

## Self-Study Guide: OSPF Routing Protocol Terminologies

Networking Technology has made a huge impact over the world since last decade, changing every day's lifestyle to organizations growth and processes. Having so massive reach is not easy to cover and learn under one domain hence divided into ten with levels to define the expertise.

Entry		Associate		Professional		Expert	
CCENT	CCT	CCNA	CCDA	CCNP	CCDP	CCIE	CCDE
R&S	Field Technician	R&S Collaboration Data Center Security Service Provider Wireless Cloud Field Technician Cyber Ops Industrial	Design	R&S Collaboration Data Center Security Service Provider Wireless Cloud	Design	R&S Collaboration Data Center Security Service Provider Wireless	Design

List of levels and domains of Cisco Certifications

Generally, starting from Associate level Certifications, networking aspirants move onto the Professional ones with Expert Level Certifications at last. Having many topics and concepts in common, the comprehensive knowledge and precise technology go deeper with the levels.

For example, one such concept is **OSPF Routing Protocol**. OSPF Routing Protocol is one of the major protocols of **CCNA** which requires a lot of hands-on session and guidance from the experienced. OSPF Protocol is one of the most important protocols which help in routing. It is explained a little bit in CCNA and more in CCNP and CCIE.

OSPF is classified as a routing protocol which helps in best path selection with the help of some predefined algorithm i.e. SPF. We study the basic concepts of OSPF in CCNA like why prefer it to other protocols, what are the advantages of using OSPF in network, but in CCNP and CCIE, we study actual working of OSPF like, detailed information of LSA, Virtual-Link, Redistribution, filtering methods etc.

Here are few of the OSPF Protocol Terminologies to help you out with this major protocol working.

### 1. OSPF:

Stands for Open Shortest Path first. It is a dynamic Link State routing protocols that shares the database information within a domain. All routers calculate the best path by their own. No dependency on neighbor like it was in Distance Vector Routing Protocols.

2. **LSRP:**

Links State Routing Protocols; protocols that send the information on the basis of the state of the link. They keep complete map of the network.

3. **SPF:**

Shortest Path First; an algorithm used by OSPF routers to calculate best path. SPF execution is done on Link State Database which is maintained by each OSPF router individually. It is also known as Dijkstra's algorithm.

4. **Neighbor:**

Two or more routers which are sharing same subnet IP address on the connecting links. Generally referred as directly connected routers.

5. **Adjacency:**

Adjacency is formed when two or more OSPF routers have exchanged all the information required to build the routing table.

6. **Router-id:**

An IPv4 address which defines the router in an OSPF network. It is used to create virtual-links, LSDB and in some other places. It can be manually configured or it can be any IP address of a highest loopback interface, if not present it can be any IP of active physical interface.

7. **Area id:**

It defines the logical division in OSPF. In OSPF we can create multiple areas to make it more scalable and to control the rapid SPF calculation on all the router if one router has made some changes.

8. **LSA:**

In OSPF, information is exchanged in the form of Link State Advertisements. There are 11 types of LSA available, however LSA 9, 10, 11 area application-specific. Each LSA has a name, Router LSA, Network LSA, Summary LSA, ASBR Summary LSA, External LSA, Not-so-stubby-area LSA to name a few.

9. **LSDB:**

Links State Database is the place in OSPF, where it keeps the information of LSAs. Further SPF algorithm is run on LSDB to calculate the best path. Remember that in OSPF, a router doesn't rely on neighbor for best path. It will calculate it automatically.

10. **Cost:**

Cost is the metric of OSPF. It is the best path selection criteria. Cost is 100/BW (in Mbps). Lower cost to reach the destination is always preferred.

11. **OSPF**

Priority: Priority can be used to manipulate the DR/BDR Election. Higher priority is always preferred.

12. **ABR:**

Area Border Router is a router who is connecting to Areas, one of which is a transit Area.

13. **ASBR:**

Autonomous System Boundary Router connecting an OSPF router to any other routing domain. Redistribution is performed here.

14. **Area Types:**

There can be multiple type of areas present in the network. In multiple area OSPF, all the regular area must be connected with Area 0. Some Area types like Regular Area, Backbone Area, Stubby Area, Totally stubby area, not so stubby area.

15. **E1 E2 Routes:**

E1-E2 routes area generated in response of Redistribution. A router will receive a redistributed route with either E1 or E2 type. E1 represents total cost to reach ASBR + to reach the destination. But E2 will only represent cost from ASBR to destination. It is default for redistributed routes.

16. **Virtual Links:**

Virtual-Link is used to connect a regular area with backbone area if it is not connected.

17. **Hello Time:**

Time period in within which a router in OSPF is required to send Hello packets to check if the neighbor is up or not. By default it is 10 sec. Can vary depending on the Network Type.

18. **Dead Time:**

If a router stops receiving hello on any interface, it is going to start its' hold timer. In normal network scenario it is 40 sec and it can exceed, depending on Network type in OSPF.

**Recommended Read:**

- [Self-Study Guide: Cisco VPN](#)

- [Networking Concepts: Configuring DHCP in Cisco Packet Tracer](#)
- [Networking Concepts: Introduction to Cisco Packet Tracer](#)
- [Networking Concepts: IP Routing Protocols](#)

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