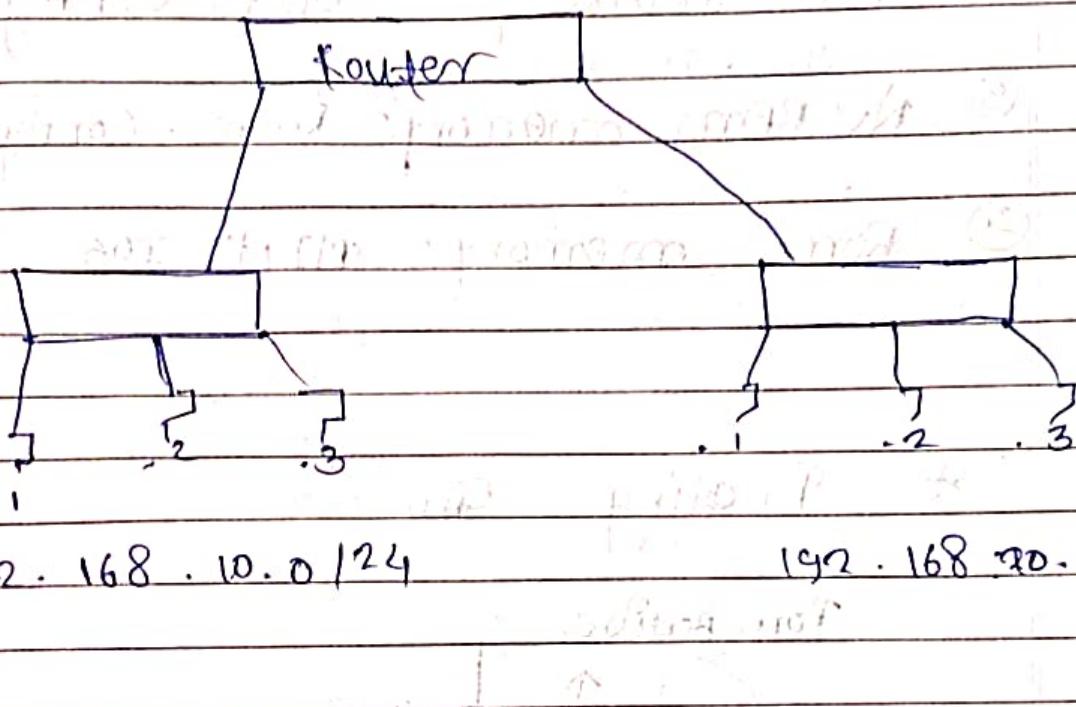


# \* Router.

Layer 3 device (Network)  
different network Common.



② Packet filtering & forwarding.

