

Program3

Aim: To demonstrate the configuration of default routes to the router

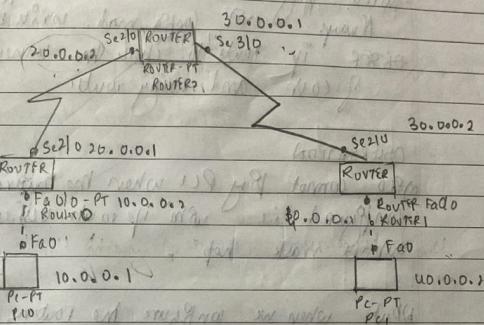
Procedure along with the topology

EXPERIMENT-3

classmate
Date _____
Page _____

AIM: To demonstrate the configuration of default routes to the router

CONFIGURATION TOPOLOGY



CONFIGURATION:

- Set the IP addresses and gateways as per the diagram
- Configure routers using fastethernet and serial interfaces
- Go to the terminal mode for each and enter config mode
- Type ip route dest/mask subnet mask hop
e.g.: (for Router 1)

30.0.0.0 255.0.0.0 20.0.0.1

20.0.0.0 255.0.0.0 20.0.0.2

for Router 1

10.0.0.0 255.0.0.0 20.0.0.2

20.0.0.0 255.0.0.0 30.0.0.2

for Router 2:

10.0.0.0 255.0.0.0 30.0.0.1

20.0.0.0 255.0.0.0 30.0.0.1

Configuring routers: interface Set to man enter ip
add routes as it is

- Open desktop → command prompt of desktop PC
- Write ping 10.0.0.2
- Always exit config mode, write "show ip route" to check the connections of each and every router

OBSERVATION

PC cannot ping PC1 when the routers aren't configured i.e. with ip route dest. n/w subnet mask hop.

But when we configure the routers with the above commands as per given in CONFIGURATION PC will be able to ping PC1

Case a) OUTPUT

Ping 10.0.0.2

Pinging 10.0.0.2 with bytes of data

Reply from 10.0.0.1: Destination host unreachable

Reply from 10.0.0.2: Destination host unreachable

Reply from 10.0.0.2: Destination host unreachable

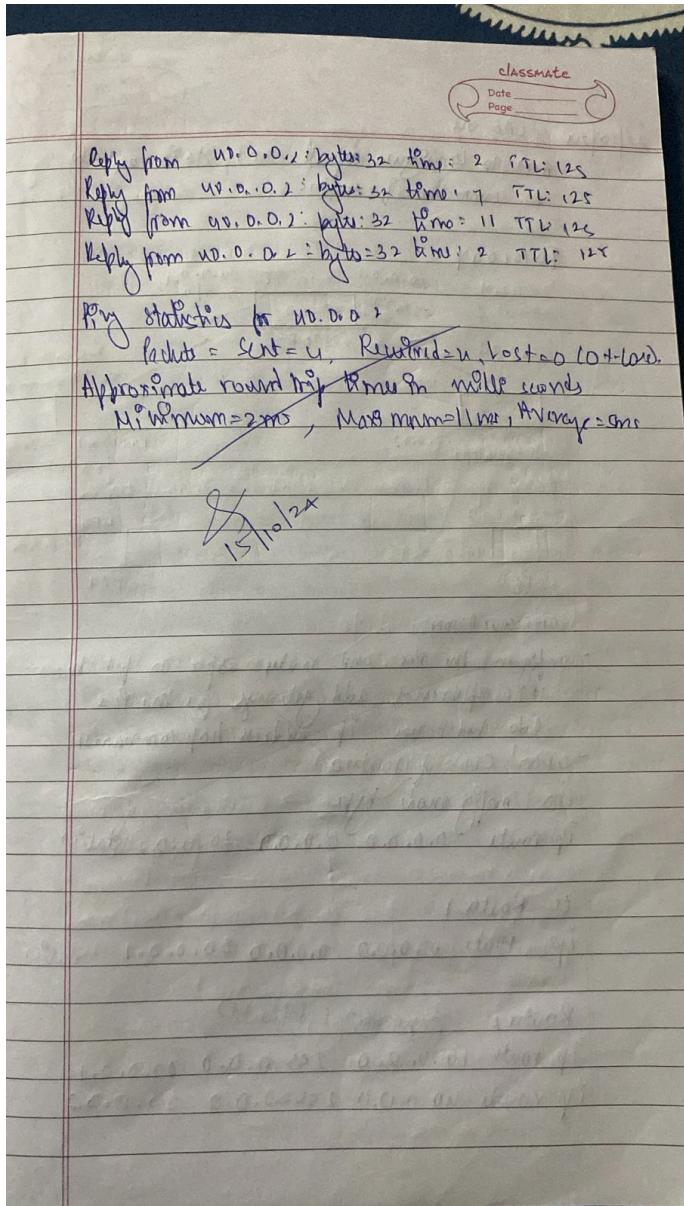
Ping statistics for 10.0.0.2

Packets: Sent = 4, Received = 6, Lost = 4 (100% loss)

