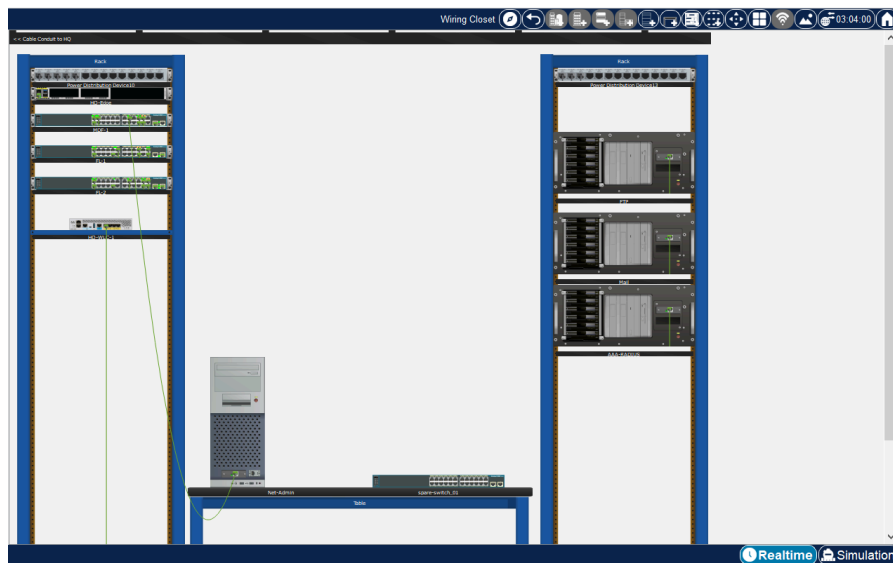


# Investigate Disaster Recovery

## Background / Scenario

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.

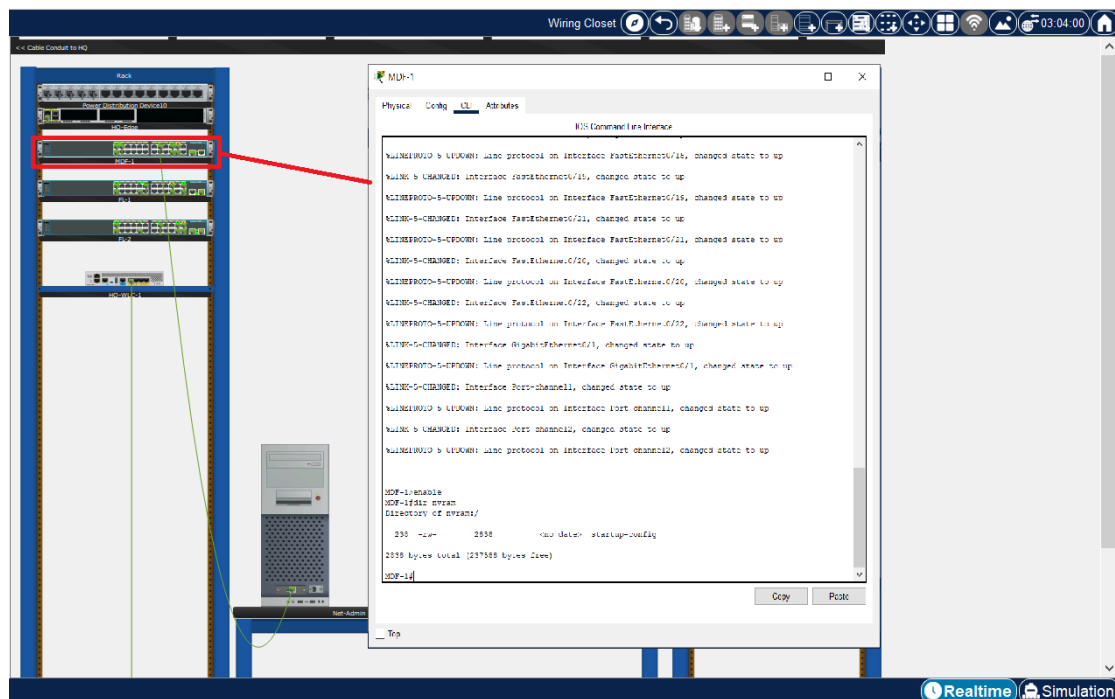


## Part 1: Review a Switch Configuration

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.



What is the size of the startup-config file?

*R: 2838 bytes total*

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

- Enter the `show vlan` command.

What VLANs have been configured on MDF-1?

