

# MobileNext Broadband Gateway

## Authentication, Authorization, and Accounting (AAA)



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*MobileNext Broadband Gateway Authentication, Authorization, and Accounting (AAA)*

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- Supported Platforms on page ix
- Documentation Conventions on page ix
- Documentation Feedback on page xi
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## Documentation and Release Notes

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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/>.

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## Supported Platforms

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

- MX240
- MX960
- MX480

## Documentation Conventions

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

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 x defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
<b>Bold text like this</b>	Represents text that you type.	To enter configuration mode, type the <b>configure</b> command:  user@host> <b>configure</b>
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> <b>show chassis alarms</b> No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> <li>Introduces or emphasizes important new terms.</li> <li>Identifies book names.</li> <li>Identifies RFC and Internet draft titles.</li> </ul>	<ul style="list-style-type: none"> <li>A policy <i>term</i> is a named structure that defines match conditions and actions.</li> <li><i>Junos OS System Basics Configuration Guide</i></li> <li>RFC 1997, <i>BGP Communities Attribute</i></li> </ul>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name:  [edit] root@# <b>set system domain-name</b> <i>domain-name</i>
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> <li>To configure a stub area, include the <b>stub</b> statement at the [edit protocols ospf area area-id] hierarchy level.</li> <li>The console port is labeled <b>CONSOLE</b>.</li> </ul>
< > (angle brackets)	Enclose optional keywords or variables.	<b>stub</b> <default-metric <i>metric</i> >;

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.	<b>broadcast   multicast</b>  <i>(string1   string2   string3)</i>
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	<b>rsvp { # Required for dynamic MPLS only</b>
[ ] (square brackets)	Enclose a variable for which you can substitute one or more values.	<b>community name members [ community-ids ]</b>
Indentation and braces ( { } )	Identify a level in the configuration hierarchy.	<b>[edit]</b> routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
<b>GUI Conventions</b>		
<b>Bold text like this</b>	Represents graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> <li>In the Logical Interfaces box, select <b>All Interfaces</b>.</li> <li>To cancel the configuration, click <b>Cancel</b>.</li> </ul>
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select <b>Protocols&gt;Ospf</b> .

## Documentation Feedback

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- Document or topic name
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- 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/>.
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- 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>.

## PART 1

# Overview

- [AAA on the Broadband Gateway on page 3](#)
- [Supported RADIUS Attributes and VSAs on page 11](#)



## CHAPTER 1

# AAA on the Broadband Gateway

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Scalability and Redundancy on page 5](#)
- [Network Elements on page 7](#)
- [Network Element Groups on page 8](#)
- [AAA Profiles on page 8](#)

## Overview of AAA on the Broadband Gateway

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The MobileNext Broadband Gateway supports a framework for providing authentication, authorization, and accounting (AAA) services to mobile subscribers. The broadband gateway provides authentication (verifying a subscriber's username and password), authorization (receiving information about the types of services to deliver to the subscriber), and accounting (accumulating and providing statistics about services delivered to the subscriber) using groups of external RADIUS servers.

### Authentication

The broadband gateway acts as a client to the RADIUS server when authenticating a mobile subscriber's username and password. When the broadband gateway receives a Create PDP Context Request or Create Session Request message from a mobile subscriber, it gets the subscriber's authentication information from the message, then sends an Access-Request message to the RADIUS server. The Access-Request message contains attributes such as the subscriber username, password, the ID of the client, and the port ID that the subscriber is accessing.

Once the RADIUS server receives the Access-Request message, it validates the sending client (the broadband gateway) using a shared secret. After the sending client is validated, the RADIUS server looks up the subscriber in its database. A list of requirements must be met to allow access for the subscriber. If any requirement is not met, the RADIUS server sends an Access-Reject message back to the broadband gateway, indicating that the subscriber's access request is invalid.

If the requirements are met, a list of configuration values for the subscriber is placed into an Access-Accept message response. These values include the types of services for which the subscriber is authorized, as well as all necessary values to deliver the services.

To determine a subscriber's username, the broadband gateway looks at the Protocol Configuration Options (PCO) received in the Create PDP Context Request or Create Session Request message. If the subscriber's username is included in the PCO, then that is used for authentication. If the subscriber's username cannot be determined from the PCO or if the **override-pco** statement is configured, then the username specified in the **user-options** configuration for the access point name (APN) is used instead. The username can be an actual username that you configure, the APN name, the subscriber's International Mobile Subscriber Identity (IMSI), or the subscriber's Mobile Station Integrated Services Digital Network (MSISDN) number.

To determine the subscriber's password, the broadband gateway does the following:

- For the Password Authentication Protocol (PAP), the broadband gateway looks for the password in the PCO of the Create PDP Context Request or Create Session Request message. If the password cannot be determined from the PCO or if the **override-pco** statement is configured, the password specified in the **user-options** configuration for the APN is used instead.
- For the Challenge Handshake Authentication Protocol (CHAP), type, length, and values (TLVs) for the CHAP challenge and CHAP password (concatenation of CHAP ID and CHAP password) both arrive in the PCO. The broadband gateway includes these TLVs in the Access-Request message sent to the RADIUS server.

If the RADIUS server responds with an Access-Challenge or Access-Reject message, or if no response is received from the RADIUS server, the broadband gateway does not create a session for the subscriber.

## Accounting

A PDP context configured to use RADIUS accounting causes the broadband gateway to generate an Accounting Start message at the start of service delivery. The broadband gateway sends that message to the RADIUS accounting server, which sends back an acknowledgement that the message has been received. The Accounting Start message contains RADIUS attributes describing the type of service being delivered and the subscriber to which it is being delivered. Subscriber passwords are not carried in accounting messages.

At the end of service delivery, the broadband gateway generates an Accounting Stop message describing the type of service that was delivered and statistics such as elapsed time, input/output octets, and input/output packets. It sends that message to the RADIUS accounting server, which sends back an acknowledgement that the message has been received.

During the life of a user session, some information related to the session may change. Upon reception of an Update PDP Context Request message from the Serving GPRS Support Node (SGSN), or upon reception of a Modify Bearer Request or Update Bearer Response from the Serving Gateway (S-GW), the broadband gateway sends an Accounting Request Interim-Update message to the RADIUS server to update information related to this PDP context. You can configure how often Interim-Update messages are sent, and specify which events do or do not trigger them.



## APN-Specific AAA Settings

AAA services are provided on a per-APN basis. Mobile subscribers gaining access to a given APN receive AAA services as indicated in a defined AAA profile. The AAA profile specifies which sets of RADIUS servers are used for authentication and accounting, how the broadband gateway handles attributes in RADIUS messages it sends and receives, as well as other parameters. You specify the name of the AAA profile to use as part of APN services configuration.

In the APN services configuration, you can also configure the broadband gateway to allow the RADIUS server to assign addresses to mobile subscribers, override the locally or DHCP-assigned address with a RADIUS-assigned address, or wait for the accounting response from the RADIUS server before sending the Create Session Response or Create PDP Context Response message to the S-GW or SGSN.

## RADIUS-Initiated Dynamic Requests

You can specify RADIUS servers that can initiate dynamic requests to the broadband gateway. Dynamic requests include change of authorization (CoA) requests, which specify attribute modifications and service changes, and Disconnect requests, which terminate subscriber sessions.

- See [“Supported Attributes in Change of Authorization \(CoA\) Messages” on page 34](#) for information about RADIUS attributes and Third-Generation Partnership Project (3GPP) vendor-specific attributes (VSAs) supported in CoA requests.
- See [“Supported Attributes in Disconnect Request Messages” on page 33](#) for information about RADIUS attributes and 3GPP VSAs supported in Disconnect requests.

## Support for RADIUS Attributes, Juniper Networks VSAs, and 3GPP VSAs

The AAA framework on the broadband gateway supports RADIUS attributes and VSAs from Juniper Networks and the 3GPP. The tables in [“Supported Attributes in Access-Request Messages” on page 11](#) and [“Supported Attributes in Access-Accept Messages” on page 16](#) describe how the broadband gateway processes these attributes and VSAs.

### Related Documentation

- [Configuring APNs on the MobileNext Broadband Gateway Overview](#)
- [Configuring AAA on the Broadband Gateway on page 39](#)
- [Configuring Address Assignment on a Broadband Gateway APN](#)
- [Configuring User Options on a Broadband Gateway APN](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

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## Scalability and Redundancy

To accommodate the substantial amount of authentication, authorization, and accounting (AAA) traffic that can be generated in a 3G/4G mobile network, the AAA implementation on the MobileNext Broadband Gateway is optimized for scalability and redundancy, both

in the way the broadband gateway distributes AAA functions to its services PICs, and in the way it sends requests to the external RADIUS servers.

## Scalability

Each session DPC installed on the broadband gateway contains two services PICs. Each services PIC runs a separate AAA instance, which serves as a Network Access Server (NAS) for mobile subscriber sessions. When a mobile subscriber session requires AAA services, its anchor Modular Port Concentrator (MPC) assigns one of the services PICs to handle interaction with the RADIUS servers for the duration of that session. By installing additional session DPCs, you can increase the number of services PICs providing NAS functionality, and thus increase the number of sessions for which the broadband gateway can provide AAA services.

Rather than use a single RADIUS server for authentication or accounting, the broadband gateway sends RADIUS requests to a load-balanced group of RADIUS servers called a *network element*. To broadcast accounting traffic to multiple network elements, you can configure *network element groups*, consisting of from one to four network elements. The broadband gateway sends accounting messages to one of the network elements in the group, or can broadcast them to all of the network elements in the group.

## Redundancy

Services PICs can be configured in redundant pairs, with one services PIC active and the other standby. In this kind of configuration, the active services PIC synchronizes its pending requests with the backup services PIC. When a switchover occurs, any pending requests are then sent from the new active services PIC.

The broadband gateway can detect when RADIUS servers in a network element have failed. When the broadband gateway detects a dead server, it automatically starts sending RADIUS requests to a different server in the network element. You can set a priority level for individual RADIUS servers in the network element, so that the AAA traffic fails over to a selected server.

- Related Documentation**
- *MobileNext Broadband Gateway Chassis Overview*
  - *Broadband Gateway Redundancy Overview*
  - [Network Elements on page 7](#)
  - [Network Element Groups on page 8](#)

## Network Elements

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A network element is a load-balanced group of RADIUS servers that provides authentication, authorization, and accounting (AAA) services for mobile subscribers accessing an access point name (APN).

When a mobile subscriber attempts to get access to an APN, the broadband gateway sends an Access-Request message to one of the RADIUS servers in the network element the APN is configured to use for authentication. Similarly, accounting messages for the mobile subscriber go to the network element the APN is configured to use for accounting.

Network elements for authentication and accounting are specified in the AAA profile that is applied to the APN.

### Load Balancing Within Network Elements

To facilitate the large number of mobile subscriber sessions requiring AAA services, the broadband gateway distributes the RADIUS messages across the servers in the network element, using one of the following load-balancing algorithms:

- Direct (default)—Causes all requests to go to the first server listed in the network element configuration; if that server cannot handle additional requests, they go to the next server in the list.
- Round-robin—Sends the first request to the first server listed in the network element configuration, the second request to the second server in the list, and so on.

### Server Priority

Within a network element, a RADIUS server can be assigned a priority of 1 or 2. The broadband gateway distributes RADIUS messages only to the priority 1 servers, using the configured load-balancing algorithm. If all the priority 1 servers should fail, then the broadband gateway starts using the priority 2 servers.

### Dead Server Detection

To determine whether a RADIUS server in a network element has failed, the broadband gateway keeps track of how often requests sent to a server time out and must be retransmitted. If requests need to be retransmitted a given number of times over a given interval, the broadband gateway marks the server as “dead,” then starts sending requests to the next available server in the network element (to a priority 1 server if one is available, or a priority 2 server if no priority 1 servers are available).

At the same time, the broadband gateway starts a timer (the *revert-interval*) for the server. After this timer expires, the broadband gateway marks the dead server alive again, and once again includes it in the rotation for sending RADIUS messages.

### Maximum Pending Requests for a Network Element

You can 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, an SNMP trap is generated.

- Related Documentation**
- [AAA Profiles on page 8](#)
  - [Configuring Network Elements on page 45](#)
  - [Network Element Groups on page 8](#)

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## Network Element Groups

A network element group is a list of between one and four network elements to which the MobileNext Broadband Gateway sends accounting messages.

You can configure the following options for a network element group:

- **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 network elements in the group.

When the **broadcast** parameter is configured, the accounting requests are sent to all of the network elements in the network element group. Note that when the **broadcast** parameter is configured, at least one of the network elements in the group must be configured with the **mandatory** parameter. If the **broadcast** parameter is not specified, then the broadband gateway sends the accounting requests to the first network element in the group. If there is no response, then it tries the next network element in the group, and so on.

- Related Documentation**
- [AAA Profiles on page 8](#)
  - [Configuring Network Elements on page 45](#)
  - [Configuring Network Element Groups on page 46](#)

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## AAA Profiles

An authentication, authorization, and accounting (AAA) profile is a collection of authentication, accounting, and RADIUS attribute settings that can be applied to an access point name (APN). When mobile subscribers access the APN to which an AAA profile is applied, they receive authentication and accounting services as specified in the AAA profile.

The following sections describe the settings that can be configured in an AAA profile.

### Authentication Options

In the AAA profile, you specify a network element (load-balanced RADIUS server group) to be used for authenticating mobile subscribers.

## Accounting Options

In an AAA profile, you can specify the following options for RADIUS accounting:

- The name of the network element or network element group to use for RADIUS accounting.
- Whether the broadband gateway sends an Accounting-On message when a services PIC is restarted.
- How often the broadband gateway sends Interim-Update messages for accounting. The broadband gateway can send Interim-Update messages at specified intervals and when specific trigger events occur.

By default, the broadband gateway sends Interim-Update messages for the following trigger events:

- The IPv4 address update for the mobile subscriber is deferred.
- The Mobile Station (MS) time zone changes.
- The Public Land Mobile Network (PLMN) to which the mobile subscriber is attached changes.
- The quality of service (QoS) profile applied by the broadband gateway for the Packet Data Protocol (PDP) context or Evolved Packet System (EPS) bearer changes.
- The Radio Access Technology (RAT) serving the mobile subscriber changes.
- The SGSN/S-GW serving the mobile subscriber changes.
- The location information for the mobile subscriber changes.

You can optionally disable sending of Interim Update messages for any of these trigger events.

## RADIUS Attributes to Ignore or Exclude

The AAA profile can specify which RADIUS attributes the broadband gateway ignores in Access-Accept messages it receives, as well as which RADIUS attributes the broadband gateway excludes from specific types of RADIUS messages it generates.

## RADIUS Options

In an AAA profile, you can set the following options for RADIUS attributes:

- NAS-IP-Address (RADIUS attribute 4)

This attribute specifies the IP address of the network access server (NAS) that is requesting authentication for the mobile subscriber. By default, this attribute contains the IP address configured for the RADIUS **source-interface** statement. When you specify a value for the `nas-ip-address` option in the AAA profile, the broadband gateway uses this IP address as the value for the NAS-IP-Address attribute in RADIUS requests.

- Prefix for NAS-Identifier (RADIUS attribute 32)

The NAS-Identifier attribute is a string that identifies the NAS that originated the Access-Request message for the AAA session. On the broadband gateway, the anchor Modular Port Concentrator (MPC) selects a services PIC to handle AAA operations for the duration of the session. The services PIC functions as the NAS for the AAA session.

Specifying a value for the `nas-identifier-prefix` option in the AAA profile configures the broadband gateway to include the NAS-Identifier attribute in RADIUS requests. In this case, the broadband gateway appends the ID of the services PIC to the value specified for the `nas-identifier-prefix` option, and uses the combined prefix and services PIC ID as the value for the NAS-Identifier attribute. If the services PICs are part of a redundancy group, the broadband gateway appends the aggregated multiservices interface (ams) ID to the prefix instead of the services PIC ID.

- NAS-Port-Type (RADIUS Attribute 61)

This attribute indicates the type of port used for authenticating the mobile subscriber. In an AAA profile, you can specify a port type of *virtual* or *wireless* for the `nas-port-type` option. If you specify a value for the `nas-port-type` option, the broadband gateway uses this as the value for the NAS-Port-Type attribute in RADIUS requests.

**Related  
Documentation**

- [Configuring an AAA Profile on page 47](#)
- [Configuring Network Elements on page 45](#)
- [Configuring Network Element Groups on page 46](#)

## CHAPTER 2

# Supported RADIUS Attributes and VSAs

- [Supported Attributes in Access-Request Messages on page 11](#)
- [Supported Attributes in Access-Accept Messages on page 16](#)
- [Supported Attributes in Accounting Start Messages on page 19](#)
- [Supported Attributes in Accounting Interim Update Messages on page 23](#)
- [Supported Attributes in Accounting Stop Messages on page 27](#)
- [Supported Attributes in Accounting On Messages on page 32](#)
- [Supported Attributes in Disconnect Request Messages on page 33](#)
- [Supported Attributes in Change of Authorization \(CoA\) Messages on page 34](#)

### Supported Attributes in Access-Request Messages

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The following tables indicate how the MobileNext Broadband Gateway processes RADIUS attributes and 3GPP VSAs in RADIUS Access-Request messages. An Access-Request message is sent by the broadband gateway to the RADIUS server to convey username, password, and other information to be used when authenticating a user.

- [RADIUS IETF Attributes Supported in Access-Request Messages on page 11](#)
- [3GPP VSAs Supported in Access-Request Messages on page 13](#)

### RADIUS IETF Attributes Supported in Access-Request Messages

[Table 3 on page 12](#) lists the RADIUS attributes supported by the broadband gateway in Access-Request messages.

Table 3: RADIUS IETF Attributes Supported in Access-Request Messages

Attribute Number	Attribute Name	Description	Content
1	User-Name	<p>The username is provided to the broadband gateway by the user in the Protocol Configuration Options (PCO) received during the IP-CAN session establishment procedure.</p> <p>If no username is available, then the username configured in the <b>user-options</b> statement of the APN configuration is used instead. If the <b>override-pco</b> statement is configured, then the gateway overrides the username and password obtained from the PCO PAP or CHAP in the Create PDP Context Request or Create Session Request message with the username and password configured for the APN.</p>	String
2	User-Password	<p>If Password Authentication Protocol (PAP) is used, the user password is provided to the broadband gateway by the user in the PCO received during the IP-CAN session establishment procedure.</p> <p>If no user password is available, then the password specified in the <b>user-options</b> statement of the APN configuration is used instead.</p>	String
3	CHAP-Password	If Challenge Handshake Authentication Protocol (CHAP) is used, the password provided by the user (extracted from the PCO field of the Create PDP Context Request message).	String (can have two contiguous, with 0x00 in between)
4	NAS-IP-Address	IPv4 address of the broadband gateway for communication with the RADIUS server.	IPv4 address
6	Service-Type	Type of service the user has requested or the type of service to be provided.	2 (Framed)
7	Framed-Protocol	Type of protocol for the user.	7 (GPRS PDP context)
8	Framed-IP-Address	IPv4 address allocated for this user.	IPv4 address
9	Framed-IP-Netmask	Network mask allocated for this user's IP address.	IPv4 netmask



**Table 3: RADIUS IETF Attributes Supported in Access-Request Messages (*continued*)**

Attribute Number	Attribute Name	Description	Content
30	Called-Station-Id	Identifier for the target network (APN).	APN (UTF-8 encoded characters)
31	Calling-Station-ID	Identifier for the mobile station (MS), configurable on a per-APN basis.	MSISDN in international format, UTF-8 encoded decimal characters
32	NAS-Identifier	Identifier of the NAS originating the request, may be configured as a user-specified prefix and the ID of the services PIC handling NAS functions for the session.	String
44	Acct-Session-ID	User Session identifier, unique for every bearer under the session.	Broadband gateway Gn IP address (IPv4 or IPv6) and Charging-ID, concatenated in a UTF-8-encoded hexadecimal value
60	CHAP-Challenge	The CHAP Challenge is provided to the broadband gateway by the user in the PCO received during the IP-CAN session establishment procedure.	String
61	NAS-Port-Type	Type of physical port the broadband gateway is using to authenticate the user, may be configured on the broadband gateway as virtual or wireless.	Integer value indicating the port type (wireless or virtual) as specified in RFC 2865
97	Framed-IPv6-Prefix	IPv6 prefix that is configured for the user, can be used as a hint by the NAS to the RADIUS server that it would prefer this prefix.	Value indicating the prefix, as specified in RFC 3162

### 3GPP VSAs Supported in Access-Request Messages

[Table 4 on page 13](#) lists the 3GPP vendor-specific attributes (VSAs) supported by the broadband gateway in Access-Request messages.

