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HOME WORK NO 3

1: Setting Router Modes on 2600 Series Routers.

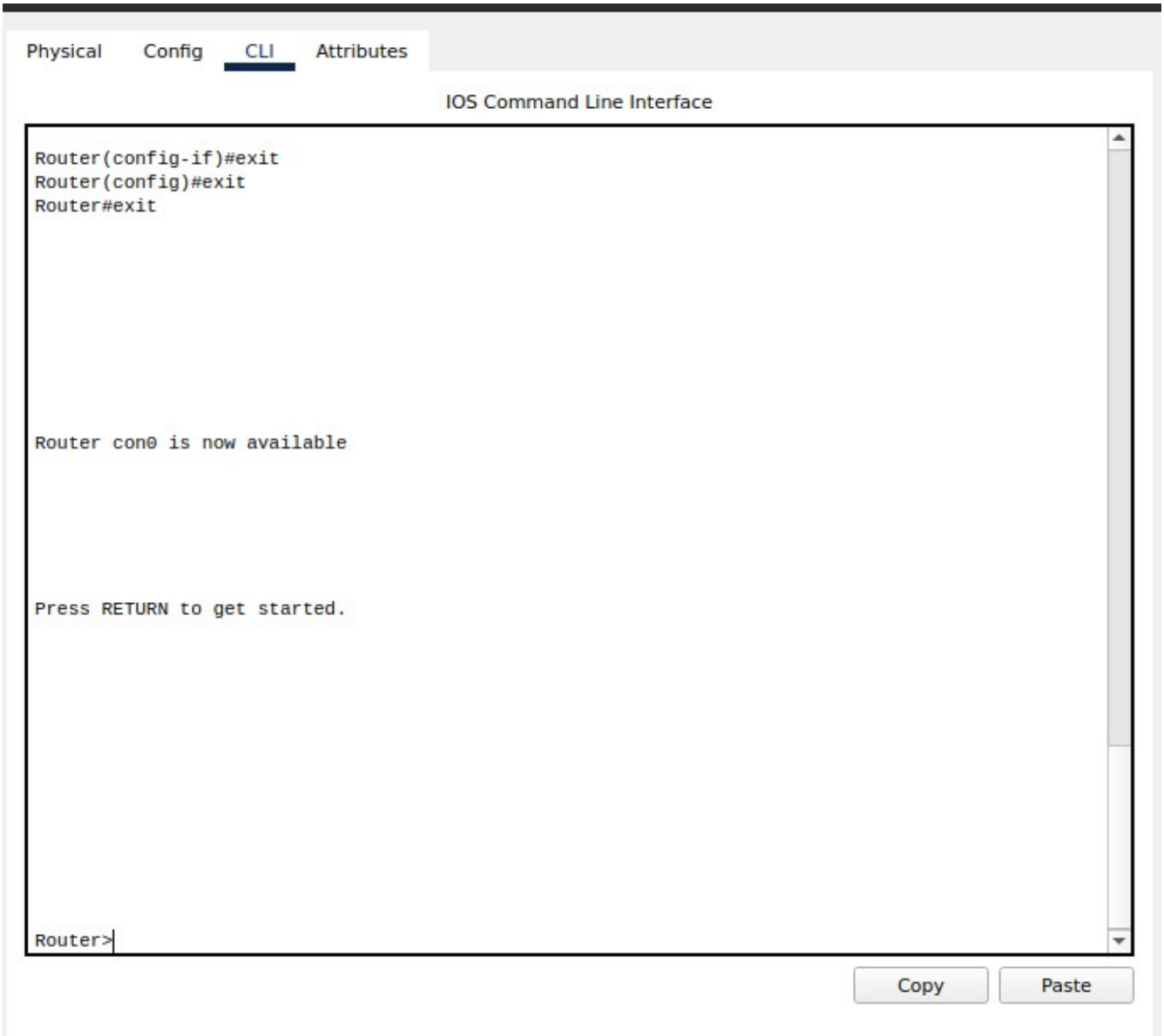
- Router:

Router is a device that is used to establish connection between two devices of different networks.

