

CCNA Commands In 10 Minutes

IP ROUTING

#sh ip route - To view IP routing tables created on a Cisco router.

-Static Routing- Routers are manually configured for networks that are not directly connected, to be able to route to all networks via the next-hop interface.

Example- Let 192.168.30.0/24 be the IP of a network not directly connected
Let 192.168.20.2 be the next hop interface

```
(config)#ip route 192.168.30.0 255.255.255.0 192.168.20.2
```

-to remove static route

```
(config)#no ip route 192.168.30.0 255.255.255.0 192.168.20.2
```

-Default Routing- Used on stub networks only to send packets with remote destination network not in the routing table to the next hop router.

(Assume IP 192.168.40.1 is not in routing table)

-first remove static route

```
(config)#no ip route 192.168.30.0 255.255.255.0 192.168.40.1
```

```
(config)#ip route 0.0.0.0 0.0.0.0 192.168.40.1
```

-RIP-A distance vector routing protocol that passes complete routing table contents to neighbouring routers

Example- Let 192.168.10.0 & 192.168.20.0 be directly connected networks of a router interfaces and 192.168.30.0 be non-directly connected

-first delete all static routes

```
(config)#no ip route 192.168.30.0 255.255.255.0 192.168.20.2
```

```
(config)#router rip
```

```
(config-router)#192.168.10.0
```

```
(config-router)#192.168.20.0
```

```
(config-router)#^z
```

```
#
```

-Verifying RIP

1.Sh ip route

2.debug ip

-Holding Down RIP Propagation-To stop RIP update sending but allow its receipt

-say for s0/0 with ip 192.168.10.0

```
(config)#router rip
```

```
(config-router)#network 192.168.10.0
```

```
(config-router)#passive-interface serial 0/0
```

-IGRP-Also a distance routing protocol

Example- Let 192.168.10.0 & 192.168.20.0 be directly connected networks of a router interfaces with autonomous system number of 10 and 192.168.30.0 be non-directly connected

```
#router igrp 10
(config-router)#network 192.168.10.0
(config-router)#network 192.168.20.0
(config-router)#^z
#
```

-Verifying IGRP

- 1.sh ip route
- 2.sh protocols- Displays routed protocols and their interfaces
- 3.sh ip protocols- Displays routing protocols configured
- 4.debug igrp events- Displays summary of IGRP routing information running on the network
- 5.debug igrp transactions- Displays messages request from neighbour routers

-Turning off all possible debugging

```
#un all
```

-EIGRP-Uses classless routing which is subnet mask information sent with routing protocol updates.

Example- Let 192.168.10.0 & 192.168.20.0 be directly connected networks of a router interfaces with autonomous system number of 20 and 192.168.30.0 be non-directly connected

```
#router eigrp 20
(config-router)#network 192.168.10.0
(config-router)#network 192.168.20.0
(config-router)#^z
```

-To stop EIGRP from working on an interface-no sending no receipt

```
(config)#router eigrp 20
(config-router)#passive-interface serial 0/0
```

-To enable EIGRP on discontinuous networks(two different subnetworks of classfull network connected by another different classful subnetwork)

Example- Let 172.16.0.0 & 10.0.0.0 be directly connected to a router to another remote subnetwork of 192.168.10.0, then to enable EIGRP, we use

```
(config)#router eigrp 100
(config-router)#network 172.16.0.0
(config-router)#network 10.0.0.0
(config-router)#no auto-summary
```

N.B-The no auto-summary command should be enabled in routers that encloses such networks.

-Verifying EIGRP

1. sh ip route- Shows entire routing table
2. sh ip route eigrp- Shows only EIGRP entries in the routing table
3. ip eigrp neighbours- Shows all EIGRP neighbours
4. ip eigrp topology- Shows entries in the EIGRP topology table

OSPF- A link-state routing protocol

Example- Let 10.0.0.0 be the network directly connected to the router upon which OSPF is to be enabled; with ospf ID of 1 and area 0

```
(config)#router ospf 1
(config-router)#network 10.0.0.0 0.255.255.255 area0
```

-Loopback Interface- They are configured to be used as the routers RID to advertise the routes and elect DR and BDR.

