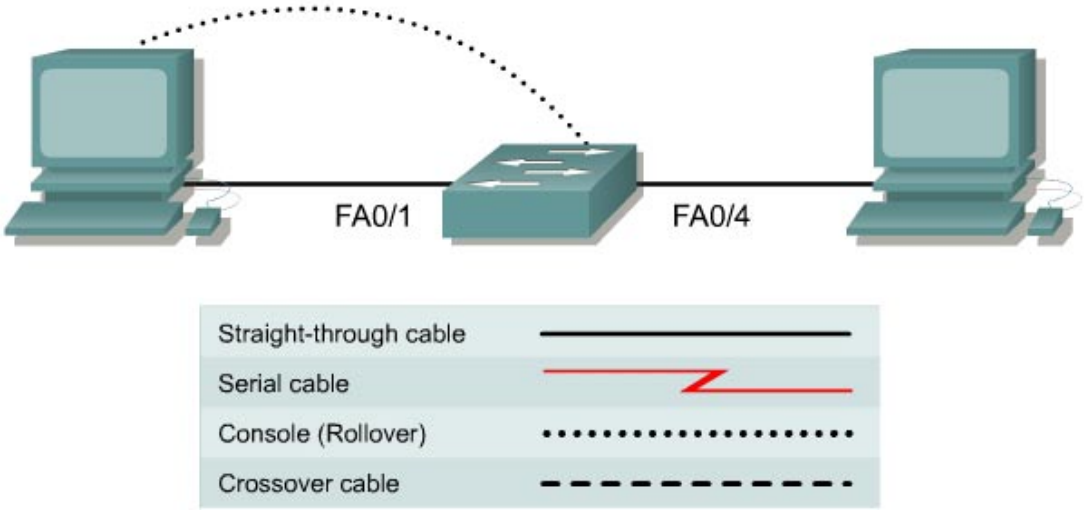
Lab 6.2.1 Verifying Default Switch Configuration – 2900XL Series



Objective

- Investigate the default configuration of a 2900 series 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 in this lab may produce different output. The following steps are to be executed on each switch, unless instructed otherwise. Instructions are also provided for the 1900 Series switch, which initially displays a User Interface Menu. Select the "Command Line" option from the menu to perform the steps for this lab.

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.

General Configuration Tips

- Using the question mark (**?**) and arrow keys to help enter commands.
- Each command mode restricts the set of available commands. If there is difficulty entering a command, check the prompt and then enter the question mark (**?**) for a list of available commands. The problem might be a wrong command mode or using the wrong syntax.
- To disable a feature, enter the keyword **no** before the command, for example, **`no ip address`**.
- Save the configuration changes to NVRAM so that the changes are not lost if there is a system reload or power outage.

Switch Command Modes			
Command Mode	**Access Method**	**Switch Prompt Displayed**	**Exit Method**
User EXEC	Log in	`Switch>`	Use the **logout** command.
Privileged EXEC	From user EXEC mode, enter the **enable** command.	`Switch#`	To exit to user EXEC mode, use the **disable**, **exit**, or **logout** command.
Global configuration	From the privileged EXEC mode, enter the **configure terminal** command.	`Switch(config)#`	To exit to privileged EXEC mode, use the **exit** or **end** command, or press **Ctrl-z**.
Interface configuration	From the global configuration mode, enter the **interface** ***type number*** command, such as **interface serial 0**.	`Switch(config-if)#`	To exit to global configuration mode, use the **exit** command.

Step 1 Enter privileged mode

a. Privileged mode gives access to all the switch commands. Many of the privileged commands configure operating parameters. Therefore, privileged access should be password-protected to prevent unauthorized use. The privileged command set includes those commands contained in user EXEC mode, as well as the **configure** command through which access to the remaining command modes are gained.

```
Switch>enable
Switch#
```

b. Notice the prompt changed in the configuration to reflect privileged EXEC mode.

Step 2 Examine the current switch configuration (1900: perform a, b and k)

a. Examine the current running configuration file.

```
Switch#show running-config
```

b. How many Ethernet or Fast Ethernet interfaces does the switch have? 24 Fast Ethernet ports

c. What is the range of values shown for the VTY lines? 5 to 15

d. Examine the current contents of NVRAM as follows:

```
Switch#show startup-config
%% Non-volatile configuration memory is not present
```

e. Why does the switch give this response?

