



Fabric in a Box with External Fabric Edge

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Introduction to Fabric in a Box with External Fabric Edge

From Cisco IOS XE Amsterdam 17.2.1, the Fabric in a Box (FiaB) topology supports external fabric edge nodes. In a fabric-enabled wireless environment using FiaB (border node, control plane, fabric edge, and wireless controller in the same box), you can expand the network by adding external fabric edge nodes. The external fabric edge helps to increase the port density and extend the wireless reach by adding more APs. The APs and clients can exist on both the FiaB and the external fabric edge nodes. Also, the clients can roam between the APs on the FiaB and the external fabric edge nodes.

Configuring a Fabric Profile (CLI)

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.

	Command or Action	Purpose
Step 2	wireless profile fabric <i>fabric-profile-name</i> Example: Device(config)# wireless profile fabric test-fabric-profile	Configures the wireless fabric profile parameters.
Step 3	client-l2-vnid <i>client-l2-vnid</i> Example: Device(config-wireless-fabric)# client-l2-vnid 8189	Configures client L2-VNID. Here, <i>client-l2-vnid</i> refers to the client L2-VNID value. The valid range is from 0 to 16777215.
Step 4	description <i>description</i> Example: Device(config-wireless-fabric)# description test-fabric-profile	Adds a description for the fabric profile.
Step 5	end Example: Device(config-wireless-fabric)# end	Returns to privileged EXEC mode.

Configuring a Policy Profile (CLI)

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	wireless profile policy <i>profile-policy</i> Example: Device(config)# wireless profile policy test-policy-profile	Configures wireless policy profile and enters wireless policy configuration mode. Note In Fabric deployments, local mode, local authentication, and local association are not supported.
Step 3	no central dhcp Example: Device(config-wireless-policy)# no central dhcp	Configures local DHCP mode, where the DHCP is performed in an AP.
Step 4	no central switching Example:	Configures a WLAN for local switching.

	Command or Action	Purpose
	Device(config-wireless-policy)# no central switching	
Step 5	fabric <i>fabric-name</i> Example: Device(config-wireless-fabric)# fabric test-fabric-profile	Applies the fabric profile.
Step 6	no shutdown Example: Device(config-wireless-fabric)# no shutdown	Enables the policy profile.
Step 7	end Example: Device(config-wireless-fabric)# end	Returns to privileged EXEC mode.

Configuring a Site Tag (CLI)

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters the global configuration mode.
Step 2	wireless tag site <i>site-tag</i> Example: Device(config)# wireless tag site default-site-tag-fabric	Configures site tag and enters site tag configuration mode.
Step 3	ap-profile <i>ap-profile-name</i> Example: Device(config-site-tag)# ap-profile default-ap-profile-fabric	Assigns an AP profile to the wireless site.
Step 4	description <i>description</i> Example: Device(config-site-tag)# description fabric-site	Adds a description to the AP profile.
Step 5	end Example: Device(config-site-tag)# end	Returns to privileged EXEC mode.

Configuring a WLAN (CLI)

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	wlan wlan-name wlan-id SSID-name Example: Device(config)# wlan test-wlan 1 test-wlan	Configures a WLAN and enters WLAN configuration submenu.
Step 3	no shutdown Example: Device(config-wlan)# no shutdown	Enables the WLAN.

Configuring a Policy Tag (CLI)

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	wireless tag policy policy-tag-name Example: Device(config)# wireless tag policy test-policy-tag	Configures policy tag and enters policy tag configuration mode.
Step 3	wlan wlan-name policy profile-policy-name Example: Device(config-policy-tag)# wlan test-wlan policy test-policy-profile	Maps a policy profile to a WLAN profile.
Step 4	end Example: Device(config-site-tag)# end	Returns to privileged EXEC mode.

Configuring an AP Profile

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters the global configuration mode.
Step 2	ap profile <i>ap-profile-name</i> Example: Device(config)# ap profile test-ap-profile	Configures an AP profile and enters AP profile configuration mode.
Step 3	ap <i>ap-ether-mac</i> Example: Device(config-ap-profile)# ap 006b.f126.036e	Enters AP configuration mode.
Step 4	policy-tag <i>policy-tag</i> Example: Device(config-ap-profile)# policy-tag test-policy-tag	Specifies the policy tag that is to be attached to the AP.
Step 5	end Example: Device(config-ap-profile)# end	Returns to privileged EXEC mode.

Configuring Map Server and AP Subnet (CLI)

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	wireless fabric Example: Device(config)# wireless fabric	Enables SD-Access wireless globally.