Example- Let the loopback interface be configured on interface with ip 172.16.10.1

```
(config)#int loopback 0
(config-if)#ip address 172.16.10.1 255.255.255.0
(config-if)#no shut
(config-if)#^z
```

-Verifying OSPF Configuration

1. sho ip ospf- Used to display all OSPF information
2. sho ip ospf database- indicates the number of links and neighboring router ID
3. sho ip ospf interface- Displays all OSPF interface related info
4. sho ip ospf neighbour- Summarizes OSPF info about neighbours
5. sho ip protocols- Overview of all present running protocols

- Verifying Loopback and RID

1. sho running-config- To verify loopback address
2. sho ip ospf database- Verifies the new RID of each router
3. sho ip ospf interface- Verifies the new RID of each router

-Initial configuration of a 1900 Switch with ip 172.16.10.16

```
>en
#config t
(config)#enable password level 1 kennifeh
(config)#enable password level 15kennifeh 1
(config)#enable secret kennifeh 2(when enabled no need 4 enable password)
(config)#hostname kenn 1900
(config)#ip address 172.16.10.16 255.255.255.0
(config)#ip default-gateway 172.16.10.1
(config)#int f0/1
(config-if)#description Finance_vlan (No space for 1900)
(config-if)#int f0/26
(config-if)#description Trunk_to_Biulding
(config-if)#exit
(config)#
```

-Initail Configuration of 2950 Switch with ip 172.16.10.17 255.255.255.0

```
>en
#config t
(config)#hostame kenn2950
```

```
(config)#enable password kenn
(config)#enable password kenn1(enable and enable secret password must be different)
(config)#line vty 0 15
(config-line)#login
(config-line)#password telnet
(config-line)#line con 0
(config-line)#login
(config-line)#password console
(config-line)#exit
(config)#int vlan 1
(config-if)#ip address 172.16.10.17 255.255.255.0
(config-if)#no shut
(config-if)#int f0/1
(config-if)#description sales printer(with space)
(config-if)#int f0/12
(config-if)#description connection to backbone
(config-if)#exit
(config)#ip default-gateway 172.16.10.1
(config)#
```

-Erasing Switching Configuration 1900

```
#delete nvram
yes
```

-Erasing Switching Configuration 2950

```
#erase startup-config
Enter
```

-Configuring VLANS 1900

```
>en
#config t
(config)#vlan 2 name Cisco
(config)#vlan 3 name Microsoft
(config)#vlan 4 name Comptia
(config)#exit
```

verify with command sh run

-Configuring for 2950

```
>en
#vlan database
(vlan)#vlan 2 name Cisco
(vlan)#vlan 3 name Microsoft
(vlan)#vlan 4 name Comptia
(vlan)#apply
(vlan)#^c
```

verify with command sh vlan brief

-Assigning Switch Ports To Vlan-1900

```
(config)#int e0/2
(config-if)#vlan-membership static 2
(config-if)#int e0/3
(config-if)#vlan-membership static 3
(config-if)#exit
```

verify with sh vlan

-Assigning Switch Ports To Vlan-2950

```
(config)#int f0/2
(config-if)#switchport access vlan 2
(config-if)#int f0/3
(config-if)#switchport access vlan 3
(config-if)#int f0/4
(config-if)#switchport access vlan 4
(config-if)#
```

verify with sh vlan brief

-Configuring Trunks ports

```
(config)#int f0/26
(config-if)#trunk on
```

-Configuring Trunk Ports for 2950

```
(config)#int f0/12
(config-if)#switchport mode trunk
(config-if)#^z
#
```

-To disable Trunk use- switchport mode access

-To verify Trunking use sh running config

-Configuring Inter-vlan Routing for 1900 connecting to 2600

```
(config)#int f0/0.1
(config-if)#encapsulation isl vlan (d number)
```

-Configuring Inter-vlan Routing for 2950 connecting to 2600

```
(config)#int f0/0.1
(config-if)#encapsulation dot1q vlan (d number)
```

-Configuring VTP for 1900

```
(config)#vtp server
```

```
(config)vtp domain kenn  
(config)#vtp password kenn
```

