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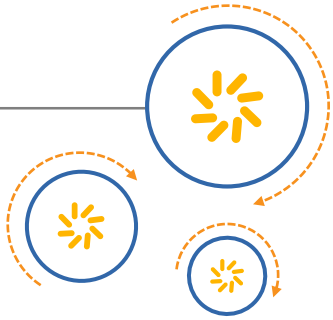

IPQ4018/IPQ4028/IPQ4019/IPQ4029 SOHO Switch UCI Command

User Guide

80-Y9571-10 Rev. B

November 18, 2015

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

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Revision history

Revision	Date	Description
A	June 2015	Initial release
B	November 2015	Update 2.11.1 to 2.11.4, 2.11.10 and 2.11.11. Add 2.11.21 to 2.11.32.

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1 Overview

This document provides a comprehensive reference for understanding and configuring QCA SOHO switch by UCI (Unified Configuration Interface) format. UCI format is intended to centralize OpenWrt configuration.

Common UCI commands are listed as below:

```
config 'example' 'test'
        option   'string'      'some value'
        option   'boolean'     '1'
        list     'collection'  'first item'
        list     'collection'  'second item'
```

Setup switch by UCI format as below:

```
config switch_ext
   option device 'switch0'
   option name 'PortSpeed'
   option port_id '1'
   option speed '10'
```

As shown in this example, every switch configuration contains a ‘switch_ext’ configuration. Each configuration contains multiple options. ‘option name’ is made up of module name and feature name.

The following chapters will introduce UCI command format for each module.

NOTE: All configs and options are case-sensitive.

2 Switch UCI Commands

2.1 ACL commands

Config	Description
rule	Add ACL rule
udfprofile	Configure user defined field offset and length on a particular port.

2.1.1 Rule

UCI Command	Description
config switch_ext /*MUST have field for one rule*/ option device 'switch0' option name 'AclRule' option rule_id '1' option priority '1' option rule_type 'ip4' option port_bitmap '0x1e' /*Basic L2 checking field*/ option dst_mac_address '00-00-00-00-00-00' option dst_mac_address_mask 'ff-ff-ff-ff-ff-ff' option src_mac_address '00-00-00-00-00-00' option src_mac_address_mask 'ff-ff-ff-ff-ff-ff' option ethernet_type '3' option ethernet_type_mask '0xff' option vlan_id '3' option vlan_id_mask '0xff' option vlan_priority '1' option vlan_priority_mask '1' option tagged '1' option tagged_mask '1' option cfi '1'	▪ rule_id = 1-95 ▪ priority = 1-95 ▪ rule_type = MAC | IPv4 | IPv6 | UDF ▪ dst_mac_address = destination MAC ▪ dst_mac_address_mask = destination MAC mask ▪ src_mac_address = source MAC ▪ src_mac_address_mask = source MAC mask ▪ ethernet_type = 0-0xffff ▪ vlan_id = 0-4095 ▪ vlan_priority = 0-7 ▪ tagged = 0 | 1 ▪ cfi = 0 | 1 ▪ ctag_vlan_id = 0-4095 ▪ ctag_vlan_priority = 0-7 ▪ ctagged = 0 | 1 ▪ ctag_cfi = 0 | 1 ▪ stag_vlan_id = 0-4095 ▪ stag_vlan_priority = 0-7 ▪ staged = 0 | 1 ▪ stag_cfi = 0 | 1 ▪ ipv4_src_address = IPv4 source IP address ▪ ipv4_dst_address = IPv4 destination IP ▪ ipv6_src_address = IPv4 source IP address

UCI Command	Description
/*STAG mode, enhanced L2 checking field*/ option ctagged '1' option ctag_vlan_id '3' option ctag_vlan_id_mask '0xff' option ctag_vlan_priority '1' option ctag_vlan_priority_mask '1' option ctag_cfi '1' option stagged '1' option stag_vlan_id '3' option stag_vlan_id_mask '0xff' option stag_vlan_priority '1' option stag_vlan_priority_mask '1' option stag_dei '1' /*IPv4 L3 checking field*/ option ipv4_src_address '1.1.1.1' option ipv4_src_address_mask '1.1.1.1' option ipv4_dst_address '1.1.1.1' option ipv4_dst_address_mask '1.1.1.1' /*IPv6 L3 checking field*/ option ipv6_src_address 'ff::00' option ipv6_src_address_mask 'ff::00' option ipv6_dst_address 'ff::00' option ipv6_dst_address_mask 'ff::00' option ipv6_flow_label '0x12345' option ipv6_flow_label_mask '0xfffff' /*IP L4 checking field*/ option ip_protocol '1' option ip_protocol_mask '1' option ip_dscp '1' option ip_dscp_mask '1' option ip_dst_port '3' option ip_dst_port_mask '0xff' option ip_src_port '3' option ip_src_port_mask '0xff' /*ICMP tcp rip dhcp flag checking field*/ option icmp_type '100' option icmp_type_mask '0xff' option icmp_code '100' option icmp_code_mask '0xff' option tcp_flag '100' option tcp_flag_mask '0xff'	▪ ipv6_dst_address = IPv4 destination IP ▪ ipv6_flow_label = IPv6 flow label ▪ ip_protocol = 0-0xff ▪ ip_dscp = 0-63 ▪ ip_dst_port = IP destination port ▪ ip_src_port = IP source port ▪ icmp_type = ICMP type ▪ icmp_code = ICMP code ▪ tcp_flag = TCP flag ▪ ripv1 = RIP packet ▪ dhcpv4 = DHCPv4 packet ▪ dhcpv6 = DHCPv6 packet ▪ inverse_check_fields = 0 | 1 ▫ 0 = Do not inverse any field. ▫ 1 = Inverse all fields in this rule. ▪ packet_drop = yes | no ▪ redirect_to_cpu = yes | no ▪ copy_to_cpu = yes | no ▪ redirect_to_ports = destination ports bitmap ▪ mirror = yes | no ▪ dscp_of_remark = 0-63 ▪ queue_of_remark = 0-7 ▪ port_bitmap = define into which ports this rule binds. ▫ Bit[0] for port 0 ▫ Bit[1] for port 1 ▫ … ▫ Bit[6] for port 6 ▪ remark_lookup_vid = yes | no ▪ stag_vid_of_remark = 0-4095 ▪ stag_priority_of_remark = 0-7 ▪ stag_dei_of_remark = 0 | 1 ▪ ctag_vid_of_remark = 0-4095 ▪ ctag_priority_of_remark = 0-7 ▪ ctag_dei_of_remark = 0 | 1 ▪ action_policer_id = 0-31 ▪ action_arp_ptr = 0-127 ▪ action_wcmp_ptr = 0-3 ▪ action_snat = yes | no ▪ action_dnat = yes | no ▪ bypass_egress_translation = yes | no ▪ interrupt_trigger = yes | no

UCI Command	Description
/*RIP, DHCP checking field*/ option ripv1 '1' option dhcpv4 '1' option dhcpv6 '1' /*rule forward action. if drop is yes, no action is valid. redirect_to_cpu and copy_to_cpu can't exist together.*/ option inverse_check_fields 'no' option packet_drop 'no' option redirect_to_cpu 'y' option copy_to_cpu 'y' option redirect_to_ports '0x1e' option mirror 'y' /*rule vlan change action*/ option remark_lookup_vid 'y' option stag_vid_of_remark '100' option stag_priority_of_remark '2' option stag_dei_of_remark '1' option ctag_vid_of_remark '100' option ctag_priority_of_remark '10' option ctag_dei_of_remark '4' /*rule dscp change action*/ option dscp_of_remark '1' /*rule queue change action*/ option queue_of_remark '1' /*rule rate limit action*/ option action_policer_id '1' /*rule L3 action. arp and wcmp can't exist together; snat and dnat can't exist together.*/ option action_arp_ptr '1' option action_wcmp_ptr '1' option action_snat 'y' option action_dnat 'y' /*rule egress qinq bypass action and interrupt trigger action*/ option bypass_egress_translation 'y' option interrupt_trigger 'y'	

NOTE: For rule config, below options are mandatory. Other check fields or result items are optional.

```
option device 'switch0'
option name 'AclRule'
option rule_id '1'
option priority '0'
```

```
option rule_type 'ip4'
option port_bitmap '0x1e'
option packet_drop 'no'
```

2.1.2 udfprofile

UCI Command	Description
config switch_ext 'acl' option device 'switch0' option name 'AclUdfprofile' option port '2' option user_defined_type 'l2' option user_defined_offset '1' option user_defined_length '4'	Set user defined field offset and length on a particular port. ▪ port = 0-6 ▪ user_defined_type = l2/l2snap/l3/l3plus/l4 ▪ user_defined_offset = offset value ▪ user_defined_length = 0-15

2.2 COSMAP commands

Config	Description
dscp2pri	Configure DSCP to internal priority mapping.
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 for ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029 only.

