RING MATERIAL FOR SAE PRODUCTS

COMMERCIAL AND INDUSTRIAL POE SWITCHES

SECOND EDITION V2.0 DATE: 25 APR 2022

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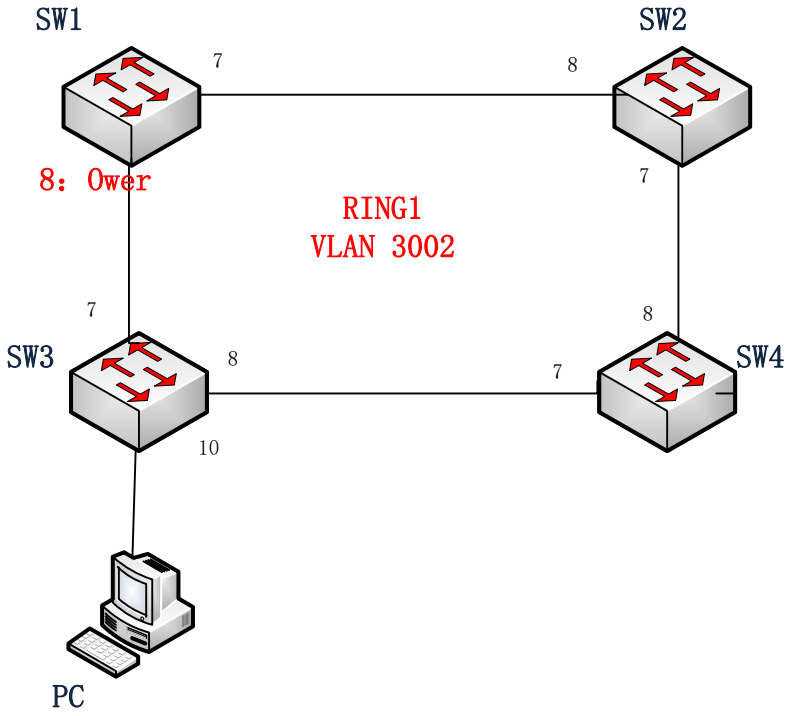
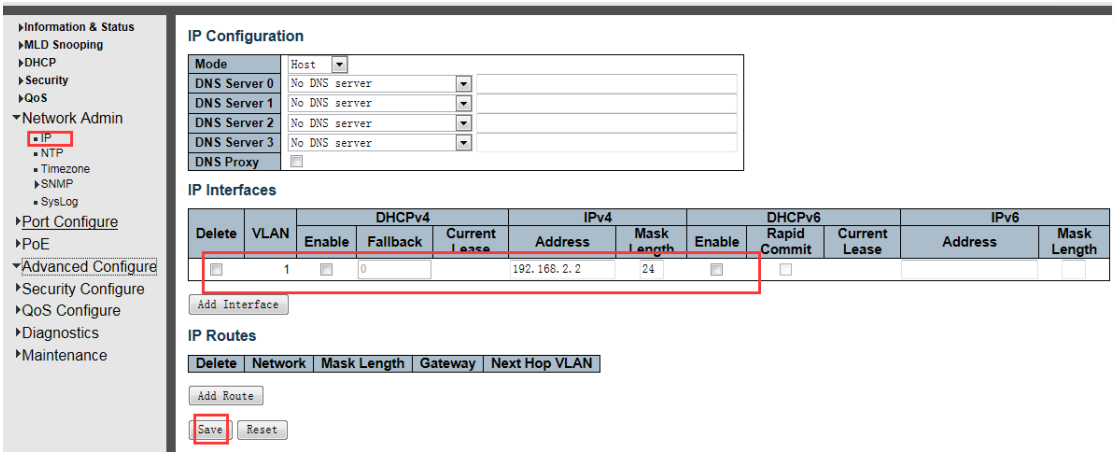
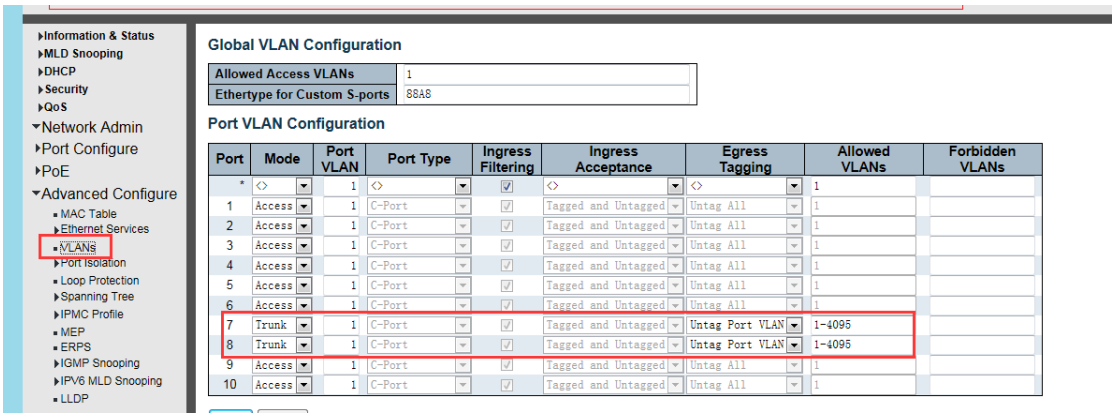
A. Single-Ring Configuration

1. Form SW1 - SW4 to a single ring through ERPS, Users can ping SW1-SW4 in PC, also can ping them if Ring is disconnected.

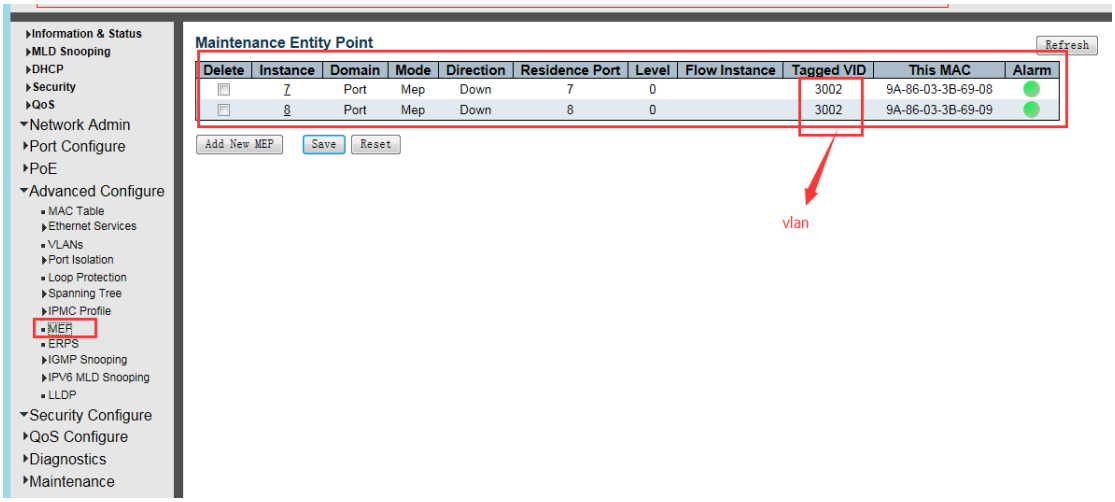


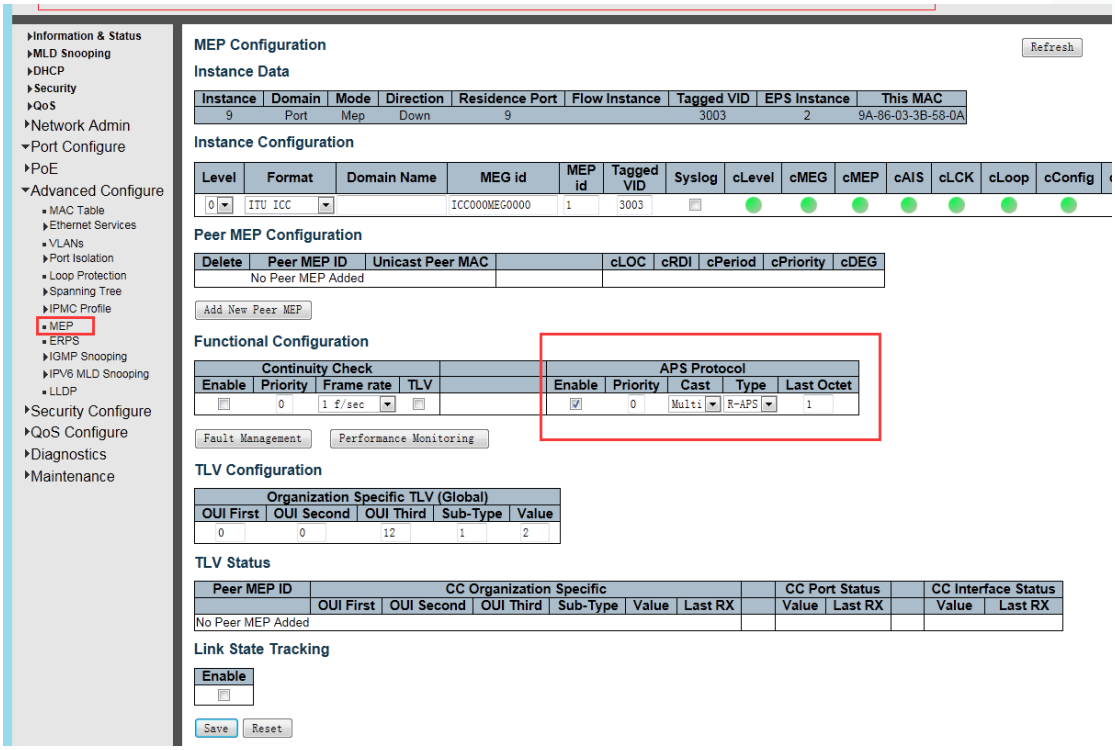
2. Set the IP of SW1-SW4 as (192.168.2.1) - (192.168.2.4), and set the port to trunk port, which is used to connect with the ring.





