Sun Ethernet Fabric Operating System CLI Reference Manual, Vol. 7

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Contents

Using This Documentation

- **Overview** – Provides information on Oracle's SEFOS CLI commands
- **Audience** – Users and system administrators who configure SEFOS through the CLI
- **Required knowledge** – Basic knowledge of UNIX CLI command syntax

Product Documentation Library

Documentation and resources for this product and related products are available at http://www.oracle.com/goto/es2-72_es2-64/docs.

Acronyms

Refer to the *Sun Ethernet Fabric Operating System CLI Reference Manual, Vol. 1* for acronyms and abbreviations.

CLI Command Modes

Refer to the *Sun Ethernet Fabric Operating System CLI Reference Manual, Vol. 1* for CLI command modes.

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CHAPTER 45

MLDv2

Multicast Listener Discovery Version2 (MLDv2) is the protocol used by IPv6 systems to report their IP multicast group memberships to neighboring multicast routers. Version 2 of MLD adds support for source filtering, that is, the ability for a system to report interest in receiving packets only from specific source addresses, or from all but specific source addresses, sent to a particular multicast address. This information is used by multicast routing protocols to avoid delivering multicast packets from specific sources to networks where there are no interested receivers.

45.1 ipv6 mld router

Command Objective	This command enables MLD message processing and egress routing of multicast packets on the interface. The no form of the command disables MLD message processing and egress routing of multicast packets on the specified interface.
Syntax	**ipv6 mld router** **no ipv6 mld router**
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Example	**SEFOS(config-if)# ipv6 mld router**
Related Command(s)	• **show ipv6 mld** - Displays the global configuration status of MLD protocol in the router. • **show ipv6 mld interface** - Displays the interface configuration of MLD.

45.2 show ipv6 mld

Command Objective	This command displays the global configuration status of MLD protocol in the router.
Syntax	**show ipv6 mld**
Mode	Privileged EXEC Mode
Package	Enterprise and Metro_E
Example	**SEFOS# show ipv6 mld** MLD is globally disabled
Related Command(s)	• **set ipv6 mld** - Enables or disables MLD. • **ipv6 mld router** - Enables the MLD message processing and egress routing of multicast packets on the interface.

45.3 set ipv6 mld

Command Objective	This command enables or disables MLD protocol in the router for protocol functioning, that is, the global status of MLD protocol in the router is set.
Syntax	**set ipv6 mld { enable | disable }**
Syntax Description	• **enable –** Enables MLD globally for protocol functioning. • **disable –** Disables MLD globally. This removes all dynamic multicast entries, stops all the timers for route entries and disables MLD on all the MLD enabled interfaces.
Mode	Global Configuration Mode
Package	Enterprise and Metro_E
Defaults	MLD is disabled on interface
Example	**SEFOS(config)# set ipv6 mld enable**
Related Command	• **show ipv6 mld global-config** - Displays the global configuration status of MLD protocol in the router. • **show ipv6 mld groups** - Displays information about the MLD groups.

45.4 ipv6 mld immediate-leave

Command Objective	This command enables fast leave processing on the interface. It provides the immediate intimation to the multicast routing protocol on the last member leaving the group. This must be enabled only on those interfaces where there is single host. This can also be enabled on those interfaces having more than one host only if all are MLDv2 hosts in MLDv2 mode. The no form of the command disables immediate-leave processing on the interface.
Syntax	**`ipv6 mld immediate-leave`** **`no ipv6 mld immediate-leave`**
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Defaults	Fast leave is disabled on interface.
Example	**`SEFOS(config-if)# ipv6 mld immediate-leave`**
Related Command(s)	**`show ipv6 mld interface`** - Displays the interface configuration of MLD.

45.5 ipv6 mld version

Command Objective	This command configures the MLD version on the interface. The no form of the command sets MLD version on the interface to its default value.
Syntax	**`ipv6 mld version { 1 | 2 }`** **`no ipv6 mld version`**
Parameter Description	• **`version`** - Configures MLD version. The options are: ▪ **`1`** - Sets version 1 on the interface ▪ **`2`** - Sets version 2 on the interface
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Defaults	Version 1
Example	**`SEFOS(config-if)# ipv6 mld version 1`**
Related Command	• **`show ipv6 mld interface`** - Displays the interface configuration of MLD.

