Release Notes for Cisco IOS Release 15.3(1)SY

December 07, 2016

Note For general product information about the Catalyst 6500 series switches, refer to these product bulletins: http://www.cisco.com/c/en/us/products/switches/catalyst-6500-series-switches/literature.html

The most current version of this document is available on Cisco.com at this URL:

http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/ios/15-3SY/release_notes/release_notes.html

Caution Cisco IOS supports redundant configurations with identical supervisor engines. If they are not identical, one supervisor engine will boot first and become active and hold the other in a reset condition.

Contents

This publication consists of these sections:

Chronological List of Releases

Note • See the "Unsupported Hardware" section on page 34 for information about which releases are deferred.

This is a chronological list of the 15.3SY releases:

- Release 15.3(1)SY2—07 December 2016
- Release 15.3(1)SY1—10 August 2016
- Release 15.3(1)SY—12 April 2016

Supported Hardware

This section describes the hardware supported in Release 15.4(1)SY and later releases:

Note Enter the **show power** command to display current system power usage.

Supervisor Engines, PFCs, DFCs

Supervisor Engine 6T

Product ID (append "=" for spares)	Product Description	Minimum Software Version
C6800-SUP6T	Supervisor Engine 6T with PFC4	15.3(1)SY
C6800-SUP6T-XL	Supervisor Engine 6T with PFC4XL	

Features

- One of these policy feature cards:
    - Policy Feature Card 4XL (PFC4XL)
    - Policy Feature Card 4 (PFC4)
      See the "Policy Feature Cards Supported with Supervisor Engine 6T" section.
- Supports up to 6-Tbps switch fabric connectivity.
- 4-GB DDR3 for both XL and Non-XL Supervisors.
- Internal 4-GB eUSB (bootdisk:).
- One external USB Type-A slot (disk0:)
- Management Port – Supports both
    - RJ45 and
    - SFP, which supports following transceivers:
      GLC-SX-MM
      GLC-LH-SM
      GLC-ZX-SM
      GLC-SX-MMD
      GLC-LH-SMD
      GLC-EX-SMD
      GLC-ZX-SMD
      GLC-BX-U
      GLC-BX-D
- Console ports supports below two variants:
    - RJ45 Serial
    - USB port Type-B
- Front panel supervisor uplink ports :
  8 x 1-Gb / 10-Gb Small Form Factor Pluggable Plus (SFP+) ports (Ports numbering from TenG 1 to 8)
  2 x 40-Gb QSFP ports (Ports numbering from FortyG 9-10)
- Supervisor Slot Occupies the Supervisor slots as follows:
    - 7 Slot 6807-XL chassis – slots 3 and 4 [15.3(1)SY onwards]
    - 4 Slot WS-C6504-E chassis: Slots 1 and 2 [15.3(1)SY1 onwards]
    - 6 Slot WS-C6506-E chassis: Slots 5 and 6 [15.3(1)SY1 onwards]
    - 9 Slot WS-C6509-E chassis: Slots 5 and 6 [15.3(1)SY1 onwards]

- 3 Slot WS-C6503-E chassis: Slots 1 and 2 [15.3(1)SY2 onwards]
- 9VE Slot WS-C6509-V-E chassis: Slots 5 and 6 [15.3(1)SY2 onwards]
- 13 Slot WS-C6513-E chassis: Slots 7 and 8 [15.3(1)SY2 onwards]

- NVRAM: 4 MB
- Power Consumptions
  - Standard: 341 W maximum
  - XL: 354 W maximum
- Receive and transmit queues
  - Default: 1p7q4t
  - Configurable: 2p6q4t
- For further details, see this publication:
  http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/catalyst-6800-series-supervis
  or-engine-6t/datasheet-c78-736408.html

Policy Feature Cards Supported

Policy Feature Card 4 Guidelines and Restrictions

- The PFC4 supports a theoretical maximum of 131,072 (128K) MAC addresses with 118,000 (115.2K) MAC addresses as the recommended maximum.
- The PFC4 partitions the hardware FIB table to route IPv4 unicast, IPv4 multicast, MPLS, and IPv6 unicast and multicast traffic in hardware. Traffic for routes that do not have entries in the hardware FIB table are processed by the route processor in software.

  The defaults for XL mode are:
  - IPv4 unicast and MPLS: 512,000 routes
  - IPv4 multicast and IPv6 unicast and multicast: 256,000 routes

  The defaults for Non-XL mode are:
  - IPv4 unicast and MPLS: 192,000 routes
  - IPv4 multicast and IPv6 unicast and multicast: 32,000 routes

  ✎

  Note   The size of the global internet routing table plus any local routes might exceed the non-XL mode default partition sizes.

  These are the theoretical maximum numbers of routes for the supported protocols (the maximums are not supported simultaneously):
  - XL mode:
    - IPv4 and MPLS: Up to 1,007,000 routes
    - IPv4 multicast and IPv6 unicast and multicast: Up to 503,000 routes

– Non-XL mode:

• IPv4 and MPLS: Up to 239,000 routes

• IPv4 multicast and IPv6 unicast and multicast: Up to 119,000 routes

Enter the **platform cef maximum-routes** command to repartition the hardware FIB table. IPv4 unicast and MPLS require one hardware FIB table entry per route. IPv4 multicast and IPv6 unicast and multicast require two hardware FIB table entries per route. Changing the partition for one protocol makes corresponding changes in the partitions of the other protocols. You must enter the **reload** command to put configuration changes made with the **platform cef maximum-routes** command into effect.

> **Note** With a non-XL-mode system, if your requirements cannot be met by repartitioning the hardware FIB table, upgrade components as necessary to operate in XL mode.

• You cannot use one type of PFC on one supervisor engine and a different type on the other supervisor engine for redundancy. You must use identical policy feature cards for redundancy.

• PFC4—These restrictions apply to a configuration with a PFC4 and these DFCs:

– PFC4 and DFC4—No restrictions (PFC4 mode).

– PFC4 and DFC4XL—The PFC4 restricts DFC4XL functionality: the DFC4XL functions as a DFC4 (PFC4 mode).

• PFC4XL—These restrictions apply to a configuration with a PFC4XL and these DFCs:

– PFC4XL and DFC4—PFC4XL functionality is restricted by the DFC4: after a reload with a DFC4-equipped module installed, the PFC4XL functions as a PFC4 (PFC4 mode).

– PFC4XL and DFC4XL—No restrictions (PFC4XL mode).

• Switching modules that you install after bootup that are equipped with a DFC that imposes a more restricted PFC mode than the current PFC mode remain powered down.

• You must reboot to use a switching module equipped with a DFC that imposes a more restricted PFC mode than the current PFC mode.

• Enter the **show platform hardware pfc mode** command to display the PFC mode.

• FIB TCAM exception may be thrown in case of a route churn where TCAM utilization is more than 80% of the total utilization. This limitation is applicable to DFC TCAM on XL line cards. If FIB TCAM exception is thrown for a transit route for IPv4 or IPv6 or MPLS traffic, the route does not get installed in FIB and connectivity gets affected. This can result in elevated CPU usage due to software switching.

Policy Feature Card 4XL

Product ID (append "=" for spares)	Product Description	Minimum Software Version
VS-F6K-PFC4XL	Policy Feature Card 4XL (PFC4XL) **Note** Use VS-F6K-PFC4XL= to upgrade to a PFC4XL.	
	With Supervisor Engine 6T	15.3(1)SY

Policy Feature Card 4

Product ID (append "=" for spares)	Product Description	Minimum Software Version
VS-F6K-PFC4	Policy Feature Card 4 (PFC4)	
	With Supervisor Engine 6T	15.3(1)SY

Distributed Forwarding Cards Supported

- Distributed Forwarding Card 4XL, page 6
- Distributed Forwarding Card 4, page 6

Note

- See the "Policy Feature Cards Supported" section on page 4 for Policy Feature Cards (PFC) and Distributed Forwarding Card (DFC) restrictions.
- The DFC4 uses memory that is installed on the switching module.
- For more information about the DFCs, see these documents:

  http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/hardware/Config_Notes/OL_24918.html

Distributed Forwarding Card 4XL

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-F6K-DFC4-EXL **WS-F6K-DFC4-AXL**	Distributed Forwarding Card 4XL (DFC4XL)	
	With Supervisor Engine 6T	15.3(1)SY

Distributed Forwarding Card 4

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-F6K-DFC4-E **WS-F6K-DFC4-A**	Distributed Forwarding Card 4 (DFC4)	
	With Supervisor Engine 6T	15.3(1)SY

40-Gigabit Ethernet Switching Modules

WS-X6904-40G-2T 4-Port 40-Gigabit Ethernet Switching Module

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6904-40G-2TXL (Has WS-F6K-DFC4-EXL)	4-port 40-Gigabit Ethernet module	
WS-X6904-40G-2T (Has WS-F6K-DFC4-E)	With Supervisor Engine 6T	15.3(1)SY

- WS-X6904-40G-2T and WS-X6904-40G-2TXL are the orderable product IDs.

- The front panel is labeled WS-X6904-40G.

- Cisco IOS software commands display WS-X6904-40G with either WS-F6K-DFC4-E or WS-F6K-DFC4-EXL.

- Has hardware abstraction layer (HAL) support.

