# Selecting a System Image for the LightStream 1010 and Catalyst 8500 Series

## Document ID: 6340

## Contents



# Introduction

Cisco offers several Cisco IOS® Software Releases for LightStream 1010 and 8500 ATM switch routers. Each release offers a different combination of functionality and hardware support. This document provides general Cisco IOS software release suggestions for these platforms and discusses factors to consider when you choose a release.

# Prerequisites

## Requirements

There are no specific requirements for this document.

## Components Used

This document is not restricted to specific software and hardware versions.

## Conventions

Refer to the Cisco Technical Tips Conventions for more information on document conventions.

# Overview of Cisco IOS Release Model

Since Cisco IOS® Release 11.3 (and more fully since Cisco IOS Software Release 12.0), Cisco has followed an IOS release model that generally uses two types of releases:

- **Main releases** Identified by a version name that does not end with a capital letter. For example, Cisco IOS Software Release 12.0(15) is available at the Cisco Connection Online Software Center for

the LightStream 1010. Cisco IOS main releases seek greater stability and quality. For that reason, main releases do not accept the addition of features or platforms. Each maintenance revision provides bug fixes only.

- **Early deployment (ED) releases** Unlike main Cisco IOS releases, Cisco IOS ED releases are vehicles that bring new development to the marketplace. Each maintenance revision of an ED release includes not only bug fixes, but a set of new features, new platform support, and general enhancements to protocols and the Cisco IOS infrastructure. Every one to two years, the features and platforms of the ED releases are ported to the next main Cisco IOS release. Among the types of ED releases are:

    - Consolidated Technology Early Deployment (CTED) releases are easily identifiable by name. The names of CTED releases always ends with a "T" (technology). Examples of consolidated technology releases are Cisco IOS Software Releases 11.3T, 12.0T, and 12.1T.

Further information on Cisco's release trains and the release model is available at the Cisco Connection Online Software Center in White Paper: Cisco IOS Reference Guide. A more detailed version of this white paper is also available in Cisco IOS Releases: The Complete Reference guide .

# 12.0 Mainline and 12.0W5 for the LightStream 1010

The LightStream 1010 supports two major trains of Cisco IOS images: 12.0 mainline and 12.0W5. Normally, a mainline image provides the most stable release for a platform that runs Cisco IOS. However, this guideline does not apply to the 12.0 mainline for the LightStream 1010.

The 12.0 mainline image is derived from the 11.3WA4 train, specifically the 11.3(5)WA4(8) release. After the first few maintenance releases, the 12.0 mainline image does not contain any new LightStream 1010−specific features. New features that specifically enhance the functionality of the LightStream 1010 are integrated in the 12.0W5 train. If you need only the 11.3WA4 features, Cisco advises you to use the 12.0 mainline image as the general−deployment maintenance path. Otherwise, Cisco advises you to use the latest 12.0W5 image.

In addition, Cisco releases a maintenance image for every platform that runs the 12.0 mainline. It is important to understand that only a few LightStream 1010−specific bug fixes are integrated in 12.0 mainline releases. It is possible that a later 12.0 mainline release for the LightStream 1010 contains a bug that specifically applies to the LightStream 1010. This table presents some of these fixes, but this is not meant to be a complete list:

**Note:** These Cisco bug IDs can only be viewed by registered customers who are logged in.

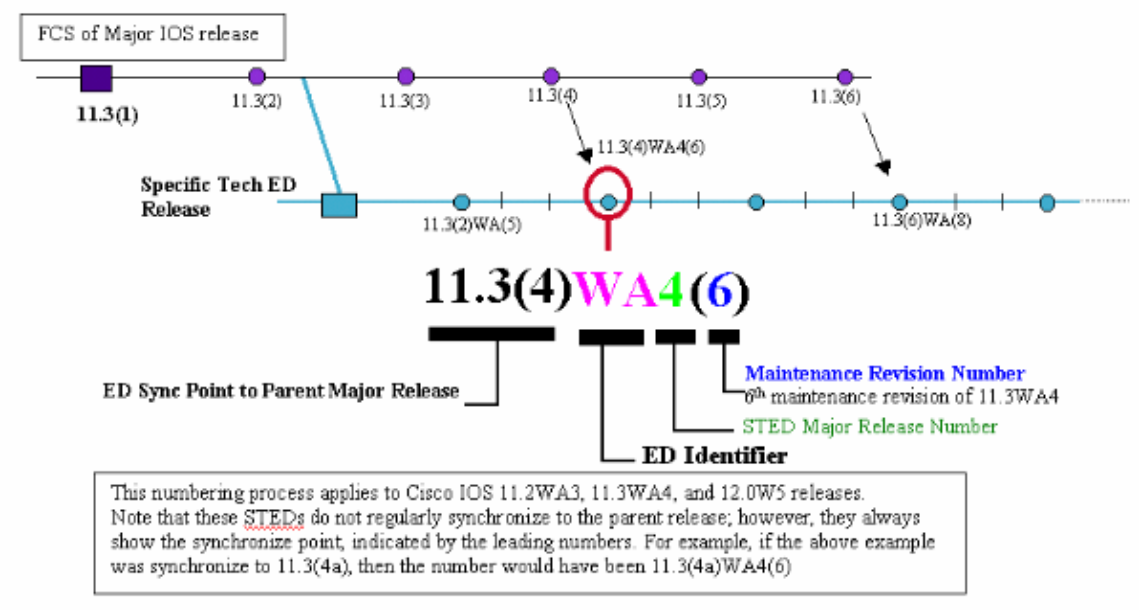
| Cisco Bug ID | Fixed−In Cisco IOS Software Release | Description |
|---|---|---|
| CSCdr68425 | 12.0(13) | Resolves a problem with the creation of a soft VC with 95 percent of the permanent virtual path (PVP) bandwidth. On variable bit rate (VBR) virtual path (VP) tunnels, the peak cell rate (PCR) traffic parameters of a call are now checked against the PCR of the tunnel rather than against the maximum equivalent bandwidth of the tunnel. |

| | | |
|---|---|---|
| CSCdr16095 | 12.0(13) | Resolves a problem with switched virtual circuit (SVC) call setup failures even when physical connectivity is fine. Also added these MIB objects:<br>• csfSigCallTotalSetupAttempts: total number of call setup attempts<br>• csfSigCallTotalFailAttempts: total number of failed call setup attempts<br>• csfSigCallFilterFailAttempts: number of failed call setup attempts that match the diagnostic filter |
| CSCdr96649 | 12.0(14) | Resolves software−forced crash on Catalyst 8510 MSR platform at PC 0x600B3A60. |
| CSCdp90229 | 12.0(15) | Applies fix in ATM signaling code that runs on *routers*. Resolves crash on 7507 platform due to a bus error at address 0xD0D0D19. |
| CSCdk87932 | 12.0(16) | Implements Service Specific Connection Oriented Protocol (SSCOP) state level changes. Resolves SSCOP BGN/END protocol data unit (PDU) conformance issue, and allows switches and routers to interoperate with SVC redundancy features in 12.1E images. |

# Cisco IOS Software Release 12.0W5

The Cisco IOS Software Release 12.0W5 technology release for the LightStream 1010 as well as for the Catalyst 8500 series is based on and maintains synchronization with the Cisco IOS 12.0 mainline image. Synchronization means that a particular 12.0(X)W5 image includes the same bug fixes as the 12.0(X) mainline image that matches. For example, the 12.0(16)W5 image includes the same bug fixes as the 12.0(16) mainline image.

As a technology release, the 12.0W5 train integrates new hardware support, such as the eight−port T1/E1 IMA port adapter, and new software support, such as IP MultiLayer Switching (MLS) over ATM and Fast Simple Server Redundancy Protocol (FSSRP).




Cisco IOS Software Release 12.0W5 uses this naming scheme:

- Cisco IOS Software Release 12.0(1)W5(X)
- Cisco IOS Software Release 12.0(1)W5(Y)
- Cisco IOS Software Release 12.0(x)W5(Z)
- Cisco IOS Software Release 12.0(y)W5(Zb)

**Note:** Lowercase x and y indicate the version of the parent IOS mainline release.

**Note:** Uppercase X, Y, and Z indicate the maintenance level of the release. Maintenance releases integrate new features and new software fixes. Maintenance releases typically are released every seven to eight weeks.

An important concept to understand about Cisco IOS is general deployment (GD) status, which refers to the point at which Cisco declares a release to be stable on all platforms and in all network environments. A release reaches GD status if the release meets certain quality criteria, which includes positive feedback from actual customers. Only mainline releases, which do not integrate new hardware and software support, are designed to reach GD status. Technology releases like Cisco IOS Software Release 12.0W5 do not reach GD status.

