



L Commands

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lig

To initiate a LISP Internet Groper (LIG) operation for a destination endpoint identifier (EID) or to test the router's local EID prefix, use the **lig** command.

lig { **hostname** | **destination-EID** } [**count count**] [**source source-EID**] [**to map-resolver**]

lig { **self** | **self6** | **version** } [**count count**] [**source source-EID**] [**to map-resolver**]

Syntax Description

hostname	Destination hostname.
destination-EID	Destination IPv4 or IPv6 EID.
count count	(Optional) Specifies to send this number of Map Requests. The range is from 1 to 5.
source source-EID	(Optional) Specifies to send the Map Request using this IPv4 or IPv6 source EID.
to map-resolver	(Optional) Specifies to send the Map Request to this map-resolver locator instead of the configured Map-Resolver.
self	Tests to see if the local IPv4 EID prefix is registered in the mapping database.
self6	Test to see if the local IPv6 EID prefix is registered in the mapping database.
version	Displays the version of LIG that the system is supporting.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
5.0(1.13)	This command was introduced.

Usage Guidelines

Use the `lig` command to test whether a destination EID exists in the LISP mapping database system, or to see if your site is registered with the mapping database system.

When a LIG query is initiated with a hostname or destination EID, the router sends a Map Request to the configured Map Resolver for the indicated destination hostname or EID. When a Map Reply is returned, its contents are displayed and entered in the LISP map cache.

When a LIG self query is initiated, the router's local EID prefix is substituted in place of the destination EID when the router sends a Map Request to the configured Map Resolver.

The following operational attributes apply to LIG:

- By default, a minimum of one Map Request is sent to the Map Resolver but up to three Map Requests might be sent to the Map Resolver. Once a Map Reply is returned for a Map Request, no further Map Requests are sent. When you apply the `count` option, a specified number of Map Requests is sent.
- By default, the source of the Map Request is the first configured EID prefix for the site (with the host-bit set to zero). For example, if the local EID prefix is 153.16.21.0/24, the source EID is 153.16.21.0 for the Map Request. When the `source` option is applied, a specific source EID might be used. However, the source EID must be one of the EID addresses assigned to the LISP router.
- When the `lig` command is used with the `self` option, the destination IPv4 EID is also the first configured EID prefix for the site (with the host bit set to zero). For example, if the local IPv4 EID prefix is 153.16.21.0/24, the destination EID is 153.16.21.0 for the Map Request. Use the `self6` option for IPv6 addresses.
- By default, when you enter the `lig` command, the Map-Request is sent to the configured Map Resolver. However, the `to` option can be specified to cause the Map Request to be forwarded to a specified Map Resolver instead you can send a Map Request to a different Map-Resolver can be useful to test that your EID prefix has been properly injected into the ALT infrastructure. In this case, the LIG Map Request is processed by the specified Map Resolver and propagated through each ALT router hop to the Map Server that you have registered to. The Map Server returns the Map Request to your site. Your site generates a Map-Reply to the source of the Map Request (which could be itself or a different LISP Tunnel Router (xTR) within your LISP site).

This command does not require a license.

Examples

This example shows how to initiate a LIG operation for a destination EID or to test the router's local EID prefix:

```
switch# lig self
Send loopback map-request to 128.223.156.35 for 153.16.12.0 ...
Received map-reply from 128.223.156.23 with rtt 0.002770 secs
Map-cache entry for EID 153.16.12.0:
153.16.12.0/24, uptime: 00:00:02, expires: 23:59:57, via map-reply, self
  Locator      Uptime      State      Priority/  Data      Control
                Weight    in/out    in/out
128.223.156.23 00:00:02   up         1/100     0/0       0/0
```

This example shows how to display the local IPv6 EID prefix that is registered in the mapping database:

```
switch# lig self6
Send loopback map-request to 128.223.156.35 for 2610:d0:1203:: ...
Received map-reply from 128.223.156.23 with rtt 0.001148 secs
Map-cache entry for EID 2610:d0:1203:::
2610:d0:1203::/48, uptime: 00:00:02, expires: 23:59:57, via map-reply, self
  Locator      Uptime      State      Priority/  Data      Control
```

```

      128.223.156.23 00:00:02 up          Weight  in/out  in/out
switch#          1/100      0/0      0/0

