

Packet Tracer - Investigate Disaster Recovery

Objectives

Part 1: Review a Switch Configuration

Part 2: Backup Files to a TFTP Server

Part 3: Replace a Failed Switch

Part 4: Restore Network Operations

Background / Scenario

In this Packet Tracer (PT) activity, you will back up switch configuration files, replace a failed switch with a new switch, and then restore network operations by applying the backed up configuration from the failed switch to the new switch. The backup configuration files are saved to a Trivial File Transfer Protocol (TFTP) server. You are required to restore the saved files from the TFTP server to get the replacement switch online with as little down time as possible.

Note: The activity opens in the **Wiring Closet** for **HQ**. Although you can navigate out of the **Wiring Closet**, all tasks in this activity will occur inside the **Wiring Closet**. Switching to **Logical** mode is disabled.

Instructions

Part 1: Review a Switch Configuration

In this part, you will review and document the current configuration of the MDF-1 switch in the HQ Wiring Closet. This information will be necessary for manually configuring a replacement switch and verifying the new switch is operating as expected.

Step 1: Observe the contents of NVRAM.

- Click **MDF-1** > **CLI** tab, and then press **Enter**.
- Enter the **enable** command, and then enter the **dir nvram** command to observe the contents of NVRAM.

```
MDF-1>enable
MDF-1#dir nvram
Directory of nvram:/

 238  -rw-          2838          <no date>  startup-config

2838 bytes total (237588 bytes free)
```

What is the size of the startup-config file?

The startup-config file is 2838 bytes in size.

Step 2: Document the VLANs and other important configuration information.

- Enter the **show vlan** command.

```
MDF-1#show vlan

VLAN Name                Status    Ports
-----
1    default                active    Fa0/1, Fa0/2
10   Accounting              active    Fa0/3, Fa0/15
20   Sales                  active    Fa0/4, Fa0/5, Fa0/6, Fa0/7
50   Common                  active    Fa0/8, Fa0/9, Fa0/10, Fa0/11
75   Servers                 active    Fa0/12, Fa0/13, Fa0/14, Fa0/16
99   Admin                   active    Fa0/17, Fa0/18, Fa0/23, Fa0/24
999  Unused                   active    Gig0/2
```

What VLANs have been configured on MDF-1?

VLANs, 10, 20, 50, 75, 99, and 999

- b. Enter the **show run** command. Review the output to document the following information, which you will need to manually configure on a switch after a disaster.

```
interface Vlan99
 ip address 192.168.99.150 255.255.255.0
!
ip default-gateway 192.168.99.1
interface FastEthernet0/1
 switchport access vlan 75
 switchport mode access
interface GigabitEthernet0/1
 switchport trunk native vlan 99
 switchport mode trunk
```

Record the following settings in the following table:

MDF-1 Settings	Command Output
VLAN 99 IP Address	192.168.99.150/24
Default Gateway IP Address	192.168.99.1
VLAN Assignment of Interface F0/1	VLAN 75
Native LAN and Trunk Status of G0/1	Native VLAN 99 and trunk mode on

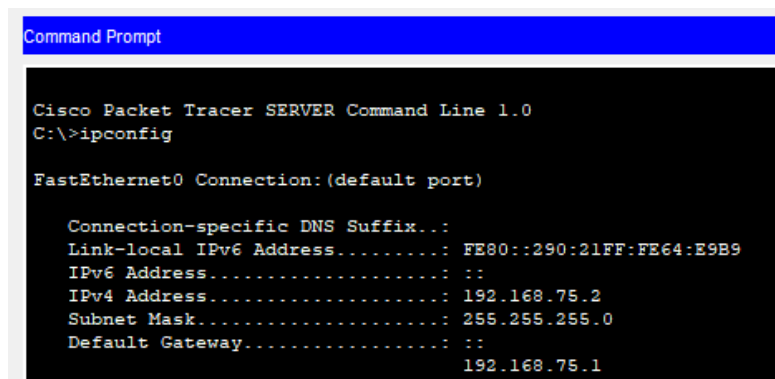
Click Link. No additional information.

