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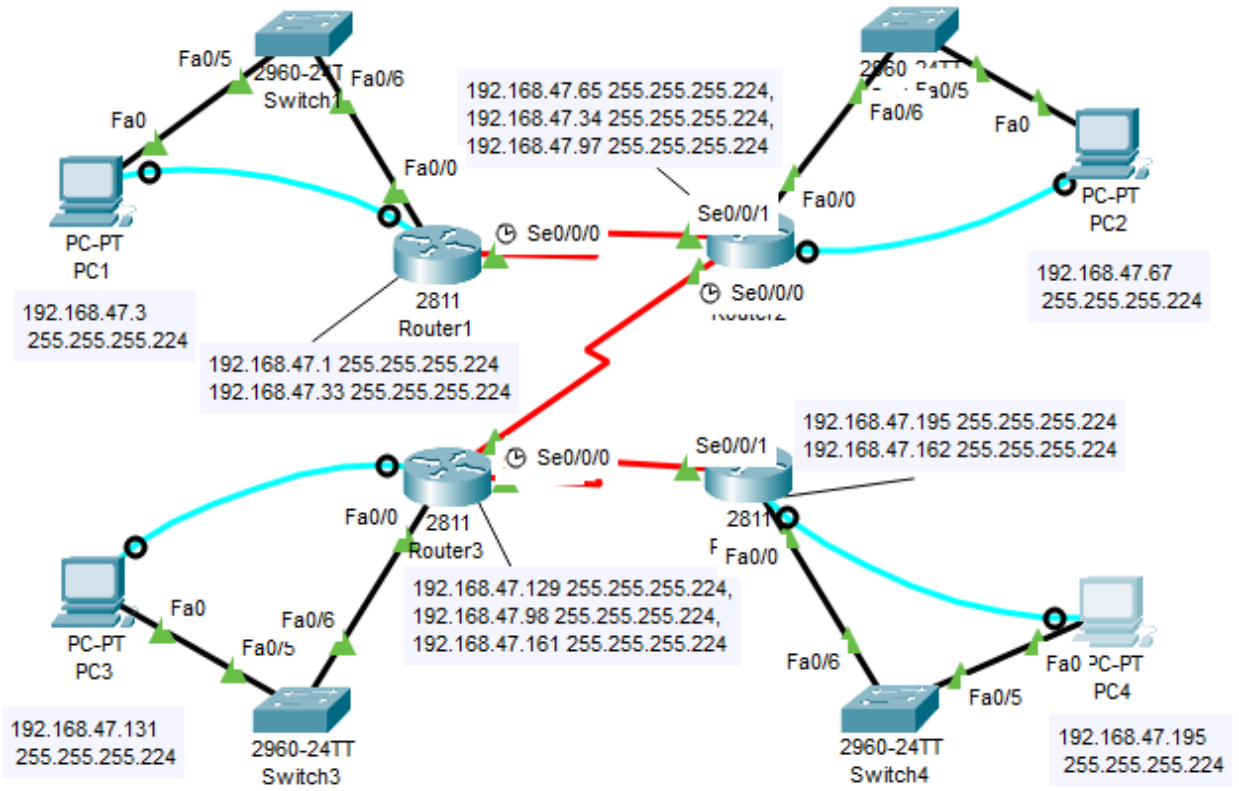
Internetworking

Lab 4

Description: In this lab we created static routes for our network.