	Command or Action	Purpose
Step 3	wireless fabric name name l2-vnid l2-vnid-value l3-vnid l3-vnid-value ip network-ip subnet-mask Example: <pre>Device(config)# wireless fabric name 40_40_0_0-INFRA_VN l2-vnid 8188 l3-vnid 4097 ip 40.40.0.0 255.255.0.0</pre>	Configures AP subnet Layer 2 and Layer 3 VNIDs.
Step 4	wireless fabric name name l2-vnid l2-vnid-value Example: <pre>Device(config)# wireless fabric name 41_41_0_0-DEFAULT_VN l2-vnid 8189</pre>	Defines client Layer 2 VNID AAA override.
Step 5	wireless fabric control-plane name Example: <pre>Device(config)# wireless fabric control-plane default-control-plane</pre>	Configures the control plane name.
Step 6	ip address ip-address key shared-key Example: <pre>Device((config-wireless-cp)# ip address 5.5.5.5 key 0 3a18df</pre>	Configures the map server IP address and authentication key shared with the map server.
Step 7	end Example: <pre>Device(config)# end</pre>	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit global configuration mode.

Configuring Fabric on FiaB Node

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: <pre>FiaB# configure terminal</pre>	Enters global configuration mode.
Step 2	router lisp Example: <pre>FiaB(config)# router lisp</pre>	Enters LISP configuration mode.
Step 3	locator-table default Example:	Associates a default Virtual Routing and Forwarding (VRF) table through which the routing locator address space is reachable to a

	Command or Action	Purpose
	<code>FiaB(config-router-lisp)# locator-table default</code>	router Locator ID Separation Protocol (LISP) instantiation.
Step 4	locator-set <i>locator-set-name</i> Example: <code>FiaB(config-router-lisp)# locator-set WLC</code>	Specifies a named locator set and enters LISP locator-set configuration mode.
Step 5	<i>ip-address</i> Example: <code>FiaB(config-router-lisp-locator-set)# 5.5.5.5</code>	Specifies an IP address of loopback or other egress tunnel router (ETR) interface.
Step 6	exit-locator-set Example: <code>FiaB(config-router-lisp-locator-set)# exit-locator-set</code>	Exits LISP locator-set configuration mode.
Step 7	locator-set rloc_loopback Example: <code>FiaB(config-router-lisp)# locator-set rloc_loopback</code>	Specifies an existing locator set and enters LISP locator-set configuration mode.
Step 8	ipv4-interface <i>interface</i> Example: <code>FiaB(config-router-lisp-locator-set)# IPv4-interface Loopback0</code>	Configures a locator address by creating a locator entry.
Step 9	auto-discover-rlocs Example: <code>FiaB(config-router-lisp-locator-set)# auto-discover-rlocs</code>	Configures the ETR to auto discover the locators registered by other xTRs. (Ingress tunnel router (ITR) and an ETR are known as an xTR.)
Step 10	exit-locator-set Example: <code>FiaB(config-router-lisp-locator-set)# exit-locator-set</code>	Exits LISP locator-set configuration mode.
Step 11	service ipv4 Example: <code>FiaB(config-router-lisp)# service ipv4</code>	Enables Layer 3 network services for the IPv4 address family and enters service submode.
Step 12	encapsulation vxlan Example: <code>FiaB(config-lisp-srv-ipv4)# encapsulation vxlan</code>	Configures VXLAN as encapsulation type for data packets.

	Command or Action	Purpose
Step 13	itr map-resolver <i>map-resolver-address</i> Example: FiaB(config-lisp-srv-ipv4)# itr map-resolver 5.5.5.5	Configures map resolver address for sending map requests.
Step 14	etr map-server <i>map-server-address key</i> <i>key-type authentication-key</i> Example: FiaB(config-lisp-srv-ipv4)# etr map-server 5.5.5.5 key 7 #####	Configures the map server for ETR registration.
Step 15	etr Example: FiaB(config-lisp-srv-ipv4)# etr	Configures a LISP ETR.
Step 16	sgt Example: FiaB(config-lisp-srv-ipv4)# sgt	Enables security group tag propagation in LISP-encapsulated traffic.
Step 17	no map-cache away-eids send-map-request Example: FiaB(config-lisp-srv-ipv4)# no map-cache away-eids send-map-request	Removes the address family-specific map cache configuration.
Step 18	proxy-itr <i>ip-address</i> Example: FiaB(config-lisp-srv-ipv4)# proxy-itr 5.5.5.5	Enables the Proxy Ingress Tunnel Router (PITR) functionality and specifies the address to use when LISP encapsulating packets to LISP sites.
Step 19	map-server Example: FiaB(config-lisp-srv-ipv4)# map-server	Configures a LISP map server.
Step 20	map-resolver Example: FiaB(config-lisp-srv-ipv4)# map-resolver	Configures a LISP map resolver.
Step 21	map-cache away-eids send-map-request Example: FiaB(config-lisp-srv-ipv4)# map-cache 40.40.0.0/16 send-map-request	Exports table entries into the map cache, with the action set to send-map-request.
Step 22	route-export site-registrations Example:	Exports LISP site registrations to the routing information base (RIB).