**Table 4: 3GPP VSAs Supported in Access-Request Messages**

Attribute Number	Attribute Name	Description	Content
26/10415/1 (3GPP type 1)	3GPP-IMSI	IMSI for this user.	UTF-8 encoded string
26/10415/2	3GPP-Charging-Id	Charging ID for this PDP context/EPS bearer.	Integer

Table 4: 3GPP VSAs Supported in Access-Request Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/3	3GPP-PDP Type	<p>For a GGSN, this indicates the type of PDP context; for example, IP or PPP.</p> <p>For a P-GW, this indicates the PDN type: IPv4, IPv6, or IPv4v6.</p>	Integer
26/10415/4	3GPP-CG-Address	Charging gateway IP address.	IPv4 address, or 0.0.0.0 if no charging gateway is configured on the broadband gateway.
26/10415/5	3GPP-GPRS-Negotiated-QoS-Profile	QoS profile applied by the broadband gateway for the PDP context/EPS bearer.	UTF-8 encoded string
26/10415/6	3GPP-SGSN-Address	<p>For a GGSN, this represents the SGSN IPv4 address that is used by the GTP control plane for the handling of control messages.</p> <p>For a P-GW, this represents the IPv4 address of the S-GW, trusted non-3GPP IP access, or ePDG that is used on S5/S8, S2a, or S2b for the handling of control messages.</p> <p>This attribute may be used to identify the PLMN to which the user is attached.</p>	IPv4 address
26/10415/7	3GPP-GGSN-Address	<p>For a GGSN, this represents the GGSN IPv4 address that is used by the GTP control plane for the context establishment.</p> <p>For a P-GW, this represents the P-GW IPv4 address that is used on the S5/S8, S2a, S2b, or S2c control plane for the IP-CAN session establishment.</p> <p>The address is the same as the GGSN/P-GW IPv4 address used in the CDRs generated by the broadband gateway.</p>	IPv4 address
26/10415/8	3GPP-IMSI-MCC-MNC	The MCC and MNC extracted from the user's IMSI (first 5 or 6 digits, as applicable from the presented IMSI).	String
26/10415/9	3GPP-GGSN-MCC-MNC	The MCC and MNC of the network to which the broadband gateway belongs.	String

Table 4: 3GPP VSAs Supported in Access-Request Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/10	3GPP-NSAPI	Identifier for a particular PDP context for the associated PDN and MSISDN/IMSI, from creation to deletion.  For a P-GW, this identifies the EPS bearer ID if it is known to the P-GW.	String
26/10415/12	3GPP-Selection-Mode	Selection mode for this PDP context/EPS bearer, received in the Create PDP Context/Session Request message.	String
26/10415/13	3GPP-Charging-Characteristics	For a GGSN, this contains the charging characteristics for this PDP context, received in the Create PDP Context Request message (only available in R99 and later releases).  For a P-GW, this contains the charging characteristics for the IP-CAN bearer.	String
26/10415/18	3GPP-SGSN-MCC-MNC	The MCC and MNC extracted from the RAI from the Create PDP Context Request and Update PDP Context Request messages.	String
26/10415/20	3GPP-IMEISV	International Mobile Station Equipment Identity and Software Version Number (IMEISV).	String (UTF-8 encoded characters)
26/10415/21	3GPP-RAT-Type	The Radio Access Technology type that is currently serving the user equipment.	Octet string
26/10415/22	3GPP-User-Location-Info	Information about where the user equipment is currently located (for example, SAI or CGI).	Octet string
26/10415/23	3GPP-MS-TimeZone	The offset between UTC and local time in steps of 15 minutes of where the MS currently resides.	Octet string
26/10415/26	3GPP-Negotiated-DSCP	DSCP used to mark the IP packets of this PDP context on the Gi interface, or EPS bearer context on the SGi interface.	Octet string

Table 4: 3GPP VSAs Supported in Access-Request Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/27	3GPP-Allocate-IP-Type	Indicates whether the Access-Request message is sent for user authentication only, or for allocation of IPv4 or IPv6 addresses, or both.	Octet string

**Related Documentation**

- [AAA Profiles on page 8](#)
- [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Supported Attributes in Access-Accept Messages on page 16](#)

## Supported Attributes in Access-Accept Messages

The following tables indicate how the MobileNext Broadband Gateway processes RADIUS attributes or 3GPP and Juniper Networks VSAs received in RADIUS Access-Accept messages. If authentication is successful, the RADIUS server sends an Access-Accept message that provides specific configuration information necessary to begin delivery of service to the user.

- [RADIUS IETF Attributes Supported in Access-Accept Messages on page 16](#)
- [3GPP VSAs Supported in Access-Accept Messages on page 18](#)
- [Juniper Networks VSAs Supported in Access-Accept Messages on page 18](#)

## RADIUS IETF Attributes Supported in Access-Accept Messages

Table 5 on page 16 lists the RADIUS attributes supported by the broadband gateway in Access-Accept messages.

Table 5: RADIUS IETF Attributes Supported in Access-Accept Messages

Attribute Number	Attribute Name	Description	Content
1	User-Name	The username received in the Access-Request message, or a substitute username provided by the RADIUS server.  If a value for the User-Name attribute is received in the Access-Accept message, it takes precedence over any other value for the username.	String
6	Service-Type	Type of service the user has requested or the type of service to be provided.	Value indicating the service type, as specified in RFC 2865

Table 5: RADIUS IETF Attributes Supported in Access-Accept Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
7	Framed-Protocol	Type of protocol for the user.	Value indicating the protocol, as specified in RFC 2865
8	Framed-IP-Address	IPv4 address allocated for this user, if the RADIUS server is used to allocate IP addresses.	IPv4 address
9	Framed-IP-Netmask	Network mask allocated for this user's IP address, if applicable.	IPv4 netmask
25	Class	Unmodified identifier to be used in all subsequent accounting messages.	String
27	Session-Timeout	Maximum number of seconds of service to be provided to the user before termination of the session or prompt.	32-bit unsigned integer
28	Idle-Timeout	Maximum number of consecutive seconds of idle connection allowed to the user before termination of the session or prompt.	32-bit unsigned integer
85	Acct-Interim-Interval	Number of seconds between each accounting interim update to be sent from the NAS for this session.	Integer
88	Framed-Pool	Name of an assigned address pool to be used to assign an address for the user.	String
96	Framed-Interface-Id	IPv6 interface identifier to be configured for the user.	8-octet ID
97	Framed-IPv6-Prefix	IPv6 prefix and corresponding route to be configured for the user.	Value indicating the prefix, as specified in RFC 3162
100	Framed-IPv6-Pool	Name of the assigned pool to be used to assign an IPv6 prefix for the user.	String
123	Delegated-IPv6-Prefix	IPv6 prefix to be used.	Value indicating the prefix, as specified in RFC 4818
26/311	MS- primary-DNS-server	Primary DNS server address for this APN.	IPv4 address
26/311	MS-Secondary-DNS-Server	Secondary DNS server address for this APN.	IPv4 address

**Table 5: RADIUS IETF Attributes Supported in Access-Accept Messages (*continued*)**

Attribute Number	Attribute Name	Description	Content
26/311	MS-Primary-NBNS-Server	Primary NetBios name server address for this APN.	IPv4 address
26/311	MS-Secondary-NBNS-Server	Secondary NetBios name server address for this APN.	IPv4 address

### 3GPP VSAs Supported in Access-Accept Messages

Table 7 on page 18 lists the 3GPP vendor-specific attributes (VSAs) supported by the broadband gateway in Access-Accept messages.

**Table 6: 3GPP VSAs Supported in Access-Accept Messages**

Attribute Number	Attribute Name	Description	Content
26/10415/5	3GPP-GPRS-Negotiated-QoS-Profile	QoS profile applied by the broadband gateway for the PDP context/EPS bearer.	UTF-8 encoded string
26/10415/13	3GPP-Charging-Characteristics	For a GGSN, this contains the charging characteristics for this PDP context, received in the Create PDP Context Request message (only available in R99 and later releases).  For a P-GW, this contains the charging characteristics for the IP-CAN bearer.	String
26/10415/17	3GPP-IPv6-DNS-Servers	List of IPv6 addresses of DNS servers for this APN.	IPv6 addresses

### Juniper Networks VSAs Supported in Access-Accept Messages

Table 7 on page 18 lists the Juniper Networks VSAs supported by the broadband gateway in Access-Accept messages. The AAA framework uses vendor ID 4874, which is assigned to Juniper Networks by the Internet Assigned Numbers Authority (IANA).

**Table 7: Juniper VSAs Supported in Access-Accept Messages**

Attribute Number	Attribute Name	Description	Content
26/4874/2	Local-Address-Pool	Name of the IP address pool configured on the broadband gateway to be used for address allocation for this PDP context.	String
26/4874/175	Redirect-Gw-Addr	Address of the gateway to which the user session should be redirected.	IPv4 address
26/4874/176	APN-Name	Name of the APN.	String

- Related Documentation**
- [AAA Profiles on page 8](#)
  - [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
  - [Overview of AAA on the Broadband Gateway on page 3](#)
  - [Supported Attributes in Access-Request Messages on page 11](#)

## Supported Attributes in Accounting Start Messages

The following tables indicate how the MobileNext Broadband Gateway processes RADIUS attributes and 3GPP VSAs in RADIUS Accounting Start messages. An Accounting Start message indicates to the RADIUS server that the user session has started, and specifies quality of service (QoS) parameters associated with the session.

- [RADIUS IETF Attributes Supported in Accounting Start Messages on page 19](#)
- [3GPP VSAs Supported in Accounting Start Messages on page 20](#)

### RADIUS IETF Attributes Supported in Accounting Start Messages

[Table 8 on page 19](#) lists the RADIUS attributes supported by the broadband gateway in Accounting Start messages.

**Table 8: RADIUS IETF Attributes Supported in Accounting Start Messages**

Attribute Number	Attribute Name	Description	Content
1	User-Name	<p>The username provided to the broadband gateway by the user in the Protocol Configuration Options (PCO) received during the IP-CAN session establishment procedure.</p> <p>If no username is available, then the username configured in the <b>user-options</b> statement of the APN configuration is used instead. If the <b>override-pco</b> statement is configured, then the gateway overrides the username and password obtained from the PCO PAP or CHAP in the Create PDP Context Request or Create Session Request message with the username and password configured for the APN.</p> <p>If a value for the User-Name attribute was received in the Access-Accept message, it takes precedence over any other value for the username.</p>	String
4	NAS-IP-Address	IPv4 address of the broadband gateway for communication with the RADIUS server.	IPv4 address

Table 8: RADIUS IETF Attributes Supported in Accounting Start Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
6	Service-Type	Type of service the user has requested or the type of service to be provided.	Value indicating the service type, as specified in RFC 2865
7	Framed-Protocol	Type of protocol for the user.	Value indicating the protocol, as specified in RFC 2865
25	Class	Unmodified identifier received in the Access-Accept message.	String
30	Called-Station-Id	Identifier for the target network (APN).	APN (UTF-8 encoded characters)
31	Calling-Station-ID	Identifier for the mobile station (MS), configurable on a per-APN basis.	MSISDN in international format, UTF-8 encoded decimal characters
32	NAS-Identifier	Identifier of the NAS originating the request.	String
40	Acct-Status-Type	Type of accounting message.	Integer
41	Acct-Delay-Time	Number of seconds the broadband gateway has been trying to send this accounting record.	32-bit unsigned integer
44	Acct-Session-ID	User Session identifier, unique for every bearer under the session.	Broadband gateway Gn IP address (IPv4 or IPv6) and Charging-ID, concatenated in a UTF-8-encoded hexadecimal value
45	Acct-Authentic	Method by which user was authenticated: whether by RADIUS, the NAS itself, or another remote authentication protocol.	1 - RADIUS 2 - Local 3 - Remote
55	Event-Timestamp	Time that this event occurred on the NAS, in seconds, since January 1, 1970 00:00 UTC.	32-bit unsigned integer
61	NAS-Port-Type	Type of physical port the broadband gateway is using to authenticate the user, may be configured on the broadband gateway as virtual or wireless.	Value indicating the port type, as specified in RFC 2865

### 3GPP VSAs Supported in Accounting Start Messages

Table 9 on page 21 lists the 3GPP vendor-specific attributes (VSAs) supported by the broadband gateway in Accounting Start messages.



Table 9: 3GPP VSAs Supported in Accounting Start Messages

Attribute Number	Attribute Name	Description	Content
26/10415/1 (3GPP type 1)	3GPP-IMSI	IMSI for this user.	String
26/10415/2	3GPP-Charging-Id	Charging ID for this PDP context/EPS bearer.	String
26/10415/3	3GPP-PDP Type	For a GGSN, this indicates the type of PDP context; for example, IP or PPP.  For a P-GW, this indicates the PDN type: IPv4, IPv6, or IPv4v6.	String
26/10415/5	3GPP-GPRS-Negotiated-QoS-Profile	QoS profile applied by the broadband gateway for the PDP context/EPS bearer.	UTF-8 encoded string
26/10415/6	3GPP-SGSN-Address	For a GGSN, this represents the SGSN IPv4 address that is used by the GTP control plane for the handling of control messages.  For a P-GW, this represents the IPv4 address of the S-GW, trusted non-3GPP IP access, or ePDG that is used on S5/S8, S2a, or S2b for the handling of control messages.  This attribute may be used to identify the PLMN to which the user is attached.	IPv4 address
26/10415/7	3GPP-GGSN-Address	For a GGSN, this represents the GGSN IPv4 address that is used by the GTP control plane for the context establishment.  For a P-GW, this represents the P-GW IPv4 address that is used on the S5/S8, S2a, S2b, or S2c control plane for the IP-CAN session establishment.  The address is the same as the GGSN/P-GW IPv4 address used in the CDRs generated by the broadband gateway.	IPv4 address
26/10415/8	3GPP-IMSI-MCC-MNC	The MCC and MNC extracted from the user's IMSI (first 5 or 6 digits, as applicable from the presented IMSI).	String

Table 9: 3GPP VSAs Supported in Accounting Start Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/9	3GPP-GGSN-MCC-MNC	The MCC and MNC of the network to which the broadband gateway belongs.	String
26/10415/10	3GPP-NSAPI	Identifier for a particular PDP context for the associated PDN and MSISDN/IMSI, from creation to deletion.  For a P-GW, this identifies the EPS bearer ID if it is known to the P-GW.	String
26/10415/12	3GPP-Selection-Mode	Selection mode for this PDP context/EPS bearer, received in the Create PDP Context/Session Request message.	String
26/10415/13	3GPP-Charging-Characteristics	For a GGSN, this contains the charging characteristics for this PDP context, received in the Create PDP Context Request message (only available in R99 and later releases).  For a P-GW, this contains the charging characteristics for the IP-CAN bearer.	String
26/10415/18	3GPP-SGSN-MCC-MNC	The MCC and MNC extracted from the RAI from the Create PDP Context Request and Update PDP Context Request messages.	String
26/10415/20	3GPP-IMEISV	International Mobile Station Equipment Identity and Software Version Number (IMEISV).	String (UTF-8 encoded characters)
26/10415/21	3GPP-RAT-Type	The Radio Access Technology type that is currently serving the user equipment.	Integer
26/10415/22	3GPP-User-Location-Info	Information about where the user equipment is currently located (for example, SAI or CGI).	Octet string
26/10415/23	3GPP-MS-TimeZone	The offset between UTC and local time in steps of 15 minutes of where the MS currently resides.	Octet string

- Related Documentation**
- [AAA Profiles on page 8](#)
  - [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
  - [Overview of AAA on the Broadband Gateway on page 3](#)

- [Supported Attributes in Accounting Interim Update Messages on page 23](#)
- [Supported Attributes in Accounting On Messages on page 32](#)
- [Supported Attributes in Accounting Stop Messages on page 27](#)

## Supported Attributes in Accounting Interim Update Messages

The following tables indicate how the MobileNext Broadband Gateway processes RADIUS attributes and 3GPP VSAs in RADIUS accounting Interim-Update messages. An accounting Interim-Update message is sent by the broadband gateway when it receives an Update PDP Context Request message from the SGSN. It is used to update information related to the PDP context.

- [RADIUS IETF Attributes Supported in Interim-Update Messages on page 23](#)
- [3GPP VSAs Supported in Interim-Update Messages on page 25](#)

### RADIUS IETF Attributes Supported in Interim-Update Messages

Table 10 on page 23 lists the RADIUS attributes supported by the broadband gateway in Interim-Update messages.

Table 10: RADIUS IETF Attributes Supported in Accounting Interim-Update Messages

Attribute Number	Attribute Name	Description	Content
1	User-Name	<p>The username provided to the broadband gateway by the user in the Protocol Configuration Options (PCO) received during the IP-CAN session establishment procedure.</p> <p>If no username is available, then the username configured in the <b>user-options</b> statement of the APN configuration is used instead. If the <b>override-pco</b> statement is configured, then the gateway overrides the username and password obtained from the PCO PAP or CHAP in the Create PDP Context Request or Create Session Request message with the username and password configured for the APN.</p> <p>If a value for the User-Name attribute was received in the Access-Accept message, it takes precedence over any other value for the username.</p>	String
4	NAS-IP-Address	IPv4 address of the broadband gateway for communication with the RADIUS server.	IPv4 address

Table 10: RADIUS IETF Attributes Supported in Accounting Interim-Update Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
6	Service-Type	Type of service the user has requested or the type of service to be provided.	Value indicating the service type, as specified in RFC 2865
7	Framed-Protocol	Type of protocol for the user.	Value indicating the protocol, as specified in RFC 2865
25	Class	Unmodified identifier received in the Access-Accept message.	String
30	Called-Station-Id	Identifier for the target network (APN).	APN (UTF-8 encoded characters)
31	Calling-Station-ID	Identifier for the mobile station (MS), configurable on a per-APN basis.	MSISDN in international format, UTF-8 encoded decimal characters
32	NAS-Identifier	Identifier of the NAS originating the request.	String
40	Acct-Status-Type	Type of accounting message.	Integer
41	Acct-Delay-Time	Number of seconds the broadband gateway has been trying to send this accounting record.	32-bit unsigned integer
42	Acct-Input-Octets	Number of octets sent by the user for the IP-CAN bearer.	32-bit unsigned integer
43	Acct-Output-Octets	Number of octets received by the user for the IP-CAN bearer.	32-bit unsigned integer
44	Acct-Session-ID	User Session identifier, unique for every bearer under the session.	Broadband gateway Gn IP address (IPv4 or IPv6) and Charging-ID, concatenated in a UTF-8-encoded hexadecimal value
45	Acct-Authentic	Method by which the user was authenticated: whether by RADIUS, the NAS itself, or another remote authentication protocol.	Integer: 1 - RADIUS 2 - Local 3 - Remote
46	Acct-Session-Time	Duration of the session, in seconds.	Integer
47	Acct-Input-Packets	Number of packets sent by the user.	Integer
48	Acct-Output-Packets	Number of packets received by the user.	Integer

Table 10: RADIUS IETF Attributes Supported in Accounting Interim-Update Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
52	Acct-Input-Gigawords	How many times the Acct-Input-Octets counter has wrapped around $2^{32}$ over the course of this PDP session.	32-bit unsigned integer
53	Acct-Output-Gigawords	How many times the Acct-Output-Octets counter has wrapped around $2^{32}$ over the course of this PDP session.	32-bit unsigned integer
55	Event-Timestamp	Time that this event occurred on the NAS, in seconds, since January 1, 1970 00:00 UTC.	32-bit unsigned integer
123	Delegated-IPv6-Prefix	IPv6 prefix to be used.	Value indicating the prefix, as specified in RFC 4818

### 3GPP VSAs Supported in Interim-Update Messages

Table 11 on page 25 lists the 3GPP vendor-specific attributes (VSAs) supported by the broadband gateway in Interim-Update messages.

