

MobileNext Broadband Gateway

Address Assignment and Dynamic Host Configuration Protocol (DHCP)



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MobileNext Broadband Gateway Address Assignment and Dynamic Host Configuration Protocol (DHCP)

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Documentation and Release Notes

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

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

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <http://www.juniper.net/books>.

Supported Platforms

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

- MX240 Routers
- MX960 Routers
- MX480 Routers

Documentation Conventions

Table 1 on page 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
Bold text like this	Represents text that you type.	To enter configuration mode, type the configure command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces or emphasizes important new terms. Identifies book names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> A policy <i>term</i> is a named structure that defines match conditions and actions. <i>Junos OS System Basics Configuration Guide</i> RFC 1997, <i>BGP Communities Attribute</i>
<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@# set system domain-name <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"> To configure a stub area, include the stub statement at the [edit protocols ospf area area-id] hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Enclose optional keywords or variables.	stub <default-metric <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.	broadcast multicast <i>(string1 string2 string3)</i>
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[] (square brackets)	Enclose a variable for which you can substitute one or more values.	community name members [community-ids]
Indentation and braces ({ })	Identify a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
J-Web GUI Conventions		
Bold text like this	Represents J-Web graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> In the Logical Interfaces box, select All Interfaces. To cancel the configuration, click Cancel.
> (bold right angle bracket)	Separates levels in a hierarchy of J-Web selections.	In the configuration editor hierarchy, select Protocols>Ospf .

Documentation Feedback

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

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

Requesting Technical Support

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

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

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

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

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

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

Opening a Case with JTAC

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

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

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

PART 1

Overview

- [DHCP Overview on page 3](#)
- [Address Assignment Overview on page 5](#)

CHAPTER 1

DHCP Overview

- [DHCP Overview on page 3](#)
- [Understanding DHCP Proxy Clients on page 4](#)

DHCP Overview

The Dynamic Host Configuration Protocol (DHCP) is an automatic configuration protocol on IP networks, which eliminates the need for intervention by a network administrator. Networks and devices connected to IP networks must be configured before they can communicate with other devices on the network. The DHCP server maintains a database that helps track devices that have been connected to the network, preventing two devices from accidentally being configured with the same IP address.

The IP address is the most important configuration parameter of DHCP. A device must be initially assigned a specific IP address that is appropriate to the network to which the device is attached, and that IP address must not be assigned to any other device on that network. If you move a device to a new network, it must be assigned a new IP address for the new network. You can use the DHCP to manage these assignments automatically. DHCP provides two primary functions:

- Allocating temporary or permanent IP addresses to clients
- Storing, managing, and providing client configuration parameters

A DHCP client contacts a DHCP server for configuration parameters. The DHCP server is typically centrally located and operated by the network administrator. The server is run by a network administrator so that DHCP clients can be reliably and dynamically configured with parameters appropriate to the current network architecture.

You can configure the MobileNext Broadband Gateway to support the following DHCP features:

- DHCP configuration under an access point name (APN)
- DHCP profile configuration

Related Documentation

- [Configuring the DHCP Proxy Client on the Broadband Gateway on page 21](#)
- [Enabling DHCP on a Broadband Gateway APN on page 21](#)
- [Understanding DHCP Proxy Clients on page 4](#)

Understanding DHCP Proxy Clients

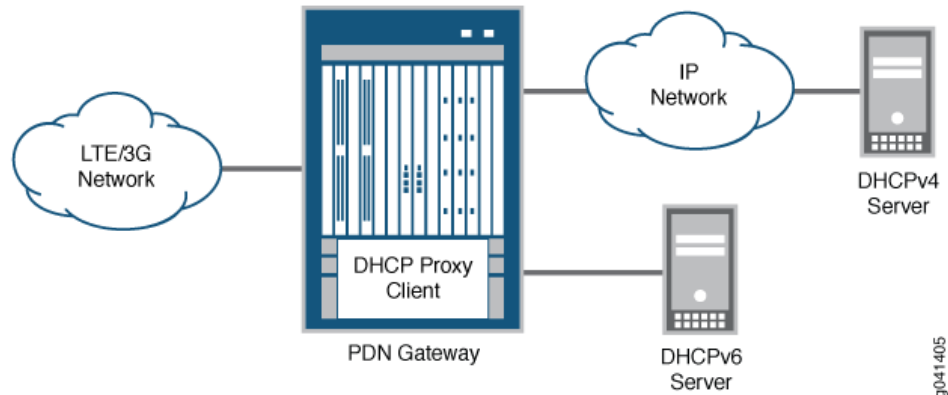
In a typical Dynamic Host Configuration Protocol (DHCP) client configuration, the client and server are on the same subnet. The client requests from the server an IP address and other configuration items and associates them with the local host interface. The association takes place at boot time, at renewal time, or at interface initialization.

On the broadband gateway configured as a Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW), DHCP proxy clients enable DHCP-based address allocation for mobile subscribers. The DHCP proxy client acquires a subnet or a prefix from the DHCP server as per DHCP Internet Engineering Task Force (IETF) specifications. The DHCP proxy client then manages the subnet or prefix locally for the mobile subscriber.

The broadband gateway assigns an IP address to the subscriber (from the subnet or prefix obtained from the DHCP server) when a Create PDP Context Request or a Create Session Request is received for that subscriber. When all mobile subscribers using the IP addresses in the subnet or prefix are detached from the broadband gateway, the acquired subnet or prefix is released and the DHCP server can assign the subnet or prefix to another GGSN or P-GW.

Figure 1 on page 4 displays the broadband gateway DHCP proxy client architecture.

Figure 1: DHCP Proxy Client Architecture



- Related Documentation**
- [Configuring the DHCP Proxy Client on the Broadband Gateway on page 21](#)
 - [dhcp-proxy-client on page 34](#)
 - [DHCP Overview on page 3](#)

CHAPTER 2

Address Assignment Overview

- Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5

Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway

An important function of the broadband gateway configured as a Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW) is to manage IP addresses of subscribers. On the broadband gateway, IP addresses are configured using mobile pools and mobile pool groups, which can contain one or more mobile pools.

A subscriber on the broadband gateway can be assigned an IP address by the authentication, authorization, and accounting (AAA) server, by the Dynamic Host Configuration Protocol (DHCP) server, or locally by the broadband gateway. In addition, a user equipment can provide its IP address (previously assigned by the Home Location Register [HLR]) to the broadband gateway in the Create packet data protocol (PDP) Context or Create Session Request message.

If the gateway assigns the IP address, then the address assignment is called *dynamic*. If the IP address is assigned by an external authority (AAA server, DHCP server, or statically by the user equipment), then the address assignment is called *external*. When the user equipment provides the IP address to the gateway, this type of external address assignment is further classified as *static*. In all these cases, except when addresses are assigned by the DHCP server, the IP addresses must be configured on the broadband gateway in a mobile pool; if an IP address is not configured on the gateway, then the subscriber session is rejected.

Mobile pools, also called mobile address pools, contain a set of IP addresses specified by network prefixes, and are configured under a routing instance. You can configure more than one set of addresses in a mobile pool and restrict the address ranges from which IP addresses are allocated within the mobile pool. In addition to configuring IP addresses in a mobile pool, you can also configure other parameters related to address assignment; for example, you can indicate that the addresses in a mobile pool are assigned externally, or that the pool is a default pool, and so on. You can configure mobile pools to contain IPv4 addresses or IPv6 addresses, but not both.

