Release Notes for Cisco IOS Release 15.2(5)E2c

Last Updated: February 27, 2018
First Published: September 8, 2017

Cisco IOS Release 15.2(5)E2c runs on these platforms:

■ Cisco 2500 Series Connected Grid Switches (CGS 2520)

■ Cisco Connected Grid Ethernet Switch Module (CGR 2010 ESM)

■ Cisco Embedded Service 2020 Series Switches (ESS 2020)

■ Cisco Industrial Ethernet 2000 Series Switches (IE 2000)

■ Cisco Industrial Ethernet 2000U Series Switches (IE 2000U)

■ Cisco Industrial Ethernet 3000 Series Switches (IE 3000)

■ Cisco Industrial Ethernet 3010 Series Switches (IE 3010)

■ Cisco Industrial Ethernet 4000 Series Switches (IE 4000)

■ Cisco Industrial Ethernet 4010 Series Switches (IE 4010)

■ Cisco Industrial Ethernet 5000 Series Switches (IE 5000)

These release notes include important information about Cisco IOS Release 15.2(5)E2c and any limitations, restrictions, and caveats that apply to the release. Verify that these release notes are correct for your switch:

■ If you are installing a new switch, see the Cisco IOS release label on the rear panel of your switch.

■ If your switch is on, use the **show version** command. See Finding the Software Version and Feature Set, page 5.

■ If you are upgrading to a new release, see the software upgrade filename for the software version. See Deciding Which Files to Use, page 6.

For a complete list of documentation for the platforms associated with this release, see Related Documentation, page 13.

You can download the switch software from this site (registered Cisco.com users with a login password):

http://software.cisco.com/download/navigator.html

Organization

This document includes the following sections:

Conventions

This document uses the following conventions.

Conventions	Indication
bold font	Commands and keywords and user-entered text appear in **bold** font.
italic font	Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font.
[ ]	Elements in square brackets are optional.
{x	y	z }	Required alternative keywords are grouped in braces and separated by vertical bars.
[x	y	z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
courier font	Terminal sessions and information the system displays appear in `courier` font.
< >	Nonprinting characters such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Note: Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Caution: Means *reader be careful.* **In this situation, you might perform an action that could result in equipment damage or loss of data.**

Warning: **IMPORTANT SAFETY INSTRUCTIONS**

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Regulatory: Provided for additional information and to comply with regulatory and customer requirements.

New Features in Cisco IOS Release 15.2(5)E2c

Table 1 lists new features first added in Cisco IOS Release 15.2(5)E2, which are also supported by15.2(5)E2c.

Table 1   New Feature Summary for Cisco IOS Release 15.2(5)E2c

Feature	Platform	Description	Related Documentation
Time-sensitive Networks	IE 4000	Supports delay-sensitive applications by implementing IEEE 802.1Qbv. Requires license LIC-TSN-IE.	Time-sensitive Networks
GSDML for STEP7/TIA Portal supports Fiber port Pluggable transceiver (SFP) configuration in PROFINET application	IE 2000, IE 5000	You can now manage the following SFPs for IE 2000 and IE 5000 switches: ■ GLC-TE, GLC-T, GLC-FE-T-1 ■ GLC-FE-100FX-RGD ■ GLC-FE-100LX-RGD ■ GLC-LX-SM-RGD ■ GLC-SX-MM-RGD ■ GLC-FE-100FX ■ GLC-SX-MMD ■ GLC-LH-SMD ■ GLC-SX-MM ■ GLC-LH-SM **Note**: The combo port works in both copper and fiber mode.	Pluggable Transceiver (SFP) Configuration Guide for SIMATIC STEP7/TIA Portal
IEEE 802.1AS Profile Standard support	IE 4000	Ensures synchronization requirements are met for time-sensitive applications across bridged and virtual bridged location area networks (LANs). IEEE 802.1AS specifies the use of Precision Time Protocol (IEEE 1588).	Precision Time Protocol Software Configuration Guide for IE 4000, IE 4010 and IE 5000 Device Manager Online Help
Media Redundancy Auto-manager (MRA)	IE 4000, IE 5000	When a switch (node) configured with Media Redundancy Protocol is configured to start with MRA, it will select a Media Redundancy Manager (MRM) using a voting protocol and configured priority value. **Note:** Feature support is provided via Cisco IOS CLI only. STEP7/TIA management is not supported in this release.	Media Redundancy Protocol Configuration Guide for IE 2000, IE 4000, IE 4010, and IE 5000 Device Manager Online Help
Media Redundancy Protocol (MRP)	IE 4010	All MRP functionality is now supported in the IE 4010.	Device Manager Online Help
Layer 3 Protocol Independent Multicast (PIM)	IE 2000	Layer 3 PIM support is provided through the IP Lite license.	Cisco Industrial Ethernet 4000, 4010 and 5000 Switch Software Configuration Guide

