Release Notes for Cisco IOS Release 15.2(8)E8

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Cisco IOS Release 15.2(8)E8 runs on these platforms:

- Cisco 2500 Series Connected Grid Switches (CGS2520)
- Cisco Connected Grid Ethernet Switch Module (CGR2010 ESM)
- Cisco Embedded Service 2020 Series Switches (ESS2020)
- Cisco Industrial Ethernet 2000 Series Switches (IE2000)
- Cisco Industrial Ethernet 2000U Series Switches (IE2000U)
- Cisco Industrial Ethernet 4000 Series Switches (IE4000)
- Cisco Industrial Ethernet 4010 Series Switches (IE4010)
- Cisco Industrial Ethernet 5000 Series Switches (IE5000)

These release notes include important information about Cisco IOS Release 15.2(8)E8 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.
- If you are upgrading to a new release, see the software upgrade filename for the software version. See Deciding Which Files to Use, on page 3.

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

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

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

New Features in Cisco IOS Release 15.2(8)E8

There are no new features introduced in this release.

Device Manager Localization

Online help for the Device Manager is available in the following languages for the IE 2000, IE 2000U, IE 4000, IE 4010 and IE 5000 switches:

- 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)

Express Setup Requirements

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

For a listing of Express Setup documentation, see Installation Notes, on page 6.

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.

The following table 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.

Table 1: Cisco IOS Software Image Files

File Name	Description
cgs2520-ipserviceslmk9-tar.152-8.E8.tar	CGS 2520 IP services image file
cgs2520-lanbaselmk9-tar.152-8.E8.tar	CGS 2520 LAN base image file
c2020-universalk9-tar.152-8.E8.tar	ESS 2020 universal image file
ie2000-universalk9-tar.152-8.E8.tar	IE 2000 universal image file
ie2000u-ipserviceslmk9-tar.152-8.E8.tar	IE 2000U IP services image file
ie2000u-lanbaselmk9-tar.152-8.E8.tar	IE 2000U LAN base image file
grwicdes-ipserviceslmk9-tar.152-8.E8.tar	ESM IP services image file
grwicdes-lanbaselmk9-tar.152-8.E8.tar	ESM LAN base image file
ie4000-universalk9-tar.152-8.E8.tar	IE 4000 Universal image file
ie4010-universalk9-tar.152-8.E8.tar	IE 4010 Universal image file
ie5000-universalk9-tar.152-8.E8.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. See **Deciding Which Files to Use** 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 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 3 Methods for Assigning IP Information, page 8.
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 have 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 the following table.

Table 2: Methods for Assigning IP Information

Method	Platform	Document
Express setup program	IE2000	Cisco IE 2000 Switch Hardware Installation Guide
	ESM	Connected Grid Ethernet Switch Module Interface Card Getting Started Guide
	IE4000	Cisco IE 4000 Switch Hardware Installation Guide
	IE4010	Cisco IE 4010 Switch Hardware Installation Guide
	IE5000	Cisco IE 5000 Hardened Aggregator Hardware Installation Guide

Method	Platform	Document
CLI-based setup program	ESS2020	Cisco Embedded Service 2020 Series Software Configuration Guide
	IE2000	Cisco IE 2000 Switch Hardware Installation Guide
	IE2000U	Cisco IE 2000U Switch Hardware Installation Guide
	CGS2520	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.
	IE4000	Cisco IE 4000 Switch Hardware Installation Guide
	IE4010	Cisco Industrial Ethernet 4000, 4010 and 5000 Switch Software Configuration Guide
	IE5000	Cisco IE 5000 Hardened Aggregator Hardware Installation Guide

Method	Platform	Document
DHCP-based autoconfiguration	ESS2020	Cisco Embedded Service 2020 Series Software Configuration Guide
	IE2000	Cisco IE 2000 Series Switch Software Configuration Guide
	IE2000U	System Management Software Configuration Guide for Cisco IE 2000U and Connected Grid Switches
	CGS2520	CGS 2520 Switch Software Configuration Guide
	ESM	Cisco Connected Grid Ethernet Switch Module Interface Card Software Configuration Guide
	IE4000	Cisco Industrial Ethernet 4000 Series Switch Software Configuration Guide
	IE4010	Cisco Industrial Ethernet 4000, 4010 and 5000 Switch Software Configuration Guide
	IE5000	Cisco IE 5000 Hardened Aggregator Hardware Installation Guide

Method	Platform	Document
Manually assigning an IP address	IE2000	Cisco IE 2000 Series Switch Software Configuration Guide
	IE2000U	System Management Software Configuration Guide for Cisco IE 2000U and Connected Grid Switches
	CGS2520	CGS 2520 Switch Software Configuration Guide
	ESM	Cisco Connected Grid Ethernet Switch Module Interface Card Software Configuration Guide
	IE4000	Cisco Industrial Ethernet 4000 Series Switch Software Configuration Guide
	IE4010	Cisco Industrial Ethernet 4000, 4010 and 5000 Switch Software Configuration Guide
	IE5000	Cisco IE 5000 Hardened Aggregator Hardware Installation Guide

Documentation Updates

- On all IoT switches: As part of tightening security, **enable secret 0**, will automatically be converted to authentication type ‘9’ in Cisco IOS release 15.2(7)E3 and later. When ‘Type 9’ encryption is enabled on low-end platforms (CGS2520, IE 2000, and IE 2000U), Device Manager users will experience an approximate delay of two minutes before the Device Manager pages open.

