Cisco EasyQoS Application for APIC-EM Release Notes, Release 1.4.0.x

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This document describes the Cisco EasyQoS features, limitations, and bugs for release 1.4.0.x.

Along with Cisco EasyQoS, Cisco APIC-EM supports the following additional applications:

- Cisco Network Visibility
- Cisco Path Trace
- Cisco IWAN
- Cisco Network PnP

For information about the Cisco APIC-EM controller infrastructure (system requirements, security, licensing, supported multi-host configurations, and so on) and the other Cisco APIC-EM applications, see their corresponding release notes at the following URL:

http://www.cisco.com/c/en/us/support/cloud-systems-management/one-enterprise-network-controller/products-release-notes-list.html

What's New in Cisco EasyQoS for APIC-EM, Release 1.4.0.x

The Cisco APIC-EM software release provides the following new EasyQoS app features and functions:

- **Policy Scheduling**—EasyQoS gives you the option to apply (or reapply) a policy immediately or at a specific date and time, for example, on a weekend during off-peak hours.

- **Bandwidth Profiles**—Bandwidth profiles allow you to define an interface's bandwidth allocation based on traffic class.

- **Application Name-Based DSCP Marking in Dynamic Policy**—EasyQoS can use the application name (if provided) from a traffic flow to retrieve the missing destination IP address or port number and use this information when applying a dynamic policy.

- **Subinterface Support**—Previously in Release 1.3.0.x, EasyQoS did not provision subinterfaces. Instead, EasyQoS provisioned only physical interfaces based on their tagging. For untagged physical interfaces, EasyQoS provisioned the LAN-based queuing policy. For tagged interfaces, EasyQoS provisioned the WAN Service Provider profile queuing policy that was specified in the tag.

In Release 1.4.0.x, EasyQoS can configure Service Provider Profiles (SPP) on WAN and router subinterfaces. To do this, EasyQoS bases the provisioning on the tagging of both the physical interface and subinterface.

Table 1: EasyQoS Behavior Based on Interface and Subinterface Tagging

Physical Interface	Subinterface	
	Untagged	**Tagged**
Untagged	EasyQoS provisions the physical interface with the LAN-based queuing policy.	EasyQoS does the following: 1 Does not provision a policy on the physical interface. 2 Provisions the subinterface with the WAN SPP queuing policy that is specified in the tag. 3 Provisions the subinterface with the marking policy.
Tagged	EasyQoS provisions the physical interface with the WAN SPP queuing policy that is specified in the tag.	EasyQoS does the following: 1 Provisions the physical interface with a shaper-only policy. 2 Provisions the subinterface with the WAN SPP queuing policy specified in the tag. 3 Provisions the subinterface with the marking policy.

- **Performance Improvement**—Provisioning of Dynamic QoS now matches the Cisco Unified Communications Manager (CallManager) processing scale of 4 calls per second (sustained) and 9 calls per sec (burst).

- **Built-in Protocol Pack Update**—APIC-EM Release 1.4.0.x includes Protocol Pack (PP) 27. PP 27 provides you with support for new applications and bug fixes (especially category/traffic-class assignment fixes).

- **Protocol Pack Awareness**—In this release, EasyQoS can configure a QoS policy on a device based on the device's active protocol pack. (A protocol pack defines the customer validated design (CVD) policy, which includes the default NBAR applications and their business-relevance and traffic-class mappings.)

In EasyQoS Release 1.3.0.x, the CVD policy was based on Protocol Pack 14 (PP 14), and the configuration that was applied to a device was determined by the difference between your customized policy and the CVD policy.

In EasyQoS Release 1.4.0.x, CVD policies are based on Protocol Pack 27 (PP 27), and the configuration that is applied to a device is determined by the difference between your customized policy and the CVD

policy defined in the active protocol pack on the device. For devices that are running PP 27, because both EasyQoS and the devices are running the same protocol pack, the configuration contains only your policy customizations. No other configuration changes are needed to align the QoS policy with the CVD.

