LAB 06:

Router command line interface (CLI) fundamentals

Introduction:

In this experiment basic router commands are introduced to students so then that will be used for other troubleshooting purposes**.**

Objectives:

To familiarize students with Router Command Line Interface

Preparation:

Simple operating Instructions:

Ctrl-A: Moves the cursor to the beginning of the line.

Ctrl-E: Moves the cursor to the end of the line.

Esc-B: Moves the cursor back one word

Esc-F: Moves the cursor forward one word

Ctrl-B: Moves the cursor back one character

Ctrl-F: Moves the cursor forward one character

Ctrl-D: Deletes the single character

Backspace: Removes one character to the left of the cursor

Ctrl-R: Redisplays a line.

Ctrl-U: Erases a line

Ctrl-w: Erases a Word

Ctrl-Z: Ends configuration mode and returns to the EXEC mode

Tab: Completes a partially entered command if enough characters have been entered to make it unambiguous

CLI Command Modes

The Cisco IOS supports two levels of access to the CLI: user EXEC mode and privileged EXEC mode.

1. **user EXEC mode:**

When a router or other Cisco IOS device is powered up, the access level defaults to user EXEC mode. This mode is indicated by the command line prompt:

Router>

Commands that can be executed in user EXEC mode are limited to obtaining information about how the device is operating, and troubleshooting using some show commands and the ping and traceroute utilities.

2. **privileged EXEC mode:**

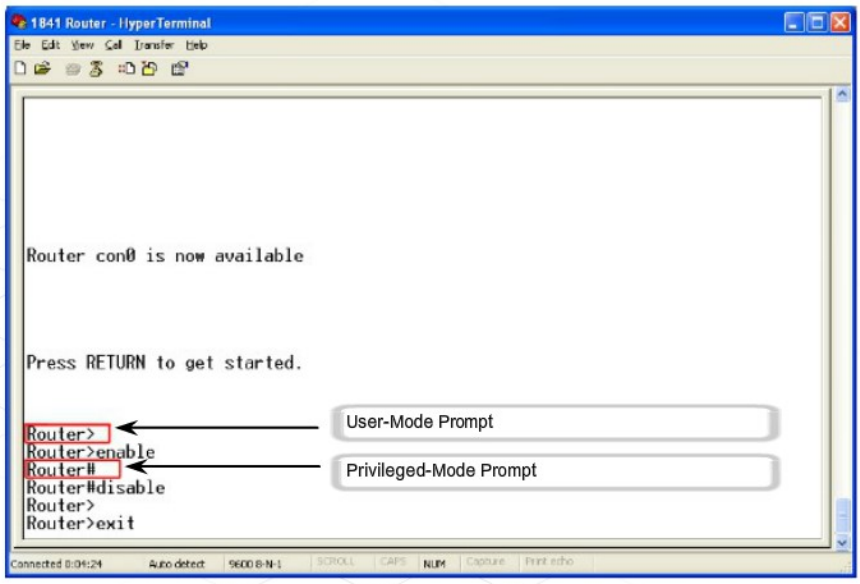
To enter commands that can alter the operation of the device requires privileged level access. Enable the privileged EXEC mode by entering **enable** or **en** at the command prompt and pressing Enter.

The command line prompt changes to reflect the mode change. The prompt for privileged EXEC mode is:

Router#

To disable the privileged mode and return to user mode, enter **disable** at the command prompt.

Both modes can be protected with a password, or a username and password combination.



Various configuration modes are used to set up a device. Configuring a Cisco IOS device begins with entering privileged EXEC mode. From privileged EXEC mode, the user can access the other configuration modes.

In most cases, commands are applied to the running configuration file using a terminal connection. To use these commands, the user must enter global configuration mode.

3. Global Configuration Mode:

To enter global configuration, type the command **configure terminal** or **config t**. Global configuration mode is indicated by the command line prompt:

Router(config)#

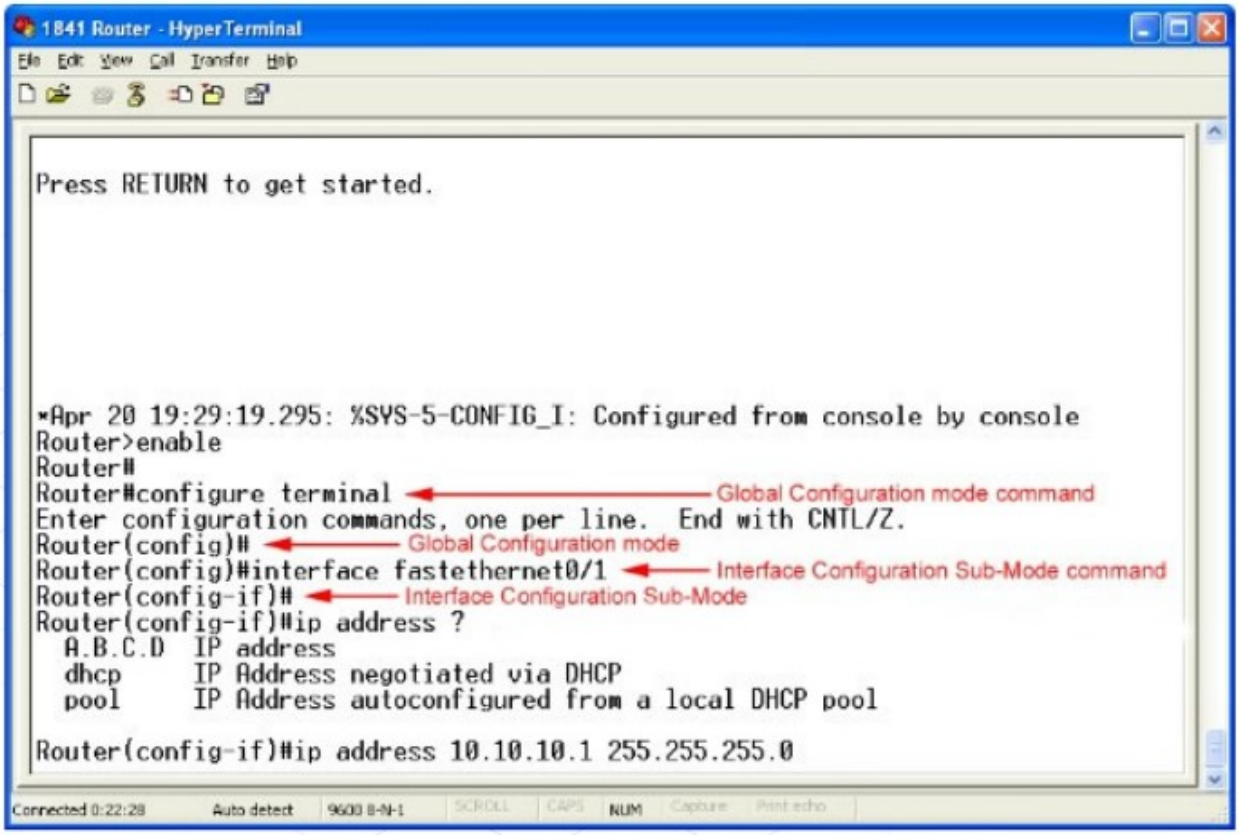
Any commands entered in this mode take effect immediately and can alter the operation of the device.

