

Network Queue QoS Policies

In This Section

This section provides information to configure network queue QoS policies using the command line interface.

Topics in this section include:

- [Overview on page 96](#)
- [Basic Configurations on page 97](#)
- [Default Network Queue Policy Values on page 103](#)
- [Service Management Tasks on page 109](#)

Overview

Network queue policies define the ingress network queuing at the MDA network node level. Network queue policies are also used at the Ethernet port and SONET/SDH path level to define network egress queuing.

There is one default network queue policy. Each policy can have up to 16 queues (unicast and multicast). The default policies can be copied but they cannot be deleted or modified. The default policy is identified as **network-queue default**. Default network queue policies are applied to MDA network ingress ports. You must explicitly create and then associate other network queue QoS policies.

For information about the tasks and commands necessary to access the command line interface and to configure and maintain your devices, refer to CLI Usage chapter in the Basic System Configuration Guide.

Network Queue Parent Scheduler

Network queues support port scheduler parent priority-level associations. Using a port scheduler policy definition and mapping network queues to a port parent priority level, HQoS functionality is supported providing eight levels of strict priority and weights within the same priority. A network queue's bandwidth is allocated using the "within-cir" and "above-cir" scheme normal for port schedulers.

Queue CIR and PIR percentages when port-based schedulers are in effect will be based on frame-offered-load calculations.

A network queue with a port parent association exists on a port without a scheduler policy defined will be considered to be orphaned.

Refer to [QoS Scheduler Policies on page 469](#) for more information about queue parental association scope.

Basic Configurations

A basic network queue QoS policy must conform to the following:

- Each network queue QoS policy must have a unique policy name.
 - Queue parameters can be modified, but cannot be deleted.
-

Create a Network Queue QoS Policy

Configuring and applying QoS policies other than the default policy is optional. A default network queue policy is applied to MDA network ingress ports.

To create an network queue policy, define the following:

- Enter a network queue policy name. The system will not dynamically assign a name.
- Include a description. The description provides a brief overview of policy features.
- Forwarding class — You can assign a forwarding class to a specific queue.

Use the following CLI syntax to create a network queue QoS policy:

```
CLI Syntax: config>qos
                network-queue policy-name
                description description-string
                fc fc-name
                   multicast-queue queue-id
                   queue queue-id
queue queue-id [multipoint] [queue-type]
  cbs percent
  high-prio-only percent
  mbs percent
  port-parent [weight weight] [level level] [cir-weight
    cir-weight] [cir-level cir-level]
  rate percent [cir percent]
```

```
A:ALA-1>config>qos# network-queue default
A:ALA-1>config>qos>network-queue# info detail
-----
description "Default network queue QoS policy."
queue 1 create
  mbs 50
  cbs 1
  high-prio-only 10
exit
queue 2 create
  rate 100 cir 25
  mbs 50
```

```
        cbs 3
        high-prio-only 10
exit
queue 3 create
    rate 100 cir 25
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 4 create
    rate 100 cir 25
    mbs 25
    cbs 3
    high-prio-only 10
exit
queue 5 create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 6 create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 7 create
    rate 100 cir 10
    mbs 25
    cbs 3
    high-prio-only 10
exit
queue 8 create
    rate 100 cir 10
    mbs 25
    cbs 3
    high-prio-only 10
exit
queue 9 multipoint create
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 10 multipoint create
    rate 100 cir 5
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 11 multipoint create
    rate 100 cir 5
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 12 multipoint create
    rate 100 cir 5
    mbs 25
```

```

        cbs 1
        high-prio-only 10
    exit
queue 13 multipoint create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 14 multipoint create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 15 multipoint create
    rate 100 cir 10
    mbs 25
    cbs 1
    high-prio-only 10
exit
queue 16 multipoint create
    rate 100 cir 10
    mbs 25
    cbs 1
    high-prio-only 10
exit
fc af create
    multicast-queue 11
    queue 3
exit
fc be create
    multicast-queue 9
    queue 1
exit
fc ef create
    multicast-queue 14
    queue 6
exit
fc h1 create
    multicast-queue 15
    queue 7
exit
fc h2 create
    multicast-queue 13
    queue 5
exit
fc l1 create
    multicast-queue 12
    queue 4
exit
fc l2 create
    multicast-queue 10
    queue 2
exit
fc nc create
    multicast-queue 16
    queue 8
exit