3. Set SW1 as Ring1, the type is Major, and set control VLAN as 3002. Enable APS Protocol in MEP, the type is R-APS. And set Port 7 as the East port, Port 8 as the West port. Port 8 is as the owner.




Information & Status
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Port Isolation
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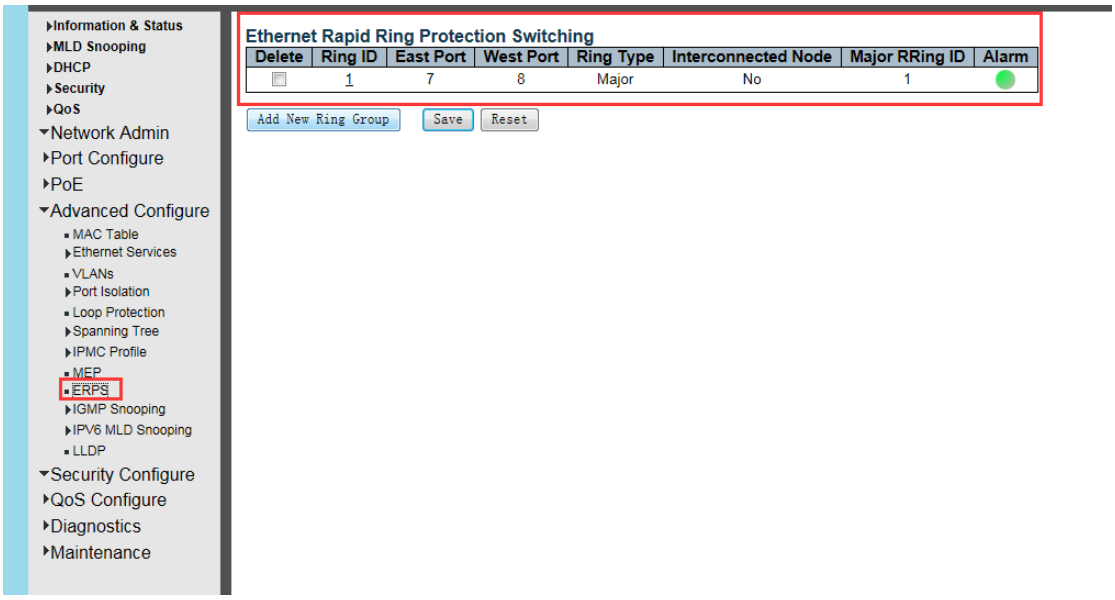
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
MEP Configuration
Refresh
Instance Data
Instance | Domain | Mode | Direction | Residence Port | Flow Instance | Tagged VID | EPS Instance | This MAC
9 | Port | Mep | Down | 9 | | 3003 | 2 | 9A-86-03-3B-58-0A
Instance Configuration
Level | Format | Domain Name | MEG id | MEP id | Tagged VID | Syslog | cLevel | cMEG | cMEP | cAIS | cLCK | cLoop | cConfig
0 | ITU ICC | | ICC000MEG0000 | 1 | 3003
Peer MEP Configuration
Delete | Peer MEP ID | Unicast Peer MAC | | cLOC | cRDI | cPeriod | cPriority | cDEG
No Peer MEP Added
Add New Peer MEP
Functional Configuration
Continuity Check
Enable | Priority | Frame rate | TLV
0 | 1 f/sec
APS Protocol
Enable | Priority | Cast | Type | Last Octet
0 | Multi | R-APS | 1
Fault Management
Performance Monitoring
TLV Configuration
Organization Specific TLV (Global)
OUI First | OUI Second | OUI Third | Sub-Type | Value
0 | 0 | 12 | 1 | 2
TLV Status
Peer MEP ID | CC Organization Specific | CC Port Status | CC Interface Status
OUI First | OUI Second | OUI Third | Sub-Type | Value | Last RX | Value | Last RX | Value | Last RX
No Peer MEP Added
Link State Tracking
Enable
Save
Reset


Information & Status
MLD Snooping
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IGMP Snooping
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LLDP
Security Configure
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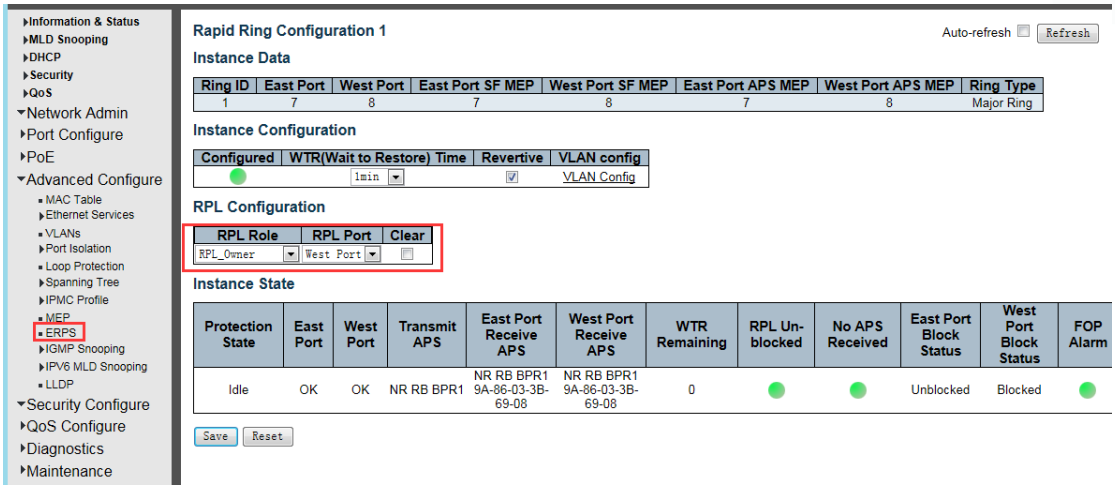
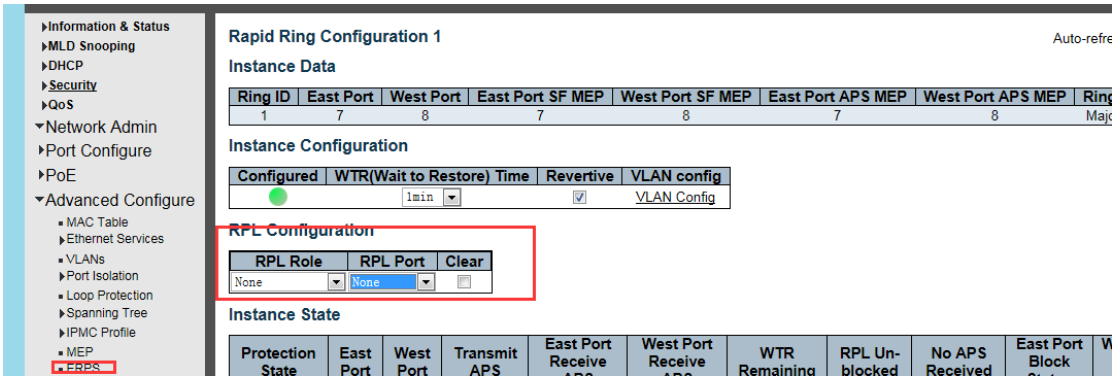
Diagnostics
Maintenance
Ethernet Rapid Ring Protection Switching
Delete | Ring ID | East Port | West Port | Ring Type | Interconnected Node | Major RRing ID | Alarm
1 | 7 | 8 | Major | No | 1
Add New Ring Group
Save
Reset

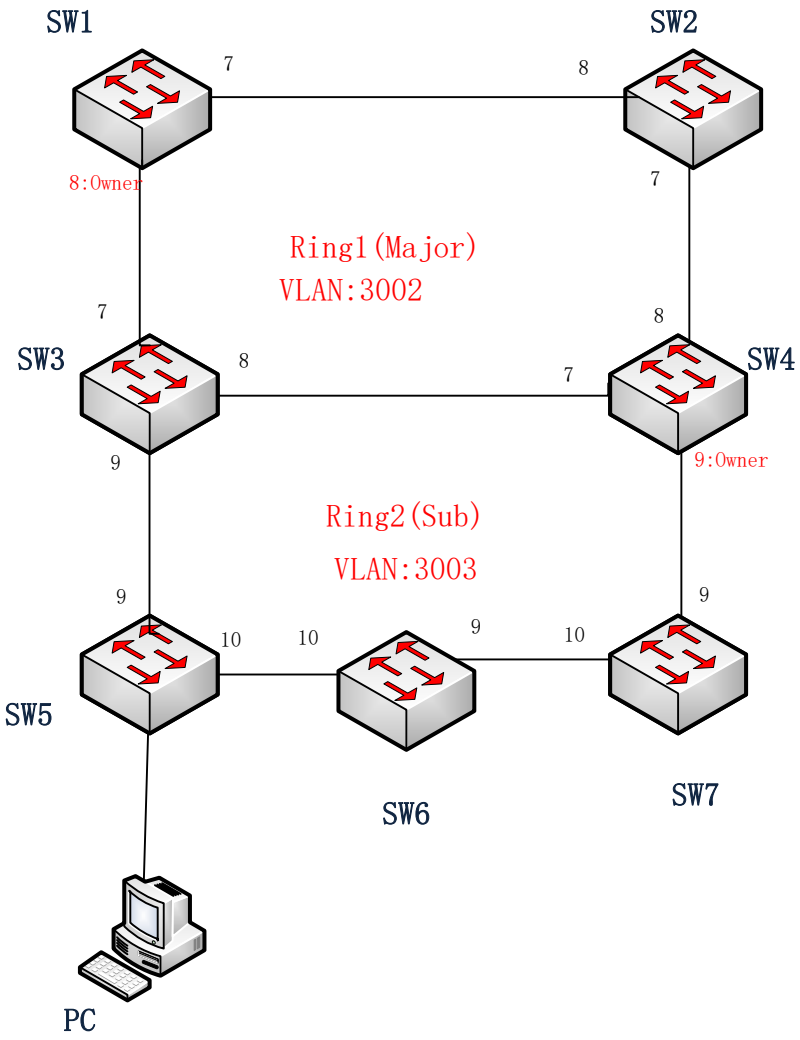


4. Set SW2-SW4 as Ring1, the type is Major, and set control VLAN as 3002. Enable APS Protocol in MEP, the type is R-APS. And set Port 7 as the East port, Port 8 as the West port. Different in the configuration of Port 8 in SW1, **no need to** set the port 8 of SW2-SW4 as the Owner.

