the uplink direction.

If the volume quota is configured for **grant-quota** and if the **grant-grace-quota** statement is configured, then the gateway uses the configured value to grant grace quota. If the volume quota is configured for **requested-service-unit**, the broadband gateway uses the configured value to request quota from the Online Charging System (OCS).

Options ***volume-quota-ul***—Volume quota for the uplink direction.

Range: 1,048,576 through 9,223,372,036,854,775,807 bytes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- grant-quota (Trigger Profiles—Online) on page 274
- *Online Charging Overview*
- requested-service-unit (Trigger Profiles—Online) on page 310

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cc-time (Trigger Profiles—Online)

Syntax cc-time *time-quota*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online grant-quota],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online requested-service-unit]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the time quota (in seconds) that can be used for granting grace quota or for requesting service units.

If the time quota is configured for **grant-quota** and if the **grant-grace-quota** statement is configured, then the gateway uses the configured value to grant grace quota. If the time quota is configured for **requested-service-unit**, the broadband gateway uses the configured value to request quota from the Online Charging System (OCS).

Options ***time-quota***—Time quota.

Range: 300 through 4,294,967,294 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- grant-quota (Trigger Profiles—Online) on page 274
- *Online Charging Overview*
- requested-service-unit (Trigger Profiles—Online) on page 310

cdr-aggregation-limit

Syntax cdr-aggregation-limit *value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of Charging Data Records (CDRs) that can be added to a Data Record Transfer (DRT) message before it is transmitted.

A DRT message containing the CDRs is transmitted from the charging data function (CDF) to the charging gateway function (CGF) server, when the **cdr-aggregation-limit** or the **mtu** size is reached (whichever comes first). For efficient transmissions of DRT messages, you may want to set the **cdr-aggregation-limit** to the maximum value of 16.

Options ***value***—Number of CDRs that can be added to a DRT message.

Range: 1 through 16

Default: 5

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-gateways (Transport Profiles—Offline) on page 235
- *Configuring Transport Profiles for Offline Charging*
- *Configuring Offline Charging*

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cdr-profile (Charging Profiles)

Syntax cdr-profile *profile-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Associate a previously configured Charging Data Record (CDR) profile with a charging profile.

When a subscriber session is created, the subscriber is bound to a charging profile and the CDR profile configuration associated with this profile determines the information (fields) that is included in the CDRs, which are used for billing.

Any modification to the existing configuration of this attribute must be done only when the charging profile with which it is associated is under active maintenance mode. Use one of the following commands, as applicable, to bring the charging profile under maintenance mode:

- For the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW)—**set unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name* service-mode maintenance**
- For the Serving Gateway (S-GW)—**set unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name* service-mode maintenance**

TIP: If the profile is not already defined, use the one of the following commands, as applicable, to define a new CDR profile:

- GGSN or P-GW—**set unified-edge gateways ggsn-pgw *gateway-name* charging cdr-profiles *profile-name***
- S-GW—**set unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name***

Options ***profile-name***—Name of the CDR profile to be associated with the charging profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- cdr-profiles on page 219
- charging-profiles on page 237

- *Charging Profiles*
- *Configuring Charging Profiles*

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cdr-profiles

Syntax

```
cdr-profiles profile-name {
  description string;
  enable-reduced-partial-cdrs;
  exclude-attributes {
    apn-ni;
    apn-selection-mode;
    cc-selection-mode;
    dynamic-address;
    list-of-service-data;
    list-of-traffic-volumes;
    lrsn;
    ms-time-zone;
    network-initiation;
    node-id;
    pdn-connection-id;
    pdppdn-type;
    pgw-address-used; # S-GW only
    pgw-plmn-identifier;
    ps-furnish-info;
    rat-type;
    record-sequence-number;
    served-imeisv;
    served-msisdn;
    served-pdppdn-address;
    served-pdp-address-extension;
    serving-node-plmn-identifier;
    sgw-change; # S-GW only
    start-time;
    stop-time;
    user-location-information;
  }
  node-id (hostname | hostname-spic | ipaddress-spic);
  report-requested-apn;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging],
[edit unified-edge gateways sgw *gateway-name* charging]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure a Charging Data Record (CDR) profile. The configuration in the CDR profile determines the content or the information that is included in a CDR, which are used for billing.

By default, the Juniper Charging Service (J-CS) module adds all the required fields mandated by the Third-Generation Partnership Project (3GPP) standards to the CDR. However, you can exclude the provisional fields information from the CDR by configuring a CDR profile.

The broadband gateway supports a maximum of 255 CDR profiles.

Options

profile-name—Name of the CDR profile.

Range: 1 through 128 bytes

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging (GGSN or P-GW) on page 223
- charging (Serving Gateway) on page 229
- *Configuring CDR Attributes*
- *Configuring Offline Charging*

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cdr-release

Syntax cdr-release (r7 | r8 | r9 | r99);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]** hierarchy level introduced in Junos OS Mobility Release 11.4W.
r9 attribute introduced in Junos OS Mobility Release 12.1W.

Description The encoding of the Charging Data Record (CDR) is compliant with the 3GPP technical specification release version that is configured using the statement. The supported versions are 3GPP release versions 7, 8, and 99.

NOTE: 3GPP release versions 7, 9 and 99 are only applicable to the GGSN and P-GW (not to the S-GW), while 3GPP release version 8 is applicable to the GGSN, P-GW, and S-GW.

For 3GPP release version 7 CDRs, the decision on whether the CDR generated is a GGSN CDR (G-CDR) or an evolved G-CDR (eG-CDR) is based on whether a policy and charging enforcement function (PCEF) profile is configured for the access point name (APN) or the charging method for the trigger profile is configured as online.

Options **r7**—3GPP release version, 7.

r8—3GPP release version, 8.

r9—3GPP release version, 9.

r99—3GPP release version, 99.

Default: r8

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-gateways (Transport Profiles—Offline) on page 235
- *Configuring Offline Charging*
- *Configuring Transport Profiles for Offline Charging*

cdrs-per-file

Syntax cdrs-per-file *value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of Charging Data Records (CDRs) that can be added to a file after which the temporary CDR log file is closed and moved to a final location within the same disk (**/opt/mobility/charging/ggsn/final_log**), from where it can be transferred using SSH FTP (SFTP). Files transferred from the final location should be deleted from the local Routing Engine disk after the transfer. Only authorized users can transfer and delete the files (after the transfer).

However, any one of the following conditions must be met (whichever comes first) before the files are moved from the temporary location to the final location:

- Number of CDRs per file reaches the configured or default limit.
- Size of the file reaches the configured or default limit.
- Age of the file reaches the configured or default limit.

NOTE: **The default limit is applicable only if you have not configured any value.**

Options ***value***—Maximum number of CDRs that can be added to a file after which it is closed and moved to a location within the Routing Engine disk, from where it can be transferred using SFTP.

Range: 5000 through 1,000,000

Default: 0, which indicates that there is no trigger for the CDR count per file.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

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charging (GGSN or P-GW)

Syntax

```
charging {
  cdr-profiles profile-name {
    description string;
    enable-reduced-partial-cdrs;
    exclude-attributes {
      apn-ni;
      apn-selection-mode;
      cc-selection-mode;
      dynamic-address;
      list-of-service-data;
      list-of-traffic-volumes;
      lrsn;
      ms-time-zone;
      network-initiation;
      node-id;
      pdn-connection-id;
      pdppdn-type;
      pgw-plmn-identifier;
      ps-furnish-info;
      rat-type;
      record-sequence-number;
      served-imeisv;
      served-msisdn;
      served-pdppdn-address;
      served-pdp-address-extension;
      serving-node-plmn-identifier;
      start-time;
      stop-time;
      user-location-information;
    }
    node-id (hostname | hostname-spic | ipaddress-spic);
    report-requested-apn;
  }
  charging-profiles profile-name {
    cdr-profile profile-name;
    default-rating-group rg-num;
    default-service-id id-num;
    description string;
    profile-id id-num;
    service-mode maintenance;
    transport-profile profile-name;
    trigger-profile profile-name {
      rating-group [value];
    }
  }
  gtpp {
    destination-port port-number;
    down-detect-time duration;
    echo-interval duration;
    header-type (long | short);
    n3-requests requests;
    no-path-management;
```

```
    pending-queue-size value;
    peer peer-name {
      destination-ipv4-address address;
      destination-port port-number;
      down-detect-time duration;
      echo-interval duration;
      header-type (long | short);
      n3-requests requests;
      no-path-management;
      pending-queue-size value;
      reconnect-time duration;
      source-interface interface-name [ipv4-address address];
      t3-response response-interval;
      transport-protocol (tcp | udp);
      version (v0 | v1 | v2);
    }
    reconnect-time duration;
    source-interface {
      interface-name;
      ipv4-address address;
    }
    t3-response response-interval;
    transport-protocol (tcp | udp);
    version (v0 | v1 | v2);
  }
  local-persistent-storage-options {
    cdrs-per-file value;
    disable-replication;
    disk-space-policy {
      watermark-level-1 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
      watermark-level-2 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
      watermark-level-3 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
    }
    file-age {
      age;
      disable;
    }
    file-creation-policy (shared-file | unique-file);
    file-format (3gpp | raw-asn);
    file-name-private-extension string;
    file-size {
      size;
      disable;
    }
    traceoptions {
      file file-name <files number> <match regular-expression> <no-world-readable |
        world-readable> <size size>;
```


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```
        flag flag;
        level (all | critical | error | info | notice | verbose | warning);
        no-remote-trace;
      }
      user-name string;
      world-readable;
    }
    traceoptions {
      file {
        file-name;
        files number;
        size size
        (no-world-readable | world-readable);
      }
      flag flag;
      level (all | critical | error | info | notice | verbose | warning);
      no-remote-trace;
    }
    transport-profiles profile-name {
      description string;
      offline {
        charging-function-name function-name;{
        charging-gateways {
          cdr-aggregation-limit value;
          cdr-release (r7 | r8 | r9 | r99);
          mtu value;
          peer-order {
            [peer charging-gateway-peer-name];
          }
          persistent-storage-order {
            local-storage;
          }
          switch-back-time seconds;
        }
        container-limit value;
        sgsn-sgw-change-limit value;
      }
      online {
        all-rgs-on-termination;
        charging-function-name function-name;
        diameter-profile profile-name;
        no-mscc-in-ccrt;
        quota-request-on-first-packet
        send-ccri-on-first-packet
        service-context-id service-context-id;
        session-failover-not-supported;
        single-mscc;
        tx-timeout timeout;
      }
      service-mode maintenance;
    }
    trigger-profiles profile-name {
      charging-method (both | none | offline | online);
      description string;
      offline {
        exclude {
```

```
            dcca-events;
            ms-timezone-change;
            plmn-change;
            qos-change;
            rat-change;
            sgsn-sgw-change;
            user-location-change;
        }
        time-limit value;
        volume-limit {
            value;
            direction (both | uplink);
        }
    }
    online {
        cc-failure-handling {
            block-traffic-pending-reauth-no-quota;
            initial-request {
                convert-to-offline {
                    grant-grace-quota;
                }
                disable-online-charging;
                grant-grace-quota;
            }
            override;
            result-code-based-action {
                authorization-rejected {
                    blacklist {
                        retry-timer;
                    }
                }
                credit-control-not-applicable {
                    convert-to-offline {
                        grant-grace-quota;
                    }
                }
                credit-limit-reached {
                    blacklist {
                        retry-timer;
                    }
                }
                end-user-service-denied {
                    convert-to-offline {
                        grant-grace-quota;
                    }
                    disable-online-charging;
                }
                user-unknown {
                    convert-to-offline {
                        grant-grace-quota;
                    }
                    disable-online-charging;
                }
            }
            update-request {
                convert-to-offline {
```


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```
                grant-grace-quota;
              }
              disable-online-charging;
              grant-grace-quota;
            }
          }
          grant-quota {
            cc-octet-both volume-quota-both;
            cc-octet-downlink volume-quota-dl;
            cc-octet-uplink volume-quota-ul;
            cc-time time-quota;
          }
          measurement-method (none | time | volume | volume-and-time);
          quota-threshold {
            threshold;
            override;
          }
          quota-holding-time time-in-seconds;
          quota-validity-time time-in-seconds;
          reporting-level {
            override;
            (rating-group | service-identifier);
          }
          requested-service-unit {
            always-include;
            cc-octet-both volume-quota-both;
            cc-octet-downlink volume-quota-dl;
            cc-octet-uplink volume-quota-ul;
            cc-time time-quota;
            include-quota-holding-time;
          }
        }
        tariff-time-list {
          tariff-time;
        }
      }
    }
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the charging parameters for subscribers on the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Charging Overview*
- *Charging Data Records*
- *Charging Profiles*
- *Configuring Offline Charging*
- *Offline Charging Overview*
- *Online Charging Overview*
- *Configuring Online Charging*
- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17

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charging (Serving Gateway)

Syntax

```
charging {
  cdr-profiles profile-name {
    description string;
    enable-reduced-partial-cdrs;
    exclude-attributes {
      apn-ni;
      apn-selection-mode;
      cc-selection-mode;
      dynamic-address;
      list-of-service-data;
      list-of-traffic-volumes;
      lrsn;
      ms-time-zone;
      network-initiation;
      node-id;
      pdn-connection-id;
      pdppdn-type;
      pgw-address-used;
      pgw-plmn-identifier;
      ps-furnish-info;
      rat-type;
      record-sequence-number;
      served-imeisv;
      served-msisdn;
      served-pdppdn-address;
      served-pdp-address-extension;
      serving-node-plmn-identifier;
      sgw-change;
      start-time;
      stop-time;
      user-location-information;
    }
    node-id (hostname | hostname-spic | ipaddress-spic);
    report-requested-apn;
  }
  charging-profiles profile-name {
    cdr-profile profile-name;
    default-rating-group rg-num;
    default-service-id id-num;
    description string;
    profile-id id-num;
    service-mode maintenance;
    transport-profile profile-name;
    trigger-profile profile-name {
      rating-group [value];
    }
  }
  global-profile {
    default-profile default-profile;
    home-profile home-profile;
    profile-selection-order [profile-selection-method];
    roamer-profile roamer-profile;
```

```
    visitor-profile visitor-profile;
  }
  gtpp {
    destination-port port-number;
    down-detect-time duration;
    echo-interval duration;
    header-type (long | short);
    n3-requests requests;
    no-path-management;
    pending-queue-size value;
    peer peer-name {
      destination-ipv4-address address;
      destination-port port-number;
      down-detect-time duration;
      echo-interval duration;
      header-type (long | short);
      n3-requests requests;
      no-path-management;
      pending-queue-size value;
      reconnect-time duration;
      source-interface interface-name [ipv4-address address];
      t3-response response-interval;
      transport-protocol (tcp | udp);
      version (v0 | v1 | v2);
    }
    reconnect-time duration;
    source-interface {
      interface-name;
      ipv4-address address;
    }
    t3-response response-interval;
    transport-protocol (tcp | udp);
    version (v0 | v1 | v2);
  }
  local-persistent-storage-options {
    cdrs-per-file value;
    disable-replication;
    disk-space-policy {
      watermark-level-1 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
      watermark-level-2 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
      watermark-level-3 {
        notification-level (both | snmp-alarm | syslog);
        percentage value;
      }
    }
    file-age {
      age;
      disable;
    }
    file-creation-policy (shared-file | unique-file);
```


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```
    file-format (3gpp | raw-asn);
    file-name-private-extension string;
    file-size {
      size;
      disable;
    }
    traceoptions {
      file file-name <files number> <match regular-expression> <no-world-readable |
        world-readable> <size size>;
      flag flag;
      level (all | critical | error | info | notice | verbose | warning);
      no-remote-trace;
    }
    user-name string;
    world-readable;
  }
  traceoptions {
    file {
      file-name;
      files number;
      size size
      (no-world-readable | world-readable);
    }
    flag flag;
    level (all | critical | error | info | notice | verbose | warning);
    no-remote-trace;
  }
  transport-profiles profile-name {
    description string;
    offline {
      charging-function-name function-name;{
      charging-gateways {
        cdr-aggregation-limit value;
        cdr-release (r7 | r8 | r9 | r99);
        mtu value;
        peer-order {
          [peer charging-gateway-peer-name];
        }
        persistent-storage-order {
          local-storage;
        }
        switch-back-time seconds;
      }
      container-limit value;
    }
    service-mode maintenance;
  }
  trigger-profiles profile-name {
    description string;
    offline {
      exclude {
        ms-timezone-change;
        plmn-change;
        qos-change;
        rat-change;
        sgsn-mme-change;
```

```
            user-location-change;
          }
          sgsn-mme-change-limit value;
          time-limit value;
          volume-limit {
            value;
            direction (both | uplink);
          }
        }
        tariff-time-list {
          tariff-time;
        }
      }
    }
```

Hierarchy Level [edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the charging parameters for subscribers Serving Gateway (S-GW).

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Charging Overview*
- *Charging Data Records*
- *Charging Profiles*
- *Configuring Offline Charging*
- *Configuring S-GW-Specific Charging Parameters*
- *Offline Charging Overview*
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29

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charging-function-name (Transport Profiles)

Syntax charging-function-name *function-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the charging function name, which is used to select the transport profile for offline and online charging. If either the primary or secondary charging functions obtained from the policy and charging rules function (PCRF) match the one configured here, then the transport profile is selected.

The following conditions are applicable to the **charging-function-name** statement:

- The charging function name is a string configured by the operator and is used as a matching criteria.
- Configuring the charging function name is not mandatory for offline or online transport profiles.
- The charging function names provided by the PCRF must match the one configured for the transport profile. If the names provided by the PCRF do not match, then the transport profile is not selected and the default transport profile is used.

  For example, assume that you configure the charging function names for both offline and online, that is, you configure two charging function names. The transport profile is selected only if both names configured on the gateway match the corresponding ones provided by the PCRF.

The charging function name is referred by the PCRF in the Credit Control Request (CCR) and Credit Control Acknowledgment (CCA) messages exchanged over the Gx interface.

Offline Charging Data Records (CDRs) are transported from the charging data function (CDF) to the offline charging gateway based on the transport profile selected. Online charging messages are transported between the Packet Data Network Gateway (P-GW) and the Online Charging System (OCS) based on the transport profile selected.

The remaining statements are explained separately.

Default If you do not include this statement, then the gateway uses the default transport profile.

Options *function-name*—Name of the charging function name.
Range: Up to 256 characters

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Transport Profiles for Offline Charging*
- *Configuring Transport Profiles for Online Charging*
- offline (Transport Profiles) on page 288
- online (Transport Profiles) on page 290

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charging-gateways (Transport Profiles—Offline)

Syntax

```
charging-gateways {
  cdr-aggregation-limit value;
  cdr-release (r7 | r8 | r9 | r99);
  mtu value;
  peer-order {
    [peer charging-gateway-peer-name];
  }
  persistent-storage-order {
    local-storage;
  }
  switch-back-time seconds;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure a group of GTP Prime peers, the local Routing Engine disk, or both for Charging Data Record (CDR) file storage. In addition, you can configure the following:

- The maximum number of CDRs that can be added to a Data Record Transfer (DRT) message.
- The maximum transmission unit of a DRT message.
- The generated CDRs to be compliant with a specific 3GPP release.
- The duration that the charging data function (CDF) waits before transmitting the CDRs to a peer that has recently come up and that has the highest priority among all the peers, which are alive.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Offline Charging*
- *Configuring Transport Profiles for Offline Charging*
- offline (Transport Profiles) on page 288

charging-method (Trigger Profiles)

Syntax charging-method (both | none | offline | online);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the default charging method to be used for rating groups attached to the trigger profile. The broadband gateway uses the configured default charging method only when the policy and charging rules function (PCRF) or the static policy and charging enforcement function (PCEF) policy do not provide a charging method.

Default If you do not include this statement, then the default charging method is set to offline charging (**offline**).

Options

both—Use both offline and online charging methods.

none—Charging is disabled for the subscriber.

offline—Use only the offline charging method.

online—Use only the online charging method.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Charging Trigger Events for Online Charging*
- trigger-profiles (GGSN or P-GW) on page 340

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charging-profiles

Syntax

```
charging-profiles profile-name {
  cdr-profile profile-name;
  default-rating-group rg-num;
  default-service-id id-num;
  description string;
  profile-id id-num;
  service-mode maintenance;
  transport-profile profile-name;
  trigger-profile profile-name {
    rating-group [value];
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging],
[edit unified-edge gateways sgw *gateway-name* charging]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure a charging profile. The charging profile determines the overall charging configuration for a subscriber, such as the data collected in a Charging Data Record (CDR), the events that generate the CDR, where the CDR is stored, and so on for that subscriber.

You can configure up to a maximum of 255 charging profiles.

Options

profile-name—Name of the charging profile.

Range: 1 through 128 bytes

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging (GGSN or P-GW) on page 223
- charging (Serving Gateway) on page 229
- *Charging Profiles*
- *Configuring Charging Profiles*

container-limit

Syntax container-limit *value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the maximum number of containers that can be added to a Charging Data Record (CDR). When the limit is reached, the CDR is closed.

Options ***value***—Maximum number of containers.

Range: 1 through 15

Default: 5

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- offline (Transport Profiles) on page 288
- *Configuring Transport Profiles for Offline Charging*
- *Configuring Offline Charging*

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convert-to-offline (Credit Control Failure Handling)

Syntax

```
convert-to-offline {
  grant-grace-quota;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling initial-request],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action credit-control-not-applicable],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action end-user-service-denied],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action user-unknown],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling update-request]

Description

Specify that offline charging is used to charge rating groups in case of credit control failure. In this case, online charging is disabled for the rating group.

NOTE: If you include this statement, you cannot configure the **disable-online-charging** statement or **grant-grace-quota** statement at the same hierarchy level. However, you can still configure the **grant-grace-quota** statement in the **convert-to-offline** stanza.

Table 7 on page 240 displays how the configuration of the **convert-to-offline** statement and **override** statement, at the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling]** hierarchy level, determines the charging behavior in case of credit control failure.

Table 7: Charging Behavior Based on convert-to-offline Configuration

	Both Offline and Online Charging Enabled; override Not Configured	Both Offline and Online Charging Enabled; override Configured	Only Online Charging Enabled; override not Configured	Only Online Charging Enabled; override not Configured
convert-to-offline configured	If the Credit-Control-Failure-Handling (CCFH) attribute-value pair (AVP) received from the Online Charging System (OCS) is Continue, then the rating group is charged using offline charging; if not, the session is terminated.	The rating group is charged using offline charging.	If the CCFH AVP received from the OCS is Continue, then the rating group is charged using offline charging; if not, the session is terminated.	The rating group is charged using offline charging.
convert-to-offline not configured	If the CCFH AVP received from the OCS is Continue, then the rating group is charged using offline charging; if not, the session is terminated.	The rating group is charged using offline charging.	If the CCFH AVP received from the OCS is Continue, then online charging is disabled and the rating group is not charged; if not, the session is terminated.	The session is terminated.

The remaining statement is explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- credit-control-not-applicable (Credit Control Failure Handling) on page 241
- disable-online-charging (Credit Control Failure Handling) on page 251
- end-user-service-denied (Credit Control Failure Handling) on page 257
- grant-grace-quota (Credit Control Failure Handling) on page 273
- initial-request (Credit Control Failure Handling) on page 279
- *Online Charging Overview*
- override (Credit Control Failure Handling) on page 293
- update-request (Credit Control Failure Handling) on page 345
- user-unknown (Credit Control Failure Handling) on page 347

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credit-control-not-applicable (Credit Control Failure Handling)

Syntax

```
credit-control-not-applicable {
  convert-to-offline {
    grant-grace-quota;
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify that in case of credit control failure, if the result code is Diameter Credit Control Not Applicable, then the gateway will disable online charging. If offline charging is enabled, then offline charging will continue to be applied to the rating groups.

If offline charging is disabled, then the **convert-to-offline** statement can be used to enable offline charging for the rating groups, and the usage quota can be limited using the **grant-grace-quota** statement.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- result-code-based-action (Credit Control Failure Handling) on page 311

credit-limit-reached (Credit Control Failure Handling)

Syntax

```
credit-limit-reached {
  blacklist {
    retry-timer;
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify that in case of credit control failure, if the result code is Diameter Credit Limit Reached, then the gateway will terminate the session. You can also specify that the rating group is blacklisted and that the gateway retries with the Online Charging System (OCS) after a certain configured time elapses.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- result-code-based-action (Credit Control Failure Handling) on page 311

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default-profile

Syntax default-profile *default-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging], [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the default profile. If the **profile-selection-order** configuration indicates **static**, and if the corresponding charging profile applicable to the type of subscriber (home, visitor, or roamer) has not been specified, then the default profile is applied.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines the type of subscriber by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE) and compares these with the corresponding values configured for the home public land mobile network (HPLMN). Depending on whether a subscriber is a home subscriber, a visitor, or a roamer, the **home-profile**, **visited-profile**, or **roamer-profile** is applied. If the applicable profile is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options ***default-profile***—Name of the default profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

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default-rating-group

Syntax default-rating-group *rg-num*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify a default rating group to be used for charging service data containers. The rating group represents a collection of services.

NOTE: **This configuration is not applicable for the Serving Gateway (S-GW).**

Options ***rg-num***—Default rating group to be used for charging.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-profiles on page 237
- *Charging Profiles*
- *Configuring Charging Profiles*

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default-service-id

Syntax default-service-id *id-num*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the default service identifier to be used for charging service data containers. This ID is used to identify the service or the service component.

NOTE: **This configuration is not applicable for the Serving Gateway (S-GW).**

Options ***id-num***—Default service identifier to be used for charging.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-profiles on page 237
- *Charging Profiles*
- *Configuring Charging Profiles*

description (Charging-Related Profiles)

Syntax

description *string*;

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging cdr-profiles *profile-name*],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name*],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*]**, **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]**, **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name*]**, and **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description

Enter a description for the Charging Data Record (CDR) profile, charging profile, transport profile, or trigger profile. The description can be used to indicate the purpose of the profile. For example, you might have a description to differentiate the default profile from other profiles, as follows: This is the default profile to be used when a subscriber cannot be categorized into any other profile.

Options

string—Description of the profile.

Range: Up to 255 characters

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cdr-profiles on page 219
- charging-profiles on page 237
- transport-profiles on page 335
- trigger-profiles (GGSN or P-GW) on page 340
- trigger-profiles (Serving Gateway) on page 343

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destination-ipv4-address (GTP Prime)

Syntax destination-ipv4-address *address*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*], [edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the charging gateway function (CGF) server's (GTP Prime peer's) IPv4 address, to which the Charging Data Records (CDRs) are sent as GTP Prime messages from the charging gateway function (CGF). This is a mandatory configuration.

Options ***address***—IPv4 address of the CGF server.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- peer (GTP Prime) on page 294
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*

destination-port (GTP Prime)

Syntax destination-port *port-number*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Configure the TCP or UDP port on which the charging gateway function (CGF) server listens to the GTP Prime messages sent from the charging data function (CDF).

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options ***port-number***—TCP or UDP port on which the CGF server listens to the GTP Prime messages sent from the CDF.

Range: 1 through 65535

Default: 3386

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*

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diameter-profile (Transport Profiles—Online)

Syntax diameter-profile *profile-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Associate a previously configured Diameter Gy profile with the transport profile.

NOTE: **You must configure a Diameter Gy profile to be associated with a transport profile.**

When a subscriber session is created, the subscriber is bound to a transport profile and the Diameter Gy profile configuration associated with this profile determines the Online Charging System (OCS) with which the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) interacts.

TIP: **If the profile is not already defined, use the following command to define a new Diameter Gy profile: set unified-edge diameter-profiles gy-profiles *profile-name*.**

Options ***profile-name***—Name of the previously configured Diameter Gy profile to be associated with the transport profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Transport Profiles for Online Charging*
- *Online Charging Overview*
- online (Transport Profiles) on page 290

direction (Trigger Profiles)

Syntax direction (both | uplink);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline volume-limit],
[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline volume-limit]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline volume-limit]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify whether the maximum volume of data transmitted includes the data transmitted in both the uplink and downlink directions, or only in the uplink direction.

When the configured volume limit is reached, the CDR is updated with the transmitted uplink and downlink bytes and is closed.

Any change to the existing configuration does not affect a previously established session. The updated configuration applies only to new sessions.

Default If you do not configure the **direction** statement, then the configured volume limit includes the total volume of data transmitted in both uplink and downlink directions.

Options **both**—The configured volume limit must include the total volume of data transmitted in both uplink and downlink directions.

uplink—The configured volume limit must include the volume of data transmitted only in the uplink direction.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- volume-limit on page 350
- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Offline Charging*

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disable-online-charging (Credit Control Failure Handling)

Syntax disable-online-charging;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling initial-request],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action end-user-service-denied],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action user-unknown],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling update-request]

Description Specify that online charging is disabled in case of credit control failure, and that offline charging, if enabled, is used to charge rating groups. If offline charging is not enabled, then no charging is applied to the rating group.

NOTE: **If you include this statement, you cannot configure the convert-to-offline or grant-grace-quota statements at the same hierarchy level.**

Table 8 on page 251 displays how the configuration of the **disable-online-charging** statement and **override** statement, at the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling]** hierarchy level, determines the charging behavior in case of credit control failure.

Table 8: Charging Behavior Based on disable-online-charging Configuration

	Both Offline and Online Charging Enabled; override not Configured	Both Offline and Online Charging Enabled; override Configured	Only Online Charging Enabled; override not Configured	Only Online Charging Enabled; override not Configured
disable-online-charging configured	If the Credit-Control-Failure-Handling (CCFH) attribute-value pair (AVP) received from the Online Charging System (OCS) is Continue, then the rating group is charged using offline charging; if not, the session is terminated.	The rating group is charged using offline charging.	If the CCFH AVP received from the OCS is Continue, then online charging is disabled and the rating group is not charged; if not, the session is terminated.	Online charging is disabled and the rating group is not charged.
disable-online-charging not configured	If the CCFH AVP received from the OCS is Continue, then the rating group is charged using offline charging; if not, the session is terminated.	The rating group is charged using offline charging.	If the CCFH AVP received from the OCS is Continue, then online charging is disabled and the rating group is not charged; if not, the session is terminated.	The session is terminated.

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Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- convert-to-offline (Credit Control Failure Handling) on page 239
- end-user-service-denied (Credit Control Failure Handling) on page 257
- grant-grace-quota (Credit Control Failure Handling) on page 273
- initial-request (Credit Control Failure Handling) on page 279
- *Online Charging Overview*
- override (Credit Control Failure Handling) on page 293
- update-request (Credit Control Failure Handling) on page 345
- user-unknown (Credit Control Failure Handling) on page 347

disable-replication

Syntax
disable-replication;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* charging
local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description
Specify that Charging Data Records (CDRs) stored on the Routing Engine disk should *not* be replicated to the standby Routing Engine. Typically, the CDRs stored on Routing Engine disk are replicated to the standby Routing Engine, as a backup.

By default, replication is enabled.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

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disk-space-policy

Syntax

```
disk-space-policy {
  watermark-level-1 {
    notification-level (both | snmp-alarm | syslog);
    percentage value;
  }
  watermark-level-2 {
    notification-level (both | snmp-alarm | syslog);
    percentage value;
  }
  watermark-level-3 {
    notification-level (both | snmp-alarm | syslog);
    percentage value;
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

When you use the Routing Engine disk to store Charging Data Records (CDRs), you may want to monitor and raise alerts if the disk space falls below a configured threshold level, which enables you to take appropriate measures to prevent the loss of CDR data.

Use the statements within this hierarchy to configure the percentage of disk space you want to allocate for storage, and raise alerts when the limit is reached.

You can configure up to a maximum of three threshold levels.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

down-detect-time (GTP Prime)

Syntax down-detect-time *duration*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Configure the duration for which the charging data function (CDF) must wait for a response from the charging gateway function (CGF) server after the expiry of an n3 * t3 cycle, after which the server's status is marked Down. The CDF then sends the GTP Prime messages to the next configured CGF server in the corresponding transport profile.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options ***duration***—Duration the CDF waits after the n3 * t3 cycle expiry before declaring a GTP Prime peer as Down. The CDF then sends the GTP Prime messages to the next configured GTP Prime peer in the corresponding transport profile.

Range: 0 through 255 seconds

Default: 10 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*
- *Configuring Offline Charging*

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echo-interval (GTP Prime)

Syntax echo-interval *duration*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Configure the number of seconds that the charging data function (CDF) must wait before sending an echo request message to the charging gateway function (CGF) server.

Echo messages are:

- Sent only for UDP connections.
- Not sent more than once in a minute.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options ***duration***—Number of seconds that the CDF waits before sending an echo request message to the CGF server.

Range: 60 through 255 seconds

Default: 60 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*
- *Configuring Offline Charging*

enable-reduced-partial-cdrs

Syntax enable-reduced-partial-cdrs;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging cdr-profiles *profile-name*], [edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Enable the generation of reduced partial Charging Data Records (CDRs). Reduced Partial CDRs (RPCs) contain mandatory fields as well as information regarding changes in the session parameters relative to the previous CDR. For example, if the user equipment location has not changed, then this information is excluded from the RPC because this information has not changed from the previous CDR.

Default If this statement is not configured, the generation of fully qualified partial CDRs (FQPCs) is supported. FQPCs contains all the mandatory and conditional fields, as well as those fields that the public land mobile network (PLMN) operator has provisioned to be included in the CDR.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cdr-profiles on page 219
- *Configuring CDR Attributes*
- *Configuring Offline Charging*

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end-user-service-denied (Credit Control Failure Handling)

Syntax

```
end-user-service-denied {
  convert-to-offline {
    grant-grace-quota;
  }
  disable-online-charging;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify that in case of credit control failure, if the result code is Diameter End User Service Denied, then the gateway will terminate the session.

If offline charging is enabled, then offline charging will continue to be applied to rating groups. If offline charging is disabled, then the **convert-to-offline** statement can be used to enable offline charging for rating groups, and the usage quota can be limited using the **grant-grace-quota** statement.

Alternatively, online charging can be disabled using the **disable-online-charging** statement. If offline charging is also disabled, then no charging is applied to the rating group.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- result-code-based-action (Credit Control Failure Handling) on page 311

exclude (Trigger Profiles—Offline)

Syntax

```
exclude {
   dcca-events; # P-GW only
   ms-timezone-change;
   plmn-change;
   qos-change;
   rat-change;
   sgsn-mme-change; #S-GW only
   sgsn-sgw-change; #P-GW only
   user-location-change;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline],
[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline]** hierarchy level and the **sgsn-mme-change** option introduced in Junos OS Mobility Release 11.4W.
dcca-events option introduced in Junos OS Mobility Release 12.1W.

Description

Certain signal message updates to the packet data protocol (PDP) context or bearer trigger charging updates. However, using the statements in this hierarchy, you can choose not to record these updates in the Charging Data Record (CDR).

For example, a quality-of-service (QoS) change results in a container being added to the CDR. However, the container is not added if you configure to ignore this change, using one of the following commands, as applicable:

- **set unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* exclude qos-change** for the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).
- **set unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* exclude qos-change** for the Serving Gateway (S-GW).

Options

NOTE: **The following options are applicable to both GGSN or P-GW and S-GW CDRs unless otherwise specified.**

- **dcca-events**—(GGSN or P-GW only) If configured, excludes the generation of the offline container when Diameter Credit Control Application (DCCA) events occur. Examples of DCCA events include quota exhaustion, threshold being reached, and so on.
- **ms-timezone-change**—If configured, excludes charging data updates to the CDR when there is a change in the MS time zone. Otherwise, when an MS time zone change occurs, the CDR is updated with the charging information and is closed.

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- **plmn-change**—If configured, excludes charging data updates to the CDR when there is a PLMN change. Otherwise, when a public land mobile network (PLMN) change occurs, the CDR is updated with the charging information and is closed.
- **qos-change**—If configured, excludes charging data updates to the CDR when there is a QoS change. Otherwise, a container is added to the CDR when there is a QoS change.
- **rat-change**—If configured, excludes charging data updates to the CDR when there is a Radio Access Technology (RAT) change. Otherwise, when a RAT change occurs, the CDR is updated with the charging information and is closed.
- **sgsn-mme-change**—(S-GW only) If configured, excludes charging data updates to the CDR when the SGSN or Mobility Management Entity (MME) changes reach the maximum configured limit (determined by the value set for the **sgsn-mme-change-limit** parameter). Otherwise, when the SGSN or MME changes reach the maximum configured limit, the CDR is updated and closed.
- **sgsn-sgw-change**—(GGSN or P-GW only) If configured, excludes charging data updates to the CDR when the SGSN or S-GW changes reach the maximum configuration limit (determined by the value set for the **sgsn-sgw-change-limit** parameter). Otherwise, when the SGSN or S-GW changes reach the maximum configured limit, the CDR is updated and closed.
- **user-location-change**—If configured, excludes charging data updates to the CDR when there is a change in user location. Otherwise, when a change in the user location information (such as E-UTRAN cell global identifier [ECGI], Tracking Area Identity [TAI], Routing Area Identity [RAI], Service Area Identity [SAI], Location Area Identity [LAI], or Cell Global Identity [CGI]) occurs, the open containers are closed and added to the CDR.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- offline (Trigger Profiles) on page 289
- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Offline Charging*

exclude-attributes (CDR Profiles)

Syntax

```
exclude-attributes {
   apn-ni;
   apn-selection-mode;
   cc-selection-mode;
   dynamic-address;
   list-of-service-data;
   list-of-traffic-volumes;
   lrsn;
   ms-time-zone;
   network-initiation;
   node-id;
   pdn-connection-id;
   pdppdn-type;
   pgw-address-used; # S-GW only
   pgw-plmn-identifier;
   ps-furnish-info;
   rat-type;
   record-sequence-number;
   served-imeisv;
   served-msisdn;
   served-pdppdn-address;
   served-pdp-address-extension;
   serving-node-plmn-identifier;
   sgw-change; # S-GW only
   start-time;
   stop-time;
   user-location-information;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging cdr-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

pgw-address-used and **sgw-change** options and support for them at the **[edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

ps-furnish-info and **served-pdp-address-extension** options introduced in Junos OS Mobility Release 12.1W.

Description

Configure the optional attributes to be excluded from the Charging Data Record (CDR). By default, all informational elements are included in the CDR.

CAUTION: Some of the attributes are added to the CDR irrespective of whether or not you have configured them to be excluded, if the corresponding triggering events are enabled. The **ms-time-zone**, **serving-node-plmn-identifier**, **rat-type**, and **user-location-information** attributes are added to the CDR, unless the corresponding **ms-timezone-change**, **plmn-change**, **rat-change**, and **user-location-change** triggering events are explicitly disabled using the statements under the following hierarchy levels:

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- [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline exclude] hierarchy level for the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).
- [edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline exclude] hierarchy level for the Serving Gateway (S-GW).

Options

NOTE: **The following options are applicable to both the GGSN or P-GW and the S-GW CDRs unless otherwise specified.**

- **apn-ni**—Exclude the Access Point Name Network Identifier (APN-NI) from the CDR. The APN-NI defines the external network to which the user wants to connect through the GGSN.
- **apn-selection-mode**—Exclude the APN selection mode from the CDR. The APN selection mode indicates the origin of the APN and whether the Home Location Register (HLR) or Home Subscriber Server (HSS) has verified the user's subscription. The possible values for this mode are:
  - Mobile Station—MS-provided APN, subscription not verified, which indicates that the mobile station (MS) provided the APN and that the HLR or HSS did not verify the user's subscription to the network.
  - Network—Network-provided APN, subscription not verified, which indicates that the network provided a default APN because the mobile station did not provide an APN, and that the HLR or HSS did not verify the user's subscription to the network.
  - Verified—MS or network-provided APN, subscription verified, which indicates that the mobile station or the network provided the APN and that the HLR or HSS verified the user's subscription to the network.
- **cc-selection-mode**—Exclude (from the CDR) the type of charging characteristic that the GGSN or P-GW applies to the CDR: Home, Visiting, Roaming, or SGSN/S-GW supplied.
- **dynamic-address**—Exclude from the CDR the packet data protocol (PDP) address that has been dynamically allocated for the specific PDP context.
- **list-of-service-data**—Exclude the list of service data from the CDR. This list includes one or more containers and each of the container includes a list of fields which records information about the volume of data transmitted in bytes in the uplink and downlink directions, quality-of-service (QoS) changes, and so on. For the complete list, refer to the 3GPP 32.298 v 8.7.0 technical specification.
- **list-of-traffic-volumes**—Exclude the list of traffic volumes from the CDR. This list includes one or more containers and each container includes a list of fields which records information about the volume of data transmitted, in bytes, in the uplink and downlink directions, the reason for closing the container, when the container is closed, and the location of the user equipment when this data transmission occurs.

  This attribute is applicable for CDRs that are compliant with the 3GPP R7 and R99 release specifications, only.
- **lrsn**—Exclude the Local Record Sequence Number (LRSN) from the CDR. LSRN is a unique and sequential number generated by the network node (GGSN or P-GW) and is assigned to the CDRs for tracking any missing billing records.
- **ms-time-zone**—Exclude the mobile station time zone from the CDR.

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NOTE:

- This attribute is added to the CDR, irrespective of whether or not you have configured it to be excluded, if the MS Timezone Change triggering event is enabled. You can disable this triggering event by including the **ms-timezone-change** statement at the **[edit unified-edge gateways ggsn-pgw** *gateway-name* **charging trigger-profiles** *profile-name* **offline exclude]** hierarchy level (for the GGSN or P-GW), or the **[edit unified-edge gateways sgw** *gateway-name* **charging trigger-profiles** *profile-name* **offline exclude]** hierarchy level (for the S-GW).
- This attribute is applicable only to CDRs that are compliant with the 3GPP R7, R8, and R9 release specifications.

- **network-initiation**—Exclude (from the CDR) the indication that the PDP context is network initiated.

  This attribute is applicable only to CDRs that are compliant with the 3GPP R7 and R99 release specifications.

- **node-id**—Exclude (from the CDR) the ID of the network element node that generates the CDR.

  On the MX Series router, the format of the node ID is *ggsn/pgw-ip-address*:*virtual-spic-id*.

- **pdn-connection-id**—Exclude the Packet Data Network (PDN) connection from the CDR. This ID uniquely identifies different records belonging to the same PDN connection. This field includes the charging ID of the first IP-CAN bearer activated within the PDN connection. Together with the P-GW address, it uniquely identifies the PDN connection.

  This attribute is applicable only for CDRs that are compliant with the 3GPP R8 and R9 release specification.

- **pdppdn-type**—Exclude the PDP Type and PDN Type attributes from the CDR. Both PDP Type and PDN Type define the end-user protocol used between the external PDN and the mobile station.

  This attribute is applicable only to CDRs that are compliant with the 3GPP R8 and R9 release specification.

- **pgw-address-used**—Exclude the P-GW address-used attribute from the CDR. This option is applicable only to the S-GW.

- **pgw-plmn-identifier**—Exclude the P-GW public land mobile network (PLMN) identifier (mobile country code and mobile network code) from the CDR.

  This attribute is applicable only to CDRs that are compliant with the 3GPP R8, R9, and R99 release specifications.

- **ps-furnish-info**—Exclude the PS Furnish Info attribute (where PS stands for Packet Switched) from the CDR. This information is provided by the online charging system (OCS) in the PS Furnish Charging Information attribute-value pair (AVP).

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- **rat-type**—Exclude the Radio Access Technology (RAT) type used by the mobile station (eUTRAN, GERAN, WLAN, GAN, HSPA Evolution, or evolved High Rate Packet Data [eHRPD]) from the CDR.

  NOTE:
  - This attribute is added to the CDR, irrespective of whether or not you have configured it to be excluded, if the RAT Change triggering event is enabled. You can disable this triggering event by including the **rat-change** statement at the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline exclude]** hierarchy level (for the GGSN or P-GW), or the **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline exclude]** hierarchy level (for the S-GW).
  - This information is applicable only for CDRs that are compliant with the 3GPP R7, R8, and R9 release specifications.

- **record-sequence-number**—Exclude the record sequence number from the CDR. The record sequence number is a sequential number assigned to each partial CDR of a particular PDP context or IP-CAN bearer. This number is not assigned if there is only one CDR generated during the lifetime of a subscriber.
- **served-imeisv**—Exclude the International Mobile Station Equipment Identity and Software Version Number (IMEISV) attribute of the served mobile equipment (ME) from the CDR.
- **served-msisdn**—Exclude the mobile station ISDN (MSISDN) number of the served equipment from the CDR.
- **served-pdp-address-extension**—Exclude the served PDP context or IP-CAN bearer address extension attribute from the CDR. This attribute is used when the PDP Type is IPv4v6; it carries the IPv4 address.
- **served-pdppdn-address**—Exclude the served PDP context or IP-CAN bearer address attribute from the CDR.

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- **serving-node-plmn-identifier**—Exclude the serving node (SGSN or S-GW) PLMN identifier (mobile country code and mobile network code) from the CDR.

  NOTE:
  - This attribute is added to the CDR, irrespective of whether or not you have configured it to be excluded, if the PLMN Change triggering event is enabled. You can disable this triggering event by including the plmn-change statement at the [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline exclude] hierarchy level (for the GGSN or P-GW), or the [edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline exclude] hierarchy level (for the S-GW).
  - This information is applicable only for CDRs that are compliant with the 3GPP R8 and R9 release specifications.

- **sgw-change**—Exclude the S-GW change attribute from the CDR. This option is applicable only to the S-GW.
- **start-time**—Exclude (from the CDR) the time when the IP-CAN session is established at the P-GW for the first bearer in this session.

  This attribute is applicable only to CDRs that are compliant with the 3GPP R8 and R9 release specification.
- **stop-time**—Exclude (from the CDR) the time when the user IP-CAN session is terminated for the last bearer in this session.

  This attribute is applicable only to CDRs that are compliant with the 3GPP R8 and R9 release specification.
- **user-location-information**—Exclude (from the container) the location of the user equipment during the service data container recording interval. If this attribute is excluded from the container, then it is also excluded from the CDR.

  NOTE:
  - This attribute is added to the CDR, irrespective of whether or not you have configured it to be excluded, if the User Location Change triggering event is enabled. You can disable this triggering event by including the user-location-change statement at the [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline exclude] hierarchy level (for the GGSN or P-GW), or the [edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline exclude] hierarchy level (for the S-GW).
  - This information is applicable only for CDRs that are compliant with the 3GPP R7, R8, and R9 release specifications.

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Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cdr-profiles on page 219
- *Configuring CDR Attributes*
- *Configuring Offline Charging*

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file-age

Syntax

```
file-age {
   age;
   disable;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging
local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
disable statement and support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the duration, in minutes, after which the temporary Charging Data Record (CDR) log file is closed and moved to a final location within the same disk (**/opt/mobility/charging/ggsn/final_log**), from where it can be transferred using SSH FTP (SFTP).

Files transferred from the final location should be deleted from the local Routing Engine disk after the transfer. Only authorized users can transfer and delete the files (after the transfer). However, any one of the following conditions (whichever comes first) must be met before the files are moved from the temporary location to the final location:

- The age of the file reaches the configured or default limit.
- The size of the file reaches the configured or default limit.
- The number of CDRs per file reaches the configured or default limit.

NOTE: **The default limit is applicable only if you have not configured any value.**

Default

If you do not configure this statement, then the trigger based on file age is enabled by default.

Options

age—Duration, in minutes, after which a CDR file is closed and moved to a final location within the Routing Engine disk, from where it can be transferred using SFTP.

Range: 20 through 7200 minutes

Default: 120 minutes

disable—Disable the file age trigger.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Persistent Storage*
- *Configuring Offline Charging*
- local-persistent-storage-options on page 280

file-creation-policy

Syntax

file-creation-policy (shared-file | unique-file);

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging
local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure whether Charging Data Records (CDRs) generated for a specific transport profile from all the services PICs should be routed to a single temporary file (**shared-file** option) or to multiple files, with each file storing CDRs generated from a single services PIC (**unique-file** configuration).

Default

If you do not include the **file-creation-policy** statement, CDRs from all the services PICs are routed to a single temporary file (**shared-file** option)

Options

shared-file—CDRs are routed to the files based on the file-routing criteria of the transport profile. In this configuration, all the CDRs generated for a specific transport profile from all the services PICs are routed to a single CDR temporary file. When a file trigger, such as file size, file age, or CDR count, triggers temporary file closure, the files are moved to the final CDR location (**/opt/mobility/charging/ggsn/final_log**). This is the default.

unique-file—CDRs are routed to the files based on the file routing criteria of the transport profile. In this configuration, all the CDRs generated for a specific transport profile from each services PIC are routed to a separate CDR temporary file. When a file trigger, such as file size, file age, or CDR count, triggers temporary file closure, the files are moved to a final CDR location (**/opt/mobility/charging/ggsn/final_log**).

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

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file-format

Syntax file-format (3gpp | raw-asn);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the file format for Charging Data Records (CDRs) stored in the CDR log files.

Default If you do not include the **file-format** statement, the CDRs are stored in a format compliant with the 3GPP 32297 technical specification release (**3gpp** option).

Options **3gpp**—CDRs are stored in a format that is compliant with the 3GPP 32297 technical specification release.

raw-asn—CDRs are stored in raw Abstract Syntax Notation One (ASN.1) format.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

file-name-private-extension

Syntax file-name-private-extension *string*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify a private extension (string) that is appended to the filenames.

NOTE: The final CDR log files are stored in the **/opt/mobility/charging/ggsn/final_log** directory in the filename format ***NodeID_-_PIC_-_transport-profile-id_-_RC.date_-_time*[*.PI*].cdr**, where:

- *NodeID*—Name of the host that generated the file.
- *PIC*—Number of the PIC that is generating the CDR.
- *transport-profile-id*—Number of the transport profile generating the CDR.
- *RC*—Running count or sequence number, starting with the value of 1.
- *date*—Date when the CDR file was closed in the format *YYYYMMDD*, where *YYYY* is the year, *MM* is the month (01-12), and *DD* is the day (01-31).
- *time*—Time when the CDR file was closed in the format *HHMMshhmm*, where *HH* is the local time hour of day (00-23), *MM* is the local time minute of the hour (00-59), *s* is the sign of local time differential from UTC (+ or -), *hh* is the local time differential hour (00-23), and *mm* is the local time differential minute (00-59).
- *PI*—(Optional) Private information that is explicitly configured.
- **cdr**—File extension is always **cdr**.

Options ***string***—Private extension.
Values: 1 through 16 bytes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

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file-size

Syntax

```
file-size {
   size;
   disable;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging
local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
disable statement and support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure maximum size that the file can reach, in MB, after which the temporary Charging Data Record (CDR) log file is closed and moved to a final location within the same disk (**/opt/mobility/charging/ggsn/final_log**), from where it can be transferred using SSH FTP (SFTP).

Files transferred from the final location should be deleted from the local Routing Engine disk after the transfer. Only authorized users can transfer and delete the files (after the transfer). However, any one of the following conditions (whichever comes first) must be met before the files are moved from the temporary location to the final location:

- Size of the file reaches the configured or default limit.
- Age of the file reaches the configured or default limit.
- Number of CDRs per file reaches the configured or default limit.

NOTE: **The default limit is applicable only if you have not configured any value.**

Default

If you do not configure this statement, then the trigger based on file size is enabled by default.

Options

value—Maximum size that the CDR file can reach, in MB, after which it is closed and moved to a final location within the Routing Engine disk, from where it can be transferred using SFTP.

Range: 1 MB to 1024 MB

Default: 10 MB

disable—Disable the file size trigger.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Persistent Storage*
- *Configuring Offline Charging*
- local-persistent-storage-options on page 280

global-profile (Serving Gateway)

Syntax

```
global-profile {
  default-profile default-profile;
  home-profile home-profile;
  profile-selection-order [profile-selection-method];
  roamer-profile roamer-profile;
  visitor-profile visitor-profile;
}
```

Hierarchy Level

[edit unified-edge gateways sgw *gateway-name* charging]

Description

Configure the global (charging) profiles that will be applicable for the Serving Gateway (S-GW). This is a mandatory configuration if you want to enable charging on the S-GW. Configuring the **profile-selection-order** statement is mandatory if the **global-profile** statement is configured.

The S-GW determines the type of subscriber by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE) and compares these with the corresponding values configured for the home public land mobile network (HPLMN). Depending on whether a subscriber is a home subscriber, a visitor, or a roamer, the **home-profile**, **visitor-profile**, or **roamer-profile** is applied. If the applicable profile is not configured, then the **default-profile**, if configured, is applied. If **default-profile** is also not configured, then the subscriber session is created with no charging applied.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (Serving Gateway) on page 229

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grant-grace-quota (Credit Control Failure Handling)

Syntax grant-grace-quota;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling initial-request],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling initial-request convert-to-offline],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action credit-control-not-applicable convert-to-offline],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action end-user-service-denied convert-to-offline],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action user-unknown convert-to-offline],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling update-request],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling update-request convert-to-offline]

Description Specify that, in case of credit control failure, the subscriber session is extended until the grace quota elapses.

NOTE: The grace quota can be configured using the **grant-quota** statement at the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]** hierarchy level.

If you include this statement, you cannot configure the **convert-to-offline** or **disable-online-charging** statements at the same hierarchy level.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- convert-to-offline (Credit Control Failure Handling) on page 239
- disable-online-charging (Credit Control Failure Handling) on page 251
- initial-request (Credit Control Failure Handling) on page 279
- *Online Charging Overview*
- update-request (Credit Control Failure Handling) on page 345

grant-quota (Trigger Profiles—Online)

Syntax

```
grant-quota {
  cc-octet-both volume-quota-both;
  cc-octet-downlink volume-quota-dl;
  cc-octet-uplink volume-quota-ul;
  cc-time time-quota;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the grace quota to be allocated in case the quota is exhausted.

The broadband gateway allocates the grace quota when the quota for the rating group (category) has been exhausted.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- online (Trigger Profiles) on page 291

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gtpp

Syntax

```
gtpp {
  destination-port port-number;
  down-detect-time duration;
  echo-interval duration;
  header-type (long | short);
  n3-requests requests;
  no-path-management;
  pending-queue-size value;
  peer peer-name {
    destination-ipv4-address address;
    destination-port port-number;
    down-detect-time duration;
    echo-interval duration;
    header-type (long | short);
    n3-requests requests;
    no-path-management;
    pending-queue-size value;
    reconnect-time duration;
    source-interface interface-name [ipv4-address address];
    t3-response response-interval;
    transport-protocol (tcp | udp);
    version (v0 | v1 | v2);
  }
  reconnect-time duration;
  source-interface {
    interface-name;
    [ipv4-address address;
  }
  t3-response response-interval;
  transport-protocol (tcp | udp);
  version (v0 | v1 | v2);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging],
[edit unified-edge gateways sgw *gateway-name* charging]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

The statements in this hierarchy enable you to set global as well as unique configurations for the general packet radio service (GPRS) tunneling protocol Prime (GTP Prime) peers (Charging Gateway Function [CGF] servers). If no separate configuration is defined for a peer, then the global configurations apply for that peer.

The charging data function (CDF) sends the Charging Data Records (CDRs) as GTP Prime messages to the GTP Prime peer, based on this configuration.

The remaining statements are explained separately.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- charging (GGSN or P-GW) on page 223
- charging (Serving Gateway) on page 229
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

header-type (GTP Prime)

Syntax
header-type (long | short);

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description
Configure the charging data function (CDF) GTP Prime message header length to match the version supported on the charging gateway function (CGF) server, which can be set to either short (6 bytes) or long (20 bytes). The **long** format is supported only in GTP Prime version 0. GTP Prime versions 1 and 2 support the **short** header length only.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options
long—CDF GTP Prime message header length is set to 20 bytes.

short—CDF GTP Prime message header length is set to 6 bytes.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

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home-profile

Syntax home-profile *home-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging], [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the profile that should be used to charge home subscribers. If the **profile-selection-order** configuration indicates **static**, then this profile is used for home subscribers.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines whether the subscriber is a home subscriber by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE). If the subscriber's International Mobile Subscriber Identity (IMSI), MCC, and MNC belong to the same PLMN to which both the GGSN or P-GW and the S-GW belong, then the subscriber is deemed a home subscriber and the **home-profile** is applied. If the **home-profile** is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options ***home-profile***—Name of the home profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

include-quota-holding-time (Trigger Profiles—Online)

Syntax include-quota-holding-time;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online requested-service-unit]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that the broadband gateway includes the Requested-Service-Unit attribute-value pair (AVP) in the Credit Control Request (CCR) messages to the Online Charging System (OCS), when the usage is reported for the reason of quota holding time. By default, the gateway does not include the Requested-Service-Unit AVP in CCR messages to the OCS, when the reporting reason is quota holding time.

NOTE: If you configure both the always-include and include-quota-validity-time statements, the always-include statement takes precedence.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- requested-service-unit (Trigger Profiles—Online) on page 310

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initial-request (Credit Control Failure Handling)

Syntax

```
initial-request {
  convert-to-offline {
    grant-grace-quota;
  }
  disable-online-charging;
  grant-grace-quota;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the actions to be carried out by the broadband gateway when the initial Credit Control Request fails.

The remaining statements are explained separately.

Default

If you do not include this statement, and if the secondary Online Charging System (OCS) is configured, then the gateway tries to establish a session with the secondary OCS. If that is not configured, then the subscriber's session is terminated by default.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cc-failure-handling (Trigger Profiles—Online) on page 210
- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*

local-persistent-storage-options

Syntax

```
local-persistent-storage-options {
  cdrs-per-file value;
  disable-replication;
  disk-space-policy {
    watermark-level-1 {
      notification-level (both | snmp-alarm | syslog);
      percentage value;
    }
    watermark-level-2 {
      notification-level (both | snmp-alarm | syslog);
      percentage value;
    }
    watermark-level-3 {
      notification-level (both | snmp-alarm | syslog);
      percentage value;
    }
  }
  file-age {
    age;
    disable;
  }
  file-creation-policy (shared-file | unique-file);
  file-format (3gpp | raw-asn);
  file-name-private-extension string;
  file-size {
    size;
    disable;
  }
  traceoptions {
    file file-name <files number> <match regular-expression> <no-world-readable |
      world-readable> <size size> ;
    flag flag;
    level (all | critical | error | info | notice | verbose | warning);
    no-remote-trace;
  }
  user-name string;
  world-readable;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging],
[edit unified-edge gateways sgw *gateway-name* charging]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the Charging Data Record (CDR) file storage options, which are measures to prevent loss of the CDR data.

You typically store the CDRs on the local Routing Engine disk when you do not have any external charging gateway function (CGF) servers configured to store them or when all the CGF servers are down.

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When you choose to store the CDRs locally, the CDRs generated by the services PICs are routed to a file on the Routing Engine disk. Some of the options that can be configured include the following:

- Action to be taken when the disk space falls below the configured watermark level.
- Restricting access to the files to a specific user.
- File routing criteria—CDRs are routed to the files based on the file-routing criteria of the transport profile. Therefore, all CDRs generated for a given transport profile are saved in a specific CDR log file.

The remaining statements are explained separately.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- charging (GGSN or P-GW) on page 223
- charging (Serving Gateway) on page 229
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

local-storage

Syntax
local-storage;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways persistent-storage-order],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways persistent-storage-order]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways persistent-storage-order]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description
Configure the Routing Engine disk as backup storage for the Charging Data Records (CDRs) when the external storage resources (charging gateway function [CGF] servers) are down or if no external servers are configured.

Default
If you do not include the **local-storage** statement, the backup storage is disabled.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- persistent-storage-order on page 298
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

measurement-method (Trigger Profiles—Online)

Syntax measurement-method (none | time | volume | volume-and-time);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the default measurement method. This specified measurement method is used by the gateway to include the Requested Service Unit (RSU) attribute-value pair (AVP) in the Credit Control Request (CCR) message if the policy and charging enforcement function (PCEF) does not include the Requested Service Unit (RSU) attribute-value pair (AVP) in the CCR message.

Options

none—Send an empty RSU.

time—Include the CC Time AVP in the RSU based on configured time (**cc-time**).

volume—Include the CC Octet Both, CC Octet Downlink, and CC Octet Uplink AVPs in the RSU based on configured values (**cc-octet-both**, **cc-octet-downlink**, and **cc-octet-uplink**, respectively).

time-and-volume—Include both time and volume AVPs in the RSU based on the configured values.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*
- online (Trigger Profiles) on page 291

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mtu (Transport Profiles)

Syntax mtu *value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum transmission unit (MTU) for a Data Record Transfer (DRT) message, which represents the maximum size in bytes that a DRT message can reach before it is transmitted.

A DRT message containing the Charging Data Records (CDRs) is transmitted from the charging data function (CDF) to the charging gateway function (CGF) server, when the **cdr-aggregation-limit** or the **mtu** size is reached (whichever comes first).

Options **value**—Maximum size, in bytes, for a DRT message.

Range: 300 through 8000 bytes

Default: 1500 bytes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-gateways (Transport Profiles—Offline) on page 235
- *Configuring Transport Profiles for Offline Charging*
- *Configuring Offline Charging*

n3-requests (GTP Prime)

Syntax n3-requests *requests*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of times the charging data function (CDF) attempts to send echo request messages to the charging gateway function (CGF) server, after which the CDF waits for a configured duration (see down-detect-time) for any response before declaring the server as Down.

The broadband gateway retransmits the requests to the UDP peers. However, for the TCP peers, the requests are retransmitted to a newer peer (when there is a switchover) or to the same peer (when it becomes alive after being Down).

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options ***requests***—Number of times that the CDF attempts to send a request to a CGF server after which the CDF waits for a configured duration (see down-detect-time) before declaring the server as Down.

Range: 1 through 5

Default: 3

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

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node-id (CDR Profiles)

Syntax node-id (hostname | hostname-spic | ipaddress-spic);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging cdr-profiles *profile-name*], [edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the format of the node identifier (ID) in the Charging Data Record (CDR). The node identifier indicates the node that generated the CDR.

NOTE:

- If you do not include this statement, then the IP address of the node generating the CDR and the ID of the services PIC on which the CDR was triggered, with a colon (:) as a delimiter, are used as the node identifier in the CDR.
- When you include the **node-id** statement and commit the configuration, the new node ID format comes into effect immediately; that is, all subsequent CDRs use the new node ID format.

Options **hostname**—Specify that the hostname of the node generating the CDR is used as the node identifier.

hostname-spic—Specify that the hostname of the node generating the CDR and the ID of the services PIC on which the CDR was triggered, delimited by a colon (:), are used as the node identifier. For example, if the hostname of the node is jnprcg and the ID of the services PIC is 2, the node ID is jnprcg:2.

ipaddress-spic—Specify that the IP address of the node generating the CDR and the ID of the services PIC on which the CDR was triggered, delimited by a colon (:), are used as the node identifier. For example, if the IP address of the node is 192.168.1.19 and the ID of services PIC is 3, the node ID is 192.168.1.19:3.

This is the default.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cdr-profiles on page 219
- *Configuring CDR Attributes*
- *Configuring Offline Charging*

no-mscc-in-ccrt (Transport Profiles—Online)

Syntax no-mscc-in-ccrt;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that no Multiple Services Credit Control (MSCC) attribute-value pairs (AVPs) are included in the Credit Control Request Terminate (CCR-T) messages sent from the broadband gateway to the Online Charging System (OCS).

This configuration is useful in cases where the OCS does not support the MSCC AVP in CCR-T messages. If you include this statement, then the broadband gateway first sends the MSCC AVPs in the CCR-Update (CCR-U) message (to report usage), and then sends the CCR-T message to the OCS.

NOTE: **If you do not include the no-mscc-in-ccrt statement, then the broadband gateway sends the MSCC AVPs in CCR-T messages (to report usage).**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Online Charging*
- *Configuring Transport Profiles for Online Charging*
- online (Transport Profiles) on page 290

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no-path-management (GTP Prime)

Syntax no-path-management;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Use this statement to disable path management messages. If this statement is configured, no echo messages are sent. However, the router responds to any echo messages that are received.

NOTE:

- Path management refers to the exchange of echo messages between charging data function (CDF) and charging gateway function (CGF) servers (GTP Prime peers) to find out whether a CGF server is alive to process the GTP Prime messages sent from the CDF.
- Echo messages are sent only for UDP connections.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

offline (Transport Profiles)

Syntax

```
offline {
  charging-function-name function-name;{
  charging-gateways {
    cdr-aggregation-limit value;
    cdr-release (r7 | r8 |r9 | r99);
    mtu value;
    peer-order {
      [peer charging-gateway-peer-name];
    }
    persistent-storage-order {
      local-storage;
    }
    switch-back-time seconds;
  }
  container-limit value;
  sgsn-sgw-change-limit value; #P-GW only
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the transport parameters for offline charging records, such as:

- The charging gateway peers that store the Charging Data Records (CDRs).
- The maximum number of CDRs that can be added to a Data Record Transfer (DRT) message.
- The maximum transmission unit of a DRT message.
- The generated CDRs to be compliant with a specific 3GPP release.
- The duration that the charging data function (CDF) waits before transmitting the CDRs to a peer that has recently come up and that has the highest priority among all the peers, which are alive.
- Whether to use the local Routing Engine disk for CDR storage.
- The charging function name that is used to select the offline charging gateway.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Offline Charging*
- *Configuring Transport Profiles for Offline Charging*

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- transport-profiles on page 335

offline (Trigger Profiles)

Syntax

```
offline {
  exclude {
    dcca-events; #P-GW only
    ms-timezone-change;
    plmn-change;
    qos-change;
    rat-change;
    sgsn-mme-change; #S-GW only
    sgsn-sgw-change; #P-GW only
    user-location-change;
  }
  sgsn-mme-change-limit value; #S-GW only
  time-limit value;
  volume-limit {
    value;
    direction (both | uplink);
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name*], [edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the attributes that trigger charging updates for offline charging records.

For example, you can set the maximum duration that the Charging Data Record (CDR) can remain open (**time-limit**), maximum volume of data that can be transmitted before closing a CDR (**volume-limit**), maximum number of containers that can be added to a CDR, or maximum number of Serving Gateway (S-GW) or serving GPRS support node (SGSN) changes that can occur before the CDR is updated and closed.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Offline Charging*
- trigger-profiles (GGSN or P-GW) on page 340
- trigger-profiles (Serving Gateway) on page 343

online (Transport Profiles)

Syntax

```
online {
  all-rgs-on-termination;
  charging-function-name function-name;
  diameter-profile profile-name;
  no-mscc-in-ccrt;
  quota-request-on-first-packet
  send-ccri-on-first-packet
  service-context-id service-context-id;
  session-failover-not-supported;
  single-mscc;
  tx-timeout timeout;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the parameters for transporting online charging messages between the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) and the online charging system (OCS).

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Transport Profiles for Online Charging*
- *Online Charging Overview*
- transport-profiles on page 335

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online (Trigger Profiles)

Syntax

```
online {
  cc-failure-handling {
    block-traffic-pending-reauth-no-quota;
    initial-request {
      convert-to-offline {
        grant-grace-quota;
      }
      disable-online-charging;
      grant-grace-quota;
    }
    override;
    result-code-based-action {
      authorization-rejected {
        blacklist {
          retry-timer;
        }
      }
      credit-control-not-applicable {
        convert-to-offline {
          grant-grace-quota;
        }
      }
      credit-limit-reached {
        blacklist {
          retry-timer;
        }
      }
      end-user-service-denied {
        convert-to-offline {
          grant-grace-quota;
        }
        disable-online-charging;
      }
      user-unknown {
        convert-to-offline {
          grant-grace-quota;
        }
        disable-online-charging;
      }
    }
    update-request {
      convert-to-offline {
        grant-grace-quota;
      }
      disable-online-charging;
      grant-grace-quota;
    }
  }
  grant-quota {
    cc-octet-both volume-quota-both;
    cc-octet-downlink volume-quota-dl;
    cc-octet-uplink volume-quota-ul;
```

```
    cc-time time-quota;
  }
  measurement-method (none | time | volume | volume-and-time);
  quota-holding-time time-in-seconds;
  quota-threshold {
    threshold;
    override;
  }
  quota-validity-time time-in-seconds;
  reporting-level {
    override;
    (rating-group | service-identifier);
  }
  requested-service-unit {
    always-include;
    cc-octet-both volume-quota-both;
    cc-octet-downlink volume-quota-dl;
    cc-octet-uplink volume-quota-ul;
    cc-time time-quota;
    include-quota-holding-time;
  }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the trigger attributes for online charging.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- trigger-profiles (GGSN or P-GW) on page 340

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override (Credit Control Failure Handling)

Syntax override;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling]

Description Specify that the broadband gateway overrides the credit control failure handling parameters received from the Online Charging System (OCS) and uses the parameters configured locally on the gateway.

Default If you do not include this statement, then the gateway uses the parameters provided by the OCS. If the OCS does not provide the parameters, then the parameters configured locally on gateway are used.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cc-failure-handling (Trigger Profiles—Online) on page 210
- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*

peer (GTP Prime)

Syntax

```
peer peer-name {
  destination-ipv4-address address;
  destination-port port-number;
  down-detect-time duration;
  echo-interval duration;
  header-type (long | short);
  n3-requests requests;
  no-path-management;
  pending-queue-size value;
  reconnect-time duration;
  source-interface {
    interface-name;
    ipv4-address address;
  }
  t3-response response-interval;
  transport-protocol (tcp | udp);
  version (v0 | v1 | v2);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure GTP Prime peers (charging gateway function [CGF] servers). You can configure up to a maximum of 24 peers. The charging data function (CDF) sends the Charging Data Records (CDRs) as GTP Prime messages to the GTP Prime peer, based on this configuration.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*
- *Configuring Offline Charging*

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peer (Peer Order)

Syntax [peer *charging-gateway-peer-name*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways peer-order],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways peer-order]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways peer-order]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the name of the charging gateway peer. However, make sure the peer that you specify here is previously configured for its IP address, name, and so on, using one of the following statements, as applicable. Otherwise, you will encounter a configuration error.

- **set unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer** for the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).
- **set unified-edge gateways sgw *gateway-name* charging gtpp peer** for the Serving Gateway (S-GW).

Options ***charging-gateway-peer-name***—Name of the charging gateway server.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- peer-order on page 296
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*
- *Configuring Offline Charging*

peer-order

Syntax

```
peer-order {
   [peer charging-gateway-peer-name];
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the charging gateway function (CGF) servers. You can configure up to a maximum of three servers for a transport profile.

When more than one CGF servers are available for storing Charging Data Records (CDRs), the charging data function (CDF) must identify the server to which to route the CDRs to first. The peer order determines this hierarchy, using which the CDF tries to send the CDRs to the server that comes first in this order. The peer that comes first in the order is treated as the highest-priority peer. At any given time, CDRs are sent to only one of the peers. If, for any reason, the first server goes down, the CDF tries to send the CDRs to the server that comes next in the order. However, if a higher-priority peer comes up, the CDRs are sent to this peer after a waiting period determined by the **switch-back-time** configuration.

When required, the priority of any peer can be changed by using the configuration option to **insert before** or **insert after** the existing peers.

NOTE: If all the peers are **Down** and if you have configured the Routing Engine disk as the backup storage option, then the CDRs are routed to the Routing Engine disk. However, if one or more peers come alive, then CDF waits for the configured **switch-back-time** duration and routes the CDRs to the highest priority peer that is alive after this duration. The CDRs that were previously stored on the Routing Engine disk are not routed to the charging gateway (peer) and remain on the disk. You need to transfer the CDRs using SSH FTP (SFTP) from the following location on the disk: **/opt/mobility/charging/ggsn/final_log**.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-gateways (Transport Profiles—Offline) on page 235

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- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*
- *Configuring Offline Charging*

pending-queue-size (GTP Prime)

Syntax pending-queue-size *value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of Data Record Transfer (DRT) messages that can be sent by the charging data function (CDF) without an acknowledgement from the charging gateway function (CGF) server. When the limit is reached, CDF stops sending the messages to that CGF server.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options ***value***—Maximum number of DRT messages that can be queued without an acknowledgement from the CGF server.

Range: 1 through 4096

Default: 1024

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*
- *Configuring Offline Charging*

persistent-storage-order

Syntax

```
persistent-storage-order {
  local-storage;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the local storage of Charging Data Records (CDRs). You may want to store the CDRs on the local Routing Engine disk for one of the following reasons:

- When there are no charging gateway peers configured for a transport profile
- When none of the primary, secondary, or tertiary charging gateway peers can be reached (that is, when they are down)

The remaining statement is explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-gateways (Transport Profiles—Offline) on page 235
- *Configuring Transport Profiles for Offline Charging*
- *Configuring Offline Charging*

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profile-id (Charging Profiles)

Syntax profile-id *id-num*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure a unique identifier to be associated with a charging profile. You must configure a profile ID for a charging profile.

Based on the user's subscription, the Serving Gateway (S-GW), serving GPRS support node (SGSN), or RADIUS server returns the charging profile (identified by the profile ID) that must be used for charging the mobile subscriber. If more than one node returns a profile ID, then the profile selection order configuration determines which server's profile ID must be given higher priority. This profile ID is then matched with the configured profile ID to choose the correct charging profile for that subscriber. However, if a server returns an incorrect or unconfigured charging profile ID, the profile ID returned by the server that is next in priority is taken into consideration. If none of the profile IDs match, then charging is disabled for the subscriber.

NOTE: The RADIUS server returns the profile ID as a four-byte hexadecimal value in the Access Accept message.

Options *id-num*—Unique number to be associated with the charging profile.

Range: 1 through 65,534

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-profiles on page 237
- *Charging Profiles*
- *Configuring Charging Profiles*
- profile-selection-order (APN) on page 181
- profile-selection-order (Serving Gateway) on page 300

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profile-selection-order (Serving Gateway)

Syntax profile-selection-order [*profile-selection-method*];

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the order of the methods used to select a charging profile applicable for a subscriber's session on the Serving Gateway (S-GW). You can specify a maximum of three profile selection methods: **static**, **serving**, or **pgw-cg-addr**. If the first choice is not available, then the next choice is considered, and so on.

For example, consider a scenario where the profile selection order is **static**, **serving**, and **pgw-cg-addr**. Since **static** is the first choice, the global (charging) profiles specified are used. If the global profiles are not configured, then the next choice (**serving**) is considered. If the serving GPRS support node (SGSN) or S-GW does not provide a charging profile ID in the charging characteristics information element (IE) within the GPRS tunneling protocol (GTP) Create Session message, then the next choice (**pgw-cg-addr**) is considered. With the **pgw-cg-addr** option, the charging profile is selected based on the IP address of the charging gateway (CG) for the P-GW.

NOTE: **If the charging profile cannot be selected by any of the methods specified, then charging is disabled for that subscriber.**

Options ***profile-selection-method***—One or more profile selection methods, listed in the order in which they should be tried. The method can be one or more of the following:

- **pgw-cg-addr**—Use the charging profile based on the on the IP address of the CG for the P-GW.
- **serving**—Use the charging profile sent by the SGSN or the Serving Gateway (S-GW).
- **static**—Use the charging profile configured locally for the S-GW.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring S-GW Global Charging Profiles and Selection Order*
- global-profile (Serving Gateway) on page 272

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quota-holding-time (Trigger Profiles—Online)

Syntax quota-holding-time *time-in-seconds*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the quota holding time, in seconds. The configured quota holding time is used if the Online Charging System (OCS) does not provide quota holding time in the Quota-Holding-Time attribute-value pair (AVP) in the Credit Control Answer (CCA) message. The quota holding time provided by the OCS takes precedence over the one configured (locally) on the broadband gateway. A quota holding time of zero indicates that the quota holding mechanism should not be used.

The quota holding time indicates the number of seconds for which the quota granted by the OCS is held by the gateway when no traffic is received for that rating group. If traffic is received before the quota holding time elapses, the quota holding time is reset. If no traffic is received before the quota holding time elapses, the broadband gateway sends a Credit Control Request Update (CCR-U) message to the OCS indicating that the quota holding time has elapsed.

NOTE: If you do not include the **quota-holding-time** statement, the quota holding time provided by the OCS is used. If no quota holding time is provided by the OCS, then the quota holding mechanism is not used.

Options ***time-in-seconds***—Quota holding time, in seconds.

Range: 300 through 864,000 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- online (Trigger Profiles) on page 291
- quota-validity-time (Trigger Profiles—Online) on page 304

quota-request-on-first-packet (Transport Profiles—Online)

Syntax quota-request-on-first-packet;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that the broadband gateway requests quota (for a rating group) from the Online Charging System (OCS) only on receipt of the first packet matching that rating group.

If you do not include the **quota-request-on-first-packet** statement, then, by default, broadband gateway requests quota from the OCS when the rating group is created.

NOTE:

- If the **send-ccri-on-first-packet** statement (at the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]** hierarchy level) is not included, then the broadband gateway sends a Credit Control Request-Initial (CCR-I) message to the OCS, during bearer creation, without any Multiple Services Credit Control (MSCC) attribute-value pairs (AVPs); this is done for bearer authorization. When the broadband gateway receives the first packet for the rating group, it requests for quota for that rating group by sending the CCR-Update (CCR-U) message to the OCS.
- The **quota-request-on-first-packet** statement is applicable at the rating group level, whereas the **send-ccri-on-first-packet** statement is applicable at the bearer level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Online Charging*
- *Configuring Transport Profiles for Online Charging*
- online (Transport Profiles) on page 290
- send-ccri-on-first-packet (Transport Profiles—Online) on page 313

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quota-threshold (Trigger Profiles—Online)

Syntax

```
quota-threshold {
   threshold;
   override;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online],
[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the quota threshold for the quota received from the Online Charging System (OCS). The quota threshold can be specified as a percentage of the total quota allocated. You can also specify that the configured quota threshold overrides the one provided by the OCS.

The broadband gateway uses the quota threshold to determine when to report the used quota to and request more quota from the OCS. For example, if the OCS provides 100 KB of quota and if the quota threshold is 70 percent, then the gateway sends the OCS a Credit Control Request-Update message with the used quota, when the quota used is 70 KB.

Options

threshold—Quota threshold, specified as a percentage of the total quota allocated.

Range: 5 through 95 percent

override—Override the quota threshold provided by the OCS and use the configured threshold.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- online (Trigger Profiles) on page 291

quota-validity-time (Trigger Profiles—Online)

Syntax quota-validity-time *time-in-seconds*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the quota validity time, in seconds. The configured quota validity time is used if the Online Charging System (OCS) does not provide quota validity time in the Validity-Time attribute-value pair (AVP) in the Credit Control Answer (CCA) message.

The quota validity time indicates the number of seconds for which the quota granted by the OCS is valid for a session (across all rating groups). When the validity time elapses, the broadband gateway reauthorizes the quota using a Credit Control Request (CCR) Update Request message.

Options ***time-in-seconds***—Quota validity time, in seconds.

Range: 30 through 864,000 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- online (Trigger Profiles) on page 291
- quota-holding-time (Trigger Profiles—Online) on page 301

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rating-group (Trigger Profile)

Syntax rating-group [*value*];

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name* trigger-profile *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name* trigger-profile *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify one or more rating group identifiers that should be associated with the trigger profile. A rating group represents a collection of services.

The rating group is used to select the trigger profile to be associated with a charging profile. If the rating group identifier received by the broadband gateway matches the rating group identifier configured here, then the trigger profile with which the rating group identifier is associated is linked to the charging profile.

NOTE: **If you do not configure a rating group identifier, then the gateway uses the default trigger profile.**

Options [*value*]—One or more rating group identifiers. To enter more than one value, enclose the values in square brackets ([]).

Range: 0 through 4,294,967,294

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Charging Profiles*
- *Configuring Charging Profiles*
- trigger-profile (Charging Profiles) on page 338

reconnect-time (GTP Prime)

Syntax reconnect-time *duration*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Configure the duration (in seconds) that the charging data function (CDF) must wait before trying to reconnect to a charging gateway function (CGF) server that was marked Down earlier.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options ***duration***—Duration after which the CDF tries to reconnect to a CGF server that was previously down.

Range: 60 through 255 seconds. Enter 0 if you do not want to attempt to reconnect to a peer.

Default: 60 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime Peers*
- *Configuring GTP Prime for Charging*
- *Configuring Offline Charging*

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redirect-reason (Service Filter)

Syntax redirect-reason [aoc dpi];

Hierarchy Level [edit firewalls family inet service-filter *filter-name* term *term-name* from]

Release Information Statement introduced in Junos OS Mobility Release 12.1W2.

Description Configure the service filter **from** condition to trigger service (when coupled with the **service** action) for a subscriber requiring Advice of Charge (AoC) notification or when the subscriber's quota is exhausted (Top-Up).

NOTE: **For the AoC feature, you must configure both the deep packet inspection (dpi) and aoc options.**

Options **aoc**—Match the packets requiring AoC treatment.

dpi—Match the packets requiring DPI treatment.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- service on page 314
- *Service Sets and Service Filters for Advice of Charge Overview*
- *Configuring Service Sets and Service Filters for Advice of Charge*

reporting-level (Trigger Profiles—Online)

Syntax

```
reporting-level {
   override;
   (rating-group | service-identifier);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the default reporting level for the reports from the gateway to the offline charging gateway and the Online Charging System (OCS). The reporting can be done at the rating group level or the service identifier level (within a rating group).

Default

If you do not include this statement, then the default reporting level is set to **rating-group**.

Options

overrride—Override the reporting level provided by the policy and charging rules function (PCRF) with the one configured locally.

rating-group—Specify that the gateway reports at the rating group level.

service-identifier—Specify that the gateway reports at the service identifier level.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- online (Trigger Profiles) on page 291

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report-requested-apn

Syntax report-requested-apn;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging cdr-profiles *profile-name*], [edit unified-edge gateways sgw *gateway-name* charging cdr-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that the broadband gateway includes the requested access point name (APN) in the Charging Data Records (CDRs) of subscribers attached to the CDR profile. Therefore, when the APN type is virtual, the broadband gateway includes the requested or virtual APN in the CDRs.

NOTE: If you do not include the **report-requested-apn** statement, then, by default, the broadband gateway includes only the real APN in the CDR. (For virtual APNs, the real APN to which the virtual APN is mapped is included in the CDR.)

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cdr-profiles on page 219
- *Configuring CDR Attributes*
- *Configuring Offline Charging*

requested-service-unit (Trigger Profiles—Online)

Syntax

```
requested-service-unit {
  always-include;
  cc-octet-both volume-quota-both;
  cc-octet-downlink volume-quota-dl;
  cc-octet-uplink volume-quota-ul;
  cc-time time-quota;
  include-quota-holding-time;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the quotas for the requested service unit. The broadband gateway uses the configured quotas to do the following:

- Request quota from the Online Charging System (OCS) as a part of the Credit Control Request-Initial (CCR-Initial) message.
- Report the quota to and request additional quota from the OCS as a part of the CCR-Update message.
- Report the quota to the OCS as a part of the CCR-Terminate message.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- online (Trigger Profiles) on page 291

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result-code-based-action (Credit Control Failure Handling)

Syntax

```
result-code-based-action {
  authorization-rejected {
    blacklist {
      retry-timer;
    }
  }
  credit-control-not-applicable {
    convert-to-offline {
      grant-grace-quota;
    }
  }
  credit-limit-reached {
    blacklist {
      retry-timer;
    }
  }
  end-user-service-denied {
    convert-to-offline {
      grant-grace-quota;
    }
    disable-online-charging;
  }
  user-unknown {
    convert-to-offline {
      grant-grace-quota;
    }
    disable-online-charging;
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the actions to be performed based on the Diameter Result-Code attribute-value pair (AVP) received from the online charging system (OCS), in case of credit control failure.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- cc-failure-handling (Trigger Profiles—Online) on page 210
- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- *Online Charging Overview*

roamer-profile

Syntax roamer-profile *roamer-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging], [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the profile that should be used to charge roaming subscribers. If the **profile-selection-order** configuration indicates **static**, then this profile is used for roaming subscribers.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines whether the subscriber is a roamer by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE). If the subscriber's International Mobile Subscriber Identity (IMSI), MCC, and MNC belong to the same PLMN as the GGSN or P-GW, but the S-GW belongs to a different PLMN, then the subscriber is deemed a roamer and the **roamer-profile** is applied. If the **roamer-profile** is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options ***roamer-profile***—Name of the roamer profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

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send-ccri-on-first-packet (Transport Profiles—Online)

Syntax send-ccri-on-first-packet;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that the broadband gateway sends a Credit Control Request-Initial (CCR-I) message to the Online Charging System (OCS) only on receipt of the first packet for any rating group of the bearer.

NOTE: If you do not include the **send-ccri-on-first-packet** statement, then the broadband gateway sends the CCR-I message to the OCS to authorize the bearer during bearer establishment. In addition, if the **quota-request-on-first-packet** statement is configured, the broadband gateway sends the CCR-I message without any Multiple Services Credit Control (MSCC) attribute-value pairs (AVPs) included. MSCC AVPs are used to request quota for a rating group.

The **send-ccri-on-first-packet** statement is applicable at the bearer level, whereas the **quota-request-on-first-packet** statement is applicable at the rating group level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Online Charging*
- *Configuring Transport Profiles for Online Charging*
- online (Transport Profiles) on page 290
- quota-request-on-first-packet (Transport Profiles—Online) on page 302

service (Service Filter)

Syntax service;

Hierarchy Level [edit firewalls family inet service-filter *filter-name* term *term-name* then]

Release Information Statement introduced in Junos OS Mobility Release 12.1W2.

Description Configure the service filter **then** action to trigger service when the match condition is met.

NOTE: For the AoC feature, you must configure both the deep packet inspection (**dpi**) and **aoc** options in the **redirect-reason** match condition.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- redirect-reason on page 307
- *Service Sets and Service Filters for Advice of Charge Overview*
- *Configuring Service Sets and Service Filters for Advice of Charge*

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service-context-id (Transport Profiles—Online)

Syntax service-context-id *service-context-id*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the service context identifier (ID) attribute-value pair (AVP). The broadband gateway sends this AVP in all Credit Control Request (CCR) messages to the Online Charging System (OCS).

NOTE: If you do not include this statement, then the default service context ID (9.32251@3gpp.org) is sent in CCR messages.

Options ***service-context-id***—Service context ID.

Range: 1 through 100 characters

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Online Charging*
- *Configuring Transport Profiles for Online Charging*
- online (Transport Profiles) on page 290

service-mode (Charging Profiles)

Syntax service-mode *service-mode-options*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Place the charging profile under maintenance mode.

You must put the charging profile in maintenance mode when you have to make any of the following changes to the existing charging profile configuration:

- Change the CDR profile, transport profile, or the trigger profile associated with this charging profile
- Change the profile ID configuration
- Delete the charging profile

When a charging profile is in maintenance mode, no new subscribers are accepted for that charging profile. However, maintenance mode does not become active until no existing subscriber sessions are using that charging profile and all the corresponding CDRs have been flushed out. Unless the maintenance mode becomes active, you cannot modify the charging profile attributes or delete the charging profile.

Use the following commands to help you with maintenance mode tasks:

- To verify that the charging profile has entered active maintenance mode, use one of the following commands, as applicable:
  - For the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW)—**show unified-edge ggsn-pgw charging service-mode gateway *gateway-name* charging-profile *profile-name***
  - For the Serving Gateway (S-GW)—**show unified-edge sgw charging service-mode gateway *gateway-name* charging-profile *profile-name***
- To verify that the subscriber count has reached zero, use one of the following commands, as applicable:
  - For the GGSN or P-GW—**show unified-edge ggsn-pgw subscribers charging charging-profile *profile-name* gateway *gateway-name***
  - For the S-GW—**show unified-edge sgw subscribers charging charging-profile *profile-name* gateway *gateway-name***
- To verify that all CDRs for the transport profile referred to by this charging profile have been flushed out, use one of the following commands, as applicable:

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  - For the GGSN or P-GW—**show unified-edge ggsn-pgw charging transfer status transport-profile-name** ***profile-name***
  - For the S-GW—**show unified-edge sgw charging transfer status transport-profile-name** ***profile-name***
- To explicitly end any subscriber sessions, use one of the following commands, as applicable:
  - For the GGSN or P-GW—**clear unified-edge ggsn-pgw subscribers charging charging-profile** ***profile-name*** **gateway** ***gateway-name***
  - For the S-GW—**clear unified-edge sgw subscribers charging charging-profile** ***profile-name*** **gateway** ***gateway-name***
- To explicitly flush all the CDRs for the transport profile referred to by this charging profile, use the one of the following commands, as applicable:
  - For the GGSN or P-GW—**clear unified-edge ggsn-pgw charging cdr transport-profile-name** ***profile-name*** **gateway** ***name***
  - For the S-GW—**clear unified-edge sgw charging cdr transport-profile-name** ***profile-name*** **gateway** ***name***

Options

service-mode-options—Specify the service mode. Currently, **maintenance** mode is the only option supported.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-profiles on page 237
- *Changing a Charging Profile*
- *Mobility Maintenance Mode Overview*

service-mode (Transport Profiles)

Syntax service-mode maintenance;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Place the respective transport profile under maintenance mode.

To make the following changes to the existing transport profile configuration, you must put that transport profile in maintenance mode:

- Change the CDR encoding format to comply with a different 3GPP technical specification release (that is, changing the **cdr-release** configuration)
- Delete the transport profile

In maintenance mode, no new subscribers are accepted for that transport profile. However, the maintenance mode does not become active until no existing subscriber sessions are using that transport profile and all corresponding CDRs have been flushed out. Unless the maintenance mode becomes active, you cannot modify the above-mentioned transport profile attributes or delete the transport profile. Use the following commands to help you with the maintenance mode tasks:

- To verify that the transport profile has entered active maintenance mode, use one of the following commands, as applicable:
  - For the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW)—**show unified-edge ggsn-pgw charging service-mode gateway *gateway-name* transport-profile *profile-name***
  - For the Serving Gateway (S-GW)—**show unified-edge sgw charging service-mode gateway *gateway-name* transport-profile *profile-name***
- To verify that the subscriber count has reached zero, use one of the following commands, as applicable:
  - For the GGSN or P-GW—**show unified-edge ggsn-pgw subscribers charging transport-profile *profile-name* gateway *gateway-name***
  - For the S-GW—**show unified-edge sgw subscribers charging transport-profile *profile-name* gateway *gateway-name***
- To verify that all CDRs for the transport profile have been flushed out, use one of the following commands, as applicable:
  - For the GGSN or P-GW—**show unified-edge ggsn-pgw charging transfer status transport-profile-name *profile-name***

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  - For the S-GW—**show unified-edge sgw charging transfer status transport-profile-name** ***profile-name***

- To explicitly end any subscriber sessions, use one of the following commands, as applicable:
  - For the GGSN or P-GW—**clear unified-edge ggsn-pgw subscribers charging transport-profile** ***profile-name*** **gateway** ***gateway-name***
  - For the S-GW—**clear unified-edge sgw subscribers charging transport-profile** ***profile-name*** **gateway** ***gateway-name***
- To explicitly flush all the CDRs for the transport profile, use one of the following commands, as applicable:
  - For the GGSN or P-GW—**clear unified-edge ggsn-pgw charging cdr transport-profile-name** ***profile-name***
  - For the S-GW—**clear unified-edge sgw charging cdr transport-profile-name** ***profile-name***

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- transport-profiles on page 335
- *Changing a Transport Profile*
- *Mobility Maintenance Mode Overview*

session-failover-not-supported (Transport Profiles—Online)

Syntax session-failover-not-supported;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify whether online charging sessions should failover to an alternate server or not, when failure occurs during an ongoing credit control session. The alternate server is selected based on the configuration in the Diameter profile that is associated with the transport profile.

The CC-Session-Failover (CCSF) AVP, which is defined in 3GPP specification 32.299, takes precedence over the **session-failover-not-supported** configuration on the broadband gateway. If the Online Charging System (OCS) does not send the CCSF AVP in response to the CCR-Initial message, then the failover of the online charging session is determined by the **session-failover-not-supported** configuration.

By default, the gateway always fails over new online charging sessions to the secondary OCS. Therefore, the **session-failover-not-supported** configuration is applicable only in the case of CCR-Update and CCR-Final messages.

NOTE: **If you do not include this statement, then the failover of online charging sessions to an alternate server is enabled by default.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Transport Profiles for Online Charging*
- online (Transport Profiles) on page 290
- *Online Charging Overview*

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sgsn-mme-change-limit (Serving Gateway)

Syntax sgsn-mme-change-limit *value*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of serving GPRS support node (SGSN) or Mobility Management Entity (MME) changes that can occur before the Charging Data Record (CDR) is updated and closed.

Options *value*—Maximum number of SGSN or MME changes.

Range: 1 through 5.

Default: 4

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- offline (Trigger Profiles) on page 289
- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Offline Charging*

sgsn-sgw-change-limit (GGSN or P-GW)

Syntax sgsn-sgw-change-limit *value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the maximum number of Serving GPRS Support Node (SGSN) or Serving Gateway (S-GW) changes that can occur before the CDR is updated and closed.

Options *value*—Maximum number of SGSN or S-GW changes.

Range: 1 through 5.

Default: 4

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- offline (Transport Profiles) on page 288
- *Configuring Transport Profiles for Offline Charging*
- *Configuring Offline Charging*

single-mscc (Transport Profiles—Online)

Syntax single-mscc;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that only one Multiple Services Credit Control (MSCC) attribute-value pair (AVP) is included in the Credit Control Request (CCR) messages sent from the broadband gateway to the Online Charging System (OCS).

This configuration is useful in cases where the OCS supports only one MSCC AVP in CCR messages.

NOTE: If you do not include the single-mscc statement, then, by default, the broadband gateway includes one or more MSCC AVPs in CCR messages.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Online Charging*
- *Configuring Transport Profiles for Online Charging*
- online (Transport Profiles) on page 290

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source-interface (GTP Prime)

Syntax

```
source-interface {
   interface-name;
   ipv4-address address;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description

Configure the name of the local loopback interface and its IPv4 address as the source interface from which the GTP Prime packets are sent to the charging gateway function (CGF) servers. This is a mandatory configuration. However, before specifying this configuration, make sure that the interface has been previously defined.

The following is a sample configuration:

```
gtpp {
    source-interface {
        lo0.0;
        ipv4-address 10.10.10.10;
    }
}
```

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options

address—IPv4 address of the local loopback interface from which the GTP Prime packets are sent. This is a mandatory configuration.

interface-name—Name of the local loopback interface from which the GTP Prime packets are sent.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

switch-back-time

Syntax switch-back-time *seconds*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways],
[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description The charging data function (CDF) transmits Charging Data Records (CDRs) to the highest-priority peer. The priority is determined by the **peer-order** configuration. If for any reason the highest-priority peer goes down, the CDF transmits the CDRs to the next high-priority peer and so on. If none of the peers are up, then the CDRs are transmitted to the local Routing Engine disk, if it is configured. During this transmission, it is possible that a peer or a peer that is higher in priority might come up. Instead of immediately switching over the transmission of the CDRs to the peer that recently came up, you can configure the duration that the CDF must wait to transmit the CDRs to the highest-priority peer that becomes available after this duration.

NOTE: If all the peers are down, in order not to lose any CDR data, you might want to configure the local storage on the Routing Engine disk using the following statement:

- **set unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways persistent-storage-order local-storage** for the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).
- **set unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name* offline charging-gateways persistent-storage-order local-storage** for the Serving Gateway (S-GW).

However, even if the Routing Engine disk is not configured for storage, the CDR data is not lost because it gets buffered in the services PICs. Services PICs can buffer up to a maximum of 2 GB of data, after which a call admission control (CAC) is triggered.

In the meantime, if one or multiple peers come alive, then CDF waits for the configured **switch-back-time** duration and routes the CDRs to the highest-priority peer that is alive after this duration. The CDRs that were stored previously on the Routing Engine disk are not routed to the charging gateway (peer) and remain on the disk. You need to transfer the CDRs using SSH FTP (SFTP) from the following location on the disk: **/opt/mobility/charging/ggsn/final_log**.

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Options ***seconds***—Time, in seconds, CDF waits before transmitting the CDRs to the highest-priority peer.

Range: 0 through 300 seconds

Default: 30 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-gateways (Transport Profiles—Offline) on page 235
- *Configuring Transport Profiles for Offline Charging*
- *Configuring Offline Charging*

t3-response (GTP Prime)

Syntax t3-response *response-interval*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description Configure the duration (in seconds) that the charging data function (CDF) must wait before resending a GTP Prime message when the response to a request has not been received.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options ***response-interval***—Time that the CDF waits before resending a GTP Prime message when the response to a request has not been received.

Range: 1 through 5 seconds

Default: 5 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

tariff-time-list

Syntax

```
tariff-time-list {
   [tariff-time];
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name*], [edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure a list of local times (in hh:mm format) at which the tariff changes and Charging Data Records (CDRs) are generated to reflect the change in tariff. Because you can configure multiple values, make sure that there is a difference of at least 15 minutes between these values. You can configure up to a maximum of 24 values.

Any change to the existing configuration applies to both existing and new subscriber sessions.

Options

tariff-time—Local time at which to generate a CDR, in hh:mm format, when the tariff changes.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Offline Charging*
- trigger-profiles (GGSN or P-GW) on page 340
- trigger-profiles (Serving Gateway) on page 343

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time-limit

Syntax time-limit *value*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline],
[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the duration, in seconds, (since the previous trigger) after which the Charging Data Record (CDR) is updated with the uplink and downlink bytes transmitted in this duration and is closed. For example, if the duration is set to 3600 seconds, then the total resource utilization for the past hour is added to the CDR and the CDR is closed.

Any change to the existing configuration does not affect a previously established session. The updated configuration applies only to new sessions.

Options *value*—Duration in seconds.

Range: 600 through 65,535 seconds

Default: 0, indicates that no time limit is set.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- offline (Trigger Profiles) on page 289
- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Offline Charging*

traceoptions (Charging)

Syntax

```
traceoptions {
  file {
    file-name;
    files number;
    size size
    (no-world-readable | world-readable);
  }
  flag flag;
  level (all | critical | error | info | notice | verbose | warning);
  no-remote-trace;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging],
[edit unified-edge gateways sgw *gateway-name* charging]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging]** hierarchy level introduced in Junos OS Mobility Release 11.4W.
online and **tpm** options introduced in Junos OS Mobility Release 12.1W.

Description

Specify tracing options for charging.

Options

file *file-name*—Name of the file to receive the output of the tracing operation. The router appends **-ms*fpc#pic#*** to the filename and places the file in the **/var/log** directory. For example, if you configured the filename as **smd**, then the actual log filename on the router is **smd-ms50**, where ms stands for multiservices card, and 5 and 0 are the FPC and PIC slot numbers.

Range: 1 through 1024 bytes

files *number*—(Optional) Maximum number of trace files. When a trace file named trace-file reaches its maximum size, it is renamed trace-file.0, then trace-file.1, and so on, until the maximum number of trace files is reached. Then the oldest trace file is overwritten.

Range: 2 through 1000 files

Default: 3 files

flag *flag*—Specify which operations are to be traced. To specify more than one operation, include multiple flag statements.

CAUTION: **You might want to enable traceoptions only when you want to debug specific charging operations. Enabling the traceoptions flags might have an impact on the system performance.**

- **all**—Trace all operations of all charging submodules.
- **cdr-encoding**—Trace ASN1 encoding of the CDRs.

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- **client-fsm**—Trace the charging-specific finite state machine (FSM) in the application framework (mobile-smd).
- **config**—Trace configuration events on both daemons (**chargemand** and **mobile-smd**).
- **fsm**—Trace FSM.
- **general**—Trace general events that do not fit in any specific traces, such as errors in **chargemand**.
- **group-fsm**—Trace the transport-profile FSM in **chargemand**.
- **init**—Trace initialization events.
- **ipc**—Trace the interprocess communication (IPC) messages between **mobile-smd** and **chargemand**.
- **online**—Trace the Gy module.
- **path-management**—Trace path management operations within the path manager module within **chargemand**.
- **resource**—Trace resources, such as memory, counters, and so on.
- **timers**—Trace resources associated with timer processing.
- **tpm**—Trace the online processing module.
- **transport**—Trace transport-profile-level operations in **chargemand**.
- **triggers**—Trace trigger-profile-related operations used by the **mobile-smd** charging module.

level—Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **critical**—Match error conditions.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match conditions that must be handled specially.
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Disable unrestricted file access.

size *size*—(Optional) Maximum size of each trace file, in kilobytes (KB) or megabytes (MB). When a trace file named trace-file reaches this size, it is renamed **trace-file.0**. When the trace-file again reaches its maximum size, **trace-file.0** is renamed **trace-file.1** and trace-file is renamed **trace-file.0**. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten. If you specify a maximum number of files, you must also specify a maximum file size with the size option.

Syntax: *xk* to specify KB, *xm* to specify MB, or *xg* to specify GB.

Range: 10,240 through 1,073,741,824 bytes

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging (GGSN or P-GW) on page 223
- charging (Serving Gateway) on page 229
- *Tracing Charging Operations*

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traceoptions (Local Persistent Storage)

Syntax

```
traceoptions {
  file file-name <files number> <match regular-expression> <no-world-readable |
    world-readable> <size size>;
  flag flag;
  level (all | critical | error | info | notice | verbose | warning);
  no-remote-trace;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging
local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Specify tracing options related to the storage of Charging Data Records (CDRs) on the local Routing Engine disk.

Options

file *filename*—Name of the file to receive the output of the tracing operation.

Range: 1 through 1024 bytes

files *number*—(Optional) Maximum number of trace files. When a trace file named trace-file reaches its maximum size, it is renamed trace-file.0, then trace-file.1, and so on, until the maximum number of trace files is reached. Then the oldest trace file is overwritten.

Range: 2 through 1000 files

Default: 3 files

flag *flag*—Specify which operations are to be traced. To specify more than one operation, include multiple flag statements.

CAUTION: **You may want to enable traceoptions only when you want to debug specific charging operations. Enabling the traceoption flags might have an impact on the system performance.**

- **all**—Trace all operations.
- **connection**—Trace the connection establishment between Routing Engine and all services PICs for CDR file backup.
- **file-operations**—Trace all file open, write, and close operations.
- **general**—Trace general operations.

- **journaling**—Trace journaling operations. Journaling creates a log for each file-write operation, which helps to sanitize the CDR data in temporary log files after a reboot.
- **mirror**—Trace mirroring operations. Mirroring enables you to synchronize the CDR file information onto backup.

level—Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **critical**—Match critical conditions.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match conditions that must be handled specially.
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match *regex*—(Optional) Refine the output to include lines that contain the regular expression (regex).

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Disable unrestricted file access.

size *size*—(Optional) Maximum size of each trace file, in kilobytes (KB) or megabytes (MB). When a trace file named trace-file reaches this size, it is renamed **trace-file.0**. When the trace-file again reaches its maximum size, **trace-file.0** is renamed **trace-file.1** and trace-file is renamed **trace-file.0**. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten. If you specify a maximum number of files, you must also specify a maximum file size with the size option.

Syntax: *xk* to specify KB, *xm* to specify MB, or *xg* to specify GB.

Range: 10,240 through 1,073,741,824 bytes

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*

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transport-profile (Charging Profiles)

Syntax transport-profile *profile-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Associate a previously configured transport profile with a charging profile. You must associate a transport profile with a charging profile.

When a subscriber session is created, the subscriber is bound to a charging profile. The transport profile configuration associated with this charging profile determines the transport of the CDRs generated for this subscriber from the charging data function (CDF) to the external charging gateway function (CGF) servers, the local Routing Engine disk, or both the CGF servers and local Routing Engine disk.

Any modification to the existing configuration of this attribute must be done only when the charging profile with which it is associated is under active maintenance mode. Use one of the following commands, as applicable, to bring the charging profile under maintenance mode:

- For the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW)—**set unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name* service-mode maintenance**
- For the Serving Gateway (S-GW)—**set unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name* service-mode maintenance**

TIP: If the profile is not already defined, use one of the following commands, as applicable, to define a new transport profile:

- GGSN or P-GW—**set unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name***
- S-GW—**set unified-edge gateways sgw *gateway-name* charging transport-profiles *profile-name***

Options *profile-name*—Name of the previously configured transport profile to be associated with the charging profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-profiles on page 237
- *Charging Profiles*
- *Configuring Charging Profiles*
- transport-profiles on page 335

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transport-profiles

Syntax

```
transport-profiles profile-name {
  description string;
  offline {
    charging-function-name function-name;{
    charging-gateways {
      cdr-aggregation-limit value;
      cdr-release (r7 | r8 | r9 | r99);
      mtu value;
      peer-order {
        [peer charging-gateway-peer-name];
      }
      persistent-storage-order {
        local-storage;
      }
      switch-back-time seconds;
    }
    container-limit value;
    sgsn-sgw-change-limit value; #P-GW only
  }
  online { #P-GW only
    all-rgs-on-termination;
    charging-function-name function-name;
    diameter-profile profile-name;
    no-mscc-in-ccrt;
    quota-request-on-first-packet
    send-ccri-on-first-packet
    service-context-id service-context-id;
    session-failover-not-supported;
    single-mscc;
    tx-timeout timeout;
  }
  service-mode maintenance;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging],
[edit unified-edge gateways sgw *gateway-name* charging]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure a transport profile, which determines how the offline Charging Data Records (CDRs) and online messages are transported. You must configure a transport profile for the broadband gateway.

NOTE: **You can configure up to a maximum of eight transport profiles.**

For offline charging, the following are applicable:

- CDRs are transported from the charging data function (CDF) to a storage resource, which can be external charging gateway function (CGF) servers or the local Routing Engine disk, or both.
- Transport parameters for offline CDRs can be configured using the **charging-gateways** statement.
- The configured **charging-function-name** is used to select the transport profile.

For online charging, the following are applicable:

- Online messages are transported to the online charging system (OCS).
- Transport parameters for online messages can be configured using the **online** statement.
- The configured **charging-collection-function** is used to select the transport profile.

Options

profile-name—Name of the transport profile.
Range: 1 through 128 bytes

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging (GGSN or P-GW) on page 223
- charging (Serving Gateway) on page 229
- *Configuring Offline Charging*
- *Configuring Online Charging*
- *Configuring Transport Profiles for Offline Charging*
- *Configuring Transport Profiles for Online Charging*

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transport-protocol (GTP Prime)

Syntax

transport-protocol (tcp | udp);

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description

Configure the transport protocol for transmitting the GTP Prime packets from the charging data function (CDF) to the charging gateway function (CGF) server, which can be either GTP Prime over UDP or GTP Prime over TCP.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options

tcp—Transport protocol used is TCP.

udp—Transport protocol used is UDP.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

trigger-profile (Charging Profiles)

Syntax

```
trigger-profile profile-name {
  rating-group [value];
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name*],
[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles *profile-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Associate a previously configured trigger profile with a charging profile.

You can associate more than one trigger profile with a charging profile. For each trigger profile that you configure, you can specify one or more rating groups to be associated with that trigger profile. When more than one trigger profile is configured, the broadband gateway uses the rating group identifier to select the trigger profile to be associated with the charging profile.

NOTE: **If you do not configure a trigger profile, then the gateway uses the default trigger profile.**

When a subscriber session is created, the subscriber is bound to a charging profile and the trigger profile configuration associated with this profile determines the events that result in the creation of a CDR, the addition of a container to a CDR, and the closure of a CDR.

TIP: **If the profile is not already defined, use one of the following commands, as applicable, to define a new trigger profile:**

- **For the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW)—set unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name***
- **For the Serving Gateway (S-GW)—set unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name***

Options

profile-name—Name of the previously configured trigger profile to be associated with the charging profile.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

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Related Documentation

- charging-profiles on page 237
- *Charging Profiles*
- *Configuring Charging Profiles*
- trigger-profiles (GGSN or P-GW) on page 340
- trigger-profiles (Serving Gateway) on page 343

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trigger-profiles (GGSN or P-GW)

Syntax

```
trigger-profiles profile-name {
  charging-method (both | none | offline | online);
  description string;
  offline {
    exclude {
      dcca-events;
      ms-timezone-change;
      plmn-change;
      qos-change;
      rat-change;
      sgsn-sgw-change;
      user-location-change;
    }
    time-limit value;
    volume-limit {
      value;
      direction (both | uplink);
    }
  }
  online {
    cc-failure-handling {
      block-traffic-pending-reauth-no-quota;
      initial-request {
        convert-to-offline {
          grant-grace-quota;
        }
        disable-online-charging;
        grant-grace-quota;
      }
      override;
      result-code-based-action {
        authorization-rejected {
          blacklist {
            retry-timer;
          }
        }
        credit-control-not-applicable {
          convert-to-offline {
            grant-grace-quota;
          }
        }
        credit-limit-reached {
          blacklist {
            retry-timer;
          }
        }
        end-user-service-denied {
          convert-to-offline {
            grant-grace-quota;
          }
          disable-online-charging;
        }
```


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```
            user-unknown {
              convert-to-offline {
                grant-grace-quota;
              }
              disable-online-charging;
            }
          }
          update-request {
            convert-to-offline {
              grant-grace-quota;
            }
            disable-online-charging;
            grant-grace-quota;
          }
        }
        grant-quota {
          cc-octet-both volume-quota-both;
          cc-octet-downlink volume-quota-dl;
          cc-octet-uplink volume-quota-ul;
          cc-time time-quota;
        }
        measurement-method (none | time | volume | volume-and-time);
        quota-threshold {
          threshold;
          override;
        }
        quota-validity-time time-in-seconds;
        reporting-level {
          override;
          (rating-group | service-identifier);
        }
        requested-service-unit {
          always-include;
          cc-octet-both volume-quota-both;
          cc-octet-downlink volume-quota-dl;
          cc-octet-uplink volume-quota-ul;
          cc-time time-quota;
        }
      }
      tariff-time-list {
        tariff-time;
      }
    }
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure a trigger profile, which determines the events that trigger the creation of a Charging Data Record (CDR), the addition of a container to a CDR, and the closure of a CDR.

You can configure up to a maximum of 16 trigger profiles.

NOTE: **If you do not configure a trigger profile, then the broadband gateway uses the default trigger profile.**

Options ***profile-name***—Name of the trigger profile.

Values: 1 through 128 bytes

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging (GGSN or P-GW) on page 223
- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Offline Charging*
- *Configuring Online Charging*

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trigger-profiles (Serving Gateway)

Syntax

```
trigger-profiles profile-name {
  description string;
  offline {
    exclude {
      ms-timezone-change;
      plmn-change;
      qos-change;
      rat-change;
      sgsn-mme-change;
      user-location-change;
    }
    sgsn-mme-change-limit value;
    time-limit value;
    volume-limit {
      value;
      direction (both | uplink);
    }
  }
  tariff-time-list {
    tariff-time;
  }
}
```

Hierarchy Level

[edit unified-edge gateways sgw *gateway-name* charging]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure a trigger profile, which determines the events that trigger the creation of a Charging Data Record (CDR), the addition of a container to a CDR, and the closure of a CDR.

You can configure up to a maximum of 16 trigger profiles.

NOTE: **If you do not configure a trigger profile, then the broadband gateway uses the default trigger profile.**

Options

profile-name—Name of the trigger profile.

Values: 1 through 128 bytes

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging (Serving Gateway) on page 229
- *Configuring Charging Trigger Events for Offline Charging*

- *Configuring Offline Charging*

tx-timeout (Transport Profiles—Online)

Syntax tx-timeout *timeout*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* online]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the time (in seconds) that the broadband gateway waits for a response from the online charging system (OCS) before timing out.

The Tx timer is started when the Credit Control Request (CCR) is sent and stopped when the Credit Control Acknowledgement (CCA) is received. When the Tx timer expires for CCR-Update messages, the Credit-Control-Failure-Handling (CCFH) attribute-value pair (AVP) is applied, if it was received in the CCR-Initial message.

If the CCFH AVP is not received in the CCR-Initial message, or if the Tx timer expires for the CCR-Initial message, then the **cc-failure-handling** configuration at the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online]** is applicable.

Options ***timeout***—Timeout, in seconds.

Default: 5 seconds

Range: 0 through 300 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Online Charging*
- *Configuring Transport Profiles for Offline Charging*
- online (Transport Profiles) on page 290

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update-request (Credit Control Failure Handling)

Syntax

```
update-request {
  convert-to-offline {
    grant-grace-quota;
  }
  disable-online-charging;
  grant-grace-quota;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the actions to be carried out by the broadband gateway when the Credit Control Request-Update fails.

The gateway uses the credit control failure parameters provided by the Online Charging System (OCS) to determine the actions to be performed in case of credit control failure. If OCS does not provide the parameters, then the gateway uses the parameters configured using the **update-request** statement. If this statement has not been included, then the session is terminated by default.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- cc-failure-handling (Trigger Profiles—Online) on page 210

user-name (Local Persistent Storage)

Syntax

user-name *string*;

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging
local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Restrict access to the Charging Data Record (CDR) files to a specific user.

In addition to the non-root user who is authorized using this statement, the root user always has access permissions.

Options

string—Username.

Values: 1 through 32 bytes

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

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user-unknown (Credit Control Failure Handling)

Syntax

```
user-unknown {
  convert-to-offline {
    grant-grace-quota;
  }
  disable-online-charging;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* online cc-failure-handling result-code-based-action]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify that in case of credit control failure, if the result code is Diameter User Unknown, then the gateway will terminate the session.

If offline charging is enabled, then offline charging will continue to be applied to subscribers. If offline charging is disabled, then the **convert-to-offline** statement can be used to enable offline charging for subscribers, and the usage quota can be limited using the **grant-grace-quota** statement.

Alternatively, online charging can be disabled using the **disable-online-charging** statement. If offline charging is also disabled, then no charging is applied to the subscriber.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Online Charging*
- *Configuring Online Charging*
- result-code-based-action (Credit Control Failure Handling) on page 311

version (GTP Prime)

Syntax

version (v0 | v1 | v2);

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp],
[edit unified-edge gateways ggsn-pgw *gateway-name* charging gtpp peer *peer-name*],
[edit unified-edge gateways sgw *gateway-name* charging gtpp],
[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging gtpp]** and **[edit unified-edge gateways sgw *gateway-name* charging gtpp peer *peer-name*]** hierarchy levels introduced in Junos OS Mobility Release 11.4W.

Description

Configure the latest GTP Prime version that is supported on the configured local loopback source interface's IP address from which the GTP Prime packets are sent to the charging gateway function (CGF) server. The possible values are: **v0**, **v1**, or **v2**.

When there are global-level and peer-level configurations, the peer-level configuration takes precedence.

Options

v0—GTP Prime version supported is v0.

v1—GTP Prime version supported is v1.

v2—GTP Prime version supported is v2.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- gtpp on page 275
- peer (GTP Prime) on page 294
- *Configuring GTP Prime for Charging*
- *Configuring GTP Prime Peers*
- *Configuring Offline Charging*

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visitor-profile

Syntax visitor-profile *visitor-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* charging], [edit unified-edge gateways sgw *gateway-name* charging global-profile]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging global-profile]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify the profile that should be used to charge visiting subscribers. If the **profile-selection-order** configuration indicates **static**, then this profile is used for visiting subscribers.

NOTE: **The charging profile must already be configured on the broadband gateway.**

The broadband gateway determines whether the subscriber is a visitor by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create Session Request message from the subscriber's user equipment (UE). If the subscriber's International Mobile Subscriber Identity (IMSI), MCC, and MNC do not belong to the PLMN to which both the GGSN or P-GW and the S-GW belong, then the subscriber is deemed a visitor and the **visitor-profile** is applied. If the **visitor-profile** is not configured, then the **default-profile**, if configured, is applied. If the **default-profile** is also not configured, then the subscriber session is created with no charging applied.

Options ***visitor-profile***—Name of the visitor profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging, Local Policy, and Policy and Charging Enforcement Function Profiles on a Broadband Gateway APN*
- *Configuring S-GW Global Charging Profiles and Selection Order*
- charging (APN) on page 143
- charging-profiles on page 237
- global-profile (Serving Gateway) on page 272

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volume-limit

Syntax

```
volume-limit {
  value;
  direction (both | uplink);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging trigger-profiles *profile-name* offline],
[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging trigger-profiles *profile-name* offline]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the volume of data, in bytes, that is transmitted (since the previous trigger) before the Charging Data Record (CDR) is updated with the transmitted bytes and is closed. In addition, you can specify whether the maximum volume of data transmitted includes the data transmitted in both the uplink and downlink directions, or only in the uplink direction.

