

Q. Why are loopbacks advertised as /32 host routes in OSPF?

A. Loopbacks are considered host routes in OSPF, and they are advertised as /32. For more information, see section 9.1 of RFC 2328 . In Cisco IOS® Software Release 11.3T and 12.0, if the ip ospf network point-to-point command is configured under loopbacks, then OSPF advertises the loopback subnet as the actual subnet configured on loopbacks.

Q. How do I change the reference bandwidth in OSPF?

A. You can change the reference bandwidth in Cisco IOS Software Release 11.2 and later, using the ospf auto-cost reference-bandwidth command under router ospf. By default reference-bandwidth is 100 Mbps.

Q. How does OSPF calculate its metric or cost?

A. OSPF uses a reference bandwidth of 100 Mbps for cost calculation. The formula to calculate the cost is reference bandwidth divided by interface bandwidth. For example, in the case of Ethernet, it's 100 Mbps/10 Mbps = 10. Note: If ip ospf cost <cost> is used on the interface, it overrides this formulated cost.

Q. Are OSPF routing protocol exchanges authenticated?

A. Yes, OSPF can authenticate all packets exchanged between neighbors. Authentication maybe through simple passwords or through MD5 cryptographic checksums. To configure simple password authentication for an area, use the command ip ospf authentication-key to assign a password of up to eight octets to each interface attached to the area. Then enter the area <x> authentication command to the OSPF router configuration to enable authentication. (where x is the area number)

Q. What is the link-state retransmit interval, and what is the command to set it?

A. OSPF must send acknowledgment of each newly received link-state advertisement. It does this by sending link-state advertisement (LSA) packets. LSAs are retransmitted until they are acknowledged. The link-state retransmit interval defines the time between retransmissions. You can use the command ip ospf retransmit-interval to set the retransmit interval. The default value is five seconds.

Q. What is the purpose of the variable IP-OSPF-Transmit-Delay?

Q. Is it true that only the static option of the virtual link in OSPF allows iscontiguous networks, regardless of the mask propagation roperties?

A. No. Virtual links in OSPF maintain connectivity to the backbone from non-backbone reas, but they are unnecessary for discontiguous addressing. OSPF provides support for iscontiguous networks, since every area has a collection of networks and OSPF attaches a ask to each advertisement.

Q. Are the multicast IP addresses mapped to MAC-level multicast ddresses?

A. OSPF sends all advertisements using multicast addressing. Except for Token Ring, the ulticast IP addresses are mapped to MAC-level multicast addresses. Cisco maps Token Rng to MAC-level broadcast addresses.

Q. Does the Cisco OSPF implementation support IP TOS-based Ruting?

A. Cisco OSPF only supports TOS 0. This means that routers route all packets on the TOS 0path, eliminating the need to calculate non-zero TOS paths.

Q. Will the offset-list subcommand work for OSPF?

A. The offset-list command doesn't work for OSPF; it's used for distance vector protocolsch as IGRP, RIP, RIPv2.

Q. Can an OSPF default be originated into the system based on external nformation on a router that does not itself have a default?

A. OSPF generates a default only if it is configured using the command default-informationoriginate and if there is a default network in the box from a different process. The defaultroute in OSPF is 0.0.0.0. If you want an OSPF-enabled router to generate a default route evenif it doesn't have a default route itself, use the command default-information originatealways.

Q. Can I use the distribute-list in/out command with OSPF to filterroutes?

A. OSPF routes can't be filtered from entering the OSPF database. The distribute-list incommand only filters routes from entering the routing table,

but it doesn't prevent link-state packets from being propagated. The command distribute-list out works only on the routes being redistributed by the autonomous system boundary routers (ASBRs) into OSPF. It can be applied to external type 2 and external type 1 routes, but not to intra-area and inter-area routes.

Q. How can I give preference to OSPF inter-area routes over intra-area routes?

" intra-area routes, O

" inter-area routes O IA

" external routes type 1, O E1

" external routes type 2, O E2

Q. Do I have to manually setup adjacencies for routers on the SMDS cloud with the OSPF neighbor subcommand?

A. Before Cisco IOS Software Release 10.0, you needed the neighbor command to establish adjacencies over NBMA networks (such as Frame Relay, X.25, and SMDS). As of Cisco IOS Software Release 10.0, you can use the ip ospf network broadcast command to define the network as a broadcast network, eliminating the need for the neighbor command. If you're not using a fully meshed SMDS cloud, you must use the ip ospf network point-to-multipoint command.

Q. When routes are redistributed between OSPF processes, are all SPF metrics preserved or is the default metric value used?

A. The SPF metrics are not preserved. The redistribution between them is like redistribution between any two IP routing processes.

Q. How does Cisco accommodate OSPF routing on partial-mesh Frame Relay networks?

A. You can configure OSPF to understand whether or not it should attempt to use multicast facilities on a multi-access interface. Also, if multicast is available, OSPF uses it for its normal multicasts. Cisco IOS Software Release 10.0 includes a feature called subinterfaces. You can use subinterfaces with

Frame Relay to tie together a set of virtual circuits (VC) to form a virtual interface, which acts as a single IP subnet. All systems within the subnet should be fully meshed. As of Cisco IOS Software Releases 10.3 and 11.0, the ip ospf point-to-multipoint command is also available.

Q. Which address-wildmask pair should I use for assigning an unnumbered interface to an area?

A. When an unnumbered interface is configured, it references another interface on the router. When enabling OSPF on the unnumbered interface, use the address-wildmask pair of interfaces to which the unnumbered interface is pointing.

Q. Can I have one numbered side and leave the other side unnumbered in OSPF?

A. No, OSPF does not work if you have one side numbered and the other side unnumbered. This creates a discrepancy in the OSPF database that prevents routes from being installed in the routing table.

Q. Why do I receive the "cannot allocate router id" error message when I configure Router OSPF One?

A. OSPF picks up the highest IP address as a router ID. If there are no interfaces in up/up mode with an IP address, then it returns this error message. To correct the problem, configure a loopback interface.

Q. Why do I receive the "unknown routing protocol" error message when I configure Router OSPF One?

A. Your software may not support OSPF. This error message occurs most frequently with the Cisco 1600 series routers. If you are using a Cisco 1600 router, you will need a plus image to run OSPF.

Q. What do the states DR, BDR, and DROTHER mean in show ip ospf interface output?

A. DR means designated router, BDR means backup designated router, and DROTHER means a router that is neither the DR or the BDR. The DR

generates a Network Link State Advertisement, which lists all the routers on that network.

Q. When I type the show ip ospf neighbor command, why do I only see FULL/DR and FULL/BDR, with all other neighbors showing 2-WAY/DROTHER?

A. To reduce the amount of flooding on broadcast media, such as Ethernet, FDDI, and Token Ring, the router gets full with only DR and BDR, and shows 2-WAY for all other routers.

Q. Why do I not see OSPF neighbors as FULL/DR or FULL/BDR on my serial link?

A. This is normal. On point-to-point and point-to-multipoint networks there are no DRs or BDRs.

Q. Do I need any special commands to run OSPF over BRI/PRI links?

A. In addition to the normal OSPF configuration commands, you should use the dialer map command. When using the dialer map command, use the broadcast keyword to indicate that broadcasts should be forwarded to the protocol address.

Q. Do I need any special commands to run OSPF over asynchronous links?
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13:00 Router01(config)#access-list 135 permit ip any any time-range...

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