

# How to Choose a Cisco IOS Software Release

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***Interactive:*** This document offers customized analysis of your Cisco device.

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## **Introduction**

This document provides guidelines to help you choose the most appropriate Cisco IOS® Software release to meet your needs, and provides suggestions and tools to aid you in your choice.

**Note:** In order to use the troubleshooting tools described in this document, you must be a registered customer and you must be logged in.

## **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.

## **How Do I Choose a Cisco IOS Software Release?**

The most important factors to take into account are:

- Hardware Support
- Feature Support

- Cisco IOS Software Release Version
- Memory Requirements

## Hardware Support

The first thing to check when you choose a Cisco IOS Software release is hardware support. You can find the software requirements of your hardware in the Cisco Product Documentation section of the Documentation CD, but Cisco recommends that you use the Cisco Software Advisor ( registered customers only ) , which allows you to search for Cisco IOS Hardware Support.

**Note:** In order to use the tools, you must:

- Compile a list of the different software versions that support all your hardware.
- Determine which features have to be deployed within your network.

For additional information on features and hardware support for any particular IOS release, refer to Cisco IOS Software. From this page, select the required IOS version under The Latest Cisco IOS Software Releases section. Next, click the **Bulletins** link under the Product Literature section and refer to the Cisco IOS Release Features and Hardware Support document.

## Feature Support

If you have the output of a **show version** command from your Cisco device, you can use the Output Interpreter Tool ( registered customers only ) to display potential issues and fixes. In order to use this tool, you must be a registered customer, be logged in, and have JavaScript enabled.

It is important to check for feature support, especially if you plan to use recent software features. If you want to keep the same features as the version that currently runs on your router, and you are not sure which feature set you use, issue the **show version** command on your router.

The second line of the **show version** command looks like this:

```
IOS (tm) 2500 Software (C2500-JS-L), Version 12.0(9), RELEASE SOFTWARE (fc1)
```

The "JS" is the feature set. In this example, J stands for "Enterprise" and S stands for "Plus". With this knowledge, you can choose a similar feature set.

In order to find out which Cisco IOS Software supports all of the features you plan to use, it is best to use the Cisco Software Advisor ( registered customers only ) , which allows you to search by feature(s) or by release, and it even allows you to compare two releases. Write down the different software versions that meet your requirements and that are compatible with your hardware.

For additional information on features and hardware support for any particular IOS release, refer to Cisco IOS Software. From this page, select the required IOS version under The Latest Cisco IOS Software Releases section. Next, click the **Bulletins** link and refer to the Cisco IOS Release Features and Hardware Support document.

## Cisco IOS Software Release Version

You still have to choose the particular Cisco IOS Software release you want to run. All of them are fine as long as they support your hardware, contain the features you want, and are compatible with the memory of your router (see Memory Requirements). Here are some general recommendations and guidelines to make it easier for you:

## Release Format

Cisco IOS Software releases use the format A.B(C)D where:

- A, B, and C are numbers.
- D (if present) is a letter.
- A.B is a major release.
- C is the maintenance version. A higher maintenance number means more bug fixes. Any feature, bug fix, and hardware support available in a particular maintenance version are also available in the next one.
- D, if present, indicates that the release is not a major release, but an extension of a major release. These extensions usually provide new features and new hardware support.

**Note:** Older releases are often more stable than new ones, but also contain fewer features.

## Cisco IOS Software Image

The Cisco IOS Software image is either ED, LD, GD, or DF:

- **ED stands for "Early Deployment."** Early Deployment releases offer new feature, platform, or interface support. Most non–major releases contain ED releases.
- **GD stands for "General Deployment."** A major release of Cisco IOS Software reaches the "General Deployment" milestone when Cisco feels it is suitable for deployment anywhere in customer networks where the features and functionality of the release are required. Criteria for reaching the "General Deployment" milestone are based on, but not limited to, customer feedback surveys from production and test networks using the releases, Customer Engineer bug reports, and reported field experience. Only major releases are candidates for the General Deployment milestone.
- **LD stands for "Limited Deployment."** A major release of Cisco IOS Software is said to be in the "Limited Deployment" phase of its life cycle during the period between its first shipment and the GD milestone.
- **DF stands for "Deferred."** DF releases are not available for downloading because of known defects. These should not be installed on your router.

When choosing a release, Cisco recommends a GD release when possible. Only choose an ED release if your hardware and software features leave you no other choice.

## Memory Requirements

Before you install a new Cisco IOS Software image on your router, check if your router meets the memory requirements for that image. For this, issue the **show version** command on your router, and look for these lines:

```
...
cisco RSP4 (R5000) processor with 65536K/2072K bytes of memory
...
16384K bytes of processor board System flash (Read ONLY)
```

The first line tells you how much Dynamic RAM (DRAM) and Packet memory are installed in your router. Some platforms use a fraction of their DRAM as Packet memory. The memory requirements take this into account, so you have to add both numbers to find the amount of DRAM available on your router (from a memory requirement point of view).