The broadband gateway also allows you to collect one or more mobile pools into a mobile pool group. All the mobile pools in a mobile pool group should be of the same protocol family: inet or inet6. In addition, none of the mobile pools in a mobile pool group should

be marked as a default. If the gateway assigns addresses locally using a mobile pool group, then the addresses are assigned from the mobile pools that constitute the mobile pool group. Mobile pool groups provide redundancy for IP address assignment.

Mobile pool groups or mobile pools, *except* default mobile pools, can then be added to an access point name (APN). Default mobile pools are used by APNs when no pool has been added to an APN. The address assignment configuration on the APN determines the method by which IP addresses are assigned to subscribers.

**Related
Documentation**

- address-assignment (APN)
- [address-assignment \(MobileNext Broadband Gateway\) on page 26](#)
- Configuring Address Assignment on a Broadband Gateway APN
- [Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17](#)
- Example: Simple Unified Edge Configuration

PART 2

Configuration

- [Configuration Tasks on page 9](#)
- [Configuration Statements on page 23](#)

CHAPTER 3

Configuration Tasks

- [Configuring DHCPv4 Proxy Client Profiles on page 9](#)
- [Configuring DHCPv6 Proxy Client Profiles on page 12](#)
- [Configuring DHCP Traceoptions on the Broadband Gateway on page 14](#)
- [Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17](#)
- [Configuring the DHCP Proxy Client on the Broadband Gateway on page 21](#)
- [Enabling DHCP on a Broadband Gateway APN on page 21](#)

Configuring DHCPv4 Proxy Client Profiles

Dynamic Host Configuration Protocol (DHCP) proxy clients enable DHCP-based address allocation for mobile subscribers. On the broadband gateway configured as a Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW), you configure a DHCPv4 proxy client profile, which can then be referenced by an access point name (APN) to obtain the subnets from the DHCP server.

To configure a DHCPv4 proxy client profile on the broadband gateway:

1. Specify a name for the DHCPv4 proxy client profile.

```
[edit routing-instances name system services]  
[edit system services]  
user@host# edit dhcp-proxy-client dhcpv4-profiles profile-name
```

2. Specify the interface on which the DHCPv4 proxy client communicates with the configured DHCP servers. The primary IPv4 address of the bind interface is the source interface of DHCP control packets for DHCPv4.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles  
  profile-name]  
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]  
user@host# set bind-interface interface-name
```

For example, to configure ge-1/1/3.0 as the bind interface in a DHCPv4 proxy client profile named dhcpv4-juniper:

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles  
  dhcpv4-juniper]  
[edit system services dhcp-proxy-client dhcpv4-profiles dhcpv4-juniper]  
user@host# set bind-interface ge-1/1/3.0
```



NOTE: You must specify a bind interface for the DHCPv4 proxy client profile.

The interface specified here must be previously configured with the valid inet address and inet family at the [edit interfaces] hierarchy level.

3. (Optional) Configure the number of seconds before the broadband gateway reconnects with a dead server that was marked down in previous attempts. A server is marked down if there is no response for multiple successive attempts. The number of attempts can be configured using the **dead-server-successive-retry-attempt** statement.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
user@host# set dead-server-retry-interval interval-in-seconds
```

The range for the dead server retry interval is 300 through 3600 seconds, and the default is 300 seconds.

4. (Optional) Specify the number of successive retry attempts that the broadband gateway makes to contact a server before declaring an unresponsive server dead. If a server is marked dead, no DHCP packets are sent to the server until the dead timer, specified using the **dead-server-retry-interval** statement, elapses and the server comes alive.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
user@host# set dead-server-successive-retry-attempt number-of-attempts
```

The range for the number of successive retry attempts is 5 through 100, and the default is 10.

5. (Optional) Specify the algorithm used to select the DHCP server with which to communicate when multiple servers are configured.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
user@host# set dhcp-server-selection-algorithm (highest-priority-server | round-robin)
```

If the algorithm specified is **highest-priority-server**, then the server with the highest priority is selected. (The server priority is configured using the **priority** statement at the [edit routing-instances *name* system services dhcp-proxy-client dhcpv4-profiles *name* servers address] hierarchy level.)

If the algorithm specified is **round-robin**, then the server is selected in a fixed cyclical order. If no algorithm is specified, then the **round-robin** algorithm is used by default.

6. (Optional) Configure the default lease time, in seconds. (The lease time indicates the time for which the broadband gateway holds the DHCP subnets, if the server does not respond to a renewal request. After the lease time elapses, the subnets are removed from the gateway and the subscriber is deleted. If the DHCP client does not

get the lease time from the DHCP server, it uses the configured default lease time as the lease time.)

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
user@host# set lease-time time-in-seconds
```

The range for the default lease time is 60 through 1000 seconds.



NOTE: If the DHCP proxy client does not get the lease time from the DHCP server, and if you have not included the `lease-time` statement, then the gateway holds on to the subnets as long as the subscribers, whose addresses are allocated from the subnets, are active. The gateway does not renew the subnets until the DHCP server sends a FORCE RENEW message.

7. (Optional) Specify a name for the DHCP server address pool. The broadband gateway requests the DHCP server for a subnet from the configured pool name. The specified pool name is sent to the DHCP server in the DHCP Discover and Request message in `subnet-name-suboption` of `subnet-allocation-option`.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
user@host# set pool-name pool-name
```

8. (Optional) Configure the maximum number of times that the DHCP proxy client attempts to communicate with the unresponsive DHCP server before the subnet allocation request is deemed as failed.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
user@host# set retransmission-attempt number-of-attempts
```

The range for the retransmission attempts is 0 through 1000 and the default is 4.

9. (Optional) Configure the amount of time that must pass with no response before the DHCP proxy client reattempts to communicate with the DHCP server.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
user@host# set retransmission-interval interval-in-seconds
```

The range for the retransmission interval is 4 through 64 seconds, and the default is 4 seconds.

10. Configure the list of DHCP servers with which the DHCP proxy clients communicate to obtain the IPv4 subnet, which is used to allocate IP addresses to mobile subscribers on the broadband gateway.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
```

```
user@host# set servers ip-address
```



NOTE: You must configure at least one server. To configure more than one server, include the `servers` statement multiple times.

- a. (Optional) Configure the DHCP server priority. If the algorithm for server selection is based on the highest priority, then the broadband gateway uses the configured priority to select the active server with the highest priority. The DHCP Discover message is then sent to the selected server.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv4-profiles
profile-name]
```

```
[edit system services dhcp-proxy-client dhcpv4-profiles profile-name]
```

```
user@host# set servers ip-address priority server-priority
```

The range for the priority is 1 (highest priority) to 5 (lowest priority), and the default is 3.

Related Documentation

- [Configuring the DHCP Proxy Client on the Broadband Gateway on page 21](#)
- [dhcpv4-profiles on page 36](#)
- [dhcpv4-proxy-client-profile \(APN Address Assignment\)](#)
- [Understanding DHCP Proxy Clients on page 4](#)

Configuring DHCPv6 Proxy Client Profiles

Dynamic Host Configuration Protocol (DHCP) proxy clients enable DHCP-based address allocation for mobile subscribers. On the broadband gateway configured as a Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW), you configure a DHCPv6 proxy client profile, which can then be referenced by an access point name (APN) to obtain the prefixes from the DHCP server.

To configure a DHCPv6 proxy client profile on the broadband gateway:

1. Specify a name for the DHCPv6 proxy client profile.

