

## Title:

Cisco CCNP / BSCI Certification: Troubleshooting Route Redistribution, Part I

## Word Count:

457

## Summary:

Route redistribution looks easy, but there are details you must master to pass the CCNP exams and become a master networker. Learn how to troubleshoot one common redistribution error from Chris Bryant, CCIE #12933.

## Keywords:

Ccnp, bsci, exam, certification, pass, route, redistribution, subnets, ospf, rip, bgp, table, show, ip , route, version, 2

## Article Body:

If there's one CCNP / BSCI topic that looks so easy but can lead to a real headache, it's route redistribution. I'm not even talking about the routing loops and suboptimal routing that can result when route redistribution is done without proper planning - I'm talking about the basic commands themselves. Leaving out one single command option, or forgetting what else needs to be redistributed when redistributing dynamically discovered routes, can leave you with a routing table that looks complete but does not result in full IP connectivity.

In this free CCNP / BSCI tutorial series, we'll take a look at three common errors in route redistribution configurations, and how to fix them. We'll use three routers, R1, R3, and R5. R1 and R5 are in a RIPv2 domain and R1 and R3 are in an OSPF domain. R1 will be performing two-way route redistribution.

R5 is advertising its loopback, 5.5.5.5/24, into the RIPv2 domain. R1 sees this route in its RIP routing table:

```
R1#show ip route rip
```

```
5.0.0.0/24 is subnetted, 1 subnets
```

```
R          5.5.5.0 [120/1] via 100.1.1.5, 00:00:01, Ethernet0
```

For R3 to see this route, route redistribution must be configured on R1. We'll use the redistribute rip command to do so.

```
R1(config)#router ospf 1
```

```
R1(config-router)#redistribute rip
```

```
% Only classful networks will be redistributed
```

The router immediately gives us a message that "only classful networks will be redistributed". What does this mean? Let's go to R3 and see if that router is receiving this route.

```
R3#show ip route ospf
```

```
< no output >
```

When we get no result from a show command, that means there's nothing to show. The only routes that will be successfully redistributed with the current configuration on R1 are classful networks, and 5.5.5.0/24 is a subnet.

To further illustrate the point, a classful network has been added to R5. This network is 16.0.0.0 /8, and is now being advertised by RIP. R1 sees this network as classful...

```
R1#show ip route rip
```

```
R      16.0.0.0/8 [120/1] via 100.1.1.5, 00:00:00, Ethernet0
```

```
5.0.0.0/24 is subnetted, 1 subnets
```

```
R          5.5.5.0 [120/1] via 100.1.1.5, 00:00:00, Ethernet0
```

... and R3 is receiving the route through redistribution.

```
R3#show ip route ospf
```

```
O E2 16.0.0.0/8 [110/20] via 172.12.123.1, 00:00:08, Serial0.31
```

To redistribute both classful and classless networks, the option "subnets" must be added to the redistribute command on R1.

```
R1(config)#router ospf 1
```

```
R1(config-router)#no redistribute rip
```

```
R1(config-router)#redistribute rip subnets
```

R3 will now see both the classful and classless networks being redistributed into OSPF. (100.1.1.0 is the network connecting R1 and R5.)

```
R3#show ip route ospf
```

```
O E2 16.0.0.0/8 [110/20] via 172.12.123.1, 00:00:20, Serial0.31
```

```
100.0.0.0/24 is subnetted, 1 subnets
```

```
O E2 100.1.1.0 [110/20] via 172.12.123.1, 00:00:20, Serial0.31
```

```
5.0.0.0/24 is subnetted, 1 subnets
```

```
O E2 5.5.5.0 [110/20] via 172.12.123.1, 00:00:20, Serial0.31
```

This is one of the most common errors made during route redistribution, but now you know what to look out for! In the next part of this free CCNP / BSCI tutorial, we'll take a look at another such error.