FEX Queuing

FEX Queuing provides a mechanism to support queuing on host interfaces (HIF) of a FEX device. Queuing of data traffic is based on the COS or DSCP values of an Ethernet packet. Traffic that is not marked with these values are dropped to a default queue.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to https://cfnng.cisco.com/. An account on Cisco.com is not required.

Information About FEX Queuing

Queuing Ethernet Frames Using COS

With this feature, data and control Ethernet frames can be prioritized based on the COS value of an Ethernet header and sent to separate queues of a FEX host interface. This ensures that control frames are not dropped during a traffic burst.

Every FEX interface has a COS2Q map associated with it. And depending on the COS2Q map, the ethernet frame is enqueued.

Queuing Ethernet Frames Using DSCP

With this feature, data and control Ethernet frames can be prioritized based on the DSCP value of an IP header and sent to separate queues of a FEX host interface. This ensures that control frames are not dropped during a traffic burst.

Queuing is based on the DSCP to Queue mapping configuration on the network-qos template

Queueing FCoE Frames Using COS 3

With this feature, FCoE and Ethernet frames can be prioritized based on the COS 3 of FCoE and COS value of Ethernet header and sent to separate queues of a FEX host interface. This ensures that control frames are not dropped during a traffic burst.

This is driven by the COS2Q mapping and the network-qos template on the Nexus 7000.

How to Configure FEX Queuing

Changing COS2Q mapping

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **class-map type queuing match-any** *queue*
4. **match cos 4-7**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**class-map type queuing match-any** *queue* **Example:** `Device(config)# class-map type queuing match-any 2q4t-8e-in-q1`	Configures the global queuing class map.

	Command or Action	Purpose
Step 4	**match cos 4-7** **Example:** `Device(config-cmap-que)# match cos 4-7`	Configures COS2Q value
Step 5	**end** **Example:** `Device(config-cmap-que)# end`	Exits to previliged EXEC mode.

Changing DSCP2Q Mapping

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **class-map type queuing match-any 2q4t-8e-in-q-default**
4. **match dscp** *value-range*
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**class-map type queuing match-any 2q4t-8e-in-q-default** **Example:** `Device(config)# class-map type queuing match-any 2q4t-8e-in-q-default`	Configures the global queuing class map.
Step 4	**match dscp** *value-range* **Example:** `Device(config-cmap-que)# match dscp 1-10`	Configures DSCP2Q value
Step 5	**end** **Example:** `Device(config-cmap-que)# end`	Exits to previliged EXEC mode.

Changing network-qos Template

The cos2q map, bandwidth, mtu and priority for the queues are defined for each network-qos templates. The FEX is configured based on the default values for a given network-qos template. To change these default values, you should clone a template and change the values. The policy can then be applied to the system qos.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **system qos**
4. **service-policy type network-qos** *policy*
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**system qos** **Example:** `Device(config)# system qos`	Enters system class configuration mode.
Step 4	**service-policy type network-qos** *policy* **Example:** `Device(config-sys-qos)# service-policy type network-qos default-nq-7e-4q8q-policy`	Configures the policy map that is to be used as the network-wide service policy, and enters Network-wide (system qos) mode.
Step 5	**end** **Example:** `Device(config-sys-qos)# end`	Exits to previliged EXEC mode.

Configuring FEX Queue Parameters

SUMMARY STEPS

1. **hardware** *fex-card-type* **shared-buffer-size** *size*
2. **hardware** *fex-card-type* **queue-limit** *queue-limit*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**hardware** *fex-card-type* **shared-buffer-size** *size* **Example:** `Device# hardware N2248PQ shared-buffer-size 3072`	This command is applicable for N2248PQ only. The range is from 3072 to 10240. The command is hosted on default-vdc and admin-vdc.
Step 2	**hardware** *fex-card-type* **queue-limit** *queue-limit* **Example:** `Device# hardware N2248T queue-limit 327680`	The range is from 81920 to 652800 for a Cisco Nexus 2148T Fabric Extender and from 2560 to 652800 for all other supported Fabric Extenders. The command is hosted on default-vdc and admin-vdc.

Verifying FEX Queuing

SUMMARY STEPS

1. **show queuing interface** *fex-interface value/slot*

DETAILED STEPS

show queuing interface *fex-interface value/slot*

Example:

```
Device# show queuing interface ethernet 101/1/1

    invalid interface

    slot  4
    =======

    Interface is not in this module.

    slot  9
    =======

    Ethernet101/1/1 queuing information:
      Input buffer allocation:
      Qos-group: ctrl
      frh: 0
      drop-type: drop
      cos: 7
      xon       xoff
      buffer-size

      ---------+---------+-----------
      2560      7680      10240

      Qos-group: 0  2
      (shared)
      frh: 8
      drop-type: drop
      cos: 0 1 2 3 4 5 6
      xon       xoff
```

```
buffer-size

---------+---------+-----------
0         142080    151040

Queueing:
queue    qos-group    cos            priority  bandwidth mtu

--------+------------+--------------+---------+---------+----
ctrl-hi  n/a          7               PRI         0
2400
ctrl-lo  n/a          7               PRI         0
2400
2        0            0 1 2
  3         WRR        80
1600
4        2            4 5
  6           WRR        20
1600

Queue limit: 66560 bytes

Queue Statistics:
queue
  rx              tx              flags

------+---------------+---------------+-----
0      0
  0
ctrl
1      0
  0
ctrl
2      0
  0
data
4      6               0                data

Priority-flow-control enabled:
no
Flow-control status: rx 0x0, tx 0x0,
rx_mask 0x0
cos     qos-group   rx pause  tx pause  masked
rx pause

-------+-----------+---------+---------+---------------
0
             0    xon
  xon       xon
1              0    xon       xon
xon
2              0    xon       xon
xon
3              0    xon       xon
xon
4              2    xon       xon
xon
5              2    xon       xon       xon
6              2    xon       xon
xon
7            n/a    xon       xon
xon

DSCP to Queue mapping on
```

```
 FEX
----+--+-----+-------+--+---

queue          DSCPs
-----          -----
02             0-9,14-25,27-38,40-51,53-63,
04             10-13,26,39,52,
03             **EMPTY**
05             **EMPTY**


slot 10
=======
```

Feature Information for FEX Queuing

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for FEX Queuing

Feature Name	Releases	Feature Information
FEX Queuing	7.2(0)D1(1)	The FEX Queuing The following commands were introduced by this feature: **hardware shared-buffer-size, hardware queue-limit**.