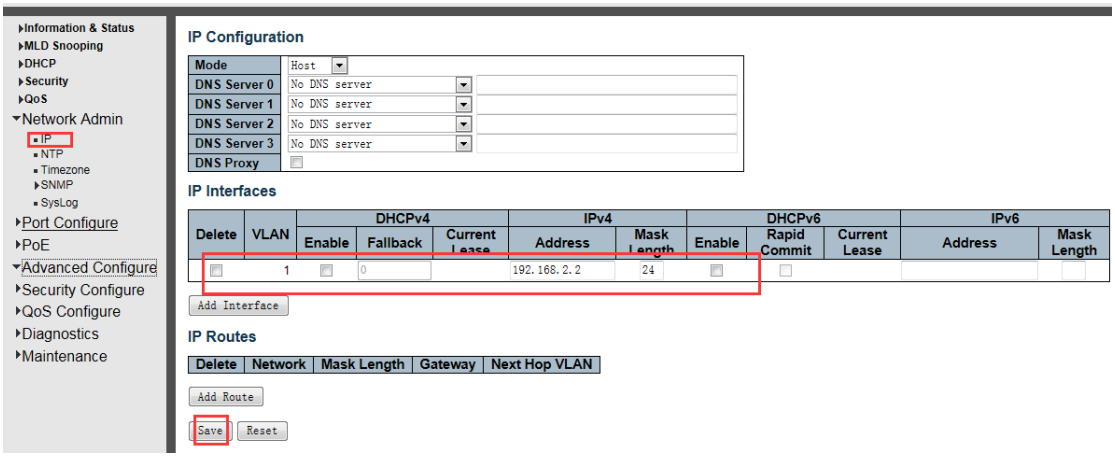


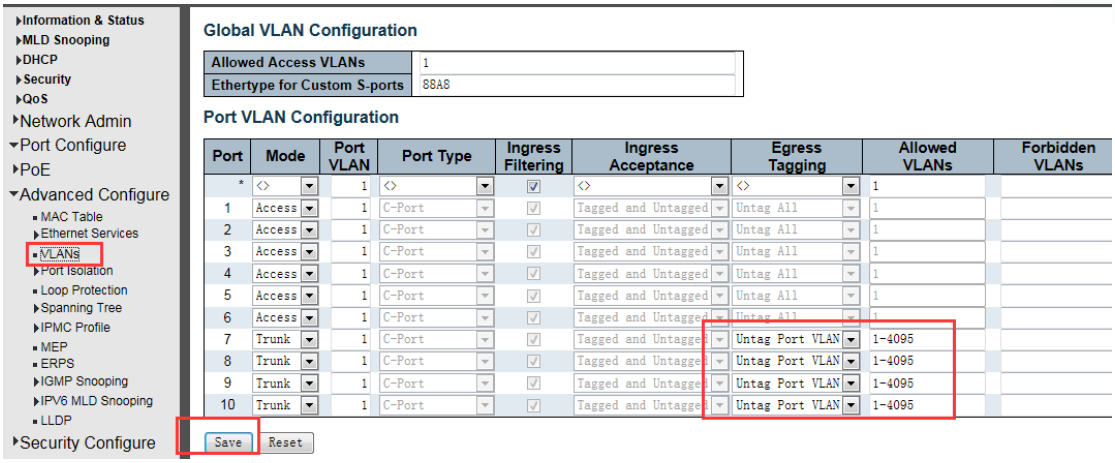
B. Coupling-ring Configuration

1. Form SW1 - SW7 to a coupling ring through ERPS, Users can ping SW1-SW7 in PC, also can ping them if Ring is disconnected.

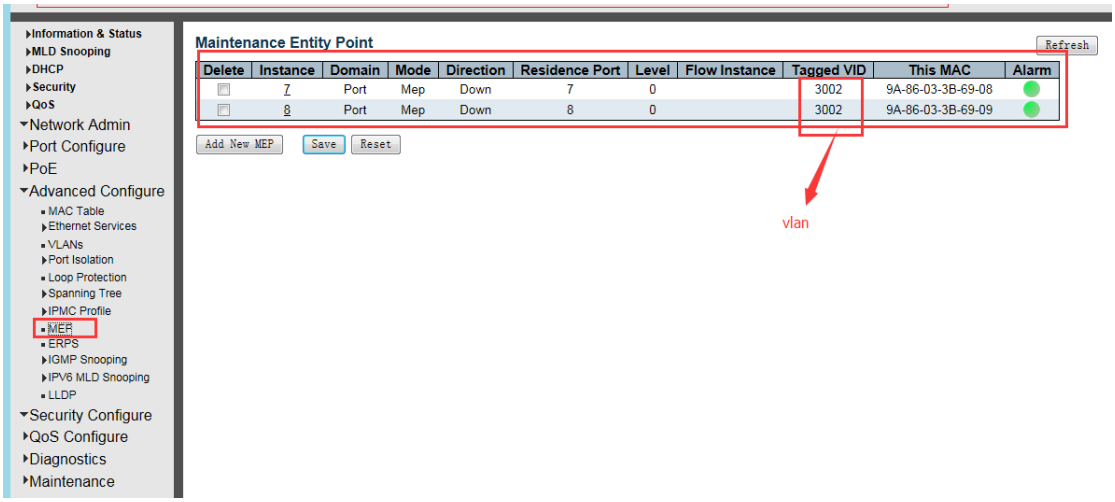


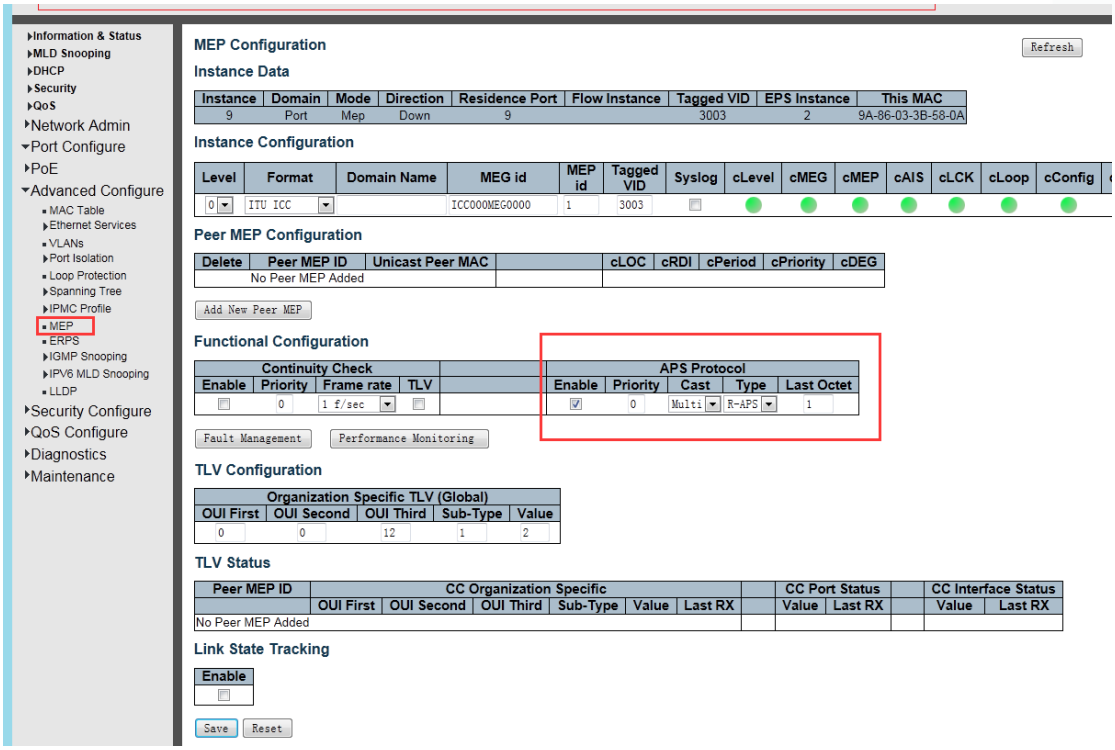
2. Set the IP of SW1-SW7 as (192.168.2.1) - (192.168.2.7), and set the port to trunk port, which is used to connect with the ring.





3. Set SW1 as Ring1, the type is Major, and set control VLAN as 3002. Enable APS Protocol in MEP, the type is R-APS. And set Port 7 as the East port, Port 8 as the West port. Port 8 is as the owner. New added VLAN 3003 to protect Ring1 from message in Ring2.

