

Sun Ethernet Fabric Operating System CLI Reference Manual, Vol. 3

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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 20

VLAN

VLANs (Virtual LANs) can be viewed as a group of devices on different physical LAN segments which can communicate with each other as if they were all on the same physical LAN segment. That is, a network of computers that behave as if they are connected to the same wire even though they might actually be physically located on different segments of a LAN. VLANs are configured through software rather than hardware, which makes them extremely flexible.

VLAN provides the following benefits for switched LANs:

- Improved administration efficiency
- Optimized Broadcast and Multicast Activity
- Enhanced network security

The list of CLI commands for the configuration of VLAN is common to both SI and MI except for a difference in the prompt that appears for the switch with MI support.

The prompt for the switch configuration mode is,

SEFOS (config-switch) #

The prompt for the Config VLAN mode is,

SEFOS (config-switch-vlan) #

All the existing commands in Config VLAN mode are also used for the configuration of a B-VLAN of a PBB.

- The parameters specific to MI are stated against the respective parameter descriptions in this document.
- The output of the **show** commands differ for SI and MI. Hence both the outputs are documented while depicting the **show** command examples.

Few VLAN commands are retained for backward compatibility. The following table lists the backward compatible commands and maps them to the commands which have the same functionality.

Commands Retained for Backward Compatibility

Commands for Backward Compatibility	Commands with Similar functionality
provider-bridge dot1x-tunnel-address	dot1x-tunnel-address
provider-bridge lACP-tunnel-address	lACP-tunnel-address
provider-bridge stp-tunnel-address	stp-tunnel-address
provider-bridge gmrp-tunnel-address	gmrp-tunnel-address

Commands for Backward Compatibility	Commands with Similar functionality
provider-bridge gvrp-tunnel-address	gvrp-tunnel-address
provider-bridge eoam-tunnel-address	eoam-tunnel-address

20.1 set vlan

Command Objective	<p>This command globally enables or disables VLAN feature in the switch.</p> <p>The VLAN feature allows you to logically segment a shared media LAN for forming virtual workgroups.</p>
Syntax	<code>set vlan { enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• enable - Enables VLAN feature on all ports of the switch.• disable - Disables VLAN feature on all ports of the switch.
Mode	Global Configuration mode or Switch Configuration mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Note:	<ul style="list-style-type: none">• The VLAN feature can be disabled on all ports of the switch only if GVRP and GMRP features are disabled on all ports of the switch.• The VLAN feature cannot be configured in the switch if the base bridge mode is set as transparent bridging.• VLAN feature can be enabled or disabled in the switch only if the VLAN switching feature is started and enabled in the switch.• This command is available only on simulation environment. Not available on target platforms.
Example	<code>SEFOS(config)# set vlan disable</code>
Related Command(s)	<ul style="list-style-type: none">• base bridge-mode dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging.• set gmrp disable – Globally disables GMRP feature on all ports of a switch.• set gvrp disable – Globally disables GVRP feature on all ports of a switch.• no shutdown vlan - Starts and enables VLAN switching feature in the switch.• show vlan device info - Displays the VLAN global information that is applicable to all VLANs created in the switch or all contexts.

20.2 vlan

Command Objective This command creates a VLAN or VFI ID and enters into the config-VLAN mode in which VLAN-specific configurations are done. This command directly enters into the config-VLAN mode for the specified VLAN / VFI ID, if the VLAN is already created.

- **<vlan -id>** - This 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 might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

In PBB bridge mode, this command is used to create customer, service, and backbone VLANs.

The no form of the command deletes the existing VLAN/ VFI and its corresponding configurations.

Syntax

```
vlan <vlan-id/vfi_id>
no vlan <vlan-id/vfi_id>
```

Mode Global Configuration Mode/Switch Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default By default VLAN 1 is created

Note:

- The Native VLAN (VLAN 1) created by default cannot be deleted using the no form of the command.
 - For default VLAN 1, interface VLAN configuration alone is permitted and no other configuration on this VLAN is allowed, if the base bridge mode is set as transparent bridging. No new VLAN can be created if the base bridge mode is set as transparent bridging.
-

-
- The creation of new VLAN and configuration of existing VLAN can be done only if the VLAN switching feature is started and enabled in the switch.
-

Example

```
SEFOS (config-switch) # vlan 4
SEFOS (config-switch-vlan) #
```

Related Command(s)

- **base bridge-mode** - Configures the base mode (either 802.1d transparent bridge mode or 802.1q VLAN-aware bridge mode) in which the VLAN feature should operate on the switch.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **interface vlan <vlan-id>** - Creates an L3 VLAN interface. An L3 VLAN interface is a VLAN that is mapped to an IP interface and assigned an IP address.
 - **show vlan** - Displays VLAN entry-related information of all active VLANs and VLANs (that are not active) for which the port details are configured.
 - **l2protocol-tunnel (For vlan)** - Enables the tunneling of Layer 2 protocols on the VLAN.
 - **l2protocol-tunnel (For vlan)** - Enables the peering of Layer 2 Protocols on the VLAN.
 - **l2protocol-tunnel (For vlan)** - Discards Layer 2 protocol packets on the VLAN.
-

20.3 base bridge-mode

Command Objective	This command configures the base mode (either 802.1d transparent bridge mode or 802.1q VLAN-aware bridge mode) in which the VLAN feature should operate on the switch. This configuration is globally applied on all ports of the switch.
Syntax	<code>base bridge-mode { dot1d-bridge dot1q-vlan }</code>
Parameter Description	<ul style="list-style-type: none">• dot1d-bridge - Configures the VLAN operation mode as transparent bridging. The switch operates according to IEEE 802.1q implementation. This mode allows you to connect two similar network segments to each other at the datalink layer in a manner transparent to end stations, so the end stations do not participate in the bridging algorithm. The mode can be set as transparent bridging only if the following conditions are satisfied:<ul style="list-style-type: none">▪ GARP, IGS, MLDS, PNAC, LA, and LLDP are shut down.▪ Spanning tree mode is set as RSTP or spanning tree is shut down.▪ All logical interfaces such as loopback are deleted. The default L3 VLAN interface is also deleted.• dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging. The switch operates according to IEEE 802.1d implementation. This mode allows you to interconnect end stations at different LAN segments and communicate with each other using VLANs.
Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	dot1q-vlan (VLAN-aware bridging)
	<p><u>Note:</u> The VLAN mode can be configured only if the VLAN switching feature is started and enabled in the switch.</p>
Example	<code>SEFOS(config)# base bridge-mode dot1q-vlan</code>
Related Command(s)	<ul style="list-style-type: none">• shutdown garp - Shuts down the GARP module in the switch on all ports and releases memory used for the GARP module.• shutdown snooping - Shuts down snooping in the switch.• shutdown spanning-tree - Shuts down spanning tree functionality in the switch.• spanning-tree mode - Sets the type of spanning tree to be executed, enables spanning tree operation, and starts spanning tree functionality in the switch.

-
- **shutdown dot1x** - Shuts down dot1x feature.
 - **shutdown port-channel** - Shuts down LA in the switch and releases the allocated resources to the switch.
 - **shutdown lldp** - Shuts down all the ports in the LLDP and releases all the allocated memory.
 - **interface-configuration and deletion** - Allows configuration of the interface such as out of band management, port channel, tunnel, and so on.
 - **set vlan** - Globally enables or disables VLAN feature in the switch (that is the status of the VLAN feature is configured for all ports of the switch).
 - **vlan** - Creates a VLAN in the SEFOS and enters into the config-VLAN mode in which VLAN-specific configurations are done.
 - **mac-vlan** - Enables MAC-based VLAN membership classification on all ports of the switch.
 - **subnet-vlan** - Enables subnet-VLAN-based membership classification on all ports of the switch.
 - **protocol-vlan** - Enables protocol-VLAN-based membership classification on all ports of the switch.
 - **map protocol** - Creates a protocol group with a specific protocol and encapsulation frame type combination.
 - **set gvrp** - Globally enables or disables GVRP feature on all ports of a switch.
 - **set gmrp** - Globally enables or disables GMRP feature on all ports of a switch.
 - **vlan learning mode** - Configures the VLAN learning mode to be applied for all ports of the switch.
 - **set vlan traffic-classes** - Enables or disables traffic class feature in a switch on all ports.
 - **switchport filtering-utility-criteria** - Creates filtering utility criteria for the port.
 - **mac-address-table static unicast - Transparent Bridging Mode** - Configures a static unicast MAC address in the forwarding database when base bridge mode is transparent bridging in order to control unicast packets to be processed.
 - **mac-address-table static multicast - Transparent Bridging mode** - Configures a static multicast MAC address in the forwarding database in transparent bridging mode in order to control multicast packets to be processed.
-

-
- **vlan default hybrid type** - Configures the default hybrid learning mode for all VLANs when the operational learning mode of the switch is globally set as hybrid.
 - **wildcard** - Configures the wildcard VLAN entry for a specified MAC address or any MAC address.
 - **set unicast-mac learning** - Enables or disables unicast-MAC learning feature for a VLAN.
 - **vlan unicast-mac learning limit** - Configures the unicast-MAC learning limit for a VLAN.
 - **unicast-mac learning limit** - Configures the unicast-MAC learning limit for a switch.
 - **vlan active** - Activates a VLAN in the switch.
 - **switchport pvid** - Configures the PVID on the specified port.
 - **switchport acceptable-frame-type** - Configures the type of VLAN-dependant BPDU frames such as GMRP BPDU, that the port should accept during the VLAN membership configuration.
 - **switchport ingress-filter** - Enables ingress filtering feature on the port.
 - **switchport map protocols-group** - Maps the protocol group configured to a particular VLAN identifier for the specified interface.
 - **switchport priority default** - Sets the default user priority for the port.
 - **switchport mode** - Configures the mode of operation for a switch port.
 - **switchport map protocols-group** - Maps the configured protocol group to a particular VLAN ID for an interface.
 - **switchport priority default** - Configures the default ingress user priority for a port.
 - **switchport protected** - Enables switchport protection feature for a port.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **show vlan device info**: Displays the VLAN global information that is applicable to all VLANs created in the switch / all contexts.
-

20.4 mac-vlan

Command Objective	<p>This command enables MAC-based VLAN membership classification on all ports of the switch. VLAN membership classification is done based on the MAC address of the source of received packets. The VLAN membership should be assigned initially, if the MAC-based VLAN membership classification is to be enabled in the switch.</p> <p>The no form of the command disables MAC-based VLAN membership classification on all ports of the switch.</p>
Note:	<p>This command is available only if either the switch NPAPI_WANTED is set as no or the switch XCAT is set as yes during the compilation of the exe.</p>
Syntax	<pre>mac-vlan no mac-vlan</pre>
Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	MAC-based VLAN membership classification is disabled on all ports of the switch.
Note:	<p>MAC-based VLAN membership classification cannot be configured in the switch if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.</p>
Example	<pre>SEFOS(config)# mac-vlan</pre>
Related Command(s)	<ul style="list-style-type: none">• base bridge-mode dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging.• mac-map - Configures the VLAN-MAC address mapping that is used only for MAC-based VLAN membership classification.• port mac-vlan - Enables MAC-based VLAN membership classification in a port.• no shutdown vlan - Starts and enables VLAN switching feature in the switch.• show vlan device info - Displays the VLAN global information that is applicable to all VLANs created in the switch / all contexts.• show mac-vlan - Displays all entries in the MAC map table.

20.5 fid

Command Objective	<p>This command configures a VLAN or a list of VLANs to use a filtering database for making forwarding decisions.</p> <p>The filtering database is identified using a filtering database identifier. If the VLANs are mapped to the same FID, then those mapped VLANs operate in SVL mode. If the VLANs are mapped to unique FID, then those mapped VLANs operate in IVL mode.</p> <p>The no form of the command unmaps the specified VLANs from the FIDs except the default VLAN list. The default VLAN list is always mapped with the FID.</p>
Note:	<p>This command is available only if the switch NPAPI_WANTED is set as no during the compilation of the exe.</p>
Syntax	<pre>fid <integer(1-4094)> vlan <vlan-range> no fid vlan <vlan-range></pre>
Parameter Description	<ul style="list-style-type: none">• <integer(1-4094)> - Configures the FID that should be mapped with the specified VLAN or list of VLANs. This value ranges from 1 to 4094.• <vlan-range> - Configures a VLAN ID or list of VLAN IDs that should be mapped with the specified FID. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to represent the list of VLANs IDs from 4000 to 4010.
Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	<p>All VLANs are mapped to FID having value equal to the ID of those VLANs, if default hybrid learning type is set as ivl. That is, VLAN 1 is mapped to FID 1, VLAN 2 is mapped to FID 2 and so on.</p> <p>All VLANs are mapped to filtering database ID 1 if default hybrid learning type is set as svl. That is, VLANs 1 to 4094 are mapped to FID 1 and no VLANs are mapped to other FIDs.</p>
Note:	<ul style="list-style-type: none">• The VLAN IDs and FIDs can be mapped only if the VLAN learning mode is set as hybrid.• This command will not work when the VLAN learning mode is either IVL or SVL. The mapping of VLANIDs and FIDs can be configured in the switch only if the VLAN switching feature is started and enabled in the switch.• The MST instance of all VLANs in the list should be the same.• This command can be executed successfully only if VLANs mapped to the

configured FID have the same instance as the VLANs configured in the VLAN List.

Example **SEFOS(config)# fid 2 vlan 2-20**

Related Command(s)

- **vlan learning mode hybrid** - Sets the VLAN learning mode for the switch as hybrid.
 - **vlan default hybrid type** - Configures the default hybrid learning mode for all VLANs when the operational learning mode of the switch is globally set as hybrid.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **show fid** - Displays the FID VLAN mapping information of all FIDs in the switch / all contexts.
-

20.6 mac-address-table static unicast

Command Objective This command configures a static unicast MAC address in the forwarding database.

The no form of the command deletes a configured static unicast MAC address from the forwarding database.

Note: More than one egress port (AllowedToGoTo ports) for a static unicast entry is not supported on BCM and XCAT platforms.

Syntax

```
mac-address-table static unicast <aa:aa:aa:aa:aa:aa> vlan
<vlan-id/vfi_id> [{recv-port <ifXtype> <ifnum> }]
[interface ([<interface-type> <0/a-b, 0/c, ...>]
[<interface-type> <0/a-b, 0/c, ...>] [port-channel <a,b,c-
d>] [pw <a,b,c-d>] [ac <a,b, c-d>])] [connection-identifier
<ucast_mac>] [status { permanent | deleteOnReset |
deleteOnTimeout }]
```

```
no mac-address-table static unicast <aa:aa:aa:aa:aa:aa>
vlan <vlan-id/vfi_id> [{recv-port <ifXtype> <ifnum>}]
```

PBB feature enabled in the switch

```
mac-address-table static unicast <aa:aa:aa:aa:aa:aa> vlan
<vlan-id/vfi_id> [{recv-port <ifXtype> <ifnum> | service-
instance <integer(256-16777214)>}] [interface ([<interface-
type> <0/a-b,0/c,...>] [<interface-type> <0/a-b,0/c,...>]
[port-channel <a,b,c-d>] [pw <a,b,c-d>] [ac <a,b, c-d>])]
[connection-identifier <ucast_mac>] [status { permanent |
deleteOnReset | deleteOnTimeout }]
```

```
no mac-address-table static unicast <aa:aa:aa:aa:aa:aa>
vlan <vlan-id/vfi_id> [{recv-port <ifXtype> <ifnum> |
service-instance <integer(256-16777214)>}]
```

Parameter Description

- **<aa:aa:aa:aa:aa:aa>** - Configures the static unicast destination MAC address. The received packets having the specified MAC address are processed.
- **vlan <vlan-id/vfi-id>** - Configures the static unicast destination MAC address 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **recv-port** - Configures the receive ports details. The static unicast packets received only on this specified port are processed. The details to be provided are:
 - **<interface-type>** - Configures the receive ports details 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 40 Gigabits 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.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together. - **<interface-id>** - Configures the receive ports details for the specified type 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
- **service-instance<integer (256-16777214)>** - Configures a static unicast MAC address for the specified service-instance identifier. This value ranges from 256 to 16777214.
- **interface** - Configures the member ports interface type and ID. The details to be provided are:
 - **<interface-type>** - Configures the member ports 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data
-

transfer up to 10 Gigabits per second.

- **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
- **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
- **<0/a-b, 0/c, ...>** - Configures the member ports for the specified interface identifier. 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 internal-lan and port-channel. Only internal-lan or port-channel ID is provided for interface types internal-lan and port-channel. port-channel <a,b,c-d> - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **pw <a,b,c-d>** - Configures a static unicast MAC address for the specified pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, interface structures are created. This value ranges from 1 to 65535. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **ac <a,b, c-d>** - Configures a static unicast MAC address for the specified attachment circuit interface. This value ranges from 1 to 65535. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **connection-identifier<ucast_mac>** - Associates backbone MAC address of peer backbone edge bridge with customer MAC address that can be reached through the bridge.
- **status** - Specifies the status of the static unicast entry. The options are:
 - **permanent** - Entry remains even after the next reset of the bridge.
 - **deleteOnReset** - Entry remains until the next reset of the bridge.
 - **deleteOnTimeout** - Entry remains until it is aged out.

Mode	Global Configuration Mode/Switch Configuration Mode
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Package	Workgroup, Enterprise, Metro, and Metro_E
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Default	status - permanent
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Note:

- VLAN or service-instance must have been configured and member ports must have been configured for the specified VLAN or service-instance.
 - The VLAN value in a configured static MAC entry must be active..
 - The new configured ports are appended to the existing member port list of the VLAN.
 - The egress port value and receive port value in a configured static MAC entry must be a member of the configured VLAN. Receive port cannot be an egress port in a configured static MAC entry.
-

Example

```
SEFOS(config)# mac-address-table static unicast
00:11:22:33:22:11 vlan 1 recv-port extreme-ethernet 0/2
interface extreme-ethernet 0/1 status deleteOnTimeout

SEFOS(config)# mac-address-table static unicast
00:11:22:33:22:11 vlan 1 service-instance 1005 interface
extreme-ethernet 0/1 status deleteOnTimeout

SEFOS(config)# mac-address-table static unicast
00:11:22:33:22:11 vlan 1 recv-port extreme-ethernet 0/2
interface extreme-ethernet 0/1 pw 1

SEFOS(config)# mac-address-table static unicast
00:11:22:33:22:11 vlan 1 recv-port extreme-ethernet 0/2
interface ac 1
```

Related Command(s)

- **mac-address-table static multicast** - Configures a static multicast MAC address in the forwarding database.
 - **vlan** - Configures a VLAN in the switch and enters the config-VLAN mode.
 - **service instance** - Enters the service-instance mode for performing ISID specific operations.
 - **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports, and activates the VLAN.
 - **vlan active** - Activates a VLAN in the switch.
 - **show mac-address-table static unicast** - Displays the statically configured unicast address from the MAC address table.
-

20.7 mac-address-table static unicast – Transparent Bridging Mode

Command Objective This command configures a static unicast MAC address in the forwarding database in transparent bridging mode in order to control unicast packets to be processed. Only the unicast packets having the configured value are processed.

The no form of the command deletes the configured static unicast address from the forwarding database.

Syntax

```
mac-address-table static unicast <aa:aa:aa:aa:aa:aa> [recv-  
port <interface-type> <interface-id>] interface  
([<interface-type> <0/a-b,0/c,...>] [<interface-type> <0/a-  
b,0/c,...>] [port-channel <a,b,c-d>]) [status { permanent |  
deleteOnReset | deleteOnTimeout }]
```

```
no mac-address-table static unicast <aa:aa:aa:aa:aa:aa>  
[recv-port <interface-type> <interface-id>]
```

Parameter Description

- **<aa:aa:aa:aa:aa:aa>** - Configures the unicast destination MAC address. The received packets having the specified MAC address are processed.
- **recv-port** - Configures the receive port's details. The unicast packets received only on this specified port are processed. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<interface-id>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
- **interface** - Configures the member ports details. The unicast packets received on the specified receive ports and having the specified unicast destination MAC address are forwarded through these member ports. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
- **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
- **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
- **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
- **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
- **port-channel<a,b,c-d>** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **status** - Configures the status of the static unicast entry. The options are:
 - **permanent** - The static unicast entry resides in the switch, even after restarting the switch.
 - **deleteOnReset** - The static unicast entry is deleted once the switch is restart.
 - **deleteOnTimeout** - The static unicast entry is deleted once the MAC address table aging timer expires.

Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	status - permanent

Note:

- This command is applicable only if the base bridge mode is set as transparent bridging.
- The interface XL-ethernet 0/1 cannot be set as member port or receive port in the static entry, as it is configured as a router port in transparent bridging mode.
- The same interface cannot be configured as both ingress port (receive port) and egress port (member port). The port can act only as ingress or as egress.
- If the receive port is configured in the created static unicast MAC address entry, then that entry can be deleted only if the receive port details are exactly mentioned in the no form of the command.
- Only one static unicast MAC address entry is allowed in the switch in transparent bridging mode. If any updates need to be done in the existing

one, then it should be deleted and new entry should be created with new configurations.

Example

```
SEFOS(config)# mac-address-table static unicast  
00:11:22:33:44:55 recv-port extreme-ethernet 0/3 interface  
extreme-ethernet 0/2 status deleteOnTimeout
```

Related Command(s)

- **base bridge-mode dot1d-bridge** - Configures the VLAN operation mode as transparent bridging.
 - **mac-address-table aging-time** - Configures the timeout period (in seconds) for aging out dynamically learned forwarding information entry and static entry in the MAC address table.
 - **show dot1d mac-address-table** - Displays all static and dynamic unicast and multicast MAC address entries created in the FDB table, when the VLAN base bridge mode is transparent bridging.
 - **show dot1d mac-address-table static unicast**- Displays all static unicast MAC address entries created in the FDB table, when the VLAN base bridge mode is transparent bridging.
-

20.8 mac-address-table static multicast

Command Objective This command configures a static multicast MAC address in the forwarding database.

The no form command deletes a configured static unicast MAC address from the forwarding database

Syntax

```
mac-address-table static multicast <aa:aa:aa:aa:aa:aa> vlan
<vlan-id/vfi_id> [recv-port <ifXtype> <ifnum>] interface
([<interface-type> <0/a-b,0/c,...>] [<interface-type> <0/a-
b,0/c,...>] [port-channel <a,b,c-d>] [pw <a,b,c-d>] [ac
<a,b,c-d>]) [forbidden-ports ([<interface-type> <0/a-
b,0/c,...>] [<interface-type> <0/a-b,0/c,...>] [port-
channel <a,b,c-d>] [pw <a,b,c-d>] [ac <a,b,c-d>])] [status {
permanent | deleteOnReset | deleteOnTimeout }]
```

```
no mac-address-table static multicast <aa:aa:aa:aa:aa:aa>
vlan <vlan-id/vfi_id> [recv-port <ifXtype> <ifnum>}}
```

PBB feature enabled in the switch

```
mac-address-table static multicast <aa:aa:aa:aa:aa:aa> vlan
<vlan-id/vfi_id> [{recv-port <ifXtype> <ifnum> | service-
instance <integer(256-16777214)>}] interface ([<interface-
type> <0/a-b,0/c,...>] [<interface-type> <0/a-b,0/c,...>]
[port-channel <a,b,c-d>] [pw <a,b,c-d>]) [forbidden-ports
([<interface-type> <0/a-b,0/c,...>] [<interface-type> <0/a-
b,0/c,...>] [port-channel <a,b,c-d>] [pw <a,b,c-d>] [ac
<a,b,c-d>])] [status { permanent | deleteOnReset |
deleteOnTimeout }]
```

```
no mac-address-table static multicast <aa:aa:aa:aa:aa:aa>
vlan <vlan-id/vfi_id> [{recv-port <ifXtype> <ifnum> |
service-instance <integer(256-16777214)>}]
```

Parameter Description

- **<aa:aa:aa:aa:aa:aa>** - Configures the multicast destination MAC address. The received packets having the specified MAC address are processed.
- **vlan <vlan-id/vfi-id>** - Configures the static multicast destination MAC address 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **recv-port** - Configures the receive port's details. The multicast packets received only on this specified port are processed. The details to be provided are:
 - **<ifXtype>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<ifnum>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
 - **service-instance<integer (256-16777214)>** - Configures a static multicast MAC address for the specified service-instance identifier. This value ranges from 256 to 16777214.
 - **interface** - Configures the member ports details. The multicast packets received on the specified receive ports and having the specified multicast destination MAC address are forwarded through these member ports. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
-

-
- **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
 - **port-channel <a,b,c-d>** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
 - **pw <a,b,c-d>** - Configures a static multicast MAC address the pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.

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

- **ac <a,b, c-d>** - Configures a static multicast MAC address for the specified attachment circuit interface. This value ranges from 1 to 65535. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **forbidden-ports** - Configures the ports for which GMRP should not dynamically register the service requirement attribute **forward-all** multicast groups. This configuration is restored once the switch is reset. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** - A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** - Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** - Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
 - **port-channel <a,b,c-d>** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3
 - **pw <a,b,c-d>** - Configures the pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.

Note: Maximum number of pseudowire interfaces supported

in the system is 100.

- **ac <a,b, c-d>** - Configures a static multicast MAC address for the specified attachment circuit interface. This value ranges from 1 to 65535. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **status** - Status of the static multicast entry. The options are:
 - **permanent** - Entry remains even after the next reset of the bridge.
 - **deleteOnReset** - Entry remains until the next reset of the bridge.
 - **deleteOnTimeout** - Entry remains until it is aged out.

Mode Global Configuration Mode/Switch Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default status - permanent

Note:

- VLAN or service-instance must have been configured and member ports must have been configured for the specified VLAN or service-instance.
- The VLAN value in a configured static MAC entry must be active.
- The new configured ports are appended to the existing member port list of the VLAN.
- The egress port value and receive port value in a configured static MAC entry must be a member of the configured VLAN
- Receive port cannot be an egress port in a configured static MAC entry

Example

```
SEFOS(config)# mac-address-table static multicast
01:02:03:04:05:06 vlan 1 interface extreme-ethernet 0/1

SEFOS(config-switch)# mac-address-table static multicast
01:02:03:04:05:06 vlan 1 interface extreme-ethernet 0/1 pw
1
```

Related Command(s)

- **mac-address-table static unicast** - Configures a static unicast MAC address in the forwarding database.
 - **vlan** - Configures a VLAN in the switch and is also used to enter into the config-VLAN mode.
 - **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN. The VLAN can also be activated using the VLAN active command.
 - **vlan active** - Activates a VLAN in the switch.
 - **service instance** - Enters the service-instance mode for performing ISID specific operations.
 - **show mac-address-table static multicast** - Displays the
-

statically configured multicast entries.

20.9 mac address-table static - mcast

Command Objective This command configures a static multicast MAC (Media Access Control) address in the forwarding database.

The no form of the command deletes a configured static multicast MAC address from the forwarding database.

Note: This command is a complete standardized implementation of the existing command and operates similar to that of the command `mac-address-table static multicast`.

This feature has been included in adherence to the Industry Standard CLI syntax.

Syntax

```
mac address-table static <mcast_mac> vlan <integer(1-4094)>
([interface <interface-type> <0/a-b,0/c,...>] [<interface-
type> <0/a-b,0/c,...>] [port-channel <a,b,c-d>])

no mac address-table static <mcast_mac> vlan <vlan-id(1-
4094)> [interface <ifXtype> <ifnum>]
```

Parameter Description

- **<mcast_mac>** - Configures the static MAC address that should be mapped to the specified VLAN and used for MAC-based VLAN membership classification.
- **vlan<integer(1-4094)>** - Configures the VLAN ID to which the configured MAC address should be mapped. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094..
- **interface** - Configures the member ports details. The static packets received on the specified receive ports and having the specified static destination MAC address are forwarded through these member ports. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
- **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-

channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.

- **port-channel**<a,b,c-d> - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.

Mode Global Configuration Mode/Switch Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note:

- VLAN or service-instance must have been configured and member ports must have been configured for the specified VLAN or service-instance.
- The VLAN value in a configured static MAC entry must be active

Example SEFOS(config)# **mac address-table static 01:02:03:04:05:06**
vlan 1 interface extreme-ethernet 0/1

Related Command(s)

- **show mac-address-table static multicast** - Displays the statically configured multicast entries.
 - **vlan** - Configures a VLAN in the switch and is also used to enter into the config-VLAN mode.
 - **service instance** – Enters the service-instance mode for performing ISID specific operations.
 - **vlan active** - Activates a VLAN in the switch.
 - **ports** - Configures a VLAN entry.
-

20.10 mac-address-table static multicast – Transparent Bridging mode

Command Objective This command configures a static multicast MAC address in the forwarding database in transparent bridging mode in order to control multicast packets to be processed. Only the multicast packets having the configured value are processed.

This configuration is used to filter incoming reports that can be commonly used by all multicast protocols.

The no form of this command deletes the configured static multicast MAC address from the forwarding database.

Syntax

```
mac-address-table static multicast <aa:aa:aa:aa:aa:aa>
[recv-port <interface-type> <interface-id>] interface
([<interface-type> <0/a-b,0/c,...>] [<interface-type> <0/a-
b,0/c,...>] [port-channel <a,b,c-d>]]) [status { permanent
| deleteOnReset | deleteOnTimeout }]

no mac-address-table static multicast <aa:aa:aa:aa:aa:aa>
[recv-port <interface-type> <interface-id>]
```

Parameter Description

- **<aa:aa:aa:aa:aa:aa>** - Configures the multicast destination MAC address. The received packets having the specified MAC address are processed.
- **recv-port** - Configures the receive port's details. The multicast packets received only on this specified port are processed. The details to be provided are:
 - **<ifxtype>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<ifnum>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
- **interface** - Configures the member ports details. The multicast packets received on the specified receive ports and having the specified multicast

destination MAC address are forwarded through these member ports. The details to be provided are:

- **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
- **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
- **port-channel <a,b,c-d>** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **status** - Configures the status of the static multicast entry. The options are:
 - **permanent** - The static multicast entry resides in the switch, even after restarting the switch.
 - **deleteOnReset** - The static multicast entry is deleted, once the switch is restart.
 - **deleteOnTimeout** - The static multicast entry is deleted once the MAC address table aging timer expires.

Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	status - permanent

Note:

- This command is applicable only if the base bridge mode is set as transparent bridging.
 - The interface XL-ethernet 0/1 cannot be set as member port or receive port in the static entry, as it is configured as a router port in transparent bridging mode.
 - The same interface cannot be configured as both ingress port (receive port) and egress port (member port). The port can act only as ingress or as egress.
 - If the receive port is configured in the created static multicast MAC address entry, then that entry can be deleted only if the receive port details are
-

exactly mentioned in the no form of the command.

- Only one static multicast MAC address entry is allowed in the switch in transparent bridging mode. If any updates need to be done in the existing one, then it should be deleted and new entry should be created with new configurations.

Example

```
SEFOS(config)# mac-address-table static multicast  
01:00:5E:01:02:03 interface extreme-ethernet 0/2
```

Related Command(s)

- **base bridge-mode dot1d-bridge** - Configures the VLAN operation mode as transparent bridging.
 - **mac-address-table aging-time** - Configures the timeout period (in seconds) for aging out dynamically learned forwarding information entry and static entry in the MAC address table.
 - **show dot1d mac-address-table** - Displays all static and dynamic unicast and multicast MAC address entries created in the FDB table, when the VLAN base bridge mode is transparent bridging.
 - **show dot1d mac-address-table static multicast** - Displays all static multicast MAC address entries created in the FDB table, when the VLAN base bridge mode is transparent bridging.
-

20.11 mac-address-table aging-time

Command Objective	<p>This command configures the timeout period (in seconds) for aging out dynamically learned forwarding information entry and static entry in the MAC address table. That is, the entry is deleted once the aging timer expires. High value for the aging time helps to record dynamic entries for a longer time, if traffic is not frequent. This reduces the possibility of flooding.</p> <ul style="list-style-type: none">• This timeout period value ranges from 10 to 1000000 seconds, if the switch DX260 is set as no during compilation of the exe.• The value ranges from 10 to 630 seconds, if the switch DX260 is set as yes during compilation of the exe. <p>The no form of the command resets the maximum age of an entry in the MAC address table to its default value.</p>
Syntax	<pre>mac-address-table aging-time <10-630 seconds> no mac-address-table aging-time</pre> <p><u>If switch DX260 is set as no during compilation of the exe:</u></p> <pre>mac-address-table aging-time <10-1000000 seconds></pre>
Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	300
Note:	<ul style="list-style-type: none">• The aging timer is applied to the static entry in the MAC address table only if static entry status is set as deleteOnTimeout.• The MAC address table maximum age can be configured in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<pre>SEFOS(config)# mac-address-table aging-time 200</pre>
Related Command(s)	<ul style="list-style-type: none">• mac-address-table static unicast - Transparent Bridging Mode - Configures a static unicast MAC address in the forwarding database in transparent bridging mode in order to control unicast packets to be processed.• mac-address-table static multicast - Transparent Bridging mode - Configures a static multicast MAC address in the forwarding database in transparent bridging mode in order to control multicast packets to be processed.• no shutdown vlan - Starts and enables VLAN switching feature in the

switch.

- **show mac-address-table aging-time** - Displays the ageing time configured for the MAC address table.
-

20.12 clear vlan statistics

Command Objective	<p>This command clears VLAN counters that maintain statistics information on a per VLAN basis.</p> <p>The counter is cleared for all available VLANs or for the specified VLAN. The statistics information contains number of unicast, broadcast, and unknown unicast packets flooded.</p>
Syntax	<pre>clear vlan statistics [vlan <vlan-id/vfi_id>]</pre>
Parameter Description	<ul style="list-style-type: none">• vlan <vlan-id/vfi-id> - Clears VLAN counters for the specified VLAN / VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <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. <hr/> <p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p> <p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p> <p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p> <hr/>
Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	The information in the VLAN counters can be deleted only if the VLAN switching feature is started and enabled in the switch.
Example	<pre>SEFOS(config)# clear vlan statistics vlan 1</pre>
Related Command (s)	<ul style="list-style-type: none">• no shutdown vlan - Starts and enables VLAN switching feature in the switch.• show vlan statistics - Displays the unicast and broadcast statistics of all active VLANs and VLANs (that are not active) for which the port details are configured.

20.13 vlan default hybrid type

Command Objective	This command configures the default hybrid learning mode for all VLANs when the operational learning mode of the switch is globally set as hybrid.
Note:	This command is available only if the switch NPAPI_WANTED is set as <code>no</code> during the compilation of the exe.
Syntax	<code>vlan default hybrid type {iv1 sv1}</code>
Parameter Description	<ul style="list-style-type: none"><code>iv1</code> - Configures the default hybrid learning mode as IVL. All VLANs are mapped to FID having value equal to the ID of those VLANs. That is, VLAN 1 is mapped to FID 1, VLAN 2 is mapped to FID 2 and so on.<code>sv1</code> - Configures the default hybrid learning mode as SVL. All VLANs are mapped to filtering database ID 1. That is, VLANs 1 to 4094 are mapped to FID 1 and no VLANs are mapped to other FIDs.
Mode	Global Configuration Mode/Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	<ul style="list-style-type: none">The default VLAN hybrid learning mode can be configured only if the VLAN learning mode is set as hybrid.VLAN's default hybrid learning type cannot be configured in the switch if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.This configuration should be saved and restored on restart of the switch. This configuration should not be done while exe is running.
Example	<code>SEFOS(config)# vlan default hybrid type iv1</code>
Related Command(s)	<ul style="list-style-type: none"><code>base bridge-mode dot1q-vlan</code> - Configures the VLAN operation mode as VLAN-aware bridging.<code>vlan learning mode hybrid</code> - Sets the VLAN learning mode for the switch as hybrid.<code>fid</code> - Configures a VLAN or a list of VLANs to use a filtering database for making forwarding decisions.<code>no shutdown vlan</code> - Starts and enables VLAN switching feature in the switch.<code>show fid</code> - Displays the FID VLAN mapping information of all FIDs in the switch or all contexts and the default hybrid learning mode configured in the switch or all contexts.

20.14 map subnet

Command Objective This command configures VLAN-IP subnet address mapping that is used only for subnet-VLAN-based membership classification.

In subnet-VLAN-based membership classification, the source IP address in the received packet is matched to a VLAN ID using this mapping entry to perform VLAN membership classification.

The no form of the command deletes the VLAN-IP subnet address mapping entry.

Syntax `map subnet <ip-subnet-address> vlan <vlan-id/vfi_id> [arp {suppress | allow}] [mask <subnet-mask>]`

`no map subnet <ip-subnet-address> [mask <subnet-mask>]`

Parameter Description

- **<ip-subnet-address>** - Configures the IP subnet address to be used for deciding on discarding / allowing of ARP frames.
- **vlan <vlan-id/vfi-id>** - Configures VLAN-IP subnet address mapping 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **arp** - Configures the handling of ARP untagged frames on the specified VLAN. The options are:
 - **suppress** - Does not perform VLAN classification for ARP frames having the specified source IP subnet address.
 - **allow** - Performs VLAN classification for ARP frames having the specified source IP subnet address.

Note: This parameter is not supported in BCM target. The

ARP option cannot be configured as **allow** when running on Broadcom target, since BCM does not classify ARP broadcast packets based on subnet VLAN mapping. In case of BCM, subnet VLAN mapping works only on IP packets.

- **mask <subnet-mask>** - Configures the subnet mask address to be used to decide the discarding or allowing of ARP frames.
-

Mode Global Configuration Mode / Interface Configuration Mode(Physical/ Port Channel)

- This command is available only in the Global Configuration mode, if the switch BCMX_WANTED is set as **yes** during the compilation of the exe.
 - This command is available only in the Interface Configuration mode, if the switch BCMX_WANTED is set as **no** during the compilation of the exe.
-

Package Workgroup, Enterprise, Metro, and Metro_E

Default arp - Allow for all boards, suppress for Broadcom board

Note:

- Only the VLANs that are activated in the switch can be mapped to the specified IP subnet address.
 - VLAN-IP subnet address mapping can be configured in the port only if the VLAN switching feature is started and enabled in the switch.
-

Example SEFOS(config-if)# map subnet 14.0.0.0 vlan 1 arp allow

Related Command(s)

- **subnet-vlan** - Enables subnet-VLAN-based membership classification on all ports of the switch.
- **vlan active** - Activates a VLAN in the switch.
- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
- **show subnet-vlan mapping** - Displays all entries in the subnet map table.

20.15 ports

Command Objective This command statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, untagged ports or forbidden ports and then activates the VLAN. The VLAN can also be activated using the VLAN active command.

The configuration defines the tagged and untagged member ports that are used for egress tagging of a VLAN at a port.

For ports in PBB bridge mode, this command is used to define member ports for a VLAN in a component.

- For BVLAN in a B component, only the PNP ports can be set as member ports.
- For SVLAN in an I component, only the CNP-S tagged ports can be set as member ports.
- For CVLAN in an I component, only the CNP-C tagged ports can be set as member ports.