4. close no come before

(4.1) - for wrong

(4.2) - globe who come after

reject

Router info

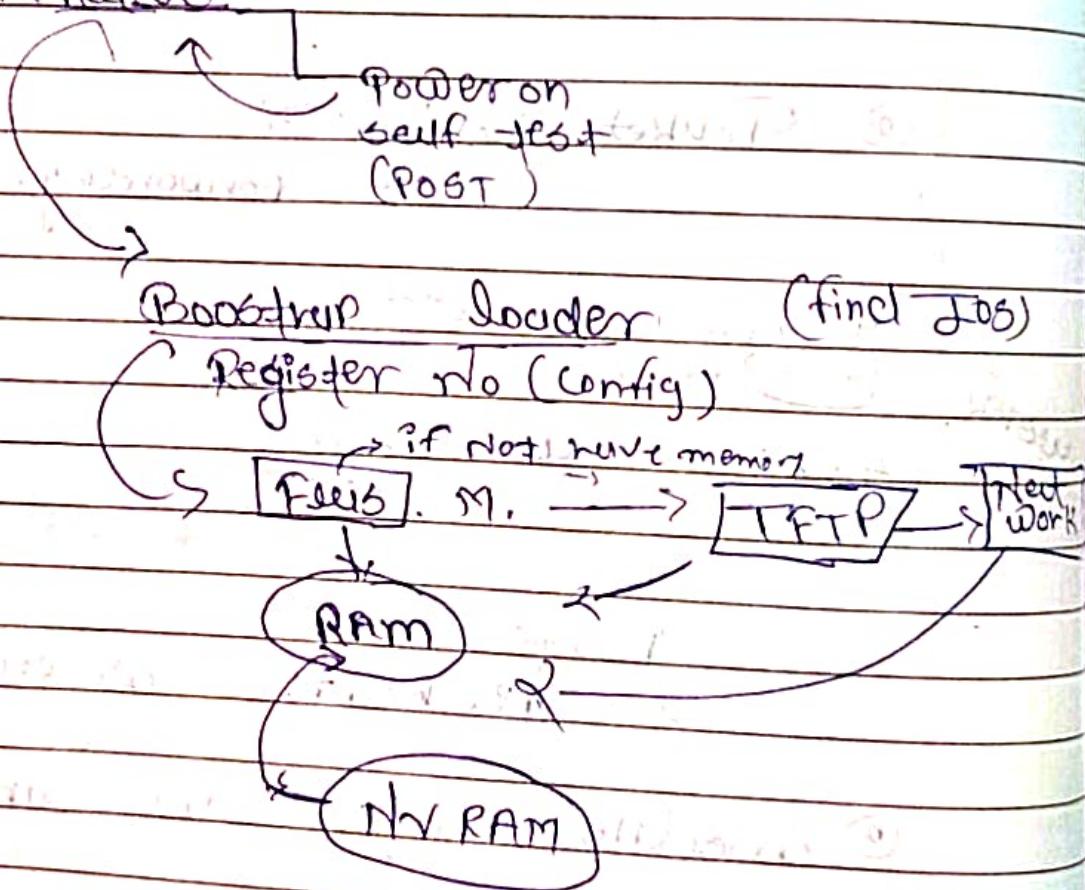
① Fix Router: We can't Change Port

② modify Router: We can Change Port

- ① Flash memory: IOS Image.
- ② RAM memory: Temp. Config.. (Running Config..)
- ③ NVRAM memory: Ram . Config.. (Startup config.)
- ④ Rom. memory: MINI IOS / help Boot process

### \* Booting Process

Rom Active



Command

Router > Show Running-Config  
Hostname model

running - Config  
environment

> → User execution mode.

# → Privilege mode.

(config) # → global Config mode.

Router > we can use shortcuts.

Router > Show Running-Config

Router > enable  
↓  
Command to go next mode

Router # Configure terminal

Router(config)# If there are more  
commands using same  
short-cut then that  
short-cut not work  
Ex: ① Configuration ② Connect

## \* Command's For Hostname Change

① Router (config) # hostname R1.

R1(Config) # hostname R2.

## ② Password Com.

Router (config) # enable Password 123  
(clear text)

Router(config) # enable Secret 1234 (Encrypt)

## ③ Line Console Com.

Router (config) # line console 0 → (clear text)

(Config-line) # Password 1234

(Config-line) # login

(Config-line) # encls.

Command for make Password encrypt

(cmd #)

Router (config) # Service password-encryption

(cmd #)  
method

Router# show flash: To see content  
OR bin

Router# dir flash:

Router# (show) version for generation of IOS.