```

Applying Network Queue Policies

Apply network queue policies to the following entities:

- MDAs
 - Ethernet Ports
 - SONET/SDH Ports
-

MDAs

Use the following CLI syntax to apply a network queue policy to an MDA network ingress port:

CLI Syntax: `config>card
mda mda-slot
network
ingress
queue-policy name`

The following output displays MDA network ingress queue policy reverted to the default policy.

```
A:ALA-7>config>card>mda# info
-----
mda-type m60-10/100eth-tx
network
  ingress
    pool default
      resv-cbs sum
      slope-policy "default"
    exit
    queue-policy "default"
  exit
  egress
    pool default
      resv-cbs sum
      slope-policy "default"
    exit
  exit
exit
access
  ingress
    pool default
      resv-cbs sum
      slope-policy "default"
    exit
  exit
  egress
    pool default
      resv-cbs sum
```

```
                slope-policy "default"
            exit
        exit
    exit
no shutdown
-----
A:ALA-7>config>card>mda#
```

Ethernet Ports

Use the following CLI syntax to apply a network queue policy to an Ethernet port.

```
CLI Syntax: config>port#
                ethernet
                network
                queue-policy name
A:ALA-49>config>port# info
-----
    ethernet
        network
            queue-policy "nq1"
        exit
    exit
no shutdown
-----
A:ALA-49>config>port#
```

SONET/SDH Ports

Use the following CLI syntax to apply a network queue policy to a SONET/SDH port:

```
CLI Syntax: config>port#  
                sonet-sdh  
                  path path  
                    network  
                      queue-policy name
```

The following output displays the port configuration.

```
A:ALA-48>config>port# info  
-----  
description "OC-12 SONET/SDH"  
sonet-sdh  
  path sts3  
    network  
      queue-policy "nq1"  
    exit  
  no shutdown  
  exit  
exit  
no shutdown  
-----  
A:ALA-48>config>port#
```


Default Network Queue Policy Values

The default network queue policies are identified as policy-id **default**. The default policies cannot be modified or deleted. The following displays default policy parameters:

Table 22: Network Queue Policy Defaults

Field	Default
description	"Default network queue QoS policy."
queue 1	
pir	100
cir	0
mbs	50
cbs	1
high-prio-only	10
queue 2	
pir	100
cir	25
mbs	50
cbs	3
high-prio-only	10
queue 3	
pir	100
cir	25
mbs	50
cbs	1
high-prio-only	10
queue 4	
pir	100
cir	25

Table 22: Network Queue Policy Defaults (Continued)

Field	Default
mbs	25
cbs	3
high-prio-only	10
queue 5	
pir	100
cir	100
mbs	50
cbs	1
high-prio-only	10
queue 6	
pir	100
cir	100
mbs	50
cbs	1
high-prio-only	10
queue 7	
pir	100
cir	10
mbs	25
cbs	3
high-prio-only	10
queue 8	
pir	100
cir	10
mbs	50
cbs	3

Table 22: Network Queue Policy Defaults (Continued)