	Command or Action	Purpose
	<code>FiaB(config-lisp-srv-ipv4)# route-export site-registrations</code>	
Step 23	distance site-registrations <i>num</i> Example: <code>FiaB(config-lisp-srv-ipv4)# distance site-registrations 250</code>	Configures LISP installed routes of type site registrations.
Step 24	map-cache site-registration Example: <code>FiaB(config-lisp-srv-ipv4)# map-cache site-registration</code>	Installs the map cache to a map request for site registrations.
Step 25	exit-service-ipv4 Example: <code>FiaB(config-lisp-srv-ipv4)# exit-service-ipv4</code>	Exits LISP service-ipv4 configuration mode.
Step 26	service ethernet Example: <code>FiaB(config-router-lisp)# service ethernet</code>	Selects service type as Ethernet and enters service submode.
Step 27	database-mapping limit dynamic <i>limit</i> Example: <code>FiaB(config-lisp-srv-eth)# database-mapping limit dynamic 5000</code>	Configures the maximum number of dynamic local endpoint identifier (EID) prefix database entries.
Step 28	itr map-resolver <i>map-resolver-address</i> Example: <code>FiaB(config-lisp-srv-eth)# itr map-resolver 5.5.5.5</code>	Configures the map-resolver address for sending map requests.
Step 29	itr Example: <code>FiaB(config-lisp-srv-eth)# itr</code>	Enables the LISP ITR functionality.
Step 30	etr map-server <i>map-server-address</i> key <i>key-type authentication-key</i> Example: <code>FiaB(config-lisp-srv-eth)# etr map-server 5.5.5.5 key 7 1234</code>	Configures a map server for ETR registration.
Step 31	etr Example: <code>FiaB(config-lisp-srv-eth)# etr</code>	Enables the LISP ETR functionality.

	Command or Action	Purpose
Step 32	map-server Example: FiaB(config-lisp-srv-eth)# map-server	Enables the LISP map server functionality.
Step 33	map-resolver Example: FiaB(config-lisp-srv-eth)# map-resolver	Enables the LISP map resolver functionality.
Step 34	exit-service-ethernet Example: FiaB(config-lisp-srv-eth)# exit-service-ethernet	Exits LISP service-ethernet configuration mode.
Step 35	instance-id <i>instance</i> Example: FiaB(config-router-lisp)# instance-id 101	Creates a LISP EID instance to group multiple services.
Step 36	remote-rloc-probe on-route-change Example: FiaB(config-lisp-inst)# remote-rloc-probe on-route-change	Configures the parameters for probing of remote routing locators (RLOCs).
Step 37	dynamic-eid <i>dynamic-eid-name</i> Example: FiaB(config-lisp-inst)# dynamic-eid 40_40_0_0-INFRA_VN-IPV4	Configures a dynamic EID and enters dynamic EID configuration mode.
Step 38	database-mapping eid locator-set rloc_loopback Example: FiaB(config-router-lisp-dynamic-eid)# database-mapping 40.40.0.0/16 locator-set rloc_loopback	Configures EID prefix and locator-set for dynamic EID.
Step 39	exit-dynamic-id Example: FiaB(config-router-lisp-dynamic-eid)# exit-dynamic-eid	Exits LISP dynamic-eid configuration mode.
Step 40	exit-instance-id Example: FiaB(config-router-lisp-instance)# exit-instance-id	Exits LISP instance-id configuration mode.

	Command or Action	Purpose
Step 41	instance-id <i>instance</i> Example: FiaB(config-router-lisp)# instance-id 101	Creates a LISP EID instance to group multiple services.
Step 42	remote-rloc-probe on-route-change Example: FiaB(config-lisp-inst)# remote-rloc-probe on-route-change	Configures parameters for probing remote RLOCs.
Step 43	service ethernet Example: FiaB(config-lisp-inst)# service ethernet	Enables Layer 2 network services and enters service submenu.
Step 44	eid-table vlan <i>vlan-number</i> Example: FiaB(config-lisp-inst-srv-eth)# eid-table vlan 101	Binds an EID table to VLAN.
Step 45	database-mapping mac locator-set rloc_loopbac Example: FiaB(config-lisp-inst-srv-eth)# database-mapping mac locator-set rloc_loopbac	Configures an address family-specific local EID prefixes database.
Step 46	exit-service-ethernet Example: FiaB(config-lisp-inst-srv-eth)# exit-service-ethernet	Exits LISP service-ethernet configuration mode.
Step 47	exit-instance-id Example: FiaB(config-lisp-inst)# exit-instance-id	Exits LISP instance-id configuration mode.
Step 48	map-server session passive-open <i>server</i> Example: FiaB(config-router-lisp)# map-server session passive-open WLC	Configures a map server with open passive TCP sockets to listen for incoming connections.
Step 49	site <i>site-name</i> Example: FiaB(config-router-lisp)# site site_uci	Configures a LISP site on a map server.
Step 50	description <i>map-server-description</i> Example:	Specifies a description text for the LISP site.

