

MobileNext Broadband Gateway

Maintenance Mode



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MobileNext Broadband Gateway Maintenance Mode

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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 viii 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 viii 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: <code>user@host> configure</code>
Fixed-width text like this	Represents output that appears on the terminal screen.	<code>user@host> show chassis alarms</code> <code>No alarms currently active</code>
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces 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: <code>[edit]</code> <code>root@# set system domain-name <i>domain-name</i></code>
Text like this	Represents names of configuration statements, commands, files, and directories; interface names; 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 <code>[edit protocols ospf area area-id]</code> hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Enclose optional keywords or variables.	<code>stub <default-metric <i>metric</i>>;</code>

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</i> <i>string2</i> <i>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:

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- 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

- [Maintenance Mode on page 3](#)

CHAPTER 1

Maintenance Mode

- [Mobility Maintenance Mode Overview on page 3](#)

Mobility Maintenance Mode Overview

Junos OS maintenance mode for the MobileNext Broadband Gateway allows you to take certain network functionality offline to perform specific maintenance tasks without disrupting service. When access point names, gateways, subscribers, and the like need maintenance, entering maintenance mode prevents these mobility elements from accepting new requests. You have the option of allowing all existing services to complete, or clear them. When ready, proceed with critical maintenance functions with a minimum of service disruption. Subscribers who attempt to access a gateway that is active in maintenance mode are prompted with a notice that the service is not supported.

You must make the following changes in maintenance mode:

- Delete or modify the addresses of certain GPRS tunneling protocol (GTP) interfaces.
- Delete or change the type of an access point name (APN).
- Change mobile interface configuration parameters.
- Change a mobile interface for an APN.
- Delete a charging profile.
- Delete or modify a charging data record (CDR) profile or CDR type.
- Delete or modify a transport profile.
- Delete or modify a trigger profile.
- Delete a mobile pool or modify its parameters.

These maintenance tasks are discussed in this topic. You can perform all other maintenance tasks outside of maintenance mode.

Notice that the maintenance mode procedures listed do not include adding elements. New gateways, APNs, and such carry no traffic and thus do not need to be gracefully halted. However, you can create new mobility network elements in maintenance mode as an environment in which to test configurations before deploying them.

**Related
Documentation**

- [Changing a GTP Interface Address on page 7](#)
- [Deleting a GTP Interface on page 9](#)
- [Modifying an Access Point Name on page 10](#)
- [Configuring the Mobile Interface of an Access Point Name on page 12](#)
- [Deleting an Access Point Name on page 13](#)
- [Changing a Charging Profile on page 15](#)
- [Deleting a Charging Profile on page 16](#)
- [Changing a Transport Profile on page 21](#)
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- [Changing AMS Interface Parameters on page 30](#)
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PART 2

Configuration

- [Maintenance Tasks on page 7](#)
- [Maintenance Examples on page 37](#)
- [Configuration Statements on page 67](#)

CHAPTER 2

Maintenance Tasks

- [Changing a GTP Interface Address on page 7](#)
- [Deleting a GTP Interface on page 9](#)
- [Modifying an Access Point Name on page 10](#)
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- [Changing Address Attributes in the Mobile Address Pool on page 23](#)
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- [Deleting a Services PIC on page 28](#)
- [Changing AMS Interface Parameters on page 30](#)
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Changing a GTP Interface Address

This procedure describes how to use maintenance mode to halt new sessions from being started and to verify that there are no active sessions remaining before making changes to a GPRS tunneling protocol (GTP) interface address.

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for a gateway.

```
user@host# set unified-edge gateways ggsn-pgw gw-name service-mode  
maintenance"
```

3. Verify that the mobility gateway is in maintenance mode.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```



NOTE: From the gateway hierarchy, the service mode for the gateway shows Maintenance – Active Phase if all the sessions using this pool are cleared. The service mode for the gateway shows Maintenance – In Phase if there are some sessions actively using this pool.

4. Verify that there are no subscribers active on this gateway.

```
user@host# run show unified-edge ggsn-pgw subscribers gateway gw-name
```



NOTE: If a large number of subscribers will use this gateway, the preceding command will be process intensive, in which case, you can use the following command:

```
user@host# run show unified-edge ggsn-pgw status
```

This command shows the active contexts across all of the gateway instances.

5. Verify that there are no outstanding CDRs for the gateway.

```
user@host# show unified-edge ggsn-pgw charging transfer status
```

6. (Optional) Terminate sessions that are using the gateway and clear CDRs using the following **clear** commands:

```
user@host# run clear unified-edge ggsn-pgw subscribers gateway gw-name
```

```
user@host# run clear unified-edge ggsn-pgw subscribers charging gateway gw-name
```



CAUTION: These clear commands clear all of the existing subscribers on the gateway. Only issue these commands if you intend to disconnect service to all these subscribers.

7. When the subscriber count is zero, all sessions have ended, and the charging data records (CDRs) are flushed, modify the GTP interface in active maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw gw-name gtp interface
interface-name
user@host# commit
```



NOTE: These modifications must be made in active maintenance mode or they will fail.

8. Verify that changes were properly committed.

```
user@host# run show configuration unified-edge ggsn-pgw gateway gw-name
```

9. Exit maintenance mode and commit.

```

user@host# delete unified-edge gateways ggsn-pgw gw-name gateway gw-name
service-mode
user@host# commit

```

10. Return the gateway to operational state.

```

user@host# run show unified-edge ggsn-pgw gateway service-mode

```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Deleting a GTP Interface on page 9](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Deleting a GTP Interface

This procedure describes how to use maintenance mode to delete a GPRS tunneling protocol (GTP) interface. You must first halt new sessions from being started and verify that there are no active sessions remaining.

You can use maintenance mode to remove any of the following GTP interfaces:

- Gn
- Gp
- S5
- S8

You can also enter maintenance mode to delete control and data portions of these interface configurations.

1. Enter configuration mode in the CLI.

```

user@host> configure

```

2. Activate maintenance mode for a gateway.

3. Verify that the mobility gateway is in maintenance mode.

```

user@host# run show unified-edge ggsn-pgw gateway service-mode

```



NOTE: From the gateway hierarchy, the service mode for the gateway shows Maintenance – Active Phase if all the sessions using this pool are cleared. The service mode for the gateway shows Maintenance – In Phase if there are some sessions actively using this pool. The service mode for the gateway shows Maintenance – Out Phase if maintenance mode is not configured (that is, the gateway is in operational mode).

Verify that there are no subscribers active on this gateway.

```

user@host# run show unified-edge ggsn-pgw subscriber gateway gw-name

```

4. Verify that there are no outstanding CDRs for the gateway.

```
user@host# show unified-edge ggsn-pgw charging transfer status
```

5. (Optional) Terminate sessions that are using the gateway and clear CDRs using the following **clear** commands:

```
user@host# run clear unified-edge ggsn-pgw subscribers gateway gw-name
```

```
user@host# run clear unified-edge ggsn-pgw subscribers charging gateway gw-name
```

6. When the subscriber count is zero, all sessions have ended, and the charging data records (CDRs) are flushed, delete the GTP interface in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

7. Delete the GTP interface.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name gtp interface  
interface-name
```

```
user@host# commit
```

8. Exit maintenance mode and commit.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name gateway gw-name  
service-mode
```

```
user@host# commit
```

9. Verify that changes were properly committed.

```
user@host# run show configuration unified-edge ggsn-pgw gateway gw-name
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a GTP Interface Address on page 7](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Modifying an Access Point Name

This procedure describes how to use maintenance mode to modify an access point name (APN). Options include modifying such parameters as apn-type, mobile-interface, charging, and maximum-bearers. You must first halt new sessions from being started and verify that there are no active sessions remaining.

To change an access point name:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for an APN.

```
user@host# set unified-edge gateways ggsn-pgw gw-name apn-services apns  
apn-name service-mode maintenance
```

3. Commit the command.

```
user@host# commit
```

4. Verify that the APN is in maintenance mode.

```
user@host# run show unified-edge ggsn-pgw apn service-mode
```

This command displays the service-mode status for all the APNs. You can verify the status for the specific APN and take action accordingly.



NOTE: The service mode for the APN shows Maintenance – Active Phase if all the sessions using this APN are cleared. The service mode for the APN shows Maintenance - In Phase if there are some sessions actively using this APN.

5. Verify that there are no subscribers active on the APN.

```
user@host# run show unified-edge ggsn-pgw subscribers | match apn-name
```

6. (Optional) Terminate sessions on an APN using the **clear** command

```
user@host# run clear unified-edge ggsn-pgw subscribers apn apn-name gateway gw-name
```

7. When the subscriber count is zero and all sessions have ended, make and commit changes to the APN in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

8. Modify the APN and commit the changes.

9. Exit maintenance mode.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name apn-services apns apn-name service--mode
user@host# commit
```

10. Verify that changes were properly committed.

```
user@host# run show configuration unified-edge gateways ggsn-pgw gw-name apn-services apns apn-name
```

The APN edits should appear in the show command output.

11. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```



NOTE: Although maintenance mode does not explicitly include AAA options, certain AAA changes require you to place affected APNs in maintenance mode first. These changes include: changing an AAA profile name and changing authorization or accounting elements. If you attempt to make AAA changes that affect an APN that is not in maintenance mode, you are prompted to place the appropriate APN into maintenance mode before proceeding with AAA profile name or element changes.

**Related
Documentation**

- [Mobility Maintenance Mode Overview on page 3](#)
- [Configuring the Mobile Interface of an Access Point Name on page 12](#)
- [Deleting an Access Point Name on page 13](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Configuring the Mobile Interface of an Access Point Name

This procedure describes how to use maintenance mode to modify attributes of the mobile interface for an access point name (APN). You must first halt new sessions from being started and verify that there are no active sessions remaining.

To configure the mobile interface of an access point name:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for the APN using the mobile interface to be modified.

```
user@host# set unified-edge gateways ggsn-pgw gw-name apn-services apns  
apn-name service-mode maintenance  
user@host# commit
```

3. Verify that the APN of this mobile interface is in maintenance mode.

```
user@host# run show unified-edge ggsn-pgw apn service-mode
```



NOTE: From the gateway hierarchy, the service mode for the gateway shows Maintenance – Active Phase if all the sessions using this APN are cleared. The service mode for the gateway shows Maintenance – In Phase if there are some sessions actively using this APN. The service mode for the APN shows Maintenance – Out Phase if maintenance mode is not configured (that is, it is in operational mode).



NOTE: You cannot make and commit changes to a mobile interface unless the APN to which it is attached is in maintenance mode.

4. Verify that there are no subscribers active on the APN.

```
user@host# run show unified-edge ggsn-pgw subscribers | match apn-name
```

5. (Optional) Terminate sessions that are using a mobile pool using the **clear** command.

```
user@host# run clear unified-edge ggsn-pgw subscribers apn apn-name gateway gw-name
```

6. When the subscriber count is zero and all sessions have ended, make and commit changes to the APN mobile interface in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

7. Modify the interface and commit the changes.

8. Exit maintenance mode.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name apn-services apns apn-name service-mode
user@host# commit
```

9. Verify that changes were properly committed.

```
user@host# run show configuration unified-edge gateways ggsn-pgw gw-name apn-services apns apn-name
```

10. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Example: Changing Access Point Name Values on page 37](#)
- [Deleting an Access Point Name on page 13](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Deleting an Access Point Name

This procedure describes how to use maintenance mode to delete an access point name (APN). You must first halt new sessions from being started and verify that there are no active sessions remaining.

To delete an access point name:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for an APN.

```
user@host# set unified-edge gateways ggsn-pgw gw-name apn-services apn apn-name service-mode maintenance
user@host# commit
```

3. Verify that the APN is in maintenance mode.

```
user@host# run show unified-edge ggsn-pgw apn service-mode
```



NOTE: The service mode for the APN shows Maintenance – Active Phase if all the sessions using this APN are cleared. The service mode for the APN shows Maintenance – In Phase if there are some sessions actively using this APN. The service mode for the APN shows Maintenance – Out Phase if maintenance mode is not configured (that is, it is in operational mode).

4. Verify that there are no subscribers active on the APN.

```
user@host# run show unified-edge ggsn-pgw apn apn-name gateway gw-name
```

5. (Optional) Terminate sessions that are using an APN using the **clear** command.

```
user@host# run clear unified-edge ggsn-pgw subscribers apn apn-name gateway  
gw-name
```

6. When the subscriber count is zero and all sessions have ended, delete the APN in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

7. Delete the APN and commit the changes.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name apn-services apns  
apn-name
```

8. Verify that changes were properly committed by showing the configuration for the entire unified edge to make sure the APN is deleted.

9. Return the gateway to the operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Configuring the Mobile Interface of an Access Point Name on page 12](#)
- [Example: Changing Access Point Name Values on page 37](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Changing a Charging Profile

This procedure describes how to use maintenance mode to change a charging profile. You must first halt new sessions from being started and verify that there are no active sessions remaining.

You can make the following types of changes to the charging profile in maintenance mode:

- CDR profile
- Transport profile
- Trigger profile

To change the charging profile:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for a charging profile.

