17 MAC-Thrashing Commands

A MAC-thrashing feature can be configured on the switch to detect traffic with identical MAC addresses being received on different physical ports. Once detected, the system can then take a configured action on a port. In this way, MAC-thrashing can detect switching loops and take an appropriate action in order to eliminate the loop condition and prevent CPU overload caused by the constant switching of the learned MAC address in the Forwarding Database (FDB).

A loop may result in an previously learned MAC address being received from a second station. Consider the following situation, switch 1 has learned, and recorded in its FDB, the MAC address of a particular device it receives from switch 2. However, because of a looping condition, station 2 also forwards the same packet to station 3 which subsequently forwards the packet to switch 1. Switch 1 now receives the same MAC address on a a second physical port, causing MAC-thrashing to be detected. If the algorithm is enabled, MAC-thrashing will take action on the last inbound port (in this case the port receiving switch 3's traffic) effectively ending the loop and discarding the packets that initially triggered the action.

When the MAC-thrashing function is enabled and MAC-thrashing is detected, one of the following actions will take on the inbound port:

◆ stop-learning: the port stops learning new MAC addresses.

◆ port-disable: no packets can be transmited and received (the physical port can be UP or DOWN).

◆ link-down: the port's physical link is disabled.

While the MAC-thrashing action is in effect, the port's LED will be toggled (i.e. green to amber or amber to green). The MAC-thrashing resulting action will be invalid after a configurable period. The action can be immediately cancelled by disabling the MAC-thrashing function.

Note: If the port-disable action is enabled then it can also be cancelled by removing and re-inserting the Ethernet cable connected to the port.

Table 94: MAC Thrashing Commands

Command	Function	Mode
mac-address-table mac-thrashing interface enable	Enables MAC-thrashing on the specified interface.	GC
mac-address-table mac-thrashing interface action	Specifies the action to take on the interface when a MAC-thrashing event has been detected.	GC
mac-address-table mac-thrashing action-duration	Specifies the interval to wait before releasing an interface from a MAC-thrashing action.	GC
show mac-address-table mac-thrashing	Shows the MAC-thrashing configuration settings for the switch.	PE

Usage Guidelines

◆ Enable or disable MAC-thrashing on a per port basis depending on your specific environment.

◆ Configure the MAC-thrashing action on a per interface basis to best match your specific enviroment. The interface action type can only be changed when MAC-thrashing is disabled at the interface.

◆ The duration of the MAC-thrashing action may be adjusted to improve performance for your specific environment. The duration can only be set on a global basis.

◆ When a MAC-thrashing event is detected on an interface and an action is effected, the event is recorded in the system log.

◆ MAC-thrashing cannot be applied to a trunk. However, it can be configured on a physical port that is a member of a trunk.

mac-address-table mac-thrashing interface enable

This command enables the MAC-thrashing feature on a specified interface. Use the **no** form to disable MAC-thrashing detection.

Syntax

mac-address-table mac-thrashing {interface *interface***}**

   Interface **enable**

no mac-address-table mac-thrashing {interface *interface***}**

   Interface

      ethernet *unit/port*

         unit - Unit identifier. (Range: 1)

         port - Port Number. (Range: 1-12/2628/52)

   port-channel *channel-id* (Range: 1-16)

Default Setting
Disabled

Command Mode
Global Configuration

Command Usage
MAC-thrashing must be enabled for a specific interface for this function to take effect. Use the **no** form to disable MAC-thrashing on the specified interface.

Example
This example enables MAC-thrashing detection on the specified interface.

```
Console(config)#mac-address-table mac-thrashing interface ethernet 1/3 enable
Console(config)#
```

mac-address-table mac-thrashing interface action

This command specifies the action to take on the specified interface when MAC-thrashing is detected.

Syntax

[**no**] **mac-address-table mac-thrashing interface** *ethernet, port channel* **action {stop-learning | port-disable | link-down}**

mac-address-table mac-thrashing interface *ethernet, port channel* **action**

stop-learning - When MAC-thrashing is detected on a port, the FDB stops recording new MAC addresses for the port for the duration of the MAC-thrashing action-duration timer setting.

port-disable - When MAC-thrashing is detected on a port, all incoming and outgoing packets for the port are discarded for the duration of the MAC-thrashing action-duration timer setting.

link-down - When MAC-thrashing is detected on a port, the physical port is set to the down state for the duration of the MAC-thrashing action-duration timer setting.

Interface

ethernet *unit/port*

unit - Unit identifier. (Range: 1)

port - Port Number. (Range: 1-12/2628/52)

port-channel *channel-id* (Range: 1-16)

Default Setting
port-disable

Command Mode
Global Configuration

Command Usage
◆ MAC-thrashing on the specified interface must be in the disabled state when changing the MAC-thrashing action.

Example
This example sets the MAC-thrashing action to link-down.

```
Console(config)#mac-address-table mac-thrashing interface ethernet 1/3 action
  link-down
Console(config)#
```

mac-address-table mac-thrashing action-duration

This command specifies the interval to wait before the switch automatically releases an interface from a MAC-thrashing action. Use the **no** form to restore the default setting.

Syntax

mac-address-table mac-thrashing action-duration *seconds*

no mac-address-table mac-thrashing action-duration

seconds - MAC-thrashing action duration. (Range: 10-10000 seconds)

Default Setting
30 seconds

Command Mode
Global Configuration

Example

```
Console(config)#mac-address-table mac-thrashing action-duration 100
Console(config)#
```

show mac-address-table mac-thrashing

This command shows the MAC-thrashing configuration settings for the switch.

Syntax

show mac-address-table mac-thrashing

Command Mode
Privileged Exec

Example

```
Console#show mac-address-table mac-thrashing
 Action duration: 30 seconds

 Interface MAC-thrashing Action        Status
 --------- ------------- ------------- ------
 Eth 1/ 1  Enabled       Port-disable  Off
 Eth 1/ 2  Disabled      Port-disable  Off
 Eth 1/ 3  Enabled       Link-down     Off
 Eth 1/ 4  Disabled      Port-disable  Off
 Eth 1/ 5  Disabled      Port-disable  Off
 Eth 1/ 6  Disabled      Port-disable  Off
 Eth 1/ 7  Disabled      Port-disable  Off
 Eth 1/ 8  Disabled      Port-disable  Off
 Eth 1/ 9  Disabled      Port-disable  Off
 Eth 1/10  Disabled      Port-disable  Off
 Eth 1/11  Disabled      Port-disable  Off
 Eth 1/12  Disabled      Port-disable  Off
 Eth 1/13  Disabled      Port-disable  Off
 Eth 1/14  Disabled      Port-disable  Off
 Eth 1/15  Disabled      Port-disable  Off
 Eth 1/16  Disabled      Port-disable  Off
 Eth 1/17  Disabled      Port-disable  Off
 Eth 1/18  Disabled      Port-disable  Off
 Eth 1/19  Disabled      Port-disable  Off
 Eth 1/20  Disabled      Port-disable  Off
 Eth 1/21  Disabled      Port-disable  Off
 Eth 1/22  Disabled      Port-disable  Off
 Eth 1/23  Disabled      Port-disable  Off
 Eth 1/24  Disabled      Port-disable  Off
 Eth 1/25  Disabled      Port-disable  Off
 Eth 1/26  Disabled      Port-disable  Off
 Eth 1/27  Disabled      Port-disable  Off
 Eth 1/28  Disabled      Port-disable  Off
Console#
```