Part 2: Backup Files to a TFTP Server

In this part, you will copy the configuration files for the MDF-1 switch to the TFTP server. You will then verify that the files are listed on the TFTP server.

Step 1: Enable the TFTP service on the FTP server.

- a. In the **Wiring Closet**, on the right rack, click the **FTP** server > **Desktop** tab > **Command Prompt**.
- b. Enter the **ipconfig** command.



```
Command Prompt

Cisco Packet Tracer SERVER Command Line 1.0
C:\>ipconfig

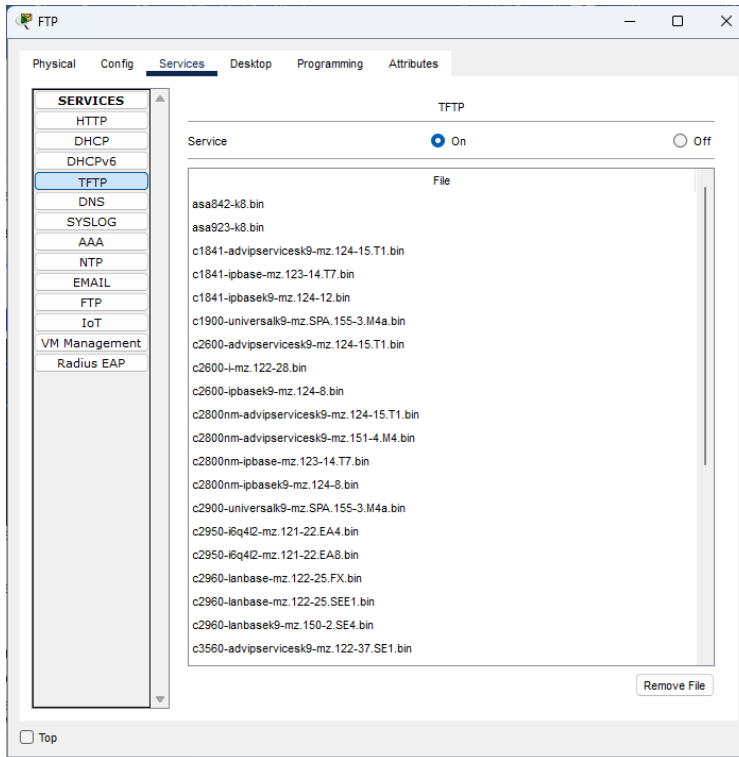
FastEthernet0 Connection:(default port)

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: FE80::290:21FF:FE64:E9B9
IPv6 Address.....: ::
IPv4 Address.....: 192.168.75.2
Subnet Mask.....: 255.255.255.0
Default Gateway.....: ::
                        192.168.75.1
```

What is the IP address for the FTP server?

192.168.75.2

- c. Click the **Services** tab, and then under **SERVICES**, click **TFTP**.
- d. Enable the TFTP service.



Step 2: Upload the vlan.dat and the startup-config files to the TFTP server.

- Click **MDF-1**, and then **CLI** tab, if necessary. If you were logged out, enter the **enable** command again.
- Enter **copy flash tftp** command and specify **vlan.dat** as the source filename. You documented the IP address in the previous step. Enter **MDF-1_vlan.dat** for the destination filename.

```
MDF-1#copy flash tftp
Source filename []? vlan.dat
Address or name of remote host []? 192.168.75.2
Destination filename [vlan.dat]? MDF-1_vlan.dat

Writing vlan.dat.....!!
[OK - 916 bytes]
```

916 bytes copied in 7.11 secs (128 bytes/sec)