The no form of the command deletes the specified port details for the VLAN. The member ports cannot be set empty for the VLAN once the member ports' details are configured for that VLAN.

Syntax

```
ports [add] ([<interface-type> <0/a-b,0/c,...>]
[<interface-type> <0/a-b,0/c,...>] [port-channel <a,b,c-d>]
[pw <a,b,c-d>][pw <a,b,c-d>]) [untagged <interface-type>
<0/a-b,0/c,...> [<interface-type> <0/a-b,0/c,...>] [port-
channel <a,b,c-d>] [pw <a,b,c-d>] [ac <a,b,c-d>] [all]])
[forbidden <interface-type> <0/a-b,0/c,...> [<interface-
type> <0/a-b,0/c,...>] [port-channel <a,b,c-d>] [pw <a,b,c-
d>] [ac <a,b,c-d>]]
```

```
no ports [<interface-type> <0/a-b,0/c,...>] [<interface-
type> <0/a-b,0/c,...>] [port-channel <a,b,c-d>] [pw <a,b,c-
d>] [ac <a,b,c-d>] [all] [untagged ([<interface-type> <0/a-
b,0/c,...>] [<interface-type> <0/a-b,0/c,...>] [port-
channel <a,b,c-d>] [pw <a,b,c-d>] [ac <a,b,c-d>] [all]])
[forbidden ([<interface-type> <0/a-b,0/c,...>] [<interface-
type> <0/a-b,0/c,...>] [port-channel <a,b,c-d>] [pw <a,b,c-
d>] [ac <a,b,c-d>] [all]])]
```

Parameter Description

- **add** - Appends the new configured ports to the existing member port list of the VLAN.
- **<interface-type> <0/a-b,0/c,...>** - Configures the ports that should be set as a member of the VLAN. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
- **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
- **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
- **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
- **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
- **port-channel<a,b,c-d>** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **pw <a,b,c-d>** - Configures the pseudowire interface as member port. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.

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

- **ac <a,b, c-d>** - Configures the specified attachment circuit interface as a member port. This value ranges from 1 to 65535. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
 - **a11** - Deletes all configured member ports for the VLAN and sets the member ports as none. This option is available only in the no form of the command.
 - **untagged<interface-type> <0/a-b,0/c, ...>** - Configures the ports that should be used for the VLAN to transmit egress packets as untagged packets. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan
-

and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.

- **port-channel** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **pw <a,b,c-d>** - Sets pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.

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

- **ac <a,b, c-d>** - Configures the AC identifier or a list of identifiers to be used for the VLAN to transmit egress packets as untagged packets. This value ranges from 1 to 65535. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **all** - Sets all configured member ports as the untagged ports for the VLAN.

The ports configured should be a subset of the member ports.

The ports that are attached to VLAN-aware devices should always be set as untagged ports only.

The ports can be set as untagged ports only if they are not configured as trunk ports.

CBP should always be set as untagged member port of a BVLAN.

- **forbidden<interface-type> <0/a-b,0/c, . . . >** - Configures the ports that should never receive packets from the VLAN. These ports drop the packets received from this VLAN. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<0/a-b, 0/c, . . . >** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
 - **port-channel** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
 - **pw <a,b,c-d>** - Sets the pseudowire interface as a port that should never receive packets from the VLAN. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This

value ranges from 1 to 65535.

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

- **ac <a,b, c-d>** - Sets the AC interface as a port that should never receive packets from the VLAN. This value ranges from 1 to 65535. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **all** - Deletes all configured forbidden ports for the VLAN and sets the forbidden port as none. This option is available only in the no form of the command.

The ports configured should not be a subset of the member ports. That is, the forbidden ports and member ports are mutually exclusive.

Mode Config-VLAN Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default All ports available in the switch are configured as member ports and untagged ports of the default VLAN (VLAN 1). For other active VLANs, the member, untagged and forbidden ports are not set (that is, set as none).

Example

```
SEFOS(config-vlan)# ports extreme-ethernet 0/1 pw 1
untagged extreme-ethernet 0/1 forbidden extreme-ethernet
0/2 pw 2

SEFOS(config-vlan)# ports add extreme-ethernet 0/1 ac 1
untagged extreme-ethernet 0/1 forbidden extreme-ethernet
0/2 ac 2
```

**Related Command
(s)**

- **vlan active** - Activates a VLAN in the switch.
 - **ipv6 mld snooping mrouter** - Configures statically the router ports for a VLAN.
 - **forward-all** - Configures the forward-all port details for a VLAN to specify the ports that forward or do not forward-all multicast group-addressed frames.
 - **forward-unregistered** - Configures the forward-unregistered port details for a VLAN to specify the ports that forward or do not forward multicast group-addressed frames for which no more specific forwarding information applies.
 - **switchport mode** - Configures the mode of operation for a switch port.
 - **show vlan** - Displays VLAN entry-related information of all active VLANs and VLANs (that are not active) for which the port details are configured.
 - **show vlan counters** - Displays the VLAN traffic statistics for all VLANs (for which the member port details are configured) available in the switch / all contexts.
 - **show vlan statistics** - Displays the unicast and broadcast statistics of all active VLANs and VLANs (that are not active) for which the port details
-

are configured.

- **show mac-address-table count** - Displays the total number of static and dynamic unicast and multicast MAC address entries created in the FDB table.
 - **show vlan learning params** - Displays the VLAN learning parameter details for all active VLANs and VLANs (that are not active) for which the port details are configured, available in all contexts or in the switch.
 - **set vlan counter** - Enables or disables the statistics collection for the specified VLAN.
-

20.16 vlan active

Command Objective	This command activates a VLAN in the switch. The created VLANs should be active for further VLAN-related configurations. The VLAN can also be activated using ports command.
Syntax	<code>vlan active</code>
Mode	Config-VLAN Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Only default VLAN (VLAN 1) is activated once the switch is started.
Note:	VLAN cannot be made active if base bridge mode is set as transparent bridging.
Example	<code>SEFOS(config-vlan)# vlan active</code>
Related Command(s)	<ul style="list-style-type: none">• <code>ports</code> - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.• <code>ipv6 mld snooping</code> – Enables MLD snooping in the switch for a VLAN.• <code>ipv6 mld snooping version</code> – Sets the operating version of the MLD snooping switch for a specific VLAN.• <code>ipv6 mld snooping fast-leave</code> - Enables fast leave processing for a specific VLAN.• <code>ipv6 mld snooping querier</code> – Configures the MLD snooping switch as a querier for a specific VLAN.• <code>ipv6 mld snooping query-interval</code> - Sets the time period with which the general queries are sent by the MLD snooping switch when it is configured as a querier on the VLAN.• <code>ipv6 mld snooping mrouter</code> - Configures statically the router ports for a VLAN.• <code>spanning-tree vlan</code> - Configures spanning tree-related information on a per VLAN basis.• <code>spanning-tree vlan status</code> - Configures the status of PVRST on a port for the specified VLAN.• <code>spanning-tree vlan cost</code> - Configures the cost of port for the specified VLAN.• <code>show spanning-tree vlan - Summary, Blockedports,</code>

Pathcost - Displays PVRST-related information for the specified VLAN.

- **show spanning-tree vlan - bridge** - Displays the PVRT-related information of the bridge for the specified VLAN ID.
- **show spanning-tree vlan - root** - Displays the PVRT-related information of the root, for the specified VLAN ID.
- **show spanning-tree vlan - interface** - Displays interface-specific PVRST information for the specified VLAN.
- **base bridge-mode dot1q-vlan** - Configures the VLAN operation mode as VLAN-aware bridging.
- **mac-map** - Configures the VLAN-MAC address mapping that is used only for MAC-based VLAN membership classification.
- **map subnet** - Configures VLAN-IP subnet address mapping that is used only for subnet-VLAN-based membership classification.
- **set unicast-mac learning** - Enables or disables unicast-MAC learning feature for a VLAN.
- **vlan unicast-mac learning limit** - Configures the unicast-MAC learning limit for a VLAN.
- **forward-all** - Configures the forward-all port details for a VLAN to specify the ports that forward or do not forward-all multicast group-addressed frames.
- **forward-unregistered** - Configures the forward-unregistered port details for a VLAN to specify the ports that forward or do not forward multicast group-addressed frames for which no more specific forwarding information applies.
- **switchport pvid** - Configures the PVID on the specified port.
- **show vlan** - Displays VLAN entry-related information of all VLANs for which the port details are configured.
- **show forward-all** - Displays all entries in the VLAN forward-all table.
- **show forward-unregistered** - Displays all entries in the VLAN forward unregistered table.
- **show vlan statistics** - Displays the unicast and broadcast statistics of all VLANs for which the port details are configured.
- **show mac-address-table count** - Displays the total number of static and dynamic unicast and multicast MAC address entries created in the FDB table.
- **show vlan learning params** - Displays the VLAN learning parameter details for all VLANs for which the port details are configured, available in all contexts / in the switch.

-
- **set vlan counter** - Enables or disables the statistics collection for the specified VLAN.
-

20.17 interface range

Command Objective This command selects the range of physical interfaces and VLAN interfaces to be configured.

The no form of the command selects the range of VLAN interfaces to be removed.

Note: This command is a complete standardized implementation of the existing command.

This feature has been included in adherence to the Industry Standard CLI syntax.

Syntax

```
interface range ( { <interface-type> <slot/port-port>} |
{vlan <vlan-id(1-4094)> - <vlan-id(2-4094)>})

no interface range vlan <vlan-id(1-4094)> - <vlan-id(2-4094)>
```

Parameter Description

- **<interface-type>** - Selects the range of the specified 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
- **<slot/port-port>** - Selects the range of the specified interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
- **vlan <vlan-id(1-4094)> - <vlan-id(2-4094)>** - Selects the range of the specified VLAN ID. This is a unique value that represents the specific VLAN created and activated. This value ranges from 1 to 4094.
For specifying the interface VLAN range, space should be provided before and after the dash. That is, the command interface range VLAN 1 – 4 is valid, whereas the command interface range VLAN 1– 4 is not valid.

Mode Global Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: For port channel range, the specified range must be configured using the interface command.

Example

```
SEFOS (config) # interface range extreme-ethernet 0/1 vlan 1-2
SEFOS (config-if-range) #
SEFOS (config) # interface range vlan 1 - 2 extreme-ethernet 0/1
SEFOS (config-if-range) #
```

Related Command(s)

- **interface** – Enters into the interface mode.
 - **show interfaces description** - Displays the interface status and configuration.
-

20.18 forward-all

Command Objective This command configures the forward-all port details for a VLAN to specify the ports that forward or do not forward-all multicast group-addressed frames.

The no form of the command deletes the forward-all port details for the VLAN and sets as none.

Note: This command is available only if either the switch NPAPI_WANTED is set as **no** or switch NPSIM_WANTED is set as **yes** or switch SWC is set as **yes**, during the compilation of the exe.

Syntax

```
forward-all ([static-ports ([<interface-type> <0/a-b, 0/c, ...>] [<interface-type> <0/a-b, 0/c, ...>] [port-channel <a,b,c-d>] [pw <a,b,c-d>] [ac <a,b,c-d>] [none]]) [forbidden-ports <interface-type> <0/a-b, 0/c, ...> [<interface-type> <0/a-b, 0/c, ...>] [port-channel <a,b,c-d>] [pw <a,b,c-d>] [ac <a,b,c-d>]])

no forward-all
```

Parameter Description

- **static-ports** - Configures the ports to which all multicast group-addressed frames are to be forwarded. This configuration is restored once the switch is reset. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** - A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** - Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** - Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3. The configured forward-all static ports should have been already set as member ports for the VLAN. The configured forward-all static port should not be a member of the forward-all forbidden port.
 - **port-channel <a,b,c-d>** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.

-
- **pw <a,b,c-d>** - Sets pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.

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

- **ac <a,b,c-d>** - Configures the AC identifier or a list of identifiers for the static port. Attachment Circuit (AC) is a physical or virtual circuit attaching a Customer Edge to a Provider Edge port. This value ranges from 1 to 65535. To configure a list of interfaces, use comma as a separator without space. Example: 1,3
 - **none** - Sets none of the ports as static forward-all port for the VLAN.
- **forbidden-ports** - Configures the ports for which GMRP should not dynamically register the service requirement attribute forward-all multicast groups. This configuration is restored once the switch is reset. The details to be provided are:

- **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** - A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** - Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** - Logical interface that represents an aggregator which contains several ports aggregated together.
- **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
- **port-channel <a,b,c-d>** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
- **pw <a,b,c-d>** - Sets pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.

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

- **ac <a,b,c-d>** - Configures the AC identifier or a list of identifiers for the forbidden port. Attachment Circuit (AC) is a physical or virtual circuit attaching a Customer Edge to a Provider Edge port. This value ranges from 1 to 65535. To configure a list of interfaces, use comma as a separator without space. Example: 1,3

Note: The configured forward-all forbidden ports should not be a member of the forward-all static port.

Mode	Config-VLAN Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Both forward-all static ports and forward-all forbidden ports are not set (that is, set as none) for the active VLANs.
	<u>Note:</u> The forward-all port details can be configured only in the VLANs that are activated.
Example	<pre>SEFOS(config-vlan)# forward-all static-ports extreme- ethernet 0/1 forbidden-ports extreme-ethernet 0/2 pw 1</pre>
Related Command(s)	<ul style="list-style-type: none"> • ports - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN. • vlan active - Activates a VLAN in the switch. • show forward-all - Displays all entries in the VLAN forward-all table.

20.19 forward-unregistered

Command Objective This command configures the forward-unregistered port details for a VLAN to specify the ports that forward or do not forward multicast group-addressed frames for which no more specific forwarding information applies.

The no form of the command sets the forward-unregistered port details for all VLANs to default value.

Note: This command is available only if either the switch NPAPI_WANTED is set as **no** or switch NPSIM_WANTED is set as **yes** or switch SWC is set as **yes**, during the compilation of the exe.

Syntax

```
forward-unregistered ([static-ports ([<interface-type>
<0/a-b, 0/c, ...>] [<interface-type> <0/a-b, 0/c, ...>]
[port-channel <a,b,c-d>] [pw <a,b,c-d>] [ac <a,b,c-d>]
[none]]) [forbidden-ports <interface-type> <0/a-b, 0/c,
...> [<interface-type> <0/a-b, 0/c, ...>] [port-channel
<a,b,c-d>] [pw <a,b,c-d>] [ac <a,b,c-d>]])
no forward-unregistered
```

Parameter Description

- **static-ports** - Configures the ports to which multicast group-addressed frames, for which there is no more specific forwarding information, are to be forwarded. This configuration is restored once the switch is reset. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** - A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** - Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** - Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
 - **port-channel** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.

-
- **pw <a,b,c-d>** Sets pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.

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

- **ac <a,b,c-d>** - Configures the AC identifier or a list of identifiers for the static port. Attachment Circuit (AC) is a physical or virtual circuit attaching a Customer Edge to a Provider Edge port. This value ranges from 1 to 65535. To configure a list of interfaces, use comma as a separator without space. Example: 1,3
- **none** - Sets none of the ports as static forward-unregistered port for the VLAN. The configured forward-unregistered static ports should have been already set as member ports for the VLAN. The configured forward-unregistered static ports should not be a member of the forward-unregistered forbidden port.
- **forbidden-ports** - Configures the ports for which GMRP should not dynamically register the service requirement attribute forward for unregistered multicast groups. This configuration is restored once the switch is reset. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** - A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** - Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** - Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<0/a-b, 0/c, ...>** - Sets the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.
 - **port-channel** - Sets the list of port channel interfaces or a specific port channel identifier. Use comma as a separator, without space, while configuring list of interfaces. Example: 1,3.
 - **pw <a,b,c-d>** - Sets pseudowire interface. When the pseudowire interface is mapped to a specific VLAN, the interface structures are created. This value ranges from 1 to 65535.
 - **ac <a,b,c-d>** - Configures the AC identifier or a list of identifiers for the forbidden port. Attachment Circuit (AC) is a physical or virtual circuit attaching a Customer Edge to a Provider Edge port. This value ranges from 1 to 65535. To configure a list of interfaces, use comma as a separator without space. Example: 1,3

Note: Maximum number of pseudowire interfaces supported

in the system is 100.

Note: The configured forward-unregistered forbidden port should not be a member of the forward-unregistered static port.

Mode Config VLAN mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default

- All the ports available in the switch are set as forward-unregistered static ports and forward-unregistered forbidden ports for the default VLAN (VLAN 1).
- Both forward-unregistered static ports and forward-unregistered forbidden ports are not set (that is, set as none) for the active VLANs other than the default VLAN (VLAN 1).

Note: The forward-unregistered port details can be configured only in the VLANs that are activated.

Example

```
SEFOS(config-switch-vlan)# forward-unregistered static-ports extreme-ethernet 0/2 forbidden-ports extreme-ethernet 0/1 pw 2
```

Related Command (s)

- **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.
- **vlan active** - Activates a VLAN in the switch.
- **show forward-unregistered** - Displays all entries in the VLAN forward unregistered table.

20.20 switchport pvid

Command Objective This command configures the PVID on the specified port. The PVID represents the VLAN ID/VFI ID that is to be assigned to untagged frames or priority-tagged or C-VLAN frames received on the port. The PVID is used for port-based VLAN-type membership classification. This value ranges from 1 to 65535.

- **<vlan -id>** - This 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 might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

In PBB ICOMP bridge mode, PVID can be configured on CNP port. In PBB BCOMP bridge mode, PVID can be configured on CBP and PNP ports.

The PVID configuration done is used based on the acceptable frame type of the port. The packets are processed against PVID, if the packets accepted at ingress do not have tags.

The no form of the command resets the PVID to the default value on the port.

Syntax `switchport pvid <vlan-id/vfi_id>`
`no switchport pvid`

Mode Interface Configuration mode (Physical / Port Channel)

Package Workgroup, Enterprise, Metro, and Metro_E

Default 1 (ID of default VLAN)

Note:

- Only the IDs of the active VLAN can be used as PVIDs in the command.
 - This command is applicable only for the port configured as switch port.
-

-
- The PVID cannot be configured for the port, if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.
-

Example

```
SEFOS(config-if)# switchport pvid 3
```

Related Command (s)

- **switchport** - Configures the port as switch port.
 - **base bridge-mode dot1q-vlan** - Configures the VLAN operation mode as VLAN-aware bridging.
 - **vlan active** - Activates a VLAN in the switch.
 - **switchport acceptable-frame-type** - Configures the type of VLAN-dependant BPDU frames such as GMRP BPDU, that the port should accept during the VLAN membership configuration.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **show vlan port config** - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.
-

20.21 switchport access vlan

Command Objective	<p>This command configures the PVID (Port VLAN Identifier) on a port. This value ranges from 1 to 4094.</p> <p>The no form of this command sets the PVID to the default value on the port.</p>
Note:	<p>This command is a complete standardized implementation of the existing command and operates similar to that of the command <code>switchport pvid</code>.</p> <p>This feature has been included in adherence to the Industry Standard CLI syntax.</p>
Syntax	<pre>switchport access vlan <vlanid (1-4094)> no switchport access vlan</pre>
Mode	Interface Configuration Mode(Physical / Port Channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	<ul style="list-style-type: none">• If the frame (untagged, priority tagged, or customer VLAN tagged) is received on a "tunnel" port, then the default PVID associated with the port is used.• If the received frame cannot be classified as MAC-based or port-and-protocol-based, then the PVID associated with the port is used.• For ports in PBB bridge mode, PVID can be configured on CNP (Customer Network Port) and CBP (Customer Backbone Port).• Usage is based on acceptable frame type of the port. Packets will be either dropped or accepted at ingress. Once a packet is accepted, if the packet has a tag, it will be processed against that tag. Otherwise, the packet will be processed against PVID.
Example	<pre>SEFOS(config-if)# switchport access vlan 1</pre>
Related Command (s)	<ul style="list-style-type: none">• <code>show vlan port config</code> - Displays the VLAN-related parameters specific for ports.• <code>switchport pvid</code> - Configures the PVID on the specified port.

20.22 switchport acceptable-frame-type

Command Objective This command configures the type of VLAN-dependent BPDU frames such as GMRP BPDU that the port should accept during the VLAN membership configuration.

The no form of the command resets the acceptable frame type for the port to its default value.

This configuration does not affect VLAN-independent BPDU frames such as GVRP BPDU and STP BPDU. It affects only the VLAN-dependent BPDU frames.

Syntax

```
switchport acceptable-frame-type {all | tagged |
untaggedAndPrioritytagged }

no switchport acceptable-frame-type
```

Parameter Description

- **all** - Configures the acceptable frame type as all. All tagged, untagged, and priority tagged frames received on the port are accepted and subjected to ingress filtering.

- **tagged** - Configures the acceptable frame type as tagged. Only the tagged frames received on the port are accepted and subjected to ingress filtering. The untagged and priority tagged frames received on the port are rejected. For ports in PBB bridge mode, the description of tagged frames is given in the below table:

Port Type	TAG Description
CNP S Tagged	S-Tag
CNP C Tagged	C-Tag
CNP Port Based	S-Tag
PIP	I-Tag
CBP	I-Tag
PNP	B-Tag or S Tag

- **untaggedAndPrioritytagged** - Configures the acceptable frame type as untagged and priority tagged. Only the untagged or priority tagged frames received on the port are accepted and subjected to ingress filtering. The tagged frames received on the port are rejected.

Mode Interface Configuration Mode(Physical / Port Channel)

Package	Workgroup, Enterprise, Metro, and Metro_E
Default	all
<u>Note:</u>	<ul style="list-style-type: none"> • This command is applicable only for the port configured as switch port. • The acceptable frame type cannot be configured for the port, if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch. • The acceptable frame type cannot be configured and is always set as untaggedAndPrioritytagged, if the bridge port type is set as customer network port. The bridge port type can be set as CNP only in Metro package.
Example	SEFOS (config-if)# switchport acceptable-frame-type tagged
Related Command(s)	<ul style="list-style-type: none"> • switchport - Configures the port as switch port. • bridge port-type - Configures the bridge port type for an interface. • base bridge-mode dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging. • switchport pvid - Configures the PVID on the specified port. • switchport ingress-filter - Enables ingress filtering feature on the port. • switchport mode - Configures the mode of operation for a switch port. • no shutdown vlan - Starts and enables VLAN switching feature in the switch. • show vlan port config - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.

20.23 switchport ingress-filter

Command Objective	<p>This command enables ingress filtering feature on the port.</p> <p>The ingress filtering is applied for the incoming frames received on the port. Only the incoming frames of the VLANs that have this port in its member list are accepted. This configuration does not affect VLAN-independent BPDU frames such as GVRP BPDU and STP BPDU. It affects only the VLAN-dependent BPDU frames such as GMRP BPDU.</p> <p>The no form of the command disables ingress filtering feature on the port. All incoming frames received on the port are accepted.</p>
Syntax	<pre>switchport ingress-filter no switchport ingress-filter</pre>
Mode	Interface Configuration Mode(Physical / Port Channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	The ingress filtering feature is disabled on the port.
Note:	<ul style="list-style-type: none">• This command is applicable only for the port configured as switch port.• The ingress filtering cannot be configured on the port, if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.• The ingress-filtering feature cannot be configured and is always enabled on the port, if the bridge port type is set as customer network port – S tagged. The bridge port type can be set as CNP-S tagged only in Metro package.
Example	<pre>SEFOS(config-if)# switchport ingress-filter</pre>
Related Command(s)	<ul style="list-style-type: none">• switchport - Configures the port as switch port.• bridge port-type - Configures the bridge port type for an interface.• base bridge-mode dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging.• switchport acceptable-frame-type - Configures the type of VLAN-dependant BPDU frames such as GMRP BPDU, that the port should accept during the VLAN membership configuration.• no shutdown vlan - Starts and enables VLAN switching feature in the switch.• show vlan port config - Displays the VLAN-related port-specific

information for all interfaces available in the switch / all contexts.

20.24 port subnet – vlan

Command Objective	<p>This command enables subnet-based VLAN membership classification in a port. The source IP address in the received packet is matched to a VLAN ID using an administrator configured table to perform VLAN membership classification.</p> <p>The no form of the command disables the subnet-based VLAN membership classification in the port.</p>
Note:	<p>This command is not available for the BCM chipsets. This command is available only if the switch BCMX_WANTED is set as no during the compilation of the exe.</p>
Syntax	<pre>port subnet-vlan no port subnet-vlan</pre>
Mode	Interface Configuration Mode(Physical / Port Channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Subnet-based VLAN membership classification is disabled on all ports.
Note:	<ul style="list-style-type: none">• Subnet-based VLAN membership classification can be enabled or disabled in the ports without depending on the global status of the subnet-based VLAN membership classification.• The change in global subnet-based VLAN membership classification overrides the port membership classification. For example, if the classification in the port is set as enabled while global classification is disabled, and if global classification is changed to enabled and once again to disabled, the classification in the port will be automatically set as disabled.• Subnet-based VLAN membership classification can be enabled or disabled in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<pre>SEFOS(config-if)# port subnet-vlan</pre>
Related Command(s)	<ul style="list-style-type: none">• subnet-vlan - Enables subnet-VLAN-based membership classification on all ports of the switch.• no shutdown vlan - Starts and enables VLAN switching feature in the switch.• show vlan port config - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.• show subnet-vlan mapping - Displays all entries in the subnet map

table.

20.25 switchport priority default

Command Objective	<p>This command configures the default ingress user priority for a port.</p> <p>This priority is assigned to frames received on the port that do not have a priority assigned to it. This priority value is useful only on media such as Ethernet that does not support native user priority. This value ranges from 0 to 7. The value 0 represents the lowest priority and the value 7 represents the highest priority.</p> <p>The no form of the command resets the default ingress user priority for the port to its default value.</p>
Syntax	<pre>switchport priority default <priority value(0-7)> no switchport priority default</pre>
Mode	Interface Configuration Mode (Physical / Port Channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	0
	<p><u>Note:</u></p> <ul style="list-style-type: none">• This command is applicable only for the port configured as switch port.• The default user priority cannot be configured for the port, if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.
Example	<pre>SEFOS(config-if)# switchport priority default 5</pre>
Related Command(s)	<ul style="list-style-type: none">• switchport - Configures the port as switch port.• base bridge-mode dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging.• no shutdown vlan - Starts and enables VLAN switching feature in the switch.• show vlan port config - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.

20.26 switchport mode

Command Objective This command configures the mode of operation for a switch port. This mode defines the way traffic is handled for VLANs.

The no form of the command resets the mode of operation for the switch port to its default value.

Syntax

```
switchport mode { access | trunk | hybrid | {private-vlan  
{promiscuous | host }} | {dynamic {auto | desirable}} }  
  
no switchport mode
```

Parameter Description

- **access** - Configures the port as access port that accepts and sends only untagged frames. This kind of port is added as a member to specific VLANs only and carries traffic only for the VLAN to which the port is assigned. The port can be set as access port, only if the following 3 conditions are met:
 - The GVRP is disabled for that port.
 - Acceptable frame type is set as “untagged AND priority” tagged.
 - Port is a not a tagged member of any VLAN.
- **trunk** - Configures the port as trunk port that accepts and sends only tagged frames. This kind of port is added as member of all existing VLANs and for any new VLAN created, and carries traffic for all VLANs. The trunk port accepts untagged frames too, if the acceptable frame type is set as all. The port can be set as trunk port, only if the port is not a member of untagged ports for any VLAN in the switch.
- **hybrid** - Configures the port as hybrid port that accepts and sends both tagged and untagged frames.
- **private-vlan** - Configures PVLAN for the specified VLAN switch port.
- **promiscuous** - Communicates with all interfaces, including the isolated and community ports within a PVLAN. The function of the promiscuous port is to move traffic between ports in community or isolated VLANs.
- **host** - Specifies the type of a port in private VLAN domain. Untagged member port in a primary or secondary VLAN
 - If a host port is a member port of an isolated VLAN, traffic from the host port is sent only to the promiscuous port of the private VLAN and the trunk port.
 - If a host port is a member port of the community VLAN, traffic from the port can be sent only to other ports of the community VLAN, trunk port, and promiscuous port of the private VLAN.
- **dynamic** - Configures the mode as Dynamic Mode. This can be:
 - **auto** – Interface converts the link to a trunk link.
 - **desirable** – Interface actively attempts to convert the link to a trunk link.

This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.

Mode Interface Configuration Mode (Physical / Port Channel)

Package Workgroup, Enterprise, Metro, and Metro_E

Default hybrid

Note:

- This command is applicable only for the port configured as switch port.
 - The VLAN port mode cannot be configured for the port, if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.
-

Example SEFOS(config-if)# **switchport mode access**

Related Command(s)

- **spanning-tree guard** - Configures the various PVRST guard features such as root guard, in a port.
 - **spanning-tree encap** - Configures the encapsulation type to be used in an interface.
 - **switchport** - Configures the port as switch port.
 - **base bridge-mode dot1q-vlan** - Configures the VLAN operation mode as VLAN-aware bridging.
 - **set port gvrp** - Enables or disables GVRP feature on the specified interface.
 - **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.
 - **switchport acceptable-frame-type** - Configures the type of VLAN-dependant BPDU frames such as GMRP BPDU, that the port should accept during the VLAN membership configuration.
 - **switchport mode dot1q-tunnel** - Enables dot1q-tunneling on the specified interface
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **show vlan port config** - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.
-

20.27 vlan map-priority

Command Objective This command maps an evaluated user priority to a traffic class on a port.

The frame received on the interface with the configured priority is processed in the configured traffic class. Traffic class is used to meet the latency and throughput requirement of time-critical traffic in a LAN environment, where both time-critical and non-time-critical traffic compete for the network bandwidth.

The no form of the command maps the default traffic class to the specified priority value on the port.

Syntax

```
vlan map-priority <priority value(0-7)> traffic-class
<Traffic class value(0-7)>

no vlan map-priority <priority value (0-7)>
```

Parameter Description

- **<priority value(0-7)>** - Configures the priority value to be set for the specified traffic class. This value ranges from 0 to 7. The frames with the configured priority are mapped to the specified traffic class. The priority determined for the received frame is equivalent to the priority indicated in the received tagged frame or one of the evaluated priorities determined based on the media-type. The priority determined is equal to the Default User Priority value for the ingress port, if the untagged frames are received from Ethernet media. The priority determined is equal to the Regen user priority for the ingress port and media-specific user priority, if the untagged frames are received from non-Ethernet media.
- **<Traffic class value(0-7)>** - Configures the traffic class value to which the received frame of specified priority is to be mapped. This value ranges from 0 to 7. Each value represents the concerned traffic. They are:
 - **0 - Best effort.** This represents all kinds of non-detrimental traffic that is not sensitive to QoS metrics such as jitter.
 - **1 - Background.** This represents bulk transfers and other activities that are permitted on the network without impacting the network usage for users and applications.
 - **2 - Standard (spare traffic).** This represents traffic of more importance than background but less importance than excellent load.
 - **3 - Excellent load.** This represents the best effort type service that an information services organization should deliver to its most important customers.
 - **4 - Controlled load.** This represents traffic subject to admission control to assure that the traffic is received even when the network is overloaded.
 - **5 - Interactive voice and video.** This represents traffic having delay less than 100 milli-seconds.
 - **6 - Internetwork control-Layer 3 network control.** This represents traffic having delay less than 10 milli-seconds.
 - **7 - Network control-Layer 2 network control reserved traffic.** This represents traffic that demands special treatment based on its

requirements and relative importance.

The configured traffic class value should be less than the maximum number of traffic classes in the port.

Mode Interface Configuration Mode (Physical / Port Channel)

Package Workgroup, Enterprise, Metro, and Metro_E

Default The default traffic classes that are mapped to the priority is listed below:

Priority	Traffic Class
1	0
2	1
3	3
4	4
5	5
6	6
7	7

Note:

- The default traffic classes mapped to the priority value depends upon the maximum traffic classes supported on the port.
 - The evaluated user priority can be mapped to the traffic class, only if the VLAN switching feature is started and enabled in the switch.
-

Example `SEFOS(config-if)# vlan map-priority 2 traffic-class 2`

- Related Command(s)**
- `vlan max-traffic-class` - Configures the maximum number of traffic classes supported on a port.
 - `no shutdown vlan` - Starts and enables VLAN switching feature in the switch.
 - `show vlan traffic-classes` - Displays the evaluated user priority and traffic class mapping information of all interfaces available in the switch / all contexts.
-

20.28 debug vlan

Command Objective This command enables the tracing of the VLAN sub module as per the configured debug levels. The trace statements are generated for the configured trace levels.

The no form of the command disables the tracing of the VLAN sub module as per the configured debug levels. The trace statements are not generated for the configured trace levels.

This command allows combination of debug levels to be configured (that is, more than one level of trace can be enabled or disabled).

Syntax

```
debug vlan { [{fwd | priority | redundancy}][[initshut]
[mgmt] [data] [ctpl] [dump] [os] [failall] [buffer] [all]]
[switch <context_name>] }[{ <short (0-7)> | alerts |
critical | debugging | emergencies | errors | informational
| notification | warnings ]}

no debug vlan {fwd | priority | redundancy}[[initshut]
[mgmt] [data] [ctpl] [dump] [os] [failall] [buffer] [all]]
[switch <context_name>]
```

Parameter Description

- **fwd** - Sets the submodule as VLAN forward module, for which the tracing is to be done as per the configured debug levels.
 - **priority** - Sets the submodule as VLAN priority module, for which the tracing is to be done as per the configured debug levels.
 - **redundancy** - Sets the submodule as VLAN redundancy module, for which the tracing is to be done as per the configured debug levels.
 - **initshut** - Generates debug statements for init and shutdown traces. This trace is generated on failed initialization and shutting down of VLAN-related entries.
 - **mgmt** - Generates debug statements for management traces. This trace is generated during failure in configuration of any of the VLAN features.
 - **data** - Generates debug statements for data path traces. This trace is generated during failure in packet processing.
 - **ctpl** - Generates debug statements for control path traces. This trace is generated during failure in modification or retrieving of VLAN entries.
 - **dump** - Generates debug statements for packet dump traces. This trace is currently not used in VLAN module.
 - **os** - Generates debug statements for OS resource related traces. This trace is generated during failure in message queues.
-

- **failall** - Generates debug statements for all kind of failure traces.
- **buffer** - Generates debug statements for VLAN buffer-related traces. This trace is currently not used in VLAN module.
- **all** - Generates debug statements for all kinds of traces.
- **switch <context_name>** - Configures the tracing of the VLAN submodule for the specified context. This value represents unique name of the switch context. This value is a string of maximum size 32. This parameter is specific to multiple instance feature.
- **<short (0-7)>** - Generates the debug statements for severity level value. This value ranges from 0 to 7.
- **alerts** - Generates debug statements for immediate action.
- **critical** - Generates debug statements for critical conditions.
- **debugging** - Generates debug statements for debugging messages.
- **emergencies** - Generates debug statements when system is unusable.
- **errors** - Generates debug statements for error conditions.
- **informational** - Generates debug statements for information messages.
- **notification** - Generates debug statements when normal but significant messages.
- **warnings** - Generates debug statements for warning conditions.

Mode	Privileged Exec Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Tracing of the VLAN sub module is disabled.
Note:	The VLAN sub module tracing-related configuration takes effect in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<pre>SEFOS# debug vlan fwd all switch sw1 warnings VLAN_TRC_LVL : 97</pre>
Related Command (s)	<ul style="list-style-type: none"> • no shutdown vlan - Starts and enables VLAN switching feature in the switch. • show debugging - Displays state of each debugging option.

