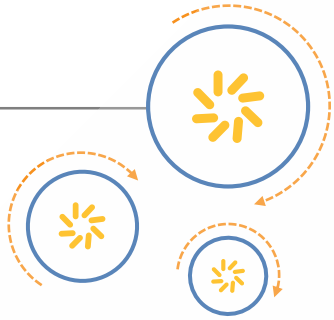
Qualcomm Atheros, Inc.



IPQ4018/IPQ4028/IPQ4019/IPQ4029 Switch Software Development Kit Diagnostic Shell

User Guide

80-Y9571-9 Rev. B

November 18, 2015

For additional information or to submit technical questions go to https://createpoint.qti.qualcomm.com/

Qualcomm Atheros, Inc.
1700 Technology Drive
San Jose, CA 95110
U.S.A.

Revision history

Revision	Date	Description
A	June 2015	Initial release
B	November 2015	Add 2.14.24 to 2.14.36.

Contents

1 Overview 9

1.1 Command line interface 9

2 SSDK Commands 11

2.1 ACL commands 11
2.2 List 11
2.2.1 Rule 12
2.2.2 srcfiltersts 13
2.2.3 Status 13
2.2.4 Udfprofile 13
2.3 COSMAP commands 13
2.3.1 dscp2pri 14
2.3.2 dscp2dp 14
2.3.3 up2pri 14
2.3.4 up2dp 14
2.3.5 dscp2ehpri 15
2.3.6 dscp2ehdp 15
2.3.7 up2ehpri 15
2.3.8 up2ehdp 15
2.3.9 pri2q 15
2.3.10 pri2ehq 16
2.3.11 egRemark 16
2.4 FDB commands 16
2.4.1 Entry 17
2.4.2 portEntry 21
2.4.3 firstEntry 21
2.4.4 nextEntry 21
2.4.5 portLearn 22
2.4.6 ageCtrl 22
2.4.7 Vlansmode 22
2.4.8 ageTime 23
2.4.9 Ptlearnlimit 23
2.4.10 ptlearnexceedcmd 23
2.4.11 learnlimit 23
2.4.12 Learnexceedcmd 23
2.4.13 Resventry 24
2.4.14 ptLearnstatic 25
2.4.15 port 25
2.5 IGMP commands 25
2.5.1 Mode 26
2.5.2 cmd 26
2.5.3 portJoin 26
2.5.4 portLeave 27
2.5.5 rp 27
2.5.6 createStatus 27
2.5.7 Static 28
2.5.8 Leaky 28
2.5.9 version3 28
2.5.10 Queue 29
2.5.11 Ptlearnlimit 29
2.5.12 Ptlearnexceedcmd 29

2.5.13 Multi 29
2.6 DEBUG commands 30
2.6.1 Phy 31
2.6.2 Reg 31
2.6.3 Field 31
2.6.4 aclList 31
2.6.5 aclRule 31
2.6.6 Device 31
2.6.7 Ssdk 31
2.7 IP commands 32
2.7.1 Hostentry 32
2.7.2 ptarpleran 34
2.7.3 arplearn 34
2.7.4 Ptipsrcguard 34
2.7.5 ptarpsrcguard 34
2.7.6 routestatus 34
2.7.7 Intfentry 35
2.7.8 ipunksrc 35
2.7.9 arpunksrc 35
2.7.10 ipagetime 35
2.7.11 wcmphashmode 35
2.7.12 vrfbaseaddr 36
2.7.13 vrfbasemask 36
2.7.14 defaultroute 36
2.7.15 hosttroute 36
2.7.16 ip4rfs 36
2.7.17 ip6rfs 36
2.7.18 defaultflowcmd 37
2.7.19 defaultrtflowcmd 37
2.7.20 wcmpentry 37
2.8 LEAKY commands 37
2.8.1 ucMode 37
2.8.2 mcMode 37
2.8.3 arpMode 38
2.8.4 ptUcMode 38
2.8.5 ptMcMode 38
2.9 LED commands 38
2.9.1 Ctrlpattern 38
2.10 MIB commands 39
2.10.1 Statistics 39
2.10.2 Status 40
2.10.3 Counters 40
2.10.4 cpuKeep 40
2.11 MIRROR commands 40
2.11.1 analyPt 40
2.11.2 ptIngress 40
2.11.3 ptEgress 40
2.12 MISC commands 41
2.12.1 frameMaxSize 41
2.12.2 ptUnkUcFilter 41
2.12.3 ptUnkMcFilter 42
2.12.4 ptBcFilter 42
2.12.5 cpuPort 42
2.12.6 PppoeCmd 42
2.12.7 Pppoe 42
2.12.8 ptDhcp 42
2.12.9 arpCmd 43
2.12.10 eapolCmd 43
2.12.11 eapolStatus 43
2.12.12 Rip 43
2.12.13 Ptarpreq 43

2.12.14 Ptarpack 43
2.12.15 Extendpppoe 44
2.12.16 glomacaddr 44
2.12.17 lldp 44
2.12.18 framecrc 44
2.13 NAT commands 45
2.13.1 Natentry 45
2.13.2 naptentry 48
2.13.3 natstatus 53
2.13.4 Nathash 53
2.13.5 Naptmode 53
2.13.6 Prvbaseaddr 53
2.13.7 Prvbasemask 53
2.13.8 Prvaddrmode 53
2.13.9 pubaddr 53
2.13.10 natunksess 54
2.13.11 flowentry 54
2.13.12 flowcookie 57
2.13.13 flowrfs 57
2.14 PORT_CTRL commands 58
2.14.1 Duplex 59
2.14.2 speed 59
2.14.3 autoAdv 59
2.14.4 autoNeg 60
2.14.5 header 60
2.14.6 txhdr 60
2.14.7 rxhdr 60
2.14.8 hdrtype 60
2.14.9 flowCtrl 61
2.14.10 flowCtrlforcemode 61
2.14.11 powersave 61
2.14.12 hibernate 61
2.14.13 cdt 62
2.14.14 txmacstatus 62
2.14.15 rxmacstatus 62
2.14.16 txfcstatus 62
2.14.17 rxfcstatus 62
2.14.18 bpstatus 63
2.14.19 linkforcemode 63
2.14.20 linkstatus 63
2.14.21 macLoopback 63
2.14.22 congestionDrop 63
2.14.23 ringfcthreshold 64
2.14.24 Ieee8023az 64
2.14.25 Crossover 64
2.14.26 Prefermedium 64
2.14.27 Fibermode 64
2.14.28 LocalLoopback 65
2.14.29 RemoteLoopback 65
2.14.30 Reset 65
2.14.31 Poweroff 65
2.14.32 Poweron 65
2.14.33 MagicFramemac 65
2.14.34 Phyid 66
2.14.35 Wol 66
2.14.36 Interfacemode 66
2.15 PORT_VLAN commands 64
2.15.1 Ingress 67
2.15.2 Egress 67
2.15.3 member 67
2.15.4 forceVid 68
2.15.5 forceMode 68

2.15.6 nestVlan....68
2.15.7 sVlanTPID....69
2.15.8 Invlan....69
2.15.9 tlsMode....69
2.15.10 priPropagation....69
2.15.11 defaultSVid....69
2.15.12 defaultCVid....70
2.15.13 vlanPropagation....70
2.15.14 translation....70
2.15.15 qinqMode....71
2.15.16 qinqRole....71
2.15.17 macvlanxlt....71
2.15.18 netiso....71
2.15.19 Egbypass....71
2.15.20 Vrf_id....72
2.16 QoS commands....72
2.16.1 qTxBufSts....72
2.16.2 qTxBufNr....73
2.16.3 ptTxBufSts....73
2.16.4 ptRedEn....73
2.16.5 ptTxBufNr....73
2.16.6 ptRxBufNr....74
2.16.7 ptMode....74
2.16.8 ptModePri....74
2.16.9 ptschMode....75
2.16.10 ptDefaultSpri....75
2.16.11 ptDefaultCpri....75
2.16.12 ptFSpriSts....75
2.16.13 ptFCpriSts....75
2.16.14 ptQuRemark....76
2.17 RATE commands....76
2.17.1 Portpolicer....76
2.17.2 portshaper....78
2.17.3 queueshaper....78
2.17.4 aclpolicer....79
2.17.5 ptAddRateByte....79
2.17.6 ptgolflowen....79
2.18 SEC commands....80
2.18.1 mac resv_vid....81
2.18.2 mac invalid_src_addr....81
2.18.3 ip invalid_ver....81
2.18.4 ip set same_addr....82
2.18.5 ip ttl_change_status....82
2.18.6 ip ttl_val....82
2.18.7 ip4 invalid_hl....82
2.18.8 ip4 hdr_opts....83
2.18.9 ip4 invalid_df....83
2.18.10 ip4 frag_offset_min_len....83
2.18.11 ip4 frag_offset_min_size....83
2.18.12 ip4 frag_offset_max_len....84
2.18.13 ip4 invalid_frag_offset....84
2.18.14 ip4 invalid_sip....84
2.18.15 ip4 invalid_dip....84
2.18.16 ip4 invalid_chksum....85
2.18.17 ip4 invalid_pl....85
2.18.18 ip4 df_clear_status....85
2.18.19 ip4 ipid_random_status....85
2.18.20 ip6 invalid_dip....85
2.18.21 ip6 invalid_sip....86
2.18.22 ip6 invalid_pl....86
2.18.23 tcp blat....86
2.18.24 tcp invalid_hl....86

2.18.25 tcp min_hdr_size 87
2.18.26 tcp invalid_syn 87
2.18.27 tcp su_block 87
2.18.28 tcp sp_block 87
2.18.29 tcp sap_block 88
2.18.30 tcp xmas_scan 88
2.18.31 tcp null_scan 88
2.18.32 tcp sr_block 88
2.18.33 tcp sf_block 88
2.18.34 tcp sar_block 89
2.18.35 tcp rst_scan 89
2.18.36 tcp rst_with_data 89
2.18.37 tcp fa_block 89
2.18.38 tcp pa_block 90
2.18.39 tcp ua_block 90
2.18.40 tcp invalid_chksum 90
2.18.41 tcp invalid_urgptr 90
2.18.42 tcp invalid_opts 91
2.18.43 udp blat 91
2.18.44 udp invalid_len 91
2.18.45 udp invalid_chksum 91
2.18.46 icmp4 ping_pl_exceed 92
2.18.47 icmp4 ping_frag 92
2.18.48 icmp4 ping_max_pl 92
2.18.49 icmp6 ping_pl_exceed 92
2.18.50 icmp6 ping_fr 93
2.18.51 icmp6 ping_max_pl 93
2.19 STP commands 93
2.19.1 portState 93
2.20 TRUNK commands 94
2.20.1 Group 94
2.20.2 Hashmode 94
2.21 VLAN commands 94
2.21.1 Entry 94
2.21.2 Fid 95
2.21.3 Member 95
2.21.4 learnsts 96

1 Overview

This document provides comprehensive reference for understanding and configuring SSDK using the diagnostic shell. The diagnostic shell is a general Command Line Interpreter (CLI) that provides precise control of a chip-embedded reference platform. CLI commands are created based on FAL APIs for debugging.

1.1 Command line interface

To get CLI commands help, enter a question mark at the CLI prompt dev0@qca>.

```
root@OpenWrt:/# ssdk_sh

 SSDK Init OK!
 Welcome to SSDK Shell version: 1.2.0.2, at 2013-12-20-05:43:25.
dev0@qca>
dev0@qca>?
port        config port control
vlan        config VLAN table
portVlan    config port base VLAN
fdb         config FDB table
acl         config ACL
qos         config Qos
igmp        config IGMP/MLD
leaky       config leaky
mirror      config mirror
rate        config rate limit
sec         config security
stp         config STP
mib         show MIB statistics information
led         set/get led control pattern
cosmap      set/get cosmap table
```

```
misc       config miscellaneous
ip         config IP
nat        config NAT
trunk      config trunk
interface  config interface
debug      read/write register
device     set device id
help       type ? get help
quit       type quit/q quit shell

dev0@qca>
```

To get help for name or parameters of a specific command, enter a question mark or press the Tab key.

```
dev0@qca>port ?
duplex      speed      autoAdv     autoNeg     header
txhdr       rxhdr      hdrtype     flowCtrl    flowCtrlforcemode
powersave   hibernate   cdt         txmacstatus rxmacstatus
txfcstatus  rxfcstatus  bpstatus    linkforcemode linkstatus
macLoopback
```

NOTE: All CLI commands and parameters are case-insensitive.

2 SSDK Commands

2.1 ACL commands

Command	Description
list	Create and destroy ACL list, bind and unbind ACL list on particular port.
rule	Add, delete and query ACL rules in an ACL list.
srcfiltersts	Configure one a hardware ACL rule status.
status	Enable and disable ACL engine.
udfprofile	Configure user define field offset and length on a particular port.

2.2 List

Command	Description
acl list create <list_id> <priority>	Create an ACL list with given ID and priority. ▪ list_id = 0-255 ▪ priority = 0-255
acl list destroy <list_id>	Destroy an ACL list.
acl list bind <list_id> <0-0:direction> <0-0:objtype> <objindex>	Bind an ACL list on one particular port. ▪ list_id = 0-255 ▪ direction = 0 ▪ objtype = 0 ▪ objindex = 0-6
acl list unbind <list_id> <0-0:direction> <0-0:objtype> <objindex>	Unbind an ACL list on one particular port. ▪ list_id = 0-255 ▪ direction = 0 ▪ objtype = 0 ▪ objindex = 0-6

2.2.1 Rule

Command	Description
acl rule add <list_id> <rule_id> <rule_nr> rule type: mac mac dst addr field(no): mac src addr field(no): ethernet type field(no): vlanid field(no): vlan tagged field(no): up field(no): cfi field(no): svlan tagged field(no): stag vid field(no): stag pri field(no): stag dei field(no): cvlan tagged field(no): ctag vid field(no): ctag pri field(no): ctag cfi field(no): user define field(no): rule inverse(no): permit(yes): deny(no): rdt to cpu(no): rdt to port(no): copy to cpu(no): mirror(no): remark dscp(no): remark up(no): remark queue(no): modify vlan(no): nest vlan(no): stag vid(0): ctag vid(0): lookup vid change(no): stag vid change(no): stag pri change(no): stag dei change(no): ctag vid change(no): ctag pri change(no): ctag cfi change(no): police en(no): wcmp en(no): arp en(no): policy en(no): eg bypass(no): trigger intr(no):	Add ACL rule in an ACL list. ▪ list_id = 0-255 ▪ rule_id = 0-95 ▪ rule_nr = 0-95 The following fields will depend on your selection. For example, select mac dst addr fiels ad yes: mac dst addr field(no): yes below destination fields shall be input: dst mac addr: dst mac addr mask: In this way, any field can be selected if you want to check. It is same to action selection.

Command	Description
acl rule del <list_id> <rule_id> <rule_nr>	Delete ACL rule in an ACL list. ▪ list_id = 0-255 ▪ rule_id = 0-95 ▪ rule_nr = 0-95
acl rule query <list_id> <rule_id>	Query and show one ACL rule in an ACL list. ▪ list_id = 0-255 ▪ rule_id = 0-95
acl rule active <list_id> <rule_id> <rule_nr>	Active ACL rule in an ACL list. ▪ list_id = 0-255 ▪ rule_id = 0-95 ▪ rule_nr = 0-95
acl rule deactive <list_id> <rule_id> <rule_nr>	Deactive ACL rule in an ACL list. ▪ list_id = 0-255 ▪ rule_id = 0-95 ▪ rule_nr = 0-95

2.2.2 srcfiltersts

Command	Description
acl srcfiltersts set <rule_id> <enable|disable>	Set one hardware ACL rule entry active status. ▪ rule_id = 0-95
acl srcfiltersts get <rule_id>	Get one hardware ACL rule entry active status.

2.2.3 Status

Command	Description
acl status set <enable|disable>	Set ACL engine status.
acl status get	Get ACL engine status.

2.2.4 Udfprofile

Command	Description
acl udfprofile set <port_id> <l2/l2snap/l3/l3plus/l4> <offset> <length>	Set user defined field offset and length on a particular port. ▪ Port_id = 0-6 ▪ Offset = offset value ▪ length = 0-15
acl udfprofile get <port_id> <l2/l2snap/l3/l3plus/l4>	Set user defined field offset and length on a particular port.

2.3 COSMAP commands

Command	Description
dscp2pri	Configure DSCP to internal priority mapping.