```

This example shows how to display all LISP map-cache entries, and then uses lig to test for the remote IPv6 EID prefix:

```

switch# show ipv6 lisp map-cache
LISP IPv6 Mapping Cache for VRF "default", 0 entries

```

This example show to to configure LIG to test for the remote IPv6 EID prefix:

```

switch# lig 2610:d0:210f::1
end map-request to 128.223.156.35 for 2610:d0:210f::1 ...
Received map-reply from 85.184.2.10 with rtt 0.204710 secs
Map-cache entry for EID 2610:d0:210f::1:
2610:d0:210f::/48, uptime: 00:00:01, expires: 23:59:58, via map-reply, auth
  Locator      Uptime      State      Priority/  Data      Control
                Weight      in/out     in/out
  85.184.2.10  00:00:01   up         0/100     0/0       0/0
  2001:6e0:4:2::2 00:00:01   up         0/100     0/0       0/0

```

This example shows how to display all IPv6 LISP map-cache entries:

```

switch# show ipv6 lisp map-cache
LISP IPv6 Mapping Cache for VRF "default", 1 entries
2610:d0:210f::/48, uptime: 00:01:25, expires: 23:58:34, via map-reply, auth
  Locator      Uptime      State      Priority/  Data      Control
                Weight      in/out     in/out
  85.184.2.10  00:01:25   up         0/100     0/0       0/0
  2001:6e0:4:2::2 00:01:25   up         0/100     0/0       0/0
switch#

```

This example shows how to display the version of LIG being used by the system:

```

switch# lig version
http://tools.ietf.org/html/draft-ietf-lisp-05
http://tools.ietf.org/html/draft-farinacci-lisp-lig-01

```

Related Commands

Command	Description
show ip lisp map-cache	Displays the current dynamic and static IPv4 EID-to-RLOC map-cache entries.
show ipv6 lisp map-cache	Displays the current dynamic and static IPv6 EID-to-RLOC map-cache entries.

lisp beta

To enable Locator/ID Separation Protocol (LISP) to run on the Cisco NX-OS device, use the **lisp beta** command. To disable this functionality, use the **no** form of this command.

lisp beta

no lisp beta

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Global configuration mode

Command History	Release	Modification
	5.2(1)	This command was deprecated.
	5.0(1.13)	This command was introduced.

Usage Guidelines The lisp beta command is only applicable to the Cisco NX-OS device.

In order to run LISP on the Cisco Nexus 7000 Series device, the functionality must be enabled by using the lisp beta command. When enabled, hardware forwarding of LISP packets is automatically enabled, assuming that at least one 32x10GE line card is installed. Hardware forwarding is the default mode of operation when LISP is enabled.



Caution

You can disable hardware forwarding by using the no ip lisp hardware-forwarding command. However, we strongly recommend that you do not do so. Its use is intended for diagnostic functions only.

Additional caveats and requirements apply when LISP is configured on the Cisco NX-OS device only.

In order for LISP to operate, you must configure at least one tunnel interface (or any type) on the system. If no tunnel interface is configured, you must configure an arbitrary (unused) tunnel interface. The only requirements for the tunnel is that the source be active or up and that the destination be reachable, usually by matching a default route to exit the switch or by using a loopback interface that is not in a shutdown state. An example is as follows:

```
interface Tunnel101
  tunnel source Ethernet10/9
  tunnel destination 10.1.1.1
  no shutdown
```

This command does not require a license.

Examples

This example shows how to enable LISP on the Cisco Nexus 7000 Series device:

```
switch# configure terminal  
switch(config)# lisp beta
```

Related Commands

Command	Description
ip lisp hardware-forwarding	Enables IPv4 LISP hardware-forwarding on the Cisco NX-OS device.
ipv6 lisp hardware-forwarding	Enables IPv6 LISP hardware-forwarding on the Cisco NX-OS device.

lisp ddt

To configure a switch to perform LISP Delegated Database Tree (DDT) functionality, use the **lisp ddt** command. To remove the LISP DDT mapping, use the **no** form of this command.

lisp ddt

no lisp ddt

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Global configuration mode

Command History	Release	Modification
	6.2(2)	This command was introduced.

Usage Guidelines This command does not require a license.