20.29 show vlan

Command Objective	<p>This command displays VLAN entry-related information of all active VLANs and VLANs (that are not active) for which the port details are configured.</p> <p>The information contains the member ports, untagged ports, forbidden ports, VLAN name, and the status of that VLAN entry.</p>
Note:	<p>This command is available only if the switch NPAPI_WANTED is set as <code>no</code> during the compilation of the exe.</p>
Syntax	<p>If switch L2RED_WANTED is set as <code>no</code> during compilation of exe</p> <pre>show vlan [brief id <vlan-range> summary ascending]</pre> <p>If switch L2RED_WANTED is set as <code>yes</code> during compilation of exe</p> <pre>show vlan [{brief id <vlan-range> summary redundancy ascending}]</pre>
Parameter Description	<ul style="list-style-type: none">• brief - Displays the VLAN entry-related information of all active VLANs and VLANs (that are not active) for which the port details are configured.• id <vlan-range> - Displays the VLAN entry-related information for specified VLANs alone. This value denotes the VLAN ID range for which the information needs to be displayed. This value is a string of maximum size 9. For example, the value is provided as 4000-4010 to display the information for VLANs IDs from 4000 to 4010. The information is displayed only for the active VLANs and VLANs (that are not active) for which the port details are configured.• summary - Displays only the total number of VLANs existing in the switch. This includes only the active VLANs and VLANs (that are not active) for which the port details are configured. The VLAN entry-related information is not displayed.• redundancy - Displays the VLAN entry-related information for standby node.• ascending - Displays the VLAN entry-related information in ascending order.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	<p>This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.</p>
Example	<pre>SEFOS# show vlan</pre>

Switch default

Vlan database

Vlan ID : 2
Member Ports : Ex0/2
Untagged Ports : Ex0/2
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 5
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 4098
Member Ports : Ex0/2
Untagged Ports : Ex0/2
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 4099
Member Ports : Ex0/3
Untagged Ports : Ex0/3
Forbidden Ports : None
Name :
Status : Permanent

Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 1
Member Ports : Ex0/1, pw1, ac1
Untagged Ports : Ex0/1
Forbidden Ports : Ex0/2, pw2, ac2
Name : vlan1
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Enabled

Switch sw1

Vlan database

Vlan ID : 1
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x88a8
ServiceType : E-LAN
MacLearning Admin-Status : Default
MacLearning Oper-Status : Disabled
Service Loopback Status : Disabled

Switch sw2

Vlan database

Vlan ID : 1
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :

```
Status                : Permanent
Egress Ethertype      : 0x88a8
ServiceType           : E-LAN
MacLearning Admin-Status : Default
MacLearning Oper-Status  : Disabled
Service Loopback Status : Disabled
```

```
Vlan ID                : 100
Member Ports           : Ex0/7
Untagged Ports         : None
Forbidden Ports        : None
Name                   :
Status                 : Permanent
Egress Ethertype      : 0x88a8
ServiceType           : E-LINE
MacLearning Admin-Status : Default
MacLearning Oper-Status  : Disabled
Service Loopback Status : Disabled
```

```
Switch sw3
Vlan database
-----
Vlan ID                : 1
Member Ports           : Ex0/10
Untagged Ports         : Ex0/10
Forbidden Ports        : None
Name                   :
Status                 : Permanent
Egress Ethertype      : 0x8100
Service Loopback Status : Disabled
```

SEFOS# show vlan brief

Switch default

Vlan database

Vlan ID : 2
Member Ports : Ex0/2
Untagged Ports : Ex0/2
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 5
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 4098
Member Ports : Ex0/2
Untagged Ports : Ex0/2
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 4099
Member Ports : Ex0/3
Untagged Ports : Ex0/3
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 1

Member Ports : Ex0/1, pw1, ac1
Untagged Ports : Ex0/1
Forbidden Ports : Ex0/2, pw2, ac2
Name : vlan1
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Enabled

Switch sw1

Vlan database

Vlan ID : 1
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x88a8
ServiceType : E-LAN
MacLearning Admin-Status : Default
MacLearning Oper-Status : Disabled
Service Loopback Status : Disabled

Switch sw2

Vlan database

Vlan ID : 1
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x88a8
ServiceType : E-LAN

```
MacLearning Admin-Status : Default
MacLearning Oper-Status  : Disabled
Service Loopback Status  : Disabled
```

```
Vlan ID          : 100
Member Ports     : Ex0/7
Untagged Ports   : None
Forbidden Ports  : None
Name             :
Status           : Permanent
Egress Ethertype : 0x88a8
ServiceType      : E-LINE
MacLearning Admin-Status : Default
MacLearning Oper-Status  : Disabled
Service Loopback Status  : Disabled
```

Switch sw3

Vlan database

```
Vlan ID          : 1
Member Ports     : Ex0/10
Untagged Ports   : Ex0/10
Forbidden Ports  : None
Name             :
Status           : Permanent
Egress Ethertype : 0x8100
Service Loopback Status  : Disabled
```

SEFOS# show vlan summary

```
Switch default
Number of vlans : 5
```

```
Switch sw1
Number of vlans : 1
```

Switch sw2
Number of vlans : 2

Switch sw3
Number of vlans : 1

SEFOS # show vlan ascending

Switch default

Vlan database

Vlan ID : 1
Member Ports : Ex0/1, pw1, ac1
Untagged Ports : Ex0/1
Forbidden Ports : Ex0/2, pw2, ac2
Name : vlan1
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Enabled

Vlan ID : 2
Member Ports : Ex0/2
Untagged Ports : Ex0/2
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Vlan ID : 5
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

```
Vlan ID          : 4098
Member Ports     : Ex0/2
Untagged Ports   : Ex0/2
Forbidden Ports  : None
Name             :
Status           : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled
```

```
Vlan ID          : 4099
Member Ports     : Ex0/3
Untagged Ports   : Ex0/3
Forbidden Ports  : None
Name             :
Status           : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled
```

Switch sw1

Vlan database

```
-----
Vlan ID          : 1
Member Ports     : None
Untagged Ports   : None
Forbidden Ports  : None
Name             :
Status           : Permanent
Egress Ethertype : 0x88a8
ServiceType      : E-LAN
MacLearning Admin-Status : Default
MacLearning Oper-Status  : Disabled
Service Loopback Status  : Disabled
```

Switch sw2

Vlan database

Vlan ID : 1
Member Ports : None
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x88a8
ServiceType : E-LAN
MacLearning Admin-Status : Default
MacLearning Oper-Status : Disabled
Service Loopback Status : Disabled

Vlan ID : 100
Member Ports : Ex0/7
Untagged Ports : None
Forbidden Ports : None
Name :
Status : Permanent
Egress Ethertype : 0x88a8
ServiceType : E-LINE
MacLearning Admin-Status : Default
MacLearning Oper-Status : Disabled
Service Loopback Status : Disabled

Switch sw3

Vlan database

Vlan ID : 1
Member Ports : Ex0/10
Untagged Ports : Ex0/10
Forbidden Ports : None

Name :
Status : Permanent
Egress Ethertype : 0x8100
Service Loopback Status : Disabled

Related Command(s)

- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **vlan** - Creates a VLAN in the SEFOS and enters into the config-VLAN mode in which VLAN-specific configurations are done.
 - **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.
 - **vlan active** - Activates a VLAN in the switch.
 - **vlan egress ether-type** - Sets the VLAN egress ethertype.
 - **vlan name** - Configures name for the VLAN.
 - **vlan loopback** - Sets the loopback status for the VLAN.
-

20.30 show vlan device info

Command Objective This command displays the VLAN global information that is applicable to all VLANs created in the switch / all contexts.

The information contains VLAN status, VLAN oper status, GVRP status, GMRP status, GVRP oper status, GMRP oper status, MAC-VLAN status, subnet-VLAN status, protocol-VLAN status, bridge mode of the switch, VLAN base bridge mode, VLAN traffic class status, VLAN learning mode, VLAN version number, maximum VLAN ID supported, maximum number of VLANs supported, and VLAN unicast MAC learning limit.

Syntax `show vlan device info`

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example **Single Instance:**

```
SEFOS# show vlan device info
```

```
Vlan device configurations
```

```
-----  
Vlan Status : Enabled  
Vlan Oper status : Enabled  
Gvrp status : Disabled  
Gmrp status : Disabled  
Gvrp Oper status : Disabled  
Gmrp Oper status : Disabled  
Mac-Vlan Status : Disabled  
Subnet-Vlan Status : Disabled  
Protocol-Vlan Status : Enabled  
Bridge Mode : Provider Edge Bridge  
Base-Bridge Mode : Vlan Aware Bridge  
Traffic Classes : Enabled  
Vlan Operational Learning Mode : IVL  
Hybrid Default Learning Mode : IVL  
Version number : 1  
Max Vlan id : 4158
```

```
Max supported vlans           : 4160
Global mac learning status    : Enabled
Filtering Utility Criteria    : Enabled
Unicast mac learning limit    : 768
```

Multiple Instance:

SEFOS# show vlan device info

Switch default

Vlan device configurations

```
-----
Vlan Status                   : Enabled
Vlan Oper status              : Enabled
Gvrp status                   : Disabled
Gmrp status                   : Disabled
Gvrp Oper status              : Disabled
Gmrp Oper status              : Disabled
Mac-Vlan Status               : Disabled
Subnet-Vlan Status            : Disabled
Protocol-Vlan Status          : Enabled
Bridge Mode                   : Provider Edge Bridge
Base-Bridge Mode              : Vlan Aware Bridge
Traffic Classes                : Enabled
Vlan Operational Learning Mode : IVL
Hybrid Default Learning Mode  : IVL
Version number                 : 1
Max Vlan id                    : 4158
Max supported vlans           : 4160
Global mac learning status    : Enabled
Filtering Utility Criteria    : Enabled
Unicast mac learning limit    : 768
```

Related Command(s)

- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **set vlan** - Globally enables or disables VLAN feature in the switch (that is the status of the VLAN feature is configured for all ports of the switch).
 - **set gvrp** - Globally enables or disables GVRP feature on all ports of a switch.
 - **set gmrp** - Globally enables or disables GMRP feature on all ports of a
-

switch.

- **mac-vlan** - Enables MAC-based VLAN membership classification on all ports of the switch.
 - **subnet-vlan** - Enables subnet-VLAN-based membership classification on all ports of the switch.
 - **protocol-vlan** - Enables protocol-VLAN-based membership classification on all ports of the switch.
 - **bridge-mode** - Configures the bridge mode of the switch.
 - **base bridge-mode** - Configures the base mode (either 802.1d transparent bridge mode or 802.1q VLAN-aware bridge mode) in which the VLAN feature should operate on the switch.
 - **set vlan traffic-classes** - Enables or disables traffic class feature in a switch on all ports.
 - **vlan learning mode** - Configures the VLAN learning mode to be applied for all ports of the switch.
 - **unicast-mac learning limit** - Configures the unicast-MAC learning limit for a switch.
 - **set filtering-utility-criteria** - Sets the filtering utility criteria to be applied on all ports.
-

20.31 show vlan device capabilities

Command Objective	This command displays only the list of VLAN features such as traffic class feature, supported in the switch / all contexts.
Syntax	show vlan device capabilities
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
<u>Note:</u>	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<p>Single Instance:</p> <pre>SEFOS# show vlan device capabilities Vlan device capabilities ----- Extended filtering services Traffic classes Static Entry Individual port IVL capable SVL capable Hybrid capable Configurable Pvid Tagging</pre> <p>Multiple Instance:</p> <pre>SEFOS# show vlan device capabilities Switch - default Vlan device capabilities ----- Extended filtering services Traffic classes Static Entry Individual port IVL capable SVL capable Hybrid capable Configurable Pvid Tagging Switch - cust1</pre>

Vlan device capabilities

Extended filtering services

Traffic classes

Static Entry Individual port

IVL capable

SVL capable

Hybrid capable

Configurable Pvid Tagging

Related Command(s)

- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.

20.32 show fid

Command Objective	This command displays the FID VLAN mapping information of all FIDs in the switch / all contexts. This information contains the FID and the ID of the VLAN that is mapped to the FID.
Note:	This command is available only if either the switch NPAPI_WANTED is set as no or switch NPSIM_WANTED is set as yes , during the compilation of the exe.
Syntax	<code>show fid [<integer(1-4094)> detail]</code>
Parameter Description	<ul style="list-style-type: none">• <integer(1-4094)> - Displays the FID VLAN mapping information of the specified FID and the default hybrid learning mode configured in the switch / all contexts.• detail - Displays the FID VLAN mapping information of all FIDs in the switch / all contexts and the default hybrid learning mode configured in the switch / all contexts.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<p>Single Instance:</p> <pre>SEFOS# show fid 2 Default Learning Type : IVL Fid Vlan mapping information ----- Fid : 2 Vlan's : 2, -----</pre> <p>Multiple Instance:</p> <pre>SEFOS# show fid 2 Switch - default Default Learning Type : IVL Fid Vlan mapping information ----- Fid : 2 Vlan's : 2,</pre>

```
Switch - cust1
Default Learning Type      : IVL
Fid Vlan mapping information
-----
Fid      : 2
Vlan's   : 2,
-----
```

Related Command(s)

- **fid** - Configures a VLAN or a list of VLANs to use a filtering database for making forwarding decisions.
 - **vlan default hybrid type** - Configures the default hybrid learning mode for all VLANs when the operational learning mode of the switch is globally set as hybrid.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.33 show forward-all

Command Objective This command displays all entries in the VLAN forward-all table. These entries contain forward-all details of all active VLANs in the switch. The details have VLAN ID and information regarding forward-all ports, forward-all static ports and forward-all forbidden ports assigned to the VLAN.

Note: This command is available only if either the switch NPAPI_WANTED is set as **no** or switch NPSIM_WANTED is set as **yes**, during the compilation of the exe.

Syntax `show forward-all`

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example

Single Instance:

```
SEFOS# show forward-all
Vlan Forward All Table
-----
Vlan ID : 1
ForwardAll Ports           : Ex0/2
ForwardAll Static Ports    : Ex0/2
ForwardAll ForbiddenPorts  : Ex0/1
-----
```

```
Vlan ID : 2
ForwardAll Ports           : Ex0/1
ForwardAll Static Ports    : Ex0/1
ForwardAll ForbiddenPorts  : Ex0/2
-----
```

Multiple Instance:

```
SEFOS# show forward-all
Switch - default
Vlan Forward All Table
-----
Vlan ID : 1
ForwardAll Ports           : Ex0/2
```

ForwardAll Static Ports : Ex0/2

ForwardAll ForbiddenPorts : Ex0/1

Vlan ID : 2

ForwardAll Ports : Ex0/1

ForwardAll Static Ports : Ex0/1

ForwardAll ForbiddenPorts : Ex0/2

Related Command(s)

- **vlan active** - Activates a VLAN in the switch.
 - **forward-all** - Configures the forward-all port details for a VLAN to specify the ports that forward or do not forward all multicast group-addressed frames.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.34 show forward-unregistered

Command Objective This command displays all entries in the VLAN forward-unregistered table. These entries contain forward-unregistered port details of all active VLANs in the switch. The details have VLAN ID and information regarding unregistered ports, unregistered static ports, and unregistered forbidden ports assigned to the VLAN.

Note: This command is available only if either the switch NPAPI_WANTED is set as **no** or switch NPSIM_WANTED is set as **yes**, during the compilation of the exe.

Syntax `show forward-unregistered`

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example

Single Instance:

```
SEFOS# show forward-unregistered
```

```
Vlan Forward Unregistered Table
```

```
-----  
Vlan ID : 1  
Unreg ports           : Ex0/1  
Unreg Static Ports    : Ex0/1  
Unreg Forbidden Ports : Ex0/2  
-----
```

```
Vlan ID : 2  
Unreg ports           : Ex0/2  
Unreg Static Ports    : Ex0/2  
Unreg Forbidden Ports : Ex0/1  
-----
```

Multiple Instance:

```
SEFOS# show forward-unregistered
```

```
Switch - default
```

```
Vlan Forward Unregistered Table
```

```
-----  
Vlan ID : 1  
-----
```

```

-----
Unreg ports           : Ex0/49
Unreg Static Ports   : Ex0/49
Unreg Forbidden Ports : None
-----

Switch - cust1
Vlan Forward Unregistered Table
-----

Vlan ID : 1
Unreg ports           : Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5,
Ex0/6
Unreg Static Ports   : Ex0/1, Ex0/2, Ex0/3, Ex0/4, Ex0/5,
Ex0/6
Unreg Forbidden Ports : None
-----

Vlan ID : 20
Unreg ports           : Ex0/1
Unreg Static Ports   : Ex0/1
Unreg Forbidden Ports : None
-----

Vlan ID : 30
Unreg ports           : Ex0/2
Unreg Static Ports   : Ex0/2
Unreg Forbidden Ports : None
-----

```

Related Command(s)

- **vlan active** - Activates a VLAN in the switch.
 - **forward-unregistered** - Configures the forward-unregistered port details for a VLAN to specify the ports that forward or do not forward multicast group-addressed frames for which no more specific forwarding information applies.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.35 show vlan traffic-classes

Command Objective	This command displays the evaluated user priority and traffic class mapping information of all interfaces available in the switch / all contexts.									
Syntax	<pre>show vlan traffic-classes [{port <interface-type> <interface-id> switch <context_name>}]</pre>									
Parameter Description	<ul style="list-style-type: none">• port - Displays the evaluated user priority and traffic class mapping information of the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• i-lan – Internal LAN created on a bridge per IEEE 802.1ap.▪ <interface-id> - Sets the interface identifier. 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. Only i-lan ID is provided, for interface type i-lan.• switch <context_name> - Displays the evaluated user priority and traffic class mapping information of all interfaces, for the specified context. This value represents unique name of the switch context. This value is a string whose maximum size is 32. This parameter is specific to multiple instance feature.									
Mode	Privileged EXEC Mode									
Package	Workgroup, Enterprise, Metro, and Metro_E									
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.									
Example	<p>Single Instance:</p> <pre>SEFOS# show vlan traffic-classes</pre> <p>Traffic Class table</p> <pre>-----</pre> <table><thead><tr><th>Port</th><th>Priority</th><th>Traffic Class</th></tr></thead><tbody><tr><td>Ex0/1</td><td>0</td><td>2</td></tr><tr><td>Ex0/1</td><td>1</td><td>0</td></tr></tbody></table>	Port	Priority	Traffic Class	Ex0/1	0	2	Ex0/1	1	0
Port	Priority	Traffic Class								
Ex0/1	0	2								
Ex0/1	1	0								

```

-----
Ex0/1    2      1
Ex0/1    3      3
Ex0/1    4      4
Ex0/1    5      5
Ex0/1    6      6
Ex0/1    7      7
Ex0/2    0      2
Ex0/2    1      0
Ex0/2    2      1
Ex0/2    3      3
Ex0/2    4      4
Ex0/2    5      5
Ex0/2    6      6
Ex0/2    7      7

```

Multiple Instance:

SEFOS# show vlan traffic-classes

Switch - default

Traffic Class table

```

-----
Port      Priority  Traffic Class
-----
Ex0/49    0        2
Ex0/49    1        0
Ex0/49    2        1
Ex0/49    3        3
Ex0/49    4        4
Ex0/49    5        5
Ex0/49    6        6
Ex0/49    7        7

```

Switch - cust1

Traffic Class table

```

-----
Port      Priority  Traffic Class
-----
Ex0/1    0        2
Ex0/1    1        0
Ex0/1    2        1

```

Ex0/1	3	3
Ex0/1	4	4
Ex0/1	5	5
Ex0/1	6	6
Ex0/1	7	7
Ex0/2	0	2
Ex0/2	1	0
Ex0/2	2	1
Ex0/2	3	3
Ex0/2	4	4
Ex0/2	5	5
Ex0/2	6	6
Ex0/2	7	7

Related Command(s)

- **vlan map-priority** - Maps an evaluated user priority to a traffic class on a port.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.36 show vlan port config

Command Objective	This command displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts. The information contains PVID, acceptable frame type, port mode, filtering utility criteria, default priority value and status of ingress filtering feature, GVRP module, GMRP module, restricted VLAN registration feature, restricted group registration feature, MAC-based VLAN membership, subnet-based VLAN membership, protocol-VLAN-based membership and port protected feature.
Syntax	<pre>show vlan port config [{port <interface-type> <interface-id> switch <context_name>}]</pre>
Parameter Description	<ul style="list-style-type: none">• port - Displays the VLAN-related port-specific information for the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.• virtual – Virtual Interface. This value ranges from 1 to 65535.▪ <interface-id> - Sets the interface identifier. 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 internal-lan, virtual, and port-channel. Only i-lan , virtual or port-channel ID is provided, for interface types internal-lan, virtual, and port-channel.• switch <context_name> - Displays the VLAN-related port-specific information, for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
	<p><u>Note:</u> This command executes only if the VLAN switching feature is started and enabled in the switch.</p>
Example	Single Instance:

SEFOS# show vlan port config

Vlan Port configuration table

Port Ex0/1

Port Vlan ID	: 1
Port Acceptable Frame Type	: Admit All
Port Ingress Filtering	: Disabled
Port Mode	: Hybrid
Port Gvrp Status	: Enabled
Port Gmrp Status	: Enabled
Port Gvrp Failed Registrations	: 0
Gvrp last pdu origin	: 00:00:00:00:00:00
Port Restricted Vlan Registration	: Disabled
Port Restricted Group Registration	: Disabled
Mac Based Support	: Disabled
Subnet Based Support	: Disabled
Port-and-Protocol Based Support	: Enabled
Default Priority	: 0
Filtering Utility Criteria	: Default
Port Protected Status	: Disabled
Ingress EtherType	: 0x8100
Egress EtherType	: 0x8100
Egress TPID Type	: Portbased
Allowable TPID 1	: 0x0
Allowable TPID 2	: 0x0
Allowable TPID 3	: 0x0

Port Ex0/2

Port Vlan ID	: 1
Port Acceptable Frame Type	: Admit All
Port Ingress Filtering	: Disabled
Port Mode	: Hybrid
Port Gvrp Status	: Enabled
Port Gmrp Status	: Enabled
Port Gvrp Failed Registrations	: 0
Gvrp last pdu origin	: 00:00:00:00:00:00
Port Restricted Vlan Registration	: Disabled

```

-----
Port Restricted Group Registration : Disabled
Mac Based Support                 : Disabled
Subnet Based Support              : Disabled
Port-and-Protocol Based Support   : Enabled
Default Priority                   : 0
Filtering Utility Criteria        : Default
Port Protected Status             : Disabled
Ingress EtherType                 : 0x8100
Egress EtherType                  : 0x8100
Egress TPID Type                  : Portbased
Allowable TPID 1                  : 0x0
Allowable TPID 2                  : 0x0
Allowable TPID 3                  : 0x0
-----

```

Multiple Instance:

SEFOS# show vlan port config

Switch default

Vlan Port configuration table

```

-----
Port Ex0/1
Bridge Port Type                  : Customer Bridge Port
Port Vlan ID                      : 1
Port Acceptable Frame Type        : Admit All
Port Mac Learning Status          : Enabled
Port Ingress Filtering            : Disabled
Port Mode                         : Hybrid
Port Gvrp Status                  : Enabled
Port Gmrp Status                  : Enabled
Port Gvrp Failed Registrations    : 0
Gvrp last pdu origin              : 00:00:00:00:00:00
Port Restricted Vlan Registration  : Disabled
Port Restricted Group Registration : Disabled
Mac Based Support                 : Disabled
Subnet Based Support              : Disabled
Port-and-Protocol Based Support   : Enabled
Default Priority                   : 0
-----

```

```

Dot1x Protocol Tunnel Status      : Peer
LACP Protocol Tunnel Status      : Peer
Spanning Tree Tunnel Status      : Peer
MVRP Protocol Tunnel Status      : Peer
MMRP Protocol Tunnel Status      : Peer
GVRP Protocol Tunnel Status      : Peer
GMRP Protocol Tunnel Status      : Peer
IGMP Protocol Tunnel Status      : Peer
Filtering Utility Criteria       : Default
Port Protected Status           : Disabled
Ingress EtherType               : 0x8100
Egress EtherType                : 0x8100
Egress TPID Type                : Portbased
Allowable TPID 1                : 0x0
Allowable TPID 2                : 0x0
Allowable TPID 3                : 0x0

```

Related Command(s)

- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **switchport pvid** - Configures the PVID on the specified port.
 - **switchport acceptable-frame-type** - Configures the type of VLAN-dependant BPDU frames such as GMRP BPDU, that the port should accept during the VLAN membership configuration.
 - **switchport ingress-filter** - Enables ingress filtering feature on the port.
 - **switchport mode** - Configures the mode of operation for a switch port.
 - **set port gvrp** - Enables or disables GVRP feature on the specified interface.
 - **set port gmrp** - Enables or disables GMRP feature on the specified interface.
 - **vlan restricted** - Configures the restricted VLAN registration feature in a port.
 - **group restricted** - Configures the restricted group registration feature in a port.
 - **port mac-vlan** - Enables MAC-based VLAN membership classification in a port.
-

-
- **port subnet - vlan** - Enables subnet-based VLAN membership classification in a port.
 - **port protocol-vlan** - Enables protocol-VLAN-based membership classification in a port.
 - **switchport priority default** - Configures the default ingress user priority for a port.
 - **switchport filtering-utility-criteria** - Creates filtering utility criteria for the port.
 - **switchport protected** - Enables switchport protection feature for a port.
 - **switchport egress TPID-type** - Sets the egress TPID-type for the port.
 - **switchport encapsulation** - Configures standard or user-defined TPID for a port.
 - **switchport [dot1q] ether-type** - Configures port Ingress or Egress ethertype
-

20.37 show vlan protocols-group

Command Objective This command displays all entries in the protocol group table. These entries contain protocol group information of the switch / all contexts. The information contains ID of a group, protocol assigned to the group, and frame type assigned to the group.

Syntax `show vlan protocols-group`

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example

Single Instance:

```
SEFOS# show vlan protocols-group
```

```
Protocol Group Table
```

```
-----
```

```
-----  
Frame Type      Protocol          Group  
-----  
Enet-v2         IP                1  
Snap            Novell            2  
-----
```

```
-----  
Enet-v2         IP                1  
Snap            Novell            2  
-----
```

Multiple Instance:

```
SEFOS# show vlan protocols-group
```

```
Switch - default
```

```
Protocol Group Table
```

```
-----
```

```
-----  
Frame Type      Protocol          Group  
-----  
Enet-v2         IP                1  
Snap            Novell            2  
-----
```

```
-----  
Enet-v2         IP                1  
Snap            Novell            2  
-----
```

Related Command(s)

- `map protocol` - Creates a protocol group with a specific protocol and encapsulation frame type combination.
-

-
- `no shutdown vlan` - Starts and enables VLAN switching feature in the switch.
-

20.38 show protocol-vlan

Command Objective This command displays all entries in the port protocol table. These entries contain VLAN-protocol group mapping information of the switch / all contexts. The information contains ID of a group, ID of a VLAN mapped to the group, and ID of interface to which the VLAN-protocol group mapping is assigned.

Syntax `show protocol-vlan`

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example

Single Instance:

```
SEFOS# show protocol-vlan
```

```
Port Protocol Table
```

```
-----  
Port           Group      Vlan ID  
-----  
Ex0/2          1          2  
Ex0/1          2          3  
-----
```

Multiple Instance:

```
SEFOS# show protocol-vlan
```

```
Switch - default
```

```
Port Protocol Table
```

```
-----  
Port           Group      Vlan ID  
-----  
Ex0/2          1          2  
Ex0/1          2          3  
-----
```

Related Command

- `switchport map protocols-group` - Maps the configured protocol group to a particular VLAN ID for an interface.
 - `no shutdown vlan` - Starts and enables VLAN switching feature in the switch.
-

20.39 show mac-vlan

Command Objective	This command displays all entries in the MAC map table. These entries contain MAC-VLAN mapping details configured for the interfaces available in the switch / all contexts. The details contain MAC address, ID of VLAN that is mapped to the MAC address, multicast and broadcast status, and MAC-based VLAN membership status.
Syntax	<code>show mac-vlan [{interface <interface-type> <interface-id>}]</code>
Parameter Description	<ul style="list-style-type: none">• interface - Displays all entries in the MAC map table for the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<p>Single Instance:</p> <pre>SEFOS# show mac-vlan interface extreme-ethernet 0/1 Mac Map Table For Port 1--Mac Vlan Disabled ----- Mac Address Vlan ID MCast/Bcast ----- 00:11:11:11:11:11 1 discard</pre>

```
00:22:22:22:22:22    1          allow
```

Multiple Instance:

```
SEFOS# show mac-vlan switch cust1
```

```
Switch - cust1
```

```
Mac Map Table
```

```
-----
```

```
Mac Address          Vlan ID
```

```
-----
```

```
00:11:22:33:44:55    2
```

Related Command(s)

- **mac-vlan** - Enables MAC-based VLAN membership classification on all ports of the switch.
 - **port mac-vlan** - Enables MAC-based VLAN membership classification in a port.
 - **mac-map** - Configures the VLAN-MAC address mapping that is used only for MAC-based VLAN membership classification.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.40 show subnet vlan mapping

Command Objective	This command displays all entries in the subnet map table. These entries contain VLAN-IP subnet address mapping details configured for the interfaces available in the switch / all contexts. The details contain subnet address, ID of VLAN that is mapped to the subnet address, ARP status, and subnet-based VLAN membership status.
Syntax	<p>If switch BCMX_WANTED is set as <code>no</code> during compilation of exe:</p> <pre>show subnet-vlan mapping [{interface <interface-type> <interface-id> switch <string(32)>}]</pre> <p>If switch BCMX_WANTED is set as <code>yes</code> during compilation of exe:</p> <pre>show subnet-vlan mapping [switch <string(32)>]</pre>
Parameter Description	<ul style="list-style-type: none">• interface - Displays all entries in the subnet map table for the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.• switch <string(32)> - Displays all entries in the subnet map table, for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
<u>Note:</u>	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example**Single Instance****SEFOS# show subnet-vlan mapping**

Subnet Map Table For Port 1--Subnet Vlan Enabled

```
-----  
Source IP      Subnet Mask      Vlan ID      ARP Traffic  
-----  
1.1.1.1        255.0.0.0        4150         allow
```

Multiple Instance**SEFOS# show subnet-vlan mapping**

Switch default

Subnet Map Table For Port 1--Subnet Vlan Enabled

```
-----  
Source IP      Subnet Mask      Vlan ID      ARP Traffic  
-----  
1.1.1.1        255.0.0.0        4150         allow
```

Related Command(s)

- **port subnet - vlan** - Enables subnet-based VLAN membership classification in a port.
 - **subnet-vlan** - Enables subnet-VLAN-based membership classification on all ports of the switch.
 - **map subnet** - Configures VLAN-IP subnet address mapping that is used only for subnet-VLAN-based membership classification.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.41 show vlan counters

Command Objective	This command displays the VLAN traffic statistics for all VLANs (for which the member port details are configured) available in the switch / all contexts. The details include VLAN ID, number of valid frames received in the interface from the VLAN, number of valid frames transmitted through the interface to the VLAN, and number of frames discarded.
Syntax	<code>show vlan counters [vlan <vlan-range>]</code>
Parameter Description	<ul style="list-style-type: none">vlan <vlan-range> - Displays the VLAN traffic statistics for specified VLANs alone. This value denotes the VLAN ID range for which the details need to be displayed. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to display the details for VLAN IDs from 4000 to 4010. The details are displayed only for the VLANs for which the member port details are configured.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	<ul style="list-style-type: none">This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.This command is available only if either the switch NPAPI_WANTED is set as no or switch NPSIM_WANTED is set as yes, during the compilation of the exe.
Example	<p>Single Instance:</p> <pre>SEFOS# show vlan counters Port Vlan statistics ----- Port Ex0/1 Vlan ID : 1 In frames : 342 Out frames : 345 Discards : 0 Port Ex0/1 Vlan ID : 2 In frames : 446 Out frames : 248 Discards : 0 Port Ex0/2</pre>

```
Vlan ID      : 2
In frames    : 115
Out frames   : 517
Discards     : 7
```

```
Port Ex0/2
```

```
Vlan ID      : 2
In frames    : 0
Out frames   : 0
Discards     : 0
```

Multiple Instance:

SEFOS# show vlan counters

Switch - default

Port Vlan statistics

```
Port Ex0/49
```

```
Vlan ID      : 1
In frames    : 75
Out frames   : 0
Discards     : 0
```

Switch - cust1

Port Vlan statistics

```
Port Ex0/1
```

```
Vlan ID      : 1
In frames    : 0
Out frames   : 0
Discards     : 0
```

```
Port Ex0/1
```

```
Vlan ID      : 20
In frames    : 0
Out frames   : 0
Discards     : 0
```

```
Port Ex0/2
```

```
Vlan ID      : 1
```

```
In frames : 70
Out frames : 0
Discards : 0
```

```
Port Ex0/2
Vlan ID : 30
In frames : 0
Out frames : 0
Discards : 2
```

Related Command(s)

- **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.42 show vlan statistics

Command Objective	<p>This command displays the unicast and broadcast statistics of all active VLANs and VLANs (that are not active) for which the port details are configured.</p> <p>The statistics include VLAN ID, number of unicast packets received in the VLAN, number of multicast and broadcast packets received in the VLAN, number of unknown unicast packets flooded in the VLAN, number of known unicast packets forwarded in the VLAN, and number of known broadcast packets forwarded in the VLAN.</p>
Syntax	<pre>show vlan statistics [vlan <vlan-range>]</pre>
Parameter Description	<ul style="list-style-type: none">vlan <vlan-range> - Displays the unicast and broadcast statistics for specified VLANs alone. This value denotes the VLAN ID range for which the details need to be displayed. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to display the details for VLAN IDs from 4000 to 4010. The details are displayed only for the VLANs that are activated and VLANs (that are not active) for which the port details are configured.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<p>Single Instance</p> <pre>SEFOS# show vlan statistics vlan 1 Software Statistics Enabled Unicast/broadcast Vlan statistics ----- Vlan Id : 1 Unicast frames received : 0 Mcast/Bcast frames received : 0 Unknown Unicast frames flooded : 0 Unicast frames transmitted : 0 Broadcast frames transmitted : 0 Vlan Statistics Collection is Disabled -----</pre> <p>Multiple Instance</p> <pre>SEFOS# show vlan statistics</pre>

```

-----
Switch default
Software Statistics Enabled

Unicast/broadcast Vlan statistics
-----
Vlan Id                : 1
Unicast frames received : 0
Mcast/Bcast frames received : 0
Unknown Unicast frames flooded : 0
Unicast frames transmitted : 0
Broadcast frames transmitted : 0
Vlan Statistics Collection is Disabled
-----
Vlan Id                : 3
Unicast frames received : 0
Mcast/Bcast frames received : 0
Unknown Unicast frames flooded : 0
Unicast frames transmitted : 0
Broadcast frames transmitted : 0
Vlan Statistics Collection is Disabled
-----
Vlan Id                : 20
Unicast frames received : 0
Mcast/Bcast frames received : 0
Unknown Unicast frames flooded : 0
Unicast frames transmitted : 0
Broadcast frames transmitted : 0
Vlan Statistics Collection is Enabled
-----

```

Related Command(s)

- **vlan active** - Activates a VLAN in the switch.
 - **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.
 - **clear vlan statistics** - Clears VLAN counters that maintain statistics information on a per VLAN basis. The counter is cleared for all available VLANs or for the specified VLAN.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the
-

switch.

- **set sw-stats** - Sets the software statistics collection globally in the switch.
 - **set vlan counter** - Enables or disables the statistics collection for the specified VLAN.
-

20.43 show vlan learning params

Command Objective	This command displays the VLAN learning parameter details for all active VLANs and VLANs (that are not active) for which the port details are configured, available in all contexts / in the switch. The details include admin status of unicast MAC learning feature and value representing MAC learning limit, and operational status of learning feature.
Syntax	<code>show vlan learning params [vlan <vlan-range>]</code>
Parameter Description	<ul style="list-style-type: none">vlan <vlan-range> - Displays the VLAN learning parameter details for specified VLANs alone. This value denotes the VLAN ID range for which the details need to be displayed. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to display the details for VLAN IDs from 4000 to 4010. The details are displayed only for the VLANs that are activated and VLANs (that are not active) for which the port details are configured.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<p>Single Instance</p> <pre>SEFOS# show vlan learning params Unicast MAC Learning Paramters ----- Vlan Id : 1 Mac Learning Admin-Status : Enable Mac Learning Oper-Status : Enable Mac Learning Limit : 150 -----</pre> <p>Multiple Instance</p> <pre>SEFOS# show vlan learning params Switch default Unicast MAC Learning Paramters ----- Vlan Id : 1 Mac Learning Admin-Status : Enable Mac Learning Oper-Status : Disable -----</pre>

Mac Learning Limit : 1500

Switch switch1

Unicast MAC Learning Paramters

Vlan Id : 1

Mac Learning Admin-Status : Enable

Mac Learning Oper-Status : Disable

Mac Learning Limit : 1500

Vlan Id : 2

Mac Learning Admin-Status : Enable

Mac Learning Oper-Status : Enable

Mac Learning Limit : 1500

Related Command(s)

- **vlan active** - Activates a VLAN in the switch.
 - **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.
 - **set unicast-mac learning** - Enables or disables unicast-MAC learning feature for a VLAN.
 - **vlan unicast-mac learning limit** - Configures the unicast-MAC learning limit for a VLAN.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

show mac-address-table

Command Objective This command displays all static and dynamic unicast and multicast MAC entries created in the MAC address table. These entries contain VLAN ID, unicast and multicast MAC address, unicast backbone MAC address of peer backbone edge bridge, member ports, the type of entry (that is static, learned and so on), and total number of entries displayed.

Syntax

If switch L2RED_WANTED is set as `no` during compilation of exe:

```
show mac-address-table [vlan <vlan-range>] [address  
<aa:aa:aa:aa:aa:aa>] [{interface <interface-type>  
<interface-id>}]
```

If switch L2RED_WANTED is set as `yes` during compilation of exe:

```
show mac-address-table {[vlan <vlan-range>] [address  
<aa:aa:aa:aa:aa:aa>] [{interface <interface-type>  
<interface-id> }]} | [redundancy] }
```

Parameter Description

- **vlan <vlan-range>** - Displays all static and dynamic unicast and multicast MAC entries created in the MAC address table for the specified VLANs alone. This value denotes the VLAN ID range for which the entries need to be displayed. This value is a string with the maximum size as 9. For example, the value is provided as 4000-4010 to display the entries for VLAN IDs from 4000 to 4010.
- **address <aa:aa:aa:aa:aa:aa>** - Displays all static and dynamic unicast and multicast MAC entries created in the MAC address table for the specified unicast and multicast MAC address.
- **interface** - Displays all static and dynamic unicast and multicast MAC entries for the specified interface. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<interface-id>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.

- **redundancy** - Displays all static and dynamic unicast and multicast MAC entries for standby node.

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example

Single Instance

SEFOS# **show mac-address-table**

Vlan	Mac Address	Type	ConnectionId	Ports
1	00:10:00:00:00:07	Learnt		Ex0/1
2	00:10:00:01:02:03	Learnt		Ex0/1

Total Mac Addresses displayed: 2

Multiple Instance

SEFOS# **show mac-address-table**

Switch default

Vlan	Mac Address	Type	ConnectionId	PwIndex	Ports
1	00:10:00:00:00:07	Learnt		-	Ex0/4

Total Mac Addresses displayed: 1

Switch sw1

Vlan	Mac Address	Type	ConnectionId	PwIndex	Ports
2	00:10:00:01:02:03	Learnt		-	Ex0/1

Total Mac Addresses displayed: 1

Related Command(s)

- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.

20.44 show dot1d mac-address-table

Command Objective	<p>This command displays all static and dynamic unicast and multicast MAC address entries created in the FDB table, when the VLAN base bridge mode is transparent bridging.</p> <p>These entries contain unicast and multicast MAC address, member ports, and the type of entry (that is static, learned and so on).</p>									
Syntax	<pre>show dot1d mac-address-table [address <aa:aa:aa:aa:aa:aa>] [interface <interface-type> <interface-id>]</pre>									
Parameter Description	<ul style="list-style-type: none">• address <aa:aa:aa:aa:aa:aa> - Displays all static and dynamic unicast and multicast MAC entries created in the FDB table for the specified unicast and multicast MAC address.• interface - Displays all static and dynamic unicast and multicast MAC entries for the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Specifies the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.• <interface-id> - Specifies the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.									
Mode	Privileged EXEC Mode									
Package	Workgroup, Enterprise, Metro, and Metro_E									
Example	<p>Single Instance</p> <pre>SEFOS# show dot1d mac-address-table</pre> <table><thead><tr><th>Mac Address</th><th>Type</th><th>Ports</th></tr></thead><tbody><tr><td>-----</td><td>----</td><td>-----</td></tr><tr><td>00:00:d1:20:18:d4</td><td>Learnt</td><td>Ex0/1</td></tr></tbody></table>	Mac Address	Type	Ports	-----	----	-----	00:00:d1:20:18:d4	Learnt	Ex0/1
Mac Address	Type	Ports								
-----	----	-----								
00:00:d1:20:18:d4	Learnt	Ex0/1								

Total Mac Addresses displayed: 1

Multiple Instance

SEFOS# show dot1d mac-address-table

Switch default

Mac Address	Type	Ports
-----	----	-----
00:00:d1:20:18:d4	Learnt	Ex0/1

Total Mac Addresses displayed: 1

Related Command(s)

- **mac-address-table static unicast - Transparent Bridging Mode** - Configures a static unicast MAC address in the forwarding database in transparent bridging mode in order to control unicast packets to be processed.
 - **mac-address-table static multicast - Transparent Bridging mode** - Configures a static multicast MAC address in the forwarding database in transparent bridging mode in order to control multicast packets to be processed.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.45 show mac-address-table count

Command Objective	This command displays the total number of static and dynamic unicast and multicast MAC address entries created in the FDB table. The count is displayed for all active VLANs, VLANs (that are not active) for which the port details are configured, and VLANs for which the MAC address table entries are created.
Syntax	<code>show mac-address-table count [vlan <vlan-id/vfi-id>]</code>
Parameter Description	<ul style="list-style-type: none">• vlan <vlan-id/vfi-id> - Displays the total number of static and dynamic unicast and multicast MAC address entries created for the specified VLAN / VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <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. <hr/> <p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p> <p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p> <p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p> <hr/>
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	Single Instance <pre>SEFOS# show mac-address-table count Mac Entries for Vlan 1: ----- Dynamic Unicast Address Count : 0 Dynamic Multicast Address Count : 0</pre>

```
Static Unicast Address Count      : 0
Static Multicast Address Count    : 0
```

```
Mac Entries for Vlan 4099:
```

```
-----
Dynamic Unicast Address Count     : 0
Dynamic Multicast Address Count    : 0
Static Unicast Address Count       : 1
Static Multicast Address Count     : 0
```

```
Mac Entries for Vlan 4158:
```

```
-----
Dynamic Unicast Address Count     : 0
Dynamic Multicast Address Count    : 0
Static Unicast Address Count       : 0
Static Multicast Address Count     : 0
```

Multiple Instance:

```
SEFOS# show mac-address-table count switch cust1
```

```
Switch - cust1
```

```
Mac Entries for Vlan 1:
```

```
-----
Dynamic Unicast Address Count     : 1
Dynamic Multicast Address Count    : 0
Static Unicast Address Count       : 0
Static Multicast Address Count     : 0
```

```
Mac Entries for Vlan 20:
```

```
-----
Dynamic Unicast Address Count     : 0
Dynamic Multicast Address Count    : 0
Static Unicast Address Count       : 0
Static Multicast Address Count     : 0
```

```
Mac Entries for Vlan 30:
```

```
Dynamic Unicast Address Count      : 0
Dynamic Multicast Address Count    : 0
Static Unicast Address Count       : 0
Static Multicast Address Count     : 0
```

Related Command(s)

- **vlan active** - Activates a VLAN in the switch.
 - **ports** - Statically configures a VLAN entry with the required member ports, untagged ports and forbidden ports, or untagged ports or forbidden ports and then activates the VLAN.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.46 show mac-address-table static unicast

Command Objective This command displays all static unicast MAC address entries created in the FDB table.

