

Basic Switch Configuration

CIT 167

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Part 1: Cable the Network and Verify the Default Switch Configuration

i) Cable the Network I set up the network according to the topography, see Fig. 1a on Pg. 2. I went to the flash memory on the switch, and there was no vlan.dat configuration. So I proceeded to the next step.

ii) Verify the default switch Configuration

a

I ran the enable command to log into privileged exec mode and ran the following commands:

b

We can see in Fig. 1b on Pg. 2 that the switch has 24 fast ethernet ports and that the switch has 2 gigabit ethernet ports. We can also see that the vty lines have the values 0 4 and 5 15.

c

In Fig. 2a on Pg. 3 that we do indeed get the response `startup-config is not present`, this is because we have not configured any settings, and have in fact reset the switch.

d

From the output of Fig. 2b on Pg. 3 that there is no ip address assigned yet, because we have not set it up yet, and that the mac address is 00e0.f9bd.263e.

e and f

You can see in Fig. 2 c on Pg. 3 that protocols are down and vlan 1 is not set up yet. It's showing multicast and fifo settings after hookup.

g

You can see in Fig. 3 a on Pg. 4 that the Cisco IOS version on the switch is 12.2(25)FX, and the system image filename C2960-LANBASE-M, and the mac address is 00e0.f9bd.263e.

h

You can see in Fig. 3 b on Pg. 4 that the interface is up because we connected it to the PC. mac address is 00e0.b037.9c06. The speed of the switch is 100mb/s and it is full duplex.

i

You can see in Fig. 3 c on Pg. 4 that the name of vlan 1 is default, currently all ports on on vlan 1, the default type is ethernet.