Modes on 2600 series Router

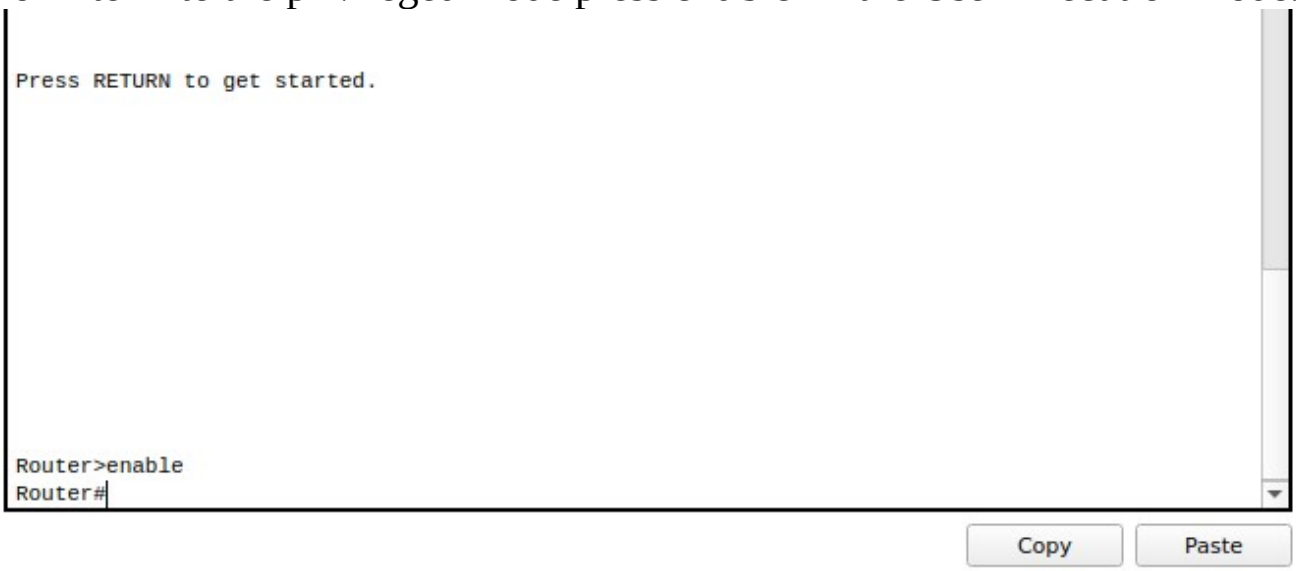
1: User Execution Mode:

Click on the router the pop box will open. From that box click on the CLI and interface that is opened will be the user Execution mode.



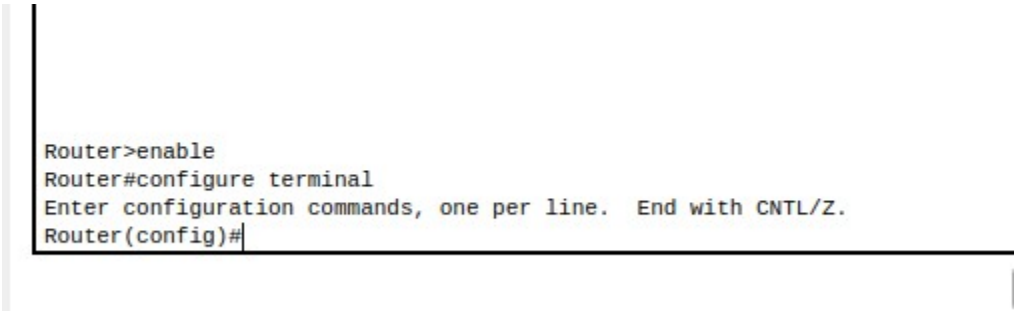
2: Privileged mode

To Enter into the privileged mode press **enable** in the User Execution mode.



