

Password Recovery Procedure for the Catalyst 6500/6000 Series Switches and Cisco 7600 Series Routers Running Cisco IOS System Software

Document ID: 14981

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Introduction

This document describes how to recover a password on Catalyst 6500/6000 Series Switches and Cisco 7600 Series Routers that run Cisco IOS® System Software.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document applies to the Supervisor 1, Supervisor 2, Supervisor 720, and Virtual Switching System (VSS) 1440 based systems. For Supervisor 720 based systems, this document applies when it runs Cisco IOS Software Release 12.2(17)SX or later. If your Supervisor 720 runs a version prior to this, refer to Password Recovery Procedure for the Catalyst 6500 with Supervisor 720 Running Cisco IOS System Software Software Prior to 12.2(17)SX.

Note: The supported software for Virtual Switching System (VSS) 1440 based systems is Cisco IOS® Software Release 12.2(33)SXH1 or later.

Background

The boot sequence is different on the Catalyst 6500/6000 and Cisco 7600 that run Cisco IOS System Software than the Cisco 7200 Series Router because the hardware is different. After you power-cycle the box, the switch processor (SP) boots up first. After a short amount of time (approximately 25 to 60 seconds) it transfers console ownership to the route processor (RP (MSFC)). The RP continues to load the bundled software image. It is crucial that you press **Ctrl-brk** just after the SP gives over control of the console to the RP. If you send the break sequence too soon, you end up in the ROMMON of the SP, which is not where you should be. Send the break sequence after you see this message on the console:

```
00:00:03: %OIR-6-CONSOLE: Changing console ownership to route processor
```

After this point, the password recovery is the same as a normal router.

Note: From this point onward, the Catalyst 6000 Series Switch that runs Cisco IOS System Software is referred to as a router.

Conventions

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


Step-by-Step Procedure

The switch is configured like a router because of the operating system that runs on the switch. The password recovery procedure follows the same steps as a Cisco 7200 Series Router, except that you have to wait approximately 25 to 60 seconds longer before you start the break sequence.

1. Attach a terminal or PC with terminal emulation to the console port of the router. Use these terminal settings:

```
9600 baud rate
No parity
8 data bits
1 stop bit
No flow control
```

The required console cable specifications are described in the Cable Specifications document. Instructions on how to connect to the console port are in the Module Installation Guide. The Connecting to the Console Port Supervisor Engine Only section provides useful information.

2. If you still have access to the router, issue the **show version** command, and record the setting of the configuration register. It is usually 0x2102 or 0x102. [Click here](#) to see the output of a **show version** command.
3. If you do not have access to the router (because of a lost login or TACACS password), your configuration register is set to 0x2102.
4. Turn off the router and then turn it back on with the help of the power switch.
5.  **Caution:** The break sequence must be initiated only after the RP gains control of the console port.

Press **Break** on the terminal keyboard right after the RP gains control of the console port. On the Catalyst 6000 that runs Cisco IOS Software, the SP boots first. After it has booted, it turns control over to the RP. After the RP gains control, initiate the break sequence. The RP gains control of the console port when you see this message. (Do not initiate the break sequence until you see this message):

```
00:00:03: %OIR-6-CONSOLE: Changing console ownership to route processor
```

From this point on, the password recovery procedure is the same as for any other router. If the break sequence does not work, refer to the Standard Break Key Sequence Combinations During Password Recovery for other key combinations.

6. Type **confreg 0x2142** at the `rommon 1>` prompt to boot from Flash without loading the configuration.
7. Type **reset** at the `rommon 2>` prompt.

The router reboots. However, it ignores the saved configuration.

8. Type **no** after each setup question or press **Ctrl-C** to skip the initial setup procedure.
9. Type **enable** at the Router> prompt.

You are in **enable** mode and see the Router# prompt.

10. **Important:** Issue the **configure memory** or **copy start running** commands to copy the Nonvolatile RAM (NVRAM) into memory. Do not issue the **configure terminal** command.
11. Issue the **write terminal** or **show running** command.

The **show running** and **write terminal** commands show the configuration of the router. In this configuration, you see under all the interfaces the **shutdown** command. This means that all the interfaces are currently shut down. You see the passwords either in encrypted or unencrypted format.

12. Issue the **configure terminal** command to enter global configuration mode and make the changes.

The prompt is now hostname(config)#.

