

## Lab 2.9.2 - Basic Switch and End Device Configuration

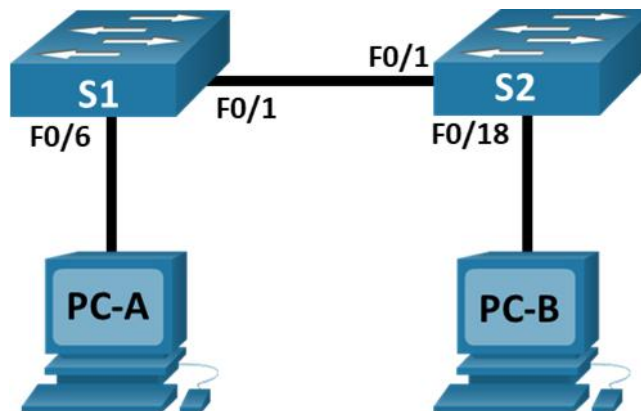


This lab has been updated for use on NETLAB+.

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### Topology

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2.9.2 Basic Switch  
& End Device Config



### Addressing Table

Device	Interface	IP Address	Subnet Mask
S1	VLAN 1	192.168.1.1	255.255.255.0
S2	VLAN 1	192.168.1.2	255.255.255.0
PC-A	NIC	192.168.1.10	255.255.255.0
PC-B	NIC	192.168.1.11	255.255.255.0

### Objectives

- Set Up the Network Topology
- Configure PC Hosts
- Configure and Verify Basic Switch Settings

### Background / Scenario

In this lab, you will deploy a simple network with two hosts and two switches. You will configure basic settings including hostname, local passwords, and login banner. Use **show** commands to display the running configuration, IOS version, and interface status. Use the **copy** command to save device configurations.

You will apply IP addressing for this lab to the PCs and switches to enable communication between the devices. Use the **ping** utility to verify connectivity.

**Note:** The switches used are Cisco Catalyst 2960s with Cisco IOS Release 15.0(2) (lanbasek9 image). Other switches and Cisco IOS versions can be used. Depending on the model and Cisco IOS version, the commands available and output produced might vary from what is shown in the labs.

## Instructions

### Step 1: Configure PC Hosts

- a. Configure static IP address information on the PCs according to the Addressing Table.
- b. Verify PC settings and connectivity.

### Step 2: Configure and Verify Basic Switch Settings

- a. Click on the switch to access the console port. Enter the global configuration mode.

**You can access all switch commands in privileged EXEC mode. The privileged EXEC 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. Enter privileged EXEC mode by entering the enable command.**

```
Switch> enable
Switch#
```

**The prompt changed from Switch> to Switch# which indicates privileged EXEC mode.**

**Use the configuration terminal command to enter configuration mode.**

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
```

**The prompt changed to reflect global configuration mode.**

- b. Give the switch a name according to the Addressing Table.

**Use the hostname command to change the switch name to S1.**

```
Switch(config)# hostname S1
```

- c. Prevent unwanted DNS lookups.

**To prevent the switch from attempting to translate incorrectly entered commands as though they were hostnames, disable the Domain Name System (DNS) lookup.**

```
S1(config)# no ip domain-lookup
```

- d. Enter local passwords. Use **class** as the privileged EXEC password and **cisco** as the password for console access.

**To prevent unauthorized access to the switch, configure passwords.**

```
S1(config)# enable secret class
S1(config)# line con 0
S1(config-line)# password cisco
S1(config-line)# login
S1(config-line)# exit
```

- e. Configure and enable the SVI according to the Addressing Table.

```
S1(config)# interface vlan 1
S1(config-if)# ip address 192.168.1.1 255.255.255.0
S1(config-if)# no shut
```

- f. Enter a login MOTD banner to warn about unauthorized access.

**A login banner, known as the message of the day (MOTD) banner, should be configured to warn anyone accessing the switch that unauthorized access will not be tolerated.**

The banner motd command requires the use of delimiters to identify the content of the banner message. The delimiting character can be any character as long as it does not occur in the message. For this reason, symbols, such as the #, are often used.