	Command or Action	Purpose
	<code>FiaB(config-router-lisp-site)# description map-server configured from Cisco DNA-Center</code>	
Step 51	authentication-key <i>key</i> Example: <code>FiaB(config-router-lisp-site)# authentication-key 7 #####</code>	Configures the authentication key used by the LISP site.
Step 52	eid-record instance-id <i>instance-id address</i> accept-more-specifics Example: <code>FiaB(config-router-lisp-site)# eid-record instance-id 4097 0.0.0.0/0 accept-more-specifics</code>	Specifies that any EID prefix that is more specific than the EID prefix configured is accepted and tracked.
Step 53	eid-record instance-id <i>instance-id any-mac</i> Example: <code>FiaB(config-router-lisp-site)# eid-record instance-id 8188 any-mac</code>	Accepts registrations, if any, for Layer 2 EID records.
Step 54	exit-site Example: <code>FiaB(config-router-lisp-site)# exit-site</code>	Exits LISP site configuration mode.
Step 55	ipv4 locator reachability exclude-default Example: <code>FiaB(config-router-lisp)# ipv4 locator reachability exclude-default</code>	Configures the IPv4 locator address of the LISP.
Step 56	ipv4 source-locator <i>interface-name</i> Example: <code>FiaB(config-router-lisp)# ipv4 source-locator Loopback0</code>	Configures the IPv4 source locator address of the interface.
Step 57	exit-router-lisp Example: <code>FiaB(config-router-lisp)# exit-router-lisp</code>	Exits LISP router-lisp configuration mode.

Configuring a Fabric Edge Node



Note You can perform the following configuration tasks only from Fabric Edge Node, and not from your controller.

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: FabricEdge# configure terminal	Enters global configuration mode.
Step 2	router lisp Example: FabricEdge(config)# router lisp	Enters LISP configuration mode.
Step 3	locator-table default Example: FabricEdge(config-router-lisp)# locator-table default	Associates a default VRF table through which the routing locator address space is reachable to a router LISP instantiation.
Step 4	locator-set rloc_loopback Example: FabricEdge(config-router-lisp)# locator-set rloc_loopback	Specifies a named locator set and enters LISP locator-set configuration mode.
Step 5	ipv4-interface interface-num priority priority weight weight Example: FabricEdge(config-router-lisp-locator-set)# IPv4-interface Loopback 0 priority 10 weight 10	Configures the IPv4 address of the interface as locator.
Step 6	exit-locator-set Example: FabricEdge(config-router-lisp-locator-set)# exit-locator-set	Exits LISP locator-set configuration mode.
Step 7	exit-router-lisp Example: FabricEdge(config-router-lisp-)# exit-router-lisp	Exits LISP router-lisp configuration mode.
Step 8	interface vlan interface-num Example: FabricEdge(config)# interface Vlan 2045	Configures an interface.
Step 9	description description Example: FabricEdge(config-if)# description Configured from Cisco DNA-Center	Specifies a description text for the interface.

	Command or Action	Purpose
Step 10	mac-address <i>mac-address</i> Example: <pre>FabricEdge(config-if)# mac-address 0000.0c9f.f85c</pre>	Sets an interface MAC address manually.
Step 11	ip address <i>ip-address mask</i> Example: <pre>FabricEdge(config-if)# ip address 192.168.1.1 255.255.255.252</pre>	Configures an IP address for the interface.
Step 12	ip helper-address <i>ip-address</i> Example: <pre>FabricEdge(config-if)# ip helper-address 9.9.9.9</pre>	Specifies a destination address for UDP broadcasts.
Step 13	no ip redirects Example: <pre>FabricEdge(config-if)# no ip redirects</pre>	Disables sending of ICMP redirect messages.
Step 14	ip route-cache same-interface Example: <pre>FabricEdge(config-if)# ip route-cache same-interface</pre>	Enables fast-switching cache for outgoing packets on the same interface.
Step 15	no lisp mobility liveness test Example: <pre>FabricEdge(config-if)# no lisp mobility liveness test</pre>	Removes liveness test on dynamic EID discovered on this interface.
Step 16	lisp mobility <i>dynamic-eid-name</i> Example: <pre>FabricEdge(config-if)# lisp mobility 40_40_0_0-INFRA_VN-IPV4</pre>	Allows EID mobility on the interface.
Step 17	exit Example: <pre>FabricEdge(config-if)# exit</pre>	Exits from interface configuration mode.
Step 18	router lisp Example: <pre>FabricEdge(config)# router lisp</pre>	Enters LISP configuration mode.
Step 19	locator-set <i>locator-set-name</i> Example: <pre>FabricEdge(config-router-lisp)# locator-set rloc_824ecb7</pre>	Specifies a locator set and enters LISP locator-set configuration mode.

