

**INSTITUTE OF COMPUTER TECHNOLOGY**  
**B-TECH COMPUTER SCIENCE ENGINEERING 2025-26**  
**SUBJECT: COMPUTER NETWORKS**

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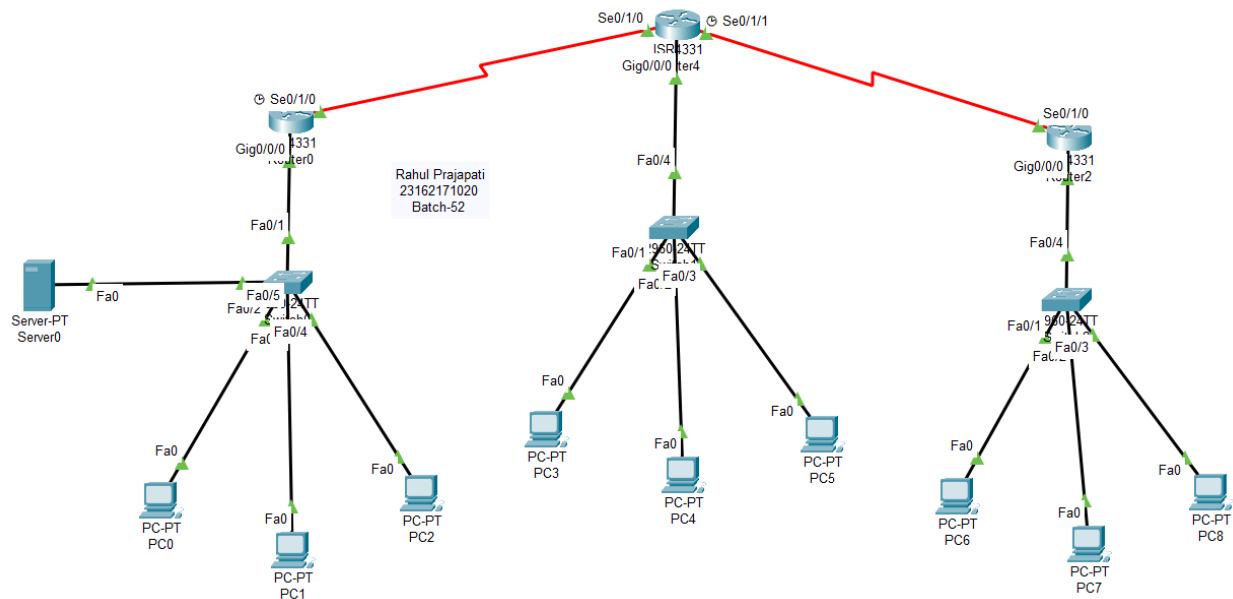
BRANCH: CYBER SECURITY

BATCH: 52

**PRACTICAL\_05**

**Aim:** To configure and utilize Telnet (teletype network), SSH (Secure Socket Shell) and FTP (File Transfer Protocol) in a network.

**Network Design:**



## IP Address Configuration of devices:

DEPARTMENT	DEVICE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY
ROUTER_0	FTP_SERVER	192.20.10.2	255.255.255.0	192.20.10.1
	PC_0	192.20.10.11		
	PC_1	192.20.10.12		
	PC_2	192.20.10.13		
ROUTER_1	PC_3	192.20.20.11	255.255.255.0	192.20.20.1
	PC_4	192.20.20.12		
	PC_5	192.20.20.13		
ROUTER_2	PC_6	192.20.30.11	255.255.255.0	192.20.30.1
	PC_7	192.20.30.12		
	PC_8	192.20.30.13		

## Routers configuration :

DEVICE	ROUTER_0	ROUTER_1	ROUTER_2
IP ADDRESS	192.20.10.0	192.20.20.0	192.20.30.0
SUBNET MASK	255.255.255.0	255.255.255.0	255.255.255.0
DEFAULT GATEWAY	192.20.10.1	192.20.20.1	192.20.30.1
RIP	10.0.0.0	10.0.0.0	10.0.0.0
	20.0.0.0	20.0.0.0	20.0.0.0
	192.20.10.0	192.20.20.0	192.20.30.0