Field	Default
high-prio-only	10
fc af	queue 3 multicast-queue 11
fc be	queue 1 multicast-queue 9
fc ef	queue 6 multicast-queue 14
fc h1	queue 67 multicast-queue 15
fc h2	queue 5 multicast-queue 13
fc l1	queue 7 multicast-queue 12
fc l2	queue 2 multicast-queue 10
fc nc	queue 8 multicast-queue 16

```
A:ALA-7>config>qos>network-queue# info detail
```

```
-----  
description "Default network queue QoS policy."  
queue 1 auto-expedite create  
  rate 100 cir 0  
  mbs 50  
  cbs 1  
  high-prio-only 10  
exit  
queue 2 auto-expedite create  
  rate 100 cir 25  
  mbs 50  
  cbs 3  
  high-prio-only 10  
exit  
queue 3 auto-expedite create  
  rate 100 cir 25  
  mbs 50  
  cbs 1  
  high-prio-only 10  
exit  
queue 4 auto-expedite create  
  rate 100 cir 25  
  mbs 25  
  cbs 3  
  high-prio-only 10  
exit  
queue 5 auto-expedite create  
  rate 100 cir 100  
  mbs 50  
  cbs 1  
  high-prio-only 10  
exit  
queue 6 auto-expedite create  
  rate 100 cir 100  
  mbs 50  
  cbs 1  
  high-prio-only 10  
exit  
queue 7 auto-expedite create  
  rate 100 cir 10  
  mbs 25  
  cbs 3  
  high-prio-only 10  
exit  
queue 8 auto-expedite create  
  rate 100 cir 10  
  mbs 25  
  cbs 3  
  high-prio-only 10  
exit  
queue 9 multipoint auto-expedite create  
  rate 100 cir 0  
  mbs 50  
  cbs 1  
  high-prio-only 10  
exit  
queue 10 multipoint auto-expedite create  
  rate 100 cir 5
```

```

        mbs 50
        cbs 1
        high-prio-only 10
    exit
queue 11 multipoint auto-expedite create
    rate 100 cir 5
    mbs 50
    cbs 1
    high-prio-only 10
    exit
queue 12 multipoint auto-expedite create
    rate 100 cir 5
    mbs 25
    cbs 1
    high-prio-only 10
    exit
queue 13 multipoint auto-expedite create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
    exit
queue 14 multipoint auto-expedite create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
    exit
queue 15 multipoint auto-expedite create
    rate 100 cir 10
    mbs 25
    cbs 1
    high-prio-only 10
    exit
queue 16 multipoint auto-expedite create
    rate 100 cir 10
    mbs 25
    cbs 1
    high-prio-only 10
    exit
fc af create
    multicast-queue 11
    queue 3
    exit
fc be create
    multicast-queue 9
    queue 1
    exit
fc ef create
    multicast-queue 14
    queue 6
    exit
fc h1 create
    multicast-queue 15
    queue 7
    exit
fc h2 create
    multicast-queue 13
    queue 5

```

```
exit
fc 11 create
    multicast-queue 12
    queue 4
exit
fc 12 create
    multicast-queue 10
    queue 2
exit
fc nc create
    multicast-queue 16
    queue 8
exit
```

```
-----
A:ALA-7>config>qos>network-queue#
```

Service Management Tasks

This section discusses the following service management tasks:

- [Deleting QoS Policies on page 109](#)
 - [Remove a Policy from the QoS Configuration on page 109](#)
 - [Copying and Overwriting QoS Policies on page 110](#)
 - [Editing QoS Policies on page 115](#)
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Deleting QoS Policies

A network queue policy is associated by default with MDA network ingress ports. You can replace the default policy with a customer-configured policy, but you cannot entirely remove a QoS policy. When you remove a QoS policy, the policy association reverts to the default network-queue policy **default**.

To delete a user-created network queue policy, enter the following commands:

CLI Syntax: `config>qos# no network-queue policy-name`

Example: `config>qos# no network-queue nq1`

Remove a Policy from the QoS Configuration

To delete a network policy, enter the following commands:

CLI Syntax: `config>qos# no network-queue policy-name`

Example: `config>qos# no network-queue test`

Copying and Overwriting QoS Policies

You can copy an existing network queue policy, rename it with a new policy ID name, or overwrite an existing network queue policy. The `overwrite` option must be specified or an error occurs if the destination policy ID exists.

