MPLS Commands

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mobility anchor

To configure mobility sticky anchoring, use the **mobility anchor sticky** command. To disable the sticky anchoring, use the **no** form of the command.

To configure guest anchoring, use the **mobility anchor** *ip-address* command.

To delete the guest anchor, use the **no** form of the command.

To configure the device as an auto-anchor, use the **mobility anchor** command.

mobility anchor {*ip-address* | **sticky**}
no mobility anchor {*ip-address* | **sticky**}

Syntax Description

sticky	The client is anchored to the first switch that it associates. **Note** This command is by default enabled and ensures low roaming latency. This ensures that the point of presence for the client does not change when the client joins the mobility domain and roams within the domain.
ip-address	Configures the IP address for the guest anchor device to this WLAN.

Command Default

Sticky configuration is enabled by default.

Command Modes WLAN Configuration

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.
Cisco IOS XE 3.3SE	The auto-anchor configuration required the device IP address to be entered prior to the Cisco IOS XE 3.3SE release; with this release, if no IP address is given, the device itself becomes an anchor; you do not have to explicitly specify the IP address.

Usage Guidelines

- The wlan_id or guest_lan_id must exist and be disabled.
- Auto-anchor mobility is enabled for the WLAN or wired guest LAN when you configure the first mobility anchor.
- Deleting the last anchor disables the auto-anchor mobility feature and resumes normal mobility for new associations.
- Mobility uses the following ports, that are allowed through the firewall:
  - 16666
  - 16667
  - 16668

This example shows how to enable the sticky mobility anchor:

```
Device(config-wlan)# mobility anchor sticky
```

This example shows how to configure guest anchoring:

```
Device(config-wlan)# mobility anchor 209.165.200.224
```

This example shows how to configure the device as an auto-anchor:

```
Device(config-wlan)# mobility anchor
```

wireless mobility

To configure the inter mobility manager, use the **wireless mobility** command.

wireless mobility {**dscp** *value* }

Syntax Description

dscp *value*	Configures the Mobility inter DSCP value.

Command Default The default DSCP value is 48.

Command Modes Global Configuration

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

This example shoes how to configure mobility inter DSCP with an value of 20:

```
Device(config)# wireless mobility dscp 20
```

wireless mobility controller

To configure mobility controller settings, use the **wireless mobility controller** command. To remove a mobility controller settings, use the **no** form of the command.

wireless mobility controller peer-group *peer-group-name* [{ **bidge-domain-id** *id* | **member ip** *ip-address* [{**public-ip** *public-ip-address* }] | **multicast ip** *multicast-address* }]
no
wireless mobility controller peer-group *peer-group-name* [{ **bidge-domain-id** *id* | **member ip** *ip-address* [{**public-ip** *public-ip-address* }] | **multicast ip** *multicast-address* }]

Syntax Description

peer-group *peer-group-name*	Creates a mobility peer group.
bidge-domain-id *id*	Configures bridge domain ID for the mobility peer group.
member ip *ip-address* **public-ip** *public-ip-address*	Adds or deletes a peer group member. **Note** The **public-ip** *public-ip-address* is optional and is only when the mobility peer is NATed.
multicast ip *multicast-address*	Configures multicast settings of a peer group.

Command Default

None.

Command Modes

Global Configuration.

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

Usage Guidelines

In the Converged Access solution, WLANs are mapped to VLANs, and VLANs are usually mapped to subnets. For seamless roaming, the same VLAN configured on two controllers is expected to be mapped to the same subnet. This identical mapping from one controller to the next is important for roaming, because the controllers taking care of the roaming event need to determine if they need:

- To address a Layer 2 roaming event (when WLAN to VLAN and subnet mapping are identical on the anchor and the foreign controller), or
- a Layer 3 roaming event (when WLAN to VLAN and subnet mapping are different between the anchor and the foreign controller).

This determination is made by comparing the WLAN SSID string and the VLAN ID between controllers. In cases where the WLAN SSID and VLAN ID are identical, the expectation is that the subnet associated to the VLAN is identical as well.

There may be cases where this mapping is not identical. For example, suppose that WLAN1 on controller 1 is mapped to VLAN 14, and that VLAN 14 on controller1 is mapped to the subnet 10.10.14.0/24. Also suppose that WLAN 1 on controller2 is mapped to VLAN 14, but that VLAN 14 on controller2 is mapped to this

subnet 172.31.24.0/24. Controllers 1 and 2 will compare WLAN1 and the associated VLAN and conclude that they are addressing a Layer 2 roaming event, whereas the roaming even is Layer 3, as VLAN 14 does not have the same Layer 3 significance on both controllers.

