

# Junos<sup>®</sup> OS 11.4W2 Mobility Release Notes

Release 11.4W2  
20 April 2012  
Revision 1

These release notes accompany Release 11.4W2 of the Junos OS for the MobileNext Broadband Gateway. They describe device documentation and known problems with the software. Junos OS for the MobileNext Broadband Gateway runs on all Juniper Networks MX Series routers except the MX80 and lower.

For the latest, most complete information about outstanding and resolved issues with the Junos OS for the MobileNext Broadband Gateway software, see the Juniper Networks online software defect search application at <http://www.juniper.net/prsearch>.

## Contents

New Features in Junos OS Release 11.4W2 for MobileNext Broadband Gateway . . . . .	2
IP Reassembly . . . . .	2
COS/CAC . . . . .	2
Maintenance Mode . . . . .	5
Call Trace . . . . .	6
Changes in Default Behavior and Syntax in Junos OS Release 11.4W2 for MobileNext Broadband Gateway . . . . .	6
Resolved Issues in Junos OS Release 11.4W2 for MobileNext Broadband Gateway . . . . .	7
Call Trace . . . . .	8
IP Reassembly . . . . .	8
APNs . . . . .	8
QOS/CAC . . . . .	9
Errata in Junos OS Release 11.4W2 for MobileNext Broadband Gateway Documentation . . . . .	9

## New Features in Junos OS Release 11.4W2 for MobileNext Broadband Gateway

The following features have been added to Junos OS Release 11.4W2 for the MobileNext Broadband Gateway. Following the description is the title of the manual or manuals to consult for further information.

### IP Reassembly

- **IP reassembly can be done online (Broadband Gateway MX Series platforms)**—Enables you to configure a gateway on the MobileNext Broadband Gateway so that reassembly of fragmented IP packets is carried out inline (on the Packet Forwarding Engine) instead of performing IP reassembly on the services PIC. By default, IP reassembly is carried out on the services PIC.

To configure inline IP reassembly, include the **ip-reassembly** statement at the **[edit unified-edge gateways ggsn-pgw gateway-name inline-services]** or **[edit unified-edge gateways ggsn-pgw gateway-name inline-services]** hierarchy level.

*[MobileNext Broadband Gateway Configuration Guide]*

### COS/CAC

- **Removed Statements in the COS and CAC CLI (Broadband Gateway MX Series platforms)**—Most of the previous statements at the **[edit unified-edge gateways ggsn-pgw gateway-name cos-cac]** hierarchy level have been removed.

The following Quality of Service (QoS) CLI statements are removed and provide no backward compatibility, so you cannot bring an existing COS/CAC configuration into compliance with the new configuration. The existing COS/CAC CLI configuration must be deleted before you can use the replacement CLI to configure COS/CAC on the broadband gateway. For complete information on the current COS/CAC CLI, see the documentation for QoS configuration statements.

[Table 1 on page 2](#) shows the removed COS-CAC configuration and the replacement configuration statements.

**Table 1: Removed and Replacement COS-CAC CLI**

Removed Item	Replacement	Hierarchy Level
aggregated-maximum-bit-rate uplink   downlink	aggregate-qos-control maximum-bit-rate-uplink   max-bit-rate-downlink	[edit unified-edge cos-cac cos-policy-profiles <name>]
allocation-retention-priority gtpv1-priority-value <1-3>	allocation-retention-priority <1-15>	[edit unified-edge cos-cac cos-policy-profiles <name>]
allocation-retention-priority priority-value <1-15>	allocation-retention-priority <1-15>	[edit unified-edge cos-cac cos-policy-profiles <name>]
bandwidth-pools	gbr-bandwidth-pools	[edit unified-edge cos-cac]
exceed-action	policer-action gbr-bearer exceed-action	[edit unified-edge cos-cac cos-policy-profiles <name>]

