

18 Connectivity Troubleshooting

- Answer Key

In this lab you will troubleshoot a connectivity issue.

Troubleshoot Connectivity

- 1) Use ping to test connectivity from PC1 to PC3.

Connectivity is down.

```
C:\>ping 10.1.2.10
```

```
Pinging 10.1.2.10 with 32 bytes of data:
```

```
Request timed out.
```

```
Request timed out.
```

```
Reply from 10.1.0.1: Destination host unreachable.
```

```
Reply from 10.1.0.1: Destination host unreachable.
```

```
Ping statistics for 10.1.2.10:
```

```
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)
```

- 2) Use traceroute to determine where the problem is likely to be.

Traceroute is making it as far as 10.1.0.1 on R3 so that is a good place to continue troubleshooting.

```
C:\>tracert 10.1.2.10
```

```
Tracing route to 10.1.2.10 over a maximum of 30 hops:
```

```
 1 0 ms 0 ms 0 ms 10.0.1.1
```

```
 2 0 ms 0 ms 0 ms 10.0.0.2
```

```
 3 0 ms 0 ms 0 ms 10.1.0.1
```

```
 4 1 ms * 1 ms 10.1.0.1
```

```
 5 * 0 ms
```

```
Control-C
```

```
^C
```

- 3) Determine the issue and fix it to restore connectivity between PC1 and PC3.

The first thing to do is check that R3 has a route to PC3's network 10.1.2.0/24

```
R3#sh 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
        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, H - NHRP, l - LISP
        + - replicated route, % - next hop override
```

Gateway of last resort is not set

```
10.0.0.0/8 is variably subnetted, 9 subnets, 2 masks
S 10.0.0.0/24 [1/0] via 10.1.0.2
S 10.0.1.0/24 [1/0] via 10.1.0.2
S 10.0.2.0/24 [1/0] via 10.1.0.2
S 10.0.3.0/24 [1/0] via 10.1.0.2
C 10.1.0.0/24 is directly connected, FastEthernet0/1
L 10.1.0.1/32 is directly connected, FastEthernet0/1
C 10.1.1.0/24 is directly connected, FastEthernet0/0
L 10.1.1.2/32 is directly connected, FastEthernet0/0
S 10.1.3.0/24 [1/0] via 10.1.1.1
```

The network is not in the routing table. From the 'show ip route' command we can also see that static routes are being used. We need to add a static route for the 10.1.2.0/24 network with R4 as the next hop.

```
R3(config)#ip route 10.1.2.0 255.255.255.0 10.1.1.1
```

Lastly we need to verify connectivity is restored from PC1.

```
C:\>ping 10.1.2.10
```

Pinging 10.1.2.10 with 32 bytes of data:

```
Request timed out.
```

```
Request timed out.
```

```
Reply from 10.1.2.10: bytes=32 time<1ms TTL=124
```

```
Reply from 10.1.2.10: bytes=32 time=1ms TTL=124
```

```
Ping statistics for 10.1.2.10:
```

```
Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
```

```
Approximate round trip times in milli-seconds:
```

```
Minimum = 0ms, Maximum = 1ms, Average = 0ms
```