

15 Cisco Device Management

- Answer Key

In this lab you will perform a factory reset, password recovery, configuration backup, and system image backup and recovery on a Cisco router. You will also perform an IOS upgrade on a Cisco switch.

Factory Reset

- 1) View the running configuration on R1. Note that the hostname and interface have been configured

```
R1#sh run
Building configuration...

Current configuration : 696 bytes
!
hostname R1
!
interface GigabitEthernet0/0
ip address 10.10.10.1 255.255.255.0
duplex auto
speed auto
```

- 2) Factory reset R1 and reboot

```
R1#write erase
Erasing the nvram filesystem will remove all configuration
files! Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
R1#reload
Proceed with reload? [confirm]
```

- 3) Watch the boot up process as the router boots

```
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
```

```
Readonly ROMMON initialized
```

```
IOS Image Load Test
```

Digitally Signed Release Software

Self decompressing the image :

```
#####  
##### [OK]
```

- 4) The router should boot into the Setup Wizard. Exit out of the wizard and then confirm the startup and running configurations are empty.

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: **no**

```
Router>enable  
Router#show run  
Building configuration...  
hostname Router  
!  
interface GigabitEthernet0/0  
no ip address  
duplex auto  
speed auto  
shutdown
```

```
Router#show start  
startup-config is not present
```

- 5) Paste the configuration for R1 from the '15 Cisco Device Management.zip' file back into the configuration and save

```
Router#configure terminal  
Router(config)#hostname R1  
R1(config)#!  
R1(config)#interface GigabitEthernet0/0  
R1(config-if)# ip address 10.10.10.1 255.255.255.0  
R1(config-if)# duplex auto  
R1(config-if)# speed auto  
R1(config-if)# no shutdown  
R1(config-if)#!  
R1(config-if)#line con 0  
R1(config-line)# exec-timeout 30 0  
R1(config-line)#end  
R1#copy run start  
Destination filename [startup-config]?  
Building configuration...  
[OK]
```

Password Recovery

- 6) Set the enable secret 'Flackbox1' on R1

```
R1(config)#enable secret Flackbox1
```

- 7) Configure the router to boot into the rommon prompt on next reload, and reboot the router. (In a real world scenario you would enter the Break sequence on the keyboard when first powering up the router to access the rommon prompt)

```
R1(config)#config-register 0x2120
R1(config)#end
R1#copy run start
R1#reload
Proceed with reload? [confirm]
```

- 8) Configure the router to ignore the startup-config when booting up, and reload the router

```
rommon 1 > confreg 0x2142
rommon 2 > reset
```

- 9) The router should boot into the Setup Wizard. Exit out of the wizard

```
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: no
```

- 10) What do you expect to see if you view the running and startup configurations? Confirm this.

The running configuration should be empty because the router bypassed loading the startup config on boot up. The startup config should remain unchanged and all previous configuration should still be there.

```
Router#sh run
Building configuration...

hostname Router
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
```

```
Router#sh start
!
hostname R1
!
enable secret 5 $1$mERr$J2XZHM0gpVVXdLjC9lYtE1
!
interface GigabitEthernet0/0
ip address 10.10.10.1 255.255.255.0
duplex auto
speed auto
```

- 11) Copy the startup config to the running config. Do not miss this step or you will factory reset the router!

```
Router#copy start run
Destination filename [running-config]?
```

- 12) Remove the enable secret

```
Router(config)#no enable secret
```

- 13) Ensure the router will reboot normally on the next reload and you will be able to access the router

```
Router(config)#config-register 0x2102
Router(config)#end
Router#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

- 14) Reboot the router to confirm

