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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.

a. Click **MDF-1** > **CLI** tab, and then press **Enter**.

b. Enter the **enable** command, and then enter the **dir nvram** command to observe the contents of NVRAM.

Question:

What is the size of the startup-config file?

Answer:

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

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

2838 bytes total (237588 bytes free)

MDF-1#
```

The startup-config file is 2838 bytes in size.

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

a. Enter the **show vlan** command.

Question:

What VLANs have been configured on MDF-1?

Answer:

```
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
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
10   enet  100010     1500  -      -      -        -    -        0      0
20   enet  100020     1500  -      -      -        -    -        0      0
50   enet  100050     1500  -      -      -        -    -        0      0
75   enet  100075     1500  -      -      -        -    -        0      0
99   enet  100099     1500  -      -      -        -    -        0      0
999  enet  100999     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0

 --More--
```

1, 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.

Question:

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

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.

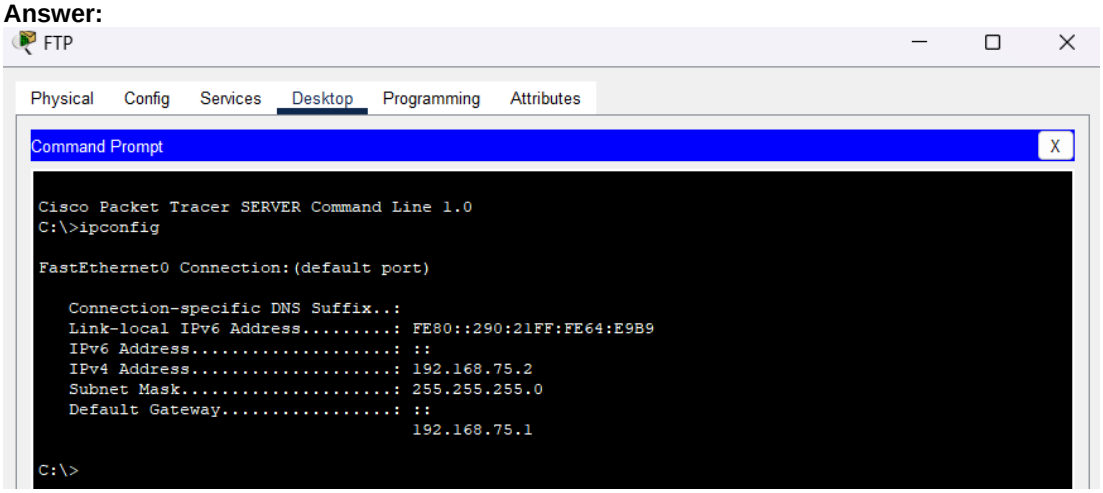
a. In the **Wiring Closet**, on the right rack, click the **FTP** server > **Desktop** tab > **Command Prompt**.

b. Enter the **ipconfig** command.

Question:

What is the IP address for the FTP server?

Answer:



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.

a. Click **MDF-1**, and then **CLI** tab, if necessary. If you were logged out, enter the **enable** command again.

b. 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.

Question:

Record the command below:

Answer:

```
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 7.011 secs (130 bytes/sec)
MDF-1#
```

c. 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.

Question:

Record the command below:

Answer:

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

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

3012 bytes copied in 0 secs
MDF-1#
```

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.

a. On the **Table** in the **Wiring Closet**, locate **spare-switch_01**.

b. Click and drag it to the rack below **HQ-WLC-1**.

c. 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
```

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 of 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

Blank Line; 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
```

Step 2: Test connectivity to the TFTP server.

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

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

a. 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.

Question:

Record the command below:

Answer:

```
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]
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/19 (1), with FL-1
FastEthernet0/19 (99).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/20 (1), with FL-1
FastEthernet0/20 (99).


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.

Question:

Record the command below:

Answer:

```
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
    6  -rw-         916          <no date>  copy tftp flash
    5  -rw-         916          <no date>  vlan.dat

64016384 bytes total (59343008 bytes free)
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**.

Question:

Record the command below:

Answer:

```
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
spare-switch_01#
```

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

Question:

Record the command below:

Answer:

```
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?

Answer:


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

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

2838 bytes total (237588 bytes free)

spare-switch_01#
```


The startup-config file is 2838 bytes in size.

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

Answer:

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.

Question:

Record the command below:

Answer:

```
spare-switch_01#reload
System configuration has been modified. Save? [yes/no]:
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/19 (1), with FL-1
FastEthernet0/19 (99).

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/20 (1), with FL-1
FastEthernet0/20 (99).

% Please answer 'yes' or 'no'.
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]: 4 files, 0 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 64016384
flashfs[0]: Bytes used: 4675299
flashfs[0]: Bytes available: 59341085
flashfs[0]: flashfs fsck took 1 seconds.
...done Initializing Flash.
```

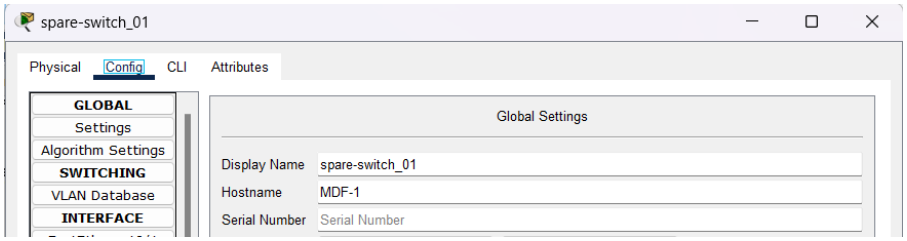
```
Boot Sector Filesystem (bs:) installed, fsid: 3
Parameter Block Filesystem (pb:) installed, fsid: 4


Loading "flash:/2960-lanbasek9-mz.150-2.SE4.bin"...
############################################################################ [OK]
Smart Init is enabled
smart init is sizing iomem
                    TYPE      MEMORY_REQ
                  TOTAL:      0x00000000
Rounded IOMEM up to: 0Mb.
Using 6 percent iomem. [0Mb/512Mb]

             Restricted Rights Legend
Use, duplication, or disclosure by the Government is
subject to restrictions as set forth in subparagraph
```

b. After the switch reloads, review the configuration.

- The hostname is now be **MDF-1**.



- 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
```

- 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
 --More--
```