Any change to the existing configuration does not affect a previously established session. The updated configuration applies only to new sessions.

Default

If you do not include the **volume-limit** statement, the volume limit trigger is disabled.

Options

value—Maximum volume of data transmitted, in bytes, after which the CDR is updated and closed.

Range: 1 byte through 4 GB

The remaining statement is explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Charging Trigger Events for Offline Charging*
- *Configuring Offline Charging*
- offline (Trigger Profiles) on page 289

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watermark-level-1

Syntax

```
watermark-level-1 {
   notification-level (both | snmp-alarm | syslog);
   percentage value;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options disk-space-policy],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options disk-space-policy]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options disk-space-policy]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the percentage of Routing Engine disk space to be used for storage and the action to be taken when this limit is reached, such as raise SNMP alarms, record the alert information in the system logs, or both. You can then take appropriate measures to prevent any loss of Charging Data Record (CDR) data.

Options

notification-level (both | snmp-alarm | syslog)—Specify whether you want to raise SNMP alarms, log information on the system logs, or both, when the watermark level is reached.

- **both**—Log the alert information on system log files and also raise an SNMP alarm.
- **snmp-alarm**—Raise an SNMP alarm.
- **syslog**—Log the alert information on system log files.

Default: syslog

percentage *value*—Percentage of Routing Engine disk space to be used for storage after which you get an alert (if it is configured). Entering 0 disables the checking for the watermark level.

Default: 70 percent of the Routing Engine disk space

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- disk-space-policy on page 253
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

watermark-level-2

Syntax

```
watermark-level-2 {
   notification-level (both | snmp-alarm | syslog);
   percentage value;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options disk-space-policy],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options disk-space-policy]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options disk-space-policy]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the percentage of Routing Engine disk space to be used for storage and also the action to be taken when this limit is reached, such as raise SNMP alarms, record the alert information in the system logs, or both. You can then take appropriate measures to prevent any loss of Charging Data Record (CDR) data.

Options

notification-level (both | snmp-alarm | syslog)—Specify whether you want to raise SNMP alarms, log information on the system logs, or both when the watermark level is reached.

- **both**—Log the alert information on system log files and raise an SNMP alarm.
- **snmp-alarm**—Raise an SNMP alarm.
- **syslog**—Log the alert information on system log files.

Default: syslog

percentage *value*—Percentage of Routing Engine disk space to be used for storage after which you get an alert (if it is configured). Entering 0 disables the checking for the watermark level.

Default: 80 percent of the Routing Engine disk space

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- disk-space-policy on page 253
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

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watermark-level-3

Syntax

```
watermark-level-3 {
   notification-level (both | snmp-alarm | syslog);
   percentage value;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options disk-space-policy],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options disk-space-policy]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options disk-space-policy]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the percentage of Routing Engine disk space to be used for storage and also the action to be taken when this limit is reached, such as raise SNMP alarms, record the alert information in the system logs, or both.

When this watermark level is reached, the charging daemon stops writing the Charging Data Records (CDRs) to the local Routing Engine disk till the CDR storage space is restored by transferring the files using SSH FTP (SFTP) and deleting the files from the CDR log directory. However, the data is not immediately lost because the services PICs buffer up to 2 GB of data.

Options

notification-level (both | snmp-alarm | syslog)—Specify whether you want to raise SNMP alarms, log information on the system logs, or both when the watermark level is reached.

- **both**—Log the alert information on system log files and also raise an SNMP alarm.
- **snmp-alarm**—Raise an SNMP alarm.
- **syslog**—Log the alert information on system log files.

Default: syslog

percentage *value*—Percentage of Routing Engine disk space to be used for storage after which you get an alert (if it is configured). Entering 0 disables the checking for the watermark level.

Default: 90 percent of the Routing Engine disk space

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- disk-space-policy on page 253
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

world-readable (Local Persistent Storage)

Syntax world-readable;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* charging local-persistent-storage-options],
[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* charging local-persistent-storage-options]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Allow all users to have read permissions on the Charging Data Record (CDR) files. By default, this is disabled.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- local-persistent-storage-options on page 280
- *Configuring Persistent Storage*
- *Configuring Offline Charging*

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CHAPTER 7

DHCP Configuration Statements

bind-interface

Syntax

bind-interface *interface-name*;

Hierarchy Level

[edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit routing-instances *name* system services dhcp-proxy-client dhcpv6-profiles *name*],
[edit system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit system services dhcp-proxy-client dhcpv6-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the interface on which the DHCP proxy client communicates with the configured DHCP servers. The primary IPv4 address of the bind interface is the source of DHCP packets for DHCPv4 and the source interface of DHCP control packets for DHCPv6.

For the DHCPv4 proxy client, the interface specified here must be previously configured with the valid **inet** address and **inet address** family. Similarly, for the DHCPv6 proxy client, the interface must be previously configured with the valid **inet6** address and **inet6** family. The interface specified here is configured at the **[edit interfaces]** hierarchy level.

NOTE: You must configure the bind-interface for a DHCPv4 proxy client profile and a DHCPv6 proxy client profile.

Example 1: Configuring dhcp-proxy-client with interfaces.

```
ge-0/1/5 {
description "Interface facing DHCP server side";
unit 0 {
 family inet {
  address 10.1.1.1/24;
   }
   }
  }
```

Example 2: Configuring dhcp-proxy-client v4 profile

```
services {
 dhcp-proxy-client {
  dhcpv4-profiles dhcp-prof-1 {
   bind-interface ge-0/1/5.0;
   servers 10.1.1.2;
   }
   }
  }
```

Options

interface-name—Name of the previously configured interface.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *Configuring DHCPv6 Proxy Client Profiles*

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- *DHCP Overview*
- dhcpv4-profiles on page 361
- dhcpv6-profiles on page 362

dead-server-retry-interval

Syntax dead-server-retry-interval *interval-in-seconds*;

Hierarchy Level [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*], [edit system services dhcp-proxy-client dhcpv4-profiles *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the number of seconds before the broadband gateway reconnects with a dead server that was marked down in previous attempts. A server is marked down if there is no response for multiple successive attempts. The number of attempts can be configured using the **dead-server-successive-retry-attempt** statement.

Options ***interval-in-seconds***—Interval, in seconds, between retries.

Range: 300 through 3600 seconds

Default: 300 seconds

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- dead-server-successive-retry-attempt on page 358
- *DHCP Overview*
- dhcpv4-profiles on page 361

dead-server-successive-retry-attempt

Syntax dead-server-successive-retry-attempt *number-of-attempts*;

Hierarchy Level [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*], [edit system services dhcp-proxy-client dhcpv4-profiles *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the number of successive retry attempts that the broadband gateway makes to contact a server before declaring an unresponsive server dead. If a server is marked dead, no DHCP packets are sent to the server until the dead timer, specified using the **dead-server-retry-interval** statement, elapses and the server comes alive.

Options ***number-of-attempts***—Number of successive attempts between retries.

Range: 5 through 1000

Default: 10

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- dead-server-retry-interval on page 357
- *DHCP Overview*
- dhcpv4-profiles on page 361

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dhcp-proxy-client

Syntax

```
dhcp-proxy-client {
  dhcpv4-profiles profile-name {
    bind-interface interface-name;
    dead-server-retry-interval interval-in-seconds;
    dead-server-successive-retry-attempt number-of-attempts;
    dhcp-server-selection-algorithm (highest-priority-server | round-robin);
    lease-time time-in-seconds;
    pool-name pool-name;
    retransmission-attempt  number-of-attempts;
    retransmission-interval interval-in-seconds;
    servers ip-address {
      priority value;
    }
  }
  dhcpv6-profiles profile-name {
    bind-interface interface-name;
    lease-time time-in-seconds;
    pool-name pool-name;
    retransmission-attempt  number-of-attempts;
    retransmission-interval interval-in-seconds;
  }
  traceoptions {
    ...
  }
}
```

Hierarchy Level

[edit routing-instances *name* system services],
[edit system services]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the Dynamic Host Configuration Protocol (DHCP) proxy client parameters to enable DHCP-based IPv4 or IPv6 address allocation for mobile subscribers.

The DHCP proxy client acquires a subnet (IPv4) or a prefix (IPv6) from the server as per DHCP IETF specifications. After the subnet or prefix is obtained from the server, the DHCP proxy client is managed locally for the mobile subscriber. When all mobile subscribers using the addresses in the subnet or prefix are detached from the GGSN or P-GW, the acquired subnet or prefix is released and the prefix or subnet can be assigned to another GGSN or P-GW by the DHCP server.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring the DHCP Proxy Client on the Broadband Gateway*
- *DHCP Overview*
- services (DHCP Proxy Client) on page 369

- *Understanding DHCP Proxy Clients*

dhcp-server-selection-algorithm

Syntax dhcp-server-selection-algorithm (highest-priority-server | round-robin);

Hierarchy Level [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*], [edit system services dhcp-proxy-client dhcpv4-profiles *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the algorithm used to select the DHCP server with which to communicate when multiple servers are configured. The DHCP server is selected either by the highest priority or by round-robin method, according to the algorithm specified for server selection.

Default If you do not include this statement, the **round-robin** algorithm is used.

Options ***round-robin***—Server is selected in a fixed cyclical order.

highest-priority-server—Server with the highest priority is selected. (The server priority is configured using the **priority** statement at the **[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles name servers address]** hierarchy level.)

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *DHCP Overview*
- dhcpv4-profiles on page 361
- priority (DHCP Server) on page 365

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dhcpv4-profiles

Syntax

```
dhcpv4-profiles profile-name {
  bind-interface interface-name;
  dead-server-retry-interval interval-in-seconds;
  dead-server-successive-retry-attempt number-of-attempts;
  dhcp-server-selection-algorithm (highest-priority-server | round-robin);
  lease-time time-in-seconds;
  pool-name pool-name;
  retransmission-attempt  number-of-attempts;
  retransmission-interval interval-in-seconds;
  servers ip-address {
    priority value;
  }
}
```

Hierarchy Level

[edit routing-instances *name* system services dhcp-proxy-client],
[edit system services dhcp-proxy-client]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure DHCPv4 proxy client profiles. The access point name (APN) refers to the DHCPv4 profiles to obtain the subnet from the DHCP server.

NOTE: The DHCPv4 profile referenced by the APN is configured using the **profile-name** statement at the **[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv4-proxy-client-profile]** hierarchy level.

A single DHCPv4 profile can be referenced by one or more APNs; alternatively, each APN can be configured to use a different DHCPv4 profile.

Options

profile-name—Name of the DHCPv4 proxy client profile.

Range: Up to 63 characters

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *DHCP Overview*
- dhcp-proxy-client on page 359
- profile-name (APN Address Assignment) on page 180
- *Understanding DHCP Proxy Clients*

dhcpv6-profiles

Syntax

```
dhcpv6-profiles profile-name {
  bind-interface interface-name;
  lease-time time-in-seconds;
  pool-name pool-name;
  retransmission-attempt  number-of-attempts;
  retransmission-interval interval-in-seconds;
}
```

Hierarchy Level

[edit routing-instances *name* system services dhcp-proxy-client],
[edit system services dhcp-proxy-client]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure DHCPv6 proxy client profiles. The access point name (APN) refers to the DHCPv6 profiles to obtain the prefix from the DHCP server.

NOTE: The DHCPv6 profile referenced by the APN is configured using the **profile-name** statement at the **[edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv6-proxy-client-profile]** hierarchy level.

A single DHCPv6 profile can be referenced by one or more APNs; alternatively, each APN can be configured to use a different DHCPv6 profile.

Options

profile-name—Name of the DHCPv6 proxy client profile.

Range: Up to 63 characters

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv6 Proxy Client Profiles*
- *DHCP Overview*
- dhcp-proxy-client on page 359
- profile-name (APN Address Assignment) on page 180

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lease-time (DHCP Proxy Client Profile)

Syntax lease-time *time-in-seconds*;

Hierarchy Level [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit routing-instances *name* system services dhcp-proxy-client dhcpv6-profiles *name*],
[edit system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit system services dhcp-proxy-client dhcpv6-profiles *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the default lease time, in seconds. If the DHCP client does not get the lease time from the DHCP server, it uses the configured default lease time as the lease time.

The lease time indicates the time for which the broadband gateway holds the DHCP subnets or prefixes, if the server does not respond to a renewal request. After the lease time elapses, the subnets or prefixes are removed from the gateway and the subscriber is deleted.

Default If the DHCP client does not get the lease time from DHCP server, and if the default lease time is not configured (using this statement), then the gateway holds on to the subnets or prefixes as long as the subscribers, whose addresses are allocated from the subnets or prefixes, are active. The gateway does not renew the subnets or prefixes until the DHCP server sends a FORCE RENEW message.

Options ***time-in-seconds***—Number of seconds the lease can be held.

Range: 60 through 1000 seconds

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *Configuring DHCPv6 Proxy Client Profiles*
- *DHCP Overview*
- dhcpv4-profiles on page 361
- dhcpv6-profiles on page 362

pool-name (DHCP Proxy Client Profile)

Syntax

pool-name *pool-name*;

Hierarchy Level

[edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit routing-instances *name* system services dhcp-proxy-client dhcpv6-profiles *name*],
[edit system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit system services dhcp-proxy-client dhcpv6-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify a name for the DHCP server address pool. The broadband gateway requests the DHCP server for a subnet or prefix from the configured pool name. The specified pool name is sent to the DHCP server in the DHCP Discover and Request message in **subnet-name-suboption** of **subnet-allocation-option**.

This configuration is optional; therefore, the pool name is sent only when it is configured.

Options

pool-name—Name of the pool.

Range: Up to 63 characters

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *Configuring DHCPv6 Proxy Client Profiles*
- *DHCP Overview*
- dhcpv4-profiles on page 361
- dhcpv6-profiles on page 362

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priority (DHCP Server)

Syntax priority *priority*;

Hierarchy Level [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name* servers *address*],
[edit system services dhcp-proxy-client dhcpv4-profiles *name* servers *address*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the DHCP server priority. If the algorithm for server selection is based on the highest priority, then the broadband gateway uses the configured priority to select the active server with the highest priority. The DHCP Discover message is then sent to the selected server.

Options ***server-priority***—Priority for the DHCP server.

Default: 3

Range: 1 (highest priority) to 5 (lowest priority)

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *DHCP Overview*
- dhcp-server-selection-algorithm on page 360
- servers (DHCP Proxy Client Profiles) on page 368

retransmission-attempt (DHCP Proxy Client Profiles)

Syntax retransmission-attempt *number-of-attempts*;

Hierarchy Level [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit routing-instances *name* system services dhcp-proxy-client dhcpv6-profiles *name*],
[edit system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit system services dhcp-proxy-client dhcpv6-profiles *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum number of times that the system attempts to communicate with the unresponsive DHCP server before each subnet allocation request is deemed as failed.

Options ***number***—Number of attempts to retransmit the packet.

Range: 0 through 1000

Default: 4

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *Configuring DHCPv6 Proxy Client Profiles*
- *DHCP Overview*
- dhcpv4-profiles on page 361
- dhcpv6-profiles on page 362

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retransmission-interval (DHCP Proxy Client Profiles)

Syntax retransmission-interval *interval-in-seconds*;

Hierarchy Level [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit routing-instances *name* system services dhcp-proxy-client dhcpv6-profiles *name*],
[edit system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit system services dhcp-proxy-client dhcpv6-profiles *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the amount of time that must pass with no response before the system reattempts to communicate with the DHCP server.

Options ***interval-in-seconds***—Number of seconds between successive retransmissions.

Range: 4 through 64 seconds

Default: 4 seconds

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *Configuring DHCPv6 Proxy Client Profiles*
- *DHCP Overview*
- dhcpv4-profiles on page 361
- dhcpv6-profiles on page 362

servers (DHCP Proxy Client Profiles)

Syntax

```
servers ip-address {
    priority value;
}
```

Hierarchy Level

[edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name*],
[edit system services dhcp-proxy-client dhcpv4-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the list of DHCP servers with which the DHCP proxy clients communicate to obtain the IPv4 subnet , which is used to allocate IP addresses to mobile subscribers on the broadband gateway.

This configuration is applicable only to DHCPv4 profiles. You must configure at least one server.

Options

ip-address—IPv4 address of the server.

The remaining statement is explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCPv4 Proxy Client Profiles*
- *DHCP Overview*
- dhcpv4-profiles on page 361

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services (DHCP Proxy Client)

Syntax

```
services {
  dhcp-proxy-client {
    dhcpv4-profiles profile-name {
      bind-interface interface-name;
      dead-server-retry-interval interval-in-seconds;
      dead-server-successive-retry-attempt number-of-attempts;
      dhcp-server-selection-algorithm (highest-priority-server | round-robin);
      lease-time time-in-seconds;
      pool-name pool-name;
      retransmission-attempt  number-of-attempts;
      retransmission-interval interval-in-seconds;
      servers ip-address {
        priority value;
      }
    }
    dhcpv6-profiles profile-name {
      bind-interface interface-name;
      lease-time time-in-seconds;
      pool-name pool-name;
      retransmission-attempt  number-of-attempts;
      retransmission-interval interval-in-seconds;
    }
    traceoptions {
      ...
    }
}
```

Hierarchy Level

[edit routing-instances *name* system],
[edit system]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the DHCPv4 and DHCPv6 proxy client profiles.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring the DHCP Proxy Client on the Broadband Gateway*
- *DHCP Overview*
- system (DHCP Proxy Client) on page 370
- *Understanding DHCP Proxy Clients*

system (DHCP Proxy Client)

Syntax

```
system {
  services {
    dhcp-proxy-client {
      dhcpv4-profiles profile-name {
        bind-interface interface-name;
        dead-server-retry-interval interval-in-seconds;
        dead-server-successive-retry-attempt number-of-attempts;
        dhcp-server-selection-algorithm (highest-priority-server | round-robin);
        lease-time time-in-seconds;
        pool-name pool-name;
        retransmission-attempt  number-of-attempts;
        retransmission-interval interval-in-seconds;
        servers ip-address {
          priority value;
        }
      }
      dhcpv6-profiles profile-name {
        bind-interface interface-name;
        lease-time time-in-seconds;
        pool-name pool-name;
        retransmission-attempt  number-of-attempts;
        retransmission-interval interval-in-seconds;
      }
      traceoptions {
        ...
      }
  }
}
```

Hierarchy Level

[edit],
[edit routing-instances *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the DHCPv4 and DHCPv6 proxy client profiles.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- [edit routing-instances <name> system] Hierarchy Level on page 9
- *Configuring the DHCP Proxy Client on the Broadband Gateway*
- *DHCP Overview*
- *Understanding DHCP Proxy Clients*

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traceoptions (DHCP)

Syntax

```
traceoptions {
  file filename <files number> <match regular-expression > <size maximum-file-size>
    <world-readable | no-world-readable>;
  flag flag;
  level (all | error | info | notice | verbose | warning);
  no-remote-trace;
}
```

Hierarchy Level [edit system processes dhcp-service]

Release Information Statement introduced in Junos OS Release 11.4.

Description Define global tracing operations for DHCP operations on the broadband gateway.

Options

file *filename*—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory **/var/log**.

files *number*—(Optional) Maximum number of trace files to create before overwriting the oldest one. If you specify a maximum number of files, you also must specify a maximum file size with the **size** option.

Range: 2 through 1000

Default: 3 files

flag *flag*—Tracing operation to perform. To specify more than one tracing operation, include multiple **flag** statements.

- **all**—Trace all events.
- **auth**—This flag is not used by the broadband gateway.
- **database**—This flag is not used by the broadband gateway.
- **fwd**—This flag is not used by the broadband gateway.
- **general**—This flag is not used by the broadband gateway.
- **ha**—This flag is not used by the broadband gateway.
- **interface**—This flag is not used by the broadband gateway.
- **io**—Trace I/O operations.
- **liveness-detection**—This flag is not used by the broadband gateway.
- **packet**—Trace packet decoding operations.
- **performance**—This flag is not used by the broadband gateway.
- **profile**—This flag is not used by the broadband gateway.
- **rpd**—Trace routing protocol process events.
- **rtsock**—Trace routing socket operations.
- **session-db**—This flag is not used by the broadband gateway.

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- **state**—Trace changes in state.
- **statistics**—Trace baseline statistics.
- **ui**—Trace user interface operations.

level—Level of tracing to perform; also known as severity level. You can specify any of the following levels:

- **all**—Match all levels.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match notice messages about conditions requiring special handling.
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match ***regular-expression***—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—Disable remote tracing.

no-world-readable—(Optional) Disable unrestricted file access, allowing only the user **root** and users who have the Junos OS **maintenance** permission to access the trace files.

size ***maximum-file-size***—(Optional) Maximum size of each trace file. By default, the number entered is treated as bytes. Alternatively, you can include a suffix to the number to indicate kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you also must specify a maximum number of trace files with the **files** option.

Syntax: ***size*k** to specify KB, ***size*m** to specify MB, or ***size*g** to specify GB

Range: 10240 through 1073741824

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace—To view this statement in the configuration.
trace-control—To add this statement to the configuration.

Related Documentation

- *Configuring DHCP Traceoptions on the Broadband Gateway*
- *DHCP Overview*
- *Understanding DHCP Proxy Clients*

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CHAPTER 8

Diameter Configuration Statements

address (Diameter Peer)

Syntax address *address*;

Hierarchy Level [edit access diameter peer *peer-name*]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Configure the IP address for the Diameter remote peer.

Options ***address***—IP address for the Diameter peer.

Required Privilege Level admin—To view this statement in the configuration.
admin-control—To add this statement to the configuration.

Related Documentation
- *Configuring Diameter Peers*
- peer (Diameter Base Protocol) on page 397

address (Diameter Transport)

Syntax address *address*;

Hierarchy Level [edit access diameter transport *transport-name*]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Configure the source (local) IP address for the Diameter local transport connection.

Options ***address***—Source IP address for the connection to the Diameter peer.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Configuring the Diameter Transport*
- transport (Diameter Base Protocol) on page 406

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applications (Diameter)

Syntax

```
applications {
  dcca-gy {
    maximum-pending-requests requests;
  }
  pcc-gx {
    maximum-pending-requests requests;
  }
}
```

Hierarchy Level [edit access diameter]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the parameters for Diameter applications. Specify the Diameter application for which you are configuring the parameters. The Gx application (**pcc-gx**) and the Gy application (**dcca-gy**) are currently supported.

Options

dcca-gy—Parameters for the Gy application.

pcc-gx—Parameters for the Gx application.

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Parameters for Diameter Applications*
- diameter (MobileNext Broadband Gateway) on page 379

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attributes (Diameter Gx Profiles)

Syntax

```
attributes {
  exclude {
    an-gw-address;
    default-eps-bearer-qos;
    packet-filter-information;
    packet-filter-operation;
    rat-type;
  }
  include {
    gx-capability-list;
    rule-suggestion;
  }
}
```

Hierarchy Level [edit unified-edge diameter-profiles gx-profile *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure attribute-value pairs (AVPs) that are excluded from or included in the Credit Control Request (CCR) messages between the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) and the Policy and Charging Enforcement Function (PCEF).

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter AVPs for Gx Applications*
- gx-profile on page 388

attributes (Diameter Gy Profiles)

Syntax

```
attributes {
  exclude {
    all-3gpp-avps;
    cc-selection-mode;
    dynamic-address-flag;
    pdn-connection-id;
    ps-information;
    qos-information;
    serving-node-type;
    start-time;
    stop-time;
    user-equipment-info;
    user-location-information;
    username;
  }
  include {
    credit-instance-id;
    cumulative-used-service-unit;
    framed-ip-address;
    framed-ipv6-prefix;
    gprs-negotiated-qos;
    mscc-qos-information;
    service-start-timestamp;
  }
}
```

Hierarchy Level

[edit unified-edge diameter-profiles gy-profile *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure attribute-value pairs (AVPs) that are excluded from or included in the Credit Control Request (CCR) messages between the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) and the Online Charging System (OCS).

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter AVPs for Gy Applications*
- gy-profile on page 389

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connect-actively

Syntax

```
connect-actively {
   <capabilities-exchange-timeout seconds>;
   <port port-number>;
   <repeat-timeout seconds>;
   <retry-timeout seconds>;
   <timeout seconds>;
   transport transport-name;
}
```

Hierarchy Level [edit access diameter peer *peer-name*]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Define the destination port and transport connection used to establish active connections to the Diameter peer.

Options

capabilities-exchange-timeout *seconds*—(Optional) Amount of time to wait for a Capabilities-Exchange-Answer message.

Range: 1 through 65535 seconds

Default: 10 seconds

port *port-number*—(Optional) Number of the destination TCP port.

Default: 3868

repeat-timeout *seconds*—(Optional) Amount of time to wait before attempting to reconnect to this peer after receiving the DO_NOT_WANT_TO_TALK_TO_YOU value for the Disconnect-Cause AVP in the Disconnect-Peer-Request message. A value of zero means that there is no attempt to reconnect to the peer.

Range: 0 through 65535 seconds

Default: 0

retry-timeout *seconds*—(Optional) Amount of time to wait between connection attempts for this peer.

Range: 1 through 65535 seconds

Default: 30 seconds

timeout *seconds*—(Optional) Amount of time to wait for connection acknowledgement for this peer.

Range: 1 through 65535 seconds

Default: 10 seconds

transport *transport-name*—Name of the transport layer connection.

NOTE: **The specified transport must already be configured at the [edit access diameter transport] hierarchy level.**

Required Privilege Level
access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Configuring Diameter Peers*
- peer (Diameter Base Protocol) on page 397

diameter (GGSN or P-GW)

Syntax

```
diameter {
  network-element {
    element-name {
      session-pics {
        group {
          group-name {
            [session-pic interface-name];
          }
        }
      }
    }
  }
}
```

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information
Statement introduced in Junos OS Mobility Release 12.1W.

Description
Configure the Diameter protocol parameters associated with Diameter bindings for this broadband gateway.

NOTE: If you want to set up Diameter bindings for session PICs on the broadband gateway, contact Juniper Networks Professional Services for assistance.

The remaining statements are explained separately.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring Diameter Bindings*
- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17

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diameter (MobileNext Broadband Gateway)

Syntax

```
diameter {
  applications {
    dcca-gy {
      maximum-pending-requests requests;
    }
    pcc-gx {
      maximum-pending-requests requests;
    }
  }
  <firmware-revision version>;
  network-element element-name {
    function function-name;
    peer peer-name {
      priority priority-value;
      <timeout seconds>;
    }
  }
  origin {
    host hostname;
    realm realm-name;
  }
  peer peer-name {
    address ip-address;
    connect-actively {
      <capabilities-exchange-timeout seconds>;
      <port port-number>;
      <repeat-timeout seconds>;
      <retry-timeout seconds>;
      <timeout seconds>;
      transport transport-name;
    }
    <disconnect-peer-timeout seconds>;
    <incoming-queue> {
      size size;
    }
    <outgoing-queue> {
      <high-watermark watermark>;
      <low-watermark watermark>;
      size size;
    }
    <watchdog-timeout seconds>;
  }
  <product-name product-name>;
  traceoptions {
    file diameter;
    flag flag;
    level all;
    peer {
      peer-name;
    }
  }
  transport transport-name {
```

```
    address address;
    <routing-instance routing-instance-name>;
  }
  <vendor-id vendor-id>;
}
```

Hierarchy Level [edit access]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the Diameter base protocol parameters for the broadband gateway to allow Diameter applications to connect to remote peers. The Diameter base protocol configuration includes configuration of the endpoint origin, the transport layer connection, the remote peers, and the network elements.

The remaining statements are explained separately.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter*
- *Example: Configuring Diameter*
- *Example: Configuring Diameter for Load Balancing*

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diameter-profiles

Syntax

```
diameter-profiles {
  gx-profile profile-name {
    <attributes> {
      exclude {
        an-gw-address;
        default-eps-bearer-qos;
        packet-filter-information;
        packet-filter-operation;
        rat-type;
      }
      include {
        gx-capability-list;
        rule-suggestion;
      }
    }
    <request-timeout seconds>;
    targets {
      target-name {
        <destination-host hostname>;
        destination-realm realm-name;
        network-element element-name;
        priority priority-value;
      }
    }
  }
  gy-profile profile-name {
    <attributes> {
      exclude {
        all-3gpp-avps;
        cc-selection-mode;
        dynamic-address-flag;
        pdn-connection-id;
        ps-information;
        qos-information;
        serving-node-type;
        start-time;
        stop-time;
        user-equipment-info;
        user-location-information;
        username;
      }
      include {
        credit-instance-id;
        cumulative-used-service-unit;
        framed-ip-address;
        framed-ipv6-prefix;
        gprs-negotiated-qos;
        mscc-qos-information;
        service-start-timestamp;
      }
    }
    <request-timeout seconds>;
```

```
        targets {
          target-name {
            <destination-host hostname>;
            destination-realm realm-name;
            network-element element-name;
            priority priority-value;
          }
        }
      }
    }
```

Hierarchy Level [edit unified-edge]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the Diameter profile used for Diameter applications. The Diameter profile specifies prioritized targets, or endpoints, for particular applications. Specify the Diameter application for which you are creating the profile. Profiles for Gx applications (**gx-profile**) and Gy applications (**gy-profile**) are currently supported.

You can also specify that attribute-value pairs (AVPs) be excluded from or included in the Credit Control Request (CCR) messages.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Profiles*
- [edit unified-edge diameter-profiles] Hierarchy Level on page 15
- *Overview of Diameter Profiles*

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disconnect-peer-timeout

Syntax disconnect-peer-timeout *seconds*;

Hierarchy Level [edit access diameter peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the amount of time to wait in Closing state while disconnecting this peer.

Options ***seconds***—Amount of time to wait.
Range: 1 through 65535 seconds
Default: 10 seconds

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Configuring Diameter Peers*
- peer (Diameter Base Protocol) on page 397

exclude (Diameter Gx Profiles)

Syntax

```
exclude {
   an-gw-address;
   default-eps-bearer-qos;
   packet-filter-information;
   packet-filter-operation;
   rat-type;
}
```

Hierarchy Level

[edit unified-edge diameter-profiles gx-profile *profile-name* attributes]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the attribute-value pairs (AVPs) to be excluded from the Credit Control Request (CCR) messages between the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) and the Policy and Charging Enforcement Function (PCEF).

Options

- **an-gw-address**—Exclude the AN-GW-Address AVP.
- **default-eps-bearer-qos**—Exclude the Default-EPS-Bearer-QoS AVP.
- **packet-filter-information**—Exclude the Packet-Filter-Information AVP.
- **packet-filter-operation**—Exclude the Packet-Filter-Operation AVP.
- **rat-type**—Exclude the RAT-Type AVP.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- attributes (Diameter Gx Profiles) on page 375
- include (Diameter Gx Profiles) on page 390
- *Configuring Diameter AVPs for Gx Applications*

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exclude (Diameter Gy Profiles)

Syntax

```
exclude {
   all-3gpp-avps;
   cc-selection-mode;
   dynamic-address-flag;
   pdn-connection-id;
   ps-information;
   qos-information;
   serving-node-type;
   start-time;
   stop-time;
   user-equipment-info;
   user-location-information;
   username;
}
```

Hierarchy Level [edit unified-edge diameter-profiles gy-profile *profile-name* attributes]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the attribute-value pairs (AVPs) to be excluded from the Credit Control Request (CCR) messages between the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) and the Online Charging System (OCS).

Options

- **all-3gpp-avps**—Exclude all 3GPP AVPs under the PS-Information AVP (where PS stands for packet switched).
- **cc-selection-mode**—Exclude the Charging-Characteristics-Selection-Mode AVP.
- **dynamic-address-flag**—Exclude the Dynamic-Address-Flag-Extension AVP.
- **pdn-connection-id**—Exclude the PDN-Connection-ID AVP.
- **ps-information**—Exclude the PS-Information AVP.

  NOTE: **The PS-Information AVP is normally sent in the Service-Information AVP (as mentioned in 3GPP TS 32.299).**

  Table 9 on page 386 lists the different scenarios for the configuration of the **all-3gpp-avps** and **ps-information** attributes.
- **qos-information**—Exclude the QoS-Information AVP.
- **serving-node-type**—Exclude the Serving-Node-Type AVP.
- **start-time**—Exclude the Start-Time AVP.
- **stop-time**—Exclude the Stop-Time AVP.
- **user-equip-info**—Exclude the User-Equipment-Info AVP.
- **user-location-information**—Exclude the User-Location-Info AVP.

- **username**—Exclude the User-Name AVP.

Table 9: Configuration Scenarios for all-3gpp-avps and ps-information attributes

Configuration	Behavior
Only **all-3gpp-avps** configured	All 3GPP AVPs under the PS-Information AVP are excluded from the PS-Information AVP; however, the PS-Information AVP (excluding the 3GPP AVPs) is still sent in the Service-Information AVP.
Only **ps-information** configured	All the 3GPP AVPs inside the PS-Information AVP are sent in the Diameter Credit Control Request (CCR) message at the command level; however, the PS-Information AVP is not sent.
Both **all-3gpp-avps** and **ps-information** configured	Neither the 3GPP AVPs (inside the PS-Information AVP) nor the PS-Information AVP is sent.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- attributes (Diameter Gy Profiles) on page 376
- include (Diameter Gy Profiles) on page 391
- *Configuring Diameter AVPs for Gy Applications*

firmware-revision

Syntax
firmware-revision *firmware-revision*;

Hierarchy Level
[edit access diameter]

Release Information
Statement introduced in Junos OS Mobility Release 12.1W.

Description
Configure the firmware revision that is advertised in the Capabilities-Exchange-Request or Capabilities-Exchange-Answer message.

Options
firmware-revision—Number of the firmware revision that is the advertised value of the Firmware-Revision AVP.
Default: 0
Range: 0 through 4294967295

Required Privilege Level
access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Configuring Advertisements in Diameter Messages*
- *Configuring Diameter*
- diameter (MobileNext Broadband Gateway) on page 379

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function (Diameter Network Element)

Syntax function *function-name*;

Hierarchy Level [edit access diameter network-element *element-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the application (function) associated with a Diameter network element.

Options ***function-name***—Application (function) associated with the network element. Policy Charging and Control application (**pcc-gx**) and Diameter Credit-Control Application (**dcca-gy**) are the applications currently supported.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Network Elements*
- network-element (Diameter Base Protocol) on page 393

gx-profile

Syntax

```
gx-profile profile-name {
  <attributes> {
    exclude {
      an-gw-address;
      default-eps-bearer-qos;
      packet-filter-information;
      packet-filter-operation;
      rat-type;
    }
    include {
      gx-capability-list;
      rule-suggestion;
    }
  }
  <request-timeout seconds>;
  targets {
    target-name {
      <destination-host hostname>;
      destination-realm realm-name;
      network-element element-name;
      priority priority-value;
    }
  }
}
```

Hierarchy Level [edit unified-edge diameter-profiles]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the Diameter profile used for Gx applications.

Options *profile-name*—Name of the Diameter profile.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter AVPs for Gx Applications*
- diameter-profiles on page 381

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gy-profile

Syntax

```
gy-profile profile-name {
  <attributes> {
    exclude {
      all-3gpp-avps;
      cc-selection-mode;
      dynamic-address-flag;
      pdn-connection-id;
      ps-information;
      qos-information;
      serving-node-type;
      start-time;
      stop-time;
      user-equipment-info;
      user-location-information;
      username;
    }
    include {
      credit-instance-id;
      cumulative-used-service-unit;
      framed-ip-address;
      framed-ipv6-prefix;
      gprs-negotiated-qos;
      mscc-qos-information;
      service-start-timestamp;
    }
  }
  <request-timeout seconds>;
  targets {
    target-name {
      <destination-host hostname>;
      destination-realm realm-name;
      network-element element-name;
      priority priority-value;
    }
  }
}
```

Hierarchy Level [edit unified-edge diameter-profiles]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the Diameter profile used for Gy applications.

Options *profile-name*—Name of the Diameter profile.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter AVPs for Gy Applications*
- diameter-profiles on page 381

host (Diameter Origin)

Syntax

host *hostname*;

Hierarchy Level

[edit access diameter origin]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify the name of the host that originates the Diameter message.

Options

hostname—Name of the message origin host. Supplied as the value of the Origin-Host AVP for all messages sent by the Diameter instance.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Origin Attributes of the Diameter Instance*
- origin (Diameter Base Protocol) on page 395

include (Diameter Gx Profiles)

Syntax

```
include {
   gx-capability-list;
   rule-suggestion;
}
```

Hierarchy Level

[edit unified-edge diameter-profiles gx-profile *profile-name* attributes]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the attribute-value pairs (AVPs) to be included in the Credit Control Request (CCR) messages between the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) and the Policy and Charging Enforcement Function (PCEF).

Options

- **gx-capability-list**—Include the Gx Capability list AVP.
- **rule-suggestion**—Include the Rule-suggestion AVP.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- attributes (Diameter Gx Profiles) on page 375
- exclude (Diameter Gx Profiles) on page 384
- *Configuring Diameter AVPs for Gx Applications*

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include (Diameter Gy Profiles)

Syntax

```
include {
   credit-instance-id;
   cumulative-used-service-unit;
   framed-ip-address;
   framed-ipv6-prefix;
   gprs-negotiated-qos;
   mscc-qos-information;
   service-start-timestamp;
}
```

Hierarchy Level

[edit unified-edge diameter-profiles gy-profile *profile-name* attributes]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the attribute-value pairs (AVPs) to be included in the Credit Control Request (CCR) messages between the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) and the Online Charging System (OCS).

Options

- **credit-instance-id**—Include the credit-instance-id AVP.
- **cumulative-used-service-unit**—Include the Used-Service-Unit AVP.
- **framed-ip-address**—Include the Framed-IP-Address AVP.
- **framed-ipv6-prefix**—Include the Framed-IPv6-Prefix AVP.
- **gprs-negotiated-qos**—Include the QoS-Negotiation AVP for the 3GPP-GPRS access type.
- **mscc-qos-information**—Include the QoS-Information AVP of the Multiple-Services-Credit-Control AVP.
- **service-start-timestamp**—Include the service-start-timestamp AVP.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- attributes (Diameter Gy Profiles) on page 376
- exclude (Diameter Gy Profiles) on page 385
- *Configuring Diameter AVPs for Gy Applications*

incoming-queue

Syntax

```
incoming-queue {
   size size;
}
```

Hierarchy Level [edit access diameter peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the incoming queue properties of this peer.

Options **size *size***—Size of the queue.

Range: 1 through 65535

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Peers*
- peer (Diameter Base Protocol) on page 397

maximum-pending-requests (Diameter)

Syntax maximum-pending-requests *requests*;

Hierarchy Level [edit access diameter applications dcca-gy],
[edit access diameter applications pcc-gx]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the maximum number of pending requests parameter for the Diameter application.

Options ***requests***—Maximum number of pending requests.

Range: 1000 through 65535

Default: 20000

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- applications (Diameter) on page 374
- *Configuring Parameters for Diameter Applications*

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network-element (Diameter Base Protocol)

Syntax

```
network-element element-name {
  function function-name;
  peer peer-name {
    priority priority-value;
    <timeout seconds>;
  }
}
```

Hierarchy Level [edit access diameter]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the Diameter network element, which is similar to a peer group that provides function-specific features including failover and load balancing. Specify the associated function that the network element supports. You can prioritize the peers to support failover or load balancing.

Default By default, all network elements are available on every session PIC unless Diameter bindings are configured.

Options ***element-name***—Name of the network element.

Range: Up to 32 characters

The remaining statements are explained separately.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Network Elements*
- diameter (MobileNext Broadband Gateway) on page 379

network-element (GGSN or P-GW)

Syntax

```
network-element {
  element-name {
    session-pics {
      group {
        group-name {
          [session-pic interface-name];
        }
      }
    }
  }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* diameter]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the Diameter network element associated with Diameter bindings for this broadband gateway.

NOTE: If you want to set up Diameter bindings for session PICs on the broadband gateway, contact Juniper Networks Professional Services for assistance.

Options ***element-name***—Name of the network element.

Range: Up to 32 characters

NOTE: The specified network element must already be configured on the broadband gateway at the **[edit access diameter network-element]** hierarchy level.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Bindings*
- diameter (GGSN or P-GW) on page 378
- network-element (Diameter Base Protocol) on page 393

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origin (Diameter Base Protocol)

Syntax

```
origin {
  host hostname;
  realm realm-name;
}
```

Hierarchy Level [edit access diameter]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify values of the Origin-Realm AVP and the Origin-Host AVP used in all messages sent by the Diameter instance. These values must be unique for each session PIC.

The remaining statements are explained separately.

Required Privilege Level
access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Origin Attributes of the Diameter Instance*
- diameter (MobileNext Broadband Gateway) on page 379

outgoing-queue

Syntax

```
outgoing-queue {
   <high-watermark watermark>;
   <low-watermark watermark>;
   size size;
}
```

Hierarchy Level [edit access diameter peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the outgoing queue properties for this peer. When the queue size reaches the high watermark, the peer is marked unavailable and any new messages to the Diameter network element are not sent to this peer. When the queue size descends below the low watermark after reaching the high watermark, the peer becomes available.

Options

high-watermark *watermark*—(Optional) High watermark for this peer.

Range: 1 through 100 percent

Default: 80

low-watermark *watermark*—(Optional) Low watermark for this peer.

Range: 1 through 100 percent

Default: 60

size *size*—Size of the queue.

Range: 1 through 65535

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Peers*
- peer (Diameter Base Protocol) on page 397

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peer (Diameter Base Protocol)

Syntax

```
peer peer-name {
  address ip-address;
  connect-actively {
    <capabilities-exchange-timeout seconds>;
    <port port-number>;
    <repeat-timeout seconds>;
    <retry-timeout seconds>;
    <timeout seconds>;
    transport transport-name;
  }
  <disconnect-peer-timeout seconds>;
  <incoming-queue> {
    size size;
  }
  <outgoing-queue> {
    <high-watermark watermark>;
    <low-watermark watermark>;
    size size;
  }
  <watchdog-timeout seconds>;
}
```

Hierarchy Level [edit access diameter]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure a remote peer for the Diameter instance. You can configure up to 31 peers.

Options *peer-name*—Name of the peer.

Range: Up to 32 characters

The remaining statements are explained separately.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter*
- *Configuring Diameter Peers*
- diameter (MobileNext Broadband Gateway) on page 379

peer (Diameter Network Element)

Syntax

```
peer peer-name {
   priority priority-value;
   <timeout seconds>;
}
```

Hierarchy Level

[edit access diameter network-element *element-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Define and prioritize a peer associated with a Diameter network element. You must prioritize the associated peer by including the **priority** statement.

Options

peer-name—Name of the peer.

Range: Up to 32 characters

NOTE: **The specified peer must already be configured at the [edit access diameter peer] hierarchy level.**

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Network Elements*
- network-element (Diameter Base Protocol) on page 393

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priority (Diameter Network Element)

Syntax priority *priority-value*;

Hierarchy Level [edit access diameter network-element *element-name* peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Set the priority for a peer within a Diameter network element. A peer with a lower number has a higher priority. For load balancing, configure the peers with the same priority.

Options ***priority-value***—Priority for the peer within the network element.
Range: 1 through 65535

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Configuring Diameter Network Elements*
- peer (Diameter Network Element) on page 398

product-name

Syntax product-name *name*;

Hierarchy Level [edit access diameter]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the product name that is advertised in the Capabilities-Exchange-Request or Capabilities-Exchange-Answer message.

Options ***name***—Name of product that is the advertised value of the Product-Name AVP.
Default: Juniper Diameter Client

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation
- *Configuring Advertisements in Diameter Messages*
- *Configuring Diameter*
- diameter (MobileNext Broadband Gateway) on page 379

realm (Diameter Origin)

Syntax realm *realm-name*;

Hierarchy Level [edit access diameter origin]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the realm of the host that originates the Diameter message.

Options ***realm-name***—Name of the message origin realm. Supplied as the value of Origin-Realm AVP for all messages sent by the Diameter instance.

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Origin Attributes of the Diameter Instance*
- origin (Diameter Base Protocol) on page 395

request-timeout

Syntax request-timeout *seconds*;

Hierarchy Level [edit unified-edge diameter-profiles gx-profile *profile-name*],
[edit unified-edge diameter-profiles gy-profile *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the amount of time to wait for a response.

Options ***seconds***—Amount of time to wait.

Range: 0 through 65535 seconds.0 seconds indicates that the request timeout will not be enabled.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter AVPs for Gx Applications*
- *Configuring Diameter AVPs for Gy Applications*
- gx-profile on page 388
- gy-profile on page 389

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routing-instance (Diameter Transport)

Syntax routing-instance *routing-instance-name*;

Hierarchy Level [edit access diameter transport *transport-name*]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Configure the routing instance for the Diameter transport layer connection.

Options ***routing-instance-name***—Name of the routing instance.

NOTE: **The specified routing instance must already be defined.**

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Diameter Transport*
- transport (Diameter Base Protocol) on page 406

session-pics (Diameter)

Syntax

```
session-pics {
  group {
    group-name {
      [session-pic interface-name];
    }
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* diameter network-element *element-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the session PICs that are serving this Diameter network element for Diameter bindings on this broadband gateway.

NOTE: If you want to set up Diameter bindings for session PICs on the broadband gateway, contact Juniper Networks Professional Services for assistance.

Options

group *group-name*—Name of the session PIC group that is serving the Diameter network element.

session-pic *interface-name*—Name of interface representing session PIC.

Syntax: The interface must be a valid multiservices interface (ams or ms-a/b/0, where a is the Flexible PIC Concentrator [FPC] slot number and b is the PIC slot number); for example, ams0, ams1, or ms-1/0/0.

NOTE: The specified interface for the session PIC must already be configured for this broadband gateway.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Bindings*
- network-element (GGSN or P-GW) on page 394

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targets

Syntax

```
targets {
  target-name {
    <destination-host hostname>;
    destination-realm realm-name;
    network-element element-name;
    priority priority-value;
  }
}
```

Hierarchy Level

[edit unified-edge diameter-profiles gx-profile *profile-name*],
[edit unified-edge diameter-profiles gy-profile *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the targets for this Diameter profile.

Options

name—Name of target.

destination-host *hostname*—(Optional) Name of the destination host associated with this target.

destination-realm *realm-name*—Name of the destination realm associated with this target.

network-element *element-name*—Name of the network element.

NOTE: **The Diameter network element must be previously configured at the [edit access diameter network-element] hierarchy level.**

Range: Up to 32 characters

priority *priority-value*—Priority for the target within the Diameter profile. A value with a lower number has a higher priority. For load balancing, configure the targets with the same priority.

NOTE: **Failover handling depends on what is allowed by the policy for the application. For example, switching between the primary and secondary online charging servers set with the appropriate priority would only occur if the failover handling policy allows it.**

Range: 1 through 65535

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter AVPs for Gx Applications*
- *Configuring Diameter AVPs for Gy Applications*
- gx-profile on page 388
- gy-profile on page 389

timeout (Diameter Network Element)

Syntax

timeout *seconds*;

Hierarchy Level

[edit access diameter network-element *element-name* peer *peer-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure the amount of time to wait for a response from this peer before retransmitting the request to another peer.

Options

seconds—Amount of time to wait.

Range: 1 through 100 seconds

Default: 4 seconds

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Network Elements*
- peer (Diameter Network Element) on page 398

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traceoptions (Diameter Base Protocol)

Syntax

```
traceoptions {
  file filename <files number> <match regular-expression > <size maximum-file-size>
    <world-readable | no-world-readable>;
  flag flag;
  level (all | error | info | notice | verbose | warning);
  no-remote-trace;
  <peer peer-name>;
}
```

Hierarchy Level [edit access diameter]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Define tracing options for Diameter peers.

Options

file *filename*—Name of the file to receive the output of the tracing operation. Enclose the filename within quotation marks. All files are placed in the directory **/var/log**.

files *number*—(Optional) Maximum number of trace files to create before overwriting the oldest one. If you specify a maximum number of files, you also must specify a maximum file size with the **size** option.

Range: 2 through 1000

Default: 3 files

flag *flag*—Tracing operation to perform. To specify more than one tracing operation, include multiple **flag** statements. You can include the following flags:

- **all**—Trace all operations.
- **receive**—Trace received packets.
- **receive-detail**—Trace received packets in detail.
- **send**—Trace transmitted packets.
- **send-detail**—Trace transmitted packets in detail.
- **state**—Trace Diameter peer state changes.
- **timeout**—Trace timeout events.

level—Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match notice messages about conditions requiring special handling.
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match ***regular-expression***—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—Disable remote tracing.

no-world-readable—(Optional) Disable unrestricted file access.

peer ***peer-name***—(Optional) Trace packets sent to or received from the specified peer. The specified peer must be defined at the **[edit access diameter peer]** hierarchy level.

size ***maximum-file-size***—(Optional) Maximum size of each trace file. By default, the number entered is treated as bytes. Alternatively, you can include a suffix to the number to indicate kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you also must specify a maximum number of trace files with the **files** option.

Syntax: ***size*k** to specify KB, ***size*m** to specify MB, or ***size*g** to specify GB

Range: 10240 through 1073741824

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace—To view this statement in the configuration.
trace-control—To add this statement to the configuration.

Related Documentation

- diameter (MobileNext Broadband Gateway) on page 379
- *Tracing Diameter Operations*

transport (Diameter Base Protocol)

Syntax

```
transport transport-name {
  address address;
  <routing-instance routing-instance-name>;
}
```

Hierarchy Level

[edit access diameter]

Release Information

Statement introduced in Junos OS Release 12.1W.

Description

Configure the Diameter local transport layer connection, which includes the source IP address and routing instance. You can configure up to 31 transport connections.

Options

transport-name—Name of the transport.

The remaining statements are explained separately.

Required Privilege Level

access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Diameter Transport*
- diameter (MobileNext Broadband Gateway) on page 379

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vendor-id

Syntax vendor-id *vendor-id*;

Hierarchy Level [edit access diameter]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the vendor identification that is advertised in the Capabilities-Exchange-Request or Capabilities-Exchange-Answer message.

Options ***vendor-id***—Vendor identification number that is the advertised value of the Vendor-Id AVP.

Default: 2636

Range: 0 through 4294967295

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Advertisements in Diameter Messages*
- *Configuring Diameter*
- diameter (MobileNext Broadband Gateway) on page 379

watchdog-timeout

Syntax watchdog-timeout *seconds*;

Hierarchy Level [edit access diameter peer *peer-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the amount of time to wait for a Device-Watchdog-Answer message.

Options ***seconds***—Amount of time to wait.

Range: 1 through 65535 seconds

Default: 30 seconds

Required Privilege Level access—To view this statement in the configuration.
access-control—To add this statement to the configuration.

Related Documentation

- *Configuring Diameter Peers*
- peer (Diameter Base Protocol) on page 397

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CHAPTER 9

Gateway Maintenance Mode Configuration Statements

service-mode (GGSN or P-GW)

Syntax service-mode maintenance;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description This statement puts the respective gateway under maintenance mode.

When you have to make the following changes to the existing gateway configuration, you must put that gateway under maintenance mode:

- Deleting certain GTP interfaces, such as Gn, Gp, S5, and S8
- Changing the GTP interface address
- Deleting the gateway

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- ggsn-pgw on page 667
- *Mobility Maintenance Mode Overview*

service-mode (Serving Gateway)

Syntax service-mode *service-mode-options*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that the Serving Gateway (S-GW) should be in **maintenance** mode. You do this if you want to perform maintenance tasks such as deleting certain GTP parameters or modifying the GTP interface address on the S-GW. See the *MobileNext Broadband Gateway Configuration Guide* for a list of maintenance tasks that you can perform when the S-GW is in maintenance mode.

When in the **Maintenance Mode Active Phase**, you can modify all valid attributes on the object. In all other cases, you can modify only the non-maintenance mode attributes.

Options ***service-mode-options***—Specify the service mode. Currently, only the **maintenance** mode is option supported.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- sgw on page 677
- show unified-edge sgw service-mode on page 920

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CHAPTER 10

Gateway Traceoptions Configuration Statements

client (Resource Management)

Syntax

```
client {
  traceoptions {
    file filename {
      files files;
      match match;
      (no-world-readable | world-readable);
      size size;
    }
    flag {
      flag;
    }
    level level;
    no-remote-trace;
  }
}
```

Hierarchy Level

[edit unified-edge resource-management]

Description

Define the tracing options for the resource management client (the session Dense Port Concentrators [DPCs] and interface DPCs and Modular Port Concentrators [MPCs]). Resource management tracing operations record detailed messages about the operation of resource management clients on the broadband gateway.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Resource Manager Trace Options*
- resource-management (MobileNext Broadband Gateway) on page 413

mobile-options

Syntax

```
mobile-options {
  traceoptions {
    file filename {
      files files;
      match match;
      (no-world-readable | world-readable);
      size size;
    }
    flag {
      flag;
    }
    no-remote-trace;
  }
}
```

Hierarchy Level [edit unified-edge]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the tracing options for the mobility daemon.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11
- *Configuring Mobile Options Trace Options*

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resource-management (MobileNext Broadband Gateway)

Syntax

```
resource-management {
  client {
    traceoptions {
      file filename {
        files files;
        match match;
        (no-world-readable | world-readable);
        size size;
      }
      flag {
        flag;
      }
      level level;
      no-remote-trace;
    }
  }
  server {
    traceoptions {
      file filename {
        files files;
        match match;
        (no-world-readable | world-readable);
        size size;
      }
      flag {
        flag;
      }
      level level;
      no-remote-trace;
    }
  }
}
```

Hierarchy Level

[edit unified-edge]

Description

Define the resource management tracing options. Resource management tracing operations record detailed messages about the operation of resource management clients and server on the broadband gateway.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge] Hierarchy Level on page 11
- *Configuring Resource Manager Trace Options*

server (Resource Management)

Syntax

```
server {
  traceoptions {
    file filename {
      files files;
      match match;
      (no-world-readable | world-readable);
      size size;
    }
    flag {
      flag;
    }
    level level;
    no-remote-trace;
  }
}
```

Hierarchy Level

[edit unified-edge resource-management]

Description

Define the tracing options for the resource management server (the active Routing Engine). Resource management tracing operations record detailed messages about the operation of the resource management server on the broadband gateway.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Resource Manager Trace Options*
- resource-management (MobileNext Broadband Gateway) on page 413

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traceoptions (Broadband Gateway)

Syntax

```
traceoptions {
  file filename {
    files files;
    match match;
    (no-world-readable | world-readable);
    size size;
  }
  flag {
    flag;
  }
  level level;
  no-remote-trace;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Define the tracing operations for the broadband gateway. You can specify which trace operations are logged by including specific tracing flags and levels.

Options

file *filename*—Name of the file that receives the output of the tracing operation. All files are placed in the **/var/log** directory.

files *files*— (Optional) Maximum number of trace files. When a trace file named **trace-file** reaches its maximum size, it is renamed **trace-file.0**, then **trace-file.1**, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you must also specify a maximum file size with the **size** option and a filename.

Range: 2 through 1000

Default: 3 files

flag

- *flag*—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. You can use one of the following flags:
  - **all**—Trace everything.
  - **bulkjob**—Trace events that are handled by bulk jobs in order to prevent system overload.
  - **config**—Trace configuration events.
  - **cos-cac**—Trace class of service (CoS) and call admission control (CAC) events.

- **ctxt**—Trace user equipment, Packet Data Network (PDN), or bearer context events.
- **fsm**—Trace mobile subscriber finite state machine (FSM) events.
- **gtpu**—Trace GPRS tunneling protocol, user plane (GTP-U) events.
- **ha**—Trace high availability events.
- **init**—Trace initialization events.
- **pfem**—Trace Packet Forwarding Engine Manager events.
- **stats**—Trace **stats** events. This flag is used internally by Juniper's engineers.
- **waitq**—Trace **waitq** events. This flag is used internally by Juniper's engineers.

level ***level***—(Optional) Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **critical**—Match critical conditions.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match conditions that should be handled specially
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match ***match***—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Restrict access to the originator of the trace operation only.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you must also specify a maximum number of trace files with the **files** option and filename.

Syntax: **xk** to specify KB, **xm** to specify MB, or **xg** to specify GB

Range: 10 KB through 1 GB

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

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Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- *Configuring General Gateway Trace Options*
- *Configuring S-GW Traceoptions*

traceoptions (Data Path)

Syntax

```
traceoptions {
  file filename {
    files files;
    match match;
    size size;
    (no-world-readable | world-readable);
  }
  flag {
    flag;
  }
  level level;
  no-remote-trace;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* software-datapath],
[edit unified-edge gateways sgw *gateway-name* software datapath]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* software-datapath]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Define tracing operations for software data path.

Options

file *filename*—Name of the file that receives the output of the tracing operation. All files are placed in the **/var/log** directory.

files *files*—(Optional) Maximum number of trace files. When a trace file named **trace-file** reaches its maximum size, it is renamed **trace-file.0**, then **trace-file.1**, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you must also specify a maximum file size with the **size** option and a filename.

Range: 2 through 1000

Default: 3 files

flag—

- *flag*—You can use one of the following flags:
  - **ager**—Trace flow ageout-related events.
  - **all**—Trace everything.
  - **buffering**—Trace buffering.
  - **commands**—Trace operational commands.
  - **configuration**—Trace configuration commands.
  - **flow**—Trace flow.
  - **init**—Trace events related to the **init** datapath daemon .

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- **ipv6-router-advertisement**—Trace IPv6 router advertisements.
- **memory**—Trace memory.
- **reassembly**—Trace reassembly.
- **redundancy**—Trace redundancy.

level ***level***—(Optional) Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match conditions that should be handled specially.
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match ***match***—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Restrict access to the originator of the trace operation only.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you must also specify a maximum number of trace files with the **files** option and filename.

Syntax: **xk** to specify KB, **xm** to specify MB, or **xg** to specify GB

Range: 10 KB through 1 GB

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GGSN or P-GW Software Data Path Traceoptions*
- software-datapath on page 678

traceoptions (Mobile Options)

Syntax

```
traceoptions {
  file filename {
    files files;
    match match;
    (no-world-readable | world-readable);
    size size;
  }
  flag {
    flag;
  }
  no-remote-trace;
}
```

Hierarchy Level [edit unified-edge mobile-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Define the tracing options for the mobility daemon.

Tracing options record detailed messages about the operation of the mobility daemon. You can specify which trace operations are logged by including specific tracing flags and levels.

Options **file** ***filename***—Name of the file that receives the output of the tracing operation. All files are placed in the **/var/log** directory.

files ***files***—(Optional) Maximum number of trace files. When a trace file named **trace-file** reaches its maximum size, it is renamed **trace-file.0**, then **trace-file.1**, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you must also specify a maximum file size with the **size** option and a filename.

Range: 2 through 1000

Default: 3 files

flag

- *flag*—You can use one of the following flags:
  - **all**—Trace everything for the mobility daemon.
  - **configuration**—Trace configuration commands.
  - **error**—Trace events related to errors in the daemon.
  - **init**—Trace events related to the protocol initialization daemon.
  - **protocol**—Trace protocol processing events.

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match ***match***—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Restrict access to the originator of the trace operation only.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you must also specify a maximum number of trace files with the **files** option and filename.

Syntax: **xk** to specify KB, **xm** to specify MB, or **xg** to specify GB

Range: 10 KB through 1 GB

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Options Trace Options*
- mobile-options on page 412

traceoptions (Resource Management Client)

Syntax

```
traceoptions {
  file filename {
    files files;
    match match;
    (no-world-readable | world-readable);
    size size;
  }
  flag {
    flag;
  }
  level level;
  no-remote-trace;
}
```

Hierarchy Level [edit unified-edge resource-management client]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Define the tracing options for the resource management client (the session Dense Port Concentrators [DPCs] and interface DPCs and Modular Port Concentrators [MPCs]). Resource management tracing operations record detailed messages about the operation of resource management clients on the broadband gateway. You can specify which trace operations are logged by including specific tracing flags and levels.

Options **file** ***filename***—Name of the file that receives the output of the tracing operation. All files are placed in the **/var/log** directory.

> NOTE: **The FPC and PIC slot numbers are appended to the specified filename to obtain a unique filename for each DPC.**

files ***files***— (Optional) Maximum number of trace files. When a trace file named **trace-file** reaches its maximum size, it is renamed **trace-file.0**, then **trace-file.1**, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you must also specify a maximum file size with the **size** option and a filename.

Range: 2 through 1000

Default: 3 files

flag

- *flag*—You can use one of the following flags:

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NOTE: **Currently, only the all flag is supported. The other flags are not fully supported.**

- **all**—Trace everything.
- **communication**—Trace Inter-Process Communication (IPC) code.
- **info-tables**—Trace information table code.
- **infra**—Trace finite state machine (FSM) and infra code.
- **memory**—Trace memory management code.
- **redundancy**—Trace graceful Routing Engine switchover (GRES) code.
- **resource-tables**—Trace resource table code.

level ***level***—(Optional) Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match conditions that should be handled specially
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match ***match***—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Restrict access to the originator of the trace operation only.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you must also specify a maximum number of trace files with the **files** option and filename.

Syntax: **xk** to specify KB, **xm** to specify MB, or **xg** to specify GB

Range: 10 KB through 1 GB

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- client (Resource Management) on page 411
- *Configuring Resource Manager Trace Options*

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traceoptions (Resource Management Server)

Syntax

```
traceoptions {
  file filename {
    files files;
    match match;
    (no-world-readable | world-readable);
    size size;
  }
  flag {
    flag;
  }
  level level;
  no-remote-trace;
}
```

Hierarchy Level [edit unified-edge resource-management server]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Define the tracing options for the resource management server (the active Routing Engine). Resource management tracing operations record detailed messages about the operation of the resource management server on the broadband gateway. You can specify which trace operations are logged by including specific tracing flags and levels.

Options

file *filename*—Name of the file that receives the output of the tracing operation. All files are placed in the **/var/log** directory.

> NOTE: The FPC and PIC slot numbers are appended to the specified filename to obtain a unique filename for each DPC.

files *files*— (Optional) Maximum number of trace files. When a trace file named **trace-file** reaches its maximum size, it is renamed **trace-file.0**, then **trace-file.1**, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you must also specify a maximum file size with the **size** option and a filename.

Range: 2 through 1000

Default: 3 files

flag

- *flag*—You can use one of the following flags:

> NOTE: Currently, only the all flag is supported. The other flags are not fully supported.

- **all**—Trace everything.
- **communication**—Trace infra code.
- **configuration**—Trace configuration code.
- **gres**—Trace graceful Routing Engine switchover (GRES) code.
- **info-manager**—Trace information management code.
- **init**—Trace events related to the Resource Management and Packet Steering Deamon(RMPSD) initialization sequence of messages.
- **memory**—Trace memory management code.
- **packet-steering**—Trace packet-steering code.
- **resource-manager**—Trace resource management code.
- **signal**—Trace signal-handling code.
- **state**—Trace state-handling code.
- **timer**—Trace timer code.
- **ui**—Trace user interface code.

level ***level***—(Optional) Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match conditions that should be handled specially
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match ***match***—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Restrict access to the originator of the trace operation only.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you must also specify a maximum number of trace files with the **files** option and filename.

Syntax: **xk** to specify KB, **xm** to specify MB, or **xg** to specify GB

Range: 10 KB through 1 GB

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

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Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Resource Manager Trace Options*
- server (Resource Management) on page 414

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CHAPTER 11

GPRS Tunneling Protocol (GTP) Configuration Statements

control (GTP)

Syntax

```
control {
  ddn-delay-sync (disable | enable); #S-GW only
  dscp-code-point value;
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  forwarding-classclass-name;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  n3-requests requests;
  no-response-cache;
  path-management (disable | enable);
  response-cache-timeoutt interval-in-seconds;
  t3-response response-interval;
  ttl-value ttl-value; #S-GW only
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* gtp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the path and tunnel management parameters for the control plane. This configuration overrides the parameters configured at a higher hierarchy level.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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control (GTP Gn, Gp, S4, S5, and S8 Interfaces)

Syntax

```
control {
  dscp-code-point value;
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  forwarding-classclass-name;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  support-16-bit-sequence; #P-GW: S5 and S8 only
  t3-response response-interval;
  ttl-value ttl-value; #S-GW: S4, S5, and S8 only
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp gn],
[edit unified-edge gateways ggsn-pgw *name* gtp gp],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways sgw *name* gtp s4],
[edit unified-edge gateways sgw *name* gtp s5],
[edit unified-edge gateways sgw *name* gtp s8]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *gateway-name* gtp s4]** hierarchy level
- **[edit unified-edge gateways sgw *gateway-name* gtp s5]** hierarchy level
- **[edit unified-edge gateways sgw *gateway-name* gtp s8]** hierarchy level

Description

Configure the path and tunnel management parameters for the control plane for the Gn, Gp, S4, S5, or S8 interfaces. This configuration overrides the parameters configured at a higher hierarchy level.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gn on page 445
- gp on page 447
- s4 on page 472
- s5 on page 474

- s8 on page 476

control (Peer Group)

Syntax

```
control {
  support-16-bit-sequence;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp peer-group *peer-group*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure support for 16-bit sequence numbers for interoperation with older gateways that support a GTP version with a 16-bit sequence number length.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- peer-group (GTP) on page 465

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data (GTP)

Syntax

```
data {
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  error-indication-interval seconds;
  indirect-tunnel (disable | enable); #S-GW only
  interface {
    interface-name;
    v4-addressv4-address;
  }
  num-gtpu-end-markers num-gtpu-end-markers; #S-GW only
  path-management (disable | enable);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* gtp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the path and tunnel management parameters for the data plane. This configuration overrides the parameters configured at a higher hierarchy level.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

data (GTP Gn, Gp, S4, S5, and S8 Interfaces)

Syntax

```
data {
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  path-management (disable | enable);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp gn],
[edit unified-edge gateways ggsn-pgw *name* gtp gp],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways sgw *name* gtp s4],
[edit unified-edge gateways sgw *name* gtp s5],
[edit unified-edge gateways sgw *name* gtp s8]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *gateway-name* gtp s4]** hierarchy level
- **[edit unified-edge gateways sgw *gateway-name* gtp s5]** hierarchy level
- **[edit unified-edge gateways sgw *gateway-name* gtp s8]** hierarchy level

Description

Configure the path and tunnel management parameters for the data plane for the Gn, Gp, S4, S5, or S8 interfaces. This configuration overrides the parameters configured at a higher hierarchy level.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gn on page 445
- gp on page 447
- s4 on page 472
- s5 on page 474
- s8 on page 476

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ddn-delay-sync

Syntax ddn-delay-sync (disable | enable);

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* gtp control]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify whether the synchronizing of the Downlink Data Notification (DDN) delay value with the other services PICs on the Serving Gateway should be disabled or enabled. DDN delay value synchronization is enabled by default.

Options **disable**—Disable DDN delay value synchronization.

enable—Enable DDN delay value synchronization.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring General GTP Service on the S-GW*
- control (GTP) on page 430

dscp-code-point (GTP)

Syntax

dscp-code-point *value*;

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s8 control]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp s11]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**

Description

Specify the value of the Differentiated Services (DiffServ) field within the IP header. DiffServ code point (DSCP) is used exclusively for GTP messages.

Options

value—DSCP value.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- control (GTP) on page 430

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echo-interval (GTP)

Syntax echo-interval *interval*;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp data],
[edit unified-edge gateways ggsn-pgw *name* gtp gn],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn data],
[edit unified-edge gateways ggsn-pgw *name* gtp gp],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp data],
[edit unified-edge gateways ggsn-pgw *name* gtp peer-group *name*],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 data],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 data],
[edit unified-edge gateways sgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp data],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s12],
[edit unified-edge gateways sgw *name* gtp s1u],
[edit unified-edge gateways sgw *name* gtp s4],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s4 data],
[edit unified-edge gateways sgw *name* gtp s5],
[edit unified-edge gateways sgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s5 data],
[edit unified-edge gateways sgw *name* gtp s8],
[edit unified-edge gateways sgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp s8 data]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp]**
- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp data]**
- **[edit unified-edge gateways sgw *name* gtp s11]**
- **[edit unified-edge gateways sgw *name* gtp s12]**
- **[edit unified-edge gateways sgw *name* gtp s1u],**
- **[edit unified-edge gateways sgw *name* gtp s4]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**
- **[edit unified-edge gateways sgw *name* gtp s4 data]**

- **[edit unified-edge gateways sgw *name* gtp s5]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 data]**
- **[edit unified-edge gateways sgw *name* gtp s8]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 data]**

Description Configure the echo request interval for path management.

- For the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW), the echo request interval is the number of seconds that the GGSN or P-GW waits before sending an echo request message to its peer (SGSN or S-GW).
- For the Serving Gateway (S-GW), the echo request interval is the number of seconds that the S-GW waits before sending an echo request message to its peer (MME, S4-SGSN, or P-GW).

This interval applies to both GTP-C and GTP-U echo messages.

Options ***interval***—Echo request interval, in seconds.

Range: 60 through 65535 seconds.

Default: 60 seconds.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *GTP Path Management Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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echo-n3-requests

Syntax echo-n3-requests *requests*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp data],
[edit unified-edge gateways ggsn-pgw *name* gtp gn],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn data],
[edit unified-edge gateways ggsn-pgw *name* gtp gp],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp data],
[edit unified-edge gateways ggsn-pgw *name* gtp peer-group *name*],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 data],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 data],
[edit unified-edge gateways sgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp data],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s12],
[edit unified-edge gateways sgw *name* gtp s1u],
[edit unified-edge gateways sgw *name* gtp s4],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s4 data],
[edit unified-edge gateways sgw *name* gtp s5],
[edit unified-edge gateways sgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s5 data],
[edit unified-edge gateways sgw *name* gtp s8],
[edit unified-edge gateways sgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp s8 data]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp]**
- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp data]**
- **[edit unified-edge gateways sgw *name* gtp s11]**
- **[edit unified-edge gateways sgw *name* gtp s12]**
- **[edit unified-edge gateways sgw *name* gtp s1u]**
- **[edit unified-edge gateways sgw *name* gtp s4]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**
- **[edit unified-edge gateways sgw *name* gtp s4 data]**

- **[edit unified-edge gateways sgw *name* gtp s5]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 data]**
- **[edit unified-edge gateways sgw *name* gtp s8]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 data]**

Description Configure the maximum number of retries of GTP echo request messages for path management. Echo request messages are resent only when there is no response to the transmitted echo request messages within the configured response timeout value (for GTP echo request messages).

Options ***requests***—Maximum number of times that the broadband gateway attempts to send an echo request message.

Range: 1 through 8

Default: 8

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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echo-t3-response

Syntax echo-t3-response *response-interval*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp data],
[edit unified-edge gateways ggsn-pgw *name* gtp gn],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn data],
[edit unified-edge gateways ggsn-pgw *name* gtp gp],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp data],
[edit unified-edge gateways ggsn-pgw *name* gtp peer-group *name*],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 data],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 data],
[edit unified-edge gateways sgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp data],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s12],
[edit unified-edge gateways sgw *name* gtp s1u],
[edit unified-edge gateways sgw *name* gtp s4],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s4 data],
[edit unified-edge gateways sgw *name* gtp s5],
[edit unified-edge gateways sgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s5 data],
[edit unified-edge gateways sgw *name* gtp s8],
[edit unified-edge gateways sgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp s8 data]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp]**
- **[edit unified-edge gateways sgw *name* gtp control],**
- **[edit unified-edge gateways sgw *name* gtp data]**
- **[edit unified-edge gateways sgw *name* gtp s11]**
- **[edit unified-edge gateways sgw *name* gtp s12]**
- **[edit unified-edge gateways sgw *name* gtp s1u]**
- **[edit unified-edge gateways sgw *name* gtp s4]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**
- **[edit unified-edge gateways sgw *name* gtp s4 data]**

- **[edit unified-edge gateways sgw *name* gtp s5]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 data]**
- **[edit unified-edge gateways sgw *name* gtp s8]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 data]**

Description Configure the response timeout for a GTP echo request message. The response timeout indicates the time (in seconds) that the broadband gateway waits before transmitting the next echo request message if it does not receive a response.

Default If you do not include this statement, the response timeout is set to 5 seconds.

Options ***response interval***—Time, in seconds, that the gateway waits before transmitting the next echo request message if it does not receive a response.

Range: 1 through 30 seconds

Default: 15 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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error-indication-interval

Syntax error-indication-interval *seconds*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp data],
[edit unified-edge gateways sgw *name* gtp data]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name* gtp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the interval at which the broadband gateway generates an error indication (Tunnel Endpoint Identifier [TEID] error message) to the peer per bearer. One error indication is generated per bearer for the interval configured, in seconds.

Options ***seconds***—Number of seconds that the gateway waits before indicating an error message to the peer.

Range: 1 through 20 seconds

Default: 2 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- data (GTP) on page 433

forwarding-class (GTP)

Syntax

forwarding-class *class-name*;

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp s11]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**
- **[edit unified-edge gateways sgw *name* gtp s11]**

Description

Specify a forwarding class for outbound control packets.

Options

class-name—Name of the forwarding class.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- control (GTP) on page 430
- control (GTP Gn, Gp, S4, S5, and S8 Interfaces) on page 431
- s11 on page 469

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gn

Syntax

```
gn {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    t3-response response-interval;
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-address v4-address;
    }
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-address v4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  t3-response response-interval;
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the path and tunnel management parameters for the 3GPP Gn interface. This configuration overrides the parameters configured at a higher level in the hierarchy and applies to all GTP peers that connect to the Gn interface. You can also configure parameters only for GTP control packets or GTP user plane packets—these parameters override the parameters at the higher hierarchy levels.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449

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gp

Syntax

```
gp {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    t3-response response-interval;
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-address v4-address;
    }
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-address v4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  t3-response response-interval;
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the path and tunnel management parameters for the 3GPP Gp interface. This configuration overrides the parameters configured at a higher level in the hierarchy and applies to all GTP peers that connect to the Gp interface. You can also configure parameters only for GTP control packets or GTP user plane packets—these parameters override the parameters at the higher hierarchy levels.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449

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gtp (GGSN or P-GW)

Syntax

```
gtp {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-address v4-address;
    }
    n3-requests requests;
    no-response-cache;
    path-management (disable | enable);
    response-cache-timeoutt interval-in-seconds;
    t3-response response-interval;
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    error-indication-interval seconds;
    interface {
      interface-name;
      v4-address v4-address;
    }
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  gn {
    control {
      dscp-code-point value;
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      forwarding-classclass-name;
      interface {
        interface-name;
        v4-address v4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    data {
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
```

```
            v4-address v4-address;
        }
        path-management (disable | enable);
    }
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
        interface-name;
        v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    t3-response response-interval;
}
gp {
    control {
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-classclass-name;
        interface {
            interface-name;
            v4-address v4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
    }
    data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
            interface-name;
            v4-address v4-address;
        }
        path-management (disable | enable);
    }
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
        interface-name;
        v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    t3-response response-interval;
}
interface {
    interface-name;
    v4-address v4-address;
}
n3-requests requests;
```


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```
path-management (disable | enable);
peer-group name {
  control {
    support-16-bit-sequence;
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  n3-requests requests;
  path-management (disable | enable);
  peer {
    [ip-addr-prefix];
  }
  routing-instance routing-identifier;
  t3-response response-interval;
}
peer-history number;
s5 {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    support-16-bit-sequence;
    t3-response response-interval;
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-address v4-address;
    }
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-address v4-address;
  }
  path-management (disable | enable);
}
s8 {
  control {
    dscp-code-point value;
    echo-interval interval;
```

```
            echo-n3-requests requests;
            echo-t3-response response-interval;
            forwarding-classclass-name;
            interface {
              interface-name;
              v4-address v4-address;
            }
            n3-requests requests;
            path-management (disable | enable);
            support-16-bit-sequence;
            t3-response response-interval;
          }
          data {
            echo-interval interval;
            echo-n3-requests requests;
            echo-t3-response response-interval;
            interface {
              interface-name;
              v4-address v4-address;
            }
            path-management (disable | enable);
          }
          echo-interval interval;
          echo-n3-requests requests;
          echo-t3-response response-interval;
          interface {
            interface-name;
            v4-address v4-address;
          }
          n3-requests requests;
          path-management (disable | enable);
          t3-response response-interval;
        }
        t3-response response-interval;
        traceoptions {
          file filename {
            files files;
            (no-world-readable | world-readable);
            size size;
          }
          flag {
            flag;
          }
          level level;
          no-remote-trace;
        }
      }
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

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Description

Configure the parameters related to the GPRS tunneling protocol (GTP) on the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW). GTP is used to tunnel GTP packets through 3G and 4G networks. GTP is the primary protocol used in a GPRS core network and allows users in a 3G or 4G network to move from one location to another while remaining connected to the Internet. A MobileNext Broadband Gateway configured as a GGSN, P-GW, or GGSN/P-GW automatically selects the appropriate GTP version based on the capabilities of the Serving GPRS Support Node (SGSN) or Serving Gateway (S-GW) to which it is connected.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- *Configuring GTP Services Overview*

gtp (S-GW)

Syntax

```
gtp {
  control {
    ddn-delay-sync (disable | enable);
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-addressv4-address;
    }
    n3-requests requests;
    no-response-cache;
    path-management (disable | enable);
    response-cache-timeoutt interval-in-seconds;
    t3-response response-interval;
    ttl-value ttl-value;
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    error-indication-interval seconds;
    indirect-tunnel (disable | enable);
    interface {
      interface-name;
      v4-addressv4-address;
    }
    num-gtpu-end-markers num-gtpu-end-markers;
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  peer-history number;
  s11 {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-addressv4-address;
    }
```


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```
    n3-requests requests;
    path-management (disable | enable);
    t3-response response-interval;
    ttl-value ttl-value;
  }
  s12 {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-addressv4-address;
    }
    path-management (disable | enable);
  }
  s1u {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-addressv4-address;
    }
    path-management (disable | enable);
  }
  s4 {
    control {
      dscp-code-point value;
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      forwarding-classclass-name;
      interface {
        interface-name;
        v4-addressv4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
      ttl-value ttl-value;
    }
    data {
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-addressv4-address;
      }
      path-management (disable | enable);
    }
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
```

```
        v4-address v4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    s5 {
      control {
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-class class-name;
        interface {
          interface-name;
          v4-address v4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
        t3-response response-interval;
        ttl-value ttl-value;
      }
      data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
          interface-name;
          v4-address v4-address;
        }
        path-management (disable | enable);
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-address v4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    s8 {
      control {
        dscp-code-point value;
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        forwarding-class class-name;
        interface {
          interface-name;
          v4-address v4-address;
        }
        n3-requests requests;
        path-management (disable | enable);
```


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```
        t3-response response-interval;
        ttl-value ttl-value;
      }
      data {
        echo-interval interval;
        echo-n3-requests requests;
        echo-t3-response response-interval;
        interface {
          interface-name;
          v4-addressv4-address;
        }
        path-management (disable | enable);
      }
      echo-interval interval;
      echo-n3-requests requests;
      echo-t3-response response-interval;
      interface {
        interface-name;
        v4-addressv4-address;
      }
      n3-requests requests;
      path-management (disable | enable);
      t3-response response-interval;
    }
    t3-response response-interval;
    traceoptions {
      file filename {
        files files;
        (no-world-readable | world-readable);
        size size;
      }
      flag {
        flag;
      }
      level level;
      no-remote-trace;
    }
  }
```

Hierarchy Level [edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the parameters related to the GPRS tunneling protocol (GTP) on the Serving Gateway (S-GW). GTP is used to tunnel GTP packets through 3G and 4G networks. Only GTP Version 2 is supported on the S-GW.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- *Configuring General GTP Service on the S-GW*

indirect-tunnel

Syntax indirect-tunnel (disable | enable);

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* gtp data]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify whether support for indirect tunnel forwarding should be disabled or enabled. Indirect tunnel forwarding is enabled by default.

To ensure minimal packet loss, network elements must switch the packet forwarding path from source eNodeB to target eNodeB, or, in inter-RAT scenarios, between eNodeB to Serving GPRS Support Node (SGSN) or Radio Network Controller (RNC), or SGSN to eNodeB.

If a direct path is available, then the packets are routed directly between the network elements. If a direct path between the network elements is not available, then the packets are routed indirectly from the source eNodeB, RNC, or SGSN to the target eNodeB, RNC, or SGSN via the Serving Gateway (S-GW), or the source and target S-GWs (in the case of S-GW relocation). Indirect tunnels might be set up in the S-GW that is not hosting subscriber sessions.

Options **disable**—Disable support for indirect tunnel forwarding.

enable—Enable support for indirect tunnel forwarding.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring General GTP Service on the S-GW*
- gtp (S-GW) on page 454

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interface (GTP)

Syntax

```
interface {
   interface-name;
   v4-address v4-address;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp data],
[edit unified-edge gateways ggsn-pgw *name* gtp gn],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn data],
[edit unified-edge gateways ggsn-pgw *name* gtp gp],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp data],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 data],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 data],
[edit unified-edge gateways sgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp data],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s12],
[edit unified-edge gateways sgw *name* gtp s1u],
[edit unified-edge gateways sgw *name* gtp s4],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s4 data],
[edit unified-edge gateways sgw *name* gtp s5],
[edit unified-edge gateways sgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s5 data],
[edit unified-edge gateways sgw *name* gtp s8],
[edit unified-edge gateways sgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp s8 data]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp]**
- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp data]**
- **[edit unified-edge gateways sgw *name* gtp s11]**
- **[edit unified-edge gateways sgw *name* gtp s12]**
- **[edit unified-edge gateways sgw *name* gtp s1u]**
- **[edit unified-edge gateways sgw *name* gtp s4]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**

- **[edit unified-edge gateways sgw *name* gtp s4 data]**
- **[edit unified-edge gateways sgw *name* gtp s5]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 data]**
- **[edit unified-edge gateways sgw *name* gtp s8]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 data]**

Description

Specify the loopback interface and IPv4 address on which the GTP packets are received. To enable GTP services, you must configure at least one loopback interface and IPv4 address for the Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) or for the Serving Gateway (S-GW), as applicable.

For the GGSN or P-GW, you can optionally configure the loopback interface and IP address at the Gn, Gp, S5, or S8 interface levels or their corresponding control and data planes, or at the gateway level or their corresponding control and data planes.

For the S-GW, you can optionally configure the loopback interface and IP address at the S11, S12, or S1u interface levels, or the S4, S5, or S8 interface levels, or their corresponding control and data planes, or at the gateway level or their corresponding control and data planes. However, you must at least configure the **interface** statement:

- At the **[edit unified-edge gateways sgw *name* gtp]** hierarchy level or the **[edit unified-edge gateways sgw *name* gtp control]** and **[edit unified-edge gateways sgw *name* gtp data]** hierarchy levels, or
- If it is not configured at the top of the GTP hierarchy level, you must configure the statement for either:
  - The S11, S1u, and one of the S5 or S8 interfaces, or
  - The S4, and one of the S5 or S8 interfaces.

Options

interface-name—Name of the interface used in the gateway.

v4-address *v4-address*—IP address (IPv4) on which the GTP packets are received.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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n3-requests

Syntax n3-requests *requests*;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**

Description
For tunnel management, configure the maximum number of times that the broadband gateway attempts to send a signaling request message to a control. The gateway waits for the time specified in the **t3-timeout** statement before resending a signaling request message when a response to the request has not been received.

Options
requests—Maximum number of times that the gateway attempts to send a signaling request message.

Range: 1 through 5

Default: 3

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

no-response-cache

Syntax no-response-cache;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* gtp control],
[edit unified-edge gateways sgw *gateway-name* gtp control]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that the GPRS Tunneling Protocol (GTP) response cache is disabled. The response cache stores the GTP responses (sent for request messages) for the duration configured, or the default, if the time is not configured, using the **response-cache-timeout** statement. If this cache is disabled, then the response messages are not stored.

Default If you do not configure this statement, then the GTP response cache is enabled by default.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring General GTP Service on the S-GW*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454
- response-cache-timeout on page 467

num-gtpu-end-markers

Syntax num-gtpu-end-markers *num-gtpu-end-markers*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* gtp data]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the number of GPRS tunneling protocol, user plane (GTP-U) end marker packets to be sent in case of handovers towards the previous access tunnel for the bearer.

Options *num-gtpu-end-markers*—Number of GTP-U end marker packets.
Range: 1 through 10.
Default: 1

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring General GTP Service on the S-GW*
- gtp (S-GW) on page 454

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path-management

Syntax path-management (disable | enable);

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp data],
[edit unified-edge gateways ggsn-pgw *name* gtp gn],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn data],
[edit unified-edge gateways ggsn-pgw *name* gtp gp],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp data],
[edit unified-edge gateways ggsn-pgw *name* gtp peer-group *name*],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 data],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 data],
[edit unified-edge gateways sgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp data],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s12],
[edit unified-edge gateways sgw *name* gtp s1u],
[edit unified-edge gateways sgw *name* gtp s4],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s4 data],
[edit unified-edge gateways ggsn-pgw *name* gtp s5],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s5 data],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp s8 data]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp]**
- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp data]**
- **[edit unified-edge gateways sgw *name* gtp s11]**
- **[edit unified-edge gateways sgw *name* gtp s12]**
- **[edit unified-edge gateways sgw *name* gtp s1u]**
- **[edit unified-edge gateways sgw *name* gtp s4]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**
- **[edit unified-edge gateways sgw *name* gtp s4 data]**

- **[edit unified-edge gateways sgw *name* gtp s5]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 data]**
- **[edit unified-edge gateways sgw *name* gtp s8]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 data]**

Description Enable or disable path management. When path management is disabled, the broadband gateway does not send echo request messages to its peer.

By default, path management is enabled only on the control plane for the broadband gateway.

Options **disable**—Disable path management.

enable—Enable path management.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

peer (GTP)

Syntax

```
peer {
   [ip-addr-prefix];
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp peer-group *peer-group*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the IP address of the peer in the peer group. The IP address specified must also include the network prefix. To specify multiple peers, include the **peer** statement multiple times.

Options ***ip-addr-prefix***—IP address of the peer, including the network prefix; for example, 22.1.1.10/16.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring GTP Services Overview*
- peer-group (GTP) on page 465

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peer-group (GTP)

Syntax

```
peer-group name {
  control {
    support-16-bit-sequence;
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  n3-requests requests;
  path-management (disable | enable);
  peer {
    [ip-addr-prefix];
  }
  routing-instance routing-identifier;
  t3-response response-interval;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure a group of 3GPP GTP peers to share common signaling and data parameters. This configuration overrides the common or interface-specific configuration for the peers in the group.

Options

name—Name of the peer group.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449

peer-history (GTP)

Syntax peer-history *number*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name* gtp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of peers (that are no longer present on the broadband gateway) for which the broadband gateway stores the statistics collected.

Options ***number***—Maximum number of peers for which statistics are stored.

Range: 1 through 1000

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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response-cache-timeout

Syntax response-cache-timeout *interval-in-seconds*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* gtp control],
[edit unified-edge gateways sgw *gateway-name* gtp control]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the timeout for the GPRS Tunneling Protocol (GTP) response cache. This timeout indicates the duration for which the GTP response messages (sent for request messages) should be stored in the response cache.

NOTE: **This configuration is invalid if the no-response-cache statement is configured.**

Options ***timeout-in-seconds***—Timeout, in seconds, for the GTP response cache.

Range: 5 through 20 seconds

Default: 15 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring General GTP Service on the S-GW*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454
- no-response-cache on page 462

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routing-instance (GTP)

Syntax routing-instance *name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *name* gtp peer-group *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the routing instance or the VPN routing and forwarding (VRF) instance for the peer group.

Options ***name***—name of the routing instance.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- peer-group (GTP) on page 465

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s11

Syntax

```
s11 {
  dscp-code-point value;
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  forwarding-classclass-name;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  t3-response response-interval;
  ttl-value ttl-value;
}
```

Hierarchy Level

[edit unified-edge gateways sgw *gateway-name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure the 3GPP control parameters applicable to the 3GPP s11 interface. The s11 interface is used by the serving gateway and the Mobile Management Entity (MME) to exchange GTP-C control packets with each other.

The values configured here override the common control configuration configured at the **[edit unified-edge gateways sgw *gateway-name* gtp]** hierarchy level. The parameters configured here are applicable to all GTP peers that use the interface.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP-C Services on the S11 Interface*
- gtp (S-GW) on page 454

s12

Syntax

```
s12 {
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  path-management (disable | enable);
}
```

Hierarchy Level

[edit unified-edge gateways sgw *gateway-name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure the 3GPP data parameters applicable to the 3GPP s12 interface. The s12 interface is used by the serving gateway and the Radio Network Controller (RNC) to exchange GTP user plane (GTP-U) data packets with each other.

The values configured here override the common data configuration configured at the **[edit unified-edge gateways sgw *gateway-name* gtp]** hierarchy level. The parameters configured here are applicable to all GTP peers that use the interface.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP-U Services on the S12 Interface*
- gtp (S-GW) on page 454

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s1u

Syntax

```
s1u {
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  path-management (disable | enable);
}
```

Hierarchy Level

[edit unified-edge gateways sgw *gateway-name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure the 3GPP data parameters applicable to the 3GPP s1u interface. The s1u interface is used by the serving gateway and the eNodeB to exchange GTP user plane (GTP-U) data packets with each other.

The values configured here override the common data configuration configured at the **[edit unified-edge gateways sgw *gateway-name* gtp]** hierarchy level. The parameters configured here are applicable to all GTP peers that use the interface.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services on the S1-U Interface*
- gtp (S-GW) on page 454

s4

Syntax

```
s4 {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-addressv4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    t3-response response-interval;
    ttl-value ttl-value;
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-addressv4-address;
    }
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  t3-response response-interval;
}
```

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* gtp]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the 3GPP control and data parameters applicable to the 3GPP S4 interface. The S4 interface is used by the serving gateway and the S4 Serving GPRS Support Nodes (SGSNs).

The values configured here override the common control and data configuration configured at the **[edit unified-edge gateways sgw *gateway-name* gtp]** hierarchy level. The parameters configured here are applicable to all GTP peers that use the interface.

The remaining statements are explained separately.

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Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services on the S4 Interface*
- gtp (S-GW) on page 454

s5

Syntax

```
s5 {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-address v4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    support-16-bit-sequence; #P-GW only
    t3-response response-interval;
    ttl-value ttl-value; #S-GW only
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-address v4-address;
    }
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-address v4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  t3-response response-interval;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp],

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name* gtp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the path and tunnel management parameters for the 3GPP S5 interface. This configuration overrides the parameters configured at a higher level in the hierarchy and applies to all GTP peers that connect to the S5 interface. You can also configure parameters only for GTP control packets or GTP user plane packets—these parameters override the parameters at the higher hierarchy levels.

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The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

s8

Syntax

```
s8 {
  control {
    dscp-code-point value;
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    forwarding-classclass-name;
    interface {
      interface-name;
      v4-addressv4-address;
    }
    n3-requests requests;
    path-management (disable | enable);
    support-16-bit-sequence; #P-GW only
    t3-response response-interval;
    ttl-value ttl-value; #S-GW only
  }
  data {
    echo-interval interval;
    echo-n3-requests requests;
    echo-t3-response response-interval;
    interface {
      interface-name;
      v4-addressv4-address;
    }
    path-management (disable | enable);
  }
  echo-interval interval;
  echo-n3-requests requests;
  echo-t3-response response-interval;
  interface {
    interface-name;
    v4-addressv4-address;
  }
  n3-requests requests;
  path-management (disable | enable);
  t3-response response-interval;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name* gtp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the path and tunnel management parameters for the 3GPP S8 interface. This configuration overrides the parameters configured at a higher level in the hierarchy and applies to all GTP peers that connect to the S8 interface. You can also configure parameters only for GTP control packets or GTP user plane packets—these parameters override the parameters at the higher hierarchy levels.

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The remaining statements are explained separately.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

support-16-bit-sequence

Syntax
support-16-bit-sequence;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw name gtp peer-group name control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.

Description
Enable support for 16-bit sequence numbers for interoperation with older gateways that support a GTP version with a 16-bit sequence number length.

Support for 16-bit sequence numbers is disabled by default.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449

t3-response

Syntax t3 response *response-interval*;

Hierarchy Level
[edit unified-edge gateways ggsn-pgw *name* gtp control],
[edit unified-edge gateways ggsn-pgw *name* gtp gn control],
[edit unified-edge gateways ggsn-pgw *name* gtp gp control],
[edit unified-edge gateways ggsn-pgw *name* gtp s5 control],
[edit unified-edge gateways ggsn-pgw *name* gtp s8],
[edit unified-edge gateways ggsn-pgw *name* gtp s8 control],
[edit unified-edge gateways sgw *name* gtp control],
[edit unified-edge gateways sgw *name* gtp s11],
[edit unified-edge gateways sgw *name* gtp s4 control],
[edit unified-edge gateways sgw *name* gtp s5 control],
[edit unified-edge gateways sgw *name* gtp s8 control]

Release Information
Statement introduced in Junos OS Mobility Release 11.2W.
Support at the following hierarchy levels introduced in Junos OS Mobility Release 11.4W:

- **[edit unified-edge gateways sgw *name* gtp]**
- **[edit unified-edge gateways sgw *name* gtp control]**
- **[edit unified-edge gateways sgw *name* gtp s11]**
- **[edit unified-edge gateways sgw *name* gtp s4 control]**
- **[edit unified-edge gateways sgw *name* gtp s5 control]**
- **[edit unified-edge gateways sgw *name* gtp s8 control]**

Description
Configure the response timeout for GTP signaling request messages. The response timeout is how long the gateway waits before resending a signaling request message when the response to a request has not been received.

Options
seconds—Time that the gateway waits before resending a signaling request message.
Range: 1 through 30 seconds
Default: 5 seconds

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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traceoptions (GTP)

Syntax

```
traceoptions {
  file filename {
    files files;
    (no-world-readable | world-readable);
    size size;
  }
  flag {
    flag;
  }
  level level;
  no-remote-trace;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *name* gtp],
[edit unified-edge gateways sgw *name* gtp]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name* gtp]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure GTP tracing options. You can specify which trace operations are logged by including specific tracing flags and levels.

Options

file *filename*—Name of the file that receives the output of the tracing operation. All files are placed in the **/var/log** directory.

files *files*— (Optional) Maximum number of trace files. When a trace file named **trace-file** reaches its maximum size, it is renamed **trace-file.0**, then **trace-file.1**, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you must also specify a maximum file size with the **size** option and a filename.

Range: 2 through 1000

Default: 3 files

flag

- *flag*—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. You can use one of the following flags:
  - all—Trace everything.
  - config—Trace configuration-related information.
  - debug—Trace debug information.
  - decode—Trace decoding of received packets.
  - encode—Trace encoding of transmitted packets.
  - error—Trace internal and external errors.

- events—Trace all internal and external events.
- packet-io—Trace transmitted and received packets.
- peer—Trace GTP peer-related events.
- tracker—Trace GTP tracker-related events.
- warning—Trace warnings.

level ***level***—(Optional) Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match conditions that should be handled specially
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Restrict access to the originator of the trace operation only.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you must also specify a maximum number of trace files with the **files** option and filename.

Syntax: **xk** to specify KB, **xm** to specify MB, or **xg** to specify GB

Range: 10 KB through 1 GB

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring GTP Services Overview*
- gtp (GGSN or P-GW) on page 449
- gtp (S-GW) on page 454

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ttl-value (S-GW GTP-C)

Syntax ttl-value *ttl-value*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* gtp control],
[edit unified-edge gateways sgw *gateway-name* gtp s4 control],
[edit unified-edge gateways sgw *gateway-name* gtp s5 control],
[edit unified-edge gateways sgw *gateway-name* gtp s8 control],
[edit unified-edge gateways sgw *gateway-name* gtp s11]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the time-to-live (TTL) value used on outgoing GPRS tunneling protocol, control plane (GTP-C) packets. When the TTL count in the GTP-C packet reaches zero, the packet is discarded.

Options **ttl-value**—TTL value

Range: 1 through 255

Default: 255

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring General GTP Service on the S-GW*
- control (GTP) on page 430

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CHAPTER 12

IP Reassembly Configuration Statements

inline-services (IP Reassembly)

Syntax

```
inline-services {
  ip-reassembly {
    service-set {
      service-set-name;
    }
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure inline services for the broadband gateway. Currently, IP reassembly is the only inline service supported.

When fragments arrive at the gateway for reassembly, they can be reassembled inline in the hardware (inline IP reassembly), or using software on the services PIC (software reassembly). The **ip-reassembly** statement lets you specify that fragments should be reassembled inline, and the **service-set** statement lets you specify that fragments should be reassembled inline as part of a service set.

When you configure inline IP reassembly with a service set, the broadband gateway handles fragments properly even when they arrive on different Packet Forwarding Engines.

NOTE:

- Inline IP reassembly can only be carried out on Trio-based FPCs.
- When you enable inline IP reassembly based on the service set configuration, then packets are not sent to the backup user plane PIC when the memory threshold is reached. Instead, these packets are dropped. However, if inline IP reassembly is configured without the service set, then the packets are sent to the backup user plane PIC when the low memory threshold is reached.

  In the current release, the **Total fragments punted to UPIC** counter in the output of the **show services inline ip-reassembly statistics interface** counts dropped packets even if inline IP reassembly is carried out based on the service set configuration.

The remaining statement is explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17

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- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- *Configuring IP Inline Reassembly for Mobility*
- *Example: Configuring Inline IP Packet Fragment Reassembly*
- *IP Packet Fragment Reassembly for Mobility Overview*

ip-reassembly

Syntax

```
ip-reassembly {
  profile profile-name {
    max-reassembly-pending-packets number;
    timeout in-seconds;
  }
  rule <rule-name> {
    match-direction direction;
  }
}
```

Hierarchy Level [edit services]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the IP reassembly parameters to be applied to the broadband gateway.

NOTE: The configuration in the profile statement is applicable only to IP reassembly on the services PIC.

The remaining statements are explained separately.

Required Privilege Level
interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- [edit services ip-reassembly] Hierarchy Level on page 10
- *Configuring IP Inline Reassembly for Mobility*
- *Configuring Software-Based Fragment Reassembly Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring Inline IP Packet Fragment Reassembly*

ip-reassembly (Inline Services)

Syntax

```
ip-reassembly {
  service-set {
    service-set-name;
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* inline-services],
[edit unified-edge gateways sgw *gateway-name* inline-services]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify that the reassembly of fragmented IP packets should be carried out inline, on the Packet Forwarding Engine.

When fragments arrive at the gateway for reassembly, they can be reassembled inline in the hardware (inline IP reassembly), or using software on the services PIC (software reassembly). If you do not include this statement, then, by default, IP reassembly is carried out on the services PIC for all gateways.

Inline IP reassembly can also be carried out on the inline services (**si-**) interface, using a service set. This method handles fragments properly even when they arrive on different Packet Forwarding Engines.

NOTE: **Inline IP reassembly can only be carried out on Trio-based FPCs.**

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IP Inline Reassembly for Mobility*
- *Example: Configuring Inline IP Packet Fragment Reassembly*
- inline-services (IP Reassembly) on page 484
- *IP Packet Fragment Reassembly for Mobility Overview*

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ip-reassembly-profile

Syntax

```
ip-reassembly-profile {
   profile-name;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Apply a previously configured IP reassembly profile to the broadband gateway.

NOTE: **Currently, only one IP reassembly profile is allowed for the broadband gateway.**

Options

profile-name—Name of the IP reassembly profile to be applied.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- *Configuring Software-Based Fragment Reassembly Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*

ip-reassembly-rules (Service Set)

Syntax

```
ip-reassembly-rules {
   [rule-name];
}
```

Hierarchy Level [edit services service-set *service-set-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify one or more previously configured IP reassembly rules to associate with the service set.

NOTE: **The IP reassembly rule must be defined at the [edit services ip-reassembly rule] hierarchy level.**

Required Privilege Level
interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring IP Inline Reassembly for Mobility*
- *Example: Configuring Inline IP Packet Fragment Reassembly*
- service-set (Aggregated Multiservices) on page 638

match-direction (IP Reassembly Rule)

Syntax match-direction <*match-direction-name*> {

Hierarchy Level [edit services ip-reassembly]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the direction in which the IP reassembly rule matching is applied. The match direction is used with respect to the traffic flow through the inline services interface. You must configure a match direction for an IP reassembly rule.

Options ***direction***—Match direction. For inline IP reassembly, **input** is the only match direction supported.

Required Privilege Level
interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring IP Inline Reassembly for Mobility*
- *Example: Configuring Inline IP Packet Fragment Reassembly*
- rule (IP Reassembly) on page 493

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max-reassembly-pending-packets (IP Reassembly)

Syntax max-reassembly-pending-packets *number*;

Hierarchy Level [edit services ip-reassembly profile *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum number of IPv4 packets pending reassembly that is allowed in each services PIC that belongs to the broadband gateway.

Options ***number***—Maximum number of packets pending reassembly allowed in each services PIC.

Range: 100 through 10,000

Default: 1000

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Software-Based Fragment Reassembly Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- profile (IP Reassembly) on page 492

next-hop-service (Service Set)

Syntax

```
next-hop-service {
   inside-service-interface interface-name.unit-number;
   outside-service-interface interface-name.unit-number;
   outside-service-interface-type interface-type;
   service-interface-pool name;
}
```

Hierarchy Level [edit services service-set *service-set-name*]

Release Information Statement introduced before Junos OS Release7.4.
service-interface-pool option added in Junos OS Release 9.3.
outside-service-interface-type option added in Junos OS Mobility Release 12.1W.

Description Specify the interface names for the inside and outside services interfaces, the interface type for the outside interface, or the service interface pool for the forwarding next-hop service set. You cannot specify both a service interface pool and an inside or outside interface.

NOTE: The line cards present in the broadband gateway chassis can have either two Packet Forwarding Engines or four Packet Forwarding Engines (16x10GE MPC) on each FPC. For each FPC, you can configure four inline services interfaces (si-ifds). Therefore, two inline services interfaces map to one Packet Forwarding Engine on each FPC, or one inline services interface maps to one Packet Forwarding Engine on each FPC. Since the net throughput for the inline IP reassembly per Packet Forwarding Engine is constant, we recommend that you configure only one inline services interface per Packet Forwarding Engine to support inline IP reassembly.

For more information on the performance of the line cards, contact the Juniper Networks Technical Assistance Center (JTAC).

Options **inside-service-interface** ***interface-name.unit-number***—Name and logical unit number of the service interface associated with the service set applied inside the network.

NOTE: When you configure inline IP reassembly based on a service set, you must specify the inline services interface (si-) using the **inside-service-interface** statement.

In addition, the interface-level logical unit (**unit 0**) used by the inline services interface must have **family inet** and **service-domain inside** configured at the **[edit interfaces]** hierarchy level.

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outside-service-interface ***interface-name.unit-number***—Name and logical unit number of the service interface associated with the service set applied outside the network.

NOTE: When you configure inline IP reassembly based on a service set, you do not have to include the **outside-service-interface** statement.

outside-service-interface-type ***interface-type***—Type of outside service interface associated with the next-hop service. Currently, **local** is the only interface type supported.

NOTE: You include the **outside-service-interface-type** statement only when you configure inline IP reassembly based a service set. After the IP reassembly is completed, the packet is looped back on the routing instance.

service-interface-pool ***name***—Name of the pool of logical interfaces configured at the **[edit services service-interface-pools pool** ***pool-name*****]** hierarchy level. You can configure a service interface pool only if the service set has a PGCP rule configured. The service set cannot contain any other type of rule.

NOTE: When you configure inline IP reassembly based on a service set, you do not have to include the **service-interface-pool** statement.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring IP Inline Reassembly for Mobility*
- *Example: Configuring Inline IP Packet Fragment Reassembly*
- service-set (Aggregated Multiservices) on page 638

profile (IP Reassembly)

Syntax

```
profile profile-name {
   max-reassembly-pending-packets number;
   timeout in-seconds;
}
```

Hierarchy Level [edit services ip-reassembly]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure an IP reassembly profile to be applied to the broadband gateway.

The remaining statements are explained separately.

Options ***profile-name***—Name of the IP reassembly profile.

NOTE: **To create more than one IP reassembly profile, include the profile statement multiple times.**

Range: 1 through 32 characters

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Software-Based Fragment Reassembly Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ip-reassembly on page 485

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rule (IP Reassembly)

Syntax

```
rule <rule-name> {
  match-direction direction;
}
```

Hierarchy Level

[edit services ip-reassembly]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Configure an IP reassembly rule, which is used for inline IP reassembly on the inline services (**si-**) interface. The IP reassembly rule can be attached to a service set to indicate that the service set is of type IP reassembly. For inline IP reassembly, each rule must include the **match-direction** statement, which specifies the direction in which the match is applied.

The remaining statement is explained separately.

NOTE: If you configure an IP reassembly rule, then you must configure the match-direction statement.

Options

rule-name—Name of the IP reassembly rule.

NOTE: To create more than one IP reassembly rule, include the rule statement multiple times.

Range: Up to 63 characters

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring IP Inline Reassembly for Mobility*
- *Example: Configuring Inline IP Packet Fragment Reassembly*
- ip-reassembly on page 485

service-set (Inline Services IP Reassembly)

Syntax

```
service-set {
   service-set-name;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* inline-services ip-reassembly],
[edit unified-edge gateways sgw *gateway-name* inline-services ip-reassembly]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify the service set that the broadband gateway uses to carry out the inline reassembly of fragmented IP packets, on the Packet Forwarding Engine. When you configure inline IP reassembly to be carried out using a service set, the broadband gateway handles fragments properly even when they arrive on different Packet Forwarding Engines.

NOTE: If inline IP reassembly is configured based on the service set (at the gateway level) and if the inline service interfaces are down for the configured service set, then reassembly will be performed using software on the services PIC on the gateway and fragments will be load balanced.

Options

service-set-name—Name of the service set.

NOTE: The service set must be previously configured at the [edit services service-set *service-set-name*] hierarchy level.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IP Inline Reassembly for Mobility*
- *Example: Configuring Inline IP Packet Fragment Reassembly*
- ip-reassembly (Inline Services) on page 486
- *IP Packet Fragment Reassembly for Mobility Overview*

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timeout (IP Reassembly)

Syntax timeout *in-seconds*;

Hierarchy Level [edit services ip-reassembly profile *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum time to wait for all IPv4 fragments of a packet to arrive for reassembly.

Options ***in-seconds***—Timeout for the fragments arriving for reassembly.

Range: 2 through 60 seconds

Default: 4 seconds

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Software-Based Fragment Reassembly Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- profile (IP Reassembly) on page 492

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CHAPTER 13

IPv6 Autoconfiguration Configuration Statements

current-hop-limit (IPv6 Router Advertisement)

Syntax current-hop-limit *current-hop-limit*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the value to be placed in the **current-hop-limit** field of the IPv6 router advertisement messages sent from the broadband gateway. This value is used as the hop limit in the outgoing IPv6 packets sent from the user equipment (UE).

Options ***current-hop-limit***—Current hop limit for the IPv6 router advertisement.

