

# OSPF Packet Pacing

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## Feature Summary

The former OSPF implementation for sending update packets needed to be more efficient. Some update packets were getting lost in cases where the link was slow, a neighbor could not receive the updates fast enough, or the router was out of buffer space. For example, packets might be dropped if either of these topologies existed:

- A fast router was connected to a slower router over a point-to-point link.
- During flooding, several neighbors dumped updates to a single router at the same time.

OSPF update packets are now automatically paced by a delay of 33 milliseconds. Pacing is also added between retransmissions to increase efficiency and minimize lost retransmissions.

## Benefit

OSPF update and retransmission packets are sent more efficiently. Also, you can display the link state advertisements (LSAs) waiting to be sent out an interface.

## Platforms

This feature is supported on all platforms running Cisco IOS Release 12.0(1)T.

## Configuration Task

There are no configuration tasks for this feature; it occurs automatically.

If you want to observe OSPF packet pacing by displaying a list of LSAs waiting to be flooded over a specified interface, use the following command in EXEC mode:

Command	Purpose
<code>show ip ospf flood-list interface <i>interface</i></code>	Display a list of LSAs waiting to be flooded over an interface.

## Command Reference

This section documents the new `show ip ospf flood-list` command.

## show ip ospf flood-list

To display a list of OSPF link state advertisements (LSAs) waiting to be flooded over an interface, use the **show ip ospf flood-list EXEC** command.

**show ip ospf flood-list interface *type number***

### Syntax Description

**interface *type number*** Interface type and number over which the LSAs will be flooded.

### Command Mode

EXEC

### Usage Guidelines

This command first appeared in Cisco IOS Release 12.0(1)T.

Use this command to observe OSPF packet pacing.

### Sample Display

The following is sample output of the **show ip ospf flood-list** command:

```
Router# show ip ospf flood-list interface ethernet 1

Interface Ethernet1, Queue length 20
Link state flooding due in 12 msec

Type  LS ID          ADV RTR          Seq NO          Age    Checksum
 5  9.2.195.0        200.0.0.163     0x80000009     0      0xFB61
 5  9.1.192.0        200.0.0.163     0x80000009     0      0x2938
 5  9.2.194.0        200.0.0.163     0x80000009     0      0x757
 5  9.1.193.0        200.0.0.163     0x80000009     0      0x1E42
 5  9.2.193.0        200.0.0.163     0x80000009     0      0x124D
 5  9.1.194.0        200.0.0.163     0x80000009     0      0x134C
```

Table 1 describes the fields in the display.

**Table 1 Show IP OSPF Flood-List Field Descriptions**

Field	Description
Interface Ethernet1	Interface for which information is displayed.
Queue length	Number of LSAs waiting to be flooded.
Link state retransmission due in	Length of time before next link state transmission.
Type	Type of LSA.
LS ID	Link state ID of the LSA.
ADV RTR	IP address of advertising router.
Seq NO	Sequence number of LSA.
Age	Age of LSA in seconds.
Checksum	Checksum of LSA.