**CCNA Routing & Switching Configuration**



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**CISCO ROUTER MODES**

Cisco IOS supports various command modes, among those following modes are the highly tested in

CCNA level exam.

**Mode Name** **Mode Symbol**

* User EXEC Mode ------------------------------------------------------------ Router>
* Privileged EXEC Mode ------------------------------------------------------ Router#
* Global Configuration Mode ------------------------------------------------ Router ( config )#
* Interface Configuration Mode --------------------------------------------- Router ( config-if )#
* Sub Interface Configuration Mode ---------------------------------------- Router ( config-subif )#
* Setup Mode ------------------ Would you like to enter basic management setup [yes/no] : no
* ROM Monitor Mode --------------------------------------------------------- rommon 1 >

**Router Basic Configurations**

**To setup a router in CLI:  
====================**

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en [en=enable]

Router#conf t [configure terminal]

Enter configuration commands, one per line. End with CNTL/Z.

**To change Hostname of a router:  
============================**

Router(config)#hostname R1 [here R1 is router name]

R1(config)#

**To save configuration in nvram:  
==========================**

R1(config)#exit

R1#w

R1#write

Building configuration...

[OK]

**To check running configuration:  
==========================**

R1#show running-config

Building configuration...

Current configuration : 541 bytes

!

version 15.1

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname R1

**To check startup configuration or saved configuration:  
=============================================**

R1#show startup-config

**To disable Invalid input:  
====================**

Router1(config)#no ip domain-lookup

**To set enable password:  
====================**

R1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#ena

R1(config)#enable pa

R1(config)#enable password ccna [note: ccna is my password]

R1(config)#wr

OR  
R1#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

R1(config)#ex

R1#

%SYS-5-CONFIG\_I: Configured from console by console

R1#wr

Building configuration...

[OK]

**To set enable secret password:  
==========================**

R1(config)#enable secret router [Here router is secret password]

R1(config)#exi

R1#

%SYS-5-CONFIG\_I: Configured from console by console

R1#wr

Building configuration...

[OK]

**To change password to hash mode:**  
=============================

R1(config)#service password-encryption

**To check interface status:**  
=====================

R1#show ip interface brief

**To configure IP address inside the interface:  
====================================**

R1(config)#interface gi

R1(config)#interface gigabitEthernet 0/0

R1(config-if)#ip add

R1(config-if)#ip address ?

A.B.C.D IP address

dhcp IP Address negotiated via DHCP

R1(config-if)#ip address 192.168.10.10 ?

A.B.C.D IP subnet mask

R1(config-if)#ip address 192.168.10.10 255.255.255.0 ?

<cr>

R1(config-if)#ip address 192.168.10.10 255.255.255.0

R1(config-if)#no sh

R1(config-if)#no shutdown

R1(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

**To set banner on a router:  
======================**

Router1(config)#ban

Router1(config)#banner

Router1(config)#banner mod

Router1(config)#banner mot

Router1(config)#banner motd c

Enter TEXT message. End with the character 'c'.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

THIS IS CISCO ROUTER BANNER

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* c

Router1(config)#do wr

Building configuration...

[OK]

**To remove banner from a router:  
===========================**

Router1(config)#no banner motd

**To configure telnet for remote access:  
================================**

R1(config)#line vty 0 4

R1(config-line)#password 123

R1(config-line)#login

R1(config-line)#do wr

**To login from pc:  
==============**

PC>telnet 192.168.10.10 [Here 192.168.10.10 is router ip address]

Trying 192.168.10.10 ...Open

User Access Verification

Password: [note: use telent password set in line vty section]

R1>

**telnet configuration (user base):  
==========================**

USA(config)#line vty 0 4

USA(config-line)#login local

USA(config)#username usa privilege 15 password 123

**To login using telnet from client pc:  
==============================**

pc> telnet 192.168.1.1 ( ip address )

**To configure ssh on route:  
======================**

BD(config)#ip domain-name bionic.com (here name bionic.com is user define)

BD(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024 (here value 1024 is user define)

BD(config)#line vty 0 4 ( login limit 5 user at a time )

BD(config-line)#transport input all ( or transport input ssh or transport input telnet)

BD(config-line)#login local

ssh connect from client pc

---------------------------

PC> ssh -l username ipaddress

pc> ssh -l ahsan 192.168.1.1

**To configure ssh/ telnet on a switch:  
==============================**

USA-SW-1(config)#interface vlan 1

USA-SW-1(config-if)#ip address 192.168.2.10 255.255.255.0

USA-SW-1(config)#ip domain-name bionic.com

USA-SW-1(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**To configure ssh:  
==============**

USA-SW-1(config)#line vty 0 4

USA-SW-1(config-line)#transport input ssh

USA-SW-1(config-line)#login local

USA-SW-1(config)#do wr

USA-SW-1(config)#username sw1 privilege 15 password 123

**To set time:  
==========**

check current time status

USA#sh clock

[NOTE: TIME MUST SET IN ENABLE MODE]

USA#clock set ?

hh:mm:ss Current Time

USA#clock set 12:38:30 ?