2.2.1 dscp2pri

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapDscp2Pri' option dscp '7' optoin pri '3'	Set DSCP to internal priority mapping. ▪ dscp = 0-63 ▪ pri = 0-7

2.2.2 dscp2dp

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapDscp2Dp' option dscp '7' optoin cfi '1'	Set DSCP to drop precedence mapping. ▪ dscp = 0-63 ▪ cfi = 0-1

2.2.3 up2pri

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapUp2Pri' option up '7' option pri '3'	Set 802.1P to internal priority mapping. ▪ up = 0-7 ▪ priority = 0-7

2.2.4 up2dp

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapUp2Dp' option up '7' option cfi '1'	Set 802.1P to drop precedence mapping. ▪ up = 0-7 ▪ cfi = 0-1

2.2.5 dscp2ehpri

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapDscp2ehPri' option dscp '7' optoin pri '3'	Set DSCP to internal priority mapping for port 0, 5, 6. ▪ dscp = 0-63 ▪ pri = 0-7

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

2.2.6 dscp2ehdp

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapDscp2ehDp' option dscp '7' optoin cfi '1'	Set DSCP to drop precedence mapping for port 0, 5, 6. ▪ dscp = 0-63 ▪ cfi = 0-1

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

2.2.7 up2ehpri

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapUp2ehPri' option up '7' option pri '3'	Set 802.1P to internal priority mapping for port 0, 5, 6. ▪ up = 0-7 ▪ priority = 0-7

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

2.2.8 up2ehdp

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapUp2ehDp' option up '7' option cfi '1'	Set 802.1P to drop precedence mapping for port 0, 5, 6. ▪ up = 0-7 ▪ cfi = 0-1

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

2.2.9 pri2q

Command	Description
config switch_ext option device 'switch0' option name 'CosmapPri2Q' option pri '3' option queue '3'	Set internal priority to queue mapping. ▪ pri = 0-7 ▪ queue = 0-3

2.2.10 pri2ehq

Command	Description
config switch_ext option device 'switch0' option name 'CosmapPri2Ehq' option pri '3' option enhance_queue '5'	Set internal priority to port 0/5/6 queue mapping. ▪ pri = 0-7 ▪ enhance_queue = 0-5

2.2.11 egRemark

UCI Command	Description
config switch_ext option device 'switch0' option name 'CosmapEgRemark' option id '1' option remark_dscp 'enable' option remark_up 'enable' option green_dscp '63' option yellow_dscp '7' option green_up '7' option yellow_up '1'	Set egress remark table ▪ id = 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

2.3 FDB commands

Config	Description
entry	Configure 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.
ptLearnstatic	Configure FDB entry learning static status of a particular port.

2.3.1 Entry

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbEntry' option addr 11-22-33-44-55-66 option fid '600' option dacmd 'forward' option sacmd 'forward' option dest_port '1' option static 'yes' option leaky 'no' option mirror 'no' option clone 'no' option queue_override 'no' option cross_pt_state 'no' option white_list_en 'no' option load_balance_en 'yes' option load_balance '2'	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, available for IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only ▪ load_balance = 0-3, available for IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only

2.3.2 portLearn

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbPortLearn' option port_id '1' option learn_status 'enable'	Set dynamic address learning status on a particular port. ▪ port_id = 0-6 ▪ learn_status = enable | disable

2.3.3 ageCtrl

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbAgeCtrl' option aging_status 'enable'	Set dynamic address aging status on particular device. ▪ aging_status = enable | disable

2.3.4 Vlansmode

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbVlansmode' option vlan_searching_mode 'ivl'	Set FDB search mode when VLAN is invalid. ▪ vlan_searching_mode = ivl | svl

2.3.5 ageTime

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbAgeTime' option aging_time '100'	Set dynamic address aging time. ▪ aging_time = 7-458745, in second

2.3.6 Ptlearnlimit

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbPtlearnlimit' option port_id '1' option learn_limit_status 'enable' option learn_limit_counter '10'	Set dynamic address learning count limit on a particular port. ▪ port_id = 0-6 ▪ learn_limit_status = enable | disable ▪ learn_limit_counter = 0-1024

2.3.7 ptlearnexceedcmd

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbPtlearnexceedcmd' option port_id '1' option learn_exceed_cmd 'drop'	Set dynamic address learning count exceed command on a particular port. ▪ port_id = 0-6 ▪ learn_exceed_cmd ▫ forward = packets are normally forwarded ▫ drop = packets are dropped ▫ cpycpu = packets are copied to CPU ▫ rdtcpu = packets are redirected to CPU

2.3.8 learnlimit

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbLearnlimit' option learn_limit_status 'enable' option learn_limit_counter '100'	Set dynamic address learning count limit. ▪ learn_limit_status = enable | disable ▪ learn_limit_counter = 0-2048

2.3.9 Learnexceedcmd

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbLearnexceedcmd' option learn_exceed_cmd 'drop'	Set dynamic address learning count exceed command. ▪ learn_exceed_cmd ▫ forward = packets are normally forwarded ▫ drop = packets are dropped ▫ cpycpu = packets are copied to CPU ▫ rdtcpu = packets are redirected to CPU

2.3.10 Resventry

UCI Command	Description
config switch_ext option device 'switch0' option name 'FdbResventry' option addr '11-22-33-44-ee-66' option fid '100' option dacmd 'forward' option sacmd 'forward' option dest_port '1' option static 'yes' option leaky 'no' option mirror 'no' option clone 'no' option queue_override 'no' option cross_pt_state 'no' option white_list_en 'no'	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

2.3.11 ptLearnstatic

Command	Description
config switch_ext option device 'switch0' option name 'FdbPtLearnstatic' option port_id '1' option learn_static_status 'enable'	Set FDB entry learning static status of a particular port. ▪ port_id = 0-6 ▪ learn_static_status = enable | disable

2.4 IGMP commands

Config	Description
mode	Configure IGMP /MLD packets snooping status on a particular port.
cmd	Configure IGMP / MLD packets forwarding command.
portJoin	Configure IGMP / MLD join packets hardware acknowledgement status on particular port.

Config	Description
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.

2.4.1 Mode

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpMode' option port_id '1' option igmp_mode 'enable'	Set IGMP / MLD packets snooping status on a particular port. ▪ port_id = 0-6 ▪ igmp_mode = enable | disable

2.4.2 cmd

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpCmd' option igmp_command 'cpycpu'	Set IGMP / MLD packets forwarding command. This operation will take effect only after enabling IGMP / MLD snooping ▪ igmp_command ▫ forward = packets are normally forwarded ▫ drop = packets are dropped ▫ cpycpu = packets are copied to CPU ▫ rdtcpu = packets are redirected to CPU

2.4.3 portJoin

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpPortJoin' option port_id '1' option join_status 'enable'	Set IGMP / MLD join packets hardware acknowledgement status on particular port. ▪ port_id = 0-6 ▪ join_status ▫ enable = hardware will learn or change multicast entry dynamically. ▫ disable = hardware will not learn or change multicast entry dynamically.

