

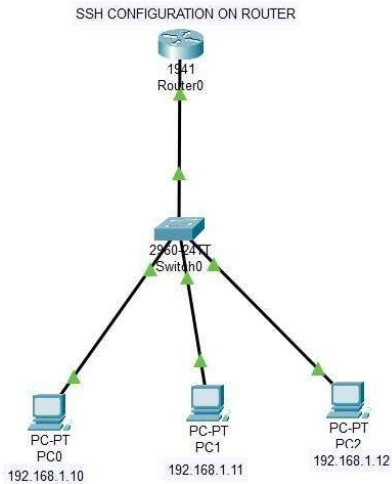
ASSIGNMENT 5

1)Generate SSH on Router

SSH is a security mechanism which can be used to access the privilege and configuration mode of a router and a switch from a remote location to perform the required action. The primary aim to configure SSH is to access devices deployed in a network from a remote location so that the required configuration can be performed and resources can be provided in a seamless manner.

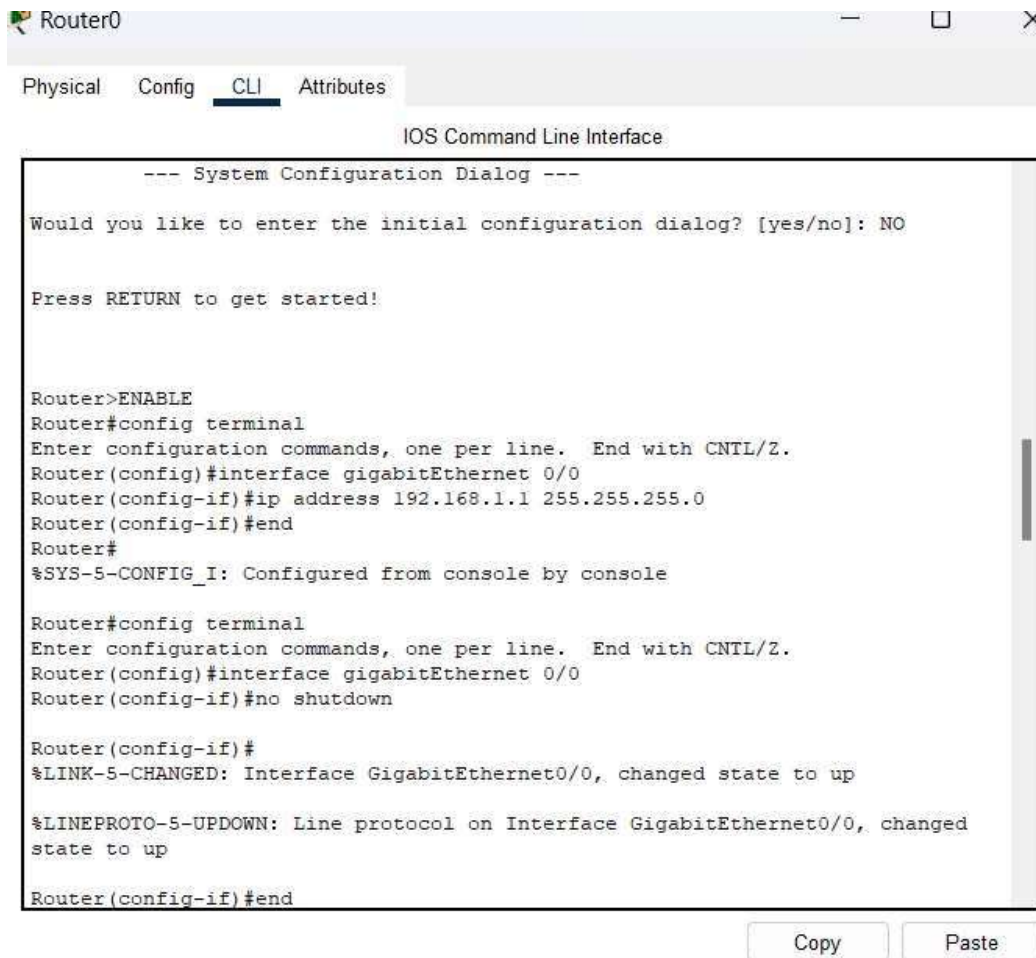
PROCESS:

1) Connect the devices in network as shown in figure below.



2) Desktop settings of the Computer System need to be accessed to assign it with IP address, associated subnet mask and gateway address of the network.

3) Run following commands in CLI of router.