```
S1(config)# banner motd #
```

```
Enter TEXT message. End with the character '#'.  
#
```

```
Unauthorized access is strictly prohibited and prosecuted to the full extent  
of the law. #
```

```
S1(config)# exit
```

- g. Save the configuration.

Use the copy command to save the running configuration to the startup file on non-volatile random access memory (NVRAM).

```
S1# copy running-config startup-config
```

```
Destination filename [startup-config]? [Enter]
```

```
Building configuration...
```

```
[OK]
```

```
S1#
```

- h. Display the current configuration.

The show running-config command displays the entire running configuration, one page at a time. Use the spacebar to advance paging. The commands configured in Steps a - h are highlighted below.

```
S1# show running-config
```

```
Building configuration...
```

```
Current configuration : 1409 bytes
```

```
!
```

```
! Last configuration change at 03:49:17 UTC Mon Mar 1 1993
```

```
!
```

```
version 15.0
```

```
no service pad
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
no service password-encryption
```

```
!
```

```
hostname S1
```

```
!
```

```
boot-start-marker
```

```
boot-end-marker
```

```
!
```

```
enable secret 4 06YFDUHH61wAE/kLkDq9BGholQM5EnRtoyr8cHAUg.2
```

```
!
```

```
no aaa new-model
```

```
system mtu routing 1500
```

```
!
```

```
no ip domain-lookup
```

```
<output omitted>
```

```
interface Vlan 1
ip address 192.168.1.1 255.255.255.0

ip http server
ip http secure-server
!
banner motd ^C
Unauthorized access is strictly prohibited and prosecuted to the full extent of the
law. ^C
!
line con 0
password cisco
login
line vty 0 4
login
line vty 5 15
login
!
end
```

- i. Display the IOS version and other useful switch information.

**Use the show version command to display the IOS version that the switch is running, along with other useful information. Again, you will need to use the spacebar to advance through the displayed information.**

```
S1# show version
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE, RELEASE
SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Sat 28-Jul-12 00:29 by prod_rel_team

ROM: Bootstrap program is C2960 boot loader
BOOTLDR: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(53r)SEY3, RELEASE SOFTWARE
(fc1)

