

Shaun Lim

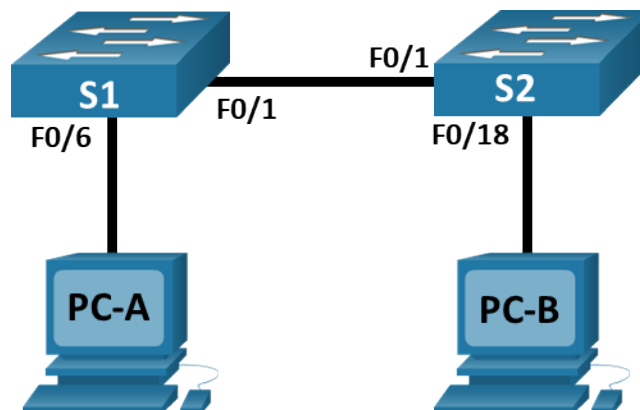
Aldrich Go

Amienz Arago

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Lab - Basic Switch and End Device Configuration

Topology



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 build a simple network with two hosts and two switches. You will also 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.

Note: Make sure that the switches have been erased and have no startup configurations. Refer to Appendix A for the procedure to initialize and reload a switch.

Required Resources

- 2 Switches (Cisco 2960 with Cisco IOS Release 15.0(2) lanbasek9 image or comparable)
- 2 PCs (Windows with terminal emulation program, such as Tera Term)
- Console cables to configure the Cisco IOS devices via the console ports
- Ethernet cables as shown in the topology

