

General Deployment Release Status for Cisco Catalyst 4000, 5000, and 6500 Series Catalyst OS Software—6 Train

General Deployment Version: Cisco Catalyst OS software 6.4(3)

Overview

This product bulletin announces the GD code status for Cisco® Catalyst® OS 6 train while detailing the hardware and software support provided in the release. A discussion of the CatOS software release strategy and release trains for the Cisco Catalyst 4000, 5000, and 6500 series switches is also included in this product bulletin for reference.

Cisco Catalyst software train number 6 has been in the development phase since October 2000 and was completed in January 2003. In addition to stringent internal metrics, Cisco Systems® recently solicited feedback to a survey from Cisco Catalyst 4000, 5000, and 6500 customers to gauge customer perception of the quality of the code in CatOS 6 train. More than 1000 customers responded to the survey with very positive responses and comments. Given the maturity of the software in wide and successful deployments in the Cisco Catalyst 4000, 5000, and 6500 customer base, the positive responses to the survey and the meeting of internal metrics, Cisco has elevated the 6.4(3) and later releases of that to GD status. Some key components of the hardware and software features supported, portions of which were delivered in previous switch software versions of 6.x are outlined below. With the General Deployment, announcement of the Cisco Catalyst 6 train, we recommend all

customers using the 5.x releases from CatOS 5 train to upgrade with the latest release in the CatOS 6 train, for example, 6.4(3)GD or above. An announcement for end of sales (EOS), end of engineering (EOE), and end of life (EOL) for the Cisco Catalyst 4000, 5000, and 6500 Series CatOS version 5.x software will follow in the near future.

Key Features Supported in 6 Train

Following are some of the key hardware and software features that are supported in the CatOS 6 train. Pointers for further detail are given in later sections.

Cisco Catalyst 6500 Hardware Overview

- A high-density Cisco Catalyst 13-slot chassis and the Switch Fabric Module version 2
- Supervisor Engine 2—Policy Feature Card 2 with Dual 1000BASE-X GBIC uplinks, fabric-enabled with Cisco Express Forwarding, enhanced QoS and security features
- Fabric-enabled line cards for greater throughput

Cisco Catalyst 4000 Hardware Overview

- Cisco Catalyst 4003, 4006, and 4503, 4506 Chassis
- Cisco Catalyst 4000 Supervisor Engines I and II
- Extensive offering of Fast Ethernet and Gigabit Ethernet Modules



- WAN Connectivity with the Cisco Catalyst 4000 Gateway Access Module
- Wire-speed IP, IPX L3 Switching with the Layer 3 Services Module

Cisco Catalyst 6500 and 4000 Software Overview

- Security features as defined by IEEE 802.1x to restrict unauthorized devices from connecting to a LAN through publicly accessible ports
- Security for Telnet sessions using SSH encryption
- Support for 4096 VLANs in accordance with the IEEE 802.1Q standard for greater scalability on Cisco Catalyst 6500 only
- Additional protection against L2 forwarding loops or STP loops for a stable topology, using loop guard feature

Hardware Support

Following hardware is supported in 6 train as listed in Table 1, in addition to the hardware support in prior releases. Details are given in the release notes.

Cisco Catalyst 6500

Table 1 Hardware Supported in 6 Train

Part Number	Description
• WS-C6513	13-slot chassis
• WS-X6K-S2-PFC2	Cisco Catalyst 6500 Supervisor Engine-2, 2GE, plus PFC-2
• WS-X6K-S2-MSFC2	Cisco Catalyst 6500 Supervisor Engine-2, 2GE, plus MSFC-2/PFC-2
• WS-X6500-SFM 2	Switch Fabric Module version 2
• WS-X6148-RJ-45V	48-port 10/100BASE-TX RJ-45 with 128K per-port packet buffers which provides inline power to IP telephones
• WS-X6148-RJ21V	48-port 10/100BASE-TX RJ-21 with 128K per-port packet buffers which provides inline power to IP telephones
• WS-X6548-RJ-45	48-port 10/100BASE-TX fabric-enabled Ethernet module
• WS-X6548-RJ-21	48-port 10/100BASE-TX fabric-enabled Ethernet module
• WS-X6348-RJ-21	48-port 10/100BASE-TX Ethernet module
• WS-X6348-RJ21V	48-port 10/100BASE-TX Ethernet module with inline power
• WS-C6500-SFM	Switch fabric module
• WS-X6516-GBIC	Fabric-enabled 16-port Gigabit Ethernet GBIC switching module
• WS-X6381-IDS	Intrusion Detection System Module WS-X6381-IDS
• OSM-16OC3-POS-MM • OSM-16OC3-POS-SI • OSM-16OC3-POS-SL	16-port OC-3 POS Optical Services Modules with 4GE



