How RME Handles Flash Information on Cisco IOS Devices

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Introduction

This document discusses how Resource Manager Essentials (RME) applications handle Flash memory in devices that run Cisco IOS® Software.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

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

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Flash Memory on Cisco IOS Devices

Devices that run Cisco IOS Software use Flash cards for persistent storage of software and firmware images.

Flash is also useful to store startup configuration files on some Cisco IOS hardware platforms. RME reads the Flash card information from Cisco IOS devices during the Inventory application device import operation.

The Inventory application uses Flash information for device hardware and detailed reports. The Software Image Management (SWIM) application uses the same information to verify that the device has enough Flash space to run a new software image.

You can get Flash cards in the form of Flash SIMMs. You install Flash SIMMs internally on the device. You can also get Flash as a portable card. You insert the card into PC Memory Card International Association (PCMCIA) slots on the back of the chassis. (Only certain Cisco IOS hardware platforms support the PCMCIA option.) Some Cisco IOS devices support multiple Flash cards. You can divide each Flash card into two

separate partitions and identify the two partitions as *flash−device−name*:1 and *flash−device−name*:2.

MIB Support

Cisco IOS devices that run Cisco IOS Software Release 10.3 or later support CISCO−FLASH−MIB. This MIB allows Simple Network Management Protocol (SNMP) managers to read Flash information. The MIB also supports multiple Flash cards, Flash partitions, and file properties present on each Flash partition. Devices that run Cisco IOS Software Release 10.3 or earlier support only OLD−CISCO−FLASH−MIB. This MIB allows SNMP managers to recognize only the first Flash partition on the device. Cisco 7000 and 7010 devices do not implement CISCO−FLASH−MIB in any of the software releases. Therefore, SNMP managers can recognize only the first Flash partition on 7000 and 7010 devices. Route Switch Processor (RSP)−based 7500 and 7000 devices do not support any Flash MIB when the devices run Cisco IOS Software Releases 10.3 through 11.0. SNMP−based managers cannot recognize any Flash information on 7500 and 7000 devices that have an RSP processor.

There are some discrepancies in the Flash information that different applications see and report in RME. The discrepancies exist because SNMP is the complete basis of the Inventory application. The Inventory application does not see Flash information that is not available via any MIBs on devices. SWIM applications perform some higher−level processes on Flash information before the applications use the information in reports. An explanation of the process appears in the next section.

RME Application Handling

The Inventory application polls both of the Flash MIBs to read the Flash−related information on the device. Then, Inventory displays the Flash size value that the OLD−CISCO−FLASH−MIB returns in the *Chassis Info* section of the Detailed Device and Hardware reports. This value represents the size of the first Flash partition on the device. If the device has multiple Flash cards or partitions, you should check the *Flash Device* and *Flash Partition* sections in the Detailed Device report.

SWIM uses CISCO−FLASH−MIB to read Flash information whenever it finds this MIB implementation on a device. If SWIM does not find this MIB, SWIM uses OLD−CISCO−FLASH−MIB to read Flash information. SWIM uses the command line interface (CLI) to read the Flash information on RSP−based devices if the devices do not support any Flash MIB. The Inventory application does not display any Flash information for devices that do not support either of the Flash MIBs.

SWIM does not erase any files that are less than 1 MB in size on a Flash partition because those files can be configuration files, HTML files, or Java applets. SWIM subtracts the sizes of all files that are less than 1 MB from the total size of the Flash partition. SWIM displays the result of the subtraction as size of Flash in the SWIM user interface. In the Add Image to Library window, SWIM chooses the largest Flash partition for display; the window displays the size as an integer truncated value. The Distribute Images window displays information for all Flash partitions on the device; the window displays the values to a two−decimal precision.

This example illustrates SWIM behavior on a device that has two files of sizes 10 KB and 50 KB. The Flash card total size is exactly 8 MB. Because the device has two files with sizes of less than 1 MB, the Add Image to Library window displays the size as 7 MB. The Distribute Images window displays the size as 7.94 MB.

```
enm−2502> show flash
System Flash directory:
File Length Name/status
1 8089628 c2500−js−l.112−14.bin
2 10470 test_file1
3 52995 test_file2
8153288 bytes used, 235320 available, 8388608 total]
8192K bytes of processor board System Flash (Read ONLY)
enm−2502>
```

If none of the RME applications can see the Flash information on a device, refer to the Cisco IOS Software release notes to determine if the device supports Flash MIBs. If the device does not support any MIB, you should manually upgrade the device to a software release that supports Flash MIB. With the upgrade, all RME applications behave correctly on the device.

Related Information

- **Technical Support − Cisco Systems**

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