- QoS port architecture (Rx/Tx): **1p7q4t** or **2p6q4t/1p7q4t** or **2p6q4t**

- Dual switch-fabric connections:

    - Fabric Channel #1: Ports 1 and 2 or 5 through 12

    - Fabric Channel #2: Ports 3 and 4 or 13 through 20

- Number of ports: 4 or 16
  Number of port groups: 2
  Port per port group:
  –Ports 1 and 2 or 5 through 12
  –Ports 3 and 4 or 13 through 20

- dCEF2T.

- In a 3-slot chassis, supported only with WS-C6503-E hardware revision 1.3 or higher.

- Upgrade to Release15.3(1)SY1 or later before installing WS-X6904-40G (see the "EFSU Compatibility" section on page 36).

- Each bay can support a CFP transceiver (supports one 40 Gigabit Ethernet port) or a FourX adapter (supports four 10 Gigabit Ethernet SFP+ transceivers).

- WS-X6904-40G supported modes (default mode is oversubscribed):

    - 40 Gigabit Ethernet oversubscribed mode:
      —Four 40 Gigabit Ethernet ports
      —Ports 1 through 4

    - 10 Gigabit Ethernet oversubscribed mode:
      —Sixteen 10 Gigabit Ethernet ports
      —Ports 5 through 20

    - Mixed 10/40 Gigabit Ethernet oversubscribed mode:

      —Left bays:

        –Either two 40 Gigabit Ethernet ports (1 and 2)

–Or eight 10 Gigabit Ethernet ports (5 through 12)

—Right bays:

–Either two 40 Gigabit Ethernet ports (3 and 4)

–Or eight 10 Gigabit Ethernet ports (13 through 20)

– Performance mode:

—Configurable per module or per bay:

no hw-module slot *slot_number* **oversubscription** [**port-group** *port_group_number*]

—Supported in the top left bay and top right bay.

—Any of these combinations:

–40 Gigabit Ethernet port 1 (top left bay) and port 3 (top right bay)

–10 Gigabit Ethernet ports 5 through 9 (top left bay) and ports 13 through 16 (top right bay)

–Top left bay: 40 Gigabit Ethernet port 1 or 10 Gigabit Ethernet ports 5 through 9
Top right bay: 40 Gigabit Ethernet port 3 or 10 Gigabit Ethernet ports 13 through 16

– 40 Gigabit Ethernet performance mode, 10 Gigabit Ethernet oversubscribed mode:

—Either of these combinations:

–Top left bay: 40 Gigabit Ethernet port 1
Right bays: eight 10 Gigabit Ethernet ports (13 through 20)

–Left bays: eight 10 Gigabit Ethernet ports (5 through 13)
Top right bay: 40 Gigabit Ethernet port 3

– 40 Gigabit Ethernet oversubscribed mode, 10 Gigabit Ethernet performance mode:

—Either of these combinations:

–Top left bay: four 10 Gigabit Ethernet ports (5 through 9)
Right bays: two 40 Gigabit Ethernet ports (3 and 4)

–Left bays: two 40 Gigabit Ethernet ports (1 and 2)
Top right bay: four 10 Gigabit Ethernet ports (13 through 16)

• For more information about WS-X6904-40G, see these publications:

40 Gigabit Ethernet on Cisco Catalyst 6500 Series Switches: How It Works

40 Gigabit Ethernet Interface Module for Cisco Catalyst 6500 Series Switches Data Sheet

10-Gigabit Ethernet Switching Modules

Catalyst C6800-8P10G, Catalyst C6800-8P10G-XL

Product ID (append "=" for spares)	Product Description	Minimum Software Version
C6800-8P10G-XL	8-port 10-Gigabit Ethernet SFP+ module	
C6800-8P10G	With Supervisor Engine 6T	15.3(1)SY

- C6800-8P10G and C6800-8P10G-XL are the orderable product IDs

- Cisco IOS software commands display C6800-8P10G or C6800-8P10G-XL

- QoS Architecture

    - Receive:
      1p7q4t (default)
      2p6q4t (configurable)

    - Transmit:
      1p7q4t (default)
      2p6q4t (configurable)

- Number of ports: 8

- Port Groups: 2

    - 2 port-sets per port group

    - Port-group 1: 1, 2, 3, 4

    - Port-group 2: 5, 6, 7, 8

- Oversubscription: Not Applicable

- Upgrade to Release15.3(1)SY or later before installing either C6800-8P10G or C6800-8P10G-XL

- Supported modes

    - In C6807-XL: 8 ports: line rate 1:1

    - In Catalyst 6500-E: 8 ports: line rate 1:1

- Number of forwarding engines: 1

- Port Buffers

    - 500 MB per port (Egress)

    - 2.5 MB per port (Ingress)

Catalyst C6800-16P10G, Catalyst C6800-16P10G-XL

Product ID (append "=" for spares)	Product Description	Minimum Software Version
C6800-16P10G-XL	16-port 10-Gigabit Ethernet SFP+ module	
C6800-16P10G	With Supervisor Engine 6T	15.3(1)SY

- C6800-16P10G and C6800-16P10G-XL are the orderable product IDs

- Cisco IOS software commands display C6800-16P10G or C6800-16P10G-XL

- QoS Architecture

    - Receive:
      1p7q4t (default)
      2p6q4t (configurable)

    - Transmit:
      1p7q4t (default)
      2p6q4t (configurable)

- Number of ports: 16

- Port Groups: 2

    - 2 port-sets per port group

    - Port-group 1:
      1, 2, 3, 4
      5, 6, 7, 8

    - Port-group 2:
      9, 10, 11, 12
      13, 14, 15, 16

- Performance Mode: Yes, per-port group

- Upgrade to Release15.3(1)SY or later before installing either C6800-16P10G or C6800-16P10G-XL

- Supported modes

    - In C6807-XL:
      16 ports: oversubscription mode 2:1
      8 ports: performance mode 1:1

    - In Catalyst 6500-E:
      16 ports: oversubscription mode 2:1
      8 ports: performance mode 1:1

- Number of forwarding engines: 1

- Port Buffers

    - Oversubscription mode:
      250 MB per port (Egress)
      1.25 MB per port (Ingress)

    - Performance mode:
      500 MB per port (Egress)
      2.5 MB per port (Ingress)

Catalyst C6800-32P10G, Catalyst C6800-32P10G-XL

Product ID (append "=" for spares)	Product Description	Minimum Software Version
C6800-32P10G-XL	32-port 10-Gigabit Ethernet SFP+ module	
C6800-32P10G	With Supervisor Engine 6T	15.3(1)SY

- C6800-32P10G and C6800-32P10G-XL are the orderable product IDs

- Cisco IOS software commands display C6800-32P10G or C6800-32P10G-XL

- QoS Architecture

  - Receive:
    1p7q4t (default)
    2p6q4t (configurable)

  - Transmit:
    1p7q4t (default)
    2p6q4t (configurable)

- Number of ports: 32

- Port Groups: 4

  - 2 port-sets per port group

  - Port-group 1:
    1, 3, 5, 7
    9,11, 13, 15

  - Port-group 2:
    2,4,6,8
    10, 12, 14, 16

  - Port-group 3:
    17,19,21,23
    25, 27, 29, 31

  - Port-group 4:
    18,20,22,24
    26, 28, 30, 32

- Performance Mode: Yes, per-port group

- Upgrade to Release15.3(1)SY or later before installing either C6800-32P10G or C6800-32P10G-XL

- Supported modes

  - In C6807-XL:
    32 ports: oversubscription mode 2:1
    16 ports: performance mode 1:1

- In Catalyst 6500-E:
  32 ports: oversubscription mode 4:1
  16 ports: performance mode 2:1

- Number of forwarding engines: 2

- Port Buffers

  - Oversubscription mode:
    250 MB per port (Egress)
    1.2 MB per port (Ingress)

  - Performance mode:
    500 MB per port (Egress)
    2.5 MB per port (Ingress)

WS-X6908-10GE 8-Port 10-Gigabit Ethernet X2 Switching Module

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6908-10G-XL (Has WS-F6K-DFC4-EXL)	8-port 10-Gigabit Ethernet X2 module	
WS-X6908-10G (Has WS-F6K-DFC4-E)	With Supervisor Engine 6T	15.3(1)SY

- WS-X6908-10G and WS-X6908-10G-XL are the orderable product IDs.

- The front panel is labeled WS-X6908-10GE.

- Cisco IOS software commands display WS-X6908-10GE with either WS-F6K-DFC4-E or WS-F6K-DFC4-EXL.

- dCEF2T

- QoS port architecture (Rx/Tx): **8q4t/1p7q4t**

- Dual switch-fabric connections
  Fabric Channel #1: Ports 2, 3, 6, 8
  Fabric Channel #2: Ports 1, 4, 5, 7

- Number of ports: 8
  Number of port groups: 8
  Port ranges per port group: 1 port in each group

- In a 3-slot chassis, supported only with WS-C6503-E hardware revision 1.3 or higher.

WS-X6816-10T-2T, WS-X6716-10T 16-Port 10-Gigabit Ethernet Copper Switching Module

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6816-10T-2TXL (Has WS-F6K-DFC4-EXL)	16-port 10-Gigabit Ethernet copper (RJ-45) module	
WS-X6716-10T-3CXL (Must be upgraded with WS-F6K-DFC4-EXL=) **WS-X6816-10T-2T** (Has WS-F6K-DFC4-E) **WS-X6716-10T-3C** (Must be upgraded with WS-F6K-DFC4-E=)	With Supervisor Engine 6T	15.3(1)SY

- The orderable product IDs are:
  - WS-X6816-10T-2TXL
  - WS-X6816-10T-2T
  - WS-X6716-10T-3CXL
  - WS-X6716-10T-3C

- The front panel is labeled WS-X6716-10T.