Router# (show) ip interface brief:

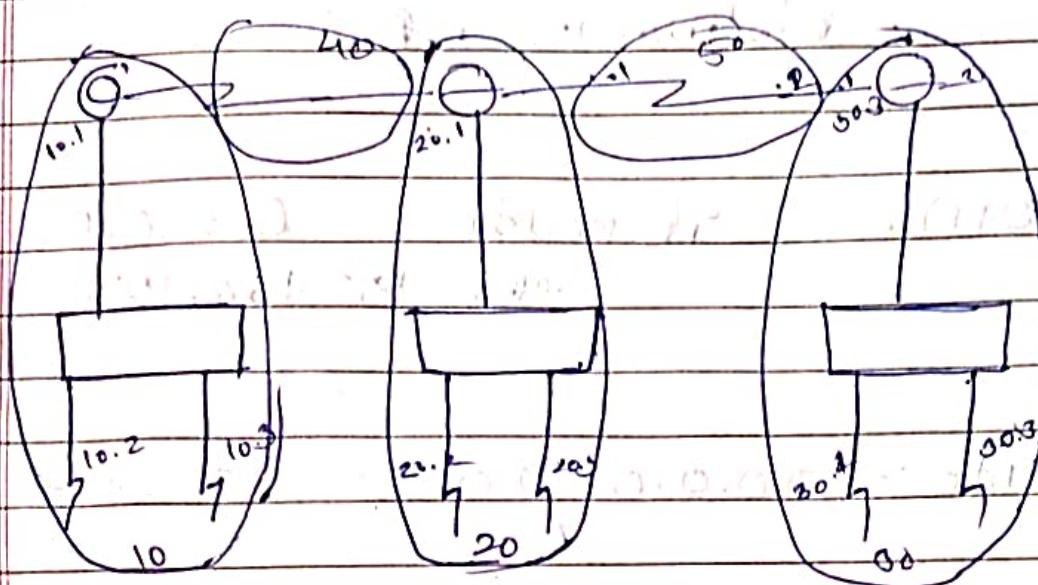
(name or IP is  
IP: yes or no up down)

Router# (show) interface

Router# (show) interface full (for see interface  
for particular)

Router# (show) running-config (to see RAM memory)

Router# (show) startup-config (running config)



31/10/2025

## Protocol.

Routel

Routing

IP

IPX

APPN

FATP  
BGP

Static

Default

Dynam

DxRP

RIP

TGRP

LSRP  
OSPF

IS-IS

Adsl  
DVRP

- EIGRP

### ③ Dynamic :

i) ~~Dyn~~ RIPv1 : Routing Information Protocol

ii) Distance Vector Routing Protocol

Ad-value :-  $\rightarrow$  RIPv1 ( $\sqrt{120}$ ) changeable  
 (Administrative) distance - use for protocol preference.

④ Metric :- use for Shortest Path First Protocol  
 $\rightarrow$  How much Router (hop count)

unit (hop Count)

Max :- 15

### Timers:

update / Hello time : 30 sec -> period

② Hold-time Timer : 180 down

③ Jitter Timer : 180 If ( -11 - )

④ Flush Timer : 240.

IP Routing.

- ① RIPv1
- classfull
- no VLSM
- Broadcast
- 255.255.255.255.

OR RIP v2

classless

VLSM

multicast

224.0.0.19

(Config) # Router RIP

(Config route) # Network 192.168.10.10

(Config route) # exit.

(Config) # route RIP v2 all 255.255.255.255

(- 11 -) # Version 2

(- 11 -) # Network 192.168.10.0

(- 11 -) # exit.

## Enhanced Interior Gateway Routing Protocol.

- EIGRP is a Cisco-Proprietary Hybrid routing Protocol incorporating features of both Distance-Vector and Link State Routing Protocol.

