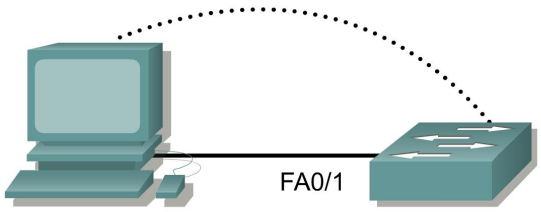
Lab 6.2.9 Firmware Upgrade of a Catalyst 2950 Series Switch – 2900XL Series



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

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

Objective

- Create and verify a basic switch configuration.
- Upgrade the IOS and HTML files from a file supplied by the instructor.

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.

Notes: This lab requires that a combination of an IOS image and the HTML file **c2950-c3h2s-mz.120-5.3.WC.1.tar** be used as the default file directory of the TFTP server. This file should be downloaded by the instructor from the Cisco Connection on-line software center. It has been determined that this file is the latest update for the Catalyst 2950. This has the same file name stem as the current image. However, for the purpose of the lab, assume that this is an update. The IOS update release contains new HTML files to support changes to the web interface.

This lab requires that there is a saved a copy of the current configuration file as backup.

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 switch

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.

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Step 2 Configure the host attached to the switch

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 host and switch are correctly configured, ping the switch IP address from the host.

b. Was the ping successful? Yes

c. If the answer is no, troubleshoot the host and switch configurations.

Step 4 Display the name of the running image file

a. Display the name of the running image file using the **show boot** command from the Privileged EXEC mode prompt as follows:

```
ALSwitch#show boot
BOOT path-list:
Config file:   flash:config.text
Enable Break:  no
Manual Boot:   no
HELPER path-list:
NVRAM/Config file
buffer size:   32768
ALSwitch#
```

b. If there is no software image defined in the boot path, enter **dir flash:** or **show flash** to display the contents as follows:

```
ALSwitch#dir flash:
Directory of flash:/

2 -rwx 1674921 Mar 01 1993 01:28:10 c2950-c3h2s-mz.120-5.3.WC.1.bin
3 -rwx 269 Jan 01 1970 00:00:57 env_vars
4 drwx 10240 Mar 01 1993 00:21:13 html
165-rwx 965 Mar 01 1993 00:22:23 config.text

7741440 bytes total (4778496 bytes free)
```

Step 5 Prepare for the new image

a. If the switch has enough free memory as shown in the last command, rename the existing IOS file to the same name with the **.old** extension as follows:

Note: If there is not enough memory, make sure there is a copy of the IOS on the TFTP server.

```
ALSwitch#rename flash:c2950-c3h2s-mz.120-5.3.WC.1.bin flash:c2950-
c3h2s-mz.120-5.3.WC.1.old
```

b. Enter the following to verify that the renaming was successful:

```
ALSwitch#dir flash:
Directory of flash:/

 2 -rwx 1674921 Mar 01 1993 01:28:10 c2950-c3h2s-mz.120-5.3.WC.1.old
```

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```
 3 -rwx 269 Jan 01 1970 00:00:57 env_vars
 4 drwx 10240 Mar 01 1993 00:21:13 html
167 -rwx 965 Mar 01 1993 00:22:23 config.text

7741440 bytes total (4778496 bytes free)
ALSwitch#
```

c. As a precaution, enter the following to disable access to the switch HTML pages:

```
ALSwitch(config)#no ip http server
```

d. Remove existing html files.

```
ALSwitch#delete flash:html/*
```

Step 6 Extract the new IOS image and HTML files into flash memory

a. Enter the following to extract the new IOS image and HTML files into flash memory:

```
ALSwitch#archive tar /x tftp://192.168.1.3/c2950-c3h2s-mz.120-5.3.WC.1.tar flash:
```

Note: Depending on the TFTP server being used only one slash (/) after the IP address of the server may be needed.

b. Re-enable access to the switch HTML pages as follows:

```
ALSwitch(config)#ip http server
```

Step 7 Associate the new boot file

Enter the **boot** command with the name of the *new image* filename at the configuration mode prompt.

