从ROMMON模式恢复Catalyst 9800控制器

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简介

本文档介绍如何基于ROMMON模式且闪存中没有映像来恢复Catalyst 9800控制器。

先决条件

要求

Cisco 建议您了解以下主题：

- Catalyst无线控制器9800

使用的组件

本文档中的信息基于以下软件和硬件版本：

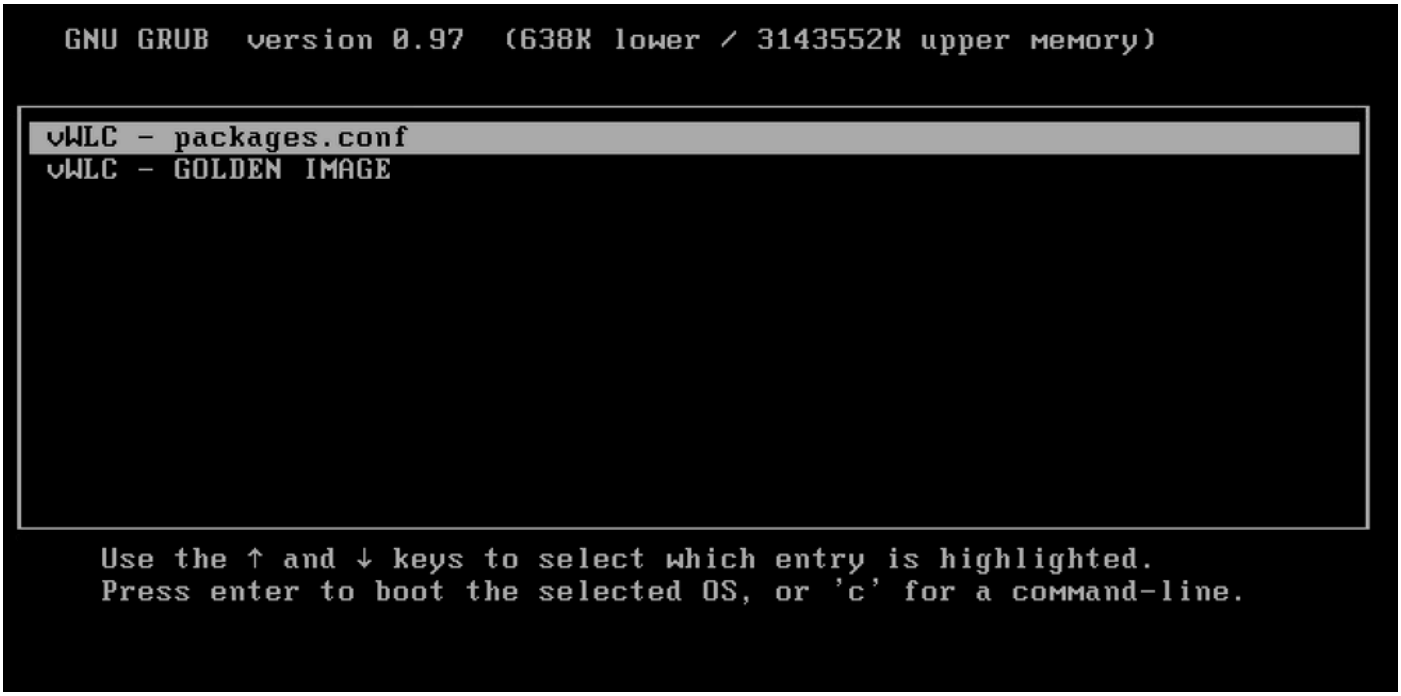
- Catalyst 9800版本16.10.1

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

配置

虚拟9800(9800-CL)的密码恢复过程

步骤1.重启9800-CL。您将快速看到引导选择屏幕：



步骤2.在此屏幕上按C获取grub提示符。

步骤3.您可以使用config命令更改该提示符中的配置寄 0x2142存器。



步骤4.按ESC键返回引导选择提示符，并选择要在正规映像上引导的 packages.conf。

步骤5.您的WLC无需配置即可启动。恢复它。

步骤6.不要忘记重复步骤1中的步骤，将配置寄存器重新设置为原始值0x2002，以便在重新启动时保存并加载配置。

通过ROMMON的设备密码恢复过程

步骤1.在加载映像的系统控制台上看到#####打印时，发送break键。然后，系统中断启动过程并进入ROMMON提示符。您可以在键盘上按break或ctrl+break时执行此操作。您还可以从终端程序发送中断命令（例如，Putty Special Command > Break、Teraterm Control > Send Break）。