Topology:



Syntax:

Command	Description	Cisco IOS Mode
ip route (destination network) (subnet mask) (next hop)	Configures a static IP route	Config Interface Mode
Show IP route	Shows the routing table	Privileged EXEC Mode
No ip route (destination network) (subnet mask) (next hop)	Deletes a configured static IP route	Config Interface Mode

Verification:

B. These screenshots show the routers interfaces that are in use and their routing tables.

```
Router1#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.47.1    YES manual up                    up
FastEthernet0/1        unassigned      YES unset  administratively down down
Serial0/0/0            192.168.47.33   YES manual up                    up
Serial0/0/1            unassigned      YES unset  administratively down down
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router1#show ip route
Codes: L - local, C - connected, S - static, 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

     192.168.47.0/24 is variably subnetted, 4 subnets, 2 masks
C       192.168.47.0/27 is directly connected, FastEthernet0/0
L       192.168.47.1/32 is directly connected, FastEthernet0/0
C       192.168.47.32/27 is directly connected, Serial0/0/0
L       192.168.47.33/32 is directly connected, Serial0/0/0
```

```
Router2>show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.47.65   YES manual up                    up
FastEthernet0/1        unassigned      YES unset  administratively down down
Serial0/0/0            192.168.47.97   YES manual up                    up
Serial0/0/1            192.168.47.34   YES manual up                    up
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router2>show ip route
Codes: L - local, C - connected, S - static, 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

     192.168.47.0/24 is variably subnetted, 6 subnets, 2 masks
C       192.168.47.32/27 is directly connected, Serial0/0/1
L       192.168.47.34/32 is directly connected, Serial0/0/1
C       192.168.47.64/27 is directly connected, FastEthernet0/0
L       192.168.47.65/32 is directly connected, FastEthernet0/0
C       192.168.47.96/27 is directly connected, Serial0/0/0
L       192.168.47.97/32 is directly connected, Serial0/0/0
```

```
Router3>show ip int brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.47.129  YES manual up                    up
FastEthernet0/1        unassigned      YES unset  administratively down down
Serial0/0/0            192.168.47.161  YES manual up                    up
Serial0/0/1            192.168.47.98   YES manual up                    up
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router3>show ip route
Codes: L - local, C - connected, S - static, 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

     192.168.47.0/24 is variably subnetted, 6 subnets, 2 masks
C       192.168.47.96/27 is directly connected, Serial0/0/1
L       192.168.47.98/32 is directly connected, Serial0/0/1
C       192.168.47.128/27 is directly connected, FastEthernet0/0
L       192.168.47.129/32 is directly connected, FastEthernet0/0
C       192.168.47.160/27 is directly connected, Serial0/0/0
L       192.168.47.161/32 is directly connected, Serial0/0/0
```

```
Router4>show ip int brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.47.193  YES manual up                    up
FastEthernet0/1        unassigned      YES unset  administratively down down
Serial0/0/0            unassigned      YES unset  administratively down down
Serial0/0/1            192.168.47.162  YES manual up                    up
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router4>show ip route
Codes: L - local, C - connected, S - static, 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

     192.168.47.0/24 is variably subnetted, 4 subnets, 2 masks
C       192.168.47.160/27 is directly connected, Serial0/0/1
L       192.168.47.162/32 is directly connected, Serial0/0/1
C       192.168.47.192/27 is directly connected, FastEthernet0/0
L       192.168.47.193/32 is directly connected, FastEthernet0/0
```

C. These screenshots verify that each PC is able to reach its respective default gateway.

```
C:\>ping 192.168.47.1

Pinging 192.168.47.1 with 32 bytes of data:

Reply from 192.168.47.1: bytes=32 time<1ms TTL=255
Reply from 192.168.47.1: bytes=32 time<1ms TTL=255
Reply from 192.168.47.1: bytes=32 time<1ms TTL=255
Reply from 192.168.47.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.47.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\>ping 192.168.47.65

Pinging 192.168.47.65 with 32 bytes of data:

Reply from 192.168.47.65: bytes=32 time<1ms TTL=255
Reply from 192.168.47.65: bytes=32 time<1ms TTL=255
Reply from 192.168.47.65: bytes=32 time<1ms TTL=255
Reply from 192.168.47.65: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.47.65:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\>ping 192.168.47.129

Pinging 192.168.47.129 with 32 bytes of data:

Reply from 192.168.47.129: bytes=32 time<1ms TTL=255
Reply from 192.168.47.129: bytes=32 time<1ms TTL=255
Reply from 192.168.47.129: bytes=32 time<1ms TTL=255
Reply from 192.168.47.129: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.47.129:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
Pinging 192.168.47.193 with 32 bytes of data:

Reply from 192.168.47.193: bytes=32 time=4ms TTL=255
Reply from 192.168.47.193: bytes=32 time<1ms TTL=255
Reply from 192.168.47.193: bytes=32 time<1ms TTL=255
Reply from 192.168.47.193: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.47.193:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms
```