*R: VLANs, 10, 20, 50, 75, 99, and 999*

```
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	fdi-default	active	
1003	token-ring-default	active	
1004	fdiinet-default	active	
1005	trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0

--More--

- 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:

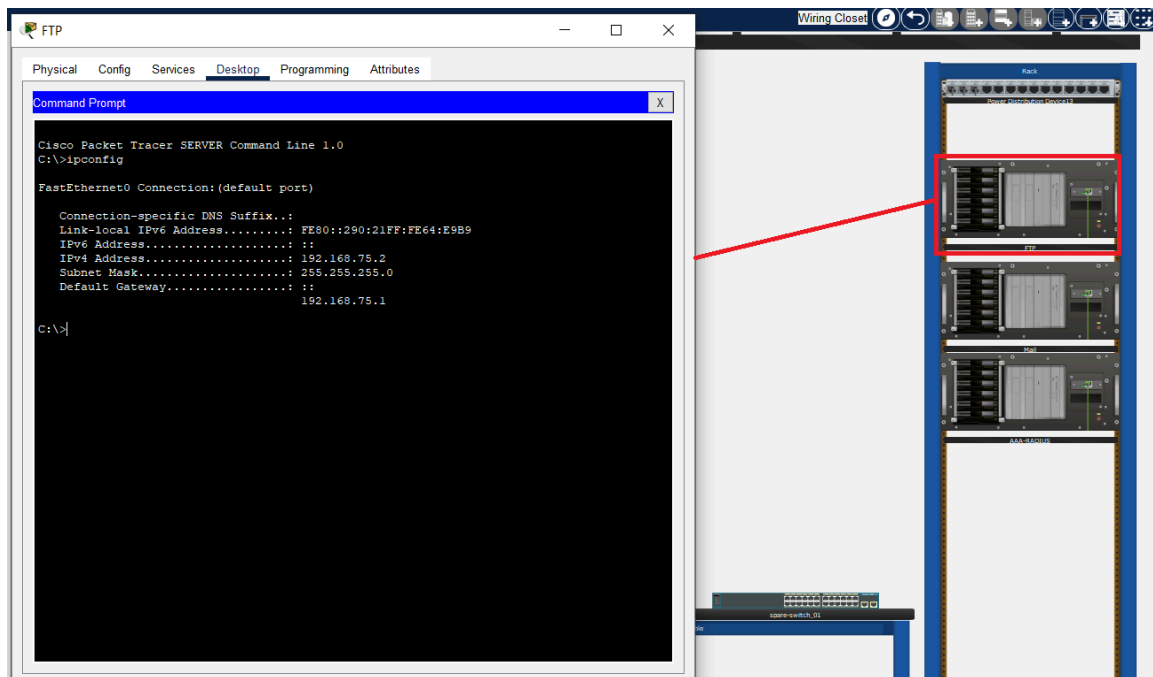
MDF-1 Settings	Command Output
VLAN 99 IP Address	192.168.99.150/24
Default Gateway IP Address	192.168.99.1
VLAN Assignment of Interface F0/1	VLAN 75
Native LAN and Trunk Status of G0/1	Native VLAN 99 and trunk mode on

## 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.

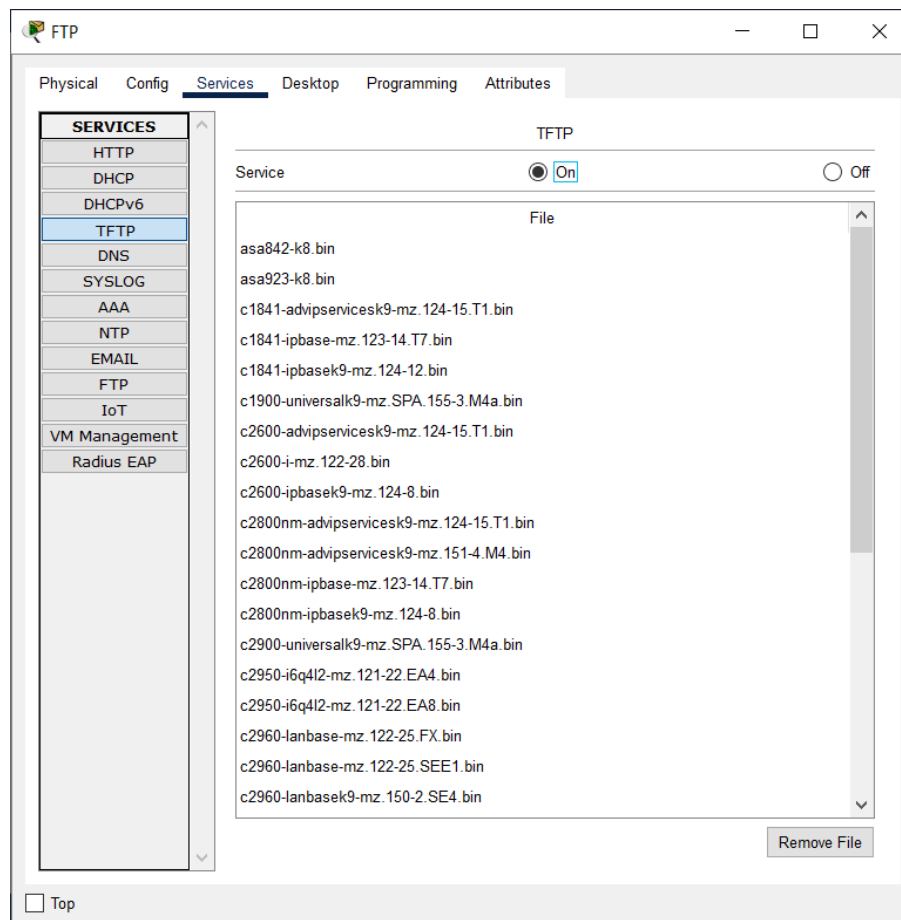
- a. In the **Wiring Closet**, on the right rack, click the **FTP** server > **Desktop** tab > **Command Prompt**.
- b. Enter the `ipconfig` command.



What is the IP address for the FTP server?

R: 192.168.75.2

- Click the **Services** tab, and then under **SERVICES**, click **TFTP**.
- 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.
- 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 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]

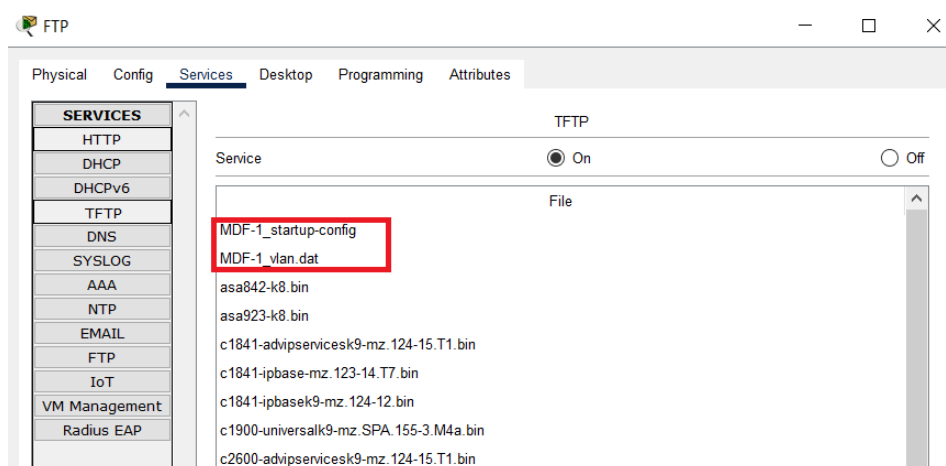