Instructions

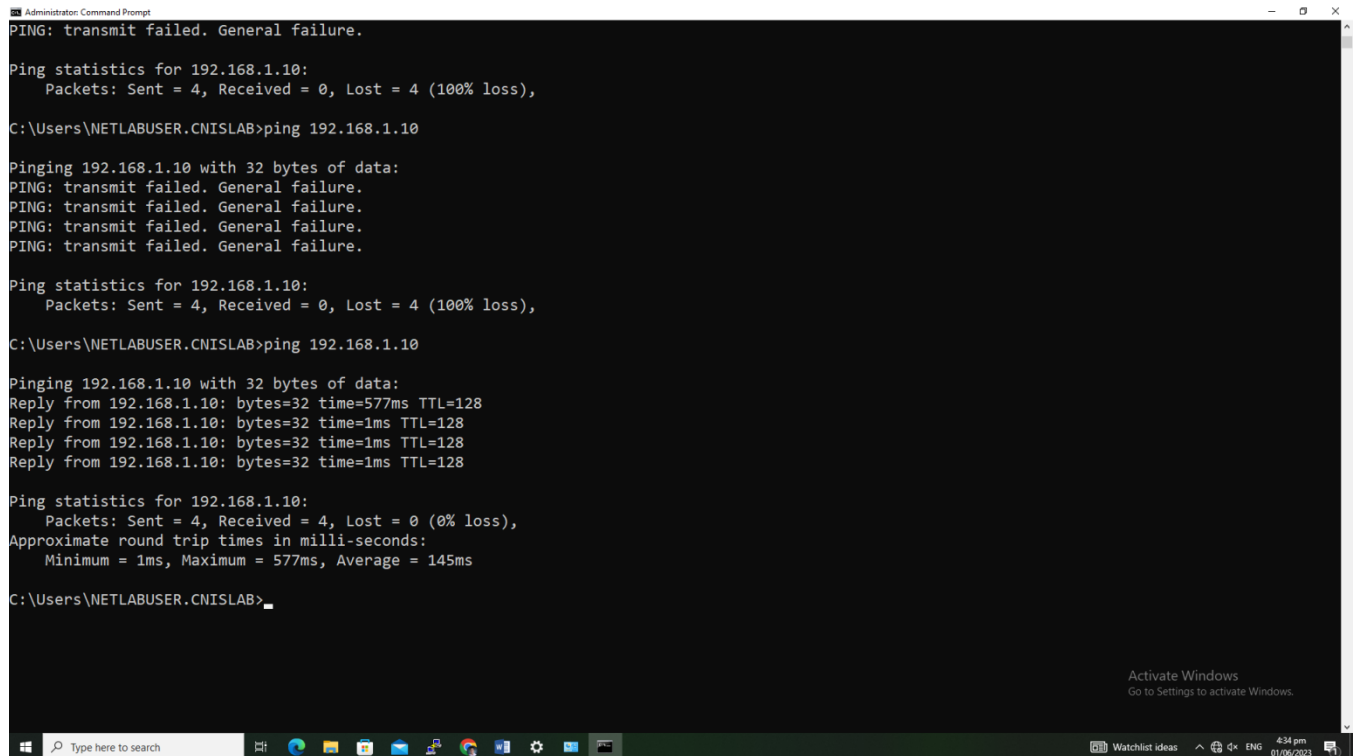
Step 1: Set Up the Network Topology

In this step, you will cable the devices together according to the network topology.

- a. Power on the devices.
- b. Connect the two switches.
- c. Connect the PCs to their respective switches.
- d. Visually inspect network connections.

Step 2: Configure PC Hosts

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



```
Administrator: Command Prompt
PING: transmit failed. General failure.

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Users\NETLABUSER.CNISLAB>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Users\NETLABUSER.CNISLAB>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.10: bytes=32 time=577ms TTL=128
Reply from 192.168.1.10: bytes=32 time=1ms TTL=128
Reply from 192.168.1.10: bytes=32 time=1ms TTL=128
Reply from 192.168.1.10: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 577ms, Average = 145ms

C:\Users\NETLABUSER.CNISLAB>
```

Step 3: Configure and Verify Basic Switch Settings

- Console into the switch. Enter the global configuration mode.
- Give the switch a name according to the Addressing Table.
- Prevent unwanted DNS lookups.
- Enter local passwords. Use **class** as the privileged EXEC password and **cisco** as the password for console access.
- Configure and enable the SVI according to the Addressing Table.
- Enter a login MOTD banner to warn about unauthorized access.
- Save the configuration.
- Display the current configuration.

```

C:\COM1>PUTTY

PC-B$conf t
Enter configuration commands, one per line.  End with CNTL/Z.
PC-B(config)#banner motd #Warning Unauthorized Access!#
PC-B(config)#exit
PC-B#wr
*Mar 1 00:32:34.763: %SYS-5-CONFIG_I: Configured from console by consoleite
Building configuration...
[OK]
PC-B$conf t
Enter configuration commands, one per line.  End with CNTL/Z.
PC-B(config)#int vian1
PC-B(config-if)#ip address 192.168.1.2 255.255.255.0
PC-B(config-if)#no shutdown
PC-B(config-if)#exit
PC-B(config)#show running-config
^
% Invalid input detected at '^' marker.

PC-B(config)#exit
PC-B#show ru
*Mar 1 00:36:52.364: %SYS-5-CONFIG_I: Configured from console by consolenning-c
onfig
Building configuration...

Current configuration : 1492 bytes
!
! Last configuration change at 00:36:52 UTC Mon Mar 1 1993
!
version 15.0
service config
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption

hostname PC-B

boot-start-marker
boot-end-marker

enable secret 5 0c7FD0H64lwAE/xLkDq9GhoIQMSEnRtoysrctHJg.2

no aaa new-model
system mtu routing 1500

!
no ip domain-lookup

!
spanning-tree mode pvtst
spanning-tree extend system-id

vian internal allocation policy ascending