Examples This example shows how to configure a LISP DDT mapping:

```
switch# configure terminal
switch(config)# lisp ddt
switch(config)#
```

Related Commands

Command	Description
lisp mobility	Configures an interface on an Ingress Tunnel Router (ITR) to participate in LISP VM Mobility (dynamic-EID roaming).

lisp ddt authoritative-prefix

To configure a Locator ID/Separation Protocol (LISP) Delegated Database Tree (DDT) node to be authoritative for a specified endpoint identifier (EID) prefix, use the **lisp ddt authoritative-prefix** command. To remove the LISP DDT node to be authoritative for a specified EID prefix, use the **no** form of this command.

lisp ddt authoritative-prefix {eid-prefix eid-prefix| instance-id id}

no lisp ddt authoritative-prefix {eid-prefix eid-prefix| instance-id id}

Syntax Description

eid-prefix	Specifies the authoritative IPv4 or IPv6 EID prefix.
eid-prefix	EID prefix in IPv4 and IPv6 slash format.
instance-id	Specifies the instance ID of VPN for EID prefix.
id	Instance ID range in X and Y format where $y > x$. The range is from 0 to 2147483647.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure a LISP DDT node to be authoritative for a specified EID prefix:

```
switch# configure terminal
Switch(config)# lisp ddt authoritative-prefix eid-prefix 172.16.0.0/16
switch(config)#
```

Related Commands

Command	Description
lisp mobility	Configures an interface on an Ingress Tunnel Router (ITR) to participate in LISP VM Mobility (dynamic-EID roaming).

lisp ddt map-server-peer

To configure a Delegated Database Tree (DDT) enabled Map Server, the locator and endpoint identifier EID prefix (and/or instance ID) for a Map Server peer within the Locator ID-Separation Protocol (LISP) DDT delegation hierarchy, use the **lisp ddt map-server-peer** command. To remove the other Map Server peers, use the **no** form of this command.

lisp ddt map-server-peer map-server-locator {eid-prefix eid-prefix| instance-id id}

no lisp ddt map-server-peer map-server-locator {eid-prefix eid-prefix| instance-id id}

Syntax Description

map-server-locator	IPv4 or IPv6 locator address of the DDT node.
eid-prefix	Specifies the child delegation for the IPv4 or IPv6 EID prefix.
eid-prefix	EID prefix in IPv4 or IPv6 slash format.
instance-id	Specifies the instance ID of VPN for the EID prefix.
id	Instance ID range in X and Y format where $y > x$. The range is from 0 to 2147483647.

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure a LISP DDT Map Server that is configured as authoritative for the IPv6 EID prefix 2001:db8:eeee::/48 for its own locator 10.1.1.1:

```
switch# configure terminal
Switch(config)# lisp ddt map-server-peer 10.1.1.1 eid-prefix 2001:db8:eeee::/48
switch(config)#
```

lisp ddt root

To configure an IPv4 or IPv6 locator for a Delegated Database Tree (DDT) root node within the delegation hierarchy on a DT-enabled Map Resolver, use the **lisp ddt root** command. To remove the IPv4 or IPv6 locator for a DDT root node within the delegation hierarchy on a DT-enabled Map Resolver, use the **no** form of this command.

lisp ddt root *root-locator* [**public-key** *number*]

no lisp ddt root *root-locator* [**public-key** *number*]

Syntax Description

root-locator	IPv6 or IPv4 locator address of DDT root.
public-key	(Optional) Specifies the DDT root's public key used to verify signed Map Referrals.
number	(Optional) 0 specifies an UNENCRYPTED rsa public key. 3 specifies an 3DES ENCRYPTED RSA public key. 7 specifies a Cisco type 7 ENCRYPTED RSA public key. LINE specifies the UNENCRYPTED (cleartext) RSA public key.