45.6 ipv6 mld query-interval

Command Objective	This command configures MLD query interval for the interface. The query interval ranges between 1 and 31744. The no form of the command sets MLD query-interval to its default value. Note: The Query interval must be greater than 10 and the values from 1 to 10 are reserved for IGMP version 1.
Syntax	**ipv6 mld query-interval <value (1-31744) seconds>** **no ipv6 mld query-interval**
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Defaults	125
Note:	This command executes only if the query Interval is < (1/10) * Max Response Time.
Example	**SEFOS(config-if)# ipv6 mld query-interval 246**
Related Command	• **ipv6 mld query-max-response-time** - Configures MLD maximum query response value for the interface. • **show ipv6 mld interface** - Displays the interface configuration of MLD.

45.7 ipv6 mld query-max-response-time

Command Objective	This command configures MLD maximum query response value for the interface. The query response value ranges between 1 and 31744 which is stored in one tenth of a second. The no form of the command sets maximum query response to its default value.
Syntax	**ipv6 mld query-max-response-time <value (1-31744)>** **no ipv6 mld query-max-response-time**
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Defaults	100
Note:	This command executes only if the maximum response time is less than (Query Interval * 11).
Example	**SEFOS(config-if)# ipv6 mld query-max-response-time 44**
Related Command	• **show ipv6 mld interface** - Displays the interface configuration of MLD.

45.8 ipv6 mld robustness

Command Objective	This command configures the MLD robustness value for the interface. MLD robustness value ranges between 2 and 255. The no form of the command sets robustness value to its default value.
Syntax	**ipv6 mld robustness <value(2-255)>** **no ipv6 mld robustness**
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Defaults	2
Example	**SEFOS(config-if)# ipv6 mld robustness 32**
Related Command	• **show ipv6 mld interface** - Displays the interface configuration of MLD.

45.9 ipv6 mld last-member-query-interval

Command Objective	This command configures MLD last member query interval for the interface. The last member query interval is the maximum response delay inserted into group-specific queries sent in response to leave group messages, and is also the amount of time between group-specific query messages. This value is tuned to modify the leave latency of the network. A reduced value results in reduced time to detect the loss of the last member of a group. The last member query interval value ranges between 1 and 31744 which is stored in one tenth of a second. The no form of the command sets last member query interval to its default value.
Syntax	**`ipv6 mld last-member-query-interval <value(1-31744)>`** **`no ipv6 mld last-member-query-interval`**
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Defaults	10
Example	**`SEFOS(config-if)#ipv6 mld last-member-query-interval 34`**
Related Command(s)	• **`show ipv6 mld interface`** - Displays the interface configuration of MLD.

45.10 no ipv6 mld

Command Objective	This command deletes the MLD capable interface, that is, disables MLD configuration on the interface.
Syntax	`no ipv6 mld`
Mode	Interface configuration mode (VLAN)
Package	Enterprise and Metro_E
Example	`SEFOS(config-if)# no ipv6 mld`

45.11 debug ipv6 mld

Command Objective	This command enables the tracing of the MLDv2 module as per the configured debug levels. The trace statements are generated for the configured trace levels. This command allows the combination of debug levels to be configured (that is, more than one level of trace can be enabled or disabled). The debug levels are configured one after the other and not in single execution of the command. The no form of the command disables the tracing of the MLDv2 module as per the configured debug levels. The trace statements are not generated for the configured trace levels.
Syntax	**debug ipv6 mld ([i/o][grp][qry][tmr][mgmt][all])** **no debug ipv6 mld ([i/o][grp][qry][tmr][mgmt][all])**
Syntax Description	• **i/o** - Generates debug statements for input/output traces. • **grp** - Generates debug statements for group related traces. • **qry** - Generates debug statements for Query related traces. • **tmr** - Generates debug statements for timer module traces. This trace is generated on failed and successful start, stop, and restart of timers for route entries. • **mgmt** - Generates debug statements for management traces. • **all** - Generates debug statements for all kinds of traces.
Mode	Privileged EXEC Mode
Package	Enterprise and Metro_E
Default	all
Example	**SEFOS# debug ipv6 mld i/o**

45.12 show ipv6 mld global-config

Command Objective	This command displays the global configuration status of MLD protocol in the router.
Syntax	**show ipv6 mld global-config**
Mode	Privileged EXEC Mode
Package	Enterprise and Metro_E
Example	**SEFOS# show ipv6 mld global-config** MLD is globally disabled
Related Command(s)	• **set ipv6 mld** - Enables or disables MLD.