Range: 0 through 3

Default: 0. The hop limit is not specified by the broadband gateway.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

disable (IPv6 Router Advertisement)

Syntax disable;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Disable IPv6 router advertisement for the broadband gateway. By default, IPv6 router advertisement is enabled for the broadband gateway.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

ipv6-router-advertisement (MobileNext Broadband Gateway)

Syntax

```
ipv6-router-advertisement {
  current-hop-limit current-hop-limit;
  disable;
  maximum-advertisement-interval maximum-advertisement-interval;
  maximum-initial-advertisement-interval maximum-initial-advertisement-interval;
  maximum-initial-advertisements maximum-initial-advertisements;
  minimum-advertisement-interval minimum-advertisement-interval;
  reachable-time reachable-time;
  retransmission-timer retransmission-timer;
  router-lifetime router-lifetime;
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure IPv6 router advertisement parameters for the broadband gateway.

The remaining statements are explained separately.

Default By default, IPv6 router advertisement is enabled for the broadband gateway.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*

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maximum-advertisement-interval (IPv6 Router Advertisement)

Syntax maximum-advertisement-interval *maximum-advertisement-interval*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum interval between unsolicited router advertisements.

Router advertisements occur in phases. In the initial phase, the interval between the router advertisements is a few seconds. In the later phases, the interval increases to a few minutes. The **maximum-advertisement-interval** parameter controls the interval in the later phases.

Options ***maximum-advertisement-interval***—Maximum interval between unsolicited router advertisements.

Range: 5400 through 21,600 seconds

Default: 21,600 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

maximum-initial-advertisement-interval (IPv6 Router Advertisement)

Syntax maximum-initial-advertisement-interval *maximum-initial-advertisement-interval*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum interval between initial router advertisements.

Router advertisements occur in phases. In the initial phase, the interval between the router advertisements is a few seconds. In the later phases, the interval increases to a few minutes. The **maximum-initial-advertisement-interval** parameter controls the interval in the initial phase.

Options ***maximum-initial-advertisement-interval***—Maximum interval between initial router advertisements.

Range: 10 through 16 seconds

Default: 10 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

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maximum-initial-advertisements (IPv6 Router Advertisement)

Syntax maximum-initial-advertisements *maximum-initial-advertisements*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum number of router advertisements sent during the initial phase.

Router advertisements occur in phases. In the initial phase, the router advertisements occur every few seconds. In the later phases, the advertisements occur every few minutes. The **maximum-initial-advertisements** parameter controls the maximum number of advertisements sent during the initial phase.

Options ***maximum-initial-advertisements***—Maximum number of initial router advertisements.

Range: 2 through 5

Default: 3

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

minimum-advertisement-interval (IPv6 Router Advertisement)

Syntax minimum-advertisement-interval *minimum-advertisement-interval*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the minimum time allowed between the sending of unsolicited router advertisements.

Router advertisements occur in phases. In the initial phase, the interval between the router advertisements is a few seconds. In the later phases, the interval increases to a few minutes. The **minimum-advertisement-interval** parameter controls the interval in the later phases.

Options ***minimum-advertisement-interval***—Minimum interval between unsolicited router advertisements.

Range: 3600 through 16,200 seconds

Default: 16,200 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

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reachable-time (IPv6 Router Advertisement)

Syntax reachable-time *reachable-time*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the value of the reachable time field of IPv6 router advertisement messages. This is the time (in milliseconds) after which a node (user equipment [UE]) assumes that a neighbor is unreachable after the node had received the initial reachability confirmation. Because the GPRS tunneling protocol (GTP) tunnel behaves like a point-to-point IPv6 link between the user equipment and the gateway, the neighbor for the user equipment is usually the broadband gateway.

Options ***reachable-time***—Value of the reachable time field of the IPv6 router advertisement messages.

Range: 0 through 3,600,000 milliseconds

Default: 0 milliseconds. The reachable time has not been specified by the broadband gateway.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

retransmission-timer (IPv6 Router Advertisement)

Syntax retransmission-timer *retransmission-timer*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the value of the retransmission timer field of the IPv6 router advertisement messages. The retransmission timer is used to control the time (in milliseconds) between retransmissions of neighbor solicitation messages from the user equipment (UE).

Options ***retransmission-timer***—Value of the retransmission timer field of the IPv6 router advertisement messages

Default: 0 milliseconds. The retransmission timer has not been specified by the broadband gateway.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

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router-lifetime (IPv6 Router Advertisement)

Syntax router-lifetime *router-lifetime*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* ipv6-router-advertisement]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the value of the router lifetime field of the IPv6 router advertisement messages. The **router-lifetime** indicates the maximum time up to which the broadband gateway can be considered the default gateway.

Options ***router-lifetime***—Value of the router lifetime field of the IPv6 router advertisement messages.

Range: 5400 through 21,840 seconds

Default: 21,840 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring IPv6 Router Advertisement Parameters*
- *Example: Configuring IPv6 Router Advertisement Parameters*
- ipv6-router-advertisement (MobileNext Broadband Gateway) on page 498

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CHAPTER 14

Policy and Charging Enforcement Function Configuration Statements

activate-dedicated-bearers

Syntax activate-dedicated-bearers [*qci-value*];

Hierarchy Level [edit unified-edge pcef profiles *profile-name* static-policy-control]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Configure the **activate-dedicated-bearers** statement so that a Create Session request creates one or more dedicated bearers, in addition to the default bearer. For each QoS Class Identifier (QCI) value you configure in the **activate-dedicated-bearers** statement, a dedicated bearer for that QCI value is created along with the default bearer.

Options **qci-value**—A QCI value (1 through 9) for the dedicated bearer. To create multiple dedicated bearers, list the QCI values within square brackets ([ ]) and include a space between each value, for example, **[*4 5 6*]**.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- static-policy-control on page 554
- *Configuring a Policy and Charging Enforcement Function Profile for Static Policies*

af-charging-identifier

Syntax af-charging-identifier *identifier*;

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* charging application-function-record-info]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the application function charging identifier for enabling charging correlation between the application and bearer layer if the application function has provided this information via the Rx interface.

Options **identifier**—The name of the application function charging identifier.

Range: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- application-function-record-info on page 509
- *Configuring Policy and Charging Control Action Profiles*

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allocation-retention-priority (PCC Action Profiles)

Syntax

```
allocation-retention-priority {
  priority-level priority-value;
  preemption-capability (enable | disable);
  preemption-vulnerability (enable | disable);
}
```

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W

Description The configuration in this hierarchy determines the allocation and retention priority (ARP) for a Policy and Charging Control (PCC) action profile. This configuration provides the ARP value, preemption capability, and preemption vulnerability for the PCC rules, which, in turn, define the quality-of-service (QoS) for a bearer.

The remaining statements are explained separately.

Default If this statement is not included, then the broadband gateway uses the ARP value sent in the PDP Context Request or Session Request message.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-action-profiles on page 531
- *Configuring Policy and Charging Control Action Profiles*

application-function-record-info

Syntax

```
application-function-record-info {
  af-charging-identifier identifier;
}
```

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* charging]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description The configuration in this hierarchy determines the application function charging identifier.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging on page 512
- pcc-action-profiles on page 531
- *Configuring Policy and Charging Control Action Profiles*

application-groups (PCC Rules)

Syntax application-groups [*application-group-name*];

Hierarchy Level [edit unified-edge pcef pcc-rules *rule-name* from]

Release Information Statement introduced in Junos OS Mobility Release 12.1W2.

Description An application group is defined in the application-identification engine from the **[edit services application-identification]** hierarchy level. Specify one or more application groups to define the match criteria for the Policy and Charging Control (PCC) rule. You can specify a maximum of 10 application groups in a PCC rule.

NOTE: For any PCC rule, the subscriber must match the match conditions specified in a from statement. You must configure, at minimum, one flow identifier, application, application group, or nested application in the from statement of a PCC rule.

Options ***application-group-name***—Name of an application group that is used to detect IP packet flows. The referenced application group must be defined.

Range: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- from on page 522
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

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applications (PCC Rules)

Syntax applications [*application-name*];

Hierarchy Level [edit unified-edge pcef pcc-rules *rule-name* from]

Release Information Statement introduced in Junos OS Mobility Release 12.1W2.

Description An application is defined in the application-identification engine from the **[edit services application-identification]** hierarchy level. Specify one or more applications to define the match criteria for the Policy and Charging Control (PCC) rule. You can specify a maximum of 10 applications in a PCC rule.

NOTE: For any PCC rule, the subscriber must match the match conditions specified in a from statement. You must configure, at minimum, one flow identifier, application, application group, or nested application in the from statement of a PCC rule.

Options **application-name**—Name of an application that is used to detect IP packet flows. The referenced application must be defined.

Range: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- from on page 522
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

charging (PCC Action Profiles)

Syntax

```
charging {
  application-function-record-info {
    af-charging-identifier identifier;
  }
  charging-method (online | offline | online-offline | none);
  measurement-method (volume | time | volume-time | event);
  rating-group number;
  service-identifier number;
  service-id-level-reporting;
}
```

Hierarchy Level

[edit unified-edge pcef pcc-action-profiles *profile-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

The configuration in this hierarchy determines the overall charging configuration for the Policy and Charging Control (PCC) rule that references the PCC action profile.

The remaining statements are explained separately.

Default

If the **charging** statement is not included in the PCC action profile, then the PCC rule that references the PCC action profile provides no charging information.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-action-profiles on page 531
- *Configuring Policy and Charging Control Action Profiles*

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charging-method (PCC Action Profiles)

Syntax charging-method (both | offline | online | none);

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* charging]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the default charging method in the PCC action profile. The broadband gateway uses the configured default charging method only when the policy and charging rules function (PCRF) or a static policy for the policy and charging enforcement function (PCEF) does not provide a charging method.

Default If you do not include this statement, then the default charging method is set to offline charging (**offline**).

Options

online—Use only the online charging method.

offline—Use only the offline charging method.

online-offline—Use both offline and online charging methods.

none—No charging method is used.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging on page 512
- *Configuring Policy and Charging Control Action Profiles*

diameter-profile (Gx)

Syntax diameter-profile *gx-profile-name*;

Hierarchy Level [edit unified-edge pcef profiles *profile-name* dynamic-policy-control]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Specify the Gx interface Diameter parameters profile that the PCEF profile will use. A PCEF profile with dynamic policy control must reference a defined Diameter profile. The Gx Diameter profile must be correctly configured in the Diameter portion of the command-line interface (CLI).

Options **gx-profile-name**—Name of the Gx Diameter profile to use with this dynamic policy control profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- dynamic-policy-control on page 515
- *Configuring a Policy and Charging Enforcement Function Profile for Dynamic Policies*

direction (Service Data Flow Filters)

Syntax direction (uplink | downlink | both);

Hierarchy Level [edit unified-edge pcef flow-descriptions *flow-identifier*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the direction in which service data flow (SDF) filters will detect service flow IP packets and PCC rules are applied.

Default If you do not configure the **direction** statement, the default direction is **both**.

Options **uplink**—SDF filters are applied in the uplink direction.

downlink—SDF filters are applied in the downlink direction.

both—SDF filters are applied in both the uplink and downlink directions.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- flow-descriptions on page 520
- *Configuring Service Data Flow Filters (Flow Identifiers)*

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dynamic-policy-control

Syntax

```
dynamic-policy-control {
  failure-handling {
    failure-action (continue | continue-and-retry | terminate);
    pcc-rulebases pcc-rulebase-name;
    pcc-rules pcc-rule-name precedence precedence-number;
  }
  pcc-rules {
    [rule-name number];
  }
  pcc-rulebases {
    [rulebase-name];
  }
  diameter-profile gx-profile-name;
  event-trigger-profile profile-name;
  release (r8 | r9);
  session-failover-not-supported;
}
```

Hierarchy Level

[edit unified-edge pcef profiles *profile-name*]

Release Information

Statement introduced in Junos OS Release 12.1W.

Description

Configure the dynamic policy control for the PCC rules, PCC rulebases, or both in a PCEF profile. You can configure a maximum of 32 PCC rules in a PCEF profile. There is no limit to the number of PCC rulebases you can configure in a PCEF profile.

NOTE: If you configure the **dynamic-policy-control** statement for a PCEF profile, you cannot configure the **static-policy-control** statement in the same profile.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- profiles on page 545
- static-policy-control on page 554
- *Configuring a Policy and Charging Enforcement Function Profile for Dynamic Policies*
- *Configuring a Policy and Charging Enforcement Function Profile for Static Policies*

event-trigger-profile

Syntax event-trigger-profile *profile-name*;

Hierarchy Level [edit unified-edge pcef profiles *profile-name* dynamic-policy-control]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Specify the event trigger profile that a policy and charging enforcement function (PCEF) profile configured with dynamic policy control will use. The event trigger profile must be correctly configured in the trigger profile portion of the command-line interface (CLI).

Default By default, if this statement is not configured, then only implicit event triggers are enabled.

Options **profile-name**—Name of the event trigger profile to use in a PCEF profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- dynamic-policy-control on page 515
- *Configuring Event Trigger Profiles*

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event-trigger-profiles

Syntax

```
event-trigger-profiles profile-name {
   ip-can-change;
   plmn-change;
   rai-change;
   rat-change;
   sgsn-change;
   tft-change;
   ue-timezone-change;
   user-location-change;
}
```

Hierarchy Level [edit unified-edge pcef]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Configure event trigger profiles to notify the policy and charging rules function (PCRF) about changes in the access network. When an event occurs that matches an event trigger configured on the policy and charging enforcement function (PCEF), the PCEF reports the event to the PCRF. If the PCRF determines that a change to its current policy is necessary, it can send new or updated PCC rules to the PCEF to address those changes.

After you configure an event trigger profile, you can include the event trigger profile in a PCEF profile configured with dynamic policy control.

Options The following event triggers can be configured in an event trigger profile:

profile-name—Name of the event trigger profile.

ip-can-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a IP Connectivity Access Network (IP-CAN) change.

plmn-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a Public Land Mobile Network (PLMN) change.

rai-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a Routing Area Identification (RAI) change.

rat-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a Radio Access Technology (RAT) change.

sgsn-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a Serving GPRS Support Node (SGSN) change.

tft-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a Traffic Flow Template (TFT) change.

ue-time-zone-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a user equipment (UE) time zone change.

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user-location-change—Configure an event trigger to send notification to the PCRF when the broadband gateway detects a user equipment (UE) location change.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- pcef on page 537
- *Configuring Event Trigger Profiles*

failure-action

Syntax
failure-action (continue | continue-and-retry | terminate);

Hierarchy Level
[edit unified-edge pcef profiles *profile-name* dynamic-policy-control failure-handling]

Release Information
Statement introduced in Junos OS Release 12.1W2.

Description
Specify that when the policy and charging rules function (PCRF) goes down, one of the following actions is initiated:

- **continue**—Continue the existing Gx session with the dynamic rules and rulebases (if the rules are present), but the PCEF makes no retry attempts. Even when the link is up, no message is triggered towards the PCRF.
- **continue-retry**—Continue the existing Gx session and the PCEF will attempt to reconnect with the PCRF.
- **terminate**—Terminate the existing session and start a new session by applying the rule or rulebase that is configured in the failure-handling container in the PCEF profile.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- failure-handling on page 519
- dynamic-policy-control on page 515
- *Configuring a Policy and Charging Control Rulebase*
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

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failure-handling

Syntax

```
failure-handling {
  failure-action (continue | continue-and-retry | terminate);
  pcc-rulebases pcc-rulebase-name;
  pcc-rules pcc-rule-name precedence precedence-number;
}
```

Hierarchy Level

[edit unified-edge pcef profiles *profile-name* dynamic-policy-control]

Release Information

Statement introduced in Junos OS Release 12.1W2.

Description

The remaining statements are explained separately.

Specify that when the policy and charging rules function (PCRF) goes down, one of the following actions is initiated:

- Continue the existing session with the dynamic rules and rulebases (if the rules are present).
- Terminate the existing session and start a new session by applying the PCC rules or PCC rulebase specified in the failure-handling container in the PCEF profile.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- dynamic-policy-control on page 515
- *Configuring a Policy and Charging Control Rulebase*
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

flow-descriptions

Syntax

```
flow-descriptions flow-identifier {
  direction (uplink | downlink | both);
  local-port-range {
    low lower-boundary high upper-boundary;
  }
  local-ports number;
  no-send-to-ue;
  protocol protocol-number;
  remote-address;
  remote-port-range {
    low lower-boundary high upper-boundary;
  }
  remote-ports number;
}
```

Hierarchy Level [edit unified-edge pcef]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description A service data flow (SDF) filter (flow identifier) includes one or more filtering parameters (address, protocol, and port) to identify the subscriber traffic that the SDF filter will detect. Flow identifiers are specified in a PCC rule to associate IP packet flows with bearers to apply the appropriate quality of service (QoS), charging, and gating control.

NOTE: A PCC rule must include at least one flow identifier and can include a maximum of 15 flow identifiers.

The remaining statements are explained separately.

Options **flow-identifier**—Name of the SDF filter.

Range: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcef on page 537
- *Configuring Service Data Flow Filters (Flow Identifiers)*

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flows

Syntax flows [*flow-identifier*];

Hierarchy Level [edit unified-edge pcef pcc-rules *rule-name* from]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the service data flow (SDF) filters (flow identifiers) that define the match criteria for the Policy and Charging Control (PCC) rule. You can configure a maximum of 15 flow identifiers in a **flows** statement.

NOTE: For any PCC rule, the subscriber must match one of the flow-identifier, application, or application-group match conditions specified in a from statement. You must configure at minimum one flow identifier, application, or application group in the from statement of a PCC rule.

Options **flow-identifier**—Name of an SDF filter that is used to detect IP packet flows. The referenced flow identifier must be defined.

Range: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- from on page 522
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

from (PCC Rules)

Syntax

```
from {
  application-groups [application-name];
  applications [application-name];
  flows [flow-identifier];
  nested-applications [application-name];
}
```

Hierarchy Level

[edit unified-edge pcef pcc-rules *rule-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Specify the match criteria for the Policy and Charging Control (PCC) rules.

NOTE: A PCC rule must include at least one flow identifier, application, application group, or nested application in the from statement.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-rules on page 536
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

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gate-status

Syntax gate-status (uplink | downlink | uplink-downlink | disable-both);

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the gate status in a PCC action profile to enable or disable the forwarding of service flow packets. The gate status determines whether the uplink and downlink gates are opened or closed.

Default By default, if this statement is not configured, forwarding of service data flow packets is enabled in both the uplink and downlink directions.

Options

uplink—Enables forwarding of service data flow packets in the uplink direction.

downlink—Enables forwarding of service data flow packets in the downlink direction.

uplink-downlink—Enables forwarding of service data flow packets in the uplink and downlink directions.

disable-both—Disables forwarding of service data flow packets in the uplink and downlink directions.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-action-profiles on page 531
- *Configuring Policy and Charging Control Action Profiles*

guaranteed-bit-rate

Syntax guaranteed-bit-rate uplink *gbr-uplink-value* downlink *gbr-downlink-value*;

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the guaranteed bit rate (GBR) for uplink and downlink traffic.

The GBR specifies the total guaranteed bit rate for all GBR bearers associated with a specific gateway or access point name (APN).

Default If you configure the **guaranteed-bit-rate** statement but do not specify GBR values for **uplink** and **downlink**, the default value is 0.

Options **gbr-uplink-value**—Specify the GBR value in the uplink direction.
Range: 1 through 256,000 kbps

gbr-downlink-value—Specify the GBR value in the downlink direction.
Range: 1 through 256,000 kbps

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-action-profiles on page 531
- maximum-bit-rate on page 527
- *Configuring Policy and Charging Control Action Profiles*

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local-port-range

Syntax

```
local-port-range {
   low low-value;
   high high-value;
}
```

Hierarchy Level [edit unified-edge pcef flow-descriptions *flow-identifier*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the port range to identify the subscriber traffic that the service data flow (SDF) filter will detect.

NOTE: You can specify either a port range or a list of ports, but not both.

Default If the **local-port-range** statement is not configured, the default is any range of local ports.

Options ***low-value***— Lower boundary for the port range.

Range: 1 through 65,535

high-value — Upper boundary for the port range.

Range: 1 through 65,535

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- flow-descriptions on page 520
- local-ports on page 526
- *Configuring Service Data Flow Filters (Flow Identifiers)*

local-ports

Syntax local-ports [*number*];

Hierarchy Level [edit unified-edge pcef flow-description *flow-identifier*]

Description Specify a port number or list of port numbers to identify the subscriber traffic that the service data flow (SDF) filter will detect.

NOTE: **You can specify either a list of ports or a port range, but not both.**

Default If the **local-ports** statement is not configured, the default is any local ports.

Options ***number***—A port number or list of port numbers. You can specify a maximum of three port numbers (separated by a space) in a list.

Range: 1 through 65,535

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- flow-descriptions on page 520
- local-port-range on page 525
- *Configuring Service Data Flow Filters (Flow Identifiers)*

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maximum-bit-rate

Syntax maximum-bit-rate uplink *mbr-uplink-value* downlink *mbr-downlink-value*;

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name*]

Description Configure the MBR for uplink and downlink traffic.

The MBR specifies the total maximum bit rate (MBR) for all non-GBR bearers associated with a specific gateway or access point name (APN).

Default If you configure the **maximum-bit-rate** statement but do not specify MBR values for **uplink** and **downlink**, the default value is 0.

Options **mbr-uplink-value**—Specify the MBR value for the uplink direction.
Range: 1 through 256,000 kbps

mbr-downlink-value—Specify the MBR value for the downlink direction.
Range: 1 through 256,000 kbps

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-action-profiles on page 531
- guaranteed-bit-rate on page 524
- *Configuring Policy and Charging Control Action Profiles*

measurement-method (PCC Action Profiles)

Syntax measurement-method (volume | time | volume-time | event);

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* charging]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the usage measurement method used by the PCEF to support charging. The Online Charging System (OCS) provides credit management and grants credit to the PCEF based on volume, time, or both volume and time.

Default By default, if this statement is not configured, the volume-time measurement method is enabled.

Options

volume—Specify volume as the usage measurement method that the PCEF uses to support charging.

time—Specify time as the usage measurement method that the PCEF uses to support charging.

volume-time—Specify volume and time as the usage measurement method that the PCEF uses to support charging.

event—Specify event as the usage measurement method that the PCEF uses to support charging.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging on page 512
- *Configuring Policy and Charging Control Action Profiles*

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nested-applications (PCC Rules)

Syntax nested-applications [*application-name*];

Hierarchy Level [edit unified-edge pcef pcc-rules *rule-name* from]

Release Information Statement introduced in Junos OS Mobility Release 12.1W2.

Description A nested application is defined in the application-identification engine from the **[edit services application-identification]** hierarchy level. Specify one or more nested applications to define the match criteria for the Policy and Charging Control (PCC) rule. You can specify a maximum of 10 nested applications in a PCC rule.

NOTE: For any PCC rule, the subscriber must match the match conditions specified in a from statement. You must configure, at minimum, one flow identifier, application, application group, or nested application in the from statement of a PCC rule.

Options ***application-name***—Name of a nested application that is used to detect IP packet flows. The referenced nested application must be defined.

Range: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- from on page 522
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

no-send-to-ue

Syntax no-send-to-ue;

Hierarchy Level [edit unified-edge pcef flow-description *flow-identifier*]

Description Specify that signaling information about the service data flow (SDF) filter is not sent to the user equipment (UE).

Default By default, if this statement is not configured, signaling information about the SDF filter is sent to the UE.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- flow-descriptions on page 520
- *Configuring Service Data Flow Filters (Flow Identifiers)*

pcc-action-profile

Syntax pcc-action-profile *profile-name*;

Hierarchy Level [edit unified-edge pcef pcc-rules *rules-name* then]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description A **pcc-action-profile** statement specifies the name of the action profile to include in a Policy and Charging Control (PCC) rule configuration. The referenced action profile must be defined. The QoS, charging, and gating controls specified in the PCC action profile are applied to subscriber traffic that matches the SDF filters (flow identifiers) in the PCC rule.

Options **profile-name**—Name of the PCC action profile that the PCC rule references.

Range: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- pcc-rules on page 536
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

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pcc-action-profiles

Syntax

```
pcc-action-profiles profile-name {
  allocation-retention-priority {
    preemption-capability (enable | disable);
    preemption-vulnerability (enable | disable);
    priority-level value;
  }
  charging {
    application-function-record-info {
      af-charging-identifier identifier;
    }
    charging-method (online | offline | online-offline | none);
    gate-status (uplink | downlink | uplink-downlink | disable-both);
    guaranteed-bit-rate uplink value downlink value;
    maximum-bit-rate uplink value downlink value;
    measurement-method (volume | time | volume-time | event);
    rating-group number;
    service-identifier number;
    service-id-level-reporting;
  }
  qci value;
  }
}
```

Hierarchy Level

[edit unified-edge pcef]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

A Policy and Charging Control (PCC) action profile defines the quality-of-service (QoS) control, charging control, and gating status for a PCC rule. The policy and charging enforcement function (PCEF) maps one or more PCC rules to a bearer in the access network to provide the QoS, charging, and gating treatment for IP packets.

The remaining statements are explained separately.

Options

profile-name—Name of the PCC action profile.

Range: Up to 63 characters.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcef on page 537
- *Configuring Policy and Charging Control Action Profiles*
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

pcc-rule

Syntax [pcc-rule *rule-name* precedence *precedence*];

Hierarchy Level [edit unified-edge pcef pcc-rulebases *rulebase-name*]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Configure one or more Policy and Charging Control (PCC) rules and the rules precedence in a PCC rulebase.

Options **rule-name**—Name of the previously configured PCC rule.

NOTE: **The PCC rule must be previously configured at the [edit unified-edge pcef pcc-rules] hierarchy level.**

Range: Up to 63 characters.

number—A precedence value assigned to the PCC rule.

NOTE:

- **The precedence assigned must be unique among the configured PCC rules.**
- **The higher the precedence value the lower the precedence and vice-versa; for example, if a PCC rulebase has two PCC rules with precedence 5 and 10 respectively, the PCC rule with precedence 5 is evaluated first and then the PCC rule with precedence 10 is evaluated.**

Range: 1 through 65,535

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-rulebases (PCEF) on page 534
- pcc-rules (PCEF) on page 536
- *Configuring a Policy and Charging Control Rulebase*

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pcc-rulebases (PCEF Profile)

Syntax [pcc-rulebases *rulebase-name*];

Hierarchy Level [edit unified-edge pcef profiles *profile-name* dynamic-policy-control]
[edit unified-edge pcef profiles *profile-name* dynamic-policy-control failure-handling]
[edit unified-edge pcef profiles *profile-name* static-policy-control]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Configure a Policy and Charging Control (PCC) rulebase for a dynamic or static policy control profile.

NOTE: **The use of dynamic or static policy control is mutually exclusive. You can configure dynamic or static policy control for a profile, but not both.**

Options ***rulebase-name***—Name of the PCC rulebase. The referenced PCC rulebase must be defined.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- dynamic-policy-control on page 515
- static-policy-control on page 554
- *Configuring a Policy and Charging Control Rulebase*
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

pcc-rulebases (PCEF)

Syntax

```
pcc-rulebases rulebase-name {
   [pcc-rule rule-name precedence number];
}
```

Hierarchy Level

[edit unified-edge pcef]

Release Information

Statement introduced in Junos OS Release 12.1W.

Description

Configure a Policy and Charging Control (PCC) rulebase. You can specify from 1 to 4,000 rules in a rulebase.

The remaining statements are explained separately.

Options

rulebase-name—Name of the PCC rulebase.

Range: Up to 63 characters.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-rules on page 536
- *Configuring a Policy and Charging Control Rulebase*

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pcc-rules (PCEF Profile)

Syntax pcc-rules [*rule-name* precedence *precedence*];

Hierarchy Level [edit unified-edge pcef profiles *profile-name* dynamic-policy-control],
[edit unified-edge pcef profiles *profile-name* dynamic-policy-control failure-handling],
[edit unified-edge pcef profiles *profile-name* static-policy-control]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Specify the Policy and Charging Control (PCC) rules in a dynamic policy or static policy and assign a precedence to each PCC rule. You can configure up to 32 PCC rules in a PCEF profile.

NOTE: The use of dynamic or static policy control is mutually exclusive. You can configure dynamic or static policy control for a policy and charging enforcement function (PCEF) profile, but not both.

Options **rule-name**—Name of the previously configured PCC rule.

NOTE: The PCC rule must be previously configured at the **[edit unified-edge pcef pcc-rules]** hierarchy level.

number—A precedence value assigned to a PCC rule.

NOTE:

- The precedence assigned must be unique among the configured PCC rules.
- The higher the precedence value the lower the precedence and vice-versa; for example, if a PCC profile has two PCC rules with precedence 5 and 10 respectively, the PCC rule with precedence 5 is evaluated first and then the PCC rule with precedence 10 is evaluated.

Range: 1 through 65,535

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Policy and Charging Control Rulebase*
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*
- dynamic-policy-control on page 515

- failure-handling on page 519
- static-policy-control on page 554

pcc-rules (PCEF)

Syntax

```
pcc-rules rule-name {
  from {
    applications [application-name];
    application-groups [application-name];
    flows [flow-identifier];
    nested-applications [application-name];
  }
  then {
    pcc-action-profile profile-name;
  }
}
```

Hierarchy Level

[edit unified-edge pcef]

Release Information

Statement introduced in Junos OS Release 12.1W.

Description

Configure the Policy and Charging Control (PCC) rules. A PCC rule identifies the subscriber IP packets that are associated with a service data flow (SDF) and provides the quality-of-service (QoS) control, charging control, and gating status for a specified SDF. A PCC rule must include at least one flow identifier, application, or application group in the **from** statement and a PCC action profile in the **then** statement.

The remaining statements are explained separately.

Options

rule-name—Name of the PCC rule.

Range: Up to 63 characters.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcef on page 537
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

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pcef

Syntax

```
pcef {
  event-trigger-profiles profile-name {
    ip-can-change;
    plmn-change;
    rai-change;
    rat-change;
    sgsn-change;
    tft-change;
    ue-timezone-change;
    user-location-change;
    }
  }
  flow-descriptions flow-identifier {
    direction (uplink | downlink | both);
    local-port-range {
      low lower-boundary high upper-boundary;
    }
    local-ports number;
    no-send-to-ue;
    protocol number;
    remote-address;
    remote-port-range {
      low lower-boundary high upper-boundary;
    }
    remote-ports number;
  }
  pcc-action-profiles profile-name {
    allocation-retention-priority {
      preemption-capability (enable | disable);
      preemption-vulnerability (enable | disable);
      priority-level value;
    }
    charging {
      application-function-record-info {
        af-charging-identifier identifier;
      }
      charging-method (online |offline | online-offline | none);
      gate-status (uplink | downlink | uplink-downlink | disable-both);
      guaranteed-bit-rate uplink value downlink value;
      maximum-bit-rate uplink value downlink value;
      measurement-method (volume | time | volume-time | event);
      qci value;
      rating-group number;
      service-identifier number;
      service-id-level-reporting;
    }
  }
  pcc-rules rule-name {
    from {
      applications [application-name];
      application-groups [application-name];
      flows [flow-identifier];
```

```
        nested-applications [application-name ];
      }
      then {
        pcc-action-profiles profile-name;
      }
    }
    pcc-rulebases rulebase-name {
      [pcc-rule rule-name precedence number];
    }
    profiles profile-name {
      dynamic-policy-control {
        diameter-profile profile-name;
        event-trigger-profile profile-name;
        failure-handling {
          failure-action (continue | continue-and-retry | terminate);
          pcc-rules pcc-rule-name precedence precedence-number;
          pcc-rulebases pcc-rulebase-name;
        }
        pcc-rules {
          [rule-name precedence number];
        }
        pcc-rulebases {
          [rule-base-name];
        }
        release (r8 | r9);
        session-failover-not-supported;
      }
      static-policy-control {
        activate-dedicated-bearers [[qci-value]];
        pcc-rulebases [rulebase-name];
        pcc-rules {
          [rule-name precedence number];
        }
      }
    }
  }
```

Hierarchy Level [edit unified-edge]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description The configuration in this hierarchy determines the overall policy and control enforcement function (PCEF) configuration.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

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Related Documentation

- *Configuring a Policy and Charging Enforcement Function Profile for Dynamic Policies*
- *Configuring a Policy and Charging Enforcement Function Profile for Static Policies*
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*
- *Configuring a Policy and Charging Control Rulebase*
- *Configuring Event Trigger Profiles*
- *Policy and Charging Enforcement Function Overview*
- *Policy and Charging Control Rules Overview*

pcef (Services)

Syntax

```
pcef {
  profile profile-name;
}
```

Hierarchy Level

[edit services]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W2.

Description

Configure a policy and charging enforcement function (PCEF) service to be referenced in a service set.

The remaining statements are explained separately.

Options

profile-name—Name of the PCEF service profile.

Range: Up to 63 characters.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- service-set (Aggregated Multiservices) on page 638
- *Configuring Policy and Charging Enforcement Function Services for Application-Aware Traffic*

pcef-profile (Service Set)

Syntax pcef-profile *profile-name*;

Hierarchy Level [edit services service-set *service-set-name*]

Release Information Statement introduced in Junos OS Release 12.1W2.

Description Configure the PCEF parameters to be applied to the broadband gateway.

NOTE: The configuration in the **pcef-profile** statement is applicable only to PCEF on the services PIC.

Specifies the service to use as the application-aware PCEF service. The PCEF profile you specify in a service set must reference a PCEF profile configured at the **[edit services]** hierarchy level.

NOTE: The application-identification plugin and PCEF plugin must both be configured in the service set. The application-identification plugin is required for inspection of application-aware traffic, and the PCEF service uses the results of the inspection to apply policies (PCC rules) to subscriber traffic.

Options *profile-name*—The name of the PCEF plugin for policy and charging enforcement for all subscriber traffic.

Range: Up to 63 characters.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- service-set (Aggregated Multiservices) on page 638
- *Configuring Policy and Charging Enforcement Function Services for Application-Aware Traffic*

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preemption-capability

Syntax preemption-capability (enable | disable);

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* allocation-retention-priority]

Release Information Statement introduced in Junos OS Mobility Release 12.1W

Description Configure whether preemption capability should be enabled or disabled in the PCC action profile. Preemption aids in call admission control and enables the gateway to accommodate higher priority bearers over the lower priority bearers, based on the Preemption Capability Indicator (PCI) and Preemption Vulnerability Indicator (PVI).

Default If you do not configure this statement, preemption capability is enabled by default.

Options **enable**—Enable the preemption capability.

disable—Disable the preemption capability.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- allocation-retention-priority on page 509

  preemption-vulnerability on page 542
- *Configuring Policy and Charging Control Action Profiles*

preemption-vulnerability

Syntax preemption-vulnerability (enable | disable);

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* allocation-retention-priority]

Release Information Statement introduced in Junos OS Mobility Release 12.1W

Description Configure whether preemption vulnerability should be enabled or disabled in the PCC action profile. Preemption aids in call admission control and enables the gateway to accommodate higher priority bearers over the lower priority bearers, based on the Preemption Capability Indicator (PCI) and Preemption Vulnerability Indicator (PVI).

Default If you do not configure this statement, preemption vulnerability is enabled by default.

Options **enable**—Enable preemption vulnerability.

disable—Disable preemption vulnerability.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- allocation-retention-priority on page 509

  preemption-capability on page 541

- *Configuring Policy and Charging Control Action Profiles*

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priority-level (PCC Action Profiles)

Syntax priority-level *priority-value*;

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* allocation-retention-priority]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the allocation and retention priority (ARP) for the PCC action profile. This configuration is used in the establishment or modification of bearers when the bearer binding function (BBF) associates PCC rules with the bearers for a session.

Options **priority-value**—Allocation retention priority used in the establishment or modification of bearers.

NOTE: **You must specify a value for the priority-level statement.**

Range: 1 through 15

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- allocation-retention-priority on page 509
- *Configuring Policy and Charging Control Action Profiles*

profile (Services PCEF)

Syntax profile *profile-name*;

Hierarchy Level [edit services pcef]

Release Information Statement introduced in Junos OS Mobility Release 12.1W2.

Description Before you configure application-aware PCC rules for Layer 7 traffic, you must configure a policy and charging enforcement function (PCEF) profile as a service. A PCEF profile configured at the **[edit services pcef profile *profile-name*]** hierarchy level refers to a plugin that specifies and enables PCEF functionality on the Junos OS services plane.

Options ***profile-name***—The name of a PCEF profile.

Range: Up to 63 characters.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- pcef (Services) on page 539
- *Configuring Policy and Charging Enforcement Function Services for Application-Aware Traffic*

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profiles (PCEF)

Syntax

```
profiles profile-name {
  dynamic-policy-control {
    diameter-profile gx-profile-name;
    event-trigger-profile profile-name;
    pcc-rulebases [rulebase-name];
    pcc-rules {
      [rule-name precedence number];
    }
    release (r8 | r9);
    session-failover-not-supported;
  }
  static-policy-control {
    activate-dedicated-bearers [[qci-values]];
    pcc-rules {
      [rule-name precedence number];
    }
    pcc-rulebases [rulebase-name];
  }
}
```

Hierarchy Level [edit unified-edge pcef]

Release Information Statement introduced in Junos OS Release 12.1W.

Description A policy and charging enforcement function (PCEF) profile provides the overall PCEF configuration that can be applied to an APN or service-selection profile.

NOTE: You can configure either the **static-policy-control** statement or the **dynamic-policy-control** statement in a PCEF profile, but you cannot configure both statements in the same PCEF profile.

NOTE: When you configure the **dynamic-policy-control** statement in a PCEF profile, you must also specify a Diameter Gx profile from the **diameter-profile** statement.

You can configure a maximum of 32 Policy and Charging Control (PCC) rules in a PCEF profile. There is no limit to the number of PCC rulebases you can configure in a PCEF profile.

Options *profile-name*—Name of the PCEF profile.

Range: Up to 63 characters.

The remaining statements are explained separately.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- pcef on page 537
- *Configuring a Policy and Charging Enforcement Function Profile for Dynamic Policies*
- *Configuring a Policy and Charging Enforcement Function Profile for Static Policies*

protocol (Flow Descriptions)

Syntax
protocol *number*;

Hierarchy Level
[edit unified-edge pcef flow-description *flow-identifier*]

Description
Specify a protocol type to identify the subscriber traffic that the service data flow (SDF) filter will detect. If you specify the protocol statement, you must specify a protocol number.

Default
If you don't specify the protocol statement, the default is any protocol.

Options
number—A number that specifies the IP protocol type.
Range: 1 through 255

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- flow-descriptions on page 520
- *Configuring Service Data Flow Filters (Flow Identifiers)*

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qci (PCC Action Profiles)

Syntax qci *value*;

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Configure the QoS Class Identifier (QCI) to apply to a bearer when the bearer binding function associates the PCC rules (which references the PCC action profile) with a bearer. A QCI value must be specified.

Options **value**—The QCI value to apply to a bearer.
Range: 1 through 9

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- pcc-action-profiles on page 531
- *Configuring Policy and Charging Control Action Profiles*

rating-group (PCC Action Profile)

Syntax rating-group *number*;

Hierarchy Level [edit unified-edge pcef pcc-action-profile *profile-name* charging]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify a rating-group number for the PCC action profile. A rating-group number is associated with a charging trigger profile. A rating group represents a collection of services.

If the **rating-group** statement is not configured, the rating group is picked up from the APN charging configuration.

Options **number**—A number that identifies a particular rating group.
Range: 0 through 4,294,967,294

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- charging on page 512
- rating-group (Trigger Profile) on page 305
- *Configuring Policy and Charging Control Action Profiles*

release (PCEF Profile)

Syntax release (r8 | r9);

Hierarchy Level [edit unified-edge pcef profiles *profile-name* dynamic-policy-control]

Release Information Statement introduced in Junos OS Mobility Release 12.1W2.

Description Specify the release (Release 8 or Release 9) that the Gx interface uses at the PDN gateway (P-GW) so that the P-GW will receive only the Attribute Value Pairs (AVPs) compliant to the release version configured.

Options

r8—The P-GW sends one Supported Features AVP for Release 8 marked as Mandatory, ignores the Supported-Features AVP in the PCRF response, and behaves according to Release 8.

r9—The P-GW sends two Supported Features AVPs, one each for Release 8 and Release 9 responses, and both are marked as Mandatory. The P-GW ignores the Supported-Features AVP in the PCRF response, and behaves according to Release 9.

NOTE: **If neither option is specified, the P-GW sends Release 8 as mandatory, and Release 9 as optional, in the respective Supported Features AVPs. The P-GW will use the Supported-Features AVP in the response from the PCRF to determine which release to use.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- dynamic-policy-control on page 515
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

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remote-address

Syntax remote-address *ip-v4-address* | *ip-v6-address*;

Hierarchy Level [edit unified-edge pcef flow-description *flow-identifier*]

Release Information Statement introduced in Junos OS Release 12.1W.

Description Specify an IP address for the service data flow (SDF) filter.

Options **ipv4-address *address***—An IPv4 address.

ipv6-address *address*—An IPv6 address.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- flow-descriptions on page 520
- remote-ports on page 551
- *Configuring Service Data Flow Filters (Flow Identifiers)*

remote-port-range

Syntax

```
remote-port-range {
   low low-value;
   high high-value;
}
```

Hierarchy Level [edit unified-edge pcef flow-descriptions *flow-identifier*]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the remote port range to identify the subscriber traffic that the service data flow (SDF) filter will detect.

NOTE: You can specify either a remote port range or a list of remote ports, but not both.

Default If you do not configure the **remote-port-range** statement, the default is any remote port range.

Options

low-value— Lower boundary for the remote port range.

Range: 1 through 65,535

high-value — Upper boundary for the remote port range.

Range: 1 through 65,535

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- flow-descriptions on page 520
- remote-ports on page 551
- *Configuring Service Data Flow Filters (Flow Identifiers)*

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remote-ports

Syntax remote-ports *number*;

Hierarchy Level [edit unified-edge pcef flow-description *flow-identifier*]

Description Specify a remote port or list of remote ports to identify the subscriber traffic that the service data flow (SDF) filter will detect.

NOTE: **You can specify either a list of remote ports or a remote port range, but not both.**

Default If you don't configure the **remote-port** statement, the default is any remote port.

Options **number**—A port number or list of port numbers. You can specify a maximum of three port numbers in a list.

Range: 1 through 65,535

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- flow-descriptions on page 520
- remote-port-range on page 550
- *Configuring Service Data Flow Filters (Flow Identifiers)*

service-identifier

Syntax service-identifier *number*;

Hierarchy Level [edit unified-edge pcef pcc-action-profile *profile-name* charging]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify a service identifier in a Policy and Charging Control (PCC) action profile that identifies a service.

Options **number**—A number that identifies a particular service.
Range: 0 through 4,294,967,294

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- charging on page 512
- *Configuring Policy and Charging Control Action Profiles*

service-id-level-reporting

Syntax service-id-level-reporting;

Hierarchy Level [edit unified-edge pcef pcc-action-profiles *profile-name* charging]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description When the **service-id-level-reporting** statement is configured, the policy and charging enforcement function (PCEF) reports usage at the service ID level to the Online Charging System (OCS). If **service-id-level-reporting** is not configured, then usage is reported at the Rating Group level to the OCS.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- charging on page 512
- *Configuring Policy and Charging Control Action Profiles*

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session-failover-not-supported (PCEF Profiles)

Syntax session-failover-not-supported;

Hierarchy Level [edit unified-edge pcef profiles *profile-name* dynamic-policy-control]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that online charging sessions should not fail over to an alternate server.

Default If you do not include the **session-failover-not-supported** statement, the failover of online charging sessions to an alternate server is enabled by default. The alternate server is selected based on the configuration in the Diameter profile that is associated with the transport profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- dynamic-policy-control on page 515
- *Configuring a Policy and Charging Enforcement Function Profile for Dynamic Policies*
- *Configuring a Policy and Charging Enforcement Function Profile for Static Policies*

static-policy-control

Syntax

```
static-policy-control {
  pcc-rules {
    [rule-name precedence number];
  }
  pcc-rulebases {
    [rulebase-name];
  }
  activate-dedicated-bearers [qci-value];
}
```

Hierarchy Level

[edit unified-edge pcef profiles *profile-name*]

Release Information

Statement introduced in Junos OS Release 12.1W.

Description

Configure static policy control for the Policy and Charging Control (PCC) rules or PCC rulebase in a policy and charging enforcement function (PCEF) profile. You can configure a maximum of 32 PCC rules in a PCEF profile. There is no limit to the number of PCC rulebases you can configure in a PCEF profile.

NOTE: If you configure the **static-policy-control** statement for a PCEF profile, then you cannot configure the **dynamic-policy-control** statement in the same profile.

Options

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- profiles on page 545
- dynamic-policy-control on page 515
- *Configuring a Policy and Charging Enforcement Function Profile for Static Policies*
- *Configuring a Policy and Charging Enforcement Function Profile for Dynamic Policies*

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then (PCC Rules)

Syntax

```
then {
  pcc-action-profiles profile-name;
}
```

Hierarchy Level

[edit unified-edge pcef pcc-rules *rule-name*]

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

A **then** statement specifies the actions to be taken if the service data flow (SDF) filters in the **from** statement are matched. The actions specified in the Policy and Charging Control (PCC) action profile are applied to subscriber traffic that matches the SDF filters. A PCC rule configuration must include the **then** statement and a PCC action profile.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- pcc-rules on page 536
- *Configuring Layer 3 and Layer 4 Policy and Charging Control Rules*

traceoptions (PCEF)

Syntax

```
traceoptions {
   file file-name <files number> <no-word-readable | world-readable> <size size>; flag flag;
   level (all | critical | error | info | notice | verbose | warning);
   no-remote-trace;
}
```

Hierarchy Level [edit unified-edge pcef]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify tracing options for policy and charging enforcement functions (PCEF).

Options

file *file-name*—Name of the file to receive the output of the tracing operation.

files *number*—(Optional) Maximum number of trace files. When a trace file named trace-file reaches its maximum size, it is renamed trace-file.0, then trace-file.1, and so on, until the maximum number of trace files is reached. Then the oldest trace file is overwritten.

Range: 2 through 1000 files

Default: 3 files

flag *flag*—Specify which operations are to be traced. To specify more than one operation, include multiple flag statements.

CAUTION: **You might want to enable traceoptions only when you want to debug specific charging operations. Enabling the traceoption flags might have an impact on the system performance.**

- **all**—Trace all operations.
- **config**—Trace configuration events.
- **debug**—Trace debug internal events.
- **fsm**—Trace finite state machine events.
- **general**—Trace general events that do not fit in any specific traces.
- **high-availability**—Trace high-availability events.
- **init**—Trace initialization events.
- **tftmgr**—Trace tftmgr events.

level—Level of tracing to perform. You can specify any of the following levels:

- **all**—Match all levels.
- **critical**—Match critical conditions.

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- **error**—Match error conditions.
- **info**—Match informational messages
- **notice**—Match conditions that must be handled specially.
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

no-remote-trace—(Optional) Disable remote tracing.

no-world-readable—(Optional) Disable unrestricted file access.

size *size*—(Optional) Maximum size of each trace file, in kilobytes (KB) or megabytes (MB). When a trace file named trace-file reaches this size, it is renamed trace-file.0. When the trace-file again reaches its maximum size, trace-file.0 is renamed trace-file.1 and trace-file is renamed trace-file.0. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten. If you specify a maximum number of files, you must also specify a maximum file size with the size option.

Syntax: *xk* to specify KB, *xm* to specify MB, or *xg* to specify GB.

Range: 10,240 through 1,073,741,824 bytes

Default: 128 KB

word-readable—(Optional) Enable unrestricted file access.

Required Privilege Level

trace and unified-edge—To view this statement in the configuration.
trace-control and unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Tracing PCEF Operations*
- pcef on page 537

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CHAPTER 15

Quality of Service (QoS) Configuration Statements

aggregated-qos-control (CoS Policy Profiles)

Syntax

```
aggregated-qos-control {
  maximum-bit-rate-downlink {
    mbr-downlink;
    reject;
    upgrade;
  }
  maximum-bit-rate-uplink {
    mbr-uplink;
    reject;
    upgrade;
  }
}
```

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name*]

Description Configure the aggregate maximum bit rate (AMBR) for uplink and downlink traffic.

The AMBR specifies the total maximum bit rate for all non-GBR bearers (4G) associated with an IP Connectivity Access Network (IP-CAN) session. A bearer request that specifies a higher AMBR than the configured value is downgraded by default.

The remaining statements are explained separately.

Default If you do not configure this statement, then the requested AMBR is accepted by the gateway.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Class of Service (CoS) Policy Profile Overview*
- cos-policy-profiles on page 573

allocation-retention-priority (CoS Policy Profiles)

Syntax

```
allocation-retention-priority {
   priority-value;
   reject;
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W. **reject** statement added in Junos OS Mobility Release 11.4W.

Description

Configure the allocation and retention priority (ARP) for the class of service (CoS) policy profile. This configuration is primarily used to determine whether the establishment or modification of PDP contexts (3G) or bearers (4G) are accepted or rejected.

Create PDP Context requests and Create Session requests with priority value numerically greater than the configured priority value are accepted, and requests with numerically lower value are downgraded to the configured value.

Default

If this statement is not included, then the broadband gateway uses the ARP value sent in the Create PDP Context Request or Create Session Request message.

Options

priority-value—Specify the priority level for the PDP context or bearer.

Range: 1 through 15

reject—Specify that PDP contexts or bearers with priority level numerically lower than configured value are rejected.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Class of Service (CoS) Policy Profile Overview*
- *Configuring QoS on the Broadband Gateway Overview*
- cos-policy-profiles on page 573
- *Quality of Service Overview*

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anchor-pfe-default-bearers-percentage (Serving Gateway)

Syntax anchor-pfe-default-bearers-percentage *default-bearers-percentage*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of Evolved Packet System (EPS) default bearers allowed for each anchor Packet Forwarding Engine on the Serving Gateway (S-GW). This value is specified as a percentage of the maximum number of EPS default bearers allowed for an anchor Packet Forwarding Engine.

Options ***default-bearers-percentage***—Maximum number of EPS default bearers per anchor Packet Forwarding Engine, specified as a percentage of the maximum number of EPS default bearers or allowed.

Range: 10 through 100 percent

Default: 100 percent, which indicates that there is no restriction on the maximum number of EPS default bearers admitted on an anchor Packet Forwarding Engine. The only limitation is that the total number of bearers admitted on the anchor Packet Forwarding Engine cannot exceed the maximum number of bearers allowed for an anchor Packet Forwarding Engine.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- anchor-pfe-guaranteed-bandwidth (Serving Gateway) on page 562
- anchor-pfe-maximum-bearers (Serving Gateway) on page 563
- *Configuring S-GW-Specific CAC Parameters*

anchor-pfe-guaranteed-bandwidth (Serving Gateway)

Syntax anchor-pfe-guaranteed-bandwidth *anchor-pfe-guaranteed-bandwidth*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the guaranteed bandwidth for each anchor Packet Forwarding Engine on the Serving Gateway (S-GW). This value limits the bandwidth available to guaranteed bit rate (GBR) bearers on an anchor Packet Forwarding Engine, which in turn limits the number of GBR bearers that can be created on an anchor Packet Forwarding Engine.

NOTE: **Configuring a value that is more than the actual physical bandwidth of the anchor Packet Forwarding Engine results in oversubscription; in this scenario only a best-effort service can be provided.**

Options ***anchor-pfe-guaranteed-bandwidth*** —Guaranteed bandwidth per anchor Packet Forwarding Engine.

Range: 10 through 100 gigabits per second (Gbps)

Default: 40 Gbps

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- anchor-pfe-default-bearers-percentage (Serving Gateway) on page 561
- anchor-pfe-maximum-bearers (Serving Gateway) on page 563
- *Configuring S-GW-Specific CAC Parameters*

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anchor-pfe-maximum-bearers (Serving Gateway)

Syntax anchor-pfe-maximum-bearers *maximum-bearers*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the maximum number of Evolved Packet System (EPS) bearers, both default and dedicated, allowed for each anchor Packet Forwarding Engine on the Serving Gateway (S-GW).

Options ***maximum-bearers***—Maximum number of EPS bearers, in multiples of one thousand, per anchor Packet Forwarding Engine.

Range: 100 through 510,000 bearers

Default: 510,000 bearers

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- anchor-pfe-default-bearers-percentage (Serving Gateway) on page 561
- anchor-pfe-guaranteed-bandwidth (Serving Gateway) on page 562
- *Configuring S-GW-Specific CAC Parameters*

bearers-load (Resource Threshold Profiles)

Syntax

```
bearers-load {
  high {
    percentage percentage;
    priority-level priority-level;
  }
  low {
    percentage percentage;
    priority-level priority-level;
  }
}
```

Hierarchy Level

[edit unified-edge cos-cac resource-threshold-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the lower and upper limits for the bearer load in the resource threshold profile. The bearer load specifies a precise level of admission control when the bearer load reaches a configured lower or upper threshold.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Configuring Resource Thresholds for 3G and 4G Networks*
- resource-threshold-profiles (QoS) on page 620

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classifier-profile (Local Policies)

Syntax classifier-profile *profile-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the classifier profile for home subscribers. A classifier profile defines the packet forwarding treatment for each bearer depending on its QoS Class Identifiers (QCIs).

Options ***profile-name***—Name of the classifier profile.

NOTE: **The classifier policy profile must be previously configured on the broadband gateway at the [edit unified-edge cos-cac classifier-profiles] hierarchy level.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- classifier-profiles on page 566
- local-policies (QoS) on page 597

classifier-profiles

Syntax

```
classifier-profiles {
  name {
    description description;
    qos-class-identifier qci-value {
      forwarding-class class-name;
      loss-priority (high | low);
    }
  }
}
```

Hierarchy Level [edit unified-edge cos-cac]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure a QoS classifier profile, which defines the packet forwarding treatment for each bearer (for the broadband gateway) depending on its QoS Class Identifiers (QCIs). The QCI is associated with priority, delay, and packet loss values.

Default If you do not configure the classifier profile, then no classification is done based on the mobile CoS parameters.

Options *name*—Name of the classifier profile.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Classifier Profile for 3G and 4G Networks*
- *Configuring QoS on the Broadband Gateway Overview*
- cos-cac on page 569
- *Quality of Service Overview*

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class-of-service (MobileNext Broadband Gateway)

Syntax

```
class-of-service {
  interfaces {
    mif. number {
      unit logical-unit-number {
        ingress-rewrite-rules {
          [dscp (rewrite-rule-name | default)];
          [dscp-ipv6 (rewrite-rule-name | default)];
          [inet-precedence (rewrite-rule-name | default)];
          }
        }
        rewrite-rules {
          [dscp (rewrite-rule-name | default)] {
            protocol [(gtp-inet-both | gtp-inet-outer)];
          }
          [dscp-ipv6 (rewrite-rule-name | default)] {
            protocol [(mpls | gtp-inet-both | gtp-inet-outer)];
          }
          [inet-precedence (rewrite-rule-name | default)] {
            protocol [(gtp-inet-both | gtp-inet-outer)];
          }
        }
      }
    }
  }
}
```

Hierarchy Level [edit]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the class of service (CoS) for the 3GPP support for the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW). At the first instance, you must configure the ingress and egress rewrite rules to set the value of the CoS bits within the IP header of upstream and downstream subscriber packets received on the mobile interface. Later, you must apply the ingress and egress rewrite rules to the mobile interface to set CoS values for upstream and downstream packets. Within ingress and egress, you can specify rewrite rules for DSCP v4, DSCP v6, or IP precedence values.

NOTE: **For the S-GW, the configuration at the mobile interface level does not apply. Instead, class of service is configured on Junos OS interfaces.**

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- [edit class-of-service] Hierarchy Level on page 6
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- *Applying Ingress Rewrite Rules to a Mobile Interface*
- *Configuring QoS on the Broadband Gateway Overview*

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cos-cac

Syntax

```
cos-cac {
  classifier-profiles {
    name {
      description description;
      qos-class-identifier qci-value {
        forwarding-class class-name;
        loss-priority (high | low);
      }
    }
  }
  cos-policy-profiles {
    name {
      aggregated-qos-control {
        maximum-bit-rate-downlink {
          mbr-downlink;
          reject;
          upgrade;
        }
        maximum-bit-rate-uplink {
          mbr-uplink;
          reject;
          upgrade;
        }
      }
      allocation-retention-priority {
        priority-value;
        reject;
      }
      default-bearer-qci {
        qci-value;
        reject;
        upgrade;
      }
      description description;
      pdp-qos-control {
        guaranteed-bit-rate-downlink {
          gbr-downlink;
          reject;
          upgrade;
        }
        guaranteed-bit-rate-uplink {
          gbr-uplink;
          reject;
          upgrade;
        }
        maximum-bit-rate-downlink {
          mbr-downlink;
          reject;
          upgrade;
        }
        maximum-bit-rate-uplink {
          mbr-uplink;
```

```
            reject;
            upgrade;
          }
          qci qci-value {
            maximum-bit-rate-downlink {
              mbr-downlink;
              reject;
              upgrade;
            }
            maximum-bit-rate-uplink {
              mbr-uplink;
              reject;
              upgrade;
            }
          }
        }
        policer-action {
          gbr-bearer {
            exceed-action (drop | transmit);
            violate-action (set-loss-priority-high | transmit);
          }
          non-gbr-bearer {
            violate-action (set-loss-priority-high | transmit);
          }
        }
      }
    }
    gbr-bandwidth-pools {
      name {
        downgrade-gtp-v1-gbr-bearers;
        maximum-bandwidth maximum-bandwidth;
      }
    }
    resource-threshold-profiles {
      name {
        bearers-load {
          high {
            percentage percentage;
            priority-level priority-level;
          }
          low {
            percentage percentage;
            priority-level priority-level;
          }
        }
        cpu {
          high {
            percentage percentage;
            priority-level priority-level;
          }
          low {
            percentage percentage;
            priority-level priority-level;
          }
        }
        description description;
```


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```
            memory {
              high {
                percentage percentage;
                priority-level priority-level;
              }
              low {
                percentage percentage;
                priority-level priority-level;
              }
            }
          }
        }
      }
```

Hierarchy Level [edit unified-edge]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the set of parameters for the class of service (CoS) call admission control (CAC).

Call admission control on the broadband gateway ensures that the required network resources are available for real-time data traffic such as voice and video. Call admission control maintains information about all resources available on the broadband gateway and resources that have been allocated to bearers.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge cos-cac] Hierarchy Level on page 13
- *Configuring QoS on the Broadband Gateway Overview*
- *Call Admission Control Overview*
- *Class of Service (CoS) Policy Profile Overview*
- *Policing Subscriber Traffic on the Broadband Gateway Overview*
- *Quality of Service Overview*

cos-policy-profile (Local Policies)

Syntax cos-policy-profile *profile-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the class-of-service (CoS) policy profile for home subscribers. You configure a CoS policy profile to define policies for limiting, upgrading, or rejecting calls based on the requested QoS parameters.

Options ***profile-name***—Name of the CoS policy profile name.

NOTE: **The CoS policy profile must be previously configured on the broadband gateway at the [edit unified-edge cos-cac cos-policy-profiles] hierarchy level.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- cos-policy-profiles on page 573
- local-policies (QoS) on page 597

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cos-policy-profiles

Syntax

```
cos-policy-profiles {
  name {
    aggregated-qos-control {
      maximum-bit-rate-downlink {
        mbr-downlink;
        reject;
        upgrade;
      }
      maximum-bit-rate-uplink {
        mbr-uplink;
        reject;
        upgrade;
      }
    }
    allocation-retention-priority {
      priority-value;
      reject;
    }
    default-bearer-qci {
      qci-value;
      reject;
      upgrade;
    }
    description description;
    pdp-qos-control {
      guaranteed-bit-rate-downlink {
        gbr-downlink;
        reject;
        upgrade;
      }
      guaranteed-bit-rate-uplink {
        gbr-uplink;
        reject;
        upgrade;
      }
      maximum-bit-rate-downlink {
        mbr-downlink;
        reject;
        upgrade;
      }
      maximum-bit-rate-uplink {
        mbr-uplink;
        reject;
        upgrade;
      }
      qci qci-value {
        maximum-bit-rate-downlink {
          mbr-downlink;
          reject;
          upgrade;
        }
        maximum-bit-rate-uplink {
```

```
            mbr-uplink;
            reject;
            upgrade;
          }
        }
      }
      policer-action {
        gbr-bearer {
          exceed-action (drop | transmit);
          violate-action (set-loss-priority-high | transmit);
        }
        non-gbr-bearer {
          violate-action (set-loss-priority-high | transmit);
        }
      }
    }
}
```

Hierarchy Level [edit unified-edge cos-cac]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Define the policies for limiting, upgrading, or rejecting calls based on the requested QoS parameters. For a 3G network, the CoS policy profile defines the highest traffic class that can be accepted at an APN or gateway level, the maximum bit rate and guaranteed bit rate for bearers, and the allocation and retention priority. For a 4G network, the CoS policy profile defines the highest QoS Class Identifier (QCI) value that can be accepted at the APN level or gateway level, the aggregated maximum bit rate (AMBR) for default bearers, and the priority level.

Options *name*—Name of the CoS policy profile.

Range: Up to 64 characters

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge cos-cac] Hierarchy Level on page 13
- *Call Admission Control Overview*
- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- *Configuring QoS on the Broadband Gateway Overview*

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cpu (Resource Threshold Profiles)

Syntax

```
cpu {
  high {
    percentage percentage;
    priority-level priority-level;
  }
  low {
    percentage percentage;
    priority-level priority-level;
  }
}
```

Hierarchy Level

[edit unified-edge cos-cac resource-threshold-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the lower and upper limits for the CPU load (at the session PIC level) in the resource threshold profile. The CPU load specifies a precise level of admission control when the CPU load for a session PIC reaches a configured lower or upper threshold.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Configuring Resource Thresholds for 3G and 4G Networks*
- resource-threshold-profiles (QoS) on page 620

default-bearer-qci (CoS Policy Profiles)

Syntax

```
default-bearer-qci {
   qci-value;
   reject;
   upgrade;
}
```

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name*]

Description Configure the QoS Class Identifier (QCI) for default bearers. Table 10 on page 576 explains the different configuration scenarios for this statement.

Table 10: default-bearer-qci Configuration Scenarios

Scenario	Behavior
Only ***qci-value*** configured	Create PDP Context Requests and Create Session Requests with QCI values numerically greater than or equal to the configured QCI value are accepted, and requests numerically lower than the configured QCI are downgraded to the configured QCI.
qci-value and **reject** configured	Create PDP Context Requests and Create Session Requests with QCI values numerically greater than or equal to the configured QCI value are accepted, and requests numerically lower than the configured QCI are rejected.
qci-value and **upgrade** configured	Create PDP Context Requests and Create Session Requests with QCI values numerically greater than the configured QCI value are upgraded to the configured QCI, and requests numerically lower than configured QCI are downgraded to the configured QCI.
qci-value, **reject** and **upgrade** configured	Create PDP Context Requests and Create Session Requests with QCI values numerically greater than the configured QCI value are upgraded to the configured QCI, and requests numerically lower than configured QCI are rejected.

Default If this statement is not included, then the broadband gateway accepts the QCI value in the Create PDP Context Request or Create Session Request message.

Options ***qci-value***—Specify the QCI value for the default bearer.

NOTE: **If you configure the default-bearer-qci statement, then you must specify the QCI value.**

Range: 5 through 9

reject—Specify that default bearers with QCI value numerically lower than the specified QCI are rejected.

upgrade—Specify that the configured QCI value is enforced for the default bearers.

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Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Call Admission Control Overview*
- *Class of Service (CoS) Policy Profile Overview*
- *Configuring QoS on the Broadband Gateway Overview*
- cos-policy-profiles on page 573
- *Quality of Service Overview*

description (Class of Service)

Syntax
description *description*;

Hierarchy Level
[edit unified-edge cos-cac classifier-profiles *name*],
[edit unified-edge cos-cac cos-policy-profiles *name*],
[edit unified-edge cos-cac resource-threshold-profiles *name*],
[edit unified-edge local-policies *name*],

Description
Enter a description for the classifier profile, QoS policy profile, resource threshold profile, or the local policy.

Options
description—Description.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- classifier-profiles on page 566
- cos-policy-profiles on page 573
- local-policies (QoS) on page 597
- resource-threshold-profiles (QoS) on page 620

dl-bandwidth-pool (Local Policies)

Syntax dl-bandwidth-pool *pool-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the bandwidth pool for limiting the downlink bandwidth usage at the gateway or at the APN level.

Options ***pool-name***—Name of the downlink bandwidth pool.

NOTE: **The bandwidth pool must be previously configured on the broadband gateway at the [edit unified-edge cos-cac gbr-bandwidth-pools] hierarchy level.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- gbr-bandwidth-pools (Class of Service) on page 586
- local-policies (QoS) on page 597

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downgrade-gtp-v1-gbr-bearers (Guaranteed Bit Rate Bandwidth Pools)

Syntax downgrade-gtp-v1-gbr-bearers;

Hierarchy Level [edit unified-edge cos-cac gbr-bandwidth-pools *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that the broadband gateway configured as a GPRS support node (GGSN) should downgrade the traffic class of GTPv1 guaranteed bit rate (GBR) packet data protocol (PDP) contexts to background traffic class. When the bandwidth requested by the PDP contexts is greater than available maximum bandwidth in the pool, then the gateway downgrades the traffic class of GTPv1 GBR PDP contexts.

NOTE: **This configuration is applicable only when the Gx interface is not available; it is used only for the creation of primary PDP contexts.**

Default If you do not include this statement, then Create or Modify PDP Context Requests are rejected when the bandwidth requested by the PDP contexts is greater than the available maximum bandwidth in the pool.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Configuring Bandwidth Pools*
- *Configuring QoS on the Broadband Gateway Overview*
- gbr-bandwidth-pools (Class of Service) on page 586

dscp-ipv6 (Egress Rewrite Rules)

Syntax

```
[dscp-ipv6 (rewrite-rule-name | default)] {
  protocol [(mpls | gtp-inet-both | gtp-inet-outer)];
}
```

Hierarchy Level

[edit class-of-service interfaces mif unit *interface-unit-number* rewrite-rules]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the DiffServ code point (DSCP) IPv6 egress rewrite rule for the mobile interface. The rewrite rule changes the DSCP IPv6 value in the IP header of downstream (Gi to Gn or SGi to S5 traffic) subscriber packets. The rewrite rule can be applied to the inner IP header, the outer IP header, or both inner and outer IP header.

Options

rewrite-rule-name—Name of the rewrite rule.

NOTE: **The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules dscp-ipv6] hierarchy level.**

default—Apply the default rewrite rule.

The remaining statement is explained separately

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Egress Rewrite Rules to Mobile Interfaces*
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- rewrite-rules (Egress) on page 622

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dscp-ipv6 (Ingress Rewrite Rules)

Syntax [dscp-ipv6 (*rewrite-rule-name* | default)];

Hierarchy Level [edit class-of-service interfaces mif unit *interface-unit-number* ingress-rewrite-rules]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the DiffServ code point (DSCP) IPv6 ingress rewrite rule for the mobile interface. The rewrite rule changes the DSCP IPv6 value only in the outer IP header of upstream (Gn to Gi or S5 to SGi traffic) subscriber packets.

Options ***rewrite-rule-name***——Name of the rewrite rule.

NOTE: **The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules dscp-ipv6] hierarchy level.**

default—Apply the default rewrite rule.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Ingress Rewrite Rules to a Mobile Interface*
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- ingress-rewrite-rules on page 595

dscp (Egress Rewrite Rules)

Syntax

```
[dscp (rewrite-rule-name | default)] {
  protocol [(gtp-inet-both | gtp-inet-outer)];
}
```

Hierarchy Level

[edit class-of-service interfaces mif unit *interface-unit-number* rewrite-rules]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the DiffServ code point (DSCP) egress rewrite rule for the mobile interface. The rewrite rule changes the DSCP value in the IP header of downstream (Gi to Gn or SGi to S5 traffic) subscriber packets. The rewrite rule can be applied to the inner IP header, the outer IP header, or both the inner and outer IP headers.

Options

rewrite-rule-name—Name of the rewrite rule.

NOTE: **The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules dscp] hierarchy level.**

default—Apply the default rewrite rule.

The remaining statement is explained separately

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Egress Rewrite Rules to Mobile Interfaces*
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- rewrite-rules (Egress) on page 622

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dscp (Ingress Rewrite Rules)

Syntax [dscp (*rewrite-rule-name* | default)];

Hierarchy Level [edit class-of-service interfaces mif unit *interface-unit-number* ingress-rewrite-rules]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the DiffServ code point (DSCP) ingress rewrite rule for the mobile interface. The rewrite rule changes the DSCP value only in the outer IP header of upstream (Gn to Gi or S5 to SGi traffic) subscriber packets.

Options ***rewrite-rule-name***—Name of the rewrite rule.

NOTE: **The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules dscp] hierarchy level.**

default—Apply the default rewrite rule.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Ingress Rewrite Rules to a Mobile Interface*
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- ingress-rewrite-rules on page 595

exceed-action (QoS Policer Action)

Syntax exceed-action (drop | transmit);

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name* policer-action gbr-bearer]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the policer action that is applied when the subscriber traffic exceeds the configured guaranteed bit rate (GBR) for GBR PDP contexts. The policer action controls packet behavior by setting the packet loss priority (PLP) to high, transmitting the packet without changing the PLP, or by dropping the packet.

Default If you do not include this statement, then the default action is to set the PLP to high.

Options **drop**—Drop the packet.

transmit—Transmit the packet without changing the PLP.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Policing Subscriber Traffic on the Broadband Gateway Overview*
- gbr-bearer (QoS Policer Action) on page 587

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forwarding-class (QoS Class Identifier)

Syntax forwarding-class *class-name*;

Hierarchy Level [edit unified-edge cos-cac classifier-profiles *name* qos-class-identifier]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the forwarding class associated with the QoS Class Identifier (QCI) for the QoS classifier profile.

NOTE: **If you specify a QCI value, you must specify the forwarding class.**

Options ***class-name***—Specify the forwarding class name; for example, assured-forwarding or best-effort.

Range: Up to 64 characters

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Classifier Profile for 3G and 4G Networks*
- *Configuring QoS on the Broadband Gateway Overview*
- qos-class-identifier (Classifier Profiles) on page 619
- *Quality of Service Overview*

gbr-bandwidth-pools (Class of Service)

Syntax

```
gbr-bandwidth-pools {
  name {
    downgrade-gtp-v1-gbr-bearers;
    maximum-bandwidth maximum-bandwidth;
  }
}
```

Hierarchy Level [edit unified-edge cos-cac]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the bandwidth pools for guaranteed bit rate (GBR) PDP contexts class-of-service call admission control (CoS-CAC) on the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

A GBR bandwidth pool limits the number of GBR packet data protocol (PDP) contexts that can be supported on the GGSN or P-GW, at the gateway level or the access point name (APN) level. Configuring a GBR bandwidth pool provides sufficient bandwidth for PDP contexts to be created or modified. Call admission control (CAC) uses the GBR bandwidth pools to negotiate and reserve bandwidth for PDP contexts with a guaranteed bit rate.

Options *name*—Name of the GBR bandwidth pool that can be attached, via the local policy, to the APN or gateway.

Range: Up to 64 characters

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Configuring Bandwidth Pools*
- *Configuring QoS on the Broadband Gateway Overview*
- cos-cac on page 569

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gbr-bearer (QoS Policer Action)

Syntax

```
gbr-bearer {
  exceed-action (drop | transmit);
  violate-action (set-loss-priority-high | transmit);
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name* policer-action]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify the policer action that is applied when the subscriber traffic exceeds the GBR or MBR for GBR PDP contexts. You can specify the policer action for the following:

- When traffic exceeds the configured GBR for PDP contexts.
- When the traffic exceeds the configured maximum bit rate (MBR) in a 3G network.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Policing Subscriber Traffic on the Broadband Gateway Overview*
- policer-action (CoS Policy Profiles) on page 614

guaranteed-bit-rate-downlink (PDP QoS Control)

Syntax

```
guaranteed-bit-rate-downlink {
  gbr-downlink;
  reject;
  upgrade;
}
```

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control]

Description Configure the guaranteed bit rate (GBR) for downlink traffic for Packet Data Protocol (PDP) contexts (3G).

The GBR defines the minimum bit rate that is expected to be available to the PDP context when required. This means that a certain amount of bandwidth is always reserved for the PDP context, regardless of whether the GBR is used or not. Therefore, a PDP context with a GBR always takes up resources even when there is no traffic.

Table 11 on page 588 explains the different configuration scenarios for this statement.

Table 11: guaranteed-bit-rate-downlink Configuration Scenarios

Scenario	Behavior
Only ***gbr-downlink*** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are accepted, and requests greater than the configured GBR are downgraded to the configured GBR and accepted.
gbr-downlink and **reject** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are accepted, and requests greater than the configured GBR are rejected.
gbr-downlink and **upgrade** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are upgraded to the configured GBR, and requests greater than the configured GBR are downgraded to the configured GBR and accepted.
gbr-downlink, **reject** and **upgrade** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are upgraded to the configured GBR, and requests greater than the configured GBR are rejected.

Options ***gbr-downlink***—Specify the GBR in the downlink direction.

NOTE: **If you configure the guaranteed-bit-rate-downlink statement, then you must specify the GBR value in the downlink direction.**

Range: 1 through 256,000 kbps

reject—Specify that PDP contexts higher than the specified downlink GBR are rejected.

upgrade—Specify that the configured GBR value is applied to the PDP context.

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Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- pdp-qos-control (CoS Policy Profiles) on page 613

guaranteed-bit-rate-uplink (PDP QoS Control)

Syntax

```
guaranteed-bit-rate-uplink {
  gbr-uplink;
  reject;
  upgrade;
}
```

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control]

Description Configure the guaranteed bit rate (GBR) for uplink traffic for Packet Data Protocol (PDP) contexts (3G).

The GBR defines the minimum bit rate that is expected to be available to the PDP context when required. This means that a certain amount of bandwidth is always reserved for the PDP context, regardless of whether the GBR is used or not. Therefore, a PDP context with a GBR always takes up resources even when there is no traffic.

Table 12 on page 590 explains the different configuration scenarios for this statement.

Table 12: guaranteed-bit-rate-downlink Configuration Scenarios

Scenario	Behavior
Only ***gbr-uplink*** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are accepted, and requests greater than the configured GBR are downgraded to the configured GBR and accepted.
gbr-uplink and **reject** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are accepted, and requests greater than the configured GBR are rejected.
gbr-uplink and **upgrade** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are upgraded to the configured GBR, and requests greater than the configured GBR are downgraded to the configured GBR and accepted.
gbr-uplink, **reject** and **upgrade** configured	Create PDP Context Requests with GBR lesser than or equal to the configured GBR value are upgraded to the configured GBR, and requests greater than the configured GBR are rejected.

Options ***gbr-uplink***—Specify the GBR in the uplink direction.

NOTE: **If you configure the guaranteed-bit-rate-uplink statement, then you must specify the GBR value in the uplink direction.**

Range: 1 through 256,000 kbps

reject—Specify that PDP contexts higher than the specified uplink GBR are rejected.

upgrade—Specify that PDP contexts higher than the specified uplink GBR are upgraded.

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Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- pdp-qos-control (CoS Policy Profiles) on page 613

high (Resource Threshold Profiles)

Syntax

```
high {
   percentage percentage;
   priority-level priority-level;
}
```

Hierarchy Level

[edit unified-edge cos-cac resource-threshold-profiles *name* bearers-load],
[edit unified-edge cos-cac resource-threshold-profiles *name* cpu],
[edit unified-edge cos-cac resource-threshold-profiles *name* memory]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the upper threshold limit for the bearer load, CPU load, or memory load. You can specify the upper threshold limit as a percentage of the maximum threshold.

When the bearer load, CPU load, or memory load exceeds the corresponding specified threshold percentage, then only Create Session requests or Create Bearer (Serving Gateway only) requests equal to or higher than the specified priority level are accepted.

Default

If you do not include this statement, then the following defaults apply:

- Upper limit of 85 percent and priority level of 5 for bearer load or CPU load
- Upper limit of 90 percent and priority level of 5 for memory load

Options

percentage *percentage*—Upper limit (in percent) of the maximum resource threshold.

NOTE: **If you include the high statement, then the upper limit must be specified.**

Range: 1 through 100

priority-level *priority-level*—Upper limit bearer priority level.

Range: 1 through 15

Default: 5

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- bearers-load (Resource Threshold Profiles) on page 564
- cpu (Resource Threshold Profiles) on page 575
- memory (Resource Threshold Profiles) on page 610

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inet-precedence (Egress Rewrite Rules)

Syntax

```
[inet-precedence (rewrite-rule-name | default)] {
  protocol [(gtp-inet-both | gtp-inet-outer)];
}
```

Hierarchy Level

[edit class-of-service interfaces mif unit *interface-unit-number* rewrite-rules]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the IP precedence egress rewrite rule for the mobile interface. The rewrite rule changes the IP precedence value in the IP header of downstream (Gi to Gn or SGi to S5 traffic) subscriber packets. The rewrite rule can be applied to the inner IP header, the outer IP header, or both inner and outer IP header.

Options

rewrite-rule-name—Name of the rewrite rule.

NOTE: The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules inet-precedence] hierarchy level.

default—Apply the default rewrite rule.

The remaining statement is explained separately

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Egress Rewrite Rules to Mobile Interfaces*
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- rewrite-rules (Egress) on page 622

inet-precedence (Ingress Rewrite Rules)

Syntax [inet-precedence (*rewrite-rule-name* | default)];

Hierarchy Level [edit class-of-service interfaces mif unit *interface-unit-number* ingress-rewrite-rules]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the IP precedence ingress rewrite rule for the mobile interface. The rewrite rule changes the IP precedence value only in the outer IP header of upstream (Gn to Gi or S5 to SGi traffic) subscriber packets .

Options ***rewrite-rule-name***—Name of the rewrite rule.

NOTE: **The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules inet-precedence] hierarchy level.**

default—Apply the default rewrite rule.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Ingress Rewrite Rules to a Mobile Interface*
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- ingress-rewrite-rules on page 595

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ingress-rewrite-rules

Syntax

```
ingress-rewrite-rules {
   [dscp (rewrite-rule-name | default)];
   [dscp-ipv6 (rewrite-rule-name | default)];
   [inet-precedence (rewrite-rule-name | default)];
   }
}
```

Hierarchy Level

[edit class-of-service interfaces mif unit *logical-unit-number*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Apply a previously configured ingress rewrite rule to the mobile interface. The rewrite rule is applied to upstream (Gn to Gi or S5 to SGi traffic) subscriber packets at the mobile interface and rewrites only into the outer IP header of the subscriber packet.

NOTE: The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules] hierarchy level.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Ingress Rewrite Rules to a Mobile Interface*
- *Applying Rewrite Rules on Mobile Interfaces Overview*
- unit (Mobile Interface for Class of Service) on page 626

interfaces (Class of Service)

Syntax

```
interfaces {
  mif. number {
    unit logical-unit-number {
      ingress-rewrite-rules {
        [dscp (rewrite-rule-name | default)];
        [dscp-ipv6 (rewrite-rule-name | default)];
        [inet-precedence (rewrite-rule-name | default)];
        }
      }
      rewrite-rules {
        [dscp (rewrite-rule-name | default)] {
          protocol [(gtp-inet-both | gtp-inet-outer)];
        }
        [dscp-ipv6 (rewrite-rule-name | default)] {
          protocol [(mpls | gtp-inet-both | gtp-inet-outer)];
        }
        [inet-precedence (rewrite-rule-name | default)] {
          protocol [(gtp-inet-both | gtp-inet-outer)];
        }
      }
    }
  }
}
```

Hierarchy Level

[edit class-of-service]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the mobile interfaces to set the CoS values for upstream and downstream subscriber packets.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Rewrite Rules on Mobile Interfaces Overview*
- *Applying Ingress Rewrite Rules to a Mobile Interface*
- class-of-service (MobileNext Broadband Gateway) on page 567

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local-policies (QoS)

Syntax

```
local-policies {
  policy-name {
    cos-policy-profile name;
    classifier-profile name;
    description description;
    dl-bandwidth-pool name;
    resource-threshold-profile name;
    roamer-classifier-profile name;
    roamer-cos-policy-profile name;
    ul-bandwidth-pool name;
    visitor-classifier-profile  name;
    visitor-cos-policy-profile name;
  }
}
```

Hierarchy Level

[edit unified-edge]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the local policy, which defines the quality of service (QoS) to be applied at the gateway level or at the access point name (APN) level for the broadband gateway. A local policy applied at the APN level takes priority over a local policy applied at the gateway level. A local policy defines traffic by classes and specifies the different levels of throughput and packet loss when congestion occurs.

The remaining statements are explained separately.

Options

policy-name—Name of the local policy.

Range: Up to 64 characters

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge local-policies] Hierarchy Level on page 38
- *Configuring QoS on the Broadband Gateway Overview*

local-policy-profile (Broadband Gateway)

Syntax local-policy-profile *local-policy-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify a local policy profile for the broadband gateway.

- For the broadband gateway configured as a gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW), the local policy profile is a combination of the quality-of-service (QoS) policy (**cos-policy-profile**), the classifier policy (**classifier-profile**), and the resource threshold policy (**resource-threshold-policy**).
- For the broadband gateway configured as a Serving Gateway (S-GW), the local policy profile is a combination of the classifier policy (**classifier-profile**) and the resource threshold policy (**resource-threshold-policy**).

NOTE: **The local policy profile must already be configured at the [edit unified-edge] hierarchy level.**

Options ***local-policy-profile***—Name of the local policy profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- local-policy-profile (APN) on page 168 (P-GW only)

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loss-priority (QoS Class Identifier)

Syntax loss-priority (high | low);

Hierarchy Level [edit unified-edge cos-cac classifier-profiles *name* qos-class-identifier]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the packet loss priority associated with the QoS Class Identifier (QCI) for the QoS classifier profile.

NOTE: **If you specify a QCI value, you must specify the packet loss priority.**

Options

high—Set the packet loss priority to high, which means that means that packets are more susceptible to being dropped.

low—Set the packet loss priority to low, which means that means that packets are less susceptible to being dropped.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Classifier Profile for 3G and 4G Networks*
- *Configuring QoS on the Broadband Gateway Overview*
- qos-class-identifier (Classifier Profiles) on page 619
- *Quality of Service Overview*

low (Resource Threshold Profiles)

Syntax

```
low {
   percentage percentage;
   priority-level priority-level;
}
```

Hierarchy Level

[edit unified-edge cos-cac resource-threshold-profiles *name* bearers-load],
[edit unified-edge cos-cac resource-threshold-profiles *name* cpu],
[edit unified-edge cos-cac resource-threshold-profiles *name* memory]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the lower threshold limit for the bearer load, CPU load, or memory load. You can specify the lower threshold limit as a the percentage of the maximum threshold.

When the bearer load, CPU load, or memory load exceeds the corresponding specified threshold percentage, then only Create Session requests or Create Bearer (Serving Gateway only) requests equal to or higher than the specified priority level are accepted.

Default

If you do not include this statement, then the following defaults apply:

- Lower limit of 70 percent and priority level of 10 for bearer load or CPU load
- Lower limit of 80 percent and priority level of 10 for memory load

Options

percentage *percentage*—Lower limit (in percent) of the maximum resource threshold.

NOTE: **If you include the low statement, then the lower limit must be specified.**

Range: 1 through 100

priority-level *priority-level*—Lower limit bearer priority level.

Range: 1 through 15

Default: 10

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- bearers-load (Resource Threshold Profiles) on page 564
- cpu (Resource Threshold Profiles) on page 575
- memory (Resource Threshold Profiles) on page 610

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maximum-bandwidth (Guaranteed Bit Rate Bandwidth Pools)

Syntax maximum-bandwidth *maximum-bandwidth*;

Hierarchy Level [edit unified-edge cos-cac gbr-bandwidth-pools *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the total maximum bandwidth for the guaranteed bit rate (GBR) bandwidth pool on the broadband gateway.

NOTE: **If you configure a GBR bandwidth pool, then you must configure the total maximum bandwidth.**

Options ***maximum-bandwidth***—Total maximum bandwidth, in megabits per second (Mbps), of the maximum bandwidth pool.

Range: 1000 through 500,000 Mbps

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Configuring Bandwidth Pools*
- *Configuring QoS on the Broadband Gateway Overview*
- gbr-bandwidth-pools (Class of Service) on page 586

maximum-bearers (Broadband Gateway)

Syntax maximum-bearers *maximum-bearers*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description For the broadband gateway configured as a gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW), configure the maximum number of Evolved Packet System (EPS) bearers or packet data protocol (PDP) contexts allowed.

For the broadband gateway configured as a Serving Gateway (S-GW), configure the maximum number of EPS bearers allowed.

Options ***maximum-bearers***—Maximum number of bearers for the broadband gateway.

Range: 100,000 through 12,000,000 bearers

Default: 12,000,000 bearers

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Maximum Number of Bearers*
- maximum-bearers (APN) on page 170 (P-GW only)

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maximum-bit-rate-downlink (Aggregated QoS Control)

Syntax

```
maximum-bit-rate-downlink {
  mbr-downlink;
  reject;
  upgrade;
}
```

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name* aggregated-qos-control]

Description Configure the aggregate maximum bit rate (AMBR) for downlink traffic.

The AMBR specifies the total maximum bit rate (MBR) for all non-GBR bearers (4G) associated with a specific gateway or access point name (APN). Table 13 on page 603 explains the different configuration scenarios for this statement.

Table 13: maximum-bit-rate-downlink Configuration Scenarios

Scenario	Behavior
Only ***mbr-downlink*** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are accepted, and requests greater than the configured AMBR are downgraded to the configured AMBR and accepted.
mbr-downlink and **reject** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are accepted, and requests greater than the configured AMBR are rejected.
mbr-downlink and **upgrade** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are upgraded to the configured AMBR, and requests greater than the configured AMBR are downgraded to the configured AMBR and accepted.
mbr-downlink, **reject** and **upgrade** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are upgraded to the configured AMBR, and requests greater than the configured AMBR are rejected.

Options ***mbr-downlink***—Specify the MBR in the downlink direction.

NOTE: **If you configure the maximum-bit-rate-downlink statement, then you must specify the MBR value in the downlink direction.**

Range: 1 through 256,000 kbps

reject—Specify that bearers higher than the specified downlink MBR are rejected.

upgrade—Specify that the configured MBR value is applied to the bearer.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- aggregated-qos-control (CoS Policy Profiles) on page 559

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maximum-bit-rate-downlink (PDP QoS Control)

Syntax

```
maximum-bit-rate-downlink {
  mbr-downlink;
  reject;
  upgrade;
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control],
[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control qci *qci-value*]

Description

Configure the maximum bit rate (MBR) for downlink traffic for Packet Data Protocol (PDP) contexts (3G).

The MBR defines the maximum bit rate that is expected to be available to the PDP context when required. The MBR limits the bit rate that is provided to a PDP context.

Table 14 on page 605 explains the different configuration scenarios for this statement.

Table 14: maximum-bit-rate-downlink Configuration Scenarios

Scenario	Behavior
Only ***mbr-downlink*** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are accepted, and requests greater than the configured MBR are downgraded to the configured MBR and accepted.
mbr-downlink and **reject** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are accepted, and requests greater than the configured MBR are rejected.
mbr-downlink and **upgrade** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are upgraded to the configured MBR, and requests greater than the configured MBR are downgraded to the configured MBR and accepted.
mbr-downlink, **reject** and **upgrade** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are upgraded to the configured MBR, and requests greater than the configured MBR are rejected.

NOTE: The configuration at the **[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control qci *qci-value*]** hierarchy level takes precedence over the configuration at the **[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control]** hierarchy level.

Options

mbr-downlink—Specify the MBR in the downlink direction.

NOTE: If you configure the **maximum-bit-rate-downlink** statement, then you must specify the MBR value in the downlink direction.

Range: 1 through 256,000 kbps

reject—Specify that PDP contexts higher than the specified downlink MBR are rejected.

upgrade—Specify that the configured MBR value is applied to PDP contexts.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- pdp-qos-control (CoS Policy Profiles) on page 613
- qci (PDP QoS Control) on page 618

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maximum-bit-rate-uplink (Aggregated QoS Control)

Syntax

```
maximum-bit-rate-uplink {
  mbr-uplink;
  reject;
  upgrade;
}
```

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name* aggregated-qos-control]

Description Configure the aggregate maximum bit rate (AMBR) for uplink traffic.

The AMBR specifies the total maximum bit rate (MBR) for all non-GBR bearers (4G) associated with a specific gateway or access point name (APN). Table 15 on page 607 explains the different configuration scenarios for this statement.

Table 15: maximum-bit-rate-uplink Configuration Scenarios

Scenario	Behavior
Only ***mbr-uplink*** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are accepted, and requests greater than the configured AMBR are downgraded to the configured AMBR and accepted.
mbr-uplink and **reject** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are accepted, and requests greater than the configured AMBR are rejected.
mbr-uplink and **upgrade** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are upgraded to the configured AMBR, and requests greater than the configured AMBR are downgraded to the configured AMBR and accepted.
mbr-uplink, **reject** and **upgrade** configured	Create Session Requests with AMBR lesser than or equal to the configured AMBR value are upgraded to the configured AMBR, and requests greater than the configured AMBR are rejected.

Options ***mbr-uplink***—Specify the MBR in the uplink direction.

NOTE: **If you configure the maximum-bit-rate-uplink statement, then you must specify the MBR value in the uplink direction.**

Range: 1 through 256,000 kbps

reject—Specify that bearers higher than the specified uplink MBR are rejected.

upgrade—Specify that the configured MBR value is applied to the bearer.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- aggregated-qos-control (CoS Policy Profiles) on page 559

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maximum-bit-rate-uplink (PDP QoS Control)

Syntax

```
maximum-bit-rate-uplink {
  mbr-uplink;
  reject;
  upgrade;
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control],
[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control qci *qci-value*]

Description

Configure the maximum bit rate (MBR) for uplink traffic for Packet Data Protocol (PDP) contexts.

The MBR defines the maximum bit rate that is expected to be available to the PDP context when required. The MBR limits the bit rate that is provided to a PDP context.

Table 16 on page 609 explains the different configuration scenarios for this statement.

Table 16: maximum-bit-rate-uplink Configuration Scenarios

Scenario	Behavior
Only ***mbr-uplink*** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are accepted, and requests greater than the configured MBR are downgraded to the configured MBR and accepted.
mbr-uplink and **reject** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are accepted, and requests greater than the configured MBR are rejected.
mbr-uplink and **upgrade** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are upgraded to the configured MBR, and requests greater than the configured MBR are downgraded to the configured MBR and accepted.
mbr-uplink, **reject** and **upgrade** configured	Create PDP Context Requests with MBR lesser than or equal to the configured MBR value are upgraded to the configured MBR, and requests greater than the configured MBR are rejected.

NOTE: The configuration at the **[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control qci *qci-value*]** hierarchy level takes precedence over the configuration at the **[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control]** hierarchy level.

Options

mbr-uplink—Specify the MBR in the uplink direction.

NOTE: If you configure the **maximum-bit-rate-uplink** statement, then you must specify the MBR value in the uplink direction.

Range: 1 through 256,000 kbps

reject—Specify that PDP contexts higher than the specified uplink MBR are rejected.

upgrade—Specify that the configured MBR value is applied to PDP contexts.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- pdp-qos-control (CoS Policy Profiles) on page 613
- qci (PDP QoS Control) on page 618

memory (Resource Threshold Profiles)

Syntax

```
memory {
  high {
    percentage percentage;
    priority-level priority-level;
  }
  low {
    percentage percentage;
    priority-level priority-level;
  }
}
```

Hierarchy Level

[edit unified-edge cos-cac resource-threshold-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the lower and upper limits for the memory load or utilization (at the session PIC level) in the resource threshold profile. The memory load specifies a precise level of admission control when the memory load or utilization for a session PIC reaches a configured lower or upper threshold.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Configuring Resource Thresholds for 3G and 4G Networks*
- resource-threshold-profiles (QoS) on page 620

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mif (Class of Service)

Syntax

```
mif {
  unit logical-unit-number {
    ingress-rewrite-rules {
      [dscp (rewrite-rule-name | default)];
      [dscp-ipv6 (rewrite-rule-name | default)];
      [inet-precedence (rewrite-rule-name | default)];
      }
    }
    rewrite-rules {
      [dscp (rewrite-rule-name | default)] {
        protocol [(gtp-inet-both | gtp-inet-outer)];
      }
      [dscp-ipv6 (rewrite-rule-name | default)] {
        protocol [(mpls | gtp-inet-both | gtp-inet-outer)];
      }
      [inet-precedence (rewrite-rule-name | default)] {
        protocol [(gtp-inet-both | gtp-inet-outer)];
      }
    }
  }
}
```

Hierarchy Level

[edit class-of-service interfaces]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the mobile interface for applying ingress and egress rewrite rules to upstream and downstream subscriber packets.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Rewrite Rules on Mobile Interfaces Overview*
- *Applying Ingress Rewrite Rules to a Mobile Interface*
- interfaces (Class of Service) on page 596

non-gbr-bearer (QoS Policer Action)

Syntax

```
non-gbr-bearer {
  violate-action (set-loss-priority-high | transmit);
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name* policer-action]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify the policer action that is applied when the subscriber traffic exceeds the MBR rate for non-GBR PDP contexts (3G) or AMBR for non-GBR bearers (4G). You can specify the policer action to take when the traffic exceeds the configured maximum bit rate (MBR) in a 3G network, or when the traffic the exceeds the configured aggregate maximum bit rate (AMBR) in a 4G network.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Policing Subscriber Traffic on the Broadband Gateway Overview*
- policer-action (CoS Policy Profiles) on page 614

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pdp-qos-control (CoS Policy Profiles)

Syntax

```
pdp-qos-control {
  guaranteed-bit-rate-downlink {
    gbr-downlink;
    reject;
    upgrade;
  }
  guaranteed-bit-rate-uplink {
    gbr-uplink;
    reject;
    upgrade;
  }
  maximum-bit-rate-downlink {
    mbr-downlink;
    reject;
    upgrade;
  }
  maximum-bit-rate-uplink {
    mbr-uplink;
    reject;
    upgrade;
  }
  qci qci-value {
    maximum-bit-rate-downlink {
      mbr-downlink;
      reject;
      upgrade;
    }
    maximum-bit-rate-uplink {
      mbr-uplink;
      reject;
      upgrade;
    }
  }
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name*]

Description

Configure the QoS parameters for Packet Data Protocol (PDP) contexts (3G). You can configure the guaranteed bit rate (GBR) and maximum bit rate (MBR) for both uplink and downlink traffic applicable to all QCI values. You can also configure the MBR for a specific QCI value, which takes precedence over the configuration at the higher (**[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control]**) hierarchy level.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Configuring a CoS Policy Profile for 3G and 4G Networks*

- *Configuring a CoS Policy Profile for 3G Networks*
- *Configuring a CoS Policy Profile for 4G Networks*
- *Quality of Service Overview*
- cos-policy-profiles on page 573

policer-action (CoS Policy Profiles)

Syntax

```
policer-action {
  gbr-bearer {
    exceed-action (drop | transmit);
    violate-action (set-loss-priority-high | transmit);
  }
  non-gbr-bearer {
    violate-action (set-loss-priority-high | transmit);
  }
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name*]

Description

Configure the policer actions that are applied when the subscriber traffic exceeds the maximum or guaranteed bit rates. The broadband gateway uses a two-rate policer to enforce bandwidth rates for subscriber traffic.

NOTE: This configuration is applicable only for the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Policing Subscriber Traffic on the Broadband Gateway Overview*
- cos-policy-profiles on page 573

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preemption (GGSN or P-GW)

Syntax

```
preemption {
   enable;
   gtpv1-pci-disable;
   gtpv1-pvi-disable;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure whether preemption should be enabled or disabled on the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW). Preemption aids in call admission control and enables the gateway to accommodate higher priority bearers over the lower priority ones, based on the Preemption Capability Indicator (PCI) and Preemption Vulnerability Indicator (PVI).

The PCI value defines whether a bearer with a lower priority level (PL) should be dropped to free the resources required. The PVI value defines whether a bearer is liable to be dropped in favor of a preemption-capable bearer with a higher priority level value.

Preemption can be applied based on bearer load or memory load, both of which can be configured at the **[edit unified-edge cos-cac resource-threshold-profiles]** hierarchy level.

NOTE: **The gtpv1-pci and gtpv1-pvi values are valid only for General Packet Radio Service (GPRS) tunneling protocol version 1 (GTPv1) subscribers.**

Options

enable—Enable preemption on the GGSN or P-GW.

If you do not specify a value, preemption is disabled by default.

gtpv1-pci-disable—Disable the preemption capability indicator for GTPv1 subscribers.

If you do not specify a value, the preemption capability indicator is enabled by default.

gtpv1-pvi-disable—Disable the preemption vulnerability indicator for GTPv1 subscribers.

If you do not specify a value, the preemption vulnerability indicator is enabled by default.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring Preemption for Call Admission Control*
- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17

preemption (Serving Gateway)

Syntax

```
preemption {
   enable;
}
```

Hierarchy Level

[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Configure whether preemption should be enabled or disabled on the Serving Gateway (S-GW). Preemption aids in call admission control and enables the gateway to accommodate higher priority bearers over the lower priority ones, based on the Preemption Capability Indicator (PCI) and Preemption Vulnerability Indicator (PVI).

The PCI value defines whether a bearer with a lower priority level (PL) should be dropped to free the resources required. The PVI value defines whether a bearer is liable to be dropped in favor of a preemption-capable bearer with a higher priority level value.

Preemption can be applied based on bearer load or memory load, both of which can be configured at the **[edit unified-edge cos-cac resource-threshold-profiles]** hierarchy level.

NOTE: In the S-GW, only bearers that are of the same type can preempt each other: guaranteed bit rate (GBR) bearers can preempt only GBR bearers, and non-GBR bearers can preempt only non-GBR bearers.

Default

If you do not configure this statement, preemption is disabled by default.

Options

enable—Enable preemption on the S-GW.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring an S-GW on a Broadband Gateway*
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29

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protocol (Egress Rewrite Rules)

Syntax protocol [*protocol-type*];

Hierarchy Level [edit class-of-service interfaces mif unit *interface-unit-number* rewrite-rules dscp],
[edit class-of-service interfaces mif unit *interface-unit-number* rewrite-rules dscp-ipv6],
[edit class-of-service interfaces mif unit *interface-unit-number* rewrite-rules inet-precedence]

Description Specify where the egress rewrite rule should be applied to downstream (Gi to Gn or S5 to SGi traffic) subscriber packets.

Default If this statement is not configured, then the egress rewrite rules are applied to the inner IP header only.

Options ***protocol-type***—Apply the rewrite rule to one or more of the following:

- **mpls**—(DSCP IPv6 only) IPv6 packets entering the MPLS tunnel.
- **gtp-inet-outer**—Outer IP header only.
- **gtp-inet-both**—Both inner and outer IP header.

To specify multiple attributes at one time, include the attributes in square brackets ([]).

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Rewrite Rules on Mobile Interfaces Overview*
- *Applying Ingress Rewrite Rules to a Mobile Interface*
- dscp (Egress Rewrite Rules) on page 582
- dscp-ipv6 (Egress Rewrite Rules) on page 580
- inet-precedence (Egress Rewrite Rules) on page 593

qci (PDP QoS Control)

Syntax

```
qci qci-value {
  maximum-bit-rate-downlink {
    mbr-downlink;
    reject;
    upgrade;
  }
  maximum-bit-rate-uplink {
    mbr-uplink;
    reject;
    upgrade;
  }
}
```

Hierarchy Level

[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control]

Description

Configure the maximum bit rate (MBR) for both uplink and downlink for QoS Class Identifier (QCI) values for non-guaranteed bit rate (GBR) Packet Data Protocol (PDP) contexts (3G).

The uplink and downlink MBR specified for the QCI value overrides the corresponding uplink and downlink MBR at the **[edit unified-edge cos-cac cos-policy-profiles *name* pdp-qos-control]** hierarchy level.

Options

qci-value—QCI value.

Range: 5 through 9

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Class of Service (CoS) Policy Profile Overview*
- *Quality of Service Overview*
- pdp-qos-control (CoS Policy Profiles) on page 613

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qos-class-identifier (Classifier Profiles)

Syntax

```
qos-class-identifier qci-value {
  forwarding-class class-name;
  loss-priority (high | low);
}
```

Hierarchy Level

[edit unified-edge cos-cac classifier-profiles *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the QoS Class Identifier (QCI) mapping for the classifier profile. You can configure the QCI value and the associated forwarding class and packet loss priority based on traffic requirements. You can configure the packet-forwarding treatment by assigning a forwarding class and packet loss priority for each QCI.

NOTE: **If you specify a QCI value, you must specify the forwarding class and the packet loss priority.**

Options

qci-value—QCI value.

Range: 1 through 9

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Classifier Profile for 3G and 4G Networks*
- *Configuring QoS on the Broadband Gateway Overview*
- classifier-profiles on page 566
- *Quality of Service Overview*

resource-threshold-profiles (QoS)

Syntax

```
resource-threshold-profiles {
  name {
    bearers-load {
      high {
        percentage percentage;
        priority-level priority-level;
      }
      low {
        percentage percentage;
        priority-level priority-level;
      }
    }
    cpu {
      high {
        percentage percentage;
        priority-level priority-level;
      }
      low {
        percentage percentage;
        priority-level priority-level;
      }
    }
    description description;
    memory {
      high {
        percentage percentage;
        priority-level priority-level;
      }
      low {
        percentage percentage;
        priority-level priority-level;
      }
    }
  }
}
```

Hierarchy Level [edit unified-edge cos-cac]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the resource threshold profile. The resource threshold profile ensures that when the bearer load, CPU load, or memory load at the access point name (APN) or the gateway level on the broadband gateway reaches a specified threshold, then only Create Session requests or Create Bearer (Serving Gateway only) requests with a priority higher than what is configured are allowed.

NOTE: Even though the configuration of resource threshold profiles is not mandatory, the default values for the upper and lower threshold limits for various loads are applied at the gateway level. There are no defaults at the APN level.

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Options *name*—Name of the resource threshold profile.

Range: Up to 64 characters

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Call Admission Control Overview*
- *Configuring Resource Thresholds for 3G and 4G Networks*
- cos-cac on page 569

resource-threshold-profile (Local Policies)

Syntax resource-threshold-profile *profile-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the resource threshold profile for the local policy. The resource threshold profile specifies the limit for the bearer load, CPU load, or memory load.

Options *profile-name*—Name of the resource threshold profile.

NOTE: The resource threshold profile must be previously configured on the broadband gateway at the [edit unified-edge cos-cac resource-threshold-profiles] hierarchy level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- resource-threshold-profiles (QoS) on page 620
- local-policies (QoS) on page 597

rewrite-rules (Egress)

Syntax

```
rewrite-rules {
  [dscp (rewrite-rule-name | default)] {
    protocol [(gtp-inet-both | gtp-inet-outer)];
  }
  [dscp-ipv6 (rewrite-rule-name | default)] {
    protocol [(mpls | gtp-inet-both | gtp-inet-outer)];
  }
  [inet-precedence (rewrite-rule-name | default)] {
    protocol [(gtp-inet-both | gtp-inet-outer)];
  }
}
```

Hierarchy Level

[edit class-of-service interfaces mif unit *logical-unit-number*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Apply a previously configured egress rewrite rule to the mobile interface. The rewrite rule is applied to the downstream (Gi to Gn or SGi to S5 traffic) subscriber packets. The rewrite rule can be applied to the inner IP header, the outer IP header, or both inner and outer IP header.

NOTE: The rewrite rule must be previously defined at the [edit class-of-service rewrite-rules] hierarchy level.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Applying Rewrite Rules on Mobile Interfaces Overview*
- *Applying Egress Rewrite Rules to Mobile Interfaces*
- unit (Mobile Interface for Class of Service) on page 626

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roamer-classifier-profile (Local Policies)

Syntax roamer-classifier-profile *profile-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the classifier profile for roaming subscribers. A classifier profile defines the packet forwarding treatment for each bearer depending on its QoS Class Identifiers (QCIs).

Options ***profile-name***—Name of the roamer classifier profile.

NOTE: The classifier policy profile must be previously configured on the broadband gateway at the [edit unified-edge cos-cac classifier-profiles] hierarchy level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- classifier-profiles on page 566
- local-policies (QoS) on page 597

roamer-cos-policy-profile (Local Policies)

Syntax roamer-cos-policy-profile *profile-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the CoS policy profile for roaming subscribers. You configure a CoS policy profile to define policies for limiting, upgrading, or rejecting calls based on the requested QoS parameters.

Options ***profile-name***—Name of the roamer CoS policy profile.

NOTE: The CoS policy profile must be previously configured on the broadband gateway at the [edit unified-edge cos-cac cos-policy-profiles] hierarchy level.

Required Privilege Level interface, unified-edge—To view this statement in the configuration.
interface-control, unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- cos-policy-profiles on page 573
- local-policies (QoS) on page 597

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ul-bandwidth-pool (Local Policies)

Syntax ul-bandwidth-pool *pool-name* ;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the bandwidth pool for limiting the downlink bandwidth usage at the gateway or at the APN level.

Options ***pool-name***—Name of the uplink bandwidth pool.

NOTE: **The bandwidth pool must be previously configured on the broadband gateway at the [edit unified-edge cos-cac gbr-bandwidth-pools] hierarchy level.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- gbr-bandwidth-pools (Class of Service) on page 586
- local-policies (QoS) on page 597

unit (Mobile Interface for Class of Service)

Syntax

```
unit logical-unit-number {
  ingress-rewrite-rules {
    [dscp (rewrite-rule-name | default)];
    [dscp-ipv6 (rewrite-rule-name | default)];
    [inet-precedence (rewrite-rule-name | default)];
    }
  }
  rewrite-rules {
    [dscp (rewrite-rule-name | default)] {
      protocol [(gtp-inet-both | gtp-inet-outer)];
    }
    [dscp-ipv6 (rewrite-rule-name | default)] {
      protocol [(mpls | gtp-inet-both | gtp-inet-outer)];
    }
    [inet-precedence (rewrite-rule-name | default)] {
      protocol [(gtp-inet-both | gtp-inet-outer)];
    }
  }
}
```

Hierarchy Level

[edit class-of-service interfaces mif]

Description

Specify a logical interface on the physical device. You must configure a logical interface to be able to use the physical device.

Options

logical-unit-number—Number of the logical unit

Range: 0 through 16,384

The remaining statements are explained separately.

Required Privilege Level

Related Documentation

- *Applying Rewrite Rules on Mobile Interfaces Overview*
- *Applying Ingress Rewrite Rules to a Mobile Interface*
- mif (Class of Service) on page 611

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violate-action (QoS Policer Action)

Syntax violate-action (set-loss-priority-high | transmit);

Hierarchy Level [edit unified-edge cos-cac cos-policy-profiles *name* policer-action gbr-bearer],
[edit unified-edge cos-cac cos-policy-profiles *name* policer-action non-gbr-bearer]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the policer action that is applied when the subscriber traffic exceeds the configured maximum bit rate (MBR) in a 3G network, or when the traffic the exceeds the configured aggregate maximum bit rate (AMBR) in a 4G network. The policer action controls packet behavior by dropping the packet, setting the packet loss priority (PLP) to high, or transmitting the packet without changing the PLP.

You can configure this policer action for both guaranteed bit rate (GBR) PDP contexts, and non-GBR bearers or PDP contexts.

Default If you do not include this statement, then the default action is to drop the packet.

Options **set-loss-priority-high**—Set the PLP to high.

transmit—Transmit the packet without changing the PLP.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring QoS on the Broadband Gateway Overview*
- gbr-bearer (QoS Policer Action) on page 587
- non-gbr-bearer (QoS Policer Action) on page 612

visitor-classifier-profile (Local Policies)

Syntax visitor-classifier-profile *profile-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the classifier profile for visiting subscribers. A classifier profile defines the packet forwarding treatment for each bearer depending on its QoS Class Identifiers (QCIs).

Options ***profile-name***—Name of the visitor classifier profile.

NOTE: The classifier policy profile must be previously configured on the broadband gateway at the [edit unified-edge cos-cac classifier-profiles] hierarchy level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- classifier-profiles on page 566
- local-policies (QoS) on page 597

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visitor-cos-policy-profile (Local Policies)

Syntax visitor-cos-policy-profile *profile-name*;

Hierarchy Level [edit unified-edge local-policies *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the CoS policy profile for visiting subscribers. You configure a CoS policy profile to define policies for limiting, upgrading, or rejecting calls based on the requested QoS parameters.

Options ***profile-name***—Name of the visitor CoS policy profile.

NOTE: **The CoS policy profile must be previously configured on the broadband gateway at the [edit unified-edge cos-cac cos-policy-profiles] hierarchy level.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Local Policy*
- *Configuring QoS on the Broadband Gateway Overview*
- cos-policy-profiles on page 573
- local-policies (QoS) on page 597

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CHAPTER 16

Service Applications Configuration Statements

egress-key (Aggregated Multiservices)

Syntax egress-key (destination-ip | source-ip);

Hierarchy Level [edit services service-set *service-set-name* interface-service load-balancing-options hash-keys]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the hash keys to be used in the egress flow direction. The configuration is mandatory if you are using AMS for Network Address Translation (NAT). This configuration is not mandatory if you are using AMS for stateful firewall; if the hash keys are not configured, then the defaults are chosen. (See hash-keys (Aggregated Multiservices) for more information.)

Options The following hash keys can be configured in the egress direction:

destination-ip—Use the destination IP address of the flow to compute the hash used in load balancing.

source-ip—Use the source IP address of the flow to compute the hash used in load balancing.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- hash-keys (Aggregated Multiservices) on page 632

hash-keys (Aggregated Multiservices)

Syntax

```
hash-keys {
  egress-key (destination-ip | source-ip);
  ingress-key (destination-ip | source-ip);
  resource-triggered;
}
```

Hierarchy Level [edit services service-set *service-set-name* interface-service load-balancing-options]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the hash keys used for load balancing in aggregated multiservices (AMS) for service applications (Network Address Translation [NAT], stateful firewall, application-level gateway [ALG], HTTP header enrichment, and mobility). The hash keys supported in the ingress and egress direction are the source IP address and destination IP address.

Hash keys are used to define the load-balancing behavior among the various members in the AMS group. For example, if **hash-keys** is configured as **source-ip**, then the hashing would be performed based on the source IP address of the packet. Therefore, all packets with the same source IP address land on the same member. Hash keys must be configured with respect to the traffic direction: ingress or egress. For example, if **hash-keys** is configured as **source-ip** in the ingress direction, then it should be configured as **destination-ip** in the egress direction. This is required to ensure that the packets of the same flow reach the same member of the AMS group.

The configuration of the ingress and egress hash keys is mandatory if you are using AMS for NAT. This configuration is not mandatory if you are using AMS for stateful firewall; if the hash keys are not configured, then the defaults are chosen. Refer to Table 17 on page 633 for the supported hash keys.

The resource-triggered option enables anchor session PICs to use the load or resource information from the anchor services PICs to select the AMS member will anchor the services for the subscriber for load balancing among AMS members. In addition, for mobile subscriber-aware services (such as HTTP header enrichment), you must configure the **resource-triggered** statement, which means that the load balancing is not done using the ingress and egress keys.

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Table 17: Hash Keys Supported for AMS for Service Applications

	Service Set at Ingress Interface		Service Set at Egress Interface	
Hash Keys for NAT				
NAT Type	Ingress hash key	Egress hash key	Ingress hash key	Egress hash key
source static	Destination IP address	Source IP address	Source IP address	Destination IP address
source dynamic	Source IP address	Destination IP address	Destination IP address	Source IP address
Network Address Port Translation (NAPT)	Source IP address	Destination IP address	Destination IP address	Source IP address
destination static	Source IP address	Destination IP address	Destination IP address	Source IP address
Hash Keys for Stateful Firewall				
Stateful Firewall	Destination IP address	Source IP address	Destination IP address	Source IP address
Stateful Firewall	Source IP address	Destination IP address	Source IP address	Destination IP address

NOTE: If NAT is used in the service set (along with stateful firewall and ALG), then the hash keys should be based on the NAT type; otherwise, the hash keys of the stateful firewall should be used.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- load-balancing-options (Aggregated Multiservices for Services Applications) on page 636

ingress-key (Aggregated Multiservices)

Syntax ingress-key (destination-ip | source-ip);

Hierarchy Level [edit services service-set *service-set-name* interface-service load-balancing-options hash-keys]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the hash keys to be used in the ingress flow direction. The configuration is mandatory if you are using AMS for Network Address Translation (NAT). This configuration is not mandatory if you are using AMS for stateful firewall; if the hash keys are not configured, then the defaults are chosen.

Options The following hash keys can be configured in the ingress direction:

destination-ip—Use the destination IP address of the flow to compute the hash used in load balancing.

source-ip—Use the source IP address of the flow to compute the hash used in load balancing.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- hash-keys (Aggregated Multiservices) on page 632

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interface-service (Aggregated Multiservices)

Syntax

```
interface-service {
  load-balancing-options {
    hash-keys {
      egress-key (destination-ip | source-ip);
      ingress-key (destination-ip | source-ip);
      resource-triggered;
    }
  }
  service-interface interface-name.unit-number;
}
```

Hierarchy Level

[edit services service-set *service-set-name*]

Release Information

Statement introduced before Junos OS Release 7.4.
Support for aggregated multiservices (AMS) interfaces introduced in Junos OS Mobility Release 11.2W.

Description

Specify the interface name and unit number to be used in aggregated multiservices (AMS) with high availability (HA) for service applications (Network Address Translation [NAT], stateful firewall, application-level gateway [ALG], HTTP header enrichment, and mobility), and configure the load-balancing options in AMS with high availability for service applications.

Options

service-interface ***interface-name.unit-number***—Name and unit number of the AMS interface; for example, **ams0.1**, where **ams0** is the interface and **1** is the unit number.

NOTE: **Unit 0 is reserved and cannot be configured under the AMS interface.**

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- service-set (Aggregated Multiservices) on page 638

load-balancing-options (Aggregated Multiservices for Services Applications)

Syntax

```
load-balancing-options {
  hash-keys {
    egress-key (destination-ip | source-ip);
    ingress-key (destination-ip | source-ip);
    resource-triggered;
  }
}
```

Hierarchy Level

[edit services service-set *service-set-name* interface-service]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the load-balancing options for aggregated multiservices (AMS) in service applications (Network Address Translation [NAT], stateful firewall, application-level gateway [ALG], HTTP header enrichment, and mobility). AMS for service applications can be used for load balancing with or without high availability (HA). Currently, load balancing is based on the configured hash keys.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- interface-service (Aggregated Multiservices) on page 635

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resource-triggered (Aggregated Multiservices)

Syntax resource-triggered;

Hierarchy Level [edit services service-set *service-set-name* interface-service load-balancing-options hash-keys]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that the load balancing for aggregated multiservices (AMS) for services applications should be triggered based on the resources (load) information from the services PICs.

If the HTTP header enrichment service is configured as a mobility subscriber-aware service, then the anchor services PIC can be configured as either a multiservices interface (for example **ms-1/0/0**) or an AMS interface (for example **ams0**). If it is configured as an AMS interface, then the load balancing must be performed by the anchor session PICs, which are configured using the **resource-triggered** statement. Therefore, the **resource-triggered** statement is mandatory for subscriber-aware services using AMS interfaces.

Only one service set can be configured with resource triggering as the load-balancing behavior.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- hash-keys (Aggregated Multiservices) on page 632

service-set (Aggregated Multiservices)

Syntax

```
service-set service-set-name {
  interface-service {
    load-balancing-options {
      hash-keys {
        egress-key (destination-ip | source-ip);
        ingress-key (destination-ip | source-ip);
        resource-triggered;
      }
    }
    service-interface interface-name.unit-number;
  }
  ip-reassembly-rules {
    [rule-name];
  }
  next-hop-service {
    inside-service-interface interface-name.unit-number;
    outside-service-interface interface-name.unit-number;
    outside-service-interface-type interface-type;
    service-interface-pool name;
  }
  pcef-profile profile-name;
  [tag-rule-sets rule-set-name];
  [tag-rules rule-name];
  service-set-options {
    subscriber-awareness;
  }
}
```

Hierarchy Level

[edit services]

Release Information

Statement introduced before Junos OS Release 7.4.
Support for aggregated multiservices (AMS) interfaces introduced in Junos OS Mobility Release 11.2W.

Description

Configure the service set with aggregated multiservices (AMS) for load balancing in services applications, or configure the service set for inline IP reassembly. Currently, Network Address Translation (NAT), stateful firewall, application-level gateway (ALG), HTTP header enrichment, and mobility are the services applications supported.

NOTE: If you are configuring the service set for inline IP reassembly, then the following is applicable:

- The service set can only be configured as a standalone service set. You cannot configure multiple services with a service set that is configured for inline IP reassembly.
- You must configure the **next-hop-service** statement and associate an IP reassembly rule (using the **ip-reassembly-rules** statement) with the service set.

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The following ALGs are currently supported for the service set configured with AMS for load balancing in services applications:

- FTP
- Internet Control Message Protocol (ICMP)
- Point-to-Point Tunneling Protocol (PPTP)
- Real-Time Streaming Protocol (RTSP)
- SQL *Net
- TCP
- traceroute
- Trivial File Transfer Protocol (TFTP)
- UDP

AMS for services applications (NAT, stateful firewall, and ALG) can be used for load balancing with or without high availability. Many-to-one (N:1) high availability (HA) is supported for services applications (NAT, stateful firewall, and ALG). In this case, one multiservices PIC is the backup for one or more (N) active multiservices PICs. If one of the active multiservices PICs goes down, then the backup replaces it as the active multiservices PIC. When the failed PIC comes back online, it becomes the new backup. This is called floating backup mode.

NOTE: In high availability for services applications, the configuration state is synchronized to the backup. However, the operational state of the active members is not synchronized to the backup. Therefore, in the case of failure, existing flows meant for the failed member are lost.

The following conditions are applicable if you use AMS for load balancing in services applications:

- All the member interfaces of the AMS interface must have the same packages configured for the respective services applications. For example, if **mams-5/0/0** is the active member and **mams-5/1/0** the backup, then both **mams-5/0/0** and **mams-5/1/0** must have the same packages.
  - For NAT, the member interfaces must have the **jservices-nat** package configured.
  - For stateful firewall, the member interfaces must have the **jservices-sfw** package configured.
  - For ALG, the member interfaces must have the **jservices-alg** package configured.
- The size of the object cache (**object-cache-size**) and the size of the policy database (**policy-db-size**) must be appropriately configured so that the memory requirements of the services application policy database are met.
- For anchor session PICs, currently, AMS member PICs operate only in 64-bit mode. Therefore the **boot-os embedded-junos64** configuration, at the **[edit chassis fpc *slot-number* pic *pic-number* adaptive-services service-package extension-provider]** hierarchy level, is mandatory for all member interfaces.

The remaining statements are explained separately.

Options

service-set-name—Name of the service set.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- [edit services service-set] Hierarchy Level on page 10

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CHAPTER 17

Service Selection Profiles Configuration Statements

accept (Service Selection Profiles)

Syntax accept;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* then]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that the matching of subsequent terms is stopped, and that the services associated with the access point name (APN) in the Create Session Request message are applied to the connection that matches the term.

NOTE: **If you configure the accept statement for a term, then no other actions can be configured for that term.**

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- then (Service Selection Profiles) on page 662

anonymous-user (Service Selection Profiles)

Syntax anonymous-user;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that anonymous users are to be used as a criterion for term matching. If the Create PDP Context Request or a Create Session Request message is received without the username in the Protocol Configuration Options (PCO) Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP) information, then the actions specified in the **then** statement are performed.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

apn-name (Service Selection Profiles)

Syntax apn-name *apn-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* then]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the access point name (APN) to be used for the subscriber's session.

This configuration is applicable only when the APN specified in the Create Session Request message from the subscriber is **virtual**. The virtual APN in the Create Session Request message is mapped to the real APN that you specify here.

NOTE: The APN that you specify must be real and must be configured on the broadband gateway.

Options *apn-name*—Name of the real APN.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring APN Service Selection on a Broadband Gateway*
- then (Service Selection Profiles) on page 662

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charging-characteristics (Service Selection Profiles)

Syntax charging-characteristics *charging-characteristics*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the charging characteristics for term matching. If the value of the charging characteristics information element (IE) in the Create Session Request or Create Packet Data Protocol (PDP) Context message matches the charging characteristics value specified here, then the actions specified for the service selection profile are performed.

Options ***charging-characteristics***—Charging characteristics to be used for term matching.

Range: 0 through 65,535

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

charging-profile (Service Selection Profiles)

Syntax charging-profile *charging-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* then]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the charging profile to be applied to subscribers who match the conditions specified in the **from** statement.

Options ***charging-profile***—Name of the charging profile.

NOTE: The charging profile must be previously configured on the broadband gateway at the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging]** hierarchy level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- charging-profiles on page 237
- *Configuring APN Service Selection on a Broadband Gateway*
- then (Service Selection Profiles) on page 662

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domain-name (Service Selection Profiles)

Syntax domain-name *domain-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the domain name for term matching. If the value of the domain name in the Protocol Configuration Options (PCO) received in the Create PDP Context Request or Create Session Request message matches the domain name specified here, then the actions specified in the **then** statement are performed.

Options ***domain-name***—Domain name to be used for term matching; for example, www.juniper.net.

