

COMPUTING

Switch Software for PCIE-9205

CLI Guide

P/N: 6806800T85H

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EMBEDDED TECHNOLOGIES

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Contents

About this Manual	9
1 Introduction	15
1.1 Managing Switch Software using SSF CLI	15
1.1.1 Connecting to CLI	16
2 CLI Commands	17
2.1 Switch Mode CLI	17
2.1.1 mac_ageing_time	17
2.1.2 mac_learning	18
2.1.3 add_static_mac	18
2.1.4 arp	19
2.1.5 port	20
2.1.6 vlan database	20
2.1.7 ipv4_route	21
2.1.8 ip_forwarding	22
2.1.9 error_threshold	22
2.1.10 lb database	23
2.1.11 clear_counters	23
2.1.12 log level	24
2.1.13 show_pool	25
2.1.14 show_pool_member	26
2.1.15 show_port	27
2.1.16 show_static_channel	28
2.1.17 show_running_config	29
2.1.18 show_version	29
2.1.19 show_switch	30
2.1.20 show_mirror	30
2.1.21 show_vlan	31
2.1.22 show_mac_table	32
2.1.23 show_ipv4_route	33
2.1.24 show_error_threshold	34
2.1.25 show_match_list_pending	35
2.1.26 show_rule_match_list	36

2.1.27	flush mac	36
2.1.28	show_lbg	37
2.1.29	show_lbg_distribution	39
2.1.30	flush arp	40
2.1.31	dump	41
2.1.32	save	41
2.1.33	l3l4_hash_config	42
2.1.34	health_check_status	44
2.1.35	show_health_check_status	44
2.2	VLAN Mode CLI	45
2.2.1	vlan	45
2.3	Port CLI	46
2.3.1	description	46
2.3.2	mode	47
2.3.3	mtu	48
2.3.4	mac_learning	49
2.3.5	shutdown	50
2.3.6	static_channel_group	50
2.3.7	switchport	51
2.3.8	switchport mode access	52
2.3.9	switchport mode trunk	53
2.3.10	switchport mode hybrid	54
2.3.11	vlan_add	55
2.3.12	vlan_remove	56
2.3.13	ip_address	57
2.3.14	mirror	58
2.3.15	vlan_stacking	59
2.3.16	error_threshold	59
2.3.17	arp_ageing_time	60
2.4	Load Balancing Pool CLI	61
2.4.1	pool	61
2.4.1.1	description	62
2.4.1.2	destination ip_address	63
2.4.1.3	member	63
2.4.1.4	state	65
2.5	Match List CLI	65

2.5.1	table	65
2.5.2	match_list	66
2.5.3	priority	67
2.5.4	match_l2param	68
2.5.5	match_l3param	69
2.5.6	match_l4param	71
2.5.7	match_port	72
2.5.8	rule match_list	73
2.5.9	state	76
2.6	Load Balancing Group CLI	77
2.6.1	lbg	77
2.6.2	lbg_mode	78
2.6.3	member	79
2.6.4	port_weight	80
2.6.5	lbg_switchover_list	81
2.6.6	lbg_backup	82
2.6.7	state	83
A	Related Documentation	85
A.1	Artesyn Embedded Technologies - Embedded Computing Documentation	85

List of Tables

Table 1-1	Command Line Editing Features	15
Table 2-1	Parameters of mac_ageing_time	17
Table 2-2	Parameters of add_static_mac	18
Table 2-3	Parameters of arp	19
Table 2-4	Parameters of port	20
Table 2-5	Parameters of ipv4_route	21
Table 2-6	Parameters of error_threshold	22
Table 2-7	Parameters of clear_counters	23
Table 2-8	Parameters of log level	24
Table 2-9	Parameters of show_pool	25
Table 2-10	Parameters of show_pool_member	26
Table 2-11	Parameters of show_port	27
Table 2-12	Parameters of show_static_channel	29
Table 2-13	Parameters of show_mirror	31
Table 2-14	Parameters of show_vlan	32
Table 2-15	Parameters of show_error_threshold	34
Table 2-16	Parameters of show_match_list_pending	35
Table 2-17	Parameters of show_rule_match_list	36
Table 2-18	Parameters of flush mac	37
Table 2-19	Parameters of show_lbg	37
Table 2-20	Parameters of show_lbg_distribution	39
Table 2-21	Parameters of flush arp	40
Table 2-22	Parameters of dump	41
Table 2-23	Parameters of save	42
Table 2-24	Parameters of l3l4_hash_config	42
Table 2-25	Parameters of health_check_status	44
Table 2-26	Parameters of vlan	45
Table 2-27	Parameters of description	47
Table 2-28	Parameters of mode	48
Table 2-29	Parameters of mtu	49
Table 2-30	Parameters of static channel group	51
Table 2-31	Parameters of switchport mode access	52
Table 2-32	Parameters of switchport mode trunk	53
Table 2-33	Parameters of switchport mode hybrid	54
Table 2-34	Parameters of vlan_add vlan	55
Table 2-35	Parameters of vlan_remove vlan	56

Table 2-36	Parameters of ip_address	57
Table 2-37	Parameters of mirror interface	58
Table 2-38	Parameters of vlan_stacking type	59
Table 2-39	Parameters of error_threshold type	60
Table 2-40	Parameters of arp_ageing_time	61
Table 2-41	Parameters of pool	62
Table 2-42	Parameters of description	62
Table 2-43	Parameters of destination ip_address	63
Table 2-44	Parameters of member	64
Table 2-45	Parameters of table	66
Table 2-46	Parameters of match_list	67
Table 2-47	Parameters of priority	68
Table 2-48	Parameters of match_l2param	69
Table 2-49	Parameters of match_l3param	70
Table 2-50	Parameters of match_l4param	71
Table 2-51	Parameters of match_port	72
Table 2-52	Parameters of rule match_list	73
Table 2-53	Parameters of state	76
Table 2-54	Parameters of LBG	77
Table 2-55	Parameters of lbg_mode	78
Table 2-56	Parameters of member	79
Table 2-57	Parameters of port_weight	80
Table 2-58	Parameters of lbg_switchover_list	81
Table 2-59	Parameters of lbg_backup	83
Table 2-60	Parameters of state	84
Table A-1	Artesyn Embedded Technologies - Embedded Computing Publications	85

About this Manual

Overview of Contents

This manual describes the Switch Software CLI commands that are used to perform switching, static routing, match-lists, trunk load balancing, and server load balancing operations on a PCIE-9205 card.

This manual contains the following chapters and appendices:

- [Introduction on page 15](#) provides a brief description about Switch Software and a procedure on how to access SSF using CLI.
- [CLI Commands on page 17](#) describes the list of CLI commands supported by Switch Software.
- [Related Documentation on page 85](#) provides a listing of related product documentation.

Abbreviations

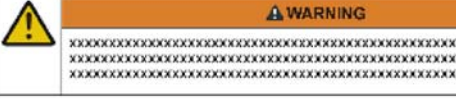
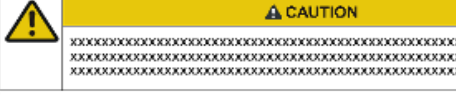


This document uses the following abbreviations.

Abbreviation	Definition
ARP	Address Resolution Protocol
CLI	Command Line Interface
MTU	Maximum Transmission Unit
PEP	PCIe End Points
RRC	Red Rock Canyon (Intel FM10xxx chip)
SLB	Server Load Balancing
SSF	System Services Framework
VEE	Virtual Execution Environment

Conventions

The following table describes the conventions used throughout this manual.

Notation	Description
0x00000000	Typical notation for hexadecimal numbers (digits are 0 through F), for example used for addresses and offsets
0b0000	Same for binary numbers (digits are 0 and 1)
bold	Used to emphasize a word
Screen	Used for on-screen output and code related elements or commands in body text
Courier + Bold	Used to characterize user input and to separate it from system output
<i>Reference</i>	Used for references and for table and figure descriptions
File > Exit	Notation for selecting a submenu
<text>	Notation for variables and keys
[text]	Notation for software buttons to click on the screen and parameter description
...	Repeated item for example node 1, node 2, ..., node 12
.	Omission of information from example/command that is not necessary at the time being
..	Ranges, for example: 0..4 means one of the integers 0,1,2,3, and 4 (used in registers)
	Logical OR

Notation	Description
	<p>Indicates a hazardous situation which, if not avoided, could result in death or serious injury</p>
	<p>Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury</p>
	<p>Indicates a property damage message</p>
	<p>No danger encountered. Pay attention to important information</p>

Summary of Changes

This manual has been revised and replaces all prior editions.

Part Number	Publication Date	Description
6806800T85H	April 2017	Added new sections <i>health_check_status</i> on page 44, <i>show_health_check_status</i> on page 44, and <i>Load Balancing Group CLI</i> on page 77. Updated the sections <i>mac_learning</i> on page 49, <i>mirror</i> on page 58, <i>match_port</i> on page 72, <i>rule match_list</i> on page 73, <i>show_lbg_distribution</i> on page 39, and <i>state</i> on page 76.
6806800T85G	March 2017	Added a note in the section <i>rule match_list</i> on page 73.
6806800T85F	January 2017	Added a new command <i>l3l4_hash_config</i> on page 42 and a note in the section <i>mac_learning</i> on page 49. Added a new command <i>state</i> on page 76.
6806800T85E	October 2016	Updated <i>Chapter 1, Introduction</i> , on page 15. Updated the sections <i>vlan</i> on page 45, <i>switchport mode trunk</i> on page 53, <i>vlan_remove</i> on page 56, <i>show_match_list_pending</i> on page 35, <i>member</i> on page 63, <i>match_l2param</i> on page 68, <i>match_l3param</i> on page 69, and <i>match_l4param</i> on page 71.
6806800T85D	August 2016	Updated <i>vlan</i> on page 45, <i>mode</i> on page 47, <i>static_channel_group</i> on page 50, <i>shutdown</i> on page 50, <i>switchport</i> on page 51, <i>switchport mode trunk</i> on page 53, <i>switchport mode hybrid</i> on page 54, <i>vlan_remove</i> on page 56, and <i>ip_address</i> on page 57 commands.