Table 1 Hardware Supported in 6 Train

Part Number	Description
<ul style="list-style-type: none">• OSM-8OC3-POS-MM• OSM-8OC3-POS-SI• OSM-8OC3-POS-SL	4-port OC-3 POS Optical Services Modules with 4GE
<ul style="list-style-type: none">• OSM-2OC12-POS-MM• OSM-2OC12-POS-SI• OSM-2OC12-POS-SL	2-port OC-12 POS Optical Services Modules with 4GE
<ul style="list-style-type: none">• OSM-2OC12-ATM-MM• OSM-2OC12-ATM-SI• OSM-2OC12-ATM-SL	2-port OC-12 ATM Modules with 4GE
<ul style="list-style-type: none">• OSM-4OC12-POS-MM• OSM-4OC12-POS-SI• OSM-4OC12-POS-SL	2-port OC-12 POS Optical Services Modules with 4GE
<ul style="list-style-type: none">• OSM-1OC48-POS-SI• OSM-1OC48-POS-SL• OSM-1OC48-POS-SS	1-port OC-48/STM-16 SONET/SDH OSM with 4GE
<ul style="list-style-type: none">• OSM-4GE-WAN-GBIC	4-port Gigabit Ethernet Optical Services Module, GBIC

Table 2 Hardware Supported for Cisco Catalyst 4000

Part Number	Description
<ul style="list-style-type: none">• WS-X4448-GB-LX	Cisco Catalyst 4000 48-Port 1000BASE-LX (SFP)
<ul style="list-style-type: none">• WS-X4148-RJ45V	Cisco Catalyst 4000 Inline Power 10/100, 48-Ports (RJ45)
<ul style="list-style-type: none">• WS-X4148-FX-MT	Cisco Catalyst 4000 FE Switching Module, 48-100FX MMF
<ul style="list-style-type: none">• WS-X4424-GB-RJ45	Cisco Catalyst 4000 24-port 10/100/1000 Module (RJ45)
<ul style="list-style-type: none">• WS-X4095-PEM	Power entry module
<ul style="list-style-type: none">• WS-P4603	External power shelf (WS-P4603)
<ul style="list-style-type: none">• WS-X4608	Cisco Catalyst 4603 Redundant Power Supply Unit for WS-P4603
<ul style="list-style-type: none">• WS-X4148-RJ45V	Cisco Catalyst 4000 Inline Power 10/100, 48-Ports (RJ45)
<ul style="list-style-type: none">• WS-X4148-FX-MT	Cisco Catalyst 4000 FE Switching Module, 48-100FX MMF (MTRJ)



Software Support

CatOS 6 train supports the following features for Cisco Catalyst 4000, 5000, and 6500 series as listed in Table 2 below (Note: products are listed in parenthesis), in addition to the software features supported in previous releases. For more details on features please refer to the release notes.

Table 3 Features Supported by CatOS 6 Train

Network Scalability	<ul style="list-style-type: none"> • 4096 VLANs (6500 only) • Multi-Instance Spanning Tree Protocol (MISTP) (6500, 4000) • IEEE 802.1Q tunneling (6500 only)
Quality of Service (QoS)	<ul style="list-style-type: none"> • Increase QoS ACLs (6500 only) • QoS minimum threshold for WRED (6500 only) • QoS queuing for port type 1p1q0t/1p3q1t (6500 only) • Non-RPF MFD (Multicast Fast Drop) (6500 only)
Network Management	<ul style="list-style-type: none"> • Private VLANs on the sc0 interface (4000, 6500) • Text file configuration mode (4000, 5000, 6500) • Support for NetFlow version 8 (6500 only) • CDPv2 enhancements (4000, 5000, 6500) • Display SNMPv3 counters using the CLI (4000, 5000, 6500) • SNMPv3 enhancements (4000, 5000, 6500) • QoS data export (6500 only) • Dynamic VLAN support with auxiliary VLANs (4000, 5000, 6500) • Local command accounting (4000, 5000, 6500) • Core dump for debugging (5000, 6500) • EtherChannel enhancements with PFC2 (6500 only) • VMPS server (4000, 5000, 6500) • Reduced MAC address usage (4000, 5000, 6500) • Cisco IOS[®] Software-like ping (4000, 5000, 6500) • Layer 2 Traceroute (4000, 5000, 6000) • Write tech-support command (4000, 5000, 6500) • Search on More prompt (4000, 5000, 6500) • Clearing counters on a per-port basis (4000, 5000, 6500) • System warnings and error counters (5000)
Network Security	<ul style="list-style-type: none"> • VACL logging of access denied (6500 only) • Bidirectional VACLs for Private VLANs (6500 only) • IEEE 802.1x (4000, 5000, 6000) • Loop guard (4000, 5000, 6500) • Spanning Tree Protocol root guard (4000, 5000, 6500) • Secure Shell (SSH) encryption (4000, 5000, 6500) • MAC address filtering (5000, 6500) • Ability to limit console and Telnet login attempts (4000, 5000, 6500) • Enhanced ACL configuration with private VLANs (6500) • BPDU packet filtering (4000 and 5000)