Table 1: Removed and Replacement COS-CAC CLI (*continued*)

guaranteed-bit-rate traffic-class	pdp-qos-control guaranteed-bit-rate-uplink   guaranteed-bit-rate-downlink-uplink	[edit unified-edge cos-cac cos-policy-profiles <name>]
gtpv1-arp	priority-level	[edit unified-edge cos-cac resource-threshold-profiles <name> bearers-load high low]  [edit unified-edge cos-cac resource-threshold-profiles <name> cpu high   low]  [edit unified-edge cos-cac resource-threshold-profiles <name> memory high   low]
gtpv2-priority-level	priority-level	[edit unified-edge cos-cac resource-threshold-profiles <name> bearers-load high   low]  [edit unified-edge cos-cac resource-threshold-profiles <name> cpu high   low]  [edit unified-edge cos-cac resource-threshold-profiles <name> memory high   low]
maximum-bit-rate traffic-class	pdp-qos-control maximum-bit-rate-uplink   maximum-bit-rate-downlink	[edit unified-edge cos-cac cos-policy-profiles <name>]
qci <5-9>	default-bearer-qci <5-9>	[edit unified-edge cos-cac cos-policy-profiles <name>]
system-load	No replacement CLI.	[edit unified-edge cos-cac resource-threshold-profiles ]
traffic-class conversational   streaming   interactive   background	qos-class-identifier <1-9>	[edit unified-edge cos-cac classifier-profiles]
traffic-class <string>	default-bearer-qci <5-9>	[edit unified-edge cos-cac cos-policy-profiles <name>]
violate-action	<ul style="list-style-type: none"> <li>Syntax for GBR bearers: policer-action gbr-bearer violate-action</li> <li>Syntax for non-GBR bearers policer-action non-gbr-bearer violate-action</li> </ul>	[edit unified-edge cos-cac cos-policy-profiles <name>]

[MobileNext Broadband Gateway Configuration Guide]

- **Default Conversion of (3G) Traffic Classes to (4G) QoS Class Identifiers (Broadband Gateway MX Series platforms)**—Enables you to map between standardized QCI values and the Release 99 (GTPv1) QoS parameters.

For 3G subscribers, the broadband gateway converts the traffic class to a QCI, based on the 3GPP specification 23.401 ANNEX E. [Table 2 on page 4](#) shows the mapping between standardized QCI values and the Release 99 (GTPv1) QoS parameters.

**Table 2: Mapping of Traffic Classes to Qos Class Identifiers**

QCI	Traffic Class	Traffic Handling Priority	Signaling Indication	Source Statistics Descriptor
1	Conversational	N/A	N/A	Speech.
2	Conversational	N/A	N/A	Unknown.  <b>NOTE:</b> When QCI 2 is mapped to pre-Release 8 QoS parameter values, the Transfer Delay parameter is set to 150 ms. When pre-Rel-8 QoS parameter values are mapped to a QCI, QCI 2 is used for conversational/unknown if the Transfer Delay parameter is greater or equal to 150 ms.
3	Conversational	N/A	N/A	Unknown.  <b>NOTE:</b> When QCI 3 is mapped to pre-Release 8 QoS parameter values, the Transfer Delay parameter is set to 80 ms as the lowest possible value, according to TS 23.107 [54]. When pre-Release 8 QoS parameter values are mapped to a QCI, QCI 3 is used for conversational/unknown if the Transfer Delay parameter is lower than 150 ms.
4	Streaming	N/A	N/A	Unknown.  <b>NOTE:</b> When QCI 4 is mapped to pre-Release 8 QoS parameter values, it is mapped to Streaming/Unknown. When pre-Release 8 QoS parameter values are mapped to a QCI, Streaming/Unknown and Streaming/Speech are both mapped to QCI 4.
5	Interactive	1	Yes	N/A
6	Interactive	1	No	N/A
7	Interactive	2	No	N/A
8	Interactive	3	No	N/A
9	Background	N/A	N/A	N/A

- **Default Conversion of 3G Allocation and Retention Priority (ARP) Values (Broadband Gateway MX Series platforms)**—Enables you to map GTPv1 pre-Release 9 bearer parameter ARP values to Release 9 GTPv2 ARP values.

By default, the broadband gateway converts GTPv1 pre-Release 9 ARP values to Release 9 ARP values, based on the 3GPP specification 23.401 ANNEX E. [Table 3 on page 5](#) shows how the broadband gateway maps GTPv1 pre-Release 9 bearer parameter ARP values to Release 9 GTPv2 ARP values.

