



Configuring OSPFv3 Max-Metric Router LSA

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Information About OSPFv3 Max-Metric Router LSA

The Open Shortest Path First version 3 (OSPFv3) max-metric router link-state advertisement (LSA) feature enables OSPFv3 to advertise its locally generated router LSAs with a maximum metric. The feature allows OSPFv3 processes to converge but not attract transit traffic through the device if there are better alternate paths.

The max-metric LSA control places the OSPFv3 router into the stub router role using its LSA advertisement. A stub router only forwards packets destined to go to its directly connected links. In OSPFv3 networks, a device could become a stub router by advertising large metrics for its connected links, so that the cost of a path through this device becomes larger than that of an alternative path. OSPFv3 stub router advertisement allows a device to advertise the infinity metric (0xFFFF) for its connected links in router LSAs and advertise the normal interface cost if the link is a stub network.

OSPFv3 Max-Metric Router LSA

The OSPFv3 max-metric router LSA feature enables OSPFv3 to advertise its locally generated router LSAs with a maximum metric. The feature allows OSPFv3 processes to converge but not attract transit traffic through the device if there are better alternate paths. After a specified timeout or a notification from Border Gateway Protocol (BGP), OSPFv3 advertises the LSAs with normal metrics.

The max-metric LSA control places the OSPFv3 router into the stub router role using its LSA advertisement. A stub router only forwards packets destined to go to its directly connected links. In OSPFv3 networks, a device could become a stub router by advertising large metrics for its connected links, so that the cost of a path through this device becomes larger than that of an alternative path. OSPFv3 stub router advertisement allows a device to advertise the infinity metric (0xFFFF) for its connected links in router LSAs and advertise the normal interface cost if the link is a stub network.

Configuring the OSPFv3 Max-Metric Router LSA

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospfv3** *process-id*
4. **address-family ipv6 unicast**
5. **max-metric router-lsa** [**external-lsa** *[max-metric-value]*] [**include-stub**] [**inter-area-lsas** *[max-metric-value]*] [**on-startup** {*seconds* | **wait-for-bgp**}] [**prefix-lsa**] [**stub-prefix-lsa** *[max-metric-value]*] [**summary-lsa** *[max-metric-value]*]
6. **end**
7. **show ospfv3** [*process-id*] **max-metric**

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | enable Example: <pre>Device> enable</pre> | Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted. |
| Step 2 | configure terminal Example: <pre>Device# configure terminal</pre> | Enters global configuration mode. |
| Step 3 | router ospfv3 <i>process-id</i> Example: <pre>Device(config)# router ospfv3 1</pre> | Enables OSPFv3 router configuration mode. |
| Step 4 | address-family ipv6 unicast Example: <pre>Device(config)# address-family ipv6 unicast</pre> | Configures an instance of the OSPFv3 process in the IPv6 address family. |
| Step 5 | max-metric router-lsa [external-lsa <i>[max-metric-value]</i>] [include-stub] [inter-area-lsas <i>[max-metric-value]</i>] [on-startup { <i>seconds</i> wait-for-bgp }] [prefix-lsa] [stub-prefix-lsa <i>[max-metric-value]</i>] [summary-lsa <i>[max-metric-value]</i>] Example: <pre>Device(config-router-af)# max-metric router-lsa on-startup wait-for-bgp</pre> | Configures a device that is running the OSPFv3 protocol to advertise a maximum metric so that other devices do not prefer the device as an intermediate hop in their SPF calculations. |

| | Command or Action | Purpose |
|---------------|--|--|
| Step 6 | end Example: <pre>Device(config-router-af)# end</pre> | Exits address family configuration mode and returns to privileged EXEC mode. |
| Step 7 | show ospfv3 [process-id] max-metric Example: <pre>Device# show ospfv3 1 max-metric</pre> | Displays OSPFv3 maximum metric origination information. |

Example: Verifying the OSPFv3 Max-Metric Router LSA

```
Device#show ipv6 ospf max-metric

OSPFv3 Router with ID (192.1.1.1) (Process ID 1)

Start time: 00:00:05.886, Time elapsed: 3d02h
Originating router-LSAs with maximum metric
Condition: always, State: active
```

Additional References

Related Documents

| Related Topic | Document Title |
|----------------------------------|---|
| IPv6 addressing and connectivity | <i>IPv6 Configuration Guide</i> |
| OSPFv3 Max-Metric Router LSA | “OSPF Link-State Advertisement Throttling” module |

Standards and RFCs

| Standard/RFC | Title |
|---------------|-----------|
| RFCs for IPv6 | IPv6 RFCs |

Feature History for OSPFv3 Max-Metric Router LSA

This table provides release and related 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 | Feature Information |
|--------------------------------|------------------------------|---|
| Cisco IOS XE Gibraltar 16.11.1 | OSPFv3 Max-Metric Router LSA | The Open Shortest Path First version 3 (OSPFv3) max-metric router link-state advertisement (LSA) feature enables OSPFv3 to advertise its locally generated router LSAs with a maximum metric. |

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