Record the command below:

```
MDF-1# copy flash tftp
Source filename []? vlan.dat
Address or name of remote host []? 192.168.75.2
Destination filename [vlan.dat]? MDF-1_vlan.dat
```

```
Writing vlan.dat..... !!
[OK - 916 bytes]
```

916 bytes copied in 7.11 secs (128 bytes/sec)

- Enter the **copy startup-config tftp** command to copy the configuration to the TFTP server. You documented the IP address in the previous step. Enter **MDF-1_startup-config** as the destination filename.

```

MDF-1#copy startup-config tftp
Address or name of remote host []? 192.168.75.2
Destination filename [MDF-1-config]? MDF-1_startup-config

Writing startup-config...!!
[OK - 3012 bytes]

3012 bytes copied in 0.021 secs (143428 bytes/sec)
Record the command below:

MDF-1# copy startup-config tftp
Address or name of remote host []? 192.168.75.2
Destination filename [MDF-1-config]? MDF-1_startup-config

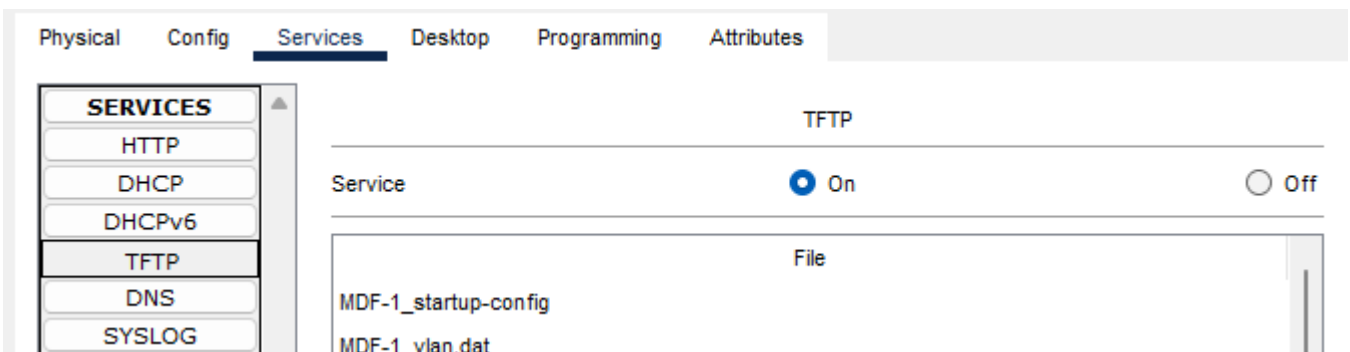
Writing startup-config .....!!
[OK - 3012 bytes]

3012 bytes copied in 0.021 secs (143428 bytes/sec)

```

Step 3: Verify that the files are on the TFTP server.

Click **FTP** server. Under **TFTP** in **SERVICES**, verify the two files are listed in the **File** section. If necessary, refresh the File list by clicking another service and then clicking the TFTP service again.

