IES3110-R Series Switches CLI Reference Guide

Model: IES3110-8TF-R; IES3110-8TFP-R

CLI REFERENCE GUIDE

Contents

1 System Configuration

1.1. System Configuration Management

1.1.1. copy running-config startup -config

Under the privileges view, using the command to save the configuration

command	explain
copy running-config startup-config	Save the current running configuration, as the start configuration

#Example
Switch# copy running-config startup-config
Building configuration...
% Saving 2100 bytes to flash:startup-config
Switch#

1.1.2. show running-config

Under all views, use this command to view the current running configuration

command	explain
show running-config	the current running configuration

#Example
Switch# sho running -config
Building configuration...
hostname Switch
username admin privilege 15 password encrypted YWRtaW4=
!
vlan 1
!
!
!
!
aggregation mode smac dmac ip port
spanning-tree mst name 9a -86-03-ab-57 -01 revision 0
poe management mode class -consumption
poe supply 250
snmp-server contact www.elimopt.co.kr
!
interface GigabitEthernet 1/1
poe mode plus
!
interface GigabitEthernet 1/2
poe mode plus
!
interface GigabitEthernet 1/3
-- more --, next page: Space, continue: g, quit: ^C

1.1.3. show version

Under the privileges view, use this command to check the SWITCH running version

command	explain
show version	Check the version

#Example
Switch# show version
MEMORY : Total=89879 KBytes, Free=77849 KBytes, Max=77752 KBytes
FLASH : 0x40000000-0x40ffffff, 256 x 0x10000 blocks
MAC Address : 9a-86-03-ab-57-01
Previous Restart : Cold

1.1.4. show cpu

CPU

command	explain
sho system cpu status	CPU

#Example
Switch# sho system cpu status
Average load in 100 ms : 0%
Average load in 1 sec : 33%
Average load in 10 sec : 32%
Switch#

1.1.5. hostname

Under the global configuration view, use this command to set hostname

command	explain
hostname	Set the device name
no hostname	Restore the device name as the default values switch

Example, the following will be the current configuration of the device name is set to sw1
switch(config)# hostname sw1
sw1(config)#

1.1.6. username

Under the global configuration view, use this command to add/remove user

command	explain
username *NAME* **password** *PASSWD*	addusers
no username *NAME*	remove user

Example Add a user
sw1(config)# username aa password bb
sw1(config)#

1.1.7. clock

Under the privileges view, use this command to check the system date

command	explain
show clock	show system time

Example,
The following command to display the current system time
Switch# show clock
System Time : 1970-01-01T01:16:41+00:00

1.1.8. reload cold

Under the global view, use the reboot command to reboot the device

command	explain
reboot	reboot the device

Example
switch# reload cold

1.1.9. reload default

command	explain
redefault	reboot the device

Example
switch# reload defaul

1.1.10. show logging

command	explain
show logging	

Example
Switch#show logging

1.1.11. show interface

command	explain
show interface GigabitEthernet 1/1 statistics	

Example
Switch#show interface GigabitEthernet 1/1 statistics

1.1.12. show LACP

lacp

command	explain
# sho lacp	
internal Internal LACP	
configuration	
neighbor Neighbor	
LACP status	
statistics Internal LACP	
statistics	
system -id LACP system id	

Example
Switch##sho lacp neighbor

1.1.13. show spanning-tree

STP

command	explain
show spanning -tree	STP
show spanning -tree interface	STP

Example
Switch## show spanning -tree
Switch## show spanning -tree interface

1.1.14. show mac address -table

STP

command	explain
show mac address -table	

Example
Switch# show mac address-table

1.2. Network test command

1.2.1. ping

Under the global view, use the ping command to test network connectivity status

command	explain
ping *ip_address*	Destination IP address

Example
switch# ping ip 11.1.1.1

1.3. Ip address

1.3.1. Ip address

command	explain
Ip address	ip
no ip address A.B.C.D	ip
ip address dhcp	
show ip interface	ip

Example
Switch(config)# interface vlan 2
Switch(config -if-vlan)# ip address 192.168.2.100 255.255.255.0
Switch(config) interface vlan 2
Switch(config -if-vlan)#ip address dhcp
Switch#show interface vlanif2

1.4. logging

command	explain
logging on	
Login host	ip
logging level	

#
Switch(config)#logging on
Switch(config)#no logging on
Switch(config)#logging host 192.168.0.1
Switch(config)#logging level error

1.5. SNTP

command	explain
sntp	Enable SNTP server
server	Configure SNTP server
ip-address	IP address of server

