



# ROM Monitor Overview and Basic Procedures

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The ROM Monitor (ROMMON) is a bootstrap program that initializes the hardware and boots the Cisco 900 ISR when you power on or reload a router.

If your router does not find a valid system image to load when it is booting, the system enters the ROMMON mode. ROMMON mode can also be accessed by interrupting the boot sequence during startup.

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## ROM Monitor Overview

The *ROM Monitor software* is also known as *ROMMON*, *boot software*, *boot image*, or *boot helper*. Although it is distributed with routers that use the Cisco IOS software, the ROMMON is a separate program from the Cisco IOS software. During normal startup, ROMMON initializes the router, and then, the control passes to the Cisco IOS software.

When you connect a terminal to the router that is in ROMMON mode, the ROMMON command-line interface (CLI) prompt is displayed.

Access the ROMMON mode to perform these tasks:

- Specify config-register value to use for the next boot up
- Boot a valid IOS image
- Bypass NVRAM settings and config-register value for password recovery



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**Note** After the Cisco IOS software boots up, ROMMON is no longer in use.

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### Environmental Variables and the Configuration Register

Two primary connections exist between ROMMON and the Cisco IOS software: the ROMMON environment variables and the configuration register.

The ROMMON environment variables define the location of the Cisco IOS software and describe how to load it. After ROMMON has initialized the router, it uses the environment variables to locate and load the Cisco IOS software.

The *configuration register* is a software setting that controls how a router starts up. One of the primary uses of the configuration register setting is to control whether the router starts in ROMMON mode or Administration EXEC mode. The configuration register is set in either ROMMON mode or Administration EXEC mode as needed. You can set the configuration register using the Cisco IOS software prompt when you need to use ROMMON mode. When maintenance in ROMMON mode is complete, change the configuration register back so that the router reboots with the Cisco IOS software.

### **Access ROMMON Mode with a Terminal Connection**

When the router is in ROMMON mode, you can access the ROMMON software only from a terminal connected directly to the console port of the card. Because the Cisco IOS software (EXEC mode) is in operation, the nonmanagement interfaces are not accessible. Therefore, all Cisco IOS software resources are unavailable.

### **Network Management Access and ROMMON Mode**

ROMMON mode is a router mode, not a mode within the Cisco IOS software. The ROMMON software and the Cisco IOS software are two separate programs that run on the same router. At any given time, the router is running one of these programs, but it never runs both at the same time.

One area that can be confusing when using ROMMON and the Cisco IOS software is the area that defines the IP configuration for the Management Ethernet interface. Most users are comfortable with configuring the Management Ethernet interface in the Cisco IOS software. When the router is in ROMMON mode, however, the router is not running the Cisco IOS software, therefore, Management Ethernet interface configuration is not available.

When you want to access other devices, such as a TFTP server, while in ROMMON mode on the router, you must configure the ROMMON variables with IP access information.

For more information on ROMMON and Basic Procedures, see [Cisco ISR 900 Software Configuration Guide](#).