```
Router#reload
Proceed with reload? [confirm]
```

```
R1>en
R1#sh run
Building configuration...
hostname R1
!
interface GigabitEthernet0/0
ip address 10.10.10.1 255.255.255.0
duplex auto
speed auto
```

Configuration Backup

- 15) Backup the running configuration to Flash on R1. Use a suitable name for the backup file. Verify the configuration has been backed up.

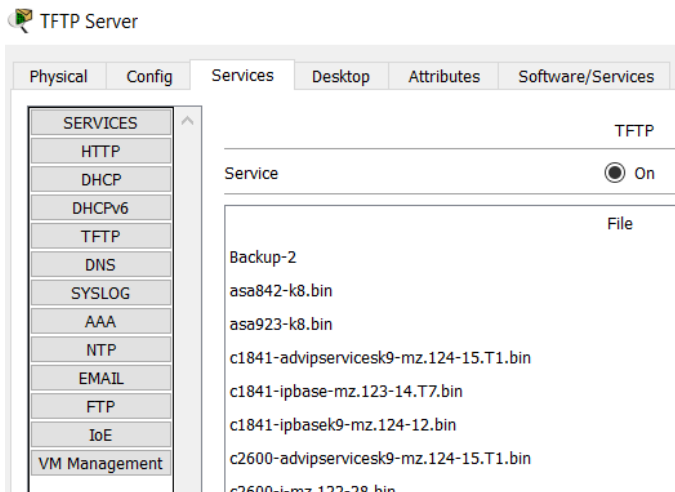
```
R1#copy run flash
Destination filename [running-config]? Backup-1
Building configuration...
[OK]
```

```
R1#show flash
```

```
System flash directory:
File Length Name/status
5 728 Backup-1
3 33591768 c2900-universalk9-mz.SPA.151-4.M4.bin
2 28282 sigdef-category.xml
1 227537 sigdef-default.xml
[33848315 bytes used, 221895685 available, 255744000 total]
249856K bytes of processor board System flash (Read/Write)
```

- 16) Backup the R1 startup configuration to the TFTP server. Use a suitable name for the backup file. Verify the configuration has been backed up.

```
R1#copy start tftp
Address or name of remote host []? 10.10.10.10
Destination filename [R1-config]? Backup-2
Writing startup-config....!!
[OK - 728 bytes]
728 bytes copied in 3.007 secs (242 bytes/sec)
```



IOS System Image Backup and Recovery

- 17) Backup the IOS system image on R1 to the TFTP server. Verify the configuration has been backed up.

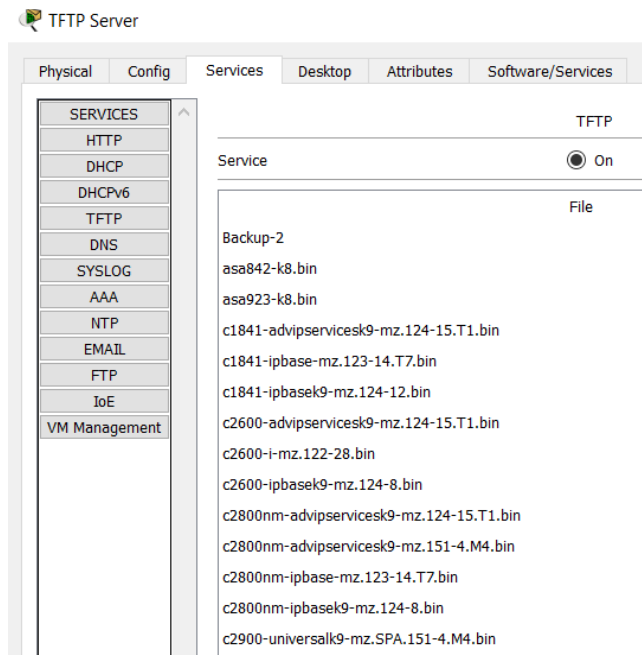
R1#show flash

```
System flash directory:
File Length Name/status
5 728 Backup-1
3 33591768 c2900-universalk9-mz.SPA.151-4.M4.bin
2 28282 sigdef-category.xml
1 227537 sigdef-default.xml
[33848315 bytes used, 221895685 available, 255744000 total]
249856K bytes of processor board System flash (Read/Write)
```

R1#copy flash tftp

```
Source filename []? c2900-universalk9-mz.SPA.151-4.M4.bin
Address or name of remote host []? 10.10.10.10
Destination filename [c2900-universalk9-mz.SPA.151-4.M4.bin]?
```

```
Writing c2900-universalk9-mz.SPA.151-4.M4.bin...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 33591768 bytes]
```



18) Delete the system image from Flash and reload.