- Cisco IOS software commands display WS-X6716-10T with any DFC.

- QoS port architecture (Rx/Tx):
  - Oversubscription mode: **1p7q2t/1p7q4t**
  - Performance mode: **8q4t/1p7q4t**

- Dual switch-fabric connections
  Fabric Channel #1: ports 1–8
  Fabric Channel #2: ports 9–16

- Number of ports: 16
  Number of port groups: 4
  Port ranges per port group: 1–4, 5–8, 9–12, 13–16

- When not configured in oversubscription mode, supported in virtual switch links.

- To configure port oversubscription, use the **hw-module slot** command.

WS-X6816-10G-2T, WS-X6716-10G 16-Port 10-Gigabit Ethernet X2 Switching Module

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6816-10G-2TXL (Has WS-F6K-DFC4-EXL) **WS-X6716-10G-3CXL** (Must be upgraded with WS-F6K-DFC4-EXL=) **WS-X6816-10G-2T** (Has WS-F6K-DFC4-E) **WS-X6716-10G-3C** (Must be upgraded with WS-F6K-DFC4-E=)	16-port 10-Gigabit Ethernet X2 module	
	With Supervisor Engine 6T	15.3(1)SY

- The orderable product IDs are:
  - WS-X6816-10G-2TXL
  - WS-X6816-10G-2T
  - WS-X6716-10G-3CXL
  - WS-X6716-10G-3C
- The front panel is labeled WS-X6716-10GE.
- Cisco IOS software commands display WS-X6716-10GE with any DFC.
- QoS port architecture (Rx/Tx):
  - Oversubscription mode: **1p7q2t/1p7q4t**
  - Performance mode: **8q4t/1p7q4t**
- Dual switch-fabric connections
  Fabric Channel #1: ports 1–8
  Fabric Channel #2: ports 9–16
- Number of ports: 16
  Number of port groups: 4
  Port ranges per port group: 1–4, 5–8, 9–12, 13–16
- When not configured in oversubscription mode, supported in virtual switch links.

- To configure port oversubscription, use the **hw-module slot** command.

WS-X6704-10GE 4-Port 10-Gigabit Ethernet XENPAK Switching Module

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6704-10G (Must be upgraded with WS-F6K-DFC4-AXL= or WS-F6K-DFC4-A=)	4-port 10-Gigabit Ethernet XENPAK With Supervisor Engine 6T ✎ **Note** Supervisor Engine 6T is supported with DFC4/4XL, it requires minimum1GB RAM.	15.3(1)SY

- WS-X6704-10GE requires one of the following:
  - With Supervisor Engine 6T:
    - WS-F6K-DFC4-AXL
    - WS-F6K-DFC4-A
- Requires 1 GB DRAM. See this publication:

  http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/hardware/Config_Notes/78_12409.html

- QoS port architecture (Rx/Tx): **8q8t/1p7q8t**
- Dual switch-fabric connections:
  Fabric Channel #1: Ports 3 and 4
  Fabric Channel #2: Ports 1 and 2
- Number of ports: 4
  Number of port groups: 4
  Port ranges per port group: 1 port in each group

- WS-X6704-10G is the orderable product ID.

- The front panel is labeled WS-X6704-10GE.

- Cisco IOS software commands display WS-X6704-10GE with any DFC.

- On WS-X6704-10GE ports, STP BPDUs are not exempt from Traffic Storm Control multicast suppression. Do not configure multicast suppression on STP-protected WS-X6704-10GE ports that interconnect network devices. (CSCsg86315)

Cisco Catalyst 6807-XL Modular Switch

Product ID (append "=" for spares)	Product Description	Minimum Software Version
C6807-XL	7-slot modular chassis. The switch supports redundant power supply modules (AC-input), redundant supervisor engines, fan-tray, power supply convertor modules, clock modules, and voltage termination enhanced (VTT-E) modules	15.3(1)SY

Note   See these publications for more information:

http://www.cisco.com/c/en/us/products/collateral/switches/catalyst-6807-xl-switch/data_sheet_c78-728229.html

http://www.cisco.com/c/en/us/products/collateral/switches/catalyst-6807-xl-switch/white_paper_c11-728264.html

IA client maximum values for a Catalyst 6500 and Catalyst 6807-XL switch with Supervisor 6T:

Value Description:	Maximum Value	Software Version
Maximum IA client ports	2016 ports across 42 Catalyst 6800ia access switches	15.3(1)SY1
Maximum IA client switches	42 (defined by IA client FEX number 1–42 range.)	
Maximum Catalyst 6800ia access switches per IA client stack	5 • An IA client stack acts as single switch unit. • Instant access only supports connection with stacking cables to form a stack. • With an IA client that has multiple Catalyst 6800ia access switches, the switches in the stack assign incrementing switch numbers to themselves (automatic stacking capability). • If you add Catalyst 6800ia access switches to a configured IA client, the additional switches assign incrementing switch numbers to themselves. • The IA client configuration does not persist if the access switch number changes.	

Gigabit Ethernet Switching Modules

- WS-X6848-SFP-2T, WS-X6748-SFP 48-Port Gigabit Ethernet SFP Switching Module, page 17
- WS-X6824-SFP-2T, WS-X6724-SFP 24-Port Gigabit Ethernet SFP Switching Module, page 18

WS-X6848-SFP-2T, WS-X6748-SFP 48-Port Gigabit Ethernet SFP Switching Module

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6848-SFP-2TXL (has WS-F6K-DFC4-AXL)	48-port Gigabit Ethernet SFP	
WS-X6848-SFP-2T (has WS-F6K-DFC4-A)	With Supervisor Engine 6T	15.3(1)SY
WS-X6748-SFP (must be upgraded with WS-F6K-DFC4-AXL or WS-F6K-DFC4-A)		

- QoS architecture: **2q8t/1p3q8t**

- Dual switch-fabric connections
  Fabric Channel #1: Ports 2, 4, 6, 8, 10, 12,
  14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34,
  36, 38, 40, 42, 44, 46, 48
  Fabric Channel #2: Ports 1, 3, 5, 7, 9, 11,
  13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33,
  35, 37, 39, 41, 43, 45, 47

- Number of ports: 48
  Number of port groups: 4
  Port ranges per port group:
    1,   3,   5,   7,   9, 11, 13, 15, 17, 19, 21, 23
    2,   4,   6,   8, 10, 12, 14, 16, 18, 20, 22, 24
  25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47
  26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48

- On WS-X6848-SFP-2T and WS-X6748-SFP ports, STP BPDUs are not exempt from Traffic Storm Control multicast suppression. Do not configure multicast suppression on STP-protected WS-X6848-SFP-2T or WS-X6748-SFP ports that interconnect network devices.

WS-X6824-SFP-2T, WS-X6724-SFP 24-Port Gigabit Ethernet SFP Switching Module

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6824-SFP-2TXL (Has WS-F6K-DFC4-AXL)	24-port Gigabit Mbps Ethernet SFP	
	With Supervisor Engine 6T	15.3(1)SY
WS-X6824-SFP-2T (Has WS-F6K-DFC4-A)		
WS-X6724-SFP (must be upgraded with WS-F6K-DFC4-AXL or WS-F6K-DFC4-A))		

- QoS architecture: **2q8t/1p3q8t**

- Number of ports: 24
  Number of port groups: 2
  Port ranges per port group: 1–12, 13–24

- On WS-X6824-SFP-2T and WS-X6724-SFP ports, STP BPDUs are not exempt from Traffic Storm Control multicast suppression. Do not configure multicast suppression on STP-protected WS-X6824-SFP-2T or WS-X6724-SFP ports that interconnect network devices.

