Configuring Auto-QoS

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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 at the end of this module.

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

Prerequisites for Auto-QoS

The prerequisites for auto-QoS are the same as the prerequisites for standard QoS.

Restrictions for Auto-QoS

The following are restrictions for auto-QoS:

- Auto-qos is not supported on SVI interfaces.
• The trust device device_type command available in interface configuration mode is a stand-alone command on the switch. When using this command, if the connected peer device is not a corresponding device (defined as a device matching your trust policy), both CoS and DSCP values are set to "0" and any input policy will not take effect. If the connected peer device is a corresponding device, input policy will take effect.

• Do not configure the auto qos voip cisco-phone option for IP phones that support video. This option causes DSCP markings of video packets to get overwritten, because these packets do not have Expedited Forwarding priority, which results in these packets getting classified in the class-default class.

• Auto-QoS does not generate configuration when it is pushed from the startup-configuration using the auto qos voip cisco-phone command to the running-configuration. This is expected behavior and this is to prevent overwriting of user-created customized QoS policies by the default configuration, if any. every time the command auto qos voip cisco-phone is pushed from the startup-config.

You can use any of the following workarounds for this limitation:

• Configure the auto qos voip cisco-phone command manually on the switch interfaces.

• For new switches, if you push auto-QoS commands through startup-config, the command should include each of the following as part of the standard template

1. Interface-level:
   • trust device cisco-phone
   • auto qos voip cisco-phone
   • service-policy input AutoQos-4.0-CiscoPhone-Input-Policy
   • service-policy output AutoQos-4.0-Output-Policy

2. Global-level:
   • Class-map
   • Policy-map
   • ACL(ACE)

• If the auto qos voip cisco-phone command is already configured on an interface but policies are not being generated, disable the command from all the interfaces and reconfigure the command on each interface manually.

Information About Configuring Auto-QoS

Auto-QoS Overview

You can use the auto-QoS feature to simplify the deployment of QoS features. Auto-QoS determines the network design and enables QoS configurations so that the switch can prioritize different traffic flows.

The switch employs the MQC model. This means that instead of using certain global configurations, auto-QoS applied to any interface on a switch configures several global class maps and policy maps.
Auto-QoS matches traffic and assigns each matched packet to qos-groups. This allows the output policy map to put specific qos-groups into specific queues, including into the priority queue.

QoS is needed in both directions, both on inbound and outbound. When inbound, the switch port needs to trust the DSCP in the packet (done by default). When outbound, the switch port needs to give voice packets "front of line" priority. If voice is delayed too long by waiting behind other packets in the outbound queue, the end host drops the packet because it arrives outside of the receive window for that packet.

**Auto-QoS Compact Overview**

When you enter an auto-QoS command, the switch displays all the generated commands as if the commands were entered from the CLI. You can use the auto-QoS compact feature to hide the auto-QoS generated commands from the running configuration. This would make it easier to comprehend the running-configuration and also help to increase efficient usage of memory.

**Auto-QoS Global Configuration Templates**

In general, an auto-QoS command generates a series of class maps that either match on ACLs or on DSCP and/or CoS values to differentiate traffic into application classes. An input policy is also generated, which matches the generated classes and in some cases, polices the classes to a set bandwidth. Eight egress-queue class maps are generated. The actual egress output policy assigns a queue to each one of these eight egress-queue class maps.

The auto-QoS commands only generate templates as needed. For example, the first time any new auto-QoS command is used, global configurations that define the eight queue egress service-policy are generated. From this point on, auto-QoS commands applied to other interfaces do not generate templates for egress queuing because all auto-QoS commands rely on the same eight queue models, which have already been generated from the first time a new auto-QoS command was used.

**Auto-QoS Policy and Class Maps**

After entering the appropriate auto-QoS command, the following actions occur:

- Specific class maps are created.
- Specific policy maps (input and output) are created.
- Policy maps are attached to the specified interface.
- Trust level for the interface is configured.

**Related Topics**

- Configuring Auto-QoS, on page 4
- Example: auto qos trust cos
- Example: auto qos trust dscp
- Example: auto qos video cts
- Example: auto qos video ip-camera
- Example: auto qos video media-player
- Example: auto qos voip trust
- Example: auto qos voip cisco-phone
- Example: auto qos voip cisco-softphone
Effects of Auto-QoS on Running Configuration

When auto-QoS is enabled, the `auto qos` interface configuration commands and the generated global configuration are added to the running configuration.

The switch applies the auto-QoS-generated commands as if the commands were entered from the CLI. An existing user configuration can cause the application of the generated commands to fail or to be overridden by the generated commands. These actions may occur without warning. If all the generated commands are successfully applied, any user-entered configuration that was not overridden remains in the running configuration. Any user-entered configuration that was overridden can be retrieved by reloading the switch without saving the current configuration to memory. If the generated commands are not applied, the previous running configuration is restored.

Effects of Auto-Qos Compact on Running Configuration

If auto-QoS compact is enabled:

- Only the auto-QoS commands entered from the CLI are displayed in running-config.
- The generated global and interface configurations are hidden.
- When you save the configuration, only the auto-qos commands you have entered are saved (and not the hidden configuration).
- When you reload the switch, the system detects and re-executes the saved auto-QoS commands and the AutoQoS SRND4.0 compliant config-set is generated.

