



Redistribution of RIB Routes into LISP

The Redistribution of RIB Routes into LISP feature redistributes routes present in the Routing Information Base (RIB), as available, from Border Gateway Protocol (BGP), Interior Gateway Protocols (IGPs), or static or connected sources, into a Locator ID Separation Protocol (LISP) egress tunnel router (ETR) to define ETR database mappings or into a LISP Proxy ingress tunnel router (PITR) to define PITR map-cache entries.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About Redistribution of RIB Routes into LISP

The Redistribution of RIB Routes into LISP feature extends support for the import of Routing Information Base (RIB) routes into Locator ID Separation Protocol (LISP). This feature is based on the RIB route redistribution mechanism and allows LISP to import RIB routes from Border Gateway Protocol (BGP), Interior Gateway Protocols (IGPs), or static or connected sources for use in internal LISP applications.

Currently supported sources are:

Source	Description
bgp	Border Gateway Protocol (BGP)
connected	Connected
eigrp	Enhanced Interior Gateway Routing Protocol (EIGRP)
isis	ISO IS-IS
ospf	Open Shortest Path First (OSPF)
ospfv3	OSPFv3
rip	Routing Information Protocol (RIP)
static	Static routes

How to Configure Redistribution of RIB Routes into LISP

Configuring a Route Import Application

To redistribute Routing Information Base (RIB) routes into Locator ID Separation Protocol (LISP), one or more route import applications can be configured for each endpoint identifier (EID) instance. The currently defined route import applications are map cache and database import.



Note

A limitation in the way redistribution is communicated to the IOS RIB is that a specific RIB producer protocol cannot be used for both database and map-cache route-import applications under a specific EID table. However, database and map-cache route-import applications can still be enabled in the same EID table but for different RIB producer protocols.

Configuring a Route Import Map-Cache Application

Perform this task to configure the import of routes from the Routing Information Base (RIB) to define endpoint identifier (EID) space on an ingress tunnel router (ITR) or Proxy ingress tunnel router (PITR).

Before You Begin

When you use endpoint identifier (EID) virtualization within Locator ID Separation Protocol (LISP), you must create a VRF using the **vrf definition** command and enable at least one address family within the VRF. In addition, you must define the LISP instance ID to which the VRF is associated. LISP virtualization options and configurations are covered in the "LISP Shared Model" and "LISP Parallel Model Virtualization" sections of this configuration guide.



Note By default, LISP considers EID prefixes to be available in the default RIB. For default (non-virtualized) LISP configurations, VRF definition is not required prior to LISP configuration.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router lisp** [*lisp-instantiation-number*]
4. **eid-table vrf** *vrf-name* **instance-id** *iid*
5. **{ipv4 | ipv6} route-import map-cache** *protocol autonomous-system-number* [**route-map** *map-name*]
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	router lisp [<i>lisp-instantiation-number</i>] Example: Device(config)# router lisp 22	Creates the specified LISP instantiation number and enters LISP configuration mode. All subsequent LISP commands apply to that router LISP instantiation. Note The use of the <i>lisp-instantiation-number</i> argument is optional. This argument is used when LISP parallel model virtualization is configured.
Step 4	eid-table vrf <i>vrf-name</i> instance-id <i>iid</i> Example: Device(config-router-lisp)# eid-table vrf VRF1 instance-id 10	Configures a LISP instance ID for association with a VRF table or default table through which the EID address space is reachable and enters LISP eid-table configuration mode.
Step 5	{ipv4 ipv6} route-import map-cache <i>protocol autonomous-system-number</i> [route-map <i>map-name</i>] Example: Device(config-router-lisp-eid-table)# ipv4 route-import map-cache eigrp 19 route-map abcd	Configures the import of routes from the RIB to define endpoint identifier EID space on an ITR or Pitr. • (Optional) The route-map keyword specifies that imported IPv4 prefixes should be filtered according to the specified route-map name.

	Command or Action	Purpose
Step 6	end Example: Device(config-router-lisp)# end	Ends the current configuration session and returns to privileged EXEC mode.

Configuring a Route Import Database Application

Perform this task to configure the import of Routing Information Base (RIB) routes to define local endpoint identifier (EID) prefixes and associate them with a specified locator set.

