



Class-based Quality-of-Service MIB

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Class-based Quality-of-Service MIB

The Class-based Quality-of-Service MIB (cbQoS MIB) feature provides the Simple Network Management Protocol (SNMP) MIB that enables retrieval of class-map and policy-map configuration and statistics.

Information About Class-based Quality-of-Service MIB

CoPP and QoS policies now support Class-based Quality-of-Service MIB (cbQoS MIB). cbQoS MIB is the SNMP MIB that provides access to Modular QoS CLI (MQC) configuration and statistics.

The following cbQoS MIB tables are supported by QoS policies and CoPP:

- cbQoSClassMapCfg
- cbQoSMatchStmtCfg
- cbQoSPoliceStats
- cbQoSPolicyMapCfg
- cbQoSPoliceCfg

The following cbQoS MIB tables are supported by QoS policies:

- cbQoSInterfacePolicy
- cbQoSObjects
- cbQoSQueueingCfg
- cbQoSServicePolicy
- cbQoSSetCfg

More detailed information on cbQoS MIB tables and elements is available at the following url: <http://tools.cisco.com/Support/SNMP/do/BrowseOID.do?local=en&translate=Translate&objectInput=1.3.6.1.4.1.9.9.166>

Licensing Requirements for Class-based Quality-of-Service MIB

This feature does not require a license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For a complete explanation of the Cisco NX-OS licensing scheme, see the Cisco NX-OS Licensing Guide.

Configuring a QoS Policy

The following configuration is a generic example to configure a QoS policy.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # snmp-server community com-name rw	Creates Simple Network Management Protocol (SNMP) communities for SNMPv1 or SNMPv2c.
Step 3	switch(config) # snmp-server community com-name rw	Creates Simple Network Management Protocol (SNMP) communities for SNMPv1 or SNMPv2c.
Step 4	switch(config) # class-map type qos match-all class-map-name	Specifies the component type qos for the class map and enters the class-map type qos configuration mode.
Step 5	switch(config-cmap-qos) # description text	Adds a description for the class-map.
Step 6	switch(config-cmap-qos) # match cos cos-list	Defines the class of traffic using the class of service (CoS) value in a type qos class map.
Step 7	switch(config-cmap-qos) # exit	Exits the class-map type qos configuration mode.
Step 8	switch(config) # policy-map type qos qos-policy-map-name	Specifies the type qos policy map and enters the policy-map qos configuration mode.
Step 9	switch(config-pmap-qos) # description text	Configures the policy-map description.
Step 10	switch(config-pmap-qos) # class class-map-name	Configures the service policy for a class-map.
Step 11	switch(config-pmap-c-qos) # set qos-group qos-group-value	Assigns the QoS group identifier for a class of traffic in a type qos policy map.
Step 12	switch(config-pmap-c-qos) # exit	Exits the policy-map type qos class configuration mode.

	Command or Action	Purpose
Step 13	switch(config-pmap-qos) # exit	Exits the policy-map qos configuration mode.
Step 14	switch(config) # interface <i>type number</i>	Enters the interface configuration mode.
Step 15	switch(config-if) # service-policy type qos input <i>policy-map-name</i>	Applies the service policy map to packets coming into the mentioned interface.
Step 16	switch(config-if) # exit	Exits the interface configuration mode.
Step 17	switch(config) # copy running-config startup-config	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

This example shows how to configure a QoS policy on a device:



Note

This is a generic example to configure a QoS policy.

```
switch# configure terminal
switch(config)# snmp-server community public rw
switch(config)# snmp-server community private rw
switch(config)# class-map type qos match-all cmcos
switch(config-cmap-qos) # description qos cmap to match cos
switch(config-cmap-qos) # match cos 5
switch(config-cmap-qos) # exit
switch(config) # policy-map type qos p1
switch(config-pmap-qos) # description qos pmap 1
switch(config-pmap-qos) # class cmcos
switch(config-pmap-c-qos) # set qos-group 3
switch(config-pmap-c-qos) # exit
switch(config-pmap-qos) # exit
switch(config) # interface ethernet 1/1
switch(config-if) # service-policy type qos input p1
```

Displaying Class-based Quality-of-Service MIB Configuration and Statistics

Procedure

	Command or Action	Purpose
Step 1	switch# snmpwalk -v2c -c <i>community-name</i> <i>ip-address oid</i>	Displays class-map and policy-map configuration and statistics.