**Note**

Do not make changes to the auto-QoS-generated commands when auto-QoS compact is enabled, because user-modifications are overridden when the switch reloads.

When auto-qos global compact is enabled:

- `show derived-config` command can be used to view hidden AQC derived commands.
- AQC commands will not be stored to memory. They will be regenerated every time the switch is reloaded.
- When compaction is enabled, auto-qos generated commands should not be modified.
- If the interface is configured with auto-QoS and if AQC needs to be disabled, auto-qos should be disabled at interface level first.

How to Configure Auto-QoS

Configuring Auto-QoS

For optimum QoS performance, configure auto-QoS on all the devices in your network.
### Procedure

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Device# configure terminal</td>
<td></td>
</tr>
</tbody>
</table>

| **Step 2** interface interface-id | Specifies the port that is connected to a VoIP port, video device, or the uplink port that is connected to another trusted switch or router in the network interior, and enters the interface configuration mode. |
| **Example:** Device(config)# interface gigabitethernet 3/0/1 | |

| **Step 3** | The following commands enable auto-QoS for VoIP: |
| **Example:** Device(config-if)# auto qos trust dscp | |

- **auto qos voip {cisco-phone | cisco-softphone | trust}**
- **auto qos video {cts | ip-camera | media-player}**
- **auto qos classify [police]**
- **auto qos trust {cos | dscp}**

**Note** Do not configure the **auto qos voip cisco-phone** option for IP phones that support video. This option causes DSCP markings of video packets to get overwritten, because these packets do not have Expedited Forwarding priority, which results in these packets getting classified in the class-default class.

**auto qos voip cisco-softphone**—The port is connected to a Cisco SoftPhone feature. This command generates a QoS configuration for interfaces connected to PCs running the Cisco IP SoftPhone application and mark, as well as police traffic coming from such interfaces. Ports configured with this command are considered untrusted.

**auto qos voip trust**—The uplink port is connected to a trusted switch or router, and the VoIP traffic classification in the ingress packet is trusted.
<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>• auto qos video cts</td>
<td>A port connected to a Cisco Telepresence system. QoS labels of incoming packets are only trusted (conditional trust through CDP) when a Cisco TelePresence is detected.</td>
</tr>
<tr>
<td>• auto qos video ip-camera</td>
<td>A port connected to a Cisco video surveillance camera. QoS labels of incoming packets are only trusted (conditional trust through CDP) when a Cisco camera is detected.</td>
</tr>
<tr>
<td>• auto qos video media-player</td>
<td>A port connected to a CDP-capable Cisco digital media player. QoS labels of incoming packets are only trusted (conditional trust through CDP) when a digital media player is detected.</td>
</tr>
<tr>
<td>• auto qos classify police</td>
<td>This command generates a QoS configuration for untrusted interfaces. The configuration places a service-policy on the interface to classify traffic coming from untrusted desktops/devices and mark them accordingly. The service-policies generated do police.</td>
</tr>
<tr>
<td>• auto qos trust cos</td>
<td>Class of service.</td>
</tr>
<tr>
<td>• auto qos trust dscp</td>
<td>Differentiated Services Code Point.</td>
</tr>
</tbody>
</table>

The following commands enable auto-QoS for trusted interfaces:

- auto qos trust cos—Class of service.
- auto qos trust dscp—Differentiated Services Code Point.

**Step 4**

```
end
```

Example:

```
Device(config-if)# end
```

Returns to privileged EXEC mode.

**Step 5**

```
show auto qos interface interface-id
```

Example:

(Optional) Displays the auto-QoS command on the interface on which auto-QoS was enabled. Use the show running-config command to
Enabling Auto-Qos Compact

To enable auto-Qos compact, enter this command:

**Procedure**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
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<tr>
<td><strong>Step 1</strong></td>
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<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td>Device# configure terminal</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
</tr>
<tr>
<td>auto qos global compact</td>
<td>Enables auto-Qos compact and generates (hidden) the global configurations for auto-QoS.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td>Device(config)# auto qos global compact</td>
<td></td>
</tr>
</tbody>
</table>

You can then enter the auto-QoS command you want to configure in the interface configuration mode and the interface commands that the system generates are also hidden.

To display the auto-QoS configuration that has been applied, use these the privileged EXEC commands:

- show derived-config
- show policy-map
- show access-list
- show class-map
- show table-map
- show auto-qos
### Purpose

- show policy-map interface
- show ip access-lists

These commands will have keyword "AutoQos-".

### What to do next

To disable auto-QoS compact, remove auto-QoS instances from all interfaces by entering the no form of the corresponding auto-QoS commands and then enter the no auto qos global compact global configuration command.

### Monitoring Auto-QoS

**Table 1: Commands for Monitoring Auto-QoS**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>show auto qos [interface [interface-id]]</td>
<td>Displays the initial auto-QoS configuration. You can compare the show auto qos and the show running-config command output to identify the user-defined QoS settings.</td>
</tr>
<tr>
<td>show running-config</td>
<td>Displays information about the QoS configuration that might be affected by auto-QoS. You can compare the show auto qos and the show running-config command output to identify the user-defined QoS settings.</td>
</tr>
<tr>
<td>show derived-config</td>
<td>Displays the hidden mls qos command which get configured along with the running configs because of auto-qos template.</td>
</tr>
</tbody>
</table>

### Troubleshooting Auto-QoS

To troubleshoot auto-QoS, use the debug auto qos privileged EXEC command. For more information, see the debug auto qos command in the command reference for this release.