10/100/1000 Ethernet Switching Modules

These sections describe the supported 10/100/1000 Ethernet switching modules:

- Catalyst C6800-48P-TX, Catalyst C6800-48P-TX-XL, Catalyst C6800-48P-SFP, Catalyst C6800-48P-SFP-XL, page 19

Catalyst C6800-48P-TX, Catalyst C6800-48P-TX-XL, Catalyst C6800-48P-SFP, Catalyst C6800-48P-SFP-XL

Product ID (append "=" for spares)	Product Description	Minimum Software Version
C6800-48P-TX-XL	48-port 10/100/1000 RJ-45	
C6800-48P-TX		
Note	With Supervisor Engine 6T	15.3(1)SY

Product ID (append "=" for spares)	Product Description	Minimum Software Version
C6800-48P-SFP-XL	48-port 10/100/1000 SFP	
C6800-48P-SFP		
Note	With Supervisor Engine 6T	15.3(1)SY

- C6800-48P-SFP and C6800-48P-SFP-XL OR C6800-48P-TX and C6800-48P-TX-XL are the orderable product IDs
- Cisco IOS software commands display C6800-48P-SFP or C6800-48P-SFP-XL for the SFP cards, and C6800-48P-TX or C6800-48P-TX-XL for the TX based cards.
- QoS Architecture
  - Receive:
    2q8t (for TX and SFP based cards)
  - Transmit:
    1p3q8t (for TX and SFP based cards)
- Number of ports: 48
- Forwarding and Performance: DFC4-A or DFC4-AXL daughter cards delivering performance up to a sustained 60 Mpps for L2, IPv4 and MPLS forwarding and 30 Mpps for IPv6 forwarding
- Upgrade to Release15.3(1)SY or later before installing these modules
- Backplane Connection: Connect to the switch fabric using dual full-duplex 20-Gbps switch fabric channels
- The TX models support copper RJ45 connectors 100 meters over Category 5, 5E, and 6. The SFP models support SX, LX/LH, -ZX, -T; 1000BASE-CWDM with the help of LC connecter
- Number of forwarding engines: 1
- Port Buffers (for both TX and SFP based cards)
  - Receive -173KB

- Transmit -1.22MB

See this publication for more information:

http://www.cisco.com/c/en/us/products/collateral/switches/catalyst-6800-series-switches/datasheet-c78-733663.html

WS-X6848-TX-2T, WS-X6748-GE-TX

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-X6848-TX-2TXL (has WS-F6K-DFC4-AXL)	48-port 10/100/1000 RJ-45	
WS-X6848-TX-2T (has WS-F6K-DFC4-A) **WS-X6748-GE-TX** (must be upgraded with WS-F6K-DFC4-AXL or WS-F6K-DFC4-A)	With Supervisor Engine 6T	15.3(1)SY

- WS-X6748-GE-TX requires one of the following:
  - WS-F6K-DFC4-AXL
  - WS-F6K-DFC4-A

- QoS architecture: **2q8t/1p3q8t**

- Dual switch-fabric connections
  Fabric Channel #1: Ports 25–48
  Fabric Channel #2: Ports 1–24

- Number of ports: 48
  Number of port groups: 4
  Port ranges per port group: 1–12, 13–24, 25–36, 37–48

- On WS-X6848-TX-2T and WS-X6748-GE-TX ports, STP BPDUs are not exempt from Traffic Storm Control multicast suppression. Do not configure multicast suppression on STP-protected WS-X6848-TX-2T or WS-X6748-GE-TX ports that interconnect network devices.

Transceivers

- CFP Modules, page 23

- X2 Modules, page 21

- 10 GE SFP+ Modules, page 23

- 40 GE QSFP Modules, page 25

- XENPAKs, page 26

- Small Form-Factor Pluggable (SFP) Modules, page 27

CFP Modules

Product ID (append "=" for spares)	Product Description	Minimum Software Version
CFP-40G-LR4	40GBASE-LR4	15.0(1)SY1
CFP-40G-SR4	40GBASE-SR4	15.0(1)SY1
CVR-CFP-4SFP10G	FourX coverter to convert each 40GE port into 4 10GE SFP+ ports	15.0(1)SY1

X2 Modules

Note
- WS-X6716-10G and WS-X6708-10GE do not support X2 modules that are labeled with a number that ends with -01. (This restriction does not apply to X2-10GB-LRM.)

- All X2 modules shipped since WS-X6716-10G became available provide EMI compliance with WS-X6816-10G and WS-X6716-10G.

- Some X2 modules shipped before WS-X6716-10G became available might not provide EMI compliance with WS-X6816-10G and WS-X6716-10G. See the information listed for each type of X2 module in the following table.

- For information about X2 modules, see the *Cisco 10GBASE X2 Modules* data sheet:

  http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/10-gigabit-modules/product_data_sheet0900aecd801f92aa.html

Product ID (append "=" for spares)	Product Description		Minimum Software Version
CVR-X2-SFP10G	10G X2 to SFP+ Converter		15.0(1)SY
DWDM-X2-60.61=	10GBASE-DWDM 1560.61 nm X2 (100-GHz ITU grid)	ITU 21	15.0(1)SY
DWDM-X2-59.79=	10GBASE-DWDM 1559.79 nm X2 (100-GHz ITU grid)	ITU 22	15.0(1)SY
DWDM-X2-58.98=	10GBASE-DWDM 1558.98 nm X2 (100-GHz ITU grid)	ITU 23	15.0(1)SY
DWDM-X2-58.17=	10GBASE-DWDM 1558.17 nm X2 (100-GHz ITU grid)	ITU 24	15.0(1)SY
DWDM-X2-56.55=	10GBASE-DWDM 1556.55 nm X2 (100-GHz ITU grid)	ITU 26	15.0(1)SY
DWDM-X2-55.75=	10GBASE-DWDM 1555.75 nm X2 (100-GHz ITU grid)	ITU 27	15.0(1)SY
DWDM-X2-54.94=	10GBASE-DWDM 1554.94 nm X2 (100-GHz ITU grid)	ITU 28	15.0(1)SY
DWDM-X2-54.13=	10GBASE-DWDM 1554.13 nm X2 (100-GHz ITU grid)	ITU 29	15.0(1)SY
DWDM-X2-52.52=	10GBASE-DWDM 1552.52 nm X2 (100-GHz ITU grid)	ITU 31	15.0(1)SY
DWDM-X2-51.72=	10GBASE-DWDM 1551.72 nm X2 (100-GHz ITU grid)	ITU 32	15.0(1)SY
DWDM-X2-50.92=	10GBASE-DWDM 1550.92 nm X2 (100-GHz ITU grid)	ITU 33	15.0(1)SY
DWDM-X2-50.12=	10GBASE-DWDM 1550.12 nm X2 (100-GHz ITU grid)	ITU 34	15.0(1)SY

Product ID (append "=" for spares)	Product Description		Minimum Software Version
DWDM-X2-48.51=	10GBASE-DWDM 1548.51 nm X2 (100-GHz ITU grid)	ITU 36	15.0(1)SY
DWDM-X2-47.72=	10GBASE-DWDM 1547.72 nm X2 (100-GHz ITU grid)	ITU 37	15.0(1)SY
DWDM-X2-46.92=	10GBASE-DWDM 1546.92 nm X2 (100-GHz ITU grid)	ITU 38	15.0(1)SY
DWDM-X2-46.12=	10GBASE-DWDM 1546.12 nm X2 (100-GHz ITU grid)	ITU 39	15.0(1)SY
DWDM-X2-44.53=	10GBASE-DWDM 1544.53 nm X2 (100-GHz ITU grid)	ITU 41	15.0(1)SY
DWDM-X2-43.73=	10GBASE-DWDM 1543.73 nm X2 (100-GHz ITU grid)	ITU 42	15.0(1)SY
DWDM-X2-42.94=	10GBASE-DWDM 1542.94 nm X2 (100-GHz ITU grid)	ITU 43	15.0(1)SY
DWDM-X2-42.14=	10GBASE-DWDM 1542.14 nm X2 (100-GHz ITU grid)	ITU 44	15.0(1)SY
DWDM-X2-40.56=	10GBASE-DWDM 1540.56 nm X2 (100-GHz ITU grid)	ITU 46	15.0(1)SY
DWDM-X2-39.77=	10GBASE-DWDM 1539.77 nm X2 (100-GHz ITU grid)	ITU 47	15.0(1)SY
DWDM-X2-38.98=	10GBASE-DWDM 1538.98 nm X2 (100-GHz ITU grid)	ITU 48	15.0(1)SY
DWDM-X2-38.19=	10GBASE-DWDM 1538.19 nm X2 (100-GHz ITU grid)	ITU 49	15.0(1)SY
DWDM-X2-36.61=	10GBASE-DWDM 1536.61 nm X2 (100-GHz ITU grid)	ITU 51	15.0(1)SY
DWDM-X2-35.82=	10GBASE-DWDM 1535.82 nm X2 (100-GHz ITU grid)	ITU 52	15.0(1)SY
DWDM-X2-35.04=	10GBASE-DWDM 1535.04 nm X2 (100-GHz ITU grid)	ITU 53	15.0(1)SY
DWDM-X2-34.25=	10GBASE-DWDM 1534.25 nm X2 (100-GHz ITU grid)	ITU 54	15.0(1)SY
DWDM-X2-32.68=	10GBASE-DWDM 1532.68 nm X2 (100-GHz ITU grid)	ITU 56	15.0(1)SY
DWDM-X2-31.90=	10GBASE-DWDM 1531.90 nm X2 (100-GHz ITU grid)	ITU 57	15.0(1)SY
DWDM-X2-31.12=	10GBASE-DWDM 1531.12 nm X2 (100-GHz ITU grid)	ITU 58	15.0(1)SY
DWDM-X2-30.33=	10GBASE-DWDM 1530.33 nm X2 (100-GHz ITU grid)	ITU 59	15.0(1)SY
X2-10GB-T	10GBASE-T X2 Module for CAT6A/CAT7 copper cable		15.1(1)SY
X2-10GB-ZR	10GBASE-ZR X2 Module for SMF		15.0(1)SY
X2-10GB-CX4	10GBASE for CX4 (copper) cable		15.0(1)SY
X2-10GB-ER	10GBASE-ER Serial 1550-nm extended-reach, single-mode fiber (SMF), dispersion-shifted fiber (DSF) **Note** X2-10GB-ER modules labeled with a number that ends with -02 do not provide EMI compliance with WS-X6716-10G.		15.0(1)SY
X2-10GB-LR	10GBASE-LR Serial 1310-nm long-reach, single-mode fiber (SMF), dispersion-shifted fiber (DSF) **Note** X2-10GB-LR modules labeled with a number that ends with -02 or -03 do not provide EMI compliance with WS-X6716-10G.		15.0(1)SY
X2-10GB-LRM	10GBASE-LRM for FDDI-grade multimode fiber (MMF) **Note** Not supported by the **show idprom** command. (CSCsj35671)		15.0(1)SY

