Introduction

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This document describes the features and caveats for all releases in the Cisco IOS-XE Release 3.5SQ train for the Cisco RF Gateway 10 (RFGW-10) that supports the Cisco RFGW-10 DS-384 line card and the Cisco Supervisor Engine 7-E.

To download and upgrade to the new ROMMON image for the Cisco RFGW-X45-SUP7-E, see the ROMMON Release Notes for ROMMON Release Notes for Supervisor Engine 7-E on the Cisco RF Gateway 10 at: http://www.cisco.com/en/us/docs/cable/rf_gateway/release/notes/rommom_rn_rfgw10_sup7e.html

Cisco recommends that you view the field notices for this release to see if your software or hardware platforms are affected. If you have an account on Cisco.com, you can find field notices at:http://www.cisco.com/en/US/support/tsd_products_field_notice_summary.html.

For information on new features and the Cisco IOS documentation set supported on Cisco IOS-XE Release 3.5SQ train,New and Changed Information, on page 6 see the and the Related Documentation, on page 15. For a list of the caveats that apply to this release, see the Caveats .

Note Use the service internal command on the Cisco RFGW-10 only for system debugging and troubleshooting purposes. This command should not be used in normal operation mode.

Note Cisco IOS-XE Release 3.5.2SQ is not available on Cisco.com now.

Overview of Cisco RF Gateway 10 UEQAM Platform

The Cisco RFGW-10 is a carrier-class Universal Edge QAM (UEQAM) platform that offers concurrent support for standard and high-definition digital broadcast television, Switched Digital Video (SDV), Video on Demand (VoD), and DOCSIS/Modular CMTS services. It is a chassis-based product based on open standards with superior performance, capacity, power consumption, ease of management, and scalability. All components of the Cisco RFGW-10 are designed for high availability, including dual Supervisor and Ethernet switching line cards, 1:N Universal Edge QAM line cards, dual timing, communication and control (TCC) line cards, dual load balancing and load sharing DC PEMs and integrated RF switching modules.

The Cisco RFGW-10 is a centralized switching architecture leveraged from the Cisco Catalyst 4500 Series switches. The Cisco RFGW-10 is a 13-rack unit, modular chassis designed for providing front-to-back airflow and system-level redundancy. All chassis components are hot-swappable and redundant. The chassis supports “wire-once” cabling for RF line cards and an integrated dual-zone RF switch matrix. The Supervisor Engine 7-E provides robust Layer 2 to Layer 4 switching with up to 848 Gbps, and up to 250 Mbps packet throughput

System Requirements

This section describes the system requirements for Cisco IOS-XE Release 3.5SQ series and includes the following sections:

Hardware Supported

Table 1: Hardware Supported on the Cisco RFGW-10 , on page 2 provides information on the hardware supported on the Cisco RFGW-10 for Cisco IOS-XE Release 3.5SQ.

Table 1: Hardware Supported on the Cisco RFGW-10

PID	Description
Cisco RFGW Chassis	
RFGW-10	Chassis with the following slots: 2 Supervisor, 10 RF line card, two TCC, and 12 RFGW-10-RFSW (RF switch card) slots. Also includes the RFGW-10 fan assembly and front panel display (FPD)
Cisco RFGW Series Supervisors	
RFGW-X45-SUP7-E	Cisco RFGW Supervisor 7-E, 4xSFP+ (10/1GE) (primary)
RFGW-X45-SUP7-E=	Cisco RFGW Supervisor 7-E, 4xSFP+ (10/1GE) (spare)
Cisco RFGW Series TCC Cards	