Table 3: Conversion of GTPv1 Pre-Release 9 ARP Values to Release 9 ARP Values

GTPv1 Pre-release 9 ARP	GTPv1/v2 Release 9 ARP
1	1
2	6
3	11

Conversely, when subscriber calls come in with a pre-Release 9 ARP value, the broadband gateway performs the required ARP conversion to ensure that the call goes back out with the appropriate ARP value. [Table 4 on page 5](#) shows how the broadband gateway converts GTPv2 Release 9 bearer parameter ARP values to GTPv1 pre-Release 9 ARP values.

Table 4: Mapping of Release 9 ARP Values to Pre-Release 9 ARP Values

GTPv2 Release 9 ARP	GTPv1 Pre-Release 9 ARP
1-5	1
6-10	2
11-15	3

[*MobileNext Broadband Gateway Configuration Guide*]

## Maintenance Mode

- **Maintenance mode additions (Broadband Gateway MX Series platforms)**—Enables you to more gracefully change hardware configuration and modify key software parameters without disrupting current users on the MobileNext Broadband Gateway.

You now must configure and use maintenance mode for the following:

- Delete a Session PIC from a gateway
- Delete a Services PIC from a gateway
- Change AMS load-balancing options such as AMS group members
- Change maximum number of bearers (GGSN, P-GW, or S-GW)
- Change maximum number of network-behind-the-mobile (NBM) IPv4 prefixes for an anchor Packet Forwarding Engine (GGSN or P-GW)
- Change maximum number of network-behind-the-mobile (NBM) IPv6 prefixes for an anchor Packet Forwarding Engine (GGSN or P-GW)
- Change guaranteed bandwidth for each anchor Packet Forwarding Engine (S-GW)

- Change maximum number of default bearers allowed (as a percentage of total bearers) on each anchor Packet Forwarding Engine (S-GW)
- Change maximum number of bearers allowed on each anchor Packet Forwarding Engine (S-GW)

To configure maintenance mode, include the **service-mode maintenance** statement at the relevant hierarchy level.



**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.

After you have made the configuration changes, you must exit maintenance mode and commit the configuration.

[*MobileNext Broadband Gateway Configuration Guide*]

## Call Trace

- **Call trace (Broadband Gateway MX Series platforms)**—Enables you to track, display, and log the progress of calls through a Gateway GPRS Support Node/ Packet Data Network Gateway (GGSN/P-GW) or Serving Gateway (S-GW). You can track by IMSI, MS-ISDN, or other parameters.

Call trace (which had been largely undocumented in previous releases) information and examples have been added to the Monitoring and Troubleshooting pathway page and Monitoring chapter of the *MobileNext Broadband Gateway Configuration Guide*. You initiate a call trace with the **request unified-edge ggsn-pgw gateway-name call-trace start trace-parameters** or **request unified-edge sgw gateway-name call-trace start trace-parameters** commands. You display call traces with the **request unified-edge ggsn-pgw gateway-name call-trace show** or **request unified-edge sgw gateway-name call-trace show** commands. You stop call traces with the **request unified-edge ggsn-pgw gateway-name call-trace stop** or **request unified-edge sgw gateway-name call-trace stop** commands. Examples include using call trace for both Packet Data Network Gateways (P-GWs) and the Serving Gateways (S-GWs). These new topics are *Call Trace Overview*, *Example: Monitoring a P-GW with Call Trace*, and *Example: Monitoring a S-GW with Call Trace*.

[*MobileNext Broadband Gateway Configuration Guide*]

## Changes in Default Behavior and Syntax in Junos OS Release 11.4W2 for MobileNext Broadband Gateway

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The changes to default behavior and syntax for the MobileNext Broadband Gateway are as follows:

- The **profile** statement has been added to the **[edit services ip-reassembly ip-reassembly-profile-name]** hierarchy level. If you previously configured this stanza for

IP reassembly profile parameters, you must manually change the syntax to the new format: **[edit services ip-reassembly profile *ip-reassembly-profile-name*]**. [PR/755611]

- The behavior of the **drop-member-traffic** statement at the **[edit interfaces *interface-name* load-balancing-options member-failure-options]** hierarchy level for Aggregated Multiservice (AMS) interfaces has changed. These changes are reflected in the statement summaries. [PR/732049]

## Resolved Issues in Junos OS Release 11.4W2 for MobileNext Broadband Gateway

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The following are the issues that have been resolved for the MobileNext Broadband Gateway in this release. The identifier following the descriptions is the tracking number in the bug-tracking database.