Product ID (append "=" for spares)	Product Description	Minimum Software Version
X2-10GB-LX4	10GBASE-LX4 Serial 1310-nm multimode (MMF) **Note** • See field notice 62840 for information about unsupported 10GBASE-LX4 modules: http://www.cisco.com/c/en/us/support/docs/field-notices/misc/FN62840.html • X2-10GB-LX4 modules labeled with a number that ends with -01 to -03 do not provide EMI compliance with WS-X6716-10G.	15.0(1)SY
X2-10GB-SR	10GBASE-SR Serial 850-nm short-reach multimode (MMF)	15.0(1)SY

10 GE SFP+ Modules

Product ID (append "" for spares)	Product Description	Minimum Software Version
DWDM-SFP10G-61.41	10GBASE-DWDM 1561.41 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-60.61	10GBASE-DWDM 1560.61 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-59.79	10GBASE-DWDM 1559.79 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-58.98	10GBASE-DWDM 1558.98 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-58.17	10GBASE-DWDM 1558.17 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-57.36	10GBASE-DWDM 1557.36 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-56.55	10GBASE-DWDM 1556.55 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-55.75	10GBASE-DWDM 1555.75 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-54.94	10GBASE-DWDM 1554.94 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-54.13	10GBASE-DWDM 1554.13 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-53.33	10GBASE-DWDM 1553.33 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-52.52	10GBASE-DWDM 1552.52 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-51.72	10GBASE-DWDM 1551.72 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-50.92	10GBASE-DWDM 1550.92 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-50.12	10GBASE-DWDM 1550.12 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-49.32	10GBASE-DWDM 1549.32 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-48.51	10GBASE-DWDM 1548.51 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-47.72	10GBASE-DWDM 1547.72 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-46.92	10GBASE-DWDM 1546.92 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-46.12	10GBASE-DWDM 1546.12 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-45.32	10GBASE-DWDM 1545.32 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-44.53	10GBASE-DWDM 1544.53 nm SFP+ (100-GHz ITU grid)	15.1(2)SY

Product ID (append "" for spares)	Product Description	Minimum Software Version
DWDM-SFP10G-43.73	10GBASE-DWDM 1543.73 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-42.94	10GBASE-DWDM 1542.94 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-42.14	10GBASE-DWDM 1542.14 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-41.35	10GBASE-DWDM 1541.35 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-40.56	10GBASE-DWDM 1540.56 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-39.77	10GBASE-DWDM 1539.77 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-38.98	10GBASE-DWDM 1538.98 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-38.19	10GBASE-DWDM 1538.19 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-37.40	10GBASE-DWDM 1537.40 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-36.61	10GBASE-DWDM 1536.61 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-35.82	10GBASE-DWDM 1535.82 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-35.04	10GBASE-DWDM 1535.04 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-34.25	10GBASE-DWDM 1534.25 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-33.47	10GBASE-DWDM 1533.47 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-32.68	10GBASE-DWDM 1532.68 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-31.90	10GBASE-DWDM 1531.90 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-31.12	10GBASE-DWDM 1531.12 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
DWDM-SFP10G-30.33	10GBASE-DWDM 1530.33 nm SFP+ (100-GHz ITU grid)	15.1(2)SY
CWDM-SFP10G-1530	CWDM 1530-nm SFP+; 10 Gigabit Ethernet	15.3(1)SY
SFP-10G-LR	10GBASE-LR for 1310 nm SMF	15.0(1)SY1
SFP-10G-ER	10GBASE-ER for 1550 nm SMF	15.0(1)SY1
SFP-10G-LRM	10GBASE-LRM 1310 nm MMF and SMF	15.0(1)SY
SFP-10G-SR	10GBASE-SR 850 nm MMF	15.0(1)SY
SFP-10G-ZR	10GBASE-ZR SFP+ for 1550 nm SMF	15.1(2)SY3
SFP-10G-LR-S	10GBASE-LR for 1310 nm SMF, S-Class	15.2(1)SY
SFP-10G-ER-S	10GBASE-ER for 1550 nm SMF, S-Class	15.2(1)SY
SFP-10G-SR-S	10GBASE-SR 850 nm MMF, S-Class	15.2(1)SY
SFP-10G-ZR-S	10GBASE-ZR SFP+ for 1550 nm SMF, S-Class	15.2(1)SY
SFP-10G-BX40D-I	10GE for 1330 nm SMF	15.3(1)SY
SFP-10G-BX40U-I	10GE for 1270 nm SMF	15.3(1)SY
SFP-H10GB-CU1M	1m Twinax cable, passive, 30AWG cable assembly	15.2(1)SY
SFP-H10GB-CU1-5M	1.5m Twinax cable, passive, 30AWG cable assembly	15.2(1)SY
SFP-H10GB-CU2M	2m Twinax cable, passive, 30AWG cable assembly	15.2(1)SY
SFP-H10GB-CU2-5M	2.5m Twinax cable, passive, 30AWG cable assembly	15.2(1)SY
SFP-H10GB-CU3M	3m Twinax cable, passive, 30AWG cable assembly	15.2(1)SY
SFP-H10GB-CU5M	5m Twinax cable, passive, 24AWG cable assembly	15.2(1)SY

Product ID (append "" for spares)	Product Description	Minimum Software Version
SFP-H10GB-ACU7M	7m Twinax cable, active, 30 AWG cable assembly	15.2(1)SY
SFP-H10GB-ACU10M	10m Twinax cable, active, 28 AWG cable assembly	15.2(1)SY
SFP-10G-AOC1M	1m Active Optical Cable assembly	15.2(1)SY
SFP-10G-AOC2M	2m Active Optical Cable assembly	15.2(1)SY
SFP-10G-AOC3M	3m Active Optical Cable assembly	15.2(1)SY
SFP-10G-AOC5M	5m Active Optical Cable assembly	15.2(1)SY
SFP-10G-AOC7M	7m Active Optical Cable assembly	15.2(1)SY
SFP-10G-AOC10M	10m Active Optical Cable assembly	15.2(1)SY

40 GE QSFP Modules

Product ID (append "" for spares)	Product Description	Minimum Software Version
QSFP-40G-SR4	40GBASE-SR4, 4 lanes, 850 nm MMF	15.2(2)SY
QSFP-40G-CSR4	40GBASE-CSR4, 4 lanes, 850 nm MMF	15.2(2)SY
QSFP-40G-LR4	40GBASE-LR4, 1310 nm, SMF with OTU3 data-rate support	15.2(2)SY
QSFP-40G-ER4	40GBASE-ER4, 1310 nm, SMF with OTU3 data-rate support	15.2(2)SY
QSFP-40G-SR-BD	40GBASE-SR-BiDi, duplex MMF	15.2(2)SY
QSFP-40G-SR4-S	40GBASE-SR4, 4 lanes, 850 nm MMF, S-Class	15.3(1)SY1
QSFP-40G-LR4-S	40GBASE-LR4, 1310 nm, SMF, S-Class	15.3(1)SY1
WSP-Q40GLR4L	40GBASE-LR4-Lite, 1310 nm, SMF	15.3(1)SY1
QSFP-H40G-CU1M	1m QSFP to QSFP passive copper direct-attach cables	15.2(2)SY
QSFP-H40G-CU3M	3m QSFP to QSFP passive copper direct-attach cables	15.2(2)SY
QSFP-H40G-CU5M	5m QSFP to QSFP passive copper direct-attach cables	15.2(2)SY
QSFP-H40G-ACU7M	7m QSFP to QSFP active copper direct-attach cables	15.2(2)SY
QSFP-H40G-ACU10M	10m QSFP to QSFP active copper direct-attach cables	15.2(2)SY
QSFP-H40G-AOC1M	1m QSFP to QSFP active optical cables	15.3(1)SY
QSFP-H40G-AOC2M	2m QSFP to QSFP active optical cables	15.3(1)SY
QSFP-H40G-AOC3M	3m QSFP to QSFP active optical cables	15.3(1)SY
QSFP-H40G-AOC5M	5m QSFP to QSFP active optical cables	15.3(1)SY
QSFP-H40G-AOC7M	7m QSFP to QSFP active optical cables	15.3(1)SY
QSFP-H40G-AOC10M	10m QSFP to QSFP active optical cables	15.3(1)SY
QSFP-H40G-AOC15M	15m QSFP to QSFP active optical cables	15.3(1)SY
QSFP-4SFP10G-CU1M	1m QSFP to 4 SFP+ passive copper break-out cables	15.3(1)SY
QSFP-4SFP10G-CU3M	3m QSFP to 4 SFP+ passive copper break-out cables	15.3(1)SY

