Release Notes for the Cisco ME 3800X, ME 3600X and ME 3600X-24CX Switch, Cisco IOS Release 15.2(2)S and Later Releases

January 23, 2013

These release notes include important information about the following Cisco IOS releases that run on the Cisco ME 3800X, ME 3600X and ME 3600X-24CX switches:

- Cisco IOS Release 15.2(2)S
- Cisco IOS Release 15.2(2)S1
- Cisco IOS Release 15.2(2)S2

These release notes also include the limitations, restrictions, and caveats that apply to these releases.

You can verify that these release notes apply to your switch as follows:

- 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** privileged EXEC command. See the "Finding the Software Version and Feature Set" section on page 6.
- If you are upgrading to a new release or a different image, see the software upgrade filename for the software version. See the "Deciding Which Files to Use" section on page 7.

For the complete list of Cisco ME 3800X, ME 3600X and ME 3600X-24CX switch documentation, see the "Related Documentation" section on page 18.

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

http://www.cisco.com/cisco/software/navigator.html?a=ahttp://www.cisco.com/cisco/web/download/index.htmli=rpm

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Hardware Supported

Table 1 Supported Hardware

Device	Description
Cisco ME-3800X-24FS-M	24 Gigabit Ethernet SFP downlink ports and 2 SFP+ (10 Gigabit) uplink ports; supports removable, hot-swappable AC- and DC-input power supplies and fan modules.
Cisco ME-3600X-24FS-M	24 Gigabit Ethernet SFP downlink ports and 2 SFP+ (10 Gigabit) uplink ports; supports removable, hot-swappable AC- and DC-input power supplies. and fan modules
Cisco ME-3600X-24TS-M	24 1000BASE-T copper downlink ports and 2 SFP+ (10 Gigabit) uplink ports; supports removable, hot-swappable AC- and DC-input power supplies and fan modules.
Cisco ME-3600X-24CX-M	**IO mode 1** 16 Gigabit Ethernet SFP downlink ports, 8 SFP/copper downlink ports and 2 XFP (10 Gigabit) uplink ports;16 T1/E1 interfaces and 4 OC3 interfaces; supports removable, hot-swappable AC and DC input power supply and fan modules. **IO mode 2** 4 SFP/copper downlink ports and 4 XFP (10 Gigabit) uplink ports;16 T1/E1 interfaces and 4 OC3 interfaces; supports removable, hot-swappable AC and DC input power supply and fan modules.
SFP+ modules	SFP-10GE-SR, SFP-10GE-LR, SFP-10GE-LRM, SFP-H10GB-CUxM, SFP-10G-ER, SFP-10G-ZR
SFP modules	GLC-FE-100FX, GLC-FE-100EX, GLC-FE-100ZX, GLC-FE-100LX, GLC-FE-100BX-U, GLC-FE-100BX-D, GLC-LH-SM, GLC-SX-MM, GLC-EX-SMD, GLC-ZX-SM, GLC-T, CWDM-SFP-1470, CWDM-SFP-1490, CWDM-SFP-1510, CWDM-SFP- 1530, CWDM-SFP-1550, CWDM-SFP-1570, CWDM-SFP-1590, CWDM-SFP-1610, GLC-BX-U, GLC-BX-D, SFP-GE- L,SFP-GE-S, SFP-GE-T, DWDM-SFP-xx
SFP modules supported on Cisco ME-3600X-24CX	GLC-FE-100FX-RGD, GLC-FE-100LX-RGD, GLC-LX-SM-RGD, GLC-SX-MM-RGD, GLC-ZX-SM-RGD, GLC-BX-U, GLC-BX-D, and GLC-EX-SMD

Table 1 Supported Hardware

Device	Description
XFP modules supported on Cisco ME-3600X-24CX	XFP-10G-MM-SR, XFP-10GLR-OC192SR-RGD, XFP-10GER-OC192IR-RGD, XFP-10GZR-OC192LR-RGD, XFP-10GZR-OC192LR, XFP-10GER-192IR-L, XFP-10GLR-192SR-L, DWDM-XFP-C
Cables	SFP interconnect cable (50 cm) 1-meter, 3-meter, and 5-meter copper SFP+ cables

Software Licenses and Features

If you have a service support contract and order a software license or if you order a switch, you receive the universal software image, available in crypto and noncrypto versions. If you do not have a service support contract, such as a SMARTnet contract, download the image from Cisco.com.