To disable auto-QoS on a port, use the no form of the auto qos command interface configuration command, such as no auto qos voip. Only the auto-QoS-generated interface configuration commands for this port are removed. If this is the last port on which auto-QoS is enabled and you enter the no auto qos voip command, auto-QoS is considered disabled even though the auto-QoS-generated global configuration commands remain (to avoid disrupting traffic on other ports affected by the global configuration).
Configuration Examples for Auto-QoS

Example: auto qos trust cos

The following is an example of the `auto qos trust cos` command and the applied policies and class maps.

The following policy maps are created and applied when running this command:
- AutoQos-4.0-Trust-Cos-Input-Policy
- AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:
- class-default (match-any)
- AutoQos-4.0-Output-Priority-Queue (match-any)
- AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
- AutoQos-4.0-Output-Trans-Data-Queue (match-any)
- AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
- AutoQos-4.0-Output-Scavenger-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

Device(config)# interface GigabitEthernet1/0/17
Device(config-if)# auto qos trust cos
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/17

GigabitEthernet1/0/17

Service-policy input: AutoQos-4.0-Trust-Cos-Input-Policy

Class-map: class-default (match-any)
  0 packets
  Match: any
  0 packets, 0 bytes
  5 minute rate 0 bps
  QoS Set
cos cos table AutoQos-4.0-Trust-Cos-Table

Service-policy output: AutoQos-4.0-Output-Policy

queue stats for all priority classes:
  Queueing
  priority level 1
  (total drops) 0
  (bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
  0 packets
Match: dscp cs4 (32) cs5 (40) ef (46)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 5
  0 packets, 0 bytes
  5 minute rate 0 bps
Priority: 30% (300000 kbps), burst bytes 7500000,
Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
  0 packets
Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 3
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
queue-limit dscp 16 percent 80
queue-limit dscp 24 percent 90
queue-limit dscp 48 percent 100
queue-limit dscp 56 percent 100
(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
  0 packets
Match: dscp af41 (34) af42 (36) af43 (38)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 4
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
  0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 2
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
  0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
  0 packets, 0 bytes
Example: auto qos trust dscp

The following is an example of the auto qos trust dscp command and the applied policies and class maps.

The following policy maps are created and applied when running this command:

- AutoQos-4.0-Trust-Dscp-Input-Policy
- AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:

- class-default (match-any)
• AutoQos-4.0-Output-Priority-Queue (match-any)
• AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
• AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
• AutoQos-4.0-Output-Trans-Data-Queue (match-any)
• AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
• AutoQos-4.0-Output-Scavenger-Queue (match-any)
• AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

Device(config)# interface GigabitEthernet1/0/18
Device(config-if)# auto qos trust dscp
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/18

GigabitEthernet1/0/18

Service-policy input: AutoQos-4.0-Trust-Dscp-Input-Policy

Class-map: class-default (match-any)
0 packets
Match: any
0 packets, 0 bytes
5 minute rate 0 bps
QoS Set
dscp dscp table AutoQos-4.0-Trust-Dscp-Table

Service-policy output: AutoQos-4.0-Output-Policy

queue stats for all priority classes:
Queueing
priority level 1

(total drops) 0
(bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
0 packets
Match: dscp cs4 (32) cs5 (40) ef (46)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 5
0 packets, 0 bytes
5 minute rate 0 bps
Priority: 30% (300000 kbps), burst bytes 7500000,
Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
0 packets
Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 3
0 packets, 0 bytes
5 minute rate 0 bps
Queueing
queue-limit dscp 16 percent 80
queue-limit dscp 24 percent 90
queue-limit dscp 48 percent 100
queue-limit dscp 56 percent 100

(total drops) 0
(bytes output) 0
bandwidth remaining 10%

queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
0 packets
Match: dscp af41 (34) af42 (36) af43 (38)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 4
0 packets, 0 bytes
5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 2
0 packets, 0 bytes
5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 1
0 packets, 0 bytes
5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 4%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Scavenger-Queue (match-any)
0 packets
Match: dscp cs1 (8)
0 packets, 0 bytes
5 minute rate 0 bps
Queueing

(total drops) 0
Example: auto qos video cts

The following is an example of the auto qos video cts command and the applied policies and class maps.

