计算机网络工程

实验指导书

实验0：PacketTracer热身 升级系统、ROMMON

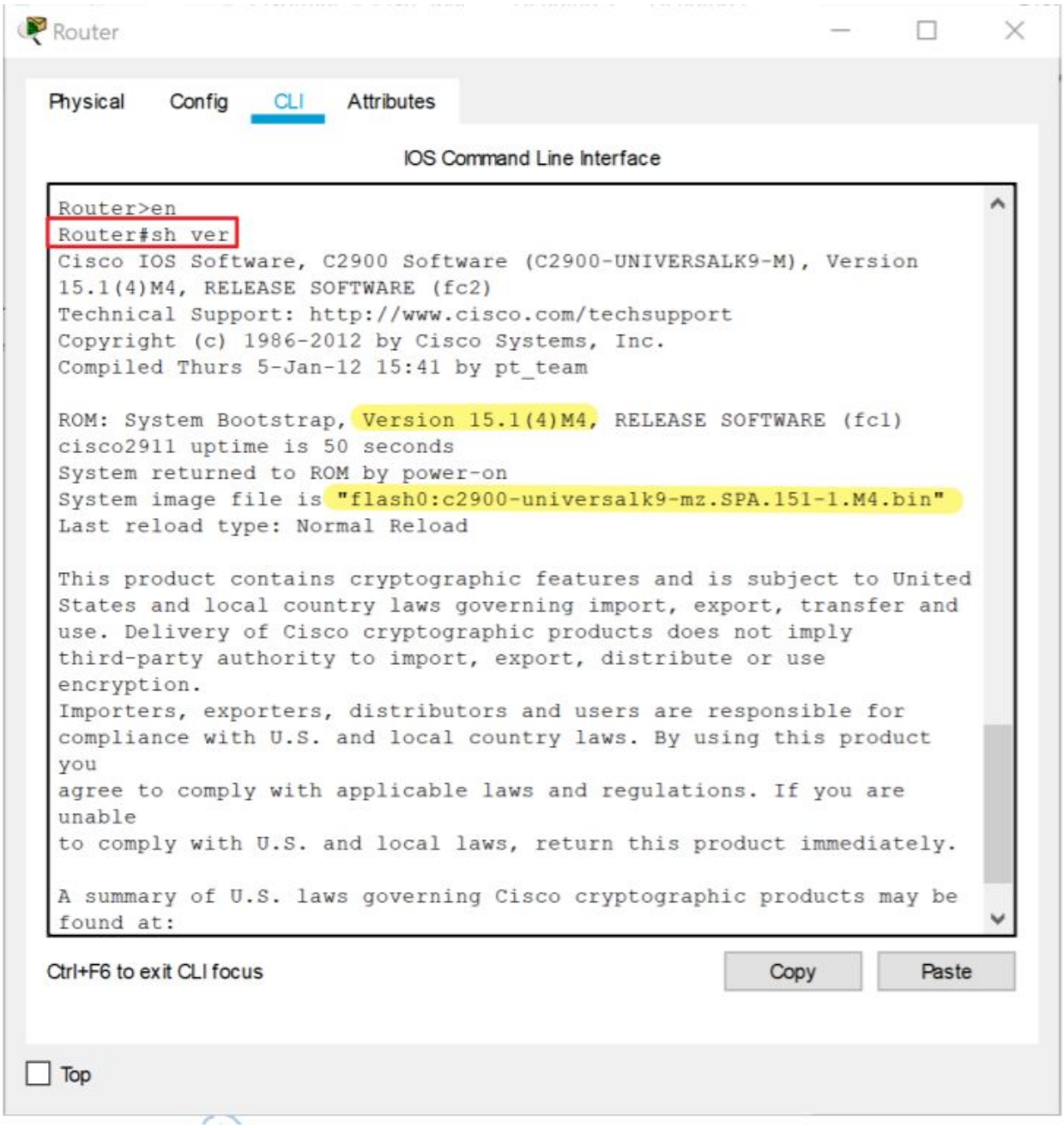
1. 从TFTP服务器升级路由器IOS

目标：了解如何使用TFTP升级设备映像

