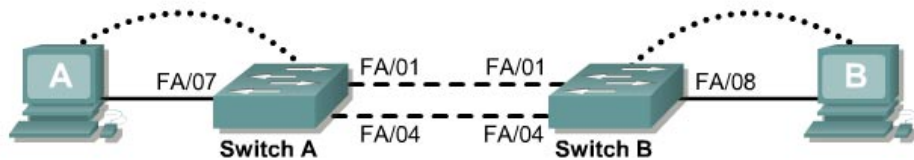


Lab 7.2.4 Selecting the Root Bridge



Switch Designation	Switch Name	Enable Secret Password	Enable, VTY, and Console Passwords	VLAN 1 IP Address	Default Gateway IP Address	Subnet Mask
Switch 1	Switch_A	class	cisco	192.168.1.2	192.168.1.1	255.255.255.0
Switch 2	Switch_A	class	cisco	192.168.1.3	192.168.1.1	255.255.255.0

Straight-through cable	—————
Serial cable	—————  —————
Console (Rollover)	
Crossover cable	- - - - -

Objective

- Create a basic switch configuration and verify it.
- Determine which switch is selected as the root switch with the factory default settings.
- Force the other switch to be selected as the root switch.

Background/Preparation

Cable a network similar to the one in the diagram. The configuration output used in this lab is produced from a 2950 series switch. Any other switch used may produce different output. The following steps are to be executed on each switch unless specifically instructed otherwise.

Start a HyperTerminal session.

Note: Go to the erase and reload instructions at the end of this lab. Perform those steps on all switches in this lab assignment before continuing.

Step 1 Configure the switches

Configure the hostname, access and command mode passwords, as well as the management LAN settings. These values are shown in the chart. If problems occur while performing this configuration, refer to the Basic Switch Configuration lab.

Step 2 Configure the hosts attached to the switches

Configure the host to use the same subnet for the address, mask, and default gateway as on the switch.

Step 3 Verify connectivity

- a. To verify that the hosts and switches are correctly configured, ping the switches from the hosts.
- b. Were the pings successful? _____
- c. If the answer is no, troubleshoot the hosts and switches configurations.

Step 4 Display the show interface VLAN options

- a. Type `show interface vlan1`.
- b. List some of the options available: _____

Step 5 Display VLAN interface information

- a. On Switch_A, type the command `show interface VLAN1` at the privileged EXEC mode prompt as follows:

```
Switch_A#show interface vlan 1
```

- b. What is the MAC address of the switch? _____
- c. On Switch_B type the command `show interface VLAN1` at the privileged EXEC mode prompt as follows:

```
Switch_B#show interface vlan 1
```

- d. What is the MAC address of the switch? _____
- e. Which switch should be the root of the spanning tree for VLAN 1? _____

Step 6 Display the spanning tree table on each switch

- a. At the privileged EXEC mode prompt, type the following on Switch_A:
Type `show spanning-tree brief` if running version 12.0 of the IOS. If running version 12.1 of the IOS, type `show spanning-tree`.

```
Switch_A#show spanning-tree brief
```

- b. On Switch_B type `show spanning-tree brief` at the privileged EXEC mode prompt as follows:

```
Switch_B#show spanning-tree brief
```

Examine the output and answer the following questions.

- c. Which switch is the root switch? _____
- d. What is the priority of the root switch? _____
- e. What is the bridge id of the root switch? _____
- f. Which ports are forwarding on the root switch? _____
- g. Which ports are blocking on the root switch? _____
- h. What is the priority of the non-root switch? _____
- i. What is the bridge id of the non-root switch? _____
- j. Which ports are forwarding on the non-root switch? _____

- k. Which ports are blocking on the non-root switch? _____
- l. What is the status of the link light on the blocking port? _____

Step 7 Reassign the root bridge

- a. It has been determined that the switch selected as the root bridge, by using default values, is not the best choice. It is necessary to force the “other” switch to become the root switch.
- b. In the example output given the root switch by default, is Switch_A. Switch_B is preferred as the root switch. Go to the console and enter configuration mode if necessary.
- c. Determine the parameters that can be configured for the Spanning-Tree Protocol by issuing the following:

```
Switch_B(config)#spanning-tree ?
```

- d. List the options. _____

- e. Set the priority of the switch that is not root to 4096.