## Router\_0\_TELNET\_Configurations:

```

Router0#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router0(config)#enable secret tell23
Router0(config)#username usr1 password 0 psw1
Router0(config)#username usr2 password 0 psw2
Router0(config)#username usr3 password 0 psw3
Router0(config)#line vty 0 1
Router0(config-line)#password tell23
Router0(config-line)#password login
Router0(config-line)#login local
Router0(config-line)#show user
^
% Invalid input detected at '^' marker.

Router0(config-line)#exit
Router0(config)#show user
^
% Invalid input detected at '^' marker.

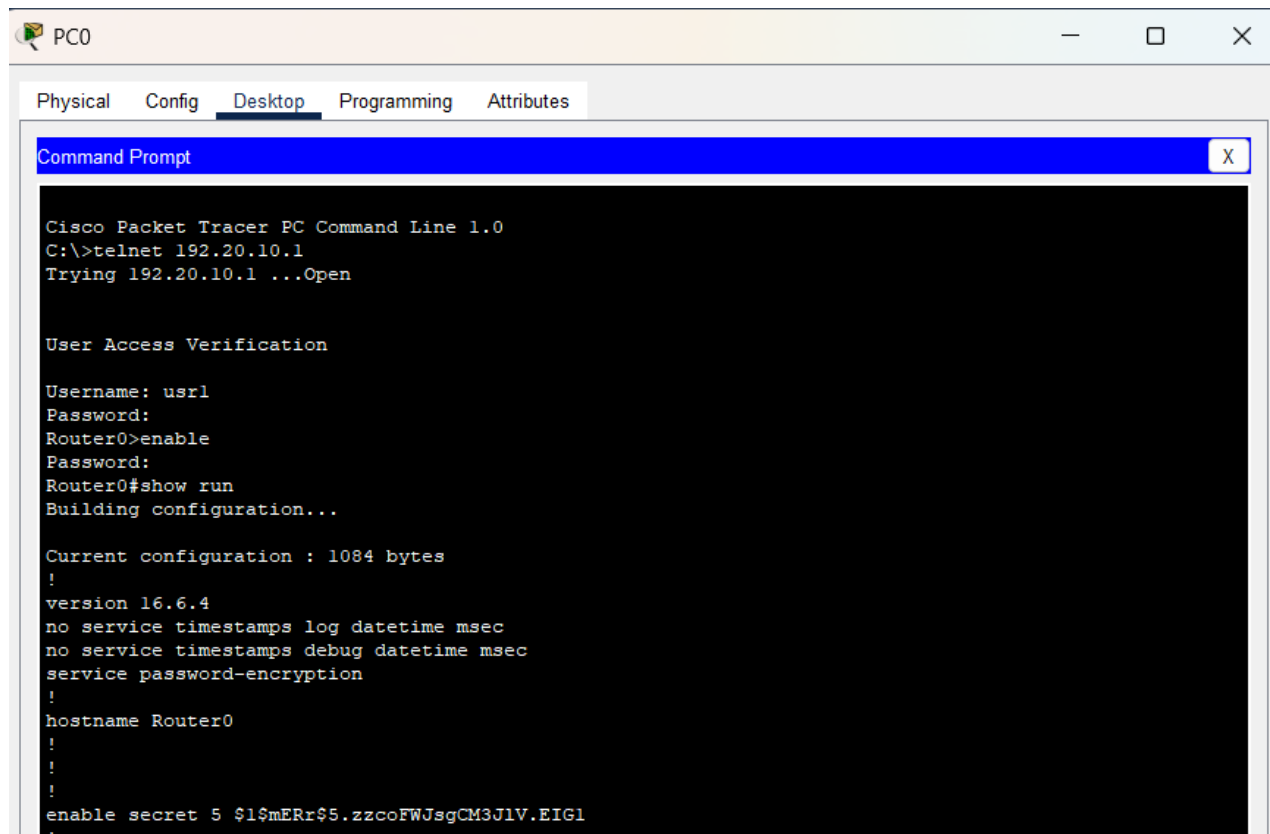
Router0(config)#servi
Router0(config)#service password-encryption
Router0(config)#do show run
enable secret 5 $1$mERr$5.zzcoFWJsgCM3JlV.EIGl
!
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
username usr1 password 7 08315F5958
username usr2 password 7 08315F595B
username usr3 password 7 08315F595A
.

