



Configuring MAC Address Tables

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Information About MAC Addresses

To switch frames between LAN ports, the switch maintains an address table. When the switch receives a frame, it associates the media access control (MAC) address of the sending network device with the LAN port on which it was received.

The switch dynamically builds the address table by using the MAC source address of the frames received. When the switch receives a frame for a MAC destination address not listed in its address table, it floods the frame to all LAN ports of the same VLAN except the port that received the frame. When the destination station replies, the switch adds its relevant MAC source address and port ID to the address table. The switch then forwards subsequent frames to a single LAN port without flooding all LAN ports.

You can also enter a MAC address, which is termed a static MAC address, into the table. These static MAC entries are retained across a reboot of the switch.

Guidelines for Configuring the MAC Address Tables

See the following guidelines and limitations for configuring the MAC address tables:

- The aging of the mac-address is not incrementing in the output of the **show mac address-table** CLI command. Therefore, the proper age of the mac-address cannot be determined.
- The **show mac address-table** CLI command does not display the multicast MAC entries. Use the **show mac address-table multicast** CLI command to check the Layer 2 entries.
- Cisco Nexus 3232C, Cisco Nexus 3264Q, and Cisco Nexus 3164Q Series switch support disabling and re-enabling MAC address learning on Layer 2 interfaces.

Configuring MAC Addresses

Configuring Static MAC Addresses

You can configure static MAC addresses for the switch. These addresses can be configured in interface configuration mode or in VLAN configuration mode.

SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config) # **mac-address-table static** *mac_address* **vlan** *vlan-id* {**drop** | **interface** {*type slot/port*} | **port-channel** *number*} [**auto-learn**]
3. (Optional) switch(config)# **no mac address-table static** *mac_address* **vlan** *vlan-id*

DETAILED STEPS

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # mac-address-table static <i>mac_address</i> vlan <i>vlan-id</i> { drop interface { <i>type slot/port</i> } port-channel <i>number</i> } [auto-learn]	Specifies a static address to add to the MAC address table. If you enable the auto-learn option, the switch will update the entry if the same MAC address is seen on a different port.
Step 3	(Optional) switch(config)# no mac address-table static <i>mac_address</i> vlan <i>vlan-id</i>	Deletes the static entry from the MAC address table. Use the mac address-table static command to assign a static MAC address to a virtual interface.

Example

This example shows how to put a static entry in the MAC address table:

```
switch# configure terminal
switch(config) # mac address-table static 12ab.47dd.ff89 vlan 3 interface ethernet 1/4
switch(config) #
```

Configuring the Aging Time for the MAC Table

You can configure the amount of time that an entry (the packet source MAC address and port that packet ingresses) remains in the MAC table. MAC aging time can be configured in either interface configuration mode or in VLAN configuration mode.

SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config)# **mac-address-table aging-time** *seconds*

DETAILED STEPS

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config)# mac-address-table aging-time <i>seconds</i>	<p>Specifies the time before an entry ages out and is discarded from the MAC address table.</p> <p>Note Starting with Release 7.0(3)I2(1), the aging of the mac-address is not incrementing in the output of the show mac address-table CLI command. Therefore, the proper age of the mac-address cannot be determined.</p> <p>The <i>seconds</i> range is from 0 to 1000000. The default is 300 seconds for Cisco NX-OS 5500 and 1800 for Cisco NX-OS 5600 and 6000 series. Entering the value 0 disables the MAC aging.</p>

Example

This example shows how to set the aging time for entries in the MAC address table to 300 seconds:

```

switch# configure terminal
switch(config) # mac-address-table aging-time 300
switch(config) # show mac address-table
Legend:
      * - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
      age - seconds since last seen,+ - primary entry using vPC Peer-Link,
      (T) - True, (F) - False
      VLAN      MAC Address      Type      age      Secure NTFY Ports
-----+-----+-----+-----+-----+-----+-----
*      1      c08c.60a7.4667    dynamic  0        F        F        Eth1/9
*      300    c08c.60a7.4667    dynamic  0        F        F        nve1(3.3.3.3)
G      -      7cad.74c8.d747    static   -        F        F        sup-eth1(R)
switch(config)#
    
```

Clearing Dynamic Addresses from the MAC Table

You can clear all dynamic entries in the MAC address table.

Command	Purpose
switch(config)# clear mac-address-table dynamic { address <i>mac-addr</i> } { interface [<i>type slot/port</i> port-channel <i>number</i>]} { vlan <i>vlan-id</i> }	Clears the dynamic address entries from the MAC address table.

This example shows how to clear the dynamic entries in the MAC address table:

```

switch# clear mac-address-table dynamic
    
```

Verifying the MAC Address Configuration

Use one of the following commands to verify the configuration:

Table 1: MAC Address Configuration Verification Commands

Command	Purpose
show mac-address-table aging-time	Displays the MAC address aging time for all VLANs defined in the switch.
show mac-address-table	Displays the contents of the MAC address table. Note IGMP snooping learned MAC addresses are not displayed.
show mac-address-table count	Displays the total number of the MAC addresses in use.
show mac address-table loop-detect	Displays the currently configured action.

This example shows how to display the MAC address table:

```
switch# show mac-address-table
VLAN      MAC Address      Type   Age   Port
-----+-----+-----+-----+-----
1         0018.b967.3cd0   dynamic 10   Eth1/3
1         001c.b05a.5380   dynamic 200  Eth1/3
Total MAC Addresses: 2
```

This example shows how to display the current aging time:

```
switch# show mac-address-table aging-time
Vlan Aging Time
---- -
1     300
13    300
42    300
```

This example shows how to display the currently configured action:

```
switch# configure terminal
switch(config)# show mac address-table loop-detect
Port Down Action Mac Loop Detect : enabled
```

```
switch# configure terminal
switch(config)# no mac address-table loop-detect port-down
switch(config)# show mac address-table loop-detect
Port Down Action Mac Loop Detect : disabled
```