2.4.4 portLeave

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpPortLeave' option port_id '1' option leave_status 'enable'	Set IGMP / MLD leave packets hardware acknowledgement status on a particular port. ▪ port_id = 0-6 ▪ leave_status ▫ enable = hardware will delete or change multicast entry dynamically. ▫ disable = hardware will not delete or change multicast entry dynamically.

2.4.5 rp

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpRp' option route_port_bitmap '0x40'	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. ▪ route_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

2.4.6 createStatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpCreateStatus' option create_status 'enable'	Set the status of creating multicast entry during IGMP / MLD join/leave procedure. ▪ create_status ▫ enable = hardware will create and delete multicast entry dynamically. ▫ disable = hardware only can change destination ports of existing multicast entry.

2.4.7 Static

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpStatic' option static_status 'enable'	Set the static status of multicast entry which learned by hardware. ▪ static_status ▫ enable = hardware will not age out multicast entry which learned by hardware. ▫ disable = hardware will age out multicast entry which learned by hardware.

2.4.8 Leaky

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpLeaky' option leaky_status 'enable'	Set the leaky status of multicast entry which learned by hardware. ▪ leaky_status ▫ 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.

2.4.9 version3

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpVersion3' option version3_status 'enable'	Set IGMPv3/MLDv2 packets hardware acknowledgement status. ▪ version3_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.

2.4.10 Queue

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpQueue' option status 'enable' option queue_id '0'	Set the queue status of multicast entry which learned by hardware. ▪ status ▫ 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

2.4.11 Ptlearnlimit

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpPtlearnlimit' option port_id '1' option learn_limit_status 'enable' option learn_limit_counter '10'	Set IGMP hardware learning count limit on a particular port. ▪ port_id = 0-6 ▪ learn_limit_status = enable | disable ▪ learn_limit_counter = 0-1024

2.4.12 Ptlearnexceedcmd

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpPtlearnexceedcmd' option port_id '1' option learn_exceed_cmd 'cpycpu'	Set IGMP hardware learning count exceed command on a particular port. ▪ port_id = 0-6 ▪ learn_exceed_cmd ▫ forward = packets are normally forwarded ▫ drop = packets are dropped ▫ cpycpu = packets are copied to CPU ▫ rdtcpu = packets are redirected to CPU

2.4.13 Multi

UCI Command	Description
config switch_ext option device 'switch0' option name 'IgmpMulti' option group_type '0' option group_ip_addr '224.0.0.1' option source_type '0' option source_ip_addr '0.0.0.0' option portmap '0x14'	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

2.5 IP commands

Config	Description
hostentry	Add a host entry.

Config	Description
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.
* defaultflowcmd	Set default flow command.
* defaultrtflowcmd	Set default RT flow command.
* hostroute	Set host route entry.
* defaultroute	Set default route entry.
* vrfbaseaddr	Set VRF base address.
* vrfbasemask	Set VRF base address mask.
* Rfsip4	Set IP4 load balance.
* Rfsip6	Set IP6 load balance.

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

2.5.1 Hostentry

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpHostentry' option entry_id '0' option entry_flags '1' option entry_status '0xf' option ip_addr '1.1.1.1' option mac_addr '00-00-00-00-00-11' option interface_id '0' opton load_balance_num '0' option vrf_id '0' option port_id '4' option action 'forward' option mirror 'no' option 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 ▪ entry_status = 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 = IPv4 address ▪ mac addr = MAC address ▪ interface id = 0-4094 ▪ load_balance_num = 0-3 (available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only) ▪ vrf_id = 0-7 (available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only) ▪ port id = 0-6 ▪ action = forward ▪ mirror = yes | no ▪ counter = yes | no

2.5.2 ptarpleran

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpPtarplearn' option port '2' option status '3'	Set port based ARP learn flag. ▪ port = 0-6 ▪ status ▫ BIT 0 = ARP REQ ▫ BIT 1 = ARP ACK

2.5.3 arplearn

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpArplearn' option mode 'learnall'	Set ARP learn mode. ▪ mode = <learnlocal|learnall>

2.5.4 Ptipsrcguard

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpPtipsrcguard' option port '2' option source_guard_mode 'mac_ip_port_vlan'	Set port based IP source guard. ▪ port = 0-6 ▪ source_guard_mode = <mac_ip|mac_ip_port|mac_ip_vlan|mac_ip_port_vlan|no_guard>

2.5.5 ptarpsrcguard

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpPtarpsrcguard' option port '2' option source_guard_mode 'mac_ip_port_vlan'	Set port based ARP source guard. ▪ port = 0-6 ▪ source_guard_mode = <mac_ip|mac_ip_port|mac_ip_vlan|mac_ip_port_vlan|no_guard>

2.5.6 routestatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpRoutestatus' option status 'enable'	Set routing status. ▪ status = <enable|disable>

2.5.7 Intfentry

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpIntfentry' option entry_id '0' option vrf_id '0' option vlan_low '1' option vlan_high '1' option mac_addr '00-00-00-00-00-11' option ipv4_route 'yes' option ipv6_route 'yes'	Add interface entry. ▪ entry_id = 0-7 ▪ vrf_id = 0-7 (available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only)

2.5.8 ipunksrc

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpIpunksrc' option action 'rdtcpu'	Set IP source unknown forwarding command. ▪ action = <forward|drop|cpycpu|rdtcpu>

2.5.9 arpunksrc

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpArpunksrc' option action 'forward'	Set ARP source unknown forwarding command. ▪ action = <forward|drop|cpycpu|rdtcpu>

2.5.10 ipagetime

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpIpAgetime' option age_time '10'	Set IP aging time. ▪ age_time = 0-255 ▫ 6s*N. 0 means aging disable.

2.5.11 wcmphashmode

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpWcmphashmode' option wcmp_hash_mode '3'	Set/get WCMP hash mode. ▪ wcmp_hash_mode ▫ #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

2.5.12 defaultflowcmd

UCI Command	Description
config switch_ext option device 'switch0' option name ‘IpDefaultflowcmd’ option vrf_id '0' option flow_type ‘lan2wan’ option flow_cmd ‘forward’	▪ Set default flow command. ▪ Flow_type ▫ FAL_FLOW_LAN_TO_LAN = 0 ▫ FAL_FLOW_WAN_TO_LAN ▫ FAL_FLOW_LAN_TO_WAN ▫ FAL_FLOW_WAN_TO_WAN ▪ Flow_cmd ▫ FAL_DEFAULT_FLOW_FORWARD = 0 ▫ FAL_DEFAULT_FLOW_DROP ▫ FAL_DEFAULT_FLOW_RDT_TO_CPU ▫ FAL_DEFAULT_FLOW_ADMIT_ALL

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

2.5.13 defaultrtflowcmd

UCI Command	Description
config switch_ext option device 'switch0' option name ‘IpDefaultrtflowcmd’ option vrf_id '0' option flow_type ‘lan2wan’ option flow_cmd ‘forward’	▪ Set default RT flow command. ▪ Flow_type ▫ FAL_FLOW_LAN_TO_LAN = 0 ▫ FAL_FLOW_WAN_TO_LAN ▫ FAL_FLOW_LAN_TO_WAN ▫ FAL_FLOW_WAN_TO_WAN ▪ Flow_cmd ▫ FAL_DEFAULT_FLOW_FORWARD = 0 ▫ FAL_DEFAULT_FLOW_DROP ▫ FAL_DEFAULT_FLOW_RDT_TO_CPU ▫ FAL_DEFAULT_FLOW_ADMIT_ALL