916 bytes copied in 7.374 secs (124 bytes/sec)
MDF-1#copy startup-config tftp
Address or name of remote host []? 192.168.75.2
Destination filename [MDF-1-config]? MDF-1_startup-config

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

3012 bytes copied in 0 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.



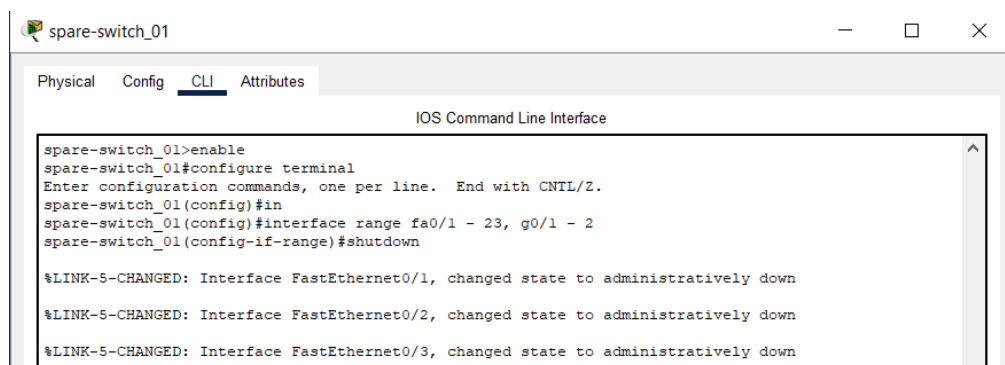
## Part 3: Replace a Failed Switch

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.

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

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

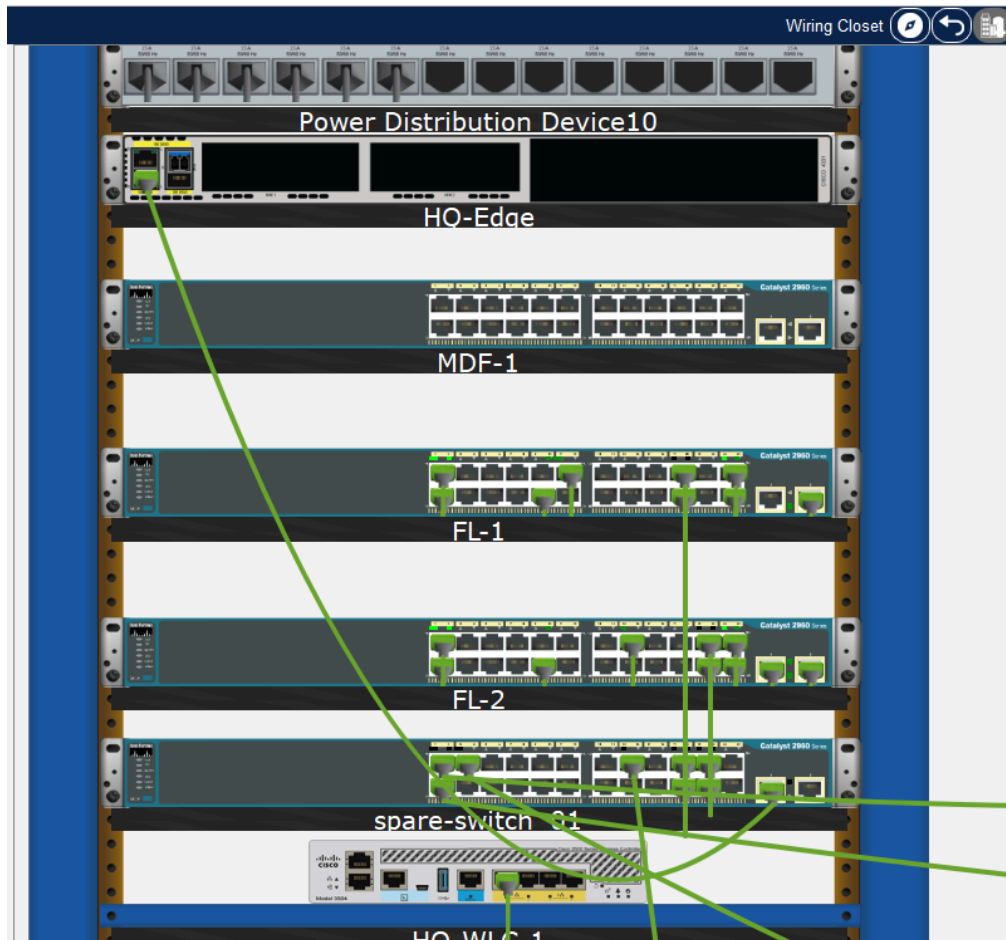


### Step 2: Move the cable connections from the MDF-1 switch to the new switch.

- 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**.

- 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**.
- To verify cables are in the correct ports, right click **spare-switch\_01** and choose **Inspect Front**. Zoom in and then float your mouse off 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 192.168.99.150 255.255.255.0
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

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.

```

spare-switch_01#ping 192.16.75.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.16.75.2, timeout is 2 seconds:
.U.U.
Success rate is 0 percent (0/5)

spare-switch_01#

```

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

```

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]y

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 3.001 secs (305 bytes/sec)
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#

```

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

```

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#dir nvram
Directory of nvram:/

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

2838 bytes total (237588 bytes free)

spare-switch_01#

```

## 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.

- b. After the switch reloads, review the configuration.
  - i. The hostname is now MDF-1.
  - ii. Enter the `show vlan` command and verify VLANs you documented in Part 1, Step 2 are listed.
  - iii. Enter the `show ip interface brief` command. Verify that your connected physical ports are now all up.

spare-switch\_01

Physical Config CLI Attributes

IOS Command Line Interface

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	