```

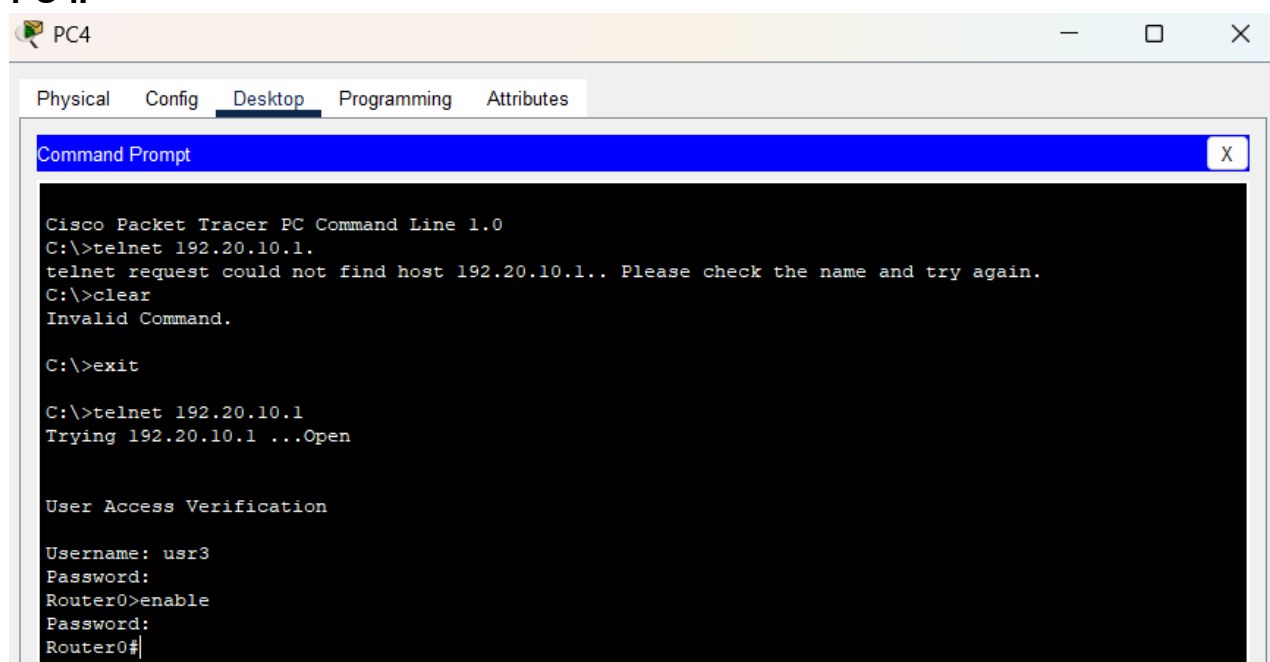
```
line vty 0 1
  password 7 082D43490017
  login local
line vty 2 4
```

## TELNET\_LOGINs:

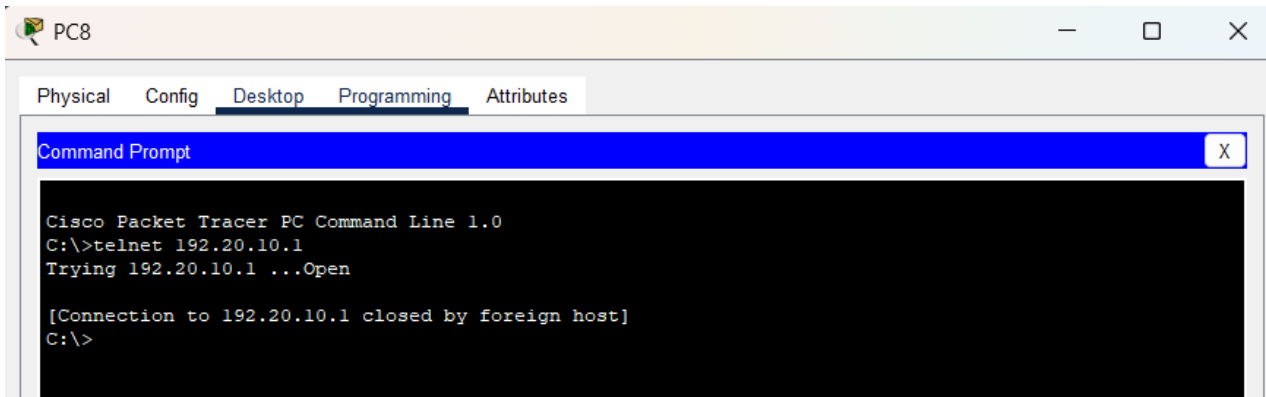
### Pc0:



### Pc4:



## Pc8:



## Users logged\_in:

```
Router0#show user
```

Line	User	Host(s)	Idle	Location
* 4 vty 0	usr1	idle	00:00:00	192.20.10.11
5 vty 1	usr3	idle	00:01:53	192.20.20.12