```

```

COM1-PUTTY

interface FastEthernet0/21
interface FastEthernet0/22
interface FastEthernet0/23
interface FastEthernet0/24
interface GigabitEthernet0/1
interface GigabitEthernet0/2

interface Vlan1
ip address 192.168.1.2 255.255.255.0

ip http server
ip http secure-server

banner motd ~~~~~
Warning Unauthorized Access!~
~
line con 0
password cisco
login
line vty 0 4
login
line vty 5 15
login
end

PC-Bping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/9 ms
PC-Bshow version
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1984-2013 by Cisco Systems, Inc.
Compiled Wed 26-Jun-13 02:49 by prod_rel_team

ROM: Bootstrap program is C2960 boot loader
BOOTLDR: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)SE4, RELEASE SOFTWARE (fc1)

PC-B uptime is 42 minutes
System returned to ROM by power-on
System image file is "flash0:c2960-lanbasek9-mz.150-2.SE4/c2960-lanbasek9-mz.150-2.SE4.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

PC-Binterface status

% Invalid input detected at '' marker.

PC-Bconf t
Enter configuration commands, one per line. End with CNTL/Z.

```

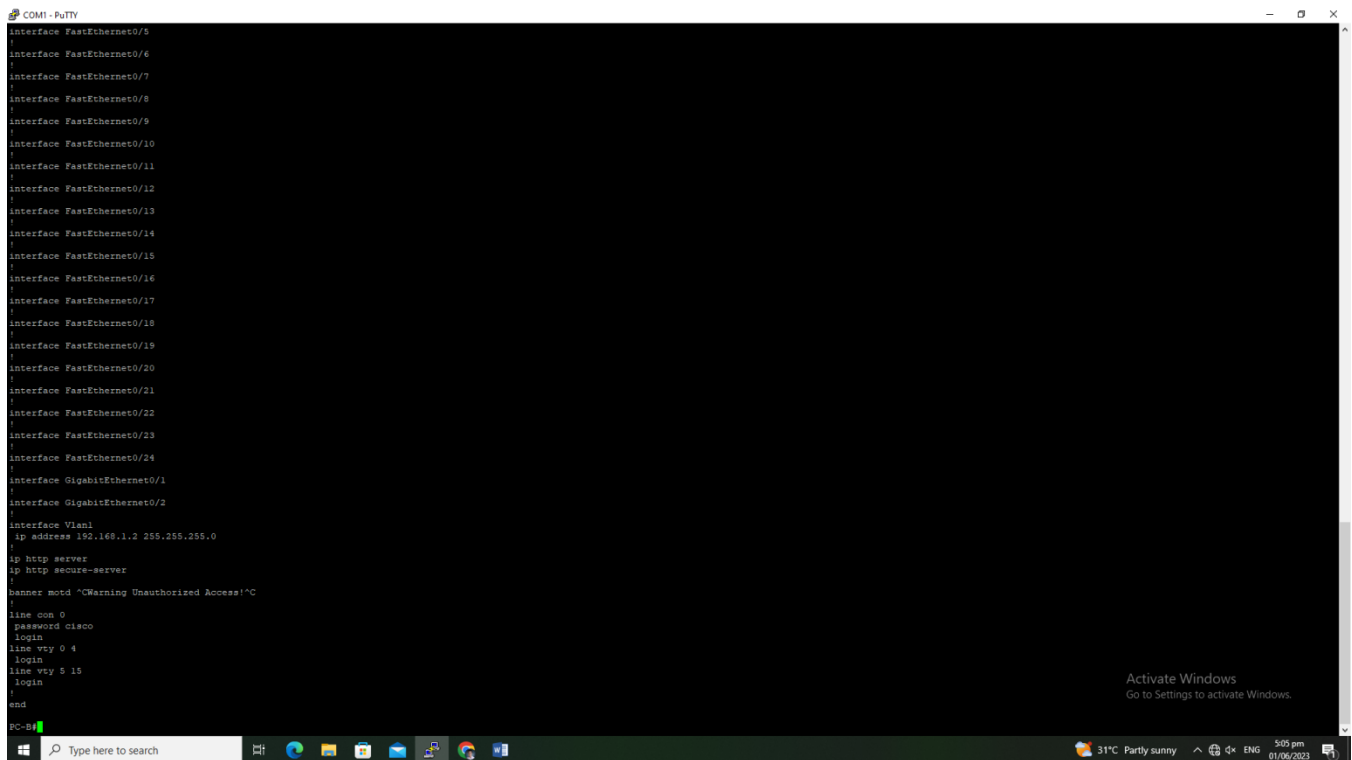
- i. Display the IOS version and other useful switch information.
- j. Display the status of the connected interfaces on the switch.
- k. Configure switch S2.