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure an IPv4 or IPv6 locator for a DDT root node within the delegation hierarchy on a DT enabled Map Resolver:

```
switch# configure terminal
Switch(config)# lisp ddt root 10.1.1.1 eid-prefix 172.16.0.0/16
switch(config)#
```

Related Commands

Command	Description
lisp mobility	Configures an interface on an Ingress Tunnel Router (ITR) to participate in LISP VM Mobility (dynamic-EID roaming).

lisp dynamic-eid

To configure a Locator ID/Separation Protocol (LISP) Virtual Machine (VM) Mobility (dynamic-EID roaming) policy and enter dynamic-EID configuration mode on an xTR, use the `lisp dynamic-eid` command. To remove the LISP dynamic-EID policy, use the `no` form of this command.

lisp dynamic-eid dynamic-EID-policy-name

no lisp dynamic-eid dynamic-EID-policy-name

Syntax Description

dynamic-EID-policy-name	Name of the LISP dynamic-EID policy.
-------------------------	--------------------------------------

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(1.13)	This command was introduced.

Usage Guidelines

To configure LISP VM Mobility, you must create a dynamic-EID roaming policy that can be referenced by the `lisp mobility dynamic-eid-policy-name` command. When you enter the `lisp dynamic-eid dynamic-EID-policy-name` command, the referenced LISP dynamic-EID policy is created and you are placed in the dynamic-EID configuration mode. In this mode, you can enter all attributes associated with the referenced LISP dynamic-EID policy.



Note

In this release of LISP VM Mobility, the following caveats apply: When a dynamic EID is roaming across subnets, you must configure it with a /32 IP address and an interface route to the default switch. For example, for a Linux or UNIX host, the following configuration is used:
`ifconfig eth0 eid-address netmask 255.255.255.255`
`route add default any-switch-address`
 When a dynamic-EID is roaming across subnets, you must configure it with a /32 IP address and an interface route to the default switch. For example, for a Linux or UNIX host, the following configuration will be used:
`ifconfig eth0 eid-address netmask 255.255.255.255`
`route add default any-switch-address`
`arp -s any-switch-address 00:00:0e:1d:01:0c`
 All LISP VM-router interfaces (the interface the dynamic EID will roam to) must have the same MAC address. You can configure interfaces by using the `mac-address 0000.0e1d.010c` command.

**Note**

This feature is available for both IPv4 and IPv6. However, this feature is tested for IPv4 only. In addition, while necessary Address Resolution Protocol (ARP) changes have been made for IPv4, similar changes required for Neighbor Discover (ND) for IPv6 have not been implemented.

This command does not require a license.

Examples

This example shows how to configure the LISP dynamic-EID policy named Roamer-1 and enter dynamic-EID configuration mode:

```
switch# configure terminal
switch(config)# lisp dynamic-eid Roamer-1
switch(config-lisp-dynamic-eid)#
```

Related Commands

Command	Description
lisp mobility	Configures an interface on an Ingress Tunnel Router (ITR) to participate in LISP VM Mobility (dynamic-EID roaming).

lisp extended-subnet-mode

To configure an interface to create a dynamic-endpoint identifier (EID) state for hosts attached on their own subnet in order to track the movement of EIDs from one part of the subnet to another part of the same subnet, use the `lisp extend-subnet-mode` command. To remove this functionality, use the `no` form of this command.

lisp extended-subnet-mode

no lisp extended-subnet-mod

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Interface configuration mode

Command History	Release	Modification
	5.0(3)	This command was introduced.

Usage Guidelines Use the `lisp extended-subnet-mode` command when a subnet is extended across a Layer 3 cloud where Layer 2 connectivity is maintained by a mechanism other than the Locator Separation Protocol (LISP) (for example, Overlay Transport Virtualization (OTV) or Virtual Private LAN Services (VPLS)). Use the `lisp extended-subnet-mode` command to enable the dynamic-EID state to create host attached on their own subnet so that the remote Ingress Tunnel Routers (ITRs) and Proxy ITRs (PITRs) can track the movement of EIDs from one part of its subnet to another part of the same subnet.



Note

When you enter the `lisp extended-subnet-mode` command on an interface, any dynamic-EID prefixes configured by using the `lisp mobility` commands on the same interface must have more specific prefixes than any overlapping subnet prefixes. For example, if `lisp extended-subnet-mode` is configured on an interface that has a base subnet of a /24, when you enter the `lisp mobility dyn-eid-name` command, the EID prefix for the dynamic EID `dyn-eid-name` must be /25 or greater.

This command does not require a license.