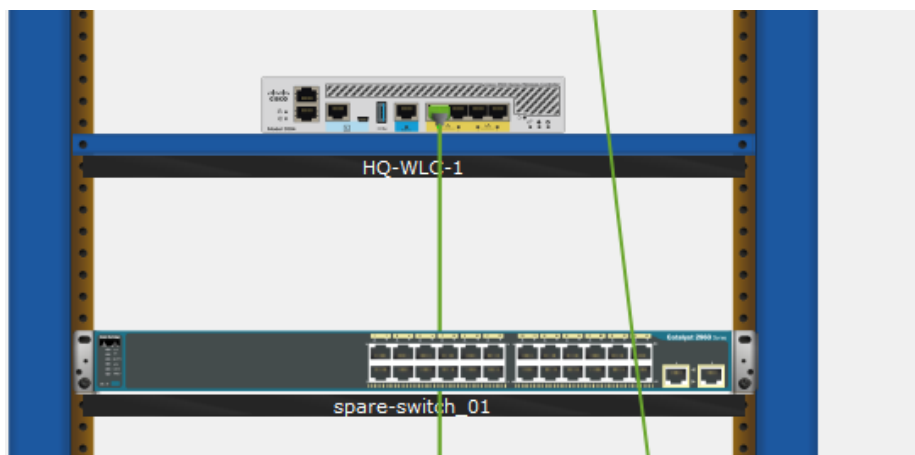


Part 3: Replace a Failed Switch

Assume that the **MDF-1** switch has failed. This could be from a power surge, a corrupted chip, or some other environmental hazard or hardware failure. In this Part, you will install a replacement switch and move the cable connections from the failed switch to the new switch.

Step 1: Add a new switch to the network.

- On the **Table** in the **Wiring Closet**, locate **spare-switch_01**.
- Click and drag it to the rack below **HQ-WLC-1**.



- Click **spare-switch_01** > **CLI** tab, and then press **Enter**.

- d. Enter the following commands to deactivate all the interfaces.

```
enable
configure terminal
interface range f0/1 - 23, g0/1 - 2
shutdown
exit
```

```
spare-switch_01>enable
spare-switch_01#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
spare-switch_01(config)#interface range fa0/1 - 23, g0/1 - 2
spare-switch_01(config-if-range)#shutdown

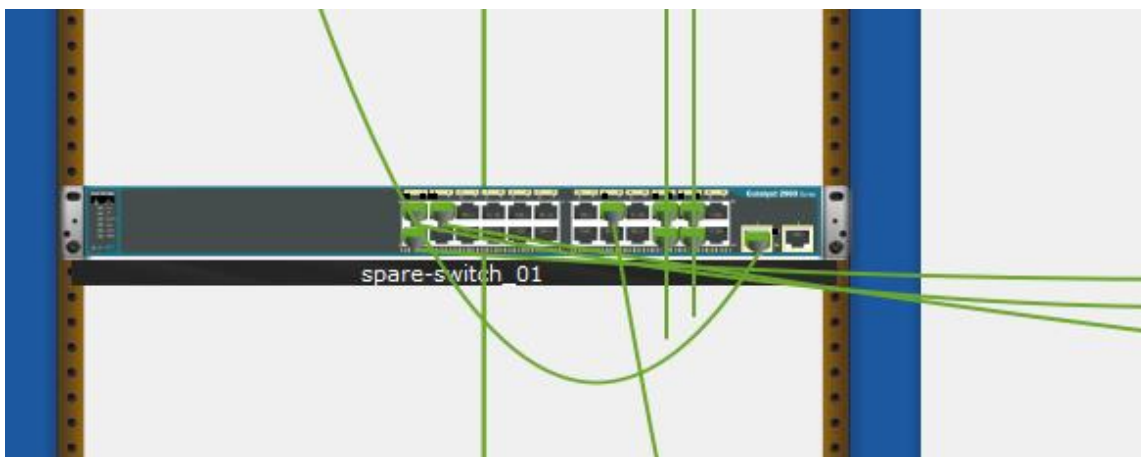
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/11, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/13, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/14, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to administratively down
```

Step 2: Move the cable connections from the MDF-1 switch to new switch.

- a. On the top toolbar, click **Zoom In** several times until you can easily see the cable connections for both **MDF-1** and **spare-switch_01**.

Alternatively, you can right click each switch and choose **Inspect Front**. But you will need to do this each time you move a connection from **MDF-1** to **spare-switch_01**.

- b. Click and drag a cable connection from **MDF-1** to the same port number on **spare-switch_01**. Repeat until all cables are moved from **MDF-1** to **spare-switch_01**.