### Example 1: Separate DRAM and Packet Memory

```
...
cisco RSP4 (R5000) processor with 65536K/2072K bytes of memory
...
```

The 4000, 4500, 4700, and 7500 routers have separate DRAM and Packet memory, so you only need to look at the first number. This shows that the router has 65536 K (or 64 M) of DRAM.

### Example 2: Combined DRAM and Packet Memory

```
...
cisco 2611 (MPC860) processor (revision 0x202) with 29696K/3072K bytes of memory
...
```

The 1000, 1600, 2500, 2600, 3600, and 7200 routers use a fraction of DRAM as Packet memory, so you need to add both numbers to find out the real amount of DRAM. In this example, the router has 2969 K + 3072 K = 32768 K (or 32 M) of DRAM.

### Example 3: Available Flash Memory

```
...
cisco RSP4 (R5000) processor with 65536K/2072K bytes of memory
...
16384K bytes of processor board System flash (Read ONLY)
```

The bottom line tells you how much Flash memory is available. Some of it might already be in use. In order to find out the amount of free Flash memory, issue a **show flash** command:

```
Router#show flash

System flash directory:
File      Length  Name/status
  1      8407884  c2600-io3s56i-mz.121-6
[8407948 bytes used, 8369268 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)
```

Variants of the **show flash** command can be used to inspect different specific Flash devices on the platform. Refer to the **show flash** command definition for information on how to use these variants.

### Example 4: Memory Available in Cisco Catalyst 6500/6000 Switches

For Catalyst 6500/6000 Series Switches that run in Hybrid mode, the DRAM must be calculated separately for the Supervisor and Multilayer Switch Feature Card (MSFC).

This is **show version** command output from the Supervisor module:

```
Console>show version

WS-C6009 Software, Version NmpSW: 6.2(0.11)KEY

Copyright (c) 1995-2000 by Cisco Systems

NMP S/W compiled on Oct  5 2000, 01:18:33

!--- Output suppressed.
```

```

Module Total   Used   Free   Total   Used   Free   Total Used   Free
-----
1          65408K 45402K 20006K 16384K   8683K  7701K  512K  253K  259K

Uptime is 1 day, 19 hours, 54 minutes

Console> (enable)

```

The Supervisor module has 64 MB (65408 KB) of DRAM present.

This is output of the **show version** command from the MSFC card:

```

MSFC#show version

Cisco Internetwork Operating System Software
IOS (tm) MSFC Software (C6MSFC-JSV-M),
  Version 12.1(8a)E2, EARLY DEPLOYMENT RELEASE SOFTWARE (fcl)

!--- Output suppressed.

cisco Cat6k-MSFC (R5000) processor with 57344K/8192K bytes of memory.

!--- Output suppressed.

```

The MSFC card has a DRAM of 64 MB (57344 KB + 8192 KB).

For Catalyst 6500/6000 Series Switches that run in Native IOS mode, the **show version** command displays the combined DRAM memory from the Supervisor and MSFC.

```

Router#show version

Cisco Internetwork Operating System Software

!--- Output suppressed.

System image file is "sup-bootflash:c6sup22-jsv-mz"

cisco Catalyst 6000 (R7000) processor with 112640K/18432K bytes of memory.

!--- Output suppressed.

```

The combined DRAM memory present in the switch is 128 MB (112640 KB + 18432 KB).

You need to satisfy both the DRAM and the Flash requirements to be able to use the software you choose. If you do not meet the requirements, you can either add more Flash or more DRAM in the router, or choose another Cisco IOS Software release. You may also consider a reduced feature set or an older release, since they have less features, and therefore fewer requirements.

To find the memory requirements for a particular release, you can use the Download Software area or the Release notes. To access the release notes for a Cisco IOS Software release:

1. Go to the Download Software area.
2. Select the major release in which you are interested.
3. Select **Platform Specific Release Notes** (or just **Release Notes** prior to Cisco IOS Software Release 11.2).
4. Select **Cross-Platform Release Notes** for the main release (for example, Cisco IOS Software Release 12.0 or 11.3), or choose the correct platform for other releases (such as Cisco IOS Software Release 12.1T or 12.0S).
5. Select **Memory Requirements** (or **System Requirements**, depending on the Cisco IOS Software release) and look for the memory requirements for your Cisco IOS Software image.

For Cisco 3600 and 2600 routers, the number of interfaces also influences the amount of memory necessary. Use the 2600/3600/3700 Memory Calculator ( registered customers only) to verify the requirements. Note that the tool and the release notes provide minimum requirements for normal utilization of the router. If you plan to have, for example, large routing tables on your router, consider installing additional memory.

## Bug Scrub

You can perform a bug scrub in order to check bugs on a new release. Refer to the Bug Toolkit ( registered customers only) .

## Download the Cisco IOS Software Image

You should now be ready to go to the Download Software area. Complete these steps:

1. Select the major release in which you are interested.
2. Select the platform.
3. Select the exact version you want to download. (At this point, you can see which versions are GD, LD, or ED [DF releases are not available for downloading]).
4. Select the feature set you want.

The memory requirements for that feature set are displayed. If your router matches them, go ahead and download the image.

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## Related Information

- **Cisco Routers Product Support**
- **Technical Support & Documentation – Cisco Systems**

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