3: Global Configuration Mode

To Enter into the global configuration mode from privileged mode. Type **configure terminal** then you will be prompted to the global configuration mode.



4: Interface Configuration Mode

Entering into interface mode from global configuration mode. Here we have to specify the router's interface.

5: ROMMON MODE:

Entering into ROMMON mode from privilege mode.

```
Router(config-if)#exit
Router(config)#exit
Router#reload
System configuration has been modified. Save? [yes/no]:no
Proceed with reload? [confirm]
System Bootstrap, Version 12.1(3r)T2, RELEASE SOFTWARE (fc1)
Copyright (c) 2000 by cisco Systems, Inc.
Initializing memory for ECC
..
C2600 processor with 524288 Kbytes of main memory
Main memory is configured to 64 bit mode with ECC enabled

Readonly ROMMON initialized

Self decompressing the image :
################################################
```

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2: Changing Hostname of the Router

To change the hostname of the router we have to issue these commands in the router CLI.

IOS Command Line Interface

```
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-I-M), Version 12.2(28), RELEASE SOFTWARE (fc5)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Wed 27-Apr-04 19:01 by miwang

Cisco 2621 (MPC860) processor (revision 0x200) with 253952K/8192K bytes of memory
.
Processor board ID JAD05190MTZ (4292891495)
M860 processor: part number 0, mask 49
Bridging software.
X.25 software, Version 3.0.0.
2 FastEthernet/IEEE 802.3 interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)


         --- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname NP
NP(config)#exit
NP#
```

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In the output you will see the hostname changed to NP or whatever you have written next to hostname command.

3: Configuring Date and Time on the Router (Clock Set Command)

First of all the time format. For me the time format is **hh:mm:ss**.

```
NP(config)#exit
NP#clock set ?
  hh:mm:ss  Current Time
NP#clock set
% Incomplete command.
NP#
```

Now let's set the time.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname NP
NP(config)#exit
NP#clock set ?
  hh:mm:ss  Current Time
NP#clock set
% Incomplete command.
NP#
NP#clock set 12:17:00 ?
  <1-31>  Day of the month
  MONTH   Month of the year
NP#clock set 12:17:00 clock set 12:17:00 17 ?
% Unrecognized command
NP#clock set 12:17:00 17 ?
  MONTH  Month of the year
NP#clock set 12:17:00 17 March ?
  <1993-2035>  Year
NP#clock set 12:17:00 17 March 2021
NP#show clock
12:17:0.0 UTC Wed Mar 17 2021
NP#
```

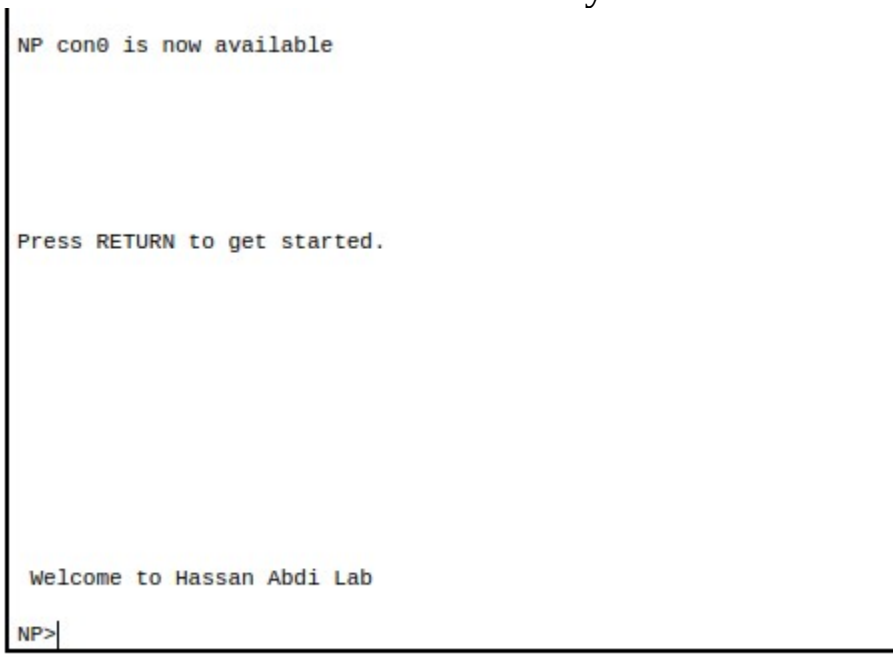
Follow these steps to configure the Data and Time on the Router. Once you setted the time and data you can verify using the command **show clock**.

4: Setting a banner on the Router

Open the router CLI and go to the privileged mode. Follow these steps to set the banner.

