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Introduction

This document describe step-by-step process on how to troubleshoot and recover Cisco 4000 series ISR (Integrated Services Router) from ROMMON or infinite boot loop if configured with IOS-XE release of incorrect platform. At times Cisco 4000 series ISR may stuck in ROMMON or continuous boot loop.

Problem

Cisco 4400 and Cisco 4300 series routers have IOS-XE images looks very similar hence in case you configured Cisco 4400 with IOS-XE release for Cisco 4300 or vice-versa, router will not bootup completely, instead will get stuck in ROMMON.

Here you have Cisco 4400 configured with an IOS-XE release of Cisco 4300 -

Cisco ISR4431/K9 (1RU) processor with 1665895K/6147K bytes of memory.
Processor board ID XXXXXXXXXX
4 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
7057407K bytes of flash memory at bootflash:.
4013055K bytes of USB flash at usb1

If you reload this router, router will get stuck in ROMMON mode with this message on boot-up -

These methods to bring router up using correct IOS-XE image will not work.

1. Try to bring router up using USB Flash -

Please reset before booting

2. Try to ignore startup-config and bring router up without startup configuration

You must reset or power cycle for new config to take effect

Please reset before booting

3. Try to bring router up from traditional bootflash file system -

Please reset before continuing

4. In some cases, internal bootflash file system will not recognized by router.

Please reset before continuing

Solution

The correct process to recover this infinite boot loop issue is

1. Break router into ROMMON mode using break sequence during boot-up -

2. Change the config-register vlaue to 0x0 to ignore the boot variable configured in startup config -

You must reset or power cycle for new config to take effect

3. This will bring router into ROMMON mode once again. Now change the config-register value to 0x2102

4. Now we need to configure correct boot variable from ROMMON -

Once router is up and running, you can delete the incorrect boot variable and confgure the correct IOS-XE release -

5. Save the changes

Password Recovery guide for the Cisco 4000 Series Intergrated Services Router -

http://www.cisco.com/c/en/us/td/docs/routers/access/4400/troubleshooting/guide/isr4400trbl/isr4400trbl02.html