

## Lab Manual 6 Configurations of Router

### CLO 2

Task	1	2	3	4	5
<b>Set time and date of a router having your ID as hostname</b>	Student select a router	Student set the hostname of router as their respective registration ID	Student set the time and date of the system as current	Student enables user-mode password with their name	Student enable privileged-mode password with their name
<b>Router configuration</b>	Student designs the network as said	Student configure the router	Student assign Class B IP address to the PCs	Student ping the default gateway	Student save the current configuration

**Aim:**

### **Router Configuration using CLI**

Router Functions:

- IP addressing.
- Routing.

Router configuration modes:

- User mode (router>).
- Privilege mode (router #).
- Global configuration mode (router (config)#).

#### *User EXEC Mode:*

When you are connected to the router, you are started in user EXEC mode. The user EXEC commands are a subset of the privileged EXEC commands.

#### *Privileged EXEC Mode:*

Privileged commands include the following:

- Configure – Changes the software configuration.
- Debug – Display process and hardware event messages.
- Setup – Enter configuration information at the prompts.

Enter the command disable to exit from the privileged EXEC mode and return to user EXEC mode.

#### *Configuration Mode:*

Configuration mode has a set of submodes that you use for modifying interface settings, routing protocol settings, line settings, and so forth. Use caution with configuration mode because all changes you enter take effect immediately.

To enter configuration mode, enter the command `configure terminal` and exit by pressing `Ctrl-Z`.

#### *Getting Help:*

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

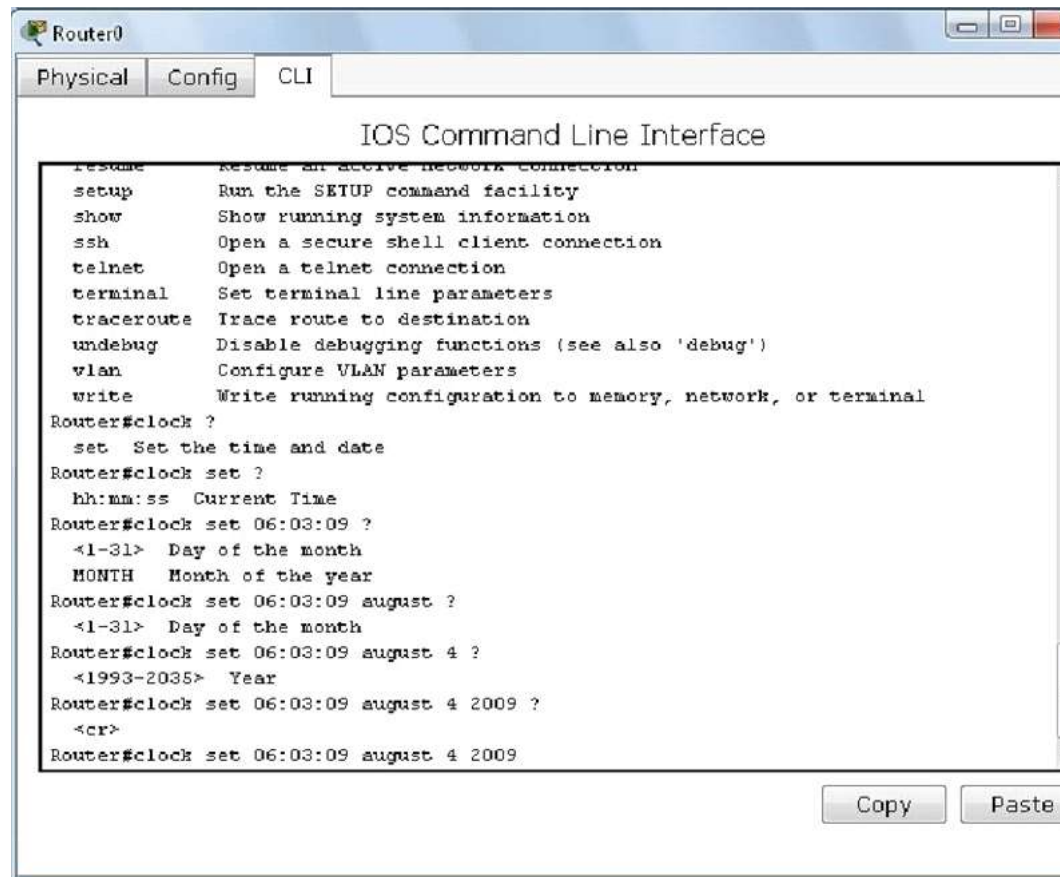
#### *Router>?*

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

We use packet tracer program for router configuration in the previous 3 modes. We choose a router: Now we are in the user mode:

To know the commands in user mode we use (?) :