From global configuration mode, the administrator can enter other sub-modes.

4. Interface Configuration mode

Interface configuration mode is used to configure LAN and WAN interfaces. To access interface configuration mode, from global configuration type the command **interface [type] [number] (eg.interface fastethernet 0/0)**. Interface configuration mode is indicated by the command prompt:

Router(config-if)#



Help command

The context-sensitive help feature is especially useful when configuring a device. Entering help or the ? at the command prompt displays a brief description of the help system.

Router# help Or **Router# ?**

if an incorrect command is entered, the error message would read:

% Invalid input detected

```
Router(config)#interface
% Incomplete command
```

```
Router(config)#interface ethurnet
                         ^
% Invalid input detected at '^' marker
```

Basic configuration

The initial configuration of a Cisco IOS device involves configuring the device name and then the passwords that are used to control access to the various functions of the device.

A device should be given a unique name as one of the first configuration tasks. This task is accomplished in global configuration mode with the following command.

1) Host name

Router(config)# hostname [name]

When the Enter key is pressed, the prompt changes from the default host name, which is Router, to the newly configured host name.

The next configuration step is to configure passwords to prevent access to the device by unauthorized individuals.

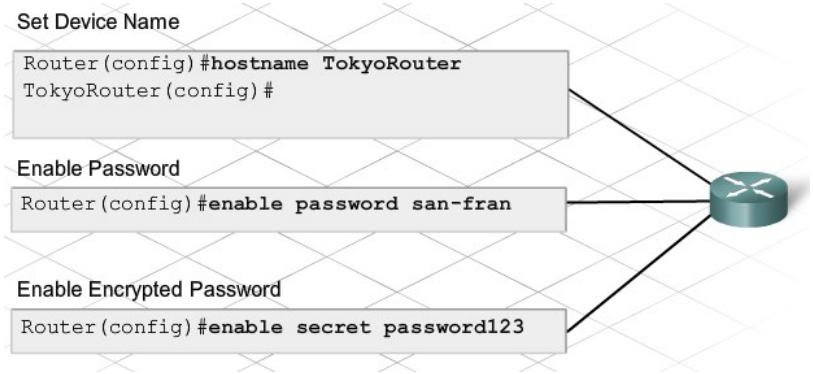
2) Password and secret

The enable password and enable secret commands are used to restrict access to privileged EXEC mode, preventing unauthorized users from making configuration changes to the router.

Router(config)# enable password [password]

Router(config)# enable secret [password]

The difference between the two commands is that the enable password is not encrypted by default. If the enable password is set, followed by the enable secret password, the enable secret command overrides the enable password command.



3).Banners

A banner is text that a user sees when initially logging on to the router.

There are two types of banners: message-of-the-day (MOTD) and login information. To configure the banners, the commands are **banner motd and banner login**. For both types, a delimiting character, such as a #, is used at the beginning and at the end of the message.

Router(config)# banner motd # welcome to this area #

4).Configure interface

Configuring an interface on the router must be done in global configuration mode.

Following are commands to configure fastethernet and serial

```
Router(config)#interface fastethernet 0/0
Router(config-if)#description connection to Admin LAN
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface serial 0/0/0
Router(config-if)#description connection to Router2
Router(config-if)#ip address 192.168.1.125 255.255.255.0
Router(config-if)#clock rate 64000
Router(config-if)#no shutdown
```

Show commands

The Cisco IOS CLI includes show commands that display relevant information about the configuration and operation of the device.

Network technicians use the show commands extensively for viewing configuration files, checking the status of device interfaces and processes, and verifying the device operational status. The status of nearly every process or function of the router can be displayed using a show command. Some of the more popular show commands are:

- show running-config to show running configuration
- show startup-config to show startup configuration

- show interfaces to show interface setting e.g. IP and subnet mask
- show ip route to show routing table of router
- show history to show history of command which enter in current session

Task:

1) Change host name
2) Set Banner
3) Assign IP to port 0/0 ,0/1 , 0/2
4) Assign IP to Serial port 0/0/0 clockrate 9600