	Command or Action	Purpose
Step 20	exit-locator-set Example: <pre>FabricEdge(config-router-lisp-locator-set)# exit-locator-set</pre>	Exits LISP locator-set configuration mode.
Step 21	service ipv4 Example: <pre>FabricEdge(config-router-lisp)# service ipv4</pre>	Enables Layer 3 network services for the IPv4 address family and enters service submode.
Step 22	use-petr ip-address Example: <pre>FabricEdge(config-lisp-srv-ipv4)# use-petr 5.5.5.5</pre>	Configures the loopback IP address of the Proxy Egress Tunnel Router (PETR).
Step 23	encapsulation vxlan Example: <pre>FabricEdge(config-lisp-srv-ipv4)# encapsulation vxlan</pre>	Selects the encapsulation type as VXLAN for data packets.
Step 24	itr map-resolver map-resolver-address Example: <pre>FabricEdge(config-lisp-srv-ipv4)# itr map-resolver 5.5.5.5</pre>	Configures the map resolver address for sending map requests.
Step 25	etr map-server map-server-address key key-type authentication-key Example: <pre>FabricEdge(config-lisp-srv-ipv4)# etr map-server 5.5.5.5 key 7 #####</pre>	Configures the map server for ETR registration.
Step 26	etr map-server map-server-address proxy-reply authentication-key Example: <pre>FabricEdge(config-lisp-srv-ipv4)# etr map-server 5.5.5.5 proxy-reply</pre>	Configures the locator address of the LISP map server and the authentication key that this router, acting as a LISP ETR, will use to register with the LISP mapping system.
Step 27	etr Example: <pre>FabricEdge(config-lisp-srv-ipv4)# etr</pre>	Configures a LISP Egress Tunnel Router (ETR).
Step 28	sgt Example: <pre>FabricEdge(config-lisp-srv-ipv4)# sgt</pre>	Enable security group tag propagation in LISP encapsulated traffic.

	Command or Action	Purpose
Step 29	no map-cache away-eids send-map-request Example: FabricEdge(config-lisp-srv-ipv4)# no map-cache away-eids send-map-request	Removes the address family-specific map cache configuration.
Step 30	proxy-itr ip-address Example: FabricEdge(config-lisp-srv-ipv4)# proxy-itr 5.5.5.5	Enables the Proxy Ingress Tunnel Router (PITR) functionality and specifies the address to use when LISP encapsulating packets to LISP sites.
Step 31	exit-service-ipv4 Example: FabricEdge(config-lisp-srv-ipv4)# exit-service-ipv4	Exits LISP service-ipv4 configuration mode.
Step 32	service ethernet Example: FabricEdge(config-router-lisp)# service ethernet	Selects the service type as Ethernet.
Step 33	itr map-resolver map-resolver-address Example: FabricEdge(config-lisp-srv-eth)# itr map-resolver 5.5.5.5	Configures the map-resolver address for sending map requests.
Step 34	itr Example: FabricEdge(config-lisp-srv-eth)# itr	Enables the LISP ITR functionality.
Step 35	etr map-server map-server-address key key-type authentication-key Example: FabricEdge(config-lisp-srv-eth)# etr map-server 5.5.5.5 key 7 1234	Configures the map server for ETR registration.
Step 36	etr Example: FabricEdge(config-lisp-srv-eth)# etr	Enables the LISP ETR functionality.
Step 37	exit-service-ethernet Example: FabricEdge(config-lisp-srv-eth)# exit-service-ethernet	Exits LISP service-ethernet configuration mode.
Step 38	instance-id instance Example:	Creates a LISP EID instance to group multiple services.

	Command or Action	Purpose
	<code>FabricEdge(config-router-lisp) # instance-id 101</code>	
Step 39	remote-rloc-probe on-route-change Example: <code>FabricEdge(config-lisp-inst) # remote-rloc-probe on-route-change</code>	Configures the parameters for probing remote Routing locators (RLOCs).
Step 40	dynamic-eid <i>dynamic-eid-name</i> Example: <code>FabricEdge(config-lisp-inst) # dynamic-eid 40_40_0_0-INFRA_VN-IPV4</code>	Configures a dynamic EID and enters dynamic EID configuration mode.
Step 41	database-mapping <i>eid locator-set</i> rloc_loopback Example: <code>FabricEdge(config-router-lisp-dynamic-eid) # database-mapping 40.40.0.0/16 locator-set rloc_loopback</code>	Configures the EID prefix and locator set for the dynamic EID.
Step 42	exit-dynamic-id Example: <code>FabricEdge(config-router-lisp-dynamic-eid) # exit-instance-id</code>	Exits dynamic instance submenu.
Step 43	service ipv4 Example: <code>FabricEdge(config-lisp-inst) # service ipv4</code>	Selects service type as IPv4.
Step 44	eid-table default Example: <code>FabricEdge(config-lisp-inst-srv-ipv4) # eid-table default</code>	Binds an EID table.
Step 45	exit-service-ipv4 Example: <code>FabricEdge(config-lisp-inst-srv-ipv4) # exit-service-ipv4</code>	Exits LISP service-ipv4 configuration mode.
Step 46	exit-instance-id Example: <code>FabricEdge(config-lisp-inst) # exit-instance-id</code>	Exits LISP instance-id configuration mode.
Step 47	service ipv4 Example:	Selects service type as IPv4.