However, for devices that are running a protocol pack other than PP 27, the configuration applied to the device is based on the CVD policy of the active protocol pack on the device. So, the configuration contains your policy customizations in relation to that CVD policy plus any other changes that are necessary to align the configuration with the CVD policy.

- **Domain Name Server Enhancement**—EasyQoS considers DNS ports 53 and 5353 as discounted ports.

- **Additional Class Maps for Port-Based Custom Applications**—In EasyQoS Release 1.3.0.x, custom application traffic did not get the right DSCP marking for router WAN ports. In EasyQoS Release 1.4.0.x, EasyQoS provides additional class maps for all of the traffic classes that are used for custom applications. EasyQoS adds the custom application to the relevant class map based on the application's traffic class.

Note If there are no custom applications, additional class maps are still configured on the devices. However, these class maps are not configured.

Cisco EasyQoS Supported Platforms and Software Requirements

For information about the network devices and software versions supported for this release by the EasyQoS app, see Supported Platforms for the Cisco Application Policy Infrastructure Controller Enterprise Module.

Installing or Upgrading EasyQoS

The EasyQoS image is built into the APIC-EM controller image. When you install or upgrade to APIC-EM 1.4.0.x, the EasyQoS Release 1.4.0.x is installed or upgraded as well.

After installing or upgrading the APIC-EM software, you can begin to use EasyQoS by enabling the application. For information about how to enable applications, see the *Cisco Application Policy Infrastructure Controller Enterprise Module Administration Guide*. For any of the following information, see these sources:

Table 2: Information Sources for Installing or Upgrading EasyQoS

Information	Source
Installing APIC-EM or EasyQoS	*Cisco Application Policy Infrastructure Controller Enterprise Module Installation Guide*
Upgrading APIC-EM or EasyQoS	*Cisco Application Policy Infrastructure Controller Enterprise Module Upgrade Guide*
Obtaining bug information about APIC-EM	*Cisco Application Policy Infrastructure Controller Enterprise Module Release Notes*

Caveats

Open Caveats

The following table lists the open caveats for this release.

Caveat ID Number	Headline
CSCvd19620	When a network device with an existing QoS configuration on a VLAN interface is updated with a port-based QoS configuration from EasyQoS, the pre-existing QoS configuration does not get removed as expected.

CSCuy37443	The QoS statistics output "queueBandwidthbps" shows NA when configured with several commands.
	
	On an ISR router, configure the policy-map with the **bandwidth** and **priority** commands. Start a flow analysis with QoS statistics collection request with the ISR router in the path. This happens when configured with following commands:
	
	    • **bandwidth percent**
	
	    • **priority percent**
	
	    • **priority** (strict priority)
	
	Workaround:
	
	There is no workaround at this time.

CSCuy52361	Traffic will be disrupted when applying an EasyQoS policy on a Cisco Catalyst 4500 series switch that is using port channels. **Workaround**: When configuring EasyQoS on a Cisco Catalyst 4500 series switch using port channels, we recommend that you apply the EasyQoS policy during a maintenance window or by changing the routing metrics (either EIGRP or OSPF) to remove traffic off of the member links during the application of the policy.

Caveat ID Number	Headline
CSCva39044	When a Cisco 2500 Series Wireless Controller (WLC) is upgraded from version 7.4.100.0 or lower to any version that EasyQos supports, EasyQos can push a policy to the WLC, but it cannot attach the WLAN. In this scenario, EasyQos should not push the policy to the WLC. Instead, it should display a message on the EasyQos GUI similar to the following: "AVC is not supported with the current bootloader version (1.0.16). Please upgrade the bootloader to version 1.0.18 or Field Upgradable software version 1.8.0.0 or higher. See Cisco documentation for information about Field Upgradable software." This issue is specific to the Cisco 2500 Series Wireless Controller (WLC). **Workaround**: Upgrade the wireless controller bootloader to version 1.0.18 or higher, perform an inventory synchronization, and reapply the policy.
CSCvb58195	An application may be omitted from the ACL due to limited TCAM resources, while higher rank applications are included in the ACL. When editing advanced settings for such NBAR applications in EasyQoS Policies window (e.g. change to bi-directional or add consumer application), it will still be omitted from the ACL in case of limited TCAM resources. **Workaround**: Mark the edited application as "Favorite" in the EasyQoS Application Registry screen. This will cause the application to be highly ranked and included in the ACL.
CSCvb49220	In the EasyQoS application page, the unassigned count includes all devices that a user has access to; although, only devices for which the user is an admin are actually displayed. **Workaround**: There is no workaround at this time.
CSCvc51663	Policy preview shows only one service provider policy error message at a time. **Workaround**: There is no workaround at this time.