Table 1   New Feature Summary for Cisco IOS Release 15.2(5)E2c (continued)

Feature	Platform	Description	Related Documentation
Feature Mode	IE 4000	Feature Mode allows for efficient allocation of platform resources based on the features (such as time-sensitive industrial protocols) running on the switch.	Device Manager Online Help
Private VLAN	IE 2000	Feature supported in LANbase image.	Securing Networks with Private VLANs and VLAN Access Control Lists
Security Enhancement: Ability to disable weak SSL / TLS versions for enhanced HTTP security	IE 2000, IE 2000U, IE 3000, IE 3010, IE 4000, IE 4010, IE 5000	To enable this capability on the switch, enter the following config command: **ip http tls-version TLSv1.2** **Note:** We recommend using only supported browsers developed in 2014 or later.	---
TrustSec Security Group Tagging (SGT) and Security Group ACL (SGACL)	IE 4010	Allows tracking and ensures protected communication between peers.	Cisco TrustSec Switch Configuration Guide
NetFlow Lite Support	IE 4010	NetFlow Lite supports flexible sampling of traffic and exports flow data for analysis on a wide range of Cisco and third-party collectors.	NetFlow Lite, page 12
Static Routing Capability in IPLite License	IE 2000	Enables hardware routing entries when static routing is enabled.	Deciding Which Files to Use, page 6
IRIG-B input	IE 5000	Allows switch to receive and adjust timing data. Generates synchronized clocks between interfaces.	Cisco IE 5000 Hardened Aggregator Hardware Installation Guide
Device Manager Localization	IE 2000, IE 2000U, IE 3000, IE 4000 (IOS), IE 4000 (IOx), IE 4010, IE 5000	Online help for the Device Manager is available in the following languages: ■ Chinese (Traditional) (code: 2052) ■ Chinese (Simplified) (code: 1028) ■ Default: English (code: 1033) ■ French (code: 1036) ■ German (code: 1031) ■ Japanese (code: 1041) ■ Spanish (LATAM) (code: 9226)	Device Manager Online Help

System Requirement

This section describes the following system requirements for Cisco IOS Release 15.2(5)E2c:

- Express Setup Requirements, page 5

Express Setup Requirements

This section summarizes the hardware and software requirements for the Windows platform.

For a listing of Express Setup documentation, see Table 3Methods for Assigning IP Information, page 9.

Hardware

- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor

- 1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)

- 16 GB available hard disk space (32-bit) or 20 GB (64-bit)

Software

- PC with Windows 7, or Mac OS 10.6.x

- Web browser (Internet Explorer 9.0, 10.0, and 11.0, or Firefox 32) with JavaScript enabled

- Straight-through or crossover Category 5 or 6 cable

Express Setup verifies the browser version when starting a session, and it does not require a plug-in.