The ME 3600X supports these licenses:

- Metro IP access is the universal image.
- Advanced Metro IP access license.
- 10 Gigabit Ethernet upgrade license—enables 10 Gigabit Ethernet on the SFP+ uplink ports.

For differences in feature support for each license, see Table 2 and Table 3 on page 5.

The ME3600X-24CX supports the above licences plus

- 10G license
- 1588BC license
- T1/E1 counted license

The ME 3800X supports these licenses plus a scaled license that can be installed with any of these licenses to increase the supported values for that license, for example, more MAC addresses, VLANs, IPv4 routes, and so on.

- Metro Ethernet services is the universal image.
- Metro IP services license.
- Metro Aggregation services license.
- Scaled license for any of the above licenses

For differences in feature support for each license, see Table 4 and Table 5 on page 5.

To install a software image, see the "Upgrading the Switch Software" section on page 6 and the "Working with the Cisco IOS File System, Configuration Files, and Software Images" chapter in the software configuration guide.

To install a software license, see the "Cisco IOS Software Activation Tasks and Commands" chapter in the Cisco IOS Software Activation Configuration Guide:

http://www.cisco.com/en/US/docs/ios/csa/configuration/guide/12.4T/csa_book.html

An emergency evaluation license is embedded in the software image and does not require the installation of a license file. Specify which evaluation license to enable by using the **license boot level** command.

Enabling evaluation license on an ME 3800X:

```
ME3800X# configure terminal
ME3800X(conf)# license boot level <MetroEthServices|MetroIPServices|MetroAggrServices>
```

Note Only MetroAggrServices is supported during evaluation. Accept the EULA.

```
ME3800X(conf)# exit
ME3800X# write memory
ME3800X# reload
Note: This evaluation license will be validated only after reload.
```

Enabling evaluation license on an ME 3600X:

```
ME3600X# configure terminal
ME3600X(conf)# license boot level <MetroIPAccess|AdvancedMetroIPAccess>
```

Note Only AdvancedMetroIPAccess is supported during evaluation. Accept the EULA.

```
ME3600X(conf)# exit
ME3600X# write memory
ME3600X# reload
Note: This evaluation license will be validated only after a reload.
```

After entering the license boot level command, you are prompted to accept the End-User Licensing Agreement (EULA). After accepting the EULA, exiting configuration mode, and saving the running configuration to memory, reload the switch to apply the evaluation license.

Note The evaluation period is valid for 60 days. When the 60 day evaluation period ends, the evaluation license is unusable after the next reload.

Upon installation of a license file, the license will automatically update to the new license type. There is no need to clear the evaluation license.

Table 2 ME 3600X Supported Features per License

Metro IP Access (Universal Image)	Advanced Metro IP Access license
• Basic Layer 2 features (including 802.1Q) • Ethernet Virtual Circuits (EVCs) • IPv4 routing—RIP, OSFP, EIGRP, IS-IS, and BGP • Bidirectional Forwarding Detection (BFD) • Multicast routing —PIM, DM, SSM, and SSM mapping • Ethernet Operations, Administration, and Maintenance (OAM)—802.1ag, 802.3ah, and E-LMI • Multiple Spanning Tree Protocol (MSTP), Resilient Ethernet Protocol (REP), and Flex Links • Synchronous Ethernet with Ethernet Synchronization Messaging Channel (ESMC) • Multi VRF-CE (VRF-Lite) with service awareness (ARP, ping, SNMP, syslog, traceroute, FTP and TFTP) • Switch Database Management (SDM) templates	• All features in the Metro IP Access image • Multiprotocol label switching (MPLS) • MPLS traffic engineering and Fast Reroute • MPLS OAM • MPLS VPN • Ethernet over MPLS (EoMPLS) • Pseudowire redundancy • Virtual Private Lan Service (VPLS)

Table 3 ME 3600X License Scaling and template

Supported feature	Metro IP Access		Advanced Metro IP Access	
SDM Templates	Default	IPv4	Default	IPv4
MAC addresses	8 K	8k	16 K	16 K
IPv4 routes	20 K	24K	20 K	24 K
IPv4 routing groups	1 K	1K	1 K	1 K
IPv6 routes	5 K	4 K	5 K	3 K
Multicast groups	1 K	1 K	1 K	1 K
Bridge domains	4 K	4 K	4 K	4 K
ACL entries	2 K	2 K	2 K	2 K
IPv4 QoS classification	4 K	4 K	4 K	4 K