Part Number	Publication Date	Description
6806800T85C	June 2016	Updated show_pool on page 25, show_pool_member on page 26, description on page 46, pool on page 61, port on page 20, static_channel_group on page 50, clear_counters on page 23, show_mac_table on page 32, mode on page 47, mtu on page 48, switchport on page 51, match_list on page 66, priority on page 67, rule match_list on page 73, match_l2param on page 68, match_l3param on page 69, match_l4param on page 71, and match_port on page 72 commands.
6806800T85B	April 2016	Added CLI commands arp_ageing_time on page 60, flush mac on page 36, flush arp on page 40, dump on page 41 and l3l4_hash_config on page 42. Updated CLI commands vlan on page 45, destination ip_address on page 63, member on page 63 and commands in Match List CLI section. Updated Chapter 1, Introduction , on page 15, trademarks section, and re-branded the header image.
6806800T85A	January 2016	Initial version

Switch Software enables SharpSwitch™ PCIE-9205 card to carry out switching, static routing, match-lists, trunk load balancing, and server load balancing. This software is executed on the management processor of PCIE-9205 card from where it manages the Red Rock Canyon (RRC) chip, through the switch drivers provided by Intel®. The PCIE-9205 card provides external network connectivity to MaxCore™ MC3000 and targets can be one of the payload cards in MaxCore.

PCIE-9205 Switch Software can be managed using System Services Framework (SSF) CLI from Shelf Host. SSF provides the management and configuration interface. SSF facilitates system level configuration and management access to SSF managed hardware and software components, through Web, CLI, and XML protocol interfaces.

1.1 Managing Switch Software using SSF CLI

SSF CLI on Shelf Host is a telnet daemon that waits for inward TCP connections. You can access the CLI through telnet session.

The CLI can serve multiple client sessions simultaneously, the number of sessions supported by SSF is limited to the `maxSessions` parameter configured in `/opt/ssf/etc/config/main/cli.cfg` on Shelf Host.

The following table provides command line editing features of SSF CLI.

Table 1-1 Command Line Editing Features

Keys	Description
Left and Right arrow keys	Allows you to move the cursor within the current command line.
Up and Down arrow keys	Allows you to browse through a command history.
BACKSPACE Key	Enables you to remove the character towards left.
TAB key	Completes the keyword being entered automatically.
"?" key	Provides you context help.
<cr>	Carriage return. System displays this command when you provide all mandatory arguments of a particular CLI command. It represents the command syntax completion.

1.1.1 Connecting to CLI

You can connect to the CLI after logging into SSF running host, using external SSH daemon with SSH connection. This is the default behavior of SSF CLI. To start the telnet connection from an already established secure shell:

```
[root@abts-ap-static-214 ~]# telnet localhost 11001
Trying::1...
telnet: connect to address::1: Connection refused
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^'.
Welcome to SSF CLI

Username: Admin
Password:
Access granted
>enable
#configure terminal
MaxCore(config)#system 1
MaxCore(system-1)#shelf 1
MaxCore(shelf-1-1)#PCIEslot 11
MaxCore(PCIEslot-1-1-11)#PCIECard 1
MaxCore(PCIECard-1-1-11-1)#CPU 1
MaxCore(PCIECard-1-1-11-1-1)#virexecenv 0
MaxCore(PCIECard-1-1-11-1-1-0)#switch 1
MaxCore(PCIECard-1-1-11-1-1-0-1)#
```

NOTICE

By default, the host IP address is configured as 127.0.0.1 and the port numbers are 11001 and 15550. The `cli.cfg` file configures:

- **The maximum number of connections to the command line interface (CLI), default value is 5.**
- **The session time out in seconds, default value is 300.**

This chapter provides description about the list of Switch Software supported CLI commands. These CLI commands are categorized into Switch mode, Port, Load Balancing Pool, Match List, and VLAN mode for better understanding.

2.1 Switch Mode CLI

This section describes all the switch-level CLI commands that are required to configure and obtain the status of the switch.

2.1.1 mac_ageing_time

Syntax

```
mac_ageing_time <AGEINGTIME>
```

```
no_mac_ageing_time
```

Description

This command is used to configure ageing-out time for the learned MAC addresses.

Use **no** form of this command to set the `mac-ageing-time` to default.

Table 2-1 Parameters of mac_ageing_time

Parameter	Description and Values	Default Value
AGEINGTIME	Number of seconds after which the learned MAC addresses are aged out. Values range: 10-1000000 seconds	300

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# mac_ageing_time 1000
```

2.1.2 mac_learning

Syntax

```
mac_learning (enable|disable)
```

Description

This command is used to enable or disable MAC learning. MAC learning configuration is at switch level. By default, MAC learning is enabled.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# mac_learning disable
```

2.1.3 add_static_mac

Syntax

```
add_static_mac mac MAC port PORTNAME [vlan VLANID]
```

```
no_static_mac mac MAC port PORTNAME [vlan VLANID]
```

Description

This command is used to create a static MAC entry. The specified VLAN should be already associated with the port. If not, an error is thrown. If no VLAN is specified, it is considered as default VLAN.

Use **no** form of this command to delete the configured static MAC entry.

Table 2-2 Parameters of add_static_mac

Parameter	Description and Values	Default Values
MAC	MAC address in the hexadecimal format HHHH.HHHH.HHHH You need to configure the MAC address as per IEEE standards.	N/A
PORTNAME	The port on which the MAC address is obtainable.	N/A
VLANID	VLAN on which the Static MAC is to be configured (Optional).	Default VLAN

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# add_static_mac mac 0100.2355.4566
port sw1p1 vlan 10
```

2.1.4 arp**Syntax**

```
arp ip_address A.B.C.D mac MAC
```

```
no_arp ip_address A.B.C.D
```

Description

This command is used to create a static Address Resolution Protocol (ARP) entry.

Use **no** form of this command to delete the configured static ARP entry.

Table 2-3 Parameters of arp

Parameter	Description and Values	Default Values
A.B.C.D	IP address to which the ARP entry is to be added. Format is ipv4 address (A.B.C.D)	N/A
MAC	MAC address of the IP in the hexadecimal format HHHH.HHHH.HHHH You need to configure the MAC address as per IEEE standards.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# arp ip_address 1.1.1.1 mac
0100.2355.4566
```

2.1.5 port

Syntax

```
port PORTNAME
```

Description

This command is used to select a port to configure and enter into the port command mode.

Table 2-4 Parameters of port

Parameter	Description and Values	Default Values
PORTNAME	<p>Name of the port.</p> <p>Values range: sw1p1 - sw1p8, sw1p20 - sw1p24, InterVLAN ports, and Static channel ports.</p> <p>InterVLAN ports: Naming convention of InterVLAN ports is vlan<SWITCHID>.<VLANID>.</p> <p>To create an InterVLAN port, see section vlan database.</p> <p>Static channel ports (SA): Naming convention of these ports is sa<GROUPID>.</p> <p>To create a Static channel port, see section static_channel_group.</p>	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)#
```

2.1.6 vlan database

Syntax

```
vlan database
```

Description

This command is used to enter into the VLAN mode. VLANs can be created, deleted, or their properties can be modified.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# vlan database
MaxCore(vlan-1-1-11-1-1-0-1-database)#
```

2.1.7 ipv4_route

Syntax

```
ipv4_route destination DEST_PREFIX gw GW_IP
no_ipv4_route destination DEST_PREFIX gw GW_IP
```

Description

This command is used to add a IPv4 route to reach a destination network or host through the configured gateway.

Use **no** form of this command to delete the configured route.

Table 2-5 Parameters of ipv4_route

Parameter	Description and Values	Default Values
DEST_PREFIX	IPv4 address of destination prefix. The address is ipv4 address/mask format.	N/A
GW_IP	Gateway IPv4 address through which destination is reachable. The address is ipv4 address format.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# ipv4_route destination  
10.10.10.1/32 gw 10.10.10.100
```

```
MaxCore(switch-1-1-11-1-1-0-1)# no_ipv4_route destination
10.10.11.0/24 gw 10.10.10.200
```

2.1.8 ip_forwarding

Syntax

```
ip_forwarding [enable | disable]
```

Description

This command is used to enable or disable IP forwarding on management processor.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# ip_forwarding enable
```

2.1.9 error_threshold

Syntax

```
error_threshold state STATE interval INTERVAL
```

Description

This command is used to enable or disable port error notifications to the registered application on XML interface of Switch Software for PCIE-9205 card. This command enables error notifications and sets a timer to the configured interval. Error notifications are sent by checking the error count at configured interval seconds.

By default, these notifications are disabled.