Upgrading the Switch Software

These are the procedures for downloading software. Before downloading software, read these sections for important information:

- Finding the Software Version and Feature Set, page 5

- Deciding Which Files to Use, page 6

- Archiving Software Images, page 6

- Upgrading a Switch by Using the CLI, page 7

- Installation Notes, page 9

Finding the Software Version and Feature Set

The Cisco IOS image is stored as a bin file in a directory that is named with the Cisco IOS release. A subdirectory contains the files needed for web management. The image is stored on the compact flash memory card.

You can use the **show version** privileged EXEC command to see the software version that is running on your switch. The second line of the display shows the version.

You can also use the **dir** *filesystem***:** privileged EXEC command to see the directory names of other software images stored in flash memory. For example, use the **dir flash:** command to display the images in the flash memory.

Deciding Which Files to Use

The upgrade procedures in these release notes describe how to perform the upgrade by using a combined tar file. This file contains the Cisco IOS image file and the files needed for the embedded device manager. You must use the combined tar file to upgrade the switch through Express Setup. To upgrade the switch through the command-line interface (CLI), use the tar file and the **archive download-sw** privileged EXEC command.

Table 2 lists the filenames for this software release.

Note: If you download the IP services image and plan to use Layer 3 functionality, you must use the Switch Database Management (SDM) routing template. To determine the currently active template, enter the **show sdm prefer** privileged EXEC command. If necessary, enter the **sdm prefer** global configuration command to change the SDM template to a specific template. For example, if the switch uses Layer 3 routing, change the SDM template from the default to the routing template. You must reload the switch for the new template to take effect.

Note: Beginning with Cisco IOS Release 15.2(5)E, we **no longer release** the IE 3000 IP services image. The latest release for the IP services image on the IE 3000 is 15.2(4)EA1.

Table 2   Cisco IOS Software Image Files

File Name	Description
cgs2520-ipserviceslmk9-tar.152-5.E2c.tar	CGS 2520 IP services image file
cgs2520-lanbaselmk9-tar.152-5.E2c.tar	CGS 2520 LAN base image file
c2020-universalk9-tar.152-5.E2c.tar	ESS 2020 universal image file
ie2000-universalk9-tar.152-5.E2c.tar	IE 2000 universal image file
ie2000u-ipserviceslmk9-tar.152-5.E2c.tar	IE 2000U IP services image file
ie2000u-lanbaselmk9-tar.152-5.E2c.tar	IE 2000U LAN base image file
ie3010-ipservicesk9-tar.152-5.E2c.tar	IE 3010 IP services image file
ie3010-lanbasek9-tar.152-5.E2c.tar	IE 3010 LAN base image file
ies-lanbasek9-tar.152-5.E2c.tar	IE 3000 LAN base image file
grwicdes-ipserviceslmk9-tar.152-5.E2c.tar	ESM IP services image file
grwicdes-lanbaselmk9-tar.152-5.E2c.tar	ESM LAN base image file
ie4000-universalk9_iox-tar.152-5.E2c.tar	IE 4000 Universal image file bundles Cisco IOx and IOS
ie4000-universalk9-tar.152-5.E2c.tar	IE 4000 Universal image file (Cisco IOS only)
ie4010-universalk9-tar.152-5.E2c.tar	IE 4010 Universal image file
ie5000-universalk9-tar.152-5.E2c.tar	IE 5000 Universal image file

Archiving Software Images

Before upgrading your switch software, make sure that you archive copies of both your current Cisco IOS release and the Cisco IOS release to which you are upgrading. Keep these archived images until you have upgraded all devices in the network to the new Cisco IOS image and verified that the new Cisco IOS image works properly in your network.

Cisco routinely removes old Cisco IOS versions from Cisco.com. See *Product Bulletin 2863* for information: http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps6969/ps1835/prod_bulletin0900aecd80281c0e.html

You can copy the bin software image file on the flash memory to the appropriate TFTP directory on a host by using the **copy flash: tftp:** privileged EXEC command.