#
Switch(config)# sntp
Switch(config)# sntp server ip-address 192.168.0.5
Switch(config)# no sntp

1.6. SNMP

command	explain
snmp	snmp
no snmp	snmp
snmp version	snmp
no snmp version	

#
Switch(config)# snmp version v2c
Switch(config)# snmp
Switch(config)# no snmp
Switch(config)# no snmp version

2. Interface Configuration

2.1. description

command	explain
description *string*	**description**

Example
Switch# configure terminal
Switch(config)# int g1/2
Switch(config-if)# description b32 floor to b33 floor

2.2. shutdown

command	explain
shutdown	
no shutdown	

Example
Switch(config-if)# no shutdown

2.3. ethernet interface configuration

2.3.1. speed

command	explain
speed (10 | 100 | 1000 | auto)	10M,100M,1000M **auto**

Example
Switch(config)# interface GigabitEthernet 1/1
Switch(config-if)# speed 1000

2.3.2. duplex

command	explain
duplex (full | half | auto)	duplex

Example
Switch(config)# interface GigabitEthernet 1/1
Switch(config-if)# duplex full
Switch(config-if)# no duplex full

2.3.3. flowcontrol

command	explain
flowcontrol on	Open
flowcontrol off	close

Example

Switch(config-if)# flowcontrol off
Switch(config-if)# flowcontrol off

2.3.4. pvlan isolation

command	explain
pvlan isolation	
no pvlan isolation	

#example
Switch(config)# interface GigabitEthernet 1/1-10
Switch(config-if)# pvlan isolation // 1-10
Switch(config-if)# no pvlan isolation // 1-10

2.3.5. monitor

command	explain
monitor destination	
no monitor destination	
monitor source	
no monitor source interface GigabitEthernet1/2	

#example
Switch(config)# monitor source interface GigabitEthernet 1/2 both
Switch(config)# no monitor source interface GigabitEthernet 1/2

2.3.6 Aggregation

command	explain
aggregation group group-id	
no aggregation group	
lacp	
no lacp	
Lacp key	<1-65535> key , 1-65535 ;
lacp port-priority <1-65535>	<1-65535>
lacp role *active |passive*	active | passive

#example
Switch(config-if)#lacp role active
Switch(config-if)#lacp role passive
Switch(config)# aggregation mode smac dmac
Switch(config)# interface GigabitEthernet 1/1-8
Switch(config-if)# aggregation group 2
Switch(config-if)# no aggregation group
Switch(config)# interface GigabitEthernet 1/1-4
Switch(config)# lacp
Switch(config)# no lacp
Switch(config-if)# lacp key 100 Switch(config-if)# lacp port-priority 100

3. PTP

3.1. ptp instance

3.1.1. mode

command	explain
bcfrontend	Boundary Clock front end
boundary	Ordinary / Boundary clock
e2etransparent	End to end transparent clock
master	Master only clock
p2ptransparent	Peer to peer transparent clock
slave	Slave only clock
clock-domain	Define clock domain used by this instance. Instances with different clock domain can have different time.
dscp	Define DSCP field used in IPv4 encapsulation
ethernet	Ethernet protocol encapsulation
ethernet-mixed	Ethernet protocol encapsulation using mix of unicast and multicast
id	define PTP clock instance identifier
ip4mixed	IPv4 mixed multicast/unicast protocol encapsulation
ip4multi	IPv4 multicast protocol encapsulation
ip4unicast	IPv4 unicast protocol encapsulation
mep	Define MEP id used in OAM based PTP
oam	OAM encapsulation (only used in Serval based Distributed TC)
onepps	1PPS master slave synchronization(only used with Gen2 1588 PHY's)
onestep	One-step mode
oneway	One-way slave mode (no Delay_req)
profile	Indication that clock has an associated profile
twostep	Two-step mode
twoway	Two-way slave mode
vid	define VLAN ID

#example
Switch(config)# ptp 0 mode master onestep ethernet twoway id 1c:2a:a3:ff:fe:01:dc:36 vid 1 0 profile ieee1588 mep 1
Switch(config)# no ptp 0 mode master

3.1.2. time-property

command	explain
freq-traceable	frequency is traceable
leap-59	leap59 in current day
leap-61	leap61 in current day
ptptimescale	timing is a PTP time scale
time-source	set time source
time-traceable	timing is traceable
utc-offset	set utc offset
valid	UTC offset is valid

#example
Switch(config)# ptp 0 time-property utc-offset 0 ptptimescale time-source 160

3.1.3. clk

command	explain
sync	Set PTP slave clock options to 'clock is SyncE locked'

#example
Switch(config)# ptp 0 clk sync 1000 ap 2
Switch(config)# no ptp 0 clk

3.1.4. domain

command	explain
<0-127>	PTP domain: range = 0-127

#example
Switch(config)# ptp 0 domain 0
Switch(config)# no ptp 0 domain

3.1.5. filter

command	explain
delay	Set delay filter parameter
filter-type	Define offset filter type
basic	Basic offset filter
ms-pdv	MS-PDV
period	Set offset filter period parameter
dist	Set offset filter dist parameter

