Sun Ethernet Fabric Operating System CLI Reference Manual, Vol. 1

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Contents

Using This Documentation

- **Overview** – Provides information on Oracle 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 and Abbreviations

Terms	Explanation
AAA	Authentication, Authorization, and Accounting
ABR	Available bit rate
AC	Attachment circuit
ACL	Access control list
ADU	Automatic dialing unit
APNIC	Asia-Pacific network information centre
ARP	Address Resolution Protocol
AS	Autonomous system
ASBR	Autonomous system border router
AST	Advanced switch technology
ATM	Asynchronous transmission mode
BFD	Bidirectional Forwarding Detection
BGP	Border Gateway Protocol
BOOTP	Bootstrap Protocol
BPDU	Bridge protocol data unit

Terms	Explanation
BSD	Berkeley software distribution
BVLAN	Backbone VLAN
CBP	Customer backbone port
CFA	Common forwarding agent
CIDR	Classless interdomain routing
CIST	Common Internal Spanning Tree
CLI	Command-line interface
CNP	Customer network port
COS	Class of service
CPSS	Control packet switching system
CRU	Common Routing Utilities (FSAP2 utilities)
CSV	Circuit switched voice
CTAG	Customer VLAN tag
CVID	Customer VLAN ID
CVLAN	Customer VLAN
DAD	Duplicate address detection
DCBX	Data Center Bridging Exchange Protocol
DDP	Data Delivery Protocol
DEI	Drop eligible indicator
DF	Designated forwarder
DHCP	Dynamic Host Configuration Protocol
DHRL	DHCP relay
DHSRV	DHCP server
DLF	Destination lookup failure
DNS	Domain name system
DOT1X	IEEE Standard for Port-Based Network Access Control (PNAC) known as DOT1X or 802.1X
DP	Designated port
DR	Designated router

Terms	Explanation
DSCP	Differentiated services code point
DSMON	Differentiated services monitoring
DVMRP	Distance Vector Multicast Routing Protocol
ECFM	Ethernet connectivity fault management
ECMP	Equal cost multiple path
EIGRP	Enhanced Interior Gateway Protocol
ELMI	Ethernet local management interface
ELPS	Ethernet linear protection switching
EOAM	Ethernet operations administration and maintenance
ERPS	Ethernet ring protection switching
ESP	Ethernet switched path
EVCPRO	Ethernet virtual circuit configurations and provisioning
FDB	Forwarding database
FID	Forwarding information database
FID VLAN	Forwarding information database VLAN
GARP	Generic Attribute Registration Protocol
GMRP	GARP Multicast Registration Protocol
GVRP	GARP VLAN Registration Protocol
HDLC	High-level data link control
HTTP	Hyper Text Transport Protocol
IANA	Internet assigned numbers authority
ICMP	Internet Control Message Protocol
IGMP	Internet Group Management Protol
IGP	Interior Gateway Protocol
IGRP	Interior Gateway Routing Protocol
IGS	IGMP snooping
IP – DSLAM	Internet protocol - Digital subscriber line access multiplexer
IPDB	IP binding database

Terms	Explanation
IPMC	Inernet protocol multicast
ISDN	Integrated services for digital network
ISID	Instance service identifier
ISIS	Intermediate System-to-Intermediate System protocol
ISP	Internet service provider
IVL	Independent VLAN learning
L2CP	Layer 2 Control Protocol
L2VPN	Layer 2 virtual private network
LA	Link aggregation
LACNIC	Latin American and Caribbean Network Information Centre
LACP	Link Aggregation Control Protocol
LAN	Local area network
LCM	Logical connection manager (part of EVCPRO)
LDP	Label Distribution Protocol
LLDP	Link Layer Discovery Protocol
LS – ID	Link state identifier
LSA	Link state advertisement
LSDB	Link state database
MAC	Media access control
MAU	Medium attachment unit
MBSM	Multi board system manager
MD5	Message digest
MDI	Multiple document interface
MDIX	Media dependent interface crossover(X)
MEF	Metro Ethernet forum
MFWD	Multicast forwarding
MI	Multiple instance
MIB	Management information base

Terms	Explanation
MIDGEN	Middle level code generator
MLD	Multicast Listener Discovery
MLDS	Multicast listener discovery snooping
MMRP	Multiple MAC Registration Protocol
MPLS	Multiprotocol label switching
MPLS PW	Multiprotocol label switching - Pseudowire support
MPLSDB	Multiprotocol label switching database
MPLSOAM	Multiprotocol label switching operation and management
MRP	Multiple Registration Protocol
MSDP	Multicast Source Discovery Protocol
MST	Multiple spanning tree
MSTI	Multiple spanning tree instance
MTU	Maximum transmission unit
MVRP	Multiple VLAN Registration Protocol
NAS	Network access security
NAT	Network address translation
NBMA	Non broadcast multiple access
ND	Neighbor Discovery
NDRA	Neighbor Discovery Router Advertisement protocol
NFS	Network file system
NMS)	Network management system
NPAPI	Network processor application programming interface
NSSA	Not-so-stubby area
NV	Network virtualization
NVE	Network virtualization endpoint
NVRAM	Non volatile random access memory
OC – 12	Optical carrier - 12
OFC	Open flow client

Terms	Explanation
OFCL	Open flow client
OID	Object identifier
OOB	Out of band
OSPF	Open Shortest Path First
OSPF NSSA	OSPF not-so-stubby area
OSPFRM	Open shortest path first resource manager
OSPFTE	Open shortest path first traffic engineering
PSN	Packet-switching network
PBB	Provider backbone bridge
PBB BCOMP	Provider backbone bridging - B-Component
PBB ICOMP	Provider backbone bridging - I-Component
PBBTE	Provider backbone bridging traffic engineering
PCMCIA	Personal computer memory card international association
PCP	Priority code point
PDU	Protocol description unit
PEP	Provider edge port
PIM	Protocol independent multicast
PING	Packet Internet goopher
PING PDU	Packet Internet goopher protocol data unit
PIP	Provider instance ports
PMTU-D	PMTU discovery
PNAC	Port-based Network Access Control
PNP	Provider network port
POE	Power over Ethernet
PPP	Point-to-Point Protocol
PPPoE	Point-to-Point Protocol
PTP	Precision Time Protocol
PVID	Port VLAN ID

Terms	Explanation
PVRST	Per-VLAN rapid spanning tree
PVRT	Per VLAN Rapid Spanning Tree Protocol
PW	Pseudowire
QINQ	Q-in-Q
QoSX	Quality of Service Extention
RADIUS	Remote authentication dial in user service
RARP	Reverse Address Resolution Protocol
RBR	Routing bridge
RBRG	Routing bridge
RDNSS	Recursive DNS server
RED	Random early detection
RSVPTE	Resource Reservation Protocol with Traffic Engineering
RIB	Routing information base
RIP	Routing Information Protocol
RM	Redundancy Manager
RMON	Remote monitoring
RRD	Route redistribution
RSNA	Robust security network association
RSVPTE	Resource Reservation Protocol Traffic Engineering
RTM	Routing table manager
SEFOS	Sun Ethernet Fabric Operating System
SFTP	SSH File Transfer Protocol
SHA	Secure hash algorithm
SI	Single instance
SISP	Switch instance shared port
SLA	Service-level ageement
SLI	Socket layer interface
SNMP	Simple Network Management Protocol

Terms	Explanation
SPF	Shortest path first
SRM	State refresh messages
SSH	Secure shell
SSL	Secure sockets layer
STAG	Service VLAN tag
STP	Spanning Tree Protocol
SVL	Shared VLAN Learning
SVLAN	Service VLAN
SYNCE	Synchronous Ethernet
TAC	Transmission and admission control
TACACS	Terminal access controller access control system
TE	Traffic engineering
TESI	TE service instance
TFTP	Trivial File Transfer Protocol
TLM	Traffic engineering link management
TLV	Type, length, and value
TOS	Type of service
TPID	Tag protocol identifier
TRCRT	Traceroute
TTL	Time to live
UDP	User Datagram Protocol
URL.	Uniform resource locator
VACM	View based access control model
VCM	Virtual context manager
VFI	Virtual forwarding instance
VID	VLAN ID
VIP	Virtual instance port
VLAN	Virtual local area network

Terms	Explanation
VNI	Virtual network identifier
VPLS	Virtual private LAN service
VRF	Virtual routing and forwarding
VRID	Virtual router identifier
VRRP	Virtual Router Redundancy Protocol
VTEP	VXLAN endpoints
VXLAN	Virtual extensible local area network
WSS	Wireless switching solution
WSSUSER	Wireless switching solution user

CLI Command Modes

This table lists the various command modes used in this document with their access and exit methods.

Command Mode	Access Method	Prompt	Exit method
User EXEC	Initial mode for starting a session.	`SEFOS>`	Use the `logout` command to return to the Oracle ILOM prompt.
Privileged EXEC	From User EXEC mode, use the `enable` command.	`SEFOS#`	Use the `disable` command to return to the User EXEC mode.
Global Configuration	From Privileged EXEC mode, use the `configure terminal` command.	`SEFOS(config)#`	Use the `exit` or `end` command to exit to Privileged EXEC mode.
Interface Configuration	From Global Configuration mode, use the `interface-type` *interface-id* command.	`SEFOS(config-if)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Switch Configuration	From Global Configuration mode, use the `switch`	`SEFOS(config-switch)#`	Use the `exit` command to return to Global Configuration mode, or

Command Mode	Access Method	Prompt	Exit method
	switch-name command.		use the `end` command to return to Privileged EXEC mode.
Interface Range	From Global Configuration mode, use the `interface range` ({*interface-type slot*/*port-port*} {`vlan` *vlan-id*(1-4094) - *vlan-id*(2-4094)}) command.	`SEFOS(config-if-range)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Config-VLAN	From Global Configuration mode, use the `vlan` *vlan-id* command.	`SEFOS(config-vlan)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Line Configuration	From Global Configuration mode, use the `line` command.	`SEFOS(config-line)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Profile Configuration	From Global Configuration mode, use the `ip mcast profile` *profile-id* [*description (*128*)*] command.	`SEFOS(config-profile)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Service Instance Configuration Mode	From Switch Configuration mode, use the `service-instance` command.	`SEFOS(config-switch-si)#`	Use the `exit` command to return to Switch Configuration mode.
TE Service Instance Mode	From Switch Configuration mode, use the `backbone traffic-engineering` *service-instance* command.	`SEFOS(config-switch-tesi)#`	Use the `exit` command to return to Switch Configuration mode.
Protection group Configuration mode	From Switch Configuration mode, use the `aps` [`linear`] `group` *group-*	`SEFOS(config-switch-pg)#`	Use the `exit` command to return to Switch Configuration mode.

Command Mode	Access Method	Prompt	Exit method
	number command.		
IP Explicit Path	From Global Configuration mode, use the `ip explicit-path` *identifier* command.	`SEFOS(cfg-ip-expl-path)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
BGP Router Configuration	From Global Configuration mode, use the `router bgp` *AS-no* command.	`SEFOS(config-router)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Route Map Configuration	From Global Configuration mode, `route-map` *name* command.	`SEFOS(config-route-RouteName)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Hardware Configuration	Global Configuration mode command enables access to hardware commands.	`SEFOS(config-hw)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.
Controller Configuration	Global Configuration mode command enables access to controller configuration commands.	`SEFOS(config-controller)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.

Feedback

Provide feedback about this documentation at http://www.oracle.com/goto/docfeedback.

CHAPTER 1

SEFOS Overview

Oracle SEFOS is a pre-integrated OEM-ready software for managed Layer 2/Layer 3 switches, which performs switching between Ethernet ports at wire speed. Oracle SEFOS provides the basic bridging functionality and also offers advanced features such as link aggregation, GVRP/GMRP, IGMP snooping, and network access control.

1.1 Purpose

This document describes in detail the CLI commands supported by Oracle SEFOS. This document is a reference manual for users and system administrators who configure Oracle SEFOS through the CLI interface.

1.2 Scope

This document details all the CLI commands provided by the Oracle SEFOS software. Commands that are not applicable for a specific hardware platform are indicated wherever necessary.

1.3 Industry Standard CLI

CLI commands focuse on performing specific operations. In order to provide a consistent user experience, the CLI commands of SEFOS protocols and solutions have been modified to adhere to the Industry Standard CLI syntax.

The following approach is followed for updating the Industry Standard commands to this document.

- **Newly added commands** - A complete standardized implementation of the existing command is documented immediately after the relevant old command.
- **Newly added parameters in the existing commands** - If the existing command is modified for one or more parameters or values only, then the update is done inline by modifying the syntax with the new tokens.

1.4 CLI Reference Manual Details by Volume

CLI Volume No	Chapter No	Chapter Title	Package Details			
			Work Group	Enterprise	Metro	Metro_E

CLI Volume No	Chapter No	Chapter Title	Package Details			
			Work Group	Enterprise	Metro	Metro_E
1	1	Introduction	NA	NA	NA	NA
	2	Command-Line Interface	NA	NA	NA	NA
	3	System Commands	Y	Y	Y	Y
	4	System Features	Y	Y	Y	Y
	5	VCM	N	Y	Y	N
	6	RADIUS	Y	Y	Y	Y
	7	TACACS	Y	Y	Y	Y
	8	SNMPv3	Y	Y	Y	Y
	9	Syslog	Y	Y	Y	Y
	10	TCP	Y	Y	Y	Y
	11	UDP	Y	Y	Y	N
	12	L2 DHCP Snooping	Y	Y	Y	Y
	13	IPDB	Y	Y	Y	Y
2	14	STP	Y	Y	Y	Y
	15	LA	Y	Y	Y	Y
	16	LLDP	Y	Y	Y	Y
	17	PNAC	Y	Y	Y	Y
	18	PBB	N	N	Y	Y
	19	PBB-TE	N	N	Y	Y
3	20	VLAN	Y	Y	Y	Y
	21	VRRP	N	Y	N	Y
4	22	IP	Y	Y	Y	Y
	23	IPV6	Y	Y	Y	Y
	24	OSPF	N	Y	N	Y
	25	OSPFv3	N	Y	N	Y
	26	RRD	N	Y	N	Y

CLI Volume No	Chapter No	Chapter Title	Package Details			
			Work Group	Enterprise	Metro	Metro_E
	27	RRD6	N	Y	N	Y
	28	Route Map	N	Y	N	Y
5	29	DHCP	Y	Y	Y	Y
	30	DHCPv6	Y	Y	Y	Y
	31	RIP	N	Y	N	Y
	32	RIPv6	N	Y	N	Y
	33	BGP	N	Y	N	Y
6	34	IGMP Snooping	Y	Y	Y	Y
	35	MLD Snooping	Y	Y	Y	Y
	36	IGMP	N	Y	Y	N
	37	IGMP Proxy	Y	Y	Y	Y
	38	PIM	N	Y	N	Y
	39	PIMV6	N	Y	N	Y
	40	IPv4 Multicasting	N	Y	N	Y
	41	TAC	Y	N	N	Y
	42	RMON	Y	Y	Y	Y
	43	RMON2	Y	Y	Y	Y
	44	FM	Y	Y	Y	Y
7	45	MLDv2	N	Y	N	Y
	46	VXLAN	N	N	N	Y
8	47	Fulcrum_Draft	NA	NA	NA	NA
	48	Others_Draft	NA	NA	NA	NA
	49	QoSX_Draft	NA	NA	NA	NA

1.5 Key Conventions

Keyboard Shortcuts

- **Up Arrow / Down Arrow** - Displays the previously executed command.
- **Ctrl + C** - Exits from the SEFOS prompt.
- **Backspace / Ctrl + H** - Removes a single character.
- **TAB** - Completes a command without typing the full word.
- **Left Arrow / Right Arrow** - Traverses the current line.

Others

- **?** - helps to list the available command.
- **Q** - exits and returns to the SEFOS prompt.
- **History** - displays the command history list.

CHAPTER 2

Command Line Interface

This section describes the configuration of Oracle SEFOS using the CLI.

The CLI can be used to configure the SEFOS from a console attached to the serial port of the switch or from a remote terminal using TELNET.

The Oracle SEFOS CLI supports a simple login authentication mechanism. The authentication is based on a user name and password provided by the user during login. The user `root` is created by default with password `admin123`.

Note: A new user can be created or an existing user can be deleted, and the user's password or password of other users can be modified, only if you log in as a root user.

When Oracle SEFOS is started, you must type the user name and password at the login prompt to access the CLI shell.

Oracle Sun Ethernet Fabric Operating System

```
SEFOS Login: root

Password: ********

SEFOS>
```

User-EXEC mode is now available to the user. CLI command modes provide a detailed description of the various modes available for SEFOS.

The command prompt always displays the current mode.

CLI commands need not be fully typed. The abbreviated forms of CLI commands are also accepted by the Oracle SEFOS CLI. For example, commands like `show ip global config` can be typed as `sh ip gl co`.

CLI commands are case insensitive.

CLI commands are successful only if the dependencies are satisfied for a particular command that is issued. The general dependency is that the module-specific commands are available only when the respective module is enabled. Appropriate error messages are displayed if the dependencies are not satisfied.

The Ethernet type of an interface is determined during system startup. While configuring interface-specific parameters, you must correctly specify the interface's Ethernet type. A `fastethernet` interface cannot be configured as a `XL-ethernet` interface and vice-versa.

2.1 Context-Sensitive Help

Oracle CLI framework offers context-sensitive help. You can type a question mark (?) anytime during a session to get help. The help can be invoked in several ways. It is not displayed as a whole and is available only for the specific token from where it is invoked.

Examples of possible scenarios:

0 You type a character followed immediately by a question mark (?). This action displays the current possible tokens without help string.

```
SEFOS(config)# bo?

Bootfile
```

1 You type a keyword at the command prompt and type a question mark (?) after a space. This action displays the next possible tokens along with the corresponding help string.

```
SEFOS(config)# service ?

dhcp            DHCP related configuration

dhcp-relay      DHCP relay related configuration

dhcp-server     DHCP server related configuration

timestamps      Timestamp configuration for logged messages
```

Some of the basic concepts implemented for the context-sensitive help are:

- The next possible tokens are listed only in the lexical order and not in the order as available in the syntax or command structure.
- All possible tokens are listed along with the help string, even though the command is ambiguous. Any ambiguous command errors and value range errors are handled only during the execution of the command.
- The help tokens provided within <> brackets denote that you should type values of specified format. For example, <string(32)> indicates that you should type a string of size varying from 1 to 32.
- The help tokens provided within () brackets denote that you should type only the values represented. For example, (1-4094) indicates that you should type only those values within the mentioned range.
- The format is directly provided as help token for some non-keywords such as IP address, IP mask, MAC address, and so on. For example, `aa:aa:aa:aa:aa:aa` indicates that a MAC address of this format should be provided.
- Only the most commonly used format is provided as help token for some non-keywords, such as IPv6 address. But the command supports most of the valid formats. For example, `AAAA::BBBB` represents the IPv6 address, but the command accepts the format `AAAA:B::BBBB`.
- The help token <CR> along with help string explaining the operation of the command is displayed, if the command can be executed at that point (errors are handled only during the execution).

2.2 CLI Command Modes

This section lists CLI command modes and the access and exit methods to various general configuration modes.

2.2.1 User EXEC Mode

After logging into the device, you are automatically in User EXEC mode. In general, you can use the User EXEC commands to temporarily change terminal settings, perform basic tests, and list system information.

2.2.2 Privileged EXEC Mode

Because many of the privileged commands set operating parameters, privileged access is password-protected to prevent unauthorized use. The password is not displayed on the screen and is case-sensitive. Privileged EXEC mode prompt is the device name followed by the hash (#) sign.

2.2.3 Global Configuration Mode

Global Configuration commands apply to features that affect the system as a whole, rather to any specific interface.

2.2.4 Switch Configuration Mode

Use Switch Configuration mode to perform switch-specific operations for multiple instances. To enter in Switch Configuration mode from Global Configuration mode, use the `switch <context_name>` command. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.5 Interface Configuration Mode

To enter Interface Configuration mode from Global Configuration mode, use the `interface <interface-type><interface-id>` command. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.6 Physical Interface Mode

The Physical Interface mode is used to perform interface-specific operations. To return to Global Configuration mode the **`exit`** command is used.

2.2.6.1 Port Channel Interface Mode

Use the Port Channel Interface mode to perform port-channel-specific operations. To return to Global Configuration mode, use the `exit` command.

2.2.6.2 VLAN Interface Mode

Use VLAN Interface mode to perform L3-IPVLAN-specific operations. To return to Global Configuration mode, use the `exit` command.

2.2.6.3 Tunnel Interface Mode

Use Tunnel Interface mode to perform Tunnel-specific operations. To return to Global Configuration mode, use the `exit` command.

2.2.6.4 Out of Band Interface Mode

Use Out of Band Interface mode to perform OOB interface-specific operations. To return to Global Configuration mode, use the `exit` command.

2.2.7 Interface Range Mode

To enter into Interface Range mode from Global Configuration mode,use the `interface range ({<interface-type> <slot/port-port>} {vlan <vlan-id(1-4094)> - <vlan-id(2-4094)>})` command. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.8 Config-VLAN Mode

Use this mode to perform VLAN-specific operations. To enter into Config-VLAN mode from Global Configuration mode, use the `vlan vlan-id` command. To return to Global Configuration mode, use the `exit` command.

2.2.9 Line Configuration Mode

Line configuration commands modify the operations of a terminal line. These commands are used to change terminal parameter settings line by line or range of lines. To enter into Line Configuration mode from Global Configuration mode, use the `line` command. To exit to Global Configuration mode,use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.10 Boot Configuration Mode

Use this mode to generate the slot information (module type). Use the `reload` command to restart the switch.

2.2.11 Redundancy Configuration Mode

Use this mode to modify redundancy parameters. To return to Global Configuration mode, use the `exit` command.

2.2.12 Profile Configuration Mode

Use the Profile Configuration mode to perform profile-specific operations. To enter Profile Configuration mode from Global Configuration mode, use the `ip mcast profile <profile-id> [description (128)]` command. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13 Protocol-Specific Modes

The following are the specified protocol modes;

- PIM Component Mode
- Router Configuration Mode
- VRRP Router Configuration Mode
- VRRP Interface Configuration Mode
- DHCP Pool Configuration Mode
- Crypto Transform Configuration Mode
- Route Map Configuration Mode
- Client Information Configuration Mode
- IPv6 DHCP Pool Configuration Mode
- Vendor Specific Information Configuration Mode
- Service Instance Configuration Mode
- TE Service Instance Mode
- DiffSrv ClassMap Configuration Mode
- DiffSrv Policy-Map Configuration Mode
- DiffSrv Policy-Map Class Configuration Mode
- ACL Standard Access List Configuration Mode
- ACL Extended Access List Configuration Mode
- ACL MAC Configuration Mode
- IP Explicit Path Mode
- Routemap Configuration Mode
- Address Family Router Configuration Mode
- Pseudowire Redundancy Class Mode

2.2.13.1 PIM Component Mode

Use PIM Component mode to configure the PIM component. To enter PIM Component mode from Global Configuration mode, use the `ip pim comp<componentid>` command. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.2 Router Configuration Mode

Use Router Configuration mode to configure a router protocol. To enter Router Configuration mode from Global Configuration mode, use the `router<router protocol>` command. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.3 VRRP Router Configuration Mode

Use this mode to configure the virtual router. To enter this mode, use the command `router vrrp` from Global Configuration mode. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.4 VRRP Interface Configuration Mode

Use VRRP Interface Configuration mode to configure VRRP interfaces. To enter this mode, use the `interface Vlan <vlan id>` command from VRRP Router Configuration mode. To exit to Virtual Router Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.5 DHCP Pool Configuration Mode

Use this mode to configure the network pool or host configurations of a subnet pool.

The Global Configuration mode `ip dhcp pool <integer(1-2147483647)>` command creates a DHCP Server address pool and places the user in DHCP Pool Configuration mode. The prompt for this mode is **`SEFOS(dhcp-config)#`**.

To return to Global Configuration mode, use the `exit` command.

2.2.13.6 Crypto Transform Configuration Mode

Use Crypto Transform Configuration mode to configure IPSecv6. To enter this mode, use the `crypto ipsecv6` command from Global Configuration mode. To exit to Global Configuration mode the **`exit`** command is used. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.7 Route Map Configuration Mode

Use Route Map Configuration mode to configure route map parameters. To enter this mode, use the `route-map <name(1-20)> [ {permit | deny } ] [ <seqnum(1-10)> ]` command from Global Configuration mode. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.8 Client Information Configuration Mode

Use Client Information Configuration mode to configure DHCPv6 client information at the server side. To enter this mode, use the `ipv6 dhcp authentication server client-id` command from Global Configuration mode. The prompt for this mode is **`Your Product (config-d6clnt)#`**. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the **`end`** command.

2.2.13.9 IPv6 DHCP Pool Configuration Mode

Use IPv6 DHCP Pool Configuration mode to configure DHCPv6 server address pool information. To enter this mode, use the `ipv6 dhcp pool` command from Global Configuration mode. The prompt for this mode is **`SEFOS (config-d6pool)#`**. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.10 Vendor Specific Information Configuration Mode

Use Vendor Specific Information Configuration mode to configure vendor-specific information. To enter this mode, use the `vendor-specific` command from the IPv6 DHCP Pool Configuration mode. The prompt for this mode is **`SEFOS (d6pool-vendor)#`**. To exit to the IPv6 DHCP Pool Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.11 Service Instance Configuration Mode

Use Service Instance Configuration mode to perform ISID specific operations. This mode is available inside Switch Configuration mode when SEFOS is running in MI (Multiple Instance) mode. To enter this mode, use the s`ervice instance <service-instance>` command from Switch Configuration mode. To exit to Service Instance Configuration mode, use the `exit` command.

2.2.13.12 TE Service Instance Mode

Use TE Service Instance mode to configure an ESP in a TESI. To enter this mode, use the `backbone traffic-engineering service-instance <pbbte-sid>` command from Switch Configuration mode. To exit to Switch Configuration mode, use the `exit` command.

2.2.13.13 DiffSrv ClassMap Configuration Mode

The `class-map global configuration` command creates a class map for matching the packets to the class whose index is specified. To enter ClassMap Configuration mode from Global Configuration mode, use the `class-map <short(1-65535)>` command. The prompt for this mode is **`SEFOS (config-cmap)#`**.

To return to Global Configuration mode, use the `exit` command.

2.2.13.14 DiffSrv Policy-Map Configuration Mode

Use Policy-Map Configuration mode to create create or modify a policy map.

Use the Global Configuration mode `policy-map <short(1-65535)>` command to enter DiffSrv Policy Map Configuration. The prompt for this mode is **`SEFOS (config-pmap)#.`**

To return to Global Configuration mode, use the `exit` command.

2.2.13.15 DiffSrv Policy-Map Class Configuration Mode

The Policy-Map Class Configuration command defines a traffic classification for the policy to act on. The class-map-num that is specified in the policy map ties the characteristics for that class, and its match criteria as configured by using the **`class-map`** Global Configuration command, to the class map. Once the **`class`** command is entered, the switch enters Policy-Map Class Configuration mode.

Use the DiffSrv Policy mode `policy-map <short(1-65535)>` command to enter the DiffSrv Policy-Map Class Configuration mode. The prompt for this mode is **`SEFOS (config-pmap-c)#.`**

To return to Global Configuration mode, use the **`exit`** command.

2.2.13.16 ACL Standard Access List Configuration Mode

Standard access lists create filters based on the IP address and network mask only (L3 filters only).

Use the Global Configuration mode `ip access-list standard <(1-1000)` command to create IP ACLs and to enter ACL Standard Access List Configuration mode. The prompt for this mode is **`SEFOS (config-std-nacl)#.`**

To return to Global Configuration mode, use the **`exit`** command.

2.2.13.17 ACL Extended Access List Configuration Mode

Extended access lists enable specification of filters based on the type of protocol, range of TCP/UDP ports, and the IP address and network mask (Layer 4 filters).

Use the Global Configuration mode `ip access-list extended <(1001-65535)>` command to enter ACL Extended Access List Configuration mode. The prompt for this mode is `SEFOS (config-ext-nacl)#`.

To return to Global Configuration mode, use the **`exit`** command.

2.2.13.18 ACL MAC Configuration Mode

Use the MAC Access-List Global Configuration command to create Layer 2 MAC ACLs, and return MAC-Access List Configuration mode to you.

Use the Global Configuration mode `mac access-list extended <(1-65535)>` command to enter ACL MAC Configuration mode. The prompt for this mode is **`SEFOS (config-ext-macl)#.`**

To return to Global Configuration mode, use the **`exit`** command.

2.2.13.19 IP Explicit Path Mode

Use IP Explicit Path mode to create an IP explicit path list. To enter this mode, `ip explicit-path identifier` command from Global Configuration mode. To exit to IP Explicit Path mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.20 Routemap Configuration Mode

Use RouteMap Configuration Mode for route map configurations. To enter this mode, use the `route-map <name>` command from Global Configuration mode. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.21 Address Family Router Configuration Mode

Use Address Family Router Configuration mode to enter the address family submode. Within this submode, address-family-specific parameters for routing protocols, such as BGP, that can accommodate multiple Layer 3 address families can be configured. To enter this mode, use the `address-family ipv4 / ipv6` command from Router Configuration mode. To exit to Router Configuration mode the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.22 Pseudowire Redundancy Class Mode

Use Pseudowire Redundancy Class mode to configure the parameters of a pseudowire redundancy class. To enter this mode, use the `pseudowire-redundancy class <class_id (1-4294967295)>` command from Global Configuration mode. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.23 Service-Level Agreement (SLA) Configuration Mode

Use SLA Configuration Mode to configure the parameters of a service-level agreement (SLA). To enter this mode, use the `esat sla <sla-id (1-255)>` command from Global Configuration mode. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

2.2.13.24 Traffic Profile Configuration Mode

Use Traffic Profile Configuration mode to configure the parameters of a traffic profile. To enter this mode, use the `esat traffic-profile <traffic-profile-id (1-255)>` command from Global Configuration mode. To exit to Global Configuration mode, use the `exit` command. To exit to Privileged EXEC mode, use the `end` command.

CHAPTER 3

System Commands

This chapter describes the commands used to manage access permissions, mode access, and terminal configurations on SEFOS.

3.1 help

Command Objective	This command displays a brief description for the given command. To display help description for commands with more than one word, do not provide any space between the words.
Syntax	`help [ command ]`
Mode	All Modes
Package	Workgroup, Enterprise, Metro, and Metro_E

Example	`SEFOS# help enable`
	
	Configure Terminal command must be executed as
	
	`SEFOS# help configureterminal`

3.2 clear screen

Command Objective	This command clears all the content from the screen.
Syntax	`clear screen`
Mode	All Modes
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	`SEFOS# clear screen`

3.3 enable

Command Objective	This command enters into default-level privileged mode. If required, the user can specify the privilege level by enabling level with password (login password) protection to avoid unauthorized users. Lower privilege user can login to privilege mode 15 either with root user password or with the password configured for the level 15 using the **`enable password`** command.
Syntax	**`enable [<0-15> Enable Level]`**
Parameter Description	• **`<0-15> Enable level`** - Sets the privilege level to enter the system. This value ranges from 0 to 15. ▪ Users with Privilege Level 0 can access only the following commands: • enable • disable • exit • help • logout This is the most restricted level. ▪ Users with Privilege Level 1 can access all user-level commands with SEFOS> prompt. ▪ System allows configuring additional privilege levels (from level 2 to 14) to meet the needs of the users while protecting the system from unauthorized access. ▪ Users with Privilege Level 15 can access all commands. It is the least restricted level.
Mode	User EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Enable level - 15
Example	**`SEFOS# enable 15`**
Related Command(s)	• **`disable –`**Turns off privileged commands. • **`enable password –`** Modifies enable password parameters.

3.4 disable

Command Objective	This command turns off privileged commands. This value ranges between 0 and 15. This value should be lesser than the privilege level value given in the **enable** command.
Syntax	**disable [<0-15> Privilege level to go to]**
Mode	User EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# disable 1**
Related Command(s)	**enable** – Enters Privileged EXEC mode.

3.5 configure terminal

Command Objective	This command enters to Global Configuration mode which allows the user to execute all the commands that supports Global Configuration mode.
Syntax	**configure terminal**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# configure terminal** **SEFOS (config)#**
Related Command(s)	• **end –** Exits from Configuration mode and enters Privileged Configuration mode. • **exit –** Exits current mode and reverts to the mode used prior to the current mode.

3.6 configure

Command Objective	This command enters Configuration mode. Configuration from memory or network is not supported, when entered into Configuration mode using this command.
Note:	This command is a complete standardized implementation of the existing command and operates similar to that of the command configure terminal.
Syntax	**configure**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# configure**
Related Command(s)	• **end –** Exits from current mode and enters Privileged EXEC mode. • **exit** - Exits the current mode and reverts to the mode used prior to the current mode.

3.7 run script

Command Objective	This command runs CLI commands from the specified script file.
Syntax	**`run script [flash: | slot0: | volatile:] <script file> [<output file>]`**
Parameter Description	• **`flash: | slot0: | volatile:`** - Specifies the source of the script file. ▪ **`flash`** - The script file is read from the Flash memory. ▪ **`slot0`** - The script file is read from the PCMCIA card or CompactFlash memory. Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported. ▪ **`volatile`** - The script file is read from the volatile memory. Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported. • **`<script file>`** - Specifies the script file to be executed. • **`<output file>`** - Specifies the output file.
Mode	Privileged EXEC Mode.
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**`SEFOS# run script flash sample.js`**

3.8 listuser

Command Objective	This command lists all the default and newly created users, along with their permissible mode.
Syntax	**listuser**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# listuser** USER MODE root / guest /
Related Command(s)	• **show users** – Displays information about terminal lines. • **enableuser** – Releases the blocked user specified by the username string.

3.9 lock

Command Objective	This command locks the CLI console. It allows the user or system administrator to lock the console to prevent unauthorized users from gaining access to the CLI command shell. Enter the login password to release the console lock and access the CLI command shell.
Syntax	`lock`
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	`SEFOS# lock`

3.10 username

Command Objective	This command creates a user and sets the password and the privilege level for the user. The no form of the command deletes the specified user.
Syntax	**username <user-name> [password [0 | 7 | LINE] <passwd>] [privilege <1-15>] [confirm-password [0 | 7 | LINE] <passwd>] [status { enable | disable }]no username < user-name >**
Parameter Description	• **<user-name>** - Specifies the login user name to be created. • **password [0 | 7 | LINE] <passwd> / confirm-password [0 | 7 | LINE] <passwd>** - Specifies the password to be entered by the user to login to the system, and password encryption to be used. The size of the password entered must be a minimum of 8 and maximum of 20 characters containing at least one uppercase, one lowercase, one number, and one special character. The password encryption options are: ▪ **0** - Uses the unencrypted password. ▪ **7** - Uses the hidden password. ▪ **LINE** - Uses the Line password. This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported. • **privilege <1-15>** - Applies restriction to the user for accessing the CLI commands. This values ranges between 1 and 15. For example, a user ID configured with privilege level as 4 can access only the commands having privilege ID lesser than or equal to 4.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	• Only the root user can create new users using this command. • When a new user is created, the user can login with any username and the respective password. • Privilege ID is set as zero for all the show commands and is set as 15 for all the configuration commands in the def files. Root users can access all the commands and other users can access only the show commands. Users can change the privilege IDs of the commands in the def file to customize and segregate the commands as per requirements.
Example	**SEFOS (config)# username products password Prod@1234**

privilege 15

The user **product** is created with the privilege level 15. Hence, the user will be visible to view all the commands.

SEFOS (config)# username support password Supp@123 privilege 1

The user **support** is created with the privilege level 1. Hence, the user will be visible to view only the following commands:

- Show - Show commands related to all the features.
- Enable - Enables the privilege level.
- Disable - Disables the privilege level.
- Exit
- Logout
- Clear
- Debug
- No Debug

Related Command(s)

- **enable password –** Modifies enable password parameters.
- **enable –** Enters Privileged EXEC mode.
- **listuser –** Lists all the users.
- **enableuser –** Releases the blocked user specified by the username string.