Lab - Basic Switch and End Device Configuration

- 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	down	down	down	down
F0/18	down	down	down	down
VLAN 1	up	up	up	up

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



```
COM1 - PuTTY
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 ip address 192.168.1.2 255.255.255.0
!
 ip http server
 ip http secure-server
!
 banner motd "Warning Unauthorized Access!"
!
line con 0
 password cisco
 login
line vty 0 4
 login
line vty 5 15
 login
!
end
PC-B#
```

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

Lab - Basic Switch and End Device Configuration

```
COM1 - PuTTY
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
PC-B#92.168.1.2

PC-B con0 is now available

Press RETURN to get started.

Warning Unauthorized Access!
User Access Verification
Password:
PC-B#ping 192.168.1.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.10, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/203/1006 ms
PC-B#
```

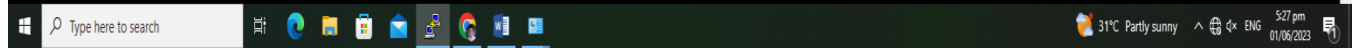
```
COM1 - PuTTY
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
ip address 150.168.1.2 255.255.255.0
!
ip http server
ip http secure-server
banner motd ^CWarning Unauthorized Access!^C
!
line con 0
password cisco
login
line vty 0 4
login
line vty 5 15
login
!
end

PC-B#ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/9 ms
PC-B#
```

Lab - Basic Switch and End Device Configuration

```
PC-B>ping 192.168.1.11
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/8 ms
PC-B>
```

Activate Windows
Go to Settings to activate Windows.



OTHER PC's END

Lab - Basic Switch and End Device Configuration

COM1 - PuTTY

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.19045.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\WETLABUSER\CNISLAB>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=2ms TTL=255
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\Users\WETLABUSER\CNISLAB>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time=6ms TTL=255
Reply from 192.168.1.2: bytes=32 time=2ms TTL=255
Reply from 192.168.1.2: bytes=32 time=2ms TTL=255
Reply from 192.168.1.2: bytes=32 time=3ms TTL=255

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 6ms, Average = 3ms

Press RETURN to continue.

Unauthorized ? C:\Users\WETLABUSER\CNISLAB>
User Access Verification

Password:
PC-A>enable
Password:
PC-A#ping 192.168.1.11
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
PC-A#ping 192.168.1.11
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
PC-A#ping 192.168.1.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.10, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/203/1006 ms
PC-A#ping 192.168.1.11
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/203/1007 ms
PC-A#
```

COM1 - PuTTY

PC-A con0 is now available

Press RETURN to get started.

Unauthorized Access Forbidden.

User Access Verification

Password:

PC-A>enable

Password:

PC-A#ping 192.168.1.11

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:

.....

Success rate is 0 percent (0/5)

PC-A#ping 192.168.1.11

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:

.....

Success rate is 0 percent (0/5)

PC-A#ping 192.168.1.10

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.10, timeout is 2 seconds:

!!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/203/1006 ms

PC-A#ping 192.168.1.11

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:

!!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/203/1007 ms

PC-A#

COM1 - PuTTY

```

!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/9 ms
PC-A#show interface status

