

EXPERIMENT- 01

Aim: Study of basic network command and Network configuration commands.

Apparatus (Software): Command Prompt

Procedure: To do this EXPERIMENT- follows these steps:

In this EXPERIMENT- students have to understand basic networking commands e.g ping, tracert etc. (**Minimum 10 commands**)

All commands related to Network configuration which includes how to switch to privilege mode and normal mode and how to configure router interface and how to save this configuration to flash memory or permanent memory.

This commands includes

- Configuring the Router commands
- General Commands to configure network
- Privileged Mode commands of a router
- Router Processes & Statistics
- IP Commands
- Other IP Commands e.g. show ip route etc.

ping:

ping(8) sends an ICMP ECHO_REQUEST packet to the specified host. If the host responds, you get an ICMP packet back. Sound strange? Well, you can “ping” an IP address to see if a machine is alive. If there is no response, you know something is wrong.

```
Packet Tracer PC Command Line 1.0
PC>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.2: bytes=32 time=15ms TTL=127
Reply from 192.168.1.2: bytes=32 time=94ms TTL=127
Reply from 192.168.1.2: bytes=32 time=11ms TTL=127

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 11ms, Maximum = 94ms, Average = 40ms

PC>
```

Traceroute:

Tracert is a command which can show you the path a packet of information takes from your computer to one you specify. It will list all the routers it passes through until it reaches its destination, or fails to and is discarded. In addition to this, it will tell you how long each 'hop' from router to router takes.

```
Packet Tracer PC Command Line 1.0
PC>tracert 192.168.1.2

Tracing route to 192.168.1.2 over a maximum of 30 hops:
  1  11 ms      5 ms      2 ms    192.168.2.1
  2  *          81 ms     14 ms    192.168.1.2

Trace complete.

PC>
```

nslookup:

Displays information from Domain Name System (DNS) name servers.

NOTE :If you write the command as above it shows as default your pc's server name firstly.

pathping:

A better version of tracert that gives you statics about packet lost and latency.

The screenshot shows a Windows Command Prompt window titled "Administrator: C:\windows\system32\cmd.exe". The command entered is "pathping 192.168.1.12". The output indicates that the trace route to the destination host (192.168.1.12) failed because the destination host is unreachable. It then computes statistics for 25 seconds, showing link loss and round trip times (RTT) between the source and the destination. The final message is "Trace complete.".

```
C:\> Administrator: C:\windows\system32\cmd.exe
C:\>Users\lenovo>pathping 192.168.1.12
Tracing route to 192.168.1.12 over a maximum of 30 hops
  0  lenovo-PC.dronacharya [192.168.1.97]
  1  lenovo-PC.dronacharya [192.168.1.97]  reports: Destination host unreachable

Computing statistics for 25 seconds...
      Source to Here   This Node/Link
Hop  RTT     Lost/Sent = Pct  Lost/Sent = Pct  Address
  0          |           |
  1  ---    100/ 100 =100%    0/ 100 = 0%  lenovo-PC [0.0.0.0]

Trace complete.

C:\>Users\lenovo>
```

Getting Help

In any command mode, you can get a list of available commands by entering a question mark (?).

Router>?

To obtain a list of commands that begin with a particular character sequence, type in those characters followed immediately by the question mark (?).

Router#co?

configure connect copy

To list keywords or arguments, enter a question mark in place of a keyword or argument. Include a space before the question mark.

Router#configure ?

memory Configure from NV memory

network Configure from a TFTP network host

terminal Configure from the terminal

You can also abbreviate commands and keywords by entering just enough characters to make the command unique from other commands. For example, you can abbreviate the **show** command to **sh**.

Configuration Files

Any time you make changes to the router configuration, you must save the changes to memory because if you do not they will be lost if there is a system reload or power outage. There are two types of configuration files: the running (current operating) configuration and the startup configuration.

Use the following privileged mode commands to work with configuration files.

- **configure terminal** – modify the running configuration manually from the terminal.
- **show running-config** – display the running configuration.
- **show startup-config** – display the startup configuration.
- **copy running-config startup-config** – copy the running configuration to the startup configuration.
- **copy startup-config running-config** – copy the startup configuration to the running configuration.
- **erase startup-config** – erase the startup-configuration in NVRAM.
- **copy tftp running-config** – load a configuration file stored on a Trivial File Transfer Protocol (TFTP) server into the running configuration.
- **copy running-config tftp** – store the running configuration on a TFTP server.

IP Address Configuration

Take the following steps to configure the IP address of an interface.

Step 1: Enter privileged EXEC mode:

Router>**enable** password

Step 2: Enter the **configure terminal** command to enter global configuration mode.

Router#**config terminal**

Step 3: Enter the **interface** type slot/port (for Cisco 7000 series) or **interface** type port (for Cisco 2500 series) to enter the interface configuration mode.

Example:

Router (config)#**interface ethernet 0/1**

Step 4: Enter the IP address and subnet mask of the interface using the **ip address** ipaddress subnetmask command.

Example,

Router (config-if)#**ip address 192.168.10.1 255.255.255.0**

Step 5: Exit the configuration mode by pressing Ctrl-Z

Router(config-if)#[Ctrl-Z]