Note: Although you can copy any file on the flash memory to the TFTP server, it is time consuming to copy all of the HTML files in the tar file. We recommend that you download the tar file from Cisco.com and archive it on an internal host in your network.

You can also configure the switch as a TFTP server to copy files from one switch to another without using an external TFTP server by using the **tftp-server** global configuration command.

Upgrading a Switch by Using the CLI

This procedure is for copying the combined tar file to the switch. You copy the file to the switch from a TFTP server and extract the files. You can download an image file and replace or keep the current image.

Note: Make sure that the compact flash card is in the switch before downloading the software.

To download software, follow these steps:

1. Use Table 2 on page 6 to identify the file that you want to download.

2. Download the software image file. If you have a SMARTnet support contract, go to this URL, and log in to download the appropriate files:

    http://software.cisco.com/download/navigator.html

    For example, to download the image for an IE 2000 switch, select Products > Switches > Industrial Ethernet Switches > Cisco Industrial Ethernet 2000 Series Switches, then select your switch model. Select IOS Software for Software Type, then select the image you want to download.

3. Copy the image to the appropriate TFTP directory on the workstation, and make sure that the TFTP server is properly configured.

    For more information, see the "Assigning the Switch IP Address and Default Gateway" chapter in the applicable document for your switch as listed in Table 3.

4. Log into the switch through the console port or a Telnet session.

5. (Optional) Ensure that you have IP connectivity to the TFTP server by entering this privileged EXEC command:

    Switch# ping *tftp-server-address*

    For more information about assigning an IP address and default gateway to the switch, see Table 3.

6. Download the image file from the TFTP server to the switch.

    If you are installing the same version of software that currently exists on the switch, overwrite the current image by entering this privileged EXEC command:

    Switch# archive download-sw /overwrite /reload tftp://*location* **/***directory* **/***image-name***.tar**

    The command above untars/unzips the file.The system prompts you when it completes successfully.

    — The **/overwrite** option overwrites the software image in flash memory with the downloaded one.

    If you specify the command without the **/overwrite** option, the download algorithm verifies that the new image is not the same as the one on the switch Flash device. If the images are the same, the download does not occur. If the images are different, the old image is deleted, and the new one is downloaded. If there is not enough space to install the new image and keep the current running image, the download process stops, and an error message displays.

    — The **/reload** option reloads the system after downloading the image unless the configuration has been changed and not saved.

    — For // *location*, specify the IP address of the TFTP server. or hostname.

    — For /*directory*/*image-name***.tar**, specify the directory and the image to download. Directory and image names are case sensitive. The directory is for file organization and it is generally a *tftpboot/user-ID* path.

    This example shows how to download an image from a TFTP server at 198.30.20.19 and to overwrite the image on the switch:

    Switch# **archive download-sw /overwrite tftp://198.30.20.19/***image-name***.tar**

You can also download the image file from the TFTP server to the switch and keep the current image by replacing the **/overwrite** option with the **/leave-old-sw** option. If there is not enough space to install the new image and keep the current running image, the download process stops, and an error message displays.

Upgrading IOS and FPGA on the Ethernet Switch Module (ESM)

This procedure is for copying the combined tar file to the switch. You copy the file to the switch from a TFTP server and extract the files. You can download an image file and replace or keep the current image.

To download software, follow these steps:

1. Refer to Deciding Which Files to Use, page 6 to identify the file that you want to download.

2. Download the software image file. If you have a SMARTnet support contract, go to the URL below and log in to download the appropriate files.

    http://software.cisco.com/download/navigator.html

    For example, to download the image for a Connected Grid 10-Port Ethernet Switch Module Interface Card, select Products > Cisco Interfaces and Modules > Connected Grid Modules > Connected Grid 10-Port Ethernet Switch Module Interface Card. Select IOS Software for Software Type, then select the image you want to download.