The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The interface shows a "System Configuration Dialog" asking to enter the initial configuration dialog, which is skipped. The user enters "ENABLE" to enter privileged mode, then "config terminal" to enter configuration mode. The configuration steps include setting the interface to "gigabitEthernet 0/0", assigning the IP address "192.168.1.1" with a subnet mask of "255.255.255.0", and ending the configuration. Status messages confirm the configuration from the console and the interface state change to "up". The user then enters "no shutdown" to enable the interface, followed by another status message confirming the line protocol state change to "up". Finally, the user ends the configuration with "end".

```
Router0
Physical Config CLI Attributes
IOS Command Line Interface

--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: NO

Press RETURN to get started!

Router>ENABLE
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface gigabitEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface gigabitEthernet 0/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed
state to up

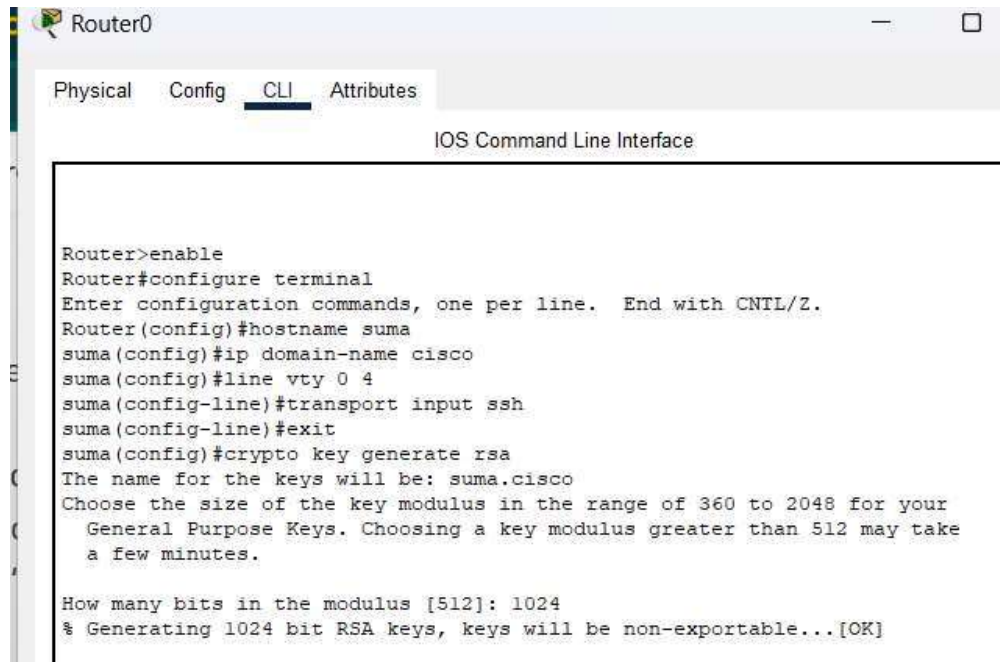
Router(config-if)#end
```

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```
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#line vty 0 4
Router(config-line)#login local
Router(config-line)#password cisco
Router(config-line)#exit
Router(config)#username sumanvitha privilege 4 password cisco
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```



Router0

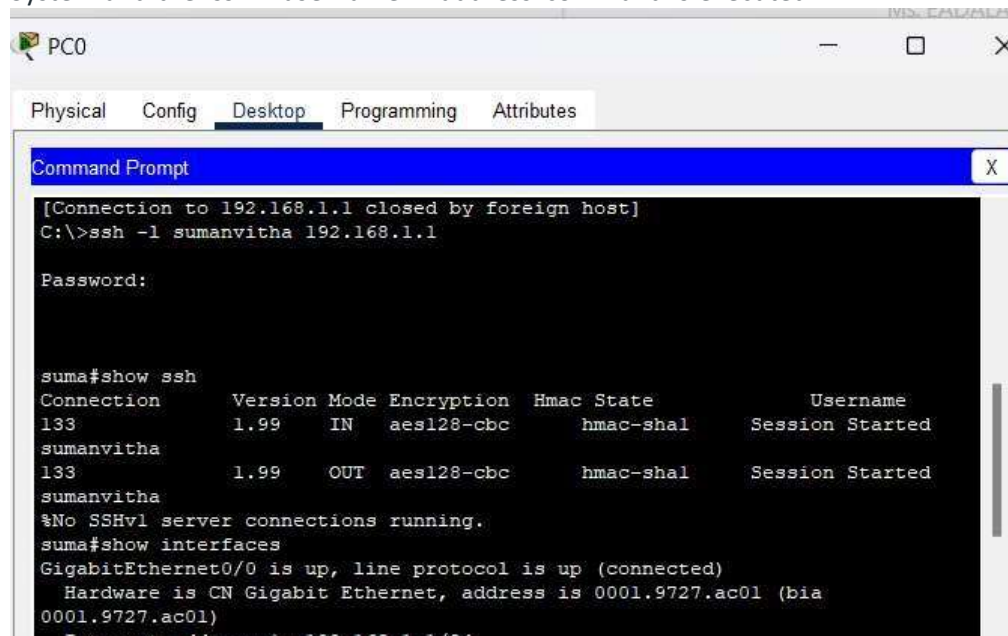
Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname suma
suma(config)#ip domain-name cisco
suma(config)#line vty 0 4
suma(config-line)#transport input ssh
suma(config-line)#exit
suma(config)#crypto key generate rsa
The name for the keys will be: suma.cisco
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
```

4) To test the SSH configured on Cisco Router, Command Prompt is opened on Computer System and the 'ssh -l username IP-address' command is executed.



PC0

Physical Config **Desktop** Programming Attributes

Command Prompt

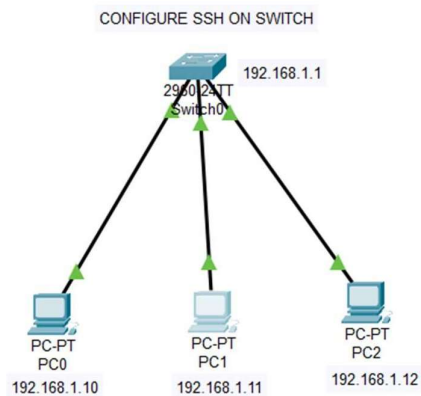
```
[Connection to 192.168.1.1 closed by foreign host]
C:\>ssh -l sumanvitha 192.168.1.1