Command	Description
dscp2dp	Configure DSCP to drop precedence mapping.
up2pri	Configure 802.1P to internal priority mapping.
up2dp	Configure 802.1P to drop precedence mapping.
*dscp2ehpri	Configure DSCP to internal priority mapping for port 0, 5, 6.
*dscp2ehdp	Configure DSCP to drop precedence mapping for port 0, 5, 6.
*up2ehpri	Configure 802.1P to internal priority mapping for port 0, 5, 6.
*up2ehdp	Configure 802.1P to drop precedence mapping for port 0, 5, 6.
pri2q	Configure internal priority to queue mapping.
pri2ehq	Configure internal priority to enhanced queue mapping.
egRemark	Configure egress remark table.

1. * Available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.3.1 dscp2pri

Command	Description
cosmap dscp2pri set <dscp> <priority>	Set DSCP to internal priority mapping. ▪ Dscp = 0-63 ▪ Priority = 0-7
cosmap dscp2pri get <dscp>	Get DSCP to internal priority mapping.

2.3.2 dscp2dp

Command	Description
cosmap dscp2dp set <dscp> <dp>	Set DSCP to drop precedence mapping. ▪ Dscp = 0-63 ▪ Dp = 0-1
cosmap dscp2dp get <dscp>	Get DSCP to drop precedence mapping.

2.3.3 up2pri

Command	Description
cosmap up2pri set <up> <priority>	Set 802.1P to internal priority mapping. ▪ Up = 0-7 ▪ Priority = 0-7
cosmap up2pri get <up>	Get 802.1P to internal priority mapping.

2.3.4 up2dp

Command	Description
cosmap up2dp set <up> <dp>	Set 802.1P to drop precedence mapping. ▪ Up = 0-7 ▪ Dp = 0-1

Command	Description
cosmap up2dp get <up>	Get 802.1P to drop precedence mapping.

2.3.5 dscp2ehpri

Command	Description
cosmap dscp2ehpri set <dscp> <priority>	Set DSCP to internal priority mapping for port 0, 5, 6. ▪ Dscp = 0-63 ▪ Priority = 0-7
cosmap dscp2ehpri get <dscp>	Get DSCP to internal priority mapping for port 0, 5, 6.

1. Available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.3.6 dscp2ehdp

Command	Description
cosmap dscp2ehdp set <dscp> <dp>	Set DSCP to drop precedence mapping for port 0, 5, 6. ▪ Dscp = 0-63 ▪ Dp = 0-1
cosmap dscp2ehdp get <dscp>	Get DSCP to drop precedence mapping for port 0, 5, 6.

1. Available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.3.7 up2ehpri

Command	Description
cosmap up2ehpri set <up> <priority>	Set 802.1P to internal priority mapping for port 0, 5, 6. ▪ Up = 0-7 ▪ Priority = 0-7
cosmap up2ehpri get <up>	Get 802.1P to internal priority mapping for port 0, 5, 6.

1. Available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.3.8 up2ehdp

Command	Description
cosmap up2ehdp set <up> <dp>	Set 802.1P to drop precedence mapping for port 0, 5, 6. ▪ Up = 0-7 ▪ Dp = 0-1
cosmap up2ehdp get <up>	Get 802.1P to drop precedence mapping for port 0, 5, 6.

1. Available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.3.9 pri2q

Command	Description
cosmap pri2q set <priority> <queueid>	Set internal priority to queue mapping. ▪ Priority = 0-7 ▪ Queueid = 0-3
cosmap pri2q get <priority>	Get internal priority to queue mapping.

2.3.10 pri2ehq

Command	Description
cosmap pri2ehq set <priority> <queueid>	Set internal priority to port 0/5/6 queue mapping. ▪ Priority = 0-7 ▪ Queueid = 0-5
cosmap pri2ehq get <priority>	Get internal priority to port 0/5/6 queue mapping.

2.3.11 egRemark

Command	Description
cosmap egRemark set <tableid> <remark_dscp> <remark_up> <green_dscp> <yellow_dscp> <green_up> <yellow_up>	Set egress remark table. ▪ tableid = 0-15 ▪ remark_dscp = enable | disable ▪ remark_up = enable | disable ▪ green_dscp = 0-63, remark green frame DSCP ▪ yellow_dscp = 0-63, remark yellow frame DSCP ▪ green_up = 0-7, remark green frame 802.1P ▪ yellow_up = 0-7, remark yellow frame 802.1P
cosmap egRemark get <tableid>	Get egress remark table.

2.4 FDB commands

Command	Description
entry	Configure FDB entry.
portEntry	Configure FDB entry on a particular port.
firstEntry	Find first FDB entry.
nextEntry	Find next FDB entry.
portLearn	Configure dynamic address learning status on a particular port.
ageCtrl	Configure dynamic address aging status on particular device.
vlansmode	Configure FDB search mode when VLAN invalid.
ageTime	Configure dynamic address aging time.
ptlearnlimit	Configure dynamic address learning count limit on a particular port.
ptlearnexceedcmd	Configure dynamic address learning count exceed command on a particular port.
learnlimit	Configure dynamic address learning count limit.
learnexceedcmd	Configure dynamic address learning count exceed command
resventry	Configure reserved FDB entry.

Command	Description
ptLearnstatic	Configure FDB entry learning static status of a particular port.
port	Configure a port on an existing entry.

2.4.1 Entry

Command	Description
fdb entry add <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Add a FDB entry. ▪ Addr = xx-xx-xx-xx-xx-xx ▪ Fid = 0-65535 ▪ dacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ sacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ dest port = 0-6 ▪ static = yes | no ▪ leaky = yes | no ▪ mirror = yes | no ▪ clone = yes | no ▪ queue override = yes | no ▪ cross_pt_state = yes | no ▪ white_list_en = yes | no ▪ load_balance_en = yes | no ▪ load_balance = 0-255

Command	Description
fdb entry del <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Delete a particular FDB entry through MAC address. Only addr field in entry is meaning. FID field is meaning for IVL learning. ▪ Addr = xx-xx-xx-xx-xx-xx ▪ Fid = 0-65535 ▪ Dacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ Sacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ dest port = 0-6 ▪ static = yes | no ▪ leaky = yes | no ▪ mirror = yes | no ▪ clone = yes | no ▪ queue override = yes | no ▪ cross_pt_state = yes | no ▪ white_list_en = yes | no ▪ load_balance_en = yes | no ▪ load_balance = 0-255
fdb entry flush <0 | 1>	Delete all FDB entries. ▪ 0 = dynamic only ▪ 1 = dynamic and static
fdb entry show	Show all FDB entries.

Command	Description
fdb entry find <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Find a particular FDB entry from device through MAC address. For input parameter, only addr field in entry is meaning. ▪ Addr = xx-xx-xx-xx-xx-xx ▪ Fid = 0-65535 ▪ Dacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ Sacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ dest port = 0-6 ▪ static = yes | no ▪ leaky = yes | no ▪ mirror = yes | no ▪ clone = yes | no ▪ queue override = yes | no ▪ cross_pt_state = yes | no ▪ white_list_en = yes | no ▪ load_balance_en = yes | no ▪ load_balance = 0-255
fdb entry iterate <iterator>	Iterate all FDB entries on a particular device. ▪ Iterator = FDB entry index.

Command	Description
fdb entry extendnext <port_en> <fid_en> <multi_en> <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Find next FDB entry in extend mode. ▪ port_en = find entry on target port ▪ fid_en = find entry on target fid ▪ multi_en = find entry include multicast ▪ addr = xx-xx-xx-xx-xx-xx ▪ fid = 0-65535 ▪ Dacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ Sacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ dest port = 0-6 ▪ static = yes | no ▪ leaky = yes | no ▪ mirror = yes | no ▪ clone = yes | no ▪ queue override = yes | no ▪ cross_pt_state = yes | no ▪ white_list_en = yes | no ▪ load_balance_en = yes | no ▪ load_balance = 0-255

Command	Description
fdb entry extendfirst <port_en> <fid_en> <multi_en> <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Find first FDB entry in extend mode. ▪ port_en = find entry on target port ▪ fid_en = find entry on target fid ▪ multi_en = find entry include multicast ▪ addr = xx-xx-xx-xx-xx-xx, meaningless ▪ fid = 0-65535 ▪ Dacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ Sacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ dest port = 0-6 ▪ static = yes | no ▪ leaky = yes | no ▪ mirror = yes | no ▪ clone = yes | no ▪ queue override = yes | no ▪ cross_pt_state = yes | no ▪ white_list_en = yes | no ▪ load_balance_en = yes | no ▪ load_balance = 0-255
fdb entry transfer <old_port_id> <new_port_id> <fid>	Transfer FDB entries port information. ▪ old_port_id = 0-6 ▪ new_port_id = 0-6 ▪ fid = 0-65535

2.4.2 portEntry

Command	Description
fdb portEntry flush <port_id> <0|1 >	Delete all FDB entries on a port. ▪ port_id = 0-6 ▪ 0 = dynamic only ▪ 1 = dynamic and static

2.4.3 firstEntry

Command	Description
fdb firstEntry find	Find first FDB entry.

2.4.4 nextEntry

Command	Description
fdb nextEntry find <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Find next FDB entry. ▪ Addr = xx-xx-xx-xx-xx-xx ▪ Fid = meaningless ▪ Dacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ Sacmd ▫ forward = packets are normally forwarded. ▫ drop = packets are dropped. ▫ cpycpu = packets are copied to CPU. ▫ rdtcpu = packets are redirected to CPU. ▪ dest port = 0-6 ▪ static = yes | no ▪ leaky = yes | no ▪ mirror = yes | no ▪ clone = yes | no ▪ queue override = yes | no ▪ cross_pt_state = yes | no ▪ white_list_en = yes | no ▪ load_balance_en = yes | no ▪ load_balance = 0-255

2.4.5 portLearn

Command	Description
fdb portLearn set <port_id> <enable|disable>	Set dynamic address learning status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
fdb portLearn get <port_id>	Get dynamic address learning status on a particular port. ▪ port_id = 0-6

2.4.6 ageCtrl

Command	Description
fdb ageCtrl set <enable|disable>	Set dynamic address aging status on particular device. ▪ enable | disable
fdb ageCtrl get	Get dynamic address aging status on particular device.

2.4.7 Vlansmode

Command	Description
fdb vlansmode set <ivl|svl>	Set FDB search mode when VLAN invalid. ▪ ivl | svl

Command	Description
fdb vlansmode get	Get FDB search mode when VLAN invalid.

2.4.8 ageTime

Command	Description
fdb ageTime set <time>	Set dynamic address aging time. ▪ Time = 7-458745, in second
fdb ageTime get	Get dynamic address aging time.

2.4.9 Ptlearnlimit

Command	Description
fdb ptlearnlimit set <port_id> <enable|disable> <limitcounter>	Set dynamic address learning count limit on a particular port. ▪ port_id = 0-6 ▪ enable | disable ▪ limitcounter = 0-1024
fdb ptlearnlimit get <port_id>	Get dynamic address learning count limit on a particular port. ▪ port_id = 0-6

2.4.10 ptlearnexceedcmd

Command	Description
fdb ptlearnexceedcmd set <port_id> <forward|drop|cpycpu|rdtcpu>	Set dynamic address learning count exceed command on a particular port. ▪ port_id = 0-6 ▪ forward = packets are normally forwarded. ▪ drop = packets are dropped. ▪ cpycpu = packets are copied to CPU. ▪ rdtcpu = packets are redirected to CPU.
fdb ptlearnexceedcmd get <port_id>	Get dynamic address learning count exceed command on a particular port. ▪ port_id = 0-6

2.4.11 learnlimit

Command	Description
fdb learnlimit set <enable|disable> <limitcounter>	Set dynamic address learning count limit. ▪ enable | disable ▪ limitcounter = 0-2048
fdb learnlimit get	Get dynamic address learning count limit.

2.4.12 Learnexceedcmd

Command	Description
fdb learnexceedcmd set <forward|drop|cpycpu|rdtcpu>	Set dynamic address learning count exceed command. ▪ Forward = packets are normally forwarded. ▪ Drop = packets are dropped. ▪ Cpycpu = packets are copied to CPU. ▪ Rdtcpu = packets are redirected to CPU.
fdb learnexceedcmd get	Get dynamic address learning count exceed command.

2.4.13 Resventry

Command	Description
fdb resventry add <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Add a reserved FDB entry. ▪ Addr = xx-xx-xx-xx-xx-xx ▪ Fid = 0-65535 ▪ Dacmd = forward | drop | cpycpu | rdtcpu ▪ Sacmd = forward | drop | cpycpu | rdtcpu ▪ dest port = 0-6 ▪ static = yes | no ▪ leaky = yes | no ▪ mirror = yes | no ▪ clone = yes | no ▪ queue override = yes | no ▪ cross_pt_state = yes | no ▪ white_list_en = yes | no ▪ load_balance_en = yes | no ▪ load_balance = 0-255
fdb resventry del <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Delete a reserved FDB entry by mac address. Only addr field in entry is meaning. ▪ Addr = xx-xx-xx-xx-xx-xx ▪ Fid = meaningless ▪ Dacmd = meaningless ▪ Sacmd = meaningless ▪ dest port = meaningless ▪ static = meaningless ▪ leaky = meaningless ▪ mirror = meaningless ▪ clone = meaningless ▪ queue override = meaningless ▪ cross_pt_state = meaningless ▪ white_list_en = meaningless ▪ load_balance_en = meaningless ▪ load_balance = meaningless

Command	Description
fdb resventry find <addr> <fid> <dacmd> <sacmd> <dest_port> <static> <leaky> <mirror> <clone> <queue_override> <cross_pt_state> <white_list_en> <load_balance_en> <load_balance>	Find a particular reserved FDB entry by mac address. Only addr field in entry is meaning. ▪ Addr = xx-xx-xx-xx-xx-xx ▪ Fid = meaningless ▪ Dacmd = meaningless ▪ Sacmd = meaningless ▪ dest port = meaningless ▪ static = meaningless ▪ leaky = meaningless ▪ mirror = meaningless ▪ clone = meaningless ▪ queue override = meaningless ▪ cross_pt_state = meaningless ▪ white_list_en = meaningless ▪ load_balance_en = meaningless ▪ load_balance = meaningless
fdb resventry iterate <iterator>	Iterate all reserved FDB entries. ▪ Iterator = FDB entry index.
fdb resventry show	Show all reserved FDB entries.

2.4.14 ptLearnstatic

Command	Description
fdb ptLearnstatic set <port_id> <enable|disable>	Set FDB entry learning static status of a particular port. ▪ port_id = 0-6 ▪ enable | disable
fdb ptLearnStatic get <port_id>	Get FDB entry learning static status of a particular port. ▪ port_id = 0-6

2.4.15 port

Command	Description
fdb port add <fid> <macaddr> <port_id>	Add a port to an existing entry. ▪ Fid = 0-65535 ▪ Macaddr = xx-xx-xx-xx-xx-xx ▪ port_id = 0-6
fdb port del <fid> <macaddr> <port_id>	Delete a port from an existing entry. ▪ Fid = 0-65535 ▪ Macaddr = xx-xx-xx-xx-xx-xx ▪ port_id = 0-6

2.5 IGMP commands

Command	Description
mode	Configure IGMP /MLD packets snooping status on a particular port.

Command	Description
cmd	Configure IGMP / MLD packets forwarding command.
portJoin	Configure IGMP / MLD join packets hardware acknowledgement status on particular port.
portLeave	Configure IGMP / MLD leave packets hardware acknowledgement status on a particular port.
rp	Configure IGMP / MLD router ports.
createStatus	Configure the status of creating multicast entry during IGMP/MLD join/leave procedure.
static	Configure the static status of multicast entry which learned by hardware.
leaky	Configure the leaky status of multicast entry which learned by hardware.
version3	Configure IGMP v3/ MLD v2 packets hardware acknowledgement status.
queue	Configure the queue status of multicast entry which learned by hardware.
ptlearnlimit	Configure IGMP hardware learning count limit on a particular port.
ptlearnexceedcmd	Configure IGMP hardware learning count exceed command on a particular port.
multi	Configure IGMP / MLD entry.

2.5.1 Mode

Command	Description
igmp mode set <port_id> <enable|disable>	Set IGMP / MLD packets snooping status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
igmp mode get <port_id>	Get IGMP / MLD packets snooping status on a particular port. ▪ port_id = 0-6

2.5.2 cmd

Command	Description
igmp cmd set <forward|drop|cpycpu|rdtcpu>	Set IGMP / MLD packets forwarding command. This operation will take effect only after enabling IGMP / MLD snooping. ▪ forward = packets are normally forwarded. ▪ drop = packets are dropped. ▪ cpycpu = packets are copied to CPU. ▪ rdtcpu = packets are redirected to CPU.
igmp cmd get	Get IGMP / MLD packets forwarding command.