D. These screenshots show the routing tables after configuring static routes on the routers.

```
Router1#show ip route
Codes: L - local, C - connected, S - static, 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

     192.168.47.0/24 is variably subnetted, 9 subnets, 2 masks
C       192.168.47.0/27 is directly connected, FastEthernet0/0
L       192.168.47.1/32 is directly connected, FastEthernet0/0
C       192.168.47.32/27 is directly connected, Serial0/0/0
L       192.168.47.33/32 is directly connected, Serial0/0/0
S       192.168.47.64/27 [1/0] via 192.168.47.34
                         [1/0] via 192.168.47.32
                         [1/0] via 192.168.47.97
S       192.168.47.96/27 [1/0] via 192.168.47.34
                         [1/0] via 192.168.47.32
S       192.168.47.128/27 [1/0] via 192.168.47.66
                          [1/0] via 192.168.47.98
                          [1/0] via 192.168.47.161
S       192.168.47.160/27 [1/0] via 192.168.47.98
                          [1/0] via 192.168.47.96
S       192.168.47.192/27 [1/0] via 192.168.47.66
                          [1/0] via 192.168.47.98
                          [1/0] via 192.168.47.162
                          [1/0] via 192.168.47.160
```

```
Router2#show ip route
Codes: L - local, C - connected, S - static, 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
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     192.168.47.0/24 is variably subnetted, 10 subnets, 2 masks
S       192.168.47.0/27 [1/0] via 192.168.47.33
                        [1/0] via 192.168.47.32
C       192.168.47.32/27 is directly connected, Serial0/0/1
L       192.168.47.34/32 is directly connected, Serial0/0/1
C       192.168.47.64/27 is directly connected, FastEthernet0/0
L       192.168.47.65/32 is directly connected, FastEthernet0/0
C       192.168.47.96/27 is directly connected, Serial0/0/0
L       192.168.47.97/32 is directly connected, Serial0/0/0
S       192.168.47.128/27 [1/0] via 192.168.47.98
                          [1/0] via 192.168.47.161
S       192.168.47.160/27 [1/0] via 192.168.47.98
                          [1/0] via 192.168.47.96
S       192.168.47.192/27 [1/0] via 192.168.47.162
                          [1/0] via 192.168.47.160
                          [1/0] via 192.168.47.161
                          [1/0] via 192.168.47.98
                          [1/0] via 192.168.47.96
```

```
Router3#show ip route
Codes: L - local, C - connected, S - static, 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

     192.168.47.0/24 is variably subnetted, 9 subnets, 2 masks
S       192.168.47.0/27 [1/0] via 192.168.47.97
                        [1/0] via 192.168.47.65
S       192.168.47.64/27 [1/0] via 192.168.47.162
                         [1/0] via 192.168.47.97
C       192.168.47.96/27 is directly connected, Serial0/0/1
L       192.168.47.98/32 is directly connected, Serial0/0/1
C       192.168.47.128/27 is directly connected, FastEthernet0/0
L       192.168.47.129/32 is directly connected, FastEthernet0/0
C       192.168.47.160/27 is directly connected, Serial0/0/0
L       192.168.47.161/32 is directly connected, Serial0/0/0
S       192.168.47.192/27 [1/0] via 192.168.47.162
                          [1/0] via 192.168.47.130
```

```
Router4#show ip route
Codes: L - local, C - connected, S - static, 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

     192.168.47.0/24 is variably subnetted, 7 subnets, 2 masks
S       192.168.47.0/27 [1/0] via 192.168.47.161
                        [1/0] via 192.168.47.129
S       192.168.47.64/27 [1/0] via 192.168.47.161
S       192.168.47.128/27 [1/0] via 192.168.47.161
C       192.168.47.160/27 is directly connected, Serial0/0/1
L       192.168.47.162/32 is directly connected, Serial0/0/1
C       192.168.47.192/27 is directly connected, FastEthernet0/0
L       192.168.47.193/32 is directly connected, FastEthernet0/0
```