    Copy the image to the appropriate TFTP directory on the workstation, and make sure that the TFTP server is properly configured. For more information, see the "Assigning the Switch IP Address and Default Gateway" chapter in the applicable document listed in Table 3Methods for Assigning IP Information, page 9.

3. Copy the image to the appropriate TFTP directory on the workstation, and make sure that the TFTP server is properly configured.

4. Log in to the switch through the console port or a Telnet session.

5. (Optional) Ensure that you IP connectivity to the TFTP server by entering this privileged EXEC command:

    Switch# ping *tftp-server-address*

6. Download the image file from the TFTP server to the switch.

    If you are installing the same version of software that currently exists on the switch, overwrite the current image by entering this privileged EXEC command:

    Switch# archive download-sw /overwrite tftp: *//location /directory /image-name*.**tar**

    The command above untars/unzips the file.The system prompts you when it completes successfully.

    —   The **/overwrite** option overwrites the software image in flash memory with the downloaded one.

    If you specify the command without the **/overwrite** option, the download algorithm verifies that the new image is not the same as the one on the switch Flash device. If the images are the same, the download does not occur. If the images are different, the old image is deleted, and the new one is downloaded. If there is not enough space to install the new image and keep the current running image, the download process stops, and an error message displays.

    —   The **/reload** option reloads the system after downloading the image unless the configuration has been changed and not saved.

    —   For // *location*, specify the IP address of the TFTP server. or hostname.

    —   For /*directory*/*image-name*.**tar**, specify the directory and the image to download. Directory and image names are case sensitive. The directory is for file organization and it is generally a *tftpboot/user-ID* path.

    This example shows how to download an image from a TFTP server at 198.30.20.19 and to overwrite the image on the switch:

    Switch# **archive download-sw /overwrite tftp://198.30.20.19/***image-name***.tar**

You can also download the image file from the TFTP server to the switch and keep the current image by replacing the **/overwrite** option with the **/leave-old-sw** option. If there is not enough space to install the new image and keep the current running image, the download process stops, and an error message displays.

7. After the download and the untar are complete, power cycle the CGR2010.

Installation Notes

You can assign IP information to your switch using the methods shown in Table 3

Table 3   Methods for Assigning IP Information

Method	Platform	Document
Express setup program	IE 2000	*Cisco IE 2000 Switch Hardware Installation Guide*
	IE 3000	*Cisco IE 3000 Switch Getting Started Guide,* Device Manager Online Help
	ESM	*Connected Grid Ethernet Switch Module Interface Card Getting Started Guide*
	IE 4000	*Cisco IE 4000 Switch Hardware Installation Guide*
	IE 4010	*Cisco IE 4010 Switch Hardware Installation Guide*
	IE 5000	*Cisco IE 5000 Hardened Aggregator Hardware Installation Guide*
CLI-based setup program	ESS 2020	*Cisco Embedded Service 2020 Series Software Configuration Guide*
	IE 2000	*Cisco IE 2000 Switch Hardware Installation Guide*
	IE 2000U	*Cisco IE 2000U Switch Hardware Installation Guide*
	IE 3000	*Cisco IE 3000 Series Switch Hardware Installation Guide*
	IE 3010	*Cisco IE 3010 Switch Hardware Installation Guide*
	CGS 2520	*Cisco CGS 2520 Hardware Installation Guide*
	ESM	*Cisco CGS 2520 Hardware Installation Guide* **Note:** The *Cisco CGS 2520 Hardware Installation Guide* serves as CLI-based Setup reference for the ESM.
	IE 4000	*Cisco IE 4000 Switch Hardware Installation Guide*
	IE4010	*Cisco Industrial Ethernet 4000, 4010 and 5000 Switch Software Configuration Guide*
	IE 5000	*Cisco IE 5000 Hardened Aggregator Hardware Installation Guide*

Table 3   Methods for Assigning IP Information (continued)