#example
Switch(config)# ptp 0 filter delay 6 period 1 dist 2
Switch(config)# no ptp 0 filter

3.1.6. ho

command	explain
adj-threshold	Set adjustment threshold
filter	Set stabilization period

#example
Switch(config)# ptp 0 ho adj-threshold 30
Switch(config)# no ptp 0 ho

3.1.7. localpriority

command	explain
<1-255>	PTP clock priority1: range = 1-255

#example
Switch(config)# ptp 0 localpriority 128
Switch(config)# no ptp 0 localpriority

3.1.8. priority1

command	explain
<0-255>	PTP clock priority1: range = 0-255

#example
Switch(config)# ptp 0 priority2 128
Switch(config)# no ptp 0 priority2

3.1.9. priority2

command	explain
<0-255>	PTP clock priority1: range = 0-255

#example
Switch(config)# ptp 0 priority1 128
Switch(config)# no ptp 0 priority1

3.1.10. servo ad

command	explain
ad	Set 'D' parameter in the servo

#example
Switch(config)# ptp 0 servo ad 40
Switch(config)# no ptp 0 servo ad

3.1.11. servo ai

command	explain
ai	Set 'I' parameter in the servo

#example
Switch(config)# ptp 0 servo ai 80
Switch(config)# no ptp 0 servo ai

3.1.12. servo ap

command	explain
ap	Set 'P' parameter in the servo

#example
Switch(config)# ptp 0 servo ap 3
Switch(config)# no ptp 0 servo ap

3.1.13. servo displaystates

command	explain
displaystates	Enable logging of servo parameters on the console

#example
Switch(config)# ptp 0 servo displaystates
Switch(config)# no ptp 0 servo displaystates

3.1.14. servo gain

command	explain
gain	Set PID servo gain parameter

#example
Switch(config)# ptp 0 servo gain 1
Switch(config)# no ptp 0 servo gain

3.1.15. servo phase -mode

command	explain
phase-mode	Enable phase mode in the servo

#example
Switch(config)# ptp 0 servo phase -mode
Switch(config)# no ptp 0 servo phase -mode

3.1.16. slave-cfg

command	explain
stable-offset	set the stable-offset threshold
offset-ok	set the offset-ok threshold
offset-fail	set the offset-fail threshold

#example
Switch(config)# ptp 0 slave-cfg stable-offset 1000 offset-ok 1000
Switch(config)# no ptp 0 servo phase -mode

3.1.17. uni

command	explain
<0-4>	Index in the slave table
<ipv4_ucast>	IPv4 address of requested master clock
duration	Set the Duration parameter

#example
Switch(config)# ptp 0 uni 0 192.168.2.20
Switch(config)# no ptp 0 uni 0

3.1.18. local-clock

command	explain
ratio	Set the local master clock frequency ratio
update	The local clock is synchronized to the system clock

#example
Switch(config)# ptp 0 local-clock update

3.2. ptp system-time

3.2.1. system-time

command	explain
get	Get (update) the PTP time from the system time
set	Set (update) the system time from the PTP time

#example
Switch(config)# ptp system-time get
Switch(config)# no ptp system-time

3.3. PTP(Interface)

3.3.1. ptp instance

command	explain
<0-3>	Clock instance

#example
Switch# ptp 0
Switch# no ptp 0

3.3.2. ptp instance announce

command	explain
interval	Set announce interval
timeout	Set Announce timeout

#example
Switch# ptp 0 announce interval 1 timeout 4
Switch# no ptp 0 announce timeout 4

3.3.3. ptp instance delay -asymmetry

command	explain
delay-asymmetry	Set path delay asymmetry

#example
Switch# ptp 0 delay-asymmetry 0
Switch# no ptp 0 delay-asymmetry

3.3.4. ptp instance delay -mechanism

command	explain
e2e	End to End Delay mechanism
p2p	Peer to Peer Delay mechanism

#example
Switch# ptp 0 delay-mechanism e2e
Switch# no ptp 0 delay-mechanism

3.3.5. ptp instance delay -req interval

command	explain
interval	Path-Delay request intervalPath-Delay request interval

#example
Switch# ptp 0 delay-req interval 0
Switch# no ptp 0 delay-req interval

3.3.6. ptp instance egress -latency

command	explain
egress-latency	Egress latency in ns

#example
Switch# ptp 0 egress-latency 0
Switch# no ptp 0 egress-latency

3.3.7. ptp instance ingress -latency

command	explain
ingress-latency	Ingress latency in ns

#example
Switch# ptp 0 ingress-latency 0
Switch# no ptp 0 ingress-latency

3.3.8. ptp instance localpriority

command	explain
localpriority	PTP clock priority1: range = 1-255

#example
Switch# ptp 0 localpriority 128
Switch# no ptp 0 localpriority

3.3.9. ptp instance sync -interval

command	explain
sync-interval	Set sync interval

#example
Switch# ptp 0 sync -interval 0
Switch# no ptp 0 sync -interval

3.4. show ptp

3.4.1. show ptp default

command	explain
default	Show PTP default data set (IEEE1588 paragraph 8.2.1).

