



Internode Topology Discovery and Communication

This chapter describes how internode topology discovery and communication between NCS 1010 nodes takes place using OSPF.

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Optical applications on the NCS 1010 nodes must discover the OLT-OLT link topology. Span level applications must discover the adjacent nodes. Link level applications must learn the complete OLT-OLT link topology. NCS 1010 uses OSPF to discover the link topology and communicate topology information.

The networking devices running OSPF detect topological changes in the network, flood link-state updates to neighbors, and quickly converge on a new view of the topology. Each OSPF router in the network soon has the same topological view again.

Optical applications on NCS 1010 must discover the link topology, the different nodes and the node types, and the optical spectral band the nodes work on. NCS 1010 uses an enhanced version of OSPF that supports a new link-state advertisement attribute that advertises the node type and band.

Configure OSPF

The following commands are the necessary configurations for OSPF on an NCS 1010 OLT node.

configure

router ospf *process-name*

router-id *router-id*

distribute link-state

nsf

network point-to-point

redistribute connected

area *area-id*

```
interface Loopback1
```

```
interface GigabitEthernet0/0/0/0
```

The following commands are the necessary configurations for OSPF on an NCS 1010 ILA node.

```
configure
```

```
router ospf process-name
```

```
router-id router-id
```

```
distribute link-state
```

```
nsf
```

```
network point-to-point
```

```
redistribute connected
```

```
area area-id
```

```
interface Loopback1
```

```
interface GigabitEthernet0/0/0/0
```

```
interface GigabitEthernet0/0/0/2
```



Important You must configure router ID during OSPF configuration on NCS 1010 nodes.

See [Implementing OSPF](#), for a description of the concepts and tasks necessary to implement OSPF on Cisco IOS XR.