Nothing is currently stored in NVRAM due to the **erase startup-config** command being entered.

f. Issue the following to show the current IP address of the switch.

```
Switch#show interface VLAN 1
```


g. Is there an IP address set on the switch? No

h. What is the MAC address of this virtual switch interface? 0004.c075.1500 (Answers will vary).

i. Is this interface up? Yes

j. The IP properties of the interface can be shown by entering following the command:

```
Switch#show ip interface VLAN 1
```

k. The following commands will provide the switch IP address information for the 1900:

```
#show ip
```

Step 3 Display IOS information

a. Examine the following version information that the switch reports.

```
Switch#show version
```

b. What is the IOS version that the switch is running? 12.0(5)WC7

c. What is the system image file name? c2900xl-c3h2s-mz.120-5.WC7.bin

d. What is the base MAC address of this switch? 00:04:C0:75:15:00 (Answers will vary).

e. Is the switch running enterprise edition software? (1900 series) Yes

Is the switch running Enhanced Image software, indicated by the letters "EA" in the IOS file name? (2950 series) _____

Step 4 Examine the Fast Ethernet interfaces

a. Examine the default properties of the Fast Ethernet interfaces. As an example examine the properties of the fourth interface:

1900:

```
#show interface fastethernet 0/26
```
(Note: this is a trunk port)

Or

```
#show interface ethernet 0/4
```
(Note: this is an access port)

2950:

```
#show interface fastethernet 0/4
```
(Note: this can be a trunk or access port)

Or

```
#show interface gigabitethernet 0/1
```
(Note: this can be a trunk or access port)

b. Is the interface up or down? Up

c. What event would make an interface go up? Connecting a host to this switch port.

d. What is the MAC address of the interface? 0004.c075.1504 (Answers will vary).

e. What is the speed and duplex setting of the interface? Auto-duplex (Full), Auto-speed (100)

Step 5 Examine VLAN information

a. Examine the following default VLAN settings of the Switch


```
Switch>show vlan
```

b. What is the name of VLAN 1? Default

c. Which ports are in this VLAN? All, 1 - 24

d. Is VLAN 1 active? Yes

e. What type of VLAN is the default VLAN? Ethernet

Step 6 Examine Flash memory (1900: Skip to Step 8)

a. Issue one of the following to examine the contents of the flash directory

```
Switch#dir flash:
```

or

```
Switch#show flash
```

b. Name the files and directories found?

```
3   -rwx  1312    Mar 01 1993 00:00:59  startup-config
4   d--x  768     Mar 01 1993 00:08:17  html
177---x  600     Mar 10 1993 20:29:42  vlan.dat
6   ---x  1798150   Mar 01 1993 00:06:59  c2900xl-c3h2s-mz.120-5.WC5.bin
257---x  108     Mar 01 1993 00:08:20  info.ver
19  -rwx  8192    Mar 01 1993 00:08:20  e2rb.bin
7   -rwx  312     Mar 01 1993 00:01:52  env_vars
```

Step 7 Examine the startup configuration file

a. To see the contents of the startup configuration file, type the **show startup-config** command in privileged EXEC mode as follows:

```
Switch#show startup-config
```

b. The switch responds with:

```
Non-volatile configuration memory is not present
```

c. Why does this message appear? No startup configuration present

d. Copy the following configuration to NVRAM.

Note: This step ensures any changes made will be available to the switch if there is a reload or the power goes off.

```
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch#
```

e. Issue the following to show the contents of NVRAM.

```
Switch#show startup-config
```


f. What is displayed now? A copy of the running-configuration

Step 8 Exit the switch

Type **exit**, as follows, to leave the switch welcome screen:

```
Switch#exit
```

Once these steps are completed, logoff 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#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**.