Table 2-6 Parameters of error_threshold

Parameter	Description and Values	Default Values
STATE	Set the state of error-thresholds to enable/disable. Possible values: enable, disable	N/A
INTERVAL	Error threshold timer interval. Range of values is 10 - 10800 seconds.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# error_threshold state enable
interval 100
```

2.1.10 lb database

Syntax

```
lb database
```

Description

This command is used to enter into load balancing mode to configure Load Balancing Group (LBG) and Server Load Balancing (SLB/ECMP Group).

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# lb database
```

2.1.11 clear_counters

Syntax

```
clear_counters [port PORTNAME] [table TABLE_ID [match_list
MATCHLIST_ID]]
```

Description

This command is used to clear counters on the specified parameter. If no parameter is specified, the command clears all the counters including port counters and match-list counters.

Table 2-7 Parameters of clear_counters

Parameter	Description and Values	Default Values
PORTNAME	Port in which the counters are to be cleared. This is optional parameter.	N/A

Table 2-7 Parameters of clear_counters

Parameter	Description and Values	Default Values
TABLE_ID	The match-list table ID for which the counters need to be cleared. This is optional parameter. Range of values is all, 1-2.	N/A
MATCHLIST_ID	The match-list ID for which the counters need to be cleared. When this is provided, it is required that TABLE_ID is also provided. This is optional parameter. Range of values is 1-2048.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# clear_counters port sw1p1
```

2.1.12 log level

Syntax

```
log level LEVEL [module MODULE]
```

Description

This command is used to set the log level for the switch software debugging. If no module is specified, then the specified log level is applied to all the modules.

By default, the log level is set to *info* for all the modules of switch software.

Table 2-8 Parameters of log level

Parameter	Description and Values	Default Values
LEVEL	Log level to set. Acceptable values: fatal, error, warning, info, debug, and trace.	N/A
MODULE	Acceptable values: csm, platform, and all	all

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# log level info
```

```
MaxCore(switch-1-1-11-1-1-0-1)# log level error module platform
```

2.1.13 show_pool**Syntax**

```
show_pool [pool POOLID]
```

Description

This command displays configuration details of all server load balancing pools or a specific pool ID.

Table 2-9 Parameters of show_pool

Parameter	Description and Values	Default Values
POOL ID	Id of the pool. Range of values is 1-16.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_pool pool 1
```

```
Switch ID: 1; Pool ID: 1;
```

```
State: ACTIVE; Description: pool1;
```

```
Member count: 3;
```

```
Server IP Address: 1.2.3.4/32;
```

```
Match_list ID: ;
```

2.1.14 show_pool_member

Syntax

```
show_pool_member [pool POOLID] [member POOLMEMBERID]
```

Description

This command displays the configuration details of all pool members or a specific pool member in a SLB or pool.

Table 2-10 Parameters of show_pool_member

Parameter	Description and Values	Default Values
POOLID	Id of the pool. Range of values is 1-16.	N/A
POOLMEMEBER ID	ID of the Pool member. Range of values is 1-512.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_pool_member pool 1
```

```
Member ID: 1; State: ACTIVE;
```

```
IP Address: 192.168.130.1; MAC Address: 0000.0000.0000;
```

```
Port: ; Weight: 3;
```

```
!
```

```
Member ID: 2; State: ACTIVE;
```

```
IP Address: 192.168.129.1; MAC Address: 0000.0000.0000;
```

```
Port: ; Weight: 4;
```

```
!
```

```
Member ID: 3; State: ACTIVE;
```

```
IP Address: 192.168.131.1; MAC Address: 0000.0000.0000;
```

```

Port: ;                Weight: 5;

MaxCore(switch-1-1-11-1-1-0-1)# show_pool_member pool 1 member 1

Member ID: 1;                State: ACTIVE;

IP Address: 192.168.130.1;    MAC Address: 0000.0000.0000;

Port: ;                Weight: 3;

```

2.1.15 show_port

Syntax

```
show_port [port PORTNAME] |[include PORTTYPE]
```

Description

This command displays the status and configuration details of the given port. If port is not specified, the command displays all the ports in the switch.

If PORT TYPE is specified as *vf*, this command also displays the details of VFs.

Table 2-11 Parameters of show_port

Parameter	Description and Values	Default Values
PORTNAME	Name of the port.	N/A
PORTTYPE	Type of the port to be displayed. Currently, you can provide only "vf" as PORT TYPE.	N/A

Example

```

MaxCore(switch-1-1-11-1-1-0-1)# show_port port sw1p1

Switch ID: 1; Port: sw1p1;

Description: Test descr;

<BROADCAST,MULTICAST>;

Ethmode: group; speed: 0;    bandwidth: AN_73;

```

```
arp_ageing_timeout: NA; mtu: 1536;
port_type: L2;
VLAN_mode: access;      Default VLAN: 1;
Ingress_filter: enabled;      Acceptable_frame_type: NA;
VLAN_stacking_type: NC; ethertype: NA;
Error_threshold: NC;
Mac_learning: enabled;
IP address: NA;
Mirrored Ports: NC;
static_channel_group: sal;
Egress tagged VLANs: NC;
Egress untagged VLANs: NC;
in_packets: 0; in_bytes: 0;  in_dropped: 0; in_multicast: 0;
in_broadcast: 0;
out_packets: 0; out_bytes: 0;  out_dropped: 0; out_multicast: 0;
out_broadcast: 0;
statistics last updated on: 01-May-2015 19:24:44;
```

2.1.16 show_static_channel

Syntax

```
show_static_channel [group GROUPID]
```

Description

This command displays static-channel details of the switch. If group option is not given, it will list all the static channel groups in the switch.

Table 2-12 Parameters of show_static_channel

Parameter	Description and Values	Default Values
GROUPID	Static-channel group identifier. Range of values is 1-16.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_static_channel group 1
Static Aggregator: sal;
Members: sw1pl;
```

2.1.17 show_running_config**Syntax**

```
show_running_config
```

Description

This command displays the running configuration of the switch.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_running_config
```

2.1.18 show_version**Syntax**

```
show_version
```

Description

This command displays the version of the PCIe-9205 Switch Software that is installed on the card.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_version  
  
Switch Software version: 1.0.1.27
```

2.1.19 show_switch

Syntax

```
show_switch
```

Description

This command displays all the switch-level details.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_switch  
  
Switch ID: 1;  
State: INSERTED;  
RouterMAC: 0214.f630.0000;  
IP Forwarding: DISABLED;  
MAC Learning: ENABLED;  
MAC Ageing Time: 300;  
Error Threshold State: DISABLED;  
Error Threshold Interval: 0;  
Module/logLevel: CSM/Info,Platform/Info;
```

2.1.20 show_mirror

Syntax

```
show_mirror [port PORTNAME] [include PORTTYPE]
```

Description

This command displays the mirror configuration of the given port. If port is not specified, all the mirror configurations are displayed.

If PORT TYPE is specified as vf, this command also displays details of mirror configuration on VFs.

Table 2-13 Parameters of show_mirror

Parameter	Description and Values	Default Values
PORTNAME	Name of the port. This is optional parameter.	N/A
PORTTYPE	Type of the port for which mirror information to be displayed. Currently, you can provide only "vf" as PORT TYPE.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_mirror port sw1p1
Switch ID: 1;           Destination Port: sw1p1~Test descr;
Source Port: sw1p2~Desc;      Direction: both;
!
Switch ID: 1;           Destination Port: sw1p1~Test descr;
Source Port: sw1p3~Desc;      Direction: both;
```

2.1.21 show_vlan**Syntax**

```
show_vlan [vlan VLANID]
```

Description

This command displays the details of the VLAN specified, including its description, state and the ports on which it is configured. If VLANID is not specified, details of all the VLANs on the switch are displayed.

Table 2-14 Parameters of show_vlan

Parameter	Description and Values	Default Values
VLANID	VLAN identifier. Range of values is 2-4022.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_vlan vlan 10
Switch ID: 1;      VLAN ID: 10;
Description: VLAN0010;      State: ACTIVE;
InterVLAN State: DISABLED;
Tagged Ports: sw1p5;
Untagged Ports: sw1p6;
```

2.1.22 show_mac_table

Syntax

```
show_mac_table
```

Description

This command displays the MAC table on the node.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_mac_table
Switch ID:1;
```



```

MAC Addr:0011.2233.4444;VLAN ID:2 ~ NAME;
Port:sw1p1 ~ DESC;Type:Static;!
Switch ID:1;
MAC Addr:0011.2233.4455;VLAN ID:3 ~ VLAN1.3;
Port:sw1p1 ~ DESC;Type:Dynamic;!

```



show_mac_table also list outs the MAC addresses of VFs created on the PEP.

2.1.23 show_ipv4_route

Syntax

```
show_ipv4_route
```

Description

This command displays the routing table on the node.

Example

```

MaxCore(switch-1-1-11-1-1-0-1)# show_ipv4_route

Name          Value
-----
output
Switch ID: 1;
Destination network: 10.10.10.0/24;
Gateway IP: 192.168.130.2, 192.168.130.3;
Gateway Name: sw1p1, sw1p1;

```

```

Gateway Type: STATIC, STATIC;

!

Switch ID: 1;

Destination network: 20.20.20.0/24;

Gateway IP: 192.168.130.3;

Gateway Name: sw1p1;

Gateway Type: STATIC;

!