The following policy maps are created and applied when running this command:

- AutoQos-4.0-Trust-Cos-Input-Policy
- AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:

- class-default (match-any)
- AutoQos-4.0-Output-Priority-Queue (match-any)
- AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
- AutoQos-4.0-Output-Trans-Data-Queue (match-any)
- AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
- AutoQos-4.0-Output-Scavenger-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

Device(config)# interface GigabitEthernet1/0/12
Device(config-if)# auto qos video cts
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/12

GigabitEthernet1/0/12

Service-policy input: AutoQos-4.0-Trust-Cos-Input-Policy

Class-map: class-default (match-any)
  0 packets
  Match: any
  0 packets, 0 bytes
  5 minute rate 0 bps
  QoS Set
  cos cos table AutoQos-4.0-Trust-Cos-Table

Service-policy output: AutoQos-4.0-Output-Policy

queue stats for all priority classes:
  Queueing
  priority level 1
  (total drops) 0
  (bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
  0 packets
  Match: dscp cs4 (32) cs5 (40) ef (46)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 5
    0 packets, 0 bytes
    5 minute rate 0 bps
  Priority: 30% (300000 kbps), burst bytes 7500000,
  Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
  0 packets
  Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 3
    0 packets, 0 bytes
    5 minute rate 0 bps
  Queueing
  queue-limit dscp 16 percent 80
  queue-limit dscp 24 percent 90
  queue-limit dscp 48 percent 100
  queue-limit dscp 56 percent 100
  (total drops) 0
  (bytes output) 0
  bandwidth remaining 10%

  queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
  0 packets
  Match: dscp af41 (34) af42 (36) af43 (38)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 4
    0 packets, 0 bytes
    5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 2
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 1
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 4%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Scavenger-Queue (match-any)
0 packets
Match: dscp cs1 (8)
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 1%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)
0 packets
Match: dscp af31 (26) af32 (28) af33 (30)
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: class-default (match-any)
0 packets
Match: any

Example: auto qos video cts
Example: auto qos video ip-camera

The following is an example of the auto qos video ip-camera command and the applied policies and class maps.

The following policy maps are created and applied when running this command:

- AutoQos-4.0-Trust-Dscp-Input-Policy
- AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:

- class-default (match-any)
- AutoQos-4.0-Output-Priority-Queue (match-any)
- AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
- AutoQos-4.0-Output-Trans-Data-Queue (match-any)
- AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
- AutoQos-4.0-Output-Scavenger-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

```
Device(config)# interface GigabitEthernet1/0/9
Device(config-if)# auto qos video ip-camera
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/9

GigabitEthernet1/0/9

Service-policy input: AutoQos-4.0-Trust-Dscp-Input-Policy

Class-map: class-default (match-any)
  0 packets
  Match: any
      0 packets, 0 bytes
      5 minute rate 0 bps
  QoS Set
    dscp dscp table AutoQos-4.0-Trust-Dscp-Table

Service-policy output: AutoQos-4.0-Output-Policy
```
queue stats for all priority classes:
  Queueing
  priority level 1

  (total drops) 0
  (bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
  0 packets
  Match: dscp cs4 (32) cs5 (40) ef (46)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 5
    0 packets, 0 bytes
    5 minute rate 0 bps
  Priority: 30% (300000 kbps), burst bytes 7500000,

  Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
  0 packets
  Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 3
    0 packets, 0 bytes
    5 minute rate 0 bps
  Queueing
  queue-limit dscp 16 percent 80
  queue-limit dscp 24 percent 90
  queue-limit dscp 48 percent 100
  queue-limit dscp 56 percent 100

  (total drops) 0
  (bytes output) 0
  bandwidth remaining 10%

  queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
  0 packets
  Match: dscp af41 (34) af42 (36) af43 (38)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 4
    0 packets, 0 bytes
    5 minute rate 0 bps
  Queueing

  (total drops) 0
  (bytes output) 0
  bandwidth remaining 10%
  queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
  0 packets
  Match: dscp af21 (18) af22 (20) af23 (22)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 2
    0 packets, 0 bytes
    5 minute rate 0 bps
  Queueing

Example: auto qos video ip-camera
Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
  0 packets
  Match: dscp af11 (10) af12 (12) af13 (14)
        0 packets, 0 bytes
        5 minute rate 0 bps
  Match: cos 1
        0 packets, 0 bytes
        5 minute rate 0 bps
Queueing

Class-map: AutoQos-4.0-Output-Scavenger-Queue (match-any)
  0 packets
  Match: dscp cs1 (8)
        0 packets, 0 bytes
        5 minute rate 0 bps
Queueing

Class-map: AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)
  0 packets
  Match: dscp af31 (26) af32 (28) af33 (30)
        0 packets, 0 bytes
        5 minute rate 0 bps
Queueing

Class-map: class-default (match-any)
  0 packets
  Match: any
        0 packets, 0 bytes
        5 minute rate 0 bps
Queueing
Example: auto qos video media-player

The following is an example of the **auto qos video media-player** command and the applied policies and class maps.

The following policy maps are created and applied when running this command:

- AutoQos-4.0-Trust-Dscp-Input-Policy
- AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:

- class-default (match-any)
- AutoQos-4.0-Output-Priority-Queue (match-any)
- AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
- AutoQos-4.0-Output-Trans-Data-Queue (match-any)
- AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
- AutoQos-4.0-Output-Scavenger-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

```
Device(config)# interface GigabitEthernet1/0/7
Device(config-if)# auto qos video media-player
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/7

GigabitEthernet1/0/7
  Service-policy input: AutoQos-4.0-Trust-Dscp-Input-Policy
    Class-map: class-default (match-any)
      0 packets
      Match: any
      0 packets, 0 bytes
      5 minute rate 0 bps
      QoS Set
dscp dscp table AutoQos-4.0-Trust-Dscp-Table

Service-policy output: AutoQos-4.0-Output-Policy
    queue stats for all priority classes:
      Queueing
      priority level 1
      (total drops) 0
      (bytes output) 0

    Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
      0 packets
      Match: dscp cs4 (32) cs5 (40) ef (46)
      0 packets, 0 bytes
      5 minute rate 0 bps
```
Match: cos 5
0 packets, 0 bytes
5 minute rate 0 bps
Priority: 30% (300000 kbps), burst bytes 7500000,
Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
0 packets
Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 3
0 packets, 0 bytes
5 minute rate 0 bps
Queueing
queue-limit dscp 16 percent 80
queue-limit dscp 24 percent 90
queue-limit dscp 48 percent 100
queue-limit dscp 56 percent 100