3.11 enable password

Command Objective	This command modifies **enable password** parameters. The no form of the command disables **enable password** parameters.
Syntax	**enable password [level (1-15)] <LINE 'enable' password>** **no enable password [level (1-15)]**
Parameter Description	• **level(1-15)** - Specifies the privilege level for which the password is to be set. The level ranges from 1 to 15. • **<LINE 'enable' password>** - Specifies the password to be enabled. Password should follow password configuration conventions. It should contain atleast one uppercase, one lowercase, one number, and one special character.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	• Only the root user can enable the password for any other blocked user using this command. • This command allows the root user to enable a password for other users to access the commands in the specified privilege level. The other users can access commands in the privilege level using the password enabled for that level.
Example	**SEFOS (config)# enable password level 1 Ad@123**
Related Command(s)	• **username –** Creates a user and sets the password for that user with the privilege level. • **enable –** Enters Privileged EXEC mode.

3.12 line

Command Objective	This command identifies a specific line for configuration and enters Line Configuration mode and allows the user to execute all the commands that supports Line Configuration mode.
Syntax	**line {console | vty | <line-number(0-16)>}[<ending-line-number(3-16)>]**
Parameter Description	• **console** - Specifies the line for configuration as console and enters console Line Configuration mode. • **vty** - Specifies the line for configuration as virtual terminal line. • **<line-number(0-16)>** - Specifies the ID of a specific telnet session or initial telnet session in a configured series of telnet sessions. This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported. • **<ending-line-number(3-16)>** - Specifies the ID of the last telnet session in a configured series of telnet sessions. This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# line console** **SEFOS (config-line)#**
Related Command(s)	• **end –** Exits from Configuration mode and enters Privileged EXEC mode. • **exit –** Exits current mode and reverts to the mode used prior to current mode. • **show line –** TTY line information.

3.13 alias - replacement string

Command Objective	This command replaces the given token by the given string. The no form of the command removes the alias created for the given string.
Syntax	**alias <replacement string> <token to be replaced>** **no alias <alias>**
Parameter Description	• **<replacement string>/ <alias>** - Specifies the string for which a replacement is needed. • **<token to be replaced>** - Specifies an abbreviated or short form of the replacement string.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# alias products pdt**
Related Command(s)	• **show aliases –** Displays the aliases.

3.14 alias – interface | exec | configure

Command Objective

This command replaces the given token or command with the given string.

This command is a standardized implementation of the existing command. It operates similar to that of the command **alias-replacement**, except that it allows the user to type a command with multiple tokens without quotes.

Syntax

```
alias {interface | exec | configure} <alias-name> { command
<max 10 tokens> | token }
```

Parameter Description

- **interface** - Specifies the commands executed in Interface Configuration mode.

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

- **exec** - Specifies the commands executed in Privileged EXEC or User EXEC mode.

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

- **configure** - Specifies the commands executed in Configuration mode (That is, global, line, profile, VLAN, switch, and protocol specific configuration modes).

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

- **<alias-name>** - Specifies the alternate name to be used for the command or token.

- **command <max 10 tokens>** - Specifies the command and token values for which alias name should be configured.

- **token** - Specifies the token for which alias name should be configured.

Mode

Global Configuration Mode

Package

Workgroup, Enterprise, Metro, and Metro_E

Note: Alias name can be set only for the commands having equal to or less than 10 tokens.

Example

```
SEFOS (config)# alias  exec cltcp command clear tcp
```

Related Command(s) **`show aliases`** - Displays the aliases.

3.15 access-list provision mode

Command Objective	This command removes the limit on number of unicast MAC entries indications to control.
Syntax	**access-list provision mode { consolidated | immediate }**
Parameter Description	• **consolidated** - Configures the Provision mode as consolidated. • **immediate** - Configures the Provision mode as immediate.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	immediate
Example	**SEFOS (config)# access-list provision mode consolidated**

3.16 access-list commit

Command Objective	This command triggers provisioning of active filter rules to hardware based on configured priority. This command is applicable only when provision mode is consolidated. Traffic flow would be impacted when filter-rules are reprogrammed to hardware.
Syntax	`access-list commit`
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	`SEFOS (config)# access-list commit`

3.17 exec-timeout

Command Objective	This command sets a time (in seconds) for EXEC line disconnection. This value ranges from 1 to 18000 seconds. The no form of this command resets the EXEC timeout to its default value.
Syntax	**exec-timeout <integer (1-18000)>** **no exec-timeout**
Mode	Line Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	integer - 1800 seconds
Example	**SEFOS (config-line)# exec-timeout 100**
Related Command(s)	**line -** Configures a console or virtual terminal line.

3.18 logout

Command Objective	This command exits from Privileged EXEC or User EXEC mode to SEFOS login prompt in case of console session. In case of a telnet session, this command terminates the session.
Syntax	**logout**
Mode	User EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# logout** **SEFOS login:**

3.19 end

Command Objective	This command exits from the current mode to Privileged EXEC mode.
Syntax	**end**
Mode	All modes
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# end**
Related Command(s)	**exit –** Exits current mode and reverts to the mode used prior to the current mode.

3.20 exit

Command Objective	This command exits the current mode and reverts to the mode used prior to the current mode.
Syntax	**exit**
Mode	All modes
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# exit**
Related Command(s)	**end -** Exits from Configuration mode to Privileged EXEC mode.

3.21 show privilege

Command Objective	This command shows the current user privilege level.
Syntax	**show privilege**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show privilege** Current privilege level is 15
Related Command(s)	**enable –** Enters Privileged EXEC mode.

3.22 show line

Command Objective	This command displays TTY line information such as EXEC timeout.
Syntax	**show line {console | vty <line>}**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show line console** Current Session Timeout (in secs) = 1800
Related Command(s)	• **line –** Configures a console or virtual terminal line. • **exec-timeout –** Sets a time (in seconds) for EXEC line disconnection. • **clear line vty –** Clears the console or virtual terminal line to an idle state.

3.23 show aliases

Command Objective	This command displays all the aliases.
Syntax	**show aliases**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show aliases** line -> li 1 products -> root alternatename -> newname
Related Command(s)	**alias-replacement string -** Replaces the given token by the given string.

3.24 show users

Command Objective	This command displays the information about the current user.
Syntax	**show users**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show users** Line User Peer-Address 0 con root Local Peer
Related Command(s)	**listuser –** Lists all valid users, along with their permissible mode.

3.25 show history

Command Objective	This command displays a list of recently executed commands.
Syntax	**show history**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show history** 35 configure terminal 36 password validate char lowercase 37 password validate uppercase 1 38 password validate lowercase 1 39 password validate numbers 1 40 password validate symbols 1 41 set minimum password length 8 42 set cli pagination on 43 enableuser products 44 end 45 configure terminal 46 password max-life-time 1 47 end 48 show users

3.26 password validate char

Command Objective	This command configures the type of characters to be considered for password validation rules and takes values as bit mask.
Syntax	**password validate char [lowercase] [uppercase] [numbers] [symbols]**
Parameter Description	• **lowercase** - Sets lowercase flag for password validation. • **uppercase** - Sets uppercase flag for password validation. • **numbers** - Sets numbers flag for password validation. • **symbols** - Sets symbols flag for password validation.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	All flags are enabled
Example	**SEFOS (config)# password validate char lowercase**
Related Command(s)	**show password validate rules** - Displays the password validation rules.

3.27 password validate uppercase

Command Objective	This command configures the minimum number of uppercase characters that are to be present in the password. If the given password has less than the configured number of uppercase characters, it will not be allowed. This value ranges from 0 to 20.
Syntax	**password validate uppercase [<count(0-20)>]**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default Value	1
Example	**SEFOS (config) # password validate uppercase 1**
Related Command(s)	**show password validate rules** - Displays the password validation rules.

3.28 password validate lowercase

Command Objective	This command configures the minimum number of lowercase characters that are to be present in the password. If the given password has less than the configured number of lowercase characters, it will not be allowed. This value ranges from 0 to 20.
Syntax	**password validate lowercase [<count(0-20)>]**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default Value	1
Example	**SEFOS (config) # password validate lowercase 1**
Related Command(s)	**show password validate rules** - Displays the password validation rules.

3.29 password validate numbers

Command Objective	This command configures the minimum numerical characters to be present in the password. If the given password has less than the configured number of numerical characters, it will not be allowed This value ranges from 0 to 20.
Syntax	**password validate numbers [<count(0-20)>]**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default Value	1
Example	**SEFOS (config) # password validate numbers 1**
Related Command(s)	**show password validate rules** - Displays the password validation rules.

3.30 password validate symbols

Command Objective	This command configures the minimum number of special characters to be present in the password. If the given password has less than the configured number of symbols, it will not be allowed. This value ranges from 0 to 20.
Syntax	**password validate symbols [<count(0-20)>]**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default Value	1
Example	**SEFOS (config) # password validate symbols 1**
Related Command(s)	**show password validate rules** - Displays the password validation rules.

3.31 set minimum password length

Command Objective	This command configures minimum password length. If the given password has less than the configured password length, it will not be allowed. This value ranges from 8 to 20.
Syntax	**`set minimum password length <minimum-len>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	8
Example	**`SEFOS (config) # set minimum password length 8`**
Related Command(s)	**`show minimum password length`** - Displays minimum password length.

3.32 show password validate rules

Command Objective	This command displays the password validation rules.
Syntax	**show password validate rules**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show password validate rules** Password Validation Mask : 1 Min Lowercase char count : 1 Min Uppercase char count : 1 Min Numeric char count : 1 Min Symbol char count : 1
Related Command(s)	• **password validate uppercase** - Sets the minimum uppercase characters to be present in the password. • **password validate lowercase** - Sets the minimum lowercase characters to be present in the password. • **password validate numbers** - Sets the minimum numerical characters to be present in the password. • **password validate symbols** - Sets the minimum number of special characters to be present in the password.

3.33 show minimum password length

Command Objective	This command displays minimum password length.
Syntax	**show minimum password length**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show minimum password length** Minimum Password length : 8
Related Command(s)	• **set minimum password length** - Configures minimum password length.

3.34 password max-life-time

Command Objective	This command configures the time, in days, after which the user password expires. This value ranges from 0 to 366 days. The default value of password-max-life-time is 0 days, which indicates the password does not expire.
Syntax	**password max-life-time [<days (0-366)>]**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default Value	0 days
Example	**SEFOS (config) # password max-life-time 1**
Related Command(s)	• **show password max-life-time** - Displays the password expiry time.

3.35 show password max-life-time

Command Objective	This command displays the password expiry time.
Syntax	**show password max-life-time**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show password max-life-time** Password Max Life Time: 365
Related Command(s)	• **password max-life-time** - Configures the maximum time after which the password expires.

3.36 clear line vty

Command Objective	This command clears the virtual terminal line to an idle state.
Syntax	**clear line vty {<line-number(2-9)> | all}**
Parameter Description	• **<line-number(2-9)>** - Clears the vty information for the specified line. This value ranges from 2 to 9. • **all** - Clears all the vty information.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# clear line vty all**
Related Command(s)	• **show line** ---Displays the TTY line information.

3.37 enableuser

Command Objective	This command releases the blocked user specified by the user name string.
Syntax	**enableuser <username>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# enableuser user1**
Note:	Only the root user can enable blocked users.
Related Command(s)	• **username –** Creates a user and sets the password for that user with the privilege level. • **listuser –** Lists all the users.

3.38 set cli pagination

Command Objective	This command enables or disables pagination.
Syntax	**`set cli pagination {on | off}`**
Parameter Description	• **`on`** - Enables pagination. • **`off`** - Disables pagination.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**`SEFOS (config)# set cli pagination off`**

CHAPTER 4

System Features

SEFOS offers a rich set of system features to a user, such as login services, copying and writing facilities, duplex and negotiation support, and many other capabilities. Some features have special hardware requirements and others have special design considerations.

CFA (Common Forwarding Agent) is a proprietary module, which acts as a common forwarder of packets between the Network Protocol Module(s), the Data-Link Layer Protocol Layer Module(s), and the Device Drivers. CFA provides central management of the generic parameters of all the interfaces in the system.

4.1 default mode

Command Objective	This command configures the mode by which the default interface gets its IP address. This configuration takes effect only on switch restart.
Syntax	**`default mode { manual | dynamic }`**
Parameter Description	• **`manual`** - Assigns static IP address to the default interface. The IP address and IP mask configured by user are assigned to the default interface. • **`dynamic`** - Assigns dynamic IP address to the default interface. That is, IP address provided by the server in the network is assigned to the default interface on switch reboot. The IP address is fetched through the dynamic IP address configuration protocols such as DHCP client, RARP client, and BOOTP client.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	manual
Example	**`SEFOS(config)# default mode dynamic`**
Related Command(s)	• **`show nvram`**- Displays the current information stored in the NVRAM. • **`default ip address allocation protocol`** - Configures the protocol by which the default interface acquires its IP address. • **`default ip address`** - Configures the IP address and subnet mask for the default interface. • **`ip address –rarp/dhcp`** - Configures the current VLAN or OOB interface to dynamically acquire an IP address from the RARP or DHCP server. The no form of the command resets the IP address for the interface to its default value.

4.2 default restore-file

Command Objective	This command configures the path of the default restoration file from which the configuration should be restored in the flash when the system is restarted.
Syntax	**`default restore-file <filename>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	switch.conf
Example	**`SEFOS(config)# default restore-file /home/automation/code/future/LR/switch1/restore.conf`**
Related Command(s)	• **`show nvram`** - Displays the current information stored in the NVRAM.

4.3 default vlan id

Command Objective	This command sets the default VLAN ID to be used at reboot of the switch. This value is stored in NVRAM and ranges between 1 and 4094.
Syntax	**`default vlan id <count(1-4094)>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	1
Example	**`SEFOS(config)# default vlan id 32`**
Related Command(s)	• **`show nvram`** - Displays the current information stored in the NVRAM.

4.4 default ip address

Command Objective	This command configures the IP address and subnet mask for the default interface.
Syntax	**default ip address <ip-address> [subnet-mask <subnet mask>] [interface <interface-type> <interface-id>]**
Parameter Description	• **<ip address>** - Sets the IP address for the default interface / specified interface. If the network in which the switch is implemented contains a server such as DHCP server, dynamically allocating IP address, the configured IP address should not be within the range of the addresses that will be allocated by the server to the other switches. This precaution avoids creation of IP address conflicts between the switches. • **subnet-mask <subnet mask>** – Sets the subnet mask for the configured IP address. The configured subnet mask should be in the same subnet of the network in which the switch is placed • **<interface-type>** – Sets the IP address and / or subnet mask 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 upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 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 upto 10 Gigabits per second. ▪ **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Sets the IP address and subnet mask, or both, 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided for interface type i-lan. For example: 1 represents i-lan ID.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• ip address - 10.0.0.1

	• subnet-mask - 255.0.0.0
Example	**SEFOS(config)# default ip address 20.0.0.1 subnet-mask 255.0.0.0 interface extreme-ethernet 0/1**
Related Command(s)	• **show nvram** - Displays the current information stored in the NVRAM.

4.5 ip address

Command Objective	This command sets the IP address for an interface. The no form of the command resets the IP address of the interface to its default value.
Syntax	**`ip address <ip-address> <subnet-mask>`** **`no ip address  <ip-address> <subnet-mask>`**
Parameter Description	• **`<ip-address>/<ip_addr>`** - Sets the IP address for an interface. If the network in which the switch is implemented contains a server such as a DHCP server, dynamically allocating IP addresses, the configured IP address should not be within the range of the addresses that will be allocated by the server to the other switches. This precaution avoids creation of IP address conflicts between the switches. • **`<subnet-mask>`** - Sets the subnet mask for the configured IP address. The configured subnet mask should be in the same subnet of the network in which the switch is placed. Note: The parameters ip-address and subnet-mask are used implicitly in BCM Target. • **`secondary`** - Sets the configured IP address as an additional IP address for the interface (the configured address is used as secondary address instead of primary address). Note: This parameter is not supported on OOB and PPP interface.
Mode	Interface Configuration Mode This command is applicable in VLAN Interface mode, Router Interface, OOB Interface mode or PPP mode.
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• IP address specified in issnvram.txt is taken as default for the default VLAN identifier. • IP address is assigned as 0.0.0.0 and subnet mask as 255.255.255.255 for other interfaces.
Note:	• The interface should be shut down before executing this command. • The primary and secondary IP address should be different.

	• Primary address should be configured before configuring the secondary address. • The connection to the switch is lost if the IP address of the connected interface is modified. • When the same network interface is used for OOB and NFS mounting, the operation done on OOB will have an impact on NFS. • For PPP mode, PPP interface should be attached to the physical interface first.
Example	**SEFOS(config-if)# ip address 10.0.0.3 255.255.255.0** **SEFOS(config-if)# ip address 10.0.0.2 255.255.255.0 secondary** **SEFOS (config-ppp)# ip address 17.0.0.100 255.255.255.0**
Related Command(s)	• **show nvram** - Displays the current information stored in the NVRAM. • **show ip interface** - Displays the IP interface configuration for all interfaces available in the switch. • **shutdown – physical/VLAN/port-channel/tunnel Interface** - Disables a physical interface, VLAN interface, port-channel interface, tunnel interface or OOB interface. • **layer** - Configures a virtual PPP link to a physical interface.

4.6 switchport

Command Objective	This command configures the port as switch port. Only switch port-related commands are made available for the interface, when the port is configured as switch port. The no form of the command resets the port as router port. Only router port-related commands are made available for the interface, when the port is configured as router port.
Syntax	**`switchport`** **`no switchport`**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	switchport
Note:	The interface should be shut down before executing this command.
Example	**`SEFOS(config-if)# switchport`**
Related Command(s)	• **`release`** - Releases the DHCP lease obtained for an IP address from a DHCP server, on the specified interface. • **`renew`** - Renews the DHCP lease for the interface specified. • **`ip dhcp relay circuit-id`** – Configures circuit ID value for an interface. • **`ip dhcp relay remote-id`** – Configures remote ID value for an interface. • **`show ip interface`** - Displays the IP interface configuration for all interfaces available in the switch. • **`switchport filtering-utility-criteria`** - Creates filtering utility criteria for the port. • **`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 configured protocol group to a particular VLAN ID for an interface.
- **`switchport priority default`** - Configures the default ingress user priority for a port.
- **`switchport mode`** - Configures the mode of operation for a switch port.
- **`switchport protected`** - Enables switchport protection feature for a port.
- **`port-vid`** - Configures the the VLAN identifier assigned to router-ports for association in the porting layer.

4.7 default ip address allocation protocol

Command Objective	This command configures the protocol used by the default interface to acquire its IP address. This configuration takes effect only on rebooting the system.
Syntax	**`default ip address allocation protocol {bootp | rarp | dhcp}`**
Parameter Description	• **`bootp`** - Allows the client device to obtain its own IP address, address of a server host, and name of a boot file to be executed from a BOOTP server. • **`rarp`** - Allows the client device to dynamically find its IP address from RARP server, when it has only its hardware address such as MAC address. • **`dhcp`** - Allows the client device to obtain configuration parameters, such as network address, from the DHCP server.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	dhcp
Note:	• This command executes only if the default mode is configured as dynamic. • If the default interface is configured as OOB and if the same network interface is used for OOB and NFS mounting, then the operation done on OOB will have an impact on NFS.
Example	**`SEFOS(config)# default ip address allocation protocol bootp`**
Related Command(s)	• **`default mode`** - Configures the mode by which the default interface acquires its IP address. • **`show nvram`** - Displays the current information stored in the NVRAM.

4.8 ip address - rarp/dhcp

Command Objective	This command configures the current VLAN / OOB interface to dynamically acquire an IP address from the RARP / DHCP server. The no form of the command resets the IP address for the interface to its default value.
Syntax	**ip address { dhcp | rarp}[client-id { FastEthernet | extreme-ethernet | Port-channel | Vlan } <interface_list>] [hostname <host_name>]** **no ip address**
Parameter Description	• **dhcp** - Allows the client device to obtain configuration parameters such as network address, from the DHCP server. • **rarp** - Allows the client device to dynamically find its IP address from RARP server, when it has only its hardware address such as MAC address. • **client-id** - Sets the client identifier that specifies the interface type and hexadecimal MAC address of the specified interface. The various interface types that can be specified are: ▪ **fastethernet** - Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer upto 100 Megabits per second. ▪ **extreme-ethernet** - A version of Ethernet that supports data transfer upto 10 Gigabits per second. This Ethernet supports only full duplex links. ▪ **port-channel** - Logical interface that represents an aggregator which contains several ports aggregated together. ▪ **vlan** - Logical interface that specifies a group of hosts which can communicate with each other as in same broadcast domain. • **<interface list>** - 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 port-channel and VLAN. Only VLAN or port-channel ID is provided, for interface types VLAN and port-channel. Use comma as a separator without space while configuring list of interfaces. Example: 0/1,0/3 or 1,3. Feature not supported - This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported. • **hostname** - Sets the name of the host from which the IP address is to be acquired dynamically. Feature not supported - This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.

Mode	Interface Configuration Mode (VLAN)
Package	Workgroup, Enterprise Metro, and Metro_E
Default	dhcp
Note:	When the same network interface is used for OOB and NFS mounting, the operation done on OOB will have an impact on NFS.
Example	**`SEFOS(config-if)# ip address dhcp`**
Related Command(s)	• **`show ip dhcp client stats`** - Displays the DHCP client statistics information for interfaces that are configured to acquire IP address dynamically from the DHCP server. • **`release`** - Releases the DHCP lease obtained for an IP address from a DHCP server, on the specified interface. • **`renew`** - Renews the DHCP lease for the interface specified.

4.9 base-mac

Command Objective	This command configures the base MAC address for the switch in the NVRAM. The switch uses this address as its hardware address. Layer 3 modules use the switch MAC address as the source MAC address in the transmitted packets. This configuration takes effect only when the switch is restarted.
Syntax	**base-mac <mac_address>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	00:01:02:03:04:05
Example	**SEFOS(config)# base-mac 00:89:fe:34:55:33**
Related Command(s)	• **show nvram** - Displays the current information stored in the NVRAM. • **show spanning-tree - Summary, Blockedports, Pathcost, Redundancy** - Displays spanning tree-related information available in the switch for the current STP enabled in the switch. • **show spanning-tree detail** - Displays detailed spanning tree-related information of the switch and all ports enabled in the switch. • **show spanning-tree active** - Displays spanning tree-related information available in the switch for the current STP enabled in the switch. • **show spanning-tree interface** - Displays the port-related spanning tree information for the specified interface. • **show spanning-tree root** - Displays the spanning tree root information. • **show spanning-tree bridge** - Displays the spanning tree bridge information. • **show spanning-tree – layer 2 gateway port** - Displays spanning tree information for all L2GPs enabled in the switch. • **name** - Configures the name for the MST region. • **show spanning-tree mst - CIST or specified mst Instance** - Displays multiple spanning tree information for all MSTIs in the switch.

- **`show spanning-tree vlan - Summary, Blockedports, 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.

4.10 login authentication

Command Objective	This command configures the authentication method for user logins for accessing the GUI to manage the switch. Few network routers and other network equipment allow access to a server or a managing computer to determine if the user attempting to log in has the proper rights or is in the user database. The no form of the command resets the authentication method for user logins to its default values. Changing login authentication from default to another value may disconnect the telnet session.
Syntax	**`login authentication [{radius | tacacs }] [local]`** **`no login authentication`**
Parameter Description	• **`radius`** - Sets the RADIUS server to be used as an authentication server. Enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. Note: Note: RADIUS user will be given privilege based on service type attribute value received in access accept packet from radius server • **`tacacs`** - Sets the TACACS server to be used as an authentication server. Communicates with the authentication server commonly used in networks. Note: Note: TACACS user will be given root privilege by default or local user privilege if the user exists in local database. • **`local`** - Sets locals authentication. The user identification, authentication, and authorization method is chosen by the local system administration and does not necessarily comply with any other profiles.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	Local
Example	**`SEFOS(config)# login authentication radius`**
Related Command(s)	• **`username`** - Creates a user and sets the enable password for that user with the privilege level. • **`no enable password`** - Deletes a user and disables **`enable password`**

parameters.

- **`show system information`** - Displays system information.

4.11 login authentication-default

Command Objective	This command configures the authentication method for user logins for accessing the GUI to manage the switch. Few network routers and other network equipment allows access to a server or a managing computer to determine if the user attempting to log in has the proper rights or is in the user database. Changing login authentication from default to another value may disconnect the telnet session. The no form of the command resets the authentication method for user logins to its default values.
Note:	This command is a standardized implementation of the existing command. It operates similar to that of the command **`login authentication`**.
Syntax	**`login authentication { default | <list-name> }`** **`no login authentication { default | <list-name> }`**
Parameter Description	• **`default`** - Sets the default authentication method for user logins. • **`<list-name>`** - Uses the list of user names created with the **`username`** command, for authentication. Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS(config)# login authentication default`**
Related Command(s)	• **`username`** - Creates a user and sets the **`enable password`** for that user with the privilege level. • **`no enable password`** - Deletes a user and disables **`enable password`** parameters. • **`show system information`** - Displays system information.

4.12 authorized-manager ip-source

Command Objective	This command configures an IP authorized manager. The no form of the command removes manager from authorized managers list.
Syntax	**authorized-manager ip-source <ip-address> [{<subnet-mask> | / <prefix-length(1-32)>}] [interface [interface-type <0/a-b, 0/c, ...>] [interface-type <0/a-b, 0/c, ...>]] [<interface-type <a,b or a-b or a,b,c-d...>]] [vlan <a,b or a-b or a,b,c-d>] [cpu0] [service [snmp] [telnet] [http] [https] [ssh]]** **no authorized-manager ip-source < ip-address > [{<subnet-mask > | / <prefix-length(1-32)>}]**
Parameter Description	• **<ip-address>** - Sets the network or host address from which the switch is managed. An address 0.0.0.0 indicates 'Any Manager'. • **<subnet-mask>** - Sets the subnet mask for the configured IP address. The configured subnet mask should be in the same subnet of the network in which the switch is placed. • **<prefix-length(1-32)>** - Configures the number of high-order bits in the IP address. These bits are common among all hosts within a network. This value ranges from 1 to 32. • **interface** - Configures the network or host address 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 upto 100 Megabits per second. • **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. • **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. • **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap. ▪ **interface-type <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 i-lan. Only i-lan ID is provided for interface type i-lan. Use comma as a separator without space while configuring list of interfaces. Example: 0/1,0/3 or 1,3. • **<interface-type <a,b or a-b or a,b,c-d...> -** Configures the network or host address for the specified port-channel interface. Port-

	channel is a Logical interface that represents an aggregator which contains several ports aggregated together.Configures the port-channel interface identifier. This is a unique value that represents the specific interface. Only port-channel ID is provided port-channel. For example: 1 represents port-channel ID. Use comma as a separator without space while configuring list of interfaces. Example: 1, 2, 3 or 1-3.
	
	• **vlan <a,b or a-b or a,b,c-d>** - Sets the list of VLANs or a single specifc VLAN in which the IP authorized manager can reside.
	
	• **cpu0** - Configures the access rights for the manager of the switch through OOB Port.
	
	• **service** - Configures the type of service to be used by the IP authorized manager. The values can be:
	
	  • **ssh** - Logs into another computer over a network to execute commands in a remote machine, and to move files from one machine to another. It provides strong authentication and secure communications over insecure channels. It is a replacement for rlogin, rsh, rcp, and rdist. SSH protects a network from attacks such as IP spoofing, IP source routing, and DNS spoofing. An attacker who has managed to take over a network can only force SSH to disconnect. He or she cannot play back the traffic or hijack the connection when encryption is enabled.
	
	  • **http** - Defines how messages are formatted and transmitted, and what actions web servers and browsers should take in response to various commands. For example, when you enter a URL in your browser, this actually sends an HTTP command to the web server directing it to fetch and transmit the requested web page.
	
	  • **https** – Transmits data securely over the World Wide Web. S-HTTP is designed to transmit individual messages in a secure manner.
	
	  • **snmp** - Manages complex networks. SNMP works by sending messages, called PDUs, to different parts of a network. SNMP-compliant devices, called agents, store data about themselves in MIBs and return this data to the SNMP requesters.

Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	All services are allowed for the configured manager
Example	**SEFOS(config)# authorized-manager ip-source 10.203.113.5 255.255.255.255 interface extreme-ethernet 0/1 vlan 1 service snmp**
Related Command(s)	• **show authorized managers** - Displays the configured authorized managers.

4.13 ip http port

Command Objective	This command sets the HTTP port. This port is used to configure the router using the Web interface. This value ranges from 1 to 65535. The no form of the command resets the HTTP port to its default value.
Syntax	**ip http port <port(1-65535)>** **no ip http port**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	80
Note:	HTTP port number configuration takes effect only when HTTP is disabled and enabled again.
Example	**SEFOS(config)# ip http port 90**
Related Command(s)	• **set ip http** - Enables or disables HTTP. • **show http server status** - Displays the HTTP server status.

4.14 set ip http

Command Objective	This command enables or disables HTTP in the switch.
Syntax	**`set ip http {enable | disable}`**
Parameter Description	• **`enable`** - Enables HTTP in the switch. • **`disable`** - Disables HTTP in the switch.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	enable
Example	**`SEFOS(config)# set ip http disable`**
Related Command(s)	• **`ip http port`** - Sets the HTTP port. • **`show http server status`** - Displays the HTTP server status.

4.15 archive download-sw

Command Objective	This command performs an image download operation on a switch stack or on a stand-alone switch. The command downloads a new image from a TFTP or SFTP, from a remote location to the switch, and overwrites or keeps the existing image.
Syntax	**archive download-sw /overwrite [/reload] { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename | flash:filename}**
Parameter Description	• **/overwrite** - Overwrites the software image in flash with the downloaded one. This option should be specified only if the flash device has sufficient space to hold two images. • **/reload** - Reloads the system after successfully downloading the image unless the configuration has been changed and not been saved. Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported. • **tftp://server/filename** - Configures the source URL and filename used to overwrite or update the existing image. The file is transferred using TFTP. • **sftp://<user-name>:<pass-word>@server/filename** - Configures the source URL, user name, password, and filename used to overwrite or update the existing image. The file is transferred using SFTP. • **flash:filename** - Configures the name of the flash file used to overwrite or update the existing image.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	Filenames and directory names are case sensitive.
Example	**SEFOS# archive download-sw /overwrite tftp://20.0.0.1/SEFOS.exe** **Download is in Progress...**

4.16 interface-configuration and deletion

Command Objective

This command allows configuring interface such as out-of-band management, port channel, tunneling and so on.

The no form of the command deletes interface such as VLAN, port-channel, tunnel interface and so on.

Syntax

WGS enabled in the switch

```
interface {cpu0 | VlanMgmt | port-channel <port-channel-id
(1-65535)> | tunnel <tunnel-id (0-128)> | <interface-type>
<interface-id> | linuxvlan <interface-name >| ppp <1-128>}

no interface { vlanMgmt | Port-Channel <port-channel-id(1-
65535)> | tunnel <tunnel-id (0-128)> | linuxvlan
<interface-name> | ppp <1-128)>}
```

WGS disabled in the switch

```
interface {cpu0 | vlan <vlan-id/vfi-id> | port-channel
<port-channel-id (1-65535)> | tunnel <tunnel-id (0-128)> |
<interface-type> <interface-id> | linuxvlan <interface-
name> | loopback <interface-id (0-100)> | ppp <1-128> | pw
<interface-id (1-65535)>| ac <integer (1-65535)> | sisp
<interface-id (1-65535)>| virtual <integer (1-16777214)>|
nve <integer (1-65535)>}

no interface { vlan <vlan-id/vfi-id> | port-channel <port-
channel-id(1-65535)> | tunnel <tunnel-id (0-128)> |
<interface-type> <interface-id> | linuxvlan <interface-
name> | loopback <interface-id (0-100)> | ppp <integer (1-
128)> | pw <integer (1-65535) | ac <integer (1-65535)> |
sisp <interface-id(1-65535)>| virtual <integer (1-
16777214)> [graceful-deletion} | nve <integer (1-65535)>}
```

Parameter Description

- **cpu0** - Configures the access rights for the manager of the switch through OOB Port.
- **VlanMgmt** - Configures the management VLAN interface.
- **vlan <vlan-id/vfi-id>** - Configures the specified VLAN ID. This is a unique value that represents the specific VLAN or VFI created or to be created. This value ranges from 1 to 65535.
  - **<vlan –id>** - VLAN ID is a unique value that represents the specific VLAN. This value ranges from 1 to 4094.
  - **<vfi-id>** - VFI ID is a VLAN created in the system which contains pseudowires and attachment circuits as member ports. This creates a logical LAN for the VPLS service. This value ranges from 4096 to

65535.

Note: The VLAN ID 4095 is reserved and may be used to indicate a wildcard match for the VID in management operations or filtering database entries.

Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **port-channel<port-channel-id (1-65535)>** - Configures the port to be used by the host to configure the router. This value ranges from 1 to 65535. The port channel identifier can be created or port channel-related configuration can done, only if the LA feature is enabled in the switch.

- **tunnel<tunnel-id (0-128)>** - Configures the tunnel interface. This value ranges from 0 to 128.

- **<interface-type>** - Configures 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 upto 100 Megabits per second.
  - **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second.
  - **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second.
  - **i-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 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 or port-channel ID is provided, for interface types i-lan and port-channel. For example: 1 represents i-lan and port-channel ID.

- **linuxvlan<interface-name>** - Configures the interface name of the Linux VLAN Interface.

- **loopback<interface-id (0-100)>** - Configures the loopback identifier. This value ranges from 0 to 100.

- **ppp <1-128>** - Configures interfaces of the point to point protocol. This value ranges from 1 to 128.

- **pw <interface-id (1-65535)>** - Configures interfaces of the pseudowire. This value ranges from 1 to 65535. Maximum number of pseudowire interfaces supported in the system is 100.

- **ac <integer (1-65535)>** - Configures the Attachment Circuit identifier in the system. 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.

- **sisp<interface-id(1-65535)>** - Configures the SISP identifier. This value ranges from 1 to 65535.

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

- **virtual<integer (1-65535)>** - Configures the virtual interface identifier. This value ranges from 1 to 65535.

  Note: This option is available, only when PBB feature is enabled. The WGS enable feature is currently not supported.

- **nve <integer (1-65535)** - Configures the NVE (Network Virtualization Endpoint) interface identifier. This value ranges from 1 to 65535.

  Note: This option is available, only when VXLAN feature is enabled.

Mode Global Configuration Mode

Package Workgroup, Enterprise Metro, and Metro_E

Note:

- The command **no shutdown** must be executed for the interface to be active.

- Logical interfaces cannot be created in the switch, if the base bridge mode is configured as transparent bridging.

Example

```
SEFOS(config)# interface tunnel 0

SEFOS(config-if)#
```

Related Command(s)

- **shutdown port-channel** - Shuts down LA in the switch and releases the allocated resources to the switch.

- **set port-channel** - Configures the admin status of LA in the switch.

- **port-channel load-balance** - Configures the load balancing policy for all port channels created in the switch.

- **channel-group** - Adds the port as a member of the specified port channel that is already created in the switch.

- **`show etherchannel`** - Displays Etherchannel information for all port-channel groups created in the switch.
- **`show lacp`** - Displays LACP counter or neighbor information for all port channels.
- **`show interfaces`** - Displays the interface status and configuration
- **`base bridge-mode`** - Configures the mode in which the VLAN feature should operate on the switch.
- **`show interface - counters`** - Displays the interface statistics for each port.

4.17 mtu

Command Objective	This command configures the Maximum Transmission Unit frame size for all the frames transmitted and received on all the interfaces in a switch. The size of the MTU frame size can be increased using this command. The value ranges from 90 to 9216. When QCA flag is set as No, this value ranges from 46 to 9216. For PPP interface, this value ranges from 90 to 9202. This value defines the largest PDU that can be passed by the interface without any need for fragmentation. This value is shown to the higher interface sub-layer and should not include size of the encapsulation or header added by the interface. This value represents the IP MTU over the interface, if IP is operating over the interface.
Syntax	When QCA_WANTED is set as No while compiling exe **mtu <frame-size(90-9216)>** When QCA_WANTED is set as Yes while compiling exe **mtu <frame-size(46-9216)>** For PPP Interface Configuration **mtu <frame-size(90-9202)>**
Mode	Interface Configuration Mode (VLAN / Physical/ Port channel)
Package	Workgroup, Enterprise Metro, and Metro_E
Default	1500
Note:	• This configuration can be done, only if the interface is administratively down. • The MTU value should not be greater than 1500 for fastethernet interface. • Any messages larger than the MTU are divided into smaller packets before transmission • For PPP, the interface must be attached to an underlying physical interface.
Example	**SEFOS(config-if)# mtu 900**
Related Command(s)	• **show interfaces** - Displays the interface status and configuration. • **show interface mtu** - Displays the global Maximum Transmission

Unit.

