Release Notes for Cisco IOS Release 15.2(6)EB

First Published: December 14, 2018

Note: This software release is based on Cisco IOS Release 15.2(6)E2a

Cisco IOS Release 15.2(6)EB runs on the following platforms:

■ Cisco 2500 Series Connected Grid Switches (CGS 2520)

■ 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(6)EB 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 6.

■ 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 11.

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, page 2	Conventions used in this document.
New Features in Cisco IOS Release 15.2(6)EB, page 2	New features supported for Releases 15.2(6)EB
Upgrading the Switch Software, page 5	Procedures for downloading software.
Caveats, page 9	Open caveats in Release 15.2(6)EB.
Documentation Updates, page 10	Updates to IE switch documentation.
Related Documentation, page 11	List of IE switch product documentation.

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(6)EB

Cisco IOS Release 15.2(6)EB supports the following features for the CGS2520, IE4010 and the IE5000 platforms as noted in Table 1 Continued Feature Support for Cisco IOS Release 15.2(6)E2a, page 3.

Note: Not all features are supported on all platforms supported by Cisco IOS Release 15.2(6)EB; and, in some cases the user documentation listed in the table may support multiple software releases and hardware platforms beyond those supported in this release.

Table 1 **Continued Feature Support for Cisco IOS Release 15.2(6)E2a**

Feature	Platform	Description	Related Documentation

New commands for P2P Transparent feature	CGS 2520, IE 4010, IE 5000	When the switch is configured for PTP power profile and PTP mode p2ptransparent, the interface configured as Trunk port should support ptp vlan <vlan #> to allow ptp packets.
		
		New commands shown in **bold** type below:
		
		Example configuration:
		
		`Switch# sh run | in ptp`
		`ptp profile power`
		`ptp mode p2ptransparent`
		`Switch#`
		`Switch(config)#int GigabitEthernet1/1`
		`Switch(config-if)#`**`ptp`** `?`
		  `enable     ptp protocol enable`
		  `pdelay-req  pdelay request settings`
		  `sync``        sync settings`
		  `vlan``        ptp vlan settings`
		
		`Switch(config-if)#ptp vlan ?`
		`<1 - 4094>  ptp vlan id`
		
		`interface GigabitEthernet1/1`
		`switchport mode trunk`
		`ptp vlan 10`
		
		`Switch(config-if)#`**`ptp sync l`**
		`Switch(config-if)#`**`ptp sync limit ?`**
		`<50.0 - 500000000.0> maximum offset`
		`from master in nanoseconds before`
		`sync`
		`fault`
		
		`Switch(config-if)#`**`ptp sync limit`**
			Precision Time Protocol Software Configuration Guide for IE 4000, IE 4010, and IE 5000 Switches

HSR-SAN (Single Attached Node)	IE 4010, IE 5000	High-availability Seamless Redundancy (HSR) Singly Attached Node was first supported on the IE 4000 in the Cisco IOS 15.2(6)E release. With this release, we are adding support for HSR-SAN on the IE 4010 and IE 5000.	High-Availability Seamless Redundancy (HSR) for IE 4000, IE4010 and IE5000 Device Manager Online Help
HSR Uplink Redundancy Enhancement	IE 4010, IE 5000	Allows enhanced redundancy by improving the handling of redundancy protocols such as HSRP, VRRP, and REP to allow for two uplinks from the HSR ring.	High-Availability Seamless Redundancy (HSR) for IE 4000, IE4010, IE5000
Maximum Transmission Unit (MTU) increased to 1998 bytes of Ethernet payload in HSR and PRP features.	IE 4010, IE 5000	The ability to support MTU up to 1998 is supported over HSR and PRP.	Device Manager Online Help

Table 1　Continued Feature Support for Cisco IOS Release 15.2(6)E2a

Feature	Platform	Description	Related Documentation
LLDP/CDP co-existence with PRP	IE 4010, IE 5000	Allows handling of CDP/LLDP packets on a PRP network so that CDP/LLDP neighbors are mapped to the correct physical interfaces. Prior to this feature, CDP/LLDP was disabled on PRP channels, because CDP/LLDP traffic was treated as being received on the same PRP channel (without knowledge of LAN-A or LAN-B interface). Traffic from CDP/LLDP neighbors, in that case, was mixed together.	Device Manager Online Help
GLC-T-RGD SFP support	IE 4010, IE 5000	Added platform support for new SFP type GLC-T-RGD. Support extends to CIP and Profinet environments. This feature implements the code to return the new GLC-T-RGD SFP type in CIP. PROFINET code and GSD files are also modified to support this new SFP.	Pluggable Transceiver (SFP) Configuration Guide for SIMATIC STEP7/TIA Portal
CIP stack upgrade and CT15 compliance.	IE 4010, IE 5000	CIP stack upgrade to version 4.7 and CT15 compliance,	Device Manager Online Help
IGMP Querier for PRP Redbox	IE 4010, IE 5000	This feature allows the PRP RedBox to send General Query packets during PRP LAN recovery. General queries are used to collect multicast group membership information. If a PRP LAN goes down, enabling this option will trigger a querier update for faster multicast reconvergence. To use this feature, you also need to enable IGMP Querier functionality on the switch functioning as RedBox.	Parallel Redundancy Protocol (PRP) for IE 4000, IE 4010, and IE 5000 Device Manager Online Help
Multiple language support in software bundles for switch platforms listed	C 2020, IE 2000, IE 2000U, IE 3000, IE 4000 (IOS, IOx) IE 4010 IE 5000	There are two options: English only or All languages which includes English. All languages option includes all of the following languages in addition to English: Chinese (traditional and simplified), French, German, Japanese, Spanish (Latin America	Refer to Table 3Cisco IOS Software Image Files, page 6

