

# 思科IR800行业集成服务路由器的ROMmon恢复程序

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## 简介

本文描述如何恢复在ROMmon模式滞留的思科IR800 (IR829和IR809)系列路由器。

## 先决条件

### 要求

对于此ROMmon恢复程序，思科推荐：

- 对路由器的控制台访问
- 从cisco.com页下载的IOS镜像
- 任何存档工具(winzip，winrar或izip等)
- TFTP server或复制在路由器上的镜像的USB棍子。

### 使用的组件：

本文档不限于特定的软件和硬件版本。

本文档中的信息都是基于特定实验室环境中的设备创建的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您是在真实网络上操作，请确保您在使用任何命令前已经了解其潜在影响。

## rommon-1和rommon-2概述：

IR829和IR809系列路由器使用一不同的启动顺序，包括rommon-1和rommon-2，rommon-1是指只读Rommon，当rommon-2是指升级的Rommon时。IR829 & IR809有第2核心初始化在Rommon。

关键功能是能存储IOS，并且在嵌入式多媒体卡德(eMMC)的诊断镜像闪烁并且启动IOS和诊断镜像。

## 支持rommon-1和rommon-2功能：

rommon-1支持这些功能：

```
rommon-1> help Documented commands (type help <topic>): =====  
boot copy dir help reboot show unset clear delete eject_usb ping set tftp verify
```

rommon-2支持这些功能：

```
rommon-2> help ? Print the command list boot Boot image dir List file contents on a device help  
Print the command list or the specific command usage iomem Set iomem size in percent reboot  
Reboot the system set Set environment variable and network configuration show Show loader  
configuration Unset Unset environment variable
```

## 套件IOS镜像

在IR800系列的IOS镜像是可用的作为Bundle.These套件镜像一部分在ir800-universalk9-bundle.xxxx或ir800-universalk9\_npe-bundle.xxxx格式。每套件镜像包含一套Hypervisor、IOS、VDS和IOx镜像。

在本文中此镜像使用ROMmon恢复程序：

**ir800-universalk9-bundle.SPA.156-3.M.bin**

请使用所有存档工具类似winrar，winzip或者izip抽出在套件镜像的文件。

Extracted files:

ir800-hv.srp.SPA.2.5.7 - This is the hypervisor image

ir800-ref-gos.img.1.1.0.4.gz

ir800-universalk9-mz.SPA.156-3.M - This is the IOx image

MANIFEST

## 查找闪存中的有效镜像

当没有hypervisor镜像或IOS镜像现在闪存时，路由器不能启动，虽然自动引导在运行IOx镜像的系统配置，并且设备在rommon-1>提示符依然是。

使用USB棍子，恢复设备，第一副本解压缩的文件到路由器闪存

- rommon-1>复制usb:ir800-hv.srp.SPA.2.5.7 flash:
- rommon-1>复制usb:ir800-universalk9-mz.SPA.156-3.M flash:

**注意：**USB和TFTP功能是仅可用的在rommon-1和不在rommon-2。

## 故障排除

### 第 1 阶段：启动设备从rommon-1到rommon-2。

要启动设备从rommon-1到rommon-2，Hypervisor镜像要求。

```
rommon-1> dir flash: 583 Jul 28 16:42 MANIFEST 25094997 Jul 28 16:42 ir800-hv.srp.SPA.2.5.7
79627429 Jul 28 16:42 ir800-ref-gos.img.1.1.0.4.gz 63753767 Jul 28 16:42 ir800-universalk9-
mz.SPA.156-3.M
```

在这里与hv的镜像hypervisor镜像，并且与mz的镜像是IOx镜像。

rommon-1模式设法启动它，当曾经hypervisor镜像时。

现在hypervisor镜像开始引导程序，并且，一旦完成，设备提示符从rommon-1>变成rommon-2>。

```
rommon-1> boot flash:ir800-hv.srp.SPA.2.5.7 Image signature verified Booting image usb:ir800-
hv.srp.SPA.2.5.7 [ 1857.576144] kexec: Starting new kernel RIF heap (initial): 2774816 bytes
RIF<3> Added 2774816 bytes at <0x2015a8e0> to the RIF heap RIF: Host RAM: 1467000KB required,
1467735KB available RIF: Host low RAM: 4808KB required, 1467735KB available RIF: Host RAM unused
by memory regions: 735KB total, 735KB low Processing SRP... RIF: used 10568/16384 bytes of stack
##### LynxSecure TRUNK (No Service
Packs installed) Copyright 2004-2016 Lynx Software Technologies, Inc All rights reserved.
LynxSecure (x86_64) build ENGINEERING created on 01/27/2016 09:35:28 URL:
svn://txx.lynx.com/svn/lynxsecure/engr/psubramaniam/tot-20141010/lynxsecure/src Revision(s):
11396M Built by: psubramaniam@paricos62.localdomain
##### Initializing the Internal
Timekeeping... Initializing the System State Manager... Initializing LynxSecure global data
areas. Number of CPU(s) : 2 Initializing the CPU Support Package. Initializing LynxSecure page
table... Initializing the Board Support Package. Initializing Scheduler... Initializing the VCPU
module... Starting up the other CPUs... CPUs online: #0 #1 Initializing Device Configuration
Virtualization... Initializing Subject Resources... Initializing Interrupt Routing...
Initializing Hypercalls... Heap memory used by LynxSecure: 1746016 (0x1aa460) bytes Launching
Subjects <3> [0.749728] IOAPIC: IOAPIC 1 initialized, implementation version 32 <3> [0.749728]
<E1000> e1000_device_init: initialized E1000 device <3> [0.749728] <E1000> e1000_device_init:
initialized E1000 device <6> PCI: Initializing <6> PCI: Finished Initializing rommon-2>
```