Table 11: 3GPP VSAs Supported in Accounting Interim-Update Messages

Attribute Number	Attribute Name	Description	Content
26/10415/1 (3GPP type 1)	3GPP-IMSI	IMSI for this user.	String
26/10415/2	3GPP-Charging-Id	Charging ID for this PDP context or EPS bearer.	String
26/10415/3	3GPP-PDP Type	For a GGSN, this indicates the type of PDP context; for example, IP or PPP.  For a P-GW, this indicates the PDN type: IPv4, IPv6, or IPv4v6.	String
26/10415/4	3GPP-CG-Address	Charging gateway IP address.	IPv4 address, or 0.0.0.0 if no charging gateway is configured on the broadband gateway
26/10415/5	3GPP-GPRS-Negotiated-QoS-Profile	QoS profile applied by the broadband gateway for the PDP context or EPS bearer.	UTF-8 encoded string

Table 11: 3GPP VSAs Supported in Accounting Interim-Update Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/6	3GPP-SGSN-Address	<p>For a GGSN, this represents the SGSN IPv4 address that is used by the GTP control plane for the handling of control messages.</p> <p>For a P-GW, this represents the IPv4 address of the S-GW, trusted non-3GPP IP access, or ePDG that is used on S5/S8, S2a, or S2b for the handling of control messages.</p> <p>This attribute may be used to identify the PLMN to which the user is attached.</p>	IPv4 address
26/10415/7	3GPP-GGSN-Address	<p>For a GGSN, this represents the GGSN IPv4 address that is used by the GTP control plane for the context establishment.</p> <p>For a P-GW, this represents the P-GW IPv4 address that is used on the S5/S8, S2a, S2b, or S2c control plane for the IP-CAN session establishment.</p> <p>The address is the same as the GGSN/P-GW IPv4 address used in the CDRs generated by the broadband gateway.</p>	IPv4 address
26/10415/8	3GPP-IMSI-MCC-MNC	The MCC and MNC extracted from the user's IMSI (first 5 or 6 digits, as applicable from the presented IMSI).	String
26/10415/9	3GPP-GGSN-MCC-MNC	The MCC and MNC of the network to which the broadband gateway belongs.	String
26/10415/10	3GPP-NSAPI	<p>Identifier for a particular PDP context for the associated PDN and MSISDN/IMSI, from creation to deletion.</p> <p>For a P-GW, this identifies the EPS bearer ID if it is known to the P-GW.</p>	String
26/10415/12	3GPP-Selection-Mode	Selection mode for this PDP context or EPS bearer, received in the Create PDP Context/Session Request message.	String
26/10415/13	3GPP-Charging-Characteristics	<p>For a GGSN, this contains the charging characteristics for this PDP context, received in the Create PDP Context Request message (only available in R99 and later releases).</p> <p>For a P-GW, this contains the charging characteristics for the IP-CAN bearer.</p>	String

Table 11: 3GPP VSAs Supported in Accounting Interim-Update Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/18	3GPP-SGSN-MCC-MNC	The MCC and MNC extracted from the RAI from the Create PDP Context Request and Update PDP Context Request messages.	String
26/10415/21	3GPP-RAT-Type	The Radio Access Technology type that is currently serving the user equipment.	Integer
26/10415/22	3GPP-User-Location-Info	Information about where the user equipment is currently located (for example, SAI or CGI).	Octet string
26/10415/23	3GPP-MS-TimeZone	The offset between UTC and local time in steps of 15 minutes of where the MS currently resides.	Octet string

**Related Documentation**

- [AAA Profiles on page 8](#)
- [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Supported Attributes in Accounting On Messages on page 32](#)
- [Supported Attributes in Accounting Start Messages on page 19](#)
- [Supported Attributes in Accounting Stop Messages on page 27](#)

## Supported Attributes in Accounting Stop Messages

The following tables indicate how the MobileNext Broadband Gateway processes RADIUS attributes and 3GPP VSAs in RADIUS Accounting Stop messages. An Accounting Stop message is sent by the broadband gateway when it receives a Delete PDP Context Request message (provided a RADIUS Accounting Start message had been sent previously). It indicates the termination of this particular user session.

- [RADIUS IETF Attributes Supported in Accounting Stop Messages on page 27](#)
- [3GPP VSAs Supported in Accounting Stop Messages on page 30](#)

## RADIUS IETF Attributes Supported in Accounting Stop Messages

Table 12 on page 28 lists the RADIUS attributes supported by the broadband gateway in Accounting Stop messages.

Table 12: RADIUS IETF Attributes Supported in Accounting Stop Messages

Attribute Number	Attribute Name	Description	Content
1	User-Name	<p>The username provided to the broadband gateway by the user in the Protocol Configuration Options (PCO) received during the IP-CAN session establishment procedure.</p> <p>If no username is available, then the username configured in the <b>user-options</b> statement of the APN configuration is used instead. If the <b>override-pco</b> statement is configured, then the gateway overrides the username and password obtained from the PCO PAP or CHAP in the Create PDP Context Request or Create Session Request message with the username and password configured for the APN.</p> <p>If a value for the User-Name attribute was received in the Access-Accept message, it takes precedence over any other value for the username.</p>	String
4	NAS-IP-Address	IPv4 address of the broadband gateway for communication with the RADIUS server.	IPv4 address
6	Service-Type	Type of service the user has requested or the type of service to be provided.	Value indicating the service type, as specified in RFC 2865
7	Framed-Protocol	Type of protocol for the user.	Value indicating the protocol, as specified in RFC 2865
25	Class	Unmodified identifier received in the Access-Accept message.	String
30	Called-Station-Id	Identifier for the target network (APN).	APN (UTF-8 encoded characters)
31	Calling-Station-ID	Identifier for the mobile station (MS), configurable on a per-APN basis.	MSISDN in international format, UTF-8 encoded decimal characters.
32	NAS-Identifier	Identifier of the NAS originating the request.	String
40	Acct-Status-Type	Type of accounting message.	Integer
41	Acct-Delay-Time	Number of seconds the broadband gateway has been trying to send this accounting record.	32-bit unsigned integer



Table 12: RADIUS IETF Attributes Supported in Accounting Stop Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
42	Acct-Input-Octets	Number of octets sent by the user for the IP-CAN bearer.	32-bit unsigned integer
43	Acct-Output-Octets	Number of octets received by the user for the IP-CAN bearer.	32-bit unsigned integer
44	Acct-Session-ID	User Session identifier, unique for every bearer under the session.	Broadband gateway Gn IP address (IPv4 or IPv6) and Charging-ID, concatenated in a UTF-8-encoded hexadecimal value
45	Acct-Authentic	Method by which user was authenticated: whether by RADIUS, the NAS itself, or another remote authentication protocol.	Integer: 1 - RADIUS 2 - Local 3 - Remote
46	Acct-Session-Time	Duration of the session, in seconds.	Integer
47	Acct-Input-Packets	Number of packets sent by the user.	Integer
48	Acct-Output-Packets	Number of packets received by the user.	Integer
49	Acct-Terminate-Cause	Reason the session was terminated. The session can be terminated for the following reasons: <ul style="list-style-type: none"> <li>• User Request (1)—User initiated the disconnect (log out).</li> <li>• NAS Error (9)—Negotiation failures, connection failures, or address lease expiration.</li> <li>• NAS Request (10)—PPP challenge timeout, PPP request timeout, tunnel establishment failure, PPP bundle failure, IP address lease expiration, PPP keep-alive failure, tunnel disconnect, or an unaccounted-for error.</li> </ul>	Integer
52	Acct-Input-Gigawords	How many times the Acct-Input-Octets counter has wrapped around $2^{32}$ over the course of this PDP session.	32-bit unsigned integer
53	Acct-Output-Gigawords	How many times the Acct-Output-Octets counter has wrapped around $2^{32}$ over the course of this PDP session.	32-bit unsigned integer

Table 12: RADIUS IETF Attributes Supported in Accounting Stop Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
55	Event-Timestamp	Time that this event occurred on the NAS, in seconds, since January 1, 1970 00:00 UTC.	32-bit unsigned integer

### 3GPP VSAs Supported in Accounting Stop Messages

Table 13 on page 30 lists the 3GPP vendor-specific attributes (VSAs) supported by the broadband gateway in Accounting Stop messages.

Table 13: 3GPP VSAs Supported in Accounting Stop Messages

Attribute Number	Attribute Name	Description	Content
26/10415/1 (3GPP type 1)	3GPP-IMSI	IMSI for this user.	UTF-8 encoded string
26/10415/2	3GPP-Charging-Id	Charging ID for this PDP context/EPS bearer.	Integer
26/10415/3	3GPP-PDP Type	For a GGSN, this indicates the type of PDP context; for example, IP or PPP.  For a P-GW, this indicates the PDN type: IPv4, IPv6, or IPv4v6.	Integer
26/10415/5	3GPP-GPRS-Negotiated-QoS-Profile	QoS profile applied by the broadband gateway for the PDP context/EPS bearer.	UTF-8 encoded string
26/10415/6	3GPP-SGSN-Address	For a GGSN, this represents the SGSN IPv4 address that is used by the GTP control plane for the handling of control messages.  For a P-GW, this represents the IPv4 address of the S-GW, trusted non-3GPP IP access or ePDG that is used on S5/S8, S2a or S2b for the handling of control messages.  This attribute may be used to identify the PLMN to which the user is attached.	IPv4 address

Table 13: 3GPP VSAs Supported in Accounting Stop Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/7	3GPP-GGSN-Address	<p>For a GGSN, this represents the GGSN IPv4 address that is used by the GTP control plane for the context establishment.</p> <p>For a P-GW, this represents the P-GW IPv4 address that is used on the S5/S8, S2a, S2b or S2c control plane for the IP-CAN session establishment.</p> <p>The address is the same as the GGSN/P-GW IPv4 address used in the CDRs generated by the broadband gateway.</p>	IPv4 address
26/10415/8	3GPP-IMSI-MCC-MNC	The MCC and MNC extracted from the user's IMSI (first 5 or 6 digits, as applicable from the presented IMSI).	String
26/10415/9	3GPP-GGSN-MCC-MNC	The MCC and MNC of the network to which the broadband gateway belongs.	String
26/10415/10	3GPP-NSAPI	<p>Identifier for a particular PDP context for the associated PDN and MSISDN/IMSI, from creation to deletion.</p> <p>For a P-GW, this identifies the EPS bearer ID if it is known to the P-GW.</p>	String
26/10415/12	3GPP-Selection-Mode	Selection mode for this PDP context/EPS bearer, received in the Create PDP Context/Session Request message.	String
26/10415/13	3GPP-Charging-Characteristics	<p>For a GGSN, this contains the charging characteristics for this PDP context, received in the Create PDP Context Request message (only available in R99 and later releases).</p> <p>For a P-GW, this contains the charging characteristics for the IP-CAN bearer.</p>	String
26/10415/18	3GPP-SGSN-MCC-MNC	The MCC and MNC extracted from the RAI from the Create PDP Context Request and Update PDP Context Request messages.	String
26/10415/21	3GPP-RAT-Type	The Radio Access Technology type that is currently serving the user equipment.	Octet string
26/10415/22	3GPP-User-Location-Info	Information about where the user equipment is currently located (for example, SAI or CGI).	Octet string

Table 13: 3GPP VSAs Supported in Accounting Stop Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
26/10415/23	3GPP-MS-TimeZone	The offset between UTC and local time in steps of 15 minutes of where the MS currently resides.	Octet string

**Related Documentation**

- [AAA Profiles on page 8](#)
- [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Supported Attributes in Accounting Interim Update Messages on page 23](#)
- [Supported Attributes in Accounting On Messages on page 32](#)
- [Supported Attributes in Accounting Start Messages on page 19](#)

## Supported Attributes in Accounting On Messages

The following table lists the RADIUS attributes supported by the MobileNext Broadband Gateway in RADIUS Accounting On messages. Accounting On messages are sent by the broadband gateway to the RADIUS server to ensure correct synchronization of session information.

- [RADIUS IETF Attributes Supported in Accounting On Messages on page 32](#)

## RADIUS IETF Attributes Supported in Accounting On Messages

[Table 14 on page 32](#) lists the RADIUS attributes supported by the broadband gateway in Accounting On messages.

Table 14: RADIUS IETF Attributes Supported in Accounting On Messages

Attribute Number	Attribute Name	Description	Content
4	NAS-IP-Address	IPv4 address of the broadband gateway for communication with the RADIUS server.	IPv4 address
32	NAS-Identifier	Identifier of the NAS originating the request.	String
40	Acct-Status-Type	Type of accounting message.	Accounting-ON
41	Acct-Delay-Time	Number of seconds the broadband gateway has been trying to send this accounting record.	32-bit unsigned integer

**Related Documentation**

- [AAA Profiles on page 8](#)
- [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Supported Attributes in Accounting Interim Update Messages on page 23](#)
- [Supported Attributes in Accounting Start Messages on page 19](#)
- [Supported Attributes in Accounting Stop Messages on page 27](#)

## Supported Attributes in Disconnect Request Messages

The following tables list the RADIUS attributes and 3GPP VSAs supported by the MobileNext Broadband Gateway in RADIUS Disconnect Request messages. A Disconnect Request message is sent by the RADIUS server to terminate a user session on a NAS and discard all associated session contexts.

The broadband gateway listens on UDP ports 1700 and 3799 for RADIUS Disconnect Request messages sent from the RADIUS server. The user session identified by the Disconnect Request message is deleted on the broadband gateway.

- [RADIUS IETF Attributes Supported in Disconnect Request Messages on page 33](#)
- [3GPP VSAs Supported in Disconnect Request Messages on page 33](#)

### RADIUS IETF Attributes Supported in Disconnect Request Messages

[Table 15 on page 33](#) lists the RADIUS attributes supported by the broadband gateway in Disconnect Request messages.

**Table 15: RADIUS IETF Attributes Supported in Disconnect Request Messages**

Attribute Number	Attribute Name	Description	Content
1	User-Name	<p>The username received in the Access-Request message, or a substitute username provided by the RADIUS server.</p> <p>If a value for the User-Name attribute is received in the Access-Accept message, it takes precedence over any other value for the username.</p>	String
44	Acct-Session-ID	<p>User Session identifier, unique for every bearer under the session.</p> <p>The broadband gateway deletes the user session indicated by this attribute.</p>	Broadband gateway Gn IP address (IPv4 or IPv6) and Charging-ID, concatenated in a UTF-8-encoded hexadecimal value

### 3GPP VSAs Supported in Disconnect Request Messages

[Table 16 on page 34](#) lists the 3GPP VSAs supported by the broadband gateway in Disconnect Request messages.

Table 16: 3GPP VSAs Supported in Disconnect Request Messages

Attribute Number	Attribute Name	Description	Content
26/10415/1 (3GPP type 1)	3GPP-IMSI	IMSI for this user.	UTF-8 encoded string
26/10415/10	3GPP-NSAPI	Identifier for a particular PDP context for the associated PDN and MSISDN/IMSI, from creation to deletion.  For a P-GW, this identifies the EPS bearer ID if it is known to the P-GW.	String

- Related Documentation**
- [AAA Profiles on page 8](#)
  - [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
  - [Overview of AAA on the Broadband Gateway on page 3](#)

## Supported Attributes in Change of Authorization (CoA) Messages

The following tables list the RADIUS attributes and 3GPP VSAs supported by the MobileNext Broadband Gateway in RADIUS Change of Authorization (CoA) messages. CoA messages contain information for dynamically changing user session authorizations. They are typically used to change associated policies, filters, or QoS attributes.

- [RADIUS IETF Attributes Supported in CoA Messages on page 34](#)
- [3GPP VSAs Supported in CoA Messages on page 35](#)

### RADIUS IETF Attributes Supported in CoA Messages

[Table 17 on page 34](#) lists the RADIUS attributes supported by the broadband gateway in CoA messages.

Table 17: RADIUS IETF Attributes Supported in CoA Messages

Attribute Number	Attribute Name	Description	Content
1	User-Name	The username received in the Access-Request message, or a substitute username provided by the RADIUS server.  If a value for the User-Name attribute is received in the Access-Accept message, it takes precedence over any other value for the username.	String
4	NAS-IP-Address	IPv4 address of the broadband gateway for communication with the RADIUS server.	IPv4 address

Table 17: RADIUS IETF Attributes Supported in CoA Messages (*continued*)

Attribute Number	Attribute Name	Description	Content
30	Called-Station-Id	Identifier for the target network (APN).	APN (UTF-8 encoded characters)
31	Calling-Station-ID	Identifier for the mobile station (MS), configurable on a per-APN basis.	MSISDN in international format, UTF-8 encoded decimal characters
32	NAS-Identifier	Identifier of the NAS originating the request.	String
44	Acct-Session-ID	User Session identifier, unique for every bearer under the session.  The broadband gateway performs the CoA action on the user session indicated by this attribute.	Broadband gateway Gn IP address (IPv4 or IPv6) and Charging-ID, concatenated in a UTF-8-encoded hexadecimal value

### 3GPP VSAs Supported in CoA Messages

Table 18 on page 35 lists the 3GPP vendor-specific attributes (VSAs) supported by the broadband gateway in CoA messages.

Table 18: 3GPP VSAs Supported in CoA Messages

Attribute Number	Attribute Name	Description	Content
26/10415/1 (3GPP type 1)	3GPP-IMSI	IMSI for this user.	UTF-8 encoded string
26/10415/2	3GPP-Charging-Id	Charging ID for this PDP context/EPS bearer.	Integer
26/10415/5	3GPP-GPRS-Negotiated-QoS-Profile	QoS profile to be applied by the broadband gateway for the PDP context/EPS bearer as the CoA action.	UTF-8 encoded string

- Related Documentation**
- [AAA Profiles on page 8](#)
  - [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
  - [Overview of AAA on the Broadband Gateway on page 3](#)





## PART 2

# Configuration

- [Configuration Overview on page 39](#)
- [Configuration Tasks for the RADIUS Servers on page 41](#)
- [Configuration Tasks for Network Elements and Network Element Groups on page 45](#)
- [Configuration Tasks for AAA Profiles on page 47](#)
- [Configuration Tasks for AAA Services in an APN on page 55](#)
- [Configuration Examples on page 59](#)
- [Configuration Statements on page 75](#)



## CHAPTER 3

# Configuration Overview

- [Configuring AAA on the Broadband Gateway on page 39](#)

## Configuring AAA on the Broadband Gateway

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To configure authentication, authorization, and accounting (AAA) on the MobileNext Broadband Gateway:

1. Configure settings for the RADIUS servers.  
[See “Configuring Interaction Between the Broadband Gateway and RADIUS Servers” on page 41.](#)
2. Configure one or more network elements.  
[See “Configuring Network Elements” on page 45.](#)
3. (Optional) Configure a network element group to use with accounting.  
[See “Configuring Network Element Groups” on page 46.](#)
4. Configure an AAA profile.  
[See “Configuring an AAA Profile” on page 47.](#)
5. Configure AAA services for an APN.  
[See “Applying an AAA Profile to an APN” on page 55.](#)



**NOTE:** If you plan to make changes to AAA settings for an existing APN, or modify an AAA profile that has already been applied to an APN, then you must place the affected APNs into maintenance mode prior to making the changes.

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### Related Documentation

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Network Elements on page 7](#)
- [Network Element Groups on page 8](#)
- [AAA Profiles on page 8](#)
- [Mobility Maintenance Mode Overview](#)

- *Modifying an Access Point Name*

## CHAPTER 4

# Configuration Tasks for the RADIUS Servers

- [Configuring Interaction Between the Broadband Gateway and RADIUS Servers on page 41](#)
- [Configuring Dead Server Detection on page 42](#)
- [Configuring RADIUS-Initiated Dynamic Request Support on page 43](#)

### Configuring Interaction Between the Broadband Gateway and RADIUS Servers

You specify the RADIUS servers that the MobileNext Broadband Gateway can use, and you configure how the broadband gateway interacts with the servers. After the RADIUS servers are configured, you can include them in network elements.

To specify a RADIUS server and how the broadband gateway interacts with the server:

1. Configure the name of the RADIUS server.

```
[edit]
user@host# edit access radius servers radius1
```

2. Configure the IP address of the RADIUS server.

```
[edit access radius servers radius-server-name]
user@host# set address 172.16.0.20
```

3. Configure an interface and IP address to specify the source address for RADIUS requests. The broadband gateway sends RADIUS requests to the RADIUS server using this source address.

```
[edit access radius servers radius-server-name]
user@host# set source-interface lo0.0 ipv4-address 10.10.10.10
```

4. Configure the required secret (password) to use with the RADIUS server for authentication. Secrets enclosed in quotation marks can contain spaces.

```
[edit access radius servers radius-server-name]
user@host# set secret nt1UE1*7688+
```

5. (Optional) Configure the port number the broadband gateway uses for RADIUS authentication. The default port number is 1812.

```
[edit access radius servers radius-server-name]
```

```
user@host# set port 1812
```

6. (Optional) Configure the shared secret to be used for RADIUS accounting. If you do not specify a shared secret for accounting, the shared secret configured for RADIUS authentication is used for accounting.

```
[edit access radius servers radius-server-name]  
user@host# set accounting-secret xp1UE1*4852+
```

7. (Optional) Configure the RADIUS server accounting port number. The default accounting port number is 1813.

```
[edit access radius servers radius-server-name]  
user@host# set accounting-port 1813
```

8. (Optional) Configure the number of times that the broadband gateway attempts to contact the RADIUS server. You can specify from 1 to 10 retries. The default setting is 3 retry attempts.

```
[edit access radius servers radius-server-name]  
user@host# set retry 4
```

9. (Optional) Configure the length of time that the broadband gateway waits to receive a response from a RADIUS server. By default, the broadband gateway waits 3 seconds. You can configure the timeout to be from 1 through 90 seconds.

```
[edit access radius servers radius-server-name]  
user@host# set timeout 45
```

**Related  
Documentation**

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

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## Configuring Dead Server Detection

The MobileNext Broadband Gateway detects when a RADIUS server is “dead” (that is, has stopped responding to requests), and starts directing requests to another server in the network element.

When a request sent by the broadband gateway to the RADIUS server times out, it retransmits the request to the server. If the request continues to time out, and does so for a given number of times over a given interval, the broadband gateway marks the server as “dead,” then starts sending requests to a different server in the network element. After a given number of seconds, the broadband gateway marks the dead server alive again, and can once again start sending requests to the server, according to the load-balancing algorithm and the server’s priority in the network element configuration.

To configure dead server detection, you specify the number of retransmissions and interval required to mark a server dead, and the amount of time after the server is marked dead that it is marked alive again.

To configure dead server detection for the RADIUS server.

