



OSPF Incremental SPF Support

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Feature History for OSPF Incremental SPF Support

This table provides release and platform support information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature Name and Description	Supported Platform
Cisco IOS XE 17.18.1	OSPF incremental SPF Support: The OSPF Incremental SPF feature is a network optimization feature that allows a device to use incremental SPF algorithm for calculating the shortest path first SPF routes.	Cisco C9610 Series Smart Switches

OSPF Incremental SPF Support

OSPF Incremental SPF Support is a network optimization feature that allows a device to use incremental shortest path first (SPF) algorithm for calculating the SPF routes.

How OSPF Incremental SPF works

Normally, OSPF uses Dijkstra's SPF algorithm to compute the shortest path tree (SPT). During the computation of the SPT, the shortest path to each node is discovered. The topology tree populates the routing table with routes to IP networks.

When changes to a Type-1 or Type-2 link-state advertisement (LSA) occur in an area, the entire SPT is recomputed. In many cases, the entire SPT need not be recomputed because most of the tree remains unchanged.

Incremental SPF allows the system to recompute only the affected part of the tree. Recomputing only a portion of the tree, rather than the entire tree, results in faster OSPF convergence and saves CPU resources. If the change to a Type-1 or Type-2 LSA occurs in the calculating device itself, the system performs a full SPT.

Incremental SPF is scheduled in the same way as the full SPF. Devices enabled with and without incremental SPF can function in the same network.

Enable Incremental SPF

Perform this procedure to enable Incremental SPF.

Procedure

Step 1 **enable****Example:**

```
Device> enable
```

Enables privileged EXEC mode.

Enter your password, if prompted.

Step 2 **configure terminal****Example:**

```
Device# configure terminal
```

Enters global configuration mode.

Step 3 **router ospf *process-id* [*vrf vrf-name*]****Example:**

```
Device(config)# router ospf 15
```

Enables OSPF routing and enters router configuration mode.

- *process-id*: The process ID is an internally used identification parameter that is locally assigned. Each OSPF process has a unique process ID.

Process ID can be a positive integer from 1 to 65535.

- *vrf*: Indicates that the OSPF process is being configured for a specific VRF.
- *vrf-name*: Specifies the name of the VRF for which this OSPF process is being created.

Step 4 **ispf****Example:**

```
Device(config-router)# ispf
```

Enables incremental SPF.

Step 5 **end****Example:**

```
Device(config-router)# end
```

Returns to privileged EXEC mode.

Configuration example for OSPF Incremental SPF

This example shows how to enable Incremental SPF:

```
Device> enable  
Device# configure terminal  
Device(config)# router ospf 1  
Device(config-router)# ispf  
Device(config-router)# end
```