Range: Up to 63 characters

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

from (Service Selection Profiles)

Syntax

```
from {
  anonymous-user;
  domain-name domain-name;
  charging-characteristics charging-characteristics;
  imei imei;
  imsi imsi;
  maximum-bearers maximum-bearers;
  msisdn msisdn;
  pdn-type (ipv4 | ipv4v6 | ipv6);
  peer peer;
  peer-routing-instance peer-routing-instance;
  plmn {
    except;
    mcc mcc mnc mnc;
  }
  rat-type (eutran | geran | hspa | utran | wlan);
  roaming-status (home | roamer | visitor);
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Specify the match criteria for the service selection profile term.

NOTE: For any term, the subscriber must match all the match conditions specified in a from statement. If you do not configure the from statement, then all subscribers are considered a match.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- term (Service Selection Profiles) on page 661

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imei (Service Selection Profiles)

Syntax imei *imei*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the International Mobile Station Equipment Identity (IMEI) for term matching. If the IMEI of the user equipment (UE) matches the IMEI specified here, then the actions specified for the service selection profile are performed.

NOTE: You can specify either the full IMEI or a prefix—that is, the first few digits of the IMEI.

Options *imei*—IMEI to be used for term matching.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

imsi (Service Selection Profiles)

Syntax imsi *imsi*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the International Mobile Subscriber Identity (IMSI) for term matching. If the IMSI of the user equipment (UE) matches the IMSI specified here, then the actions specified for the service selection profile are performed.

NOTE: You can specify either the full IMSI or a prefix—that is, the first few digits of the IMSI.

Options *imsi*—IMSI to be used for term matching.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

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maximum-bearers (Service Selection Profiles)

Syntax maximum-bearers *maximum-bearers*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the maximum number of bearers to be used for term matching. The ***maximum-bearers*** that you specify is matched against the number of bearers in the broadband gateway. If the number of bearers in the broadband gateway (at the time when the term matching is done) exceeds the value that you specify, then that is considered a match.

Options ***maximum-bearers***—Maximum number of bearers to be used for term matching.

Range: 1 through 10,000,000

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

msisdn (Service Selection Profiles)

Syntax msisdn *msisdn*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the Mobile Station ISDN (MSISDN) number for term matching. If the MSISDN of the user equipment (UE) matches the MSISDN number specified here, then the actions specified for the service selection profile are performed.

NOTE: You can specify either the full MSISDN number or a prefix—that is, the first few digits of the MSISDN number.

Options ***msisdn***—MSISDN number to be used for term matching.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

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pcef-profile (APN or Service Selection Profiles)

Syntax pcef-profile *pcef-profile-name*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *apn-name*]
[edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* then]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify the policy and charging enforcement function (PCEF) profile to be applied to subscribers on the APN or subscribers who match the conditions specified in the **from** clause of a term specified in a service-selection profile.

Options ***pcef-profile-name***—Name of the PCEF profile.

NOTE: The PCEF profile must be previously configured on the broadband gateway at the **[edit unified-edge pcef]** hierarchy level.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- profiles (PCEF) on page 545
- then (Service Selection Profiles) on page 662

pdn-type (Service Selection Profiles)

Syntax pdn-type (ipv4 | ipv4v6 | ipv6);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the type of Packet Data Network (PDN) for term matching. If the type of PDN of the user equipment (UE) matches the type of PDN specified here, then the actions specified for the service selection profile are performed.

Options **ipv4**—Match PDNs supporting only IPv4.

ipv4v6—Match PDNs supporting both IPv4 and IPv6.

ipv6—Match PDNs supporting only IPv6.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

peer (Service Selection Profiles)

Syntax peer *peer*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the IP address of the peer for term matching. If the IP address of the peer creating the session matches the IP address specified here, then the actions specified for the service selection profile are performed.

Options ***peer***—IP address to be used for term matching.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

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peer-routing-instance (Service Selection Profiles)

Syntax peer-routing-instance *peer-routing-instance*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the peer routing instance for term matching. If the routing instance of the peer creating the session matches the routing instance specified here, then the actions specified for the service selection profile are performed.

NOTE: **This statement should be configured along with the peer statement.**

Options ***peer-routing-instance***—Peer routing instance to be used for term matching.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

plmn (Service Selection Profiles)

Syntax

```
plmn {
   except;
   mcc mcc mnc mnc;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information

Statement introduced in Junos OS Mobility Release 11.4W.

Description

Specify the public land mobile network (PLMN) for term matching. You can specify multiple PLMNs to match and also specify that PLMNs not matching the ones specified are matched.

If the mobile country code (MCC) and mobile network code (MNC) contained in the Routing Area Identity (RAI) information element (IE) of the Create PDP Context Request or the Service Network information element of the Create Session Request message match the conditions specified here, then the actions specified in the **then** statement are performed.

Options

except—Match all PLMNs except the PLMNs specified in this match condition.

mcc *mcc* mnc *mnc*—Specify the MCC and the MNC (belonging to the MCC) for the PLMN to be matched.

NOTE: You can specify more than one MCC and MNC combination by including the **set mcc *mcc* mnc *mnc*** command multiple times.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

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rat-type (Service Selection Profiles)

Syntax rat-type (eutran | geran | hspa | utran | wlan);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 12.1W.

Description Specify that the type of Radio Access Technology (RAT) is to be used as a criterion for term matching. If the RAT Type information element (IE) in the Create PDP Context Request or the Create Session Request message matches the RAT type specified here, then the actions specified in the **then** statement are performed.

Options

eutran—Specify Evolved Universal Terrestrial Radio Access Network (E-UTRAN) as the RAT type.

geran—Specify GSM/EDGE Radio Access Network (GERAN) as the RAT type.

hspa—Specify high speed packet access (HSPA) as the RAT type.

utran—Specify UMTS Terrestrial Radio Access Network (UTRAN) as the RAT type.

wlan—Specify wireless LAN (WLAN) as the RAT type.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

redirect-peer (Service Selection Profiles)

Syntax redirect-peer *redirect-peer*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* then]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the IP address of the peer to which the Create Session Request should be redirected. The Create Session Request message is then redirected to the IP address of the redirect peer that you specify.

The Create Session Response from the redirect peer is received by the broadband gateway and forwarded to the originator of the request. However, since the Create Session Response message contains the address of the redirected peer, further requests for the subscriber are directly sent by the originator to the redirect peer.

NOTE: **If you configure the redirect-peer statement for a term, then no other actions can be configured for that term.**

Options ***redirect-peer***—IP address of the peer to which the session creation request should be redirected.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- then (Service Selection Profiles) on page 662

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reject (Service Selection Profiles)

Syntax reject;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* then]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that the matching of subsequent terms should be stopped and that the connection that matched the term is rejected.

NOTE: If you configure the reject statement for a term, then no other actions can be configured for that term.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- then (Service Selection Profiles) on page 662

roaming-status (Service Selection Profiles)

Syntax roaming-status (home | roamer | visitor);

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name* from]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the roaming status of the subscriber for term matching. If the subscriber's roaming status matches the roaming status specified, then the actions in the **then** statement are performed.

The broadband gateway determines whether the subscriber is a home, roamer, or visitor by using the mobile country code (MCC) and the mobile network code (MNC) values in the Create PDP Context Request or Create Session Request message from the subscriber's International Mobile Subscriber Identity (IMSI) and the serving network.

Options **home**—Specify that only home subscribers are matched.

roamer—Specify that only roaming subscribers are matched.

visitor—Specify that only visiting subscribers are matched.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring APN Service Selection on a Broadband Gateway*
- from (Service Selection Profiles) on page 646

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service-selection-profiles

Syntax

```
service-selection-profiles {
  profile-name {
    term name {
      from {
        anonymous-user;
        charging-characteristics charging-characteristics;
        domain-name domain-name;
        imei imei;
        imsi imsi;
        maximum-bearers maximum-bearers;
        msisdn msisdn;
        pdn-type (ipv4 | ipv4v6 | ipv6);
        peer peer;
        peer-routing-instance peer-routing-instance;
        plmn {
          except;
          mcc mcc mnc mnc;
        }
        rat-type (eutran | geran | hspa | utran | wlan);
        roaming-status (home | roamer | visitor);
      }
      then {
        accept;
        apn-name apn-name;
        charging-profile charging-profile;
        pcef-profile pcef-profile;
        redirect-peer redirect-peer;
        reject;
      }
    }
  }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the access point name (APN) to be used for the subscriber, or the broadband gateway that will service the subscriber. Service selection profiles specify the selection criteria that determine which subscribers use the APN or are serviced by the broadband gateway.

Multiple terms can be configured in a selection profile, and each term is applied in the order in which it is configured. Furthermore, multiple match conditions can be specified within a term and all of the conditions have to match. After a matching term is found, the action is applied and no further terms are matched. If no term matches for a subscriber, then the services associated with the APN in the Create Session Request message are applied.

Options ***profile-name***—Name of the service selection profile.

Syntax: Up to 63 characters.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- *Configuring APN Service Selection on a Broadband Gateway*
- *Example: Configuring Broadband Gateway APNs*

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term (Service Selection Profiles)

Syntax

```
term name {
  from {
    anonymous-user;
    domain-name domain-name;
    charging-characteristics charging-characteristics;
    imei imei;
    imsi imsi;
    maximum-bearers maximum-bearers;
    msisdn msisdn;
    pdn-type (ipv4 | ipv4v6 | ipv6);
    peer peer;
    peer-routing-instance peer-routing-instance;
    plmn {
      except;
      mcc mcc mnc mnc;
    }
    rat-type (eutran | geran | hspa | utran | wlan);
    roaming-status (home | roamer | visitor);
  }
  then {
    accept;
    apn-name apn-name;
    charging-profile charging-profile;
    pcef-profile pcef-profile;
    redirect-peer redirect-peer;
    reject;
  }
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the term for the service selection profile.

Multiple terms can be configured for a service selection profile. If a subscriber matches any of the terms, then the actions specified in the **then** statement are taken. The subscriber must match all the match conditions specified in a **from** statement. Once a term matches for a subscriber, however, further terms are not evaluated. If no terms match for a subscriber, then the services associated with the APN in the Create Session Request message are applied.

NOTE: If the **charging-profile**, **pcef-profile**, or both actions are configured for a term, then the configured actions override the corresponding default services associated with the APN in the Create Session Requests that match the term.

The remaining statements are explained separately.

Options *name*—Name of the selection term.

Syntax: Up to 63 characters.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring APN Service Selection on a Broadband Gateway*
- service-selection-profiles on page 659

then (Service Selection Profiles)

Syntax

```
then {
  accept;
  apn-name apn-name;
  charging-profile charging-profile;
  pcef-profile pcef-profile;
  redirect-peer redirect-peer;
  reject;
}
```

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* service-selection-profiles *profile-name* term *name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the action to be taken if the criteria specified in the service selection profile statement are matched.

NOTE: This statement is mandatory even if you have not specified any match criteria. The absence of match criteria (from statement) indicates that all subscribers are matched and the specified action is taken.

The remaining statements are explained separately.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring APN Service Selection on a Broadband Gateway*
- term (Service Selection Profiles) on page 661

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CHAPTER 18

System Architecture Configuration Statements

call-rate-statistics

Syntax

```
call-rate-statistics {
   history history;
   interval interval;
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the parameters related to the broadband gateway's call-rate statistics. You can specify the number of past intervals for which the call-rate statistics are stored, and the interval for which the call-rate statistics are calculated.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- **show unified-edge ggsn-pgw call-rate statistics on page 1103**
- **show unified-edge sgw call-rate statistics on page 1109**

disable (Idle Mode Buffering)

Syntax disable;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* idle-mode-buffering]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Disable idle mode buffering on the Serving Gateway (S-GW). When idle mode buffering is disabled, the S-GW does *not* buffer the downlink packets meant for the user equipment (UE) that is in idle mode.

Idle mode buffering uses 1 GB of memory when it is enabled. When it is disabled, this memory is used by the daemon handling subscriber management.

NOTE: **Idle mode buffering can be disabled only when the S-GW is in maintenance mode. When idle mode buffering is changed from enabled to disabled or vice versa, all services PICs of the corresponding S-GW are rebooted.**

Default If you do not configure this statement, then idle mode buffering is enabled.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring an S-GW on a Broadband Gateway*
- idle-mode-buffering on page 669

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expire-timer (Idle Mode Buffering)

Syntax expire-timer *time-in-seconds*;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name* idle-mode-buffering]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Configure the expire timer for idle mode buffering in the Serving Gateway (S-GW). After the configured time elapses for a bearer, buffered packets are discarded by the S-GW.

Options ***time-in-seconds***—Expire timer, in seconds.

Default: 200 seconds

Range: 30 through 300 seconds

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring an S-GW on a Broadband Gateway*
- idle-mode-buffering on page 669

family (Mobile Interface)

Syntax family *family-name* {...}

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the protocol family information for the logical interface.

Options ***family-name***—Protocol family. The following options are supported:

- **inet**—IP version 4 suite.
- **inet6**—IP version 6 suite.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Interfaces for APNs*
- unit (Mobile Interface) on page 679

filter (Mobile Interface)

Syntax

```
filter {
  input input-filter;
  output output-filter;
}
```

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the access control list (ACL) filters to apply to uplink and downlink traffic. By default, the mobile interface (**mif**)—that is, the access point name (APN)—accepts all mobile traffic of the subscribers that are using this APN (**mif**).

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Interfaces for APNs*
- unit (Mobile Interface) on page 679

forwarding-packages

Syntax

```
forwarding-packages {
  mobility {
    ggsn-pgw;
    sgw;
  }
}
```

Hierarchy Level [edit chassis fpc *fpc-slot* pfe *pfe-id*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the Packet Forwarding Engine so that it can be used to anchor mobile sessions. If this configuration is changed, then the FPC reboots.

The **forwarding-packages** statement can be configured at the Packet Forwarding Engine level. Therefore, you can configure a subset of Packet Forwarding Engines in an FPC to be mobile anchors.

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Interface DPCs or MPCs for User Mobility Traffic*

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ggsn-pgw

Syntax ggsn-pgw *gateway-name* { ... }

Hierarchy Level [edit unified-edge gateways]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the name to be used for the broadband gateway. The broadband gateway can be configured as a gateway GPRS support node (GGSN), as a Packet Data Network Gateway (P-GW), or as both a GGSN and a P-GW.

The remaining statements are explained separately.

Options ***gateway-name***—Name of the gateway.

Range: Up to 63 characters

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- *Configuring Broadband Gateway Home PLMNs and Gateways*

history (Call-Rate Statistics)

Syntax history *history*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* call-rate-statistics],
[edit unified-edge gateways sgw *gateway-name* call-rate-statistics]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the [edit unified-edge gateways sgw *gateway-name* call-rate-statistics] hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the number of past intervals for which the call-rate statistics are stored by the broadband gateway.

Options ***history***—Number of past intervals for which the call-rate statistics are stored.

Range: 1 through 20

Default: 1

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- call-rate-statistics on page 663
- show unified-edge ggsn-pgw call-rate statistics on page 1103
- show unified-edge sgw call-rate statistics on page 1109

home-plmn

Syntax

```
home-plmn {
   [mcc mcc mnc mnc];
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Configure the operator's home public land mobile networks (HPLMNs) to which the broadband gateway belongs. The HPLMN consists of the mobile country code (MCC) and its corresponding mobile network codes (MNCs).

The broadband gateway determines the subscriber's roaming status by using the user equipment's PLMN, the subscriber's home PLMN, and the serving network. If the user equipment's PLMN does not match the subscriber's home PLMN, then the subscriber is considered a visitor. If the user equipment's PLMN matches the subscriber's home PLMN, then the serving network determines whether a subscriber is a home subscriber or a visitor.

NOTE:

- For the broadband gateway configured as a Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW), we recommend that you configure the **home-plmn** statement even though it is not mandatory to do so. If the **home-plmn** statement is not configured for the GGSN or P-GW, then all subscribers will be classified as visitors.
- For the broadband gateway configured as a Serving Gateway (S-GW), configuring the **home-plmn** statement is optional. In order to determine the subscriber's roaming status, the S-GW uses the Serving Network PLMN provided as part of the Serving Network Information Element (IE) in the Create Session Request message. If the Serving Network IE is not available, then the S-GW uses the home PLMN configuration to determine the subscriber's roaming status.

Options

mcc *mcc* mnc *mnc*—Specify the MCC and the MNC (belonging to the MCC) for the home HPLMN.

Syntax:

- The MCC must be three digits long and can contain numbers from 0 through 9.
- The MNC must be at least two digits long and up to a maximum of three digits long. It can contain numbers from 0 through 9.

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NOTE:

- The MCC/MNC combination 00101 is reserved for test networks.
- You can specify more than one MCC and MNC combination by including the **set mcc** *mcc* **mnc** *mnc* command multiple times.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring Broadband Gateway Home PLMNs and Gateways*
- *Configuring an S-GW on a Broadband Gateway*
- ggsn-pgw on page 667
- sgw on page 677

idle-mode-buffering

Syntax

```
idle-mode-buffering {
   disable;
   expire-timer time-in-seconds;
}
```

Hierarchy Level
[edit unified-edge gateways sgw *gateway-name*]

Release Information
Statement introduced in Junos OS Mobility Release 11.4W.

Description
Configure the idle mode buffering options for the Serving Gateway (S-GW). When a user equipment (UE) is in idle mode, the S-GW buffers the downlink packets meant for that user equipment.

The remaining statements are explained separately.

Default
If you do not configure this statement, then idle mode buffering is enabled with an **expire-timer** of 200 seconds.

Required Privilege Level
unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring an S-GW on a Broadband Gateway*
- sgw on page 677

input (Mobile Interface)

Syntax input *input-filter*;

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number* filter]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the access control list (ACL) filter to apply to uplink traffic. By default, the mobile interface (**mif**)—that is,the access point name (APN)—accepts all uplink traffic of the subscribers that are using the APN (**mif**).

Options ***input-filter***—Name of the ACL filter.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring Mobile Interfaces for APNs*
- filter (Mobile Interface) on page 666

interface

Syntax interface *interface-name*;

Hierarchy Level [edit routing-instances],
[edit logical-systems logical-system-name routing-instances routing-instance-name]

Release Information Statement introduced before Junos OS Release 7.4.
The option to configure mobile interfaces (**mif-**) introduced in Junos OS Mobility Release 11.2W.

Description Configure the mobile interface to access point name (APN) mapping in a virtual routing and forwarding table (VRF) by placing both the mobile interface logical interface unit and the physical interface unit (the Gi or SGi interface for the APN), in the same VRF.

Options ***interface-name***—Name of the mobile interface logical interface unit or the physical interface unit. For example, **mif.1** or **ge-0/0/0.5**.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring Mobile Interface to APN Associations in VRFs*

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interfaces (Mobile Interface)

Syntax

```
interfaces mif {
   description description;
   disable;
   mtu mtu-size;
   multi-chassis-protection { ... }
   no-traps;
   traceoptions { ... }
   unit interface-unit-number{
      clear-dont-fragment-bit;
      description description;
      disable;
      family family-name {...}
      filter {
         input input-filter;
         output output-filter;
      }
      (no-traps | traps);
   }
}
```

Hierarchy Level

[edit]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the mobile interfaces for access point name (APN) mobile traffic. The mobile interfaces are distinct from other types of interfaces and are used to associate an APN with a physical interface in a virtual routing and forwarding (VRF) table. You need to configure one mobile interface unit for every APN. Every APN is associated with a single logical interface (unit) on a physical port represented by a mobile interface unit.

The remaining statements are explained separately.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Interfaces for APNs*

interval (Call-Rate Statistics)

Syntax interval *interval*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name* call-rate-statistics],
[edit unified-edge gateways sgw *gateway-name* call-rate-statistics]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the [edit unified-edge gateways sgw *gateway-name* call-rate-statistics] hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Configure the interval for which the call-rate statistics are calculated by the broadband gateway.

Options ***interval***—Interval, in minutes, for which the call-rate statistics are calculated.

Range: 5 through 120 minutes

Default: 60 minutes

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- call-rate-statistics on page 663
- show unified-edge ggsn-pgw call-rate statistics on page 1103
- show unified-edge sgw call-rate statistics on page 1109

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local-policy-profile (Broadband Gateway)

Syntax local-policy-profile *local-policy-profile*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description Specify a local policy profile for the broadband gateway.

- For the broadband gateway configured as a gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW), the local policy profile is a combination of the quality-of-service (QoS) policy (**cos-policy-profile**), the classifier policy (**classifier-profile**), and the resource threshold policy (**resource-threshold-policy**).
- For the broadband gateway configured as a Serving Gateway (S-GW), the local policy profile is a combination of the classifier policy (**classifier-profile**) and the resource threshold policy (**resource-threshold-policy**).

NOTE: **The local policy profile must already be configured at the [edit unified-edge] hierarchy level.**

Options ***local-policy-profile***—Name of the local policy profile.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- local-policy-profile (APN) on page 168 (P-GW only)

maximum-bearers (Broadband Gateway)

Syntax maximum-bearers *maximum-bearers*;

Hierarchy Level [edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description For the broadband gateway configured as a gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW), configure the maximum number of Evolved Packet System (EPS) bearers or packet data protocol (PDP) contexts allowed.

For the broadband gateway configured as a Serving Gateway (S-GW), configure the maximum number of EPS bearers allowed.

Options ***maximum-bearers***—Maximum number of bearers for the broadband gateway.

Range: 100,000 through 12,000,000 bearers

Default: 12,000,000 bearers

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Maximum Number of Bearers*
- maximum-bearers (APN) on page 170 (P-GW only)

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mobility

Syntax

```
mobility {
   ggsn-pgw;
   sgw;
}
```

Hierarchy Level [edit chassis fpc *fpc-slot* pfe *pfe-id* forwarding-packages]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.
sgw statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the forwarding package that the Packet Forwarding Engines associated with mobility must use.

NOTE:

- You must include every Packet Forwarding Engine configured with the **ggsn-pgw** forwarding package at the **[edit unified-edge gateways ggsn-pgw *gateway-name* system anchor-pfes]** hierarchy level on the broadband gateway. If you do not specify the Packet Forwarding Engine as an anchor interface, then the Packet Forwarding Engine will not be used by the broadband gateway.
- You must include every Packet Forwarding Engine configured with the **sgw** forwarding package at the **[edit unified-edge gateways sgw *gateway-name* system anchor-pfes]** hierarchy level on the broadband gateway. If you do not specify the Packet Forwarding Engine as an anchor interface, then the Packet Forwarding Engine will not be used by the broadband gateway.

Options **ggsn-pgw**—Configure the router as a gateway GPRS support node (GGSN) or as a Packet Data Network Gateway (P-GW).

sgw—Configure the router as a Serving Gateway (S-GW).

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Interface DPCs or MPCs for User Mobility Traffic*
- forwarding-packages on page 666

mtu (Mobile Interface)

Syntax mtu *mtu-size*;

Hierarchy Level [edit interfaces *interface-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Configure the maximum transmission unit (MTU) size for the mobile interface. MTU sizes can be important because the GPRS tunneling protocol (GTP) tunneling can cause a data unit to exceed the maximum frame size when the tunnel headers are added, which causes an error. However, larger MTU sizes increase throughput.

Options ***mtu-size***—MTU size.

Range: 256 through 9192 bytes

Default: 500 bytes (INET, INET6, and ISO families), 1448 bytes (MPLS)

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring Mobile Interfaces for APNs*
- interfaces (Mobile Interface) on page 671

output (Mobile Interface)

Syntax output *output-filter*;

Hierarchy Level [edit interfaces *interface-name* unit *interface-unit-number* filter]

Release Information Statement introduced in Junos OS Mobility Release 11.2W.

Description Specify the access control list (ACL) filter to apply to downlink traffic. By default, the mobile interface (**mif**)—that is, the access point name (APN)—accepts all downlink traffic of the subscribers that are using the APN (**mif**).

Options ***output-filter***—Name of the ACL filter.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation
- *Configuring Mobile Interfaces for APNs*
- filter (Mobile Interface) on page 666

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remote-delete-on-peer-fail

Syntax remote-delete-on-peer-fail;

Hierarchy Level [edit unified-edge gateways sgw *gateway-name*]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify that the Serving Gateway (S-GW) sends a delete message to the Packet Data Network Gateway (P-GW) when the S-GW detects that a peer has failed.

Default If you do not include the **remote-delete-on-peer-fail** statement, then the S-GW only deletes the packet data protocol (PDP) contexts or bearers locally on the S-GW.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- *Configuring an S-GW on a Broadband Gateway*
- sgw on page 677

sgw

Syntax sgw *gateway-name* { ... }

Hierarchy Level [edit unified-edge gateways]

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Specify the name to be used for the Serving Gateway (S-GW).

The remaining statements are explained separately.

Options ***gateway-name***—Name of the gateway.
Range: Up to 63 characters in length.

Required Privilege Level unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- *Configuring an S-GW on a Broadband Gateway*

software-datapath

Syntax

```
software-datapath {
  traceoptions {
    file filename {
      files files;
      match match;
      size size;
      (no-world-readable | world-readable);
    }
    flag {
      flag;
    }
    level level;
    no-remote-trace;
  }
}
```

Hierarchy Level

[edit unified-edge gateways ggsn-pgw *gateway-name*],
[edit unified-edge gateways sgw *gateway-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
Support at the **[edit unified-edge gateways sgw *gateway-name*]** hierarchy level introduced in Junos OS Mobility Release 11.4W.

Description

Specify the configuration for the software data path.

The remaining statements are explained separately.

Required Privilege Level

unified-edge—To view this statement in the configuration.
unified-edge-control—To add this statement to the configuration.

Related Documentation

- [edit unified-edge gateways ggsn-pgw <gateway-name>] Hierarchy Level on page 17
- [edit unified-edge gateways sgw <gateway-name>] Hierarchy Level on page 29
- *Configuring GGSN or P-GW Software Data Path Traceoptions*

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unit (Mobile Interface)

Syntax

```
unit interface-unit-number{
   clear-dont-fragment-bit;
   description description;
   disable;
   family family-name {...}
   filter {
      input input-filter;
      output output-filter;
   }
   (no-traps | traps);
}
```

Hierarchy Level

[edit interfaces *interface-name*]

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Configure the logical interface on the physical device. You must configure a logical interface to be able to use the physical device.

The remaining statements are explained separately.

Options

interface-unit-number—Number of the logical unit.

Range: 0 through 16,384

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Mobile Interfaces for APNs*
- interfaces (Mobile Interface) on page 671

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PART 2

MobileNext Broadband Gateway Commands

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CHAPTER 19

AAA Operational Commands

clear unified-edge ggsn-pgw aaa radius statistics

Syntax

clear unified-edge ggsn-pgw aaa radius statistics (accounting | all | authentication | dynamic-requests)
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<name *name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Clear statistics for the authentication, authorization, and accounting (AAA) RADIUS server for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are cleared.

Options

accounting | all | authentication | dynamic-requests—Clear statistics for the specified parameter.

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway*—(Optional) Clear the statistics for the specified GGSN or P-GW.

name *name*—(Optional) Clear the statistics for the specified server.

pic-slot *pic-slot*—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw aaa radius statistics on page 690

List of Sample Output

clear unified-edge ggsn-pgw aaa radius statistics all on page 684

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw aaa radius statistics all

```
user@host> clear unified-edge ggsn-pgw aaa radius statistics all

Cleared all RADIUS statistics
```


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clear unified-edge ggsn-pgw aaa statistics

Syntax

clear unified-edge ggsn-pgw aaa statistics (accounting | all | authentication | dynamic-requests)
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Clear the global authentication, authorization, and accounting (AAA) statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are cleared.

Options

accounting | all | authentication | dynamic-requests—Clear statistics for the specified parameter.

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway*—(Optional) Clear the statistics for the specified GGSN or P-GW.

pic-slot *pic-slot*—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw aaa radius statistics on page 690

List of Sample Output

clear unified-edge ggsn-pgw aaa statistics all on page 685

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw aaa statistics all

```
user@host> clear unified-edge ggsn-pgw aaa statistics all

Cleared all AAA statistics
```

show unified-edge ggsn-pgw aaa network-element status

Syntax

show unified-edge ggsn-pgw aaa network-element status
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<name *name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the authentication, authorization, and accounting (AAA) network element status for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the status for all GGSNs and P-GWs is displayed.

Options

none—Display the network element group status for all the GGSNs or P-GWs.

fpc-slot *fpc-slot*—(Optional) Display the status for the specified Flexible PIC Concentrator (FPC).

gateway *gateway*—(Optional) Display the status for the specified GGSN or P-GW.

name *name*—(Optional) Display the status for the specified network element.

pic-slot *pic-slot*—(Optional) Display the status for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw aaa network-element-group status on page 688

List of Sample Output

show unified-edge ggsn-pgw aaa network-element status on page 687

Output Fields

Table 18 on page 686 lists the output fields for the **show unified-edge ggsn-pgw aaa network-element status** command. Output fields are listed in the approximate order in which they appear.

Table 18: show unified-edge ggsn-pgw aaa network-element status Output Fields

Field Name	Field Description
Server	Name of the RADIUS server that is part of the network element.
FPC/PIC	FPC and PIC slot numbers through which the network element was reached.
Priority	Priority of the RADIUS server in the network element. Within a network element, a RADIUS server can be assigned a priority of 1 or 2.
State	State of the RADIUS server: dead or active.

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Sample Output

show unified-edge ggsn-pgw aaa network-element status

```
user@host> show unified-edge ggsn-pgw aaa network-element status

Network-element: rad (FPC/PIC: 4/0)
  Server: rad, Priority: 1, State: Active

Network-element: rad1 (FPC/PIC: 4/0)
  Server: rad1, Priority: 1, State: Active
```

show unified-edge ggsn-pgw aaa network-element-group status

Syntax

show unified-edge ggsn-pgw aaa network-element-group status
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *name*>
<name *name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the authentication, authorization, and accounting (AAA) network element group status for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the status for all GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display the network element group status in brief.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the status for the specified Flexible PIC Concentrator (FPC).

gateway *name*—(Optional) Display the status for the specified GGSN or P-GW.

name *name*—(Optional) Display the status for the specified network element group.

pic-slot *pic-slot*—(Optional) Display the status for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw aaa network-element status on page 686

List of Sample Output

show unified-edge ggsn-pgw aaa network-element-group status brief on page 689
show unified-edge ggsn-pgw aaa network-element-group status detail on page 689

Output Fields

Table 19 on page 688 lists the output fields for the **show unified-edge ggsn-pgw aaa network-element-group status** command. Output fields are listed in the approximate order in which they appear.

Table 19: show unified-edge ggsn-pgw aaa network-element-group status Output Fields

Field Name	Field Description
network element-group	Name of the network element group.
Broadcast	Indicates whether the broadcast knob has been enabled for this network element group. If the broadcast knob is enabled, the broadband gateway can broadcast accounting messages to all of the network elements in the group.

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Table 19: show unified-edge ggsn-pgw aaa network-element-group status Output Fields *(continued)*

Field Name	Field Description
Members	Members of the network element group and their mandatory status in the group.

Sample Output

show unified-edge ggsn-pgw aaa network-element-group status brief

```
user@host> show unified-edge ggsn-pgw aaa network-element-group status brief

network element-group: NEG_1
  Broadcast: Disabled
  Members:
    ne1, Mandatory: No
    ne2, Mandatory: No

network element-group: NEG_2
  Broadcast: Enabled
  Members:
    ne1, Mandatory: Yes
    ne2, Mandatory: No

network element-group: ne_group1
  Broadcast: Enabled
  Members:
    ne1, Mandatory: No
    ne2, Mandatory: Yes
```

show unified-edge ggsn-pgw aaa network-element-group status detail

```
user@host> show unified-edge ggsn-pgw aaa network-element-group status detail

network element-group: NEG_1
 Broadcast: Disabled
 Members:
    ne1, Mandatory: No
    ne2, Mandatory: No
```

show unified-edge ggsn-pgw aaa radius statistics

Syntax

show unified-edge ggsn-pgw aaa radius statistics (authentication | accounting | dynamic-requests)
<brief | detail | summary>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<name *name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the statistics for the authentication, authorization, and accounting (AAA) RADIUS server for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs is displayed.

Options

authentication | accounting | dynamic-requests—Display the statistics for the specified parameter.

brief | detail | summary—(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway*—(Optional) Display the statistics for the specified GGSN or P-GW.

name *name*—(Optional) Display the statistics for the specified RADIUS server.

pic-slot *pic-slot*—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw aaa radius statistics on page 684
- show unified-edge ggsn-pgw aaa statistics on page 699

List of Sample Output

show unified-edge ggsn-pgw aaa radius statistics accounting brief on page 694
show unified-edge ggsn-pgw aaa radius statistics accounting detail on page 694
show unified-edge ggsn-pgw aaa radius statistics accounting summary on page 695
show unified-edge ggsn-pgw aaa radius statistics authentication brief on page 695
show unified-edge ggsn-pgw aaa radius statistics authentication detail on page 696
show unified-edge ggsn-pgw aaa radius statistics authentication summary on page 696
show unified-edge ggsn-pgw aaa radius statistics dynamic-requests brief on page 697
show unified-edge ggsn-pgw aaa radius statistics dynamic-requests detail on page 697
show unified-edge ggsn-pgw aaa radius statistics dynamic-requests summary on page 698

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Output Fields Table 20 on page 691 lists the output fields for the **show unified-edge ggsn-pgw aaa radius statistics** command. Output fields are listed in the approximate order in which they appear.

Table 20: show unified-edge ggsn-pgw aaa radius statistics Output Fields

Field Name	Field Description	Level of Output
The following statistics are displayed only when this command is executed with either the **accounting** or **authentication** options.		
RADIUS server	Name of the RADIUS server.	All levels
Address	IP address of the RADIUS server.	All levels
Port	Port number of the RADIUS server.	All levels
FPC/PIC	FPC and PIC slot numbers for which the statistics are displayed.	**All levels**
Routing-instance	Routing instance under which the RADIUS server is configured.	**detail**
State	State of the RADIUS server, that is, whether the server is active or inactive (dead).	All levels
Duration	Duration, in HH:MM:SS format, for which the RADIUS server has been in the current state.	All levels
Previous duration or **Prev duration**	Duration, in HH:MM:SS format, for which the RADIUS server was in the previous state.	All levels
Flaps	Number of times that the RADIUS server transitioned from the active to inactive state.	All levels
The following statistics are displayed only when this command is executed with the **accounting** option.		
Requests	Number of accounting requests sent to the RADIUS server from the FPC slot and PIC slot.	**brief** **summary**
Accounting Requests	Number of accounting requests sent to the RADIUS server from the FPC slot and PIC slot. The following information is displayed about each request type: • **Start**—Number of Accounting Start requests sent. • **Stop**—Number of Accounting Stop requests sent. • **Interim**—Number of Accounting Interim-Update requests sent. • **On**—Number of Accounting On requests sent. • **Off**—Number of Accounting Off requests sent.	**detail**
Accounting req retransmissions	Number of accounting requests retransmitted to the RADIUS server.	**detail**
Responses or **Accounting Responses**	Number of accounting responses received from the RADIUS server.	All levels

Table 20: show unified-edge ggsn-pgw aaa radius statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Malformed responses	Number of malformed accounting responses received from the RADIUS server.	**detail**
Bad authenticators	Number of responses received from the RADIUS server with bad authenticators.	**detail**
Pending requests	Number of accounting requests waiting for responses from the RADIUS server.	**detail**
Timeouts	Number of accounting requests to the RADIUS server that timed out.	**detail**
Unknown types	Number of unknown type responses (that the gateway does not recognize) received from the RADIUS server.	**detail**
Packets dropped	Number of packets dropped.	**detail**
Round trip time (ms)	Time taken to receive the response from the RADIUS server. The minimum, average, and maximum round-trip times are also displayed.	**detail**
Time since counters were last cleared	Time, in hours, minutes, and seconds, since the accounting counters were last cleared.	**detail**
The following statistics are displayed only when this command is executed with the **authentication** option.		
Requests	Number of access requests sent to the RADIUS server from the FPC slot and PIC slot.	**brief** **summary**
Access req retransmissions	Number of access requests retransmitted to the RADIUS server.	**detail**
Access rejects	Number of access requests rejected by the RADIUS server.	All levels
Access challenges	Number of Access Challenge responses received from the RADIUS server.	**detail**
Malformed responses	Number of malformed access responses received from the RADIUS server.	**detail**
Bad authenticators	Number of bad authentication responses received.	**detail**
Pending requests	Number of access requests waiting for responses from the RADIUS server.	**detail**
Timeouts	Number of access requests to the RADIUS server that timed out.	**detail**
Unknown types	Number of unknown type responses (that the gateway does not recognize) received from the RADIUS server.	**detail**
Packets dropped	Number of packets dropped.	**detail**

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Table 20: show unified-edge ggsn-pgw aaa radius statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Round trip time (ms)	Time taken to receive the response from the RADIUS server. The minimum, average, and maximum round-trip times are also displayed.	**detail**
Time since counters were last cleared	Time, in hours, minutes, and seconds, since the authentication counters were last cleared.	**detail**
The following statistics are displayed only when this command is executed with the **dynamic-requests** option.		
RADIUS client	Name of the RADIUS client.	All levels
Address	IP address of the RADIUS client.	All levels
CoA requests received	Number of Change of Authorization (COA) requests received from the RADIUS client.	All levels
DM requests received	Number of Disconnect Message (DM) requests received from the RADIUS client.	All levels
CoA Acks sent	Number of COA acknowledgements sent to the RADIUS client.	All levels
CoA Nacks sent	Number of COA negative acknowledgements sent to the RADIUS client.	All levels
DM Acks sent	Number of Disconnect Message acknowledgements sent to the RADIUS client.	All levels
DM Nacks sent	Number of Disconnect Message negative acknowledgements sent to the RADIUS client.	All levels
Dropped	Number of dynamic authorization requests dropped.	All levels
Duplicates	Number of duplicate dynamic authorization requests.	**detail**
Forwarded	Number of dynamic authorization requests that were forwarded.	**detail**
Timeouts	Number of dynamic authorization requests that timed out.	**detail**
Delivered	Number of dynamic authorization requests that were delivered.	**detail**
Invalid RADIUS codes	Number of dynamic authorization requests with invalid RADIUS codes.	**detail**
Errors during processing	Number of dynamic authorization requests that could not be processed due to errors.	**detail**
Invalid RADIUS authenticators	Number of dynamic authorization requests with invalid RADIUS authenticators.	**detail**

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Table 20: show unified-edge ggsn-pgw aaa radius statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Invalid or missing Charging Ids	Number of dynamic authorization requests with invalid charging IDs or that did not contain charging IDs.	**detail**
Session mapping errors	Number of dynamic authorization requests that caused session mapping errors during processing.	**detail**
Time since counters were last cleared	Time, in hours, minutes, and seconds, since the dynamic requests counters were last cleared.	**detail**

Sample Output

show unified-edge ggsn-pgw aaa radius statistics accounting brief

```
user@host> show unified-edge ggsn-pgw aaa radius statistics accounting brief

RADIUS server: rad1
Address: 7.1.1.2 Port: 1813
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:52:03      00:00:00     0          0          0

RADIUS server: radius_server
Address: 4.1.1.2 Port: 1813
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:52:03      00:00:00     0      10001      10001
```

show unified-edge ggsn-pgw aaa radius

```
user@host> show unified-edge ggsn-pgw aaa radius statistics accounting detail
RADIUS server: rad1 (FPC/PIC: 2/1)
  Address: 7.1.1.2 Port: 1813
```


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statistics accounting detail

```
  Routing-instance: default
  State: Active  Duration: 00:53:47
  Prev duration: 00:00:00      Flaps: 0
  Accounting requests: 0
    Start: 0      Stop: 0      Interim: 0      On: 0      Off: 0
  Accounting req retransmissions: 0
  Accounting responses: 0
  Malformed responses: 0
  Bad authenticators: 0
  Pending requests: 0
  Timeouts: 0
  Unknown types: 0
  Packets dropped: 0
  Round trip time (ms): 0 (Min: 0 Max: 0 Avg: 0)
  Time since counters were last cleared: 00:00:00

RADIUS server: radius_server (FPC/PIC: 2/1)
  Address: 4.1.1.2 Port: 1813
  Routing-instance: default
  State: Active  Duration: 00:53:47
  Prev duration: 00:00:00      Flaps: 0
  Accounting requests: 10001
    Start: 10001  Stop: 0      Interim: 0      On: 0      Off: 0
  Accounting req retransmissions: 0
  Accounting responses: 10001
  Malformed responses: 0
  Bad authenticators: 0
  Pending requests: 0
  Timeouts: 0
  Unknown types: 0
  Packets dropped: 0
  Round trip time (ms): 1 (Min: 0 Max: 14 Avg: 1)
  Time since counters were last cleared: 00:00:00
```

show unified-edge ggsn-pgw aaa radius statistics accounting summary

```
user@host> show unified-edge ggsn-pgw aaa radius statistics accounting summary

RADIUS server: rad1
Address: 7.1.1.2 Port: 1813
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:54:14      00:00:00     0          0          0

RADIUS server: radius_server
Address: 4.1.1.2 Port: 1813
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:54:14      00:00:00     0      10001      10001
```

show unified-edge ggsn-pgw aaa radius

```
user@host> show unified-edge ggsn-pgw aaa radius statistics authentication brief

RADIUS server: rad1
```

statistics authentication brief

```
Address: 7.1.1.2 Port: 1812
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:54:36      00:00:00     0      10003      10003

RADIUS server: radius_server
Address: 4.1.1.2 Port: 1812
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:54:36      00:00:00     0      10001      10001
```

show unified-edge ggsn-pgw aaa radius statistics authentication detail

```
user@host> show unified-edge ggsn-pgw aaa radius statistics authentication detail
RADIUS server: rad1 (FPC/PIC: 2/1)
  Address: 7.1.1.2 Port: 1812
  Routing-instance: default
  State: Active  Duration: 00:54:40
  Prev duration: 00:00:00      Flaps: 0
  Access requests: 10003
  Access req retransmissions: 1811
  Access accepts: 10003
  Access rejects: 0
  Access challenges: 0
  Malformed responses: 0
  Bad authenticators: 0
  Pending requests: 0
  Timeouts: 0
  Unknown types: 0
  Packets dropped: 0
  Round trip time (ms): 1 (Min: 0 Max: 25 Avg: 2)
  Time since counters were last cleared: 00:00:00

RADIUS server: radius_server (FPC/PIC: 2/1)
  Address: 4.1.1.2 Port: 1812
  Routing-instance: default
  State: Active  Duration: 00:54:40
  Prev duration: 00:00:00      Flaps: 0
  Access requests: 10001
  Access req retransmissions: 1
  Access accepts: 10001
  Access rejects: 0
  Access challenges: 0
  Malformed responses: 0
  Bad authenticators: 0
  Pending requests: 0
  Timeouts: 0
  Unknown types: 0
  Packets dropped: 0
  Round trip time (ms): 1 (Min: 0 Max: 34 Avg: 1)
  Time since counters were last cleared: 00:00:00
```

show unified-edge ggsn-pgw aaa radius statistics

```
user@host> show unified-edge ggsn-pgw aaa radius statistics authentication summary

RADIUS server: rad1
Address: 7.1.1.2 Port: 1812
```


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authentication summary

```
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:54:45      00:00:00     0      10003      10003

RADIUS server: radius_server
Address: 4.1.1.2 Port: 1812
FPC/                            Previous
PIC  State        Duration      Duration Flaps   Requests  Responses
 2/1 Active       00:54:45      00:00:00     0      10001      10001
```

show unified-edge ggsn-pgw aaa radius statistics dynamic-requests brief

```
user@host> show unified-edge ggsn-pgw aaa radius statistics dynamic-requests brief

RADIUS client: rad1
Address: 7.1.1.2
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
RADIUS client: radius_server
Address: 4.1.1.2
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
```

show unified-edge ggsn-pgw aaa radius statistics

```
user@host> show unified-edge ggsn-pgw aaa radius statistics dynamic-requests detail
RADIUS client: rad1 (FPC/PIC: 2/1)
  Address: 7.1.1.2
  CoA requests received: 0
```

dynamic-requests detail

```
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
  Duplicates: 0
  Forwarded: 0
  Timeouts: 0
  Delivered: 0
  Invalid RADIUS codes: 0
  Errors during processing: 0
  Invalid RADIUS authenticators: 0
  Invalid or missing Charging Ids: 0
  Session mapping errors: 0
  Time since counters were last cleared: 00:00:00

RADIUS client: radius_server (FPC/PIC: 2/1)
  Address: 4.1.1.2
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
  Duplicates: 0
  Forwarded: 0
  Timeouts: 0
  Delivered: 0
  Invalid RADIUS codes: 0
  Errors during processing: 0
  Invalid RADIUS authenticators: 0
  Invalid or missing Charging Ids: 0
  Session mapping errors: 0
  Time since counters were last cleared: 00:00:00
```

show unified-edge ggsn-pgw aaa radius statistics dynamic-requests summary

```
user@host> show unified-edge ggsn-pgw aaa radius statistics dynamic-requests summary

RADIUS client: rad1
Address: 7.1.1.2
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
RADIUS client: radius_server
Address: 4.1.1.2
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
```


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show unified-edge ggsn-pgw aaa statistics

Syntax

show unified-edge ggsn-pgw aaa statistics (accounting | authentication | dynamic-requests)
<brief | detail | extensive>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the global statistics for accounting, authentication, and dynamic requests for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are displayed.

Options

authentication | accounting | dynamic-requests—Display the statistics for the specified parameter.

brief | detail | extensive—(Optional) Display the specified level of output.

The **brief** option displays the consolidated statistics for all gateways, and the **detail** and **extensive** options display the statistics for each services PIC on the configured gateways.

fpc-slot *fpc-slot*—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway*—(Optional) Display the statistics for the specified GGSN or P-GW.

pic-slot *pic-slot*—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw aaa statistics on page 685
- show unified-edge ggsn-pgw aaa radius statistics on page 690

List of Sample Output

show unified-edge ggsn-pgw aaa statistics accounting brief on page 702
show unified-edge ggsn-pgw aaa statistics accounting detail on page 702
show unified-edge ggsn-pgw aaa statistics accounting extensive on page 702
show unified-edge ggsn-pgw aaa statistics authentication brief on page 702
show unified-edge ggsn-pgw aaa statistics authentication detail on page 703
show unified-edge ggsn-pgw aaa statistics authentication extensive on page 703
show unified-edge ggsn-pgw aaa statistics dynamic-requests brief on page 703
show unified-edge ggsn-pgw aaa statistics dynamic-requests detail on page 703
show unified-edge ggsn-pgw aaa statistics dynamic-requests extensive on page 704

Output Fields

Table 21 on page 700 lists the output fields for the **show unified-edge ggsn-pgw aaa statistics** command. Output fields are listed in the approximate order in which they appear.

Table 21: show unified-edge ggsn-pgw aaa statistics Output Fields

Field Name	Field Description	Level of Output
Gateway Name	Name of the GGSN or P-GW. If the statistics for all gateways are displayed, then "All" is displayed.	All levels
FPC/PIC	FPC and PIC slot numbers for which the statistics are displayed.	**detail** **extensive**
Accounting Module Statistics—The following statistics are displayed when the **accounting** option is used.		
Requests	Total number of Accounting Request packets sent.	All levels
Responses success	Number of Accounting Response Success packets received.	All levels
Requests timed out	Number of accounting requests that timed out and did not receive a response.	All levels
Requests retransmitted	Number of accounting requests that were retransmitted because they did not receive a response.	All levels
Transmit errors	Number of errors that occurred during the transmission of Accounting Request packets.	All levels
Response errors	Number of erroneous responses received.	All levels
Pending requests	Number of accounting requests waiting for responses.	All levels
Authentication Module Statistics—The following statistics are displayed when the **authentication** option is used.		
Requests	Number of access requests sent.	All levels
Accepts	Number of Access Accept responses received.	All levels
Rejects	Number of Access Reject responses received.	All levels
Challenges	Number of Access Challenge responses received.	All levels
Requests timed out	Number of authentication requests that did not receive a response.	All levels
Requests retransmitted	Number of authentication requests that were retransmitted because they did not receive a response.	All levels
Transmit errors	Number of errors that occurred during the transmission of Authentication Request packets.	All levels
Response errors	Number of erroneous responses received.	All levels
Pending requests	Number of authentication requests waiting for responses.	All levels

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Table 21: show unified-edge ggsn-pgw aaa statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Dynamic Requests Module Statistics—The following statistics are displayed when the **dynamic-requests** option is used.		
Requests received	Total number of dynamic requests received.	All levels
CoA requests received	Number of Change of Authorization (COA) requests received.	All levels
DM requests received	Number of Disconnect Message (DM) requests received.	All levels
CoA Acks sent	Number of COA acknowledgements sent.	All levels
CoA Nacks sent	Number of COA negative acknowledgements sent.	All levels
DM Acks sent	Number of Disconnect Message acknowledgements sent.	All levels
DM Nacks sent	Number of Disconnect Message negative acknowledgements sent.	All levels
Dropped	Number of dynamic authorization requests dropped.	All levels
Duplicates	Number of duplicate dynamic authorization requests.	**detail** **extensive**
Forwarded	Number of dynamic authorization requests that were forwarded.	**detail** **extensive**
Timeouts	Number of dynamic authorization requests that timed out.	**detail** **extensive**
Delivered	Number of dynamic authorization requests that were delivered.	**extensive**
Errors during processing	Number of dynamic authorization requests that could not be processed due to errors.	**extensive**
Unknown clients	Number of dynamic authorization requests that came from unknown clients.	**extensive**
Invalid AAA codes	Number of dynamic authorization requests with invalid AAA codes.	**extensive**
Invalid AAA authenticators	Number of dynamic authorization requests with invalid AAA authenticators.	**extensive**
Invalid or missing Charging Ids	Number of dynamic authorization requests with invalid charging IDs or that did not contain charging IDs.	**extensive**

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Table 21: show unified-edge ggsn-pgw aaa statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Session mapping errors	Number of dynamic authorization requests that caused session mapping errors during processing.	**extensive**
Invalid transactions ids	Number of dynamic authorization requests with invalid transaction IDs.	**extensive**

Sample Output

show unified-edge ggsn-pgw aaa statistics accounting brief

```
user@host> show unified-edge ggsn-pgw aaa statistics accounting brief

Accounting module statistics
Gateway Name: -All-
  Requests: 1
  Responses success: 1
  Requests timed out: 0
  Requests retransmitted: 0
  Transmit errors: 0
  Response errors: 0
  Pending requests: 0
```

show unified-edge ggsn-pgw aaa statistics accounting detail

```
user@host> show unified-edge ggsn-pgw aaa statistics accounting detail

Accounting module statistics (FPC/PIC: 0/1)
Gateway Name: PGW
  Requests: 1
  Responses success: 1
  Requests timed out: 0
  Requests retransmitted: 0
  Transmit errors: 0
  Response errors: 0
  Pending requests: 0
```

show unified-edge ggsn-pgw aaa statistics accounting extensive

```
user@host> show unified-edge ggsn-pgw aaa statistics accounting extensive
```

The output for the **show unified-edge ggsn-pgw aaa statistics accounting** command is the same for both the **detail** and **extensive** options.

show unified-edge ggsn-pgw aaa

```
user@host> show unified-edge ggsn-pgw aaa statistics authentication brief

Authentication module statistics
```


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statistics authentication brief

```
Gateway Name: -All-
  Requests: 1
  Accepts: 1
  Rejects: 0
  Challenges: 0
  Requests timed out: 0
  Requests retransmitted: 0
  Transmit errors: 0
  Response errors: 0
  Pending requests: 0
```

show unified-edge ggsn-pgw aaa statistics authentication detail

```
user@host> show unified-edge ggsn-pgw aaa statistics authentication detail

Authentication module statistics (FPC/PIC: 0/1)
Gateway Name: PGW
  Requests: 1
  Accepts: 1
  Rejects: 0
  Challenges: 0
  Requests timed out: 0
  Requests retransmitted: 0
  Transmit errors: 0
  Response errors: 0
  Pending requests: 0
```

show unified-edge ggsn-pgw aaa statistics authentication extensive

```
user@host> show unified-edge ggsn-pgw aaa statistics authentication extensive
```

The output for the **show unified-edge ggsn-pgw aaa statistics authentication** command is the same for both the **detail** and **extensive** options.

show unified-edge ggsn-pgw aaa statistics dynamic-requests brief

```
user@host> show unified-edge ggsn-pgw aaa statistics dynamic-requests brief

Dynamic requests module statistics
Gateway Name: -All-
  Requests received: 0
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
```

show unified-edge ggsn-pgw aaa statistics

```
user@host> show unified-edge ggsn-pgw aaa statistics dynamic-requests detail

Dynamic requests module statistics (FPC/PIC: 0/1)
Gateway Name: PGW
```

dynamic-requests detail

```
  Requests received: 0
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
  Duplicates: 0
  Forwarded: 0
  Timeouts: 0
```

show unified-edge ggsn-pgw aaa statistics dynamic-requests extensive

```
user@host> show unified-edge ggsn-pgw aaa statistics dynamic-requests extensive

Dynamic requests module statistics (FPC/PIC: 0/1)
Gateway Name: PGW
  Requests received: 0
  CoA requests received: 0
  DM requests received: 0
  CoA Acks sent: 0
  CoA Nacks sent: 0
  DM Acks sent: 0
  DM Nacks sent: 0
  Dropped: 0
  Duplicates: 0
  Forwarded: 0
  Timeouts: 0
  Delivered: 0
  Errors during processing: 0
  Unknown clients : 0
  Invalid RADIUS codes: 0
  Invalid RADIUS authenticators: 0
  Invalid or missing Charging Ids: 0
  Session mapping errors: 0
  Invalid transactions ids: 0
```


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CHAPTER 20

Address Assignment Operational Commands

clear unified-edge ggsn-pgw address-assignment pool

Syntax

clear unified-edge ggsn-pgw address-assignment pool name *pool-name*
<gateway *gateway*>
<routing-instance *routing-instance*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Clear the sessions that have been assigned addresses from the specified mobile pool for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the sessions for all GGSNs and P-GWs are cleared.

Options

name *pool-name*—Clear the sessions for the specified mobile pool.

gateway *gateway*—(Optional) Clear the sessions on the specified GGSN or P-GW.

routing-instance *routing-instance*—(Optional) Clear the sessions on the specified routing instance.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw address-assignment pool on page 711

List of Sample Output

clear unified-edge ggsn-pgw address-assignment pool name pool-1 on page 706

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw address-assignment pool name pool-1

```
user@host> clear unified-edge ggsn-pgw address-assignment pool name pool-1

Initiated clearing of sessions in the pool
```


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clear unified-edge ggsn-pgw address-assignment statistics

Syntax

clear unified-edge ggsn-pgw address-assignment statistics
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Clear the global address assignment statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the statistics for all GGSNs and P-GWs are cleared.

Options

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Clear the statistics for the services PIC in the specified FPC and PIC slots.

gateway *gateway*—(Optional) Clear the statistics for the specified GGSN or P-GW.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw address-assignment statistics on page 717

List of Sample Output

clear unified-edge ggsn-pgw address-assignment statistics on page 707

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw address-assignment statistics

```
user@host> clear unified-edge ggsn-pgw address-assignment statistics

Cleared address-assignment statistics
```

show unified-edge ggsn-pgw address-assignment group

Syntax

show unified-edge ggsn-pgw address-assignment group
<brief | detail>
<fpc-slot *slot-number*>
<gateway *gateway-name*>
<name *group-name*>
<pic-slot *slot-number*>
<routing-instance *routing-instance-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the information for the mobile pool groups for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display the information about the mobile pool groups in brief.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the mobile pool groups for the services PIC in the specified FPC and PIC slots.

gateway *gateway-name*—(Optional) Display the information about the mobile pool groups for the specified GGSN or P-GW.

name *name*—(Optional) Display the information for the specified mobile pool group.

routing-instance *routing-instance*—(Optional) Display the mobile pool group information for the specified routing instance.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw address-assignment pool on page 711

List of Sample Output

show unified-edge ggsn-pgw address-assignment group brief on page 709
show unified-edge ggsn-pgw address-assignment group detail on page 709

Output Fields

Table 22 on page 708 lists the output fields for the **show unified-edge ggsn-pgw address-assignment group** command. Output fields are listed in the approximate order in which they appear.

Table 22: show unified-edge ggsn-pgw address-assignment-group Output Fields

Field Name	Field Description	Level of Output
Group	Name of the mobile pool group.	All levels
FPC/PIC	FPC and PIC slot numbers.	**detail**

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Table 22: show unified-edge ggsn-pgw address-assignment-group Output Fields *(continued)*

Field Name	Field Description	Level of Output
Total addresses	Total number of addresses available in the mobile pool group.	All levels
Addresses in use	Number of addresses in the mobile pool group that are currently in use.	All levels
Address usage (percent)	Percentage utilization of the total addresses in the mobile pool group.	All levels
Routing instance	Routing instance to which the mobile pool group belongs.	All levels
Gateway	Gateway to which the PIC belongs.	**detail**
Pool information	The following information about the mobile pools belonging to this mobile pool group is displayed: • **Name**—Name of the mobile pool. • **Total**—Total number of addresses in the mobile pool. • **In use**—Number of addresses in the mobile pool that are in use. • **Util (%)**—Percentage of addresses in the mobile pool that have been used.	All levels

Sample Output

show unified-edge ggsn-pgw address-assignment group brief

```
user@host> show unified-edge ggsn-pgw address-assignment group brief


Group: grp1
  Total addresses:         512
  Addresses in use:        301
  Address usage (percent): 59
  Routing instance:        default
  Pool information:
                                                        Util
Name                              Total       In-use    (%)
pool2                             256         254       99
pool3                             256         47        18
```

show unified-edge ggsn-pgw

```
user@host> show unified-edge ggsn-pgw address-assignment group detail

Group: grp1 (FPC/PIC: 4/0)
```

address-assignment group detail

```
  Total addresses:         512
  Addresses in use:        0
  Address usage (percent): 0
  Routing instance:        default
  Gateway:                 PGW
  Pool information:
                                                        Util
Name                              Total       In-use    (%)
pool2                             256         0         0
pool3                             256         0         0

Group: grp1 (FPC/PIC: 4/1)
  Total addresses:         512
  Addresses in use:        301
  Address usage (percent): 59
  Routing instance:        default
  Gateway:                 PGW
  Pool information:
                                                        Util
Name                              Total       In-use    (%)
pool2                             256         254       99
pool3                             256         47        18
```


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show unified-edge ggsn-pgw address-assignment pool

Syntax

show unified-edge ggsn-pgw address-assignment pool
<brief | detail | summary>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<name *pool-name*>
<pic-slot *pic-slot*>
<range *range-name*>
<ranges>
<routing-instance *routing-instance*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the information about the mobile pools for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed

Options

none—(Same as brief) Display the address information about the mobile pools in brief.

brief | detail | summary—(Optional) Display the specified level of output.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the mobile pool information for the services PIC in the specified FPC and PIC slots.

gateway *gateway-name*—(Optional) Display the mobile pool information for the specified GGSN or P-GW.

name *name*—(Optional) Display the information for the specified mobile pool.

NOTE: **Specifying the mobile pool is mandatory if you use the either the range *range-name* or the ranges option.**

range *range-name*—Display the information for the specified range in the specified pool.

ranges—Display the information for all the ranges in the specified pool.

routing-instance *routing-instance*—(Optional) Display the mobile pool information for the specified routing instance.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw address-assignment pool on page 706

List of Sample Output

show unified-edge ggsn-pgw address-assignment pool brief on page 713
show unified-edge ggsn-pgw address-assignment pool detail on page 713

show unified-edge ggsn-pgw address-assignment pool summary on page 714

Output Fields Table 23 on page 712 lists the output fields for the **show unified-edge ggsn-pgw address-assignment pool** command. Output fields are listed in the approximate order in which they appear.

Table 23: show unified-edge ggsn-pgw address-assignment pool Output Fields

Field Name	Field Description	Level of Output
Pool or **Name**	Name of the mobile pool.	All levels
FPC/PIC	FPC and PIC slots of the services PIC for which the mobile pool information is displayed.	**detail**
Total Addresses or **Total**	Total number of addresses available in the mobile pool.	All levels
Addresses in use or **In Use**	Number of addresses that have been allocated.	All levels
Addresses skipped	Number of addresses that are excluded from allocation.	**brief** **detail**
Address usage (percent) or **Util (%)**	Percentage of the total addresses used.	All levels
Addresses in aging period	Number of addresses that are currently being released and that cannot be allocated.	**brief** **detail**
Routing Instance	Name of the routing instance to which the mobile pool belongs.	All levels
Gateway	Gateway to which the services PIC belongs.	**detail**
Pool Maintenance Mode	Service mode of the mobile pool; for example, operational or maintenance.	**detail**
Address chunks	Number of chunks of IP addresses in the mobile pool (for the services PIC) that are currently being assigned	**detail**
Total address chunk size	Total number of addresses in the address chunk (for the services PIC).	**detail**
Total allocation failures	Total number of addresses that could not be allocated.	**detail**

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Sample Output

show unified-edge ggsn-pgw address-assignment pool brief

```
user@host> show unified-edge ggsn-pgw address-assignment pool brief


Pool: pool1
  Total addresses:           16777215
  Addresses in use:          1600
  Addresses skipped:         416
  Address usage (percent):   0
  Addresses in aging period: 1600
  Routing instance:          default


Pool: pool2
  Total addresses:           256
  Addresses in use:          254
  Addresses skipped:         2
  Address usage (percent):   99
  Addresses in aging period: 0
  Routing instance:          default

[...output truncated...]
```

show unified-edge ggsn-pgw

```
user@host> show unified-edge ggsn-pgw address-assignment pool detail

Pool: pool1 (FPC/PIC: 4/0)
```

address-assignment pool detail

```
  Pool Maintenance Mode:     Operational
  Total addresses:           16777215
  Addresses in use:          822
  Addresses skipped:         208
  Address usage (percent):   0
  Addresses in aging period: 822
  Routing instance:          default
  Gateway:                   PGW
  Address chunks:            26
  Total address chunk size:  26416
  Total allocation failures: 0

Pool: pool1 (FPC/PIC: 4/1)
  Pool Maintenance Mode:     Operational
  Total addresses:           16777215
  Addresses in use:          778
  Addresses skipped:         208
  Address usage (percent):   0
  Addresses in aging period: 778
  Routing instance:          default
  Gateway:                   PGW
  Address chunks:            26
  Total address chunk size:  26416
  Total allocation failures: 0

Pool: pool2 (FPC/PIC: 4/0)
  Pool Maintenance Mode:     Operational
  Total addresses:           256
  Addresses in use:          0
  Addresses skipped:         0
  Address usage (percent):   0
  Addresses in aging period: 0
  Routing instance:          default
  Gateway:                   PGW
  Address chunks:            0
  Total address chunk size:  0
  Total allocation failures: 0

[...output truncated...]
```

show unified-edge ggsn-pgw address-assignment pool summary

```
user@host> show unified-edge ggsn-pgw address-assignment pool summary
                                                    Util
Name                          Total       In-use    (%)  Routing instance
pool1                         16777215    1600      0    default
pool2                         256         254       99   default
pool3                         256         47        18   default
v4_pool                       16777216    0         0    default
v4_pool1                      16777215    0         0    default
v6_pool                       16777215    0         0    default
v6_pool1                      16777215    0         0    default
```


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show unified-edge ggsn-pgw address-assignment service-mode

Syntax

show unified-edge ggsn-pgw address-assignment service-mode
<brief | detail>
<pool *pool-name*>
<routing-instance *routing-instance-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display service mode information about mobile pools.

Options

none—Display the service mode information in brief.

brief | detail—(Optional) Display the specified level of output.

pool ***pool-name***—(Optional) Display the service mode information for the specified mobile pool.

routing-instance ***routing-instance-name***—(Optional) Display the service mode information about the mobile pools that are part of the specified routing instance.

Required Privilege Level

view

Related Documentation

- *Example: Changing Mobility Pool Attributes*

List of Sample Output

show unified-edge ggsn-pgw address-assignment service-mode brief on page 716
show unified-edge ggsn-pgw address-assignment service-mode detail on page 716

Output Fields

Table 24 on page 715 lists the output fields for the **show unified-edge ggsn-pgw address-assignment service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 24: show unified-edge ggsn-pgw address-assignment service-mode Output Fields

Field Name	Field Description
Pool Name	Name of the mobile pool.
Routing Instance	Routing instance to which the mobile pool belongs.
Service Mode	Service mode for the mobile pool: • **Operational**—Mobile pool is in operational mode. • **Maintenance**—Mobile pool is in maintenance mode. • **Maintenance - Active Phase**—All the attributes of the mobile pool can be modified. • **Maintenance - In/Out Phase**—Only the non-maintenance mode attributes of the mobile pool can be modified.

Sample Output

show unified-edge ggsn-pgw address-assignment service-mode brief

```
user@host> show unified-edge ggsn-pgw address-assignment service-mode brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
                      attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                      non-maintenance mode attributes of this object and
                      its sub-hierarchies.

Routing-Instance                Pool Name                       Service Mode

default                         my_pool                         Operational
default                         v6_pool                         Operational
```

show unified-edge ggsn-pgw address-assignment service-mode detail

```
user@host> show unified-edge ggsn-pgw address-assignment service-mode detail
Routing Instance: default
Pool Name       : my_pool
Service Mode    : Operational

Routing Instance: default
Pool Name       : v6_pool
Service Mode    : Operational
```


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show unified-edge ggsn-pgw address-assignment statistics

Syntax

show unified-edge ggsn-pgw address-assignment statistics
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the address assignment statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the consolidated statistics for all GGSNs and P-GWs are displayed.

Options

none—(Same as brief) Display the address assignment statistics in brief.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the statistics for the services PIC in the specified FPC and PIC slots.

gateway *gateway-name*—(Optional) Display the consolidated statistics for the specified GGSN or P-GW.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw address-assignment statistics on page 707

Output Fields

Table 25 on page 717 lists the output fields for the **show unified-edge ggsn-pgw address-assignment statistics** command. Output fields are listed in the approximate order in which they appear.

Table 25: show unified-edge ggsn-pgw address-assignment statistics Output Fields

Field Name	Field Description	Level of Output
FPC/PIC	FPC and PIC slots for which the statistics are displayed.	**detail**
Gateway	Name of the GGSN or P-GW.	**detail** **gateway**
Total address allocations	Total number of addresses allocated.	All levels
Total allocation failures	Total number of address allocations that failed.	All levels
Total address releases	Total number of addresses that were released.	All levels

Sample Output

show unified-edge ggsn-pgw address-assignment statistics

```
user@host> show unified-edge ggsn-pgw address-assignment statistics


Address assignment statistics
  Total address allocations: 1101
  Total allocation failures: 0
  Total address releases:    800
```

show unified-edge ggsn-pgw address-assignment statistics detail

```
user@host> show unified-edge ggsn-pgw address-assignment statistics detail


Address assignment statistics   (FPC/PIC: 4/0)
  Gateway:                   PGW
  Total address allocations: 416
  Total allocation failures: 0
  Total address releases:    416

Address assignment statistics   (FPC/PIC: 4/1)
  Gateway:                   PGW
  Total address allocations: 685
  Total allocation failures: 0
  Total address releases:    384
```


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CHAPTER 21

Anchor Packet Forwarding Engine Redundancy and Aggregated Multiservices High Availability Operational Commands

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request interface load-balancing revert (Aggregated Multiservices)

Syntax **request interface load-balancing revert** ***interface-name***

Release Information Command introduced in Junos OS Mobility Release 11.2W.

Description Revert the aggregated multiservices member interface (**mams-**) from the inactive state to the active or backup state based on the configuration and the operational state of the aggregated multiservices interface.

Options ***interface-name***—Name of the member interface. The member interface format is **mams-a/b/0**, where **a** is the FPC slot number and **b** is the PIC slot number.

Required Privilege Level view

Related Documentation

- request interface load-balancing switchover (Aggregated Multiservices) on page 721

List of Sample Output request interface load-balancing revert mams-4/0/0 (Aggregated Multiservices) on page 720

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request interface load-balancing revert mams-4/0/0 (Aggregated Multiservices)

```
user@host> request interface load-balancing revert mams-4/0/0
request succeeded
```

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request interface load-balancing switchover (Aggregated Multiservices)

Syntax

request interface load-balancing switchover ***interface-name*** **<force>**

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Switch the active member interface to the backup state.

In the case of mobile control plane redundancy, the behavior depends on the replication state of the member interface:

- If the sync state is **in-sync**, then the active member is rebooted and the backup member becomes the new active member.
- If the sync-state is **in-progress**, then the **force** option must be used to force the switchover.

WARNING: **In this case, there is a risk of losing subscriber information because the synchronization has not yet been completed.**

Options

interface-name—Name of the member interface. The member interface format is **mams-a/b/0**, where **a** is the FPC slot number and **b** is the PIC slot number.

force—(Optional) Force the switchover from the active member to the backup member.

Required Privilege Level

view

Related Documentation

- request interface load-balancing revert (Aggregated Multiservices) on page 720

List of Sample Output

request interface load-balancing switchover force mams-4/0/0 (Aggregated Multiservices) on page 721

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

request interface load-balancing switchover force mams-4/0/0 (Aggregated Multiservices)

```
user@host> request interface load-balancing switchover force mams-4/0/0
Switchover Initiated
```

show interfaces anchor-group (Aggregated Packet Forwarding Engine)

Syntax

show interfaces anchor-group
<brief | detail>
interface-name

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display interface information for the aggregated Packet Forwarding Engine group.

Options

none—(Same as brief) Display a summary of the aggregated Packet Forwarding Engine interface information.

brief | detail—(Optional) Display the specified level of output.

interface-name—Name of the interface within the anchor Packet Forwarding Engine group.

NOTE: **The interface must be an aggregated Packet Forwarding Engine interface (apfe-).**

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw system interfaces on page 732

List of Sample Output

show interfaces anchor-group brief on page 724
show interfaces anchor-group detail on page 724

Output Fields

Table 26 on page 722 lists the output fields for the **show interfaces anchor-group** command. Output fields are listed in the approximate order in which they appear.

Table 26: show interfaces anchor-group

Field Name	Field Description	Level of Output
Redundancy Status Legend	Legend for the redundancy status. • **Active**—Indicates that the anchor Packet Forwarding Engine is operational. • **Inactive**—Indicates that the anchor Packet Forwarding Engine is not operational. • **PF**—Indicates that the primary Packet Forwarding Engine anchor has failed. • **WS**—Indicates that the primary Packet Forwarding Engine is protected by a secondary Packet Forwarding Engine in warm standby mode.	All levels
Group	Name of the aggregated Packet Forwarding Engine group.	**brief** none
Mode	Redundancy mode in which the aggregated Packet Forwarding Engine group operates. Currently, only warm standby mode is supported.	**brief** none

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Table 26: show interfaces anchor-group *(continued)*

Field Name	Field Description	Level of Output
Sub-group ID	Redundancy subgroups within the anchor Packet Forwarding Engine group configuration that has FPCs as members. This is derived out of the Packet Forwarding Engines on a given FPC. For example, if the first Packet Forwarding Engine is assigned the number 0, then all the other Packet Forwarding Engines with sub-group ID 0 form the N:1 redundancy group.	**brief** none
Interface	Anchor Packet Forwarding Engine interface (**pfe-**).	**brief detail** none
Configured State	State in which the anchor Packet Forwarding Engine was configured. • **Primary**: Indicates that the anchor Packet Forwarding Engine is in the pool of primary members. • **Secondary**: Indicates that the anchor Packet Forwarding Engine is a backup to all the primary members.	**brief detail** none
Operational State	Indicates whether the anchor Packet Forwarding Engine is operational (**Active**) or not operational (**Inactive**).	**brief detail** none
Redundancy State	Redundancy state (primary or secondary) in which the anchor Packet Forwarding Engine was configured.	**brief detail** none
Group Name	Name of the aggregated Packet Forwarding Engine group.	**detail**
Group Mode	Redundancy mode in which the aggregated Packet Forwarding Engine group operates. Currently, only warm standby mode is supported.	**detail**
Group Id	Internal ID generated for the group.	**detail**
Switchover information	Switchover details, if any.	**detail**
Subgroup identifier	Redundancy subgroups within the anchor Packet Forwarding Engine group configuration that has FPCs as members. This is derived out of the Packet Forwarding Engines on a given FPC. For example, if the first Packet Forwarding Engine is assigned the number 0, then all the other Packet Forwarding Engines with subgroup ID 0 form the N:1 redundancy group.	**detail**

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Sample Output

show interfaces anchor-group brief

```
user@host> show interfaces anchor-group brief
Redundancy Status Legend:

Active: Operational                Inactive: Non-operational
MS: Manually switched              PF: Primary failed
HS: Hot standby                    WS: Warm standby

Group     Mode  Sub-group  Interface  Configured  Operational    Redundancy
                   ID                    State       State          State

apfe0     WS       0       pfe-4/0/0  Primary     Active         Primary
                          pfe-5/0/0  Secondary   Active         Secondary
                   2       pfe-4/2/0  Primary     Active         Primary
                          pfe-5/2/0  Secondary   Active         Secondary
```

show interfaces anchor-group detail

```
user@host> show interfaces anchor-group detail
Active: Operational                Inactive: Non-operational
MS: Manually switched              PF: Primary failed
HS: Hot standby                    WS: Warm standby

Group Name: apfe0
  Group Mode: WS                       Group Id: 65
  Switchover information: None
  Interface pfe-4/2/0
    Configured state: Primary          Operational state: Active
    Redundancy state: Primary
    Subgroup identifier: 2
  Interface pfe-4/0/0
    Configured state: Primary          Operational state: Active
    Redundancy state: Primary
    Subgroup identifier: 0
  Interface pfe-5/0/0
    Configured state: Secondary        Operational state: Active
    Redundancy state: Secondary
    Subgroup identifier: 0
  Interface pfe-5/2/0
    Configured state: Secondary        Operational state: Active
    Redundancy state: Secondary
    Subgroup identifier: 2
```


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show interfaces load-balancing (Aggregated Multiservices)

Syntax

show interfaces load-balancing
<detail>
<interface-name>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display information about the aggregated multiservices interface (**ams**) as well as its individual member interfaces and the status of the replication state.

Options

none—Display a summary of the aggregated multiservices interface information.

detail—(Optional) Display the specified level of output.

interface-name—(Optional) Name of the aggregated multiservices interface (**ams**). If this is omitted, then the information for all the aggregated multiservices interfaces, including those used in control plane redundancy and high availability (HA) for service applications, is displayed.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw system interfaces on page 732

List of Sample Output

show interfaces load-balancing on page 727
show interfaces load-balancing detail on page 727
show interfaces load-balancing ams0 detail on page 727

Output Fields

Table 27 on page 725 lists the output fields for the **show interfaces load-balancing** command. Output fields are listed in the approximate order in which they appear.

Table 27: show interfaces load-balancing Output Fields

Field Name	Field Description	Level of Output
Interface	Aggregated multiservices interface (**ams**).	**detail** none
State	State of the aggregated multiservices interface. The following states are possible: • Wait for Members—None of the member interfaces are powered on yet. • Members Seen—All of the member interfaces are online. • Wait Timer—At least one of the member interfaces has joined the **ams** interface. • Up—The **ams** interface is up with the current joined member interfaces.	**detail** none
Last change	Time (in *hh:mm:ss* [*hours:minutes:seconds*] format) when the state last changed.	**detail** none
Members	Number of member interfaces (**mams-**).	none

Table 27: show interfaces load-balancing Output Fields *(continued)*

Field Name	Field Description	Level of Output
Member count	Number of member interfaces (**mams-**).	**detail**
HA Model	High availability (HA) model supported on the interface.	**detail** none

Members	The following information about the member interfaces is displayed:
	• **Interface**—Name of the member interface.
	• **Weight**—This output can be ignored for the current release.
	• **State**—Indicates the state of the member interface (**mams-**). The following states are possible:
	  ◦ Active—The member is an active member.
	  ◦ Backup—The member is a backup.
	  ◦ Discard—The member has not yet rejoined the **ams** interface after failure.
	  ◦ Down—The member has not yet powered on.
	  ◦ Inactive—The member has failed to rejoin the **ams** interface within the configured **rejoin-timeout**.
	  ◦ Invalid—The Multiservices PIC corresponding to the member interface has been configured but is not physically present in the chassis.
		detail

Sync-state	Synchronization (sync) status of the control plane redundancy. The sync state is displayed only when the **ams** interface is **Up**.
	• **Interface**—Name of the member interface.
	• **Status**—The synchronization status of the member interfaces.
	  ◦ In progress—The active member is currently synchronizing its state information with the backup member.
	  ◦ In sync—The active member has finished synchronizing its state information with the backup and the backup is ready to take over if the active member fails.
	  ◦ NA (Not applicable)—The backup member is not yet ready to synchronize with the active (primary) member. This may occur if the backup is still powered off or still booting.
	  ◦ Unknown—The daemons are still initializing and the state information is unavailable.
		detail

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Sample Output

show interfaces load-balancing

```
user@host> show interfaces load-balancing
Interface  State       Last change  Members  HA Model
ams0       Up          00:10:02     4        Many-to-One
```

show interfaces load-balancing detail

```
user@host> show interfaces load-balancing detail
Load-balancing interfaces detail
Interface        : ams0
  State          : Up
  Last change    : 00:10:23
  Member count   : 4
  HA Model       : Many-to-One
  Members        :
      Interface    Weight   State
      mams-4/0/0   10       Active
      mams-4/1/0   10       Active
      mams-5/0/0   10       Active
      mams-5/1/0   10       Backup
  Sync-state     :
      Interface    Status
      mams-4/0/0   Unknown
      mams-4/1/0   Unknown
      mams-5/0/0   Unknown
```

show interfaces load-balancing ams0 detail

```
user@host> show interfaces load-balancing ams0 detail
Load-balancing interfaces detail
Interface        : ams0
  State          : Up
  Last change    : 00:11:28
  Member count   : 4
  HA Model       : Many-to-One
  Members        :
      Interface    Weight   State
      mams-4/0/0   10       Active
      mams-4/1/0   10       Active
      mams-5/0/0   10       Active
      mams-5/1/0   10       Backup
  Sync-state     :
      Interface    Status
      mams-4/0/0   Unknown
      mams-4/1/0   Unknown
      mams-5/0/0   Unknown
```

show services ipsec-vpn ipsec security-associations

Syntax

show services ipsec-vpn ipsec security-associations
<brief | detail | extensive>
<service-set *service-set-name*>

Release Information

Command introduced before Junos OS Release 7.4.

Description

(Adaptive services interface only) Display IPsec security associations for the specified service set. If no service set is specified, the security associations for all service sets are displayed.

Options

none—Display standard information about IPsec security associations for all service sets.

brief | detail | extensive—(Optional) Display the specified level of output.

service-set *service-set-name*—(Optional) Display information about a particular service set.

Required Privilege Level

view

Related Documentation

- unit (Aggregated Multiservices) on page 120

List of Sample Output

show services ipsec-vpn ipsec security associations detail on page 730
show services ipsec-vpn ipsec security associations extensive on page 730

Output Fields

Table 28 on page 728 lists the output fields for the **show services ipsec-vpn ipsec security-associations** command. Output fields are listed in the approximate order in which they appear.

Table 28: show services ipsec-vpn ipsec security-associations Output Fields

Field Name	Field Description	Level of Output
Service set	Name of the service set for which the IPsec security associations are defined. If appropriate, includes the outside service interface VRF name.	All levels
Rule	Name of the rule set applied to the security association.	**detail extensive**
Term	Name of the IPsec term applied to the security association.	**detail extensive**
Tunnel index	Numeric identifier of the specific IPsec tunnel for the security association.	**detail extensive**
Anchored PIC	Services PIC on which the IPsec tunnel is anchored. This field is displayed only if the service set is applied over an AMS interface; for example **ams0**.	**detail** **extensive**
Local gateway	Gateway address of the local system.	All levels
Remote gateway	Gateway address of the remote system.	All levels

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Table 28: show services ipsec-vpn ipsec security-associations Output Fields *(continued)*

Field Name	Field Description	Level of Output
IPsec inside interface	Name of the logical interface hosting the IPsec tunnels.	All levels
Local identity	Prefix and port number of the local end.	All levels
Remote identity	Prefix and port number of the remote end.	All levels
Primary remote gateway	IP address of the configured primary remote peer.	All levels
Backup remote gateway	IP address of the configured backup remote peer.	All levels
State	State of the primary or backup interface: **Active**, **Offline**, or **Standby**. Both ES PICs are initialized to **Offline**. For primary and backup peers, **State** can be **Active** or **Standby**. If both peers are in a state of **Standby**, no connection exists yet between the two peers.	All levels
Failover counter	Number of times a PIC switched between the primary and backup interfaces, or the number of times the tunnel switched between the primary and remote peers since the software was activated.	All levels
Direction	Direction of the security association: **inbound** or **outbound**.	All levels
SPI	Value of the security parameter index.	All levels
AUX-SPI	Value of the auxiliary security parameter index: • When the value of **Protocol** is **AH** or **ESP**, **AUX-SPI** is always **0**. • When the value of **Protocol** is **AH+ESP**, **AUX-SPI** is always a positive integer.	All levels
Mode	Mode of the security association: • **transport**—Protects single host-to-host protections. • **tunnel**—Protects connections between security gateways.	**detail extensive**
Type	Type of security association: • **manual**—Security parameters require no negotiation. They are static, and are configured by the user. • **dynamic**—Security parameters are negotiated by the IKE protocol. Dynamic security associations are not supported in transport mode.	**detail extensive**
State	Status of the security association: • **Installed**—The security association is installed in the security association database. (For transport mode security associations, the value of State must always be Installed.) • **Not installed**—The security association is not installed in the security association database.	**detail extensive**

Table 28: show services ipsec-vpn ipsec security-associations Output Fields *(continued)*

Field Name	Field Description	Level of Output
Protocol	Protocol supported: • **transport** mode supports Encapsulation Security Protocol (**ESP**) or Authentication Header (**AH**). • **tunnel** mode supports **ESP** or **AH+ESP**.	All levels
Authentication	Type of authentication used: **hmac-md5-96**, **hmac-sha1-96**, or **none**.	**detail extensive**
Encryption	Type of encryption algorithm used: **aes-cbc (128 bits)**, **aes-cbc (192 bits)**, **aes-cbc (256 bits)**, **des-cbc**, **3des-cbc**, or **None**.	**detail**
Soft lifetime **Hard lifetime**	Each lifetime of a security association (SA) has two display options, hard and soft, one of which must be present for a dynamic security association. The hard lifetime specifies the lifetime of the SA. The soft lifetime, which is derived from the hard lifetime, informs the IPsec key management system that the SA is about to expire. This information allows the key management system to negotiate a new SA before the hard lifetime expires. • **Expires in** *seconds* **seconds**—Number of seconds left until the security association expires. • **Expires in** *kilobytes* **kilobytes**—Number of kilobytes left until the security association expires.	**detail extensive**
Anti-replay service	State of the service that prevents packets from being replayed: **Enabled** or **Disabled**.	**detail extensive**
Replay window size	Configured size, in packets, of the antireplay service window: **32** or **64**. The antireplay window size protects the receiver against replay attacks by rejecting old or duplicate packets. If the replay window size is **0**, antireplay service is disabled.	**detail**

Sample Output

show services ipsec-vpn ipsec security associations detail

```
user@host> show services ipsec-vpn ipsec security-associations detail
Service set: huffer, IKE Routing-instance: default

  Rule: _junos_, Term: tunnel1, Tunnel index: 1, Anchored pic: mams-5/1/0
  Local gateway: 4.1.1.2, Remote gateway: 4.1.1.1
  IPSec inside interface: ams0.1, Tunnel MTU: 1500
  Local identity: ipv4(any:0,[0..3]=4.1.1.2)
  Remote identity: ipv4(any:0,[0..3]=4.1.1.1)
```

show services ipsec-vpn ipsec

```
user@host> show services ipsec-vpn ipsec security-associations extensive
Service set: snart, IKE Routing-instance: default
```


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security associations extensive

```
Rule: _junos_, Term: tunnel1, Tunnel index: 1, Anchored pic: mams-5/1/0
Local gateway: 3.1.100.101, Remote gateway: 3.1.100.2
IPSec inside interface: ams0.1, Tunnel MTU: 1500
Local identity: ipv4(any:0,[0..3]=5.1.0.2)
Remote identity: ipv4(any:0,[0..3]=4.1.0.2)

  Direction: inbound, SPI: 2417504417, AUX-SPI: 0
  Mode: tunnel, Type: dynamic, State: Installed
  Protocol: ESP, Authentication: hmac-sha1-96, Encryption: 3des-cbc
  Soft lifetime: Expires in 28704 seconds
  Hard lifetime: Expires in 28794 seconds
  Anti-replay service: Enabled, Replay window size: 128

  Direction: outbound, SPI: 4201112312, AUX-SPI: 0
  Mode: tunnel, Type: dynamic, State: Installed
  Protocol: ESP, Authentication: hmac-sha1-96, Encryption: 3des-cbc
  Soft lifetime: Expires in 28704 seconds
  Hard lifetime: Expires in 28794 seconds
  Anti-replay service: Enabled, Replay window size: 128
```

show unified-edge ggsn-pgw system interfaces

Syntax

show unified-edge ggsn-pgw system interfaces
<gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display information about the aggregated Packet Forwarding Engine and the aggregated multiservices (AMS) interfaces and their states on one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.

Options

none—Display information for one or more GGSNs and P-GWs.

gateway *gateway-name*—(Optional) Display information for the specified gateway.

Required Privilege Level

view

Related Documentation

- show interfaces anchor-group (Aggregated Packet Forwarding Engine) on page 722
- show interfaces load-balancing (Aggregated Multiservices) on page 725
- show unified-edge ggsn-pgw resource-manager clients on page 1105
- show unified-edge ggsn-pgw system interfaces service-mode on page 1107

List of Sample Output

show unified-edge ggsn-pgw system interfaces on page 733

Output Fields

Table 29 on page 732 lists the output fields for the **show unified-edge ggsn-pgw system interfaces** command. Output fields are listed in the approximate order in which they appear.

Table 29: show unified-edge ggsn-pgw system interfaces

Field Name	Field Description
Gateway	Name of the GGSN or P-GW.
Interfaces	Name of the interface: • Aggregated multiservices; for example, **ams0** • Aggregated Packet Forwarding Engine; for example, **apfe1** • Member of aggregated multiservices; for example, **mams-1/0/0** • Multiservices; for example, **ms-1/0/0** • Packet Forwarding Engine; for example, **pfe-0/1/0**
Members	For **ams** and **apfe** interfaces, the member interfaces that are part of the aggregated interfaces are displayed.
Operational State	Indicates whether the interface is operational (**Active**) or not (**Inactive**).

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Table 29: show unified-edge ggsn-pgw system interfaces *(continued)*

Field Name	Field Description
Redundancy Role	Redundancy state in which the interface is configured: • **Primary**—The interface is a primary member. • **Secondary**—The interface is a backup to all the primary members. • **Standalone**—The interface has not been configured for redundancy.

Sample Output

show unified-edge ggsn-pgw system interfaces

```
user@host> show unified-edge ggsn-pgw system interfaces
Gateway: PGW
    Interfaces          Members        Operational     Redundancy
                                          State           Role
    ms-1/0/0                           Active          Standalone
    ms-1/1/0                           Active          Standalone
    ms-2/0/0                           Active          Standalone
    ms-2/1/0                           Active          Standalone
    pfe-0/0/0                          Active          Standalone
    pfe-0/1/0                          Active          Standalone
    pfe-0/2/0                          Active          Standalone
    pfe-0/3/0                          Active          Standalone
```

show unified-edge sgw system interfaces

Syntax

show unified-edge sgw system interfaces
<gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display information about the aggregated Packet Forwarding Engine and the aggregated multiservices (AMS) interfaces and their states on one or more configured Serving Gateways (S-GWs). If a gateway is not specified, then information for all configured S-GWs is displayed.

Options

gateway *gateway*—(Optional) Display interface information for the specified gateway.

Required Privilege Level

view

Related Documentation

- show interfaces anchor-group (Aggregated Packet Forwarding Engine) on page 722
- show interfaces load-balancing (Aggregated Multiservices) on page 725
- show unified-edge sgw resource-manager clients on page 1116
- show unified-edge sgw system interfaces service-mode on page 1118

List of Sample Output

show unified-edge sgw system interfaces on page 735

Output Fields

Table 30 on page 734 lists the output fields for the **show unified-edge sgw system interfaces** command. Output fields are listed in the approximate order in which they appear.

Table 30: show unified-edge sgw system interfaces Output Fields

Field Name	Field Description
Gateway	Name of the S-GW.
Interfaces	Name of the interface: • Aggregated multiservices; for example, **ams0** • Aggregated Packet Forwarding Engine, for example, **apfe1** • Member of aggregated multiservices; for example **mams-1/0/0** • Multiservices; for example, **ms-3/0/0** • Packet Forwarding Engine; for example **pfe-4/2/0**
Members	For **ams** and **apfe** interfaces, the member interfaces that are part of the aggregated interfaces are displayed.
Operational State	Indicates whether the interface is operational (**Active**) or not (**Inactive**).

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Table 30: show unified-edge sgw system interfaces Output Fields *(continued)*

Field Name	Field Description
Redundancy Role	Redundancy state in which the interface is configured: • **Primary**—The interface is a primary member. • **Secondary**—The interface is a backup to all the primary members. • **Standalone**—The interface is not configured for redundancy.

Sample Output

show unified-edge sgw system interfaces

```
user@host> show unified-edge sgw system interfaces

Gateway: SGW
    Interfaces          Members        Operational     Redundancy
                                          State           Role
    ms-3/0/0                           Active          Standalone
    ms-3/1/0                           Inactive        Standalone
    pfe-4/0/0                          Active          Standalone
    pfe-4/2/0                          Active          Standalone
```

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CHAPTER 22

APN and Related Operational Commands

show services hcm pic-statistics

Syntax show services hcm pic-statistics
<interface *interface-name*>

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Display the statistics collected (from the services PICs) for HTTP header enrichment.

Options **none**—Display the statistics for all the services PICs.

interface *interface-name*—Display the statistics for the specified services PIC.

Required Privilege Level view

Related Documentation
- show services hcm statistics on page 742

List of Sample Output show services hcm pic-statistics on page 741

Output Fields Table 31 on page 738 lists the output fields for the **show services hcm pic-statistics** command. Output fields are listed in the approximate order in which they appear.

Table 31: show services hcm pic-statistics Output Fields

Field Name	Field Description
Interface	Name of the services PIC interface for which statistics are displayed.
Session statistics—The session statistics are displayed for each services PIC.	
Number of Session Interest events	Number of Session Interest events.
Number of Session Create events	Number of Session Create events.
Number of Session Close events	Number of Session Close events.
Number of Session Destroy events	Number of Session Destroy events.
Number of Session Data events	Number of Session Data events.
Number of Session Handle failures	Number of Session Handle failures.
Number of Session Extension allocations	Number of Session Extension allocations that were successful.
Number of Session Extension alloc failures	Number of Session Extension allocations that failed.
Number of Session Extension frees	Number of Session Extension frees (memory releases).
TCP Proxy statistics	

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Table 31: show services hcm pic-statistics Output Fields *(continued)*

Field Name	Field Description
Number of missing stbuf	Number of missing stream buffers.
Number of stbuf initializations	Number of stream buffer initializations that were successful.
Number of stbuf initialization failures	Number of stream buffer initializations that failed.
Number of stbuf store failures	Number of stream buffer store failures.
Number of stbuf frees	Number of stream buffer frees (memory releases) that were successful.
Number of stbuf free failures	Number of stream buffer frees that failed.
Number of stbuf sends	Number of stream buffer sends that were successful.
Number of stbuf send failures	Number of stream buffer sends that failed.
Number of stbuf receives	Number of stream buffer receives that were successful.
Number of stbuf throttles	Number of stream buffer throttles. Throttles are done when the stream buffer queue is full.
Number of invalid stbuf	Number of invalid stream buffers.
THR statistics	
Number of THR creates	Number of successful TCP Header Rewriter (THR) Create Requests.
Number of missing THR handles	Number of missing THR handles.
Number of THR create failures	Number of THR Create Requests that failed.
Number of THR store failures	Number of THR store failures.
Number of THR short circuit failures	Number of THR short circuit (packet bypass) failures.
Number of THR update failures	Number of THR updates that failed.
Number of THR state updates	Number of THR state updates.
Number of THR destroy failures	Number of THR destroys that failed.
Number of THR destroys	Number of THR Cleanup Requests that were successful.
JCPP statistics	
Number of JCPP handle allocations	Number of Juniper Content and Protocol Parsers (JCPP) handle allocations that were successful.

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Table 31: show services hcm pic-statistics Output Fields *(continued)*

Field Name	Field Description
Number of JCPP handle allocation failures	Number of JCPP handle allocations that failed.
Header Insertion statistics	
Number of HCM Header Insertions	Number of times that tags were successfully inserted into HTTP headers.
Number of HCM Header Insertion failures	Number of times that the insertion of tags into HTTP headers failed.
Number of HCM Tags too large	Number of tags that could not be inserted into HTTP headers because the tag size was larger than the maximum allowed size.
Number of HCM Tag encryption failures	Number of times that the encryption of HTTP tags used for header insertion failed.
Number of HCM requests	Number of HTTP header enrichment requests.
Number of missing Subscribers in HCM	Number of times that subscriber attributes were missing during attempted header insertions.

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Sample Output

show services hcm pic-statistics

```
user@host> show services hcm pic-statistics
Interface: mams-3/0/0
Session statistics
    Number of Session Interest events              :224590
    Number of Session Create events                :224590
    Number of Session Close events                 :224590
    Number of Session Destroy events               :224590
    Number of Session Data events                  :224589
    Number of Session Handle failures              :0
    Number of Session Extension allocations        :224590
    Number of Session Extension alloc failures     :0
    Number of Session Extension frees              :224590
TCP Proxy statistics
    Number of missing stbuf                        :0
    Number of stbuf initializations                :0
    Number of stbuf initialization failures        :0
    Number of stbuf store failures                 :0
    Number of stbuf frees                          :0
    Number of stbuf free failures                  :0
    Number of stbuf sends                          :0
    Number of stbuf send failures                  :0
    Number of stbuf receives                       :0
    Number of stbuf throttles                      :0
    Number of invalid stbuf                        :0
THR statistics
    Number of THR creates                          :224590
    Number of missing THR handles                  :0
    Number of THR create failures                  :0
    Number of THR store failures                   :0
    Number of THR short circuit failures           :0
    Number of THR update failures                  :0
    Number of THR state updates                    :449180
    Number of THR destroy failures                 :0
    Number of THR destroys                         :0
JCPP statistics
    Number of JCPP handle allocations              :0
    Number of JCPP handle allocation failures      :0
Header Insertion statistics
    Number of HCM Header Insertions                :224589
    Number of HCM Header Insertion failures        :0
    Number of HCM Tags too large                   :0
    Number of HCM Tag encryption failures          :0
    Number of HCM requests                         :224589
    Number of missing Subscribers in HCM           :0
```

show services hcm statistics

Syntax

show services hcm statistics
<rule *rule-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the statistics collected for HTTP header enrichment for a specified tag rule.

NOTE: This command displays an output only if the **count** statement (at the **[edit services hcm tag-rule *rule-name* term *term-name* then]** hierarchy level) is configured for the term in a tag rule.

Options

none—Currently, no statistics are displayed when this command is run without a tag rule specified.

rule *rule-name*—Display the statistics for the specified tag rule.

Required Privilege Level

view

Related Documentation

- count (HTTP Header Enrichment) on page 142
- *Example: Configuring HTTP Header Enrichment*
- show services hcm pic-statistics on page 738

List of Sample Output

show services hcm statistics rule rule1 on page 743

Output Fields

Table 32 on page 742 lists the output fields for the **show services hcm statistics** command. Output fields are listed in the approximate order in which they appear.

Table 32: show services hcm statistics Output Fields

Field Name	Field Description
Interface	Name of the interface for which the statistics are displayed.
Term ID	Identifier for the term (in the tag rule) for which the statistics are displayed.
Hits	Number of times that the term was matched. This field displays the aggregate number of hits on service sets that include the term.

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Sample Output

show services hcm statistics rule rule1

```
user@host> show services hcm statistics rule rule1
Interface: mams-3/1/0
Term id              Hits
1                  58
Interface: mams-4/1/0
Term id              Hits
1                 144
```

show services mobile hcm statistics

Syntax show services mobile hcm statistics imsi *imsi*

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Display the statistics related to HTTP header enrichment for all the active HTTP sessions for the mobile subscriber with the specified International Mobile Subscriber Identity (IMSI).

Options imsi *imsi*—Display the HTTP header enrichment statistics for the specified IMSI.

Required Privilege Level view

Related Documentation
- show services mobile sessions on page 746

List of Sample Output show services mobile hcm statistics imsi 226041000210070 on page 745

Output Fields Table 33 on page 744 lists the output fields for the **show services mobile hcm statistics** command. Output fields are listed in the approximate order in which they appear.

Table 33: show services mobile hcm statistics Output Fields

Field Name	Field Description
Interface Name	Name of the services PIC on which data sessions are being serviced. The HTTP header enrichment statistics sessions are displayed per services PIC.
Session ID	Identifier for the session.
IMSI	IMSI of the subscriber's user equipment.
MSISDN	Mobile Station (MS) ISDN number of the subscriber's user equipment.
For each data session, the following information is displayed:	
Header inserted	Number of times that tags were successfully inserted into HTTP headers for the data session.
Header insert failed	Number of times that the insertion of tags into HTTP headers failed for the data session.
Tag too large	Number of tags that could not be inserted into HTTP headers because the tag size was larger than the maximum allowed size for the data session.
Tag encryption failed	Number of times that the encryption of HTTP tags used for header insertion failed for the data session.

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Table 33: show services mobile hcm statistics Output Fields *(continued)*

Field Name	Field Description
Total Get request	Total number of HTTP Get Requests received for the data session.
Subscriber info unavailable	Number of times that subscriber attributes were missing during attempted header insertions for the data session.

Sample Output

show services mobile hcm statistics imsi 226041000210070

```
user@host> show services mobile hcm statistics imsi 226041000210070
Interface Name: mams-5/1/0 (ams1)
Session id: 251675966, IMSI: 226041000210070, MSISDN: 40700210070
    Header inserted            : 1
    Header insert failed       : 0
    Tag too large              : 0
    Tag encryption failed      : 0
    Total Get request          : 1
    Subscriber info unavailable: 0

Session id: 251678281, IMSI: 226041000210070, MSISDN: 40700210070
    Header inserted            : 1
    Header insert failed       : 0
    Tag too large              : 0
    Tag encryption failed      : 0
    Total Get request          : 1
    Subscriber info unavailable: 0

Session id: 235053655, IMSI: 226041000210070, MSISDN: 40700210070
    Header inserted            : 1
    Header insert failed       : 0
    Tag too large              : 0
    Tag encryption failed      : 0
    Total Get request          : 1
    Subscriber info unavailable: 0
```

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show services mobile sessions

Syntax

show services mobile sessions
<imsi *imsi*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the active data sessions (TCP or UDP flows) that are being serviced (passing through a services PIC) for a specified International Mobile Subscriber Identity (IMSI). If an IMSI is not specified, then no output is displayed.

Options

none—Currently, no output is displayed when this command is run without an IMSI specified.

imsi *imsi*—(Optional) Display the data sessions for the specified IMSI.

Required Privilege Level

view

Related Documentation

- show services mobile hcm statistics on page 744

List of Sample Output

show services mobile sessions imsi 226041000100578 on page 747

Output Fields

Table 34 on page 746 lists the output fields for the **show services mobile sessions** command. Output fields are listed in the approximate order in which they appear.

Table 34: show services mobile sessions Output Fields

Field Name	Field Description
Interface Name	Name of the service PIC on which data sessions are being serviced. The data sessions are displayed per services PIC.
Service Set	Name of the service set on which the data session is being serviced.
Session	Identifier for the data session.
ALG	Identifier for the application-level gateway (ALG).
IMSI	IMSI of the subscriber's user equipment.
MSISDN	Mobile Station (MS) ISDN number of the subscriber's user equipment.

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Table 34: show services mobile sessions Output Fields *(continued)*

Field Name	Field Description
For each session, the following information, pertaining to the flow, is displayed: • Flow protocol: TCP or UDP • Flow source IP address and source port address • Flow destination IP address and destination port address • Flow state: Forward or Drop • Flow direction: input (I) or output (O) • Number of packets transmitted	

Sample Output

show services mobile sessions imsi 226041000100578

```
user@host> show services mobile sessions imsi 226041000100578
Interface Name: mams-5/1/0 (ams1)
Service Set: set-hcm, Session: 67258263, ALG: none, IMSI: 226041000100578, MSISDN:
 40700100578
TCP         130.0.43.8:17751 ->     90.90.90.5:80    Forward  I              31
TCP         90.90.90.5:80    ->     130.0.43.8:17751 Forward  O              53
Service Set: set-hcm, Session: 67269654, ALG: none, IMSI: 226041000100578, MSISDN:
 40700100578
TCP         130.0.43.8:18572 ->     90.90.90.5:80    Forward  I              31
TCP         90.90.90.5:80    ->     130.0.43.8:18572 Forward  O              54
Service Set: set-hcm, Session: 83939629, ALG: none, IMSI: 226041000100578, MSISDN:
 40700100578
TCP         130.0.43.8:20826 ->     90.90.90.5:80    Forward  I              31
TCP         90.90.90.5:80    ->     130.0.43.8:20826 Forward  O              53
```

show unified-edge ggsn-pgw apn call-rate statistics

Syntax show unified-edge ggsn-pgw apn call-rate statistics apn-name *apn-name* gateway *gateway*

Release Information Command introduced in Junos OS Mobility Release 12.1W.

Description Display the call-rate statistics for the access point name (APN) on the specified Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).

Options **apn-name** ***apn-name***—Display the call-rate statistics for the specified APN.

gateway ***gateway***—Display the call-rate statistics for the specified GGSN or P-GW.

Required Privilege Level view

Related Documentation
- call-rate-statistics on page 663
- show unified-edge ggsn-pgw call-rate statistics on page 1103

List of Sample Output show unified-edge ggsn-pgw apn call-rate statistics apn-name apn-1 gateway gw1 on page 749

Output Fields Table 35 on page 748 lists the output fields for the **show unified-edge ggsn-pgw apn call-rate statistics** command. Output fields are listed in the approximate order in which they appear.

Table 35: show unified-edge ggsn-pgw apn call-rate statistics Output Fields

Field Name	Field Description
Record	Record number for the interval in which the APN call-rate statistics are collected, starting from the newest record (1) to the oldest.
Call-rate interval	Interval, in minutes, for which the APN call-rate statistics are calculated.
Control Plane—The following control plane information for the APN is displayed:	
Prepaid Bearer	• **Activation**—Number of prepaid bearer activations during the call-rate interval. • **Deactivation**—Number of prepaid bearer deactivations during the call-rate interval.
Postpaid Bearer	• **Activation**—Number of postpaid bearer activations during the call-rate interval. • **Deactivation**—Number of postpaid bearer deactivations during the call-rate interval.
Online Authorization Attempts	Number of Credit Control Request (CCR) messages attempted to the Online Charging System (OCS). The CCR messages sent are CCR-Initial, CCR-Update, and CCR-Terminate.

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Table 35: show unified-edge ggsn-pgw apn call-rate statistics Output Fields *(continued)*

Field Name	Field Description
Online Authorization Success	Number of CCR messages successfully sent to the OCS.
Online authorization timeout	Number of CCR messages that timed out.
Statistics collection time	Date and time when the APN call-rate statistics for the record are computed.

Sample Output

show unified-edge ggsn-pgw apn call-rate statistics apn-name apn-1 gateway gw1

```
user@host> show unified-edge ggsn-pgw call-rate statistics apn-name apn-1 gateway gw1
Record 1 (Call-rate statistics for the past 5 min):
Control Plane:
        Prepaid  Bearer       Activation : 0 Deactivation : 0
        Postpaid Bearer       Activation : 0 Deactivation : 0
        Online authorization attempts : 0
        Online authorization success  : 0
        Online authorization timeout  : 0

    Statistics collection time: 2012-08-07 02:06:35 PDT (00:01:28 ago)

Record 2 (Call-rate statistics for the past 5 min):
Control Plane:
        Prepaid  Bearer       Activation : 0 Deactivation : 0
        Postpaid Bearer       Activation : 0 Deactivation : 0
        Online authorization attempts : 0
        Online authorization success  : 0
        Online authorization timeout  : 0

    Statistics collection time: 2012-08-07 02:01:35 PDT (00:06:28 ago)
```

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show unified-edge ggsn-pgw apn service-mode

Syntax

show unified-edge ggsn-pgw apn service-mode
<apn-name *apn-name*>
<brief | detail>
<gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display the service mode information for an access point name (APN) for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If an APN is not specified, then the information for all APNs for one or more GGSNs or P-GWs is displayed.

Options

none—(Same as brief) Display the APN service mode information in brief.

apn-name *apn-name*—(Optional) Display the service mode information for the specified APN.

brief | detail—(Optional) Display the specified level of output.

gateway *gateway*—(Optional) Display the service mode information for the specified GGSN or P-GW.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw service-mode on page 873

List of Sample Output

show unified-edge ggsn-pgw apn service-mode brief on page 751
show unified-edge ggsn-pgw apn service-mode detail on page 751

Output Fields

Table 36 on page 750 lists the output fields for the **show unified-edge ggsn-pgw apn service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 36: show unified-edge ggsn-pgw apn service-mode Output Fields

Field Name	Field Description
APN Name	Name of the APN.
Service Mode	Service mode for the APN: • **Operational**—APN is in operational mode. • **Maintenance**—APN is in maintenance mode.

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Sample Output

show unified-edge ggsn-pgw apn service-mode brief

```
user@host> show unified-edge ggsn-pgw apn service-mode brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
                      attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                      non-maintenance mode attributes of this object and
                      its sub-hierarchies.

APN Name                        Gateway Name                    Service Mode

jnpr-sunnyvale                  PGW                             Operational
jnpr-toxin                      PGW                             Operational
zoo                             PGW1                            Maintenance -
Active Phase
```

show unified-edge ggsn-pgw apn service-mode detail

```
user@host> show unified-edge ggsn-pgw apn service-mode detail
Gateway: PGW
APN Name        : jnpr-sunnyvale
Service Mode    : Operational

APN Name        : jnpr-toxin
Service Mode    : Operational
Gateway: PGW1

APN Name        : zoo
Service Mode    : Maintenance - Active Phase
```

show unified-edge ggsn-pgw apn statistics

Syntax

show unified-edge ggsn-pgw apn statistics apn-name *apn-name* <gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display the statistics for the specified access point name (APN) on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the statistics for the specified APN on all GGSNs and P-GWs are displayed.

Options

apn-name ***apn-name***—Display the statistics for the specified APN.

gateway ***gateway***—(Optional) Display the statistics for the APN on the specified GGSN or P-GW.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw apn call-rate statistics on page 748
- show unified-edge ggsn-pgw statistics on page 875

List of Sample Output

show unified-edge ggsn-pgw apn statistics apn-name apn-1 on page 758
show unified-edge ggsn-pgw apn statistics apn-name virtual-1 on page 760

Output Fields

Table 37 on page 752 lists the output fields for the **show unified-edge ggsn-pgw apn statistics** command. Output fields are listed in the approximate order in which they appear.

Table 37: show unified-edge ggsn-pgw apn statistics Output Fields

Field Name	Field Description
Gateway	Name of the GGSN or P-GW.
Control Plane GTP Statistics	
Session establishment attempts	Number of attempted session establishments and number of successful session establishments (**Success**).
MS/peer initiated modification attempts	Number of attempted session or bearer modifications initiated by the mobile station (MS) or the GTP peer, and number of successful modifications (**Success**).
Gateway initiated modification attempts	Number of attempted session or bearer modifications initiated by the GGSN or P-GW and number of successful modifications (**Success**).

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Table 37: show unified-edge ggsn-pgw apn statistics Output Fields *(continued)*

Field Name	Field Description
MS/peer initiated session deactivations	Number of attempted deactivations initiated by the mobile station or the GTP peer and number of successful deactivations (**Success**).
Gateway initiated session deactivations	Number of attempted deactivations initiated by the broadband gateway and number of successful deactivations (**Success**).
Attempted gateway redirects	Number of sessions that were attempted to be redirected to a different gateway and number of successful redirections (**Success**).
Successful apn redirects	Number of sessions that were successfully redirected to a different APN.
Session Establishments Failed (by GTP cause)	Number of session establishments that failed, listed according to the following GTP cause codes (returned in the GTP Response message): • **Service unavailable** • **System failure** • **No resources** • **No address** • **Service denied** • **Authentication Fail** • **APN access denied** • **Context not found** • **Others**
Dedicated bearer statistics	
MS/peer initiated activation attempts	Number of dedicated bearer activations initiated by the mobile station or GTP peer and number of successful activations (**Success**).
Gateway initiated activation attempts	Number of dedicated bearer activations initiated by the broadband gateway and number of successful activations (**Success**).
MS/peer initiated modification attempts	Number of dedicated bearer modifications initiated by the mobile station or GTP peer and number of successful modifications (**Success**).
Gateway initiated modification attempts	Number of dedicated bearer modifications initiated by the broadband gateway and number of successful activations (**Success**).
MS/peer initiated deactivations	Number of dedicated bearer deactivations initiated by the mobile station or GTP peer.
Gateway initiated deactivations	Number of dedicated bearer deactivations initiated by the broadband gateway.

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Table 37: show unified-edge ggsn-pgw apn statistics Output Fields *(continued)*

Field Name	Field Description
Handover Statistics	
Inter-RAT Handover attempts	Number of inter-RAT handovers attempted and number of handovers that were successful.
Intra-RAT Handover attempts	Number of intra-RAT handovers attempted and number of handovers that were successful.
User authentication statistics	
Authentication failures	Number of authentication failures.
Attempted authentications	Number of attempted authentications and number of successful authentications (**Success**).
Address allocation statistics	
dynamic IP allocation attempts	Number of attempted dynamic IP allocations and number of successful allocations (**Success**).
Offline charging statistics	
CDRs allocated	Total number of Charging Data Records (CDRs) opened.
Partial CDRs allocated	Total number of partial CDRs opened.
CDRs closed	Total number of CDRs closed.
Containers closed	Total number of containers closed.
DCCA-Gy statistics (Diameter Credit Control Application [DCCA] Gy statistics)	
Session establishments attempts	Number of Diameter session establishments attempted and number of session establishments that were successful (**Success**).
Session reauthorization attempts	Number of Diameter session reauthorizations attempted and number of authorizations that were successful (**Success**).
Online authorization timeouts	Number of online authorizations that timed out.

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Table 37: show unified-edge ggsn-pgw apn statistics Output Fields *(continued)*

Field Name	Field Description
MS/Peer initiated session deactivations	Number of successful session establishments initiated by the mobile station (MS) or the GTP peer.
OCS initiated session deactivations	Number of successful session establishments initiated by the Online Charging System (OCS).
Gateway initiated session deactivations	Number of successful session establishments initiated by the broadband gateway.
PCC Gx statistics	
Session establishment attempts	Number of IP CAN session establishments attempted. In addition, the number of successful IP CAN session establishments (**Success**) is displayed.
MS/peer initiated modification attempts	Number of session modifications initiated by the mobile station, MME, or S-GW. In addition, the number session modifications that were successful (**Success**) is displayed.
PCRF initiated modification attempts	Number of IP CAN session modifications initiated by the policy and charging rules function (PCRF). In addition, the number of modifications that were successful (**Success**) is displayed.
MS/peer initiated session deactivations	Number of IP CAN session deactivations initiated by the mobile station, MME, or S-GW.
PCRF initiated session deactivations	Number of IP CAN session deactivations initiated by the PCRF.
Gateway initiated session deactivations	Number of IP CAN session deactivations initiated by the gateway.
Modification event reason	The number of Gx modifications for each event reason is displayed. Examples of event reasons include **QoS change**, **ULI change**, **Resource allocation**, **Time-of-Day procedure**, and so on.

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Table 37: show unified-edge ggsn-pgw apn statistics Output Fields *(continued)*

Field Name	Field Description
Gx Failure Statistics	The following Gx failure statistics are displayed: • **GBR dedicated bearer create failure due to CAC**—Number of guaranteed bit rate (GBR) dedicated bearers that could not be created because of call admission control. • **Non-GBR dedicated bearer create failure due to CAC**—Number of non-GBR dedicated bearers that could not be created because of call admission control. • **Session terminations due to unreachable PCRF**—Number of sessions terminated because the PCRF was unreachable. • **Session terminations due to PCRF restart**—Number of sessions terminated because the PCRF was restarted.
Gx rule statistics	The following Gx rule statistics are displayed: • **Dynamic rule activations**—Number of dynamic rule activations and deactivations (**Deactivations**). • **Static rule activations**—Number of static rule activations and deactivations (**Deactivations**). • **Dynamic rule modifications**—Number of dynamic rule modifications.
Rule failure statistics	The rule failure statistics are displayed for the following failure reasons: • **Rule validation failure**—Number of rule validations that failed. • **Rule activation failure no resource**—Number of rules that could not be activated because of lack of resources. • **Rule update procedure fail**—Number of rules that could not be updated.
Data Plane Statistics	
Total packets violating MIF ACL	Total number of packets violating the mobile interface access control list (ACL) filters.
Total accepted mobile-to-mobile packets	Total number of mobile-to-mobile traffic packets accepted by the GGSN or P-GW.
Total accepted mobile-to-mobile bytes	Total number of octets of mobile-to-mobile traffic packets accepted by the GGSN or P-GW.
Total dropped mobile-to-mobile packets	Total number of mobile-to-mobile traffic packets dropped by the GGSN or P-GW.
Total dropped mobile-to-mobile bytes	Total number of octets of mobile-to-mobile traffic packets dropped by the GGSN or P-GW.

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Table 37: show unified-edge ggsn-pgw apn statistics Output Fields *(continued)*

Field Name	Field Description
Total redirected mobile-to-mobile packets	Total number of mobile-to-mobile traffic packets redirected by the GGSN or P-GW.
Total redirected mobile-to-mobile bytes	Total number of octets of mobile-to-mobile traffic packets redirected by the GGSN or P-GW.
IPv6 RA/NS Statistics	
IPv6 Router Solicitations received	Number of IPv6 router solicitations received by the APN on the broadband gateway.
IPv6 Router Advertisement transmitted	Number of IPv6 router advertisements transmitted by the APN on the broadband gateway.
IPv6 Neighbor Solicitations received	Number of IPv6 neighbor solicitations received by the APN on the broadband gateway.
IPv6 Neighbor Advertisement transmitted	Number of IPv6 neighbor advertisements transmitted by the APN on the broadband gateway.
Data Plane GTP Statistics (Gn/S5/S8)	
Input packets	Number of incoming GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Input bytes	Number of octets of incoming GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Output packets	Number of outgoing GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Output bytes	Number of octets of outgoing GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Discarded packets	Number of discarded GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Data Plane GTP Statistics (Gi)	
Input packets	Number of incoming GTP data packets on the Gi interface.
Input bytes	Number of octets of incoming GTP data packets on the Gi interface.
Output packets	Number of outgoing GTP data packets on the Gi interface.