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
0 packets
Match: dscp af41 (34) af42 (36) af43 (38)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 4
0 packets, 0 bytes
5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 2
0 packets, 0 bytes
5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 1
0 packets, 0 bytes

Example: auto qos video media-player
5 minute rate 0 bps
Queueing
(total drops) 0
(bytes output) 0
bandwidth remaining 4%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Scavenger-Queue (match-any)
0 packets
Match: dscp cs1 (8)
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
(total drops) 0
(bytes output) 0
bandwidth remaining 1%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)
0 packets
Match: dscp af31 (26) af32 (28) af33 (30)
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: class-default (match-any)
0 packets
Match: any
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
(total drops) 0
(bytes output) 0
bandwidth remaining 25%
queue-buffers ratio 25

Example: auto qos voip trust

The following is an example of the auto qos voip trust command and the applied policies and class maps.
The following policy maps are created and applied when running this command:

• AutoQos-4.0-Trust-Cos-Input-Policy
• AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:

• class-default (match-any)
• AutoQos-4.0-Output-Priority-Queue (match-any)
• AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
• AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
• AutoQos-4.0-Output-Trans-Data-Queue (match-any)
• AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
• AutoQos-4.0-Output-Scavenger-Queue (match-any)
• AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

Device(config)# interface GigabitEthernet1/0/31
Device(config-if)# auto qos voip trust
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/31

GigabitEthernet1/0/31

Service-policy input: AutoQos-4.0-Trust-Cos-Input-Policy

Class-map: class-default (match-any)
  0 packets
  Match: any
    0 packets, 0 bytes
    5 minute rate 0 bps
  QoS Set
    cos cos table AutoQos-4.0-Trust-Cos-Table

Service-policy output: AutoQos-4.0-Output-Policy

queue stats for all priority classes:
  Queueing
  priority level 1

    (total drops) 0
    (bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
  0 packets
  Match: dscp cs4 (32) cs5 (40) ef (46)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 5
    0 packets, 0 bytes
    5 minute rate 0 bps
  Priority: 30% (300000 kbps), burst bytes 7500000,
  Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
  0 packets
  Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 3
    0 packets, 0 bytes
    5 minute rate 0 bps
  Queueing
  queue-limit dscp 16 percent 80
  queue-limit dscp 24 percent 90
  queue-limit dscp 48 percent 100
queue-limit dscp 56 percent 100
(totals drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
0 packets
Match: dscp af41 (34) af42 (36) af43 (38)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 4
0 packets, 0 bytes
5 minute rate 0 bps
Queueing
(totals drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 2
0 packets, 0 bytes
5 minute rate 0 bps
Queueing
(totals drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 1
0 packets, 0 bytes
5 minute rate 0 bps
Queueing
(totals drops) 0
(bytes output) 0
bandwidth remaining 4%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Scavenger-Queue (match-any)
0 packets
Match: dscp cs1 (8)
0 packets, 0 bytes
5 minute rate 0 bps
Queueing
(totals drops) 0
(bytes output) 0
bandwidth remaining 1%
queue-buffers ratio 10

Configuring Auto-QoS

Example: auto qos voip trust
Example: auto qos voip cisco-phone

The following is an example of the **auto qos voip cisco-phone** command and the applied policies and class maps.

The following policy maps are created and applied when running this command:

- AutoQos-4.0-CiscoPhone-Input-Policy
- AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:

- AutoQos-4.0-Voip-Data-CiscoPhone-Class (match-any)
- AutoQos-4.0-Voip-Signal-CiscoPhone-Class (match-any)
- AutoQos-4.0-Default-Class (match-any)
- class-default (match-any)
- AutoQos-4.0-Output-Priority-Queue (match-any)
- AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
- AutoQos-4.0-Output-Trans-Data-Queue (match-any)
- AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
- AutoQos-4.0-Output-Scavenger-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)
Device(config)# interface GigabitEthernet1/0/5
Device(config-if)# auto qos voip cisco-phone
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/5

GigabitEthernet1/0/5
Service-policy input: AutoQos-4.0-CiscoPhone-Input-Policy

Class-map: AutoQos-4.0-Voip-Data-CiscoPhone-Class (match-any)
  0 packets
  Match: cos 5
  0 packets, 0 bytes
  5 minute rate 0 bps
  QoS Set
dscp ef
  police:
    cir 128000 bps, bc 8000 bytes
    conformed 0 bytes; actions:
    transmit
    exceeded 0 bytes; actions:
    set-dscp-transmit dscp table policed-dscp
    conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Voip-Signal-CiscoPhone-Class (match-any)
  0 packets
  Match: cos 3
  0 packets, 0 bytes
  5 minute rate 0 bps
  QoS Set
dscp cs3
  police:
    cir 32000 bps, bc 8000 bytes
    conformed 0 bytes; actions:
    transmit
    exceeded 0 bytes; actions:
    set-dscp-transmit dscp table policed-dscp
    conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Default-Class (match-any)
  0 packets
  Match: access-group name AutoQos-4.0-Acl-Default
  0 packets, 0 bytes
  5 minute rate 0 bps
  QoS Set
dscp default