-Configuring VTP for 2950

```
(config)#vtp mode server  
(config)#vtp domain routersim  
(config)#^z
```

-verify with sh vtp status

-Checking the Current Configuration Register Values

show version or show ver

-Changing Configuration Register

```
(config)#config-register 0x101 (d default is 0x2102)  
(config)#^z
```

-Recovering Passwords

-1. Interrupt the Router Boot Sequence
ctrl+Break key (windows wont perform break key, only 95/98)

-2. Changing the configuration register
-for 2600 series router
rammon>confreg 0x2142

-for 2500
type 0 after a break and enter the command o/r 0x2142

-3. Reloading the Router and Entering Privileged mode
-for 2600-type reset
-for 2500-type I

-4. Viewing and changing the configuration
-copy run start

-5. Resetting the configuration Register and Reloading the Router
-config t
-config-register 0x2102
-copy run start-to save

-Backing up and restoring the Cisco ios

-1. verifying flash memory-Ensuring flash memory has enough room
router#sh flash

-2. Backing-up the ciso ios
first verify server connectivity by- Router#ping 192.168.0.120
then; router#copy flash tftp

-3. Restoring or upgrading the cisco router ios
router#copy tftp flash
[confirm][ENTER]
?[ENTER]

-Backing up and Restoring the Cisco configuration

1. Backing up the cisco router configuration

-copy run config tftp

2. verifying the current configuration

-sh run

3. copying the current configuration to NVRAM

-copy run start

4. copying the current configuration to a TFTP server

-copy run TFTP

5. Restoring the Cisco Router Configuration

-copy TFTP run

6. Erasing the configuration

-erase startup-config

-Getting CDP timers and Holdtime information

Router#config t

Router(config)#cdp timer 90

Router(config)#cdp holdtime 240

Router(config)#^z

-To turn-off CDP Completely-no cdp run

-Gathering Neighbour information

kenn2509#sh cdp nei- delivers information about directly connected devices

OR kenn2509#sh cdp neighbour detail Also sh cdp entry

-Gathering Interface Traffic Information

kenn2509#sh cdp traffic

-Gathering port and Interface information

kenn2509#sh cdp interface

-To turn off cdp on a router, use

no cdp enable then ^z

-Using Telnet

kenn2509#telnet 172.16.10.2

-Telnetting into multiple devices simultaneously

kenn2509#telnet 172.16.10.2

then, 2501B>{cntl+shift+6, then x}

-checking Telnet connections

```
kenn2509#sh sessions-connections from your router to remote
```

-checking Telnet users

```
kenn2509#sh user
```

-closing Telnet sessions

```
1900switch>exit OR
```

```
kenn2509#disconnect1 (num of active networks)
```

-Resolving Hostname

```
kenn2509#config t
```

```
kenn2509(config)#ip host 2501B 172.16.10.2
```

```
kenn2509(config)#ip host 1900switch 192.168.0.148
```

```
kenn2509(config)#^z
```

-To remove a hostname from a table, use

```
RouterA(config)#no ip host routerB
```

-Using DNS to resolve names

```
#config t
```

```
(config)#ip domain-lookup (usually turned on by default)
```

```
(config)#ip name-server 192.168.0.70 (ip of an assumed DNS set)
```

```
(config)#ip domain-name kenn.com (Appends the domain name to a host)
```

```
(config)#^z
```

-Check Network Connectivity

```
use ping command
```

```
#ping kenn2509
```

-Using Traceroute command

```
#trace 2501B
```

-Creating a Standard Access Lists (1-99 or 1,300-1,999)

```
(config)#access-list 10 deny 172.16.30.2 (using the ip as a test)
```

-Controlling vty(Telnet) sessions

```
(config)#access-list 50 permit 172.16.30.2
```

```
(config)#line vty 0 4
```

```
(config-line)#access-class 50 in
```

-Creating Extended Access-lists (100 to 199) OR (2000 to 2699)

```
(config)#access-list 110 deny tcp any host 172.16.30.2 eq 23 log
```

```
(config)#access-list 110 permit ip any any
```

```
(config)#int f0/0
```

```
(config-if)#ip access-group 110 in
```

```
(config-if)#ip access-group 110 out
```