Interface	User	Mode	Idle	Peer Address
-----------	------	------	------	--------------

```
Router0#
```

## Router\_1\_SSH-Configurations:

```
Router>
Router>enable
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#enable secret ssh123
R1(config)#ip domain name sshR1
R1(config)#crypto key generate rsa
The name for the keys will be: R1.sshR1
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

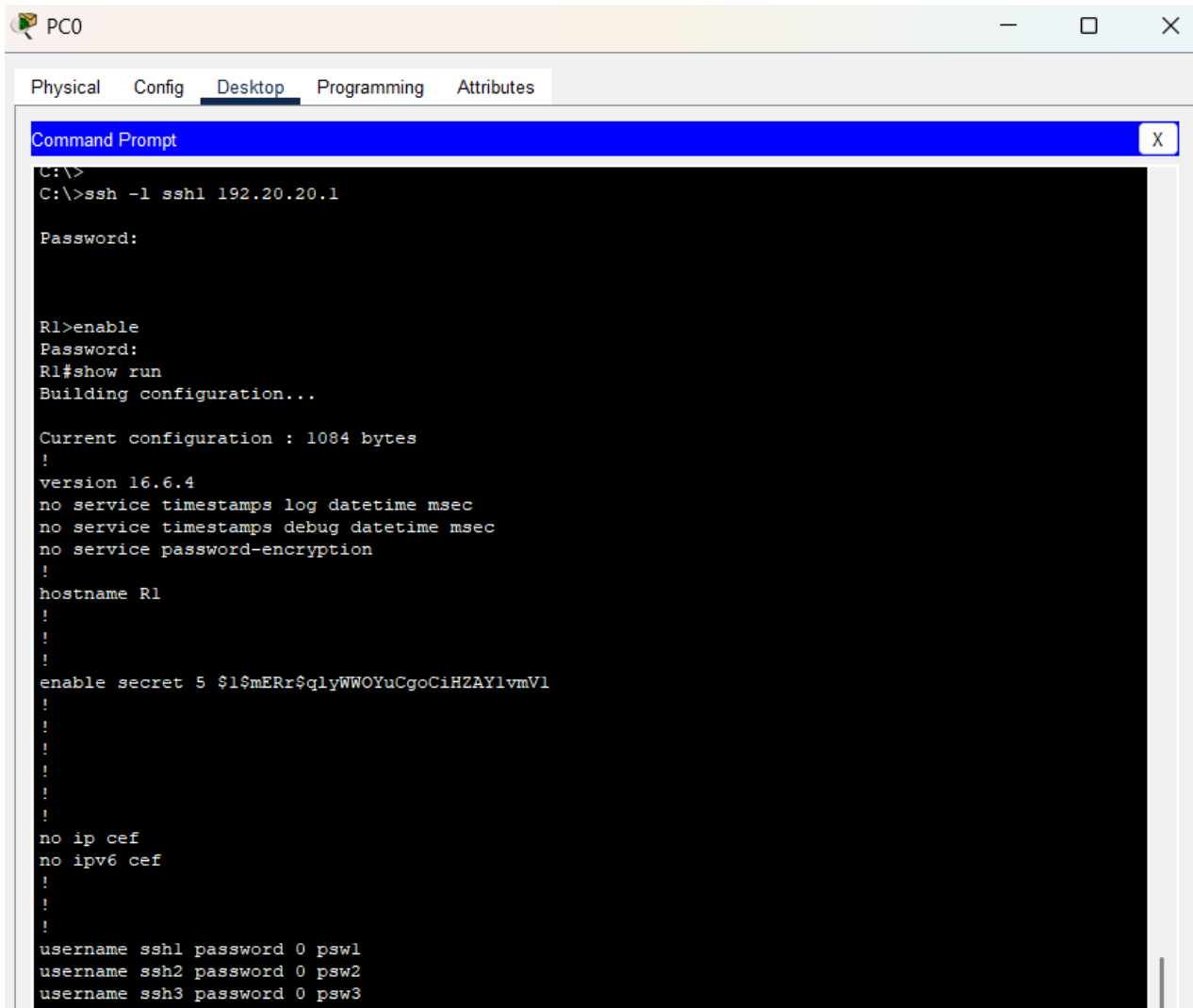
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

R1(config)#username ssh1 password psw1
*Mar 1 0:59:9.406: %SSH-5-ENABLED: SSH 1.99 has been enabled
R1(config)#username ssh2 password psw2
R1(config)#username ssh3 password psw3
R1(config)#ip ssh version 2
R1(config)#line vty 0 1
R1(config-line)#transport input ssh
R1(config-line)#login local
R1(config-line)#exit
R1(config)#do show run
enable secret 5 $1$mERr$qlYWWOYuCgoCiHZAY1vmV1
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
!
!
username ssh1 password 0 psw1
username ssh2 password 0 psw2
username ssh3 password 0 psw3
!
!
!
!
!
!
!
ip ssh version 2
ip domain-name sshR1
```