Table 4 ME 3800X Supported Features per License

Metro Ethernet Services (Universal Image)	Metro IP Services license	Metro Aggregation Services license
• Basic Layer 2 features (including 802.1d and 802.1Q) • EVCs • Ethernet OAM—802.1ag, 802.3ah, and E-LMI • MST, REP, Flex Links • Synchronous Ethernet with Ethernet Synchronization Messaging Channel (ESMC)	• All features in the Metro Ethernet Services image • IPv4 routing—RIP, OSFP, EIGRP, IS-IS, and BGP • BFD • Multicast routing—PIM, DM, SSM, and SSM mapping • Multi VRF-CE with service awareness (ARP, ping, SNMP, syslog, traceroute, FTP and TFTP)	• All features in the Metro IP Services license • MPLS • MPLS traffic engineering and Fast Reroute • MPLS OAM • MPLS VPN • EoMPLS • Pseudowire redundancy • Virtual Private Network (VPLS)

Table 5 ME 3800X License Scaling

Supported feature	Metro Services	Scaled Metro Services	Metro IP Services	Scaled Metro IP Services	Metro Aggregation Services	Scaled Metro Aggregation Services
MAC table addresses	64 K	128 K	32 K	64 K	128 K	256 K
IPv4 routes	1 K	1 K	42 K	80 K	24 K	32 K
IPv4 multicast groups and routes	0	0	2 K	4 K	2 K	4 K
IPv6 routes	500	500	21 K	40 K	12 K	16 K
Layer 2 multicast entries	2 K	4 K	2 K	2 K	2 K	4 K
Bridge domains	4 K	4 K	2 K	2 K	4 K	8 K

Table 5 ME 3800X License Scaling

Supported feature	Metro Services	Scaled Metro Services	Metro IP Services	Scaled Metro IP Services	Metro Aggregation Services	Scaled Metro Aggregation Services
ACL entries	4 K	8 K	4 K	8 K	4 K	16 K
IPv4 QoS classification	4 K	4 K	4 K	4 K	4 K	24 K

Table 6 ME 3800X Scaled Metro Aggregation templates

Supported feature	Scaled Metro Aggregation Service License		
SDM Templates	Default	VPNv4	VPNv4+IPv6
MAC table	256 K	256 K	256 K
IPv4 routes	32 K	80 K	80 K
IPv4 routing groups	4 K	8K	2 K
IPv6 routes	16 K	8 K	40 K
Multicast groups	4 K	4 K	2 K
Bridge domains	8 K	4 K	8 K
ACL entries	16 K	4 K	4 K
IPv4 QoS classification	24 K	12 K	12 K

Upgrading the Switch Software

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. The image is stored on the system board flash device (flash:).

Note The flash memory can store a maximum of two IOS images or tar files. If you try to copy or archive upgrade beyond the flash memory capacity, the action aborts.

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 that you might have stored in flash memory.

Deciding Which Files to Use

The software installation 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. To upgrade the switch through the command-line interface (CLI), use the tar file and the **archive download-sw** privileged EXEC command.

Table 7 Cisco IOS Software Image Files

Filename	Description
me380x-universal-tar.152-2.S.tar me380x-universal-tar.152-2.S1.tar me380x-universal-tar.152-2.S2.tar	Cisco ME 3800X universal images.
me380x-universalk9-tar.152-2.S.tar me380x-universalk9-tar.152-2.S1.tar me380x-universalk9-tar.152-2.S2.tar	Cisco ME 3800X universal cryptographic images. These images have the Metro Ethernet features plus Kerberos and SSH.
me360x-universal-tar.152-2.S.tar me360x-universal-tar.152-2.S1.tar me360x-universal-tar.152-2.S2.tar	Cisco ME 3600X universal images.
me360x-universalk9-tar.152-2.S.tar me360x-universalk9-tar.152-2.S1.tar me360x-universalk9-tar.152-2.S2.tar	Cisco ME 3600X universal cryptographic images. These images have the Metro IP access features plus Kerberos and SSH.

Note If you have problems during the installation and receive error messages, you may need a reduced size tar file. Please email whales-system@cisco.com for details.

Installing Software Images and Licenses

The switch is shipped with the latest software image installed. Follow the instructions in this section if you need to reinstall or upgrade the software image.