Product ID (append "" for spares)	Product Description	Minimum Software Version
QSFP-4SFP10G-CU5M	5m QSFP to 4 SFP+ passive copper break-out cables	15.3(1)SY
QSFP-4X10G-AC7M	7m QSFP to 4 SFP+ passive copper break-out cables	15.3(1)SY
QSFP-4X10G-AC10M	10m QSFP to 4 SFP+ passive copper break-out cables	15.3(1)SY
QSFP-4X10G-AOC1M	1m QSFP to four SFP+ active optical breakout cables	15.3(1)SY
QSFP-4X10G-AOC2M	2m QSFP to four SFP+ active optical breakout cables	15.3(1)SY
QSFP-4X10G-AOC3M	3m QSFP to four SFP+ active optical breakout cables	15.3(1)SY
QSFP-4X10G-AOC5M	5m QSFP to four SFP+ active optical breakout cables	15.3(1)SY
QSFP-4X10G-AOC7M	7m QSFP to four SFP+ active optical breakout cables	15.3(1)SY
QSFP-4X10G-AOC10M	10m QSFP to four SFP+ active optical breakout cables	15.3(1)SY
CVR-4SFP10G-QSFP	4 x SFP10G to QSFP Reverse Adapter	15.3(1)SY

XENPAKs

> **Note** • For information about DWDM XENPAKs, see the *Cisco 10GBase DWDM XENPAK Modules* data sheet:
>
> http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/dwdm-transceiver-modules/product_data_sheet0900aecd801f9333.html

Product ID (append "=" for spares)	Product Description	Minimum Software Version
XENPAK-10GB-LRM	10GBASE-LRM XENPAK Module for MMF **Note** Not supported by the **show idprom** command. (CSCsl21260)	15.0(1)SY
DWDM-XENPAK	10GBASE dense wavelength-division multiplexing (DWDM) 100-GHz ITU grid	15.0(1)SY
WDM-XENPAK-REC	10GBASE receive-only wavelength division multiplexing (WDM)	15.0(1)SY
XENPAK-10GB-CX4	10GBASE for CX4 (copper) cable; uses Infiniband connectors	15.0(1)SY
XENPAK-10GB-ER	10GBASE-ER Serial 1550-nm extended-reach, single-mode fiber (SMF), dispersion-shifted fiber (DSF) **Note** XENPAK-10GB-ER units with Part No. 800-24557-01 are not supported, as described in this external field notice (CSCee47030): http://www.cisco.com/c/en/us/support/docs/field-notices/200/fn29736.html	15.0(1)SY

Product ID (append "=" for spares)	Product Description	Minimum Software Version
XENPAK-10GB-ER+	10GBASE-ER Serial 1550-nm extended-reach, single-mode fiber (SMF), dispersion-shifted fiber (DSF)	15.0(1)SY
XENPAK-10GB-LR	10GBASE-LR Serial 1310-nm long-reach, single-mode fiber (SMF), dispersion-shifted fiber (DSF)	15.0(1)SY
XENPAK-10GB-LR+	10GBASE-LR Serial 1310-nm long-reach, single-mode fiber (SMF), dispersion-shifted fiber (DSF)	15.0(1)SY
XENPAK-10GB-LW	10GBASE-LW XENPAK Module with WAN PHY for SMF **Note** XENPAK-10GB-LW operates at an interface speed compatible with SONET/SDH OC-192/STM-64. XENPAK-10GB-LW links might go up and down if the data rate exceeds 9Gbs. (CSCsi58211)	15.0(1)SY
XENPAK-10GB-LX4	10GBASE-LX4 Serial 1310-nm multimode (MMF)	15.0(1)SY
XENPAK-10GB-SR	10GBASE-SR Serial 850-nm short-reach multimode (MMF)	15.0(1)SY
XENPAK-10GB-ZR	10GBASE for any SMF type	15.0(1)SY

Small Form-Factor Pluggable (SFP) Modules

Gigabit Ethernet SFPs

Note
- For information about coarse wavelength-division multiplexing (CWDM) SFPs, see the *Cisco CWDM GBIC and SFP Solutions* data sheet:

  http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/cwdm-transceiver-modules/product_data_sheet09186a00801a557c.html

- For information about DWDM SFPs, see the *Cisco CWDM GBIC and SFP Solutions* data sheet:

  http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/dwdm-transceiver-modules/product_data_sheet0900aecd80582763.html

- See the "Unsupported Hardware" section on page 34 for information about unsupported DWDM-SFPs.

- For information about other SFPs, see the *Cisco SFP Optics For Gigabit Ethernet Applications* data sheet:

  http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/gigabit-ethernet-gbic-sfp-modules/product_data_sheet0900aecd8033f885.html

Product ID (append "=" for spares)	Product Description	Minimum Software Version
GLC-EX-SMD &	1000BASE-EX SFP transceiver module for SMF, 1310-nm wavelength, extended operating temperature range and DOM support, dual LC/PC connector	15.2(1)SY
GLC-BX-D	1000BASE-BX10 SFP module for single-strand SMF, 1490-nm TX/1310-nm RX wavelength	15.0(1)SY
GLC-BX-U	1000BASE-BX10 SFP module for single-strand SMF, 1310-nm TX/1490-nm RX wavelength	15.0(1)SY
GLC-LH-SMD **GLC-LH-SM**	1000BASE-LX/LH SFP **Note** Supported with WS-X6904-40G-2T in Release 15.1(1)SY1 and later releases.	15.0(1)SY
GLC-SX-MMD **GLC-SX-MM**	1000BASE-SX SFP **Note** Supported with WS-X6904-40G-2T in Release 15.1(1)SY1 and later releases.	15.0(1)SY
GLC-T	1000BASE-T 10/100/1000 SFP module **Note** • For WS-X6904-40G-2T LC, supported only at 1000 Mbps. • Supported with WS-X6904-40G-2T in Release 15.1(1)SY1 and later releases.	15.0(1)SY
GLC-ZX-SM **GLC-ZX-SMD**	1000BASE-ZX SFP module 1000BASE-ZX SFP transceiver module for SMF, 1550-nm wavelength, dual LC/PC connector	15.0(1)SY
CWDM-SFP-1470	CWDM 1470-nm (Gray) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
CWDM-SFP-1490	CWDM 1490-nm (Violet) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
CWDM-SFP-1510	CWDM 1510-nm (Blue) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
CWDM-SFP-1530	CWDM 1530-nm (Green) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
CWDM-SFP-1550	CWDM 1550-nm (Yellow) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
CWDM-SFP-1570	CWDM 1570-nm (Orange) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
CWDM-SFP-1590	CWDM 1590-nm (Red) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
CWDM-SFP-1610	CWDM 1610-nm (Brown) Gigabit Ethernet, 1 and 2 Gb Fibre Channel SFP module	15.0(1)SY
DWDM-SFP-5817	1000BASE-DWDM 1558.17 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5252	1000BASE-DWDM 1552.52 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5172	1000BASE-DWDM 1551.72 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5012	1000BASE-DWDM 1550.12 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4692	1000BASE-DWDM 1546.92 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4373	1000BASE-DWDM 1543.73 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4214	1000BASE-DWDM 1542.14 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3977	1000BASE-DWDM 1539.77 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3898	1000BASE-DWDM 1538.98 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3582	1000BASE-DWDM 1535.82 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3504	1000BASE-DWDM 1535.04 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY

Product ID (append "=" for spares)	Product Description	Minimum Software Version
DWDM-SFP-6061	1000BASE-DWDM 1560.61 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5979	1000BASE-DWDM 1559.79 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5898	1000BASE-DWDM 1558.98 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5655	1000BASE-DWDM 1556.55 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5575	1000BASE-DWDM 1555.75 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5494	1000BASE-DWDM 1554.94 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5413	1000BASE-DWDM 1554.13 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-5092	1000BASE-DWDM 1550.92 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4851	1000BASE-DWDM 1548.51 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4772	1000BASE-DWDM 1547.72 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4612	1000BASE-DWDM 1546.12 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4453	1000BASE-DWDM 1544.53 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4294	1000BASE-DWDM 1542.94 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-4056	1000BASE-DWDM 1540.56 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3819	1000BASE-DWDM 1538.19 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3661	1000BASE-DWDM 1536.61 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3425	1000BASE-DWDM 1534.25 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3268	1000BASE-DWDM 1532.68 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3190	1000BASE-DWDM 1531.90 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3112	1000BASE-DWDM 1531.12 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY
DWDM-SFP-3033	1000BASE-DWDM 1530.33 nm SFP (100-GHz ITU grid) SFP module	15.0(1)SY

Fast Ethernet SFPs

Note
- For information about Fast Ethernet SFPs, see the *Cisco 100BASE-X SFP For Fast Ethernet SFP Ports* data sheet:
  http://www.cisco.com/c/en/us/products/collateral/interfaces-modules/fast-ethernet-sfp-modules/product_data_sheet0900aecd801f931c.html

Product ID (append "=" for spares)	Product Description	Minimum Software Version
GLC-FE-100BX-U	100BASE-BX10-U SFP	15.0(1)SY
GLC-FE-100BX-D	100BASE-BX10-D SFP	
GLC-FE-100EX	100BASEEX SFP	
GLC-FE-100ZX	100BASEZX SFP	
GLC-FE-100FX	100BASEFX SFP	
GLC-FE-100LX	100BASELX SFP	
GLC-GE-100FX	100BASEEX SFP	

Power Supplies

- WS-C6503-E Power Supplies, page 30
- WS-C6504-E Power Supplies, page 30
- All Other Power Supplies, page 31

WS-C6503-E Power Supplies

Product ID (append "=" for spares)	Product Description	Minimum Software Version
PWR-1400-AC	1,400 W AC power supply	15.3(1)SY1
PWR-950-DC	950 W DC power supply	15.3(1)SY1