13. Issue the **enable secret <password>** command in global configuration mode to change the **enable** password.
14. Issue the **config-register 0x2102** command, or the value you recorded in Step 2 in global configuration mode (Router(config)#) to set the configuration value back to its original value.
15. Change the virtual terminal passwords, if present:

```
Router(config)#line vty 0 4
Router(config-line)#password cisco
Router(config-line)#^Z
Router#
```

16. Issue the **no shutdown** command on every interface that is normally in use. Issue a **show ip interface brief** command to see a list of interfaces and their current status. You must be in enable mode (Router#) to execute the **show ip interface brief** command. Here is an example for one interface:

```
Router#show ip interface brief
Interface                IP-Address      OK? Method Status        Prol
Vlan1                    172.17.10.10   YES TFTP    administratively down dow
Vlan10                   10.1.1.1       YES TFTP    administratively down dow
GigabitEthernet1/1      unassigned     YES unset   administratively down dow
GigabitEthernet1/2      unassigned     YES TFTP    administratively down dow
GigabitEthernet2/1      unassigned     YES TFTP    administratively down dow
GigabitEthernet2/2      unassigned     YES TFTP    administratively down dow
FastEthernet3/1         172.16.84.110 YES TFTP    administratively down dow
<snip>...
```

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastEthernet 3/1
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)# <do other interfaces as necessary...>
```

17. Press **Ctrl-z** to leave the configuration mode.

The prompt is now hostname#.

18. Issue the **write memory** or **copy running startup** commands to commit the changes.

Sample Output

The example here shows an actual password recovery procedure. This example is created with the help of a Catalyst 6000 Series switch. Begin with the **show version** and **show module** commands to see what components are used in this example.

Press RETURN to get started.

Router>**enable**
Password:

Router#**show version**

Cisco Internetwork Operating System Software
IOS (tm) c6sup1_rp Software (c6sup1_rp-JSV-M), Version 12.1(6)E, EARLY DEPLOYME)
TAC Support: <http://www.cisco.com/cgi-bin/ibld/view.pl?i=support>
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Sat 17-Mar-01 00:14 by eaarmas
Image text-base: 0x60020950, data-base: 0x6165E000

ROM: System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE
BOOTFLASH: MSFC Software (C6MSFC-BOOT-M), Version 12.1(6)E, EARLY DEPLOYMENT RE)

Router uptime is 14 minutes
System returned to ROM by power-on (SP by reload)
System image file is "sup-bootflash:c6sup11-jsv-mz.121-6.E"

Cisco Catalyst 6000 (R5000) processor with 114688K/16384K bytes of memory.
Processor board ID SAD04281AF6
R5000 CPU at 200Mhz, Implementation 35, Rev 2.1, 512KB L2 Cache
Last reset from power-on
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
24 Ethernet/IEEE 802.3 interface(s)
2 Virtual Ethernet/IEEE 802.3 interface(s)
48 FastEthernet/IEEE 802.3 interface(s)
4 Gigabit Ethernet/IEEE 802.3 interface(s)
381K bytes of non-volatile configuration memory.
4096K bytes of packet SRAM memory.

16384K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x2102

Router#

Router#**show module**

Slot	Ports	Card Type	Model	Serial Number
1	2	Cat 6000 sup 1 Enhanced QoS (active)	WS-X6K-SUP1A-2GE	SAD043301JS
2	2	Cat 6000 sup 1 Enhanced QoS (standby)	WS-X6K-SUP1A-2GE	SAD03510114
3	48	48 port 10/100 mb RJ45	WS-X6348-RJ-45	SAD04230FB6
6	24	24 port 10baseFL	WS-X6024-10FL-MT	SAD03413322

Slot	MAC addresses	Hw	Fw	Sw
1	00d0.c0d2.5540 to 00d0.c0d2.5541	3.2	unknown	6.1(0.105)OR
2	00d0.bcf1.9bb8 to 00d0.bcf1.9bb9	3.2	unknown	6.1(0.105)OR
3	0002.7ef1.36e0 to 0002.7ef1.370f	1.1	5.3(1) 1999-	6.1(0.105)OR
6	00d0.9738.5338 to 00d0.9738.534f	0.206	5.3(1) 1999-	6.1(0.105)OR

Router#

Router#**reload**

Proceed with reload? [confirm]

*!--- Here you turn off the power and then turn it back on.
!--- Here it is done with a reload instead of a hard power-cycle.*

00:15:28: %SYS-SP-3-LOGGER_FLUSHING: System pausing to ensure console debugging.

00:15:27: %C6KPWR-SP-4-DISABLED: power to module in slot 2 set off (admin reque)
00:15:28: %C6KPWR-SP-4-DISABLED: power to module in slot 3 set off (admin reque)
00:15:28: %C6KPWR-SP-4-DISABLED: power to module in slot 6 set off (admin reque)

00:15:28: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor
00:15:28: %SYS-SP-3-LOGGER_FLUSHED: System was paused for 00:00:00 to ensure co.
00:15:30: %SYS-SP-3-LOGGER_FLUSHING: System pausing to ensure console debugging.

*** --- SHUTDOWN NOW ---

00:15:30: %SYS-SP-5-RELOAD: Reload requested
00:15:30: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

00:15:30: %SYS-SP-3-LOGGER_FLUSHED: System was paused for 00:00:00 to ensure co.

00:15:31: %OIR-SP-6-REMCARD: Card removed from slot 1, interfaces disabled

!--- First, the switch processor comes up.

System Bootstrap, Version 5.3(1)
Copyright (c) 1994-1999 by cisco Systems, Inc.
c6k_sup1 processor with 65536 Kbytes of main memory

Autoboot executing command: "boot bootflash:c6sup11-jsv-mz.121-6.E"

Self decompressing the image : #####]

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Cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706

Cisco Internetwork Operating System Software
IOS (TM) c6sup1_sp Software (c6sup1_sp-SPV-M), Version 12.1(6)E, EARLY DEPLOYME
TAC Support: <http://www.cisco.com/cgi-bin/ibld/view.pl?i=support>
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Sat 17-Mar-01 00:52 by eaarmas
Image text-base: 0x60020950, database: 0x605FC000

Start as Primary processor

00:00:03: %SYS-3-LOGGER_FLUSHING: System pausing to ensure console debugging ou.

00:00:03: %OIR-6-CONSOLE: Changing console ownership to route processor

*!--- The RP now has control of the console.
!--- This is when you send the break sequence.*

System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE
Copyright (c) 1998 by cisco Systems, Inc.

*** Address Error (Load/Fetch) Exception ***
Access address = 0x5e

PC = 0x5e, Cause = 0x10, Status Reg = 0x3040d003
ROM Monitor Can Not Recover From Exception
A Board Reset Is Issued

*** Software NMI ***

PC = 0xbfc0b6b0, SP = 0x00002a90
Cat6k-MSFC platform with 131072 Kbytes of main memory

Self decompressing the image : #####]

*** System received an abort due to Break Key ***

signal= 0x3, code= 0x0, context= 0x6049ed68
PC = 0x601011ac, Cause = 0x20, Status Reg = 0x34008002

*!--- You are now in ROMMON mode on the RP. Continue the password
!--- recovery procedure just as on any router. Changing the configuration
!--- register from 0x2102 to 0x2142 causes the router to ignore the existing
!--- configuration. You want it to be ignored because it has passwords that you do not
!--- know.*

rommon 1 > **confreg 0x2142**

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

rommon 2 > **reset**

System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE
Copyright (c) 1998 by cisco Systems, Inc.
Cat6k-MSFC platform with 131072 Kbytes of main memory

Self decompressing the image : #####]

Attempt to download 'sup-bootflash:c6sup11-jsv-mz.121-6.E' ... okay
Starting download of 'sup-bootflash:c6sup11-jsv-mz.121-6.E': 8722810 bytes!!!!!!
Chksum: Verified!

Self decompressing the image : #####]

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Cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706

Cisco Internetwork Operating System Software
IOS (TM) c6sup1_RP Software (c6sup1_rp-JSV-M), Version 12.1(6)E, EARLY DEPLOYME
TAC Support: <http://www.cisco.com/cgi-bin/ibld/view.pl?i=support>
Copyright (c) 1986-2001 by Cisco Systems, Inc.
Compiled Sat 17-Mar-01 00:14 by eaarmas
Image text-base: 0x60020950, database: 0x6165E000

Cisco Catalyst 6000 (R5000) processor with 114688K/16384K bytes of memory.
Processor board ID SAD04281AF6
R5000 CPU at 200Mhz, Implementation 35, Rev 2.1, 512KB L2 Cache
Last reset from power-on
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).

TN3270 Emulation software.
24 Ethernet/IEEE 802.3 interface(s)
1 Virtual Ethernet/IEEE 802.3 interface(s)
48 FastEthernet/IEEE 802.3 interface(s)
4 Gigabit Ethernet/IEEE 802.3 interface(s)
381K bytes of nonvolatile configuration memory.
4096K bytes of packet SRAM memory.

16384K bytes of Flash internal SIMM (Sector size 256K).

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n

*!--- The router ignores the saved configuration and enters
!--- the initial configuration mode.*

Press RETURN to get started!

00:00:03: %SYS-3-LOGGER_FLUSHED: System was paused for 00:00:00 to ensure conso.

00:00:04: %C6KPWR-4-PSINSERTED: power supply inserted in slot 1.

00:00:04: %C6KPWR-4-PSOK: power supply 1 turned on.

00:02:08: %SYS-SP-5-RESTART: System restarted --

Cisco Internetwork Operating System Software

IOS (TM) c6sup1_SP Software (c6sup1_sp-SPV-M), Version 12.1(6)E, EARLY DEPLOYME)