Password:

suma#show ssh
Connection      Version Mode Encryption  Hmac State      Username
133             1.99  IN   aes128-cbc    hmac-shal    Session Started
sumanvitha
133             1.99  OUT  aes128-cbc    hmac-shal    Session Started
sumanvitha
%No SSHv1 server connections running.
suma#show interfaces
GigabitEthernet0/0 is up, line protocol is up (connected)
Hardware is CN Gigabit Ethernet, address is 0001.9727.ac01 (bia
0001.9727.ac01)
```

2) Generate SSH on switch.

1) Connect the devices in network as shown in figure below.



- 2) Desktop settings of the Computer System need to be accessed to assign it with IP address, associated subnet mask and gateway address of the network.
- 3) Run following commands in CLI of switch.

Switch0

Physical Config CLI Attributes

IOS Command Line Interface

```

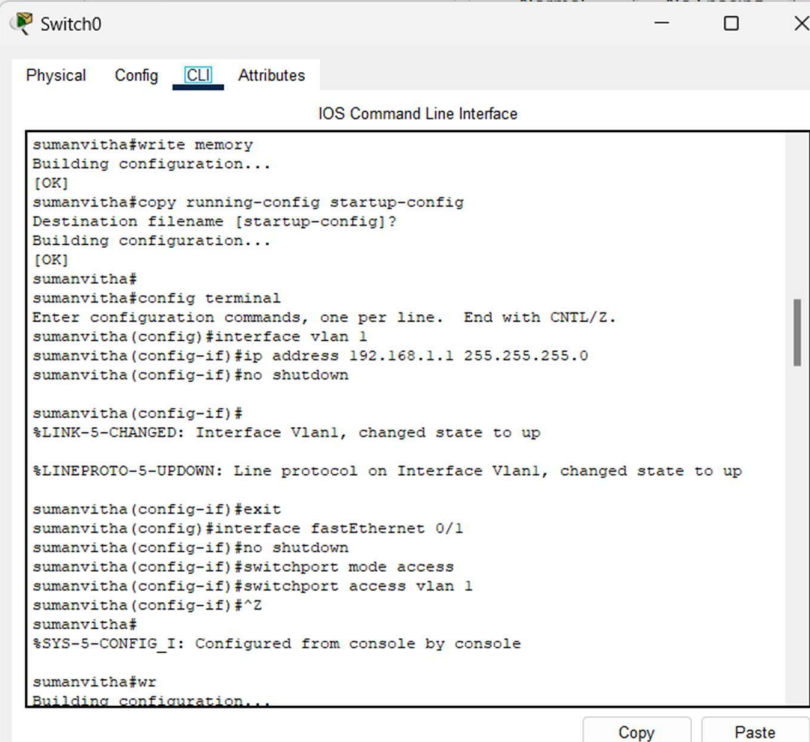
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname sumanvitha
sumanvitha(config)#username sumu privilege 15 secret cisco
sumanvitha(config)#service password-encryption
sumanvitha(config)#ip domain-name sumanvitha
sumanvitha(config)#crypto key generate rsa
The name for the keys will be: sumanvitha.sumanvitha
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