实验过程

步骤1 – 检查当前的IOS版本

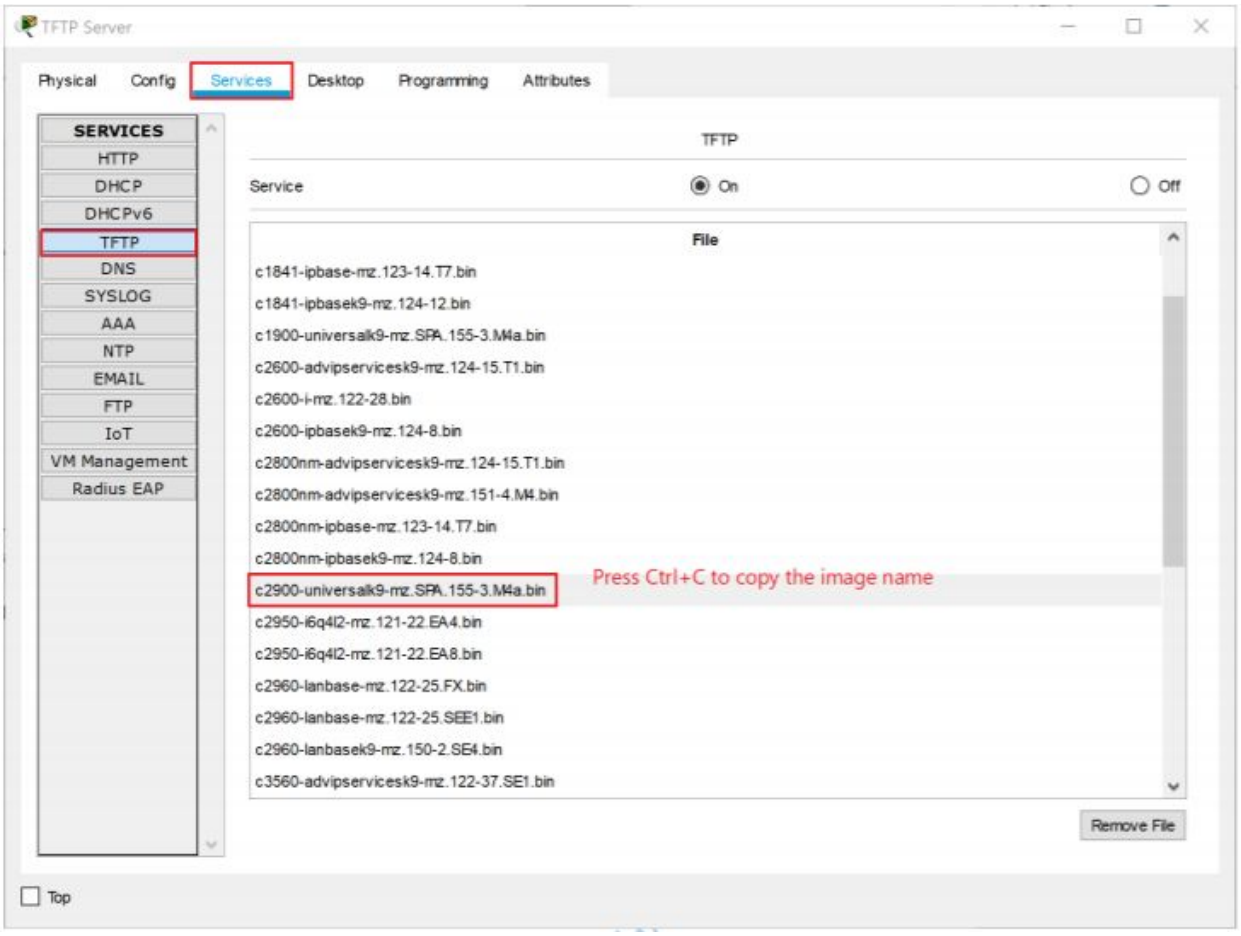
检查当前路由器的IOS版本，使用“show version”命令



当前版本是15.1（4）M4