CLI Syntax: `config>qos# copy network-queue source-policy-id dest-policy-id [overwrite]`

Example: `config>qos# copy network-queue nq1 nq2`

The following output displays the copied policies:

```
A:ALA-12>config>qos# info
#-----
echo "QoS Slope/Queue Policies Configuration"
#-----
...
network-queue "nq1" create
  description "Default network queue QoS policy."
  queue 1 create
    mbs 50
    cbs 1
    high-prio-only 10
  exit
  queue 2 create
    rate 100 cir 25
    mbs 50
    cbs 3
    high-prio-only 10
  exit
  queue 3 create
    rate 100 cir 25
    mbs 50
    cbs 1
    high-prio-only 10
  exit
  queue 4 create
    rate 100 cir 25
    mbs 25
    cbs 3
    high-prio-only 10
  exit
  queue 5 create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
  exit
  queue 6 create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
  exit
```



```
queue 7 create
    rate 100 cir 10
    mbs 25
    cbs 3
    high-prio-only 10
exit
queue 8 create
    rate 100 cir 10
    mbs 25
    cbs 3
    high-prio-only 10
exit
queue 9 multipoint create
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 10 multipoint create
    rate 100 cir 5
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 11 multipoint create
    rate 100 cir 5
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 12 multipoint create
    rate 100 cir 5
    mbs 25
    cbs 1
    high-prio-only 10
exit
queue 13 multipoint create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 14 multipoint create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 15 multipoint create
    rate 100 cir 10
    mbs 25
    cbs 1
    high-prio-only 10
exit
queue 16 multipoint create
    rate 100 cir 10
    mbs 25
    cbs 1
    high-prio-only 10
exit
```

```

fc af create
    multicast-queue 11
    queue 3
exit
fc be create
    multicast-queue 9
    queue 1
exit
fc ef create
    multicast-queue 14
    queue 6
exit
fc h1 create
    multicast-queue 15
    queue 7
exit
fc h2 create
    multicast-queue 13
    queue 5
exit
fc l1 create
    multicast-queue 12
    queue 4
exit
fc l2 create
    multicast-queue 10
    queue 2
exit
fc nc create
    multicast-queue 16
    queue 8
exit
exit
network-queue "nq2" create
    description "Default network queue QoS policy."
    queue 1 create
        mbs 50
        cbs 1
        high-prio-only 10
    exit
    queue 2 create
        rate 100 cir 25
        mbs 50
        cbs 3
        high-prio-only 10
    exit
    queue 3 create
        rate 100 cir 25
        mbs 50
        cbs 1
        high-prio-only 10
    exit
    queue 4 create
        rate 100 cir 25
        mbs 25
        cbs 3
        high-prio-only 10
    exit
    queue 5 create

```

```
        rate 100 cir 100
        mbs 50
        cbs 1
        high-prio-only 10
exit
queue 6 create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 7 create
    rate 100 cir 10
    mbs 25
    cbs 3
    high-prio-only 10
exit
queue 8 create
    rate 100 cir 10
    mbs 25
    cbs 5
    high-prio-only 10
exit
queue 9 multipoint create
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 10 multipoint create
    rate 100 cir 5
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 11 multipoint create
    rate 100 cir 5
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 12 multipoint create
    rate 100 cir 5
    mbs 25
    cbs 1
    high-prio-only 10
exit
queue 13 multipoint create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 14 multipoint create
    rate 100 cir 100
    mbs 50
    cbs 1
    high-prio-only 10
exit
queue 15 multipoint create
```

```
        rate 100 cir 10
        mbs 25
        cbs 1
        high-prio-only 10
    exit
    queue 16 multipoint create
        rate 100 cir 10
        mbs 25
        cbs 1
        high-prio-only 10
    exit
    fc af create
        multicast-queue 11
        queue 3
    exit
    fc be create
        multicast-queue 9
        queue 1
    exit
    fc ef create
        multicast-queue 14
        queue 6
    exit
    fc h1 create
        multicast-queue 15
        queue 7
    exit
    fc h2 create
        multicast-queue 13
        queue 5
    exit
    fc l1 create
        multicast-queue 12
        queue 4
    exit
    fc l2 create
        multicast-queue 10
        queue 2
    exit
    fc nc create
        multicast-queue 16
        queue 8
    exit
exit
...
-----
A:ALA-12>config>qos#
```

Editing QoS Policies

You can change existing policies, except the default policies, and entries in the CLI. The changes are applied immediately to all interfaces where the policy is applied. To prevent configuration errors use the copy command to make a duplicate of the original policy to a work area, make the edits, and then overwrite the original policy.

