

1.

	Router 1	Success? (y/n)	Router 2	Success? (y/n)
1	R1# ping 192.168.102.1	N	R2# ping 192.168.101.1	N
2	R1# ping 192.168.100.2	Y	R2# ping 192.168.100.1	Y
3	R1# ping 192.168.101.1	Y	R2# ping 192.168.102.1	Y


```

R1#ping 192.168.102.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.102.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
R1#ping 192.168.100.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.100.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 60/62/64 ms
R1#ping 192.168.101.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.101.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
R1#

```

```

R2#ping 192.168.101.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.101.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
R2#ping 192.168.100.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.100.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 60/61/64 ms
R2#ping 192.168.102.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.102.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
R2#

```

2. Some pings aren't successful because they aren't pingable address or those IP addresses weren't configured on the network. For example, R1 cannot access the fast ethernet interface on R2 ending in 100.2 as it is in a different interface card 0/0 rather than 1/0. The same goes for R2 which cannot access IP address 101.1 on R1 as this IP assigned to the fast ethernet 0/0 is on a different interface that cannot be accessed.

3.

```

R1#show ip route
Codes: 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
       i - IS-IS, su - IS-IS summary, 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

    192.168.100.0/30 is subnetted, 1 subnets
C       192.168.100.0 is directly connected, Serial1/0
C       192.168.101.0/24 is directly connected, FastEthernet0/0
R1#

R2#show ip route
Codes: 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
       i - IS-IS, su - IS-IS summary, 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       192.168.102.0/24 is directly connected, FastEthernet0/0
    192.168.100.0/30 is subnetted, 1 subnets
C       192.168.100.0 is directly connected, Serial1/0
R2#

```

The show ip route command shows the connections of each ip address and the routes they must

take on the interfaces they are in to be accessible to other devices on the network. Interestingly enough, the IP addresses in table that were not able to be pinged are shown that they are subnets which were not configured.

4. We can't do this because IP addresses were not configured for the PC's. DHCP isn't automatic so we must assign IPs manually.

```
PC1> ping 192.168.102.1
host (192.168.102.1) not reachable

PC1> █
```

```
PC2> ping 192.168.101.2
host (192.168.101.2) not reachable
```

To get successful pings, we have to configure the device's ip address with its subnet mask followed by the next router ip address on the same connected interface using ip route. The command goes like this: ip address mask gateway

```
PC1> ip 192.168.101.2 192.168.101.1
Checking for duplicate address...
PC1 : 192.168.101.2 255.255.255.0 gateway 192.168.101.1

PC1> sh ip

NAME       : PC1[1]
IP/MASK    : 192.168.101.2/24
GATEWAY    : 192.168.101.1
DNS        :
MAC        : 00:50:79:66:68:00
LPORT      : 10000
RHOST:PORT : 127.0.0.1:10001
MTU        : 1500

PC1> ping 192.168.102.2
192.168.102.2 icmp_seq=1 timeout
192.168.102.2 icmp_seq=2 timeout
84 bytes from 192.168.102.2 icmp_seq=3 ttl=62 time=61.082 ms
84 bytes from 192.168.102.2 icmp_seq=4 ttl=62 time=60.390 ms
84 bytes from 192.168.102.2 icmp_seq=5 ttl=62 time=61.548 ms

PC1> ping 192.168.102.2
84 bytes from 192.168.102.2 icmp_seq=1 ttl=62 time=60.548 ms
84 bytes from 192.168.102.2 icmp_seq=2 ttl=62 time=60.960 ms
84 bytes from 192.168.102.2 icmp_seq=3 ttl=62 time=60.268 ms
84 bytes from 192.168.102.2 icmp_seq=4 ttl=62 time=61.013 ms
84 bytes from 192.168.102.2 icmp_seq=5 ttl=62 time=60.765 ms

PC1> █
```

```
PC2> ip 192.168.102.2 192.168.102.1
Checking for duplicate address...
PC1 : 192.168.102.2 255.255.255.0 gateway 192.168.102.1

PC2> ping 192.168.101.2
192.168.101.2 icmp_seq=1 timeout
84 bytes from 192.168.101.2 icmp_seq=2 ttl=62 time=60.060 ms
84 bytes from 192.168.101.2 icmp_seq=3 ttl=62 time=60.468 ms
84 bytes from 192.168.101.2 icmp_seq=4 ttl=62 time=60.398 ms
84 bytes from 192.168.101.2 icmp_seq=5 ttl=62 time=60.638 ms

PC2> ping 192.168.101.2
192.168.101.2 icmp_seq=1 timeout
192.168.101.2 icmp_seq=2 timeout
84 bytes from 192.168.101.2 icmp_seq=3 ttl=62 time=60.311 ms
84 bytes from 192.168.101.2 icmp_seq=4 ttl=62 time=60.600 ms
84 bytes from 192.168.101.2 icmp_seq=5 ttl=62 time=60.961 ms

PC2> ping 192.168.101.2
84 bytes from 192.168.101.2 icmp_seq=1 ttl=62 time=60.177 ms
84 bytes from 192.168.101.2 icmp_seq=2 ttl=62 time=60.280 ms
84 bytes from 192.168.101.2 icmp_seq=3 ttl=62 time=60.635 ms
84 bytes from 192.168.101.2 icmp_seq=4 ttl=62 time=60.800 ms
84 bytes from 192.168.101.2 icmp_seq=5 ttl=62 time=60.385 ms

PC2> █
```

Successfully pinged both PC's