Before You Begin

When you use endpoint identifier (EID) virtualization within Locator ID Separation Protocol (LISP), you must create a VRF using the **vrf definition** command and enable at least one address family within the VRF. In addition, you must define the LISP instance ID to which the VRF is associated. LISP virtualization options and configurations are covered in the "LISP Shared Model" and "LISP Parallel Model Virtualization" sections of this configuration guide.



Note

By default, LISP considers EID prefixes to be available in the default RIB. For default (non-virtualized) LISP configurations, VRF definition is not required prior to LISP configuration.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router lisp** [*lisp-instantiation-number*]
4. **locator-set** *set*
5. **{ipv4-interface** *if-name* | **ipv6-interface** *if-name* | *ipv4-address* | *ipv6-address* } **priority** *priority* **weight** *weight*
6. **exit**
7. **eid-table vrf** *vrf-name* **instance-id** *iid*
8. **{ipv4 | ipv6} route-import database** *protocol autonomous-system-number* [**route-map** *map-name*] **locator-set** *locator-set-name*
9. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	router lisp [<i>lisp-instantiation-number</i>] Example: Device(config)# router lisp 15	Creates the specified LISP instantiation number and enters LISP configuration mode. All subsequent LISP commands apply to that router LISP instantiation. Note The use of the <i>lisp-instantiation-number</i> argument is optional. This argument is used when LISP parallel model virtualization is configured.
Step 4	locator-set <i>set</i> Example: Device(config-router-lisp)# locator-set ABC	Specifies a locator set and enters LISP locator-set configuration mode.
Step 5	{ ipv4-interface <i>if-name</i> ipv6-interface <i>if-name</i> <i>ipv4-address</i> <i>ipv6-address</i> } priority <i>priority</i> weight <i>weight</i> Example: Device(config-router-lisp-locator-set)# ipv4-interface GigabitEthernet0/0 priority 5 weight 10	Uses IPv4 address of interface as locator.
Step 6	exit Example: Device(config-router-lisp-locator-set)# exit	Exits LISP locator-set configuration mode and enters LISP configuration mode.
Step 7	eid-table vrf <i>vrf-name</i> instance-id <i>iid</i> Example: Device(config-router-lisp)# eid-table vrf VRF1 instance-id 10	Configures a LISP instance ID for association with a VRF table or default table through which the EID address space is reachable and enters LISP eid-table configuration mode.
Step 8	{ ipv4 ipv6 } route-import database <i>protocol</i> <i>autonomous-system-number</i> [route-map <i>map-name</i>] locator-set <i>locator-set-name</i> Example: Device(config-router-lisp-eid-table)# ipv4 route-import database bgp 22 route-map abc locator-set ABC	Configures the import of RIB routes to define local EID prefixes and associates them with the specified locator set. <ul style="list-style-type: none">• (Optional) The route-map keyword specifies that imported IP prefixes should be filtered according to the specified route-map name.

	Command or Action	Purpose
Step 9	end Example: Device(config-router-lisp-eid-table)# end	Ends the current configuration session and returns to privileged EXEC mode.

Configuring the Number of Routes to Be Imported for Each Application

Perform this task to specify a limit to the number of routes that will be imported to either create local endpoint identifier (EID) database prefixes or remote EID map-cache entries.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router lisp** [*lisp-instantiation-number*]
4. **eid-table vrf** *vrf-name* **instance-id** *iid*
5. **{ipv4 | ipv6} route-import {map-cache | database} maximum-prefix** *limit* [*warning-threshold*] [*warning-only*]
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	router lisp [<i>lisp-instantiation-number</i>] Example: Device(config)# router lisp 22	Creates the specified LISP instantiation number and enters LISP configuration mode. All subsequent LISP commands apply to that router LISP instantiation. Note The use of the <i>lisp-instantiation-number</i> argument is optional. This argument is used when LISP parallel model virtualization is configured.
Step 4	eid-table vrf <i>vrf-name</i> instance-id <i>iid</i> Example: Device(config-router-lisp)# eid-table vrf VRF100 instance-id 10	Configures a LISP instance ID for association with a VRF table or default table through which the EID address space is reachable and enters LISP eid-table configuration mode.

