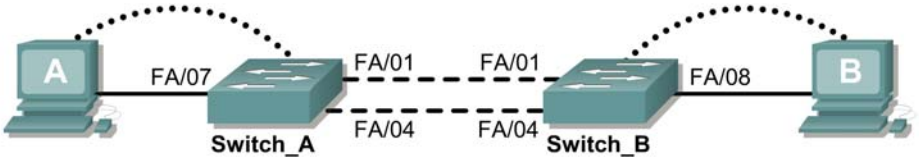
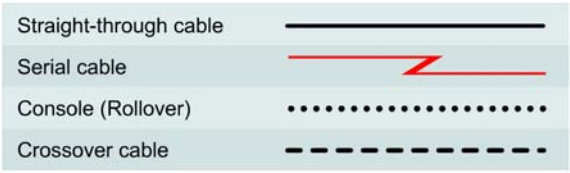
Lab 7.2.6 Spanning-Tree Recalculation



Switch Designation	Switch Name	Enabel 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_B	class	cisco	192.168.1.3	192.168.1.1	255.255.255.0



Objective

- Create a basic switch configuration and verify it.
- Observe the behavior of spanning-tree algorithm in presence of switched network topology changes.

Background/Preparation

Cable a network similar to one of 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 IP 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 Look at the show interface information

a. On both switches, type the command **show interface VLAN 1** at the Privileged EXEC prompt as follows:

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

b. What is the MAC address of the switch? _____

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

c. What is the MAC address of the switch? _____

d. Which switch should be the root of the spanning-tree for VLAN 1? _____

Step 5 Look at the spanning-tree table on each switch

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 just **show spanning-tree**. Different versions of IOS have different options for this command.

```
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
```

c. Examine the command output and answer the following questions.

d. Which switch is the root switch? _____

e. Record the states of the first 12 interfaces and ports of each switch.

Switch_A	Port #	Switch_B
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

Step 6 Remove a cable on the switch

a. Remove the cable from the forwarding port on the non-root switch. For this example this is interface FastEthernet 0/1 on Switch_B.

b. Wait for at least two minutes.

c. What has happened to the switch port LEDs?

_____

Step 7 Look at the spanning-tree table on each switch

a. Type the following on Switch_A at the Privileged EXEC mode prompt.

Note: Type **show spanning-tree brief** if running version 12.0 of the IOS. If running version 12.1 of the IOS, type just **show spanning-tree**. Different versions of IOS have different options for this command.

```
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
```

c. What changes have taken place in the command output?

On Switch_A? _____

On Switch_B? _____

Step 8 Replace the cable in the switch

a. Replace the cable in the port that it was removed from. For this example this is interface FastEthernet 0/1 on Switch_B.

b. Wait for at least two minutes.

c. What has happened to the switch port LEDs? _____

Step 9 Look at the spanning-tree table on each switch

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 just **show spanning-tree**. Different versions of IOS have different options for this command.

```
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
```

c. What changes have taken place in the command output?

On Switch_A? _____

On Switch_B? _____

Once the steps are completed, 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**.