Before installing your switch software, make sure that you have archived copies of the current Cisco IOS release and the Cisco IOS release to which you are upgrading. You should keep these archived images until you have upgraded all devices in the network to the new Cisco IOS image and until you have 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 more information:

http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps6969/ps1835/prod_bulletin0900aecd80281c0e.html

You can copy the software image file on the flash memory to the appropriate TFTP directory on a host by using the **copy flash: tftp:** privileged EXEC command. 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. For more information about the **tftp-server** command, see the "Basic File Transfer Services Commands" section of the *Cisco IOS Configuration Fundamentals Command Reference, Release 12.2* at this URL:

http://www.cisco.com/en/US/docs/ios/fundamentals/command/reference/cf_t1.html

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:

Step 1 Use Table 7 on page 7 to identify the file that you want to download.

Step 2 Locate the software image file:

a. If you are a registered customer, go to this URL and log in.

http://www.cisco.com/cisco/software/navigator.html?a=ahttp://www.cisco.com/cisco/web/download/index.html&i=rpm

b. For ME 3800X, navigate to **Switches > Service Provider Switches - Ethernet Aggregation**.

For ME 3600X, navigate to **Switches > Service Provider Switches - Ethernet Access**.

c. Navigate to your switch model.

d. Click **IOS Software**, then select the latest IOS release.

Note When you select a crypto image, you must also accept the terms and conditions of using crypto images.

Step 3 Download the image to a TFTP server and make sure that the server is properly configured.

For more information, refer to Appendix B in the software configuration guide for this release.

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

Step 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, refer to the software configuration guide for this release.

Step 6 Download the image file from the TFTP server to the switch by entering this privileged EXEC command:

```
Switch# archive download-sw tftp:[[//location]/directory]/image-name.tar
```

- For **//***location*, specify the IP address of the TFTP server.
- For **/***directory***/***image-name***.tar**, specify the directory (optional) and the image to download. Directory and image names are case sensitive.
- The **/overwrite** option overwrites the software image in flash memory with the downloaded one.
- The **/reload** option reloads the system after downloading the image unless the configuration has been changed and not saved.

This example shows how to download an image from a TFTP server at 198.51.100.1 and to overwrite the image on the switch:

```
Switch# archive download-sw /overwrite tftp://198.51.100.1/image-name.tar
```

You can also download the image file from the TFTP server to the switch and keep the current image by using the **/leave-old-sw** option instead of the **/overwrite** option.

Note There can be only two image directories in flash memory.

The installation process extracts the tar file with all the files and the IOS image, and sets the BOOT directory to the created directory in flash memory. The process takes approximately 5 to 10 minutes, and at some stages might appear to have stopped.

Step 7 The switch is configured to boot automatically, but you can enter the **show boot** privileged EXEC command to verify the boot path list and see if a manual boot is necessary.

```
Switch# show boot
BOOT path-list      :
flash:/me380x-universal-mz.151-2.EY/me380x-universal-mz.151-2.EY.bin
Config file         :    flash:/config.text
Private Config file : flash:/private-config.text
Manual Boot         : no
HELPER path-list    :
```

Step 8 Save the configuration and reload the switch.

```
Switch# reload
```

After the installation, the switch is running the universal image. Follow these steps to install a purchased license with increased capabilities. To purchase a license, contact Cisco.

Step 1 Copy the license file to flash or TFTP.

Step 2 Enter the command to install the license:

```
Switch# license install flash:LICENSE_FILENAME
or
Switch# license install tftp://location/LICENSE_FILENAME
```

Step 3 Enter these commands to boot from the new license:

```
Switch# configure terminal
Switch(config)# license boot level license_name
```

Step 4 If you have a a scaled license, install the scaled license

```
Switch# license install flash:SCALED_LICENSE_FILENAME
or
Switch# license install tftp://location/SCALED_LICENSE_FILENAME
```

Note To revert to a non-scaled license, enter the **license clear** *scaled_license_name* privileged EXEC command.

Step 5 Reload the switch for new license to take effect.

```
Switch# reload
```

Installation Notes

You can assign IP information to your switch by using these methods:

- The CLI-based setup program, as described in the switch hardware installation guide.
- The DHCP-based autoconfiguration, as described in the switch software configuration guide.
- Manually assigning an IP address, as described in the switch software configuration guide.

New Software Features

Cisco IOS Release15.2(2)S

The following are the new software features introduced in Cisco IOS Release 15.2(2)S.

