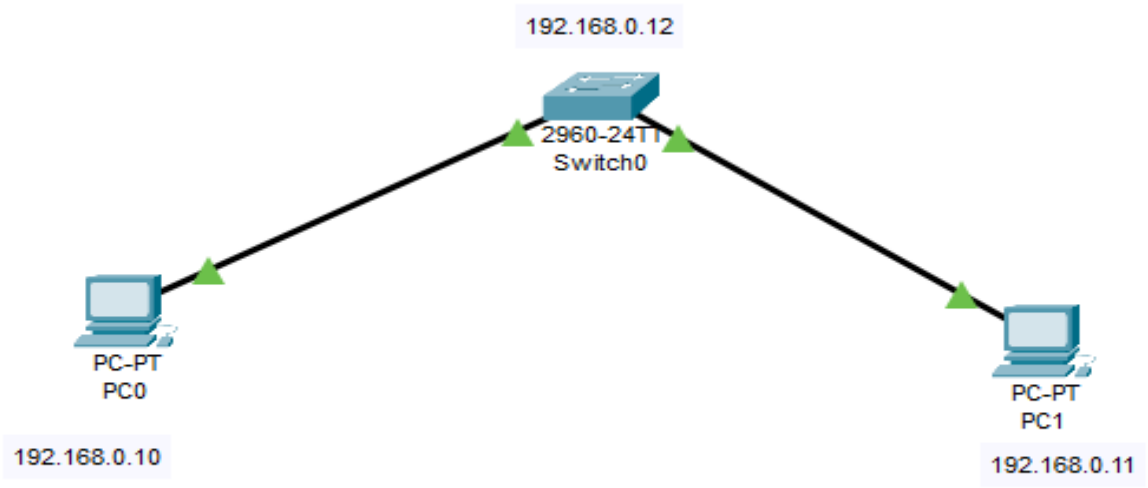
SWITCH CONFIGURATION



Switch>enable

Switch#config t

Enter configuration commands, one per line. End with CNTL/Z.

The first configuration command on any device should be to give it a unique hostname.

Note: To return the switch to the default prompt, use the **no hostname** global config command.

Switch(config)#hostname lab1

Context-sensitive (?)help enables you to quickly find answers to these questions:

- **Which commands are available in each command mode?**
- **Which commands start with specific characters or group of characters?**
- **Which arguments and keywords are available to particular commands?**

lab1(config)#?

Configure commands:

aaa	Authentication, Authorization and Accounting.
access-list	Add an access list entry
banner	Define a login banner
boot	Boot Commands
cdp	Global CDP configuration subcommands
clock	Configure time-of-day clock
crypto	Encryption module
default	Set a command to its defaults
do-exec	To run exec commands in config mode
dot1x	IEEE 802.1X Global Configuration Commands
enable	Modify enable password parameters
end	Exit from configure mode
exit	Exit from configure mode
hostname	Set system's network name
interface	Select an interface to configure
ip	Global IP configuration subcommands
line	Configure a terminal line
lldp	Global LLDP configuration subcommands
logging	Modify message logging facilities
mac	MAC configuration
mls	mls global commands

A banner message is important to warn unauthorized personnel from attempting to access the device.

To create a banner message of the day on a network device, use the banner motd # the message of the day # global config command.

lab1#config t

Enter configuration commands, one per line. End with CNTL/Z.

lab1(config)#banner motd #authorized access only#

lab1(config)#

Line Configuration Mode:

> *To move in and out of line configuration mode, use the **line** command followed by the management line type. To return to global configuration mode, use the **exit** command.*

lab1(config)#line console 0

lab1(config-line)#?

Line configuration commands:

access-class Filter connections based on an IP access list

accounting Accounting parameters

databits Set number of data bits per character

default Set a command to its defaults

exec-timeout Set the EXEC timeout

exit Exit from line configuration mode

flowcontrol Set the flow control

history Enable and control the command history function

logging Modify message logging facilities

login Enable password checking

motd-banner Enable the display of the MOTD banner

no Negate a command or set its defaults

parity Set terminal parity

password Set a password

privilege Change privilege level for line

speed Set the transmit and receive speeds

stopbits Set async line stop bits

transport Define transport protocols for line

Securing user EXEC mode access:

- First enter line console configuration mode using the **line console 0** command in global configuration mode.
- Next, specify the user EXEC mode password using the **password** *password* command.
- Finally, enable user EXEC access using the **login** command.

lab1(config-line)#password cisco

lab1(config-line)#login

lab1(config-line)#exit

lab1(config)#interface FastEthernet0/1

lab1(config-if)#?

authentication Auth Manager Interface Configuration Commands

cdp Global CDP configuration subcommands

channel-group Etherchannel/port bundling configuration

channel-protocol Select the channel protocol (LACP, PAgP)

description Interface specific description

dot1x Interface Config Commands for IEEE 802.1X

duplex Configure duplex operation.

