

16/10/2024

Week-3(Experiment 2b and 3a)

Observation Book:

LAB-03 16/10/2024

exp-2

Aim: To connect 2 PC's to 2 different routers and the routers connected to each other configuration of two routers.

Topology:-

Diagram illustrating the network topology:

- Two routers, Router 0 and Router 1, are connected via their serial ports (Se2/0).
- Router 0 has a Fa0/0 port connected to PC0 (PC-PT) with IP 10.0.0.1.
- Router 1 has a Fa0/0 port connected to PC1 (PC-PT) with IP 20.0.0.1.
- The routers are labeled with their respective IP addresses: 30.0.0.1 for Router 0 and 30.0.0.2 for Router 1.

Procedure:

- Add 2 PC's and two generic routers on the workspace.
- Give the PC's, an IP address and default gateway.
- Let PC0 be connected to Router 0 through a copper cross over and similarly PC1 to Router 1.
- Let the two routers be connected to each other through serial DCE.
- click on router and go to the CLI command continue with configuration dialog.

Router ~~#~~ enable

Router# config terminal

Router(config)# interface fastethernet 0/0

Router(config-if)# ip address 10.0.0.1 255.0.0.0

Router(config-if)# no shutdown

Router(config-if)# exit

→ Similar for other Router 2.

→ To configure the two routers.

↳ click on CLI of Router 0:-

Router(config)# interface serial 2/0

Router(config-if)# ip address 30.0.0.1 255.0.0.0

Router(config-if)# no shutdown

Router(config-if)# exit

↳ similar for the Router 1.

→ for PC0, in Desktop, in command prompt

PC > ping 20.0.0.1

↳ gives Destination host unreachable.

PC > ping 30.0.0.2

↳ ~~Request timed out~~ Request timed out

PC > ping 30.0.0.1

↳ successful

* Observation

- The buttons on the copper cross over turned green
- The routers are configured, But the end devices i.e. the nodes are not ~~connecting~~ communicating.

EXP-03

16/10/2024

Aim: Configure default route, static route to router configure static connection to route.

Topology: same as experiment-02

Procedure: * go to CLI of router0 and in CLI enter

Router#enable

Router#config terminal

Router(config)#ip route 20.0.0.0
255.0.0.0 30.0.0.2

Router(config)#exit

* Repeat the same for router0 by changing 20 to 10 and 30.0.0.2 to 30.0.0.1.

Observation: in CLI

#show ip route

(for router 2)