- **shutdown-physical/VLAN/port-channel/tunnel Interface** – Enables the physical interface, VLAN interface, port channel interface, tunnel interface, or OOB interface.

- **layer** - Configures a virtual PPP link to a physical interface.

4.18 system mtu

Command Objective	This command configures the Maximum Transmission Unit frame size for all the frames transmitted and received on all the interfaces in a switch. This value defines the largest PDU that can be passed by the interface without any need for fragmentation. This value is shown to the higher interface sub-layer and should not include size of the encapsulation or header added by the interface. This value represents the IP MTU over the interface, if IP is operating over the interface.This value ranges from 90 to 9216. The no form of this command sets the Maximum Transmission Unit to the default value in all interfaces.
Note:	This command is a standardized implementation of the existing command. It operates similar to that of the command **`mtu frame size`**.
Syntax	**`system mtu <frame-size(90-9216)>`** **`no system mtu`**
Mode	Global Configuration mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	1500
Note:	• This configuration can be done, only if the interface is administratively down. • Any messages larger than the MTU are divided into smaller packets before transmission
Example	**`SEFOS(config)# system mtu 200`**
Related Command(s)	• **`show interfaces`** - Displays the interface status and configuration. • **`show interface mtu`** - Displays the global Maximum Transmission Unit.

4.19 loopback local

Command Objective	This command enables loopback on a physical interface. The no form of this command disables the loopback on a physical interface.
Syntax	**`loopback local`** **`no loopback local`**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS(config-if)# loopback local`**
Related Command(s)	• **`show interfaces`** - Displays the interface status and configuration.

4.20 system-specific port-id

Command Objective	This command configures the system-specific index for the port. It provides a different numbering space other than the IfIndex to identify ports. This value ranges from 1 to 16384. If no other value has been configured, 0 is set by default.
Syntax	**system-specific port-id <integer (1-16384)>**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	0
Example	**SEFOS(config-if)# system-specific port-id 50**
Related Command(s)	• **show system-specific port-id** - Displays the custom-param configurations.

4.21 set custom-param

Command Objective	This command configures the custom parameters for a particular port. The no form of the command deletes the custom parameter configurations.
Syntax	**set custom-param {type <integer> length <integer> value <string> | attribute <integer (1-4)> value <integer (0-4294967295)>}** **no custom-param [type <integer>] [attribute <integer (1-4)>]**
Parameter Description	• **type** - Sets the type of the TLV information. • **length** - Sets the length of the TLV information. • **value** - Sets the value of the TLV information. • **attribute** - Sets the opaque attribute ID configured on the port. This value ranges from 1 to 4. • **value** - Sets the value for the opaque attribute. This value ranges from 0 to 4294967295.
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	value - 0
Example	**SEFOS(config-if)# set custom-param attribute 2 value 40**
Related Command(s)	• **show custom-param** - Displays the custom-param configurations.

4.22 mac-addr

Command Objective	This command configures unicast MAC address for the interface.
Syntax	**mac-addr <aa:aa:aa:aa:aa:aa>**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	MAC address of the switch is assigned as MAC address for the interface.
Note:	• The MAC address can be set only when ifMainAdminStatus for the interface is down. • The object is valid only for interfaces that have the ifMainType set as ethernetCsmacd(6) or ieee8023ad(161).
Example	**SEFOS(config-if)# mac-addr 00:22:33:44:55:66**
Related Command(s)	• **show interfaces** - Displays the interface status and configuration.

4.23 snmp trap link-status

Command Objective	This command enables trap generation on the interface. The interface generates linkUp or linkDown trap. The linkUp trap denotes that the communication link is available and ready for traffic flow. The linkDown trap denotes that the communication link failed and is not ready for traffic flow. The no form of this command disables trap generation on the interface.
Syntax	**snmp trap link-status** **no snmp trap link-status**
Mode	Interface Configuration Mode / PPP Interface Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	SNMP trap link status is enabled.
Example	**SEFOS(config-if)# snmp trap link-status** **SEFOS(config-ppp)# snmp trap link-status**
Related Command(s)	• **show interfaces** - Displays the interface status and configuration.

4.24 write

Command Objective	This command writes the running-config to a flash file, startup-configuration file, or to a remote site.
Syntax	**write { flash:filename | startup-config | tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename}**
Parameter Description	• **flash:filename** - Configures the name of the file to which the configuration is to be saved. This file is present in the flash. • **startup-config** - Starts the switch with the saved configuration on reboot. • **tftp** - Configures the TFTP-related details for writing the configuration to a file in TFTP server. ▪ **server** - The IP address or host name of the server in which configuration should be maintained. ▪ **filename** - The name of the file in which the configuration should be written. • **sftp** - Configures the SFTP-related details for writing the configuration to a file in SFTP server. ▪ **user-name** - The user name of remote host or server. ▪ **pass-word** – The password for the corresponding user name of remote host or server ▪ **server** - The IP address or host name of the server in which configuration should be maintained. ▪ **filename** - The name of the file in which the configuration should be written.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	Filenames and directory names are case sensitive
Example	**SEFOS# write startup-config**
Related Command(s)	• **copy startup-config** - Copies variables from the running configuration to the startup configuration file in NVRAM. • **show nvram** - Displays the current information stored in the NVRAM.

- **`show system information`** - Displays system information.

4.25 copy

Command Objective	This command copies the configuration from a remote site to flash.
Syntax	**copy { tftp://server/filename startup-config | sftp://<user-name>:<pass-word>@server/filename startup-config | flash: filename startup-config }**
Parameter Description	• **tftp://server/filename startup-config** - Configures the address from which the file is to be copied and the file name from which configuration is to be copied. This option configures the TFTP server details. • **sftp://<user-name>:<pass-word>@server/filename** - Configures the name of the file in remote location to be copied (downloaded) into configuration file (switch.conf). This option configures the SFTP server details. • **flash: filename startup-config** - Configures the name of the file in flash. The configuration in the flash file is used.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	Filenames and directory names are case sensitive
Example	**SEFOS# copy flash:clcliser startup-config**

4.26 copy startup-config

Command Objective	This command copies the the running configuration to the startup configuration file in NVRAM, where the running-config is the current configuration in the router and the startup config is the configuration that is loaded when the router boots up. This command takes a backup of the initial configuration in flash or at a remote location.
Syntax	**copy startup-config {flash: filename | tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename}**
Parameter Description	• **flash: filename** - Configures the name of the file in which the initial configuration should be stored. This file is available in the flash. • **tftp://server/filename** - Configures the TFTP details for taking backup of initial configuration in TFTP server. ▪ **server** - The IP address or host name of the server. ▪ **filename** - The name of the file in which the initial configuration should be stored. • **sftp://<user-name>:<pass-word>@server/filename** - Configures the SFTP details for taking backup of initial configuration in SFTP server. ▪ **user-name** - The user name of remote host or server. ▪ **pass-word** – The password for the corresponding user name of remote host or server. ▪ **server** - The IP address or host name of the server. ▪ **filename** - The name of the file in which the initial configuration should be stored.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	Filenames and directory names are case sensitive
Example	**SEFOS# copy startup-config flash:clcliser**
Related Command(s)	• **copy running-config startup-config** - Copies variables from the running configuration to the startup configuration file in NVRAM. • **write** - Writes the running-config to a file in flash, startup-configuration file, or to a remote site.

- **`copy-file`** - Copies a file from a source remote site or flash to a destination remote site or flash.

4.27 copy running-config startup-config

Command Objective	This command copies the variables from the running configuration to the startup configuration file in NVRAM, where the running-config is the current configuration in the router and the startup config is the configuration that is loaded when the router boots up.
Note:	This command takes a backup of the initial configuration in flash or at a remote location. This command is a complete standardized implementation of the existing command. It operates similar to that of the command **`copy startup-config.`**
Syntax	**`copy running-config startup-config`**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS# copy running-config startup-config`**
Related Command(s)	• **`copy startup-config`** - Copies variables from the running configuration to the startup configuration file in NVRAM. • **`copy-file`** - Copies a file from a source remote site or flash to a destination remote site or flash.

4.28 copy logs

Command Objective	This command writes the system logs to a remote site.
Syntax	**copy logs {tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename} [standby]**
Parameter Description	• **tftp://server/filename** - Configures the TFTP details for taking backup of system logs in TFTP server. ▪ **ip-address** - Configures the IP address or host name of the TFTP server. ▪ **filename** - Configures name of the file in which the system logs should be stored. • **sftp://<user-name>:<pass-word>@server/filename** - Configures the SFTP details for taking backup of system logs in SFTP server. ▪ **user-name** - Configures the user name of remote host or server. ▪ **pass-word** – Configures password for the corresponding user name of remote host or server. ▪ **server** - Configures the IP address or host name of the server. ▪ **filename** - Configures the name of the file in which the system logs should be stored. • **standby** - Copies the received peer log to server.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	Filenames and directory names are case sensitive
Example	**SEFOS#** copy logs tftp://12.100/log.txt standby Log Upload Successful

4.29 firmware upgrade

Command Objective	This command performs firmware upgrade using TFTP from a remote location.
Syntax	**`firmware upgrade { tftp://server/filename} {flash:normal | flash:fallback}`**
Parameter Description	• **`tftp://server/filename`** - Configures the file to be used for firmware upgrade and its source URL. ▪ **`server`** - IP address or host name of the TFTP server. ▪ **`filename`** - The name of the file to be used for firmware upgrade. Filenames and directory names are case sensitive. • **`flash:normal`** - Sets the flash in normal image. • **`flash:fallback`** - Sets the fallback image in flash.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	In stacking environment case, this command copies the image to the attached peers.
Example	**`SEFOS# firmware upgrade tftp://12.0.0.100/Ramdisk.bin flash:normal`**

4.30 copy - file

Command Objective	This command copies a file from a source remote site or flash to a destination remote site or flash. The entire copying process takes several minutes and differs from protocol to protocol and from network to network.
Syntax	**copy { tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename | flash: filename}{ tftp://server/filename | sftp://<user-name>:<pass-word>@server/filename | flash: filename | filename}**
Parameter Description	• **tftp://server/filename** - Configures the TFTP details to and from the file to be copied. ▪ **server** - IP address or host name of the TFTP server. ▪ **filename** - Name of the file to be copied or file to which information is to be copied. • **sftp://<user-name>:<pass-word>@server/filename** - Configures the SFTP details to and from the file to be copied. ▪ **user-name** - User name of remote host or server. ▪ **pass-word** – Password for the corresponding user name of remote host or server. ▪ **server** - IP address or host name of the server. ▪ **filename** - Name of the file to be copied or file to which information is to be copied. • **flash: filename** - Configures the name of the file to be copied. This file is present in flash. • **filename –** Configures the name of the file to be copied.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	Filenames and directory names are case sensitive
Example	**SEFOS# copy tftp://12.0.0.2/clclirel flash:clcliser**
Related Commands	• **copy running startup-config** - Copies variables from the running configuration to the startup configuration file in NVRAM. • **copy startup-config** - Copies variables from the running configuration to the startup configuration file in NVRAM.

4.31 clock set

Command Objective	This command manages the system clock.
Syntax	**clock set hh:mm:ss <day (1-31)> {january|february|march|april|may|june|july|august|september| october|november|december} <year (2000 - 2035)>**
Parameter Description	• **hh:mm:ss** - Sets the current time. The format is hour, minutes and seconds. ▪ **<day (1-31)>** - Sets the current day. This value ranges from 1 to 31. ▪ **january** - Sets the month as January. ▪ **february** - Sets the month as February. ▪ **march** - Sets the month as March. ▪ **april** - Sets the month as April. ▪ **may** - Sets the month as May. ▪ **june** - Sets the month as June. ▪ **july** - Sets the month as July. ▪ **august** - Sets the month as August. ▪ **september** - Sets the month as September. ▪ **october** - Sets the month as October. ▪ **november** - Sets the month as November. ▪ **december** - Sets the month as December. ▪ **<year (2000 - 2035)>** - Sets the year. This value ranges from 2000 to 2035.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# clock set 18:04:10 18 Oct 2005**
Related Command(s)	• **show clock** - Displays the system clock.

4.32 erase

Command Objective	This command clears the contents of the startup configuration or sets parameters in NVRAM to default values.
Syntax	**erase {startup-config | nvram: | flash:filename}**
Parameter Description	• **startup-config** - Clears the startup configuration file. • **nvram** - Clears the content from NVRAM. • **flash:filename** - Clears the content from the local system flash file.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	The Delete functionality is supported only for VxWorks and Linux.
Example	**SEFOS# erase startup-config**
Related Command(s)	• **show nvram** - Displays the current information stored in the NVRAM. • **show system information**- Displays system information.

4.33 cli console

Command Objective	This command enables the console CLI through a serial port. The no form of the command disables console CLI.
Syntax	**`cli console`** **`no cli console`**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	Enabled
Note:	This command takes effect only on system restart.
Example	**`SEFOS# cli console`**
Related Command(s)	• **`show nvram`** - Displays the current information stored in the NVRAM.

4.34 flowcontrol

Command Objective	This command is used to set the send or receive flow-control value for an interface. • If flowcontrol send is on for a device and if it detects any congestion at its end, then it notifies the link partner or the remote device of the congestion by sending a pause frame. • If flowcontrol receive is on for the remote device and it receives a pause frame, then it stops sending any data packets. This prevents any loss of data packets during the congestion period. • PAUSE is a flow control mechanism that is implied on full duplex Ethernet link segments. The mechanism uses MAC control frames to carry the PAUSE commands.
Note:	Interface must first be brought administratively down before setting flow control status
Syntax	**`flowcontrol { send | receive} { on | off | desired}`**
Parameter Description	• **`send`** - Sets the interface to send flow control packets to a remote device. • **`receive`** - Sets the interface to receive flow control packets from a remote device. • **`on`** - If used with **`receive`**, allows an interface to operate with the attached device to send flow control packets. If used with **`send`**, the interface sends flowcontrol packets to a remote device, if the device supports it. • **`off`** - Turns off the attached devices (when used with **`receive`**) or the local ports (when used with **`send`**) ability to send flow-control packets to an interface or to a remote device respectively. • **`desired`** - Allows a local port to operate with an attached device that is required to send flow control packets or that may send the control packets, when used with **`receive`** option. Allows the local port to send administrative status to a remote device if the remote device supports it, when used with **`send`** option.
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	The default flow control for the interfaces are • flowcontrol receive on

	• flowcontrol send on
Example	**SEFOS(config-if)# flowcontrol send on**
Related Command(s)	• **show interfaces** - Displays the interface status and configuration. • **show flow-control** - Displays the flowcontrol information.

4.35 shutdown - physical/VLAN/port-channel/tunnel Interface

Command Objective	This command disables a physical interface, VLAN interface, port-channel interface, tunnel interface, or OOB interface. The no form of the command enables a physical interface, VLAN interface, port-channel interface, tunnel interface, or OOB interface.
Syntax	**shutdown** **no shutdown**
Mode	Interface Configuration Mode for physical interface, port-channel, tunnel interface, or OOB Interface VLAN Interface Mode for VLAN interface
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• The physical interface eth0 is enabled. • The interface VLAN 1 is enabled. • The port-channel interface is disabled.
Note:	• All functions on the specified interface are disabled by the **shutdown** command. • If OOB interface is enabled, then the physical interface eth0 is disabled. • When the same network interface is used for OOB and NFS mounting, the operation done on OOB will have impact on NFS. For example, when interface eth0 is used for OOB and NFS mounting, executing **shutdown** command on the OOB interface will make the admin down and the NFS communication will be lost.
Example	**SEFOS(config-if)# shutdown**
Related Command(s)	• **show spanning-tree - Summary, Blockedports, Pathcost, Redundancy** - Displays spanning tree-related information available in the switch for the current STP enabled in the switch. • **show spanning-tree detail** - Displays detailed spanning tree-related information of the switch and all ports enabled in the switch. • **show spanning-tree active** - Displays spanning tree-related

information available in the switch for the current STP enabled in the switch.

- **show spanning-tree – layer 2 gateway port** - Displays spanning tree information for all L2GPs enabled in the switch.
- **show spanning-tree mst - CIST or specified mst Instance** - Displays multiple spanning tree information for all MSTIs in the switch.
- **show interfaces** - Displays the interface status and configuration.
- **ppp serverip** - Sets the Server IP address for the PPP Interface on PPP Client.

4.36 debug interface

Command Objective	This command sets the debug traces for the specified level and severity for all the interfaces. The no form of the command resets the configured debug traces.
Syntax	**debug interface [track] [enetpktdump] [ippktdump] [arppktdump] [trcerror] [os] [failall] [buffer] [all][{ <short (0-7)> | alerts | critical | debugging | emergencies | errors | informational | notification | warnings }]** **no debug interface [track] [enetpktdump] [ippktdump] [arppktdump] [trcerror] [os] [failall] [buffer] [all]**
Parameter Description	• **track** - Generates debug messages for all track messages. • **enetpktdump** - Generates debug messages for ethernet packet dump messages. • **ippktdump** - Generates debug messages for IP protocol-related packet dump messages. • **arppktdump** - Generates debug messages for address resolution protocol-related packet dump messages. • **trcerror** - Generates debug messages for trace error messages. • **os** - Generates debug messages for OS resources. For example, when there is a failure in mem pool creation or deletion, this trace level is used • **failall** - Generates debug messages for all failures, including packet validation. • **buffer** - Generates debug messages for buffer trace levels where packet buffer is used. That is, in cases where packet is enqueued. • **all** - Generates debug messages for all kinds of traces. • **<short (0-7)> -** Generates debug statements for the specified severity leve.This value ranges from 0 to 7. • **alerts -** Generates debug statements for alert messages. • **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 informational 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
Example	**SEFOS# debug interface trcerror critical**
Related Command(s)	• **show debugging** - Displays state of each debugging option.

4.37 debug-logging - standby

Command Objective	This command configures the debug logging option in the system..The specifies whether the logging is to be done at console, to a file (system buffer), or through flash. The no form of the command displays debug logs in the console.
Syntax	**debug-logging { console | file | flash } [standby]** **no debug-logging [standby]**
Parameter Description	• **console** - Specifies that logging is to be done at console. • **file** - Specifies that logging is to be done in the file (system buffer). • **flash** - Specifies that the traces are logged into a file. • **standby** - Configures the debug logging option for the standby system.
Mode	Global Configuration Mode
Default	console
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# debug-logging flash standby** **SEFOS(config)# debug-logging console**
Related Command(s)	• **show debug-logging** - Displays the debug logs stored in file.

4.38 debug-logging

Command Objective	This command configures the debug logging display option in the system. The debug logs can be later uploaded, based on the input. The no form of the command displays debug logs in the console..
Note:	This command is obsolete from 7.2.0 release
Syntax	**debug-logging { console | file | flash | flash:<flash_url> }** **no debug-logging**
Parameter Description	• **console** - Displays the debug logs in console. • **file** - Displays the debug logs in the memory. • **flash:<flash_url> –** Displays the debug logs in the file in the mentioned location.
Mode	Global Configuration Mode
Default	console
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# debug-logging console** **SEFOS(config)# debug-logging flash:/home/twg**
Related Command(s)	• **show debug-logging** - Displays the debug logs stored in file.

4.39 incremental-save

Command Objective	This command enables or disables the incremental save feature.
Syntax	**`incremental-save { enable | disable }`**
Parameter Description	• **`enable`** - Enables the incremental save feature. • **`disable`** - Disables the incremental save feature.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	enable
Example	**`SEFOS(config)# incremental-save enable`**
Related Command(s)	• **`show nvram`** - Displays the current information stored in the NVRAM.

4.40 auto-save trigger

Command Objective	This command enables or disables the auto save trigger function.
Syntax	**auto-save trigger { enable | disable }**
Parameter Description	• **enable** - Enables the auto save trigger function. • **disable** - Disables the auto save trigger function.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	disable
Example	**SEFOS(config)# auto-save trigger enable**
Related Command(s)	• **show nvram** - Displays the current information stored in the NVRAM.

4.41 rollback

Command Objective	This command enables or disables the rollback function.
Syntax	**`rollback { enable | disable }`**
Parameter Description	• **`enable`** - Enables the rollback function. • **`disable`** - Disables the rollback function.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	enable
Example	**`SEFOS(config)# rollback enable`**
Related Command(s)	• **`show nvram`** - Displays the current information stored in the NVRAM.

4.42 shutdown ospf | ospf3 | bgp | isis | rsvpte | ldp

Command Objective	This command shuts down all the ports in the corresponding modules and releases all the allocated memory.
Note:	• BGP, OSPF, ISIS, RSVPTE, LDP shutdown command implementations are applicable only for stack environment. • It is not applicable for solution environment, so shutdown command should not be used in HA scenarios
Syntax	**`shutdown { ospf | ospf3 | bgp | isis | rsvpte | ldp}`**
Parameter Description	• **`ospf`** - Shuts down the Open Shortest Path First (OSPF) module. • **`ospf3`** - Shuts down the Open Shortest Path First version 3 (OSPFv3) module. • **`bgp`** - Shuts down the Border Gateway Protocol (BGP) module. • **`isis`** - Shuts down the Intermediate System to Intermediate system (ISIS) module. • **`rsvpte`** - Shuts down the Resource Reservation Protocol with Traffic Engineering (RSVPTE) module. • **`ldp`** - Shuts down the Label Distribution Protocol (LDP) module.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS(config)# shutdown ospf`**
Related Command(s)	• **`start ospf |ospf3 |bgp |isis | rsvpte | ldp`** - Starts the specified module.

4.43 start ospf | ospf3 | bgp | isis| rsvpte | ldp

Command Objective	This command starts and enables the corresponding modules and allocates the required resources to the corresponding module.
Syntax	**`start { ospf | ospf3 | bgp | isis | rsvpte | ldp }`**
Parameter Description	• **`ospf`** - Starts and enables the Open Shortest Path First (OSPF) module. • **`ospf3`** - Starts and enables the Open Shortest Path First version 3 (OSPFv3) module. • **`bgp`** - Starts and enables the Border Gateway Protocol (BGP) module. • **`isis`** - Starts and enables the Intermediate System to Intermediate System (ISIS) module. • **`rsvpte`** - Starts and enables the Resource Reservation Protocol with Traffic Engineering (RSVPTE) module. • **`ldp`** - Starts and enables the Label Distribution Protocol (LDP) module.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS(config)# start ospf`**
Related Command(s)	• **`shutdown ospf |ospf3 |bgp |isis | rsvpte | ldp`**- Shutsdown the specified module.

4.44 set switch maximum - threshold

Command Objective	This command sets the maximum threshold values of RAM, CPU, and flash, of the switch. When the current resource usage rises above the threshold limit, the SNMP trap message with maximum severity will be sent for the specified resource and the syslog message will be displayed. This threshold value is represented in percentage and ranges between 1 and 100 percentage.
Syntax	**set switch maximum { RAM | CPU | flash } threshold <percentage (1-100)>**
Parameter Description	• **RAM** - Indicates the maximum RAM usage of the switch in percentage. When the RAM usage crosses the threshold percentage, an SNMP trap with maximum severity will be sent to the manager. • **CPU** - Indicates the maximum CPU usage of the switch in percentage. When CPU load exceeds the threshold value, an SNMP trap with maximum severity will be sent to the manager. • **flash** - Indicates the maximum flash usage of the switch in percentage. When the flash usage crosses the threshold percentage, an SNMP trap with maximum severity will be sent to the manager. • **percentage (1-100)** - Configures the threshold value in percentage. This value ranges from 1 to 100 percentages.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• RAM - 100% • CPU - 100 % • flash - 100%
Example	**SEFOS(config)# set switch maximum RAM threshold 98**
Related Command(s)	• **show env** - Displays the switch-related information such as CPU, flash and RAM usage, and also displays the current power and temperature of the switch.

4.45 set switch temperature - threshold

Command Objective	This command sets the maximum and minimum temperature threshold values of the switch in Celsius. When the current temperature drops below the threshold, an SNMP trap with maximum severity will be sent to the manager. This threshold value ranges between -14 and 40 degree Celsius.
Note:	This command is a complete standardized implementation of the existing command **`set switch maximum - threshold`**.
Syntax	**`set switch temperature {min|max} threshold <celsius (-14 - 40)>}`**
Parameter Description	• **`min -`** Sets the minimum temperature threshold value for the switch. When the current temperature drops below the threshold, an SNMP trap with maximum severity will be sent to the manager. • **`max -`** Sets the maximum temperature threshold value for the switch. When the current temperature rises above the threshold, an SNMP trap with maximum severity will be sent to the manager.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• min - 10 degree Celsius • max - 40 degree Celsius
Example	**`SEFOS(config)# set switch temperature min threshold -10`** **`SEFOS(config)# set switch temperature max threshold 37`**
Related Command(s)	• **`show env`** - Displays the switch-related information such as CPU, flash and RAM usage, and also displays the current power and temperature of the switch.

4.46 set switch power - threshold

Command Objective	This command sets the maximum and minimum threshold values of the switch power supply in Volts. When the current temperature drops below the threshold, an SNMP trap with maximum severity will be sent to the manager. This threshold value ranges between 100 and 230 Volts.
Note:	This command is a complete standardized implementation of the existing command set **`switch temperature - threshold`**.
Syntax	**`set switch power {min|max} threshold <volts (100-230)>`**
Parameter Description	• **`min`** - Sets the minimum threshold power supply for the switch. When the voltage drops below the threshold, an SNMP trap with maximum severity will be sent to the manager. • **`max`** - Sets the maximum threshold power supply for the switch. When the voltage rises above the threshold, an SNMP trap with maximum severity will be sent to the manager.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• min - 100 Volts • max - 230 Volts
Example	**`SEFOS(config)# set switch power min threshold 110`** **`SEFOS(config)# set switch power max threshold 220`**
Related Command(s)	• **`show env`** - Displays the switch-related information such as CPU, flash and RAM usage, and also displays the current power and temperature of the switch.

4.47 mac-learn-rate

Command Objective	This command configures the maximum number of unicast dynamic MAC (L2) MAC entries the hardware can learn on the system, in a configured time interval. In the next subsequent time interval, the hardware can learn the number of previously learnt MAC entries along with present MAC entries. This cycle will continue until MAC learning reaches the maximum number of L2 unicast dynamic entries learning capacity of the system. If rate limit is changed while timer is running, new rate limit value takes effect on next timer restart. This limit controls the number of MAC entries indicated to control plane from hardware when hardware MAC learning is enabled. Configuration value '0' disables this feature in the system. The no form of the command removes the limit on number of unicast MAC entry indications (limit value is set as 0) and resets the configured time interval to default value.
Syntax	**mac-learn-rate {<no of MAC entries(0-2147483647)>} [interval {<milliseconds(1-100000)>}]** **no mac-learn-rate**
Parameter Description	• **<no of MAC entries(0-2147483647)>** - Configures the maximum number of unicast dynamic MAC (L2) entries that can be learned in the switch within the specified time interval. The configured value takes effect on next timer restart, if this value is changed while the timer is running. This value is used to control the number of MAC entries indicated to control plane from the hardware, when hardware MAC learning is enabled. This value ranges from 0 to 2147483647. The value 0 represents that no limit is set in the switch. This limit value does not impose any restrictions on multicast or broadcast, and dynamic, static or protocol (MMRP) MAC learning capability limits. • **interval<milliseconds(1-100000)>** - Configures the time interval (in milliseconds) for maximum number of MAC entries to be learned in the switch. The configured value takes effect from the next timer restart. This value ranges from 1 to 100000 milliseconds.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• <no of MAC entries(0-2147483647)> - 1000 • interval - 1000
Example	**SEFOS(config)# mac-learn-rate 100 interval 500**

Related Command(s)	• **`show mac-learn-rate`** - Displays the maximum limit on number of MAC learning indications to control plane from hardware and the MAC learning limit rate interval.

4.48 system contact

Command Objective	This command sets the system contact information.
Syntax	**system contact <contact info>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# system contact support@x.com**
Related Command(s)	• **show system information** - Displays system information.

4.49 system location

Command Objective	This command sets the system location.
Syntax	**system location <location name>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# system location Controls**
Related Command(s)	• **show system information** - Displays system information.

4.50 clear interfaces - counters

Command Objective	This command clears all the current interface counters from the interface unless the optional arguments *type* and *number* are specified to clear only a specific interface type (Serial, Ethernet, Token Ring, and so on).
Syntax	**clear interfaces [<interface-type> <interface-id>] counters**
Parameter Description	• **<interface-type>** - Displays the IP interface configuration 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 upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Displays the IP interface configuration 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided for interface type i-lan. For example: 1 represents i-lan ID.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# clear interfaces counters**
Related Command(s)	• **show interfaces - counters** - Displays the interface statistics for each port. • **show interfaces** - Displays the interface status and configuration.

4.51 clear counters

Command Objective	This command clears all the current interface counters from the interface unless the optional arguments *type* and *number* are specified to clear only a specific interface type (Serial, Ethernet, Token Ring, and so on).
Note:	This command is a standardized implementation of the existing command and operates similar to that of the command **`clear interfaces - counters`**.
Syntax	**`clear counters [ <interface-type> <interface-id> ]`**
Parameter Description	• **`<interface-type>`** - Clears the current counters 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 upto 100 Megabits per second. ▪ **`XL-ethernet`** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **`extreme-ethernet`** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ **`internal-lan`** – Internal LAN created on a bridge per IEEE 802.1ap. • **`<interface-id>`** - Clears the current counters for the specified type of 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided for interface type i-lan. For example: 1 represents i-lan ID.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS# clear counters`**
Related Command(s)	• **`show interfaces counters`** - Displays the interface statistics for each port. • **`show interfaces`** - Displays the interface status and configuration.

4.52 show ip interface

Command Objective	This command displays the IP interface configuration.
Syntax	**show ip interface [vrf <vrf-name>] [{[Vlan <vlan-id(1-4094)>] | [<interface-type> <interface-id>] | [loopback <loopback-id(0-100)>]}] [vlan-counters]**
Parameter Description	• **vrf<vrf-name>** - Displays IP interface for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string whose maximum size is 32. • **Vlan<vlan-id(1-4094)>** - Displays the IP interface configuration for the specified VLAN ID. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094. • **<interface-type>** - Displays the IP interface configuration 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 upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Displays the IP interface configuration 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided for interface type i-lan. For example: 1 represents i-lan ID. • **loopback<loopback-id(0-100)>** - Displays the IP interface configuration for the specified loopback ID. This is a unique value that represents the specific loopback created. This value ranges from 0 to 100. • **vlan-counters** - Displays the VLAN traffic statistics for all interfaces (for which the member port details are configured) available in the switch or all contexts.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	vrf - default

Note: If executed without the optional parameters this command displays the IP interface statistics and configuration for all the available interfaces.

Example

```
SEFOS# show ip interface vrf default
vlan1 is up, line protocol is down
Internet Address is 12.0.0.6/8
Broadcast Address  12.255.255.255
Vlan counters disabled

Ex0/1 is down, line protocol is down
Internet Address is 0.0.0.0/0
Broadcast Address  255.255.255.255
Vlan counters enabled
```

Related Command(s)

- **ip address** - Sets the IP address for an interface.
- **switchport** - Configures the port as switch port.
- **release** - Releases the DHCP lease obtained for an IP address from a DHCP server, on the specified interface.
- **renew** - Renews the DHCP lease for the interface specified.
- **show interfaces** - Displays the interface status and configuration
- **counters** - Enables or disables the statistics collection status for a VLAN interface.
- **ip unnumbered – vlan** - Configures the associated source interface for the unnumbered interface.
- **ppp serverip** - Sets the Server IP address for the PPP Interface on PPP Client.

4.53 show authorized-managers

Command Objective	This command displays the configured authorized managers' related information available in the switch.
Syntax	**show authorized-managers [ip-source < ip-address >]**
Parameter Description	• **ip-source< ip-address >** - Displays the configured authorized manager-related information for the specified network or host address.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show authorized-managers** Ip Authorized Manager Table --------------------------- Ip Address : 12.0.0.1 Ip Mask : 255.255.255.255 Services allowed : ALL Ports allowed : Ex0/1 On cpu0 : Deny Vlans allowed : All Available Vlans
Related Command(s)	• **authorized-manager ip-source** - Configures an IP authorized manager.

4.54 show interfaces

Command Objective	This command displays the interface status and configuration.
Syntax	**show interfaces [{ [<interface-type> <interface-id>] [{ description | storm-control | flowcontrol | capabilities | status | port-security-state | rate-limit }] | {vlan <vlan-id/vfi-id> } | tunnel <tunnel-id (0-128)> | private-vlan mapping | ppp <ppp-id(1-128)> [config] }]**
Parameter Description	• **<interface-type>** - Displays the interface status and configuration 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 upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ i-lan – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Displays the interface status and configuration 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. description - Displays the admin status and protocol status for the specified interface. • **description –** Displays the interface description. • **storm-control** - Displays the broadcast, multicast, and unicast storm control suppression levels for the specified interface. • **flowcontrol** - Displays the flow control-related statistics for the specified interface. • **capabilities** - Displays the interface type, interface speed, duplex operation, and flowcontrol status for the specified interface. • **status** - Displays the status, duplex details, speed, and negotiation mode of the specified interface. • **port-security-state** - Displays the state of the port security option. • **rate-limit** - Displays the rate limit burst size and rate-limit value of the interface.

- **vlan <vlan-id/vfi-id>**- Displays the interface status and configuration 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 may be used to indicate a wildcard match for the VID in management operations or filtering database entries.

    Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.

    Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **tunnel<tunnel-id (0-128)>** - Displays the interface status and configuration for the specified tunnel ID. This is a unique value that represents the specific tunnel created. This value ranges from 0 to 128.
- **private-vlan mapping** - Displays list of secondary VLAN to the primary VLAN IVR interface, so that both VLANs share the same primary VLAN.
- **ppp <ppp-id(1-128)** - Displays configurations of the point to point protocol interface. This value ranges from 1 to 128.
  - **config** - Displays all the details specific to inteface index.