```
user@host# set unified-edge gateways ggsn-pgw gw-name charging charging-profiles
  profile-name service-mode maintenance
user@host# commit
```

3. Verify that the charging gateway is in maintenance mode.

```
user@host# show unified-edge ggsn-pgw subscribers charging charging-profile
  profile-name gateway gw-name
```



NOTE: The service mode for the charging profile shows Maintenance – Active Phase if all the sessions using this profile are cleared. The service mode for the charging profile shows Maintenance – In Phase if there are some sessions actively using this profile. The service mode for the profile shows Maintenance – Out Phase if maintenance mode is not configured (that is, it is in operational mode).

Verify that there are no subscribers active on this charging profile.

```
user@host# show unified-edge ggsn-pgw subscribers charging charging-profile
  profile-name
```

4. (Optional) Terminate subscribers using a charging profile using the **clear** command.

```
user@host# run clear unified-edge ggsn-pgw subscribers charging charging-profile
  profile-name gateway gw-name
```

5. When the subscriber count is zero and all sessions have ended, you can make and commit changes to the charging profile in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

6. Make the changes and verify that they were properly committed.

```
user@host# show unified-edge ggsn-pgw subscribers charging charging-profile  
profile-name gateway gw-name
```

7. Exit maintenance mode and commit to return to normal operations.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name charging  
charging-profile profile-name service-mode  
user@host# commit
```

8. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a Transport Profile on page 21](#)
- [Changing a Trigger Profile on page 18](#)
- [Deleting a Charging Profile on page 16](#)
- [Changing a Call Detail Record Profile in a Charging Profile on page 22](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Deleting a Charging Profile

This procedure describes how to use maintenance mode to delete a charging profile. You must first halt new sessions from being started and verify that there are no active sessions remaining.

The example shown is for deleting a charging transport profile. The same configuration applies for deleting a transport or trigger profile.



NOTE: Use this procedure to delete a charging profile or a charging transport profile. To specify a charging profile, replace the syntax **charging transport-profiles** with **charging charging-profiles**.

To delete a charging profile:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for a charging transport profile:

```
user@host# set unified-edge gateways ggsn-pgw gw-name charging transport-profiles  
profile-name service-mode maintenance  
commit
```

3. Verify that the charging gateway is in maintenance mode.

```
user@host# show unified-edge ggsn-pgw charging service-mode transport-profile  
profile-name gateway gw-name
```



NOTE: The service mode for the charging profile shows Maintenance – Active Phase if all the sessions using this pool are cleared. The service mode for the charging profile shows Maintenance – In Phase if there are some sessions actively using this profile. The service mode for the profile shows Maintenance – Out Phase if maintenance mode is not configured (that is, it is in operational mode).

4. Verify that there are no subscribers active on this charging profile.

```
user@host# show unified-edge ggsn-pgw charging service-mode transport-profile
profile-name gateway gw-name
```

5. (Optional) Terminate sessions that are using a charging profile using the **clear** command.

```
user@host# run clear unified-edge ggsn-pgw subscribers charging transport-profile
profile-name gateway gw-name
```

6. When the subscriber count is zero and all sessions have ended, you can make and commit changes to charging profile attributes in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

7. Delete the charging transport profile, commit your changes, and exit maintenance mode.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name charging
transport-profile profile-name service-mode
user@host# commit
```

8. Verify that changes were properly committed.

```
user@host# run show configuration unified-edge ggsn-pgw gateway gw-name
```

9. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a Charging Profile on page 15](#)
- [Changing a Transport Profile on page 21](#)
- [Changing a Trigger Profile on page 18](#)
- [Changing a Call Detail Record Profile in a Charging Profile on page 22](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Changing a Trigger Profile

This procedure describes how to use maintenance mode to change a trigger profile. You must first halt new sessions from being started and verify that there are no active sessions remaining.

To change a trigger profile:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for a charging trigger profile:

```
user@host# set unified-edge gateways ggsn-pgw gw-name charging trigger-profiles  
profile-name service-mode maintenance  
user@host# commit
```

3. Verify that the charging gateway is in maintenance mode.

```
user@host# run show unified-edge ggsn-pgw charging service-mode trigger-profile  
profile-name gateway gw-name
```

Verify that there are no subscribers active on this charging profile.

```
user@host# run show unified-edge ggsn-pgw subscribers charging trigger-profile  
profile-name gateway gw-name
```

4. (Optional) Terminate sessions using the **clear** command

```
user@host# run clear unified-edge ggsn-pgw subscribers charging trigger-profile  
profile-name gateway gw-name
```

5. When the subscriber count for the charging profile and all CDRs generated for the charging profile is zero, you can make and commit changes to the charging trigger profile in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

6. Modify the charging trigger profile.

7. Commit your changes and exit maintenance mode.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name charging trigger-profile  
profile-name service-mode commit
```

8. Verify that changes were properly committed.

```
user@host# run show configuration unified-edge ggsn-pgw gateway gw-name
```

9. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a Charging Profile on page 15](#)

- [Changing a Transport Profile on page 21](#)
- [Deleting a Charging Profile on page 16](#)
- [Changing a Call Detail Record Profile in a Charging Profile on page 22](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Removing a Charge

This procedure shows how to enter maintenance mode to halt new sessions from being started and to verify that there are no sessions remaining before removing a change.

Before you begin, you should have:

- Entered configuration mode in the CLI.

To delete a charge:

1. Activate Maintenance Mode for the charging profile containing the charge to be deleted.

```
user@host# set unified-edge gateways ggsn-pgw gw-name charging-profiles
  profile-name service-mode maintenance
user@host# commit
```

2. Verify that the charging gateway is in maintenance mode.

```
user@host# run show unified-edge ggsn-pgw charging service-mode profile
  profile-name gateway gw-name
```

Verify that no subscribers are still active on this charging profile.

```
user@host# run show unified-edge ggsn-pgw charging service-mode profile
  profile-name gateway gw-name
```

3. (Optional) Operators can terminate sessions using a charging profile by entering the **clear** command

```
user@host# clear unified-edge ggsn-pgw subscribers charging -profile profile-name
  gatewaygw-name
```

4. When the subscriber count is zero and all sessions are ended, operators can make and commit changes to charging profile attributes in active maintenance mode.



NOTE: All modifications of variables must be made in active maintenance mode or they will fail.

5. Delete the charging profile and exit maintenance mode.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name charging-profile
  profile-name maintenance-mode
user@host# commit
```

6. Verify that changes were properly committed.

```
user@host# show unified-edge ggsn-pgw subscribers charging transport-profile
  profile-name gateway gw-name
```

[[fill

Related Documentation

- call detail records
- transport profile
- trigger profile

Changing a Transport Profile

This procedure describes how to use maintenance mode to change a transport profile. You must first halt new sessions from being started and verify that there are no active sessions remaining.

To change a transport profile:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for a charging transport profile:

```
user@host# set unified-edge gateways ggsn-pgw gw-name charging transport-profiles
profile-name service-mode maintenance
user@host# commit
```

3. Verify that the charging gateway is in maintenance mode.

```
user@host# run show unified-edge ggsn-pgw charging service-mode transport-profile
profile-name gateway gw-name
```



NOTE: The service mode for the transport profile shows Maintenance – Active Phase if all the sessions using this profile are cleared. The service mode for a transport profile shows Maintenance – In Phase if there are some sessions actively using this profile. The service mode for the profile shows Maintenance – Out Phase if maintenance mode is not configured (that is, it is in operational mode).

4. Verify that there are no subscribers active on this charging profile.

```
user@host# run show unified-edge ggsn-pgw subscribers charging transport-profile
profile-name gateway gw-name
```

5. (Optional) Terminate sessions using the **clear** command.

```
user@host# run clear unified-edge ggsn-pgw subscribers charging transport-profile
profile-name gateway gw-name
```

6. When the subscriber count is zero and all sessions have ended, you can make and commit changes to the charging transport profile in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

7. Modify the charging transport profile as required.

8. Exit maintenance mode and commit.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name charging
transport-profile profile-name service-mode commit
```

9. Verify that changes were properly committed.

```
user@host# run show configuration unified-edge ggsn-pgw gateway gw-name
```

10. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a Charging Profile on page 15](#)
- [Changing a Trigger Profile on page 18](#)
- [Deleting a Charging Profile on page 16](#)
- [Changing a Call Detail Record Profile in a Charging Profile on page 22](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Changing a Call Detail Record Profile in a Charging Profile

This procedure describes how to use maintenance mode to change a CDR profile in a charging profile. You must first halt new sessions from being started and verify that there are no active sessions remaining.

To make changes to a CDR profile in a charging profile in maintenance mode:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Place the charging profile in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw gw-name charging charging-profiles  
profile-name maintenance mode  
user@host# commit
```

3. Verify that, for this charging profile, no subscribers are active and that the CDRs have been flushed.

```
user@host# run show unified-edge ggsn-pgw gw-name subscribers charging  
charging-profile profile-name
```

4. (Optional) Terminate sessions that are using a mobile pool using the **clear** command.

```
user@host# run clear unified-edge ggsn-pgw subscribers charging charging-profile  
profile-name
```

5. When the subscriber count is zero and all sessions have ended, maintenance mode is active. You can make and commit changes to pool attributes in active maintenance mode.



NOTE: These modifications must be made in active maintenance mode or they will fail.

6. Make the changes and verify that they were properly committed.


```
user@host# run show unified-edge ggsn-pgw subscribers charging charging-profile
profile-name gateway gw-name charging charging-profile profile-name
```

7. Commit your changes and exit maintenance mode to return to normal operations.

```
user@host# delete unified-edge gateways ggsn-pgw gw-name charging
charging-profile profile-name service-mode
user@host# commit
```

8. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a Charging Profile on page 15](#)
- [Changing a Transport Profile on page 21](#)
- [Changing a Trigger Profile on page 18](#)
- [Deleting a Charging Profile on page 16](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Changing Address Attributes in the Mobile Address Pool

This procedure describes how to place a mobile pool of a virtual routing and forwarding (VRF) instance in maintenance mode, allow all existing sessions using this pool to gracefully terminate, and then delete or modify pool attributes (for example, change address ranges in a pool).

To change address attributes in the mobile address pool:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for a mobile pool.

```
user@host# configure
user@host# set routing-instance vrf-name access address-assignment mobile pools
juniper-pool service-mode maintenance
user@host# commit
```

3. Verify that all subscriber sessions have ended.

```
user@host# run show unified-edge ggsn-pgw address-assignment pool brief
```



NOTE: The service mode shows Maintenance – Active Phase if all the sessions are cleared. The service mode shows Maintenance – In Phase if there are some sessions active. The service mode shows Maintenance – Out Phase if maintenance mode is not configured (that is, it is in operational mode).

4. (Optional) Terminate existing sessions using the **clear** command.

```
user@host# configure
user@host# run clear unified-edge ggsn-pgw subscribers routing-instance juniper-vrf
```



NOTE: When the subscriber count is zero and all sessions have terminated, the service mode status indicates Maintenance – Active phase. In this state, you can modify mobile pool attributes and commit changes.

5. Make changes to the pool and commit.
6. Verify that changes were properly committed.

```
user@host# run show configuration routing-instance access address-assignment
mobile-pools pool-name detail
```



NOTE: These modifications, if made outside of active maintenance mode, will fail.

7. Exit maintenance mode to return to normal operational mode.

```
user@host# delete routing-instance juniper-vrf access address-assignment
mobile-pools pool-name service-mode
user@host# commit
```

8. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

- Related Documentation**
- [Mobility Maintenance Mode Overview on page 3](#)
 - [Deleting a Mobile Address Pool on page 24](#)

Deleting a Mobile Address Pool

This procedure describes how to delete a mobile pool. You must first halt new sessions from being started and verify that there are no active sessions remaining. The steps are similar to those described in [“Changing Address Attributes in the Mobile Address Pool” on page 23](#)

To delete an address from an address pool:

1. Enter configuration mode in the CLI.

```
user@host> configure
```

2. Activate maintenance mode for a mobile pool.

```
user@host# set routing-instance juniper-vrf access address-assignment mobile-pools
pool-name service-mode maintenance
commit
```

3. Verify that all subscriber sessions have ended.

```
user@host# run show unified-edge ggsn-pgw address-assignment pool brief
```



NOTE: The service mode shows Maintenance – Active Phase if all the sessions are cleared. The service mode shows Maintenance – In Phase if there are some sessions active. The service mode shows Maintenance – Out Phase if maintenance mode is not configured (that is, it is in operational mode).

4. (Optional) Terminate sessions that are using a mobile pool using the **clear** command.

```
user@host# configure
user@host# run clear unified-edge ggsn-pgw subscribers routing-instance juniper-vrf
```



NOTE: When the subscriber count is zero and all sessions have terminated, the service mode status will indicate “Maintenance – Active phase.” In this state, you can modify pool attributes and commit changes.

5. For this pool, when the subscriber count is zero and all sessions have ended, the service mode status indicates “Maintenance – Active Phase.” In this state, you can modify mobile pool attributes and commit changes.



NOTE: These modifications, if made outside of active maintenance mode, will fail.

6. Delete the address pool and commit the change.

```
user@host# delete routing-instance juniper-vrf access address-assignment
mobile-pools juniper-pool
commit
```

7. Verify that the address pool has been deleted (that is, it is not listed in the output).