⚠ 警告：密码恢复需要将系统放入ROMMON中。在传统Cisco IOS®中，配置寄存器设置确定系统是否可以返回到ROMMON。当发出中断时，配置寄存器为0x2102将阻止返回ROMMON。默认情况下，所有9800设备(9800-40、9800-80、9800-L)都具有config-register集0x2102。但是，由于它们运行基于Linux的Cisco IOS XE®，因此忽略此情况，防止返回ROMMON的唯一方法是配置命令no service password-recovery。

警告： 在运行早于16.12(3r)的ROMMON的9800-L上，配置寄存器中的此位可防止进入ROMMON以执行密码恢复。
修复程序:如果运行旧版ROMMON，请按照以下网址上提供的说明升级ROMMON:Cisco Catalyst 9800-L无线控制器的升级现场可编程器

解决方法：如果无法进行升级；将config-register修改为0x2002作为解决方法，并防止锁定ROMMON。

```
File size is 0x01d191f3
Located C9800-rpboot.16.10.01.SPA.pkg
Image size 30511603 inode num 874837, bks cnt 7450 blk size 8*512
################################################################################
################################################################################
################################################################################
############################################################
Boot image size = 30511603 (0x1d191f3) bytes

ROM:RSA Self Test Passed
ROM:Sha512 Self Test Passed

Package header rev 3 structure detected
Calculating SHA-1 hash...done
validate_package_cs: SHA-1 hash:
    calculated e36f46af:2c06b38d:eeb6e65b:ffaeb429:a6982d29
    expected   e36f46af:2c06b38d:eeb6e65b:ffaeb429:a6982d29
```

```
Validating main package signatures


monitor: command "boot" aborted due to user interrupt

rommon 1 >
```

步骤2.在ROMMON提示符后使用命令将配置寄存器更改为confreg 0x2142 0x2142。

<#root>

```
rommon 1 >

confreg 0x2142


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

步骤3.要保存rommon配置更改，请在rommon提sync 示符下执行，reset rommon将应用从rommon提示符进行的更改。

<#root>

```
rommon 2 >

sync

rommon 3 >

reset


Resetting .......



Initializing Hardware ...

System integrity status: 90170200 12030107


System Bootstrap, Version 16.10(2r), RELEASE SOFTWARE
Copyright (c) 1994-2018  by cisco Systems, Inc.

Current image running: Boot ROM0
Last reset cause: LocalSoft

C9800-40-K9 platform with 33554432 Kbytes of main memory
```

```
File size is 0x000015c9
Located packages.conf
Image size 5577 inode num 874834, bks cnt 2 blk size 8*512
#
File size is 0x01d191f3
Located C9800-rpboot.16.10.01.SPA.pkg
Image size 30511603 inode num 874837, bks cnt 7450 blk size 8*512
################################################################################
################################################################################
################################################################################
############################################################
Boot image size = 30511603 (0x1d191f3) bytes

ROM:RSA Self Test Passed
ROM:Sha512 Self Test Passed

Package header rev 3 structure detected
Calculating SHA-1 hash...done
validate_package_cs: SHA-1 hash:
    calculated e36f46af:2c06b38d:eeb6e65b:ffaeb429:a6982d29
    expected   e36f46af:2c06b38d:eeb6e65b:ffaeb429:a6982d29
Validating main package signatures