```
[edit routing-instances name system services]
```

```
[edit system services]
```

```
user@host# edit dhcp-proxy-client dhcpv6-profiles profile-name
```

2. Specify the interface on which the DHCPv6 proxy client communicates with the configured DHCP servers. The primary IPv6 address of the bind interface is the source interface of DHCP control packets for DHCPv6.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv6-profiles
profile-name]
```

```
[edit system services dhcp-proxy-client dhcpv6-profiles profile-name]
```

```
user@host# set bind-interface interface-name
```

For example, to configure `ge-0/1/5.0` as the bind interface in a DHCPv6 proxy client profile named `dhcpv6-juniper`:


```
[edit routing-instances name system services dhcp-proxy-client dhcpv6-profiles
  dhcpv6-juniper]
[edit system services dhcp-proxy-client dhcpv6-profiles dhcpv6-juniper]
user@host# set bind-interface ge-0/1/5.0
```



NOTE: You must specify a bind interface for the DHCPv6 proxy client profile.

The interface specified here must be previously configured with the valid inet6 address and inet6 family at the [edit interfaces] hierarchy level.

3. (Optional) Configure the default lease time, in seconds. (The lease time indicates the time for which the broadband gateway holds the DHCP prefixes, if the server does not respond to a renewal request. After the lease time elapses, the prefixes are removed from the gateway and the subscriber is deleted. If the DHCP client does not get the lease time from the DHCP server, it uses the configured default lease time as the lease time.)

```
[edit routing-instances name system services dhcp-proxy-client dhcpv6-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv6-profiles profile-name]
user@host# set lease-time time-in-seconds
```

The range for the default lease time is 60 through 1000 seconds.



NOTE: If the DHCP proxy client does not get the lease time from the DHCP server, and if you have not included the lease-time statement, then the gateway holds on to the prefixes as long as the subscribers, whose addresses are allocated from the prefixes, are active. The gateway does not renew the prefixes until the DHCP server sends a FORCE RENEW message.

4. (Optional) Specify a name for the DHCP server address pool. The broadband gateway requests the DHCP server for a prefix from the configured pool name. The specified pool name is sent to the DHCP server in the DHCP Discover and Request message in **subnet-name-suboption** of **subnet-allocation-option**.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv6-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv6-profiles profile-name]
user@host# set pool-name pool-name
```

5. (Optional) Configure the maximum number of times that the DHCP proxy client attempts to communicate with the unresponsive DHCP server before the prefix allocation request is deemed as failed.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv6-profiles
  profile-name]
[edit system services dhcp-proxy-client dhcpv6-profiles profile-name]
user@host# set retransmission-attempt number-of-attempts
```

The range for the retransmission attempts is 0 through 1000, and the default is 4.

6. (Optional) Configure the amount of time that must pass with no response before the DHCP proxy client reattempts to communicate with the DHCP server.

```
[edit routing-instances name system services dhcp-proxy-client dhcpv6-profiles
  profile-name]
```

```
[edit system services dhcp-proxy-client dhcpv6-profiles profile-name]
  user@host# set retransmission-interval interval-in-seconds
```

The range for the retransmission interval is 4 through 64, and the default is 4.

Related Documentation

- [Configuring the DHCP Proxy Client on the Broadband Gateway on page 21](#)
- [dhcpv6-profiles on page 37](#)
- [dhcpv6-proxy-client-profile \(APN Address Assignment\)](#)
- [Understanding DHCP Proxy Clients on page 4](#)

Configuring DHCP Traceoptions on the Broadband Gateway

Dynamic Host Configuration Protocol (DHCP) tracing operations record detailed messages about the operation of DHCP services on the MobileNext Broadband Gateway. You can trace various types of DHCP operations such as errors, warnings, configuration events, and other information. You can specify which trace operations are logged by including specific tracing flags and levels.

[Table 3 on page 14](#) describes the DHCP trace flags that you can include at the `[edit system processes dhcp-service traceoptions flag]` hierarchy level.

Table 3: DHCP Trace Flags

Flag	Description
all	Trace all operations.
auth	This flag is not used by the broadband gateway.
database	This flag is not used by the broadband gateway.
fwd	This flag is not used by the broadband gateway.
general	This flag is not used by the broadband gateway.
ha	This flag is not used by the broadband gateway.
interface	This flag is not used by the broadband gateway.
io	Trace I/O operations.
liveness-detection	This flag is not used by the broadband gateway.
packet	Trace packet decoding operations.

Table 3: DHCP Trace Flags (*continued*)

Flag	Description
performance	This flag is not used by the broadband gateway.
profile	This flag is not used by the broadband gateway.
rpd	Trace routing protocol process operations.
rtsock	Trace routing socket operations.
session-db	This flag is not used by the broadband gateway.
state	Trace state transition operations.
statistics	Trace statistics operations.
ui	Trace user interface operations.

To configure tracing options for DHCP operations:

- Specify that you want to configure tracing options for DHCP operations.

```
[edit system processes dhcp-service traceoptions]
user@host# edit traceoptions
```
- Configure the filename for the file that receives the output of the tracing operation. All files are placed in the `/var/log` directory.

```
[edit system processes dhcp-service traceoptions]
user@host# set file filename
```

- (Optional) Configure the maximum number of trace files.

```
[edit system processes dhcp-service traceoptions]
user@host# set file files files
```

The range for the number of files is 2 through 1000, and the default is 3.



NOTE: If you specify a maximum number of files, you must also specify a filename and a maximum file size.

- (Optional) Configure the maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB).

```
[edit system processes dhcp-service traceoptions]
user@host# set file size size
```

The range for the number of files is 10 KB through 1 GB, and the default is 128 KB.



NOTE: When a trace file (for example, dhcp-log) reaches its maximum size, it is renamed dhcp-log.0, then dhcp-log.1, and so on, until the maximum number of trace files is reached. The oldest archived file is then overwritten.

If you specify a maximum file size, you must also specify a filename and a maximum number of files.

5. (Optional) Specify that lines matching a configured regular expression are logged.

```
[edit system processes dhcp-service traceoptions]
user@host# set file match match
```

6. (Optional) Specify one of the following viewing permissions for the file:

- Restrict access only to the originator of the trace operation.

```
[edit system processes dhcp-service traceoptions]
user@host# set file no-world-readable
```

- Enable unrestricted file access.

```
[edit system processes dhcp-service traceoptions]
user@host# set file world-readable
```

7. Specify the tracing flag. Refer to [Table 3 on page 14](#) for an explanation of the DHCP tracing flags.

```
[edit system processes dhcp-service traceoptions]
user@host# set flag flag
```



NOTE: Use care when tracing all operations (all) on a gateway as this can have a performance impact.

8. (Optional) Specify that remote tracing is disabled.

```
[edit system processes dhcp-service traceoptions]
user@host# set no-remote-trace
```

Related Documentation

- [DHCP Overview on page 3](#)
- [traceoptions \(DHCP\) on page 55](#)
- [Understanding DHCP Proxy Clients on page 4](#)

Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway

On the broadband gateway configured as a Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW), subscriber IP addresses are configured using mobile pools and mobile pool groups. Mobile pools contain a set of IP addresses, and mobile pool groups are a collection of one or more mobile pools. You can configure both IPv4 and IPv6 mobile pools and mobile pool groups.

To configure mobile pools and mobile pool groups on the broadband gateway:



NOTE: The following configuration steps are valid at the [edit access] and [edit routing-instances *instance-name* access] hierarchy levels. However, for clarity, they are presented only at the [edit access] hierarchy level.

