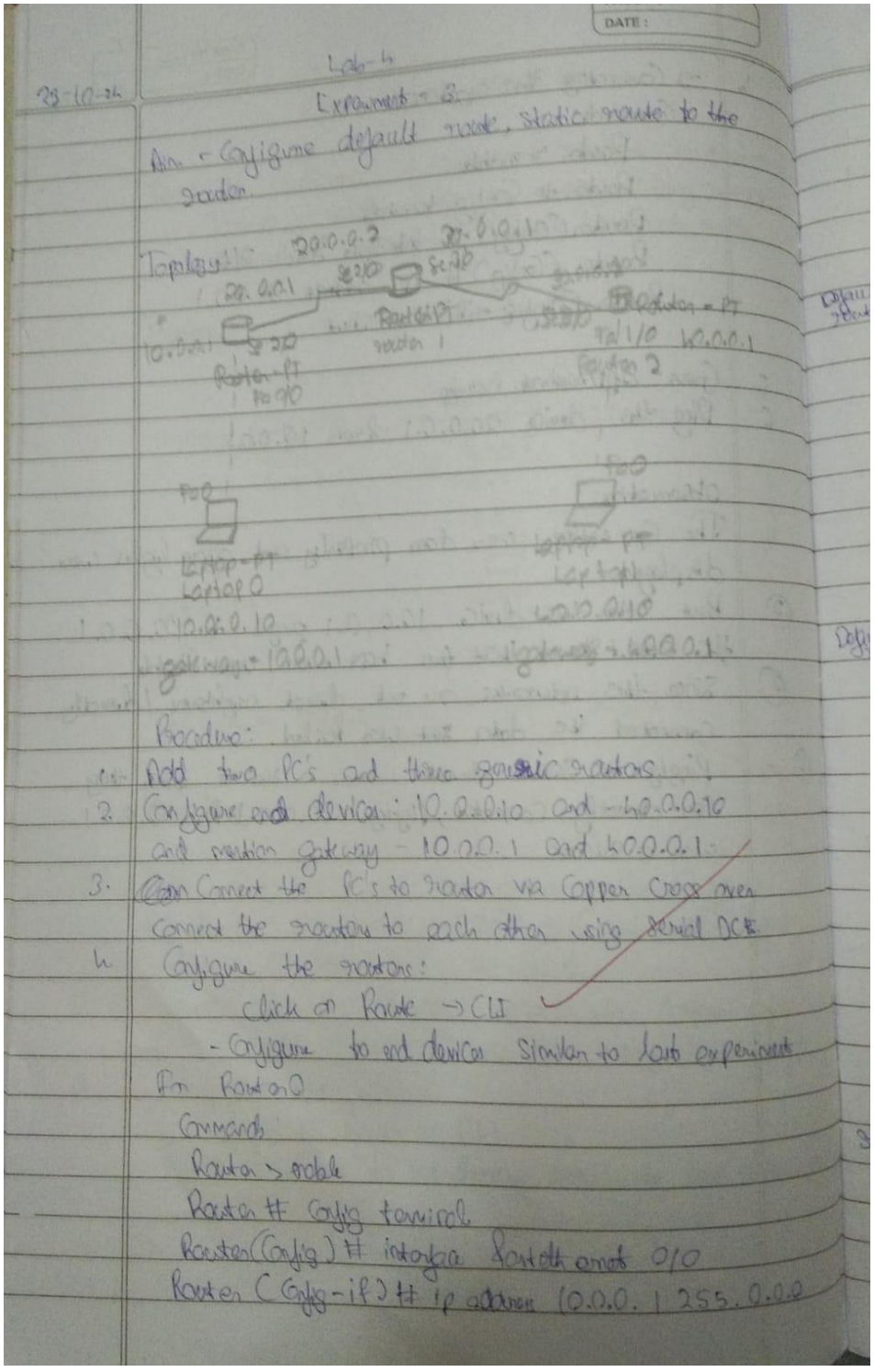
LABORATORY PROGRAM – 3

Configure default route, static route to the Router.