Access Switch Device Manager (SDM) Template—The SDM templates are used to optimize system resources in the switch to support specific features, depending on how the switch is used in the network. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swsdm.html

Control Plane Policing—The control plane policing (CoPP) feature increases security on the switch by protecting the RP from unnecessary or DoS traffic and giving priority to important control plane and management traffic. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swcopp.html

DHCP Snooping—The DHCP snooping feature is a DHCP security feature that provides network security by filtering untrusted DHCP messages and by building and maintaining a DHCP snooping binding database.

When dhcp snooping is enabled on 1 or more vlans, and an IOS ACL rule is applied to deny dhcp traffic, however the dhcp traffic and dhcp snooping bindings can still be established. This occurs on ME3600/ME3800 running IOS 15.2S.

For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swdhcp82.html

DHCPV6 Support—DHCPv6 enables DHCP servers to pass configuration parameters, such as IPv6 network addresses, to IPv6 clients. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swipv6.html

Embedded Event Manager (EEM) 4.0—Embedded Event Manager (EEM) is a distributed and customized approach to event detection and recovery within Cisco IOS device. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/sweem.html

IGMP Snooping over PW— IGMP snooping constrains the flooding of multicast traffic by dynamically configuring Layer 2 interfaces so that multicast traffic is forwarded to only those interfaces associated with IP multicast devices. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swigmp.html

IGMP Snooping v1, v2, v3 for Aggregated Links and LAG—For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swigmp.html

IPv4 Multicast per VRF—For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swiprout.html

IPv6 Routing: Unicast Routing—For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swipv6.html

IRB Multicast—Enables multicast support in the presence of routing configuration under SVI when multiple efps are present in the bridge domain. For details about this feature see:

http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swevc.html

L2&L3 QoS ACL Classification for EVC—This feature enables L2 and L3 QoS classification for EVC. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swacl.html

L4 Port Match in QoS ACL—For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swqos.html

MAC Limiting per VFI and BD—Mac Limiting per VFI and BD feature restricts the total number of mac addresses learned globally under a particular bridge domain or VLAN. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swadmin.html

Min Link Support for Port Channel—This feature allows you to configure the minimum number of member ports that must be in the link-up state and bundled in the EtherChannel for the port channel interface to transition to the link-up state. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swethchl.html

PIM Snooping—PIM snooping feature allows the switch to restrict multicast packets for each IP multicast group to only those multicast router ports that have downstream receivers joined to that group. When you enable PIM snooping, the switch learns which multicast router ports need to receive the multicast traffic within a specific VLAN by listening to the PIM hello messages, PIM join and prune messages, and bidirectional PIM designated forwarder-election messages. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swsnooppim.html

Table Map Support—You can use table maps to manage a large number of traffic flows with a single command. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swqos.html

V6 Security ACL for EVC—When the switch is running the metro IP access image, you can filter IP Version 6 (IPv6) traffic by creating IPv6 access control lists (ACLs) and applying them to interfaces similar to the way that you create and apply IP Version 4 (IPv4) named ACLs. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swv6acl.html

Y.1731 Performance Monitoring—Y.1731 Performance Monitoring (PM) provides a standard ethernet PM function that includes measurement of ethernet frame delay, frame delay variation, frame loss, and frame throughput measurements specified by the ITU-T Y-1731 standard and interpreted by the Metro Ethernet Forum (MEF) standards group. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swy1731PM.html

Note The IPv6 Provider Edge (6PE) and IPv6 VPN Provider Edge (6VPE) features are not supported in this release.

Cisco IOS Release 15.2(2)S1

The following are the new software features introduced in Cisco IOS Release 15.2(2)S1.

DAI (Dynamic ARP Inspection)—DAI is used to verify the sanity of IP to MAC address mappings specified in ARP packets sent by connected hosts or neighboring switches. This prevents man in the middle attacks that can be carried out by poisoning ARP with the help of ARP packets containing invalid IP to MAC address mappings. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swdynarp.html

Multicast VPN (MVPN)—The MVPN feature provides the ability to support multicast over a Layer 3 Virtual Private Network (VPN). For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swmcast.html

Table Map QoS functionality—Enhancement to existing feature. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/configuration/guide/swqos.html

BFD–BFD Hardware Offload Support—This feature provides support of BFD sessions in ME3600X-24CX hardware supporting offloading of BFD sessions. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/chassis/configuration/guide/swbfd.html

