Config-Register

Written by Webadmin
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Introduction

This document explains what causes a router to lose its configuration if it loses power, or is rebooted. The document also provides a simple procedure to verify the problem on any router. In most cases, this is the result of an improperly set configuration register. The configuration register is usually changed during password recovery to bypass the startup configuration upon reboot. Many times, the configuration register is not returned to a normal setting.

Prerequisites
Requirements

There are no specific requirements for this document.

Components Used

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

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

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

Problem

The router can bypass the startup configuration stored in non-volatile RAM (NVRAM) during its boot sequence. In order to check whether this problem occurs, complete these steps:

   1.

After your router boots up, do not enter the initial configuration dialog (choose **No** when prompted).

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--- System Configuration Dialog ---   Would you like to enter the initial configuration dialog? [yes/no]:   **no**

2.

Press **Enter** to get to the Router> prompt.

3.

Type **enable**, and press ENTER to enter the privileged mode.

4.

From the Router# prompt, type **show start** and press ENTER. Your configuration must be the one that was saved before reboot or power loss. If you find that the configuration is not the same, it is possible that the router has ignored the startup configuration. Proceed to Step 5.

5.

Type **show version**, press ENTER, and look at the last line in the output that appears. Here is an example:

Router#**show version** Cisco Internetwork Operating System Software   IOS (tm) 2500 Software (C2500-JS-L), Version 12.1(5),   RELEASE SOFTWARE (fc1) Copyright (c) 1986-2000 by cisco Systems, Inc. Compiled Wed 25-Oct-00 05:18 by cmong Image text-base: 0x03071DB0, data-base: 0x00001000   ROM: System Bootstrap, Version 5.2(8a), RELEASE SOFTWARE BOOTFLASH: 3000 Bootstrap Software (IGS-RXBOOT), Version 10.2(8a), RELEASE SOFTWARE (fc1)   Router uptime is 7 minutes System returned to ROM by reload System image file is "flash:c2500-js-l_121-5.bin"   cisco 2500 (68030) processor (revision D) with 16384K/2048K bytes of memory. Processor board ID 03867477, with hardware revision 00000000 Bridging software. X.25 software, Version 3.0.0. SuperLAT software (copyright 1990 by Meridian Technology Corp). TN3270 Emulation software. 1 Token Ring/IEEE 802.5 interface(s) 2 Serial network interface(s) 32K bytes of non-volatile configuration memory. 16384K bytes of processor board System flash (Read ONLY)   **Co nfiguration register is 0x2142**

In this example, the configuration register shows 0x2142. The router bypasses the startup configuration stored in NVRAM during its boot sequence. This feature is normally used during a password recovery procedure.

This table explains the configuration register bit meanings:

Bit No.	Hex	Meaning
00-03	0x0000-0x000F	Boot Field Parameters 0x0000 Stays at the system
06	0x0040	Ignore NVRAM contents.
07	0x0080	OEM bit enabled to exclude details in boot messag
08	0x0100	Break disabled.
10	0x0400	IP broadcast with all zeros.
11-12	0x0800-0x1000	Console line speed.
13	0x2000	Boot default ROM software if network boot fails.
14	0x4000	IP broadcasts do not have net numbers.
15	0x8000	Enable diagnostic messages and ignore NVRAM c

The factory-default setting for the configuration register is 0x2102.

This indicates that the router should attempt to load a Cisco IOS® software image from Flash memory and load the startup configuration.

Solution

The most likely reason why the router has bypassed the startup configuration stored in NVRAM is that the configuration register has not been set properly. To change your configuration register so that the router does not ignore or skip the startup configuration upon reboot or power cycle, complete these steps:

From the Router# prompt:

   1.

Type **configure terminal** , and press ENTER.

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2.

Type **config-register** **0x2102**, and press ENTER.

3.

Type **end**, and press ENTER.

To verify the configuration register change, type **show version** at the Router# prompt, and review your   **show version** command output again. Look for the configuration register setting, which must show a new value upon the next reload. Here is an example:

Router#**configure terminal**   Enter configuration commands, one per line. End with CNTL/Z.
 Router(config)#   **config-register 0x2102**   Router(config)#**end** Router#
show version
 Cisco Internetwork Operating System Software   IOS (tm) 2500 Software (C2500-JS-L), Version 12.1(5),   RELEASE SOFTWARE (fc1) Copyright (c) 1986-2000 by cisco Systems, Inc. Compiled Wed 25-Oct-00 05:18 by cmong Image text-base: 0x03071DB0, data-base: 0x00001000   ROM: System Bootstrap, Version 5.2(8a), RELEASE SOFTWARE BOOTFLASH: 3000 Bootstrap Software (IGS-RXBOOT), Version 10.2(8a),   RELEASE SOFTWARE (fc1)   Router uptime is 11 minutes System returned to ROM by reload System image file is "flash:c2500-js-l_121-5.bin"   cisco 2500 (68030) processor (revision D) with 16384K/2048K bytes of memory. Processor board ID 03867477, with hardware revision 00000000 Bridging software. X.25 software, Version 3.0.0. SuperLAT software (copyright 1990 by Meridian Technology Corp). TN3270 Emulation software. 1 Token Ring/IEEE 802.5 interface(s) 2 Serial network interface(s) 32K bytes of non-volatile configuration memory. 16384K bytes of processor board System flash (Read ONLY)
Configuration register is 0x2142 (will be 0x2102 at next reload)

When the router is reloaded, the new configuration register setting becomes active.

Router#**reload** System configuration has been modified. Save? [yes/no]: **n** Proceed with reload? [confirm]

Your router now loads with the startup configuration, and the configuration register is set to 0x2102. Your configuration loads properly after the next reload or power cycle.

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