sumanvitha(config)#line vty 0 15
*Mar 1 0:3:58.460: %SSH-5-ENABLED: SSH 1.99 has been enabled
sumanvitha(config-line)#transport input ssh
sumanvitha(config-line)#login local
sumanvitha(config-line)#^Z
sumanvitha#
%SYS-5-CONFIG_I: Configured from console by console

sumanvitha#wr
Building configuration...
[OK]
sumanvitha#write memory
Building configuration...
  
```

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```

Switch0
Physical Config CLI Attributes
IOS Command Line Interface

sumanvitha#write memory
Building configuration...
[OK]
sumanvitha#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
sumanvitha#
sumanvitha#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
sumanvitha(config)#interface vlan 1
sumanvitha(config-if)#ip address 192.168.1.1 255.255.255.0
sumanvitha(config-if)#no shutdown

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

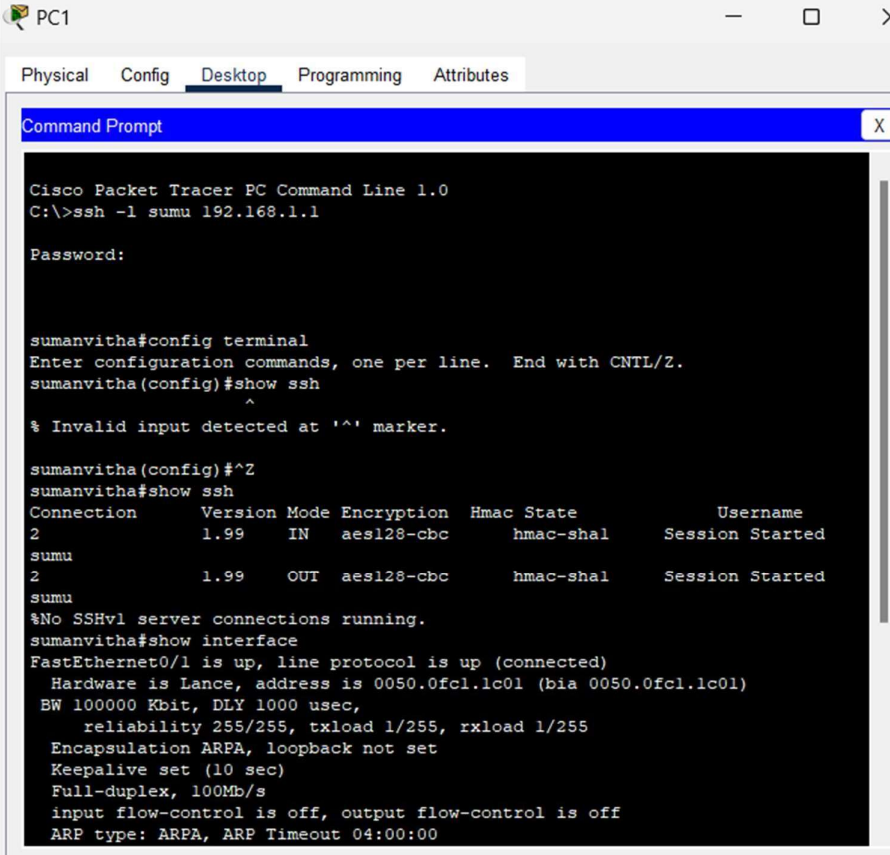
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

sumanvitha(config-if)#exit
sumanvitha(config)#interface fastEthernet 0/1
sumanvitha(config-if)#no shutdown
sumanvitha(config-if)#switchport mode access
sumanvitha(config-if)#switchport access vlan 1
sumanvitha(config-if)#^Z
sumanvitha#
%SYS-5-CONFIG_I: Configured from console by console

sumanvitha#wr
Building configuration...
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```

4) To test the SSH configured on Cisco Switch, Command Prompt is opened on Computer System and the 'ssh -l username IP-address' command is executed.



```

PC1
Physical Config Desktop Programming Attributes
Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ssh -l sumu 192.168.1.1

Password:

sumanvitha#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
sumanvitha(config)#show ssh
^
% Invalid input detected at '^' marker.

sumanvitha(config)#^Z
sumanvitha#show ssh
Connection      Version Mode Encryption Hmac State      Username
2               1.99  IN   aes128-cbc  hmac-shal  Session Started
sumu
2               1.99  OUT  aes128-cbc  hmac-shal  Session Started
sumu
%No SSHv1 server connections running.
sumanvitha#show interface
FastEthernet0/1 is up, line protocol is up (connected)
  Hardware is Lance, address is 0050.0fc1.1c01 (bia 0050.0fc1.1c01)
  BW 100000 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

```