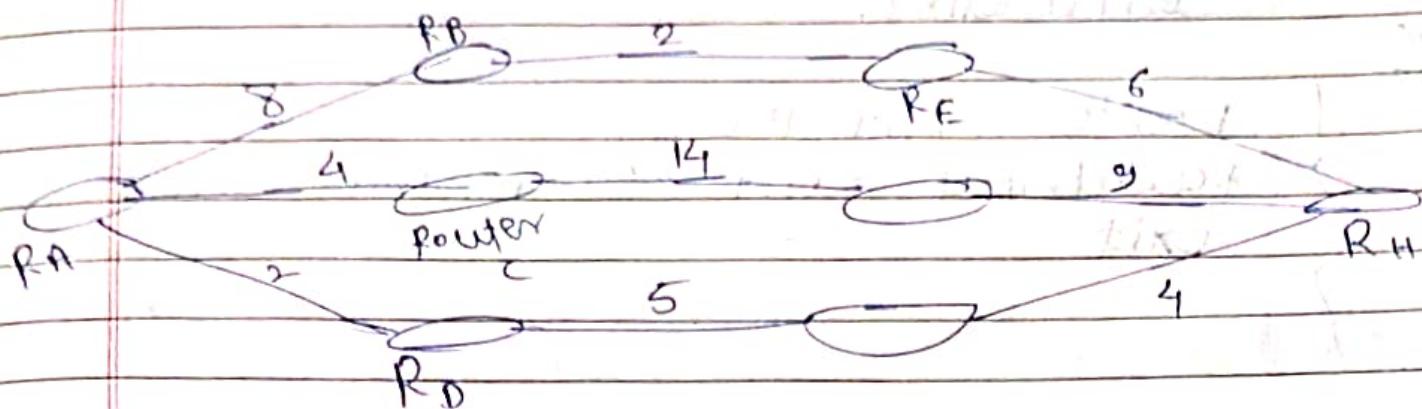
- EIGRP uses Diffusing Update Algorithm (DU) to determine the best path among all feasible paths (DU) also helps ensure a loop-free routing environment.

- EIGRP will form neighbor relationship with adjacent router in the same Autonomous System (AS).

- EIGRP traffic is either sent as Unicast or as multicast on address 224.0.0.10 depending on the EIGRP packet type.

- Reliable Transport Protocol (RTP) is used to ensure delivery of most EIGRP packets.

- EIGRP routers do not send periodic full-time-table routing.



- Remember, however, that Router A's Feasible Distance must be the router within the lowest metric; if we add the Advertised Distance with the local metric between each router, we would see this:

R\_B has a distance of 16 to the destination.

R\_C has a distance of 27 to destination.

R\_D has a distance of 11 to the destination.

thus - the route through Router D (metric)

would become the feasible distance.

for router A, and is added to the routing table as the best route. this route is identified as the successor.

To allow convergence to occur quickly if a link fails, FIBR +

incudes Backup routers in the topology. Feasible Successors (FS). A route

will only become a successor if its Advertised Distance is less than the current Feasible Distance. This knowns as feasible successor.

## Command:

(for  
loop)

Router# `Router#` `eigrf 100`

`redistribute eigrf 200 metric 11111`

`exit`

(for  
loop)

Router# `Router#` `eigrf 200`

`redistribute eigrf 100 metric 11111`

`exit`

open shortest Path first.

OSPF is a Standardized link-state routing protocol designed to scale efficiently to support larger networks.

• OSPF employs a hierarchical network design using areas.

• OSPF uses neighbor relationship with adjacent routers in the same area.

• Instead of advertising the distance to connected networks, OSPF uses Link State Advertisements (LSA).

• OSPF sends updates whenever there is a change to one of its links and will only send the changes in the updates. LSAs are refreshed every 30 minutes.

• OSPF traffic is multiplexed either to address 224.0.0.5 or 224.0.0.6.

• OSPF uses the Dijkstra shortest path first algorithm to determine the shortest path.

• OSPF is a classless protocol and thus supports VLMs.

- The Router ID can be manually specified.
- If not manually specified, the highest IP address configured on any Loopback interface on the router will become the Router ID.
- If no loopback interface exists, the highest IP address configured on any physical interface will become the Router ID.

Hello packets are sent out OSPF interface every 10 sec for broadcast and Point-to-Point interfaces and 30 sec for non-broadcast and Point-to-multipoint interfaces.

OSPF router will only become neighbor if following parameters within peaker are identical on both routers.

- Area ID
- Area type (Stub NSSA, etc)
- Prefix
- Hello Interval
- Doubt interval
- Network type
- Authentication