

# 从ROMmon模式恢复Catalyst 9800控制器或密码

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## 简介

本文描述如何从ROMmon模式和没有镜像恢复基于的Catalyst 9800控制器在闪存。

## 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 v16.10.1

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。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

## 配置

### 虚拟9800的密码恢复流程(9800-CL)

步骤1.重新启动9800-CL。您应该迅速看到引导程序选择屏幕

```
GNU GRUB version 0.97 (638K lower / 3143552K upper memory)
```

```
WLC - packages.conf  
WLC - GOLDEN IMAGE
```

```
Use the ↑ and ↓ keys to select which entry is highlighted.  
Press enter to boot the selected OS, or 'c' for a command-line.
```

步骤2.按'c'在此屏幕得到幼虫提示符

第 3 步：您能更换在该提示符的设置寄存器用“confreg 0x2142.”命令

```
grub> confreg 0x2142  
  
Configuration Register: 0x2142  
  
grub> _
```

步骤4.按'esc'键返回到引导程序选择提示符并且选择“packages.conf”启动在正常镜像。

第 5 步：您的WLC将启动，不用配置。恢复它

第六步：请勿忘记重复从step1的步骤，并且设置设置注册回到最初值0x2002，以便配置被保存和装载在重新启动。

## 设备的密码恢复流程通过ROMMON

步骤1.，当您为系统装载看到在控制台的#####打印制作镜像，发送‘工间休息时间’锁上。然后，系统将中断引导过程，并且请去ROMmon提示。您能通过按工间休息时间或Ctrl+Break在键盘或发送工间休息时间执行此从终端程序(前：PuTTY特殊命令->工间休息时间，Teraterm控制->Send break

### 警告：

密码恢复要求系统丢弃到ROMMON。

-在经典IOS，配置寄存器设置确定系统是否可能‘返回到ROMMON’。config-register 0x2102将

防止返回对ROMMON在发出‘工间休息时间’。

-默认情况下，全部9800个设备(9800-40， 9800-80， 9800-L)有config-register设置的0x2102。然而，因为他们运行Linux基于IOS-XE，此设置忽略，并且防止返回的唯一方法对ROMMON是配置#没有no service password-recovery。

**警告：**在运行ROMMON的9800-L旧比16.12(3r)， config-register的此位被尊敬防止‘工间休息时间’到ROMMON执行password-recovery。

**修正：**如果运行更旧的ROMMON， upgrade rommon使用描述的说明在

：[https://www.cisco.com/c/en/us/td/docs/wireless/controller/9800/config-guide/b\\_upgrade\\_fpga\\_c9800.html#id\\_132237](https://www.cisco.com/c/en/us/td/docs/wireless/controller/9800/config-guide/b_upgrade_fpga_c9800.html#id_132237)

**应急方案，如果升级不可能完成;修改config-register成0x2002作为应急方案并且防止获得锁定在ROMMON外面**

```
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.Change设置注册，对0x2142使用从ROMmon提示的命令“confreg 0x2142”。**

```
rommon 1 > confreg 0x2142
```

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

**第3步：**保存rommon设置更改，执行“同步”在ROMmon提示， reset rommon对从ROMmon提示的已应用更改。

```
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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Software feature.

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 TTM22500DAL  
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 harddisk:.  
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: %IOSXE\_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 enabled

\*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 successfullyRA Tracing tool registry return: OSID Manager, starting initialization ...

\*Jun 21 02:31:05.511: Notifications initializedSID Manager, completed initialization ...

\*Jun 21 02:31:07.298: %SPANTREE-5-EXTENDED\_SYSID: Extended SysId enabled for type vlan

\*Jun 21 02:31:08.999: %CRYPTO-4-AUDITWARN: Encryption audit check could not be performed

\*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 Vmirt-manager resource: Initialize 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 executable used for process bt\_logger

\*Jun 21 02:30:37.011: %PMAN-3-PROC\_EMPTY\_EXEC\_FILE: Chassis 1 R0/0: pvp: Empty executable used for process bt\_logger

\*Jun 21 02:30:39.576: %CMFP-6-CRYPTO\_MODULE: Chassis 1 R0/0: cman\_fp: Crypto Hardware Module is present

\*Jun 21 02:31:01.754: %LMRP-3-RTU\_UNINITIALIZED: Chassis 1 R0/0: lman: RTU not yet 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, changed state to down

\*Jun 21 02:31:10.345: %LINEPROTO-5-UPDOWN: Line protocol on Interface Lsmpi0, changed state to up

\*Jun 21 02:31:10.394: %LINEPROTO-5-UPDOWN: Line protocol on Interface EOBC0, changed state to up

\*Jun 21 02:31:10.394: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0, changed state to down

\*Jun 21 02:31:10.394: %LINEPROTO-5-UPDOWN: Line protocol on Interface LIIN0, changed state to up

\*Jun 21 02:31:10.966: %ONEP\_BASE-6-SS\_ENABLED: ONEP: Service set Base was enabled by Default

\*Jun 21 02:31:12.842: %SYS-6-STARTUP\_CONFIG\_IGNORED: System startup configuration is ignored based on the configuration register setting.