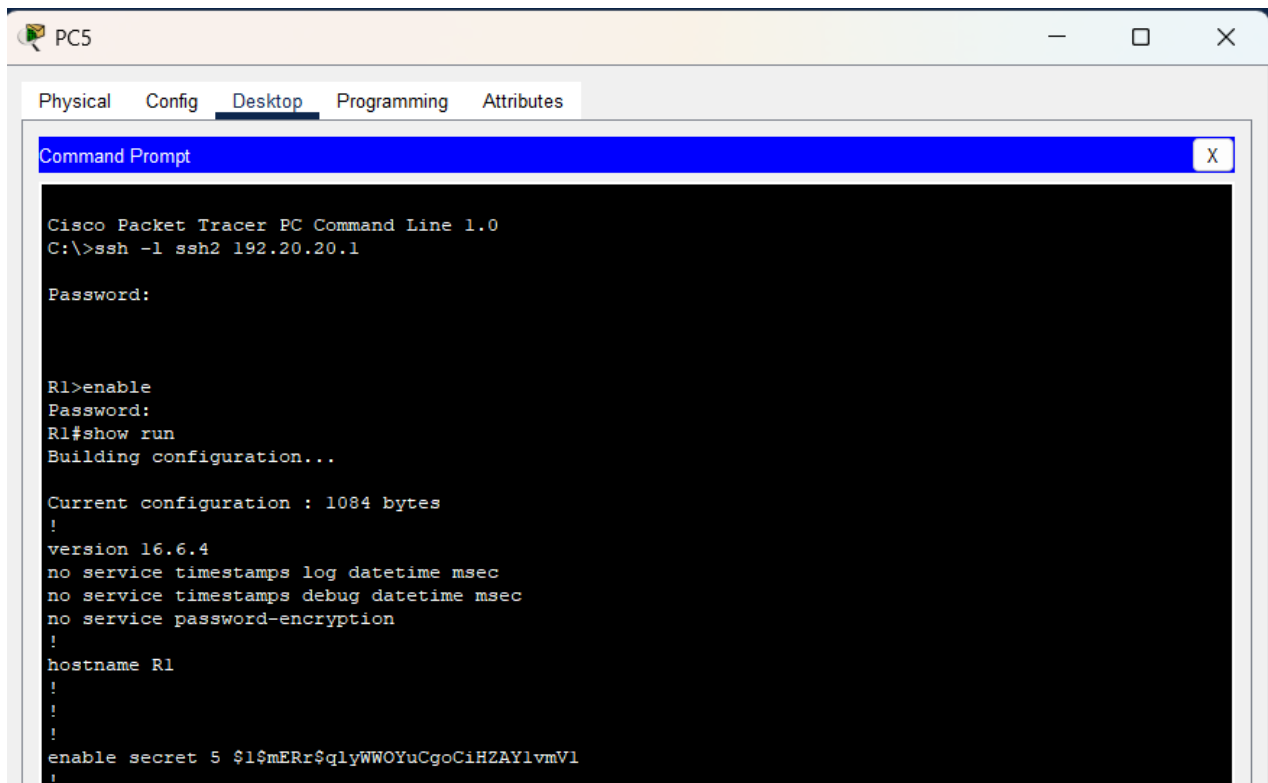
```
line vty 0 1
 login local
 transport input ssh
line vty 2 4
 login
```

## Login via SSH:

### Pc0:



## Pc5:



The screenshot shows a window titled 'PC5' with tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The terminal text is as follows:

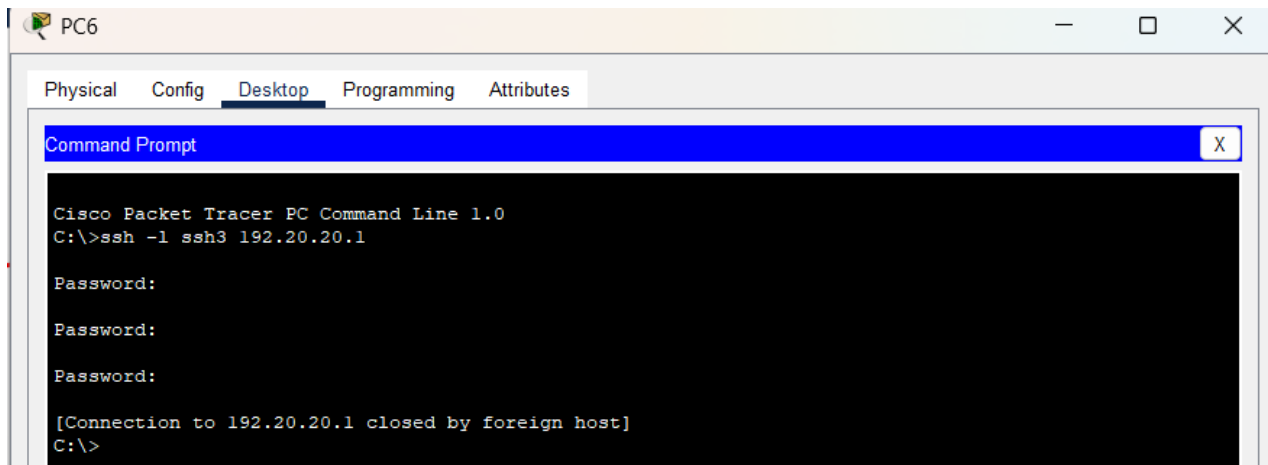
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ssh -l ssh2 192.20.20.1

Password:

R1>enable
Password:
R1#show run
Building configuration...

Current configuration : 1084 bytes
!
version 16.6.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
!
!
!
enable secret 5 $1$mERr$qlyWwOYuCgoCiHZAY1vmV1
!
```

## Pc6:



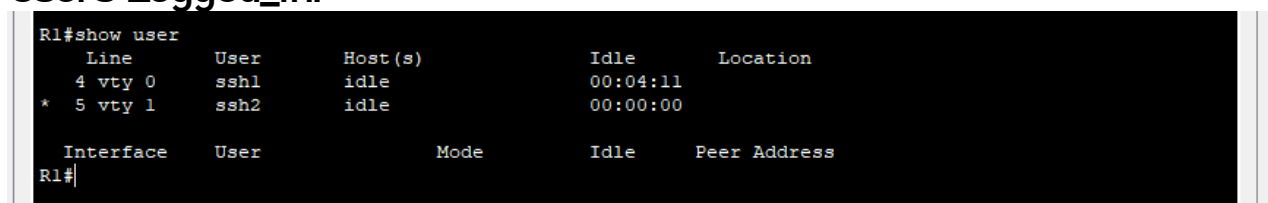
The screenshot shows a window titled 'PC6' with tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The terminal text is as follows:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ssh -l ssh3 192.20.20.1

Password:
Password:
Password:

[Connection to 192.20.20.1 closed by foreign host]
C:\>
```