Circuit Emulation over Packet Switched Network (CEoPSN)—This feature provides support for CEoPSN over MPLS on ME-3600X-24CX switch. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/chassis/configuration/guide/swpseudowire.html

SAToP over MPLS—This feature provides support for SAToP over MPLS on ME3600X-24CX switch. For details about this feature see:
http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/chassis/configuration/guide/swpseudowire.html

Synchronous Ethernet (SyncE): ESMC—Supports Ethernet Synchronization Message Channel (ESMC) control protocol for SyncE to synchronize clock frequency over an Ethernet port with quality level selection on ME-3600X-24CX. For details about this feature see: http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/chassis/configuration/guide/swclocking.html

T1/E1 support on ME-3600-24CX—This feature provides support for T1/E1 ports on ME3600C-24CX switch. For details about this feature see: http://www.cisco.com/en/US/docs/switches/metro/me3600x_3800x/software/release/15.2_2_S/chassis/configuration/guide/sw_T1-E1.html

Note The IPv6 Provider Edge (6PE) and IPv6 VPN Provider Edge (6VPE) features are not supported in this release.

Important Note

- Switch Port Analyzer (SPAN) is not supported.
- DAI (Dynamic ARP Inspection)—When an ARP request packet with invalid IP sender address (or reply with invalid target IP) is received on ingress VLAN enabled for ARP inspection, DHCP snooping binding permit counts increment along with the IP validation failure counts. ARP packet is dropped but DHCP bindings indicate it is permitted.

Open Caveats

The following section provides information on open caveats:

- Open Caveats for Cisco IOS Release 15.2(2)S2, page 13

Open Caveats for Cisco IOS Release 15.2(2)S2

- CSCtz57811

  Exception during statistics event under certain config changes.

  Exception crash occurs while configuring CEM.

  Conditions: While changing the controller from SAToP CEM circuits to CESoPSN CEM circuit (or vice-versa) on the fly, an exception crash is observed.

  Workaround: If the CEM interface mode needs to be changed from SAToP to CESoPSN or vice-versa, unconfigure the current mode, save the config and reload the box, then configure the interfaces with the new mode.

- CSCtz0335

  EVC ACL is not working with certain sequence.

  Traffic is not be subjected to ACL if the security ACL is applied in a certain sequence.

  Conditions: First apply the ACL on EVC and then configure on ACL globally.

  Workaround: Remove the ACL and add it back.

- CSCtz08580

  Classification does not work on some of the EVCs on deleting one EVC.

  Upon removal of the EVC from the interface, classification doesn't work on some of the EVCs.

  Conditions: The EVC has been removed from the interface.

  Workaround: Remove the service-policy and add it back.

- CSCtz90354

  Unable to remove platform QoS policer CPU once configured.

  Conditions: The platform QoS police CLI cannot be removed.

  Workaround: Configure the default values using the same CLI.

- CSCua17894

  Not able to attach the service-policy output for QoS

  Conditions: Load the config and start the traffic. Attach the service-policy input map on the interface. Now try to attach the service-policy output map on the different interface.

  Workaround: None

- CSCty18509

  Traffic is flowing back to the source port.

  On an SRC port as EFP, when toggling IGMP, snooping traffic is being sent back to the source port which is not an expected behavior.

  Conditions: On a VLAN as RPF interface with snooping enabled. When snooping is disabled, the issue appears.

  Workaround: Run the following command: clear ip mroute *

- CSCtw50289

  ASIC labeled BGP scale restricted to 8k.

  The current implementation of egress label storing cannot scale more than 8k ibgp+label scale.

  Conditions: Scale setup with more than 8k of ibgp+label.

  Workaround: None.

- CSCtw86851

  EVC shaper does not affect SSM mcast traffic or breaks it when removed.

  Conditions: When a service policy is applied on EVC and this EVC part of SVI with l3 multicast enabled. The issue appears only with multicast traffic.

  Workaround: Remove/add ip pim sparse-dense-mode from SVI interface.

- CSCtz12718

  MAC move from EVC BD to switchport does not work.

  Traffic drops when MAC is moved from EFP to switchport.

  Conditions: Layer2 interface as EFP; switchport on two paths; layer3 interfaces as SVI; switching traffic from EFP to switchport.

  Workaround: None.

- CSCtz36779

  Enable BFD triggered FRR in the Cisco ME 3800X and ME 3600X switches.

BFD triggered FRR, which is not supported.

Conditions: Occurs when session goes down.

Workaround: None.