\*Jun 21 02:31:12.854: %IOSXE\_OIR-6-REMSPA: SPA removed from subslot 0/0, interfaces 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 will not take effect 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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*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 GigabitEthernet0, changed state to up
*Jun 21 02:31:21.579: %SPA_OIR-6-ONLINECARD: SPA (BUILT-IN-4X10G/1G) online in subslot 0/0
*Jun 21 02:31:21.638: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/0, link down due to remote fault
*Jun 21 02:31:21.708: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/1, link down due to local fault
*Jun 21 02:31:21.748: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/2, link down due to local fault
*Jun 21 02:31:21.788: %IOSXE_SPA-6-UPDOWN: Interface TenGigabitEthernet0/0/3, link 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, link 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 initialized 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 TenGigabitEthernet0/0/0, 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, changed state to up
*Jun 21 02:31:37.119: %CRYPTO_ENGINE-5-KEY_ADDITION: A key named CISCO_IDEVID_SUDI_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_SUDI has been generated or imported by pki-sudi
```

**第 4 步：**现在系统将启动，不用任何设置，忽略启动配置向导。

**第 5 步：**一旦系统出来，对running-config的copy startup-config。

**步骤6.**重新配置特权密码或logging的凭证，并且检查是否通过telnet或SSH能对设备的访问。

```
C9800-40#telnet 172.22.175.1
Trying 172.22.175.1 ... Open
```

User Access Verification

```
Username: admin
Password:
C9800-40#
```

## 步骤7.回到0x2002的更改config-register

```
C9800-40(config)#config-register 0x2002
```

公告：请勿使用0x2102。对于0x2102，您不会允许再发送工间休息时间。

### 1. 保存设置。

```
C9800-40#write memory
Building configuration...
[OK]
```

## 设备的密码恢复流程通过USB

### 启动从ROMMON的WLC

如果陷在rommon和引导程序不工作：

```
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 0x0000000cd50b000
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 0x0000000cd4d3000
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 0x0000000cd49b000

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 0x0000000cd463000

boot: cannot determine first file name on device "bootflash:/"

rommon 13 >

并且闪存没有任何镜像启动从：

```
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--	pnv-tech-time
14	109887	-rw-r--r--	pnv-tech-discovery-summary
15	616	-rw-r--r--	vlan.dat

您能由恢复方框：

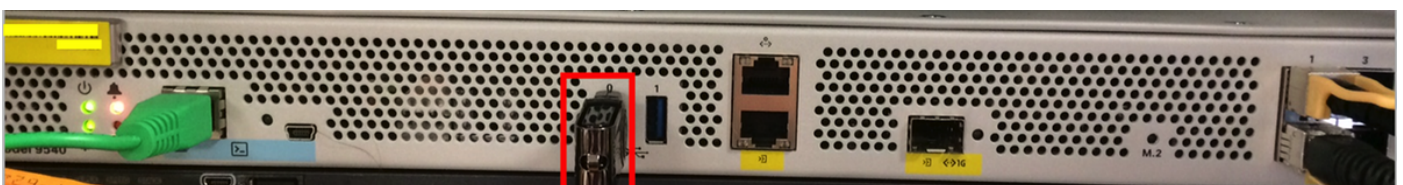
- 装载一镜像通过USB笔驱动
- 装载镜像通过Gigabit0 (在波段管理接口外面)

## 负载镜像通过USB

第 1 步：有一USB笔驱动用将装载的.bin文件对9800控制器(在9800-80，由于[CSCvn82287](#)，USB 3.0闪存驱动器在ROMMON不可以被认可)。注意步骤是相同的在虚拟9800-CL的情况下，但是您将[必须插入在VMhost的USB驱动和映射它到VM。](#)

步骤2.连接USB驱动程序到USB端口0 9800

前视图：



步骤3.由控制台登陆到控制器并且保证它能读USB

```
rommon 19 > dir usb0:
File System: FAT32
!
!--Output omitted--
!
335644 1009389904-rw- <filename>SSA.bin
```

#### 步骤4.配置9800从USB镜像启动

```
rommon 21 > boot usb0:<filename>.bin
Located qwlc-universalk9_wlc.BLD_V169_THROTTLE_LATEST_20180601_191011.SSA.bin, start cluster is
335644
```

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

第 5 步：一旦9800是UP，请复制从USB的镜像到bootflash：

```
WLC# copy usb0:<filename>.bin bootflash:
Destination filename [qwlc-universalk9_wlc.BLD_V169_THROTTLE_LATEST_20180601_191011.SSA.bin]?
Copy in progress...CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
```

#### 第六步：更改9800从套件模式到Install模式是最佳的

当您启动从USB时的控制器，在套件模式启动：

```
!
!--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 harddisk:.
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
```

在Web UI中，从16.12开始，您能选择移动向Install模式在下升级(请提供所有软件文件，包括当前版本移动向Install模式)

步骤7.，如果已经，不指向“packages.conf”文件请编辑引导变量

```
WLC# conf t
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
```

确保设置寄存器是0x2002

## 步骤8.重新加载WLC

```
WLC# reload
在此以后，控制器在Install模式启动
```

```
WLC# show version
!--Output omitted-- !
Installation mode is INSTALL Configuration register is 0x2002
```

## 装载从TFTP的镜像

要装载从网络的一镜像，您必须有GigabitEthernet0管理端口物理的连接对接入端口。

从rommon，您能通过选择"set"在任何时间验证变量

```
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
```

您能逐个然后设置变量。没有需要在变量名称前选择"set"类似在一些其它设备ROMMON。请确保不做任何排印错误，当键入变量名称时，尽管没有所有排序的验证。

```
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，您能从TFTP镜像启动用以下命令：

```
rommon 5 > b 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

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

您在IOS line命令然后将结果。请勿忘记实际上复制IOS镜像到闪存或光盘和正确地设置引导变量。一旦文件在闪存或光盘，复制您能自步骤6恢复从上面USB部分的步骤：

## 其他有用的ROMMON命令

dev命令列出存储设备联机(Bootflash，光盘，usb...)

命令showmon显示ROMmon版本