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Table 37: show unified-edge ggsn-pgw apn statistics Output Fields *(continued)*

Field Name	Field Description
Output bytes	Number of octets of outgoing GTP data packets on the Gi interface.
Discarded packets	Number of discarded GTP data packets on the Gi interface.
Virtual APN Statistics NOTE: This information is displayed only for APN types **virtual** or **virtual-pre-authenticate**.	
Session establishment attempts	Number of attempted session establishments.
Successful APN redirects	Number of session activations (for APN type **virtual** or **virtual-pre-authenticate**) that were successfully redirected to a real APN.
Failed APN redirects - APN access denied	Number of session redirects that were unsuccessful because access to the redirected APN was denied.
Failed APN redirects - Authentication fail	Number of session redirects that were unsuccessful because of authentication failure. Authentication failures can refer to cases when the real APN sent by the authentication, authorization, and accounting (AAA) server is not administratively "up" on the gateway, or if the virtual APN is not administratively "up" on the gateway.
Attempted gateway redirects	Number of session activations that were redirected to a different gateway.
Successful gateway redirects	Number of session activations that were successfully redirected to a different gateway.

Sample Output

show unified-edge ggsn-pgw apn

```
user@host> show unified-edge ggsn-pgw apn statistics apn-name apn-1
Gateway: gw1
Control Plane GTP Statistics:
```


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statistics apn-name apn-1

```
      Session establishment attempts:          50       Success: 50
      MS/peer initiated modification attempts: 0        Success: 0
      Gateway initiated modification attempts: 0        Success: 0
      MS/peer initiated session deactivations: 0        Success: 0
      Gateway initiated session deactivations: 0        Success: 0
      Attempted gateway redirects:             0        Success: 0
      Successful apn redirects:                0
    Session Establishments Failed (by GTP Cause):
      Service unavailable:                     0        System failure:      0
      No resources:                            0        No address:          0
      Service denied:                          0        Authentication Fail: 0
      APN access denied:                       0        Context not found:   0
      Others:                                  0
    Dedicated Bearer Statistics:
      MS-peer initiated activation attempts:   0        Success: 0
      Network initiated activation attempts:   50       Success: 50
      MS-peer initiated modification attempts: 0        Success: 0
      Network initiated modification attempts: 0        Success: 4700
      MS-peer initiated deactivations:         0
      Network initiated deactivations:         0
      Gateway initiated deactivations:         0
    Handover Statistics:
      Inter-RAT Handover attempts:             0        Success: 0
      Intra-RAT Handover attempts:             0        Success: 0
  User Authentication Statistics:
      Authentication failures:                 0
      Attempted authentications:               0        Success: 0
  Address Allocation Statistics:
      Dynamic IP allocation attempts:          50       Success: 50
  Offline Charging Statistics:
      CDRs allocated:                          50
      Partial CDRs allocated:                  0
      CDRs closed:                             0
      Containers closed:                       0
  DCCA-Gy Statistics:
      Session establishments attempts:         50       Success : 50
      Session reauthorization attempts:        4700     Success : 0
      Online authorization timeouts:           0
      Ms/Peer initiated session deactivations: 0
      OCS initiated session deactivations:     0
      Gateway initiated session deactivations: 0
  PCC Gx Statistics:
      Session establishment attempts:          50       Success: 50
      MS/peer initiated modification attempts: 0        Success: 0
      PCRF initiated modification attempts:    0        Success: 0
      MS/peer initiated session deactivations: 0
      PCRF initiated session deactivations:    0
      Gateway initiated session deactivations: 0
    Modification Event Reason:
        QoS change:             0           RAT change:            0
        SGSN change:            0           SGW change:            0
        PLMN change:            0           RAI change:            0
        ULI change:             0           IP-CAN change:         0
        TFT change (MS):        0           TFT change (Network):  0
        Bearer loss:            0           Bearer recovery:       0
        Resource allocation:    0           Revalidation Timeout:  0
        QoS exceeding auth:     0           Time-of-Day procedure: 0
        Change of Subscription: 0           AMBR change:           0
        ECGI change:            0           TAI change:            0
        Timezone change:        0           Default-EPS-QoS change:0
   Gx Failure Statistics:
```

```
        GBR dedicated bearer create failure due to CAC:     0
        Non-GBR dedicated bearer create failure due to CAC: 0
        Session terminations due to unreachable PCRF:       0
        Session terminations due to PCRF restart:           0
  Gx Rule Statistics:
        Dynamic rule activations:     50     Deactivations:   0
        Static rules activations:     50     Deactivations:   0
        Dynamic rule modifications:   0
  Rule Failure Statistics:
        Rule validation failure:              0
        Rule activation failure no resource:  0
        Rule update procedure fail:           0
Data plane statistics:
    Total packets violating MIF ACL:            0
    Total accepted mobile-to-mobile packets:    0
    Total accepted mobile-to-mobile bytes:      0
IPv6 RA/NS Packet statistics:
    IPv6 Router Solicitations received:         0
    IPv6 Router Advertisement transmitted:      0
    IPv6 Neighbor Solicitations received:       0
    IPv6 Neighbor Advertisement transmitted:    0
Data plane GTP statistics (Gn/S5/S8):
    Input     packets:          0
    Input     bytes:            0
    Output    packets:          0
    Output    bytes:            0
    Discarded packets:          0
Data plane GTP statistics (Gi):
    Input     packets:          0
    Input     bytes:            0
    Output    packets:          0
    Output    bytes:            0
    Discarded packets:          0
```

show unified-edge ggsn-pgw apn statistics apn-name virtual-1

```
user@host> show unified-edge ggsn-pgw apn statistics apn-name virtual-1
Gateway: gw1
Virtual APN Statistics:
    Session establishment attempts                : 0
    Successful apn redirects                      : 0
    Failed apn redirects - APN access denied      : 0
    Failed apn redirects - Authentication fail    : 0
    Attempted gateway redirects:                  : 0
    Successful gateway redirects:                 : 0
```


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CHAPTER 23

Charging Operational Commands

clear unified-edge ggsn-pgw charging cdr

Syntax

clear unified-edge ggsn-pgw charging cdr gateway ***name***
<transport-profile-name ***profile-name***>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Clear the Charging Data Records (CDRs) from the services PICs for the configured transport profiles on the specified gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway ***gateway-name***—Clear CDRs from the services PICs for the specified GGSN or P-GW.

transport-profile-name ***profile-name***—(Optional) Clear CDRs from the services PICs only for the specified transport profile.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw charging transfer status on page 799

List of Sample Output

clear unified-edge ggsn-pgw charging cdr gateway name on page 762

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw charging cdr gateway name

```
user@host> clear unified-edge ggsn-pgw charging cdr gateway PGW
```


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clear unified-edge ggsn-pgw charging cdr wfa

Syntax **clear unified-edge ggsn-pgw charging cdr wfa gatway-name *name* <transport-profile-name *profile-name*>**

Release Information Command introduced in Junos OS Mobility Release 11.2W.

Description Clear from the services PICs the Charging Data Records (CDRs) that have not received an acknowledgement from the charging gateway function (CGF), the Routing Engine, or both.

Options **gateway *gateway-name***—Clear the unacknowledged CDRs from the services PICs for the specified GGSN or P-GW.

transport-profile-name *profile-name*—(Optional) Clear the unacknowledged CDRs from the services PICs only for the specified transport profile.

Required Privilege Level clear, unified-edge

Related Documentation
- show unified-edge ggsn-pgw charging transfer status on page 799

List of Sample Output clear unified-edge ggsn-pgw charging cdr wfa gateway name on page 763

Output Fields No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw charging cdr wfa gateway name

```
user@host> clear unified-edge ggsn-pgw charging cdr wfa gateway PGW
```

clear unified-edge ggsn-pgw charging local-persistent-storage statistics

Syntax **clear unified-edge ggsn-pgw charging local-persistent-storage statistics gateway** ***gateway-name***

Release Information Command introduced in Junos OS Mobility Release 11.2W.

Description Clear the storage statistics of the Charging Data Record (CDR) files on the local Routing Engine disk on the specified Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).

Options **gateway** ***gateway-name***—Clear the storage statistics for the specified gateway.

Required Privilege Level clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw charging local-persistent-storage statistics on page 779

List of Sample Output clear unified-edge ggsn-pgw charging local-persistent-storage statistics gateway name on page 764

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw charging local-persistent-storage statistics gateway name

```
user@host> clear unified-edge ggsn-pgw charging local-persistent-storage statistics gateway
PGW
Cleared charging local persistent storage statistics
```

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clear unified-edge ggsn-pgw charging path statistics

Syntax

clear unified-edge ggsn-pgw charging path statistics gateway *gateway-name*
<**fpc-slot** *slot-number* **pic-slot** *slot-number*>
<**gtpp-peer-addr** *ipv4-address*>
<**gtpp-peer-name** *peer-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Clear the path management message statistics between the charging data function (CDF) and the charging gateway function (CGF) servers for the specified gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway *gateway-name*—Clear the path management message statistics for the specified GGSN or P-GW.

fpc-slot *slot-number* **pic-slot** *slot-number*—(Optional) Clear the path management message statistics only for the specified FPC slot number and PIC slot number.

gtpp-peer-addr *ipv4-address*—(Optional) Clear the path management message statistics only for the GTP Prime peer with the specified IPv4 address.

gtpp-peer-name *peer-name*—(Optional) Clear the path management message statistics only for the GTP Prime peer with the specified name.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw charging path statistics on page 785

List of Sample Output

clear unified-edge ggsn-pgw charging path statistics gateway name on page 765

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw charging path statistics gateway name

```
user@host> clear unified-edge ggsn-pgw charging path statistics gateway PGW
Cleared charging path statistics
```

clear unified-edge ggsn-pgw charging transfer statistics

Syntax

clear unified-edge ggsn-pgw charging transfer statistics gateway *gateway-name*
<fpc-slot *slot-number* pic-slot *slot-number*>
<transport-profile-name *profile-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Clear the charging transfer statistics on one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then charging transfer statistics for all GGSNs or P-GWs are cleared.

Options

gateway *gateway-name*—Clear the transfer statistics for the specified GGSN or P-GW.

fpc-slot *slot-number* pic-slot *slot-number*—(Optional) Clear the transfer statistics for the configured transport profiles for the specified FPC slot number and PIC slot number.

transport-profile-name *profile-name*—(Optional) Clear the transfer statistics only for the specified transport profile.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw charging transfer statistics on page 796

List of Sample Output

clear unified-edge ggsn-pgw charging transfer statistics gateway name on page 766

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw charging transfer statistics gateway name

```
user@host> clear unified-edge ggsn-pgw charging transfer statistics gateway PGW
Cleared charging transfer statistics
```


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clear unified-edge sgw charging cdr

Syntax

clear unified-edge sgw charging cdr gateway ***gateway-name*** **<transport-profile-name** ***profile-name*****>**

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the Charging Data Records (CDRs) from the services PICs for the configured transport profiles on the specified Serving Gateway (S-GW).

Options

gateway ***gateway-name*****—**Clear the CDRs from the services PICs for the specified gateway.

transport-profile-name ***profile-name*****—**(Optional) Clear the CDRs from the services PICs for the specified transport profile.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge sgw charging cdr wfa on page 768
- show unified-edge sgw charging transfer status on page 829

List of Sample Output

clear unified-edge sgw charging cdr gateway SGW on page 767

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw charging cdr gateway SGW

```
user@host> clear unified-edge sgw charging cdr gateway SGW
```

clear unified-edge sgw charging cdr wfa

Syntax **clear unified-edge sgw charging cdr wfa gateway *gateway-name* <transport-profile-name *profile-name*>**

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Clear from the services PICs (for one or more Serving Gateways [S-GWs]) the Charging Data Records (CDRs) that have not received an acknowledgement from the charging gateway function (CGF), the Routing Engine, or both.

Options

gateway *gateway-name*—Clear the unacknowledged CDRs from the services PICs for the specified S-GW.

transport-profile-name *profile-name*—(Optional) Clear the unacknowledged CDRs from the services PICs only for the specified transport profile.

Required Privilege Level clear, unified-edge

Related Documentation

- clear unified-edge sgw charging cdr on page 767
- show unified-edge sgw charging transfer status on page 829

List of Sample Output clear unified-edge sgw charging cdr wfa gateway gateway-name on page 768

Output Fields No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw charging cdr wfa gateway gateway-name

```
user@host> clear unified-edge sgw charging cdr wfa gateway PGW
```

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clear unified-edge sgw charging local-persistent-storage statistics

Syntax **clear unified-edge sgw charging local-persistent-storage statistics gateway *gateway-name***

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Clear the storage statistics of the Charging Data Record (CDR) files on the local Routing Engine disk on the specified Serving Gateway (S-GW).

Options **gateway *gateway-name***—Clear the storage statistics for the specified gateway.

Required Privilege Level clear, unified-edge

Related Documentation
- show unified-edge sgw charging local-persistent-storage statistics on page 806

List of Sample Output clear unified-edge sgw charging local-persistent-storage statistics gateway SGW on page 769

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge sgw charging local-persistent-storage statistics gateway SGW

```
user@host> clear unified-edge sgw charging local-persistent-storage statistics gateway SGW
Cleared charging local persistent storage statistics
```

clear unified-edge sgw charging path statistics

Syntax

clear unified-edge sgw charging path statistics
<fpc-slot *slot-number*>
<gateway *gateway-name*>
<gtpp-peer-addr *ipv4-address*>
<gtpp-peer-name *peer-name*>
<pic-slot *slot-number*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the path management message statistics (between the charging data function [CDF] and the charging gateway function [CGF] servers) on one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the path management statistics for all S-GWs are cleared.

Options

fpc-slot *slot-number*—(Optional) Clear the path management message statistics for the specified FPC slot number.

gateway *gateway-name*—(Optional) Clear the path management message statistics for the specified gateway.

gtpp-peer-addr *ipv4-address*—(Optional) Clear the path management message statistics for the GTP Prime peer with the specified IPv4 address.

gtpp-peer-name *peer-name*—(Optional) Clear the path management message statistics for the GTP Prime peer with the specified name.

pic-slot *slot-number*—(Optional) Clear the path management message statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge sgw charging path statistics on page 812

List of Sample Output

clear unified-edge sgw charging path statistics on page 770

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge sgw charging path statistics

```
user@host> clear unified-edge sgw charging path statistics
Cleared charging path statistics
```


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clear unified-edge sgw charging transfer statistics

Syntax

clear unified-edge sgw charging transfer statistics
<fpc-slot ***slot-number*****>**
<gateway ***gateway-name*****>**
<pic-slot ***slot-number*****>**
<transport-profile-name ***profile-name*****>**

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the transfer statistics on one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the transfer statistics for all S-GWs are cleared.

Options

none—Clear the transfer statistics for all S-GWs.

fpc-slot ***slot-number***—(Optional) Clear the transfer statistics for the specified FPC slot number.

gateway ***gateway-name***—(Optional) Clear the transfer statistics for the specified gateway.

pic-slot ***slot-number***—(Optional) Clear the transfer statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

transport-profile-name ***profile-name***—(Optional) Clear the transfer statistics for the specified transport profile.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge sgw charging transfer statistics on page 824

List of Sample Output

clear unified-edge sgw charging transfer statistics on page 771

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge sgw charging transfer statistics

```
user@host> clear unified-edge sgw charging transfer statistics
Cleared charging transfer statistics
```

request system storage unified-edge charging media start

Syntax

request system storage unified-edge charging media start
<re0 | re1>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Enable use of local persistent storage for Charging Data Records (CDRs).

Options

re0 | re1—(Optional) On routers that support dual or redundant Routing Engines, use the disk on the Routing Engine in slot 0 (**re0**) or Routing Engine in slot 1 (**re1**).

Required Privilege Level

maintenance

Related Documentation

- request system storage unified-edge media prepare on page 775
- request system storage unified-edge charging media stop on page 773
- show unified-edge ggsn-pgw charging local-persistent-storage statistics on page 779

List of Sample Output

request system storage unified-edge charging media start on page 772

Output Fields

When you enter this command, there is no output for success but an error displays if the command fails to complete.

Sample Output

request system storage unified-edge charging media start

```
user@host> request system storage unified-edge charging media start
```


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request system storage unified-edge charging media stop

Syntax

request system storage unified-edge charging media stop
<re0 | re1>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Disable use of local persistent storage for Charging Data Records (CDRs).

Options

re0 | re1—(Optional) On routers that support dual or redundant Routing Engines, use the disk on the Routing Engine in slot 0 (**re0**) or Routing Engine in slot 1 (**re1**).

Required Privilege Level

maintenance

Related Documentation

- request system storage unified-edge media eject on page 774
- request system storage unified-edge charging media start on page 772

List of Sample Output

request system storage unified-edge charging media stop on page 773

Output Fields

When you enter this command, there is no output for success but an error displays if the command fails to complete.

Sample Output

request system storage unified-edge charging media stop

```
user@host> request system storage unified-edge charging media stop
```

request system storage unified-edge media eject

Syntax

request system storage unified-edge media eject
<re0 | re1>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Prepare the Solid State Disk (SSD) for removal from the Routing Engine. This command unmounts the SSD from **/opt/mobility**.

Options

re0 | re1—(Optional) On routers that support dual or redundant Routing Engines, prepare the disk on the Routing Engine in slot 0 (**re0**) or Routing Engine in slot 1 (**re1**).

Required Privilege Level

maintenance

Related Documentation

- request system storage unified-edge charging media stop on page 773

List of Sample Output

request system storage unified-edge media eject on page 774

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system storage unified-edge media eject

```
user@host> request system storage unified-edge media eject
Media successfully ejected
```


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request system storage unified-edge media prepare

Syntax

request system storage unified-edge media prepare
<no-format>
<re0 | re1>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Prepare the Solid State Disk (SSD) on the Routing Engine for local persistent storage of Charging Data Records (CDRs). This command formats the SSD and mounts it to **/opt/mobility**.

NOTE: **If you do not want to format the existing content on the SSD, you must specify the no-format option.**

Options

no-format—(Optional) Do not format the existing content on the SSD when preparing the disk on the Routing Engine.

re0 | re1—(Optional) On routers that support dual or redundant Routing Engines, prepare the disk on the Routing Engine in slot 0 (**re0**) or Routing Engine in slot 1 (**re1**).

Required Privilege Level

maintenance

Related Documentation

- request system storage unified-edge charging media start on page 772
- show unified-edge ggsn-pgw charging local-persistent-storage statistics on page 779

List of Sample Output

request system storage unified-edge media prepare on page 775

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system storage unified-edge media prepare

```
user@host> request system storage unified-edge media prepare
Creating filesystem
Mounting media
Media successfully prepared
```

show unified-edge ggsn-pgw charging global statistics

Syntax

show unified-edge ggsn-pgw charging global statistics
<brief | detail>
<fpc-slot *slot-number* pic-slot *slot-number*>
<gateway *gateway-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the global statistics for charging for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the statistics for all GGSNs and P-GWs are displayed.

Options

none—(Same as brief) Display the global statistics for charging, in brief.

brief | detail—(Optional) Display the specified level of output.

The **brief** option displays the statistics per GGSN or P-GW for all services PICs. The **detail** option displays the statistics per GGSN or P-GW for each services PIC.

fpc-slot *slot-number* pic-slot *slot-number*—(Optional) Display the global statistics for charging only for the specified FPC slot number and PIC slot number.

gateway *gateway-name*—(Optional) Display the global statistics for charging for the specified GGSN or P-GW.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw charging local-persistent-storage statistics on page 779
- show unified-edge ggsn-pgw charging path statistics on page 785
- show unified-edge ggsn-pgw charging transfer statistics on page 796

List of Sample Output

show unified-edge ggsn-pgw charging global statistics brief on page 778
show unified-edge ggsn-pgw charging global statistics detail on page 778

Output Fields

Table 38 on page 776 lists the output fields for the **show unified-edge ggsn-pgw charging global statistics** command. Output fields are listed in the approximate order in which they appear.

Table 38: show unified-edge sgw charging global statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels none
FPC/PIC	FPC slot number and PIC slot number for which the statistics are displayed.	**detail**

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Table 38: show unified-edge sgw charging global statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
CDR Send Errors	Number of CDR send errors. This counter indicates an internal error while closing the CDR.	All levels none
CDR Encode Errors	Number of CDR encoding failures. For example, if the buffer is insufficient then the CDR encoding does not take place.	All levels none
CDR Alloc Failures	Number of CDR allocation failures. For example, if there is insufficient memory then the CDR allocation can fail.	All levels none
Container Failures	Number of internal failures pertaining to charging containers.	All levels none
Charging Bearers Created	Number of bearers for which charging is enabled.	All levels none
Charging Bearers Destroyed	Number of charging bearers destroyed.	All levels none

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Sample Output

show unified-edge ggsn-pgw charging global statistics brief

```
user@host> show unified-edge ggsn-pgw charging global statistics brief
Gateway: PGW
Charging Global Statistics

  CDR Send Errors                        : 8
  CDR Encode Errors                      : 0
  CDR Alloc Failures                     : 0
  Container Failures                     : 0
  Charging Bearers Created               : 100
  Charging Bearers Destroyed             : 4
```

show unified-edge ggsn-pgw charging global statistics detail

```
user@host> show unified-edge ggsn-pgw charging global statistics detail
Gateway: PGW
Charging Global Statistics
  FPC/PIC: 1/0
  CDR Send Errors                        : 4
  CDR Encode Errors                      : 0
  CDR Alloc Failures                     : 0
  Container Failures                     : 0
  Charging Bearers Created               : 50
  Charging Bearers Destroyed             : 2

  FPC/PIC: 3/0
  CDR Send Errors                        : 4
  CDR Encode Errors                      : 0
  CDR Alloc Failures                     : 0
  Container Failures                     : 0
  Charging Bearers Created               : 50
  Charging Bearers Destroyed             : 2
```


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show unified-edge ggsn-pgw charging local-persistent-storage statistics

Syntax **show unified-edge ggsn-pgw charging local-persistent-storage statistics** <gateway *gateway-name*>

Release Information Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description Display the storage statistics of the Charging Data Record (CDR) files on the local Routing Engine disk for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the status for all GGSNs and P-GWs is displayed.

Options **gateway** *gateway-name*—(Optional) Display the storage statistics for the specified GGSN or P-GW.

Required Privilege Level view

Related Documentation
- clear unified-edge ggsn-pgw charging local-persistent-storage statistics on page 764

List of Sample Output show unified-edge ggsn-pgw charging local-persistent-storage statistics on page 783

Output Fields Table 39 on page 779 lists the output fields for the **show unified-edge ggsn-pgw charging local-persistent-storage statistics** command. Output fields are listed in the approximate order in which they appear.

Table 39: show unified-edge ggsn-pgw charging local-persistent-storage statistics Output Fields

Field Name	Field Description
Batch Messages received	Total number of batch messages sent from services PICs to the Routing Engine disk. The CDRs generated in services PICs are sent to the local Routing Engine disk as batch messages.
Batch Responses sent	Total number of responses sent for the received batch messages.
Invalid Messages received	Total number of invalid batch messages sent from services PICs to the Routing Engine disk.
Number of temp log files opened	Total number of temporary CDR files opened on the Routing Engine disk. These files are closed and copied from the temporary location to a final location (**/opt/mobility/charging/ggsn/final_log**) within the same Routing Engine disk, from where they can be transferred using SSH FTP (SFTP). A file is closed when the file size, file age, or the maximum number of CDRs added to the file reaches the configured limit (or the default limit, when no limit is configured).

Table 39: show unified-edge ggsn-pgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Number of journal files opened	Total number of open journal files. Journal files are used to remove any unfinished file writes from the temporary log files if a daemon or router crash interrupts the kernel file write. When the daemon or router come back up, the journal log files are read to ensure that the contents of the temporary log file are sane. If there is any unfinished CDR data, the temporary log file is truncated to the last-known successful file write. For each temporary log CDR file, a separate journal file is opened.
Number of journal files closed	Total number of journal files closed.
Number of CDR log files closed	Total number of temporary CDR log files closed. Authorized users can use SFTP to transfer these files from the **/opt/mobility/charging/ggsn/final_log** location.
Number of CDR files closed due to file-age	Total number of temporary CDR log files closed because the age of the files reached the configured limit (or the default limit, when no limit is configured). The default value for the file age is 120 minutes.
Number of CDR files closed due to file-size	Total number of number of temporary CDR log files closed because the size of the files reached the configured limit (or the default limit, when no limit is configured). The default file size is 10 MB.
Number of CDR files closed due to cdr-count	Total number of temporary CDR log files closed because the maximum number of CDRs added to the files reached the configured limit. There is no default limit.
Abnormal file closures	Total number of abnormal temporary CDR log file closures. This counter is incremented when the charging daemon comes up after a system reboot or crash and temporary CDR log file closures are triggered.
Normal file closures	Total number of normal temporary CDR log file closures. This counter is incremented when changes in the configuration, such as a file format change, trigger temporary CDR log file closures.
Number of CDR log files closed in TS_32_297 format	Total number of closed temporary CDR log files that are compliant with the format specified in the 32297 technical specification release.
Number of CDR log files closed in raw asn1 format	Total number of closed temporary CDR log files that are in the raw ASN.1 format.
Total number of CDRs backed up	Total number of CDRs backed up to the standby Routing Engine.

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Table 39: show unified-edge ggsn-pgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Disk Full messages sent	Total number of messages sent by the Routing Engine to the services PICs to indicate that its disk is full and unable to accept any more charging data. You can use SFTP to transfer the files from the **/opt/mobility/charging/ggsn/final_log** location to free disk space, or remove the disk and copy the files. You can remove the disk by issuing the following commands in this order: • **request system storage unified-edge charging media stop** • **request system storage unified-edge media eject**
Disk Full resolve messages sent	Total number of disk full resolve messages sent. When the disk space is freed, the Routing Engine sends messages to the services PICs indicating that it can receive charging data.
Number of async IO reqs written	Number of asynchronous I/O requests written. This counter is incremented once for every write operation into the temporary log CDR file.
Disk space status	Indicates whether disk space is available for storage. The possible values are: • **DISK_AVAILABLE** • **DISK_AT_WATERMARK_LEVEL1** • **DISK_AT_WATERMARK_LEVEL2** • **DISK_AT_WATERMARK_LEVEL3** • **DISK_OFFLINE**—Indicates that a disk is not present or the **request system storage unified-edge charging media stop** command has been issued. • **DISK_OFFLINE_PENDING**—Indicates whether any CDRs are being written or mirrored on the backup Routing Engine. This interim status message is displayed after the **request system storage unified-edge charging media stop** command has been issued but before the disk goes offline.
Watermark level1 at (MB)	Indicates the percentage of the total Routing Engine disk space configured for storage. By default, watermark level 1 is set to 70 percent of the total disk space. When this limit is reached, an alert (if configured) is sent and you can take corrective measures to free the disk space.
Watermark level2 at (MB)	Indicates the percentage of the total Routing Engine disk space configured for storage. By default, watermark level 2 is set to 80 percent of the total disk space. When this limit is reached, an alert (if configured) is sent and you can take corrective measures to free the disk space.
Watermark level3 at (MB)	Indicates the percentage of the total Routing Engine disk space configured for storage. By default, watermark level 3 is set to 90 percent of the total disk space. When this limit is reached, an alert (if configured) is sent and you can take corrective measures to free the disk space. If an alert is not configured, the services PICs stop sending the charging data to the Routing Engine disk and you must transfer the files using SFTP to free the disk space. However, this data is not lost because it is buffered in the services PICs. The services PICs can buffer up to a maximum of 2 GB of data, after which a Call Admission Control (CAC) is triggered.

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Table 39: show unified-edge ggsn-pgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Temporary CDR log file Statistics NOTE: The information about temporary CDR log files is displayed only if temporary CDR log files are currently open.	
File Name	Name of the temporary CDR log file.
Journal file name	Name of the journal file.
Current number of CDRs	Total number of CDRs that have been currently added to the temporary CDR log file.
Current file size (bytes)	Current size, in bytes, of the temporary CDR log file.
File age trigger (mins)	Configured duration, in minutes, after which the temporary CDR log file is closed. If this parameter is not configured, then the default value is displayed.
File size trigger (bytes)	Configured size, in bytes, that the temporary CDR log file can reach after which it is closed. If this parameter is not configured, then the default value is displayed.
CDR count trigger	Configured maximum number of CDRs that can be added to the temporary CDR log file, after which it is closed. If this parameter is not configured, then the default value is displayed.
Global Statistics	
Disk Offline messages sent	Total number of messages sent by the Routing Engine to the services PICs to indicate that its disk is offline or is not mounted, and that it is unable to accept any more charging data. You can configure the disk (storage media) to store charging data by issuing these commands: • **request system storage unified-edge media prepare** • **request system storage unified-edge charging media start**
Disk Available messages sent	When the disk is prepared and mounted, the Routing Engine sends messages to the services PICs to indicate that it can now receive charging data. This field indicates the total number of these messages sent.
Number of CDR storage files on disk	Total number of CDR files stored on the local Routing Engine disk.
Current storage space in use (MB)	Storage space, in MB, that is currently being used.
Available storage space on disk (MB)	Total free space, in MB, available for storage on the disk.
Total storage space on disk (MB)	Total storage space, in MB, on the disk.
Mirroring Connection Information	

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Table 39: show unified-edge ggsn-pgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Connection state	State of the mirroring connection. The following states are possible: • **Active**—Indicates that the mirroring status on Routing Engine is active. • **Standalone**—Indicates that the backup Routing Engine is down, or that graceful Routing Engine switchover (GRES) is not configured. • **Standby**—Indicates that the backup Routing Engine is on standby.
Other RE mirroring connection present	Indicates whether the mirroring connection is established with the other Routing Engine or not
GRES configured	Indicates whether GRES is configured or not.

Sample Output

show unified-edge ggsn-pgw charging

```
user@host> show unified-edge ggsn-pgw charging local-persistent-storage statistics
Gateway: PGW
Charging local-persistent-storage Statistics
```

local-persistent-storage statistics

```
  Batch Messages received                              : 46
  Batch Responses sent                                 : 46
  Invalid Messages received                            : 0
  Number of temp log files opened                      : 1
  Number of journal files opened                       : 1
  Number of journal files closed                       : 0
  Number of CDR log files closed                       : 0
  Number of CDR files closed due to file-age           : 0
  Number of CDR files closed due to file-size          : 0
  Number of CDR files closed due to cdr-count          : 0
  Abnormal file closures                               : 0
  Normal file closures                                 : 0
  Number of CDR log files closed in TS_32_297 format   : 0
  Number of CDR log files closed in raw asn1 format    : 0
  Total number of CDRs backed up                       : 949
  Disk Full messages sent                              : 0
  Disk Full resolve messages sent                      : 0
  Number of async IO reqs written                      : 46
  Disk space status                                    : DISK_AVAILABLE
  Watermark level1 at(MB)                              : 618(70%)
  Watermark level2 at(MB)                              : 706(80%)
  Watermark level3 at(MB)                              : 794(90%)

Temporary CDR log file Statistics
File Name: /opt/mobility/charging/ggsn/temp_log/templog_file_1.log
    Journal file name          : /opt/mobility/charging/ggsn/jrnl/jrnl_1.log
    Current number of CDRs     : 949
    Current file size(bytes)   : 288642
    File age trigger(mins)     : 60
    File size trigger(bytes)   : 10485760
    CDR count trigger          : 0

Global Statistics
  Disk Offline messages sent                           : 0
  Disk Available messages sent                         : 0
  Number of CDR storage files on disk                  : 0
  Current storage space in use(MB)                     : 301
  Available storage space on disk(MB)                  : 582
  Total storage space on disk(MB)                      : 883

Mirroring Connection Information
  Connection state                                     : STANDALONE
  Other RE mirroring connection present                : NO
  GRES configured                                      : NO
```


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show unified-edge ggsn-pgw charging path statistics

Syntax

show unified-edge ggsn-pgw charging path statistics
<**brief | detail**>
<**fpc-slot** *slot-number* **pic-slot** *slot-number*>
<**gateway** *gateway-name*>
<**gtpp-peer-addr** *ipv4-address*>
<**gtpp-peer-name** *peer-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the path management message statistics (between the Charging Data Function (CDF) and the Charging Gateway Function (CGF) servers) for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the statistics for all GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display the path management message statistics.

brief | detail—(Optional) Display the specified level of output.

The **brief** option displays the statistics per GGSN or P-GW for all services PICs. The **detail** option displays the statistics per GGSN or P-GW for each services PIC.

fpc-slot ***slot-number*** **pic-slot** ***slot-number***—(Optional) Display the path management message statistics only for the specified Flexible PIC Concentrator (FPC) slot number and PIC slot number.

gateway ***gateway-name***—(Optional) Display the path management statistics for the specified GGSN or P-GW.

gtpp-peer-addr ***ipv4-address***—(Optional) Display the path management message statistics only for the GPRS tunneling protocol Prime (GTP Prime) peer with the specified IPv4 address.

gtpp-peer-name ***peer-name***—(Optional) Display the path management message statistics only for the GTP Prime peer with the specified name.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw charging path statistics on page 765

List of Sample Output

show unified-edge ggsn-pgw charging path statistics brief on page 789
show unified-edge ggsn-pgw charging path statistics detail on page 789

Output Fields

Table 40 on page 786 lists the output fields for the **show unified-edge ggsn-pgw charging path statistics** command. Output fields are listed in the approximate order in which they appear.

Table 40: show unified-edge ggsn-pgw charging path statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels none
FPC/PIC	FPC slot number and PIC slot number for which the statistics are displayed.	**detail**
CGF Address	Address of the CGF server (GTP Prime peer).	All levels none
CGF Server Name	Name of the CGF server (GTP Prime peer).	All levels none
Echo Requests Rx	Total number of echo requests received by the CDF from the CGF sever.	All levels none
Echo Responses Tx	Total number of echo responses transmitted by the CDF to the CGF sever.	All levels none
Echo Responses Rx	Total number of echo responses received by the CDF from the CGF server.	All levels none
Echo Requests Tx	Total number of echo requests transmitted by the CDF to the CGF server.	All levels none
Node-Alive Requests Rx	Total number of node alive requests received by the CDF from the CGF server.	All levels none
Node-Alive Responses Tx	Total number of responses transmitted by the CDF to the node alive requests received from the CGF server.	All levels none
Version Not Supported Rx	Total number of Version Not Supported messages received by the CDF from the CGF server. The CGF server sends these messages to the CDF to indicate that the GTP Prime messages sent by the CDF are incompatible with the GTP Prime version supported by the CGF server.	All levels none
Version Not Supported Tx	Total number of Version Not Supported messages transmitted by the CDF to the CGF server. The CDF sends these messages to indicate that the GTP Prime messages sent by the CGF server are incompatible with the GTP Prime version supported by the CDF.	All levels none
Echo Requests timed out	Total number of echo requests sent by the CDF for which there were no responses from the CGF server and that have timed out.	All levels none

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Table 40: show unified-edge ggsn-pgw charging path statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Echo Interval	Configured echo interval, in seconds. If the echo interval is not configured, then the default value is displayed.	All levels none
Down Detection Interval	Configured down detect time, in seconds. If the down detect time is not configured, then the default value is displayed.	All levels none
Reconnect Time Interval	Configured reconnect time, in seconds. If the reconnect time is not configured, then the default value is displayed.	All levels none
Destination Port	Configured destination port. If the destination port is not configured, then the default port (3386) is displayed.	All levels none
Pending Queue Size	Configured pending queue size. If the pending queue size is not configured, then the default value (1024) is displayed.	All levels none
Path Manager FPC Slot	FPC slot that manages the path management messages.	All levels none
Path Manager PIC Slot	PIC slot that manages the path management messages.	All levels none
Path Manager Port	Port used for path management messages.	All levels none
T3 Response Time Interval	Configured T3 response time interval, in seconds. If the T3 response time is not configured, then the default value (5 seconds) is displayed.	All levels none
Source Interface Valid	Indicates whether the source interface is valid or not.	All levels none
GTPP Header Type	Configured header type for the GTP Prime messages.	All levels none
N3 Requests	Configured value for **N3 requests**. If the **N3 requests** value is not configured, then the default value (3) is displayed.	All levels none
Local Address	Address of the local loopback source interface from which the GTP Prime packets are sent to the CGF server.	All levels none

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Table 40: show unified-edge ggsn-pgw charging path statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
GTPP Version	Configured version that is supported on the configured local loopback source interface's IP address, from which the GTP Prime packets are sent to the CGF server.	All levels none
Transport Protocol	Configured transport protocol for sending the GTP Prime packets from CDF to the CGF server.	All levels none
TCP Port Range Start	Start of the range of source ports from which the TCP connection from each services PIC to the CGF server can originate. The GGSN or P-GW assigns a range of source ports internally.	All levels none
TCP Port Range End	End of the range of source ports from which the TCP connection from each services PIC to the CGF server can originate. The GGSN or P-GW assigns a range of source ports internally.	All levels none
TCP Connection State	Indicates whether the TCP connection state on the services PIC has been established or not.	**detail**

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Sample Output

show unified-edge ggsn-pgw charging path statistics brief

```
user@host> show unified-edge ggsn-pgw charging path statistics brief
Gateway: PGW
Charging Path Statistics

  CGF Address                : 2.2.2.2         CGF Server Name           : p_cgf
  Echo Requests           Rx: 0                Echo Responses          Tx: 0
  Echo Responses          Rx: 0                Echo Requests           Tx: 0
  Node-Alive Requests     Rx: 0                Node-Alive Responses    Tx: 0
  Version Not Supported   Rx: 0                Version Not Supported   Tx: 0
  Echo Requests timed out   : 0                Echo Interval             : 0
  Down Detection Interval   : 10               Reconnect Time Interval   : 60
  Destination Port          : 3386             Pending Queue Size        : 1000
  Path Manager FPC Slot     : 5                Path Manager PIC Slot     : 0
  T3 Response Time Interval : 5                Path Manager Port         : 30275
  Source Interface Valid    : Yes              GTPP Header Type          : long
  N3 Requests               : 1               Local Address            : 12.4.1.1

  GTPP Version              : V0               Transport Protocol        : TCP
  TCP Port Range Start      : 30277            TCP Port Range End        : 30308
```

show unified-edge ggsn-pgw charging path statistics detail

```
user@host> show unified-edge ggsn-pgw charging path statistics detail
Gateway: PGW
Charging Path Statistics
FPC/PIC: 5/0

  CGF Address                : 2.2.2.2         CGF Server Name           : p_cgf
  Echo Requests           Rx: 0                Echo Responses          Tx: 0
  Echo Responses          Rx: 0                Echo Requests           Tx: 0
  Node-Alive Requests     Rx: 0                Node-Alive Responses    Tx: 0
  Version Not Supported   Rx: 0                Version Not Supported   Tx: 0
  Echo Requests timed out   : 0                Echo Interval             : 0
  Down Detection Interval   : 10               Reconnect Time Interval   : 60
  Destination Port          : 3386             Pending Queue Size        : 1000
  Path Manager FPC Slot     : 5                Path Manager PIC Slot     : 0
  T3 Response Time Interval : 5                Path Manager Port         : 30275
  Source Interface Valid    : Yes              GTPP Header Type          : long
  N3 Requests               : 1               Local Address            : 12.4.1.1

  GTPP Version              : V0               Transport Protocol        : TCP
  TCP Port Range Start      : 30277            TCP Port Range End        : 30308
  TCP Connection State      : Established
```

show unified-edge ggsn-pgw charging path status

Syntax

show unified-edge ggsn-pgw charging path status
<brief | detail>
<fpc-slot ***slot-number*** **pic-slot** ***slot-number*****>**
<gateway ***gateway-name*****>**
<gtpp-peer-addr ***ipv4-address*****>**
<gtpp-peer-name ***peer-name*****>**

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the status of the configured GPRS tunneling protocol (GTP) Prime peers for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the status for all GGSNs and P-GWs is displayed.

The status includes information about whether the GTP Prime peers are connected, down, or still in the process of establishing a connection, and whether the echo messages are enabled or disabled.

NOTE: **In charging, the terms GTP Prime peers and charging gateway function (CGF) server are used interchangeably.**

Options

none—(Same as brief) Display the status of the configured peers.

brief | detail—(Optional) Display the specified level of output.

fpc-slot ***slot-number*** **pic-slot** ***slot-number***—(Optional) Display the status of the configured peers only for the specified FPC slot number and PIC slot number.

gateway ***gateway-name***—(Optional) Display the path management statistics for the specified GGSN or P-GW.

gtpp-peer-addr ***ipv4-address***—(Optional) Display the status of the configured peers only for the GTP Prime peer with the specified IPv4 address.

gtpp-peer-name ***peer-name***—(Optional) Display the status of the configured peers only for the GTP Prime peer with the specified name.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw charging path statistics on page 785

List of Sample Output

show unified-edge ggsn-pgw charging path status on page 792
show unified-edge ggsn-pgw charging path status detail on page 792

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Output Fields Table 41 on page 791 lists the output fields for the **show unified-edge ggsn-pgw charging path status** command. Output fields are listed in the approximate order in which they appear.

Table 41: show unified-edge ggsn-pgw charging path status Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels none
Peer-Address	Address of the CGF server (GTP Prime peer).	All levels none
Peer-Name	Name of the CGF server (GTP Prime peer).	All levels none
Local-Address	IPv4 address of the local loopback source interface from where the GTP Prime packets are sent to the CGF server (GTP Prime peer).	All levels none
Status	Status of the CGF server: • **Connected** • **Down** • **In-Progress**	All levels none
Echo	Indicates whether echo messages are enabled or disabled. The possible values are: • **Enabled** or **Disabled** for UDP connections • **N/A** (Not Applicable) for TCP connections	All levels none
Cause	Probable cause for the current status of the CGF peer. This field is displayed only when the CGF server is down or the connection has not been established.	**detail**
FPC/PIC	FPC and PIC slot numbers.	**detail**

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Sample Output

show unified-edge ggsn-pgw charging path status

```
user@host> show unified-edge ggsn-pgw charging path status
Gateway: PGW
Charging Path Status
Peer-Address      Peer-Name       Local-Address      Status          Echo
2.2.2.2           p_cgf           12.4.1.1           Connected       N/A
```

show unified-edge ggsn-pgw charging path status detail

```
user@host> show unified-edge ggsn-pgw charging path status detail
Gateway: PGW
Charging Path Status

        FPC/PIC 5/0
        Peer-Address   2.2.2.2
        Peer-Name      p_cgf
        Local-Address  12.4.1.1
        Status         Connected
        Echo           N/A
```


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show unified-edge ggsn-pgw charging service-mode

Syntax

show unified-edge ggsn-pgw charging service-mode gateway *gateway*
<brief | detail>
<charging-profile *profile-name*>
<transport-profile *profile-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display the charging service mode information for the specified Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway *gateway-name*—Display the charging service mode information for the specified GGSN or P-GW.

brief | detail—(Optional) Display the specified level of output.

charging-profile *profile-name*—(Optional) Display the service mode information for the specified charging profile.

transport-profile *profile-name*—(Optional) Display the service mode information for the specified transport profile.

Required Privilege Level

view

Related Documentation

- service-mode (Charging Profiles) on page 316
- service-mode (Transport Profiles) on page 318

List of Sample Output

show unified-edge ggsn-pgw charging service-mode gateway PGW brief on page 794
show unified-edge ggsn-pgw charging service-mode gateway PGW detail on page 795

Output Fields

Table 42 on page 793 lists the output fields for the **show unified-edge ggsn-pgw charging service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 42: show unified-edge ggsn-pgw charging service-mode Output Fields

Field Name	Field Description	Level of Output
Gateway Name	Name of the GGSN or P-GW.	All levels

Table 42: show unified-edge ggsn-pgw charging service-mode Output Fields *(continued)*

Field Name	Field Description	Level of Output

Service Mode	Service mode for the gateway. The following service modes are possible:
	• Maintenance—Gateway is in maintenance mode.
	• **MM Active Phase**—In this mode, you can make changes to any of the configuration options under the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles]** or the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles**] hierarchy levels.
	• **MM In/Out Phase**—In this mode, you cannot make changes to the configuration options under the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles]** or the **[edit unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles**] hierarchy levels.
	• **Operational**—Gateway is still in operational mode and not in maintenance mode. You can use the following commands to put the charging profile or transport profile in maintenance mode:
	  • **set unified-edge gateways ggsn-pgw *gateway-name* charging charging-profiles *profile-name* service-mode maintenance**
	  • **set unified-edge gateways ggsn-pgw *gateway-name* charging transport-profiles *profile-name* service-mode maintenance**
		All levels

Charging Profile(s) or **Charging Profile**	Name of the charging profile.	All levels
Service Mode	Service mode for the charging profile.	All levels
Transport Profile(s) or **Transport Profile**	Name of the transport profile.	All levels
Service Mode	Service mode for the transport profile.	All levels
Pending Maintenance Mode Ready Ack	Lists the components or modules that are not yet ready to accept the configuration changes. Maintenance mode becomes active only after all the components or modules are ready to accept these changes.	**detail**

Sample Output

show unified-edge ggsn-pgw charging

```
user@host> show unified-edge ggsn-pgw charging service-mode gateway PGW brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
```


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service-mode gateway PGW brief

```
                        attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                        non-maintenance mode attributes of this object and
                        its sub-hierarchies.
.
Gateway Name    : PGW
Service Mode    : Operational

Charging Profile(s)             Service Mode
p_juniper                       Operational
Transport Profile(s)            Service Mode
p_tsp                           Operational
```

show unified-edge ggsn-pgw charging service-mode gateway PGW detail

```
user@host> show unified-edge ggsn-pgw charging service-mode gateway PGW detail
Gateway Name    : PGW
Service Mode    : Operational

Charging Profile: p_juniper
Service Mode    : Operational
Transport Profile: p_tsp
Service Mode    : Operational
```

show unified-edge ggsn-pgw charging transfer statistics

Syntax

show unified-edge ggsn-pgw charging transfer statistics
<brief | detail>
<fpc-slot *slot-number* pic-slot *slot-number*>
<gateway *gateway-name*>
<transport-profile-name *profile-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the transfer statistics for the configured transport profiles on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are displayed.

Options

none—(Same as brief) Display the transfer statistics for the configured transport profiles for all GGSNs or P-GWs.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *slot-number* pic-slot *slot-number*—(Optional) Display the transfer statistics only for the specified FPC slot number and PIC slot number.

gateway *gateway-name* —(Optional) Display the transfer statistics for the specified GGSN or P-GW.

transport-profile-name *profile-name*—(Optional) Display the transfer statistics only for the specified transport profile.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw charging transfer statistics on page 766

List of Sample Output

show unified-edge ggsn-pgw charging transfer statistics brief on page 798
show unified-edge ggsn-pgw charging transfer statistics detail on page 798

Output Fields

Table 43 on page 796 lists the output fields for the **show unified-edge ggsn-pgw charging transfer statistics** command. Output fields are listed in the approximate order in which they appear.

Table 43: show unified-edge ggsn-pgw charging transfer statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels none
Transport-Profile	Name of the transport profile.	All levels none

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Table 43: show unified-edge ggsn-pgw charging transfer statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Redirection Requests Rx	Total number of redirection request messages received by the charging data function (CDF) from the charging gateway function (CGF) server. The CGF server can send these messages to inform CDF about the following: • The CGF server is about to stop service (possibly due to an error condition or for maintenance). • The next node in the chain (such as a billing server) has lost its connection to the CGF server.	All levels none
Redirection Responses Tx	Total number of redirection response messages transmitted as responses to the redirection requests received. Redirection response messages indicate whether a redirection request message was successful or not.	All levels none
DRT Responses Rx	Total number of DRT response messages received for the Data Record Transfer (DRT) request messages sent. DRT response messages indicate whether a DRT request was successful or not.	All levels none
DRT Requests Tx	Total number of DRT request messages transmitted to the CGF server. These messages are used to transfer CDRs from the CDF to the CGF server.	All levels none
DRT successful Responses Rx	Total number of successful DRT response messages received for the DRT request messages sent.	All levels none
DRT Error Responses Rx	Total number of DRT error response messages received for the DRT request messages sent.	All levels none
DRT Requests timed out	Total number of DRT requests sent that timed out before receiving any responses from the CGF server.	All levels none
CGF Switch Back Times	Total number of times the CGF servers were switched, which indicates the number of times that the CGF servers were either offline or down for maintenance.	All levels none
Batch Requests Tx	Total number of batch requests transmitted (from services PICs) for a transport profile.	All levels none
Batch Response Errors Rx	Total number of error responses sent by the Routing Engine to the services PICs for the batch requests messages received.	All levels none
Batch CDR's Tx	Total number of CDRs transmitted from services PICs to the Routing Engine.	All levels none
CDR Count	Total number of CDRs transmitted to the CGF server.	All levels none

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Table 43: show unified-edge ggsn-pgw charging transfer statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Total WFA	Total number of request messages awaiting acknowledgements from either the Routing Engine or the CGF server.	All levels none
Open Batch Requests Timed out	Number of open batch requests timed out. Batch message requests are sent to write CDRs into local storage. This counter indicates that no response was received and that the request was timed out.	All levels none
FPC/PIC	FPC and PIC slot numbers.	**detail**

Sample Output

show unified-edge ggsn-pgw charging transfer statistics brief

```
user@host> show unified-edge ggsn-pgw charging transfer statistics brief
Gateway: PGW
Charging Transfer Statistics
Transport-Profile : p_tsp
  Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
  DRT Responses            Rx: 0     DRT Requests                Tx: 0
  DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
  DRT Requests timed out     : 0     CGF Switch Back Times         : 0
  Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
  Batch CDR's              Tx: 0     CDR Count                     : 0
  Total WFA                  : 0     Open Batch Requests Timed out : 0
```

show unified-edge ggsn-pgw charging transfer statistics detail

```
user@host> show unified-edge ggsn-pgw charging transfer statistics detail
Gateway: PGW
Charging Transfer Statistics
FPC/PIC:  3/0
  Transport-profile : p_tsp
    Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
    DRT Responses            Rx: 0     DRT Requests                Tx: 0
    DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
    DRT Requests timed out     : 0     CGF Switch Back Times         : 0
    Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
    Batch CDR's              Tx: 0     CDR Count                     : 0
    Total WFA                  : 0     Open Batch Requests Timed out : 0
```


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show unified-edge ggsn-pgw charging transfer status

Syntax

show unified-edge ggsn-pgw charging transfer status
<brief | detail>
<fpc-slot *slot-number* pic-slot *slot-number*>
<gateway *gateway-name*>
<transport-profile-name *profile-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the Charging Data Record (CDR) transfer status for the configured transport profiles for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the status for all GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display the total number of unacknowledged and buffered CDRs for the configured transport profiles for all GGSNs or P-GWs.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *slot-number* pic-slot *slot-number*—(Optional) Display the total number of unacknowledged and buffered CDRs only for the specified FPC slot number and PIC slot number.

gateway *gateway-name*—(Optional) Display the total number of unacknowledged and buffered CDRs for the configured transport profiles for the specified GGSN or P-GW.

transport-profile-name *profile-name*—(Optional) Display the total number of unacknowledged and buffered CDRs only for the specified transport profile.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw charging transfer statistics on page 796

List of Sample Output

show unified-edge ggsn-pgw charging transfer status on page 801
show unified-edge ggsn-pgw charging transfer status detail on page 801

Output Fields

Table 44 on page 799 lists the output fields for the **show unified-edge ggsn-pgw charging transfer status** command. Output fields are listed in the approximate order in which they appear.

Table 44: show unified-edge ggsn-pgw charging transfer status Output Fields

Field Name	Field Description	Level of Output
CAC Status	The call admission control (CAC) status of the transport profile.	All levels none

Table 44: show unified-edge ggsn-pgw charging transfer status Output Fields *(continued)*

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW	All levels none
FPC/PIC	FPC and PIC slot numbers.	**detail**
Transport-Profile	Name of the transport profile.	All levels none
Transport-profile Id	ID of the transport profile.	**detail**
Total UnAck CDR's	Total number of CDRs (for the transport profile) sent to the charging gateway function (CGF) servers for which no acknowledgements were received.	All levels none
Total Buffered CDR's	Total number of buffered CDRs (for the transport profile) in the services PICs.	All levels none

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Sample Output

show unified-edge ggsn-pgw charging transfer status

```
user@host> show unified-edge ggsn-pgw charging transfer status
Gateway: PGW
Charging Transfer Status
Transport-Profile : p_tsp
  Total UnAck CDR's         : 2
  Total Buffered CDR's      : 0
  CAC Status                : Operational

Transport-Profile : 2
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 0
  CAC Status                : Operational

Gateway: PGW2
Charging Transfer Status
Transport-Profile : p_tsp
  Total UnAck CDR's         : 5
  Total Buffered CDR's      : 0
  CAC Status                : Operational

Transport-Profile : 2
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 0
  CAC Status                : Operational
```

show unified-edge ggsn-pgw charging transfer status detail

```
user@host> show unified-edge ggsn-pgw charging transfer status detail
Gateway: PGW
Charging Transfer Status
  FPC/PIC: 2/0
  Transport-profile         : p_tsp
  Transport-profile Id      : 3
  Total UnAck CDR's         : 2
  Total Buffered CDR's      : 0
  CAC Status                : Operational

  Transport-profile         : 2
  Transport-profile Id      : 1
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 0
  CAC Status                : Operational

Gateway: PGW2
Charging Transfer Status
  FPC/PIC: 2/1
  Transport-profile         : p_tsp
  Transport-profile Id      : 6
  Total UnAck CDR's         : 5
  Total Buffered CDR's      : 0
  CAC Status                : Operational

  Transport-profile         : 2
  Transport-profile Id      : 4
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 0
  CAC Status                : Operational
```

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show unified-edge sgw charging global statistics

Syntax

show unified-edge sgw charging global statistics
<brief | detail>
<fpc-slot *slot-number* pic-slot *slot-number*>
<gateway *gateway-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the global statistics for charging for one or more Serving Gateways (S-GWs). If an S-GW is not specified, then the statistics for all S-GWs are displayed.

Options

none—(Same as brief) Display the global statistics for charging, in brief.

brief | detail—(Optional) Display the specified level of output.

The **brief** option displays the statistics per GGSN or P-GW for all services PICs. The **detail** option displays the statistics per GGSN or P-GW for each services PIC.

fpc-slot *slot-number* pic-slot *slot-number*—(Optional) Display the global statistics for charging only for the specified FPC slot number and PIC slot number.

gateway *gateway-name*—(Optional) Display the global statistics for charging for the specified GGSN or P-GW.

Required Privilege Level

view

Related Documentation

- show unified-edge sgw charging local-persistent-storage statistics on page 806
- show unified-edge sgw charging path statistics on page 812
- show unified-edge sgw charging transfer statistics on page 824

List of Sample Output

show unified-edge sgw charging global statistics brief on page 805
show unified-edge sgw charging global statistics detail on page 805

Output Fields

Table 45 on page 803 lists the output fields for the **show unified-edge sgw charging global statistics** command. Output fields are listed in the approximate order in which they appear.

Table 45: show unified-edge sgw charging global statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels none
FPC/PIC	FPC slot number and PIC slot number for which the statistics are displayed.	**detail**

Table 45: show unified-edge sgw charging global statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
CDR Send Errors	Number of CDR send errors. This counter indicates an internal error while closing the CDR.	All levels none
CDR Encode Errors	Number of CDR encoding failures. For example, if the buffer is insufficient then the CDR encoding does not take place.	All levels none
CDR Alloc Failures	Number of CDR allocation failures. For example, if there is insufficient memory then the CDR allocation can fail.	All levels none
Container Failures	Number of internal failures pertaining to charging containers.	All levels none
Charging Bearers Created	Number of bearers for which charging is enabled.	All levels none
Charging Bearers Destroyed	Number of charging bearers destroyed.	All levels none

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Sample Output

show unified-edge sgw charging global statistics brief

```
user@host> show unified-edge sgw charging global statistics brief
Gateway: SGW
Charging Global Statistics

  CDR Send Errors                        : 2
  CDR Encode Errors                      : 0
  CDR Alloc Failures                     : 2
  Container Failures                     : 0
  Charging Bearers Created               : 133
  Charging Bearers Destroyed             : 14
```

show unified-edge sgw charging global statistics detail

```
user@host> show unified-edge sgw charging global statistics detail
Gateway: SGW
Charging Global Statistics
  FPC/PIC: 1/1
  CDR Send Errors                        : 2
  CDR Encode Errors                      : 0
  CDR Alloc Failures                     : 2
  Container Failures                     : 0
  Charging Bearers Created               : 100
  Charging Bearers Destroyed             : 10

  FPC/PIC: 3/1
  CDR Send Errors                        : 0
  CDR Encode Errors                      : 0
  CDR Alloc Failures                     : 0
  Container Failures                     : 0
  Charging Bearers Created               : 33
  Charging Bearers Destroyed             : 4
```

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show unified-edge sgw charging local-persistent-storage statistics

Syntax

show unified-edge sgw charging local-persistent-storage statistics
<gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the storage statistics of the Charging Data Record (CDR) files on the local Routing Engine disk for the Serving Gateways (S-GWs). If a gateway name is not specified, then the status for all S-GWs is displayed.

Options

none—Display the storage statistics for all S-GWs.

gateway *gateway*—(Optional) Display the storage statistics for the specified gateway.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw charging local-persistent-storage statistics on page 769

List of Sample Output

show unified-edge sgw charging local-persistent-storage statistics on page 810

Output Fields

Table 46 on page 806 lists the output fields for the **show unified-edge sgw charging local-persistent-storage statistics** command. Output fields are listed in the approximate order in which they appear.

Table 46: show unified-edge sgw charging local-persistent-storage statistics Output Fields

Field Name	Field Description
Batch Messages received	Total number of batch messages sent from services PICs to the Routing Engine disk. CDRs generated in services PICs are sent to the local Routing Engine disk as batch messages.
Batch Responses sent	Total number of responses sent to the batch messages received.
Invalid Messages received	Total number of invalid batch messages sent from services PICs to the Routing Engine disk.
Number of temp log files opened	Total number of temporary CDR files opened on the Routing Engine disk. These files are closed and copied from the temporary location to a final location (**/opt/mobility/charging/ggsn/final_log**) within the same Routing Engine disk from where the files can be transferred using SSH FTP (SFTP). Files are closed when the file size, file age, or the maximum number of CDRs added to the file reaches the configured limit (or the default limit, if the limit is not configured).

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Table 46: show unified-edge sgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Number of journal files opened	Total number of open journal files. Journal files are used to remove any unfinished file writes from the temporary log files if a daemon or router crash interrupts the kernel file write. When the daemon or router come back up, the journal log files are read to ensure that the contents of the temporary log file are sane. If there is any unfinished CDR data, the temporary log file is truncated to the last-known successful file write. For each temporary log CDR file, a separate journal file is opened.
Number of journal files closed	Total number of journal files closed.
Number of CDR log files closed	Total number of temporary CDR log files closed. Authorized users can use SFTP to transfer these files from the **/opt/mobility/charging/ggsn/final_log** location.
Number of CDR files closed due to file-age	Total number of temporary CDR log files closed because the age of the files reached the configured limit (or the default limit, if the limit is not configured). The default file age is 120 minutes.
Number of CDR files closed due to file-size	Total number of temporary CDR log files closed because the size of the files reached the configured limit (or the default limit, if the limit is not configured). The default file size is 10 megabytes (MB).
Number of CDR files closed due to cdr-count	Total number of temporary CDR log files closed because the maximum number of CDRs added to the files reached the configured limit. There is no default limit.
Abnormal file closures	Total number of abnormal temporary CDR log file closures. This counter is incremented when the charging daemon comes up after a system reboot or crash and temporary CDR log file closures are triggered.
Normal file closures	Total number of temporary CDR log file closures. This counter is incremented when changes in the configuration, such as a change in the file format, trigger temporary CDR log file closures.
Number of CDR log files closed in TS_32_297 format	Total number of closed temporary CDR log files that are compliant with the format specified in the 32297 technical specification release.
Number of CDR log files closed in raw asn1 format	Total number of closed temporary CDR log files that are in the raw ASN1 format.
Total number of CDRs backed up	Total number of CDRs backed up to the standby Routing Engine.

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Table 46: show unified-edge sgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Disk Full messages sent	Total number of messages sent by the Routing Engine to the services PICs to indicate that its disk is already full and is unable to accept any more charging data. Use SFTP to transfer the files from the **/opt/mobility/charging/ggsn/final_log** location to free disk space, or remove the disk and copy the files. You can remove the disk by issuing the following commands in this order: • **request system storage unified-edge charging media stop** • **request system storage unified-edge media eject**
Disk Full resolve messages sent	Total number of disk full resolve messages sent. When the disk space is freed, the Routing Engine sends messages to the services PICs indicating that it can receive charging data.
Number of async IO reqs written	Number of asynchronous I/O requests written. This counter is incremented once for every write operation into the temporary log CDR file.
Disk space status	Indicates whether disk space is available for storage. The possible values are: • **DISK_AVAILABLE** • **DISK_AT_WATERMARK_LEVEL1** • **DISK_AT_WATERMARK_LEVEL2** • **DISK_AT_WATERMARK_LEVEL3** • **DISK_OFFLINE**—Indicates that a disk is not present or the **request system storage unified-edge charging media stop** command has been issued. • **DISK_OFFLINE_PENDING**—Indicates whether any CDRs are being written or mirrored on the backup Routing Engine. This interim status message is displayed after the **request system storage unified-edge charging media stop** command has been issued but before the disk goes offline.
Watermark level1 at (MB)	Indicates the percentage of the total Routing Engine disk space configured for storage. By default, watermark level 1 is set to 70 percent of the total disk space. When this limit is reached, an alert (if configured) is sent and you can take corrective measures to free the disk space.
Watermark level2 at (MB)	Indicates the percentage of the total Routing Engine disk space for storage. By default, watermark level 2 is set to 80 percent of the total disk space. When this limit is reached, an alert (if configured) is sent and you can take corrective measures to free the disk space.

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Table 46: show unified-edge sgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Watermark level3 at (MB)	Indicates the percentage of the total Routing Engine disk space configured for storage. By default, watermark level 3 is set to 90 percent of the total disk space. When this limit is reached, an alert (if configured) is sent and you can to take any corrective measures to free the disk space. Otherwise, the services PICs stop sending the charging data to the Routing Engine disk and you must transfer the files via SFTP to free the disk space. However, the charging data is not lost because it is buffered in the services PICs. Services PICs can buffer up to a maximum of 2 GB of data after which a call admission control (CAC) is triggered.
Temporary CDR log file Statistics NOTE: The information about temporary CDR log files is displayed only if temporary CDR log files are currently open.	
File Name	Name of the temporary CDR log file.
Journal file name	Name of the journal file.
Current number of CDRs	Total number of CDRs currently added to the temporary CDR log file.
Current file size (bytes)	Current size, in bytes, of the temporary CDR log file.
File age trigger (mins)	Configured duration, in minutes, after which the temporary CDR log file is closed, in minutes. If this parameter is not configured, then the default value is displayed.
File size trigger (bytes)	Configured size, in bytes, that the temporary CDR log file can reach after which it is closed. If this parameter is not configured, then the default value is displayed.
CDR count trigger	Configured maximum number of CDRs that can be added to the temporary CDR log file, after which it is closed. If this parameter is not configured, then the default value is displayed.
Global Statistics	
Disk Offline messages sent	Total number of messages sent by the Routing Engine to the services PICs to indicate that its disk is offline or is not mounted, and that it is unable to accept any more charging data. You can configure the disk (storage media) to store charging data by issuing these commands: • **request system storage unified-edge media prepare** • **request system storage unified-edge charging media start**
Disk Available messages sent	When the disk is prepared and mounted, the Routing Engine sends messages to the services PICs to indicate that it can now receive charging data. This field indicates the total number of these messages sent.

Table 46: show unified-edge sgw charging local-persistent-storage statistics Output Fields *(continued)*

Field Name	Field Description
Number of CDR storage files on disk	Total number of CDR files stored on the local Routing Engine disk.
Current storage space in use (MB)	Storage space, in MB, that is currently being used.
Available storage space on disk (MB)	Total free space, in MB, available for storage on the disk.
Total storage space on disk (MB)	Total storage space, in MB, on the disk.
Mirroring Connection Information	
Connection state	State of the mirroring connection. The following states are possible: • **Active**—Indicates that the mirroring status on Routing Engine is active. • **Standalone**—Indicates that the backup Routing Engine is down, or that graceful Routing Engine switchover (GRES) is not configured. • **Standby**—Indicates that the backup Routing Engine is on standby.
Other RE mirroring connection present	Indicates whether the mirroring connection is established with the other Routing Engine or not
GRES configured	Indicates whether graceful Routing Engine switchover (GRES) is configured or not.

Sample Output

show unified-edge sgw charging

```
user@host> show unified-edge sgw charging local-persistent-storage statistics
Gateway: SGW
Charging local-persistent-storage Statistics
```


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local-persistent-storage statistics

```
  Batch Messages received                              : 76
  Batch Responses sent                                 : 76
  Invalid Messages received                            : 0
  Number of temp log files opened                      : 1
  Number of journal files opened                       : 1
  Number of journal files closed                       : 0
  Number of CDR log files closed                       : 0
  Number of CDR files closed due to file-age           : 0
  Number of CDR files closed due to file-size          : 0
  Number of CDR files closed due to cdr-count          : 0
  Abnormal file closures                               : 0
  Normal file closures                                 : 0
  Number of CDR log files closed in TS_32_297 format   : 0
  Number of CDR log files closed in raw asn1 format    : 0
  Total number of CDRs backed up                       : 2095
  Disk Full messages sent                              : 0
  Disk Full resolve messages sent                      : 0
  Number of async IO reqs written                      : 76
  Disk space status                                    : DISK_AVAILABLE
  Watermark level1 at(MB)                              : 618(70%)
  Watermark level2 at(MB)                              : 707(80%)
  Watermark level3 at(MB)                              : 795(90%)

Temporary CDR log file Statistics
File Name: /opt/mobility/charging/ggsn/temp_log/templog_file_1.log
    Journal file name          : /opt/mobility/charging/ggsn/jrnl/jrnl_1.log
    Current number of CDRs     : 2095
    Current file size(bytes)   : 553028
    File age trigger(mins)     : 60
    File size trigger(bytes)   : 10485760
    CDR count trigger          : 0

Global Statistics
  Disk Offline messages sent                           : 0
  Disk Available messages sent                         : 0
  Number of CDR storage files on disk                  : 0
  Current storage space in use(MB)                     : 301
  Available storage space on disk(MB)                  : 583
  Total storage space on disk(MB)                      : 884

Mirroring Connection Information
  Connection state                                     : ACTIVE
  Other RE mirroring connection present                : YES
  GRES configured                                      : NO
```

show unified-edge sgw charging path statistics

Syntax

show unified-edge sgw charging path statistics
<brief | detail>
<fpc-slot *slot-number*>
<gateway *gateway-name*>
<gtpp-peer-addr *ipv4-address*>
<gtpp-peer-name *peer-name*>
<pic-slot *slot-number*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the path management message statistics (between the charging data function [CDF] and the charging gateway function [CGF] servers) on one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the path management statistics for all S-GWs are displayed.

Options

none—(Same as brief) Display the path management message statistics for all S-GWs.

brief | detail—(Optional) Display the specified level of output.

The **brief** option displays the statistics per S-GW for all services PICs. The **detail** option displays the statistics per S-GW for each services PIC.

fpc-slot *slot-number*—(Optional) Display the path management message statistics for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display the path management message statistics for the specified gateway.

gtpp-peer-addr *ipv4-address*—(Optional) Display the path management message statistics for the GTP Prime peer with the specified IPv4 address.

gtpp-peer-name *peer-name*—(Optional) Display the path management message statistics for the GTP Prime peer with the specified name.

pic-slot *slot-number*—(Optional) Display the path management message statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw charging path statistics on page 770
- show unified-edge sgw charging path status on page 818

List of Sample Output

show unified-edge sgw charging path statistics brief on page 815
show unified-edge sgw charging path statistics detail on page 815

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Output Fields Table 47 on page 813 lists the output fields for the **show unified-edge sgw charging path statistics** command. Output fields are listed in the approximate order in which they appear.

Table 47: show unified-edge sgw charging path statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
Charging Path Statistics		
FPC/PIC	FPC slot number and PIC slot number for which the statistics are displayed.	**detail**
CGF Address	Address of the CGF server (GTP Prime peer).	All levels
CGF Server Name	Name of the CGF server (GTP Prime peer).	All levels
Echo Requests Rx	Total number of echo requests received by the CDF from the CGF server.	All levels
Echo Responses Tx	Total number of echo responses transmitted by the CDF to the CGF server.	All levels
Echo Responses Rx	Total number of echo responses received by the CDF from the CGF server.	All levels
Echo Requests Tx	Total number of echo requests transmitted by the CDF to the CGF server.	All levels
Node-Alive Requests Rx	Total number of node alive requests received by the CDF from the CGF server.	All levels
Node-Alive Responses Tx	Total number of responses transmitted by the CDF to the node alive requests received from the CGF server.	All levels
Version Not Supported Rx	Total number of Version Not Supported messages received by the CDF from the CGF server. The CGF server sends these messages to the CDF to indicate that the GTP Prime messages sent by the CDF are incompatible with the GTP Prime version supported by the CGF server.	All levels
Version Not Supported Tx	Total number of Version Not Supported messages transmitted by the CDF to the CGF server. The CDF sends these messages to indicate that the GTP Prime messages sent by the CGF server are incompatible with the GTP Prime version supported by the CDF.	All levels
Echo Requests timed out	Total number of echo requests sent by the CDF for which there were no responses from the CGF server and that have timed out.	All levels
Echo Interval	Configured echo interval, in seconds. If the echo interval is not configured, then the default value is displayed.	All levels
Down Detection Interval	Configured down detect time, in seconds. If the down detect time is not configured, then the default value is displayed.	All levels
Reconnect Time Interval	Configured reconnect time, in seconds. If the reconnect time is not configured, then the default value is displayed.	All levels

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Table 47: show unified-edge sgw charging path statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Destination Port	Configured destination port. If the destination port is not configured, then the default port (3386) is displayed.	All levels
Pending Queue Size	Configured pending queue size. If the pending queue size is not configured, then the default value (1024) is displayed.	All levels
Path Manager FPC Slot	FPC slot that manages the path management messages.	All levels
Path Manager PIC Slot	PIC slot that manages the path management messages.	All levels
Path Manager Port	Port used for path management messages.	All levels
T3 Response Time Interval	Configured T3 response time interval, in seconds. If the T3 response time interval is not configured, then the default value (5 seconds) is displayed.	All levels
Source Interface Valid	Indicates whether the source interface is valid or not.	All levels
GTPP Header Type	Configured header type for the GTP Prime messages.	All levels
N3 Requests	Configured value for **N3 requests**. If the **N3 requests** is not configured, then the default value (3) is displayed.	All levels
Local Address	Address of the local loopback source interface from which the GTP Prime packets are sent to the CGF server.	All levels
GTPP Version	Configured version that is supported on the configured local loopback source interface's IP address, from which the GTP Prime packets are sent to the CGF server.	All levels
Transport Protocol	Configured transport protocol for sending the GTP Prime packets from CDF to the CGF server.	All levels
TCP Port Range Start	Start of the range of source ports from which the TCP connection from each services PIC to the CGF server can originate. The S-GW assigns a range of source ports internally.	All levels
TCP Port Range End	End of the range of source ports from which the TCP connection from each services PIC to the CGF server can originate. The S-GW assigns a range of source ports internally.	All levels
TCP Connection State	Indicates whether the TCP connection state on the services PIC has been established or not.	**detail**

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Sample Output

show unified-edge sgw charging path statistics brief

```
user@host> show unified-edge sgw charging path statistics brief
Gateway: SGW
Charging Path Statistics

  CGF Address                : 2.2.2.2         CGF Server Name           : s_cgf
  Echo Requests            Rx: 0               Echo Responses          Tx: 0
  Echo Responses           Rx: 0               Echo Requests           Tx: 0
  Node-Alive Requests      Rx: 0               Node-Alive Responses    Tx: 0
  Version Not Supported    Rx: 0               Version Not Supported   Tx: 0
  Echo Requests timed out    : 0               Echo Interval             : 0
  Down Detection Interval    : 10              Reconnect Time Interval   : 60
  Destination Port           : 3386            Pending Queue Size        : 1000
  Path Manager FPC Slot      : 2               Path Manager PIC Slot     : 0
  T3 Response Time Interval  : 5               Path Manager Port         : 30275
  Source Interface Valid     : Yes             GTPP Header Type          : long
  N3 Requests               : 1              Local Address            : 13.4.1.1

  GTPP Version               : V0              Transport Protocol        : TCP
  TCP Port Range Start       : 30277           TCP Port Range End        : 30308

Gateway: SGW2
Charging Path Statistics

  CGF Address                : 2.2.2.2         CGF Server Name           : s_cgf
  Echo Requests            Rx: 0               Echo Responses          Tx: 0
  Echo Responses           Rx: 0               Echo Requests           Tx: 0
  Node-Alive Requests      Rx: 0               Node-Alive Responses    Tx: 0
  Version Not Supported    Rx: 0               Version Not Supported   Tx: 0
  Echo Requests timed out    : 0               Echo Interval             : 0
  Down Detection Interval    : 10              Reconnect Time Interval   : 60
  Destination Port           : 3386            Pending Queue Size        : 1000
  Path Manager FPC Slot      : 2               Path Manager PIC Slot     : 1
  T3 Response Time Interval  : 5               Path Manager Port         : 30241
  Source Interface Valid     : Yes             GTPP Header Type          : long
  N3 Requests               : 1              Local Address            : 12.4.1.1

  GTPP Version               : V0              Transport Protocol        : TCP
  TCP Port Range Start       : 30243           TCP Port Range End        : 30274
```

show unified-edge sgw charging path statistics detail

```
user@host> show unified-edge sgw charging path statistics detail
Gateway: SGW
Charging Path Statistics
FPC/PIC: 2/0

  CGF Address                : 2.2.2.2         CGF Server Name           : s_cgf
  Echo Requests            Rx: 0               Echo Responses          Tx: 0
  Echo Responses           Rx: 0               Echo Requests           Tx: 0
  Node-Alive Requests      Rx: 0               Node-Alive Responses    Tx: 0
  Version Not Supported    Rx: 0               Version Not Supported   Tx: 0
  Echo Requests timed out    : 0               Echo Interval             : 0
  Down Detection Interval    : 10              Reconnect Time Interval   : 60
  Destination Port           : 3386            Pending Queue Size        : 1000
  Path Manager FPC Slot      : 2               Path Manager PIC Slot     : 0
  T3 Response Time Interval  : 5               Path Manager Port         : 30275
  Source Interface Valid     : Yes             GTPP Header Type          : long
  N3 Requests               : 1              Local Address            : 13.4.1.1
```

```
  GTPP Version              : V0              Transport Protocol        : TCP
  TCP Port Range Start      : 30277           TCP Port Range End        : 30308
  TCP Connection State      : Established
FPC/PIC: 5/0

  CGF Address               : 2.2.2.2         CGF Server Name           : s_cgf
  Echo Requests           Rx: 0               Echo Responses          Tx: 0
  Echo Responses          Rx: 0               Echo Requests           Tx: 0
  Node-Alive Requests     Rx: 0               Node-Alive Responses    Tx: 0
  Version Not Supported   Rx: 0               Version Not Supported   Tx: 0
  Echo Requests timed out   : 0               Echo Interval             : 0
  Down Detection Interval   : 10              Reconnect Time Interval   : 60
  Destination Port          : 3386            Pending Queue Size        : 1000
  Path Manager FPC Slot     : 2               Path Manager PIC Slot     : 0
  T3 Response Time Interval : 5               Path Manager Port         : 30275
  Source Interface Valid    : Yes             GTPP Header Type          : long
  N3 Requests              : 1              Local Address            : 13.4.1.1

  GTPP Version              : V0              Transport Protocol        : TCP
  TCP Port Range Start      : 30277           TCP Port Range End        : 30308
  TCP Connection State      : Not Established

Gateway: SGW2
Charging Path Statistics
FPC/PIC: 2/1

  CGF Address               : 2.2.2.2         CGF Server Name           : s_cgf
  Echo Requests           Rx: 0               Echo Responses          Tx: 0
  Echo Responses          Rx: 0               Echo Requests           Tx: 0
  Node-Alive Requests     Rx: 0               Node-Alive Responses    Tx: 0
  Version Not Supported   Rx: 0               Version Not Supported   Tx: 0
  Echo Requests timed out   : 0               Echo Interval             : 0
  Down Detection Interval   : 10              Reconnect Time Interval   : 60
  Destination Port          : 3386            Pending Queue Size        : 1000
  Path Manager FPC Slot     : 2               Path Manager PIC Slot     : 1
  T3 Response Time Interval : 5               Path Manager Port         : 30241
  Source Interface Valid    : Yes             GTPP Header Type          : long
  N3 Requests              : 1              Local Address            : 12.4.1.1

  GTPP Version              : V0              Transport Protocol        : TCP
  TCP Port Range Start      : 30243           TCP Port Range End        : 30274
  TCP Connection State      : Not Established
FPC/PIC: 5/1

  CGF Address               : 2.2.2.2         CGF Server Name           : s_cgf
  Echo Requests           Rx: 0               Echo Responses          Tx: 0
  Echo Responses          Rx: 0               Echo Requests           Tx: 0
  Node-Alive Requests     Rx: 0               Node-Alive Responses    Tx: 0
  Version Not Supported   Rx: 0               Version Not Supported   Tx: 0
  Echo Requests timed out   : 0               Echo Interval             : 0
  Down Detection Interval   : 10              Reconnect Time Interval   : 60
  Destination Port          : 3386            Pending Queue Size        : 1000
  Path Manager FPC Slot     : 2               Path Manager PIC Slot     : 1
  T3 Response Time Interval : 5               Path Manager Port         : 30241
  Source Interface Valid    : Yes             GTPP Header Type          : long
  N3 Requests              : 1              Local Address            : 12.4.1.1

  GTPP Version              : V0              Transport Protocol        : TCP
  TCP Port Range Start      : 30243           TCP Port Range End        : 30274
  TCP Connection State      : Not Established
```


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show unified-edge sgw charging path status

Syntax

show unified-edge sgw charging path status
<brief | detail>
<fpc-slot *slot-number*>
<gateway-name *name*>
<gtpp-peer-addr *ipv4-address*>
<gtpp-peer-name *peer-name*>
<pic-slot *slot-number*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the status of the configured GPRS tunneling protocol (GTP) Prime peers for the Serving Gateways (S-GWs). If a gateway name is not specified, then the status for all S-GWs is displayed.

The status includes information about whether the GTP Prime peers are connected, down, or still in the process of establishing a connection, and whether the echo messages are enabled or disabled

NOTE: In charging, the terms GTP Prime peers and charging gateway function (CGF) server are used interchangeably.

Options

none—(Same as brief) Display the status of the configured GTP Prime peers for all S-GWs.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *slot-number*—(Optional) Display the status of the configured GTP Prime peers for the specified FPC slot number.

gtpp-peer-addr *ipv4-address*—(Optional) Display the status of the GTP Prime peer with the specified IPv4 address.

gtpp-peer-name *peer-name*—(Optional) Display the status of the GTP Prime peer with the specified name.

pic-slot *slot-number*—(Optional) Display the status of the configured GTP Prime peers for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- show unified-edge sgw charging path statistics on page 812

List of Sample Output

show unified-edge sgw charging path status brief on page 820
show unified-edge sgw charging path status detail on page 820

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Output Fields Table 48 on page 819 lists the output fields for the **show unified-edge sgw charging path status** command. Output fields are listed in the approximate order in which they appear.

Table 48: show unified-edge sgw charging path status Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
Peer-Address	Address of the charging gateway function (CGF) server (GTP Prime peer).	All levels
Peer-Name	Name of the CGF server (GTP Prime peer).	All levels
Local-Address	IPv4 address of the local loopback source interface from where the GTP Prime packets are sent to the CGF server (GTP Prime peer).	All levels
Status	Status of the CGF server: • **Connected** • **Down** • **In-Progress**	All levels
Echo	Indicates whether echo messages are enabled or disabled. The possible values are: • **Enabled** or **Disabled** for UDP connections • **N/A** (Not Applicable) for TCP connections	All levels
Cause	Probable cause for the current status of the CGF peer. This field is displayed only when the CGF server is down or the connection has not been established.	**detail**
FPC/PIC	FPC and PIC slot numbers.	**detail**

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Sample Output

show unified-edge sgw charging path status brief

```
user@host> show unified-edge sgw charging path status brief
Gateway: SGW
Charging Path Status
Peer-Address      Peer-Name       Local-Address      Status          Echo
3.3.3.3           test            13.4.1.1           In-Progress     N/A
2.2.2.2           s_cgf           13.4.1.1           Connected       N/A
```

show unified-edge sgw charging path status detail

```
user@host> show unified-edge sgw charging path status detail
Gateway: SGW
Charging Path Status

        FPC/PIC 2/1
        Peer-Address   3.3.3.3
        Peer-Name      test
        Local-Address  13.4.1.1
        Status         Down
        Cause          Server Not Responding
        Echo           N/A

        Peer-Address   2.2.2.2
        Peer-Name      s_cgf
        Local-Address  13.4.1.1
        Status         Connected
        Echo           N/A
```


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show unified-edge sgw charging service-mode

Syntax

show unified-edge sgw charging service-mode gateway-name *gateway-name*
<brief | detail>
<charging-profile *profile-name*>
<transport-profile *profile-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the charging service mode information for the specified Serving Gateway (S-GW).

Options

gateway-name *gateway-name*—Display the charging service mode information for the specified gateway.

brief | detail—(Optional) Display the specified level of output.

charging-profile *profile-name*—(Optional) Display the service mode information for the specified charging profile.

transport-profile *profile-name*—(Optional) Display the service mode information for the specified transport profile.

Required Privilege Level

view

Related Documentation

- service-mode (Charging Profiles) on page 316
- service-mode (Transport Profiles) on page 318

List of Sample Output

show unified-edge sgw charging service-mode gateway SGW brief on page 823
show unified-edge sgw charging service-mode gateway SGW detail on page 823

Output Fields

Table 49 on page 821 lists the output fields for the **show unified-edge sgw charging service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 49: show unified-edge sgw charging service-mode Output Fields

Field Name	Field Description	Level of Output
Gateway Name	Name of the S-GW.	All levels

Table 49: show unified-edge sgw charging service-mode Output Fields *(continued)*

Field Name	Field Description	Level of Output
Service Mode	Service mode for the gateway. The following service modes are possible: • Operational—Gateway is in operational mode. • Maintenance—Gateway is in maintenance mode. • **MM Active Phase**—In this mode, you can make changes to any of the configuration options under the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles]** or the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles]** hierarchy levels. • **MM In/Out Phase**—In this mode, you cannot make changes to the configuration options under the **[edit unified-edge gateways sgw *gateway-name* charging charging-profiles]** or the **[edit unified-edge gateways sgw *gateway-name* charging transport-profiles]** hierarchy levels.	All levels
Charging Profile(s) or **Charging Profile**	Name of the charging profile.	All levels
Service Mode	Service mode for the charging profile.	All levels
Transport Profile(s) or **Transport Profile**	Name of the transport profile.	All levels
Service Mode	Service mode for the transport profile.	All levels
Pending Maintenance Mode Ready Ack	Lists the components or modules that are not yet ready to accept the configuration changes. Maintenance mode becomes active only after all the components or modules are ready to accept these changes.	**detail**

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Sample Output

show unified-edge sgw charging service-mode gateway SGW brief

```
user@host> show unified-edge sgw charging service-mode gateway SGW brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
                      attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                      non-maintenance mode attributes of this object and
                      its sub-hierarchies.
.
Gateway Name    : SGW
Service Mode    : Operational

Charging Profile(s)             Service Mode
p_juniper                       Operational
Transport Profile(s)            Service Mode
p_tsp                           Operational
```

show unified-edge sgw charging service-mode gateway SGW detail

```
user@host> show unified-edge sgw charging service-mode gateway SGW detail
Gateway Name    : SGW
Service Mode    : Operational

Charging Profile: p_juniper
Service Mode    : Operational
Transport Profile: p_tsp
Service Mode    : Operational
```

show unified-edge sgw charging transfer statistics

Syntax

show unified-edge sgw charging transfer statistics
<brief | detail>
<fpc-slot *slot-number*>
<gateway-name *name*>
<pic-slot *slot-number*>
<transport-profile-name *profile-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the transfer statistics for the configured transport profiles on one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the transfer statistics for all S-GWs are displayed.

Options

none—(Same as brief) Display the transfer statistics for all S-GWs.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *slot-number*—(Optional) Display the transfer statistics for the specified FPC slot number.

gateway-name *name*—(Optional) Display the transfer statistics for the specified gateway.

pic-slot *slot-number*—(Optional) Display the transfer statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

transport-profile-name *profile-name*—(Optional) Display the transfer statistics for the specified transport profile.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw charging transfer statistics on page 771

List of Sample Output

show unified-edge sgw charging transfer statistics brief on page 827
show unified-edge sgw charging transfer statistics detail on page 827

Output Fields

Table 50 on page 824 lists the output fields for the **show unified-edge sgw charging transfer statistics** command. Output fields are listed in the approximate order in which they appear.

Table 50: show unified-edge sgw charging transfer statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
Transport-Profile	Name of the transport profile.	All levels

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Table 50: show unified-edge sgw charging transfer statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Redirection Requests Rx	Total number of redirection request messages received by the charging data function (CDF) from the charging gateway function (CGF) server. The CGF server sends these messages to inform the CDF about the following: • The CGF server is about to stop service (possibly due to an error or for maintenance). • The next node in the chain (such as a billing server) has lost its connection to the CGF server.	All levels
Redirection Responses Tx	Total number of redirection response messages transmitted as responses to the redirection requests received. Redirection response messages indicate whether a redirection request message was successful or not.	All levels
DRT Responses Rx	Total number of Data Record Transfer (DRT) response messages received for the DRT request messages sent. DRT response messages indicate whether a DRT request was successful or not.	All levels
DRT Requests Tx	Total number of DRT request messages transmitted to the CGF server. These messages are used to transfer Charging Data Records (CDRs) from the CDF to the CGF server.	All levels
DRT successful Responses Rx	Total number of successful DRT response messages received for the DRT request messages sent.	All levels
DRT Error Responses Rx	Total number of DRT error response messages received for the DRT request messages sent.	All levels
DRT Requests timed out	Total number of DRT requests sent that timed out before receiving a response from the CGF server.	All levels
CGF Switch Back Times	Total number of times the CGF servers were switched, which indicates the number of times that the CGF servers were either offline or down for maintenance.	All levels
Batch Requests Tx	Total number of batch requests transmitted from services PICs for a transport profile.	All levels
Batch Response Errors Rx	Total number of error responses, sent by the Routing Engine to the services PICs, for the batch requests messages received.	All levels
Batch CDR's Tx	Total number of CDRs transmitted from services PICs to the Routing Engine.	All levels
CDR Count	Total number of CDRs transmitted to the CGF server.	All levels
Total WFA	Total number of request messages awaiting acknowledgements from the Routing Engine or the CGF server.	All levels

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Table 50: show unified-edge sgw charging transfer statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Open Batch Requests Timed out	Number of open batch requests timed out. Batch message requests are sent to write CDRs into local storage. This counter indicates that no response was received and that the request was timed out.	All levels none
FPC/PIC	FPC and PIC slot numbers.	**detail**

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Sample Output

show unified-edge sgw charging transfer statistics brief

```
user@host> show unified-edge sgw charging transfer statistics brief
Gateway: SGW
Charging Transfer Statistics
Transport-Profile : trans_p
  Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
  DRT Responses            Rx: 0     DRT Requests                Tx: 0
  DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
  DRT Requests timed out     : 0     CGF Switch Back Times         : 0
  Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
  Batch CDR's              Tx: 0     CDR Count                     : 0
  Total WFA                  : 0     Open Batch Requests Timed out : 0

Transport-Profile : trans_p2
  Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
  DRT Responses            Rx: 0     DRT Requests                Tx: 0
  DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
  DRT Requests timed out     : 0     CGF Switch Back Times         : 0
  Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
  Batch CDR's              Tx: 0     CDR Count                     : 0
  Total WFA                  : 0     Open Batch Requests Timed out : 0
```

show unified-edge sgw charging transfer statistics detail

```
user@host> show unified-edge sgw charging transfer statistics detail
Gateway: SGW
Charging Transfer Statistics
FPC/PIC:  1/1
  Transport-profile : trans_p
    Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
    DRT Responses            Rx: 0     DRT Requests                Tx: 0
    DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
    DRT Requests timed out     : 0     CGF Switch Back Times         : 0
    Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
    Batch CDR's              Tx: 0     CDR Count                     : 0
    Total WFA                  : 0     Open Batch Requests Timed out : 0

  Transport-profile : trans_p2
    Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
    DRT Responses            Rx: 0     DRT Requests                Tx: 0
    DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
    DRT Requests timed out     : 0     CGF Switch Back Times         : 0
    Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
    Batch CDR's              Tx: 0     CDR Count                     : 0
    Total WFA                  : 0     Open Batch Requests Timed out : 0

FPC/PIC:  3/1
  Transport-profile : trans_p
    Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
    DRT Responses            Rx: 0     DRT Requests                Tx: 0
    DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
    DRT Requests timed out     : 0     CGF Switch Back Times         : 0
    Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
    Batch CDR's              Tx: 0     CDR Count                     : 0
    Total WFA                  : 0     Open Batch Requests Timed out : 0

  Transport-profile : trans_p2
    Redirection Requests     Rx: 0     Redirection Responses       Tx: 0
    DRT Responses            Rx: 0     DRT Requests                Tx: 0
```

```
DRT successful Responses Rx: 0     DRT Error Responses         Rx: 0
DRT Requests timed out     : 0     CGF Switch Back Times         : 0
Batch Requests           Tx: 0     Batch Response Errors       Rx: 0
Batch CDR's              Tx: 0     CDR Count                     : 0
Total WFA                  : 0     Open Batch Requests Timed out : 0
```


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show unified-edge sgw charging transfer status

Syntax

show unified-edge sgw charging transfer status
<brief | detail>
<fpc-slot *slot-number*>
<gateway-name *name*>
<pic-slot *slot-number*>
<transport-profile-name *profile-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the Charging Data Record (CDR) transfer status for the transport profiles on one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the transfer status for all S-GWs are displayed.

Options

none—(Same as brief) Display Display the total number of unacknowledged and buffered CDRs for the configured transport profiles for all S-GWs.

brief | detail—(Optional) Display the specified level of output.

fpc-slot *slot-number*—(Optional) Display the total number of unacknowledged and buffered CDRs for the configured transport profiles for the specified FPC slot number.

gateway-name *name*—(Optional) Display the total number of unacknowledged and buffered CDRs for the configured transport profiles for the specified gateway.

pic-slot *slot-number*—(Optional) Display the total number of unacknowledged and buffered CDRs for the configured transport profiles for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

transport-profile-name *profile-name*—(Optional) Display the total number of unacknowledged and buffered CDRs for the configured transport profiles for the specified transport profile.

Required Privilege Level

view

Related Documentation

- show unified-edge sgw charging transfer statistics on page 824

List of Sample Output

show unified-edge sgw charging transfer status brief on page 831
show unified-edge sgw charging transfer status detail on page 831

Output Fields

Table 51 on page 829 lists the output fields for the **show unified-edge sgw charging transfer status** command. Output fields are listed in the approximate order in which they appear.

Table 51: show unified-edge sgw charging transfer status Output Fields

Field Name	Field Description	Level of Output
CAC Status	The call admission control (CAC) status of the transport profile.	All levels none

Table 51: show unified-edge sgw charging transfer status Output Fields *(continued)*

Gateway	Name of the S-GW.	All levels
FPC/PIC	FPC and PIC slot numbers.	**detail**
Transport-Profile	Name of the transport profile.	All levels
Transport-profile Id	ID of the transport profile.	**detail**
Total UnAck CDR's	Total number of CDRs (for the transport profile) sent to the charging gateway function (CGF) servers for which no acknowledgements were received.	All levels
Total Buffered CDR's	Total number of buffered CDRs (for the transport profile) in the services PICs.	All levels

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Sample Output

show unified-edge sgw charging transfer status brief

```
user@host> show unified-edge sgw charging transfer status brief
Gateway: SGW
Charging Transfer Status
Transport-Profile : s_tsp
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 10
  CAC Status                : Operational

Transport-Profile : s_tsp2
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 0
  CAC Status                : Operational
```

show unified-edge sgw charging transfer status detail

```
user@host> show unified-edge sgw charging transfer status detail
Gateway: SGW
Charging Transfer Status
  FPC/PIC: 2/1
  Transport-profile         : s_tsp
  Transport-profile Id      : 1
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 2
  CAC Status                : Operational

  Transport-profile         : s_tsp2
  Transport-profile Id      : 2
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 0
  CAC Status                : Operational

  FPC/PIC: 3/1
  Transport-profile         : s_tsp
  Transport-profile Id      : 1
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 8
  CAC Status                : Operational

  Transport-profile         : s_tsp2
  Transport-profile Id      : 2
  Total UnAck CDR's         : 0
  Total Buffered CDR's      : 0
  CAC Status                : Operational
```

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CHAPTER 24

Diameter Operational Commands

clear unified-edge ggsn-pgw diameter dcca-gy statistics

Syntax

clear unified-edge ggsn-pgw diameter dcca-gy statistics
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Clear all statistics for the Gy application for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are cleared.

Options

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Clear the statistics for the specified GGSN or P-GW.

pic-slot *pic-slot*—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge ggsn-pgw diameter pcc-gx statistics on page 836
- show unified-edge ggsn-pgw diameter dcca-gy statistics on page 838

List of Sample Output

clear unified-edge ggsn-pgw diameter dcca-gy statistics on page 834

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw diameter dcca-gy statistics

```
user@host> clear unified-edge ggsn-pgw diameter dcca-gy statistics
```


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clear unified-edge ggsn-pgw diameter network-element statistics

Syntax

clear unified-edge ggsn-pgw diameter network-element statistics
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<network-element-name *network-element-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Clear the statistics for network elements for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a network element is not specified, then statistics for all network elements are cleared. If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are cleared.

Options

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Clear the statistics for the specified GGSN or P-GW.

network-element-name *network-element-name*—(Optional) Clear the statistics for the specified network element.

pic-slot *pic-slot*—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw diameter network-element statistics on page 843

List of Sample Output

clear unified-edge ggsn-pgw diameter network-element statistics on page 835

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw diameter network-element statistics

```
user@host> clear unified-edge ggsn-pgw diameter network-element statistics
```

clear unified-edge ggsn-pgw diameter pcc-gx statistics

Syntax

clear unified-edge ggsn-pgw diameter pcc-gx statistics
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Clear all statistics for the Gx application for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are cleared.

Options

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Clear the statistics for the specified GGSN or P-GW.

pic-slot *pic-slot*—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge ggsn-pgw diameter dcca-gy statistics on page 834
- show unified-edge ggsn-pgw diameter pcc-gx statistics on page 848

List of Sample Output

clear unified-edge ggsn-pgw diameter pcc-gx statistics on page 836

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw diameter pcc-gx statistics

```
user@host> clear unified-edge ggsn-pgw diameter pcc-gx statistics
```


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clear unified-edge ggsn-pgw diameter peer statistics

Syntax

clear unified-edge ggsn-pgw diameter peer statistics
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<peer-name *peer-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Clear the statistics for Diameter peers for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a peer is not specified, then statistics for all peers are cleared. If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are cleared.

Options

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Clear the statistics for the specified GGSN or P-GW.

peer-name *peer-name*—(Optional) Clear the statistics for the specified peer.

pic-slot *pic-slot*—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw diameter peer statistics on page 853

List of Sample Output

clear unified-edge ggsn-pgw diameter peer statistics on page 837

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw diameter peer statistics

```
user@host> clear unified-edge ggsn-pgw diameter peer statistics
```

show unified-edge ggsn-pgw diameter dcca-gy statistics

Syntax

show unified-edge ggsn-pgw diameter dcca-gy statistics
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the statistics for the Gy application for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a gateway is not specified, then statistics for all gateways are displayed.

Options

brief | detail—(Optional) Display the specified level of output. The **brief** output is displayed by default.

fpc-slot *fpc-slot*—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Display the statistics for the specified gateway.

pic-slot *pic-slot*—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw diameter dcca-gy statistics on page 834
- show unified-edge ggsn-pgw diameter pcc-gx statistics on page 848

List of Sample Output

show unified-edge ggsn-pgw diameter dcca-gy statistics on page 841
show unified-edge ggsn-pgw diameter dcca-gy statistics detail on page 841

Output Fields

Table 52 on page 838 lists the output fields for the **show unified-edge ggsn-pgw diameter dcca-gy statistics** command. Output fields are listed in the approximate order in which they appear.

Table 52: show unified-edge ggsn-pgw diameter dcca-gy statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels
FPC/PIC	FPC and PIC slots for which the statistics are displayed.	**detail**
Total Sessions	Total number of active sessions.	All levels
Total Sessions Terminated	Total number of terminated sessions.	**detail**

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Table 52: show unified-edge ggsn-pgw diameter dcca-gy statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Internal Errors	Number of internal errors.	**detail**
Total	• **Requests**—Total number of request messages. • **Answers**—Total number of answer messages.	**brief**
Credit Control Initial	• **Requests**—Number of initial transfer type Credit-Control-Request (CCR) messages. • **Answers**—Number of initial transfer type Credit-Control-Answer (CCA) messages.	**brief**
Credit Control Update	• **Requests**—Number of update transfer type CCR messages. • **Answers**—Number of update transfer type CCA messages.	**brief**
Credit Control Terminate	• **Requests**—Number of terminate transfer type CCR messages. • **Answers**—Number of terminate transfer type CCA messages.	**brief**
Re-Auth	• **Requests**—Number of Re-Auth-Request (RAR) messages. • **Answers**—Number of Re-Auth-Answer (RAA) messages.	**brief**
Abort Session	• **Requests**—Number of Abort-Session-Request (ASR) messages. • **Answers**—Number of Abort-Session-Answer (ASA) messages.	**brief**
Dropped	• **Requests**—Number of dropped request messages. • **Answers**—Number of dropped answer messages.	**brief**
Requests Transmitted	• **Initial**—Number of initial transfer type CCR messages sent. • **Update**—Number of update transfer type CCR messages sent. • **Terminate**—Number of terminate transfer type CCR messages sent. • **Total**—Number of CCR messages sent.	**detail**
Request Timeouts	• **Initial**—Number of initial transfer type CCR messages that timed out. • **Update**—Number of update transfer type CCR messages that timed out. • **Terminate**—Number of terminate transfer type CCR messages that timed out. • **Total**—Number of CCR messages that timed out.	**detail**
Request Discarded	• **Initial**—Number of initial transfer type CCR messages sent that were discarded. • **Update**—Number of update transfer type CCR messages sent that were discarded. • **Terminate**—Number of terminate transfer type CCR messages sent that were discarded. • **Total**—Number of CCR messages sent that were discarded.	**detail**
Request Tx Timeouts	• **Initial**—Number of initial transfer type CCR messages sent that timed out. • **Update**—Number of update transfer type CCR messages sent that timed out. • **Terminate**—Number of terminate transfer type CCR messages sent that timed out. • **Total**—Number of CCR messages sent that timed out.	**detail**

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Table 52: show unified-edge ggsn-pgw diameter dcca-gy statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Answers Received	• **Initial**—Number of initial transfer type CCA messages received. • **Update**—Number of update transfer type CCA messages received. • **Terminate**—Number of terminate transfer type CCA messages received. • **Total**—Number of CCA messages received.	**detail**
Answers Dropped	• **Initial**—Number of initial transfer type CCA messages dropped. • **Update**—Number of update transfer type CCA messages dropped. • **Terminate**—Number of terminate transfer type CCA messages dropped. • **Total**—Number of CCA messages dropped.	**detail**
Answers Parse Errors	• **Initial**—Number of initial transfer type CCA messages with parse errors. • **Update**—Number of update transfer type CCA messages with parse errors. • **Terminate**—Number of terminate transfer type CCA messages with parse errors. • **Total**—Number of CCA messages with parse errors.	**detail**
Answers with Invalid AVP(s)	• **Initial**—Number of initial transfer type CCA messages with invalid AVPs. • **Update**—Number of update transfer type CCA messages with invalid AVPs. • **Terminate**—Number of terminate transfer type CCA messages with invalid AVPs. • **Total**—Number of CCA messages with invalid AVPs.	**detail**
Requests Received	• **Re-Auth**—Number of RAR messages received. • **Abort Session**—Number of ASR messages received. • **Total**—Number of RAR and ASR messages received.	**detail**
Requests Dropped	• **Re-Auth**—Number of RAR messages dropped. • **Abort Session**—Number of ASR messages dropped. • **Total**—Number of RAR and ASR messages dropped.	**detail**
Requests Parse Errors	• **Re-Auth**—Number of RAR messages with parse errors. • **Abort Session**—Number of ASR messages with parse errors. • **Total**—Number of RAR and ASR messages with parse errors.	**detail**
Requests with Invalid AVP(s)	• **Re-Auth**—Number of RAR messages with invalid AVPs. • **Abort Session**—Number of ASR messages with invalid AVPs. • **Total**—Number of RAR and ASR messages with invalid AVPs.	**detail**
Answers Transmitted	• **Re-Auth**—Number of RAR messages sent. • **Abort Session**—Number of ASR messages sent. • **Total**—Number of RAR and ASR messages sent.	**detail**

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Sample Output

show unified-edge ggsn-pgw diameter dcca-gy statistics

```
user@host> show unified-edge ggsn-pgw diameter dcca-gy statistics
  Gateway: PGW
    Total Sessions:            0
                               Requests            Answers
    -----------------------------------------------------
    Total                      3                   2
    Credit Control Initial     1                   1
    Credit Control Update      1                   0
    Credit Control Terminate   1                   1
    Re-Auth                    0                   0
    Abort Session              0                   0
    Dropped                    0                   0
```

show unified-edge ggsn-pgw diameter

```
user@host> show unified-edge ggsn-pgw diameter dcca-gy statistics detail
  Gateway: PGW
  FPC/PIC: 0/0
```

dcca-gy statistics detail

```
  Total Sessions:             0
  Total Sessions Terminated:  0
  Internal Errors:            0

  Credit Control                  Initial     Update      Terminate       Total

 ---------------------------------------------------------------------------

  Requests Transmitted             0           0           0               0
  Request Timeouts                 0           0           0               0
  Request Tx Timeouts              0           0           0               0
  Request Discarded                0           0           0               0
  Answers Received                 0           0           0               0
  Answers Dropped                  0           0           0               0
  Answers Parse Errors             0           0           0               0
  Answers with Invalid AVP(s)      0           0           0               0

  Server Requests                 Re-Auth         Abort Session       Total
  ---------------------------------------------------------------------
  Requests Received               0               0                   0
  Requests Dropped                0               0                   0
  Requests Parse Errors           0               0                   0
  Requests with Invalid AVP(s)    0               0                   0
  Answers Transmitted             0               0                   0

Gateway: PGW
FPC/PIC: 0/1
  Total Sessions:             1
  Total Sessions Terminated:  1
  Internal Errors:            0

  Credit Control                  Initial     Update      Terminate       Total

 ---------------------------------------------------------------------------

  Requests Transmitted             1           1           1               3
  Request Timeouts                 0           1           0               1
  Request Tx Timeouts              0           0           0               0
  Request Discarded                0           0           0               0
  Answers Received                 1           0           1               2
  Answers Dropped                  0           0           0               0
  Answers Parse Errors             0           0           0               0
  Answers with Invalid AVP(s)      0           0           0               0

  Server Requests                 Re-Auth         Abort Session       Total
  ---------------------------------------------------------------------
  Requests Received               0               0                   0
  Requests Dropped                0               0                   0
  Requests Parse Errors           0               0                   0
  Requests with Invalid AVP(s)    0               0                   0
  Answers Transmitted             0               0                   0
```


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show unified-edge ggsn-pgw diameter network-element statistics

Syntax

show unified-edge ggsn-pgw diameter network-element statistics
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<network-element-name *network-element-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the statistics for network elements for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a network element is not specified, then statistics for all network elements are displayed. If a gateway is not specified, then statistics for all gateways are displayed.

Options

brief | detail—(Optional) Display the specified level of output. The **brief** output is displayed by default.

fpc-slot *fpc-slot*—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Display the statistics for the specified gateway.

network-element-name *network-element-name*—(Optional) Display the statistics for the specified network element.

pic-slot *pic-slot*—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw diameter network-element statistics on page 835
- show unified-edge ggsn-pgw diameter network-element status on page 846

List of Sample Output

show unified-edge ggsn-pgw diameter network-element statistics on page 844
show unified-edge ggsn-pgw diameter network-element statistics detail on page 844

Output Fields

Table 53 on page 843 lists the output fields for the **show unified-edge ggsn-pgw diameter network-element statistics** command. Output fields are listed in the approximate order in which they appear.

Table 53: show unified-edge ggsn-pgw diameter network-element statistics Output Fields

Field Name	Field Description	Level of Output
Name	Name of the network element.	All levels
FPC/PIC	FPC and PIC slot numbers through which the network element was reached.	**detail**

Table 53: show unified-edge ggsn-pgw diameter network-element statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Packets Received	Number of incoming packets.	All levels
Packets Transmitted	Number of outgoing packets.	All levels
Request Timeouts	Number of request timeouts.	All levels
Credit Control Request Transmitted	Number of outgoing Credit-Control-Request messages.	All levels
Credit Control Answer Received	Number of incoming Credit-Control-Answer messages.	All levels

Sample Output

show unified-edge ggsn-pgw diameter network-element statistics

```
user@host> show unified-edge ggsn-pgw diameter network-element statistics

  Name:   pcrf-dne
     Packets Received :                      0
     Packets Transmitted :                   0
     Request Timeouts :                      0
     Credit Control Request Transmitted :    0
     Credit Control Answer Received :        0

  Name:   ocs-dne
     Packets Received :                      3
     Packets Transmitted :                   4
     Request Timeouts :                      1
     Credit Control Request Transmitted :    4
     Credit Control Answer Received :        3
```

show unified-edge ggsn-pgw diameter

```
user@host> show unified-edge ggsn-pgw diameter network-element statistics detail

  Name :                                 pcrf-dne
```


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network-element statistics detail

```
FPC/PIC :                              0/0
Packets Received :                     0
Packets Transmitted :                  0
Request Timeouts :                     0
Credit Control Request Transmitted :   0
Credit Control Answer Received :       0

FPC/PIC :                              0/1
Packets Received :                     0
Packets Transmitted :                  0
Request Timeouts :                     0
Credit Control Request Transmitted :   0
Credit Control Answer Received :       0

Name :                                 ocs-dne
FPC/PIC :                              0/0
Packets Received :                     0
Packets Transmitted :                  0
Request Timeouts :                     0
Credit Control Request Transmitted :   0
Credit Control Answer Received :       0

FPC/PIC :                              0/1
Packets Received :                     3
Packets Transmitted :                  4
Request Timeouts :                     1
Credit Control Request Transmitted :   4
Credit Control Answer Received :       3
```

show unified-edge ggsn-pgw diameter network-element status

Syntax

show unified-edge ggsn-pgw diameter network-element status
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<network-element-name *network-element-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the status for one or more Diameter network elements. If a network element is not specified, then status for all network elements is displayed. If a gateway is not specified, then status for all gateways is displayed.

Options

fpc-slot *fpc-slot*—(Optional) Display the status for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Display the status for the specified gateway.

network-element-name *network-element-name*—(Optional) Display the status for the specified network element.

pic-slot *pic-slot*—(Optional) Display the status for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw diameter network-element statistics on page 843

List of Sample Output

show unified-edge ggsn-pgw diameter network-element status on page 847

Output Fields

Table 54 on page 846 lists the output fields for the **show unified-edge ggsn-pgw diameter network-element status** command. Output fields are listed in the approximate order in which they appear.

Table 54: show unified-edge ggsn-pgw diameter network-element status Output Fields

Field Name	Field Description
DNE	Name of the network element.
Peer	Name of the peer.
FPC/PIC	FPC and PIC slot numbers through which the network element was reached.
Peer State	Current state of the peer. Possible states are: **Closed**, **Closing**, **I-Open**, **R-Open**, **Wait-Conn-Ack**, **Wait-Conn-Ack/Elect**, **Wait-I-CEA**, and **Wait-Returns**.
Watchdog State	Peer watchdog status.

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Sample Output

show unified-edge ggsn-pgw diameter network-element status

```
user@host> show unified-edge ggsn-pgw diameter network-element status
DNE : pcrf-dne
    PEER : pcrf
       FPC/PIC          PEER STATE            WATCHDOG STATE
         0/0            Closed                initial
         0/1            Closed                initial
DNE : ocs-dne
    PEER : ocs
       FPC/PIC          PEER STATE            WATCHDOG STATE
         0/0            I-Open                okay
         0/1            I-Open                okay
```

show unified-edge ggsn-pgw diameter pcc-gx statistics

Syntax

show unified-edge ggsn-pgw diameter pcc-gx statistics
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the statistics for the Gx application for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a gateway is not specified, then statistics for all gateways are displayed.

Options

brief | detail—(Optional) Display the specified level of output. The **brief** output is displayed by default.

fpc-slot *fpc-slot*—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Display the statistics for the specified gateway.

pic-slot *pic-slot*—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw diameter pcc-gx statistics on page 836
- show unified-edge ggsn-pgw diameter dcca-gy statistics on page 838

List of Sample Output

show unified-edge ggsn-pgw diameter pcc-gx statistics on page 851
show unified-edge ggsn-pgw diameter pcc-gx statistics detail on page 851

Output Fields

Table 55 on page 848 lists the output fields for the **show unified-edge ggsn-pgw diameter pcc-gx statistics** command. Output fields are listed in the approximate order in which they appear.

Table 55: show unified-edge ggsn-pgw diameter pcc-gx statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels
FPC/PIC	FPC and PIC slots for which the statistics are displayed.	**detail**
Total Sessions	Total number of active sessions.	All levels
Total Sessions Terminated	Total number of terminated sessions.	**detail**

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Table 55: show unified-edge ggsn-pgw diameter pcc-gx statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Internal Errors	Number of internal errors.	**detail**
Total	• **Requests**—Total number of request messages. • **Answers**—Total number of answer messages.	**brief**
Credit Control Initial	• **Requests**—Number of initial transfer type Credit-Control-Request (CCR) messages. • **Answers**—Number of initial transfer type Credit-Control-Answer (CCA) messages.	**brief**
Credit Control Update	• **Requests**—Number of update transfer type CCR messages. • **Answers**—Number of update transfer type CCA messages.	**brief**
Credit Control Terminate	• **Requests**—Number of terminate transfer type CCR messages. • **Answers**—Number of terminate transfer type CCA messages.	**brief**
Re-Auth	• **Requests**—Number of Re-Auth-Request (RAR) messages. • **Answers**—Number of Re-Auth-Answer (RAA) messages.	**brief**
Dropped	• **Requests**—Number of dropped request messages. • **Answers**—Number of dropped answer messages.	**brief**
Requests Transmitted	• **Initial**—Number of initial transfer type CCR messages sent. • **Update**—Number of update transfer type CCR messages sent. • **Terminate**—Number of terminate transfer type CCR messages sent. • **Total**—Number of CCR messages sent.	**detail**
Request Timeouts	• **Initial**—Number of initial transfer type CCR messages that timed out. • **Update**—Number of update transfer type CCR messages that timed out. • **Terminate**—Number of terminate transfer type CCR messages that timed out. • **Total**—Number of CCR messages that timed out.	**detail**
Request Tx Timeouts	• **Initial**—Number of initial transfer type CCR messages sent that timed out. • **Update**—Number of update transfer type CCR messages sent that timed out. • **Terminate**—Number of terminate transfer type CCR messages sent that timed out. • **Total**—Number of CCR messages sent that timed out.	**detail**
Request Discarded	• **Initial**—Number of initial transfer type CCR messages sent that were discarded. • **Update**—Number of update transfer type CCR messages sent that were discarded. • **Terminate**—Number of terminate transfer type CCR messages sent that were discarded. • **Total**—Number of CCR messages sent that were discarded.	**detail**

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Table 55: show unified-edge ggsn-pgw diameter pcc-gx statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Answers Received	• **Initial**—Number of initial transfer type CCA messages received. • **Update**—Number of update transfer type CCA messages received. • **Terminate**—Number of terminate transfer type CCA messages received. • **Total**—Number of CCA messages received.	**detail**
Answers Dropped	• **Initial**—Number of initial transfer type CCA messages dropped. • **Update**—Number of update transfer type CCA messages dropped. • **Terminate**—Number of terminate transfer type CCA messages dropped. • **Total**—Number of CCA messages dropped.	**detail**
Answers Parse Errors	• **Initial**—Number of initial transfer type CCA messages with parse errors. • **Update**—Number of update transfer type CCA messages with parse errors. • **Terminate**—Number of terminate transfer type CCA messages with parse errors. • **Total**—Number of CCA messages with parse errors.	**detail**
Answers with Invalid AVP(s)	• **Initial**—Number of initial transfer type CCA messages with invalid AVPs. • **Update**—Number of update transfer type CCA messages with invalid AVPs. • **Terminate**—Number of terminate transfer type CCA messages with invalid AVPs. • **Total**—Number of CCA messages with invalid AVPs.	**detail**
Requests Received	Number of RAR messages received.	**detail**
Requests Dropped	Number of RAR messages dropped.	**detail**
Requests Parse Errors	Number of RAR messages with parse errors.	**detail**
Requests with Invalid AVP(s)	Number of RAR messages with invalid AVPs.	**detail**
Answers Transmitted	Number of RAA messages sent.	**detail**

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Sample Output

show unified-edge ggsn-pgw diameter pcc-gx statistics

```
user@host> show unified-edge ggsn-pgw diameter pcc-gx statistics
  Gateway: PGW
    Total Sessions:             0
                                Requests            Answers
    -----------------------------------------------------
    Total                       0                   0
    Credit Control Initial      0                   0
    Credit Control Update       0                   0
    Credit Control Terminate    0                   0
    Re-Auth                     0                   0
    Dropped                     0                   0
```

show unified-edge ggsn-pgw diameter pcc-gx statistics detail

```
user@host> show unified-edge ggsn-pgw diameter pcc-gx statistics detail
  Gateway: PGW
  FPC/PIC: 0/0
    Total Sessions:             0
    Total Sessions Terminated:  0
    Internal Errors:            0

    Credit Control                  Initial     Update      Terminate       Total

    ---------------------------------------------------------------------------

    Requests Transmitted            0           0           0               0
    Request Timeouts                0           0           0               0
    Request Tx Timeouts             0           0           0               0
    Request Discarded               0           0           0               0
    Answers Received                0           0           0               0
    Answers Dropped                 0           0           0               0
    Answers Parse Errors            0           0           0               0
    Answers with Invalid AVP(s)     0           0           0               0

    Server Requests                 Re-Auth
    --------------------------------------
    Requests Received               0
    Requests Dropped                0
    Requests Parse Errors           0
    Requests with Invalid AVP(s)    0
    Answers Transmitted             0

  Gateway: PGW
  FPC/PIC: 0/1
    Total Sessions:             0
    Total Sessions Terminated:  0
    Internal Errors:            0

    Credit Control                  Initial     Update      Terminate       Total

    ---------------------------------------------------------------------------

    Requests Transmitted            0           0           0               0
    Request Timeouts                0           0           0               0
    Request Tx Timeouts             0           0           0               0
    Request Discarded               0           0           0               0
    Answers Received                0           0           0               0
    Answers Dropped                 0           0           0               0
    Answers Parse Errors            0           0           0               0
```

```
Answers with Invalid AVP(s)     0           0           0               0

Server Requests                 Re-Auth
---------------------------------------
Requests Received               0
Requests Dropped                0
Requests Parse Errors           0
Requests with Invalid AVP(s)    0
Answers Transmitted             0
```


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show unified-edge ggsn-pgw diameter peer statistics

Syntax

show unified-edge ggsn-pgw diameter peer statistics
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<peer-name *peer-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the statistics for Diameter peers for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a peer is not specified, then statistics for all Diameter peers are displayed. If a gateway is not specified, then statistics for all gateways are displayed.

