

Simulate Static Routing Configuration using CISCO Packet Tracer.

Aim:

To simulate static Routing Configuration using Cisco packet tracer.

Procedure:

1) Set up the networks topology with three routers (Router 0, Router 1, Router 2) connected to their respective networks.

Router 0 connected to 10.0.0.0/8, 20.0.0.0/8, 40.0.0.0/8

Router 1 connected to 20.0.0.0/8, 30.0.0.0/8, 50.0.0.0/8

Router 2 connected to 40.0.0.0/8, 50.0.0.0/8

2) Access the CLI of Routers and configure static routes for networks not directly connected.

Add two static routes for 30.0.0.0/8 with the first via Router 1 (main) & second via Router 2 (backup) using different administrative distances.

Add two static host routes for 30.0.0.100/32, main via Router 2 & backup via Router 1.

Add two static routes for 50.0.0.0/8 main via Router 2 & backup via Router 1.

3) Access Router CLI & configure:

Two static routes for 10.0.0.0/8, main via Router 0, backup via Router 2.

Router	Available networks on local Interfaces	Network available on other router interfaces.
Router 0	10.0.0.0/8, 20.0.0.0/8, 40.0.0.0/8	30.0.0.0/8, 50.0.0.0/8
Router 1	20.0.0.0/8, 30.0.0.0/8, 50.0.0.0/8	10.0.0.0/8, 40.0.0.0/8
Router 2	40.0.0.0/8, 50.0.0.0/8	10.0.0.0/8, 20.0.0.0/8, 30.0.0.0/8

Two static routers for 40.0.0.0/8, main via Router 1
backup via Router 2.

4) Access Router 2 CLI & configure static router

* 10.0.0.0/8

* 30.0.0.0/8

5) Verify the routing table on each router using the command.

Show ip route static.

Ensure only main routers appear in the routing table initially.

6) Test connectivity from a PC in the 10.0.0.0/8 networks to hosts in the 30.0.0.0/8 & 50.0.0.0/8 networks using ping & traceroute commands.

7) Simulate failure of main route by disabling the interface or deleting the static route to Router 1 on Router 0.

8) Verify that the backup router is now active in the routing table & test connectivity again.

9) Optionally, delete static route using
no ip route [destination-network]
[subnet-mask] [next-hop-address]

Observation:

* Static router for unreachable networks were successfully added to each router.

* Only router with lowest administrative distance were shown in the routing table as main router.

* Backup router automatically took over when the main router failed, ensuring network.

* Host specific router were preferred over network router.

* Ping & tracer tests confirmed data packets followed the expected paths.

* Deleting static route removed them from the routing table & promoted backup router if configured.

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Result:

Static router were configured successfully with main & backup paths. Backup router activated automatically upon main router failure ensure net connected.