```
user@host# run show configuration routing-instance juniper-vrf access
address-assignment mobile-pools juniper-pool
user@host# commit
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing Address Attributes in the Mobile Address Pool on page 23](#)

Deleting a Session PIC

This procedure shows how to delete a session PIC using maintenance mode at the **[edit unified-edge gateways ggsn-pgw *ggsn-pgw-name* system session-pics interface]** or **[edit unified-edge gateways sgw *sgw-name* system session-pics interface]** hierarchy level. The session PIC can be an aggregated multiservices interface (AMS). Session PICs process control plane messages on a broadband gateway.

Before you delete a session PIC using maintenance mode:

- Make sure that this change has been coordinated with affected groups and users.

To configure maintenance mode and session PIC deletion:

1. Verify the current status of maintenance mode for this session PIC.

```
user@host> show unified-edge ggsn-pgw gateway-name system interfaces
service-mode
user@host> show unified-edge sgw gateway-name system interfaces service-mode
```



NOTE: The **service-mode** option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Operational
ms-2/0/0	MBG1	Operational
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational

2. Place the broadband gateway in configuration mode.

```
user@host# configure
```

3. On the Gateway GPRS Support Node (GGSN). Packet Data Network Gateway (P-GW), or Serving Gateway (S-GW), place the interface in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw gateway-name system session-pics
interface interface-name service-mode maintenance
user@host# set unified-edge gateways sgw gateway-name system session-pics
interface interface-name service-mode maintenance
```

4. Commit maintenance mode.

```
user@host# commit
```

5. Verify that the session PIC is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@MBG1> show unified-edge ggsn-pgw gateway-name system interfaces
service-mode
```

```
user@MBG1> show unified-edge sgw gateway-name system interfaces service-mode
```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Maintenance - Active Phase
ms-2/0/0	MBG1	Operational
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational



NOTE: All subscribers serviced by the session PIC must go to zero. All Charging Data Records (CDRs) for these subscribers must be flushed out. You can wait for these conditions to be met, or use the clear command for the interface (or gateway) to force these conditions.

6. Delete the session PIC.

```
user@host# delete unified-edge gateways ggsn-pgw gateway-name system interface
interface-name
```

```
user@host# delete unified-edge gateways sgw gateway-name system interface
interface-name
```

7. Exit with commit.



NOTE: Deletion of a session PIC automatically exits maintenance mode for the deleted PIC.

```
user@host# commit
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Deleting a Services PIC on page 28](#)
- [Changing AMS Interface Parameters on page 30](#)

- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Deleting a Services PIC

This procedure shows how to delete a services PIC using maintenance mode at the **[edit unified-edge gateways ggsn-pgw *ggsn-pgw-name* system session-pics interface]** or **[edit unified-edge gateways sgw *sgw-name* system session-pics interface]** hierarchy level. The services PIC can be an aggregated multiservices interface (AMS). Services PICs perform packet-related services on a broadband gateway.

Before you delete a services PIC using maintenance mode:

- Make sure that this change has been coordinated with affected groups and users.

To configure maintenance mode and services PIC deletion:

1. Verify the current status of maintenance mode for this services PIC.

```
user@host> show unified-edge ggsn-pgw gateway-name system interfaces
service-mode
user@host> show unified-edge sgw gateway-name system interfaces service-mode
```



NOTE: The service-mode option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Operational
ms-2/0/0	MBG1	Operational
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational

2. Place the broadband gateway in configuration mode.

```
user@host# configure
```

3. On the Gateway GPRS Support Node (GGSN). Packet Data Network Gateway (P-GW), or Serving Gateway (S-GW), place the interface in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw gateway-name system session-pics
interface interface-name service-mode maintenance
```

```
user@host# set unified-edge gateways sgw gateway-name system session-pics
interface interface-name service-mode maintenance
```

4. Commit maintenance mode.

```
user@host# commit
```

5. Verify that the services PIC is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@MGB1> show unified-edge ggsn-pgw gateway-name system interfaces
service-mode
```

```
user@MGB1> show unified-edge sgw gateway-name system interfaces service-mode
```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Operational
ms-2/0/0	MBG1	Maintenance - Active Phase
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational



NOTE: All subscribers serviced by the services PIC must go to zero. All Charging Data Records (CDRs) for these subscribers must be flushed out. You can wait for these conditions to be met, or use the clear command for the interface (or gateway) to force these conditions.

6. Delete the services PIC.

```
user@host# delete unified-edge gateways ggsn-pgw gateway-name system interface
interface-name
```

```
user@host# delete unified-edge gateways sgw gateway-name system interface
interface-name
```

7. Exit maintenance mode and commit.



NOTE: Deletion of a services PIC automatically exits maintenance mode for the deleted PIC.

```
user@host# commit
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)

- [Deleting a Session PIC on page 26](#)
- [Changing AMS Interface Parameters on page 30](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Changing AMS Interface Parameters

This procedure shows how to change the parameters for an aggregated multiservices (AMS) interface on a MobileNext Broadband Gateway using maintenance mode at the **[edit interfaces]** hierarchy level. If an AMS interface is configured under a gateway's session PICs or services PICs, and there is a change to any load-balancing options such as membership of AMS interfaces (**mams-**), then the AMS interface must be in maintenance mode.

Before you change AMS parameters using maintenance mode:

- Make sure that this change has been coordinated with affected groups and users.

To configure maintenance mode and AMS parameter change:

1. Verify the current status of maintenance mode for the AMS.

```
user@MGB1> show unified-edge ggsn-pgw gateway-name system interfaces
service-mode
```



NOTE: The **service-mode** option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Operational
ms-2/0/0	MBG1	Operational
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational

2. Place the broadband gateway in configuration mode.

```
user@host# configure
```

3. Show the current configuration for the AMS interface


```

user@host# show interfaces interface-name
load-balancing-options {
  member-interface mams-4/1/0;
  member-interface mams-5/1/0;
  member-failure-options {
    redistribute-all-traffic {
      enable-rejoin;
    }
  }
  high-availability-options {
    many-to-one {
      preferred-backup mams-5/1/0;
    }
  }
}
unit 1 {
  family inet;
}
unit 2 {
  family inet;
}

```

4. On the gateway, place the interface in maintenance mode.

```

user@host# set unified-edge ggsn-pgw gateway-name system interface interface-name
service-mode maintenance

```



NOTE: This is done at the [edit unified-edge] hierarchy level.

5. Commit maintenance mode.

```

user@host# commit

```

6. Verify that the AMS interface is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```

user@MGB1> show unified-edge ggsn-pgw gateway-name system interfaces
service-mode

```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name Gateway Name Service Mode

```

ms-1/0/0 MBG1 Operational
ms-1/1/0 MBG1 Operational
ms-2/0/0 MBG1 Operational
ms-2/1/0 MBG1 Operational
pfe-0/0/0 MBG1 Operational
pfe-0/1/0 MBG1 Operational
pfe-0/2/0 MBG1 Operational

```

pfe-0/3/0 MBG1 Operational
ams1 MBG1 Maintenance - Active Phase



NOTE: All subscribers serviced by the AMS interface must go to zero. All Charging Data Records (CDRs) for these subscribers must be flushed out. You can wait for these conditions to be met, or use the clear command for the interface (or gateway) to force these conditions.

7. Delete or change AMS member interfaces and parameters.

```
user@MGB1> show unified-edge ggsn-pgw gateway-name system interfaces
service-mode
user@host# delete unified-edge ggsn-pgw gateway-name system interface
interface-name load-balancing-options member-interface mams-interface-name
user@host# set interfaces interface-name load-balancing-options member-interface
mams-interface-name
user@host# delete interfaces interface-name load-balancing-options
high-availability-options many-to-one preferred-backup mams-interface-name
user@host# set interfaces interface-name load-balancing-options
high-availability-options many-to-one preferred-backup mams-interface-name
```



NOTE: This procedure requires operations at the [edit unified-edge] and [edit interfaces] hierarchy level. Be careful!

8. Exit maintenance mode and commit.

```
user@host# delete unified-edge ggsn-pgw gateway-name system interface
interface-name service-mode maintenance
user@host# commit
```

**Related
Documentation**

- [Mobility Maintenance Mode Overview on page 3](#)
- [Deleting a Session PIC on page 26](#)
- [Deleting a Services PIC on page 28](#)
- [Changing Gateway Parameters with Maintenance Mode on page 33](#)

Changing Gateway Parameters with Maintenance Mode

This procedure shows how to change the parameters for a General GPRS Support Node (GGSN), Packet Data Network Gateway (P-GW), or Service Gateway (S-GW) configured on a MobileNext Broadband Gateway using maintenance mode at the **[edit unified-edge gateways ggsn-pgw gateway-name]** (GGSN or P-GW) or **[edit unified-edge gateways sgw gateway-name]** (S-GW) hierarchy level.

The gateway must be in maintenance mode to change:

- Maximum number of bearers (GGSN, P-GW, or S-GW)
- Maximum number of network-behind-the-mobile (NBM) IPv4 prefixes for an anchor Packet Forwarding Engine (GGSN or P-GW)
- Maximum number of network-behind-the-mobile (NBM) IPv6 prefixes for an anchor Packet Forwarding Engine (GGSN or P-GW)
- Guaranteed bandwidth for each anchor Packet Forwarding Engine (S-GW)
- Maximum number of default bearers allowed (as a percentage of total bearers) on each anchor Packet Forwarding Engine (S-GW)
- Maximum number of bearers allowed on each anchor Packet Forwarding Engine (S-GW)

Before you change these gateway parameters using maintenance mode:

- Make sure that this change has been coordinated with affected groups and users.
- Make sure that this change will be applied to the correct gateway type and name.

To configure maintenance mode for a gateway parameter change:

1. Verify the current status of maintenance mode for the gateway. Under normal operating conditions, the service mode is **Operational** (that is, not in maintenance mode).

```
user@host> show unified-edge ggsn-pgw gateway-name service-mode
user@host> show unified-edge sgw gateway-name service-mode
```



NOTE: The **service-mode** option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Gateway Name Service Mode

<gateway-name> Operational

2. Place the broadband gateway in configuration mode.

```
user@host# configure
```

3. Place the gateway in maintenance mode.

```
user@host# set unified-edge ggsn-pgw gateway-name service-mode maintenance
user@host# set unified-edge sgw gateway-name service-mode maintenance
```

4. Commit maintenance mode.

```
user@host# commit
```

5. Verify that the gateway is in active maintenance mode where configuration changes will be accepted for this object.

```
user@host> show unified-edge ggsn-pgw gateway-name service-mode
user@host> show unified-edge sgw gateway-name service-mode
```



NOTE: The service-mode option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Gateway Name Service Mode

<gateway-name> Maintenance - Active Phase



NOTE: All subscribers serviced by the gateway must go to zero. All Charging Data Records (CDRs) for these subscribers must be flushed out. You can wait for these conditions to be met, or use the clear command for the gateway to force these conditions.

6. Set the new parameter values.

```
user@host# set unified-edge ggsn-pgw gateway-name maximum-bearers
maximum-bearers-value
user@host# set unified-edge sgw gateway-name maximum-bearers
maximum-bearers-value
```

```
user@host# set unified-edge ggsn-pgw gateway-name anchor-pfe-ipv4-nbm-prefixes
maximum-ipv4-prefixes
```

```
user@host# set unified-edge ggsn-pgw gateway-name anchor-pfe-ipv6-nbm-prefixes
maximum-ipv6-prefixes
```

```
user@host# set unified-edge sgw gateway-name anchor-pfe-guaranteed-bandwidth  
                        anchor-pfe-guaranteed-bandwidth-value
```

```
user@host# set unified-edge sgw gateway-name  
                        anchor-pfe-default-bandwidth-percentage  
                        anchor-pfe-default-bandwidth-percentage-value
```

```
user@host# set unified-edge sgw gateway-name anchor-pfe-maximum-bearers  
                        maximum-bearers-value
```

7. Exit maintenance mode and commit.

```
user@host# delete unified-edge ggsn-pgw gateway-name service-mode maintenance  
user@host# delete unified-edge sgw gateway-name service-mode maintenance  
user@host# commit
```

**Related
Documentation**

- [Mobility Maintenance Mode Overview on page 3](#)
- [Deleting a Session PIC on page 26](#)
- [Deleting a Services PIC on page 28](#)
- [Changing AMS Interface Parameters on page 30](#)

CHAPTER 3

Maintenance Examples

- [Example: Changing Access Point Name Values on page 37](#)
- [Example: Changing a Charging Profile on page 38](#)
- [Example: Deleting an APN on page 40](#)
- [Example: Changing a Transport Profile on page 41](#)
- [Example: Changing Mobility Pool Attributes on page 42](#)
- [Example: Deleting a Mobility Address Pool on page 48](#)
- [Example: Modifying Mobile Interface Parameters on page 50](#)
- [Example: Deleting a Session PIC on page 53](#)
- [Example: Deleting a Services PIC on page 57](#)
- [Example: Changing an AMS Interface on page 60](#)

Example: Changing Access Point Name Values

- [Requirements on page 37](#)
- [Overview on page 37](#)
- [Configuration on page 37](#)

Requirements

This example uses the following hardware and software components:

- An operational MX Series chassis
- Junos OS MobileNext Broadband Gateway package

Overview

The following configuration example shows how to change an access point name (APN).

Configuration

Step-by-Step Procedure

To change an APN configuration:

1. Verify the current status of maintenance mode for this APN profile.