#example

```
Switch# show ptp 0 default
ClockInst DeviceType Profile: 2Step Flag Ports
vtss_appl_clock_identity
-------------------------------------------------------------------------
0      Mastronly  ieee1588 False    10   1c:2a:a3:ff:fe:01:dc:36
Dom vtss_appl_clock_quality      Pri1 Pri2 Lpri
--- ------------------------------ ---- ---- -------------------------
0  Cl:248 Ac:Unknwn Va:65535     128  128  128
Protocol    One-Way   VLAN Tag Enable   VID   PCP DSCP
----------- --------- ----------------- ----- --- --------------------------------
Ethernet    False    False        1    0  0
```

3.4.2. show ptp current

command	explain
current	Show PTP current data set (IEEE1588 paragraph 8.2.2).

#example

```
Switch# show ptp 0 current
stpRm OffsetFromMaster                MeanPathDelay
-------------------------------------------------------------------------
0     0.000,000,000    0.000,000,000
```

3.4.3. show ptp parent

command	explain
parent	Show PTP parent data set (IEEE1588 paragraph 8.2.3).

#example

```
Switch# show ptp 0 parent
ParentPortIdentity    port Pstat Var ChangeRate
--------------------- ---- ----- --- ----------
1c:2a:a3:ff:fe:01:dc:36 0    False 0   0
GrandmasterIdentity    GrandmasterClockQuality   Pri1 Pri2
---------------------- ------------------------- ---- ----
1c:2a:a3:ff:fe:01:dc:36 Cl:248 Ac:Unknwn Va:65535 128  128
```

3.4.4. show ptp time-property

command	explain
time-property	Show PTP time properties data set (IEEE1588 paragraph 8.2.4).

#example

```
Switch# show ptp 0 time-property
UtcOffset Valid leap59 leap61 TimeTrac FreqTrac ptpTimeScale
Timesource
---------------------- ------------------------- ---- ---------------------------- ------------------------- ---- ----
0      False False  False  False   False    True      160
```

3.4.5. show ptp filter

command	explain
filter	Show PTP filter parameters

#example

```
Switch# show ptp 0 filter
  Delay  Filter        Offset  Filter        Period        Dist
----------    ------------    -------    ----
       6              0             1          2
```

3.4.6. show ptp servo

command	explain
servo	Show PTP servo parameters

#example
Switch# show ptp 0 servo
Display P-enable I-enable D-enable 'P'constant 'I'constant
'D'constant gain const
---------- ---------- ---------- ---------- ---- ---- ---- ----
False False False False 3 80 40 1

3.4.7. show ptp servo-extended

command	explain
servo-extended	Show PTP servo extended parameters

#example
Switch# show ptp 0 servo-extended
phase-mode

False

3.4.8. show ptp clk

command	explain
clk	Show PTP slave clock options parameters.

#example
Switch# show ptp 0 clk
Option threshold ' P'constant
---------- ---------- ----------
Synce 1000 2

3.4.9. show ptp ho

command	explain
ho	Show PTP slave holdover parameters

#example
Switch# show ptp 0 ho
Holdover filter Adj threshold (ppb)
---
60 30.0

Holdover Ok Holdover offset (ppb)

FALSE 0.0

3.4.10. show ptp uni

command	explain
uni	Show PTP slave unicast configuration parameters.

#example
Switch# show ptp 0 uni

index	duration	ip_address	grant	CommState
0	100	192.168.2.20	0	IDLE
1	100	0.0.0.0	0	IDLE
2	100	0.0.0.0	0	IDLE
3	100	0.0.0.0	0	IDLE
4	100	0.0.0.0	0	IDLE

3.4.11. show ptp slave

command	explain
slave	Show PTP slave clock lock threshold parameters.

#example
show ptp 0 slave

Slave port	Slave state	Holdover(ppb)
1	LOCKED	N.A.