1. Specify that you want to configure mobile pools and mobile pool groups.

```
[edit access]
user@host# edit address-assignment
```

2. Specify a name for the mobile pool.

```
[edit access address-assignment]
user@host# set mobile-pools name
```

The pool name can contain letters, numbers, and hyphens (-) and can be up to 63 characters long.

3. Specify the protocol family (**inet** for IPv4 addresses and **inet6** for IPv6 addresses) for the mobile pool named *mbg-pool1*.

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 family (inet | inet6)
```



NOTE: A mobile pool must have the protocol family configured.

For example, to configure a mobile pool with IPv4 addresses:

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 family inet
```

4. Specify the network prefix for the mobile pool for the configured protocol family.

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 family inet network [network-prefix]
```



NOTE: A mobile pool must have at least one network prefix configured. You can configure more than one network prefix by including the **network** statement multiple times.

For example, to configure a mobile pool with network prefixes 100.100.0.0/16 and 200.200.0.0/16:

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 family inet network 100.100.0.0/16
user@host# set mobile-pools mbg-pool1 family inet network 200.200.0.0/16
```

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

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 family inet network [network-prefix]
allocation-prefix-length allocation-prefix-length
```

**NOTE:**

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

The default allocation prefix length is 22 (1024 addresses) for IPv4, and 54 (1024 addresses) for IPv6. The range is 32 (1 address) to 22 (1024 addresses) for IPv4 addresses, and 64 (1 address) to 54 (1024 addresses) for IPv6 addresses.

6. Optionally, specify that the addresses in the configured network prefix are assigned by an external authority; for example, by the authentication, authorization, and accounting (AAA) server or statically by the user equipment.

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 family inet network [network-prefix]
external-assigned
```



NOTE: If you configure the external-assigned statement, then you cannot configure the allocation-prefix-length statement.

7. (Optional) Specify the address ranges within the network prefix of the mobile pool. If a range is specified, then the broadband gateway assigns IP addresses only from the specified range.

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 family inet network [network-prefix] range
name low low high high
```

For example, to specify an address range starting from 100.0.0.2 and ending with 100.0.0.32:

```
user@host# set mobile-pools mbg-pool1 family inet network 100.100.0.0/16 range r1
low 100.0.0.2 high 100.0.0.32
```

**NOTE:**

- The range name can contain letters, numbers, and hyphens (-) and can be up to 63 characters long.
- You can specify more than one range for a mobile pool. However, within a pool the name of the range must be unique.
- If you specify a range, then you must specify both an upper address (IPv4) or prefix (IPv6) and a lower address (IPv4) or prefix (IPv6) for that range.

- a. (Optional) Specify that the addresses in the configured range are assigned by an external authority.

[edit access address-assignment]

```
user@host# set mobile-pools mbg-pool1 family inet network [network-prefix] range
name external-assigned
```



NOTE: If you configure the `external-assigned` statement, then you cannot configure the `allocation-prefix-length` statement.

8. (Optional) Configure the time, in seconds, up to which IP addresses from the mobile pool are not reused. Addresses from deleted packet data protocol (PDP) contexts or bearers are not reused by the broadband gateway until the configured time elapses.

[edit access address-assignment]

```
user@host# set mobile-pools mbg-pool1 ageing-window ageing-window
```

The default ageing window is 2 seconds, and the range is 1 through 65,535 seconds.

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

[edit access address-assignment]

```
user@host# set mobile-pools mbg-pool1 default-pool
```

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

[edit access address-assignment]

```
user@host# set mobile-pools mbg-pool1 pool-prefetch-threshold
pool-prefetch-threshold
```

The default pre-fetch threshold is 80, and the range is 1 through 100.

11. (Optional) Specify the pool usage threshold in the mobile pool for generating SNMP traps. When the percentage of addresses used in the mobile pool exceeds the specified threshold, a notification is sent indicating that the specified threshold has been crossed. After reaching the specified threshold, when the percentage of addresses used in the

mobile pool drops 20 percent below the threshold, the notification indicating that the specified threshold was exceeded is cleared.

```
[edit access address-assignment]
user@host# set mobile-pools mbg-pool1 pool-snmp-trap-threshold
pool-snmp-trap-threshold
```

The default SNMP trap threshold is 80, and the range is 1 through 100.

12. Configure a mobile pool group, which is a collection of one or more mobile pools.

```
[edit access address-assignment]
user@host# set mobile-pool-groups name pool-name
```

The mobile pool group name can contain letters, numbers, and hyphens (-) and can be up to 63 characters long.

For example, to configure a mobile pool group named v4-group with mobile pools v4-pool-1 and v4-pool-2:

```
[edit access address-assignment]
user@host# set mobile-pool-groups v4-group v4-pool-1
user@host# set mobile-pool-groups v4-group v4-pool-2
```



NOTE:

- The mobile pools that you specify must be previously configured on the broadband gateway in the same routing instance as the mobile pool group.
- All the mobile pools in a mobile pool group should be of the same protocol family: inet or inet6.
- None of the mobile pools in a mobile pool group should be marked as the default.

**Related
Documentation**

- [address-assignment \(APN\)](#)
- [address-assignment \(MobileNext Broadband Gateway\) on page 26](#)
- [Configuring Address Assignment on a Broadband Gateway APN](#)
- [Example: Simple Unified Edge Configuration](#)
- [Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5](#)

Configuring the DHCP Proxy Client on the Broadband Gateway

The broadband gateway uses the DHCP proxy client configuration to assign IP addresses to subscribers if the address assignment method configured on the access point name (APN) is DHCP. A DHCP proxy client can be configured with DHCPv4 proxy client profiles, DHCPv6 proxy client profiles, or both DHCPv4 and DHCPv6 proxy client profiles. In addition, DHCP tracing operations can also be configured for the DHCP proxy client.

To configure a DHCP proxy client on the broadband gateway:

1. Configure one or more DHCPv4 proxy client profiles.

Refer to “[Configuring DHCPv4 Proxy Client Profiles](#)” on page 9 for details.

2. Configure one or more DHCPv6 proxy client profiles.

Refer to “[Configuring DHCPv6 Proxy Client Profiles](#)” on page 12 for details.

Related Documentation

- [Configuring DHCPv4 Proxy Client Profiles on page 9](#)
- [Configuring DHCPv6 Proxy Client Profiles on page 12](#)
- [dhcp-proxy-client on page 34](#)
- [Enabling DHCP on a Broadband Gateway APN on page 21](#)
- [Understanding DHCP Proxy Clients on page 4](#)

Enabling DHCP on a Broadband Gateway APN

You can configure a broadband gateway access point name (APN) to assign IP addresses to subscribers using the IP subnet or prefix returned by the Dynamic Host Configuration Protocol (DHCP) server. If this option is configured, then the broadband gateway uses the information configured in the DHCP proxy client profile to obtain the IP subnet or prefix returned by the DHCP server.

To enable DHCP on a broadband gateway APN:

1. Specify that the broadband gateway uses the information configured in the DHCP proxy client profile to obtain the IP subnet or prefix returned by the DHCP server.

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



NOTE: If you include the `dhcp-proxy-client` statement, you must configure a DHCPv4 proxy client profile, a DHCPv6 proxy client profile, or both profiles on the APN, depending on the type of addresses that the APN can allocate (configured in the `apn-data-type` statement).

Refer to [Configuring Address Assignment on a Broadband Gateway APN](#) for details.

2. Optionally, specify that the IP address returned by the AAA server overrides the address from the subnet or prefix returned from the DHCP server. In this case, if the AAA server provides an IP address for the user equipment, then the gateway does not assign an address from the subnet or prefix, which is returned from the DHCP server for the APN.

