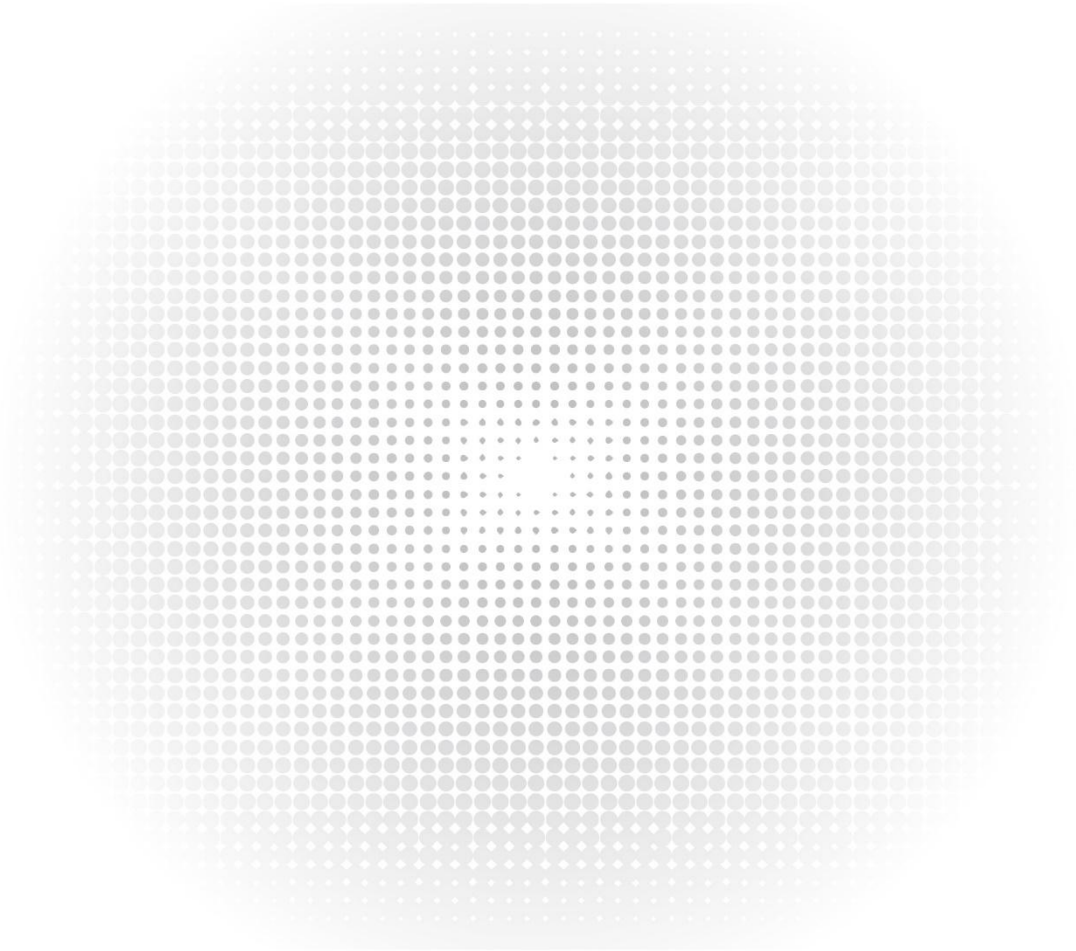
PicOS® for Multi-Branch Network Solution Test Report

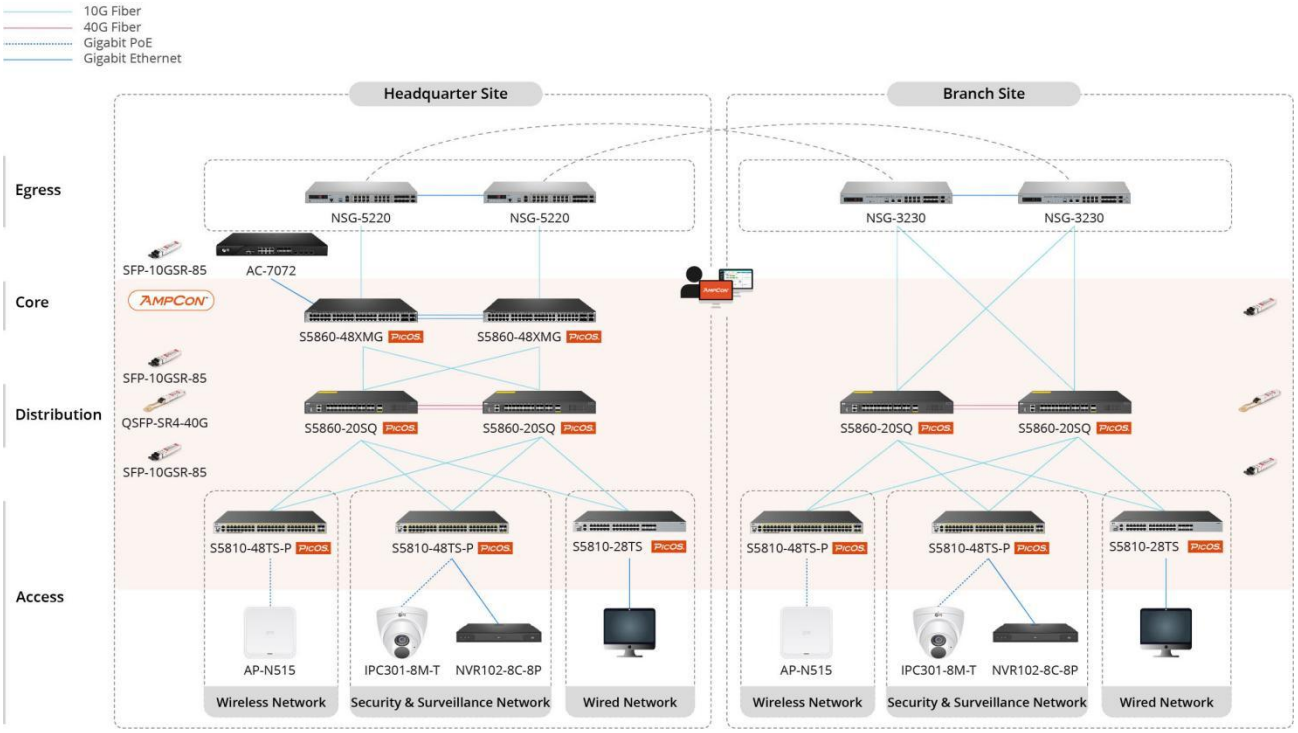


Content

1 Overview

FS utilizes PicOS® switches and the AmpCon™ unified management platform to build a multi-branch network for campus solution, enabling remote deployment and automated management. It delivers a high-performance, easy-to-manage, and secure enterprise network, simplifying operations and reducing overall opex.

2 Network Topology



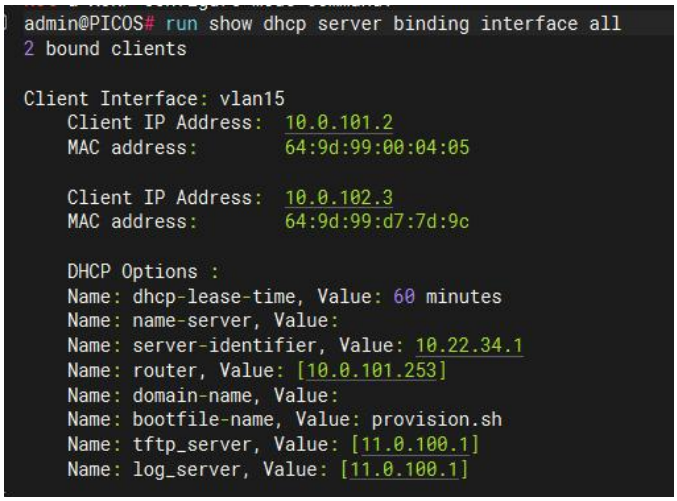
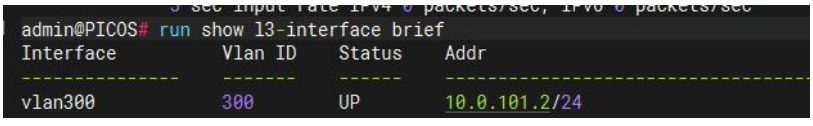
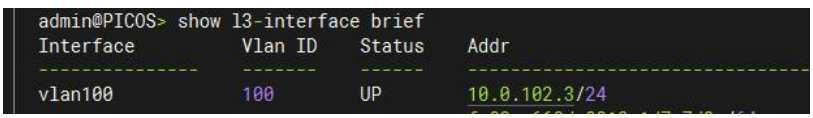
3 Software and Hardware Environment Description

4.4.5.7 GA Verison

4 PicOS® Switch Function Test

4.1 MLAG Scenario Between S5860-20SQ and S5810-48TS-P

4.1.1 MLAG + VRRP + DHCP Relay Function Test

Test Name	MLAG + VRRP + DHCP Relay Test
Test Topo& Precondition	
Test Procedure	1. VRRP virtual ip address as GW, two hosts can get dynamic ip address and default GW by dhcp server, check dhcp relay table on spine---Result1. 2. host1 ping host2---Result2 3. host1 ping ixia3-8, ixia3-9---Result3 4. One by one down/up Links between 5860 and 5810-48TS when host1 ping host2, host1 ping ixia3-8, ixia3-9---Result4 5. One by one stop/start two 5860s when host1 ping host2, host1 ping ixia3-8, ixia3-9---Result5
Expect results	**Result1:** Dhcp server binding table should have both 10.0.101.0/24 and 10.0.102.0/24 segments  43's l3-interface(vlan300) should get the address of the 10.0.101.0/24 segment. 66's l3-interface(vlan100)should get the address of the 10.0.102.0/24 segment.   **Result2:**

```
admin@PICOS# run show dhcp server binding interface all
2 bound clients

Client Interface: vlan15
    Client IP Address:  10.0.101.2
    MAC address:        64:9d:99:00:04:05

    Client IP Address:  10.0.102.3
    MAC address:        64:9d:99:d7:7d:9c

    DHCP Options :
    Name: dhcp-lease-time, Value: 60 minutes
    Name: name-server, Value:
    Name: server-identifier, Value: 10.22.34.1
    Name: router, Value: [10.0.101.253]
    Name: domain-name, Value:
    Name: bootfile-name, Value: provision.sh
    Name: tftp_server, Value: [11.0.100.1]
    Name: log_server, Value: [11.0.100.1]
```

```
admin@PICOS# run show l3-interface brief
Interface          Vlan ID    Status    Addr
---------------    -------    ------    -----------------------------------
vlan300            300        UP        10.0.101.2/24
```

```
admin@PICOS> show l3-interface brief
Interface          Vlan ID    Status    Addr
---------------    -------    ------    -----------------------------------
vlan100            100        UP        10.0.102.3/24
```

Two hosts can ping each other.

```
admin@sw66# run ping 10.0.101.2
PING 10.0.101.2 (10.0.101.2) 56(84) bytes of data.
64 bytes from 10.0.101.2: icmp_seq=1 ttl=63 time=13.3 ms
64 bytes from 10.0.101.2: icmp_seq=2 ttl=63 time=13.9 ms
64 bytes from 10.0.101.2: icmp_seq=3 ttl=63 time=13.4 ms
64 bytes from 10.0.101.2: icmp_seq=4 ttl=63 time=7.84 ms
64 bytes from 10.0.101.2: icmp_seq=5 ttl=63 time=9.75 ms

--- 10.0.101.2 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4035ms
rtt min/avg/max/mdev = 7.839/11.619/13.911/2.396 ms
```

```
admin@sw43# run ping 10.0.102.3
PING 10.0.102.3 (10.0.102.3) 56(84) bytes of data.
64 bytes from 10.0.102.3: icmp_seq=1 ttl=63 time=23.5 ms
64 bytes from 10.0.102.3: icmp_seq=2 ttl=63 time=7.00 ms
64 bytes from 10.0.102.3: icmp_seq=3 ttl=63 time=13.0 ms
64 bytes from 10.0.102.3: icmp_seq=4 ttl=63 time=6.62 ms
64 bytes from 10.0.102.3: icmp_seq=5 ttl=63 time=8.83 ms

--- 10.0.102.3 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4034ms
rtt min/avg/max/mdev = 6.624/11.777/23.454/6.258 ms
```

