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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.

What is the size of the startup-config file?

```
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.

What VLANs have been configured on MDF-1?

```
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
```

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.

Record the following settings in the following table:

MDF-1 Settings	Command Output
VLAN 99 IP Address	```interface Vlan99
ip address 192.168.99.150 255.255.255.0```
Default Gateway IP Address	`ip default-gateway 192.168.99.1`
VLAN Assignment of Interface F0/1	```interface FastEthernet0/1
switchport access vlan 75
switchport mode access
!```
Native LAN and Trunk Status of G0/1	```interface GigabitEthernet0/1
switchport trunk native vlan 99
switchport mode trunk
!```

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.

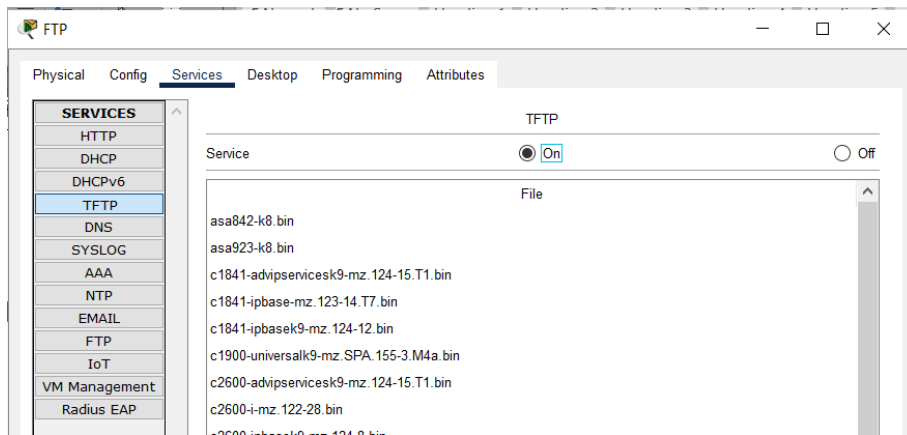What is the IP address for the FTP server?

```
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
```

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.

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]?

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

916 bytes copied in 7.022 secs (130 bytes/sec)
```

```
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 7.004 secs (130 bytes/sec)
```

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.

Record the command below:

```
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# 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 6.028 secs (499 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.

```
MDF-1_startup-config

vlan.dat
```

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
```

```
%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

%LINK-5-CHANGED: Interface FastEthernet0/16, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/17, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/18, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/19, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/20, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/21, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/22, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/23, changed state to administratively down

%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to administratively down
spare-switch_01(config-if-range)#exit
spare-switch_01(config)#
```

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

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 192.168.99.0 255.255.255.0
Bad mask /24 for address 192.168.99.0
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

spare-switch_01#
```

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.

Record the command below:

```
spare-switch_01#copy tftp flash
Address or name of remote host []? 192.168.75.2
Source filename []? vlan.dat
Destination filename [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/vlan.dat...
Loading vlan.dat from 192.168.75.2: !
[OK - 916 bytes]

916 bytes copied in 0 secs
spare-switch_01#
```

```
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 0.013 secs (70461 bytes/sec)
spare-switch_01#
```

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

Record the command below:

```
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)
```

```
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**.

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 secs
spare-switch_01#
```

```
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 (753000 bytes/sec)
spare-switch_01#
```

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

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#
```

```
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?

2838 Bytes

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

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.

Record the command below:

```
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"...
################################################################### [OK]
Smart Init is enabled
smart init is sizing iomem
```

```
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.

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

```
MDF-1>
```

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

```
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
```

• 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
```