1. Set the dead-criteria retries limit. This is the number of request retransmissions required to mark a server dead.

```
[edit access radius servers radius-server-name dead-criteria]
user@host# set retries 100
```

2. Set the dead-criteria interval, in seconds. If the broadband gateway retransmits a request the number of times specified by the retries limit, over the number of seconds specified by the interval, the RADIUS server is marked dead.

```
[edit access radius servers radius-server-name dead-criteria]
user@host# set interval 10
```

3. Set the dead server revert interval, in seconds. When a server is marked dead, the broadband gateway waits this amount of time, then marks the server alive again.

```
[edit access radius servers radius-server-name]
user@host# set revert-interval 10
```

#### Related Documentation

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Configuring RADIUS-Initiated Dynamic Request Support

When dynamic request support is enabled for a RADIUS server, the MobileNext Broadband Gateway uses the RADIUS server for both authentication and dynamic request operations, such as Change of Authorization (CoA) requests, Re-authorization requests, and Disconnect requests. The broadband gateway listens on UDP port 3799 for dynamic requests from the RADIUS server.

To configure dynamic request support for the RADIUS server:

1. Enable the broadband gateway to allow dynamic requests from the RADIUS server.

```
[edit access radius servers radius-server-name]
user@host# set allow-dynamic-requests
```



**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.

2. (Optional) Configure the shared secret to be used for the dynamic requests. If you do not specify a shared secret for dynamic requests, the shared secret configured for RADIUS authentication is used.

```
[edit access radius servers radius-server-name]
user@host# set dynamic-requests-secret 71UE1*4852+
```

#### Related Documentation

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)





## CHAPTER 5

# Configuration Tasks for Network Elements and Network Element Groups

- [Configuring Network Elements on page 45](#)
- [Configuring Network Element Groups on page 46](#)

## Configuring Network Elements

---

A network element is a load-balanced cluster of RADIUS servers. In an authentication, authorization, and accounting (AAA) profile, you select network elements to be used for authentication and accounting. When the AAA profile is applied to an access point name (APN), mobile subscribers attempting to get network access through the APN receive authentication or accounting services from one of the servers in the network element.

To configure a network element, you indicate the RADIUS servers that comprise it, optionally assign the servers a priority, and specify a load-balancing algorithm. You can also specify the maximum number of pending RADIUS requests that can be queued to the network element.

To configure a network element:

1. Specify the RADIUS servers that make up the network element.

```
[edit access radius network-elements network-element-name]  
user@host# set server radius01
```

2. (Optional) Set the load-balancing algorithm for the network element. You can specify either direct or round-robin. The direct algorithm causes all requests to go to the first server configured in the network element; if that server cannot handle any additional requests (that is, the server is marked “dead”), they go to the next server in the list. The round-robin algorithm sends the first request to the first server in the list, the second request to the second server in the list, and so on; if a server is marked dead, it is removed from the round-robin selection rotation for the duration of the revert-interval.

```
[edit access radius network-elements network-element-name]  
user@host# set algorithm round-robin
```

3. (Optional) Assign the RADIUS servers in the network element a priority of 1 or 2. The priority number is used for failover in case of server failure. The priority 2 servers are

not used unless all the priority 1 servers fail. If all the priority 1 servers fail, then the broadband gateway starts using the priority 2 servers.

```
[edit access radius network-elements network-element-name server server-name]  
user@host# set priority 1
```

4. (Optional) 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, an SNMP trap is generated. You can specify from 512 through 8192 for the pending request limit. The default is 8192.

```
[edit access radius network-elements network-element-name]  
user@host# set maximum-pending-reqs-limit 4096
```

**Related  
Documentation**

- [Network Elements on page 7](#)
- [Network Element Groups on page 8](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

---

## Configuring Network Element Groups

A network element group is a collection of network elements to which accounting request messages are sent.

To configure a network element group, you specify the network elements that comprise it, optionally indicate that a response is mandatory from a network element, and whether the MobileNext Broadband Gateway broadcasts accounting requests to all of the network elements in the group.

To configure a network element group:

1. Specify one or more network elements to make up the network element group.

```
[edit access radius network-element-group network-element-group-name]  
user@host# set network-element ne01
```

2. (Optional) Indicate that a response is mandatory from the network element when the broadband gateway sends it an accounting request.

```
[edit access radius network-element-group network-element-group-name]  
user@host# set network-element ne01 mandatory
```

3. (Optional) Specify that the broadband gateway broadcasts accounting requests to all network elements in the group.

```
[edit access radius network-element-group network-element-group-name]  
user@host# set broadcast
```

**Related  
Documentation**

- [Network Element Groups on page 8](#)
- [Network Elements on page 7](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## CHAPTER 6

# Configuration Tasks for AAA Profiles

- [Configuring an AAA Profile on page 47](#)
- [Configuring Authentication Settings in an AAA Profile on page 48](#)
- [Configuring Accounting Settings in an AAA Profile on page 48](#)
- [Configuring RADIUS Attribute Usage for an AAA Profile on page 50](#)
- [Specifying RADIUS Options in an AAA Profile on page 53](#)

## Configuring an AAA Profile

---

To configure an authentication, authorization, and accounting (AAA) profile:

1. Create the AAA profile.

[edit]

user@host# **edit unified-edge aaa mobile-profiles *aaa-profile-name***

2. Specify a network element to use for authentication.

See [“Configuring Authentication Settings in an AAA Profile” on page 48](#).

3. Configure accounting settings for the AAA profile.

See [“Configuring Accounting Settings in an AAA Profile” on page 48](#).

4. (Optional) Specify which RADIUS attributes the MobileNext Broadband Gateway ignores or excludes from RADIUS messages.

See [“Configuring RADIUS Attribute Usage for an AAA Profile” on page 50](#).

5. (Optional) Specify values for RADIUS attributes that the broadband gateway includes in RADIUS requests.

See [“Specifying RADIUS Options in an AAA Profile” on page 53](#).

### Related Documentation

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [AAA Profiles on page 8](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Configuring Authentication Settings in an AAA Profile

---

In an authentication, authorization, and accounting (AAA) profile, you specify which of the configured network elements you want to use for authentication. Users accessing the access point name (APN) to which the AAA profile is applied are authenticated using one of the RADIUS servers in the specified network element.

To configure authentication settings for an AAA profile:

- Enter the name of the configured network element to use for RADIUS authentication:

```
[edit unified-edge aaa mobile-profiles aaaprofile radius authentication]  
user@host# set network-element ne01
```

### Related Documentation

- [AAA Profiles on page 8](#)
- [Network Elements on page 7](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Configuring Accounting Settings in an AAA Profile

---

To configure accounting settings for an authentication, authorization, and accounting (AAA) profile:

1. If you are using a network element for RADIUS accounting, enter the name of the configured network element to use.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius accounting]  
user@host# set network-element ne01
```

2. If you are using a network element group for RADIUS accounting, enter the name of the configured network element group to use.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius accounting]  
user@host# set network-element-group ne-grp01
```



**NOTE:** In an AAA profile, you must specify either a network element or a network element group for accounting.

3. (Optional) Configure the MobileNext Broadband Gateway to send an Accounting-On message when a services PIC is restarted.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius accounting]  
user@host# set send-accounting-on
```

4. (Optional) Configure how often the broadband gateway sends accounting Interim-Update messages. You can specify from 10 through 1440 minutes. If you do not configure this option, the broadband gateway does not send accounting Interim-Update messages at regular intervals, but only when events listed in [Table 19 on page 49](#) occur.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius accounting]
user@host# set trigger interim-interval 20
```

5. (Optional) Specify which events you want to exclude from triggering accounting Interim-Update messages. [Table 19 on page 49](#) lists the events you can specify.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius accounting]
user@host# set trigger no-rat-change
```

**Table 19: Events You Can Exclude from Triggering Interim-Update Messages**

Event	CLI Entry to disable Interim-Updates for the event
The IPv4 address update for the mobile subscriber is deferred.	no-deferred-ipv4-address-update
The Mobile Station (MS) time zone changes.	no-ms-timezone-change
The Public Land Mobile Network (PLMN) to which the mobile subscriber is attached changes.	no-plmn-change
The QoS profile applied by the broadband gateway for the PDP context/EPS bearer changes.	no-qos-change
The Radio Access Technology (RAT) serving the mobile subscriber changes.	no-rat-change
The SGSN/S-GW serving the mobile subscriber changes.	no-sgw-change
The location information for the mobile subscriber changes.	no-user-location-information-change

**Related Documentation**

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [AAA Profiles on page 8](#)
- [Network Elements on page 7](#)
- [Network Element Groups on page 8](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Configuring RADIUS Attribute Usage for an AAA Profile

In an authentication, authorization, and accounting (AAA) profile, you can specify which RADIUS attributes the MobileNext Broadband Gateway ignores in the RADIUS Access-Accept messages it receives, as well as which RADIUS attributes the broadband gateway excludes from specific types of RADIUS messages it sends to the RADIUS server. The broadband gateway supports a number of 3GPP vendor-specific attributes (VSAs). You can configure the AAA profile to exclude any or all of them from specified RADIUS message types.

To configure how RADIUS attributes are handled for an AAA profile:

1. Specify the RADIUS attributes you want the broadband gateway to ignore in Access-Accept messages. See [Table 20 on page 50](#) for the attributes you can configure.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius attributes ignore]
user@host# set framed-ip-netmask
```

2. Specify which attributes the broadband gateway excludes from specific types of RADIUS messages it sends to the RADIUS server. See [Table 21 on page 51](#) for the RADIUS attributes and message type combinations you can configure. See [Table 22 on page 52](#) for the 3GPP VSAs and message type combinations you can configure.

The **all-3gpp** keyword causes the broadband gateway to exclude all of the 3GPP VSAs listed in [Table 22 on page 52](#) from the specified RADIUS message types.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius attributes exclude]
user@host# set all-3gpp access-request
```

You use the **ignore** statement to configure the broadband gateway to ignore a particular attribute in RADIUS Access-Accept messages. By default, the broadband gateway processes the attributes received from the external RADIUS server. [Table 20 on page 50](#) lists the attributes supported in the **ignore** statement.

**Table 20: RADIUS Attributes the Broadband Gateway Can Ignore in Access-Accept Messages**

CLI Entry	Attribute Name	Attribute Number
framed-ip-netmask	Framed-Ip-Netmask	RADIUS attribute 9

You use the **exclude** statement to configure the broadband gateway to exclude the specified attributes from the specified type of RADIUS message. Not all attributes appear in all types of RADIUS messages—the CLI indicates the RADIUS message type. By default, the broadband gateway includes the specified attributes in RADIUS messages. [Table 21 on page 51](#) lists the RADIUS attributes and message types supported in the **exclude** statement.

**Table 21: RADIUS Attributes the Broadband Gateway Can Exclude from RADIUS Messages**

CLI Entry	Attribute Name	Attribute Number	Supported Message Type
accounting-authentic	Acct-Authentic	RADIUS attribute 45	Accounting-Start Accounting-Stop Accounting-Interim
accounting-delay-time	Acct-Delay-Time	RADIUS attribute 41	Accounting-Start Accounting-Stop Accounting-Interim
accounting-terminate-cause	Acct-Terminate-Cause	RADIUS attribute 49	Accounting-Stop
called-station-id	Called-Station-Id	RADIUS attribute 30	Access-Request Accounting-Start Accounting-Stop Accounting-Interim
calling-station-id	Calling-Station-Id	RADIUS attribute 31	Access-Request Accounting-Start Accounting-Stop Accounting-Interim
event-time-stamp	Event-Timestamp	RADIUS attribute 55	Accounting-Start Accounting-Stop Accounting-Interim
input-gigapackets	Acct-Input-Gigapackets	Juniper Networks VSA 26–42	Accounting-Stop Accounting-Interim
input-gigawords	Acct-Input-Gigawords	RADIUS attribute 52	Accounting-Stop Accounting-Interim
nas-identifier	NAS-Identifier	RADIUS attribute 32	Access-Request Accounting-Start Accounting-Stop

**Table 21: RADIUS Attributes the Broadband Gateway Can Exclude from RADIUS Messages** (*continued*)

CLI Entry	Attribute Name	Attribute Number	Supported Message Type
nas-ip-address	NAS-IP-Address	RADIUS attribute 4	Access-Request Accounting-Start Accounting-Stop Accounting-On Accounting-Interim
nas-port-type	NAS-Port-Type	RADIUS attribute 61	Access-Request
ouput-gigapackets	Acct-Output-Gigapackets	Juniper Networks VSA 26–43	Accounting-Stop Accounting-Interim
output-gigawords	Acct-Output-Gigawords	RADIUS attribute 53	Accounting-Stop Accounting-Interim

Table 22 on page 52 lists the 3GPP VSAs supported in the **exclude** statement. You can exclude individual 3GPP VSAs by entering the VSA's name in the CLI, or you can exclude all of the 3GPP VSAs by entering the **all-3gpp** keyword.

**Table 22: 3GPP VSAs That Can Be Excluded from RADIUS Messages**

CLI Entry	Attribute Name	Attribute Number	Supported Message Type
imeisv	3GPP-IMEISV	3GPP VSA 26–20	Access-Request Accounting-Start
imsi	3GPP-IMSI	3GPP VSA 26-1	Access-Request Accounting-Start Accounting-Stop Accounting-Interim
imsi-mcc-mnc	3GPP-IMSI-MCC-MNC	3GPP VSA 26-8	Access-Request Accounting-Start Accounting-Stop Accounting-Interim



**Table 22: 3GPP VSAs That Can Be Excluded from RADIUS Messages (*continued*)**

CLI Entry	Attribute Name	Attribute Number	Supported Message Type
sgsn-mcc-mnc	3GPP-SGSN-MCC-MNC	3GPP VSA 26-18	Access-Request
			Accounting-Start
			Accounting-Stop
			Accounting-Interim
user-location-info	3GPP-USER-LOCATION-INFO	3GPP VSA 26-22	Access-Request
			Accounting-Start
			Accounting-Stop
			Accounting-Interim

**Related Documentation**

- [Overview of AAA on the Broadband Gateway on page 3](#)
- [AAA Profiles on page 8](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Specifying RADIUS Options in an AAA Profile

When configuring an authentication, authorization, and accounting (AAA) profile on the MobileNext Broadband Gateway, you can optionally specify values for a number of RADIUS attributes that the broadband gateway includes in the RADIUS messages it generates. You can specify a value for the NAS IP address attribute (RADIUS attribute 4), a prefix to be used with the NAS Identifier attribute (RADIUS attribute 32), and a value for the NAS Port Type attribute (RADIUS attribute 61).

To specify RADIUS options:

1. Specify a value for the nas-ip-address option. If this option is specified, the broadband gateway uses this IP address as the value for RADIUS attribute 4 (NAS-IP-Address) in RADIUS requests; otherwise, the broadband gateway uses the IP address set in the **source-interface** statement in the RADIUS server configuration.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius options]
user@host# set nas-ip-address 172.16.0.20
```

2. Specify a value for the nas-identifier-prefix option. When this option is specified, the broadband gateway appends the ID of the services PIC to the nas-identifier-prefix value, and uses the combined prefix and services PIC ID as the value for RADIUS attribute 32 (NAS-Identifier) in RADIUS requests. If the services PICs are part of a redundancy group, the broadband gateway appends the aggregated multiservices interface (ams) ID to the prefix instead of the services PIC ID.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius options]
```

```
user@host# set nas-identifier-prefix imagio
```

3. Specify a value for the nas-port-type option. In an AAA profile, you can specify a NAS port type of virtual or wireless. The broadband gateway uses this as the value for RADIUS attribute 61 (NAS-Port-Type) in RADIUS requests. The default is virtual.

```
[edit unified-edge aaa mobile-profiles aaaprofile radius options]
```

```
user@host# set nas-port-type wireless
```

**Related  
Documentation**

- [AAA Profiles on page 8](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## CHAPTER 7

# Configuration Tasks for AAA Services in an APN

- [Applying an AAA Profile to an APN on page 55](#)
- [Enabling Address Assignment by the RADIUS Server on page 55](#)
- [Configuring AAA-Assigned Addresses to Override Locally or DHCP-Assigned Addresses on page 56](#)
- [Configuring the Broadband Gateway to Wait for an Accounting Response on page 56](#)

## Applying an AAA Profile to an APN

---

To apply an authentication, authorization, and accounting (AAA) profile to an access point name (APN):

1. Indicate that you want to configure services for a particular APN.

```
[edit unified-edge gateways ggsn-pgw MBG1 apn-services]  
user@host# edit apn apn-name
```

2. Specify the name of the AAA profile you want to apply to this APN.

```
[edit unified-edge gateways ggsn-pgw MBG1 apn-services apns apn-name]  
user@host# set aaa-profile aaa-profile-name
```

### Related Documentation

- [Configuring APNs on the MobileNext Broadband Gateway Overview](#)
- [AAA Profiles on page 8](#)
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Enabling Address Assignment by the RADIUS Server

---

You can optionally configure the MobileNext Broadband Gateway to allow the RADIUS server to assign addresses to mobile subscribers. If this option is configured, the broadband gateway uses the address received in the Framed-IP-Address attribute (RADIUS attribute 8) of the Access-Accept message as the IP address for the subscriber.

If this option is not configured, the IP addresses are assigned locally by the broadband gateway using the address pool or group configured on the access point name (APN).

- To enable address assignment by the RADIUS server:

```
[edit unified-edge gateways ggsn-pgw MBG1 apn-services apns apn-name]  
user@host# set address-assignment aaa
```

**Related  
Documentation**

- *Configuring Address Assignment on a Broadband Gateway APN*
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Configuring AAA-Assigned Addresses to Override Locally or DHCP-Assigned Addresses

If the configured address-assignment method for the access point name (APN) is set to **local** or **dhcp-proxy-client**, then the MobileNext Broadband Gateway assigns addresses to mobile subscribers using one of these methods. You can optionally configure the broadband gateway so that if an address is also assigned to the mobile subscriber by a RADIUS server, then the RADIUS-assigned address is used in place of the locally assigned or DHCP-assigned address.

- To configure AAA-assigned addresses to override locally assigned addresses:

```
[edit unified-edge gateways ggsn-pgw MBG1 apn-services apns apn-name  
address-assignment]  
user@host# set address-assignment local aaa-override
```

- To configure AAA-assigned addresses to override DHCP-assigned addresses:

```
[edit unified-edge gateways ggsn-pgw MBG1 apn-services apns apn-name  
address-assignment]  
user@host# set address-assignment dhcp-proxy-client aaa-override
```

**Related  
Documentation**

- *Configuring Address Assignment on a Broadband Gateway APN*
- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

## Configuring the Broadband Gateway to Wait for an Accounting Response

When accounting is configured for an access point name (APN), the MobileNext Broadband Gateway generates an Accounting Start message when it receives a Create Session Request or Create PDP Context Request message from the user equipment. By default, the broadband gateway does not wait for the accounting response from the RADIUS server before sending the Create Session Response or Create PDP Context Response message.

You can optionally configure the broadband gateway to send the Create Session Response or Create PDP Context Response message only after it receives the Accounting Start Response message from the RADIUS server.

- To configure the broadband gateway to wait for an accounting response before creating a session for the user equipment:

```
[edit unified-edge gateways ggsn-pgw MBG1 apn-services apns apn-name]  
user@host# set wait-accounting
```

- Related Documentation**
- [Overview of AAA on the Broadband Gateway on page 3](#)
  - *Configuring General APN Parameters on the Broadband Gateway*



## CHAPTER 8

# Configuration Examples

- [Example: Configuring AAA on the Broadband Gateway on page 59](#)

### Example: Configuring AAA on the Broadband Gateway

---

- [Requirements on page 59](#)
- [Overview on page 59](#)
- [Configuration on page 62](#)
- [Verification on page 70](#)

#### Requirements

This example uses the following hardware and software components:

- Junos OS Release 11.2W
- Juniper Networks MobileNext Broadband Gateway, including the following components:
  - MX240 3D Universal Edge Router, MX480 3D Universal Edge Router, or MX960 3D Universal Edge Router
  - Mobile Multiservices DPC (MS-DPC)
  - Mobile 10-Gigabit Ethernet MPC with SFP+ or Mobile 60-Gigabit Ethernet Enhanced Queuing MPC line card

#### Overview

This example documents an authentication, authorization, and accounting (AAA) configuration where the broadband gateway interacts with a collection of RADIUS servers to provide AAA services to mobile subscribers accessing an access point name (APN). The RADIUS servers are configured into network elements, and some of the network elements are placed into a network element group. One of the network elements provides authentication services, and the network element group receives the accounting messages.

One of the RADIUS servers is configured to provide support for dynamic requests, such as Change of Authorization (CoA) requests and Disconnect requests. Note that this dynamic request server is not part of a network element.

The APN is configured to use the RADIUS server for IP address assignment. When a mobile subscriber is authenticated, the Access-Accept message specifies the IP address to be assigned to the subscriber. If a mobile subscriber cannot be authenticated based on the contents of the Create PDP Context Request or Create Session Request message, then the mobile subscriber is authenticated with the username of "aaa" and the password "Password123."

The AAA configuration example consists of the following parts:

1. Configuring the RADIUS servers.

This part of the configuration establishes settings for the dynamic request server, *radiusDR*, and eight other RADIUS servers, *radius1* through *radius8*. The configurations for the RADIUS servers are basically identical, with some minor differences. Server *radiusDR* has dynamic requests enabled, which means that the broadband gateway acts upon CoA requests and Disconnect requests originating from the *radiusDR* server.

Also note that dead server detection is configured for the RADIUS servers: the **dead-criteria retries 10 interval 10** and **revert-interval 100** statements mean that if the broadband gateway has to retransmit a request to the server 10 times over a 10-second interval, the server is marked "dead", and the broadband gateway starts sending requests to a different server. After the revert-interval of 100 seconds, the server is marked "alive," and the broadband gateway can direct requests to it again.

2. Configuring the loopback interface.

This part of the configuration set addresses on the lo0 interface for the dynamic request server and for the other RADIUS servers.

3. Configuring the network elements.

This part of the configuration creates three network elements: *ne1*, *ne2*, and *ne3*, which are made up of the RADIUS servers configured in part 1. In network element *ne1*, the *radius1* and *radius2* servers are configured as priority 1, and *radius3* is priority 2. The load-balancing algorithm is configured as Direct. When the broadband gateway sends requests to *ne1*, they go only to the *radius1* server, up to the point where *radius1* is marked dead. At that point, they go to *radius2*. Once the revert-interval configured for *radius1* (100 seconds) expires, the broadband gateway can start directing requests to *radius1* again. Only if both priority 1 servers are marked dead does the broadband gateway start sending requests to the priority 2 server, *radius3*.

Network elements *ne2* and *ne3* both use the round-robin load-balancing algorithm. When sending requests to *ne2*, the broadband gateway sends the first request to *radius4*, the second request to *radius5*, the third to *radius4*, and so on. For *ne3*, since *radius6* and *radius7* are priority 1 servers, the broadband gateway alternates requests between the two servers. If both of the servers are marked dead, then the broadband gateway sends requests to the priority 2 server, *radius8*.

4. Configuring the network element group.

This part of the configuration creates a network element group, *ne-grp1*, consisting of network elements *ne2* and *ne3*, which were configured in part 2. The broadband gateway sends accounting messages to the network elements in the group.



In the example, the **broadcast** parameter is specified, which causes the broadband gateway to send the accounting messages to all of the network elements in the group. The **mandatory** option is configured for network element ne2, which means that a response is required from a server in ne2 before services can be provided to the mobile subscriber. If you configure the **broadcast** parameter for a network element group, you must specify the **mandatory** parameter for at least one of the network elements.

#### 5. Configuring the AAA profile.

This part of the configuration sets up an AAA profile, *aaa-prof*. The AAA profile specifies that network element ne1 is used for authentication, and network element group ne-grp01 is used for accounting.

For accounting, Interim-Update messages are sent every 10 minutes, and when any of the trigger events occur. The one exception is if the QoS profile applied by the broadband gateway for the PDP context/EPS bearer changes; that is, the broadband gateway receives an accounting message with a 3GPP-GPRS-Negotiated-QoS-Profile attribute (3GPP VSA 26-5) that has a value different from the one previously received. In this case, it does not trigger the broadband gateway to send an Interim-Update message.

In the RADIUS messages it generates, the broadband gateway sets values for the following RADIUS attributes:

- For the NAS-Identifier attribute (RADIUS attribute 32), the value is the string *imagio*, prefixed to the ID of the services PIC handling NAS functions for the mobile subscriber.
- For the NAS-Port-Type attribute (RADIUS attribute 61), the value is set to *wireless*.

The broadband gateway excludes certain RADIUS attributes from specific types of RADIUS messages it generates:

- The Called-Station-Id attribute (RADIUS attribute 30) is excluded from Access-Request messages.
- The Event-Timestamp attribute (RADIUS attribute 55) is excluded from Accounting Start messages.

The broadband gateway ignores the Framed-Ip-Netmask attribute (RADIUS attribute 9) in Access-Accept messages it receives from the RADIUS server.

#### 6. Applying AAA services to an APN.

This part of the configuration applies AAA services to an APN, *internet123*. The AAA services are configured for the APN by specifying the AAA profile to use—in this case, *aaa-prof*—configured in the previous part. When mobile subscribers attempt to gain access to this APN, they receive AAA services as indicated by the settings in the *aaa-prof* profile.

In addition, the APN is configured to use AAA as the address assignment method. This means that the broadband gateway assigns an IP address to a mobile subscriber using information returned from the RADIUS server in the Access-Accept message.

If the broadband gateway cannot determine the subscriber's username and password from the Create PDP Context Request or Create Session Request message or if the

**override-pco** statement is configured under **user-options**, then the username and password configured under **user-options**, in the APN configuration, are used to authenticate the subscriber.

## Configuration

- [Configuring the RADIUS Servers on page 62](#)
- [Configuring the Loopback Interface on page 65](#)
- [Configuring the Network Elements on page 65](#)
- [Configuring the Network Element Group on page 66](#)
- [Configuring the AAA Profile on page 67](#)
- [Applying AAA Services to an APN on page 69](#)

---

### Configuring the RADIUS Servers

#### CLI Quick Configuration

To quickly configure this example, copy the following commands and paste them into the router terminal window:

```
[edit]
set access radius servers radiusDR address 50.50.50.110
set access radius servers radiusDR secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radiusDR allow-dynamic-requests
set access radius servers radiusDR dynamic-request-secret "$9$rXYKWxbs4Di.Ndi"
set access radius servers radiusDR source-interface lo0.0 ipv4-address 200.6.80.1

set access radius servers radius1 address 200.6.101.2
set access radius servers radius1 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius1 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius1 dead-criteria retries 10 interval 10
set access radius servers radius1 revert-interval 100
set access radius servers radius1 source-interface lo0.0 ipv4-address 200.6.88.1

set access radius servers radius2 address 200.6.102.2
set access radius servers radius2 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius2 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius2 dead-criteria retries 10 interval 10
set access radius servers radius2 revert-interval 100
set access radius servers radius2 source-interface lo0.0 ipv4-address 200.6.88.1

set access radius servers radius3 address 200.6.103.2
set access radius servers radius3 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius3 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius3 dead-criteria retries 10 interval 10
set access radius servers radius3 revert-interval 100
set access radius servers radius3 source-interface lo0.0 ipv4-address 200.6.88.1

set access radius servers radius4 address 200.6.104.2
set access radius servers radius4 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius4 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius4 dead-criteria retries 10 interval 10
set access radius servers radius4 revert-interval 100
```

```
set access radius servers radius4 source-interface lo0.0 ipv4-address 200.6.88.1
```

```
set access radius servers radius5 address 200.6.105.2
set access radius servers radius5 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius5 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius5 dead-criteria retries 10 interval 10
set access radius servers radius5 revert-interval 100
set access radius servers radius5 source-interface lo0.0 ipv4-address 200.6.88.1
```

```
set access radius servers radius6 address 200.6.106.2
set access radius servers radius6 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius6 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius6 dead-criteria retries 10 interval 10
set access radius servers radius6 revert-interval 100
set access radius servers radius6 source-interface lo0.0 ipv4-address 200.6.88.1
```

```
set access radius servers radius7 address 200.6.107.2
set access radius servers radius7 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius7 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius7 dead-criteria retries 10 interval 10
set access radius servers radius7 revert-interval 100
set access radius servers radius7 source-interface lo0.0 ipv4-address 200.6.88.1
```

```
set access radius servers radius8 address 200.6.108.2
set access radius servers radius8 secret "$9$BWYErVx7VY2axNs4oJkq"
set access radius servers radius8 accounting-secret "$9$rpEvX-Y2aUDkYgGiHqzF"
set access radius servers radius8 dead-criteria retries 10 interval 10
set access radius servers radius8 revert-interval 100
set access radius servers radius8 source-interface lo0.0 ipv4-address 200.6.88.1
```

### Step-by-Step Procedure

To configure the RADIUS servers:

1. Configure the settings for the dynamic request server, radiusDR. Enable dynamic request support, and specify a shared secret for dynamic request messages.

```
[edit]
user@pe1# set access radius servers radiusDR address 50.50.50.110
user@pe1# set access radius servers radiusDR secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radiusDR allow-dynamic-requests
user@pe1# set access radius servers radiusDR dynamic-request-secret
"$9$RXYKWxbs4Di.Ndi"
user@pe1# set access radius servers radiusDR source-interface lo0.0 ipv4-address
200.6.80.1
```

2. Configure the settings for the radius1 server.

```
[edit]
user@pe1# set access radius servers radius1 address 200.6.101.2
user@pe1# set access radius servers radius1 secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radius1 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius1 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius1 revert-interval 100
user@pe1# set access radius servers radius1 source-interface lo0.0 ipv4-address
200.6.88.1
```



**NOTE:** Apart from the server name and address, the configuration of servers radius2 through radius8 is identical.

3. Configure the settings for the radius2 server.

```
[edit]
user@pe1# set access radius servers radius2 address 200.6.102.2
user@pe1# set access radius servers radius2 secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radius2 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius2 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius2 revert-interval 100
user@pe1# set access radius servers radius2 source-interface lo0.0 ipv4-address
200.6.88.1
```

4. Configure the settings for the radius3 server.

```
[edit]
user@pe1# set access radius servers radius3 address 200.6.103.2
user@pe1# set access radius servers radius3 secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radius3 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius3 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius3 revert-interval 100
user@pe1# set access radius servers radius3 source-interface lo0.0 ipv4-address
200.6.88.1
```

5. Configure the settings for the radius4 server.

```
[edit]
user@pe1# set access radius servers radius4 address 200.6.104.2
user@pe1# set access radius servers radius4 secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radius4 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius4 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius4 revert-interval 100
user@pe1# set access radius servers radius4 source-interface lo0.0 ipv4-address
200.6.88.1
```

6. Configure the settings for the radius5 server.

```
[edit]
user@pe1# set access radius servers radius5 address 200.6.105.2
user@pe1# set access radius servers radius5 secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radius5 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius5 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius5 revert-interval 100
user@pe1# set access radius servers radius5 source-interface lo0.0 ipv4-address
200.6.88.1
```

7. Configure the settings for the radius6 server.

```
[edit]
user@pe1# set access radius servers radius6 address 200.6.106.2
user@pe1# set access radius servers radius6 secret "$9$BWYErVx7VY2axNs4oJkq"
```

```

user@pe1# set access radius servers radius6 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius6 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius6 revert-interval 100
user@pe1# set access radius servers radius6 source-interface lo0.0 ipv4-address
200.6.88.1

```

8. Configure the settings for the radius7 server.

```

[edit]
user@pe1# set access radius servers radius7 address 200.6.107.2
user@pe1# set access radius servers radius7 secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radius7 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius7 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius7 revert-interval 100
user@pe1# set access radius servers radius7 source-interface lo0.0 ipv4-address
200.6.88.1

```

9. Configure the settings for the radius8 server.

```

[edit]
user@pe1# set access radius servers radius8 address 200.6.108.2
user@pe1# set access radius servers radius8 secret "$9$BWYErVx7VY2axNs4oJkq"
user@pe1# set access radius servers radius8 accounting-secret
"$9$rpEvX-Y2aUDkYgGiHqzF"
user@pe1# set access radius servers radius8 dead-criteria retries 10 interval 10
user@pe1# set access radius servers radius8 revert-interval 100
user@pe1# set access radius servers radius8 source-interface lo0.0 ipv4-address
200.6.88.1

```

### Configuring the Loopback Interface

**CLI Quick Configuration** To quickly configure this example, copy the following commands and paste them into the router terminal window:

```

[edit]
set interfaces lo0 unit 0 family inet address 200.6.80.1/32
set interfaces lo0 unit 0 family inet address 200.6.88.1/32

```

**Step-by-Step Procedure** 1. Configure a loopback address for the dynamic request server. The dynamic request server uses this as the destination address for CoA requests and Disconnect requests.

```

[edit]
user@pe1# set interfaces lo0 unit 0 family inet address 200.6.80.1/32

```

2. Configure a loopback address for the other RADIUS servers.

```

[edit]
user@pe1# set interfaces lo0 unit 0 family inet address 200.6.88.1/32

```

### Configuring the Network Elements

**CLI Quick Configuration** To quickly configure this example, copy the following commands and paste them into the router terminal window:

```

[edit]

```

```
set access radius network-elements ne1 server radius1 priority 1
set access radius network-elements ne1 server radius2 priority 1
set access radius network-elements ne1 server radius3 priority 2
set access radius network-elements ne1 algorithm direct
set access radius network-elements ne1 maximum-pending-reqs-limit 2048
```

```
set access radius network-elements ne2 server radius4 priority 1
set access radius network-elements ne2 server radius5 priority 1
set access radius network-elements ne2 algorithm round-robin
```

```
set access radius network-elements ne3 server radius6 priority 1
set access radius network-elements ne3 server radius7 priority 1
set access radius network-elements ne3 server radius8 priority 2
set access radius network-elements ne3 algorithm round-robin
```

**Step-by-Step  
Procedure**

To configure the network elements:

1. Configure the settings for network element ne1. Add RADIUS servers radius1, radius2, and radius3, set the load-balancing algorithm to direct, and set the maximum pending requests limit to 2048.

[edit]

```
user@pe1# set access radius network-elements ne1 server radius1 priority 1
user@pe1# set access radius network-elements ne1 server radius2 priority 1
user@pe1# set access radius network-elements ne1 server radius3 priority 2
user@pe1# set access radius network-elements ne1 algorithm direct
user@pe1# set access radius network-elements ne1 maximum-pending-reqs-limit
2048
```

2. Configure the settings for network element ne2. Add RADIUS servers radius4 and radius5, and set the load-balancing algorithm to round-robin.

[edit]

```
user@pe1# set access radius network-elements ne2 server radius4 priority 1
user@pe1# set access radius network-elements ne2 server radius5 priority 1
user@pe1# set access radius network-elements ne2 algorithm round-robin
```

3. Configure the settings for network element ne3. Add RADIUS servers radius6, radius7, and radius8, and set the load-balancing algorithm to round-robin.

[edit]

```
user@pe1# set access radius network-elements ne3 server radius6 priority 1
user@pe1# set access radius network-elements ne3 server radius7 priority 1
user@pe1# set access radius network-elements ne3 server radius8 priority 2
user@pe1# set access radius network-elements ne3 algorithm round-robin
```

---

**Configuring the Network Element Group****CLI Quick  
Configuration**

To quickly configure this example, copy the following commands and paste them into the router terminal window:

[edit]

```
set access radius network-element-group ne-grp1 network-element ne2 mandatory
set access radius network-element-group ne-grp1 network-element ne3
set access radius network-element-group ne-grp1 broadcast
```

- Step-by-Step Procedure** To configure the network element group:
1. Add network elements ne2 and ne3 to network element group ne-grp1, and indicate that a response from ne2 is mandatory in order to provide services to the mobile subscriber.
 

```
[edit]
user@pe1# set access radius network-element-group ne-grp1 network-element ne2
mandatory
user@pe1# set access radius network-element-group ne-grp1 network-element ne3
```
  2. Configure accounting messages to be broadcast to all of the network elements in the group.
 

```
[edit]
user@pe1# set access radius network-element-group ne-grp1 broadcast
```

### Configuring the AAA Profile

- CLI Quick Configuration** To quickly configure this example, copy the following commands and paste them into the router terminal window:
- ```
[edit]
set unified-edge aaa mobile-profiles aaa-prof radius authentication network-element ne1
set unified-edge aaa mobile-profiles aaa-prof radius accounting network-element-group
ne-grp1
set unified-edge aaa mobile-profiles aaa-prof radius accounting trigger interim-interval
10
set unified-edge aaa mobile-profiles aaa-prof radius accounting trigger no-qos-change
set unified-edge aaa mobile-profiles aaa-prof radius options nas-identifier-prefix imagio
set unified-edge aaa mobile-profiles aaa-prof radius options nas-port-type wireless
set unified-edge aaa mobile-profiles aaa-prof radius options nas-ip-address 200.6.80.1
set unified-edge aaa mobile-profiles aaa-prof radius attributes exclude called-station-id
access-request
set unified-edge aaa mobile-profiles aaa-prof radius attributes exclude event-time-stamp
accounting-start
set unified-edge aaa mobile-profiles aaa-prof radius attributes ignore framed-ip-netmask
```

- Step-by-Step Procedure** To configure the AAA profile:
1. Indicate that network element ne1 is to be used for authentication.
 

```
[edit]
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius authentication
network-element ne1
```
  2. Indicate that network element group ne-grp1 is to be used for accounting.
 

```
[edit]
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius accounting
network-element-group ne-grp1
```
  3. Configure the broadband gateway to send accounting Interim-Update messages every 10 minutes.
 

```
[edit]
```

```
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius accounting trigger  
interim-interval 10
```

4. Configure the broadband gateway so that it does not trigger an accounting Interim-Update message if the QoS profile applied to the PDP context/EPS bearer changes.

```
[edit]  
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius accounting trigger  
no-qos-change
```

5. Configure the broadband gateway to set the NAS-Identifier attribute in RADIUS messages to the string *imago*, prefixed to the ID of the services PIC handling NAS functions for the mobile subscriber.

```
[edit]  
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius options  
nas-identifier-prefix imago
```

6. Configure the broadband gateway to set the NAS-Port-Type attribute in RADIUS messages to *wireless*.

```
[edit]  
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius options  
nas-port-type wireless
```

7. Configure the broadband gateway to use 200.6.80.1 as the value for the NAS-IP-Address attribute in RADIUS requests. (This causes the CoA requests and Disconnect requests sent from the dynamic request server to have a source address of 50.50.50.110 and a destination address of 200.6.80.1.)

```
[edit]  
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius options  
nas-ip-address 200.6.80.1
```

8. Configure the broadband gateway to exclude the Called-Station-Id attribute from RADIUS Access-Request messages.

```
[edit]  
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius attributes exclude  
called-station-id access-request
```

9. Configure the broadband gateway to exclude the Event-Timestamp attribute from RADIUS Accounting Start messages.

```
[edit]  
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius attributes exclude  
event-time-stamp accounting-start
```

10. Configure the broadband gateway to ignore the Framed-Ip-Netmask attribute in Access-Accept messages it receives from the RADIUS server.

```
[edit]  
user@pe1# set unified-edge aaa mobile-profiles aaa-prof radius attributes ignore  
framed-ip-netmask
```



### Applying AAA Services to an APN

#### CLI Quick Configuration

To quickly configure this example, copy the following commands and paste them into the router terminal window:

```
[edit]
set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123 apn-data-type
  ipv4
set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123 mobile-interface
  mif.0
set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123 aaa-profile
  aaa-prof
set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123
  address-assignment aaa
set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123 user-options
  user-name aaa
set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123 user-options
  password "Password123"
```

#### Step-by-Step Procedure

To configure AAA services for the APN:

1. If not set already, set the data type and mobile interface for APN internet123.

```
[edit]
user@pe1# set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123
  apn-data-type ipv4
user@pe1# set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123
  mobile-interface mif.0
```

2. Configure the APN to use the settings in the *aaa-prof* AAA profile.

```
[edit]
user@pe1# set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123
  aaa-profile aaa-prof
```

3. Configure the broadband gateway to use the AAA server for IP address assignment. IP addresses are assigned to mobile subscribers using information returned in RADIUS Access-Accept messages.

```
[edit]
user@pe1# set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123
  address-assignment aaa
```

4. Configure the broadband gateway to authenticate a mobile subscriber using the username "aaa" and the password "Password123" if username and password information cannot be determined from the Protocol Configuration Options (PCO) received in the Create PDP Context Request or Create Session Request message.