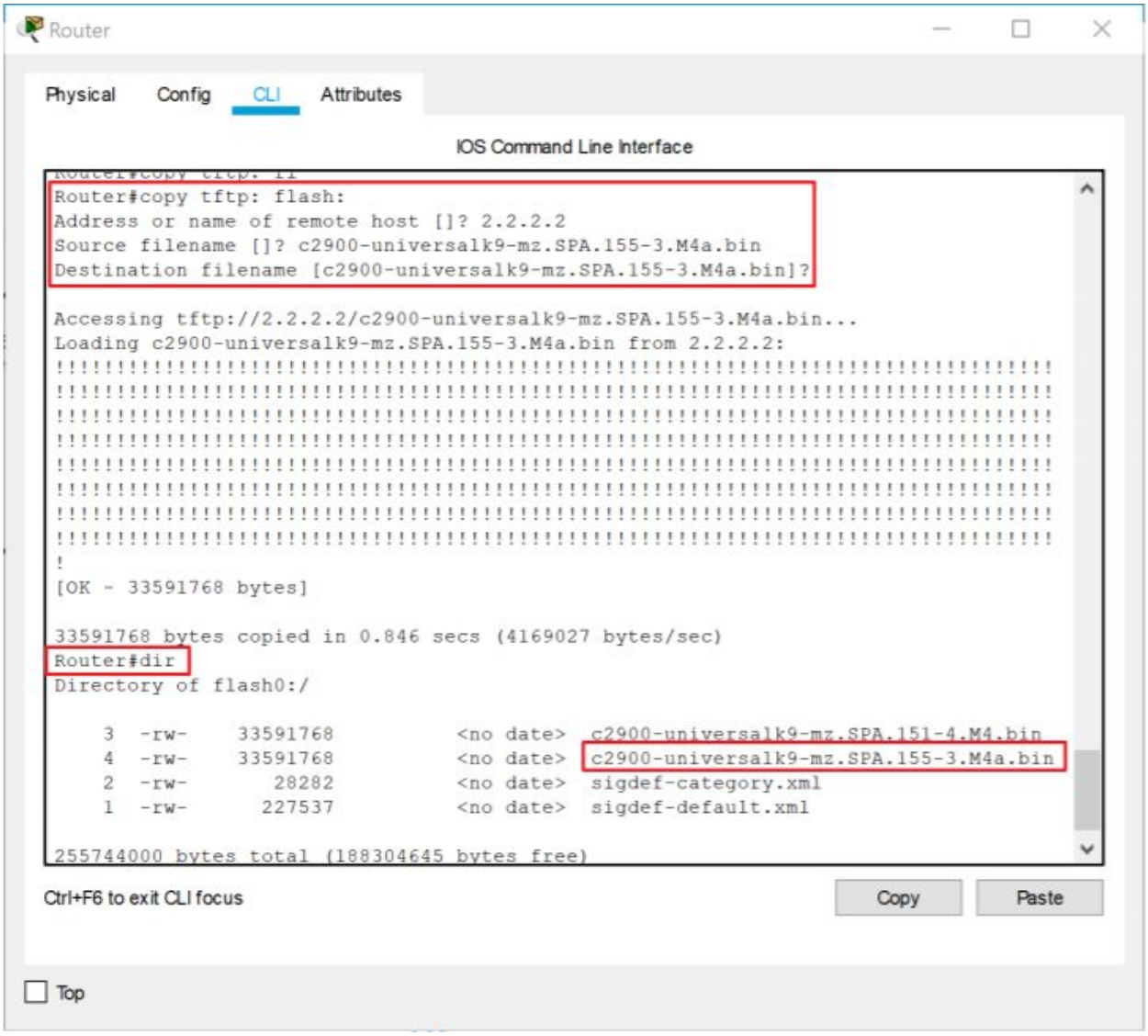
步骤2 –检查TFTP服务器上的IOS版本

检查TFTP服务器上的IOS版本



版本号为15.5（3）M4a，按“ Ctrl + C”复制镜像名称

步骤3 –从TFTP服务器下载最新的IOS



