

Locator/ID Separation Protocol Commands

This module describes the commands used to configure and monitor Locator/ID Separation Protocol (LISP) on Cisco IOS XR.

- Locator/ID Separation Protocol on Cisco IOS XR, on page 2
- address-family (LISP), on page 3
- clear lisp vrf, on page 5
- decapsulation filter rloc source, on page 6
- eid-mtu, on page 8
- eid-table, on page 10
- etr, on page 12
- etr accept-map-request-mapping, on page 13
- etr map-cache-ttl, on page 15
- etr map-server, on page 17
- itr map-resolver, on page 19
- locator reachability, on page 21
- locator-set, on page 22
- locator-table, on page 24
- loc-reach-algorithm rloc-probing, on page 26
- map-cache-limit, on page 28
- map-cache, on page 29
- map-request-source, on page 31
- map-server rloc members distribute, on page 32
- map-server rloc members modify-discovered {add | override} , on page 34
- other-xtr-probe, on page 36
- proxy-etr, on page 38
- proxy-itr, on page 40
- remote-rloc-probe, on page 42
- router lisp, on page 43
- show lisp decapsulation filter, on page 45
- show lisp session, on page 46
- show lisp site rloc members, on page 47
- show lisp site, on page 48
- solicit-map-request, on page 50
- use-petr, on page 52

Locator/ID Separation Protocol on Cisco IOS XR

Locator/ID Separation Protocol (LISP) is a simple, incremental, network-based protocol designed to implement separation of Internet addresses into Endpoint Identifiers (EIDs) and Routing Locators (RLOCs).

LISP stands for Locator/ID Separation Protocol and is a next-generation IP routing feature that creates a new paradigm in how IP addressing is assigned and interpreted by splitting the device identity, known as an endpoint identifier (EID), and its location, known as its routing locator (RLOC), into two different namespaces. Creating separate IP addresses for EID and RLOC functions yields several advantages, including improved scalability of the routing system through greater aggregation of RLOCs and improved multihoming efficiency and ingress traffic engineering. Hosts do not have to change IP addresses and therefore, no IP address numbering costs are involved with the LISP implementation.

LISP sites use IP addresses in the EID namespace to address hosts and in Domain Name System (DNS) in exactly the same way they are currently used. These addresses are not advertised within the non-LISP RLOC namespace (that is, the Internet), but instead are advertised by the LISP mapping services. The LISP site router supports the LISP functionality of Ingress Tunnel Router (ITR) and Egress Tunnel Router (ETR).

LISP is a pull model analogous to DNS and is massively scalable. LISP is address family agnostic and can be deployed incrementally.

LISP creates a Level of indirection with two namespaces: EID and RLOC. The EID (Endpoint Identifier) is the IP address of a host. The RLOC (Routing Locator) is the IP address of the LISP router for the host. EID-to-RLOC mapping is the distributed architecture that maps EIDs to RLOCs. The LISP Map Lookup is analogous to a DNS lookup. DNS resolves IP addresses for URLs. LISP resolves locators for queried identifiers or EID prefix.

LISP in Cisco IOS XR supports:

- Proxy Ingress Tunnel Router (PITR) and Proxy Egress Tunnel Router (PETR). PITR must be configured using map resolver (no ALT support).
- Default table support for EID and RLOC space.
- The **router lisp** command in global configuration mode enables LISP configuration mode.



Note The LISP command line interface, show commands output, and schema is to be changed in Cisco IOS XR Release 4.3.1 to be similar to the LISP command line interface on Cisco IOS.

For information on LISP Commands, see the *LISP Commands on Cisco IOS XR* module in the

address-family (LISP)

To enter Locator ID and separation protocol (LISP) address family configuration mode, use the **address-family** command in LISP configuration mode. To exit the LISP address family configuration mode, use the **no** form of this command.

address-family {**ipv4** | **ipv6**} **unicast**
no address-family {**ipv4** | **ipv6**} **unicast**

Syntax Description

ipv4	Selects IPv4 address family.
ipv6	Select IPv6 address family.
unicast	Selects unicast address prefixes.

Command Default

LISP address family configuration is disabled.

Command Modes

LISP configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to enable IPv6 address family configuration for LISP:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-afi)#
```

Related Commands

Command	Description
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.

Command	Description
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.
proxy-etr, on page 38	Configures a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR).
proxy-itr, on page 40	Configures a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR).
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

clear lisp vrf

To clear a Locator/ID Separation Protocol (LISP) reliable TCP transport session between an xTR and a Map-Server, use the **clear lisp vrf** command in the privileged EXEC mode.

clear lisp vrf *vrf-name* **session** {*peer-address* | *****}

Syntax Description

vrf-name	VRF instance. The transport session information for this VRF instance will be cleared. **Note** The vrf-name is a locator VRF, rather than an EID VRF. TCP sessions are formed per locator VRF. Hence, if you have shared mode configured where the locator VRF is default, then to clear the TCP sessions use the **clear lisp vrf default session {peer-address|*}** command.
session	Specifies that the reliable transport session for either the specified peer address or all transport sessions be cleared, based on your choice.
peer-address	IPv4 or IPv6 peer address. When you specify a peer-address, the TCP connection to the peer will be cleared.
*	Clears all LISP reliable transport sessions for this particular locator VRF. **Note** If you have multiple router LISP instances, other router LISP instances will not be affected.

Command Modes

EXEC mode

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
lisp	read, write

The following example shows how to clear all reliable TCP transport sessions with locator VRF v1 using the * option:

```
RP/0/RSP0/CPU0:router#clear lisp vrf v1 session *
```

decapsulation filter rloc source

To enable source Routing Locator (RLOC) address validation of Locator/ID Separation Protocol, (LISP)-encapsulated packets, use the **decapsulation filter rloc source** command in command in LISP configuration mode. This configures an xTR and a proxy-xTR to download decapsulation filter lists for source validation when decapsulating LISP packets.

To disable source RLOC address validation of LISP packets, use the **no** form of this command.

decapsulation filter rloc source {[**locator-set** *locator-set-name*] [**member**] }
no decapsulation filter rloc source

Syntax Description

locator-set *locator-set-name*	Specifies the full set of locators from which traffic will be accepted, both from other ITRs and PITRs.
member	Specifies that the registered RLOC membership list be automatically obtained from the Map-Server. **Note** Either or both of the **member** or **locator-set** keywords must be specified.

Command Default

Source RLOC address validation of LISP packets is disabled.

Command Modes

LISP configuration

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

Configure this command on an xTR or a PxTR to enable LISP decapsulation filtering. When enabled, the source RLOC addresses of incoming LISP packets are validated against the 'member' filter list. RLOCs that match the filter list are decapsulated while those that do not are dropped.

When the member keyword is used, the registered RLOC membership list will be automatically obtained from the Map-Server. The **member** keyword enables the establishment of a reliable transport (TCP) session with configured map-servers, and downloads the decapsulation filter list maintained by the map-servers. When the **locator-set** *locator-set-name* keyword is used, the prefixes named in the locator-set are used, if included alone or added to the (downloaded) dynamic list when used in conjunction with the **member** keyword.

This option is used to add PITRs which do not register with a Map-Server and are thus not automatically included in the registered RLOC membership list.

- On an xTR, the TCP-based reliable transport session is established only after the UDP-based (normal) Map-Registration process successfully completes.
- On a PxTR, since this device does not (normally) register with a Map-Server, a “stub” (fake) Map-Registration configuration must be added to allow the establishment of the reliable transport session and the download of any filter lists. The Map-Server requires the PETR RLOC(s) to be included in a map-server rloc members modify-discovered add command to permit this session establishment.

- A (P)xTR normally communicates with multiple Map-Servers. However, in the event that all reliable transport session goes down, any existing (possibly stale) filter list will remain in use during a small window of time (several minutes), during which time the (P)xTR tries to re-establish the session(s) with the MS and refresh its membership.
- If no filter list can be downloaded, or the existing list times out, packets will be dropped. (fail closed.)
- If the xTR changes RLOCs (using DHCP for example), as soon as the RLOC is changed, the registration with the Map-Server is updated and the new registered RLOC is pushed to all “members” of this IID/VPN (event-driven).

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure decapsulation filter rloc source:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#decapsulation filter rloc source member
RP/0/RSP0/CPU0:router(config-lisp)#exit
```

eid-mtu

To configure MTU sizes for IPv4 or IPv6 LISP payloads, use the **eid-mtu** command in the LISP address family configuration mode. To remove the configured the eid-mtu size, use the **no** form of this command.

eid-mtu {**ipv4-locator** *ipv4_bytes* | **ipv6-locator** *ipv6_bytes*}
no eid-mtu

Syntax Description

ipv4-locator	Specifies the MTU for packets transported through IPv4 RLOC space.
ipv4_bytes	Specifies the MTU in bytes for packets transported through IPv4 RLOC space. The value ranges from 68 to 65535.
ipv6-locator	Specifies the MTU for packets transported through IPv6 RLOC space.
ipv6_bytes	Specifies the MTU in bytes for packets transported through IPv6 RLOC space. The value ranges from 1280 to 65535.

Command Default

None

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure MTU size of 1300 bytes for the IPv6 LISP payloads:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
```

```
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#eid-mtu ipv4-locator 1320 ipv6-locator 1300
```

Related Commands

Command	Description
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.

eid-table

To configure a Locator ID Separation Protocol (LISP) instance ID for association with a virtual routing and forwarding (VRF) table or default table through which the endpoint identifier (EID) address space is reachable, use the **eid-table** command in the LISP configuration mode. To remove this association, use the **no** form of this command.

eid-table {**default** | [**vrf** **vrf_name**]} **instance-id** *instance_id*
no **eid-table** {**default** | **vrf** **vrf_name**} **instance-id** *instance_id*

Syntax Description

default	Selects the default (global) routing table for association with the configured instance ID.
vrf	Selects the specified VRF table for association with the configured instance ID.
vrf_name	Specifies the name of the VRF.
instance	Specifies the instance ID to be associated with this EID table.
instance_id	Specifies the instance ID value. This value ranges between 0 and 16777215.

Command Default

A router configured for LISP associates the default table with instance ID 0.

Command Modes

LISP configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **eid-table** command is used to associate a LISP instance ID with either the default routing table, or a VRF table through which its EID address space is reachable. When a LISP instance ID is specified, LISP Map Registration (control plane) messages include this instance ID along with the associated EID prefixes upon registering and LISP data plane packets include this instance ID in the LISP header.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure LISP instance ID for association with a virtual routing and forwarding (VRF) table:

```
RP/0/RSP0/CPU0:router#configure
```

```
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#eid-table vrf vrf1 instance-id 45
```

Related Commands

Command	Description
locator-table, on page 24	Specifies the RLOC table.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.

etr

To enable Egress Tunnel Router functionality, use the **etr** command in the LISP address family configuration mode. To disable the ETR functionality, use the **no** form of this command.

etr
no etr

Syntax Description

This command has no keywords or arguments.

Command Default

ETR functionality is not enabled by default.

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

The example shows how to turn on ETR functionality in all eid-tables, unless it is explicitly disabled.

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#etr
```

Related Commands

Command	Description
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.

etr accept-map-request-mapping

To configure an Egress Tunnel Router (ETR) to cache to cache EID-to-RLOC mapping data contained, that ITRs may attach to a map-request message, use the **etr accept-map-request-mapping** command in the LISP address family configuration mode. To remove this functionality, use the **no** form of this command.

etr accept-map-request-mapping [**verify**]
no etr accept-map-request-mapping

Syntax Description

verify	(Optional) Specifies that mapping data should be cached but not used for forwarding packets until the ETR can send its own map request to one of the locators from the mapping data record and receive a map reply with the same data in response.

Command Default

No caching of mapping data in a map-request message.

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

If an ETR receives a map-request message that contains mapping data for the invoking IPv6 source-EID's packet, then the ETR, by default, ignores the mapping data. However, if you configure the **etr accept-map-request-mapping** command, the ETR caches the mapping data in its map cache and immediately uses it for forwarding packets.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure **etr accept-map-request-mapping** command in the LISP IPv6 address family configuration mode:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
```

```
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#etr accept-map-request-mapping verify
```

Related Commands

Command	Description
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
etr, on page 12	Enables Egress Tunnel Router (ETR) functionality.

etr map-cache-ttl

To configure the time-to-live (TTL) value inserted into LISP IPv4 or IPv6 map-reply messages, use the **etr map-cache-ttl** command in the LISP address family configuration mode. To remove the configured TTL value and return to the default value, use the **no** form of this command.

etr map-cache-ttl *minutes*
no etr map-cache-ttl *minutes*

Syntax Description

minutes	Specifies the value, in minutes, to be inserted in the TTL field in map-reply messages. The value ranges from 60 to 10080 minutes.

Command Default

The default TTL value is 1440 minutes (24 hours).

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use this command to change the default value associated with the Time-to-Live (TTL) field in map-reply messages. Entering this command changes the default TTL that remote ITRs will cache and use for your site's endpoint identifier (EID) prefix. The default value is 1440 minutes (24 hours), and the minimum value is 60 minutes.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure **etr map-cache-ttl** command with TTL value of 60 minutes:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#etr map-cache-ttl 60
```

Related Commands

Command	Description
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
etr, on page 12	Enables Egress Tunnel Router (ETR) functionality.

etr map-server

To configure the options related to the etr map-server (MS) such as locator, authentication key and whether or not the map server is allowed to respond on the ETR's behalf to map-requests (proxy-reply option), use the **etr map-server** command in the LISP address family configuration mode. To remove the configured options, use the **no** form of this command.

etr map-server *IP* {**key** [**clear** | **encrypted**] **LINE** | **proxy-reply**}
no etr map-server

Syntax Description

ip_address	Specifies the IPv4 or IPv6 address of the map server.
key	Specifies that an authentication key will follow either encrypted or unencrypted option.
LINE	Specifies the key (either encrypted or unencrypted).
clear	Specifies the UNENCRYPTED (cleartext) key.
encrypted	Specifies that an ENCRYPTED key will follow.
proxy-reply	Specifies that the map-server with the specified RLOC is allowed to respond to map-requests on behalf of the ETR.

Command Default

LISP map server locator addresses are not configured by default.

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example configures 2001:0db8::1 as map-server, specifying that *supers3cr3tpassw0rd* will be used as the shared secret for HMAC calculations, and that this map-server may respond to map-requests on behalf of the ETR.

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
```

```
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#etr map-server 2001:0db8::1 key clear
supers3cr3tpassw0rd
RP/0/RSP0/CPU0:router(config-lisp-af)#etr map-server 2001:0db8::1 proxy-reply
```

Related Commands

Command	Description
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
etr, on page 12	Enables Egress Tunnel Router (ETR) functionality.

itr map-resolver

To configure an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR, when sending Map-Requests for IPv4 EID-to-RLOC mapping resolution, use the **itr map-resolver** command in LISP address family configuration mode. To remove the configured locator address of the LISP Map-Resolver, use the **no** form of this command.

itr map-resolver *map-resolver-address*
no itr map-resolver *map-resolver-address*

Syntax Description

map-resolver-address	Specifies the IPv4 or IPv6 locator addresses of the Map-Resolver.

Command Default

No LISP Map-Resolver locator address is configured.

Command Modes

LISP IPv4 address family configuration

LISP IPv6 address family configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example configures an ITR to use the Map-Resolver located at 10.2.3.4 when sending its Map-Request messages:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-afi)#itr map-resolver 10.2.3.4
```

This example configures and ITR to use the Map-Resolver located at 2001:DB8:0A::1 when sending its Map-Request messages:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
```

```
RP/0/RSP0/CPU0:router(config-lisp-afi)#itr map-resolver 2001:DB8:0A::1
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.
proxy-etr, on page 38	Configures a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR).
proxy-itr, on page 40	Configures a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR).
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

locator reachability

To configure the conditions that must be met for a routing locator (RLOC) to be treated as being reachable, use the **locator reachability** command in the LISP address family configuration mode. To remove the configuration, use the **no** form of the command.

locator reachability exclude-default
no locator reachability exclude-default

Syntax Description

exclude-default	If a remote RLOC is reached via the default route, then it is treated as unreachable.