RSA Signed RELEASE Image Signature Verification Successful.
Image validated
Jun 21 02:30:21.565: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable u
sed for process bt_logger
Jun 21 02:30:24.561: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable u
sed for process bt_logger

Both links down, not waiting for other chassis
Chassis number is 1
Jun 21 02:30:25.327: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable u
sed for process bt_logger
Jun 21 02:30:27.293: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable u
sed for process bt_logger
Jun 21 02:30:33.770: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable u
sed for process bt_logger
Jun 21 02:30:37.045: %PMAN-3-PROC_EMPTY_EXEC_FILE: R0/0: pvp: Empty executable u
sed for process bt_logger

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           San Jose, California 95134-1706



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```

```
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cisco C9800-40-K9 (1GL) processor (revision 1GL) with 7866660K/6147K bytes of me
mory.
FIPS: Flash Key Check : Key Not Found, FIPS Mode Not Enabled

Processor board ID TTM2250ODAL
1 Virtual Ethernet interface
4 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
26255359K bytes of eUSB flash at bootflash:.
234365527K bytes of SATA hard disk at hard disk:.
0K bytes of WebUI ODM Files at webui:.

Base Ethernet MAC Address          : D4:C9:3C:CC:F2:E0

Installation mode is INSTALL



Press RETURN to get started!


*Jun 21 02:31:00.165: %IOS XE_PLATFORM-3-WDC_NOT_FOUND: WDC returned length: 0
*Jun 21 02:31:00.185: %SMART_LIC-6-EXPORT_CONTROLLED: Usage of export controlled
 features is not allowedAdding registry invocations for the WLC platform

*Jun 21 02:31:01.743: %SMART_LIC-6-AGENT_READY: Smart Agent for Licensing is ini
tialized
*Jun 21 02:31:01.743: %SMART_LIC-6-AGENT_ENABLED: Smart Agent for Licensing is e
nabled
*Jun 21 02:31:01.743: %SMART_LIC-6-EXPORT_CONTROLLED: Usage of export controlled
 features is not allowed
*Jun 21 02:31:04.732: mcp_pm_subsys_init : Init done sucessfullyRA Tracing tool
registry return: OSID Manager, starting initialization ...

*Jun 21 02:31:05.511: Notifications initializedSID Manager, completed initializa
```

```
tion ...

*Jun 21 02:31:07.298: %SPANTREE-5-EXTENDED_SYSID: Extended SysId enabled for typ
e vlan
*Jun 21 02:31:08.999: %CRYPTO-4-AUDITWARN: Encryption audit check could not be p
erformed
*Jun 21 02:31:09.081: %VOICE_HA-7-STATUS: CUBE HA-supported platform detected.
*Jun 21 02:31:09.317: %IOSXE_VMAN-3-MSGINITFAIL: Failed to initialize required V
irt-manager resource: Initalize MQIPC
*Jun 21 02:31:09.333: mcp_pm_init_done : Called
*Jun 21 02:31:09.338: %LINK-3-UPDOWN: Interface Lsmpi0, changed state to up
