CIS 81 - IOS Commands in a Nutshell

Booting the Router/Switch

After several lines of information on the screen you should eventually see:

```
Would you like to enter the initial configuration dialog? [yes/no]: n
```

On some routers and switchesyou may see the following message.

```
Would you like to terminate autoinstall? [yes/no]: y

Router>  or   Switch>
```

Privilege Mode

```
Router> enable
```
- If you are prompted for a password type: **class** or if that does not work, type **cisco**

```
Router# disable     This will take you back to User Mode.
Router> enable      This will take you back to Privilege Mode
Router#  ?          Notice how many more commands are available to you in Privilege
                     Mode.
```

Using help

Use the "?" to view the list of available commands or command options

```
Router> ?
```
a) Press the Space Bar to scroll a "screen's worth" of more commands.
b) Press the Enter or Return key to scroll down just one line of the list.
c) Press any other key to halt the list output.

```
Router> show ?
```
Displays the next parameter or parameters that can be used with this command.

```
Router> show interface ?
```

Abbreviated commands

The Cisco IOS will allow you to abbreviate any command or parameter as long as it uniquely identifies the command or parameter.

```
Router# sh inter
```
Instead of "**show interface**".

Viewing the Configuration and Interfaces

```
Router#  show running-config

Router#  show interfaces

Router#  show ip interface brief
```

Global Configuration

```
Router>ena
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#?
Configure commands:
  aaa                         Authentication, Authorization and Accounting.
  access-list                 Add an access list entry
<text omitted>

Router(config)#exit
Router#config t
Router(config)#exit
Router#
```

Hostname

```
Router#config t
Router(config)#hostname R1
R1(config)#
```

Password Policy

There are only two passwords we will use in our classes, they are **cisco** and **class**. (both lowercase).

Console Password: cisco

The console password requires someone to enter a password before accessing the router using the console port.

```
Router#conf t
Router(config)#line console 0
Router(config-line)#password cisco
Router(config-line)#login
Router(config-line)#exit
Router(config)#
```

VTY (Telnet) Password: cisco

The vty password requires someone to enter a password before accessing the router remotely using telnet.

```
Router(config)#line vty 0 4
Router(config-line)#password cisco
Router(config-line)#login
Router(config-line)#exit
Router(config)#
```

Priviledge Mode Password: class

The privilege mode password requires someone to enter a password when entering privilege mode with the **enable** command.

```
Router(config)#enable secret class
Router(config)#end
```

Test it:

```
Router#disable
Router>enable
Password:class
Router#
```

Viewing and Saving the configuration

```
Router# show running-config
```

This will allow you to view the current configuration of the router (which resides in RAM) known as the running-config You will notice that this contains the actual commands that are either default commands or were used to configure the router. When you make changes to the router, those changes are stored in the running-config file.

```
Router# show startup-config
```

This will show the saved configuration in NVRAM. If the running-configuration has not been saved, the startup-config file will be empty.

```
Router# copy  running-config  startup-config
Destination filename [startup-config]? <Press Enter>
```

This will copy the current running-config file (in RAM) to the startup-config file in NVRAM. Now if the router is rebooted (or loses power and powered back up) the changes you made to the router have been saved. The startup-config is copied to the running-config during the reboot process.

```
Router# copy  run  start
Destination filename [startup-config]? <Press Enter>
```

This is an example of abbreviating a command. BE CAREFUL! Do NOT abbreviate the file names incorrectly, i.e. ~~**copy running start-up**~~ as that will have a different affect on the router, in this case overwrite the IOS in flash (later).

```
Router# show startup-config
```

```
Router# show running-config
```

Notice that the running-config and the startup-config are identical.

Erasing the saved startup-config

During labs it is always a good idea to save your running-config to the startup-config just in case something happens like a power outage. When you are done with every lab, before leaving the routers, you must erase the startup-config file so that the next student is working with an unconfigured router.

```
Router# erase startup-config
```

Normally, at this point you would turn-off the router, but for this lab, let us continue.

Rebooting the router

```
Router#  reload
```

If you wanted to reset the router, turn it off and back on, you can do that with either the power switch or this reload command. Try it!

Managing console input/output

```
Router(config)#line console 0
Router(config-line)#logging synchronous
Router(config-line)#exec-timeout 0 0
Router(config-line)#exit

Router(config)#no ip domain-lookup
```

Router

Interface Configuration

```
Router#show ip interface brief
```

Ethernet

```
Router#conf t
R1(config)#interface fastethernet 0
```

Note: Your interface may be FastEthernet 0/0, FastEthernet 0 or Ethernet 0.
Use **show ip interface brief** to examine interfaces.

```
Router(config-if)#ip address 172.30.1.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
```

Serial

```
Router#conf t
Router(config)#inter serial 0/0
```

Note: Your interface may be serial 0. Use **show ip interface brief** to examine interfaces.

```
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#clock rate 64000      This is only for DCE interfaces
Router(config-if)#no shutdown
Router(config-if)#exit
```

Verify

```
Router#show ip interface brief
Router# show running-config
Router# show interfaces fa 0/0
Router# show interfaces fa 0/0
```

Verification

```
Router#ping 172.30.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.30.1.2, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
R1#
```

Routing Table

```
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

     172.16.0.0/24 is subnetted, 2 subnets
C       172.16.1.0 is directly connected, FastEthernet0/0
C       172.16.2.0 is directly connected, Serial0/0
R1#
```

Switch

Viewing the MAC Address Table

```
Switch#show mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    0001.64ca.da6b    DYNAMIC     Fa0/1
   1    0002.4a6d.ba60    DYNAMIC     Fa0/3
Switch#
```