```
[edit unified-edge gateways ggsn-pgw MBG1 apn-services apns apn-1  
address-assignment]
```

```
user@host# set dhcp-proxy-client aaa-override
```

**Related
Documentation**

- [dhcp-proxy-client \(APN Address Assignment\)](#)
- [Configuring Address Assignment on a Broadband Gateway APN](#)
- [Configuring the DHCP Proxy Client on the Broadband Gateway on page 21](#)

CHAPTER 4

Configuration Statements

- [\[edit routing-instances <name> system\] Hierarchy Level on page 23](#)
- [\[edit system\] Hierarchy Level on page 24](#)
- [\[edit access address-assignment\] Hierarchy Level on page 24](#)

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

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

Related Documentation

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

[edit system] Hierarchy Level

```

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

```

[edit access address-assignment] Hierarchy Level

```

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

```

```
    }  
  }  
}  
  
pool-prefetch-threshold pool-prefetch-threshold;  
pool-snmp-trap-threshold pool-snmp-trap-threshold;  
service-mode service-mode-options;  
}  
}
```

**Related
Documentation**

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

address-assignment (MobileNext Broadband Gateway)


Syntax	<pre> address-assignment { mobile-pool-groups { group-name { [pool-name]; } } mobile-pools { name { ageing-window ageing-window; default-pool; family (inet inet6) { network { [network-prefix] { allocation-prefix-length allocation-prefix-length; external-assigned; range { [name] { external-assigned; high high; low low; } } } } } pool-prefetch-threshold pool-prefetch-threshold; pool-snmp-trap-threshold pool-snmp-trap-threshold; service-mode service-mode-options; } } } </pre>
Hierarchy Level	[edit access], [edit routing-instances <i>instance-name</i> access]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Configure the mobile pools and mobile pool groups that are used by the broadband gateway to assign addresses to subscribers. You can configure both IPv4 and IPv6 mobile pools and mobile pool groups.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	access—To view this statement in the configuration. access-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • [edit access address-assignment] Hierarchy Level on page 24 • Configuring Address Assignment on a Broadband Gateway APN • Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17

- Example: Simple Unified Edge Configuration
- [Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5](#)

ageing-window (Mobile Pools)

Syntax	<code>ageing-window <i>ageing-window</i>;</code>
Hierarchy Level	[edit access address-assignment mobile-pools <i>name</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Specify the time up to which IP addresses from the configured mobile pools should not be reused. Addresses from deleted packet data protocol (PDP) contexts or bearers are not reused by the broadband gateway until the time specified.
Default	If you do not configure a value, then the default is used.
Options	<i>ageing-window</i> —Time, in seconds, up to which addresses should not be reused. Range: 1 through 65,535 seconds Default: 2 seconds
Required Privilege Level	access —To view this statement in the configuration. access-control —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17 • mobile-pools on page 42 • Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5


allocation-prefix-length (Mobile Pools)

Syntax	<code>allocation-prefix-length <i>allocation-prefix-length</i>;</code>
Hierarchy Level	<p>[edit access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i>],</p> <p>[edit access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i>],</p> <p>[edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i>],</p> <p>[edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i>]</p>
Release Information	Statement introduced in Junos OS Mobility Release 11.4W.
Description	<p>Configure the prefix length for address allocation in mobile pools. The allocation prefix length determines the size of the address allocation block (or chunk) assigned to each session PIC on the broadband gateway.</p> <p>The default configuration for mobile pools is to assign 1024 addresses (prefix length 22 for IPv4 and 54 for IPv6) in each address allocation block. When the mobile pools are relatively small, the default configuration may not allow for all session PICs to be assigned an address block from which to allocate IP addresses. The prefix length specified using the allocation-prefix-length statement overrides the default prefix length. If the configured prefix length is smaller than the default prefix length, then this increases the chances that all session PICs are allocated an address block.</p>
<div>  <p>NOTE:</p> <ul style="list-style-type: none"> • If you configure this statement, then you cannot configure the external-assigned statement. • The allocation prefix length cannot be less than the corresponding network prefix length. For example, if the network prefix length is 24 (for IPv4), the allocation prefix length cannot be 23 or 22. </div>	
Options	<p><i>allocation-prefix-length</i>—Prefix length for the address allocation.</p> <p>Range:</p> <ul style="list-style-type: none"> • 32 (1 address) to 22 (1024 addresses) for IPv4 addresses • 64 (1 address) to 54 (1024 addresses) for IPv6 addresses <p>Default:</p> <ul style="list-style-type: none"> • 22 (1024 addresses) for IPv4 addresses • 54 (1024 addresses) for IPv6 addresses
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**

- [Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17](#)
- [network \(Mobile Pools\) on page 43](#)
- [Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5](#)

bind-interface

Syntax	<code>bind-interface <i>interface-name</i>;</code>
Hierarchy Level	<p>[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv6-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv6-profiles <i>name</i>]</p>
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Specify the interface on which the DHCP proxy client communicates with the configured DHCP servers. The primary IPv4 address of the bind interface is the source of DHCP packets for DHCPv4 and the source interface of DHCP control packets for DHCPv6.</p> <p>For the DHCPv4 proxy client, the interface specified here must be previously configured with the valid inet address and inet address family. Similarly, for the DHCPv6 proxy client, the interface must be previously configured with the valid inet6 address and inet6 family. The interface specified here is configured at the [edit interfaces] hierarchy level.</p>
<div>  <p>NOTE: You must configure the bind-interface for a DHCPv4 proxy client profile and a DHCPv6 proxy client profile.</p> </div>	
Example 1: Configuring dhcp-proxy-client with interfaces.	<pre>ge-0/1/5 { description "Interface facing DHCP server side"; unit 0 { family inet { address 10.1.1.1/24; } } }</pre>
Example 2: Configuring dhcp-proxy-client v4 profile	<pre>services { dhcp-proxy-client { dhcpv4-profiles dhcp-prof-1 { bind-interface ge-0/1/5.0; servers 10.1.1.2; } } }</pre>
Options	<i>interface-name</i> —Name of the previously configured interface.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv4 Proxy Client Profiles on page 9 • Configuring DHCPv6 Proxy Client Profiles on page 12

- [DHCP Overview on page 3](#)
- [dhcpv4-profiles on page 36](#)
- [dhcpv6-profiles on page 37](#)

dead-server-retry-interval

Syntax	<code>dead-server-retry-interval <i>interval-in-seconds</i>;</code>
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Configure the number of seconds before the broadband gateway reconnects with a dead server that was marked down in previous attempts. A server is marked down if there is no response for multiple successive attempts. The number of attempts can be configured using the dead-server-successive-retry-attempt statement.
Options	<i>interval-in-seconds</i> —Interval, in seconds, between retries. Range: 300 through 3600 seconds Default: 300 seconds
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring DHCPv4 Proxy Client Profiles on page 9• dead-server-successive-retry-attempt on page 32• DHCP Overview on page 3• dhcpv4-profiles on page 36

dead-server-successive-retry-attempt

Syntax	<code>dead-server-successive-retry-attempt <i>number-of-attempts</i>;</code>
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Specify the number of successive retry attempts that the broadband gateway makes to contact a server before declaring an unresponsive server dead. If a server is marked dead, no DHCP packets are sent to the server until the dead timer, specified using the dead-server-retry-interval statement, elapses and the server comes alive.
Options	<i>number-of-attempts</i> —Number of successive attempts between retries. Range: 5 through 1000 Default: 10