Method	Platform	Document
DHCP-based autoconfiguration	ESS 2020	*Cisco Embedded Service 2020 Series Software Configuration Guide*
	IE 2000	*Cisco IE 2000 Series Switch Software Configuration Guide*
	IE 2000U	*System Management Software Configuration Guide for Cisco IE 2000U and Connected Grid Switches*
	IE 3000	*Cisco IE 3000 Series Switch Software Configuration Guide*
	IE 3010	*Cisco IE 3010 Series Switch Software Configuration Guide*
	CGS 2520	*CGS 2520 Switch Software Configuration Guide*
	ESM	*Cisco Connected Grid Ethernet Switch Module Interface Card Software Configuration Guide*
	IE 4000	*Cisco Industrial Ethernet 4000 Series Switch Software Configuration Guide*
	IE4010	*Cisco Industrial Ethernet 4000, 4010 and 5000 Switch Software Configuration Guide*
	IE 5000	*Cisco IE 5000 Hardened Aggregator Hardware Installation Guide*
Manually assigning an IP address	IE 2000	*Cisco IE 2000 Series Switch Software Configuration Guide*
	IE 2000U	*System Management Software Configuration Guide for Cisco IE 2000U and Connected Grid Switches*
	IE 3000	*Cisco IE 3000 Series Switch Software Configuration Guide*
	IE 3010	*Cisco IE 3010 Series Switch Software Configuration Guide*
	CGS 2520	*CGS 2520 Switch Software Configuration Guide*
	ESM	*Cisco Connected Grid Ethernet Switch Module Interface Card Software Configuration Guide*
	IE 4000	*Cisco Industrial Ethernet 4000 Series Switch Software Configuration Guide*
	IE4010	*Cisco Industrial Ethernet 4000, 4010 and 5000 Switch Software Configuration Guide*
	IE 5000	*Cisco IE 5000 Hardened Aggregator Hardware Installation Guide*

Caveats

- Cisco Bug Search Tool, page 11

- Open Caveats, page 11

- Resolved Caveats, page 11

Cisco Bug Search Tool

The Bug Search Tool (BST), which is the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The BST allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The tool has a provision to filter bugs based on credentials to provide external and internal bug views for the search input.

To view the details of a caveat listed in this document:

1. Access the BST (use your Cisco user ID and password) at https://tools.cisco.com/bugsearch/.

2. Enter the bug ID in the Search For: field.

Open Caveats

Table 4   **Open Caveats in Cisco IOS Release 15.2(5)E2c**

Bug ID	Headline
CSCvc19241	Internet Explorer and Safari browsers are not recommended for DM / LM in IE4K.
CSCve43587	FPGA version number displayed is wrong for IE5000 under show version.
CSCvf64096	GE port with SPEED AUTO 1000/DUPLEX FULL permits FE link at 100/Full when POE is off.

Resolved Caveats

Table 5   **Resolved Caveats in Cisco IOS Release 15.2(5)E2c**

Bug ID	Headline
CSCvd23231	Switch may crash or yield tracebacks when VTP mode is changed.
CSCve63904	SFPs like DWDM-SFP-6141,GLC-BX-U and GLC-FE-T-I show "Hardware mismatch error" in IE2000 platform.
CSCvf56666	Mismatch in software release version in the GSDML file.

Accessing Bug Search Tool

You can use the Bug Search Tool to find information about caveats for this release, including a description of the problems and available workarounds. The Bug Search Tool lists both open and resolved caveats.

To access Bug Search Tool, you need the following items:

■ Internet connection

■ Web browser

■ Cisco.com user ID and password

To access the Bug Search Tool, enter the following URL:

https://tools.cisco.com/bugsearch/search

Documentation Updates

This section includes the following latest updates to documentation for IE switches:

Enabling Logging Alarms for Syslog Messages

The following information is relevant to all IE Switches software releases from Release 12.2(58)SE onward (CSCvg26502).