3.4.12. show ptp port -state

command	explain
port-state	Show PTP port state

#example
show ptp 0 port-state

Port	Enabled	PTP-State	Internal	Link	Port-Timer	Vlan-forw	Phy-timestamper	Peer-delay
OK	1	TRUE	slve	FALSE	Up	In Sync	Forward	FALSE
OK	2	FALSE	dsbl	FALSE	Down	In Sync	Discard	FALSE
OK	3	FALSE	dsbl	FALSE	Down	In Sync	Discard	FALSE
OK	4	FALSE	dsbl	FALSE	Down	In Sync	Discard	FALSE
OK	5	FALSE	dsbl	FALSE	Down	In Sync	Discard	FALSE
OK	6	FALSE	dsbl	FALSE	Down	In Sync	Discard	FALSE

3.4.13. show ptp port -ds

command	explain
port-ds	Show PTP port data set (IEEE1588 paragraph 8.2.5).

#example
show ptp 0 port-ds

Port	Enabled	Stat	MDR	PeerMeanPathDel	Anv	ATo	Syv	SyvErr	Dlm	MPR	DelayAsymmetry	IngressLatency	EgressLatency	Ver	Lpri	NoSlv	McAdr
1	True	slve	0	0.000,000,000	1	3	0	No	e2e	0	0.000,000,000	0.000,000,000	0.000,000,000	2	128	False	deflt
2	False	dsbl	0	0.000,000,000	1	3	0	No	e2e	0	0.000,000,000	0.000,000,000	0.000,000,000	2	128	False	deflt
3	False	dsbl	0	0.000,000,000	1	3	0	No	e2e	0	0.000,000,000	0.000,000,000	0.000,000,000	2	128	False	deflt
4	False	dsbl	0	0.000,000,000	1	3	0	No	e2e	0	0.000,000,000	0.000,000,000	0.000,000,000	2	128	False	deflt
5	False	dsbl	0	0.000,000,000	1	3	0	No	e2e	0	0.000,000,000	0.000,000,000	0.000,000,000	2	128	False	deflt
6	False	dsbl	0	0.000,000,000	1	3	0	No	e2e	0	0.000,000,000	0.000,000,000	0.000,000,000	2	128	False	deflt

3.4.14. show ptp foreign -master -record

command	explain
foreign-master-record	Show PTP port foreign masters.
interface	Define interface list for the 'port' show commands. Default is show all interfaces.

#example
show ptp 0 foreign-master-record

Port	ForeignmasterIdentity	ForeignmasterClockQality	Pri1	Pri2	Lpri	Qualif	Best
1	1c:2a:a3:ff:fe:01:dc:36	2 Cl:248 Ac:Unknwn Va:65535	128	128	128	True	True

3.4.15. show ptp slave-table-unicast

command	explain
slave-table-unicast	Show the Unicast slave table of the requested

#example
show ptp 0 slave-table-unicast
Index IP-addr State MAC-addr Port Srcport clock id Srcport port Grant
-- ------- ---- --- ---------- --- --- --- - ---------- --- ----
0 192.168.0.2 IDLE

3.4.16. show ptp instance slave -cfg

command	explain
slave-cfg	Show slave lock configuration

#example
Switch# show ptp 0 slave-cfg
Stable Offset Offset Ok Offset Fail
---------- ---------- ----------
1000 1000 3000

3.4.17. show ptp system-time

command	explain
system-time	Show the PTP <-> system time synchronization mode.

#example
Switch# show ptp system-time
System clock synch mode (Get PTP time from System time)

3.4.18. show ptp local-clock

command	explain
local-clock	Show local clock current time

#example
Switch# show ptp 0 local-clock
PTP Time (0) : 2022-03-09T08:21:08+00:00 477,832,348
Clock Adjustment method: Internal Timer

4. VLAN

4.1. create VLAN

command	explain
vlan *<1-4094>*	
name string	Vlan name

#example
Switch(config)# vlan 10

4.2. switchport mode

command	explain
switchport mode (access | translation | trunk)	Configure vlan mode

#example
Switch(config)# int g1/10
Switch(config-if)# switchport mode trunk
Switch(config-if)#

4.3. PVID

command	explain
switchport pvid *<1-4094>*	Pvid

#example
Switch(config)# int g1/10
Switch(config-ge1/10)# switchport pvid 2
Switch(config-ge1/10)#

4.4. Switchport forbidden vlan

command	explain
switchport forbidden vlan { add | remove} {vlan-id}	add vlan Remove vlan
Vlan-id	Vlan 1-4094

#example
Switch# con t
Switch(config)# interface GigabitEthernet 1/1
Switch(config-if)# switchport mode hybrid
Switch(config-if)# switchport forbidden vlan add 2
Switch(config-if)# switchport forbidden vlan remove 3-4

4.5. Switchport hybrid acceptable-frame-type

command	explain
Switchport hybrid acceptable-frame-type <all |tagged| untagged>	all | tagged | untagged hybrid、tag 、 untag

#example
Switch(config)# interface GigabitEthernet 1/1
Switch(config-if)# switchport hybrid acceptable-frame-type all

4.6. Switchport hybrid ingress -filtering

command	explain
Switchport hybrid ingress-filtering no switchport hybrid ingress-filtering	