Caveat ID Number	Headline
CSCvc79652	When the destination port and IP address are not provided in an input flow, EasyQoS looks up this information in the custom application profile and should display it in the **Dynamic QoS** tab. However, EasyQoS does not display it. **Workaround**: There is no workaround at this time.
CSCvc81320	EasyQoS reports an error message that the QoS configuration failed due to an invalid command for Cisco Nexus devices. If a Cisco Nexus device has virtual device contexts (VDCs) configured, and you try to apply a QoS policy configuration with the non-default/non-admin VDC, EasyQoS fails to configure the device and reports an error. **Workaround** To avoid this issue, discover and perform EasyQoS operations through the default/admin VDC.
CSCvc95074	When the configuration for a custom application is removed from a device, EasyQoS fails to remove all of the configuration. The remarks and ACL commands are not being removed. **Workaround**: There is no workaround at this time.
CSCvd09470	EasyQoS applies commands twice on collaboration devices, such as Cisco phones. This situation occurs when a collaboration device accesses a switch, and the switch is configured for traps to be sent to the APIC-EM. **Workaround**: There is no workaround at this time.
CSCvd13950	Generating a configuration for preview takes more than a minute for Cisco Catalyst 3850 stackable switches that are configured to full scale limits. **Workaround**: There is no workaround at this time.

Resolved Caveats

The following table lists the resolved caveats for this release.

Note For a list of caveats resolved in an earlier software release, see the Cisco APIC-EM release notes for the specific release.

Bug ID Number	Headline
CSCux96848	When Delete Dynamic policy is initiated (same time for both Video and Voice), sometimes VOICE ACE's get deleted and sometimes VIDEO gets deleted, but not both at the same time. Both Voice and Video ACE's should be removed when delete dynamic policy is initiated. **Workaround**: There is no workaround at this time.
CSCuy36583	EasyQoS does not support custom app creation on an ASR 1000 (versions earlier than 3.13), if the first 3 alphabet letters match. **Workaround**: Move the custom app to default and create a new custom app with 3 unique characters compared to other NBAR protocols. Valid character values are: A-Z, a-z, 0-9 and _ . Note that before you select the name, change the 3 characters by using the search option.
CSCvb59952	When configuring queuing policy on the Cisco 800 Series Integrated Services Routers, the attachment to the L2 interfaces will fail with the following message: "Configuration failed!". **Workaround**: There is no workaround at this time. Queuing policy is not supported on the L2 interfaces on the Cisco 800 Series Integrated Services Routers which run Cisco IOS 15.6.3M0a. Consider downgrading the Cisco IOS version on the devices.

Bug ID Number	Headline
CSCvb80940	With the EasyQoS application, policy preview is not displaying ACLs for the applications having consumer apps, although the policies are being pushed to the devices without any other issues. **Workaround**: There is no workaround at this time.
CSCvb83108	With the EasyQoS application:. • While creating a custom app, if the lower port range begins with zero, then while editing the custom app, the port range vanishes. You then need to reenter the port range to save it again. For example, after saving and editing, you will see blanks in the port range. • While creating a custom app, if there is a port value with a range and comma, then the custom app shows the lower range port value as a single value. For this reason, we recommend that you do not use a range and comma in a single port range. For example, if you create a port range of 11-20, 70, after saving you will see 11,70. **Workaround**: There is no workaround at this time.
CSCvb85200	When creating a policy and pushing a CVD in EasyQoS, if you attempt to abort this action while in progress and also perform a reset then a failure will occur. **Workaround**: Reapply the policy at the scope level, (only on the failed device). The policy will be configured and you should see success.
CSCvd14988	Cisco EasyQoS cannot configure more than 16 matching statements per class-map for CSR1000V interfaces. NBAR-based marking policies were not deployed on the device because it is not supported on the current IOS release. **Workaround**: Upgrade to IOS-XE 3.16.4 or above, or upgrade the NBAR Protocol Pack to version 22 or above.

