

QoS for Bridge-Group Virtual Interfaces

Integrated Routing and Bridging (IRB) provides the ability to route between a bridge group and a routed domain with the help of Bridge-Group Virtual Interface (BVI).

The BVI is a virtual interface within the router that acts like a normal routed interface that does not support bridging, but represents the comparable bridge group to routed interfaces within the router. The interface number of the BVI is the number of the bridge group that the virtual interface represents. The number is the link between the BVI and the bridge group.

For more information on IRB/ BVI, please refer the *Interface and Hardware Component Configuration Guide for Cisco NCS 540 Series Routers*

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Information on Qos on BVI

A BVI integrates Layer2 domain with Layer3 domain by creating a virtual interface in between them. The traffic flow supported for QoS is from the bridged to routed interface.

- A BVI can have bridge domain members from different linecards or NPU or Core.
- A BVI service-policy is applied on all linecards and within each linecard it is replicated per NPU. If any policers are configured in the qos policy map is applied to the BVI interface, then the policer is configured on each core of the NPU, and is shared among all the interfaces on that NPU core.

Restrictions on BVI

- Egress QoS on BVI is not supported for Layer2 flows for routed to bridge domain traffic.
- QoS on BVI is not supported for:
  - Queuing (priority, bandwidth, bandwidth remaining, sShaping, queue-limit, random-detect)
  - Shared policy instance

- Overhead accounting
- Percentage policer at the parent level

- Conditional EXP marking is only supported for Layer3 VPN when BVI is the AC interface or the packets have destination MAC address as BVI interface.

  Conditional EXP marking is not supported for EVPN (Layer2 traffic – non-BVI destination MAC traffic).

- Inheriting a policy map must be from either from a BVI interface or main interface.

  The policy map on a bridge domain sub-interface is inherited by the main interface and BVI interface. If the policy is applied on both the interfaces, then the policy is inherited on the last applied interface. This configuration is not supported and should be avoided to undesired or unknown behavior.

- A policy on a BVI interface should be applied after the BVI is added to the bridge domain as a routed interface. If the policy is applied before, then the policy has no effect.
- The show QoS interface command is not supported for the BVI interface.

Classification and Marking

The following features are supported:

- Classification
- Policing (level 1 and level 2)
- Ingress marking

Table 1: Classification and Marking

	Classification	Marking	Direction	Comment
Qos-group	No	Yes	Ingress	Used for Egress marking policy
Discard-class	No	Yes	Ingress	Used for VOQ selection and Egress queuing policy
Precedence	Yes	Yes	Ingress	
DSCP	Yes	Yes	Ingress	
Vlan	No	No		
CoS	Yes	No	Ingress	Only for Layer2 flows (bridge member).
Dei	Yes	No	Ingress	Only for Layer2 flows (bridge member).

	Classification	Marking	Direction	Comment
EXP	No	Yes	Ingress	

Configuring QoS on BVI

```
interface TenGigE0/0/0/0
 l2transport
 !
!

interface TenGigE0/0/0/1
 l2transport
 !
!

interface BVI1
 service-policy input bvi-ingress
 ipv4 address 1.1.1.1 255.255.255.0
!

l2vpn
 bridge group bg1
  bridge-domain bd1
   interface TenGigE0/0/0/0
   !
   interface TenGigE0/0/0/1
   !
   routed interface BVI1
   !
  !
 !
!

class-map match-any prec1
 match precedence 1
 end-class-map
!



class-map match-any dscp_af22
 match dscp af22
 end-class-map
!

policy-map bvi-ingress
 class prec1
  set traffic-class 1
  set mpls experimental imposition 3
  police rate 100 mbps
  !
 !
 class dscp_af22
  set traffic-class 2
  set mpls experimental imposition 4
  police rate 200 mbps
  !
 !
 class class-default
```

```
 !
 end-policy-map
!
```

Verifying QoS on BVI

Use the **show policy-map interface input** command to collect statistics from all linecards.

```
Router# show policy-map interface bvI 1 input

BVI1 input: bvi-ingress

Class prec1
  Classification statistics          (packets/bytes)     (rate - kbps)
    Matched             :                  0/0                   0
    Transmitted         :                  0/0                   0
    Total Dropped       :                  0/0                   0
Class dscp_af22
  Classification statistics          (packets/bytes)     (rate - kbps)
    Matched             :                  0/0                   0
    Transmitted         :                  0/0                   0
    Total Dropped       :                  0/0                   0
Class class-default
  Classification statistics          (packets/bytes)     (rate - kbps)
    Matched             :                  0/0                   0
    Transmitted         :                  0/0                   0
    Total Dropped       :                  0/0                   0
```