These entries contain VLAN ID to which unicast MAC address entry is assigned, unicast MAC address, member ports, receiver ports, the status of entry (that is permanent, static and so on), the unicast backbone MAC address of peer backbone edge bridge, and total number of entries displayed.

Syntax `show mac-address-table static unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [{interface <interface-type> <interface-id> | switch <context_name>}]`

Parameter Description

- **vlan <vlan-range>** - Displays all static unicast MAC address entries created in the FDB table for the specified VLANs alone. This value denotes the VLAN ID range for which the entries need to be displayed. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to display the entries for VLAN IDs from 4000 to 4010.
 - **address <aa:aa:aa:aa:aa:aa>** - Displays all static unicast MAC address entries created in the FDB table for the specified unicast MAC address.
 - **interface** - Displays all static unicast MAC address entries for the specified interface. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<interface-id>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
 - **switch <context_name>** - Displays all static unicast MAC entries, for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
-

Mode	Privileged EXEC Mode																				
Package	Workgroup, Enterprise, Metro, and Metro_E																				
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.																				
Example	<p>Single Instance:</p> <pre>SEFOS# show mac-address-table static unicast</pre> <table border="1"> <thead> <tr> <th>Vlan</th> <th>Mac Address</th> <th>RecvPort</th> <th>Status</th> <th>ConnectionId</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>00:11:22:33:44:55</td> <td>Ex0/2</td> <td>Del-OnTimeout</td> <td></td> </tr> </tbody> </table> <p>Total Mac Addresses displayed: 1</p> <p>Multiple Instance:</p> <pre>SEFOS# show mac-address-table static unicast switch cust1</pre> <p>Switch - cust1</p> <table border="1"> <thead> <tr> <th>Vlan</th> <th>Mac Address</th> <th>SrvInst/</th> <th>Status</th> <th>Ports</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>00:11:22:33:44:55</td> <td>Ex0/2</td> <td>Permanent</td> <td>Ex0/3</td> </tr> </tbody> </table> <p>Total Mac Addresses displayed: 1</p>	Vlan	Mac Address	RecvPort	Status	ConnectionId	2	00:11:22:33:44:55	Ex0/2	Del-OnTimeout		Vlan	Mac Address	SrvInst/	Status	Ports	1	00:11:22:33:44:55	Ex0/2	Permanent	Ex0/3
Vlan	Mac Address	RecvPort	Status	ConnectionId																	
2	00:11:22:33:44:55	Ex0/2	Del-OnTimeout																		
Vlan	Mac Address	SrvInst/	Status	Ports																	
1	00:11:22:33:44:55	Ex0/2	Permanent	Ex0/3																	
Related Command (s)	<ul style="list-style-type: none"> no shutdown vlan - Starts and enables VLAN switching feature in the switch. 																				

20.47 show dot1d mac-address-table static unicast

Command Objective	<p>This command displays all static unicast MAC address entries created in the FDB table, when the VLAN base bridge mode is transparent bridging.</p> <p>These entries contain unicast MAC address, member ports, receiver ports, the status of entry (that is permanent, static and so on), and total number of entries displayed.</p>								
Syntax	<pre>show dot1d mac-address-table static unicast [address <aa:aa:aa:aa:aa:aa>] [interface <interface-type> <interface-id>]</pre>								
Parameter Description	<ul style="list-style-type: none">• address <aa:aa:aa:aa:aa:aa> - Displays all static unicast MAC entries created in the FDB table for the specified unicast MAC address.• interface-type - Displays all static unicast MAC entries for the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.								
Mode	Privileged EXEC Mode								
Package	Workgroup, Enterprise, Metro, and Metro_E								
	<p><u>Note:</u> This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.</p>								
Example	<pre>SEFOS# show dot1d mac-address-table static unicast address 00:11:22:33:44:55</pre> <table><thead><tr><th>Mac Address</th><th>RecvPort</th><th>Status</th><th>Ports</th></tr></thead><tbody><tr><td>-----</td><td>-----</td><td>-----</td><td>-----</td></tr></tbody></table>	Mac Address	RecvPort	Status	Ports	-----	-----	-----	-----
Mac Address	RecvPort	Status	Ports						
-----	-----	-----	-----						

00:11:22:33:44:55	Permanent	Ex0/2
-------------------	-----------	-------

Total Mac Addresses displayed: 1

Related Command(s)

- **mac-address-table static unicast - Transparent Bridging Mode** - Configures a static unicast MAC address in the forwarding database in transparent bridging mode in order to control unicast packets to be processed.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.48 show mac-address-table static multicast

Command Objective This command displays the static multicast MAC address entries created in the FDB table.

These entries contain VLAN ID to which multicast MAC address entry is assigned, multicast MAC address, member ports, receiver ports, forbidden ports, the status of entry (that is permanent, static and so on), and total number of entries displayed.

Syntax `show mac-address-table static multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [{interface <interface-type> <interface-id> | switch <context_name>}]`

Parameter Description

- **vlan <vlan-range>** - Displays all static multicast MAC address entries created in the FDB table for the specified VLANs alone. This value denotes the VLAN ID range for which the entries need to be displayed. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to display the entries for VLAN IDs from 4000 to 4010.
 - **address <aa:aa:aa:aa:aa:aa>** - Displays all static multicast MAC address entries created in the FDB table for the specified unicast MAC address.
 - **interface** - Displays all static multicast MAC address entries for the specified interface. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<interface-id>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
 - **switch <context_name>** - Displays all static multicast MAC entries, for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
-

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example

Single Instance:

```
SEFOS# show mac-address-table static multicast
```

```
Static Multicast Table
```

```
-----
```

```
Vlan           : 1
Mac Address    : 01:02:03:04:05:06
Receive Port   : Ex0/1
Member Ports   : Ex0/1
Forbidden Ports : Ex0/2
Status         : Permanent
```

```
-----
```

```
Total Mac Addresses displayed: 1
```

Multiple Instance:

```
SEFOS# show mac-address-table static multicast switch cust1
```

```
Switch - cust1
```

```
Static Multicast Table
```

```
-----
```

```
Vlan           : 1
Mac Address    : 01:02:03:04:05:06
Receive Port   : Ex0/2
Member Ports   : Ex0/3
Status         : Permanent
```

```
-----
```

```
Total Mac Addresses displayed: 1
```

Related Command(s)

- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.

20.49 show dot1d mac-address-table static multicast

Command Objective	<p>This command displays all static multicast MAC address entries created in the FDB table, when the VLAN base bridge mode is transparent bridging.</p> <p>These entries contain multicast MAC address, member ports, receiver ports, the status of entry (that is permanent, static and so on), and total number of entries displayed.</p>
Syntax	<pre>show dot1d mac-address-table static multicast [address <aa:aa:aa:aa:aa:aa>] [interface <interface-type> <interface-id>]</pre>
Parameter Description	<ul style="list-style-type: none">• address <aa:aa:aa:aa:aa:aa> - Displays all static multicast MAC entries created in the FDB table for the specified multicast MAC address.• interface - Displays all static multicast MAC entries for the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
	<p><u>Note:</u> This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.</p>
Example	<pre>SEFOS# show dot1d mac-address-table static multicast address 01:00:5E:01:02:03 Mac Address RecvPort Type Ports ----- - ----- - ----- -</pre>

```
01:00:5E:01:02:03          static    Ex0/2-3
```

```
Total Mac Addresses displayed: 1
```

```
SEFOS# show dot1d mac-address-table static multicast  
interface extreme-ethernet 0/2
```

Mac Address	RecvPort	Type	Ports
-----	-----	----	-----
01:00:5E:01:02:03		static	Ex0/2
01:00:5E:01:02:04		static	Ex0/2

```
Total Mac Addresses displayed: 2
```

Related Command(s)

- **mac-address-table static multicast - Transparent Bridging mode**- Configures a static multicast MAC address in the forwarding database in transparent bridging mode in order to control multicast packets to be processed.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.50 show mac-address-table dynamic unicast

Command Objective This command displays all dynamically learned unicast entries from the MAC address table.

These entries contain VLAN ID for which unicast MAC address entry is learned, unicast MAC address, ports through which the entry is learned, the status of entry (that is permanent, static and so on), the unicast backbone MAC address of peer backbone edge bridge, and total number of entries displayed.

Syntax `show mac-address-table dynamic unicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [{interface <interface-type> <interface-id> | switch <context_name>}]`

Parameter Description

- **vlan <vlan-range>** - Displays all dynamically learned unicast entries from the MAC address table for the specified VLANs alone. This value denotes the VLAN ID range for which the entries need to be displayed. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to display the entries for VLAN IDs from 4000 to 4010.
 - **address <aa:aa:aa:aa:aa:aa>** - Displays all dynamically learned unicast entries from the MAC address table for the specified unicast MAC address.
 - **interface** - Displays all dynamically learned unicast entries from the MAC address table for the specified interface. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<interface-id>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
 - **switch <context_name>** - Displays all dynamically learned unicast entries, for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
-

Mode	Privileged EXEC Mode																																						
Package	Workgroup, Enterprise, Metro, and Metro_E																																						
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.																																						
Example	<p>Single Instance:</p> <pre>SEFOS# show mac-address-table dynamic unicast vlan 2</pre> <table border="1"> <thead> <tr> <th>Vlan</th> <th>Mac Address</th> <th>Type</th> <th>ConnectionId</th> <th>Ports</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>00:01:02:03:04:21</td> <td>Learnt</td> <td></td> <td>Ex0/1</td> </tr> </tbody> </table> <p>Total Mac Addresses displayed: 1</p> <p>Multiple Instance:</p> <pre>SEFOS# show mac-address-table dynamic unicast</pre> <p>Switch - default</p> <table border="1"> <thead> <tr> <th>Vlan</th> <th>Mac Address</th> <th>Type</th> <th>Ports</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>00:02:02:03:04:04</td> <td>Learnt</td> <td>Ex0/2</td> </tr> <tr> <td>1</td> <td>00:03:02:03:04:04</td> <td>Learnt</td> <td>Ex0/3</td> </tr> <tr> <td>2</td> <td>00:02:02:03:04:04</td> <td>Learnt</td> <td>Ex0/2</td> </tr> <tr> <td>2</td> <td>00:03:02:03:04:04</td> <td>Learnt</td> <td>Ex0/3</td> </tr> <tr> <td>3</td> <td>00:02:02:03:04:04</td> <td>Learnt</td> <td>Ex0/2</td> </tr> <tr> <td>3</td> <td>00:03:02:03:04:04</td> <td>Learnt</td> <td>Ex0/3</td> </tr> </tbody> </table> <p>Total Mac Addresses displayed: 6</p>	Vlan	Mac Address	Type	ConnectionId	Ports	2	00:01:02:03:04:21	Learnt		Ex0/1	Vlan	Mac Address	Type	Ports	1	00:02:02:03:04:04	Learnt	Ex0/2	1	00:03:02:03:04:04	Learnt	Ex0/3	2	00:02:02:03:04:04	Learnt	Ex0/2	2	00:03:02:03:04:04	Learnt	Ex0/3	3	00:02:02:03:04:04	Learnt	Ex0/2	3	00:03:02:03:04:04	Learnt	Ex0/3
Vlan	Mac Address	Type	ConnectionId	Ports																																			
2	00:01:02:03:04:21	Learnt		Ex0/1																																			
Vlan	Mac Address	Type	Ports																																				
1	00:02:02:03:04:04	Learnt	Ex0/2																																				
1	00:03:02:03:04:04	Learnt	Ex0/3																																				
2	00:02:02:03:04:04	Learnt	Ex0/2																																				
2	00:03:02:03:04:04	Learnt	Ex0/3																																				
3	00:02:02:03:04:04	Learnt	Ex0/2																																				
3	00:03:02:03:04:04	Learnt	Ex0/3																																				
Related Command(s)	<ul style="list-style-type: none"> no shutdown vlan - Starts and enables VLAN switching feature in the switch. 																																						

20.51 show mac-address-table dynamic multicast

Command Objective This command displays all dynamically learned multicast entries from the MAC address table.

These entries contain VLAN ID for which multicast MAC address entry is learned, multicast MAC address, ports through which the entry is learned, the status of entry (that is permanent, static and so on), the unicast backbone MAC address of peer backbone edge bridge, and total number of entries displayed.

Syntax `show mac-address-table dynamic multicast [vlan <vlan-range>] [address <aa:aa:aa:aa:aa:aa>] [{interface <interface-type> <interface-id> | switch <context_name>}]`

Parameter Description

- **vlan <vlan-range>** - Displays all dynamically learned multicast entries from the MAC address table for the specified VLANs alone. This value denotes the VLAN ID range for which the entries need to be displayed. This value is a string whose maximum size is 9. For example, the value is provided as 4000-4010 to display the entries for VLAN IDs from 4000 to 4010.
 - **address <aa:aa:aa:aa:aa:aa>** - Displays all dynamically learned multicast entries from the MAC address table for the specified unicast MAC address.
 - **interface** - Displays all dynamically learned multicast entries from the MAC address table for the specified interface. The details to be provided are:
 - **<interface-type>** - Sets the 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **<interface-id>** - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
 - **switch <context_name>** - Displays all dynamically learned multicast entries, for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
-

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Note: This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.

Example **Single Instance:**

```
SEFOS# show mac-address-table dynamic multicast
Vlan      Mac Address          Type      ConnectionId Ports
----      -
2         01:03:05:07:09:04   Learnt
Total Mac Addresses displayed: 1
```

Multiple Instance:

```
SEFOS# show mac-address-table dynamic multicast
Switch - default
Vlan      Mac Address          Type      Ports
----      -
2         01:02:02:02:02:02   Learnt    Ex0/2, Ex0/3
3         01:02:02:02:02:02   Learnt    Ex0/2
3         01:03:03:03:03:03   Learnt    Ex0/3
Total Mac Addresses displayed: 3
```

Related Command(s)

- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.

20.52 show mac-address-table aging-time

Command Objective	This command displays the ageing time configured for the MAC address table. This time denotes the interval (in seconds) after which the dynamically learned forwarding information entry and static entry in the MAC address table are deleted.
Syntax	<code>show mac-address-table aging-time [switch <context_name>]</code>
Parameter Description	<ul style="list-style-type: none"><code>switch <context_name></code> - Displays ageing time of the MAC address table, for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<p>Single Instance:</p> <pre>SEFOS# show mac-address-table aging-time Mac Address Aging Time: 300</pre> <p>Multiple Instance:</p> <pre>SEFOS# show mac-address-table aging-time Context default: Mac Address Aging Time: 300</pre>
Related Command(s)	<ul style="list-style-type: none"><code>mac-address-table aging-time</code> - Configures the timeout period (in seconds) for aging out dynamically learned forwarding information entry and static entry in the MAC address table.<code>no shutdown vlan</code> - Starts and enables VLAN switching feature in the switch.

20.53 show wildcard

Command Objective	<p>This command displays all wildcard MAC entries created in the switch / in all contexts.</p> <p>The wildcard VLAN static filtering information is used for all VLANs for which no static unicast and multicast MAC address entries are created.</p>				
Syntax	<pre>show wildcard {mac-address <mac_addr> broadcast} [switch <context_name>]</pre>				
Parameter Description	<ul style="list-style-type: none">• mac-address <mac_addr> - Displays the wildcard MAC entries created in the switch / in all contexts, for the specified destination unicast or multicast MAC address to which filtering information of wildcard entry is applied.• broadcast - Displays the wildcard MAC entries created in the switch / in all contexts, for the broadcast MAC address (that is, ff:ff:ff:ff:ff:ff).• switch <context_name> - Displays the wildcard MAC entries for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.				
Mode	Privileged EXEC Mode				
Package	Workgroup, Enterprise, Metro, and Metro_E				
Note:	This command can be executed in the switch only if the VLAN switching feature is started and enabled in the switch.				
Example	<p>Single Instance</p> <pre>SEFOS# show wildcard mac-address 00:11:22:33:00:00</pre> <p>Wild Card Entries:</p> <pre>-----</pre> <table><thead><tr><th>Mac Address</th><th>Ports</th></tr></thead><tbody><tr><td>00:11:22:33:00:00</td><td>Ex0/2</td></tr></tbody></table> <p>Multiple Instance</p> <pre>SEFOS# show wildcard mac-address 00:55:66:77:00:00</pre> <p>Switch default</p> <p>Switch sw1</p> <p>Wild Card Entries:</p> <pre>-----</pre>	Mac Address	Ports	00:11:22:33:00:00	Ex0/2
Mac Address	Ports				
00:11:22:33:00:00	Ex0/2				

Mac Address	Ports
-------------	-------

00:55:66:77:00:00	Ex0/3
-------------------	-------

Related Command(s)

- **wildcard** - Configures the wildcard VLAN entry for a specified MAC address or any MAC address.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.54 shutdown garp

Command Objective	<p>This command shuts down the GARP module in the switch on all ports and releases memory used for the GARP module.</p> <p>The no form of the command starts and enables the GARP module in the switch on all ports. GMRP and GVRP are enabled explicitly, once the disabled GARP is enabled.</p> <p>GARP is used to synchronize attribute information between the bridges in the LAN. It allows registering and de-registering attribute values, which are disseminated into the backbone of the GARP participants.</p>
Syntax	<pre>shutdown garp no shutdown garp</pre>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	GARP module is started and enabled in the switch on all ports.
Note:	<ul style="list-style-type: none">• GARP can be started, only if VLAN switching feature is started in the switch.• GARP can be shut down, only if GVRP and GMRP or GVRP or GMRP are disabled.• GARP cannot be started in the switch, if the base bridge mode is configured as transparent bridging.
Example	<pre>SEFOS(config)# shutdown garp</pre>
Related Command(s)	<ul style="list-style-type: none">• base bridge-mode - Configures the base mode (either 802.1d transparent bridge mode or 802.1q VLAN-aware bridge mode) in which the VLAN feature should operate on the switch.• set gvrp disable – Globally disables GVRP feature on all ports of a switch.• set port gvrp - Enables or disables GVRP feature on the specified interface.• set gmrp disable – Globally disables GMRP feature on all ports of a switch.• set port gmrp - Enables or disables GMRP feature on the specified interface.• set garp timer - Configures GARP timers for a port.

-
- **vlan restricted** - Configures the restricted VLAN registration feature in a port.
 - **group restricted** - Configures the restricted group registration feature in a port.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **show garp timer** - Displays the GARP timer information of all interfaces available in the switch / all contexts.
 - **debug garp** - Enables the tracing of the GARP submodule as per the configured debug levels.
-

20.55 set gvrp

Command Objective	<p>This command globally enables or disables GVRP feature on all ports of a switch.</p> <p>GVRP uses the services of GARP to propagate VLAN registration information to other VLAN-aware bridges in a LAN. This information allows GVRP-aware devices to dynamically establish and update the information about the existence of the VLANs in a topology. The GVRP registers the created VLANs with GARP and de-registers the deleted VLANs from the GARP.</p>
Syntax	<pre>set gvrp { enable disable }</pre>
Parameter Description	<ul style="list-style-type: none">• enable - Enables GVRP feature in the switch on all ports and also starts the GARP in the switch if the GARP is disabled.• disable - Disables GVRP feature in the switch on all ports.
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Note:	<ul style="list-style-type: none">• GVRP feature can be globally enabled, only if VLAN feature is globally enabled in the switch.• GVRP feature should be globally disabled before globally disabling the VLAN feature in the switch.• GVRP feature cannot be enabled in the switch, if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.
Example	<pre>SEFOS(config)# set gvrp disable</pre>
Related Command(s)	<ul style="list-style-type: none">• spanning-tree mode - Sets the type of spanning tree to be executed, enables spanning tree operation, and starts spanning tree functionality in the switch.• set vlan - Globally enables or disables VLAN feature in the switch (that is the status of the VLAN feature is configured for all ports of the switch).• bridge-mode - Configures the bridge mode of the switch.• base bridge-mode dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging.• shutdown garp - Shuts down the GARP module in the switch on all ports and releases memory used for the GARP module.

-
- **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
 - **show vlan device info** - Displays the VLAN global information that is applicable to all VLANs created in the switch / all contexts.
 - **show gvrp statistics** - Displays GVRP statistics for the specified port.
-

20.56 set port gvrp

Command Objective	<p>This command enables or disables GVRP feature on the specified interface.</p> <p>GVRP uses the services of GARP to propagate VLAN registration information to other VLAN-aware bridges in a LAN. This information allows GVRP-aware devices to dynamically establish and update the information about the existence of the VLANs in a topology. The GVRP registers the created VLANs with GARP and de-registers the deleted VLANs from the GARP.</p>
Syntax	<pre>set port gvrp <interface-type> <interface-id> { enable disable }</pre>
Parameter Description	<ul style="list-style-type: none">• <interface-type> - Configures the GVRP feature for the specified type of interface. The interface can be:<ul style="list-style-type: none">▪ 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 40 Gigabits per second.▪ extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.▪ internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.▪ port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.• <interface-id> - Configures the GVRP feature for the specified interface identifier. 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 and port-channel. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan and port-channel ID is provided, for interface types i-lan and port-channel. For example: 1 represents i-lan and port-channel ID.• enable - Enables GVRP feature on the specified interface.• disable - Disables GVRP feature on the specified interface.
Mode	Global Configuration Mode /Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Note:	<ul style="list-style-type: none">• The GVRP feature can be configured on the specified interface, only if the GARP module is not shut down.• Any GVRP packet received is discarded and no GVRP registrations are propagated from other ports, if GVRP is globally disabled or GVRP is

disabled in the interface.

Example

```
SEFOS(config)# set port gvrp extreme-ethernet 0/1 disable
```

Related Command(s)

- **no shutdown garp** - Starts and enables the GARP module in the switch on all ports.
 - **switchport mode** - Configures the mode of operation for a switch port.
 - **shutdown garp** - Shuts down the GARP module in the switch on all ports and releases memory used for the GARP module.
 - **show vlan port config** - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.
 - **show gvrp statistics** - Displays GVRP statistics for the specified port.
-

20.57 set port gvrp - enable | disable

Command Objective	This command enables or disables GVRP (GARP VLAN Registration Protocol) on the interface.
Note:	This command operates similar to that of the command <code>set port gvrp</code> . This feature has been included in adherence to the Industry Standard CLI syntax.
Syntax	<code>set port gvrp { enable disable } <interface-id></code>
Parameter Description	<ul style="list-style-type: none">• <code>enable</code> - Enables GVRP on the interface.• <code>disable</code> - Disables GVRP on the interface.• <code><interface-id></code> - Configures the GVRP feature for the specified interface identifier. 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 and port-channel. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan and port-channel ID is provided, for interface types i-lan and port-channel. For example: 1 represents i-lan and port-channel ID.
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Note:	<ul style="list-style-type: none">• The value enable indicates that GVRP is enabled on the current port, as long as global GVRP status is also enabled for the device.• If port GVRP state is disabled, but global GVRP status is still enabled, then GVRP is disabled on the current port. Any received GVRP packets will be discarded and no GVRP registrations will be propagated from other ports.
Example	<code>SEFOS(config)# set port gvrp disable 0/1</code>
Related Command (s)	<ul style="list-style-type: none">• <code>show vlan port config</code> - Displays the VLAN-related parameters specific for ports.

20.58 set gmrp

Command Objective	<p>This command globally enables or disables GMRP feature on all ports of a switch.</p> <p>GMRP uses the services of GARP to propagate multicast information to the bridges in a LAN. This information allows GMRP-aware devices to reduce the transmission of multicast traffic to the LANs, which do not have any members of that multicast group. GMRP registers and de-registers the group membership information and group service requirement information with the GARP.</p>
Syntax	<pre>set gmrp { enable disable }</pre>
Parameter Description	<ul style="list-style-type: none">• enable - Enables GMRP feature in the switch on all ports and also starts the GARP in the switch if the GARP is disabled.• disable - Disables GMRP feature in the switch on all ports.
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
	<p><u>Note:</u></p> <ul style="list-style-type: none">• GMRP feature can be globally enabled, only if VLAN feature is globally enabled in the switch.• GMRP feature should be globally disabled before globally disabling the VLAN feature in the switch.• GMRP feature cannot be configured in the switch if the base bridge mode is set as transparent bridging or the VLAN switching feature is shut down in the switch.
Example	<pre>SEFOS(config)# set gmrp disable</pre>
Related Command(s)	<ul style="list-style-type: none">• ipv6 mld snooping – Enables MLD snooping in the switch for a VLAN.• set vlan - Globally enables or disables VLAN feature in the switch (that is the status of the VLAN feature is configured for all ports of the switch).• bridge-mode - Configures the bridge mode of the switch.• base bridge-mode dot1q-vlan - Configures the VLAN operation mode as VLAN-aware bridging.• shutdown garp - Shuts down the GARP module in the switch on all ports and releases memory used for the GARP module.• no shutdown vlan - Starts and enables VLAN switching feature in the

switch.

- **show vlan device info** - Displays the VLAN global information that is applicable to all VLANs created in the switch / all contexts.
 - **show gmrp statistics** - Displays GMRP statistics for the specified port.
-

20.59 set port gmrp

Command Objective	<p>This command enables or disables GMRP feature on the specified interface.</p> <p>GMRP uses the services of GARP to propagate multicast information to the bridges in a LAN. This information allows GMRP-aware devices to reduce the transmission of multicast traffic to the LANs, which do not have any members of that multicast group. GMRP registers and de-registers the group membership information and group service requirement information with the GARP.</p>
Syntax	<pre>set port gmrp <interface-type> <interface-id> { enable disable }</pre>
Parameter Description	<ul style="list-style-type: none">• <interface-type> - Configures the GMRP feature for the specified type of interface. The interface can be:<ul style="list-style-type: none">▪ 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 40 Gigabits per second.▪ extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.▪ internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.▪ port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.• <interface-id> - Configures the GMRP feature for the specified interface identifier. 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 and port-channel. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan and port-channel ID is provided, for interface types i-lan and port-channel. For example: 1 represents i-lan and port-channel ID.• enable - Enables GMRP feature on the specified interface.• disable - Disables GMRP feature on the specified interface.
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Note:	<ul style="list-style-type: none">• The GMRP feature can be configured on the specified interface, only if the GARP module is not shut down.• Any GMRP packet received is discarded and no GMRP registrations are propagated from other ports, if GMRP is globally disabled or GMRP is

disabled in the interface.

Example

```
SEFOS(config)# set port gmrp extreme-ethernet 0/1 disable
```

Related Command(s)

- **no shutdown garp** - Starts and enables the GARP module in the switch on all ports.
 - **show vlan port config** - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.
 - **show gmrp statistics** - Displays GMRP statistics for the specified port.
-

20.60 set garp timer

Command Objective This command configures GARP timers for a port. GARP uses these timer values to control the transmission of GARP PDUs used in synchronizing attribute information between the switches, and in registering and de-registering of attribute values. The configured GARP timer values are applicable for both GVRP and GMRP application of the GARP module.

Syntax `set garp timer {join | leave | leaveall} <time in milli seconds>`

Parameter Description

- **join <time in milli seconds>** - Configures the time interval (in milli-seconds) till which a GARP participant should wait for its join message to be acknowledged before re-sending the join message. The join message is re-transmitted only once, if the initial message is not acknowledged. This time is started, once the initial join message is sent. The join message is sent by a GARP participant to another GARP participant for registering:
 - Its attributes with other participant
 - Its manually configured attributes
 - Attributes received from a third GARP participantThis value can be multiple of tens only (that is, as 210, 220, 230 and so on) This value should satisfy the condition: $\text{GarpJoinTime} > 0$ and $(2 * \text{GarpJoinTime}) < \text{GarpLeaveTime}$.
 - **leave <time in milli seconds>** - Configures the time interval (in milli-seconds) till which a GARP participant should wait for any join message before removing attribute details (that is, waiting time for a registrar to move from empty state (MT) to leave state (LV)). This time is started, once a leave message is sent to de-register the attribute details. The leave messages are sent from a GARP participant to another participant, when:
 - Its attributes should be de-registered
 - Its attributes are manually de-registered
 - It receives leave messages from a third GARP participantThis value can be multiple of tens only (that is, as 610, 620, 630 and so on). The leave time should be greater than or two times as that of the GarpJoinTime. That is, the maximum value of the leave time cannot be more than two times of the join time. For example, if you configure join time as 500 milliseconds, then the leave time value can be from 510 milliseconds to 1000 milliseconds only.
 - **leaveall <time in milli seconds>** - Configures the time interval (in milli-seconds) till which the details of the registered attributes are maintained. The attribute details should be re-registered after this time interval. A leaveall message is sent from a GARP participant to other GARP participants, after this time interval. This time is started, once a GARP participant starts or once re-registration is done. The leaveall messages are sent from a GARP participant to other participants for:
 - De-registering all registered attributes
 - Re-registering all attributes with each of the participants
-

This value can be multiple of tens only (that is, as 10010, 10020 and so on). The leaveall time should be greater than 0 and greater than GarpLeaveTime.

Mode Interface Configuration Mode (Physical)

Package Workgroup, Enterprise, Metro, and Metro_E

Default

- join - 200
- leave - 600
- leaveall - 10000

Note:

- The GARP timers cannot be set as zero.
 - The GARP timers can be configured, only if the GARP module is not shut down.
-

Example SEFOS(config-if)# set garp timer join 250

Related Command(s)

- **no shutdown garp** - Starts and enables the GARP module in the switch on all ports.
 - **show garp timer** - Displays the GARP timer information of all interfaces available in the switch / all contexts.
-

20.61 vlan restricted

Command Objective	This command configures the restricted VLAN registration feature in a port. This feature configures the dynamic registration of VLAN.
Syntax	<code>vlan restricted {enable disable}</code>
Parameter Description	<ul style="list-style-type: none">• enable - Enables restricted VLAN registration feature in the port. The creation or modification of a dynamic VLAN entry is permitted only for VLANs for which static VLAN registration entries exist.• disable - Disables restricted VLAN registration feature in the port. The creation or modification of a dynamic VLAN entry is permitted for all VLANs.
Mode	Interface Configuration Mode (Physical)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	disable
	<u>Note:</u> The restricted VLAN registration feature can be configured in the port only if the GARP module is started and enabled in the switch.
Example	<code>SEFOS(config-if)# vlan restricted enable</code>
Related Command(s)	<ul style="list-style-type: none">• no shutdown garp - Starts and enables the GARP module in the switch on all ports.• show vlan port config - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.

20.62 group restricted

Command Objective	This command configures the restricted group registration feature in a port. This feature enables you to restrict the multicast groups learned through GMRP learning.
Syntax	<code>group restricted {enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• enable - Enables restricted group registration feature in the port. The multicast group attribute or service requirement attribute is learned dynamically from the GMRP frame only if the specific attribute is statically configured in the switch.• disable - Disables restricted group registration feature in the port. The GMRP packets are processed normally and the multicast group attribute/service requirement attribute are learned dynamically even if they are not statically configured in the switch.
Mode	Interface Configuration Mode (Physical)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	disable
	<p><u>Note:</u> The restricted group registration feature can be configured in the port only if the GARP module is started and enabled in the switch.</p>
Example	<code>SEFOS(config-if)# group restricted enable</code>
Related Command(s)	<ul style="list-style-type: none">• <code>no shutdown garp</code> - Starts and enables the GARP module in the switch on all ports.• <code>show vlan port config</code> - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.

20.63 debug garp

Command Objective This command enables the tracing of the GARP sub module as per the configured debug levels. The trace statements are generated for the configured trace levels.

The no form of the command disables the tracing of the GARP sub module as per the configured debug levels. The trace statements are not generated for the configured trace levels.

This command allows 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.

Syntax

```
debug garp { global | [{protocol | gmrp | gvrp |
redundancy} [initshut] [mgmt] [data] [ctpl] [dump] [os]
[failall] [buffer] [all]] [switch <context_name>] } [{
<short (0-7)> | alerts | critical | debugging | emergencies
| errors | informational | notification | warnings ]}

no debug garp { global | [{protocol | gmrp | garp |
redundancy} [initshut] [mgmt] [data] [ctpl] [dump] [os]
[failall] [buffer] [all]] [switch <context_name>] }
```

Parameter Description

- **global** - Generates debug statements for all kinds of traces.
 - **protocol** - Sets the submodule as GARP module, for which the tracing is to be done as per the configured debug levels.
 - **gmrp** - Sets the submodule as GMRP module, for which the tracing is to be done as per the configured debug levels.
 - **gvrp** - Sets the submodule as GVRP module, for which the tracing is to be done as per the configured debug levels.
 - **redundancy** - Sets the submodule as GARP redundancy module, for which the tracing is to be done as per the configured debug levels.
 - **initshut** - Generates debug statements for init and shutdown traces. This trace is generated on failed initialization and shutting down of GARP related entries.
 - **mgmt** - Generates debug statements for management traces. This trace is generated during failure in configuration of any of the GARP features.
 - **data** - Generates debug statements for data path traces. This trace is generated during failure in packet processing.
 - **ctpl** - Generates debug statements for control path traces. This trace is generated during failure in modification or retrieving of GARP entries.
 - **dump** - Generates debug statements for packet dump traces. This trace is
-

currently not used in GARP module.

- **os** - Generates debug statements for OS resource related traces. This trace is generated during failure in message queues.
- **failall** - Generates debug statements for all kind of failure traces.
- **buffer** - Generates debug statements for GARP buffer-related traces. This trace is currently not used in GARP module.
- **all** - Generates debug statements for all kinds of traces.
- **switch <context_name>** - Configures the tracing of the GARP submodule for the specified context. This value represents unique name of the switch context. This value is a string whose maximum size is 32. This parameter is specific to multiple instance feature.
- **<short (0-7)>** - Generates the debug statements for severity level value. This value ranges from 0 to 7.
- **alerts** - Generates debug statements for immediate action. .
- **critical** - Generates debug statements for critical conditions.
- **debugging** - Generates debug statements for debugging messages.
- **emergencies** - Generates debug statements when system is unusable.
- **errors** - Generates debug statements for error conditions.
- **informational** - Generates debug statements for information messages.
- **notification** - Generates debug statements when normal but significant messages.
- **warnings** - Generates debug statements for warning conditions.

Mode Privileged Exec Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default Tracing of the GARP sub module is disabled.

Note: The GARP sub module tracing can be configured in the switch, only if the GARP module is started and enabled in the switch on all ports.

Example SEFOS# **debug garp redundancy ctpl switch default debugging**
GARP_TRC_LVL : 255, i4CliDebugLevel: 7
% GARP is disabled

Related Command(s)

- **no shutdown garp** - Starts and enables the GARP module in the switch on all ports.

-
- `show debugging` - Displays state of each debugging option.
-

20.64 show garp timer

Command Objective	This command displays the GARP timer information of all interfaces available in the switch / all contexts. The information contain the interface type, interface ID, GARP join time, GARP leave time, and GARP leave all time.
Syntax	<code>show garp timer [{ port <interface-type> <interface-id> }]</code>
Parameter Description	<ul style="list-style-type: none">• port - Displays the GARP timer information of the specified interface. The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Sets the interface identifier. 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command can be executed in the switch, only if the GARP module is not shut down and VLAN switching feature is started and enabled in the switch.
Example	<p>Single Instance:</p> <pre>SEFOS# show garp timer port extreme-ethernet 0/1 Garp Port Timer Info (in milli seconds) ----- Port Join-time Leave-time Leave-all-time ----- Ex0/1 200 600 10000</pre> <p>Multiple Instance:</p> <pre>SEFOS# show garp timer</pre>

```

-----
Switch - default
Garp Port Timer Info (in milli seconds)
-----
Port      Join-time      Leave-time      Leave-all-time
-----
Ex0/49    200            600            10000
Switch - cust1
Garp Port Timer Info (in milli seconds)
-----
Port      Join-time      Leave-time      Leave-all-time
-----
Ex0/1     200            600            10000
Ex0/2     200            600            10000
Ex0/3     200            600            10000
Ex0/4     200            600            10000
Ex0/5     200            600            10000
Ex0/6     200            600            10000
-----

```

Related Command(s)

- **set garp timer** - Configures GARP timers for a port.
 - **no shutdown garp** - Starts and enables the GARP module in the switch on all ports.
 - **no shutdown vlan** - Starts and enables VLAN switching feature in the switch.
-

20.65 multicast-mac limit

Command Objective	This command configures multicast MAC limit. This value ranges from 0 to 4294967295. The no form of the command configures multicast MAC limit to the default value.
Syntax	<code>multicast-mac limit <size(0-4294967295)></code> <code>no multicast-mac limit</code>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	The default value varies with target.
Example	<code>SEFOS(config)# multicast-mac limit 10</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show multicast-mac limit</code> - Displays multicast MAC limit.

20.66 dot1x-tunnel-address

Command Objective This command configures the multicast destination MAC address to be used in tunneled DOT1X PDUs.

When the Dot1x tunneling is enabled on a port, this MAC address will be used as the the destination MAC address for the customer Dot1x packets received with reserved address over this port.

Inside a given Network, Dot1x packets received with this MAC address will be treated as data packets and not processed.

When the tunneled Dot1x packets are sent out of the given Network, this MAC address will be replaced with the reserved address defined for Dot1x packets. This is done only when Dot1x protocol tunnel status is set to Tunnel on the outgoing port else the packets are dropped

Syntax `dot1x-tunnel-address <aa:aa:aa:aa:aa:aa>`

Mode Global Configuration Mode / Switch Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default 01:00:0c:cd:cd:d3

Note:

- This command executes only if VLAN is started in the switch.
- Dot1x tunneling must be enabled for the dot1x tunnel address to be effective.
- A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling.