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MLD Snooping
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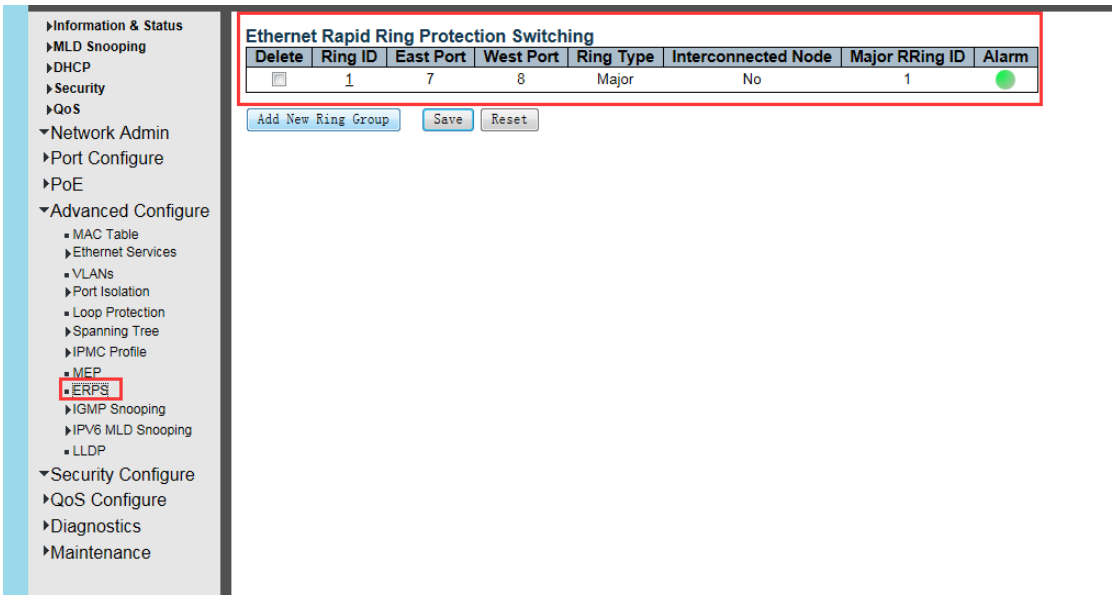
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
MEP Configuration
Refresh
Instance Data
Instance | Domain | Mode | Direction | Residence Port | Flow Instance | Tagged VID | EPS Instance | This MAC
9 | Port | Mep | Down | 9 | | 3003 | 2 | 9A-86-03-3B-58-0A
Instance Configuration
Level | Format | Domain Name | MEG id | MEP id | Tagged VID | Syslog | cLevel | cMEG | cMEP | cAIS | cLCK | cLoop | cConfig
0 | ITU ICC | | ICC000MEG0000 | 1 | 3003
Peer MEP Configuration
Delete | Peer MEP ID | Unicast Peer MAC | | cLOC | cRDI | cPeriod | cPriority | cDEG
No Peer MEP Added
Add New Peer MEP
Functional Configuration
Continuity Check
Enable | Priority | Frame rate | TLV
0 | 1 f/sec
APS Protocol
Enable | Priority | Cast | Type | Last Octet
0 | Multi | R-APS | 1
Fault Management
Performance Monitoring
TLV Configuration
Organization Specific TLV (Global)
OUI First | OUI Second | OUI Third | Sub-Type | Value
0 | 0 | 12 | 1 | 2
TLV Status
Peer MEP ID | CC Organization Specific | CC Port Status | CC Interface Status
OUI First | OUI Second | OUI Third | Sub-Type | Value | Last RX | Value | Last RX | Value | Last RX
No Peer MEP Added
Link State Tracking
Enable
Save
Reset


Information & Status
MLD Snooping
DHCP
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QoS
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VLANs
Port Isolation
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IPMC Profile
MEP
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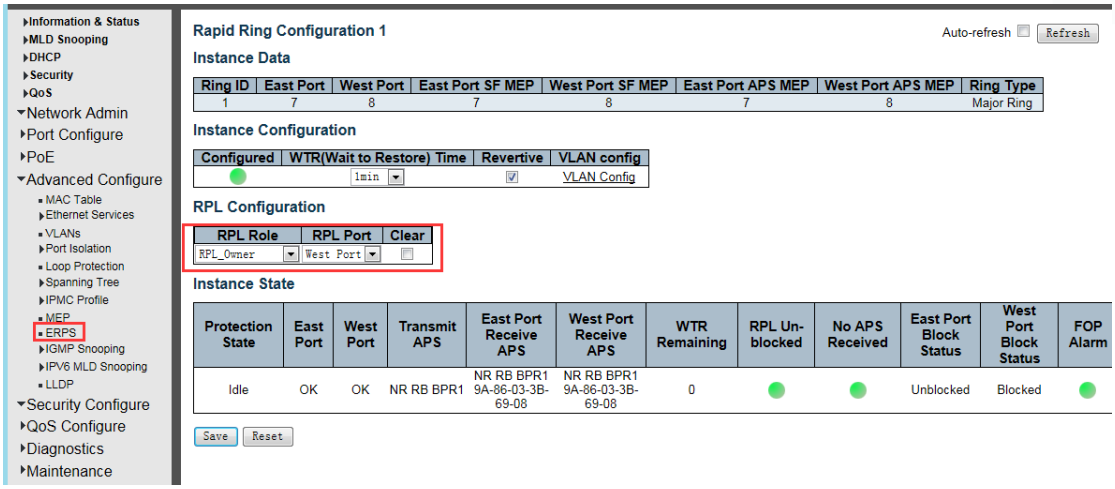
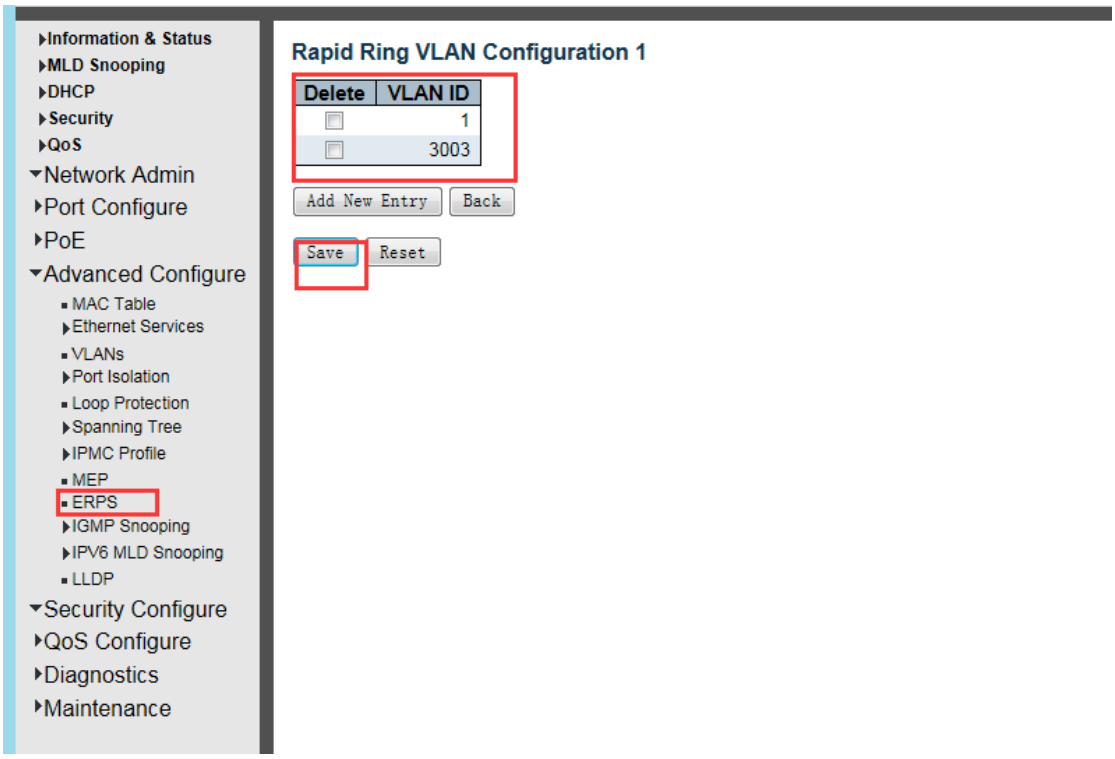
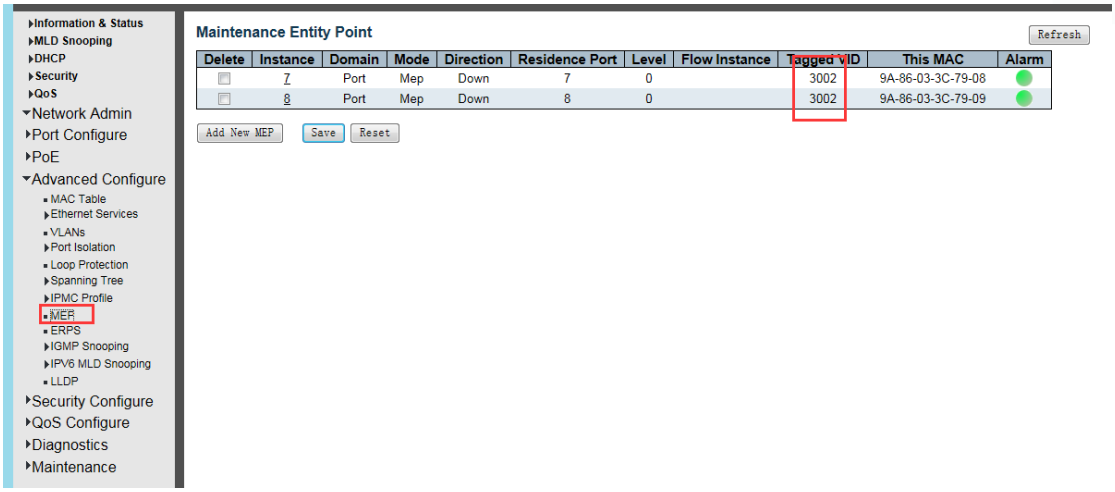
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
Ethernet Rapid Ring Protection Switching
Delete | Ring ID | East Port | West Port | Ring Type | Interconnected Node | Major RRing ID | Alarm
1 | 7 | 8 | Major | No | 1
Add New Ring Group
Save
Reset





4. Set SW2 as Ring1, the type is Major, and set control VLAN as 3002. And set Port 7 as the East port, Port 8 as the West port. New added VLAN 3003 to protect Ring1 from message in Ring2. The configuration of MEP is same with step 3.