*Jun 21 02:31:09.345: %LINK-3-UPDOWN: Interface EOBC0, changed state to up
*Jun 21 02:31:09.345: %LINEPROTO-5-UPDOWN: Line protocol on Interface VoIP-Null0
, changed state to up
*Jun 21 02:31:09.346: %LINEPROTO-5-UPDOWN: Line protocol on Interface LI-Null0,
changed state to up
*Jun 21 02:31:09.346: %LINK-3-UPDOWN: Interface GigabitEthernet0, changed state
to down
*Jun 21 02:31:09.351: %LINK-3-UPDOWN: Interface LIIN0, changed state to up
*Jun 21 02:30:33.738: %PMAN-3-PROC_EMPTY_EXEC_FILE: Chassis 1 R0/0: pvp: Empty e
xecutable used for process bt_logger
*Jun 21 02:30:37.011: %PMAN-3-PROC_EMPTY_EXEC_FILE: Chassis 1 R0/0: pvp: Empty e
xecutable used for process bt_logger
*Jun 21 02:30:39.576: %CMFP-6-CRYPTO_MODULE: Chassis 1 R0/0: cman_fp: Crypto Har
dware Module is present
*Jun 21 02:31:01.754: %LMRP-3-RTU_UNINITIALIZED: Chassis 1 R0/0: lman: RTU not y
et initialized: stack enabled 0
*Jun 21 02:31:09.489: %SMART_LIC-6-HA_ROLE_CHANGED: Smart Agent HA role changed
to Active.
*Jun 21 02:31:10.295: %IOSXE_MGMTVRF-6-CREATE_SUCCESS_INFO: Management vrf Mgmt-
intf created with ID 1, ipv4 table-id 0x1, ipv6 table-id 0x1E000001
*Jun 21 02:31:10.344: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, cha
nged state to down
*Jun 21 02:31:10.345: %LINEPROTO-5-UPDOWN: Line protocol on Interface Lsmpi0, ch
anged state to up
*Jun 21 02:31:10.394: %LINEPROTO-5-UPDOWN: Line protocol on Interface EOBC0, cha
nged state to up
*Jun 21 02:31:10.394: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEth
ernet0, changed state to down
*Jun 21 02:31:10.394: %LINEPROTO-5-UPDOWN: Line protocol on Interface LIIN0, cha
nged state to up
*Jun 21 02:31:10.966: %ONEP_BASE-6-SS_ENABLED: ONEP: Service set Base was enable
d by Default
*Jun 21 02:31:12.842: %SYS-6-STARTUP_CONFIG_IGNORED: System startup configuratio
n is ignored based on the configuration register setting.
*Jun 21 02:31:12.854: %IOSXE_OIR-6-REMSPA: SPA removed from subslot 0/0, interfa
ces disabled
*Jun 21 02:31:12.913: %SPA_OIR-6-OFFLINECARD: SPA (BUILT-IN-4X10G/1G) offline in
 subslot 0/0
*Jun 21 02:31:12.919: %IOSXE_OIR-6-INSCARD: Card (fp) inserted in slot F0
*Jun 21 02:31:12.920: %IOSXE_OIR-6-ONLINECARD: Card (fp) online in slot F0
*Jun 21 02:31:12.946: %IOSXE_OIR-6-INSCARD: Card (cc) inserted in slot 0
*Jun 21 02:31:12.946: %IOSXE_OIR-6-ONLINECARD: Card (cc) online in slot 0
*Jun 21 02:31:13.111: % Redundancy mode change to SSO

*Jun 21 02:31:13.112: %VOICE_HA-7-STATUS: NONE->SSO; SSO mode can not take effe
ct until after a platform reload.
*Jun 21 02:31:13.231: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 0/0
*Jun 21 02:31:14.793: %SYS-5-RESTART: System restarted --
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```