Example `SEFOS(config)# dot1x-tunnel-address 01:00:00:00:22:22`

Related Command(s)

- `show l2protocol tunnel-mac-address` - Displays the tunnel MAC address configured for Layer 2 protocols.
- `no shutdown vlan` - Enables VLAN on the switch.

20.67 lacp-tunnel-address

Command Objective This command configures the multicast destination MAC address to be used in tunneled LACP PDUs.

When LACP tunneling is enabled on a port, this MAC address will be used as the destination MAC address of the customer LACP packets received over this port.

Inside a given network, LACP packets received with this MAC address will be treated as data packets and not processed.

When the tunneled LACP packets are sent out of the given network, this MAC address will be replaced with the reserved address defined for LACP packets. This is done only when LACP protocol tunnel status is set to Tunnel on the outgoing port, else the packets are dropped.

Syntax `lacp-tunnel-address <aa:aa:aa:aa:aa:aa>`

Mode Global Configuration Mode / Switch Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default 01:00:0c:cd:cd:d4

Note:

- This command executes only if VLAN is started in the switch.
- LACP tunneling must be enabled for the LACP tunnel address to be effective.
- A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling.

Example `SEFOS(config)# lacp-tunnel-address 01:00:00:00:22:33`

Related Command(s)

- `show l2protocol tunnel-mac-address` - Displays the tunnel MAC address configured for Layer 2 protocols.
- `no shutdown vlan` - Enables VLAN on the switch.

20.68 stp-tunnel-address

Command Objective This command configures the multicast destination MAC address to be used in tunneled STP BPDUs.

When STP tunneling is enabled on a port, this MAC address will be used as the the destination MAC address of the customer BPDUs received.

Inside a given network, BPDUs received with this MAC address will be treated as data packets and are not processed.

When the BPDU is sent out of the given network, this MAC address will be replaced with the reserved address defined for Customer STP BPDU. This is done only when STP protocol tunnel status is set to Tunnel on the outgoing port, else the packets are dropped.

Syntax `stp-tunnel-address <aa:aa:aa:aa:aa:aa>`

Mode Global Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default 01:00:0c:cd:cd:d0

Note:

- This command executes only if VLAN is started in the switch.
 - STP tunneling must be enabled to make this address effective.
 - A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling.
-

Example `SEFOS(config)# stp-tunnel-address 01:00:00:00:22:44`

Related Command(s)

- `show l2protocol tunnel-mac-address` - Displays the tunnel MAC address configured for Layer 2 protocols.
- `no shutdown vlan` - Enables VLAN on the switch.

20.69 gvrp-tunnel-address

Command Objective	<p>This command configures the multicast destination MAC address to be used in tunneled GVRP PDUs.</p> <p>When GVRP tunneling is enabled on a port, this MAC address will be used as the the destination MAC address of the customer GVRP PDUs received.</p> <p>Inside a given network, packets received with this MAC address will be treated as data packets and are not processed.</p> <p>When the GVRP PDU is sent out of the given network, this MAC address will be replaced with the reserved address defined for Customer GVRP PDU. This is done only when GVRP protocol tunnel status is set to Tunnel on the outgoing port, else the packets are dropped.</p>
Syntax	<code>gvrp-tunnel-address <aa:aa:aa:aa:aa:aa></code>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	01:00:0c:cd:cd:d1
	<p><u>Note:</u></p> <ul style="list-style-type: none">• This command executes only if VLAN is started in the switch.• GMRP tunneling must be enabled to make this address effective.• A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling.
Example	<code>SEFOS(config)# gvrp-tunnel-address 01:00:00:00:22:55</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show l2protocol tunnel-mac-address</code> - Displays the tunnel MAC address configured for Layer 2 protocols.• <code>no shutdown vlan</code> - Enables VLAN on the switch.

20.70 gmrp-tunnel-address

Command Objective This command configures the multicast destination MAC address to be used in tunneled GMRP PDUs.

When GMRP tunneling is enabled on a port, this MAC address will be used as the the destination MAC address of the customer GMRP PDUs received over this port.

Inside a given network, GMRP PDUs received with this MAC address will be treated as data packets and are not processed.

When the tunneled GMRP PDUs are sent out of the given network, this MAC address will be replaced with the reserved address defined for GMRP PDUs. This is done only when GMRP protocol tunnel status is set to Tunnel on the outgoing port, else the packets are dropped.

Syntax `gmrp-tunnel-address <aa:aa:aa:aa:aa:aa>`

Mode Global Configuration Mode/Switch Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default 01:00:0c:cd:cd:d2

Note:

- This command executes only if VLAN is started in the switch.
- GMRP tunneling must be enabled to make this address effective.
- A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling..

Example `SEFOS(config)# gmrp-tunnel-address 01:00:00:00:22:66`

Related Command(s)

- `show l2protocol tunnel-mac-address` - Displays the tunnel MAC address configured for Layer 2 protocols.
- `no shutdown vlan` - Enables VLAN on the switch.

20.71 bridge-mode

Command Objective	This command configures the bridge mode of the switch.
Syntax	<pre>bridge-mode {customer provider provider-core provider-edge } If PBB_WANTED bridge-mode {customer provider provider-core provider-edge provider-backbone-icomp provider-backbone- bcomp}</pre>
Parameter Description	<ul style="list-style-type: none">• customer - Sets the bridge to Customer Bridge Mode which allows the switch to operate as a 802.1Q VLAN Bridge.• provider - Sets the bridge to Provider Bridge Mode which allows the bridge to operate as a normal Q-in-Q Bridge. <hr/><p>Note: This parameter executes only if GARP, MRP, ELPS, ECFM, and spanning tree modules are shut down.</p>• provider-core - Sets the bridge to Provider Core Bridge Mode which allows the switch to operate as a 802.1ad-compliant provider bridge with only S-VLAN component. <hr/><p>Note: This parameter executes only if GARP, MRP, ELPS, ECFM, and spanning tree modules are shut down.</p>• provider-edge - Sets the bridge to Provider Edge Bridge Mode which allows the switch to operate as a 802.1ad provider edge bridge with S-VLAN component and atleast one C-VLAN component. <hr/><p>Note: This parameter executes only if GARP, MRP, ELPS, ECFM, and spanning tree modules are shut down.</p>• provider-backbone-icomp - Sets the bridge to Provider Backbone Bridge I component Mode which allows the switch to operate as a 802.1ah provider backone bridge as I component. <hr/><p>Note: This parameter executes only if GARP, MRP, ELPS, ECFM, and spanning tree modules are shut down and Provider backbone bridge is globally enabled.</p>• provider-backbone-bcomp - Sets the bridge to Provider Backbone Bridge B component Mode which allows the switch to operate as a 802.1ah provider backone bridge as B component. <hr/><p>Note: This parameter executes only if GARP, MRP, ELPS, ECFM, and spanning tree modules are shut down and Provider backbone bridge is globally enabled.</p>
Mode	Global Configuration Mode / Switch Configuration Mode

Package	Workgroup, Enterprise, Metro, and Metro_E
	<u>Note:</u> In the Workgroup and the Enterprise package, only the customer and provider are the valid parameters.
Default	Based on the bridge mode value in issnvram.txt
	<u>Note:</u> Only one bridge mode can be set at a time. If multiple bridge modes are required, multiple instances of the bridge should be run.
Example	SEFOS(config)# bridge-mode provider-backbone-icomp
Related Command(s)	<ul style="list-style-type: none"> • set gmrp disable - Shuts down GMRP module. • set gvrp disable - Shuts down GVRP module. • shutdown garp - Shuts down GARP module. • set mmrp disable - Shuts down MMRP module. • set mvrp disable - Shuts down MVRP module. • shutdown mrp - Shuts down MRP module. • shutdown aps - Shuts down ELPS module. • no ethernet cfm start - Shuts down ECFM module. • shutdown spanning-tree - Shuts down spanning tree. • no shutdown provider-backbone-bridge - Enables provider backbone bridge. • switchport [dot1q] ether-type - Configures port Ingress or Egress ethertype. • l2protocol-tunnel - Enables the tunneling of L2 protocols on this port. • l2protocol-peer - Enables peering of L2 protocols on this port. • l2protocol-discard - Sets the option to discard L2 protocols received on this port. • switchport [dot1q] ethertype mapping - Creates an ethertype swapping entry for the port. • mvrp-tunnel-address - Configures the multicast destination MAC address to be used in tunneled MVRP PDUs. • mmrp-tunnel-address - Configures the multicast destination MAC address to be used in tunneled MMRP PDUs. • show vlan device info - Displays the VLAN-related global status

variables.

20.72 l2protocol-tunnel cos

Command Objective	<p>This command configures the priority for the tunneled STP BPDUs. This value ranges from 0 to 7.</p> <p>The no form of the command configures the default priority for the tunneled STP BPDUs.</p>
Syntax	<pre>l2protocol-tunnel cos <cos-value (0-7)> no l2protocol-tunnel cos</pre>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	cos - value - 7
	<p><u>Note:</u> The configured priority value will be effective only when the L2 Protocol tunnel STP is enabled on an interface.</p>
Example	<pre>SEFOS(config)# l2protocol-tunnel cos 5</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>show l2protocol-tunnel</code> - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress STP BPDUs tunneled.

20.73 clear l2protocol-tunnel counters

Command Objective	This command clears the L2 protocol tunnel counters for the specified interface or VLAN.
Syntax	<code>clear l2protocol-tunnel counters [{<interface-type> <interface-id> vlan <vlan-id(1-4094)>}]</code>
Parameter Description	<ul style="list-style-type: none">• <interface-type> - Clears the L2 protocol counter for the specified interface. The interface can be:<ul style="list-style-type: none">▪ 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 40 Gigabits per second.▪ extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.▪ internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.▪ port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.• <interface-id> - Clears the L2 protocol counter for the specified interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• vlan <vlan-id(1-4094)> - Clears the L2 protocol tunnel counters for the specified interface or VLAN .This value ranges from 1 to 4094
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<code>SEFOS(config)# clear l2protocol-tunnel counters</code>
Related Command(s)	<ul style="list-style-type: none">• show l2protocol-tunnel - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress STP BPDUs tunneled.• show l2protocol-tunnel vlan - Displays the entries in VLAN tunnel protocol table. containing the number of ingress or egress L2 packets tunneled.

20.74 switchport dot1q customer vlan

Command Objective	This command sets the customer VLAN ID for the port. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094.
Syntax	<code>switchport dot1q customer vlan <vlan-id(1-4094)></code>
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	vlan-id - 0
Note:	This command executes only if the bridge port type is set as customerBackbonePort.
Example	<code>SEFOS(config-if)# switchport dot1q customer vlan 10</code>
Related Command(s)	<ul style="list-style-type: none">• <code>bridge port-type</code> - Sets the specified bridge port type for an interface.• <code>show [provider-bridge] port config</code> - Displays Service VLAN port information.

20.75 switchport dot1q customer vlan – Status

Command Objective	This command enables or disables Customer VLAN classification.
Syntax	<code>switchport dot1q customer vlan { enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• <code>enable</code> - Enables Customer VLAN classification.• <code>disable</code> - Disables Customer VLAN classification.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	disable
Note:	This command executes only if the bridge port type is set as customerBackbonePort.
Example	<code>SEFOS(config-if)# switchport dot1q customer vlan enable</code>
Related Command(s)	<ul style="list-style-type: none">• <code>bridge port-type</code> - Sets the specified bridge port type for an interface.• <code>show [provider-bridge] port config</code> - Displays Service VLAN port information.

20.76 switchport customer-vlan

Command Objective This command configures an entry in the Customer VLAN Identification (C-VID) registration table.

The no form of the command deletes entry in the C-VID registration table.

Note: This command is not supported for BCM target except for BCM SDK 580.

Syntax

```
switchport customer-vlan <vlan-id(1-4094)> service-vlan
<vlan-id/vfi_id> [untagged-pep {true|false}][untagged-cep
{true|false}][relay-vlan-id <integer(1-4094)>]

no switchport customer-vlan < vlan-id (1-4094)>
```

Parameter Description

- **customer-vlan < vlan-id (1-4094)>** - Configures the VLAN ID to which the C-VID registration is to be done. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094..
- **service vlan< vlan-id/vfi_id >** - Configures the service 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **untagged-pep** - Sets Untagged Provider Edge Port . The options are:
 - **true** – Enables the untagged provider edge port.
 - **false**– Disables the untagged provider edge port.
 - **untagged-cep** - Sets Untagged Customer Edge Port . The options are:
 - **true** – Enables the untagged customer edge port.
 - **false**– Disables the untagged customer edge port.
-

- **relay-vlan-id <integer(1-4094)>** - Configures the relay VLAN ID to which the C-VID registration is to be done. This value ranges from 1 to 4094.
 - This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.

Mode Interface Configuration Mode (Physical / Port channel)

Package Workgroup, Enterprise, Metro, and Metro_E

Default

- untagged-pep - false
- untagged-cep - false

Note: This command executes only if the

- Bridge mode is set as provider-edge.
- Bridge port type is set as customerEdgePort.

Example SEFOS (config-if)# **switchport customer-vlan 4 service-vlan 5**

Related Command(s)

- **bridge-mode** – Sets the bridge mode of the switch.
- **bridge port-type** - Sets the specified bridge port type for an interface.
- **show service vlan** – Displays Service VLAN configuration.
- **switchport -svlan priority** - Configures the SVLAN Priority type of the outgoing packets.

20.77 switchport service vlan

Command Objective This command configures the Service VLAN assignment for the incoming packet based on various criteria such as source MAC, destination MAC, customer VLAN ID, source IP, destination IP, and DSCP.

The no form of the command deletes the given Service VLAN classification entry.

Syntax

```
switchport service vlan <vlan-id/vfi_id> { [ customer vlan  
< vlan-id (1-4094)> { SrcMac <ucast_mac> |  
DstMac<ucast_mac> | Dscp <integer (0-63)> | DstIp <ip_addr>  
} ] | SrcMac <ucast_mac> | DstMac <ucast_mac> | dscp  
<integer (0-63)> | SrcIp <ucast_addr> [ DstIp <ip_addr> ] |  
DstIp <ip_addr> }
```

```
no switchport service vlan <vlan-id/vfi_id> { [ customer  
vlan < vlan-id (1-4094)> { SrcMac <ucast_mac> |  
DstMac<ucast_mac> | Dscp <integer (0-63)> | DstIp <ip_addr>  
} ] | SrcMac <ucast_mac> | DstMac <ucast_mac> | dscp  
<integer (0-63)> | SrcIp <ucast_addr> [ DstIp <ip_addr> ] |  
DstIp <ip_addr> }
```

Parameter Description

- **service vlan < vlan-id/vfi_id >** - Configures the service 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

-
- **customer vlan < vlan-id (1-4094)>** - Configures service VLAN assignment of the incoming packets for the specified customer VLAN ID. This is a unique value that represents the specific VLAN created and activated. This value ranges from 1 to 4094..
-

- **SrcMac** <uicast_mac> - Sets the source MAC address of the customer VLAN ID to configure service VLAN.
- **DstMac** <uicast_mac> - Sets the destination MAC address of the customer VLAN ID to configure service VLAN.
- **Dscp** <integer (0-63)> - Sets the DSCP value of the customer VLAN ID to configure service VLAN. This value ranges from 0 to 63.
- **DstIp** <ip_addr> - Sets the destination IP address of the incoming packet to configure service VLAN.
- **SrcMac** <uicast_mac> - Sets the source MAC address of the VLAN ID to configure service VLAN.
- **DstMac** <uicast_mac> - Sets the destination MAC address of the VLAN ID to configure service VLAN.
- **dscp** <integer (0-63)> - Sets the DSCP value of the VLAN ID to configure service VLAN. This value ranges from 0 to 63.
- **SrcIp** <uicast_addr> - Sets the source IP address of the incoming packet to configure service VLAN.
- **DstIp** <ip_addr> - Sets the destination IP address of the incoming packet to configure service VLAN.

Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Default SVLAN assignment is based on PVID
<u>Note:</u>	This command executes only if Service VLAN classification method is configured.
Example	<pre>SEFOS(config-if)# switchport service vlan 3 customer vlan 2 Dscp 1</pre>
Related Command(s)	<ul style="list-style-type: none"> • switchport service vlan classify - Configures the Service VLAN classification method used for the port. • show service vlan - Displays Service VLAN configuration.

20.78 switchport service vlan classify

Command Objective	<p>This command configures the Service VLAN classification method used for the port.</p> <p>The no form of the command configures a default service VLAN classification method used for the port.</p>
Syntax	<pre>switchport service vlan classify {srcMac dstMac cvlanSrcMac cvlanDstMac dscp cvlanDscp srcIp dstIp srcIpDstIp cvlanDstIp } no switchport service vlan classify</pre>
Parameter Description	<ul style="list-style-type: none">• srcMac - Sets the Source MAC-based Service VLAN classification method.• dstMac - Sets the Destination MAC-based Service VLAN classification method.• cvlanSrcMac - Sets the Customer VLAN and Source MAC-based Service VLAN classification method.• cvlanDstMac - Sets the Customer VLAN and Destination MAC-based Service VLAN classification method.• dscp - Sets the DSCP-based Service VLAN classification method.• cvlanDscp - Sets the Customer VLAN and DSCP-based Service VLAN classification method.• srcIp - Sets the Source IP-based Service VLAN classification method.• dstIp - Sets the Destination IP-based Service VLAN classification method.• srcIpDstIp - Sets the Source IP and Destination IP-based Service VLAN classification method.• cvlanDstIp - Sets the Customer VLAN and Destination IP-based Service VLAN classification method.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	<ul style="list-style-type: none">• Default Classification Method for Customer Edge Port Type: Customer VLAN• Default Classification Method for Provider Network Port Type and Customer Network Port Type : PVID <hr/> <ul style="list-style-type: none">• This command executes only if the bridge port type is set as

customerBackbonePort.

Example

SEFOS (config-if) # switchport service vlan classify srcMac

Related Command(s)

- **switchport service vlan** - Configures the Service VLAN assignment for the incoming packet based on different criteria.
 - **bridge port-type** - Sets the specified bridge port type for an interface.
 - **show service vlan** - Displays Service VLAN configuration.
 - **show [provider-bridge] port config** - Displays Service VLAN port information.
-

20.79 switchport unicast-mac learning limit

Command Objective	This command configures port unicast MAC learning limit. The no form of the command resets port unicast MAC limit.
Syntax	<code>switchport unicast-mac learning limit <size(0-4294967295)></code> <code>no switchport unicast-mac learning limit</code>
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Default value varies with target.
Example	<code>SEFOS(config-if)# switchport unicast-mac learning limit 100</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show [provider-bridge] port config</code> - Displays Service VLAN port information.

20.80 switchport [dot1q] ether-type

Command Objective	<p>This command configures port Ingress or Egress ether-type.</p> <p>The no form of the command resets port Ingress or Egress ether-type.</p>
Syntax	<pre>switchport [dot1q] { ingress egress } ether-type <size(1-65535)></pre> <pre>no switchport [dot1q] { ingress egress } ether-type</pre>
Parameter Description	<ul style="list-style-type: none">• dot1q - Enables dot1q tunneling for the specified ether-type.• ingress - Configures Ingress ether-type and hence allows the service provider to support tunneling. Packets received on a port are considered tagged when the packet ether-type matches with the port ether-type configured.• egress - Configures Egress ether-type. This object indicates the ether-type of the S-VLAN tag that has to be applied for all the outgoing packets on this port. If a valid value is in this object, all the packets which are outgoing on this port will contain the ether-type as configured in this object.• ether-type <size(1-65535)> - Configures the size of the ether-type. This value ranges from 1 to 65535.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	33024
Example	<pre>SEFOS(config-if)# switchport dot1q ingress ether-type 100</pre>
Related Command(s)	<ul style="list-style-type: none">• show [provider-bridge] port config - Displays Service VLAN port information.• switchport encapsulation - Configures standard or user-defined TPID for a port.• show vlan port config - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.

20.81 set switchport ether-type swap

Command Objective This command enables or disables ethertype swapping.

Ether type swapping is applicable for only network ports. It is done for S-Tag and B-Tag when these are either the outermost or the first level encapsulated tags for the ports in the PB or PBB bridge mode. The enable or disable for the ethertype swapping is common, that is, it is not tag-specific. The list of the allowed ethertype swapping on ports is given in the following table:

Port Type	Description
CNP S-tagged	S-Tag Ether type
PNP	B-Tag/ S-Tag Ether type

Syntax `set switchport ether-type swap { enable | disable }`

Parameter Description

- `enable` - Enables ethertype swapping
- `disable` - Disables ethertype swapping

Mode Interface Configuration Mode (Physical / Port channel)

Package Workgroup, Enterprise, Metro, and Metro_E

Default disable

Example `SEFOS(config-if)# set switchport ether-type swap enable`

Related Command(s)

- `show [provider-bridge] port config` - Displays Service VLAN port information

20.82 set switchport [service] vlan swap

Command Objective This command enables or disables VLAN swapping on a port.

VLAN swapping is done for C-VLAN, S- VLAN, and B-VLAN tags for the ports in PB/PBB bridge mode. The enable or disable for the VLAN swapping is common, that is, it is not tag-specific. The list of the allowed VLAN swapping on ports is given in the following table.

Port Type	Description
CNP S-tagged	S-VLAN and C-VLAN
CNP C-tagged	C-VLAN
PNP	B-VLAN/ S-VLAN

Syntax `set switchport [service] vlan swap { enable | disable }`

Parameter Description

- **service** - Indicates service VLAN.
- **enable** - Enables VLAN swapping.
- **disable** - Disables VLAN swapping.

Mode Interface Configuration Mode (Physical / Port channel)

Package Workgroup, Enterprise, Metro, and Metro_E

Default enable

Example

```
SEFOS(config-if)# set switchport service vlan swap enable
SEFOS(config-if)# set switchport vlan swap enable
```

Related Command(s)

- **show [service] vlan mapping** - Displays service VLAN translation information.

20.83 switchport [service] vlan mapping

Command Objective This command configures a VLAN translation entry for the port. The no form of the command deletes a VLAN translation entry from the port.

VLAN translation is done by the ports, when it is enabled. If it is disabled or it is enabled, but there is no entry for the received VLAN-ID, then no translation is done.

VLAN translation is done for outermost and the first level encapsulated tags at the ports in PB/PBB bridge mode. The list of the allowed VLAN swapping on ports in PB/PBB bridge mode is given in the following table:

Port Type	Description
CNP S-tagged	S-VLAN
CNP C-tagged	C-VLAN
PNP	B-VLAN

Outermost tags for ports are defined in the following table:

Port Type	Description
CNP S-tagged	S-Tag
CNP C-tagged	C-Tag
PNP	B-Tag

All other tables, having references to the VLAN ID in the bridge, contain the relay VLAN and not the local VLAN.

Syntax

```
switchport [service] vlan mapping <local vlan integer(1-4094)> <relay vlan integer(1-4094)>
```

```
no switchport [service] vlan mapping <vlan integer(1-4094)>
```

Parameter Description

- **service** - Indicates service VLAN.
- **<local vlan integer(1-4094)>** - Configures the value of the VLAN ID outside (sent/received) the bridge. This value ranges from 1 to 4094.
- **<relay vlan integer(1-4094)>** - Configures the value of the VLAN ID towards the relay entity of the bridge, the VLAN ID value used inside the bridge. This value ranges from 1 to 4094.

Mode Interface Configuration Mode (Physical / Port channel)

Package Workgroup, Enterprise, Metro, and Metro_E

Example SEFOS(config-if)# `switchport vlan mapping 100 200`

Related Command(s)

- `show [service] vlan mapping` - Displays service VLAN translation information.

20.84 l2protocol-tunnel

Command Objective	This command enables the tunneling of L2 protocols on this port. The no form of the command disables the tunneling of L2 protocols on this port.
Syntax	<pre>l2protocol-tunnel {dot1x lacp stp gvrp gmrp igmp mvrp mmrp elmi lldp ecfm eoam } no l2protocol-tunnel {dot1x lacp stp gvrp gmrp igmp mvrp mmrp elmi lldp ecfm eoam }</pre>
Parameter Description	<ul style="list-style-type: none">• dot1x - Enables the tunneling of L2 protocols for Dot1x PDUs.• lacp - Enables the tunneling of L2 protocols for LACP PDUs.• stp - Enables the tunneling of L2 protocols for STP BPDUs.• gvrp - Enables the tunneling of L2 protocols for GVRP BPDUs.• gmrp - Enables the tunneling of L2 protocols for GMRP BPDUs.• igmp - Enables the tunneling of L2 protocols for IGMP Packets.• mvrp - Enables the tunneling of L2 protocols for MVRP PDUs.• mmrp - Enables the tunneling of L2 protocols for MMRP PDUs.• elmi - Enables the tunneling of L2 protocols for ELMI PDUs.• lldp - Enables the tunneling of L2 protocols for LLDP PDUs.• ecfm - Enables the tunneling of L2 protocols for ECFM PDUs.• eoam - Enables the tunneling of L2 protocols for EOAM PDUs.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Based on the port type
Note:	To enable L2 protocol tunneling, <ul style="list-style-type: none">• The port must be customer edge port, customer network port, proprietary customer edge port, proprietary customer network port, or access port.• The protocol should be disabled on the port, except for IGMP and Dot1x protocol, which have to be disabled globally.
Example	<pre>SEFOS(config-if)# l2protocol-tunnel dot1x</pre>

Related Command(s)

- **show [provider-bridge] port config** – Displays Service VLAN port information.
 - **l2protocol-tunnel override** - Enables or disables the Layer 2 control protocol tunnel Override option.
 - **show l2protocol-tunnel** - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress STP BPDUs tunneled.
-

20.85 l2protocol-peer

Command Objective	This command enables peering of L2 protocols on this port.
Syntax	<code>l2protocol-peer {dot1x lacp stp gvrp gmrp igmp mvrp mmrp elmi lldp ecfm eoam }</code>
Parameter Description	<ul style="list-style-type: none">• <code>dot1x</code> - Enables peering of L2 protocols on Dot1x PDUs.• <code>lacp</code> - Enables peering of L2 protocols on LACP PDUs.• <code>stp</code> - Enables peering of L2 protocols on STP BPDUs.• <code>gvrp</code> - Enables peering of L2 protocols on GVRP BPDUs.• <code>gmrp</code> - Enables peering of L2 protocols on GMRP BPDUs.• <code>igmp</code> - Enables peering of L2 protocols on IGMP Packets.• <code>mvrp</code> - Enables peering of L2 protocols on MVRP PDUs.• <code>mmrp</code> - Enables peering of L2 protocols on MMRP PDUs.• <code>elmi</code> - Enables peering of L2 protocols for ELMI PDUs.• <code>lldp</code> - Enables peering of L2 protocols for LLDP PDUs.• <code>ecfm</code> - Enables peering of L2 protocols for ECFM PDUs.• <code>eoam</code> - Enables peering of L2 protocols for EOAM PDUs.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Based on port type
	<p><u>Note:</u> To enable L2 protocol peering, the port must be customer edge port, customer network port, proprietary customer edge port, proprietary customer network port, or access port.</p>
Example	<code>SEFOS (config-if) # l2protocol-peer lacp</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show [provider-bridge] port config</code> – Displays Service VLAN port information.• <code>l2protocol-tunnel override</code> - Enables or disables the Layer 2 control protocol tunnel Override option.• <code>show l2protocol-tunnel</code> - Displays the entries in VLAN tunnel

protocol table containing the number of ingress or egress STP BPDUs tunneled.

20.86 l2protocol-discard

Command Objective	This command sets the option to discard L2 protocol packets received on this port.
Syntax	<code>l2protocol-discard {dot1x lacp stp gvrp gmrp igmp mvrp mmrp elmi lldp ecfm eoam }</code>
Parameter Description	<ul style="list-style-type: none">• <code>dot1x</code> - Discards Dot1x PDUs received on on this port.• <code>lacp</code> - Discards LACP PDUs received on this port.• <code>stp</code> - Discards STP PDUs received on this port.• <code>gvrp</code> - Discards GVRP BPDUs received on on this port.• <code>gmrp</code> - Discards GMRP BPDUs received on on this port.• <code>igmp</code> - Discards IGMP Packets received on on this port.• <code>mvrp</code> - Discards MVRP PDUs received on on this port.• <code>mmrp</code> - Discards MMRP PDUs received on on this port.• <code>elmi</code> - Discards ELMI PDUs received on on this port.• <code>lldp</code> - Discards LLDP PDUs received on on this port.• <code>ecfm</code> - Discards ECFM PDUs received on on this port.• <code>eoam</code> - Discards EOAM PDUs received on on this port.
Mode	Interface configuration mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Based on the port type
Note:	To enable L2 protocol discard, <ul style="list-style-type: none">• The port must be customer edge port, customer network port, proprietary customer edge port, proprietary customer network port, or access port.• The protocol should be disabled on the port, except for IGMP and Dot1x protocol, which have to be disabled globally.
Example	<code>SEFOS(config-if)# l2protocol-discard gvrp</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show [provider-bridge] port config</code> – Displays Service VLAN port information.

-
- **12protocol-tunnel override** - Enables or disables the Layer 2 control protocol tunnel Override option.
 - **show 12protocol-tunnel** - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress STP BPDUs tunneled.
-

20.87 service-vlan

Command Objective	This command sets the PVID for the provider edge port.
Syntax	<code>service- vlan <vlan-id/vfi_id> pvid <vlan-id(1-4094)></code>
Parameter Description	<ul style="list-style-type: none">• <code><vlan-id/vfi_id ></code> - Configures the service VLAN/ VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <code><vlan -id></code> - VLAN ID is a unique value that represents the specific VLAN. This value ranges from 1 to 4094.▪ <code><vfi-id></code>. - 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. <p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p> <p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p> <p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p> <ul style="list-style-type: none">• <code>pvid<vlan-id(1-4094)></code> - Configures the PVID for the provider edge port for the specified VLAN ID.This value ranges from 1 to 4094.
Mode	Interface Configuration mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	By Default, PVID of this Provider Edge Port is taken from the CVID Registration Table for this SVLAN.
	<p><u>Note:</u> This command executes only if there is an entry in CVID registration table for this Service VLAN.</p>
Example	<code>SEFOS(config-if)# service-vlan 5 pvid 2</code>
Related Command(s)	<ul style="list-style-type: none">• <code>switchport customer-vlan</code> - Configures an entry in the Customer VLAN Identification (C-VID) registration table.• <code>show provider-bridge pep configuration</code> - Displays the provider edge port configuration.

20.88 service-vlan acceptable-frame-type

Command Objective	<p>This command sets the acceptable frame type value for the provider edge port.</p> <p>The no form of the command resets the acceptable frame type value for the provider edge port to default value.</p>
Syntax	<pre>service-vlan <vlan-id/vfi_id> acceptable-frame-type { all tagged untaggedandprioritytagged} no service-vlan <vlan-id/vfi_id> acceptable-frame-type</pre>
Parameter Description	<ul style="list-style-type: none">• <vlan-id/vfi_id > - Configures the acceptable frame type value for the specified service VLAN/ VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <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.<hr/><p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p><p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p><p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p><hr/>• all - Sets the acceptable frame types as all.• tagged - Sets the acceptable frame types as Tagged frames.• untaggedandprioritytagged - Sets the acceptable frame types as Untagged and Priority Tagged Frames.
Mode	Interface Configuration mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	acceptable-frame-type - all
Note:	This command executes only if there is an entry in CVID registration table for

this Service VLAN.

Example

```
SEFOS(config-if)# service-vlan 2 acceptable-frame-type  
untaggedandprioritytagged
```

Related Command(s)

- **switchport customer-vlan** - Configures an entry in the Customer VLAN Identification (C-VID) registration table.
 - **show provider-bridge pep configuration** - Displays the provider edge port configuration.
-

20.89 service-vlan ingress-filter

Command Objective	<p>This command enables or disables the Ingress Filtering for the provider edge port.</p> <p>The no form of the command sets the Ingress Filtering value for the provider edge port to default value.</p>
Syntax	<pre>service-vlan <vlan-id/vfi_id> ingress-filter { enable disable } no service-vlan <vlan-id/vfi_id> ingress-filter</pre>
Parameter Description	<ul style="list-style-type: none">• <vlan-id/vfi_id > - Configures the ingress filtering for the specified service VLAN/ VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <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.<hr/><p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p><p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p><p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p><hr/>• enable - Enables the Ingress Filtering.• disable - Disables the Ingress Filtering.
Mode	Interface configuration mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	ingress-filter - disable
	<p><u>Note:</u> There must be an entry in CVID registration table for this Service VLAN using the switchport customer-vlan command.</p>

Example

```
SEFOS(config-if)# service-vlan 5 ingress-filter enable
```

Related Command(s)

- `switchport customer-vlan` - Configures an entry in the Customer VLAN Identification (C-VID) registration table.
 - `show provider-bridge pep configuration` - Displays the provider edge port configuration.
-

20.90 service-vlan def-user-priority

Command Objective	<p>This command sets the default user priority value for the provider edge port.</p> <p>The no form of the command sets the default user priority value for the provider edge port to default value.</p>
Syntax	<pre>service-vlan <vlan-id/vfi_id> def-user-priority < default user priority (0-7)> no service-vlan <vlan-id/vfi_id> def-user-priority</pre>
Parameter Description	<ul style="list-style-type: none">• <vlan-id/vfi_id > - Configures the default user priority value for the specified service VLAN/ VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <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.<hr/><p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p><p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p><p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p><hr/>• < default user priority (0-7)> - Configures the default user priority value. This value ranges from 0 to 7.
Mode	Interface Configuration mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	def-user-priority - 0
	<p><u>Note:</u> There must be an entry in CVID registration table for this Service VLAN using the switchport customer-vlan command.</p>
Example	<pre>SEFOS(config-if)# service-vlan 5 def-user-priority 2</pre>

Related Command(s)

- **switchport customer-vlan** - Configures an entry in the Customer VLAN Identification (C-VID) registration table.
 - **show provider-bridge pep configuration** - Displays the provider edge port configuration.
-

20.91 service-vlan recv-priority

Command Objective	<p>This command configures the regenerated priority for the received service priority for internal CNP (Customer Network Port).</p> <p>The no form of the command configures the default value for the received priority for internal CNP.</p>
Syntax	<pre>service-vlan <vlan-id/vfi_id> recv-priority <received priority (0-7)> regen-priority <regenerated priority (0-7)> no service-vlan <vlan-id/vfi_id> recv-priority <received priority(0-7)></pre>
Parameter Description	<ul style="list-style-type: none">• <vlan-id/vfi_id > - Configures the regenerated or received priority value for the specified service VLAN/ VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <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.<hr/><p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p><p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p><p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p><hr/>• <received priority (0-7)> - Configures the priority value assigned or retrieved from the packet. This value ranges from 0 to 7.• <regenerated priority (0-7)> - Configures the regenerated priority. This value ranges from 0 to 7.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	recv-priority is equal to regen-priority

Note: There must be an entry in CVID registration table for this Service VLAN using the `switchport customer-vlan` command.

Example `SEFOS(config-if)# service-vlan 5 recv-priority 2 regen-priority 4`

- Related Command(s)**
- `switchport customer-vlan` - Configures an entry in the Customer VLAN Identification (C-VID) registration table.
 - `show provider-bridge pep configuration` - Displays the provider edge port configuration.
-

20.92 service-vlan cos-preservation

Command Objective	<p>This command enables or disables Class Of Service (COS) preservation for this service.</p> <p>The no form of the command sets the COS preservation value to default value for this service.</p>
Syntax	<pre>service-vlan <vlan-id/vfi_id> cos-preservation { enable disable } no service-vlan <vlan-id/vfi_id> cos-preservation</pre>
Parameter Description	<ul style="list-style-type: none">• <vlan-id/vfi_id > - Configures the COS preservation for the specified service VLAN/ VFI ID. This value ranges from 1 to 65535.<ul style="list-style-type: none">▪ <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.<hr/><p>Note: The VLAN ID 4095 is reserved and might be used to indicate a wildcard match for the VID in management operations or filtering database entries.</p><p>Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.</p><p>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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.</p><hr/>• cos-preservation - Preserves the COS and VLAN ID in the incoming C-Tagged packet.<ul style="list-style-type: none">▪ enable - Enables the COS preservation.▪ Disable - Disables the COS preservation.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	cos-preservation - disable
Note:	<p>This command executes only if</p> <ul style="list-style-type: none">• There is an entry in CVID registration table for this Service VLAN with

Untagged-PEP and Untagged-CEP set as false.

- Bridge mode is set as provider-edge.

Example

SEFOS(config-if)# service-vlan 5 cos-preservation enable

Related Command(s)

- **switchport customer-vlan** - Configures an entry in the Customer VLAN Identification (C-VID) registration table.
 - **bridge-mode**- Configures the bridge to operate on customer or provider network.
 - **show provider-bridge pep configuration** - Displays the provider edge port configuration.
-

20.93 switchport [provider-bridge] require-drop-encoding

Command Objective	This command configures the required drop encoding parameter in the port.
Syntax	<code>switchport [provider-bridge] require-drop-encoding {true false}</code>
Parameter Description	<ul style="list-style-type: none">• <code>provider-bridge</code> - Sets the bridge type as provider bridge.• <code>true</code> - Specifies that drop encoding is required.• <code>false</code> - Specifies that drop encoding is not required.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	false
Example	<pre>SEFOS(config-if)# switchport provider-bridge require-drop-encoding true SEFOS(config-if)# switchport require-drop-encoding true</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>show [provider-bridge] port config</code> - Displays Service VLAN port information.

20.94 switchport [provider-bridge] pcp-selection-row

Command Objective	<p>This command configures the PCP selection row parameter in the port. This is used to select a row in PCP encoding and decoding table.</p> <p>Refer the Standard IEEE 802.1ad/d6 –section 6.7.3 for details on Priority Code point selection row.</p>
Syntax	<pre>switchport [provider-bridge] pcp-selection-row {8POD 7P1D 6P2D 5P3D}</pre>
Parameter Description	<ul style="list-style-type: none">• provider-bridge - Indicates bridge type as provider bridge.• pcp-selection-row - Specifies the row to be used by the port in PCP encoding or decoding. The options are:<ul style="list-style-type: none">▪ 8POD▪ 7P1D▪ 6P2D▪ 5P3D
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	8POD
	<p><u>Note:</u> This command executes only if the bridge mode is set as either provider edge or provider core.</p>
Example	<pre>SEFOS(config-if)# switchport provider-bridge pcp-selection- row 7P1D SEFOS(config-if)# switchport pcp-selection-row 7P1D</pre>
Related Command(s)	<ul style="list-style-type: none">• bridge-mode – Sets the bridge mode of the switch.• show [provider-bridge] port config - Displays Service VLAN port information.