Result3:

Host can ping ixia 3-8(58.1.1.10) and 3-9(51.1.1.10).

```
admin@sw43# run ping 58.1.1.10
PING 58.1.1.10 (58.1.1.10) 56(84) bytes of data.
64 bytes from 58.1.1.10: icmp_seq=1 ttl=62 time=4.45 ms
64 bytes from 58.1.1.10: icmp_seq=2 ttl=62 time=5.27 ms
64 bytes from 58.1.1.10: icmp_seq=3 ttl=62 time=13.2 ms
64 bytes from 58.1.1.10: icmp_seq=4 ttl=62 time=6.20 ms
64 bytes from 58.1.1.10: icmp_seq=5 ttl=62 time=6.52 ms

--- 58.1.1.10 ping statistics ---
```

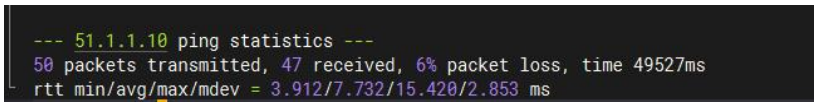
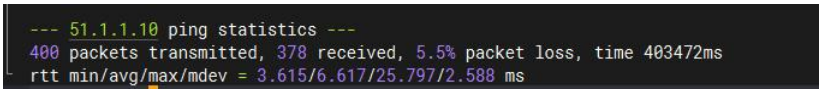
```
admin@sw43# run ping 51.1.1.10
PING 51.1.1.10 (51.1.1.10) 56(84) bytes of data.
64 bytes from 51.1.1.10: icmp_seq=1 ttl=62 time=4.03 ms
64 bytes from 51.1.1.10: icmp_seq=2 ttl=62 time=4.46 ms
64 bytes from 51.1.1.10: icmp_seq=3 ttl=62 time=6.46 ms
64 bytes from 51.1.1.10: icmp_seq=4 ttl=62 time=11.5 ms
64 bytes from 51.1.1.10: icmp_seq=5 ttl=62 time=5.97 ms
```

Result4:

1. host1 ping ixia 3-8, when down/up the the link that transmiting data, the ping packets should still reach ixia 3-8.

```
--- 58.1.1.10 ping statistics ---
50 packets transmitted, 47 received, 6% packet loss, time 49533ms
rtt min/avg/max/mdev = 4.079/8.173/30.588/5.250 ms
```

2. host1 ping ixia 3-9, when down/up the the device that transmiting data, the ping packets should still reach ixia 3-9.

	 **Result5:** 1. host1 ping ixia3-8, when down/up the device that transmiting data, the ping packets should still reach ixia 3-8.  2. host1 ping ixia3-9, when down/up the device that transmiting data, the ping packets should still reach ixia 3-9. 
Actual results	Pass

4.1.2 MLAG + PVST Function Test

Test Name	MLAG + PVST Test
Test Topo& Precondition	58's configuration: set protocols spanning-tree force-version 4 set protocols spanning-tree pvst vlan 100 enable true set protocols spanning-tree pvst vlan 300 enable true 51‘s configuration: set protocols spanning-tree force-version 4 set protocols spanning-tree pvst vlan 100 enable true set protocols spanning-tree pvst vlan 300 enable true 105's configuration: set protocols spanning-tree force-version 4 set protocols spanning-tree pvst vlan 100 enable true set protocols spanning-tree pvst vlan 300 enable true 111's configuration:

	set protocols spanning-tree force-version 4 set protocols spanning-tree pvst vlan 100 enable true set protocols spanning-tree pvst vlan 300 enable true
Test Procedure	1.1 check 58/51/105/111 spanning tree pvst---Result1 1.2 check spanning tree root bridge and port role/status, Ixia 3-8 send continuously broadcast traffic, dest mac is ff:ff:ff:ff:ff:ff, source mac is 00:00:00:00:00:88, vlan tag is 300, check ixia 3-10 packet loss rate, and see ae1's detail; ixia 3-8&3-10 send bidirectional traffic's, check packet loss rate---Result2 1.3 check spanning tree root bridge and port role/status, Ixia 3-9 send continuously broadcast traffic, dest mac is ff:ff:ff:ff:ff:ff, source mac is 00:00:00:00:00:99, vlan tag is 100, check ixia 4-6 packet loss rate, and see ae3's detail; ixia 3-9&4-6 send Bidirectional Traffic's, check packet loss rate---Result3 2.1 Ixia 3-8 send continuous broadcast(vlan300), down/up 58's ge19,20, 105's ae3 sequentially, check packet loss rate, and show 105's ae1 detail---Result 4 2.2 Then send continuous bidirectional traffic, down/up 58's ge19,20, 105's ae3 sequentially, check pack loss rate---Result 5 3.1 ixia 3-9 send continuous broadcast(vlan100), one by one stop/start 105/111, check packet loss rate---Result 6 3.2 ixia 3-9 send continuous bidirectional traffic, one by one stop/start 105/111, check packet loss rate---Result 7
Expect results	**Result1**: 58's stp: Rapid PVST+ Spanning Tree Interface Status for VLAN 100 Interface Port ID Designated Port ID Designated Bridge ID Path Cost State Role ge-1/1/1 128.1 128.1 32868.64:9d:99:d2:74:84 20000 FORWARDING EDGE ge-1/1/19 128.19 128.19 32868.64:9d:99:d2:74:84 20000 FORWARDING DESIGNATED ge-1/1/20 128.20 128.20 32868.64:9d:99:d2:74:84 20000 FORWARDING DESIGNATED te-1/1/2 128.30 128.30 32868.64:9d:99:d2:74:84 20000 FORWARDING DESIGNATED Rapid PVST+ Spanning Tree Interface Status for VLAN 300 Interface Port ID Designated Port ID Designated Bridge ID Path Cost State Role ge-1/1/1 128.1 128.1 33068.64:9d:99:d2:74:84 20000 FORWARDING EDGE ge-1/1/19 128.19 128.19 33068.64:9d:99:d2:74:84 20000 FORWARDING DESIGNATED ge-1/1/20 128.20 128.19 33068.64:9d:99:d2:74:84 20000 DISCARDING BACKUP te-1/1/2 128.30 128.30 33068.64:9d:99:d2:74:84 20000 FORWARDING DESIGNATED 51's stp:

```
Rapid PVST+ Spanning Tree Interface Status for VLAN 100
Interface   Port ID    Designated  Designated Bridge        Path Cost  State       Role
                       Port ID     ID
----------  ---------  ----------  ----------------------   ---------  ----------  ----------
ge-1/1/1    128.1      128.1       32868.64:9d:99:d9:59:0e  20000      FORWARDING  EDGE
te-1/1/1    128.49     128.19      32868.64:9d:99:d2:74:84  20000      FORWARDING  ROOT
te-1/1/2    128.50     128.30      32868.64:9d:99:d2:74:84  20000      DISCARDING  ALTERNATE
te-1/1/3    128.51     128.51      32868.64:9d:99:d9:59:0e  20000      FORWARDING  DESIGNATED

Rapid PVST+ Spanning Tree Interface Status for VLAN 300
Interface   Port ID    Designated  Designated Bridge        Path Cost  State       Role
                       Port ID     ID
----------  ---------  ----------  ----------------------   ---------  ----------  ----------
ge-1/1/1    128.1      128.1       33068.64:9d:99:d9:59:0e  20000      FORWARDING  EDGE
te-1/1/1    128.49     128.19      33068.64:9d:99:d2:74:84  20000      FORWARDING  ROOT
te-1/1/2    128.50     128.30      33068.64:9d:99:d2:74:84  20000      DISCARDING  ALTERNATE
te-1/1/3    128.51     128.19      33068.64:9d:99:d2:74:84  20000      DISCARDING  ALTERNATE
```

105's stp:

```
Rapid PVST+ Spanning Tree Interface Status for VLAN 100
Interface   Port ID    Designated  Designated Bridge        Path Cost  State       Role
                       Port ID     ID
----------  ---------  ----------  ----------------------   ---------  ----------  --------------
ae1         128.513    128.513     32868.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED
ae10        128.44     128.44      32868.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED

Rapid PVST+ Spanning Tree Interface Status for VLAN 300
Interface   Port ID    Designated  Designated Bridge        Path Cost  State       Role
                       Port ID     ID
----------  ---------  ----------  ----------------------   ---------  ----------  --------------
te-1/1/20   128.20     128.20      33068.48:6e:73:ff:00:01  20000      FORWARDING  MSTP DISABLED
te-1/1/24   128.24     128.24      33068.48:6e:73:ff:00:01  20000      FORWARDING  MSTP DISABLED
ae3         128.515    128.515     33068.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED
ae10        128.44     128.44      33068.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED
```

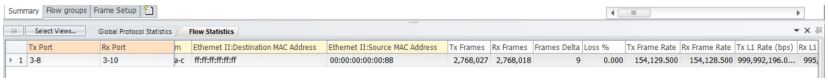
111's stp:

```
Rapid PVST+ Spanning Tree Interface Status for VLAN 100
Interface   Port ID    Designated  Designated Bridge        Path Cost  State       Role
                       Port ID     ID
----------  ---------  ----------  ----------------------   ---------  ----------  --------------
te-1/1/19   128.1043   128.1043    32868.48:6e:73:ff:00:01  20000      FORWARDING  MSTP DISABLED
te-1/1/24   128.1048   128.1048    32868.48:6e:73:ff:00:01  20000      FORWARDING  MSTP DISABLED
ae1         128.513    128.513     32868.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED
ae10        128.1068   128.1068    32868.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED

Rapid PVST+ Spanning Tree Interface Status for VLAN 300
Interface   Port ID    Designated  Designated Bridge        Path Cost  State       Role
                       Port ID     ID
----------  ---------  ----------  ----------------------   ---------  ----------  --------------
te-1/1/19   128.1043   128.1043    33068.48:6e:73:ff:00:01  20000      FORWARDING  MSTP DISABLED
te-1/1/24   128.1048   128.1048    33068.48:6e:73:ff:00:01  20000      FORWARDING  MSTP DISABLED
ae3         128.515    128.515     33068.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED
ae10        128.1068   128.1068    33068.48:6e:73:ff:00:01  10000      FORWARDING  MSTP DISABLED
```

Result2:

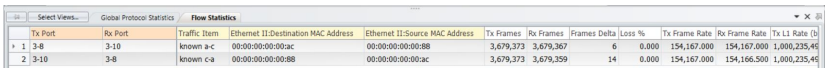
Broadcast loss rate is 0%, check 111's ae1(vlan100)detail, recieve&transmit should have no data



```
Transmit:
  Unicast packets.....................0
  Multicast packets...................47
  Broadcast packets...................0
```

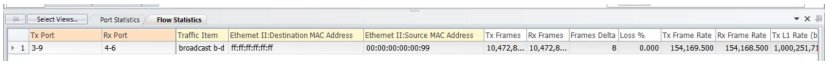
```
Receive:
  Unicast packets.....................0
  Multicast packets...................2
  Broadcast packets...................0
```

Bidirectional Traffic's packet loss rate is 0



Result3:

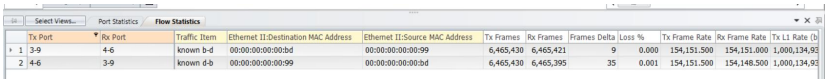
Broadcast loss rate is 0%, check 111's ae3(vlan300)detail, recieve&transmit should have no data



```
Transmit:
  Unicast packets.....0
  Multicast packets.....47
  Broadcast packets.....0
```