WS-C6504-E Power Supplies

Product ID (append "=" for spares)	Product Description	Minimum Software Version
PWR-2700-AC/4	2700 W AC power supply	15.3(1)SY1
PWR-2700-DC/4	2700 W DC power supply	15.3(1)SY1

All Other Power Supplies

Note The power supplies in this section are not supported in these chassis:

- Catalyst 6503-E
- Catalyst 6504-E

Product ID (append "=" for spares)	Product Description	Minimum Software Version
WS-CAC-8700W-E	8,700 W AC power supply	15.3(1)SY1
	Note	
	• WS-CAC-8700W-E supports a remote power cycling feature.	
	• See this publication for more information:	
	http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/hardware/Chassis_Installation/Cat6500/6500_ins.html	
PWR-6000-DC	6,000 W DC power supply	15.3(1)SY1
WS-CAC-6000W	6,000 W AC power supply	
PWR-4000-DC	4,000 W DC power supply	
WS-CAC-4000W	4,000 W AC power supply	
+WS-CAC-3000W	3,000 W AC power supply	
WS-CAC-3000W	3,000 W AC power supply	
WS-CDC-2500W	2,500 W DC power supply	

Chassis

Note Chassis with 64 MAC addresses automatically enable the Extended System ID feature, which is enabled with the spanning-tree extend system-id command. You cannot disable the extended-system ID in chassis that support 64 MAC addresses. The Extended System ID feature might already be enabled in your network, because it is required to support both extended-range VLANs and any chassis with 64 MAC addresses. **Enabling the extended system ID feature for the first time updates the bridge IDs of all active STP instances, which might change the spanning tree topology.**

13-Slot Chassis

Product ID (append "=" for spare)	Product Description	Minimum Software Version
WS-C6513-E	• 13 slots • Slot 7 and slot 8 are reserved for supervisor engines • 64 chassis MAC addresses	
	With Supervisor Engine 6T	15.3(1)SY2

9-Slot Chassis

Product ID (append "=" for spare)	Product Description	Minimum Software Version

WS-C6509-V-E	• 9 vertical slots
	• 64 chassis MAC addresses
	• Required power supply:
	  – 2,500 W DC or higher
	  – 3,000 W AC or higher	

	With Supervisor Engine 6T	15.3(1)SY2

WS-C6509-E	• 9 horizontal slots
	• Chassis MAC addresses:
	  – Before April 2009—1024 chassis MAC addresses
	  – Starting in April 2009—64 chassis MAC addresses
	
	Note Chassis with 64 MAC addresses automatically enable the Extended System ID feature, which is enabled with the spanning-tree extend system-id command. You cannot disable the extended-system ID in chassis that support 64 MAC addresses. The Extended System ID feature might already be enabled in your network, because it is required to support both extended-range VLANs and any chassis with 64 MAC addresses. **Enabling the extended system ID feature for the first time updates the bridge IDs of all active STP instances, which might change the spanning tree topology.**
	
	• Requires 2,500 W or higher power supply	

	With Supervisor Engine 6T	15.3(1)SY1

7-Slot Chassis

Product ID (append "=" for spare)	Product Description	Minimum Software Version
Catalyst 6807-XL	• 7 slots • Required power supply: – 3,000 W AC (C6800-XL-3KW-AC)	
	With Supervisor Engine 6T	15.3(1)SY

6-Slot Chassis

Product ID (append "=" for spare)	Product Description	Minimum Software Version

WS-C6506-E	• 6 slots
	• Chassis MAC addresses:
	  – Before April 2009—1024 chassis MAC addresses
	  – Starting in April 2009—64 chassis MAC addresses
	
	Note Chassis with 64 MAC addresses automatically enable the Extended System ID feature, which is enabled with the spanning-tree extend system-id command. You cannot disable the extended-system ID in chassis that support 64 MAC addresses. The Extended System ID feature might already be enabled in your network, because it is required to support both extended-range VLANs and any chassis with 64 MAC addresses. **Enabling the extended system ID feature for the first time updates the bridge IDs of all active STP instances, which might change the spanning tree topology.**
	
	• Requires 2,500 W or higher power supply	

	With Supervisor Engine 6T	15.3(1)SY1

4-Slot Chassis

Product ID (append "=" for spare)	Product Description	Minimum Software Version
WS-C6504-E	• 4 slots • 64 chassis MAC addresses	
	With Supervisor Engine 6T	15.3(1)SY1

3-Slot Chassis

Product ID (append "=" for spare)	Product Description	Minimum Software Version
WS-C6503-E	• 3 slots • 64 chassis MAC addresses • WS-X6904-40G-2T and WS-X6908-10GE are supported only with WS-C6503-E hardware revision 1.3 or higher.	
	With Supervisor Engine 6T	15.3(1)SY2

Unsupported Hardware

Release 15.3(1)SY supports only the hardware listed in the "Supported Hardware" section on page 2. Unsupported modules remain powered down if detected and do not affect system behavior.

Release 15.3(1)SY does not support these modules:

- Supervisor Engine 720-10GE and Supervisor Engine 720
- WS-SVC-FWM-1-K9
- WS-SVC-IDS2-BUN-K9
- WS-SVC-NAM-1
- WS-SVC-NAM-2
- WS-SVC-NAM-1-250S
- WS-SVC-NAM-2-250S
- WS-X6548-RJ-45
- WS-X6548-RJ-21
- WS-X6348-RJ45V
- WS-X6348-RJ-45
- WS-X6348-RJ21V
- WS-X6196-RJ-21
- WS-X6196-21AF
- WS-X6148X2-RJ-45
- WS-X6148X2-45AF
- WS-X6148-RJ45V
- WS-X6148-RJ-45
- WS-X6148-RJ21V
- WS-X6148-RJ-21
- WS-X6148A-RJ-45

- WS-X6148A-45AF
- WS-X6148-45AF
- WS-X6148-21AF
- WS-X6524-100FX-MM
- WS-X6324-100FX-MM
- WS-X6148-FE-SFP
- WS-X6548V-GE-TX
- WS-X6548-GE-TX
- WS-X6548-GE-45AF
- WS-X6516-GE-TX
- WS-X6148V-GE-TX
- WS-X6148A-GE-45AF
- WS-X6148-GE-TX
- WS-X6148-GE-45AF
- WS-X6816-GBIC
- WS-X6516-GBIC
- WS-X6516A-GBIC
- WS-X6416-GBIC
- WS-SVC-NAM3-6G-K9WS-X6408-GBIC
- WS-X6408A-GBIC
- WS-X6502-10GE
- WS-F6K-DFC3A
- WS-F6K-DFC3B
- WS-F6K-DFC3BXL
- WS-CAC-2500W
- PWR-950-AC
- WS-C6513
- Supervisor Engine 2T-10GE
- WS-F6700-CFC
- WS-X6148E-GE-45AT
- WS-X6148A-GE-TX
- WS-F6K-GE48-AF
- WS-F6K-48-AF
- ACE30-MOD-K9
- WS-SVC-ASA-SM1-K7
- WS-SVC-ASA-SM1-K9
- WS-SVC-NAM3-6G-K9
- WS-SVC-WISM2-1-K9

- WS-SVC-WISM2-3-K9
- WS-SVC-WISM2-5-K9

Images and Feature Sets

✎
Note Instant Access support is not available in Cisco IOS Release 15.3(1)SY.

✎
Note Instant Access support is available in Cisco IOS Release 15.3(1)SY1 onwards.

✎
Note Universal Boot Loader image (UBL) is not available in Cisco IOS Release 15.3(1)SY.

Use Cisco Feature Navigator to display information about the images and feature sets in Release 15.3SY.

The releases includes strong encryption images. Strong encryption images are subject to U.S. and local country export, import, and use laws. The country and class of end users eligible to receive and use Cisco encryption solutions are limited. See this publication for more information:

http://www.cisco.com/web/about/doing_business/legal/global_export_trade/general_export/contract_compliance.html

Instant Access support

The Instant Access (IA) client switches WS-C3560CX-8XPD-S and WS-C3560CX-12PD-S reload three times before they link with the IA controller (Cisco Catalyst 6500 series switches).

- The first reload happens when the client switches receive SDP packet from the IA controller and the client switches convert to FEX mode.
- The next reload happens when there is a mismatch of IOS version between the IA controller and the client switches. The client switches initiate the download of the correct image from the controller and reboot with the downloaded image.
- The third reload happens if there is a mismatch of MTU between the IA controller and IA clients. IA client reloads to change the MTU of FEX host ports.

EFSU Compatibility

SX SY EFSU Compatibility Matrix (XLSX - Opens with Microsoft Excel)

✎
Note ISSU on VSS with SUP6T, using s6t64-ipservicesk9_npe-mz or s6t64-adventerprisek9_npe-mz flavour from Release 15.3(1)SY baseline release to rebuild releases like 15.3(1)SY1 and beyond is not supported.

Cisco IOS Behavior Changes

Behavior changes describe the minor modifications that are sometimes introduced in a software release. When behavior changes are introduced, existing documentation is updated.

New Features in Release 15.3(1)SY2

These sections describe the new features in Release 15.3(1)SY2, 07 December 2016:

- New Hardware Features in Release 15.3(1)SY2, page 37
- New Software Features in Release 15.3(1)SY2, page 37

New Hardware Features in Release 15.3(1)SY2

- Cisco Catalyst 6500 Series chassis:
  - WS-C6503-E
  - WS-C6509-V-E
  - WS-C6513-E

New Software Features in Release 15.3(1)SY2

None.