### 第 2 阶段：启动从rommon-2的设备到IOS：

从rommon-2提示符要引导到路由器IOS，IOx镜像要求。

使用IOx镜像，在rommon-2模式，启动它。IOx镜像开始启动顺序，并且一次完成，应该从rommon-2出来设备到路由器IOS。

```
rommon-2> boot flash:ir800-universalk9-mz.SPA.156-3.M Booting image: flash:ir800-universalk9-
mz.SPA.156-3.M.... [Multiboot-elf, <0x 110000:0x9d764bc:0x4a85f8>,
shtab=0xa32f2f8[csvds]:/ir800-universalk9-mz.SPA.15 6-3.M... , entry=0x1100b0] [CU:0] Jumps to:
0x1100b0 Smart Init is enabled smart init is sizing iomem TYPE MEMORY_REQ Onboard devices &
buffer pools 0x03644000 ----- TOTAL: 0x03644000
Rounded IOMEM up to: 55MB. Using 12 percent iomem. [55MB/448MB] Restricted Rights Legend Use,
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subparagraph (c) of the Commercial Computer Software - Restricted Rights clause at FAR sec.
52.227-19 and subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software
clause at DFARS sec. 252.227-7013. cisco Systems, Inc. 170 West Tasman Drive San Jose,
California 95134-1706 Cisco IOS Software, ir800 Software (ir800-UNIVERSALK9-M), Version
15.6(3)M, RELEASE SOFTWARE (fc1) Technical Support: http://www.cisco.com/techsupport Copyright
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import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-
party authority to import, export, distribute or use encryption. Importers, exporters,
```

distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately. A summary of U.S. laws governing Cisco cryptographic products may be found at:

<http://www.cisco.com/wvl/export/crypto/tool/stqrg.html> If you require further assistance please contact us by sending email to [export@cisco.com](mailto:export@cisco.com). Cisco IR829GW-LTE-GA-ZK9 (revision 2.0) with 365568K/60416K bytes of memory. Processor board ID FGL192420ZL Last reset from Firmware Upgrade  
FPGA version: 2.5.0 BIOS: version 11 Production BIOS: date[YYYY/MM/DD] :[2016/6/29] MCU  
Bootloader : 28 MCU Application: 29 2 Serial(sync/async) interfaces 7 Gigabit Ethernet  
interfaces 9 terminal lines 2 Cellular interfaces 1 cisco Embedded AP (s) DRAM configuration is  
72 bits wide with parity disabled. 256K bytes of non-volatile configuration memory. 976562K  
bytes of ATA System Flash (Read/Write) 250000K bytes of ATA Bootstrap Flash (Read/Write) Press  
RETURN to get started! IR800>

IOx镜像从对IOS的rommon 2顺利地启动。

```
IR800>en
```

```
IR800#show version | i image
```

```
System image file is "flash:ir800-universalk9-mz.SPA.156-3.M"
```

## 设置TFTP server

使用TFTP，在这些步骤帮助下您能启动设备：

步骤1.连接从路由器的快速以太网端口的一个RJ45电缆到运行TFTP服务器应用程序的设备。

**注意：**在IR829中，Rommon仅支持TFTP下载通过4 FE局域网端口和在IR809，TFTP下载支持通过2个FE广域网端口。

步骤2.使用此命令，设置IP地址。保证IP地址在相同子网作为您的TFTP server IP

```
rommon-1>set IP地址x.x.x.x 255.255.255.0
```

步骤3.使用此命令，设置TFTP server的默认网关

```
rommon-1>set默认网关x.x.x.x
```

步骤4.执行ping命令用TFTP server检查连接

```
rommon-1>ping < IP地址>
```

步骤5.为了启动从ROMmon模式的设备，请使用boot tftp命令和specifiy TFTP server和镜像文件名的IP地址

```
rommon-1>boot tftp:// <tftpserver ip>/<image>
```

- **警告：**除hypervisor镜像之外，在rommon-1中，有您设法启动设备使用套件镜像的实例，它不能启动并且产生镜像失败的签名验证：

```
rommon-1> boot flash: ir800-universalk9-bundle.SPA.156-3.M.bin  
ERROR: Image signature verification failed.
```

在rommon-2中，如果除IOx镜像之外，设法启动使用所有镜像，设备去回到rommon 1个模式。