Using the Bug Search Tool

Use the Bug Search tool to search for a specific bug or to search for all bugs in this release.

Step 1   Go to http://tools.cisco.com/bugsearch.

Step 2   At the Log In screen, enter your registered Cisco.com username and password; then, click **Log In**. The Bug Search page opens.

   Note   If you do not have a Cisco.com username and password, you can register for them at http://tools.cisco.com/RPF/register/register.do.

Step 3   To search for a specific bug, enter the bug ID in the Search For field and press **Return**.

Step 4   To search for bugs in the current release:

   a) In the Search For field, enter APIC-EM and press **Return**. (Leave the other fields empty.)

   b) When the search results are displayed, use the filter tools to find the types of bugs you are looking for. You can search for bugs by modified date, status, severity, and so forth.

      Note   To export the results to a spreadsheet, click the **Export Results to Excel** link.

EasyQoS Limitations and Restrictions

The EasyQoS application has the following limitations and restrictions.

Note   Refer to the other Cisco APIC-EM application release notes or Cisco APIC-EM controller release notes for information about any other application or infrastructure-specific issues.

- Custom apps created using the EasyQoS GUI application require an IP address (mandatory field). Custom apps created using the API do not require an IP address (optional field). Custom apps created without an IP address using the API will fail when applied to a NBAR router. NBAR routers do not support applications without an IP address. To apply the policy on NBAR routers, please remove the custom app from the list.

- When configuring EasyQoS on a Cisco Catalyst 4500 series switch using port channels, we recommend that you apply the EasyQoS policy during a maintenance window or by changing the routing metrics (either EIGRP or OSPF) to remove traffic off of the member links during the application of the EasyQoS policy. Traffic will be disrupted when the EasyQoS policy is applied on the port channel interfaces.

- When removing a network device from a scope in EasyQoS, options that permit you to restore to the original policy or delete the policy are not triggered. Additionally, unlike the option in EasyQoS that permits you to reapply a policy, there are no options to restore an original policy or to delete a policy when a policy fails on the network devices.

- For the EasyQoS application, the maximum number of devices that can be configured for a scope is 2000.

- Cisco EasyQoS is not supported on the Cisco ASR 1000 series router running Cisco IOS XE 16.3.1.

- Within the EasyQoS application, Dynamic QoS is a beta functionality for this release.

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Important   For specific EasyQoS feature support and restrictions by platform and line card, see *Supported Platforms for the Cisco Application Policy Infrastructure Controller Enterprise Module*.

Service and Support

Troubleshooting

See the *Cisco Application Policy Infrastructure Controller Enterprise Module Troubleshooting Guide*, for troubleshooting procedures.

Related Documentation

The following publications are available for the Cisco APIC-EM:

Cisco APIC-EM Controller Documentation

For this type of information...	See this document...
Release information, including new features, system requirements, and open and resolved caveats.	*Cisco Application Policy Infrastructure Controller Enterprise Module Release Notes*
Installation and configuration of the controller, including post-installation tasks.	*Cisco Application Policy Infrastructure Controller Enterprise Module Installation Guide*
Introduction to the Cisco APIC-EM GUI and its applications.	*Cisco Application Policy Infrastructure Controller Enterprise Module Quick Start Guide* [1]
Configuration of user accounts, RBAC scope, security certificates, authentication and password policies, and global discovery settings. Monitoring and managing Cisco APIC-EM services. Backup and restore. Cisco APIC-EM APIs.	*Cisco Application Policy Infrastructure Controller Enterprise Module Administrator Guide*
Troubleshooting the controller, including the installation, services, and passwords. Developer console. How to contact the Cisco Technical Assistance Center (TAC).	*Cisco Application Infrastructure Controller Enterprise Module Troubleshooting Guide*

For this type of information...	See this document...
Tasks to perform before updating the controller to the latest version. Software update instructions. Tasks to perform after an update.	*Cisco Application Infrastructure Controller Enterprise Module Upgrade Guide*

[1] Available from the APIC-EM controller **System Info** window.