	Command or Action	Purpose
	<code>FabricEdge(config-router-lisp)# service ipv4</code>	
Step 48	map-cache away-eids map-request Example: <code>FabricEdge(config-lisp-srv-ipv4)# map-cache 40.40.0.0/16 map-request</code>	Exports away table entries into the map cache, with the action set to send-map-request.
Step 49	exit-service-ipv4 Example: <code>FabricEdge(config-lisp-srv-ipv4)# exit-service-ipv4</code>	Exits LISP service-ipv4 configuration mode.
Step 50	instance-id <i>instance</i> Example: <code>FabricEdge(config-router-lisp)# instance-id 8188</code>	Creates a LISP EID instance to group multiple services.
Step 51	remote-rloc-probe on-route-change Example: <code>FabricEdge(config-lisp-inst)# remote-rloc-probe on-route-change</code>	Configures parameters for probing remote RLOCs.
Step 52	service ethernet Example: <code>FabricEdge(config-lisp-inst)# service ethernet</code>	Enables Layer 2 network services and enters service submode.
Step 53	eid-table vlan <i>vlan-number</i> Example: <code>FabricEdge(config-lisp-inst-srv-eth)# eid-table vlan 101</code>	Binds an EID table to VLAN.
Step 54	database-mapping maclocator-set rloc_loopbac Example: <code>FabricEdge(config-lisp-inst-srv-eth)# database-mapping mac locator-set rloc_loopbac</code>	Configures address family-specific local EID prefixes database.
Step 55	exit-service-ethernet Example: <code>FabricEdge(config-lisp-inst-srv-eth)# exit-service-ethernet</code>	Exits LISP service-ethernet configuration mode.
Step 56	exit-instance-id Example:	Exits from LISP instance-id configuration mode.

	Command or Action	Purpose
	<code>FabricEdge(config-lisp-inst)# exit-instance-id</code>	
Step 57	ipv4 locator reachability minimum-mask-length <i>length</i> Example: <code>FabricEdge(config-router-lisp)# ipv4 locator reachability minimum-mask-length 32</code>	Configures the IPv4 locator address of the LISP.
Step 58	ipv4 source-locator <i>interface-name</i> Example: <code>FabricEdge(config-router-lisp)# ipv4 source-locator Loopback0</code>	Configures the IPv4 source locator address of the interface.
Step 59	exit-router-lisp Example: <code>FabricEdge(config-router-lisp)# exit-router-lisp</code>	Exits LISP router-lisp configuration mode.

Verifying Fabric Configuration

Use the following commands to verify the fabric configuration.

To verify the LISP configuration on a device, use the following command:

```
FabricEdge# show running-config | section router lisp
```

```
router lisp
 locator-table default
 locator-set default
  exit-locator-set
 !
 locator-set rloc_loopback
  IPv4-interface Loopback0 priority 10 weight 10
  exit-locator-set
 !
 locator default-set rloc_loopback
 service ipv4
  encapsulation vxlan
  itr map-resolver 21.21.21.21
  itr
  etr map-server 21.21.21.21 key tasman
  etr map-server 21.21.21.21 proxy-reply
  etr
  use-petr 21.21.21.21 priority 1 weight 100
  exit-service-ipv4
 !
 service ethernet
  itr map-resolver 5.5.5.5
  itr map-resolver 21.21.21.21
  itr
  etr map-server 21.21.21.21 key tasman
  etr map-server 21.21.21.21 proxy-reply
```

```

etr
exit-service-ethernet
!
instance-id 0
loc-reach-algorithm lsb-reports ignore
dynamic-eid eid_10_56_25
  database-mapping 10.56.25.0/24 locator-set rloc_loopback
exit-dynamic-eid
!
service ipv4
  eid-table default
  database-mapping 26.26.26.26/32 locator-set rloc_loopback
exit-service-ipv4
!
exit-instance-id
!
instance-id 1
service ethernet
  eid-table vlan 25
  flood arp-nd
  database-mapping mac locator-set rloc_loopback
exit-service-ethernet
!
exit-instance-id
!
instance-id 101
service ipv4
  exit-service-ipv4
!
exit-instance-id
!
instance-id 8188
exit-instance-id
!
loc-reach-algorithm lsb-reports ignore
exit-router-lisp