If version 12.0 is used, enter the following:

```
Switch_B(config)#spanning-tree priority 1  
Switch_B(config)#exit
```

If version 12.1 is used, enter the following:

```
Switch_B(config)#spanning-tree vlan 1 priority 4096  
Switch_B(config)#exit
```

Step 8 Display the switch spanning tree table

- a. At the privileged EXEC mode prompt, type the following on Switch_A:
Note: Type `show spanning-tree brief` if running version 12.0 of the IOS. If running version 12.1 of the IOS, type `show spanning-tree`.

```
Switch_A#show spanning-tree brief
```

- b. On Switch_B type `show spanning-tree brief` at the privileged EXEC mode prompt as follows:

```
Switch_B#show spanning-tree brief
```

Examine the output and answer the following questions.

- c. Which switch is the root switch? _____
- d. What is the priority of the root switch? _____
- e. Which ports are forwarding on the root switch? _____
- f. Which ports are blocking on the root switch? _____
- g. What is the priority of the non-root switch? _____

- h. Which ports are forwarding on the non-root switch? _____
- i. Which ports are blocking on the non-root switch? _____
- j. What is the status of the link light on the blocking port? _____

Step 9 Verify the running configuration file on the root switch

- a. On the switch that was changed to be the root bridge, type `show running-config` at the privileged EXEC mode prompt.
- b. Is there an entry in the running configuration file that specifies the spanning tree priority of this router? _____
- c. What does that entry say? _____

Note: The output is different depending on if the IOS used is version 12.0 or version 12.1.

Once the steps are complete, log off by typing `exit`, and turn all the devices off. Then remove and store the cables and adapter.

Erasing and Reloading the Switch

For the majority of the labs in CCNA 3 and CCNA 4 it is necessary to start with an unconfigured switch. Use of a switch with an existing configuration may produce unpredictable results. These instructions allow preparation of the switch prior to performing the lab so previous configuration options do not interfere. The following is the procedure for clearing out previous configurations and starting with an unconfigured switch. Instructions are provided for the 2900, 2950, and 1900 Series switches.

2900 and 2950 Series Switches

1. Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class** (if that does not work, ask the instructor).

```
Switch>enable
```

2. Remove the VLAN database information file.

```
Switch#delete flash:vlan.dat  
Delete filename [vlan.dat]? [Enter]  
Delete flash:vlan.dat? [confirm] [Enter]
```

If there was no VLAN file, this message is displayed.

```
%Error deleting flash:vlan.dat (No such file or directory)
```

3. Remove the switch startup configuration file from NVRAM.

```
Switch#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue? [confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

4. Check that VLAN information was deleted.

Verify that the VLAN configuration was deleted in Step 2 using the **show vlan** command. If previous VLAN configuration information (other than the default management VLAN 1) is still present it will be necessary to power cycle the switch (hardware restart) instead of issuing the **reload** command. To power cycle the switch, remove the power cord from the back of the switch or unplug it. Then plug it back in.

If the VLAN information was successfully deleted in Step 2, go to Step 5 and restart the switch using the **reload** command.

5. Software restart (using the **reload** command)

Note: This step is not necessary if the switch was restarted using the power cycle method.

- a. At the privileged EXEC mode enter the command **reload**.

```
Switch(config)#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no] :
```

- b. Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm] [Enter]
```

The first line of the response will be:

```
Reload requested by console.
```

After the switch has reloaded, the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no] :
```

- c. Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started! [Enter]
```

1900 Series Switches

1. Remove VLAN Trunking Protocol (VTP) information.

```
#delete vtp
```

This command resets the switch with VTP parameters set to factory defaults.

All other parameters will be unchanged.

```
Reset system with VTP parameters set to factory defaults, [Y]es or [N]o?
```

Enter **y** and press **Enter**.

2. Remove the switch startup configuration from NVRAM.

```
#delete nvram
```

This command resets the switch with factory defaults. All system parameters will revert to their default factory settings. All static and dynamic addresses will be removed.

```
Reset system with factory defaults, [Y]es or [N]o?
```

Enter **y** and press **Enter**.