New Features in Release 15.3(1)SY1

These sections describe the new features in Release 15.3(1)SY1, 10 August 2016:

- New Hardware Features in Release 15.3(1)SY1, page 37
- New Software Features in Release 15.3(1)SY1, page 38

New Hardware Features in Release 15.3(1)SY1

- Cisco Catalyst 6500 Series chassis:
  - WS-C6504-E
  - WS-C6506-E
  - WS-C6509-E
- Transceiver support introduced:
  - QSFP-40G-SR4-S
  - QSFP-40G-LR4-S
  - WSP-Q40GLR4L

New Software Features in Release 15.3(1)SY1

Instant Access support.

New Features in Release 15.3(1)SY

These sections describe the new features in Release 15.3(1)SY, 12 April 2016:

New Hardware Features in Release 15.3(1)SY

Cisco Catalyst 6800 Series Supervisor Engine 6T:

- C6800-SUP6T
- C6800-SUP6T-XL
- CVR-4SFP10G-QSFP

New Software Features in Release 15.3(1)SY

None.

Software Features from Earlier Releases

Use Cisco Feature Navigator to display supported features that were introduced in earlier releases.

Restrictions

Identifier	Component	Description
CSCvi28828	nat	Dynamic Nat preferred over Static Nat with Route maps, For overlapping IP addresses.
CSCux04980	cat6000-firmware	Flow control on sending 40G linerate traffic with egress as tunnel intf
CSCva37580	cat6000-ha	Mk41:ISSU CM matrix not stored for adventerprisek9_npe image

Caveats in Release 15.3(1)SY2

Caveats Open in Release 15.3(1)SY2

Identifier	Component	Description
CSCva61973	cat6000-cts	After sso Egress reflector w/ L3 CTS in 40G MEC-ping/traffic not working
CSCvc40369	cat6000-env	6513-E (sup6T): when LC inserted into standby slot (8) -Card should be power down.
CSCva51771	cat6000-firmware	CVR-4SFP10G-QSFP port with AOCXX cable does not coming up after reload
CSCvc25150	cat6000-fabric	mk4.2 (6513-E Chassis): Insert LC card into Stand sup slot(8), card is not coming up.

Caveats Resolved in Release 15.3(1)SY2

Identifier	Component	Description
CSCva39982	cat6000-acl	IPv6 neighbor discovery packet processing behavior
CSCuy71763	cat6000-env	MK4 throttle - Bundle latest porter images with cat6k controllers
CSCvb33764	cat6000-fabric	HWDB changes for nappar, ringar, estelle on c6503e, c6513e, c659ve
CSCuz43199	cat6000-firmware	T2:QSFP-40G-LR4-S is showing "bad EEPROM" when inserted to 40G port.
CSCvb45586	cat6000-firmware	Linecards in slot 6 of 9VE Chassis doesnt come up with Sup6T
CSCvb11501	cat6000-ha	ISSU aborts due to buffer depletion post LV / CV
CSCva45668	cat6000-ltl	MK41: Redundancy reload shelf causing SH fex stuck in registered state
CSCvb35689	ha-issu-matrix	MK42:ISSU CM Generation Request for the inclusion of 15.3(1)SY2 ver
CSCva69133	ip-acl	Adding IPv6 nd hoplimit for ipv6 access-list
CSCvb29204	ipsec-isakmp	BenignCertain on IOS and IOS-XE
CSCvb16274	vpdn	PPTP Start-Control-Connection-Reply packet leaks router memory contents

Caveats in Release 15.3(1)SY1

Caveats Open in Release 15.3(1)SY1

Identifier	Component	Description
CSCva61973	cat6000-cts	After sso Egress reflector w/ L3 CTS in 40G MEC-ping/traffic not working
CSCva51771	cat6000-firmware	CVR-4SFP10G-QSFP port with AOCXX cable does not coming up after reload

Caveats Resolved in Release 15.3(1)SY1

Identifier	Component	Description
CSCuz02601	cat6000-cts	Sup6T-CTS egress reflector ping not working Sup and LC-LC MEC ports
CSCuy87532	cat6000-diag	TestL2CTSLoopback fails on C6800-8P-10G 40G ports with VSL encryption
CSCux30104	cat6000-diag	6T:Diag TestDQUP fails on dst card where LRG is disabed
CSCuz37163	cat6000-diag	Re-enable online diag test - TestRBHFiltering CLI
CSCuy38588	cat6000-diag	Sup6t: Enable TestFabricInternalsnake & TestFabricExternalsnake in VSS
CSCuy76600	cat6000-env	160FEX: New inserted Sup comesup in default mode
CSCuy10885	cat6000-env	not able to bring up quad sup with 2.5K SVI and ACL scale configs
CSCuy70884	cat6000-firmware	Shaping is not working as expected for converted 10G ports
CSCuy52753	cat6000-firmware	SFP mgmt0 is at 10mbps instead of 1000mbps
CSCuy50064	cat6000-firmware	6T: %SYS-STBY-3-CPUHOG error & TB for SUP in 16x10G mode boots up?
CSCuy94296	cat6000-l2-infra	6T: %IDBINDEX_SYNC-SW1-4-RESERVE errors during SA to VSS conversion
CSCuy06067	cat6000-l2-infra	Issue with duplex and speed settings under mgmt port in T2mk41

Caveats in Release 15.3(1)SY

Caveats Open in Release 15.3(1)SY

Identifier	Component	Description
CSCuz02601	cat6000-cts	Sup6T-CTS egress reflector ping not working Sup and LC-LC MEC ports
CSCuy87532	cat6000-diag	TestL2CTSLoopback fails on C6800-8P-10G 40G ports with VSL encryption
CSCux30104	cat6000-diag	6T:Diag TestDQUP fails on dst card where LRG is disabed
CSCuy76600	cat6000-env	160FEX: New inserted Sup comesup in default mode
CSCuy10885	cat6000-env	not able to bring up quad sup with 2.5K SVI and ACL scale configs
CSCux99213	cat6000-env	sup6T:Sw1 (Act)-Sw2 slot 2 (Ringar) LC is UP, "int t2/2/1 - 8" missing
CSCuy97525	cat6000-fabric	Event 'powered_off' is invalid for the current state 'can_boot_up':
CSCuy52753	cat6000-firmware	SFP mgmt0 is at 10mbps instead of 1000mbps
CSCuy70884	cat6000-firmware	Shaping is not working as expected for converted 10G ports
CSCuy50064	cat6000-firmware	6T: %SYS-STBY-3-CPUHOG error & TB for SUP in 16x10G
CSCux79176	cat6000-l2	6T: Learnt MAC address gets deleted from ICS SUP during SSO
CSCuy94296	cat6000-l2-infra	6T: %IDBINDEX_SYNC-SW1-4-RESERVE errors during SA to VSS conversion
CSCuy42659	cat6000-l2-infra	6T: %PM-SW2-4-PORT_BOUNCED error on each SSO during Z-SSO
CSCuy19431	cat6000-l2-infra	when given ip arp inspection vlan 1-4094, IPC WM and vslp drop msg seen
CSCuy06067	cat6000-l2-infra	Issue with duplex and speed settings under mgmt port in T2mk41

Identifier	Component	Description
CSCuy68474	cat6000-rommon	6T:GLC-SX-MM version-01 sfp's EEPROM gets corrupted on SSO
CSCuy78767	cat6000-routing	MK4: ISSU LV2, LSM traffic not going to edge

Troubleshooting

These sections describes troubleshooting guidelines for the Catalyst 6500 series switch configuration:

- System Troubleshooting, page 41
- Module Troubleshooting, page 41
- Additional Troubleshooting Information, page 41

System Troubleshooting

This section contains troubleshooting guidelines for system-level problems:

- When the system is booting and running power-on diagnostics, do not reset the switch.

- After you initiate a switchover from the active supervisor engine to the redundant supervisor engine, or when you insert a redundant supervisor engine in an operating switch, always wait until the supervisor engines have synchronized and all modules are online before you remove or insert modules or supervisor engines or perform another switchover.

- If you have an interface whose speed is set to **auto** connected to another interface whose speed is set to a fixed value, configure the interface whose speed is set to a fixed value for half duplex. Alternately, you can configure both interfaces to a fixed-value speed and full duplex.

Module Troubleshooting

This section contains troubleshooting guidelines for module problems:

- When you hot insert a module into a chassis, be sure to use the ejector levers on the front of the module to seat the backplane pins properly. Inserting a module without using the ejector levers might cause the supervisor engine to display incorrect messages about the module. For module installation instructions, refer to the *Catalyst 6500 Series Module Installation Guide*.

- Whenever you connect an interface that has duplex set to autonegotiate to an end station or another networking device, make sure that the other device is configured for autonegotiation as well. If the other device is not set to autonegotiate, the autonegotiating port will remain in half-duplex mode, which can cause a duplex mismatch resulting in packet loss, late collisions, and line errors on the link.

Additional Troubleshooting Information

For additional troubleshooting information, refer to the publications at this URL:

http://www.cisco.com/c/en/us/support/switches/catalyst-6500-series-switches/tsd-products-support-troubleshoot-and-alerts.html

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