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DATE :

Router (config-if) # no shut
exit
Router (config) # interface serial 2/0
Router (config-if) # ip address 20.0.0.1 255.0.0.0
Router (config-if) # no shut

Default routing
Router (config) # ip route 0.0.0.0 0.0.0.0 20.0.0.2

Router 2 →
Router (config) # interface serial 3/0
Router (config-if) # ip address 30.0.0.2 255.0.0.0
Router (config-if) # no shut
exit
Router > enable
Router # config terminal
Default routing
Router (config) # ip route 0.0.0.0 0.0.0.0 30.0.0.1

Router 1 →
Router > enable
Router # config terminal
Router (config) # interface serial 2/0
Router (config-if) # ip address 20.0.0.2 255.0.0.0
Router (config-if) # no shut

Router (config) # interface serial 3/0
Router (config-if) # ip address 30.0.0.1 255.0.0.0
Router (config-if) # no shut

Static routing
Router > enable
Router # show ip route
C 20.0.0.0/8 is directly connected, Serial 2/0
C 30.0.0.0/8 is directly connected, Serial 3/0

DATE :

Router # Config terminal
Router (Config) # ip route 100.0.0.0 255.0.0.0 20.0.0.1
Router (Config) # ip route 40.0.0.0 255.0.0.0 30.0.0.2
Router (Config) # ^Z

Observation:

* All Connections (fast ethernet and Serial) have turned green.
* IP route before Set up:
C 20.0.0.0/8 is directly Connected, Serial 2/0
C 30.0.0.0/8 is directly Connected, Serial 3/0

Show ip route after setup:

S 100.0.0.0/8 [1/0] via 20.0.0.1
C 20.0.0.0/8 is directly connected, Serial 2/0
C 30.0.0.0/8 is directly Connected, Serial 3/0
S 40.0.0.0/8 [1/0] via 30.0.0.2

* Ping from one PC to another is Successful.
* So the middle router (Router 1) is setup with 2 next hops.
* Default Router: to transfer when no other route is available
* Static route: Define route with assigned destination.

C:\> Ping 40.0.0.10
Pinging 40.0.0.10 with 32 bytes of data:
Reply from 40.0.0.10 ? bytes = 32 time = 7ms TTL = 125
Reply from 40.0.0.10 bytes = 32 time = 8ms TTL = 125
Reply from 40.0.0.10 bytes = 32 time = 6ms TTL = 125
Ping statistics for 40.0.0.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% Loss)

