



Configuring LISP Delegate Database Tree (DDT)

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LISP Delegate Database Tree (DDT)

Overview of DDT

LISP Delegated Database Tree (DDT) defines a large-scale distributed database of LISP Endpoint Identifier (EID) space using a DDT node. A DDT node is configured to be authoritative for some specified portion of an overall LISP EID space, as well as the set of more specific subprefixes that are delegated to other DDT nodes. It is also configured with the set of more-specific sub-prefixes that are further delegated to other DDT nodes. To delegate a sub-prefix, the “parent” DDT node is configured with the Routing Locators (RLOCs) of each child DDT node that is authoritative for the sub-prefix. Each RLOC either points to a map server (sometimes termed a “terminal DDT node”) to which an egress tunnel routers (ETRs) registers that sub-prefix or points to another.

Restrictions for LISP Delegate Database Tree (DDT)

The following restriction applies to the LISP Delegate Database Tree (DDT) feature:

- If LISP is enabled, nondisruptive upgrade (ISSU) and nondisruptive downgrade (ISSD) paths are not supported. Disable LISP prior to any upgrade. This restriction only applies to releases before 6.2(2) but not to this release or to future LISP releases.

Configuring LISP Delegate Database Tree (DDT)

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | configure terminal Example: Switch# configure terminal | Enters global configuration mode. |
| Step 2 | lisp ddt Example: Switch(config)# lisp ddt | Configures a switch to perform LISP DDT functionality. |
| Step 3 | lisp ddt root root-locator [public-key number] Example: Switch(config)# lisp ddt root 10.1.1.1 | Configures an IPv4 or IPv6 locator for a DDT root node within the delegation hierarchy on a DDT-enabled map resolver. <ul style="list-style-type: none"> In this example, a DDT-enabled map resolver is configured to refer to the DDT root node locator: 2001:db8:1::1111. |
| Step 4 | lisp ddt map-server-peer map-server-locator {eid-prefix eid-prefix instance-id iid} [map-server] map-server-locator Example: Switch(config)# lisp ddt map-server-peer 10.1.1.1 eid-prefix 2001:db8:eeee::/48 | Configures a DDT-enabled map server, the locator and EID prefix (and/or instance ID) for a map server peer within the LISP DDT delegation hierarchy. <ul style="list-style-type: none"> In this example, a LISP DDT map server is configured as authoritative for the IPv6 EID prefix 2001:db8:eeee::/48 for its own locator 10.1.1.1 |
| Step 5 | lisp ddt authoritative-prefix {eid-prefix eid-prefix instance-id iid } Example: Switch(config)# lisp ddt authoritative-prefix eid-prefix 172.16.0.0/16 | Configures a LISP DDT node to be authoritative for a specified EID prefix. <ul style="list-style-type: none"> In this example, the LISP DDT node is configured to be authoritative for the IPv4 EID-prefix 172.16.0.0/16 |
| Step 6 | exit Example: Switch(config)# exit | Exits global configuration mode and returns to privileged EXEC mode. |

| | Command or Action | Purpose |
|----------------|---|---|
| Step 7 | show lisp ddt vrf <i>vrf-name</i> Example: Switch# show lisp ddt vrf vrf-1 | Displays the configured DDT root(s) and/or DDT delegation nodes on a switch enabled for LISP DDT. When vrf <i>vrf-name</i> is specified, information for VRF is displayed. |
| Step 8 | show lisp ddt queue [<i>eid-address</i> instance-id <i>iid</i> { <i>eid-address</i> } vrf <i>vrf-name</i>] Example: Switch# show lisp ddt queue 10.1.1.1 | Displays the map-resolver's map-request queue. If <i>eid-address</i> is specified, then only the queue element for an EID being map-requested is displayed |
| Step 9 | show lisp ddt referral-cache [<i>eid-address</i> instance-id <i>iid</i> { <i>eid-address</i> } cache-entries { <i>vrf vrf-name</i> } vrf <i>vrf-name</i>] Example: Switch# show lisp ddt referral-cache 10.1.1.1 | Displays the DDT referral cache stored in map-resolvers. When the <i>eid-address</i> variable is specified each cache entry that is less specific than the <i>eid-address</i> variable will be displayed. |
| Step 10 | end Example: Switch# end | |

Configuration Examples for LISP Delegate Database Tree (DDT)

Examples: LISP Delegate Database Tree (DDT)

The following is an example of parent and child DDT nodes, where the parent has all of 10.0.0.0/8 and delegates two sub-prefixes, 10.0.0.0/12 and 10.0.16.0/12 to two child DDT nodes. All of these prefixes are within the DDT sub-tree Key-ID=0, IID=223, and AFI=1 (IPv4).

```
Switch(config)# lisp ddt authoritative-prefix instance-id 223 10.0.0.0/8
Switch(config)# lisp ddt child 192.168.1.100 instance-id 223 eid-prefix 10.0.0.0/12
Switch(config)# lisp ddt child 192.168.1.200 instance-id 223 eid-prefix 10.16.0.0/12
```

The following example defines the delegation of the EID-prefix 10.0.0.0/12 to a DDT Map Server with RLOC 192.168.1.100 and delegation of the EID-prefix 10.16.0.0/12 to a DDT Map-Server with RLOC 192.168.1.200. The child DDT Map-Server for 10.16.0.0/12 is further configured to allow ETRs to register the sub-prefixes 10.18.0.0/16 and 10.17.0.0/16:

```
Switch(config)# lisp ddt authoritative-prefix instance-id 223 eid-prefix 10.16.0.0/12
Switch(config)# lisp site site-1
Switch(config)# eid-prefix 10.18.0.0/16 instance-id 223
Switch(config)# lisp site site-2
```

```
Switch(config)# eid-prefix 10.17.0.0/16 instance-id 223
```

Feature History for Delegate Database Tree

Table 1: Feature History for LISP Delegate Database Tree

| Feature Name | Releases | Feature Information |
|--|----------|-----------------------------|
| Locator/ID Separation Protocol (LISP) Delegate Database Tree (DDT) | 6.2(2) | This feature is introduced. |