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

2.5.14 hostroute

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpHostRoute' option entry_id '0' option entry_valid '1' option vrf_id '0' option ip_version '0' option ip_addr '0.0.0.0' option prefix_length '15'	▪ Set host route entry. ▪ Entry_id = 0-15 ▪ Entry_valid = 0-1 ▪ Vrf_id = 0-7 ▪ Ip_version = 0-1 ▪ Prefix_length = 0-127

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

2.5.15 defaultroute

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpDefaultRoute' option entry_id '0' option entry_valid '1' option vrf_id '0' option route_type '0' option index '0'	Set default route entry. ▪ Entry_id = 0-15 ▪ Entry_valid = 0-1 ▪ Vrf_id = 0-7 ▪ Route_type = 0-1 ▪ index = 0-127

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

2.5.16 vrfbaseaddr

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpVrfbaseaddr' option vrf_id ‘0’ option base_addr ‘0.0.0.0’	Set VRF base IP address. ▪ Vrf_id = 0-7

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

2.5.17 vrfbasemask

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpVrfbasemask' option vrf_id ‘0’ option base_mask ‘255.0.0.0’	Set VRF base IP address mask. ▪ Vrf_id = 0-7

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

2.5.18 Rfsip4

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpRfsip4' option mac_addr '00-00-00-00-01' option ip4_addr '0.0.0.0' option vlan_id '1' option load_balance '1'	Set IP4 load balance value.

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

2.5.19 Rfsip6

UCI Command	Description
config switch_ext option device 'switch0' option name 'IpRfsip6' option mac_addr '00-00-00-00-01' option ip6_addr '0.0.0.0' option vlan_id '1' opton load_balance '1'	Set IP6 load balance value.

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

2.6 LEAKY commands

Config	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.

2.6.1 ucMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'LeakyUcMode' option unicast_leaky_mode 'port' leaky ucMode set <port|fdb>	Configure unicast packets leaky mode. ▪ unicast_leaky_mode = <port|fdb>

2.6.2 mcMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'LeakyMcMode' option multicast_leaky_mode 'port'	Configure multicast packets leaky mode. ▪ multicast_leaky_mode = <port|fdb>

2.6.3 arpMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'LeakyArpMode' option port '2' option status 'enable'	Configure ARP packets leaky mode. ▪ status = <enable|disable>

2.6.4 ptUcMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'LeakyPtUcMode' option port '2' option status 'enable'	Set port based unicast packets leaky mode. ▪ status = <enable|disable>

2.6.5 ptMcMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'LeakyPtMcMode' option port '2' option status 'enable'	Set port based multicast packets leaky mode. ▪ status = <enable|disable>

2.7 MIB commands

Command	Description
status	Configure MIB engine status.
cpuKeep	Configure CPU keep mode.

2.7.1 Status

UCI Command	Description
config switch_ext option device 'switch0' option name 'MibStatus' option status 'enable'	Configure MIB engine status. ▪ status = <enable|disable>

2.7.2 cpuKeep

UCI Command	Description
config switch_ext option device 'switch0' option name 'MibCpuKeep' option status 'enable'	Configure CPU keep mode. ▪ status = <enable|disable>

2.8 MIRROR commands

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

2.8.1 analyPt

UCI Command	Description
config switch_ext option device 'switch0' option name 'MirrorAnalyPt' option analyst_port '2'	Set analyzer port in switch chip for mirror. ▪ analyst_port = 0-6

2.8.2 ptIngress

UCI Command	Description
config switch_ext option device 'switch0' option name 'MirrorPtIngress' option ingress_port '2' option status 'enable'	Configure ingress mirror status. ▪ status = <enable|disable> ▪ ingress_port = 0-6

2.8.3 ptEgress

Command	Description
config switch_ext option device 'switch0' option name 'MirrorPtEgress' option egress_port '2' option status 'enable'	Configure ingress mirror status. ▪ status = <enable|disable> ▪ egress_port = 0-6

2.9 MISC commands

Config	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.

Config	Description
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 global MAC address.
* framecrcrsv	Configure frame CRC reserve status.

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

2.9.1 frameMaxSize

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscFrameMaxSize' option frame_max_size '9000'	Configure MAX frame size. ▪ frame_max_size = 1508-9000

2.9.2 ptUnkUcFilter

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPtUnkUcFilter' option port '2' option status 'enable'	Set forwarding command for unknown source address unicast packets on one port. ▪ port = 0-6 ▪ status = <enable|disable>

2.9.3 ptUnkMcFilter

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPtUnkMcFilter' option port '2' option status 'enable'	Set forwarding command for unknown source address multicast packets on one port. ▪ port = 0-6 ▪ status = <enable|disable>

2.9.4 ptBcFilter

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPtBcFilter' option port '2' option status 'enable'	Set forwarding command for broadcast packets on one port. ▪ port = 0-6 ▪ status = <enable|disable>

2.9.5 cpuPort

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscCpuPort' option status 'enable'	Configure CPU port status. ▪ status = <enable|disable>

2.9.6 PppoeCmd

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPppoeCmd' option action 'forward'	Set PPPoE frames forwarding command. ▪ action = < forward |rdtcpu>

2.9.7 Pppoe

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPppoe' option status 'enable'	Set PPPoE frames hardware identification status. status = <enable|disable>

2.9.8 ptDhcp

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPtDhcp' option port '2' option status 'enable'	Set DHCP frames hardware identification status on one port ▪ port = 0-6 ▪ status = <enable|disable>

2.9.9 arpCmd

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscArpcmd' option action 'rdtcpu'	Set ARP packets forwarding command. ▪ action = <forward|cpycpu|rdtcpu>

2.9.10 eapolCmd

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscEapolcmd' option action 'rdtcpu'	Set EAPOL packets forwarding command. ▪ action = <cpycpu|rdtcpu>

2.9.11 eapolStatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscEapolstatus' option port '2' option status 'enable'	Set EAPOL frames hardware identification status on one port. ▪ port = 0-6 ▪ status = <enable|disable>

2.9.12 Rip

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscRip' option status 'enable'	Set RIP v1 frames hardware identification status on one port. ▪ status = <enable|disable>

2.9.13 Ptarpreq

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPtarpreq' option port '2' option status 'enable'	Set ARP request packets hardware identification status. ▪ port = 0-6 ▪ status = <enable|disable>

2.9.14 Ptarpack

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscPtarpack' option port '2' option status 'enable'	ARP request packets hardware identification status on one port. ▪ port = 0-6 ▪ status = <enable|disable>

2.9.15 Extendpppoe

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscExtendpppoe' option entry_id '0' option session_id '1' option multicast_session 'yes' option unicast_seesion 'yes'	Add a PPPoE session entry. ▪ entry_id = 0-31 ▪ session_id = 1-31 ▪ multicast_session = <yes|no> ▪ unicast_seesion = <yes|no>

2.9.16 Glomacaddr

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscGloMacAddr' option macaddr '00-00-00-00-00-01'	Set global MAC address.

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

2.9.17 Framecrcrsv

UCI Command	Description
config switch_ext option device 'switch0' option name 'MiscFramecrc' option status 'enable'	Set frame CRC reserve status. ▪ status = <enable|disable>

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

2.10 NAT commands

Config	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.

Config	Description
naptmode	Set and get NAT hash mode.
prvbaseaddr	Set and get NAT private base address.
pubaddr	Add, delete and next public address.
natunksess	Set and get NAT unknown session command.
prvbasemask	Set and get NAT private base address.
natglobal	Set global NAT function.
* flowentry	Add, delete, get and next flow entry.
* flowcookie	Set flowcookie entry.
* flowrfs	Set flowrfs entry.