```
Copyright (c) 1986-2018 by Cisco Systems, Inc.
Compiled Mon 19-Nov-18 08:27 by mcpre
*Jun 21 02:31:14.834: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
*Jun 21 02:31:14.834: %CRYPTO-6-GDOI_ON_OFF: GDOI is OFF
*Jun 21 02:31:16.976: %LINK-3-UPDOWN: Interface GigabitEthernet0, changed state
to up
*Jun 21 02:31:17.079: %SYS-6-BOOTTIME: Time taken to reboot after reload =  325
seconds
*Jun 21 02:31:17.977: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEth
ernet0, changed state to up
*Jun 21 02:31:21.579: %SPA_OIR-6-ONLINECARD: SPA (BUILT-IN-4X10G/1G) online in s
ubslot 0/0
*Jun 21 02:31:21.638: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/0, li
nk down due to remote fault
*Jun 21 02:31:21.708: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/1, li
nk down due to local fault
*Jun 21 02:31:21.748: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/2, li
nk down due to local fault
*Jun 21 02:31:21.788: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/3, li
nk down due to local fault
*Jun 21 02:31:21.855: %PNP-6-PNP_DISCOVERY_STOPPED: PnP Discovery stopped (Start
up Config Present)
*Jun 21 02:31:23.541: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/0, changed
 state to down
*Jun 21 02:31:23.571: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/1, changed
 state to down
*Jun 21 02:31:23.572: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/2, changed
 state to down
*Jun 21 02:31:23.575: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/3, changed
 state to down
*Jun 21 02:31:24.680: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/0, li
nk down due to local fault
*Jun 21 02:31:23.618: %LINK-3-UPDOWN: SIP0/0: Interface TenGigabitEthernet0/0/0,
 changed state to down
*Jun 21 02:31:29.036: %PKI-2-NON_AUTHORITATIVE_CLOCK: PKI functions can not be i
nitialized until an authoritative time source, like NTP, can be obtained.
*Jun 21 02:31:29.491: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/0, changed
 state to up
*Jun 21 02:31:30.492: %LINEPROTO-5-UPDOWN: Line protocol on Interface TenGigabit
Ethernet0/0/0, changed state to up
*Jun 21 02:31:29.491: %LINK-3-UPDOWN: SIP0/0: Interface TenGigabitEthernet0/0/0,
 changed state to up
*Jun 21 02:31:30.495: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, cha
nged state to up
*Jun 21 02:31:37.119: %CRYPTO_ENGINE-5-KEY_ADDITION: A key named CISCO_IDEVID_SU
DI_LEGACY has been generated or imported by pki-sudi
*Jun 21 02:31:39.050: %CRYPTO_ENGINE-5-KEY_ADDITION: A key named CISCO_IDEVID_SU
DI has been generated or imported by pki-sudi
```

步骤4.现在无需任何配置即可引导系统。忽略启动配置向导。

步骤5.系统启动后，将startup-config复制到running-config。

步骤6.重新配置启用密码或登录凭证，并检查是否可以通过telnet或ssh访问设备。

<#root>

C9800-40#

telnet 172.22.175.1

Trying 172.22.175.1 ... Open

User Access Verification

Username: admin
Password:
C9800-40#

步骤7.将config-register改回0x2002。

<#root>

C9800-40(config)#

config-register 0x2002

注意：请勿使用0x2102。对于0x2102，不允许再发送中断。

步骤8.保存配置。

<#root>

C9800-40#

write memory

Building configuration...
[OK]

通过USB恢复设备的密码程序

从ROMMON启动WLC

如果您陷入ROMMON模式而启动不起作用：

<#root>