PID	Description
RFGW-TCC1	RFGW timing, communication, and control card v.04 or higher
RFGW-TCC1=	RFGW timing, communication, and control card v.04 or higher (spare)
Cisco RFGW Series Line Cards	
RFGW-DS384	RFGW universal downstream EQAM card, 8 RF ports, 384 QAMs
RFGW-DS384=	RFGW universal downstream EQAM card, 8 RF ports, 384 QAMs (spare)
RFGW-DS48	RFGW Universal Downstream EQAM Card, 48 QAMs
RFGW-DS48=	RFGW Universal Downstream EQAM Card, 48 QAMs (spare)
RFGW-DS48-1G	RFGW Universal Downstream EQAM card, 48 QAMs, 1 GHz
RFGW-DS48-1G=	RFGW Universal Downstream EQAM card, 48 QAMs, 1 GHz (spare)
RFGW-DS48-1G-BUN	RFGW Universal Downstream EQAM Card 48 QAMs 1G
Cisco RFGW Series RF Switch Cards	
RFGW-10RFSW1=	RFGW RF switch v1 (spare)
Cisco RFGW Series PEM Options	
RFGW-10-PWR-DC	RFGW DC PEM with monitoring v1
RFGW-10-PWR-DC1=	RFGW DC PEM with monitoring v1 (spare)
Cisco RFGW Series Supervisor Memory Options	
SD-X45-2GB-E	Catalyst 4500 2GB SD Memory Card for Sup7-E
SD-X45-2GB-E=	Catalyst 4500 2GB SD Memory Card for Sup7-E (spare)
USB-X45-4GB-E	Catalyst 4500 4GB USB device for Sup7-E
USB-X45-4GB-E=	Catalyst 4500 4GB USB device for Sup7-E (spare)
Cisco RFGW Series Transceiver Modules	
SFP-GE-T	1000BASE-T SFP (NEBS 3 ESD) (100 m on Cat5 UTP)
SFP-GE-S	1000BASE-SX short wavelength; with DOM (550 m on MMF)
SFP-GE-L	1000BASE-LX/LH long wavelength; with DOM (10 km on SMF)
SFP-10G-SR	10GBASE-SR SFP Module

PID	Description
SFP-10G-LR	10GBASE-LR SFP Module
• GLC-SX-MMD • GLC-LH-SMD	1 Gbps Optical SFP Modules

Note The Cisco IOS-XE Release 3.5SQ train does not support the Cisco RFGW-X4516-10GE, and the Cisco RFGW Supervisor V-10GE.

Software Supported

Table 2: Supported Software

Supported Software	Minimum Release	Latest Release
Cisco IOS-XE Release	3.2.0SQ	3.5.9SQ
ROMMON Release	15.0(1r)SQ(315)	15.0(1r)SQ1(316)

For more information on ROMMON, see the ROMMON Release Notes for Supervisor Engine 7-E on the Cisco RF Gateway 10 at:
http://www.cisco.com/en/US/docs/cable/rf_gateway/release/notes/ROMMOM_RN_RFGW10_SUP7E.html

Compatible Software and Versions

Table 3: Compatible Software and Versions

Compatible Software	Latest Release
Video Sessions Resource Manager (VSRM)	3.7.1-53
Cisco License Manager (CLM)	3.2.6
Cisco RF Gateway 10 Remote Provisioning Utility (RPU-10)	1.0
Cisco Converged EdgeQAM Manager (CEM)	1.0.1

Determining the Software Version

To determine the version of Cisco IOS-XE software running on the Cisco RFGW-10 platform, log in to the platform and enter the **show version** EXEC command.