45.13 show ipv6 mld interface

Command Objective	This command displays the interface configuration of MLD.
Syntax	**show ipv6 mld interface [{ Vlan <vlan-id/vfi-id> | <interface-type> <interface-id> | <IP-interface-type> <IP-interface-number> }]**
Syntax Description	• **vlan <vlan-id/vfi-id>** - Displays MLD configurations for the specified VLAN / VFI ID. This value ranges from 1 to 65535. ▪ **<vlan –id>** - VLAN ID is a unique value that represents the specific VLAN. This value ranges from 1 to 4094. ▪ **<vfi-id>**. - VFI ID is a VLAN created in the system which contains pseudowires and attachment circuits as member ports. This creates a logical LAN for the virtual private LAN service (VPLS). This value ranges from 4096 to 65535. Note: The VLAN ID 4095 is reserved and may be used to indicate a wildcard match for the VID in management operations or filtering database entries. Note: VFI IDs 4096 and 4097 are reserved identifiers used in multiprotocol label switching (MPLS) pseudowire (PW). Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example, if 100 VFIs are supported, the maximum number of VFI supported is restricted to maximum number of VLANs + 100. An error message is displayed for any value beyond this range. • **<interface-type> -** Displays the interface configuration of MLD for the specified type of interface. The interface can be: ▪ **fastethernet** – Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer up to 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer up to 1 Gigabit per second. Note: As of release 2.0.0.3, all interfaces are referred to as extreme-ethernet. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second. This Ethernet supports only full duplex links. ▪ i-lan – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Displays the interface configuration of MLD for the specified ID of interface. This is a unique value that represents the specific interface. This value is a combination of slot number and port number separated by a slash, for interface type other than i-lan. For example, 0/1

represents that the slot number is 0 and port number is 1. Only i-lan ID is provided, for interface type i-lan. For example, 1 represents i-lan ID.

- **<IP-interface-type> -** Displays the interface configuration of MLD for the specified L3 pseudowire interface in the system.
- **<IP-interface-number> -** Displays the interface configuration of MLD for the specified L3 pseudowire interface identifier. This is a unique value that represents the specific interface. This value ranges from 1 to 65535 for pseudowire interface.

Note: Maximum number of pseudowire interfaces supported in the system is 100.

Mode Privileged EXEC Mode

Package Enterprise and Metro_E

Example

```
SEFOS# show ipv6 mld interface
vlan1, line protocol is up
 Internet Address is fe80::201:2ff:fe03:401
 Prefix Length is 0
 MLD is enabled on interface
 Current MLD router version is 2
 MLD query interval is 43 seconds
 Last member query response interval is 10 seconds
 MLD max query response time is 100 seconds
 Robustness value is 33
 MLD querying router is ::
 Fast leave is enabled on this interface
 No multicast groups joined
vlan2, line protocol is down
 Internet Address is ::
 Prefix Length is 0
 MLD is disabled on interface
 Current MLD router version is 1
 MLD query interval is 246 seconds
```

```
 Last member query response interval is 34 seconds

 MLD max query response time is 44 seconds

 Robustness value is 32

 MLD querying router is ::               (this system)

 Fast leave is enabled on this interface

 No multicast groups joined

vlan3, line protocol is down

 Internet Address is ::

 Prefix Length is 0

 MLD is disabled on interface

 Current MLD router version is 1

 MLD query interval is 125 seconds

 Last member query response interval is 10 seconds

 MLD max query response time is 100 seconds

 Robustness value is 2

 MLD querying router is ::               (this system)

 Fast leave is disabled on this interface

 No multicast groups joined
```

Related Command(s)

- **ipv6 mld router** - Enables MLD message processing and egress routing of multicast packets on the interface.
- **set ipv6 mld** - Enables or disables MLD protocol in the router for protocol functioning.
- **ipv6 mld immediate-leave** - Enables immediate leave processing on the interface.
- **ipv6 mld version** - Configures the MLD version on the interface.
- **ipv6 mld query-interval** - Configures MLD host query interval for the interface.
- **ipv6 mld query-max-response-time** - Configures MLD maximum query response value for the interface.
- **ipv6 mld robustness** - Configures MLD robustness value for the

interface.

- **`ipv6 mld last-member-query-interval`** - Configures MLD last member query interval for the interface.

