

In a Nutshell: Classful and Classless Routing Behavior (lookup process)

Notes:

- Classful or classless routing behavior has nothing to do with classful or classless routing protocols.

Routing Protocol

- Classful/Classless **routing protocols** are only concerned about how the routes get into the table. (Building the routing table.)

Routing Behavior (nothing to do with Routing Protocol)

- Classful/Classless **routing behavior** has to do with the lookup process within the routing table AFTER the routes have entered the routing table. (Looking up routes in the routing table).
- **ip classless** and **no ip classless** commands

Classful Routing Behavior

```
RouterB#show ip route
172.16.0.0/24 is subnetted, 3 subnets
R    172.16.1.0 [120/1] via 172.16.2.1, 00:00:20, Serial0
C    172.16.2.0 is directly connected, Serial0
C    172.16.3.0 is directly connected, FastEthernet0
C   192.168.1.0/24 is directly connected, Serial1
S   172.0.0.0/8 is directly connected, Serial1
S   160.0.0.0/4 is directly connected, Serial1
S*  0.0.0.0/0 is directly connected, Serial1
```

IP Packet Destination Address = 172.16.4.1

```
RouterB(config)# no ip classless
```

```
RouterB#ping 172.26.4.1
```

```
Sending 5, 100-byte ICMP Echoes to 172.16.4.1, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

Classless Routing Behavior

```
RouterB#show ip route
172.16.0.0/24 is subnetted, 3 subnets
R    172.16.1.0 [120/1] via 172.16.2.1, 00:00:20, Serial0
C    172.16.2.0 is directly connected, Serial0
C    172.16.3.0 is directly connected, FastEthernet0
C   192.168.1.0/24 is directly connected, Serial1
S   172.0.0.0/8 is directly connected, Serial1
S   160.0.0.0/4 is directly connected, Serial1
S*  0.0.0.0/0 is directly connected, Serial1
```

IP Packet Destination Address = 172.16.4.1

```
RouterB(config)# ip classless
```

```
RouterB#ping 172.16.4.1
```

```
Sending 5, 100-byte ICMP Echoes to 172.16.4.1, timeout is 2 seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5),round-trip min/avg/max=56/57/60 ms
```