```
NP>enable
NP#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
NP(config)#banner motd # Welcome to Hassan Abdi Lab #
NP(config)#exit
NP#
```

Let’s verify that is the banner setted successfully or Not.



You will be seeing the message that you have setted in the previous step.

5: Displaying the Router’s Running-Configuration and Start-Up Configuration

To display the running configuration issue this command In the router CLI. That is **show running-config**.

```
NP>enable
NP#
NP#show running-config
Building configuration...

Current configuration : 525 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname NP
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
```

```
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
interface FastEthernet0/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface FastEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
```

```
!
interface FastEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
ip classless
!
ip flow-export version 9
!
!
!
banner motd ^C Welcome to Hassan Abdi Lab ^C
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

For the Start-Up Configuration we use the command **show startup-config**.

```
Router>enable
Router#show start
startup-config is not present
Router#show startup-config
startup-config is not present
Router#
```

6: Enable Password and Enable Secret Password with the Encryption Techniques/Levels

- **Enable Password**
  To Enable Password use the following commands.

```
Router>enable
Router#
Router#
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#line vty 0 4
Router(config-line)#password P200165
Router(config-line)#login
Router(config-line)#exit
Router(config)#exit
```

- **Enabling Secret Password**
  Open up the router CLI.

```
Router>enable
Router#show start
startup-config is not present
Router#show startup-config
startup-config is not present
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#enable secret jadi123
Router(config)#exit
Router#exit




Router con0 is now available



Press RETURN to get started.









Router>
```

Let’s verify.

```
Press RETURN to get started.









Router>enable
Password:
Router#startup-config
Translating "startup-config"...domain server (255.255.255.255)
```

When you try to enter the privileged mode you have to enter the secret password once that you enter you will be redirected to the privileged mode.

7: Line Console Password Implementation on CISCO 2600 Series Router

To Enable Line console Password issue the following commands in the router CLI.

```
 Welcome to Hassan Abdi Lab

NP>enable
NP#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
NP(config)#line console 0
NP(config-line)#password NP123
NP(config-line)#login
NP(config-line)#end
NP#
```

Password is setted let’s verify this.

```
NP con0 is now available



Press RETURN to get started.









 Welcome to Hassan Abdi Lab

User Access Verification

Password:

NP>
```

Enter the password and you will be prompted to the NP cli.

8: What is Telnet? How to Telnet? + Line VTY/Telnet Password

Telnet stands for **Teletype Network Protocol**. Telnet is the network protocol that is used to connect one computer to another computer virtually. Telnet is used to provide two-way collaborative and text-based communication channel between two machines.

On the web, Hypertext Transfer Protocol(HTTP) and File Transfer Protocol(FTP) simply enables users to request specific files from remote computers, while through TELNET users can log on as a regular user with the privileges they are granted to the specific applications and data on that computer.

How to Telnet?