In order to view more information about the Cisco IOS Software 12.0W5(X) releases, click here and check the Release Notes for your ATM switch router.

## Cisco IOS Software Release 12.1(5)EY

The Catalyst 8500 Series and the LightStream 1010 are now supported by Cisco IOS® Software Release 12.1(x)EY train. For more information about this train, refer to these links:

- Cisco IOS Software Release 12.1(5)EY
- Catalyst 8540 Cisco IOS Release 12.1 Documents
- Catalyst 8510 MSR Documents

The 12.0W5 train effectively went into maintenance mode for the LightStream 1010 and Catalyst 8500 after Cisco IOS Software Release 12.0(10)W5(18b). The 12.1(x)EY train is an X or short−lived technology release through which new features and new hardware support are introduced. The 12.1(x)EY train merges back into the main Cisco IOS Software Release 12.1E release and ultimately into a Cisco IOS Software 12.2E release.

# Image Memory Requirements

Before you upgrade your ATM switch router, make sure that your system has sufficient memory resources to support 12.0W5 images. The internal architecture of your switch router uses the these memory components:

- Flash memory stores a copy of the Cisco IOS software and is retained when you power down or restart. The 8540 MSR requires 16 MB of Flash memory, while the 8510 MSR and LightStream 1010 require eight MB of Flash memory.
- On power on, the system loads the operating image into dynamic random−access memory (DRAM), from which the image runs. DRAM also stores dynamic configuration information and state tables such as routing tables and virtual circuit (VC) tables. The Catalyst 8540 MSR now requires 256 MB of DRAM, while the 8510 MSR and LightStream 1010 require 64 MB of DRAM.

Issue the **show version** command to determine your current amount of DRAM and Flash memory. In this output, the LightStream 1010 has 64 MB of DRAM and eight MB of Flash memory.

```
ls1010−3.8#show version
   Cisco Internetwork Operating System Software
   IOS (tm) LightStream1010 WA4−5 Software (LightStream1010−WP−M), Version 12.0(10)W5(18b)
   Copyright (c) 1986−2000 by cisco Systems, Inc.
   Compiled Thu 03−Aug−00 08:33 by integ
   Image text−base: 0x60010930, data−base: 0x60AC4000

   ROM: System Bootstrap, Version 11.2(1.4.WA3.0) [integ 1.4.WA3.0], RELEASE SOFTWARE
   ROM: LightStream1010 WA4−5 Software (LightStream1010−WP−M), Version 12.0(4a)W5(11a) REL

   ls1010−3.8 uptime is 4 weeks, 4 days, 2 hours, 47 minutes
   System restarted by power−on
   System image file is "slot0:ls1010−wp−mz_120−10_W5_18b.bin"

   cisco LightStream1010 (R4600) processor with 65536K bytes of memory.
   R4700 processor, Implementation 33, Revision 1.0
   Last reset from power−on
   1 Ethernet/IEEE 802.3 interface(s)
   18 ATM network interface(s)
   123K bytes of non−volatile configuration memory.

   8192K bytes of Flash internal SIMM (Sector size 256K).
   Configuration register is 0x2102
```

# Other Firmware Code

On the ATM switch router, it is possible to reprogram the functional images on the route processors, ROMmon, switch processors, switch processor feature cards, carrier modules, full−width modules, and network clock modules. Functional images provide low−level functionality for various hardware controllers. On hardware controllers within system programmable devices, such as field programmable gate arrays (FPGAs) and Erasable Programmable Logic Devices (EPLDs), it is possible for the hardware functional images to be reprogrammed independent of system image loads and without the removal of the devices from the controller.

The FPGA and functional images include caveat fixes, but in most cases, it is not necessary to upgrade. The release notes that describe the caveats from the FPGA and functional images are available here.

# Before a Release is Deployed

In general, Cisco advises you to use the latest image because of the amount of software features and hardware support and high number of bug fixes. Before you deploy a Cisco IOS software release in a production

network, always consult appropriate product−specific documentation and perform acceptance tests in your own test environment, as well as consult the these resources on the Cisco website:

- Field Notices
- Bug Toolkit Use this tool to search for known bugs based on software version, feature set and keywords. You must be a registered user and be logged in to access this option.

For other practices to consider when you make network changes like upgrades, refer to Change Management: Best Practices White Paper.

## Related Information

- **More ATM Information**
- **Technical Support & Documentation − Cisco Systems**

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Updated: Jun 02, 2006 Document ID: 6340

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