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring DHCPv4 Proxy Client Profiles on page 9• dead-server-retry-interval on page 31• DHCP Overview on page 3• dhcpv4-profiles on page 36

default-pool (Mobile Pools)

Syntax	default-pool;
Hierarchy Level	[edit access address-assignment mobile-pools <i>name</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Configure the mobile pool as a default pool. The broadband gateway uses the default pool to assign IP addresses to subscribers when a mobile pool or mobile pool group is not explicitly specified in the address assignment configuration for the access point name (APN).
Required Privilege Level	access—To view this statement in the configuration. access-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• address-assignment (APN)• Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17• mobile-pools on page 42• Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5

dhcp-proxy-client


Syntax	<pre> dhcp-proxy-client { dhcpv4-profiles <i>profile-name</i> { bind-interface <i>interface-name</i>; dead-server-retry-interval <i>interval-in-seconds</i>; dead-server-successive-retry-attempt <i>number-of-attempts</i>; dhcp-server-selection-algorithm (highest-priority-server round-robin); lease-time <i>time-in-seconds</i>; pool-name <i>pool-name</i>; retransmission-attempt <i>number-of-attempts</i>; retransmission-interval <i>interval-in-seconds</i>; servers <i>ip-address</i> { priority <i>value</i>; } } dhcpv6-profiles <i>profile-name</i> { bind-interface <i>interface-name</i>; lease-time <i>time-in-seconds</i>; pool-name <i>pool-name</i>; retransmission-attempt <i>number-of-attempts</i>; retransmission-interval <i>interval-in-seconds</i>; } traceoptions { ... } }</pre>
Hierarchy Level	[edit routing-instances <i>name</i> system services], [edit system services]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Configure the Dynamic Host Configuration Protocol (DHCP) proxy client parameters to enable DHCP-based IPv4 or IPv6 address allocation for mobile subscribers.</p> <p>The DHCP proxy client acquires a subnet (IPv4) or a prefix (IPv6) from the server as per DHCP IETF specifications. After the subnet or prefix is obtained from the server, the DHCP proxy client is managed locally for the mobile subscriber. When all mobile subscribers using the addresses in the subnet or prefix are detached from the GGSN or P-GW, the acquired subnet or prefix is released and the prefix or subnet can be assigned to another GGSN or P-GW by the DHCP server.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring the DHCP Proxy Client on the Broadband Gateway on page 21 • DHCP Overview on page 3 • services (DHCP Proxy Client) on page 53

- [Understanding DHCP Proxy Clients on page 4](#)

dhcp-server-selection-algorithm

Syntax	dhcp-server-selection-algorithm (highest-priority-server round-robin);
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Specify the algorithm used to select the DHCP server with which to communicate when multiple servers are configured. The DHCP server is selected either by the highest priority or by round-robin method, according to the algorithm specified for server selection.
Default	If you do not include this statement, the round-robin algorithm is used.
Options	<p>round-robin—Server is selected in a fixed cyclical order.</p> <p>highest-priority-server—Server with the highest priority is selected. (The server priority is configured using the priority statement at the [edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i> servers address] hierarchy level.)</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv4 Proxy Client Profiles on page 9 • DHCP Overview on page 3 • dhcpv4-profiles on page 36 • priority (DHCP Server) on page 47

dhcpv4-profiles

Syntax	<pre> dhcpv4-profiles <i>profile-name</i> { bind-interface <i>interface-name</i>; dead-server-retry-interval <i>interval-in-seconds</i>; dead-server-successive-retry-attempt <i>number-of-attempts</i>; dhcp-server-selection-algorithm (highest-priority-server round-robin); lease-time <i>time-in-seconds</i>; pool-name <i>pool-name</i>; retransmission-attempt <i>number-of-attempts</i>; retransmission-interval <i>interval-in-seconds</i>; servers <i>ip-address</i> { priority <i>value</i>; } } </pre>
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client], [edit system services dhcp-proxy-client]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Configure DHCPv4 proxy client profiles. The access point name (APN) refers to the DHCPv4 profiles to obtain the subnet from the DHCP server.
<div>  <p>NOTE: The DHCPv4 profile referenced by the APN is configured using the <code>profile-name</code> statement at the [edit unified-edge gateways ggsn-pgw <i>gateway-name</i> apn-services apns <i>name</i> address-assignment dhcpv4-proxy-client-profile] hierarchy level.</p> <p>A single DHCPv4 profile can be referenced by one or more APNs; alternatively, each APN can be configured to use a different DHCPv4 profile.</p> </div>	
Options	<p>profile-name—Name of the DHCPv4 proxy client profile.</p> <p>Range: Up to 63 characters</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv4 Proxy Client Profiles on page 9 • DHCP Overview on page 3 • dhcp-proxy-client on page 34 • profile-name (APN Address Assignment) • Understanding DHCP Proxy Clients on page 4

dhcpv6-profiles

Syntax	<pre>dhcpv6-profiles <i>profile-name</i> { <i>bind-interface</i> <i>interface-name</i>; <i>lease-time</i> <i>time-in-seconds</i>; <i>pool-name</i> <i>pool-name</i>; <i>retransmission-attempt</i> <i>number-of-attempts</i>; <i>retransmission-interval</i> <i>interval-in-seconds</i>; }</pre>
Hierarchy Level	<pre>[edit routing-instances <i>name</i> system services dhcp-proxy-client], [edit system services dhcp-proxy-client]</pre>
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Configure DHCPv6 proxy client profiles. The access point name (APN) refers to the DHCPv6 profiles to obtain the prefix from the DHCP server.




NOTE: The DHCPv6 profile referenced by the APN is configured using the **profile-name** statement at the [edit unified-edge gateways ggsn-pgw *gateway-name* apn-services apns *name* address-assignment dhcpv6-proxy-client-profile] hierarchy level.

A single DHCPv6 profile can be referenced by one or more APNs; alternatively, each APN can be configured to use a different DHCPv6 profile.

Options	<p>profile-name—Name of the DHCPv6 proxy client profile.</p> <p>Range: Up to 63 characters</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv6 Proxy Client Profiles on page 12 • DHCP Overview on page 3 • dhcp-proxy-client on page 34 • profile-name (APN Address Assignment)

external-assigned (Mobile Pools)

Syntax	external-assigned;
Hierarchy Level	<pre>[edit access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i>], [edit access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i>], [edit access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i> range <i>name</i>], [edit access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i> range <i>name</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i> range <i>name</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i> range <i>name</i>]</pre>
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Specify that the addresses in the associated network prefix or range are assigned by an external authority—for example, by the authentication, authorization, and accounting (AAA) server or statically by the user equipment. You can specify this either for the network prefix or for a range under the network prefix.
<div>  <p>NOTE: If you configure this statement, then you cannot configure the <code>allocation-prefix-length</code> statement.</p> </div>	
Required Privilege Level	access—To view this statement in the configuration. access-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17 • network (Mobile Pools) on page 43 • Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5 • range (Mobile Pools) on page 48

lease-time (DHCP Proxy Client Profile)

Syntax	<code>lease-time <i>time-in-seconds</i>;</code>
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv6-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv6-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Configure the default lease time, in seconds. If the DHCP client does not get the lease time from the DHCP server, it uses the configured default lease time as the lease time.</p> <p>The lease time indicates the time for which the broadband gateway holds the DHCP subnets or prefixes, if the server does not respond to a renewal request. After the lease time elapses, the subnets or prefixes are removed from the gateway and the subscriber is deleted.</p>
Default	If the DHCP client does not get the lease time from DHCP server, and if the default lease time is not configured (using this statement), then the gateway holds on to the subnets or prefixes as long as the subscribers, whose addresses are allocated from the subnets or prefixes, are active. The gateway does not renew the subnets or prefixes until the DHCP server sends a FORCE RENEW message.