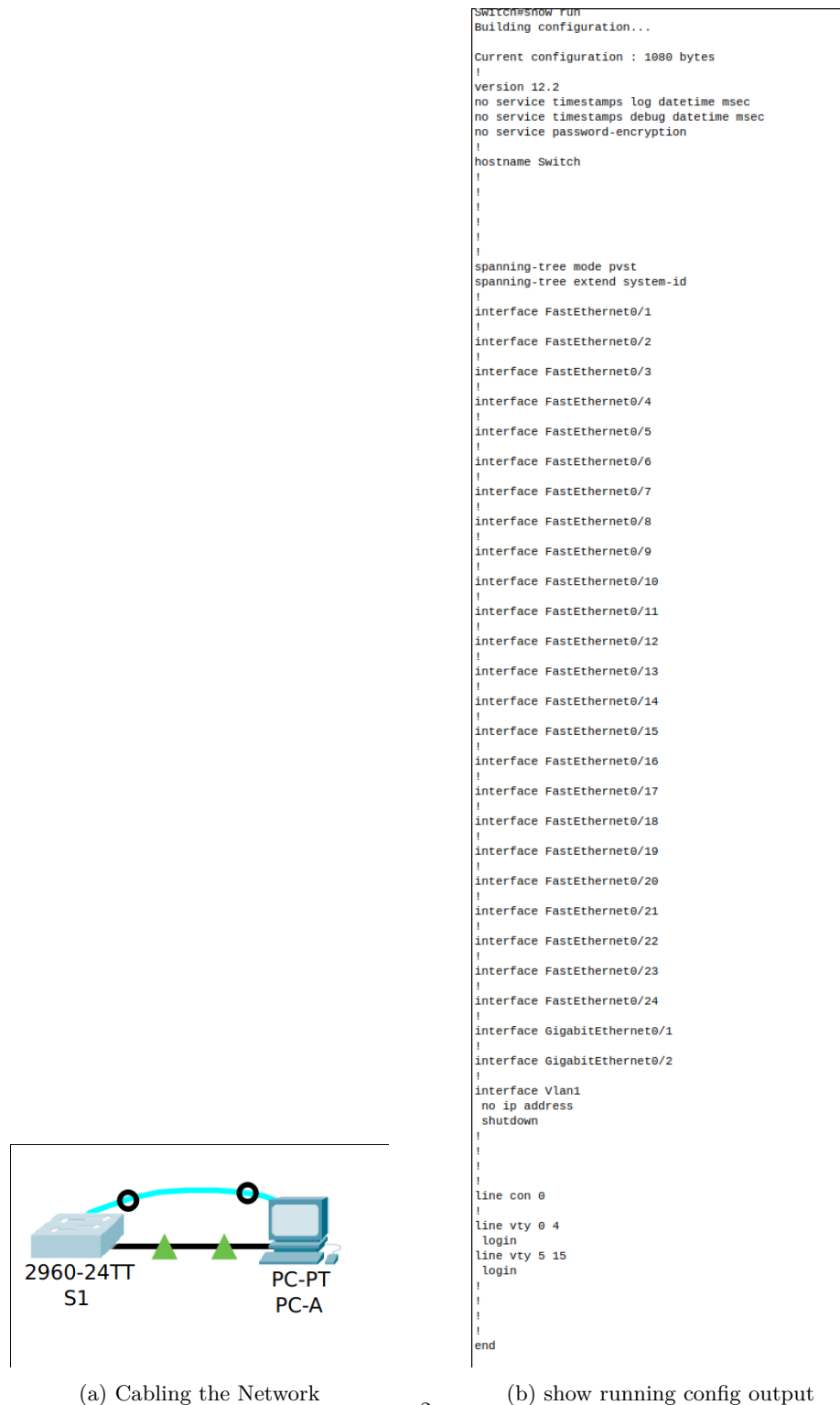


Figure 1: Configuring and verifying the switch Pt 1

```
Switch#
Switch#show startup-config
startup-config is not present
Switch#
```

(a) show startup config

```
Switch#show interface Vlan 1
Vlan1 is administratively down, line protocol is down
Hardware is CPU Interface, address is 00e0.f0bd.263e (bia 00e0.f0bd.263e)
MTU 1500 bytes, BW 1000000 Kbit, DLY 10000000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1682 packets input, 530955 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicast)
0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
563859 packets output, 0 bytes, 0 underruns
0 output errors, 23 interface resets
0 output buffer failures, 0 output buffers swapped out
```

(b) show interface vlan1

```
Switch#show ip interface vlan 1
Vlan1 is administratively down, line protocol is down
Internet protocol processing disabled
```

(c) show ip interface vlan1 after connecting the ethernet cable

Figure 2: Configuring and Verifying the switch Pt 2

```

Switch#show version
Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX,
RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 12-Oct-05 22:05 by pt_team

ROM: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE
SOFTWARE (fc4)

System returned to ROM by power-on

Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes
of memory.

24 FastEthernet/IEEE 802.3 interface(s)
2 Gigabit Ethernet/IEEE 802.3 interface(s)

8348K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address      : 00E0.F9B0.263E
Motherboard assembly number    : 73-9832-00
Power supply part number      : 341-0097-02
Motherboard serial number     : FOC103248MJ
Power supply serial number     : DCA102133JA
Model revision number         : B0
Motherboard revision number    : C0
Model number                   : WS-C2960-24TT
System serial number          : FOC10321EY
Top Assembly Part Number      : 000-26671-02
Top Assembly Revision Number  : B0
Version ID                     : V02
CLEI Code Number              : COM3K008RA
Hardware Board Revision Number : 0x01

Switch  Ports Model          SW Version        SW Image
-----  -
* 1    20  WS-C2960-24TT      12.2              C2960-LANBASE-M
M

Configuration register is 0x0

```

(a) show version output

```

Switch#show int fa0/6
FastEthernet0/6 is up, line protocol is up (connected)
Hardware is Lance, address is 00e0.b037.9c06 (bia 00e0.b037.9c06)
BW 1000000 kbit, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s
Input flow-control is off, output flow-control is off
ARP type: ARPA, ARP timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue : 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  956 packets input, 193351 bytes, 0 no buffer
    Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  0 watchdog, 0 multicast, 0 pause input
  0 input packets with dribble condition detected
2357 packets output, 263570 bytes, 0 underruns
  0 output errors, 0 collisions, 10 interface resets
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out

```

(b) show interface fa0/6

```

Switch#show vlan
-----
VLAN Name                Status Ports
-----
1    default              active Fa0/1, Fa0/2, Fa0/3,
    Fa0/4                  Fa0/5, Fa0/6, Fa0/7,
    Fa0/8                  Fa0/9, Fa0/10, Fa0/11,
    Fa0/12                 Fa0/13, Fa0/14, Fa0/15,
    Fa0/16                 Fa0/17, Fa0/18, Fa0/19,
    Fa0/20                 Fa0/21, Fa0/22, Fa0/23,
    Fa0/24                 Gig0/1, Gig0/2
1002 fddi-default         active
1003 token-ring-default   active
1004 fddinet-default      active
1005 trnet-default        active

VLAN Type SAID      MTU Parent RingNo BridgeNo Stp  BrgdMode Trans1
Trans2
-----
1    enet  100001    1500 - - - - - 0 0
1002 fddi  101002    1500 - - - - - 0 0
1003 tr   101003    1500 - - - - - 0 0
1004 fdnet 101004    1500 - - - ieee 0 0
1005 trnet 101005    1500 - - - ibm 0 0

VLAN Type SAID      MTU Parent RingNo BridgeNo Stp  BrgdMode Trans1
Trans2
-----

Remote SPAN VLANs
-----

Primary Secondary Type      Ports
-----