Mode Privileged EXEC Mode

Package Workgroup, Enterprise Metro, and Metro_E

Example

```
SEFOS# show interfaces extreme-ethernet 0/1
Ex0/1 up, line protocol is up (connected)
Bridge Port Type: Customer Bridge Port

Interface SubType: extreme-ethernet
Interface Alias: interface1

Hardware Address is 00:03:02:03:04:01
MTU  200 bytes,
```

```
Error in Duplex status
100 Mbps,  Auto-Negotiation
HOL Block Prevention disabled.
CPU Controlled Learning disabled.
Auto-MDIX on

Link Up/Down Trap is enabled

Reception Counters
   Octets                    : 0
   Unicast Packets           : 0
   Multicast Packets         : 0
   Broadcast Packets         : 0
   Discarded Packets         : 0
   Error Packets             : 0
   Unknown Protocol          : 0

Transmission Counters
   Octets                    : 158406
   Unicast Packets           : 0
   Multicast Packets         : 1702
   Broadcast Packets         : 0
   Discarded Packets         : 0
   Error Packets             : 0
```

SEFOS# show interfaces description

```
Interface    Status   Protocol  Description
---------    ------   --------  -----------
Ex0/1        up       up
Ex0/2        up       up
Ex0/3        down     down      Interface1
Ex0/4        up       up
Ex0/5        up       up
Ex0/7        down     down
po2          up       down
vlan1        up       up
vlan3        down     down
vlan2        down     down
```

```
tunnel0      down     down
tunnel1      down     down
internal-lan1down     down
virtual1     up       up
```

SEFOS# show interfaces extreme-ethernet 0/1 storm-control

```
Ex0/1
DLF Storm Control             : Disabled
DLF Storm Control Limit       : 0
Broadcast Storm Control       : Enabled
Broadcast Storm Control       : 0
Multicast Storm Control       : Enabled
Multicast Storm Control       : 0
```

SEFOS# show interfaces extreme-ethernet 0/1 flow-control

```
Port    Admin    Oper     Tx Pause   Rx Pause   HC TxPause
HC RxPause
        Tx   Rx  Tx   Rx
----    -------  -------  --------   --------   ----------
----------
Ex0/2    on  on  off off  0          0          0
0
```

SEFOS# show interfaces extreme-ethernet 0/2 capabilities

```
Ex0/2
Type        : 10/100/1000 Base TX
Speed       : 10, 100, 1000, Auto
Duplex      : Half, Full
FlowControl : Send, Receive
```

SEFOS# show interfaces vlan 1

```
vlan1 up, line protocol is up (connected)
Interface SubType: Not Applicable
Interface Alias: vlan1
```

SEFOS# show interfaces port-channel 2

```
po2 up, line protocol is down (not connect)
Bridge Port Type: Invalid Bridge Port

Interface SubType: Not Applicable
Interface Alias: po2
```

```
Hardware Address is 00:03:02:03:04:41
SEFOS# show interfaces tunnel 0
tunnel0 down, line protocol is down (not connect)
Interface SubType: Not Applicable

Hardware is Tunnel
MTU  1480 bytes
Encapsulation TUNNEL
Tunnel Source 20.0.0.1,Destination 0.0.0.0
Tunnel for Openflow Hybrid
Checksumming of packets Disabled
Path MTU Discovery Disabled
SEFOS# show interfaces rate-limit
Ex0/1
Port Control Rate Limit : 0 kbps
Port Control Burst Size : 0 kbits

Ex0/2
Port Control Rate Limit : 0 kbps
Port Control Burst Size : 0 kbits

Ex0/3
Port Control Rate Limit : 0 kbps
Port Control Burst Size : 0 kbits

Ex0/4
Port Control Rate Limit : 0 kbps
Port Control Burst Size : 0 kbits

Ex0/5
Port Control Rate Limit : 0 kbps
Port Control Burst Size : 0 kbits

Ex0/7
Port Control Rate Limit : 0 kbps
```

```
Port Control Burst Size : 0 kbits

po2
Port Control Rate Limit : 0 kbps
Port Control Burst Size : 0 kbits
SEFOS# show interfaces port-security-state

Interface Port-Security-State
--------- -------------------
Ex0/1        Trusted
Ex0/2        Trusted
Ex0/3        Trusted
Ex0/5       Untrusted
SEFOS# show interfaces
Ex0/1 up, line protocol is up (connected)
Bridge Port Type: Customer Bridge Port

Interface SubType: extreme-ethernet
Interface Alias: Slot0/1

Hardware Address is 00:04:02:03:04:01
MTU  1500 bytes,
Error in Duplex status
100 Mbps,  Auto-Negotiation
HOL Block Prevention disabled.
CPU Controlled Learning disabled.
Auto-MDIX on

Link Up/Down Trap is enabled

Reception Counters
   Octets                    : 888896
   Unicast Packets           : 8044
   Multicast Packets         : 446
   Broadcast Packets         : 3
   Discarded Packets         : 4021
```

```
   Error Packets             : 0
   Unknown Protocol          : 0

Transmission Counters
   Octets                    : 117795
   Unicast Packets           : 0
   Multicast Packets         : 1426
   Broadcast Packets         : 0
   Discarded Packets         : 0
   Error Packets             : 0

Ex0/2 up, line protocol is up (connected)
Interface SubType: extreme-ethernet
Interface Alias: Slot0/2

Hardware Address is 00:04:02:03:04:01
MTU  1500 bytes,
Link Up/Down Trap is enabled

Reception Counters
   Octets                    : 0
   Unicast Packets           : 0
   Multicast Packets         : 0
   Broadcast Packets         : 0
   Discarded Packets         : 0
   Error Packets             : 0
   Unknown Protocol          : 0

Transmission Counters
   Octets                    : 0
   Unicast Packets           : 0
   Multicast Packets         : 0
   Broadcast Packets         : 1
   Discarded Packets         : 1
   Error Packets             : 0

vlan1 up, line protocol is up (connected)
```

```
Interface SubType: Not Applicable
Interface Alias: vlan1


ppp1 down, line protocol is down
Interface SubType: HDLC

LCP Down

serial1/1 up, line protocol is up (connected)
Interface SubType: Not Applicable
Encapsulation PPP, virtual-link ppp1
```

Related Command(s)

- **interface-configuration and deletion** - Configures interface such as out-of-band management, port channel, tunnel and so on
- **snmp trap link-status** - Enables trap generation on the interface.
- **storm-control** - Sets storm control rate for broadcast, multicast, and DLF packets.
- **flowcontrol** - Enables flow-control.
- **show flow-control** - Displays the flow-control information.
- **mac-addr -** Configures MAC address for the interface.
- **tunnelmode** - Configures the tunnel interface with the associated parameters.
- **tunnel checksum** - Enables end-to-end checksumming of packets.
- **tunnel path-mtu-discovery** - Enables Path MTU discovery on tunnel.
- **tunnel udlr** - Associates tunnel with a unidirectional interface.
- **shutdown – physical/VLAN/port-channel/tunnel interface** - Disables a physical interface, VLAN interface, port-channel interface, tunnel interface, or OOB interface.
- **rate-limit** - Enables the pause ingress rate limit above which PAUSE frames are transmitted on the interface.
- **alias - For interface** - Configures the alias name for the interface. The name is a string of maximum size 63.
- **set backplane interface** - Configures an interface as backplane

interface in the system.

- **port-security-state** - Configures the port security state of the interface.
- **channel-group** - Sets the channel group for the HDLC interface.
- **controller** - Configures a HDLC controller and enters into Controller Configuration mode.
- **snmp trap link-status** - Enables or disables trap generation on the interface.
- **layer** - Configures a virtual PPP link to a physical interface.

4.55 show interfaces - counters

Command objectives	This command displays the interface statistics for each port.
Syntax	**show interfaces {counters | HC-counters} [{ ppp <ppp-id(1-4094)> | <interface-type> <interface-id> | vlan <vlan_vfi_id> | tunnel <tunnel-id(0-128)>}]**
Parameter Description	• **counters** - Displays the interface statistics for all the available interfaces. • **HC-counters** - Displays the interface incoming and outgoing traffic statistics for the HC port. • **ppp<short(1-4094)>** - Displays the counters for the interfaces of the point to point protocol. This value ranges from 1 to 4094. • **<interface-type>** - Displays the interface incoming and outgoing traffic 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 upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 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 counters for the interface incoming and outgoing traffic statistics 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only internal-lan or port-channel ID is provided, for interface types internal-lan and port-channel. For example: 1 represents internal-lan and port-channel ID. • **vlan <vlan_vfi_id>** - Displays the interface statistics 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 may be used to indicate a wildcard match for the VID in management operations or filtering database entries.

Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.

Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **tunnel<tunnel-id(0-128)>** - Displays the counters for the interface incoming and outgoing traffic statistics for the tunnel identifier. This is a unique value that represents the specific tunnel created. This value ranges from 0 to 128.

Mode Privileged EXEC Mode

Package Workgroup, Enterprise Metro, and Metro_E

Example

```
SEFOS# show interfaces counters

Port      InOctet    InUcast    InMcast    InBcast
InDiscard   InErrs     InHCOctet

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

Ex0/1     41285879   191399     31496      138
191269      0          41285879

Ex0/2     0          0          0          0          0
0          0

vlan1     7341060    54994      0          0          0
0          7341060

Port      OutOctet   OutUcast   OutMcast   OutBcast
OutDiscard  OutErrs    OutHCOctet

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

Ex0/1     2309555    0          26615      0          0
0          2309555

Ex0/2     655        0          6          0          0
0          655

vlan1     14708005   55134      0          56         0
0          14708005

SEFOS# show interfaces counters vlan 1

Port      InOctet    InUcast    InMcast    InBcast
InDiscard   InErrs     InHCOctet
```

```
----      -------    -------    -------    -------    -----
----   ------     ---------

vlan1     7415163    55536      0          0          0
0          7415163

Port      OutOctet   OutUcast   OutMcast   OutBcast
OutDiscard  OutErrs    OutHCOctet

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

vlan1     14788627   55672      0          56         0
0          14788627
```

SEFOS # show interfaces HC-counters

```
Port      InHCOctet           InUcastPkts
InMulticastPkts

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

Ex0/1     594011              0                   0

Ex0/2     0                   0                   0

vlan1     0                   0                   0


Port      OutHCOctet          OutUcastPkts
OutMulticastPkts

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

Ex0/1     18027               0                   0

Ex0/2     11275               0                   0

vlan1     120                 0                   0
```

SEFOS# show interfaces HC-counters extreme-ethernet 0/1

```
Port   InHCOctet      InUcastPkts         InMulticastPkts

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

Ex0/1     153868              0                   0


Port   OutHCOctet     OutUcastPkts        OutMulticastPkts

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

Ex0/1     16730               0                   0
```

SEFOS # show interfaces HC-counters tunnel 0

```
Port      InHCOctet           InUcastPkts
InMulticastPkts

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

tunnel0   0                   0                   0
```

```
Port      OutHCOctet           OutUcastPkts
OutMulticastPkts
----      ----------           ------------        ---------
------
tunnel0   0                    0                   0
```

Related Command(s)

- **`interface`** - Configure interface such as out-of-band management, port channel, tunnel and so on.

4.56 show system-specific port-id

Command Objective	This command displays the system-specific index configuration for all interfaces for which this configuration is done.
Syntax	**show system-specific port-id**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show system-specific port-id** Interface PortID -------- -------- Slot0/1 45
Related Command(s)	• **system-specific port-id** - Configures the system-specific index for the port.

4.57 show custom-param

Command Objective	This command displays the custom-param configurations done in the switch.
Syntax	**show custom-param**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show custom-param** Slot0/1 AttrID AttrValue -------- -------- 4 5454 Slot0/2 AttrID AttrValue -------- -------- 2 2424 Type Length Value -------- -------- -------- 2 4 root 5 4 root
Related Command(s)	• **set custom-param** - Configures the custom-param for a particular port.

4.58 show interface mtu

Command Objective	This command shows the Maximum Transmission Unit (MTU) of ports in the switch.
Syntax	**show interfaces mtu [{ Vlan <vlan-id/vfi-id> [switch <switch-name>] | port-channel <port-channel-id (1-65535)> | <interface-type> <interface-id> }]**
Parameter Description	• **Vlan <vlan-id/vfi-id>** - Displays the MTU value 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 may be used to indicate a wildcard match for the VID in management operations or filtering database entries. Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW. Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range. • **switch <switch-name>** - Configures IP interface 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. This feature has been included to adhere to the Industry Standard CLI syntax. • **port-channel<port-channel-id (1-65535)>** - Displays the MTU value for the specified port-channel ID. This is a unique value that represents the specific port-channel created. This value ranges from 1 to 65535. • **<interface-type>** - Displays the MTU value 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 upto 100 Megabits per second.

	▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Displays the MTU value 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.For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided for interface type i-lan. For example: 1 represents i-lan ID.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show interface mtu vlan 1** vlan1 MTU size is 1500
Related Command(s)	• **mtu**- Configures the Maximum Transmission Unit frame size for the interface.

4.59 show nvram

Command Objective	This command displays the current information stored in the NVRAM.
Syntax	**show nvram**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show nvram** Default IP Address : 20.0.0.1 Default Subnet Mask : 255.0.0.0 Default IP Address Config Mode : Dynamic Default IP Address Allocation Protocol : BOOTP Switch Base MAC Address : 00:89:fe:34:55:33 Default Interface Name : Ex0/1 Default RM Interface Name : int1 Config Restore Option : No restore Config Save Option : No save Auto Save : Enable Incremental Save : Enable Roll Back : Enable Config Save IP Address : 0.0.0.0 Config Save Filename : switch.conf Config Restore Filename : /home/automation/code/future/LR/switch1/restore.conf PIM Mode : Sparse Mode IGS Forwarding Mode : MAC based Cli Serial Console : Yes SNMP EngineID : 80.00.08.1c.04.46.53 SNMP Engine Boots : 42 Default VLAN Identifier : 1 Stack PortCount : 0 ColdStandby : Disable Store Default Value : Disable Vrf Unique Mac : Enable

```
Hitless Restart  Flag                    : Disable
Hardware Version                         : 5.9.1
Firmware Version                         : 6.7.2
Hardware Part Number                     : 1-0-0
Software Serial Number                   : 1-0-0
Software Version                         : 7.2.0
Switch Name                              : default
RM Heart Beat Mode                       : Internal
RM Redundancy Type                       : Cold
RM Data Plane Type                       : Shared
RM Type                                  : OOB
NPAPI mode                               : Synchronous
TimeStamp Method                         : Software
Restore Flag                             : Enabled
Dynamic Port Count                       : 24
FIPS operation mode                      : Disabled
Restore Option                           : Disabled
Bridge Mode                              : Customer Bridge
Debugging Log File Location              : /home/twg
Management Port                          : Disabled
Automatic Port Create Flag               : Disabled

IMG_DUMP_PATH                            : /home/twg/
```

Related Command(s)

- **default mode** - Configures the mode by which the default interface acquires its IP address.
- **default restore-file** - Configures the default restoration file.
- **default ip address** - Configures the IP address and subnet mask for the default interface.
- **ip address** - Sets the IP address for an interface.
- **base-mac** - Configures the base MAC address for the switch in the NVRAM.
- **login authentication** - Sets the authentication method for user logins.
- **write** - Writes the running-config to a file in flash, startup-configuration file, or to a remote site.
- **erase**- Clears the contents of the startup configuration or sets parameters

in NVRAM to default values.

- **default vlan id –** Sets default VLAN Identifier in NVRAM to be used at reboot of the switch.
- **default ip address allocation protocol** - Configures the protocol by which the default interface acquires its IP address.
- **incremental-save** - Enables or disables the incremental save feature.
- **auto-save trigger** - Enables or disables the auto save trigger function.
- **rollback** - Enables or disables the rollback function.
- **cli console** - Enables the console CLI through a serial port.
- **automatic-port-create –** Enables or disables the Automatic Port Create feature.
- **default rm-interface-type** - Configures the type of interface used for RM communication.
- **default rm-interface** - Specifies the name of the default RM interface that can be used for communication between the Active and Standby nodes.
- **default value save** - Enables or disables the default value save option.
- **set redundancy heart-beat** - Sets the method for redundancy manager election.The method can be either internal logic or external logic.
- **set redundancy-type** - Sets the type of redundancy model for redundancy manager.
- **set redundancy hardware-type** - Sets the type of dataplane or hardware.

4.60 show env

Command Objective	This command displays the status of the all the resources like CPU, flash and RAM usage, and also displays the current, power, and temperature of the switch. This command is a complete standardized implementation of the existing command.
Syntax	**show env {all | temperature | fan | RAM | CPU | flash | power}**
Parameter Description	• **all** - Displays threshold information of all resources such as CPU, Flash, RAM, power, and temperature. • **temperature** - Displays temperature threshold values of the switch in Celcius. • **fan** - Displays the threshold information of the fan. • **RAM** - Displays the maximum RAM usage of the switch in percentage. • **CPU** - Displays the maximum CPU usage of the switch in percentage. • **flash** - Displays the maximum flash usage of the switch in percentage. • **power** - Displays the threshold power supply for the switch.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show env all** RAM Threshold : 98% Current RAM Usage : 81% CPU Threshold : 100% Current CPU Usage : 2% Fan Status 1 : Operational Fan Status 2 : Operational Fan Status 3 : Operational Fan Status 4 : Operational Fan Status 5 : Operational Min power supply : 110v

```
Max power supply                : 220v
Current power supply            : 230v
Max Temperature                 : 37C
Min Temperature                 : -10C
Current Temperature             : 40C
Flash Threshold                 : 100%
Current Flash Usage             : 66%
Mgmt Port Routing               : Disabled
SEFOS# show env RAM
RAM Threshold                   : 98%
Current RAM Threshold           : 97%
SEFOS# show env power
Min power supply                : 110v
Max power supply                : 220v
Current power supply            : 230v
```

Related Command(s)

- **set switch maximum - threshold** - Sets the switch maximum threshold values of RAM, CPU, and flash.
- **set switch temperature - threshold** - Sets the maximum and minimum temperature threshold values of the switch.
- **set switch power - threshold** - Sets the maximum and minimum threshold values of the switch power supply.

4.61 show system information

Command Objective	This command displays system information.
Syntax	**show system information**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show system information** Hardware Version : 5.9.1 Firmware Version : 6.7.2 Hardware Part Number : 1-0-0 Software Serial Number : 1-0-0 Software Version : 6.12.6 Switch Name : Oracle ES2-72 System Contact : System Location : Logging Option : Console Logging Login Authentication Mode : Local Config Save Status : Not Initiated Remote Save Status : Not Initiated Config Restore Status : Not Initiated Traffic Separation Control : none
Related Command(s)	• **login authentication** - Sets the authentication method for user logins. • **system contact** - Sets the system contact information. • **system location** - Sets the system location. • **debug-logging** - Configures the displays of debug logs. • **config-restore** - Configures the startup configuration restore option. • **set switch-name** - Sets the name of the switch. • **Traffic seperation control** - Configures the method for receiving control packets to CPU.

4.62 show flow-control

Command Objective	This command displays the flow-control information.
Syntax	**show flow-control [interface <interface-type> <interface-id>]**
Parameter Description	• **<interface-type>** - Displays the flow-control 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 upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap. • **<interface-id>** - Displays the flow-control 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan ID is provided for interface type i-lan. For example: 1 represents i-lan ID.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	If this command is executed without the optional parameter it displays the flowcontrol information of the Oracle SEFOS router. Otherwise it displays the flowcontrol information of the specified interface.
Example	**SEFOS# show flow-control interface extreme-ethernet 0/1** Port Admin Oper Tx Pause Rx Pause HC TxPause HC RxPause Tx Rx Tx Rx ---- ------- ------- -------- -------- ---------- ---------- Ex0/1 on on off off 0 0 0 0
Related Command(s)	• **show interfaces** - Displays interface status and configuration. • **flowcontrol** - Enables flowcontrol on an interface.

4.63 show debug-logging

Command Objective	This command displays the debug logs stored in file.
Syntax	**show debug-logging [standby]**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show debug-logging** standby Creating log file fsir.log.4693
Related Command(s)	• **debug-logging - standby** - Configures the standby debug logging display option in the system. • **debug-logging flash url** - Sets the debugging logging option as Flash URL (Uniform Resource Locator). The debug traces or logs will be stored in that path.

4.64 show debugging

Command Objective	This command displays state of each debugging option.
Syntax	**show debugging**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show debugging** Spanning Tree : Spanning tree timers related debugging is on
Related Command(s)	• **debug spanning-tree** - Provides spanning tree debugging support. • **debug dot1x** - Enables debugging of dot1x module. • **debug radius** - Enables RADIUS debugging options. • **debug ip igmp snooping**- Specifies the debug levels for the IGMP snooping module. • **debug ssh** - Sets the given trace levels for SSH. • **debug ssl** - Sets the given debug levels for SSL. • **debug vlan** - Enables the tracing of the VLAN submodule as per the configured debug levels. • **debug garp** - Enables the tracing of the GARP submodule as per the configured debug levels. • **debug ip dhcp client** - Enables the tracking of the DHCP client operations as per the configured debug levels. • **debug ip dhcp relay** - Enables the debug level for tracing the DHCP Relay Module • **debug ip dhcp server** - Enables the tracking of the DHCP server operations as per the configured debug levels. • **debug ethernet-oam** – Enables or displays the debug level for the EOAM Module.

4.65 show clock

Command Objective	This command displays the system date and time.
Syntax	**show clock**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show clock** Wed Oct 08 17:15:17 2014 (UTC +00:00)
Related Command(s)	• **clock set** - Manages the system clock.

4.66 show running-config

Command Objective	This command displays the configuration information currently running on the router, the configuration for a specific interface, or map class information and this configuration is lost if the system is restarted The command is useful when there are multiple interfaces and you want to look at the configuration of a specific interface.
Syntax	**show running-config [{ syslog | dhcp | dhcp6 |dvmrp | stp [switch <context_name>] | ecfm [switch <context_name>] | la | pnac | igs | mlds | vlan <vlan-id/vfi-id> [switch <context_name>] | interface { <interfacetype> <interfacenum> | vlan <vlan-id/vfi-id> } |ospf | isis | rip | bgp | ipv6 | rip6 | ssh | ssl | acl | ip | pim | pimv6 | vrrp | snmp | radius | rmon | rm | mbsm | ospf3 | mpls | igmp | eoam | fm | igmp-proxy | elmi | route-map | tacacs | tac | sntp | switch <context_name> | nat | elps | erps | [switch <context_name>] | entity-mib | http | poe | pbb [switch <context_name>] |cn [switch <context_name>] | dcbx | ptp |clkiwf | mld | msdp | msdpv6 | lldp | firewall | system | ospfte | ipsourceguard | tlm | rbridge | l2dhcsnp | mef | network-clock | vrf <vrf-name> | hs | bfd | rsna [<rsna-id>] | ppp | qosxtd | qos | dsmon | mrp | ofcl | wss | vpn |ipsecv6 |esat | vxlan | wssuser}]**
Parameter Description	• **syslog** - Displays the configuration done in the syslog module. • **dhcp** - Displays the configuration done in the DHCP module. • **dvmrp** - Displays the configuration done in the DVMRP module. • **stp** - Displays the configuration done in the STP module. ▪ **switch <context_name>** - Displays the configuration done in the context for the specified module. 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. • **ecfm** - Displays the configuration done in the ECFM module. • **la** - Displays the configuration done in the LA module. • **pnac** - Displays the configuration done in the PNAC module. • **igs** - Displays the configuration done in the IGS module. • **mlds** - Displays the configuration done in the MLDS module. • **vlan <vlan-id/vfi-id>** - Displays the configuration done for the specified VLAN / VFI ID. This is a unique value that represents the specific

VLAN/ VFI created or to be created. This value ranges from 1 to 65535.

- **<vlan –id>** - VLAN ID is a unique value that represents the specific VLAN. This value ranges from 1 to 4094.
- **<vfi-id>**. - VFI ID is a VLAN created in the system which contains pseudowires and attachment circuits as member ports . This creates a logical LAN for the VPLS service. This value ranges from 4096 to 65535

  Note: The VLAN ID 4095 is reserved and may be used to indicate a wildcard match for the VID in management operations or filtering database entries.

  Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.

  Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **switch <context_name>** - Displays the configuration done in the context for the specified module. 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.

- **interface –** Displays the configuration done for the specified type of interface
  - **<interfacetype>** - Displays the configuration done 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 upto 100 Megabits per second.
    - **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second.
    - **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second.
    - **i-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 configuration done 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 or port-channel ID is provided, for interface types i-lan and port-channel. For example: 1 represents i-lan and port-channel ID.
  - **vlan <vlan-id/vfi-id>** - Displays the configuration done for the

specified VLAN / VFI ID. This is a unique value that represents the specific VLAN/ VFI created or to be created. This value ranges from 1 to 65535.

- **<vlan –id>** - VLAN ID is a unique value that represents the specific VLAN. This value ranges from 1 to 4094
- **<vfi-id>**. - VFI ID is a VLAN created in the system which contains pseudowires and attachment circuits as member ports . This creates a logical LAN for the VPLS service. This value ranges from 4096 to 65535

Note: The VLAN ID 4095 is reserved and may be used to indicate a wildcard match for the VID in management operations or filtering database entries.

Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.

Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **ospf** - Displays the configuration done in the OSPF module.
- **rip** - Displays the configuration done in the RIP module.
- **bgp** - Displays the configuration done in the BGP module.
- **ipv6** - Displays the configuration done in the IPv6 module.
- **rip6** - Displays the configuration done in the RIP6 module.
- **ssh** - Displays the configuration done in the SSH module.
- **ssl** - Displays the configuration done in the SSL module.
- **acl** - Displays the configuration done in the ACL module.
- **ip** - Displays the configuration done in the IP module.
- **pim** - Displays the configuration done in the PIM module.
- **vrrp** - Displays the configuration done in the VRRP module.
- **snmp** - Displays the configuration done in the SNMP module.
- **radius** - Displays the configuration done in the RADIUS module.
- **rmon** - Displays the configuration done in the RMON module.

- **rm** - Displays the configuration done in the RM module.
- **mbsm** - Displays the configuration done in the MBSM module.
- **ospf3** - Displays the configuration done in the OSPFv3 module.
- **mpls** - Displays the configuration done in the MPLS module.
- **igmp** - Displays the configuration done in the IGMP module.
- **eoam** - Displays the configuration done in the EOAM module.
- **fm** - Displays the configuration done in the FM module.
- **igmp-proxy** - Displays the configuration done in the IGMP proxy module.
- **elmi** - Displays the configuration done in the ELMI module.
- **route-map** - Displays the configuration done for the route map feature.
- **tacacs** - Displays the configuration done in the TACACS module.
- **tac** - Displays the configuration done in the TAC module.
- **sntp** - Displays the configuration done in the SNTP module.
  - **switch <context_name>** - Displays the configuration done in the context for the specified module. 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.
- **nat** - Displays the configuration done in the NAT module.
- **elps** - Displays the configuration done in the ELPS module.
- **erps** - Displays the configuration done in the ERPS module.
  - **switch <context_name>** - Displays the configuration done in the context for the specified module. 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.
- **entity-mib** - Displays the configuration done in the emtity-mib module.
- **http** - Displays the configuration done in the http module.
- **poe** - Displays the configuration done in the poe module.
- **pbb** - Displays the configuration done in the pbb module.
  - **switch <context_name>** - Displays the configuration done in the context for the specified module. 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.

- **cn** - Displays the configuration done in the cn module.
  - **switch <context_name>** - Displays the configuration done in the context for the specified module. 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.
- **dcbx** - Displays the configuration done in the extended dcbx module.
- **ptp** - Displays the configuration done in the ptp module.
- **clkiwf** - Displays the configuration done in the clkiwf module.
- **mld** - Displays the configuration done in the mld module.
- **msdp** - Displays the configuration done in the msdp module.
- **msdpv6** - Displays the configuration done in the msdpv6 module.
- **lldp** - Displays the configuration done in the lldp module.
- **firewall** - Displays the configuration done in the firewall module.
- **system** - Displays the configuration done in the system.
- **ospfte** - Displays the configuration done in the OSPF TE module.
- **ipsourceguard** - Displays the configuration done in the IP Source Guard module.
- **tlm** - Displays the configuration done in the TLM module.
- **rbridge** - Displays the configuration done in the Rbridge module.
- **l2dhcsnp** - Displays the configuration done in L2 DHCP snooping module.
- **mef** - Displays the configuration done in MEF module.
- **network-clock** - Displays the configuration done in SyncE module.
- **vrf <vrf-name>** - Displays the configuration done for the specified VRF instance created in the system.
- **hs** - Displays the configuration done in HotSpot module.
- **bfd** - Displays the configuration done in BFD module.
- **rsna –** Displays the configuration done in the RSNA module.
  - **<rsna-id>** - Displays the configuration for the specified Profile ID.

This value ranges from 1 to 512.

Note: This option is available only when RSNA feature is enabled in WSS.

- **ppp** - Displays the configuration done in PPP module.
- **qosxtd** - Displays the configuration done in QoSx module.

  Note: This option is available only when QoSX is enabled.

- **qosx** - Displays the configuration done in QoS module.

  Note: This option is available only when Diffserv is enabled.

- **dsmon –** Displays the configuration done in DSMON module.
- **mrp –** Displays the configuration done in MRP module.

  Note: This option is available only when MRP is enabled.

- **ofcl –** Displays the configuration done in OFCL module.
- **wss –** Displays the configuration done in WSS module.

  Note: This option is available only when WSS is enabled.

- **vpn –** Displays the configuration done in vpn module.

  Note: This option is available only when VPN is enabled in the system.

- **ipsecv6 –** Displays the configuration done in IPsecV6 module.

  Note: This option is available only when IPSecv6 is enabled in the system.

- **esat** - Displays the configuration done in ESAT module.

  Note: This option is available only when ESAT is enabled in the system.

- **vxlan** - Displays the configuration done in VXLAN module.

  Note: This option is available only when VXLAN is enabled in the system.

- **wssuser** - Displays the configuration done in WSSUSER module.

  Note: This option is available only when WSSUSER is enabled in the system.

Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E

	Note: If executed without the optional parameters this command displays the current active configurations, other than the default configurations of all the modules in all the interfaces.
Example	The output given below is only a fragment of the whole output. This output differs based on the modules that are configured. **SEFOS# show running-config bgp** Building configuration... router bgp 100 bgp router-id 100.20.6.100 redistribute static neighbor 100.20.6.20 remote-as 200 neighbor 100.20.6.20 maximum-prefix 10 ! router bgp 100 ! End
Related Command(s)	Includes the configuration commands of all the modules (given as parameters in the **show running-config** command).

4.67 show http server status

Command Objective	This command displays the HTTP server status and HTTP port.
Syntax	**show http server status**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show http server status** HTTP server status : Enabled HTTP port is : 80 HTTP Requests In : 0 HTTP Invalids : 0
Related Command(s)	• **ip http port** – Sets the HTTP port. • **set ip http** – Enables or disables HTTP.

4.68 show system acknowledgement

Command Objective	This command displays acknowledgement statement for open sources used in the software.
Syntax	**show system acknowledgement**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show system acknowledgement** 1. SSH (Secure Shell) The SSH functionality in SEFOS is implemented using the open source software from http://www.openssh.org, developed by Theo de Raadt, Niels Provos, Markus Friedl, Bob Beck, Aaron Campbell and Dug Song. All copyrights listed at http://www.openssh.org/ apply. With respect to licensing terms, the same website explains the following: "OpenSSH is developed by the OpenBSD Project. The software is developed in countries that permit cryptography export and is freely useable and re-useable by everyone under a BSD license." A copy of the license file is available at: http://www.mips.com/LicenseMapper/OpenBSD.html. The BSD license is also described at - http://www.openbsd.org/faq/faq1.html#WhatIs OpenSSH version used - 5.1 2. SSL (Secure Socket Layer) This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)

This product includes cryptographic software written by Eric Young

(eay@cryptsoft.com). This product includes software written by Tim

Hudson (tjh@cryptsoft.com).

The SSL functionality in SEFOS is implemented using the open source

software from http://www.openssl.org, which include software written by

Eric A. Young and Tim J. Hudson. All copyrights listed at

http://www.openssl.org/ apply. With respect to licensing terms, the same

website explains the following:

"The OpenSSL toolkit is licensed under an Apache-style license, which

basically means that you are free to get and use it for commercial and

non-commercial purposes subject to some simple license conditions."

A copy of the license file is available at:

http://www.openssl.org/source/license.html.

OpenSSL version used - 0.9.8i

3. For secure transfer of the software image or configuration file, SEFOS uses

the SFTP (SSH File Transfer Protocol) from http://www.openssh.org,

developed by Theo de Raadt, Niels Provos, Markus Friedl, Bob Beck,

Aaron Campbell and Dug Song. All copyrights listed at

http://www.openssh.org/ apply. With respect to licensing terms, the same

website explains the following:

-"OpenSSH is developed by the OpenBSD Project. The software is

developed in countries that permit cryptography export and is freely

useable and re-useable by everyone under a BSD license."

A copy of the license file is available at:

http://www.mips.com/LicenseMapper/OpenBSD.html. The BSD license is

also described at - http://www.openbsd.org/faq/faq1.html#WhatIs.

OpenSSH version used - 5.1

4. Telnet Client

The Telnet client functionality in SEFOS is implemented using the open

source software PuTTY available at:

http://www.chiark.greenend.org.uk/~sgtatham/putty/

The PuTTY source code is distributed under the MIT license.

A copy of the license file is available at:

http://www.chiark.greenend.org.uk/~sgtatham/putty/licence.html

PuTTY version used - 0.60

5. SSH Client

The SSH client functionality in SEFOS is implemented using the open source

software PuTTY available at:

http://www.chiark.greenend.org.uk/~sgtatham/putty/ .

The PuTTY source code is distributed under the MIT license.

A copy of the license file is available at:

http://www.chiark.greenend.org.uk/~sgtatham/putty/licence.html

PuTTY version used - 0.60.

4.69 show mac-learn-rate

Command Objective	This command displays maximum number of unicast dynamic MAC (L2) MAC entries hardware can learn on the system, in MAC learning limit rate interval.
Syntax	**show mac-learn-rate**
Mode	Privileged EXEC mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show mac-learn-rate** Switch MAC Learn Limit Rate : 1000 Switch MAC Learn Limit Rate Interval: 1000
Related Command(s)	• **mac-learn-rate** - Configures the number of MAC entries indicated to control plane from hardware, when hardware MAC learning is enabled.

4.70 port-isolation in_vlan_ID

Command Objective	This command enables the VLAN traffic to be allowed in these configured egress ports when the ingress is this interface. The no form of the command disables the Port Isolation rule in this ingress interface.
Syntax	**port-isolation in_vlan_ID [{add|remove}] port_list** **no port-isolation**
Parameter Description	• **in_vlan_ID** - Configures the specified VLAN ID. This is a unique value that represents the specific VLAN created or to be created. This value ranges from 1 to 4094. • **add** - Configures the addition of the egress ports. • **remove** - Configures the removal of the egress ports. • **port_list** - Configures the list of ports through which the traffic is allowed. The ports can be either a physical or link aggregated port.
Mode	Interface Configuration Mode (physical ports or Link Aggregated port).
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config-if)# port-isolation 1 add extreme-ethernet 0/2**
Related Command(s)	• **show port-isolation** - Displays the Port Isolation table.

4.71 show port-isolation

Command Objective	This command displays the Port Isolation table.
Syntax	**show port-isolation [ingress-port <ifXtype> <ifnum>]**
Parameter Description	• **ingress-port** - Ingress port refers to a physical or link aggregated port through which a packet ingress. ▪ **<ifXtype>** Displays 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.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show port-isolation**

```
Ingress Port     VlanId     StorageType    Egress List
============     ======     ===========    ===========
Ex0/2             10        Non-Volatile    Ex0/1
Ex0/3             -         Non-Volatile    Ex0/2
```

Related Command(s):	• **port-isolation in_vlan_ID** - Enables the VLAN traffic to be allowed in these configured egress ports when the ingress is this interface.

4.72 set timer speed

Command Objective	This command configures the system timer speed. This value ranges from 1 to 1000.
Syntax	**set timer speed <timer-speed(1-1000)>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# set timer speed 100**

4.73 set front-panel port-count

Command Objective	This command configures the number of physical ports in a device for the purpose of switching or routing. The value should not exceed the system defined maximum physical interfaces. When the configured value is less than the maximum physical interfaces, the difference in port count is used for stacking purpose only when the stacking is enabled. Else, the ports are considered as physically not present and would not be initialized.
Syntax	**`set front-panel port-count <ports>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	• It is not advisable to change the front panel port count when some configurations are already saved. • Once the front panel port count is configured, the switch has to be restarted before saving any configuration.
Example	**`SEFOS(config)# set front-panel port-count 24`**

4.74 audit-logging

Command Objective	This command enables or disables audit logging that allows users to configure audit trails, which track changes that have been made to a router. Each change is logged as a syslog message, and all syslog messages are kept in the audit file, which is kept in the audit subsystem.
Syntax	**audit-logging { enable | disable}**
Parameter Description	• enable - Enables audit logging. • disable - Disables audit logging.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	Disable
Example	**SEFOS(config)# audit-logging enable**
Related Command(s)	• **audit-logging filename** - Specifies the name of the file to which audit log is saved. • **audit-logging filesize** - Specifies the the maximum file size in kilobytes of the configs.txt file. • **audit-logging reset** - Erases the contents in configs.txt file and start logging. • **show confg log** - Displays information related to audit logging. • **show audit** - Displays the content of the audit-log file.

4.75 audit-logging filename

Command Objective	This command specifies the name of the file to which audit log is saved. The maximum string value of the file name is 128.
Syntax	**audit-logging filename <filename>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	Config.txt
Example	**SEFOS(config)# audit-logging filename srv.txt**
Related Command(s)	• **audit-logging** – Enables or disables audit logging. • **audit-logging filesize** - Specifies the the maximum file size in kilobytes of the configs.txt file. • **audit-logging reset** - Erases the contents in configs.txt file and start logging. • **show confg log** - Displays information related to audit logging. • **show audit** - Displays the content of the audit-log file.