Class-map: class-default (match-any)
  0 packets
  Match: any
  0 packets, 0 bytes
  5 minute rate 0 bps

Service-policy output: AutoQos-4.0-Output-Policy

queue stats for all priority classes:
  Queueing
  priority level 1

  (total drops) 0
  (bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
0 packets
Match: dscp cs4 (32) cs5 (40) ef (46)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 5
  0 packets, 0 bytes
  5 minute rate 0 bps
Priority: 30% (300000 kbps), burst bytes 7500000,

Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
0 packets
Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 3
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
queue-limit dscp 16 percent 80
queue-limit dscp 24 percent 90
queue-limit dscp 48 percent 100
queue-limit dscp 56 percent 100

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
0 packets
Match: dscp af41 (34) af42 (36) af43 (38)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 4
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 2
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
Example: auto qos voip cisco-softphone

The following is an example of the auto qos voip cisco-softphone command and the applied policies and class maps.

The following policy maps are created and applied when running this command:

- AutoQos-4.0-CiscoSoftPhone-Input-Policy
- AutoQos-4.0-Output-Policy
The following class maps are created and applied when running this command:

- AutoQos-4.0-Voip-Data-Class (match-any)
- AutoQos-4.0-Voip-Signal-Class (match-any)
- AutoQos-4.0-Multimedia-Conf-Class (match-any)
- AutoQos-4.0-Bulk-Data-Class (match-any)
- AutoQos-4.0-Transaction-Class (match-any)
- AutoQos-4.0-Scavanger-Class (match-any)
- AutoQos-4.0-Signaling-Class (match-any)
- AutoQos-4.0-Default-Class (match-any)
- class-default (match-any)
- AutoQos-4.0-Output-Priority-Queue (match-any)
- AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
- AutoQos-4.0-Output-Trans-Data-Queue (match-any)
- AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
- AutoQos-4.0-Output-Scavenger-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

```
Device(config)# interface GigabitEthernet1/0/20
Device(config-if)# auto qos voip cisco-softphone
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/20

GigabitEthernet1/0/20

Service-policy input: AutoQos-4.0-CiscoSoftPhone-Input-Policy

Class-map: AutoQos-4.0-Voip-Data-Class (match-any)
    0 packets
    Match:  dscp ef (46)
        0 packets, 0 bytes
        5 minute rate 0 bps
    Match:  cos 5
        0 packets, 0 bytes
        5 minute rate 0 bps
QoS Set
    dscp ef
    police:
        cir 128000 bps, bc 8000 bytes
        conformed 0 bytes; actions:
            transmit
        exceeded 0 bytes; actions:
            set-dscp-transmit dscp table policed-dscp
        conformed 0000 bps, exceed 0000 bps
```
Class-map: AutoQos-4.0-Voip-Signal-Class (match-any)
  0 packets
  Match: dscp cs3 (24)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 3
    0 packets, 0 bytes
    5 minute rate 0 bps
QoS Set
dscp cs3
police:
cir 32000 bps, bc 8000 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Multimedia-Conf-Class (match-any)
  0 packets
  Match: access-group name AutoQos-4.0-Acl-MultiEnhanced-Conf
  0 packets, 0 bytes
  5 minute rate 0 bps
QoS Set
dscp af41
police:
cir 5000000 bps, bc 156250 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
drop
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Bulk-Data-Class (match-any)
  0 packets
  Match: access-group name AutoQos-4.0-Acl-Bulk-Data
  0 packets, 0 bytes
  5 minute rate 0 bps
QoS Set
dscp af11
police:
cir 10000000 bps, bc 312500 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Transaction-Class (match-any)
  0 packets
  Match: access-group name AutoQos-4.0-Acl-Transactional-Data
  0 packets, 0 bytes
  5 minute rate 0 bps
QoS Set
dscp af21
police:
cir 10000000 bps, bc 312500 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Scavanger-Class (match-any)
0 packets
Match: access-group name AutoQos-4.0-Acl-Scavanger
  0 packets, 0 bytes
  5 minute rate 0 bps
QoS Set
dscp cs1
police:
  cir 10000000 bps, bc 312500 bytes
  conformed 0 bytes; actions:
    transmit
  exceeded 0 bytes; actions:
    drop
  conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Signaling-Class (match-any)
  0 packets
Match: access-group name AutoQos-4.0-Acl-Signaling
  0 packets, 0 bytes
  5 minute rate 0 bps
QoS Set
dscp cs3
police:
  cir 32000 bps, bc 8000 bytes
  conformed 0 bytes; actions:
    transmit
  exceeded 0 bytes; actions:
    drop
  conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Default-Class (match-any)
  0 packets
Match: access-group name AutoQos-4.0-Acl-Default
  0 packets, 0 bytes
  5 minute rate 0 bps
QoS Set
dscp default
police:
  cir 10000000 bps, bc 312500 bytes
  conformed 0 bytes; actions:
    transmit
  exceeded 0 bytes; actions:
    set-dscp-transmit dscp table policed-dscp
  conformed 0000 bps, exceed 0000 bps