E. These screenshots show what the routers are able to connect to.

```
Router1#ping 192.168.47.67

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.67, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 6/7/9 ms

Router1#ping 192.168.47.131

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.131, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)

Router1#ping 192.168.47.195

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.195, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
```

```
ter2#ping 192.168.47.3

e escape sequence to abort.
ding 5, 100-byte ICMP Echos to 192.168.47.3, timeout is 2 seconds:
!!
cess rate is 100 percent (5/5), round-trip min/avg/max = 5/9/21 ms

ter2#ping 192.168.47.131

e escape sequence to abort.
ding 5, 100-byte ICMP Echos to 192.168.47.131, timeout is 2 seconds:
!!
cess rate is 100 percent (5/5), round-trip min/avg/max = 3/6/11 ms

ter2#ping 192.168.47.195

e escape sequence to abort.
ding 5, 100-byte ICMP Echos to 192.168.47.195, timeout is 2 seconds:
..
uccess rate is 0 percent (0/5)
```

```
Router3#ping 192.168.47.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.3, timeout is 2 seconds:
!.!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 12/15/22 ms

Router3#ping 192.168.47.67

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.67, timeout is 2 seconds:
.!.!.
Success rate is 40 percent (2/5), round-trip min/avg/max = 4/5/7 ms

Router3#ping 192.168.47.195

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.195, timeout is 2 seconds:
.!.!.
Success rate is 40 percent (2/5), round-trip min/avg/max = 7/7/8 ms
```

```
Router4#ping 192.168.47.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.3, timeout is 2 seconds:
!!.!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 16/19/28 ms

Router4#ping 192.168.47.67

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.67, timeout is 2 seconds:
.!.!.
Success rate is 40 percent (2/5), round-trip min/avg/max = 10/10/11 ms

Router4#ping 192.168.47.131

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.47.131, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 7/8/13 ms
```

F. These screenshots show connectivity from the PC through ping and tracert.

PC1

```
C:\>ping 192.168.47.67

Pinging 192.168.47.67 with 32 bytes of data:

Reply from 192.168.47.67: bytes=32 time=4ms TTL=126
Reply from 192.168.47.67: bytes=32 time=2ms TTL=126
Reply from 192.168.47.67: bytes=32 time=3ms TTL=126
Reply from 192.168.47.67: bytes=32 time=4ms TTL=126

Ping statistics for 192.168.47.67:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 4ms, Average = 3ms

C:\>tracert 192.168.47.67

Tracing route to 192.168.47.67 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.1
  2    1 ms      1 ms      2 ms      192.168.47.34
  3    0 ms      1 ms      0 ms      192.168.47.67

Trace complete.

C:\>ping 192.168.47.131

Pinging 192.168.47.131 with 32 bytes of data:

Reply from 192.168.47.131: bytes=32 time=14ms TTL=125
Reply from 192.168.47.131: bytes=32 time=13ms TTL=125
Reply from 192.168.47.131: bytes=32 time=12ms TTL=125
Reply from 192.168.47.131: bytes=32 time=16ms TTL=123

Ping statistics for 192.168.47.131:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 12ms, Maximum = 16ms, Average = 13ms
```

```
C:\>tracert 192.168.47.131

Tracing route to 192.168.47.131 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.1
  2    5 ms      8 ms      0 ms      192.168.47.34
  3    0 ms      4 ms      *         Request timed out.
  4    8 ms      1 ms      4 ms      192.168.47.131

Trace complete.

C:\>ping 192.168.47.195

Pinging 192.168.47.195 with 32 bytes of data:

Reply from 192.168.47.195: bytes=32 time=25ms TTL=122
Request timed out.
Reply from 192.168.47.195: bytes=32 time=19ms TTL=124
Request timed out.

Ping statistics for 192.168.47.195:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
    Minimum = 19ms, Maximum = 25ms, Average = 22ms

C:\>tracert 192.168.47.195

Tracing route to 192.168.47.195 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.1
  2    6 ms      4 ms      5 ms      192.168.47.34
  3   14 ms      *         4 ms      192.168.47.98
  4   13 ms      *         10 ms     192.168.47.162
  5    *         1 ms      *         Request timed out.

Trace complete.
```