Table 3 Features Supported by CatOS 6 Train

Network Resiliency	<ul style="list-style-type: none">• Single router mode (SRM) redundancy (5000, 6500)• Cisco EtherChannel® technology enhancements (4000, 6500)• Autostate enhancements (6500)• TCAM test on bootup (6500 only)• BPDU skew detection (4000, 5000, 6500)• Jumbo frame feature enhancement (5000, 6500)
Multicast Services	<ul style="list-style-type: none">• Multicast suppression for Gigabit Ethernet modules (6500 only)

Cisco Catalyst 6500

http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/relnotes/78_11235.htm#wp33188

Cisco Catalyst 5000

http://www.cisco.com/en/US/products/hw/switches/ps679/prod_release_note09186a008007eea5.html

Cisco Catalyst 4000

http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/relnotes/ol_2117.htm

Cisco Catalyst Software Release Numbering Scheme

Release X.Y(n)zzz, where:

X Denotes a train, for example, the “6 train”

X.Y Denotes a feature set, for example, “Release 6.1”

(n) Denotes the maintenance/bug fix level, for example, “6.1(1)”

zzz Denotes a special release, for example, “6.1(1)XXX”

Software Train Life Cycle

Each Cisco Catalyst 4000 and 6500 series software release is a member of a release train. Each release train consists of two phases: the Early Deployment (ED) release phase and the General Deployment (GD) release phase. ED releases are the early life stages of the train, where new functionality is added concurrent with bug fixes being applied.

The GD releases are considered the later life stages where only bug fixes being applied and there are three classifications within the GD release phase. Those include (Pre-General Deployment), GD, and GD-Mature Maintenance. After the train has transitioned to maintenance mode, it enters pre-GD and no new functionality is added. After all requirements are met for the train, the train transitions to GD status, and eventually to GD-Mature Maintenance once the train is near its end of life.

Cisco Catalyst 4000 and 6500 Series Software Release Train Types and Definitions

ED Release

- Deliver new functionality to market quickly
- Generally delivered every three to six months



- Typically there are several ED releases in each train before it goes to pre-GD, and then GD status
- When a train is in the ED stage of its life cycle, delivery of bug fixes often requires moving to the next ED release, which includes new functionality

Pre-GD Release

- The software train is now at the mature “Feature Freeze” stage in its life cycle
- Typically there are several maintenance releases in this stage

A train is designated as “pre-GD” when no new functionality is being added and only bug fixes are applied (for example, this becomes a maintenance train)

GD Release

- Goal is stability
- GD maintenance releases are generally delivered every six to ten weeks
- Must meet rigid criteria including defect arrival rate thresholds and a customer feedback survey in order to achieve GD status. In order to achieve GD status, a software release train must meet the following criteria:
 1. Minimal deployment timeframe of three months in the field
 2. Installed and running on at least 1000 systems in the field (determined by number of systems shipped from Cisco manufacturing plus the number of downloads from Cisco.com)
 3. Arrival rate for customer-found severity one bugs less than ten per month
 4. Successfully pass a detailed Customer Satisfaction Survey with responses from at least 100 customers. To pass there must be agreement that there are no quality problem areas. Any problems must be addressed by engineering

GD-Mature Maintenance

- A train is designated as “GD-Mature Maintenance” when it is close to end of life. Only severity 1 bugs are fixed in this stage

Milestone Dates

- *EOS*—the date at which product is removed from the price list and is no longer orderable through the normal, nonexception, order fulfillment process
- *EOE*—the date after which scheduled maintenance releases are not produced and the software is removed from Cisco.com.
- *EOL*—the date after which the software release is no longer supported by Cisco customer support

Release Train Status Transition Timeframes

From the start of a train there are multiple ED releases before feature freeze at which point the train becomes pre-GD.

- On average it takes 12 months before a train reaches pre-GD status
- From Pre-GD it takes six months on average to achieve GD status
- GD to GD-Mature Maintenance will generally occur in 8 to 12 months
- GD-Mature Maintenance to EOE is no less than three months and generally not longer than six months



- The Cisco customer support group continues to provide support for a release train until it reaches its EOL, which is generally six months after EOE

Cisco Catalyst 4000, 5000, and 6500 Series Software Maintenance Guidelines

To better ensure the stability of the release train as it ages, less change is allowed in the source code base. The level of change that is allowed depends on the severity of the problem and its effect on the release's stability. Table 1 identifies the minimal severity level required at different milestones in the release train's life.

Table 4 Bug Fixes for Each Release Type

Release Status	Committed Fixes
GD-Mature Maintenance	S1
GD	S1-S2
Pre-GD	S1-S3
ED	S1-S4
Development Mainline	S1-S5

Table 5 Bug Security Level Definitions

Level	Definitions
S1	Catastrophic
S2	Severe
S3	Moderate
S4	Minor
S5	Cosmetic/Enhancement Request

Please forward any questions, comments, or feedback regarding this product bulletin to:

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