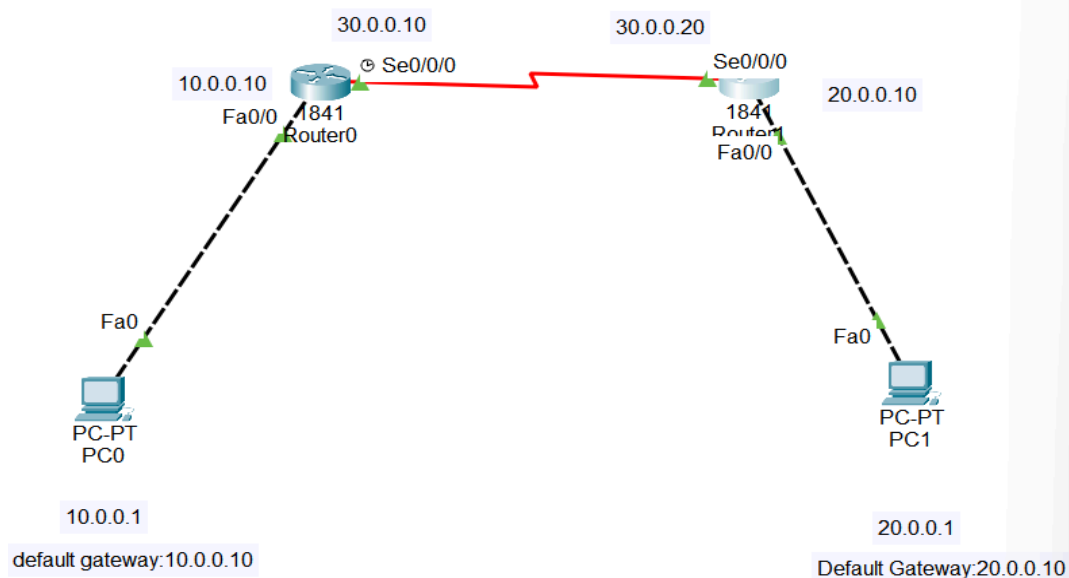
S 10.0.0.0/8 [1/0] via 30.0.0.1

C 20.0.0.0/8 is directly connected,
Fast Ethernet 0/0

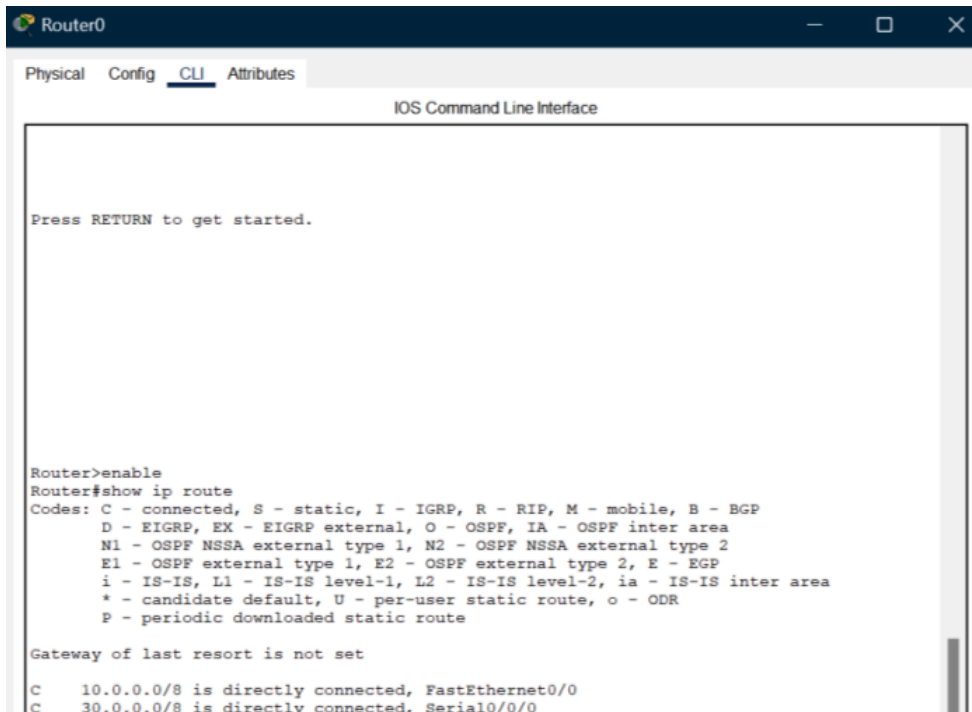
C 30.0.0.0/8 is directly connected,
serial 0/0/0.

OUTPUT: on pinging end devices, the message sent is sent, also router are as well.

Topology:



Output:(Before Static Routing):



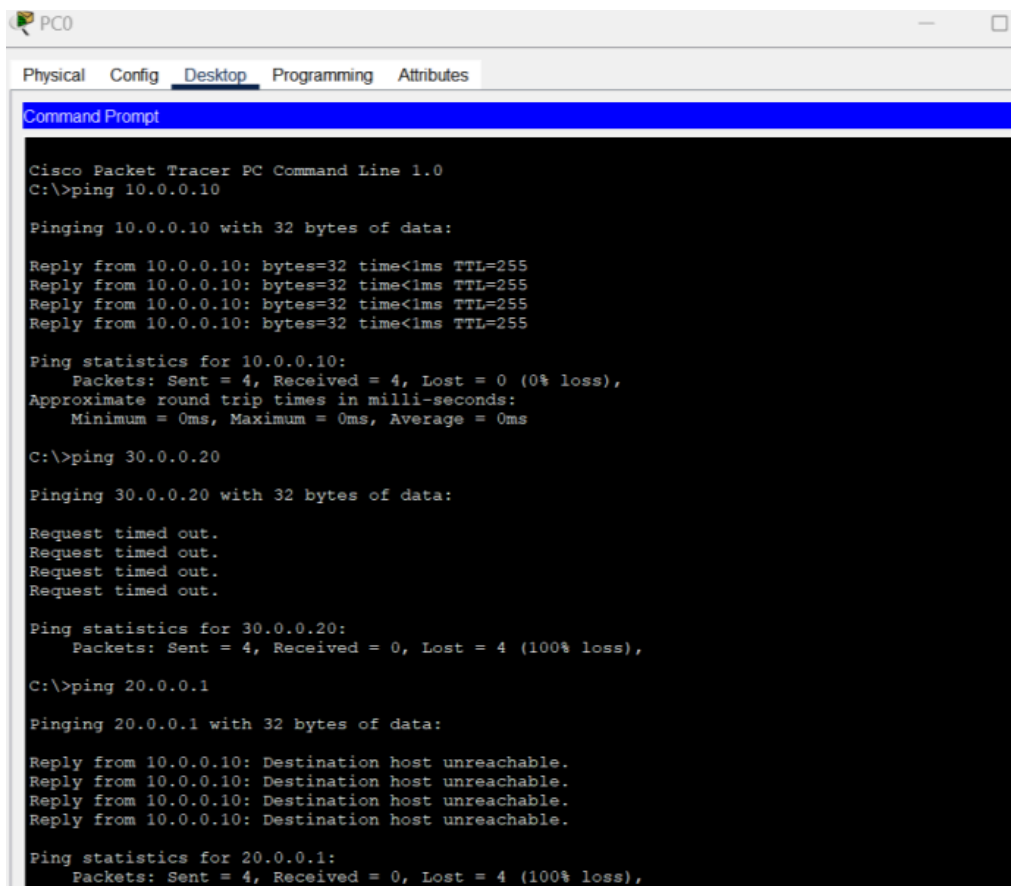
```
Router0
Physical Config CLI Attributes
IOS Command Line Interface

Press RETURN to get started.

Router>enable
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
        i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
        * - candidate default, U - per-user static route, o - ODR
        P - periodic downloaded static route

Gateway of last resort is not set

C    10.0.0.0/8 is directly connected, FastEthernet0/0
C    30.0.0.0/8 is directly connected, Serial0/0/0
```