Information & Status
MLD Snooping
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Port Configure
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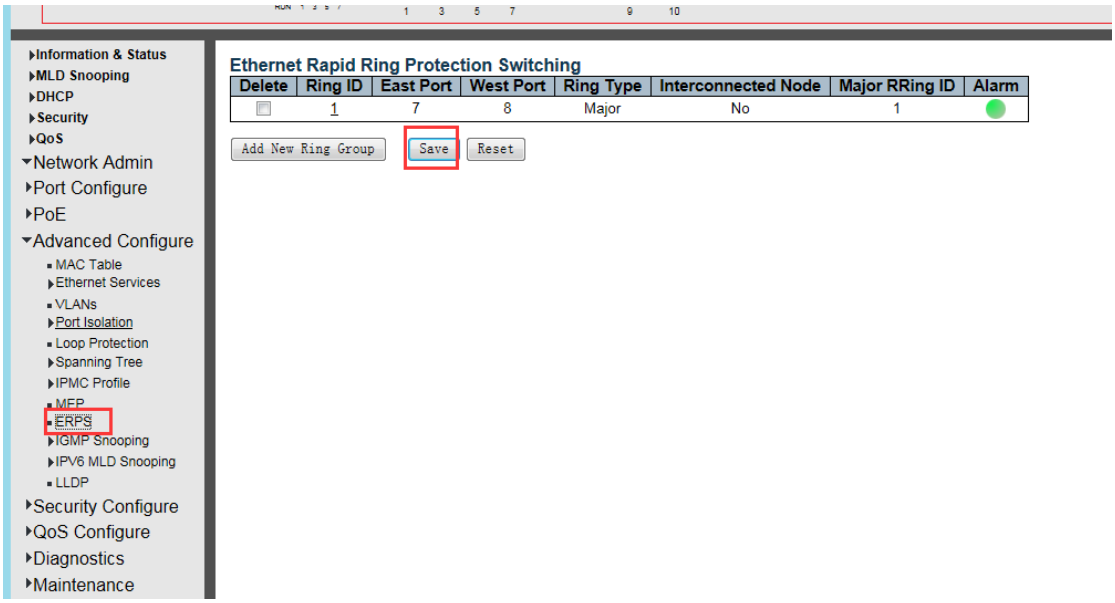
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
Maintenance Entity Point
Refresh
Delete | Instance | Domain | Mode | Direction | Residence Port | Level | Flow Instance | Tagged VID | This MAC | Alarm
7 | Port | Mep | Down | 7 | 0 | 3002 | 9A-86-03-3C-79-08
8 | Port | Mep | Down | 8 | 0 | 3002 | 9A-86-03-3C-79-09
Add New MEP
Save
Reset


Information & Status
MLD Snooping
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QoS
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Port Configure
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Port Isolation
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IPMC Profile
MEP
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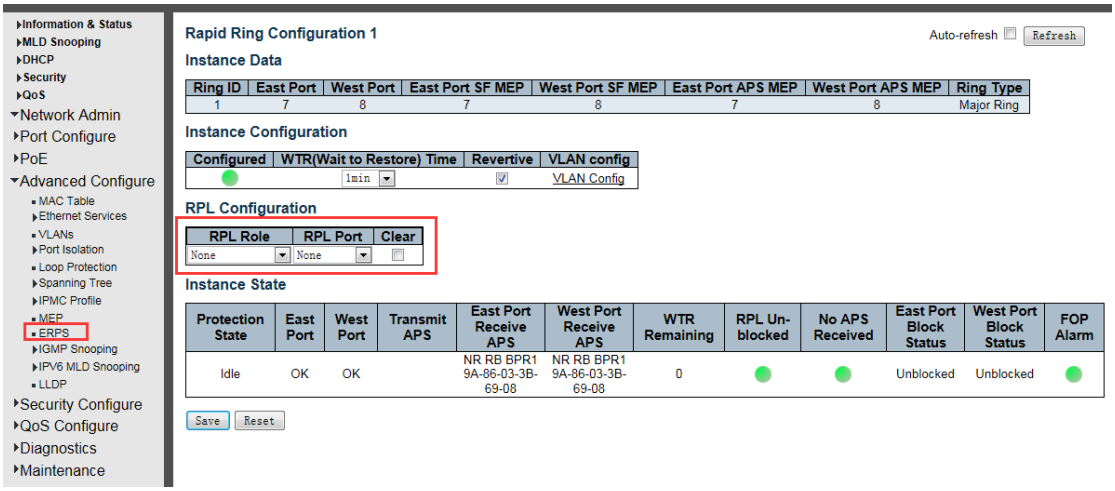
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
Ethernet Rapid Ring Protection Switching
Delete | Ring ID | East Port | West Port | Ring Type | Interconnected Node | Major RRing ID | Alarm
1 | 7 | 8 | Major | No | 1
Add New Ring Group
Save
Reset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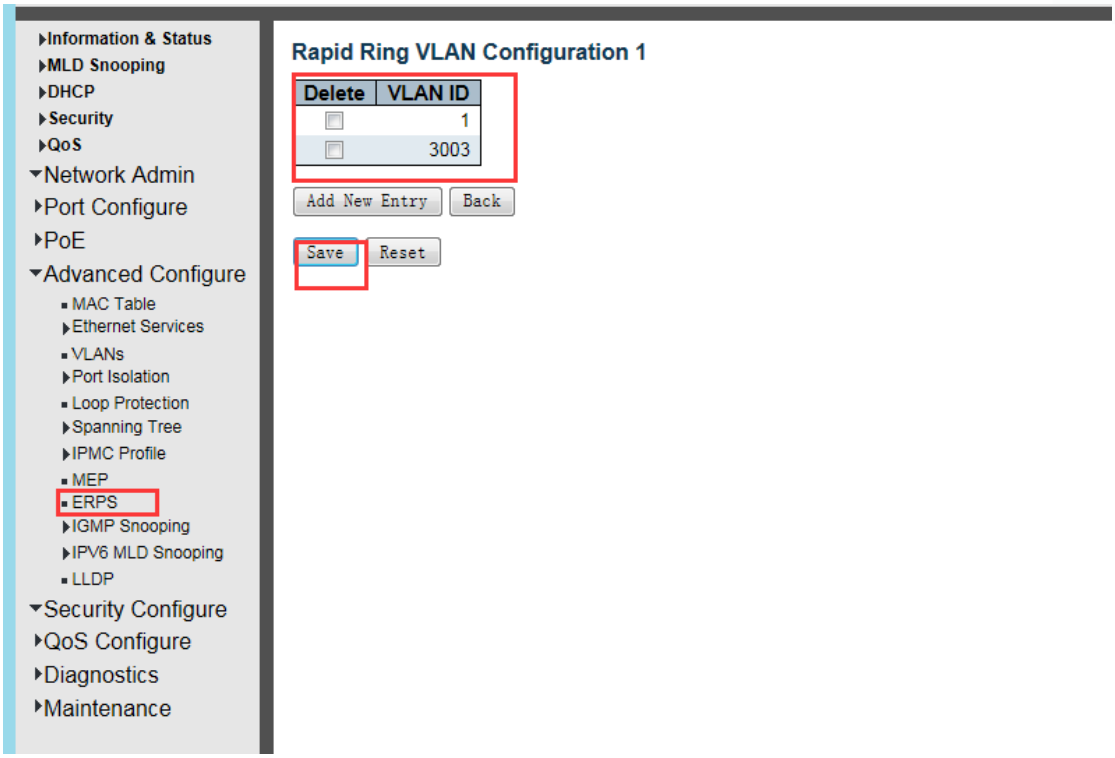
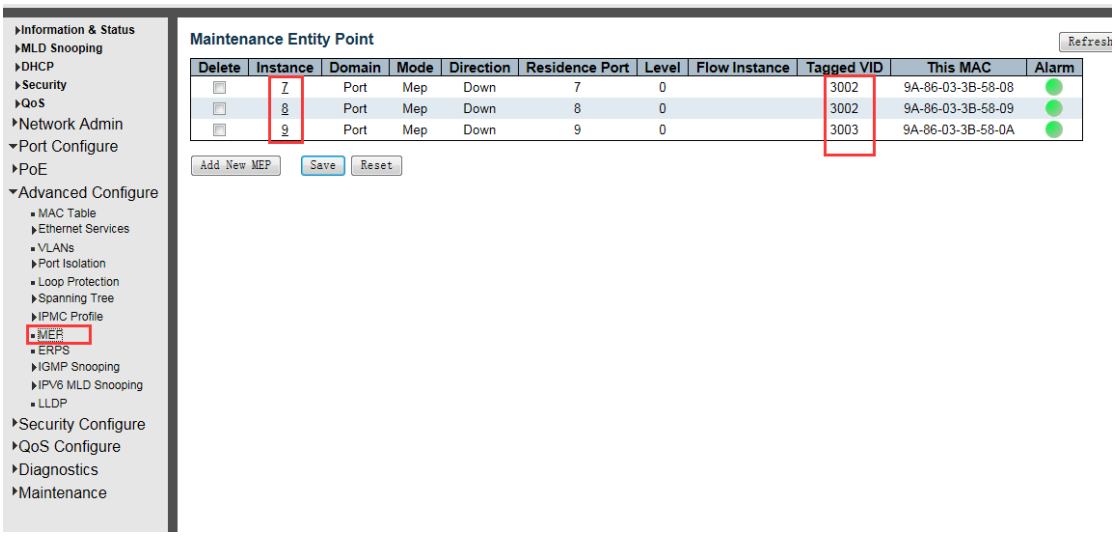
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
Rapid Ring Configuration 1
Auto-refresh
Refresh
Instance Data
Ring ID | East Port | West Port | East Port SF MEP | West Port SF MEP | East Port APS MEP | West Port APS MEP | Ring Type
1 | 7 | 8 | 7 | 8 | 7 | 8 | Major Ring
Instance Configuration
Configured | WTR(Wait to Restore) Time | Revertive | VLAN config
1min
VLAN Config
RPL Configuration
RPL Role | RPL Port | Clear
None | None
Instance State
Protection State | East Port | West Port | Transmit APS | East Port Receive APS | West Port Receive APS | WTR Remaining | RPL Un-blocked | No APS Received | East Port Block Status | West Port Block Status | FOP Alarm
Idle | OK | OK | NR RB BPR1 9A-86-03-3B-69-08 | NR RB BPR1 9A-86-03-3B-69-08 | 0 | Unblocked | Unblocked
Save
Reset