- CSCtz91683

  Memory corruption occurring with MPLS-TP config.

  Deletion of MPLS-TP tunnel interface causes memory corruption and memory leak.

  Workaround: None.

- CSCua13679

  L3 port channel stays down for more than a minute on changing MTU.

  Upon changing the MTU, the port channel stays down for more than a minute.

  Conditions: Only seen with L3 port channel.

  Workaround: None.

- CSCty82786

  After removing and adding a VLAN to the database, MAC limit shutdown no longer works.

  Conditions: The issue is seen only after removing and adding a VLAN to the database.

  Workaround: None.

- CSCtz45487

  Packet loss observed when modifying allowed VLANs on trunk.

  REP flaps when modifying allows VLANs on REP enabled trunk.

  Conditions: This symptom appears under the following conditions:

  - Vlan dot1q tag native must be configured globally.
  - Issue does not occur when native VLAN is 1 on REP trunk.
  - Issue is seen on Cisco IOS Releases 15.2(2)S, 15.1(2)EY2a and earlier Cisco IOS 15.1(2)S releases.
  - Issue is not seen on Cisco IOS Release 12.2(52)EY4 and earlier Cisco IOS 12.2(52)EY releases.

  Workaround:

  - Remove vlan dot1q tag native global configuration.
  - Change to native VLAN 1 on the REP enabled trunks.
  - Change to Cisco IOS Release 12.2(52)EY.

- CSCtz67403

  The Cisco ME 3600X as the core switch drops all BPDU coming in QnQ tunnel.

  Conditions: This symptom occurs on a Cisco ME 3600X switch that is the core and the Cisco ME 3400 switches are edge switches.

  Workaround: None.

- CSCtz75093

  Traffic is passed over BD even after hitting MAC limit action shutdown.

  Conditions: None.

  Workaround: None.

- CSCtz58189

  The Cisco ME 3600X crashes on configuration replace with QoS configs.

  Upon using the config replace command with certain QoS configured, the Cisco ME 3600X crashes.

  Conditions: Crash is observed when certain QoS are configured on the box and are replaced with the configuration which is removing the configs.

  Workaround: None.

- CSCtz90328

  On the Cisco ME 3600X, multicast traffic stops on removing the QoS policy-map.

  Upon removal of the QoS policy-map from the service instance, multicast traffic stops for some time because of CPU hog.

  Conditions: When the multicast traffic is bursty and is oversubscribing the queue.

  Workaround: None.

- CSCty82122

  Tracebacks observed while configuring IRB multicast (enabling multicast on SVI with EFP part of it) on the Cisco ME 3600X.

  Conditions: Observed when specific configuration is loaded and traffic is started.

  Workaround: None.

- CSCtz12242

  MPLSTP-PROT: Few frames are dropped when sending multiple tagged frames.

  In an SVI configuration, a few frames are dropped when sending multiple tagged frames.

  Conditions: When the test set is configured to continuously increment the VLAN of the frames being sent, then we see a drop of a few frames. This is not seen when traffic only of a single frame size is sent.

  Workaround: None.

- CSCtz61032

  Xconnect traffic routed if MTU exceeds core MTU in case of MPLSoSVI.

  An IP look up is done on the xconnect traffic which should not happen.

  Conditions: MPLS is configured on SVI and MTU exceeds the core MTU.

  Workaround: MPLS over SVI is not supported.

- CSCub34595

  Enabling DAI on a VLAN may cause ARP resolution to fail for other VLAN.

  Enabling Dynamic ARP Resolution (DAI) on a VLAN may cause ARP resolution to fail for hosts on other VLANs.

  Conditions: None.

  Workaround: Enable DAI for the failing VLAN with IP ARP inspection trust.

- CSCty09682

  On the Cisco ME 3800X, REP Primary edge fails to come up on reload.

  REP Primary edge fails to take part in REP.

  Conditions: Occurs upon reload.

Workaround: Flap the interface and it will converge.

- CSCty35134

  On the Cisco ME 3800X, REP ENN fails to forward packets if STP blocks the REP ENN port.

  Data traffic out of REP EdgeNoNeighbor fails to flow.

  Conditions: This symptom is observed when MST runs on the node when rep stcn stp is configured. If the MST puts this port to BLK, then REP EdgeNN stops forwarding traffic.

  Workaround: When having rep stcn stp configured on the rep port, there should not be a topology such that MST puts this port to blocking.