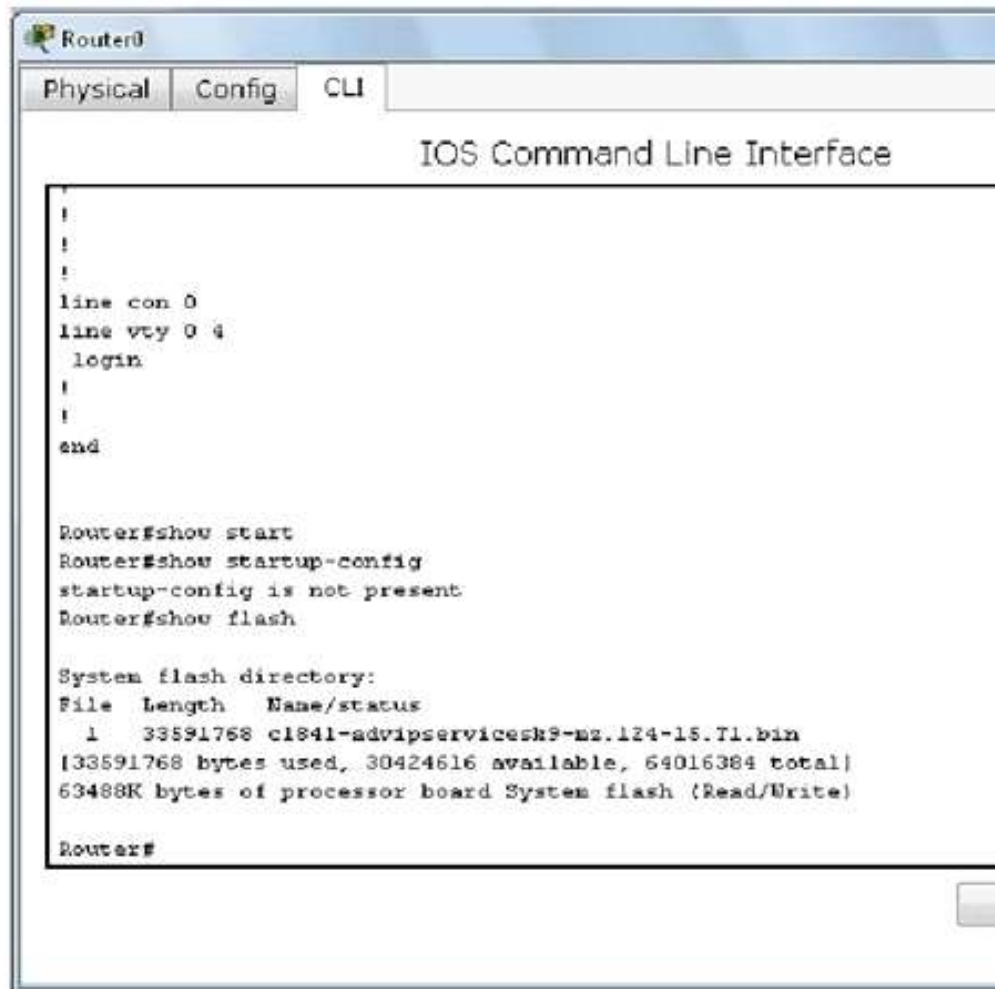
Enter the privileged Mode and To manage the system clock, we use (clock):



The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", and "CLI". The "CLI" tab is active, displaying the "IOS Command Line Interface". A list of commands and their descriptions is shown at the top. Below this, the user enters the command "clock ?" at the "Router#" prompt, which lists available options: "set" (Set the time and date). The user then enters "clock set ?", which prompts for the current time in "hh:mm:ss" format. The user enters "06:03:09". Next, the user enters "clock set 06:03:09 ?", which prompts for the day of the month as "<1-31>". The user enters "06". Then, the user enters "clock set 06:03:09 august ?", which prompts for the month of the year as "MONTH". The user enters "06". Next, the user enters "clock set 06:03:09 august 4 ?", which prompts for the day of the month as "<1-31>". The user enters "06". Then, the user enters "clock set 06:03:09 august 4 2009 ?", which prompts for the year as "<1993-2035>". The user enters "06". Finally, the user enters "clock set 06:03:09 august 4 2009" and presses the enter key. The interface includes "Copy" and "Paste" buttons at the bottom right.

```
Router0
Physical Config CLI
IOS Command Line Interface
resume Resume an active network connection
setup Run the SETUP command facility
show Show running system information
ssh Open a secure shell client connection
telnet Open a telnet connection
terminal Set terminal line parameters
traceroute Trace route to destination
undebug Disable debugging functions (see also 'debug')
vlan Configure VLAN parameters
write Write running configuration to memory, network, or terminal
Router#clock ?
  set Set the time and date
Router#clock set ?
  hh:mm:ss Current Time
Router#clock set 06:03:09 ?
  <1-31> Day of the month
  MONTH Month of the year
Router#clock set 06:03:09 august ?
  <1-31> Day of the month
Router#clock set 06:03:09 august 4 ?
  <1993-2035> Year
Router#clock set 06:03:09 august 4 2009 ?
  <cr>
Router#clock set 06:03:09 august 4 2009
```