Switch ID: 1;

Destination network: 192.168.130.0/24;

Gateway IP: 0.0.0.0;

Gateway Name: sw1p1;

Gateway Type: CONNECTED;

```

2.1.24 show_error_threshold

Syntax

```
show_error_threshold [port PORTNAME]
```

Description

This command displays the configured error thresholds on port(s). This shows the configured errors, thresholds, and shutdown action, if specified on all the configured port(s).

Table 2-15 Parameters of show_error_threshold

Parameter	Description and Values	Default Values
PORTNAME	Name of the port. This is optional parameter.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_error_threshold port sw1p1
Switch ID: 1;      Port: sw1p1~Test descr;
Error Type: crc      , Alignment, Badsymbol;
Error Threshold: 2000      , 3000      , 4000;
Error Action: shutdown  , shutdown  , notify;
Error count: 0          , 0          , 0;
```

2.1.25 show_match_list_pending

Syntax

```
show_match_list_pending [table TABLEID [match_list <MATCH-LIST-
ID>]]
```

Description

This command displays match-list(s) that are configured and are yet to be installed on hardware.

Table 2-16 Parameters of show_match_list_pending

Parameter	Description and Values	Default Values
TABLE-ID	Table Identifier Range: 1 (TCAM0), 2 (TE)	N/A
MATCH-LIST-ID	Match-list identifier Range of values 1-2048.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_match_list_pending table 1
```

2.1.26 show_rule_match_list

Syntax

```
show_rule_match_list [table TABLEID [match_list <match-list-id>]][include PORT]
```

Description

This command displays match-list(s) that are configured and installed on hardware.

Table 2-17 Parameters of show_rule_match_list

Parameter	Description and Values	Default Values
TABLE-ID	Table Identifier Range: 1 (TCAM0), 2 (TE)	N/A
MATCH-LIST-ID	Match-list identifier Range of values is 1-2048	N/A
PORT	To include specified port type. Supported values: VF VF: To match-list entries that include VF ports.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_rule_match_list table 1
```

2.1.27 flush mac

Syntax

```
flush mac <TYPE>
```

Description

This command is used to flush all MAC entries of a specific type given in the command input.

Table 2-18 Parameters of flush mac

Parameter	Description and Values	Default Value
TYPE	String defines the type of MAC entries to be flushed. Valid values are “static”, “dynamic”.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# flush mac dynamic
```

2.1.28 show_lbg**Syntax**

```
show_lbg [id LBGID]
```

Description

This command displays the detailed information of Load balancing group. If no LBG ID is specified, then it displays the details of all the configured LBGs.

Table 2-19 Parameters of show_lbg

Parameter	Description and Values	Default Values
LBGID	The Load balancing group identifier for which the details need to be displayed.	N/A

Example

```
show_lbg id 1
```

```
Switch ID: 1;LBG ID: 1;
```

```
Admin State: ENABLED;Oper State: ACTIVE;
```

```
Mode: Preemptive;
```

```
Members: sw1p1, sw1p2, sw1p3, sw1p4, sw1p5, sw1p6, sw1p7, sw1p8;
```

```
Weights: 1, 2, 3, 4,4, 3, 2, 1;

Current state: Active, Active, Active, Active, Down, Down, Down,
Down;

Configured Active: swlp1, swlp2, swlp3, swlp4;

Configured Backup: swlp8,swlp7,swlp6,swlp5;

Current Active: swlp1, swlp2, swlp3, swlp4;

Match_list ID: 1-1;

Member: swlp1;State: Active;

BackupTo: ;Switchover list: ;

Member: swlp2;State: Active;

BackupTo: ;Switchover list: ;

Member: swlp3;State: Active;

BackupTo: ;Switchover list: ;

Member: swlp4;State: Active;

BackupTo: swlp4;Switchover list: ;

Member: swlp5;State: Down;

BackupTo: ;Switchover list: ;

Member: swlp6;State: Down;

BackupTo: ;Switchover list: ;

Member: swlp7;State: Down;

BackupTo: ;Switchover list: ;

Member: swlp8;State: Down;

BackupTo: ;Switchover list: ;
```

2.1.29 show_lbg_distribution

Syntax

```
show_lbg_distribution [id LBGID] [index INDEX] [port PORT]
```

Description

This command displays the distribution map of the Load balancing group. If no LBG ID is specified, then it displays the distribution map of all the configured LBGs.

Table 2-20 Parameters of show_lbg_distribution

Parameter	Description and Values	Default Values
LBGID	The Load balancing group identifier for which the distribution map need to be displayed.	N/A
INDEX	LBG distribution index is bin numbers. Valid range is 0 to 1023.	N/A
PORT	PORT is LBG member port.	N/A

Example

```
show_lbg_distribution id 1
```

```
Switch ID: 1;LBG ID: 1;
```

```
Admin State: ENABLED;
```

```
Members: sw1p1,sw1p2,sw1p3,sw1p4;
```

```
Bin count: 103, 205, 307, 409;
```

```
Distribution Map:
```

```
0, 1, 2, 3, 4, 5, 6, 7, 8, 9;
0: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
10: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
```

```

20: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
30: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
40: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
50: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
60: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
70: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
   :      :

970: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
980: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;

990: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
1000: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
1010: sw1p1, sw1p2, sw1p3, sw1p4, sw1p2, sw1p3, sw1p4, sw1p3, sw1p4, sw1p4;
1020: sw1p1, sw1p2, sw1p3, sw1p4;

!
```

2.1.30 flush arp

Syntax

```
flush arp <TYPE>
```

Description

This command is used to flush all ARP entries of a specific type given in the command input.

Table 2-21 Parameters of flush arp

Parameter	Description and Values	Default Value
TYPE	String defines the type of ARP entries to be flushed. Valid values are “static”, “dynamic”.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# flush arp dynamic
```


2.1.31 dump

Syntax

```
dump module MODULENAME
```

Description

This command dumps the debug information of the switch for each module.

Table 2-22 Parameters of dump

Parameter	Description and Values	Default Value
MODULENAME	Acceptable values: all, port, vlan, lag, mac, arp, route, switch, and matchlist.	N/A

2.1.32 save

Syntax

```
save [file FILENAME]
```

Description

This command is used to save the current running configuration for persistency. If the optional parameter [file FILENAME] is provided with this command, the current configuration is saved to the specified file.

Table 2-23 Parameters of save

Parameter	Description and Values	Default Value
FILENAME	Absolute path of file to which configuration is to be saved.	/opt/switch_sw/etc/switch_config.conf



The saved configuration is persistent only when it is not saved to a file.

2.1.33 l3l4_hash_config

Syntax

```
l3l4_hash_config { dscp_mask DSCP-MASK | dstip DSTIP | srcip SRCIP | l4_select L4-SELECT | protocolid PROTOCOLID | l4srcport L4SRCPORT | l4dstport L4DSRPORT | ecmp_rotation ECMP-ROTATION | symmetric_l3l4 SYMMETRIC-L3L4 }
```

Description

This command is used to mask layer3 and layer4 parameters for switch hash calculation logic.

Table 2-24 Parameters of l3l4_hash_config

Parameter	Description and Values	Default Value
DSCP-MASK	Range of DSCP mask value is 0x0 to 0x3f.	0x3f
DSTIP	To configure, if destination IP field to be included in hash calculation. Values: true, false.	true

Table 2-24 Parameters of l3l4_hash_config

Parameter	Description and Values	Default Value
SRCIP	To configure if source IP field to be included in hash calculation. Values: true, false.	true
PROTOCOLID	To configure if layer3 protocol ID field to be included in hash calculation. Values: true, false.	true
L4-SELECT	To specify layer4 protocols to be included in hash calculation. Values: TCP, UDP and two custom values in range 0 to 254.	TCP,UDP
ECMP-ROTATION	To specify one of the three hash rotation to use in ECMP binning. Values: 0,1, and 2.	0
L4SRCPORT	To configure if L4 source port field to be included in hash calculation. Values: true, false.	true
L4DSTPORT	To configure if L4 destination port field to be included in hash calculation. Values: true, false.	true
SYMMETRIC-L3L4	To enable/disable symmetrizing of the source IP and destination IP fields. It includes symmetrizing of l4 source port and l4 destination port fields also. Values: true, false.	true

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# l3l4_hash_config srcip true dstip
true symmetric_l3l4 true dscp_mask 0x3f protocolid true l4srcport
true l4dstport true l4_select tcp,udp
```

2.1.34 health_check_status

Syntax

```
health_check_status type TYPE port PORT state STATE
```

Description

This command provides a interface to user to set health check status of a link based on various parameters.

Table 2-25 Parameters of health_check_status

Parameter	Description and Values	Default Value
TYPE	Type of the health check parameter that need to be set. Current Supported value: link_state	N/A
PORT	The health for which the health check status is set. Supported port type is VF port.	N/A
STATE	State of the health check notification. Supported values: up/down	N/A



Health check status takes more precedence over Physical Link status. However, it is required that both the physical link status and Health check status need to be synchronized.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# health_check_status type  
link_state port swlp21.1 state up
```

2.1.35 show_health_check_status

Syntax

```
show_health_check_status
```

Description

This command displays health check status of all the ports.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# show_health_check_status
```

2.2 VLAN Mode CLI

This section contains commands to create or delete VLANs on the switch.

2.2.1 vlan

Syntax

```

vlan id VLANID [description VLAN_NAME] [state STATE]
[intervlan_route INTERVLAN]

no_vlan vlan VLANID

```

Description

This command is used to create a VLAN, assign name, and to enable intervlan-routing on a VLAN. A VLAN state can also be enabled or disabled.

Disabling a VLAN will lead to deleting VLAN on the RRC hardware and thus all switching is stopped on this VLAN.

To enable routing through VLANs, use the intervlan-route enable option while creating the VLANs.

Use **no** form of this command to delete the already configured VLAN.

Table 2-26 Parameters of vlan

Parameter	Description and Values	Default Values
VLANID	VLAN on which an operation is to be performed. Range of values is 2-4022.	N/A

Table 2-26 Parameters of vlan

Parameter	Description and Values	Default Values
VLAN_NAME	Alias string of the VLAN in readable format.	vlan<switchid>.<VLANID>
STATE	State of the VLAN being created. Possible values: enable, disable	enable
INTERVLAN	Possible values: enable, disable enable: Enables intervlan routing for this VLAN.	disable

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# vlan database
```

```
MaxCore(vlan-1-1-11-1-1-0-1-database)# vlan id 100 state enable
intervlan_route enable
```



Management VLAN cannot be removed.