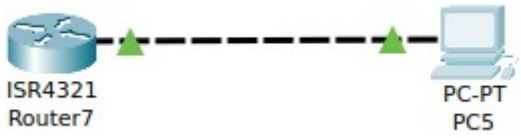
An abstract example of the syntax for a Telnet command request is as follows:

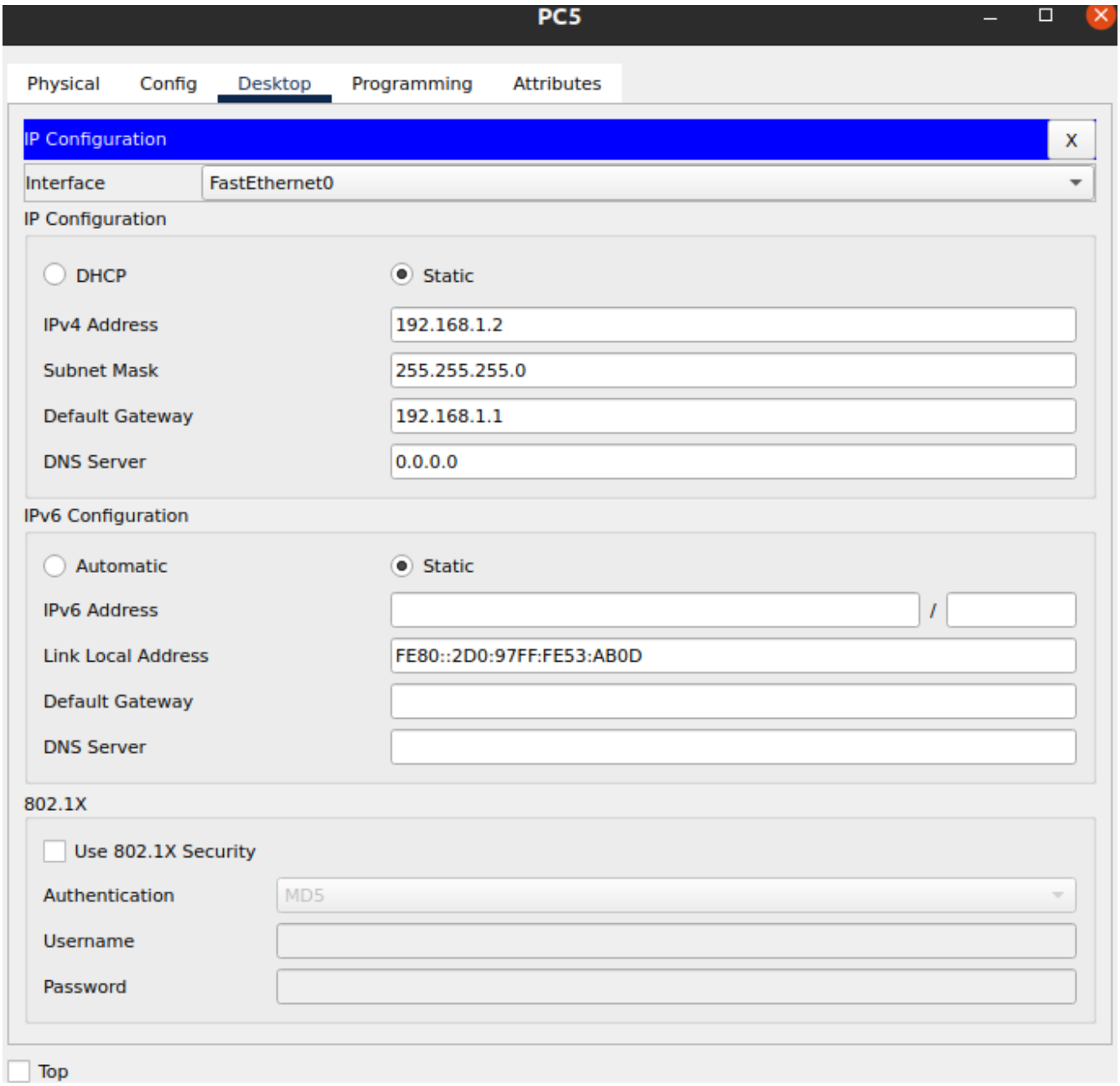
```
=> telnet the.libraryat.whatis.edu
```

The result of this request would be an invitation to log on with a user ID, and then the program would prompt the user for a password. If accepted, the user is granted access to the remote host.

Connecting a router to PC using telnet:

First of all create this topology and then assigned the IP addresses to PC = 192.168.1.2 and the Default Gateway = 192.168.1.1.