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

2.10.1 Natentry

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatNatentry' option entry_id '0' option entry_flags '2' option entry_status '0xf' option select_index '1' option vrf_id '0' option src_addr '1.1.1.1' option translate_addr '2.2.2.2' option port_number '0' option port_range '0' option action 'forward' option mirror 'no' option counter 'no'	Add a NAT entry. ▪ entry_id = 0-31 ▪ entry_flags ▫ #define FAL_NAT_ENTRY_PORT_CHECK 0x20 ▪ entry_status = Unused ▪ select_index = 0-7 ▪ vrf_id = 0-7 (Available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only.) ▪ src_addr ▫ When do SNAT, used to change frame SIP. ▫ When do DNAT, compare with frame DIP ▪ translate_addr ▫ When do SNAT, compare with frame SIP. ▫ When do DNAT, used to change frame DIP. ▪ port_number ▫ 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 = <forward|cpycpu|rdtcpu> ▪ counter = 0-31or no ▫ Bind to counter. Total 32.

2.10.2 naptentry

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatNaptentry' option entry_id '0' option entry_flags '0x12' option entry_status '0xf' option vrf_id '0' option flow_cookie '0' option load_balance '0' option src_addr '1.1.1.1' option dst_addr '3.3.3.3' option translate_addr '2.2.2.2' option src_port '10' option dst_port '20' option translate_port '30' option action 'forward' option mirror 'no' option counter 'no' option priority 'no'	Add a NAPT entry. ▪ entry_id = 0-1023 ▪ entry_flags ▫ #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 ▪ entry_status = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id = 0-7 (Available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only.) ▪ flow_cookie = 0-2048 (Available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only.) ▪ load_balance = 0-3 (Available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only.) ▪ 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 ▪ translate_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. ▪ translate_port ▫ When do DNAT, compare with frame DP. ▫ When do SNAT, frame SP should be change to these bits. ▪ Action = <forward|cpycpu|rdtcpu> ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ Priority = 0-7 (Available in IPQ4018/IPQ4019/IPQ4028/IPQ4029 ESS only.)

2.10.3 natstatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatNatstatus' option status 'enable'	Set NAT status. ▪ status = <enable|disable>

2.10.4 Nathash

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatNathash' option hash_flag '0'	Set NAT hash mode. ▪ hash_flag ▫ #define FAL_NAT_HASH_KEY_PORT 0x40 ▫ #define FAL_NAT_HASH_KEY_IPADDR 0x80

2.10.5 Naptmode

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatNaptmode' option napt_mode 'strictcone'	Set NAPT mode. ▪ napt_mode = <fullcone|strictcone|portstrict|synmatric>

2.10.6 Prvbaseaddr

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatPrvbaseaddr' option base_addr '255.255.255.0'	Set NAT PRV base address. ▪ base_addr = base IP address

2.10.7 Prvbasemask

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatPrvbasemask' option base_addr_mask '255.255.255.0'	Set NAT PRV base mask.

2.10.8 pubaddr

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatPubaddr' option entry_id '0' option pub_addr '1.1.1.1'	Add PUB address. ▪ entry_id = 0-7

2.10.9 natunksess

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatNatunksess' option action 'drop'	Set NAT unknown session command. ▪ action = <forward|drop|cpycpu|rdtcpu>

2.10.10 natglobal

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatGlobal' option status 'enable' option sync 'disable'	Set global nat function. ▪ status = <enable|disable> ▪ sync = <enable|disable>

2.10.11 flowentry

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatFlowentry' option entry_id '0' option entry_flags '0x12' option entry_status '0xf' option vrf_id '0' option flow_cookie '0' option load_balance '0' option src_addr '1.1.1.1' option dst_addr '3.3.3.3' option src_port '10' option dst_port '20' option action 'forward' option mirror 'no' option counter 'no' option priority 'no'	Add a NAPT entry. ▪ entry_id = 0-1023 ▪ entry_flags ▫ #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 ▪ entry_status = 0-15 ▫ 15 = static ▫ 14-1 = dynamic ▫ 0 = entry invalid ▪ vrf_id = 0-7 ▪ flow_cookie = 0-2047 ▪ load_balance = 0-3 ▪ src_addr ▫ Source IP ▪ dst_addr ▫ Destination IP ▪ src_port ▫ Source port ▪ dst_port ▫ Destination port ▪ action= <forward|cpycpu|rdtcpu> ▪ counter = 0-31 ▫ Bind to counter. Total 32. ▪ Priority = 0-7

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

2.10.12 flowcookie

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatFlowcookie' option proto '1' option src_addr '1.1.1.1' option dst_addr '3.3.3.3' option src_port '10' option dst_port '20' option flow_cookie '0'	Set a flow cookie entry. ▪ proto ▫ #define FAL_NAT_ENTRY_PROTOCOL_TCP 0x1 ▫ #define FAL_NAT_ENTRY_PROTOCOL_UDP 0x2 ▪ src_addr ▫ Source IP ▪ dst_addr ▫ Destination IP ▪ src_port ▫ Source port ▪ dst_port ▫ Destination port ▪ Flow_cookie = 0-2047

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

2.10.13 flowrfs

UCI Command	Description
config switch_ext option device 'switch0' option name 'NatFlowrfs' option action '1' option proto '1' option src_addr '1.1.1.1' option dst_addr '3.3.3.3' option src_port '10' option dst_port '20' option flow_rfs '0'	Set a flow cookie entry. ▪ action ▫ #define FLOW_RFS_ADD 0x1 ▫ #define FLOW_RFS_DEL 0x0 ▪ proto ▪ src_addr ▫ Source IP ▪ dst_addr ▫ Destination IP ▪ src_port ▫ Source port ▪ dst_port ▫ Destination port ▪ Flow_rfs = 0-3

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

2.11 PORT commands

Config	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.
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 power saving status on a particular port.
hibernate	Configure hibernate status on a particular port.
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.
macLoopback	Configure loopback on a particular port.
* congeDrop	Configure congestion drop status on port queue.
* ringfcthreshold	Configure flow control threshold on ring.

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

2.11.1 Duplex

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortDuplex' option port_id '1' option duplex 'half'	Set duplex mode on a particular port. ▪ port_id = 0-5 ▪ duplex = half | full

2.11.2 speed

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortSpeed' option port_id '1' option speed '10'	Set speed on a particular port. ▪ port_id = 0-5 ▪ speed =10 | 100 | 1000 = 10M, 100M, 1000M

2.11.3 autoAdv

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortAutoAdv' option port_id '1' option auto_adv '0x23F'	Set auto negotiation advisement ability on a particular port. ▪ port_id = 0-5 ▪ auto_adv ▫ BIT[0] = 10M half ▫ BIT[1] = 10M full ▫ BIT[2] = 100M half ▫ BIT[3] = 100M full ▫ BIT[4] = pause ▫ BIT[5] = async pause ▫ BIT[9] = 1000M full

2.11.4 autoNeg

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortAutoNegEnable' option port_id '1'	Get auto negotiation status on a particular port. ▪ port_id = 0-5
config switch_ext option device 'switch0' option name 'PortAutoNegRestart' option port_id '1'	Restart auto negotiation procedure on a particular port. ▪ port_id = 0-5

2.11.5 txhdr

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortTxHdr' option port_id '1' option tx_frame_atheros_header_tag_status 'noheader'	Set status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6 ▪ tx_frame_atheros_header_tag_status ▫ noheader = frames should be send out without header ▫ onlymanagement = only management frame should be send out with header, normal packet without header ▫ allframe = all frames should be send out with header

2.11.6 rxhdr

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortRxHdr' option port_id '1' option rx_frame_atheros_header_tag_status 'noheader'	Set status of Atheros header packets parsed on a particular port. ▪ port_id = 0-6 ▪ rx_frame_atheros_header_tag_status noheader = frame should be received without header ▫ onlymanagement = only management frame should be received with header ▫ allframe = all frame with header