```

(c) show vlan

```

Switch#show flash
Directory of flash:/

 1  -rw-   4414921      <no date>  c2960-lanbase-mz.
122-25.FX.bin

64016384 bytes total (59001463 bytes free)

```

(d) show flash

Figure 3: Configuring and Verifying the switch Pt 3

Part 2: Configure Basic Network Device Settings

i) Configure basic switch settings

I ran pasted the commands as shown by you. I ran the commands to setup the ip address and default ip address. I set up the console and setup the vty. The login command is required because it logs in the first time and makes us use the password afterwards.

ii) Configure IP address on PC-A

I logged into PC-A and configured the ip configuration according to the table

Part 3: Verify and Test Network Connectivity

i) Display the switch configuration

You can see in Fig. 4 a on Pg. 6 and Fig. 4b on Pg. 6 that the bandwidth is 100,000 bytes, its state is up and its protocol is up.

ii) Test end-to-end connectivity with ping

I ran ping from PC-A to PC-A as seen in Fig. 4c on Pg. 6.

I then, Pinged S1 from PC-A, the first ping was lost due to address resolution, as you can see in Fig. 4d on Pg. 6.

iii) Test and Verify Remote management of S1

From PC-A I remotely logged into S1 via telnet. See Fig. 4e on Pg. 6.

iv) Saving the Switch Running Configuration File

I saved the switches configuration file.

```
S1#show vlan brief
VLAN Name                Status    Ports
-----
1    default                active    Fa0/1, Fa0/2, Fa0/3,
99   VLAN0099                active    Fa0/5, Fa0/6, Fa0/7,
Fa0/8
Fa0/12                    Fa0/9, Fa0/10, Fa0/11,
Fa0/16                    Fa0/13, Fa0/14, Fa0/15,
Fa0/20                    Fa0/17, Fa0/18, Fa0/19,
Fa0/24                    Fa0/21, Fa0/22, Fa0/23,
Gig0/1, Gig0/2
1002 fddi-default          active
1003 token-ring-default     active
1004 fddinet-default        active
1005 trnet-default          active
S1#
```

(a) show run

```
S1#show ip int vlan 99
Vlan99 is up, line protocol is up
Internet address is 192.168.1.2/24
Broadcast address is 255.255.255.255
Address determined by setup command
MTU is 1500 bytes
Helper address is not set
Directed broadcast forwarding is disabled
Outgoing access list is not set
Inbound access list is not set
Proxy ARP is enabled
Local Proxy ARP is disabled
Security level is default
Split horizon is enabled
ICMP redirects are always sent
ICMP unreachable are always sent
ICMP mask replies are never sent
IP fast switching is disabled
IP fast switching on the same interface is disabled
IP Null turbo vector
IP multicast fast switching is disabled
IP multicast distributed fast switching is disabled
IP route-cache flags are None
Router Discovery is disabled
IP output packet accounting is disabled
IP access violation accounting is disabled
TCP/IP header compression is disabled
RTP/IP header compression is disabled
Probe proxy name replies are disabled
Policy routing is disabled
Network address translation is disabled
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
BGP Policy Mapping is disabled
```

(b) show interface vlan 99

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time=5ms TTL=128
Reply from 192.168.1.10: bytes=32 time=1ms TTL=128
Reply from 192.168.1.10: bytes=32 time=2ms TTL=128
Reply from 192.168.1.10: bytes=32 time=2ms 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 = 5ms, Average = 2ms
```

(c) PC-A ping PC-A

```
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

(d) PC-A ping S1

```
C:\>telnet 192.168.1.2
Trying 192.168.1.2 ...Open
Unauthorized access is strictly prohibited

User Access Verification

Password:
S1#enable
Password:
S1#exit

[Connection to 192.168.1.2 closed by foreign host]
```

(e) PC-A telnet to S1

Figure 4: Verifying and Testing Network Connectivity

Part 4: Manage the MAC Address table

i) Record the MAC address of the host

there were none listed in the table. zero in total.

ii) Determine the MAC Addresses that the switch has learned

There are three options for Mac addressing dynamic, interfaces, or static.

iii) List the show mac address-table options

There are three options, dynamic, interfaces, or static.

iv) Set up a static MAC address

I ran the commands as shown and set up the mac address, statically.

Reflection

i) Why should you configure the vty password for the switch?

To protect it from unwanted usage where someone could set up a way into the network and where they would have root access to the network.

ii) Why change the default VLAN 1 to a different VLAN number?

harder to find from cursory looks at the network.

iii) How can you prevent passwords from being sent in plain text?

set encryption

iv) Why configure a static MAC address on a port interface?

so that it stays the same and doesnt try to ask the DNS to resolve it and risk losing it and resetting the main ports of the network.