Command Default

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure the **locator reachability** command:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#locator reachability exclude-default
```

Related Commands

Command	Description
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

locator-set

To configure a named locator set, use the **locator-set** command in the in LISP configuration mode. To disable a the locator-set, use the **no** form of the command.

locator-set *name* {**ip_address** {**priority** *priority_value* | **weight** *weight_value*} | **auto-discover-rlocs**}
no locator-set *name*

Syntax Description

name	Specifies the name of the locator set.
ip_address	Specifies the RLOC IP address of Loopback or other Egress Tunnel Router (ETR) interfaces.
priority	Configures the preferred locators from the locator set. When multiple locators have the same priority traffic may be load-balanced across them.
priority_value	Specifies the value of the priority assigned to the RLOC. The value ranges from 0 to 255. A lower value indicates a higher priority.
weight	Specifies how to determine to load-share traffic between multiple locators when the priorities assigned to multiple locators are the same.
weight_value	Specifies the value of the percentage of traffic to be load-shared. The value ranges from 0 to 100.
auto-discover-rlocs	Configures the Egress Tunnel Router (ETR) to discover the locators of all routers configured to function as both an ETR and an Ingress Tunnel Router (ITR)--such routers are referred to as xTRs--in ETRs LISP site when the site uses multiple xTRs and each xTR is configured to use DHCP-learned locators or configured with only its own locators.

Command Default

Command Modes

LISP configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

A locator set is a named group of Routing LOCators (RLOCs). It can be used in conjunction with the **database-mapping** and **map-cache** configuration commands.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure the locator-set priority such that 2001:1::2 would have the highest priority and receive all the traffic. 2001:2::3 and 64.10.10.5 would each receive 50% of the traffic if 2001:1::2 is unreachable.

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#locator-set loc1
RP/0/RSP0/CPU0:router(config-lisp)#2001:1::2 priority 1 weight 100
RP/0/RSP0/CPU0:router(config-lisp)#2001:2::3 priority 2 weight 50
RP/0/RSP0/CPU0:router(config-lisp)#64.10.10.5 priority 2 weight 50
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

locator-table

To associate a virtual routing and forwarding (VRF) table through which the routing locator address space is reachable to a router Locator ID Separation Protocol (LISP) instantiation, use the **locator-table** command in LISP configuration mode. To remove this association, use the **no** form of this command.

locator-table *name* [**default** | **vrf** *vrf_name*]
no locator-table *name*

Syntax Description

default	Selects the default (global) routing table for association with the routing locator address space.
vrf	Selects the routing table for the specified VRF name for association with the routing locator address space.
vrf_name	Specifies the name of the VRF.

Command Default

None

Command Modes

LISP configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Note The locator-table configuration is mandatory for LISP to function.

When a LISP device is deployed in a multitenant (virtualized) network environment with segmented routing locator (RLOC) address space, separate router LISP instantiations are required for each locator address space. Separate instantiations are created by including the optional id entry with the **router lisp** command. Each router LISP instantiation is considered to be standalone and must be associated with an RLOC address space. The **locator-table** command is used to associate a VRF table through which the routing locator address space is reachable to a router LISP instantiation. All necessary LISP components used in the operation of that particular router LISP instantiation, (for example, map server, map resolver, proxy ingress tunnel router (PITR), proxy egress tunnel router (PETR), and other routers that function as both egress and ingress tunnel routers, also known as xTRs) must be reachable via the routing locator address space referred to by the **locator-table** command.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to associate a VRF table to a LISP instantiation:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#locator-table  mplsvpn
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

loc-reach-algorithm rloc-probing

To configure locator reachability algorithm, RLOC Probing, and to determine reachability status for other iBGP peers through the IGP domain, use the **loc-reach-algorithm rloc-probing** command in LISP configuration mode. To disable the locator reachability algorithm, use the **no** form of this command .

loc-reach-algorithm rloc-probing
no loc-reach-algorithm rloc-probing

Syntax Description

This command has no keywords or arguments.

Command Default

The locator reachability algorithm rloc-probing is disabled.

Command Modes

LISP configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure the location reachability algorithm RLOC probing:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#loc-reach-algorithm rloc-probing
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the

Command	Description
	packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.
proxy-etr, on page 38	Configures a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR).
proxy-itr, on page 40	Configures a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR).
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

map-cache-limit

To configure the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router, use the **map-cache-limit** command in LISP address family configuration mode. To remove the configured map-cache limit, use the **no** form of this command.

map-cache-limit *map-cache-size*
no map-cache-limit *map-cache-size*

Syntax Description

map-cache-size	Specifies the map cache size value. Range is 1 to 65535.

Command Default

Map cache size: 1000

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
lisp	read, write

This example configures a lisp cache-limit of 2000 entries:

```
Router(config-lisp-afi)#map-cache-limit 2000
```

map-cache

To configure a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or to statically configure the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix, use the **map-cache** command in LISP address family configuration mode. To remove the configuration, use the **no** form of this command.

map-cache *destination-EID-prefix / prefix-length* {**action** {**drop** | **map-request** | **native-forward**} | **locator** *locator-address* **priority** *priority-value* **weight** *weight-value*}
no map-cache *destination-EID-prefix / prefix-length* {**action** {**drop** | **map-request** | **native-forward**} | **locator** *locator-address* **priority** *priority-value* **weight** *weight-value*}

Syntax Description

destination-EID-prefix / prefix-length	Specifies the destination IPv4/IPv6 EID-prefix/prefix-length.
action	Specifies the non LISP forwarding action for the EID prefix.
drop	Selects drop action for the EID-prefix.
map-request	Generates a map-request for the EID-prefix.
native-forward	Specifies to natively forward EID-prefix.
locator *locator-address*	The IPv4 or IPv6 Routing Locator (RLOC) associated with the EID-prefix/prefix-length.
priority *priority-value*	The priority (value between 0 and 255) assigned to the RLOC. When multiple locators have the same priority they may be used in load-shared fashion. A lower value indicates a higher priority.
weight *weight-value*	The weight (value between 0 and 100) assigned to the locator. Used in order to determine how to load-share traffic between multiple locators when the priorities assigned to multiple locators are the same. The value represents the percentage of traffic to be load-shared.

Command Default

No IPv6 EID-to-RLOC mapping relationships or static IPv6 EID-to-RLOC mapping destinations are configured.

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

configures a destination EID-to-RLOC mapping and associated traffic policy for the IPv6 EID-prefix block 2001:DB8:BB::/48. The locator for this EID-prefix block is 2001:DB8:0A::1 and the traffic policy for this locator has a priority of 1 and a weight of 100.

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-afi)#map-cache
RP/0/RSP0/CPU0:router(config-lisp-afi-map-cache)#2001:db8:bb::/48 locator 2001:db8:a::1
 priority 1 weight 100
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
proxy-etr, on page 38	Configures a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR).
proxy-itr, on page 40	Configures a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR).
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

map-request-source

To configure inner header source address to be used as the source address for Locator/ID Separation Protocol (LISP) map-request messages, use the **map-request-source** command in LISP address family configuration mode. To remove the configured map-request source address, use the **no** form of this command.

map-request-source *ip_address*
no map-request-source

Syntax Description

ip_address	Specifies the IPv4 or IPv6 source address of the inner header in the map-request message.

Command Default

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure the IPv6 source address to be used as the source address for LISP map-request messages:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#map-request-source 4:5::6
```

Related Commands

Command	Description
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

map-server rloc members distribute

To enable Map-Servers to distribute a membership list of Routing Locators (RLOCs) to participating xTRs, use the **map-server rloc members distribute** command in LISP configuration mode. To disable Map-Servers from distributing a membership list of RLOCs to participating xTRs, use the no form of the command.

map-server rloc members distribute
no map-server rloc members distribute

Syntax Description

This command has no keywords or arguments.

Command Default

Map-Servers are not enabled to distribute a membership list of RLOCs to xTRs.

Command Modes

LISP configuration

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

When an ETR or PETR decapsulates LISP-encapsulated packets, it normally does so without consideration of the outer (RLOC) header source address. In networking environments where the source address can be trusted, it may be useful for devices to consider the source address of the LISP packet prior to decapsulation. A Map-Server can be configured to dynamically create, maintain, and distribute decapsulation filter lists, on a per instance-ID basis, to appropriate LISP devices using the map-server rloc members distribute command in site configuration mode. When configured:

- The Map-Server allows the establishment of TCP-based LISP reliable transport sessions with appropriate xTRs
- The Map-Server creates/maintains lists (per-IID) of LISP site RLOCs based on RLOC addresses of registered LISP sites
- The Map-Server pushes/updates filters lists over the reliable transport mechanism to established devices



Note Data-plane security is enabled by the use of the **map-server roc members distribute** command. The optional command **map-server rloc members modified-discovered [add | override]** is used to append to or override the dynamically maintained RLOC filter list.

This feature is used in conjunction with the decapsulation filter rloc source command, configured on (P)xTR devices which are performing the decapsulation.

Task ID

Task ID	Operation
lisp	read, write

The following example shows how to enable Map-Servers to distribute an updated list of EID prefixes to xTRs:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#map-server rloc members distribute
RP/0/RSP0/CPU0:router(config-lisp)#exit
```

map-server rloc members modify-discovered {add | override}

To enable a Map-Server to add to, or replace, the list of discovered Routing Locator (RLOC) addresses through a specified locator set, use the **map-server rloc members modify-discovered** command in LISP EID-table configuration mode. To disable the option to modify the list of discovered RLOC addresses, use the no form of the command.

map-server rloc members modify-discovered {**add** | **override**} **locator-set** *locator-set-name*
no map-server rloc members modify-discovered

Syntax Description

add	Adds RLOC addresses in the specified locator set to the list of discovered RLOC addresses.
override	Replaces automatically discovered list of RLOC addresses with the RLOC addresses in the specified locator-set. When you use this option, the list of RLOC addresses discovered by the Map-Server is completely removed.
locator-set *locator-set-name*	Specifies a locator set. The locator set contains RLOC addresses that are previously configured.

Command Default

The option to modify the automatically discovered list of RLOC addresses is disabled.

Command Modes

LISP EID-table configuration

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

When an ETR or PETR is configured to source-filter LISP-encapsulated packets prior to decapsulation, it may be useful to add to, or in some cases, override this filter list, and this can be accomplished by configuring the map-server rloc members modify-discovered command in EID-table configuration mode. Uses may include:

- When a PxTR is included in the architecture, the PITR LISP-encapsulates packets to an ETR – and the ETR must therefore include the PITR RLOC in its decapsulation filter list. Since PITRs do not register with Map-Servers, their RLOCs are not automatically included in the decapsulation filter list and must be added via configuration using this command.
- A PETR can also be configured to filter upon decapsulation, but again, because a PETR does not register with a Map-Server, it needs a way to obtain the decapsulation filter list. The add form of this command includes the mechanisms to establish the reliable transport session with the Map-Server for obtaining the decapsulation filter list on the PETR.
- For diagnostic/troubleshooting reasons, it may be useful to (temporarily) override the entire decapsulation filter list.

Task ID

Task ID	Operation
lisp	read, write

The following example shows how to enable Map-Servers to distribute an updated list of EID prefixes to xTRs:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#eid-table vrf cust-A instance-id 1
RP/0/RSP0/CPU0:router(config-lisp-eid-table)#map-server rloc members modify-discovered add
 locator-set PTR_set
RP/0/RSP0/CPU0:router(config-lisp-eid-table)#exit
```