Below is an example of the output from the show version command:

```
RFGW10#show version
Cisco IOS Software, IOS-XE Software, RFGW-10 Software (rfgwk10-ENTSERVICESK9-M), Version
03.05.09.SQ RELEASE SOFTWARE (fc1) Technical Support: http://www.cisco.com/techsupport
```

```
Copyright (c) 1986-2019 by Cisco Systems, Inc.
Compiled Tue 01-Oct-19 18:31 by prod_rel_team


Cisco IOS-XE software, Copyright (c) 2002-2010, 2012, 2014 by cisco Systems, Inc.
All rights reserved.  Certain components of Cisco IOS-XE software are
licensed under the GNU General Public License ("GPL") Version 2.0.  The
software code licensed under GPL Version 2.0 is free software that comes
with ABSOLUTELY NO WARRANTY.  You can redistribute and/or modify such
GPL code under the terms of GPL Version 2.0.
(http://www.gnu.org/licenses/gpl-2.0.html) For more details, see the
documentation or "License Notice" file accompanying the IOS-XE software,
or the applicable URL provided on the flyer accompanying the IOS-XE
software.


Image text-base: 0x100A6C34, data-base: 0x143067A0

ROM: 15.0(1r)SQ(315)
Joe Revision 50, Snowtrooper Revision 0x0.0x116

Goofy uptime is 18 minutes
Uptime for this control processor is 19 minutes
System returned to ROM by reload at 21:04:11 EST Tue Oct 1 2019
System restarted at 21:08:01 EST Tue Oct 1 2019
System image file is "slot0:rfgwk10-entservicesk9.03.05.09.SQ.150-2.SQD9.bin"
Last reload reason: Admin reload CLI


This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

cisco Cable-RFGW (MPC8572) processor (revision 8) with 2097152K/16384K bytes of memory.
Processor board ID FXS1728001R
MPC8572 CPU at 1.5GHz, Supervisor 7
Last reset from Reload
58 Virtual Ethernet interfaces
30 Gigabit Ethernet interfaces
28 Ten Gigabit Ethernet interfaces
511K bytes of non-volatile configuration memory.

Configuration register is 0x2

RFGW10#
```

New and Changed Information

These sections list the new and existing hardware and software features supported by the Cisco RFGW-10:

New Hardware Features in Cisco IOS-XE Release 3.5.9SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.9SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.8SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.8SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.7SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.7SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.6SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.6SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.5SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.5SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.4SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.4SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.3SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.3SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.2SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.2SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.1SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.1SQ.

New Hardware Features in Cisco IOS-XE Release 3.5.0SQ

There are no new hardware features for Cisco IOS-XE Release 3.5.0SQ.

New Software Features in Cisco IOS-XE Release 3.5.9SQ

There are no new software features for Cisco IOS-XE Release 3.5.9SQ.

New Software Features in Cisco IOS-XE Release 3.5.8SQ

There are no new software features for Cisco IOS-XE Release 3.5.8SQ.

New Software Features in Cisco IOS-XE Release 3.5.7SQ

There are no new software features for Cisco IOS-XE Release 3.5.7SQ.

New Software Features in Cisco IOS-XE Release 3.5.6SQ

There are no new software features for Cisco IOS-XE Release 3.5.6SQ.

New Software Features in Cisco IOS-XE Release 3.5.5SQ

There are no new software features for Cisco IOS-XE Release 3.5.5SQ.

New Software Features in Cisco IOS-XE Release 3.5.4SQ

There are no new software features for Cisco IOS-XE Release 3.5.4SQ.

New Software Features in Cisco IOS-XE Release 3.5.3SQ

There are no new software features for Cisco IOS-XE Release 3.5.3SQ.

New Software Features in Cisco IOS-XE Release 3.5.2SQ

There are no new software features for Cisco IOS-XE Release 3.5.2SQ.

New Software Features in Cisco IOS-XE Release 3.5.1SQ

The following sections describe the new software features supported in the Cisco IOS-XE Release 3.5.1SQ.

Video QAM Monitoring for Bandwidth Oversubscription

QAM bandwidth oversubscription is determined by measuring the bandwidth usage of a QAM and validating it against the capacity of the QAM. If the bandwidth usage exceeds the capacity for an interval of 30 seconds, the QAM is declared as oversubscribed. When you enable QAM monitoring for QAM bandwidth oversubscription, all the line cards in the chassis monitor the QAMs associated with them and report any QAM oversubscription activity in the form of console messages. You can also enable QAM bandwidth oversubscription trap to receive notifications on a NMS (network management system). QAM monitoring is disabled by default.

For more information about this feature, see the *RFGW-10 Video* chapter in *Cisco RF Gateway 10 Software Configuration Guide at* :

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/feature/guide/rfgw_scg/rfgw10_video.html

Cisco RFGW-10 DS-384 Line Card Reset

Bass SEU interrupts are single event upset (SEU) interrupts received from Bass field-programmable gate array (FPGA). You can enable Cisco RFGW-10 DS-384 line card reset when Bass SEU interrupt is received.