```
user@host# run show unified-edge ggsn-pgw MBG1 apn-services apn Central service-mode
```

Profile Name : Central
Service Mode : Operational

2. Place the MX Series router in configuration mode.

```
user@host# configure
```

3. On the MBG1 gateway, place the APN named Central in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw MBG1 apn-services apns Central  
service-mode maintenance
```

4. Commit maintenance mode.

```
user@host# commit
```

5. Verify that the APN profile is in active maintenance mode where configuration changes are accepted for this object and all of its subhierarchies.

```
user@host# run show unified-edge ggsn-pgw MBG1 apn-services apns Central  
service-mode
```

```
Gateway Name : MBG1  
...  
Profile Name : Service Mode  
Central : Maintenance - Active Phase
```

6. Commit your changes and exit maintenance mode.

```
user@host# delete unified-edge gateways ggsn-pgw MBG1 apn-service apns Central  
service-mode  
user@host# commit
```

7. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Results The APN profile is placed in active maintenance mode. You can change profile attributes and commit them.

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Modifying an Access Point Name on page 10](#)

Example: Changing a Charging Profile

This example shows how to change a charging profile using maintenance mode.

- [Requirements on page 39](#)
- [Overview on page 39](#)
- [Configuration on page 39](#)

Requirements

This example uses the following hardware and software components:

- An installed and operational MX Series chassis
- Junos OS MobileNext Broadband Gateway package

Overview

This configuration example shows how to place the charging profile named *juniper* in maintenance mode. Once in Maintenance mode, you can make changes to charging profile attributes without affecting mobility subscribers using other charging profiles.

Configuration

Step-by-Step Procedure

To change a charging profile:

1. Verify the current status of maintenance mode for this charging profile.

```
user@host> show unified-edge ggsn-pgw charging service-mode gateway MBG1
charging-profile juniper detail Service Mode Status
```

```
Gateway Name : MBG1
...
Profile Name : juniper
Service Mode : Operational
```

2. Place the MX Series router in configuration mode.

```
user@host# configure
```

3. On the gateway MBG1, place the charging profile named *juniper* in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw MBG1 charging charging-profiles
juniper service-mode maintenance
```

4. Commit maintenance mode.

```
user@host# commit
```

5. Verify that the charging profile is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@host# run show unified-edge ggsn-pgw charging service-mode gateway MBG1
charging-profile juniper detail Service Mode Status
```

```
Gateway Name : MBG1
...
Profile Name : Service Mode
juniper : Maintenance - Active Phase
```

6. Exit maintenance mode and commit.

```
user@host# delete unified-edge gateways ggsn-pgw charging service-mode gateway
MBG1 charging-profile juniper service-mode
user@host# commit
```

7. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Results The charging profile is in active maintenance mode. You can change profile attributes and commit them.

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a Charging Profile on page 15](#)

Example: Deleting an APN

- [Requirements on page 40](#)
- [Overview on page 40](#)
- [Configuration on page 40](#)

Requirements

This example uses the following hardware and software components:

- An operational MX Series chassis
- Junos OS MobileNext Broadband Gateway package

Overview

This configuration example shows how to delete an access point name (APN).

Configuration

Step-by-Step Procedure

To delete an APN:

1. Enter configuration mode and place the APN named Central in maintenance mode.

```
user@host# configure
user@host# set unified-edge gateways ggsn-pgw MBG1 apn-service apns Central
service-mode maintenance
user@host# commit
```

2. Wait for all sessions using Central to terminate. Do this by monitoring the service-mode status using the following show command. When sessions become zero, the service-mode status displays Maintenance – Active Phase.

```
user@host# run show unified-edge ggsn-pgw subscribers | match apn-name
```



NOTE: When maintenance mode shows Maintenance – Active Phase, the system is ready to accept configuration changes for all attributes of this object and its subhierarchies. When maintenance mode shows In/Out Phase, the system is ready to accept configuration changes only for non-maintenance mode attributes of this object and its subhierarchies.

3. Delete the APN named Central and commit the changes.

```
user@host# delete unified-edge ggsn-pgw MBG1 apn-services apnsCentral
user@host# commit
```

4. Exit maintenance mode and commit.

```
user@host# delete unified-edge ggsn-pgw MBG1 apn-services apns Central
service-mode
user@host# commit
```

5. Verify that the APN has been deleted.

```
user@host# run show configuration unified-edge gateways ggsn-pgw MBG1
apn-services apns
```

The APN named Central should not be displayed in the show command output.

6. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Deleting an Access Point Name on page 13](#)

Example: Changing a Transport Profile

This example shows how to change a transport profile using maintenance mode.

- [Requirements on page 41](#)
- [Overview on page 41](#)
- [Configuration on page 41](#)

Requirements

This example uses the following hardware and software components:

- An installed and operational MX Series chassis
- Junos OS MobileNext Broadband Gateway package

Overview

This configuration example shows how to put the transport profile “trans_p” in maintenance mode. Once in maintenance mode, you can make changes to transport profile attributes without affecting mobility subscribers using other transport profiles.

Configuration

Step-by-Step Procedure

To modify a transport profile:

1. Verify the current status of maintenance mode for this transport profile.

```
user@host> show unified-edge ggsn-pgw charging service-mode gateway MBG1
transport-profile trans_p detail Service Mode Status
```

```
Gateway Name : MBG1
...
Profile Name : trans_p
Service Mode : Operational
```

2. Set the MX Series router in configuration mode.

```
user@host# configure
```

3. On the gateway MBG1, place the transport profile “trans_p” in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw MBG1 charging transport-profiles
trans_p service-mode maintenance
```

4. Commit maintenance mode.

```
user@host# commit
```

5. Verify that the transport profile is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@host# run show unified-edge ggsn-pgw charging service-mode gateway MBG1
transport-profile trans_p brief maintenance mode
```

```
Gateway Name : MBG1
...
Profile Name : Service Mode
trans_p      : Maintenance - Active Phase
```

6. Exit maintenance mode and commit.

```
user@host# delete unified-edge gateways ggsn-pgw charging service-mode gateway
MBG1 transport-profile trans_p service-mode
user@host# commit
```

7. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Results The transport profile is in active maintenance mode. You can change profile attributes and commit them.

Related Documentation

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing a Transport Profile on page 21](#)

Example: Changing Mobility Pool Attributes

- [Requirements on page 43](#)
- [Overview on page 43](#)
- [Configuration on page 43](#)

Requirements

This example uses the following hardware and software components:

- An operational MX Series chassis
- Junos OS MobileNext Broadband Gateway package

Overview

This example shows how to change mobility pool attributes for a mobile pool named “juniper-pool” in a routing instance named “default.”

Configuration

Step-by-Step Procedure

To change the address range for a mobility pool.

1. Verify the current configuration of the mobility pool.

```
user@host# run show configuration access address-assignment mobile-pools
juniper-pool {
  family inet {
    network {
      30.30.0.0/16 {
        range {
          range1 {
            low 30.30.1.1;
            high 30.30.255.254;
          }
        }
      }
    }
  }
  default-pool;
}
```

2. Enter configuration mode and then maintenance mode.

```
user@host# configure
user@host# set access address-assignment mobile-pools juniper-pool service-mode
maintenance
user@host# commit
```

3. Wait for all sessions using juniper-pool to terminate. Do this by monitoring the service-mode status using the following show command. When the number of sessions becomes zero, the service-mode status displays “Maintenance – Active Phase.”

```
user@host# show access address-assignment mobile-pools pool-name
service-mode
```



NOTE: “Maintenance - Active Phase” means system is ready to accept configuration changes for all attributes of this object and its subhierarchies. “Maintenance mode - In/Out Phase” means that the system is ready to accept configuration changes only for non-maintenance mode attributes of this object and its subhierarchies.

4. Change the address range from 30.30.x.x to 30.31.x.x.

```
user@host# configure
user@host# set access address-assignment mobile-pools juniper-pool family inet
network 30.31.0.0/16 range range1 low 30.31.1.1 high 30.31.255.254
user@host# configure
user@host# delete access address-assignment mobile-pools juniper-pool family
inet network 30.30.0.0/16
user@host# configure
user@host# commit
```

5. Check the state of this pool.

```
user@host# run show unified-edge ggsn-pgw address-assignment pool name
juniper-pool detail
```

6. Change the pool service mode to operational. Do this by deleting service-mode maintenance for juniper-pool.

```
user@host# configure
user@host# delete access address-assignment mobile-pools juniper-pool
service-mode maintenance
user@host# commit
```

7. Check the state of juniper-pool.

```
user@host# run show unified-edge ggsn-pgw address-assignment pool juniper-pool
details
```

8. Check the new configuration for juniper-pool.

```
user@host# run show configuration access address-assignment mobile-pools
juniper-pool
juniper-pool {
  family inet {
    network {
      30.31.0.0/16 {
        range {
          range1 {
            low 30.31.1.1;
            high 30.31.255.254;
          }
        }
      }
    }
  }
}
default-pool;
```

Step-by-Step Procedure The following examples illustrate how to make changes to mobile pools.

1. Verify the current configuration of "Gi-vrf".

```
user@host# run show routing-instances Gi-vrf access
```

```
address-assignment {
  mobile-pools {
    v4-vrf-1 {
      family inet {
        network {
          30.30.0.0/16 {
            range {
              range1 {
                low 30.30.1.1;
                high 30.30.254.254;
              }
            }
          }
        }
      }
    }
    v6-vrf-1 {
      family inet6 {
        network {
          2000:1:2::0/48 {
            range {
              range6-1 {
                low 2000:1:2:5::0/64;
                high 2000:1:2:ffff::0/64;
              }
            }
          }
        }
      }
    }
  }
}
```

2. Enter maintenance mode to make changes to *v4-vrf-1*. In this example, you are changing the range for the pool.

```
user@host# set routing-instances Gi-vrf access address-assignment mobile-pools
v4-vrf-1 service-mode maintenance
user@host# commit
user@host# set routing-instances Gi-vrf access address-assignment mobile-pools
v4-vrf-1 family inet network 30.30.0.0/16 range range1 low 30.30.2.1
user@host# commit
user@host# delete routing-instances Gi-vrf access address-assignment mobile-pools
v4-vrf-1 service-mode
user@host# commit
```

3. Verify your changes.

```
user@host# show routing-instances Gi-vrf access
```

```
address-assignment {
```

```

mobile-pools {
  v4-vrf-1 {
    family inet {
      network {
        30.30.0.0/16 {
          range {
            range1 {
              low 30.30.2.1;
              high 30.30.254.254;
            }
          }
        }
      }
    }
  }
  v6-vrf-1 {
    family inet6 {
      network {
        2000:1:2::0/48 {
          range {
            range6-1 {
              low 2000:1:2:5::0/64;
              high 2000:1:2:ffff::0/64;
            }
          }
        }
      }
    }
  }
}

[edit]
user@host#

```

Step-by-Step Procedure

This procedure describes how to add a network to a mobile pool.

1. Verify the current address assignment for the mobile pool “jnpr”.

```
user@host# run show access address-assignment mobile-pools jnpr
```

```

family inet {
  network {
    30.30.0.0/16 {
      range {
        r1 {
          low 30.30.1.1;
          high 30.30.1.254;
        }
      }
    }
  }
}
default-pool;

```

2. Place the mobile pool in maintenance mode.


```

user@host# set access address-assignment mobile-pools jnpr service-mode
maintenance
user@host# commit

```

3. Verify that the pool is in maintenance mode.

```

user@host# show access address-assignment mobile-pools jnpr

```

```

service-mode maintenance;
family inet {
  network {
    30.30.0.0/16 {
      range {
        r1 {
          low 30.30.1.1;
          high 30.30.1.254;
        }
      }
    }
  }
}
default-pool;

```

4. Add the network "10.10.0.0/16".

```

user@host# set access address-assignment mobile-pools jnpr family inet network
40.40.0.0/16
user@host# commit

```

5. Verify that the network was added to the pool.

```

user@host# run show access address-assignment mobile-pools jnpr

```

```

service-mode maintenance;
family inet {
  network {
    30.30.0.0/16 {
      range {
        r1 {
          low 30.30.1.1;
          high 30.30.1.254;
        }
      }
    }
    10.10.0.0/16; <----
  }
}
default-pool;

```

6. Exit maintenance mode and commit.

```

user@host# delete access address-assignment mobile-pools jnpr service-mode
user@host# commit

```

7. Verify that the pool is no longer in maintenance mode.

```

user@host# run show access address-assignment mobile-pools jnpr

```

```

family inet {

```

```
network {
  30.30.0.0/16 {
    range {
      r1 {
        low 30.30.1.1;
        high 30.30.1.254;
      }
    }
  }
  10.10.0.0/16; <----
}
default-pool;
```

8. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

**Related
Documentation**

- [Mobility Maintenance Mode Overview on page 3](#)
- [Changing Address Attributes in the Mobile Address Pool on page 23](#)

Example: Deleting a Mobility Address Pool

- [Requirements on page 48](#)
- [Example of Deleting a Mobility Address Pool on page 48](#)
- [Configuration on page 49](#)

Requirements

This example uses the following hardware and software components:

- An operational MX Series chassis
- Junos OS MobileNext Broadband Gateway package

Example of Deleting a Mobility Address Pool

In this example, a pool “juniper-pool” in routing-instance “default” exists with the following configuration:

```
juniper-pool {
  family inet {
    network {
      30.30.0.0/16 {
        range {
          range1 {
            low 30.30.1.1;
            high 30.30.255.254;
          }
        }
      }
    }
  }
}
```

```

    }
    default-pool;
  }

```

In this example, you delete this pool.