other-xtr-probe

To configure parameters for probing of other xTRs *site-local* routing locators (RLOCs), use the **other-xtr-probe** command in the LISP configuration mode. To return to the default setting, use the **no** form of this command.

other-xtr-probe period *seconds*
no other-xtr-probe period *seconds*

Syntax Description

period	Configures the site-local RLOC probing period.
seconds	Specifies the value of the probing period in seconds. The range is between 5 to 900.

Command Default

Probing of site-local RLOCs is enabled by default and cannot be disabled. The default interval is 30 seconds.

Command Modes

LISP configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **other-xtr-probe** command to change the probe interval for sending RLOC probes to all site-other RLOCs.

This command probes site-local rlocs, whereas rloc-probing probes remote RLOCs. The latter can be turned on or off with loc-reach-algorithm rloc-probing. Remote-rloc-probe also probes remote RLOCs.

Note This functionality is enabled by default and cannot be disabled. The default interval is 30 seconds. Use the **show run | include other-xtr-probe** command to display the configured interval. When an output value is displayed, the value is configured for something other than the default value. When no output is displayed, it is configured for the default.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure the probing period of 86 seconds for probing RLOCs:

```
RP/0/RSP0/CPU0:router#configure
```

```
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#other-xtr-probe period 86
```

Related Commands

Command	Description
remote-rloc-probe, on page 42	Configures parameters for probing of remote local routing locators (RLOCs)
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

proxy-etr

To configure a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR), use the **proxy-etr** command in LISP address family configuration mode. To remove LISP PETR functionality, use the **no** form of this command.

proxy-etr
no proxy-etr

This command has no keywords or arguments.

Command Default

ETR functionality is disabled.

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure PETR functionality under LISP IPv6 on the router:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-afi)#proxy-etr
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.

Command	Description
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.
proxy-itr, on page 40	Configures a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR).
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

proxy-itr

To configure a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR), use the **proxy-itr** command in LISP address family configuration mode. To remove LISP PITR functionality, use the **no** form of this command.

proxy-itr *IPv4-source-locator-address*
noproxy-itr *IPv4-source-locator-address*

Syntax Description

IPv4-source-locator-address	Specifies the IPv4 source locator for PITR.

Command Default

PITR functionality is disabled.

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure LISP PITR functionality on the router:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-afi)#proxy-itr 10.2.3.4
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.

Command	Description
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.
proxy-etr, on page 38	Configures a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR).
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

remote-rloc-probe

To configure parameters for probing of remote local routing locators (RLOCs), use the **remote-rloc-probe** command in the LISP configuration mode. To return to the default setting, use the **no** form of this command.

remote-rloc-probe on-route-change
no remote-rloc-probe on-route-change

Syntax Description

on-route-change	Specifies the probing of the trigger on routing changes for remote RLOCs.

Command Default

None

Command Modes

LISP configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure the **remote-rloc-probe** command for remote RLOCs:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#remote-rloc-probe on-route-change
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

router lisp

To enter Locator and ID Separation Protocol (LISP) configuration mode, use the **router lisp** command in global configuration mode. To remove all LISP configurations and exit the LISP configuration mode, use the **no** form of this command.

router lisp *process-number*
no router lisp

Syntax Description

process-number	Specifies the router LISP process number. The range is 0-15.

Syntax Description

This command has no keywords or arguments.

Command Default

LISP configuration is disabled.

Command Modes

global configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.
Release 4.3.1	Support for LISP *process-number* was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure LISP configuration mode:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.

Command	Description
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.
proxy-etr, on page 38	Configures a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR).
proxy-itr, on page 40	Configures a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR).

show lisp decapsulation filter

To display source Routing Locator (RLOC) addresses for specified parameters and the corresponding RLOC **show lisp decapsulation filter** command in privileged EXEC mode.

show lisp decapsulation filter [*IPv4-rloc-addressIPv4-rloc-address*] [**eid-table** *eid-table-vrf*|**instance-id** *iid*]

Syntax Description

IPv4-rloc-address	(Optional) Source RLOC address. If you want to know how a specific IPv4 RLOC address was configured, use this option.
IPv6-rloc-address	(Optional) Source RLOC address. If you want to know how a specific IPv6 RLOC address was configured, use this option.
eid-table *eid-table-vrf*	(Optional) Specifies the EID table and the associated VRF. Source RLOC addresses corresponding to the VRF is displayed.
instance-id *iid*	(Optional) Specifies the instance ID. Source RLOC addresses corresponding to the specified instance ID is displayed.