Options	<p><i>time-in-seconds</i>—Number of seconds the lease can be held.</p> <p>Range: 60 through 1000 seconds</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv4 Proxy Client Profiles on page 9 • Configuring DHCPv6 Proxy Client Profiles on page 12 • DHCP Overview on page 3 • dhcpv4-profiles on page 36 • dhcpv6-profiles on page 37

family (Mobile Pools)

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

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

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

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



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

Options **inet**—IP version 4 (IPv4).

inet6—IP version 6 (IPv6).


The remaining statements are explained separately.

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

Related Documentation

- [Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17](#)
- [mobile-pools on page 42](#)
- [Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5](#)

mobile-pool-groups

Syntax	<pre>mobile-pool-groups { group-name { [pool-name]; } }</pre>
Hierarchy Level	[edit access address-assignment], [edit routing-instances <i>instance-name</i> access address-assignment]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Configure the mobile pool groups that are used by the broadband gateway to assign addresses to subscribers. You can configure both IPv4 and IPv6 pool groups.</p> <p>Mobile pool groups are a collection of one or more mobile pools. All the mobile pools in a mobile pool group should be of the same protocol family—inet or inet6. In addition, none of the mobile pools in a mobile pool group should be marked as a default.</p>
Options	<p>group-name—Name of the mobile pool group. Range: Up to 63 characters</p> <p>pool-name—Name of the mobile pool. To specify multiple mobile pools, include the pool-name statement multiple times.</p> <div style="margin-top: 10px;">  <p>NOTE: The mobile pool that you specify must be previously configured on the broadband gateway in the same routing instance as the mobile pool group.</p> </div> <p>Range: Up to 63 characters</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	access—To view this statement in the configuration. access-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • address-assignment (MobileNext Broadband Gateway) on page 26 • Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17 • Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5 • mobile-pools on page 42

mobile-pools

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

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

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

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

Options *name*—Name of the mobile pool.

Range: Up to 63 characters

The remaining statements are explained separately.

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

Related Documentation

- [address-assignment \(MobileNext Broadband Gateway\) on page 26](#)
- [Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17](#)
- [Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5](#)
- [Example: Simple Unified Edge Configuration](#)

network (Mobile Pools)

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

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

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

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



NOTE: At least one network prefix must be configured.

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

The remaining statements are explained separately.

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

Related Documentation

- [Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17](#)
- [family \(Mobile Pools\) on page 40](#)
- [Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5](#)

pool-name (DHCP Proxy Client Profile)

Syntax	<code>pool-name <i>pool-name</i>;</code>
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv6-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv6-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Specify a name for the DHCP server address pool. The broadband gateway requests the DHCP server for a subnet or prefix from the configured pool name. The specified pool name is sent to the DHCP server in the DHCP Discover and Request message in subnet-name-suboption of subnet-allocation-option.</p> <p>This configuration is optional; therefore, the pool name is sent only when it is configured.</p>
Options	<p><i>pool-name</i>—Name of the pool.</p> <p>Range: Up to 63 characters</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">• Configuring DHCPv4 Proxy Client Profiles on page 9• Configuring DHCPv6 Proxy Client Profiles on page 12• DHCP Overview on page 3• dhcpv4-profiles on page 36• dhcpv6-profiles on page 37

pool-prefetch-threshold (Mobile Pools)

Syntax	<code>pool-prefetch-threshold <i>pool-prefetch-threshold</i>;</code>
Hierarchy Level	[edit access address-assignment mobile-pools <i>name</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Specify the pool usage threshold in the mobile pool for pre-fetching addresses. The pre-fetch threshold is used when the pool is configured with prefixes, and when prefixes are added to an existing pool.
Options	<i>pool-prefetch-threshold</i> —Pre-fetch threshold percentage. Range: 1 through 100 Default: 80
Required Privilege Level	access—To view this statement in the configuration. access-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17• mobile-pools on page 42• Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5


pool-snmpt-trap-threshold (Mobile Pools)

Syntax	<code>pool-snmpt-trap-threshold <i>pool-snmpt-trap-threshold</i>;</code>
Hierarchy Level	[edit access address-assignment mobile-pools <i>name</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Specify the pool usage threshold in the mobile pool for generating SNMP traps. When the percentage of addresses used in the mobile pool exceeds the specified threshold, a notification is sent indicating that the specified threshold has been crossed. After reaching the specified threshold, when the percentage of addresses used in the mobile pool drops 20 percent below the threshold, the notification indicating that the specified threshold was exceeded, is cleared.
Options	<i>pool-snmpt-trap-threshold</i> —Threshold percentage. Range: 1 through 100 Default: 80
Required Privilege Level	access—To view this statement in the configuration. access-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring Mobile Pools and Mobile Pool Groups on the Broadband Gateway on page 17• mobile-pools on page 42• Overview of Mobile Pools and Mobile Pool Groups for the Broadband Gateway on page 5

priority (DHCP Server)

Syntax	<code>priority <i>priority</i>;</code>
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i> servers <i>address</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i> servers <i>address</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Configure the DHCP server priority. If the algorithm for server selection is based on the highest priority, then the broadband gateway uses the configured priority to select the active server with the highest priority. The DHCP Discover message is then sent to the selected server.
Options	<i>server-priority</i> —Priority for the DHCP server. Default: 3 Range: 1 (highest priority) to 5 (lowest priority)
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv4 Proxy Client Profiles on page 9 • DHCP Overview on page 3 • dhcp-server-selection-algorithm on page 35 • servers (DHCP Proxy Client Profiles) on page 51

range (Mobile Pools)

Syntax	<pre>range { [name] { external-assigned; high <i>high</i>; low <i>low</i>; } }</pre>
Hierarchy Level	<pre>[edit access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i>], [edit access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet network <i>network-prefix</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i> family inet6 network <i>network-prefix</i>]</pre>
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Specify the address ranges within the network prefix of the mobile pool. This configuration is optional. If a range is specified, then the broadband gateway assigns addresses only from the specified range.
	<div>  <p>NOTE: If you specify a range, then the high and low statements are mandatory.</p> </div>
Options	<p>high <i>high</i>—Upper address (IPv4) or prefix (IPv6) of the range.</p> <p>low <i>low</i>—Lower address (IPv4) or prefix (IPv6) of the range.</p> <p><i>name</i>—Name of the address range.</p> <p>Range: Up to 63 characters</p> <p>Syntax: The name must be unique within a mobile pool.</p> <p>The remaining statement is explained separately.</p>
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"> network (Mobile Pools) on page 43

retransmission-attempt (DHCP Proxy Client Profiles)