Cisco Network Visibility Application Documentation

For this type of information...	See this document...
Release information, including open and resolved caveats for the Cisco Network Visibility application.	*Cisco Network Visibility Application for APIC-EM Release Notes*
Supported platforms and software releases.	*Cisco Network Visibility Application for APIC-EM Supported Platforms*
Installation of the application. (This application is installed as part of the Cisco APIC-EM controller software.)	*Cisco Application Policy Infrastructure Controller Enterprise Module Installation Guide*
Network discovery, device and host management, topology maps.	*Cisco Network Visibility Application for APIC-EM User Guide*

Cisco EasyQoS Application Documentation

For this type of information...	See this document...
Release information, including open and resolved caveats for the Cisco EasyQoS application.	*Cisco EasyQoS Application for APIC-EM Release Notes*
Supported platforms and software releases.	*Cisco EasyQoS Application for APIC-EM Supported Platforms*
Installation of the application. (This application is installed as part of the Cisco APIC-EM controller software.)	*Cisco Application Policy Infrastructure Controller Enterprise Module Installation Guide*
Configuration of quality of service policies on the devices in your network.	*Cisco EasyQoS Application for APIC-EM User Guide*

Cisco Path Trace Application Documentation

For this type of information...	See this document...
Release information, including open and resolved caveats for the Path Trace application.	*Cisco Path Trace Application for APIC-EM Release Notes*
Supported platforms and software releases.	*Cisco Path Trace Application for APIC-EM Supported Platforms*
Installation of the application. (This application is installed as part of the Cisco APIC-EM controller software.)	*Cisco Application Policy Infrastructure Controller Enterprise Module Installation Guide*
Procedures for performing path traces and information about how to understand the path trace results.	*Cisco Path Trace Application for APIC-EM User Guide*

Cisco IWAN Application Documentation

For this type of information...	See this document...
Release information, including open and resolved caveats for the Cisco IWAN application.	*Cisco IWAN Application on APIC-EM Release Notes*
Using the Cisco IWAN application.	*Cisco IWAN Application on APIC-EM User Guide*

Cisco Network Plug and Play Application Documentation

For this type of information...	See this document...
Release information, including open and resolved caveats for the Cisco Plug and Play application. Supported Cisco devices for Cisco Network Plug and Play.	*Release Notes for Cisco Network Plug and Play*
Configuration of devices using Cisco Network Plug and Play.	*Configuration Guide for Cisco Network Plug and Play on Cisco APIC-EM* *Cisco Open Plug-n-Play Agent Configuration Guide*

For this type of information...	See this document...
Cisco Network Plug and Play solution overview. Main workflows used with the Cisco Network Plug and Play solution. Deployment of the Cisco Network Plug and Play solution. Tasks for using proxies with the Cisco Network Plug and Play solution. Configuration of a DHCP server for APIC-EM controller auto-discovery. Troubleshooting procedures for the Cisco Network Plug and Play solution.	*Solution Guide for Cisco Network Plug and Play*
Information about using the Cisco Plug and Play Mobile App.	*Mobile Application User Guide for Cisco Network Plug and Play* (also accessible in the app through Help)

Cisco APIC-EM Developer Documentation

The Cisco APIC-EM developer website is located on the Cisco DevNet website.

For this type of information...	See this document...
API functions, parameters, and responses.	APIC-EM API Reference Guide
Tutorial introduction to controller GUI, DevNet sandboxes and APIC-EM NB REST API.	Getting Started with Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM)
Hands-on coding experience calling APIC-EM NB REST API from Python.	APIC-EM Learning Labs

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation at:

http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html

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