

User Levels | Routers & Switches

User Exec	Router Name>
Privileged Exec	Router Name# [where network devices are configured]
Global Exec	Router Name(config)# [configuration impact the entire device]
Interface Config	Router Name(config-if)# [impacts a particular interface]
Line Config	Router Name(config-line)

Basic Config | Routers & Switches

router> enable disable	logs the user into/out of privileged exec
router# configure terminal	logs user into global config
router(config)#> hostname	re/name current device
no hostname	removes name
router(config)# exit	backs out one level to a previous level
router> reload	reboots the device
router(config)# end	Drops back to user exec mode

Basic Commands | Routers & Switches

```
Router(config)# interface f0/0int f0/0
| Enter interface config
or
Router(config)# line console 0
or
Router(config)# interface gigabitethernet 0/0int g0/0
Router(config-line)# exit
| back up one step from any level
Router(config-line)# end
| straight to user exec mode
```



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Basic Security

Securing privileged EXEC

S1(config)# *enable secret Cisc0*

| pw protects the privileged exec line

Securing console port

S1(config)# *line console 0*

| moves into line configuration mode

S1(config-line)# *password Cisc0*

| sets console access password to "Cisc0"

S1(config-line)# *login*

| turns on the password requirement

Securing the Virtual Ports [ssh & telnet]

S1(config)# *line vty 0 15*

| moves into line configuration mode

S1(config-line)# *Password Cisc0*

| sets virtual terminal access password to "Cisc0"

S1(config-line)# *@ login*

| turns on the password requirement turns on the password requirement

Encrypting all Passwords

S1(config)# *service password-encryption*

| encrypts all passwords

Message of the Day

S1(config)# *banner motd #Authorized Access Only *#*

S1# *copy run start*

adding Pipe Commands

R1# *do show run |*

include interface

exclude interface

begin hostname

NOTES

Commands are only case sensitive after the pipe

Startup-Config

| regardless of current config; router will start up with this

| until the current config is saved

Vocabulary

rommon read only memory

Hints

R1># *no ip domain-lookup* [turns off auto dns query]

R1(config-if)# *no ip address* [Removes IP Address]

ctl+a [cursor moved to the beginning of the line]

ctl+e [cursor moved to the end of the line]

copy run start [copies running config to startup config]

show run start [displays startup config]

*ctl+shift+6 STOP SEARCH

ip host switch1 Assigns the listed ip address [1.1.1.1] to Switch1

? Open help documentation

enable secret abc123 Enables secret password and sets to abc123

vty - virtual telnet line

Remote Access

R2# *telnet 10.1.1.1* with PW & access allowed; you will enter the remote router *

CONFIGURE SERIAL PORT

R1(config)#

| *interface serial 0/0/0* ^{int f0/0} [moves into config for s0/0/0]

R1(config-if)#

| *ip address 192.168.1.254 255.255.255.0* [sets ip & subnet]

R1(config-if)#

| *no shut* [powers on interface]

| *shut* [powers off interface]

R1(config-if)#

| *copy run start*



CONFIGURE FAST ETHERNET PORT

```
R1(config)#
| interface f0/0 int f0/0 [moves into config for f0/0]

R1(config-if)#
| ip address 192.168.1.254 255.255.255.0 [sets ip & subnet]

R1(config-if)#
| no shut [powers on interface]

| shut [powers off interface]

R1(config-if)#
| copy run start
```

Configure VLAN

Create and Name VLANs

```
Switch(config)# vlan 10
| moves to vlan 10 config

Switch(config-vlan)# name Support
| names vlan 10, "support"

Switch(config)# vlan 20
| moves into vlan 20 from vlan 10

Switch(config)# name Development
| names vlan 20, "development"
```

Assign switchport access

```
Switch(config)# int f0/1
| enters config for f0/1

Switch(config-if)# switchport access vlan 10` *

Switch(config)# int f0/2

Switch(config-if)# switchport access vlan 20` *
```

Routing Configuration

Gateway of Last Resort [restricted to edge [stub] routers only]

```
R1(config)# ip route 0.0.0.0 0.0.0.0 s0/0/0
```

Static Route administrative distance = 150

```
R1(config)# ip route 192.168.2.0 255.255.255.0 s0/0/0 150
```

routers only "know" what they are connected too

```
s* - default static route
c - direct connect
```

"Advanced" Show Commands

```
show access-list Displays the access-lists located on the device; including every line of the access-list [not which interface the list is applied to]

show vlan Displays info and status of VLANs [on the device] i.e. VLAN names, numbers, and the interfaces on which each VLAN can be found

show ip protocols Displays info about Layer 3 protocols; RIP, OSPF and EIGRP [high level overview each protocol has its own show command]

show interface trunk Displays all trunk ports on the device; which VLANs are allowed on which trunk, what the native VLAN is.
```

Verification Commands

```
R1# show ip route displays routing table

R1# show ip interface

R1# show ip interface brief displays the interface configurations

R1# show running-config

R1# show interface s0/0/0

R1# show interface f0/0

R1# show interface g0/0

R1# show version displays IOS info and previous method of restart

R1# show mac address-table displays contents of MAC Address Table

R1# *int g0/0 displays the listed interface info

R1# show clock

R1# clock set 09:10:01 11 December 2019
```

```
** 'Do' - in front of a command will run the command at any level i.e. my device
(config)# do show ip interface brief -OR- my device (config)# do reload
Add a Ne
```



Managing IOS Files

R1# copy run flash:my config	copies running config\saves to flash; names it my config
R1# erase start	erases startup config
R1# copy flash:my config start	copies my config and overwrites start up config
R1# copy run tftp	requests a remote host
requests a file name	add ip address of remote router add unique file name w/ data
R1# more flash:my config	allows you to view the config file

Storage for Operating System

IOS - Flash
startup Config - NVRAM
Running config - RAM

Error Messages

% Invalid input detected at '^' marker	You are at the wrong level to run command
% Incomplete command	
[command brings a null response]	This is not a bad command, there is just no results to display
Your CLI command fails - are you in the right mode level - are you on the right device	

Shortcuts

ctrl+shift+6	stop current activity
ctrl+k	erases from cursor to end of line
ctrl+x	erases from cursor to beginning of line
tab	completes the command

Misc

mydevice (config)# sdm pre dual def	used if switch won't take IPv6 address
--	---

Execute Commands

Build a server w/IP	ip host Server1 1.1.1.1
Rename the router "My Router"	hostname MyRouter