TAC Support: <http://www.cisco.com/cgi-bin/ibld/view.pl?i=support>

Copyright (c) 1986-2001 by cisco Systems, Inc.

Compiled Sat 17-Mar-01 00:52 by eaarmas

00:02:13: L3-MGR: 12 flush entry installed

00:02:13: L3-MGR: 13 flush entry installed

00:02:14: %SYS-5-RESTART: System restarted --

Cisco Internetwork Operating System Software

IOS (TM) c6sup1_RP Software (c6sup1_rp-JSV-M), Version 12.1(6)E, EARLY DEPLOYME)

TAC Support: <http://www.cisco.com/cgi-bin/ibld/view.pl?i=support>

Copyright (c) 1986-2001 by Cisco Systems, Inc.

Compiled Sat 17-Mar-01 00:14 by eaarmas

00:02:17: %C6KPWR-SP-4-DISABLED: power to module in slot 1 set off (admin reque)

00:02:18: %C6KPWR-SP-4-ENABLED: power to module in slot 3 set on

00:02:18: %C6KPWR-SP-4-ENABLED: power to module in slot 6 set on

00:02:28: sm_set_moduleFwVersion: nonexistent module (1)

00:02:38: %SNMP-5-MODULETRAP: Module 1 [Up] Trap

00:02:38: %OIR-SP-6-INSCARD: Card inserted in slot 1, interfaces are now online

00:02:56: %SNMP-5-MODULETRAP: Module 6 [Up] Trap

00:02:56: %OIR-SP-6-INSCARD: Card inserted in slot 6, interfaces are now online

00:02:59: SP: SENDING INLINE_POWER_DAUGHTERCARD_MSG SCP MSG

00:02:59: %SNMP-5-MODULETRAP: Module 3 [Up] Trap

00:02:59: %OIR-SP-6-INSCARD: Card inserted in slot 3, interfaces are now online

Router>**enable**

Router#

!--- You go right into privilege mode without needing a password.

!--- At this point, the configuration running-config is a default configuration

!--- with all the ports administratively down (shutdown).

Router#**copy startup-config running-config**

Destination filename [running-config]? <press enter>

!--- This pulls in the original configuration. Since you are already in privilege

!--- mode, the passwords in this configuration do not affect you.

4864 bytes copied in 2.48 secs (2432 bytes/sec)

Router#**configure terminal**

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#**enable secret < password > [Choose a strong password with at least one capi**

!--- Overwrite the password that you do not know. This is your new enable password.

Router(config)#**^Z**

Router#

Router#**show ip interface brief**

Interface	IP-Address	OK?	Method	Status	Prol
Vlan1	172.17.10.10	YES	TFTP	administratively down	dow
Vlan10	10.1.1.1	YES	TFTP	administratively down	dow
GigabitEthernet1/1	unassigned	YES	unset	administratively down	dow
GigabitEthernet1/2	unassigned	YES	TFTP	administratively down	dow
GigabitEthernet2/1	unassigned	YES	TFTP	administratively down	dow
GigabitEthernet2/2	unassigned	YES	TFTP	administratively down	dow
FastEthernet3/1	172.16.84.110	YES	TFTP	administratively down	dow

<snip>...

!--- Issue the no shut command on all interfaces that you want to bring up.

Router#**configure terminal**

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#**interface fastEthernet 3/1**

Router(config-if)#**no shutdown**

Router(config-if)#**exit**

!--- Overwrite the virtual terminal passwords.

Router(config)#**line vty 0 4**

Router(config-line)#**password cisco**

Router(config-line)#**^Z**

Router#

!--- Restore the configuration register to its normal state so that it

!--- no longer ignores the stored configuration file.

Router#**show version**

Cisco Internetwork Operating System Software
IOS (tm) c6sup1_rp Software (c6sup1_rp-JSV-M), Version 12.1(6)E, EARLY DEPLOYME)
TAC Support: <http://www.cisco.com/cgi-bin/ibld/view.pl?i=support>
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Sat 17-Mar-01 00:14 by eaarmas
Image text-base: 0x60020950, data-base: 0x6165E000

ROM: System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE

BOOTFLASH: MSFC Software (C6MSFC-BOOT-M), Version 12.1(6)E, EARLY DEPLOYMENT RE)

Router uptime is 7 minutes

System returned to ROM by power-on (SP by reload)

System image file is "sup-bootflash:c6sup11-jsv-mz.121-6.E"

Cisco Catalyst 6000 (R5000) processor with 114688K/16384K bytes of memory.

Processor board ID SAD04281AF6

R5000 CPU at 200Mhz, Implementation 35, Rev 2.1, 512KB L2 Cache
Last reset from power-on
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
24 Ethernet/IEEE 802.3 interface(s)
2 Virtual Ethernet/IEEE 802.3 interface(s)
48 FastEthernet/IEEE 802.3 interface(s)
4 Gigabit Ethernet/IEEE 802.3 interface(s)
381K bytes of non-volatile configuration memory.
4096K bytes of packet SRAM memory.

16384K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x2142

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#config-register 0x2102
Router(config)#^Z
Router#
```