exit Exit from interface configuration mode

```
  ip              Interface Internet Protocol config commands
  lldp            LLDP interface subcommands
  mdix            Set Media Dependent Interface with Crossover
  mls             mls interface commands
  no              Negate a command or set its defaults
  shutdown        Shutdown the selected interface
  spanning-tree   Spanning Tree Subsystem
  speed           Configure speed operation.
  storm-control   storm configuration
  switchport      Set switching mode characteristics
  tx-ring-limit   Configure PA level transmit ring limit
lab1(config-if)#ip ?
  arp   Configure ARP features
  dhcp  Configure DHCP parameters for this interface
lab1(config-if)#exit
lab1(config)#interface vlan 1
lab1(config-if)#?
Interface configuration commands:
  arp         Set arp type (arpa, probe, snap) or timeout
  description  Interface specific description
  exit        Exit from interface configuration mode
  ip          Interface Internet Protocol config commands
  no          Negate a command or set its defaults
  shutdown    Shutdown the selected interface
```

```
  standby      HSRP interface configuration commands
lab1(config-if)#ip ?
  address        Set the IP address of an interface
  helper-address  Specify a destination address for UDP broadcasts
lab1(config-if)#ip ip address 192.168.0.12 255.255.255.0
                ^
% Invalid input detected at '^' marker.

lab1(config-if)#ip address 192.168.0.12 255.255.255.0
lab1(config-if)#no shutdown

lab1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

lab1(config-if)#exit
lab1(config)#exit
lab1#
%SYS-5-CONFIG_I: Configured from console by console

lab1#show interface vlan 1
Vlan1 is up, line protocol is up
  Hardware is CPU Interface, address is 0002.1758.8e12 (bia 0002.1758.8e12)
```

Internet address is 192.168.0.12/24

MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 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 runts, 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

Securing VTY line access:

- **First enter line VTY configuration mode using the line vty 0 15 command in global configuration mode.**
- **Next, specify the VTY password using the password *password* command.**
- **Finally, enable VTY access using the login command.**

VTY lines enable remote access using Telnet or SSH to the device

```
lab1#

lab1#config t

Enter configuration commands, one per line.  End with CNTL/Z.

lab1(config)#line vty 0 15

lab1(config-line)#password cisco

lab1(config-line)#login

lab1(config-line)#?

Virtual Line configuration commands:

  access-class  Filter connections based on an IP access list

  accounting    Accounting parameters

  databits      Set number of data bits per character

  exec-timeout  Set the EXEC timeout

  exit          Exit from line configuration mode

  flowcontrol   Set the flow control

  history       Enable and control the command history function

  logging       Modify message logging facilities

  login         Enable password checking

  motd-banner   Enable the display of the MOTD banner

  no            Negate a command or set its defaults

  parity        Set terminal parity

  password      Set a password

  privilege     Change privilege level for line

  speed         Set the transmit and receive speeds
```

```
  stopbits      Set async line stop bits
  transport     Define transport protocols for line
lab1(config-line)#exit
lab1(config)#
lab1(config)#show running-config
           ^
% Invalid input detected at '^' marker.

lab1(config)#exit
lab1#
%SYS-5-CONFIG_I: Configured from console by console
```

The startup-config and running-config files display most passwords in plaintext.

To encrypt all plaintext passwords, use the service password-encryption global config command.

```
lab1#show running-config
Building configuration...
Current configuration : 1147 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
```

```
hostname lab1
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
interface FastEthernet0/4
!
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 192.168.0.12 255.255.255.0
!
!
!
!
line con 0
 password cisco
 login
!
```

line vty 0 4

password cisco

login

line vty 5 15

password cisco

login

!

!

!

!

end

To encrypt all plaintext passwords, use the service password-encryption global config command.

lab1#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

lab1(config)#service password-encryption

lab1(config)#exit

lab1#

lab1#

%SYS-5-CONFIG_I: Configured from console by console

Use the show running-config command to verify that the passwords on the device are now encrypted

lab1#show running-config

Building configuration...

```
Current configuration : 1171 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname lab1
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2


lab1#show running-config
Building configuration...
```

```
Current configuration : 1171 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname lab1
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
interface FastEthernet0/4
```

!

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 192.168.0.12 255.255.255.0
!
```

```
!
!
!
line con 0
 password 7 0822455D0A16
 login
!
line vty 0 4
 password 7 0822455D0A16
 login
line vty 5 15
 password 7 0822455D0A16
 login
!
!
!
!
end
lab1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
lab1#
```

Reload the device using the reload command in privilege EXEC mode. Note: This will cause the device to briefly go offline, leading to network downtime.

```
Router# reload
Proceed with reload? [confirm]
Initializing Hardware ...
```

If the undesired changes were saved to the startup-config, it may be necessary to clear all the configurations using the erase startup-config command in privilege EXEC mode.

- **After erasing the startup-config, reload the device to clear the running-config file from RAM.**

```
Router# erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Router#
```