Examples This example shows how to configure an interface to create a dynamic EID state for hosts attached on their own subnet:

```
switch# configure terminal
switch(config)# interface Ethernet 2/0
switch(config-if)# lisp extended-subnet-mode
```

Related Commands

Command	Description
lisp site	Configures a LISP site and enters site configuration mode on a Map Server.
lisp dynamic-eid	Configures the LISP dynamic-EID roaming policy.
lisp mobility	Configures an interface on an Ingress Tunnel Router (ITR) to participate in LISP Virtual Machine (VM) mobility (dynamic-EID roaming).

lisp instance id

To configure an instance ID to be associated with endpoint identifier (EID)-prefixes for a Locator/ID Separation Protocol (LISP) Tunnel Router (xTR), use the `lisp instance-id` command. To disable this functionality, use the `no` form of this command.

lisp instance-id iid

no lisp instance-id iid

Syntax Description

iid	Instance ID for this xTR. The range is from 1 to 16777215.
------------	--

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(1.13)	This command was introduced.

Usage Guidelines

Virtualization support is currently available in LISP xTRs and the Map Server (MS) and Map Resolver (MR). The instance ID has been added to LISP to support virtualization.

Only one instance ID can be configured per EID virtual routing and forwarding (VRF) context. When an instance ID is configured, this instance ID is included with the EID prefixes when they are registered with the Map Server. The Map Server must also include the same instance ID within the EID prefix configurations for this LISP site. You can configure instance IDs on the MS by using the `eid-prefix` command in the `lisp site` command mode.



Note

Virtualization support is not currently available for the LISP Alternate Topology (ALT), which means that it is also not supported on LISP Proxy Ingress Tunnel Routers (PITRs).

This command does not require a license.

Examples

This example shows how to configure an instance ID on this xTR:

```
switch# configure terminal
switch(config)# lisp xtr instance-id 123
```

lisp instance id

Related Commands

Command	Description
eid-prefix	Configures a list of EID prefixes that are allowed in a Map Register message sent by an ETR when registering to the Map Server.

lisp loc-reach-algorithm

To configure a Locator/ID Separation Protocol (LISP) locator reachability algorithm, use the **lisp loc-reach-algorithm** command. To disable this functionality, use the **no** form of this command.

lisp loc-reach-algorithm {count-tcp| echo-nonce| rloc-probing}

no lisp loc-reach-algorithm {count-tcp| echo-nonce| rloc-probing}

Syntax Description

count-tcp	Enables the tcp-count locator reachability algorithm.
echo-nonce	Enables the echo-nonce locator reachability algorithm.
rloc-probing	Enables the rloc-probing locator reachability algorithm.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(1.13)	This command was introduced.

Usage Guidelines

When a LISP site communicates with a remote LISP site, it maintains endpoint identifier-to-Routing Locator (EID-to-RLOC) mapping information in its local map cache. In order for a LISP site to maintain an accurate status of locators at remote LISP sites with which it is communicating, the LISP Tunnel Router (xTR) can be configured to use three different locator reachability algorithms: tcp-count, echo-nonce, and rloc-probing. Certain algorithms can only be enabled on certain devices.

The following locator reachability algorithms and their descriptions are as follows:

- The tcp-count algorithm is most useful when the traffic between the sites is asymmetric (but also works for symmetric traffic patterns). The count-tcp algorithm can only be enabled on Ingress Tunnel Router (ITR) and Proxy ITR (PITR) devices. An Egress Tunnel Router (ETR) does not need to participate. The count-tcp algorithm is particularly useful in PITRs because encapsulated traffic is not returned to a PITR. When count-tcp is configured, an Ingress Tunnel Router (ITR) counts SYN and ACK TCP packets per locator to which it encapsulates packets. Over a 1-minute period, if SYNs-seen are non zero and ACKs-seen are zero, the Ingress Tunnel Router (ITR) assumes the locator is no longer reachable. The locator is marked to the down status and a switchover is made to another locator if one is available. After 3 minutes, the locator is brought back up and counting resumes.