#example
Switch(config)# interface GigabitEthernet 1/1
Switch(config-if)# switchport hybrid acceptable-frame-type all

4.7. Switchport hybrid ingress -filtering

command	explain
Switchport hybrid egress-tag <all | none>	tag
No switchport hybrid egress-tag	tag

#example
Switch(config)# interface GigabitEthernet 1/1
Switch(config-if)# switchport hybrid acceptable-frame-type all

4.8. show vlan

command	explain
show vlan brief |id vlan-list| ip-subnet | mac |name | protocol | status	vlan id、vlan name、vlan

#example
Switch# show vlan brief
Switch# show vlan status
Switch# show vlan 2
Switch# show ip-subnet i

4.9. Switchport trunk vlan

command	explain
switchport trunk vlan { add | remove} {vlan-id}	add vlan Remove vlan
Vlan-id	Vlan 1-4094

#example
Switch# con t
Switch(config)# interface GigabitEthernet 1/1
Switch(config-if)# switchport mode trunk
Switch(config-if)# switchport trunk vlan add 2
Switch(config-if)# switchport trunk vlan remove 3-4

5. DHCP

5.1. DHCP Client

command	explain
ip address dhcp	**ip address dhcp**

#example
Switch(config)# int vlan10
Switch(config-if)# ip address dhcp
Switch(config-if)#

5.2. DHCP snooping

command	explain
ip dhcp snooping	dhcp
no ip dhcp snooping	dhcp
ip dhcp snooping trust	dhcp
no ip dhcp snooping trust	dhcp
show ip dhcp snooping table	dhcp
show ip dhcp snooping interface	dhcp

#example
Switch(config)# ip dhcp snooping
Switch(config)# no ip dhcp snooping
Switch(config-if)# ip dhcp snooping trust
Switch(config-if)# no ip dhcp snooping trust
Switch# show ip dhcp snooping table
Switch# show ip dhcp snooping interface GigabitEthernet 1/1

6. Igmp-snooping

6.1. Configure IGMP -snooping

6.1.1. Enable IGMP -snooping

command	explain
[no] ip igmp-snooping	Enable igmp-snooping

#example igmp-snooping
Switch(config)# ip igmp-snooping
Switch(config)#

6.1.2. ip igmp-snooping vlan

command	explain
ip igmp-snooping vlan <vlan_list>	IGMP VLAN
no ip igmp-snooping vlan <vlan_list>	IGMP VLAN

#example IGMP VLAN
Switch (config)# ip igmp snooping vlan 1

6.1.3. ip igmp-snooping immediate -leave

command	explain
ip igmp-snooping immediate-leave	
no ip igmp -snooping immediate -leave	

#example igmp-snooping
Switch (config-if)# ip igmp snooping immediate-leave

6.1.4. ip igmp-snooping max -groups

command	explain
ip igmp-snooping max-groups <Throttling : 1-10>	**unknown-multicast drop**
no ip igmp-snooping max-groups	**unknown-multicast flood (all|unknown)**

#example
10 10
Switch (config-if)# ip igmp snooping max-groups 10

6.2. show ip igmp -snooping

6.2.1. show ip igmp-snooping

command	explain
show ip igmp snooping |/detail/group-database/mrouter/vlan	IGMP

#example
IGMP
Switch #show ip igmp snoopi

7. Routing

7.1. ip routing

command	explain
ip routing	
no ip routing	

#example
Switch (config)#ip routing

7.2. interface vlan

command	explain
interface vlan<vlan_id>	vlan

#example
VLAN1 :
switch(config)# interface vlan1
switch(config-if-vlan)#

7.3. ip address

command	explain
ip address <address> <netmask>	IP
no ip address	IP

#example
VLAN 2 IP
switch(config)# interface vlan 2
switch(config-if-vlan)# ip address 192.168.1.1 255.255.255.0
ip route <v_ipv4_addr> <v_ipv4_netmask> <v_ipv4_gw> <v_nhop_vlanid>

7.4. ip address

command	explain
ip route <v_ipv4_addr> <v_ipv4_netmask> <v_ipv4_gw> <v_nhop_vlanid>	
no ip route	

#example
switch(config)# ip route 192.168.3.0 255.255.255.0 192.168.100.100 2

7.5. interface vlan

command	explain
show ip route	
show ip interface brief	

#example
Switch# show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP, IP
Switch#show ip interface brief
Switch#show ip route

8. MAC

8.1. MAC

8.1.1. mac address -table static

command	explain
mac address-table static mac-addr vlan vlan-id interface interface-id	MAC
no mac address-table static mac-addr vlan vlan-id interface interface-id	MAC

#example
MAC 00-00-00-00-00-01 VLAN2 10 。
Switch(config)# mac address-table static 00-00-00-00-00-01 vlan 2 interface 1/10