For more information about this feature, see the *Cisco RF Gateway 10 DS-384 Line Card Hardware Installation Guide* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/linecard/ds384/installation/guide/b_ds384_hig.html

Cisco RF Gateway 10 (RFGW-10) GUI Enhancements

NGOD-D6 Support

Effective with Cisco IOS-XE Release 3.5.1SQ, NGOD-D6 interface is enhanced to support RFGW-10 GUI.

Read-Only GUI Access

Users logged in with the login name “guest” will only have read-only access to the RFGW-10 GUI.

For more information, see the *Cisco RFGW-10 GUI User Guide* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/feature/guide/rfgw10_gui.html

Enabling kernel dumper for RFGW-10 DS-384 Line Card

The kernel dumper program is invoked when the execution of kernel is disrupted. It collects vital information and dumps them in dump logs. These logs are compressed and written to the line card flash before a normal reboot is invoked.

For more information, see the *Cisco RF Gateway 10 DS-384 Line Card Hardware Installation Guide* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/linecard/ds384/configuration/guide/b_ds384_scg.html

New Software Features in Cisco IOS-XE Release 3.5.0SQ

The following sections describe the new software features supported in the Cisco IOS-XE Release 3.5.0SQ.

Privacy Mode Encryption (PME)

Effective with Cisco IOS_XE 3.5.0SQ, PME is the video encryption technology used for Video-on-demand (VOD). It enables easy encryption of VOD programs to ensure the programs are viewed only by the authorized subscribers.

PME encryption supports encryption in both local and remote modes. To enforce PME, use the **cable linecard encryption** command.

For more information on PME, see the *Cisco RFGW-10 Software Configuration Guide* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/feature/guide/rfgw_scg.html

For more information on the **cable linecard encryption** command, see the *Cisco RFGW-10 Command Reference* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/command/reference/b_rfgw10_cmd_ref.html

NGOD-D6 QAM Partition

Effective with Cisco IOS_XE 3.5.0SQ, Cisco RFGW-10 supports a new interface called NGOD-D6 for local video QAMs. It interfaces between EQAM and NMS. It is a service discovery and registration interface and the protocol used in this interface is VREP (Video Registration Protocol).

For more information on NGOD-D6 QAM Partition, see the *Cisco RFGW-10 Software Configuration Guide* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/feature/guide/rfgw_scg.html

Powerkey Alarm Delay

Effective with Cisco IOS-XE 3.5.0SQ, a new command **cable video scrambler alarm-start-delay** is introduced. This command is used to configure the delay timer for scrambling alarms. If the alarm is cleared within the configured delay time, then it will not be displayed on the console.

For more information on the **cable video scrambler alarm-start-delay** command, see the *Cisco RFGW-10 Command Reference* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/command/reference/b_rfgw10_cmd_ref.html

Enable Scrambling for Tier-based Mode

Effective with Cisco IOS-XE 3.5.0SQ, a new command **scrambling [Enable | Disable]** is introduced. It is used to enable or disable the tier-based scrambling of the line card.

For more information, see the *Cisco RFGW-10 Command Reference* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/command/reference/b_rfgw10_cmd_ref.html

Modified Software Features in Cisco IOS-XE Release 3.5.9SQ

There are no modified software features for Cisco IOS-XE Release 3.5.9SQ.

Modified Software Features in Cisco IOS-XE Release 3.5.8SQ

There are no modified software features for Cisco IOS-XE Release 3.5.8SQ.

Modified Software Features in Cisco IOS-XE Release 3.5.7SQ

There are no modified software features for Cisco IOS-XE Release 3.5.7SQ.

Modified Software Features in Cisco IOS-XE Release 3.5.6SQ

There are no modified software features for Cisco IOS-XE Release 3.5.6SQ.