When this disconnect between VLANs and their associated subnet occurs, you may want to configure your Converged Access controllers for different bridge domain IDs. Two controllers in the same bridge domain ID are expected to have the same VLAN to subnet mapping. We recommend that you configure the same bridge domain ID on all controllers that share the same VLAN to subnet mapping, and between which roaming is expected.

This example shows how to configure a bridge domain ID.

```
Device (config)# wireless mobility controller peer-group SPG1 bridge-domain-id 111
```

This example shows how to create and configure a peer group with a bridge ID of 111:

```
Device(config)# controller peer-group TestDocPeerGroup bridge-domain-id 111
```

This example shows how to disable a peer group with a bridge ID of 111:

```
Device(config)# no controller peer-group TestDocPeerGroup bridge-domain-id 111
```

This examples shows the configuration for a NATed member (the IP 172.19.13.15 is outside the NAT):

```
Device (config)# wireless mobility group ip 1.4.91.2 public-ip 172.19.13.15
```

This examples shows the configuration of a member when it is not NATed (the IP 1.4.91.2 is inside the NAT):

```
Device (config)# wireless mobility group ip 1.4.91.2
```

wireless mobility controller (ip_address)

To configure the mobility controller, use the **wireless mobility controller** command.

To convert the switch from MC to MA, use the **no wireless mobility controller**form of the command.

To delete the mobility controllers IP address, use the **no wirelessmobility controller** ip-address

wireless mobility controller [**ip** *ip-address* [**public-ip** *public-ip-address*]]
no wireless mobility controller
no wireless mobility controllerip *ip-address*

Syntax Description

ip *ip-address*	IP address of mobility controller.
public-ip *public-ip-address*	

Command Default

None.

Command Modes

Global Configuration.

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

Usage Guidelines

This command is valid only for the converged access switch.

The NAted address is used to establish communication, and the configured Wireless Management interface is used to identify the peer controller during the CAPWAP exchanges.

This examples shows how the controller communicates with the wireless management interface :

```
Device (config)# wireless mobility controller peer-group SPG1 member ip 10.10.20.6
```

This examples shows how to add a NAT option along with the wireless managed interface, when the target controller uses NAT:

```
Device (config)# wireless mobility controller peer-group SPG1 member ip 10.10.20.6 public-ip
 10.21.21.2
```

wireless mobility controller peer-group

To configure mobility peer groups, use the **wireless mobility controller peer-group** command, to remove the configuration, use the **no** form of this command.

wireless mobility controller peer-group *peer-group* **member IP** *ip-address***mode centralized**

Syntax Description

peer group	Name of the peer group.
member IP	Adds a peer group member.
ip-address	IP address of the peer group member to be added.
mode centralized	Configures the management mode of the peer group member as centrally managed.

Command Default

The centralized mode is off.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE 3.7.0 E	This command was introduced.

```
Device enable
Device# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Device(config)# wireless mobility controller peer-group peer1 member ip 10.0.0.1 mode
centralized
```

wireless mobility group keepalive

To configure the mobility group parameter and keep alive its ping parameters, use the **wireless mobility group keepalive** command. To remove a mobility group parameter, use the **no** form of the command.

wireless mobility group keepalive {**count** *number* | **interval** *interval*}
no wireless mobility group keepalive {**count** *numbe r* | **interval** *interval*}

Syntax Description

count *number*	Number of times that a ping request is sent to a mobility group member before the member is considered unreachable. The range is from 3 to 20. The default is 3.
interval *interval*	Interval of time between each ping request sent to a mobility group member. The range is from 1 to 30 seconds. The default value is 10 seconds.

Command Default

3 seconds for count and 10 seconds for interval.

Command Modes

Global Configuration.

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

Usage Guidelines

The default values for *interval* is ten seconds and the default for *retries* is set to three.

This example shows how to specify the amount of time between each ping request sent to a mobility group member to 10 seconds:

```
Device(config)# wireless mobility group keepalive count 10
```

wireless mobility group member ip

To add or delete users from mobility group member list, use the **wireless mobility group member ip** command. To remove a member from the mobility group, use the **no** form of the command.

wireless mobility group member ip *ip-address* [**public-ip** *public-ip-address*] [**group** *group-name*]
no wireless mobility group member ip *ip-address*

Syntax Description

ip-address	The IP address of the member controller.
public-ip *public-ip-address*	(Optional) Member controller public IP address. **Note** This command is used only when the member is behind a NAT. Only static IP NAT is supported.

group *group-name*	(Optional) Member controller group name. **Note** This command is used only when the member added in not in the same group as the local mobility controller.