## Users Logged\_in:

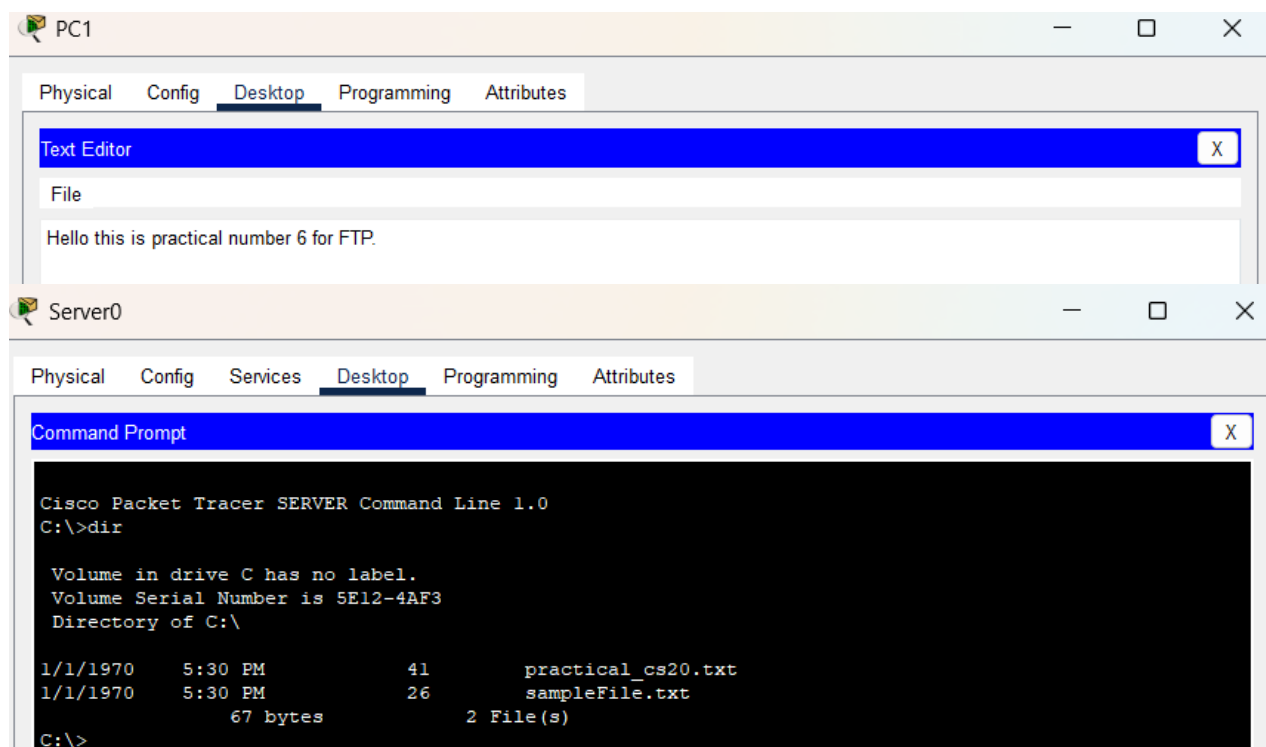
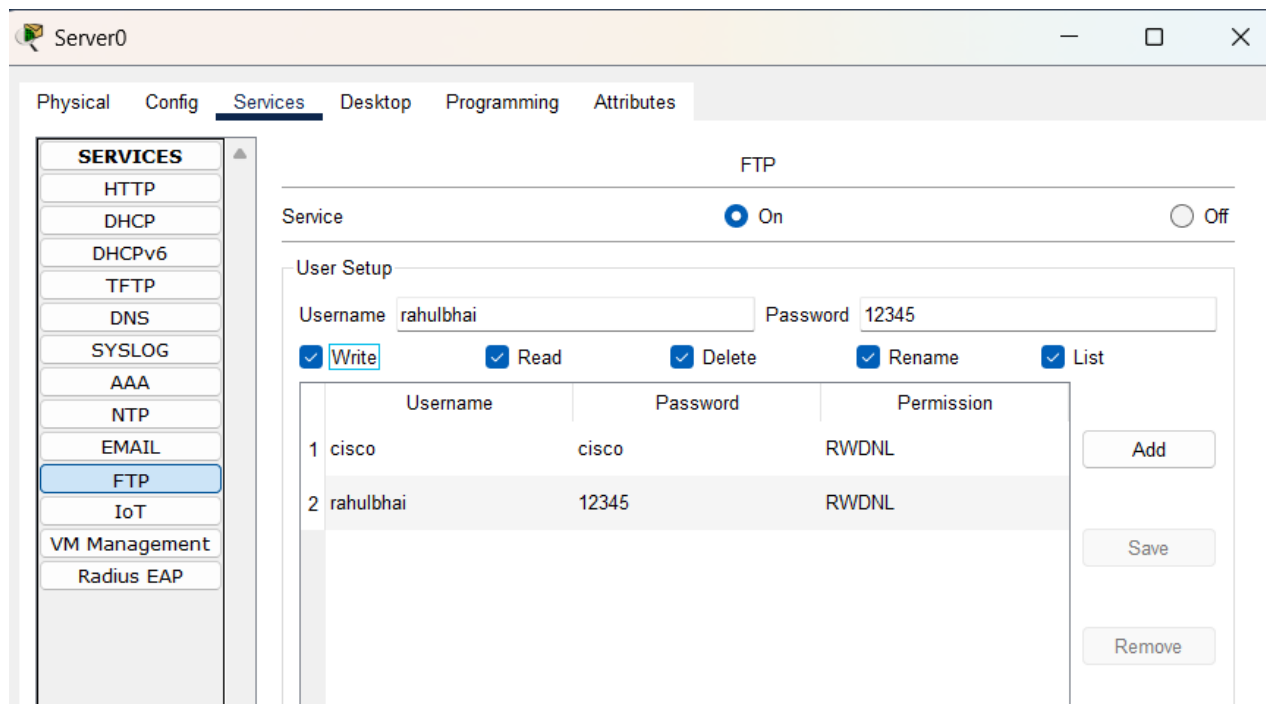