步骤4-在路由器上启动最新的IOS，然后重新加载

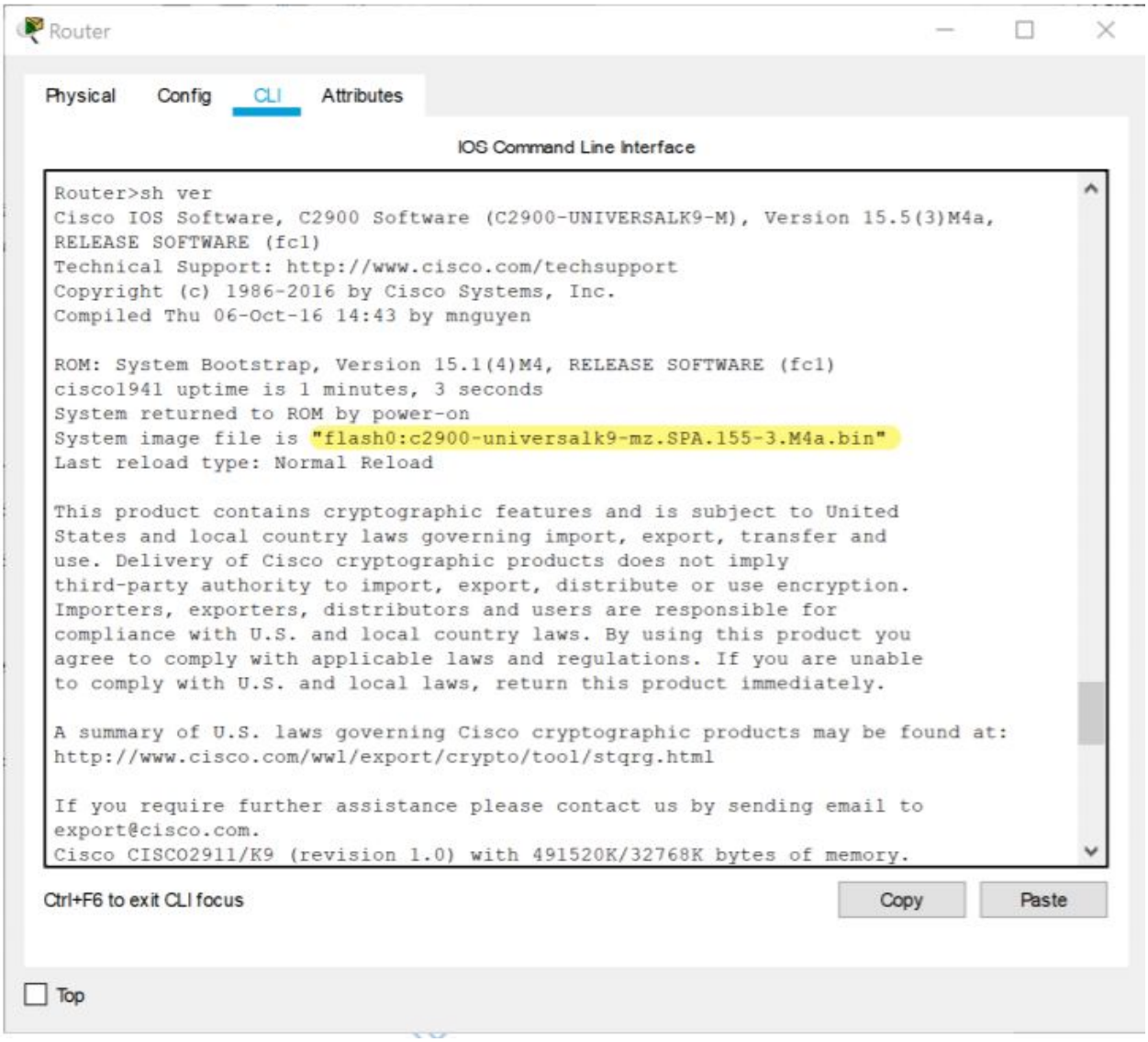
Router(config)#boot system flash c2900-universalk9-mz.SPA.155-3.M4a.bin