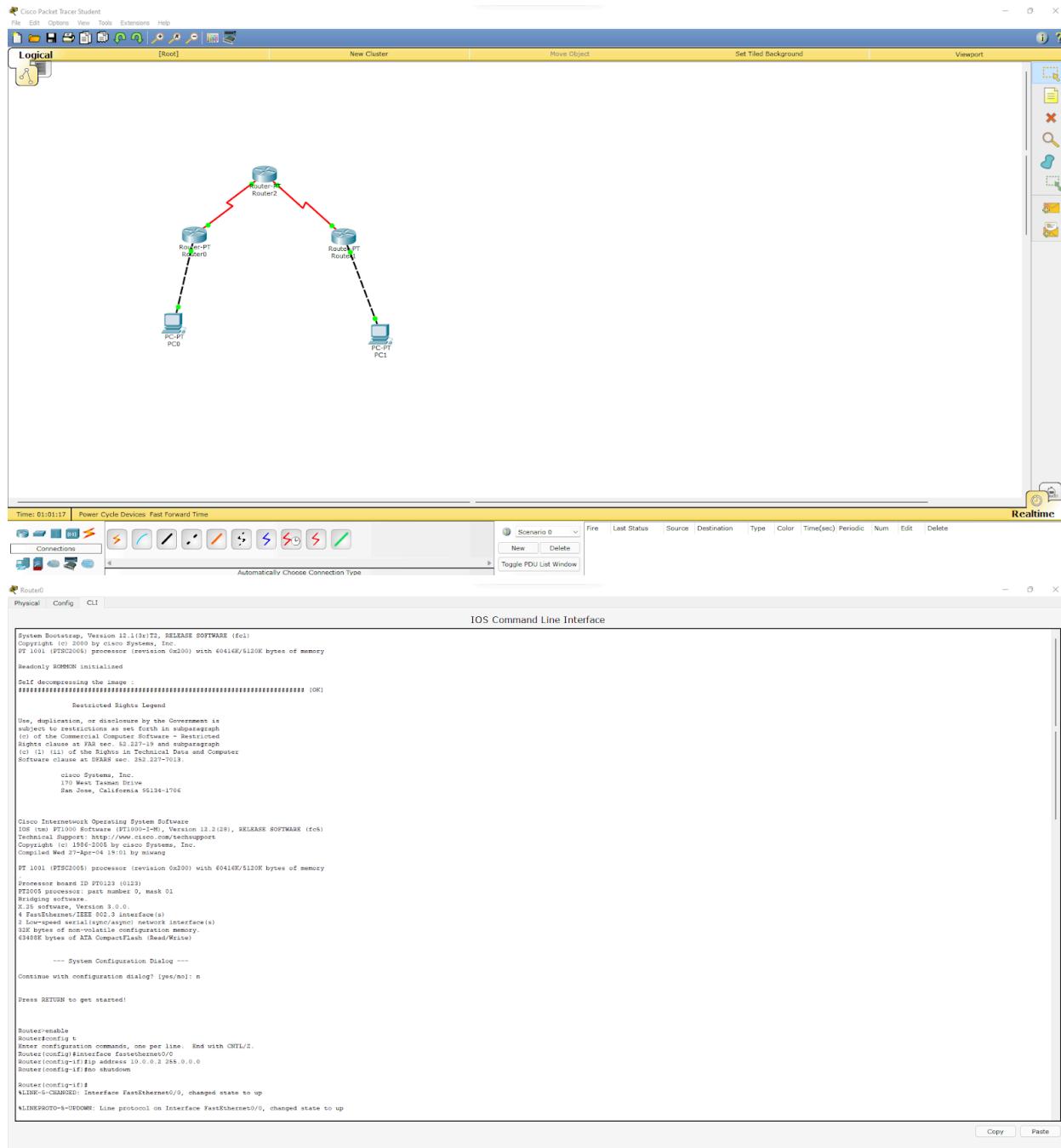
Case b) OUTPUT

Ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data



Screen shots/ output



```
Routef
Physical Config CLI

IOS Command Line Interface

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
$LINE-5-CHANGED: Interface FastEthernet0/0, changed state to up
$LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#line
Router(config-if)#interface serial2/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
$LINE-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#
Router(config)#
$LINE-5-CHANGED: Interface Serial2/0, changed state to up
$LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router con0 is now available

Press RETURN to get started.

Router>
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 30.0.0.0
% Incomplete command
Router(config)#ip route 30.0.0.0 255.0.0.0 20.0.0.2
Router(config)#ip route 40.0.0.0 255.0.0.0 20.0.0.2
Router(config)#
Router#
$SYS-3-CONFIG_I: Configured from console by console
```