Command Default None.

Command Modes Global Configuration.

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

Usage Guidelines The mobility group is used when there is more than one Mobility Controller (MC) in a given deployment. The mobility group can be assigned with a name or it can use the default group name. The mobility group members need to be configured on all the members of the group to roam within the group.

This example shows how to add a member in a mobility group:

```
Device(config)# mobility group member ip 10.104.171.101 group TestDocGroup
```

wireless mobility group name

To configure hte mobility domain name, use the **wireless mobility group name** command. To remove the mobility domain name, use the **no** form of the command.

Note If you are configuring the mobility group in a network where network address translation (NAT) is enabled, enter the IP address that is sent to the controller from the NAT device rather than the controller's management interface IP address. Otherwise, mobility will fail among controllers in the mobility group.

wireless mobility group name *domain-name*
no wireless mobility group name

Syntax Description

domain-name	Creates a mobility group by entering this command. The domain name can be up to 31 case-sensitive characters.

Command Default Default.

Command Modes Global Configuration.

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

This example shows how to configure a mobility domain name lab1:

```
Device(config)# mobility group domain lab1
```

wireless mobility load-balance

This command is used to load-balance the mobile clients on a mobility anchor (MA) from a switch peer group (SPG) that is least loaded and is chosen to act as the point of presence for the mobile client.

To configure the mobility load-balance status, use the **wireless mobility load-balance** command.

To disable the mobility load-balance, use the **no wirelessmobility load-balance**form of the command.

To configure the client load on the switch where mobility load-balance is turned on, use the **no wirelessmobility load-balance** threshold form of the command.

wireless mobility load-balance [**threshold** *threshold*]
[{**no**}]**wireless mobility load-balance** [**threshold**]

[{**no**}]**wireless mobility load-balance**

Syntax Description

threshold *threshold*	Configures the threshold for the number of clients that can be anchored locally.

Command Default

Load balance enabled and set at a value of 1000.

Command Modes

Global Configuration.

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

Usage Guidelines

- This command is only supported on a mobility agent.
- By default, the threshold can accommodate more than fifty percent of the total clients on the node. Any client joining the switch after the reaching the configured threshold value is automatically anchored to the least loaded switch within the same switch peer group.

This example shows how to configure the mobility load-balance status with a threshold set at 150.

```
Device(config)# wireless mobility load-balance threshold 150
```

show wireless mobility

To view the wireless mobility summary, use the **show wireless mobility** command.

show wireless mobility {**load-balance summary agent** *mobility-agent-ip* **client summary** | **ap-list ip-address** *ip-address* | **controller client summary** | **dtls connections** | **statistics summary**}

Syntax Description

load-balance summary	Shows the mobility load-balance properties.
agent *mobility-agent-ip* **client summary**	Shows the active clients on a mobility agent.
ap-list ip-address *ip-address*	Shows the list of Cisco APs known to the mobility group.
controller client summary	Shows the active clients in the subdomain.
dtls connections	Shows the DTLS server status.
statistics	Shows the statistics for the Mobility manager.
summary	Shows the summary of the mobility manager.

Command Default

None

Command Modes

Global Configuration

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

This example shows how to display a summary of the mobility manager:

```
Device (config)# show wireless mobility ap-list

AP name                          AP radio MAC      Controller IP     Learnt from
-------------------------------------------------------------------------------------------------
TSIM_AP-101                      0000.2000.6600    9.9.9.2           Self
TSIM_AP-102                      0000.2000.6700    9.9.9.2           Self
TSIM_AP-103                      0000.2000.6800    9.9.9.2           Self
TSIM_AP-400                      0000.2001.9100    9.9.9.2           Self
TSIM_AP-402                      0000.2001.9300    9.9.9.2           Self
TSIM_AP-403                      0000.2001.9400    9.9.9.2           Self
TSIM_AP-406                      0000.2001.9700    9.9.9.2           Self
TSIM_AP-407                      0000.2001.9800    9.9.9.2           Self
TSIM_AP-409                      0000.2001.9a00    9.9.9.2           Self
```

clear wireless mobility statistics

To clear wireless statistics, use the **clear wireless mobility statistics** command.

clear wireless mobility statistics

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE 3.2SE	This command was introduced.

Usage Guidelines

You can clear all the information by using the **clear wireless mobility statistics** command.

This example shows how to clear wireless mobility statistics:

```
Device (config)# clear wireless mobility statistics
```