2.5.3 portJoin

Command	Description
igmp portJoin set <port_id> <enable|disable>	Set IGMP / MLD join packets hardware acknowledgement status on particular port. ▪ port_id = 0-6 ▪ Enable = hardware will learn or change multicast entry dynamicly. ▪ Disable = hardware will not learn or change multicast entry dynamicly.
igmp portJoin get <port_id>	Get IGMP / MLD join packets hardware acknowledgement status on particular port. ▪ port_id = 0-6

2.5.4 portLeave

Command	Description
igmp portLeave set <port_id> <enable|disable>	Set IGMP / MLD leave packets hardware acknowledgement status on a particular port. ▪ port_id = 0-6 ▪ Enable = hardware will delete or change multicast entry dynamicly. ▪ Disable = hardware will not delete or change multicast entry dynamicly.
igmp portLeave get <port_id>	Get IGMP / MLD leave packets hardware acknowledgement status on a particular port. ▪ port_id = 0-6

2.5.5 rp

Command	Description
igmp rp set <port_bit_map>	Set IGMP / MLD router ports. After enabling IGMP / MLD join/leave feature on a particular, port IGMP / MLD join/leave packets received on this port will be forwarded to router ports. ▪ port_bit_map ▫ BIT[0] = port 0 ▫ BIT[1] = port 1 ▫ BIT[2] = port 2 ▫ BIT[3] = port 3 ▫ BIT[4] = port 4 ▫ BIT[5] = port 5 ▫ BIT[6] = port 6
igmp rp get	Get IGMP / MLD router ports.

2.5.6 createStatus

Command	Description
igmp createStatus set <enable|disable>	Set the status of creating multicast entry during IGMP / MLD join/leave procedure. ▪ Enable = hardware will create and delete multicast entry dynamically. ▪ Disable = hardware only can change destination ports of existing multicast entry.
igmp createStatus get	Get the status of creating multicast entry during IGMP / MLD join/leave procedure.

2.5.7 Static

Command	Description
igmp static set <enable|disable>	Set the static status of multicast entry which learned by hardware. ▪ Enable = hardware will not age out multicast entry which learned by hardware. ▪ Disable = hardware will age out multicast entry which learned by hardware.
igmp static get	Get the static status of multicast entry which learned by hardware.

2.5.8 Leaky

Command	Description
igmp leaky set <enable|disable>	Set the leaky status of multicast entry which learned by hardware. ▪ Enable = hardware will set leaky flag of multicast entry which learned by hardware. ▪ Disable = hardware will not set leaky flag of multicast entry which learned by hardware.
igmp leaky get	Get the leaky status of multicast entry which learned by hardware.

2.5.9 version3

Command	Description
igmp version3 set <enable|disable>	Set IGMPv3/MLDv2 packets hardware acknowledgement status. ▪ Enable = hardware will create or change multicast entry after receiving IGMPv3/MLDv2 packets dynamically. ▪ Disable = hardware will not create or change multicast entry after receiving IGMPv3/MLDv2 packets dynamically.
igmp version3 get	Get IGMPv3/MLDv2 packets hardware acknowledgement status.

2.5.10 Queue

Command	Description
igmp queue set <enable|disable> <queue_id>	Set the queue status of multicast entry which learned by hardware. ▪ Enable = hardware will set queue flag of multicast entry which learned by hardware. ▪ Disable = hardware will not set queue flag of multicast entry which learned by hardware. ▪ queue_id = 0-7
igmp queue get	Get the queue status of multicast entry which learned by hardware.

2.5.11 Ptlearnlimit

Command	Description
igmp ptlearnlimit set <port_id> <enable|disable> <limitcounter>	Set IGMP hardware learning count limit on a particular port. ▪ port_id = 0-6 ▪ enable | disable ▪ Limitcounter = 0-1024
igmp ptlearnlimit get <port_id>	Get IGMP hardware learning count limit on a particular port.

2.5.12 Ptlearnexceedcmd

Command	Description
igmp ptlearnexceedcmd set <port_id> <forward|drop|cpycpu|rdtcpu>	Set IGMP hardware learning count exceed command on a particular port. ▪ port_id = 0-6 ▪ forward = packets are normally forwarded. ▪ drop = packets are dropped. ▪ cpycpu = packets are copied to CPU. ▪ rdtcpu = packets are redirected to CPU.
igmp ptlearnexceedcmd get <port_id>	Get IGMP hardware learning count exceed command on a particular port.

2.5.13 Multi

Command	Description
igmp multi set <group_type> <group _addr> <source_type> <source _addr> <portmap>	Set IGMP/MLD entry. ▪ group_type ▫ 0 = IPv4 ▫ Other = IPv6 ▪ group_addr = IPv4 or IPv6 address ▪ source_type ▫ 0 = IPv4 ▫ Other = IPv6 ▪ source_addr = IPv4 or IPv6 address ▪ portmap ▫ BIT[0] = port 0 ▫ BIT[1] = port 1 ▫ BIT[2] = port 2 ▫ BIT[3] = port 3 ▫ BIT[4] = port 4 ▫ BIT[5] = port 5 ▫ BIT[6] = port 6
igmp multi clear <group_type> <group_ip4_addr> <source_type> <source_ip4_addr> <portmap>	Clear IGMP/MLD entry. ▪ group_type ▫ 0 = IPv4 ▫ Other = IPv6 ▪ group_addr = IPv4 or IPv6 address ▪ source_type ▫ 0 = IPv4 ▫ Other = IPv6 ▪ source_addr = IPv4 or IPv6 address ▪ portmap ▫ BIT[0] = port 0 ▫ BIT[1] = port 1 ▫ BIT[2] = port 2 ▫ BIT[3] = port 3 ▫ BIT[4] = port 4 ▫ BIT[5] = port 5 ▫ BIT[6] = port 6
igmp multi show	Show all IGMP/MLD entry.

2.6 DEBUG commands

Command	Description
phy	Set/get internal PHY register value.
reg	Set/get switch register value.
field	Set/get switch register given field value.
aclList	Dump all ACL lists.
aclRule	Dump all ACL rules.
device	Reset entire device.
ssdk	Show SSDK configuration.

2.6.1 Phy

Command	Description
debug phy set <ph_id> <reg_addr> <value>	Set internal PHY register value.
debug phy get <ph_id> <reg_addr>	Get internal PHY register value.

2.6.2 Reg

Command	Description
debug reg set <reg_addr> <value> <4>	Set switch register value.
debug reg get <reg_addr> <4>	Get switch register value.

2.6.3 Field

Command	Description
debug field set <reg_addr> <offset> <len> <value> <4>	Set special field value of given switch register.
debug field set <reg_addr> <offset> <len> <4>	Get special field value of given switch register.

2.6.4 aclList

Command	Description
debug acllist dump	Dump all ACL lists.

2.6.5 aclRule

Command	Description
debug aclRule dump	Dump all ACL rules.

2.6.6 Device

Command	Description
Debug device reset	Reset device.

2.6.7 Ssdk

Command	Description
debug ssdk config	Show SSDK configuration.

2.7 IP commands

Command	Description
hostentry	Add, delete, get and next host entry.
ptarplearn	Set/get port based ARP learn flag.
arplearn	Set/get ARP learn mode.
ptipsrcguard	Set/get port based IP source guard.
ptarpsrcguard	Set/get port based ARP source guard.
routestatus	Set/get routing status.
intfentry	Add, delete and next interface entry.
ipunksrc	Set/get IP source unknown forwarding command.
arpunksrc	Set/get ARP source unknown forwarding command.
ipagetime	Set/get IP aging time.
wcmphashmode	Set/get WCMP hash mode.
vrfbaseaddr	Configure IP4 VRF base address.
vrfbasemask	Configure IP4 VRF base mask.
defaultroute	Configure IP4/IP6 default route.
hostroute	Configure IP4/IP6 host route.
defaultflowcmd	Configure default flow command.
defaultrtflowcmd	Configure default RT flow command.
wcmpentry	Configure WCMP entry.

2.7.1 Hostentry

Command	Description
ip hostentry add entryid(0): entryflags(0x1): entrystatus(0): ip4 addr: mac addr: interface id(0): port id(0): action(forward): mirror(no): counter(no):	Add a host entry with below parameter: ▪ entryid = 0-1023 entryflags #define FAL_IP_IP4_ADDR 0x1 #define FAL_IP_IP6_ADDR 0x2 #define FAL_IP_CPU_ADDR 0x4 ▪ entrystatus = 0-15 ▫ 0 = indicates entry is empty. ▫ 1-7 = indicates entry is dynamic and valid. ▫ 8-14 = entry is dynamic and valid, can be aged but can't be changed by any other address. ▫ 15 = indicates entry is static and can't be aged or changed by hardware. ▪ ip4 addr ▪ mac addr ▪ interface id = 0-4094 ▪ port id ▪ action ▪ mirror ▪ counter

Command	Description
ip hostentry del <del_mode> entryid(0): entryflags(0x1): entrystatus(0): ip4 addr: mac addr: interface id(0): port id(0): action(forward): mirror(no): counter(no):	Delete a host entry with below parameter: ▪ del_mode #define FAL_IP_ENTRY_ID_EN 0x1 #define FAL_IP_ENTRY_INTF_EN 0x2 #define FAL_IP_ENTRY_PORT_EN 0x4 #define FAL_IP_ENTRY_STATUS_EN 0x8 #define FAL_IP_ENTRY_IPADDR_EN 0x10 ▪ entryid ▪ entryflags ▪ entrystatus ▪ ip4 addr ▪ mac addr ▪ interface id ▪ port id ▪ action ▪ mirror ▪ counter
ip hostentry get <get_mode> entryid(0): entryflags(0x1): entrystatus(0): ip4 addr: mac addr: interface id(0): port id(0): action(forward): mirror(no): counter(no):	Get a host entry with below parameter: ▪ del_mode #define FAL_IP_ENTRY_ID_EN 0x1 ▪ entryid ▪ entryflags ▪ entrystatus ▪ ip4 addr ▪ mac addr ▪ interface id ▪ port id ▪ action ▪ mirror ▪ counter
ip hostentry next <next_mode> entryid(0): entryflags(0x1): entrystatus(0): ip4 addr: mac addr: interface id(0): port id(0): action(forward): mirror(no): counter(no):	Get next host entry with below parameter: ▪ next_mode #define FAL_IP_ENTRY_ID_EN 0x1 #define FAL_IP_ENTRY_INTF_EN 0x2 #define FAL_IP_ENTRY_PORT_EN 0x4 #define FAL_IP_ENTRY_STATUS_EN 0x8 #define FAL_IP_ENTRY_IPADDR_EN 0x10 ▪ entryid ▪ entryflags ▪ entrystatus ▪ ip4 addr ▪ mac addr ▪ interface id ▪ port id ▪ action ▪ mirror ▪ counter
ip hostentry show	Show all host entry.
ip hostentry bindcnt <host entry id> <cnt id> <enable|disable>	Bind one counter to one host entry.

Command	Description
ip hostentry bindpppoe <host entry id> <pppoe id> <enable|disable>	Bind one PPPoE session to one host entry.

2.7.2 ptarpleran

Command	Description
ip ptarplearn set <port_id> <flag>	Set port based ARP learn flag. ▪ port_id = 0-6 ▪ flag ▫ BIT 0 = ARP REQ ▫ BIT 1 = ARP ACK
ip ptarplearn get <port_id>	Get port based ARP learn flag. ▪ port_id = 0-6

2.7.3 arplearn

Command	Description
ip arplearn set <learnlocal|learnall>	Set ARP learn mode.
ip arplearn get <learnlocal|learnall>	Get ARP learn mode.

2.7.4 Ptipsrcguard

Command	Description
ip ptipsrcguard set <port_id> <mac_ip|mac_ip_port|mac_ip_vlan|mac_ip_port_vlan|no_guard>	Set port based IP source guard. ▪ port_id = 0-6
ip ptipsrcguard get <port_id>	Get port based IP source guard.

2.7.5 ptarpsrcguard

Command	Description
ip ptarpsrcguard set <port_id> <mac_ip|mac_ip_port|mac_ip_vlan|mac_ip_port_vlan|no_guard>	Set port based ARP source guard. ▪ port_id = 0-6
ip ptarpsrcguard get <port_id>	Get port based ARP source guard.

2.7.6 routestatus

Command	Description
ip routestatus set <enable|disable>	Set routing status.
ip routestatus get	Get routing status.

2.7.7 Intfentry

Command	Description
ip intfentry add entryid(0): vrfid(0): vid low: 0 vid high: 0 mac addr: ip4_route(yes): ip6_route(yes):	Add interface entry. ▪ Entryid = 0-7
ip intfentry del <del_mode> entryid(0): vrfid(0): vid low: 0 vid high: 0 mac addr: ip4_route(yes): ip6_route(yes):	Delete interface entry. ▪ del_mode #define FAL_IP_ENTRY_ID_EN 0x1
ip intfentry show	Show all interface entry.

2.7.8 ipunksrc

Command	Description
ip ipunksrc set <forward|drop|cpycpu|rdtcpu>	Set IP source unknown forwarding command.
ip ipunksrc get	Get IP source unknown forwarding command.

2.7.9 arpunksrc

Command	Description
ip arpunksrc set <forward|drop|cpycpu|rdtcpu>	Set ARP source unknown forwarding command.
ip arpunksrc get	Get ARP source unknown forwarding command.

2.7.10 ipagetime

Command	Description
ip ipagetime set <time>	Set IP aging time. ▪ time = 0-255 6s*N. 0 means aging disable.
ip ipagetime get	Get IP aging time.

2.7.11 wcmphashmode

Command	Description
ip wcmphashmode set<hashmode>	Set/get WCMP hash mode. ▪ Hashmode #define FAL_WCMP_HASH_KEY_SIP 0x1 #define FAL_WCMP_HASH_KEY_DIP 0x2 #define FAL_WCMP_HASH_KEY_SPORT 0x4 #define FAL_WCMP_HASH_KEY_DPORT 0x8
ip wcmphashmode get	Get WCMP hash mode.

2.7.12 vrfbaseaddr

Command	Description
ip vrfbaseaddr set <ip_addr>	Set IP4 VRF base address.
ip vrfbaseaddr get	Get IP4 VRF base address.

2.7.13 vrfbasemask

Command	Description
ip vrfbasemask set <ip_addr>	Set IP4 VRF base mask.
ip vrfbasemask get	Get IP4 VRF base mask.

2.7.14 defaultroute

Command	Description
ip defaultroute set	Set IP default route.
ip defaultroute get	Get IP default route.

2.7.15 hosttroute

Command	Description
ip hostroute set	Set IP host route.
ip hosttroute get	Get IP host route.

2.7.16 ip4rfs

Command	Description
ip rfsip4 set	Set IP4 load balance.
ip rfsip4 get	Get IP4 load balance.

2.7.17 ip6rfs

Command	Description
ip rfsip6 set	Set IP6 load balance.
ip rfsip6 get	Get IP6 load balance.

2.7.18 defaultflowcmd

Command	Description
ip defaultflowcmd set	Set default flow command.
ip defaultflowcmd get	Get default flow command.

2.7.19 defaultrtflowcmd

Command	Description
ip defaultrtflowcmd set	Set default RT flow command.
ip defaultrtflowcmd get	Get default RT flow command.

2.7.20 wcmpentry

Command	Description
ip wcmpentry set	Set wcmpentry.
ip wcmpentry get	Get wcmpentry.

2.8 LEAKY commands

Command	Description
ucMode	Configure unicast packets leaky mode.
mcMode	Configure multicast packets leaky mode.
arpMode	Configure ARP packets leaky mode.
ptUcMode	Set/get port based unicast packets leaky mode.
ptMcMode	Set/get port based multicast packets leaky mode.

2.8.1 ucMode

Command	Description
leaky ucMode set <port|fdb>	Configure unicast packets leaky mode.
leaky ucMode get	Get unicast packets leaky mode.

2.8.2 mcMode

Command	Description
leaky mcMode set <port|fdb>	Configure multicast packets leaky mode.
leaky mcMode get	Get multicast packets leaky mode.

2.8.3 arpMode

Command	Description
leaky arpMode set <port_id> <enable|disable>	Configure ARP packets leaky mode.
leaky arpMode get <port_id>	Get ARP packets leaky mode.

2.8.4 ptUcMode

Command	Description
leaky ptUcMode set <port_id> <enable|disable>	Set port based unicast packets leaky mode.
leaky ptUcMode get <port_id>	Get port based unicast packets leaky mode.

2.8.5 ptMcMode

Command	Description
leaky ptMcMode set <port_id> <enable|disable>	Set port based multicast packets leaky mode.
leaky ptMcMode get <port_id>	Get port based multicast packets leaky mode.

2.9 LED commands

Command	Description
ctrlpattern	Configure LED control pattern.