Options

brief | detail—(Optional) Display the specified level of output. The **brief** output is displayed by default.

fpc-slot *fpc-slot*—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Display the statistics for the specified gateway.

peer-name *peer-name*—(Optional) Display the statistics for the specified peer.

pic-slot *pic-slot*—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw diameter peer statistics on page 837
- show unified-edge ggsn-pgw diameter peer status on page 858

List of Sample Output

show unified-edge ggsn-pgw diameter peer statistics on page 856
show unified-edge ggsn-pgw diameter peer statistics detail on page 856

Output Fields

Table 56 on page 853 lists the output fields for the **show unified-edge ggsn-pgw diameter peer statistics** command. Output fields are listed in the approximate order in which they appear.

Table 56: show unified-edge ggsn-pgw diameter peer statistics Output Fields

Field Name	Field Description	Level of Output
Peer	Name of the peer.	All levels
FPC/PIC	FPC and PIC slot numbers through which the peer was reached.	**detail**
Request Timeouts	Number of request timeouts.	All levels

Table 56: show unified-edge ggsn-pgw diameter peer statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Request Retransmissions	Number of request retransmissions.	All levels
Redirect Events	Number of redirect events.	**detail**
Connect Failures	Number of connection failures.	**detail**
Duplicate Requests	Number of duplicate requests.	**detail**
Malformed Messages	Number of malformed requests.	**detail**
Dropped Responses	Number of dropped responses.	**detail**
Dropped Requests	Number of dropped requests.	**detail**
Last Disconnect Cause	Number of last disconnect cause messages.	**detail**
Transport Failures	Number of transport failures.	**detail**
Unknown Messages	Number of unknown type errors.	**detail**
High Watermark Hits	Number of times the high watermark is reached.	**detail**
Low Watermark Hits	Number of times the low watermark is reached.	**detail**
Device Watchdog Failured	Number of device watchdog failures.	**detail**
Capabilities Exchange Failures	Number of capabilities exchange failures.	**detail**
Total Messages	Total number of messages transmitted and received.	All levels
Credit Control Requests	Number of Credit-Control-Request messages transmitted and received.	All levels
Credit Control Answers	Number of Credit-Control-Answer messages transmitted and received.	All levels
Re-Auth Requests	Number of Re-Auth-Request messages transmitted and received.	All levels
Re-Auth Answers	Number of Re-Auth-Answer messages transmitted and received.	All levels
Abort Session Requests	Number of Abort-Session-Request messages transmitted and received.	All levels
Abort Session Answers	Number of Abort-Session-Answer messages transmitted and received.	All levels

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Table 56: show unified-edge ggsn-pgw diameter peer statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Capability Exchange Requests	Number of Capabilities-Exchange-Request messages transmitted and received.	All levels
Capability Exchange Answers	Number of Capabilities-Exchange-Answer messages transmitted and received.	All levels
Device Watchdog Requests	Number of Device-Watchdog-Request messages transmitted and received.	All levels
Device Watchdog Answers	Number of Device-Watchdog-Answer messages transmitted and received.	All levels
Disconnect Peer Requests	Number of Disconnect-Peer-Request messages transmitted and received.	All levels
Disconnect Peer Answers	Number of Disconnect-Peer-Answer messages transmitted and received.	All levels
Permanent Failures	Number of permanent failure result codes transmitted and received.	**detail**
Protocol Errors	Number of protocol error result codes transmitted and received.	**detail**
Transient Failures	Number of transient failure result codes transmitted and received.	**detail**

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Sample Output

show unified-edge ggsn-pgw diameter peer statistics

```
user@host> show unified-edge ggsn-pgw diameter peer statistics
Peer: ocs
    Request Timeouts:                   1
    Request Retransmissions:            0
    Messages                            Transmitted       Received
    ------------------------------------------------------------
    Total Messages                      6                 5
    Credit Control Requests             4                 0
    Credit Control Answers              0                 3
    Re-Auth Requests                    0                 0
    Re-Auth Answers                     0                 0
    Abort Session Requests              0                 0
    Abort Session Answers               0                 0
    Capability Exchange Requests        2                 0
    Capability Exchange Answers         0                 2
    Device Watchdog Requests            0                 0
    Device Watchdog Answers             0                 0
    Disconnect Peer Requests            0                 0
    Disconnect Peer Answers             0                 0
```

show unified-edge ggsn-pgw diameter peer statistics detail

```
user@host> show unified-edge ggsn-pgw diameter peer statistics detail
Peer: ocs
    FPC/PIC: 0/0
    Request Timeouts:                   0
    Request Retransmissions:            0
    Connect Failures:                   0
    Duplicate Requests:                 0
    Malformed Messages:                 0
    Dropped Responses:                  0
    Dropped Requests:                   0
    Last Disconnect Cause:              0
    Transport Failures:                 0
    Unknown Messages:                   0
    High Watermark Hits:                0
    Low Watermark Hits:                 0
    Device Watchdog Failured:           0
    Capabilities Exchange Failures:     0

    Messages                            Transmitted       Received
    ------------------------------------------------------------
    Total Messages                      1                 1
    Credit Control Requests             0                 0
    Credit Control Answers              0                 0
    Re-Auth Requests                    0                 0
    Re-Auth Answers                     0                 0
    Abort Session Requests              0                 0
    Abort Session Answers               0                 0
    Capability Exchange Requests        1                 0
    Capability Exchange Answers         0                 1
    Device Watchdog Requests            0                 0
    Device Watchdog Answers             0                 0
    Disconnect Peer Requests            0                 0
    Disconnect Peer Answers             0                 0

    Result-Code                         Transmitted       Received
    ------------------------------------------------------------
    Permanent Failures                  0                 0
```


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```
Protocol Errors                     0                 0
Transient Failures                  0                 0

FPC/PIC: 0/1
Request Timeouts:                   1
Request Retransmissions:            0
Connect Failures:                   0
Duplicate Requests:                 0
Malformed Messages:                 0
Dropped Responses:                  0
Dropped Requests:                   0
Last Disconnect Cause:              0
Transport Failures:                 0
Unknown Messages:                   0
High Watermark Hits:                0
Low Watermark Hits:                 0
Device Watchdog Failured:           0
Capabilities Exchange Failures:     0

Messages                            Transmitted       Received
---------------------------------------------------------------
Total Messages                      5                 4
Credit Control Requests             4                 0
Credit Control Answers              0                 3
Re-Auth Requests                    0                 0
Re-Auth Answers                     0                 0
Abort Session Requests              0                 0
Abort Session Answers               0                 0
Capability Exchange Requests        1                 0
Capability Exchange Answers         0                 1
Device Watchdog Requests            0                 0
Device Watchdog Answers             0                 0
Disconnect Peer Requests            0                 0
Disconnect Peer Answers             0                 0

Result-Code                         Transmitted       Received
---------------------------------------------------------------
Permanent Failures                  0                 0
Protocol Errors                     0                 0
Transient Failures                  0                 0
```

show unified-edge ggsn-pgw diameter peer status

Syntax

show unified-edge ggsn-pgw diameter peer status
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<peer-name *peer-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the status for one or more Diameter peers. If a peer is not specified, then status for all Diameter peers is displayed. If a gateway is not specified, then status for all gateways is displayed.

Options

brief | detail—(Optional) Display the specified level of output. The **brief** output is displayed by default.

fpc-slot *fpc-slot*—(Optional) Display the status for the specified Flexible PIC Concentrator (FPC).

gateway *gateway-name*—(Optional) Display the status for the specified gateway.

peer-name *peer-name*—(Optional) Display the status for the specified peer.

pic-slot *pic-slot*—(Optional) Display the status for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw diameter peer statistics on page 853

List of Sample Output

show unified-edge ggsn-pgw diameter peer status on page 860
show unified-edge ggsn-pgw diameter peer status detail on page 860

Output Fields

Table 57 on page 858 lists the output fields for the **show unified-edge ggsn-pgw diameter peer status** command. Output fields are listed in the approximate order in which they appear.

Table 57: show unified-edge ggsn-pgw diameter peer status Output Fields

Field Name	Field Description	Level of Output
Name	Name of the peer. For the **brief** output, the name is truncated if it exceeds 11 characters.	All levels
FPC/PIC	FPC and PIC slot numbers through which the peer was reached.	All levels
Address	IP address of the Diameter peer.	**brief**

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Table 57: show unified-edge ggsn-pgw diameter peer status Output Fields *(continued)*

Field Name	Field Description	Level of Output
Port	Port number of the Diameter peer.	**brief**
State	Current state of the Diameter peer. Possible states are: **Closed**, **Closing**, **I-Open**, **R-Open**, **Wait-Conn-Ack**, **Wait-Conn-Ack/Elect**, **Wait-I-CEA**, and **Wait-Returns**. For the **brief** output, the state is truncated if it exceeds 11 characters.	All levels
Duration **State Duration**	Duration for which the Diameter peer has been in the current state.	**brief** **detail**
Watchdog **Watchdog State**	Peer watchdog status.	**brief** **detail**
Origin Host	Diameter Origin-Host.	**detail**
Origin Realm	Diameter Origin-Realm.	**detail**
Peer Address	IP address of the Diameter peer.	**detail**
Peer port	Port number of the Diameter peer.	**detail**
Source Address	Local source IP address used to connect to the peer.	**detail**
Source Port	Local source port number used to connect to the peer.	**detail**

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Sample Output

show unified-edge ggsn-pgw diameter peer status

```
user@host> show unified-edge ggsn-pgw diameter peer status
Name         FPC/PIC  Address         Port    State        Duration  Watchdog
p_jpkt1      4/0      123.3.3.2       3868    Closed       00:00:00  initial
p_jpkt1      4/1      123.3.3.2       3868    Closed       00:00:00  initial
p_jpkt1      5/0      123.3.3.2       3868    Wait-Conn-A  00:00:00  initial
abcabcabcab  4/0      123.3.3.2       3868    Closed       00:00:00  initial
abcabcabcab  4/1      123.3.3.2       3868    Closed       00:00:00  initial
abcabcabcab  5/0      123.3.3.2       3868    Wait-Conn-A  00:00:00  initial
```

show unified-edge ggsn-pgw diameter peer status detail

```
user@host> show unified-edge ggsn-pgw diameter peer status detail
Diameter Peer Status
  Name : ocs
     FPC/PIC              :          0/0
     State                :          I-Open
     State Duration       :          00:00:00
     Watchdog State       :          okay
     Origin Host          :          host5
     Origin Realm         :          juniper.net
     Peer Address         :          55.1.1.2
     Peer port            :          3868
     Source Address       :          4.1.1.1
     Source Port          :          30965
  Name : ocs
     FPC/PIC              :          0/1
     State                :          I-Open
     State Duration       :          00:00:00
     Watchdog State       :          okay
     Origin Host          :          host5
     Origin Realm         :          juniper.net
     Peer Address         :          55.1.1.2
     Peer port            :          3868
     Source Address       :          4.1.1.1
     Source Port          :          30709
  Name : pcrf
     FPC/PIC              :          0/0
     State                :          Closed
     State Duration       :          00:00:00
     Watchdog State       :          initial
     Peer Address         :          56.1.1.2
     Peer port            :          3868
     Source Address       :          4.1.1.1
     Source Port          :          0
  Name : pcrf
     FPC/PIC              :          0/1
     State                :          Closed
     State Duration       :          00:00:00
     Watchdog State       :          initial
     Peer Address         :          56.1.1.2
     Peer port            :          3868
     Source Address       :          4.1.1.1
     Source Port          :          0
```


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CHAPTER 25

Gateway-Level Operational Commands

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clear unified-edge ggsn-pgw statistics

Syntax

clear unified-edge ggsn-pgw statistics gateway *gateway*
<apn *apn*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Clear the statistics for the specified gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway *gateway*—Clear the statistics for the specified GGSN or P-GW.

apn *apn*—(Optional) Clear the statistics for the specified access point name (APN).

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw statistics on page 875

List of Sample Output

clear unified-edge ggsn-pgw statistics gateway pgw on page 862

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw statistics gateway pgw

```
user@host> clear unified-edge ggsn-pgw statistics gateway pgw
```


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clear unified-edge ggsn-pgw subscribers

Syntax

clear unified-edge ggsn-pgw subscribers gateway *gateway*
<ams-interface-name *ams-interface-name*>
<apfe-interface-name *apfe-interface-name*>
<**apn** *apn*>
<**imsi** *imsi*>
<ms-interface-name *ms-interface-name*>
<**msisdn** *msisdn*>
<pfe-interface-name *pfe-interface-name*>
<**routing-instance** *routing-instance*>
<**v4-addr** *v4-addr*>
<**v6-addr** *v6–addr*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W. **ams-interface-name**, **apfe-interface-name**, **ms-interface-name**, and **pfe-interface-name** options introduced in Junos OS Mobility Release 11.4W.

Description

Clear the subscribers on the specified gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway *gateway*—Clear the subscribers for the GGSN or P-GW.

ams-interface-name *ams-interface-name*—Clear the subscribers on the specified aggregated multiservices interface name.

apfe-interface-name *apfe-interface-name*—Clear the subscribers on the specified aggregated Packet Forwarding Engine interface name.

apn *apn*—(Optional) Clear the subscribers for the specified APN.

imsi *imsi*—(Optional) Clear the subscriber matching the specified International Mobile Subscriber Identity (IMSI).

ms-interface-name *ms-interface-name*—Clear the subscribers on the specified multiservices interface name.

msisdn *msisdn*—(Optional) Clear the subscriber matching the specified Mobile Station ISDN (MSISDN) number.

pfe-interface-name *pfe-interface-name*—Clear the subscribers on the specified Packet Forwarding Engine interface name.

routing-instance *routing-instance*—(Optional) Clear the subscriber information for the specified routing instance.

v4-addr *v4-addr*—(Optional) Clear the subscriber information for the specified IPv4 address of the subscriber's user equipment (UE).

v6-addr *v6-addr*—(Optional) Clear the subscriber information for the specified IPv6 address of the subscriber's user equipment.

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Required Privilege Level clear, unified-edge

Related Documentation

- clear unified-edge ggsn-pgw subscribers charging on page 866
- clear unified-edge ggsn-pgw subscribers peer on page 867
- show unified-edge ggsn-pgw subscribers on page 893

List of Sample Output clear unified-edge ggsn-pgw subscribers gateway pgw on page 864

Output Fields No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw subscribers gateway pgw

```
user@host> clear unified-edge ggsn-pgw subscribers gateway pgw
```

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clear unified-edge ggsn-pgw subscribers bearer

Syntax

clear unified-edge ggsn-pgw subscribers bearer gateway *gateway*
<**ebi** *ebi*>
<**imsi** *imsi*>
<**msisdn** *msisdn*>
<**qci** *qci*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Clear the bearers for subscribers on the specified Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway *gateway*—Clear the bearers for the specified GGSN or P-GW.

ebi *ebi*—(Optional) Specify the Evolved Packet System Bearer ID (EBI) to clear the bearer.

imsi *imsi*—(Optional) Clear the subscriber matching the specified International Mobile Subscriber Identity (IMSI).

msisdn *msisdn*—(Optional) Clear the subscribers on the specified multiservices interface name.

qci *qci*—(Optional) Specify the QoS Class Identifier (QCI) to clear the specified bearer.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge ggsn-pgw subscribers on page 863
- show unified-edge ggsn-pgw subscribers on page 893

List of Sample Output

clear unified-edge ggsn-pgw subscribers bearer on page 865

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw subscribers bearer

```
user@host> clear unified-edge ggsn-pgw subscribers bearer
```

clear unified-edge ggsn-pgw subscribers charging

Syntax

clear unified-edge ggsn-pgw subscribers charging gateway *gateway*
<charging-profile *charging-profile*>
<transport-profile *transport-profile*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Clear the charging information for subscribers on the specified gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway *gateway*—Clear the charging information for all subscribers for the specified GGSN or P-GW.

charging-profile *charging-profile*—(Optional) Clear the subscriber matching the specified charging profile name.

transport-profile *transport-profile*—(Optional) Clear the subscriber matching the specified transport profile name.

NOTE: You must specify either a charging profile or a transport profile to run this command.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge ggsn-pgw subscribers on page 863
- clear unified-edge ggsn-pgw subscribers peer on page 867
- show unified-edge ggsn-pgw subscribers on page 893
- show unified-edge ggsn-pgw subscribers charging on page 913

List of Sample Output

clear unified-edge ggsn-pgw subscribers charging gateway pgw on page 866

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw subscribers charging gateway pgw

```
user@host> clear unified-edge ggsn-pgw subscribers charging gateway pgw
```


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clear unified-edge ggsn-pgw subscribers peer

Syntax

clear unified-edge ggsn-pgw subscribers peer gateway *gateway* remote-addr *remote-addr*
<local-addr *local-addr*>
<routing-instance *routing-instance*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Clear the information for subscribers anchored on the specified GPRS tunneling protocol (GTP) peer on the specified gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW). The GTP peer can be a serving GPRS support node (SGSN) or a Serving Gateway (S-GW).

Options

gateway *gateway*—Clear the subscribers for the specified GGSN or P-GW.

remote-addr *remote-addr*—Clear the information for subscribers anchored on the peer with the specified IPv4 address.

local-addr *local-addr*—(Optional) Clear the subscriber matching the specified local IPv4 address of the GGSN or P-GW on that interface.

routing-instance *routing-instance*—(Optional) Clear the subscriber matching the specified routing instance.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge ggsn-pgw subscribers on page 863
- clear unified-edge ggsn-pgw subscribers charging on page 866
- show unified-edge ggsn-pgw subscribers on page 893

List of Sample Output

clear unified-edge ggsn-pgw subscribers peer gateway PGW remote-addr 11.11.11.2 on page 867

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw subscribers peer gateway PGW remote-addr 11.11.11.2

```
user@host> clear unified-edge ggsn-pgw subscribers peer gateway PGW remote-addr 11.11.11.2
```

clear unified-edge sgw statistics

Syntax **clear unified-edge sgw statistics gateway *gateway-name***

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Clear all the statistics for the specified Serving Gateway (S-GW).

Options **gateway *gateway-name***—Clear the statistics for the specified S-GW.

Required Privilege Level clear, unified-edge

Related Documentation
- show unified-edge sgw statistics on page 922

List of Sample Output clear unified-edge sgw statistics gateway SGW on page 868

Output Fields No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw statistics gateway SGW

```
user@host> clear unified-edge sgw statistics gateway SGW
```

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clear unified-edge sgw subscribers

Syntax

clear unified-edge sgw subscribers gateway *gateway*
<ams-interface-name *ams-interface-name*>
<apfe-interface-name *apfe-interface-name*>
<**imsi** *imsi*>
<ms-interface-name *ms-interface-name*>
<**msisdn** *msisdn*>
<pfe-interface-name *pfe-interface-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W. **ams-interface-name**, **apfe-interface-name**, **ms-interface-name**, and **pfe-interface-name** options introduced in Junos OS Mobility Release 11.4W.

Description

Clear the subscribers for the Serving Gateway (S-GW) based on the options specified.

Options

gateway *gateway*—Clear the subscribers for the specified S-GW.

ams-interface-name *ams-interface-name*—Clear the subscribers on the specified aggregated multiservices interface name.

apfe-interface-name *apfe-interface-name*—Clear the subscribers on the specified aggregated Packet Forwarding Engine interface name.

imsi *imsi*—(Optional) Clear the subscriber matching the specified International Mobile Subscriber Identity (IMSI).

ms-interface-name *ms-interface-name*—Clear the subscribers on the specified multiservices interface name.

msisdn *msisdn*—(Optional) Clear the subscriber matching the specified Mobile Station ISDN (MSISDN) number.

pfe-interface-name *pfe-interface-name*—Clear the subscribers on the specified Packet Forwarding Engine interface name.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge sgw subscribers charging on page 871
- clear unified-edge sgw subscribers peer on page 872
- show unified-edge sgw subscribers on page 936

List of Sample Output

clear unified-edge sgw subscribers gateway SGW on page 870

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw subscribers gateway SGW

```
user@host> clear unified-edge sgw subscribers gateway SGW
```


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clear unified-edge sgw subscribers charging

Syntax

clear unified-edge sgw subscribers charging gateway *gateway*
<charging-profile *charging-profile*>
<transport-profile *transport-profile*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the charging information for subscribers on the Serving Gateway (S-GW) based on the options specified.

Options

gateway *gateway*—Clear the charging information for all subscribers for the specified S-GW.

charging-profile *charging-profile*—(Optional) Clear the subscriber matching the specified charging profile name.

transport-profile *transport-profile*—(Optional) Clear the subscriber matching the specified transport profile name.

NOTE: **You must specify either a charging profile or a transport profile to run this command.**

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge sgw subscribers on page 869
- show unified-edge sgw subscribers on page 936
- clear unified-edge sgw subscribers peer on page 872

List of Sample Output

clear unified-edge sgw subscribers charging gateway SGW on page 871

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw subscribers charging gateway SGW

```
user@host> clear unified-edge sgw subscribers charging gateway SGW
```

clear unified-edge sgw subscribers peer

Syntax

clear unified-edge sgw subscribers peer gateway *gateway* remote-addr *remote-addr*
<local-addr *local-addr*>
<routing-instance *routing-instance*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the information for subscribers anchored for the specified GPRS tunneling protocol (GTP) peer. The GTP peer can be an S4 Serving GPRS Support Node (S4-SGSN), Mobility Management Entity (MME), or a Packet Data Network Gateway (P-GW).

Options

gateway *gateway*—Clear the subscribers for the specified gateway.

remote-addr *remote-addr*—Clear the information for subscribers anchored on the peer with the specified IPv4 address.

local-addr *local-addr*—(Optional) Clear the subscriber matching the specified local IPv4 address of the broadband gateway on that interface.

routing-instance *routing-instance*—(Optional) Clear the subscriber matching the specified routing instance.

Required Privilege Level

clear, unified-edge

Related Documentation

- clear unified-edge sgw subscribers on page 869
- clear unified-edge sgw subscribers charging on page 871
- show unified-edge sgw subscribers on page 936

List of Sample Output

clear unified-edge sgw subscribers peer gateway pgw remote-addr 11.11.11.2 on page 872

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw subscribers peer gateway pgw remote-addr 11.11.11.2

```
user@host> clear unified-edge sgw subscribers peer gateway pgw remote-addr 11.11.11.2
```


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show unified-edge ggsn-pgw service-mode

Syntax

show unified-edge ggsn-pgw service-mode
<brief | detail>
<gateway *gateway-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display the service mode information for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the service mode information for all the GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display the service mode information in brief.

brief | detail —(Optional) Display the specified level of output.

gateway *gateway-name*—(Optional) Display service mode information for the specified GGSN or P-GW.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw apn service-mode on page 750

List of Sample Output

show unified-edge ggsn-pgw service-mode brief on page 874
show unified-edge ggsn-pgw service-mode detail on page 874

Output Fields

Table 58 on page 873 lists the output fields for the **show unified-edge ggsn-pgw service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 58: show unified-edge ggsn-pgw service-mode Output Fields

Field Name	Field Description
Gateway Name	Name of the GGSN or P-GW.
Service Mode	Service mode for the gateway: • **Operational**—Gateway is in operational mode. • **Maintenance**—Gateway is in maintenance mode.

Sample Output

show unified-edge ggsn-pgw service-mode brief

```
user@host> show unified-edge ggsn-pgw service-mode brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
                      attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                      non-maintenance mode attributes of this object and
                      its sub-hierarchies.

Gateway Name                    Service Mode

PGW                             Operational
PGW2                            Operational
```

show unified-edge ggsn-pgw service-mode detail

```
user@host> show unified-edge ggsn-pgw service-mode detail
Service Mode Status
Gateway Name    : PGW
Service Mode    : Operational
Service Mode Status
Gateway Name    : PGW2
Service Mode    : Operational
```


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show unified-edge ggsn-pgw statistics

Syntax

show unified-edge ggsn-pgw statistics
<apn *apn*>
<gateway *gateway*>
<gtpv1-arp *gtpv1-arp*>
<gtpv2-priority-level *gtpv2-priority-level*>
<qci *qci*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display the statistics for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are displayed.

Options

apn ***apn***—(Optional) Display the statistics for the specified APN on one or more GGSNs or P-GWs.

NOTE: The output of the **show unified-edge ggsn-pgw statistics** command with the **apn** option is the same as the output of the **show unified-edge ggsn-pgw apn statistics** command. Refer to the output fields of the **show unified-edge ggsn-pgw apn statistics** command.

gateway ***gateway***—(Optional) Display the statistics for the specified GGSN or P-GW.

gtpv1-arp ***gtpv1-arp***—(Optional) Display the statistics for the specified GTPv1 allocation and retention priority (ARP) on one or more gateways. You can specify an ARP value of 1 through 3.

gtpv2-priority-level ***gtpv2-priority-level***—(Optional) Display the statistics for the specified GTPv2 priority level on one or more gateways. You can specify a priority level of 1 through 15.

qci ***qci***—(Optional) Display the statistics for the specified QoS Class Identifier (QCI) on one or more gateways. You can specify a QCI of 1 through 9.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw statistics on page 862
- show unified-edge ggsn-pgw apn statistics on page 752
- show unified-edge ggsn-pgw statistics traffic-class on page 1066

List of Sample Output

show unified-edge ggsn-pgw statistics on page 880

Output Fields

Table 59 on page 876 lists the output fields for the **show unified-edge ggsn-pgw statistics** command. Output fields are listed in the approximate order in which they appear.

Table 59: show unified-edge ggsn-pgw statistics Output Fields

Field Name	Field Description
Gateway	Name of the GGSN or P-GW.
Control Plane GTP Statistics	
Session establishment attempts	Number of session establishments attempted and number of successful session establishments (**Success**).
MS/peer initiated modification attempts	Number of session modifications attempted by the mobile station (MS) and number of successful modifications (**Success**).
Gateway initiated modification attempts	Number of session modifications attempted by the broadband gateway and number of successful modifications (**Success**).
MS/peer initiated session deactivations	Number of attempted deactivations initiated by the mobile station , Mobility Management Entity (MME), or Serving Gateway (S-GW) and number of successful deactivations (**Success**).
Gateway initiated session deactivations	Number of attempted deactivations initiated by the broadband gateway and number of successful deactivations (**Success**).
Dedicated Bearer Statistics	
MS/peer initiated activation attempts	Number of attempted bearer activations initiated by the mobile station, MME, or S-GW and number of successful activations (**Success**).
Network initiated activation attempts	Number of attempted bearer activations initiated by the network (policy and charging rules function [PCRF] or the broadband gateway) and number of successful activations (**Success**).
MS/peer initiated modification attempts	Number of attempted bearer modifications initiated by the mobile station, MME, or S-GW and number of successful modifications (**Success**).
Network initiated modification attempts	Number of attempted bearer modifications initiated by the network (policy and charging rules function [PCRF] or the broadband gateway) and number of successful modifications (**Success**).
MS/peer initiated deactivations	Number of deactivations initiated by the mobile station, MME, or S-GW.
Network initiated deactivations	Number of deactivations initiated by the network (policy and charging rules function [PCRF] or the broadband gateway).

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Table 59: show unified-edge ggsn-pgw statistics Output Fields *(continued)*

Field Name	Field Description
Gateway initiated deactivations	Number of deactivations initiated by the broadband gateway. This counter increments when one of the following conditions is applicable: • When the **clear unified-edge ggsn-pgw subscribers** is executed and the subscriber has a dedicated bearer. • When the **clear unified-edge ggsn-pgw subscribers bearer ebi *ebi*** is executed.
Handover Statistics	
Inter-RAT Handover attempts	Number of inter-RAT handovers attempted and number of handovers that were successful (**Success**).
Intra-RAT Handover attempts	Number of intra-RAT handovers attempted and number of handovers that were successful (**Success**).
Offline Charging Statistics	
CDRs Allocated	Total number of Charging Data Records (CDRs) opened.
Partial CDRs Allocated	Total number of partial CDRs opened.
CDRs Closed	Total number of CDRs closed.
Containers Closed	Total number of containers closed.
DCCA-Gy statistics (Diameter Credit Control Application [DCCA] Gy statistics)	
Session establishments attempts	Number of Diameter session establishments attempted and number of sessions established (**Success**).
Session reauthorization attempts	Number of session reauthorizations attempted with the OCS and number of successful reauthorizations (**Success**).
Online authorization timeouts	Number of online authorizations that timed out.
MS/Peer initiated session deactivations	Number of Diameter session deactivations initiated by the mobile station , MME, or S-GW.
OCS initiated session deactivations	Number of Diameter session deactivations initiated by the OCS.

Table 59: show unified-edge ggsn-pgw statistics Output Fields *(continued)*

Field Name	Field Description
Gateway initiated session deactivations	Number of Diameter session deactivations initiated by the broadband gateway.
PCC Gx Statistics	
Session establishment attempts	Number of IP CAN session establishments attempted and number of successful session establishments (**Success**).
MS/Peer initiated modification attempts	Number of IP CAN session modifications attempted by the mobile station, MME, or S-GW and number of successful session modifications (**Success**).
PCRF initiated modification attempts	Number of IP CAN session modifications initiated by the PCRF and number of sessions established (**Success**).
MS/Peer initiated session deactivations	Number of session deactivations initiated by the mobile station, MME, or S-GW.
PCRF initiated session deactivations	Number of session deactivations initiated by the PCRF.
Gateway initiated session deactivations	Number of session deactivations initiated by the broadband gateway.
Data Plane Global statistics	
Source address violation packets	Number of packets with an incorrect source address.
Non-existent TEID/TID packets	Total number of packets received with nonexistent tunnel endpoint identifiers (TEIDs) or tunnel identifiers (TIDs).
GTP length error packets	Number of GTP packets with an incorrect length in the IP or UDP header.
Non-existent UE address packets	Number of packets received by the broadband gateway for which the IP address (IPv4 or IPv6) did not match the IP address of existing subscribers on the gateway.
Mobile-to-mobile packets	Number of packets received by the broadband gateway for another mobile device.
Data Plane GTP Statistics (Gn/S5/S8)	

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Table 59: show unified-edge ggsn-pgw statistics Output Fields *(continued)*

Field Name	Field Description
Input packets	Number of incoming GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Input bytes	Number of octets of incoming GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Output packets	Number of outgoing GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Output bytes	Number of octets of outgoing GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Discarded packets	Number of discarded GTP data packets on the Gn, Gp, S5, and S8 interfaces.
Data Plane GTP statistics (Gi)	
Input packets	Number of incoming GTP data packets on the Gi interface.
Input bytes	Number of octets of incoming GTP data packets on the Gi interface.
Output packets	Number of outgoing GTP data packets on the Gi interface.
Output bytes	Number of octets of outgoing GTP data packets on the Gi interface.
Discarded packets	Number of discarded GTP data packets on the Gi interface.

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Sample Output

show unified-edge ggsn-pgw statistics

```
user@host> show unified-edge ggsn-pgw statistics
Gateway: gw1
Control Plane GTP Statistics:
    Session establishment attempts:          300      Success: 300
    MS/peer initiated modification attempts: 0        Success: 0
    Gateway initiated modification attempts: 0        Success: 0
    MS/peer initiated session deactivations: 0        Success: 0
    Gateway initiated session deactivations: 0        Success: 0
Dedicated Bearer Statistics:
    MS-peer initiated activation attempts:   0        Success: 0
    Network initiated activation attempts:   300      Success: 300
    MS-peer initiated modification attempts: 0        Success: 0
    Network initiated modification attempts: 0        Success: 0
    MS-peer initiated deactivations:         0
    Network initiated deactivations:         0
    Gateway initiated deactivations:         0
Handover Statistics:
    Inter-RAT Handover attempts:             0        Success: 0
    Intra-RAT Handover attempts:             0        Success: 0
Offline Charging Statistics:
    CDRs allocated:                          300
    Partial CDRs allocated:                  0
    CDRs closed:                             0
    Containers closed:                       0
DCCA-Gy Statistics:
    Session establishments attempts:         300      Success : 300
    Session reauthorization attempts:        10600    Success : 0
    Online authorization timeouts:           0
    Ms/Peer initiated session deactivations: 0
    OCS initiated session deactivations:     0
    Gateway initiated session deactivations: 0
PCC Gx statistics:
    Session establishment attempts:          300      Success: 300
    MS/peer initiated modification attempts: 0        Success: 0
    PCRF initiated modification attempts:    0        Success: 0
    MS/peer initiated session deactivations: 0
    PCRF initiated session deactivations:    0
    Gateway initiated session deactivations: 0
Data plane global statistics:
    Source address violation packets:        0
    Non-existent TEID/TID packets:           0
    GTP length error packets:                0
    Non-existent UE address packets:         0
    Mobile-to-mobile packets:                0
Data plane GTP statistics (Gn/S5/S8):
    Input     packets:          0
    Input     bytes:            0
    Output    packets:          0
    Output    bytes:            0
    Discarded packets:          0
Data plane GTP statistics (Gi):
    Input     packets:          0
    Input     bytes:            0
    Output    packets:          0
    Output    bytes:            0
    Discarded packets:          0
```


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show unified-edge ggsn-pgw status

Syntax

show unified-edge ggsn-pgw status
<apn-name *apn-name*>
<brief | detail | extensive>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<gtpv1-arp *gtpv1-arp*>
<gtpv2-priority-level *gtpv2-priority-level*>
<pdn-type>
<pic-slot *pic-slot*>
<qci *qci*>
<rat-type>
<roaming-status>
<traffic-class (background | conversational | interactive | streaming)>

Release Information

Command introduced in Junos OS Mobility Release 11.2W. **extensive pdn-type**, and **roaming-status** options introduced in Junos OS Mobility Release 11.4W.

Description

Display the status information, such as the number of subscribers, active sessions, and so on, for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then status information for all GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display the status information in brief.

apn-name *apn-name*—(Optional) Display the status information for the specified access point name (APN).

brief | detail | extensive—(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the status information for the specified FPC slot number.

gateway *gateway*—(Optional) Display the status information for the specified GGSN or P-GW.

gtpv1-arp *gtpv1-arp*—(Optional) Display the status information for the GTPv1 Allocation and Retention Priority (ARP) value specified. You can specify a GTPv1 ARP value of 1 through 3.

gtpv2-priority-level *gtpv2-priority-level*—(Optional) Display the status information for the GTPv2 priority specified. You can specify a priority of 1 through 15.

pdn-type—(Optional) Display the number of active sessions according to the type of Packet Data Network (PDN): IPv4, IPv6, and both IPv4 and IPv6.

pic-slot *pic-slot*—(Optional) Display the status information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

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qci *qci*—(Optional) Display the status information for the specified QoS Class Identifier (QCI). You can specify a QCI of 1 through 9.

rat-type—(Optional) Display the number of active subscribers, sessions, and bearers for each Radio Access Technology (RAT) type.

roaming-status—(Optional) Display the subscriber sessions based on the roaming status (home, roamer, or visitor).

traffic-class (background | conversational | interactive | streaming)—(Optional) Display the status information for the specified traffic class.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw status gtp-peer on page 889
- show unified-edge ggsn-pgw status preemption-list on page 1068
- show unified-edge ggsn-pgw status session-state on page 891

List of Sample Output

show unified-edge ggsn-pgw status on page 885
show unified-edge ggsn-pgw status detail on page 885
show unified-edge ggsn-pgw status extensive on page 886
show unified-edge ggsn-pgw status pdn-type detail on page 887
show unified-edge ggsn-pgw status rat-type detail on page 887
show unified-edge ggsn-pgw status roaming-status detail on page 887

Output Fields

Table 60 on page 882 lists the output fields for the **show unified-edge ggsn-pgw status** command. Output fields are listed in the approximate order in which they appear.

Table 60: show unified-edge ggsn-pgw status Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels none
FPC SLOT	FPC slot number of the interface for which the status information is displayed.	**detail** **extensive**
PIC SLOT	PIC slot number of the FPC for which the status information is displayed.	**detail** **extensive**
Role	Role of the Packet Forwarding Engine, services PIC, or session PIC on the GGSN or P-GW: • **Standalone** • **Primary**—Primary member. • **Secondary**—Secondary member.	**detail** **extensive**

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Table 60: show unified-edge ggsn-pgw status Output Fields *(continued)*

Field Name	Field Description	Level of Output
Type	Indicates whether the PIC is a Packet Forwarding Engine, a session PIC or a services PIC.	**detail** **extensive**
Active Subscribers	Number of active subscribers.	All levels none
Active Subscribers (with services)	Number of active subscribers who are using subscriber-aware services and who are anchored on a services PIC.	All levels none
Active Sessions	Number of active sessions.	All levels none
Active Sessions (with services)	Number of active sessions for subscribers who are using subscriber-aware services and who are anchored on a services PIC.	All levels none
Active Bearers	Number of active bearers or Packet Data Protocol (PDP) contexts.	All levels none
Active GBR Bearers	Number of active guaranteed bit rate (GBR) bearers or PDP contexts.	All levels none
Active Non-GBR Bearers	Number of active non-GBR bearers or PDP contexts.	All levels none
Active Prepaid bearers	Number of active prepaid bearers or PDP contexts.	All levels none
Active Postpaid bearers	Number of active postpaid bearers or PDP contexts.	All levels none
CPU Load (%)	Percentage of the CPU load.	All levels none
Memory Load (%)	Percentage of the memory load.	All levels none
Connections to Session PICs	Connections between the services PIC and the session PICs. This field is displayed only when the services PIC has a connection to one or more session PICs.	extensive

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Table 60: show unified-edge ggsn-pgw status Output Fields *(continued)*

Field Name	Field Description	Level of Output
IPv4 Active Sessions	Number of active IPv4 sessions.	**pdn-type**
IPv6 Active Sessions	Number of active IPv6 sessions.	**pdn-type**
IPv4-v6 Active Sessions	Number of active IPv4-IPv6 sessions.	**pdn-type**
Home	Number of active sessions belonging to home subscribers.	**roaming-status**
Roamer	Number of active sessions belonging to roaming subscribers.	**roaming-status**
Visitor	Number of active sessions belonging to visiting subscribers.	**roaming-status**

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Sample Output

show unified-edge ggsn-pgw status

```
user@host> show unified-edge ggsn-pgw status
Gateway: PGW
    Mobile gateway status:
    Active Subscribers                  :         2
    Active Subscribers (with services)  :         2
    Active Sessions                     :         2
    Active Sessions (with services)     :         2
    Active Bearers                      :         2
    Active GBR Bearers                  :         0
    Active Non-GBR Bearers              :         2
    Active Prepaid bearers              :         0
    Active Postpaid bearers             :         2
    CPU Load (%)                        :         0
    Memory Load (%)                     :         29
```

show unified-edge ggsn-pgw status detail

```
user@host> show unified-edge ggsn-pgw status detail
Gateway: PGW

    FPC SLOT: 3   PIC SLOT: 0
    Role                                :       Primary
    Type                                :       Service-PIC
    Active Subscribers (with services)  :       5000
    Active Sessions (with services)     :       5000
    CPU Load (%)                        :       0
    Memory Load (%)                     :       14

    FPC SLOT: 3   PIC SLOT: 1
    Role                                :       Secondary
    Type                                :       Session-PIC
    Active Subscribers                  :       9077
    Active Sessions                     :       9077
    Active Bearers                      :       9077
    Active GBR Bearers                  :       0
    Active Non-GBR Bearers              :       9077
    Active prepaid Bearers              :       0
    Active postpaid Bearers             :       0
    CPU Load (%)                        :       0
    Memory Load (%)                     :       30

    FPC SLOT: 5   PIC SLOT: 0
    Role                                :       Primary
    Type                                :       Session-PIC
    Active Subscribers                  :       9077
    Active Sessions                     :       9077
    Active Bearers                      :       9077
    Active GBR Bearers                  :       0
    Active Non-GBR Bearers              :       9077
    Active prepaid Bearers              :       0
    Active postpaid Bearers             :       0
    CPU Load (%)                        :       0
    Memory Load (%)                     :       30

    FPC SLOT: 0   PIC SLOT: 0
    Role                                :       Standalone
    Type                                :       PFE
    Active Sessions                     :       0
    Active Bearers                      :       0
```

```
    CPU Load (%)                        :       0
    Memory Load (%)                     :       0

    FPC SLOT: 0   PIC SLOT: 2
    Role                                :       Standalone
    Type                                :       PFE
    Active Sessions                     :       0
    Active Bearers                      :       0
    CPU Load (%)                        :       0
    Memory Load (%)                     :       0
```

show unified-edge ggsn-pgw status extensive

```
user@host> show unified-edge ggsn-pgw status extensive
Gateway: PGW

    FPC SLOT: 3   PIC SLOT: 1
    Role                                :             Secondary
    Type                                :             Session-PIC
    Active Subscribers                  :             3687
    Active Sessions                     :             3687
    Active Bearers                      :             3687
    Active GBR Bearers                  :             0
    Active Non-GBR Bearers              :             3687
    Active Prepaid Bearers              :             0
    Active Postpaid Bearers             :             0
    CPU Load (%)                        :             0
    Memory Load (%)                     :             34

    FPC SLOT: 5   PIC SLOT: 0
    Role                                :             Primary
    Type                                :             Session-PIC
    Active Subscribers                  :             3687
    Active Sessions                     :             3687
    Active Bearers                      :             3687
    Active GBR Bearers                  :             0
    Active Non-GBR Bearers              :             3687
    Active Prepaid Bearers              :             0
    Active Postpaid Bearers             :             0
    CPU Load (%)                        :             0
    Memory Load (%)                     :             34

    FPC SLOT: 5   PIC SLOT: 1
    Role                                :             Secondary
    Type                                :             Service-PIC
    Active Subscribers (with services)  :             3687
    Active Sessions (with services)     :             3687
    CPU Load (%)                        :             0
    Memory Load (%)                     :             19
    Connections to Session PICs         :
                                                      ms-5/0

    FPC SLOT: 0   PIC SLOT: 0
    Role                                :             Standalone
    Type                                :             PFE
    Active Sessions                     :             0
    Active Bearers                      :             0
    CPU Load (%)                        :             0
    Memory Load (%)                     :             0

    FPC SLOT: 0   PIC SLOT: 2
    Role                                :             Standalone
```


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```
    Type                                :            PFE
    Active Sessions                     :            0
    Active Bearers                      :            0
    CPU Load (%)                        :            0
    Memory Load (%)                     :            0
```

show unified-edge ggsn-pgw status pdn-type detail

```
user@host> show unified-edge ggsn-pgw status pdn-type detail
Gateway: PGW

    FPC SLOT: 3   PIC SLOT: 1
    State                               :       Backup
    Type                                :       Session-PIC
    IPv4 Active Sessions                :            2
    IPv6 Active Sessions                :            0
    IPv4-v6 Active Sessions             :            0

    FPC SLOT: 5   PIC SLOT: 0
    State                               :       Active
    Type                                :       Session-PIC
    IPv4 Active Sessions                :            2
    IPv6 Active Sessions                :            0
    IPv4-v6 Active Sessions             :            0
```

show unified-edge ggsn-pgw status rat-type detail

```
user@host> show unified-edge ggsn-pgw status rat-type detail
Gateway: PGW

    RAT type list:
    FPC SLOT: 4    PIC SLOT: 0
    OTHER    Active    Subscribers      :            0
             Active    Sessions         :            0
             Active    Bearers          :            0
    UTRAN    Active    Subscribers      :            0
             Active    Sessions         :            0
             Active    Bearers          :            0
    GERAN    Active    Subscribers      :            0
             Active    Sessions         :            0
             Active    Bearers          :            0
    WLAN     Active    Subscribers      :            0
             Active    Sessions         :            0
             Active    Bearers          :            0
    GAN      Active    Subscribers      :            0
             Active    Sessions         :            0
             Active    Bearers          :            0
    HSPA     Active    Subscribers      :            0
             Active    Sessions         :            0
             Active    Bearers          :            0
    EUTRAN   Active    Subscribers      :            1
             Active    Sessions         :            1
             Active    Bearers          :            1
```

show unified-edge ggsn-pgw status roaming-status detail

```
user@host> show unified-edge ggsn-pgw status roaming-status detail
Gateway: PGW

    FPC SLOT: 3   PIC SLOT: 1
    State                               :       Backup
    Type                                :       Session-PIC
```

```
Home                                :            0
Roamer                              :            0
Visitor                             :            2

FPC SLOT: 5   PIC SLOT: 0
State                               :      Active
Type                                :      Session-PIC
Home                                :            0
Roamer                              :            0
Visitor                             :            2
```


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show unified-edge ggsn-pgw status gtp-peer

Syntax

show unified-edge ggsn-pgw status gtp-peer remote-address *remote-address*
<**fpc-slot** *fpc-slot*>
<**gateway** *gateway*>
<**local-address** *local-address*>
<**pic-slot** *pic-slot*>
<**routing-instance** *name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Displays the count of the bearer distribution across multiple Packet Forwarding Engines for the specified GTP peer on one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.

Options

remote-address *remote-address*—Display the information for the GTP peer with the specified remote address.

fpc-slot *fpc-slot*—(Optional) Display the information for the specified FPC slot number pertaining to the session PIC.

gateway *gateway*—(Optional) Display the information for the specified GGSN or P-GW.

local-address *local-address*—(Optional) Display the information for the local address of the specified peer on the gateway.

pic-slot *pic-slot*—(Optional) Display the information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

routing-instance *routing-instance*—(Optional) Display the information for the peer on the specified routing instance ID.

Required Privilege Level

unified-edge, view

Related Documentation

- show unified-edge ggsn-pgw status on page 881

List of Sample Output

show unified-edge ggsn-pgw status gtp-peer remote-address 200.6.1.2 on page 890

Output Fields

Table 61 on page 889 lists the output fields for the **show unified-edge ggsn-pgw status gtp-peer** command. Output fields are listed in the approximate order in which they appear.

Table 61: show unified-edge ggsn-pgw status gtp-peer Output Fields

Field Name	Field Description
Gateway	Name of the GGSN or P-GW.
FPC-slot/PIC-slot	FPC and PIC slot numbers of the aggregated Packet Forwarding Engine interface for which the information is displayed.

Table 61: show unified-edge ggsn-pgw status gtp-peer Output Fields *(continued)*

Field Name	Field Description
Number of bearers	Number of bearers on the corresponding FCP and PIC slot.

Sample Output

show unified-edge ggsn-pgw status gtp-peer remote-address 200.6.1.2

```
user@host> show unified-edge ggsn-pgw status gtp-peer remote-address 200.6.1.2
Gateway: PGW
    FPC-slot/PIC-slot           Number of bearers
    ---------------------------------------------
           0/0                        1
           0/1                        0
```


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show unified-edge ggsn-pgw status session-state

Syntax

show unified-edge ggsn-pgw status session-state
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the session state information of subscribers anchored on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a gateway name is not specified, then the session state information for all the GGSN or P-GWs is displayed.

Options

none—(Same as brief) Display the session state information in brief.

brief | detail —(Optional) Display the specified level of output.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the session state information for the PIC in the specified FPC and PIC slot numbers.

gateway *gateway*—(Optional) Display the session state information for the specified gateway name.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw status on page 881

List of Sample Output

show unified-edge ggsn-pgw status session-state brief on page 892
show unified-edge ggsn-pgw status session-state detail on page 892

Output Fields

Table 62 on page 891 lists the output fields for the **show unified-edge ggsn-pgw status session-state** command. Output fields are listed in the approximate order in which they appear.

Table 62: show unified-edge ggsn-pgw status session-state Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels none
FPC Slot	FPC slot number of the interface for which the session state information is displayed.	**detail**
PIC Slot	PIC slot number of the FPC for which the session state information is displayed.	**detail**

Table 62: show unified-edge ggsn-pgw status session-state Output Fields *(continued)*

Field Name	Field Description	Level of Output
Established	Number of sessions established.	All levels none
Deleting	Number of sessions being deleted.	All levels none
Updating bearer	Number of sessions for which the bearers or PDP contexts are being updated.	All levels none
Authorizing	Number of sessions waiting for initial authorization.	All levels none
Acquiring address	Number of sessions for which the IP address is being acquired.	All levels none

Sample Output

show unified-edge ggsn-pgw status session-state brief

```
user@host> show unified-edge ggsn-pgw status session-state brief
Gateway: PGW
    Established          :               1
    Deleting             :               0
    Updating bearer      :               0
    Authorizing          :               0
    Acquiring address    :               0
```

show unified-edge ggsn-pgw status session-state detail

```
user@host> show unified-edge ggsn-pgw session-state detail
Gateway: PGW
    Mobile gateway status of fpc slot: 2  pic slot: 1
    Established          :               1
    Deleting             :               0
    Updating bearer      :               0
    Authorizing          :               0
    Acquiring address    :               0

    Mobile gateway status of fpc slot: 5  pic slot: 1
    Established          :               1
    Deleting             :               0
    Updating bearer      :               0
    Authorizing          :               0
    Acquiring address    :               0
```


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show unified-edge ggsn-pgw subscribers

Syntax

show unified-edge ggsn-pgw subscribers
<apn *apn-name*>
<brief | detail | extensive>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<gtp-version *gtp-version*>
<gtpv1-arp *gtpv1-arp*>
<gtpv2-priority-level *gtpv2-priority-level*>
<imsi *imsi*>
<msisdn *msisdn*>
<multiple-bearers (*number-of-bearers* | any)>
<multiple-sessions (*number-of-sessions* | any)>
<pdn-type (ipv4 | ipv4-v6 | ipv6)>
<peer *peer*>
<pic-slot *pic-slot*>
<qci *qci*>
<rat-type (eutran | gan | geran | hspa | others | utran | wlan)>
<roaming-status (home | roamer | visitor)>
<routing-instance *routing-instance*>
<services *service-name*>
<session-state (acquire-address | authorizing | bearer-update | deleting | established)>
<v4-addr *v4-addr*>
<v6-addr *v6–addr*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
Support for the **pdn-type**, **rat-type**, and **services** attributes introduced in Junos OS Mobility Release 11.4W.
Support for the **multiple-bearers** and **multiple-sessions** attributes, user closed subscriber group (CSG) output, and usage monitoring outputs introduced in Junos OS Mobility Release 12.1W.

Description

Display the subscriber information one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then subscriber information for all GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display the subscriber information in brief.

apn *apn-name*—(Optional) Display the subscriber information for the specified access point name (APN).

brief | detail | extensive —(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the subscriber information for the specified FPC slot number.

gateway *gateway*—(Optional) Display the subscriber information for the specified gateway.

gtp-version *gtp-version*—(Optional) Display the subscriber information for the GTP version number (0 through 2) specified.

gtpv1-arp ***gtpv1-arp***—(Optional) Display the subscriber information for the GTPv1 Allocation and Retention Priority (ARP) value specified. You can specify a GTPv1 ARP value of 1 through 3.

gtpv2-priority-level ***gtpv2-priority-level***—(Optional) Display the subscriber information for the GTPv2 priority specified. You can specify a priority of 1 through 15.

imsi ***imsi***—(Optional) Display the subscriber information for the specified International Mobile Subscriber Identity (IMSI).

msisdn ***msisdn***—(Optional) Display the subscriber information for the specified mobile station ISDN (MSISDN) number.

multiple-bearers (*number-of-bearers* | any)—(Optional) Display the subscriber information for subscribers with the specified number of bearers. You can specify one of the following:

- ***multiple-bearers***—Display information for subscribers with the specified number of bearers. You can specify a number from 1 through 11.
- **any**—Display information for subscribers with more than one bearer.

multiple-sessions (*number-of-sessions* | any)—(Optional) Display the subscriber information for subscribers with the specified number of sessions. You can specify one of the following:

- ***multiple-sessions***—Display information for subscribers with the specified number of sessions. You can specify a number from 1 through 11.
- **any**—Display information for subscribers with more than one session.

pdn-type (ipv4 | ipv4-v6 | ipv6)—(Optional) Display the subscriber information for the specified Packet Data Network (PDN) type or session type. You can specify the following PDN or session types:

- **ipv4**—Subscribers with only IPv4 sessions.
- **ipv4-v6**—Subscribers with both IPv4 and IPv6 sessions.
- **ipv6**—Subscribers with only IPv6 sessions.

peer ***peer***—(Optional) Display the subscriber information for the specified peer IP address.

pic-slot ***pic-slot***—(Optional) Display the subscriber information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

qci ***qci***—(Optional) Display the subscriber information for the specified QoS Class Identifier (QCI).

rat-type (eutran | gan | geran | hspa | others | utran | wlan)—(Optional) Display the subscriber information for the specified Radio Access Technology (RAT).

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roaming-status (home | roamer | visitor)—(Optional) Display the subscriber information for the specified roaming status.

routing-instance ***routing-instance***—(Optional) Display the subscriber information for the specified routing instance.

services ***service-name***—(Optional) Display the information for subscribers who are using the specified subscriber-aware service and who are anchored on a services PIC. Currently, HTTP Content Management **hcm** is the only service supported.

session-state (acquire-address | authorizing | bearer-update | deleting | established)—(Optional) Display the subscriber information for the specified session state. You can specify the following session states:

- **acquire-address**—Sessions for which the IP address is being acquired.
- **authorizing**—Sessions waiting for initial authorization.
- **bearer-update**—Sessions which are being updated.
- **deleting**—Sessions being deleted.
- **established**—Sessions already established.

v4-addr ***v4-addr***—(Optional) Display the subscriber information for the specified IPv4 address of the subscriber's user equipment (UE).

v6-addr ***v6-addr***—(Optional) Display the subscriber information for the specified IPv6 address of the subscriber's user equipment.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw subscribers on page 863
- show unified-edge ggsn-pgw subscribers charging on page 913
- show unified-edge ggsn-pgw subscribers traffic-class on page 1072

List of Sample Output

show unified-edge ggsn-pgw subscribers on page 906
show unified-edge ggsn-pgw subscribers detail on page 906
show unified-edge ggsn-pgw subscribers extensive (GTP Version 1 Subscribers) on page 907
show unified-edge ggsn-pgw subscribers extensive (GTP Version 2 Subscribers) on page 909

Output Fields

Table 63 on page 896 lists the output fields for the **show unified-edge ggsn-pgw subscribers** command. Output fields are listed in the approximate order in which they appear.

Table 63: show unified-edge ggsn-pgw subscribers Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels none
IMSI	IMSI of the subscriber's user equipment.	**brief** none
MSISDN	MSISDN number of the subscriber's user equipment.	**brief** none
Subscriber Address	IP address of the subscriber's user equipment.	**brief** none
Peer Address	IP address of the GTP peer through which the subscriber is connected to the broadband gateway.	**brief** none
APN	Access point name (APN), on the broadband gateway, to which the subscriber is attached.	**brief** none
Subscriber Information:		
UE		
IMSI	IMSI of the subscriber's user equipment.	**detail** **extensive**
IMEI	International Mobile Station Equipment Identity (IMEI) of the subscriber's user equipment.	**detail** **extensive**
MSISDN	MSISDN number of the subscriber's user equipment.	**extensive**
Time Zone	Time zone to which the subscriber belongs.	**extensive**
DST	Daylight saving time applicable within the time zone.	**extensive**
RAT Type	Type of Radio Access Technology (RAT) used.	**detail** **extensive**
User Location Information:		
MCC	Mobile country code (MCC) of the subscriber.	**extensive**
MNC	Mobile network code (MNC) of the subscriber.	**extensive**

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Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
LAC	Location area code (LAC) of the subscriber.	**extensive**
CI	Cell Identity (CI) of the subscriber.	**extensive**
SAC	Service area code (SAC) of the subscriber.	**extensive**
RAC	Routing area code (RAC) of the subscriber.	**extensive**
TAC	Tracking area code (TAC) of the subscriber.	**extensive**
ECI	E-UTRAN Cell identifier (ECI) of the subscriber.	**extensive**
User CSG Information		
MCC	MCC of the user CSG public land mobile network (PLMN).	**extensive**
MNC	MNC of the user CSG PLMN.	**extensive**
CSGID	Hexadecimal identifier of the user CSG.	**extensive**
Access Mode	Access mode for the user CSG. The following access modes are supported: • **Closed**—User access is through the CSG cell. • **Hybrid-Member**—User access is through the Hybrid cell and that the user is a member of the CSG. • **Hybrid-Non-Member**—User access is through the Hybrid cell and that the user is not a member of the CSG. • **Reserved**—Unknown access mode.	**extensive**
PDN Session:		
APN name	Access point name for the Packet Data Network (PDN) session.	**detail** **extensive**
IPv4 Address	IPV4 address of the subscriber.	**detail** **extensive**
IPv6 Address	IPV6 address of the subscriber.	**detail** **extensive**
GTP Version	GTP version used for the control plane.	**detail** **extensive**

Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
Address Assignment	Indicates the method used to allocate the subscriber's address: • **AAA**—Address was allocated by the authentication, authorization, and accounting (AAA) server. • **DCHP**—Address was allocated by the gateway using the IP addresses returned by the Dynamic Host Configuration Protocol (DHCP) server. • **Local**—Address was allocated by the gateway based on the local mobile pool or mobile pool group configured on the APN. • **Static**—Address was pre-allocated to the user equipment.	**detail** **extensive**
Local Control IP	Local IPV4 address of the broadband gateway to which the peer (Serving GPRS Support Node [SGSN] or Serving Gateway [S-GW]) will send the control messages for the subscriber.	**detail** **extensive**
Remote Control IP	IP address of the peer (SGSN or S-GW) to which the broadband gateway will send control messages for the subscriber.	**detail** **extensive**
Local Control TEID	Tunnel endpoint identifier (TEID) allocated locally by the broadband gateway for the control plane or signaling messages. The control peers (SGSN or S-GW) send this TEID in all control messages to the broadband gateway.	**detail** **extensive**
Remote Control TEID	Control TEID for the session, which is allocated by the remote control peer (SGSN or S-GW). The broadband gateway sends this TEID in the GTP header in all control messages to the peer.	**detail** **extensive**
SGW CSID	Connection Set Identifier (CSID) allocated by the GTP peer (S-GW).	**extensive**
MME CSID	CSID allocated by the Mobility Management Entity (MME). It identifies the connection set on the MME to which the session belongs.	**extensive**
PGW CSID	CSID allocated by the P-GW. It identifies the CSID sent by the PGW in the Create Session Response message.	**extensive**
Selection mode	APN selection mode provided by the SGSN or S-GW in the Create Request message.	**extensive**
Session PIC	FPC and PIC slots for the session PIC on which the subscriber control session is present.	**detail** **extensive**
PFE	FPC and PIC slots for the Packet Forwarding Engine for the PDP session.	**detail** **extensive**
Service PIC	FPC and PIC slot numbers of the services PIC on which the subscriber services are anchored.	**detail** **extensive**
Session State	State of the subscriber session on the signaling plane.	**detail** **extensive**

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Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
Session Duration	Duration of the PDP session.	**detail** **extensive**
Roaming Status	Roaming status of the subscriber; that is, whether the subscriber is a visitor, home subscriber, or a roamer.	**detail** **extensive**
Serving network	The following information about the network that is serving the subscriber (that the subscriber is attached to) is displayed: • **MCC**—Mobile country code of the network. • **MNC**—Mobile network code of the network.	**detail** **extensive**
Direct Tunnel	Status of the GTPv1 direct tunnel: enabled or disabled.	**detail** **extensive**
HW Rule Set Identifier	This parameter is used internally by the broadband gateway.	**detail** **extensive**
Rule-Map	Policy and Charging Control (PCC) rule map.	**detail** **extensive**
APN AMBR	The aggregate maximum bit rate (AMBR) negotiated for the PDP session is displayed for the following: • **Downlink**—Negotiated AMBR in the downlink direction. • **Uplink**—Negotiated AMBR in the uplink direction.	**detail** **extensive**

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Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
PCRF Event Triggers	Policy and charging rules function (PCRF) event triggers. The notation used for the event triggers displayed in the output and the corresponding event triggers as per the 3GPP specifications are as follows: • **SGSN**—SGSN CHANGE (0) • **QoS**—QOS CHANGE (1) • **RAT**—RAT CHANGE (2) • **TFT**—TFT CHANGE (3) • **PLMN**—PLMN CHANGE (4) • **BL**—BEARER LOSS (5) • **BR**—BEARER RECOVERY (6) • **IPCAN**—IPCAN CHANGE (7) • **EAUTH**—EXCEEDING AUTH (11) • **RAI**—RAI CHANGE (12) • **ULI**—ULI CHANGE (13) • **NET**—NO EVENT TRIGGERS (14) • **OOC**—OUT OF CREDIT (15) • **ROC**—REALLOCATION OF CREDIT (16) • **TIMEOUT**—REVALIDATION TIMEOUT (17) • **IP ALLOC**—UE_IP_ADDRESS_ALLOCATE (18) • **IP RELEASE**—UE_IP_ADDRESS_RELEASE (19) • **DEFAULT QoS**—DEFAULT QoS (20) • **GW**—AN GW CHANGE (21) • **RA**—RESOURCE_ALLOCATION (22) • **RM**—RESOURCE_MODIFICATION (23) • **TRACE**—PGW TRACE CONTROL (24) • **TZ** —UE_TZ_CHANGE (25) • **TAI**—TAI CHANGE (26) • **ECGI**—ECGI CHANGE (27) • **CCE**—CHARGING CORRELATION EXCHANGE (28) • **AMBR**—AMBR CHANGE (29) • **UCIC**—USR CSG INFO CHANGE (30) • **QMF**—QoS MODIFICATION FAILURE (31) • **UR**—USER REPORT (33)	**detail** **extensive**
PCRF Origin Host	Origin host of the PCRF server.	**detail** **extensive**
PCRF Origin Realm	Origin realm of the PCRF server.	**detail** **extensive**

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Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output

Usage Monitoring Information	The following information related to usage monitoring is displayed:
	• **Monitoring Key**—The usage monitoring key is an octet string that is used by the PCRF to enable or disable usage monitoring and to fetch the usage report during a session. The monitoring key is unique within a session.
	• **Status**—Status of the usage monitoring key. One of the following:
	  ◦ Active
	  ◦ Init—Monitoring key is newly installed but not yet programmed into the data path.
	  ◦ Update In Progress—The PCRF has updated the information associated with the monitoring key, which is not yet programmed in the data path. The status is changed to Active after the monitoring key is successfully programmed into the data path.
	  ◦ Removal Pending—The monitoring key has been disabled. After the used units are reported from the data path, the monitoring key is freed.
	  ◦ Waiting for GSU—The broadband gateway is waiting for granted services units (GSUs) from the PCRF. After sending the report of the monitoring key to the PCRF, the monitoring key is put into this state. The state is changed based on the response received from the PCRF.
	• **Total**—Total volume (in octets) granted by the PCRF for the monitoring key. The broadband gateway sends a report to the PCRF after the volume of the input and output data packets exceed the total volume granted by the PCRF.
	• **Input**—Input volume (in octets) granted by the PCRF for the monitoring key. The broadband gateway sends a report to the PCRF after the volume of the input data packets exceed the input volume granted by the PCRF.
	• **Output**—Output volume (in octets) granted by the PCRF for the monitoring key. The broadband gateway sends a report to the PCRF after the volume of the output data packets exceed the output volume granted by the PCRF.
	NOTE: This information is displayed only if the monitoring is enabled for a session. If more than one monitoring key is present, the usage information for each monitoring key is displayed sequentially.	

Bearer:		
NSAPI/EBI	Network Service Access Point Identifier (NSAPI) or the Evolved Packet System Bearer ID (EBI) for the session.	**detail** **extensive**
Local Data IP	IP address of the broadband gateway to which the peer sends the data packets for the PDP context or bearer.	**detail** **extensive**
Remote Data IP	IP address of the peer to which the broadband gateway sends the data packets for the PDP context or bearer.	**detail** **extensive**
Local Data TEID	Data TEID allocated by the broadband gateway which identifies the data tunneling endpoint for all data packets coming in from the data peer. This is sent in the GTP header for all data packets coming from the peer GTP nodes (SGSN or S-GW).	**detail** **extensive**
Remote Data TEID	Data TEID allocated by the data plane peer for the session which identifies the data tunneling endpoint for all data packets sent from the broadband gateway to the remote peer.	**detail** **extensive**

Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
Bearer State	Represents the state of the subscriber in the forwarding or data plane. This parameter is used internally by the broadband gateway.	**detail** **extensive**
Substate	Represents the substate of the subscriber in the forwarding or data plane. This parameter is used internally by the broadband gateway.	**extensive**
Idle Timeout	Idle timeout for the session, in minutes.	**detail** **extensive**
AAA Interim Interval	Authentication, authorization, and accounting (AAA) interim account timer, in minutes.	**detail** **extensive**

QoS Parameters	The following QoS parameters negotiated by the user equipment are displayed:
	• For GTP version 1 subscribers:
	  • **Traffic Class**—Conversational, streaming, interactive, or background.
	  • **ARP**—Allocation and retention priority (ARP).
	  • **Traffic Handling Priority**
	  • **Transfer Delay**—Transfer delay, in milliseconds.
	  • **MBR Uplink**—Maximum bit rate (MBR) in the uplink direction, in kbps.
	  • **MBR Downlink**—MBR in the downlink direction, in kbps.
	  • **Signaling Indicator**—Signaling indication sent by the user equipment in the QoS Information Element (IE);1 indicates Yes and 0 indicates No. This field is valid only for the interactive traffic class.
	  • **Forwarding Class**
	  • **Loss Priority**—Packet loss priority
	• For GTP version 2 subscribers:
	  • **QCI**—QoS Class Identifier.
	  • **ARP: (PL/PVI/PCI)**—The following parameters related to ARP are displayed:
	  • Priority level (PL)
	  • Preemption Vulnerability Indicator (PVI)
	  • Preemption Capability Indicator (PCI)
	  • **Forwarding Class**
	  • **Loss Priority**—Packet loss priority
		detail
		extensive

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Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output

Charging information	The following information related to charging is displayed:
	• **Charging ID**—Charging ID for the session. The charging ID is the unique bearer identity sent in accounting messages and in Charging Data Records (CDRs).
	• **Transport Profile Name**—Name of the transport profile associated with the bearer.
	• **Charging Characteristics**—Charging characteristics received from the SGSN or S-GW.
	• **Profile ID**—ID of the charging profile associated with the bearer.
	• **Charging Profile Name**—Name of the charging profile associated with the bearer.
	• **State**—Current charging state for the bearer.
	• **Previous State**—Previous charging state for the bearer.
	• **Profile selection criteria**—Selection source (home, visitor, roamer, and default) for the charging profile for the bearer.
	• **Details**—Displays the type of rating group: offline, online, or both offline and online.
	The following information about the last statistics collected is displayed if statistics were collected; if not, an indication that no statistics were collected is displayed:
	• **Offline charging information**—(extensive only) The following details of offline charging information are displayed if offline charging is enabled; if not, an indication that offline charging is disabled is displayed:
	  • **Current service data container sequence number**—Sequence number of the current local service data container.
	  • **Current partial record sequence number**—Sequence number of the current partial record CDR.
	  • **Number of CDRs closed**—Number of closed CDRs generated.
	  • **Number of containers closed**—Number of containers closed.
	• **Online charging information**—(extensive only) The following details of onine charging information are displayed if online charging is enabled; if not, an indication that online charging is disabled is displayed:
	  • **Number of online rating groups**—Number of online rating groups for which the online charging system (OCS) granted quota.
	  • **Next CC request number**—Next Credit Control (CC) request number.
	  • **CC Failure Handling**—Credit control failure handling attribute-value pair (AVP) received from the from the OCS.
	  • **Last CCR result code**—Credit Control Request (CCR) result code sent by OCS in last Credit Control Answer (CCA) message.
		detail
		extensive

Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
Rating group information	The following information related to the rating group is displayed: • **Rating group**—Default rating group associated with the bearer. • **Service ID**—Service identifier of the rating group. • **State**—Current state of the rating group. • **RG Action ID**—(extensive only) Action identifier of the rating group. • **Trigger profile**—(extensive only) Trigger profile number associated with the rating group. • **Details**—Displays the type of rating group: offline, online, or both offline and online. • **Reporting Level**—Indicates whether the reporting is done at the rating group level or at the service identifier level. • **Volume Quota**—The total, uplink, and downlink volume quotas for the rating group are displayed, based on what is provided by the OCS. • **Time Quota**—Total time quota for the rating group. • **Mechanism**—Type of time quota mechanism. Currently, **Wall-clock** is the only mechanism supported. • **Last Quota Reporting Reason**—Reason that the quota was last reported to the OCS The following information about the last statistics collected from the Packet Forwarding Engine is displayed if statistics were collected; if not, an indication that no statistics were collected is displayed: • **Collection time**—Time when the last control plane recorded statistics for the subscriber. • **Uplink packets**—Number of packets handled in the uplink direction. • **Downlink packets**—Number of packets handled in the downlink direction. • **Uplink bytes**—Number of bytes handled in the uplink direction. • **Downlink bytes**—Number of bytes handled in the downlink direction.	**detail** **extensive**

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Table 63: show unified-edge ggsn-pgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output

PCC Rule Information	The following information for each PCC rule is displayed per bearer:
	• **Rule Name**—Name of the PCC rule. In addition, the following is displayed:
	  • **Type**—PCC rule type: static or dynamic.
	  • **Associated Rule Base**—PCC rule set with which the PCC rule is associated.
	  • **Precedence**—PCC rule precedence, which defines the order in which the policy is applied for incoming or outgoing packets; the lower the number, the higher its precedence.
	  • **Status**—PCC rule status: initialized or active.
	• **QoS Attributes**—The following QoS attributes are displayed for each PCC rule per bearer:
	  • **QCI**—QoS Class Identifier.
	  • **ARP: (PL/PVI/PCI)**—PL, PVI, and PCI.
	  • **Uplink GBR (kbps)**—Guaranteed bit rate (GBR), in kbps, in the uplink direction
	  • **Downlink GBR (kbps)**—GBR, in kpbs, in the downlink direction.
	  • **Uplink MBR (kbps)**—MBR, in kpbs, in the uplink direction.
	  • **Downlink MBR (kbps)**—MBR, in kpbs, in the downlink direction.
	• **Charging Attributes**—The following charging attributes are displayed for each PCC rule per bearer:
	  • **Rating Group**—Rating group for the PCC rule.
	  • **Service Id**—Service ID for the PCC rule.
	  • **Gating Status**—Indicates whether the flow is enabled or not. One of the following:
	  • Enable uplink flows
	  • Enable downlink flows
	  • Enable both uplink and downlink flows
	  • Disable both uplink and downlink flows
	  • **AF Charging ID**—Application function record information, which contains an octet string and the charging ID.
	  • **Charging Method**—Charging method for the PCC rule (**none**, **offline**, **offline-online**, or **online**).
	  • **Metering Method**—Charging metering method for the PCC rule:
	  • **Time**—Time based.
	  • **Volume**—Volume based.
	  • **Volume-Time**—Both volume and time based.
	  • **None**—No metering.
	• **Filter Attributes**—The following filter attributes are displayed per filter in each PCC rule:
	  • **Remote IP/Mask**—Remote IP address and subnet mask of the filter.
	  • **Protocol**—Protocol configured for the filter. For the explanation of what the numbers represent, refer to the 3GPP specifications.
	  • **Direction**—Direction in which the filter is applicable (downlink, uplink, or both).
	  • **Local Ports**—Destination ports or port range for the filter.
	  • **Remote Ports**—Source ports or port range for the filter.
	  • **Send to UE**—Indicates whether the filter was sent to the user equipment (**Yes**) or if the filter was installed on the user equipment (**No**).
		detail
		
		extensive

Sample Output

show unified-edge ggsn-pgw subscribers

```
user@host> show unified-edge ggsn-pgw subscribers
Gateway: PGW
    IMSI            MSISDN          Subscriber         Peer           APN
                                     Address          Address
 111222330000007    444550000007  30.30.16.1        50.50.50.1     internet
```

show unified-edge ggsn-pgw subscribers detail

```
user@host> show unified-edge ggsn-pgw subscribers detail
Gateway: gw1

Subscriber Information:
  UE:
    IMSI: 333335513543702              IMEI: 1122334455668328
    RAT Type: E-UTRAN
  PDN Session:
    APN name: apn-v2
    IPv4 Address: 10.10.0.1            IPv6 Address: None
    GTP Version: 2                     Address Assignment: Local
    Local Control IP: 17.18.19.2       Remote Control IP: 200.7.8.2
    Local Control TEID: 0xc000000      Remote Control TEID: 0x6f2
    Session PIC: 2 /0  (FPC/PIC)       PFE: 1 /0  (FPC/PIC)
    Service PIC: None/None (FPC/PIC)
    Session State: Established         Session Duration: 16:32:28
    Roaming Status: Visitor            Serving network: MCC: 123  MNC: 567
    Direct Tunnel: None
    HW Rule set Identifier: 0              Rule Map: 1
    APN AMBR: Downlink: 6400 kbps            Uplink: 6400 kbps
    PCRF Event Triggers: None
    PCRF Origin Host: jpacket
    PCRF Origin Realm: juniper.net
  Bearer:
    NSAPI/EBI: 5
    Local Data IP: 17.18.19.2          Remote Data IP: 200.7.8.2
    Local Data TEID: 0x140000          Remote Data TEID: 0x6f3
    Bearer State: Established
    Idle Timeout: 0   min              AAA Interim Interval: 0   min
    QoS Parameters:
       QCI: 5           ARP: 1 /0 /0   (PL/PVI/PCI)
       Forwarding Class:  None              Loss Priority:  None
    Charging information:
       Charging ID: 0xc000000            Transport Profile Name: tsp8
       Charging Characteristics: 0x2
       Profile ID: 1                     Charging Profile name: default-cp
       State: Ready                      Previous State: Updating RGs
       Profile selection criteria: Static default
       Details: Offline
       Statistics information (PFE cleared and non-cleared): None collected
    Rating group information:
       Rating group: 0 Service id: 0 State: Ready
       Details: Offline RG
       Reporting Level: Service ID
    PCC Rule Information:
    Rule Name: __default_wc_rule__
       Type: Static         Associated Rule Base: None
       Precedence: 65535    Status: Active
     QoS Attributes:
       QCI: 5            ARP: 1 /0 /0  (PL/PVI/PCI)
     Filter Attributes:
```


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```
                    Remote IP/Mask: any/any            Protocol: any   Direction: Both
                    Local Ports:  any
                    Remote Ports: any
                    Send to UE: No
```

show unified-edge ggsn-pgw subscribers

```
user@host> show unified-edge ggsn-pgw subscribers extensive
Gateway: gw1
```

extensive (GTP Version 1 Subscribers)

```
Subscriber Information:
  UE:
    IMSI: 111222330000008              IMEI: None
    MSISDN: 444550000008               Time Zone: GMT     DST: None
    RAT Type: Unknown
    User Location Information:
      MCC:  None   MNC:  None
      LAC: 0x0  CI: 0x0     SAC: 0x0  RAC: 0x0  TAC: 0x0  ECI: 0x0
    User CSG Information:
      MCC: 214              MNC: 652
      CSGID: 0x1121314      Access Mode: Closed
  PDN Session:
    APN name: internet123
    IPv4 Address: 200.1.40.64          IPv6 Address: None
    GTP Version: 1                     Address Assignment: Local
    Local Control IP: 200.1.88.1       Remote Control IP: 50.50.50.1
    Local Control TEID: 0x22003002     Remote Control TEID: 0x8
    Selection mode: MS or network provided APN, subscription verified
    Session PIC: 5 /0  (FPC/PIC)       PFE: 0 /0  (FPC/PIC)
    Service PIC: None/None (FPC/PIC)
    Session State: Established         Session Duration: 25
    Roaming Status: Home               Serving network: MCC: 123  MNC: 456
    Direct Tunnel: Disabled
    HW Rule set Identifier: 0              Rule Map: 0
    PCRF Event Triggers: None
  Bearer:
    NSAPI/EBI: 5
    Local Data IP: 200.1.88.1          Remote Data IP: 50.50.50.1
    Local Data TEID: 0x3c121802        Remote Data TEID: 0x1008
    Bearer State: Established
    Idle Timeout: 0   min              AAA Interim Interval: 0   min
    QoS Parameters:
       Traffic Class: Interactive            ARP: 1
       Traffic Handling Priority: 3          Transfer Delay: 10
       MBR Uplink: 64        kbps            MBR Downlink: 64       kbps
                                             Signaling Indicator: 0
       Forwarding Class: best-effort         Loss Priority: low
    Mapped V2 Parameters:
       QCI: 8                          ARP: 1 /1 /1   (PL/PVI/PCI)
    Charging information:
       Charging ID: 0x22001802            Transport Profile Name: tp1
       Charging Characteristics: 0x8
       Profile ID: 1                      Charging Profile name: cp1
       State: Ready                       Previous State: Updating RGs
       Profile selection criteria: Static default
       Details: Offline
       Statistics information (PFE cleared and non-cleared): None collected
    Offline charging information:
       Current service data container sequence number: None
       Current partial record sequence number:         1
       Number of CDRs closed:                          0
       Number of containers closed:                    0
    Online charging information: Disabled
    Rating group information:
       Rating group: 0 Service id: 0 State: Ready
       RG Action ID: 0x4070002             Trigger profile: tr1
       Details: Offline RG
       Reporting Level: Service ID
       Statistics information (PFE cleared): None collected
```


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show unified-edge ggsn-pgw subscribers

```
user@host> show unified-edge ggsn-pgw subscribers extensive
regress@forever> show unified-edge ggsn-pgw subscribers extensive
```

extensive (GTP Version 2 Subscribers)

```
Gateway: PGW

Subscriber Information:
  UE:
    IMSI: 111222330000005              IMEI: None
    MSISDN: 444550000005               Time Zone: GMT     DST: None
    RAT Type: E-UTRAN
    User Location Information:
      MCC: 234     MNC: 567
      LAC: 0x0  CI: 0x0     SAC: 0x0  RAC: 0x0  TAC: 0x4321 ECI: 0x1234567
    User CSG Information:
      MCC: 214              MNC: 652
      CSGID: 0x1121314      Access Mode: Closed
  PDN Session:
    APN name: jnpr-gxgy
    IPv4 Address: 30.30.28.1           IPv6 Address: None
    GTP Version: 2                     Address Assignment: Local

    Local Control IP: 200.6.88.1       Remote Control IP: 70.70.70.1
    Local Control TEID: 0x26000004     Remote Control TEID: 0x5
    SGW CSID: 0           MME CSID: 0           PGW CSID: 15382
    Selection mode: MS or network provided APN, subscription verified

    Session PIC: 2 /0  (FPC/PIC)       PFE: 0 /0  (FPC/PIC)
    Service PIC: None/None (FPC/PIC)
    Session State: Established         Session Duration: 7:54
    Roaming Status: Visitor            Serving network: MCC: 123  MNC: 456
    Direct Tunnel: None
    HW Rule set Identifier: 1              Rule Map: 3
    APN AMBR: Downlink: 2000 kbps            Uplink: 2000 kbps
    PCRF Event Triggers: SGSN

    PCRF Origin Host: diameter1

    PCRF Origin Realm: hitachi.com

  Bearer:
    NSAPI/EBI: 5
    Local Data IP: 200.6.88.1          Remote Data IP: 70.70.70.1
    Local Data TEID: 0x3c161400        Remote Data TEID: 0x1005
    Bearer State: Established
    Idle Timeout: 0   min              AAA Interim Interval: 0   min
    QoS Parameters:
       QCI: 5           ARP: 1 /0 /0   (PL/PVI/PCI)
       Forwarding Class:  None              Loss Priority:  None
    Charging information:
       Charging ID: 0x26000004            Transport Profile Name: Gy
       Charging Characteristics: 0x8
       Profile ID: 2                      Charging Profile name: online-charging

       State: Ready                       Previous State: Updating RGs
       Profile selection criteria: Static default
       Details: Offline, Online
       Statistics information (PFE cleared and non-cleared): None collected
    Offline charging information:
       Current service data container sequence number: None
       Current partial record sequence number:         4
       Number of CDRs closed:                          3
       Number of containers closed:                    18
    Online charging information:
       Number of online rating groups: 1 Next CC request number: 19
```


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```
      CC Failure Handling: Retry-and-Terminate  Last CCR result code: 2001
   Rating group information:
      Rating group: 10 Service id: 10 State: Ready
      RG Action ID: 0x4060000            Trigger profile: gy-trigger
      Details: Offline RG, Online RG
      Reporting Level: Service ID
      Volume Quota: Total: 1000                          Threshold: 80%
      Last quota reporting reason: Quota exhausted
        Collection time: Thu Aug  9 13:41:01 2012
        Uplink packets: 41                Downlink packets : 40
        Uplink bytes: 4100                Downlink bytes : 4000
   PCC Rule Information:
   Rule Name: any_to_any
      Type: Dynamic        Associated Rule Base: None
      Precedence: 1        Status: Active
    QoS Attributes:
      QCI: 5            ARP: 1 /0 /0  (PL/PVI/PCI)
    Charging Attributes:
      Rating Group: 10       Service ID: 10      Gating Status: enable-both
      AF Charging Id: None     Charging Method: Online-Offline Metering Method:
None
    Filter Attributes:
      Remote IP/Mask: any/any            Protocol: 1     Direction: Both
      Local Ports:  any
      Remote Ports: any
      Send to UE: No

 Bearer:
   NSAPI/EBI: 6
   LBI: 5
   Local Data IP: 200.6.88.1          Remote Data IP: 70.70.70.1
   Local Data TEID: 0x3c161401        Remote Data TEID: 0x1006
   Bearer State: Established
   Idle Timeout: 0   min              AAA Interim Interval: 0   min
   QoS Parameters:
      QCI: 8           ARP: 1 /0 /0   (PL/PVI/PCI)
      Forwarding Class:  None               Loss Priority:  None
   Charging information:
      Charging ID: 0x26000005            Transport Profile Name: Gy
      Charging Characteristics: 0x8
      Profile ID: 2                      Charging Profile name: online-charging

      State: Ready                       Previous State: Updating RGs
      Profile selection criteria: Static default
      Details: Offline, Online
      Statistics information (PFE cleared and non-cleared): None collected
   Offline charging information:
      Current service data container sequence number: None
      Current partial record sequence number:         1
      Number of CDRs closed:                          0
      Number of containers closed:                    3
   Online charging information:
      Number of online rating groups: 1 Next CC request number: 4
      CC Failure Handling: Retry-and-Terminate  Last CCR result code: 2001
   Rating group information:
      Rating group: 20 Service id: 20 State: Ready
      RG Action ID: 0x4020001            Trigger profile: gy-trigger
      Details: Offline RG, Online RG
      Reporting Level: Service ID
      Volume Quota: Total: 1000                          Threshold: 80%
      Last quota reporting reason: Quota exhausted
```

```
        Collection time: Thu Aug  9 13:46:28 2012
        Uplink packets: 8                 Downlink packets : 8
        Uplink bytes: 800                 Downlink bytes : 800
   PCC Rule Information:
   Rule Name: rule1
      Type: Dynamic        Associated Rule Base: None
      Precedence: 1        Status: Active
    QoS Attributes:
      QCI: 8            ARP: 1 /0 /0  (PL/PVI/PCI)
    Charging Attributes:
      Rating Group: 20       Service ID: 20      Gating Status: enable-both
      AF Charging Id: None     Charging Method: Online-Offline Metering Method:
None
    Filter Attributes:
      Remote IP/Mask: 200.6.1.3/32       Protocol: 1     Direction: Both
      Local Ports:  any
      Remote Ports: any
      Send to UE: Yes
```


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show unified-edge ggsn-pgw subscribers charging

Syntax

show unified-edge ggsn-pgw subscribers charging gateway ***gateway***
<brief | detail | extensive>
<charging-profile ***charging-profile*****>**
<fpc-slot ***fpc-slot*****>**
<pic-slot ***pic-slot*****>**
<transport-profile ***transport-profile*****>**

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display the subscribers matching the specified charging profile or transport profile on the specified gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway ***gateway***—Display the subscriber information for the specified gateway name.

brief | detail | extensive —(Optional) Display the specified level of output.

charging-profile ***charging-profile***—(Optional) Display the subscribers matching the specified charging profile name.

NOTE: **You must specify either a charging profile or a transport profile to execute this command.**

fpc-slot ***fpc-slot***—(Optional) Display the subscriber information for the specified FPC slot number.

pic-slot ***pic-slot***—(Optional) Display the subscriber information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

transport-profile ***transport-profile***—(Optional) Display the subscribers matching the specified transport profile name.

NOTE: **You must specify either a charging profile or a transport profile to execute this command.**

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw subscribers charging on page 866
- show unified-edge ggsn-pgw subscribers on page 893

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List of Sample Output

show unified-edge ggsn-pgw subscribers charging gateway gw1 charging-profile cp1 brief on page 914
show unified-edge ggsn-pgw subscribers charging gateway gw1 charging-profile cp1 detail on page 914
show unified-edge ggsn-pgw subscribers charging gateway gw1 charging-profile cp1 extensive on page 915

Output Fields

Refer to the output fields for the show unified-edge ggsn-pgw subscribers command, which is the same as the output fields for the **show unified-edge ggsn-pgw subscribers charging** command.

Sample Output

show unified-edge ggsn-pgw subscribers charging gateway gw1 charging-profile cp1 brief

```
user@host> show unified-edge ggsn-pgw subscribers charging gateway gw1 charging-profile
cp1 brief
    IMSI            MSISDN          Subscriber         Peer           APN
                                     Address          Address
 111222330000003    444550000003  200.1.40.1        50.50.50.3     internet123
```

show unified-edge ggsn-pgw subscribers charging gateway gw1

```
user@host> show unified-edge ggsn-pgw subscribers charging gateway gw1 charging-profile
cp1 detail

Subscriber Information:
```


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charging-profile cp1 detail

```
  IMSI: 111222330000003            IMEI: None
  RAT Type: Unknown                Status: Visitor
PDN Session:
  APN name: internet123
  IPv4 Address: 200.1.40.1        IPv6 Address: None
  GTP Version: 1                  Session Duration: 6:01:12
  Local Control address: 200.1.88.1 Remote Control address: 50.50.50.3
  TEID Control Local: 0x10000801  TEID Control Remote: 0x3
  Session PIC: 5 /0  (FPC/PIC)    Anchor PFE: 0 /0  (FPC/PIC)
  Service PIC: 0 /0  (FPC/PIC)    Service PFE: 0 /0  (ifd/vpfe-id)
  Session State: Established
Bearer:
Bearer:
  NSAPI/EBI: 5           Charging ID: 0x10000401
  Local Data address: 200.1.88.1   Remote Data address: 50.50.50.3
  Local TEID: 0x14100800           Remote TEID: 0x2713
  Bearer State: Established        Substate: -
  Idle Timeout: 0   min(0 -0,0)    AAA Interim Interval: 0   min(0 -0,0)
  Negotiated QoS Parameters:
     Traffic Class:Interactive          ARP: 1
     Traffic Handling Priority:1        Transfer Delay: 0
     MBR Uplink: 2048             kbps  MBR Downlink: 2048      kbps
                                        Signaling Indicator: 0
     Forwarding Class:  None            Loss Priority:  None
  Requested QoS Parameters:
     Traffic Class: Interactive         ARP: 1
     Traffic Handling Priority: 1       Transfer Delay: 0
     MBR Uplink  : 2048           kbps  MBR Downlink: 2048      kbps
                                        Signaling Indicator: 0
  Charging information: Profile ID: 1   Profile name: cp1
     State: Ready                       Previous State: Ga
     Details: Offline bearer
  Rating group information:
     Rating group: 0 Service id: 0
     Details: Bearer trigger, Offline RG
```

show unified-edge ggsn-pgw subscribers charging gateway gw1

```
user@host> show unified-edge ggsn-pgw subscribers charging gateway gw1 charging-profile
cp1 extensive

Subscriber Information:
```

charging-profile cp1 extensive

```
    IMSI: 111222330000003            IMEI: None
    MSISDN: 444550000003             Time Zone: GMT     (DST): None
    RAT Type: Unknown                Status: Visitor
      MCC:  None  MNC:  None
      LAC: 0x0  CI: 0x0     SAC: 0x0  RAC: 0x0  TAC: 0x0  ECI: 0x0
  PDN Session:
    APN name: internet123
    IPv4 Address: 200.1.40.1        IPv6 Address: None
    GTP Version: 1                  Session Duration: 6:01:19
    Local Control address: 200.1.88.1 Remote Control address: 50.50.50.3
    TEID Control Local: 0x10000801  TEID Control Remote: 0x3
    Addressing scheme: Local        Selection mode: MS or network provided APN,
subscription verified
    Session PIC: 5 /0  (FPC/PIC)    Anchor PFE: 0 /0  (FPC/PIC)
    Service PIC: 0 /0  (FPC/PIC)    Service PFE: 0 /0  (ifd/vpfe-id)
    Session State: Established
    Direct Tunnel: Disabled          Serving network: MCC: 123  MNC :456
  Bearer:
  Bearer:
    NSAPI/EBI: 5           Charging ID: 0x10000401
    Local Data address: 200.1.88.1   Remote Data address: 50.50.50.3
    Local TEID: 0x14100800           Remote TEID: 0x2713
    Bearer State: Established        Substate: -
    Idle Timeout: 0   min(0 -0,0)    AAA Interim Interval: 0   min(0 -0,0)
    Negotiated QoS Parameters:
       Traffic Class:Interactive          ARP: 1
       Traffic Handling Priority:1        Transfer Delay: 0
       MBR Uplink: 2048             kbps  MBR Downlink: 2048      kbps
                                          Signaling Indicator: 0
       Forwarding Class:  None            Loss Priority:  None
    Requested QoS Parameters:
       Traffic Class: Interactive         ARP: 1
       Traffic Handling Priority: 1       Transfer Delay: 0
       MBR Uplink  : 2048           kbps  MBR Downlink: 2048      kbps
                                          Signaling Indicator: 0
    Charging information: Profile ID: 1   Profile name: cp1
       State: Ready                       Previous State: Ga
       Profile selection criteria: Static default
       Details: Offline bearer
    Offline charging information:
       Current service data container sequence number: 0
       Current partial record sequence number        : 0
       Number of CDRs closed                         : 0
       Number of containers closed                   : 0
    Rating group information:
       Rating group: 0 Service id: 0
       Action ID: 0x2000401               Trigger profile: 1
       Change condition bitmask: 0x0      Action-id-bitmask: 0x0
       Signal bitmask: 0x0                Last signal bitmask: 0x0
       Details: Bearer trigger, Offline RG
         Collection time: None collected
```


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show unified-edge ggsn-pgw subscribers policy

Syntax

show unified-edge ggsn-pgw subscribers policy gateway ***gateway***
<bearer-id ***bearer-id*****>**
<brief | detail | extensive>
imsi ***imsi***

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display all policy details on the specified Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway ***gateway***—Display the subscriber information for the specified gateway name.

bearer-id ***bearer-id***—(Optional) Display policy information for a specific bearer.

brief | detail | extensive —(Optional) Display the specified level of output.

imsi ***imsi***—Display the subscriber information for the specified mobile station ISDN (MSISDN) number.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw subscribers on page 893

List of Sample Output

show unified-edge ggsn-pgw subscribers policy imsi 111213213188964 on page 917
show unified-edge ggsn-pgw subscribers policy imsi detail on page 918

Output Fields

Refer to the output fields for the show unified-edge ggsn-pgw subscribers command, which are the same as the output fields for the **show unified-edge ggsn-pgw subscribers policy** command.

Sample Output

show unified-edge ggsn-pgw subscribers

```
user@host> show unified-edge ggsn-pgw subscribers policy imsi 111213213188964
 Bearer:
    NSAPI/EBI: 5                    Charging ID: 0xa000401
```

policy imsi 111213213188964

```
    Bearer State: Established        Bearer Type: 0
    PCC Rule Information:
    Rule Name: __default_wc_rule__
       Type: Static         Associated Rule Base: None
       Precedence: 65535    Status: Active
  Bearer:
    NSAPI/EBI: 6                     Charging ID: 0xa000800
    Bearer State: Established        Bearer Type: 0
    PCC Rule Information:
    Rule Name: "dynamic_rule_bronze"
       Type: Dynamic        Associated Rule Base: None
       Precedence: 100      Status: Active
```

show unified-edge ggsn-pgw subscribers policy imsi detail

```
user@host> show unified-edge ggsn-pgw subscribers policy imsi detail
Subscriber Information:
    IMSI: 111213213188964            IMEI: 1122334455667789
    MSISDN: 19267386                 RAT Type: E-UTRAN
    Status: Visitor                  MCC: 123      MNC: 234
  PDN Session:
    APN name: apn-dynamic
    IPv4 Address: 30.30.8.1          IPv6 Address: None
    GTP Version: 2                   Session State: Established
  Bearer:
    NSAPI/EBI: 5                     Charging ID: 0xa000401
    Bearer State: Established        Bearer Type: 0
    PCC Rule Information:
    Rule Name: __default_wc_rule__
       Type: Static         Associated Rule Base: None
       Precedence: 65535    Status: Active
     QoS Attributes:
       QCI: 5            ARP: 1 /0 /0  (PL/PVI/PCI)
       Uplink GBR (kbps): 0           Downlink GBR (kbps): 0
       Uplink MBR (kbps): 0           Downlink MBR (kbps): 0
     Charging Attributes:
       Rating Group  : 0       Service Id: 0              Gating Status: enable
-both
       AF Charging Id: None        Charging Method: Unspecified Metering Method:
 No
ne
     Filter Attributes:
       Remote IP/Mask: any/any            Protocol: any         Direction: Both

       Remote Port Range:    any/any      Local Port Range:    any/any

  Bearer:
    NSAPI/EBI: 6                     Charging ID: 0xa000800
    Bearer State: Established        Bearer Type: 0
    PCC Rule Information:
    Rule Name: "dynamic_rule_bronze"
       Type: Dynamic        Associated Rule Base: None
       Precedence: 100      Status: Active
     QoS Attributes:
       QCI: 6            ARP: 1 /0 /0  (PL/PVI/PCI)
       Uplink GBR (kbps): 0           Downlink GBR (kbps): 0
       Uplink MBR (kbps): 0           Downlink MBR (kbps): 0
     Charging Attributes:
       Rating Group  : 1        Service Id: 10             Gating Status: enable
-downlink
       AF Charging Id: None        Charging Method: Unspecified Metering Method:
 No
ne
```


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```
     Filter Attributes:
       Remote IP/Mask: 99.88.77.1/32      Protocol: 1           Direction: Downl
ink
       Remote Port Range:    any/any      Local Port Range:    any/any
```

show unified-edge sgw service-mode

Syntax

show unified-edge sgw service-mode
<brief | detail>
<gateway *gateway-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the service mode information for one or more Serving Gateways (S-GWs). If a gateway is not specified, then information for all S-GWs is displayed.

Options

none—(Same as brief) Display the service mode information in brief.

brief | detail—(Optional) Display the specified level of output.

gateway *gateway-name*—(Optional) Display the service mode information for the specified gateway.

Required Privilege Level

view

Related Documentation

- service-mode (Serving Gateway) on page 410

List of Sample Output

show unified-edge sgw service-mode brief on page 921
show unified-edge sgw service-mode detail on page 921

Output Fields

Table 64 on page 920 lists the output fields for the **show unified-edge sgw service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 64: show unified-edge sgw service-mode Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
Service Mode	Service mode for the gateway: • Operational—Gateway is in operational mode. • Maintenance—Gateway is in maintenance mode.	All levels

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Sample Output

show unified-edge sgw service-mode brief

```
user@host> show unified-edge sgw service-mode brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
                      attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                      non-maintenance mode attributes of this object and
                      its sub-hierarchies.

Gateway Name                    Service Mode

SGW                             Operational
SGW2                            Operational
```

show unified-edge sgw service-mode detail

```
user@host> show unified-edge sgw service-mode detail
Service Mode Status
Gateway Name    : SGW
Service Mode    : Operational
Service Mode Status
Gateway Name    : SGW2
Service Mode    : Operational
```

show unified-edge sgw statistics

Syntax

show unified-edge sgw statistics
<gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the statistics for one or more Serving Gateways (S-GWs). If a gateway name is not specified, then statistics for all S-GWs are displayed.

Options

none—Display statistics for all S-GWs.

gateway *gateway*—(Optional) Display statistics for the specified gateway.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw statistics on page 868

List of Sample Output

show unified-edge sgw statistics on page 924

Output Fields

Table 65 on page 922 lists the output fields for the **show unified-edge sgw statistics** command. Output fields are listed in the approximate order in which they appear.

Table 65: show unified-edge sgw statistics Output Fields

Field Name	Field Description
Gateway	Name of the S-GW.
Control Plane Statistics	
Session establishment attempts	Number of attempted session establishments.
Successful session establishments	Number of session successfully established.
Dedicated bearer creation attempts	Number of times the creation of dedicated bearers was attempted.
Successful dedicated bearer creations	Number of dedicated bearers successfully created.
Session deactivation attempts	Number of attempted session deactivations.
Successful session deactivations	Number of sessions successfully deactivated.
Dedicated bearer deactivation attempts	Number of times the deactivation of dedicated bearers was attempted.
Successful dedicated bearer deactivations	Number of dedicated bearers successfully deactivated.
Inter-RAT handover attempts	Number of Inter-RAT handovers attempted.
Inter-RAT handover successful	Number of successful Inter-RAT handovers.

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Table 65: show unified-edge sgw statistics Output Fields *(continued)*

Field Name	Field Description
X2 based handover attempts	Number of X2-based handovers attempted.
X2 based handover successful	Number of successful X2-based handovers.
S1 based handover attempts	Number of S1-based handovers attempted.
S1 based handover successful	Number of successful S1-based handovers.
Idle mode TAU/RAU attempts	Number of Tracking Area Updates (TAU) or Routing Area Updates (RAUs) attempted when the user equipment was in idle mode.
Idle mode TAU/RAU successful	Number of successful TAUs or RAUs when the user equipment was in idle mode.
Service request procedure attempts	Number of service request procedures attempted.
Service request procedure successful	Number of successful service request procedures.
Data Plane GTP Statistics (S5/S8)	
Input packets	Number of incoming GTP data packets on the S5, and S8 interfaces.
Input bytes	Number of octets of incoming GTP payloads on the S5, and S8 interfaces.
Output packets	Number of outgoing GTP data packets on the S5, and S8 interfaces.
Output bytes	Number of octets of outgoing GTP payloads on the S5, and S8 interfaces.
Data plane GTP statistics (S4/S12/S1-U)	
Input packets	Number of incoming GTP data packets on the S1-U, S12, and S4 interfaces.
Input bytes	Number of octets of incoming GTP data packets on the S1-U, S12, and S4 interfaces.
Output packets	Number of outgoing GTP data packets on the S1-U, S12, and S4 interfaces.
Output bytes	Number of octets of outgoing GTP data packets on the S1-U, S12, and S4 interfaces.

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Sample Output

show unified-edge sgw statistics

```
user@host> show unified-edge sgw statistics
Gateway: SGW
Control plane statistics:
    Session establishment attempts:                              2438203
    Successful session establishments:                           2069870
    Dedicated bearer creation attempts:                          0
    Successful dedicated bearer creations:                       0
    Session deactivation attempts:                               0
    Successful session deactivations:                            0
    Dedicated bearer deactivation attempts:                      0
    Successful dedicated bearer deactivations:                   0
    Inter-RAT handover attempts:                                 0
    Inter-RAT handover successful:                               0
    X2 based handover attempts:                                  197863
    X2 based handover successful:                                197863
    S1 based handover attempts:                                  0
    S1 based handover successful:                                0
    Idle mode TAU/RAU attempts:                                  0
    Idle mode TAU/RAU successful:                                0
    Service request procedure attempts:                          0
    Service request procedure successful:                        0
Data plane GTP statistics (S5/S8):
    Input     packets:          292994029
    Input     bytes:            37503235712
    Output    packets:          298519448
    Output    bytes:            38210489344
Data plane GTP statistics (S4/S12/S1-U):
    Input     packets:          298519448
    Input     bytes:            38210489344
    Output    packets:          292994029
    Output    bytes:            37503235712
```


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show unified-edge sgw status

Syntax

show unified-edge sgw status
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<gtpv2-priority-level *gtpv2-priority-level*>
<pic-slot *pic-slot*>
<qci *qci*>
<rat-type>
<roaming-status>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the status information, such as the number of subscribers, active sessions, and so on, for one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the status information for all the S-GWs is displayed.

Options

none—(Same as brief) Display the gateway status information in brief.

brief | detail —(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the status information for the specified FPC slot number.

gateway *gateway*—(Optional) Display the status information for the specified gateway name.

gtpv2-priority-level *gtpv2-priority-level*—(Optional) Display the status information for the GTPv2 priority specified. You can specify a priority of 1 through 15.

pic-slot *pic-slot*—(Optional) Display the status information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

qci *qci*—(Optional) Display the status information for the specified QoS Class Identifier (QCI).

rat-type—(Optional) Display the status information classified based on the Radio Access Technology (RAT).

roaming-status—(Optional) Display the subscriber sessions based on the roaming status (home, roamer, or visitor).

Required Privilege Level

view

Related Documentation

- show unified-edge sgw status gtp-peer on page 931
- show unified-edge sgw status preemption-list on page 1081
- show unified-edge sgw status session-state on page 933

List of Sample Output

show unified-edge sgw status brief on page 928
show unified-edge sgw status detail on page 928
show unified-edge sgw status rat-type detail on page 929
show unified-edge sgw status roaming-status detail on page 930

Output Fields

Table 66 on page 926 lists the output fields for the **show unified-edge sgw status** command. Output fields are listed in the approximate order in which they appear.

Table 66: show unified-edge sgw status Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
FPC SLOT	FPC slot number of the interface for which the status information is displayed.	**detail**
PIC SLOT	PIC slot number of the FPC for which the status information is displayed.	**detail**
Role	Role of the Packet Forwarding Engine, services PIC, or session PIC on the S-GW: • **Standalone** • **Primary**—Primary member. • **Secondary**—Secondary member.	**detail**
Type	Indicates whether the PIC is a Packet Forwarding Engine, a session PIC or a services PIC.	**detail**
Active Subscribers	Number of active subscribers on the gateway.	All levels
Active Sessions	Number of active sessions on the gateway.	All levels
Active Bearers	Number of bearers in Active state.	All levels
Idle Subscribers	Number of idle subscribers on the gateway.	All levels
Idle Sessions	Number of idle sessions on the gateway.	All levels
Idle Bearers	Number of idle bearers on the gateway.	All levels
Suspended Subscribers	Number of suspended subscribers on the gateway.	All levels
Suspended Sessions	Number of suspended sessions on the gateway.	All levels
Suspended Bearers	Number of suspended bearers on the gateway.	All levels
Indirect Tunnels	Number of indirect tunnels created during handover procedures.	All levels
Direct Tunnels	Number of direct tunnels created to the Radio Network Controller (RNC).	All levels

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Table 66: show unified-edge sgw status Output Fields *(continued)*

Field Name	Field Description	Level of Output
CPU Load (%)	Percentage of the CPU load.	All levels
Memory Load (%)	Percentage of the memory load.	All levels
Home	Number of active sessions belonging to home subscribers.	**roaming-status**
Roamer	Number of active sessions belonging to roaming subscribers.	**roaming-status**
Visitor	Number of active sessions belonging to visiting subscribers.	**roaming-status**

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Sample Output

show unified-edge sgw status brief

```
user@host> show unified-edge sgw status brief
Gateway: SGW
    Active Subscribers                  :               1
    Active Sessions                     :               1
    Active Bearers                      :               1
    Idle Subscribers                    :               0
    Idle Sessions                       :               0
    Suspended Subscribers               :               0
    Suspended Sessions                  :               0
    Indirect Tunnels                    :               0
    Direct Tunnels                      :               0
    Idle Bearers                        :               0
    Suspended Bearers                   :               0
    CPU Load (%)                        :               0
    Memory Load (%)                     :               40
```

show unified-edge sgw status detail

```
user@host> show unified-edge sgw status detail
Gateway: SGW

    FPC SLOT: 1   PIC SLOT: 0
    Role                                :             Primary
    Type                                :             Session-PIC
    Active Subscribers                  :             5
    Active Sessions                     :             5
    Active Bearers                      :             5
    Idle Subscribers                    :             0
    Idle Sessions                       :             0
    Suspended Subscribers               :             0
    Suspended Sessions                  :             0
    Indirect Tunnels                    :             0
    Direct Tunnels                      :             0
    Idle Bearers                        :             0
    Suspended Bearers                   :             0
    CPU Load (%)                        :             0
    Memory Load (%)                     :             28

    FPC SLOT: 1   PIC SLOT: 1
    Role                                :             Secondary
    Type                                :             Session-PIC
    Active Subscribers                  :             5
    Active Sessions                     :             5
    Active Bearers                      :             5
    Idle Subscribers                    :             0
    Idle Sessions                       :             0
    Suspended Subscribers               :             0
    Suspended Sessions                  :             0
    Indirect Tunnels                    :             0
    Direct Tunnels                      :             0
    Idle Bearers                        :             0
    Suspended Bearers                   :             0
    CPU Load (%)                        :             0
    Memory Load (%)                     :             28

    FPC SLOT: 0   PIC SLOT: 2
    Role                                :             Standalone
    Type                                :             PFE
```


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```
    Active Sessions                     :             5
    Active Bearers                      :             5
    CPU Load (%)                        :             0
    Memory Load (%)                     :             0
```

show unified-edge sgw status rat-type detail

```
user@host> show unified-edge sgw status rat-type detail
Gateway: SGW

    RAT type list:
    FPC SLOT: 4    PIC SLOT: 0
    OTHER    Active    Subscribers      :             0
             Active    Sessions         :             0
             Active    Bearers          :             0
             Idle      Subscribers      :             0
             Idle      Sessions         :             0
             Idle      Bearers          :             0
             Suspended Subscribers      :             0
             Suspended Sessions         :             0
             Suspended Bearers          :             0
    UTRAN    Active    Subscribers      :             0
             Active    Sessions         :             0
             Active    Bearers          :             0
             Idle      Subscribers      :             0
             Idle      Sessions         :             0
             Idle      Bearers          :             0
             Suspended Subscribers      :             0
             Suspended Sessions         :             0
             Suspended Bearers          :             0
    GERAN    Active    Subscribers      :             0
             Active    Sessions         :             0
             Active    Bearers          :             0
             Idle      Subscribers      :             0
             Idle      Sessions         :             0
             Idle      Bearers          :             0
             Suspended Subscribers      :             0
             Suspended Sessions         :             0
             Suspended Bearers          :             0
    WLAN     Active    Subscribers      :             0
             Active    Sessions         :             0
             Active    Bearers          :             0
             Idle      Subscribers      :             0
             Idle      Sessions         :             0
             Idle      Bearers          :             0
             Suspended Subscribers      :             0
             Suspended Sessions         :             0
             Suspended Bearers          :             0
    GAN      Active    Subscribers      :             0
             Active    Sessions         :             0
             Active    Bearers          :             0
             Idle      Subscribers      :             0
             Idle      Sessions         :             0
             Idle      Bearers          :             0
             Suspended Subscribers      :             0
             Suspended Sessions         :             0
             Suspended Bearers          :             0
    HSPA     Active    Subscribers      :             0
             Active    Sessions         :             0
             Active    Bearers          :             0
             Idle      Subscribers      :             0
             Idle      Sessions         :             0
```

```
                Idle      Bearers          :            0
                Suspended Subscribers      :            0
                Suspended Sessions         :            0
                Suspended Bearers          :            0
        EUTRAN  Active    Subscribers      :            1
                Active    Sessions         :            1
                Active    Bearers          :            1
                Idle      Subscribers      :            0
                Idle      Sessions         :            0
                Idle      Bearers          :            0
                Suspended Subscribers      :            0
                Suspended Sessions         :            0
                Suspended Bearers          :            0
```

show unified-edge sgw status roaming-status detail

```
user@host> show unified-edge sgw status roaming-status detail
Gateway: SGW

    FPC SLOT: 4   PIC SLOT: 0
    Role                                :            Standalone
    Type                                :            Session-PIC
    Home                                :            0
    Roamer                              :            0
    Visitor                             :            1
```


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show unified-edge sgw status gtp-peer

Syntax

show unified-edge sgw status gtp-peer remote-address ***remote-address***
<**fpc-slot** ***fpc-slot***>
<**gateway** ***gateway***>
<**local-address** ***local-address***>
<**pic-slot** ***pic-slot***>
<**routing-instance** ***name***>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Displays the count of the bearer distribution across multiple Packet Forwarding Engines for the specified GTP peer on one or more Serving Gateways (S-GWs). If an S-GW is not specified, then information for all S-GWs is displayed.

Options

remote-address ***remote-address***—Display the information for the GTP peer with the specified remote address.

fpc-slot ***fpc-slot***—(Optional) Display the information for the specified FPC slot number pertaining to the session PIC.

gateway ***gateway***—(Optional) Display the information for the specified S-GW.

local-address ***local-address***—(Optional) Display the information for the local address of the specified peer on the gateway.

pic-slot ***pic-slot***—(Optional) Display the information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

routing-instance ***routing-instance***—(Optional) Display the information for the peer on the specified routing instance ID.

Required Privilege Level

unified-edge, view

Related Documentation

- show unified-edge sgw status on page 925

List of Sample Output

show unified-edge sgw status gtp-peer remote-address 2.2.2.1 on page 932

Output Fields

Table 67 on page 931 lists the output fields for the **show unified-edge sgw status gtp-peer** command. Output fields are listed in the approximate order in which they appear.

Table 67: show unified-edge sgw status gtp-peer Output Fields

Field Name	Field Description
Gateway	Name of the S-GW.
FPC-slot/PIC-slot	FPC and PIC slot numbers of the aggregated Packet Forwarding Engine interface for which the information is displayed.

Table 67: show unified-edge sgw status gtp-peer Output Fields *(continued)*

Field Name	Field Description
Number of bearers	Number of bearers on the corresponding FCP and PIC slot.

Sample Output

show unified-edge sgw status gtp-peer remote-address 2.2.2.1

```
user@host> show unified-edge sgw status gtp-peer remote-address 2.2.2.1
Gateway: S`GW
    FPC-slot/PIC-slot            Number of bearers
    ---------------------------------------------
           0/0                        1
           0/1                        0
```


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show unified-edge sgw status session-state

Syntax

show unified-edge sgw status session-state
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the session state information of subscribers anchored on one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the session state information for all the S-GWs is displayed.

Options

none—(Same as brief) Display the session state information in brief.

brief | detail —(Optional) Display the specified level of output.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the session state information for the PIC in the specified FPC and PIC slot numbers.

gateway *gateway*—(Optional) Display the session state information for the specified gateway name.

Required Privilege Level

view

Related Documentation

- show unified-edge sgw status on page 925

List of Sample Output

show unified-edge sgw status session-state brief on page 935
show unified-edge sgw status session-state detail on page 935

Output Fields

Table 68 on page 933 lists the output fields for the **show unified-edge sgw status session-state** command. Output fields are listed in the approximate order in which they appear.

Table 68: show unified-edge sgw status session-state Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels none
FPC Slot	FPC slot number of the interface for which the session state information is displayed.	**detail**
PIC Slot	PIC slot number of the FPC for which the session state information is displayed.	**detail**

Table 68: show unified-edge sgw status session-state Output Fields *(continued)*

Field Name	Field Description	Level of Output
Initial	Number of sessions being initialized.	All levels none
Default bearer setup wait	Number of sessions waiting for the default bearer to be set up.	All levels none
Sync wait	Number of sessions waiting for the synchronization to the backup services PIC.	All levels none
Established	Number of sessions established.	All levels none
Cleaning up	Number of sessions being cleaned up.	All levels none
Idle mode	Number of sessions in idle mode.	All levels none
Suspended	Number of suspended sessions.	All levels none
PFE wait	Number of sessions waiting for a response from the Packet Forwarding Engine.	All levels none
PGW wait	Number of sessions waiting for a response from the Packet Data Network Gateway (P-GW) during handovers.	All levels none
MME wait	Number of sessions waiting for a request from the Mobility Management Entity (MME) during handovers.	All levels none

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Sample Output

show unified-edge sgw status session-state brief

```
user@host> show unified-edge sgw status session-state brief
Gateway: SGW
    Initial                     :               0
    Default bearer setup wait   :               0
    Sync wait                   :               0
    Established                 :               1
    Cleaning up                 :               0
    Idle mode                   :               0
    Suspended                   :               0
    PFE wait                    :               0
    PGW wait                    :               0
    MME wait                    :               0
```

show unified-edge sgw status session-state detail

```
user@host> show unified-edge sgw session-state detail
Gateway: SGW
    Mobile gateway status of fpc slot: 5  pic slot: 0
    Initial                     :               0
    Default bearer setup wait   :               0
    Sync wait                   :               0
    Established                 :               1
    Cleaning up                 :               0
    Idle mode                   :               0
    Suspended                   :               0
    PFE wait                    :               0
    PGW wait                    :               0
    MME wait                    :               0

    Mobile gateway status of fpc slot: 5  pic slot: 1
    Initial                     :               0
    Default bearer setup wait   :               0
    Sync wait                   :               0
    Established                 :               1
    Cleaning up                 :               0
    Idle mode                   :               0
    Suspended                   :               0
    PFE wait                    :               0
    PGW wait                    :               0
    MME wait                    :               0
```

show unified-edge sgw subscribers

Syntax

show unified-edge sgw subscribers
<brief | extensive>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<gtpv2-priority-level *gtpv2-priority-level*>
<imsi *imsi*>
<msisdn *msisdn*>
<multiple-bearers (*number-of-bearers* | any)>
<multiple-sessions (*number-of-sessions* | any)>
<pdn-type (ipv4 | ipv4-v6 | ipv6)>
<peer *peer*>
<pic-slot *pic-slot*>
<qci *qci*>
<rat-type (eutran | gan | geran | hspa | others | utran | wlan)>
<roaming-status (home | roamer | visitor)>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.
Support for the **multiple-bearers** and **multiple-sessions** attributes, and user closed subscriber group (CSG) output introduced in Junos OS Mobility Release 12.1W.

Description

Display the subscriber information for one or more Serving Gateways (S-GWs). If a gateway name is not specified, then the subscriber information for all the S-GWs is displayed.