```

To verify the operational status of LISP as configured on a device, use the following command:

FabricEdge# **show ip lisp**

Information applicable to all EID instances:

```

Router-lisp ID:                0
Locator table:                 default
Ingress Tunnel Router (ITR):   enabled
Egress Tunnel Router (ETR):    enabled
Proxy-ITR Router (PITR):      disabled
Proxy-ETR Router (PETR):      disabled
NAT-traversal Router (NAT-RTR): disabled
Mobility First-Hop Router:     disabled
Map Server (MS):              disabled
Map Resolver (MR):            disabled
Mr-use-petr:                  disabled
Delegated Database Tree (DDT): disabled
Publication-Subscription:     enabled
  Publisher(s):                *** NOT FOUND ***
ITR Map-Resolver(s):          21.21.21.21
ETR Map-Server(s):            21.21.21.21
xTR-ID:                       0xD89893A6-0x98749B2C-0x89810431-0x92F33C9C
site-ID:                      unspecified
ITR local RLOC (last resort):  *** NOT FOUND ***
ITR use proxy ETR RLOC(Encap IID): 21.21.21.21
ITR Solicit Map Request (SMR):  accept and process
  Max SMRs per map-cache entry:  8 more specifics

```

```

Multiple SMR suppression time:      20 secs
ETR accept mapping data:            disabled, verify disabled
ETR map-cache TTL:                  1d00h
Locator Status Algorithms:
  RLOC-probe algorithm:              disabled
  RLOC-probe on route change:        N/A (periodic probing disabled)
  RLOC-probe on member change:       disabled
  LSB reports:                       ignore
  IPv4 RLOC minimum mask length:     /0
  IPv6 RLOC minimum mask length:     /0
Map-cache:
  Map-cache limit:                   32768
  Map-cache activity check period:    60 secs
  Persistent map-cache:              disabled
Source locator configuration:
  GigabitEthernet1/0/1: 24.24.24.24 (Loopback0)
  Vlan25: 24.24.24.24 (Loopback0)
Database:
  Dynamic database mapping limit:    25000

```

To verify the operational status of the map cache on a device configured as an ITR or PITR, use the following command:

```
FabricEdge# show lisp instance-id iid ipv4 map-cache
```

```

LISP IPv4 Mapping Cache for EID-table default (IID 0), 5 entries

0.0.0.0/0, uptime: 2w5d, expires: never, via static-send-map-request
  Encapsulating to proxy ETR

10.56.25.0/24, uptime: 2w0d, expires: never, via dynamic-EID, send-map-request
  Encapsulating to proxy ETR

10.56.25.25/32, uptime: 2w5d, expires: 23:10:06, via map-reply, complete
  Locator      Uptime    State  Pri/Wgt    Encap-IID
  21.21.21.21  2w5d      up     0/0        -

22.0.0.0/8, uptime: 2w5d, expires: 00:04:54, via map-reply, forward-native
  Encapsulating to proxy ETR

26.26.26.26/32, uptime: 09:48:33, expires: 14:11:26, via map-reply, self, complete
  Locator      Uptime    State  Pri/Wgt    Encap-IID
  24.24.24.24  09:48:33  up, self  50/50      -

```

To verify the operational status of the database mapping on a device configured as an ETR, use the following command:

```
FabricEdge# show lisp instance-id iid ipv4 database
```

```

LISP ETR IPv4 Mapping Database for EID-table default (IID 0), LSBs: 0x1
Entries total 3, no-route 0, inactive 0

10.56.25.27/32, dynamic-eid eid_10_56_25, skip reg, inherited from default locator-set rloc_loopback
  Uptime: 00:25:11, Last-change: 00:25:11
  Domain-ID: unset
  Locator      Pri/Wgt  Source      State
  24.24.24.24  10/10    cfg-intf    site-self, reachable

10.56.25.67/32, dynamic-eid eid_10_56_25, inherited from default locator-set rloc_loopback
  Uptime: 00:24:47, Last-change: 00:24:47
  Domain-ID: unset
  Locator      Pri/Wgt  Source      State

```

```

24.24.24.24 10/10 cfg-intf site-self, reachable

26.26.26.26/32, locator-set rloc_loopback
Uptime: 2w5d, Last-change: 00:50:36
Domain-ID: unset
Locator      Pri/Wgt Source      State
24.24.24.24 10/10 cfg-intf site-self, reachable