2.9.1 Ctrlpattern

Command	Description
led ctrlpattern set <group_id> <led_id> <pattern_mode>	Set LED control pattern. ▪ group_id ▫ 0 = LAN ports ▫ 1 = WAN ports ▫ 2 = control mac ports ▪ led_id ▫ 0 = led0 ▫ 1 = led1 ▫ 2 = led2 ▪ pattern_mode = always_off | always_blink | always_on

Command	Description
led ctrlpattern set <group_id> <led_id> <pattern_mode> <full_duplex_light> <half_duplex_light> <power_on_light> <link_1000m_light> <link_100m_light> <link_10m_light> <conllision_light> <rx_traffic_blink> <tx_traffic_blink> <linkup_override_light> <blink freq>	Set LED control pattern. ▪ group_id ▫ 0 = LAN ports ▫ 1 = WAN ports ▫ 2 = control mac ports ▪ led_id ▫ 0 = led0 ▫ 1 = led1 ▫ 2 = led2 ▪ pattern_mode = map ▪ full_duplex_light = yes | no ▪ half_duplex_light = yes | no ▪ power_on_light = yes | no ▪ link_1000m_light = yes | no ▪ link_100m_light = yes | no ▪ link_10m_light = yes | no ▪ conllision_light = yes | no ▪ rx_traffic_blink = yes | no ▪ tx_traffic_blink = yes | no ▪ linkup_override_light = yes | no ▪ blink freq = 2HZ | 4HZ | 8HZ | TXRX
led ctrlpattern get <group_id> <led_id>	Get LED control pattern. ▪ group_id ▫ 0 = LAN ports ▫ 1 = WAN ports ▫ 2 = control mac ports ▪ led_id ▫ 0 = led0 ▫ 1 = led1 ▫ 2 = led2

2.10 MIB commands

Command	Description
statistics	Get MIB information on a particular port.
status	Configure MIB engine status.
counters	Flush all counters on a particular port.
cpuKeep	Configure CPU keep mode.

2.10.1 Statistics

Command	Description
mib statistics get <port_id>	Get MIB information on a particular port.

2.10.2 Status

Command	Description
mib status set <enable|disable>	Configure MIB engine status.
mib status get	Get MIB engine status.

2.10.3 Counters

Command	Description
mib counters flush <port_id>	Clear all counters on a particular port.

2.10.4 cpuKeep

Command	Description
mib cpuKeep set <enable|disable>	Configure CPU keep mode.
mib cpuKeep get	Get CPU keep mode.

2.11 MIRROR commands

Command	Description
analyPt	Set/get analyzer port in switch chip for mirror.
ptIngress	Configure ingress mirror status.
ptEgress	Configure egress mirror status.

2.11.1 analyPt

Command	Description
mirror analyPt set <port_id>	Set analyzer port in switch chip for mirror. ▪ port_id = 0-6
mirror analyPt get	Get analyzer port in switch chip for mirror.

2.11.2 ptIngress

Command	Description
mirror ptIngress set <port_id> <enable|disable>	Configure ingress mirror status.
mirror ptIngress get <port_id>	Get ingress mirror status.

2.11.3 ptEgress

Command	Description
mirror ptEgress set <port_id> <enable|disable>	Configure ingress mirror status.
mirror ptEgress get <port_id>	Get ingress mirror status.

2.12 MISC commands

Command	Description
frameMaxSize	Configure MAX frame size.
ptUnkUcFilter	Configure forwarding command for unknown source address unicast packets on one port.
ptUnkMcFilter	Configure forwarding command for unknown source address multicast packets on one port.
ptBcFilter	Configure forwarding command for unknown source address broadcast packets on one port.
cpuPort	Configure CPU port status.
PppoeCmd	Configure PPPoE frames forwarding command on switch chip.
Pppoe	Configure PPPoE frames hardware identification status on switch chip.
ptDhcp	Configure DHCP frames hardware identification status.
arpcmd	Configure ARP packets forwarding command on switch chip.
eapolcmd	Configure EAPOL (802.1x) packets forwarding command on switch chip.
eapolstatus	Configure EAPOL (802.1x) packets hardware acknowledgement status on one port.
rip	Configure RIP v1 packets hardware acknowledgement status on one port.
ptarpreq	Configure ARP request packet hardware acknowledgement status on switch chip.
ptarpack	Configure ARP ACK packet hardware acknowledgement status on switch chip.
extendpppoe	Add, delete and get PPPoE entries in extend mode.
glomacaddr	Configure the global mac address on switch chip.
lldp	Configure lldp frames hardware identification status on switch chip.
framecrc	Configure frame CRC reserve status on switch chip.

2.12.1 frameMaxSize

Command	Description
misc frameMaxSize set <size:byte>	Configure MAX frame size. ▪ Size = 1508-9000
misc frameMaxSize get	Get MAX frame size.

2.12.2 ptUnkUcFilter

Command	Description
misc ptUnkUcFilter set <port_id> <enable|disable>	Set forwarding command for unknown source address unicast packets on one port. ▪ port_id = 0-6

Command	Description
misc ptUnkUcFilter get <port_id>	Get forwarding command for unknown source address unicast packets on one port.

2.12.3 ptUnkMcFilter

Command	Description
misc ptUnkMcFilter set <port_id> <enable|disable>	Set forwarding command for unknown source address multicast packets on one port. ▪ port_id = 0-6
misc ptUnkMcFilter get <port_id>	Get forwarding command for unknown source address multicast packets on one port.

2.12.4 ptBcFilter

Command	Description
misc ptBcFilter set <port_id> <enable|disable>	Set forwarding command for broadcast packets on one port. ▪ port_id = 0-6
misc ptBcFilter get <port_id>	Get forwarding command for broadcast packets on one port.

2.12.5 cpuPort

Command	Description
misc cpuPort set <enable|disable>	Configure CPU port status.
misc cpuPort get	Get CPU port status.

2.12.6 PppoeCmd

Command	Description
misc PppoeCmd set <forward|rdtcpu>	Set PPPoE frames forwarding command.
misc PppoeCmd get	Get PPPoE frames forwarding command.

2.12.7 Pppoe

Command	Description
misc Pppoe set <enable|disable>	Set PPPoE frames hardware identification status.
misc Pppoe get	Get PPPoE frames hardware identification status.

2.12.8 ptDhcp

Command	Description
misc ptDhcp set <port_id> <enable|disable>	Set DHCP frames hardware identification status on one port. ▪ port_id = 0-6
misc ptBcFilter get <port_id>	Get DHCP frames hardware identification status on one port.

2.12.9 arpCmd

Command	Description
misc arpCmd set <forward|cpycpu|rdtcpu>	Set ARP packets forwarding command.
misc arpCmd get	Get ARP packets forwarding command.

2.12.10 eapolCmd

Command	Description
misc eapolCmd set <cpycpu|rdtcpu>	Set EAPOL packets forwarding command.
misc eapolCmd get	Get EAPOL packets forwarding command.

2.12.11 eapolStatus

Command	Description
misc eapolStatus set <port_id> <enable|disable>	Set EAPOL frames hardware identification status on one port. ▪ port_id = 0-6
misc eapolStatus get <port_id>	Get EAPOL frames hardware identification status on one port.

2.12.12 Rip

Command	Description
misc rip set <port_id> <enable|disable>	Set RIP v1 frames hardware identification status on one port. ▪ port_id = 0-6
misc rip get <port_id>	Get RIP v1 frames hardware identification status on one port.

2.12.13 Ptarpreq

Command	Description
misc ptarpreq set <port_id> <enable|disable>	Set ARP request packets hardware identification status. ▪ port_id = 0-6
misc ptarpreq get <port_id>	Get ARP request packets hardware identification status on one port.

2.12.14 Ptarpack

Command	Description
misc ptarpack set <port_id> <enable|disable>	ARP request packets hardware identification status on one port. ▪ port_id = 0-6
misc ptarpack get <port_id>	Get ARP request packets hardware identification status on one port.

2.12.15 Extendpppoe

Command	Description
misc extendpppoe add entryid(0): sessionid(0): multi_session(no): uni_session(no):	Add a PPPoE session entry.
misc extendpppoe del entryid(0): sessionid(0): multi_session(no): uni_session(no):	Delete a PPPoE session entry.
misc extendpppoe get entryid(0): sessionid(0): multi_session(no): uni_session(no):	Get a PPPoE session entry.

2.12.16 glomacaddr

Command	Description
misc glomacaddr set <macaddr>	Configure global MAC address. ▪ macaddr = xx-xx-xx-xx-xx-xx
misc glomacaddr get	Get global MAC address.

2.12.17 lldp

Command	Description
misc lldp set <enable|disable>	Configure lldp frames hardware identification status.
misc lldp get	Get lldp frames hardware identification status.

2.12.18 framecrc

Command	Description
misc framecrc set <enable|disable>	Configure frame CRC reserve status.
misc framecrc get	Get frame CRC reserve status.

2.13 NAT commands

Command	Description
natentry	Add, delete, get and next NAT entry.
naptentry	Add, delete, get and next NAPT entry.
natstatus	Set and get NAT status.
nathash	Set and get NAT hash flag.
naptmode	Set and get NAT hash mode.
prvbaseaddr	Set and get NAT private base address.
prvaddrmode	Set and get NAT private base address mapping mode.
pubaddr	Add, delete and next public address.
natunksess	Set and get NAT unknown session command.
prvbasemask	Set and get NAT private base address.
flowentry	Add, delete, get and next FLOW entry.
flowcookie	Set flow cookie.
flowrfs	Set flow RFS.

2.13.1 Natentry

Command	Description
nat natentry add entryid(0): entryflags(0): entrystatus(0xf): select_idx(0): vrf_id(0): src addr(0.0.0.0): trans addr(0.0.0.0): port num(0): port range(0): action(forward): mirror(no): counter(no):	Add a NAT entry. ▪ entry_id = 0-31 ▪ entryflags #define FAL_NAT_ENTRY_PORT_CHECK 0x20 ▪ entrystatus = Unused ▪ select_idx = 0-7 ▪ vrf_id= 0-7 ▪ src addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, used to change frame DIP. ▪ port num ▫ Port num start value ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, compare with frame DP. ▪ port range ▫ Port number range ▫ port num start<= port num<port num start+range ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32.

Command	Description
nat natentry del <del_mode> entryid(0): entryflags(0): entrystatus(0xf): select_idx(0): vrf_id(0): src addr(0.0.0.0): trans addr(0.0.0.0): port num(0): port range(0): action(forward): mirror(no): counter(no):	Delete a NAT entry. ▪ del_mode = 0-1 ▫ 0 = flush all NAT entry. #define FAL_NAT_ENTRY_ID_EN 0x1 ▪ entry_id = 0-31 ▪ entryflags #define FAL_NAT_ENTRY_PORT_CHECK 0x20 ▪ entrystatus = Unused ▪ select_idx = 0-7 ▪ vrf_id= 0-7 ▪ src addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do SNAT, compare with frame SIP ▫ When do DNAT, used to change frame DIP. ▪ port num Port num start value ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, compare with frame DP. ▪ port range ▫ Port number range ▫ port num start<= port num<port num start+range ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32.

Command	Description
nat natentry get <get_mode> entryid(0): entryflags(0): entrystatus(0xf): select_idx(0): vrf_id(0): src addr(0.0.0.0): trans addr(0.0.0.0): port num(0): port range(0): action(forward): mirror(no): counter(no):	Get a NAT entry. ▪ gel_mode = 1 #define FAL_NAT_ENTRY_ID_EN 0x1 ▪ entry_id = 0-31 ▪ entryflags #define FAL_NAT_ENTRY_PORT_CHECK 0x20 ▪ entrystatus = Unused ▪ select_idx = 0-7 ▪ vrf_id= 0-7 ▪ src addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, used to change frame DIP. ▪ port num ▫ Port num start value ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, compare with frame DP. ▪ port range ▫ Port number range ▫ port num start<= port num<port num start+range ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32.

Command	Description
nat natentry next <next_mode> entryid(0): entryflags(0): entrystatus(0xf): select_idx(0): vrf_id(0): src addr(0.0.0.0): trans addr(0.0.0.0): port num(0): port range(0): action(forward): mirror(no): counter(no):	Get next NAT entry. ▪ next_mode = unused ▪ entry_id = 0-31 ▪ entryflags #define FAL_NAT_ENTRY_PORT_CHECK 0x20 ▪ entrystatus = Unused ▪ select_idx = 0-7 ▪ vrf_id= 0-7 ▪ src addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, used to change frame DIP. ▪ port num ▫ Port num start value ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, compare with frame DP. ▪ port range ▫ Port number range ▫ port num start<= port num<port num start+range ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32.
nat natentry show	Show all NAT entry.
nat natentry bindcnt <nat entry id> <cnt id> <enable|disable>	Binding one NAT entry to one counter for debug. ▪ entry_id = 0-31 ▪ counter = 0-31 ▫ Bind to counter. Total 32.

2.13.2 naptentry

Command	Description
nat naptentry add entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): trans addr(0.0.0.0): src port(0): dst port(0): trans port(0): action(forward): mirror(no): counter(no): priority(no):	Add a NAPT entry. ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 #define FAL_NAT_ENTRY_TRANS_IPADDR_INDEX 0x10 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, frame DIP should be change to these bits. ▪ dst addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do DNAT, compare with frame DIP. ▫ When do SNAT, frame SIP should be change to IP. ▪ src port ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, frame DP should be change to these bits. ▪ dst port ▫ When do SNAT, compare with frame DP. ▫ When do DNAT, compare with frame SP. ▪ trans port ▫ When do DNAT, compare with frame DP. ▫ When do SNAT, frame SP should be change to these bits. ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7

Command	Description
nat naptentry del <del_mode> entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): trans addr(0.0.0.0): src port(0): dst port(0): trans port(0): action(forward): mirror(no): counter(no): priority(no):	Delete a NAPT entry. ▪ del_mode = 0-1 ▫ 0 = flush all NAT entry. #define FAL_NAT_ENTRY_ID_EN 0x1 ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 #define FAL_NAT_ENTRY_TRANS_IPADDR_INDEX 0x10 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, frame DIP should be change to these bits. ▪ dst addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do DNAT, compare with frame DIP. ▫ When do SNAT, frame SIP should be change to IP. ▪ src port ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, frame DP should be change to these bits. ▪ dst port ▫ When do SNAT, compare with frame DP. ▫ When do DNAT, compare with frame SP. ▪ trans port ▫ When do DNAT, compare with frame DP. ▫ When do SNAT, frame SP should be change to these bits. ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7

Command	Description
nat naptentry get <get_mode> entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): trans addr(0.0.0.0): src port(0): dst port(0): trans port(0): action(forward): mirror(no): counter(no): priority(no):	Get a NAPT entry. ▪ del_mode = 1 #define FAL_NAT_ENTRY_ID_EN 0x1 ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 #define FAL_NAT_ENTRY_TRANS_IPADDR_INDEX 0x10 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, frame DIP should be change to these bits. ▪ dst addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do DNAT, compare with frame DIP. ▫ When do SNAT, frame SIP should be change to IP. ▪ src port ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, frame DP should be change to these bits. ▪ dst port ▫ When do SNAT, compare with frame DP. ▫ When do DNAT, compare with frame SP. ▪ trans port ▫ When do DNAT, compare with frame DP. ▫ When do SNAT, frame SP should be change to these bits. ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7

Command	Description
nat naptentry next <next_mode> entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): trans addr(0.0.0.0): src port(0): dst port(0): trans port(0): action(forward): mirror(no): counter(no): priority(no):	Get next NAPT entry. ▪ next_mode = Not used ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 #define FAL_NAT_ENTRY_TRANS_IPADDR_INDEX 0x10 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, frame DIP should be change to these bits. ▪ dst addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP. ▪ trans addr ▫ When do DNAT, compare with frame DIP. ▫ When do SNAT, frame SIP should be change to IP. ▪ src port ▫ When do SNAT, compare with frame SP. ▫ When do DNAT, frame DP should be change to these bits. ▪ dst port ▫ When do SNAT, compare with frame DP. ▫ When do DNAT, compare with frame SP. ▪ trans port ▫ When do DNAT, compare with frame DP. ▫ When do SNAT, frame SP should be change to these bits. ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7
nat naptentry show	Show all NAPT entry.
nat naptentry bindcnt <napt entry id> <cnt id> <enable|disable>	Binding one NAPT entry to one counter for debug. ▪ entry_id = 0-31 ▪ counter = 0-31 ▫ Bind to counter. Total 32.

2.13.3 natstatus

Command	Description
nat natstatus set <enable|disable>	Set NAT status.
nat natstatus get	Get NAT status.

2.13.4 Nathash

Command	Description
nat nathash set <flag>	Set NAT hash mode. ▪ flag #define FAL_NAT_HASH_KEY_PORT 0x40 #define FAL_NAT_HASH_KEY_IPADDR 0x80
nat nathash get	Get NAT hash mode.