Router(config)#do wr

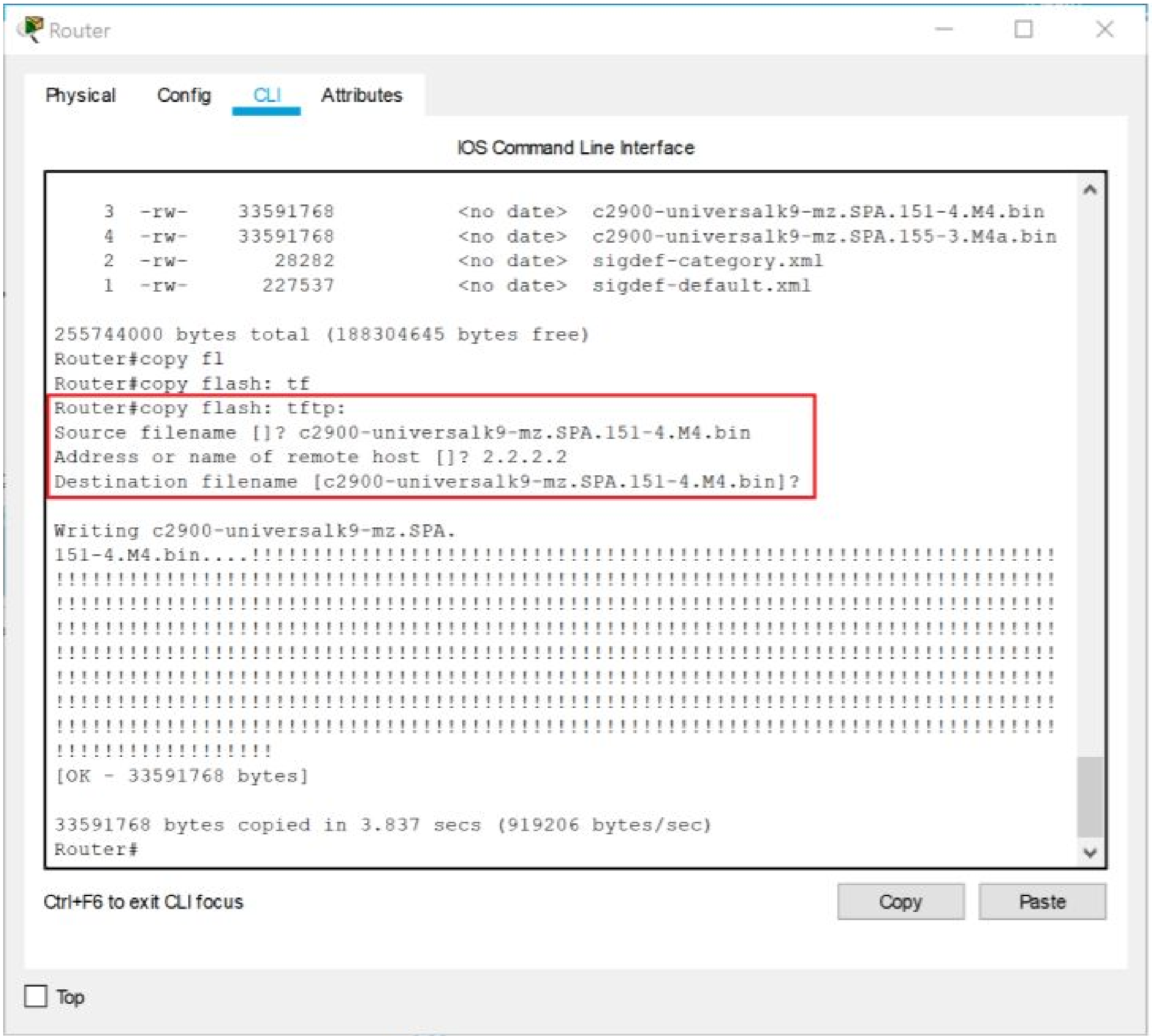
Router#reload

Proceed with reload? [confirm]y

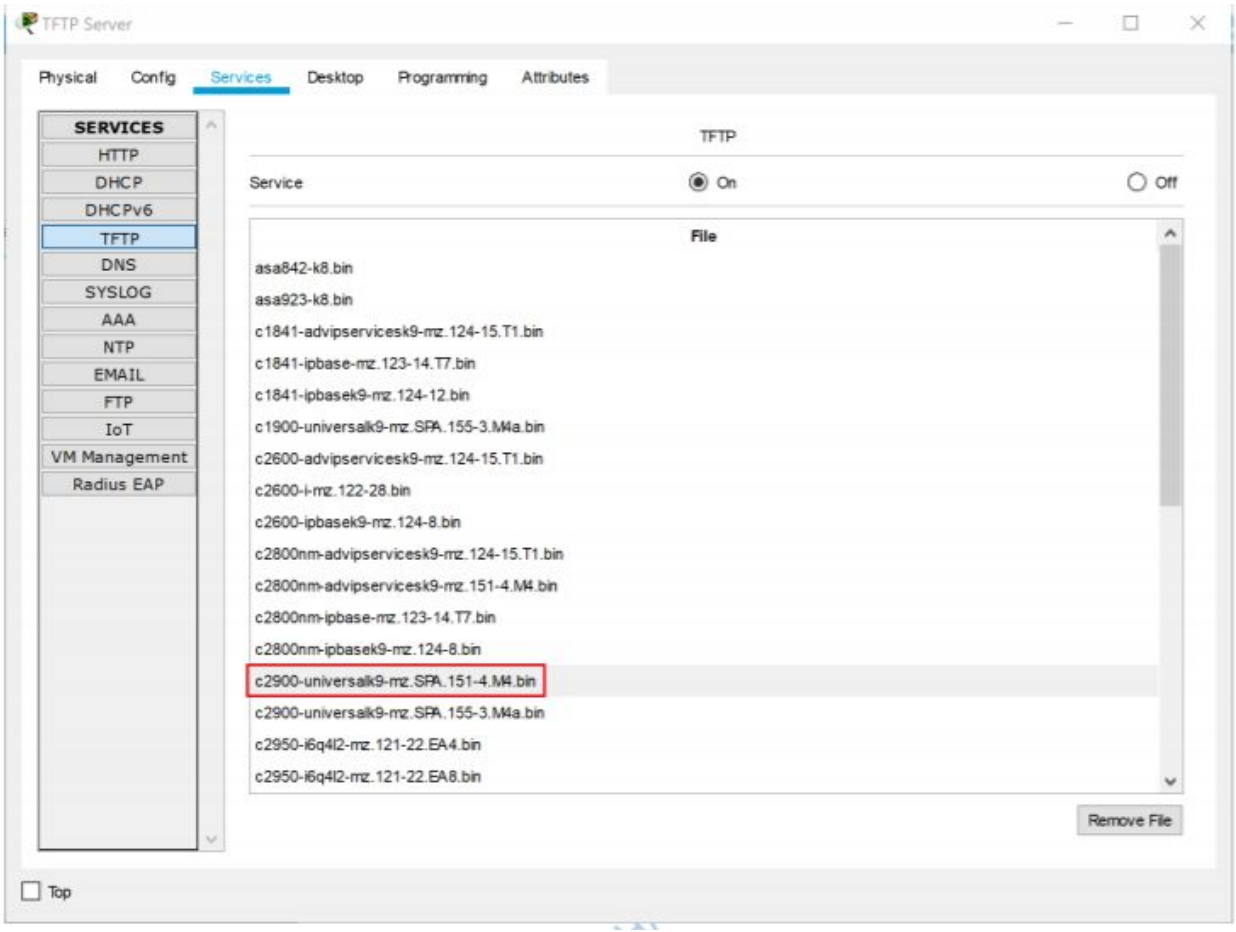
重新加载后检查IOS版本


Router
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router>sh ver
Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M), Version 15.5(3)M4a,
RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2016 by Cisco Systems, Inc.
Compiled Thu 06-Oct-16 14:43 by mnguyen
ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
cisco1941 uptime is 1 minutes, 3 seconds
System returned to ROM by power-on
System image file is "flash0:c2900-universalk9-mz.SPA.155-3.M4a.bin"
Last reload type: Normal Reload
This product contains cryptographic features and is subject to United
States and local country laws governing 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/wwl/export/crypto/tool/stqrg.html
If you require further assistance please contact us by sending email to
export@cisco.com.
Cisco CISCO2911/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

步骤5-将旧的IOS从路由器备份到TFTP服务器



在TFTP服务器上验证



步骤6-删除路由器上的旧IOS

```
Router#delete flash:
Delete filename []?c2900-universalk9-mz.SPA.151-4.M4.bin
Delete flash:/c2900-universalk9-mz.SPA.151-4.M4.bin? [confirm]

Router#dir
Directory of flash0:/

    4  -rw-    33591768          <no date>  c2900-universalk9-mz.SPA.155-3.M4a.bin
    2  -rw-       28282          <no date>  sigdef-category.xml
    1  -rw-      227537          <no date>  sigdef-default.xml

255744000 bytes total (221896413 bytes free)
```