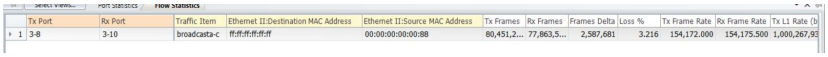
```
Receive:
  Unicast packets.....0
  Multicast packets.....2
  Broadcast packets.....273
```

Bidirectional Traffic's packet loss rate is 0



Result4:

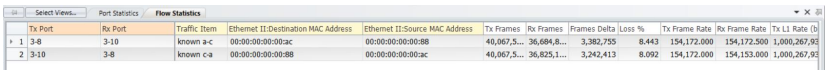
After a few seconds, broadcast 's packet loss rate should not increase, the receiving packets are no more than transmit packets; check 105's ae1(vlan300), the input & output should have no data



```
admin@105sw# run show interface aggregate-ethernet ae1 detail
[XifFrrRouting]Failed to get lag hash mode
Physical interface: ae1, Enabled, error-discard False, Physical link is Up
Interface index: 35, Mac Learning Enabled
Description:
Link-level type: Ethernet, MTU: 1518, Speed: 1Gb/s, Duplex: Auto
Source filtering: Disabled, Flow control: Disabled
Auto-negotiation: Disabled
Interface flags: SNMP-Traps Internal: 0x0
Current address: 64:9d:99:d0:01:37, Hardware address: 64:9d:99:d0:01:37
Traffic statistics:
  5 sec input rate 0 bits/sec, 0 packets/sec
  5 sec output rate 96 bits/sec, 0 packets/sec
```

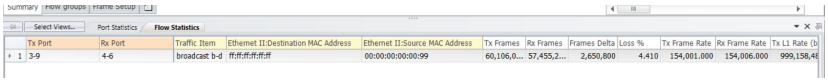
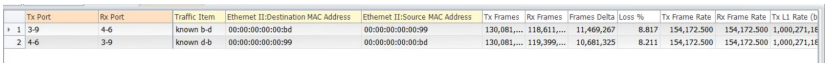
Result5:

After a few seconds, bidirectional traffic's packet loss rate should not increase, the receiving packets are no more than transmit packets.



Result6:

After a few seconds, broadcast's packet loss rate should not increase, the receiving packets are no more than transmit packets

	 **Result7**: After a few seconds, bidirectional traffic's packet loss rate should not increase, the receiving packets are no more than transmit packets. 
Actual results	Pass

4.2 OSPF/IBGP Between two NSG3230s and two S5810-48TS-Ps

Test Name	OSPF/IBGP between two NSG3230s and two S5810-48TS-Ps Test
Test Topo& Precondition	**ixia3-8**: stream1.1: IPv4 packet, SMAC is 00:00:00:00:00:88, DMAC is 64:9d:99:d2:74:84, SIP is 58.1.1.1, DIP is 10.0.101.2 stream1.2: IPv4 packet, SMAC is 00:00:00:00:00:88, DMAC is 64:9d:99:d2:74:84, SIP is 58.6.1.1, DIP is 10.22.33.1 **ixia3-9**: stream2.1: IPv4 packet, SMAC is 00:00:00:00:00:99, DMAC is 64:9d:99:d9:59:0e, SIP is 51.1.1.1, DIP is 10.0.101.2 stream2.2: IPv4 packet, SMAC is 00:00:00:00:00:99, DMAC is 64:9d:99:d9:59:0e, SIP is 51.6.1.1, DIP is 10.22.33.1 **ixia3-10**: Stream3.1.1: IPv4 packet, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d0:01:37, SIP is 10.0.101.2, DIP is 58.1.1.1 Stream3.1.2: IPv4 packet, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d0:01:37, SIP is 10.0.101.2 , DIP is 51.1.1.1 stream3.2.1: IPv4 packet, vlan 4092, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d0:01:37, SIP is 10.22.33.1, DIP is 58.6.1.1

	stream3.2.2: IPv4 packet, vlan 4092, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d0:01:37, SIP is 10.22.33.1, DIP is 51.6.1.1 stream4.1: ARP reply packet, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d0:01:37, Sender Hardware Address is 00:00:00:00:11, Sender Protocol Address is 10.0.101.2, Target Hardware Address is 64:9d:99:d0:01:37, Target Protocol Address is 10.0.101.10 stream4.2: ARP reply packet, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d3:72:08, Sender Hardware Address is 00:00:00:00:11, Sender Protocol Address is 10.0.101.2, Target Hardware Address is 64:9d:99:d3:72:08, Target Protocol Address is 10.0.101.1 stream4.3: ARP packet, vlan 4092, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d3:72:08, Sender Hardware Address is 00:00:00:00:11, Sender Protocol Address is 10.22.33.1, Target Hardware Address is 64:9d:99:d0:01:37, Target Protocol Address is 10.22.33.252 stream4.4: ARP reply packet, vlan 4092, SMAC is 00:00:00:00:00:11, DMAC is 64:9d:99:d3:72:08, Sender Hardware Address is 00:00:00:00:11, Sender Protocol Address is 10.22.33.1, Target Hardware Address is 64:9d:99:d3:72:08, Target Protocol Address is 10.22.33.253
Test Procedure	1. The ospf and ibgp neighbor relationships were successfully established 2. Ixia sends streams. Five links (51-58, 51-111, 58-105, 105-111, 58-111) are interrupted during streaming to check packet loss---Result1 3. Restart four switches (58, 51, 105, 111) to check packet loss---Result2
Expect results	**Result1**: Disconnect 51-58, all ipv4 streams do not lose packets Disconnect 58-105, Stream3.1.1/Stream3.2.1 Packets are lost first and then not lost . The other three streams do not lose packets Disconnect 58-111, stream1.1/stream1.2 Packets are lost first and then not lost . The other three streams do not lose packets Disconnect 51-105, Stream3.1.2/Stream3.2.2 Packets are lost first and then not lost .

	The other three streams do not lose packets Disconnect 51-111, stream2.1/stream2.2 Packets are lost first and then not lost . The other three streams do not lose packets **Result2:** Restart 58, stream1.1/stream1.2 Packets are lost first and then not lost. Stream3.1.1/Stream3.1.2 Packets are lost first and then not lost. The other two streams do not lose packets. Restart 51, stream2.1/ stream2.2 Packets are lost first and then not lost. Stream3.1.2/Stream3.2.2 Packets are lost first and then not lost. The other two streams do not lose packets. Restart 105, The four streams lost first and then not lost. After restarting, ixia3-10 dynamic arp does not exist, stream1.1/stream1.2 continues to packet loss. After learning arp, stream1.1/stream1.2 does not packet loss. Restart 111, stream1.1/stream1.2 Packets are lost first and then not lost. The other two streams do not lose packets. After restarting, ixia3-10 dynamic arp does not exist, stream2.1/stream2.2 continues to packet loss. After learning arp, stream2.1/stream2.2 does not packet loss.
Actual results	Same as expected results

4.3 System Service on two S5860-20SQs and two S5810-48TS-Ps

4.3.1 Inband Port Get Dynamic IP Address by DHCP server on Function Test

Test Name	Inband port get dynamic IP address by DHCP server Test
Test Topo& Precondition	
Test Procedure	two S5860-20SQs and two S5810-48TS-Ps enable inband to obtain ip addresses from the dhcp server.
Expect results	105：

	admin@105sw# run show l3-interface vlan-interface vlan4094 vlan4094 Hwaddr 64:9D:99:D0:01:37, Vlan:4094, MTU: 1500, State:UP Inet addr: 10.22.33.2/24 fe80::669d:9908:bd0:137/64 Description: Traffic statistics: 5 sec input rate IPv4 0 packets/sec, IPv6 0 packets/sec 5 sec forwarding rate IPv4 0 packets/sec, IPv6 0 packets/sec IPv4 Input Packets.....221 IPv4 Forwarding Packets.....14 IPv6 Input Packets.....0 IPv6 Forwarding Packets.....0 111: admin@sw4# run show l3-interface vlan-interface vlan4094 vlan4094 Hwaddr 64:9D:99:D3:72:08, Vlan:4094, MTU: 1500, State:UP Inet addr: 10.22.33.1/24 fe80::669d:9908:bd3:7208/64 Description: Traffic statistics: 5 sec input rate IPv4 0 packets/sec, IPv6 0 packets/sec 5 sec forwarding rate IPv4 0 packets/sec, IPv6 0 packets/sec IPv4 Input Packets.....539 IPv4 Forwarding Packets.....738 IPv6 Input Packets.....0 IPv6 Forwarding Packets.....0 43: admin@sw43# run show l3-interface vlan-interface vlan4094 vlan4094 Hwaddr 64:9D:99:00:04:05, Vlan:4094, MTU: 1500, State:UP Inet addr: 10.22.33.3/24 fe80::669d:9910:200:405/64 Description: Traffic statistics: 5 sec input rate IPv4 0 packets/sec, IPv6 0 packets/sec 5 sec forwarding rate IPv4 0 packets/sec, IPv6 0 packets/sec IPv4 Input Packets.....0 IPv4 Forwarding Packets.....0 IPv6 Input Packets.....0 IPv6 Forwarding Packets.....0 66: admin@sw66# run show l3-interface vlan-interface vlan4094 vlan4094 Hwaddr 64:9D:99:D7:7D:9C, Vlan:4094, MTU: 1500, State:UP Inet addr: 10.22.33.4/24 fe80::669d:9910:3d7:7d9c/64 Description: Traffic statistics: 5 sec input rate IPv4 0 packets/sec, IPv6 0 packets/sec 5 sec forwarding rate IPv4 0 packets/sec, IPv6 0 packets/sec IPv4 Input Packets.....0 IPv4 Forwarding Packets.....0 IPv6 Input Packets.....0 IPv6 Forwarding Packets.....0
Actual results	PASS

4.3.2 SNMP Function Test

Version

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==========

Base ethernet MAC Address : 64:9d:99:00:04:05

Hardware Model : S5810-48TS-P

Linux System Version/Revision : 4.4.5.7/8ffbb29f1a

Linux System Released Date : 10/16/2024

L2/L3 Version/Revision : 4.4.5.7/8ffbb29f1a

L2/L3 Released Date : 10/16/2024

OVS/OF Version/Revision : 4.4.5.7/8ffbb29f1a

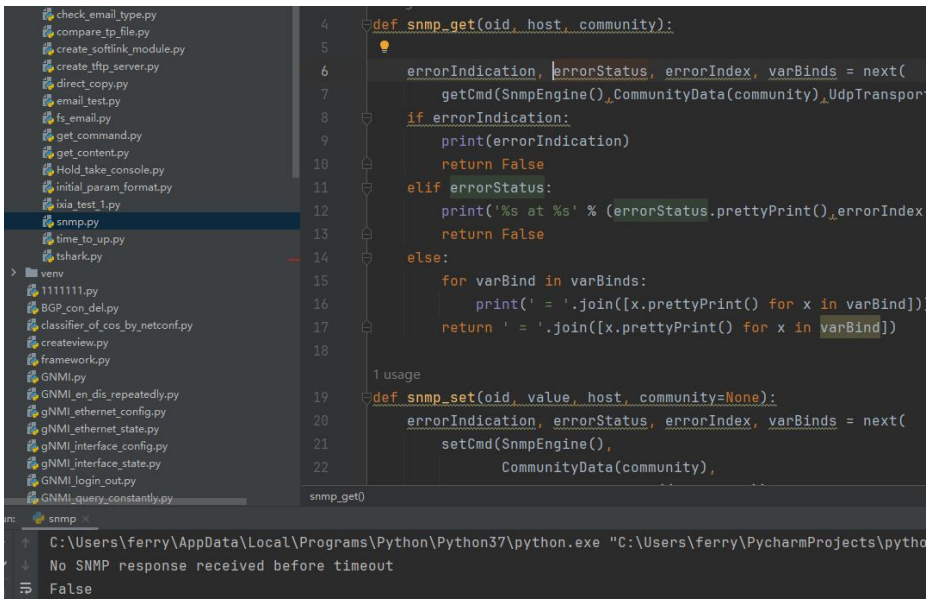
OVS/OF Released Date : 10/16/2024

SNMPv2

Test Name	SNMPv2 Test (The switch had POE)
Test Configuration	set protocols snmp community pica8 clients 10.56.20.240
Test Procedure	**Step 1: check snmpwalk on clients 10.56.20.240** can walk **Step 2: check snmpwalk on clients 10.56.30.15** Can't walk **Step 3: add snmp-acl 20.1.1.0/24** set system snmp-acl security-name pica8 network 20.1.1.0/24 can't walk **Step 4: add snmp-acl 10.0.0.0/8** can walk **Step 5: change contact and location** set protocols snmp contact "test" set protocols snmp location "test.com" **Step 6: check physical and lag port input frames** Snmpget iso.3.6.1.2.1.17.4.4.1.3.index
Expect results	
Actual results	All the operations should be worked normally. **Result1:**

```
root@picos:~# snmpwalk -v 2c -c pica8 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (6034157) 16:45:41.57
iso.3.6.1.2.1.1.4.0 = STRING: "support@pica8.com"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = ""
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 55
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
iso.3.6.1.2.1.2.2.1.1.24 = INTEGER: 24
iso.3.6.1.2.1.2.2.1.1.25 = INTEGER: 25
```