To see the time, we use



The screenshot shows a web-based interface for a Cisco router named Router0. At the top, there are three tabs: 'Physical', 'Config', and 'CLI'. The 'CLI' tab is selected. Below the tabs, the text 'IOS Command Line Interface' is displayed. The main area contains a terminal window with the following text:

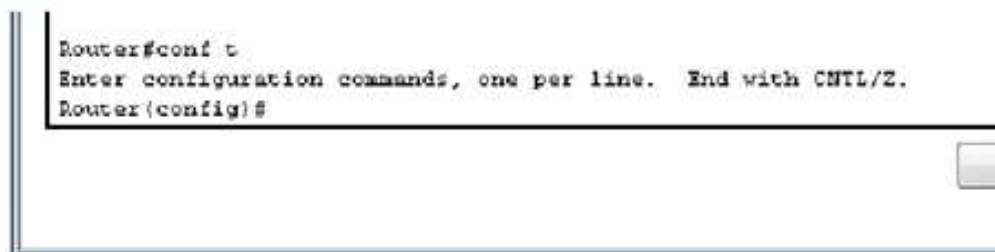
```
!
!
!
line con 0
line vty 0 4
  login
!
!
end

Router#show start
Router#show startup-config
startup-config is not present
Router#show flash

System flash directory:
File Length Name/status
  1  33591768 c1841-advipservicesk9-mz.124-15.T1.bin
[33591768 bytes used, 30424616 available, 64016384 total]
63488K bytes of processor board System flash (Read/Write)

Router#
```

To go to global configuration, we use (conf t):



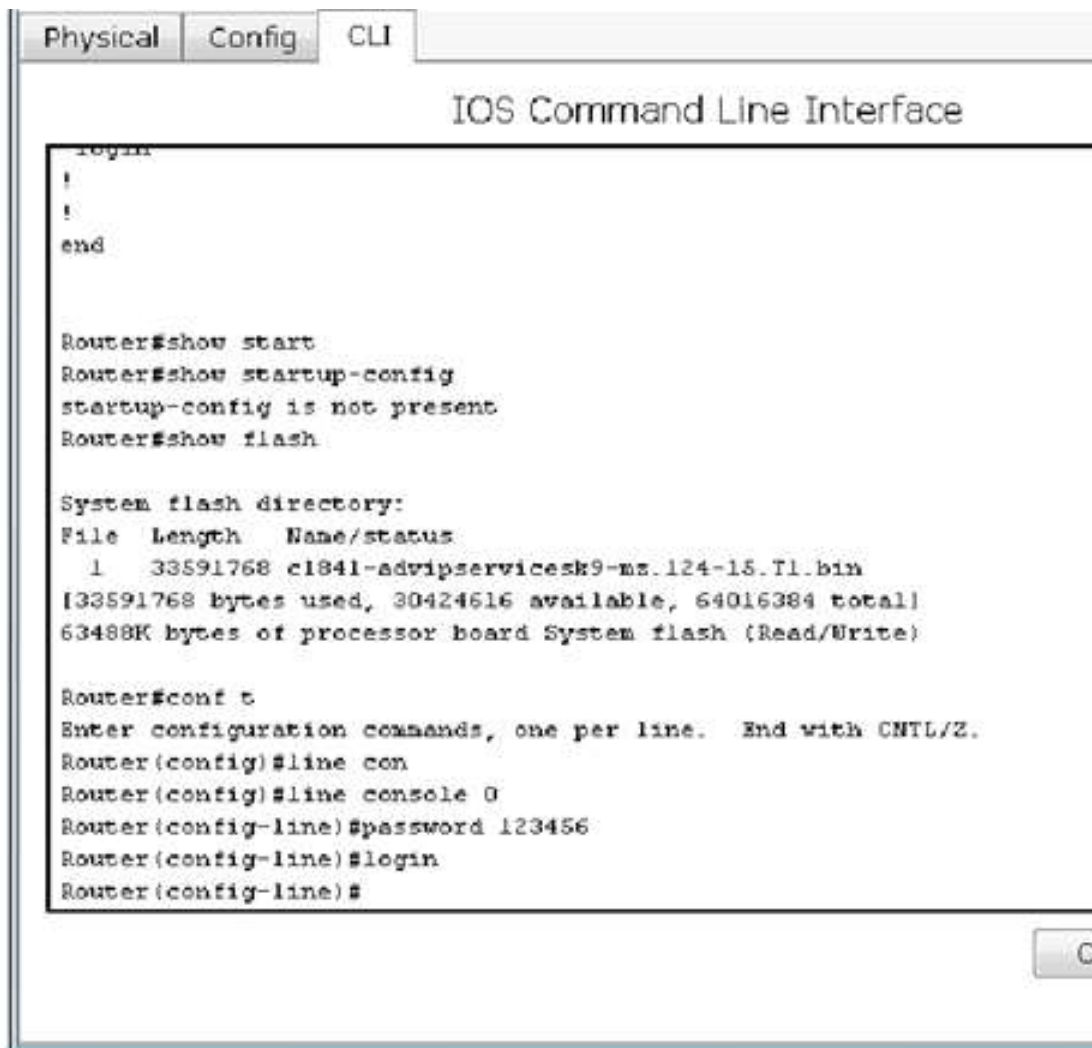
The screenshot shows the same Router0 CLI interface. The terminal window now displays the following text:

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
```

Passwords:

1- Line console password to protect the user mode:

(show clock):



The screenshot shows the Cisco IOS Command Line Interface (CLI) with tabs for Physical, Config, and CLI. The CLI title is "IOS Command Line Interface". The user has entered the following commands:

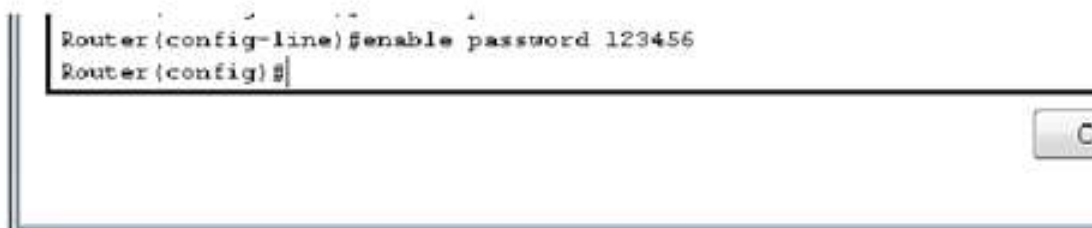
```
login
!
!
end

Router#show start
Router#show startup-config
startup-config is not present
Router#show flash

System flash directory:
File Length Name/status
  1 33591768 c1841-advipservicesk9-ms.124-15.Tl.bin
[33591768 bytes used, 30424616 available, 64016384 total]
63488K bytes of processor board System flash (Read/Write)

Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#line con
Router(config)#line console 0
Router(config-line)#password 123456
Router(config-line)#login
Router(config-line)#
```

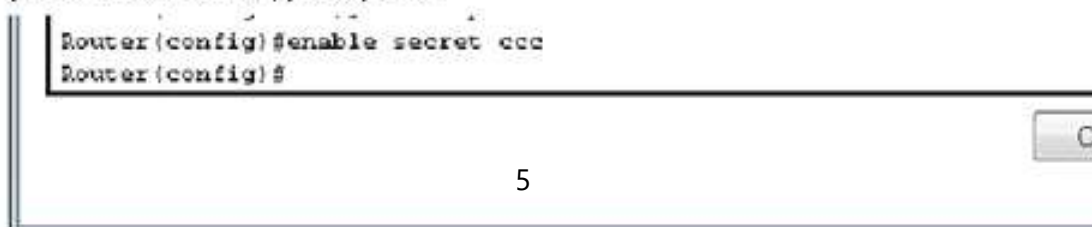
2- Enable password to protect the privilege mode:



The screenshot shows the Cisco IOS CLI with the following command entered:

```
Router(config-line)#enable password 123456
Router(config)#
```

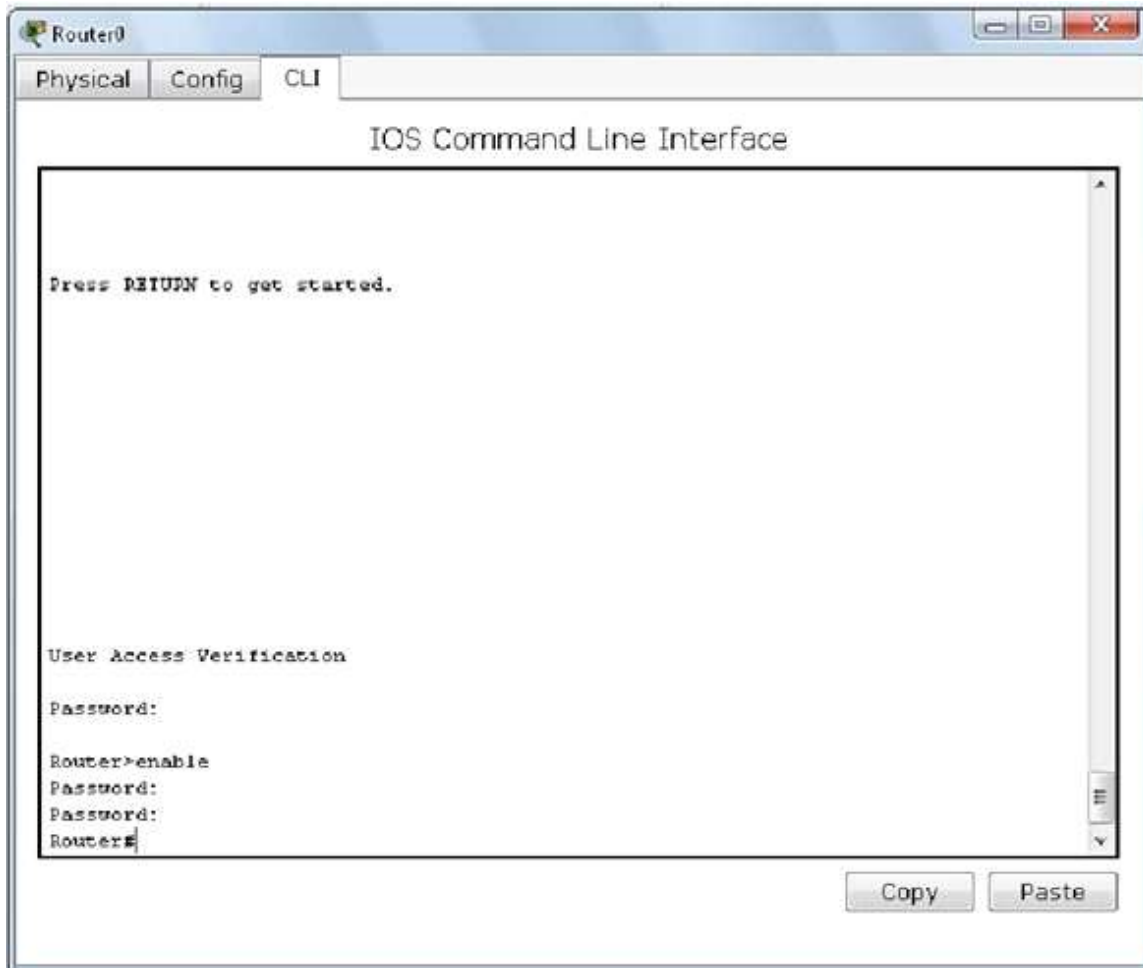
3- Secret password for more protection of privilege mode (more priority pass and its encrypted pass.



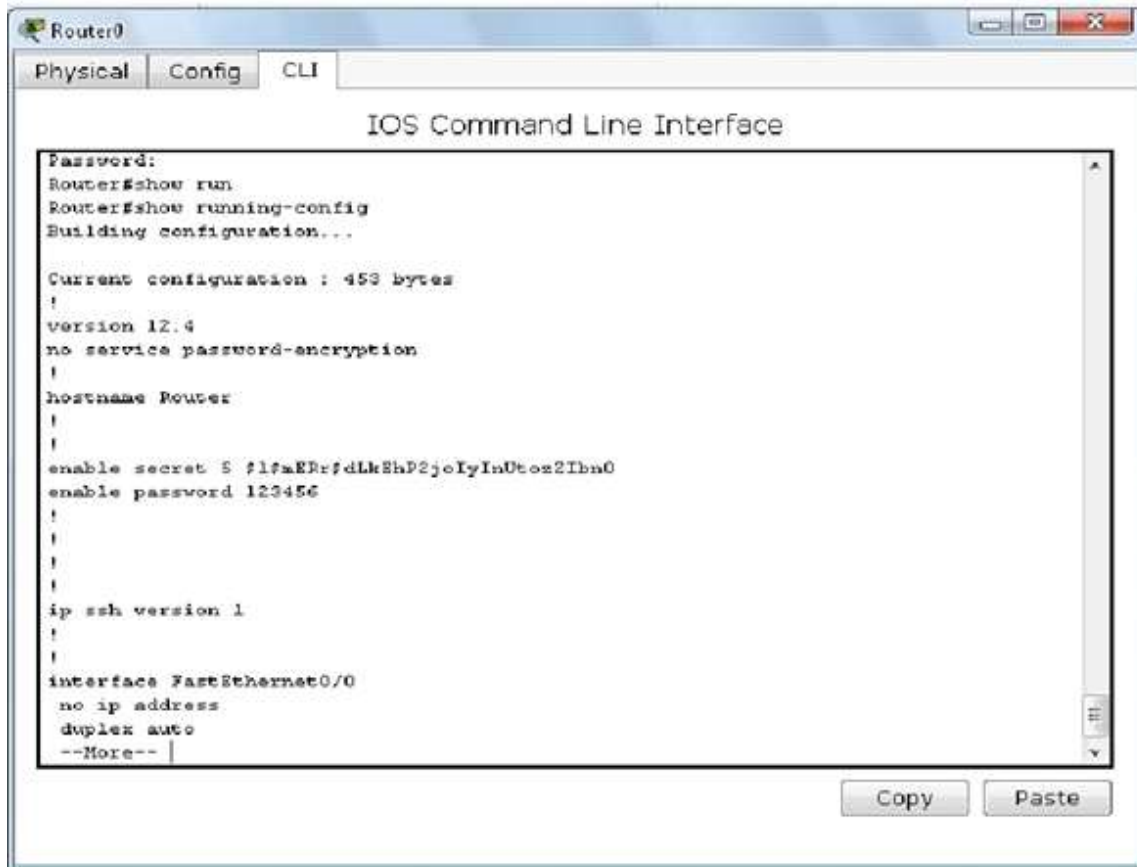
The screenshot shows the Cisco IOS CLI with the following command entered:

```
Router(config)#enable secret ccc
Router(config)#
```

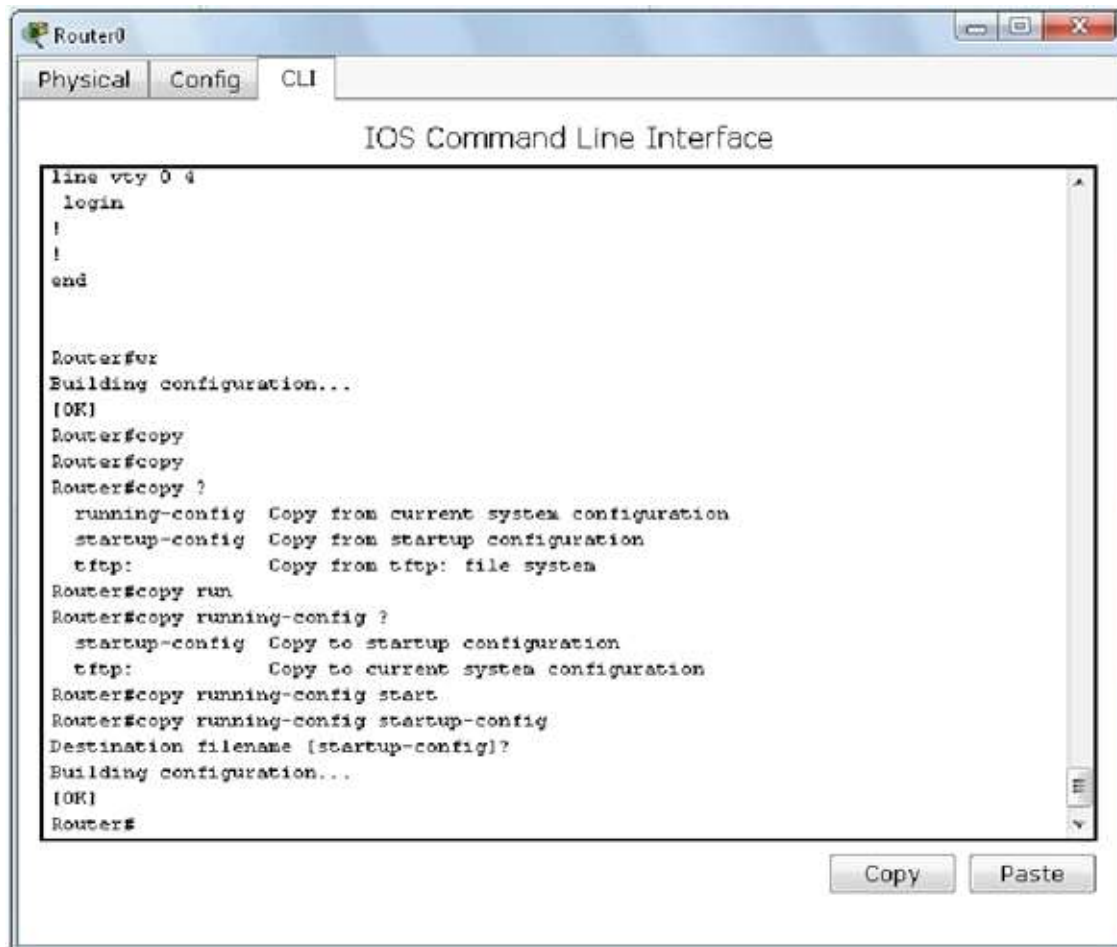
Now we try the passwords set:



We notice that only secret pass is encrypted:

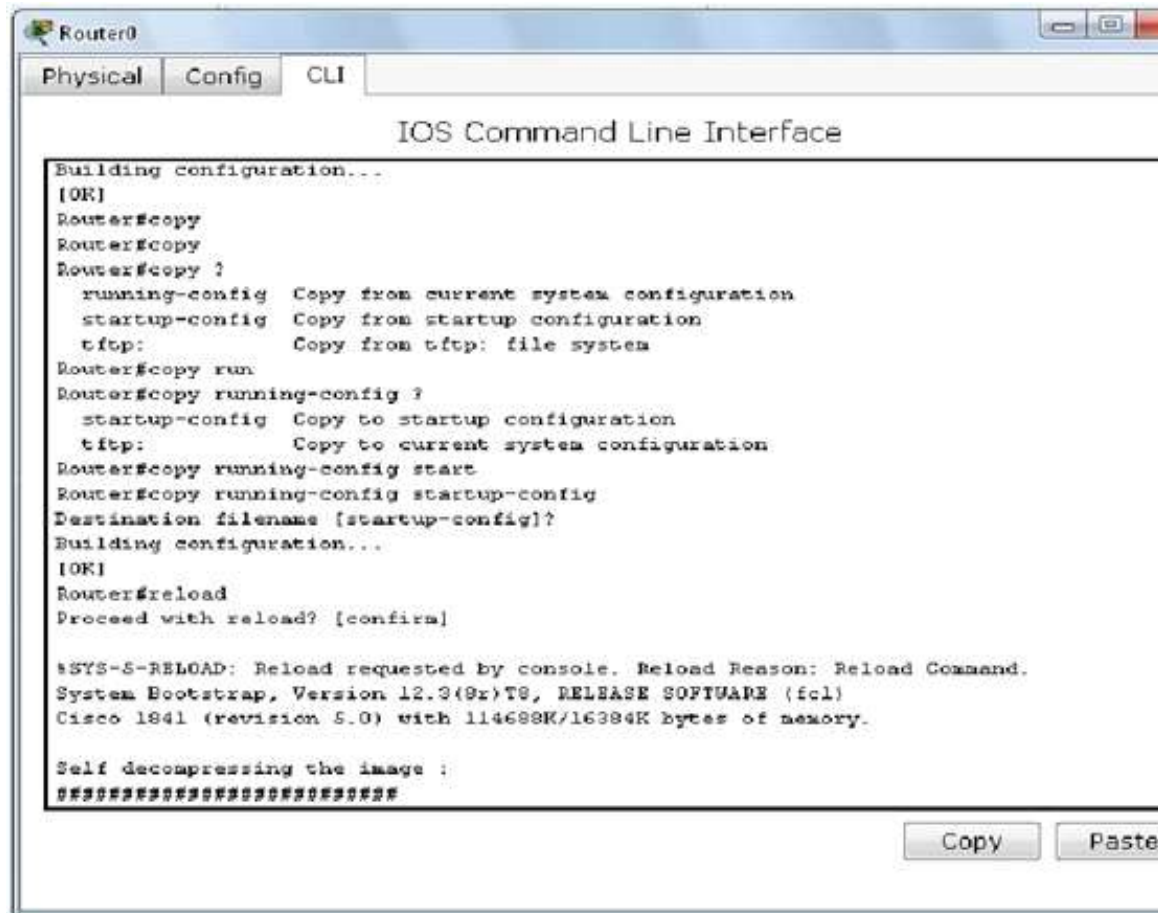


To save the configuration we did in the NVRAM we use (wr or copy commands).

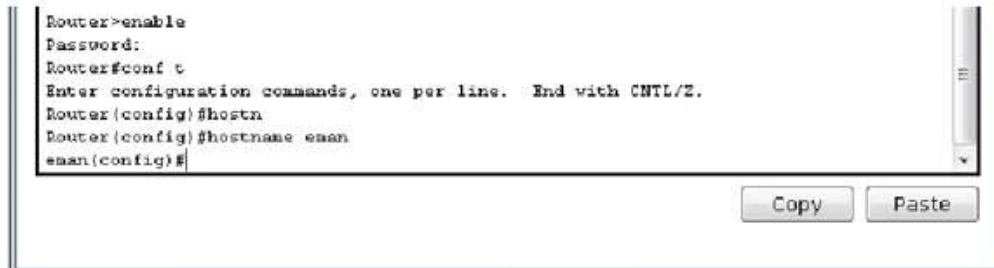
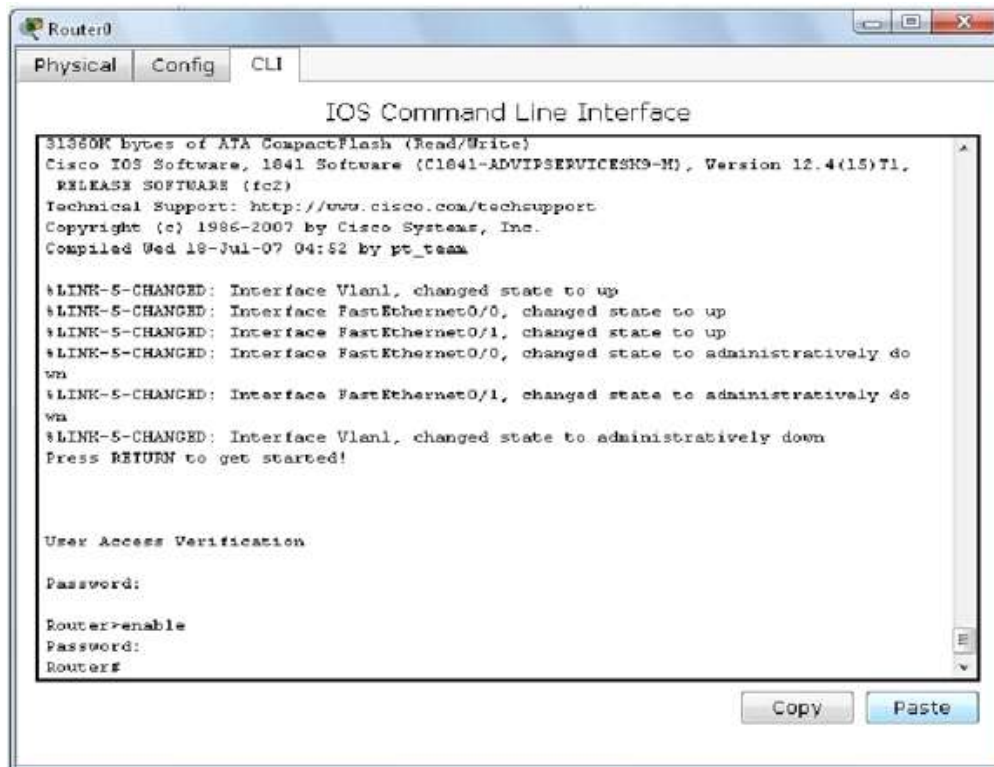