!--- Verify that the configuration register is changed for the next reload.

```
Router#show version
Cisco Internetwork Operating System Software
IOS (tm) c6sup1_rp Software (c6sup1_rp-JSV-M), Version 12.1(6)E, EARLY DEPLOYME
TAC Support: http://www.cisco.com/cgi-bin/ibld/view.pl?i=support
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Sat 17-Mar-01 00:14 by eaarmas
Image text-base: 0x60020950, data-base: 0x6165E000
```

```
ROM: System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE
BOOTFLASH: MSFC Software (C6MSFC-BOOT-M), Version 12.1(6)E, EARLY DEPLOYMENT RE)
```

```
Router uptime is 8 minutes
System returned to ROM by power-on (SP by reload)
System image file is "sup-bootflash:c6sup11-jsv-mz.121-6.E"
```

```
Cisco Catalyst 6000 (R5000) processor with 114688K/16384K bytes of memory.
Processor board ID SAD04281AF6
R5000 CPU at 200Mhz, Implementation 35, Rev 2.1, 512KB L2 Cache
Last reset from power-on
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
24 Ethernet/IEEE 802.3 interface(s)
2 Virtual Ethernet/IEEE 802.3 interface(s)
48 FastEthernet/IEEE 802.3 interface(s)
4 Gigabit Ethernet/IEEE 802.3 interface(s)
381K bytes of non-volatile configuration memory.
4096K bytes of packet SRAM memory.
```

```
16384K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x2142 (will be 0x2102 at next reload)
```

```
Router#
Router#copy running-config startup-config
Destination filename [startup-config]? <press enter>
Building configuration...
[OK]
Router#
```

*!--- Optional: If you want to test that the router
!--- operates properly and that you have changed
!--- the passwords, then reload and test.*

```
Router#reload  
Proceed with reload? [confirm] <press enter>
```

Related Information

- [Password Recovery Procedures Index](#)
 - [LAN Switching Support Page](#)
 - [LAN Product Support Pages](#)
 - [Catalyst LAN and ATM Switches Product Support](#)
 - [Technical Support – Cisco Systems](#)
-

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