  To workaround this issue, Device Manager users on low-end platforms are advised to configure authentication type ‘5’ using the CLI command: **enable algorithm-type md5 secret** <password>.

- Existing Cisco IOS software checks the SPI flash manufacturer ID before it uses the SPI flash to store the FPGA bitstream. The new SPI Flash component used on the new CGR 2010 Grid Router WAN interface Card (GRWIC) units does not work with old Cisco IOS releases.

  To address this issue, a CLI utility is introduced in Cisco IOS Release15.2(8)E that you can use to download any given FPGA bitstream image to SPI flash on the CGR 2010 Grid Router WAN interface Card (GRWIC). This utility allows you to continue to run a qualified old Cisco IOS version on the new GRWIC units, after you run 15.2(8)E and use the utility to manually program the FPGA bitstream matching the old Cisco IOS version. See details on using the utility in the next section.

  For information about the CGR 2010, see Cisco Connected Grid Router 2010 Software Configuration Guide.

Using the FPGA Upgrade Utility for GRWIC Modules

Follow these steps to reload a new GRWIC module with an old Cisco IOS image matching the old FPGA file.

1. Load the 15.2(8)E3 image on the GRWIC that has the new SPI Flash component.
2. Enter

   fpga_upgrade flash <filename>

   to program the new SPI flash of the new GRWIC with the user specified FPGA file at the specified path as shown in the following example:

```
Switch#fpga_upgrade?
flash: File to be upgraded
nvram: File to be upgraded
obfl0: File to be upgraded
Switch#fpga_upgrade flash:grwicdes-ipservicesk9-mz.152-4.EA5/fpga
System will reload after the FPGA upgrade/downgrade.
Do you want to proceed? [yes/no]: yes
FPGA Multiboot: new image size 0x00212B68
FPGA Multiboot: new image version 0x00030700
FPGA Multiboot: new image date 10-4-2013 (0x000A27DD)
Checking for FPGA upgrade.. (flash:grwicdes-ipservicesk9-mz.152-4.EA5/fpga)
FPGA Multiboot: running image rev: 0x00030800
FPGA Multiboot: running image date: 0x000C67E2
Upgrading/downgrading FPGA from 0x00030800 to 0x00030700
Erasing sectors.................................
Writing fpga image..............................
System is resetting..
Received FPGA upgrade request for module GRWIC-D-ES-2S-8PC on slot 0
Current Running Image:
Release Status: Official Release Image
Major Version: 3
Minor Version: 8
Debug Version: 0
Version Date: 2018-12-12
Upgrade Image:
Release Status: Official Release Image
Major Version: 3
Minor Version: 7
Debug Version: 0
Version Date: 2013-10-4
FPGA image upgrade for slot 0 succeed!!!
Current Running Image:
Release Status: Official Release Image
Major Version: 3
Minor Version: 7
Debug Version: 0
Version Date: 2013-10-4
Using driver version 3 for media type 1
Base ethernet MAC Address: 54:a2:74:3e:02:80
Xmodem file system is available.
The password-recovery mechanism is enabled.
Initializing Flash...
mifs[2]: 13 files, 1 directories
mifs[2]: Total bytes : 1806336
mifs[2]: Bytes used : 886272
mifs[2]: Bytes available : 920064
mifs[2]: mifs fsck took 1 seconds.
mifs[3]: 188 files, 24 directories
mifs[3]: Total bytes : 63092736
mifs[3]: Bytes used : 54162944
```

```
mifs[3]: Bytes available : 8929792
mifs[3]: mifs fsck took 26 seconds.
...done Initializing Flash.
done.
```

3. After the FPGA upgrade/downgrade for the old Cisco IOS (the required IOS version) is completed, load the old Cisco IOS as shown in the following example:

```
switch#conf t
switch(config)#boot system
flash:/grwicdes-ipservicesk9-mz.152-4.EA5/grwicdes-ipservicesk9-mz.152-4.EA5.bin
switch(config)#end
switch#wr mem
switch#reload
```

Caveats

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 3: Open Caveats in Cisco IOS Release 15.2(8)E8

Bug ID	Headline
CSCvu66982	Delay in loading WebUI on low-end devices when type 9 encryption is enabled (IE2000, IE3000)

Resolved Caveats

Table 4: Resolved Caveats in Cisco IOS Release 15.2(8)E8

Bug ID	Headline
CSCwn39424	Port Channel Suspended state when REP configuration is removed.
CSCwn50266	IE-2000-16TC-G - REP ring does not work properly on ports F1/17 and F1/18.

Bug ID	Headline
CSCwk82451	hulc_sfp_iic_intf_read_eeprom sfp _index 15 yeti_iic_read_retry fail - After upgrading to 15.2(8)E3.
CSCwo94999	IE4000: Ring devices become unreachable from DNAC while creation and deletion of rep ring.
CSCwk90481	"downshift-disable" CLI is not retained after stack full reload/power cycle for 1G in 10G SFP ports.
CSCwj21626	“No encapsulation priority tagged” command is getting added automatically on stack device.
CSCwo45234	IE4010 fails to pass packets with VLAN 0 tag unless the "switchport voice vlan dot1p" is enabled.

Related Documentation

Table 5: 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 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

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