On IE switches, there is an option to configure temperature alarm levels as noted in the "Configuring the Switch Alarms: Associating the Temperature Alarms to a Relay" section within IE Switch Software Configuration Guides.

However, configured alarms do not generate any syslogs until you set Major alarm **logging alarm 2** and Minor alarm l**ogging alarm 3** for temperature threshold alarms.

IMPORTANT: The logging alarm **must be enabled** to generate syslog messages.

Resilient Ethernet Protocol (REP)

See the revised configuration recommendations for the **lsl-age-timer** *timer-value* command (CSCux92117) in the "Configuring REP Configurable Timers" section in the REP chapter of the LAN Switching Configuration Guide, Cisco IOS XE Release 3S.

NetFlow Lite

Please note the following variances in NetFlow Lite support on the IE 4000, IE 4010 or IE 5000 switches and NetFlow Lite user documentation:

Consolidated Platform Configuration Guide, Cisco IOS Release 15.2(5)E (Catalyst 2960-X Switches)

IE 4000, IE 4010 and IE 5000

- New configuration options for the feature supported on the platforms:

```
NACstack(config)#flow exporter exporter1
NACstack(config-flow-exporter)#?
default  Set a command to its defaults
description  Provide a description for this Flow Exporter
destination  Export destination configuration
dscp  Optional DSCP
exit  Exit from Flow Exporter configuration mode
export-protocol  Export protocol version
no  Negate a command or set its defaults
option  Select an option for exporting
output-features  Send export packets via IOS output feature path
source  Originating interface
template  Flow Exporter template configuration
transport  Transport protocol
ttl  Optional TTL or hop limit
```

- Missing **cache** command options in user Netflow Lite documentation:

```
switch(config-flow-monitor)#cache ?
entries Maximum flow entries in the Flow Cache
timeout Configure flow cache timeout parameters
type Set the type of the Flow Cache
```

■ New options, **sort** and **aggregate**, for **show flow monitor cache format** command (as shown below):

show flow monitor cache format has only three options as shown below:

```
Switch2#sh flow monitor cache format ?
csv Flow monitor cache contents in csv format
record Flow monitor cache contents in record format
table Flow monitor cache contents in table format
```

aggregate counters for flow monitor have below options:

```
Switch2# sh flow monitor monitor1 cache aggregate ?
counter Counter fields
ipv4 IPv4 fields
record Aggregate using a predefined flow record
timestamp Timestamp fields
transport Transport layer fields
```

IE 5000 Only

■ Only supports homogenous stacking. Maximum stack member support of 4.

■ No support for Flow Record field, Match Wireless.

■ Default Settings: Flow Active Timeout supports a lower value range of 60 seconds (rather than 180 or 300 only).

Related Documentation

Table 6   Related Documentation

Device or Feature	Related Documents
Cisco 2500 Series Connected Grid Switches	http://www.cisco.com/go/cgs2520
Cisco Embedded Service 2020 Series Switches (ESS 2020)	http://www.cisco.com/c/en/us/support/switches/embedded-service-2020-series-switches/tsd-products-support-series-home.html
Cisco Ethernet Switch Module (ESM) for CGR 2010	http://www.cisco.com/go/cgr2000
Cisco Industrial Ethernet 2000 Series Switches	http://www.cisco.com/go/ie2000
Cisco Industrial Ethernet 2000U Series Switches	http://www.cisco.com/go/ie2000u
Cisco Industrial Ethernet 3000 Series Switches	http://www.cisco.com/go/ie3000
Cisco Industrial Ethernet 3010 Series Switches	http://www.cisco.com/go/ie3010
Cisco Industrial Ethernet 4000 Series Switches	http://www.cisco.com/go/ie4000
Cisco Industrial Ethernet 4010 Series Switches	http://www.cisco.com/go/ie4010
Cisco Industrial Ethernet 5000 Series Switches	http://www.cisco.com/go/ie5000

Obtain Documentation and Submit 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.

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