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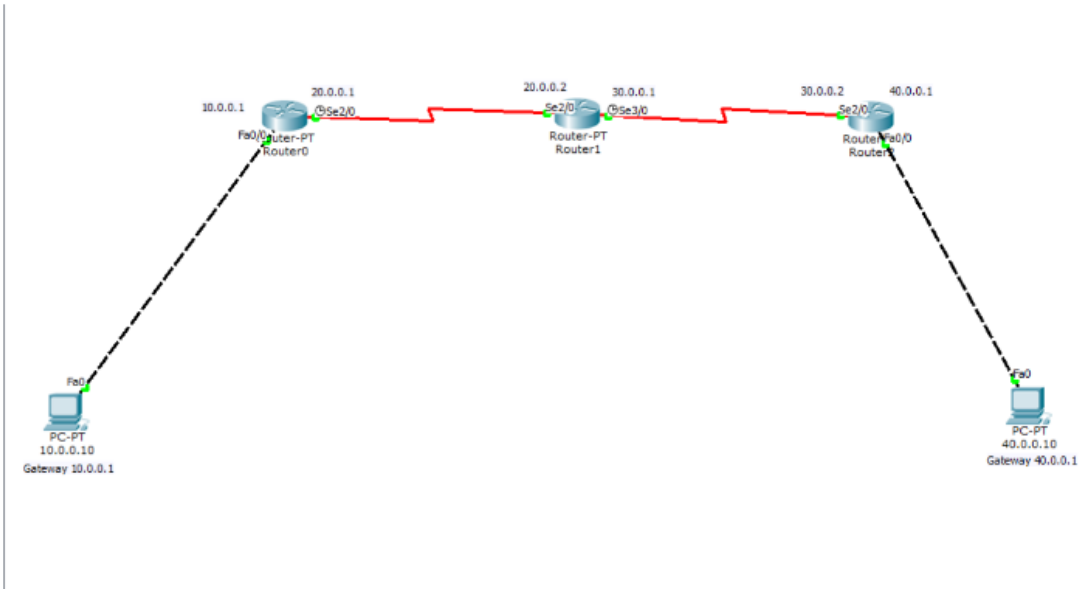
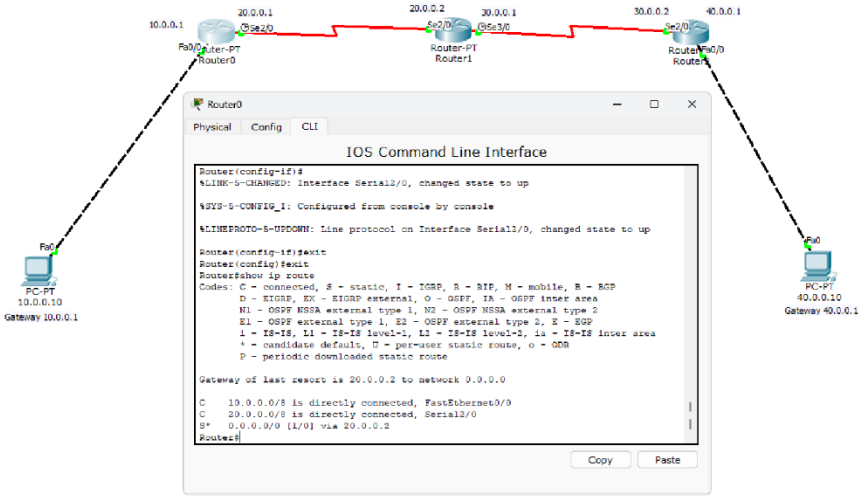
