इरिसेट
नेटवर्क प्रयोगशाला
प्रयोग नं: एन डब्लू एल - 04

IRISET
NETWORK LABORATORY
EXPERIMENT NO.: NWL-04

नाम
Name   :   --

अनुक्रमांक   प्रास अंक
Roll No   :   --   Marks Awarded   **:**

पाठ्यक्रम
Course   :   --

दिनांक   अनुदेशक का हस्ताक्षर   :
Date   :   --   Instructor Initial

Name of Experiment: **Advance Configuration of a Router**

Object

Advance configuration of Router as per the network connectivity diagram shown below.

Network Connectivity diagram

S0/0/1

Introduction

Once the initial configuration of the router is done through terminal (i.e. Console port) further configuration called advance configuration should be done using Telnet. Telnet is a remote Command Line Interface (CLI) administration tool, available by default on all Windows and Linux systems.
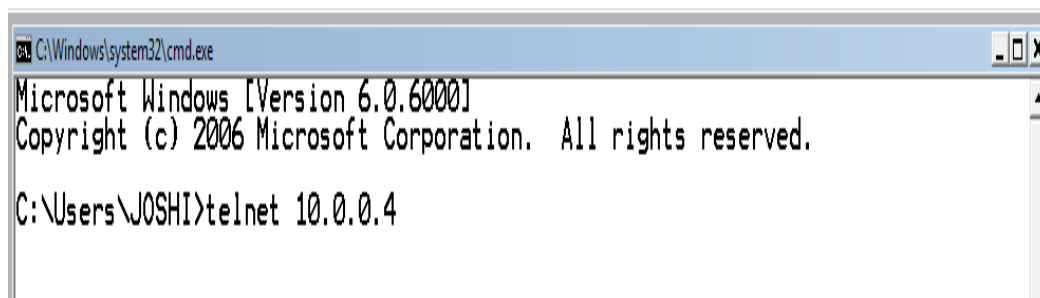
Apparatus Required

1. Desktop PC with NIC card
2. Patch card (straight cable, both ends terminated with RJ 45 connectors)
3. Router (CISCO 1845)

Procedure

1. Configure the allotted PC with the respective IP address including its gateway (i.e. gateway is nothing but the Router's Ethernet port IP address) as shown in the connectivity diagram.

2. Telnet to the Router by click on **Start, Run** and type **cmd** in the Run dialog box and click on O.K.

3. In the Command prompt window, type

   C :/> *telnet <IP address of Router's Ethernet (gateway) interface>*

If the connectivity between your PC and your Router is proper, the Telnet session will be established, as shown below.

```
C:\Windows\system32\cmd.exe                                              _ □ X

Microsoft Windows [Version 6.0.6000]
Copyright (c) 2006 Microsoft Corporation.  All rights reserved.

C:\Users\JOSHI>telnet 10.0.0.4
```

Enter the vty & enable password to log into Router

```
Telnet 10.0.0.4                                                        _ □ X
----------------------------------------------------------------------
Cisco Router and Security Device Manager (SDM) is installed on this device.
This feature requires the one-time use of the username "cisco"
with the password "cisco". The default username and password have a privilege le
vel of 15.

Please change these publicly known initial credentials using SDM or the IOS CLI.

Here are the Cisco IOS commands.

username <myuser>  privilege 15 secret 0 <mypassword>
no username cisco

Replace <myuser> and <mypassword> with the username and password you want to use
.

For more information about SDM please follow the instructions in the QUICK START

GUIDE for your router or go to http://www.cisco.com/go/sdm
----------------------------------------------------------------------


User Access Verification

Password:
```

After successful log in, the Router prompt will be shown as

Router#
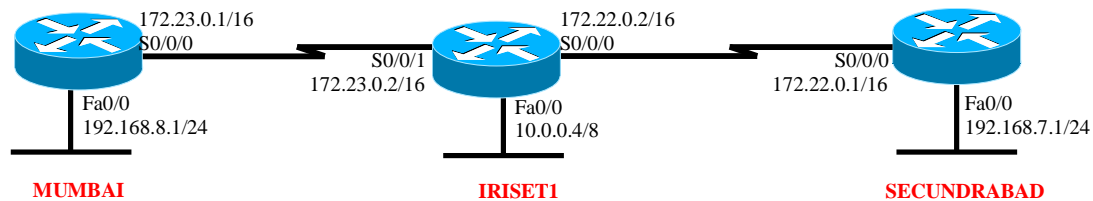
Configuring Serial (WAN) interfaces:

Syntax
Syntax
Router>*en* ↵
Router#*config terminal* ↵
Router(config)#*interface serial<no.><slot no.><port no.>* ↵
Router(config-if)# *ip address <ip><mask>* ↵
Router(config-if)#*encapsulation <ppp> or<hdlc>* ↵
Router(config-if)#*clockrate<bandwidth>* ↵
Router(config-if)# *no shutdown* ↵
Router(config-if)#*exit* ↵
Router(config)# *exit* ↵

Network diagram:

MUMBAI router — 172.23.0.1/16 S0/0/0, Fa0/0 192.168.8.1/24
IRISET1 router — S0/0/1 172.23.0.2/16, 172.22.0.2/16 S0/0/0, Fa0/0 10.0.0.4/8
SECUNDRABAD router — S0/0/0 172.22.0.1/16, Fa0/0 192.168.7.1/24

On MUMBAI
Configuring Serial (WAN) interfaces:
MUMBAI>*en* ↵
MUMBAI#*config t* ↵
MUMBAI(config)#*int s0/0/0* ↵
MUMBAI(config-if)#*ip add 172.23.0.1 255.255.0.0* ↵
MUMBAI(config-if)#*enc PPP* ↵
MUMBAI(config-if)#*cl rate 64000* ↵
MUMBAI(config-if)#*no shut* ↵
MUMBAI(config-if)#*exit* ↵

On IRISET1
Configuring Serial (WAN1) interfaces:
IRISET1>*en* ↵
IRISET1#*config t* ↵
IRISET1(config)#*int s0/0/0* ↵
IRISET1(config-if)#*ip add 172.22.0.2 255.255.0.0* ↵
IRISET1(config-if)#*enc PPP* ↵
IRISET1(config-if)#*no shut* ↵
IRISET1(config-if)#*exit* ↵
Configuring Serial (WAN2) interfaces:
IRISET1>*en* ↵
IRISET1#*config t* ↵
IRISET1(config)#*int s0/0/1* ↵
IRISET1(config-if)#*ip add 172.23.0.2 255.255.0.0* ↵
IRISET1(config-if)#*enc PPP* ↵
IRISET1(config-if)#*no shut* ↵
IRISET1(config-if)#*exit* ↵

On SECUNDRABAD
Configuring Serial (WAN) interfaces:
SECUNDRABAD>*en* ↵
SECUNDRABAD#*config t* ↵
SECUNDRABAD(config)#*int s0/0/0* ↵
SECUNDRABAD(config-if)#*ip add 172.22.0.1 255.255.0.0* ↵
SECUNDRABAD(config-if)#*enc PPP* ↵
SECUNDRABAD(config-if)#*cl rate 64000* ↵
SECUNDRABAD(config-if)#*no shut* ↵
SECUNDRABAD(config-if)#*exit* ↵

Verification of Configuration:

Syntax

Iriset1#*show interface serial<no.><slot no.><port no.>* ↵

E.g. **the Serial Interface (S0/0/0) configuration on IRISET1 Router is shown below**

iriset1#*sh int s0/0/0*

Serial0/0/0 is down, **line protocol is down**
  Hardware is GT96K Serial
  Internet address is 172.22.0.2/16
  MTU 1500 bytes, BW 2048 Kbit, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation PPP, LCP Closed, loopback not set
  Keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters 00:07:51
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
    Conversations 0/0/256 (active/max active/max total)
    Reserved Conversations 0/0 (allocated/max allocated)
    Available Bandwidth 1536 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 4 interface resets
    0 output buffer failures, 0 output buffers swapped out
    0 carrier transitions
    DCD=up DSR=up DTR=down RTS=down CTS=up

Saving the Configuration:

Syntax
Iriset1#*copy running-config startup-config* ↵
(OR)
Iriset1#*write memory* ↵
(OR)
Iriset1#*wr* ↵

       [*Saves the running configuration into startup configuration*]

Exercise:

1. State whether Router is a DTE or DCE and why?

2. Write the parameters in configuring the Serial port?

3. Write the commands to see the details of serial port through Telnet?

4. What is the meaning of serial port UP/DOWN and line protocol UP/DOWN?

5. What is significance of "no shut" command?