**Logo

Description automatically generated**

*Independent University Bangladesh (IUB)* **Course ID: CSE316L  
Semester:  Summer 2021  
Section: 04  
  
  
Submitted To:  
Instructor:** **Dr. Mst. Najnin  
  
Submitted By:  
Name: Md. Ashikur Rahman  
ID: 1831110  
  
Lab Report 2**

**Working Date:  30th June 2021  
                                      Submission Date: 2nd July 2021**

**EXPERIMENT** **01:** Initial Router Configurations

**Objective:**

1. Learn how to set up a router and login through a router console port from a workstation using the terminal program.
2. Configuring the Global Parameters of a Cisco router.

3. Enable Remote login for the router with TELNET/SSH

**Tools and Materials:**

**In a real life Scenario:**

Workstation with terminal Program (such as putty), Cisco router, rollover cable, cross-over  RJ45 cable

**For Lab Purpose:**

Cisco Packet Tracer Software

**Instructions:**

**Connecting a Cisco router with a workstation and configure it using a terminal program.**

1. Open **Cisco Packet Tracer**.
2. Bring a **PC** from the **[End Devices]** section on the bottom.
3. Bring any **[Routers]** from the **[Network Devices]** section. We will be using the **1841** router.
4. Connect the two devices using a **Console** connection from the **[Connections]** section on the bottom.
5. Click on the **PC** to select the **RS-232** option and the click on the router and the click on the **1841 Router** to select the **Console** option.
6. A blue line will be there between the two devices indicating that the connection is successful.

**Graphical user interface

Description automatically generated**

**Configuring the Cisco router**

1. After successfully connecting the router with the PC, click on the 1841 router and the click on the CLI tab on the top.
2. Continue with configuration dialog? [yes/no]: no

Graphical user interface, text, application, email

Description automatically generated

Router> enable

Enters router enable mode

**Graphical user interface, text, application, email

Description automatically generated**

**Router# show version**

Shows software version and detail regarding the router

Graphical user interface, text, application

Description automatically generated

**Router# show flash**

To display the layout and contents of a Flash memory file system. The flash memory is

where the Cisco router IOS image is stored in a compress file, (.bin).

Graphical user interface, text, application

Description automatically generated

**Router#show flash**

Shows the contents of the flash memory. The main structure of the router is in a compressed image file (.bin)

**Console Output:**

Router#show flash

System flash directory:

File Length Name/status

3 33591768 c1841-advipservicesk9-mz.124-15.T1.bin

2 28282 sigdef-category.xml

1 227537 sigdef-default.xml

[33847587 bytes used, 30168797 available, 64016384 total]

63488K bytes of processor board System flash (Read/Write)

Router#

**Router#terminal history size 50**

Sets how many recent commands would be stored. Here we are setting it to **50.**

**Console Output:**

Router#terminal history size 50

Router#

**Router#show clock**

Shows the system date and time. Initially a default date and time is set by the system.

**Console Output:**

Router#show clock

\*1:8:30.721 UTC Mon Mar 1 1993

Router#

**Router#clock set 10:56 Jun 23 2021**

Sets the system date and time. Firstly, set the time in **hh:mm** notation and then the time in **mmm dd yyyy** notation.

**Console Output:**

Router#clock set 10:56 Jun 23 2021

Router#show clock

10:56:6.49 UTC Wed Jun 23 2021

Rouer#

**Router#show startup-config**

Show the contents of NVRAM if it is valid or the startup configuration file.

**Console Output:**

Router#show startup-config

startup-config is not present

Router#

**Router#show running-config**

Show the contents of RAM which contains the running configuration file.

**Console Output:**

Router#show running-config

Building configuration...

Current configuration : 570 bytes

!

version 12.4

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname Router

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

!

!

!

!

!

!

!

!

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface FastEthernet0/0

no ip address

duplex auto

speed auto

shutdown

!

interface FastEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Vlan1

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

history size 50

!

line aux 0

!

line vty 0 4

login

!

!

!

end

Router#

**Router#show ip interface brief**

Shows the brief status of the router’s interfaces.

**Console Output:**

Router#show ip interface brief

Interface IP-Address OK? Method Status Protocol

FastEthernet0/0 unassigned YES unset administratively down down

FastEthernet0/1 unassigned YES unset administratively down down

Vlan1 unassigned YES unset administratively down down

Router#

**Router#show protocols**

Shows the router’s protocols which are configured.