2. ROMMON

目标：了解如何在镜像丢失的情况下恢复网络设备

实验过程

步骤1 – 删除设备映像并引导系统进入ROMMON

删除当前映像以模拟路由器丢失IOS，并启动到ROMMON

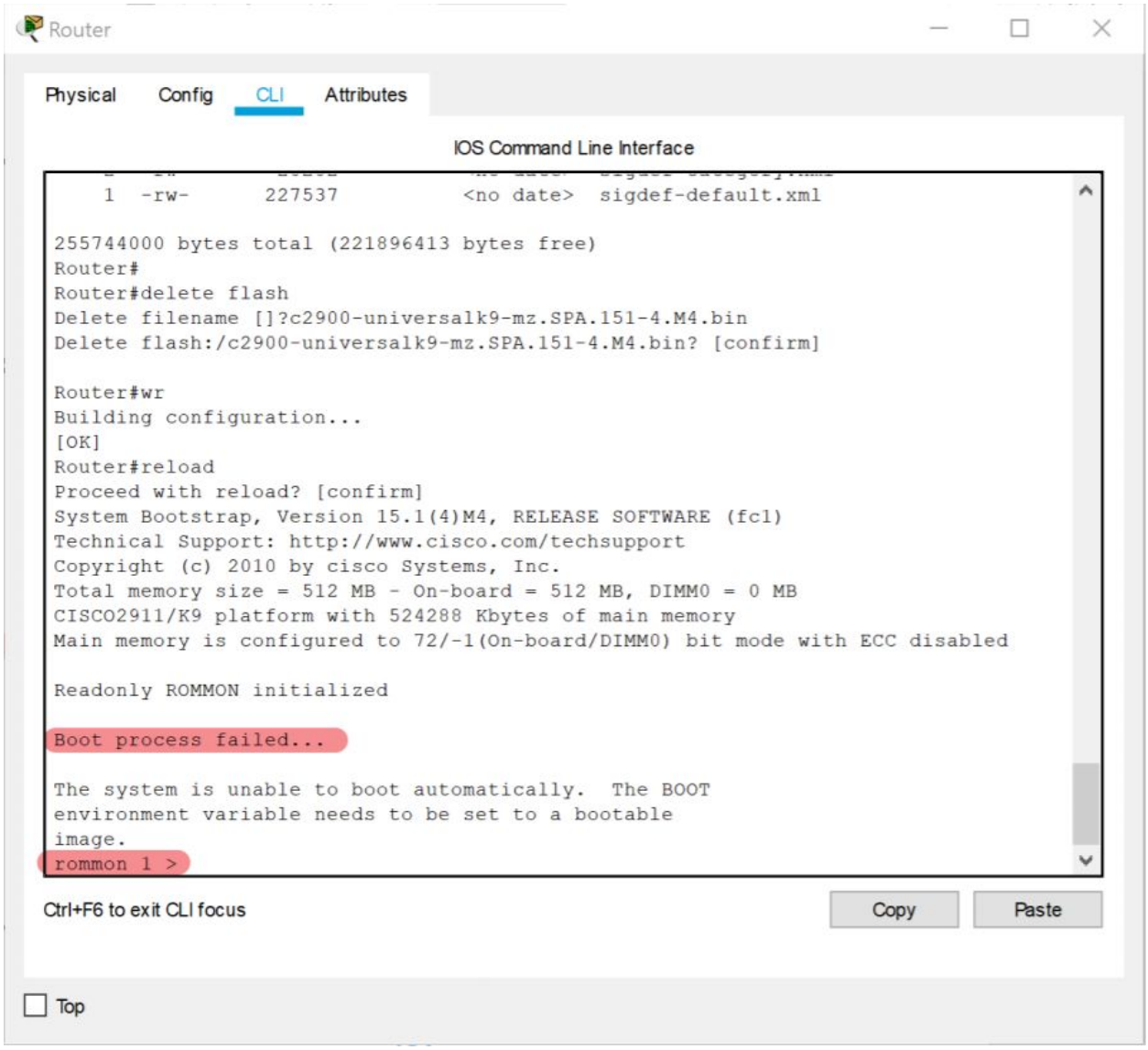
```
Router#dir
Directory of flash0:/

    3  -rw-    33591768          <no date> c2900-universalk9-mz.SPA.151-4.M4.bin
    2  -rw-       28282          <no date>  sigdef-category.xml
    1  -rw-      227537          <no date>  sigdef-default.xml

255744000 bytes total (221896413 bytes free)
Router#
Router#delete flash
Delete filename []?c2900-universalk9-mz.SPA.151-4.M4.bin
Delete flash:/c2900-universalk9-mz.SPA.151-4.M4.bin? [confirm]

Router#wr
Building configuration...
[OK]
Router#reload
```

重新加载后，路由器将启动进入ROMMON



步骤2 –在ROMMON中从TFTP服务器下载映像并恢复设备

请按照以下步骤恢复路由器

rommon 1 > IP_ADDRESS=2.2.2.1

rommon 2 > IP_SUBNET_MASK=255.255.255.0

rommon 3 > DEFAULT_GATEWAY=2.2.2.2

rommon 4 > TFTP_SERVER=2.2.2.2

rommon 5 > TFTP_FILE=c2900-universalk9-mz.SPA.155-3.M4a.bin

rommon 6 > tftpdnld

IP_ADDRESS: 2.2.2.1

IP_SUBNET_MASK: 255.255.255.0

DEFAULT_GATEWAY: 2.2.2.2

TFTP_SERVER: 2.2.2.2

TFTP_FILE: c2900-universalk9-mz.SPA.155-3.M4a.bin

Invoke this command for disaster recovery only.

WARNING: all existing data in all partitions on flash will be lost!

rommon 7 > reset