4.76 audit-logging filesize

Command Objective	This command specifies the maximum file size(in kilobytes of the configs.txt file) of the audit file which is a fixed file size in the disk file system. The audit file contains syslog messages and it is stored on the disk. The number of messages that can be stored is dependent on the size of the selected file and the size determines the number of messages that can be stored on the disk before a wrap-around occurs. Ensure that the audit file is secure and the audit file should be access-protected so that only the audit subsystem can access it. This value ranges from 1024 to 1048576.
Syntax	**`audit-logging filesize <filesize(1024-1048576)>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	1048576
Example	**`SEFOS(config)# audit-logging filesize 1025`**
Related Command(s)	• **`audit-logging`** – Enables or disables audit logging. • **`audit-logging filename`** - Specifies the name of the file to which audit log is saved. • **`audit-logging reset`** - Erases the contents in configs.txt file and start logging. • **`show confg log`** - Displays information related to audit logging. • **`show audit`** - Displays the content of the audit-log file.

4.77 audit-logging reset

Command Objective	This command is used to erase the contents in configs.txt file and start logging.
Syntax	**audit-logging reset**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# audit-logging reset**
Related Command(s)	• **audit-logging** – Enables or disables audit logging. • **audit-logging filesize** - Specifies the the maximum file size in kilobytes of the configs.txt file. • **audit-logging filename** - Specifies the name of the file to which audit log is saved. • **show confg log** - Displays information related to audit logging. • **show audit** - Displays the content of the audit-log file.

4.78 default rm-interface

Command Objective	This command specifies the name of the default RM interface that can be used for communication between the Active and Standby nodes for providing redundancy support. The default RM interface, if modified, will take effect only when the switch is restarted. The maximum size of the string is 23.
Syntax	**default rm-interface <if-name>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	None
Example	**SEFOS(config)# default rm-interface int1**
Related Command(s)	• **default rm-interface-type** - Configures the type of interface used for RM communication.

4.79 vrf unq-mac

Command Objective	This command enables a flag which assigns a unique MAC address to each virtual router. Configuring this command results in updating the sefosnvram.file and the configured value will be effective from next SEFOS boot.
Syntax	**vrf unq-mac { enable | disable }**
Parameter Description	• **enable** - Enables a flag which assigns a unique MAC address to each virtual router. The value 1 represents enable. • **disable** - Disables a flag which assigns a unique MAC address to each virtual router. The value 0 represents disable.
Mode	Global Configuration Mode
Default	disable
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# vrf unq-mac enable**

4.80 show config log

Command Objective	This command displays information related to audit logging.
Syntax	**show config log**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show config log** Audit Status : Enabled Audit File Name : config.text Audit File Size : 1025 Audit Log Size Threshold : 70
Related Command(s)	• **audit-logging** – Enables or disables audit logging. • **audit-logging filename** - Specifies the name of the file to which audit log is saved. • audit-logging filesize - Specifies the the maximum file size in kilobytes of the configs.txt file. • **audit-logging reset** - Erases the contents in configs.txt file and start logging.

4.81 memtrace

Command Objective	This command permits the enabling and disabling of the generation of log or trace messages throughout the module. It acts as a Tracing Level Flag and specifies the level of trace or log to be enabled in the module.
Note:	The **if defined (MEMTRACE_WANTED)switch** should be enabled before executing this command.
Syntax	**`memtrace {enable|disable}`**
Parameter Description	• **`enable`** - Enabling the generation of log or trace messages throughout the module. • **`disable`** - Disabling the generation of log or trace messages throughout the module.
Mode	Privilege Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS# memtrace enable`**
Related Command(s)	• **`show memtrace status`** - Displays the memtrace status.

4.82 show memtrace status

Command Objective	This command displays the memtrace status.
Syntax	**show memtrace status {cru|system}**
Parameter Description	• **cru** - Displays CRU(common routing utilities) buffer Memory Allocation data. • **system** - Displays System Memory Allocation data.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show memtrace status cru**
Related Command(s)	• **memtrace** - Permits the enabling and disabling of the generation of the log or trace messages throughout the module.

4.83 show mempool

Command Objective	This command displays the mempool leak-related information and statistics.
Note:	This command executes only if MEMTRACE_WANTED is enabled.
Syntax	**show mempool [leak]**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show mempool**
Related Command(s)	• **memtrace -** Permits the enabling and disabling of the generation of the log or trace messages throughout the module.

4.84 hol blocking prevention

Command Objective	This command enables or disable the Head-of-Line Blocking prevention which manages the HOL blocking situation by checking whether the packet has been assigned priority. If the packets have assigned priority, those packets are placed in a separate queue. The low priority data can be discarded as applications keep track of whether a re-transmission is necessary or not.
Note:	This command is available only if NPAPI is enabled in the switch.
Syntax	**`hol blocking prevention`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS (config)# hol blocking prevention`**

4.85 management vlan-list <port_list>

Command Objective	This command sets the VLAN list for the L3 VLAN interface. The no form of the command resets the VLAN list for the L3 VLAN interface.
Note:	This command is available only if WGS is enabled in the switch.
Syntax	**management vlan-list <vlan-list>** **no management vlan-list <vlan-list>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# management vlan-list 1**
Related Command(s)	• **show management vlan -** Displays the VLANs associated with the management interface.

4.86 login block-for

Command Objective	This command configures the maximum number of successful login attempts and the lock out time to block the user.
Syntax	**login block-for <seconds(30-600)> attempts <tries(1-10)>**
Parameter Description	• **<seconds(30-600)>** - Configures the lock out time in seconds that a user is blocked following unsuccessful logins. This value ranges from 30 to 600. • **<tries(1-10)>** - Configures login attempts. This is the number of times a user is allowed to login using wrong password in the login prompt. This value ranges from 1 to 10.
Mode	Global Configuration Mode
Package	Enterprise, Work Group, Metro_E, and Metro
Default	• seconds - 30 • tries - 3
Example	**SEFOS(config)# login block-for 30 attempts 3**

4.87 audit-logging logsize-threshold

Command Objective	This command configures the threshold value of the log storage space with respect to the maximum storage space size. The threshold value in percentage ranges between 1 and 99.
Syntax	**audit-logging logsize-threshold <threshold in %(1-99)>**
Mode	Global Configuration Mode
Package	Enterprise, Work Group, Metro_E, and Metro
Default	threshold in % - 70
Example	**SEFOS(config)# audit-logging logsize-threshold 99**
Related Command(s)	• **show config log** - Displays the information related to audit logging. • **show audit** - Displays the content of the audit-log file.

4.88 feature telnet

Command Objective	This command enables the telnet service in the system. The no form of this command disables the telnet service.
Syntax	**feature telnet** **no feature telnet**
Mode	Global Configuration Mode
Package	Enterprise, Work Group, Metro_E, and Metro
Default	The telnet service is enabled
Example	**SEFOS(config)# feature telnet**
Related Command(s)	• **show telnet server** - Displays the telnet server status.

4.89 show telnet server

Command Objective	This command displays the telnet server status.
Syntax	**show telnet server**
Mode	Privileged EXEC Mode
Package	Enterprise, Work Group, Metro_E, and Metro
Example	**SEFOS# show telnet server** telnet service enabled
Related Command(s)	• **feature telnet** - Enables the telnet service in the system.

4.90 show audit

Command Objective	This command displays the content of the audit-log file.
Syntax	**show audit [filestat]**
Parameter Description	• **filestat** - Displays rollover counter and number of messages received.
Mode	Privileged EXEC Mode
Package	Enterprise, Work Group, Metro_E and Metro
Example	**SEFOS# show audit filestat** Audit:root audit-logging reset SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root default rm-interface int1 SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root vrf unq-mac enable SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root internal-lan 1 add interface virtual 1 FAILURE CONSOLE Wed Oct 8 17:06:29 2014 Audit:root set entity physical-index 2222222 asset-id 8 serial-number 7 alias-name FAILUR E CONSOLE Wed Oct 8 17:06:29 2014 Audit:root web-session timeout 120 SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root automatic-port-create enable SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root automatic-port-create disable SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root traffic-separation control system_default SUCCESS CONSOLE Wed Oct 8 17:06:29 20 14 Audit:root end SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root configure terminal SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 Audit:root interface extreme-ethernet 0/3 SUCCESS CONSOLE Wed Oct 8 17:06:29 2014 **SEFOS# show audit** Audit:root audit-logging reset SUCCESS CONSOLE Wed Oct 8 17:06:29 2014

```
Audit:root default rm-interface int1 SUCCESS CONSOLE Wed
Oct  8 17:06:29 2014

Audit:root vrf unq-mac enable SUCCESS CONSOLE Wed Oct  8
17:06:29 2014

Audit:root internal-lan 1 add interface virtual 1 FAILURE
CONSOLE Wed Oct  8 17:06:29 2014

Audit:root set entity physical-index 2222222 asset-id 8
serial-number 7 alias-name  FAILUR

E CONSOLE Wed Oct  8 17:06:29 2014

Audit:root web-session timeout 120 SUCCESS CONSOLE Wed Oct
8 17:06:29 2014

Audit:root automatic-port-create enable SUCCESS CONSOLE Wed
Oct  8 17:06:29 2014

Audit:root automatic-port-create disable SUCCESS CONSOLE
Wed Oct  8 17:06:29 2014

Audit:root traffic-separation control system_default
SUCCESS CONSOLE Wed Oct  8 17:06:29 20

14

Audit:root end SUCCESS CONSOLE Wed Oct  8 17:06:29 2014

Audit:root configure terminal SUCCESS CONSOLE Wed Oct  8
17:06:29 2014

Audit:root interface extreme-ethernet 0/3 SUCCESS CONSOLE
Wed Oct  8 17:06:29 2014
```

Related Command(s)

- **`audit-logging`** – Enables or disables audit logging.
- **`audit-logging filename`** - Specifies the name of the file to which audit log is saved.
- **`audit-logging filesize`** - Specifies the the maximum file size in kilobytes of the configs.txt file.
- **`audit-logging reset`** - Erases the contents in configs.txt file and start logging.
- **`audit-logging logsize-threshold -`** Configures the threshold value of the log storage space with respect to the maximum storage space size.

4.91 set http authentication-scheme

Command Objective	This command configures the Configurable HTTP authentication scheme.
Syntax	**`set http authentication-scheme {default | basic | digest}`**
Parameter Description	• **`default`** - Sets the configurable HTTP authentication scheme to default. • **`basic`** - Sets the configurable HTTP authentication scheme to basic. • **`digest`** - Sets the configurable HTTP authentication scheme to digest.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	**`default`**
Example	**`SEFOS (config)# set http authentication-scheme basic`**
Related Command(s)	• **`show http authentication-scheme`** - Displays the operational and configurable authentication scheme values.

4.92 set http redirection enable

Command Objective	This command enables the HTTP redirection feature. The no form of this command disables the HTTP redirection feature.
Syntax	**set http redirection enable** **no http redirection enable**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	HTTP redirection is disabled.
Example	**SEFOS (config)# set http redirection enable**

4.93 http redirect

Command Objective	This command configures the alternate server for the URL specified. The alternate server's IP or Domain name can be specified. On receiving request for the URL, a redirection status is sent as response for the request. The no form of this command removes the redirection entry added to the server specified for the URL.
Syntax	**http redirect <URL to be redirected> server {IPv4 Address |IPv6 Address | Domain name}** **no http redirect [<URL to be redirected>]**

Parameter Description	• **<URL to be redirected>** - Configures the URL which has to be redirected.
	
	• **server** - Configures the server for the URL which is redirected. The options are:
	
	  • **IPv4 Address** – Sets the IP address of the alternate server in v4 format.
	
	  • **IPv6 Address –** Sets the IP address of the alternate server in v6 format.
	
	  • **Domain name** - Configures the domain name of the alternate server.

Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# http redirect /sample/ server 12.0.0.2**
Related Command(s)	• **show http redirection** - Displays the redirection entries filtered by URL or all the entries.

4.94 show http authentication-scheme

Command Objective	This command displays the operational and configurable authentication scheme values.
Syntax	**show http authentication-scheme**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show http authentication-scheme** The Operational HTTP authentication scheme is Default The Configured HTTP authentication scheme is Basic
Related Command(s)	• **set http authentication-scheme** – Sets the configurable HTTP authentication scheme value to default or basic or digest.

4.95 show http redirection

Command Objective	This command displays the redirection entries filtered by URL or all the entries.
Syntax	**show http redirection [URL]**
Parameter Description	• **URL –** Configures the URL for which the redirection entry has to be displayed.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show http redirection /sample/** HTTP Redirection Entries ---------- URL Server IP/DomainName --- ---------- /sample/ 12.0.0.2
Related Command(s)	• **http redirect** - Configures the alternate server for the URL specified.

4.96 Entity MIB

Entity MIB is a standardized way of representing a single agent, which supports multiple instances of one MIB. With the Entity MIB support in SEFOS, all the instances of the MIBs registered with agent are identifiable, so that the NMS (Network Management System) can easily communicate with the particular instance or logical entity. Entity MIB also provides the complete hierarchal hardware component view to the user.

4.96.1 set entity physical-index

Command Objective	This command configures the read-write objects of the physical components present in the system which defines a greater than zero value used to identify a physical entity. The physical index is an arbitrary value that uniquely identifies the physical entity which can be small positive integer.
Syntax	**set entity physical-index <integer (1..2147483647)> {[asset-id <SnmpAdminString (Size (1..32))>] [serial-number <SnmpAdminString (Size (1..32))>] [alias-name <SnmpAdminString (Size (1..32))>] [uris <OCTET-STRING (Size (1..255))>]}** **no entity physical-index <integer (1-2147483647)> [assetId] [serial-number][alias-name][uris]**
Parameter Description	• **<integer(1..2147483647)>** - Specifies the index of the physical entity. This value ranges from 1 to 2147483647. • **asset-id** - Specifies the asset tracking identifier for the physical entity. This value is a string of size varying between 1 and 32 characters. Asset tracking identifier is not needed for the physical entities (such as repeater ports within a repeater module) that are not considered as a field replaceable unit by the vendor. A zero-length string is returned for these entities. • **serial-number** - Specifies the vendor-specific serial number string for the physical entity. This value is a string of size varying between 1 and 32 characters. Serial number string is not needed for the physical entities (such as repeater ports within a repeater module) that are not considered as a field replaceable unit by the vendor. A zero-length string is returned for these entities. • **alias-name** - Specifies the alias name for the physical entity. This value provides a non-volatile handle for the entity. This value is a string of size varying between 1 and 32 characters. • **uris** - Specifies the additional identification information (that is URI (Uniform Resource Indicator) about the physical entity. This value ranges from 1 to 255 .
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	• assetId - Zero-length string, on initial instantiation of the physical entity. • serial-number - Zero-length string, on initial instantiation of the physical entity, if a serial number is unknown or non-existent. Correct vendor-

assigned serial number, on initial instantiation of the physical entity, if the serial number is available to the SNMP agent.

- alias-name - Zero-length string, on initial instantiation of the physical entity. The SNMP agent may also set the value to a locally unique default value.

Note:

- If write access is implemented for an instance of asset ID and a value is written into the instance, SNMP agent should retain the value as long as the entity associated with the instance remains instantiated. This instantiation includes the instantiation across all re-initialization or reboot of the NMS, and instantiation resulting in a change of the physical entity's index value.

- If write access is implemented for an instance of the serial number string and a value is written into the instance, SNMP agent should retain the value as long as the entity associated with the instance remains instantiated. This instantiation includes the instantiation across all re-initialization or reboot of the NMS, and instantiation resulting in a change of the physical entity's index value.

- If the agents cannot provide non-volatile storage for the serial number string, then the agents are not required to implement write access for the the serial number string object.

- Implementations that can correctly identify the serial numbers of all installed physical entities are not required to provide write access to the serial number string object.

- If write access is implemented for an instance of the alias name and a value is written into the instance, SNMP agent should retain the value as long as the entity associated with the instance remains instantiated. This instantiation includes the instantiation across all re-initialization or reboot of the NMS, and instantiation resulting in a change of the physical entity's index value.

Example

```
SEFOS(config)# set entity physical-index 2222222 asset-id 8
serial-number 7 alias-name GJG uris yg
```

Related Command(s)

- **`show entity physical`** - Displays the physical entities.

4.96.2 show entity logical

Command Objective	This command displays multiple logical entities within a single physical entity. The overall physical entity contains multiple (smaller) physical entities and each logical entity is associated with a particular physical entity.
Syntax	**show entity logical [index <integer (1..2147483647)>]**
Parameter Description	• **index<integer (1..2147483647)>** - Displays the index of the logical entity. This value ranges from 1 to 2147483647.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show entity logical index 1** Logical Index: 1 Logical Description: Aricent Linux Router Ver 1.0 Logical Type: stdpnac Logical Community: default Logical Transport Address: Logical Transport Domain: Logical Context Engine Id: 80:00:08:1c:04:46:64 Logical Context Name: default
Related Command(s)	• **set entity physical-index** - Configures the read-write objects of the physical components present in the system.

4.96.3 show entity physical

Command Objective	This command displays the physical entities which are physical components that represents an identifiable physical resource within a managed system. Zero or more logical entities may utilize a physical resource at any given time.
Syntax	**show entity physical [index <integer (1..2147483647)>]**
Parameter Description	• **index<integer (1..2147483647)>** - Displays the index of the physical entity. This value ranges from 1 to 2147483647.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show entity physical index 1** Physical Index: 1 Physical Descr: Network Element Physical VendorType: Physical ContainedIn: 0 Physical Class: Chassis Physical ParentRelPos: 0 Physical Name: SEFOS Physical HardwareRev: 5.9.1 Physical SoftwareRev: 6.2.0 Physical FirmwareRev: 6.7.2 Physical Serial Num: not available Physical MfgName: Aricent Physical ModelName: not available Physical Alias: DummyName Physical AssetID: DummyId Physical MfgDate: 2009-8-6,13:30:30.1 Physical Uris: not available Physical FRU Status: True
Related Command(s)	• **interface-configuration and deletion** - Configures interface such as out-of-band management, port channel, tunnel and so on • **set entity physical-index** - Configures the read-write objects of the physical components present in the system.

4.96.4 show entity lp-mapping

Command Objective	This command displays the mapping of logical and physical entities, interfaces, and non-interface ports managed by a single agent. The LP-Mapping contains mappings between logical entities and physical components supporting that entity. A logical entity can map to more than one physical component, and more than one logical entity can map to the same physical component.
Syntax	**show entity lp-mapping**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show entity lp-mapping** Logical Entity Mapped Physical Entity -------------- ---------------------- 1 () 10 (Port) 2 () 12 (Port)
Related Command(s)	• **map switch** - Maps the port to the context.

4.96.5 show entity alias-mapping

Command Objective	This command displays the mapping of logical and physical entity with the alias external object identifiers values. This allows resources managed with other MIBs (e.g. repeater ports, bridge ports, physical and logical interfaces) to be identified in the physical entity hierarchy. Each alias identifier is only relevant in a particular naming scope.
Syntax	**show entity alias-mapping [index <integer (1..2147483647)>]**
Parameter Description	• **index <integer (1..2147483647)>** - Displays the index of the physical entity. This value ranges from 1 to 2147483647.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show entity alias-mapping** Physical Entity Identifier Logical Entity Mapped External Identifier ---------- ---------- ---------- 10 (Port) all 11 (Port) all 12 (Port) all 13 (Port) all 14 (Port) all 15 (Port) all
Related Command(s)	• **interface – configuration and deletion** - Configures interface such as out-of-band management, port channel, tunnel and so on.

4.96.6 show entity phy-containment

Command Objective	This command displays the simple mapping between the physical contained values for each container and containee relationship in the managed system.
Syntax	**show entity phy-containment [index <integer (1..2147483647)>]**
Parameter Description	• **index <integer (1..2147483647)>** - Displays the index of the physical entity. This value ranges from 1 to 2147483647.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show entity phy-containment** Containmaint Relationship ------------------------- Physical Entity : 1 (Chassis) Member Physical Entities : 2 (Cpu), 3 (Power Supply), 4 (Fan) 5 (Fan), 6 (Fan), 7 (Fan) 8 (Fan), 9 (Module) Physical Entity : 9 (Module) Member Physical Entities : 10 (Port), 11 (Port), 12 (Port) 13 (Port), 14 (Port), 15 (Port) --
Related Command(s)	• **interface – configuration and deletion** - Configures interface such as out-of-band management, port channel, tunnel and so on

4.97 set hitless-restart enable

Command Objective	This command enables the hitless restart feature by which the software is restarted without affecting any datapath and without disturbing the protocol relationships with any peer nodes.
Syntax	**set hitless-restart enable**
Mode	Privileged EXEC Mode
Package	Metro and Metro_E
Default	Hitless restart is disabled.
Example	**SEFOS# set hitless-restart enable** <129>Nov 9 04:54:50 SEFOS FM [FM - RM] : 131.0.0.1 RM : ACTIVE completed started none :: Nov 9 04:54:49 2011 SEFOS# Nov 9 04:54:49 2011: RM[ACTIVE]: Hitless Restart: Bulk storage completed.Nov 9 04:54:49 2011: RM[ACTIVE]: Hitless Restart: Steady state pkt request starts. Nov 9 04:54:49 2011: RM[ACTIVE]: Hitless Restart: All Steady State packets are stored in NPSIM.Nov 9 04:54:49 2011: RM[ACTIVE]: Do write start-up and PLEASE RESTART THE EXE

4.98 ssh

Command Objective	This command establishes SSH client session with the specified IP address.
Note:	This command is available only if OPENPUTTY is enabled in the switch.
Syntax	**ssh <ipv4_addr/ipv6_addr> [-1] [-2] [-4] [-6] [-A] [-a] [-C] [-N] [-s] [-V] [-v] [-l <username>] [-T] [-t] [<remote-command>]**
Parameter Description	• **<ipv4_addr/ipv6_addr>** - Establishes SSH client session for the specified IP address. It supports both IPv4 and IPv6 addresses. • **-1 –** Forces SSH to try protocol version 1. • **-2** - Forces SSH to try protocol version 2. • **-4** - Forces SSH to use IPv4 addresses only. • **-6** - Forces SSH to use IPv6 addresses only. • **-A** - Enables forwarding of the authentication agent connection. • **-a** - Disables forwarding of the authentication agent connection. • **-C** - Requests compression of all data. • **-N** - Does not execute a remote command. • **-s** - Specifies the subsystem as the remote command (SSH-2 only). • **-V** - Supports print version information and exit. • **-v** - Displays verbose messages. • **-l <username>** - Specifies the user name. • **-T** - Disables pseudo-tty allocation. • **-t** - Enables force pseudo-tty allocation. • **<remote-command>** - Specifies the remote command to be executed. If it is more than one argument use double quotes.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E

Example	**SEFOS# ssh 12.0.0.0**
Related Command(s)	• **show – ssh/telnet client –** Displays the status of SSH and telnet clients.

4.99 telnet

Command Objective	This command establishes telnet client session with the specified IP address.
Note:	This command is available only if OPENPUTTY is enabled in the switch.
Syntax	**telnet <ipv4_addr/ipv6_addr> [-l <username>]**
Parameter Description	• **<ipv4_addr/ipv6_addr>** - Establishes telnet client session for the specified IP address. It supports both IPv4 and IPv6 addresses. • **-l <username>** - Specifies the user name.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# telnet 12.0.0.0**
Related Command(s)	• **show – ssh/telnet client -** Displays the status of SSH and telnet clients.

4.100 set telnet-client

Command Objective	This command enables or disables telnet client feature.
Note:	This command is available only if OPENPUTTY is enabled in the switch
Syntax	**`set telnet-client { enable | disable }`**
Parameter Description	• **`enable`** - Enables the telnet client feature. • **`disable`** - Disables the telnet client feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	enable
Example	**`SEFOS# set telnet-client disable`**
Related Command(s)	• **`show – ssh/telnet client -`** Displays the status of SSH and telnet clients.

4.101 set ssh-client

Command Objective	This command enables or disables SSH client feature.
Note:	This command is available only if OPENPUTTY is enabled in the switch.
Syntax	**`set ssh-client { enable | disable }`**
Parameter Description	• **`enable`** - Enables the SSH client feature. • **`disable`** - Disables the SSH client feature.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	enable
Example	**`SEFOS# set ssh-client enable`**
Related Command(s)	• **`show – ssh/telnet client -`** Displays the status of SSH and telnet clients.

4.102 show – ssh/telnet client

Command Objective	This command displays the status and number of active sessions of SSH and telnet clients.
Note:	This command is available only if OPENPUTTY is enabled in the switch
Syntax	**show { ssh-client | telnet-client }**
Parameter Description	• **ssh-client** - Displays the status and number of active sessions of SSH client. • **telnet-client** - Displays the status and number of active sessions of telnet client.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show telnet-client** Telnet Client Status : ENABLED No.of Active Telnet Clients : 0
Related Command(s)	• **set ssh-client –** Sets the status of SSH client. • **set telnet-client -** Sets the status of telnet client.

4.103 speed

Command Objective	This command sets the speed of the interface.
Note:	This command executes only if NPAPI is enabled.
Syntax	**speed { 10 | 100 | 1000 | 10000 | 40000 | 56000 | auto | nonegotiate}**
Parameter Description	• **10** - Sets the port to run at 10Mbps. • **100** - Sets the port to run at 100Mbps. • **1000** - Sets the port to run at 1000Mbps. • **10000** - Sets the port to run at 10000Mbps. • **40000** - Sets the port to run at 40000Mbps. • **56000** - Sets the port to run at 56000Mbps. • **auto** - Detects and sets the speed of the port automatically based on the peer switch. • **nonegotiate** - Disables negotiation on the ports.
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config-if)# speed 10**

4.104 clear config

Command Objective	This command clears all the configurations done in SEFOS. All configurations will be cleared and default configurations will be restored. When the file name is given, after the configurations are cleared, the switch will be brought up with the default configurations given in the input file. Otherwise the current active configurations in SEFOS will be cleared and the switch will revert to default configuration.
Note:	**`clear config`** command should be executed only on the Active node.
Syntax	**`clear config[default-config-restore <filename>]`**
Parameter Description	• **`default-config-restore <filename>`** - Restores the default configuration. This is the name of the file, which contains the default configurations to be restored once configurations are cleared. When this file name is given, configurations in this file are assumed to be default configurations. The file name is a string with the maximum length as 128.
Mode	Privileged EXEC Mode
Package	Workgroup , Enterprise Metro and Metro_E
Note:	To execute the **`clear config`** command, the following modules should be enabled and disabled before compiling in their respective pakages: • Workgroup: ▪ DSMON - NO ▪ DHCP6_CLNT- YES ▪ DHCP6_RLY- YES ▪ DHCP6_SRV - YES ▪ CN - NO ▪ DCBX - NO ▪ RBRG_ NO ▪ MLDS - - YES ▪ PVRST - - YES ▪ IP6RTR - YES ▪ OPENPUTTY - YES ▪ SNTP - YES ▪ MRP - NO ▪ TAC - NO

- METRO:
  - LCM - NO
  - MPLS - NO
- For all packages:
  - EVCPRO - NO
  - ERPS - YES
  - BFD - NO
  - MFWD - NO

Example

```
SEFOS# clear config
```

4.105 automatic-port-create

Command Objective	This command enables or disables the Automatic Port Create feature. This configuration takes effect only after system restart.
Note:	To create or delete ports at STP module level, the Automatic Port Create feature has to be disabled.
Syntax	**`automatic-port-create { enable | disable }`**
Parameter Description	• **`enable`** - Enables Automatic Port Create feature and the ports are automatically created in STP module when it is mapped to a context. • **`disable`** - Disables Automatic Port Create feature. When set to disabled, ports are not created automatically and ports can be created at STP.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	enable
Example	**`SEFOS(config)# automatic-port-create enable`**
Related Command(s)	• **`spanning-tree - Properties of an interface`** - Configures the port-related spanning tree information for all kinds of STPs and creates port in STP when Automatic Port Create feature is disabled. • **`show nvram -`** Displays the current information stored in the NVRAM. • **`write start-up config -`** Writes the running-config to a flash file, startup-configuration file, or to a remote site.

4.106 show provider-backbone line service-instance

Command Objective	This command displays the status of whether the packets can be sent or received for a service-instance in a context.
Syntax	**show provider-backbone line service-instance <integer(256-16777214)> switch <string(32)>**
Parameter Description	• **<integer(256-16777214)>** - Displays status of a service-instance packets for the specified service-instance. This value ranges from 256 to 16777214. • **switch <string(32)>** - Displays status of a service-instance packets , 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.
Mode	Privileged EXEC Mode
Package	Metro and Metro_E
Example	**SEFOS# show provider-backbone line service-instance 345 switch switch1** line protocol is up (connected)

4.107 sleep

Command Objective	This command makes the SEFOS sleep for the given time. Sleep delays the SEFOS CLI thread for the configured seconds. This value ranges from 1 to 65535 in seconds.
Syntax	**sleep <seconds(1-65535)>**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# sleep 5**

4.108 rate-limit pause

Command Objective	This command enables the pause ingress rate limit above which PAUSE frames are transmitted on the interface. The no form of the command disables pause ingress rate limiting on a port.
Note:	This command executes only if NPAPI is enabled.
Syntax	**rate-limit pause [<high-watermark>] [<low-watermark>]** **no rate-limit pause**
Parameter Description	• **<high-watermark>** - Configures the ingress rate equal to or above which PAUSE frames are transmitted. This value ranges from 1 to 80000000 kbps. • **<low-watermark>** - Configures the ingress rate below which transmission of PAUSE frames are stopped. This value ranges from 1 to 80000000 kbps.
Mode	Interface Configuration Mode (Physical)
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS (config-if)# rate-limit pause 400000 300000**
Related Command(s)	• **show interfaces** - Displays the interface status and configuration.

4.109 cpu controlled learning

Command Objective	This command enables software learning of MAC address from the packets arriving on the interface instead of hardware learning of MAC address. The no form of the command disables CPU-controlled learning of MAC address on the interface.
Note:	This command executes only if NPAPI is enabled
Syntax	**`cpu controlled learning`** **`no cpu controlled learning`**
Mode	Interface Configuration Mode (Physical)
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**`SEFOS (config-if)# cpu controlled learning`**

4.110 traffic-separation control

Command Objective	This command configures the method for receiving control packets to CPU. This control ensures that the CPU processing capacity is utilized appropriately, according to the need of the protocol.
Syntax	**`traffic-separation control {system_default | user_defined | none}`**
Parameter Description	• **`System_default`** - Configures the method for receiving control packets to CPU as system-default . This implies that the software can automatically install the ACL and QoS rules for all the control packets. Note: If the configuration is changed from 'system_default' to 'user_defined' option, then all the default ACL and QoS rules for carrying protocol control packets to CPU are removed. Then user has to install the specific ACL and QoS rules, to carry the intended control packets to CPU for the processing. • **`User_defined`** - Configures the method for receiving control packets to CPU as user-defined. This implies that the software cannot automatically install the ACL and QoS rules for all the control packets. Only the administrator can install the required rules for receiving control packets to CPU Note: If the configuration is changed from user-defined to system-default or none, all the default ACL filters are installed. Already existing (if any) user-configured ACL rules in the system are not removed. • **`none`** - Configures the method for receiving control packets to CPU as none. Note: If the configuration is changed from 'none' to 'system_default' option, then all the default ACL filters for carrying protocol control packets to CPU are removed and new set of filters will be installed. Each filter will be associated with QoS rules. Note: If the configuration is changed from 'none' to 'user_defined' option, then all the default ACL filters for carrying protocol control packets to CPU are removed. Then user has to install the specific ACL and QoS rules, to carry the intended control packets to CPU for the processing.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E

Default	none
Example	**SEFOS (config)# traffic-separation control system_default**
Related Command(s)	• **show access-lists** - Shows the configuration details.

4.111 mdix auto

Command Objective	This command enables the MDI or MDIX Auto Crossover of the interface The no form of the command disables the MDI or MDIX Auto Crossover of the interface and set the port as MDIX port.
Note:	This command executes only if NPAPI is enabled
Syntax	**mdix auto** **no mdix auto**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	AutoCross is disabled
Example	**SEFOS(config-if)# mdix auto**
Related Command(s)	• **set port** - Sets the port to MDI or MDIX mode.

4.112 set port

Command Objective	This command sets the port to MDI or MDIX mode. This command is hardware-specific and MDIX is the vice versa of MDI.
Note:	This command executes only if NPAPI is enabled.
Syntax	**`set port { mdi | mdix }`**
Parameter Description	• **`mdi`** - Sets the port to MDI mode. This is hardware-specific where transmit pair is pins 1,2 and the receive pair is 3,6 pins for the particular port. • **`mdix`** - Sets the port to MDIX mode. This is hardware-specific where transmit pair is pins 3, 6 and the receive pair is 1, 2 pins for the particular port. MDIX is the vice versa of MDI.
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	This command executes only when Auto cross is disabled.
Example	**`SEFOS(config-if)# set port mdix`**
Related Command(s)	• **`mdix port`** - Enables the MDI or MDIX Auto Cross over of the interface.

4.113 config-restore

Command Objective	This command configures the startup configuration restore option.
Syntax	**config-restore {flash | remote ip-addr <ip-address> file <filename> | norestore}**
Parameter Description	• **flash** - Restores the flash file that is to be used for restoration when the system is restarted. • **remote ip-addr <ip-address>** - Restores the IP address of the remote system from where the switch configurations have to be downloaded to the 'Startup Configuration File' in the flash. • **file <filename>** - Restores the specified remote location file that is to be used for restoration. This is a string with maximum size as 12. • **norestore** - Specifies that the switch configurations need not be restored when the system is restarted.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro_E, and Metro
Default	norestore
Example	**SEFOS# config-restore flash**
Related Command(s)	• **show system information** – Displays the system information.

4.114 set mgmt-port routing

Command Objective	This command enables or disables the management port routing function.
Syntax	**set mgmt-port routing {enable | disable}**
Parameter Description	• **enable** - Enables the routing function over the Management Interface. This object can be configured only if the Management Port is used for IP Access. • **disable** - Disables the routing function over the Management Interface. This object can be configured only if the Management Port is used for IP Access.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro_E, and Metro
Default	disable
Example	**SEFOS (config)# set mgmt-port routing enable**

4.115 set switch-name

Command Objective	This command sets the name of the switch. This is a string with maximum size as 15.
Syntax	**`set switch-name <switchname>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro_E, and Metro
Example	**`SEFOS(config)# set switch-name default`**
Related Command(s)	• **`show system information`** – Displays the system information.

4.116 show SEFOS memory status

4.117 packet receive index

Command Objective	This command configures the packet pattern and mask, for pattern matching on the received packets.
Syntax	**packet receive index <integer > {value | mask | port <port_list>}** **no packet receive index <integer> [mask]**
Parameter Description	• **<integer (0-4)>** -Configures the packet receive index value which uniquely identifies a pattern to be matched. This value ranges from 0 to 4. • **value** - Sets a value for the pattern to match with the received packets. • **mask** - Sets a value to mask the received packets. This value is the mask for the pattern to be matched by the packet analyser. This value ranges from 1 to 1600. • **port <port_list>** - Configures the port or list of ports of the receiver pattern. This is the complete set of ports over which the pattern is to be matched by the packet. This value ranges from 1 to 320. Use comma as a separator without space while configuring list of interfaces. Example: 1,3.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# packet receive index 0 port 223**
Related Command(s)	**show packet receive** - Displays the match ports and the timers of the Pattern Analyser.

4.118 packet send index port

Command Objective	This command sets the port, interval, count for the packet transmitter, and transmits the packet, provided the packet pattern is configured. The no form of the command disables the packet transmitter for given index
Syntax	**packet send index <integer > port <port_list> [count <integer (0-65536)> [interval <integer (1-65535)>]]** **no packet send index <integer(0-4)>**
Parameter Description	• **<integer >** -Configures the packet send index value which uniquely identifies a packet to be sent. This value ranges from 0 to 4. • **port <port_list>** - Configures the port or port list of the receiver pattern. This value ranges from 1 to 320. Use comma as a separator without space while configuring list of interfaces. Example: 1,3. • **count <integer (0-65536)>** - Configures the number of packet to be sent over the ports. This value ranges from 0 to 65536. • **interval <integer (1-65535)>** - Configures the time interval for sending the packet over the port in seconds. This value ranges from 1 to 65535.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# packet send index 1 port 5**
Related Command(s)	**show packet send index** - Displays the values of the packet transmitter table.