- CSCtz91502

  Unicast met shows multiple ReplicationContextQueueEntry.

  Unicast met shows multiple ReplicationContextQueueEntry and traffic is flooded to all ports in the VLAN.

  Conditions: The issue is seen when a access port is in the same VLAN as the rep segment, and a rep flap is seen.

  Workaround: Clear mac-address table fixes the CQE entries.

- CSCua98421

  CFM does not work when QoS entries are already programmed.

  RMEPs from an ASR9K are not learned on a Cisco ME 3800X with CFM running over a xconnect. The ASR9K does learn the RMEPs from the Cisco ME 3800X.

  Conditions: Have QoS enabled on the Cisco ME 3800X prior to enabling CFM.

  Workaround: Apply CFM config before QoS or reload the switch with both QoS and CFM enabled in the config.

- CSCub22923

  RFC2544 Frame Loss Issues.

  Issues included: packet drops that had to be resolved using queue-limits; frame drops; out-of-sequence packets that had to be solved by removing the queue-limits; and removal of Q-in-Q configs, replaced by normal tag re-writing.

  Conditions: None.

  Workaround: None.

- CSCub31592

  Forwarding on EVC on Cisco ME 3800X broken after interface flap.

  After the flap of the interface with EVC configured, the Cisco ME 3800X is no longer adding a second tag to the traffic. Forwarding is broken.

  Conditions: Occurs upon flap of the interface.

  Workaround: None.

- CSCub31622

  RSTP BPDUs are not being tunneled over xconnect.

  Conditions: This has been observed on 15.1(02)EY02a, 15.1(02)EY3 and 15.2(2)S1 with the following configuration on the Cisco ME 3800X:

```
int gix/x
 service instance 100
```

```
 encapsulation default
 l2protocol tunnel
 bridge-domain 500

int vlan 500
platform rewrite imposition tag push 1 symmetric
xconnect x.x.x.x 500 encapsulation mpls
```

This may create STP inconsistency and blocked VLANs on the CE side.

Workaround: None.

Related Documentation

These documents provide complete information about the switch and are available from these Cisco.com sites:

ME 3800X switch:
http://www.cisco.com/en/US/products/ps10965/tsd_products_support_series_home.html

ME 3600X and ME 3600X-24CXswitch:

http://www.cisco.com/en/US/products/ps10956/tsd_products_support_series_home.html

Note Before installing, configuring, or upgrading the switch, see these documents:

- For initial configuration information, see the "Configuring the Switch with the CLI-Based Setup Program" appendix in the hardware installation guide.
- For upgrading information, see the "Downloading Software" section in the release notes.

- *Cisco ME 3800X and ME 3600X Switch Software Configuration Guide*
- *Cisco ME 3800X and ME 3600X Switch Command Reference*
- *Cisco ME 3800X and ME 3600X System Message Guide*
- *Cisco ME 3800X and ME 3600X Switch Hardware Installation Guide*
- *Cisco ME 3800X and ME 3600X Switch Getting Started Guide*
- *Installation Notes for the Cisco ME 3800X and ME 3600X Switch Power-Supply and Fan Modules*
- *Regulatory Compliance and Safety Information for the Cisco ME 3800X and ME 3600X Switches*
- *Cisco ME 3600X-24CX Switch Hardware Installation Guide*
- *Cisco ME 3600X-24CX Switch Getting Started Guide*
- *Installation Notes for the Cisco ME 3600X-24CX Switch Power-Supply and Fan Modules*
- *Regulatory Compliance and Safety Information for the Cisco ME 3600X-24CX Switch*
- *Cisco Small Form-Factor Pluggable Modules Installation Notes*
- *Cisco 10-Gigabit XFP Transceiver Modules Install Note*
- *Cisco CWDM GBIC and CWDM SFP Installation Notes*

These compatibility matrix documents are available from this Cisco.com site:

http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

- *Cisco Gigabit Ethernet Transceiver Modules Compatibility Matrix*
- *Cisco 100-Megabit Ethernet SFP Modules Compatibility Matrix*
- *Cisco CWDM SFP Transceiver Compatibility Matrix*
- *Cisco Small Form-Factor Pluggable Modules Compatibility Matrix*
- *10-Gigabit Ethernet Transceiver Modules Compatibility Matrix*
- *Compatibility Matrix for 1000BASE-T Small Form-Factor Pluggable Modules*

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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This document is to be used in conjunction with the documents listed in the "Related Documentation" section.