```

To verify the configured LISP sites on a LISP map server, use the following command:

```
FabricEdge# show lisp instance-id iid ipv4 server
```

```

LISP Site Registration Information
* = Some locators are down or unreachable
# = Some registrations are sourced by reliable transport

Site Name      Last      Up      Who Last      Inst      EID Prefix
Register      Registered ID
eca            never     no      --           0         10.56.25.0/24
              04:52:53 yes#    21.21.21.21:40875 0         10.56.25.25/32
              04:07:09 yes#    27.27.27.27:24949 0         10.56.25.64/32
              03:21:16 yes#    24.24.24.24:23672 0         10.56.25.67/32
              04:52:53 yes#    21.21.21.21:40875 0         23.23.23.23/32
              03:47:04 yes#    24.24.24.24:23672 0         26.26.26.26/32
              2w0d      yes#    27.27.27.27:24949 0         29.29.29.29/32
site_uci       never     no      --           4097      0.0.0.0/0

```

To verify the operational status of LISP sites, use the following command in FiaB node:

```
FabricEdge# show lisp instance-id 1 ethernet server
```

```

=====
Output for router lisp 0 instance-id 1
=====
LISP Site Registration Information

=====
Output for router lisp 0 instance-id 1
=====
LISP Site Registration Information
* = Some locators are down or unreachable
# = Some registrations are sourced by reliable transport

Site Name      Last      Up      Who Last      Inst      EID Prefix
Register      Registered ID
eca            never     no      --           1         any-mac
              04:10:37 yes#    27.27.27.27:24949 1         00b0.e19c.2578/48
              04:09:20 yes#    22.22.22.22:64083 1         00b0.e19c.fc40/48
              03:24:52 yes#    24.24.24.24:23672 1         dcce.c130.0b70/48
              03:23:39 yes#    22.22.22.22:64083 1         dcce.c130.9820/48

```

To verify the operational status of LISP sites, use the following command in FiaB node:

```
FabricEdge# show lisp instance-id 0 ipv4 server
```

```

LISP Site Registration Information
* = Some locators are down or unreachable
# = Some registrations are sourced by reliable transport

Site Name      Last      Up      Who Last      Inst      EID Prefix
Register      Registered ID

```

```

eca          never    no      --          0          10.56.25.0/24
              6d18h   yes#    21.21.21.21:40875  0          10.56.25.25/32
              01:23:56 yes#    27.27.27.27:24949  0          10.56.25.64/32
              00:24:40 yes#    24.24.24.24:23672  0          10.56.25.72/32
              6d18h   yes#    21.21.21.21:40875  0          23.23.23.23/32
              6d17h   yes#    24.24.24.24:23672  0          26.26.26.26/32
              3w0d    yes#    27.27.27.27:24949  0          29.29.29.29/32

```

To verify the operational status of LISP sites on IPv4 database, use the following command in fabric edge node:

```
FabricEdge# show lisp instance-id 0 ipv4 database
```

```

LISP ETR IPv4 Mapping Database for EID-table default (IID 0), LSBs: 0x1
Entries total 3, no-route 0, inactive 0

```

```

10.56.25.27/32, dynamic-eid eid_10_56_25, skip reg, inherited from default locator-set
rloc_loopback
  Uptime: 00:25:54, Last-change: 00:25:54
  Domain-ID: unset
  Locator    Pri/Wgt  Source      State
  24.24.24.24 10/10    cfg-intf    site-self, reachable
10.56.25.72/32, dynamic-eid eid_10_56_25, inherited from default locator-set rloc_loopback
  Uptime: 00:25:25, Last-change: 00:25:25
  Domain-ID: unset
  Locator    Pri/Wgt  Source      State
  24.24.24.24 10/10    cfg-intf    site-self, reachable
26.26.26.26/32, locator-set rloc_loopback
  Uptime: 3w5d, Last-change: 6d17h
  Domain-ID: unset
  Locator    Pri/Wgt  Source      State
  24.24.24.24 10/10    cfg-intf    site-self, reachable

```

To verify the operational status of LISP sites on mac mapping database, use the following command on the FE node:

```
FabricEdge# show lisp instance-id 1 ethernet database
```

```

LISP ETR MAC Mapping Database for EID-table Vlan 25 (IID 1), LSBs: 0x1
Entries total 2, no-route 0, inactive 0

```

```

cc98.911b.73f1/48, dynamic-eid Auto-L2-group-1, skip reg, inherited from default locator-set
rloc_loopback
  Uptime: 00:00:49, Last-change: 00:00:49
  Domain-ID: unset
  Locator    Pri/Wgt  Source      State
  24.24.24.24 10/10    cfg-intf    site-self, reachable
dcce.c130.0b70/48, dynamic-eid Auto-L2-group-1, inherited from default locator-set
rloc_loopback
  Uptime: 00:00:50, Last-change: 00:00:50
  Domain-ID: unset
  Locator    Pri/Wgt  Source      State
  24.24.24.24 10/10    cfg-intf    site-self, reachable

```