This example shows how to display class map and policy map configuration and statistics:

**Note**

This sample output corresponds to the configuration mentioned above. All CoPP configurations are available by default.

```
switch# snmpwalk -v2c -c public 10.193.53.92 1.3.6.1.4.1.9.9.166.1

Interface Policy Table (QoS only table) - corresponding to the service policy applied on
eth1/1

CISCO-CLASS-BASED-QOS-MIB::cbQosIfType.285212673 = INTEGER: mainInterface(1)
CISCO-CLASS-BASED-QOS-MIB::cbQosPolicyDirection.285212673 = INTEGER: input(1)
CISCO-CLASS-BASED-QOS-MIB::cbQosIfIndex.285212673 = INTEGER: 436207616
CISCO-CLASS-BASED-QOS-MIB::cbQosVlanIndex.285212673 = Gauge32: 1

Service Policy Table (QoS only table) - corresponding to the service policy applied on eth1/1

CISCO-CLASS-BASED-QOS-MIB::cbQosIFPolicyIndex.436207616.input = Gauge32: 285212673

Objects Table (QoS only table) corresponding to the policy-map, class-map, match & set
Statements

CISCO-CLASS-BASED-QOS-MIB::cbQosConfigIndex.285212673.285212673 = Gauge32: 285212823
CISCO-CLASS-BASED-QOS-MIB::cbQosConfigIndex.285212673.285212674 = Gauge32: 285212821
CISCO-CLASS-BASED-QOS-MIB::cbQosConfigIndex.285212673.285212675 = Gauge32: 285212822
CISCO-CLASS-BASED-QOS-MIB::cbQosConfigIndex.285212673.285212676 = Gauge32: 285212825

CISCO-CLASS-BASED-QOS-MIB::cbQosObjectsType.285212673.285212673 = INTEGER: policymap(1)
CISCO-CLASS-BASED-QOS-MIB::cbQosObjectsType.285212673.285212674 = INTEGER: classmap(2)
CISCO-CLASS-BASED-QOS-MIB::cbQosObjectsType.285212673.285212675 = INTEGER: matchStatement(3)
CISCO-CLASS-BASED-QOS-MIB::cbQosObjectsType.285212673.285212676 = INTEGER: set(8)

CISCO-CLASS-BASED-QOS-MIB::cbQosParentObjectsIndex.285212673.285212673 = Gauge32: 0
CISCO-CLASS-BASED-QOS-MIB::cbQosParentObjectsIndex.285212673.285212674 = Gauge32: 285212673
CISCO-CLASS-BASED-QOS-MIB::cbQosParentObjectsIndex.285212673.285212675 = Gauge32: 285212674
CISCO-CLASS-BASED-QOS-MIB::cbQosParentObjectsIndex.285212673.285212676 = Gauge32: 285212674

Policy Map Table corresponding to the policy-map configured above & the default CoPP
policy-map

CISCO-CLASS-BASED-QOS-MIB::cbQosPolicyMapName.285212823 = STRING: p1
CISCO-CLASS-BASED-QOS-MIB::cbQosPolicyMapName.721420364 = STRING: copp-system-policy-default
CISCO-CLASS-BASED-QOS-MIB::cbQosPolicyMapDesc.285212823 = STRING: qos pmap 1
CISCO-CLASS-BASED-QOS-MIB::cbQosPolicyMapDesc.721420364 = STRING: Control Plane Service
Policy

Class Map Table corresponding to the class-map configured above & one default CoPP class-map

CISCO-CLASS-BASED-QOS-MIB::cbQosCMName.285212821 = STRING: cmcos
CISCO-CLASS-BASED-QOS-MIB::cbQosCMName.721420290 = STRING: copp-system-class-igmp
CISCO-CLASS-BASED-QOS-MIB::cbQosCMDesc.285212821 = STRING: qos cmap to Match cos
CISCO-CLASS-BASED-QOS-MIB::cbQosCMDesc.721420290 = STRING: copp-system-class-igmp