<1-31> Day of the month

MONTH Month of the year

USA#clock set 12:38:30 3 ?

MONTH Month of the year

USA#clock set 12:38:30 3 ma

USA#clock set 12:38:30 3 march ?

<1993-2035> Year

USA#clock set 12:38:30 3 march 2017

USA#wr

Building configuration...

[OK]

**To set time zone:  
==============**

USA(config)#clock timezone Dhaka 6 0

check clock

-----------

USA#sh clock

\*12:43:34.163 UTC Fri Mar 3 2017

**DHCP server configuration on router:  
===============================**

USA(config)#ip dhcp pool usadhcp

USA(dhcp-config)#?

default-router Default routers

dns-server Set name server

exit Exit from DHCP pool configuration mode

network Network number and mask

no Negate a command or set its defaults

option Raw DHCP options

USA(dhcp-config)#

USA(dhcp-config)#

USA(dhcp-config)#net

USA(dhcp-config)#network ?

A.B.C.D Network number in dotted-decimal notation

USA(dhcp-config)#network 192.168.2.0 ?

A.B.C.D Network mask

USA(dhcp-config)#network 192.168.2.0 255.255.255.0 ?

<cr>

USA(dhcp-config)#network 192.168.2.0 255.255.255.0

USA(dhcp-config)#?

default-router Default routers

dns-server Set name server

exit Exit from DHCP pool configuration mode

network Network number and mask

no Negate a command or set its defaults

option Raw DHCP options

USA(dhcp-config)#de

USA(dhcp-config)#default-router ?

A.B.C.D Router's IP address

USA(dhcp-config)#default-router 192.168.2.1 ?

<cr>

USA(dhcp-config)#default-router 192.168.2.1

USA(dhcp-config)#?

default-router Default routers

dns-server Set name server

exit Exit from DHCP pool configuration mode

network Network number and mask

no Negate a command or set its defaults

option Raw DHCP options

USA(dhcp-config)#dns

USA(dhcp-config)#dns-server 8.8.8.8

USA(dhcp-config)#op

USA(dhcp-config)#option ?

<0-254> DHCP option code

USA(dhcp-config)#option 10 ?

ip Data is one or more IP addresses

USA(dhcp-config)#option 10 ip

USA(dhcp-config)#option 10 ip ?

A.B.C.D Set IP address

USA(dhcp-config)#option 10 ip 192.168.2.10 ?

<cr>

x------------------------------------------  
USA(dhcp-config)#option 20 ipa

USA(dhcp-config)#option 20 ip

USA(dhcp-config)#option 20 ip 192.168.2.10 ?

<cr>

USA(dhcp-config)#option 20 ip 192.168.2.10

%This version of PT does not support options other than 150  
-------------------------------------------x

USA(dhcp-config)#do wr

Building configuration...

[OK]

USA(dhcp-config)#

**VLAN configuration on a switch:**

SW1(config)#vlan 100

SW1(config-vlan)#name HR

**To check vlan status:  
=================**

SW1(config)#do sh vlan

**To add a single interface to vlan:  
===========================**

SW1(config)#interface fastEthernet 0/2

SW1(config-if)#sw

SW1(config-if)#switchport m

SW1(config-if)#switchport mode a

SW1(config-if)#switchport mode access

SW1(config-if)#sw

SW1(config-if)#switchport a

SW1(config-if)#switchport access v

SW1(config-if)#switchport access vlan 100

**To add some range of port to vlan:  
=============================**

SW1(config)#interface range fastEthernet 0/3 - 5

SW1(config-if-range)#sw

SW1(config-if-range)#switchport m

SW1(config-if-range)#switchport mode a

SW1(config-if-range)#switchport mode access

SW1(config-if-range)#sw

SW1(config-if-range)#switchport a

SW1(config-if-range)#switchport access v

SW1(config-if-range)#switchport access vlan 100

**To configure a port as trunk:  
=======================**

SW1(config)#interface fastEthernet 0/24

SW1(config-if-range)#switchport mode trunk

**To check trunk port:  
=================**

sw2#sh interfaces trunk

router on a stick configuration.