Lecture 7

Telnet and SSH

What is Telnet?

Telnet is a protocol that allows you to connect to remote computers (called hosts) over a TCP/IP network.

What is SSH?

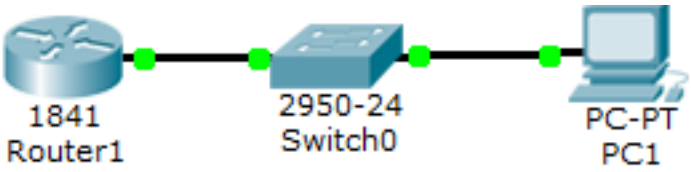
SSH is a secure remote login protocol. The major difference between ssh and other remote login programs is that ssh encrypts the password and other information so that it can't be "sniffed" by others as you type it.

How do we enable Telnet and SSH?

To enable telnet, we start configuring VTY ports. VTY ports are specifically visual not physical ports used for remote access using Telnet or SSH.

Telnet VS. SSH:

1. SSH and Telnet commonly serves the same purpose
2. SSH is more secure compared to Telnet
3. SSH encrypts the data while Telnet sends data in plain text
4. SSH uses a public key for authentication while Telnet does not use any authentication
5. SSH adds a bit more overhead to the bandwidth compared to Telnet.
6. Telnet has been all but replaced by SSH in almost all uses.



Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	**Fa0/0**	192.168.0.245	/24	N/A
PC1	**NIC**	192.168.0.15	/24	192.168.0.245

Configuring Telnet:

NOTE: Keep the CLI screen and the command terminal screen opened !

1. Draw the above network in packet tracer and configure it with the addresses.
2. Open the Router's CLI and write the following lines to enable the telnet protocol.

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#line vty 0 4
```

* Configuring hostname is mandatory in enabling SSH and Telnet.

3. Now open the PC's terminal and write the following lines to (We will try to remotely access the router from the PC using the telnet protocol):

```
PC>telnet 192.168.0.245
Trying 192.168.0.245 …Open
[Connection to 192.168.0.245 ...closed by foreign host]
```

Are you able to access the router? [yes/no]

4. Go back to R1's CLI and write the following code to set Line connection password (password for remote access Telnet):

```
R1 (config-line)#password cisco
```

5. Return back to the PC's terminal and try accessing R1 again:

```
PC>telnet 192.168.0.245
Trying 192.168.0.245 …Open
User Access Verification
Password:
R1>
R1> enable
% No password set.
R1>
```

Are you able to access the router now? [yes/no]
Are you able to reach the configuration mode of R1? [yes/no]

Go back to R1's CLI and write the following code to set R1's Global Configuration mode password:

```
R1 (config)# enable secret ct1306
```

6. Return back to the PC's terminal and try accessing R1 again:

```
PC>telnet 192.168.0.245
Trying 192.168.0.245 …Open
User Access Verification
Password:
R1>
R1> enable
R1#
```

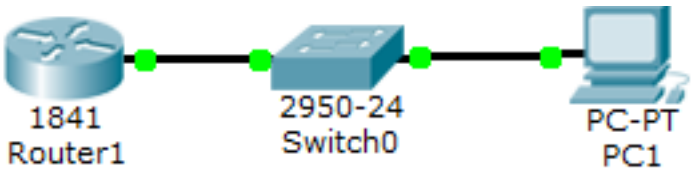
Now you will gain full access to R1's router and you can configure it completely from PC1

To exit from the telnet access to R1 simply writes the following line:

```
R1#exit
R1>exit

PC1>
```

Configuring SSH



Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	**Fa0/0**	10.0.0.1	/8	N/A
PC1	**NIC**	10.0.0.2	/8	10.0.0.1

1. Draw the above network in packet tracer and configure it with the addresses.
2. Open the Router's CLI and write the following lines to enable the SSH protocol.

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#ip domain-name example.com
R1(config)#crypto key generate rsa
How many bits in the modulus [512]: 800
R1(config)#username ct1306 password 855
R1(config)#ip ssh time-out 30
```

```
R1(config)#ip ssh authentication-retries 5
R1(config)#line vty 0 4
R1(config-line)#transport input ssh
R1(config-line)#login local
R1(config-line)# exit
```

3. Now open the PC's terminal and write the following lines to (We will try to remotely access the router from the PC using the ssh protocol): use the password that has been set to the ssh connection (855)

```
PC>ssh -l ct1306 10.0.0.1
Open
Password:

R1>enable
 %No password set.
R1>
```

Are you able to access the router? [yes/no]
Are you able to reach the configuration mode of R1? [yes/no]

4. Go back to R1's CLI and write the following code to set R1's Global Configuration mode password:

```
R1 (config)# enable secret ex4
```

5. Return back to the PC's terminal and try accessing R1 again, use the password that has been set for the Router's Global Configuration (ex4)

```
PC>ssh -l ct1306 10.0.0.1
Open
Password:

R1>enable
R1#
```

Now you will gain full access to R1's router and you can configure it completely from PC1