



BASIC OSPF - Redistribute Route

Redistribution is a process of passing the routing information from one routing domain to another. The ultimate goal of redistribution is to provide full IP connectivity between different routing domains. Another goal (not always required, though) is to provide redundant connectivity, i.e. backup paths between routing domains. Routing domain is a set of routers running the same routing protocol.

Configuration

Redistribution process is performed by border routers – i.e. routers belonging to more than one routing domain. On the contrary, internal routers belong just to one routing domain.

Redistribution may be one-way (from one domain to another but not vice-versa) or two-way (bi-directional). Next, internal routes are the IGP prefixes native to a routing protocol; i.e. they are originated by IGP's natural method, and their respective subnets belong to the IGP routing domain. External routes are the IGP prefixes injected into IGP routing domain via a border router – they have no corresponding IP subnets in the routing domain. They appear to be “attached” somehow to the border router that has originated them, and detailed information about their reachability is “compressed” and lost during the redistribution. Transit routing domain is the domain used as path to transport packets between two other routing domains. Domain becomes transit when two border routers perform bi-directional redistribution with two other routing domains. Stub routing domain is configured not to transit packets (effectively by blocking transit redistribution) between two other domains.

Redistribution is needed when you merge two networks or migrate your network from one routing protocol to another. As such, redistribution is usually deemed to be a temporary solution. However, in reality, we often find that there is nothing more permanent than a temporary solution.

Redistribute Route

```
NetStepByStep-R1(config-router)# redistribute ?
  bgp                Border Gateway Protocol (BGP)
  connected          Connected
  eigrp              Enhanced Interior Gateway Routing Protocol (EIGRP)
  isis               ISO IS-IS
  iso-igrp           IGRP for OSI networks
  maximum-prefix     Maximum number of prefixes redistributed to protocol
  metric             Metric for redistributed routes
  metric-type        OSPF/IS-IS exterior metric type for redistributed routes
  mobile             Mobile routes
  odr                On Demand stub Routes
  ospf               Open Shortest Path First (OSPF)
  rip                Routing Information Protocol (RIP)
  route-map          Route map reference
  static             Static routes
  subnets           Consider subnets for redistribution into OSPF
  tag                Set tag for routes redistributed into OSPF
  <cr>
```

- Use to redistribute routes from one routing domain into another routing domain.
- Use this command in router configuration mode.
- To disable redistribution, use the no form of this command.
- A router receiving a link-state protocol with an internal metric (E1) will consider the cost of the route from itself to the redistributing router plus the advertised cost to reach the destination. An external metric only considers the advertised metric to reach the destination.
- When routes are redistributed into OSPF, only routes that are not subnetted are redistributed if the subnets keyword is not specified.

Verification

```
show ip route
```

- Use to displays the current status of the routing table.
- Use this command in EXEC mode.

```
NetStepByStep-R2# show ip route 11.11.11.11
Routing entry for 11.11.11.0/25
  Known via "ospf 2", distance 110, metric 30, type NSSA extern 1
  Last update from 12.12.12.1 on Ethernet0/3, 00:00:10 ago
  Routing Descriptor Blocks:
  * 12.12.12.1, from 1.1.1.1, 00:00:10 ago, via Ethernet0/3
    Route metric is 30, traffic share count is 1
```

Troubleshoot

```
Debug ip ospf lsa-generation
```

- Use to displays information about each OSPF LSA generated.

Video Cheat Sheet

R1

```
router ospf 1  
redistribute connected subnets metric-type 1
```