20.95 switchport [provider-bridge] use-dei

Command Objective	This command configures the Use_DEI (DEI - Drop Eligible Indicator) parameter in the port.
<u>Note:</u>	Refer the Standard IEEE 802.1ad/d6 –section 12.6.2.13 for details on Use_DEI.
Syntax	<code>switchport [provider-bridge] use-dei {true false}</code>
Parameter Description	<ul style="list-style-type: none">• <code>provider-bridge</code> - Indicates the bridge type as provider bridge.• <code>true</code> - Sets Use_DEI to true.• <code>false</code> - Sets Use_DEI to false.
Mode	Interface Configuration mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	false
<u>Note:</u>	This command executes only if the bridge is configured as either provider core bridge or provider edge bridge.
Example	<pre>SEFOS(config-if)# switchport provider-bridge use-dei true SEFOS(config-if)# switchport use-dei true</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>bridge-mode</code> - Configures the bridge to operate on customer or provider network.• <code>show [provider-bridge] port config</code> - Displays Service VLAN port information.

20.96 switchport mode dot1q-tunnel

Command Objective	This command enables dot1q-tunneling on the specified interface. The no form of the command disables dot1q-tunneling on the specified interface.
Syntax	<code>switchport mode dot1q-tunnel</code> <code>no switchport mode dot1q-tunnel</code>
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Disabled

Note:

- Bridge Mode must be set to 'provider' for the dot1q-tunneling status to be enabled.
- It is not possible to set the dot1q-tunnel status on the port if the port mode is not 'access' type.
- PNAC port control must be force-authorized.
- If dot1q tunneling is enabled on the specified interface, then GMRP is disabled internally.

Example	<code>SEFOS(config-if)# switchport mode dot1q-tunnel</code>
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Related Command(s)	<ul style="list-style-type: none">• <code>bridge-mode</code>- Configures the bridge to operate on customer or provider network.• <code>switchport mode - access</code>- Configures the VLAN port mode.• <code>show dot1q-tunnel</code> - Displays the entries in the dot1q-tunnel table.• <code>show vlan device info</code> - Displays the VLAN-related global status variables.• <code>show vlan port config</code> - Displays the VLAN port information.
---------------------------	---

20.97 service-type

Command Objective	This command configures the service type for a VLAN.
Syntax	<code>service-type {e-line e-lan}</code>
Parameter Description	<ul style="list-style-type: none">• <code>e-line</code> - Sets the service type of VLAN as two points of customer attachments in the Provider Network.• <code>e-lan</code> - Sets the service type of VLAN as multiple points of customer attachments in the Provider Network.
Mode	Config-VLAN Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	e-lan
	<u>Note:</u> To configure the service type as <ul style="list-style-type: none">• e-line – there must be two member ports for a given service VLAN.• e-lan – No restriction on the number of member ports for a given service VLAN.
Example	<code>SEFOS(config-vlan)# service-type e-line</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show vlan brief</code> - Displays the VLAN information in the database.

20.98 show service vlan

Command Objective	This command displays Service VLAN configuration.
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Syntax	<pre>show service vlan [srcMac dstMac cvlanSrcMac cvlanDstMac dscp cvlanDscp srcIp dstIp srcIpDstIp cvlanDstIp cvlan pvid] [switch <context_name>]</pre>
---------------	--

Parameter Description	<ul style="list-style-type: none">• srcMac - Displays the service VLAN configuration of the source MAC-based service VLAN.• dstMac - Displays the service VLAN configuration of the destination MAC-based service VLAN.• cvlanSrcMac - Displays the service VLAN configuration of the customer VLAN and source MAC-based service VLAN.• cvlanDstMac - Displays the service VLAN configuration of the Customer VLAN and Destination MAC-based service VLAN.• dscp - Displays the service VLAN configuration of the DSCP-based service VLAN.• cvlanDscp - Displays the service VLAN configuration of the Customer VLAN and DSCP-based service VLAN.• srcIp - Displays the service VLAN configuration of the Source IP address-based service VLAN.• dstIp - Displays the service VLAN configuration of the Destination IP address-based service VLAN.• srcIpDstIp - Displays the service VLAN configuration of the Source IP and Destination IP-based service VLAN.• cvlanDstIp - Displays the service VLAN configuration of the Customer VLAN and Destination IP-based service VLAN.• cvlan - Displays the service VLAN configuration of the Customer VLAN-based service VLAN.• pvid - Displays the service VLAN configuration of the PVID-based service VLAN.• switch <context_name> - Displays service VLAN configuration for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
------------------------------	---

Mode	Privileged EXEC Mode
-------------	----------------------

Package Workgroup, Enterprise, Metro, and Metro_E

Example

SEFOS# show service vlan

Service Vlan Classification

```
-----  
Service Vlan      Port      Customer Vlan  Untag-pep  Untag-cep  
Relay  
CVlan Id  SVLAN Pri Type  SVLAN Priority  
-----  
----- 1          Ex0/2      2          False  
False    2  
          FIXED      2  
1          Ex0/4      1          False      False  
1  
          NONE      NA  
Service Vlan      Port      pvid  
-----  
1          Ex0/1      1  
1          Ex0/2      1  
1          Ex0/3      1  
1          Ex0/4      1
```

Related Command(s)

- **switchport customer-vlan** - Configures the Service VLAN assignment for the incoming packet based on different criteria.
 - **switchport service vlan classify** - Configures the Service VLAN classification method used for the port.
 - **switchport svlan-priotype** - Configures the SVLAN Priority type of the outgoing packets.
-

20.99 show [service] vlan mapping

Command Objective	This command displays service VLAN translation information. If the interface is specified then the information of that specific interface is displayed, else the information of all the interfaces is displayed.
Syntax	<code>show [service] vlan mapping [{port <interface-type> <interface-id> switch <context_name>}]</code>
Parameter Description	<ul style="list-style-type: none">• service - Indicates service VLAN.• port - Displays service VLAN translation information for the specified interface.<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• switch <context_name> - Displays service VLAN translation information for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS# show vlan mapping port extreme-ethernet 0/1 VLAN mapping ----- Port Ex0/1 ----- Type Local VLAN Relay VLAN</pre>

C	10	5
S	10	5
B	10	5

Related Command(s)

- **switchport [service] vlan mapping** - Configures a S-VLAN translation entry for the port.
 - **set switchport [service] vlan swap** - Enables or disables service VLAN swapping.
-

20.100 show ethertype mapping

Command Objective	This command displays ethertype mapping information.
Syntax	<code>show ethertype mapping [{port <interface-type> <interface-id>} [switch <context_name>}]</code>
Parameter Description	<ul style="list-style-type: none">• port - Displays ethertype mapping information for the specified port.<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• switch <context_name> - Displays ethertype mapping information for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show ethertype mapping EtherType Mapping ----- Port Ex0/2 ----- Local EtherType Relay EtherType 0x1f40 0x2710</pre>

Multiple Instance:

SEFOS# show etherType mapping

Switch - default

EtherType Mapping

Port Ex0/2

Local EtherType	Relay EtherType
0x64	0x1f40

Related Command(s)

- **switchport [dot1q] etherType mapping** - Creates an etherType swapping entry for the port.
-

20.101 show [provider-bridge] port config

Command Objective	This command displays Service VLAN port information.
Syntax	<code>show [provider-bridge] port config [{port <interface-type> <interface-num> switch <context_name>}]</code>
Parameter Description	<ul style="list-style-type: none">• provider-bridge - Indicates the bridge type as provider bridge.• port - Displays service VLAN port information for the specified interface.<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-num> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• switch <context_name> - Displays service VLAN port information for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show provider-bridge port config Provider Bridge Port configuration table ----- Port Ex0/1 Port Type : Customer Network Port (Port-Based) Dot1x Protocol Tunnel Status : Peer</pre>

```

-----
LACP Protocol Tunnel Status      : Peer
Spanning Tree Tunnel Status      : Tunnel
MVRP Protocol Tunnel Status      : Tunnel
MMRP Protocol Tunnel Status      : Tunnel
GVRP Protocol Tunnel Status      : Tunnel
GMRP Protocol Tunnel Status      : Tunnel
IGMP Protocol Tunnel Status      : Tunnel
ELMI Protocol Tunnel Status      : Peer
LLDP Protocol Tunnel Status      : Peer
ECFM Protocol Tunnel Status      : Peer
Service Vlan Classification      : PVID
EtherType Swap Status            : Disable
Service Vlan Translation Status  : Disable
Require Drop Encoding            : False
Use_Dei                          : False
PCP Selection Row                : 8P0D
Unicast Mac Learning Status      : Enable
Unicast Mac Learning Limit       : 768
SVLAN Priority Type               : FIXED
SVLAN Priority                    : 1
-----

```

Port Ex0/2

```

Port Type                Customer Network Port (Port-
Based)
Dot1x Protocol Tunnel Status      : Peer
LACP Protocol Tunnel Status      : Peer
Spanning Tree Tunnel Status      : Tunnel
GVRP Protocol Tunnel Status      : Tunnel
GMRP Protocol Tunnel Status      : Tunnel
IGMP Protocol Tunnel Status      : Tunnel
ELMI Protocol Tunnel Status      : Peer
LLDP Protocol Tunnel Status      : Peer
ECFM Protocol Tunnel Status      : Peer
Service Vlan Classification      : PVID
Ingress EtherType              : 0x88a8
Egress EtherType                : 0x88a8
EtherType Swap Status            : Disable
-----

```

Service Vlan Translation Status	: Disable
Require Drop Encoding	: False
Use_Dei	: False
PCP Selection Row	: 8P0D
Unicast Mac Learning Status	: Enable
Unicast Mac Learning Limit	: 150
SVLAN Priority Type	: NONE

Port Ex0/3

Port Type : Customer Network Port (Stag-Based)

Service Vlan Classification	: PVID
Ingress EtherType	: 0x88a8
Egress EtherType	: 0x88a8
EtherType Swap Status	: Disable
Service Vlan Translation Status	: Enable
Require Drop Encoding	: False
Use_Dei	: False
PCP Selection Row	: 8P0D
Unicast Mac Learning Status	: Enable
Unicast Mac Learning Limit	: 150

Port Ex0/4

Port Type : Prop Customer Edge Port

Dot1x Protocol Tunnel Status	: Peer
LACP Protocol Tunnel Status	: Peer
Spanning Tree Tunnel Status	: Tunnel
GVRP Protocol Tunnel Status	: Tunnel
GMRP Protocol Tunnel Status	: Tunnel
IGMP Protocol Tunnel Status	: Tunnel
Service Vlan Classification	: PVID
Ingress EtherType	: 0x88a8
Egress EtherType	: 0x88a8
EtherType Swap Status	: Disable
Service Vlan Translation Status	: Disable
Require Drop Encoding	: False
Use_Dei	: False

PCP Selection Row : 8P0D
Unicast Mac Learning Status : Enable
Unicast Mac Learning Limit : 150
Customer Vlan Status : Disabled

Port Ex0/5

Port Type : Prop Customer Network Port
Dot1x Protocol Tunnel Status : Peer
LACP Protocol Tunnel Status : Peer
Spanning Tree Tunnel Status : Tunnel
GVRP Protocol Tunnel Status : Tunnel
GMRP Protocol Tunnel Status : Tunnel
IGMP Protocol Tunnel Status : Tunnel
Service Vlan Classification : PVID
Ingress EtherType : 0x88a8
Egress EtherType : 0x88a8
EtherType Swap Status : Disable
Service Vlan Translation Status : Disable
Require Drop Encoding : False
Use_Dei : False
PCP Selection Row : 8P0D
Unicast Mac Learning Status : Enable
Unicast Mac Learning Limit : 150
Customer Vlan Status : Disabled

Port Ex0/6

Port Type : Prop Provider Network Port
Service Vlan Classification : PVID
Ingress EtherType : 0x8100
Egress EtherType : 0x8100
EtherType Swap Status : Disable
Service Vlan Translation Status : Disable
Require Drop Encoding : False
Use_Dei : False
PCP Selection Row : 8P0D
Unicast Mac Learning Status : Enable
Unicast Mac Learning Limit : 150

Customer Vlan Status : Disabled

Port Ex0/7

Port Type : Provider Network
Port

Service Vlan Classification : PVID
Ingress EtherType : 0x88a8
Egress EtherType : 0x88a8
EtherType Swap Status : Disable
Service Vlan Translation Status : Enable
Require Drop Encoding : False
Use_Dei : False
PCP Selection Row : 8P0D
Unicast Mac Learning Status : Enable
Unicast Mac Learning Limit : 150

Multiple Instance:

SEFOS# show provider-bridge port config

Vlan-Pb Port config information

Switch default

Provider Bridge Port configuration table

Port Ex0/1

Port Type : Customer Network
Port (Port-Based)

Dot1x Protocol Tunnel Status : Peer
LACP Protocol Tunnel Status : Peer
Spanning Tree Tunnel Status : Tunnel
MVRP Protocol Tunnel Status : Tunnel
MMRP Protocol Tunnel Status : Tunnel
GVRP Protocol Tunnel Status : Tunnel
GMRP Protocol Tunnel Status : Tunnel
IGMP Protocol Tunnel Status : Tunnel
Service Vlan Classification : PVID
EtherType Swap Status : Disable

Service Vlan Translation Status	: Disable
Require Drop Encoding	: False
Use_Dei	: False
PCP Selection Row	: 8POD
Unicast Mac Learning Status	: Enable
Unicast Mac Learning Limit	: 768
SVLAN Priority Type	: COPY

Related Command(s)

- **switchport dot1q customer vlan** - Sets customer VLAN ID for the port.
 - **switchport dot1q customer vlan - status** - Enables or disables Customer VLAN classification.
 - **switchport service vlan classify** - Configures the Service VLAN classification method used for the port.
 - **switchport unicast-mac learning** - Enables or disables unicast-mac learning for the port.
 - **switchport unicast-mac learning limit** - Configures port unicast MAC learning limit.
 - **switchport [dot1q] ether-type** - Configures port Ingress or Egress ethertype.
 - **set switchport ether-type swap** - Enables or disables ethertype swapping.
 - **set switchport [service] vlan swap** - Enables or disables service VLAN swapping.
 - **switchport -svlan priority** - Configures the SVLAN Priority type of the outgoing packets.
-

20.102 show multicast-mac limit

Command Objective	This command displays the multicast MAC limit.
Syntax	<code>show multicast-mac limit [switch <context_name>]</code>
Parameter Description	<ul style="list-style-type: none">• <code>switch <context_name></code> - Displays multicast MAC limit for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance</p> <pre>SEFOS# show multicast-mac limit Multicast Mac Limit : 25</pre> <p>Multiple Instance</p> <pre>SEFOS# show multicast-mac limit switch default Switch default Multicast Mac Limit : 4096</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>multicast-mac limit</code> - Configures multicast MAC limit.

20.103 show l2protocol tunnel-mac-address

Command Objective	This command displays the tunnel MAC address configured for Layer 2 protocols.
Syntax	<code>show l2protocol tunnel-mac-address [switch <context_name>]</code>
Parameter Description	<ul style="list-style-type: none"><code>switch <context_name></code> - Displays tunnel MAC address configured for Layer 2 protocols for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS# show l2protocol tunnel-mac-address Switch default VLAN tunnel MAC address ----- Dot1x tunnel MAC address : 01:00:00:00:22:22 LACP tunnel MAC address : 01:00:00:00:22:33 STP tunnel MAC address : 01:00:00:00:22:44 MVRP tunnel MAC address : 01:00:00:00:33:88 MMRP tunnel MAC address : 01:00:00:00:33:99 GVRP tunnel MAC address : 01:00:00:00:22:55 GMRP tunnel MAC address : 01:00:00:00:22:66 ELMI tunnel MAC address : 01:00:0c:cd:cd:d7 LLDP tunnel MAC address : 01:00:0c:cd:cd:d8 ECFM tunnel MAC address : 01:00:0c:cd:cd:d9 EOAM tunnel MAC address : 01:00:0c:cd:cd:da Switch sw1 VLAN tunnel MAC address ----- Dot1x tunnel MAC address : 01:00:0c:cd:cd:d3 LACP tunnel MAC address : 01:00:0c:cd:cd:d4 STP tunnel MAC address : 01:00:0c:cd:cd:d0</pre>

```
MVRP tunnel MAC address : 01:00:0c:cd:cd:d5
MMRP tunnel MAC address : 01:00:0c:cd:cd:d6
GVRP tunnel MAC address : 01:00:0c:cd:cd:d1
GMRP tunnel MAC address : 01:00:0c:cd:cd:d2
ELMI tunnel MAC address : 01:00:0c:cd:cd:d7
LLDP tunnel MAC address : 01:00:0c:cd:cd:d8
ECFM tunnel MAC address : 01:00:0c:cd:cd:d9
EOAM tunnel MAC address : 01:00:0c:cd:cd:da
```

Switch sw2

VLAN tunnel MAC address

```
Dot1x tunnel MAC address : 01:00:0c:cd:cd:d3
LACP tunnel MAC address : 01:00:0c:cd:cd:d4
  STP tunnel MAC address : 01:00:0c:cd:cd:d0
MVRP tunnel MAC address : 01:00:0c:cd:cd:d5
MMRP tunnel MAC address : 01:00:0c:cd:cd:d6
GVRP tunnel MAC address : 01:00:0c:cd:cd:d1
GMRP tunnel MAC address : 01:00:0c:cd:cd:d2
ELMI tunnel MAC address : 01:00:0c:cd:cd:d7
LLDP tunnel MAC address : 01:00:0c:cd:cd:d8
ECFM tunnel MAC address : 01:00:0c:cd:cd:d9
EOAM tunnel MAC address : 01:00:0c:cd:cd:da
```

Switch sw3

VLAN tunnel MAC address

```
Dot1x tunnel MAC address : 01:00:0c:cd:cd:d3
LACP tunnel MAC address : 01:00:0c:cd:cd:d4
  STP tunnel MAC address : 01:00:0c:cd:cd:d0
MVRP tunnel MAC address : 01:00:0c:cd:cd:d5
MMRP tunnel MAC address : 01:00:0c:cd:cd:d6
GVRP tunnel MAC address : 01:00:0c:cd:cd:d1
GMRP tunnel MAC address : 01:00:0c:cd:cd:d2
ELMI tunnel MAC address : 01:00:0c:cd:cd:d7
```

```
LLDP tunnel MAC address : 01:00:0c:cd:cd:d8
ECFM tunnel MAC address : 01:00:0c:cd:cd:d9
EOAM tunnel MAC address : 01:00:0c:cd:cd:da
```

Related Command(s)

- **dot1x-tunnel-address** - Configures the destination MAC address to be used in tunneled DOT1X PDUs.
 - **lACP-tunnel-address** - Configures the destination MAC address to be used in tunneled LACP PDUs.
 - **stp-tunnel-address** - Configures the destination MAC address to be used in tunneled STP BPDUs.
 - **gvrp-tunnel-address** - Configures the destination MAC address to be used in tunneled GVRP PDUs.
 - **gmrp-tunnel-address** - Configures the destination MAC address to be used in tunneled GMRP PDUs.
 - **mvrp-tunnel-address** - Configures the multicast destination MAC address to be used in tunneled MVRP PDUs.
 - **mmrp-tunnel-address** - Configures the multicast destination MAC address to be used in tunneled MMRP PDUs.
 - **eoam-tunnel-address** - Configures the destination MAC address to be used in tunneled EOAM PDUs.
-

20.104 show provider-bridge pep configuration

Command Objective	This command displays the provider edge port configuration.
Syntax	<code>show provider-bridge pep configuration [{port <interface-type><interface-num> [switch <context_name>}]</code>
Parameter Description	<ul style="list-style-type: none">• port - Displays provider edge port configuration for the specified interface type . The details to be provided are:<ul style="list-style-type: none">▪ <interface-type> - Configures the receive ports details for the specified type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-id> - Configures the receive ports details for the specified type 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.• switch <context_name> - Displays provider edge port configuration for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show provider-bridge pep configuration Provider Edge Port configuration ----- Port Ex0/1 Service VLAN-ID : 2 Port VLAN-ID : 1</pre>

```
Acceptable Frame Type      : Admit all
Ingress Filtering          : Disabled
Default Priority           : 0
Oper status                : Up
```

Multiple Instance:

SEFOS# show provider-bridge pep configuration switch default

Provider Edge Port configuration

Switch - default

Port Ex0/1

```
Service VLAN-ID           : 1
Port VLAN-ID              : 2
Acceptable Frame Type     : Admit all
Ingress Filtering         : Disabled
Default Priority           : 0
Oper status                : Down
```

Related Command(s)

- **service-vlan acceptable-frame-type** - Sets the acceptable frame type value for the provider edge port.
 - **service-vlan ingress-filter** - Enables or disables the Ingress Filtering for the provider edge port.
 - **service-vlan def-user-priority** - Sets the default user priority value for the provider edge port.
 - **service-vlan recv-priority** - Configures the regenerated priority for the received service priority for the internal CNP.
-

20.105 show [provider-bridge] pcp encoding

Command Objective	This command displays PCP encoding table for all ports or for a specific port.
Syntax	<pre>show [provider-bridge] pcp encoding [{port <interface-type> <interface-num> switch <context_name>}]</pre>
Parameter Description	<ul style="list-style-type: none">• provider-bridge - Indicates the bridge type as provider bridge.• port - Displays PCP encoding table for the specified interface.<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-num> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• switch <context_name> - Displays PCP encoding table for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show provider-bridge pcp encoding port extreme- ethernet 0/1 Port Ex0/1 ----- DropEligible: 0 0DE 1 1DE 2 2DE 3 3DE 4 4DE 5 5DE 6 6DE 7 7DE Priority :</pre>

```

8POD      : 0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7
7P1D      : 0 0 1 1 2 2 3 3 5 4 5 4 6 6 7 7
6P2D      : 0 0 1 1 3 2 3 2 5 4 5 4 6 6 7 7
5P3D      : 1 0 1 0 3 2 3 2 5 4 5 4 6 6 7 7

```

Multiple Instance:

SEFOS# show provider-bridge pcp encoding switch default

Pcp Encoding Table

Switch - default

Port Ex0/1

```

-----
DropEligible: 0 0DE 1 1DE 2 2DE 3 3DE 4 4DE 5 5DE 6 6DE 7 7DE
Priority      :

```

```

8POD      : 0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7
7P1D      : 0 0 1 1 2 2 3 3 5 4 5 4 6 6 7 7
6P2D      : 0 0 1 1 3 2 3 2 5 4 5 4 6 6 7 7
5P3D      : 1 0 1 0 3 2 3 2 5 4 5 4 6 6 7 7

```

Port Ex0/2

```

-----
DropEligible: 0 0DE 1 1DE 2 2DE 3 3DE 4 4DE 5 5DE 6 6DE 7 7DE
Priority      :

```

```

8POD      : 0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7
7P1D      : 0 0 1 1 2 2 3 3 5 4 5 4 6 6 7 7
6P2D      : 0 0 1 1 3 2 3 2 5 4 5 4 6 6 7 7
5P3D      : 1 0 1 0 3 2 3 2 5 4 5 4 6 6 7 7

```

Related Command(s)

- **pcp-encoding** - Configures the encoding table.

20.106 show [provider-bridge] pcp decoding

Command Objective	This command displays Priority Code Point (PCP) decoding table for all ports and also for specific ports.
Syntax	<pre>show [provider-bridge] pcp decoding [{port <interface-type> <interface-num> switch <context_name>}]</pre>
Parameter Description	<ul style="list-style-type: none">• provider-bridge - Indicates the bridge type as provider bridge.• port - Displays PCP decoding table for the specified interface.<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-num> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• switch <context_name> - Displays PCP decoding table for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show provider-bridge pcp decoding port extreme- ethernet 0/1 Port Ex0/1 ----- PCP : 0 1 2 3 4 5 6 7 -----</pre>

```

-----
8POD  : 0   1   2   3   4   5   6   7
7P1D  : 0   1   2   3   4DE 4   6   7
6P2D  : 0   1   2DE 2   4DE 4   6   7
5P3D  : 0DE 0   2DE 2   4DE 4   6   7

```

Multiple Instance:

SEFOS# show provider-bridge pcp decoding switch default

Pcp Decoding Table

Switch - default

Port Ex0/1

PCP : 0 1 2 3 4 5 6 7

8POD : 0 1 2 3 4 5 6 7
7P1D : 0 1 2 3 4DE 4 6 7
6P2D : 0 1 2DE 2 4DE 4 6 7
5P3D : 0DE 0 2DE 2 4DE 4 6 7

Port Ex0/2

PCP : 0 1 2 3 4 5 6 7

8POD : 0 1 2 3 4 5 6 7
7P1D : 0 1 2 3 4DE 4 6 7
6P2D : 0 1 2DE 2 4DE 4 6 7
5P3D : 0DE 0 2DE 2 4DE 4 6 7

Related Command(s)

- **show provider-bridge pep configuration** - Displays the provider edge port configuration.

20.107 show provider-bridge priority regen

Command Objective	This command displays service priority regeneration table for all ports and also for a specific port.
Syntax	<code>show provider-bridge priority regen [{port <interface-type> <interface-num>} [switch <context_name>}]</code>
Parameter Description	<ul style="list-style-type: none">• port - Displays priority regeneration table for the specified interface.<ul style="list-style-type: none">▪ <interface-type> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <interface-num> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• switch <context_name> - Displays priority regeneration table for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show provider-bridge priority regen Service Priority Regeneration table ----- Port : Ex0/1 Service VLAN-ID : 2 Receive Priority Regenerated Priority ----- 0 0</pre>

1	1
2	2
3	3
4	4
5	5
6	6
7	7

Multiple Instance:

SEFOS# show provider-bridge priority regen switch default

Service Priority Regeneration table

Switch - default

Port : Ex0/1	Service VLAN-ID : 1
Receive Priority	Regenerated Priority
-----	-----
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Related Command(s)

- **service-vlan recv-priority** - Configures the regenerated priority for the received service priority for internal CNP.
 - **interface range** - Selects the range of physical interfaces and VLAN interfaces to be configured.
-

20.108 show dot1q-tunnel

Command Objective	This command displays the entries in the dot1q-tunnel table.
Syntax	<code>show dot1q-tunnel [{interface <ifXtype> <ifnum> switch <context_name>}]</code>
Parameter Description	<ul style="list-style-type: none">• interface - Displays the entries in dot1q-tunnel table for the specified interface.<ul style="list-style-type: none">▪ <ifXtype> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <ifnum> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• switch <context_name> - Displays the entries in dot1q-tunnel table for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show dot1q-tunnel Interface ----- Ex0/1</pre> <p>Multiple Instance:</p> <pre>SEFOS# show dot1q-tunnel switch cust6 Switch - cust6</pre>

Interface

Ex0/31

Related Command(s)

- **switchport mode dot1q-tunnel** - Enables dot1q-tunneling on the specified interface.
-

20.109 show l2protocol-tunnel

Command Objective	This command displays the entries in VLAN tunnel protocol table containing the number of ingress or egress STP BPDUs tunneled.
Syntax	<pre>show l2protocol-tunnel [{ interface <ifXtype> <ifnum> summary [switch <context_name>]]</pre>
Parameter Description	<ul style="list-style-type: none">• interface - Displays the entries in VLAN tunnel protocol table for the specified interface.<ul style="list-style-type: none">▪ <ifXtype> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <ifnum> - Displays the list of interfaces or a specific interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• summary - Displays brief information about the L2 protocol-tunnels.• switch <context_name> - Displays the entries in VLAN tunnel protocol table for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show l2protocol-tunnel COS for Encapsulated Packet : 5 Port Protocol Encapsulation Counter Decapsulation Counter ---- --</pre>

```
Ex0/1    stp        0                2
```

```
SEFOS# show l2protocol-tunnel summary
```

```
COS for Encapsulated Packet : 5
```

```
Port Protocol Status
```

```
---- -
```

```
Ex0/1    stp        up
```

```
SEFOS# show l2protocol-tunnel interface extreme-ethernet 0/1
```

```
COS for Encapsulated Packet : 5
```

```
Port Protocol Encapsulation Counter Decapsulation Counter
```

```
-----
```

```
Ex0/1    stp        0                58
```

```
Multiple Instance:
```

```
SEFOS# show l2protocol-tunnel summary switch cust6
```

```
Switch - cust6
```

```
COS for Encapsulated Packet : 7
```

```
Port Protocol Status
```

```
---- -
```

```
Ex0/31   stp        up
```

Related Command(s)

- **l2protocol-tunnel cos** - Configures the priority for the tunneled STP BPDUs.
 - **clear l2protocol-tunnel counters** - Clears the L2 protocol tunnel counters.
 - **l2protocol-tunnel** - Enables the tunneling of L2 protocols on this port.
 - **l2protocol-peer** - Enables peering of L2 protocols on this port.
 - **l2protocol-discard** - Sets the option to discard L2 protocols received on this port.
-

20.110 show l2protocol-discard statistics

Command Objective	This command displays the discard statistics for the L2 protocols.
Syntax	<pre>show l2protocol-discard statistics [{interface <ifXtype> <ifnum> vlan <vlan-id(1-4094)> switch <context_name>}]</pre>
Parameter Description	<ul style="list-style-type: none">• interface - Displays the discard statistics for the L2 protocols of the specified interface.<ul style="list-style-type: none">▪ <ifXtype> - Sets the type of interface. The interface can be:<ul style="list-style-type: none">• 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 40 Gigabits per second.• extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.• internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.• port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ <ifnum> - Displays the discard statistics for the L2 protocols of the specified interface identifier. This value is a combination of slot number and port number separated by a slash, for interface type other than internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel. Use comma as a separator, without space, while configuring list of interfaces. Example: 0/1,0/3 or 1,3.• vlan <vlan-id(1-4094)> - Displays the displays the discard statistics for the L2 protocols for the specified VLAN ID. This value ranges from 1 to 4094.• switch <context_name> - Displays the discard statistics of the L2 protocols for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<p>Single Instance:</p> <pre>SEFOS# show l2protocol-discard statistics Switch default Port Ex0/1 -----</pre>

Protocol	Discard-Counter:Rx	Discard-Counter:Tx
GVRP	0	0

Related Command(s)

- **12protocol-discard** - Sets the option to discard L2 protocols received on this port.
 - **12protocol-discard(For vlan)** - Discards Layer 2 protocol packets on the VLAN.
-

20.111 show vlan private-vlan

Command Objective	This command displays the private VLAN information for the switch.
Syntax	<code>show vlan private-vlan [{primary isolated community}]</code>
Parameter Description	<ul style="list-style-type: none">• primary - Displays the private VLAN information for primary VLAN.• isolated - Displays the private VLAN information for isolated VLAN.• community - Displays the private VLAN information for community VLAN.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro_E and package
Example	<pre>SEFOS# show vlan private-vlan Switch default switch default VlanId Type Primary VlanId Ports ----- - 2 isolated 10 10 primary - SEFOS # show vlan private-vlan isolated Switch default switch default VlanId Type Primary VlanId Ports ----- - 2 isolated 10</pre>
Related Command(s)	<ul style="list-style-type: none">• private-vlan - Configures the private VLAN type for the VLAN to provide Layer 2 isolation between the ports.• private-vlan association - Maps the list of VLANs to a primary VLAN and associates a specified secondary VLAN with the primary VLAN to function as a PVLAN domain in the running configuration.• switchport private-vlan host-association - Configures the association between the primary and secondary VLAN ID to host port.• switchport private-vlan mapping - Maps the private VLAN promiscuous port to the primary VLAN and to the selected secondary VLANs.

20.112 service-instance map

Command Objective	<p>This command maps the S-VLAN and C-VLAN to the ISID and provides the tagging or untagging status of the given ports for S-VLAN and C-VLAN used for egress tagging of the first level encapsulated tag (S-Tag).</p> <p>If this command is given multiple times with the same value of untagged-pip for S-VLAN and C-VLAN, it overwrites all the mappings of the S-VLAN and C-VLAN. An empty portlist deletes mapping of all VLANs to the service-instance.</p>
Syntax	<pre>service-instance map untagged-pip { true false } [vlan <port_list>]</pre>
Parameter Description	<ul style="list-style-type: none">• untagged-pip - Specifies tagging or untagging status of the first level encapsulated tag (C-Tag/S -Tag) from CNP to PIP. Specifies that S-Tag or C-Tag should be removed or inserted when sending the packet for the S-VLAN or C-VLAN (from the set of S-VLANs or C-VLANs configured) from the CNP to the PIP.<ul style="list-style-type: none">▪ true – Removes the tag.▪ false – Inserts the tag.• vlan <port_list> - Configures the range of VLAN to be mapped to ISID. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094..
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	False
Example	<pre>SEFOS(config-switch-si)# service-instance map untagged-pip true vlan 1,2</pre>
Related Command(s)	<ul style="list-style-type: none">• service instance - Configures a service-instance in the switch and enters into the service-instance configuration mode.• show service-instance config - Displays all the data related to the ISID given as the parameter.

20.113 set customer unicast-mac learning

Command Objective	This command enables or disables the customer MAC learning for a service-instance. This command is applicable at PBB I-comp only.
Syntax	<code>set customer unicast-mac learning {enable disable}</code>
Parameter Description	<ul style="list-style-type: none">• <code>enable</code> - Enables the customer MAC learning.• <code>disable</code> - Disables the customer MAC learning.
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Example	<pre>SEFOS(config-switch-si)# set customer unicast-mac learning disable</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>service instance</code> - Configures a service-instance in the switch and enters into the service-instance configuration mode.• <code>show service-instance config</code> - Displays all the data related to the ISID given as the parameter.• <code>show provider-backbone config</code> - Displays all the service data configured on the service-instance given as the parameter.

20.114 set customer unicast-mac learning limit

Command Objective This command configures the learning limit for customer MAC addresses. This value ranges from 0 to 4294967295.

The no form of the command resets the MAC learning limit to default value.

Syntax

```
set customer unicast-mac learning limit <size(0-4294967295)>

no customer unicast-mac learning limit
```

Mode Service Instance Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default Default value varies with target.

Example

```
SEFOS(config-switch-si)# set customer unicast-mac learning
limit 100
```

Related Command(s)

- **service instance** - Configures a service-instance in the switch and enters into the service-instance configuration mode.
- **show service-instance config** - Displays all the data related to the ISID given as the parameter.
- **show provider-backbone config** - Displays all the service data configured on the service-instance given as the parameter.

20.115 set default vid

Command Objective	<p>This command configures the default SVID/CVID for an I component ISID in PBB bridge mode. This value ranges from 1 to 4094..</p> <p>If this command is given multiple times for the same port, then it overwrites the previous configuration of default SVID/CVID on the port respectively. Its usage is as follows:</p> <ul style="list-style-type: none">• In S-VLAN-based I component – for untagged packets PVID for VIP will be used as SVID.• In C-VLAN-based I component – for untagged packets, PVID for VIP will be used as CVID. <p>The no form of the command removes the default SVID/CVID from the port and resets it to the PVID.</p>
Syntax	<pre>set default vid <vlan-id (1-4094)> no default vid</pre>
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS(config-switch-si)# set default vid 1</pre>
Related Command(s)	<ul style="list-style-type: none">• service instance - Configures a service-instance in the switch and enters into the service-instance configuration mode.• show service-instance config - Displays all the data related to the ISID given as the parameter.• show default vid - Displays the default SVID and CVID configured on a port, if the interface is specified.

20.116 set ether-type

Command Objective This command configures the port ingress or egress ethertype in PBB mode.

The no form of the command resets port ingress or egress ethertype.

In PBB bridge mode, this command is applicable at VIP for specifying ethertype for S-tag.

The ethertype configured at the PIP is used for translating the S-Tag ethertype, before sending the packet out at the PIP. Similarly, the S-Tag ethertype is translated at CNP, before sending the packet out using the ethertype configuration at CNP.

The following table specifies valid ethertypes for different port types:

Port Type	Ethertype
CNP	S-TAG
PIP	S-TAG
CBP	NA
PNP	B-TAG

Syntax `set { ingress | egress } ether-type <integer(1-65535)>`
`no { ingress | egress } ether-type`

Parameter Description

- `ingress` - Sets the ingress ethertype.
- `egress` - Sets the egress ethertype.
- `<integer(1-65535)>` - Configures the S-VLAN/B-VLAN tag ethertype used for the packets received on the port. Packets received on a port are considered tagged, when the packet ethertype matches with the port ethertype configured. Otherwise, they will be considered untagged. This value ranges from 1 to 65535.

Mode Service Instance Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Example `SEFOS(config-switch-si)# set ingress ether-type 23`

Related Command(s)

- `show service-instance config` - Displays all the data related to the

ISID given as the parameter.

- **show default vid** - Displays the default SVID and CVID configured on a port, if the interface is specified.
 - **show provider-backbone config** - Displays all the service data configured on the service-instance given as the parameter.
-

20.117 set vlan swap

Command Objective	This command enables or disables VLAN swapping of a C-VLAN or S-VLAN associated to a service-instance.
Syntax	<code>set vlan swap {enable disable}</code>
Parameter Description	<ul style="list-style-type: none">• <code>enable</code> - Enables VLAN swapping.• <code>disable</code> - Disables VLAN swapping
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Example	<code>SEFOS(config-switch-si)# set vlan swap enable</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show service-instance config</code> - Displays all the data related to the ISID given as the parameter.• <code>show default vid</code> - Displays the default SVID and CVID configured on a port, if the interface is specified.• <code>show provider-backbone config</code> - Displays all the service data configured on the service-instance given as the parameter.

20.118 set vlan mapping

Command Objective	<p>This command configures a VLAN translation entry for a VLAN associated to a service-instance for a port.</p> <p>The no form of the command deletes the VLAN translation for the service-instance.</p>
Syntax	<pre>set vlan mapping <local vlan integer (1-4094)> <relay vlan integer (1-4094)> no vlan mapping <vlan integer (1-4094)></pre>
Parameter Description	<ul style="list-style-type: none">• <local vlan integer (1-4094)> - Configures VID value used outside (sent or received) the bridge. This value ranges from 1 to 4094..• <relay vlan integer (1-4094)> - Configures the value of the VID towards the relay entity of the bridge, that is, the VID value used inside the bridge. This value ranges from 1 to 4094.• <vlan integer (1-4094)> - Configures the local VID value. This value ranges from 1 to 4094.
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS(config-switch-si)# set vlan mapping 1 2</pre>
Related Command(s)	<ul style="list-style-type: none">• show service-instance config - Displays all the data related to the ISID given as the parameter.• show default vid - Displays the default SVID and CVID configured on a port, if the interface is specified.• show provider-backbone config - Displays all the service data configured on the service-instance given as the parameter.

20.119 shutdown - service-instance

Command Objective	<p>This command disables sending and reception of packets for this service-instance.</p> <p>The no form of the command enables sending of the packets. This specifies the operational status of the VIP associated with the ISID.</p>
Syntax	<p>shutdown</p> <p>no shutdown</p>
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	SEFOS (config-switch-si) # shutdown
Related Command(s)	<ul style="list-style-type: none">• show service-instance config - Displays all the data related to the ISID given as the parameter.• show default vid - Displays the default SVID and CVID configured on a port, if the interface is specified.• show provider-backbone config - Displays all the service data configured on the service-instance given as the parameter.