Options

none—(Same as brief) Display the subscriber information in brief.

brief | extensive —(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the subscriber information for the specified FPC slot number.

gateway *gateway*—(Optional) Display the subscriber information for the specified gateway.

gtpv2-priority-level *gtpv2-priority-level*—(Optional) Display the subscriber information for the GTPv2 priority specified. You can specify a priority of 1 through 15.

imsi *imsi*—(Optional) Display the subscriber information for the specified International Mobile Subscriber Identity (IMSI).

msisdn *msisdn*—(Optional) Display the subscriber information for the specified mobile station ISDN (MSISDN) number.

multiple-bearers (*number-of-bearers* | any)—(Optional) Display the subscriber information for subscribers with the specified number of bearers. You can specify one of the following:

- ***multiple-bearers***—Display information for subscribers with the specified number of bearers. You can specify a number from 1 through 11.
- **any**—Display information for subscribers with more than one bearer.

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multiple-sessions (*number-of-sessions* | any)—(Optional) Display the subscriber information for subscribers with the specified number of sessions. You can specify one of the following:

- ***multiple-sessions***—Display information for subscribers with the specified number of sessions. You can specify a number from 1 through 11.
- **any**—Display information for subscribers with more than one session.

pdn-type (ipv4 | ipv4-v6 | ipv6)—(Optional) Display the subscriber information for the specified Packet Data Network (PDN) type or session type. You can specify the following PDN or session types:

- **ipv4**—Subscribers with only IPv4 sessions.
- **ipv4-v6**—Subscribers with both IPv4 and IPv6 sessions.
- **ipv6**—Subscribers with only IPv6 sessions.

peer *peer*—(Optional) Display the subscriber information for the specified peer IP address.

pic-slot *pic-slot*—(Optional) Display the subscriber information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

qci *qci*—(Optional) Display the subscriber information for the specified QoS Class Identifier (QCI).

rat-type (eutran | gan | geran | hspa | others | utran | wlan)—(Optional) Display the subscriber information for the specified Radio Access Technology (RAT).

roaming-status (home | roamer | visitor)—(Optional) Display the subscriber information for the specified roaming status.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw subscribers on page 869
- show unified-edge sgw subscribers charging on page 945

List of Sample Output

show unified-edge sgw subscribers brief on page 943
show unified-edge sgw subscribers extensive on page 943

Output Fields

Table 69 on page 937 lists the output fields for the **show unified-edge sgw subscribers** command. Output fields are listed in the approximate order in which they appear.

Table 69: show unified-edge sgw subscribers Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
IMSI	IMSI of the subscriber's user equipment.	**brief**

Table 69: show unified-edge sgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
MSISDN	MSISDN number of the subscriber's user equipment.	**brief**
ACS Peer Ctrl Address	Control plane IP address of the access peer.	**brief**
S5 Peer Ctrl Address	Control plane IP address of the peer on the S5 interface.	**brief**
APN	Access point name (APN) to which the subscriber is attached.	**brief**
Subscriber Information:		
UE:		
IMSI	IMSI of the subscriber's user equipment.	**extensive**
IMEI	International Mobile Station Equipment Identity (IMEI) of the subscriber's user equipment.	**extensive**
MSISDN	MSISDN number of the subscriber's user equipment.	**extensive**
Time Zone	Time zone to which the subscriber's Mobile Station (MS) or user equipment belongs.	**extensive**
DST	Daylight saving time applicable within the time zone.	**extensive**
RAT Type	Type of Radio Access Technology (RAT) used.	**extensive**
User Location Information:		
MCC	Mobile country code (MCC) of the subscriber.	**extensive**
MNC	Mobile network code (MNC) of the subscriber.	**extensive**
LAC	Location area code (LAC) of the subscriber.	**extensive**
CI	Cell Identity (CI) of the subscriber.	**extensive**
SAC	Service area code (SAC) of the subscriber.	**extensive**
RAC	Routing area code (RAC) of the subscriber.	**extensive**
TAC	Tracking area code (TAC) of the subscriber.	**extensive**
ECI	E-UTRAN Cell identifier (ECI) of the subscriber.	**extensive**
SGW Control IP	Control plane IP address of the S-GW on the S11 or S4 interfaces.	

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Table 69: show unified-edge sgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
SGW Control TEID	Control plane Tunnel Endpoint Identifier (TEID) of the S-GW on the S11 or S4 interfaces.	**extensive**
MME Control IP	Control plane IP address of the Mobility Management Entity (MME) on the S11 interface.	**extensive**
MME Control TEID	Control plane TEID of the MME on the S11 interface.	**extensive**
ISR	Idle mode signaling reduction (enabled or disabled). If this is enabled, then both the MME and SGSN information is displayed in the command output. If it is disabled, then the either the MME or SGSN information is displayed.	**extensive**
Active Peer	Indicates whether the MME or the SGSN is actively sending control messages to S-GW.	**extensive**
UE State	State of the user equipment: idle, active, or suspended.	**extensive**
User CSG Information		
MCC	MCC of the user CSG public land mobile network (PLMN).	**extensive**
MNC	MNC of the user CSG public land mobile network (PLMN).	**extensive**
CSGID	Hexadecimal identifier of the user CSG.	**extensive**
Access Mode	Access mode for the user CSG. The following access modes are supported: • **Closed**—User access is through the CSG cell. • **Hybrid-Member**—User access is through the Hybrid cell and that the user is a member of the CSG. • **Hybrid-Non-Member**—User access is through the Hybrid cell and that the user is not a member of the CSG. • **Reserved**—Unknown access mode.	**extensive**
PDN Session:		
APN name	Access point name for the Packet Data Network (PDN) session.	**extensive**
IPv4 Address	IPV4 address of the subscriber.	**extensive**
IPv6 Address	IPV6 address of the subscriber.	**extensive**
SGW S5 C IP	IP address of the S5 GTP-C tunnel on the S-GW side to which the PDN Gateway (P-GW) will send control messages for the subscriber.	**extensive**
PGW S5 C IP	IP address of the S5 GTP-C tunnel on the P-GW side to which the S-GW will send control messages for the subscriber.	**extensive**

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Table 69: show unified-edge sgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
SGW S5 C TEID	TEID of the S5 GTP-C tunnel on the S-GW side. The P-GW sends this TEID in the GTP header in all control messages to the S-GW.	**extensive**
PGW S5 C TEID	TEID of the S5 GTP-C tunnel on the P-GW side. The S-GW sends this TEID in the GTP header in all control messages to the P-GW.	**extensive**
PGW CSID	Connection Set Identifier (CSID) allocated by the P-GW.	**extensive**
MME CSID	CSID allocated by the Mobile Management Entity (MME).	**extensive**
SGW CSID	CSID allocated by the GTP peer (S-GW).	**extensive**
Selection mode	APN selection mode provided by the SGSN or S-GW in the Create Request message.	**extensive**
Session PIC	FPC and PIC slots for the session PIC on which the subscriber control session is present.	**extensive**
PFE	FPC and PIC slots for the Packet Forwarding Engine for the PDP session.	**extensive**
Session State	State of the subscriber session on the signaling plane.	**extensive**
Session Duration	Duration of the PDP session.	**detail** **extensive**
Roaming Status	Roaming status of the subscriber; that is, whether the subscriber is a visitor, home subscriber, or a roamer.	**detail** **extensive**
Serving Network	The following information about the network that is serving the subscriber (that the subscriber is attached to) is displayed: • **MCC**—Mobile country code of the network. • **MNC**—Mobile network code of the network.	**extensive**
Direct Tunnel	Status of the GTPv1 direct tunnel: enabled or disabled.	**extensive**
Bearer		
NSAPI/EBI	Network Service Access Point Identifier (NSAPI) or the Evolved Packet System Bearer ID (EBI) for the session.	**extensive**
SGW Access Data IP	Data plane IP address of the S-GW on the S1u, S4, or S12 interface.	
eNodeB/RNC Data IP	Remote data plane IP address of the peer on the S1u, S4, or S12 interface.	**extensive**

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Table 69: show unified-edge sgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output
SGW Access Data TEID	Data plane TEID of the S-GW on the S1u, S4, or S12 interface.	**extensive**
eNodeB/RNC Data TEID	Remote data plane TEID of the peer on the S1u, S4, or S12 interface.	**extensive**
SGW S5/S8 Data IP	IP address of the S-GW to which the P-GW sends the data packets for the bearer.	**extensive**
PGW Data IP	IP address of the P-GW to which the S-GW sends the data packets for the bearer.	**extensive**
SGW S5/S8 Data TEID	Data TEID allocated by the S-GW that identifies the data tunneling endpoint for all data packets coming in from the data peer. This is sent in the GTP header for all the data packets sent from the S-GW to the P-GW.	**extensive**
PGW Data TEID	Data TEID allocated by the P-GW that identifies the data tunneling endpoint for all data packets coming in from the data peer. This is sent in the GTP header for all the data packets sent from the P-GW to the S-GW.	**extensive**
Bearer State	Represents the state of the subscriber in the forwarding or data plane. This parameter is used internally by the P-GW.	**extensive**
Idle Timeout	Idle timeout for the session, in minutes.	**extensive**

QoS Parameters	The following parameters for the user equipment related to quality of service (QoS) are displayed:
	• **QCI**—QoS Class Identifier.
	• **ARP: (PL/PVI/PCI)**—The following parameters related to ARP are displayed:
	  • Priority level (PL)
	  • Preemption Vulnerability Indicator (PVI)
	  • Preemption Capability Indicator (PCI)
	• **Fwd Class**—Forwarding class
	• **Loss Priority**—Packet loss priority
		extensive

Table 69: show unified-edge sgw subscribers Output Fields *(continued)*

Field Name	Field Description	Level of Output

Charging information	The following information related to charging is displayed:
	• **Charging ID**—Charging ID for the session. The charging ID is the unique bearer identity sent in accounting messages and in Charging Data Records (CDRs).
	• **Transport Profile Name**—Name of the transport profile associated with the bearer.
	• **Profile ID**—ID of the charging profile associated with the bearer.
	• **Charging Profile Name**—Name of the charging profile associated with the bearer.
	• **State**—(extensive only) Current charging state for the bearer.
	• **Previous State**—(extensive only) Previous charging state for the bearer.
	• **Profile selection criteria**—(extensive only) Selection source (home, visitor, roamer, and default) for the charging profile for the bearer.
	The following information about the last statistics collected is displayed if statistics were collected; if not, an indication that no statistics were collected is displayed:
	• **Offline charging information**—(extensive only) The following details of offline charging information are displayed if offline charging is enabled; if not, an indication that offline charging is disabled is displayed:
	  • **Current service data container sequence number**—Sequence number of the current local service data container.
	  • **Current partial record sequence number**—Sequence number of the current partial record CDR.
	  • **Number of CDRs closed**—Number of closed CDRs generated.
	  • **Number of containers closed**—Number of containers closed.
		extensive

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Sample Output

show unified-edge sgw subscribers brief

```
user@host> show unified-edge sgw subscribers brief
Gateway: SGW
            IMSI          MSISDN      ACS PEER CTRL    S5 PEER CTRL          APN

                                            Address         Address
111111111123457      1111111112          200.7.1.2       200.7.0.2
jnpr-bangalore_scale
```

show unified-edge sgw subscribers extensive

```
user@host> show unified-edge sgw subscribers extensive
Gateway: SGW

Subscriber Information:
  UE:
    IMSI: 111222330000008              IMEI: None
    MSISDN: 444550000008               Time Zone: GMT     DST: None
    RAT Type: E-UTRAN
    User Location Info:
      MCC: 234     MNC: 567
      LAC: 0x0  CI: 0x0     SAC: 0x0  RAC: 0x0  TAC: 0x4321 ECI: 0x1234567
    SGW Control IP: 200.6.88.2         SGW Control TEID: 0xf000000
    MME Control IP: 50.50.50.1         MME Control TEID: 0x8
    ISR: Disabled                      Active Peer: MME
    UE State: Active
    User CSG Information:
      MCC: 214              MNC: 652
      CSGID: 0x1121314      Access Mode: Closed
  PDN Session:
    APN name: plain-apn.mnc456.mcc123.gprs
    IPv4 Address: 30.30.8.1            IPv6 Address: None
    SGW S5 C IP: 200.6.88.2            PGW S5 C IP: 200.6.88.1
    SGW S5 C TEID: 0xf000c00           PGW S5 C TEID: 0x17003801
    PGW CSID: 5143        MME CSID: 0          SGW CSID: 55
    Selection mode: MS or network provided APN, subscription verified

    Session PIC: 1 /0  (FPC/PIC)       PFE: 3 /0  (FPC/PIC)
    Session State: Established         Session Duration: 22
    Roaming Status: Visitor            Serving network: MCC: 123  MNC: 456
    Direct Tunnel: Disabled
  Bearer:
    NSAPI/EBI: 5
    SGW Access Data IP: 200.6.88.2     eNodeB/RNC Data IP: 50.50.50.1
    SGW Access Data TEID: 0x272800     eNodeB/RNC Data TEID: 0x1008
    SGW S5/S8 Data IP: 200.6.88.2      PGW Data IP: 200.6.88.1
    SGW S5/S8 Data TEID: 0x372800      PGW Data TEID: 0x14171800
    Bearer State: Established
    Idle Timeout: 0
    QoS Parameters :
       QCI: 9                          ARP: 1 /0 /0   (PL/PVI/PCI)
       Fwd Class   : None              Loss Priority : None
    Charging information:
       Charging ID: 0x17001c01            Transport Profile Name: tp1
       Charging Characteristics: 0x8
       Profile ID: 1                      Charging Profile name: cp1
       State: Ready                       Previous State: Updating RGs
       Profile selection criteria: Visiting default
       Details: Offline
```

```
   Statistics information (PFE cleared and non-cleared): None collected
Offline charging information:
   Current service data container sequence number: None
   Current partial record sequence number:         2
   Number of CDRs closed:                          1
   Number of containers closed:                    1
```


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show unified-edge sgw subscribers charging

Syntax

show unified-edge sgw subscribers charging gateway *gateway*
<brief | detail | extensive>
<charging-profile *charging-profile*>
<fpc-slot *fpc-slot*>
<pic-slot *pic-slot*>
<transport-profile *transport-profile*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the subscribers matching the specified charging profile or transport profile on the specified Serving Gateway (S-GW).

Options

gateway *gateway*—Display the subscriber information for the specified gateway name.

brief | detail | extensive —(Optional) Display the specified level of output.

charging-profile *charging-profile*—(Optional) Display the subscribers matching the specified charging profile name.

NOTE: **You must specify either a charging profile or a transport profile to execute this command.**

fpc-slot *fpc-slot*—(Optional) Display the subscriber information for the specified FPC slot number.

pic-slot *pic-slot*—(Optional) Display the subscriber information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

transport-profile *transport-profile*—(Optional) Display the subscribers matching the specified transport profile name.

NOTE: **You must specify either a charging profile or a transport profile to execute this command.**

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw subscribers charging on page 871
- show unified-edge sgw subscribers on page 936

List of Sample Output

show unified-edge sgw subscribers charging gateway SGW charging-profile cp1 brief on page 946

show unified-edge sgw subscribers charging gateway SGW charging-profile cp1 detail on page 946
show unified-edge sgw subscribers charging gateway SGW charging-profile cp1 extensive on page 947

Output Fields Refer to the output fields for the show unified-edge sgw subscribers command, which is the same as the output fields for the **show unified-edge sgw subscribers charging** command.

Sample Output

show unified-edge sgw subscribers charging gateway SGW charging-profile cp1 brief

```
user@host> show unified-edge sgw subscribers charging gateway SGW charging-profile cp1 brief
            IMSI          MSISDN      ACS PEER CTRL    S5 PEER CTRL          APN

                                         Address          Address
 123213213123568      1926738057        79.1.1.3     114.11.11.2 internet123
```

show unified-edge sgw subscribers charging gateway SGW

```
user@host> show unified-edge sgw subscribers charging gateway SGW charging-profile cp1 detail
 Subscriber information:
```

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charging-profile cp1 detail

```
  UE:
     IMSI:        123213213123568     IMEI: 1122334455667791
     MSISDN:      1926738057          MS-Timezone: GMT     (DST): None     User
location info:
     MCC:       300                    MNC:      400
     LAC: 0x3e8   CI: 0xc8    SAC: 0x0     RAC: 0x0   TAC: 0x0     ECI: 0x0
     RAT Type:        E-UTRAN               Status: Visitor
     SGW Control IP:  11.11.11.11           SGW Control TEID:  0xd001000
     MME Control IP:  79.1.1.3              MME Control TEID:  0x103
     ISR:             Disabled              Active Peer:       MME
     Serving network: MCC: 123   MNC :567
     State:   ACTIVE
    PDN session information:
  PDN session:
     APN name:    internet123.mnc567.mcc123.gprs
     V4 Addr:     16.16.4.6            V6 Address:  -
     Direct Tunnel: Disabled           Up time:        8:16:28
     SGW S5 C IP:   11.11.11.11        PGW S5 C IP:    114.11.11.2
     SGW S5 C TEID: 0xd001c00          PGW S5 C TEID:  0x3ee
     PGW CSID:    100                  MME CSID:       0
     Addr scheme: None                 Selection mode: MS or network provided
APN, subscription verified
     SPIC:        5 /0  (FPC/PIC)      APFE:           1 /0  (FPC/PIC)
     State:       SgwSessionEstablished
    APN AMBR :
     AMBR-DL:    22         kbps     AMBR-UL:     88        kbps
    Bearer        :
     NSAPI/EBI      :5
     SGW ACS IP     :11.11.11.11         ACS PEER IP   :79.1.1.3
     SGW ACS TEID   :0x150400            ACS PEER TEID :0x104
     SGW S5 U IP    :11.11.11.11         PGW S5 U IP   :114.11.11.2
     SGW S5 U TEID  :0x250400            PGW S5 U TEID :0x3ef
     Charging ID    :0x3ef
     State          :SgwBearerEstablished
     Idle count     :0
     Idle Timeout   :0   min(0   -0,0)
    QoS Parameters :
     QCI         :5                   ARP         :1 /0 /0   (PL/PVI/PCI)
     Fwd Class   :af2                Loss Priority :high
    Charging information: Profile ID: 1   Profile name: p_juniper
       State: Ready                       Previous State: Ga
       Details: Offline bearer
    Rating group information:
       Rating group: 0 Service id: 0
       Details: Bearer trigger, Offline RG
```

show unified-edge sgw subscribers charging gateway SGW

```
user@host> show unified-edge sgw subscribers charging gateway SGW charging-profile cp1
extensive
Gateway: SGW
Subscriber information:
```

charging-profile cp1 extensive

```
  UE:
     IMSI:        111222330000001     IMEI: -
     MSISDN:      444550000001        MS-Timezone: GMT     (DST): None     User
location info:
     MCC:       234                    MNC:      567
     LAC: 0x0     CI: 0x0     SAC: 0x0     RAC: 0x0   TAC: 0x4321  ECI: 0x1234568

     RAT Type:        E-UTRAN               Status: Visitor
     SGW Control IP:  11.11.11.11           SGW Control TEID:  0x5e001000

     MME Control IP:  50.50.50.1            MME Control TEID:  0x1

     ISR:             Disabled              Active Peer:       MME
     Serving network: MCC: 123   MNC :456
     State:   ACTIVE
    PDN session information:
  PDN session:
     APN name:    internet123.mnc456.mcc123.gprs

     V4 Addr:     11.0.0.2             V6 Address:  -

     Direct Tunnel: Disabled           Up time:        1:30
     SGW S5 C IP:   11.11.11.11        PGW S5 C IP:    50.50.50.50
     SGW S5 C TEID: 0x5e001c00         PGW S5 C TEID:  0x2
     PGW CSID:    0                    MME CSID:       0
     Addr scheme: None                 Selection mode: MS or network provided
APN, subscription verified
     SPIC:        3 /0  (FPC/PIC)      APFE:           2 /0  (FPC/PIC)
     State:       SgwSessionEstablished
    APN AMBR :
     AMBR-DL:    2000       kbps     AMBR-UL:     2000      kbps
    Bearer        :
     NSAPI/EBI      :5
     SGW ACS IP     :11.11.11.11         ACS PEER IP   :50.50.50.3
     SGW ACS TEID   :0xc8160401          ACS PEER TEID :0x271b
     SGW S5 U IP    :11.11.11.11         PGW S5 U IP   :50.50.50.50
     SGW S5 U TEID  :0xc8260401          PGW S5 U TEID :0x2712
     Charging ID    :0x2
     State          :SgwBearerEstablished
     Idle count     :3
     Idle Timeout   :0   min(0   -0,0)
    QoS Parameters :
     QCI         :5                   ARP         :1 /0 /0   (PL/PVI/PCI)
     Fwd Class   : None             Loss Priority : None
    Charging information: Profile ID: 1   Profile name: CP1
       State: Ready                       Previous State: Ga
       Profile selection criteria: Static default
       Details: Offline bearer
    Offline charging information:
       Current service data container sequence number: -
       Current partial record sequence number        : 4
       Number of CDRs closed                         : 4
       Number of containers closed                   : 5
    Rating group information:
       Rating group: 0 Service id: 0
       Action ID: 0xb000401               Trigger profile: 0
       Change condition bitmask: 0x0      Action-id-bitmask: 0x0
       Signal bitmask: 0x0                Last signal bitmask: 0x0
       Details: Bearer trigger, Offline RG
         Collection time: Thu Jan  1 01:41:45 1970
```


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```
Uplink packets: 14                Downlink packets : 18
Uplink bytes: 1400                Downlink bytes : 1800
```

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CHAPTER 26

GPRS Tunneling Protocol (GTP) Operational Commands

clear unified-edge ggsn-pgw gtp peer statistics

Syntax

clear unified-edge ggsn-pgw gtp peer statistics gateway ***gateway*** **remote-address** ***remote-address***
<fpc-slot ***fpc-slot*****>**
<gtp-all>
<gtp-v0>
<gtp-v1>
<gtp-v2>
<local-address ***local-address*****>**
<pic-slot ***pic-slot*****>**
<routing-instance ***routing-instance*****>**

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Clear the statistics for the GTP peer on the specified gateway GPRS support node (GGSN) or a Packet Data Network Gateway (P-GW).

Options

gateway ***gateway***—Clear the statistics for the specified gateway.

remote-address ***remote-address***—Clear the statistics for the peer with the specified remote address.

fpc-slot ***fpc-slot***—(Optional) Clear the statistics for the peer on the specified FPC slot.

gtp-all—(Optional) Clear the statistics for GTP versions 0, 1, and 2.

gtp-v0—(Optional) Clear the GTP version 0 statistics.

gtp-v1—(Optional) Clear the GTP version 1 statistics.

gtp-v2—(Optional) Clear the GTP version 2 statistics.

local-address ***local-address***—(Optional) Clear the statistics for the peer with the specified local IP address.

pic-slot ***slot***—(Optional) Clear the statistics for the peer on the specified PIC slot. You must specify an FPC slot number before specifying a PIC slot number.

routing-instance ***routing-instance***—(Optional) Clear the statistics for the peer on the specified routing instance.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw gtp peer statistics on page 967

List of Sample Output

clear unified-edge ggsn-pgw gtp peer statistics gateway PGW remote-address 122.2.2.2 on page 953

Output Fields

When you enter this command, you are provided feedback on the status of your request.

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Sample Output

clear unified-edge ggsn-pgw gtp peer statistics gateway PGW remote-address 122.2.2.2

```
user@host> clear unified-edge ggsn-pgw gtp peer statistics gateway PGW remote-address
122.2.2.2
Cleared GTP peer statistics
```

clear unified-edge ggsn-pgw gtp statistics

Syntax

clear unified-edge ggsn-pgw gtp statistics gateway *gateway*
<fpc-slot *fpc-slot*>
<pic-slot *pic-slot*>

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.

Description

Clear the global GTP statistics for the specified gateway GPRS support node (GGSN) or a Packet Data Network Gateway (P-GW).

Options

gateway *gateway*—Clear the statistics for the specified gateway.

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified FPC slot.

pic-slot *slot*—(Optional) Clear the statistics for the peer on the specified PIC slot. You must specify an FPC slot number before specifying a PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw gtp statistics on page 976

List of Sample Output

clear unified-edge ggsn-pgw gtp statistics gateway PGW on page 954

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw gtp statistics gateway PGW

```
user@host> clear unified-edge ggsn-pgw gtp statistics gateway PGW
```


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clear unified-edge sgw gtp peer statistics

Syntax

clear unified-edge sgw gtp peer statistics remote-address *remote-address*
<**fpc-slot** *fpc-slot*>
<**gateway** *gateway*>
<**local-address** *local-address*>
<**pic-slot** *pic-slot*>
<**routing-instance** *routing-instance*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the statistics for the specified GPRS tunneling protocol (GTP) peer on one or more Serving Gateways (S-GWs). If an S-GW is not specified, then the statistics are cleared for the specified peer on all the S-GWs.

Options

remote-address *remote-address*—Clear the statistics for the GTP peer with the specified remote address.

fpc-slot *fpc-slot*—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC) slot number.

gateway *gateway*—(Optional) Clear the statistics for peer on the specified S-GW.

local-address *local-address*—(Optional) Clear the statistics for the peer with the specified local IP address.

pic-slot *pic-slot*—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

routing-instance *routing-instance*—(Optional) Clear the statistics for the peer on the specified routing instance.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge sgw gtp peer statistics on page 996

List of Sample Output

clear unified-edge sgw gtp peer statistics remote-address 122.2.2.2 on page 955

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge sgw gtp peer statistics remote-address 122.2.2.2

```
user@host> clear unified-edge sgw gtp peer statistics remote-address 122.2.2.2
Cleared GTP Peer statistics
```

clear unified-edge sgw gtp statistics

Syntax

clear unified-edge sgw gtp statistics gateway *gateway*
<fpc-slot *fpc-slot*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the global GPRS tunneling protocol (GTP) statistics for the specified Serving Gateway (S-GW).

Options

gateway *gateway*—Clear the GTP statistics for the specified S-GW.

fpc-slot *fpc-slot*—(Optional) Clear the GTP statistics for the specified Flexible PIC Concentrator (FPC) slot number.

pic-slot *pic-slot*—(Optional) Clear the GTP statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge sgw gtp statistics on page 1003

List of Sample Output

clear unified-edge sgw gtp statistics gateway SGW on page 956

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw gtp statistics gateway SGW

```
user@host> clear unified-edge sgw gtp statistics gateway SGW
```


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show unified-edge ggsn-pgw gtp peer

Syntax

show unified-edge ggsn-pgw gtp peer
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<gn>
<gp>
<local-address *local-address*>
<pic-slot *pic-slot*>
<remote-address *remote-address*>
<routing-instance *name*>
<s5>
<s8>

Release Information

Statement introduced in Junos OS Mobility Release 11.2W.
gn, **gp**, **s5**, and **s8** attributes introduced in Junos OS Mobility Release 11.4W.

Description

Display the information about GTP peers for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the information for all GGSNs and P-GWs is displayed.

Options

none—Display the GTP peer information in brief.

detail—(Optional) Display detailed information about GTP peers.

fpc-slot *fpc-slot*—(Optional) Display the GTP peer information for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display the GTP peer information for the specified gateway.

gn—Display the information about GTP peers on the gn interface.

gp—Display the information about GTP peers on the gp interface.

local-address *local-address*—(Optional) Display the GTP peer information for the local address of the specified peer on the gateway.

pic-slot *pic-slot*—(Optional) Display the GTP peer for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

remote-address *remote-address*—(Optional) Display the GTP peer information for the peer with the specified remote address.

routing-instance *routing-instance*—(Optional) Display the GTP peer information for the peer on the specified routing instance name.

NOTE: **If you specify the routing instance, you must also specify the remote address of the peer.**

s5—Display the information about GTP peers on the s5 interface.

s8—Display the information about GTP peers on the s8 interface.

Required Privilege Level view

Related Documentation

- clear unified-edge ggsn-pgw gtp peer statistics on page 952
- show unified-edge ggsn-pgw gtp peer count on page 962
- show unified-edge ggsn-pgw gtp peer history on page 963
- show unified-edge ggsn-pgw gtp peer statistics on page 967

List of Sample Output show unified-edge ggsn-pgw gtp peer on page 961
show unified-edge ggsn-pgw gtp peer detail on page 961

Output Fields Table 70 on page 958 lists the output fields for the **show unified-edge ggsn-pgw gtp peer** command. Output fields are listed in the approximate order in which they appear.

Table 70: show unified-edge ggsn-pgw gtp peer Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels
Remote IP Address	Remote IP address of the GTP peer.	All levels
Local IP Address	Local IP address of the GTP peer on the gateway.	All levels
Routing Instance	Name of the routing instance on which the GTP peer is located.	All levels
Interface Type	Type of 3GPP interface; for example S5, S8, and so on.	**detail**
GTP Version	GTP version number.	**detail**
RCM Registration Done	This parameter is used internally by the gateway.	**detail**
Restart Counter Valid	Indicates whether the restart counter of the peer is valid or not.	**detail**
Restart Counter Value	Current restart count of the peer.	**detail**
Sent Restart Counter Value	Restart counter value of the gateway that was sent to the peer.	**detail**
Control Path N3 Request	Maximum number of times that the S-GW attempts to send a signaling request message to a control peer.	**detail**
Control Path T3 Timer	Response timeout for GTP signaling request messages to a control peer.	**detail**
Control Path Echo N3 Request	Maximum number of retries of GTP echo request messages (for path management) to a control peer.	**detail**

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Table 70: show unified-edge ggsn-pgw gtp peer Output Fields *(continued)*

Field Name	Field Description	Level of Output
Control Path Echo T3 Timer	Response timeout for GTP echo request messages (for path management) to a control peer.	**detail**
Control Path Echo Interval	Number of seconds that the GGSN or P-GW waits before sending an echo request message (for path management) to its control peer.	**detail**
Control Path Management Enabled	Indicates whether path management is enabled or not for the control plane.	**detail**
Control Path State	Path state of the GTP control plane: • **Up**—Indicates that echo requests are being transmitted and responses are being received, which means that the peer is alive. • **Down**—Indicates that echo requests are being transmitted but responses are not being received, which means that the peer is detected to be dead. • **Not tracked**—Indicates that path management is disabled, which means that echo requests are not sent to the peer.	**detail**
Control Peer Down Count	Number of times that the control path for the peer was down.	**detail**
Control Min Response Time in usec	Minimum response time, in microseconds, for GTP-C messages.	**detail**
Control Max Response Time in usec	Maximum response time, in microseconds, for GTP-C messages.	**detail**
Control Avg Response Time in usec	Average response time, in microseconds, for GTP-C messages.	**detail**
Data Path Echo N3 Request	Maximum number of retries of GTP echo request messages (for path management) to a data peer.	**detail**
Data Path Echo T3 Timer	Response timeout for GTP echo request messages (for path management) to a data peer.	**detail**
Data Path Echo Interval	Number of seconds that the GGSN or P-GW waits before sending an echo request message (for path management) to its data peer.	**detail**
Data Path Management Enabled	Indicates whether path management is enabled or not for the data plane.	**detail**
Data Path State	Path state of the GTP user plane: • **Up**—Indicates that echo requests are being transmitted and responses are being received, which means that the peer is alive. • **Down**—Indicates that echo requests are being transmitted but responses are not being received, which means that the peer is detected to be dead. • **Not tracked**—Indicates that path management is disabled, which means that echo requests are not sent to the peer.	**detail**

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Table 70: show unified-edge ggsn-pgw gtp peer Output Fields *(continued)*

Field Name	Field Description	Level of Output
Data Peer Down Count	Number of times that the data path for the peer was down.	**detail**
GTP-C using Short Sequence Number	Indicates whether the peer is using the 16-bit sequence number length.	**detail**
Downlink Data Notification Delay Interval	This field is not relevant for the GGSN or P-GW.	**detail**
CSID Supported	Indicates whether the connection set identifier (CSID) is supported by the peer or not.	**detail**
Peer Create Time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the peer was created on the gateway.	**detail**

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Sample Output

show unified-edge ggsn-pgw gtp peer

```
user@host> show unified-edge ggsn-pgw gtp peer
Gateway: gw1
Remote IP Address       Local IP Address       Routing Instance
-----------------------------------------------------------------
50.50.50.1                   200.1.88.1               vrfgn
```

show unified-edge ggsn-pgw gtp peer detail

```
user@host> show unified-edge ggsn-pgw gtp peer detail
Gateway: gw1


Peer :


Remote IP Address                    : 50.50.50.1
Local IP Address                     : 200.1.88.1
Routing Instance                     : vrfgn
Interface Type                       : S5
GTP Version                          : 2
RCM Registration Done                : yes
Restart Counter Valid                : yes
Restart Counter Value                : 0
Sent Restart Counter Value           : 147
Control Path N3 Request              : 3
Control Path T3 Timer                : 5
Control Path Echo N3 Request         : 8
Control Path Echo T3 Timer           : 15
Control Path Echo Interval           : 60
Control Path Management Enabled      : no
Control Path State                   : not-tracked
Control Peer Down Count              : 0
Control Min Response Time in usec    : 0
Control Max Response Time in usec    : 0
Control Avg Response Time in usec    : 0
Data Path Echo N3 Request            : 8
Data Path Echo T3 Timer              : 15
Data Path Echo Interval              : 60
Data Path Management Enabled         : no
Data Path State                      : not-tracked
Data Peer Down Count                 : 0
GTP-C using Short Sequence Number    : no
Downlink data notif delay Interval   : 0
CSID Supported                       : no
Peer Create Time                     : 2012-08-08 13:33:27 PDT (00:00:08 ago)
```

show unified-edge ggsn-pgw gtp peer count

Syntax **show unified-edge ggsn-pgw gtp peer count**

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Display the number of GTP peers on each interface and the total number of GTP peers for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs).

Options This command has no options.

Required Privilege Level view

Related Documentation
- show unified-edge ggsn-pgw gtp peer on page 957

List of Sample Output show unified-edge ggsn-pgw gtp peer count on page 962

Output Fields Table 71 on page 962 lists the output fields for the **show unified-edge ggsn-pgw gtp peer count** command. Output fields are listed in the approximate order in which they appear.

Table 71: show unified-edge ggsn-pgw gtp peer Output Fields

Field Name	Field Description
Interface Name	Name of the interface (Gn, Gp, S5, S8, and All) for which the GTP peer count is displayed.
Peer Count	The number of peers corresponding to the interface name (Gn, Gp, S5, S8, and All) is displayed.

Sample Output

show unified-edge ggsn-pgw gtp peer count

```
user@host> show unified-edge ggsn-pgw gtp peer count
Gateway: PGW
Interface Name           Peer Count
-----------------------------------
Gn Interface                      0
Gp Interface                      0
S5 Interface                      1
S8 Interface                      0
All Interfaces                    1
```

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show unified-edge ggsn-pgw gtp peer history

Syntax

show unified-edge ggsn-pgw gtp peer history
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<local-address *local-address*>
<pic-slot *pic-slot*>
<remote-address *remote-address*>
<routing-instance *name*>

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Display the information about GTP peers that are no longer present on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the information about peers not present on the gateway is displayed for all GGSNs and P-GWs.

Options

none—Display the information about GTP peers that are no longer present on the gateway, in brief.

detail—(Optional) Display detailed information about GTP peers that are no longer present on the gateway.

fpc-slot *fpc-slot*—(Optional) Display the information about GTP peers that are no longer present on the gateway, for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display information about GTP peers that are no longer on the specified gateway.

local-address *local-address*—(Optional) Display the GTP peer history information for the local address of the specified peer on the gateway.

NOTE: **If you specify the local address, you must also specify the remote address of the peer.**

pic-slot *pic-slot*—(Optional) Display the information about GTP peers that are no longer present on the gateway, for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

remote-address *remote-address*—(Optional) Display the GTP peer history information for the peer with the specified remote address.

routing-instance *routing-instance*—(Optional) Display the GTP peer history information for the peer on the specified routing instance name.

NOTE: **If you specify the routing instance, you must also specify the remote address of the peer.**

Required Privilege Level view

Related Documentation

- clear unified-edge ggsn-pgw gtp peer statistics on page 952
- show unified-edge ggsn-pgw gtp peer on page 957
- show unified-edge ggsn-pgw gtp peer count on page 962
- show unified-edge ggsn-pgw gtp peer statistics on page 967

List of Sample Output show unified-edge ggsn-pgw gtp peer history on page 966
show unified-edge ggsn-pgw gtp peer history detail on page 966

Output Fields Table 72 on page 964 lists the output fields for the **show unified-edge ggsn-pgw gtp peer history** command. Output fields are listed in the approximate order in which they appear.

Table 72: show unified-edge ggsn-pgw gtp peer Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels
Remote IP Address	Remote IP address of the GTP peer.	All levels
Local IP Address	Local IP address of the GTP peer on the gateway.	All levels
Routing Instance	Name of the routing instance on which the GTP peer was located.	All levels
Reason for Removal	Indicates the reason why the peer was deleted: • **All sessions are down** • **Peer restarted** • **Peer went down**	**detail**
Restart Counter Valid	Indicates whether the restart counter of the peer was valid or not, at the time of deletion.	**detail**
Restart Counter Value	Last restart count of the peer.	**detail**
Prev Restart Counter Valid	Indicates whether the penultimate restart counter of the peer was valid or not.	**detail**
Prev restart counter Value	Penultimate restart counter of the peer.	**detail**

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Table 72: show unified-edge ggsn-pgw gtp peer Output Fields *(continued)*

Field Name	Field Description	Level of Output
Last Control Path State	Path state of the GTP control plane before the peer was deleted: • **Up**—Indicates that echo requests were being transmitted and responses were being received, which means that the peer was alive. • **Down**—Indicates that echo requests were being transmitted but responses were not being received, which means that the peer was detected to be dead. • **Not tracked**—Indicates that path management was disabled, which means that echo requests were not sent to the peer.	**detail**
Last Data Path State	Path state of the GTP user plane before the peer was deleted: • **Up**—Indicates that echo requests were being transmitted and responses were being received, which means that the peer was alive. • **Down**—Indicates that echo requests were being transmitted but responses were not being received, which means that the peer was detected to be dead. • **Not tracked**—Indicates that path management was disabled, which means that echo requests were not sent to the peer.	**detail**
Peer Control Down Count	Number of times that the control path for the peer was down.	**detail**
Peer Data Down Count	Number of times that the data path for the peer was down.	**detail**
Peer Create Time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the peer was created on the gateway.	**detail**
Peer Delete Time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the peer was deleted.	**detail**
Last Path down time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the last path in the deleted GTP peer went down.	**detail**

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Sample Output

show unified-edge ggsn-pgw gtp peer history

```
user@host> show unified-edge ggsn-pgw gtp peer history
Gateway: gw1
Remote IP Address       Local IP Address       Routing Instance
-----------------------------------------------------------------
50.50.50.1                   200.1.88.1               vrfgn
```

show unified-edge ggsn-pgw gtp peer history detail

```
user@host> show unified-edge ggsn-pgw gtp peer history detail
Gateway: gw1


Peer :


Remote IP Address                    : 50.50.50.1
Local IP Address                     : 200.1.88.1
Routing Instance                     : vrfgn
Reason for Removal                   : All sessions are down
Restart Counter Valid                : yes
Restart Counter Value                : 0
Prev Restart Counter Valid           : no
Prev restart counter Value           : 0
Last Control Path State              : not-tracked
Last Data Path State                 : not-tracked
Peer Control Down Count              : 0
Peer Data Down Count                 : 0
Peer Create Time                     : 2012-08-08 13:33:27 PDT (00:01:19 ago)
Peer Delete Time                     : 2012-08-08 13:34:40 PDT (00:00:06 ago)
Last Path down time                  : 0
```


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show unified-edge ggsn-pgw gtp peer statistics

Syntax

show unified-edge ggsn-pgw gtp peer statistics remote-address *remote-address*
<**detail**>
<**fpc-slot** *fpc-slot*>
<**gateway** *gateway*>
<**gtp-all**>
<**gtp-v0**>
<**gtp-v1**>
<**gtp-v2**>
<**history**>
<**local-address** *local-address*>
<**pic-slot** *pic-slot*>
<**routing-instance** *routing-instance*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the GTP peer statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the status for all GGSNs and P-GWs is displayed.

Options

remote-address *remote-address*—Display the GTP peer statistics for the peer with the specified remote address.

detail—(Optional) Display detailed statistics about GTP peers.

fpc-slot *fpc-slot*—(Optional) Display the GTP peer statistics for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display the GTP peer statistics for the specified gateway.

gtp-all—(Optional) Display the statistics for GTP versions 0, 1, and 2.

gtp-v0—(Optional) Display the GTP version 0 statistics.

gtp-v1—(Optional) Display the GTP version 1 statistics.

gtp-v2—(Optional) Display the GTP version 2 statistics.

history—(Optional) Display the GTP peer statistics for peers which are no longer present on the gateway.

local-address *local-address*—(Optional) Display the GTP peer statistics for the local address of the specified peer on the S-GW.

pic-slot *pic-slot*—(Optional) Display the GTP peer statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

routing-instance *routing-instance*—(Optional) Display the GTP peer statistics for the peer on the specified routing instance.

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Required Privilege Level view

Related Documentation
- clear unified-edge ggsn-pgw gtp peer statistics on page 952
- show unified-edge ggsn-pgw gtp peer on page 957
- show unified-edge ggsn-pgw gtp statistics on page 976

List of Sample Output
show unified-edge ggsn-pgw gtp peer statistics remote-address 17.1.1.1 on page 968
show unified-edge ggsn-pgw gtp peer statistics remote-address 17.1.1.1 detail on page 971

Output Fields See the output fields for the show unified-edge ggsn-pgw gtp statistics command.

Sample Output

show unified-edge ggsn-pgw gtp peer

```
user@host> show unified-edge ggsn-pgw gtp peer statistics remote-address 17.1.1.1
Gateway: PGW2
```


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statistics remote-address 17.1.1.1

```
Global Packet Statistics
  Received Packets Dropped           : 0
  Packet Allocation Fail             : 0
  Packet Send Fail                   : 0
  IP Version Error Received          : 0
  IP Protocol Error Received         : 0
  GTP Port Error Received            : 0
  GTP Unknown Version Received       : 0
  Packet Length Error Received       : 0
  Unknown Messages Received          : 0

GTP Version 0 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            0               0
  Total number of bytes                               0               0
  Redirect messages                                   0               0
  Echo Request                                        0               0
  Echo Response                                       0               0
  Version Not Supported                               0               0
  Create PDP Context Request                          0               0
  Create PDP Context Response                         0               0
  Update PDP Context Request                          0               0
  Update PDP Context Response                         0               0
  Delete PDP Context Request                          0               0
  Delete PDP Context Response                         0               0

GTP Version 1 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            0               0
  Total number of bytes                               0               0
  Redirect messages                                   0               0
  Echo Request                                        0               0
  Echo Response                                       0               0
  Version Not Supported                               0               0
  Create PDP Context Request                          0               0
  Create PDP Context Response                         0               0
  Update PDP Context Request                          0               0
  Update PDP Context Response                         0               0
  Delete PDP Context Request                          0               0
  Delete PDP Context Response                         0               0

GTP Version 2 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0
```

```
  Message Type                                      Received        Transmitted
  ---------------------------------------------------------------------------
  Total number of messages                          6               6
  Total number of bytes                             266             162
  Redirect messages                                 0               0
  S11 piggyback messages                            0               0
  S4 piggyback messages                             0               0
  S5 piggyback messages                             0               0
  Echo Request                                      5               0
  Echo Response                                     0               5
  Version Not Supported                             0               0
  Create session request                            1               0
  Create session response                           0               1
  Modify bearer request                             0               0
  Modify bearer response                            0               0
  Delete session request                            0               0
  Delete session response                           0               0
  Create bearer request                             0               0
  Create bearer response                            0               0
  Update bearer request                             0               0
  Update bearer response                            0               0
  Delete bearer request                             0               0
  Delete bearer response                            0               0
  Delete PDN connection set request                 0               0
  Delete PDN connection set response                0               0
  Update PDN connection set request                 0               0
  Update PDN connection set response                0               0
  Modify bearer command                             0               0
  Modify bearer failure indication                  0               0
  Delete bearer command                             0               0
  Delete bearer failure indication                  0               0
  Bearer resource command                           0               0
  Bearer resource failure indication                0               0
  Change notification request                       0               0
  Change notification response                      0               0
  Release Access Bearer request                     0
        0
  Release Access Bearer response                    0
        0
  Suspend Notification                              0               0
  Suspend Acknowledge                               0               0
  Resume Notification                               0               0
  Resume Acknowledge                                0               0
  Create Indirect Data Forward Tunnel Request       0               0
  Create Indirect Data Forward Tunnel Response      0               0
  Delete Indirect Data Forward Tunnel Request       0               0
  Delete Indirect Data Forward Tunnel Response      0               0
  Downlink Data Notification                        0               0
  Downlink Data Notification ack                    0               0
  Downlink Data Notification fail                   0               0
  Stop paging indication                            0               0


Error Indication Statistics:
  Version                                           Received        Transmitted
  ---------------------------------------------------------------------------
  GTPv0                                             0               0
  GTPv1                                             0               0
```


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show unified-edge ggsn-pgw gtp peer statistics

```
user@host> show unified-edge ggsn-pgw gtp peer statistics remote-address 17.1.1.1 detail
Gateway: PGW2

Global Packet Statistics
```

remote-address 17.1.1.1 detail

```
  Received Packets Dropped          : 0
  Packet Allocation Fail            : 0
  Packet Send Fail                  : 0
  IP Version Error Received         : 0
  IP Protocol Error Received        : 0
  GTP Port Error Received           : 0
  GTP Unknown Version Received      : 0
  Packet Length Error Received      : 0
  Unknown Messages Received         : 0

GTP Version 0 Statistics:
-------------------------
  Protocol Error                    : 0
  Unsupported Messages Received     : 0
  T3 Response Timer Expires         : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            0               0
  Total number of bytes                               0               0
  Redirect messages                                   0               0
  Echo Request                                        0               0
  Echo Response                                       0               0
  Version Not Supported                               0               0
  Create PDP Context Request                          0               0
  Create PDP Context Response                         0               0
  Update PDP Context Request                          0               0
  Update PDP Context Response                         0               0
  Delete PDP Context Request                          0               0
  Delete PDP Context Response                         0               0


  Cause Code                                          Received        Transmitted
  ---------------------------------------------------------------------------------
  Request Accepted                                    0               0
  Non Existent                                        0               0
  Invalid Message Format                              0               0
  IMSI Not Known                                      0               0
  MS is GPRS Detached                                 0               0
  MS is not GPRS Response                             0               0
  MS Refuses                                          0               0
  Version Not Supported                               0               0
  No Resource Available                               0               0
  Service Not Supported                               0               0
  Mandatory IE Incorrect                              0               0
  Mandatory IE Missing                                0               0
  Optional IE Incorrect                               0               0
  System Failure                                      0               0
  Roaming Restriction                                 0               0
  P-TMSI Signature Mismatch                           0               0
  GPRS Connection Suspended                           0               0
  Authentication Failure                              0               0
  User Authentication Failed                          0               0

GTP Version 1 Statistics:
-------------------------
  Protocol Error                    : 0
  Unsupported Messages Received     : 0
  T3 Response Timer Expires         : 0
```


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```
  Message Type                                      Received        Transmitted
  ---------------------------------------------------------------------------
  Total number of messages                          0               0
  Total number of bytes                             0               0
  Redirect messages                                 0               0
  Echo Request                                      0               0
  Echo Response                                     0               0
  Version Not Supported                             0               0
  Create PDP Context Request                        0               0
  Create PDP Context Response                       0               0
  Update PDP Context Request                        0               0
  Update PDP Context Response                       0               0
  Delete PDP Context Request                        0               0
  Delete PDP Context Response                       0               0


  Cause Code                                        Received        Transmitted
  ---------------------------------------------------------------------------
  Request Accepted                                  0               0
  Non Existent                                      0               0
  Invalid Message Format                            0               0
  IMSI Not Known                                    0               0
  MS is GPRS Detached                               0               0
  MS is not GPRS Response                           0               0
  MS Refuses                                        0               0
  Version Not Supported                             0               0
  No Resource Available                             0               0
  Service Not Supported                             0               0
  Mandatory IE Incorrect                            0               0
  Mandatory IE Missing                              0               0
  Optional IE Incorrect                             0               0
  System Failure                                    0               0
  Roaming Restriction                               0               0
  P-TMSI Signature Mismatch                         0               0
  GPRS Connection Suspended                         0               0
  Authentication Failure                            0               0
  User Authentication Failed                        0               0
  Context not found                                 0               0
  All dynamic PDP addresses are occupied            0               0
  No memory is available                            0               0
  Relocation failure                                0               0
  Unknown mandatory extension header                0               0
  Semantic error in the TFT operation               0               0
  Syntactic error in the TFT operation              0               0
  Semantic errors in packet filter(s)               0               0
  Syntactic errors in packet filter(s)              0               0
  Missing or unknown APN                            0               0
  Unknown PDP address or PDP type                   0               0
  PDP context without TFT already activated         0               0

GTP Version 2 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                      Received        Transmitted
  ---------------------------------------------------------------------------
  Total number of messages                          7               7
```

```
Total number of bytes                              279            175
Redirect messages                                  0              0
S11 piggyback messages                             0              0
S4 piggyback messages                              0              0
S5 piggyback messages                              0              0
Echo Request                                       6              0
Echo Response                                      0              6
Version Not Supported                              0              0
Create session request                             1              0
Create session response                            0              1
Modify bearer request                              0              0
Modify bearer response                             0              0
Delete session request                             0              0
Delete session response                            0              0
Create bearer request                              0              0
Create bearer response                             0              0
Update bearer request                              0              0
Update bearer response                             0              0
Delete bearer request                              0              0
Delete bearer response                             0              0
Delete PDN connection set request                  0              0
Delete PDN connection set response                 0              0
Update PDN connection set request                  0              0
Update PDN connection set response                 0              0
Modify bearer command                              0              0
Modify bearer failure indication                   0              0
Delete bearer command                              0              0
Delete bearer failure indication                   0              0
Bearer resource command                            0              0
Bearer resource failure indication                 0              0
Change notification request                        0              0
Change notification response                       0              0
Release Access Bearer request                      0
      0
Release Access Bearer response                     0
      0
Suspend Notification                               0              0
Suspend Acknowledge                                0              0
Resume Notification                                0              0
Resume Acknowledge                                 0              0
Create Indirect Data Forward Tunnel Request        0              0
Create Indirect Data Forward Tunnel Response       0              0
Delete Indirect Data Forward Tunnel Request        0              0
Delete Indirect Data Forward Tunnel Response       0              0
Downlink Data Notification                         0              0
Downlink Data Notification ack                     0              0
Downlink Data Notification fail                    0              0
Stop paging indication                             0              0


Cause Code                                         Received       Transmitted
-------------------------------------------------------------------------------
Request accepted                                   0              1
Request accepted partially                         0              0
New PDN type due to network preference             0              0
New PDN type due to single address bearer only     0              0
Local Detach                                       0              0
Complete Detach                                    0              0
RAT changed from 3GPP to Non 3GPP                  0              0
ISR Deactivated                                    0              0
Error Indication from RNC Enodeb                   0              0
```


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```
  Context Not Found                                0              0
  Invalid Message Format                           0              0
  Version not supported by next peer               0              0
  Invalid length                                   0              0
  Service not supported                            0              0
  Mandatory IE incorrect                           0              0
  Mandatory IE missing                             0              0
  Optional IE incorrect                            0              0
  System failure                                   0              0
  No resources available                           0              0
  Semantic error in the TFT operation              0              0
  Syntactic error in the TFT operation             0              0
  Semantic errors in packet filter(s)              0              0
  Syntactic errors in packet filter(s)             0              0
  Missing or unknown APN                           0              0
  Unexpected repeated IE                           0              0
  GRE key not found                                0              0
  Reallocation failure                             0              0
  Denied in RAT                                    0              0
  Preferred PDN type not supported                 0              0
  All dynamic addresses are occupied               0              0
  UE context without TFT already activated         0              0
  Protocol type not supported                      0              0
  UE not responding                                0              0
  UE refuses                                       0              0
  Service denied                                   0              0
  Unable to page UE                                0              0
  No memory available                              0              0
  User authentication failed                       0              0
  APN access denied - no subscription              0              0
  Request rejected                                 0              0
  P-TMSI Signature Mismatch                        0              0
  IMSI Not Known                                   0              0
  Semantic Error in the TAD Operation              0              0
  Syntactic Error in the TAD Operation             0              0
  Reserved Message Value Received                  0              0
  Rmt Peer Not Responding                          0              0
  Collision with Network Initiated Request         0              0
  Unable to Page UE due to Suspension              0              0
  Conditional IE Missing                           0              0
  APN Restriction Type Incompatible                0              0
  Invalid Total len                                0              0
  Data Forwarding Not Supported                    0              0
  Invalid Reply from Rmt Peer                      0              0
  Invalid Peer                                     0              0
  Unknown                                          0              0


Error Indication Statistics:
  Version                                          Received       Transmitted
  ---------------------------------------------------------------------------
  GTPv0                                            0              0
  GTPv1                                            0              0
```

show unified-edge ggsn-pgw gtp statistics

Syntax

show unified-edge ggsn-pgw gtp statistics
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<gn>
<gp>
<pic-slot *pic-slot*>
<s5>
<s8>
<v0>
<v1>
<v2>

Release Information

Statement introduced in Junos OS Mobility Release 11.2W. **gn**, **gp**, **s5**, and **s8** attributes introduced in Junos OS Mobility Release 11.4W.

Description

Display the global GTP statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the status for all GGSNs and P-GWs is displayed.

Options

none—Display the statistics for GTP versions 0, 1, and 2, in brief.

detail—(Optional) Display the GTP statistics with the GTP cause statistics included.

fpc-slot *fpc-slot*—(Optional) Display the GTP statistics for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display the GTP statistics for the specified gateway.

gn—Display the GTP statistics for only the gn interface.

gn—Display the GTP statistics for only the gp interface.

pic-slot *pic-slot*—(Optional) Display the GTP statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

s5—Display the GTP statistics for only the s5 interface.

s8—Display the GTP statistics for only the s8 interface.

v0—(Optional) Display GTP version 0 statistics.

v1—(Optional) Display GTP version 1 statistics.

v2—(Optional) Display GTP version 2 statistics.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw gtp statistics on page 954
- show unified-edge ggsn-pgw gtp peer statistics on page 967

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List of Sample Output show unified-edge ggsn-pgw gtp statistics on page 980
show unified-edge ggsn-pgw gtp statistics detail on page 982

Output Fields Table 73 on page 977 lists the output fields for the **show unified-edge sgw gtp statistics** command. Output fields are listed in the approximate order in which they appear.

Table 73: show unified-edge sgw gtp statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels
Global Packet Statistics		
Received Packets Dropped	Total number of packets received by the GGSN or P-GW that were dropped.	All levels
Packet Allocation Fail	Number of times that packet allocation failed.	All levels
Packet Send Fail	Number of times that packet sending failed.	All levels
IP Version Error Received	Number of packets with an unsupported IP version.	All levels
IP Protocol Error Received	Number of non-UDP IP packets received.	All levels
GTP Port Error Received	Number of packets received on a unknown GTP port number.	All levels
GTP Unknown Version Received	Number of GTP packets with an incorrect GTP version.	All levels
Packet Length Error Received	Number of GTP packets with an incorrect length in the IP or UDP header.	All levels
Unknown Messages Received	Number of GTP messages received that are not recognized by the gateway.	All levels
GTP Version 0 Statistics		
Protocol Error	Number of messages received that had a protocol error. This counter is incremented if a message with an invalid or unknown GTP message type is received.	All levels
Unsupported Messages Received	Number of unsupported messages received. This counter is incremented if the message is invalid for the interface on which the message is received.	All levels
T3 Response Timer Expires	Number of messages for which the T3 response timer elapsed.	All levels
Message Type	Type of the GTP message; for example, **Echo Request** or **Create PDP Context Request**.	All levels
Received	Number of GTP messages received corresponding to the message type.	All levels

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Table 73: show unified-edge sgw gtp statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Transmitted	Number of GTP messages transmitted corresponding to the message type.	All levels
Cause Code	GTP cause codes; for example, **Request accepted** or **Invalid Message Format**.	**detail**
Received	Number of GTP messages received corresponding to the GTP cause code.	**detail**
Transmitted	Number of GTP messages transmitted corresponding to the GTP cause code.	**detail**
GTP Version 1 Statistics		
Protocol Error	Number of messages received that had a protocol error. This counter is incremented if a message with an invalid or unknown GTP message type is received.	All levels
Unsupported Messages Received	Number of unsupported messages received. This counter is incremented if the message is invalid for the interface on which the message is received.	All levels
T3 Response Timer Expires	Number of messages for which the T3 response timer elapsed.	All levels
Message Type	Type of the GTP message; for example, **Echo Request** or **Create PDP Context Request** .	All levels
Received	Number of GTP messages received corresponding to the message type.	All levels
Transmitted	Number of GTP messages transmitted corresponding to the message type.	All levels
Cause Code	GTP cause codes; for example, **Request accepted** or **Invalid Message Format**.	**detail**
Received	Number of GTP messages received corresponding to the GTP cause code.	**detail**
Transmitted	Number of GTP messages transmitted corresponding to the GTP cause code.	**detail**
GTP Version 2 Statistics		
Protocol Error	Number of messages received that had a protocol error. This counter is incremented if a message with an invalid or unknown GTP message type is received.	All levels
Unsupported Messages Received	Number of unsupported messages received. This counter is incremented if the message is invalid for the interface on which the message is received.	All levels

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Table 73: show unified-edge sgw gtp statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
T3 Response Timer Expires	Number of messages for which the T3 response timer elapsed.	All levels
Message Type	Type of the GTP message; for example, **Echo Request** or **Create PDP Context Request** .	All levels
Received	Number of GTP messages received corresponding to the message type.	All levels
Transmitted	Number of GTP messages transmitted corresponding to the message type.	All levels
Cause Code	GTP cause codes; for example, **Request accepted** or **Invalid Message Format**.	**detail**
Received	Number of GTP messages received corresponding to the GTP cause code.	**detail**
Transmitted	Number of GTP messages transmitted corresponding to the GTP cause code.	**detail**

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Sample Output

show unified-edge ggsn-pgw gtp statistics

```
user@host> show unified-edge ggsn-pgw gtp statistics
Gateway: PGW

Global Packet Statistics
  Received Packets Dropped           : 0
  Packet Allocation Fail             : 0
  Packet Send Fail                   : 0
  IP Version Error Received          : 0
  IP Protocol Error Received         : 0
  GTP Port Error Received            : 0
  GTP Unknown Version Received       : 0
  Packet Length Error Received       : 0
  Unknown Messages Received          : 0

GTP Version 0 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            0               0
  Total number of bytes                               0               0
  Redirect messages                                   0               0
  Echo Request                                        0               0
  Echo Response                                       0               0
  Version Not Supported                               0               0
  Create PDP Context Request                          0               0
  Create PDP Context Response                         0               0
  Update PDP Context Request                          0               0
  Update PDP Context Response                         0               0
  Delete PDP Context Request                          0               0
  Delete PDP Context Response                         0               0
  Error Indication Messages                           0               0

GTP Version 1 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 128


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            247             378
  Total number of bytes                               1122            10384
  Redirect messages                                   0               0
  Echo Request                                        180             196
  Echo Response                                       67              180
  Version Not Supported                               0               0
  Create PDP Context Request                          0               0
  Create PDP Context Response                         0               0
  Update PDP Context Request                          0               0
  Update PDP Context Response                         0               0
  Delete PDP Context Request                          0               0
  Delete PDP Context Response                         0               0
```


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```
  Error Indication Messages                          0               0

GTP Version 2 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 5
  T3 Response Timer Expires          : 0


  Message Type                                       Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                           366             366
  Total number of bytes                              5103            10487
  Redirect messages                                  0               0
  S11 piggyback messages                             0               0
  S4 piggyback messages                              0               0
  S5 piggyback messages                              0               0
  Echo Request                                       187             145
  Echo Response                                      145             187
  Version Not Supported                              0               0
  Create session request                             6               3
  Create session response                            3               6
  Modify bearer request                              5               0
  Modify bearer response                             0               5
  Delete session request                             4               2
  Delete session response                            2               4
  Create bearer request                              0               0
  Create bearer response                             0               0
  Update bearer request                              0               0
  Update bearer response                             0               0
  Delete bearer request                              0               0
  Delete bearer response                             0               0
  Delete PDN connection set request                  0               0
  Delete PDN connection set response                 0               0
  Update PDN connection set request                  0               0
  Update PDN connection set response                 0               0
  Modify bearer command                              0               0
  Modify bearer failure indication                   0               0
  Delete bearer command                              0               0
  Delete bearer failure indication                   0               0
  Bearer resource command                            0               0
  Bearer resource failure indication                 0               0
  Change notification request                        0               0
  Change notification response                       0               0
  Release Access Bearer request                      0               0
  Release Access Bearer response                     0               0
  Suspend Notification                               0               0
  Suspend Acknowledge                                0               0
  Resume Notification                                0               0
  Resume Acknowledge                                 0               0
  Create Indirect Data Forward Tunnel Request        12              0
  Create Indirect Data Forward Tunnel Response       0               12
  Delete Indirect Data Forward Tunnel Request        2               0
  Delete Indirect Data Forward Tunnel Response       0               2
  Downlink Data Notification                         0               0
  Downlink Data Notification ack                     0               0
  Downlink Data Notification fail                    0               0
  Stop paging indication                             0               0
```

show unified-edge ggsn-pgw gtp statistics detail

```
user@host> show unified-edge ggsn-pgw gtp statistics detail
Gateway: PGW2

Global Packet Statistics
  Received Packets Dropped           : 0
  Packet Allocation Fail             : 0
  Packet Send Fail                   : 0
  IP Version Error Received          : 0
  IP Protocol Error Received         : 0
  GTP Port Error Received            : 0
  GTP Unknown Version Received       : 0
  Packet Length Error Received       : 0
  Unknown Messages Received          : 0

GTP Version 0 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            0               0
  Total number of bytes                               0               0
  Redirect messages                                   0               0
  Echo Request                                        0               0
  Echo Response                                       0               0
  Version Not Supported                               0               0
  Create PDP Context Request                          0               0
  Create PDP Context Response                         0               0
  Update PDP Context Request                          0               0
  Update PDP Context Response                         0               0
  Delete PDP Context Request                          0               0
  Delete PDP Context Response                         0               0
  Error Indication Messages                           0               0


  Cause Code                                          Received        Transmitted
  ---------------------------------------------------------------------------------
  Request Accepted                                    0               0
  Non Existent                                        0               0
  Invalid Message Format                              0               0
  IMSI Not Known                                      0               0
  MS is GPRS Detached                                 0               0
  MS is not GPRS Response                             0               0
  MS Refuses                                          0               0
  Version Not Supported                               0               0
  No Resource Available                               0               0
  Service Not Supported                               0               0
  Mandatory IE Incorrect                              0               0
  Mandatory IE Missing                                0               0
  Optional IE Incorrect                               0               0
  System Failure                                      0               0
  Roaming Restriction                                 0               0
  P-TMSI Signature Mismatch                           0               0
  GPRS Connection Suspended                           0               0
  Authentication Failure                              0               0
  User Authentication Failed                          0               0

GTP Version 1 Statistics:
```


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```
-------------------------
  Protocol Error                    : 0
  Unsupported Messages Received     : 0
  T3 Response Timer Expires         : 0


  Message Type                                      Received        Transmitted
  ---------------------------------------------------------------------------
  Total number of messages                          0               0
  Total number of bytes                             0               0
  Redirect messages                                 0               0
  Echo Request                                      0               0
  Echo Response                                     0               0
  Version Not Supported                             0               0
  Create PDP Context Request                        0               0
  Create PDP Context Response                       0               0
  Update PDP Context Request                        0               0
  Update PDP Context Response                       0               0
  Delete PDP Context Request                        0               0
  Delete PDP Context Response                       0               0
  Error Indication Messages                         0               0


  Cause Code                                        Received        Transmitted
  ---------------------------------------------------------------------------
  Request Accepted                                  0               0
  Non Existent                                      0               0
  Invalid Message Format                            0               0
  IMSI Not Known                                    0               0
  MS is GPRS Detached                               0               0
  MS is not GPRS Response                           0               0
  MS Refuses                                        0               0
  Version Not Supported                             0               0
  No Resource Available                             0               0
  Service Not Supported                             0               0
  Mandatory IE Incorrect                            0               0
  Mandatory IE Missing                              0               0
  Optional IE Incorrect                             0               0
  System Failure                                    0               0
  Roaming Restriction                               0               0
  P-TMSI Signature Mismatch                         0               0
  GPRS Connection Suspended                         0               0
  Authentication Failure                            0               0
  User Authentication Failed                        0               0
  Context not found                                 0               0
  All dynamic PDP addresses are occupied            0               0
  No memory is available                            0               0
  Relocation failure                                0               0
  Unknown mandatory extension header                0               0
  Semantic error in the TFT operation               0               0
  Syntactic error in the TFT operation              0               0
  Semantic errors in packet filter(s)               0               0
  Syntactic errors in packet filter(s)              0               0
  Missing or unknown APN                            0               0
  Unknown PDP address or PDP type                   0               0
  PDP context without TFT already activated         0               0

GTP Version 2 Statistics:
-------------------------
  Protocol Error                    : 0
  Unsupported Messages Received     : 0
```

```
T3 Response Timer Expires          : 0


Message Type                                      Received        Transmitted
-------------------------------------------------------------------------------
Total number of messages                          16              16
Total number of bytes                             332             292
Redirect messages                                 0               0
S11 piggyback messages                            0               0
S4 piggyback messages                             0               0
S5 piggyback messages                             0               0
Echo Request                                      15              0
Echo Response                                     0               15
Version Not Supported                             0               0
Create session request                            1               0
Create session response                           0               1
Modify bearer request                             0               0
Modify bearer response                            0               0
Delete session request                            0               0
Delete session response                           0               0
Create bearer request                             0               0
Create bearer response                            0               0
Update bearer request                             0               0
Update bearer response                            0               0
Delete bearer request                             0               0
Delete bearer response                            0               0
Delete PDN connection set request                 0               0
Delete PDN connection set response                0               0
Update PDN connection set request                 0               0
Update PDN connection set response                0               0
Modify bearer command                             0               0
Modify bearer failure indication                  0               0
Delete bearer command                             0               0
Delete bearer failure indication                  0               0
Bearer resource command                           0               0
Bearer resource failure indication                0               0
Change notification request                       0               0
Change notification response                      0               0
Release Access Bearer request                     0               0
Release Access Bearer response                    0               0
Suspend Notification                              0               0
Suspend Acknowledge                               0               0
Resume Notification                               0               0
Resume Acknowledge                                0               0
Create Indirect Data Forward Tunnel Request       0               0
Create Indirect Data Forward Tunnel Response      0               0
Delete Indirect Data Forward Tunnel Request       0               0
Delete Indirect Data Forward Tunnel Response      0               0
Downlink Data Notification                        0               0
Downlink Data Notification ack                    0               0
Downlink Data Notification fail                   0               0
Stop paging indication                            0               0


Cause Code                                        Received        Transmitted
-------------------------------------------------------------------------------
Request accepted                                  0               1
Request accepted partially                        0               0
New PDN type due to network preference            0               0
New PDN type due to single address bearer only    0               0
Local Detach                                      0               0
```


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```
Complete Detach                                  0                0
RAT changed from 3GPP to Non 3GPP                0                0
ISR Deactivated                                  0                0
Error Indication from RNC Enodeb                 0                0
Context Not Found                                0                0
Invalid Message Format                           0                0
Version not supported by next peer               0                0
Invalid length                                   0                0
Service not supported                            0                0
Mandatory IE incorrect                           0                0
Mandatory IE missing                             0                0
Optional IE incorrect                            0                0
System failure                                   0                0
No resources available                           0                0
Semantic error in the TFT operation              0                0
Syntactic error in the TFT operation             0                0
Semantic errors in packet filter(s)              0                0
Syntactic errors in packet filter(s)             0                0
Missing or unknown APN                           0                0
Unexpected repeated IE                           0                0
GRE key not found                                0                0
Reallocation failure                             0                0
Denied in RAT                                    0                0
Preferred PDN type not supported                 0                0
All dynamic addresses are occupied               0                0
UE context without TFT already activated         0                0
Protocol type not supported                      0                0
UE not responding                                0                0
UE refuses                                       0                0
Service denied                                   0                0
Unable to page UE                                0                0
No memory available                              0                0
User authentication failed                       0                0
APN access denied - no subscription              0                0
Request rejected                                 0                0
P-TMSI Signature Mismatch                        0                0
IMSI Not Known                                   0                0
Semantic Error in the TAD Operation              0                0
Syntactic Error in the TAD Operation             0                0
Reserved Message Value Received                  0                0
Remote Peer Not Responding                       0                0
Collision with Network Initiated Request         0                0
Unable to Page UE due to Suspension              0                0
Conditional IE Missing                           0                0
APN Restriction Type Incompatible                0                0
Invalid Total len                                0                0
Data Forwarding Not Supported                    0                0
Invalid Reply from Remote Peer                   0                0
Invalid Peer                                     0                0
Unknown                                          0                0
```

show unified-edge sgw gtp peer

Syntax

show unified-edge sgw gtp peer
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<local-address *local-address*>
<pic-slot *pic-slot*>
<remote-address *remote-address*>
<routing-instance *routing-instance*>
<s11>
<s12>
<s1u>
<s4>
<s5>
<s8>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the information about GTP peers for one or more Serving Gateways (S-GWs). If a gateway is not specified, then the information for all S-GWs is displayed.

Options

none—Display the GTP peer information in brief.

detail—(Optional) Display detailed information about GTP peers.

fpc-slot *fpc-slot*—(Optional) Display the GTP peer information for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display the GTP peer information for the specified gateway.

local-address *local-address*—(Optional) Display the GTP peer information for the local address of the specified peer on the S-GW.

pic-slot *pic-slot*—(Optional) Display the GTP peer information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

remote-address *remote-address*—(Optional) Display the GTP peer information for the peer with the specified remote address.

routing-instance *routing-instance*—(Optional) Display the GTP information for the peer on the specified routing instance name.

NOTE: **If you specify the routing instance, you must also specify the remote address of the peer.**

s11—Display the information about GTP peers on the s11 interface.

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s12—Display the information about GTP peers on the s12 interface.

s1u—Display the information about GTP peers on the s1u interface.

s4—Display the information about GTP peers on the s4 interface.

s5—Display the information about GTP peers on the s5 interface.

s8—Display the information about GTP peers on the s8 interface.

Required Privilege Level view

Related Documentation

- clear unified-edge sgw gtp peer statistics on page 955
- show unified-edge sgw gtp peer count on page 991
- show unified-edge sgw gtp peer history on page 992
- show unified-edge sgw gtp peer statistics on page 996

List of Sample Output show unified-edge sgw gtp peer on page 990
show unified-edge sgw gtp peer detail on page 990

Output Fields Table 74 on page 987 lists the output fields for the **show unified-edge sgw gtp peer** command. Output fields are listed in the approximate order in which they appear.

Table 74: show unified-edge sgw gtp peer Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW for which the GTP peer information is displayed.	All levels
Remote IP Address	Remote IP address of the GTP peer.	All levels
Local IP Address	Local IP address of the GTP peer on the S-GW.	All levels
Routing Instance	Name of the routing instance on which the GTP peer is located.	All levels
Interface Type	Type of 3GPP interface; for example S11, S4, and so on.	**detail**
GTP Version	GTP version number.	**detail**
RCM Registration Done	This parameter is used internally by the S-GW.	**detail**
Restart Counter Valid	Indicates whether the restart counter of the peer is valid or not.	**detail**
Restart Counter Value	Current restart count of the peer.	**detail**
Sent Restart Counter Value	Restart counter value of the S-GW that was sent to the peer.	**detail**

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Table 74: show unified-edge sgw gtp peer Output Fields *(continued)*

Field Name	Field Description	Level of Output
Control Path N3 Request	Maximum number of times that the S-GW attempts to send a signaling request message to a control peer.	**detail**
Control Path T3 Timer	Response timeout for GTP signaling request messages to a control peer.	**detail**
Control Path Echo N3 Request	Maximum number of retries of GTP echo request messages (for path management) to a control peer.	**detail**
Control Path Echo T3 Timer	Response timeout for GTP echo request messages (for path management) to a control peer.	**detail**
Control Path Echo Interval	Number of seconds that the S-GW waits before sending an echo request message (for path management) to its control peer (MME, S4-SGSN, or P-GW).	**detail**
Control Path Management Enabled	Indicates whether path management is enabled or not for the control plane.	**detail**
Control Path State	Path state of the GTP control plane: • **Up**—Indicates that echo requests are being transmitted and responses are being received, which means that the peer is alive. • **Down**—Indicates that echo requests are being transmitted but responses are not being received, which means that the peer is detected to be dead. • **Not tracked**—Indicates that path management is disabled, which means that echo requests are not sent to the peer.	**detail**
Control Path State	Minimum response time, in microseconds, for GTP-C messages.	**detail**
Control Peer Down Count	Number of times that the control path for the peer was down.	**detail**
Control Max Response Time in usec	Maximum response time, in microseconds, for GTP-C messages.	**detail**
Control Avg Response Time in usec	Average response time, in microseconds, for GTP-C messages.	**detail**
Data Path Echo N3 Request	Maximum number of retries of GTP echo request messages (for path management) to a data peer.	**detail**
Data Path Echo T3 Timer	Response timeout for GTP echo request messages (for path management) to a data peer.	**detail**
Data Path Echo Interval	Number of seconds that the S-GW waits before sending an echo request message (for path management) to its data peer.	**detail**
Data Path Management Enabled	Indicates whether path management is enabled or not for the data plane.	**detail**

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Table 74: show unified-edge sgw gtp peer Output Fields *(continued)*

Field Name	Field Description	Level of Output
Data Path State	Path state of the GTP user plane: • **Up**—Indicates that echo requests are being transmitted and responses are being received, which means that the peer is alive. • **Down**—Indicates that echo requests are being transmitted but responses are not being received, which means that the peer is detected to be dead. • **Not tracked**—Indicates that path management is disabled, which means that echo requests are not sent to the peer.	**detail**
Data Peer Down Count	Number of times that the data path for the peer was down.	**detail**
GTP-C using Short Sequence Number	Indicates whether the peer is using the 16-bit-sequence number length.	**detail**
Downlink Data Notification Delay Interval	Downlink data notification delay received from the MME.	**detail**
Is CSID Supported	Indicates whether the connection set identifier (CSID) is supported by peer or not.	**detail**
Peer Create Time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the peer was created on the gateway.	**detail**

Sample Output

show unified-edge sgw gtp peer

```
user@host> show unified-edge sgw gtp peer
Gateway: sgw1
Remote IP Address       Local IP Address       Routing Instance
-----------------------------------------------------------------
50.50.50.5                  200.1.99.1               vrfgn
50.50.50.1                  200.1.99.1               vrfgn
```

show unified-edge sgw gtp peer detail

```
user@host> show unified-edge sgw gtp peer detail
Gateway: sgw1


Peer :


Remote IP Address                    : 50.50.50.5
Local IP Address                     : 200.1.99.1
Routing Instance                     : vrfgn
Interface Type                       : S5
GTP Version                          : 2
RCM Registration Done                : yes
Restart Counter Valid                : yes
Restart Counter Value                : 0
Sent Restart Counter Value           : 147
Control Path N3 Request              : 3
Control Path T3 Timer                : 5
Control Path Echo N3 Request         : 8
Control Path Echo T3 Timer           : 15
Control Path Echo Interval           : 60
Control Path Management Enabled      : no
Control Path State                   : not-tracked
Control Peer Down Count              : 0
Control Min Response Time in usec    : 31132
Control Max Response Time in usec    : 31132
Control Avg Response Time in usec    : 31132
Data Path Echo N3 Request            : 8
Data Path Echo T3 Timer              : 15
Data Path Echo Interval              : 60
Data Path Management Enabled         : no
Data Path State                      : not-tracked
Data Peer Down Count                 : 0
GTP-C using Short Sequence Number    : no
Downlink data notif delay Interval   : 0
CSID Supported                       : no
Peer Create Time                     : 2012-08-08 13:32:54 PDT (00:00:15 ago)

[...output truncated...]
```


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show unified-edge sgw gtp peer count

Syntax **show unified-edge sgw gtp peer count**

Release Information Statement introduced in Junos OS Mobility Release 11.4W.

Description Display the number of GTP peers on each interface and the total number of GTP peers for one or more Serving Gateways (S-GWs).

Options This command has no options.

Required Privilege Level view

Related Documentation
- show unified-edge sgw gtp peer on page 986

List of Sample Output show unified-edge sgw gtp peer count on page 991

Output Fields Table 75 on page 991 lists the output fields for the **show unified-edge sgw gtp peer count** command. Output fields are listed in the approximate order in which they appear.

Table 75: show unified-edge sgw gtp peer Output Fields

Field Name	Field Description
Interface Name	Name of the interface (S1u, S11, S12, S4, S5, S8, and All) for which the GTP peer count is displayed.
Peer Count	The number of peers corresponding to the interface name (S1u, S11, S12, S4, S5, S8, and All) is displayed.

Sample Output

show unified-edge sgw gtp peer count

```
user@host> show unified-edge sgw gtp peer count
Gateway: SGW
Interface Name           Peer Count
-----------------------------------
S1u Interface                    1
S11 Interface                    1
S12 Interface                    0
S4 Interface                     0
S5 Interface                     1
S8 Interface                     0
All Interfaces                   3
```

show unified-edge sgw gtp peer history

Syntax

show unified-edge sgw gtp peer history
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<local-address *local-address*>
<pic-slot *pic-slot*>
<remote-address *remote-address*>
<routing-instance *name*>

Release Information

Statement introduced in Junos OS Mobility Release 12.1W.

Description

Display the information about GTP peers that are no longer present on one or more Serving Gateways (S-GWs). If an S-GW is not specified, then the information about peers not present on the gateway is displayed for all S-GWs.

Options

none—Display the information about GTP peers that are no longer present on the gateway, in brief.

detail—(Optional) Display detailed information about GTP peers that are no longer present on the gateway.

fpc-slot *fpc-slot*—(Optional) Display the information about GTP peers that are no longer present on the gateway, for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display information about GTP peers that are no longer on the specified gateway.

local-address *local-address*—(Optional) Display the GTP peer history information for the local address of the specified peer on the S-GW.

NOTE: **If you specify the local address, you must also specify the remote address of the peer.**

pic-slot *pic-slot*—(Optional) Display the information about GTP peers that are no longer present on the gateway, for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

remote-address *remote-address*—(Optional) Display the GTP peer history information for the peer with the specified remote address.

routing-instance *routing-instance*—(Optional) Display the GTP peer history information for the peer on the specified routing instance name.

NOTE: **If you specify the routing instance, you must also specify the remote address of the peer.**

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Required Privilege Level view

Related Documentation

- clear unified-edge sgw gtp peer statistics on page 955
- show unified-edge sgw gtp peer on page 986
- show unified-edge sgw gtp peer count on page 991
- show unified-edge sgw gtp peer statistics on page 996

List of Sample Output show unified-edge sgw gtp peer history on page 995
show unified-edge sgw gtp peer history detail on page 995

Output Fields Table 76 on page 993 lists the output fields for the **show unified-edge sgw gtp peer history** command. Output fields are listed in the approximate order in which they appear.

Table 76: show unified-edge sgw gtp peer Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels
Remote IP Address	Remote IP address of the GTP peer.	All levels
Local IP Address	Local IP address of the GTP peer on the gateway.	All levels
Routing Instance	Name of the routing instance on which the GTP peer was located.	All levels
Reason for Removal	Indicates the reason why the peer was deleted: • **All sessions are down** • **Peer restarted** • **Peer went down**	**detail**
Restart Counter Valid	Indicates whether the restart counter of the peer was valid or not, at the time of deletion.	**detail**
Restart Counter Value	Last restart count of the peer.	**detail**
Prev Restart Counter Valid	Indicates whether the penultimate restart counter of the peer was valid or not.	**detail**
Prev restart counter Value	Penultimate restart counter of the peer.	**detail**

Table 76: show unified-edge sgw gtp peer Output Fields *(continued)*

Field Name	Field Description	Level of Output
Last Control Path State	Path state of the GTP control plane before the peer was deleted: • **Up**—Indicates that echo requests were being transmitted and responses were being received, which means that the peer was alive. • **Down**—Indicates that echo requests were being transmitted but responses were not being received, which means that the peer was detected to be dead. • **Not tracked**—Indicates that path management was disabled, which means that echo requests were not sent to the peer.	**detail**
Last Data Path State	Path state of the GTP user plane before the peer was deleted: • **Up**—Indicates that echo requests were being transmitted and responses were being received, which means that the peer was alive. • **Down**—Indicates that echo requests were being transmitted but responses were not being received, which means that the peer was detected to be dead. • **Not tracked**—Indicates that path management was disabled, which means that echo requests were not sent to the peer.	**detail**
Peer Control Down Count	Number of times that the control path for the peer was down.	**detail**
Peer Data Down Count	Number of times that the data path for the peer was down.	**detail**
Peer Create Time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the peer was created on the gateway.	**detail**
Peer Delete Time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the peer was deleted.	**detail**
Last Path down time	Date and time, in YYYY-MM-DD (year, month, day) HH-MM-SS (hours, minutes, seconds) format, when the last path in the deleted GTP peer went down.	**detail**

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Sample Output

show unified-edge sgw gtp peer history

```
user@host> show unified-edge sgw gtp peer history
Gateway: SGW
Remote IP Address       Local IP Address       Routing Instance
-----------------------------------------------------------------
50.50.50.1                  200.6.111.1             default
200.6.88.1                  200.6.111.1             default
```

show unified-edge sgw gtp peer history detail

```
user@host> show unified-edge sgw gtp peer history detail
Gateway: SGW


Peer :


Remote IP Address                    : 50.50.50.1
Local IP Address                     : 200.6.111.1
Routing Instance                     : default
Reason for Removal                   : All sessions are down
Restart Counter Valid                : yes
Restart Counter Value                : 0
Prev Restart Counter Valid           : no
Prev restart counter Value           : 0
Last Control Path State              : not-tracked
Last Data Path State                 : not-tracked
Peer Control Down Count              : 0
Peer Data Down Count                 : 0
Peer Create Time                     : 2012-08-09 12:15:04 PDT (00:01:37 ago)
Peer Delete Time                     : 2012-08-09 12:15:58 PDT (00:00:43 ago)
Last Path down time                  : 0

[...output truncated...]
```

show unified-edge sgw gtp peer statistics

Syntax

show unified-edge sgw gtp peer statistics remote-address ***remote-address***
<**detail**>
<**fpc-slot** ***fpc-slot***>
<**gateway** ***gateway***>
<**local-address** ***local-address***>
<**pic-slot** ***pic-slot***>
<**routing-instance** ***routing-instance***>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the GTP peer statistics for one or more Serving Gateways (S-GWs). If a gateway is not specified, then the statistics for all the S-GWs is displayed.

Options

remote-address ***remote-address***—Display the GTP peer statistics for the peer with the specified remote address.

detail—(Optional) Display detailed statistics about GTP peers.

fpc-slot ***fpc-slot***—(Optional) Display the GTP peer statistics for the specified FPC slot number.

gateway ***gateway-name***—(Optional) Display the GTP peer statistics for the specified gateway.

local-address ***local-address***—(Optional) Display the GTP peer statistics for the local address of the specified peer on the S-GW.

pic-slot ***pic-slot***—(Optional) Display the GTP peer for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

routing-instance ***routing-instance***—(Optional) Display the GTP peer statistics for the peer on the specified routing instance.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw gtp peer statistics on page 955
- show unified-edge sgw gtp peer on page 986
- show unified-edge sgw gtp statistics on page 1003

List of Sample Output

show unified-edge sgw gtp peer statistics remote-address 136.6.6.2 on page 997
show unified-edge sgw gtp peer statistics remote-address 136.6.6.2 detail on page 999

Output Fields

See the output fields for the **show unified-edge sgw gtp statistics** command.

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Sample Output

show unified-edge sgw gtp peer statistics

```
user@host> show unified-edge sgw gtp peer statistics remote-address 136.6.6.2
Gateway: SGW
```

remote-address 136.6.6.2

```
Global Packet Statistics
  Received Packets Dropped          : 0
  Packet Allocation Fail            : 0
  Packet Send Fail                  : 0
  IP Version Error Received         : 0
  IP Protocol Error Received        : 0
  GTP Port Error Received           : 0
  GTP Unknown Version Received      : 0
  Packet Length Error Received      : 0
  Unknown Messages Received         : 0


GTP Version 2 Statistics:
-------------------------
  Protocol Error                    : 0
  Unsupported Messages Received     : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            25              25
  Total number of bytes                               325             1025
  Redirect messages                                   0               0
  S11 piggyback messages                              0               0
  S4 piggyback messages                               0               0
  S5 piggyback messages                               0               0
  Echo Request                                        0               25
  Echo Response                                       25              0
  Version Not Supported                               0               0
  Create session request                              0               0
  Create session response                             0               0
  Modify bearer request                               0               0
  Modify bearer response                              0               0
  Delete session request                              0               0
  Delete session response                             0               0
  Create bearer request                               0               0
  Create bearer response                              0               0
  Update bearer request                               0               0
  Update bearer response                              0               0
  Delete bearer request                               0               0
  Delete bearer response                              0               0
  Delete PDN connection set request                   0               0
  Delete PDN connection set response                  0               0
  Update PDN connection set request                   0               0
  Update PDN connection set response                  0               0
  Modify bearer command                               0               0
  Modify bearer failure indication                    0               0
  Delete bearer command                               0               0
  Delete bearer failure indication                    0               0
  Bearer resource command                             0               0
  Bearer resource failure indication                  0               0
  Change notification request                         0               0
  Change notification response                        0               0
  Release Access Bearer request                       0               0

  Release Access Bearer response                      0               0

  Suspend Notification                                0               0
  Suspend Acknowledge                                 0               0
  Resume Notification                                 0               0
  Resume Acknowledge                                  0               0
```


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```
  Create Indirect Data Forward Tunnel Request       0               0
  Create Indirect Data Forward Tunnel Response      0               0
  Delete Indirect Data Forward Tunnel Request       0               0
  Delete Indirect Data Forward Tunnel Response      0               0
  Downlink Data Notification                        0               0
  Downlink Data Notification ack                    0               0
  Downlink Data Notification fail                   0               0
  Stop paging indication                            0               0
```

show unified-edge sgw gtp peer statistics

```
user@host> show unified-edge sgw gtp peer statistics remote-address 136.6.6.2 detail
Gateway: SGW
```

remote-address 136.6.6.2 detail

```
Global Packet Statistics
  Received Packets Dropped          : 0
  Packet Allocation Fail            : 0
  Packet Send Fail                  : 0
  IP Version Error Received         : 0
  IP Protocol Error Received        : 0
  GTP Port Error Received           : 0
  GTP Unknown Version Received      : 0
  Packet Length Error Received      : 0
  Unknown Messages Received         : 0

GTP Version 2 Statistics:
-------------------------
  Protocol Error                    : 0
  Unsupported Messages Received     : 0
  T3 Response Timer Expires         : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            26              26
  Total number of bytes                               338             1066
  Redirect messages                                   0               0
  S11 piggyback messages                              0               0
  S4 piggyback messages                               0               0
  S5 piggyback messages                               0               0
  Echo Request                                        0               26
  Echo Response                                       26              0
  Version Not Supported                               0               0
  Create session request                              0               0
  Create session response                             0               0
  Modify bearer request                               0               0
  Modify bearer response                              0               0
  Delete session request                              0               0
  Delete session response                             0               0
  Create bearer request                               0               0
  Create bearer response                              0               0
  Update bearer request                               0               0
  Update bearer response                              0               0
  Delete bearer request                               0               0
  Delete bearer response                              0               0
  Delete PDN connection set request                   0               0
  Delete PDN connection set response                  0               0
  Update PDN connection set request                   0               0
  Update PDN connection set response                  0               0
  Modify bearer command                               0               0
  Modify bearer failure indication                    0               0
  Delete bearer command                               0               0
  Delete bearer failure indication                    0               0
  Bearer resource command                             0               0
  Bearer resource failure indication                  0               0
  Change notification request                         0               0
  Change notification response                        0               0
  Release Access Bearer request                       0               0

  Release Access Bearer response                      0               0

  Suspend Notification                                0               0
  Suspend Acknowledge                                 0               0
  Resume Notification                                 0               0
  Resume Acknowledge                                  0               0
```


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```
Create Indirect Data Forward Tunnel Request       0               0
Create Indirect Data Forward Tunnel Response      0               0
Delete Indirect Data Forward Tunnel Request       0               0
Delete Indirect Data Forward Tunnel Response      0               0
Downlink Data Notification                        0               0
Downlink Data Notification ack                    0               0
Downlink Data Notification fail                   0               0
Stop paging indication                            0               0


Cause Code                                        Received        Transmitted
-------------------------------------------------------------------------------
Request accepted                                  0               0
Request accepted partially                        0               0
New PDN type due to network preference            0               0
New PDN type due to single address bearer only    0               0
Local Detach                                      0               0
Complete Detach                                   0               0
RAT changed from 3GPP to Non 3GPP                 0               0
ISR Deactivated                                   0               0
Error Indication from RNC Enodeb                  0               0
Context Not Found                                 0               0
Invalid Message Format                            0               0
Version not supported by next peer                0               0
Invalid length                                    0               0
Service not supported                             0               0
Mandatory IE incorrect                            0               0
Mandatory IE missing                              0               0
Optional IE incorrect                             0               0
System failure                                    0               0
No resources available                            0               0
Semantic error in the TFT operation               0               0
Syntactic error in the TFT operation              0               0
Semantic errors in packet filter(s)               0               0
Syntactic errors in packet filter(s)              0               0
Missing or unknown APN                            0               0
Unexpected repeated IE                            0               0
GRE key not found                                 0               0
Reallocation failure                              0               0
Denied in RAT                                     0               0
Preferred PDN type not supported                  0               0
All dynamic addresses are occupied                0               0
UE context without TFT already activated          0               0
Protocol type not supported                       0               0
UE not responding                                 0               0
UE refuses                                        0               0
Service denied                                    0               0
Unable to page UE                                 0               0
No memory available                               0               0
User authentication failed                        0               0
APN access denied - no subscription               0               0
Request rejected                                  0               0
P-TMSI Signature Mismatch                         0               0
IMSI Not Known                                    0               0
Semantic Error in the TAD Operation               0               0
Syntactic Error in the TAD Operation              0               0
Reserved Message Value Received                   0               0
Rmt Peer Not Responding                           0               0
Collision with Network Initiated Request          0               0
Unable to Page UE due to Suspension               0               0
Conditional IE Missing                            0               0
```

```
APN Restriction Type Incompatible                0              0
Invalid Total len                                0              0
Data Forwarding Not Supported                    0              0
Invalid Reply from Rmt Peer                      0              0
Invalid Peer                                     0              0
Unknown                                          0              0
```


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show unified-edge sgw gtp statistics

Syntax

show unified-edge sgw gtp statistics
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>
<s11>
<s12>
<s1u>
<s4>
<s5>
<s8>
<v1>
<v2>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the global GTP statistics for one or more Serving Gateways (S-GWs). If a gateway is not specified, then statistics for all S-GWs are displayed.

Options

none—Display the GTP statistics in brief.

detail—(Optional) Display the GTP statistics with the GTP cause statistics included.

fpc-slot *fpc-slot*—(Optional) Display the GTP statistics for the specified FPC slot number.

gateway *gateway-name*—(Optional) Display the GTP statistics for the specified gateway.

pic-slot *pic-slot*—(Optional) Display the GTP statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

s11—Display the GTP statistics for only the s11 interface.

s12—Display the GTP statistics for only the s12 interface.

s1u—Display the GTP statistics for only the s1u interface.

s5—Display the GTP statistics for only the s5 interface.

s8—Display the GTP statistics for only the s8 interface.

v1—(Optional) Display GTP version 1 statistics.

v2—(Optional) Display GTP version 2 statistics.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw gtp statistics on page 956
- show unified-edge sgw gtp peer statistics on page 996

List of Sample Output show unified-edge sgw gtp statistics on page 1006
show unified-edge sgw gtp statistics detail on page 1007

Output Fields Table 77 on page 1004 lists the output fields for the **show unified-edge sgw gtp statistics** command. Output fields are listed in the approximate order in which they appear.

Table 77: show unified-edge sgw gtp statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
Global Packet Statistics		
Received Packets Dropped	Total number of packets received by the S-GW that were dropped.	All levels
Packet Allocation Fail	Number of times that packet allocation failed.	All levels
Packet Send Fail	Number of times that packet sending failed.	All levels
IP Version Error Received	Number of packets with an unsupported IP version.	All levels
IP Protocol Error Received	Number of non-UDP IP packets received.	All levels
GTP Port Error Received	Number of packets received on a unknown GTP port number.	All levels
GTP Unknown Version Received	Number of GTP packets with an incorrect GTP version.	All levels
Packet Length Error Received	Number of GTP packets with incorrect length in the IP or UDP header.	All levels
Unknown Messages Received	Number of GTP messages received that are not recognized by the S-GW.	All levels
GTP Version 1 Statistics		
Protocol Error	Number of messages received that had a protocol error. This counter is incremented if a message with an invalid or unknown GTP message type is received.	All levels
Unsupported Messages Received	Number of unsupported messages received. This counter is incremented if the message is invalid for the interface on which the message is received.	All levels
T3 Response Timer Expires	Number of messages for which the T3 response timer elapsed.	All levels
Message Type	Type of the GTP message; for example, **Echo Request** or **Error Indication**.	All levels
Received	Number of GTP messages received corresponding to the message type.	All levels
Transmitted	Number of GTP messages transmitted corresponding to the message type.	All levels

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Table 77: show unified-edge sgw gtp statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
GTP Version 2 Statistics		
Protocol Error	Number of messages received that had a protocol error. This counter is incremented if a message with an invalid or unknown GTP message type is received.	All levels
Unsupported Messages Received	Number of messages received that had a protocol error. This counter is incremented if a message with an invalid or unknown GTP message type is received.	All levels
T3 Response Timer Expires	Number of messages for which the T3 response timer elapsed.	All levels
Message Type	Type of the GTP message; for example, **S11 piggyback messages** or **Create session response**.	All levels
Received	Number of GTP messages received corresponding to the message type.	All levels
Transmitted	Number of GTP messages transmitted corresponding to the message type.	All levels
Cause Code	GTP cause codes; for example, **Request accepted** or **Missing or unknown APN**.	**detail**
Received	Number of GTP messages received corresponding to the GTP cause code.	**detail**
Transmitted	Number of GTP messages transmitted corresponding to the GTP cause code.	**detail**

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Sample Output

show unified-edge sgw gtp statistics

```
user@host> show unified-edge sgw gtp statistics
Gateway: SGW

Global Packet Statistics
  Received Packets Dropped           : 0
  Packet Allocation Fail             : 0
  Packet Send Fail                   : 0
  IP Version Error Received          : 0
  IP Protocol Error Received         : 0
  GTP Port Error Received            : 0
  GTP Unknown Version Received       : 0
  Packet Length Error Received       : 0
  Unknown Messages Received          : 0

GTP Version 1 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  End Marker                                          0               0
  Echo Request                                        0               0
  Echo Response                                       0               0
  Error Indication                                    0               0

GTP Version 2 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                        Received        Transmitted
  ---------------------------------------------------------------------------------
  Total number of messages                            923             924
  Total number of bytes                               9191            13225
  Redirect messages                                   0               0
  S11 piggyback messages                              0               0
  S4 piggyback messages                               0               0
  S5 piggyback messages                               0               0
  Echo Request                                        907             0
  Echo Response                                       0               907
  Version Not Supported                               0               0
  Create session request                              3               3
  Create session response                             3               3
  Modify bearer request                               3               0
  Modify bearer response                              0               3
  Delete session request                              6               5
  Delete session response                             1               3
  Create bearer request                               0               0
  Create bearer response                              0               0
  Update bearer request                               0               0
  Update bearer response                              0               0
  Delete bearer request                               0               0
  Delete bearer response                              0               0
```


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```
  Delete PDN connection set request                0              0
  Delete PDN connection set response               0              0
  Update PDN connection set request                0              0
  Update PDN connection set response               0              0
  Modify bearer command                            0              0
  Modify bearer failure indication                 0              0
  Delete bearer command                            0              0
  Delete bearer failure indication                 0              0
  Bearer resource command                          0              0
  Bearer resource failure indication               0              0
  Change notification request                      0              0
  Change notification response                     0              0
  Release Access Bearer request                    0              0
  Release Access Bearer response                   0              0
  Suspend Notification                             0              0
  Suspend Acknowledge                              0              0
  Resume Notification                              0              0
  Resume Acknowledge                               0              0
  Create Indirect Data Forward Tunnel Request      0              0
  Create Indirect Data Forward Tunnel Response     0              0
  Delete Indirect Data Forward Tunnel Request      0              0
  Delete Indirect Data Forward Tunnel Response     0              0
  Downlink Data Notification                       0              0
  Downlink Data Notification ack                   0              0
  Downlink Data Notification fail                  0              0
  Stop paging indication                           0              0
```

show unified-edge sgw gtp statistics detail

```
user@host> show unified-edge sgw gtp statistics detail
Gateway: SGW

Global Packet Statistics
  Received Packets Dropped           : 0
  Packet Allocation Fail             : 0
  Packet Send Fail                   : 0
  IP Version Error Received          : 0
  IP Protocol Error Received         : 0
  GTP Port Error Received            : 0
  GTP Unknown Version Received       : 0
  Packet Length Error Received       : 0
  Unknown Messages Received          : 0

GTP Version 1 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0


  Message Type                                     Received        Transmitted
  ---------------------------------------------------------------------------
  End Marker                                       0               0
  Echo Request                                     0               0
  Echo Response                                    0               0
  Error Indication                                 0               0

GTP Version 2 Statistics:
-------------------------
  Protocol Error                     : 0
  Unsupported Messages Received      : 0
  T3 Response Timer Expires          : 0
```

```
Message Type                                      Received        Transmitted
--------------------------------------------------------------------------------
Total number of messages                          925             926
Total number of bytes                             9209            13251
Redirect messages                                 0               0
S11 piggyback messages                            0               0
S4 piggyback messages                             0               0
S5 piggyback messages                             0               0
Echo Request                                      909             0
Echo Response                                     0               909
Version Not Supported                             0               0
Create session request                            3               3
Create session response                           3               3
Modify bearer request                             3               0
Modify bearer response                            0               3
Delete session request                            6               5
Delete session response                           1               3
Create bearer request                             0               0
Create bearer response                            0               0
Update bearer request                             0               0
Update bearer response                            0               0
Delete bearer request                             0               0
Delete bearer response                            0               0
Delete PDN connection set request                 0               0
Delete PDN connection set response                0               0
Update PDN connection set request                 0               0
Update PDN connection set response                0               0
Modify bearer command                             0               0
Modify bearer failure indication                  0               0
Delete bearer command                             0               0
Delete bearer failure indication                  0               0
Bearer resource command                           0               0
Bearer resource failure indication                0               0
Release Access Bearer request                     0               0
Release Access Bearer response                    0               0
Suspend Notification                              0               0
Suspend Acknowledge                               0               0
Resume Notification                               0               0
Resume Acknowledge                                0               0
Create Indirect Data Forward Tunnel Request       0               0
Create Indirect Data Forward Tunnel Response      0               0
Delete Indirect Data Forward Tunnel Request       0               0
Delete Indirect Data Forward Tunnel Response      0               0
Downlink Data Notification                        0               0
Downlink Data Notification ack                    0               0
Downlink Data Notification fail                   0               0
Stop paging indication                            0               0
```

```
Cause Code                                        Received        Transmitted
--------------------------------------------------------------------------------
Request accepted                                  4               9
Request accepted partially                        0               0
New PDN type due to network preference            0               0
New PDN type due to single address bearer only    0               0
Local Detach                                      0               0
Complete Detach                                   0               0
RAT changed from 3GPP to Non 3GPP                 0               0
ISR Deactivated                                   0               0
```


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Error Indication from RNC Enodeb	0	0
Context Not Found	0	0
Invalid Message Format	0	0
Version not supported by next peer	0	0
Invalid length	0	0
Service not supported	0	0
Mandatory IE incorrect	0	0
Mandatory IE missing	0	0
Optional IE incorrect	0	0
System failure	0	0
No resources available	0	0
Semantic error in the TFT operation	0	0
Syntactic error in the TFT operation	0	0
Semantic errors in packet filter(s)	0	0
Syntactic errors in packet filter(s)	0	0
Missing or unknown APN	0	0
Unexpected repeated IE	0	0
GRE key not found	0	0
Reallocation failure	0	0
Denied in RAT	0	0
Preferred PDN type not supported	0	0
All dynamic addresses are occupied	0	0
UE context without TFT already activated	0	0
Protocol type not supported	0	0
UE not responding	0	0
UE refuses	0	0
Service denied	0	0
Unable to page UE	0	0
No memory available	0	0
User authentication failed	0	0
APN access denied - no subscription	0	0
Request rejected	0	0
P-TMSI Signature Mismatch	0	0
IMSI Not Known	0	0
Semantic Error in the TAD Operation	0	0
Syntactic Error in the TAD Operation	0	0
Reserved Message Value Received	0	0
Remote Peer Not Responding	0	0
Collision with Network Initiated Request	0	0
Unable to Page UE due to Suspension	0	0
Conditional IE Missing	0	0
APN Restriction Type Incompatible	0	0
Invalid Total len	0	0
Data Forwarding Not Supported	0	0
Invalid Reply from Remote Peer	0	0
Invalid Peer	0	0
Unknown	0	0

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CHAPTER 27

IP Reassembly Operational Commands

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clear services inline ip-reassembly statistics

Syntax clear services inline ip-reassembly statistics

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Clear the inline IP reassembly statistics for the Packet Forwarding Engines on one or more Trio-based FPCs.

If this command is executed when traffic is flowing, then the inline IP reassembly statistics are cleared up to the instant of running the command. If traffic is stopped, then all inline IP reassembly statistics are cleared.

Options This command has no options.

Required Privilege Level clear

Related Documentation

- show services inline ip-reassembly statistics on page 1017

List of Sample Output clear services inline ip-reassembly statistics on page 1012

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear services inline ip-reassembly statistics

```
user@host> clear services inline ip-reassembly statistics
Cleared inline ip-reassembly statistics
```


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clear services inline ip-reassembly statistics fpc

Syntax clear services inline ip-reassembly statistics fpc *fpc-slot* <pfe *pfe-slot*>

Release Information Command introduced in Junos OS Mobility Release 12.1W.

Description Clear the inline IP reassembly statistics for the specified FPC.

If this command is executed when traffic is flowing, then the inline IP reassembly statistics are cleared up to the instant of running the command. If traffic is stopped, then all inline IP reassembly statistics for the specified FPC are cleared.

Options fpc *fpc-slot*—Clear the inline IP reassembly statistics for all Packet Forwarding Engines on the specified FPC.

pfe *pfe-slot*—(Optional) Clear the inline IP reassembly statistics for the specified Packet Forwarding Engine slot. You must specify an FPC slot number before specifying a Packet Forwarding Engine slot.

Required Privilege Level clear

Related Documentation

- show services inline ip-reassembly statistics fpc on page 1023

List of Sample Output clear services inline ip-reassembly statistics fpc <fpc-slot> on page 1013

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear services inline ip-reassembly statistics fpc <fpc-slot>

```
user@host> clear services inline ip-reassembly statistics fpc 1
Cleared inline ip-reassembly statistics
```

clear services inline ip-reassembly statistics interface

Syntax clear services inline ip-reassembly statistics interface *interface-name*

Release Information Command introduced in Junos OS Mobility Release 12.1W.

Description Clear the inline IP reassembly statistics for the specified interface.

If this command is executed when traffic is flowing, then the inline IP reassembly statistics are cleared up to the instant of running the command. If traffic is stopped, then all inline IP reassembly statistics for the specified interface are cleared.

Options interface *interface-name*—Clear the inline IP reassembly statistics for all FPCs on the specified interface. Currently, the inline services interface (**si-**) is the only interface supported.

Required Privilege Level clear

Related Documentation

- show services inline ip-reassembly statistics interface on page 1026

List of Sample Output clear services inline ip-reassembly statistics interface <interface-slot> on page 1014

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear services inline ip-reassembly statistics interface <interface-slot>

```
user@host> clear services inline ip-reassembly statistics interface si-4/2/0
Cleared inline ip-reassembly statistics
```

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clear unified-edge ggsn-pgw ip-reassembly statistics

Syntax

clear unified-edge ggsn-pgw ip-reassembly statistics
<**fpc-slot** *fpc-slot*>
<**gateway** *gateway*>
<*inet*>
<**pic-slot** *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Clear the IP reassembly statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are cleared.

Options

none—Clear the IP reassembly statistics for all GGSNs and P-GWs.

fpc-slot *fpc-slot* **pic-slot** *pic-slot*—(Optional) Clear the IP reassembly statistics for the specified Flexible PIC Concentrator (FPC) and PIC slot numbers.

gateway—(Optional) Clear the IP reassembly statistics for all the services PICs in the specified GGSN or P-GW.

inet—(Optional) Clear the IP reassembly for IPv4 packets.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw ip-reassembly statistics on page 1028

List of Sample Output

clear unified-edge ggsn-pgw ip-reassembly statistics on page 1015

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge ggsn-pgw ip-reassembly statistics

```
user@host>  clear unified-edge ggsn-pgw ip-reassembly statistics
 Cleared IP re-assembly statistics
```

clear unified-edge sgw ip-reassembly statistics

Syntax

clear unified-edge sgw ip-reassembly statistics
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<inet>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the IP reassembly statistics for one or more Serving Gateways (S-GWs). If a gateway name is not specified, then statistics for all S-GWs are cleared.

Options

none—Clear the IP reassembly statistics for all S-GWs.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Clear the IP reassembly statistics for the specified Flexible PIC Concentrator (FPC) and PIC slot numbers.

gateway—(Optional) Clear the IP reassembly statistics for all the services PICs in the specified gateway.

inet—(Optional) Clear the IP reassembly statistics for IPv4 packets.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge sgw ip-reassembly statistics on page 1031

List of Sample Output

clear unified-edge sgw ip-reassembly statistics on page 1016

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge sgw ip-reassembly statistics

```
user@host> clear unified-edge sgw ip-reassembly statistics
 Cleared IP re-assembly statistics
```


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show services inline ip-reassembly statistics

Syntax show services inline ip-reassembly statistics

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Display the inline IP reassembly statistics for the Packet Forwarding Engines on one or more Trio-based FPCs. Inline IP reassembly statistics are collected at the Packet Forwarding Engine level.

NOTE: Inline IP reassembly can only be carried out on Trio-based FPCs.

Options This command has no options.

Required Privilege Level view

Related Documentation

- clear services inline ip-reassembly statistics on page 1012
- show services inline ip-reassembly statistics fpc on page 1023
- show services inline ip-reassembly statistics interface on page 1026

List of Sample Output show services inline ip-reassembly statistics on page 1021

Output Fields Table 78 on page 1017 lists the output fields for the **show services inline ip-reassembly statistics** command. Output fields are listed in the approximate order in which they appear.

Table 78: show services inline ip-reassembly statistics Output Fields

Field Name	Field Description
FPC	FPC slot number for which the statistics are displayed.

NOTE: The output fields displayed (aggregated across all the Packet Forwarding Engines on the FPC) are arranged in a logical sequence from top to bottom to enable users to understand how the inline IP reassembly statistics are gathered.

The information about the total number of fragments received is displayed first, then the information about the reassembled packets and those pending reassembly are displayed. Then, the reasons why the fragments were dropped or not reassembled are displayed. Finally, the information about the fragments reassembled, fragments dropped, and fragments sent to the backup user plane PIC (services PIC) are displayed.

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Table 78: show services inline ip-reassembly statistics Output Fields *(continued)*

Field Name	Field Description
Total Fragments Received	Total number of fragments received and the current rate of fragments received for inline IP reassembly. The following information is also displayed: • **First Fragments**—Number of first fragments received and current rate of first fragments processed. • **Intermediate Fragments**—Number of intermediate fragments received and current rate of intermediate fragments processed. • **Last Fragments**—Number and rate of last fragments received. NOTE: Rate refers to the current number of fragments processed per second in the instant preceding the command's execution.
Total Packets Reassembled	Total number of packets reassembled and current rate, in the instant preceding the command's execution, at which the packets are reassembled.
Approximate Packets Pending Reassembly	Approximate number of packets pending reassembly.
Fragments Dropped Reasons	Total number of fragments dropped reasons and the current rate of total fragment dropped reasons. The number of dropped reasons and rate corresponding to each of the following reasons are also displayed: • Buffers not available • Fragments per packet exceeded • Packet length exceeded • Record insert error • Record in use error • Duplicate first fragments • Duplicate last fragments • Missing first fragment NOTE: • The fragment dropped reasons indicate *why* a fragment was dropped. When a fragment is dropped, the corresponding reason field (under the **Fragment Dropped Reasons** field) is incremented by 1. For example, when a fragment is dropped because the memory runs out, the **Buffers not available** field is incremented by 1. • Rate refers to the current number of fragment dropped reasons per second in the instant preceding the command's execution.
Reassembly Errors Reasons	Number of errors during reassembly and the current rate of reassembly errors. The number of errors and the rate for each of the following types of errors are also displayed: • Fragment not found • Fragment not in sequence • ASIC errors NOTE: Rate refers to the current number of reassembly errors processed per second in the instant preceding the command's execution.

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Table 78: show services inline ip-reassembly statistics Output Fields *(continued)*

Field Name	Field Description
Aged out packets	Number of aged out packets and the current number of packets aged out per second in the instant preceding the command's execution. NOTE: In some cases, aged out packets could refer to aged out fragments. This is because if previous fragments of the packet have already been discarded, then there is no way of linking the dropped fragments to the aged out fragments.
Total Fragments Successfully Reassembled	Number of fragments successfully reassembled, and the current number of fragments reassembled per second in the instant preceding the command's execution.

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Table 78: show services inline ip-reassembly statistics Output Fields *(continued)*

Field Name	Field Description

Total Fragments Dropped	Total number of fragments dropped and the current rate of total number of fragments dropped. The number of fragments dropped and rate corresponding to each of the following reasons are also displayed:
	• Buffers not available
	• Fragments per packet exceeded
	• Packet length exceeded
	• Record insert error
	• Record in use error
	• Duplicate first fragments
	• Duplicate last fragments
	• Missing first fragment
	• Fragment not found
	• Fragment not in sequence
	• ASIC errors
	• Aged out fragments
	NOTE:
	• The total fragments dropped indicates *how many* of the packet fragments received were then dropped due to a particular reason.
	For example, consider a packet that has 10 fragments, 9 of which have been received and stored in memory. When the tenth fragment arrives, if the memory runs out (buffers not available), then this fragment is dropped. Since the tenth fragment has been dropped, the other nine fragments must also be dropped. In this case, the **Buffers not available** field (under the **Fragments Dropped Reasons** field) is incremented by 1 and the **Buffers not available** field (under the **Total Fragments Dropped** field) is incremented by 10.
	Now, consider the next packet arriving, which also has 10 fragments. If the first four fragments are stored but the memory runs out for the fifth fragment, then the first five fragments (fifth and the first four) are dropped. In this case, the **Buffers not available** field (under the **Fragments Dropped Reasons** field) is incremented by 1 and the **Buffers not available** field (under the **Total Fragments Dropped** field) is incremented by 5.
	For the remaining fragments of the packet, consider the case where the memory becomes available; the next 5 fragments (6 through 10) that arrive are stored in memory. The fragments are stored until the timeout period elapses, and are eventually dropped. In this case, the **Aged out packets** field is incremented by 1 and the **Aged out fragments** field (under the **Total Fragments Dropped** field) is incremented by 5.
	Therefore, the fragment counters (after both packets have been processed) will be as follows:
	• **Fragments Dropped Reasons**
	  • **Buffers not available** 2
	  • **Aged out packets** 1
	• **Total Fragment Dropped**
	  • **Buffers not available** 15
	  • **Aged out packets** 5
	• Rate refers to the current total number fragments dropped per second in the instant preceding the command's execution.

Total fragments punted to UPIC	Number of fragments sent to the backup user plane PIC (services PIC), and current rate of fragments sent per second in the instant preceding the command's execution.

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Sample Output

show services inline ip-reassembly statistics

```
user@host> show services inline ip-reassembly statistics
FPC: 0
==============
                                                   Total   Current Rate
Total Fragments Received                               0              0
   First Fragments                                     0              0
   Intermediate Fragments                              0              0
   Last Fragments                                      0              0

Total Packets Successfully Reassembled                 0              0

Approximate Packets Pending Reassembly                 0

Fragments Dropped Reasons                              0              0
   Buffers not available                               0              0
   Fragments per packet exceeded                       0              0
   Packet length exceeded                              0              0
   Record insert error                                 0              0
   Record in use error                                 0              0
   Duplicate first fragments                           0              0
   Duplicate last fragments                            0              0
   Missing first fragment                              0              0

Reassembly Errors Reasons                              0              0
   Fragment not found                                  0              0
   Fragment not in sequence                            0              0
   ASIC errors                                         0              0

Aged out packets                                       0              0

Total Fragments Successfully Reassembled               0              0

Total Fragments Dropped                                0              0
   Buffers not available                               0              0
   Fragments per packet exceeded                       0              0
   Packet length exceeded                              0              0
   Record insert error                                 0              0
   Record in use error                                 0              0
   Duplicate first fragments                           0              0
   Duplicate last fragments                            0              0
   Missing first fragment                              0              0
   Fragment not found                                  0              0
   Fragment not in sequence                            0              0
   ASIC errors                                         0              0
   Aged out fragments                                  0              0

Total fragments punted to UPIC                         0              0


FPC: 2
==============
                                                   Total   Current Rate
Total Fragments Received                      1004681374        6213217
   First Fragments                             502335971        3106615
   Intermediate Fragments                              0              0
   Last Fragments                              502345403        3106602

Total Packets Successfully Reassembled          71135257         432439
```

```
Approximate Packets Pending Reassembly              2408

Fragments Dropped Reasons                        1404714           7700
   Buffers not available                               0              0
   Fragments per packet exceeded                       0              0
   Packet length exceeded                              0              0
   Record insert error                                 0              0
   Record in use error                           1404714           7700
   Duplicate first fragments                           0              0
   Duplicate last fragments                            0              0
   Missing first fragment                              0              0

Reassembly Errors Reasons                              0              0
   Fragment not found                                  0              0
   Fragment not in sequence                            0              0
   ASIC errors                                         0              0

Aged out packets                                6147008          37279

Total Fragments Successfully Reassembled       142270514         864878

Total Fragments Dropped                         7551722          44979
   Buffers not available                               0              0
   Fragments per packet exceeded                       0              0
   Packet length exceeded                              0              0
   Record insert error                                 0              0
   Record in use error                           1404714           7700
   Duplicate first fragments                           0              0
   Duplicate last fragments                            0              0
   Missing first fragment                              0              0
   Fragment not found                                  0              0
   Fragment not in sequence                            0              0
   ASIC errors                                         0              0
   Aged out fragments                              6147008          37279

Total fragments punted to UPIC                854858289        5303865

[...output truncated...]
```


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show services inline ip-reassembly statistics fpc

Syntax show services inline ip-reassembly statistics fpc *fpc-slot* <pfe *pfe-slot*>

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Display the inline IP reassembly statistics for the specified FPC. Inline IP reassembly statistics are collected at the Packet Forwarding Engine level.

NOTE: Inline IP reassembly can only be carried out on Trio-based FPCs.

Options *fpc-slot*—Display the inline IP reassembly statistics for the specified FPC.

pfe *pfe-slot*—(Optional) Display the inline IP reassembly statistics for the specified Packet Forwarding Engine slot. You must specify an FPC slot number before specifying a Packet Forwarding Engine slot.

Required Privilege Level view

Related Documentation

- clear services inline ip-reassembly statistics fpc on page 1013
- show services inline ip-reassembly statistics on page 1017

List of Sample Output show services inline ip-reassembly statistics fpc <fpc-slot> on page 1023

Output Fields Table 79 on page 1023 lists two of the output fields for the **show services inline ip-reassembly statistics fpc** command. For the rest of the output fields, refer to the output fields for the **show services inline ip-reassembly statistics** command, which has the same output fields as the **show services inline ip-reassembly statistics fpc** command.

Table 79: show services inline ip-reassembly statistics fpc Output Fields

Field Name	Field Description
FPC	FPC slot number for which the statistics are displayed.
PFE	Packet Forwarding Engine on the FPC for which the statistics are displayed.

Sample Output

show services inline ip-reassembly

```
user@host> show services inline ip-reassembly statistics fpc 2
FPC: 2 PFE: 0
==============
```

statistics fpc <fpc-slot>

```
                                                        Total   Current Rate
Total Fragments Received                                    0              0
   First Fragments                                          0              0
   Intermediate Fragments                                   0              0
   Last Fragments                                           0              0

Total Packets Successfully Reassembled                      0              0

Approximate Packets Pending Reassembly                      0

Fragments Dropped Reasons                                   0              0
   Buffers not available                                    0              0
   Fragments per packet exceeded                            0              0
   Packet length exceeded                                   0              0
   Record insert error                                      0              0
   Record in use error                                      0              0
   Duplicate first fragments                                0              0
   Duplicate last fragments                                 0              0
   Missing first fragment                                   0              0

Reassembly Errors Reasons                                   0              0
   Fragment not found                                       0              0
   Fragment not in sequence                                 0              0
   ASIC errors                                              0              0

Aged out packets                                            0              0

Total Fragments Successfully Reassembled                    0              0

Total Fragments Dropped                                     0              0
   Buffers not available                                    0              0
   Fragments per packet exceeded                            0              0
   Packet length exceeded                                   0              0
   Record insert error                                      0              0
   Record in use error                                      0              0
   Duplicate first fragments                                0              0
   Duplicate last fragments                                 0              0
   Missing first fragment                                   0              0
   Fragment not found                                       0              0
   Fragment not in sequence                                 0              0
   ASIC errors                                              0              0
   Aged out fragments                                       0              0

Total fragments punted to UPIC                              0              0


FPC: 2 PFE: 1
==============
                                                        Total   Current Rate
Total Fragments Received                                    0              0
   First Fragments                                          0              0
   Intermediate Fragments                                   0              0
   Last Fragments                                           0              0

Total Packets Successfully Reassembled                      0              0

Approximate Packets Pending Reassembly                      0

Fragments Dropped Reasons                                   0              0
   Buffers not available                                    0              0
   Fragments per packet exceeded                            0              0
```


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```
   Packet length exceeded                          0              0
   Record insert error                             0              0
   Record in use error                             0              0
   Duplicate first fragments                       0              0
   Duplicate last fragments                        0              0
   Missing first fragment                          0              0

Reassembly Errors Reasons                          0              0
   Fragment not found                              0              0
   Fragment not in sequence                        0              0
   ASIC errors                                     0              0

Aged out packets                                   0              0

Total Fragments Successfully Reassembled           0              0

Total Fragments Dropped                            0              0
   Buffers not available                           0              0
   Fragments per packet exceeded                   0              0
   Packet length exceeded                          0              0
   Record insert error                             0              0
   Record in use error                             0              0
   Duplicate first fragments                       0              0
   Duplicate last fragments                        0              0
   Missing first fragment                          0              0
   Fragment not found                              0              0
   Fragment not in sequence                        0              0
   ASIC errors                                     0              0
   Aged out fragments                              0              0

Total fragments punted to UPIC                     0              0

[...output truncated...]
```

show services inline ip-reassembly statistics interface

Syntax show services inline ip-reassembly statistics interface *interface-name*

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Display the inline IP reassembly statistics for the specified interface. Inline IP reassembly statistics are collected at the Packet Forwarding Engine level.