2.13.5 Naptmode

Command	Description
nat naptmode set <fullcone|strictcone|portstrict|synmatric>	Set NAPT mode.
nat naptmode get	Get NAPT mode.

2.13.6 Prvbaseaddr

Command	Description
nat prvbaseaddr set <ip4 addr>	Set NAT PRV base address.
nat prvbaseaddr get	Get NAT PRV base address.

2.13.7 Prvbasemask

Command	Description
nat prvbasemask set <ip4 mask>	Set NAT PRV base mask.
nat prvbasemask get	Get NAT PRV base mask.

2.13.8 Prvaddrmode

Command	Description
nat prvaddrmode set <enable|disable>	Set NAT PRV address map.
nat prvaddrmode get	Get NAT PRV address map.

2.13.9 pubaddr

Command	Description
nat pubaddr add entryid(0): pub addr:	Add PUB address. ▪ Entryid = 0-7
nat pubaddr del <del_mode> entryid(0): pub addr:	Delete PUB address. ▪ del_mode = Not used ▪ entryid = 0-7

2.13.10 natunksess

Command	Description
nat natunksess set <forward|drop|cpycpu|rdtcpu>	Set NAT unknown session command.
nat natunksess get	Get NAT unknown session command.

2.13.11 flowentry

Command	Description
nat flowentry add entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): src port(0): dst port(0): action(forward): mirror(no): counter(no): priority(no):	Add a FLOW entry. ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▪ dst addr ▪ src port ▪ dst port ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7

Command	Description
nat flowentry del <del_mode> entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): src port(0): dst port(0): action(forward): mirror(no): counter(no): priority(no):	Delete a FLOW entry. ▪ del_mode = 0-1 ▫ 0 = flush all FLOW entry. #define FAL_NAT_ENTRY_ID_EN 0x1 ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▪ dst addr ▪ src port ▪ dst port ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7

Command	Description
nat flowentry get <get_mode> entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): src port(0): dst port(0): action(forward): mirror(no): counter(no): priority(no):	Get a FLOW entry. ▪ del_mode = 1 #define FAL_NAT_ENTRY_ID_EN 0x1 ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▪ dst addr ▪ src port ▪ dst port ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7

Command	Description
nat flowentry next <next_mode> entryid(0): entryflags(0): entrystatus(0xf): vrf_id(0): flow_cookie(0): load_balance(0): src addr(0.0.0.0): dst addr(0.0.0.0): src port(0): dst port(0): action(forward): mirror(no): counter(no): priority(no):	Get next FLOW entry. ▪ next_mode = Not used ▪ entry_id = 0-1023 ▪ entryflags #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 ▪ entrystatus = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id= 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src addr ▪ dst addr ▪ src port ▪ dst port ▪ action ▫ FAL_MAC_FRWRD = 0 ▫ FAL_MAC_CPY_TO_CPU = 2 ▫ FAL_MAC_RDT_TO_CPU = 3 ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ priority = 0-7
nat flowentry show	Show all FLOW entry.
nat flowentry bindcnt <flow entry id> <cnt id> <enable|disable>	Binding one FLOW entry to one counter for debug. ▪ entry_id = 0-31 ▪ counter = 0-31 ▫ Bind to counter. Total 32.

2.13.12 flowcookie

Command	Description
nat flowcookie set proto(0): src addr(0.0.0.0): dst addr(0.0.0.0): src port(0): dst port(0): flow cookie(0):	Set flow cookie value for an assigned flow. ▪ proto #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 ▪ src addr ▪ dst addr ▪ src port ▪ dst port ▪ flow_cookie = 0-2047

2.13.13 flowrfs

Command	Description
nat flowrfs set proto(0): src addr(0.0.0.0): dst addr(0.0.0.0): src port(0): dst port(0): flow rfs(0):	Set flow RFS value for an assigned flow. ▪ proto #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 #define FAL_NAT_ENTRY_PROTOCOL_PPTP 0x4 ▪ src addr ▪ dst addr ▪ src port ▪ dst port ▪ flow_rfs = 0-3

2.14 PORT_CTRL commands

Command	Description
duplex	Configure duplex mode on a particular port.
speed	Configure speed on a particular port.
autoAdv	Configure auto negotiation advisement ability on a particular port.
autoNeg	Configure auto negotiation on a particular port.
header	Configure status of Atheros header packets parsed on a particular port.
txhdr	Configure status of Atheros header packets parsed on a particular port.
rxhdr	Configure status of Atheros header packets parsed on a particular port.
hdrtype	Configure Atheros header type status and value on a particular device.
flowCtrl	Configure flow control status on a particular port.
flowCtrlforcemode	Configure flow control force mode on a particular port.
powersave	Configure powersaving status on a particular port.
hibernate	Configure hibernate status on a particular port.
cdt	Configure cable diagnostic test.
txmacstatus	Configure status of Tx MAC on a particular port.
rxmacstatus	Configure status of Rx MAC on a particular port.
txfcstatus	Configure status of Tx flow control on a particular port.
rxfcstatus	Configure status of Rx flow control on a particular port.
bpstatus	Configure status of back pressure on a particular port.
linkforcemode	Configure link force mode on a particular port.
linkstatus	Configure link status on particular port.
macLoopback	Configure loopback on a particular port.
congestiondrop	Configure congestion drop status on a particular port's queue.
ringfcthreshold	Configure port ring flow control threshold.
Ieee8023az	Config port 802.3az mode on particular port
crossover	Config port crossover mode on particular port
perfermedium	Config port prefer medium type on particular port
mediumtype	Get port mediumtype status on particular port
Fiber mode	Config fiber mode on particular port
Local loopback	Config local loopback on particular port

Command	Description
Remote loopback	Config remote loopback on particular port
reset	Reset on particular port
Poweroff	Power off on particular port
Poweron	Power on on particular port
magicframemac	Config magic frame MAC address on particular port
Phyid	Get PHY ID on particular port
wolstatus	Config WOL status on particular port
Interfacemode	Config port interface mode on particular port
Counter	config PHY port counter

2.14.1 Duplex

Command	Description
port duplex set <port_id> <half|full>	Set duplex mode on a particular port. ▪ port_id = 0-6 ▪ half | full
port duplex get <port_id>	Get duplex mode on a particular port. ▪ port_id = 0-6

2.14.2 speed

Command	Description
port speed set <port_id> <10|100|1000>	Set speed on a particular port. ▪ port_id = 0-6 ▪ 10 | 100 | 1000 = 10M, 100M, 1000M
port speed get <port_id>	Get speed on a particular port. ▪ port_id = 0-6

2.14.3 autoAdv

Command	Description
port autoAdv set <port_id> <cap_bitmap>	Set auto negotiation advisement ability on a particular port. ▪ port_id = 0-6 ▪ cap_bitmap ▫ BIT[0] = 10 M half ▫ BIT[1] = 10 M full ▫ BIT[2] = 100 M half ▫ BIT[3] = 100 M full ▫ BIT[4] = pause ▫ BIT[5] = async pause ▫ BIT[9] = 1000 M full
port autoAdv get <port_id>	Get auto negotiation advisement ability on a particular port. ▪ port_id = 0-6

2.14.4 autoNeg

Command	Description
port autoNeg get <port_id>	Get auto negotiation status on a particular port. ▪ port_id = 0-6
port autoNeg enable <port_id>	Enable auto negotiation status on a particular port. ▪ port_id = 0-6
port autoNeg restart <port_id>	Restart auto negotiation procedure on a particular port. ▪ port_id = 0-6

2.14.5 header

Command	Description
port header set <port_id> <enable|disable>	Set status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port header get <port_id>	Get status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6

2.14.6 txhdr

Command	Description
port txhdr set <port_id> <noheader|onlymanagement|allframe>	Set status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6 ▪ noheader = frames should be send out without header. ▪ onlymanagement = only management frame should be sent out with header. Normal packet will be sent without header. ▪ allframe = all frames should be send out with header.
port txhdr get <port_id>	Get status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6

2.14.7 rxhdr

Command	Description
port rxhdr set <port_id> <noheader|onlymanagement|allframe>	Set status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6 ▪ noheader = frame should be received without header. ▪ onlymanagement = only management frame should be received with header. ▪ allframe = all frame with header
port rxhdr get <port_id>	Get status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6

2.14.8 hdrtype

Command	Description
port hdrtype set <enable|disable> <type>	Set Atheros header type status and value on a particular device. ▪ enable | disable ▪ type = 0x0-0xffff
port hdrtype get	Get Atheros header type status and value on a particular device.

2.14.9 flowCtrl

Command	Description
port flowCtrl set <port_id> <enable|disable>	Set flow control status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port flowCtrl get <port_id>	Get flow control status on a particular port. ▪ port_id = 0-6

2.14.10 flowCtrlforcemode

Command	Description
port flowCtrlforcemode set <port_id> <enable|disable>	Set flow control force mode on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port flowCtrlforcemode get <port_id>	Get flow control force mode on a particular port. ▪ port_id = 0-6

2.14.11 powersave

Command	Description
port powersave set <port_id> <enable|disable>	Set powersaving status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port powersave get <port_id>	Get powersaving status on a particular port. ▪ port_id = 0-6

2.14.12 hibernate

Command	Description
port hibernate set <port_id> <enable|disable>	Set hibernate status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port hibernate get <port_id>	Get hibernate status on a particular port. ▪ port_id = 0-6

2.14.13 cdt

Command	Description
port cdt run <port_id> <mdi_pair>	Run cable diagnostic test. ▪ port_id = 0-6 ▪ mdi_pair = 0-3

2.14.14 txmacstatus

Command	Description
port txmacstatus set <port_id> <enable|disable>	Set status of Tx MAC on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port txmacstatus get <port_id>	Get status of Tx MAC on a particular port. ▪ port_id = 0-6

2.14.15 rxmacstatus

Command	Description
port rxmacstatus set <port_id> <enable|disable>	Set status of Rx MAC on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port rxmacstatus get <port_id>	Get status of Rx MAC on a particular port. ▪ port_id = 0-6

2.14.16 txfcstatus

Command	Description
port txfcstatus set <port_id> <enable|disable>	Set status of Tx flow control on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port txfcstatus get <port_id>	Get status of Tx flow control on a particular port. ▪ port_id = 0-6

2.14.17 rxfcstatus

Command	Description
port rxfcstatus set <port_id> <enable|disable>	Set status of Rx flow control on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port rxfcstatus get <port_id>	Get status of Rx flow control on a particular port. ▪ port_id = 0-6

2.14.18 bpstatus

Command	Description
port bpstatus set <port_id> <enable|disable>	Set status of back pressure on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port bpstatus get <port_id>	Get status of back pressure on a particular port. ▪ port_id = 0-6

2.14.19 linkforcemode

Command	Description
port linkforcemode set <port_id> <enable|disable>	Set link force mode on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port linkforcemode get <port_id>	Get link force mode on a particular port. ▪ port_id = 0-6

2.14.20 linkstatus

Command	Description
port linkstatus get <port_id>	Get link status on particular port. ▪ port_id = 0-6

2.14.21 macLoopback

Command	Description
port macLoopback set <port_id> <enable|disable>	Set loopback on a particular port. ▪ port_id = 0-6 ▪ enable | disable
port macLoopback get <port_id>	Get loopback on a particular port. ▪ port_id = 0-6

2.14.22 congestionDrop

Command	Description
port congedrop set <port_id> <queue_id> <enable|disable>	Set congestion drop status on a particular port's queue. ▪ port_id = 0-5 ▪ enable | disable
port congedrop set <port_id> <queue_id>	Get congestion drop status on a particular port's queue. ▪ port_id = 0-5

2.14.23 ringfcthreshold

Command	Description
port ringfcthres set <port_id> <ring_id> <on_thres> <off_thres>	Set port ring threshold.
port ringfcthres get <port_id> <ring_id>	Get port ring threshold.

2.14.24 Ieee8023az

Command	Description
port ieee8023az set <port_id> <enable|disable>	Set port 802.3az status. ▪ port_id = 1-5
port ieee8023az get <port_id>	Get port 802.3az status. ▪ port_id = 1-5

2.14.25 Crossover

Command	Description
port crossover set <port_id> <auto|mdi|mdix>	Set port crossover mode. ▪ port_id = 1-5
port crossover get <port_id>	Get port crossover mode. ▪ port_id = 1-5
port crossover status <port_id>	Get current crossover status. port_id = 1-5

2.14.26 Prefermedium

Command	Description
port preferMedium set <port_id> <copper|fiber>	Set port prefer medium type. ▪ port_id = 5
port preferMedium get <port_id>	Get port prefer medium type. ▪ port_id = 5
port mediumType get <port_id>	Get port current medium type. port_id = 5

2.14.27 Fibermode

Command	Description
port fiberMode set <port_id> <100fx|1000bx>	Set port fiber mode. ▪ port_id = 5
port fiberMode get <port_id>	Get port fiber mode. ▪ port_id = 5

2.14.28 LocalLoopback

Command	Description
port localLoopback set <port_id> <enable|disable>	Set port local loopback mode. ▪ port_id = 1-5
port localLoopback get <port_id>	Get port local loopback mode. ▪ port_id = 1-5

2.14.29 RemoteLoopback

Command	Description
port remoteLoopback set <port_id> <enable|disable>	Set port remote loopback mode. ▪ port_id = 1-5
port remoteLoopback get <port_id>	Get port remote loopback mode. ▪ port_id = 1-5

2.14.30 Reset

Command	Description
port reset set <port_id>	Set port reset. ▪ port_id = 1-5

2.14.31 Poweroff

Command	Description
port poweroff set <port_id>	Set port off. ▪ port_id = 1-5

2.14.32 Poweron

Command	Description
port poweron set <port_id>	Set port on. ▪ port_id = 1-5

2.14.33 MagicFramemac

Command	Description
port magicFrameMac set <port_id> <mac_address>	Set port magic frame mac address. ▪ port_id = 1-5
port magicFrameMac get <port_id>	Get port magic frame mac address. ▪ port_id = 1-5

2.14.34 Phyid

Command	Description
port phyId get <port_id>	Get port PHY ID. ▪ port_id = 1-5

2.14.35 Wol

Command	Description
port wolstatus set <port_id> <enable|disable>	Set port WOL status. ▪ port_id = 1-5
port wolstatus get <port_id>	Get port WOL status. ▪ port_id = 1-5

2.14.36 Interfacemode

Command	Description
port interfaceMode set <port_id> <psgmii_baset|psgmii_bx1000| psgmii_fx100|psgmii_amdet|sgmii_baset>	Set port interface mode. ▪ port_id = 5
port interfaceMode get <port_id>	Get port interface mode. ▪ port_id = 5
port interfaceMode status <port_id>	Get port current interface mode. port_id = 5

2.15 PORT_VLAN commands

Command	Description
ingress	Configure 802.1q work mode on a particular port.
egress	Configure packets transmitted out VLAN tagged mode on a particular port.
member	Configure member of port based VLAN on a particular port.
forceVid	Configure force default VLAN ID status on a particular port.
forceMod	Configure force port based VLAN status on a particular port.
nestVlan	Configure nest VLAN feature status on a particular port.
sVlanTPID	Configure nest VLAN TPID on a particular device.
invlan	Configure ingress VLAN mode on a particular port.
tlsMode	Configure TLS status on a particular port.
priPropagation	Configure priority propagation status on a particular port.
defaultSVid	Configure default stag VID on a particular port.
defaultCVid	Configure default ctag VID on a particular port.
vlanPropagation	Configure VLAN propagation status on a particular port.
translation	Configure VLAN translation entry on a particular port.

Command	Description
qinqMode	Configure switch qinq work mode.
qinqRole	Configure qinq role on a particular port.
macvlanxlt	Configure egress MAC based VLAN enable status on a particular port.
netiso	Configure net isolation function.
egbypass	Configure egress translation filter bypass status.
vrf_id	Configure default VRF ID on a particular port.