4.119 packet send index value

Command Objective	This command sets the packet pattern for the packet transmitter and transmits the packet, provided the interface is configured. The packet send index ranges between 0 and 4 and the packet send value ranges between 1 and 1600. The no form of the command disables the packet transmitter for given index.
Syntax	**packet send index <integer > value** **no packet send index <integer >**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# packet send index 1 value** **Enter Value: 4**
Related Command(s)	**show packet send index** - Displays the values of the packet transmitter table.

4.120 show packet send index

Command Objective	This command displays the values of the packet transmitter table. The packet send index ranges between 0 and 4.
Syntax	**show packet send index <integer(0-4)>**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show packet send index 1** **Index : 1** **Value of the Pkt :**
Related Command(s)	• **packet send index value** - Sets the port, interval, count for the packet transmitter, and transmits the packet, provided the packet pattern is configured. • **packet send index port** - Sets the packet pattern for the packet transmitter and transmits the packet, provided the interface is configured.

4.121 show packet receive index

Command Objective	This command displays the values of the packet receiver table. The packet receive index ranges between 0 and 4.
Syntax	**show packet receive index <integer(0-4)>**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show packet receive index 1** **Packet Analyzer**
Related Command(s)	**packet receive index** - Configures the packet pattern and mask for pattern matching on the received packets.

4.122 set mirroring

Command Objective	This command enables or disables the mirroring in the system.
Syntax	**`set mirroring {enable | disable}`**
Parameter Description	• **`enable –`** Enables mirroring in the system. When set as enabled, all mirroring configurations present will be programmed in hardware. • **`disable –`** Disables mirroring in the system and removes all configurations from the hardware.
Mode	Global Configuration Mode
Default	enable
Package	Workgroup, Enterprise, Metro_E, and Metro
Example	**`SEFOS(config)# set mirroring enable`**
Related Command(s)	• **`show monitor all`** - Displays the mirroring information present in the system.

4.123 default exec-timeout

Command Objective	This command configures the default exec-timeout value for line disconnection. This value ranges from 1 to 18000 seconds.
Syntax	**default exec-timeout <integer (1-18000)>** **no default exec-timeout**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS(config)# default exec-timeout 5**

4.124 default rm-interface-type

Command Objective	This command configures the type of interface used for RM communication. Note: Configuring the rm-interface-type will result in updation to issnvram.txt file. The configured value will take effect on next reboot.
Syntax	**default rm-interface-type { oob | inband }**
Parameter Description	• **oob –** Sets out-of-band Interface to be used for RM communication. RM Heartbeat and synchronization messages will be transmitted as IP packets. Native Linux TCP/IP stack is used to achieve Transport protocol functionality. • **inband –** Sets in-band ethernet interface to be used for RM communication. RM Heartbeat messages will be transmitted as Ethernet packets and synchronization messages will be transmitted as IP packets. SEFOS TCP/IP stack is used to achieve Transport protocol functionality.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	oob
Example	**SEFOS(config)# default rm-interface-type oob**
Related Command(s)	• **default rm-interface** - Specifies the name of the default RM interface that can be used for communication between the Active and Standby nodes. • show nvram - Displays the current information stored in the NVRAM.

4.125 port

Command Objective	This command configures port and CVLAN ID to AC interface.
Syntax	**port <interface-name> <interface-id> [vlan <integer (1-65535)>]**
Parameter Description	• **<interface-type>** - Configures the specified type of interface to the attachment circuit 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 upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ **i-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 specified interface identifier for the AC interface. This is a unique value that represents the specific interface. This value is a combination of slot number and port number separated by a slash, for interface type other than i-lan and port-channel. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan or port-channel ID is provided, for interface types i-lan and port-channel. For example: 1 represents i-lan and port-channel ID. • **vlan <integer (1-65535)>** - Configures the specified customer VLAN for the AC interface. This value ranges between 1 and 65535.
Mode	AC Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	The interface should be shut down before executing this command.
Example	**SEFOS(config-if)# port extreme-ethernet 0/1**
Related Command(s)	• **shutdown** - Shuts down interface. It must first be made administratively down • **interface - ac** - Configures the AC identifier. • **show interfaces** - Displays the interface status and configuration.

4.126 ip unnumbered - peer-mac

Command Objective

This command configures the associated source interface for the unnumbered interface. This enables communication over unnumbered interface, with the peer using source address as any one of the associated IP addresses configured to other interfaces.

The no form of the command removes associated source interface for the unnumbered interface.

Syntax

```
ip unnumbered <peer-mac> {[vlan <vlan-id/vfi-id>] |
[<iftype> <ifnum>] | [loopback <short(0-100)>]}

no ip unnumbered <peer-mac> {[vlan <vlan-id/vfi-id>] |
[<iftype> <ifnum>] | [loopback <short(0-100)>]}
```

Parameter Description

- **<peer-mac>** - Configures the unicast peer MAC address for unnumbered interface. This needs to be configured for proper forwarding of IP packets over unnumbered interfaces.
- **vlan <vlan-id/vfi-id>** - Configures the unnumbered interface 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 may be used to indicate a wildcard match for the VID in management operations or filtering database entries.

    Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.

    Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range.
- **<iftype>** - Configures the associated source address 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 upto 100 Megabits per second.

	▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. ▪ **i-lan** – Internal LAN created on a bridge per IEEE 802.1ap. • **<ifnum>** - Configures the associated source interface 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only i-lan is provided, for interface type i-lan. For example: 1 represents i-lan. • **loopback <loopback-id(0-100)> -** Configures the associated source address for the specified loopback. This value ranges from 0 to 100
Mode	Interface Configuration Mode (Router)
Package	Workgroup, Enterprise Metro, and Metro_E
Note:	The interface should be shut down before executing this command.
Example	**SEFOS(config-if)# ip unnumbered 00:01:02:03:04:02**
Related Command(s)	• **ip address** - Configures IP address for an interface. • **ip unnumbered - vlan** - Configures the associated source interface for the unnumbered interface.

4.127 clear http server statistics

Command Objective	This command clears the HTTP server requests received and discarded statistics.
Syntax	**clear http server statistics**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# clear http server statistics**

4.128 show iss-health status

Command Objective	This command displays the SEFOS health status and error reason. The list of health-check status for SEFOS is as follows: • upAndRunning - Indicates that SEFOS is up and running. • downNonRecoverableErr - Indicates that the health status of SEFOS is down due to occurence of some critical error. • upRecoverableRuntimeErr - Indicates that the health status of SEFOS is up but indicates the occurence of a runtime error that is recoverable. The list of error reasons for SEFOS is as follows; • None - Indicates no errors • nonRecovTaskInitializationFailure - Indicates the occurence of non-recoverable failure during task initialization. • nonRecovInsufficientStartupMemory - Indicates that there is insufficient memory for successful startup. This error is non-recoverable and requires sufficient memory to be available in the system for successful SEFOS startup. • recovCruBuffExhausted - Indicates that CRU Buffer Exhausted. • recovConfigRestoreFailed - Indicates that config-restore failed for SEFOS. This is a recoverable error. • recovProtocolMemPoolExhausted - Indicates that a mem-pool associated with a specific module in SEFOS has drained out. This error may affect the functioning of the specific protocol alone and is treated as a recoverable error.
Syntax	**show iss-health status**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# show iss-health status** **SEFOS HEALTH STATUS** **--------------------------------** **SEFOS Status : Up & Running**

```
                Error Reason                    : None
```

4.129 show iss-config-restore status

Command Objective	This command displays the config-restore status. The list of health-restore status for SEFOS is as follows: • configRestoreSuccess - Indicates that configuration restore operation is successfully done. • configRestoreFailed - Indicates that configuration restoration is unsuccessful. • configRestoreInProgress - Indicates that configuration restore operation is in-progress for SEFOS. • configRestoreDefault - Indicates the absence of config-restore file (switch.conf) and that SEFOS has started with default values.
Syntax	**show iss-config-restore status**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	configRestoreDefault
Example	**SEFOS# show iss-config-restore status** **SEFOS CONFIGURATION RESTORE STATUS** **---------------------------------** Config Restore Status : default configuration-restore

4.130 clear iss counters

Command Objective	This command clears the SEFOS counters for all protocols or for the specified protocols like BGP, OSPFv2, RIP, RIPv6, OSPFv3, and NETIP(v4/v6). Note: If the command is executed without optional parameters all SEFOS counters are cleared.
Syntax	**clear iss counters [bgp] [ospf] [rip] [rip6] [ospf3] [ipv4] [ipv6]**
Parameter Description	• **bgp** - Clears the counters for BGP. • **ospf** - Clears the counters for OSPF. • **rip** Clears the counters for RIP. • **rip6** - Clears the counters for RIPv6. • **ospf3** - Clears the counters for OSPFV3. • **ipv4** - Clears the counters for IPv4. • **ipv6** - Clears the counters for IPv6.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# clear iss counters**

4.131 dump core-file

Command Objective	This command configures the location where the dump core file has to be stored.The core file is a snapshot of the entire system and can be used for debugging.
Syntax	**dump core-file {<flash:filename>}**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# dump core-file flash:/home/twg** **SEFOS(config)#**

4.132 dump-mem

Command Objective	This command displays memory content from the given memory location
Syntax	**dump { mem <integer(1-0xffffffff)> } [len {<integer(1-256)>}]**
Parameter Description	• **mem <integer(1-0xffffffff)>** - Configures the memory location in Hex (0x<address>). • **len<integer(1-256)>** - Configures the byte length. This value ranges between 1 and 256.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS # dump mem 0x0ae07880 len 8** 0x7d 0x00 0x00 0x00 0x68 0xdf 0x4d 0x0a

4.133 dump-task

Command Objective	This command displays task, queue, or semaphore-related information.
Syntax	**dump { task | que | sem } name [<string(10) >]**
Parameter Description	• **task –** Displays the task-related information. • **que –** Displays the queue-related information. • **sem –** Displays the semaphore-related information. • **name –** Specifies the OS (operating system) resource name. • **[<string(10) >] –** Specifies the task, queue, or semaphore name for which related information needs to be displayed . This value is a string with maximum size 10.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# dump task name** Name Pending Prio Stack Events Size [KB] --- TMR# 0 97 16 LOGF 0 22 2044 PKTT 0 97 2044 RMHB 0 93 2044 LNXS 0 96 2044 RMGR 0 91 2044 RMFT 0 22 2044 RMCS 0 22 2044 VcmT 0 91 2044 SMT 0 22 2044 BPSR 0 22 2044 CFA 0 95 29 IPDB 0 79 2044 L2DS 0 79 2044

ELMT	0	91	2044
EOAT	0	91	2044
PBB	0	83	2044
AstT	0	87	2044
ElmT	0	60	2044
PIf	0	83	2044
LaTT	0	91	2044
PoeT	0	79	2044
VLAN	0	83	2044
GARP	0	83	2044
SnpT	0	79	2044
MRP	0	83	2044
ELPT	0	83	2044
APST	0	83	2044
ERPT	0	83	2044
RTXT	0	83	2044
PBBT	0	83	2044
QOS	0	18	2044
SMGT	0	22	2044
FIPT	0	83	2044
RT6	0	68	32
IP6	0	79	64
PNG6	0	60	64
RTM	0	68	32
IPFW	0	75	32
UDP	0	60	32
ARP	0	75	32
PNG	0	60	32
MFW	0	75	2044
RIP	0	41	32
SLT	0	68	2044
ISIS	0	49	2044
SAT	0	22	2044
SRED	0	22	2044
OSPF	0	60	2044
OSPT	0	60	2044
OSV3	0	60	2044

TCP	0	60	19
RAD	0	41	19
TACT	0	41	19
RIP6	0	41	64
RR6	0	41	64
BPCL	0	22	2044
DHS	0	41	2044
DHRL	0	41	2044
DHC	0	41	2044
DCS	0	41	2044
D6SR	0	41	2044
D6CL	0	41	2044
D6RL	0	41	2044
IGMP	0	60	2044
PIM	0	60	2044
MSDP	0	41	2044
DVM	0	60	2044
Bgp	0	41	25
TLM	0	60	2044
MFWD	0	83	2044
VPNT	0	41	2044
LDPT	0	41	29
RPTE	0	41	29
L3VP	0	41	29
LSPP	0	41	2044
BFD	0	79	2044
HST	0	22	29
HRT1	0	60	2044
HRT2	0	60	2044
HRT3	0	60	2044
RMON	0	79	2044
RMN2	0	79	2044
DSMN	0	79	2044
VRRP	0	60	2044
CLIC	0	22	2044
CLRM	0	60	2044
CTS	0	22	2044

```
 SSH        0        22      2044
LLDP        0        81      2044
LBLT        0        79      2044
CCHK        0        87      2044
CNTK        0        18      2044
DCBT        0        18      2044
 PTP        0        91      2044
SYNC        0        91      2044
 SNT        0        49      2044
 VPN        0        83      2044
 ike        0        92      2044
ikes        0        68      2044
DNSR        0        91      2044
OFCL        0        22      2044
 MSR        0        22      2044
```

SEFOS# dump que name

Name	ID	Q Depth	MaxMsgLen	Queued	OverFlows
RMPQ	be45a90	4000	4	0	0
RMAP	be45aa0	4000	4	0	0
RMCQ	be45ab0	1000	4	0	0
RCSQ	be45ac0	1	4	0	0
VcmQ	be45ad0	693	4	0	0
SMQ	be45ae0	10	4	0	0
STQ	be45af0	5	4	0	0
STD	be45b00	10	4	0	0
BPSQ	be45b10	15	4	0	0
CFA0	be45b20	761	4	0	0
CFA1	be45b30	761	4	0	0
CFA2	be45b40	761	4	0	0
CFAX	be45b50	1322	4	0	0
CFA3	be45b60	20	4	0	0
CFA6	be45b70	5	4	0	0
IPDQ	be45b80	10	4	0	0
L2DQ	be45b90	50	4	0	0
EOAQ	be45ba0	128	4	0	0
PBBC	be45bb0	288	4	0	0

AstQ	be45bc0	544	4	0	0
AstC	be45bd0	544	4	0	0
ElmQ	be45be0	144	4	0	0
ElmC	be45bf0	144	4	0	0
PIfQ	be45c00	50	4	0	0
PCfQ	be45c10	256	4	0	0
LaCQ	be45c20	40	4	0	0
LaIQ	be45c30	256	4	0	0
POEQ	be45c40	50	4	0	0
VLAQ	be45c50	500	4	0	0
VLCQ	be45c60	4096	4	0	0
GRPQ	be45c70	544	4	0	0
GPCQ	be45c80	1088	4	0	0
SNMQ	be45c90	2660	4	0	0
SNPQ	be45ca0	100	4	0	0
MRPQ	be45cb0	144	4	0	0
MRMQ	be45cc0	288	4	0	0
ELPQ	be45cd0	144	4	0	0
ERPQ	be45ce0	64	4	0	0
PBBT	be45cf0	20	4	0	0
QXTQ	be45d00	50	4	0	0
ACLQ	be45d10	30	4	0	0
SEFOSR	be45d20	32	4	0	0
RTM6	be45d30	10	4	0	0
RT6Q	be45d40	20	4	0	0
R6SQ	be45d50	10	4	0	0
IPQ0	be45d60	100	4	0	0
IPQ1	be45d70	100	4	0	0
IPQ3	be45d80	100	4	0	0
IPQ4	be45d90	100	4	0	0
ECMP	be45da0	100	4	0	0
IPQ5	be45db0	100	4	0	0
PGQ0	be45dc0	100	4	0	0
RTMR	be45dd0	100	4	0	0
RTMQ	be45de0	36	4	0	0
RTSQ	be45df0	10	4	0	0

```
  RTRQ    be45e00       1000          4          0          0
   IPQ    be45e10       3000          4          0          0
   IFQ    be45e20         16          4          0          0
  UCFQ    be45e30         32          4          0          0
  UDPQ    be45e40        100          4          0          0
  UTRQ    be45e50          5          4          0          0
  ARPQ    be45e60       5000          4          0          0
  ARIQ    be45e70       5000          4          0
```

SEFOS# dump sem name

```
    Name         Num Tasks
                 Blocked
    MEMU         0
    BUFS         0
    000m         0
    001m         0
    002m         0
    TMMU         0
    IMSM         0
    001r         0
    002r         0
    SNDB         0
    TRIE         0
    003m         0
    004m         0
    005m         0
    tris         0
    006m         0
    007m         0
    008m         0
    TRRP         0
    TRLP         0 & the list continues
```

SEFOS# dump task name ospf

```
  Name      Pending    Prio    Stack
            Events             Size [KB]
  ------------------------------------
  OSPF         0         60       2044
```

4.134 hwconsole

Command Objective	This command enables access to hardware console.
Note:	This command is implemented to access the broadcom CLI commands in SEFOS.
Syntax	**hwconsole**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# hwconsole** **SEFOS (config-hw)#**
Related Command(s)	• **hw –** Enables access to hardware commands.

4.135 hw

Command Objective	This command enables access to hardware commands. The command is a string of length 255.
Note:	This command is implemented to access the broadcom CLI commands in SEFOS.
Syntax	**hw <command>**
Mode	Hardware Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config-hw)# hw 255**
Related Command(s)	• **hwconsole -** Enables access to hardware console.

4.136 web-session timeout

Command Objective	This command configures the web session timeout value in seconds after which the session expires. This value ranges from 1 to 300 seconds.
Syntax	**web-session timeout <integer (1-300)>**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Default	300
Example	**SEFOS(config)# web-session timeout 120**

4.137 ip unnumbered - vlan

Command Objective

This command configures the associated source interface for the unnumbered interface. This enables communication over unnumbered interface, with the peer using source address as any one of the associated IP addresses configured to other interfaces.

The no form of the command removes associated source interface for the unnumbered interface.

Syntax

`ip unnumbered {vlan <vlan-id/vfi-id> | <iftype> <ifnum> | loopback <loopback-id(0-100)>}`

`no ip unnumbered {vlan <vlan-id/vfi-id> | <iftype> <ifnum> | loopback <loopback-id(0-100)>}`

Parameter Description

- **`vlan <vlan-id/vfi-id>`** - Configures the unnumbered interface 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 may be used to indicate a wildcard match for the VID in management operations or filtering database entries.

    Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW.

    Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range.

- **`<iftype>`** - Configures the associated source interface 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 upto 100 Megabits per second.
  - **`XL-ethernet`** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second.
  - **`extreme-ethernet`** – A version of Ethernet that supports data

transfer upto 10 Gigabits per second.

- **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.

- **<ifnum>** - Configures the associated source interface 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.

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

- **loopback <loopback-id(0-100)> -** Configures the associated source address for the specified loopback. This value ranges from 0 to 100.

Mode Interface Configuration Mode (Router) / PPP Configuration Mode

Package Workgroup, Enterprise Metro, and Metro_E

Note:

- The interface should be shut down before executing this command.
- For PPP mode, the configuration is effective only if PPP interface is attached to the physical interface.
- IP address must be configured for the interface which is to be added as the unnumbered interface.

Example

```
SEFOS (config-if)# ip unnumbered vlan 1

SEFOS (config-ppp)# ip unnumbered vlan 1
```

Related Command(s)

- **ip address** - Configures IP address for an interface.
- **ip unnumbered – peer-mac** - Configures the associated source interface for the unnumbered interface.
- **show ip interface** - Displays the IP interface configuration.

4.138 debug np module

Command Objective

This command enables tracing and generates debug statements for NPAPI traces for the specified module.

The no form of this command disables the NPAPI trace levels for the specified module.

Note: This command executes only when NPAPI is enabled.

Syntax

```
debug np module { cfa | vlan | bfd | bcmx | brg | ecfm |
elps | erps | mpls | mau | ipmc | ip6 | eoam | ether |
diffserv | dsmon | fmn | pvrst | qos | SEFOS | la | mlds |
rmon | srcmv | pnac | igmp | mbs | mrp | mstp | np| ofc |
pbb | ptp | rstp | rport | red | synce | tac | vcm | poe |
ppp | mld | rm | rbr | cpss | acl | lion } [ severity {
<short (1-8)> | emergencies | alerts | critical | errors |
warnings | notification | informational | debugging } ]

no debug np module { cfa | vlan | bfd | bcmx | brg | ecfm
| elps | erps | mpls | mau | ipmc | ip6 | eoam | ether |
diffserv | dsmon | fmn | pvrst | qos | iss | la | mlds |
rmon | srcmv | pnac | igmp | mbs | mrp | mstp | np| ofc |
pbb | ptp | rstp | rport | red | synce | tac | vcm | poe |
ppp | mld | rm | rbr | cpss | acl | lion }
```

Parameter Description

- **cfa** - Generates debug statements for CFA-related NP programming.
- **vlan** - Generates debug statements for VLAN-related NP programming.
- **bfd** - Generates debug statements for BFD-related NP programming.
- **bcmx** - Generates debug statements for BCMX-related NP programming.
- **brg** - Generates debug statements for Bridging-related NP programming.
- **ecfm** - Generates debug statements for ECFM-related NP programming.
- **elps** - Generates debug statements for ELPS-related NP programming.
- **erps** - Generates debug statements for ERPS-related NP programming.
- **mpls** - Generates debug statements for MPLS-related NP programming.
- **mau** - Generates debug statements for MAU-related NP programming.
- **ipmc** - Generates debug statements for IPMC-related NP programming.

- **ip6** - Generates debug statements for IP6-related NP programming.
- **eoam** - Generates debug statements for EOAM-related NP programming.
- **ether -** Generates debug statements for ETHER-related NP programming.
- **diffserv -** Generates debug statements for DIFFSERV-related NP programming.
- **dsmon -** Generates debug statements for DSMON-related NP programming.
- **fmn -** Generates debug statements for FMN-related NP programming.
- **pvrst -** Generates debug statements for PVRST-related NP programming.
- **qos -** Generates debug statements for QOS-related NP programming.
- **iss -** Generates debug statements for iss-related NP programming.
- **la -** Generates debug statements for LA-related NP programming.
- **mlds -** Generates debug statements for MLDS-related NP programming.
- **rmon -** Generates debug statements for RMON-related NP programming.
- **srcmv -** Generates debug statements for SRCMV-related NP programming.
- **pnac -** Generates debug statements for PNAC-related NP programming.
- **igmp -** Generates debug statements for IGMP-related NP programming.
- **mbs -** Generates debug statements for MBS-related NP programming.
- **mrp -** Generates debug statements for MRP-related NP programming.
- **mstp -** Generates debug statements for MSTP-related NP programming.
- **np -** Generates debug statements for NP-related NP programming.
- **ofc -** Generates debug statements for OFC-related NP programming.
- **pbb -** Generates debug statements for PBB-related NP programming.
- **ptp -** Generates debug statements for PTP-related NP programming.
- **rstp -** Generates debug statements for RSTP-related NP programming.

- **rport –** Generates debug statements for Routed PORT-related NP programming.
- **red –** Generates debug statements for RED-related NP programming.
- **synce –** Generates debug statements for SYNCE-related NP programming.
- **tac –** Generates debug statements for TAC-related NP programming.
- **vcm –** Generates debug statements for VCM-related NP programming.
- **poe –** Generates debug statements for POE-related NP programming.
- **ppp –** Generates debug statements for PPP-related NP programming.
- **mld –** Generates debug statements for MLD-related NP programming.
- **rm –** Generates debug statements for RM-related NP programming.
- **rbr –** Generates debug statements for RBR-related NP programming.
- **cpss –** Generates debug statements for CPSS-related NP programming.
- **acl –** Generates debug statements for ACL(Access Control List)-related NP programming.
- **lion –** Generates debug statements for LION-related NP programming.
- **severity <short (1-8)> –** Generates the debug statements for the specified Severity level value.This value ranges from 1 to 8.
- **alerts** - Generates debug statements for immediate action events.
- **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	Global Configuration Mode

Package	Workgroup, Enterprise, Metro, and Metro_E
Example	`SEFOS(config)# debug np module red severity informational`

4.139 description

Command Objective	This command sets the description about the interface. This value is a string of maximum size 127. The no form of the command deletes the configured description about the interface.
Syntax	**description <description of this interface>** **no description**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config-if)# description Interface1**
Related Command(s)	• **show interfaces** - Displays the interface status and configuration.

4.140 reload - standby

Command Objective	This command restarts the entire switch or the standby switch. When reload command is executed the switch operationally goes down and configuration save operation is initiated based on the configuration save option chosen. When the switch operationally comes up, the saved configurations are restored based on the restore option chosen.
Syntax	**reload [standby]**
Parameter Description	• **standby** - Restarts the standby switch without affecting the configurations made in the active switch. Note: This parameter is enabled only when NPAPI is enabled.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS# reload standby**

4.141 counters

Command Objective	This command enables or disables the statistics collection status for the interface.
Syntax	**`counters { enable | disable }`**
Parameter Description	• **`enable`** - Enables the statistics collection for the interface. • **`disable`** - Disables the statistics collection for the interface.
Mode	Interface Configuration Mode (VLAN / Router)
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**`SEFOS(config-if)# counters enable`**
Related Command(s)	• **`show ip interface`** - Displays the IP interface configuration.

4.142 show l3vlan interfaces counters

Command Objective	This command displays the statistics counters for the L3 VLAN interface.
Syntax	**show l3vlan interfaces counters [vlan <vlan_vfi_id> [switch <switch-name>]]**
Parameter Description	• **vlan <vlan_vfi_id> -** Displays the statistics counters for the specified VLAN ID. This value ranges from 1 to 65535. ▪ <vlan –id> - VLAN ID is a unique value that represents the specific VLAN. This value ranges from 1 to 4094. ▪ <vfi-id>. - VFI ID is a VLAN created in the system which contains pseudowires and attachment circuits as member ports . This creates a logical LAN for the VPLS service. This value ranges from 4096 to 65535. Note: The VLAN ID 4095 is reserved and may be used to indicate a wildcard match for the VID in management operations or filtering database entries. Note: VFI IDs 4096 and 4097 are reserved identifiers used in MPLS PW. Note: The theoretical maximum for the maximum number of VFI is 65535 but the actual number of VFI supported is a sizing constant. Based on this, the maximum number of VFI ID accepted in the management interface is restricted. For example if 100 VFIs are supported, the maximum number of VFI supported will be restricted to hundred added to the maximum number of VLANs. An error message is displayed for any value beyond this range. • **switch <switch-name> -** Displays the statistics counters for the L3 VLANs in the specified context. This value represents unique name of the switch context. This value is a string with the maximum length as 32.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show l3vlan interfaces counters vlan 1 switch default** Port InPkt InOctets ---- ----- -------- vlan1 1 229
Related Commands	• **interface-vlan -** Configures VLAN interface.

4.143 debug-logging - flash url

Command Objective	This command sets the debugging logging option as Flash URL (Uniform Resource Locator). The debug traces and logs will be stored in the specified URL path.
Syntax	**debug-logging <flash_url>**
Parameter Description	• **<flash_url> –** Specifies the Flash URL (Uniform Resource Locator) path at which debug logs will be stored.
Mode	Global Configuration Mode
Default	console
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# debug-logging /home/twg**
Related Command(s)	• **debug-logging -standy –** Configures the debug logging option in the system. • **show debug-logging** - Displays the debug logs stored in file.

4.144 debug iss

Command Objective	This command enables the tracing of SEFOS 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 SEFOS as per the configured debug levels. The trace statements are not generated for the configured trace levels
Syntax	**debug SEFOS {enable | disable }([init-shut][management-trc][data-path-trc][cntrl-plane-trc][dump-trc][os-resource-trc][all-fail])**
Parameter Description	• **enable** - Enables the debug traces for SEFOS. • **disable** - Disables the debug traces for SEFOS. • **init-shut** - Generates debug statements for init and shutdown traces. • **management-trc** - Generates debug statements for management traces. • **data-path-trc** - Generates debug statements for data path traces. • **cntrl-plane-trc** - Generates debug statements for control plane traces. • **dump-trc** - Generates debug statements for dump traces. • **os-resource-trc** - Generates debug statements for OS resource traces. • **all-fail** - Generates debug statements for failure traces.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise Metro, and Metro_E
Example	**SEFOS(config)# debug SEFOS enable init-shut**

4.145 default-value save

Command Objective	This command specifies whether default values need to be saved or not when incremental save option is enabled.
Note:	On configuring this command, issnvram.txt file is updated. The configured value is effective only after rebooting the system.
Syntax	**`default-value save { enable | disable }`**
Parameter Description	• **`enable`** - Enables the default value save option.This specifies that MSR stores default values also, when Incremental save is enabled. • **`disable`** - Disables the default value save option.This specifies MSR does not store default values, when Incremental save is enabled.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Disable
Example	**`SEFOS(config)# default-value save enable`**
Related Command(s)	• **`show nvram`** - Displays the current information stored in the NVRAM.

4.146 set redundancy heart-beat

Command Objective	This command sets the method for redundancy manager election.The method can be either internal logic or external logic.
Syntax	**`set redundancy hear-beat { internal | external }`**
Parameter Description	• **`internal`** - Sets the method for redundancy manager election as internal. This specifies that proprietary election logic called as HeartBeat mechanism is applied for electing the Active or Standby card in a redundant system. • **`external`** - Sets the method for redundancy manager election as external. This specifies that external election logic should be applied for electing Active or Standby card in a redundant system.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Internal
Example	**`SEFOS(config)# set redundancy heart-beat internal`**
Related Command(s)	• **`show nvram –`** Displays the current information stored in the NVRAM.

4.147 set redundancy-type

Command Objective	This command sets the type of redundancy model for redundancy manager.
Syntax	**`set redundancy-type { hot | cold }`**
Parameter Description	• **`hot`** - Sets the Hot-Standby redundancy model.This specifies that whenever there is node state transition from Standby to Active, the node needs to re-started and the hardware needs to be re-initialized completely. • **`cold`** - Sets the Cold-Standby redundancy model.This specifies that whenever there is node state transition from Standby to Active,the hardware should not be re-initialized. Note: When the configurations are saved in a file in Active node, then this needs to be transferred to the standby node in both the redundancy modes.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	hot
Example	**`SEFOS (config)# set redundancy-type cold`**
Related Command(s)	• **`show nvram -`** Displays the current information stored in the NVRAM.

4.148 set redundancy hardware-type

Command Objective	This command sets type of the dataplane or hardware model in a redundant system. It can be a shared dataplane or a separate dataplane.
Syntax	**`set redundancy hardware-type { shared | separate }`**
Parameter Description	• **`shared`** - Sets the type of the dataplane or hardware as shared dataplane.This specifies that Standby card in a redundancy system should not program the hardware. Hardware audit should be conducted to sync the hardware and software after switchover or node-transition. • **`separate`** - Sets type of the dataplane or hardware.as separate dataplane. This specifies that the nodes have separate hardware, therefore Standby card in a redundant system should program the hardware. Hardware audit is not required, since the hardware and software are in sync always.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	shared
Example	**`SEFOS (config)# set redundancy hardware-type shared`**
Related Command(s)	• **`show nvram -`** Displays the current information stored in the NVRAM.

4.149 deny iftype

Command Objective

This command configures the interface type and bridge port types accessible to various protocols and adds an entry to the ifType protocol deny table, thus allowing the particular type of interface to be denied from being accessed by the protocol. That is, the particular type of interface will not be created (be visible) in the given protocol.

This command removes the entry from the ifType protocol deny table, thus allowing the creation of interfaces of the specified type in the specified protocol.

Syntax

```
deny iftype {<interface-type> | pip} bridge port-type {
providerNetworkPort | customerNetworkPort {port-based | s-
tagged | c-tagged} | customerEdgePort |
propCustomerEdgePort | propCustomerNetworkPort |
propProviderNetworkPort | customerBridgePort |
providerInstancePort | customerBackbonePort |
virtualInstancePort} protocol {pnac | la | bridge | xstp |
vlan | garp | mrp | pbb | ecfm | elmi | snooping | qosx |
lldp}

no deny iftype {<interface-type> | pip} bridge port-type {
providerNetworkPort | customerNetworkPort {port-based | s-
tagged | c-tagged} | customerEdgePort |
propCustomerEdgePort | propCustomerNetworkPort |
propProviderNetworkPort | customerBridgePort |
providerInstancePort | customerBackbonePort |
virtualInstancePort} protocol {pnac | la | bridge | xstp |
vlan | garp | mrp | pbb | ecfm | elmi | snooping | qosx |
lldp}
```

Parameter Description

- **<interface-type>** - Sets 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 upto 100 Megabits per second.
  - **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second.
  - **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second.
  - **port-channel** – Logical interface that represents an aggregator which contains several ports aggregated together
  - **internal-lan** – Internal LAN created on a bridge per IEEE 802.1ap.
- **pip** - Configures the PIP (Provider Instance Port) type.
- **bridge port-type** - Configures the specific bridge port type.The options

are:

- **providerNetworkPort** - Specifies that bridge port type is set as Provider Network Port.
- **customerNetworkPort** - Specifies that bridge port type is set as Customer Network Port. It has the following options:
  - **port-based** – Sets the customer network port as port-based.
  - **s-tagged** - – Sets the customer network port as s-tagged
  - **c-tagged** - – Sets the customer network port as c-tagged
- **customerEdgePort** - Specifies that bridge port type is set as Customer Edge Port.
- **propCustomerEdgePort** - Specifies that bridge port type is set as Proprietary Customer Edge Port.
- **propCustomerNetworkPort** - Specifies that bridge port type is set as Proprietary Customer Network Port.
- **propProviderNetworkPort** - Specifies that bridge port type is set as Proprietary Provider Network Port.
- **customerBridgePort** - Specifies that bridge port type is set as Customer Bridge Port.
- **customerBackbonePort** - Specifies that bridge port type is set as Backbone Edge Bridge Port.
- **virtualInstacnePort** - Specifies that bridge port type is set as Virtual Instance Port.

- **protocol** - Specifies the type of protocol for which the corresponding interface type and bridge port type will not be accessible or visible. The options are:
  - **pnac** - Sets protocol as PNAC/dot1x.
  - **la** - Sets protocol as LA.
  - **bridge** - Sets protocol as Bridge.
  - **xstp** - Sets protocol as xstp.
  - **vlan** - Sets protocol as VLAN .
  - **garp** - Sets protocol as GARP.
  - **mrp** - Sets protocol as MRP.
  - **pbb** - Sets protocol as PBB.
  - **ecfm** - Sets protocol as ECFM.
  - **elmi** - Sets protocol as ELMI.
  - **snooping** - Sets protocol as Snooping modules.
  - **qosx** - Sets protocol as QoSx.
  - **lldp**- Sets protocol as LLDP.

Mode Switch Configuration Mode

Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config-switch)# deny iftype extreme-ethernet bridge port-type virtualInstancePort protocol bridge**
Related Command(s)	• **show iftype protocol deny -** Displays the entries of iftype protocol deny table.

4.150 port-security-state

Command Objective	This command configures the port security state of the interface. The interface port security state specifies whether the port is connected to trusted hosts or not.
Syntax	**port-security-state { trusted | untrusted }**
Parameter Description	• **trusted** - Sets the port security state as trusted. This specifies that packets coming to that port will be trusted. • **untrusted** - Sets the port security state as untrusted.
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	trusted
Example	**SEFOS(config-if)# port-security-state trusted**
Related Command(s)	• **interface-configuration and deletion** - Configures interface such as out-of-band management, port channel, tunnel and so on. • **show interfaces** - Displays the interface status and configuration.

4.151 alias - For interface

Command Objective	This command configures the alias name for the interface. This value is a string of maximum size 63.
Syntax	**alias <string(63)>**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config-if)# alias interface1**
Related Command(s)	• **interface-configuration and deletion** - Configures interface such as out-of-band management, port channel, tunnel and so on • **show interfaces** - Displays the interface status and configuration.