45.14 show ipv6 mld groups

Command Objective	This command displays information for the MLD groups.
Syntax	**show ipv6 mld groups**
Mode	Privileged EXEC Mode
Package	Enterprise and Metro_E
Example	**SEFOS# show ipv6 mld groups** I - Include Mode, E - Exclude Mode S - Static Mbr, D - Dynamic Mbr GroupAddress Flg Iface UpTime ExpiryTime LastReporter --------------- --- ------- ---------------- -------------- --------------- ff02::100 ID vlan1 [0d 00:00:04.85] [0d 00:00:00.00] fe80::202:2ff:fe03:111
Related Command(s)	• **set ipv6 mld** - Enables or disables MLD protocol in the router for protocol functioning. • **ipv6 mld router** - Enables MLD message processing and egress routing of multicast packets on the interface. • **ipv6 mld version** - Configures the MLD version on the interface.

45.15 show ipv6 mld sources

Command Objective	This command displays the MLD sources information.
Syntax	**show ipv6 mld sources**
Mode	Privileged EXEC Mode
Package	Enterprise and Metro_E
Example	**SEFOS# show ipv6 mld sources** I - Include Mode, E - Exclude Mode S - Static Mbr, D - Dynamic Mbr F - Forward List, N - Non-Forward List GroupAddress Iface SrcAddress Flg ExpiryTime LastReporter --------------- ------- --------------- ---- -------------- --------------- ff02::100 vlan1 8888::1111 IDF [0d 00:04:18.30] fe80::202:2ff:fe03:111
Related Command(s)	• **set ipv6 mld** - Enables or disables MLD. • **ipv6 mld router** - Enables MLD message processing and egress routing of multicast packets on the interface. • **ipv6 mld version** - Configures the MLD version on the interface.

45.16 show ipv6 mld statistics

Command Objective	This command displays the MLD statistics information.
Syntax	**show ipv6 mld statistics [{ Vlan <vlan-id/vfi-id> | <interface-type> <interface-id> | <IP-interface-type> <IP-interface-number> }]**
Syntax Description	• **vlan <vlan-id/vfi-id>** - Displays MLD statistics for the specified VLAN or VFI ID. This value ranges from 1 to 65535. ▪ **<vlan –id>** - VLAN ID is a unique value that represents the specific VLAN. This value ranges from 1 to 4094. ▪ **<vfi-id>**. - VFI ID is a VLAN created in the system which contains pseudowires and attachment circuits as member ports. This creates a logical LAN for the VPLS service. This value ranges from 4096 to 65535. Note: The VLAN ID 4095 is reserved and may be used to indicate a wildcard match for the VID in management operations or filtering database entries. Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW. Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example, if 100 VFIs are supported, the maximum number of VFI supported is restricted to maximum number of VLANs + 100. An error message is displayed for any value beyond this range. • **<interface-type> -** Displays the MLD statistics information for the specified type of interface. The interface can be: ▪ **fastethernet** – Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer up to 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer up to 1 Gigabit per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second. This Ethernet supports only full duplex links. ▪ i-lan – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Displays the MLD statistics information for the specified ID of interface. This is a unique value that represents the specific interface. This value is a combination of slot number and port number separated by a slash, for interface type other than i-lan. For example, 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided, for interface type i-lan. For example, 1 represents i-lan ID.

- **<IP-interface-type> -** Displays the MLD statistics information for the specified L3 pseudowire interface in the system.
- **<IP-interface-number> -** Displays the MLD statistics information for the specified L3 pseudowire interface identifier. This is a unique value that represents the specific interface. This value ranges from 1 to 65535 for pseudowire interface.

  Note: Maximum number of pseudowire interfaces supported in the system is 100.

Mode Privileged EXEC Mode

Package Enterprise and Metro_E

Example

```
SEFOS# show ipv6 mld statistics
MLD Statistics for vlan1
 Number of General queries received 0
 Number of Group Specific queries received 0
 Number of Group and Source Specific queries received 0
 Number of Mldv1 reports received 0
 Number of Mldv2 reports received 0
 Number of Mldv1 leaves received 0
 Number of General queries transmitted 0
 Number of Group Specific queries transmitted 0
 Number of Group and Source Specific queries transmitted  0
MLD Statistics for vlan2
 Number of General queries received 0
 Number of Group Specific queries received 0
 Number of Group and Source Specific queries received 0
 Number of Mldv1 reports received 0
 Number of Mldv2 reports received 0
 Number of Mldv1 leaves received 0
 Number of General queries transmitted 0
 Number of Group Specific queries transmitted 0
```

```
                    Number of Group and Source Specific queries transmitted  0
```

Related Command(s)

- **`ipv6 mld router`** - Enables MLD message processing and egress routing of multicast packets on the interface.
- **`ipv6 mld version`** - Configures the MLD version on the interface.