Class-map: class-default (match-any)
  0 packets
Match: any
  0 packets, 0 bytes
  5 minute rate 0 bps

Service-policy output: AutoQos-4.0-Output-Policy

queue stats for all priority classes:
  Queueing
    priority level 1
    (total drops) 0
    (bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
  0 packets
Match: dscp cs4 (32) cs5 (40) ef (46)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 5
  0 packets, 0 bytes
  5 minute rate 0 bps
Priority: 30% (300000 kbps), burst bytes 7500000,
Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
  0 packets
Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 3
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing
  queue-limit dscp 16 percent 80
  queue-limit dscp 24 percent 90
  queue-limit dscp 48 percent 100
  queue-limit dscp 56 percent 100

  (total drops) 0
  (bytes output) 0
  bandwidth remaining 10%
  queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
  0 packets
Match: dscp af41 (34) af42 (36) af43 (38)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 4
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

  (total drops) 0
  (bytes output) 0
  bandwidth remaining 10%
  queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
  0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 2
  0 packets, 0 bytes
  5 minute rate 0 bps
Queueing

  (total drops) 0
  (bytes output) 0
  bandwidth remaining 10%
  queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
  0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
  0 packets, 0 bytes
  5 minute rate 0 bps
Match: cos 1
  0 packets, 0 bytes

Example: auto qos voip cisco-softphone
Example: auto qos voip cisco-softphone

The following is an example of the `auto qos voip cisco-softphone` command and the applied policies and class maps.

The following policy maps are created and applied when running this command:

- AutoQos-4.0-CiscoSoftPhone-Input-Policy
- AutoQos-4.0-Output-Policy

The following class maps are created and applied when running this command:

- AutoQos-4.0-Voip-Data-Class (match-any)
- AutoQos-4.0-Voip-Signal-Class (match-any)
- AutoQos-4.0-Multimedia-Conf-Class (match-any)
- AutoQos-4.0-Bulk-Data-Class (match-any)
- AutoQos-4.0-Transaction-Class (match-any)
- AutoQos-4.0-Scavanger-Class (match-any)
- AutoQos-4.0-Signaling-Class (match-any)
- AutoQos-4.0-Default-Class (match-any)
- class-default (match-any)
- AutoQos-4.0-Output-Priority-Queue (match-any)
- AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
- AutoQos-4.0-Output-Trans-Data-Queue (match-any)
- AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
- AutoQos-4.0-Output-Scavenger-Queue (match-any)
- AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)

Device(config)# interface GigabitEthernet1/0/20
Device(config-if)# auto qos voip cisco-softphone
Device(config-if)# end
Device# show policy-map interface GigabitEthernet1/0/20

GigabitEthernet1/0/20

Service-policy input: AutoQos-4.0-CiscoSoftPhone-Input-Policy

Class-map: AutoQos-4.0-Voip-Data-Class (match-any)
  0 packets
  Match: dscp ef (46)
  0 packets, 0 bytes
  5 minute rate 0 bps
  Match: cos 5
  0 packets, 0 bytes
  5 minute rate 0 bps
  QoS Set
dscp ef
police:
cir 128000 bps, bc 8000 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Voip-Signal-Class (match-any)
  0 packets
  Match: dscp cs3 (24)
  0 packets, 0 bytes
Configuring Auto-QoS

Example: auto qos voip cisco-softphone

5 minute rate 0 bps
Match: cos 3
0 packets, 0 bytes
5 minute rate 0 bps
QoS Set
dscp cs3
police:
cir 32000 bps, bc 8000 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Multimedia-Conf-Class (match-any)
0 packets
Match: access-group name AutoQos-4.0-Acl-MultiEnhanced-Conf
0 packets, 0 bytes
5 minute rate 0 bps
QoS Set
dscp af41
police:
cir 5000000 bps, bc 156250 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
drop
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Bulk-Data-Class (match-any)
0 packets
Match: access-group name AutoQos-4.0-Acl-Bulk-Data
0 packets, 0 bytes
5 minute rate 0 bps
QoS Set
dscp af11
police:
cir 10000000 bps, bc 312500 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Transactional-Class (match-any)
0 packets
Match: access-group name AutoQos-4.0-Acl-Transactional-Data
0 packets, 0 bytes
5 minute rate 0 bps
QoS Set
dscp af21
police:
cir 10000000 bps, bc 312500 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Scavanger-Class (match-any)
0 packets
Match: access-group name AutoQos-4.0-Acl-Scavanger
0 packets, 0 bytes
5 minute rate 0 bps