2.15.1 Ingress

Command	Description
portVlan ingress set <port_id> <disable|secure|check|fallback>	Set 802.1q work mode on a particular port. ▪ port_id = 0-6 ▪ disable = 802.1q mode disable, port based VLAN ▪ secure = secure mode, packets which VID isn't in VLAN table or source port isn't in VLAN port member will be discarded. ▪ Check = check mode, packets which vid isn't in VLAN table will be discarded, packets which source port isn't in VLAN port member will forward base on VLAN port member. ▪ Fallback = fallback mode, packets which VID isn't in VLAN table will forwarded base on port VLAN, packet's which source port isn't in VLAN port member will forward base on VLAN port member.
portVlan ingress get <port_id>	Get 802.1q work mode on a particular port. ▪ port_id = 0-6

2.15.2 Egress

Command	Description
portVlan egress set <port_id> <unmodified |untagged |tagged |hybrid |untouched>	Set packets transmitted out VLAN tagged mode on a particular port. ▪ port_id = 0-6 ▪ unmodified = egress transmit packets unmodified ▪ untagged = egress transmit packets without VLAN tag ▪ tagged = egress transmit packets with VLAN tag ▪ hybrid = egress transmit packets in hybrid tag mode ▪ untouched
portVlan egress get <port_id>	Get packets transmitted out VLAN tagged mode on a particular port. ▪ port_id = 0-6

2.15.3 member

Command	Description
portVlan member add <port_id> <memport_id>	Add member of port based VLAN on a particular port. ▪ port_id = 0-6 ▪ memport_id = 0-6

Command	Description
portVlan member del <port_id> <memport_id>	Delete member of port based VLAN on a particular port. ▪ port_id = 0-6 ▪ memport_id = 0-6
portVlan member update <port_id> <port_bitmap>	Update member of port based VLAN on a particular port. ▪ port_id = 0-6 ▪ port_bitmap ▫ BIT[0] = port 0 ▫ BIT[1] = port 1 ▫ BIT[2] = port 2 ▫ BIT[3] = port 3 ▫ BIT[4] = port 4 ▫ BIT[5] = port 5 ▫ BIT[6] = port 6
portVlan member get <port_id>	Get member of port based VLAN on a particular port. ▪ port_id = 0-6

2.15.4 forceVid

Command	Description
portVlan forceVid set <port_id> <enable|disable>	Set force default VLAN ID status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
portVlan forceVid get <port_id>	Get force default VLAN ID status on a particular port. ▪ port_id = 0-6

2.15.5 forceMode

Command	Description
portVlan forceMode set <port_id> <enable|disable>	Set force port based VLAN status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
portVlan forceMode get <port_id>	Get force port based VLAN status on a particular port. ▪ port_id = 0-6

2.15.6 nestVlan

Command	Description
portVlan nestVlan set <port_id> <enable|disable>	Set nest VLAN feature status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
portVlan nestVlan get <port_id>	Get nest VLAN feature status on a particular port. ▪ port_id = 0-6

2.15.7 sVlanTPID

Command	Description
portVlan sVlanTPID set <tpid>	Set nest VLAN TPID on a particular device. ▪ Tpid = 0x0-0xffff
portvlan sVlanTPID get	Get nest VLAN TPID on a particular device.

2.15.8 Invlan

Command	Description
portVlan invlan set <port_id> <admit_all |admit_tagged |admit_untagged>	Set ingress VLAN mode on a particular port. ▪ port_id = 0-6 ▪ admit_all = receive all packets including tagged and untagged. ▪ admit_tagged = only receive tagged packets ▪ admit_untagged = only receive untagged packets including priority tagged.
portVlan invlan get <port_id>	Get ingress VLAN mode on a particular port. ▪ port_id = 0-6

2.15.9 tlsMode

Command	Description
portVlan tlsMode set <port_id> <enable|disable>	Set TLS status on a particular port. ▪ port_id = 0-6 ▪ enable = port work at TLS mode ▪ disable = port work at NON-TLS mode
portVlan tlsMode get <port_id>	Get TLS status on a particular port. ▪ port_id = 0-6

2.15.10 priPropagation

Command	Description
portVlan priPropagation set <port_id> <enable|disable>	Set priority propagation status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
portVlan priPropagation get <port_id>	Get priority propagation status on a particular port. ▪ port_id = 0-6

2.15.11 defaultSVid

Command	Description
portVlan defaultSVid set <port_id> <vlan_id>	Set default stag VID on a particular port. ▪ port_id = 0-6 ▪ vlan_id = 0-4095
portVlan defaultSVid get <port_id>	Get default stag VID on a particular port. ▪ port_id = 0-6

2.15.12 defaultCVid

Command	Description
portVlan defaultCVid set <port_id> <vlan_id>	Set default ctag VID on a particular port. ▪ port_id = 0-6 ▪ vlan_id = 0-4095
portVlan defaultCVid get <port_id>	Get default ctag VID on a particular port. ▪ port_id = 0-6

2.15.13 vlanPropagation

Command	Description
portVlan vlanPropagation set <port_id> <disable|clone|replace>	Set VLAN propagation status on a particular port. ▪ port_id = 0-6 ▪ disable = VLAN propagation disable ▪ clone = VLAN propagation mode is clone ▪ replace = VLAN propagation mode is replace
portVlan vlanPropagation get <port_id>	Get VLAN propagation status on a particular port. ▪ port_id = 0-6

2.15.14 translation

Command	Description
portVlan translation add <port_id> <ovid> <bi_direction> <forward_direction> <reverse_direction> <svid> <cvid> <ovid_is_cvid> <svid_enable> <cvid_enable> <one_2_one_vlan>	Add a VLAN translation entry to a particular port. ▪ port_id = 0-6 ▪ ovid = 0-4095 ▪ bi direction = yes | no ▪ forward direction = yes | no ▪ reverse direction = yes | no ▪ svid = 0-4095 ▪ cvid = 0-4095 ▪ ovid_is_cvid = yes | no ▪ svid_enable = yes | no ▪ cvid_enable = yes | no ▪ one_2_one_vlan = yes | no
portVlan translation del <port_id>	Delete a VLAN translation entry from a particular port. ▪ port_id = 0-6

Command	Description
portVlan translation get <port_id>	Get a VLAN translation entry from a particular port. ▪ port_id = 0-6
portVlan translation iterate <port_id> <iterator>	Iterate all VLAN translation entries from a particular port. ▪ port_id = 0-6

2.15.15 qinqMode

Command	Description
portvlan qinqMode set <ctag|stag>	Set switch qinq work mode. ▪ ctag | stag
portvlan qinqMode get	Get switch qinq work mode.

2.15.16 qinqRole

Command	Description
portVlan qinqRole set <port_id> <edge|core>	Set qinq role on a particular port. ▪ port_id = 0-6 ▪ edge | core
portVlan qinqRole get <port_id>	Get qinq role on a particular port. ▪ port_id = 0-6

2.15.17 macvlanxlt

Command	Description
portVlan macvlanxlt set <port_id> <enable|disable>	Set egress MAC based VLAN enable status on a particular port. ▪ port_id = 0-6 ▪ enable | disable
portVlan macvlanxlt get <port_id>	Get egress MAC based VLAN enable status on a particular port. ▪ port_id = 0-6

2.15.18 netiso

Command	Description
portvlan netiso set <enable|disable>	Set NET isolation function. ▪ Enable = isolate private net and public net ▪ Disable = not isolate private net and public net
portvlan netiso get	Get NET isolation function.

2.15.19 Egbypass

Command	Description
portvlan egbypass set <enable|disable>	Set egress translation filter bypass status. ▪ enable | disable
portvlan egbypass get	Get egress translation filter bypass status.

2.15.20 Vrf_id

Command	Description
portVlan vrf_id set <port_id> <vrf_id>	Set default VRF ID on a particular port. ▪ port_id = 0-6 ▪ 0~7
portVlan vrf_id get <port_id>	Get default VRF ID on a particular port. ▪ port_id = 0-6

2.16 QoS commands

Command	Description
qTxBufSts	Configure buffer assignment status of transmitting queue on one particular port.
qTxBufNr	Configure max occupied buffer number of transmitting queue on one particular port.
ptTxBufSts	Configure buffer assignment status of transmitting port on one particular port.
ptRedEn	Configure RED status on one particular port.
ptTxBufNr	Configure max occupied buffer number of transmitting port on one particular port.
ptRxBufNr	Configure max reserved buffer number of receiving port on one particular port.
ptMode	Configure port QoS mode status on one particular port.
ptModePri	Configure priority of one particular QoS mode on one particular port.
ptschMode	Configure traffic scheduling mode on particular one port.
ptDefaultSpri	Configure default stag priority on one particular port.
ptDefaultCpri	Configure default ctag priority on one particular port.
ptFSpriSts	Configure force stag priority flag on one particular port.
ptFCpriSts	Configure force ctag priority flag on one particular port.
ptQuRemark	Configure egress queue based CoS remark on one particular port.

2.16.1 qTxBufSts

Command	Description
qos qtxBufSts set <port_id> <enable|disable>	Set buffer assignment status of transmitting queue on one particular port. ▪ port_id = 0-6 ▪ enable | disable If enable queue Tx buffer on one port, it means each queue of this port will have fixed number buffers when transmitting packets. Otherwise they will share the whole buffers with other queues in device.

Command	Description
qos qtxBufSts set <port_id>	Get buffer assignment status of transmitting queue on one particular port.

2.16.2 qTxBufNr

Command	Description
os qTxBufNr set <port_id> <queueid> <number>	Set max occupied buffer number of transmitting queue on one particular port. ▪ port_id = 0-6 ▪ queueid = 0-3 ▪ number = 0-120
os qTxBufNr get <port_id> <queueid>	Get max occupied buffer number of transmitting queue on one particular port. ▪ port_id = 0-6 ▪ queueid = 0-3

2.16.3 ptTxBufSts

Command	Description
qos ptTxBufSts set <port_id> <enable|disable>	Set buffer assignment status of transmitting port on one particular port. ▪ port_id = 0-6 ▪ enable | disable If enable Tx buffer on one port, it means this port will have fixed number buffers when transmitting packets. Otherwise they will share the whole buffers with other ports in device.
qos ptTxBufSts get <port_id>	Get buffer assignment status of transmitting port on one particular port. ▪ port_id = 0-6

2.16.4 ptRedEn

Command	Description
qos ptRedEn set <port_id> <enable|disable>	Set RED status on one particular port. ▪ port_id = 0-6 ▪ enable | disable The status is to enable or disable Random Early Detection on a port.
qos ptRedEn get <port_id>	Get RED status on one particular port. ▪ port_id = 0-6

2.16.5 ptTxBufNr

Command	Description
qos ptTxBufNr set <port_id> <number>	Set max occupied buffer number of transmitting port on one particular port. ▪ port_id = 0-6 ▪ number = 0-504
qos ptTxBufNr get <port_id>	Get max occupied buffer number of transmitting port on one particular port. ▪ port_id = 0-6

2.16.6 ptRxBufNr

Command	Description
qos ptRxBufNr set <port_id> <number>	Set max reserved buffer number of receiving port on one particular port. ▪ port_id = 0-6 ▪ number = 0-120
qos ptRxBufNr get <port_id>	Get max reserved buffer number of receiving port on one particular port. ▪ port_id = 0-6

2.16.7 ptMode

Command	Description
qos ptMode set <port_id> <da|up|dscp> <enable|disable>	Set port QoS mode status on one particular port. ▪ port_id = 0-6 ▪ da | up | dscp | flow ▪ enable | disable
qos ptMode get <port_id> <da|up|dscp>	Get port QoS mode status on one particular port. ▪ port_id = 0-6 ▪ da | up | dscp | flow

1. Flow mode is available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.16.8 ptModePri

Command	Description
qos ptModePri set <port_id> <da|up|dscp> <priority>	Set priority of one particular QoS mode on one particular port. ▪ port_id = 0-6 ▪ da | up | dscp | flow ▪ priority = 0-3 Smaller value indicates higher priority.
qos ptModePri get <port_id> <da|up|dscp>	Get priority of one particular QoS mode on one particular port. ▪ port_id = 0-6 ▪ da | up | dscp | flow

1. Flow mode is available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.16.9 ptschMode

Command	Description
qos ptschMode set <port_id> <sp|wrr|mix|mixplus> <q0,q1,q2,q3,q4,q5>	Set traffic scheduling mode on particular one port. ▪ port_id = 0-6 ▪ sp | wrr | mix | mixplus ▫ sp = strict priority scheduling mode ▫ wrr = weight round robin scheduling mode ▫ mix = SP and WRR mixed scheduling mode ▫ mixplus = SP and WRR mixed plus scheduling mode ▪ q0,q1,q2,q3,q4,q5 ▫ Weight value (0-31) for each queue when in WRR mode.
qos ptschMode get <port_id>	Get traffic scheduling mode on particular one port.

2.16.10 ptDefaultSpri

Command	Description
qos ptDefaultSpri set <port_id> <spri>	Set default stag priority on one particular port. ▪ port_id = 0-6 ▪ spri = 0-7
qos ptDefaultSpri get <port_id>	Get default stag priority on one particular port. ▪ port_id = 0-6

2.16.11 ptDefaultCpri

Command	Description
qos ptDefaultCpri set <port_id> <cpri>	Set default ctag priority on one particular port. ▪ port_id = 0-6 ▪ spri: 0-7
qos ptDefaultCpri get <port_id>	Get default ctag priority on one particular port. ▪ port_id = 0-6

2.16.12 ptFSpriSts

Command	Description
qos ptFSpriSts set <port_id> <enable|disable>	Set force stag priority flag on one particular port. ▪ port_id = 0-6 ▪ enable | disable
qos ptFSpriSts get <port_id>	Get force stag priority flag on one particular port. ▪ port_id = 0-6

2.16.13 ptFCpriSts

Command	Description
qos ptFCpriSts set <port_id> <enable|disable>	Set force ctag priority flag on one particular port. ▪ port_id = 0-6 ▪ enable | disable
qos ptFCpriSts get <port_id>	Get force ctag priority flag on one particular port. ▪ port_id = 0-6

2.16.14 ptQuRemark

Command	Description
qos ptQuRemark set <port_id> <queue_id> <table_id> <enable|disable>	Set egress queue based CoS remark on one particular port. ▪ port_id = 0-6 ▪ queue_id = 0-3 ▪ table_id = 0-15 ▪ enable | disable
qos ptQuRemark get <port_id> <queue_id>	Get egress queue based CoS remark on one particular port. ▪ port_id = 0-6 ▪ queue_id = 0-3

2.17 RATE commands

Command	Description
portpolicer	Configure port ingress policer parameters on one particular port.
portshaper	Configure port egress shaper parameters on one particular port.
queueshaper	Configure queue egress shaper parameters on one particular port.
aclpolicer	Configure ACL ingress policer parameters.
ptAddRateByte	Configure byte number should be added to frame when calculate rate limit.
ptgolflowen	Configure status of port global flow control when global threshold is reached.