S1 uptime is 1 hour, 38 minutes
System returned to ROM by power-on
System image file is "flash:/c2960-lanbasek9-mz.150-2.SE.bin"
```

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

## Lab 2.9.2 - Basic Switch and End Device Configuration

<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

cisco WS-C2960-24TT-L (PowerPC405) processor (revision R0) with 65536K bytes of memory.

Processor board ID FCQ1628Y5LE

Last reset from power-on

1 Virtual Ethernet interface

24 FastEthernet interfaces

2 Gigabit Ethernet interfaces

The password-recovery mechanism is enabled.

64K bytes of flash-simulated non-volatile configuration memory.

Base ethernet MAC Address : 0C:D9:96:E2:3D:00

Motherboard assembly number : 73-12600-06

Power supply part number : 341-0097-03

Motherboard serial number : FCQ16270N5G

Power supply serial number : DCA1616884D

Model revision number : R0

Motherboard revision number : A0

Model number : WS-C2960-24TT-L

System serial number : FCQ1628Y5LE

Top Assembly Part Number : 800-32797-02

Top Assembly Revision Number : A0

Version ID : V11

CLEI Code Number : COM3L00BRF

Hardware Board Revision Number : 0x0A

Switch	Ports	Model	SW Version	SW Image
*	1 26	WS-C2960-24TT-L	15.0(2)SE	C2960-LANBASEK9-M

Configuration register is 0xF

- j. Display the status of the connected interfaces on the switch.

**To check the status of the connected interfaces, use the show ip interface brief command. Press the spacebar to advance to the end of the list.**

S1# show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	192.168.1.1	YES	unset	up	up
FastEthernet0/1	unassigned	YES	unset	up	up
FastEthernet0/2	unassigned	YES	unset	down	down
FastEthernet0/3	unassigned	YES	unset	down	down
FastEthernet0/4	unassigned	YES	unset	down	down
FastEthernet0/5	unassigned	YES	unset	down	down
FastEthernet0/6	unassigned	YES	unset	up	up
FastEthernet0/7	unassigned	YES	unset	down	down
FastEthernet0/8	unassigned	YES	unset	down	down

FastEthernet0/9	unassigned	YES	unset	down	down
FastEthernet0/10	unassigned	YES	unset	down	down
FastEthernet0/11	unassigned	YES	unset	down	down
FastEthernet0/12	unassigned	YES	unset	down	down
FastEthernet0/13	unassigned	YES	unset	down	down
FastEthernet0/14	unassigned	YES	unset	down	down
FastEthernet0/15	unassigned	YES	unset	down	down
FastEthernet0/16	unassigned	YES	unset	down	down
FastEthernet0/17	unassigned	YES	unset	down	down
FastEthernet0/18	unassigned	YES	unset	down	down
FastEthernet0/19	unassigned	YES	unset	down	down
FastEthernet0/20	unassigned	YES	unset	down	down
FastEthernet0/21	unassigned	YES	unset	down	down
FastEthernet0/22	unassigned	YES	unset	down	down
FastEthernet0/23	unassigned	YES	unset	down	down
FastEthernet0/24	unassigned	YES	unset	down	down
GigabitEthernet0/1	unassigned	YES	unset	down	down
GigabitEthernet0/2	unassigned	YES	unset	down	down

- k. Configure switch S2.

**Repeat the previous steps for Switch S2. Make sure the hostname is configured as S2.**

- l. Record the interface status for the following interfaces.

Interface	S1 Status	S1 Protocol	S2 Status	S2 Protocol
F0/1	up	up	up	up
F0/6	up	up	down	down
F0/18	down	down	up	up
VLAN 1	up	up	up	up

- m. From a PC, ping S1 and S2. The pings should be successful.  
n. From a switch, ping PC-A and PC-B. The pings should be successful.

## Reflection Question

Why are some FastEthernet ports on the switches in a state of up, while others are down?

**Type your answers here.** Some ports are up because the cable is connected and on.  
Others are down either due to the cable not being in or the admin shutting it down.

What could prevent a ping from being sent between the PCs?

**Type your answers here.**

A ping would not be sent if they were in different networks or subnets and not routing was done.  
Another reason could be one pc is down.  
Another reason could be a cable is disconnected or a admin turned off a link and the link is down.  
Another could be similar ip or duplex mismatch.  
Another could even be the firewall.

## Router and Switch Interface Summary Table

Router / Switch Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
1800	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
1900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2801	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)
2811	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2960	Fast Ethernet 0/1 (F0/1)	Fast Ethernet 0/2 (F0/2)	n/a	n/a
3560	Fast Ethernet 0/1 (F0/1)	Fast Ethernet 0/2 (F0/2)	n/a	n/a
3650	Gigabit Ethernet 1/0/1 (G1/0/1)	Gigabit Ethernet 1/0/2 (G1/0/2)	n/a	n/a
4221	Gigabit Ethernet 0/0/0 (G0/0/0)	Gigabit Ethernet 0/0/1 (G0/0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)
4300	Gigabit Ethernet 0/0/0 (G0/0/0)	Gigabit Ethernet 0/0/1 (G0/0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)

**Note:** To find out how the router is configured, look at the interfaces to identify the type of router and how many interfaces the router has. There is no way to effectively list all the combinations of configurations for each router class. This table includes identifiers for the possible combinations of Ethernet and Serial interfaces in the device. The table does not include any other type of interface, even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in Cisco IOS commands to represent the interface.