

Two Routers

Configure IP address to routers in packet tracer. Explore the following messages: ping responses, destination unreachable, request timed out, reply

Lab 3

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Configure IP address to routers in packet tracer
(Two Routers)

Aim: To demonstrate the connection between 2 end devices using 2 different routers

Topology:

10.0.0.1
FA 0/0
Router-PT
Router 0

30.0.0.1
Serial 2/0

30.0.0.2
Serial 2/0
Router-PT
Router 1

20.0.0.1
FA 1/0

PC-PT
PC0

PC-PT
PC1

10.0.0.10
def gateway 10.0.0.1

20.0.0.20
def gateway 20.0.0.1

Procedure:

- 1 Launch Cisco packet tracer
- 2 Add two end device and two routers from left hand * icon menu
- 3 Connect PC0 to Router 1 and PC1 to Router 2 using Copper Cross over
- 4 Connect Router 1 and 2 using Serial DCE
- 5 IP config on device → IP address
PC0: 10.0.0.10 255.0.0.0
PC1: 20.0.0.10 255.0.0.0

→ gateway PC0: 10.0.0.1
PC1: 20.0.0.1

⑥ Router 1 config → CLI →
enable
config terminal
interface fastEthernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit

Repeat for Router 2 →
interface fastEthernet 1/0
ip address 20.0.0.1 255.0.0.0

⑦ To Connect b/w routers

Router 1 → CLI →
enable
config terminal
interface Serial 2/0
ip address 30.0.0.1 255.0.0.0
no shutdown
exit

Repeat for Router 2 →
interface Serial 2/0
ip address 30.0.0.2 255.0.0.0

⑧ Router 1 config → CLI
enable
config terminal
ip route 20.0.0.0 255.0.0.0 30.0.0.2
exit

Repeat same for Router 2 → CLI →
enable
config terminal
ip route 10.0.0.0 255.0.0.0 30.0.0.1
exit.

- ⑨ Select PC0 → Desktop → Command prompt → ping
(ip address of PC and routers)

Observation:

When we 1st try to ping msg to Router 2 or
PC1 from PC0 we will get a msg saying
timed out and unreachable. But for Router 1
it will successfully reach because it identifies
Router 1 but it cannot recognise router 2 or
PC1.

We have to manually do it and tell Router 1 that
Router 2 exist and vice versa with ⑧ command.

Before:

ping 20.0.0.10
unreachable x4
Received=0 Lost=4

ping 30.0.0.2
timed out x4
Received=0 Lost=4

ping 10.0.0.1
Received=4 Lost=0

After: ping 20.0.0.10
Received: 4 Lost: 0

ping 30.0.0.2
Received: 4 Lost: 0

Routing has been observed as follows for Router 1:

C 10.0.0.0/8 is directly connected, FastEthernet 0/0

S 20.0.0.0/8 [1/0] via 30.0.0.2

C 30.0.0.0/8 is directly connected, Serial 2/0

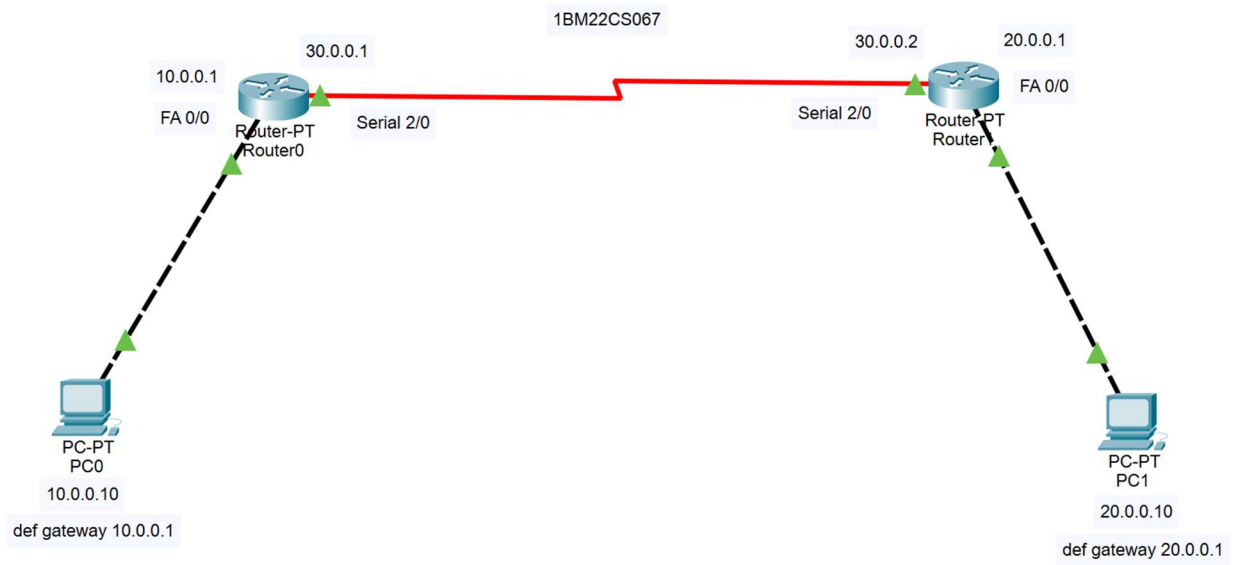
Routing has been observed as follows for Router 2:

S 10.0.0.0/8 [1/0] via 30.0.0.1

C 20.0.0.0/8 is directly connected, FastEthernet 1/0

C 30.0.0.0/8 is directly connected, Serial 2/0

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Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 20.0.0.10

Pinging 20.0.0.10 with 32 bytes of data:

Reply from 10.0.0.1: Destination host unreachable.
Reply from 10.0.0.1: Destination host unreachable.
Request timed out.
Reply from 10.0.0.1: Destination host unreachable.

Ping statistics for 20.0.0.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 30.0.0.2

Pinging 30.0.0.2 with 32 bytes of data:

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

Ping statistics for 30.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 30.0.0.1

Pinging 30.0.0.1 with 32 bytes of data:

Reply from 30.0.0.1: bytes=32 time<1ms TTL=255
Reply from 30.0.0.1: bytes=32 time<1ms TTL=255
Reply from 30.0.0.1: bytes=32 time<1ms TTL=255
Reply from 30.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 30.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>|
```

```
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 30.0.0.1
C    20.0.0.0/8 is directly connected, FastEthernet0/0
C    30.0.0.0/8 is directly connected, Serial2/0
```

Router#

```
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 30.0.0.2
C    30.0.0.0/8 is directly connected, Serial2/0
```

Router#

Command Prompt

```
C:\>ping 20.0.0.10

Pinging 20.0.0.10 with 32 bytes of data:

Request timed out.
Reply from 20.0.0.10: bytes=32 time=20ms TTL=126
Reply from 20.0.0.10: bytes=32 time=15ms TTL=126
Reply from 20.0.0.10: bytes=32 time=20ms TTL=126

Ping statistics for 20.0.0.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 15ms, Maximum = 20ms, Average = 18ms

C:\>ping 20.0.0.10

Pinging 20.0.0.10 with 32 bytes of data:

Reply from 20.0.0.10: bytes=32 time=15ms TTL=126
Reply from 20.0.0.10: bytes=32 time=13ms TTL=126
Reply from 20.0.0.10: bytes=32 time=16ms TTL=126
Reply from 20.0.0.10: bytes=32 time=13ms TTL=126

Ping statistics for 20.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 13ms, Maximum = 16ms, Average = 14ms

C:\>ping 30.0.0.2

Pinging 30.0.0.2 with 32 bytes of data:

Reply from 30.0.0.2: bytes=32 time=27ms TTL=254
Reply from 30.0.0.2: bytes=32 time=15ms TTL=254
Reply from 30.0.0.2: bytes=32 time=16ms TTL=254
Reply from 30.0.0.2: bytes=32 time=13ms TTL=254

Ping statistics for 30.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 13ms, Maximum = 27ms, Average = 17ms
```

```
C:\>ping 30.0.0.1

Pinging 30.0.0.1 with 32 bytes of data:

Reply from 30.0.0.1: bytes=32 time<1ms TTL=255
Reply from 30.0.0.1: bytes=32 time<1ms TTL=255
Reply from 30.0.0.1: bytes=32 time<1ms TTL=255
Reply from 30.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 30.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>|
```