By default, the Management VLAN is 11 and you can configure the Management VLAN to any value in the range 2-4022. You can configure the changes in the `/opt/switch_sw/etc/mgmt_network.conf` file.

2.3 Port CLI

This section describes CLI commands required to configure a port. This includes L2 and L3 configuration parameters.

2.3.1 description

Syntax

```
description DESC_STRING
```

Description

This command is used to set the description of the port.

Table 2-27 Parameters of description

Parameter	Description and Values	Default Values
DESC_STRING	User-defined description of port. Maximum size of the string is 24. String can include: Alphabets, numbers, space, hyphen, underscore, and brackets (). If there are multiple strings, enclose them in "" double quotes.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# description "port 1"
```

2.3.2 mode

Syntax

```
mode type TYPE bandwidth BANDWIDTH
```

Description

This command allows a port to be configured to a specific mode. The speed or bandwidth for the port is implicitly set based on the selected mode. The ports of RRC can be operated in either grouped or independent mode.

In grouped mode, a set of four independent ports are configured as one switch port. Grouped modes are 100GB-SR4 and 40GB-SR4.

In independent mode, each port can be configured with modes 25GB-SR, 10GB-SR, and 1000B-X.

Table 2-28 Parameters of mode

Parameter	Description and Values	Default Values
TYPE	Mode in which the port is to be configured. Values: group, independent	N/A
BANDWIDTH	Bandwidth of the port to be configured. Group Mode supports: 100GB-SR4 40GB-SR4 Independent Mode supports: 25GB-SR 10GB-SR 1000B-X	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# mode type group bandwidth  
100GB-SR4
```



Mode cannot be configured on PCIe End Points (PEP) (sw1p20 to sw1p24), SA, and VLAN ports.

2.3.3 mtu

Syntax

```
mtu SIZE
```

Description

This command is used to set the Maximum Transmission Unit (MTU) size of a port.

By default, MTU size of a port is 1536 bytes.

Table 2-29 Parameters of mtu

Parameter	Description and Values	Default Value
SIZE	Size of MTU on a port in bytes. Range of values is 68-9216.	1536

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# mtu 3000
```



MTU cannot be configured on PCIe End Points (PEP) ports (sw1p20 to sw1p24).

2.3.4 mac_learning

Syntax

```
mac_learning (enable|disable)
```

Description

This command is used to enable or disable MAC learning. MAC learning configuration is per port level. By default, MAC learning is enabled. This command is valid for L2 port type and the valid ports are "physical" and "sa".

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# mac_learning disable
```



Enabling MAC learning at port level would require the MAC learning to be enabled at switch level.

2.3.5 shutdown

Syntax

```
shutdown
```

```
no_shutdown
```

Description

This command is used to set the administrative state of a port to DOWN.

Use **no** form of the command to set the administrative state of the port to UP.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# shutdown
```



Ports sw1p20 and sw1p24 are used for management. Administrative Status disable is not allowed on these ports. Administrative status on PEP ports (sw1p20 to sw1p24) will not reflect in hardware due to hardware limitation.

2.3.6 static_channel_group

Syntax

```
static_channel_group GROUP-ID
```

```
no_static_channel_group group GROUP-ID
```

Description

This command is used to create a static aggregator, or add a member port to an already existing static aggregator.

Use **no** form of the command to detach the port from the static aggregator. If the port is the last one in the static aggregator, the static aggregator is also deleted.



Static channel group cannot be configured on PCIe End Points (PEP) (sw1p20 to sw1p24), SA, and VLAN ports.

Table 2-30 Parameters of static channel group

Parameter	Description and Values	Default Values
GROUP-ID	Static channel group identifier. Range of values is 1 – 16.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# static_channel_group 1
```

2.3.7 switchport

Syntax

```
switchport
```

```
no_switchport
```

Description

This command is used to configure a port to L2 port. By default, all the ports of RRC are configured as switchport.

Use **no** form of the command to configure the port as L3 port.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# switchport
```



The switch port mode commands cannot be executed when the ports are L3 and VLAN ports.

2.3.8 switchport mode access

Syntax

```
switchport mode access [ingress_filter [enable|disable]]
```

Description

This command is used to set the mode of VLAN classification mode to access. In access mode, only untagged packets are accepted and switched on default VLAN. By default, default VLAN is “1”.

If `ingress_filter` is enabled, all the tagged packets are dropped. If `ingress_filter` is disabled, switch accepts all the untagged and tagged packets. By default, `ingress_filter` is enabled, if no option is specified.

Table 2-31 Parameters of switchport mode access

Parameter	Description and Values	Default Value
Ingress_filter [enable disable]	enable - All the tagged packets are dropped. disable - All the untagged and tagged packets are accepted.	enable

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# switchport mode access
ingress_filter disable
```

2.3.9 switchport mode trunk

Syntax

```
switchport mode trunk [ingress_filter (enable|disable) ]
```

Description

This command is used to set VLAN classification mode to trunk. In trunk mode, tagged traffic is allowed on more than one VLAN. By default, untagged traffic is dropped and the port sends only tagged packets.

If `ingress_filter` is enabled, the port drops the untagged packets and accepts tagged traffic with configured VLANs. If `ingress_filter` is disabled, port accepts both tagged and untagged traffic. By default, `ingress_filter` is enabled, if no option is specified.

Table 2-32 Parameters of switchport mode trunk

Parameter	Description and Values	Default Values
Ingress_filter [enable disable]	enable: All the untagged packets are dropped and accepts tagged traffic with configured VLAN only. disable: Accepts untagged traffic and switched on native VLAN. This option is not recommended because it also accepts all VLAN tagged traffic that is not configured on the port.	enable

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# switchport mode trunk
ingress_filter enable
```



By default, Management VLAN is 11.
 Management port is sw1p20 when PCIE-9205 is SystemHost and it is sw1p20, sw1p24 when PCIE-9205 is not SystemHost.
 The ports are configured in trunk mode, with ingress filter disabled for the Management VLAN.

2.3.10 switchport mode hybrid

Syntax

```
switchport mode hybrid [ ingress_filter (enable | disable) ] | [
acceptable_frame_type (vlan_tagged | all)]
```

Description

This command is used to set VLAN classification mode to hybrid. Hybrid mode provides mechanism to accept and forward both untagged and tagged traffic on more than one VLAN. Both ingress and egress criteria can be specified.

If `ingress_filter` is enabled, all the tagged packets are dropped. If `ingress_filter` is disabled, switch accepts all the untagged and tagged packets with default VLAN. By default, `ingress_filter` is enabled, if not specified.

Table 2-33 Parameters of switchport mode hybrid

Parameter	Description and Values	Default Values
acceptable_frame_type [vlan_tagged all]	vlan-tagged: To configure the port to receive tagged frames only. both: To configure the port to receive both tagged and untagged frames.	all
ingress_filter [enable disable]	enable: All the tagged packets for VLANs that are not configured are dropped. disable: All the untagged and tagged packets with default VLAN are accepted.	enable

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# switchport mode hybrid
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# switchport mode hybrid
ingress_filter disable
```



`vlan_add` and `vlan_remove` commands cannot be executed when port is L3.

Hybrid mode cannot be configured on PEP Ports - sw1p20 to sw1p24.

2.3.11 `vlan_add`

Syntax

```
vlan_add vlan VLANID [native (true|false)][egress_tagged
EGRESS_TAG]
```

Description

This command is used to add VLAN configuration on the port.

Table 2-34 Parameters of `vlan_add vlan`

Parameter	Description and Values	Default Values
VLANID	The VLAN that is added to the port.	N/A
EGRESS_TAG	This is valid only on Hybrid port. Possible values: enable, disable enable: Frames egressing out of the port on this VLAN will be tagged. disable: Frames egressing out of the port on this VLAN will be untagged.	enable

Table 2-34 Parameters of vlan_add vlan

Parameter	Description and Values	Default Values
Native	<p>true: Sets the VLAN as default/native VLAN on the port. With this configuration, untagged packets are switched based on the configured default VLAN.</p> <p>false: Adds VLAN as non-default or remove the VLAN as non-default.</p>	false

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# vlan_add vlan 10
```

2.3.12 vlan_remove

Syntax

```
vlan_remove vlan VLANID
```

Description

This command is used to delete VLAN configuration on the port.

Table 2-35 Parameters of vlan_remove vlan

Parameter	Description and Values	Default Values
VLANID	The VLAN that is removed on the port.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```



```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# vlan_remove vlan 10
```



Management VLAN cannot be disassociated on Management ports. By default, Management VLAN is 11.

Management port is sw1p20 when PCIE-9205 is systemHost and it is sw1p20, sw1p24 when PCIE-9205 is not systemHost.

2.3.13 ip_address

Syntax

```
ip_address IP_ADDRESS
```

```
no_ip_address
```

Description

This command is used to set IPv4 address of a port.

Use **no** form of the command to remove IPv4 address from the port.

sw1p1 to sw1p24 ports of type L3 and VLAN are the valid ports for this command.

Table 2-36 Parameters of ip_address

Parameter	Description and Values	Default Values
IP-ADDRESS	IPv4 address and the prefix length of a port. Format is ipv4 address/mask	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# ip_address 10.10.10.1/24
```

2.3.14 mirror

Syntax

```
mirror sourceport SOURCEPORT direction SNOOPDIRECTION [vlan VLANID]
```

```
no_mirror sourceport SOURCEPORT
```

Description

This command is used to start mirroring of the packets on a specific port to the port on which it is configured. This command also allows to select the direction of the packets that need to be mirrored.