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.10

Pinging 10.0.0.10 with 32 bytes of data:

Reply from 10.0.0.10: bytes=32 time<1ms TTL=255
Reply from 10.0.0.10: bytes=32 time<1ms TTL=255
Reply from 10.0.0.10: bytes=32 time<1ms TTL=255
Reply from 10.0.0.10: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 30.0.0.20

Pinging 30.0.0.20 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 30.0.0.20:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

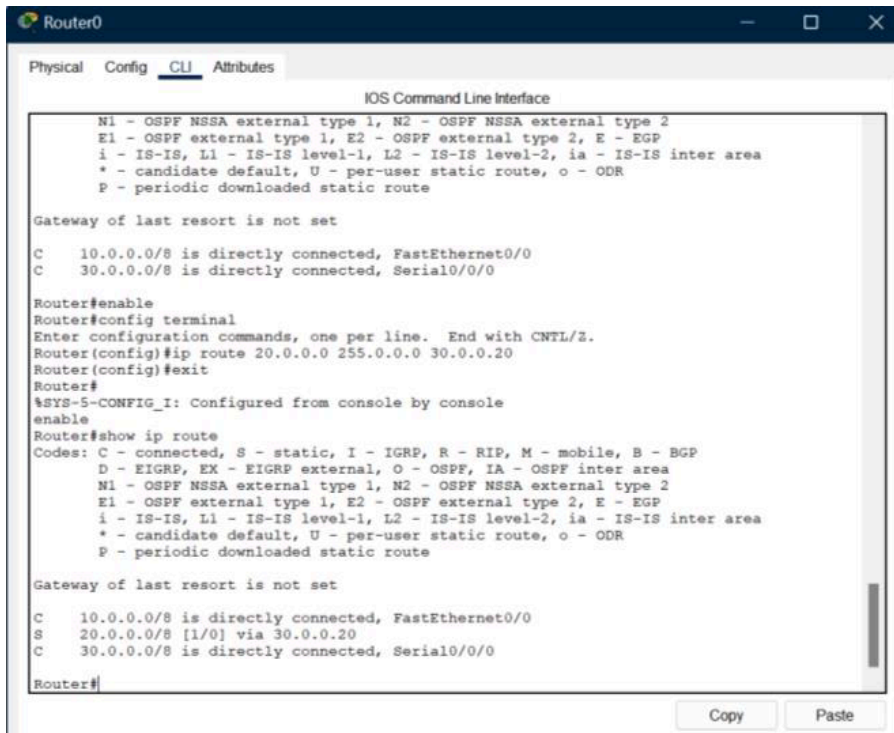
C:\>ping 20.0.0.1

Pinging 20.0.0.1 with 32 bytes of data:

Reply from 10.0.0.10: Destination host unreachable.
Reply from 10.0.0.10: Destination host unreachable.
Reply from 10.0.0.10: Destination host unreachable.
Reply from 10.0.0.10: Destination host unreachable.