```
[edit]
user@pe1# set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123
  user-options user-name aaa
user@pe1# set unified-edge gateways ggsn-pgw MBG1 apn-services apns internet123
  user-options password "Password123"
```

## Verification

### Verifying Authentication

---

**Purpose** Verify that authentication functions are working on the broadband gateway and for the individual RADIUS servers.

**Action** To show authentication statistics for the broadband gateway:

```
user@host> show unified-edge ggsn-pgw aaa statistics authentication
Authentication module statistics
  Requests: 3
  Accepts: 3
  Rejects: 0
  Challenges: 0
  Requests timed out: 0
  Transmit errors: 0
  Response errors: 0
  Pending requests: 0
```

To show authentication statistics for an individual RADIUS server:

```
user@host> show unified-edge ggsn-pgw aaa radius statistics authentication detail name radius1
RADIUS server: radius1 (FPC/PIC: 1/0)
  Address: 200.6.101.2 Port: 1812
  Routing-instance: default
  State: Active Duration: 00:28:01
  Prev duration: 00:00:00 Flaps: 0
  Access requests: 0
  Access req retransmissions: 0
  Access accepts: 0
  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): 0 (Min: 0 Max: 0 Avg: 0)
  Time since counters were last cleared: 00:00:00
```

### Verifying Accounting

---

**Purpose** Verify that accounting functions are working on the broadband gateway and for the individual RADIUS servers.

**Action** To show accounting statistics for the broadband gateway:

```
user@host> show unified-edge ggsn-pgw aaa statistics accounting
Accounting module statistics
Requests: 12
Responses success: 12
Requests timed out: 0
Transmit errors: 0
Response errors: 0
Pending requests: 0
```

To show accounting statistics for an individual RADIUS server:

```
user@host> show unified-edge ggsn-pgw aaa radius statistics accounting detail name radius1
RADIUS server: radius1 (FPC/PIC: 1/0)
Address: 200.6.101.2 Port: 1813
Routing-instance: default
State: Active Duration: 00:28:21
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
```

---

### Verifying Dynamic Requests

**Purpose** Verify that dynamic request functions are working on the broadband gateway and for the dynamic request server.

**Action** To show dynamic request statistics for the broadband gateway:

```
user@host> show unified-edge ggsn-pgw aaa statistics dynamic-requests
Dynamic Requests module statistics
Requests received: 8
CoA Requests received: 8
Dm Requests received: 0
CoA Acks sent: 7
CoA Nacks sent: 1
Dm Acks sent: 0
Dm Nacks sent: 0
Dropped: 0
```

To show dynamic request statistics for the dynamic request server radiusDR:

```
user@host> show unified-edge ggsn-pgw aaa radius statistics dynamic-requests detail name
radiusDR
RADIUS client: radiusDR (FPC/PIC: 3/0)
Address: 50.50.50.110
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
Dispatched: 0
Timeouts: 0
Sent to SMD: 0
Invalid RADIUS codes: 0
Errors during processing: 0
Invalid RADIUS authenticators: 0
Invalid or missing Charging Ids: 0
RCM errors: 0
Time since counters were last cleared: 00:00:00
```

---

### Verifying Network Element Status

**Purpose** Verify that the RADIUS servers in the network elements are active.

**Action**

```
user@host> show unified-edge ggsn-pgw aaa network-element status name ne1
Network-element: ne1
Server: radius1, Priority: 1, State: Active
Server: radius2, Priority: 1, State: Active
Server: radius3, Priority: 2, State: Active
```

---

### Verifying Address Assignment

**Purpose** Verify that address assignment by the AAA server is working properly.

**Action**    user@host> show unified-edge ggsn-pgw address-assignment statistics  
Address assignment statistics  
Total address allocations: 0  
Total allocation failures: 0  
Total address releases: 0

- Related Documentation**
- [Overview of AAA on the Broadband Gateway on page 3](#)
  - [Configuring AAA on the Broadband Gateway on page 39](#)
  - *Configuring APNs on the MobileNext Broadband Gateway Overview*
  - *Configuring User Options on a Broadband Gateway APN*
  - *Configuring Address Assignment on a Broadband Gateway APN*



## CHAPTER 9

# Configuration Statements

- [\[edit unified-edge aaa\] Hierarchy Level on page 75](#)
- [\[edit access\] Hierarchy Level on page 77](#)
- [\[edit unified-edge gateways\] Hierarchy Level on page 78](#)

### [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];
    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](#)
  - [Notational Conventions Used in Junos OS Configuration Hierarchies](#)

## [edit access] Hierarchy Level

```

access {
  radius {
    traceoptions {
      file radius;
      flag send-detail;
      flag rcv-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](#)

## [\[edit unified-edge gateways\] 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](#)
- [\[edit unified-edge gateways sgw <gateway-name>\] Hierarchy Level](#)

### **Related Documentation**

- [\[edit unified-edge\] Hierarchy Level](#)
- [Notational Conventions Used in Junos OS Configuration Hierarchies](#)

## 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];
            }
        }
    }
}
```

```

        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 on page 3](#)

## accounting

**Syntax**

```

accounting {
  network-element name;
  network-element-group group-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 on page 3](#)
- [radius on page 97](#)

## accounting-port

---

|                                 |                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>accounting-port <i>port-number</i>;</code>                                                                                                                   |
| <b>Hierarchy Level</b>          | [edit access profile <i>profile-name</i> radius-server <i>server-address</i> ],<br>[edit access radius-server <i>server-address</i> ]                              |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                           |
| <b>Description</b>              | Configure the port number on which to contact the accounting server.                                                                                               |
| <b>Options</b>                  | <i>port-number</i> —Port number on which to contact the accounting server. Most RADIUS servers use port number 1813 (as specified in RFC 2866).                    |
| <b>Required Privilege Level</b> | admin—To view this statement in the configuration.<br>admin-control—To add this statement to the configuration.                                                    |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">servers on page 103</a></li></ul> |

## accounting-secret

---

|                                 |                                                                                                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>accounting-secret <i>password</i>;</code>                                                                                                                                                                                                     |
| <b>Hierarchy Level</b>          | [edit access radius servers <i>server-name</i> ]                                                                                                                                                                                                    |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                            |
| <b>Description</b>              | Specify the <b>secret</b> password to be used when sending accounting requests to the RADIUS server. If the <b>secret</b> password is different from the authentication secret password, specify the <b>accounting secret</b> by using this option. |
| <b>Default</b>                  | Use the same password used for authentication requests.                                                                                                                                                                                             |
| <b>Options</b>                  | <i>password</i> —Password for accounting requests.                                                                                                                                                                                                  |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                                                                                                   |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">servers on page 103</a></li></ul>                                                                                  |

## address

---

|                                 |                                                                                                                                                                       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>address <i>address</i>;</code>                                                                                                                                  |
| <b>Hierarchy Level</b>          | <code>[edit access radius servers <i>server-name</i>]</code>                                                                                                          |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                              |
| <b>Description</b>              | Configure the IPv4 address of the RADIUS server to which the authentication and accounting requests are sent.                                                         |
| <b>Options</b>                  | <i>address</i> —IPv4 address of the RADIUS server.                                                                                                                    |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                     |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">servers on page 103</a></li> </ul> |

## algorithm

---

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>algorithm (<i>direct</i>   <i>round-robin</i>);</code>                                                                                                                                                                                                                                                                                                                                    |
| <b>Hierarchy Level</b>          | <code>[edit access radius network-elements <i>name</i>]</code>                                                                                                                                                                                                                                                                                                                                  |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                        |
| <b>Description</b>              | Specify an algorithm to decide which RADIUS server is used for the next request.                                                                                                                                                                                                                                                                                                                |
| <b>Options</b>                  | <p><i>direct</i>—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.</p> <p><i>round-robin</i>—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.</p> |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                                                                                                                                                                                                                                               |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">network-elements on page 95</a></li> </ul>                                                                                                                                                                                                                   |

## allow-dynamic-requests

---

|                            |                                                                         |
|----------------------------|-------------------------------------------------------------------------|
| <b>Syntax</b>              | allow-dynamic-requests;                                                 |
| <b>Hierarchy Level</b>     | [edit access radius servers <i>server-name</i> ]                        |
| <b>Release Information</b> | Statement introduced in Junos OS Mobility Release 11.2W.                |
| <b>Description</b>         | 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.

.....

|                                 |                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                  |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">servers on page 103</a></li></ul> |



## 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.

**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 on page 3](#)
- [radius on page 97](#)

---

## 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 on page 3](#)
- [radius on page 97](#)

---

## 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 on page 3](#)
- [servers on page 103](#)

## dead-criteria-retries

---

|                                 |                                                                                                                                                                                                |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>dead-criteria retries <i>retry-number</i> interval <i>seconds</i>;</code>                                                                                                                |
| <b>Hierarchy Level</b>          | <code>[edit access radius servers <i>server-name</i>]</code>                                                                                                                                   |
| <b>Release Information</b>      | Statement introduced in Junos OS Release 11.2.                                                                                                                                                 |
| <b>Description</b>              | Specify the criteria used to mark a RADIUS server dead. If the number of retries exceeds the <i>retry-number</i> within an interval of <i>seconds</i> , then the RADIUS server is marked dead. |
| <b>Default</b>                  | If this attribute value is not specified, then the dead server detection option is disabled.                                                                                                   |
| <b>Options</b>                  | <i>retry-number</i> —Number of retries with set values.<br><i>seconds</i> —Time interval in seconds.                                                                                           |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                                              |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">servers on page 103</a></li> </ul>                          |

## dynamic-requests-secret

---

|                                 |                                                                                                                                                                       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>dynamic-requests-secret <i>password</i>;</code>                                                                                                                 |
| <b>Hierarchy Level</b>          | <code>[edit access radius servers <i>server-name</i>]</code>                                                                                                          |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                              |
| <b>Description</b>              | Specify the secret password used for dynamic requests. The secret password has to be specified to receive dynamic requests from the RADIUS server.                    |
| <b>Default</b>                  | Use the same password that is used for authentication requests.                                                                                                       |
| <b>Options</b>                  | <i>password</i> —Password for dynamic requests.                                                                                                                       |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                     |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">servers on page 103</a></li> </ul> |

## 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 on page 3](#)
- [attributes on page 85](#)

## ignore

---

|                          |                                                                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Syntax                   | <pre>ignore {<br/>    output-filter;<br/>    framed-ip-netmask;<br/>    input-filter;<br/>}</pre>                                                                                                                                                  |
| Hierarchy Level          | [edit unified-edge aaa mobile-profiles <i>map-name</i> 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                  | <p><i>output-filter</i>—Ignore this attribute in the Access-Accept message.</p> <p><i>framed-ip-netmask</i>—Ignore this attribute in the Access-Accept message.</p> <p><i>input-filter</i>—Ignore this attribute in the Access-Accept message.</p> |
| Required Privilege Level | <p>unified-edge—To view this statement in the configuration.</p> <p>unified-edge-control—To add this statement to the configuration.</p>                                                                                                           |
| Related Documentation    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">attributes on page 85</a></li></ul>                                                                               |

## maximum-pending-reqs-limit

---

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Syntax                   | <pre>maximum-pending-reqs-limit <i>number</i>;</pre>                                                                                                                                                                                                                                                                                                                                                                    |
| Hierarchy Level          | [edit access radius network-elements <i>name</i> ]                                                                                                                                                                                                                                                                                                                                                                      |
| 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 <b>flow control on</b> message is generated. When the number of pending requests subsequently drops to 60 percent of the maximum, a <b>flow control off</b> message is generated. |
| Options                  | <i>number</i> —Maximum number of pending requests.                                                                                                                                                                                                                                                                                                                                                                      |
| Required Privilege Level | <p>access—To view this statement in the configuration.</p> <p>access-control—To add this statement to the configuration.</p>                                                                                                                                                                                                                                                                                            |
| Related Documentation    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">network-elements on page 95</a></li></ul>                                                                                                                                                                                                                                              |

## 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];
                }
            }
        }
    }

```

```

        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 on page 3](#)
- [aaa on page 79](#)



## network-element

---

|                                 |                                                                                                                                                                                                        |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>network-element <i>name</i>;</code>                                                                                                                                                              |
| <b>Hierarchy Level</b>          | [edit unified-edge aaa mobile-profiles <i>map-name</i> radius accounting]                                                                                                                              |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                               |
| <b>Description</b>              | 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. |
| <b>Options</b>                  | <i>name</i> —Name of the network element.                                                                                                                                                              |
| <b>Required Privilege Level</b> | unified-edge—To view this statement in the configuration.<br>unified-edge-control—To add this statement to the configuration.                                                                          |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">accounting on page 81</a></li> </ul>                                |

## network-element-group

---

|                                 |                                                                                                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>network-element-group <i>group-name</i>;</code>                                                                                                                                                                                               |
| <b>Hierarchy Level</b>          | [edit unified-edge aaa mobile-profiles <i>map-name</i> radius accounting]                                                                                                                                                                           |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                            |
| <b>Description</b>              | 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. |
| <b>Options</b>                  | <i>group-name</i> —Name of the network element group.                                                                                                                                                                                               |
| <b>Required Privilege Level</b> | unified-edge—To view this statement in the configuration.<br>unified-edge-control—To add this statement to the configuration.                                                                                                                       |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">accounting on page 81</a></li> </ul>                                                                             |

## network-element-groups

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|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>network-element-groups <i>name</i> {<br/>    network-element <i>name</i> {<br/>        mandatory;<br/>    }<br/>    broadcast;<br/>}</pre>                                                                                                                                                                                                                                                                                                                                       |
| <b>Hierarchy Level</b>          | [edit access radius]                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Description</b>              | 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.                                                            |
| <b>Options</b>                  | <p><b><i>mandatory</i></b>—Indicates that a response is mandatory from a specified network element before any services can be provided to the subscriber.</p> <p><b><i>broadcast</i></b>—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.</p> <p><b><i>name</i></b>—Name of the network element group.</p> |
| <b>Required Privilege Level</b> | <p>access—To view this statement in the configuration.</p> <p>access-control—To add this statement to the configuration.</p>                                                                                                                                                                                                                                                                                                                                                          |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">radius on page 99</a></li></ul>                                                                                                                                                                                                                                                                                                                      |

## network-elements

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|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre> network-elements <i>name</i> {     server <i>name</i> {         priority <i>priority</i>;     }     algorithm ( <i>direct</i>   <i>round-robin</i> );     maximum-pending-reqs-limit <i>number</i>; } </pre>                                                                                                                                                                                                                         |
| <b>Hierarchy Level</b>          | [edit access radius]                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Description</b>              | 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). |
| <b>Options</b>                  | <p><b><i>name</i></b>—Name of the network element.</p> <p><b><i>priority</i></b>—Relative priority for the first server.</p>                                                                                                                                                                                                                                                                                                               |
| <b>Required Privilege Level</b> | <p><b>access</b>—To view this statement in the configuration.</p> <p><b>access-control</b>—To add this statement to the configuration.</p>                                                                                                                                                                                                                                                                                                 |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">radius on page 99</a></li> </ul>                                                                                                                                                                                                                                                                        |

## options

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|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>options {<br/>  nas-identifier-prefix <i>identifier-value</i><br/>  nas-ip-address <i>gw-address</i>;<br/>  nas-port-type <i>type</i>;<br/>}</pre>                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Hierarchy Level</b>          | [edit unified-edge aaa mobile-profiles <i>map-name</i> radius]                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Description</b>              | Specify the attributes that are included as part of different request messages sent to the RADIUS server.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Options</b>                  | <p><b>nas-identifier-prefix <i>identifier-value</i></b>—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.</p> <p><b>nas-ip-address <i>gw-address</i></b>—The IP address to be used for the NAS IP address attribute when sending the requests to the RADIUS server.</p> <p><b>nas-port-type <i>type</i></b>—The NAS port type (wireless or virtual) that is used in RADIUS requests.</p> |
| <b>Required Privilege Level</b> | <p>unified-edge—To view this statement in the configuration.</p> <p>unified-edge-control—To add this statement to the configuration.</p>                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">radius on page 97</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                     |

## radius

```
Syntax  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];
            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 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 on page 3](#)
- [aaa on page 79](#)

## 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

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 on page 3](#)

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## 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 on page 3](#)
- [servers on page 103](#)



## revert-interval

---

|                                 |                                                                                                                                                                                                                                             |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>revert-interval <i>time</i>;</code>                                                                                                                                                                                                   |
| <b>Hierarchy Level</b>          | <code>[edit access radius servers <i>server-name</i>]</code>                                                                                                                                                                                |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                    |
| <b>Description</b>              | 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. |
| <b>Options</b>                  | <i>time</i> —Duration after which a dead server is marked active.<br><b>Default:</b> 300 seconds                                                                                                                                            |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                                                                                           |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">servers on page 103</a></li> </ul>                                                                       |

## secret

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|                                 |                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>secret <i>password</i>;</code>                                                                                   |
| <b>Hierarchy Level</b>          | <code>[edit access radius servers <i>server-name</i>]</code>                                                           |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                               |
| <b>Description</b>              | Specify a default password to be used for authentication or accounting. This is a mandatory statement.                 |
| <b>Options</b>                  | <i>password</i> —Password to use.                                                                                      |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.      |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> </ul> |

## send-accounting-on

---

|                                 |                                                                                                                                                                                                                                |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | send-accounting-on;                                                                                                                                                                                                            |
| <b>Hierarchy Level</b>          | [edit unified-edge aaa mobile-profiles <i>map-name</i> radius accounting]                                                                                                                                                      |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                       |
| <b>Description</b>              | 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. |
| <b>Required Privilege Level</b> | unified-edge—To view this statement in the configuration.<br>unified-edge-control—To add this statement to the configuration.                                                                                                  |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">accounting on page 81</a></li></ul>                                                           |

## 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 on page 3](#)
- [radius on page 99](#)

## source-interface

---

|                                 |                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>source-interface <i>interface</i> [ipv4-address <i>address</i>];</code>                                                                                      |
| <b>Hierarchy Level</b>          | <code>[edit access radius servers <i>server-name</i>]</code>                                                                                                       |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                           |
| <b>Description</b>              | Specify the source interface on the gateway from which the RADIUS requests are sent to the RADIUS server. This is a mandatory statement.                           |
| <b>Options</b>                  | <b><i>interface</i></b> —Source interface that sends the RADIUS packets.<br><b><i>address</i></b> —IPv4 address of the RADIUS server.                              |
| <b>Required Privilege Level</b> | <b>access</b> —To view this statement in the configuration.<br><b>access-control</b> —To add this statement to the configuration.                                  |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">servers on page 103</a></li></ul> |

## stop-on-access-deny

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|                                 |                                                                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>stop-on-access-deny;</code>                                                                                                                                    |
| <b>Hierarchy Level</b>          | <code>[edit unified-edge aaa mobile-profiles <i>map-name</i> radius accounting]</code>                                                                               |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                             |
| <b>Description</b>              | Configure the gateway to send an accounting stop message when authentication fails for a user.                                                                       |
| <b>Required Privilege Level</b> | <b>unified-edge</b> —To view this statement in the configuration.<br><b>unified-edge-control</b> —To add this statement to the configuration.                        |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">accounting on page 81</a></li></ul> |

## stop-on-failure

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|                                 |                                                                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | stop-on-failure;                                                                                                                                                        |
| <b>Hierarchy Level</b>          | [edit unified-edge aaa mobile-profiles <i>map-name</i> radius accounting]                                                                                               |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                |
| <b>Description</b>              | Configure the gateway to send an accounting stop message when the gateway fails to bring up the user equipment session.                                                 |
| <b>Required Privilege Level</b> | unified-edge—To view this statement in the configuration.<br>unified-edge-control—To add this statement to the configuration.                                           |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">accounting on page 81</a></li> </ul> |

## timeout

---

|                                 |                                                                                                                                                                       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | timeout <i>seconds</i> ;                                                                                                                                              |
| <b>Hierarchy Level</b>          | [edit access radius servers <i>server-name</i> ]                                                                                                                      |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                              |
| <b>Description</b>              | Configure the amount of time that the gateway waits to receive a response from a RADIUS server before retrying the request.                                           |
| <b>Options</b>                  | <i>seconds</i> —Amount of time to wait.<br><b>Range:</b> 1 through 90 seconds<br><b>Default:</b> 3 seconds                                                            |
| <b>Required Privilege Level</b> | access—To view this statement in the configuration.<br>access-control—To add this statement to the configuration.                                                     |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">servers on page 103</a></li> </ul> |

## traceoptions (RADIUS)

---

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>traceoptions {<br/>  file radius;<br/>  flag send-detail;<br/>  flag rcv-detail;<br/>  flag timeout;<br/>  flag state;<br/>  level all;<br/>  server {<br/>    server <i>name</i>;<br/>  }<br/>}</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Hierarchy Level</b>          | [edit access radius]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Description</b>              | Trace options related to RADIUS servers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Options</b>                  | <p><b>file radius</b>— 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.</p> <p><b>flag send-detail</b>—All the attributes that are included in the RADIUS requests are logged to the specified file.</p> <p><b>flag rcv-detail</b>—All the attributes that are included in the RADIUS response are logged to the file.</p> <p><b>flag timeout</b>—Set this flag to log events related to response timeouts.</p> <p><b>flag state</b>—Set this flag to trace the RADIUS server state changes.</p> <p><b>level all</b>—Various levels of information that can be logged, for example—debug, info, warning, and critical.</p> <p><b>server</b>—Server to be traced.</p> |
| <b>Required Privilege Level</b> | <p>access—To view this statement in the configuration.</p> <p>access-control—To add this statement to the configuration.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li><li>• <a href="#">radius (Access) on page 99</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## traceoptions

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre> traceoptions {     file <i>filename</i>;     level all;     flag ( init   config   general   request   response   high-availability   all ); } </pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Hierarchy Level</b>          | [edit unified-edge aaa]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Release Information</b>      | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Description</b>              | Define tracing operations for the AAA configuration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Options</b>                  | <p><b>file <i>filename</i></b>—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.</p> <p><b>level all</b>—Various levels of information that can be logged, for example, debug, info, warning, and critical.</p> <p><b>flag init</b>—Trace initialization-related events.</p> <p><b>flag config</b>—Trace config-related events.</p> <p><b>flag general</b>—Trace general events.</p> <p><b>flag request</b>—Trace request-related events.</p> <p><b>flag response</b>—Trace response-related events.</p> <p><b>flag high-availability</b>—Trace high-availability-related events.</p> <p><b>flag all</b>—Trace all the flag-related events.</p> |
| <b>Required Privilege Level</b> | <p>trace and unified-edge—To view this statement in the configuration.</p> <p>trace-control and unified-edge-control—To add this statement to the configuration.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">Overview of AAA on the Broadband Gateway on page 3</a></li> <li>• <a href="#">aaa on page 79</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## trigger

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>              | <pre>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; }</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Hierarchy Level</b>     | [edit unified-edge aaa mobile-profiles <i>map-name</i> radius accounting]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Release Information</b> | Statement introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Description</b>         | <p>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.</p> <p>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 <b>trigger</b> statement. If you want to have the gateway send periodic interim accounting records, configure <b>interim-interval</b> 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 <b>interim-interval</b> statement.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Options</b>             | <p><b>interim-interval <i>minutes</i></b>—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.</p> <p><b>no-cos-change</b>—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.</p> <p><b>no-deferred-ipv4-address-update</b>—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.</p> <p><b>no-ms-timezone-change</b>—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.</p> <p><b>no-plmn-change</b>—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.</p> <p><b>no-rat-change</b>—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.</p> |



**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 on page 3](#)
- [accounting on page 81](#)

## 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*
- *Configuring General APN Parameters on the Broadband Gateway*



## PART 3

# Administration

- [Monitoring on page 113](#)
- [Operational Commands on page 115](#)



## CHAPTER 10

# Monitoring

- [Verifying Authentication on page 113](#)
- [Verifying Accounting on page 114](#)
- [Verifying Network Elements on page 114](#)
- [Verifying Address Assignment on page 114](#)

### Verifying Authentication

---

**Purpose** Display or clear authentication statistics, either globally, for a specified service PIC, or for a specified RADIUS server.