2.11.7 hdrtype

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortHdrType' option atheros_header_tag_status 'enable' option atheros_header_tag_type '0x10'	Set Atheros header type status and value on a particular device. ▪ atheros_header_tag_status = enable | disable ▪ atheros_header_tag_type = 0x0-0xffff

2.11.8 flowCtrl

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortFlowCtrl' option port_id '1' option flow_control_status 'enable'	Set flow control status on a particular port. ▪ port_id = 0-6 ▪ flow_control_status = enable | disable

2.11.9 flowCtrlforcemode

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortFlowCtrlForceMode' option port_id '1' option flow_control_force_mode_status 'enable'	Set flow control force mode on a particular port. ▪ port_id = 0-6 ▪ flow_control_force_mode_status = enable | disable

2.11.10 powersave

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortPowerSave' option port_id '1' option power_save_status 'enable'	Set power saving status on a particular port. ▪ port_id = 1-5 ▪ power_save_status = enable | disable

2.11.11 hibernate

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortHibernate' option port_id '1' option hibernate_status 'enable'	Set hibernate status on a particular port. ▪ port_id = 1-5 ▪ hibernate_status = enable | disable

2.11.12 txmacstatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortTxMacStatus' option port_id '1' option tx_mac_status 'enable'	Set status of Tx MAC on a particular port. ▪ port_id = 0-6 ▪ tx_mac_status = enable | disable

2.11.13 rxmacstatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortRxMacStatus' option port_id '1' option rx_mac_status 'enable'	Set status of Rx MAC on a particular port. ▪ port_id = 0-6 ▪ rx_mac_status = enable | disable

2.11.14 txfcstatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortTxFcStatus' option port_id '1' option tx_flow_control_status 'enable'	Set status of Tx flow control on a particular port. ▪ port_id = 0-6 ▪ tx_flow_control_status = enable | disable

2.11.15 rxfcstatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortRxFcStatus' option port_id '1' option rx_flow_control_status 'enable'	Set status of Rx flow control on a particular port. ▪ port_id = 0-6 ▪ rx_flow_control_status = enable | disable

2.11.16 bpstatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortBpStatus' option port_id '1' option back_presure_status 'enable'	Set status of back pressure on a particular port. ▪ port_id = 0-6 ▪ back_presure_status = enable | disable

2.11.17 linkforcemode

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortLinkForceMode' option port_id '1' option link_force_mode_status 'enable'	Set link force mode on a particular port. ▪ port_id = 0-6 ▪ link_force_mode_status = enable | disable

2.11.18 macLoopback

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortMacLoopback' option port_id '1' option mac_loopback_status 'enable'	Set loopback on a particular port. ▪ port_id = 0-6 ▪ mac_loopback_status = enable | disable

2.11.19 congeDrop

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortCongeDrop' option port_id '1' option queue_id '1' option status 'enable'	Set congestion drop on port queue. ▪ port_id = 0-5 ▪ queue_id = 0-5 ▪ status = enable | disable

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

2.11.20 ringfcthreshold

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortRingFcThresh' option ring_id '1' option on_thresh '0x10' option off_thresh '0x20'	Set flow control threshold on ring. ▪ ring_id = 0-7

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

2.11.21 Ieee8023az

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortIeee8023az' option port_id '1' option mode 'disable'	Set az mode on port. ▪ port_id = 1-5 ▪ mode = enable | disable

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

2.11.22 crossover

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortCrossover' option port_id '1' option mode 'mdi'	Set crossover mode on port. ▪ port_id = 1-5 ▪ mode = mdi | auto| mdix

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

2.11.23 prefermedium

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortPreferMedium' option port_id '5' option mode 'copper'	Set prefer medium type mode on port. ▪ port_id = 5 ▪ mode = copper | fiber

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

2.11.24 fibermode

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortFiberMode' option port_id '5' option mode '1000bx'	Set fiber mode on port. ▪ port_id = 5 ▪ mode = 100fx | 1000bx

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

2.11.25 localloopback

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortLocalLoopback' option port_id '1' option mode 'enable'	Set local mode on port. ▪ port_id = 1-5 ▪ mode = enable | disable

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

2.11.26 remoteloopback

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortRemoteLoopback' option port_id '1' option mode 'enable'	Set remote loopback mode on port. ▪ port_id = 1-5 ▪ mode = enable | disable

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

2.11.27 magicframemac

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortMagicFrameMac' option port_id '1' option macaddr '00-00-00-00-11-22'	Set magic frame MAC address on port. ▪ port_id = 1-5 ▪ macaddr = xx-xx-xx-xx-xx-xx

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

2.11.28 wolstatus

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortWolstatus' option port_id '1' option mode 'enable'	Set WOL mode on port. ▪ port_id = 1-5 ▪ mode = enable | disable

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

2.11.29 Interfacemode

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortInterfaceMode' option port_id '5' option mode 'psgmii_baset'	Set interface mode on port. ▪ port_id = 5 ▪ mode = psgmii_baset|psgmii_bx1000|psgmii_fx100|psgmii_amdet|sgmii_baset

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

2.11.30 poweron

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortPoweron' option port_id '1'	Set power on on port. ▪ port_id = 1-5

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

2.11.31 poweroff

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortPoweroff' option port_id '1'	Set power off on port. ▪ port_id = 1-5

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

2.11.32 reset

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortReset' option port_id '1'	Set reset on port. ▪ port_id = 1-5

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

2.12 PORT_VLAN commands

Config	Description
forceVid	Configure force default VLAN ID status on a particular port.
forceMode	Configure force port based VLAN 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.
vlanPropagation	Configure VLAN propagation status on a particular port.
translation	Configure VLAN translation entry on a particular port.
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.

2.12.1 forceVid

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanForceVid' option port_id '1' option force_vid_status 'enable'	Set force default VLAN ID status on a particular port. ▪ port_id = 0-6 ▪ force_vid_status = enable | disable

2.12.2 forceMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanForceMode' option port_id '1' option force_mode 'enable'	Set force port based VLAN status on a particular port. ▪ port_id = 0-6 ▪ force_mode = enable | disable

2.12.3 sVlanTPID

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanSVlanTPID' option stag_tpid '0x88a8'	Set nest VLAN TPID on a particular device. ▪ stag_tpid = 0x0-0xffff

2.12.4 Invlan

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanInVlan' option port_id '1' option ingress_tag_mode 'admit_all'	Set ingress VLAN mode on a particular port. ▪ port_id = 0-6 ▪ ingress_tag_mode ▫ admit_all = receive all packets including tagged and untagged ▫ admit_tagged = only receive tagged packets ▫ admit_untagged = only receive untagged packets including priority tagged

2.12.5 tlsMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanTlsMode' option port_id '1' option tls_mode 'enable'	Set TLS status on a particular port. ▪ port_id = 0-6 ▪ tls_mode ▫ enable = port work at TLS mode ▫ disable = port work at NON-TLS mode

2.12.6 priPropagation

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanPriPropagation' option port_id '1' option vlan_priority_propagation_status 'enable'	Set priority propagation status on a particular port. ▪ port_id = 0-6 ▪ vlan_priority_propagation_status = enable | disable

2.12.7 vlanPropagation

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanVlanPropagation' option port_id '1' option vlan_propagation_mode 'replace'	Set VLAN propagation status on a particular port. ▪ port_id = 0-6 ▪ vlan_propagation_mode ▫ disable = VLAN propagation disable ▫ clone = VLAN propagation mode is clone ▫ replace = VLAN propagation mode is replace