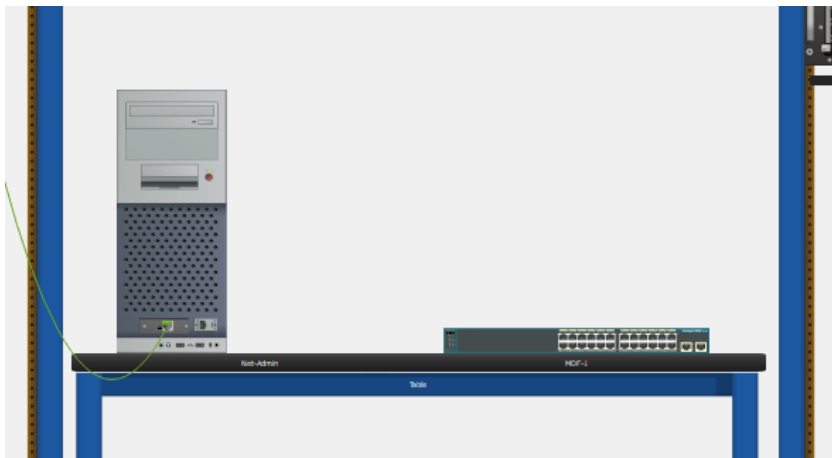


- c. To verify cables are in the correct ports, right click **spare-switch_01** and choose **Inspect Front**. Zoom in and then float your mouse over each cable, wait for the information popup, and then make sure the cable connections map to this table.

MDF-1 Interface Port	Connected Device
F0/1	FTP Server
F0/2	MAIL Server
F0/3	AAA-RADIUS Server
F0/15	Net-Admin PC
F0/19	FL-1 F0/19
F0/20	FL-1 F0/20
F0/21	FL-2 F0/21
F0/22	FL-2 F0/22
G0/1	HQ Edge Router

Small icon. No additional information.

- d. Right click the **Rack** and choose **Manage All Cables on Rack**.
- e. Uninstall **MDF-1** from the **Rack**. Click and drag it to the **Table**.



- f. On the top toolbar, click **Zoom Reset**.

Part 4: Restore Network Operations

In this Part, you will manually configure the new switch so that it can access the TFTP server. You will then copy the configuration files from the TFTP server to the new switch and verify the switch is operating as expected.

Step 1: Configure spare-switch_01 to access the network.

To access the TFTP server over the network, the spare switch will need network information configured manually. Enter the following configuration into **spare-switch_01** to connect it to the network and prepare it for TFTP server access.

```
vlan 99
name Admin
exit
interface vlan 99
ip address 192.168.99.150 255.255.255.0
exit
ip default-gateway 192.168.99.1
interface fa0/1
switchport mode access
switchport access vlan 75
```

```

no shutdown
interface g0/1
switchport mode trunk
switchport trunk native vlan 99
no shutdown
end

spare-switch_01(config)#vlan 99
spare-switch_01(config-vlan)#name Admin
spare-switch_01(config-vlan)#exit
spare-switch_01(config)#interface vlan 99
spare-switch_01(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

spare-switch_01(config-if)#ip address 192.168.99.150 255.255.255.0
spare-switch_01(config-if)#exit
spare-switch_01(config)#ip default-gateway 192.168.99.1
spare-switch_01(config)#interface fa0/1
spare-switch_01(config-if)#switchport mode access
spare-switch_01(config-if)#switchport access vlan 75
% Access VLAN does not exist. Creating vlan 75
spare-switch_01(config-if)#no shutdown

spare-switch_01(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
spare-switch_01(config-if)#interface g0/1
spare-switch_01(config-if)#switchport mode trunk
spare-switch_01(config-if)#switchport trunk native vlan 99
spare-switch_01(config-if)#no shutdown

spare-switch_01(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to
up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed state to up

spare-switch_01(config-if)#end
spare-switch_01#
%SYS-5-CONFIG_I: Configured from console by console

```

Step 2: Test connectivity to the TFTP server.