8.1.2. mac address -table aging-time

command	explain
mac address-table aging-time <0,10-1000000>	MAC
no mac address-table aging time <0,10-1000000>	MAC

#example
MAC 200s。
Switch(config)# mac address-table aging-time 200

8.1.3. show mac address -table

command	explain
show mac address-table {address | aging-time | conf | count | learning |[interface	Mac
	VLAN ID: 1－4094

#example
MAC
Switch# show mac address-table

8.2. QoS

command	explain
qos storm broadcast /unicast /unknown	//
no qos storm broadcast /unicast /unknown	//

#example
Switch(config)# interface GigabitEthernet 1/10
Switch (config-if)# qos storm broadcast

8.3. IPSG

command	explain
ip verify source	ip
no ip verify source	ip
ip verify source translate	
no ip verify source translate	
ip verify source limit <0-2>	
no ip verify source limit	
ip source binding interface <port_type> <in_port_type_id> <vlan_var> <ipv4_var> <mask_var>	
no ip source binding interface<port_type> <in_port_type_id> <vlan_var>	
show ip verify source	ip

#example
Switch (config)# ip verify source// IP
Switch (config)# ip verify source translate //
Switch (config)# interface GigabitEthernet 1/1
Switch (config-if)# ip verify source limit 2 //2
Switch(config)#ip source binding interface GigabitEthernet 1/1 1 192.168.2.66 255.255.255.0 // 1， vlan 1， ip：192.168.2.66：255.255.255.0
Switch# show ip verify source // IP

8.4. ARP

command	explain
ip arp inspection	ARP
no ip arp inspection	ARP
ip arp inspection trust	ARP
no ip arp inspection trust	ARP
ip arp inspection entry interface <port_type> <in_port_type_id> <vlan_var>	
no ip arp inspection entry interface <port_type> <in_port_type_id> <vlan_var><mac_var> <ipv4_var>	
ip arp inspection translate [interface <port_type> <in_port_type_id>	
no ip arp inspection translate [interface <port_type> <in_port_type_id>	
show ip arp inspection entry/interface/vlan	ip

#example
Switch (config)# ip arp inspection // ARP
Switch (config)# interface GigabitEthernet 1/1
Switch (config-if)# no ip arp inspection trust // 1 ARP

Switch(config)# ip arp inspection entry interface GigabitEthernet 1/1 1
00:00:00:00:00:08 192.168.2.3 //
Switch (config)# ip arp inspection translate //
Switch (config)# show ip arp inspection // ARP

8.5. ACL

command	explain
access-list ace	acl
no access-list ace	acl ace
show access-list [interface [(<port_type> [<v_port_type_list>])]] rate-limiter [<rate_limiter_list>]] [ace statistics [<ace_list>]] show access-list ace-status [static] [link-oam] [loop-protect] [dhcp] [ptp] [upnp] [arp-inspection] [evc] [mep] [ipmc] [ip-source-guard] [ip-mgmt] [conflicts] [switch <switch_list>]	ace
no ip arp inspection trust	ARP

#example
Switch(config)# access-list ace 1 ingress interface GigabitEthernet 1/1
frame-type ipv4 action deny rate-limiter 1 redirect interface GigabitEthernet 1/2 logging // acl
Switch(config)# no access-list ace 1 // acl ace
Switch# show access-list ace statistics
Switch# show access-list ace // ace

8.6. Spanning-Tree

command	explain
spanning-tree	STP
no spanning-tree	STP
spanning-tree mode stp/mstp/rstp	STP
no spanning-tree mode	
spanning-tree aggregation	STP
spanning-tree auto-edge	
no spanning-tree auto-edge	
spanning-tree bpdu-guard	BPDU
no spanning-tree bpdu-guard	BPDU
spanning-tree edge	
no spanning-tree edge	
spanning-tree link -type auto/ point-to-point/ shared	
no spanning-tree link -type	
spanning-tree mst <instance> cost { <cost> | auto	
no spanning-tree mst <instance> cost { <cost> | auto }	

spanning-tree mst <instance> port-priority <prio>	
no spanning-tree mst <instance> port-priority <prio>	
spanning-tree restricted-role	restricted
no spanning-tree restricted-role	restricted
spanning-tree restricted-tcn	restricted -tcn
no spanning-tree restricted-tcn	restricted -tcn
show spanning-tree |/active/ detailed/ interface / mst / summary	STP