```
rommon 12 >

boot


File size is 0x0001dfe6
Located memleak.tcl
Image size 122854 inode num 12, bks cnt 30 blk size 8*512
##
Boot image size = 122854 (0x1dfe6) bytes

Unsigned package found, aborting package loading...

Failed to Free memory block at address 0x00000000cd50b000
File size is 0x00000023
Located pnp-tech-time
Image size 35 inode num 13, bks cnt 1 blk size 8*512

Boot image size = 35 (0x23) bytes

Unsigned package found, aborting package loading...

Failed to Free memory block at address 0x00000000cd4d3000
File size is 0x0001ad3f
Located pnp-tech-discovery-summary
Image size 109887 inode num 14, bks cnt 27 blk size 8*512
#
Boot image size = 109887 (0x1ad3f) bytes

Unsigned package found, aborting package loading...

Failed to Free memory block at address 0x00000000cd49b000
File size is 0x00000268
Located vlan.dat
Image size 616 inode num 15, bks cnt 1 blk size 8*512

Boot image size = 616 (0x268) bytes

Unsigned package found, aborting package loading...

Failed to Free memory block at address 0x00000000cd463000
boot: cannot determine first file name on device "bootflash:/"
rommon 13 >
```

闪存没有任何可从中引导的映像：

<#root>

```
rommon 13 >
```

```
dir bootflash:

File System: EXT2/EXT3

11          16384     drwx------     lost+found
850305      4096      drwxr-xr-x     .installer
588673      4096      drwxrwxrwx     .prst_sync
948417      4096      drwxr-xr-x     .rollback_timer
1381745     4096      drwxr-xr-x     dc_profile_dir
12          122854    -rw-r--r--     memleak.tcl
506913      4096      drwxr-x---     vman_fdb
670433      4096      drwxr-xr-x     .dbpersist
793073      4096      drwxr-xr-x     onep
13          35        -rw-r--r--     pnp-tech-time
14          109887    -rw-r--r--     pnp-tech-discovery-summary
15          616       -rw-r--r--     vlan.dat
```

您可以通过以下任一方法恢复该盒：

- 通过USB笔驱动器加载图像。
- 通过Gigabit0（带外管理接口）加载映像。

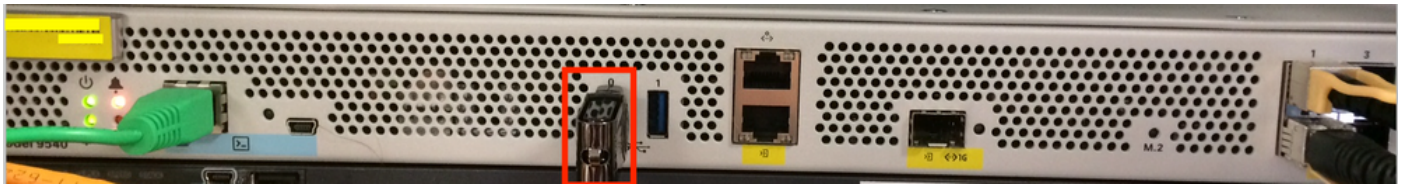
通过USB加载映像

步骤1.将带有.bin文件的USB笔驱动器加载到9800控制器。（在9800-80上，由于Cisco Bug ID CSCvn8287，因此无法在ROMMON中识别USB 3.0闪存驱动器）。

注意：虚拟9800-CL的步骤相同，但您必须将USB驱动器插入VM主机并将其映射到VM。

步骤2.将USB驱动程序连接到9800的USB端口0。

前视图：



步骤3.从控制台登录到控制器并确保其可以读取USB。

<#root>

```
rommon 19 >

dir usb0:

File System: FAT32
!
!--Output omitted--
!
335644   1009389904-rw-     <filename>SSA.bin
```

步骤4.将9800配置为从USB映像启动。

<#root>

```
rommon 21 >

boot usb0:

     .bin

Located qwlc-universalk9_wlc.BLD_V169_THROTTLE_LATEST_20180601_191011.SSA.bin, start cluster is 335644

###############################################################################################################
###############################################################################################################
###############################################################################################################
```

步骤5.在9800运行后，将映像从USB复制到bootflash:

<#root>

```
WLC#

copy usb0:

     .bin bootflash:
```

```
Destination filename [qwlc-universalk9_wlc.BLD_V169_THROTTLE_LATEST_20180601_191011.SSA.bin]?
Copy in progress...CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
```

步骤6.将9800从捆绑包模式更改为安装模式。

从USB启动控制器时，它会以捆绑模式启动：

```
!
!--Output omitted--
!
FIPS: Flash Key Check : Key Not Found, FIPS Mode Not Enabled

Processor board ID TTM22071510
1 Virtual Ethernet interface
4 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
26910719K bytes of eUSB flash at bootflash:.
234365527K bytes of SATA hard disk at hard disk:.
15243680K bytes of USB flash at usb0:.
0K bytes of WebUI ODM Files at webui:.