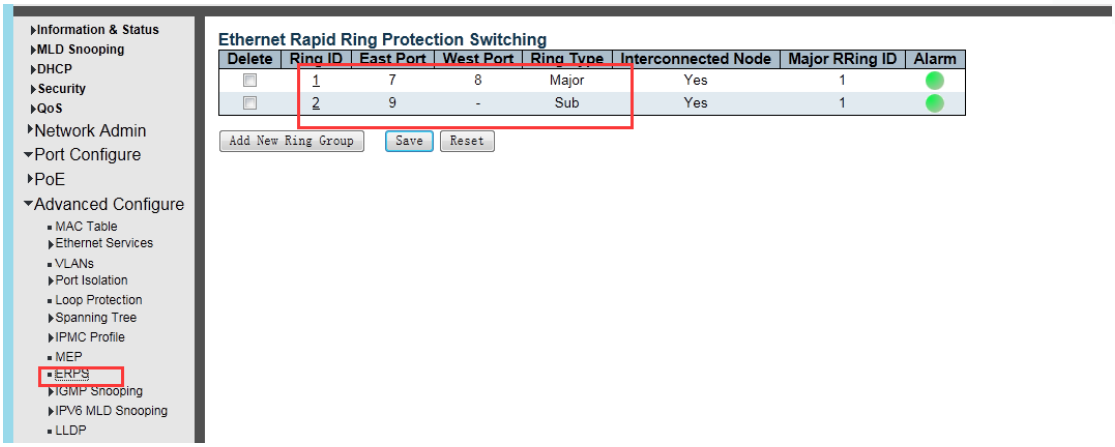


5. Set port 7-8 of SW3 as Ring1, the type is Major, and set control VLAN as 3002. And set Port 7 as the East port, Port 8 as the West port. New added VLAN 3003 to protect Ring1 from message in Ring2.

Set port 9-10 of SW3 as Ring2, the type is Major, and set control VLAN as 3003. And set Port 9 as the East port, Port 10 as the West port. New added VLAN 3002 to protect Ring2 from message in Ring1. Click Interconnected Node for RING1 and RING2.

RING1:

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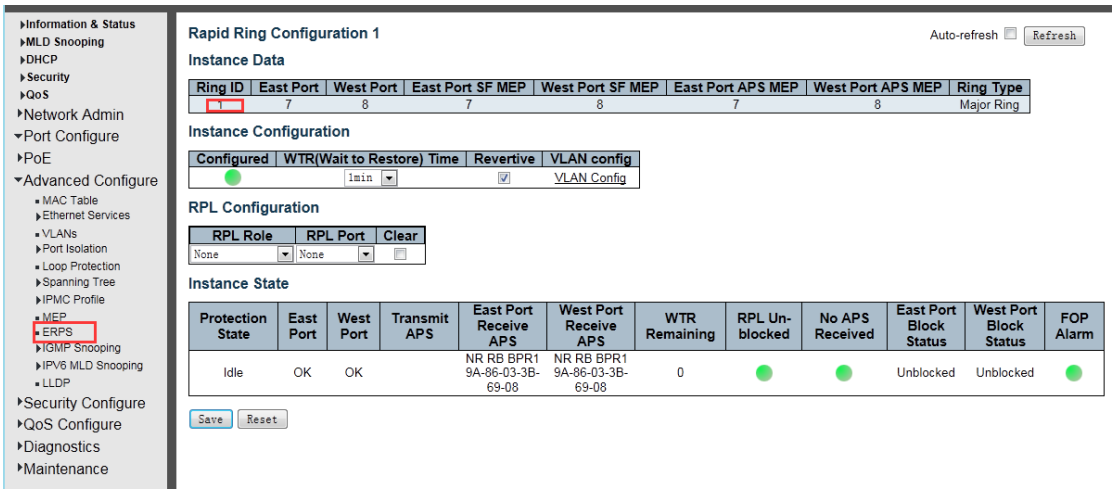
Port Isolation
Loop Protection
Spanning Tree
IPMC Profile
MEP
ERPS
IGMP Snooping
IPV6 MLD Snooping
LLDP
Ethernet Rapid Ring Protection Switching
Delete | Ring ID | East Port | West Port | Ring Type | Interconnected Node | Major RRing ID | Alarm
1 | 7 | 8 | Major | Yes | 1
2 | 9 | - | Sub | Yes | 1
Add New Ring Group
Save
Reset


Information & Status
MLD Snooping
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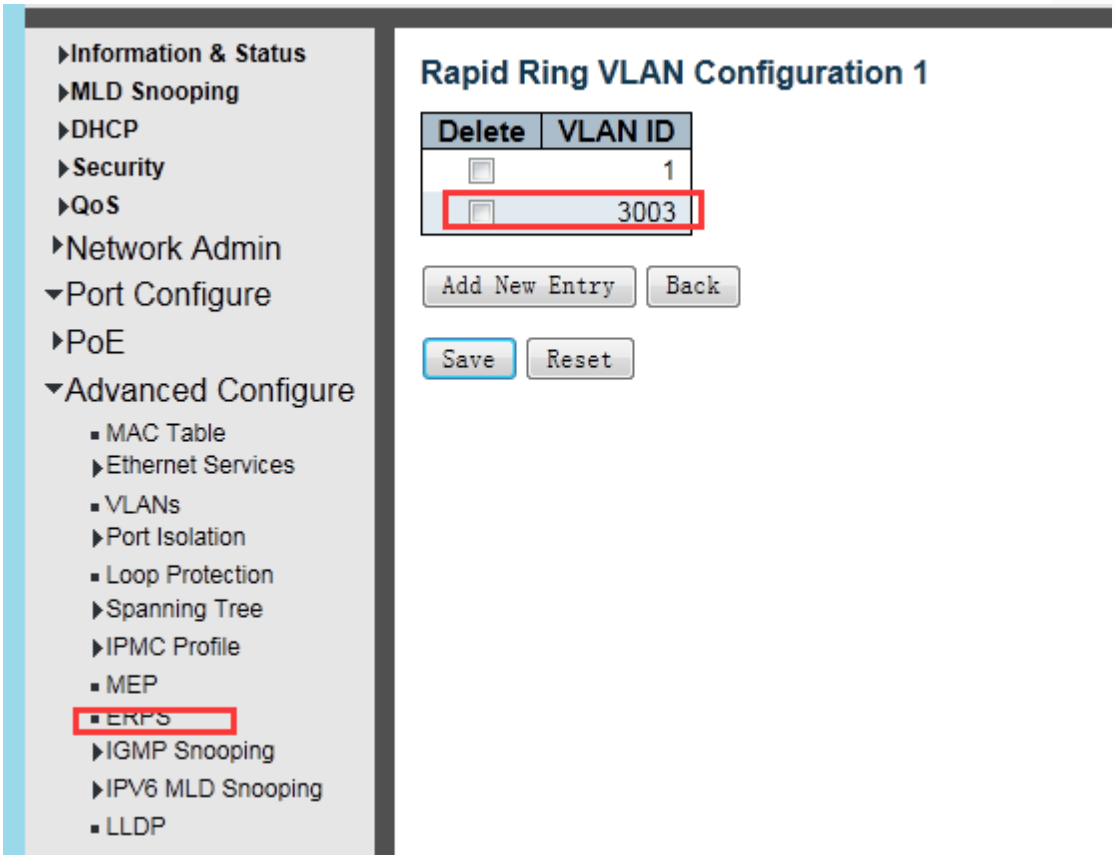
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
Rapid Ring Configuration 1
Auto-refresh
Refresh
Instance Data
Ring ID | East Port | West Port | East Port SF MEP | West Port SF MEP | East Port APS MEP | West Port APS MEP | Ring Type
1 | 7 | 8 | 7 | 8 | 7 | 8 | Major Ring
Instance Configuration
Configured | WTR(Wait to Restore) Time | Revertive | VLAN config
1min
VLAN Config
RPL Configuration
RPL Role | RPL Port | Clear
None | None
Instance State
Protection State | East Port | West Port | Transmit APS | East Port Receive APS | West Port Receive APS | WTR Remaining | RPL Un-blocked | No APS Received | East Port Block Status | West Port Block Status | FOP Alarm
Idle | OK | OK | NR RB BPR1 9A-86-03-3B-69-08 | NR RB BPR1 9A-86-03-3B-69-08 | 0 | Unblocked | Unblocked
Save
Reset