Use **no** form of the command to stop mirroring of the packets.

Table 2-37 Parameters of mirror interface

Parameter	Description and Values	Default Values
SOURCEPORT	Name of the source port from which the packets need to be mirrored.	N/A
SNOOPDIRECTION	The direction of the packets that need to be mirrored to. Valid values: both, receive, and transmit.	N/A
VLANID	VLAN that switch uses for mirroring. You do not need to create this VLAN.	1

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p20.2
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p20.2)# mirror sourceport sw1p20.1
direction both
```



If source port is a VF port, you have to create a match list with a qualifier to match source port and provide action parameter as mirror destination port. with key word mirror_dest.

Each configured VF source port should have a unique match list ID.

2.3.15 vlan_stacking

Syntax

```
vlan_stacking type TYPE [ethertype ETHERTYPE}
```

```
no_vlan_stacking
```

Description

This command is used to enable VLAN stacking and set the switching characteristics of the Layer 2 interface to the configured type either to customer-edge-port or provider-port. If ethertype is not specified, the default value is 0x88a8.

Use **no** form of the command to disable VLAN stacking of the Layer 2 interface.

Table 2-38 Parameters of vlan_stacking type

Parameter	Description and Values	Default Values
TYPE	Type of port in vlan stacking configuration. Possible values: customer_edge_port or provider_port.	N/A
ETHERTYPE	Ethertype field for the vlan tag (in 0xhhh hexadecimal notation).	0x88a8

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# vlan_stacking type  
customer_edge_port ethertype 0x88a8
```

2.3.16 error_threshold

Syntax

```
error_threshold type (crc | alignment | badsymbol) threshold  
THRESHOLD [action shutdown | notify]
```

```
no_error_threshold type (crc | alignment | badsymbol)
```

Description

This command is used to configure thresholds for various types of errors.

Asynchronous events are sent when the configured threshold is hit in the interval for a specific error on a particular port. Asynchronous events are sent through XML interface, only if the error threshold is enabled through error-threshold enable command.

Shutdown action is optional and when `shutdown` option is specified, the port is shutdown apart from sending asynchronous events when the configured threshold is hit.

Table 2-39 Parameters of error_threshold type

Parameter	Description and Values	Default Values
THRESHOLD	Range of values is 1-4294967295.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# error_threshold type crc
threshold 200 action shutdown
```

2.3.17 arp_ageing_time

Syntax

```
arp_ageing_time <AGEINGTIME>
```

```
no_mac_ageing_time
```

Description

This command is used to configure ageing-out time for the dynamic ARP entries. This command is valid for L3 and intervlan port.

Use **no** form of this command to set the arp-ageing-time to default.

Table 2-40 Parameters of `arp_ageing_time`

Parameter	Description and Values	Default Values
AGEINGTIME	Number of seconds after which the dynamic ARP addresses are aged out. Values range: 60-3000 seconds	3000

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# port sw1p1
```

```
MaxCore(port-1-1-11-1-1-0-1-sw1p1)# arp_ageing_time 1000
```

2.4 Load Balancing Pool CLI

Load Balancing Pool CLI commands are used to configure Server Load Balancing (SLB) parameters of pool and pool members.

2.4.1 pool

Syntax

```
pool POOL-ID
```

```
no_pool id POOL-ID
```

Description

This command is used to enter into Server Load Balancing (SLB) pool mode. If the pool does not exist, it is created before entering the pool mode and by default the pool is disabled.

Use **no** form of this command to delete the pool configuration.

Table 2-41 Parameters of pool

Parameter	Description and Values	Default Values
POOL-ID	Pool identifier to configure. Range of values is 1-16.	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# lb database
```

```
MaxCore(lb-1-1-11-1-1-0-1-database)# pool 1
```

```
MaxCore(pool-1-1-11-1-1-0-1-database-1)#
```

2.4.1.1 description

Syntax

```
description DESC_STRING
```

Description

This command is used to set the description of the load balancing pool.

Table 2-42 Parameters of description

Parameter	Description and Values	Default Values
DESC_STRING	You can set the description for load balancing pool. Maximum size of the string is 24. String can include alphabets, numbers, space, hyphen, underscore, or brackets ().	N/A

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# lb database
```

```
MaxCore(lb-1-1-11-1-1-0-1-database)# pool 1
```

```
MaxCore(pool-1-1-11-1-1-0-1-database-1)# description pool-1
```

2.4.1.2 destination ip_address

Syntax

```
destination ip_address DEST_PREFIX
no_destination [ip_address DEST_PREFIX]
```

Description

This command is used to configure destination IPv4 network or address of the traffic to be load balanced by the pool.

Use **no** form of this command to remove the specified configured destination IP address. The IPv4 destination address is optional when using this command. If no IP address is specified, this command removes all the configured destination IP addresses.

Table 2-43 Parameters of destination ip_address

Parameter	Description and Values	Default Values
DEST_PREFIX	IPv4 address of the pool traffic. Format is ipv4 address/mask.	N/A

Example

```
MaxCore(pool-1-1-3-1-1-0-1-database-1)# destination ip_address  
10.10.10.1/32
```

```
MaxCore(pool-1-1-3-1-1-0-1-database-1)# no_destination ip_address  
10.10.11.0/24
```

2.4.1.3 member

Syntax

```
member ip_address IPADDR [state (enable | disable)][weight  
VALUE][id MEMBER-ID]
no_member id MEMBER_ID
```

Description

This command is used to associate a pool member to the pool and to configure IP address. When the pool member is being created, it is mandatory to specify its IP address. If no member id is specified, the application generates the pool member ID.

This command is also used to enable or disable the pool member and configure weight of the pool member. By default, the pool member is in disabled state. On enabling the pool member, the pool member is ready for SLB based on the pool configuration.

If state is not specified, then the state of the pool member is disable.

Use **no** form of this command to dissociate the pool member from the pool and then delete the pool member.

Table 2-44 Parameters of member

Parameter	Description and Values	Default Values
MEMBER-ID	Pool member identifier. This is optional parameter. Range of values is 1 – 512.	N/A
IPADDR	IP address of the pool member.	N/A
enable/disable	enable: Pool member is treated as ready for SLB. disable: Pool member is not ready for load balancing.	disable
VALUE	Pool member weight Valid Range is 1-10.	1

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# lb database
```

```
MaxCore(lb-1-1-11-1-1-0-1-database)# pool 1
```

```
MaxCore(pool-1-1-11-1-1-0-1-database-1) # member ip_address 1.1.1.1  
id 1 state enable weight 1
```


2.4.1.4 state

Syntax

```
state (enable | disable)
```

Description

This command is used to enable the pool. By default, the pool is in disabled state. Though the pool is enabled it is not effective in hardware unless a match-list is associated or load balancing criteria is configured.

Disable state disables the pool. That means, the pool is not effective till it is enabled again.

Example

```
MaxCore(switch-1-1-11-1-1-0-1)# lb database
```

```
MaxCore(lb-1-1-11-1-1-0-1-database)# pool 1
```

```
MaxCore(pool-1-1-11-1-1-0-1-database-1)# state enable
```

2.5 Match List CLI

This section contains Match list commands for configuring a match list to perform various actions on the matched packets.

If match-list is created only with inports and redirect_port action, port mask is created with high priority. Any other match-list on those ports, though created will be overridden by port mask.

Port mask creates a virtual switching environment between the ingress and egress ports. That means, frames from the inport is forwarded only to the port that is specified in redirect-port.

2.5.1 table

Syntax

```
table TABLE_ID
```

Command Mode

Configure mode

Description

Use this command to enter into table mode and configure match-list entries.

Table 2-45 Parameters of table

Parameter	Description and Values	Default Values
TABLE_ID	Table Identifier Range: 1 (TCAM0), 2 (TE)	N/A

Example

```
# configure terminal
MaxCore(switch-1-1-11-1-1-0-1)# table 1
MaxCore(table-1-1-11-1-1-0-1-1)#
```

2.5.2 match_list

Syntax

```
match_list MATCH_LIST_ID
no_match_list id MATCH_LIST_ID
```

Command Mode

Table mode

Description

Use `match_list` command to configure a match list for performing various actions on the matched packets. Use this command to control the transmission of packets and to update various contents in the packets.

This command changes the mode to match-list mode, where various parameters can be specified to match the packets that flow through the switch.

Table 2-46 Parameters of match_list

Parameter	Description and Values	Default Values
MATCH_LIST_ID	Match_list identifier. Range of values is 1-2048.	N/A

Example

