Troubleshoot 4000 Series ISR ROMMON Boot Issues Caused by an Incorrect Image

Contents

[Introduction](#)

[Background Information](#)

[Problem](#)

[Solution](#)

[Related Information](#)

Introduction

This document describes ROM monitor (ROMMON) recovery for Cisco 4400 Series Integrated Services Routers (ISRs).

Background Information

A Cisco 4000 Series ISR can remain in ROMMON or enter a continuous boot loop when its boot variable references a Cisco IOS® XE image for a different ISR platform family.

Problem

Cisco 4300 and 4400 Series routers use image filenames that look similar. If the boot variable references an image for the other platform family, the router does not complete the boot process and remains in ROMMON.

This example shows a Cisco ISR4431 with a boot variable that references a Cisco ISR4300 image:

<#root>

ROUTER#

show version

output omitted for brevity cisco

ISR4431/K9

```
 (1RU) processor with 3742893K/6147K bytes of memory. Processor board ID FJC2220A0Z2 1 Virtual Ethernet
configure terminal
 Enter configuration commands, one per line. End with CNTL/Z. ROUTER(config)#
boot system flash bootflash:isr4300-universalk9.03.13.01.S.154-3.S1-ext.SPA.bin
 ROUTER(config)#
end
 ROUTER# ROUTER#
show running-config | include boot
 boot-start-marker
boot system flash bootflash:isr4300-universalk9.03.13.01.S.154-3.S1-ext.SPA.bin
 boot-end-marker
```

If you reload this router, the router gets stuck in ROMMON mode with this message on boot-up:

```
<#root>
%IOSXEBOOT-1-INVALID_IMAGE: (RP/0): Booting an invalid ISR4300 image - Reloading system.
```

In this example, each recovery attempt to bring the router up with correct Cisco IOS XE image fails.

Attempt 1. Attempt to boot the router from a USB flash drive:

```
<#root>
rommon 1 >
boot usb1:isr4400-universalk9.03.15.01.S.155-2.S1-std.SPA.bin
```

Please reset before you reboot:

```
<#root>
rommon 2 >
```

reset

Attempt 2. Attempt to bypass the startup configuration and boot the router:

<#root>

rommon 3 >

confreg 0x2142

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

<#root>

rommon 4 >

boot usb1:isr4400-universalk9.03.15.01.S.155-2.S1-std.SPA.bin

You need to reset before you boot:

<#root>

rommon 5 >

reset

Attempt 3. Attempt to boot the router from the internal bootflash file system:

<#root>

rommon 6 >

boot bootflash:isr4400-universalk9.03.15.01.S.155-2.S1-std.SPA.bin

Reset before you continue:

<#root>

rommon 7 >

reset

Solution

Use this procedure in order to boot the correct platform image and correct this persistent boot loop:

Step 1. In order to enter ROMMON, send a Break signal from the console terminal during router startup:

```
rommon 1 >
```

Step 2. Set the configuration register to **0x0** in order to return the router to ROMMON without automatically loading the configured image:

<#root>

```
rommon 1 >
```

confreg 0x0

Reset the router in order to activate the new value:

<#root>

```
rommon 2 >
```

reset

Step 3. After the router returns to ROMMON, set the configuration register to **0x2102** in order to restore normal boot behavior. Do not reset the router at this point:

<#root>

```
rommon 3 >
```

confreg 0x2102

Step 4. Manually boot the correct platform image from the storage location that contains the file, use the command **boot bootflash:<correct-platform-image.bin>**. For an image on USB flash storage, use the command **boot usb1:<correct-platform-image.bin>:**

```
<#root>

rommon 4 >

 boot bootflash:isr4400-universalk9.03.15.01.S.155-2.S1-std.SPA.bin
```

Step 5. After the router boots up, ensure that the correct image exists in bootflash. If the router booted from USB storage, copy the image to bootflash, with the command **copy usb1:<correct-platform-image.bin> bootflash:**. Remove the incorrect boot statement and configure the correct bootflash image:

```
<#root>

ROUTER(config)#

no boot system flash bootflash:isr4300-universalk9.03.13.01.S.154-3.S1-ext.SPA.bin


ROUTER(config)#

boot system flash bootflash:isr4400-universalk9.03.15.01.S.155-2.S1-std.SPA.bin
```

Step 6. Save the configuration:

```
<#root>

ROUTER#

write memory
```

For the password recovery guide for the Cisco 4000 Series Integrated Services Router, refer to Troubleshoot Password Recovery in IOS and IOS XE Routers.

Related Information

- Cisco Technical Support & Downloads