2.17.1 Portpolicer

Command	Description
rate portpolicer set <port_id> <combine_enable> <bytebased> <couple_flag> <color_aware> <deficit_flag> <c_enable> <cir> <cbs> <c_rate_flag> <c_meter_interval> <e_enable> <eir> <ebs> <e_rate_flag> <e_meter_interval>	Set port ingress policer parameters on one particular port. ▪ port_id = 0-6 ▪ combine_enable = yes | no ▪ bytebased = yes | no ▫ Yes = byte based ▫ No = packet based ▪ couple_flag = yes | no ▪ color_aware = yes | no ▪ deficit_flag = yes | no ▪ c_enable = yes | no ▪ cir = 0-1048544 ▫ Committed Information Rate, kbps for byte based mode or pps for packet mode. ▪ Cbs = 0-524288 ▫ Committed Burst Size, bytes for byte based mode or packets for packet mode. ▪ c_rate_flag ▫ BIT[0] = MIRROR_RATE_EN, ingress mirror frame rate limit enable for C bucket ▫ BIT[1] = TCP_CTRL_RATE_EN, ingress TCP control frame rate limit enable for C bucket ▫ BIT[2] = MANAGE_RATE_EN, ingress management frame rate limit enable for C bucket ▫ BIT[3] = BROAD_RATE_EN, ingress broadcast frame rate limit enable for C bucket ▫ BIT[4] = UNK_UNI_RATE_EN, ingress unknown unicast frame rate limit enable for C bucket ▫ BIT[5] = UNK_MULTI_RATE_EN, ingress unknown frame multicast rate limit enable for C bucket ▫ BIT[6] = UNI_RATE_EN, ingress unicast frame rate limit enable for C bucket ▫ BIT[7] = MULTI_RATE_EN, ingress multicast frame rate limit enable for C bucket ▪ c_meter_interval = 100 us/1 ms/10 ms/100 ms ▪ e_enable = yes | no ▪ eir = 0-1048544 ▫ Excess Information Rate, kbps for byte based mode or pps for packet mode. ▪ Ebs = 0-524288 ▫ Excess Burst Size, bytes for byte based mode or packets for packet mode. ▪ e_rate_flag ▫ BIT[0] = MIRROR_RATE_EN, ingress mirror frame rate limit enable for E bucket ▫ BIT[1] = TCP_CTRL_RATE_EN, ingress TCP control frame rate limit enable for E bucket ▫ BIT[2] = MANAGE_RATE_EN, ingress management frame rate limit enable for E bucket ▫ BIT[3] = BROAD_RATE_EN, ingress broadcast frame rate limit enable for E bucket ▫ BIT[4] = UNK_UNI_RATE_EN, ingress unknown unicast frame rate limit enable for E bucket ▫ BIT[5] = UNK_MULTI_RATE_EN, ingress unknown frame multicast rate limit enable for E bucket ▫ BIT[6] = UNI_RATE_EN, ingress unicast frame rate limit enable for E bucket ▫ BIT[7] = MULTI_RATE_EN, ingress multicast frame rate limit enable for E bucket ▪ e_meter_interval = 100 us/1 ms/10 ms/100 ms
rate portpolicer get <port_id>	Get port ingress policer parameters on one particular port. ▪ port_id = 0-6

2.17.2 portshaper

Command	Description
rate portshaper set <port_id> <enable|disable> <bytebased> <cir> <cbs> <eir> <ebs>	Set port egress shaper parameters on one particular port. ▪ port_id = 0-6 ▪ enable | disable ▪ bytebased = yes | no ▫ Yes = byte based ▫ No = packet based ▪ Cir = 0-1048544. ▫ Committed Information Rate, kbps for byte based mode or pps for packet mode. ▪ Cbs = 0-524288 ▫ Committed Burst Size, bytes for byte based mode or packets for packet mode. ▪ Eir = 0-1048544 ▫ Excess Information Rate, kbps for byte based mode or pps for packet mode. ▪ Ebs = 0-524288 ▫ Excess Burst Size, bytes for byte based mode or packets for packet mode.
rate portshaper get <port_id>	Get port egress shaper parameters on one particular port. ▪ port_id = 0-6

2.17.3 queueshaper

Command	Description
rate queueshaper set <port_id> <queue_id> <enable|disable> <bytebased> <cir> <cbs> <eir> <ebs>	Set queue egress shaper parameters on one particular port. ▪ port_id = 0-6 ▪ queue_id = 0-3 ▪ enable | disable ▪ bytebased = yes | no ▫ Yes = byte based ▫ No = packet based ▪ Cir = 0-1048544 ▫ Committed Information Rate, kbps for byte based mode or pps for packet mode. ▪ Cbs = 0-524288 ▫ Committed Burst Size, bytes for byte based mode or packets for packet mode. ▪ Eir = 0-1048544 ▫ Excess Information Rate, kbps for byte based mode or pps for packet mode. ▪ Ebs = 0-524288 ▫ Excess Burst Size, bytes for byte based mode or packets for packet mode.
rate queueshaper get <port_id> <queue_id>	Get queue egress shaper parameters on one particular port. ▪ port_id = 0-6 ▪ queue_id = 0-3

2.17.4 aclpolicer

Command	Description
rate aclpolicer set <policer_id>	Set ACL ingress policer parameters. ▪ counter_mode = yes | no ▪ bytebased = yes | no ▫ Yes = byte based ▫ No = packet based ▪ couple_flag = yes | no ▪ color_aware = yes | no ▪ deficit_flag = yes | no ▪ cir = 0-1048544 ▫ Committed Information Rate, kbps for byte based mode or pps for packet mode. ▪ Cbs = 0-524288 ▫ Committed Burst Size, bytes for byte based mode or packets for packet mode. ▪ Eir = 0-1048544 ▫ Excess Information Rate, kbps for byte based mode or pps for packet mode. ▪ Ebs = 0-524288 ▫ Excess Burst Size, bytes for byte based mode or packets for packet mode. ▪ meter_interval = 100 us/1 ms/10 ms/100 ms
rate aclpolicer get <policer_id>	Get ACL ingress policer parameters.

2.17.5 ptAddRateByte

Command	Description
rate ptAddRateByte set <port_id> <number>	Set the byte number which can be added to frame when calculate rate limit. ▪ port_id = 0-6 ▪ number = 0-255
rate ptAddRateByte get <port_id>	Get the byte number which can be added to frame when calculate rate limit. ▪ port_id = 0-6

2.17.6 ptgolflowen

Command	Description
rate ptgolflowen set <port_id> <enable|disable>	Set status of port global flow control when global threshold is reached. ▪ port_id = 0-6 ▪ enable | disable
rate ptgolflowen get <port_id>	Get status of port global flow control when global threshold is reached. ▪ port_id = 0-6

2.18 SEC commands

Command	Description
mac resv_vid	Configure security status of frame with reserved VID.
mac invalid_src_addr	Configure security status of frame with invalid source MAC address.
ip invalid_ver	Configure security status of frame with invalid IP version.
ip set same_addr	Configure security status of frame with same source and destination IP address.
ip ttl_change_status	Configure security status of frame TTL change.
ip ttl_val	Configure TTL value.
ip4 invalid_hl	Configure security status of frame with invalid IPv4 header.
ip4 hdr_opts	Configure security status of frame with IPv4 header option.
ip4 invalid_df	Configure security status of frame with DF=1 and offset or MF not zero.
ip4 frag_offset_min_len	Configure security status of frame with offset length less than MIN size.
ip4 frag_offset_min_size	Configure frame offset length MIN size.
ip4 frag_offset_max_len	Configure security status of frame with offset length more than max.
ip4 invalid_frag_offset	Configure security status of frame with invalid fragment offset.
ip4 invalid_sip	Configure security status of frame with invalid SIP.
ip4 invalid_dip	Configure security status of frame with invalid DIP.
ip4 invalid_chksum	Configure security status of frame with invalid checksum.
ip4 invalid_pl	Configure security status of frame with short length.
ip4 df_clear_status	Configure security status of clear IPv4 DF field.
ip4 ipid_random_status	Configure security status of sent frame (not fragment) with random ID.
ip6 invalid_dip	Configure security status of frame with invalid destination IPv6 address.
ip6 invalid_sip	Configure security status of frame with invalid source IPv6 address.
ip6 invalid_pl	Configure security status of IPv6 frame with short length.
tcp blat	Configure security status of TCP frame with same source port and destination port.
tcp invalid_hl	Configure security status of TCP frame with invalid header length.
tcp min_hdr_size	Configure TCP frame header length min size.
tcp invalid_syn	Configure security status of TCP frame with invalid SYN.
tcp su_block	Configure security status of TCP frame with SYN=1 & URG=1.
tcp sp_block	Configure security status of TCP frame with SYN=1 & PSH=1.
tcp sap_block	Configure security status of TCP frame with SYN=1 & ACK=1 & PSH=1.
tcp xmas_scan	Configure security status of TCP frame with FIN=1 & URG=1 & PSH=1.
tcp null_scan	Configure security status of TCP frame with all TCP FLAG zero.
tcp sr_block	Configure security status of TCP frame with SYN=1 & RST=1.
tcp sf_block	Configure security status of TCP frame with SYN=1 & FIN=1.
tcp sar_block	Configure security status of TCP frame with SYN=0 & ACK=0 & RST=0.
tcp rst_scan	Configure security status of TCP frame with RST=1.
tcp rst_with_data	Configure security status of TCP frame with RST=1 & IP payload len > TCP header length.
tcp fa_block	Configure security status of TCP frame with FIN=1 & ACK=0.
tcp pa_block	Configure security status of TCP frame with PUSH=1 & ACK=0.

Command	Description
tcp ua_block	Configure security status of TCP frame with URG=1 & ACK=0.
tcp invalid_chksum	Configure security status of TCP frame with invalid checksum.
tcp invalid_urgptr	Configure security status of TCP frame with URG=0 but pointer not zero.
tcp invalid_opts	Configure security status of TCP frame with SYN=0 and IP header larger than 20.
udp blat	Configure security status of UDP frame with SP equal to DP.
udp invalid_len	Configure security status of UDP frame with invalid length.
udp invalid_chksum	Configure security status of UDP frame with invalid checksum.
icmp4 ping_pl_exceed	Configure security status of ICMP4 frame with IP payload length larger than max.
icmp4 ping_frag	Configure security status of ICMP4 frame with fragment.
icmp4 ping_max_pl	Configure ICMP4 frame IP payload length MAX.
icmp6 ping_pl_exceed	Configure security status of ICMP6 frame with IP payload length larger than MAX.
icmp6 ping_fr	Configure security status of ICMP6 frame with fragment.
icmp6 ping_max_pl	Configure ICMP6 frame IP payload length MAX. It is available when set command “sec icmp4 set ping_pl_exceed 1”

2.18.1 mac resv_vid

Command	Description
sec mac set resv_vid <value>	Set security status of frame with reserved VID. ▪ Value = 0-1 ▫ 1 = frame with VID 4095 is dropped by switch. ▫ 0 = frame with VID 4095 is forwarded by switch.
sec mac get resv_vid	Get security status of packet with reserved VID.

2.18.2 mac invalid_src_addr

Command	Description
sec mac set invalid_src_addr <value>	Set security status of frame with invalid source MAC address. ▪ value = 0-1 ▫ 1 = frame with SA is multicast or broadcast is dropped. ▫ 0 = frame with SA is multicast or broadcast is forwarded by switch.
sec mac get invalid_src_addr	Get security status of packet with invalid source MAC address.

2.18.3 ip invalid_ver

Command	Description
sec ip set invalid_ver <value>	Set security status of frame with invalid IP version. ▪ Value = 0-1 ▫ 1 = frame isn't IPv4 or IPv6 is dropped. ▫ 0 = frame isn't IPv4 or IPv6 is forwarded by switch.
sec ip get invalid_ver	Get security status of frame with invalid IP version.

2.18.4 ip set same_addr

Command	Description
sec ip set same_addr <value>	Set security status of frame with same source and destination IP address. ▪ Value = 0-1 ▫ 1 = frame with SIP equal to DIP is dropped. ▫ 0 = frame with SIP equal to DIP is forwarded by switch.
sec ip get same_addr	Get security status of frame with same source and destination IP address.

2.18.5 ip ttl_change_status

Command	Description
sec ip set ttl_change_status <value>	Set security status of frame TTL change. ▪ Value = 0-1 ▫ 1 = enable frame TTL change to IP_TTL ▫ 0 = disable frame TTL change to IP_TTL
sec ip get ttl_change_status	Get security status of frame TTL change.

2.18.6 ip ttl_val

Command	Description
sec ip set ttl_val <value>	Set TTL value. If security status of frame TTL change is set to 1, TTL will be changed to this value. ▪ Value = TTL value, 8 bits
sec ip get ttl_val	Get TTL value.

2.18.7 ip4 invalid_hl

Command	Description
sec ip4 set invalid_hl <value>	Set security status of frame with invalid IPv4 header. ▪ Value = 0-1 ▫ 1 = frame with IPV4 header length less than 20 byte is dropped ▫ 0 = frame with IPV4 header length less than 20 byte is forwarded by switch.

Command	Description
sec ip4 get invalid_hl	Get security status of frame with invalid IPv4 header.

2.18.8 ip4 hdr_opts

Command	Description
sec ip4 set hdr_opts <value>	Set security status of frame with IPv4 header option. ▪ Value = 0-1 ▫ 1 = frame with IPv4 header option is dropped. ▫ 0 = frame with IPv4 header option is sent to CPU port.
sec ip4 get hdr_opts	Get security status of frame with IPv4 header option.

2.18.9 ip4 invalid_df

Command	Description
sec ip4 set invalid_df <value>	Set security status of frame with DF=1 and offset or MF not zero. ▪ Value = 0-1 ▫ 1 = frame with DF=1 and offset or MF not zero is dropped. ▫ 0 = frame with DF=1 and offset or MF not zero is forwarded by switch.
sec ip4 get invalid_df	Get security status of frame with DF=1 and offset or MF not zero.

2.18.10 ip4 frag_offset_min_len

Command	Description
sec ip4 set frag_offset_min_len <value>	Set security status of frame with offset length less than MIN size. ▪ Value = 0-1 ▫ 1 = frame with offset length less than min is dropped ▫ 0 = frame with offset length less than min is forwarded by switch.
sec ip4 get frag_offset_min_len	Get security status of frame with offset length less than MIN size.

2.18.11 ip4 frag_offset_min_size

Command	Description
sec ip4 set frag_offset_min_size <value>	Set frame offset length MIN size. ▪ Value = offset length min, 8 bits
sec ip4 get frag_offset_min_size	Get frame offset length MIN size.

2.18.12 ip4 frag_offset_max_len

Command	Description
sec ip4 set frag_offset_max_len <value>	Set security status of frame with offset length more than max. ▪ value = 0-1 ▫ 1 = frame with offset length more than max (Offset (13bits) ×8+ IP TOTAL LEN（16bits）>= 64KB) is dropped. ▫ 0 = frame with offset length more than max is forwarded by switch.
sec ip4 get frag_offset_max_len	Get security status of frame with offset length more than max.

2.18.13 ip4 invalid_frag_offset

Command	Description
sec ip4 set invalid_frag_offset <value>	Set security status of frame with invalid fragment offset. ▪ Value = 0-1 ▫ 1 = frame with ipv4 fragment (not the last fragment, mf =1) and length check error ((IP len (LENGTH FIELD) - Header Len) % 8 ！= 0) is dropped. ▫ 0 = forwarded by switch.
sec ip4 get invalid_frag_offset	Get security status of frame with invalid fragment offset.

2.18.14 ip4 invalid_sip

Command	Description
sec ip4 set invalid_sip <value>	Set security status of frame with invalid SIP. ▪ Value = 0-1 ▫ 1 = frame with SIP[31:24] more than 0xE0 and less than 0xF0, or equal to 0x7F, or SIP[31:0] is 32'hFFFFFFFF, is dropped. ▫ 0 = frame with SIP[31:24] more than 0xE0 and less than 0xF0, or equal to 0x7F, or SIP[31:0] is 32'hFFFFFFFF, is forwarded by switch.
sec ip4 get invalid_sip	Get security status of frame with invalid SIP.

2.18.15 ip4 invalid_dip

Command	Description
sec ip4 set invalid_dip <value>	Set security status of frame with invalid DIP. ▪ Value = 0-1 ▫ 1 = frame is dropped if with DIP all zero or DIP[31:24] is 0x7F. ▫ 0 = frame with DIP all zero or DIP[31:24] is 0x7F is forwarded by switch.
sec ip4 get invalid_dip	Get security status of frame with invalid DIP.

2.18.16 ip4 invalid_chksum

Command	Description
sec ip4 set invalid_chksum <value>	Set security status of frame with invalid checksum. ▪ Value = 0-1 ▫ 1 = frame with IPv4 checksum error is dropped. ▫ 0 = frame with IPv4 checksum error is forwarded by switch.
sec ip4 get invalid_chksum	Get security status of frame with invalid checksum.

2.18.17 ip4 invalid_pl

Command	Description
sec ip4 set invalid_pl <value>	Set security status of frame with short length. ▪ Value = 0-1 ▫ 1 = frame with short length (20(Min IPv6 Header Length) + 18 + VLAN + SNAP + PPPOE > FRAME LENGTH) is dropped. ▫ 0 = frame with short length is forwarded by switch
sec ip4 get invalid_pl	Get security status of frame with short length.

2.18.18 ip4 df_clear_status

Command	Description
sec ip4 set df_clear_status <value>	Set security status of clear IPv4 DF field. ▪ Value = 0-1 ▫ 1 = enable IPv4 DF field cleared to zero ▫ 0 = disable IPv4 DF field cleared to zero
sec ip4 get df_clear_status	Get security status of clear IPv4 DF field.

2.18.19 ip4 ipid_random_status

Command	Description
sec ip4 set ipid_random_status <value>	Set security status of sent frame (not fragment) with random ID. ▪ Value = 0-1 ▫ 1 = enable sent frame (not fragment) with random ID. ▫ 0 = disable sent frame (not fragment) with random ID.
sec ip4 get ipid_random_status	Get security status of sent frame (not fragment) with random ID.

2.18.20 ip6 invalid_dip

Command	Description
sec ip6 set invalid_dip <value>	Set security status of frame with invalid destination IPv6 address. ▪ Value = 0-1 ▫ 1 = IPv6 with DIP is ::1 or zero is dropped. ▫ 0 = IPv6 with DIP is ::1 or zero is forwarded by switch.
sec ip6 get invalid_dip	Get security status of frame with invalid destination IPv6 address.

2.18.21 ip6 invalid_sip

Command	Description
sec ip6 set invalid_sip <value>	Set security status of frame with invalid source IPv6 address. ▪ Value = 0-1 ▫ 1 = IPv6 with SIP is ::1 or ff00::/8 is dropped. ▫ 0 = IPv6 with SIP is ::1 or ff00::/8 is forwarded by switch.
sec ip6 get invalid_sip	Get security status of frame with invalid source IPv6 address.