```
R1#delete flash:c2900-universalk9-mz.SPA.151-4.M4.bin
Delete filename [c2900-universalk9-mz.SPA.151-4.M4.bin]?
Delete flash:/c2900-universalk9-mz.SPA.151-4.M4.bin?
[confirm]
```

```
R1#reload
Proceed with reload? [confirm]
```

Boot process failed...

The system is unable to boot automatically. The BOOT environment variable needs to be set to a bootable image.

```
rommon 1 >
```

19) Use Internet search to find system recovery instructions for your model of router. Recover the system image using the TFTP server.

http://www.cisco.com/c/en/us/td/docs/routers/access/1900/software/configuration/guide/Software_Configuration/appendixCrommon.html is the first hit when searching for 'Cisco 2900 rommon recovery'.

Go to the ["Recovering the System Image \(tftpdnld\)"](#) section.

```
rommon 1 > IP_ADDRESS=10.10.10.1
rommon 2 > IP_SUBNET_MASK=255.255.255.0
rommon 3 > DEFAULT_GATEWAY=10.10.10.1
rommon 4 > TFTP_SERVER=10.10.10.10
rommon 5 > TFTP_FILE=c2900-universalk9-mz.SPA.151-4.M4.bin
rommon 6 > TFTP_DESTINATION=flash:
rommon 7 > TFTP_TIMEOUT=120
rommon 8 > tftpdnld
```

```
IP_ADDRESS: 10.10.10.1
IP_SUBNET_MASK: 255.255.255.0
DEFAULT_GATEWAY: 10.10.10.1
TFTP_SERVER: 10.10.10.10
TFTP_FILE: c2900-universalk9-mz.SPA.151-4.M4.bin
Invoke this command for disaster recovery only.
WARNING: all existing data in all partitions on flash will
be lost!
```

```
Do you wish to continue? y/n: [n]: y
```

```
.....[TIMED OUT]
TFTP: Operation terminated.
```

- 20) If you are using the latest version of Packet Tracer the download will time out because the GigabitEthernet interface stays down in rommon mode. You have completed this part of the lab once you have entered the tftpdnld command.

This is as far as we can go with this part of the lab. You've seen how to recover the system image, the only thing left to do in a real world scenario after the download has completed is:

```
rommon 9 > reset
```

IOS Image Upgrade

- 1) Verify SW1 is running C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX

```
SW1#sh version
Cisco IOS Software, C2960 Software (C2960-LANBASE-M),
Version 12.2(25)FX
```

- 2) Use the TFTP server to upgrade to c2960-lanbasek9-mz.150-2.SE4.bin

```
SW1#copy tftp flash
Address or name of remote host []? 10.10.10.10
Source filename []? c2960-lanbasek9-mz.150-2.SE4.bin
Destination filename [c2960-lanbasek9-mz.150-2.SE4.bin]?

Accessing tftp://10.10.10.10/c2960-lanbasek9-mz.150-
2.SE4.bin....
Loading c2960-lanbasek9-mz.150-2.SE4.bin from 10.10.10.10:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 4670455 bytes]
```

```
4670455 bytes copied in 3.086 secs (121674 bytes/sec)
```

```
SW1#show flash
Directory of flash:/
```

```
1 -rw- 4414921 <no date> c2960-lanbase-mz.122-25.FX.bin
3 -rw- 4670455 <no date> c2960-lanbasek9-mz.150-2.SE4.bin
2 -rw- 1054 <no date> config.text
```

```
64016384 bytes total (54929954 bytes free)
```

```
SW1#config t
SW1(config)#boot system c2960-lanbasek9-mz.150-2.SE4.bin
```

3) Reboot and verify the switch is running the new software version

```
SW1#reload
Proceed with reload? [confirm]
```

```
SW1#show version
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M),
Version 15.0(2)SE4, RELEASE SOFTWARE (fc1)
```