Static MAC Address Support on Service Instances

The Multicast and Unicast static MAC address support on Service Instances feature supports configuration of a static MAC address on a pseudoport. Use of a static MAC address for Broadband Network Gateway (BNG) upstream traffic enables traffic forwarding while conserving MAC table resources and limiting the traffic flood by creating multicast groups.

Prerequsites for Static MAC Address Support on Service Instances

- Knowledge of both port and bridge domain limitations.

- Knowledge of service instances.

Restrictions for Static MAC Address Support on Service Instances

- Multicast static MAC addresses are not allowed in MAC address security configurations.

- Static MAC addresses are programmed only on switch processors (both active and standby).

- Static MAC configuration is *not* allowed at secure service instance.

- Static MAC addresses are programmed only on switch processors (both active and standby).

- The Static MAC address on Pseudowires is *not* supported on the Cisco ASR 900 Series Routers.

- Static MAC address configuration is *not* supported on Trunk EFP.

Information about Static MAC Address Support on Service Instances

Static MAC address configuration on service instances eliminates the need for MAC address learning, which is required for traffic forwarding. In the upstream direction, without MAC address learning, MAC address table resources can be conserved and network resources optimized.

When a bridge domain ID is either changed or deleted for a service instance, all static MAC addresses are removed.

When a service instance is deleted, all static MAC addresses on that pseudoport are removed.

Configuring a Static MAC Address on a Service Instance

Perform this task to manually configure a static MAC address on a service instance.

Procedure

Step 1   **enable**

Example:

```
Router> enable
```

Enables privileged EXEC mode.

- Enter your password if prompted.

Step 2   **configure terminal**

Example:

```
Router# configure terminal
```

Enters global configuration mode.

Step 3   **interface** *type* *number*

Example:

```
Router(config)# interface Ethernet 1/0GigabitEthernet
 0/2/1
```

Configures an interface type and enters interface configuration mode.

Step 4   **service instance** *id* **ethernet** [*evc-id*]

Example:

```
Router(config-if)# service instance 1 ethernet
```

Configures an Ethernet service instance on an interface and enters service instance configuration mode.

Step 5 **encapsulation dot1q** *vlan-id* [**,** *vlan-id*[**-** *vlan-id*]] [**native**]

Example:

```
Router(config-if-srv)# encapsulation dot1q 100
```

Enables IEEE 802.1Q encapsulation of traffic on a specified subinterface in a VLAN.

Step 6 **bridge-domain** *bridge-id* [**split-horizon**[**group** *group-id*]]

Example:

```
Router(config-if-srv)# bridge-domain 100
```

Binds a service instance to a bridge domain instance.

Step 7 **mac static address** *mac-addr* [**auto-learn**] [**disable-snooping**]

Example:

```
Router(config-if-srv)# mac static address 0000.bbbb.cccc
```

Configures a static MAC address.

Step 8 **exit**

Example:

```
Router(config-if-srv)# exit
```

Returns the CLI to privileged EXEC mode.

Example for Configuring a Static MAC Address on a Service Instance

```
Router> enable
Router# configure terminal
Router(config)# interface GigabitEthernet 0/2/1
Router(config-if)# service instance 1 ethernet
Router(config-if-srv)# encapsulation dot1q 100
Router(config-if-srv)# bridge-domain 100
Router(config-if-srv)# mac static address 0000.bbbb.cccc
Router(config-if-srv)# exit
```

Verifying Configured Static MAC Addresses on a Service Instance

Use one or more of the following commands to verify the configured static MAC address on a service instance:

- **show bridge-domain**
- **show mac address-table**

Example: Verifying Configured Static MAC Addresses on a Service Instance

show bridge-domain

The sample output for the **show bridge-domain** command:

```
Router# show bridge-domain 10 mac static address

Bridge-Domain ID : 10
Static MAC count : System : 1, bridge-domain : 1

Port                                   Address        Action
Gi0/3/7 ServInst 10                    aaa1.123c.bc32
```

show mac address-table

The sample output for the **show mac address-table** command:

```
Router# show mac address-table bdomain 10

   Nile Mac Address Entries

   BD    mac addr        type     ports

-------------------------------------------------------------------------------------------

   10    aaa1.123c.bc32  STATIC   Gi0/3/7.Efp10
```

Additional References

Related Documents

Related Topic	Document Title
Configuration guide	*Cisco IOS Carrier Ethernet Configuration Guide*, Cisco IOS XE Release (ASR 903)
Carrier Ethernet commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS Carrier Ethernet Command Reference*

Related Topic	Document Title
Cisco IOS commands: master list of commands with complete command syntax, command mode, command history, defaults, usage guidelines, and examples	Cisco IOS Master Command List, All Releases

Standards

Standard	Title
None	--

MIBs

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

RFCs

RFC	Title
None	--

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.	http://www.cisco.com/cisco/web/support/index.html