



# Overlapping Prefix

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The Overlapping prefix feature supports Endpoint Identifier (EID) registration by two sites where the EID prefix from one LISP site is a subset of the EID prefix from another LISP site.

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## Prerequisites for Overlapping Prefix

- Reliable registration must be established between the xTR (performs functions of both Egress Tunnel Router and Ingress Tunnel Router components) and map server/map resolver (MS/MR).

## Information About Overlapping Prefix

### Endpoint ID (EID)

An EID value for IPv4 is 32 bit and EID value for IPv6 is 128-bit. EIDs are used in the source and destination address fields of the first LISP header of a packet.

### EID-Prefix

An EID-Prefix is a power-of-two blocks of EIDs allocated to a LISP site by an address allocation authority.

### Map Server/Map Resolver (MS/MR)

MS and MR functions are implemented on the same device, which is referred to as an MS/MR device.

# How to Configure Overlapping Prefix

## Configuring Overlapping Prefix

Configure EID-prefix with "accept-more-specifies" keyword to allow MS to accept registration of more specific prefix.

```
router lisp
  site site3
    authentication-key cisco
    eid-prefix 172.16.0.0/8 accept-more-specifcs
  exit
```

Register 3.0.0.0/8 with MS.

```
router lisp
  database-mapping 172.16.0.0/8 10.0.0.3 priority 1 weight 100
```

Register 3.1.0.0/16 with MS, which is more specific and overlap with 3.0.0.0/8 prefix registered from xTR3.

```
router lisp
  database-mapping 192.168.0.0/16 10.0.0.4 priority 1 weight 100
  database-mapping 192.0.2.0/8 10.0.0.4 priority 1 weight 100
```

## Verifying Overlapping Prefix

Perform this task to verify the Overlapping Prefix feature in the LISP network. In this example, there are four routers: MSMR, xTR2, xTR3, and xTR4. Each router has an interface connection in the same subnet (RLOC space) 10.0.0.0/24. The following are the IP addresses of the routers:

Router	IP Address
MSMR	10.0.0.1
xTR2	10.0.0.2
xTR3	10.0.0.3
xTR4	10.0.0.4

### MS/MR Output:

```
Device# show lisp site
```

```
LISP Site Registration Information
```

```
* = Some locators are down or unreachable
```

```
# = Some registrations are sourced by reliable transport
```

Site Name	Last Register	Up	Who Registered	Inst ID	EID Prefix
site2	00:15:08	yes#	10.0.0.2		2.0.0.0/8
site3	00:15:05	yes#	10.0.0.3		3.0.0.0/8
	00:15:01	yes#	10.0.0.4		3.1.0.0/16
site4	00:15:01	yes#	10.0.0.4		4.0.0.0/8

### xTR1 Output:

```
Device# show ip lisp map-cache

LISP IPv4 Mapping Cache for EID-table default (IID 0), 3 entries

0.0.0.0/0, uptime: 00:18:05, expires: never, via static send map-request
  Negative cache entry, action: send-map-request
3.0.0.0/8, uptime: 00:00:16, expires: 23:59:43, via map-reply, complete
  Locator  Uptime   State   Pri/Wgt
  10.0.0.3 00:00:16 up      1/100
3.1.0.0/16, uptime: 00:00:08, expires: 23:59:51, via map-reply, complete
  Locator  Uptime   State   Pri/Wgt
  10.0.0.4 00:00:08 up      1/100
```

**xTR2 Output:**

```
Device# show ip lisp map-cache

LISP IPv4 Mapping Cache for EID-table default (IID 0), 3 entries

0.0.0.0/0, uptime: 00:18:44, expires: never, via static send map-request
  Negative cache entry, action: send-map-request
2.0.0.0/8, uptime: 00:00:57, expires: 23:59:02, via map-reply, complete
  Locator  Uptime   State   Pri/Wgt
  10.0.0.2 00:00:57 up      1/100
3.1.0.0/16, uptime: 00:18:40, expires: 23:42:12, via map-reply, self, complete
  Locator  Uptime   State   Pri/Wgt
  10.0.0.4 00:17:47 up      1/100
```

```
Device# show ip lisp away
```

```
LISP Away Table for router lisp 0 (default) IID 0
Entries: 1
```

```
Prefix                               Producer
3.1.0.0/16                            mapping-notification
```

**xTR3 Output:**

```
Device# show ip lisp map-cache

LISP IPv4 Mapping Cache for EID-table default (IID 0), 2 entries

0.0.0.0/0, uptime: 00:19:26, expires: never, via static send map-request
  Negative cache entry, action: send-map-request
2.0.0.0/8, uptime: 00:01:35, expires: 23:58:24, via map-reply, complete
  Locator  Uptime   State   Pri/Wgt
  10.0.0.2 00:01:35 up      1/100
```

```
Device# show ip lisp away
```

```
LISP Away Table for router lisp 0 (default) IID 0
Entries: 0
```

## Additional References for Overlapping Prefix

**Related Documents**

Document Title	Location
Cisco IOS commands	<a href="#">Cisco IOS Master Command List, All Releases</a>

Document Title	Location
LISP commands	<a href="#">Cisco IOS IP Routing: LISP Command Reference</a>

### Standards and RFCs

Standard/RFC	Title
RFC 6830	<i>The Locator/ID Separation Protocol (LISP)</i>

### Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for Overlapping Prefix

*Table 1: Feature Information for Overlapping Prefix*

Feature Name	Releases	Feature Information
Overlapping Prefix		<p>The Overlapping prefix feature supports Endpoint Identifier (EID) registration by two sites where the EID prefix from one LISP site is a subset of the EID prefix from another LISP site.</p> <p>The following commands were modified: <b>authentication-key</b>, <b>database-mapping</b>, <b>router lisp</b>.</p>