NOTE: Inline IP reassembly can only be carried out on Trio-based FPCs.

Options *interface-name*—Display the inline IP reassembly statistics for the specified interface. Currently, the inline services interface (**si-**) is the only interface supported.

NOTE: Since inline IP reassembly statistics are collected at the Packet Forwarding Engine level, for each interface, the aggregated statistics for inline IP reassembly at the Packet Forwarding Engine level are displayed, even when the interface level statistics are requested.

Required Privilege Level view

Related Documentation

- clear services inline ip-reassembly statistics interface on page 1014
- show services inline ip-reassembly statistics on page 1017

List of Sample Output show services inline ip-reassembly statistics interface <interface-name> on page 1026

Output Fields Table 80 on page 1026 lists an output field in the **show services inline ip-reassembly statistics interface** command. For the rest of the output fields, refer to the output fields for the **show services inline ip-reassembly statistics** command, which has the same output fields as the **show services inline ip-reassembly statistics interface** command.

Table 80: show services inline ip-reassembly statistics interface Output Fields

Field Name	Field Description
Interface	Name of the interface for which the statistics are displayed.

Sample Output

show services inline ip-reassembly

```
user@host> show services inline ip-reassembly statistics interface si-4/2/0
Interface : si-4/2/0
====================
```

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statistics interface <interface-name>

```
                                                   Total   Current Rate
Total Fragments Received                       565041662        5307666
   First Fragments                             282495144        2653550
   Intermediate Fragments                              0              0
   Last Fragments                              282546518        2654116

Total Packets Successfully Reassembled          49491017         461468

Approximate Packets Pending Reassembly               735

Fragments Dropped Reasons                       35977736         335069
   Buffers not available                               0              0
   Fragments per packet exceeded                       0              0
   Packet length exceeded                              0              0
   Record insert error                         35977736         335069
   Record in use error                                 0              0
   Duplicate first fragments                           0              0
   Duplicate last fragments                            0              0
   Missing first fragment                              0              0

Reassembly Errors Reasons                              0              0
   Fragment not found                                  0              0
   Fragment not in sequence                            0              0
   ASIC errors                                         0              0

Aged out packets                                8287119          79867

Total Fragments Successfully Reassembled        98982034         922936

Total Fragments Dropped                         44264855         414936
   Buffers not available                               0              0
   Fragments per packet exceeded                       0              0
   Packet length exceeded                              0              0
   Record insert error                         35977736         335069
   Record in use error                                 0              0
   Duplicate first fragments                           0              0
   Duplicate last fragments                            0              0
   Missing first fragment                              0              0
   Fragment not found                                  0              0
   Fragment not in sequence                            0              0
   ASIC errors                                         0              0
   Aged out fragments                           8287119          79867

Total fragments punted to UPIC                 421791501        3972173
```

show unified-edge ggsn-pgw ip-reassembly statistics

Syntax

show unified-edge ggsn-pgw ip-reassembly statistics
<**brief | detail**>
<**fpc-slot** *fpc-slot*>
<**gateway** *gateway*>
<**inet**>
<**pic-slot** *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the IP reassembly statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are displayed.

Options

none—(Same as brief) Display the IP reassembly statistics for all GGSNs and P-GWs.

brief | detail—(Optional) Display the specified level of output.

NOTE: The **brief** option displays the aggregated statistics from all the services PICs for each GGSN or P-GW. The **detail** option displays the statistics for each services PIC separately for each GGSN or P-GW.

fpc-slot *fpc-slot* **pic-slot** *pic-slot*—(Optional) Display the IP reassembly statistics for the specified Flexible PIC Concentrator (FPC) and PIC slot numbers.

gateway—(Optional) Display the IP reassembly statistics for the specified GGSN or P-GW.

inet—(Optional) Display the IP reassembly for IPv4 packets.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw ip-reassembly statistics on page 1015

List of Sample Output

show unified-edge ggsn-pgw ip-reassembly statistics brief on page 1030
show unified-edge ggsn-pgw ip-reassembly statistics detail on page 1030

Output Fields

Table 81 on page 1028 lists the output fields for the **show unified-edge ggsn-pgw ip-reassembly statistics** command. Output fields are listed in the approximate order in which they appear.

Table 81: show unified-edge ggsn-pgw ip-reassembly statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the GGSN or P-GW.	All levels

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Table 81: show unified-edge ggsn-pgw ip-reassembly statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
IP Reassembly Statistics		
FPC Slot	FPC slot number for which the statistics are displayed.	**detail**
PIC slot	PIC slot number for which the statistics are displayed.	**detail**
First fragments	Number of first fragments.	All levels
Non-first fragments	Number of non-first fragments.	All levels
Total fragments	Total number of fragments.	All levels
Reassembled packets	Total number of reassembled packets. In this case, all fragments of the packets have been received.	All levels
Merged packets	Total number of merged packets. In this case, all the fragments of a packet have been merged into a single packet.	All levels
Packets pending reassembly	Total number of packets pending reassembly.	All levels
Timed out packets	Total number of fragmented packets that exceeded the reassembly timeout.	All levels
Timed out fragments	Total number of fragments that exceeded the reassembly timeout.	All levels
Exceeded maximum packet length	Number of packets dropped because the defragmented packets exceeded the maximum packet size.	All levels
Fragments Dropped		
Invalid Length	Number of fragments of invalid length received.	All levels
Overlap	Number of overlapping fragments received.	All levels
Duplicate	Number of duplicate fragments received.	All levels
No buffers	Number of fragments dropped because the system ran out of the packet buffer.	All levels
Packet limit exceeded	Total number of fragments dropped because the maximum allowed number of fragments was exceeded.	All levels
Total fragments dropped	Total number of fragments dropped.	All levels

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Sample Output

show unified-edge ggsn-pgw ip-reassembly statistics brief

```
user@host> show unified-edge ggsn-pgw ip-reassembly statistics brief
Gateway: gw1
IP reassembly statistics:
  First fragments:               1
  Non-first fragments:           1
  Total fragments:               2
  Reassembled packets:           1
  Merged packets:                1
  Packets pending reassembly:    0
  Timed out packets:             0
  Timed out fragments:           0
  Exceeded maximum packet length:0
Fragments Dropped:
  Invalid length:                0
  Overlap:                       0
  Duplicate:                     0
  No buffers:                    0
  Packet limit exceeded:         0
  Total fragments dropped:       0
```

show unified-edge ggsn-pgw ip-reassembly statistics detail

```
user@host> show unified-edge ggsn-pgw ip-reassembly statistics detail
Gateway: gw1
IP reassembly statistics (FPC 5 PIC 0):
  First fragments:               1
  Non-first fragments:           1
  Total fragments:               2
  Reassembled packets:           1
  Merged packets:                1
  Packets pending reassembly:    0
  Timed out packets:             0
  Timed out fragments:           0
  Exceeded maximum packet length:0
Fragments Dropped:
  Invalid length :               0
  Overlap :                      0
  Duplicate :                    0
  No buffers:                    0
  Packet limit exceeded:         0
  Total fragments dropped:       0
```


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show unified-edge sgw ip-reassembly statistics

Syntax

show unified-edge sgw ip-reassembly statistics
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<inet>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the IP reassembly statistics for the one or more Serving Gateways (S-GWs). If a gateway name is not specified, then statistics for all S-GWs are displayed.

Options

none—(Same as brief) Display the IP reassembly statistics in brief for all S-GWs.

brief | detail—(Optional) Display the specified level of output.

NOTE: The **brief** option displays the aggregated statistics from all the services PICs for each S-GW. The **detail** option displays the statistics for each services PIC separately for each S-GW.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the IP reassembly statistics for the specified Flexible PIC Concentrator (FPC) and PIC slot numbers.

gateway—(Optional) Display the IP reassembly statistics for the specified gateway.

inet—(Optional) Display the IP reassembly statistics for IPv4 packets.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw ip-reassembly statistics on page 1016

List of Sample Output

show unified-edge sgw ip-reassembly statistics brief on page 1033
show unified-edge sgw ip-reassembly statistics detail on page 1033

Output Fields

Table 82 on page 1031 lists the output fields for the **show unified-edge sgw ip-reassembly statistics** command. Output fields are listed in the approximate order in which they appear.

Table 82: show unified-edge sgw ip-reassembly statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
IP Reassembly Statistics		

Table 82: show unified-edge sgw ip-reassembly statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
FPC Slot	FPC slot number for which the statistics are displayed.	**detail**
PIC slot	PIC slot number for which the statistics are displayed.	**detail**
First fragments	Number of first fragments.	All levels
Non-first fragments	Number of non-first fragments.	All levels
Total fragments	Total number of fragments.	All levels
Reassembled packets	Total number of reassembled packets. In this case, all fragments of the packets have been received.	All levels
Merged packets	Total number of merged packets. In this case, all the fragments of a packet have been merged into a single packet.	All levels
Packets pending reassembly	Total number of packets pending reassembly.	All levels
Timed out packets	Total number of fragmented packets that exceeded the reassembly timeout.	All levels
Timed out fragments	Total number of fragments that exceeded the reassembly timeout.	All levels
Exceeded maximum packet length	Number of packets dropped because the defragmented packets exceeded the maximum packet size.	All levels
Fragments Dropped		
Invalid Length	Number of fragments of invalid length received.	All levels
Overlap	Number of overlapping fragments received.	All levels
Duplicate	Number of duplicate fragments received.	All levels
No buffers	Number of fragments dropped because the system ran out of the packet buffer.	All levels
Packet limit exceeded	Total number of fragments dropped because the maximum allowed number of fragments was exceeded.	All levels
Total fragments dropped	Total number of fragments dropped.	All levels

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Sample Output

show unified-edge sgw ip-reassembly statistics brief

```
user@host> show unified-edge sgw ip-reassembly statistics brief
Gateway: sgw1
IP reassembly statistics:
  First fragments:               1
  Non-first fragments:           2
  Total fragments:               3
  Reassembled packets:           1
  Merged packets:                1
  Packets pending reassembly:    0
  Timed out packets:             0
  Timed out fragments:           0
  Exceeded maximum packet length:0
Fragments Dropped:
  Invalid length:                0
  Overlap:                       0
  Duplicate:                     0
  No buffers:                    0
  Packet limit exceeded:         0
  Total fragments dropped:       0
```

show unified-edge sgw ip-reassembly statistics detail

```
user@host> show unified-edge sgw ip-reassembly statistics detail
Gateway: sgw1
IP reassembly statistics (FPC 5 PIC 1):
  First fragments:               1
  Non-first fragments:           2
  Total fragments:               3
  Reassembled packets:           1
  Merged packets:                1
  Packets pending reassembly:    0
  Timed out packets:             0
  Timed out fragments:           0
  Exceeded maximum packet length:0
Fragments Dropped:
  Invalid length :               0
  Overlap :                      0
  Duplicate :                    0
  No buffers:                    0
  Packet limit exceeded:         0
  Total fragments dropped:       0
```

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CHAPTER 28

Monitoring Operational Commands

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request unified-edge ggsn-pgw call-trace clear

Syntax request unified-edge ggsn-pgw call-trace clear

Release Information Command introduced in Junos OS Mobility Release 11.2W.

Description Clear the completed or duplicate subscriber call traces on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs).

Options This command has no options.

Required Privilege Level unified-edge

Related Documentation

- request unified-edge ggsn-pgw call-trace show on page 1037
- request unified-edge ggsn-pgw call-trace start on page 1040
- request unified-edge ggsn-pgw call-trace stop on page 1042

List of Sample Output request unified-edge ggsn-pgw call-trace on page 1036

Output Fields No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

request unified-edge ggsn-pgw call-trace

```
user@host> request unified-edge ggsn-pgw call-trace clear
```


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request unified-edge ggsn-pgw call-trace show

Syntax

request unified-edge ggsn-pgw call-trace show
<all | completed | current>
<brief | detail>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Display the information related to subscriber call tracing on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs).

Options

none—(Same as brief) Display the information related to subscriber call tracing in brief.

all | completed | current—(Optional)Display the call trace information for the following:

- **all**—All calls.
- **completed**—Completed calls only.
- **current**—Call traces that are currently active.

brief | detail—(Optional) Display the specified level of output.

Required Privilege Level

unified-edge

Related Documentation

- request unified-edge ggsn-pgw call-trace clear on page 1036
- request unified-edge ggsn-pgw call-trace start on page 1040
- request unified-edge ggsn-pgw call-trace stop on page 1042

List of Sample Output

request unified-edge ggsn-pgw call-trace show brief on page 1039
request unified-edge ggsn-pgw call-trace show detail on page 1039

Output Fields

Table 83 on page 1037 lists the output fields for the **request unified-edge ggsn-pgw call-trace show** command. Output fields are listed in the approximate order in which they appear.

Table 83: request unified-edge ggsn-pgw call-trace show Output Fields

Field Name	Field Description	Level of Output
Identifier	Identifier for the call trace.	All levels
File name or **Trace file**	Name of the call trace file.	All levels
Status	Status of the call trace: • **done**—Call trace complete. • **not-done**—Call trace in progress. • **duplicate**—Another call trace record is present that has the same attributes.	All levels

Table 83: request unified-edge ggsn-pgw call-trace show Output Fields *(continued)*

Field Name	Field Description	Level of Output
SPIC Mask Create or **Create Mask**	Internal mask of the services PIC where this call trace was enabled.	All levels
SPIC Mask Complete or **Complete Mask**	Internal mask of the services PIC where this call trace was completed.	All levels
IMSI	International Mobile Subscriber Identity (IMSI) of the subscriber's user equipment (UE).	
MSISDN	Mobile station ISDN (MSISDN) of the subscriber's user equipment.	
Calls Traced	Number of calls traced.	**detail**
Next Call	Number of next calls to be traced. For example, a value of 10 indicates that the next 10 calls are traced.	**detail**
APN	Access Point Name (APN) pertaining to the subscriber's call.	**detail**
FPC	FPC slot on which the call trace was enabled. This field is displayed only if the call trace is enabled on the FPC slot.	**detail**
PIC	PIC slot on which the call trace was enabled. This field is displayed only if the call trace is enabled on the PIC slot.	**detail**

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Sample Output

request unified-edge ggsn-pgw call-trace show brief

```
user@host> request unified-edge ggsn-pgw call-trace show brief
  Identifier           File name           Status       SPIC Mask   SPIC Mask
                                                         create      complete
 call_trace_id_2 call_trace_id_2_02112012_060450        done 0x10   0x10
 call_trace_id_3 call_trace_id_3_02112012_070614        done 0x10   0x10
 call_trace_id_4 call_trace_id_4_02112012_071342   duplicate 0x0    0x0
 call_trace_id_5 call_trace_id_5_02112012_201317   duplicate 0x0    0x0
 call_trace_id_6 call_trace_id_6_02112012_201649   duplicate 0x0    0x0
 call_trace_id_7 call_trace_id_7_02112012_202501        done 0x0    0x0
 call_trace_id_8 call_trace_id_8_02112012_204718   duplicate 0x0    0x0
 call_trace_id_9 call_trace_id_9_02112012_204759    not-done 0x10   0x0
```

request unified-edge ggsn-pgw call-trace show detail

```
user@host> request unified-edge ggsn-pgw call-trace show detail
 Call trace information :

  Identifier : call_trace_id_13        Trace file :
call_trace_id_13_02292012_001343
  Status : not-done    Create Mask : 0x200      Complete Mask : 0x0
  IMSI : 29299
  Calls Traced : 0
  Identifier : call_trace_id_14        Trace file :
call_trace_id_14_02292012_001348
  Status : not-done    Create Mask : 0x200      Complete Mask : 0x0
                                                     MS-ISDN: 2929910000000000
  Calls Traced : 0
  Identifier : call_trace_id_15        Trace file :
call_trace_id_15_02292012_001408
  Status : not-done    Create Mask : 0x200      Complete Mask : 0x0
  Next Call : 1                        APN : jnpr-sunnyvale
  Calls Traced : 0
  Identifier : call_trace_id_16        Trace file :
call_trace_id_16_02292012_001416
  Status : not-done    Create Mask : 0x200      Complete Mask : 0x0
  Calls Traced : 0                     FPC : 3   PIC : 1
  Identifier : call_trace_id_17        Trace file :
call_trace_id_17_02292012_001424
  Status : done        Create Mask : 0x200      Complete Mask : 0x200
  Next Call : 2
  Calls Traced : 2
```

request unified-edge ggsn-pgw call-trace start

Syntax

request unified-edge ggsn-pgw call-trace start
<apn-name *name*>
<comment *comment*>
<file-name-prefix *file-name-prefix*>
<fpc-slot *slot*>
<imsi *imsi*>
<msisdn *msisdn*>
<next-call *next-call*>
<pic-slot *slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Start the subscriber call tracing on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs).

Options

none—Start the subscriber call tracing.

apn-name *apn-name*—(Optional) Start the call tracing for subscribers accessing the specified access point name (APN).

comment *comment*—(Optional) Comment to be added in the file. You can enter a comment between 4 and 100 characters.

file-name-prefix *file-name-prefix*—(Optional) Prefix for the call trace filename. You can enter a prefix between 3 and 24 characters.

fpc-slot *slot*—(Optional) Start the call tracing for subscribers on the specified FPC slot.

imsi *imsi*—(Optional) Start the call tracing for subscribers with the specified International Mobile Subscriber Identity (IMSI) number.

msisdn *msisdn*—(Optional) Start the call tracing for subscribers with the specified Mobile station ISDN (MSIDSN) number.

next-call *next-call*—(Optional) Start the call tracing for the specified number of next call events (1 through 50). For example, if you specify 10, then the next 10 calls will be traced.

pic-slot *slot*—(Optional) Start the call tracing for subscribers on the specified PIC slot. You must specify an FPC slot before specifying a PIC slot number.

Required Privilege Level

unified-edge

Related Documentation

- request unified-edge ggsn-pgw call-trace clear on page 1036
- request unified-edge ggsn-pgw call-trace show on page 1037
- request unified-edge ggsn-pgw call-trace stop on page 1042

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List of Sample Output request unified-edge ggsn-pgw call-trace start fpc-slot 5 pic-slot 0 next-call 10 on page 1041

Output Fields Table 84 on page 1041 lists the output fields for the **request unified-edge ggsn-pgw call-trace start** command. Output fields are listed in the approximate order in which they appear.

Table 84: request unified-edge ggsn-pgw call-trace start Output Fields

Field Name	Field Description
Session PIC	Session PIC for which the call trace status is displayed.
Status	Status of the call trace: • **duplicate**—Another call trace record is present that has the same attributes. • **success**—Call trace started successfully. • **fail**—Call tracing could not be started.

Sample Output

request unified-edge ggsn-pgw call-trace start fpc-slot 5 pic-slot 0 next-call 10

```
user@host> request unified-edge ggsn-pgw call-trace start fpc-slot 5 pic-slot 0 next-call 10
       Session PIC            Status
       ms-0/1/0             success
       ms-1/1/0             success
```

request unified-edge ggsn-pgw call-trace stop

Syntax

request unified-edge ggsn-pgw call-trace stop
<all>
<identifier *call-trace-identifier*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.

Description

Stop the previously configured subscriber call tracing on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs).

Options

none—(Same as all) Stop all the subscriber call tracing options.

all—(Optional) Stop all the subscriber call tracing operations.

identifier *identifier*—(Optional) Stop the call tracing for the specified call trace identifier.

Required Privilege Level

unified-edge

Related Documentation

- request unified-edge ggsn-pgw call-trace clear on page 1036
- request unified-edge ggsn-pgw call-trace show on page 1037
- request unified-edge ggsn-pgw call-trace start on page 1040

List of Sample Output

request unified-edge ggsn-pgw call-trace stop on page 1042

Output Fields

Table 85 on page 1042 lists the output fields for the **request unified-edge ggsn-pgw call-trace stop** command. Output fields are listed in the approximate order in which they appear.

Table 85: request unified-edge ggsn-pgw call-trace stop Output Fields

Field Name	Field Description
Session PIC	Session PIC for which the call trace status is displayed.
Status	Status of the call trace: • **success**—Call trace stopped successfully. • **fail**—Call tracing could not be stopped.

Sample Output

request unified-edge ggsn-pgw call-trace stop

```
user@host> request unified-edge ggsn-pgw call-trace stop
       Session PIC            Status
       ms-0/1/0             success
       ms-1/1/0             success
```


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request unified-edge sgw call-trace clear

Syntax request unified-edge sgw call-trace clear

Release Information Command introduced in Junos OS Mobility Release 11.4W.

Description Clear the completed or duplicate subscriber call traces on one or more Serving Gateways (S-GWs).

Options This command has no options.

Required Privilege Level unified-edge

Related Documentation

- request unified-edge sgw call-trace show on page 1044
- request unified-edge sgw call-trace start on page 1047
- request unified-edge sgw call-trace stop on page 1049

List of Sample Output request unified-edge sgw call-trace clear on page 1043

Output Fields No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

request unified-edge sgw call-trace clear

```
user@host> request unified-edge sgw call-trace clear
```

request unified-edge sgw call-trace show

Syntax

request unified-edge sgw call-trace show
<all | completed | current>
<brief | detail>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the information related to subscriber call tracing on one or more Serving Gateways (S-GWs).

Options

none—(Same as brief) Display the information related to subscriber call tracing in brief.

all | completed | current—(Optional)Display the call trace information for the following:

- **all**—All calls.
- **completed**—Completed calls only.
- **current**—Call traces that are currently active.

brief | detail—(Optional) Display the specified level of output.

Required Privilege Level

unified-edge

Related Documentation

- request unified-edge sgw call-trace clear on page 1043
- request unified-edge sgw call-trace start on page 1047
- request unified-edge sgw call-trace stop on page 1049

List of Sample Output

request unified-edge sgw call-trace show brief on page 1046
request unified-edge sgw call-trace show detail on page 1046

Output Fields

Table 86 on page 1044 lists the output fields for the **request unified-edge sgw call-trace show** command. Output fields are listed in the approximate order in which they appear.

Table 86: request unified-edge sgw call-trace show Output Fields

Field Name	Field Description	Level of Output
Identifier	Identifier for the call trace.	All levels
File name or **Trace file**	Name of the call trace file.	All levels
Status	Status of the call trace: • **done**—Call trace complete. • **not-done**—Call trace in progress. • **duplicate**—Another call trace record is present that has the same attributes.	All levels

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Table 86: request unified-edge sgw call-trace show Output Fields *(continued)*

Field Name	Field Description	Level of Output
SPIC Mask Create or **Create Mask**	Internal mask of the services PIC where this call trace was enabled.	All levels
SPIC Mask Complete or **Complete Mask**	Internal mask of the services PIC where this call trace was completed.	All levels
IMSI	International Mobile Subscriber Identity (IMSI) of the subscriber's user equipment (UE).	
MSISDN	Mobile station ISDN (MSISDN) of the subscriber's user equipment.	
Calls Traced	Number of calls traced.	**detail**
Next Call	Number of next calls to be traced. For example, a value of 10 indicates that the next 10 calls are traced.	**detail**
FPC	FPC slot on which the call trace was enabled. This field is displayed only if the call trace is enabled on the FPC slot.	**detail**
PIC	PIC slot on which the call trace was enabled. This field is displayed only if the call trace is enabled on the PIC slot.	**detail**

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Sample Output

request unified-edge sgw call-trace show brief

```
user@host> request unified-edge sgw call-trace show brief
  Identifier           File name           Status       SPIC Mask   SPIC Mask
                                                         create      complete
 call_trace_id_10 call_trace_id_10_02112012_205634        done 0x0  0x0
 call_trace_id_11 call_trace_id_11_02112012_205932        done 0x40 0x40
 call_trace_id_12 call_trace_id_12_02112012_210001    not-done 0x40 0x0
 call_trace_id_13 call_trace_id_13_02112012_210353   duplicate 0x0  0x0
```

request unified-edge sgw call-trace show detail

```
user@host> request unified-edge sgw call-trace show detail
 Call trace information :

  Identifier : call_trace_id_10        Trace file :
call_trace_id_10_02112012_205634
  Status : done        Create Mask : 0x0        Complete Mask : 0x0
  Next Call : 10
  Calls Traced : 0                     FPC : 5   PIC : 0
  Identifier : call_trace_id_11        Trace file :
call_trace_id_11_02112012_205932
  Status : done        Create Mask : 0x40       Complete Mask : 0x40
  Calls Traced : 0
  Identifier : call_trace_id_12        Trace file :
call_trace_id_12_02112012_210001
  Status : not-done    Create Mask : 0x40       Complete Mask : 0x0
  Next Call : 5
  Calls Traced : 0                     FPC : 4   PIC : 0
  Identifier : call_trace_id_13        Trace file :
call_trace_id_13_02112012_210353
  Status : duplicate   Create Mask : 0x0        Complete Mask : 0x0
  Next Call : 5
  Calls Traced : 0                     FPC : 4   PIC : 0
```


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request unified-edge sgw call-trace start

Syntax

request unified-edge sgw call-trace start
<fpc-slot *slot*>
<imsi *imsi*>
<msisdn *msisdn*>
<next-call *next-call*>
<pic-slot *slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Start the subscriber call tracing on one or more Serving Gateways (S-GWs).

Options

none—Start the subscriber call tracing.

fpc-slot *slot*—(Optional) Start the call tracing for subscribers on the specified FPC slot.

imsi *imsi*—(Optional) Start the call tracing for subscribers with the specified International Mobile Subscriber Identity (IMSI) number.

msisdn *msisdn*—(Optional) Start the call tracing for subscribers with the specified Mobile station ISDN (MSIDSN) number.

next-call *next-call*—(Optional) Start the call tracing for the specified number of next call events (1 through 50). For example, if you specify 10, then the next 10 calls will be traced.

pic-slot *slot*—(Optional) Start the call tracing for subscribers on the specified PIC slot. You must specify an FPC slot before specifying a PIC slot number.

Required Privilege Level

unified-edge

Related Documentation

- request unified-edge sgw call-trace clear on page 1043
- request unified-edge sgw call-trace show on page 1044
- request unified-edge sgw call-trace stop on page 1049

List of Sample Output

request unified-edge sgw call-trace start fpc-slot 4 pic-slot 0 next-call 10 on page 1048

Output Fields

Table 87 on page 1047 lists the output fields for the **request unified-edge sgw call-trace start** command. Output fields are listed in the approximate order in which they appear.

Table 87: request unified-edge sgw call-trace start Output Fields

Field Name	Field Description
Session PIC	Session PIC for which the call trace status is displayed.

Table 87: request unified-edge sgw call-trace start Output Fields *(continued)*

Field Name	Field Description
Status	Status of the call trace: • **duplicate**—Another call trace record is present that has the same attributes. • **success**—Call trace started successfully. • **fail**—Call tracing could not be started.

Sample Output

request unified-edge sgw call-trace start fpc-slot 4 pic-slot 0 next-call 10

```
user@host> request unified-edge sgw call-trace start fpc-slot 4 pic-slot 0 next-call 10
       Session PIC            Status
       ms-0/0/0             success
       ms-1/0/0             success
```


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request unified-edge sgw call-trace stop

Syntax

request unified-edge sgw call-trace stop
<all>
<identifier *call-trace-identifier*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Stop the previously configured subscriber call tracing on one or more Serving Gateways (S-GWs).

Options

none—(Same as all) Stop all the subscriber call tracing options.

all—(Optional) Stop all the subscriber call tracing operations.

identifier *identifier*—(Optional) Stop the call tracing for the specified call trace identifier.

Required Privilege Level

unified-edge

Related Documentation

- request unified-edge sgw call-trace clear on page 1043
- request unified-edge sgw call-trace show on page 1044
- request unified-edge sgw call-trace start on page 1047

List of Sample Output

request unified-edge sgw call-trace stop on page 1049

Output Fields

Table 88 on page 1049 lists the output fields for the **request unified-edge sgw call-trace stop** command. Output fields are listed in the approximate order in which they appear.

Table 88: request unified-edge sgw call-trace stop Output Fields

Field Name	Field Description
Session PIC	Session PIC for which the call trace status is displayed.
Status	Status of the call trace: • **success**—Call trace stopped successfully. • **fail**—Call tracing could not be stopped.

Sample Output

request unified-edge sgw call-trace stop

```
user@host> request unified-edge sgw call-trace stop
       Session PIC            Status
       ms-0/0/0             success
       ms-1/0/0             success
```

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CHAPTER 29

Quality of Service (QoS) Operational Commands

clear unified-edge ggsn-pgw call-admission-control statistics

Syntax

clear unified-edge ggsn-pgw call-admission-control statistics gateway *gateway-name*
<fpc-slot *fpc-slot*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Clear the call admission control (CAC) statistics for the specified Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).

Options

gateway *gateway-name*—Clear the CAC statistics for the specified GGSN or P-GW.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Clear the statistics for the session PIC in the specified FPC and PIC slots.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge ggsn-pgw call-admission-control statistics on page 1054

List of Sample Output

clear unified-edge ggsn-pgw call-admission-control statistics gateway gateway-name on page 1052

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge ggsn-pgw call-admission-control statistics gateway gateway-name

```
user@host> clear unified-edge ggsn-pgw call-admission-control statistics gateway PGW
```


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clear unified-edge sgw call-admission-control statistics

Syntax

clear unified-edge sgw call-admission-control statistics gateway *gateway-name*
<fpc-slot *fpc-slot*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Clear the call admission control (CAC) statistics for the specified Serving Gateway (S-GW).

Options

gateway *gateway-name*—Clear the CAC statistics for the specified S-GW.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Clear the statistics for the session PIC in the specified FPC and PIC slots.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge sgw call-admission-control statistics on page 1075

List of Sample Output

clear unified-edge sgw call-admission-control statistics gateway gateway-name on page 1053

Output Fields

No message is displayed on successful execution of this command; otherwise an error message is displayed.

Sample Output

clear unified-edge sgw call-admission-control statistics gateway gateway-name

```
user@host> clear unified-edge sgw call-admission-control statistics gateway SGW
```

show unified-edge ggsn-pgw call-admission-control statistics

Syntax

show unified-edge ggsn-pgw call-admission-control statistics
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the call admission control (CAC) statistics for one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then statistics for all GGSNs and P-GWs are displayed.

NOTE: The CAC statistics are not stored on the Routing Engine. When this command is executed, the Routing Engine fetches the statistics from the active session PICs and displays the consolidated statistics for one or more GGSNs or P-GWs.

Options

none—Display the CAC statistics for all GGSNs or P-GWs.

detail—(Optional) Display the detailed CAC statistics for the specified FPC and PIC slot numbers.

NOTE: The **detail** option is valid only when you specify an FPC and PIC slot number configured on the gateway.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the statistics for the session PIC in the specified FPC and PIC slots.

gateway *gateway-name*—(Optional) Display the CAC statistics for the specified GGSN or P-GW.

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw call-admission-control statistics on page 1052

List of Sample Output

show unified-edge ggsn-pgw call-admission-control statistics on page 1062
show unified-edge ggsn-pgw call-admission-control statistics fpc-slot <fpc-slot> pic-slot <pic-slot> detail on page 1063

Output Fields

Table 89 on page 1055 lists the output fields for the **show unified-edge ggsn-pgw call-admission-control statistics** command. Output fields are listed in the approximate order in which they appear.

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Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields

Field Name	Field Description	Level of Output
GW CAC Statistics—The following statistics are displayed at the gateway level.		
Bearer Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for bearer load was exceeded.	**detail** none
Bearer Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for bearer load was exceeded.	**detail** none
Bearer Load Admits in H-THR	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with higher priority that were accepted once the upper threshold limit for the bearer load was exceeded.	**detail** none
Memory Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for memory load was exceeded.	**detail** none
Memory Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for memory load was exceeded.	**detail** none
Memory Load Admit & Preempt	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with higher priority that triggered preemption once the upper threshold limit for the memory load was exceeded.	**detail** none
CPU Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for CPU load was exceeded.	**detail** none

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Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
CPU Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for CPU load was exceeded.	**detail** none
Memory High Rejects	Number of bearers or PDP contexts that were rejected because the memory load or utilization (at the session PIC level) was high.	**detail** none
CPU High Rejects	Number of bearers or PDP contexts that were rejected because the CPU load or utilization (at the session PIC level) was high.	**detail** none
Bearer Reservation Rejects	Number of default bearers or primary PDP contexts that were rejected because the maximum bearer limit configured on the gateway was reached.	**detail** none
Takedowns due to Preemption	Number of lower priority bearers that were taken down (preempted) to accommodate higher priority ones.	**detail** none
Preemption Job triggers	Number of preemption jobs that were triggered.	**detail** none
Gateway bearer count	Total number of active bearers or PDP contexts on the gateway.	**detail** none
BW Policy Rejects	Number of guaranteed bit rate (GBR) bearers or PDP contexts (of type GBR) that were rejected due to the exhaustion of the GBR bandwidth pool (configured in the local policy).	**detail** none
CoS Policy Rejects	Number of default bearers or primary PDP contexts that were rejected due to the CoS policy configured on the gateway.	**detail** none
NBM IPv4 Prefixes Unavailable	Number of bearers or PDP contexts that were rejected due to lack of IPv4 prefixes (network-behind-mobile prefixes).	**detail** none

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Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
NBM IPv6 Prefixes Unavailable	Number of bearers or PDP contexts that were rejected due to lack of IPv6 prefixes (network-behind-mobile prefixes).	**detail** none
Default Bearer Statistics	The following statistics related to default bearers or primary PDP contexts are displayed: • **APFE dmem Resource Unavailable**—Number of default bearers or primary PDP contexts that were rejected because the data memory resources on the anchor Packet Forwarding Engine were unavailable. • **APFE Bearer Resource Unavailable**—Number of default bearers or primary PDP contexts that were rejected because the total bearer resources being used exceeded the total bearer resources available on the anchor Packet Forwarding Engine. • **APFE GBR BW Resource Unavailable**—Number of primary PDP contexts that were rejected because the GBR bandwidth resources on the anchor Packet Forwarding Engine were unavailable. • **APFE Default Bearer Resource Unavailable**—Number of default bearers or primary PDP contexts that were rejected because the threshold for the maximum number of default bearers on the anchor Packet Forwarding Engine was exceeded.	**detail** none

Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Dedicated Bearer Statistics	The following statistics related to dedicated bearers or secondary PDP contexts are displayed: • **APFE dmem Resource Unavailable**—Number of dedicated bearers or secondary PDP contexts that were rejected because the data memory resources on the anchor Packet Forwarding Engine were unavailable. • **APFE Bearer Resource Unavailable**—Number of dedicated bearers or secondary PDP contexts that were rejected because the total bearer resources being used exceeded the total bearer resources available on the anchor Packet Forwarding Engine. • **APFE GBR BW Resource Unavailable**—Number of dedicated bearers or secondary PDP contexts that were rejected because the GBR bandwidth resources on the anchor Packet Forwarding Engine were unavailable.	**detail** none
Redirect Stats Breakup (L - THR)	The following redirect statistics (related to the lower threshold limit is reached) are displayed: NOTE: For each of the following, the statistics are displayed individually for each session PIC, if the statistics are non-zero. • **Bearer Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for bearer load was exceeded. • **Memory Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for memory load was exceeded. • **CPU Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for CPU load was exceeded.	**detail**

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Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Redirect Stats Breakup (H - THR)	The following redirect statistics (related to the upper threshold limit being reached) are displayed: NOTE: For each of the following, the statistics are displayed individually for each session PIC, if the statistics are non-zero. • **Bearer Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for bearer load was exceeded. • **Memory Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for memory load was exceeded. • **CPU Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for CPU load was exceeded. • **Redirect due to APFE Resource**—Number of bearers or PDP contexts that were redirected to a different session PIC because the resources on the anchor Packet Forwarding Engine were unavailable.	**detail**
APN CAC Statistics—The following consolidated access point name (APN) statistics are displayed for the GGSN or P-GW.		
Bearer Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for bearer load was exceeded.	**detail** none
Bearer Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for bearer load was exceeded.	**detail** none

Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Bearer Load Admits in H-THR	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with higher priority that were accepted once the upper threshold limit for the bearer load was exceeded.	**detail** none
Memory Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for memory load was exceeded.	**detail** none
Memory Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for memory load was exceeded.	**detail** none
Memory Load Admits (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with higher priority that were accepted once the upper threshold limit for the memory load was exceeded.	**detail** none
CPU Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for CPU load was exceeded.	**detail** none
CPU Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for CPU load was exceeded.	**detail** none
BW Policy Rejects	Number of guaranteed bit rate (GBR) bearers or PDP contexts (of type GBR) that were rejected due to the exhaustion of the GBR bandwidth pool (configured in the local policy for the APN).	**detail** none
COS Policy Rejects	Number of default bearers or primary PDP contexts that were rejected due to the CoS policy configured on the APN, in the absence of the Gx interface.	**detail** none

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Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Bearer Reservation Rejects	Number of default bearers or primary PDP contexts that were rejected because the maximum bearer limit configured on the APN was reached.	**detail** none
Redirect Stats Breakup (L - THR)	The following redirect statistics (related to the lower threshold limit is reached) are displayed: NOTE: For each of the following, the statistics are displayed individually for each session PIC, if the statistics are non-zero. • **Bearer Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for bearer load was exceeded. • **Memory Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for memory load was exceeded. • **CPU Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for CPU load was exceeded.	**detail**

Table 89: show unified-edge ggsn-pgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Redirect Stats Breakup (H - THR)	The following redirect statistics (related to the upper threshold limit being reached) are displayed: NOTE: For each of the following, the statistics are displayed individually for each session PIC, if the statistics are non-zero. • **Bearer Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for bearer load was exceeded. • **Memory Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for memory load was exceeded. • **CPU Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for CPU load was exceeded.	**detail**

Sample Output

show unified-edge ggsn-pgw

```
user@host> show unified-edge ggsn-pgw call-admission-control statistics
Gateway: PGW
```


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call-admission-control statistics

```
GW CAC Statistics
Bearer Load Rejects (L-THR)                 :   28969
Bearer Load Rejects (H-THR)                 :   0
Bearer Load Admits in H-THR                 :   36067
Memory Load Rejects (L-THR)                 :   0
Memory Load Rejects (H-THR)                 :   0
Memory Load Admit & Preempt                 :   0
CPU Load Rejects (L-THR)                    :   0
CPU Load Rejects (H-THR)                    :   0
Memory High Rejects                         :   0
CPU High Rejects                            :   0
Bearer Reservation Rejects                  :   0
Takedowns due to Preemption                 :   0
Preemption Job triggers                     :   0
Gateway bearer count                        :   96744
BW Policy Rejects                           :   0
COS Policy Rejects                          :   0
NBM IPv4 Prefixes Unavailable               :   0
NBM IPv6 Prefixes Unavailable               :   0
Default Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0
   APFE default bearer resource Unavailable :   0
Dedicated Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0

APN CAC Statistics
Bearer Load Rejects (L-THR)  :   0
Bearer Load Rejects (H-THR)  :   0
Bearer Load Admits in H-THR  :   0
Memory Load Rejects (L-THR)  :   0
Memory Load Rejects (H-THR)  :   0
Memory Load Admits (H-THR)   :   0
CPU Load Rejects (L-THR)     :   0
CPU Load Rejects (H-THR)     :   0
BW Policy Rejects            :   0
COS Policy Rejects           :   0
Bearer Reservation Rejects   :   0
```

show unified-edge ggsn-pgw call-admission-control statistics fpc-slot

```
user@host> show unified-edge ggsn-pgw call-admission-control statistics fpc-slot 0 pic-slot 0
detail

GW CAC Statistics
Bearer Load Rejects (L-THR)                 :   0
```

<fpc-slot> pic-slot <pic-slot> detail

```
Bearer Load Rejects (H-THR)                 :   0
Bearer Load Admits in H-THR                 :   0
Memory Load Rejects (L-THR)                 :   0
Memory Load Rejects (H-THR)                 :   0
Memory Load Admit & Preempt                 :   0
CPU Load Rejects (L-THR)                    :   0
CPU Load Rejects (H-THR)                    :   0
Memory High Rejects                         :   0
CPU High Rejects                            :   0
Bearer Reservation Rejects                  :   0
Takedowns due to Preemption                 :   0
Preemption Job triggers                     :   0
Gateway bearer count                        :   0
BW Policy Rejects                           :   0
COS Policy Rejects                          :   0
NBM IPv4 Prefixes Unavailable               :   0
NBM IPv6 Prefixes Unavailable               :   0
Default Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0
   APFE default bearer resource Unavailable :   0
Dedicated Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0

Redirect Stats Breakup (L - THR)
  Bearer Load Redirects (L-THR)   : 0
  Memory Load Redirects (L-THR)   : 0
  CPU Load Redirects (L-THR)      : 0

Redirect Stats Breakup (H - THR)
  Bearer Load Redirects (H-THR)   : 0
  Memory Load Redirects (H-THR)   : 0
  CPU Load Redirects (H-THR)      : 0
  Redirect due to APFE Resource   : 0

APN CAC Statistics
Bearer Load Rejects (L-THR)  :   0
Bearer Load Rejects (H-THR)  :   0
Bearer Load Admits in H-THR  :   0
Memory Load Rejects (L-THR)  :   0
Memory Load Rejects (H-THR)  :   0
Memory Load Admits (H-THR)   :   0
CPU Load Rejects (L-THR)     :   0
CPU Load Rejects (H-THR)     :   0
BW Policy Rejects            :   0
COS Policy Rejects           :   0
Bearer Reservation Rejects   :   0

Redirect Stats Breakup (L - THR)
  Bearer Load Redirects (L-THR)   : 0
  Memory Load Redirects (L-THR)   : 0
  CPU Load Redirects (L-THR)      : 0

Redirect Stats Breakup (H - THR)
  Bearer Load Redirects (H-THR)   : 0
  Memory Load Redirects (H-THR)   : 0
  CPU Load Redirects (H-THR)      : 0
```


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show unified-edge ggsn-pgw statistics traffic-class

Syntax

show unified-edge ggsn-pgw statistics traffic-class (background | conversational | interactive | streaming)
<traffic-handling-priority *traffic-handling-priority*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the statistics for the specified traffic class one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs).

Options

traffic-class (background | conversational | interactive | streaming)—Display the status information for the specified traffic class.

traffic-handling-priority *traffic-handling-priority*—(Optional) Display the status information for the specified traffic handling priority. You can specify a traffic handling priority value of 1 through 3.

NOTE: **This field is applicable only if the traffic class is specified as interactive.**

Required Privilege Level

view

Related Documentation

- clear unified-edge ggsn-pgw statistics on page 862
- show unified-edge ggsn-pgw statistics on page 875

List of Sample Output

show unified-edge ggsn-pgw statistics traffic-class interactive on page 1067
show unified-edge ggsn-pgw statistics traffic-class interactive traffic–handling-priority 1 on page 1067

Output Fields

The output fields for the **show unified-edge ggsn-pgw statistics traffic-class** command are a subset of the output fields for the **show unified-edge ggsn-pgw statistics** command. Please refer to the explanation of the output fields for the **show unified-edge ggsn-pgw statistics** command.

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Sample Output

show unified-edge ggsn-pgw statistics traffic-class interactive

```
user@host> show unified-edge ggsn-pgw statistics traffic-class interactive
Gateway: gw1
Control plane statistics:
    Session establishment attempts:             22
    Successful session establishments:          22
    MS/peer initiated session deactivations:    20
    Successful MS/peer initiated deactivations: 20
    Gateway initiated session deactivations:    0
    Successful gateway initiated deactivations: 0
Data plane GTP statistics (Gn/S5/S8):
    Input     packets:          10
    Input     bytes:            1000
    Output    packets:          10
    Output    bytes:            1168
    Discarded packets:          0
Data plane GTP statistics (Gi):
    Input     packets:          10
    Input     bytes:            1168
    Output    packets:          10
    Output    bytes:            1000
    Discarded packets:          0
```

show unified-edge ggsn-pgw statistics traffic-class interactive traffic–handling-priority 1

```
user@host> show unified-edge ggsn-pgw statistics traffic-class interactive
traffic–handling-priority 1
Gateway: gw1
Control plane statistics:
    Session establishment attempts:             22
    Successful session establishments:          22
    MS/peer initiated session deactivations:    20
    Successful MS/peer initiated deactivations: 20
    Gateway initiated session deactivations:    0
    Successful gateway initiated deactivations: 0
Data plane GTP statistics (Gn/S5/S8):
    Input     packets:          10
    Input     bytes:            1000
    Output    packets:          10
    Output    bytes:            1168
    Discarded packets:          0
Data plane GTP statistics (Gi):
    Input     packets:          10
    Input     bytes:            1168
    Output    packets:          10
    Output    bytes:            1000
    Discarded packets:          0
```

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show unified-edge ggsn-pgw status preemption-list

Syntax

show unified-edge ggsn-pgw status preemption-list
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the preemption list for guaranteed bit rate (GBR) and non-GBR bearers for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.

NOTE:

- In load conditions, to accommodate higher-priority bearers, lower-priority bearers are preempted. This list displays the number of bearers in each candidate priority level for preemption.
- This command displays a preemption list only if preemption is enabled on the GGSN or P-GW.

Options

none—(Same as brief) Display the preemption list information in brief.

brief | detail —(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the preemption list information for the specified Flexible PIC Concentrator (FPC) slot number. You must specify a PIC slot number along with an FPC slot number.

gateway—(Optional) Display the preemption list information for the specified GGSN or P-GW.

pic-slot *pic-slot*—(Optional) Display the status information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw status on page 881

List of Sample Output

show unified-edge ggsn-pgw status preemption-list brief on page 1070
show unified-edge ggsn-pgw status preemption-list detail on page 1070

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Output Fields Table 90 on page 1069 lists the output fields for the **show unified-edge ggsn-pgw status preemption-list** command. Output fields are listed in the approximate order in which they appear.

Table 90: show unified-edge ggsn-pgw status preemption-list Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of GGSN or P-GW.	All levels
FPC Slot	FPC slot number of the interface for which the preemption list information is displayed.	**detail**
PIC Slot	PIC slot number of the FPC for which the preemption list information is displayed.	**detail**
Priority Level	Priority of the call that was set up: 1 is the highest and 15 is the lowest. For each priority level, the following information is displayed: • **GBR**—Number of GBR bearers for the corresponding priority level. • **NON-GBR**—Number of GBR bearers for the corresponding priority level.	All levels

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Sample Output

show unified-edge ggsn-pgw status preemption-list brief

```
user@host> show unified-edge ggsn-pgw status preemption-list brief
Gateway: PGW

                                GBR          NON-GBR

    Priority Level 1     :       0             1
    Priority Level 2     :       0              11
    Priority Level 3     :       0              0
    Priority Level 4     :       0              0
    Priority Level 5     :       0              0
    Priority Level 6     :       0              0
    Priority Level 7     :       0              0
    Priority Level 8     :       0              0
    Priority Level 9     :       0              0
    Priority Level 10    :       0              0
    Priority Level 11    :       0              0
    Priority Level 12    :       0              0
    Priority Level 13    :       0              0
    Priority Level 14    :       0              0
    Priority Level 15    :       0              0
```

show unified-edge ggsn-pgw status preemption-list detail

```
user@host> show unified-edge ggsn-pgw status preemption-list detail
Gateway: PGW

    Preemption List status:

    FPC SLOT: 0   PIC SLOT: 0

                                GBR          NON-GBR

    Priority Level 1     :       0             0
    Priority Level 2     :       0              6
    Priority Level 3     :       0              0
    Priority Level 4     :       0              0
    Priority Level 5     :       0              0
    Priority Level 6     :       0              0
    Priority Level 7     :       0              0
    Priority Level 8     :       0              0
    Priority Level 9     :       0              0
    Priority Level 10    :       0              0
    Priority Level 11    :       0              0
    Priority Level 12    :       0              0
    Priority Level 13    :       0              0
    Priority Level 14    :       0              0
    Priority Level 15    :       0              0


    Preemption List status:

    FPC SLOT: 0   PIC SLOT: 1

                                GBR          NON-GBR

    Priority Level 1     :       0             0
    Priority Level 2     :       0              0
```


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```
    Priority Level 3     :       0             0
    Priority Level 4     :       0             0
    Priority Level 5     :       0             0
    Priority Level 6     :       0             0
    Priority Level 7     :       0             0
    Priority Level 8     :       0             0
    Priority Level 9     :       0             0
    Priority Level 10    :       0             0
    Priority Level 11    :       0             0
    Priority Level 12    :       0             0
    Priority Level 13    :       0             0
    Priority Level 14    :       0             0
    Priority Level 15    :       0             0

[...output truncated...]
```

show unified-edge ggsn-pgw subscribers traffic-class

Syntax

show unified-edge ggsn-pgw subscribers traffic-class (background | conversational | interactive | streaming)
<traffic-handling-priority *traffic-handling-priority*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the subscribers information for the specified traffic class one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs).

Options

traffic-class (background | conversational | interactive | streaming)—Display the subscriber information for the specified traffic class.

traffic-handling-priority *traffic-handling-priority*—(Optional) Display the subscriber information for the specified traffic handling priority. You can specify a traffic handling priority value of 1 through 3.

NOTE: **This field is applicable only if the traffic class is specified as interactive.**

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw subscribers on page 893

List of Sample Output

show unified-edge ggsn-pgw subscribers traffic-class conversational on page 1072
show unified-edge ggsn-pgw subscribers traffic-class interactive traffic—handling-priority 1 on page 1073

Output Fields

The output fields for the **show unified-edge ggsn-pgw subscribers traffic-class** command are a subset of the output fields for the **show unified-edge ggsn-pgw subscribers** command. Refer to the explanation of the output fields for the **show unified-edge ggsn-pgw subscribers** command.

Sample Output

show unified-edge ggsn-pgw subscribers

```
user@host> show unified-edge ggsn-pgw subscribers traffic-class conversational
Gateway: PGW1
```


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traffic-class conversational

```
Subscriber Information:
  UE:
    IMSI: 734444553453197              IMEI: 1122334455677796
    RAT Type: UTRAN
  PDN Session:
    APN name: internet123
    IPv4 Address: 20.1.0.1             IPv6 Address: None
    GTP Version: 1                     Address Assignment: Local
    Local Control IP: 18.1.1.2         Remote Control IP: 30.1.1.2
    Local Control TEID: 0xb000000      Remote Control TEID: 0x5033
    Session PIC: 0 /0  (FPC/PIC)       PFE: 5 /0  (FPC/PIC)
    Service PIC: None/None (FPC/PIC)
    Session State: Established         Session Duration: 3:13
    Roaming Status: Visitor            Serving network: MCC: None MNC: None
    Direct Tunnel: Disabled
  Bearer:
    NSAPI/EBI: 5
    Local Data IP: 18.1.1.2            Remote Data IP: 30.1.1.2
    Local Data TEID: 0x130000          Remote Data TEID: 0x5032
    Bearer State: Established
    Idle Timeout: 0   min              AAA Interim Interval: 0   min
    Negotiated QoS Parameters:
       Traffic Class:Conversational       ARP: 1
       Traffic Handling Priority:0        Transfer Delay: 80
       MBR Uplink: 8640            kbps  MBR Downlink: 8640      kbps
       GBR Uplink: 4672            kbps   GBR Downlink: 4672      kbps
                                          Signaling Indicator: 0
       Forwarding Class:  None         Loss Priority:  None
    Requested QoS Parameters:
       Traffic Class: Conversational      ARP: 1
       Traffic Handling Priority: 0       Transfer Delay: 10
       MBR Uplink  : 8640          kbps  MBR Downlink: 8640      kbps
       GBR Uplink  : 4672          kbps  GBR Downlink: 4672      kbps
                                          Signaling Indicator: 0
    Charging information:
       Charging ID: 0xb000000
       Profile ID: 0
    Rating group information:
       Rating group: 0 Service id: 0
```

show unified-edge ggsn-pgw subscribers traffic-class interactive

```
user@host> show unified-edge ggsn-pgw subscribers traffic-class interactive
traffic–handling-priority 1
Gateway: PGW1
```

traffic–handling-priority 1

```
Subscriber Information:
  UE:
    IMSI: 324213213134030              IMEI: 1122334455667790
    MSISDN: 1926737867                 Time Zone: GMT     DST: None
    RAT Type: E-UTRAN
    User Location Info:
      MCC:  None   MNC: 180
      LAC: 0x22 CI: 0x0     SAC: 0x2b RAC: 0x0  TAC: 0x4  ECI: 0x0
  PDN Session:
    APN name: internet123
    IPv4 Address: 20.1.0.1             IPv6 Address: None
    GTP Version: 2                     Address Assignment: Local
    Local Control IP: 18.1.1.2         Remote Control IP: 30.1.1.2
    Local Control TEID: 0x14000000     Remote Control TEID: 0x113
    Peer CSID: 0                       Remote CSID: 0
    Selection mode: MS or network provided APN, subscription verified
    Session PIC: 0 /0  (FPC/PIC)       PFE: 5 /0  (FPC/PIC)
    Service PIC: None/None (FPC/PIC)
    Session State: Established         Session Duration: 10
    Roaming Status: Visitor            Serving network: MCC: 123  MNC: 567
    Direct Tunnel: None
    Negotiated APN AMBR: Downlink: 128 kbps        Uplink: 128  kbps
    Requested  APN AMBR: Downlink: 128 kbps        Uplink: 128  kbps
  Bearer:
    NSAPI/EBI: 5
    Local Data IP: 18.1.1.2            Remote Data IP: 30.1.1.2
    Local Data TEID: 0x14140000        Remote Data TEID: 0x114
    Bearer State: Established          Substate: None
    Idle Timeout: 0   min              AAA Interim Interval: 0   min
    Negotiated QoS Parameters:
       QCI: 5                          ARP: 2 /0 /0   (PL/PVI/PCI)
       Forwarding Class:  None         Loss Priority:  None
    Requested QoS Parameters:
       QCI: 5                          ARP: 2 /0 /0   (PL/PVI/PCI)
    Charging information:
       Charging ID: 0x14000000
       Profile ID: 0
       State: Init                     Previous State: Init
       Profile selection criteria: None
    Offline charging information: Disabled
    Rating group information:
       Rating group: 0 Service id: 0
       Action ID: 0x0                     Trigger profile: 0
       Change condition bitmask: 0x0      Action-id-bitmask: 0x0
       Signal bitmask: 0x0                Last signal bitmask: 0x0
       Last statistics info:
         Collection time: None collected
```


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show unified-edge sgw call-admission-control statistics

Syntax

show unified-edge sgw call-admission-control statistics
<detail>
<fpc-slot *fpc-slot*>
<gateway *gateway-name*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 12.1W.

Description

Display the call admission control (CAC) statistics for one or more Serving Gateways (S-GWs). If an S-GW is not specified, then statistics for all S-GWs are displayed.

NOTE: The CAC statistics are not stored on the Routing Engine. When this command is executed, the Routing Engine fetches the statistics from the active session PICs and displays the consolidated statistics for one or more S-GWs.

Options

none—Display the CAC statistics for all S-GWs.

detail—(Optional) Display the detailed CAC statistics for the specified FPC and PIC slot numbers.

NOTE: The **detail** option is valid only when you specify an FPC and PIC slot number configured on the gateway.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the statistics for the session PIC in the specified FPC and PIC slots.

gateway *gateway-name*—(Optional) Display the CAC statistics for the specified S-GW.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw call-admission-control statistics on page 1053

List of Sample Output

show unified-edge sgw call-admission-control statistics on page 1079
show unified-edge sgw call-admission-control statistics fpc-slot <fpc-slot> pic-slot <pic-slot> detail on page 1079

Output Fields

Table 91 on page 1076 lists the output fields for the **show unified-edge sgw call-admission-control statistics** command. Output fields are listed in the approximate order in which they appear.

Table 91: show unified-edge sgw call-admission-control statistics Output Fields

Field Name	Field Description	Level of Output
GW CAC Statistics—The following statistics are displayed at the gateway level.		
Bearer Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for bearer load was exceeded.	**detail** none
Bearer Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for bearer load was exceeded.	**detail** none
Bearer Load Admits in H-THR	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with higher priority that were accepted once the upper threshold limit for the bearer load was exceeded.	**detail** none
Memory Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for memory load was exceeded.	**detail** none
Memory Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for memory load was exceeded.	**detail** none
Memory Load Admit & Preempt	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with higher priority that triggered preemption once the upper threshold limit for the memory load was exceeded.	**detail** none
CPU Load Rejects (L-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the lower threshold limit for CPU load was exceeded.	**detail** none
CPU Load Rejects (H-THR)	Number of default bearers (and primary PDP contexts) or dedicated bearers (and secondary PDP contexts) with a lower priority that were rejected because the upper threshold limit for CPU load was exceeded.	**detail** none
Memory High Rejects	Number of bearers or PDP contexts that were rejected because the memory load or utilization (at the session PIC level) was high.	**detail** none
CPU High Rejects	Number of bearers or PDP contexts that were rejected because the CPU load or utilization (at the session PIC level) was high.	**detail** none
Bearer Reservation Rejects	Number of default bearers or primary PDP contexts that were rejected because the maximum bearer limit configured on the gateway was reached.	**detail** none
Takedowns due to Preemption	Number of lower priority bearers that were taken down (preempted) to accommodate higher priority ones.	**detail** none

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Table 91: show unified-edge sgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Preemption Job triggers	Number of preemption jobs that were triggered.	**detail** none
Gateway bearer count	Total number of active bearers or PDP contexts on the gateway.	**detail** none
Indirect tunnel reject (Bearer load)	Number of indirect tunnels that were rejected because the bearer load was high.	**detail** none
Indirect tunnel APFE res unavailable	Number of indirect tunnels that were rejected that were rejected because the resources on the anchor Packet Forwarding Engine were unavailable.	**detail** none
Default Bearer Statistics	The following statistics related to default bearers or primary PDP contexts are displayed: • **APFE dmem Resource Unavailable**—Number of default bearers or primary PDP contexts that were rejected because the data memory resources on the anchor Packet Forwarding Engine were unavailable. • **APFE Bearer Resource Unavailable**—Number of default bearers or primary PDP contexts that were rejected because the total bearer resources being used exceeded the total bearer resources available on the anchor Packet Forwarding Engine. • **APFE GBR BW Resource Unavailable**—Number of primary PDP contexts that were rejected because the GBR bandwidth resources on the anchor Packet Forwarding Engine were unavailable. • **APFE Default Bearer Resource Unavailable**—Number of default bearers or primary PDP contexts that were rejected because the threshold for the maximum number of default bearers on the anchor Packet Forwarding Engine was exceeded.	**detail** none
Dedicated Bearer Statistics	The following statistics related to dedicated bearers or secondary PDP contexts are displayed: • **APFE dmem Resource Unavailable**—Number of dedicated bearers or secondary PDP contexts that were rejected because the data memory resources on the anchor Packet Forwarding Engine were unavailable. • **APFE Bearer Resource Unavailable**—Number of dedicated bearers or secondary PDP contexts that were rejected because the total bearer resources being used exceeded the total bearer resources available on the anchor Packet Forwarding Engine. • **APFE GBR BW Resource Unavailable**—Number of dedicated bearers or secondary PDP contexts that were rejected because the GBR bandwidth resources on the anchor Packet Forwarding Engine were unavailable.	**detail** none

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Table 91: show unified-edge sgw call-admission-control statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Redirect Stats Breakup (L - THR)	The following redirect statistics (related to the lower threshold limit is reached) are displayed: NOTE: For each of the following, the statistics are displayed individually for each session PIC, if the statistics are non-zero. • **Bearer Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for bearer load was exceeded. • **Memory Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for memory load was exceeded. • **CPU Load Redirects (L-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the lower threshold limit for CPU load was exceeded.	**detail**
Redirect Stats Breakup (H - THR)	The following redirect statistics (related to the upper threshold limit being reached) are displayed: NOTE: For each of the following, the statistics are displayed individually for each session PIC, if the statistics are non-zero. • **Bearer Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for bearer load was exceeded. • **Memory Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for memory load was exceeded. • **CPU Load Redirects (H-THR)**—Number of bearers or PDP contexts that were redirected to a different session PIC because the upper threshold limit for CPU load was exceeded.	**detail**

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Sample Output

show unified-edge sgw call-admission-control statistics

```
user@host> show unified-edge sgw call-admission-control statistics
Gateway: SGW1

GW CAC Statistics
Bearer Load Rejects (L-THR)                 :   0
Bearer Load Rejects (H-THR)                 :   0
Bearer Load Admits in H-THR                 :   0
Memory Load Rejects (L-THR)                 :   0
Memory Load Rejects (H-THR)                 :   0
Memory Load Admit & Preempt                 :   0
CPU Load Rejects (L-THR)                    :   0
CPU Load Rejects (H-THR)                    :   0
Memory High Rejects                         :   0
CPU High Rejects                            :   0
Bearer Reservation Rejects                  :   0
Takedowns due to Preemption                 :   0
Preemption Job triggers                     :   0
Gateway bearer count                        :   0
Indirect tunnel reject (Bearer load)        :   0
Indirect tunnel APFE res unavailable        :   0
Default Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0
   APFE default bearer resource Unavailable :   0
Dedicated Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0
```

show unified-edge sgw call-admission-control statistics fpc-slot

```
user@host> show unified-edge sgw call-admission-control statistics fpc-slot 3 pic-slot 1 detail
GW CAC Statistics
Bearer Load Rejects (L-THR)                 :   0
Bearer Load Rejects (H-THR)                 :   0
```

<fpc-slot> pic-slot <pic-slot> detail

```
Bearer Load Admits in H-THR                 :   0
Memory Load Rejects (L-THR)                 :   0
Memory Load Rejects (H-THR)                 :   0
Memory Load Admit & Preempt                 :   0
CPU Load Rejects (L-THR)                    :   0
CPU Load Rejects (H-THR)                    :   0
Memory High Rejects                         :   0
CPU High Rejects                            :   0
Bearer Reservation Rejects                  :   0
Takedowns due to Preemption                 :   0
Preemption Job triggers                     :   0
Gateway bearer count                        :   0
Indirect tunnel reject (Bearer load)        :   0
Indirect tunnel APFE res unavailable        :   0
Default Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0
   APFE default bearer resource Unavailable :   0
Dedicated Bearer Statistics
   APFE dmem resource Unavailable           :   0
   APFE bearer resource Unavailable         :   0
   APFE GBR BW resource Unavailable         :   0

Redirect Stats Breakup (L - THR)
  Bearer Load Redirects (L-THR)   : 0
  Memory Load Redirects (L-THR)   : 0
  CPU Load Redirects (L-THR)      : 0

Redirect Stats Breakup (H - THR)
  Bearer Load Redirects (H-THR)   : 0
  Memory Load Redirects (H-THR)   : 0
  CPU Load Redirects (H-THR)      : 0
  Redirect due to APFE Resource   : 0
```


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show unified-edge sgw status preemption-list

Syntax

show unified-edge sgw status preemption-list
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the preemption list for guaranteed bit rate (GBR) and non-GBR bearers in the Serving Gateways (S-GWs). If a gateway name is not specified, then the preemption list for all S-GWs is displayed.

NOTE:

- In load conditions, to accommodate higher-priority bearers, lower-priority bearers are preempted. This list displays the number of bearers in each candidate priority level for preemption.
- This command displays a preemption list only if preemption is enabled on the S-GW.

Options

none—(Same as brief) Display the preemption list information in brief.

brief | detail —(Optional) Display the specified level of output.

fpc-slot *fpc-slot*—(Optional) Display the preemption list information for the specified Flexible PIC Concentrator (FPC) slot number. You must specify a PIC slot number along with an FPC slot number.

gateway *gateway*—(Optional) Display the preemption list for the specified gateway.

pic-slot *pic-slot*—(Optional) Display the status information for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.

Required Privilege Level

view

Related Documentation

- show unified-edge sgw status on page 925

List of Sample Output

show unified-edge ggsn-pgw status preemption-list brief on page 1083
show unified-edge ggsn-pgw status preemption-list detail on page 1083

Output Fields

Table 92 on page 1082 lists the output fields for the **show unified-edge sgw status preemption-list** command. Output fields are listed in the approximate order in which they appear.

Table 92: show unified-edge sgw status preemption-list Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	All levels
FPC Slot	FPC slot number of the interface for which the preemption list information is displayed.	**detail**
PIC Slot	PIC slot number of the FPC for which the preemption list information is displayed.	**detail**
Priority Level	Priority of the call that was set up: 1 is the highest and 15 is the lowest. For each priority level, the following information is displayed: • **GBR**—Number of GBR bearers for the corresponding priority level. • **NON-GBR**—Number of GBR bearers for the corresponding priority level.	All levels

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Sample Output

show unified-edge ggsn-pgw status preemption-list brief

```
user@host> show unified-edge ggsn-pgw status preemption-list brief
Gateway: SGW

                                GBR          NON-GBR

    Priority Level 1     :       0             0
    Priority Level 2     :       0              0
    Priority Level 3     :       0              0
    Priority Level 4     :       0              0
    Priority Level 5     :       1034           0
    Priority Level 6     :       0              1000
    Priority Level 7     :       0              0
    Priority Level 8     :       0              0
    Priority Level 9     :       1000           0
    Priority Level 10    :       0              1060
    Priority Level 11    :       0              0
    Priority Level 12    :       0              0
    Priority Level 13    :       0              0
    Priority Level 14    :       0              0
    Priority Level 15    :       0              0
```

show unified-edge ggsn-pgw status preemption-list detail

```
user@host> show unified-edge ggsn-pgw status preemption-list detail
Gateway: SGW

    Preemption List status:

    FPC SLOT: 3   PIC SLOT: 0

                                GBR          NON-GBR

    Priority Level 1     :       0             0
    Priority Level 2     :       0              0
    Priority Level 3     :       0              0
    Priority Level 4     :       0              0
    Priority Level 5     :       1034           0
    Priority Level 6     :       0              1000
    Priority Level 7     :       0              0
    Priority Level 8     :       0              0
    Priority Level 9     :       1000           0
    Priority Level 10    :       0              1060
    Priority Level 11    :       0              0
    Priority Level 12    :       0              0
    Priority Level 13    :       0              0
    Priority Level 14    :       0              0
    Priority Level 15    :       0              0
```

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CHAPTER 30

Service Applications Operational Commands

show services flows (Aggregated Multiservices)

Syntax

show services flows
<brief | extensive | terse>
<application-protocol *protocol*>
<count>
<destination-port *destination-port*>
<destination-prefix *destination-prefix*>
<interface *interface-name*>
<limit *number*>
<protocol *protocol*>
<service-set *service-set*>
<source-port *source-port*>
<source-prefix *source-prefix*>

Release Information

Command introduced in Junos OS Release 9.5.
Support for aggregated multiservices (AMS) introduced in Junos OS Mobility Release 11.2W.

Description

Display the flow session table entries for the active members of the AMS interface for services applications.

Options

none—Display standard information about all flows.

brief | extensive | terse—(Optional) Display the specified level of output.

application-protocol—(Optional) Display information about one of the following application protocols:

- **ftp**—File Transfer Protocol
- **icmp**—Internet Control Message Protocol
- **pptp**—Point-to-Point Tunneling Protocol
- **rtsp**—Real-Time Streaming Protocol
- **sqlnet**—SQL *Net
- **tcp**—Transmission Control Protocol
- **traceroute**—Traceroute
- **tftp**—Trivial File Transfer Protocol
- **udp**—User Datagram Protocol

count—(Optional) Display a count of the total number of flows of the service sets in each member interface of the AMS.

destination-port *destination-port*—(Optional) Display information for the specified destination port. The range is from 0 through 65,535.

destination-prefix *destination-prefix*—(Optional) Display information for the specified destination prefix.

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interface ***interface-name***—(Optional) Display information about the specified interface. The **interface-name** is in the format **ms-*fpc/pic/port***.

limit ***number***—(Optional) Restrict the maximum number of entries displayed to the specified limit.

protocol ***protocol***—(Optional) Display information about one of the following IP types:

- ***number***—Numeric protocol value from 0 through 255
- **ah**—IPsec Authentication Header protocol
- **egp**—Exterior gateway protocol
- **esp**—IPsec Encapsulating Security Payload protocol
- **gre**—Generic routing encapsulation protocol
- **icmp**—Internet Control Message Protocol
- **icmp6**—Internet Control Message Protocol version 6
- **igmp**—Internet Group Management Protocol
- **ipip**—IP-over-IP encapsulation protocol
- **ospf**—Open Shortest Path First protocol
- **pim**—Protocol Independent Multicast protocol
- **rsvp**—Resource Reservation Protocol
- **sctp**—Stream Control Transmission Protocol
- **tcp**—Transmission Control Protocol
- **udp**—User Datagram Protocol

service-set ***service-set***—(Optional) Display information for the specified service set.

source-port ***source-port***—(Optional) Display information for the specified source port. The range is from 0 through 65,535.

source-prefix ***source-prefix***—(Optional) Display information for the specified source prefix.

Required Privilege Level

view

Related Documentation

- show services sessions (Aggregated Multiservices) on page 1092
- show services service-sets summary on page 1090

List of Sample Output

show services flows interface ams0 on page 1089
show services flows count interface ams0 on page 1089

Output Fields

Table 93 on page 1088 lists the output fields for the **show services flows** (aggregated multiservices) command. Output fields are listed in the approximate order in which they appear.

Table 93: show services flows Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the aggregated multiservices member interface (**mams-**) and the aggregated multiservices interface (**ams**) to which it belongs.	All levels
Service set	Name of a service set. Individual empty service sets are not displayed. If no service set has any flows, a flow table header is displayed for each service set.	All levels
Flow Count	Number of flows in a session.	**count** only
Flow or Flow Prot	Protocol used for this flow.	All levels
Source	Source prefix of the flow in the format ***source-prefix:port***. For ICMP flows, port information is not displayed.	All levels
Dest	Destination prefix of the flow. For ICMP flows, port information is not displayed.	All levels
State	Status of the flow: • **Drop**—Drop all packets in the flow without response. • **Forward**—Forward the packet in the flow without looking at it. • **Reject**—Drop all packets in the flow with response. • **Watch**—Inspect packets in the flow.	All levels
Dir	Direction of the flow: input **(I)** or output **(O)**.	All levels
Frm count	Number of frames in the flow.	All levels
Byte count	Number of bytes in the flow.	**extensive**
Flow role	Flow role.	**extensive**
Timeout	Timeout value.	**extensive**
Flow path	Flow path: symmetric or asymmetric.	**extensive**

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Sample Output

show services flows interface ams0

```
user@host> show services flows interface ams0
Interface: mams-1/0/0 (ams0), Service set: napt_set
Flow                                                    State    Dir       Frm count
UDP         30.30.30.2:63    ->     40.40.40.2:63    Forward  I           83185
UDP         40.40.40.2:63    ->   30.30.30.160:6000  Forward  O               0
```

show services flows count interface ams0

```
user@host> show services flows count interface ams0
Interface   Service set                                                Flow count
mams-1/0/0  napt_set                                                         38
mams-1/0/0  ss1                                                               0
mams-1/1/0  napt_set                                                         36
mams-1/1/0  ss1                                                               0
mams-5/0/0  napt_set                                                         18
mams-5/0/0  ss1                                                               0
mams-5/1/0  napt_set                                                         34
mams-5/1/0  ss1                                                               0
```

show services service-sets summary

Syntax

show services service-sets summary
<interface *interface*>

Release Information

Command introduced before Junos OS Release 7.4.
Display of the CPU usage in the output introduced in Junos OS Mobility Release 11.2W.

Description

Display the summary information about the service sets for multiservices (MS) interfaces.

Options

interface *interface*—Name of the adaptive services interface (**ms-**).

Required Privilege Level

view

Related Documentation

- show services flows (Aggregated Multiservices) on page 1086
- show services sessions (Aggregated Multiservices) on page 1092

List of Sample Output

show services service-sets summary on page 1091

Output Fields

Table 94 on page 1090 lists the output fields for the **show services service-sets summary** command. Output fields are listed in the approximate order in which they appear.

Table 94: show services service-sets summary Output Fields

Field Name	Field Description
Interface	Name of the multiservices member interface (**ms-**).
Service sets configured	Total number of service sets configured on the interface.
Bytes used	Total number of bytes used by stateful services for runtime information. (The **object-cache-size** statement is used to set the memory allocated for runtime services.) The following information is also displayed: • Memory Alarm (zone): If the amount of free memory goes below the limit (64 MB for 32-bit Junos OS and 128 MB for 64-bit Junos OS), an overload alert (**OVLD**) is displayed. If not, then nothing is displayed. • Percentage of the total number of bytes used.
Policy bytes used	Total number of policy bytes used and the percentage used. Policy bytes is the amount of memory used for user configuration and correlates with the **policy-db-size** statement.
CPU Utilization	Percentage of CPU utilization per PIC. The following information is also displayed: • CPU Alarm (Zone): If the CPU utilization goes above the configured limit, then an overload alert (**OVLD**) is displayed. If not, then nothing is displayed.

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Sample Output

show services service-sets summary

```
user@host> show services service-sets summary
                    Service sets
                    CPU
Interface    configured            Bytes used   Policy bytes used  utilization
ms-0/0/0           1   385021900      (81.96%)     299796 ( 0.44%)  92.89 % OVLD
```

show services sessions (Aggregated Multiservices)

Syntax

show services sessions
<brief | extensive | terse>
<application-protocol *protocol*>
<count>
<destination-port *destination-port*>
<destination-prefix *destination-prefix*>
<interface *interface-name*>
<limit *number*>
<protocol *protocol*>
<service-set *service-set*>
<source-port *source-port*>
<source-prefix *source-prefix*>

Release Information

Command introduced in Junos OS Mobility Release 10.4.
Support for aggregated multiservices (AMS) introduced in Junos OS Mobility Release 11.2W.

Description

Display the session information for each service set in each member interface of the AMS interface.

Options

none—Display standard information about all sessions.

brief | extensive | terse—(Optional) Display the specified level of output.

application-protocol—(Optional) Display information about one of the following application protocols:

- **ftp**—File Transfer Protocol
- **icmp**—Internet Control Message Protocol
- **pptp**—Point-to-Point Tunneling Protocol
- **rtsp**—Real-Time Streaming Protocol
- **sqlnet**—SQL *Net
- **tcp**—Transmission Control Protocol
- **traceroute**—Traceroute
- **tftp**—Trivial File Transfer Protocol
- **udp**—User Datagram Protocol

count—(Optional) Display a count of the matching entries.

destination-port *destination-port*—(Optional) Display information for a particular destination port. The range of values is from 0 through 65,535.

destination-prefix *destination-prefix*—(Optional) Display information for a particular destination prefix.

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interface ***interface-name***—(Optional) Display information about a particular interface. On M Series and T Series routers, ***interface-name*** can be **ms-*fpc/pic/port*** or **rsp*number***. On J Series routers, ***interface-name*** is **ms-*pim/0/port***.

limit ***number***—(Optional) Maximum number of entries to display.

protocol ***protocol***—(Optional) Display information about one of the following IP types:

- ***number***—Numeric protocol value from 0 through 255
- **ah**—IPsec Authentication Header protocol
- **egp**—An exterior gateway protocol
- **esp**—IPsec Encapsulating Security Payload protocol
- **gre**—A generic routing encapsulation protocol
- **icmp**—Internet Control Message Protocol
- **icmp6**—Internet Control Message Protocol version 6
- **igmp**—Internet Group Management Protocol
- **ipip**—IP-over-IP encapsulation protocol
- **ospf**—Open Shortest Path First protocol
- **pim**—Protocol Independent Multicast protocol
- **rsvp**—Resource Reservation Protocol
- **sctp**—Stream Control Transmission Protocol
- **tcp**—Transmission Control Protocol
- **udp**—User Datagram Protocol

service-set ***service-set***—(Optional) Display information for a particular service set.

source-port ***source-port***—(Optional) Display information for a particular source port. The range of values is from 0 through 65,535.

source-prefix ***source-prefix***—(Optional) Display information for a particular source prefix.

Required Privilege Level

view

Related Documentation

- show services flows (Aggregated Multiservices) on page 1086
- show services service-sets summary on page 1090

List of Sample Output

show services sessions brief on page 1095
show services sessions interface mams-5/0/0 extensive on page 1095
show services sessions terse on page 1097
show services sessions count on page 1098

Output Fields Table 95 on page 1094 lists the output fields for the **show services sessions** command. Output fields are listed in the approximate order in which they appear.

Table 95: show services sessions Output Fields

Field Name	Field Description
Interface	Name of the member interface (**mams-**) and the aggregated multiservices interface (**ams**) to which it belongs.
Session ID	Session ID that uniquely identifies the session.
ALG	Name of the application.
Flags	Session flag for the ALG: • **0x1**—Found an existing session. • **0x2**—Reached session or flow limit. • **0x3**—No memory available for new sessions. • **0x4**—No free session ID available.
IP Action	Flag indicating whether IP action has been set for the session.
Offload	Flag indicating whether the session has been offloaded to the Packet Forwarding Engine.
Asymmetric	Flag indicating whether the session is unidirectional.
Service set	Name of a service set. Individual empty service sets are not displayed.
Sessions Count	Number of sessions.
Flow or Flow Prot	Protocol used for this session.
Source	Source prefix of the flow in the format ***source-prefix:port***. For ICMP flows, port information is not displayed.
Dest	Destination prefix of the flow. For ICMP flows, port information is not displayed.
State	Status of the flow: • **Drop**—Drop all packets in the flow without response. • **Forward**—Forward the packet in the flow without looking at it. • **Reject**—Drop all packets in the flow with response. • **Watch**—Inspect packets in the flow. • **Bypass**—Bypass packets in the flow. • **Unknown**—Unknown flow status.
Packet Direction	Direction of the flow: ingress **(I)**, egress **(O)**, or unknown.
Frm count	Number of frames in the flow.

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Sample Output

show services sessions brief

```
user@host> show services sessions brief
mams-1/0/0 (ams0)
Service Set: napt_set, Session: 16777217, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP         30.30.30.2:63    ->     40.40.40.2:63    Forward  I           85689
UDP         40.40.40.2:63    ->   30.30.30.160:6000  Forward  O               0
```

show services sessions interface mams-5/0/0 extensive

```
user@host> show services sessions interface mams-5/0/0 extensive
mams-1/0/0 (ams0)
Service Set: napt_set, Session: 16777235, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.62:63      ->    30.30.30.176:6003
UDP        30.30.30.62:63    ->    40.40.40.62:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.62:63    ->   30.30.30.176:6003  Forward  O               0
  Byte count: 0
  Flow role: Responder, Timeout: 0
Service Set: napt_set, Session: 16777234, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.57:63      ->    30.30.30.163:6003
UDP        30.30.30.57:63    ->    40.40.40.57:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.57:63    ->   30.30.30.163:6003  Forward  O               0
  Byte count: 0
  Flow role: Responder, Timeout: 0

[...output truncated...]
mams-1/1/0 (ams0)
Service Set: napt_set, Session: 16777234, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.63:63      ->    30.30.30.165:6004
UDP        30.30.30.63:63    ->    40.40.40.63:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.63:63    ->   30.30.30.165:6004  Forward  O               0
  Byte count: 0
  Flow role: Responder, Timeout: 0
Service Set: napt_set, Session: 16777233, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.60:63      ->    30.30.30.164:6004
UDP        30.30.30.60:63    ->    40.40.40.60:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.60:63    ->   30.30.30.164:6004  Forward  O               0
```

```
  Byte count: 0
  Flow role: Responder, Timeout: 0
Service Set: napt_set, Session: 16777232, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

[...output truncated...]
mams-5/0/0 (ams0)
Service Set: napt_set, Session: 16777225, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.64:63      ->    30.30.30.168:6002
UDP        30.30.30.64:63    ->    40.40.40.64:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.64:63    ->   30.30.30.168:6002  Forward  O               0
  Byte count: 0
  Flow role: Responder, Timeout: 0
Service Set: napt_set, Session: 16777224, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.56:63      ->    30.30.30.171:6001
UDP        30.30.30.56:63    ->    40.40.40.56:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.56:63    ->   30.30.30.171:6001  Forward  O               0
  Byte count: 0
  Flow role: Responder, Timeout: 0
Service Set: napt_set, Session: 16777223, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

[...output truncated...]
mams-5/1/0 (ams0)
Service Set: napt_set, Session: 16777233, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.61:63      ->    30.30.30.172:6004
UDP        30.30.30.61:63    ->    40.40.40.61:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.61:63    ->   30.30.30.172:6004  Forward  O               0
  Byte count: 0
  Flow role: Responder, Timeout: 0
Service Set: napt_set, Session: 16777232, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no

NAT PLugin Data:
  NAT Action:   Translation Type - NAPT-44
    NAT source     30.30.30.52:63      ->    30.30.30.175:6003
UDP        30.30.30.52:63    ->    40.40.40.52:63    Forward  I            1805
  Byte count: 83030
  Flow role: Initiator, Timeout: 0
UDP        40.40.40.52:63    ->   30.30.30.175:6003  Forward  O               0
  Byte count: 0
  Flow role: Responder, Timeout: 0
Service Set: napt_set, Session: 16777231, ALG: none, Flags: 0x2000, IP Action:
```


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```
no, Offload: no, Asymmetric: no

[...output truncated...]
```

show services sessions terse

```
user@router> show services sessions terse
mams-1/0/0 (ams0)
Service Set: napt_set, Session: 16777235, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.62:63    ->    40.40.40.62:63    Forward  I            2541
UDP        40.40.40.62:63    ->   30.30.30.176:6003  Forward  O               0
Service Set: napt_set, Session: 16777234, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.57:63    ->    40.40.40.57:63    Forward  I            2541
UDP        40.40.40.57:63    ->   30.30.30.163:6003  Forward  O               0
Service Set: napt_set, Session: 16777233, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.50:63    ->    40.40.40.50:63    Forward  I            2541
UDP        40.40.40.50:63    ->   30.30.30.162:6003  Forward  O               0
Service Set: napt_set, Session: 16777232, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.48:63    ->    40.40.40.48:63    Forward  I            2541
UDP        40.40.40.48:63    ->   30.30.30.161:6003  Forward  O               0
[...output truncated...]
mams-1/1/0 (ams0)
Service Set: napt_set, Session: 16777234, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.63:63    ->    40.40.40.63:63    Forward  I            2543
UDP        40.40.40.63:63    ->   30.30.30.165:6004  Forward  O               0
Service Set: napt_set, Session: 16777233, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.60:63    ->    40.40.40.60:63    Forward  I            2543
UDP        40.40.40.60:63    ->   30.30.30.164:6004  Forward  O               0
Service Set: napt_set, Session: 16777232, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.59:63    ->    40.40.40.59:63    Forward  I            2543
UDP        40.40.40.59:63    ->   30.30.30.167:6003  Forward  O               0
Service Set: napt_set, Session: 16777231, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.58:63    ->    40.40.40.58:63    Forward  I            2543
UDP        40.40.40.58:63    ->   30.30.30.166:6003  Forward  O               0
[...output truncated...]
mams-5/0/0 (ams0)
Service Set: napt_set, Session: 16777225, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.64:63    ->    40.40.40.64:63    Forward  I            2543
UDP        40.40.40.64:63    ->   30.30.30.168:6002  Forward  O               0
Service Set: napt_set, Session: 16777224, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.56:63    ->    40.40.40.56:63    Forward  I            2543
UDP        40.40.40.56:63    ->   30.30.30.171:6001  Forward  O               0
Service Set: napt_set, Session: 16777223, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.55:63    ->    40.40.40.55:63    Forward  I            2543
UDP        40.40.40.55:63    ->   30.30.30.170:6001  Forward  O               0
Service Set: napt_set, Session: 16777222, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.51:63    ->    40.40.40.51:63    Forward  I            2543
UDP        40.40.40.51:63    ->   30.30.30.169:6001  Forward  O               0
[...output truncated...]
mams-5/1/0 (ams0)
Service Set: napt_set, Session: 16777233, ALG: none, Flags: 0x2000, IP Action:
```

```
no, Offload: no, Asymmetric: no
UDP        30.30.30.61:63    ->    40.40.40.61:63    Forward  I            2544
UDP        40.40.40.61:63    ->   30.30.30.172:6004  Forward  O               0
Service Set: napt_set, Session: 16777232, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.52:63    ->    40.40.40.52:63    Forward  I            2545
UDP        40.40.40.52:63    ->   30.30.30.175:6003  Forward  O               0
Service Set: napt_set, Session: 16777231, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.47:63    ->    40.40.40.47:63    Forward  I            2545
UDP        40.40.40.47:63    ->   30.30.30.174:6003  Forward  O               0
Service Set: napt_set, Session: 16777230, ALG: none, Flags: 0x2000, IP Action:
no, Offload: no, Asymmetric: no
UDP        30.30.30.46:63    ->    40.40.40.46:63    Forward  I            2545
UDP        40.40.40.46:63    ->   30.30.30.173:6003  Forward  O               0
[...output truncated...]
```

show services sessions count

```
user@host> show services sessions count
Interface   Service set                                          Sessions count
mams-1/0/0  napt_set                                                        19
mams-1/0/0  ss1                                                              0
mams-1/1/0  napt_set                                                        18
mams-1/1/0  ss1                                                              0
mams-5/0/0  napt_set                                                         9
mams-5/0/0  ss1                                                              0
mams-5/1/0  napt_set                                                        17
mams-5/1/0  ss1                                                              0
```


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CHAPTER 31

System Architecture Operational Commands

clear unified-edge sgw idle-mode-buffering statistics

Syntax

clear unified-edge sgw idle-mode-buffering statistics
<all>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Clear the idle mode buffering statistics for one or more Serving Gateways (S-GWs). If a gateway name is not specified, then statistics for all S-GWs are cleared.

Options

none—Clear the idle mode buffering statistics for all S-GWs.

all—(Optional) Clear all the buffering statistics including the idle mode buffering statistics and the statistics collected during the initial bearer setup.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Clear the idle mode buffering statistics for the specified Flexible PIC Concentrator (FPC) and PIC slot numbers.

gateway—(Optional) Clear the idle mode buffering statistics for all the services PICs in the specified gateway.

Required Privilege Level

clear, unified-edge

Related Documentation

- show unified-edge sgw idle-mode-buffering statistics on page 1111

List of Sample Output

clear unified-edge sgw idle-mode-buffering statistics on page 1100

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear unified-edge sgw idle-mode-buffering statistics

```
user@host> clear unified-edge sgw idle-mode-buffering statistics
 Cleared idle mode buffering statistics
```


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show unified-edge gateways

Syntax

show unified-edge gateways
<brief | detail>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display information about all gateways configured on the chassis.

Options

none—(Same as brief) Display information about the configured gateways in brief.

brief | detail—(Optional) Display the specified level of output.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw system interfaces on page 732
- show unified-edge sgw system interfaces on page 734

List of Sample Output

show unified-edge gateways brief on page 1102
show unified-edge gateways detail on page 1102

Output Fields

Table 96 on page 1101 lists the output fields for the **show unified-edge gateways** command. Output fields are listed in the approximate order in which they appear.

Table 96: show unified-edge gateways Field Descriptions

Field Name	Field Description	Level of Output
Gateway name	Name of the gateway.	All levels
Gateway type	Type of gateway: • **ggsn-pgw**—Gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW). • **sgw**—Serving Gateway (S-GW).	All levels
Gateway ID	Internal ID of the gateway.	All levels
Gateway uplink mif interface	Mobile interface, on the gateway, used for uplink packets.	**detail**
Gateway downlink mif interface	Mobile interface, on the gateway, used for downlink packets.	**detail**
Gateway pfe interfaces	Packet Forwarding Engine interfaces (**pfe-**) or aggregated Packet Forwarding Engine interfaces (**apfe-**) configured on the gateway.	**detail**
Gateway session pic interfaces	Multiservices interfaces (**ms-**) or aggregated multiservices interfaces (**ams-**) configured on the gateway.	**detail**

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Sample Output

show unified-edge gateways brief

```
user@host> show unified-edge gateways brief

Total number of configured gateways: 2

Gateway name: PGW
Gateway type: ggsn-pgw
Gateway id:   1

Gateway name: SGW
Gateway type: sgw
Gateway id:   2
```

show unified-edge gateways detail

```
user@host> show unified-edge gateways detail

Total number of configured gateways: 2

Gateway name:                   PGW
Gateway type:                   ggsn-pgw
Gateway id:                     1
Gateway uplink mif interface:   mif.64001
Gateway downlink mif interface: ---
Gateway pfe interfaces:
                                pfe-5/0/0
Gateway session-pic interfaces:
                                ms-3/0/0

Gateway name:                   SGW
Gateway type:                   sgw
Gateway id:                     2
Gateway uplink mif interface:   mif.64003
Gateway downlink mif interface: mif.64004
Gateway pfe interfaces:
                                pfe-0/0/0
Gateway session-pic interfaces:
                                ms-1/0/0
```


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show unified-edge ggsn-pgw call-rate statistics

Syntax

show unified-edge ggsn-pgw call-rate statistics
<gateway *gateway-name*>
<history>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display the call-rate statistics for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.

Options

none—Display the call-rate statistics for all GGSNs or P-GWs.

gateway *gateway-name*—(Optional) Display the call-rate statistics for the specified GGSN or P-GW.

history—(Optional) Display the call-rate statistics for a specified number of past intervals. (The number of past intervals is configured using the **set call-rate-statistics history** statement at the **[edit unified-edge gateways ggsn-pgw *gateway-name*]** hierarchy level.)

Required Privilege Level

view

Related Documentation

- call-rate-statistics on page 663

List of Sample Output

show unified-edge ggsn-pgw call-rate statistics on page 1104
show unified-edge ggsn-pgw call-rate statistics history on page 1104

Output Fields

Table 97 on page 1103 lists the output fields for the **show unified-edge ggsn-pgw call-rate statistics** command. Output fields are listed in the approximate order in which they appear.

Table 97: show unified-edge ggsn-pgw call-rate statistics Output Fields

Field Name	Field Description
Gateway	Name of the GGSN or P-GW.
Record	Record number for the interval in which the call-rate statistics are collected, starting from the newest record (1) to the oldest.
Call-rate interval	Interval, in minutes, for which the call-rate statistics are calculated.
Control Plane	The following control plane information is displayed: • **Activations**—Number of activations during the call-rate interval. • **Deactivations**—Number of deactivations during the call-rate interval.

Table 97: show unified-edge ggsn-pgw call-rate statistics Output Fields *(continued)*

Field Name	Field Description
Data Plane (Gn)	The following data plane (Gn interface) information is displayed: • **Input packets**—Number of data packets received during the call-rate interval. • **Output packets**—Number of data packets transmitted during the call-rate interval. • **Input bytes**—Number of data bytes received during the call-rate interval. • **Output bytes**—Number of data bytes transmitted during the call-rate interval.
Statistics collection time	Date and time when the call-rate statistics for the record are computed.

Sample Output

show unified-edge ggsn-pgw call-rate statistics

```
user@host> show unified-edge ggsn-pgw call-rate statistics
PGW
Record 1 (Call-rate statistics for the past 5 min):
Control Plane:
        Activations:    24
        Deactivations:  0
Data Plane(Gn):
        Input Packets:  100
        Output packets: 0
        Input bytes:    12800
        Output bytes:   0
Statistics collection time: 2012-03-02 03:13:26 PST (00:00:05 ago)
```

show unified-edge ggsn-pgw call-rate statistics history

```
user@host> show unified-edge ggsn-pgw call-rate statistics history
Record 1 (Call-rate statistics for the past 5 min):
Control Plane:
        Activations:    10
        Deactivations:  0
Data Plane(Gn):
        Input Packets:  600
        Output packets: 600
        Input bytes:    556800
        Output bytes:   556800
Statistics collection time: 2011-05-19 02:33:05 PDT (00:01:19 ago)

Record 2 (Call-rate statistics for the past 5 min):
Control Plane:
        Activations:    9
        Deactivations:  19
Data Plane(Gn):
        Input Packets:  774
        Output packets: 774
        Input bytes:    20212
        Output bytes:   20212
Statistics collection time: 2011-05-19 02:23:05 PDT (00:06:19 ago)
```


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show unified-edge ggsn-pgw resource-manager clients

Syntax

show unified-edge ggsn-pgw resource-manager clients
<gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.2W.
gateway option introduced in Junos OS Mobility Release 11.4W.

Description

Display information about the resource management clients (the session Dense Port Concentrators [DPCs] and interface DPCs and Modular Port Concentrators [MPCs]) on one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.

Options

none—Display information for one or more GGSNs or P-GWs.

gateway *gateway-name*—(Optional) Display information for the specified gateway.

Required Privilege Level

view

Related Documentation

- show unified-edge gateways on page 1101
- show unified-edge ggsn-pgw system interfaces on page 732

List of Sample Output

show unified-edge ggsn-pgw resource-manager clients on page 1106

Output Fields

Table 98 on page 1105 lists the output fields for the **show unified-edge gateways ggsn-pgw resource-manager clients** command. Output fields are listed in the approximate order in which they appear.

Table 98: show unified-edge gateways ggsn-pgw resource-manager clients Output Fields

Field Name	Field Description
Client	Name of the resource manager client slot identified by the FPC and PIC slot numbers; for example, **pfe-1/2/0** or **ms/7/0/0**.
State	Resource manager client state. **In-Service** means that the client can handle session creation requests.
Role	Role of the resource manager client slot: • **Primary**—The resource manager client is a primary member. • **Secondary**—The resource manager client is a secondary or backup member.
Client type	Type of resource manager client: • **PFE**—Packet Forwarding Engine client used for anchoring subscribers in the gateway. • **Session PIC**—Session PIC client used for the mobile control plane in the gateway • **Service PIC**—services PIC used for anchoring services-related subscriber sessions in the gateway
Gateway	Name of the gateway to which the resource manager client belongs.

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Sample Output

show unified-edge ggsn-pgw resource-manager clients

```
user@host> show unified-edge ggsn-pgw resource-manager clients
Client      State          Redundancy role Client type Gateway
pfe-0/0/0   In-Service     Primary         PFE         PGW
pfe-0/1/0   In-Service     Primary         PFE         PGW
pfe-0/2/0   In-Service     Primary         PFE         PGW
pfe-0/3/0   In-Service     Primary         PFE         PGW
ms-2/0/0    In-Service     Primary         Service-PIC PGW
ms-2/1/0    In-Service     Secondary       Service-PIC PGW
ms-3/0/0    In-Service     Primary         Service-PIC PGW
ms-3/1/0    In-Service     Primary         Service-PIC PGW
ms-5/0/0    In-Service     Primary         Session-PIC PGW
ms-5/1/0    In-Service     Secondary       Session-PIC PGW
```


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show unified-edge ggsn-pgw system interfaces service-mode

Syntax

show unified-edge ggsn-pgw system interfaces service-mode
<brief | detail>
<gateway *gateway-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the service mode information for the interfaces on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.

Options

none—(Same as brief) Display service mode information for one or more GGSNs and P-GWs.

brief | detail—(Optional) Display the specified level of output.

gateway-name ***gateway-name***—(Optional) Display service mode information for the specified gateway.

Required Privilege Level

view

Related Documentation

- show unified-edge ggsn-pgw system interfaces on page 732

List of Sample Output

show unified-edge ggsn-pgw system interfaces service-mode brief on page 1108
show unified-edge ggsn-pgw system interfaces service-mode detail on page 1108

Output Fields

Table 99 on page 1107 lists the output fields for the **show unified-edge ggsn-pgw system interfaces service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 99: show unified-edge ggsn-pgw system interfaces service-mode

Field Name	Field Description
Interface Name	Name of the interface for which the service mode information is displayed: • Aggregated multiservices; for example, **ams0** • Aggregated Packet Forwarding Engine; for example, **apfe1** • Multiservices; for example, **ms-1/0/0**
Gateway	Name of the GGSN or P-GW.

Table 99: show unified-edge ggsn-pgw system interfaces service-mode *(continued)*

Field Name	Field Description
Service Mode	Service mode for the gateway. The following service modes are possible: • Operational—Gateway is in operational mode. • Maintenance—Gateway is in maintenance mode. • **MM Active Phase**—In this mode, you can make changes to all of the configuration options. • **MM In/Out Phase**—In this mode, you can only make changes to the configuration options for the non-maintenance-mode attributes.

Sample Output

show unified-edge ggsn-pgw system interfaces service-mode brief

```
user@host> show unified-edge ggsn-pgw system interfaces service-mode brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
                      attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                      non-maintenance mode attributes of this object and
                      its sub-hierarchies.

Interface Name     Gateway                      Service Mode

pfe-2/1/0          PGW                             Operational
ams1               PGW                             Operational
```

show unified-edge ggsn-pgw system interfaces service-mode detail

```
user@host> show unified-edge ggsn-pgw system interfaces service-mode detail
Service Mode Status
Interface Name  : pfe-2/1/0
Gateway Name    : PGW
Service Mode    : Operational
Service Mode Status
Interface Name  : ams1
Gateway Name    : PGW
Service Mode    : Operational
```


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show unified-edge sgw call-rate statistics

Syntax

show unified-edge sgw call-rate statistics
<gateway *gateway-name*>
<history>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the call-rate statistics for one or more Serving Gateways (S-GWs). If a gateway is not specified, then information for all S-GWs is displayed.

Options

none—Display the call-rate statistics for all S-GWs.

gateway *gateway-name*—(Optional) Display the call-rate statistics for the specified gateway.

history—(Optional) Display the call-rate statistics for a specified number of past intervals. (The number of past intervals is configured using the **set call-rate-statistics history** statement at the **[edit unified-edge gateways sgw *gateway-name*]** hierarchy level.)

Required Privilege Level

view

Related Documentation

- call-rate-statistics on page 663

List of Sample Output

show unified-edge sgw call-rate statistics on page 1110
show unified-edge sgw call-rate statistics history on page 1110

Output Fields

Table 100 on page 1109 lists the output fields for the **show unified-edge sgw call-rate statistics** command. Output fields are listed in the approximate order in which they appear.

Table 100: show unified-edge sgw call-rate statistics Output Fields

Field Name	Field Description
Gateway	Name of the S-GW.
Record	Record number for the interval in which the call-rate statistics are collected, starting from the newest record (1) to the oldest.
Call-rate interval	Interval, in minutes, for which the call-rate statistics are calculated.
Control Plane	The following control plane information is displayed: • **Activations**—Number of activations during the call-rate interval. • **Deactivations**—Number of deactivations during the call-rate interval.

Table 100: show unified-edge sgw call-rate statistics Output Fields *(continued)*

Field Name	Field Description
Data Plane (Gn)	The following data plane (Gn interface) information is displayed: • **Input packets**—Number of data packets received during the call-rate interval. • **Output packets**—Number of data packets transmitted during the call-rate interval. • **Input bytes**—Number of data bytes received during the call-rate interval. • **Output bytes**—Number of data bytes transmitted during the call-rate interval.
Statistics collection time	Date and time when the call-rate statistics for the record are computed.

Sample Output

show unified-edge sgw call-rate statistics

```
user@host> show unified-edge sgw call-rate statistics
Gateway: SGW
Record 1 (Call-rate statistics for the past 10 min):
Control Plane:
        Activations:    1
        Deactivations:  0
Data Plane(Gn):
        Input Packets:  0
        Output packets: 2
        Input bytes:    0
        Output bytes:   584
Statistics collection time: 2011-12-09 21:08:30 PST (00:00:49 ago)
```

show unified-edge sgw call-rate statistics history

```
user@host> show unified-edge sgw call-rate statistics history
Gateway: SGW
Record 1 (Call-rate statistics for the past 10 min):
Control Plane:
        Activations:    1
        Deactivations:  0
Data Plane(Gn):
        Input Packets:  0
        Output packets: 2
        Input bytes:    0
        Output bytes:   584
Statistics collection time: 2011-12-09 21:08:30 PST (00:01:17 ago)
```


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show unified-edge sgw idle-mode-buffering statistics

Syntax

show unified-edge sgw idle-mode-buffering statistics
<brief | detail>
<fpc-slot *fpc-slot*>
<gateway *gateway*>
<pic-slot *pic-slot*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the idle mode buffering statistics for one or more Serving Gateways (S-GWs). If a gateway name is not specified, then statistics for all S-GWs are displayed.

Options

none—(Same as brief) Display the idle mode buffering statistics for all S-GWs.

brief | detail—(Optional) Display the specified level of output.

NOTE: The **brief** option displays the aggregated statistics from all the services PICs for each S-GW. The **detail** option displays the statistics for each services PIC separately for each S-GW.

fpc-slot *fpc-slot* pic-slot *pic-slot*—(Optional) Display the idle mode buffering statistics for the specified Flexible PIC Concentrator (FPC) and PIC slot numbers.

gateway—(Optional) Display the idle mode buffering statistics for all the services PICs in the specified gateway.

Required Privilege Level

view

Related Documentation

- clear unified-edge sgw idle-mode-buffering statistics on page 1100

List of Sample Output

show unified-edge sgw idle-mode-buffering statistics brief on page 1114
show unified-edge sgw idle-mode-buffering statistics detail on page 1114

Output Fields

Table 101 on page 1111 lists the output fields for the **show unified-edge sgw idle-mode-buffering statistics** command. Output fields are listed in the approximate order in which they appear.

Table 101: show unified-edge sgw idle-mode-buffering statistics Output Fields

Field Name	Field Description	Level of Output
Gateway	Name of the S-GW.	**All levels**
FPC Slot	FPC slot number for which the statistics are displayed.	**detail**
PIC slot	PIC slot number for which the statistics are displayed.	**detail**

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Table 101: show unified-edge sgw idle-mode-buffering statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Idle Mode Buffering Statistics: —The following idle mode buffering statistics related to GTPv1 downlink are displayed.		
Total Packets received	Total number of packets received from the Packet Forwarding Engine for idle subscribers.	**All levels**
Invalid packets	Total number of packets received that failed validation checks; these packets are received from the Packet Forwarding Engine.	**All levels**
Flows created	Total number of flows created to handle packets.	**All levels**
Flows aged out	Total number of flows aged out.	**All levels**
Active Flows	Number of current active flows.	**All levels**
Active Buffered Flows	Number of active flows that are currently being buffered.	**All levels**
Buffering Statistics —The following consolidated statistics are displayed for packets buffered for idle subscribers and for packets buffered during the initial bearer setup.		
Active Buffered Flows	Number of current active flows that are handling buffering for idle subscribers and for packets buffered during initial bearer setup.	**All levels**
Packets/Bytes	The following information about packets that need buffering is displayed: • **Total Received**—Total number of packets received from the Packet Forwarding Engine for idle subscribers and buffered during initial bearer setup. • **Invalid**—Total number of packets received that failed validation checks. • **Current Buffered**—Number of currently buffered packets and their size, in bytes. • **Reinjected**—Total number of packets reinjected to the Packet Forwarding Engine and their size, in bytes. • **Dropped (Exceeded limit)**—Total number of packets dropped because the buffering limit was exceeded and the size of the dropped packets, in bytes. • **Buffered (Dropped)**—Total number of buffered packets that were dropped and their size, in bytes.	**All levels**

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Table 101: show unified-edge sgw idle-mode-buffering statistics Output Fields *(continued)*

Field Name	Field Description	Level of Output
Limit Exceeded	The following information about the number of times that the buffer and memory limits are exceeded is displayed: • **Dedicated buffer-limit**—Number of times the dedicated buffer limit of 2 KB is exceeded. • **Shared buffer-limit**—Number of times the shared buffer limit of 10 KB is exceeded. • **Dedicated memory-limit**—Number of times the dedicated memory limit of 75 percent is exceeded. • **Shared memory-limit**—Number of times the shared memory limit of 25 percent is exceeded.	**All levels**
Memory Usage	The following information about memory usage is displayed: • **Memory used (Bytes)**—Amount of dedicated and shared memory used, in bytes. • **Memory free (Bytes)**—Amount of free memory, in bytes. • **Dedicated memory used (%)**—Percentage of dedicated memory used. • **Shared memory used (%)**—Percentage of shared memory used.	**All levels**

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Sample Output

show unified-edge sgw idle-mode-buffering statistics brief

```
user@host> show unified-edge sgw idle-mode-buffering statistics brief
Gateway: SGW


Idle Mode Buffering statistics:
GTPv1 Downlink:
  Total Packets received:                     102
  Invalid packets:                              0
  Flows created:                               12
  Flows aged out:                               0
  Active Flows:                                10
  Active Buffered Flows:                       10


Buffering statistics:
  Active Buffered Flows:                       10
  Packets/Bytes:
    Total Received:                           102
    Invalid:                                    0
    Current Buffered:                         100 / 16400
    Reinjected:                                 2 / 280
    Dropped (Exceeded limit):                   0 / 0
    Buffered Dropped:                           0 / 0
  Limit Exceeded:
    Dedicated buffer-limit:                     0
    Shared buffer-limit:                        0
    Dedicated memory-limit:                     0
    Shared memory-limit:                        0
  Memory Usage:
    Memory used (Bytes):                  7991432
    Memory free (Bytes):                124129144
    Dedicated memory used (%):                  0
    Shared memory used (%):                     0
```

show unified-edge sgw idle-mode-buffering statistics detail

```
user@host> show unified-edge sgw idle-mode-buffering statistics detail
Gateway: SGW


Idle Mode Buffering statistics (FPC 0 PIC 0):
GTPv1 Downlink:
  Total Packets received:                     102
  Invalid packets:                              0
  Flows created:                               12
  Flows aged out:                               0
  Active Flows:                                 0
  Active Buffered Flows:                        0


Buffering statistics (FPC 0 PIC 0):
  Active Buffered Flows:                        0
  Packets/Bytes:
    Total Received:                           102
    Invalid:                                    0
    Current Buffered:                           0 / 0
    Reinjected:                                 2 / 280
    Dropped (Exceeded limit):                   0 / 0
```


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```
  Buffered Dropped:                        100 / 16400
Limit Exceeded:
  Dedicated buffer-limit:                    0
  Shared buffer-limit:                       0
  Dedicated memory-limit:                    0
  Shared memory-limit:                       0
Memory Usage:
  Memory used (Bytes):                 7954632
  Memory free (Bytes):               124165944
  Dedicated memory used (%):                 0
  Shared memory used (%):                    0
```

show unified-edge sgw resource-manager clients

Syntax

show unified-edge sgw resource-manager clients
<gateway *gateway*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display information about the resource management clients (the session Dense Port Concentrators [DPCs] and interface DPCs and Modular Port Concentrators [MPCs]) on one or more configured Serving Gateways (S-GWs). If a gateway is not specified, then information for all configured S-GWs is displayed.

Options

gateway *gateway*—(Optional) Display resource management information for the specified gateway.

Required Privilege Level

view

Related Documentation

- show unified-edge gateways on page 1101
- show unified-edge sgw system interfaces on page 734

List of Sample Output

show unified-edge sgw resource-manager clients on page 1117

Output Fields

Table 102 on page 1116 lists the output fields for the **show unified-edge sgw resource-manager clients** command. Output fields are listed in the approximate order in which they appear.

Table 102: show unified-edge sgw resource-manager clients Output Fields

Field Name	Field Description
Client	Name of the resource manager client slot identified by the FPC and PIC slot numbers; for example, **pfe-1/2/0** or **ms/7/0/0**.
State	Resource manager client state. **In-Service** means that the client can handle session creation requests.
Redundancy Role	Redundancy role of the resource manager client slot: • **Primary**—The resource manager client is a primary member. • **Secondary**—The resource manager client is a secondary or backup member.
Client type	Type of resource manager client: • **PFE**—Packet Forwarding Engine client used for anchoring subscribers in the gateway. • **Session PIC**—Session PIC client used for the mobile control plane in the gateway
Gateway	Name of the gateway to which the resource manager client belongs.

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Sample Output

show unified-edge sgw resource-manager clients

```
user@host> show unified-edge sgw resource-manager clients
Client      State          Redundancy role Client type Gateway
pfe-0/0/0   In-Service     Secondary       PFE         SGW
pfe-1/0/0   In-Service     Primary         PFE         SGW
ms-5/0/0    In-Service     Primary         Session-PIC SGW
ms-5/1/0    In-Service     Secondary       Session-PIC SGW
```

show unified-edge sgw system interfaces service-mode

Syntax

show unified-edge sgw system interfaces service-mode
<brief | detail>
<gateway *gateway-name*>

Release Information

Command introduced in Junos OS Mobility Release 11.4W.

Description

Display the service mode information for the interfaces on one or more Serving Gateways (S-GWs). If an S-GW is not specified, then information for all S-GWs is displayed.

Options

none—(Same as brief) Display service mode information for one or more S-GWs.

brief | detail—(Optional) Display the specified level of output.

gateway *gateway-name*—(Optional) Display service mode information for the specified gateway.

Required Privilege Level

view

Related Documentation

- show unified-edge sgw system interfaces on page 734

List of Sample Output

show unified-edge sgw system interfaces service-mode brief on page 1119
show unified-edge sgw system interfaces service-mode detail on page 1119

Output Fields

Table 103 on page 1118 lists the output fields for the **show unified-edge sgw system interfaces service-mode** command. Output fields are listed in the approximate order in which they appear.

Table 103: show unified-edge sgw system interfaces service-mode

Field Name	Field Description
Interface Name	Name of the interface for which the service mode information is displayed: • Aggregated multiservices; for example, **ams0** • Aggregated Packet Forwarding Engine; for example, **apfe1** • Multiservices; for example, **ms-1/0/0**
Gateway	Name of the S-GW.
Service Mode	Service mode for the gateway. The following service modes are possible: • Operational—Gateway is in operational mode. • Maintenance—Gateway is in maintenance mode. • **MM Active Phase**—In this mode, you can make changes to all of the configuration options. • **MM In/Out Phase**—In this mode, you can only make changes to the configuration options for the non-maintenance-mode attributes.

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Sample Output

show unified-edge sgw system interfaces service-mode brief

```
user@host> show unified-edge sgw system interfaces service-mode brief
Maintenance Mode
    MM Active Phase - System is ready to accept configuration changes for all
                      attributes of this object and its sub-hierarchies.
    MM In/Out Phase - System is ready to accept configuration changes only for
                      non-maintenance mode attributes of this object and
                      its sub-hierarchies.

Interface Name     Gateway Name                    Service Mode

pfe-2/2/0          SGW                             Operational
ams0               SGW                             Operational
```

show unified-edge sgw system interfaces service-mode detail

```
user@host> show unified-edge sgw system interfaces service-mode detail
Service Mode Status
Interface Name  : pfe-2/2/0
Gateway Name    : SGW
Service Mode    : Operational
Service Mode Status
Interface Name  : ams0
Gateway Name    : SGW
Service Mode    : Operational
```

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PART 3

Index

- Index on page 1123
- Index of Statements and Commands on page 1139

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