Web Links

Configuration Documentation 1900/2820

http://www.cisco.com/univercd/cc/td/doc/product/lan/28201900/1928v9x/

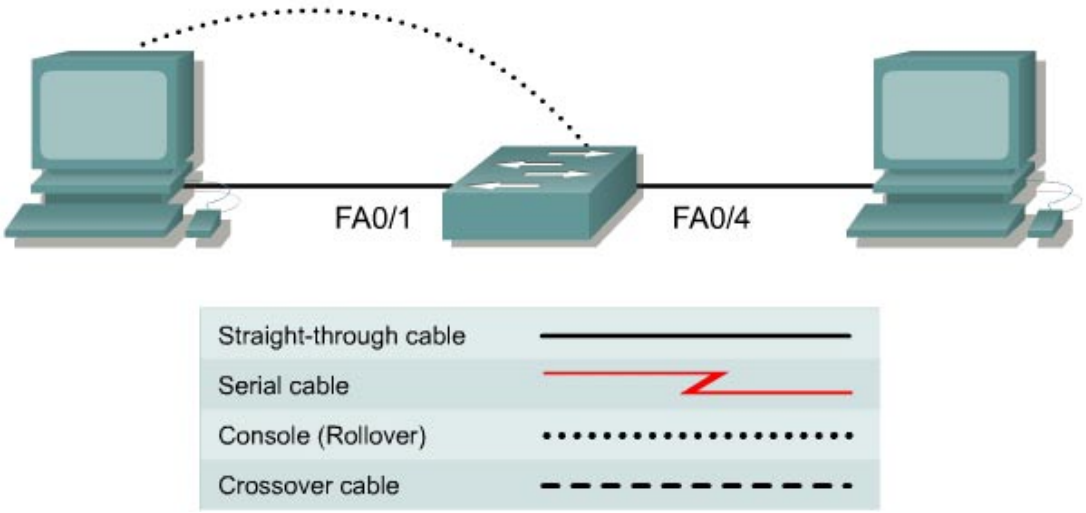
Configuration Documentation 2900

http://www.cisco.com/univercd/cc/td/doc/product/lan/c2900xl/29_35wc4/sc/

Configuration Documentation 2950

http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2950/2950_wc/scg/

Lab 6.2.1 Verifying Default Switch Configuration – 2950 Series



Objective

- Investigate the default configuration of a 2900 series 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 in this lab may produce different output. The following steps are to be executed on each switch, unless instructed otherwise. Instructions are also provided for the 1900 Series switch, which initially displays a User Interface Menu. Select the "Command Line" option from the menu to perform the steps for this lab.

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.

General Configuration Tips

- Using the question mark (**?**) and arrow keys to help enter commands.
- Each command mode restricts the set of available commands. If there is difficulty entering a command, check the prompt and then enter the question mark (**?**) for a list of available commands. The problem might be a wrong command mode or using the wrong syntax.
- To disable a feature, enter the keyword **no** before the command, for example, **`no ip address`**.
- Save the configuration changes to NVRAM so that the changes are not lost if there is a system reload or power outage.

Switch Command Modes			
Command Mode	**Access Method**	**Switch Prompt Displayed**	**Exit Method**
User EXEC	Log in	`Switch>`	Use the **logout** command.
Privileged EXEC	From user EXEC mode, enter the **enable** command.	`Switch#`	To exit to user EXEC mode, use the **disable**, **exit**, or **logout** command.
Global configuration	From the privileged EXEC mode, enter the **configure terminal** command.	`Switch(config)#`	To exit to privileged EXEC mode, use the **exit** or **end** command, or press **Ctrl-z**.
Interface configuration	From the global configuration mode, enter the **interface** ***type number*** command, such as **interface serial 0**.	`Switch(config-if)#`	To exit to global configuration mode, use the **exit** command.

Step 1 Enter privileged mode

a. Privileged mode gives access to all the switch commands. Many of the privileged commands configure operating parameters. Therefore, privileged access should be password-protected to prevent unauthorized use. The privileged command set includes those commands contained in user EXEC mode, as well as the **configure** command through which access to the remaining command modes are gained.

```
Switch>enable
Switch#
```

b. Notice the prompt changed in the configuration to reflect privileged EXEC mode.

Step 2 Examine the current switch configuration (1900: perform a, b and k)

a. Examine the current running configuration file.

```
Switch#show running-config
```

b. How many Ethernet or Fast Ethernet interfaces does the switch have? 24 Fast Ethernet ports

c. What is the range of values shown for the VTY lines? 5 to 15

d. Examine the current contents of NVRAM as follows:

```
Switch#show startup-config
%% Non-volatile configuration memory is not present
```

e. Why does the switch give this response?