The screenshot shows a terminal window with the output of the 'show user' command on a Cisco router (R1). The output is as follows:

```
R1#show user
  Line      User      Host(s)      Idle      Location
  4 vty 0    ssh1      idle        00:04:11
  * 5 vty 1    ssh2      idle        00:00:00

Interface  User      Mode      Idle      Peer Address
R1#
```

## FTP\_SERVER-Configurations:



```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ftp 192.20.10.2
Trying to connect...192.20.10.2
Connected to 192.20.10.2
220- Welcome to PT Ftp server
Username:rahulbhai
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>put practical6_20.txt

Writing file practical6_20.txt to 192.20.10.2:
File transfer in progress...

[Transfer complete - 41 bytes]

41 bytes copied in 0.059 secs (694 bytes/sec)
ftp>dir

Listing /ftp directory from 192.20.10.2:
0 : asa842-k8.bin 5571594
1 : asa923-k8.bin 30468096
2 : c1841-advipservicesk9-mz.124-15.T1.bin 33591768
3 : c1841-ipbase-mz.123-14.T7.bin 13832032
4 : c1841-ipbasek9-mz.124-12.bin 16599160
5 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
6 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
7 : c2600-1-mz.122-28.bin 5571584
8 : c2600-ipbasek9-mz.124-8.bin 13169700
9 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
10 : c2800nm-advipservicesk9-mz.151-4.M4.bin 33591768
11 : c2800nm-ipbase-mz.123-14.T7.bin 5571594
12 : c2800nm-ipbasek9-mz.124-8.bin 15522644
13 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
14 : c2950-i6q412-mz.121-22.EA4.bin 3058048
15 : c2950-i6q412-mz.121-22.EA6.bin 3117390
16 : c2960-lanbase-mz.122-25.FX.bin 4414921
17 : c2960-lanbase-mz.122-25.SE11.bin 4670455
18 : c2960-lanbasek9-mz.150-2.SE4.bin 4670455
19 : c3560-advipservicesk9-mz.122-37.SE11.bin 8662192
20 : c3560-advipservicesk9-mz.122-46.SE11.bin 10713279
21 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
22 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
23 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
24 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
25 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
26 : demo.txt 10
27 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
28 : ir800-universalk9-mz.SPA.155-3.M 61750062
29 : ir800-universalk9-mz.SPA.156-3.M 63753767
30 : ir800_yocto-1.7.2.tar 2877440
31 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
32 : practical6_20.txt 41
```

## FTP\_on\_PC:

### Pc2:

```
PC2
Physical Config Desktop Programming Attributes
Command Prompt
C:\>
C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970    5:30 PM           26      sampleFile.txt
                26 bytes           1 File(s)

C:\>ftp 192.20.10.2
C:\>ftp 192.20.10.2
Trying to connect...192.20.10.2
Connected to 192.20.10.2
220- Welcome to PT Ftp server
Username:rahulbhai
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```



```

ftp>get practical6_20.txt

Reading file practical6_20.txt from 192.20.10.2:
File transfer in progress...

[Transfer complete - 41 bytes]

41 bytes copied in 0 secs
ftp>quit

221- Service closing control connection.
C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970    5:30 PM           41      practical6_20.txt
1/1/1970    5:30 PM           26      sampleFile.txt
               67 bytes                2 File(s)
C:\>|

```

## Pc6:

```

C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970    5:30 PM           16      demo.txt
1/1/1970    5:30 PM           26      sampleFile.txt
               42 bytes                2 File(s)
C:\>ftp 192.20.10.2
Trying to connect...192.20.10.2
Connected to 192.20.10.2
220- Welcome to FT Ftp server
Username:rahulbhai
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get practical6_20.txt

Reading file practical6_20.txt from 192.20.10.2:
File transfer in progress...

[Transfer complete - 41 bytes]

41 bytes copied in 0.003 secs (13666 bytes/sec)
ftp>quit

221- Service closing control connection.
C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970    5:30 PM           16      demo.txt
1/1/1970    5:30 PM           41      practical6_20.txt
1/1/1970    5:30 PM           26      sampleFile.txt
               83 bytes                3 File(s)
C:\>|

```

**Conclusion:** The configuration successfully enabled different departments to **remotely access** the central network device using both **Telnet** and the more **secure SSH**. Limits were set so only two users could connect simultaneously for management. Furthermore, an **FTP server** was set up, allowing users to **transfer files** easily between the different departments. This established basic secure and functional network access and file sharing.