Information & Status
MLD Snooping
DHCP
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QoS
Network Admin
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Advanced Configure
MAC Table
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Port Isolation
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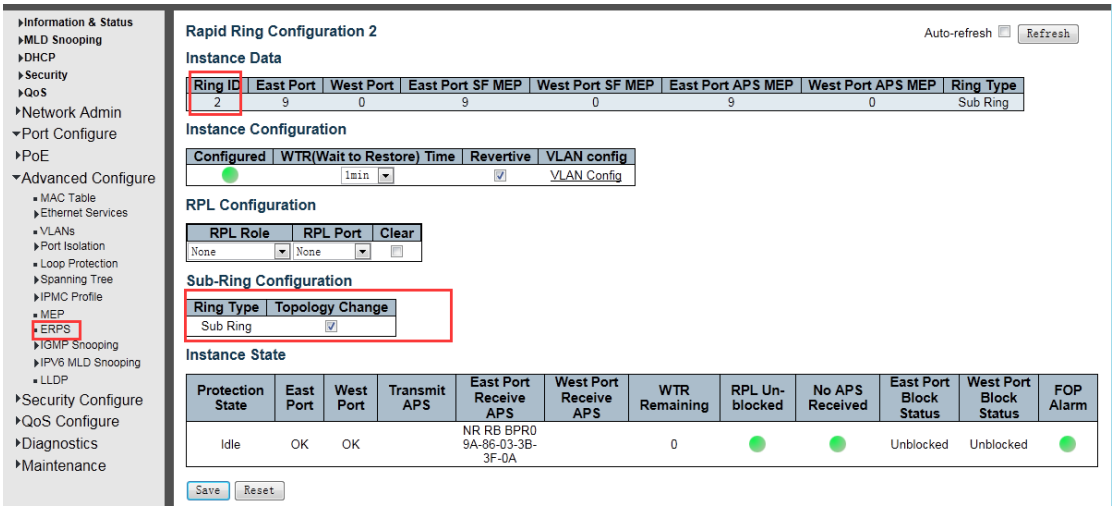
IGMP Snooping
IPV6 MLD Snooping
LLDP
Rapid Ring VLAN Configuration 1
Delete
VLAN ID
1
3003
Add New Entry
Back
Save
Reset

RING2:


Information & Status
MLD Snooping
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QoS
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Advanced Configure
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Port Isolation
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QoS Configure
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Instance Data
Ring ID
East Port
West Port
East Port SF MEP
West Port SF MEP
East Port APS MEP
West Port APS MEP
Ring Type
2
9
0
9
0
9
0
Sub Ring
Instance Configuration
Configured
WTR(Wait to Restore) Time
Revertive
VLAN config
1min
VLAN Config
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RPL Role
RPL Port
Clear
None
None
Sub-Ring Configuration
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Instance State
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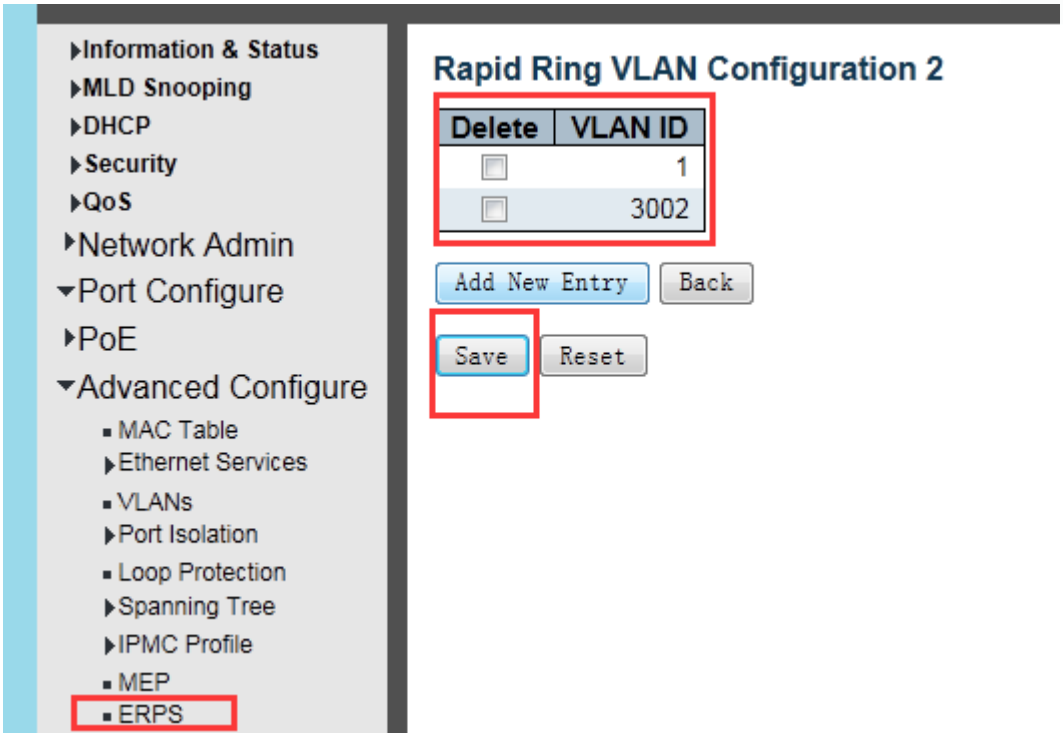
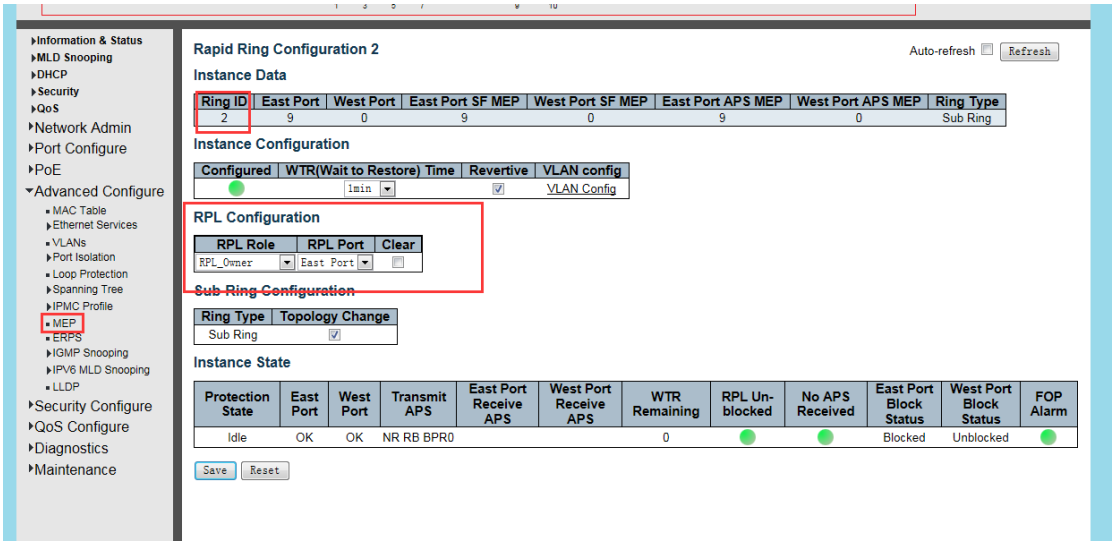
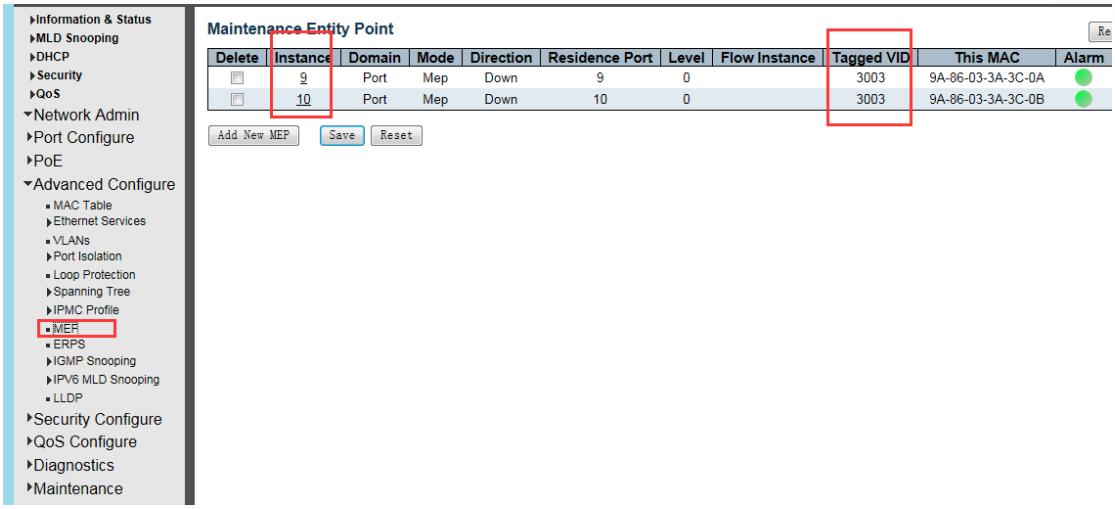
East Port Receive APS
West Port Receive APS
WTR Remaining
RPL Un-blocked
No APS Received
East Port Block Status
West Port Block Status
FOP Alarm
Idle
OK
OK
NR RB BPR0 9A-86-03-3B-3F-0A
0
Unblocked
Unblocked
Save
Reset