- The echo-nonce algorithm works only when traffic is flowing in both directions between locators. You must enable the echo-nonce algorithm on both an Ingress Tunnel Router (ITR) and ETR to have it operate correctly. You must not use the echo-nonce algorithm on a PITR because the echo-nonce algorithm requires bidirectional traffic flows between locators and encapsulated traffic is not returned to the PITR. When you configure echo-nonce, every 1 minute, an Ingress Tunnel Router (ITR) requests that the nonce it is using in encapsulated packets be echoed back from the locator it is using. If data is still arriving from the locator but the nonce is not being echoed, the Ingress Tunnel Router (ITR) assumes that the forward path is unreachable. The locator is marked to the down status and a switchover is made to another locator if one is available. After 3 minutes and if data is arriving from the locator, the Ingress Tunnel Router (ITR) marks the locator up and starts sending nonce requests again.
- The rloc-probing algorithm works in most environments. The rloc-probing algorithm can be used on ITR, ETR, and PITR devices. When you configure the rloc-probing algorithm, the Ingress Tunnel Router (ITR) sends a Map Request to an ETR with the Probe bit set. This action solicits a Map Reply with the Probe bit from the ETR. Use the rloc-probing algorithm only when the tcp-count and echo-nonce cannot determine the up and down status of the forwarding path. This algorithm is particularly useful for unidirectional traffic flows between two sites. In this case, an ETR that receives a Map-Request rloc-probe from an ITR can use the mapping data if supplied and if the ETR has accept-map-request-data configured. An ITR that receives a Map-Reply rloc-probe from an ETR can use the mapping data from the ETR's site for fast mapping data updates.

You can enable multiple algorithms concurrently, subject to the dependencies listed above with each algorithm.

You can view the status associated with each locator reachability algorithm by using the `show ip lisp map-cache` or `show ipv6 lisp map-cache` commands.

This command does not require a license.

Examples

This example shows how to configure the locator reachability algorithm rloc-probing functionality on a Cisco NX-OS device:

```
switch# configure terminal
switch(config)# lisp loc-reach-algorithm rloc-probing
```

Related Commands

Command	Description
<code>ip lisp etr</code>	Configures the Cisco NX-OS device to act as an IPv4 LISP Egress Tunnel Router (ETR).
<code>ip lisp itr</code>	Configures the Cisco NX-OS device to act as an IPv4 LISP Ingress Tunnel Router (ITR).
<code>ipv6 lisp etr</code>	Configures the Cisco NX-OS device to act as an IPv6 LISP Egress Tunnel Router (ETR).
<code>ipv6 lisp itr</code>	Configures the Cisco NX-OS device to act as an IPv6 LISP Ingress Tunnel Router (ITR).
<code>show ip lisp map-cache</code>	Displays the current dynamic and static IPv4 EID-to-RLOC map-cache entries.

Command	Description
show ipv6 lisp map-cache	Displays the current dynamic and static IPv6 EID-to-RLOC map-cache entries.

lisp locator-set

To specify a locator set for RTR RLOCs, use the **lisp locator-set** command. To disable this functionality, use the **no** form of this command.

lisp locator-set *name*

no lisp locator-set *name*

Syntax Description

<i>name</i>	Locator set name.
-------------	-------------------

Command Default

None

Command Modes

VRF configuration (config-vrf) #

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

Create a locator set and then specify the RTR RLOCs for the locator set. In the following example, a locator set set5000 is created, and RTR RLOCs 192.0.2.10 and 192.0.2.21 (connecting the RTR to IPv4 locator spaces) are associated with the locator set.

```
(config-vrf)# lisp locator-set set5000
                192.0.2.10 priority 1 weight 10
                192.0.2.21 priority 2 weight 20
```

RTR locator-set inheritance

An RTR locator-set can be defined in the underlay VRF and can then be referenced in an overlay VRF. This configuration shows an example for RTR locator-set inheritance:

```
(config)# vrf context core
        ip lisp itr-etr
        ip lisp itr map-resolver 192.0.2.9/32
        ip lisp etr map-server 192.0.2.9/32 key 3 a97b0defe7b8ff70
        lisp locator-set setCore
                192.0.2.10 priority 1 weight 10
                192.0.2.21 priority 2 weight 20
        exit
        ip lisp multicast
        lisp encapsulation vxlan
```

The LISP locator-set setCore is defined in the underlay VRF core (as shown above) and then associated in the **lisp map-request itr-rlocs** command in the overlay VRF vrf5000 (as shown below).

```
(config)# vrf context vrf5000
```

```
ip lisp proxy-itr 192.0.2.1
ip lisp proxy-etr
lisp instance-id 5000
lisp map-request itr-rlocs setCore
ip lisp locator-vrf core
ip lisp map-cache 198.51.100.1/24 map-request
ip lisp map-cache 198.51.100.2/24 map-request
ip lisp multicast
lisp encapsulation vxlan
```