4.152 layer

Command Objective	This command configures a virtual PPP link to an interface. The no form of the command deletes the virtual PPP link from the interface
Syntax	**layer {<interface-name> <interface-id> | serial <controller-number>/<channel-id> | cpu0}**
Parameter description	• **<interface-name>** - Configures the virtual PPP link to the specified router port interface. The interface can be: ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 10 Gigabits per second. This Ethernet supports only full duplex links. • **<interface-id> –** Configures the virtual PPP link to 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. • **serial** - Configures the virtual PPP link to the specified serial interface. ▪ **<controller-number>/<channel-id>** - Configures the HDLC (High-Level Data Link Control) controller index and channel group for the HDLC (High-Level Data Link Control) interface. The HDLC index value and the channel identifier ranges from 1 to 10. For example: 1/1 represents that the HDLC index is 1 and channel-group number is 1 • **cpu0** - Configures the virtual PPP link to the out-of-band management interface.
Mode	Interface Configuration Mode (PPP)
Package	Enterprise and Metro_E
Note:	• PPP virtual link can be layered on an interface only when the interface is administratively shut down. • PPP virtual link can be layered only over one physical interface.To configure it in any other physical interface, **no layer** command should be used. • PPP virtual link can be layered on a serial interface only when HDLC controller is created and a channel-group is set for the HDLC.
Example	**SEFOS (config-ppp)# layer extreme-ethernet 0/2** **SEFOS (config-ppp)# layer serial 1/1**

Related Command(s)	• **`show interfaces`** - Displays the interface status and configuration. • **`interface - ppp`** - Creates a PPP interface and enters into PPP interface mode. • **`interface-configuration and deletion`** - Configures interface such as out-of-band management, port channel, tunnel and so on. • **`private link`** - Configures the link connection to a private network so that no default route is added for this link. • **`ip address negotiated`** - Sets the IP Address by negotiation and erases the previous configured IP. • **`mtu`**- Configures the Maximum Transmission Unit frame size for the interface. • **`channel-group`** - Sets the channel group for the HDLC interface. • **`controller`** - Configures a HDLC controller and enters into Controller Configuration mode.

4.153 private link

Command Objective	This command configures the link connection to a private network so that no default route is added for this link. The no form of the command configures the link connection to a public network so that a default route is added for this link.
Syntax	**private link** **no private link**
Mode	Interface Configuration Mode (PPP)
Package	Enterprise and Metro_E
Example	**SEFOS (config-ppp)# private link**
Note:	This commands executes only if PPP interface is shut down and is attached to an underlying physical interface.
Related Command(s)	• **show interfaces** - Displays the interface status and configuration. • **shutdown – physical/VLAN/port-channel/tunnel Interface** - Disables a physical interface, VLAN interface, port-channel interface, tunnel interface or OOB interface. • **layer** - Configures a virtual PPP link to a physical interface. • **interface - ppp** - Creates a PPP interface and enters into PPP interface mode.

4.154 ip address negotiated

Command Objective	This command sets the IP Address by negotiation and erases the previous configured IP.
Syntax	**ip address negotiated**
Mode	Interface Configuration Mode (PPP)
Package	Enterprise and Metro_E
Note:	This commands executes only if PPP interface is shut down and is attached to an underlying physical interface.
Example	**SEFOS(config-ppp)# ip address negotiated**
Related Command(s)	• **show ip interface** - Displays the IP interface configuration for all interfaces available in the switch. • **shutdown – physical/VLAN/port-channel/tunnel Interface** - Disables a physical interface, VLAN interface, port-channel interface, tunnel interface or OOB interface. • **layer** - Configures a virtual PPP link to a physical interface. • **interface – ppp** - Creates a PPP interface and enters into PPP interface mode.

4.155 controller

Command Objective	This command configures a HDLC (High-Level Data Link Control) controller and enters into Controller Configuration mode.The HDLC index value ranges from 1 to 10. HDLC is a protocol used for transfering data or PPP packets over serial lines or ISDN B-Channel Connections with HDLC framing.
Syntax	**`controller <HdlcIndex>`**
Mode	Global Configuration Mode
Package	Enterprise and Metro_E
Example	**`SEFOS (config)# controller 1`** **`SEFOS(config-controller)#`**
Note:	A serial interface is created only when a channel group is configured for the HDLC controller.
Related Command(s)	• **`channel-group`** - Sets the channel group for the HDLC interface. • **`layer`** - Configures a virtual PPP link to a physical interface. • **`show interfaces`** - Displays the interface status and configuration.

4.156 channel-group

Command Objective	This command configures the channel group for the HDLC (High-Level Data Link Control) interface.The group identifier ranges from 1 to 10. The no form of the command deletes the channel-group from the HDLC (High-Level Data Link Control) Link.
Syntax	**channel-group <group-id>** **no channel-group <group-id>**
Mode	Controller Configuration Mode
Package	Enterprise and Metro_E
Example	**SEFOS (config-controller)# channel-group 1**
Related Command(s)	• **controller** - Configures a HDLC controller and enters into Controller Configuration mode. • **layer** - Configures a virtual PPP link to a physical interface. • **show interfaces** - Displays the interface status and configuration.

4.157 port-vid

Command Objective	This command configures the the VLAN identifier assigned to router-ports for association in the porting layer. This is meant for the chipsets when the porting layer demands VLAN identifier association to realize router ports. This is available only when the physical interface is set as router port. The no form of the command dissociates the VLAN ID assigned to the router port using the port-vid command and associates a VLAN ID generated by the porting layer from the reserved range.
Syntax	**port-vid <vlanId (1-4094)>** **no port-vid**
Mode	Interface Configuration Mode (Router Port)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	The default value 0 is applicable for L3 VLAN interfaces and for chipsets that do not support this feature.
Note:	• This command executes only if the interface is shut down. • Static VLANs configured cannot be used for router port and VLANs assigned to router ports cannot be used as static VLANs.
Example	**SEFOS (config-if)# port-vid 2**
Related Command(s)	• **no switchport** - Configures the port as router port.

CHAPTER 5

RADIUS

RADIUS (Remote Authentication Dial-In User Service), widely used in network environments, is a client/server protocol and software that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. It is commonly used for embedded network devices such as routers, modem servers, switches and so on. RADIUS is currently the de-facto standard for remote authentication. It is very prevalent in both new and legacy systems. It is used for several reasons:

- RADIUS facilitates centralized user administration(Authentication, Authorization, and Accounting).
- RADIUS consistently provides some level of protection against an active attacker.

5.1. radius-server host

Command Objective

This command configures the RADIUS client with the parameters (host, timeout, key, retransmit).

Note: The maximum number of radius servers that can be configured is 5.

The no form of the command deletes RADIUS server configuration.

Syntax

```
radius-server host {ipv4-address | ipv6-address |
<dns_host_name>} [auth-port <integer(1-65535)>] [acct-port
<integer(1-65535)>] [timeout <1-120>] [retransmit <1-254>]
[key <secret-key-string>] [primary]

no radius-server host {ipv4-address | ipv6-address |
<dns_host_name>} [primary]
```

Parameter Description

- **ipv4-address** - Configures the IPv4 address of the RADIUS server host.
- **ipv6-address** - Configures the IPv6 address of the RADIUS server host.
- **<dns_host_name>**- Configures the DNS (**Domain Name System)** name of the RADIUS server host. This value is a string of maximum size 255.
- **auth-port <integer(1-65535)>** - Configures a specific UDP (**User Datagram Protocol)** destination port on this RADIUS server to be used solely for the authentication requests. This value ranges from 1 to 65535.
- **acct-port <integer(1-65535)>** - Configures a specific UDP destination port on this RADIUS to be solely used for accounting requests. This value ranges from 1 to 65535.
- **timeout <1-120> –** Configures the time period in seconds for which a client waits for a response from the server before re-transmitting the request. This value ranges 1 to 120 seconds.
- **retransmit <1-254>** - Configures the maximum number of attempts to be tried by a client to get response from the server for a request. The value number of retransmit attempts ranges between 1 and 254.
- **key <secret-key-string>** - Configures the per-server encryption key which specifies the authentication and encryption key for all RADIUS communications between the authenticator and the RADIUS server. This value is a string of maximum size 46.
- **primary** - Sets the RADIUS server as the primary server. Only one server can be configured as the primary server, any existing primary server will be replaced, when the command is executed with this option.

Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	• timeout - 10 seconds • retransmit - 3 attempts • auth-port - 1812 • acct-port - 1813
Example	**SEFOS (config)# radius-server host 10.0.0.1 key pass** **SEFOS (config)# radius-server host host1** Radius will be configured with default secret key
Related Command(s)	• **aaa authentication dot1x default** - Enables the dot1x local authentication or RADIUS server-based remote authentication method for all ports. • **show radius server** - Displays RADIUS server configuration. • **show radius statistics** - Displays RADIUS statistics.

5.2. debug radius

Command Objective	This command enables RADIUS debugging options . The radius debug traces capture error information and failure messages in the server. These are registered in a log file for future reference. Each trace has to be enabled individually. The no form of the command disables RADIUS debugging options.
Syntax	**debug radius {all | errors | events | packets | responses | timers}** **no debug radius**
Parameter Description	• **all** - Generates traces for all the RADIUS server messages. • **errors** - Generates traces for error code messages. All the instances where an error is identified are captured by this trace. The error is registered in the log. • **events** - Generates traces for events-related messages. Events like authentication query from authenticator and response from server are registered in the log. • **packets** - Generates traces for number of packets or kind of packets received and sent from server. • **responses** - Generates traces for responses sent from the server to authenticator. • **timers** - Generates traces for the different timers used in the session before the system is reboot.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Debugging is Disabled
Example	**SEFOS# debug radius all**

5.3. show radius server

Command Objective	This command displays RADIUS server Host information which contains Index, Server address, Shared secret, RADIUS Server status, Response Time, Maximum Retransmission, Authentication Port, and Accounting Port.
Syntax	**show radius server [{<ucast_addr> | <ip6_addr> | <dns_host_name>}]**
Parameter Description	• **<ucast_addr>** - Displays the related information of the specified unicast address of the RADIUS server host. • **<ip6_addr>** - Displays the related information of the specified IPv6 address of the RADIUS server host. • **<dns_host_name>**- Displays the name of the RADIUS server host. This value is a string of maximum 255.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show radius server** Primary Server : 2005::33 Radius Server Host Information ---------- Index : 1 Server address : 13.0.0.100 Shared secret : AricentRADIUS Radius Server Status : Enabled Response Time : 10 Maximum Retransmission : 3 Authentication Port : 1812 Accounting Port : 1813 ---------- Index : 2 Server address : 2005::33 Shared secret : AricentRADIUS Radius Server Status : Enabled Response Time : 10

```
Maximum Retransmission   : 3
Authentication Port      : 1812
Accounting Port          : 1813
-----------------------------------------
Radius Server Host Information
------------------------------
Index                    : 1
Primary Server           : host1
Shared secret            :
Radius Server Status     : Enabled
Response Time            : 10
Maximum Retransmission   : 3
Authentication Port      : 1812
Accounting Port          : 1813
-----------------------------------------
SEFOS # show radius server host1

Radius Server Host Information
------------------------------
Index                    : 1
Primary Server           : host1
Shared secret            :
Radius Server Status     : Enabled
Response Time            : 10
Maximum Retransmission   : 3
Authentication Port      : 1812
Accounting Port          : 1813
-----------------------------------------
```

Related Command(s)

- **radius-server host** - Configures the RADIUS client with the parameters.

5.4. show radius statistics

Command Objective	This command displays RADIUS Server Statistics for the data transfer between server and the client from the time of initiation.
Syntax	**show radius statistics**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show radius statistics**

```
Radius Server Statistics
------------------------
Index                              : 1
UDP port number                    : 1812
Round trip time                    : 0
No of request packets              : 0
No of retransmitted packets        : 0
No of access-accept packets        : 0
No of access-reject packets        : 0
No of access-challenge packets     : 0
No of malformed access responses   : 0
No of bad authenticators           : 0
No of pending requests             : 0
No of time outs                    : 0
No of unknown types                : 0
-------------------------------------------
Index                              : 2
Server address                     : 10.0.0.1
UDP port number                    : 1812
Round trip time                    : 0
No of request packets              : 0
No of retransmitted packets        : 0
No of access-accept packets        : 0
No of access-reject packets        : 0
```

```
No of access-challenge packets   : 0
No of malformed access responses : 0
No of bad authenticators         : 0
No of pending requests           : 0
No of time outs                  : 0
No of unknown types              : 0
-----------------------------------------
```

Related Command(s)

- **`radius-server host`** - Configures the RADIUS client with the parameters.

CHAPTER 6

TACACS

TACACS (Terminal Access Controller Access Control System), widely used in network environments, is a client/server protocol that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. It is commonly used for providing NAS (Network Access Security). NAS ensures secure access from remotely connected users. TACACS implements the TACACS Client and provides the AAA (Authentication, Authorization, and Accounting) functionalities.

TACACS is used for several reasons:

- Facilitates centralized user administration.
- Uses TCP for transport to ensure reliable delivery.
- Supports inbound authentication, outbound authentication, and change password request for the Authentication service.
- Provides some level of protection against an active attacker.

6.1. tacacs-server host

Command Objective	This command configures the TACACS server with the parameters (host, timeout, key) and specifies the address of one or more TACACS and the names of the IP host or hosts maintaining a TACACS+ server. Note: The maximum number of TACACS servers that can be configured is 5. The no form of the command deletes the server entry from the TACACS server table.
Syntax	**tacacs-server host {<ipv4-address> | <ipv6-address> | <dns_host_name>} [single-connection] [port <tcp port (1-65535)>] [timeout <time out in seconds(1-255)>] {key <secret key>}** **no tacacs-server host { <ipv4-address> | <ipv6-address>| <dns_host_name>}**
Parameter Description	• **<ipv4-address>** - Configures the IPv4 address of the host • **<ipv6-address>** - Configures the IPv6 address of the host • **< dns_host_name >** - Configures the DNS (Domain Name System) name of the TACACS server host. This value is a string of maximum size 255. • **single-connection** - Allows multiple sessions to be established over a single TCP connection for AAA functionalities. • **port<tcp port (1-65535)>** - Configures the TCP port number in which the multiple sessions are established. This value ranges from 1 to 65535. • **timeout<time out in seconds(1-255)>** - Configures the time period (in seconds) till which a client waits for a response from the server before closing the TCP connection. The link between the server and the client gets disconnected, if the specified time is exceeded. This value ranges from 1 to 255 seconds. • **key<secret key>** - Specifies the authentication and encryption key for all TACACS communications between the authenticator and the TACACS server. The value is string of maximum length 64.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E

Default	• port - 49 • timeout - 5 seconds
Example	**SEFOS (config)# tacacs-server host 12.0.0.100** TACACS+ server configured with default secret key ! **SEFOS (config)# tacacs-server host 2005::33** TACACS+ server configured with default secret key !
Related Command(s)	• **show tacacs** - Displays the server (such as IP address, Single connection, Port and so on) and statistical log information (such as Authen. Starts sent, Authen. Continues sent, Authen. Enables sent, Authen. Aborts sent and so on) for TACACS+ client. • **tacacs use-server address** – Selects the server for the user from the list of configured servers.

6.2. tacacs use-server address

Command Objective	This command configures the active server address and selects an active server from the list of servers available in the TACACS server table. The no form of the command disables the configured client active server.
Syntax	**tacacs use-server address { <ipv4-address> | <ipv6-address>| <dns_host_name>}** **no tacacs use-server**
Parameter Description	• **<ipv4-address>** - Configures the IPv4 address of the host. • **<ipv6-address>** - Configures the IPv6 address of the host. • **< dns_host_name >** - Configures the DNS (Domain Name System) name of the TACACS server host. This value is a string of maximum size 255.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	The specified server should be any one of the entries from the TACACS server table.
Example	**SEFOS (config)# tacacs use-server address 12.0.0.100**
Related Command(s)	• **show tacacs** - Displays the server (such as IP address, Single connection, Port and so on) and statistical log information (such as Authen. Starts sent, Authen. Continues sent, Authen. Enables sent, Authen. Aborts sent and so on) for TACACS+ client. • **tacacs-server host** – Creates the TACACS server entry in a TACACS server table. • **tacacs-server retransmit** - Configures the retransmit value which is the time interval(in seconds) till which the client waits for a response from active server.

6.3. tacacs-server retransmit

Command Objective	This command configures the retransmit value. It is the number of times the client searches the active server from the list of servers maintained in the TACACS client, when active server is not configured. The retransmit value ranges from 1 to 5 The no form of the command resets the retransmit value to its default value
Syntax	**`tacacs-server retransmit < retries (1-5) >`** **`no tacacs-server retransmit`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	2
Example	**`SEFOS (config)# tacacs-server retransmit 3`**
Related Command(s)	• **`tacacs use-server address`** – Selects an active server from the list of servers available in the TACACS server table.

6.4. debug tacacs

Command Objective	This command sets the debug trace level for TACACS client module. The no form of the command disables the debug trace level for TACACS client module.
Syntax	**debug tacacs { all | info | errors | dumptx | dumprx }** **no debug tacacs**
Parameter Description	• **all** - Generates debug messages for all possible traces (Dumptx, Dumprx, Error, Info). • **info** - Generates debug statements for server information messages such as TACACS session timed out, server unreachability, Session ID exceeded and so on. • **errors** - Generates debug statements for error debug messages such as failure caused during packet transmission and reception. • **dumptx** - Generates debug statements for handling traces. This trace is generated when there is an error condition in transmission of packets. • **dumprx** - Generates debug statements for handling traces. This trace is generated when there is an error condition in reception of packets.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Debugging is Disabled
Example	**SEFOS# debug tacacs all**

6.5. show tacacs

Command Objective	This command displays the server (such as IP address, Single connection, Port and so on) and statistical log information (such as Authen. Starts sent, Authen. Continues sent, Authen. Enables sent, Authen. Aborts sent and so on) for TACACS+ client.
Syntax	**show tacacs**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command displays the information only for the servers configured in the TACACS server table.

Example

```
SEFOS# show tacacs
Server : 1
Server address           : 12.0.0.100
Address Type             : IPV4
       Single Connection : no
       TCP port          : 49
       Timeout           : 5
       Secret Key        :
Server : 2
Server address           : abc.google.com
Address Type             : DNS
       Single Connection : yes
       TCP port          : 20
       Timeout           : 30
       Secret Key        :
 Active Server address: abc.google.com
Authen. Starts sent    : 0
Authen. Continues sent : 0
Authen. Enables sent   : 0
Authen. Aborts sent    : 0
Authen. Pass rvcd.     : 0
Authen. Fails rcvd.    : 0
Authen. Get User rcvd. : 0
```

```
Authen. Get Pass rcvd. : 0
Authen. Get Data rcvd. : 0
Authen. Errors rcvd.   : 0
Authen. Follows rcvd.  : 0
Authen. Restart rcvd.  : 0
Authen. Sess. timeouts : 0
Author. Requests sent  : 0
Author. Pass Add rcvd. : 0
Author. Pass Repl rcvd : 0
Author. Fails rcvd.    : 0
Author. Errors rcvd.   : 0
Author Follows rcvd.   : 0
Author. Sess. timeouts : 0
Acct. start reqs. sent : 0
Acct. WD reqs. sent    : 0
Acct. Stop reqs. sent  : 0
Acct. Success rcvd.    : 0
Acct. Errors rcvd.     : 0
Acct. Follows rcvd.    : 0
Acct. Sess. timeouts   : 0
Malformed Pkts. rcvd.  : 0
Socket failures        : 0
Connection failures    : 0
```

Related Command(s)

- **`tacacs-server host -`** Creates a TACACS server entry in a TACACS server.
- **`tacacs use-server address -`** Configures an active server from the list of servers available in the TACACS server table.

CHAPTER 7

Syslog

Syslog is a protocol used for capturing log information for devices on a network. The syslog protocol provides a transport to allow a machine to send event notification messages across IP networks to event message collectors, also known as syslog servers. The protocol is simply designed to transport the event messages.

One of the fundamental tenets of the syslog protocol and process is its simplicity. The transmission of syslog messages may be started on a device without a receiver being configured, or even actually physically present. This simplicity has greatly aided the acceptance and deployment of syslog.

7.1. logging

Command Objective

This command enables syslog server and configures the syslog-related parameters The logging process controls the distribution of logging messages to the various destinations, such as the logging buffer, logging file, or syslog server.

The no form of the command disables syslog server and resets the configured parameters. The existing syslog buffers will not be cleared and none of the configured options will be changed, when the syslog feature is disabled.

Syntax

```
logging { buffered [<size (1-200)>] | console | facility
{local0 | local1 | local2 | local3 | local4 | local5 |
local6 | local7|}| severity [{ <level (0-7)> | alerts |
critical | debugging | emergencies | errors | informational
| notification | warnings }] | on }

no logging { buffered | console | facility | severity | on
}
```

Parameter Description

- **buffered** - Limits syslog messages displayed from an internal buffer. This size ranges between 1 and 200 entries.

  Note: The size feature is optional only in the code using the industrial standard command, otherwise this feature is mandatory.

- **console** - Limits messages logged to the console.
- **facility** - The facility that is indicated in the message. Can be one of the following values: local0, local1, local2, local3, local4, local5, local 6, local7.
- **severity** - Message severity level. Messages with severity level equal to or higher than the specified value are printed asynchronously. This can be configured using numerical value or using the available option. The options are:
  - **0 | emergencies** - System is unusable.
  - **1 | alerts** - Immediate action needed.
  - **2 | critical** - Critical conditions.
  - **3 | errors** - Error conditions.
  - **4 | warnings** - Warning conditions.
  - **5 | notification** - Normal but significant conditions.
  - **6 | informational** - Informational messages.
  - **7 | debugging** – Debugging messages.

- **alerts** - Immediate action needed.
- **critical** - Critical conditions.
- **debugging** - Debugging messages.
- **emergencies** - System is unusable.
- **errors** - Error conditions.
- **informational** - Information messages.
- **notification** - Normal but significant messages.
- **warnings** - Warning conditions.
- **on** - Syslog enabled.

Mode Global Configuration Mode

Package Workgroup, Enterprise, Metro, and Metro_E

Default

- console - enabled
- severity - informational, when no option is selected while configuration. debugging - at system start-up.
- buffered - 50
- facility - local0

Note:

- The log file is stored in ASCII text format. The Privileged EXEC command is used to display its contents.
- The logging process controls the distribution of logging messages to the various destinations, such as the logging buffer, logging file, or syslog server.
- The existing syslog buffers will not be cleared and none of the configured options will be changed, when the Syslog feature is disabled.

Example

```
SEFOS (config)# logging buffered
```

Related Command(s)

- **show logging** - Displays logging status and configuration information.

7.2. logging synchronous

Command Objective	This command enables synchronous logging of messages. This command is a complete standardized implementation of the existing command. It operates similar to that of the command logging.
Syntax	**logging synchronous {severity [{<short (0-7)> | alerts | critical | debugging | emergencies | errors | informational | notification | warnings|all}] | limit <number-of-buffers(size(1-200))}**
Parameter Description	• **severity** - Message severity level. Messages with severity level equal to or higher than the specified value are printed asynchronously. This can be configured using numerical value or using the available option. The options are: ▪ **0 | emergencies** - System is unusable. ▪ **1 | alerts** - Immediate action needed. ▪ **2 | critical** - Critical conditions. ▪ **3 | errors** - Error conditions. ▪ **4 | warnings** - Warning conditions. ▪ **5 | notification** - Normal but significant conditions. ▪ **6 | informational** - Informational messages. ▪ **7 | debugging** – Debugging messages. ▪ **all** - All messages are printed asynchronously regardless of the severity level. • **limit <number-of-buffers(size(1-200)** - Number of buffers to be queued for the terminal after which new messages are dropped. This value ranges from 1 to 200 entries.
Mode	Line Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	• severity - informational, when no option is selected during configuration. debugging - at system start-up. • limit - 50
Note:	• The log file is stored in ASCII text format. The Privileged EXEC command is used to display its contents. • The logging process controls the distribution of logging messages to the

	various destinations, such as the logging buffer, logging file, or Syslog server. • The existing syslog buffers will not be cleared and none of the configured options will be changed, when the Syslog feature is disabled.
Example	**`SEFOS (config-line)# logging synchronous severity 4`**
Related Command(s)	• **`show logging`** - Displays logging status and configuration information.

7.3. mailserver

Command Objective	This command configures the mail server address used for sending email alert messages. The no form of the command deletes the mail server address from the mail table.
Syntax	**mail-server <short(0-191)> {ipv4 <ucast_addr> |ipv6 <ip6_addr> | <dns_host_name>} <string(50)> [user <user_name> password <password>]** **no mail-server <short(0-191)> {ipv4 <ucast_addr> |ipv6 <ip6_addr> | <dns_host_name>}**
Parameter Description	• **<short (0-191)>** - Sets the priority for that particular mail server configuration. This value ranges from 0 to 191. • **ipv4<ucast_addr>** - Configures the IPv4 destination address for the syslog mail server. • **ipv6<ip6_addr>** - Configures the IPv6 destination address for the syslog mail server. • **<dns_host_name>** - Configures the DNS host name for the syslog mail server. This value is a string of size 255. • **<string(50)>** - Specifies the receiver mail ID in which the email alert messages are received and logged. This value is a string of maximum size 50. • **user <user_name>** - Configures the user name of the account in the mail server to which the mails is to be sent. The user name is used only if a valid authentication method is configured for the system. This value is a string of maximum size 64. • **password <password>** - Sets the password to authenticate the user name in the mail server.The password is used only if a valid authentication method is configured for the system. This value is a string of maximum size 64.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# mail-server 190 ipv4 23.78.67.89 support@example.com**

Related Command(s)	• **`sender mail-id`** - Sets the sender mail ID from which the email alert messages are sent. • **`show email alerts`** - Displays email alerts-related configuration.

7.4. sender mail-id

Command Objective	This command sets the sender mail ID from which the email alert messages are sent. The no form of the command deletes the configured sender mail ID.
Syntax	**`sender mail-id <mail-id (100)>`** **`no sender mail-id`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	syslog@example.com
Note:	This command can be executed only if the mail server is configured.
Example	**`SEFOS (config)# sender mail-id plabinik@example.com`**
Related Command(s)	• **`mailserver`** - Sets the mail server IP address to be used for sending email alert messages. • **`logging`** - Enables Syslog Server and configures the Syslog Server IP address, the log-level, and other Syslog-related parameter. • **`show logging`** - Displays logging status and configuration information. • **`show email alerts`** - Displays email alerts-related configuration.

7.5. cmdbuffs

Command Objective	This command configures the number of syslog buffers for a particular user.
Syntax	**cmdbuffs <user name> <no.of buffers (1-200)>**
Parameter Description	• **<user name>** - User Name • **<no.of buffers (1-200)>** - Number of log buffers to be allocated in the system.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	50
Example	**SEFOS(config)#cmdbuffs Aricent 50**
Related Command(s)	• **logging** - Enables Syslog Server and configures the Syslog Server IP address, the log-level, and other Syslog-related parameter. • **show logging** - Displays logging status and configuration information. • **clear logs** - Clears the logs buffered in the system. • **username** - Creates a user and sets the enable password for that user with the privilege level.

7.6. clear logs

Command Objective	This command clears the system syslog buffers.
Syntax	**clear logs**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# clear logs**
Related Command(s)	• **cmdbuffs** - Configures the number of Syslog buffers for a particular user. • **logging** - Enables Syslog Server and configures the Syslog Server IP address, the log-level, and other Syslog-related parameter • **show logging** - Displays logging status and configuration information.

7.7. syslog mail

Command Objective	This command enables the syslog mail storage in the system. By enabling syslog mail storage, SEFOS sends the syslog messages as mail messages to the mail server configured in the system. The no form of command disables the mail option in syslog.
Syntax	**syslog mail** **no syslog mail**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# syslog mail**
Related Command(s)	• **show syslog mail** - Displays the mail option in syslog. • **mail server**- Sets the mail server address to be used for sending email alert messages. • **show syslog information** - Displays the status of consolidated syslog log information.

7.8. syslog local storage

Command Objective	This command enables the syslog file storage to log the status in the local storage path. The no form of command disables the syslog local storage.
Syntax	**`syslog localstorage`** **`no syslog localstorage`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**`SEFOS (config)# syslog localstorage`**
Related Command(s)	• **`show syslog local storage`** - Displays the syslog local storage. • **`syslog filename-one`** - Configures the file name to store the syslog messages. • **`syslog filename-two`** - Configures the file name to store the syslog messages. • **`syslog filename-three`** - Configures the file name to store the syslog messages • **`logging-file`** - Adds an entry into file table. • **`show syslog file-name`** - Displays all the syslog local storage file names. • **`show syslog information`** - Displays the status of consolidated syslog log information.

7.9. syslog filename-one

Command Objective	This command configures a first file to store the syslog messages locally. The maximum size of the file name is 32.
Syntax	**`syslog filename-one <string(32)>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command is executed only if syslog local storage is enabled.
Example	**`SEFOS (config)# syslog filename-one SEFOS1`**
Related Command(s)	• **`syslog local storage`** - Enables the syslog local storage. • **`logging-file`** - Adds an entry into file table. • **`show syslog local storage`** - Displays the syslog local storage. • **`show logging-file`** - Displays the Syslog file table. • **`show syslog file-name`** - Displays all the syslog local storage file names.

7.10. syslog filename-two

Command Objective	This command configures a second file name to store the syslog messages locally. The maximum size of the file name is 32.
Syntax	**`syslog filename-two <string(32)>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command is executed only if syslog local storage is enabled.
Example	**`SEFOS (config)# syslog filename-two SEFOS2`**
Related Command(s)	• **`Syslog local storage`** - Enables the syslog local storage. • **`show syslog file-name`** - Displays the Syslog local storage file name. • **`logging-file`** - Adds an entry into file table. • **`show syslog local storage`** - Displays the syslog local storage. • **`show logging-file`** - Displays the Syslog file table.

7.11. syslog filename-three

Command Objective	This command configures a third file name to store the syslog messages locally. The maximum size of the file name is 32.
Syntax	**`syslog filename-three <string(32)>`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command is executed only if syslog local storage is enabled.
Example	**`SEFOS (config)# syslog filename-three SEFOS3`**
Related Command(s)	• **`syslog local storage`** - Enables the syslog local storage. • **`show syslog file-name`** - Displays the Syslog local storage file name. • **`logging-file`** - Adds an entry into file table. • **`show syslog local storage`** - Displays the syslog local storage. • **`show logging-file`** - Displays the Syslog file table.

7.12. syslog relay - port

Command Objective	This command sets the syslog port through which the relay receives the syslog messages irrespective of the transport type. The port number ranges between 0 and 65535. The no form of command sets the syslog port to default port.
Syntax	**syslog relay-port <integer(0-65535)>** **no syslog relay-port**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	514
Note:	This command is executed only if syslog relay is enabled.
Example	**SEFOS (config)# syslog relay-port 500**
Related Command(s)	• **syslog relay -** Changes the syslog role from device to relay. • **syslog relay transport type** - Sets the syslog relay transport type either as UDP or TCP. • **show syslog relay - port -** Displays the syslog relay port. • **show syslog relay transport type -** Displays the syslog relay transport type.

7.13. syslog profile

Command Objective	This command sets the profile for reliable syslog. The no form of command sets the profile to default (raw) for Reliable Syslog.
Syntax	**`syslog profile {raw | cooked}`** **`no syslog profile`**
Parameter Description	• **`raw`** - Sets the syslog profile as raw which is the profile for the transport type beep. • **`cooked`** - Sets the syslog profile as cooked. Note: This feature is not supported. It may be implemented in the future.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Raw
Example	**`SEFOS (config)# syslog profile raw`**
Related Command(s)	• **`show syslog profile`** - Displays the Syslog profile.

7.14. logging-file

Command Objective	This command adds an entry in the file table. The no form of command deletes an entry from the file table.
Syntax	**logging-file <short(0-191)> <string(32)>** **no logging-file <short(0-191)> <string(32)>**
Parameter Description	• **<short(0-191)>** - Sets the priority of syslog messages. 0-lowest priority, 191-highest priority. • **<string(32)>** - Represents the file name in which a log is done.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command is executed only if local storage syslog is enabled.
Example	**SEFOS (config)# logging-file 134 SEFOS1**
Related Command(s)	• **show logging-file** - Displays the syslog file table. • **syslog local storage** - Enables the syslog local storage. • **syslog file-one** - Configures the first file to store the syslog messages locally. • **syslog filename-two** - Configures the second file name to store the syslog messages locally.

7.15. logging server

Command Objective	This command configures a server table to log an entry in it. The no form of command deletes an entry from the server table.
Syntax	**logging-server <short(0-191)> {ipv4 <ucast_addr> | ipv6 <ip6_addr> | <dns_host_name>} [port <integer(0-65535)>] [{udp | tcp | beep}]** **no logging-server <short(0-191)> {ipv4 <ucast_addr> |ipv6 <ip6_addr> | <dns_host_name>}**
Parameter Description	• **<short(0-191)>** - Sets the priority for the syslog messages which decides the order in which it is to be forwarded to the desired server. 0-lowest priority, 191-highest priority. This value ranges from 0 to 191. • **ipv4 <ucast_addr>** - Sets the server address type as internet protocol version 4 and configures the IPv4 address of the server. • **ipv6 <ip6_addr>** - Sets the server address type as internet protocol version 6 and configures the IPv6 address of the server. • **<dns_host_name>** - Configures the DNS host name for a server to log an entry. This value is a string of maximum size 255. • **port<integer(0-65535)>** - Sets the port number through which the server sends the syslog message. This value ranges from 0 to 65535. • **udp** - Sets the forward transport type as UDP. • **tcp** - Sets the forward transport type as TCP, • **beep** - Sets the forward transport type as beep.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	• Transport type - udp • port - 514
Example	**SEFOS (config)# logging-server 134 ipv4 12.0.0.3**
Related Command(s)	• **show logging-server** - Displays the syslog logging server table.

7.16. syslog relay

Command Objective	This command changes the syslog role from device to relay. The no form of command changes the syslog role from relay to device.
Syntax	**syslog relay** **no syslog relay**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# syslog relay**
Related Command(s)	• **show syslog relay-port** - Displays the syslog relay port • **show syslog role –** Displays the syslog role. • **syslog relay transport type –** Sets the syslog relay transport type either as UDP or TCP. • **syslog relay – port –** Sets the syslog port through which it receives the syslog messages. • **show syslog relay transport type –** Displays the syslog relay transport type. • **show syslog information** - Displays the status of consolidated syslog log information.

7.17. syslog relay transport type

Command Objective	This command sets the syslog relay transport type either as UDP or TCP.
Syntax	**`syslog relay transport type {udp | tcp}`**
Parameter Description	• **`udp`** - Sets the relay transport type as UDP. • **`tcp`** - Sets the relay transport type as TCP.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command is executed only if syslog relay is enabled.
Example	**`SEFOS (config)# syslog relay transport type udp`**
Related Command(s)	• **`syslog relay -`** Changes the syslog role from device to relay. • **`show syslog role -`** Displays the syslog role. • **`syslog relay - port -`** Sets the syslog port through which it receives the syslog messages. • **`show syslog relay transport type -`** Displays the syslog relay transport type • **`show syslog relay - port -`** Displays the syslog relay port.

7.18. show logging

Command Objective	This command displays all the logging status and configuration information.
Syntax	**show logging**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show logging** System Log Information ---------- Syslog logging : enabled(Number of messages 0) Console logging : enabled(Number of messages 1) TimeStamp option : enabled Severity logging : Debugging Log server IP : 10.0.0.1 Facility : Default (local0) Buffered size : 100 Entries LogBuffer(0 Entries, 0 bytes) <129>Aug 7 12:08:02 SEFOS CLI Attempt to login as root via console Succeeded
Related Command(s)	• **logging** - Enables syslog server and configures syslog server IP address, log-level and other syslog-related parameter. • **sender mail-id** - Sets the sender mail ID from which the email alert messages are sent. • **cmdbuffs** - Configures the number of syslog buffers for a particular user. • **clear logs** - Clears the logs buffered in the system.

7.19. show email alerts

Command Objective	This command displays configurations related to email alerts.
Syntax	**show email alerts**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Note:	This command is executed only if mail server is configured.
Example	**SEFOS# show email alerts** Sender email-id : plabinik@Aricent.com
Related Command(s)	• **mail-server** - Sets the mail server IP address to be used for sending email alert messages. • **sender mail-id** - Sets the sender mail ID from which the email alert messages are sent.