Configuring Auto-QoS

Example: auto qos voip cisco-softphone
QoS Set
dscp cs1
police:
cir 10000000 bps, bc 312500 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
drop
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Signaling-Class (match-any)
0 packets
Match: access-group name AutoQos-4.0-Acl-Signaling
0 packets, 0 bytes
5 minute rate 0 bps
QoS Set
dscp cs3
police:
cir 32000 bps, bc 8000 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
drop
conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Default-Class (match-any)
0 packets
Match: access-group name AutoQos-4.0-Acl-Default
0 packets, 0 bytes
5 minute rate 0 bps
QoS Set
dscp default
police:
cir 10000000 bps, bc 312500 bytes
conformed 0 bytes; actions:
transmit
exceeded 0 bytes; actions:
set-dscp-transmit dscp table policed-dscp
conformed 0000 bps, exceed 0000 bps

Class-map: class-default (match-any)
0 packets
Match: any
0 packets, 0 bytes
5 minute rate 0 bps

Service-policy output: AutoQos-4.0-Output-Policy
queue stats for all priority classes:
Queueing
priority level 1
(total drops) 0
(bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
0 packets
Match: dscp cs4 (32) cs5 (40) ef (46)
0 packets, 0 bytes
5 minute rate 0 bps
Match: cos 5
0 packets, 0 bytes
5 minute rate 0 bps
Priority: 30% (300000 kbps), burst bytes 7500000,
Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
0 packets
Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
   0 packets, 0 bytes
   5 minute rate 0 bps
Match: cos 3
   0 packets, 0 bytes
   5 minute rate 0 bps
Queueing
   queue-limit dscp 16 percent 80
   queue-limit dscp 24 percent 90
   queue-limit dscp 48 percent 100
   queue-limit dscp 56 percent 100
   (total drops) 0
   (bytes output) 0
   bandwidth remaining 10%
   queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
0 packets
Match: dscp af41 (34) af42 (36) af43 (38)
   0 packets, 0 bytes
   5 minute rate 0 bps
Match: cos 4
   0 packets, 0 bytes
   5 minute rate 0 bps
Queueing
   (total drops) 0
   (bytes output) 0
   bandwidth remaining 10%
   queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
   0 packets, 0 bytes
   5 minute rate 0 bps
Match: cos 2
   0 packets, 0 bytes
   5 minute rate 0 bps
Queueing
   (total drops) 0
   (bytes output) 0
   bandwidth remaining 10%
   queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
   0 packets, 0 bytes
   5 minute rate 0 bps
Match: cos 1
   0 packets, 0 bytes
   5 minute rate 0 bps
Queueing
   (total drops) 0

Example: auto qos voip cisco-softphone
auto qos global compact

The following is an example of the `auto qos global compact` command.

```
Device# configure terminal
Device(config)# auto qos global compact
Device(config)# interface GigabitEthernet1/2
Device(config-if)# auto qos voip cisco-phone

Device# show auto-qos
GigabitEthernet1/2
auto qos voip cisco-phone

Device# show running-config interface GigabitEthernet 1/0/2
interface GigabitEthernet1/0/2
auto qos voip cisco-phone
```
Where to Go Next for Auto-QoS

Review the QoS documentation if you require any specific QoS changes to your auto-QoS configuration.

Additional References for Auto-QoS

Related Documents

<table>
<thead>
<tr>
<th>Related Topic</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>For complete syntax and usage information for the commands used in this chapter.</td>
<td>Command Reference (Catalyst 9300 Series Switches) Cisco IOS Quality of Service Solutions Command Reference</td>
</tr>
</tbody>
</table>

Error Message Decoder

<table>
<thead>
<tr>
<th>Description</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>To help you research and resolve system error messages in this release, use the Error Message Decoder tool.</td>
<td><a href="https://www.cisco.com/cgi-bin/Support/Errordecoder/index.cgi">https://www.cisco.com/cgi-bin/Support/Errordecoder/index.cgi</a></td>
</tr>
</tbody>
</table>

Standards and RFCs

<table>
<thead>
<tr>
<th>Standard/RFC</th>
<th>Title</th>
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<tbody>
<tr>
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MIBs

<table>
<thead>
<tr>
<th>MIB</th>
<th>MIBs Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>All supported MIBs for this release.</td>
<td>To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a></td>
</tr>
</tbody>
</table>
Technical Assistance

<table>
<thead>
<tr>
<th>Description</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Cisco Support website provides extensive online resources, including</td>
<td><a href="http://www.cisco.com/support">http://www.cisco.com/support</a></td>
</tr>
<tr>
<td>documentation and tools for troubleshooting and resolving technical issues</td>
<td></td>
</tr>
<tr>
<td>with Cisco products and technologies.</td>
<td></td>
</tr>
<tr>
<td>To receive security and technical information about your products, you can</td>
<td></td>
</tr>
<tr>
<td>subscribe to various services, such as the Product Alert Tool (accessed from</td>
<td></td>
</tr>
<tr>
<td>Field Notices), the Cisco Technical Services Newsletter, and Really Simple</td>
<td></td>
</tr>
<tr>
<td>Syndication (RSS) Feeds.</td>
<td></td>
</tr>
<tr>
<td>Access to most tools on the Cisco Support website requires a Cisco.com user</td>
<td></td>
</tr>
<tr>
<td>ID and password.</td>
<td></td>
</tr>
</tbody>
</table>

Feature History and Information for Auto-QoS

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco IOS XE Everest 16.5.1a</td>
<td>This feature was introduced.</td>
</tr>
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</table>