Command Modes

EXEC mode

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
sysmgr	read

The following sample output from the **show lisp decapsulation filter** command displays source RLOC address configuration details for a specific EID Instance ID. The RLOC address configuration details (whether it is manually configured or discovered) on a (P)xTR is displayed in the above table.

```
RP/0/RSP0/CPU0:router#show lisp decapsulation filter instance-id 0

LISP decapsulation filter for EID-table default (IID 0), 3 entries
Source RLOC   Added by
10.0.0.1      Config
10.0.0.5      209.165.200.230 209.165.200.232
10.0.0.6      Config 209.165.200.230
```

show lisp session

To display a current list of reliable transport (TCP) sessions, use the **show lisp session** command in privileged EXEC mode.

show lisp [**vrf vrf-name**] **session** [**established** | **peer-address**]

Syntax Description

vrf *vrf-name*	(Optional) Specifies the VRF instance. The transport session information for this VRF instance will be displayed.
session	(Optional) Specifies that reliable transport session information is displayed. If there are multiple transport sessions due to multiple roles, you can view information for all the sessions.
established	(Optional) Displays transport session information for established connections.
peer-address	(Optional) Specifies the peer IP address.

Command Modes

EXEC mode

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
sysmgr	read

The following sample output from the **show lisp session** command displays transport session information for a LISP VRF instance:

```
RP/0/RSP0/CPU0:router#show lisp session

Sessions for VRF default, total: 8, established: 7
Peer               State            Up/Down        In/Out     Users
2001:DB8:A:1::2    Up               00:04:13        2/7        2
2001:DB8:A:2::2    Up               00:04:13        2/7        2
2001:DB8:A:3::2    Up               00:03:53        2/7        2
2001:DB8:B:1::2    Up               00:04:04        2/6        2
2001:DB8:B:2::2    Init             never           0/0        1
2001:DB8:C:1::2    Up               00:03:55        2/6        2
2001:DB8:C:2::2    Up               00:03:54        2/6        2
2001:DB8:E:F::2    Up               00:04:04        6/19       4
```

show lisp site rloc members

To display source Routing Locator (RLOC) addresses for specified parameters and the corresponding RLOC **show lisp site rloc members** command in privileged EXEC mode.

show lisp [**instance-id** *iid*] [**site rloc members registrations** *rloc-address*]

Syntax Description

instance-id *iid*	(Optional) Specifies the instance ID for which the RLOC addresses will be displayed.
registrations	((Optional) Specifies that RLOC EID instance membership registration details be displayed.
rloc-address	(Optional) IPv4 or IPv6 RLOC address. If you want to view details for a specific RLOC address, you need to use this option.

Command Modes

EXEC mode

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
sysmgr	read

The following sample output from the show lisp decapsulation filter command displays source RLOC address configuration details for a specific EID Instance ID. The RLOC address configuration details (whether it is manually configured or discovered) on a MS/MR is displayed in the above table.

```
RP/0/RSP0/CPU0:router#show lisp site rloc members

LISP RLOC membership for EID table default (IID 0), 2 entries
RLOC          Origin                  Valid
10.0.1.2      registration            Yes
10.0.2.2      config & registration   Yes
```

The Origin column displays configuration details of the RLOC member. If an RLOC address is manually configured, automatically gleaned from received registrations, or both, the details are displayed. The Valid column shows whether the RLOC is a valid member that is distributed to (P)xTRs. A listed RLOC may not be valid if it is gleaned from registrations but the “override” option is used in the “modify-discovered” configuration and the specified locator-set does not include the RLOC.

show lisp site

To display configured LISP sites on a Locator/ID Separation Protocol (LISP) map server, use the **show lisp site** command in privileged EXEC mode.

show lisp site [**IPv4-dest-EID** | **IPv4-dest-EID-prefix** | **IPv6-dest-EID** | **IPv6-dest-EID-prefix**] | [**name** *site-name*] | [**detail**]

Syntax Description

IPv4-dest-EID	(Optional) Displays LISP site information matching this destination endpoint identifier (EID).
IPv4-dest-EID-prefix	(Optional) Displays LISP site information matching this destination EID prefix.
IPv6-dest-EID	(Optional) Displays LISP site information matching this destination EID.
IPv6-dest-EID-prefix	(Optional) Displays LISP site information matching this destination EID prefix.
name*site-name*	(Optional) Displays LISP site information matching this site name.
detail	(Optional) Increases the detail of all displayed LISP site information when no other parameters are used.

Command Modes

EXEC mode

Command History

Release	Modification
Release 5.3.0	This command was introduced.

Usage Guidelines

This command is used on a LISP map server to display information related to configured LISP sites. The displayed output indicates, among other things, whether a site is actively registered. When the base form of the command is used (**show lisp site**), summary information related to all configured LISP sites is displayed. When the IPv4-dest-EID form is used, a longest match is done to return the site with the best matching EID prefix and the displayed information applies specifically to that LISP site. When the IPv4-dest-EID-prefix form is used, an exact match is done to return the site configured with the EID prefix and the displayed information applies specifically to that LISP site. When the site-name form is used, the displayed information contains all EID prefixes configured for the named LISP site. When the **detail** keyword is added, all available details for the specific command form are presented.