Configuration

Step-by-Step Procedure

To delete the pool, execute the following steps.

1. Enter configuration mode and place the pool in maintenance mode.

```

user@host# configure
user@host# set access address-assignment mobile-pools juniper-pool service-mode
maintenance
user@host# commit

```

2. Wait for all sessions using “juniper-pool” to terminate. Do this by monitoring the service-mode status using the show command. When sessions become zero, the service-mode status will display Maintenance – Active Phase.

```

user@host# run show unified-edge ggsn-pgw address-assignment service-mode
pool juniper-pool

```



NOTE: When maintenance mode shows “Maintenance – Active Phase,” the system is ready to accept configuration changes for all attributes of this object and its subhierarchies. When maintenance mode shows “In/Out Phase,” the system is ready to accept configuration changes only for non-maintenance mode attributes of this object and its subhierarchies.

3. Remove all references to the pool from all APNs, if any.

```

user@host# delete unified-edge gateways ggsn-pgw MBG1 apn-services apn internet
address-assignment inet-pool pool juniper-pool
user@host# commit

```

4. Remove all references to the pool from any pool group, if any.

```

user@host# delete access address-assignment mobile-pool-groups pool-group-xyz
juniper-pool
user@host# commit

```

5. If the pool is marked default pool, many APNs could be referencing this pool. In this case, delete the default pool attribute for the “juniper-pool.”

```

user@host# delete access address-assignment mobile-pools juniper-pool
default-pool
user@host# commit

```

6. Delete the pool “juniper-pool.”

```

user@host# delete access address-assignment mobile-pools juniper-pool
routing-instance juniper-vrf
user@host# commit

```

7. Verify that the address pool is deleted.

```
user@host# run show unified-edge ggsn-pgw address-assignment pool details
```

The address pool “juniper-pool” should not be displayed in the show command output.

**Related
Documentation**

- [Mobility Maintenance Mode Overview on page 3](#)
- [Deleting a Mobile Address Pool on page 24](#)

Example: Modifying Mobile Interface Parameters

- [Requirements on page 50](#)
- [Overview on page 50](#)
- [Configuration on page 50](#)

Requirements

This example uses the following hardware and software components:

- An operational MX Series chassis
- Junos OS MobileNext Broadband Gateway package

Overview

The following examples show how to make changes to a mobile interface.

Configuration

Use the following examples to change to a mobile interface:

- [Modifying the IPv4 Maximum Transmission Unit \(MTU\) on page 50](#)
- [Changing the Mobile Interface for an Access Point Name \(APN\) on page 51](#)

Modifying the IPv4 Maximum Transmission Unit (MTU)

**Step-by-Step
Procedure**

The following procedure shows how to modify the IPv4 maximum transmission unit (MTU).

1. Set the MX Series router in configuration mode.

```
user@host# configure
```
2. On the *MBG1* gateway, place the APN *alice1* in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw MBG1 apn-services apn alice1  
service-mode maintenance
```
3. Commit maintenance mode.

```
user@host# commit
```
4. Verify that the APN is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@host# run show unified-edge ggsn-pgw apn service-mode apn alice1
maintenance mode
```

```
APN Name      : Service Mode
alice1        : Maintenance - Active Phase
```

5. Change and commit the MTU to 1550.

```
user@host# set interfaces mif unit 2 family inet mtu 1550
user@host# commit
```

6. Commit your changes and exit maintenance mode.

```
user@host# delete unified-edge gateways ggsn-pgw MBG1 apn-services apn alice1
service-mode
user@host# commit
```

7. Verify that the change has been made.

```
user@host# show interfaces mif.2

Logical interface mif.2 (Index 719) (SNMP ifIndex 771)
Flags: SNMP-Traps Encapsulation: GTP-over-MIF
Bandwidth: 1000mbps
Input packets : 0
Output packets: 0
Protocol inet, MTU: 1550
  Flags: Sendbcst-pkt-to-re, User-MTU
Protocol inet6, MTU: 1600
  Addresses, Flags: Is-Preferred
    Destination: fe80::/64, Local: fe80::2a0:a5ff:fc67:587b
```

8. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

Changing the Mobile Interface for an Access Point Name (APN)

Step-by-Step Procedure This procedure describes how to change the mobile interface for the APN casper from .0 to 222.

1. Verify the state of *casper*.

```
user@host# run show unified-edge ggsn-pgw apn service-mode
```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

APN Name	Service Mode
apn-vrf1.juniper.net	Operational
apn-vrf2.juniper.net	Operational
apn-vrf3.juniper.net	Operational
casper.com	Operational
fuzz-gtp	Operational

```
new-ipv4           Operational
new-ipv6           Operational
radius1            Operational
realapn1           Operational
static-assign      Operational
virtual-apn3.juniper.net Operational
virtualapn.juniper.net Operational
virtualapn2.juniper.net Operational
```

```
[edit]
user@host#
```

2. Place the APN *casper.com* in maintenance mode.

```
user@host# set unified-edge gateways ggsn-pgw PGW apn-services apn casper.com
service-mode maintenance
user@host# commit
```

3. Change the mobile interface.

```
user@host# set unified-edge gateways ggsn-pgw PGW apn-services apn casper.com
mobile-interface mif.222
user@host# commit
```

4. Verify the change.

```
user@host# run show unified-edge gateways ggsn-pgw PGW apn-services apn
casper.com
```

```
apn-type real;
apn-data-type ipv4v6;
mobile-interface mif.222;
address-assignment {
  local;
}
anonymous-user {
  use-apnname;
}
dns-server {
  primary-v4 4.4.4.1;
}
p-cscf {
  2001:1:4:3::;
}
selection-mode {
  from-ms;
  from-sgsn;
}
service-mode maintenance; <---- mode
```

```
[edit]
user@host#
```

5. Return the APN “casper” to normal operation (exit maintenance mode and commit your changes).

```
user@host# delete unified-edge gateways ggsn-pgw PGW apn-services apn
casper.com service-mode
user@host# commit
```

6. Return the gateway to operational state.

```
user@host# run show unified-edge ggsn-pgw gateway service-mode
```

- Related Documentation**
- [Mobility Maintenance Mode Overview on page 3](#)
 - [Deleting a Mobile Address Pool on page 24](#)

Example: Deleting a Session PIC

This example shows how to delete a session PIC using maintenance mode at the **[edit unified-edge gateways ggsn-pgw ggsn-pgw-name system session-pics interface]** or **[edit unified-edge gateways sgw sgw-name system session-pics interface]** hierarchy level. The session PIC can be an aggregated multiservices interface (AMS). Session PICs process control plane messages on a broadband gateway.

- [Requirements on page 53](#)
- [Overview on page 53](#)
- [Configuration on page 53](#)
- [Verification on page 56](#)
- [Troubleshooting Session PIC Deletion on page 56](#)

Requirements

This example uses the following hardware and software components:

- An installed and operational MobileNext Broadband Gateway chassis
- Properly installed and operational Junos OS MobileNext Broadband Gateway software packages

Before you delete a session PIC using maintenance mode:

- Make sure that this change has been coordinated with affected groups and users.

Overview

This configuration example shows how to put the session PIC interface in maintenance mode. Once in maintenance mode, you can delete the session PIC without affecting mobility subscribers using other session PICs.

Topology

This procedure is independent of other network devices.

Configuration

To configure session PIC maintenance mode and deletion, perform this tasks:

- [Configuring Maintenance Mode for Session PIC Deletion on page 54](#)

CLI Quick Configuration

Delete session PIC **ms-1/1/0** from gateway **MBG1**:

```
[edit]
set unified-edge gateways ggsn-pgw MBG1 system session-pics interface ms-1/1/0
service-mode maintenance
commit
delete unified-edge gateways ggsn-pgw MBG1 system interface ms-1/1/0
commit
```

Configuring Maintenance Mode for Session PIC Deletion

Step-by-Step Procedure

To configure maintenance mode and session PIC deletion:

1. Verify the current status of maintenance mode for this session PIC.

```
user@MBG1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```



NOTE: The **service-mode** option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Operational
ms-2/0/0	MBG1	Operational
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational

2. Place the broadband gateway in configuration mode.

```
user@MBG1# configure
```

3. On the gateway **MBG1**, place the interface **ms-1/1/0** in maintenance mode.

```
user@MBG1# set unified-edge gateways ggsn-pgw MBG1 system session-pics
interface ms-1/1/0 service-mode maintenance
```

4. Commit maintenance mode.

```
user@MBG1# commit
```

5. Verify that the session PIC is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@MBG1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```


Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Maintenance - Active Phase
ms-2/0/0	MBG1	Operational
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational



NOTE: All subscribers serviced by the session PIC must go to zero. All Charging Data Records (CDRs) for these subscribers must be flushed out. You can wait for these conditions to be met, or use the clear command for the interface (or gateway) to force these conditions.

6. Delete the session PIC.

```
user@MBG1# delete unified-edge gateways ggsn-pgw MBG1 system interface
ms-1/1/0
```

7. Exit maintenance mode and commit.



NOTE: Deletion of a session PIC automatically exits maintenance mode for the deleted PIC.

```
user@MBG1# commit
```

Results The session PIC **ms-1/1/0** is removed from the gateway interface list.

```
user@MGB1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-2/0/0	MBG1	Operational

```

ms-2/1/0 MBG1      Operational
pfe-0/0/0 MBG1      Operational
pfe-0/1/0 MBG1      Operational
pfe-0/2/0 MBG1      Operational
pfe-0/3/0 MBG1      Operational
ams1 MBG1 Operational

```

Verification

- [Verifying Session PIC Deletion on page 56](#)

Verifying Session PIC Deletion

Purpose To verify that the session PIC is no longer part of the gateway configuration.

Action Display the interfaces configured for the gateway.

```

user@MBG1> show unified-edge ggsn-pgw system interfaces
Gateway: MBG1
Interfaces  Members  Operational  Redundancy
           State    Role
ms-1/0/0    Active   Standalone
ms-2/0/0    Active   Standalone
ms-2/1/0    Active   Standalone
pfe-0/0/0    Active   Standalone
pfe-0/1/0    Active   Standalone
pfe-0/2/0    Active   Standalone
pfe-0/3/0    Active   Standalone
ams1        Active   Standalone

```



NOTE: The session PIC `ms-1/1/0` no longer appears on the list of gateway interfaces.

Meaning Deletion of session PIC successful.

Troubleshooting Session PIC Deletion

To troubleshoot session PIC deletion with maintenance mode, perform this task:

- [Troubleshooting a Commit Fail on page 56](#)

Troubleshooting a Commit Fail

Problem The final commit after deletion of the session PIC fails.

Solution The `ms-1/1/0` interface (FPC 1 and PIC 1) can still have the mobility package configured at the `[edit chassis]` hierarchy level. You must remove the `jservices-mobile` package from the session PIC configuration, then perform the commit.

- Related Documentation**
- [Mobility Maintenance Mode Overview on page 3](#)
 - [Deleting a Session PIC on page 26](#)

Example: Deleting a Services PIC

This example shows how to delete a services PIC using maintenance mode at the **[edit unified-edge gateways ggsn-pgw *ggsn-pgw-name* system service-pics interface]** or **[edit unified-edge gateways sgw *sgw-name* system service-pics interface]** hierarchy level. The services PIC can be an aggregated multiservices interface (AMS). Services PICs perform packet-related services on a broadband gateway.

- [Requirements on page 57](#)
- [Overview on page 57](#)
- [Configuration on page 57](#)
- [Verification on page 60](#)

Requirements

This example uses the following hardware and software components:

- An installed and operational MobileNext Broadband Gateway chassis
- Properly installed and operational Junos OS MobileNext Broadband Gateway software packages

Before you delete a services PIC using maintenance mode:

- Make sure that this change has been coordinated with affected groups and users

Overview

This configuration example shows how to put the services PIC interface in maintenance mode. Once in maintenance mode, you can delete the services PIC without affecting mobility subscribers using other services PICs.

Topology

This procedure is independent of other network devices.

