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OSPF show Commands Respond Slowly

Introduction

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Introduction

It is sometimes noticed on a router that the output of certain Open Shortest Path First (OSPF) **show** commands (such as **show ip ospf neighbor** and **show ip ospf database**) take a long time to complete. The output appears line-by-line, and after one line is shown, it takes between 15 and 20 seconds before the next line appears. This document discusses some of the reasons for this behavior and possible solutions.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Problem

Because of the nature of the problem, this document is only able to describe the problem and cannot show an example of the problem. To describe the problem, it took 16 seconds for this output to be completely displayed.

```
citrus# show ip ospf database

                OSPF Router with ID (10.48.77.45) (Process ID 1)
                Router Link States (Area 0)
Link ID        ADV Router    Age           Seq#           Checksum Link count
10.48.77.45    10.48.77.45   72           0x80000001    0x5A6F    1
```

```
citrus#
```

The most common commands to display this behavior are:

- **show ip ospf border-routers**
- **show ip ospf database** (including the more specific version of the command, such as **show ip ospf database router**)
- **show ip ospf interface**
- **show ip ospf neighbor**

Behavior Explanation

To determine why this behavior is happening, enable the **debug ip packet detail** command on a router while issuing the **show ip ospf database** command, as shown in the example below.

```
citrus# debug ip packet detail
IP packet debugging is on (detailed)

citrus# show ip ospf database

        OSPF Router with ID (10.48.77.45) (Process ID 1)

                Router Link States (Area 0)

Link ID          ADV Router      Age           Seq#           Checksum Link count
-----
10.48.77.45
Oct 23 11:26:16: IP: s=10.48.77.45 (local), d=255.255.255.255 (Dialer1), len 70, sending b
Oct 23 11:26:16:      UDP src=57969, dst=53
Oct 23 11:26:16: IP: s=126.106.177.81 (local), d=255.255.255.255 (Dialer2), len 70, sending
Oct 23 11:26:16:      UDP src=57969, dst=53
Oct 23 11:26:16: IP: s=10.48.77.45 (local), d=255.255.255.255 (Ethernet0), len 70, sending
Oct 23 11:26:16:      UDP src=57969, dst=53
...
Oct 23 11:26:31: IP: s=10.48.77.45 (local), d=255.255.255.255 (Ethernet0), len 70, sending
Oct 23 11:26:31:      UDP src=57969, dst=5310.48.77.45      160      0x80000001 0x3AFD
citrus#
```

The output above demonstrates that as soon as the **show ip ospf database** command is issued, the router is broadcasting User Datagram Protocol (UDP) packets with destination port 53 on all interfaces. UDP 53 is the Domain Name Service (DNS). By looking into the configuration of the router, you can see why the router is trying to do a DNS lookup.

Solution

To solve this problem, the reason the router is sending DNS queries needs to be determined. By looking at the configuration of the router with the **show run** and **include** commands, the following can be seen.

```
citrus# show run | include name
hostname citrus
ip ospf name-lookup
citrus#
```

The router has the **ip ospf name-lookup** command in the configuration. This command configures OSPF to look up DNS names for use in all OSPF **show EXEC** command displays. This feature makes it easier to identify a router because the router is displayed by name rather than by its router ID or neighbor ID. So, when

this command is configured, the router will do a DNS lookup for the OSPF router-id in the various **show** commands. If it can resolve such a router-id to a name, it will display the name in the **show** command instead of the IP address.

Note that **ip ospf name-lookup** will trigger DNS lookups only if **ip domain-lookup** is not disabled globally. By default, **ip domain-lookup** is enabled on Cisco IOS® Software.

When configuring **ip ospf name-lookup** in a Cisco router you may run into the following possible problems:

- There is no DNS server specified in the router configuration. In this case, you will broadcast DNS queries as shown in the debug output above. If this is the situation, the delay is caused by waiting for the DNS queries to time out.

If this is the problem, a DNS server can be configured on the router by issuing the **ip name-server** command. For further information, refer to [Configuring DNS on Cisco Routers](#).

- There is a DNS server specified in the router but it is not reachable. It is possible that a DNS server is configured in the router with the **ip name-server** command, but this DNS server is not reachable for some reason. You can check if the DNS server is reachable by pinging it. If the ping fails, the DNS server is not reachable and no DNS lookups can be done.

To solve this problem, check why the DNS server is not reachable (server is down or there is a routing problem in the network). As a workaround in this situation, you can disable the OSPF name-lookup feature by issuing the **no ip ospf name-lookup** global command.

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Related Information

- [OSPF Technical Support](#)
- [Configuring DNS on Cisco Routers](#)
- [Technical Support – Cisco Systems](#)

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