PC2

```
C:\>ping 192.168.47.3

Pinging 192.168.47.3 with 32 bytes of data:

Reply from 192.168.47.3: bytes=32 time=5ms TTL=126
Reply from 192.168.47.3: bytes=32 time=7ms TTL=126
Reply from 192.168.47.3: bytes=32 time=8ms TTL=126
Reply from 192.168.47.3: bytes=32 time=5ms TTL=126

Ping statistics for 192.168.47.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 5ms, Maximum = 8ms, Average = 6ms

C:\>tracert 192.168.47.3

Tracing route to 192.168.47.3 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.65
  2    4 ms      2 ms      2 ms      192.168.47.33
  3    7 ms      0 ms      0 ms      192.168.47.3

Trace complete.

C:\>ping 192.168.47.131

Pinging 192.168.47.131 with 32 bytes of data:

Reply from 192.168.47.131: bytes=32 time=5ms TTL=126
Reply from 192.168.47.131: bytes=32 time=5ms TTL=124
Reply from 192.168.47.131: bytes=32 time=5ms TTL=124
Reply from 192.168.47.131: bytes=32 time=8ms TTL=124

Ping statistics for 192.168.47.131:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 5ms, Maximum = 8ms, Average = 5ms
```

```
C:\>tracert 192.168.47.131

Tracing route to 192.168.47.131 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.65
  2    *         0 ms      *         Request timed out.
  3    1 ms      6 ms      0 ms      192.168.47.131

Trace complete.

C:\>ping 192.168.47.195

Pinging 192.168.47.195 with 32 bytes of data:

Reply from 192.168.47.195: bytes=32 time=18ms TTL=123
Request timed out.
Reply from 192.168.47.195: bytes=32 time=11ms TTL=123
Request timed out.

Ping statistics for 192.168.47.195:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
    Minimum = 11ms, Maximum = 18ms, Average = 14ms

C:\>tracert 192.168.47.195

Tracing route to 192.168.47.195 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.65
  2    *         2 ms      *         Request timed out.
  3    5 ms      *         *         Request timed out.
  4    *         5 ms      *         Request timed out.

Trace complete.
```