2.18.22 ip6 invalid_pl

Command	Description
sec ip6 set invalid_pl <value>	Set security status of IPv6 frame with short length. ▪ Value = 0-1 ▫ 1 = frame with short length (40(Min IPv6 Header Length) + 18 + VLAN + SNAP + PPPOE > FRAME LENGTH) is dropped. ▫ 0 = frame with short length is forwarded by switch.
sec ip6 get invalid_pl	Get security status of IPv6 frame with short length.

2.18.23 tcp blat

Command	Description
sec tcp set blat <value>	Set security status of TCP frame with same source port and destination port. ▪ Value = 0-1 ▫ 1 = TCP frame with SP equal to DP is dropped. ▫ 0 = TCP frame with SP equal to DP is forwarded by switch.
sec tcp get blat	Get security status of TCP frame with same source port and destination port.

2.18.24 tcp invalid_hl

Command	Description
sec tcp set invalid_hl <value>	Set security status of TCP frame with invalid header length. ▪ Value = 0-1 ▫ 1 = if frame with TCP header length less than min size but not first of fragment, is dropped. ▫ 0 = frame with TCP header length less than min size but not first of fragment, is forwarded by switch.
sec tcp get invalid_hl	Get security status of TCP frame with invalid header length.

2.18.25 tcp min_hdr_size

Command	Description
sec tcp set min_hdr_size <value>	Set TCP frame header length min size. ▪ Value = TCP header length, 4 bits.
sec tcp get min_hdr_size	Get TCP frame header length min size.

2.18.26 tcp invalid_syn

Command	Description
sec tcp set invalid_syn <value>	Set security status of TCP frame with invalid SYN. ▪ Value = 0-1 ▫ 1 = frame with SYN=1 & ACK=0 & SP<1024 is dropped. ▫ 0 = frame with SYN=1 & ACK=0 & SP<1024 is forwarded by switch.
sec tcp get invalid_syn	Get security status of TCP frame with invalid SYN.

2.18.27 tcp su_block

Command	Description
sec tcp set su_block <value>	Set security status of TCP frame with SYN=1 & URG=1. ▪ Value = 0-1 ▫ 1 = frame with SYN=1 & URG=1 is dropped. ▫ 0 = frame with SYN=1 & URG=1 is forwarded by switch.
sec tcp get su_block	Get security status of TCP frame with SYN=1 & URG=1.

2.18.28 tcp sp_block

Command	Description
sec tcp set sp_block <value>	Set security status of TCP frame with SYN=1 & PSH=1. ▪ Value = 0-1 ▫ 1 = frame with SYN=1 & PSH=1 is dropped. ▫ 0 = frame with SYN=1 & PSH=1 is forwarded by switch.
sec tcp get sp_block	Get security status of TCP frame with SYN=1 & PSH=1.

2.18.29 tcp sap_block

Command	Description
sec tcp set sap_block <value>	Set security status of TCP frame with SYN=1 & ACK=1 & PSH=1. ▪ Value = 0-1 ▫ 1 = frame with SYN=1 & ACK=1 & PSH=1 is dropped. ▫ 0 = frame with SYN=1 & ACK=1 & PSH=1 is forwarded by switch.
sec tcp get sap_block	Get security status of TCP frame with SYN=1 & ACK=1 & PSH=1.

2.18.30 tcp xmas_scan

Command	Description
sec tcp set xmas_scan <value>	Set security status of TCP frame with FIN=1 & URG=1 & PSH=1. ▪ Value = 0-1 ▫ 1 = frame with FIN=1 & URG=1 & PSH=1 is dropped ▫ 0 = frame with FIN=1 & URG=1 & PSH=1 is forwarded by switch.
sec tcp get xmas_scan	Get security status of TCP frame with FIN=1 & URG=1 & PSH=1.

2.18.31 tcp null_scan

Command	Description
sec tcp set null_scan <value>	Set security status of TCP frame with all TCP FLAG zero. ▪ Value = 0-1 ▫ 1 = frame with all TCP FLAG zero is dropped. ▫ 0 = frame with all TCP FLAG zero is forwarded by switch.
sec tcp get null_scan	Get security status of TCP frame with all TCP FLAG zero.

2.18.32 tcp sr_block

Command	Description
sec tcp set sr_block <value>	Set security status of TCP frame with SYN=1 & RST=1. ▪ Value = 0-1 ▫ 1 = frame with SYN=1 & RST=1 is dropped. ▫ 0 = frame with SYN=1 & RST=1 is forwarded by switch.
sec tcp get sr_block	Get security status of TCP frame with SYN=1 & RST=1.

2.18.33 tcp sf_block

Command	Description
sec tcp set sf_block <value>	Set security status of TCP frame with SYN=1 & FIN=1. ▪ Value = 0-1 ▫ 1 = frame with SYN=1 & FIN=1 is dropped. ▫ 0 = frame with SYN=1 & FIN=1 is forwarded by switch.
sec tcp get sf_block	Get security status of TCP frame with SYN=1 & FIN=1.

2.18.34 tcp sar_block

Command	Description
sec tcp set sar_block <value>	Set security status of TCP frame with SYN=0 & ACK=0 & RST=0. ▪ Value = 0-1 ▫ 1 = frame with SYN=0 & ACK=0 & RST=0 is dropped. ▫ 0 = frame with SYN=0 & ACK=0 & RST=0 is forwarded by switch.
sec tcp get sar_block	Get security status of TCP frame with SYN=0 & ACK=0 & RST=0.

2.18.35 tcp rst_scan

Command	Description
sec tcp set rst_scan <value>	Set security status of TCP frame with RST=1. ▪ Value = 0-1 ▫ 1 = frame with RST=1 is dropped. ▫ 0 = frame with RST=1 is forwarded by switch.
sec tcp get rst_scan	Get security status of TCP frame with RST=1.

2.18.36 tcp rst_with_data

Command	Description
sec tcp set rst_with_data <value>	Set security status of TCP frame with RST=1 & IP payload len > TCP header length. ▪ Value = 0-1 ▫ 1 = TCP frame with RST=1 & IP payload len > TCP header length is dropped. ▫ 0 = TCP frame with RST=1 & IP payload len > TCP header length is forwarded by switch.
sec tcp get rst_with_data	Get security status of TCP frame with RST=1 & IP payload len > TCP header length.

2.18.37 tcp fa_block

Command	Description
sec tcp set fa_block <value>	Set security status of TCP frame with FIN=1 & ACK=0. ▪ Value = 0-1 ▫ 1 = frame with FIN=1 & ACK=0 is dropped. ▫ 0 = frame with FIN=1 & ACK=0 is forwarded by switch.
sec tcp get fa_block	Get security status of TCP frame with FIN=1 & ACK=0.

2.18.38 tcp pa_block

Command	Description
sec tcp set pa_block <value>	Set security status of TCP frame with PUSH=1 & ACK=0. ▪ Value = 0-1 ▫ 1 = frame with PUSH=1 & ACK=0 is dropped. ▫ 0 = frame with PUSH=1 & ACK=0 is forwarded by switch.
sec tcp get pa_block	Get security status of TCP frame with PUSH=1 & ACK=0.

2.18.39 tcp ua_block

Command	Description
sec tcp set ua_block <value>	Set security status of TCP frame with URG=1 & ACK=0. ▪ Value = 0-1 ▫ 1 = frame with URG=1 & ACK=0 is dropped. ▫ 1 = forwarded by switch.
sec tcp get ua_block	Get security status of TCP frame with URG=1 & ACK=0.

2.18.40 tcp invalid_chksum

Command	Description
sec tcp set invalid_chksum <value>	Set security status of TCP frame with invalid checksum. ▪ Value = 0-1 ▫ 1 = frame with TCP checksum error is dropped. ▫ 0 = frame with TCP checksum error is forwarded by switch.
sec tcp get invalid_chksum	Get security status of TCP frame with invalid checksum.

2.18.41 tcp invalid_urgptr

Command	Description
sec tcp set invalid_urgptr <value>	Set security status of TCP frame with URG=0 but pointer not zero. ▪ Value = 0-1 ▫ 1 = frame with URG=0 but pointer not zero is dropped. ▫ 0 = frame with URG=0 but pointer not zero is forwarded by switch.
sec tcp get invalid_urgptr	Get security status of TCP frame with URG=0 but pointer not zero.

2.18.42 tcp invalid_opts

Command	Description
sec tcp set invalid_opts <value>	Set security status of TCP frame with SYN=0 and IP header larger than 20. ▪ Value = 0-1 ▫ 1 = frame with SYN=0 and IP header larger than 20 byte is dropped. ▫ 0 = frame with SYN=0 and IP header larger than 20 byte is forwarded by switch.
sec tcp get invalid_opts	Get security status of TCP frame with SYN=0 and IP header larger than 20.

2.18.43 udp blat

Command	Description
sec udp set blat <value>	Set security status of UDP frame with SP equal to DP. ▪ Value = 0-1 ▫ 1 = UDP frame with SP equal to DP is dropped. ▫ 0 = UDP frame with SP equal to DP is forwarded by switch.
sec udp get blat	Get security status of UDP frame with SP equal to DP.

2.18.44 udp invalid_len

Command	Description
sec udp set invalid_len <value>	Set security status of UDP frame with invalid length. ▪ Value = 0-1 ▫ 1 = frame with UDP length check error (UDP LEN + IP HDR != IP LEN) is dropped. ▫ 0 = frame with UDP length check error (UDP LEN + IP HDR != IP LEN) is forwarded by switch.
sec udp get invalid_len	Get security status of UDP frame with invalid length.

2.18.45 udp invalid_chksum

Command	Description
sec udp set invalid_chksum <value>	Set security status of UDP frame with invalid checksum. ▪ Value = 0-1 ▫ 1 = frame with UDP checksum error is dropped. ▫ 0 = frame with UDP checksum error is forwarded by switch.
sec udp get invalid_chksum	Get security status of UDP frame with invalid checksum.

2.18.46 icmp4 ping_pl_exceed

Command	Description
sec icmp4 set ping_pl_exceed <value>	Set security status of ICMP4 frame with IP payload length larger than max. ▪ value = 0-1 ▫ 1 = Ping frame with IP payload length larger than max is dropped. ▫ 0 = Ping frame with IP payload length larger than max is forwarded by switch.
sec icmp4 get ping_pl_exceed	Get security status of ICMP4 frame with IP payload length larger than max.

2.18.47 icmp4 ping_frag

Command	Description
sec icmp4 set ping_frag <value>	Set security status of ICMP4 frame with fragment. ▪ Value = 0-1 ▫ 1 = ICMPv4 frame with fragment is dropped. ▫ 0 = ICMPv4 frame with fragment is forwarded by switch.
sec icmp4 get ping_frag	Get security status of ICMP4 frame with fragment.

2.18.48 icmp4 ping_max_pl

Command	Description
sec icmp4 set ping_max_pl <value>	Set ICMP4 frame IP payload length MAX. It is available when set command “sec icmp4 set ping_pl_exceed 1”. ▪ value = IP payload length, 14 bits
sec icmp4 get ping_max_pl	Get ICMP4 frame IP payload length MAX.

2.18.49 icmp6 ping_pl_exceed

Command	Description
sec icmp6 set ping_pl_exceed <value>	Set security status of ICMP6 frame with IP payload length larger than MAX. ▪ value = 0-1 ▫ 1 = ICMPV6 ping frame with IP payload length larger than MAX is dropped. ▫ 0 = ICMPV6 ping frame with IP payload length larger than MAX is forwarded by switch.
sec icmp6 get ping_pl_exceed	Get security status of ICMP6 frame with IP payload length larger than MAX.

2.18.50 icmp6 ping_fr

Command	Description
sec icmp6 set ping_frag <value>	Set security status of ICMP6 frame with fragment. ▪ Value = 0-1 ▫ 1 = ICMPv6 frame with fragment is dropped. ▫ 0 = ICMPv6 frame with fragment is forwarded by switch.
sec icmp6 get ping_frag	Get security status of ICMP6 frame with fragment.

2.18.51 icmp6 ping_max_pl

Command	Description
sec icmp6 set ping_max_pl <value>	Set ICMP6 frame IP payload length MAX. It is available when set command “sec icmp4 set ping_pl_exceed 1”. ▪ value = IP payload length, 14 bits
sec icmp6 get ping_max_pl	Get ICMP6 frame IP payload length MAX.

2.19 STP commands

Command	Description
portState	Configure STP state on a particular port.

2.19.1 portState

Command	Description
stp portState set <st_id> <port_id> <disable|block|listen|learn|forward>	Configure STP state on a particular port. ▪ st_id = 0 ▪ port_id = 0-6
stp portState get <st_id> <port_id>	Get STP state on a particular port.

2.20 TRUNK commands

Command	Description
group	Configure trunk group port member information.
hashmode	Configure trunk hash mode.

2.20.1 Group

Command	Description
trunk group set <trunk_id> <disable|enable> <port_bitmap>	Configure trunk group port member information. ▪ trunk_id = 0-3 ▪ port_idbitmap ▫ BIT[0] = port 0 ▫ BIT[1] = port 1 ▫ BIT[2] = port 2 ▫ BIT[3] = port 3 ▫ BIT[4] = port 4 ▫ BIT[5] = port 5 ▫ BIT[6] = port 6
trunk group get <trunk_id>	Get trunk group port member information.

2.20.2 Hashmode

Command	Description
trunk hashmode set <hash_mode>	Configure trunk hash mode. ▪ Hash_mode #define FAL_TRUNK_HASH_KEY_DA 0x1 #define FAL_TRUNK_HASH_KEY_SA 0x2 #define FAL_TRUNK_HASH_KEY_DIP 0x4 #define FAL_TRUNK_HASH_KEY_SIP 0x8
trunk hashmode get	Get trunk hash mode.

2.21 VLAN commands

Command	Description
entry	Configure VLAN entry on a particular device.
fid	Configure FID of a particular VLAN entry.
member	Configure port member on a particular VLAN entry.
learnsts	Configure FDB learning status of a particular VLAN entry.

2.21.1 Entry

Command	Description
vlan entry create <vlan_id>	Create a VLAN entry by VLAN ID. After this operation the member ports of the created VLAN entry are null. ▪ vlan_id = 0-4095
vlan entry del <vlan_id>	Delete a VLAN entry by VLAN ID. ▪ vlan_id = 0-4095
vlan entry update <vlan_id> <member_bitmap> <0>	Update VLAN entry port members by VLAN ID. ▪ vlan_id = 0-4095 ▪ member_bitmap ▫ BIT[0] = port 0 ▫ BIT[1] = port 1 ▫ BIT[2] = port 2 ▫ BIT[3] = port 3 ▫ BIT[4] = port 4 ▫ BIT[5] = port 5 ▫ BIT[6] = port 6
vlan entry find <vlan_id>	Find a VLAN entry by VLAN ID. ▪ vlan_id = 0-4095
vlan entry next <vlan_id>	Find next VLAN entry by VLAN ID. ▪ vlan_id = 0-4095
vlan entry append <vlan_id> <fid> <port_member> <tagged_member> <untagged_member> <unmodify_member> <learn_disable> <queue_override>	Append a VLAN entry. ▪ vlan_id = 0-4095 ▪ fid = filter data base ID ▫ 0xffff = SVL ▫ Same as vlan_id = IVL ▪ port_member = 0-6 ▪ tagged_member = 0-6 ▪ untagged_member = 0-6 ▪ unmodify_member = 0-6 ▪ learn_disable = yes | no ▪ queue_override = yes | no
vlan entry flush	Flush all VLAN entries.
vlan entry show	Show all VLAN entries.

2.21.2 Fid

Command	Description
vlan fid set <vlan_id> <fid>	Set FID of a particular VLAN entry. ▪ vlan_id = 0-4095 ▪ fid = FDB ID ▫ 0-4095 = IVL FDB ID ▫ 0xffff = SVL
vlan fid get <vlan_id>	Get FID of a particular VLAN entry.

2.21.3 Member

Command	Description
vlan member add <vlan_id> <port_id> <unmodified|untagged|tagged>	Add a port member to a particular VLAN entry. ▪ vlan_id = 0-4095 ▪ port_id = 0-6 ▪ unmodified = egress transmit packets unmodified ▪ untagged = egress transmit packets without VLAN tag ▪ tagged = egress transmit packets with VLAN tag
vlan member del <vlan_id> <port_id>	Delete a port member from a particular VLAN entry. ▪ vlan_id = 0-4095 ▪ port_id = 0-6

2.21.4 learnsts

Command	Description
vlan learnsts set <vlan_id> <enable|disable>	Set FDB learning status of a particular VLAN entry. ▪ vlan_id = 0-4095 ▪ enable = indicates normal operation about learn and final DP. ▪ disable = indicates no learn and do not use ARL table DP calculate final DP, but use UNI flood DP as ARL DP to calculate DP.
vlan learnsts get <vlan_id>	Get FDB learning status of a particular VLAN entry.