Modified Software Features in Cisco IOS-XE Release 3.5.5SQ

Effective with Cisco IOS-XE 3.5.5SQ, the command **cable qdepth disable** is introduced to enable a customer specific scenario. For more information, see the Cisco RF Gateway 10 Command Reference guide.

Modified Software Features in Cisco IOS-XE Release 3.5.4SQ

There are no modified software features for Cisco IOS-XE Release 3.5.4SQ.

Modified Software Features in Cisco IOS-XE Release 3.5.3SQ

There are no modified software features for Cisco IOS-XE Release 3.5.3SQ.

Modified Software Features in Cisco IOS-XE Release 3.5.2SQ

There are no modified software features for Cisco IOS-XE Release 3.5.2SQ.

Modified Software Features in Cisco IOS-XE Release 3.5.1SQ

Enhancements to CLI

Modifications in the Existing Command

- Effective with Cisco IOS-XE Release 3.5.1SQ, the command **cable video scrambler** for EIS is modified as follows:
  - tcp port has been changed to accommodate the range value 1 to 65535.
  - The CLI option “cp-overrule” has been changed to accommodate the range value 1 to 3600 (duration in seconds).
- The CLI option “max-comp-time” under the ECMG overrule configuration has been changed to accommodate the range 0 to 60000 (duration in msec).

Modifications in the Existing Show Command Output

- The “Bandwidth Used” field in the **show controllers qam** *slot/port.channel* **downstream** command, which used to display the input rate will now reflect the output bitrate.
- The “Total Measured Bitrate” field in the **show cable video session all summary** command which used to display the input rate will now reflect the output bitrate.

Modified Software Features in Cisco IOS-XE Release 3.5.0SQ

Cisco RF Gateway 10 (RFGW-10) GUI Enhancements

Effective with Cisco IOS-XE Release 3.5.0SQ, the GUI application has been enhanced to support PME and Dual Encrypt license configuration.

For more information, see the *Cisco RFGW-10 GUI User Guide* at the following URL:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/feature/guide/rfgw10_gui.html

Enhancements to CLI

Additional Fields added to Existing Show Command Output

- Effective with Cisco IOS-XE 3.5.0SQ, the output of the **show cable video statistics packet** command is modified. The Total Multicast Sessions and Total Unicast Sessions fields are added to display the total multicast sessions and total unicast sessions.
- Effective with Cisco IOS-XE 3.5.0SQ, the output of the **show cable video session all** command, the Current State field is added to display the current state of the session.

For more information, see the *Cisco RFGW-10 Command Reference* at:

http://www.cisco.com/c/en/us/td/docs/cable/rf_gateway/command/reference/b_rfgw10_cmd_ref.html.

MIBs

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locater found at the following URL:

http://tools.cisco.com/ITDIT/MIBS/servlet/index

To access Cisco MIB Locater, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check verifies that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password is e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://tools.cisco.com/RPF/register/register.do

For information about the MIBs supported by the Cisco RFGW-10 in common with Cisco IOS-XE, see the Cisco RF Gateway 10 MIB Specifications Guide.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.9SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.9SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.8SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.8SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.7SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.7SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.6SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.6SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.5SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.5SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.4SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.4SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.3SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.3SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.2SQ

There are no new or changed MIB information for Cisco IOS-XE Release 3.5.2SQ.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.1SQ

The following MIB is modified in Cisco IOS-XE Release 3.5.1SQ:

- CISCO-QP-LBG-MIB

Effective with Cisco IOS-XE Release 3.5.1SQ, the Cisco RF Gateway-10 supports *cqlQamOverSubscribedAlert* MIB trap and *cqlqpQamOversubscribedStatus* and *cqlqpServerIpList* MIB objects.