- Action**
- To display global authentication statistics for the Broadband Gateway:  
`user@host> show unified-edge ggsn-pgw aaa statistics authentication`
  - To display authentication statistics for an individual service PIC on the Broadband Gateway:  
`user@host> show unified-edge ggsn-pgw aaa statistics authentication fpc-slot n pic-slot n`
  - To display authentication statistics for an individual RADIUS server:  
`user@host> show unified-edge ggsn-pgw aaa radius statistics authentication detail name radius-server`
  - To clear global authentication statistics for the Broadband Gateway:  
`user@host> clear unified-edge ggsn-pgw aaa statistics authentication`
  - To clear authentication statistics for an individual service PIC on the Broadband Gateway:  
`user@host> clear unified-edge ggsn-pgw aaa statistics authentication fpc-slot n pic-slot n`
  - To clear authentication statistics for an individual RADIUS server:  
`user@host> clear unified-edge ggsn-pgw aaa radius statistics authentication name radius-server`

## Verifying Accounting

---

- Purpose** Display or clear accounting statistics, either globally, for a specified service PIC, or for a specified RADIUS server.
- Action**
- To display global accounting statistics for the Broadband Gateway:  
`user@host> show unified-edge ggsn-pgw aaa statistics accounting`
  - To display accounting statistics for an individual service PIC on the Broadband Gateway:  
`user@host> show unified-edge ggsn-pgw aaa statistics accounting fpc-slot n pic-slot n`
  - To display accounting statistics for an individual RADIUS server:  
`user@host> show unified-edge ggsn-pgw aaa radius statistics accounting detail name radius-server`
  - To clear global accounting statistics for the Broadband Gateway:  
`user@host> clear unified-edge ggsn-pgw aaa statistics accounting`
  - To clear accounting statistics for an individual service PIC on the Broadband Gateway:  
`user@host> clear unified-edge ggsn-pgw aaa statistics accounting fpc-slot n pic-slot n`
  - To clear accounting statistics for an individual RADIUS server:  
`user@host> clear unified-edge ggsn-pgw aaa radius statistics accounting name radius-server`

## Verifying Network Elements

---

- Purpose** Verify that the RADIUS servers in the network elements are active.
- Action**
- To display the priority and status of the RADIUS servers in a network element:  
`user@host> show unified-edge ggsn-pgw aaa network-element status name network-element-name`
  - To display the status of a network element group:  
`user@host> show unified-edge ggsn-pgw aaa network-element-group status name network-element-group-name`

## Verifying Address Assignment

---

- Purpose** Verify that address assignment by the AAA server is working properly.
- Action**
- To display address assignment statistics:  
`user@host> show unified-edge ggsn-pgw address-assignment statistics`

## CHAPTER 11

# Operational Commands

## clear unified-edge ggsn-pgw aaa radius statistics

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | clear unified-edge ggsn-pgw aaa radius statistics (accounting   all   authentication   dynamic-requests)<br><fpc-slot <i>fpc-slot</i> ><br><gateway <i>gateway</i> ><br><name <i>name</i> ><br><pic-slot <i>pic-slot</i> >                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Release Information</b>      | Command introduced in Junos OS Mobility Release 11.2W.<br><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Description</b>              | 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.                                                                                                                                                                                                                                                                                                                                                     |
| <b>Options</b>                  | <p><b>accounting   all   authentication   dynamic-requests</b>—Clear statistics for the specified parameter.</p> <p><b>fpc-slot <i>fpc-slot</i></b>—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).</p> <p><b>gateway <i>gateway</i></b>—(Optional) Clear the statistics for the specified GGSN or P-GW.</p> <p><b>name <i>name</i></b>—(Optional) Clear the statistics for the specified server.</p> <p><b>pic-slot <i>pic-slot</i></b>—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.</p> |
| <b>Required Privilege Level</b> | clear, unified-edge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">show unified-edge ggsn-pgw aaa radius statistics on page 124</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>List of Sample Output</b>    | <a href="#">clear unified-edge ggsn-pgw aaa radius statistics all on page 116</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Output Fields</b>            | 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
```



## clear unified-edge ggsn-pgw aaa statistics

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | clear unified-edge ggsn-pgw aaa statistics (accounting   all   authentication   dynamic-requests)<br><fpc-slot <i>fpc-slot</i> ><br><gateway <i>gateway</i> ><br><pic-slot <i>pic-slot</i> >                                                                                                                                                                                                                                                                                                                                               |
| <b>Release Information</b>      | Command introduced in Junos OS Mobility Release 11.2W.<br><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Description</b>              | 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.                                                                                                                                                                                                                                                                       |
| <b>Options</b>                  | <p><b>accounting   all   authentication   dynamic-requests</b>—Clear statistics for the specified parameter.</p> <p><b>fpc-slot <i>fpc-slot</i></b>—(Optional) Clear the statistics for the specified Flexible PIC Concentrator (FPC).</p> <p><b>gateway <i>gateway</i></b>—(Optional) Clear the statistics for the specified GGSN or P-GW.</p> <p><b>pic-slot <i>pic-slot</i></b>—(Optional) Clear the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.</p> |
| <b>Required Privilege Level</b> | clear, unified-edge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">show unified-edge ggsn-pgw aaa radius statistics on page 124</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>List of Sample Output</b>    | <a href="#">clear unified-edge ggsn-pgw aaa statistics all on page 117</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Output Fields</b>            | 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
```

## clear unified-edge ggsn-pgw address-assignment pool

---

|                                 |                                                                                                                                                                                                                                                                                                             |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <code>clear unified-edge ggsn-pgw address-assignment pool name <i>pool-name</i></code><br><code>&lt;gateway <i>gateway</i>&gt;</code><br><code>&lt;routing-instance <i>routing-instance</i>&gt;</code>                                                                                                      |
| <b>Release Information</b>      | Command introduced in Junos OS Mobility Release 11.2W.<br><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.                                                                                                                                                                              |
| <b>Description</b>              | 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.                                  |
| <b>Options</b>                  | <b>name <i>pool-name</i></b> —Clear the sessions for the specified mobile pool.<br><br><b>gateway <i>gateway</i></b> —(Optional) Clear the sessions on the specified GGSN or P-GW.<br><br><b>routing-instance <i>routing-instance</i></b> —(Optional) Clear the sessions on the specified routing instance. |
| <b>Required Privilege Level</b> | clear, unified-edge                                                                                                                                                                                                                                                                                         |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"><li>• <a href="#">show unified-edge ggsn-pgw address-assignment pool on page 142</a></li></ul>                                                                                                                                                                            |
| <b>List of Sample Output</b>    | <a href="#">clear unified-edge ggsn-pgw address-assignment pool name pool-1 on page 118</a>                                                                                                                                                                                                                 |
| <b>Output Fields</b>            | When you enter this command, you are provided feedback on the status of your request.                                                                                                                                                                                                                       |

### Sample Output

|                                                                                          |                                                                                                                                              |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear unified-edge<br/>ggsn-pgw<br/>address-assignment<br/>pool name pool-1</code> | <code>user@host&gt; clear unified-edge ggsn-pgw address-assignment pool name pool-1</code><br><br>Initiated clearing of sessions in the pool |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|

## clear unified-edge ggsn-pgw address-assignment statistics

|                                 |                                                                                                                                                                                                                                                          |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | clear unified-edge ggsn-pgw address-assignment statistics<br><fpc-slot <i>fpc-slot</i> ><br><gateway <i>gateway</i> ><br><pic-slot <i>pic-slot</i> >                                                                                                     |
| <b>Release Information</b>      | Command introduced in Junos OS Mobility Release 11.2W.<br><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.                                                                                                                           |
| <b>Description</b>              | 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.                  |
| <b>Options</b>                  | <b>fpc-slot <i>fpc-slot</i> pic-slot <i>pic-slot</i></b> —(Optional) Clear the statistics for the services PIC in the specified FPC and PIC slots.<br><br><b>gateway <i>gateway</i></b> —(Optional) Clear the statistics for the specified GGSN or P-GW. |
| <b>Required Privilege Level</b> | clear, unified-edge                                                                                                                                                                                                                                      |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">show unified-edge ggsn-pgw address-assignment statistics on page 148</a></li> </ul>                                                                                                                 |
| <b>List of Sample Output</b>    | <a href="#">clear unified-edge ggsn-pgw address-assignment statistics on page 119</a>                                                                                                                                                                    |
| <b>Output Fields</b>            | When you enter this command, you are provided feedback on the status of your request.                                                                                                                                                                    |

### Sample Output

|                                                                    |                                                                                                                          |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| clear unified-edge<br>ggsn-pgw<br>address-assignment<br>statistics | <pre>user@host&gt; clear unified-edge ggsn-pgw address-assignment statistics Cleared address-assignment statistics</pre> |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|

## show unified-edge ggsn-pgw aaa network-element status

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | show unified-edge ggsn-pgw aaa network-element status<br><fpc-slot <i>fpc-slot</i> ><br><gateway <i>gateway</i> ><br><name <i>name</i> ><br><pic-slot <i>pic-slot</i> >                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Release Information</b>      | Command introduced in Junos OS Mobility Release 11.2W.<br><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Description</b>              | 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.                                                                                                                                                                                                                                                                                                                                |
| <b>Options</b>                  | <p><b>none</b>—Display the network element group status for all the GGSNs or P-GWs.</p> <p><b>fpc-slot <i>fpc-slot</i></b>—(Optional) Display the status for the specified Flexible PIC Concentrator (FPC).</p> <p><b>gateway <i>gateway</i></b>—(Optional) Display the status for the specified GGSN or P-GW.</p> <p><b>name <i>name</i></b>—(Optional) Display the status for the specified network element.</p> <p><b>pic-slot <i>pic-slot</i></b>—(Optional) Display the status for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.</p> |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">show unified-edge ggsn-pgw aaa network-element-group status on page 122</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>List of Sample Output</b>    | <a href="#">show unified-edge ggsn-pgw aaa network-element status on page 121</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Output Fields</b>            | <a href="#">Table 23 on page 120</a> lists the output fields for the <b>show unified-edge ggsn-pgw aaa network-element status</b> command. Output fields are listed in the approximate order in which they appear.                                                                                                                                                                                                                                                                                                                                                                                          |

**Table 23: 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.                                                                                           |

## 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

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>show unified-edge ggsn-pgw aaa network-element-group status &lt;brief   detail&gt; &lt;fpc-slot fpc-slot&gt; &lt;gateway name&gt; &lt;name name&gt; &lt;pic-slot pic-slot&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Release Information</b>      | <p>Command introduced in Junos OS Mobility Release 11.2W.</p> <p><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Description</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Options</b>                  | <p><b>none</b>—(Same as brief) Display the network element group status in brief.</p> <p><b>brief   detail</b>—(Optional) Display the specified level of output.</p> <p><b>fpc-slot fpc-slot</b>—(Optional) Display the status for the specified Flexible PIC Concentrator (FPC).</p> <p><b>gateway name</b>—(Optional) Display the status for the specified GGSN or P-GW.</p> <p><b>name name</b>—(Optional) Display the status for the specified network element group.</p> <p><b>pic-slot pic-slot</b>—(Optional) Display the status for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.</p> |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">show unified-edge ggsn-pgw aaa network-element status on page 120</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>List of Sample Output</b>    | <p><a href="#">show unified-edge ggsn-pgw aaa network-element-group status brief on page 123</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa network-element-group status detail on page 123</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Output Fields</b>            | Table 24 on page 122 lists the output fields for the <b>show unified-edge ggsn-pgw aaa network-element-group status</b> command. Output fields are listed in the approximate order in which they appear.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

Table 24: show unified-edge ggsn-pgw aaa network-element-group status Output Fields

| Field Name                   | Field Description                                                                                                                                                                                                            |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>network element-group</b> | Name of the network element group.                                                                                                                                                                                           |
| <b>Broadcast</b>             | 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. |

Table 24: 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

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>show unified-edge ggsn-pgw aaa radius statistics (authentication   accounting   dynamic-requests) &lt;brief   detail   summary&gt; &lt;fpc-slot <i>fpc-slot</i>&gt; &lt;gateway <i>gateway</i>&gt; &lt;name <i>name</i>&gt; &lt;pic-slot <i>pic-slot</i>&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Release Information</b>      | <p>Command introduced in Junos OS Mobility Release 11.2W.</p> <p><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Description</b>              | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Options</b>                  | <p><b>authentication   accounting   dynamic-requests</b>—Display the statistics for the specified parameter.</p> <p><b>brief   detail   summary</b>—(Optional) Display the specified level of output.</p> <p><b>fpc-slot <i>fpc-slot</i></b>—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).</p> <p><b>gateway <i>gateway</i></b>—(Optional) Display the statistics for the specified GGSN or P-GW.</p> <p><b>name <i>name</i></b>—(Optional) Display the statistics for the specified RADIUS server.</p> <p><b>pic-slot <i>pic-slot</i></b>—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.</p>                                                                                                                                                                                                                                         |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">clear unified-edge ggsn-pgw aaa radius statistics on page 116</a></li> <li>• <a href="#">show unified-edge ggsn-pgw aaa statistics on page 133</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>List of Sample Output</b>    | <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics accounting brief on page 128</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics accounting detail on page 128</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics accounting summary on page 129</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics authentication brief on page 129</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics authentication detail on page 130</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics authentication summary on page 130</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics dynamic-requests brief on page 131</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics dynamic-requests detail on page 131</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa radius statistics dynamic-requests summary on page 132</a></p> |



**Output Fields** Table 25 on page 125 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 25: 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.

|                                           |                                                                                          |                   |
|-------------------------------------------|------------------------------------------------------------------------------------------|-------------------|
| <b>RADIUS server</b>                      | Name of the RADIUS server.                                                               | All levels        |
| <b>Address</b>                            | IP address of the RADIUS server.                                                         | All levels        |
| <b>Port</b>                               | Port number of the RADIUS server.                                                        | All levels        |
| <b>FPC/PIC</b>                            | FPC and PIC slot numbers for which the statistics are displayed.                         | <b>All levels</b> |
| <b>Routing-instance</b>                   | Routing instance under which the RADIUS server is configured.                            | <b>detail</b>     |
| <b>State</b>                              | State of the RADIUS server, that is, whether the server is active or inactive (dead).    | All levels        |
| <b>Duration</b>                           | Duration, in HH:MM:SS format, for which the RADIUS server has been in the current state. | All levels        |
| <b>Previous duration or Prev duration</b> | Duration, in HH:MM:SS format, for which the RADIUS server was in the previous state.     | All levels        |
| <b>Flaps</b>                              | 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.

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Requests</b>                          | Number of accounting requests sent to the RADIUS server from the FPC slot and PIC slot.                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>brief<br/>summary</b> |
| <b>Accounting Requests</b>               | 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: <ul style="list-style-type: none"> <li>• <b>Start</b>—Number of Accounting Start requests sent.</li> <li>• <b>Stop</b>—Number of Accounting Stop requests sent.</li> <li>• <b>Interim</b>—Number of Accounting Interim-Update requests sent.</li> <li>• <b>On</b>—Number of Accounting On requests sent.</li> <li>• <b>Off</b>—Number of Accounting Off requests sent.</li> </ul> | <b>detail</b>            |
| <b>Accounting req retransmissions</b>    | Number of accounting requests retransmitted to the RADIUS server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>detail</b>            |
| <b>Responses or Accounting Responses</b> | Number of accounting responses received from the RADIUS server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | All levels               |

Table 25: show unified-edge ggsn-pgw aaa radius statistics Output Fields (*continued*)

| Field Name                                                                                                       | Field Description                                                                                                                 | Level of Output          |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Malformed responses</b>                                                                                       | Number of malformed accounting responses received from the RADIUS server.                                                         | <b>detail</b>            |
| <b>Bad authenticators</b>                                                                                        | Number of responses received from the RADIUS server with bad authenticators.                                                      | <b>detail</b>            |
| <b>Pending requests</b>                                                                                          | Number of accounting requests waiting for responses from the RADIUS server.                                                       | <b>detail</b>            |
| <b>Timeouts</b>                                                                                                  | Number of accounting requests to the RADIUS server that timed out.                                                                | <b>detail</b>            |
| <b>Unknown types</b>                                                                                             | Number of unknown type responses (that the gateway does not recognize) received from the RADIUS server.                           | <b>detail</b>            |
| <b>Packets dropped</b>                                                                                           | Number of packets dropped.                                                                                                        | <b>detail</b>            |
| <b>Round trip time (ms)</b>                                                                                      | Time taken to receive the response from the RADIUS server. The minimum, average, and maximum round-trip times are also displayed. | <b>detail</b>            |
| <b>Time since counters were last cleared</b>                                                                     | Time, in hours, minutes, and seconds, since the accounting counters were last cleared.                                            | <b>detail</b>            |
| The following statistics are displayed only when this command is executed with the <b>authentication</b> option. |                                                                                                                                   |                          |
| <b>Requests</b>                                                                                                  | Number of access requests sent to the RADIUS server from the FPC slot and PIC slot.                                               | <b>brief<br/>summary</b> |
| <b>Access req retransmissions</b>                                                                                | Number of access requests retransmitted to the RADIUS server.                                                                     | <b>detail</b>            |
| <b>Access rejects</b>                                                                                            | Number of access requests rejected by the RADIUS server.                                                                          | All levels               |
| <b>Access challenges</b>                                                                                         | Number of Access Challenge responses received from the RADIUS server.                                                             | <b>detail</b>            |
| <b>Malformed responses</b>                                                                                       | Number of malformed access responses received from the RADIUS server.                                                             | <b>detail</b>            |
| <b>Bad authenticators</b>                                                                                        | Number of bad authentication responses received.                                                                                  | <b>detail</b>            |
| <b>Pending requests</b>                                                                                          | Number of access requests waiting for responses from the RADIUS server.                                                           | <b>detail</b>            |
| <b>Timeouts</b>                                                                                                  | Number of access requests to the RADIUS server that timed out.                                                                    | <b>detail</b>            |
| <b>Unknown types</b>                                                                                             | Number of unknown type responses (that the gateway does not recognize) received from the RADIUS server.                           | <b>detail</b>            |
| <b>Packets dropped</b>                                                                                           | Number of packets dropped.                                                                                                        | <b>detail</b>            |

Table 25: show unified-edge ggsn-pgw aaa radius statistics Output Fields (*continued*)

| Field Name                                                                                                         | Field Description                                                                                                                 | Level of Output |
|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Round trip time (ms)</b>                                                                                        | Time taken to receive the response from the RADIUS server. The minimum, average, and maximum round-trip times are also displayed. | <b>detail</b>   |
| <b>Time since counters were last cleared</b>                                                                       | Time, in hours, minutes, and seconds, since the authentication counters were last cleared.                                        | <b>detail</b>   |
| The following statistics are displayed only when this command is executed with the <b>dynamic-requests</b> option. |                                                                                                                                   |                 |
| <b>RADIUS client</b>                                                                                               | Name of the RADIUS client.                                                                                                        | All levels      |
| <b>Address</b>                                                                                                     | IP address of the RADIUS client.                                                                                                  | All levels      |
| <b>CoA requests received</b>                                                                                       | Number of Change of Authorization (COA) requests received from the RADIUS client.                                                 | All levels      |
| <b>DM requests received</b>                                                                                        | Number of Disconnect Message (DM) requests received from the RADIUS client.                                                       | All levels      |
| <b>CoA Acks sent</b>                                                                                               | Number of COA acknowledgements sent to the RADIUS client.                                                                         | All levels      |
| <b>CoA Nacks sent</b>                                                                                              | Number of COA negative acknowledgements sent to the RADIUS client.                                                                | All levels      |
| <b>DM Acks sent</b>                                                                                                | Number of Disconnect Message acknowledgements sent to the RADIUS client.                                                          | All levels      |
| <b>DM Nacks sent</b>                                                                                               | Number of Disconnect Message negative acknowledgements sent to the RADIUS client.                                                 | All levels      |
| <b>Dropped</b>                                                                                                     | Number of dynamic authorization requests dropped.                                                                                 | All levels      |
| <b>Duplicates</b>                                                                                                  | Number of duplicate dynamic authorization requests.                                                                               | <b>detail</b>   |
| <b>Forwarded</b>                                                                                                   | Number of dynamic authorization requests that were forwarded.                                                                     | <b>detail</b>   |
| <b>Timeouts</b>                                                                                                    | Number of dynamic authorization requests that timed out.                                                                          | <b>detail</b>   |
| <b>Delivered</b>                                                                                                   | Number of dynamic authorization requests that were delivered.                                                                     | <b>detail</b>   |
| <b>Invalid RADIUS codes</b>                                                                                        | Number of dynamic authorization requests with invalid RADIUS codes.                                                               | <b>detail</b>   |
| <b>Errors during processing</b>                                                                                    | Number of dynamic authorization requests that could not be processed due to errors.                                               | <b>detail</b>   |
| <b>Invalid RADIUS authenticators</b>                                                                               | Number of dynamic authorization requests with invalid RADIUS authenticators.                                                      | <b>detail</b>   |