Examples

This example shows how to specify a locator set for RTR RLOCs:

```
switch(config-vrf)# lisp locator-set set5000
                    192.0.2.10 priority 1 weight 10
                    192.0.2.21 priority 2 weight 20
```

Related Commands

Command	Description
lisp map-request itr-rlocs	Defines RTR RLOCs to be used in the Map-Request messages generated by the RTR.

lisp map-request itr-rlocs

To define RTR RLOCs to be used in Map-Request messages generated by the RTR, use the **lisp map-request itr-rlocs** command. To disable this functionality, use the **no** form of this command.

lisp map-request itr-rlocs *locator-set-name*

no lisp map-request itr-rlocs *locator-set-name*

Syntax Description

<i>locator-set-name</i>	Locator set name.
-------------------------	-------------------

Command Default

None

Command Modes

VRF configuration (config-vrf) #

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

After creating a locator set and specifying RTR RLOCs, you should define RTR RLOCs to be used in the Map-Request messages generated by the RTR. Though you can enable multiple locator-sets, only one of them can be active at a point in time, and that is determined by including the name in the **lisp map-request itr-rlocs** option.

RTR locator-set inheritance—This command is also used in RTR locator-set inheritance. An RTR locator-set can be defined in the underlay VRF and can then be referenced in an overlay VRF. An example is given below:

```
(config)# vrf context core
ip lisp itr-etr
ip lisp itr map-resolver 192.0.2.9/32
ip lisp etr map-server 192.0.2.9/32 key 3 a97b0defe7b8ff70
lisp locator-set setCore
    192.0.2.10 priority 1 weight 10
    192.0.2.21 priority 2 weight 20
exit
ip lisp multicast
lisp encapsulation vxlan
```

The LISP locator-set setCore is defined in the underlay VRF core (as shown above) and then associated in the **lisp map-request itr-rlocs** command in the overlay VRF vrf5000 (as shown below).

```
(config)# vrf context vrf5000
ip lisp proxy-itr 192.0.2.1
ip lisp proxy-etr
lisp instance-id 5000
lisp map-request itr-rlocs setCore
```



```
ip lisp locator-vrf core
ip lisp map-cache 198.51.100.1/24 map-request
ip lisp map-cache 198.51.100.2/24 map-request
ip lisp multicast
lisp encapsulation vxlan
```

Examples

This example shows how to define RTR RLOCs to be used in the Map-Request messages generated by the RTR:

```
(config)# vrf context vrf5000
ip lisp proxy-itr 192.0.2.1
ip lisp proxy-etr
lisp instance-id 5000
lisp locator-set set5000
    192.0.2.10 priority 1 weight 10
    192.0.2.21 priority 2 weight 20
exit
lisp map-request itr-rlocs set5000
```

Related Commands

Command	Description
lisp locator-set	Specifies a locator set for RTR RLOCs.

lisp mobility

To configure an interface on an Ingress Tunnel Router (ITR) to participate in Locator/ID Separation Protocol (LISP) Virtual Machine (VM) mobility (dynamic-endpoint identifier (EID) roaming) for a specific dynamic-EID policy, use the **lisp mobility** command. To remove this functionality, use the **no** form of this command.

lisp mobility dynamic-EID-policy-name

no lisp mobility dynamic-EID-policy-name

Syntax Description

dynamic-EID-polic-name	Name of the LISP dynamic-EID policy to apply to this interface.
------------------------	---

Command Default

Disabled

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(1.13)	This command was introduced.

Usage Guidelines

In order for an interface on an xTR to participate in LISP Virtual Machine (VM) Mobility (dynamic-EID roaming), it must be associated by name with a specific LISP dynamic-EID roaming policy. A LISP dynamic-EID roaming policy is configured by using the `lisp dynamic-eid` command. This policy is then associated with an interface when you enter the `lisp mobility dynamic-eid-policy-name` command, where the `dynamic-eid-policy-name` provides the association.