	Command or Action	Purpose
Step 5	<pre>{ipv4 ipv6} route-import {map-cache database} maximum-prefix limit [warning-threshold] [warning-only]</pre> <p>Example: Device(config-router-lisp-eid-table)# ipv4 route-import database maximum-prefix 45 15 warning-only</p>	Specifies a limit to the number of routes that will be imported to either create local EID database prefixes or remote EID map-cache entries.
Step 6	<pre>end</pre> <p>Example: Device(config-router-lisp)# end</p>	Ends the current configuration session and returns to privileged EXEC mode.

Verifying Redistribution of RIB Routes into LISP

Perform this task to verify the configuration of the Redistribution of RIB Routes into LISP feature. The **show** commands can be entered in any order.

SUMMARY STEPS

1. **show ip lisp** [*lisp-instantiation-number*] [*instance-id iid*] **route-import database** [*ipv4-address* | *ipv4-prefix*]
2. **show ip lisp** [*lisp-instantiation-number*] [*instance-id iid*] **route-import map-cache** [*ipv4-address* | *ipv4-prefix*]
3. **show ipv6 lisp** [*lisp-instantiation-number*] [*instance-id iid*] **route-import database** [*ipv6-address* | *ipv6-prefix*]
4. **show ipv6 lisp** [*lisp-instantiation-number*] [*instance-id iid*] **route-import map-cache** [*ipv6-address* | *ipv6-prefix*]

DETAILED STEPS

Step 1 **show ip lisp** [*lisp-instantiation-number*] [*instance-id iid*] **route-import database** [*ipv4-address* | *ipv4-prefix*]

Example:

The following example displays the current IPv4 Routing Information Base (RIB) routes imported into Locator ID Separation Protocol (LISP) to define local endpoint identifier (EID) database entries:

```
Device# show ip lisp route-import database

LISP IPv4 imported routes for EID-table default (IID 0)
Config: 1, Entries: 8 (limit 1000)
Prefix                Uptime      Source  Map-cache  State
10.1.0.0/16           00:07:52   ospf 10  installed
10.10.1.0/24          00:14:02   ospf 10  installed
10.10.2.0/24          00:14:02   ospf 10  installed
10.10.3.0/24          00:14:02   ospf 10  installed
```

```

10.10.4.0/24          00:14:02  ospf 10  installed
10.10.5.0/24          00:14:02  ospf 10  installed
172.16.1.0/24         00:11:52  ospf 10  installed
192.168.20.0/24      00:11:52  ospf 10  installed

```

Step 2 `show ip lisp [lisp-instantiation-number] [instance-id iid] route-import map-cache [ipv4-address | ipv4-prefix]`

Example:

The following example displays the current IPv4 RIB routes imported into LISP to define local EID map-cache entries:

```

Device# show ip lisp route-import map-cache

LISP IPv4 imported routes for EID-table default (IID 0)
Config: 1, Entries: 6 (limit 1000)
Prefix          Uptime      Source      Map-cache  State
10.1.0.0/16     00:07:52   bgp 64496   installed
10.2.0.0/16     00:21:31   bgp 64496   installed
10.3.0.0/16     00:21:31   bgp 64496   installed
10.4.0.0/16     00:21:31   bgp 64496   installed
172.16.1.0/24   00:11:52   bgp 64496   installed
192.168.20.0/24 00:11:52   bgp 64496   installed

```

Step 3 `show ipv6 lisp [lisp-instantiation-number] [instance-id iid] route-import database [ipv6-address | ipv6-prefix]`

Example:

The following example displays the current IPv6 RIB routes imported into LISP to define local EID database entries:

```

Device# show ipv6 lisp route-import database

LISP IPv6 imported routes for EID-table default (IID 0)
Config: 1, Entries: 4 (limit 1000)
Prefix          Uptime      Source      Map-cache  State
2001:db8:10:1::/64  00:56:26   ospf 10     installed
2001:db8:ab:cd:1::/80  00:17:52   ospf 10     installed
2001:db8:ab:cd:2::/80  00:17:52   ospf 10     installed
2001:db8:ab:cd:3::/80  00:17:52   ospf 10     installed