Configuration

To configure services PIC maintenance mode and deletion, perform this task:

- [Configuring Maintenance Mode for Services PIC Deletion on page 58](#)

CLI Quick Configuration

Delete services PIC **ms-2/0/0** from gateway **MBG1**:

```
[edit]
set unified-edge gateways ggsn-pgw MBG1 system service-pics interface ms-2/0/0
  service-mode maintenance
commit
delete unified-edge gateways ggsn-pgw MBG1 system interface ms-2/0/0
```

commit

Configuring Maintenance Mode for Services PIC Deletion

Step-by-Step Procedure

To configure maintenance mode for services PIC deletion:

1. Verify the current status of maintenance mode for this services PIC.

```
user@MGB1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```



NOTE: The service-mode option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name Gateway Name Service Mode

```
ms-1/0/0 MBG1 Operational
ms-1/1/0 MBG1 Operational
ms-2/0/0 MBG1 Operational
ms-2/1/0 MBG1 Operational
pfe-0/0/0 MBG1 Operational
pfe-0/1/0 MBG1 Operational
pfe-0/2/0 MBG1 Operational
pfe-0/3/0 MBG1 Operational
ams1 MBG1 Operational
```

2. Place the broadband gateway in configuration mode.

```
user@MBG1# configure
```

3. On the gateway MBG1, place the interface **ms-2/0/0** in maintenance mode.

```
user@MBG1# set unified-edge gateways ggsn-pgw MBG1 system service-pics
interface ms-2/0/0 service-mode maintenance
```

4. Commit maintenance mode.

```
user@MBG1# commit
```

5. Verify that the services PIC is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@MGB1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and

its sub-hierarchies.

```
Interface Name Gateway Name Service Mode
ms-1/0/0 MBG1 Operational
ms-1/1/0 MBG1 Operational
ms-2/0/0 MBG1 Maintenance - Active Phase
ms-2/1/0 MBG1 Operational
pfe-0/0/0 MBG1 Operational
pfe-0/1/0 MBG1 Operational
pfe-0/2/0 MBG1 Operational
pfe-0/3/0 MBG1 Operational
ams1 MBG1 Operational
```



NOTE: All subscribers serviced by the services PIC must go to zero. All Charging Data Records (CDRs) for these subscribers must be flushed out. You can wait for these conditions to be met, or use the clear command for the interface (or gateway) to force these conditions.

6. Delete the services PIC.

```
user@MBG1# delete unified-edge gateways ggsn-pgw MBG1 system interface
ms-2/0/0
```

7. Exit maintenance mode and commit.



NOTE: Deletion of a services PIC automatically exits maintenance mode for the deleted PIC.

```
user@MBG1# commit
```

Results The services PIC **ms-2/0/0** is removed from the gateway interface list.

```
user@MBG1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

```
Interface Name Gateway Name Service Mode
ms-1/0/0 MBG1 Operational
ms-1/1/0 MBG1 Operational
ms-2/1/0 MBG1 Operational
pfe-0/0/0 MBG1 Operational
pfe-0/1/0 MBG1 Operational
pfe-0/2/0 MBG1 Operational
pfe-0/3/0 MBG1 Operational
ams1 MBG1 Operational
```

Verification

- [Verifying Services PIC Deletion on page 60](#)

Verifying Services PIC Deletion

Purpose To verify that the services PIC is no longer part of the gateway configuration.

Action Display the interfaces configured for the gateway.

```
user@MBG1> show unified-edge ggsn-pgw system interfaces
Gateway: MBG1
Interfaces  Members  Operational  Redundancy
           State    Role
ms-1/0/0    Active   Standalone
ms-2/0/0    Active   Standalone
ms-2/1/0    Active   Standalone
pfe-0/0/0    Active   Standalone
pfe-0/1/0    Active   Standalone
pfe-0/2/0    Active   Standalone
pfe-0/3/0    Active   Standalone
ams1        Active   Standalone
```



NOTE: The services PIC `ms-2/0/0` no longer appears on the list of gateway interfaces.

Meaning Deletion of services PIC successful.

- Related Documentation**
- [Mobility Maintenance Mode Overview on page 3](#)
 - [Deleting a Services PIC on page 28](#)

Example: Changing an AMS Interface

This example shows how to change the parameters for an aggregated multiservices (AMS) interface on a MobileNext Broadband Gateway using maintenance mode at the **[edit interfaces]** hierarchy level. If an AMS interface is configured under a gateway's session PICs or services PICs, and there is a change to any load-balancing options such as membership of AMS interfaces (**mams-**), then the AMS interface must be in maintenance mode.

- [Requirements on page 61](#)
- [Overview on page 61](#)
- [Configuration on page 61](#)
- [Verification on page 64](#)

Requirements

This example uses the following hardware and software components:

- An installed and operational MobileNext Broadband Gateway chassis
- Properly installed and operational Junos OS MobileNext Broadband Gateway software packages

Before you change AMS parameters using maintenance mode:

- Make sure that this change has been coordinated with affected groups and users.

Overview

This configuration example shows how to put the AMS interface in maintenance mode. Once in maintenance mode, you can delete a member (mams-) of the AMS group, add another member, and change the preferred backup, all without affecting mobility subscribers.

Topology

This procedure is independent of other network devices.

Configuration

To configure AMS maintenance mode and parameter changes, perform this task:

- [Configuring Maintenance Mode for AMS Parameter Change on page 62](#)

CLI Quick Configuration Delete **mams-5/1/0** from **ams1**, add **mams-3/1/0** to **ams1**, and configure **mams-3/1/0** as the new preferred backup for **ams1**:

```
[edit]
set unified-edge ggsn-pgw gateway-name system interface ams1 service-mode
  maintenance
commit
delete unified-edge ggsn-pgw gateway-name system interface ams1 load-balancing-options
  member-interface mams-5/1/0
set interfaces ams1 load-balancing-options member-interface mams-3/1/0
delete interfaces ams1 load-balancing-options high-availability-options many-to-one
  preferred-backup mams-5/1/0
set interfaces ams1 load-balancing-options high-availability-options many-to-one
  preferred-backup mams-3/1/0
delete unified-edge ggsn-pgw gateway-name system interface ams1 service-mode
  maintenance
commit
```



NOTE: This example requires changes at both the [edit unified-edge] and [edit interfaces] hierarchy levels. In this example, the interface **ams1** is set as **anchor-services-pics** at the [edit unified-edge gateways ggsn-pgw MBG1 system] hierarchy level.

Configuring Maintenance Mode for AMS Parameter Change

Step-by-Step Procedure

To configure maintenance mode and AMS parameter change:

1. Verify the current status of maintenance mode for this AMS (**ams1**).

```
user@MGB1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```



NOTE: The **service-mode** option displays the information details about maintenance mode as well as status.

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name	Gateway Name	Service Mode
ms-1/0/0	MBG1	Operational
ms-1/1/0	MBG1	Operational
ms-2/0/0	MBG1	Operational
ms-2/1/0	MBG1	Operational
pfe-0/0/0	MBG1	Operational
pfe-0/1/0	MBG1	Operational
pfe-0/2/0	MBG1	Operational
pfe-0/3/0	MBG1	Operational
ams1	MBG1	Operational

2. Place the broadband gateway in configuration mode.

```
user@MBG1# configure
```

3. Show the current configuration for **ams1**

```
user@MBG1# show unified-edge ggsn-pgw gateway-name system interface ams1
load-balancing-options {
  member-interface mams-4/1/0;
  member-interface mams-5/1/0;
  member-failure-options {
    redistribute-all-traffic {
      enable-rejoin;
    }
  }
  high-availability-options {
    many-to-one {
      preferred-backup mams-5/1/0;
    }
  }
}
unit 1 {
  family inet;
}
```



```
unit 2 {
  family inet;
}
```

4. On the gateway MBG1, place the interface **ams1** in maintenance mode.

```
user@MBG1# set unified-edge ggsn-pgw gateway-name system interface ams1
service-mode maintenance
```

5. Commit maintenance mode.

```
user@MBG1# commit
```

6. Verify that the **ams1** interface is in active maintenance mode where configuration changes will be accepted for this object and all of its subhierarchies.

```
user@MGB1> show unified-edge ggsn-pgw MBG1 system interfaces service-mode
```

Maintenance Mode

MM Active Phase - System is ready to accept configuration changes for all attributes of this object and its sub-hierarchies.

MM In/Out Phase - System is ready to accept configuration changes only for non-maintenance mode attributes of this object and its sub-hierarchies.

Interface Name Gateway Name Service Mode

```
ms-1/0/0 MBG1 Operational
ms-1/1/0 MBG1 Operational
ms-2/0/0 MBG1 Operational
ms-2/1/0 MBG1 Operational
pfe-0/0/0 MBG1 Operational
pfe-0/1/0 MBG1 Operational
pfe-0/2/0 MBG1 Operational
pfe-0/3/0 MBG1 Operational
ams1 MBG1 Maintenance - Active Phase
```



NOTE: All subscribers serviced by **ams1** must go to zero. All Charging Data Records (CDRs) for these subscribers must be flushed out. You can wait for these conditions to be met, or use the **clear** command for the interface (or gateway) to force these conditions.

7. Delete the **mams-5/1/0** member interface for **ams1**.

```
user@MBG1# delete unified-edge ggsn-pgw gateway-name system interface ams1
load-balancing-options member-interface mams-5/1/0
```

8. Add the **mams-3/1/0** member interface for **ams1** at the **[edit interfaces]** hierarchy level.

```
user@MBG1# set interfaces ams1 load-balancing-options member-interface
mams-3/1/0
```

9. Delete the **mams-5/1/0** member interface as the preferred backup for **ams1** at the **[edit interfaces]** hierarchy level.

```
user@MBG1# delete interfaces ams1 load-balancing-options high-availability-options
many-to-one preferred-backup mams-5/1/0
```

10. Add the **mams-3/1/0** member interface as the preferred backup for **ams1** at the **[edit interfaces]** hierarchy level.

```
user@MBG1# set interfaces ams1 load-balancing-options high-availability-options
many-to-one preferred-backup mams-3/1/0
```

11. Exit maintenance mode and commit.

```
user@MBG1# delete unified-edge ggsn-pgw gateway-name system interface ams1
service-mode maintenance
user@MBG1# commit
```

Results The parameters for **ams1** are changed, so that **mams-3/1/0** has replaced **mams-5/1/0** as a member interface and preferred backup.

```
user@MBG1# show unified-edge ggsn-pgw gateway-name system interfaces ams1
load-balancing-options {
  member-interface mams-3/1/0;
  member-interface mams-4/1/0;
  member-failure-options {
    redistribute-all-traffic {
      enable-rejoin;
    }
  }
  high-availability-options {
    many-to-one {
      preferred-backup mams-3/1/0;
    }
  }
}
unit 1 {
  family inet;
}
unit 2 {
  family inet;
}
```

Verification

- [Verifying AMS parameter change on page 64](#)

Verifying AMS parameter change

Purpose To verify that the members of **ams1** have changed.

Action Display the interfaces configured for **ams1**.

```
user@MBG1> show unified-edge ggsn-pgw gateway-name system interfaces load-balancing ams1

Load-balancing interfaces detail
Interface   : ams1
State      : Up
Last change : 00:11:28
```