Port      Name      Status      Vlan      Duplex  Speed  Type
Fa0/1     connected 1           a-full    a-100   10/100BaseTX
Fa0/2     notconnect 1           auto      auto    10/100BaseTX
Fa0/3     notconnect 1           auto      auto    10/100BaseTX
Fa0/4     notconnect 1           auto      auto    10/100BaseTX
Fa0/5     notconnect 1           auto      auto    10/100BaseTX
Fa0/6     notconnect 1           auto      auto    10/100BaseTX
Fa0/7     notconnect 1           auto      auto    10/100BaseTX
Fa0/8     notconnect 1           auto      auto    10/100BaseTX
Fa0/9     notconnect 1           auto      auto    10/100BaseTX
Fa0/10    notconnect 1           auto      auto    10/100BaseTX
Fa0/11    notconnect 1           auto      auto    10/100BaseTX
Fa0/12    notconnect 1           auto      auto    10/100BaseTX
Fa0/13    notconnect 1           auto      auto    10/100BaseTX
Fa0/14    notconnect 1           auto      auto    10/100BaseTX
Fa0/15    notconnect 1           auto      auto    10/100BaseTX
Fa0/16    notconnect 1           auto      auto    10/100BaseTX
Fa0/17    notconnect 1           auto      auto    10/100BaseTX
Fa0/18    notconnect 1           auto      auto    10/100BaseTX
Fa0/19    notconnect 1           auto      auto    10/100BaseTX
Fa0/20    notconnect 1           auto      auto    10/100BaseTX
Fa0/21    notconnect 1           auto      auto    10/100BaseTX
Fa0/22    notconnect 1           auto      auto    10/100BaseTX
Fa0/23    notconnect 1           auto      auto    10/100BaseTX
Fa0/24    notconnect 1           auto      auto    10/100BaseTX
Gi0/1     notconnect 1           auto      auto    10/100/1000BaseTX
Gi0/2     notconnect 1           auto      auto    10/100/1000BaseTX
PC-A#
PC-A#
PC-A#ip interface brief
^
% Invalid input detected at '^' marker.

PC-A#
PC-A#show ip interface brief

Interface      IP-Address      OK? Method Status      Protocol
Vlan1          192.168.1.1     YES manual 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 down        down
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
PC-A#

```

Lab - Basic Switch and End Device Configuration

COM1 - PuTTY

```
!  
end  
  
PC-A# ping 192.168.1.2  
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:  
!!!!  
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/2/8 ms  
PC-A#exit
```

PC-A con0 is now available

Press RETURN to get started.

Unauthorized Access Forbidden.

User Access Verification

Password:

PC-A>enable

Password:

PC-A#ping 192.168.1.2

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/9 ms

PC-A#



Lab - Basic Switch and End Device Configuration

COM1 - PuTTY

```
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 ip address 192.168.1.1 255.255.255.0
!
ip http server
ip http secure-server
!
banner motd ^CUnauthorized Access Forbidden.^C
!
line con 0
 password cisco
 login
line vty 0 4
 login
line vty 5 15
 login
!
end
PC-A#
```

```
COM1 - PuTTY
PC-A#write
Building configuration...
[OK]
PC-A#show running-config
Building configuration...

Current configuration : 1494 bytes
!
! Last configuration change at 00:36:36 UTC Mon Mar 1 1993
!
version 15.0
service config
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname PC-A
!
boot-start-marker
boot-end-marker
!
enable secret 4 06YFDUHH6lwAE/kLkDq9BGholQMSEnRtoyr8cHAUg.2
!
no aaa new-model
system mtu routing 1500
!
!
no ip domain-lookup
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
vlan internal allocation policy ascending
!
!
!
!
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
--More--
```

Reflection Question

Why some FastEthernet ports on the switches are up and others are down?

The FastEthernet Ports, are by default, down unless cables are connected to the ports.

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

Some examples that could prevent ping from being sent between the PCs could be: Wrong IP addressing, media being disconnected, firewalls, and many others.