To restart we use the command (reload):

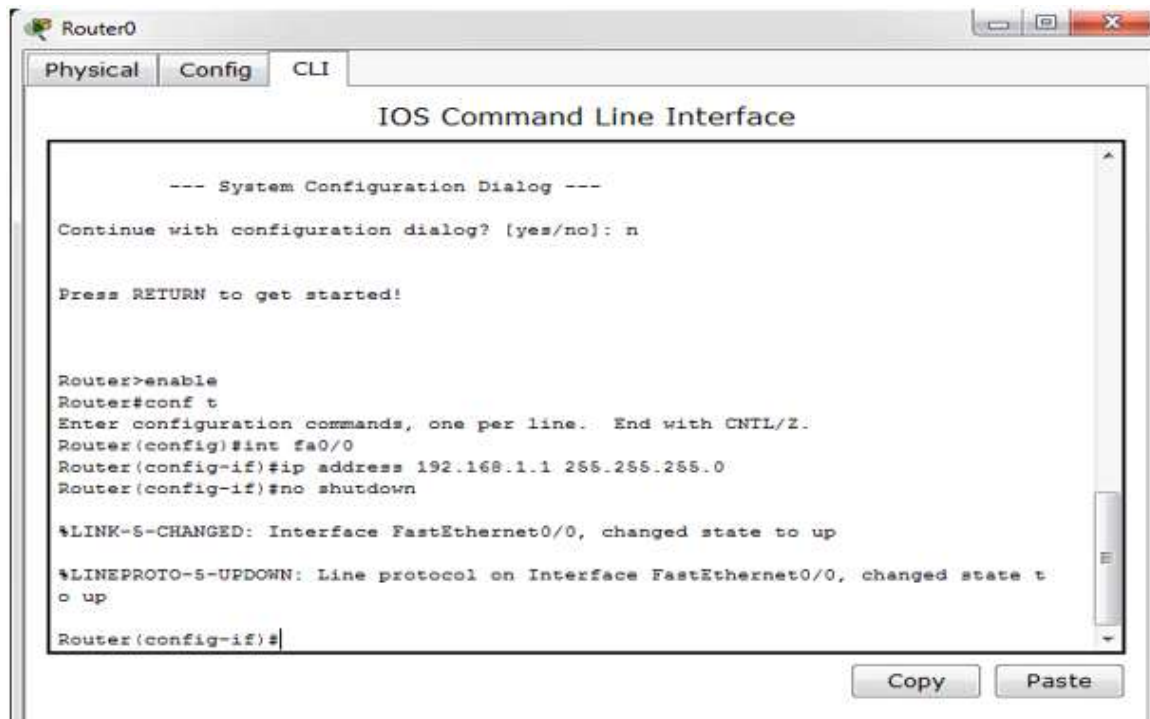




To change hostname of the router:



Now to assign the IP's to the interface of the router:



And to make sure of the IP's ('Router#show int fa0/0'):

### **Task 1:**

Choose a router in packet tracer. Name it with your registration # e.g., 2018-CS-XX. Set its Time

and Date as today. Enable user mode and privileged mode passwords with your name.

**Task 2:**

Design a network having one router and six PC's as shown in the figure. Configure the router and also assign the Class A to first 3 and **Class C** IP addresses to the last 3 PC's and ping the default gateway. Also save the current configuration of the router.