20.120 pcp-selection-row

Command Objective	This command configures the PCP selection row parameter for a service-instance. This is used to select a row in the PCP encoding and decoding table.
Syntax	<code>pcp-selection-row {8P0D 7P1D 6P2D 5P3D}</code>
Parameter Description	<ul style="list-style-type: none">• 8P0D - Configures 8 priority PCP encoding and 0 drop eligible PCP encoding values.• 7P1D - Configures 7 priority PCP encoding and 1 drop eligible PCP encoding values.• 6P2D - Configures 6 priority PCP encoding and 2 drop eligible PCP encoding values.• 5P3D - Configures 5 priority PCP encoding and 3 drop eligible PCP encoding values.
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	8P0D
Example	<pre>SEFOS(config-switch-si)# pcp-selection-row 7P1D</pre>
Related Command(s)	<ul style="list-style-type: none">• show service-instance config - Displays all the data related to the ISID given as the parameter.• show default vid - Displays the default SVID and CVID configured on a port, if the interface is specified.• show provider-backbone line - Displays the status of whether the packets can be sent or received for a service-instance in a context.

20.121 use-dei

Command Objective	This command sets the use_dei (Drop Eligibility Indicator) for the service-instance. It specifies whether drop_eligible parameter in the PCP can be used for encoding and decoding.
Syntax	<code>use-dei {true false}</code>
Parameter Description	<ul style="list-style-type: none">• true - Encodes the drop_eligible parameter in the DEI of transmitted frames. If the DEI is set in the S-tag or the PCP decoding table indicates that drop_eligible True, then drop_eligible will become true for the received frames.• false - Transmits the DEI as zero and ignored on receipt. This can be set only on PNP's and external CNPs.
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	true
Example	<code>SEFOS(config-switch-si)# use-dei true</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show service-instance config</code> - Displays all the data related to the ISID given as the parameter.• <code>show provider-backbone config</code> - Displays all the service data configured on the service-instance given as the parameter.

20.122 require-drop-encoding

Command Objective	This command sets the require-drop-encoding feature for service-instance.
Syntax	<code>require-drop-encoding {true false}</code>
Parameter Description	<ul style="list-style-type: none">• <code>true</code> - Enables the require-drop-encoding feature for service-instance.• <code>false</code> - Disables the require-drop-encoding feature for service-instance.
Mode	Service Instance Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	<code>false</code>
Example	<code>SEFOS(config-switch-si)# require-drop-encoding true</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show service-instance config</code> - Displays all the data related to the ISID given as the parameter.• <code>show provider-backbone config</code> - Displays all the service data configured on the service-instance given as the parameter.

20.123 pcp-encoding

Command This command configures the encoding table on the service-instance.

Objective The no form of the command configures default values for PCP encoding table.

Syntax `pcp-encoding <pcp-selectionrow {8P0D | 7P1D | 6P2D | 5P3D}> priority <decoded-priority (0-7)> drop-eligible {true | false} pcp <encoded-priority (0-7)>`

`no pcp-encoding <pcp-selectionrow {8P0D | 7P1D | 6P2D | 5P3D}>`

Parameter Description

- **pcpselectionrow** - Configures the PCP selection row in the encoding table for which the PCP value to be mapped for a particular priority and drop_eligible combination. The encoding values are
 - **8P0D** – Configures 8 priority PCP encoding and 0 drop eligible PCP encoding values
 - **7P1D** - Configures 7 priority PCP encoding and 1 drop eligible PCP encoding values
 - **6P2D** - Configures 6 priority PCP encoding and 2 drop eligible PCP encoding values
 - **5P3D** - Configures 5 priority PCP encoding and 3 drop eligible PCP encoding values
- **priority <decoded-priority (0-7)>** - Configures the decoded priority associated with a particular PCP selection row. This value ranges from 0 to 7.
- **drop-eligible** - Configures the drop_eligible parameter associated with a particular priority and PCP selection row in the PCP encoding table. This can be:
 - **true** - Determines the drop eligibility of the packet as true.
 - **false** - Determines the drop eligibility of the packet as false.
- **pcp<encoded-priority (0-7)>** - Configures the encoded priority. This value ranges from 0 to 7.

Mode Service Instance Configuration Mode / Interface Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default pcpselectionrow - 8P0D

The default configuration of the PCP encoding table:

Priority	7	7D	6	6D	5	5D	4	4D	3	3D	2	2D	1	1D	0	0D	
Drop Eligible		E		E		E		E		E		E		E		E	
PCP	8P0	7	7	6	6	5	5	4	4	3	3	2	2	1	1	0	0

D																
7P1	7	7	6	6	5	4	5	4	3	3	2	2	1	1	0	0
D																
6P2	7	7	6	6	5	4	5	4	3	2	3	2	1	1	0	0
D																
5P3	7	7	6	6	5	4	5	4	3	2	3	2	1	0	1	0
D																

Note: Refer the Standard IEEE 802.1ad/d6 –section 6.7.3 for details on Priority Code point selection row

Example `SEFOS(config-switch-si)# pcp-encoding 8P0D priority 4 drop-eligible true pcp 2`

Related Command(s)

- `show provider-backbone config` - Displays all the service data configured on the service-instance given as the parameter.

20.124 pcp-decoding

Command Objective	This command configures the PCP decoding table on the service-instance. The no form of the command configures the default values for the PCP decoding table.																												
Syntax	<pre>pcp-decoding <pcpselectionrow(8P0D 7P1D 6P2D 5P3D)> pcp <recv priority (0-7)> priority <decoding priority (0-7)> drop- eligible {true false} no pcp-decoding <pcpselectionrow(8P0D 7P1D 6P2D 5P3D)></pre>																												
Parameter Description	<ul style="list-style-type: none"> • pcpselectionrow - Configures the PCP selection row in the encoding table for which the priority and drop eligible parameters are to be mapped for a given PCP value. The decoding values are <ul style="list-style-type: none"> ▪ 8P0D – Configures 8 priority PCP encoding and 0 drop eligible PCP encoding values. ▪ 7P1D - Configures 7 priority PCP encoding and 1 drop eligible PCP encoding values. ▪ 6P2D - Configures 6 priority PCP encoding and 2 drop eligible PCP encoding values. ▪ 5P3D - Configures 5 priority PCP encoding and 3 drop eligible PCP encoding values. • pcp<recv priority (0-7)> - Configures the PCP value in the decoding table for which the priority and drop eligible parameters are to be derived. This value ranges from 0 to 7. • priority - Configures the decoded priority for the PCP associated with the received frame. The frame will further be processed with this priority value. • drop-eligible - Configures the drop_eligible parameter associated with the particular PCP and PCP selection row in the PCP decoding table. This can be <ul style="list-style-type: none"> ▪ true - Determines the drop eligibility of the packet as true. ▪ false - Determines the drop eligibility of the packet as false. 																												
Mode	Service Instance Configuration Mode / Interface Configuration Mode																												
Package	Workgroup, Enterprise, Metro, and Metro_E																												
Default	pcpselectionrow - 8P0D																												
	The default values of the PCP decoding table are given in the following table:																												
	<table border="1"> <thead> <tr> <th>PCP</th> <th>7</th> <th>6</th> <th>5</th> <th>4</th> <th>3</th> <th>2</th> <th>1</th> <th>0</th> </tr> </thead> <tbody> <tr> <td>Priority</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>Drop Eligible</td> <td>8P0D</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	PCP	7	6	5	4	3	2	1	0	Priority	7	6	5	4	3	2	1	0	Drop Eligible	8P0D	7	6	5	4	3	2	1	0
PCP	7	6	5	4	3	2	1	0																					
Priority	7	6	5	4	3	2	1	0																					
Drop Eligible	8P0D	7	6	5	4	3	2	1	0																				

7P1D	7	6	4	4DE	3	2	1	0
6P2D	7	6	4	4DE	2	2DE	1	0
5P3D	7	6	4	4DE	2	2DE	0	0DE

Example

SEFOS(config-if)# **pcp-decoding 6P2D pcp 4 priority 4 drop-eligible false**

Related Command(s)

- **show provider-backbone config** - Displays all the service data configured on the service-instance given as the parameter.
-

20.125 show default vid

Command Objective	This command displays the default SVID and CVID configured on a service-instance.
Syntax	<code>show default vid service-instance <integer(256-16777214)> [switch <string(32)>]</code>
Parameter Description	<ul style="list-style-type: none">• <code><integer(256-16777214)></code> - Displays the default vid for the specified service-instance. This value ranges from 256 to 16777214.• <code>switch<string(32)></code> - Displays the default SVID and CVID configured on a service-instance for the specified context. This value represents unique name of the switch context. This value is a string whose maximum size is 32. This parameter is specific to multiple instance feature.
Mode	Privileged Exec Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS# show default vid service-instance 456 Default vid :10</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>set default vid</code> - Configures the default SVID/CVID for an I component ISID in PBB bridge mode.

20.126 show provider-backbone config service-instance

Command Objective	This command displays all the service data configured on the given service-instance.
Syntax	show provider-backbone config service-instance <integer(256-16777214)> [switch <string(32)>]
Parameter Description	<ul style="list-style-type: none"> • <integer(256-16777214)> - Displays all the service data configured, for the specified service-instance. This value ranges from 256 to 16777214. • switch<string(32)> - Displays all the service data configured for the specified context. This value represents unique name of the switch context. This value is a string whose maximum size is 32. This parameter is specific to multiple instance feature.
Mode	Privileged Exec Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS# show provider-backbone config service-instance 300 Switch 1 Provider Backbone Bridge configuration table ----- PCP Encoding Table: ----- DropEligible:0DE 0 1DE 1 2DE 2 3DE 3 4DE 4 5DE 5 6DE 6 7DE 7 Priority : ----- 8POD : 0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7 7P1D : 0 0 1 1 2 2 3 3 4 5 4 5 6 6 7 7 6P2D : 0 0 1 1 2 3 2 3 4 5 4 5 6 6 7 7 5P3D : 0 1 0 1 2 3 2 3 4 5 4 5 6 6 7 7 PCP Decoding Table: ----- PCP : 0 1 2 3 4 5 6 7 ----- 8POD : 0 1 2 3 4 5 6 7 7P1D : 0 1 2 3 4DE 4 6 7 6P2D : 0 1 2DE 2 4DE 4 6 7</pre>

```

5P3D : 0DE 0    2DE 2    4DE 4    6    7
Ingress EtherType           : 0x88a8
Egress EtherType            : 0x88a8
Require Drop Encoding        : True
Use_Dei                      : True
PCP Selection Row            : 8P0D
Customer Unicast Mac Learning Status      : Enable
Customer Unicast Mac Learning Limit       : 150
Service Vlan Mapping

```

```

Local service vlan  Relay service vlan
                   1             2
Service Vlan Translation Status      : Enable

```

Related Command(s)

- **pcp-decoding** - Configures the PCP decoding table on the service-instance.
 - **pcp-encoding** - Configures the PCP encoding table on the service-instance.
 - **require-drop-encoding** -Sets the require-drop-encoding feature for service-instance.
 - **pcp-selection-row** - Configures the PCP selection row parameter for a service-instance.
 - **set vlan mapping** - Configures a VLAN translation entry for a VLAN associated to a service-instance for a port.
 - **use-dei** - Sets the use_dei (Drop Eligibility Indicator) for the service-instance.
 - **set-ether-type** - Configures the port ingress or egress ethertype in PBB mode.
 - **set customer unicast-mac learning status** - Enables or disables the customer MAC learning for an service-instance.
 - **set customer unicast-mac learning limit** - Configures the learning limit for customer MAC addresses.
-

20.127 set sw-stats

Command Objective	This command sets the software statistics collection globally in the switch.
Syntax	<code>set sw-stats { enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• enable - Enables software statistics collection globally in the switch and the statistics will be stored in the software. This value can be set only if data switching is done by the software.• disable - Disables software statistics collection globally in the switch. The statistics collection will be done by the hardware and will not be stored in software.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	If data switching is done by software, then the default value is enabled. However, by default, statistics collection by the software is disabled.
Example	<code>SEFOS(config)# set sw-stats enable</code>
Related Command(s)	<ul style="list-style-type: none">• show vlan statistics - Displays the unicast and broadcast statistics of all active VLANs and VLANs (that are not active) for which the port details are configured.

20.128 clear mac-address-table dynamic

Command Objective This command clears the dynamically learned MAC Addresses.

Syntax

```
clear mac-address-table dynamic [interface {port-channel
<port-channel-id (1-65535)> | <interface-type> <interface-
id>}] [vlan <vlan_vfi_id>]
```

Parameter Description

- **port-channel <port-channel-id (1-65535)>** - Clears the FDB entries for the specified port channel interface. Port-Channel are logical interfaces that represents an aggregator which contains several ports aggregated together. This value ranges from 1 to 65535.
- **<interface-type>** - Clears the FDB entries 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
- **<interface-id>** - Clears the FDB entries for the interface identifier of the specified type 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 internal-lan and port-channel. Only i-lan ID is provided, for interface types i-lan.
- **vlan <vlan-id/vfi-id>** - Clears the FDB entries 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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

VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

Mode Global Configuration Mode/Switch Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Example SEFOS(config)# `clear mac-address-table dynamic`

Related Command(s)

- `show mac-address-table static unicast` - Displays the statically configured unicast address from the MAC address table.
- `show mac-address-table static multicast` - Displays the statically configured multicast entries.

20.129 debug vlan global

Command Objective	<p>This command enables tracing in VLAN sub module and generates debug statements for global traces for the specified severity levels.</p> <p>The no form of the disables tracing of the VLAN sub module.</p>
Syntax	<pre>debug vlan global [{ <short (0-7)> alerts critical debugging emergencies errors informational notification warnings }] no debug vlan global</pre>
Parameter Description	<ul style="list-style-type: none">• <short (0-7)> - Generates the debug statements for the severity level value. This value ranges from 0 to 7.• alerts - Generates debug statements for immediate action.• critical - Generates debug statements for critical conditions.• debugging - Generates debug statements for debugging messages.• emergencies - Generates debug statements when system is unusable.• errors - Generates debug statements for error conditions.• informational - Generates debug statements for information messages.• notification - Generates debug statements for normal but significant messages.• warnings - Generates debug statements for warning conditions.
Mode	Privilege Exec Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Tracing of the VLAN sub module is disabled.
Note:	The VLAN sub module tracing-related configuration takes effect in the switch only if the VLAN switching feature is started and enabled in the switch.
Example	<pre>SEFOS# debug vlan global alerts</pre>
Related Command (s)	<ul style="list-style-type: none">• no shutdown vlan - Starts and enables VLAN switching feature in the switch.• show debugging - Displays state of each debugging option.

20.130 show gmrp statistics

Command Objective	This command displays GMRP statistics for the specified port.
Syntax	<pre>show gmrp statistics [{ port <interface-type> <interface-id> }]</pre>
Parameter Description	<ul style="list-style-type: none">• <interface-type> - Displays GMRP statistics for the specified type of interface. The interface can be:<ul style="list-style-type: none">▪ 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 40 Gigabits per second.▪ extreme-ethernet – A version of Ethernet that supports data transfer up to 10 Gigabits per second.▪ internal-lan – Internal LAN created on a bridge per IEEE 802.1ap.▪ port-channel – Logical interface that represents an aggregator which contains several ports aggregated together.▪ pw - Pseudowire (PW) is an emulation of a point-to-point connection over a packet-switching network (PSN). This value ranges from 1 to 65535. Maximum number of pseudowire interfaces supported in the system is 100.▪ ac - Attachment Circuit (AC) is a physical or virtual circuit attaching a Customer Edge to a Provider Edge port. This value ranges from 1 to 65535.• <interface-id> - Displays GMRP statistics for the interface ID of the specified type 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS# show gmrp statistics port extreme-ethernet 0/1</pre>
Related Command(s)	<ul style="list-style-type: none">• set gmrp – Globally enables or disables GMRP feature on all ports of a switch.• set port gmrp – Enables or disables GMRP feature on the specified interface.

20.131 show gvrp statistics

Command Objective This command displays GVRP statistics in the system or for the specified port.

Syntax `show gvrp statistics [{ port <interface-type> <interface-id> }]`

Parameter Description

- **<interface-type>** - Displays GVRP statistics 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together.
 - **pw** - Pseudowire (PW) is a emulation of a point-to-point connection over a packet-switching network (PSN). This value ranges from 1 to 65535. Maximum number of pseudowire interfaces supported in the system is 100.
 - **ac** - Attachment Circuit (AC) is a physical or virtual circuit attaching a Customer Edge to a Provider Edge port. This value ranges from 1 to 65535.
 - **<interface-id>** - Displays GVRP statistics for the interface ID of the specified type 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 internal-lan and port-channel. Only i-lan or port-channel ID is provided for interface types internal-lan and port-channel.
-

Mode Privileged EXEC Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Example `SEFOS# show gvrp statistics port extreme-ethernet 0/1`

Switch default

GVRP Statistics for Port 1

Total valid GVRP Packets Received: 0

Join Emptys 0

Join In	0
Leave In	0
Leave All	0
Leave Empty	0
Empty	0
Total valid GVRP Packets Transmitted: 0	
Join Empty	0
Join In	0
Leave In	0
Leave All	0
Leave Empty	0
Empty	0

Related Command(s)

- **set gvrp** – Globally enables or disables GVRP feature on all ports of a switch.
 - **set port gvrp** - Enables or disables GVRP feature on the specified interface.
-

20.132 switchport [dot1q] etherstype mapping

Command Objective	<p>This command creates an etherstype swapping entry for the port.</p> <p>The no form of this command deletes an etherstype swapping entry for the port.</p>
Syntax	<pre>switchport [dot1q] etherstype mapping <local etherstype value (1-65535)> <relay etherstype value (1-65535)> no switchport [dot1q] etherstype mapping <value (1-65535)></pre>
Parameter Description	<ul style="list-style-type: none">• dot1q - Creates an etherstype swapping entry for the dot1q tunneling.• <local etherstype value (1-65535)> - Configures the local etherstype value present in the service VLAN of the ingress packet to the given port. This value ranges from 1 to 65535.• <relay etherstype value (1-65535)> - Configures the relay etherstype value. It is the relay etherstype mapped for the etherstype present in the local service VLAN tag of the ingress packet at the given port. This value ranges from 1 to 65535.
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
	<p><u>Note:</u> The bridge mode for this port should be provider core bridge or provider edge bridge.</p>
Example	<pre>SEFOS (config-if) # switchport dot1q etherstype mapping 11 22</pre>
Related Command(s)	<ul style="list-style-type: none">• show etherstype mapping - Displays etherstype mapping information.

20.133 mvrp-tunnel-address

Command Objective	<p>This command configures the multicast destination MAC address to be used in tunneled MVRP PDUs.</p> <p>When MVRP tunneling is enabled on a port, this MAC address will be used as the the destination MAC address of the received MVRP PDUs. Inside a given network, packets received with this MAC address will be treated as data packets and not processed.</p> <p>When the MVRP PDU is sent out of the given network, this MAC address will be replaced with the reserved address defined for Customer MVRP PDU. This is done only when MVRP protocol tunnel status is set to Tunnel on the outgoing port, else the packets are dropped.</p>
Syntax	<code>mvrp-tunnel-address <aa:aa:aa:aa:aa:aa></code>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	01:00:0c:cd:cd:d5
	<p><u>Note:</u></p> <ul style="list-style-type: none">• This command executes only if VLAN is started in the switch.• This configuration is effective only if MVRP tunneling is enabled.• A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling.
Example	<pre>SEFOS(config)# mvrp-tunnel-address 01:00:00:00:22:77 SEFOS(config-switch)# mvrp-tunnel-address 01:00:00:00:22:77</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>no shutdown vlan</code> - Enables VLAN on the switch.• <code>show l2protocol tunnel-mac-address</code> - Displays the tunnel MAC address configured for Layer 2 protocols

20.134 mmrp-tunnel-address

Command Objective	<p>This command configures the multicast destination MAC address to be used in tunneled MMRP PDUs.</p> <p>When MMRP tunneling is enabled on a port, this MAC address will be used as the destination MAC address of the MMRP PDUs received over this port.</p> <p>Inside a given network, MMRP PDUs received with this MAC address will be treated as data packets and not processed.</p> <p>When the tunneled MMRP PDUs are sent out of the given network, this MAC address will be replaced with the reserved address defined for MMRP PDUs. This is done only when MMRP protocol tunnel status is set to Tunnel on the outgoing port, else the packets are dropped.</p>
Syntax	<code>mmrp-tunnel-address <aa:aa:aa:aa:aa:aa></code>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	01:00:0c:cd:cd:d6
Note:	<ul style="list-style-type: none">• This command executes only if VLAN is started in the switch.• This configuration is effective only if MMRP tunneling is enabled.• A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling.
Example	<pre>SEFOS(config)# mmrp-tunnel-address 01:00:00:00:22:88 SEFOS(config-switch)# mmrp-tunnel-address 01:00:00:00:22:88</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>no shutdown vlan</code> - Enables VLAN on the switch.• <code>show l2protocol tunnel-mac-address</code> - Displays the tunnel MAC address configured for Layer 2 protocols.

20.135 user-defined TPID

Command Objective	<p>This command configures user-defined TPID allowable for Port/Egress VLAN. This value ranges from 1 to 65535.</p> <p>The no form of this command deletes the configured user-defined TPID allowable for a Port/Egress VLAN ethertype.</p>
Syntax	<pre>user-defined TPID <size(1-65535)> no user-defined TPID</pre>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	0
<u>Note:</u>	This command can be executed only if the VLAN switching feature is not shut down in the switch.
Example	<pre>SEFOS(config)# user-defined TPID 200 SEFOS(config-switch)# user-defined TPID 20</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>no shutdown vlan</code> – Enables VLAN on the switch.• <code>switchport encapsulation</code> - Configures standard or user-defined TPID for a port• <code>vlan egress ether-type</code> - Sets the VLAN egress ethertype• <code>show user-defined TPID</code> - Displays the configured user-defined TPID.

20.136 vlan egress ether-type

Command Objective	<p>This command sets the VLAN egress ethertype.</p> <p>The no form of this command resets the VLAN egress ethertype to the default value.</p>
Syntax	<pre>vlan egress ether-type {CTAG STAG QINQ user-defined} no vlan egress ether-type</pre>
Parameter Description	<ul style="list-style-type: none">• CTAG - Configures the the secondary ethertype as 0x8100.• STAG - Configures the secondary ethertype as 0x88A8.• QINQ - Configures the standard ethertype as 0x9100.• user-defined - Configures the user-defined TPID as VLAN egress ethertype. <hr/> <p>Note: This value can be set only if user-defined TPID is configured.</p> <hr/>
Mode	Config-VLAN Mode
Default	CTAG (0x8100)
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS(config-vlan)# vlan egress ether-type CTAG</pre>
Related Command(s)	<ul style="list-style-type: none">• user-defined TPID - Configures user-defined TPID allowable for Port/Egress VLAN.• vlan active - Activates a VLAN in the switch.• show vlan - Displays VLAN entry-related information of all active VLANs and VLANs (that are not active) for which the port details are configured.

20.137 switchport encapsulation

Command Objective	<p>This command configures standard or user-defined TPID for a port.</p> <p>The no form of this command deletes the configured TPID for a port.</p>
Syntax	<pre>switchport encapsulation dot1ad vlan-type {tpid1 <CTAG STAG > [tpid2] [tpid3]} no switchport encapsulation dot1ad vlan-type [tpid1] [tpid2] [tpid3]</pre>
Parameter Description	<ul style="list-style-type: none">• tpid1 CTAG - Configures standard allowable TPID for CTAG. This indicates the secondary ethertype that is allowable for a port. The configurable value for this object is 0x8100.• tpid1 STAG - Configures standard allowable TPID for STAG. This indicates the secondary ethertype that is allowable for a port. The configurable value for this object is 0x8808.• tpid2 - Configures standard allowable TPID for a port. This indicates the standard ethertype that is allowable for a port. The configurable value for this object is Q-in-Q EtherType [0x9100].• tpid3 - Configures the user-defined allowable TPID for a port.
Mode	Interface Configuration Mode (Physical / Port Channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	The TPID1 value should be configured as a value different from the default ingress ethertype. If the ingress ethertype is 0x8808, then TPID CTAG should be configured using this command and if the ingress ethertype is 0x8100, TPID STAG should be configured.
Example	<pre>SEFOS(config-if)# switchport encapsulation dot1ad vlan-type tpid1 STAG tpid2 tpid3</pre>
Related Command(s)	<ul style="list-style-type: none">• switchport [dot1q] ether-type - Configures port Ingress or Egress ethertype.• user-defined TPID - Configures user-defined TPID allowable for Port/Egress VLAN.• show vlan port config - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.

20.138 switchport egress TPID-type

Command Objective	<p>This command sets the egress TPID-type for the port.</p> <p>The no form of this command resets the egress TPID-type for port to the default value.</p>
Syntax	<pre>switchport egress TPID-type { portbased vlanbased } no switchport egress TPID-type</pre>
Parameter Description	<ul style="list-style-type: none">• portbased - Configure egress TPID-type as portbased. The egress TPID of the packet is selected from the Egress Port Table.• vlanbased - Configure egress TPID-type as VLAN-based. The egress TPID is selected from the Egress VLAN Table.
Mode	Interface Configuration Mode (Physical / Port Channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	port-based
Example	<pre>SEFOS(config-if)# switchport egress TPID-type vlanbased</pre>
Related Command(s)	<ul style="list-style-type: none">• show vlan port config - Displays the VLAN-related port-specific information for all interfaces available in the switch / all contexts.

20.139 show user-defined TPID

Command Objective	This command displays the configured user-defined TPID allowable for Port/Egress VLAN.
Syntax	<code>show user-defined TPID [switch <context_name>]</code>
Parameter Description	<ul style="list-style-type: none"><code>switch <context_name></code> - Displays the user-defined TPID for the specified context. This value represents unique name of the switch context. This value is a string whose maximum size is 32. This parameter is specific to multiple instance feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command does not display the output if the VLAN switching feature is shut down in the switch.
Example	<pre>SEFOS # show user-defined TPID switch default Switch default User Defined TPID : 0xc8 SEFOS# show user-defined TPID Switch default User Defined TPID : 0xc8 Switch sw1 User Defined TPID : 0x7d0 Switch sw2 User Defined TPID : 0x8fc</pre>
Related Command(s)	<ul style="list-style-type: none"><code>no shutdown vlan</code> - Enables VLAN on the switch.<code>user-defined TPID</code> - Configures the user-defined TPID allowable for Port/Egress VLAN.

20.140 switchport - svlan-priotype

Command Objective	This command configures the SVLAN Priority type of the outgoing packets.
Syntax	<code>switchport [customer-vlan <vlan-id(1-4094)>] svlan-priotype {fixed <integer(0-7)> copy none}</code>
Parameter Description	<ul style="list-style-type: none">• <code>customer-vlan <vlan-id(1-4094)></code> - Specifies the customer VLAN for which the SVLAN priority is to be configured.. This value ranges from 1 to 4094.• <code>fixed <integer(0-7)></code> - Sets the SVLAN priority type as fixed and configures the fixed priority value for the packets that are being S-tagged on a CEP or CNP port. This value ranges from 0 to 7.• <code>copy</code> - Sets the SVLAN prriority type as copy. This copies the incoming CVLAN priority to outgoing SVLAN priority of the packets that are being S-tagged on a CEP port.• <code>none</code> - Set the SVLAN <code>prriority type</code> as none. This implies that the outgoing SVLAN priority is not modified.
Mode	Interface Configuration Mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	none
Note:	This command is configurable only for CEP and CNP Ports.
Example	<code>SEFOS (config-if)# switchport svlan-priotype fixed 3</code>
Related Command(s)	<ul style="list-style-type: none">• <code>switchport customer-vlan</code>- Configures the Service VLAN assignment for the incoming packet based on different criteria.• <code>show service vlan</code> – Displays Service VLAN configuration.• <code>show [provider-bridge] port config</code> - Displays Service VLAN port information.

20.141 name

Command Objective	This command configures name for the VLAN. This value is a string of maximum size 32. The no form of the command deletes the configured name for the VLAN.
Syntax	name <vlan name string> no name
Mode	Config-VLAN Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	SEFOS(config-vlan)# name vlan1
Related Command(s)	<ul style="list-style-type: none">• vlan - Creates a VLAN / VFI ID and enters into the config-VLAN mode in which VLAN-specific configurations are done.• show vlan - Displays VLAN entry-related information of all active VLANs and VLANs (that are not active) for which the port details are configured

20.142 l2protocol-tunnel override

Command Objective	This command enables or disables the Layer 2 control protocol (L2CP) tunnel Override option.
Syntax	<code>l2protocol-tunnel override { enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• enable - Enables L2CP tunnel Override option. This implies that tunnel status for all the Layer 2 control protocols is referred from Port Table.• disable - Disables L2CP tunnel Override option. This implies that tunnel status for all the Layer 2 control protocols operating over a VLAN is referred from VLAN Table.
Mode	Interface configuration mode (Physical / Port channel)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	disable
Example	<code>SEFOS(config-if)# l2protocol-tunnel override enable</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show l2protocol-tunnel vlan</code> - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress STP BPDUs tunneled.• <code>l2protocol-tunnel (For vlan)</code> - Enables the tunneling of Layer 2 protocols on the VLAN.• <code>l2protocol-peer (For vlan)</code> - Enables the peering of Layer 2 Protocols on the VLAN.• <code>l2protocol-discard (For vlan)</code> - Discards Layer 2 protocol packets on the VLAN.• <code>l2protocol-tunnel</code> - Enables the tunneling of L2 protocols on the port.• <code>l2protocol-peer</code> - Enables peering of L2 protocols on the port.• <code>l2protocol-discard</code> - Sets the option to discard L2 protocols received on the port.

20.143 l2protocol-tunnel (For vlan)

Command Objective	<p>This command enables the tunneling of Layer 2 protocols on the VLAN.</p> <p>The no form of the command disables the tunneling of Layer 2 protocols on the VLAN.</p>
Syntax	<pre>l2protocol-tunnel {gvrp gmrp igmp mvrp mmrp ecfm} no l2protocol-tunnel {gvrp gmrp igmp mvrp mmrp ecfm}</pre>
Parameter Description	<ul style="list-style-type: none">• gvrp - Enables or disables the tunneling of L2 protocols for GVRP BPDUs.• gmrp - Enables or disables the tunneling of L2 protocols for GMRP BPDUs.• igmp - Enables or disables the tunneling of L2 protocols for IGMP Packets.• mvrp - Enables or disables the tunneling of L2 protocols for MVRP PDUs.• mmrp - Enables or disables the tunneling of L2 protocols for MMRP PDUs.• ecfm - Enables or disables the tunneling of L2 protocols for ECFM Packets.
Mode	Config-VLAN Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS(config-vlan)# l2protocol-tunnel igmp SEFOS(config-switch-vlan)# l2protocol-tunnel igmp</pre>
Related Command(s)	<ul style="list-style-type: none">• show l2protocol-tunnel vlan - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress L2 packets tunneled.• l2protocol-tunnel override - Enables or disables the Layer 2 control protocol tunnel Override option.• vlan - Creates a VLAN in the SEFOS and enters into the config-VLAN mode in which VLAN-specific configurations are done.

20.144 l2protocol-peer (For vlan)

Command Objective	This command enables peering of Layer 2 Protocols on the VLAN.
Syntax	<code>l2protocol-peer {gvrp gmrp igmp mvrp mmrp ecfm}</code>
Parameter Description	<ul style="list-style-type: none">• <code>gvrp</code> - Enables peering of L2 protocols on GVRP BPDUs.• <code>gmrp</code> - Enables peering of L2 protocols on GMRP BPDUs.• <code>igmp</code> - Enables peering of L2 protocols on IGMP Packets.• <code>mvrp</code> - Enables peering of L2 protocols on MVRP PDUs.• <code>mmrp</code> - Enables peering of L2 protocols on MMRP PDUs.• <code>ecfm</code> - Enables peering of L2 protocols for ECFM Packets.
Mode	Config-VLAN Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS(config-vlan)# l2protocol-peer gvrp SEFOS(config-switch-vlan)# l2protocol-peer gvrp</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>show l2protocol-tunnel vlan</code> - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress L2 packets tunneled.• <code>l2protocol-tunnel override</code> - Enables or disables the Layer 2 control protocol tunnel Override option.• <code>vlan</code> - Creates a VLAN in the SEFOS and enters into the config-VLAN mode in which VLAN-specific configurations are done.

20.145 l2protocol-discard (For vlan)

Command Objective	This command discards Layer 2 protocol packets received on the VLAN.
Syntax	<code>l2protocol-discard {gvrp gmrp igmp mvrp mmrp ecfm}</code>
Parameter Description	<ul style="list-style-type: none">• <code>gvrp</code> - Discards GVRP BPDUs received on the VLAN.• <code>gmrp</code> - Discards GMRP BPDUs received on the VLAN.• <code>igmp</code> - Discards IGMP Packets received on the VLAN.• <code>mvrp</code> - Discards MVRP PDUs received on the VLAN.• <code>mmrp</code> - Discards MMRP PDUs received on the VLAN.• <code>ecfm</code> - Discards ECFM Packets received on the VLAN.
Mode	Config-VLAN Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	<pre>SEFOS(config-vlan)# l2protocol-discard gvrp SEFOS(config-switch-vlan)# l2protocol-discard gvrp</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>show l2protocol-tunnel vlan</code> - Displays the entries in VLAN tunnel protocol table containing the number of ingress or egress L2 packets tunneled.• <code>l2protocol-tunnel override</code> - Enables or disables the Layer 2 control protocol tunnel Override option.• <code>vlan</code> - Creates a VLAN in the SEFOS and enters into the config-VLAN mode in which VLAN-specific configurations are done.• <code>show l2protocol -discard statistics</code> - Displays the discard statistics for the L2 protocols.

20.146 show l2protocol-tunnel vlan

Command Objective	This command displays the entries in VLAN tunnel protocol table containing the number of ingress or egress L2 packets tunneled.
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Syntax	<code>show l2protocol-tunnel vlan [{<vlan-id(1-4094)> summary [switch <context_name>]]]</code>
---------------	---

Parameter Description	<ul style="list-style-type: none">• <code><vlan-id(1-4094)></code> - Displays the VLAN tunnel protocol table information for the specified VLAN. This value ranges from 1 to 4094.• <code>summary</code> - Displays brief information about the L2 protocol-tunnels• <code>switch <context_name></code> - Displays the entries in VLAN tunnel protocol table for the specified context. This value represents unique name of the switch context. This value is a string with the maximum size as 32. This parameter is specific to multiple instance feature.
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Mode	Privileged EXEC Mode
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Package	Workgroup, Enterprise, Metro, and Metro_E
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Example	<pre>SEFOS # show l2protocol-tunnel summary Switch default Service Vlan Tunneling Summary: VLAN ID Protocol Received Pkt Sent Pkt Status ----- - 1 GVRP 0 0 Tunnel 1 GMPR 0 0 Tunnel 1 IGMP 0 0 Tunnel 1 MVRP 0 0 Tunnel 1 MMRP 0 0 Tunnel 1 ECFM 0 0 Peer Switch sw1 Service Vlan Tunneling Summary: VLAN ID Protocol Received Pkt Sent Pkt Status ----- - 1 GVRP 0 0 Tunnel 1 GMPR 0 0 Tunnel</pre>
----------------	--

1	IGMP	0	0	Tunnel
1	MVRP	0	0	Tunnel
1	MMRP	0	0	Tunnel
1	ECFM	0	0	Peer

Related Command(s)

- **12protocol-tunnel (For vlan)** - Enables the tunneling of Layer 2 protocols on the VLAN.
 - **12protocol-peer (For vlan)** - Enables the peering of Layer 2 Protocols on the VLAN.
 - **12protocol-discard (For vlan)** - Discards Layer 2 protocol packets on the VLAN.
 - **clear 12protocol-tunnel** - Clears the L2 protocol tunnel counters for the specified interface or VLAN.
-

20.147 vlan loopback

Command Objective	This command sets the loopback status for the VLAN interface.
Syntax	<code>vlan loopback {enable disable}</code>
Parameter Description	<ul style="list-style-type: none">• enable - Enables loopback feature for the VLAN interface. When loopback is enabled, all data packets received in the VLAN will be sent back in the same port from which the packets are received.• disable - Disables loopback feature for the VLAN interface.
Mode	Config VLAN mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	disable
Example	<code>SEFOS(config-vlan) # vlan loopback enable</code>
Related Command(s)	<ul style="list-style-type: none">• <code>show vlan</code> - Displays VLAN entry-related information of all active VLANs and VLANs (that are not active) for which the port details are configured.

20.148 eoam-tunnel-address

Command Objective	<p>This command configures the multicast destination MAC address to be used in tunneled EOAM PDUs.</p> <p>When EOAM tunneling is enabled on the port, this MAC address will be used as destination MAC address of the EOAM packets received over the port. EOAM packets received with this MAC address will be treated as data packets and are not processed.</p> <p>When the tunneled EOAM packets are sent out of the given network, this MAC address will be replaced with the reserved address defined for EOAM packets. This is done only when EOAM protocol tunnel status is set to Tunnel on the outgoing port, else the packets are dropped.</p>
Syntax	<code>eoam-tunnel-address <aa:aa:aa:aa:aa:aa></code>
Mode	Global Configuration Mode / Switch Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	01:00:0c:cd:cd:da
Note:	<ul style="list-style-type: none">• This command executes only if VLAN is started in the switch.• This configuration is effective only if EOAM tunneling is enabled.• A specific MAC address can be assigned to any one of the L2 protocols DOT1X/ LACP/ STP/ GVRP/ ELMI/ LLDP/EOAM tunneling.
Example	<pre>SEFOS (config)# eoam-tunnel-address 01:00:0c:cd:cd:da3 SEFOS (config-switch)# eoam-tunnel-address 01:00:0c:cd:cd:da</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>no shutdown vlan</code> - Enables VLAN on the switch.• <code>show 12protocol tunnel-mac-address</code> - Displays the tunnel MAC address configured for Layer 2 protocols.

CHAPTER 21

VRRP

VRRP (Virtual Router Redundancy Protocol) is an election protocol that dynamically assigns responsibility for one or more virtual router(s) to the VRRP routers(s) on a LAN, allowing several routers on a multi-access link to utilize the same virtual IP address. A VRRP router is configured to run the VRRP protocol in conjunction with one or more other routers attached to a LAN. In a VRRP setup, one router is elected as the master router with the other routers acting as backups in case of the failure of the master router. VRRP is designed to eliminate the single point of failure inherent in the static default routed environment.

21.1 router vrrp

Command Objective	<p>This command enables VRRP globally in the router and enters into the VRRP Router Configuration Mode, which allows the user to execute all the commands which support this mode.</p> <p>The no form of the command disables VRRP in the router.</p>
Syntax	<pre>router vrrp no router vrrp</pre>
Mode	Global Configuration Mode
Package	Enterprise and Metro_E
Example	<pre>SEFOS(config)# router vrrp SEFOS (config-vrrp)#</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>interface - vrrp</code> - Enables VRRP in the specified interface.• <code>vrrp -ipv4 address</code> - Sets the associated IP addresses for the virtual router.• <code>show vrrp interface - vrid</code> - Displays the VRRP status information.• <code>vrrp group shutdown</code> - Shuts down all VRRP groups.