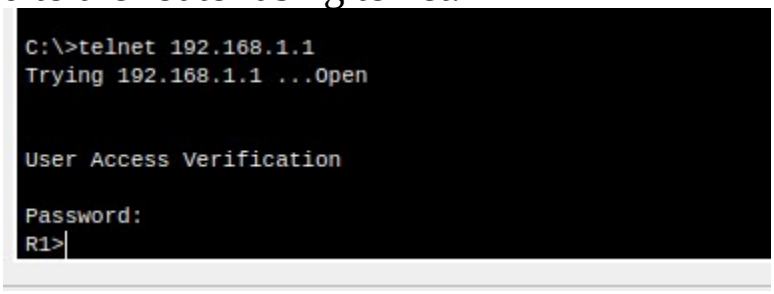

```
Router>en
Router#cnconf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# hostname R1
R1(config)#enable secret rp
R1(config)#int Gig0/0/0
R1(config-if)#ip add 192.168.1.1 255.255.255.0
R1(config-if)#no shut

R1(config-if)#line vty 0 5
R1(config-line)#login
% Login disabled on line 2, until 'password' is set
% Login disabled on line 3, until 'password' is set
% Login disabled on line 4, until 'password' is set
% Login disabled on line 5, until 'password' is set
% Login disabled on line 6, until 'password' is set
% Login disabled on line 7, until 'password' is set
R1(config-line)#password tp
R1(config-line)#exit
```

Issue all these commands and then let’s try to connect to the router using the telnet command. Open the command prompt of the PC5 and then issue the following command to connect to the router.

=> telnet 192.168.1.1

It will ask for password the password is **tp**. Provide that password and you will be connected to the router using telnet.

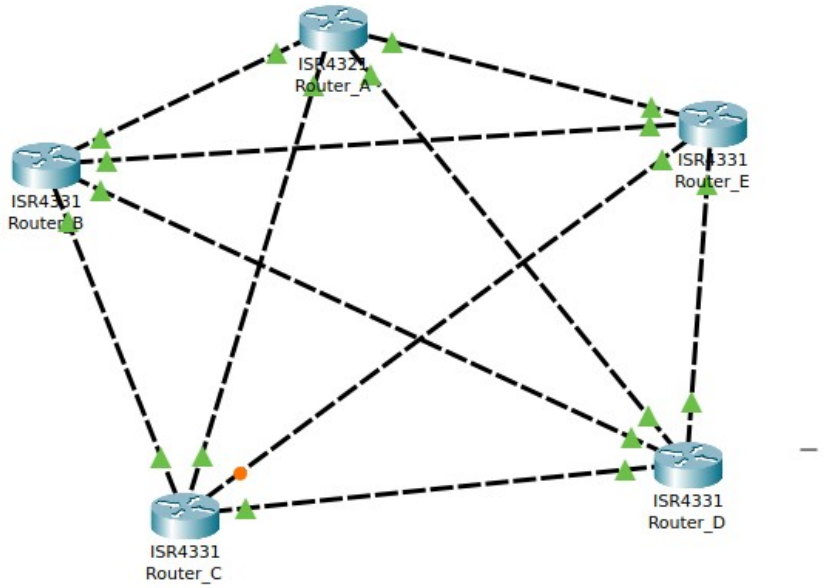


The term “vty” stands for Virtual teletype. VTY is a virtual port and used to get Telnet or SSH access to the device.

9: Usage of Router with different topology.

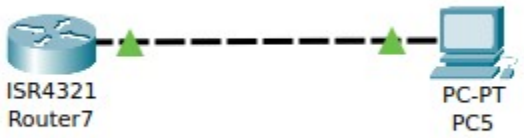
1st Topology (Mesh Topology):

In mesh topology every device has a dedicated point to point link to every other device.



2nd Topology:

Connecting a router to a PC using the Telnet.



3rd Topology:

Assigning Ip to the PC's dynamically with the help of router.