2.12.8 translation

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortVlanTranslation' option port_id '1' option original_vid '100' option bi_direction 'yes' option forward_direction 'yes' option reverse_direction 'yes' option svid '10' option cvid '1000' option original_vid_is_cvid 'yes' option svid_enable 'yes' option cvid_enable 'yes' option one_2_one_vlan 'no'	Add a VLAN translation entry to a particular port. ▪ port_id = 0-6 ▪ original_vid = 0-4095 ▪ bi_direction = yes | no ▪ forward_direction = yes | no ▪ reverse_direction = yes | no ▪ svid = 0-4095 ▪ cvid = 0-4095 ▪ original_vid_is_cvid = yes | no ▪ svid_enable = yes | no ▪ cvid_enable = yes | no ▪ one_2_one_vlan = yes | no

2.12.9 qinqMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanQinqMode' option port_id '1' option qinq_mode 'ctag'	Set switch QINQ work mode. ▪ qinq_mode = ctag | stag

2.12.10 qinqRole

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanQinqRole' option port_id '1' option qinq_role 'edge'	Set QINQ role on a particular port. ▪ port_id = 0-6 ▪ qinq_role = edge | core

2.12.11 macvlanxlt

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanMacVlanXlt' option port_id '1' option egress_mac_based_vlan 'enable'	Set egress MAC based VLAN enable status on a particular port. ▪ port_id = 0-6 ▪ egress_mac_based_vlan = enable | disable

2.12.12 netiso

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanNetiso' option net_isolate 'enable'	Set NET isolation function. ▪ net_isolate ▫ enable = isolate private net and public net ▫ disable = not isolate private net and public net

2.12.13 Egbypass

UCI Command	Description
config switch_ext option device 'switch0' option name 'PortvlanEgBypass' option egress_translation_filter_bypass 'enable'	Set egress translation filter bypass status. ▪ egress_translation_filter_bypass = enable | disable

2.13 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.

2.13.1 qTxBufSts

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosQTxBufSts' option port_id '1' option buffer_limit 'enable'	Set buffer assignment status of transmitting queue on one particular port. ▪ port_id = 0-6 ▪ buffer_limit = 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.

2.13.2 qTxBufNr

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosQTxBufNr' option port_id '1' option queue_id '3' option number '120'	Set max occupied buffer number of transmitting queue on one particular port. ▪ port_id = 0-6 ▪ queue_id = 0-3 ▪ number = 0-120

2.13.3 ptTxBufSts

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtTxBufSts' option port_id '1' option buffer_limit 'enable'	Set buffer assignment status of transmitting port on one particular port. ▪ port_id = 0-6 ▪ buffer_limit = 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.

2.13.4 ptRedEn

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtRedEn' option port_id '1' option red_status 'enable'	Set RED status on one particular port. ▪ port_id = 0-6 ▪ red_status = enable | disable The status is to enable or disable Random Early Detection on a port.

2.13.5 ptTxBufNr

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtTxBufNr' option port_id '1' option number '504'	Set max occupied buffer number of transmitting port on one particular port. ▪ port_id = 0-6 ▪ number = 0-504

2.13.6 ptRxBufNr

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtRxBufNr' option port_id '1' option number '120'	Set max reserved buffer number of receiving port on one particular port. ▪ port_id = 0-6 ▪ number = 0-120

2.13.7 ptMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtMode' option port_id '1' option mode 'up' option status 'enable'	Set port QoS mode status on one particular port. ▪ port_id = 0-6 ▪ mode = da | up | dscp | flow ▪ status = enable | disable

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

2.13.8 ptModePri

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtModePri' option port_id '1' option mode 'up' option priority '3'	Set priority of one particular QoS mode on one particular port. ▪ port_id = 0-6 ▪ mode = da | up | dscp | flow ▪ priority = 0-3 Smaller value indicates higher priority.

2. Flow is available in ESS of IPQ4018/IPQ4019/IPQ4028/IPQ4029.

2.13.9 ptschMode

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtschMode' option port_id '1' option mode 'wrr' option weight '1,2,4,8,0,0'	Set traffic scheduling mode on particular one port. ▪ port_id = 0-6 ▪ mode ▫ 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 ▪ weight ▫ q0,q1,q2,q3,q4,q5 ▫ Weight value (0-31) for each queue when in WRR mode.

2.13.10 ptDefaultSpri

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtDefaultSpri' option port_id '1' option stag_pri '7'	Set default stag priority on one particular port. ▪ port_id = 0-6 ▪ stag_pri = 0-7

2.13.11 ptDefaultCpri

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtDefaultCpri' option port_id '1' option ctag_pri '7'	Set default CTAG priority on one particular port. ▪ port_id = 0-6 ▪ ctag_pri = 0-7

2.13.12 ptFSpriSts

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtFSpriSts' option port_id '1' option force_stag_pri_status 'enable'	Set force stag priority flag on one particular port. ▪ port_id = 0-6 ▪ force_stag_pri_status = enable | disable

2.13.13 ptFCpriSts

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtFCpriSts' option port_id '1' option force_ctag_pri_status 'enable'	Set force CTAG priority flag on one particular port. ▪ port_id = 0-6 ▪ force_ctag_pri_status = enable | disable

2.13.14 ptQuRemark

UCI Command	Description
config switch_ext option device 'switch0' option name 'QosPtQuRemark' option port_id '1' option queue_id '3' option table_id '1' option status 'enable'	Set egress queue based CoS remark on one particular port. ▪ port_id = 0-6 ▪ queue_id = 0-3 ▪ table_id = 0-15 ▪ status = enable | disable

2.14 RATE commands

Config	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.

2.14.1 Portpolicer

UCI Command	Description
config switch_ext option device 'switch0' option name 'RatePortPolicer' option port_id '1' option combine_enable 'no' option byte_based 'yes' option couple_flag 'no' option color_aware 'no' option deficit_flag 'yes' option c_bucket_enable 'yes' option cir '1000' option cbs '10000' option c_rate_flag '0xfe' option c_meter_interval '1ms' option e_bucket_enable 'yes' option eir '10000' option ebs '10000' option e_rate_flag '0xfe' option e_meter_interval '1ms'	Set port ingress policer parameters on one particular port. ▪ port_id = 0-6 ▪ combine_enable = yes | no ▪ byte_based = yes | no ▫ Yes means byte based. ▫ No means packet based. ▪ couple_flag = yes | no ▪ color_aware = yes | no ▪ deficit_flag = yes | no ▪ c_bucket_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 = 100us/1ms/10ms/100ms ▪ e_bucket_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.

UCI Command	Description
	▪ 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 = 100us/1ms/10ms/100ms

2.14.2 portshaper

UCI Command	Description
config switch_ext option device 'switch0' option name 'RatePortShaper' option port_id '1' option status 'enable' option byte_based 'yes' option cir '1000' option cbs '10000' option eir '10000' option ebs '10000'	Set port egress shaper parameters on one particular port. ▪ port_id = 0-6 ▪ status = enable | disable ▪ byte_based = 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.

2.14.3 queueshaper

UCI Command	Description
config switch_ext option device 'switch0' option name 'RateQueueShaper' option port_id '1' option queue_id '1' option status 'enable' option byte_based 'yes' option cir '1000' option cbs '10000' option eir '10000' option ebs '10000'	Set queue egress shaper parameters on one particular port. ▪ port_id = 0-6 ▪ queue_id = 0-3 ▪ status = enable | disable ▪ byte_based = 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.

2.14.4 aclpolicer

UCI Command	Description
config switch_ext option device 'switch0' option name 'RateAclPolicer' option policer_id '1' option counter_mode 'no' option byte_based 'yes' option couple_flag 'no' option color_aware 'no' option deficit_flag 'yes' option cir '1000' option cbs '10000' option eir '10000' option ebs '10000' option meter_interval '1ms'	Set ACL ingress policer parameters. ▪ counter_mode = yes | no ▪ byte_based = 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 = 100us/1ms/10ms/100ms

2.14.5 ptAddRateByte

UCI Command	Description
config switch_ext option device 'switch0' option name 'RatePtAddRateByte' option port_id '1' option add_rate_bytes '24'	Set the byte number which can be added to frame when calculate rate limit. ▪ port_id = 0-6 ▪ add_rate_bytes = 0-255

2.14.6 ptgolflowen

UCI Command	Description
config switch_ext option device 'switch0' option name 'RatePtGolflowen' option port_id '1' option golbal_flow_control_status 'enable'	Set status of port global flow control when global threshold is reached. ▪ port_id = 0-6 ▪ golbal_flow_control_status = enable | disable

2.15 SEC commands

Config	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.