Router1

Physical Config CLI

IOS Command Line Interface

```

Router>enable
Router(config)#
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 49.0.0.2
* 10:00:00:00:00:02
Router(config-if)#ip address 49.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
*LINE=0-CHANGED: Interface FastEthernet0/0, changed state to up
*LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
* Invalid input detected at `''' marker.

Router(config-if)#exit
* Invalid input detected at `''' marker.

Router(config-if)#interface serial2/0
Router(config-if)#ip address 39.0.0.1 255.0.0.0
Router(config-if)#no shutdown

*LINE=0-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
* Invalid input detected at `''' marker.

*LINE=0-CHANGED: Interface Serial2/0, changed state to up
*LINEPROTO-4-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#ip address 20.0.0.0 255.0.0.0 20.0.0.2
* Invalid input detected at `''' marker.

Router(config)#ip route 20.0.0.0 255.0.0.0 30.0.0.2
Router(config)#ip route 10.0.0.0 255.0.0.0 30.0.0.2
Router(config)#
*SYS=4-CONFIG_I: Configured from console by console

Router>show ip routes
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 - EGP
       E2 - EGP external, 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

S 10.0.0.0/8 [1/0] via 30.0.0.2
S 20.0.0.0/8 [1/0] via 30.0.0.2
S 30.0.0.0/8 is directly connected, Serial2/0
C 49.0.0.0/8 is directly connected, FastEthernet0/0
Routes#

```

Router2

Physical Config CLI

IOS Command Line Interface

```

Router>enable
Router(config)#
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial2/0
Router(config-if)#ip address 20.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
*LINE=0-CHANGED: Interface Serial2/0, changed state to up
*LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#interface serial3/0
Router(config-if)#ip address 39.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
*LINE=0-CHANGED: Interface Serial3/0, changed state to up
*LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

Router(config)#
*SYS=4-CONFIG_I: Configured from console by console

Router>show ip routes
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 - EGP
       E2 - EGP external, 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

Press RETURN to get started.

Router>com is now available

Router>

```

Router#

Physical Config CLI

IOS Command Line Interface

```
Router(config)#exit
Router(config)#
*LINE2920T0-5-UNDEFNN: Line protocol on Interface Serial2/0, changed state to up
Router(config)interface serial3/0
Router(config-if)ip address 30.0.0.2 255.0.0.0
Router(config-if)no shutdown
Router(config-if)#
*LINE2920T0-5-UNDEFNN: Interface Serial3/0, changed state to up
Router(config)interface serial3/0
*LINE2920T0-5-UNDEFNN: Line protocol on Interface Serial3/0, changed state to up
Router(config-if)exit
Router(config)ip route 10.0.0.0 255.0.0.0 20.0.0.1
Router(config)ip route 40.0.0.0 255.0.0.0 30.0.0.1
Router(config)#
Router(config)#
Router con0 is now available

Press RETURN to get started.

Router>show ip route
Codes: C - connected, S - static, I - IGMP, B - RIP, M - mobile, R - RCP
       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
       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 - OSPF
       P - periodic downloaded static route
Gateway of last resort is not set

S 10.0.0.9/32 [1/0] via 20.0.0.1
C 20.0.0.9/32 is directly connected, Serial2/0
B 20.0.0.9/32 is directly connected, Serial3/0
S 40.0.0.9/32 [1/0] via 30.0.0.1
Router>
```

```
Physical Config Desktop Custom Interface

Command Prompt

Packet Tracer PC Command Line 1.0
PCping 40.0.0.1

Ping 40.0.0.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
PCping 40.0.0.1

Ping 40.0.0.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
PCping 40.0.0.1

Ping 40.0.0.1 with 32 bytes of data:
Request timed out.
Reply from 40.0.0.1: bytes=32 time=0ms TTL=125
Reply from 40.0.0.1: bytes=32 time=0ms TTL=125
Reply from 40.0.0.1: bytes=32 time=0ms TTL=125

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
PCping 40.0.0.1

Ping 40.0.0.1 with 32 bytes of data:
Reply from 40.0.0.1: bytes=32 time=0ms TTL=125

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>
```

Observation

Reply from 192.0.0.1: bytes: 32 time: 2 TTL: 125
 Reply from 192.0.0.2: bytes: 32 time: 7 TTL: 125
 Reply from 192.0.0.2: bytes: 32 time: 11 TTL: 125
 Reply from 192.0.0.2: bytes: 32 time: 2 TTL: 125

ping statistics for 192.0.0.2:

packets = 5, lost = 0, error = 0 (0% loss).

Approximate round trip time in milli seconds

Min = 2ms, Max = 11ms, Average = 5ms

15×10^{-3}

DESCRIPTION:
 who can't ping P1 when no routers are in
 between? i.e. when there is no
 network break.

Ans: when we configure the routers to P2
 via other routers like P1 or P3
 configuration goes with the addition of pings.

Ans: 0 ms RTT

Ping 192.0.0.1 with bytes of data
 Ping from 192.0.0.2: Destination host unreachable
 Ping from 192.0.0.2: Destination host unreachable
 Ping from 192.0.0.2: Destination host unreachable
 Ping statistics for 192.0.0.2
 Packets sent = 4, Packets received = 4 (100% loss)

Case b) D1 P2 P3 T

Ping 192.0.0.2

Ping 192.0.0.2 with bytes of data