Table 2   Localization Support for Device Manager Online Help

| 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 |

Express Setup Requirements

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

For a listing of Express Setup documentation, see .

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, Windows 10, or Mac OS 10.6.x

■ Web browser (Internet Explorer 10.0 or 11.0, or Firefox 48.x and above) 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

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 3 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: We now support multiple software bundles for most switch platforms that provide support for multiple language support. As noted in Table 3, there are two options: English only or All languages which includes English. All language support includes all of the following languages: (Spanish (Latin America), French, German, Chinese.

Table 3   Cisco IOS Software Image Files

File Name	Description
cgs2520-ipserviceslmk9-tar.152-6.EB.tar	CGS 2520 IP services image file
cgs2520-lanbaselmk9-tar.152-6.EB.tar	CGS 2520 LAN base image file
ie4010-universalk9_en-tar.152-6.EB.tar	IE 4010 Universal image file (English language only)
ie4010-universalk9-tar.152-6.EB.tar	IE 4010 Universal image file (All languages including English)
ie5000-universalk9_en-tar.152-6.EB.tar	IE 5000 Universal image file (English language only)
ie5000-universalk9-tar.152-6.EB.tar	IE 5000 Universal image file (All languages including English)

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 installing the combined tar file to the switch. You install the file on 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 3 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 4.

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 4.

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 4 Methods 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 4

Table 4   Methods for Assigning IP Information

Method	Platform	Document
Express setup program	IE 4010	Cisco IE 4010 Switch Hardware Installation Guide
	IE 5000	Cisco IE 5000 Hardened Aggregator Hardware Installation Guide
CLI-based setup program	CGS 2520	*Cisco CGS 2520 Hardware Installation Guide*
	IE4010	Cisco IE 4010 Switch Hardware Installation Guide
	IE 5000	Cisco IE 5000 Hardened Aggregator Hardware Installation Guide
DHCP-based autoconfiguration	CGS 2520	*CGS 2520 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	CGS 2520	*CGS 2520 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 10

- Open Caveats, page 10

- Resolved Caveats, page 10

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 5   Open Caveats in Cisco IOS Release 15.2(6)EB

Bug ID	Headline
CSCvh22332	Uplink combo ports go down when media-type RJ45 configured with speed change 100/1000 (IE2000U, IE4000, IE5000).
CSCvk62950	IE4K hung with specific GLC-T (30-1410-02) full metal SFP
CSCvm26319	Static IP address set from CIP doesn't persist through a power reset cycle - observed intermittently (IE2000, IE4000, IE4010 and IE5000)
CSCvm41964	Configuration Assembly: Default value of 'Base Module' needs to be changed in EDS files (IE4000, IE4010, IE5000)
CSCvn63351	Not able to configure through device manager after "ip http banner" is enabled

Resolved Caveats

Table 6   Resolved Caveats in Cisco IOS Release 15.2(6)EB

Bug ID	Headline
CSCvn04526	IE5000: 10G/1G Uplinks Corrupt PTP Time
CSCvn07951	IE5000: Uplinks Calibration Incorrect
CSCvn16406	'ptp vlan' and 'ptp sync limit' CLI commands enabled in P2P Transparent clock mode
CSCvn16438	PTP packets getting forwarded over STP blocked links
CSCvn28545	CSCvf94015: CGS 2520 Cisco IOS software Precision Time Protocol Denial of Service

Documentation Updates

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.

Related Documentation

Table 7   Related Documentation

Device or Feature	Related Documents
Cisco 2500 Series Connected Grid Switches	http://www.cisco.com/go/cgs2520
Cisco Ethernet Switch Module (ESM) for CGR 2010	http://www.cisco.com/go/cgr2000
Cisco Industrial Ethernet 4010 Series Switches	http://www.cisco.com/go/ie4010
Cisco Industrial Ethernet 5000 Series Switches	http://www.cisco.com/go/ie5000

Related Documentation