#example
Switch (config) #spanning-tree mode rstp // STP RSTP
Switch (config) #spanning-tree aggregation // STP
Switch (config-if) #spanning-tree auto-edge // 10 ,
Switch (config-stp-aggr)# spanning-tree auto-edge //
Switch (config-if) #spanning-tree bpdu-guard // 10 BPDU ,
Switch (config-stp-aggr)# spanning-tree bpdu-guard // BPDU
Switch (config-if) #spanning-tree edge // 10
Switch (config-stp-aggr)# spanning-tree edge //
Switch (config-if) spanning-tree link-type point-to-point // 10 forced true
Switch (config-stp-aggr)# spanning-tree link-type point-to-point // forced true
Switch (config-if) # spanning-tree mst 1 cost 144 // 10
Switch (config-stp-aggr)# spanning-tree mst 1 cost 144 //
Switch (config-if) # spanning-tree restricted-role // 10 restricted
Switch (config-stp-aggr)# spanning-tree restricted-role // restricted
Switch # show spanning-tree // STP

8.7. loop -protect

command	explain
loop-protect	
no loop-protect	
loop-protect tx-mode	
no loop-protect tx-mode	

#example
Switch (config) # loop-protect //
Switch (config-if) #loop-protect tx-mode //

8.8. ERPS

command	explain
Mep	MEP
ERPS	ERPS

#example
// 1,2 erps 1， vlan3001，
Switch(config)# mep 1 down domain port flow 1 level 0 interface GigabitEthernet1/1 Switch(config)# mep 1 vid 3001
Switch(config)# mep 1 aps 0 raps
Switch(config)# mep 2 down domain port flow 2 level 0 interface GigabitEthernet1/2 Switch(config)# mep 2 vid 3001

Switch(config)# mep 2 aps 0 raps
Switch(config)# erps 1 major port0 interface GigabitEthernet 1/1 port1 interface GigabitEthernet 1/2
Switch(config)# erps 1 mep port0 sf 1 aps 1 port1 sf 2 aps 2
Switch(config)# erps 1 vlan 1
// 51、52 erps 2， vlan3002， port 0
Switch(config)# mep 51 down domain port flow 51 level 0 interface XGigabitEthernet 1/3
Switch(config)# mep 51 vid 3002
Switch(config)# mep 51 aps 0 raps
Switch(config)# mep 52 down domain port flow 52 level 0 interface XGigabitEthernet 1/4
Switch(config)# mep 52 vid 3002
Switch(config)# mep 52 aps 0 raps
Switch(config)# erps 2 major port0 interface XGigabitEthernet 1/3 port1 interface XGigabitEthernet 1/4
Switch(config)# erps 2 mep port0 sf 51 aps 51 port1 sf 52 aps 52
Switch(config)# erps 2 rpl owner port0
Switch(config)# erps 2 vlan 1

8.9. 802.1x

command	explain
dot1x system -auth -control	802.1x NAS
No dot1x system-auth-contro	802.1x NAS
dot1x port -control auto	Port_Based 802.1x
no dot1x port -control	
dot1x port -control mac -based	mac_Based 802.1x
no dot1x port -control	
dot1x port-control single	single 802.1x
no dot1x port -control	
dot1x port -control force-unauthorized	
no dot1x port -control	
dot1x re-authentication	
no dot1x re-authentication	
dot1x authentication timer re -authenticate <1-3600>	
no dot1x authentication timer re -authenticate	
show dot1x statistics	

#example
Switch(config)# dot1x system-auth-control // 802.1x NASSwitch(config)# no dot1x system-auth-control // 802.1x NAS
Switch(config-if)# dot1x port-control auto // Port_Based 802.1x
Switch(config-if)# dot1x port-control mac-based // mac_Based 802.1x
Switch(config-if)# dot1x port-control single // single 802.1x
Switch(config-if)# dot1x port-control force-unauthorized//
Switch(config)# dot1x re-authentication //
Switch(config)# no dot1x re-authentication //
Switch(config)# dot1x authentication timer re-authenticate 1000 //
Switch(config)# no dot1x authentication timer re-authenticate //
Switch# show dot1x statistics //

9. Security

9.1. LLDP

Command	explain
lldp receive	lldp
lldp transmit	lldp
No lldp receive|transmit	lldp |
lldp holdtime	lldp holdtime
nolldp holdtime	lldp holdtime
lldp transmission -delay <1 -8192>	lldp
lldp timer <5 -32768>	lldp ttl
lldp reinit <1-10>	lldp
show lldp neighbors，	

#example
Switch(config)# lldp receive // lldp
Switch(config)# lldp transmit // lldp
Switch(config)# no lldp transmit // lldp |
Switch(config)# lldp holdtime 3 // lldp holdtime
Switch(config)# no lldp holdtime // lldp holdtime
Switch(config)# lldp transmission-delay 4 // lldp
Switch(config)# nolldp transmission-delay // lldp
Switch(config)# lldp timer 20 // lldp ttl
Switch(config)# lldp timer 2 // lldp
Switch# show lldp neighbors //

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