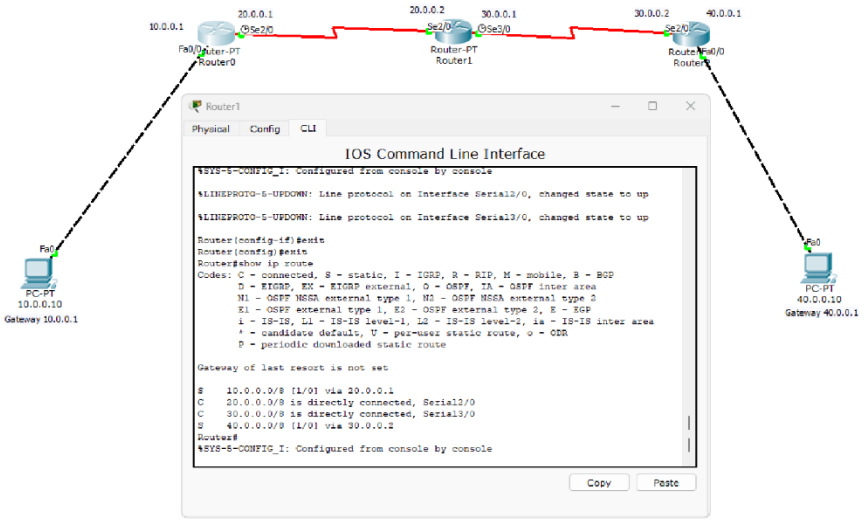
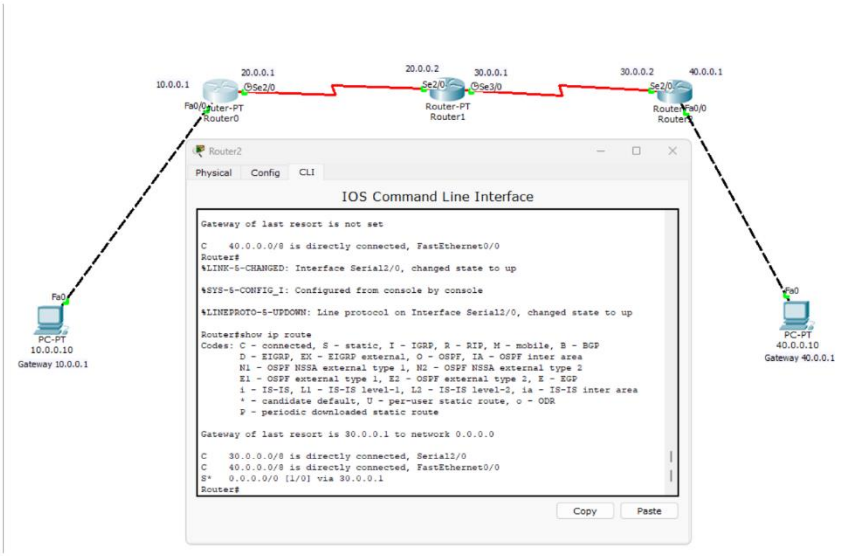
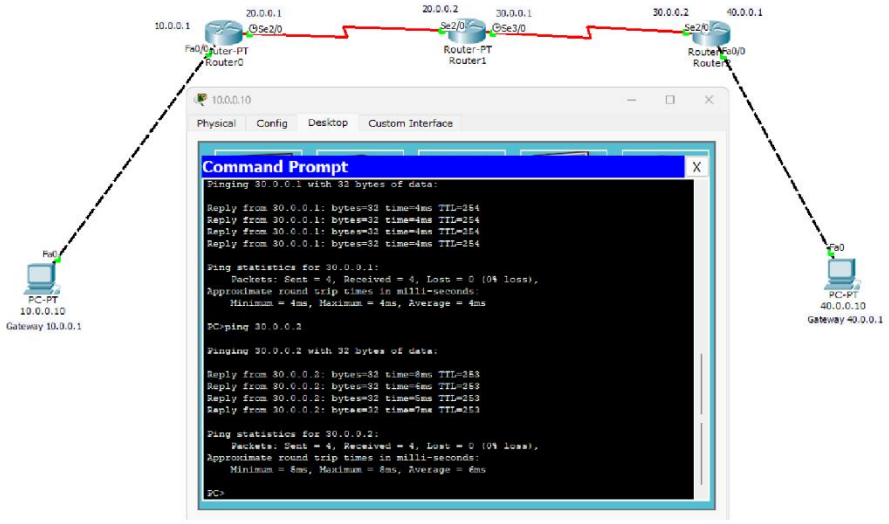
Screenshots:

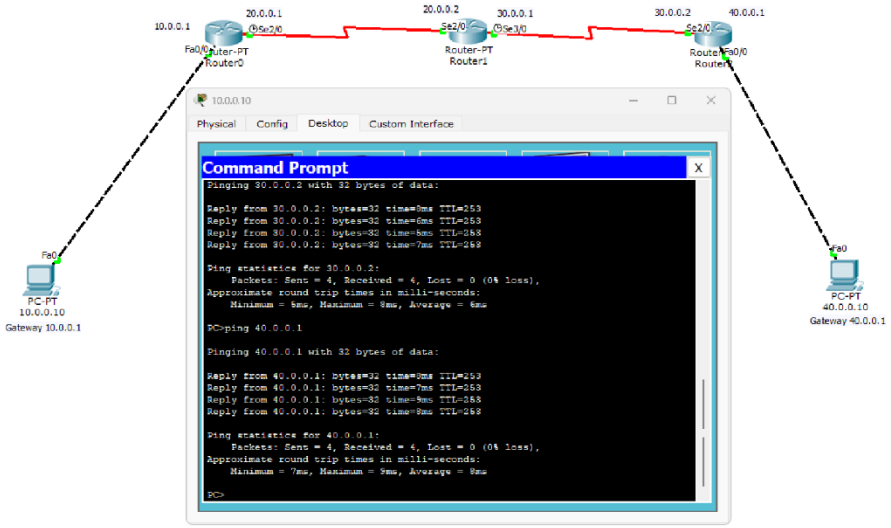


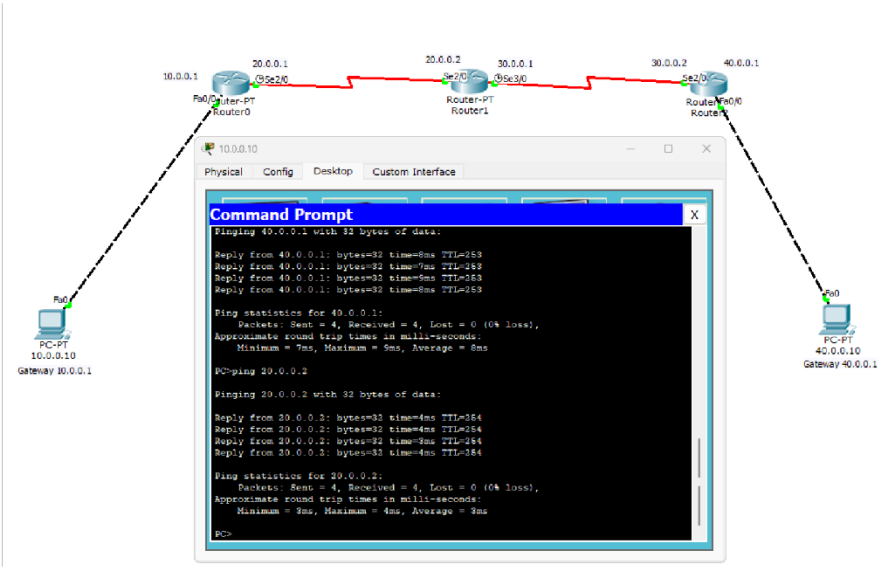

10.0.0.1
20.0.0.1
Se2/0
20.0.0.2
Se2/0
30.0.0.1
Se3/0
30.0.0.2
Se2/0
40.0.0.1
Fa0/0
Router-PT
Router0
Router-PT
Router1
Router-PT
Router2
Router0
Physical
Config
CLI
IOS Command Line Interface
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%SYS-5-CONFIG_I: Configured from console by console
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
Router(config-if)#exit
Router(config)#exit
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 20.0.0.2 to network 0.0.0.0
C 10.0.0.0/8 is directly connected, FastEthernet0/0
C 20.0.0.0/8 is directly connected, Serial2/0
S* 0.0.0.0/0 [1/0] via 20.0.0.2
Router#
Copy
Paste
Fa0
PC-PT
10.0.0.10
Gateway 10.0.0.1
PC-PT
40.0.0.10
Gateway 40.0.0.1


10.0.0.1
20.0.0.1
Se2/0
20.0.0.2
Se2/0
30.0.0.1
Se3/0
30.0.0.2
Se2/0
40.0.0.1
Fa0/0
Router-PT
Router0
Router-PT
Router1
Router-PT
Router2
Router1
Physical
Config
CLI
IOS Command Line Interface
%SYS-5-CONFIG_I: Configured from console by console
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
Router(config-if)#exit
Router(config)#exit
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
S 10.0.0.0/8 [1/0] via 20.0.0.1
C 20.0.0.0/8 is directly connected, Serial2/0
C 30.0.0.0/8 is directly connected, Serial3/0
S 40.0.0.0/8 [1/0] via 30.0.0.2
Router#
%SYS-5-CONFIG_I: Configured from console by console
Copy
Paste
Fa0
PC-PT
10.0.0.10
Gateway 10.0.0.1
PC-PT
40.0.0.10
Gateway 40.0.0.1


10.0.0.1
20.0.0.1
20.0.0.2
30.0.0.1
30.0.0.2
40.0.0.1
Router-PT
Router0
Router-PT
Router1
Router2
Router2
Physical
Config
CLI
IOS Command Line Interface
Gateway of last resort is not set
C 40.0.0.0/8 is directly connected, FastEthernet0/0
Router#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%SYS-5-CONFIG_I: Configured from console by console
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
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 30.0.0.1 to network 0.0.0.0
C 30.0.0.0/8 is directly connected, Serial2/0
C 40.0.0.0/8 is directly connected, FastEthernet0/0
S* 0.0.0.0/0 [1/0] via 30.0.0.1
Router#
Copy
Paste
PC-PT
10.0.0.10
Gateway 10.0.0.1
PC-PT
40.0.0.10
Gateway 40.0.0.1