## Call Trace

- **Call Tracing Documentation has been added (Broadband Gateway MX Series platforms)**—The documentation includes an overview and multiple examples of using call trace for monitoring the broadband gateway.

Call trace information and examples have been added to the Monitoring pathway page and chapter of the *MobileNext Broadband Gateway Configuration Guide*. You initiate a call trace with the `request unified-edge ggsn-pgw gateway-name call-trace start trace-parameters` or `request unified-edge sgw gateway-name call-trace start trace-parameters` commands. You display call traces with the `request unified-edge ggsn-pgw gateway-name call-trace show` or `request unified-edge sgw gateway-name call-trace show` commands. You stop call traces with the `request unified-edge ggsn-pgw gateway-name call-trace stop` or `request unified-edge sgw gateway-name call-trace stop` commands. Examples include using call trace for both Packet Data Network Gateways (P-GWs) and the Serving Gateways (S-GWs). These new topics are *Call Trace Overview*, *Example: Monitoring a P-GW with Call Trace*, and *Example: Monitoring a S-GW with Call Trace*. [PR/738079]

[*MobileNext Broadband Gateway Configuration Guide*]

## IP Reassembly

- **IP reassembly profile defaults have been corrected (Broadband Gateway MX Series platforms)**—The default values for the timeout and maximum packets pending reassembly have been corrected to 4 seconds and 1000 packets respectively.

The range of the IP reassembly profiles timeout is from 2 through 60 seconds. The default value, incorrectly listed as 2 seconds, has been corrected to 4 seconds. The range of the IP reassembly profiles maximum packets pending reassembly is from 100 through 100,000 packets. The default value, incorrectly listed as 100 packets, has been corrected to 1000 packets. This change was made to the topic *Configuring Fragment Reassembly Parameters*. [PR/748381]



**NOTE:** The IP reassembly profile values do not apply when inline IP reassembly is enabled on a gateway.

[*MobileNext Broadband Gateway Configuration Guide*]

## APNs



- **Statement for default APN has been removed (Broadband Gateway MX Series platforms)**—The **default-apn** statement has been removed from the **[edit unified-edge gateways ggsn-pgw gateway-name apn-services apns apn-name]** hierarchy level.

The documentation erroneously included a **default-apn** statement at the **[edit unified-edge gateways ggsn-pgw gateway-name apn-services apns apn-name]** hierarchy level. This statement has now been removed from the documentation. This change was made to the topic *Configuring General APN Parameters of the Broadband Gateway*. [PR/702083]

[*MobileNext Broadband Gateway Configuration Guide*]

## QOS/CAC

- **ARP threshold behavior error corrected (Broadband Gateway MX Series platforms)**—The behavior of the ARP threshold has been corrected at the **[edit unified-edge cos-cac resource-threshold-profiles resource-profile-name system-load]** and related hierarchy levels. The text has been changed to read “only PDP context requests with an equal or higher priority ARP than 3 are accepted.”

The documentation erroneously stated that “only PDP context requests with a higher priority than 3 are accepted” when the related **gtpv1-arp** or **gtpv2-arp** values are set to 3 at the **[edit unified-edge cos-cac resource-threshold-profiles resource-profile-name system-load]]** hierarchy level. The text has been changed to read “only PDP context requests with an equal or higher priority ARP than 3 are accepted.” This change was made to the topic *Configuring Resource Thresholds on a 3G Network*. [PR/696399]

[*MobileNext Broadband Gateway Configuration Guide*]

Related •  
Documentation

## Errata in Junos OS Release 11.4W2 for MobileNext Broadband Gateway Documentation

The documentation errors for the MobileNext Broadband Gateway are as follows:

- No error items have been reported for 11.4W2.