Result2:



Result3:

```
root@picos:~# snmpwalk -v 2c -c pica8 10.36.55.43
Timeout: No Response from 10.36.55.43
root@picos:~#
```

Result4:

```
root@picos:~# snmpwalk -v 2c -c pica8 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (6034157) 16:45:41.57
iso.3.6.1.2.1.1.4.0 = STRING: "support@pica8.com"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = ""
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 55
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
iso.3.6.1.2.1.2.2.1.1.24 = INTEGER: 24
iso.3.6.1.2.1.2.2.1.1.25 = INTEGER: 25
```

Result5:

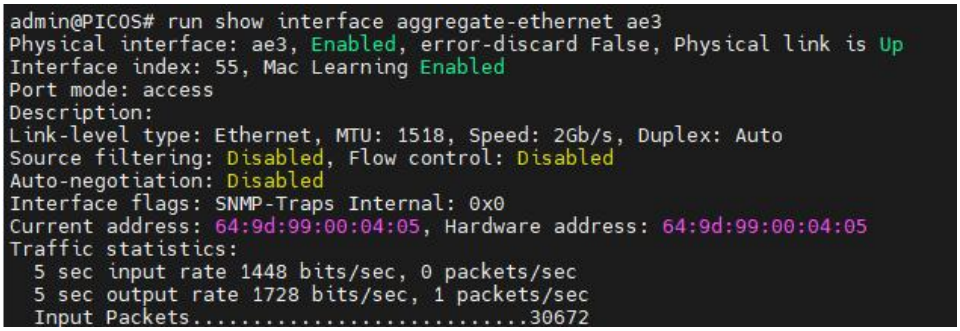
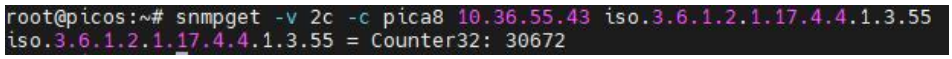
```
root@picos:~# snmpget -v 2c -c pica8 10.36.55.43 iso.3.6.1.2.1.1.4.0
iso.3.6.1.2.1.1.4.0 = STRING: "test"
root@picos:~# snmpget -v 2c -c pica8 10.36.55.43 iso.3.6.1.2.1.1.6.0
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
root@picos:~#
```

Result6:

```
Physical interface: te-1/1/1(49), Enabled, error-discard False, Physical link is Up
Interface index: 49, SFP28 type: 25G_BASE_SR, Mac Learning Enabled
Port mode: access
Description:
Link-level type: Ethernet, MTU: 1518, Speed: 1Gb/s, Duplex: Full
Source filtering: Disabled, Flow control: Disabled
Auto-negotiation: Disabled
Interface flags: SNMP-Traps Internal: 0x0
Interface rate limit  ingress: unlimited, egress: unlimited
Interface burst limit ingress: unlimited, egress: unlimited
Link fault signaling  ignore local fault: false, ignore remote fault: false
Force up mode: false
Precision Time Protocol mode: none
Current address: 64:9d:99:00:04:05, Hardware address: 64:9d:99:00:04:05
Traffic statistics:
  5 sec input rate 1440 bits/sec, 0 packets/sec
  5 sec output rate 1424 bits/sec, 0 packets/sec
  Input Packets.....4637
```

```
root@picos:~# snmpget -v 2c -c pica8 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.49
iso.3.6.1.2.1.17.4.4.1.3.49 = Counter32: 4637
```

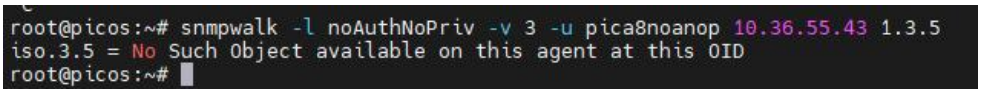
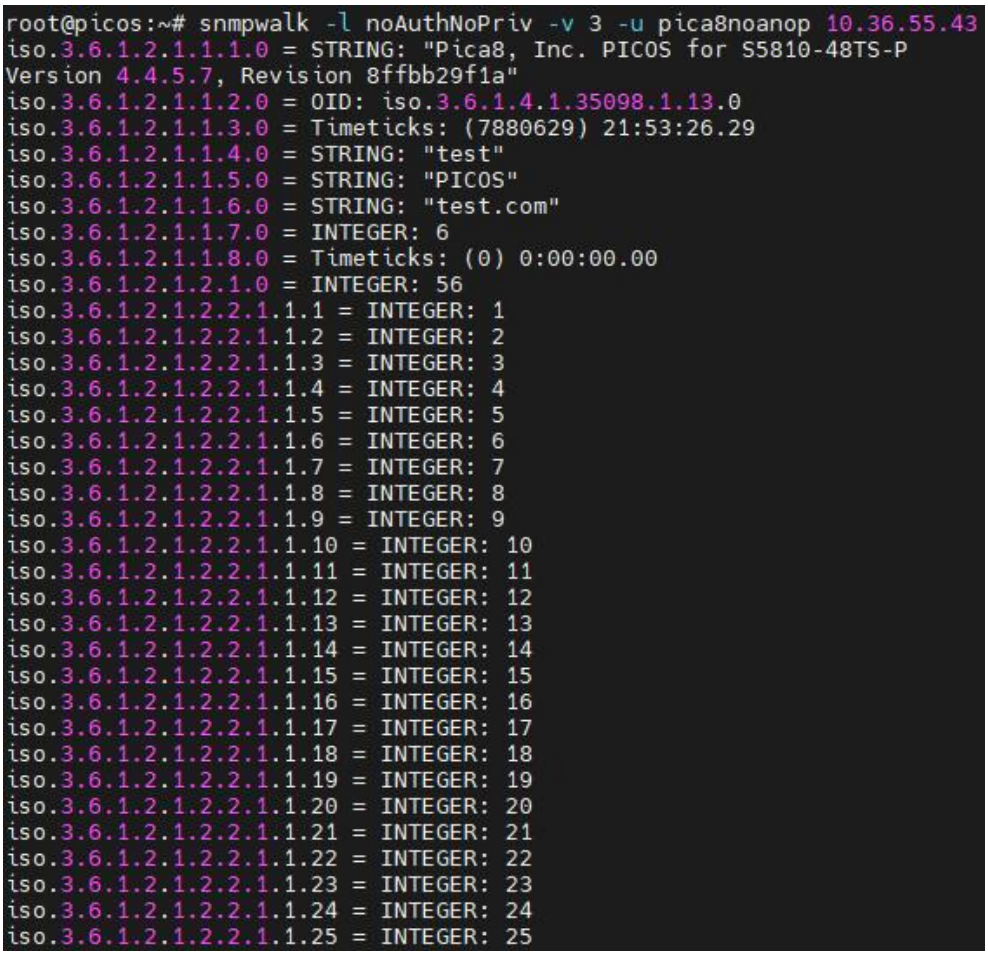
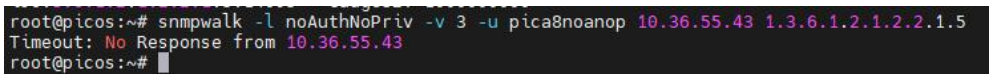
```
root@picos:~# snmpget -v 2c -c pica8 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.49
iso.3.6.1.2.1.17.4.4.1.3.49 = Counter32: 4637
root@picos:~# ^C
```

	  Pass

SNMPv3

SNMP NoAuth and NoPriv

Test Name	SNMP NoAuth and NoPriv Test (The switch had PoE)
Test Configuration	set protocols snmp contact "test" set protocols snmp location "test.com" set protocols snmp v3 mib-view readtest subtree 1.3.6 mask "ff" set protocols snmp v3 mib-view writetest subtree 1.3 mask "ff" set protocols snmp v3 group pica8v3 read-view "readtest" set protocols snmp v3 group pica8v3w write-view "writetest" set protocols snmp v3 usm-user pica8noanop group "pica8v3" set protocols snmp v3 usm-user pica8noanop1 group "pica8v3w"
Test Procedure	**Step 1: check snmpwalk on clients 10.56.20.240** can walk subtree 1.3.6 **Step 2: check snmpwalk write usm can read on clients 10.56.20.240** can walk **Step 3: add snmp-acl 20.1.1.0/24** set system snmp-acl security-name pica8 network 20.1.1.0/24 can't walk **Step 4: add snmp-acl 10.0.0.0/8**

	can walk **Step 5: change contact and location** set protocols snmp contact "test" set protocols snmp location "test.com" **Step 6: check physical and lag port input frames** Snmpget iso.3.6.1.2.1.17.4.4.1.3.index
Actual results	All the operations should be worked normally. **Result1:**   **Result2:** **Result3:**  **Result4:**

```
root@picos:~# snmpwalk -l noAuthNoPriv -v 3 -u pica8noanop 10.36.55.43 1.3.5
iso.3.5 = No Such Object available on this agent at this OID
root@picos:~#
```

```
root@picos:~# snmpwalk -l noAuthNoPriv -v 3 -u pica8noanop 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (7880629) 21:53:26.29
iso.3.6.1.2.1.1.4.0 = STRING: "test"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 56
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
iso.3.6.1.2.1.2.2.1.1.24 = INTEGER: 24
iso.3.6.1.2.1.2.2.1.1.25 = INTEGER: 25
```

```
root@picos:~# snmpwalk -l noAuthNoPriv -v 3 -u pica8noanop 10.36.55.43 1.3.6.1.2.1.2.2.1.5
Timeout: No Response from 10.36.55.43
root@picos:~#
```

```
root@picos:~# snmpwalk -l noAuthNoPriv -v 3 -u pica8noanop 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (7880629) 21:53:26.29
iso.3.6.1.2.1.1.4.0 = STRING: "test"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 56
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
iso.3.6.1.2.1.2.2.1.1.24 = INTEGER: 24
iso.3.6.1.2.1.2.2.1.1.25 = INTEGER: 25
```

