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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?

```
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#
```

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?

```
VLAN Name
                                                             Fa0/1, Fa0/2
                                                              Fa0/1, Fa0/2
Fa0/3, Fa0/15
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
99 Admin
999 Unused
                                                active
active
                                          active
1002 fddi-default
1003 token-ring-default
1004 fddinet-default
1005 trnet-default
                                                active
                        MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2
     100001
100010
100020
100050
    enet
enet
                           enet
              100075
100099
100999
     enet
enet
                           1500 -

1500 -

1500 -

1500 -

1500 -

1500 -

1500 -
999 enet 100999
1002 fddi 101002
1003 tr 101003
1004 fdnet 101004
1005 trnet 101005
VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2
Remote SPAN VLANs
Primary Secondary Type Ports
```

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 GigabitEthernet0/1
  switchport trunk native vlan 99
  switchport mode trunk
!
interface GigabitEthernet0/2
  switchport access vlan 999
  switchport mode access
  shutdown
!
interface Vlan1
  no ip address
  shutdown
!
interface Vlan99
  ip address 192.168.99.150 255.255.255.0
!
ip default-gateway 192.168.99.1
```

Question:

Record the following settings in the following table:

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

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?

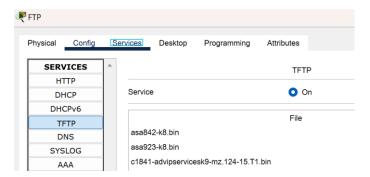
```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

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

C:\>
```

- 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:

```
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:

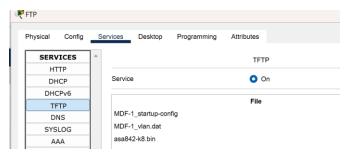
Record the command below:

```
916 bytes copied in 7.011 secs (130 bytes/sec)
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 0.01 secs (301200 bytes/sec)
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

```
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
OF THE CHANCED. Interface FeatEthounet0/0 shanged state to administratival, day
%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 GigabitEthernetO/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 75
spare-switch_01(config-vlan) #name User_VLAN
{\tt spare-switch\_01(config-vlan)\,\#exit}
spare-switch_01(config)#vlan 99
{\tt 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) #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
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 = 0/0/2 ms
```

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:

```
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
spare-switch_01#
```

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

Question:

Record the command below:

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:

```
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.

Ouestion:

Record the command below:

What is the size of the startup-config file? 2838

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

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:

```
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 CO) 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"...
Smart Init is enabled
smart init is sizing iomem
                                                                     MEMORY REQ
                                            TYPE
                                       TOTAL:
Rounded IOMEM up to: OMb.
Using 6 percent iomem. [OMb/512Mb]
                                   Restricted Rights Legend
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                           cisco Systems, Inc.
                           170 West Tasman Drive
 San Jose, California 95134-1706
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Compiled Wed 26-Jun-13 02:49 by mnguyen
Initializing flashfs...
fsck: Disable shadow buffering due to heap fragmentation.
flashfs[2]: 2 files, 1 directories
flashfs[2]: Total bytes: 32514048
flashfs[2]: Total bytes: 32514048
flashfs[2]: Bytes used: 11952128
flashfs[2]: Bytes used: 11952128
flashfs[2]: Bytes available: 20561920
flashfs[2]: Initialization complete...done Initializing flashfs.
Checking for Bootloader upgrade..
Boot Loader upgrade not required (Stage 2)
POST: CPU MIC register Tests: End, Status Passed
POST: POTTASIC Memory Tests: End, Status Passed
POST: POTTASIC Memory Tests: End, Status Passed
POST: CPU MIC interface Loopback Tests: Begin
POST: CPU MIC interface Loopback Tests: Begin
POST: CPU MIC interface Loopback Tests: End, Status Passed
POST: POTTASIC RingLoopback Tests: End, Status Passed
POST: POTTASIC RingLoopback Tests: End, Status Passed
POST: POTTASIC CAM Subsystem Tests: End, Status Passed
POST: POTTASIC CAM Subsystem Tests: End, Status Passed
POST: POTTASIC CAM Subsystem Tests: End, Status Passed
POST: POTTASIC FOT Loopback Tests: Begin
POST: POTTASIC FOT Loopback Tests: End, Status Passed
POST: POTTASIC FOT Loopback Tests: End, Status Passed
Waiting for Port download...Complete

This product contains cryptographic features and is subject to Uni
 Technical Support: http://www.cisco.com/techsupport
 This product contains cryptographic features and is subject to United
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
cisco WS-C2960-24TT-L (PowerPC405) processor (revision B0) with 65536K bytes of memory.
Processor board ID FOC1010X104
Last reset from power-on
1 Virtual Ethernet interface
24 FastEthernet interfaces
2 Gigabit Ethernet interfaces
The password-recovery mechanism is enabled.
64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address : 00:30:A3:27:75:20
Motherboard assembly number : 73-10390-03
Power supply part number
                                       341-0097-02
                                     : 341-0097-02
: FOC10093R12
: AZS1007032H
Motherboard serial number
Power supply serial number
Model revision number
Motherboard revision number
                                       B0
                                     : WS-C2960-24TT-L
Model number
System serial number
                                       FOC1010X104
Top Assembly Part Number
Top Assembly Revision Number
                                       800-27221-02
                                     _ A0
                                       V02
CLEI Code Number
                                       COM3L00BRA
                                     : COM3:
Hardware Board Revision Number
                                     SW Version
Switch Ports Model
                                                              SW Image
     1 26 WS-C2960-24TT-L 15.0(2)SE4
                                                              C2960-LANBASEK9-M
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE SOFTWARE
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2013 by Cisco Systems, Inc.
Compiled Wed 26-Jun-13 02:49 by mnguyen
Press RETURN to get started!
```

- b. After the switch reloads, review the configuration.
- o 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.

VLAN	Name				Stat	tus	Ports			
_	defaul				act:					
	Accour	nting			act:					
	Sales				act:					
	Common	-			act:			/-		
	Serve	rs				ive				
	Admin				act:	ive	FaU/3,	Fa0/15 Fa0/5, Fa0) / C = E-	0.77
999	Unused	1			act:					
								Fa0/9, Fa0 Fa0/13, 1		
								Fa0/13, 1		
							Giq0/2	rau/10, 1	aU/23,	rau/24
1002	fddi-	default			act		31g0/2			
		-ring-defau	1+		act:					
		et-default	10		act:					
		-default			act					
1000	CLIICC	deldale			uoc.	100				
		SAID								
		100001				_			0	0
10	enet	100001	1500	_		_			0	0
50	enet	100010 100020	1500			_			0	0
50	enet	100020	1500						0	0
75	enet	100030	1500	_	_	_			0	0
99	enet	100050 100075 100099	1500	_	_	_			0	0
999	enet	100999	1500	_	_	_	_		0	0
1002	fddi	101002	1500	_					0	0
1003	tr	101002 101003	1500	_	_	_	_			0
1004	fdnet	101003	1500	_				_		0
		101005				-	ibm		0	0
VLAN	Type	SAID	MTU	Parent	RingNo	Bridge	No Stp	BrdgMode	Trans1	Trans2
Remo	e SPAN	N VLANs								
Prim	ary Sec	condary Typ	е		Ports					

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

Interface	IP-Address	OK?	Method	Status		Protoco
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	VES	manual	un		up