Task ID

Task ID	Operation
sysmgr	read

The following sample output from the **show lisp site** command displays summary information related to all configured LISP sites:

```
RP/0/RSP0/CPU0:router#show lisp site

LISP Site Registration Information
Site Name       Last      Up          Who Last         EID Prefix
```

```
                Register                Registered
site1-xtr       00:00:04  yes           10.0.2.1          192.168.1.0/24
                00:00:04  yes           10.0.2.1          2001:DB8:A::/48
site2-xtr       00:00:35  yes           10.0.9.1          192.168.11.0/24
                00:00:35  yes           10.0.10.1         2001:DB8:B::/48
```

Related Commands

Command	Description
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
loc-reach-algorithm rloc-probing, on page 26	Configures locator reachability algorithm, RLOC Probing, and determines reachability status for other iBGP peers through the IGP domain.
map-cache-limit, on page 28	Configures the maximum limit of IPv4 LISP or IPv6 LISP map-cache entries allowed to be stored by the router.
map-cache, on page 29	Configures a static IPv4 EID-to-RLOC or static IPv6 EID-to-RLOC mapping relationship and its associated traffic policy, or statically configures the packet handling behavior associated with a destination IPv4 EID-prefix or a destination IPv6 EID-prefix.
proxy-etr, on page 38	Configures a router to act as an IPv4 or IPv6 LISP Proxy Egress Tunnel Router (PETR).
proxy-itr, on page 40	Configures a router to act as an IPv4 or IPv6 LISP Proxy Ingress Tunnel Router (PITR).

solicit-map-request

To configure the solicit map request (SMR) handling, use the **solicit-map-request** command in the LISP address family configuration mode. To disable solicit map request handling, use the **no** form of this command.

solicit-map-request {**ignore** | **max-per-entry** *number* | **suppression-time** *seconds*}
no solicit-map-request {**ignore** | **max-per-entry** *number* | **suppression-time** *seconds*}

Syntax Description

ignore	Ignores an IPv4 or IPv6 map-request message that has the solicit-map-request (SMR) bit set.
max-per-entry	Specifies the maximum number of solicit-map-requests (SMRs) for addresses under a map-cache entry.
number	Specifies the maximum number of SMRs. The value ranges from 1 to 100.
suppression-time	Specifies how long to suppress repeated solicit-map-requests (SMRs) for the same address.
seconds	Specifies the seconds to suppress repeated SMRs for the same address. The value ranges from 1 to 600.

Command Default

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to configure the **solicit-map-request** command to ignore a map-request message, to specify a maximum number of 50 SMRs, and to specify a suppression time of 500 s:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#solicit-map-request ignore
```

```
RP/0/RSP0/CPU0:router(config-lisp-af)#solicit-map-request max-per-entry 50
RP/0/RSP0/CPU0:router(config-lisp-af)#solicit-map-request suppression-time 500
```

Related Commands

Command	Description
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
etr, on page 12	Enables Egress Tunnel Router (ETR) functionality.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.

use-petr

To specify that packets hitting a forward-native map-cache entry should be LISP encapsulated and forwarded to a PETR, instead of attempting to forward them natively, use the **use-petr** command in LISP address family configuration mode. To revert to the default behavior of forwarding packets natively, if they hit a forward-native map cache entry, use the **no** form of this command.

use-petr *ip_address* [**priority** *priority* **weight** *weight*]
no use-petr

Syntax Description

ip_address	Specifies the IPv4 or IPv6 locator address of the PETR.
priority	(Optional) Specifies the priority assigned to this PETR.
priority	Specifies the value of the priority assigned to this PETR. This value ranges from 0 to 255. A lower value indicates a higher priority.
weight	(Optional) Specifies the percentage of traffic to be load-shared.
weight	Specifies the weight in value of the percentage of traffic to be load-shared. The value ranges from 0 to 100.

Command Default

PETR services are disabled by default.

Command Modes

LISP IPv4 address family

LISP IPv6 address family

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Multiple PETRs can be configured. If you configure a priority and weight for one of them, you must configure a priority and weight for all of the PETRs.

Task ID

Task ID	Operation
lisp	read, write

This example shows how to use a single PETR:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
```

```
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv4 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)#use-petr  2001:db8::1
```

This example shows how to configure a fallback PETR. This type of configuration is useful if, by default, you want to reach your PETR over IPv6, but in case you loose IPv6 connectivity to the outside world, you fall back to using IPv4. That way, your IPv6 EID prefix will maintain IPv6 connectivity to the outside world regardless of whether or not you have IPv6 connectivity at the ITR.

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#router lisp
RP/0/RSP0/CPU0:router(config-lisp)#address-family ipv6 unicast
RP/0/RSP0/CPU0:router(config-lisp-af)# use-petr 2001:db8::1 priority 1 weight 100
RP/0/RSP0/CPU0:router(config-lisp-af)#use-petr 64.10.10.1 priority 2 weight 100
```

Related Commands

Command	Description
itr map-resolver, on page 19	Configures an IPv4 or IPv6 locator address of the LISP Map-Resolver to be used by the ITR.
address-family (LISP), on page 3	Enters Locator ID and separation protocol (LISP) address family configuration mode.
router lisp, on page 43	Enters Locator and ID Separation Protocol (LISP) configuration mode.