```
Member count : 2
HA Model    : Many-to-One
Members     :
  Interface  Weight State
  mams-4/1/0 10  Active
  mams-3/1/0 10  Backup
Sync-state  :
  Interface  Status
  mams-3/1/0 Unknown
  mams-4/1/0 Unknown
```

Meaning The parameters for **ams1** have successfully changed.

- Related Documentation**
- [Mobility Maintenance Mode Overview on page 3](#)
 - [Changing AMS Interface Parameters on page 30](#)
 - [Changing Gateway Parameters with Maintenance Mode on page 33](#)

CHAPTER 4

Configuration Statements

- [\[edit unified-edge gateways\] Hierarchy Level on page 67](#)

[\[edit unified-edge gateways\] Hierarchy Level](#)

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

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

Related Documentation

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

[service-mode \(GGSN or P-GW\)](#)

Syntax	service-mode maintenance;
Hierarchy Level	[edit unified-edge gateways ggsn-pgw <i>gateway-name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>This statement puts the respective gateway under maintenance mode.</p> <p>When you have to make the following changes to the existing gateway configuration, you must put that gateway under maintenance mode:</p> <ul style="list-style-type: none">• Deleting certain GTP interfaces, such as Gn, Gp, S5, and S8• Changing the GTP interface address• Deleting the gateway
Required Privilege Level	<p>unified-edge—To view this statement in the configuration.</p> <p>unified-edge-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">• ggsn-pgw• Mobility Maintenance Mode Overview on page 3

service-mode (Serving Gateway)

Syntax	<code>service-mode service-mode-options;</code>
Hierarchy Level	[edit unified-edge gateways <i>sgw gateway-name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.4W.
Description	<p>Specify that the Serving Gateway (S-GW) should be in maintenance mode. You do this if you want to perform maintenance tasks such as deleting certain GTP parameters or modifying the GTP interface address on the S-GW. See the <i>MobileNext Broadband Gateway Configuration Guide</i> for a list of maintenance tasks that you can perform when the S-GW is in maintenance mode.</p> <p>When in the Maintenance Mode Active Phase, you can modify all valid attributes on the object. In all other cases, you can modify only the non-maintenance mode attributes.</p>
Options	service-mode-options —Specify the service mode. Currently, only the maintenance mode is option supported.
Required Privilege Level	unified-edge—To view this statement in the configuration. unified-edge-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">sgwshow unified-edge sgw service-mode on page 89

service-mode (APN)

Syntax	<code>service-mode <i>service-mode-options</i>;</code>
Hierarchy Level	[edit unified-edge gateways ggsn-pgw <i>gateway-name</i> apn-services apns <i>name</i>]
Release Information	Statement introduced in Junos OS Mobility Release 11.2W.
Description	<p>Specify that the access point name (APN) should be in maintenance mode. You do this if you want to carry out maintenance tasks like deleting an APN or changing the APN type and so on. See the <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 APN 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	unified-edge—To view this statement in the configuration. unified-edge-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • apns • Configuring the Mobile Interface of an Access Point Name on page 12 • Deleting an Access Point Name on page 13 • Example: Changing Access Point Name Values on page 37 • Modifying an Access Point Name on page 10

service-mode (Charging Profiles)

Syntax	<code>service-mode maintenance;</code>
Hierarchy Level	<code>[edit unified-edge gateways ggsn-pgw gateway-name charging charging-profiles profile-name],</code> <code>[edit unified-edge gateways sgw gateway-name charging charging-profiles profile-name]</code>
Release Information	Statement introduced in Junos OS Mobility Release 11.2W. Support at the <code>[edit unified-edge gateways sgw gateway-name charging charging-profiles profile-name]</code> hierarchy level introduced in Junos OS Mobility Release 11.4W.
Description	<p>Place the respective charging profile under maintenance mode.</p> <p>When you have to make the following changes to the existing charging profile configuration, you must put the charging profile in maintenance mode:</p> <ul style="list-style-type: none">• Change the CDR profile, transport profile, or the trigger profile associated with this charging profile• Change the profile ID configuration• Delete the charging profile <p>In maintenance mode, no new subscribers are accepted for that charging profile. However, maintenance mode does not become active until no existing subscriber sessions are using that charging profile and all the corresponding CDRs have been flushed out. Unless the maintenance mode becomes active, you cannot modify the above-mentioned charging profile attributes or delete the charging profile. Use the following commands to help you with maintenance mode tasks:</p> <ul style="list-style-type: none">• To verify that the charging profile has entered active maintenance mode, use one of the following commands, as applicable:<ul style="list-style-type: none">• For the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW)—<code>show unified-edge ggsn-pgw charging service-mode gateway gateway-name charging-profile profile-name</code>• For the Serving Gateway (S-GW)—<code>show unified-edge sgw charging service-mode gateway gateway-name charging-profile profile-name</code>• To verify that the subscriber count has reached zero, use one of the following commands, as applicable:<ul style="list-style-type: none">• For the GGSN or P-GW—<code>show unified-edge ggsn-pgw subscribers charging charging-profile profile-name gateway gateway-name</code>• For the S-GW—<code>show unified-edge sgw subscribers charging charging-profile profile-name gateway gateway-name</code>• To verify that all CDRs for the transport profile referred to by this charging profile have been flushed out, use one of the following commands, as applicable:

- For the GGSN or P-GW—**show unified-edge ggsn-pgw charging transfer status transport-profile-name *profile-name***
- For the S-GW—**show unified-edge sgw charging transfer status transport-profile-name *profile-name***
- To explicitly end any subscriber sessions, use one of the following commands, as applicable:
 - For the GGSN or P-GW—**clear unified-edge ggsn-pgw subscribers charging charging-profile *profile-name* gateway *gateway-name***
 - For the S-GW—**clear unified-edge sgw subscribers charging charging-profile *profile-name* gateway *gateway-name***
- To explicitly flush all the CDRs for the transport profile referred to by this charging profile, use the one of the following commands, as applicable:
 - For the GGSN or P-GW—**clear unified-edge ggsn-pgw charging cdr transport-profile-name *profile-name* gateway-name *name***
 - For the S-GW—**clear unified-edge sgw charging cdr transport-profile-name *profile-name* gateway-name *name***

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

Related Documentation	<ul style="list-style-type: none">• charging-profiles• Changing a Charging Profile on page 15• Mobility Maintenance Mode Overview on page 3
------------------------------	---

service-mode (Transport Profiles)

Syntax	<code>service-mode maintenance;</code>
Hierarchy Level	<code>[edit unified-edge gateways ggsn-pgw gateway-name charging transport-profiles profile-name],</code> <code>[edit unified-edge gateways sgw gateway-name charging transport-profiles profile-name]</code>
Release Information	Statement introduced in Junos OS Mobility Release 11.2W. Support at the <code>[edit unified-edge gateways sgw gateway-name charging transport-profiles profile-name]</code> hierarchy level introduced in Junos OS Mobility Release 11.4W.
Description	<p>Place the respective transport profile under maintenance mode.</p> <p>To make the following changes to the existing transport profile configuration, you must put that transport profile in maintenance mode:</p> <ul style="list-style-type: none">• Change the CDR encoding format to comply with a different 3GPP technical specification release (that is, changing the <code>cdr-release</code> configuration)• Delete the transport profile <p>In maintenance mode, no new subscribers are accepted for that transport profile. However, the maintenance mode does not become active until no existing subscriber sessions are using that transport profile and all corresponding CDRs have been flushed out. Unless the maintenance mode becomes active, you cannot modify the above-mentioned transport profile attributes or delete the transport profile. Use the following commands to help you with the maintenance mode tasks:</p> <ul style="list-style-type: none">• To verify that the transport profile has entered active maintenance mode, use one of the following commands, as applicable:<ul style="list-style-type: none">• For the gateway GPRS support node (GGSN) or Packet Data Network Gateway (P-GW)—<code>show unified-edge ggsn-pgw charging service-mode gateway gateway-name transport-profile profile-name</code>• For the Serving Gateway (S-GW)—<code>show unified-edge sgw charging service-mode gateway gateway-name transport-profile profile-name</code>• To verify that the subscriber count has reached zero, use one of the following commands, as applicable:<ul style="list-style-type: none">• For the GGSN or P-GW—<code>show unified-edge ggsn-pgw subscribers charging transport-profile profile-name gateway gateway-name</code>• For the S-GW—<code>show unified-edge sgw subscribers charging transport-profile profile-name gateway gateway-name</code>• To verify that all CDRs for the transport profile have been flushed out, use one of the following commands, as applicable:<ul style="list-style-type: none">• For the GGSN or P-GW—<code>show unified-edge ggsn-pgw charging transfer status transport-profile-name profile-name</code>

- For the S-GW—**show unified-edge sgw charging transfer status transport-profile-name *profile-name***
- To explicitly end any subscriber sessions, use one of the following commands, as applicable:
 - For the GGSN or P-GW—**clear unified-edge ggsn-pgw subscribers charging transport-profile *profile-name* gateway *gateway-name***
 - For the S-GW—**clear unified-edge sgw subscribers charging transport-profile *profile-name* gateway *gateway-name***
- To explicitly flush all the CDRs for the transport profile, use one of the following commands, as applicable:
 - For the GGSN or P-GW—**clear unified-edge ggsn-pgw charging cdr transport-profile-name *profile-name***
 - For the S-GW—**clear unified-edge sgw charging cdr transport-profile-name *profile-name***

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

Related Documentation

- transport-profiles
- [Changing a Transport Profile on page 21](#)
- [Mobility Maintenance Mode Overview on page 3](#)

PART 3

Administration

- [Operational Commands on page 77](#)

CHAPTER 5

Operational Commands

show unified-edge ggsn-pgw apn service-mode

Syntax	<pre>show unified-edge ggsn-pgw apn service-mode <apn-name <i>apn-name</i>> <brief detail> <gateway <i>gateway</i>></pre>
Release Information	Command introduced in Junos OS Mobility Release 11.2W.
Description	Display the service mode information for an access point name (APN) for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If an APN is not specified, then the information for all APNs for one or more GGSNs or P-GWs is displayed.
Options	<p>none—(Same as brief) Display the APN service mode information in brief.</p> <p>apn-name <i>apn-name</i>—(Optional) Display the service mode information for the specified APN.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>gateway <i>gateway</i>—(Optional) Display the service mode information for the specified GGSN or P-GW.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> show unified-edge ggsn-pgw service-mode on page 83
List of Sample Output	<p>show unified-edge ggsn-pgw apn service-mode brief on page 79</p> <p>show unified-edge ggsn-pgw apn service-mode detail on page 79</p>
Output Fields	Table 3 on page 78 lists the output fields for the show unified-edge ggsn-pgw apn service-mode command. Output fields are listed in the approximate order in which they appear.

Table 3: show unified-edge ggsn-pgw apn service-mode Output Fields

Field Name	Field Description
APN Name	Name of the APN.
Service Mode	Service mode for the APN: <ul style="list-style-type: none"> Operational—APN is in operational mode. Maintenance—APN is in maintenance mode.

Sample Output

```

show unified-edge user@host> show unified-edge ggsn-pgw apn service-mode brief
ggsn-pgw apn      Maintenance Mode
service-mode brief MM Active Phase - System is ready to accept configuration changes for all
                   attributes of this object and its sub-hierarchies.
                   MM In/Out Phase - System is ready to accept configuration changes only for
                   non-maintenance mode attributes of this object and
                   its sub-hierarchies.

```

APN Name	Gateway Name	Service Mode
jnpr-sunnyvale	PGW	Operational
jnpr-toxin	PGW	Operational
zoo	PGW1	Maintenance -
Active Phase		

```

show unified-edge user@host> show unified-edge ggsn-pgw apn service-mode detail
ggsn-pgw apn      Gateway: PGW
service-mode detail APN Name       : jnpr-sunnyvale
                   Service Mode    : Operational

                   APN Name       : jnpr-toxin
                   Service Mode    : Operational
                   Gateway: PGW1

                   APN Name       : zoo
                   Service Mode    : Maintenance - Active Phase

```

show unified-edge ggsn-pgw charging service-mode

Syntax	show unified-edge ggsn-pgw charging service-mode gateway <i>gateway-name</i> <brief detail> <charging-profile <i>profile-name</i>> <transport-profile <i>profile-name</i>>
Release Information	Command introduced in Junos OS Mobility Release 11.2W.
Description	Display the charging service mode information for the specified Gateway GPRS Support Node (GGSN) or Packet Data Network Gateway (P-GW).
Options	<p>gateway <i>gateway-name</i>—Display the charging service mode information for the specified GGSN or P-GW.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>charging-profile-name <i>profile-name</i>—(Optional) Display the service mode information for the specified charging profile.</p> <p>transport-profile-name <i>profile-name</i>—(Optional) Display the service mode information for the specified transport profile.</p>
Required Privilege Level	view
List of Sample Output	show unified-edge ggsn-pgw charging service-mode gateway PGW brief on page 81 show unified-edge ggsn-pgw charging service-mode gateway PGW detail on page 82
Output Fields	Table 4 on page 80 lists the output fields for the show unified-edge ggsn-pgw charging service-mode command. Output fields are listed in the approximate order in which they appear.

Table 4: show unified-edge ggsn-pgw charging service-mode Output Fields

Field Name	Field Description	Level of Output
Gateway Name	Name of the GGSN or P-GW.	All levels

Table 4: show unified-edge ggsn-pgw charging service-mode Output Fields (*continued*)

Field Name	Field Description	Level of Output
Service Mode	Service mode for the gateway. The following service modes are possible: <ul style="list-style-type: none"> Maintenance—Gateway is in maintenance mode. MM Active Phase—In this mode, you can make changes to any of the configuration options under the <code>[edit unified-edge gateways ggsn-pgw gateway-name charging charging-profiles]</code> or the <code>[edit unified-edge gateways ggsn-pgw gateway-name charging transport-profiles]</code> hierarchy levels. MM In/Out Phase—In this mode, you cannot make changes to the configuration options under the <code>[edit unified-edge gateways ggsn-pgw gateway-name charging charging-profiles]</code> or the <code>[edit unified-edge gateways ggsn-pgw gateway-name charging transport-profiles]</code> hierarchy levels. Operational—Gateway is still in operational mode and not in maintenance mode. You can use the following commands to put the charging profile or transport profile in maintenance mode: <ul style="list-style-type: none"> <code>set unified-edge gateways ggsn-pgw gateway-name charging charging-profiles profile-name service-mode maintenance</code> <code>set unified-edge gateways ggsn-pgw gateway-name charging transport-profiles profile-name service-mode maintenance</code> 	All levels
Charging Profile(s) or Charging Profile	Name of the charging profile.	All levels
Service Mode	Service mode for the charging profile.	All levels
Transport Profile(s) or Transport Profile	Name of the transport profile.	brief
Service Mode	Service mode for the transport profile.	All levels
Pending Maintenance Mode Ready Ack	Lists the components or modules that are not yet ready to accept the configuration changes. Maintenance mode becomes active only after all the components or modules are ready to accept these changes.	detail

Sample Output

```

show unified-edge ggsn-pgw charging service-mode gateway PGW brief
user@host> show unified-edge ggsn-pgw charging service-mode gateway PGW brief
Maintenance Mode
  MM Active Phase - System is ready to accept configuration changes for all
                    attributes of this object and its sub-hierarchies.
  MM In/Out Phase - System is ready to accept configuration changes only for
                    non-maintenance mode attributes of this object and
                    its sub-hierarchies.
.
Gateway Name      : PGW
Service Mode      : Operational