7.20. show syslog role

Command Objective	This command displays the syslog role.
Syntax	**show syslog role**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog role** Syslog Role : Relay
Related Command(s)	• **syslog relay** - Changes the syslog role from device to relay. • **syslog relay transport type -** Sets the syslog relay transport type either as UDP or TCP.

7.21. show syslog mail

Command Objective	This command displays status of the mail option in syslog.
Syntax	**show syslog mail**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog mail** Syslog Mail Option : Enabled
Related Command(s)	• **syslog mail** – Enables the mail option in syslog.

7.22. show syslog localstorage

Command Objective	This command displays the syslog local storage.
Syntax	**show syslog localstorage**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog localstorage** Syslog Localstorage : Enabled
Related Command(s)	• **syslog local storage –** Enables the syslog local storage. • **syslog filename-one** - Configures the first file to store the syslog messages locally. • **syslog filename-two** - Configures the second file name to store the syslog messages locally. • **syslog filename-three**- Configures the third file name to store the syslog messages locally. • **shpw syslog file-name** - Displays all the syslog local storage file names.

7.23. show logging-file

Command Objective	This command displays the priority and file name of all the three files configured in the syslog file table.
Syntax	**show logging-file**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show logging-file** Syslog File Table Information ---------- Priority File-Name -------- ---------- 134 SEFOS1 134 SEFOS2 134 SEFOS3
Related Command(s)	• **syslog** - Configures the first file to store the syslog messages locally. • **syslog filename-two** - Configures the second file name to store the syslog messages locally. • **syslog filename-three**- Configures the third file name to store the syslog messages locally • **logging-file** - Adds an entry into file table.

7.24. show logging-server

Command Objective	This command displays the information about the syslog logging server table.
Syntax	**show logging-server**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show logging-server** Syslog Forward Table Information -------------------------------- Priority Address-Type IpAddress Port Trans-Type -------- ------------ --------- ---- ---------- 1 host abc.com 2 tcp 129 ipv4 12.0.0.2 514 udp 191 ipv6 1111::2222 514 udp
Related Command(s)	• **logging server** - Adds an entry into logging-server table.

7.25. show mail-server

Command Objective	This command displays the information about the syslog mail server table.
Syntax	**show mail-server**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show mail-server** Syslog Mail Table Information ---------- Priority Address-Type IpAddress Receiver Mail-Id UserName -------- ---------- --------- ---------- -------- 0 host abc.com mail@yahoo.com user1 1 ipv4 15.0.0.100 mail1@example.com user2 2 ipv6 1111::2222 mail2@example.com
Related Command(s)	• **mail server** - Sets the mail server address to be used for sending email alert messages.

7.26. show syslog relay-port

Command Objective	This command displays the syslog relay port.
Syntax	**show syslog relay-port**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog relay-port** Syslog Port : 251
Related Command(s)	• **syslog relay – port** - Sets the syslog port through which it receives the syslog messages. • **syslog relay –** Changes the syslog role from device to relay. • **syslog relay transport type –** Sets the syslog relay transport type either as UDP or TCP.

7.27. show syslog profile

Command Objective	This command displays the syslog profile.
Syntax	**show syslog profile**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog profile** Syslog Profile : raw
Related Command(s)	• **syslog profile** - Sets the profile for reliable syslog.

7.28. show syslog relay transport type

Command Objective	This command displays the syslog relay transport type.
Syntax	**show syslog relay transport type**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog relay transport type** Syslog Relay Transport type udp
Related Command(s)	• **syslog relay transport type** - Sets the syslog relay transport type either as UDP or TCP. • **syslog relay -port** - Sets the syslog port through which it receives the syslog messages. • **syslog relay -** Changes the syslog role from device to relay.

7.29. show syslog file-name

Command Objective	This command displays all the syslog local storage file names.
Syntax	**show syslog file-name**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog file-name** Syslog File Name ---------- Syslog File-One :SEFOS1 Syslog File-Two :SEFOS2 Syslog File-Three :SEFOS3
Related Command(s)	• **syslog local storage** - Enables the syslog local storage. • **show syslog local storage** - Displays the syslog local storage. • **syslog filename-one** - Configures the file name to store the syslog messages. • **syslog filename-two** - Configures the file name to store the syslog messages. • **syslog filename-three** - Configures the file name to store the syslog messages.

7.30. show syslog information

Command Objective	This command displays the status of consolidated syslog log information.
Syntax	**show syslog information**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show syslog information** System Log Information ---------- Syslog Localstorage : Enabled Syslog Mail Option : Enabled Syslog Port : 251 Syslog Role : Relay Smtp Authentication : None
Related Command(s)	• **syslog local storage** - Enables the syslog local storage. • **syslog mail** – Enables the mail option in syslog. • **syslog relay -** Changes the syslog role from device to relay. • **smtp authentication** - Sets the SMTP authentication method while sending e-mail alerts to the mail server configured

7.31. smtp authentication

Command Objective	This command sets the SMTP authentication method while sending e-mail alerts to the mail server configured. The no form of the command resets the authentication method to send email alerts with any authentication
Syntax	**`smtp authentication {auth-login | auth-plain | cram-md5 | digest-md5}`** **`no smtp authentication`**
Parameter Description	• **`auth-login`** - Sets the SMTP authentication method as auth-login in which both the user name and password are BASE64-encoded. • **`auth-plain`** - Sets the SMTP authentication method as auth-plain in which the user name and password used for authentication are combined to one string and BASE64-encoded. • **`cram-md5`** - Sends the BASE64-encoded user name and 16-byte digest in hexadecimal notation. The digest is generated using HMAC calculation with password as secret key and SMTP server original challenge as the message. • **`digest-md5`** - Sets the SMTP authentication method as digest-md5 in which the BASE64-encoded MD5 digest response string that is calculated using the user name, password, realm string, and nonce string.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**`SEFOS (config)# smtp authentication auth-login`**
Related Command(s)	• **`show syslog information`** – Displays the status of consolidated syslog log information.

7.32. snmp trap syslog-server-status

Command Objective	This command enables trap generation when the syslog server is down. The no form of the command disables trap generation when the syslog server is down.
Syntax	**snmp trap syslog-server-status** **no snmp trap syslog-server-status**
Parameter Description	• **trap** - Configures trap-related parameters. • **syslog-server-status** - Configures syslog server-related configurations.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Syslog server trap generation is enabled
Example	**SEFOS (config)# snmp trap syslog-server-status**

CHAPTER 8

TCP

Transmission Control Protocol (TCP) is a portable implementation of the industry standard TCP based on RFC 793. The software consists of the core TCP protocol, a library that provides a Socket Layer Interface (SLI) to support both Telnet Server and FTP server. TCP interacts with the Network Layer protocols (IPv4/IPv6) and uses their services for end-to-end communication.

8.1. show tcp statistics

Command Objective	This command displays the TCP statistics information such as max connections, active opens, passive opens, and attempts fail.
Syntax	**show tcp statistics [vrf <vrf-name>]**
Parameter Description	**vrf <vrf-name>** - Displays the TCP statistics information for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string with maximum size as 32. Note: Settings can be configured for the specified VRF through SNMP. When no VRF instance is mentioned the settings are configured for the default VRF.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show tcp statistics** Context Name : default Max Connections : 500 Active Opens : 0 Passive Opens : 0 Attempts Fail : 0 Estab Resets : 0 Current Estab : 0 Input Segments : 0 Output Segments : 0 Retransmitted Segments : 0 Input Errors : 0 TCP Segments with RST flag Set: 0 HC Input Segments : 0 HC Output Segments : 0 Context Name : vrf1 Max Connections : 500

```
Active Opens : 0
Passive Opens : 0
Attempts Fail : 0
Estab Resets : 0
Current Estab : 0
Input Segments : 0
Output Segments : 0
Retransmitted Segments : 0
Input Errors : 0
TCP Segments with RST flag Set: 0
HC Input Segments : 0
HC Output Segments : 0


Context Name : vrf2

Max Connections : 500
Active Opens : 0
Passive Opens : 0
Attempts Fail : 0
Estab Resets : 0
Current Estab : 0
Input Segments : 0
Output Segments : 0
Retransmitted Segments : 0
Input Errors : 0
TCP Segments with RST flag Set: 0
HC Input Segments : 0
HC Output Segments : 0


Context Name : vrf3

Max Connections : 500
Active Opens : 0
Passive Opens : 0
Attempts Fail : 0
```

```
 Estab Resets : 0
 Current Estab : 0
 Input Segments : 0
 Output Segments : 0
 Retransmitted Segments : 0
 Input Errors : 0
 TCP Segments with RST flag Set: 0
 HC Input Segments : 0
 HC Output Segments : 0


 Context Name : vrf4

 Max Connections : 500
 Active Opens : 0
 Passive Opens : 0
 Attempts Fail : 0
 Estab Resets : 0
 Current Estab : 0
 Input Segments : 0
 Output Segments : 0
 Retransmitted Segments : 0
 Input Errors : 0
 TCP Segments with RST flag Set: 0
 HC Input Segments : 0
 HC Output Segments : 0
SEFOS# show tcp statistics vrf vrf1
Context Name : vrf1

 Max Connections : 500
 Active Opens : 0
 Passive Opens : 0
 Attempts Fail : 0
 Estab Resets : 0
 Current Estab : 0
 Input Segments : 0
 Output Segments : 0
```

```
Retransmitted Segments : 0
Input Errors : 0
TCP Segments with RST flag Set: 0
HC Input Segments : 0
HC Output Segments : 0
```

Related Command(s)

- **`clear tcp statistics`** – Clears the TCP statistics information.

8.2. show tcp connections

Command Objective	This command displays the TCP connections for the switch such as Local IP Address type, Local IP, Local Port, and Remote Port. It also displays if a connection is TCP MD5-protected and the number of incoming segments that failed MD5 authentication.
Syntax	**show tcp connections [vrf <vrf-name>]**
Parameter Description	**vrf <vrf-name>** - Displays the TCP connections for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string with maximum size as 32. Note: Connections can be configured for the specified VRF through SNMP. When no VRF instance is mentioned the settings are configured for the default VRF.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show tcp connections** Context Name : default TCP Connections ========== Local IP Address Type : IPv4 Local IP : 0.0.0.0 Local Port : 22 Remote IP Address Type : IPv4 Remote IP : 0.0.0.0 Remote Port : 0 TCP State : Listen MD5 Authenticated : No TCP Connections ==========

```
Local IP Address Type  : IPv4
Local IP               : 0.0.0.0
Local Port             : 23
Remote IP Address Type : IPv4
Remote IP              : 0.0.0.0
Remote Port            : 0
TCP State              : Listen
MD5 Authenticated      : No


 TCP Connections
 ===============

Local IP Address Type  : IPv4
Local IP               : 0.0.0.0
Local Port             : 80
Remote IP Address Type : IPv4
Remote IP              : 0.0.0.0
Remote Port            : 0
TCP State              : Listen
MD5 Authenticated      : No


 TCP Connections
 ===============

Local IP Address Type  : IPv4
Local IP               : 0.0.0.0
Local Port             : 646
Remote IP Address Type : IPv4
Remote IP              : 0.0.0.0
Remote Port            : 0
TCP State              : Listen
MD5 Authenticated      : No


 TCP Connections
```

```
 ===============

Local IP Address Type  : IPv6
Local IP               : ::
Local Port             : 22
Remote IP Address Type : IPv6
Remote IP              : ::
Remote Port            : 0
TCP State              : Listen
MD5 Authenticated      : No


 TCP Connections
 ===============

Local IP Address Type  : IPv6
Local IP               : ::
Local Port             : 23
Remote IP Address Type : IPv6
Remote IP              : ::
Remote Port            : 0
TCP State              : Listen
MD5 Authenticated      : No


 TCP Connections
 ===============

Local IP Address Type  : IPv6
Local IP               : ::
Local Port             : 80
Remote IP Address Type : IPv6
Remote IP              : ::
Remote Port            : 0
TCP State              : Listen
MD5 Authenticated      : No
```

```
Context Name : vrf1
Context Name : vrf2
Context Name : vrf3
Context Name : vrf4
```

8.3. show tcp listeners

Command Objective	This command displays the information such as Local IP Address Type, Local IP, and Local Port for each listener in the network.
Syntax	**show tcp listeners [vrf <vrf-name>]**
Parameter Description	**vrf <vrf-name>** - Displays the TCP listener information for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string with maximum size as 32 Note: Settings can be configured for the specified VRF through SNMP. When no VRF instance is mentioned the settings are configured for the default VRF.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show tcp listeners** Context Name : default TCP Listeners ========== Local IP Address Type : 0 Local IP : 0.0.0.0 Local Port : 22 Local IP Address Type : 0 Local IP : 0.0.0.0 Local Port : 23 Local IP Address Type : 0 Local IP : 0.0.0.0 Local Port : 80 Address Type [0 - IPv4 and IPv6] [1 - IPv4] [2 - IPv6] Context Name : vrf1 Context Name : vrf2

```
 Context Name : vrf3
 Context Name : vrf4
SEFOS# show tcp listeners vrf default
Context Name : default

 TCP Listeners
 ===============
Local IP Address Type  : 0
Local IP               : 0.0.0.0
Local Port             : 22

Local IP Address Type  : 0
Local IP               : 0.0.0.0
Local Port             : 23

Local IP Address Type  : 0
Local IP               : 0.0.0.0
Local Port             : 80

Address Type [0 - IPv4 and IPv6] [1 - IPv4] [2 - IPv6]
```

8.4. show tcp retransmission details

Command Objective	This command displays the TCP retransmission details.
Syntax	**show tcp retransmission details [vrf <vrf-name>]**
Parameter Description	**vrf <vrf-name>** - Displays the TCP transmission details for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string with maximum size as 32. Note: The retransmission settings can be configured for the specified VRF through SNMP. When no VRF instance is mentioned the settings are configured for the default VRF.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show tcp retransmission details** Context Name : default RTO Algorithm Used : VAN JACOBSON Min Retransmission Timeout : 0 msec Max Retransmission Timeout : 0 msec Context Name : vrf1 RTO Algorithm Used : VAN JACOBSON Min Retransmission Timeout : 0 msec Max Retransmission Timeout : 0 msec Context Name : vrf2 RTO Algorithm Used : VAN JACOBSON Min Retransmission Timeout : 0 msec Max Retransmission Timeout : 0 msec Context Name : vrf3

```
 RTO Algorithm Used : VAN JACOBSON
 Min Retransmission Timeout : 0 msec
 Max Retransmission Timeout : 0 msec

 Context Name : vrf4

 RTO Algorithm Used : VAN JACOBSON
 Min Retransmission Timeout : 0 msec
 Max Retransmission Timeout : 0 msec
SEFOS# show tcp retransmission details vrf default
Context Name : default

 RTO Algorithm Used : VAN JACOBSON
 Min Retransmission Timeout : 0 msec
 Max Retransmission Timeout : 0 msec
```

8.5. tcp max retries

Command Objective	This command configures the maximum number of retries for re-transmission in TCP module.
Syntax	**tcp max retries {<integer(1-12)>} [vrf <vrf-name>]**
Parameter Description	• **<integer(1-12)>** - Configures the maximum number of retries done by TCP module. This value ranges from 1 to 12. • **vrf <vrf-name>** - Configures the maximum number of retries for re-transmission for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string with maximum size as 32. Note: When no VRF instance is mentioned the max retries is configured for the default VRF.
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# tcp max retries 1**

8.6. clear tcp statistics

Command Objective	This command clears the TCP statistics information such as max connections, active opens, passive opens, and attempts fail.
Syntax	**clear tcp statistics [vrf <vrf-name>]**
Parameter Description	**vrf <vrf-name>** - Clears the TCP statistics information for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string with maximum size as 32.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# clear tcp statistics**
Related Command(s)	• **show tcp statistics** – Displays the TCP statistics information such as max connections, active opens, passive opens, and attempts fail.

CHAPTER 9

UDP

SEFOS UDP (User Datagram Protocol) is a portable implementation of the industry standard UDP. It is used in packet-switched computer communication networks and in interconnected systems of such networks. The software consists of the core UDP protocol and a library that provides a Socket Layer Interface (similar to BSD sockets) for applications like SNMP. It supports a number of standard features in addition to the core protocol.

9.1. show udp statistics

Command Objective	This command displays the UDP statistics such as InDatagrams, OutDatagrams, HC InDatagrams, HC OutDatagrams, UDP No Ports, and UDP IN Errors. This value represents unique name of the VRF instance. This value is a string of maximum size 32.
Syntax	**show udp statistics [vrf <vrf-name>]**
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	vrf - default
Example	**SEFOS# show udp statistics vrf vr1** Global UDP Statistics ========== InDatagrams : 0 OutDatagrams : 0 HC InDatagrams : 0 HC OutDatagrams : 0 UDP No Ports : 4 UDP In Errors : 0 UDP with no Checksum : 0 No. ICMP error packets : 0 UDP with wrong Checksum : 0 UDP In Broadcast Mode : 0 Virtual Context - UDP Statistics ========== VRF Name: vr1 ---------- InDatagrams : 0 OutDatagrams : 0 HC InDatagrams : 0 HC OutDatagrams : 0 UDP No Ports : 0 UDP In Errors : 0

```
UDP with no Checksum    : 0
No. ICMP error packets  : 0
UDP with wrong Checksum : 0
UDP In Broadcast Mode   : 0
```

Related Command(s)

- **`show udp connections`** - Displays the UDP configurations for different connections.

9.2. show udp connections

Command Objective	This command displays the UDP configurations such as Local IP Address Type, Local IP, Local Port, Remote IP Address Type, Remote IP, and Remote Port for various connections.
Syntax	**show udp connections [vrf <vrf-name>]**
Parameter Description	• **vrf <vrf-name>** - Displays UDP information for the specified VRF instance. This value represents unique name of the VRF instance. This value is a string of maximum size 32. Note: This feature has been included to adhere to the Industry Standard CLI syntax. This feature is currently not supported.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show udp connections** Global UDP Connections ======================== Local IP Address Type : 0 Local IP : 0.0.0.0 Local Port : 161 Remote IP Address Type : 0 Remote IP : 0.0.0.0 Remote Port : 0 Local IP Address Type : 0 Local IP : 0.0.0.0 Local Port : 6125 Remote IP Address Type : 0 Remote IP : 0.0.0.0 Remote Port : 0 Local IP Address Type : 0 Local IP : 0.0.0.0 Local Port : 49152 Remote IP Address Type : 0 Remote IP : 0.0.0.0

```
                        Remote Port             : 0
```

Related Command(s)

- **`show udp statistics`** - Displays the UDP statistics.

CHAPTER 10

L2 DHCP Snooping

The DHCP snooping feature filters the untrusted DHCP messages and builds a DHCP snooping binding database. It acts as a firewall between untrusted hosts and DHCP servers. These untrusted messages are sent from devices outside a network and are usually sources of traffic attacks. DHCP snooping binding database maintains a table which contains MAC address, IP address, lease time, binding type, VLAN number, and interface information of the local untrusted interfaces of the switch.

10.1. ip dhcp snooping - Global Command

Command Objective	This command globally enables the layer 2 DHCP snooping in the switch or enables the snooping in the specific VLAN. The DHCP snooping module will start the protocol operation when the snooping is enabled globally. This value ranges from 1 to 4094. This is a unique value that represents the specific VLAN created. The no form of the command globally disables layer 2 DHCP snooping in the switch or disables DHCP snooping in the specific VLAN. The DHCP snooping module will stop the protocol operation when the snooping is globally disabled.
Syntax	**`ip dhcp snooping [ vlan < vlan-id (1-4094)>]`** **`no ip dhcp snooping [vlan <integer(1-4094)>]`**
Mode	Global Configuration mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	DHCP snooping is globally disabled in the switch and on all VLAN's.
Note:	The example used and the ip dhcp snooping command used in the config-vlan mode serve the same purpose.
Example	**`SEFOS (config)# ip dhcp snooping vlan 2`**
Related Command(s)	• **`show ip dhcp snooping globals`** - Displays the global configuration of DHCP snooping. • **`show ip dhcp snooping vlan`** - Displays the configuration and statistics of the specified VLAN.

10.2. ip dhcp snooping verify mac-address

Command Objective	This command globally enables DHCP MAC verification in the switch. The no form of the command globally disables DHCP MAC verification in the switch. If the MAC verification status is enabled, DHCP snooping module will verify whether the source MAC address and client hardware MAC address are same. If they are same, packet will be processed further. If they are not the same, the packer is dropped.
Syntax	**`ip dhcp snooping verify mac-address`** **`no ip dhcp snooping verify mac-address`**
Mode	Global Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	DHCP MAC address verification is enabled.
Example	**`SEFOS (config)# ip dhcp snooping verify mac-address`**
Related Command(s)	• **`show ip dhcp snooping globals`** - Displays the global configuration of DHCP snooping.

10.3. ip dhcp snooping - VLAN Interface Command

Command Objective	This command enables layer 2 DHCP snooping in the VLAN. The no form of the command disables layer 2 DHCP snooping in the VLAN. DHCP snooping feature filters the untrusted DHCP messages to provide security for DHCP servers.
Syntax	**`ip dhcp snooping`** **`no ip dhcp snooping`**
Mode	Config-VLAN mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	L2 DHCP snooping is disabled on VLANs
Example	**`SEFOS (config-vlan)# ip dhcp snooping`**
Related Command(s)	• **`show ip dhcp snooping vlan -`** Displays the configuration and statistics of the specified VLAN • **`ip dhcp snooping – Global command`** – This command enables layer 2 DHCP snooping on a particular VLAN.

10.4. ip dhcp snooping trust

Command Objective	This command configures the port as a trusted port. The no form of the command configures the port as an untrusted port. The packets coming from the trusted port is considered as trusted packets and are not filtered by the DHCP snooping feature.
Syntax	**ip dhcp snooping trust** **no ip dhcp snooping trust**
Mode	Interface Configuration mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	Ports are considered as trusted.
Example	**SEFOS (config-if)# ip dhcp snooping trust**

10.5. show ip dhcp snooping globals

Command Objective	This command displays the global configuration of DHCP snooping. The global status of layer 2 DHCP snooping and MAC verification are displayed.
Syntax	**show ip dhcp snooping globals**
Mode	Privileged EXEC mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show ip dhcp snooping globals** DHCP Snooping Global information -------------------------------- Layer 2 DHCP Snooping is globally disabled MAC Address verification is enabled
Related Command(s)	• **ip dhcp snooping – Global command** - Globally enables the layer 2 DHCP snooping in the switch and allocates the resources for the DHCP snooping module. • **ip dhcp snooping verify mac-address** - Globally enables DHCP MAC verification in the switch.

10.6. show ip dhcp snooping vlan

Command Objective	This command displays the DHCP snooping configuration and statistics of all VLANs in which the DHCP snooping feature is enabled.
Syntax	**show ip dhcp snooping [vlan <vlan-id (1-4094)>]**
Parameter Description	• **vlan <vlan-id (1-4094)>** - Displays the DHCP snooping configuration and statistics for the specified VLAN ID. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094.
Mode	Privileged EXEC mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show ip dhcp snooping vlan 2** DHCP Snooping Vlan information ---------- VLAN : 2 Snooping status : Enabled Number of Incoming Discovers : 0 Number of Incoming Requests : 0 Number of Incoming Releases : 0 Number of Incoming Declines : 0 Number of Incoming Informs : 0 Number of Transmitted Offers : 0 Number of Transmitted Acks : 0 Number of Transmitted Naks : 0 Total Number Of Discards : 0 Number of MAC Discards : 0 Number of Server Discards : 0 Number of Option Discards : 0
Related Command(s)	• **ip dhcp snooping - VLAN interface command** - Enables layer 2 DHCP snooping in the VLAN.

10.7. debug ip dhcp snooping

Command Objective	This command enables the tracing of the DHCP snooping module as per the configured debug level. The trace statements are generated for the configured trace levels. The no form of the command disables the tracing of the DHCP module. 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 ip dhcp snooping {[entry][exit][debug][fail] | all}`** **`no debug ip dhcp snooping`**
Parameter Description	• **`entry`** - Generates debug statements for function entry traces. The names of the functions entered are displayed in the log. • **`exit`** - Generates debug statements for function exit traces. The names of the functions exited are displayed in the log. • **`debug`** - Generates debug statements for debug traces. This is used for debugging the packet flow of DHCP snooping functionality. • **`fail`** - Generates debug statements for all failure traces. These traces are used for all valid and invalid failures. The valid failures represent the expected error. The invalid failures represent the unexpected error. • **`all`** - Generates debug statements for all types of traces.
Mode	Privileged EXEC mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**`SEFOS# debug ip dhcp snooping entry`**

CHAPTER 11

IPDB

IP source guard is used to restrict the IP traffic on Layer 2 interfaces by filtering traffic based on the IP binding database.

11.1. ip binding

Command Objective	This command configures the static binding information for the hosts connected to the switch. The no form of the command deletes the binding information for the specified host.
Syntax	**ip binding <mac-address> vlan <vlan-id (1-4094)> <ip address> interface <interface-type> <interface-id> gateway <ip address>** **no ip binding <mac-address> vlan <vlan-id (1-4094)>**
Parameter Description	• **<mac-address>** - Configures the unicast MAC address of the host for which the binding information should be configured. • **<vlan-id (1-4094)>** - Configures the VLAN ID to which the host belongs. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094. • **<ip address>** - Configures IP address of the host for which the binding information should be configured. • **<interface-type>** - Configures the type of interface to which the host is connected. The interface can be: ▪ **fastethernet** – Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 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 interface identifier to which the host is connected. 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only internal-lan or port-channel ID is provided, for interface types internal-lan and port-channel. For example: 1 represents internal-lan and port-channel ID.

	• **gateway <ip address>** - Configures the IP address of the gateways to which the host has access.
Mode	Global Configuration mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# ip binding 00:01:02:03:04:05 vlan 2 12.0.0.1 interface extreme-ethernet 0/1 gateway 12.0.0.3**
Related Command(s)	• **show ip binding** - Displays the IP binding database. • **show ip binding counters** - Displays the global or VLAN statistics information.

11.2. ip source binding

Command Objective	This command adds a static IP source binding entry. The no form of the command deletes the static IP source binding entry.
Syntax	**ip source binding <mac-address> vlan <vlan-id (1-4094)> <ip-address> interface <interface-type> <interface-id> [gateway <gateway-ip>]** **no ip source binding <mac-address> vlan <vlan-id (1-4094)> <ip-address> interface <interface-type> <interface-id>**
Parameter Description	• **<mac-address>** - Configures the unicast MAC address of the host for which the binding information should be configured. • **<vlan-id (1-4094)>** - Configures the VLAN ID to which the host belongs. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094. • **<ip-address>** - Configures IP address of the host for which the binding information should be configured. • **<interface-type>** - Configures the type of interface to which the host is connected. The interface can be: ▪ **fastethernet** – Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 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 interface identifier to which the host is connected. 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only internal-lan or port-channel ID is provided, for interface types internal-lan and port-channel. For example: 1 represents internal-lan and port-channel ID. • **gateway <gateway-ip>** - Configures the gateway IP address of the

	gateways to which the host has access.
Mode	Global Configuration mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS (config)# ip source binding 00:01:02:03:04:06 vlan 3 12.0.0.4 interface extreme-ethernet 0/1 gateway 12.0.0.4**
Related Command(s)	• **show ip source binding** - Displays the source IP binding database.

11.3. ip verify source

Command Objective	This command enables the IP source guard status for the specified interface. The no form of the command disables the IP source guard on an interface. The port-security option is mandatory for this command. Else, the following error message gets displayed: `SEFOS IP source guard feature does not support source IP filter type.`
Syntax	**`ip verify source [ port-security ]`** **`no ip verify source [ port-security ]`**
Mode	Interface Configuration Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	IP source guard is disabled on the interface.
Example	**`SEFOS (config-if)# ip verify source port-security`**
Related Command(s)	• **`show ip verify source`** - Displays the IP source guard interface status.

11.4. show ip binding

Command Objective	This command displays the IP binding database.
Syntax	**show ip binding [vlan <vlan-id (1-4094)>] {[static | dhcp | ppp]}**
Parameter Description	• **vlan <vlan-id (1-4094)>** - Displays the VLAN ID to which the host belongs. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094. • **static** - Displays the static IP binding configuration. • **dhcp** - Displays the dynamic IP binding updates through DHCP snooping. • **ppp** - Displays the dynamic IP binding updates through PPPoE intermediate agent.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show ip binding vlan 2 static** Host Binding Information ------------------------ VLAN HostMac HostIP Port GatewayIP Type ---- ---------- -------- ---- ---------- ------ 2 00:10:12:13:13:15 12.0.0.1 Ex0/1 12.0.0.0 static
Related Command(s)	• **ip binding –** Configures the static binding information for the hosts connected to the switch.

11.5. show ip source binding

Command Objective	This command displays the source IP binding database.
Syntax	**show ip source binding [<ip-address>] [<mac-address>] [{ dhcp-snooping | static }] [interface <interface-type> <interface-id>] [vlan <vlan-id (1-4094)>]**
Parameter Description	• **<ip-address>** - Displays the IP address of the host for which the binding information should be configured. • **<mac-address>** - Displays the unicast MAC address of the host for which the binding information should be configured. • **dhcp-snooping** - Displays the dynamic IP binding updation through DHCP snooping. • **static** - Displays the static IP binding configuration. • **<interface-type>** - Displays the type of interface to which the host is connected. The interface can be: ▪ **fastethernet** – Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 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 interface identifier to which the host is connected. 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only internal-lan or port-channel ID is provided, for interface types internal-lan and port-channel. For example: 1 represents internal-lan and port-channel ID. • **vlan <vlan-id (1-4094)>** - Displays the VLAN ID to which the host belongs. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094.
Mode	Privileged EXEC Mode

Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show ip source binding** Host Binding Information ------------------------ VLAN HostMac HostIP Port GatewayIP Type ----- ------------ --------- ---------- ------------ ------
Related Command(s)	• **ip source binding** - Adds a static IP source binding entry.

11.6. show ip binding counters

Command Objective	This command displays the global or VLAN statistics information.
Syntax	**show ip binding counters [{[vlan <short (1-4094)>] | global | [switch <switch-name>] }]**
Parameter Description	• **vlan <short (1-4094)>** - Displays the VLAN ID to which the host belongs. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094. • **global** - Displays the static information of all binding types (static, dhcp, ppp). • **switch <switch-name>** - Displays the static information of the specified VLAN.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show ip binding counters vlan 2** Global Binding count Information -------------------------------- Number of Bindings : 1 Number of Static Bindings : 1 Number of DHCP Bindings : 0 Number of PPP Bindings : 0
Related Command(s)	• **ip binding** - Configures the static binding information for the hosts connected to the switch.

11.7. show ip verify source

Command Objective	This command displays the IP source guard interface status.
Syntax	**show ip verify source [interface <interface-type> <interface-id>]**
Parameter Description	• **<interface-type> -** Displays the type of interface to which the host is connected. The interface can be: ▪ **fastethernet** – Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 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 interface identifier to which the host is connected. 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only internal-lan or port-channel ID is provided, for interface types internal-lan and port-channel. For example: 1 represents internal-lan and port-channel ID.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show ip verify source** Interface IP Source guard Status --------- ---------- Ex0/1 Disable Ex0/2 Disable Ex0/3 Disable Ex0/4 Disable Ex0/5 Disable Ex0/6 Disable

```
Ex0/7         Disable
Ex0/8         Disable
Ex0/9         Disable
Ex0/10        Disable
Ex0/11        Disable
Ex0/12        Disable
Ex0/13        Disable
Ex0/14        Disable
Ex0/15        Disable
Ex0/16        Disable
Ex0/17        Disable
Ex0/18        Disable
Ex0/19        Disable
Ex0/20        Disable
Ex0/21        Disable
Ex0/22        Disable
Ex0/23        Disable
Ex0/24        Disable
```

Related Command(s)

- **`ip verify source`** - Enables the IP source guard status for the specified interface.

11.8. debug ip binding database

Command Objective	This command enables tracing and generates debug statements for IP Binding Database module. The no form of this command disables tracing in the IPDB module
Syntax	**debug ip binding database ([entry][exit][debug][fail])[{ <short (0-7)> | alerts | critical | debugging | emergencies | errors | informational | notification | warnings }]** **no debug ip binding database [{ [entry][exit][debug][fail] | all }]**
Parameter Description	• **entry** - Generates debug statements for all function entry traces. • **exit** - Generates debug statements for all function exit traces. • **debug** - Generates debug statements for all debug traces. • **fail** - Generates debug statements for all the failure traces. • **<short (0-7)>** - Generates the debug statements for the specified 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
Example	**SEFOS# debug ip binding database debug errors**

Related Command(s)	• **`show debugging`** - Displays the debugging information.

11.9. downstream arp-bcast

Command Objective	This command configures the downstream ARP broadcast forward status for the port.
Syntax	**downstream arp-bcast {allow | drop}**
Parameter Description	• **allow -** Allows the downstream ARP broadcast packet incoming on this port. • **drop -** Drops the downstream ARP broadcast packet incoming on this port.
Mode	Interface Configuration Mode (Physical)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	allow
Example	**SEFOS (config-if)# downstream arp-bcast drop**
Related Command(s)	• **show arp spoofing** - Displays the ARP spoofing details for list of interfaces created or a specific interface created in the system.

11.10. mac force forwarding

Command Objective	This command sets the MAC force forwarding status for the VLAN.
Note:	This command is currently not supported.
Syntax	**`mac force forwarding {enable | disable}`**
Parameter Description	• **`enable -`** Enables MAC force forwarding for the VLAN. • **`disable -`** Disables MAC force forwarding for the VLAN.
Mode	Interface Configuration Mode (VLAN)
Package	Workgroup, Enterprise, Metro, and Metro_E
Default	disable
Example	**`SEFOS (config-if)# mac force forwarding enable`**
Related Command(s)	• **`show mac force forwarding`** - Displays the MAC force forwarding status in the system or for the specified VLAN interface.

11.11. show arp spoofing

Command Objective	This command displays the ARP spoofing details for list of interfaces created or a specific interface created in the system.
Syntax	**show arp spoofing [interface <ifXtype> <ifnum>]**
Parameter Description	• **<interface-type>** - Displays the ARP spoofing-related information for the type of interface to which the host is connected. The interface can be: ▪ **fastethernet** – Officially referred to as 100BASE-T standard. This is a version of LAN standard architecture that supports data transfer upto 100 Megabits per second. ▪ **XL-ethernet** – A version of LAN standard architecture that supports data transfer upto 40 Gigabits per second. ▪ **extreme-ethernet** – A version of Ethernet that supports data transfer upto 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 ARP spoofing-related informationfor the interface identifier to which the host is connected. 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. For example: 0/1 represents that the slot number is 0 and port number is 1. Only internal-lan or port-channel ID is provided, for interface types internal-lan and port-channel. For example: 1 represents internal-lan and port-channel ID.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show arp spoofing** Arp Spoofing table ------------------ Port Downstream Bcast Arp forwarded Arp dropped ---- ---------- ---------- ---------- Ex0/1 allow 0 0
Related Command(s)	• **downstream arp broadcast -** Configures the downstream ARP broadcast forward status for the port.

11.12. show mac force forwarding

Command Objective	This command displays the MAC force forwarding status in the system or for the specified VLAN interface.
Note:	This command is currently not supported.
Syntax	**show mac force forwarding [vlan <short (1-4094)>]**
Parameter Description	• **<vlan-id (1-4094)>** - Displays the MAC force forwarding status for the specified VLAN ID to which the host belongs. This is a unique value that represents the specific VLAN created. This value ranges from 1 to 4094.
Mode	Privileged EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# show mac force forwarding** 0 entries to display
Related Command(s)	• **mac force forwarding-** Sets MAC force forwarding status for the VLAN.

11.13. debug ip binding database all

Command Objective	This command enables tracing and generates debug statements for all traces in IP Binding Database module.
Syntax	**debug ip binding database all [{ <short (0-7)> | alerts | critical | debugging | emergencies | errors | informational | notification | warnings }]**
Parameter Description	• **<short (0-7)>** - Generates the debug statements for the specified 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	Privilege EXEC Mode
Package	Workgroup, Enterprise, Metro, and Metro_E
Example	**SEFOS# debug ip binding database all emergencies**
Related Command(s)	• **show debugging** - Displays the debugging information.