```
# configure terminal
MaxCore(switch-1-1-11-1-1-0-1)# table 1
MaxCore(table-1-1-11-1-1-0-1-1)# match_list 2
MaxCore(match_list-1-1-11-1-1-0-1-1-2)#
```

2.5.3 priority

Syntax

```
priority PRIORITY
no_priority
```

Command mode

Match-list mode

Description

Use this command to configure the priority of a match list entry in the table.

Table 2-47 Parameters of priority

Parameter	Description and Values	Default Values
PRIORITY	Match_list priority. Higher the value, higher the priority of the match-list. Range of value is 0-65535.	0

Example

```
# configure terminal
MaxCore(switch-1-1-11-1-1-0-1)# table 1
MaxCore(table-1-1-11-1-1-0-1-1)# match_list 2
MaxCore(match_list-1-1-11-1-1-0-1-1-2)# priority 2
```

2.5.4 match_l2param

Syntax

```
match_l2param {dstmac DSTMAC dstmask DSTMASK | ethertype ETHERVALUE
| innervlan INNERVLANID | srcmac SRCMAC srcmask SRCMASK | outervlan
OUTERVLANID}
```

Command mode

Match-list mode

Description

Use this command to specify L2 parameters that need to be matched. Use `match_l2param` to specify the L2 parameters and their values based on which the actions are applied to control the transmission of packets and update various contents in the packets.

Table 2-48 Parameters of match_l2param

Parameter	Description and Values
DSTMAC	To match destination MAC address. MAC address in format HHHH.HHHH.HHHH
DSTMASK	To mask out destination MAC address to match. Mask follows MAC address format HHHH.HHHH.HHHH If no mask is provided, default mask is FFFF.FFFF.FFFF
INNERVLANID	To match inner vlan-id in double-tagged packets. This is useful when vlan-stacking is in use. Range of values is 2-4022.
ETHERVALUE	To match ethertype field of the packet. Note that TPID should not to be matched against ethertype. Range of values is 0x0000 - 0xFFFF.
OUTERVLANID	To match VLAN-id in single-tagged packet. In case of double-tagged packet, it matches the outer vlan-id.
SRCMAC	To match Source MAC address. MAC address in format HHHH.HHHH.HHHH
SRCMASK	To mask out Source MAC address to match. Mask follows MAC address format HHHH.HHHH.HHHH If no mask is provided, default mask is FFFF.FFFF.FFFF

Example

```
# configure terminal
MaxCore(switch-1-1-11-1-1-0-1)# table 1
MaxCore(table-1-1-11-1-1-0-1-1)# match_list 2
MaxCore(match_list-1-1-11-1-1-0-1-1-2)# match_l2param dstmac
0000.0000.1111 dstmask ffff.ffff.ffff innervlan 10
```

2.5.5 match_l3param

Syntax

```
match_l3param {dstip DSTIPV4ADDR dstmask IPV4MASK | protocolid
PROTOID | srcip SRCIPV4ADDR srcmask IPV4MASK}
```

Command mode

Match-list mode

Description

Use `match_l3param` command to specify L3 parameters that need to be matched. L3 parameters will be working with both L3 and ARP traffic. Use this command to specify the L3 parameters and their values based on which the actions are applied to control the transmission of packets and update various contents in the packets.

Table 2-49 Parameters of match_l3param

Parameter	Description and Values
DSTIPV4ADDR	To match on destination IPv4 address.
IPV4MASK	To mask the value of corresponding IPv4 address. If no mask is provided, default mask is 255.255.255.255
PROTOID	To match Protocol-ID in the IPv4 header.
SRCIPV4ADDR	To match on source IPv4 address.

Example

```
# configure terminal

MaxCore(switch-1-1-11-1-1-0-1)# table 1

MaxCore(table-1-1-11-1-1-0-1-1)# match_list 2

MaxCore(match_list-1-1-11-1-1-0-1-1-2)# match_l3param dstip
10.10.10.10 dstmask 255.255.255.255 protocolid 6
```

2.5.6 match_l4param

Syntax

```
match_l4param {l4srcport SRCPORT l4srcmask MASK | l4dstport DSTPORT
l4dstmask MASK}
```

Command mode

Match_list mode

Description

Use the `match_l4param` command to specify L4 parameters that are to be matched. It is required to configure L3 Protocol ID when configuring to match for L4 port parameters.

Use `match_l4param` to specify the L4 parameters and their values based on which the actions are applied to control the transmission of packets and update various contents in the packets.

Table 2-50 Parameters of match_l4param

Parameter	Description and Values
DSTPORT	To match destination port number in L4 header. Port number of range 0-65535.
SRCPORT	To match source port number in L4 header. Port number of range 0-65535.
MASK	Mask need to be given in hexadecimal format. Range of values is 0x0000 - 0xFFFF. If no mask is provided, by default it is FFFF

Example

```
# configure terminal
MaxCore(switch-1-1-11-1-1-0-1)# table 1
MaxCore(table-1-1-11-1-1-0-1-1)# match_list 2
```

```
MaxCore(match_list-1-1-11-1-1-0-1-1-2)# match_l4param l4dstport
100 l4srcport 200

# configure terminal

MaxCore(switch-1-1-11-1-1-0-1)# table 1

MaxCore(table-1-1-11-1-1-0-1-1)# match_list 3

MaxCore(match_list-1-1-11-1-1-0-1-1-3)# match_l4param l4srcport 22
l4srcmask 0xFFFF l4dstport 5678 l4dstmask 0xFFFF
```

2.5.7 match_port

Syntax

```
match_port (inports PORT)
```

Command mode

Match-list mode

Description

Use this command to specify the ports on which the match rule has to be applied. If this is not specified, the rule is applied on all physical and VF ports of the chip.

Table 2-51 Parameters of match_port

Parameter Name	Description and Values
PORT	To specify the ports on which the match rule has to be applied. If this is not specified, the rule is applied on all physical and VF ports of the switch. The valid ports are "physical" and "VF".

Example

```
# configure terminal

MaxCore(switch-1-1-11-1-1-0-1)# table 1

MaxCore(table-1-1-11-1-1-0-1-1)# match_list 2
```



```
MaxCore(match_list-1-1-11-1-1-0-1-1-2)# match_port inports sw1p1
```



Multiple inports ports are not supported due to hardware limitation.

2.5.8 rule match_list

Syntax

```
rule match_list MATCHLISTID {redirect_slb SLBPOOLID | redirect_port
REDIRECTPORT | drop DROP| modify_vlanid MOD-VLANID |
modify_pktpriority MOD-PKTPRIORITY | modify_dstmac MOD-DSTMAC |
modify_dscp MOD-DSCP | copytocpu CPU| modify_IntPriority MOD-
INTPRIORITY | modify_pktIntPriority MOD-PKTINTPRIORITY | count
COUNT| goto_table GOTOLISTID | pop_vlan POP_VLAN | push_vlan
PUSH_VLAN | redirect_lbg REDIRECT_LBG | mirror_dest MIRROR_DEST}

no_rule match_list MATCHLISTID
```

Command mode

Table mode

Description

Use `rule match_list` command to apply an action based on the specified match-list. This allows you to control the transmission of packets or to modify the packets, if a packet matches with the specified match-list. This command allows configuring multiple actions for a match-list.

Table 2-52 Parameters of rule match_list

Parameter	Description and Values
MATCHLISTID	Range of values is 1-2048.

Table 2-52 Parameters of rule match_list (continued)

Parameter	Description and Values
SLBPOOLID	To redirect matched packets to server load balancing (ECMP) pool-id. Range is 1 -16. This configuration is not effective in hardware unless the selected pool id is in enable state.
REDIRECTPORT	To redirect the matched packets to port irrespective of the VLAN settings. Values are physical ports and virtual functions. Multiple redirect_port ports are not supported due to hardware limitation. If input is a VF port, you have to provide one more action parameter.
DROP	To configure if the matched packets are to be dropped. Values: true, false
MOD-VLANID	To modify VLAN-tag in the matched VLAN-tagged packets. Range of values is 2-4022.
MOD-PKTPRIORITY	To modify priority in the 802.1Q tag header. Range of values is 0-7.
MOD-DSTMAC	To modify destination MAC address in the matched packets. This is not supported in this release.
MOD-DSCP	To modify DSCP field in the IP header. Range of values is 0-63.
CPU	To forward the matched packets to the CPU port. Values: true, false
MOD-INTPRIORITY	To direct the matched packets to a priority queue of the switch. This does not modify priority field in the 802.1Q tag header. Range of values is 0-7.
MOD-PKTINTPRIORITY	To modify priority in 802.1Q tag header and to direct the matched packets to a priority queue of the switch. Range of values is 0-7.
COUNT	To count the matched packets against the match-list. Values: true, false
GOTOLISTID	To match flow against a Match-list in a different table. It is a string of "table-id/match-list id". The referenced match-list should be existing, else an error is thrown. This is not supported in this release.

Table 2-52 Parameters of rule match_list (continued)

Parameter	Description and Values
POP_VLAN	To pop inner and outer VLAN headers. This parameter should be clubbed with modify_vlanid, due to hardware limitation. Values: true, false
PUSH_VLAN	To push an inner or an outer VLAN header. Values: true, false
REDIRECT_LBG	To redirect packet to the specified load balancing group. If the LBG does not exist, the same will be created in INIT state. However, the LBG is not effective, until members are added and set to active. Range of values is 1 - 16.
MIRROR_DEST	To mirror packets to VF or physical port. This action is valid only if match_port parameter is configured. It is applicable for match_port params for VF port only. Valid inputs are physical and VF ports. To configure this action, mirror should be configured before match list. Values: interface name.



Modify DSCP and Modify VLAN cannot coexist in the same Match-list due to hardware limitation.



If no other action or match condition is clubbed with match_port inports and action redirect_port, port mask feature is enabled, which makes the ports exchange traffic only among themselves. To enable a matchlist to override this feature for the same combination, it need to be combined with another action or qualifier. For example, in order to redirect traffic to a VF from another port, you may include action like count.

Example