Config	Description
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.
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”

2.15.1 mac resv_vid

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecMac' option item 'resv_vid' option value '0'	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.

2.15.2 mac invalid_src_addr

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecMac' option item 'invalid_src_addr' option value '1'	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.

2.15.3 ip invalid_ver

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp' option item 'invalid_ver' option value '1'	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.

2.15.4 ip set same_addr

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp' option item 'same_addr' option value '1'	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.

2.15.5 ip ttl_change_status

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp' option item 'ttl_change_status' option value '1'	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

2.15.6 ip ttl_val

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp' option item 'ttl_val' option value '1'	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

2.15.7 ip4 invalid_hl

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'invalid_hl' option value '1'	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.

2.15.8 ip4 hdr_opts

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'hdr_opts' option value '1'	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.

2.15.9 ip4 invalid_df

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'invalid_df' option value '1'	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.

2.15.10 ip4 frag_offset_min_len

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'frag_offset_min_len' option value '1'	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.

2.15.11 ip4 frag_offset_min_size

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'frag_offset_min_size' option value '1'	Set frame offset length MIN size. ▪ value = offset length min, 8 bits

2.15.12 ip4 frag_offset_max_len

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'frag_offset_max_len'	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.

2.15.13 ip4 invalid_frag_offset

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'invalid_frag_offset' option value '1'	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.

2.15.14 ip4 invalid_sip

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'invalid_sip' option value '1'	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.

2.15.15 ip4 invalid_dip

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'invalid_dip' option value '1'	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.

2.15.16 ip4 invalid_chksum

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'invalid_chksum' option value '1'	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.

2.15.17 ip4 invalid_pl

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'invalid_pl' option value '1'	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

2.15.18 ip4 df_clear_status

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'df_clear_status' option value '1'	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

2.15.19 ip4 ipid_random_status

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp4' option item 'ipid_random_status' option value '1'	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.

2.15.20 ip6 invalid_dip

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp6' option item 'nvalid_dip' option value '1'	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.

2.15.21 ip6 invalid_sip

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp6' option item 'invalid_sip' option value '1'	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.

2.15.22 ip6 invalid_pl

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIp6' option item 'invalid_pl' option value '1'	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

2.15.23 tcp blat

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'blat' option value '1'	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.

2.15.24 tcp invalid_hl

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'invalid_hl' option value '1'	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.

2.15.25 tcp min_hdr_size

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'min_hdr_size' option value '1'	Set TCP frame header length min size. ▪ value = TCP header length, 4 bits.

2.15.26 tcp invalid_syn

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'invalid_syn' option value '1'	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.

2.15.27 tcp su_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'su_block' option value '1'	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.

2.15.28 tcp sp_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'sp_block' option value '1'	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.

2.15.29 tcp sap_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'sap_block' option value '1'	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.

2.15.30 tcp xmas_scan

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'xmas_scan' option value '1'	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.

2.15.31 tcp null_scan

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'null_scan' option value '1'	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.

2.15.32 tcp sr_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'sr_block' option value '1'	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.

2.15.33 tcp sf_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'sf_block' option value '1'	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.

2.15.34 tcp sar_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'sar_block' option value '1'	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.

2.15.35 tcp rst_scan

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'rst_scan' option value '1'	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.

2.15.36 tcp rst_with_data

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'rst_with_data' option value '1'	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.

2.15.37 tcp fa_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'fa_block' option value '1'	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.

2.15.38 tcp pa_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'pa_block' option value '1'	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.

2.15.39 tcp ua_block

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'ua_block' option value '1'	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

2.15.40 tcp invalid_chksum

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'invalid_chksum' option value '1'	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.

2.15.41 tcp invalid_urgptr

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'invalid_urgptr' option value '1'	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.

2.15.42 tcp invalid_opts

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecTcp' option item 'invalid_opts' option value '1'	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.

2.15.43 udp blat

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecUdp' option item 'blat' option value '1'	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.

2.15.44 udp invalid_len

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecUdp' option item 'invalid_len' option value '1'	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.

2.15.45 udp invalid_chksum

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecUdp' option item 'invalid_chksum' option value '1'	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.

2.15.46 icmp4 ping_pl_exceed

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIcmp4' option item 'ping_pl_exceed' option value '1'	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.

2.15.47 icmp4 ping_frag

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIcmp4' option item 'ping_frag' option value '1'	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.

2.15.48 icmp4 ping_max_pl

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIcmp4' option item 'ping_max_pl' option value '1'	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

2.15.49 icmp6 ping_pl_exceed

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIcmp6' option item 'ping_pl_exceed' option value '1'	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.

2.15.50 icmp6 ping_fr

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIcmp6' option item 'ping_frag' option value '1'	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.

2.15.51 icmp6 ping_max_pl

UCI Command	Description
config switch_ext option device 'switch0' option name 'SecIcmp6' option item 'ping_max_pl' option value '1'	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

2.16 STP commands

Config	Description
portState	Configure STP state on a particular port.

2.16.1 portState

UCI Command	Description
config switch_ext option device 'switch0' option name 'StpPortState' option stp_id '0' option port_id '2' option stp_status 'forward'	Configure STP state on a particular port. ▪ stp_id = 0 ▪ port_id = 0-6 ▪ stp_status = <disable|block|listen|learn|forward>

2.17 TRUNK commands

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

2.17.1 Group

UCI Command	Description
config switch_ext option device 'switch0' option name 'TrunkGroup' option trunk_id '1' option status 'enable' option trunk_port_bitmap '0x6'	Configure trunk group port member information. ▪ trunk_id = 0-3 ▪ status = <enable|disable> ▪ trunk_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

2.17.2 Hashmode

UCI Command	Description
config switch_ext option device 'switch0' option name 'TrunkHashmode' option trunk_hash_mode '0xf'	Configure trunk hash mode. ▪ trunk_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

2.18 VLAN commands

Config	Description
entry	Configure VLAN entry on a particular device.

Config	Description
member	Configure port member on a particular VLAN entry.
learnsts	Configure FDB learning status of a particular VLAN entry.

2.18.1 Entry

UCI Command	Description
config switch_ext option device 'switch0' option name 'VlanEntry' option vlan_id '100'	Create a VLAN entry by VLAN ID. After this operation the member ports of the created VLAN entry are null. ▪ vlan_id = 0-4095

2.18.2 Member

UCI Command	Description
config switch_ext option device 'switch0' option name 'VlanMember' option vlan_id '100' option port_id '1' option tag_mode 'untagged'	Add a port member to a particular VLAN entry. ▪ vlan_id = 0-4095 ▪ port_id = 0-6 ▪ tag_mode ▫ unmodified = egress transmit packets unmodified ▫ untagged = egress transmit packets without VLAN tag ▫ tagged = egress transmit packets with VLAN tag

2.18.3 learnsts

UCI Command	Description
config switch_ext option device 'switch0' option name 'VlanLearnSts' option vlan_id '100' option learn_status 'enable'	Set FDB learning status of a particular VLAN entry. ▪ vlan_id = 0-4095 ▪ learn_status ▫ enable = indicates normal operation about learn and final DP ▫ disable = indicates no learn and not use ARL table DP calculate final DP, but use UNI flood DP as ARL DP to calculate DP