

Title:

Cisco CCNP / BSCI Exam Tutorial: OSPF Route Redistribution Review

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423

Summary:

OSPF redistribution is a huge topic on the BSCI exam. Review the basic concepts with Chris Bryant, CCIE #12933.

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Article Body:

OSPF route redistribution is an important topic on the BSCI exam, and it's a topic full of details and defaults that you need to know for the exam room and the job. To help you pass the BSCI exam, here's a quick review of some of the OSPF route redistribution basics.

To see if a router is an ABR or ASBR, run `show ip ospf`. This also displays any routes being redistributed into OSPF on this router.

```
R1#show ip ospf
```

Routing Process "ospf 1" with ID 1.1.1.1

Supports only single TOS(TOS0) routes

Supports opaque LSA

It is an area border and autonomous system boundary router

Redistributing External Routes from,

connected, includes subnets in redistribution

rip, includes subnets in redistribution

When redistributing RIP into OSPF, the "subnets" option is needed to include subnets in redistribution. When redistributing OSPF into RIP, a seed metric must

be specified. (OSPF gives redistributed routes a default metric of 20 - this can be changed, but a seed metric does not have to be set.)

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

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

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

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

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

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

```
R1(config-router)#redistribute connected metric 1
```

```
R1(config-router)#redistribute ospf 1 metric 1
```

By default, routes redistributed into OSPF are marked as E2 routes. The metric for these routes reflects only the cost of the path from the ASBR to the destination network and does not include the cost of the path from the local router to the ASBR. By contrast, E1 routes include the cost of the entire path from the local router to the destination network.

```
O E2 5.1.1.1 [110/20] via 172.34.34.3, 00:33:21, Ethernet0
```

```
6.0.0.0/32 is subnetted, 1 subnets
```

```
O E2 6.1.1.1 [110/20] via 172.34.34.3, 00:33:21, Ethernet0
```

```
172.12.0.0/16 is variably subnetted, 2 subnets, 2 masks
```

```
O E2 172.12.21.0/30 [110/20] via 172.34.34.3, 00:33:32, Ethernet0
```

```
O E2 7.1.1.1 [110/20] via 172.34.34.3, 00:33:21, Ethernet0
```

```
15.0.0.0/24 is subnetted, 1 subnets
```

```
O E2 15.1.1.0 [110/20] via 172.34.34.3, 00:33:32, Ethernet0
```

To redistribute routes into OSPF and mark them as E1 upon redistribution, use

the metric-type option with the redistribution command.

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

```
R1(config-router)#redistribute rip subnets metric-type ?
```

```
1 Set OSPF External Type 1 metrics
```

```
2 Set OSPF External Type 2 metrics
```

```
R1(config-router)#redistribute rip subnets metric-type 1
```

Look at the same two routes in R4's routing table, which are now displayed as E1 routes:

```
O E1 5.1.1.1 [110/94] via 172.34.34.3, 00:04:13, Ethernet0
```

```
6.0.0.0/32 is subnetted, 1 subnets
```

```
O E1 6.1.1.1 [110/94] via 172.34.34.3, 00:04:14, Ethernet0
```

BSCI exam success and earning your CCNP certification depends on knowing the details, and there are plenty of details involved in OSPF route redistribution! Keep studying, practice different scenarios in your CCNA / CCNP home lab or rack rental, and you'll master these details and pass the exam!