```

Step 4 `show ipv6 lisp [lisp-instantiation-number] [instance-id iid] route-import map-cache [ipv6-address | ipv6-prefix]`

Example:

The following example displays the current IPv6 RIB routes imported into LISP to define local EID map-cache entries:

```

Device# show ipv6 lisp route-import map-cache

LISP IPv6 imported routes for EID-table default (IID 0)
Config: 1, Entries: 4 (limit 1000)
Prefix          Uptime      Source      Map-cache  State
2001:db8:ab:cd:./64  00:19:50   bgp 64496   installed
2001:db8:cd:./48     00:25:32   bgp 64496   installed
2001:db8:ce:./48     00:27:11   bgp 64496   installed
2001:db8:cf:./48     00:12:12   bgp 64496   installed

```


Configuration Examples for Redistribution of RIB Routes into LISP

Examples: Configuring a Route Import Application

Example: Configuring a Route Import Map-Cache Application

The following example shows how to configure the import of routes from the Routing Information Base (RIB) to define endpoint identifier (EID) space on an ingress tunnel router (ITR) or Proxy ingress tunnel router (PITR):

```
Device> enable
Device# configure terminal
Device(config)# router lisp 23
Device(config-router-lisp)# eid-table vrf VRF1 instance-id 10
Device(config-router-lisp-eid-table)# ipv4 route-import map-cache bgp 10 route-map abcd
Device(config-router-lisp)# end
```

Example: Configuring a Route Import Database Application

The following example shows how to configure the import of Routing Information Base (RIB) routes to define local endpoint identifier (EID) prefixes and associate them with a specified locator set:

```
Device> enable
Device# configure terminal
Device(config)# router lisp 23
Device(config-router-lisp)# locator-set ABC
Device(config-router-lisp-locator-set)# ipv4-interface GigabitEthernet0/0 priority 5 weight 10
Device(config-router-lisp-locator-set)# exit
Device(config-router-lisp)# eid-table vrf VRF1 instance-id 10
Device(config-router-lisp-eid-table)# ipv4 route-import database bgp 22 route-map abcd locator-set ABC
Device(config-router-lisp)# end
```

Example: Configuring the Number of Routes to Be Imported for Each Application

The following example shows how to specify a limit to the number of routes that will be imported to either create local endpoint identifier (EID) database prefixes or remote EID map-cache entries:

```
Device> enable
Device# configure terminal
Device(config)# router lisp 23
Device(config-router-lisp)# eid-table vrf VRF100 instance-id 10
Device(config-router-lisp)# ipv4 route-import database maximum-prefix 30 15 warning-only
Device(config-router-lisp)# end
```

Additional References for Redistribution of RIB Routes into LISP

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
Locator/ID Separation Protocol (LISP) commands	Cisco IOS IP Routing: LISP Command Reference

Standards

Standard	Title
IANA Address Family Numbers	http://www.iana.org/assignments/address-family-numbers/address-family-numbers.xml

MIBs

MIB	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
RFC 6830	Locator/ID Separation Protocol (LISP) http://tools.ietf.org/html/rfc6830

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<p>http://www.cisco.com/cisco/web/support/index.html</p>

Feature Information for Redistribution of RIB Routes into LISP

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for Redistribution of RIB Routes into LISP

Feature Name	Releases	Feature Information
Redistribution of RIB Routes into LISP	15.4(2)T	<p>The Redistribution of RIB Routes into LISP feature redistributes routes present in the Routing Information Base (RIB), as available, from Border Gateway Protocol (BGP), Interior Gateway Protocols (IGPs), or static or connected sources, into a Locator ID Separation Protocol (LISP) egress tunnel router (ETR) to define ETR database mappings or into a LISP Proxy ingress tunnel router (PITR) to define PITR map-cache entries.</p> <p>The following commands were introduced or modified: ipv4 route-import maximum-prefix, ipv6 route-import maximum-prefix, ipv4 route-import database, ipv6 route-import database, ipv4 route-import map-cache, ipv6 route-import map-cache, show ip lisp route-import database, show ipv6 lisp route-import database, show ip lisp route-import map-cache, and show ipv6 lisp route-import map-cache.</p>