Enter **ping 192.168.75.2** to verify **spare-switch_01** can access the TFTP server.

```
spare-switch_01#ping 192.168.75.2
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.75.2, timeout is 2 seconds:

```
..!!!
```

Success rate is 60 percent (3/5), round-trip min/avg/max = 0/0/0 ms

Step 3: Download the vlan.dat and startup-config files from the TFTP server.

- Enter the **copy tftp flash** command. Specify the IP address of the TFTP server. The source filename is **MDF-1_vlan.dat**. The destination filename MUST be **vlan.dat**. Confirm you want to overwrite the current vlan.dat file.

```

spare-switch_01#copy tftp flash
Address or name of remote host []? 192.168.75.2
Source filename []? MDF-1_vlan.dat
Destination filename [MDF-1_vlan.dat]? vlan.dat
%Warning:There is a file already existing with this name
Do you want to over write? [confirm]

```

```

Accessing tftp://192.168.75.2/MDF-1_vlan.dat...
Loading MDF-1_vlan.dat from 192.168.75.2: !
[OK - 916 bytes]

```

916 bytes copied in 0 secs
Record the command below:

```

spare-switch_01# copy tftp flash:
Address or name of remote host []? 192.168.75.2
Source filename []? MDF-1_vlan.dat
Destination filename [MDF-1_vlan.dat]? vlan.dat
%Warning:There is a file already existing with this name
Do you want to overwrite? [confirm]

```

```

Accessing tftp://192.168.75.2/MDF-1_vlan.dat...
Loading MDF-1_vlan.dat from 192.168.75.2: !
[OK - 916 bytes]

```

916 bytes copied in 0 secs
spare-switch_01#

- b. Enter the **dir flash** command to verify the **vlan.dat** file is in the directory.

```

spare-switch_01#dir flash
Directory of flash:/

   1  -rw-     4670455      <no date>  2960-lanbasek9-mz.150-2.SE4.bin
   4  -rw-       1089      <no date>  config.text
   5  -rw-        916      <no date>  vlan.dat

```

64016384 bytes total (59343924 bytes free)
Record the command below:

```

spare-switch_01# dir flash:
Directory of flash:/

```

```

1 -rw- 4670455 <no date> 2960-lanbasek9-mz.150-2.SE4.bin
2 -rw- 916 <no date> vlan.dat
spare-switch_01#

```

- c. Enter the **copy tftp startup-config** command. Specify the IP address of the TFTP server. The source filename is **MDF-1_startup-config**. The destination filename MUST be **startup-config**.

```

spare-switch_01#copy tftp startup-config
Address or name of remote host []? 192.168.75.2
Source filename []? MDF-1_startup-config
Destination filename [startup-config]? startup-config

```

```

Accessing tftp://192.168.75.2/MDF-1_startup-config...
Loading MDF-1_startup-config from 192.168.75.2: !
[OK - 3012 bytes]

```

3012 bytes copied in 0 secs
Record the command below:

```

spare-switch_01# copy tftp: startup-config
Address or name of remote host []? 192.168.75.2
Source filename []? MDF-1_startup-config
Destination filename [startup-config]? startup-config

```

```

Accessing tftp://192.168.75.2/MDF-1_startup-config...
Loading MDF-1_startup-config from 192.168.75.2: !

```


[OK - 3012 bytes]

3012 bytes copied in 0.004 secs
spare-switch_01#

- d. Enter the **dir nvram** command to verify the startup-config file is now in NVRAM.

```
spare-switch_01#dir nvram
Directory of nvram:/

 238  -rw-          2838          <no date>  startup-config

2838 bytes total (237588 bytes free)
```

Record the command below:

```
spare-switch_01# dir nvram
Directory of nvram:/

238 -rw- 2838 <no date> startup-config
2838 bytes total (237588 bytes free)
spare-switch_01#
```

What is the size of the startup-config file?

The startup-config file is 2838 bytes in size.

Is this the same size as the startup-config recorded in Part 1, Step 1?

Yes

Step 4: Reload and verify the new switch now has the correct configuration.

- a. Enter the **reload** command. The startup-config file will be copied into RAM and become the running configuration.

Important: Answer **no** to the prompt, **System configuration has been modified. Save?**, and then press **Enter** to confirm reload.