21.2 interface – VRRP

Command Objective This command enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode, which allows the user to execute all the commands which support this mode.

The no form disables VRRP for the specified interface.

Syntax

```
interface { vlan <vlan-id/vfi-id> | <interface-type>
<interface-id> | <IP-interface-type> <IP-interface-number>}

no interface { Vlan <vlan-id/vfi-id> | <interface-type>
<interface-id> | <IP-interface-type> <IP-interface-number>}
```

Parameter Description

- **vlan <vlan-id/vfi-id>** - Enables VRRP 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **<interface-type>** - Enables VRRP 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **<interface-id>** - Enables VRRP for the specified interface identifier. 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 example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided, for interface types i-lan. For example: 1 represents i-lan ID.

- **<IP-interface-type>** - Enables VRRP in the specified L3 Pseudowire interface in the system.
- **<IP-interface-number>** - Enables VRRP for the specified 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 VRRP Router Configuration Mode

Package Enterprise and Metro_E

Example

```
SEFOS(config-vrrp)# interface vlan 1
SEFOS(config-vrrp-if)#
SEFOS (config-vrrp)# interface extreme-ethernet 0/1
SEFOS (config-vrrp-if)#
```

Related Command(s)

- **router vrrp** - Enables VRRP in the router.
- **show vrrp interface - vrid** - Displays the VRRP status information.
- **show vrrp interface** - Displays the VRRP status information for all VR-ids created on that interface.

21.3 vrrp - ipv4 address

Command Objective This command sets the associated IPv4 addresses for the virtual router. On executing this command the VRRP module starts the transition from 'Initial' state to either 'Backup' state or 'Master' state as per the election process on the specific interface.

The no form of the command deletes the associated IPv4 addresses for the virtual router.

Syntax

```
vrrp <vrid(1-255)> ipv4 <ip_addr> [secondary]  
no vrrp <vrid(1-255)> ipv4 [<ip_addr>][secondary]]
```

Parameter Description

- **<vrid(1-255)>** - Configures virtual router identifier(VRID)which is a number along with an interface to uniquely identify a virtual router on a given VRRP router. This value ranges from 1 to 255.
- **ipv4 <ip_addr >** - Configures an IPv4 address for the specified virtual router ID.
- **secondary** - Configures the secondary IP address for the specified virtual router.

Mode VRRP Interface Configuration Mode

Package Enterprise and Metro_E

Example SEFOS(config-vrrp-if)# vrrp 3 ipv4 12.0.0.1 secondary

Related Command(s)

- **router vrrp** – Enables VRRP in the router.
- **interface - VRRP** - Enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode.
- **vrrp - version** - Sets VRRP version in the router.
- **vrrp - preempt** - Enables the pre-emption of state change from either Backup to Master or conversely based on the election process.
- **vrrp - text-authentication / vrrp - authentication text** - Sets the authentication type for the virtual router to simple password.
- **vrrp - interval / vrrp - timers advertise** - Sets the advertisement timer for a virtual router.
- **show vrrp interface - vrid** – Displays the VRRP status information.
- **show vrrp interface** - Displays the VRRP status information.

21.4 vrrp - ipv6 address

Command Objective This command sets the associated IPv6 addresses for the virtual router. On executing this command the VRRP module starts the transition from 'Initial' state to either 'Backup' state or 'Master' state as per the election process on the specific interface.

The no form of the command deletes the associated IPv6 addresses for the virtual router.

Syntax

```
vrrp <vrid(1-255)> ipv6 <ip_addr> [secondary]  
no vrrp <vrid(1-255)> ipv6 [<ip_addr>[secondary]]
```

Parameter Description

- **<vrid(1-255)>** - Configures virtual router identifier(VRID) which is a number along with an interface to uniquely identify a virtual router on a given VRRP router. This value ranges from 1 to 255.
- **ipv6 <ip_addr >** - Configures an IPv6 address for the specified virtual router ID.

Note: IPv6 address cannot be configured when VRRP version is set as Version 2.

Note: VRRP is operational inside a single LAN, therefore IPv6 Address should be Link Local IP.

- **secondary** - Configures the secondary IP address for the specified virtual router.

Mode VRRP Interface Configuration Mode

Package Enterprise and Metro_E

Example SEFOS(config-vrrp-if)# vrrp 2 ipv6 fe80::1 secondary

Related Command(s)

- **router vrrp** - Enables VRRP in the router.
 - **interface - VRRP** - Enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode.
 - **vrrp - version** - Sets VRRP version in the router.
 - **vrrp - preempt** - Enables the pre-emption of state change from either Backup to Master or conversely based on the election process.
 - **vrrp - text-authentication / vrrp - authentication text** - Sets the authentication type for the virtual router to simple password.
 - **vrrp - interval / vrrp - timers advertise** - Sets the advertisement timer for a virtual router.
-

-
- `show vrrp interface - vrid` – Displays the VRRP status information.
 - `show vrrp interface` – Displays the VRRP status information.
-

21.5 vrrp – ip address

Command Objective This command sets the associated IP addresses for the virtual router. On executing this command the VRRP module starts the transition from 'Initial' state to either 'Backup' state or 'Master' state as per the election process on the specific interface.

Note: This command is a complete standardized implementation of the existing command and operates similar to that of the command **vrrp - ipv4 address**.

This command executes only if the associated primary IP addresses for the virtual router is set.

Syntax `vrrp <vrid(1-255)> ip <ip_addr> [secondary]`

Parameter Description

- **<vrid(1-255)>** - Configures virtual router identifier (VRID) which is a number along with an interface to uniquely identify a virtual router on a given VRRP router. This value ranges from 1 to 255.
- **ip <ip_addr >** - Configures a IPv4 addresses to be assigned to the VRID.
- **secondary** - Configures the secondary IP addresses for the specified virtual router.

Mode VRRP Interface Configuration Mode

Package Enterprise and Metro_E

Example `SEFOS(config-vrrp-if)# vrrp 3 ip 12.0.0.1`

Related Command(s)

- **router vrrp** - Enables VRRP in the router.
- **ip address** - Sets an IP address for an interface.
- **vrrp - preempt** - Enables the pre-emption of state change from either Backup to Master or conversely based on the election process.
- **vrrp - text-authentication / vrrp - authentication text** - Sets the authentication type for the virtual router to simple password.
- **vrrp - interval / vrrp - timers advertise** - Sets the advertisement timer for a virtual router.
- **show vrrp interface - vrid** - Displays the VRRP status information.
- **show vrrp interface** - Displays the VRRP status information.

21.6 vrrp group shutdown

Command Objective	This command shuts down all VRRP groups.
Note:	This command is a complete standardized implementation of the existing command and operates similar to that of the command <code>vrrp - ipv4 address</code> , except that all the associated IP address of the virtual router will be deleted.
Syntax	<code>vrrp group shutdown</code>
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	This command executes only if the associated primary IP addresses for the virtual router is set.
Example	<code>SEFOS(config-vrrp-if)# vrrp group shutdown</code>
Related Command(s)	<ul style="list-style-type: none">• <code>router vrrp</code> - Enables VRRP in the router.• <code>show vrrp interface - vrid</code> - Displays the VRRP status information.• <code>show vrrp interface</code> - Displays the VRRP status information.

21.7 vrrp – ipv4 priority

Command Objective	<p>This command sets the IPv4 priority for the virtual router.</p> <p>The no form of the command sets the IPv4 priority for the virtual router to its default value.</p>
Syntax	<pre>vrrp <vrid(1-255)> [ipv4] priority <priority(1-254)> no vrrp <vrid(1-255)> [ipv4] priority</pre>
Parameter Description	<ul style="list-style-type: none">• <vrid(1-255)> - Specifies a virtual router ID created for which the priority is to be set. This value ranges from 1 to 255.• ipv4 - Sets the priority value for the IPv4 address assigned to the VRID.• <priority(1-254)> - Sets the priority which is used for the virtual router master election process. Higher values imply higher priority. A priority of 255 is used for the router that owns the associated IP address(es).
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
	<p><u>Note:</u> This command executes only if the virtual router ID is created and associated primary IP addresses for the virtual router are configured.</p>
Default	priority -100
Example	<pre>SEFOS(config-vrrp-if)# vrrp 3 ipv4 priority 1</pre>
Related Command(s)	<ul style="list-style-type: none">• router vrrp - Enables VRRP in the router.• interface - VRRP - Enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode.• vrrp - ipv4 address - Sets the associated primary IPv4 addresses for the virtual router.• show vrrp interface - vrid - Displays the VRRP status information.

21.8 vrrp – ipv6 priority

Command Objective	<p>This command sets the IPv6 priority for the virtual router.</p> <p>The no form of the command sets the IPv6 priority for the virtual router to its default value.</p>
Syntax	<pre>vrrp <vrid(1-255)> ipv6 priority <priority(1-254)> no vrrp <vrid(1-255)> ipv6 priority</pre>
Parameter Description	<ul style="list-style-type: none">• <vrid(1-255)> - Specifies a virtual router ID created for which the priority is to be set. This value ranges from 1 to 255.• ipv6 - Sets the priority value for the IPv6 address assigned to the VRID.• <priority(1-254)> - Sets the priority which is used for the virtual router master election process. Higher values imply higher priority. A priority of 255 is used for the router that owns the associated IP address(es).
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	<ul style="list-style-type: none">• This command executes only if the virtual router ID is created and associated primary IP addresses for the virtual router are configured.• This command is applicable only for Version 3.
Default	priority -100
Example	<pre>SEFOS(config-vrrp-if)# vrrp 2 ipv6 priority 1</pre>
Related Command(s)	<ul style="list-style-type: none">• router vrrp - Enables VRRP in the router.• interface - VRRP - Enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode.• vrrp - ipv6 address - Sets the associated primary IPv6 addresses for the virtual router.• show vrrp interface - vrid - Displays the VRRP status information.

21.9 vrrp – ipv4 preempt

Command Objective	<p>This command enables the pre-emption of state change with respect to IPv4 address from either Backup to Master or conversely based on the election process.</p> <p>The no form of the command disables the pre-empt mode.</p>
Syntax	<pre>vrrp <vrid(1-255)> [ipv4] preempt [delay minimum <value(0-30)>] no vrrp <vrid(1-255)> [ipv4] preempt</pre>
Parameter Description	<ul style="list-style-type: none">• vrid<vrid(1-255)> - Specifies a virtual router ID created for which the pre-empt state change is to be enabled. This value ranges from 1 to 255.• ipv4 - Sets the pre-emption of state change for the IPv4 address assigned to the VRID.• delay minimum <value(0-30) - Sets the number of seconds that the router will delay before issuing an advertisement claiming Master ownership. This value ranges from 0 to 30. <p><u>Note:</u> This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.</p>
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Default	<ul style="list-style-type: none">• delay minimum - 0• Pre-emption is enabled.
Note:	This command executes only if the associated primary IP addresses for the virtual router is set.
Example	<pre>SEFOS(config-vrrp-if)# vrrp 3 ipv4 preempt</pre>
Related Command(s)	<ul style="list-style-type: none">• router vrrp - Enables VRRP in the router.• interface - VRRP - Enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode.• vrrp - ipv4 address - Sets the associated primary IPv4 addresses for the virtual router.• show vrrp interface - vrid - Displays the VRRP status information.

-
- `show vrrp interface` - Displays the VRRP status information.
-

21.10 vrrp – ipv6 preempt

Command Objective	<p>This command enables the pre-emption of state change with respect to IPv6 address from either Backup to Master or conversely based on the election process.</p> <p>The no form of the command disables the pre-empt mode.</p>
Syntax	<pre>vrrp <vrid(1-255)> ipv6 preempt [delay minimum <value(0-30)>]</pre> <pre>no vrrp <vrid(1-255)> ipv6 preempt</pre>
Parameter Description	<ul style="list-style-type: none">• vrid<vrid(1-255)> - Specifies a virtual router ID created for which the pre-empt state change is to be enabled. This value ranges from 1 to 255.• ipv6 - Sets pre-emption of state change for the IPv6 address assigned to the VRID.• delay minimum <value(0-30) - Sets the number of seconds that the router will delay before issuing an advertisement claiming master ownership. This value ranges from 0 to 30. <p>Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.</p>
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	<p>This command is applicable only for Version 3.</p> <p>This command executes only if the associated primary IP addresses for the virtual router is set.</p>
Default	<ul style="list-style-type: none">• delay minimum - 0• Pre-emption is enabled.
Example	<pre>SEFOS(config-vrrp-if)# vrrp 2 ipv6 preempt delay minimum 2</pre>
Related Command(s)	<ul style="list-style-type: none">• router vrrp - Enables VRRP in the router• interface - VRRP - Enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode• vrrp - ipv6 address - Sets the associated primary IPv6 addresses for the virtual router

-
- `show vrrp interface - vrid` - Displays the VRRP status information
 - `show vrrp interface` - Displays the VRRP status information
-

21.11 vrrp - text-authentication

Command Objective	<p>This command sets the authentication type for the virtual router to simple password.</p> <p>The no form of the command sets the authentication type for the virtual router to none</p>
Syntax	<pre>vrrp <vrid(1-255)> text-authentication <password> no vrrp <vrid(1-255)> text-authentication</pre>
Parameter Description	<ul style="list-style-type: none">• vrrp <vrid(1-255)> - Configures a virtual router ID for which the authentication type is to be set. This value ranges from 1 to 255.• <password> - Sets the authentication password which is used to validate the incoming VRRP packets. The maximum value of this string is 8.
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	<p>This command executes only if</p> <ul style="list-style-type: none">• The associated IP addresses for the virtual router is set• Auth deprecate is disabled.
Example	<pre>SEFOS(config-vrrp-if)# vrrp 3 text-authentication pwd</pre>
Related Command(s)	<ul style="list-style-type: none">• ip address - Configures IP address for an interface.• router vrrp - Enables VRRP in the router.• interface - VRRP - Enables VRRP in the specified interface.• vrrp - ipv4 address - Sets the associated IP addresses for the virtual router.• auth-deprecate - Disables the auth deprecate.• show vrrp interface - vrid - Displays the VRRP status information.

21.12 vrrp - authentication text

Command Objective	This command sets the authentication type for the virtual router to simple password.
Note:	<p>This command is a complete standardized implementation of the existing command and operates similar to that of the command <code>vrrp - text-authentication</code>.</p> <p>This feature has been included in adherence to the Industry Standard CLI syntax.</p>
Syntax	<code>vrrp <vrid(1-255)> authentication text <password></code>
Parameter Description	<ul style="list-style-type: none">• <code>vrrp <vrid(1-255)></code> - Configures a virtual router ID for which the authentication type is to be set. This value ranges from 1 to 255.• <code><password></code> - Sets the authentication password which is used to validate the incoming VRRP packets. The maximum value of this string is 8.
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	<p>This command executes only if</p> <ul style="list-style-type: none">• associated IP addresses for the virtual router is set.• Auth deprecate is disabled.
Example	<code>SEFOS(config-vrrp-if)# vrrp 3 authentication text abcdefgh</code>
Related Command(s)	<ul style="list-style-type: none">• <code>ip address</code> - Configures IP address for an interface.• <code>router vrrp</code> - Enables VRRP in the router.• <code>interface - VRRP</code> - Enables VRRP in the specified interface.• <code>vrrp - ipv4 address</code> - Sets the associated IP addresses for the virtual router.• <code>auth-deprecate</code> - Disables the auth deprecate.• <code>show vrrp interface - vrid</code> - Displays the VRRP status information.

21.13 vrrp – interval

Command Objective	<p>This command sets the advertisement timer for a virtual router and sends only the master router advertisements.</p> <p>The no form of the command sets the advertisement timer for a virtual router to default value.</p>
Syntax	<pre>vrrp <vrid(1-255)> timer [msec] <interval(1-255)secs> no vrrp <vrid(1-255)> timer</pre>
Parameter Description	<ul style="list-style-type: none">• vrrp <vrid(1-255)> - Configures the Virtual Router ID for which the advertisement timer is to be set. This value ranges from 1 to 255.• msec - Sets the of advertisement time in milliseconds. <hr/><p>Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.</p><hr/>• timer <interval(1-255)secs> - Configures the time interval between successive advertisement messages in seconds. On expiry of the advertise timer, the Master sends advertisement packets to the Backup. This value ranges from 1 to 255 in seconds.
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Default	1 second
	<p><u>Note:</u> This command executes only if the associated primary IP addresses for the virtual router is set.</p>
Example	<pre>SEFOS(config-vrrp-if)# vrrp 4 timer 6</pre>
Related Command(s)	<ul style="list-style-type: none">• ip address - Configures IP address for an interface.• router vrrp - Enables VRRP in the router• interface - VRRP - Enables VRRP in the specified interface.• vrrp - ipv4 address - Sets the associated primary IP addresses for the virtual router• show vrrp interface - vrid - Displays the VRRP status information

21.14 vrrp - ipv4 timer

Command Objective This command sets the IPv4 advertisement timer for a virtual router and sends only the master router advertisements.

The no form of the command sets the IPv4 advertisement timer for a virtual router to default value.

Note: This command is a complete standardized implementation of the existing command and operates similar to that of the command **vrrp - interval**

This feature has been included in adherence to the Industry Standard CLI syntax.

Syntax **vrrp <vrid(1-255)> [ipv4] timer [msec] <interval(1-255) secs>**

no vrrp <vrid(1-255)> [ipv4] timer

Parameter Description

- **vrrp <vrid(1-255)>** - Configures the Virtual Router ID for which the advertisement timer is to be set. This value ranges from 1 to 255.
- **[ipv4]** - Configures an IPv4 address to be assigned to the VRID.
- **timer [msec]** - Sets the advertisement timer in milliseconds.

Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.

- **<interval (1-255) secs>** - Configures the time interval between successive advertisement messages in seconds. On expiry of the advertise timer, the Master sends advertisement packets to the Backup. This value ranges from 1 to 255 in seconds.

Note: Interval should be in the range (1-255secs)/(100-255000) milliseconds in Version 2

Note: Interval should be in the range (1-40secs)/(10-40950) milliseconds in Version 2-3 and Version 3

Mode VRRP Interface Configuration Mode

Package Enterprise and Metro_E

Default 1 second

Note: This command executes only if the associated IP addresses for the virtual router is set

Example **SEFOS(config-vrrp-if)# vrrp 3 ipv4 timer msec 100**

Related Command(s)

- **ip address** - Configures IP address for an interface.
 - **router vrrp** - Enables VRRP in the router.
 - **interface - VRRP** - Enables VRRP in the specified interface.
 - **vrrp - ipv4 address** - Sets the associated IP addresses for the virtual router.
 - **show vrrp interface - vrid** - Displays the VRRP status information.
-

21.15 vrrp - ipv6 timer

Command Objective This command sets the IPv6 advertisement timer for a virtual router and sends only the master router advertisements.

The no form of the command sets the IPv6 advertisement timer for a virtual router to default value.

Note: This command is a complete standardized implementation of the existing command and operates similar to that of the command **vrrp - interval**

This feature has been included in adherence to the Industry Standard CLI syntax.

Syntax **vrrp <vrid(1-255)> ipv6 timer [msec] <interval(1-255)secs>**
no vrrp <vrid(1-255)> ipv6 timer

Parameter Description

- **vrrp <vrid(1-255)>** - Configures the Virtual Router ID for which the advertisement timer is to be set. This value ranges from 1 to 255.
- **[ipv6]** - Configures an IPv6 address to be assigned to the VRID.
- **timer [msec]** - Sets the advertisement timer in milliseconds.

Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.

- **<interval(1-255)secs>** - Configures the time interval between successive advertisement messages in seconds. On expiry of the advertise timer, the Master sends advertisement packets to the Backup. This value ranges from 1 to 255 in seconds.

Note: Interval should be in the range (1-255secs)/(100-255000) milliseconds in Version 2

Note: Interval should be in the range (1-40secs)/(10-40950) milliseconds in Version 2-3 and Version 3

Mode VRRP Interface Configuration Mode

Package Enterprise and Metro_E

Default 1 second

Note: This command executes only if the associated IP addresses for the virtual router is set

Example **SEFOS(config-vrrp-if)# vrrp 3 ipv4 timer msec 10**

Related Command(s)

- **ip address** - Configures IP address for an interface.
 - **router vrrp** - Enables VRRP in the router.
 - **interface - VRRP** - Enables VRRP in the specified interface.
 - **vrrp - ipv4 address** - Sets the associated IP addresses for the virtual router.
 - **show vrrp interface - vrid** - Displays the VRRP status information.
-

21.16 show vrrp

Command Objective This command displays the VRRP status information. for the specified VR ID .

Syntax `show vrrp [interface { vlan <VlanId/vfi-id> | <interface-type> <interface-id> | <IP-interface-type> <IP-interface-number> } <VrId(1-255)>] [{brief|detail |statistics}]`

Parameter Description

- **vlan <VlanId/vfi-id>**- Displays the VRRP status information 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **<interface-type>** - Displays the VRRP status 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **<interface-id>** - Displays the VRRP status information for the specified interface identifier. 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 and port-channel. For example: 0/1 represents that the slot number is 0 and port number is 1.
 - **<IP-interface-type>** - Displays VRRP-related configuration for the
-

specified L3 Pseudowire interface in the system.

- **<IP-interface-number>** - Displays VRRP-related configuration for the specified 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.

- **<VrId(1-255)>** - Displays the VRID which is a number along with an interface to uniquely identify a virtual router on a given VRRP router.
- **brief** - Displays the brief VRRP status information.
- **detail** - Displays the detailed VRRP status information.
- **statistics** - Displays the statistical information for the VRRP.

Mode Privileged EXEC Mode

Package Enterprise and Metro_E

Example SEFOS# show vrrp interface vlan 1 detail

```
vlan1 - vrID 1
```

```
-----  
State is Init  
Virtual IP address is 12.0.0.5  
Virtual MAC address is 00:00:5e:00:01:01  
Master router is 0.0.0.0  
Associated IpAddresses :  
-----  
12.0.0.5  
Advertise time is 1000 milli secs  
Current priority is 1  
Configured priority is 1, may preempt  
Tracked Group is not configured  
Accept Mode is Disabled  
Time Since Virtual Router is UP is 01:28:14
```

```
vlan1 - vrID 1
```

```
-----  
State is Init  
Virtual IP address is fe80::3  
Virtual MAC address is 00:00:5e:00:02:01
```

```

-----
Master router is ::
Associated IpAddresses :
-----
fe80::3
Advertise time is 1000 milli secs
Current priority is 100
Configured priority is 100, may preempt
Tracked Group is not configured
Accept Mode is Disabled
Time Since Virtual Router is UP is 01:28:14

```

```
vlan1 - vrID 2
```

```

-----
State is Init
Virtual IP address is ::
Virtual MAC address is 00:00:5e:00:02:02
Master router is ::
Associated IpAddresses :
-----
Advertise time is 1000 milli secs
Current priority is 100
Configured priority is 100, may preempt
Tracked Group is not configured
Accept Mode is Disabled
Time Since Virtual Router is UP is 01:28:14

```

```
SEFOS# show vrrp interface vlan 2 brief
```

```
P indicates configured to preempt
```

Interface	vrID	Priority	P	State	Master Addr	VRouter Addr
vlan2	1	100	P	Master	local	12.0.0.2
vlan2	2	255	P	Master	local	12.0.0.1

```
SEFOS# show vrrp interface vlan 1 statistics
```

```
vlan1 - vrID 1
```

```

-----
Transitions to Master          : 0
Advertisements Received        : 0
-----

```

```

Advertise Interval Errors      : 0
TTL Errors                     : 0
Zero Priority Packets Received : 0
Zero Priority Packets Sent     : 0
Invalid Type Packets Received : 0
Address List Errors           : 0
Packet Length Errors          : 0
V3 Advertisements Sent       : 0
V2 Advertisements Sent       : 0
V2 Advertisements Ignored    : 0
New Master Reason             : Not Master
Last Protocol Error           : No Error

```

vlan1 - vrID 1

```

Transitions to Master         : 0
Advertisements Received      : 0
Advertise Interval Errors    : 0
TTL Errors                   : 0
Zero Priority Packets Received : 0
Zero Priority Packets Sent     : 0
Invalid Type Packets Received : 0
Address List Errors          : 0
Packet Length Errors         : 0
V3 Advertisements Sent       : 0
V2 Advertisements Sent       : 0
V2 Advertisements Ignored    : 0
New Master Reason            : Not Master
Last Protocol Error           : No Error

```

vlan1 - vrID 2

```

Transitions to Master         : 0
Advertisements Received      : 0
Advertise Interval Errors    : 0
TTL Errors                   : 0
Zero Priority Packets Received : 0

```

```

Zero Priority Packets Sent      : 0
Invalid Type Packets Received  : 0
Address List Errors            : 0
Packet Length Errors           : 0
V3 Advertisements Sent        : 0
V2 Advertisements Sent        : 0
V2 Advertisements Ignored     : 0
New Master Reason              : Not Master
Last Protocol Error            : No Error

```

SEFOS# show vrrp interface vlan 2

P indicates configured to preempt

Interface	vrID	Priority	P	State	Master Addr	VRouter Addr
vlan2	1	100	P	Master	local	12.0.0.2
vlan2	2	255	P	Master	local	12.0.0.1

Related Command(s)

- **router vrrp** - Enables VRRP in the router.
- **interface** - Selects an interface to be configured.
- **vrrp - ipv4 address / vrrp - ip address** - Sets the IP address for the virtual router.
- **vrrp group shutdown** - Shuts down all VRRP groups.
- **vrrp - preempt** - Enables the pre-emption of state change from either Backup to Master or conversely based on the election process.
- **vrrp - text-authentication / vrrp - authentication text** - Sets the authentication type for the virtual router to simple password.
- **vrrp - interval / vrrp - timers advertise** - Sets the advertisement timer for a virtual router.

21.17 show vrrp interface

Command Objective This command displays the VRRP status information for all VR-IDs created on that interface.

Syntax `show vrrp interface [{ vlan <vlan-id/vfi-id> | <interface-type> <interface-id> | <IP-interface-type> <IP-interface-number>}] [{brief|detail |statistics}]`

Parameter Description

- **vlan <vlan-id/vfi-id>** - Displays the VRRP status information 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 VPLS service. This value ranges from 4096 to 65535.

Note: The VLAN ID 4095 is reserved and might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **<interface-type>** - Displays the VRRP status 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
 - **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
 - **<interface-id>** - Displays the VRRP status information for the specified interface identifier. 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 and port-channel. For example: 0/1 represents that the slot number is 0 and port number is 1.
-

- **<IP-interface-type>** - Displays VRRP-related configuration for the specified L3 Pseudowire interface in the system.
- **<IP-interface-number>** - Displays VRRP-related configuration for the specified 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.

- **brief** - Displays the brief VRRP status information for the specified interface.
- **detail** - Displays the detailed VRRP status information for the specified interface.
- **statistics** - Displays the statistical information for the VRRP for the specified interface.

Mode Privileged EXEC Mode

Package Enterprise and Metro_E

Example SEFOS# show vrrp interface
P indicates configured to preempt

Interface	vrID	Prio	P	State	Master Address	VRouter Address
vlan1	1	1	P	Init	0.0.0.0	12.0.0.5
vlan1	1	100	P	Init	::	fe80::3
vlan1	2	100	P	Init	::	::

Related Command(s)

- **router vrrp** - Enables VRRP in the router.
 - **interface - VRRP** - Enables VRRP for the specified interface.
 - **vrrp - priority** - Sets the priority for the virtual router.
 - **vrrp - ipv4 address / vrrp - ip address** - Sets the IP address for the virtual router.
 - **vrrp group shutdown** - Shuts down all VRRP groups.
 - **vrrp - preempt** - Enables the pre-emption of state change from either Backup to Master or conversely based on the election process.
-

21.18 auth-deprecat

Command Objective	This command enables or disables the Auth Deprecation flag.
Syntax	<code>auth-deprecat { enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• <code>enable</code> - Enables the AuthDeprecation flag.• <code>disable</code> - Disables the AuthDeprecation flag.
Default	enable
Mode	VRRP Router Configuration Mode
Package	Enterprise and Metro_E
Example	<code>SEFOS(config-vrrp)# auth-deprecat enable</code>

21.19 debug ip vrrp

Command Objective This command enables the tracing of the VRRP module as per the configured debug levels. The trace statements are generated for the configured trace levels.

This command does not allow combination of debug levels to be configured (that is, more than one level of trace cannot 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 this command disables the tracing of the VRRP module as per the configured debug levels. The trace statements are not generated for the configured trace levels.

Syntax

```
debug ip vrrp { all | init | pkt | timers | events |
failures | memory | buffer | version2 | version3 }

no debug ip vrrp { all | init | pkt | timers | events |
failures | memory | buffer | version2 | version3 }
```

Parameter Description

- **all** - Generates debug statements for all kinds of traces.
- **init** - Generates debug statements for init and shutdown traces. This trace is generated on failed and successful initialization and shutting down of VRRP-related module and memory.
- **pkt** - Generates debug statements for packet dump traces. This trace is generated for all events generated during processing of packets.
- **timers** - Generates debug statements for timer traces.
- **events** - Generates debug statements for event traces. This trace is generated when any of packets are sent successfully or when an ACK is received.
- **failures** - Generates debug statements for all kind of failure traces.
- **memory** - Generates debug statements for memory-related traces.
- **buffer** - Generates debug statements for buffer-related traces.
- **version2** - Generates debug statements for version2-related traces.
- **version3** - Generates debug statements for version3-related traces.

Mode User Exec Mode / Privileged EXEC Mode

Package Enterprise and Metro_E

Example SEFOS # debug ip vrrp memory

21.20 track - interface

Command Objective This command creates track group and adds an interface to the track group.

The no form of this command deletes a track group or removes an interface from the track group or both.

Syntax

```
track <group-index> interface { vlan <vlan_vfi_id> |
<iftype> <ifnum> }

no track <group-index> interface { vlan <vlan_vfi_id> |
<iftype> <ifnum> }
```

Parameter Description

- **<group-index>** - Configures the track group for an interface. This value ranges from 1 to 4294967295.
- **vlan <vlan_vfi_id>** - Enables VRRP for the specified VLAN / VFI ID. This is a unique value that represents the specific VLAN. This value ranges from 1 to 65535.
 - **<vlan -id>** - This 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 might 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 VFIs supported will be restricted to 100 added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **<iftype>** - Configures the VRRP status 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 40 Gigabits per second.
 - **extreme-ethernet** – A version of Ethernet that supports data transfer up to 10 Gigabits per second.
-

- **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
- **<ifnum>** - Enables VRRP for the specified interface identifier. 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 internal-lan, virtual, and port-channel. Only i-lan , virtual or port-channel ID is provided, for interface types internal-lan, virtual, and port-channel.

Mode	Global Configuration Mode
Package	Enterprise and Metro_E
Example	SEFOS (config)# track 1 interface vlan 1
Related Command(s)	<ul style="list-style-type: none"> • interface - vrrp – Enables VRRP in the specified interface. • vrrp -ipv4 address - Sets the associated IP addresses for the virtual router. • vrrp - track - Configures the tracking group and decrement priority. • show - track - Displays VRRP track group information.

21.21 track - links

Command Objective	This command configures number of links to track. The no form of this command resets the number of links to track.
Syntax	<pre>track <group-index> links <links-to-track(1-255)> no track <group-index> links</pre>
Parameter Description	<ul style="list-style-type: none">• <group-index> - Configures the track group for an interface. This value ranges from 1 to 4294967295.• <links-to-track(1-255)> - Configures the number of links to track. This value ranges from 1 to 255. <hr/> <p>Note: Tracked Links count should be lesser than or equal to the tracked interfaces created</p>
Mode	Global Configuration Mode
Package	Enterprise and Metro_E
Note:	This command can be configured only when a track group is already created and an interface is added.
Example	<pre>SEFOS (config)# track 1 links 1</pre>
Related Command(s)	<ul style="list-style-type: none">• track-interface - Creates track group and adds an interface to the track group.• interface - VRRP - Enables VRRP in the specified interface.• vrrp -ipv4 address - Sets the associated IP addresses for the virtual router.• show - track - Displays VRRP track group information.

21.22 vrrp - version

Command Objective	This command sets the VRRP version in the router.
Syntax	<code>vrrp version { v2 v2-v3 v3 }</code>
Parameter Description	<ul style="list-style-type: none">• <code>v2</code> - Sets the VRRP version in the router as Version 2.• <code>v2-v3</code> - Sets the VRRP version in the router as Version 2 and Version 3.• <code>v3</code> - Sets the VRRP version in the router Version 3.
Mode	VRRP Router Configuration Mode
Package	Enterprise and Metro_E
Note:	Downgrading version is not allowed
Default	v2
Example	<code>SEFOS(config-vrrp)# vrrp version v3</code>
Related Command(s)	<ul style="list-style-type: none">• <code>router vrrp</code> - Enables VRRP in the router.• <code>vrrp - ipv4 ipv6</code> - Sets the associated IP addresses for the virtual router.• <code>interface - VRRP</code> - Enables VRRP for the specified interface and enters into the VRRP Interface Configuration Mode.

21.23 vrrp - ipv4 accept-mode

Command Objective	This command enables or disables accept mode status for the specified interface.
Syntax	<code>vrrp <vrid(1-255)> [ipv4] accept-mode { enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• <code><vrid(1-255)></code> - Configures a virtual router ID for which the priority is to be set. This value ranges from 1 to 255.• <code>ipv4</code> - Configures an IPv4 address to be assigned to the VRID.• <code>enable</code> - Enables accept-mode for the specified VRID.• <code>disable</code> - Disables accept-mode for the specified VRID. <hr/> <p>Note: Accept mode is not supported in Version 2</p>
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	This command executes only if the virtual router ID is created and associated primary IP addresses for the virtual router are configured.
Example	<code>SEFOS(config-vrrp-if)# vrrp 3 ipv4 accept-mode enable</code>
Related Command(s)	<ul style="list-style-type: none">• <code>router vrrp</code> - Enables VRRP in the router.• <code>interface - VRRP</code> - Enables VRRP in the specified interface.• <code>vrrp - ipv4 address</code> - Sets the associated primary IPv4 addresses for the virtual router.• <code>show vrrp interface</code> - Displays the VRRP status information.

21.24 vrrp - ipv6 accept-mode

Command Objective	This command enables or disables accept mode status for the specified interface.
Syntax	<code>vrrp <vrid(1-255)> ipv6 accept-mode { enable disable }</code>
Parameter Description	<ul style="list-style-type: none">• <code><vrid(1-255)></code> - Configures a virtual router ID for which the priority is to be set. This value ranges from 1 to 255.• <code>ipv6</code> - Configures an IPv6 address to be assigned to the VRID.• <code>enable</code> - Enables accept-mode for the specified VRID.• <code>disable</code> - Disables accept-mode for the specified VRID. <p style="text-align: center;"><u>Note: Accept mode is not supported in Version 2.</u></p>
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	<ul style="list-style-type: none">• This command executes only if the virtual router ID is created and associated primary IP addresses for the virtual router are configured.• This command is applicable only for Version 3.
Example	<code>SEFOS(config-vrrp-if)# vrrp 2 ipv6 accept-mode enable</code>
Related Command(s)	<ul style="list-style-type: none">• <code>router vrrp</code> - Enables VRRP in the router.• <code>interface - VRRP</code> - Enables VRRP in the specified interface.• <code>vrrp - ipv6 address</code> - Sets the associated primary IPv6 addresses for the virtual router.• <code>show vrrp interface</code> - Displays the VRRP status information.

21.25 vrrp - ipv4 track

Command Objective	This command configures the tracking group and decrement priority. The no form of this command resets the tracking group and decrement priority.
Syntax	<pre>vrrp <vrid(1-255)> [ipv4] track <group-index> decrement <integer(1-254)> no vrrp <vrid(1-255)> [ipv4] track</pre>
Parameter Description	<ul style="list-style-type: none">• <vrid(1-255)> - Configures a virtual router ID for which the priority is to be set. This value ranges from 1 to 255.• ipv4 - Configures an IPv4 address to be assigned to the VRID.• track <group-index> - Specifies the track group for an interface. This value ranges from 1 to 4294967295.• decrement <integer(1-254)> - Configures the decrement priority for an interface. This value is from 1 to 254.
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	Tracked Links count should not exceed tracked interfaces created.
Example	<pre>SEFOS(config-vrrp-if)# vrrp 3 ipv4 track 1 decrement 1</pre>
Related Command(s)	<ul style="list-style-type: none">• ip address - Configures IP address for an interface.• router vrrp - Enables VRRP in the router.• interface - VRRP - Enables VRRP in the specified interface.• vrrp - ipv4 address - Sets the associated primary IP addresses for the virtual router.• track - interface - Creates track group and adds an interface to the track group.• show vrrp interface - vrid - Displays the VRRP status information.• show vrrp interface - Displays the VRRP status information.

21.26 vrrp - ipv6 track

Command Objective	This command configures the tracking group and decrement priority. The no form of this command resets the tracking group and decrement priority.
Syntax	<pre>vrrp <vrid(1-255)> ipv6 track <group-index> decrement <integer(1-254)> no vrrp <vrid(1-255)> ipv6 track</pre>
Parameter Description	<ul style="list-style-type: none">• <vrid(1-255)> - Configures a virtual router ID for which the priority is to be set. This value ranges from 1 to 255.• ipv6 - Configures an IPv6 address to be assigned to the VRID.• track <group-index> - Specifies the track group for an interface. This value ranges from 1 to 4294967295.• decrement <integer(1-254)> - Configures the decrement priority for an interface. This value is from 1 to 254.
Mode	VRRP Interface Configuration Mode
Package	Enterprise and Metro_E
Note:	<ul style="list-style-type: none">• Tracked Links count should not exceed tracked interfaces created.• This command is applicable only for Version 3.
Example	<pre>SEFOS(config-vrrp-if)# vrrp 2 ipv6 track 1 decrement 1</pre>
Related Command(s)	<ul style="list-style-type: none">• ip address - Configures IP address for an interface.• router vrrp - Enables VRRP in the router.• interface - VRRP - Enables VRRP in the specified interface.• vrrp - ipv6 address - Sets the associated primary IPv6 addresses for the virtual router.• track - interface - Creates track group and adds an interface to the track group.• show vrrp interface - vrid - Displays the VRRP status information.• show vrrp interface - Displays the VRRP status information.

21.27 show - track

Command Objective	This command displays VRRP track group information.
Syntax	<code>show track</code>
Mode	Privileged EXEC Mode
Package	Enterprise and Metro_E
Example	<pre>SEFOS # show track Track Group Information for Group 1 ----- Number of Links Required to go down for state transition: 1 Interfaces Tracked are ----- vlan 1</pre>
Related Command(s)	<ul style="list-style-type: none">• <code>track - interface</code> - Creates track group and adds an interface to the track group.• <code>track - links</code> - Configures number of links to track.