When a packet is received on an interface configured for LISP VM Mobility, the packet is considered a candidate for LISP VM Mobility (dynamic-EID roaming) and its source address is compared against the EID prefix in the database-mapping entry (or entries) included as part of the specific LISP dynamic-EID policy. If there is a match, the rules associated with LISP dynamic-EID roaming are applied. If there is no match, the packet is forwarded natively (that is not LISP encapsulated).

You can apply multiple `lisp mobility` commands that refer to different `dynamic-EID-policy-name` instances to the same interface. Packets received on the interface are compared against all policies until a match is found or the packet discarded.

**Caution**

In this release of LISP Virtual Machine (VM) Mobility, note the following:– When a dynamic-EID is roaming across subnets, you must configure it with a /32 IP address and an interface route to the default switch. For example, for a Linux or UNIX host, use the following configuration:
`ifconfig eth0 eid-address netmask 255.255.255.255 route add default any-switch-address arp -s any-switch-address 00:00:0e:1d:01:0c`– All LISP VM-router interfaces (which is the interface the dynamic EID will roam to) must have the same MAC address. You can configure interfaces by using the `mac-address 0000.0e1d.010c` command.

**Note**

This feature is available for both IPv4 and IPv6. However, this feature is tested for IPv4 only. In addition, while necessary Address Resolution Protocol (ARP) changes have been made for IPv4, similar required changes for Neighbor Discovery (ND) for IPv6 have not been implemented.

When you configure `lisp extended-subnet-mode` on an interface, any dynamic-EID prefixes configured by using `lisp mobility` commands on the same interface must have more specific prefixes than any overlapping subnet prefixes. For example, if `lisp extended-subnet-mode` is configured on an interface that has a base subnet of a /24, when you enter the `lisp mobility dyn-eid-name` command, the EID prefix for dynamic-EID `dyn-eid-name` must be /25 or greater.

This command does not require a license.

Examples

This example shows how to configure the Roamer-1 policy defined under the LISP dynamic-EID configuration:

```
switch# configure terminal
switch(config)# interface Ethernet 2/0
switch(config-if)# lisp mobility Roamer-1
```

Related Commands

Command	Description
<code>lisp site</code>	Configures a LISP site and enters site configuration mode on a Map Server.
<code>lisp dynamic-eid</code>	Configures the LISP dynamic-EID roaming policy.
<code>lisp extended-subnet-mode</code>	Configures an interface to create a dynamic-EID state for hosts attached on their own subnet to track EID movement from one part of the subnet to another part of the same subnet.

lisp site

To configure a Locator/ID Separation Protocol (LISP) site and enter site configuration mode on a LISP Map Server, use the **lisp site** command. To remove the LISP site, use the **no** form of this command.

lisp site site-name

no lisp site site-name

Syntax Description

site-name	Name assigned to a LISP site locally.
-----------	---------------------------------------

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(1.13)	This command was introduced.

Usage Guidelines

To properly register a Locator/ID Separation Protocol (LISP) Egress Tunnel Router (ETR) with a Map Server, the Map Server must already have been configured with certain LISP site attributes that match the ETR attributes. At a minimum, these attributes include the EID prefix(es) to be registered by the ETR and a shared authentication key. On the ETR, these attributes are configured by using the `ip lisp database-mapping`, `ipv6 lisp database-mapping`, `ip lisp etr map-server`, and `ipv6 lisp etr map-server` commands.

When you enter the `lisp site` command, the referenced LISP site is created and you are placed in the site configuration mode. In this mode, all attributes associated with the referenced LISP site can be entered.

This command does not require a license.

Examples

This example shows how to configure the LISP site and enter the site command mode:

```
switch# configure terminal
switch(config)# lisp site Customer-1
switch(config-lisp-site)#
```

Related Commands

Command	Description
<code>ip lisp database-mapping</code>	Configures an IPv4 EID-to-RLOC mapping relationship and its associated traffic policy.

Command	Description
ip lisp etr map-server	Configures the IPv4 or IPv6 locator address of the LISP Map Server to which an ETR should register for its IPv4 EID prefixes.
ipv6 lisp database-mapping	Configures an IPv6 EID-to-RLOC mapping relationship and its associated traffic policy.
ipv6 lisp etr map-server	Configured the IPv4 or IPv6 locator address of the LISP Map Server to which an ETR should register for its IPv6 EID prefixes.