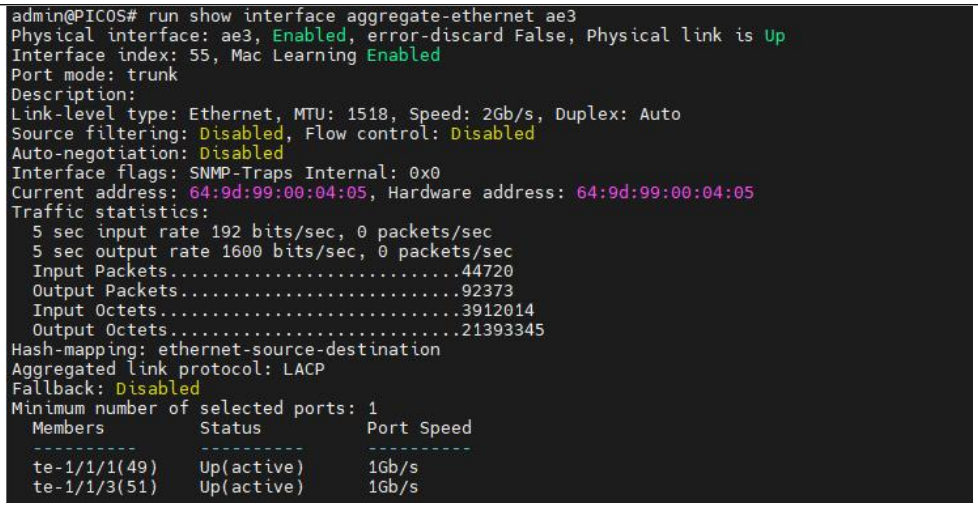
Result5:

```
root@picos:~# snmpwalk -l noAuthNoPriv -v 3 -u pica8noanop 10.36.55.43 iso.3.6.1.2.1.1.6.0
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
root@picos:~# snmpwalk -l noAuthNoPriv -v 3 -u pica8noanop 10.36.55.43 iso.3.6.1.2.1.1.4.0
iso.3.6.1.2.1.1.4.0 = STRING: "test"
root@picos:~#
```

Result6:

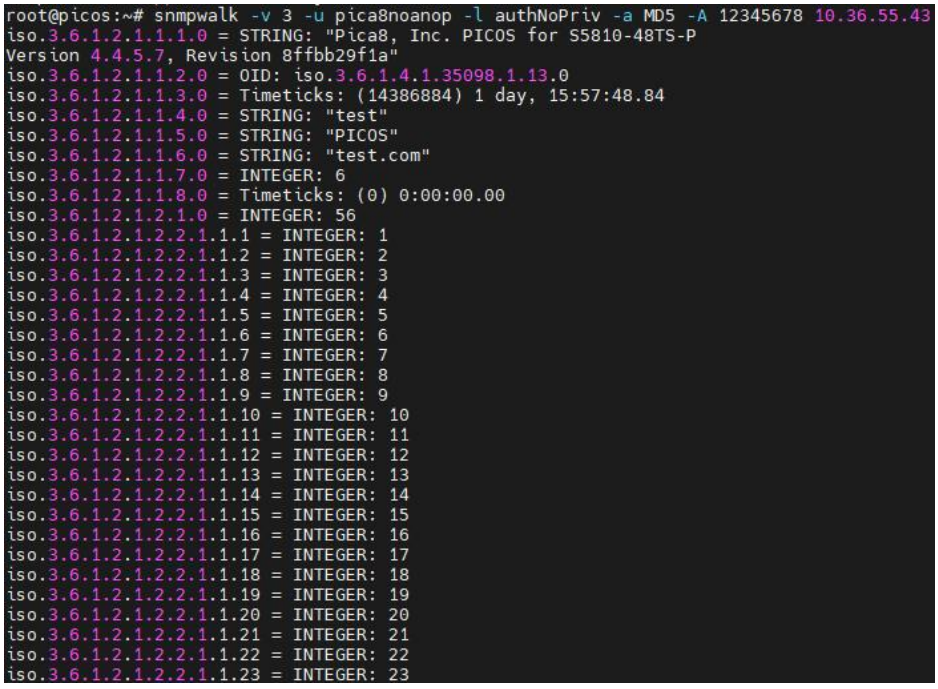
```
admin@PICOS# run show interface gigabit-ethernet te-1/1/1
Physical interface: te-1/1/1(49), Enabled, error-discard False, Physical link is Up
Interface index: 49, SFP28 type: 25G_BASE_SR, Mac Learning Enabled
Port mode: trunk
Description:
Link-level type: Ethernet, MTU: 1518, Speed: 1Gb/s, Duplex: Full
Source filtering: Disabled, Flow control: Disabled
Auto-negotiation: Disabled
Interface flags: SNMP-Traps Internal: 0x0
Interface rate limit  ingress: unlimited, egress: unlimited
Interface burst limit ingress: unlimited, egress: unlimited
Link fault signaling  ignore local fault: false, ignore remote fault: false
Force up mode: false
Precision Time Protocol mode: none
Current address: 64:9d:99:00:04:05, Hardware address: 64:9d:99:00:04:05
Traffic statistics:
  5 sec input rate 384 bits/sec, 0 packets/sec
  5 sec output rate 1592 bits/sec, 0 packets/sec
  Input Packets.....................12424
  Output Packets....................87986
  Input Octets......................1454048
  Output Octets.....................20923159
```

```
root@picos:~# snmpwalk -l noAuthNoPriv -v 3 -u pica8noanop 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.49
iso.3.6.1.2.1.17.4.4.1.3.49 = Counter32: 12424
root@picos:~#
```

	  Pass

SNMP auth and nopriv Function Test

Test Name	SNMP auth and nopriv Test (The switch had PoE)
Test Configuration	set protocols snmp contact "test" set protocols snmp location "test.com" set protocols snmp v3 mib-view readtest subtree 1.3.6 mask "ff" set protocols snmp v3 mib-view writetest subtree 1.3 mask "ff" set protocols snmp v3 group pica8v3 read-view "readtest" set protocols snmp v3 group pica8v3 security-level AuthNoPriv set protocols snmp v3 usm-user pica8noanop authentication-mode "md5" set protocols snmp v3 usm-user pica8noanop authentication-key "12345678" set protocols snmp v3 group pica8v3w write-view "writetest" set protocols snmp v3 usm-user pica8noanop group "pica8v3" set protocols snmp v3 usm-user pica8noanop1 group "pica8v3w"
Test Procedure	**Step 1: check snmpwalk on clients 10.56.20.240** can walk **Step 2: check snmpwalk on clients 10.56.30.15** Can't walk **Step 3: add snmp-acl 20.1.1.0/24**

	set system snmp-acl security-name pica8 network 20.1.1.0/24 can't walk **Step 4: add snmp-acl 10.0.0.0/8** can walk **Step 5: change contact and location and** authentication-mode set protocols snmp contact "test" set protocols snmp location "test.com" set protocols snmp v3 usm-user pica8noanop authentication-mode "sha" **Step 6: check physical and lag port input frames** Snmpget iso.3.6.1.2.1.17.4.4.1.3.index **Step 7: check out range mib** Snmpget iso.3.6.1.2.1.17.4.4.1.3.index
Actual results	All the operations should be worked normally. **Result1:**  **Result2:** 

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (14386884) 1 day, 15:57:48.84
iso.3.6.1.2.1.1.4.0 = STRING: "test"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 56
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
```

```
C:\Users\ferry\AppData\Local\Programs\Python\Python37\python.exe "C:\Users\ferry\PycharmProjects\pythonProject\Tool scripts\snmp.py"
No SNMP response received before timeout
False

Process finished with exit code 0
```

Result3:

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43
Timeout: No Response from 10.36.55.43
```

Result4:

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (14386884) 1 day, 15:57:48.84
iso.3.6.1.2.1.1.4.0 = STRING: "test"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 56
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
```

Result5:

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43 iso.3.6.1.2.1.1.4.0
iso.3.6.1.2.1.1.4.0 = STRING: "test"
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43 iso.3.6.1.2.1.1.6.0
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
```

```
root@picos:~# snmpget -v 3 -u pica8noanop -l authNoPriv -a sha -A 12345678 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.55
iso.3.6.1.2.1.17.4.4.1.3.55 = Counter32: 82807
```

Result6:

```
admin@PICOS# run show interface gigabit-ethernet te-1/1/1
Physical interface: te-1/1/1(49), Enabled, error-discard False, Physical link is Up
Interface index: 49, SFP28 type: 25G_BASE_SR, Mac Learning Enabled
Port mode: trunk
Description:
Link-level type: Ethernet, MTU: 1518, Speed: 1Gb/s, Duplex: Full
Source filtering: Disabled, Flow control: Disabled
Auto-negotiation: Disabled
Interface flags: SNMP-Traps Internal: 0x0
Interface rate limit  ingress: unlimited, egress: unlimited
Interface burst limit ingress: unlimited, egress: unlimited
Link fault signaling  ignore local fault: false, ignore remote fault: false
Force up mode: false
Precision Time Protocol mode: none
Current address: 64:9d:99:00:04:05, Hardware address: 64:9d:99:00:04:05
Traffic statistics:
  5 sec input rate 192 bits/sec, 0 packets/sec
  5 sec output rate 1592 bits/sec, 0 packets/sec
  Input Packets.....30879
```

```
root@picos:~# snmpget -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.49
iso.3.6.1.2.1.17.4.4.1.3.49 = Counter32: 30879
root@picos:~#
```

```
admin@PICOS# run show interface aggregate-ethernet ae3
Physical interface: ae3, Enabled, error-discard False, Physical link is Up
Interface index: 55, Mac Learning Enabled
Port mode: trunk
Description:
Link-level type: Ethernet, MTU: 1518, Speed: 2Gb/s, Duplex: Auto
Source filtering: Disabled, Flow control: Disabled
Auto-negotiation: Disabled
Interface flags: SNMP-Traps Internal: 0x0
Current address: 64:9d:99:00:04:05, Hardware address: 64:9d:99:00:04:05
Traffic statistics:
  5 sec input rate 600 bits/sec, 0 packets/sec
  5 sec output rate 1264 bits/sec, 0 packets/sec
  Input Packets.............................82645
  Output Packets............................124495
  Input Octets..............................6873249
  Output Octets.............................31776017
Hash-mapping: ethernet-source-destination
Aggregated link protocol: LACP
Fallback: Disabled
Minimum number of selected ports: 1
  Members         Status          Port Speed
  ----------      ----------      ----------
  te-1/1/1(49)    Up(active)      1Gb/s
  te-1/1/3(51)    Up(active)      1Gb/s
```

```
root@picos:~# snmpget -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.55
iso.3.6.1.2.1.17.4.4.1.3.55 = Counter32: 82645
```

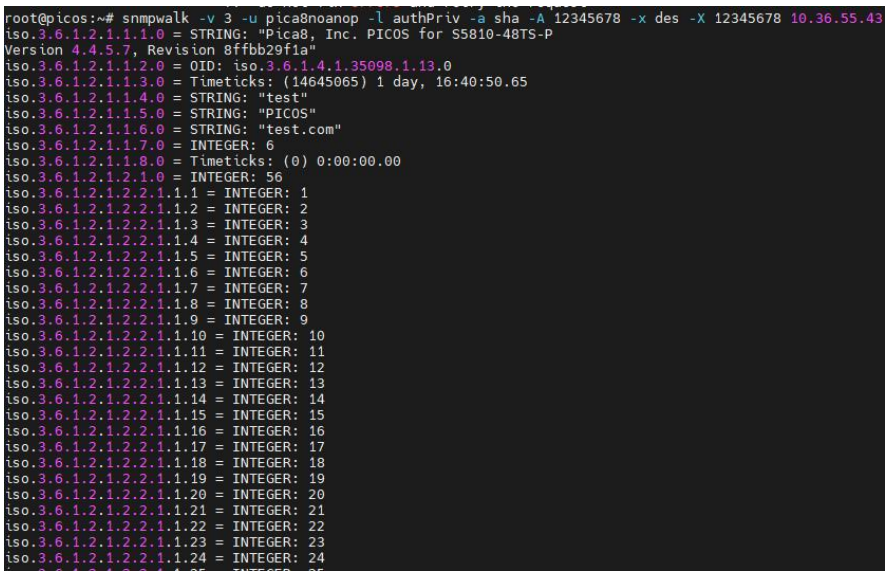
Result7:

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authNoPriv -a MD5 -A 12345678 10.36.55.43 1.3.5
iso.3.5 = No Such Object available on this agent at this OID
```

Pass

SNMP Auth and Priv Function Test

Test Name	SNMP Auth and Priv Test
Test Configuration	set protocols snmp contact "test" set protocols snmp location "test.com" set protocols snmp v3 mib-view readtest subtree 1.3.6 mask "ff" set protocols snmp v3 mib-view writetest subtree 1.3 mask "ff" set protocols snmp v3 group pica8v3 read-view "readtest" set protocols snmp v3 group pica8v3 security-level AuthPriv set protocols snmp v3 usm-user pica8noanop authentication-mode "md5" set protocols snmp v3 usm-user pica8noanop authentication-key "12345678" set protocols snmp v3 usm-user pica8noanop privacy-mode "des" set protocols snmp v3 usm-user pica8noanop privacy-key "12345678" set protocols snmp v3 group pica8v3w write-view "writetest" set protocols snmp v3 usm-user pica8noanop group "pica8v3"

	set protocols snmp v3 usm-user pica8noanop1 group "pica8v3w"
Test Procedure	**Step 1: check snmpwalk on clients 10.56.20.240** can walk **Step 2: check snmpwalk on clients 10.56.30.15** Can't walk **Step 3: add snmp-acl 20.1.1.0/24** set system snmp-acl security-name pica8 network 20.1.1.0/24 can't walk **Step 4: add snmp-acl 10.0.0.0/8** can walk **Step 5: change contact and location and privacy-mode** set protocols snmp contact "test" set protocols snmp location "test.com" set protocols snmp v3 usm-user pica8noanop privacy-mode aes128 **Step 6: check physical and lag port input frames** Snmpget iso.3.6.1.2.1.17.4.4.1.3.index
Actual results	All the operations should be worked normally. **Result1:**  **Result2:**

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authPriv -a sha -A 12345678 -x des -X 12345678 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (14645065) 1 day, 16:40:50.65
iso.3.6.1.2.1.1.4.0 = STRING: "test"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 56
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
iso.3.6.1.2.1.2.2.1.1.24 = INTEGER: 24
```

```
C:\Users\ferry\AppData\Local\Programs\Python\Pyt
No SNMP response received before timeout
False

Process finished with exit code 0
```

Result3:

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authPriv -a sha -A 12345678 -x des -X 12345678 10.36.55.43
Timeout: No Response from 10.36.55.43
root@picos:~#
```

Result4:

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authPriv -a sha -A 12345678 -x des -X 12345678 10.36.55.43
iso.3.6.1.2.1.1.1.0 = STRING: "Pica8, Inc. PICOS for S5810-48TS-P
Version 4.4.5.7, Revision 8ffbb29f1a"
iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.35098.1.13.0
iso.3.6.1.2.1.1.3.0 = Timeticks: (14645065) 1 day, 16:40:50.65
iso.3.6.1.2.1.1.4.0 = STRING: "test"
iso.3.6.1.2.1.1.5.0 = STRING: "PICOS"
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
iso.3.6.1.2.1.1.7.0 = INTEGER: 6
iso.3.6.1.2.1.1.8.0 = Timeticks: (0) 0:00:00.00
iso.3.6.1.2.1.2.1.0 = INTEGER: 56
iso.3.6.1.2.1.2.2.1.1.1 = INTEGER: 1
iso.3.6.1.2.1.2.2.1.1.2 = INTEGER: 2
iso.3.6.1.2.1.2.2.1.1.3 = INTEGER: 3
iso.3.6.1.2.1.2.2.1.1.4 = INTEGER: 4
iso.3.6.1.2.1.2.2.1.1.5 = INTEGER: 5
iso.3.6.1.2.1.2.2.1.1.6 = INTEGER: 6
iso.3.6.1.2.1.2.2.1.1.7 = INTEGER: 7
iso.3.6.1.2.1.2.2.1.1.8 = INTEGER: 8
iso.3.6.1.2.1.2.2.1.1.9 = INTEGER: 9
iso.3.6.1.2.1.2.2.1.1.10 = INTEGER: 10
iso.3.6.1.2.1.2.2.1.1.11 = INTEGER: 11
iso.3.6.1.2.1.2.2.1.1.12 = INTEGER: 12
iso.3.6.1.2.1.2.2.1.1.13 = INTEGER: 13
iso.3.6.1.2.1.2.2.1.1.14 = INTEGER: 14
iso.3.6.1.2.1.2.2.1.1.15 = INTEGER: 15
iso.3.6.1.2.1.2.2.1.1.16 = INTEGER: 16
iso.3.6.1.2.1.2.2.1.1.17 = INTEGER: 17
iso.3.6.1.2.1.2.2.1.1.18 = INTEGER: 18
iso.3.6.1.2.1.2.2.1.1.19 = INTEGER: 19
iso.3.6.1.2.1.2.2.1.1.20 = INTEGER: 20
iso.3.6.1.2.1.2.2.1.1.21 = INTEGER: 21
iso.3.6.1.2.1.2.2.1.1.22 = INTEGER: 22
iso.3.6.1.2.1.2.2.1.1.23 = INTEGER: 23
iso.3.6.1.2.1.2.2.1.1.24 = INTEGER: 24
```

Result5:

```
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authPriv -a sha -A 12345678 -x des -X 12345678 10.36.55.43 iso.3.6.1.2.1.1.4.0
iso.3.6.1.2.1.1.4.0 = STRING: "test"
root@picos:~# snmpwalk -v 3 -u pica8noanop -l authPriv -a sha -A 12345678 -x des -X 12345678 10.36.55.43 iso.3.6.1.2.1.1.6.0
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
```

```
root@picos:~# snmpget -v 3 -u pica8noanop -l authPriv -a sha -A 12345678 -x aes -X 12345678 10.36.55.43 iso.3.6.1.2.1.1.6.0
iso.3.6.1.2.1.1.6.0 = STRING: "test.com"
```

Result6:

```
admin@PICOS# run show interface gigabit-ethernet te-1/1/1
Physical interface: te-1/1/1(49), Enabled, error-discard False, Physical link is Up
Interface index: 49, SFP28 type: 25G_BASE_SR, Mac Learning Enabled
Port mode: trunk
Description:
Link-level type: Ethernet, MTU: 1518, Speed: 1Gb/s, Duplex: Full
Source filtering: Disabled, Flow control: Disabled
Auto-negotiation: Disabled
Interface flags: SNMP-Traps Internal: 0x0
Interface rate limit  ingress: unlimited, egress: unlimited
Interface burst limit ingress: unlimited, egress: unlimited
Link fault signaling  ignore local fault: false, ignore remote fault: false
Force up mode: false
Precision Time Protocol mode: none
Current address: 64:9d:99:00:04:05, Hardware address: 64:9d:99:00:04:05
Traffic statistics:
  5 sec input rate 912 bits/sec, 1 packets/sec
  5 sec output rate 528 bits/sec, 0 packets/sec
  Input Packets.....................489735856
  Output Packets....................118731
  Input Octets.....................31344034768
  Output Octets....................31204167
```

```
root@picos:~# snmpget -v 3 -u pica8noanop -l authPriv -a md5 -A 12345678 -x des -X 12345678 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.49
iso.3.6.1.2.1.17.4.4.1.3.49 = Counter32: 489735856
root@picos:~#
```

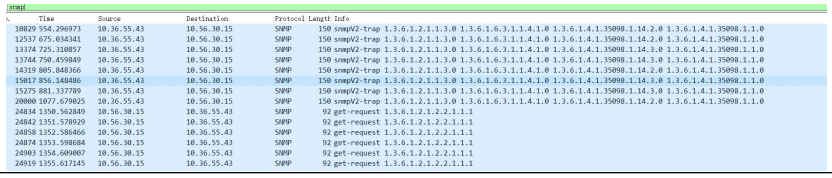
```
admin@PICOS# run show interface aggregate-ethernet ae3
Physical interface: ae3, Enabled, error-discard False, Physical link is Up
Interface index: 55, Mac Learning Enabled
Port mode: trunk
Description:
Link-level type: Ethernet, MTU: 1518, Speed: 2Gb/s, Duplex: Auto
Source filtering: Disabled, Flow control: Disabled
Auto-negotiation: Disabled
Interface flags: SNMP-Traps Internal: 0x0
Current address: 64:9d:99:00:04:05, Hardware address: 64:9d:99:00:04:05
Traffic statistics:
  5 sec input rate 600 bits/sec, 1 packets/sec
  5 sec output rate 1064 bits/sec, 0 packets/sec
  Input Packets.....................560490009
  Output Packets.....................126923
  Input Octets.....................35872990149
  Output Octets.....................32557733
Hash-mapping: ethernet-source-destination
Aggregated link protocol: LACP
Fallback: Disabled
Minimum number of selected ports: 1
  Members         Status          Port Speed
  ----------      ----------      ----------
  te-1/1/1(49)    Up(active)      1Gb/s
  te-1/1/3(51)    Up(active)      1Gb/s
```

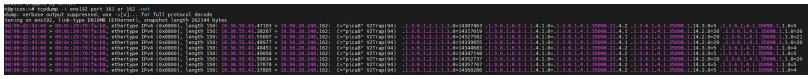
```
root@picos:~# snmpget -v 3 -u pica8noanop -l authPriv -a md5 -A 12345678 -x des -X 12345678 10.36.55.43 iso.3.6.1.2.1.17.4.4.1.3.55
iso.3.6.1.2.1.17.4.4.1.3.55 = Counter32: 560490009
root@picos:~#
```

Pass

SNMP Trap Function Test

Test Name	SNMP Trap Test
Test Configuration	set protocols snmp community pica9 set protocols snmp trap-group targets 10.56.30.15 security-name pica8 set protocols snmp trap-group targets 10.56.20.240 security-name pica8 set protocols snmp trap-group event cpu-threshold enable true set protocols snmp trap-group event cpu-threshold high 20 set protocols snmp trap-group event cpu-threshold low 5 set protocols snmp trap-group event cpu-threshold interval 5
Test Procedure	**Step 1: check snmptrap on clients 10.56.20.240** Check v2 and v3 **Step 2: check snmptrap on clients 10.56.30.15** Check v2 and v3
Actual results	All the operations should be worked normally. **Result1:**



	Result2:  Pass

4.3.3 ZTP Function Test

Test Name	ZTP Test
Test Topo& Precondition	log-server--------dhcp-server-------tftp-server | | |eth0 client **tftp server：** admin@tftp-server:~/tftp$ ls -ltr total 174888 -rw-r--r-- 1 admin xorp 130 Oct 31 02:39 ztpl2l3_cfg.cli -rw-r--r-- 1 admin xorp 23 Dec 26 10:35 zzz.txt -rwxr-xr-x 1 root xorp 178887589 Dec 27 18:38 S5860-PicOS-9.8.7-main-267e488a49.bin -rw-rw-rw- 1 admin xorp 72 Dec 27 18:47 S5860-PicOS-9.8.7-main-267e488a49.bin.md5 -rw-rw-rw- 1 admin xorp 248 Dec 27 19:10 provision.sh admin@tftp-server:~/tftp$ cat zzz.txt S3410-inband-ztp-9.8.7

admin@tftp-server:~/tftp$ cat ztpl2l3_cfg.cli

set vlans vlan-id 20

set vlans vlan-id 30

set vlans vlan-id 40

set vlans vlan-id 50

set vlans vlan-id 60

set vlans vlan-id 70admin@tftp-server:~/tftp$

script1:

admin@tftp-server:~/tftp$ cat provision.sh

#!/bin/bash

source /usr/bin/ztp-functions.sh

if ["$revision" != "267e488a49"]; then tftp_get_picos_image S5860-PicOS-9.8.7-main-267e488a49.bin 10.22.33.1; fi

l2l3_load_config ztpl2l3_cfg.cli 10.22.33.1

tftp_get_file zzz.txt zzztp.txt 10.22.33.1

script2:

admin@tftp-server:~/tftp$ cat provision.sh

#!/bin/bash

source /usr/bin/ztp-functions.sh

l2l3_load_config ztpl2l3_cfg.cli 10.22.33.1

tftp_get_file zzz.txt zzztp.txt 10.22.33.1

	script3: admin@tftp-server:~/tftp$ cat provision.sh #!/bin/bash source /usr/bin/ztp-functions.sh l2l3_load_config ztpl2l3_cfg.cli 10.22.33.1 tftp_get_file zzz.txt /home/admin/zzztpt.txt 10.22.33.1 admin@tftp-server:~/tftp$
Test Procedure	1. script has the image, reboot client with scipt1 and check if it has been upgraded to the specified version---Result1 2. script1 has the image, but the TFTP directory is missing the image or md5 file---Result2 3. script2 doesn't have the image, reboot client ---Result3 4. use script3, change the location where the client obtains file---Result4 5. use script3, dhcp-server is unreachable---Result5 6. use script3, tftp-server is unreachable---Result6 7. disable ztp---Result7
Expect results	**Result1：** berfore ztp

```
admin@sw66# run show version
Copyright (C) 2009-2024 Pica8, Inc.
===================================
Base ethernet MAC Address      : 64:9d:99:d7:7d:9c
Hardware Model                 : S5810-48TS-P
Linux System Version/Revision  : 4.4.5.7/8ffbb29f1a
Linux System Released Date     : 10/16/2024
L2/L3 Version/Revision         : 4.4.5.7/8ffbb29f1a
L2/L3 Released Date            : 10/16/2024
OVS/OF Version/Revision        : 4.4.5.7/8ffbb29f1a
OVS/OF Released Date           : 10/16/2024
```

after ztp: reboot information is right, change version success, get configurations and files

```
[   79.453210] system-init[466]: Auto Provisioning Tool - checking updates ....
[   79.953011] system-init[466]: Tftp Server found: 10.22.33.1
[   79.982649] system-init[466]: Script file name found: provision.sh
[ 3494.352070] system-init[731]: /cftmp/rootfs.bin: OK
[ 3494.737615] system-init[733]: Upgrading system...
[ 3494.763100] system-init[733]: The connection may be interrupted. Please wait a moment to complete the upgrading procedure.
[ 3497.345955] system-diag[821]: ************ System Diagnosis Start ************
```

```
[   81.793159] system-init[461]: Auto Provisioning Tool - checking updates ....
[   82.706045] system-init[461]: Tftp Server found: 10.22.33.1
[   82.739259] system-init[461]: Script file name found: provision.sh
[   83.025673] system-init[697]: Start to get the 'provision.sh' to '/cftmp/provision.sh'.
[   83.069100] system-init[697]: Waiting......
[   83.374435] system-init[697]: Done!
[   83.714197] system-init[772]: Start to get the 'ztpl2l3_cfg.cli' to '/cftmp/xorp_cfg.cli'.
[   83.742235] system-init[772]: Waiting......
[   83.831413] system-init[772]: Done!
[   84.050707] system-init[836]: Start to get the 'zzz.txt' to '/cftmp/zzztp.txt'.
[   84.082248] system-init[836]: Waiting......
[   84.164652] system-init[836]: Done!
[   86.538561] system-diag[901]: ************ System Diagnosis Start ************
```

check version

```
admin@PICOS# run show version
Copyright                      : Copyright (C) 2009-2024 Pica8, Inc.All Rights Reserved.
Model                          : S5810-48TS-P
Software Version               : 9.8.7-main/c05d4a7531
Software Released Date         : 12/24/2024
Serial Number                  : G1S52KE000034
System Uptime                  : 0 days 11:19
Hardware ID                    : 2019-44BF-66D5-547E
License Type                   : Uninstalled
Device MAC Address             : 64:9d:99:d7:7d:9c
```

check configurations and files

```
admin@PICOS# show |display set
    set interface ecmp max-path 4
    set vlans vlan-id 20
    set vlans vlan-id 30
    set vlans vlan-id 40
    set vlans vlan-id 50
    set vlans vlan-id 60
    set vlans vlan-id 70

admin@PICOS# run start shell sh
admin@PICOS:~$ cd /cftmp/
admin@PICOS:/cftmp$ ls
auto  provision.sh  upgrade.log  upgrade2.log  xorp_cfg.cli  zzztp.txt
admin@PICOS:/cftmp$ cat provision.sh
#!/bin/bash
source /usr/bin/ztp-functions.sh

if [ "$revision" != "c05d4a7531" ]; then tftp_get_picos_image S5810-PicOS-9.8.7-main-c05d4a7531.bin 10.22.33.1; fi
l2l3_load_config ztpl2l3_cfg.cli 10.22.33.1
tftp_get_file zzz.txt zzztp.txt 10.22.33.1
admin@PICOS:/cftmp$ cat xorp_cfg.cli
set vlans vlan-id 20
set vlans vlan-id 30
set vlans vlan-id 40
set vlans vlan-id 50
set vlans vlan-id 60
set vlans vlan-id 70admin@PICOS:/cftmp$ cat zzztp.txt
S3410-inband-ztp-9.8.7
admin@PICOS:/cftmp$
```

Result2:

reboot information is right, fail to change version,but get configurations and files

```
[   80.040437] system-init[460]: Auto Provisioning Tool - checking updates ....
[   84.614205] system-init[460]: Tftp Server found: 10.22.33.1
[   86.651101] system-init[460]: Script file name found: provision.sh
[  103.242147] system-init[670]: Error code 1: File not found
[  107.335904] system-init[678]: /cftmp/rootfs.bin: FAILED
[  107.368915] system-init[678]: md5sum: WARNING: 1 computed checksum did NOT match
[  121.956382] system-diag[724]: ************ System Diagnosis Start ************
```

check configurations and files

```
set vlans vlan-id 20
set vlans vlan-id 30
set vlans vlan-id 40
set vlans vlan-id 50
set vlans vlan-id 60
set vlans vlan-id 70
```

```
admin@sw66:/cftmp$ ls -lh
total 8.0K
drwxr-xr-x 2 root xorp  40 Dec 30 21:45 auto
-rwxr-xr-x 1 root root 248 Dec 30 21:42 provision.sh
lrwxrwxrwx 1 root root  35 Dec 30 21:42 upgrade.log -> /mnt/open/picos/config1/upgrade.log
lrwxrwxrwx 1 root root  36 Dec 30 21:42 upgrade2.log -> /mnt/open/picos/config1/upgrade2.log
-rw-r--r-- 1 root root 130 Dec 30 21:43 xorp_cfg.cli
admin@sw66:/cftmp$ cat provision.sh
#!/bin/bash
source /usr/bin/ztp-functions.sh

if [ "$revision" != "c05d4a7531" ]; then tftp_get_picos_image S5810-PicOS-9.8.7-main-c05d4a7531.bin 10.22.33.1; fi
l213_load_config ztpl213_cfg.cli 10.22.33.1
tftp_get_file zzz.txt zzztp.txt 10.22.33.1
admin@sw66:/cftmp$ cat xorp_cfg.cli
set vlans vlan-id 20
set vlans vlan-id 30
set vlans vlan-id 40
set vlans vlan-id 50
set vlans vlan-id 60
set vlans vlan-id 70admin@sw66:/cftmp$
admin@sw66:/cftmp$ cd /
admin@sw66:/$ ls
backup  cftmp  home   mnt  pica  run       srv  udata  zzztp.txt
bin     dev    lib    opt  proc  sbin      sys  usr
boot    etc    media  ovs  root  sessions  tmp  var
admin@sw66:/$ cat zzztp.txt
S3410-inband-ztp-9.8.7
admin@sw66:/$
```

Result3:

reboot information is right, fail to change version,but get configurations and files

```
[   75.626396] system-init[452]: Auto Provisioning Tool - checking updates ....
[   80.193623] system-init[452]: Tftp Server found: 10.22.33.1
[   82.230592] system-init[452]: Script file name found: provision.sh
[  101.213401] system-diag[679]: ************ System Diagnosis Start ************
```

check configurations and files

```
set vlans vlan-id 20
set vlans vlan-id 30
set vlans vlan-id 40
set vlans vlan-id 50
set vlans vlan-id 60
set vlans vlan-id 70
```

```
admin@sw66:/cftmp$ ls -lh
total 8.0K
drwxr-xr-x 2 root xorp  40 Dec 30 21:55 auto
-rwxr-xr-x 1 root root 133 Dec 30 21:53 provision.sh
lrwxrwxrwx 1 root root  35 Dec 30 21:52 upgrade.log -> /mnt/open/picos/config1/upgrade.log
lrwxrwxrwx 1 root root  36 Dec 30 21:52 upgrade2.log -> /mnt/open/picos/config1/upgrade2.log
-rw-r--r-- 1 root root 130 Dec 30 21:53 xorp_cfg.cli
admin@sw66:/cftmp$ cat provision.sh
#!/bin/bash
source /usr/bin/ztp-functions.sh

l2l3_load_config ztpl2l3_cfg.cli 10.22.33.1
tftp_get_file zzz.txt zzztp.txt 10.22.33.1
admin@sw66:/cftmp$ cat xorp_cfg.cli
set vlans vlan-id 20
set vlans vlan-id 30
set vlans vlan-id 40
set vlans vlan-id 50
set vlans vlan-id 60
set vlans vlan-id 70admin@sw66:/cftmp$
admin@sw66:/cftmp$ cd /
admin@sw66:/$ ls
backup  cftmp  home   mnt  pica  run       srv  udata  zzztp.txt
bin     dev    lib    opt  proc  sbin      sys  usr
boot    etc    media  ovs  root  sessions  tmp  var
admin@sw66:/$ cat zzztp.txt
S3410-inband-ztp-9.8.7
admin@sw66:/$
```

Result4:

Reboot information is right, get configurations and get file in a specified directory

```
[   79.834202] system-init[450]: Auto Provisioning Tool - checking updates ....
[   84.404240] system-init[450]: Tftp Server found: 10.22.33.1
[   86.441423] system-init[450]: Script file name found: provision.sh
[  105.380476] system-diag[672]: ************ System Diagnosis Start ************
```

check configurations and files

```
set vlans vlan-id 20
set vlans vlan-id 30
set vlans vlan-id 40
set vlans vlan-id 50
set vlans vlan-id 60
set vlans vlan-id 70
```

```
admin@sw66:/cftmp$ cat provision.sh
#!/bin/bash
source /usr/bin/ztp-functions.sh

l2l3_load_config ztpl2l3_cfg.cli 10.22.33.1
tftp_get_file zzz.txt /home/admin/zzztpt.txt 10.22.33.1
admin@sw66:/cftmp$ cat xorp_cfg.cli
set vlans vlan-id 20
set vlans vlan-id 30
set vlans vlan-id 40
set vlans vlan-id 50
set vlans vlan-id 60
set vlans vlan-id 70admin@sw66:/cftmp$
```

check files in a specified directory

```
admin@sw66:~$ ls
zzztpt.txt
admin@sw66:~$ cat zzztpt.txt
S3410-inband-ztp-9.8.7
admin@sw66:~$
```

Result5:

Reboot information is right, can't get configurations and files

```
[  128.100232] system-init[448]: Auto Provisioning Tool - checking updates ....
[  128.662824] system-init[448]: No tftp server address found, exit now
[  130.136108] system-diag[594]: ************ System Diagnosis Start ************
```

check config and files

```
admin@PICOS# show |display set

admin@PICOS# run start shell sh
admin@PICOS:~$ cd /cftmp/
admin@PICOS:/cftmp$ ls
auto  upgrade.log  upgrade2.log
admin@PICOS:/cftmp$ cd /
admin@PICOS:/$ ls
backup  boot   dev  home  media  opt  pica  root  sbin      srv  tmp    usr
bin     cftmp  etc  lib   mnt    ovs  proc  run   sessions  sys  udata  var
admin@PICOS:/$
```

Result6:

Reboot information is right, can't get configurations and files

Result7:

don't execute ZTP

```
[   80.763873] system-init[461]: Auto Provisioning Tool - checking updates ....
[   82.520285] system-diag[569]: ************ System Diagnosis Start ************
```