```
spare-switch_01#reload
System configuration has been modified. Save? [yes/no]:no
Proceed with reload? [confirm]
C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE (fc4)
Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of memory.
2960-24TT starting...
Base ethernet MAC Address: 0030.A327.7520
Xmodem file system is available.
Initializing Flash...
flashfs[0]: 3 files, 0 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 64016384
flashfs[0]: Bytes used: 4674383
flashfs[0]: Bytes available: 59342001
flashfs[0]: flashfs fsck took 1 seconds.
...done Initializing Flash.

Boot Sector Filesystem (bs:) installed, fsid: 3
Parameter Block Filesystem (pb:) installed, fsid: 4
```

```
Loading "flash:/2960-lanbasek9-mz.150-2.SE4.bin"...
#####
```

Record the command below:

```
spare-switch_01# reload
System configuration has been modified. Save? [yes/no]:no
Proceed with reload? [confirm]
```

- b. After the switch reloads, review the configuration.
- The hostname is now be **MDF-1**.

- o Enter the **show vlan** command and verify VLANs you documented in Part 1, Step 2 are listed.

```
MDF-1>show vlan
```

VLAN	Name	Status	Ports
1	default	active	
10	Accounting	active	
20	Sales	active	
50	Common	active	
75	Servers	active	Fa0/1, Fa0/2
99	Admin	active	Fa0/3, Fa0/15
999	Unused	active	Fa0/4, Fa0/5, Fa0/6, Fa0/7 Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/16 Fa0/17, Fa0/18, Fa0/23, Fa0/24 Gig0/2

- o Enter the **show ip interface brief** command. Verify that your connected physical ports are now all up.

```
MDF-1>show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Port-channel1	unassigned	YES	manual	up	up
Port-channel2	unassigned	YES	manual	up	up
FastEthernet0/1	unassigned	YES	manual	up	up
FastEthernet0/2	unassigned	YES	manual	up	up
FastEthernet0/3	unassigned	YES	manual	up	up
FastEthernet0/4	unassigned	YES	manual	administratively down	down
FastEthernet0/5	unassigned	YES	manual	administratively down	down
FastEthernet0/6	unassigned	YES	manual	administratively down	down
FastEthernet0/7	unassigned	YES	manual	administratively down	down
FastEthernet0/8	unassigned	YES	manual	administratively down	down
FastEthernet0/9	unassigned	YES	manual	administratively down	down
FastEthernet0/10	unassigned	YES	manual	administratively down	down
FastEthernet0/11	unassigned	YES	manual	administratively down	down
FastEthernet0/12	unassigned	YES	manual	administratively down	down
FastEthernet0/13	unassigned	YES	manual	administratively down	down
FastEthernet0/14	unassigned	YES	manual	administratively down	down
FastEthernet0/15	unassigned	YES	manual	up	up
FastEthernet0/16	unassigned	YES	manual	administratively down	down
FastEthernet0/17	unassigned	YES	manual	administratively down	down
FastEthernet0/18	unassigned	YES	manual	administratively down	down
FastEthernet0/19	unassigned	YES	manual	up	up
FastEthernet0/20	unassigned	YES	manual	up	up
FastEthernet0/21	unassigned	YES	manual	up	up
FastEthernet0/22	unassigned	YES	manual	up	up
FastEthernet0/23	unassigned	YES	manual	administratively down	down
FastEthernet0/24	unassigned	YES	manual	administratively down	down
GigabitEthernet0/1	unassigned	YES	manual	up	up
GigabitEthernet0/2	unassigned	YES	manual	administratively down	down
Vlan1	unassigned	YES	manual	administratively down	down
Vlan99	192.168.99.150	YES	manual	up	up