Charging Profile(s)      Service Mode
p_juniper               Operational
Transport Profile(s)     Service Mode

```

p_tsp

Operational

```
show unified-edge user@host> show unified-edge ggsn-pgw charging service-mode gateway PGW detail
ggsn-pgw charging Gateway Name      : PGW
service-mode gateway Service Mode    : Operational
PGW detail          Charging Profile: p_juniper
                    Service Mode     : Operational
                    Transport Profile: p_tsp
                    Service Mode     : Operational
```

show unified-edge ggsn-pgw service-mode

Syntax	<code>show unified-edge ggsn-pgw service-mode</code> <code><brief detail></code> <code><gateway gateway-name></code>
Release Information	Command introduced in Junos OS Mobility Release 11.2W.
Description	Display the service mode information for one or more gateway GPRS support nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then the service mode information for all the GGSNs and P-GWs is displayed.
Options	<p>none—(Same as brief) Display the service mode information in brief.</p> <p>brief detail —(Optional) Display the specified level of output.</p> <p>gateway gateway-name—(Optional) Display service mode information for the specified GGSN or P-GW.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show unified-edge ggsn-pgw apn service-mode on page 78
List of Sample Output	show unified-edge ggsn-pgw service-mode brief on page 83 show unified-edge ggsn-pgw service-mode detail on page 84
Output Fields	Table 5 on page 83 lists the output fields for the <code>show unified-edge ggsn-pgw service-mode</code> command. Output fields are listed in the approximate order in which they appear.

Table 5: show unified-edge ggsn-pgw service-mode Output Fields

Field Name	Field Description
Gateway Name	Name of the GGSN or P-GW.
Service Mode	Service mode for the gateway: <ul style="list-style-type: none"> • Operational—Gateway is in operational mode. • Maintenance—Gateway is in maintenance mode.

Sample Output

```

show unified-edge ggsn-pgw service-mode brief
user@host> show unified-edge ggsn-pgw service-mode brief
Maintenance Mode
  MM Active Phase - System is ready to accept configuration changes for all
                    attributes of this object and its sub-hierarchies.
  MM In/Out Phase - System is ready to accept configuration changes only for
                    non-maintenance mode attributes of this object and
                    its sub-hierarchies.

Gateway Name          Service Mode

```

PGW	Operational
PGW2	Operational

```
show unified-edge ggsn-pgw service-mode detail
user@host> show unified-edge ggsn-pgw service-mode detail
Service Mode Status
Gateway Name    : PGW
Service Mode    : Operational
Service Mode Status
Gateway Name    : PGW2
Service Mode    : Operational
```

show unified-edge ggsn-pgw system interfaces service-mode

Syntax	show unified-edge ggsn-pgw system interfaces service-mode <brief detail> <gateway-name <i>gateway-name</i> >
Release Information	Command introduced in Junos OS Mobility Release 11.4W.
Description	Display the service mode information for the interfaces on one or more Gateway GPRS Support Nodes (GGSNs) or Packet Data Network Gateways (P-GWs). If a GGSN or P-GW is not specified, then information for all GGSNs and P-GWs is displayed.
Options	<p>none—(Same as brief) Display service mode information for one or more GGSNs and P-GWs.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>gateway-name <i>gateway-name</i>—(Optional) Display service mode information for the specified gateway.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> show unified-edge ggsn-pgw system interfaces
List of Sample Output	show unified-edge ggsn-pgw system interfaces service-mode brief on page 86 show unified-edge ggsn-pgw system interfaces service-mode detail on page 86
Output Fields	Table 6 on page 85 lists the output fields for the show unified-edge ggsn-pgw system interfaces service-mode command. Output fields are listed in the approximate order in which they appear.

Table 6: show unified-edge ggsn-pgw system interfaces service-mode

Field Name	Field Description
Interface Name	Name of the interface for which the service mode information is displayed: <ul style="list-style-type: none"> Aggregated multiservices; for example, ams0 Aggregated Packet Forwarding Engine; for example, apfe1 Multiservices; for example, ms-1/0/0
Gateway Name	Name of the GGSN or P-GW.

Table 6: show unified-edge ggsn-pgw system interfaces service-mode (continued)

Field Name	Field Description
Service Mode	<p>Service mode for the gateway. The following service modes are possible:</p> <ul style="list-style-type: none"> Operational—Gateway is in operational mode. Maintenance—Gateway is in maintenance mode. MM Active Phase—In this mode, you can make changes to all of the configuration options. MM In/Out Phase—In this mode, you can only make changes to the configuration options for the non-maintenance-mode attributes.

Sample Output

```

show unified-edge ggsn-pgw system interfaces service-mode brief
user@host> show unified-edge ggsn-pgw system interfaces service-mode brief
Maintenance Mode
  MM Active Phase - System is ready to accept configuration changes for all
                    attributes of this object and its sub-hierarchies.
  MM In/Out Phase - System is ready to accept configuration changes only for
                    non-maintenance mode attributes of this object and
                    its sub-hierarchies.

```

Interface Name	Gateway Name	Service Mode
pfe-2/1/0	PGW	Operational
ams1	PGW	Operational

```

show unified-edge ggsn-pgw system interfaces service-mode detail
user@host> show unified-edge ggsn-pgw system interfaces service-mode detail
Service Mode Status
Interface Name : pfe-2/1/0
Gateway Name   : PGW
Service Mode   : Operational
Service Mode Status
Interface Name : ams1
Gateway Name   : PGW
Service Mode   : Operational

```


show unified-edge sgw charging service-mode

Syntax	<code>show unified-edge sgw charging service-mode gateway-name <i>gateway-name</i></code> <code><brief detail></code> <code><charging-profile-name <i>profile-name</i>></code> <code><transport-profile-name <i>profile-name</i>></code>
Release Information	Command introduced in Junos OS Mobility Release 11.4W.
Description	Display the charging service mode information for the specified Serving Gateway (S-GW).
Options	<p>gateway-name <i>gateway-name</i>—Display the charging service mode information for the specified gateway.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>charging-profile-name <i>profile-name</i>—(Optional) Display the service mode information for the specified charging profile.</p> <p>transport-profile-name <i>profile-name</i>—(Optional) Display the service mode information for the specified transport profile.</p>
Required Privilege Level	view
List of Sample Output	show unified-edge sgw charging service-mode gateway SGW brief on page 88 show unified-edge sgw charging service-mode gateway SGW detail on page 88
Output Fields	Table 7 on page 87 lists the output fields for the show unified-edge sgw charging service-mode command. Output fields are listed in the approximate order in which they appear.

Table 7: show unified-edge sgw charging service-mode Output Fields

Field Name	Field Description	Level of Output
Gateway Name	Name of the S-GW.	All levels
Service Mode	Service mode for the gateway. The following service modes are possible: <ul style="list-style-type: none"> Operational—Gateway is in operational mode. Maintenance—Gateway is in maintenance mode. MM Active Phase—In this mode, you can make changes to any of the configuration options under the <code>[edit unified-edge gateways sgw gateway-name charging charging-profiles]</code> or the <code>[edit unified-edge gateways sgw gateway-name charging transport-profiles]</code> hierarchy levels. MM In/Out Phase—In this mode, you cannot make changes to the configuration options under the <code>[edit unified-edge gateways sgw gateway-name charging charging-profiles]</code> or the <code>[edit unified-edge gateways sgw gateway-name charging transport-profiles]</code> hierarchy levels. 	All levels
Charging Profile(s) or Charging Profile	Name of the charging profile.	All levels

Table 7: show unified-edge sgw charging service-mode Output Fields (*continued*)

Field Name	Field Description	Level of Output
Service Mode	Service mode for the charging profile.	All levels
Transport Profile(s) or Transport Profile	Name of the transport profile.	brief
Service Mode	Service mode for the transport profile.	All levels
Pending Maintenance Mode Ready Ack	Lists the components or modules that are not yet ready to accept the configuration changes. Maintenance mode becomes active only after all the components or modules are ready to accept these changes.	detail

Sample Output

```

show unified-edge sgw charging service-mode gateway SGW brief
user@host> show unified-edge sgw charging service-mode gateway SGW brief
Maintenance Mode
  MM Active Phase - System is ready to accept configuration changes for all
                    attributes of this object and its sub-hierarchies.
  MM In/Out Phase - System is ready to accept configuration changes only for
                    non-maintenance mode attributes of this object and
                    its sub-hierarchies.
.
Gateway Name      : SGW
Service Mode      : Operational

Charging Profile(s)      Service Mode
p_juniper               Operational
Transport Profile(s)     Service Mode
p_tsp                   Operational

show unified-edge sgw charging service-mode gateway SGW detail
user@host> show unified-edge sgw charging service-mode gateway SGW detail
Gateway Name      : SGW
Service Mode      : Operational

Charging Profile: p_juniper
Service Mode      : Operational
Transport Profile: p_tsp
Service Mode      : Operational

```

show unified-edge sgw service-mode

Syntax	<code>show unified-edge sgw service-mode</code> <code><brief detail></code> <code><gateway gateway-name></code>
Release Information	Command introduced in Junos OS Mobility Release 11.4W.
Description	Display the service mode information for one or more Serving Gateways (S-GWs). If a gateway is not specified, then information for all S-GWs is displayed.
Options	<p>none—(Same as brief) Display the service mode information in brief.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>gateway gateway-name—(Optional) Display the service mode information for the specified gateway.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> service-mode (Serving Gateway) on page 68
List of Sample Output	show unified-edge sgw service-mode brief on page 89 show unified-edge sgw service-mode detail on page 90
Output Fields	Table 8 on page 89 lists the output fields for the show unified-edge sgw service-mode command. Output fields are listed in the approximate order in which they appear.

Table 8: show unified-edge sgw service-mode Output Fields

Field Name	Field Description	Level of Output
Gateway Name	Name of the S-GW.	All levels
Service Mode	Service mode for the gateway: <ul style="list-style-type: none"> Operational—Gateway is in operational mode. Maintenance—Gateway is in maintenance mode. 	All levels

Sample Output

```

user@host> show unified-edge sgw service-mode brief
Maintenance Mode
  MM Active Phase - System is ready to accept configuration changes for all
                    attributes of this object and its sub-hierarchies.
  MM In/Out Phase - System is ready to accept configuration changes only for
                    non-maintenance mode attributes of this object and
                    its sub-hierarchies.

Gateway Name          Service Mode

```

SGW	Operational
SGW2	Operational

```
show unified-edge sgw service-mode detail user@host> show unified-edge sgw service-mode detail
Service Mode Status
Gateway Name    : SGW
Service Mode    : Operational
Service Mode Status
Gateway Name    : SGW2
Service Mode    : Operational
```

show unified-edge sgw system interfaces service-mode

Syntax	show unified-edge sgw system interfaces service-mode <brief detail> <gateway-name <i>gateway-name</i> >
Release Information	Command introduced in Junos OS Mobility Release 11.4W.
Description	Display the service mode information for the interfaces on one or more Serving Gateways (S-GWs). If an S-GW is not specified, then information for all S-GWs is displayed.
Options	<p>none—(Same as brief) Display service mode information for one or more S-GWs.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>gateway-name <i>gateway-name</i>—(Optional) Display service mode information for the specified gateway.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> show unified-edge sgw system interfaces
List of Sample Output	show unified-edge sgw system interfaces service-mode brief on page 92 show unified-edge sgw system interfaces service-mode detail on page 92
Output Fields	Table 9 on page 91 lists the output fields for the show unified-edge sgw system interfaces service-mode command. Output fields are listed in the approximate order in which they appear.

Table 9: show unified-edge sgw system interfaces service-mode

Field Name	Field Description
Interface Name	Name of the interface for which the service mode information is displayed: <ul style="list-style-type: none"> Aggregated multiservices; for example, ams0 Aggregated Packet Forwarding Engine; for example, apfe1 Multiservices; for example, ms-1/0/0
Gateway Name	Name of the S-GW.
Service Mode	Service mode for the gateway. The following service modes are possible: <ul style="list-style-type: none"> Operational—Gateway is in operational mode. Maintenance—Gateway is in maintenance mode. MM Active Phase—In this mode, you can make changes to all of the configuration options. MM In/Out Phase—In this mode, you can only make changes to the configuration options for the non-maintenance-mode attributes.

Sample Output

```
show unified-edge sgw system interfaces service-mode brief
user@host> show unified-edge sgw system interfaces service-mode brief
Maintenance Mode
  MM Active Phase - System is ready to accept configuration changes for all
                    attributes of this object and its sub-hierarchies.
  MM In/Out Phase - System is ready to accept configuration changes only for
                    non-maintenance mode attributes of this object and
                    its sub-hierarchies.
```

Interface Name	Gateway Name	Service Mode
pfe-2/2/0	SGW	Operational
ams0	SGW	Operational

```
show unified-edge sgw system interfaces service-mode detail
user@host> show unified-edge sgw system interfaces service-mode detail
Service Mode Status
Interface Name : pfe-2/2/0
Gateway Name   : SGW
Service Mode   : Operational
Service Mode Status
Interface Name : ams0
Gateway Name   : SGW
Service Mode   : Operational
```

PART 4

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