Actual results	**S5810-48TS (10.36.55.51)** Result1. pass, Bug 17374 - [ZTP] on the version of 4.4.6-rc1, client will reboot twice Result2-5. pass Result6. fail, Bug 17795 Result7. pass **S5860--20SQ (10.36.55.111)** Result1. pass, Bug 17374 - [ZTP] on the version of 4.4.6-rc1, client will reboot twice Result2-5. pass Result6. fail, Bug 17795 Result7. pass **S5810-48TS-P (10.36.55.66)** Result1. pass, Bug 17374 - [ZTP] on the version of 4.4.6-rc1, client will reboot twice Result2-5. pass Result6. fail, Bug 17795 Result7. pass

4.3.4 NTP Function Test

Test Name	NTP Test
Test Topo& Precondition	
Test Procedure	1. set NTP server ip 106.75.185.63, show system date

	2. set system timezone Hong Kong, show system date 3. set system timezone Asia/Shanghai, show system date
Expect results	**Result1**: date is true
Actual results	**S5860-20SQ (10.36.55.105):** 1. set NTP server ip 106.75.185.63, show system date 2. set system timezone Hong Kong, show system date 3. set system timezone Asia/Shanghai, show system date **S5860-20SQ (10.36.55.111):** 1. set NTP server ip 106.75.185.63, show system date 2. set system timezone Hong Kong, show system date

```
admin@105sw# show | display set | match system
    set system hostname "105sw"
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
admin@105sw# run show system date
Thu Dec 19 06:23:41.859 UTC 2024
```

```
admin@105sw# show | display set | match system
    set system hostname "105sw"
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
    set system timezone "Asia/Hong_Kong"
admin@105sw# run show system date
Thu Dec 19 14:25:58.232 HKT 2024
```

```
admin@105sw# show | display set | match system
    set system hostname "105sw"
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
    set system timezone "Asia/Shanghai"
admin@105sw# run show system date
Thu Dec 19 14:27:56.505 CST 2024
```

```
admin@sw4#  show | display set | match system
    set system hostname "sw4"
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
admin@sw4# run show system date
Thu Dec 19 06:28:50.980 UTC 2024
```

```
admin@sw4#  show | display set | match system
    set system hostname "sw4"
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
    set system timezone "Asia/Hong_Kong"
admin@sw4# run show system date
Thu Dec 19 14:30:30.063 HKT 2024
```

3. set system timezone Asia/Shanghai, show system date

```
admin@sw4#  show | display set | match system
    set system hostname "sw4"
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
    set system timezone "Asia/Shanghai"
admin@sw4# run show system date
Thu Dec 19 14:31:21.324 CST 2024
```

S5810-48TS-P(10.36.55.43):

1.set NTP server ip 106.75.185.63, show system date

```
admin@PICOS# show |display set |match system
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
    set system snmp-acl security-name pica8 network 20.1.1.0/24
    set system snmp-acl security-name pica8 network 10.0.0.0/8
admin@PICOS# run show system date
Thu Dec 19 06:33:09.778 UTC 2024
```

2.set system timezone Hong Kong, show system date

```
admin@PICOS# show |display set |match system
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
    set system snmp-acl security-name pica8 network 20.1.1.0/24
    set system snmp-acl security-name pica8 network 10.0.0.0/8
    set system timezone "Asia/Hong_Kong"
admin@PICOS# run show system date
Thu Dec 19 14:34:07.027 HKT 2024
```

3.set system timezone Asia/Shanghai, show system date

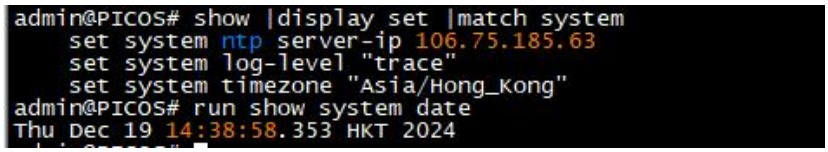
```
admin@PICOS# show |display set |match system
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
    set system snmp-acl security-name pica8 network 20.1.1.0/24
    set system snmp-acl security-name pica8 network 10.0.0.0/8
    set system timezone "Asia/Shanghai"
admin@PICOS# run show system date
Thu Dec 19 14:35:43.836 CST 2024
```

S5810-48TS-P (10.36.55.66):

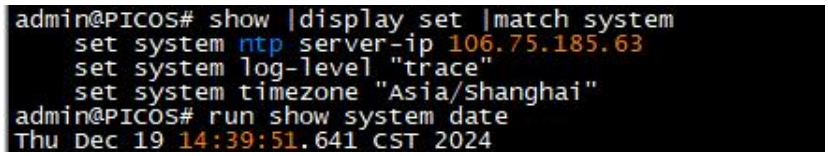
1. set NTP server ip 106.75.185.63, show system date

```
admin@PICOS# show |display set |match system
    set system ntp server-ip 106.75.185.63
    set system log-level "trace"
admin@PICOS# run show system date
Thu Dec 19 06:37:46.791 UTC 2024
```

2. set system timezone Hong Kong, show system date



3. set system timezone Asia/Shanghai, show system date



4.3.5 Radius Function Test

Test Name	Radius Test
Test Topo& Precondition	Sw---------clearpass server set system aaa radius authorization disable false set system aaa radius authorization server-ip 10.36.118.130 shared-key "testing" set system aaa radius authorization server-ip 10.36.118.130 timeout 60 set system aaa radius accounting disable false set system aaa radius accounting server-ip 10.36.118.130 shared-key "testing" set system aaa radius accounting server-ip 10.36.118.130 timeout 60
Test Procedure	1. Use radius user (pica8) SSH login in switch, check whether user can successfully login in---Result1 2. Enable the packet capture continuously(sudo tcpdump -i eth0 udp port 1813 -n –vv), use radius user SSH login in and exit login, check accounting packet---Result2
Expect results	**Result1:** Radius user can successfully login in **Result2:**

	Can capture accounting packets
Actual results	Same as expected results

4.3.6 Tacacs Function Test

Test Name	Tacacs Test
Test Topo& Precondition	Sw----------clearpass server set system aaa tacacs-plus disable false set system aaa tacacs-plus server-ip 10.36.118.130 set system aaa tacacs-plus key testing
Test Procedure	1. Authentication: Use user1(Tacacs user, username is tester) and user2(not Tacacs user, username is test1) SSH login in switch, check whether user1 and user2 can successfully login in---result1 2. Authorization: Use user1(Tacacs super user, username is tester) and user3(Tacacs read-only user, username is read) SSH login in switch, check user1 and user3 configure permissions---result2 3. Accounting: Enable the packet capture continuously(sudo tcpdump -i eth0 TCP port 49 -n -vv), use tacacs user1 SSH login in and exit login, check accounting packet---result3
Expect results	**Result1**: user1 can successfully login in, user2 not **Result2**: user1 can config any command, user3 only can config "show" command **Result3**: Can capture accounting packets

Actual results	Same as expected results

4.4 Access function on S5810-48TS-P

4.4.1 DHCP snooping Function Test

Test Name	DHCP Snooping Test
Test Topo& Precondition	
Test Procedure	1. Configure dhcp snooping on 5810. 2. Let Client obtain ip addresses. 3. Check dhcp snooping entries.
Expect results	43: admin@sw43# run show dhcp snooping binding Total Snooping host count: 2 MAC Address IP Address Port VLAN ID Lease(sec) 00:00:ab:41:52:3c 10.0.101.3 ge-1/1/2 300 3268/3600 00:00:ab:41:52:3e 10.0.101.4 ge-1/1/2 300 3269/3600 admin@sw43# 66: admin@sw66# run show dhcp snooping binding Total Snooping host count: 2 MAC Address IP Address Port VLAN ID Lease(sec) 00:00:ab:41:62:68 10.0.102.4 ge-1/1/2 100 3041/3600 00:00:ab:41:62:6a 10.0.102.3 ge-1/1/2 100 3042/3600 admin@sw66#
Actual results	PASS

4.4.2 Dot1x Function Test

Test Name	Dot1x Test

Test Topo& Precondition	
Test Procedure	1. Check whether 802.1X authentication can be performed on the PC---Result1 2. The port on the PC is unknown, log in to guest, and the port becomes known, complete web authentication---Result2 3. The mac on the IPphone is unknown, mac authorized fail, and change the client mac is known, complete mac authentication---Result3
Expect results	802.1X authorization succeeds on the PC and web authentication and authorization succeeds. The IP phone succeeds in mac authentication.
Actual results	**Result1** admin@PICOS# run show dot1x interface gigabit-ethernet ge-1/1/1 Interface ge-1/1/1: Client MAC : 84:ba:59:61:23:67 Status : authorized Success Auth Method : Dot1x Last Success Time : Sat Dec 21 10:08:23 2024 Traffic Class : Other **Result2** admin@PICOS# run show dot1x interface gigabit-ethernet ge-1/1/1 Interface ge-1/1/1: Client MAC : 84:ba:59:61:23:67 Status : authorized Success Auth Method : MAB Last Success Time : Sat Dec 21 10:51:05 2024 Traffic Class : Other Dynamic VLAN ID : 100 (active) **Result3** min@PICOS# run show dot1x interface gigabit-ethernet ge-1/1/1 terface ge-1/1/1: Client MAC : 64:9d:99:fc:01:61 Status : authorized Success Auth Method : MAB Last Success Time : Sat Dec 21 11:00:49 2024 Traffic Class : Other Dynamic VLAN ID : 100 (active)

4.4.3 PoE Function Test

Test Name	PoE Test
Test Topo& Precondition	
Test Procedure	1. enable two S5810-48TS-P ge-1/1/1 poe . 2. show poe interface ge-1/1/1
Expect results	**Result1**: poe work normal
Actual results	**Result1**: **S5810-48TS-P (10.36.55.43)** : admin@PICOS# run show poe interface ge-1/1/1 Port Status Priority Power Assigned Class ge-1/1/1 on low 3 4 **S5810-48TS-P (10.36.55.)** : admin@PICOS# run show poe interface ge-1/1/1 Port Status Priority Power Assigned Class ge-1/1/1 on low 0 1

4.4.4 Voice VLAN Function Test

Test Name	Voice VLAN Test
Test Topo& Precondition	set interface gigabit-ethernet te-1/1/2 family ethernet-switching port-mode "trunk" set interface gigabit-ethernet te-1/1/2 voice-vlan mode "manual"

	set interface gigabit-ethernet te-1/1/2 voice-vlan vlan-id 3900 set interface gigabit-ethernet te-1/1/2 voice-vlan tagged mode "tag" set vlans voice-vlan mac-address 00:11:11:00:00:01 mask ff:ff:ff:00:00:00 set vlans voice-vlan local-priority 6
Test Procedure	1. Enable voice vlan on port 2 of two S5810-48TS-P---Result1, run show vlans voice-vlan 2. ixia3-10 or 4-6 sends packets with voice vlan tag 3900 and srcMac is 00:11:11:00:00:01. 3. Capture packets on port 3 or 1 of the two S5810-48TS-P---Result2, check the packets
Expect results	The priority of the packets is 6 and the vlan tag is 3900
Actual results	**Result1**: admin@PICOS# run show vlans voice-vlan Oui_Address Mask Description 00:11:11:00:00:01 ff:ff:ff:00:00:00 Voice Vlan ID:3900 Voice Vlan local priority:6 Voice Vlan aging time:1440 minutes Current voice vlan enabled port mode: Port Mode Tagged Mac_Address Status Peer Status te-1/1/2 manual true Working MAC OUI **Result2:** The priority of the packets is 6 and the vlan tag is 3900 Frame 100: 100 bytes on wire (800 bits), 100 bytes captured (800 bits) on interface unknow Ethernet II, Src: Intel_00:00:01 (00:11:11:00:00:01), Dst: 00:00:00_00:00:02 (00:00:00:00: 802.1Q Virtual LAN, PRI: 6, DEI: 0, ID: 3900 110. .... = Priority: Internetwork Control (6) ...0 .... = DEI: Ineligible .... 1111 0011 1100 = ID: 3900 Type: Unknown (0xffff) Data (82 bytes)