10.0.0.1
20.0.0.1
20.0.0.2
30.0.0.1
30.0.0.2
40.0.0.1
Router-PT
Router0
Router-PT
Router1
10.0.0.10
Physical
Config
Desktop
Custom Interface
Command Prompt
Pinging 30.0.0.1 with 32 bytes of data:
Reply from 30.0.0.1: bytes=32 time=4ms TTL=254
Reply from 30.0.0.1: bytes=32 time=4ms TTL=254
Reply from 30.0.0.1: bytes=32 time=4ms TTL=254
Reply from 30.0.0.1: bytes=32 time=4ms TTL=254
Ping statistics for 30.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 4ms, Maximum = 4ms, Average = 4ms
PC>ping 30.0.0.2
Pinging 30.0.0.2 with 32 bytes of data:
Reply from 30.0.0.2: bytes=32 time=8ms TTL=253
Reply from 30.0.0.2: bytes=32 time=6ms TTL=253
Reply from 30.0.0.2: bytes=32 time=6ms TTL=253
Reply from 30.0.0.2: bytes=32 time=7ms TTL=253
Ping statistics for 30.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 6ms, Maximum = 8ms, Average = 6ms
PC>
PC-PT
10.0.0.10
Gateway 10.0.0.1
PC-PT
40.0.0.10
Gateway 40.0.0.1


10.0.0.1
20.0.0.1
Se2/0
Fa0/0
Router-PT
Router0
20.0.0.2
Se2/0
30.0.0.1
Se3/0
Router-PT
Router1
30.0.0.2
Se2/0
40.0.0.1
Fa0/0
Router
10.0.0.10
Physical
Config
Desktop
Custom Interface
Command Prompt
Pinging 30.0.0.2 with 32 bytes of data:
Reply from 30.0.0.2: bytes=32 time=8ms TTL=253
Reply from 30.0.0.2: bytes=32 time=6ms TTL=253
Reply from 30.0.0.2: bytes=32 time=8ms TTL=253
Reply from 30.0.0.2: bytes=32 time=7ms TTL=253
Ping statistics for 30.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 6ms, Maximum = 8ms, Average = 6ms
PC>ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data:
Reply from 40.0.0.1: bytes=32 time=8ms TTL=253
Reply from 40.0.0.1: bytes=32 time=7ms TTL=253
Reply from 40.0.0.1: bytes=32 time=8ms TTL=253
Reply from 40.0.0.1: bytes=32 time=8ms TTL=253
Ping statistics for 40.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 7ms, Maximum = 8ms, Average = 8ms
PC>
Fa0
PC-PT
10.0.0.10
Gateway 10.0.0.1
Fa0
PC-PT
40.0.0.10
Gateway 40.0.0.1


10.0.0.1
20.0.0.1
Se2/0
Fa0/0
Router-PT
Router0
20.0.0.2
Se2/0
30.0.0.1
Se3/0
Router-PT
Router1
30.0.0.2
Se2/0
40.0.0.1
Fa0/0
Router
10.0.0.10
Physical
Config
Desktop
Custom Interface
Command Prompt
Pinging 40.0.0.1 with 32 bytes of data:
Reply from 40.0.0.1: bytes=32 time=8ms TTL=253
Reply from 40.0.0.1: bytes=32 time=7ms TTL=253
Reply from 40.0.0.1: bytes=32 time=8ms TTL=253
Reply from 40.0.0.1: bytes=32 time=8ms TTL=253
Ping statistics for 40.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 7ms, Maximum = 8ms, Average = 8ms
PC>ping 20.0.0.2
Pinging 20.0.0.2 with 32 bytes of data:
Reply from 20.0.0.2: bytes=32 time=4ms TTL=254
Reply from 20.0.0.2: bytes=32 time=4ms TTL=254
Reply from 20.0.0.2: bytes=32 time=8ms TTL=254
Reply from 20.0.0.2: bytes=32 time=4ms TTL=254
Ping statistics for 20.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 8ms, Maximum = 4ms, Average = 8ms
PC>
Fa0
PC-PT
10.0.0.10
Gateway 10.0.0.1
Fa0
PC-PT
40.0.0.10
Gateway 40.0.0.1