Ping statistics for 20.0.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

(After Static Routing):



Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route

Gateway of last resort is not set

C 10.0.0.0/8 is directly connected, FastEthernet0/0
C 30.0.0.0/8 is directly connected, Serial0/0/0

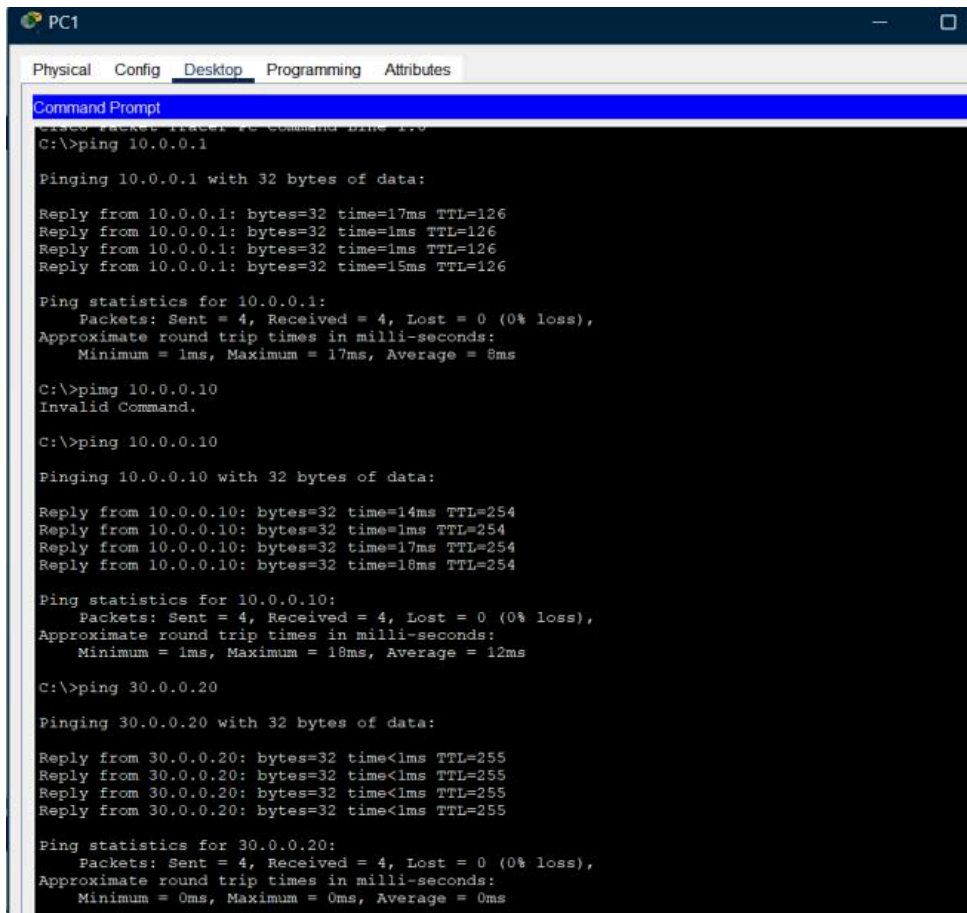
Router#enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 20.0.0.0 255.0.0.0 30.0.0.20
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
enable
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
        i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
        * - candidate default, U - per-user static route, o - ODR
        P - periodic downloaded static route

Gateway of last resort is not set

C 10.0.0.0/8 is directly connected, FastEthernet0/0
S 20.0.0.0/8 [1/0] via 30.0.0.20
C 30.0.0.0/8 is directly connected, Serial0/0/0

Router#
```

Copy Paste



PC1

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=17ms TTL=126
Reply from 10.0.0.1: bytes=32 time=1ms TTL=126
Reply from 10.0.0.1: bytes=32 time=1ms TTL=126
Reply from 10.0.0.1: bytes=32 time=15ms TTL=126

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 17ms, Average = 8ms

C:\>ping 10.0.0.10
Invalid Command.

C:\>ping 10.0.0.10

Pinging 10.0.0.10 with 32 bytes of data:

Reply from 10.0.0.10: bytes=32 time=14ms TTL=254
Reply from 10.0.0.10: bytes=32 time=1ms TTL=254
Reply from 10.0.0.10: bytes=32 time=17ms TTL=254
Reply from 10.0.0.10: bytes=32 time=18ms TTL=254

Ping statistics for 10.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 18ms, Average = 12ms

C:\>ping 30.0.0.20

Pinging 30.0.0.20 with 32 bytes of data:

Reply from 30.0.0.20: bytes=32 time<1ms TTL=255
Reply from 30.0.0.20: bytes=32 time<1ms TTL=255
Reply from 30.0.0.20: bytes=32 time<1ms TTL=255
Reply from 30.0.0.20: bytes=32 time<1ms TTL=255

Ping statistics for 30.0.0.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```