Table 25: 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/
PIC State      Duration      Previous
2/1 Active     00:52:03     Duration Flaps  Requests  Responses
                                00:00:00    0         0         0

RADIUS server: radius_server
Address: 4.1.1.2 Port: 1813
FPC/
PIC State      Duration      Previous
2/1 Active     00:52:03     Duration Flaps  Requests  Responses
                                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
```

### 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/
PIC State      Duration      Previous
2/1 Active    00:54:14    00:00:00 0 0 0
Requests Responses

RADIUS server: radius_server
Address: 4.1.1.2 Port: 1813
FPC/
PIC State      Duration      Previous
2/1 Active    00:54:14    00:00:00 0 10001 10001
Requests Responses

```

### 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/
PIC  State      Duration      Previous
                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/
PIC  State      Duration      Previous
                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

```

**authentication  
summary**

| FPC/<br>PIC | State  | Duration | Previous<br>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/<br>PIC | State  | Duration | Previous<br>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
```



## show unified-edge ggsn-pgw aaa statistics

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>show unified-edge ggsn-pgw aaa statistics (accounting   authentication   dynamic-requests) &lt;brief   detail   extensive&gt; &lt;fpc-slot <i>fpc-slot</i>&gt; &lt;gateway <i>gateway</i>&gt; &lt;pic-slot <i>pic-slot</i>&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Release Information</b>      | <p>Command introduced in Junos OS Mobility Release 11.2W.</p> <p><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Description</b>              | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Options</b>                  | <p><b>authentication   accounting   dynamic-requests</b>—Display the statistics for the specified parameter.</p> <p><b>brief   detail   extensive</b>—(Optional) Display the specified level of output.</p> <p>The <b>brief</b> option displays the consolidated statistics for all gateways, and the <b>detail</b> and <b>extensive</b> options display the statistics for each services PIC on the configured gateways.</p> <p><b>fpc-slot <i>fpc-slot</i></b>—(Optional) Display the statistics for the specified Flexible PIC Concentrator (FPC).</p> <p><b>gateway <i>gateway</i></b>—(Optional) Display the statistics for the specified GGSN or P-GW.</p> <p><b>pic-slot <i>pic-slot</i></b>—(Optional) Display the statistics for the specified PIC slot number. You must first specify an FPC slot number before specifying the PIC slot number.</p>                                                              |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">clear unified-edge ggsn-pgw aaa statistics on page 117</a></li> <li>• <a href="#">show unified-edge ggsn-pgw aaa radius statistics on page 124</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>List of Sample Output</b>    | <p><a href="#">show unified-edge ggsn-pgw aaa statistics accounting brief on page 136</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics accounting detail on page 136</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics accounting extensive on page 136</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics authentication brief on page 136</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics authentication detail on page 137</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics authentication extensive on page 137</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics dynamic-requests brief on page 137</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics dynamic-requests detail on page 137</a></p> <p><a href="#">show unified-edge ggsn-pgw aaa statistics dynamic-requests extensive on page 138</a></p> |

**Output Fields** Table 26 on page 134 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 26: show unified-edge ggsn-pgw aaa statistics Output Fields**

| Field Name                                                                                                                     | Field Description                                                                                    | Level of Output                   |
|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>Gateway Name</b>                                                                                                            | Name of the GGSN or P-GW. If the statistics for all gateways are displayed, then "All" is displayed. | All levels                        |
| <b>FPC/PIC</b>                                                                                                                 | FPC and PIC slot numbers for which the statistics are displayed.                                     | <b>detail</b><br><b>extensive</b> |
| <b>Accounting Module Statistics</b> —The following statistics are displayed when the <b>accounting</b> option is used.         |                                                                                                      |                                   |
| <b>Requests</b>                                                                                                                | Total number of Accounting Request packets sent.                                                     | All levels                        |
| <b>Responses success</b>                                                                                                       | Number of Accounting Response Success packets received.                                              | All levels                        |
| <b>Requests timed out</b>                                                                                                      | Number of accounting requests that timed out and did not receive a response.                         | All levels                        |
| <b>Requests retransmitted</b>                                                                                                  | Number of accounting requests that were retransmitted because they did not receive a response.       | All levels                        |
| <b>Transmit errors</b>                                                                                                         | Number of errors that occurred during the transmission of Accounting Request packets.                | All levels                        |
| <b>Response errors</b>                                                                                                         | Number of erroneous responses received.                                                              | All levels                        |
| <b>Pending requests</b>                                                                                                        | Number of accounting requests waiting for responses.                                                 | All levels                        |
| <b>Authentication Module Statistics</b> —The following statistics are displayed when the <b>authentication</b> option is used. |                                                                                                      |                                   |
| <b>Requests</b>                                                                                                                | Number of access requests sent.                                                                      | All levels                        |
| <b>Accepts</b>                                                                                                                 | Number of Access Accept responses received.                                                          | All levels                        |
| <b>Rejects</b>                                                                                                                 | Number of Access Reject responses received.                                                          | All levels                        |
| <b>Challenges</b>                                                                                                              | Number of Access Challenge responses received.                                                       | All levels                        |
| <b>Requests timed out</b>                                                                                                      | Number of authentication requests that did not receive a response.                                   | All levels                        |
| <b>Requests retransmitted</b>                                                                                                  | Number of authentication requests that were retransmitted because they did not receive a response.   | All levels                        |
| <b>Transmit errors</b>                                                                                                         | Number of errors that occurred during the transmission of Authentication Request packets.            | All levels                        |

Table 26: show unified-edge ggsn-pgw aaa statistics Output Fields (*continued*)

| Field Name                                                                                                                         | Field Description                                                                   | Level of Output                   |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|
| <b>Response errors</b>                                                                                                             | Number of erroneous responses received.                                             | All levels                        |
| <b>Pending requests</b>                                                                                                            | Number of authentication requests waiting for responses.                            | All levels                        |
| <b>Dynamic Requests Module Statistics</b> —The following statistics are displayed when the <b>dynamic-requests</b> option is used. |                                                                                     |                                   |
| <b>Requests received</b>                                                                                                           | Total number of dynamic requests received.                                          | All levels                        |
| <b>CoA requests received</b>                                                                                                       | Number of Change of Authorization (COA) requests received.                          | All levels                        |
| <b>DM requests received</b>                                                                                                        | Number of Disconnect Message (DM) requests received.                                | All levels                        |
| <b>CoA Acks sent</b>                                                                                                               | Number of COA acknowledgements sent.                                                | All levels                        |
| <b>CoA Nacks sent</b>                                                                                                              | Number of COA negative acknowledgements sent.                                       | All levels                        |
| <b>DM Acks sent</b>                                                                                                                | Number of Disconnect Message acknowledgements sent.                                 | All levels                        |
| <b>DM Nacks sent</b>                                                                                                               | Number of Disconnect Message negative acknowledgements sent.                        | All levels                        |
| <b>Dropped</b>                                                                                                                     | Number of dynamic authorization requests dropped.                                   | All levels                        |
| <b>Duplicates</b>                                                                                                                  | Number of duplicate dynamic authorization requests.                                 | <b>detail</b><br><b>extensive</b> |
| <b>Forwarded</b>                                                                                                                   | Number of dynamic authorization requests that were forwarded.                       | <b>detail</b><br><b>extensive</b> |
| <b>Timeouts</b>                                                                                                                    | Number of dynamic authorization requests that timed out.                            | <b>detail</b><br><b>extensive</b> |
| <b>Delivered</b>                                                                                                                   | Number of dynamic authorization requests that were delivered.                       | <b>extensive</b>                  |
| <b>Errors during processing</b>                                                                                                    | Number of dynamic authorization requests that could not be processed due to errors. | <b>extensive</b>                  |
| <b>Unknown clients</b>                                                                                                             | Number of dynamic authorization requests that came from unknown clients.            | <b>extensive</b>                  |
| <b>Invalid AAA codes</b>                                                                                                           | Number of dynamic authorization requests with invalid AAA codes.                    | <b>extensive</b>                  |
| <b>Invalid AAA authenticators</b>                                                                                                  | Number of dynamic authorization requests with invalid AAA authenticators.           | <b>extensive</b>                  |

Table 26: show unified-edge ggsn-pgw aaa 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. | extensive       |
| 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
```

## 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

## show unified-edge ggsn-pgw address-assignment group

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>show unified-edge ggsn-pgw address-assignment group &lt;brief   detail&gt; &lt;fpc-slot slot-number&gt; &lt;gateway gateway-name&gt; &lt;name group-name&gt; &lt;pic-slot slot-number&gt; &lt;routing-instance routing-instance-name&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Release Information</b>      | <p>Command introduced in Junos OS Mobility Release 11.2W.</p> <p><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Description</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Options</b>                  | <p><b>none</b>—(Same as brief) Display the information about the mobile pool groups in brief.</p> <p><b>brief   detail</b>—(Optional) Display the specified level of output.</p> <p><b>fpc-slot fpc-slot pic-slot pic-slot</b>—(Optional) Display the mobile pool groups for the services PIC in the specified FPC and PIC slots.</p> <p><b>gateway gateway-name</b>—(Optional) Display the information about the mobile pool groups for the specified GGSN or P-GW.</p> <p><b>name name</b>—(Optional) Display the information for the specified mobile pool group.</p> <p><b>routing-instance routing-instance</b>—(Optional) Display the mobile pool group information for the specified routing instance.</p> |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">show unified-edge ggsn-pgw address-assignment pool on page 142</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>List of Sample Output</b>    | <p><a href="#">show unified-edge ggsn-pgw address-assignment group brief on page 140</a></p> <p><a href="#">show unified-edge ggsn-pgw address-assignment group detail on page 140</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Output Fields</b>            | <p><a href="#">Table 27 on page 139</a> lists the output fields for the <b>show unified-edge ggsn-pgw address-assignment group</b> command. Output fields are listed in the approximate order in which they appear.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Table 27: 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.      | <b>detail</b>   |

Table 27: show unified-edge ggsn-pgw address-assignment-group Output Fields (*continued*)

| Field Name                     | Field Description                                                                                                                                                                                                                                                                                                                                                                                                                                    | Level of Output |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Total addresses</b>         | Total number of addresses available in the mobile pool group.                                                                                                                                                                                                                                                                                                                                                                                        | All levels      |
| <b>Addresses in use</b>        | Number of addresses in the mobile pool group that are currently in use.                                                                                                                                                                                                                                                                                                                                                                              | All levels      |
| <b>Address usage (percent)</b> | Percentage utilization of the total addresses in the mobile pool group.                                                                                                                                                                                                                                                                                                                                                                              | All levels      |
| <b>Routing instance</b>        | Routing instance to which the mobile pool group belongs.                                                                                                                                                                                                                                                                                                                                                                                             | All levels      |
| <b>Gateway</b>                 | Gateway to which the PIC belongs.                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>detail</b>   |
| <b>Pool information</b>        | <p>The following information about the mobile pools belonging to this mobile pool group is displayed:</p> <ul style="list-style-type: none"> <li>• <b>Name</b>—Name of the mobile pool.</li> <li>• <b>Total</b>—Total number of addresses in the mobile pool.</li> <li>• <b>In use</b>—Number of addresses in the mobile pool that are in use.</li> <li>• <b>Util (%)</b>—Percentage of addresses in the mobile pool that have been used.</li> </ul> | 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:

  Name                Total    In-use    Util
  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:

| Name  | Total | In-use | Util (%) |
|-------|-------|--------|----------|
| 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:

| Name  | Total | In-use | Util (%) |
|-------|-------|--------|----------|
| pool2 | 256   | 254    | 99       |
| pool3 | 256   | 47     | 18       |

## show unified-edge ggsn-pgw address-assignment pool

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | <pre>show unified-edge ggsn-pgw address-assignment pool &lt;brief   detail   summary&gt; &lt;fpc-slot <i>fpc-slot</i>&gt; &lt;gateway <i>gateway-name</i>&gt; &lt;name <i>pool-name</i>&gt; &lt;pic-slot <i>pic-slot</i>&gt; &lt;range <i>range-name</i>&gt; &lt;ranges&gt; &lt;routing-instance <i>routing-instance</i>&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Release Information</b>      | <p>Command introduced in Junos OS Mobility Release 11.2W.</p> <p><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Description</b>              | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Options</b>                  | <p><b>none</b>—(Same as brief) Display the address information about the mobile pools in brief.</p> <p><b>brief   detail   summary</b>—(Optional) Display the specified level of output.</p> <p><b>fpc-slot <i>fpc-slot</i> pic-slot <i>pic-slot</i></b>—(Optional) Display the mobile pool information for the services PIC in the specified FPC and PIC slots.</p> <p><b>gateway <i>gateway-name</i></b>—(Optional) Display the mobile pool information for the specified GGSN or P-GW.</p> <p><b>name <i>name</i></b>—(Optional) Display the information for the specified mobile pool.</p> <div data-bbox="521 1245 591 1312" data-label="Image"> </div> <p><b>NOTE:</b> Specifying the mobile pool is mandatory if you use either the <b>range <i>range-name</i></b> or the <b>ranges</b> option.</p> <p><b>range <i>range-name</i></b>—Display the information for the specified range in the specified pool.</p> <p><b>ranges</b>—Display the information for all the ranges in the specified pool.</p> <p><b>routing-instance <i>routing-instance</i></b>—(Optional) Display the mobile pool information for the specified routing instance.</p> |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <a href="#">clear unified-edge ggsn-pgw address-assignment pool on page 118</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>List of Sample Output</b>    | <p><a href="#">show unified-edge ggsn-pgw address-assignment pool brief on page 144</a></p> <p><a href="#">show unified-edge ggsn-pgw address-assignment pool detail on page 144</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

[show unified-edge ggsn-pgw address-assignment pool summary on page 145](#)

**Output Fields** [Table 28 on page 143](#) 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 28: show unified-edge ggsn-pgw address-assignment pool Output Fields**

| Field Name                                 | Field Description                                                                                            | Level of Output               |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>Pool or Name</b>                        | Name of the mobile pool.                                                                                     | All levels                    |
| <b>FPC/PIC</b>                             | FPC and PIC slots of the services PIC for which the mobile pool information is displayed.                    | <b>detail</b>                 |
| <b>Total Addresses or Total</b>            | Total number of addresses available in the mobile pool.                                                      | All levels                    |
| <b>Addresses in use or In Use</b>          | Number of addresses that have been allocated.                                                                | All levels                    |
| <b>Addresses skipped</b>                   | Number of addresses that are excluded from allocation.                                                       | <b>brief</b><br><b>detail</b> |
| <b>Address usage (percent) or Util (%)</b> | Percentage of the total addresses used.                                                                      | All levels                    |
| <b>Addresses in aging period</b>           | Number of addresses that are currently being released and that cannot be allocated.                          | <b>brief</b><br><b>detail</b> |
| <b>Routing Instance</b>                    | Name of the routing instance to which the mobile pool belongs.                                               | All levels                    |
| <b>Gateway</b>                             | Gateway to which the services PIC belongs.                                                                   | <b>detail</b>                 |
| <b>Pool Maintenance Mode</b>               | Service mode of the mobile pool; for example, operational or maintenance.                                    | <b>detail</b>                 |
| <b>Address chunks</b>                      | Number of chunks of IP addresses in the mobile pool (for the services PIC) that are currently being assigned | <b>detail</b>                 |
| <b>Total address chunk size</b>            | Total number of addresses in the address chunk (for the services PIC).                                       | <b>detail</b>                 |
| <b>Total allocation failures</b>           | Total number of addresses that could not be allocated.                                                       | <b>detail</b>                 |

## 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

| Name     | Total    | In-use | Util (%) | 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          |

## show unified-edge ggsn-pgw address-assignment service-mode

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | show unified-edge ggsn-pgw address-assignment service-mode<br><brief   detail><br><pool <i>pool-name</i> ><br><routing-instance <i>routing-instance-name</i> >                                                                                                                                                                                                                                                                                          |
| <b>Release Information</b>      | Command introduced in Junos OS Mobility Release 11.2W.                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Description</b>              | Display service mode information about mobile pools.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Options</b>                  | <p><b>none</b>—Display the service mode information in brief.</p> <p><b>brief   detail</b>—(Optional) Display the specified level of output.</p> <p><b>pool <i>pool-name</i></b>—(Optional) Display the service mode information for the specified mobile pool.</p> <p><b>routing-instance <i>routing-instance-name</i></b>—(Optional) Display the service mode information about the mobile pools that are part of the specified routing instance.</p> |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li>• <i>Example: Changing Mobility Pool Attributes</i></li> </ul>                                                                                                                                                                                                                                                                                                                                                   |
| <b>List of Sample Output</b>    | <a href="#">show unified-edge ggsn-pgw address-assignment service-mode brief on page 147</a><br><a href="#">show unified-edge ggsn-pgw address-assignment service-mode detail on page 147</a>                                                                                                                                                                                                                                                           |
| <b>Output Fields</b>            | Table 29 on page 146 lists the output fields for the <b>show unified-edge ggsn-pgw address-assignment service-mode</b> command. Output fields are listed in the approximate order in which they appear.                                                                                                                                                                                                                                                 |

**Table 29: show unified-edge ggsn-pgw address-assignment service-mode Output Fields**

| Field Name              | Field Description                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pool Name</b>        | Name of the mobile pool.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Routing Instance</b> | Routing instance to which the mobile pool belongs.                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Service Mode</b>     | Service mode for the mobile pool: <ul style="list-style-type: none"> <li>• <b>Operational</b>—Mobile pool is in operational mode.</li> <li>• <b>Maintenance</b>—Mobile pool is in maintenance mode.</li> <li>• <b>Maintenance - Active Phase</b>—All the attributes of the mobile pool can be modified.</li> <li>• <b>Maintenance - In/Out Phase</b>—Only the non-maintenance mode attributes of the mobile pool can be modified.</li> </ul> |

## 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
```

## show unified-edge ggsn-pgw address-assignment statistics

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>                   | show unified-edge ggsn-pgw address-assignment statistics<br><brief   detail><br><fpc-slot <i>fpc-slot</i> ><br><gateway <i>gateway-name</i> ><br><pic-slot <i>pic-slot</i> >                                                                                                                                                                                                                                                                           |
| <b>Release Information</b>      | Command introduced in Junos OS Mobility Release 11.2W.<br><b>gateway</b> option introduced in Junos OS Mobility Release 11.4W.                                                                                                                                                                                                                                                                                                                         |
| <b>Description</b>              | 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.                                                                                                                                                                                                      |
| <b>Options</b>                  | <b>none</b> —(Same as brief) Display the address assignment statistics in brief.<br><br><b>brief   detail</b> —(Optional) Display the specified level of output.<br><br><b>fpc-slot <i>fpc-slot</i> pic-slot <i>pic-slot</i></b> —(Optional) Display the statistics for the services PIC in the specified FPC and PIC slots.<br><br><b>gateway <i>gateway-name</i></b> —(Optional) Display the consolidated statistics for the specified GGSN or P-GW. |
| <b>Required Privilege Level</b> | view                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Related Documentation</b>    | <ul style="list-style-type: none"> <li><a href="#">clear unified-edge ggsn-pgw address-assignment statistics on page 119</a></li> </ul>                                                                                                                                                                                                                                                                                                                |
| <b>Output Fields</b>            | <a href="#">Table 30 on page 148</a> lists the output fields for the <b>show unified-edge ggsn-pgw address-assignment statistics</b> command. Output fields are listed in the approximate order in which they appear.                                                                                                                                                                                                                                  |

**Table 30: show unified-edge ggsn-pgw address-assignment statistics Output Fields**

| Field Name                       | Field Description                                         | Level of Output                 |
|----------------------------------|-----------------------------------------------------------|---------------------------------|
| <b>FPC/PIC</b>                   | FPC and PIC slots for which the statistics are displayed. | <b>detail</b>                   |
| <b>Gateway</b>                   | Name of the GGSN or P-GW.                                 | <b>detail</b><br><b>gateway</b> |
| <b>Total address allocations</b> | Total number of addresses allocated.                      | All levels                      |
| <b>Total allocation failures</b> | Total number of address allocations that failed.          | All levels                      |
| <b>Total address releases</b>    | 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
```



## PART 4

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