Base Ethernet MAC Address          : 00:A3:8E:23:A2:40

Installation mode is BUNDLE

%INIT: waited 0 seconds for NVRAM to be available
```

从16.12的UI中，您可以选择在下次升级时移至INSTALL模式。提供包括当前版本的所有软件文件，以进入INSTALL模式。

步骤7.编辑boot变量（如果它未指向packages.conf文件）。

<#root>

```
WLC#

configure terminal

Enter configuration commands, one per line.  End with CNTL/Z.
WLC(config)#

no boot system


WLC(config)#
```

```
boot system bootflash:packages.conf

WLC(config)#

end


WLC#

write

Building configuration...
[OK]
WLC#

show boot

BOOT variable = flash:packages.conf,12;
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x2102

Standby not ready to show bootvar
```

确保配置寄存器是0x2002。

步骤8.重新加载WLC:

```
<#root>

WLC#

reload
```

之后，控制器将在安装模式下启动。

```
<#root>

WLC#

show version


!
!--Output omitted--
!
Installation mode is INSTALL Configuration register is 0x2002
```

从TFTP加载映像

要从网络加载映像，您必须将GigabitEthernet0管理端口物理连接到接入端口。

在ROMMON中，您可以随时使用命令验证变量set。

<#root>

```
rommon 1 >
```

set

```
PS1=rommon ! >
?=0
DEFAULT_GATEWAY=10.1.1.1
ETHER_SPEED_MODE=4
TFTP_RETRY_COUNT=36
SWITCH_NUMBER=1
DLC_DONE=TRUE
RET_2_RTS=
RET_2_RCALTS=
MCP_STARTUP_TRACEFLAGS=00000000:00000000
TFTP_MACADDR=00:db:ad:ba:d0:52
IP_SUBNET_MASK=255.255.255.0
IP_ADDRESS=10.1.1.152
TFTP_SERVER=10.1.1.1
TFTP_FILE=C9800-80-universalk9_wlc.BLD_V1610_1_THROTTLE_LATEST_20181016_174328_2.bin
BSI=0
RANDOM_NUM=1650632109
```

然后，您可以逐个设置变量。不需要像在其他设set备ROMMON一样在变量名称之前键入。键入变量名称时，请避免输入拼写错误，因为没有任何排序验证。

<#root>

```
rommon 2 >
```

IP_ADDRESS=10.48.71.113

```
rommon 3 >
```

IP_SUBNET_MASK=255.255.255.128

```
rommon 4 >
```

DEFAULT_GATEWAY=10.48.71.5

一旦IP设置到位，您就可以使用下一命令从TFTP映像启动：

<#root>

```
rommon 5 >

 boot tftp://10.48.39.33/C9800-80-universalk9_wlc.16.10.01.SPA.bin


          IP_ADDRESS: 10.48.71.113
      IP_SUBNET_MASK: 255.255.255.128
     DEFAULT_GATEWAY: 10.48.71.5
         TFTP_SERVER: 10.48.39.33
           TFTP_FILE: C9800-80-universalk9_wlc.16.10.01.SPA.bin
        TFTP_MACADDR: 70:6d:15:35:99:ff
        TFTP_VERBOSE: Progress
    TFTP_RETRY_COUNT: 36
        TFTP_TIMEOUT: 7200
        TFTP_BLKSIZE: 1460
       TFTP_CHECKSUM: Yes
          ETHER_PORT: 3
    ETHER_SPEED_MODE: 1000MB/HD
link up
Receiving C9800-80-universalk9_wlc.16.10.01.SPA.bin from 10.48.39.33
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

您最终会进入Cisco IOS命令行。不要忘记将Cisco IOS映像实际复制到闪存或硬盘，并正确设置引导变量。在闪存或硬盘中复制文件后，您可以从USB恢复步骤，从第6步开始：

故障排除

当您尝试从内存、USB或TFTP中的文件启动时，如果您一直看到rommon告诉您“Please reset before booting”，如下所示：

```
rommon 4 > boot bootflash:C9800-L-universalk9_wlc.V176_1.SPA.bin
Please reset before booting
```

您只需取消配置寄存器并重置。重新启动后，问题消失，您可以从任何源启动。

```
confreg 0x0
reset
```

其他有用的ROMMON命令

命令dev ，列出可用的存储设备（ bootflash、硬盘、usb等 ）。

命令显showmon 示ROMMON版本。

相关信息

- 思科技术支持和下载

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