Syntax	retransmission-attempt <i>number-of-attempts</i> ;
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv6-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv6-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Configure the maximum number of times that the system attempts to communicate with the unresponsive DHCP server before each subnet allocation request is deemed as failed.
Options	<i>number</i> —Number of attempts to retransmit the packet. Range: 0 through 1000 Default: 4
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv4 Proxy Client Profiles on page 9 • Configuring DHCPv6 Proxy Client Profiles on page 12 • DHCP Overview on page 3 • dhcpv4-profiles on page 36 • dhcpv6-profiles on page 37

retransmission-interval (DHCP Proxy Client Profiles)

Syntax	retransmission-interval <i>interval-in-seconds</i> ;
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv6-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv6-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	Configure the amount of time that must pass with no response before the system reattempts to communicate with the DHCP server.
Options	<i>interval-in-seconds</i> —Number of seconds between successive retransmissions. Range: 4 through 64 seconds Default: 4 seconds
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring DHCPv4 Proxy Client Profiles on page 9• Configuring DHCPv6 Proxy Client Profiles on page 12• DHCP Overview on page 3• dhcpv4-profiles on page 36• dhcpv6-profiles on page 37

servers (DHCP Proxy Client Profiles)

Syntax	<code>servers <i>ip-address</i> { <i>priority</i> <i>value</i>; }</code>
Hierarchy Level	[edit routing-instances <i>name</i> system services dhcp-proxy-client dhcpv4-profiles <i>name</i>], [edit system services dhcp-proxy-client dhcpv4-profiles <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Configure the list of DHCP servers with which the DHCP proxy clients communicate to obtain the IPv4 subnet , which is used to allocate IP addresses to mobile subscribers on the broadband gateway.</p> <p>This configuration is applicable only to DHCPv4 profiles. You must configure at least one server.</p>
Options	<p>ip-address—IPv4 address of the server.</p> <p>The remaining statement is explained separately.</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring DHCPv4 Proxy Client Profiles on page 9 • DHCP Overview on page 3 • dhcpv4-profiles on page 36

service-mode (Mobile Pools)

Syntax	<code>service-mode <i>service-mode-options</i>;</code>
Hierarchy Level	[edit access address-assignment mobile-pools <i>name</i>], [edit routing-instances <i>instance-name</i> access address-assignment mobile-pools <i>name</i>]
Description	<p>Specify that the mobile pool should be in maintenance mode. You do this if you want to carry out maintenance tasks like deleting or modifying a mobile pool and so on. See the <i>Maintenance Mode</i> chapter in the <i>MobileNext Broadband Gateway Configuration Guide</i> for a list of the maintenance tasks that can be carried out when the mobile pool is in maintenance mode.</p> <p>When in the Maintenance Mode Active Phase, all the valid attributes on the object can be modified. In other cases, only the non-maintenance mode attributes can be modified.</p>
Options	<i>service-mode-options</i> —Specify the service mode. Currently, maintenance mode is the only option supported.
Required Privilege Level	access —To view this statement in the configuration. access-control —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Changing Address Attributes in the Mobile Address Pool• Deleting a Mobile Address Pool• mobile-pools on page 42

services (DHCP Proxy Client)

Syntax	<pre> services { dhcp-proxy-client { dhcpv4-profiles <i>profile-name</i> { bind-interface <i>interface-name</i>; dead-server-retry-interval <i>interval-in-seconds</i>; dead-server-successive-retry-attempt <i>number-of-attempts</i>; dhcp-server-selection-algorithm (highest-priority-server round-robin); lease-time <i>time-in-seconds</i>; pool-name <i>pool-name</i>; retransmission-attempt <i>number-of-attempts</i>; retransmission-interval <i>interval-in-seconds</i>; servers <i>ip-address</i> { priority <i>value</i>; } } dhcpv6-profiles <i>profile-name</i> { bind-interface <i>interface-name</i>; lease-time <i>time-in-seconds</i>; pool-name <i>pool-name</i>; retransmission-attempt <i>number-of-attempts</i>; retransmission-interval <i>interval-in-seconds</i>; } traceoptions { ... } } } </pre>
Hierarchy Level	[edit routing-instances <i>name</i> system], [edit system]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Configure the DHCPv4 and DHCPv6 proxy client profiles.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring the DHCP Proxy Client on the Broadband Gateway on page 21 • DHCP Overview on page 3 • system (DHCP Proxy Client) on page 54 • Understanding DHCP Proxy Clients on page 4

system (DHCP Proxy Client)

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

Hierarchy Level [edit],
[edit routing-instances *name*]

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

Description Configure the DHCPv4 and DHCPv6 proxy client profiles.

The remaining statements are explained separately.

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

Related Documentation

- [\[edit routing-instances <name> system\] Hierarchy Level on page 23](#)
- [Configuring the DHCP Proxy Client on the Broadband Gateway on page 21](#)
- [DHCP Overview on page 3](#)
- [Understanding DHCP Proxy Clients on page 4](#)

traceoptions (DHCP)

Syntax	<pre> traceoptions { file <i>filename</i> <files <i>number</i>> <match <i>regular-expression</i> > <size <i>maximum-file-size</i>> <world-readable no-world-readable>; flag <i>flag</i>; level (all error info notice verbose warning); no-remote-trace; } </pre>
Hierarchy Level	[edit system processes dhcp-service]
Release Information	Statement introduced in Junos OS Release 11.4.
Description	Define global tracing operations for DHCP operations on the broadband gateway.
Options	<p>file <i>filename</i>—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory /var/log.</p> <p>files <i>number</i>—(Optional) Maximum number of trace files to create before overwriting the oldest one. If you specify a maximum number of files, you also must specify a maximum file size with the size option.</p> <p>Range: 2 through 1000</p> <p>Default: 3 files</p> <p>flag <i>flag</i>—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements.</p> <ul style="list-style-type: none"> • all—Trace all events. • auth—This flag is not used by the broadband gateway. • database—This flag is not used by the broadband gateway. • fwd—This flag is not used by the broadband gateway. • general—This flag is not used by the broadband gateway. • ha—This flag is not used by the broadband gateway. • interface—This flag is not used by the broadband gateway. • io—Trace I/O operations. • liveness-detection—This flag is not used by the broadband gateway. • packet—Trace packet decoding operations. • performance—This flag is not used by the broadband gateway. • profile—This flag is not used by the broadband gateway. • rpd—Trace routing protocol process events. • rtsock—Trace routing socket operations. • session-db—This flag is not used by the broadband gateway.

- **state**—Trace changes in state.
- **statistics**—Trace baseline statistics.
- **ui**—Trace user interface operations.

level—Level of tracing to perform; also known as severity level. You can specify any of the following levels:

- **all**—Match all levels.
- **error**—Match error conditions.
- **info**—Match informational messages.
- **notice**—Match notice messages about conditions requiring special handling.
- **verbose**—Match verbose messages.
- **warning**—Match warning messages.

match *regular-expression*—(Optional) Refine the output to include lines that contain the regular expression.

no-remote-trace—Disable remote tracing.

no-world-readable—(Optional) Disable unrestricted file access, allowing only the user **root** and users who have the Junos OS **maintenance** permission to access the trace files.

size *maximum-file-size*—(Optional) Maximum size of each trace file. By default, the number entered is treated as bytes. Alternatively, you can include a suffix to the number to indicate kilobytes (KB), megabytes (MB), or gigabytes (GB). If you specify a maximum file size, you also must specify a maximum number of trace files with the **files** option.

Syntax: *sizek* to specify KB, *sizem* to specify MB, or *sizeg* to specify GB

Range: 10240 through 1073741824

Default: 128 KB

world-readable—(Optional) Enable unrestricted file access.

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

Related Documentation	<ul style="list-style-type: none">• Configuring DHCP Traceoptions on the Broadband Gateway on page 14• DHCP Overview on page 3• Understanding DHCP Proxy Clients on page 4
------------------------------	--

PART 3

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