**Console Output:**

Router#show protocols

Global values:

Internet Protocol routing is enabled

FastEthernet0/0 is administratively down, line protocol is down

FastEthernet0/1 is administratively down, line protocol is down

Vlan1 is administratively down, line protocol is down

Router#

**Router#show ip route**

Shows the IP routing information.

**Console Output:**

Router#show ip route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is not set

Router#

**Router#configure terminal**

Go to **Global Configuration Mode.**

**Console Output:**

Router#configure terminal

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

Router(config)#

**Router(config)#hostname CSE316**

Configures the hostname for reference. Here we have set **CSE316** as hostname.

**Console Output:**

Router(config)#hostname CSE316

CSE316(config)#

**CSE316(config)#enable secret labreport**

Configures the password for the **Privilege Mode**. Here we have set **labreport** as password for entering that mode. As a result of locking this mode, the **Global Configuration Mode** is also locked.

**Console Output:**

CSE316(config)#exit

CSE316#

%SYS-5-CONFIG\_I: Configured from console by console

CSE316#exit

CSE316 con0 is now available

Press RETURN to get started.

CSE316>enable

Password:

CSE316#configure terminal

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

CSE316(config)#

**CSE316(config)#line console 0**

Enters **Line Configuration Mode.**

**Console Output:**

CSE316(config)#line console 0

CSE316(config-line)#

**CSE316(config-line)#password expt2**

**CSE316(config-line)#login**

The first command sets password for **Line Configuration Mode**, and the other one enables logging in using that password.

**Console Output:**

CSE316(config-line)#password expt2

CSE316(config-line)#login

CSE316(config-line)#exit

CSE316(config)#exit

CSE316#

%SYS-5-CONFIG\_I: Configured from console by console

CSE316#exit

CSE316 con0 is now available

Press RETURN to get started.

User Access Verification

Password:

CSE316>

**CSE316(config)#service password-encryption**

Make the stored passwords encrypted.

**Console Output:**

CSE316(config)#service password-encryption

CSE316(config)#

**CSE316(config)#no enable secret**

Remove the password set in **Privilege Mode.**

**Console Output:**

CSE316(config)#no enable secret

CSE316(config)#exit

CSE316#

%SYS-5-CONFIG\_I: Configured from console by console

CSE316#

**CSE316(config-line)#no login**

**CSE316(config-line)#no password**

The first command removes the logging in using a password to **Line Configuration Mode** and the second commands removes the password set in that mode**.**

**Console Output:**

CSE316(config-line)#no login

CSE316(config-line)#no password

CSE316(config-line)#exit

CSE316(config)#

**CSE316#copy running-config startup-config**

Copies the running configuration stored in RAM to the startup configuration in NVRAM.

**Console Output:**

CSE316#show running-config

Building configuration...

Current configuration : 567 bytes

!

version 12.4

no service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname CSE316

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

!

!

!

!

!

!

!

!

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface FastEthernet0/0

no ip address

duplex auto

speed auto

shutdown

!

interface FastEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Vlan1

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

history size 50

!

line aux 0

!

line vty 0 4

login

!

!

!

end

CSE316#show startup-config

startup-config is not present

CSE316#copy running-config startup-config

Destination filename [startup-config]? startup-config

Building configuration...

[OK]

CSE316#show startup-config

Using 567 bytes

!

version 12.4

no service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname CSE316

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

!

!

!

!

!

!

!

!

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface FastEthernet0/0

no ip address

duplex auto

speed auto

shutdown

!

interface FastEthernet0/1

no ip address

duplex auto

speed auto

shutdown

!

interface Vlan1

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

history size 50

!

line aux 0

!

line vty 0 4

login

!

!

!

end

CSE316#

**CSE316(config)#no ip domain-lookup**

Disables Domain Lookup function.

**Console Output:**

CSE316(config)#no ip domain-lookup

CSE316(config)#

**CSE316(config)#ip domain-name labreport.cisco.com**

Sets the domain name. Here we have set **labreport.cisco.com** as the domain name.

**Console Output:**

CSE316(config)#ip domain-name labreport.cisco.com

CSE316(config)#

**CSE316(config)#username akram secret 1830707**

Creates account with set username and sets a password. Here we have set **akram** as username and **1830707** as password.

**Console Output:**

CSE316(config)#username akram secret 1830707

CSE316(config)#

**CSE316(config)#crypto key generate rsa**

To generate secure key pairs for configuring SSH. Here we will set **1024** bits when input is required.

**Console Output:**

CSE316(config)#crypto key generate rsa

The name for the keys will be: CSE316.labreport.cisco.com

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]