Nothing is currently stored in NVRAM due to the **erase startup-config** command being entered.

f. Issue the following to show the current IP address of the switch.

```
Switch#show interface VLAN 1
```

g. Is there an IP address set on the switch? No

h. What is the MAC address of this virtual switch interface? 0004.c075.1500 (Answers will vary).

i. Is this interface up? No

j. The IP properties of the interface can be shown by entering following the command:

```
Switch#show ip interface VLAN 1
```

k. The following commands will provide the switch IP address information for the 1900:

```
#show ip
```

Step 3 Display IOS information

a. Examine the following version information that the switch reports.

```
Switch#show version
```

b. What is the IOS version that the switch is running? 12.1(9)EA1

c. What is the system image file name? c2950-i6q4l2-mz.121-9.EA1.bin

d. What is the base MAC address of this switch? 00:04:C0:75:15:00 (Answers will vary).

e. Is the switch running enterprise edition software? (1900 series) No, running standard image

Is the switch running Enhanced Image software, indicated by the letters "EA" in the IOS file name? (2950 series) Yes_____

Step 4 Examine the Fast Ethernet interfaces

a. Examine the default properties of the Fast Ethernet interfaces. As an example examine the properties of the fourth interface:

1900:

```
#show interface fastethernet 0/26
```
(Note: this is a trunk port)

Or

```
#show interface ethernet 0/4
```
(Note: this is an access port)

2950:

```
#show interface fastethernet 0/4
```
(Note: this can be a trunk or access port)

Or

```
#show interface gigabitethernet 0/1
```
(Note: this can be a trunk or access port)

b. Is the interface up or down? Up

c. What event would make an interface go up? Connecting a host to this switch port.

d. What is the MAC address of the interface? 0004.c075.1504 (Answers will vary).

e. What is the speed and duplex setting of the interface? Auto-duplex, Auto-speed

Step 5 Examine VLAN information

a. Examine the following default VLAN settings of the Switch

```
Switch>show vlan
```

b. What is the name of VLAN 1? Default

c. Which ports are in this VLAN? All, 1 - 24

d. Is VLAN 1 active? Yes

e. What type of VLAN is the default VLAN? Ethernet

Step 6 Examine Flash memory (1900: Skip to Step 8)

a. Issue one of the following to examine the contents of the flash directory

```
Switch#dir flash:
```

or

```
Switch#show flash
```

b. Name the files and directories found?

```
2   -rwx    2490607    Mar 01 1993 00:02:56   c2950-i6q4l2-mz.121-9.EA1.bin
3   -rwx        269    Jan 01 1970 00:01:43   env_vars
6   -rwx        108    Mar 01 1993 00:01:37   info
7   drwx        640    Mar 01 1993 00:03:46   html
18   -rwx       108    Mar 01 1993 00:03:46   info.ver
```

Step 7 Examine the startup configuration file

a. To see the contents of the startup configuration file, type the **show startup-config** command in privileged EXEC mode as follows:

```
Switch#show startup-config
```

b. The switch responds with:

```
Non-volatile configuration memory is not present
```

c. Why does this message appear? No startup-configuration present.

d. Copy the following configuration to NVRAM.

Note: This step ensures any changes made will be available to the switch if there is a reload or the power goes off.

```
Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch#
```

e. Issue the following to show the contents of NVRAM.

```
Switch#show startup-config
```


f. What is displayed now? A copy of the running-configuration

Step 8 Exit the switch

Type **exit**, as follows, to leave the switch welcome screen:

```
Switch#exit
```

Once these steps are completed, logoff 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

6. 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
   ```

7. 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)
   ```

8. 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
   ```

9. 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.

10. 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#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

3. 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**.

4. 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**.

Web Links

Configuration Documentation 1900/2820

http://www.cisco.com/univercd/cc/td/doc/product/lan/28201900/1928v9x/

Configuration Documentation 2900

http://www.cisco.com/univercd/cc/td/doc/product/lan/c2900xl/29_35wc4/sc/

Configuration Documentation 2950

http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2950/2950_wc/scg/