PC3

```
C:\>ping 192.168.47.3

Pinging 192.168.47.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.47.3: bytes=32 time=9ms TTL=125
Reply from 192.168.47.3: bytes=32 time=9ms TTL=125
Reply from 192.168.47.3: bytes=32 time=14ms TTL=125

Ping statistics for 192.168.47.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 9ms, Maximum = 14ms, Average = 10ms

C:\>tracert 192.168.47.3

Tracing route to 192.168.47.3 over a maximum of 30 hops:

  1    0 ms      4 ms      0 ms      192.168.47.129
  2    4 ms      0 ms      4 ms      192.168.47.162
  3    5 ms      0 ms      1 ms      192.168.47.33
  4    7 ms      7 ms      6 ms      192.168.47.3

Trace complete.

C:\>ping 192.168.47.67

Pinging 192.168.47.67 with 32 bytes of data:

Reply from 192.168.47.67: bytes=32 time=10ms TTL=126
Reply from 192.168.47.67: bytes=32 time=4ms TTL=126
Request timed out.
Reply from 192.168.47.67: bytes=32 time=9ms TTL=126

Ping statistics for 192.168.47.67:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
```

```
    Minimum = 4ms, Maximum = 10ms, Average = 7ms

C:\>tracert 192.168.47.67

Tracing route to 192.168.47.67 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.129
  2    4 ms      0 ms      2 ms      192.168.47.162
  3    1 ms      4 ms      2 ms      192.168.47.67

Trace complete.

C:\>ping 192.168.47.195

Pinging 192.168.47.195 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 192.168.47.195: bytes=32 time=7ms TTL=126
Request timed out.

Ping statistics for 192.168.47.195:
    Packets: Sent = 4, Received = 1, Lost = 3 (75% loss),
Approximate round trip times in milli-seconds:
    Minimum = 7ms, Maximum = 7ms, Average = 7ms

C:\>tracert 192.168.47.195

Tracing route to 192.168.47.195 over a maximum of 30 hops:

  1    0 ms      0 ms      2 ms      192.168.47.129
  2    5 ms      *         4 ms      192.168.47.162
  3    *         0 ms      *         Request timed out.

Trace complete.
```

PC4

```
C:\>ping 192.168.47.3

Pinging 192.168.47.3 with 32 bytes of data:

Reply from 192.168.47.3: bytes=32 time=17ms TTL=124
Request timed out.
Reply from 192.168.47.3: bytes=32 time=11ms TTL=124
Request timed out.

Ping statistics for 192.168.47.3:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
    Minimum = 11ms, Maximum = 17ms, Average = 14ms

C:\>tracert 192.168.47.3

Tracing route to 192.168.47.3 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.193
  2    4 ms      *         4 ms      192.168.47.161
  3    *         5 ms      0 ms      192.168.47.193
  4    *         6 ms      *         Request timed out.
  5    1 ms      *         11 ms     192.168.47.3

Trace complete.

C:\>ping 192.168.47.67

Pinging 192.168.47.67 with 32 bytes of data:

Request timed out.
Reply from 192.168.47.67: bytes=32 time=11ms TTL=125
Request timed out.
Reply from 192.168.47.67: bytes=32 time=10ms TTL=125

Ping statistics for 192.168.47.67:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
```

```
C:\>tracert 192.168.47.67

Tracing route to 192.168.47.67 over a maximum of 30 hops:

  1    0 ms      0 ms      3 ms      192.168.47.193
  2    *         8 ms      *         Request timed out.
  3    0 ms      7 ms      4 ms      192.168.47.193
  4    *         4 ms      *         Request timed out.
  5    7 ms      *         9 ms      192.168.47.97
  6    *         11 ms     *         Request timed out.

Trace complete.

C:\>ping 192.168.47.131

Pinging 192.168.47.131 with 32 bytes of data:

Reply from 192.168.47.131: bytes=32 time=10ms TTL=126
Request timed out.
Reply from 192.168.47.131: bytes=32 time=8ms TTL=126
Request timed out.

Ping statistics for 192.168.47.131:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 10ms, Average = 9ms

C:\>tracert 192.168.47.131

Tracing route to 192.168.47.131 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.47.193
  2    0 ms      *         4 ms      192.168.47.161
  3    *         0 ms      *         Request timed out.

Trace complete.
```

Conclusion:

This lab was sort of tough for me. Everything was going great before I started configuring the static IP routes. I thought I was entering the correct routes but my pings would always come back as host unreachable or some other error. It confused me the most when my router pings to a PC were only working on some PCs, but my PC to PC pings were working fine. I tried as many IP routes that I could think of, you can see the amount of them I left on some of the routers. I think I am okay with static IP routing, but I need to improve greatly at actually determining the correct routes that go into the table.