New and Changed MIB Information in Cisco IOS-XE Release 3.5.0SQ

The following MIBs are added in Cisco IOS-XE Release 3.5.0SQ:

- CISCO-QP-LBG-MIB
- CISCO-DTI-EXT-MIB

The following MIB is modified in Cisco IOS-XE Release 3.5.0SQ:

- CISCO-VPDN-MGMT-MIB

Important Notes

The Cisco RF Gateway 10 Supervisor Engine 7-E uplink ports are not recommended for data or management traffic. The Supervisor 7-E card has four uplink ports on its front panel. Only the top two ports are active in redundancy mode. However, in redundancy mode, packet loss occurs in the traffic paths between the uplink ports on the standby Supervisor card and the switch fabric on the active Supervisor card. There is no packet loss for uplink ports on active supervisors.The uplink ports on the Cisco RFGW-10 DS-384 and the Cisco RFGW-10 DS-48 line cards are recommended for data and management traffic.

Cisco IOS-XE Release 3.5.9SQ

There is no important notes for Cisco IOS-XE Release 3.5.9SQ.

Cisco IOS-XE Release 3.5.8SQ

There is no important notes for Cisco IOS-XE Release 3.5.8SQ.

Cisco IOS-XE Release 3.5.7SQ

There is no important notes for Cisco IOS-XE Release 3.5.7SQ.

Cisco IOS-XE Release 3.5.6SQ

There is no important notes for Cisco IOS-XE Release 3.5.6SQ.

Cisco IOS-XE Release 3.5.5SQ

There is no important notes for Cisco IOS-XE Release 3.5.5SQ.

Cisco IOS-XE Release 3.5.4SQ

There is no important notes for Cisco IOS-XE Release 3.5.4SQ.

Cisco IOS-XE Release 3.5.3SQ

- Effective with Cisco IOS-XE Release 3.5.3SQ, fail-to-clear-duration timeout command is introduced to configure DVB encrypted session to flow clear for a specified duration.
- Effective with Cisco IOS-XE Release 3.5.3SQ, pme mgmt-ip is introduced to configure RFGW10 management IP as part of PME configuration for CEM communication.
- Effective with Cisco IOS-XE Release 3.5.3SQ, the ONID range is 0 – 65535.

Cisco IOS-XE Release 3.5.1SQ

Effective with Cisco IOS-XE Release 3.5.1SQ, QP ERMI span is supported.

Cisco IOS-XE Release 3.5.0SQ

- Effective with Cisco IOS-XE Release 3.5.0SQ, the following are supported:
  - 384 Video QAMs for Annex B/C
  - 288 Video QAMs for Annex A or mix of Annex A and B/C.
  - All video QAMs are PowerKey/DVB/Dual-crypt/PME encryption capable.
- Effective with Cisco IOS-XE Release 3.4.1SQ, the reserved PID range is 256 - 8159.
- Effective with Cisco IOS-XE Release 3.4.1SQ, the **show cable depi-ctrl-sessions teardown details** command is introduced to view the session failure reason and the time of failure for particular DEPI session.
- Effective with Cisco IOS-XE Release 3.4.1SQ, the **cable downstream 8MHz-overlap-start-freq** *frequency* command is introduced to configure the starting frequency for the 8MHz overlap block for Annex A.
- Effective with Cisco IOS-XE Release 3.4.0SQ, the **onid** keyword is removed from the **cable downstream tsid** command and replaced with the **cable downstream onid** command.
- Effective from Cisco IOS-XE Release 3.4.0SQ, if Annex A is configured, then the Logical QAM groups must be configured contiguously, for example, lqam-group1, lqam-group2, lqam-group3, and so on.

- Effective with Cisco IOS-XE Release 3.4.0SQ, while using the **replicate-qam** command, the keywords **qam**, **Qam**, **qam-red**, **Qam-red** should be explicitly typed. Typing q or Q and pressing **Tab** will not auto-complete it.
- Effective with Cisco IOS-XE Release 3.4.0SQ, a replicate with DEPI remote learn should be removed from the QRG before defaulting it, if not it may lead to QRG corruption.
- Effective with Cisco IOS-XE Release 3.4.0SQ, a PID should be filtered before scrambling a session, filtering of PID on the scrambled session can lead to unwarranted results.
- Effective with Cisco IOS-XE Release 3.4.0SQ, bulk QRG removal is supported only through GUI. It takes about 3 seconds to complete the action with this option. While using this option the user should not simultaneously access the console to enter any commands. If the console is accessed simultaneously, the QRG removal in the standby supervisor card may be affected.
- Effective with Cisco IOS-XE Release 3.4.0SQ, scrambling of MPTS remap sessions are not supported.