```
ALSwitch(config)#boot system flash:c2950-c3h2s-mz.120-5.4.WC.1.bin
```

Step 8 Restart the switch

a. Restart the switch by using the **reload** command to see if the new IOS loaded. Use the show version command to see the IOS file name.

b. What was the name of the IOS file the switch booted from? c2900xl-c3h2s-mz.120-5.WC7.bin

c. Was this the proper file name? Yes

d. If the IOS filename is now correct remove the backup file from flash memory using the command **delete flash: c2950-c3h2s-mz.120-5.3.WC.1.old** from the Privileged EXEC mode prompt to remove the backup file.

Once the steps are completed, logoff by typing **exit**, and turn all the devices off. Then remove and store the cables and adapter.

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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.

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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**.

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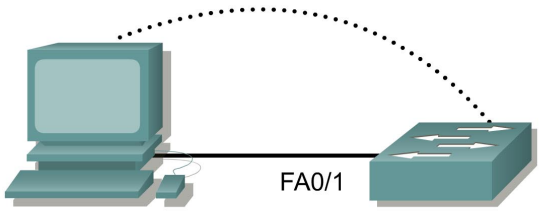

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a. To verify that the host and switch are correctly configured, ping the switch IP address from the host.

b. Was the ping successful? Yes

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Step 4 Display the name of the running image file

a. Display the name of the running image file using the **show boot** command from the Privileged EXEC mode prompt as follows:

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BOOT path-list:
Config file:   flash:config.text
Enable Break:  no
Manual Boot:   no
HELPER path-list:
NVRAM/Config file
buffer size:   32768
ALSwitch#
```

b. If there is no software image defined in the boot path, enter **dir flash:** or **show flash** to display the contents as follows:

```
ALSwitch#dir flash:
Directory of flash:/

2 -rwx 1674921 Mar 01 1993 01:28:10 c2950-c3h2s-mz.120-5.3.WC.1.bin
3 -rwx 269 Jan 01 1970 00:00:57 env_vars
4 drwx 10240 Mar 01 1993 00:21:13 html
165-rwx 965 Mar 01 1993 00:22:23 config.text

7741440 bytes total (4778496 bytes free)
```

Step 5 Prepare for the new image

a. If the switch has enough free memory as shown in the last command, rename the existing IOS file to the same name with the **.old** extension as follows:

Note: If there is not enough memory, make sure there is a copy of the IOS on the TFTP server.

```
ALSwitch#rename flash:c2950-c3h2s-mz.120-5.3.WC.1.bin flash:c2950-
c3h2s-mz.120-5.3.WC.1.old
```

b. Enter the following to verify that the renaming was successful:

```
ALSwitch#dir flash:
Directory of flash:/

 2 -rwx 1674921 Mar 01 1993 01:28:10 c2950-c3h2s-mz.120-5.3.WC.1.old
```

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```
 3 -rwx 269 Jan 01 1970 00:00:57 env_vars
 4 drwx 10240 Mar 01 1993 00:21:13 html
167 -rwx 965 Mar 01 1993 00:22:23 config.text

7741440 bytes total (4778496 bytes free)
ALSwitch#
```

c. As a precaution, enter the following to disable access to the switch HTML pages:

```
ALSwitch(config)#no ip http server
```

d. Remove existing html files.

```
ALSwitch#delete flash:html/*
```

Step 6 Extract the new IOS image and HTML files into flash memory

a. Enter the following to extract the new IOS image and HTML files into flash memory:

```
ALSwitch#archive tar /x tftp://192.168.1.3/c2950-c3h2s-mz.120-5.3.WC.1.tar flash:
```

Note: Depending on the TFTP server being used only one slash (/) after the IP address of the server may be needed.

b. Re-enable access to the switch HTML pages as follows:

```
ALSwitch(config)#ip http server
```

Step 7 Associate the new boot file

Enter the **boot** command with the name of the *new image* filename at the configuration mode prompt.

```
ALSwitch(config)#boot system flash:c2950-c3h2s-mz.120-5.4.WC.1.bin
```

Step 8 Restart the switch

a. Restart the switch by using the **reload** command to see if the new IOS loaded. Use the show version command to see the IOS file name.

b. What was the name of the IOS file the switch booted from? flash:c2950-i6q4l2-mz.121-13.EA1.bin

c. Was this the proper file name? Yes

d. If the IOS filename is now correct remove the backup file from flash memory using the command **delete flash: c2950-c3h2s-mz.120-5.3.WC.1.old** from the Privileged EXEC mode prompt to remove the backup file.

Once the steps are completed, logoff by typing **exit**, and turn all the devices off. Then remove and store the cables and adapter.

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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)

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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**.

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