```
# configure terminal
```

```
MaxCore(table-1-1-11-1-1-0-1-1)# rule match_list 2 redirect_slb 1
```

```
MaxCore(table-1-1-11-1-1-0-1-1)# rule match_list 3 modify_vlanid 10
modify_dscp 30
```

2.5.9 state

Syntax

```
state enable STATE match_list MATCHLISTID
```

Command mode

Table mode

Description

Use this command to set the state of match list entry to enable or disable. A matchlist entry cannot be updated when it is enabled. You have to disable the matchlist entry to modify it and enable it after modification.

Table 2-53 Parameters of state

Parameter	Description and Values	Default Values
STATE	Matchlist state. When set to true, the matchlist entry is enabled and when set to false it is disabled and then be modified. In enabled state, match list is active to apply action on the incoming matched flow. Values: True, False	N/A
MATCHLISTID	Matchlist entry Identifier for which the state is to be modified.	N/A

Example

```
# configure terminal
```

```
MaxCore(switch-1-1-11-1-1-0-1)# table 1
```

```
MaxCore(table-1-1-11-1-1-0-1-1)# state enable true match_list 10
```

2.6 Load Balancing Group CLI

Load Balancing Group CLI commands are used to configure traffic load balancing parameters to a set of physical ports or virtual functions.

2.6.1 lbg

Syntax

```
lbg LBGID
```

```
no_lbg id LBGID
```

Command mode

LB mode

Description

Use this command to create a Load balancing group. If it does not exist, enter the LBG mode to configure the LBG.

Use **no** form of this command to delete the LBG.

Table 2-54 Parameters of LBG

Parameter	Description and Values	Default Values
LBGID	Identifier to uniquely identify Load Balancing Group. Range of values is 1-16.	N/A

Example

```
# configure terminal
(config)# lb database
(config-database)# lbg 1
(config-database-1)#
```

2.6.2 lbg_mode

Syntax

```
lbg_mode mode MODE
```

Command mode

LBG mode

Description

Use this command to configure mode of an LBG. The modes that are supported are preemptive and non-preemptive. Based on the configured mode, the ports will assume roles when they are UP and RUNNING. If mode is not configured for an LBG, by default, it assumes preemptive mode.



This command cannot be configured, if the LBG is in ENABLED state. Currently, only Preemptive mode is supported.

Table 2-55 Parameters of lbg_mode

Parameter	Description and Values	Default Values
MODE	<p>Preemptive: If an active port goes down and comes up, then it assumes its active role and bins are remapped to the port.</p> <p>Non-preemptive: Bins are not remapped even though the active port becomes up from down state. From then onwards active port acts as a Backup port to the LBG.</p>	N/A

Example

```
# configure terminal
(config)# lb database
(config-database)# lbg 1
```

```
(config-database-1)# lbg_mode mode preemptive
```

2.6.3 member

Syntax

```
member port PORTLIST
```

```
no_member port PORTLIST
```

Command mode

LBG mode

Description

Use this command to configure a list of member ports to an LBG. By default, all the ports are configured as active, unless specified using `lbg_backup` command. All the active member ports participate in load balancing.

Use **no** version of the command to remove port(s) from the LBG.



This command cannot be configured, if the LBG is in ENABLED state.

Table 2-56 Parameters of member

Parameter	Description and Values	Default Values
PORTLIST	The list of ports that are to be configured as member ports of an LBG. Port names must be separated by commas.	N/A

Example

```
# configure terminal
```

```
(config)# lb database
```

```
(config-database)# lbg 1
```

```
(config-database-1)# member port sw1p20.1,sw1p20.2,sw1p2,sw1p3
```

2.6.4 port_weight

Syntax

```
port_weight weight WEIGHT ports PORTLIST
```

Command mode

LBG mode

Description

Use this command to configure weight to a list of member ports in an LBG. The ports to be mentioned here should have already been configured as member ports of the LBG.



By default, all the ports are configured with weight 1.

This command cannot be configured, if the LBG is in ENABLED state.



LBG members are distributed across the buckets/bins based on weight configuration. However, traffic is mapped to buckets based on the hash algorithm of hardware, thus the traffic distribution may not be in the exact ratio of weights configured.

Table 2-57 Parameters of port_weight

Parameter	Description and Values	Default Values
WEIGHT	The weight that need to be configured for the list of the ports.	N/A
PORTLIST	The list of ports that are to be configured with the specified weight. Port names must be separated by commas.	N/A

Example

```
# configure terminal
(config)# lb database
(config-database)# lbg 1
(config-database-1)# member port swlp20.1,swlp20.2,swlp2,swlp3
(config-database-1)# port_weight weight 2 ports
swlp20.1,swlp20.2,swlp2
```

2.6.5 lbg_switchover_list

Syntax

```
lbg_switchover_list on_inactive PORT port_list SWITCHOVERLIST
```

Command mode

LBG mode

Description

Use this command to configure list of ports to which the traffic need to be distributed in case an active port goes down. This list of ports is called Switchover list. The ports mentioned here should have already been configured as member ports of the LBG.



By default, none of the ports act as switchover ports. This switchover port list need to be explicitly configured.

This command cannot be configured, if the LBG is in ENABLED state.

Table 2-58 Parameters of lbg_switchover_list

Parameter	Description and Values	Default Values
PORT	The port for which switchover list is being configured.	N/A

Table 2-58 Parameters of `lbg_switchover_list`

Parameter	Description and Values	Default Values
SWITCHOVERLIST	<p>The list of ports that need to share the traffic in case of port down event. Port names must be separated by commas.</p> <p>Predefined keywords “all”, “none” are supported.</p> <p>all: Traffic will be load balanced to all the active ports of LBG.</p> <p>none: To configure none of the ports for switchover. In this case, if an active port goes down, the traffic distributed to that port will be dropped.</p>	

Example

```
# configure terminal
(config)# lbg database
(config-database)# lbg 1
(config-database-1)# lbg_switchover_list on_inactive sw1p20.1 list
sw1p20.1,sw1p20.2,sw1p2
```

2.6.6 lbg_backup

Syntax

```
lbg_backup port_list BACKUPLIST
```

Command mode

LBG mode

Description

Use this command to configure list of backup ports to the LBG. Backup ports do not participate in Load balancing until an active port goes down. When an active port goes down, one of the backup ports will take over the traffic that is directed to that active port. The ports mentioned here should have already been configured as member ports of the LBG.



If backup port list is empty, only then the traffic is load balancing to Switchover list of ports.

This command cannot be configured, if the LBG is in ENABLED state.

Table 2-59 Parameters of `lbg_backup`

Parameter	Description and Values	Default Values
BACKUPLIST	<p>The list of ports that act as backup to active ports. One of the backup ports participates in load balancing only if an active port goes down.</p> <p>Port names must be separated by commas.</p> <p>Predefined keyword “none” is supported.</p> <p>None: To configure none of the ports for backup. In this case, if an active port goes down, traffic is distributed to the ports in switchover list. If switchover list is empty, then the traffic associated to that active port will be dropped.</p>	N/A

Example

```
# configure terminal
(config)# lb database
(config-database)# lbg 1
(config-database-1)# lbg_backup port_list sw1p21.1,sw1p21.2
```

2.6.7 state

Syntax

```
state STATE
```

Command mode

LBG mode

Description

Use this command to enable or disable an LBG. Before any configuration change of an LBG, it is required that the LBG should be disabled first. LBG will be effective only if it is enabled explicitly and a matchlist is associated to the LBG.

Table 2-60 Parameters of state

Parameter	Description and Values	Default Values
STATE	<p>Enable: To activate an LBG. Once enabled, even if one of the active ports is up and running and a matchlist is associated, LBG is installed on hardware.</p> <p>Disable: To deactivate an LBG. If an LBG is already installed on hardware, it is uninstalled.</p>	N/A

Example

```
# configure terminal
(config)# lb database
(config-database)# lb 1
(config-database-1)# state enable
```

Related Documentation

A.1 Artesyn Embedded Technologies - Embedded Computing Documentation

The publications listed below are referenced in this manual. You can obtain electronic copies of Artesyn Embedded Technologies - Embedded Computing publications by contacting your local Artesyn sales office. For released products, you can also visit our Web site for the latest copies of our product documentation.

1. Go to www.artesyn.com/computing/support/product/technical-documentation.php.
2. Under **FILTER OPTIONS**, click the **Document types** drop-down list box to select the type of document you are looking for.
3. In the **Search** text box, type the product or document name and click **Filter**.

Table A-1 Artesyn Embedded Technologies - Embedded Computing Publications

Document Title	Publication Number
SSF for MaxCore™ MC3000 Platform XML Interface Guide	6806800T71
SSF for MaxCore™ MC3000 Platform Installation and Use	6806800T81
SharpSwitch PCIE-9205 Installation and Use	6806800U18



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