Limitations and Restrictions

This section lists the limitations and restrictions for the Cisco IOS-XE Release 3.5SQ train on the Cisco RFGW-10:

- LQAM-group configuration restrictions
  - An lqam-group can have a maximum number of eight QAM channels
  - It can be spanned across two QAM ports with a maximum of four QAM channels per port
  - It should be associated in an ascending order of QAM interfaces or ports
- Online insertion and removal (OIR) of active Supervisor card is not supported. You must force switchover to the standby Supervisor card before removing the active card.
- The limitation for ERMI is that only 48 TSIDs are supported on one Service Group (SG).
- Use the ASI port in maintenance window only.
- Policing cannot be applied to bitrate for streams and the session reserved bitrate.
- The start-frequency of pilot QAM port and replicate QAM port should not be different.
- Before a QAM Replication Group (QRG) is configured, the LCRED must be configured.
- Some of the below system commands for querying CPU and Memory should not be executed continuously for better operation and performance
  - s**how memory**
  - **show cpu**
  - **show redundancy**
- After a QRG is configured, no other configuration changes are supported on replicate QAM except below:
  - **shutdown** (admin)
  - **no shutdown** (admin)
  - **default** (except remote learn QAMs)
- After a QRG is configured, no other configuration changes are supported on pilot QAM except below:
  - **shutdown** (admin)
  - **no shutdown** (admin)
  - **default** (except remote learn QAMs)
  - **rf-shutdown**

    - **no rf-shutdown**

- The RF parameters of an RF profile being used in a QRG cannot be modified.
- The number of passthru sessions is restricted to one per QAM channel.
- These are the QAM limitations in the Cisco IOS-XE Release 3.5.0SQ:
    - Annex B/C
- 1024 total DS channels—384 pilot QAMs and 640 replicate QAMs
- 256 DEPI QAMs
- 384 video QAMs—All video QAMs are PowerKey/DVB/Dual crypt/PME encryption capable
    - Annex A or mix of Annex A and B/C
- 768 total—288 pilot QAMs and 480 replicate QAMs
- 288 video QAMs—All video QAMs are PowerKey/DVB/Dual crypt/PME encryption capable
- 192 DEPI QAMs
- 144 Annex—A QAMs per load balancing group (LBG)
- Annex A specifications allows user defined symbol rates only for video.
- Static remote DEPI is not supported.
- Cisco IOS-XE Release 3.5.0SQ provides limited support to Etherchannel.
- Effective with Cisco IOS-XE Release3.4.0SQ, PowerKey/DVB encryption licenses are changed to feature-based from count-based.
- Effective with Cisco IOS-XE Release3.4.0SQ, the max-carrier number configured on a port includes only pilot QAMs and non-QRG channels on that port. The max-carrier number does not include replicate QAMs.
- Jumbo Frames are not supported on line cards.
- RFGW-10 booting up with older configuration that does not have management IP can not be able to establish CEM connectivity anymore. Customer should choose a particular interface for connecting to CEM and provide the IP address of that interface as PME management IP.

Related Documentation

These documents are available for the Cisco RFGW-10 platform on Cisco.com:

- Cisco RF Gateway 10 Hardware Installation Guide
- Configuring the Cisco RFGW-10 DS-384 Line Card
- Cisco RF Gateway 10 Command Reference
- Cisco RF Gateway 10 GUI
- Cisco RF Gateway 10 Software Feature and Configuration Guide
- Software License Activation for Cisco RF Gateway 10 Line Cards
- Cisco RF Gateway 10 MIB Specification Guide
- Cisco RF Gateway 10 Quick Start Guide
- Release Notes for Cisco RF Gateway 10
- Cisco RF Gateway 10 Remote Provisioning Utility User Guide

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 .

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the What's New in Cisco Product Documentation RSS feed . The RSS feeds are a free service.