CISCO-CLASS-BASED-QOS-MIB::cbQosCMInfo.285212821 = INTEGER: matchAll(2)
CISCO-CLASS-BASED-QOS-MIB::cbQosCMInfo.721420290 = INTEGER: matchAny(3)

Match Stmt Table corresponding to the match statement configured above & one match statement
from default CoPP configuration

CISCO-CLASS-BASED-QOS-MIB::cbQosMatchStmtName.285212822 = STRING: match cos 5
CISCO-CLASS-BASED-QOS-MIB::cbQosMatchStmtName.721420291 = STRING: protocol IGMP
CISCO-CLASS-BASED-QOS-MIB::cbQosMatchStmtInfo.285212822 = INTEGER: none(1)
CISCO-CLASS-BASED-QOS-MIB::cbQosMatchStmtInfo.721420291 = INTEGER: none(1)

Queueing Config Table(QoS only table, taken from default QoS policies)

CISCO-CLASS-BASED-QOS-MIB::cbQosQueueingCfgBandwidth.301990019 = INTEGER: 100
CISCO-CLASS-BASED-QOS-MIB::cbQosQueueingCfgBandwidthUnits.301990019 = INTEGER: percentage(2)
CISCO-CLASS-BASED-QOS-MIB::cbQosQueueingCfgPriorityEnabled.301990019 = INTEGER: false(2)
CISCO-CLASS-BASED-QOS-MIB::cbQosQueueingCfgQLimitUnits.301990019 = INTEGER: 0
```

```

CISCO-CLASS-BASED-QOS-MIB::cbQosQueueingCfgAggregateQLimit.301990019 = Gauge32: 0

Set Action Table (QoS only table) corresponding to the set statement configured above

CISCO-CLASS-BASED-QOS-MIB::cbQosSetCfgQosGroupValue.285212825 = INTEGER: 3

Policing Config Table(no QoS config, displays only CoPP statistics)

CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceCfgBurstSize.721420365 = Gauge32: 65535 Octets
CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceCfgConformAction.721420365 = INTEGER: transmit(1)
CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceCfgViolateAction.721420365 = INTEGER: drop(5)
CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceCfgRate64.721420365 = Counter64: 1048576 bits/second
CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceCfgRateType.721420365 = INTEGER: bps(1)
CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceCfgConditional.721420365 = INTEGER: false(2)

Policing Stats Table(no QoS config, displays only CoPP statistics)

CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceConformedByte64.721420364.721420365 = Counter64: 1144
Octets
CISCO-CLASS-BASED-QOS-MIB::cbQosPoliceViolatedByte64.721420364.721420365 = Counter64: 0
Octets

```

Additional References for Class-based Quality-of-Service MIB

This section provides additional information related to Class-based Quality-of-Service MIB.

Related Documents

Related Topic	Document Title
Licensing	Cisco NX-OS Licensing Guide
Command reference	Cisco Nexus 5000 Series NX-OS QoS Command Reference Cisco Nexus 5000 Series NX-OS System Management Command Reference

Feature History for Class-based Quality-of-Service MIB

Table 1: Feature History for Class-based Quality-of-Service MIB

Feature Name	Feature Information
Class-based Quality-of-Service MIB	Introduced in 7.1(1) N1(1)