6. Same configuration with SW3 for SW4. The different is need to set port 9 as the owner.



7. Set SW5 as Ring2, the type is Sub, and set control VLAN as 3003. And set Port 9 as the East port, Port 10 as the West port. New added VLAN 3002 to protect Ring2 from message in Ring1. Configuration of MEP is same with Step 3.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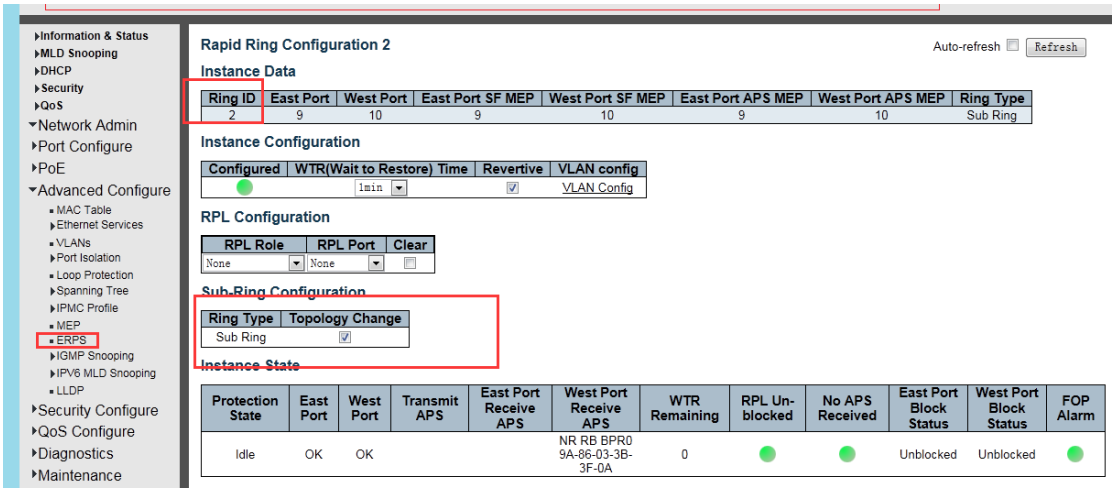
Security Configure
QoS Configure
Diagnostics
Maintenance
Maintenance Entity Point
Delete
Instance
Domain
Mode
Direction
Residence Port
Level
Flow Instance
Tagged VID
This MAC
Alarm
9 Port Mep Down 9 0 3003 9A-86-03-3A-3C-0A
10 Port Mep Down 10 0 3003 9A-86-03-3A-3C-0B
Add New MEP
Save
Reset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Security Configure
QoS Configure
Diagnostics
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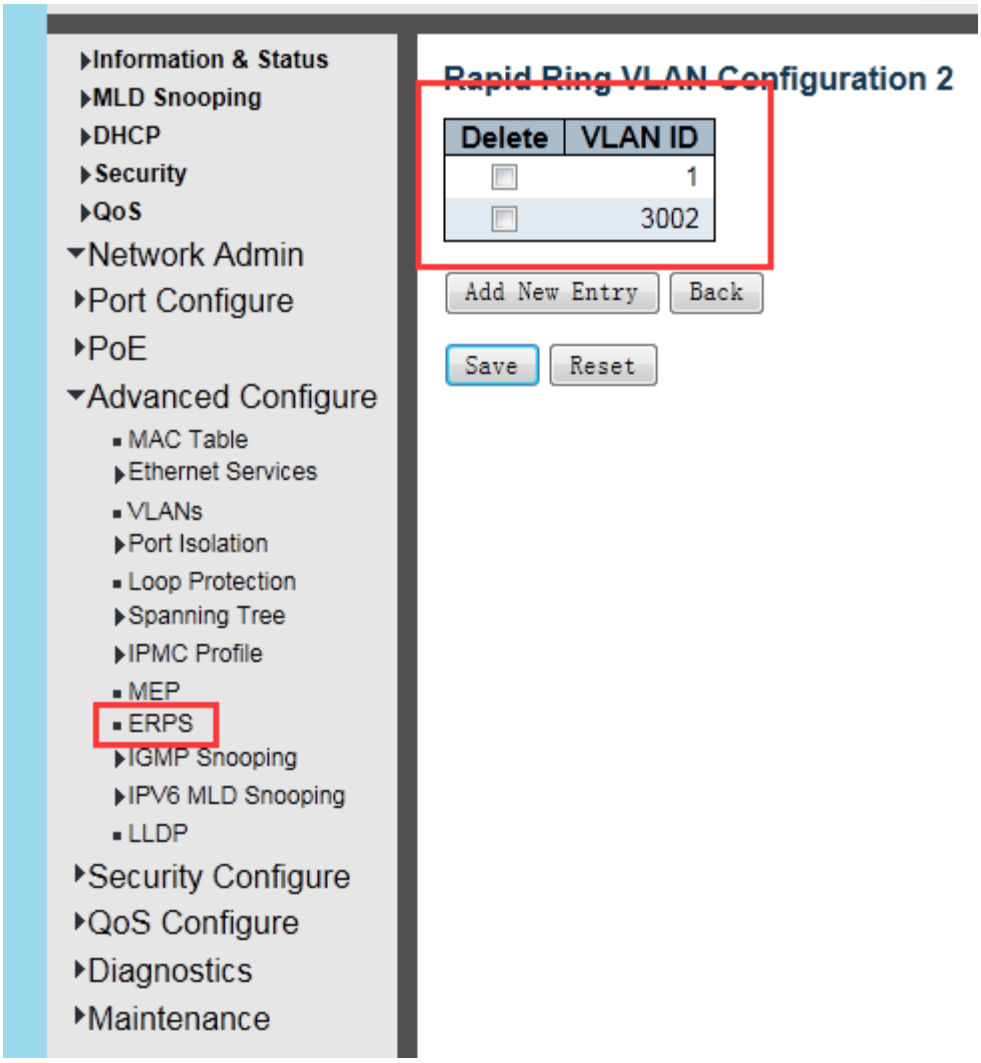
Rapid Ring Configuration 2
Auto-refresh
Refresh
Instance Data
Ring ID
East Port
West Port
East Port SF MEP
West Port SF MEP
East Port APS MEP
West Port APS MEP
Ring Type
2 9 10 9 10 9 10 Sub Ring
Instance Configuration
Configured
WTR(Wait to Restore) Time
Revertive
VLAN config
1min
VLAN Config
RPL Configuration
RPL Role
RPL Port
Clear
None
None
Sub-Ring Configuration
Ring Type
Topology Change
Sub Ring
Instance State
Protection State
East Port
West Port
Transmit APS
East Port Receive APS
West Port Receive APS
WTR Remaining
RPL Un-blocked
No APS Received
East Port Block Status
West Port Block Status
FOP Alarm
Idle OK OK NR RB BPR0 9A-86-03-3B-3F-0A 0 Unblocked Unblocked

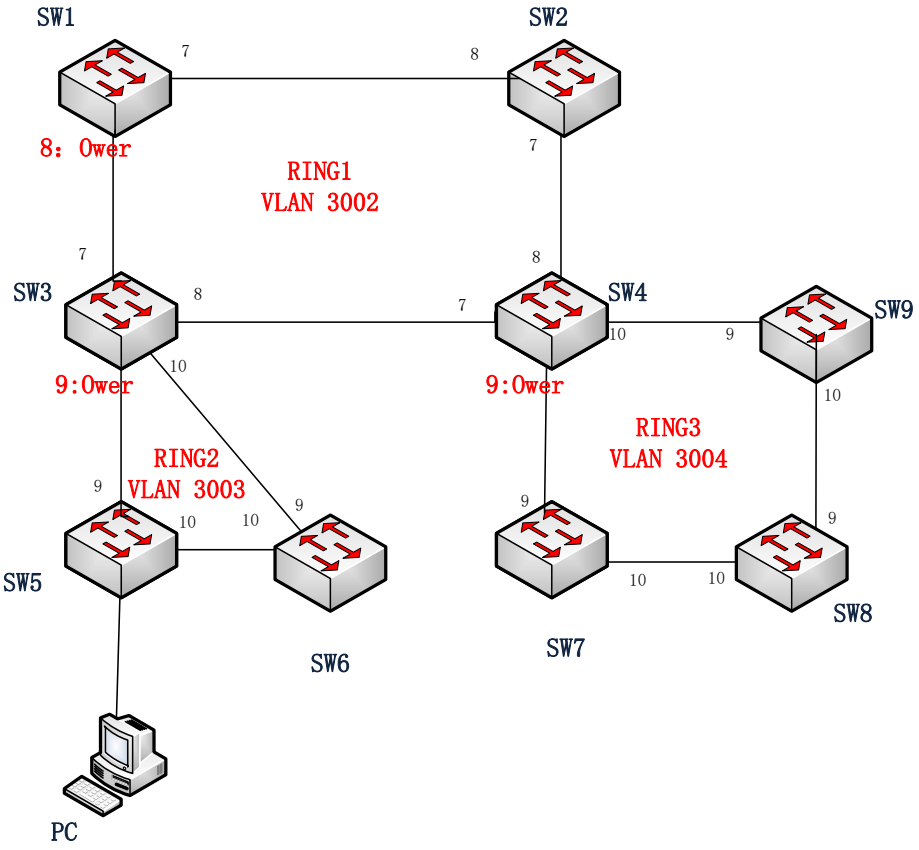


8. Configuration of SW6 & SW7 is same with SW5.

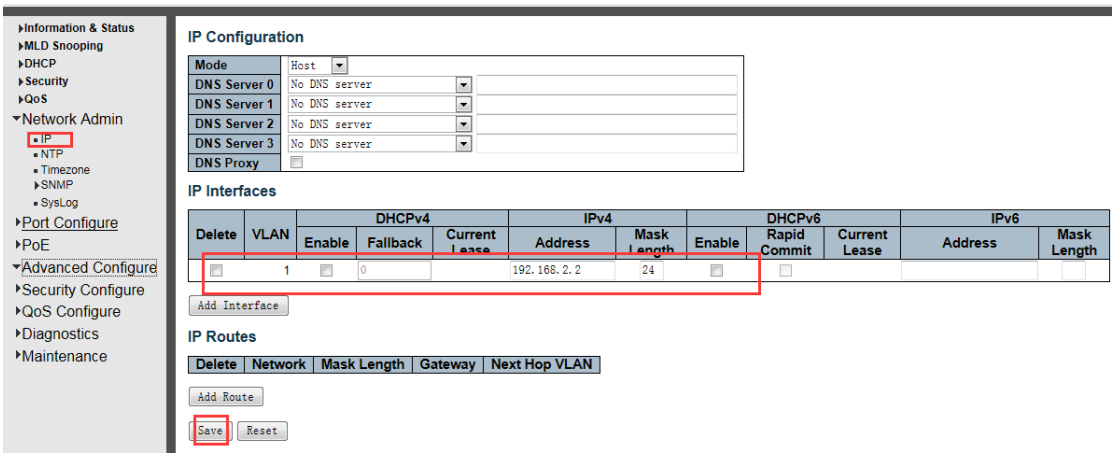
9. Test the configuration result. Users can ping SW1-SW7 in PC, also can ping them if the ring is connected.

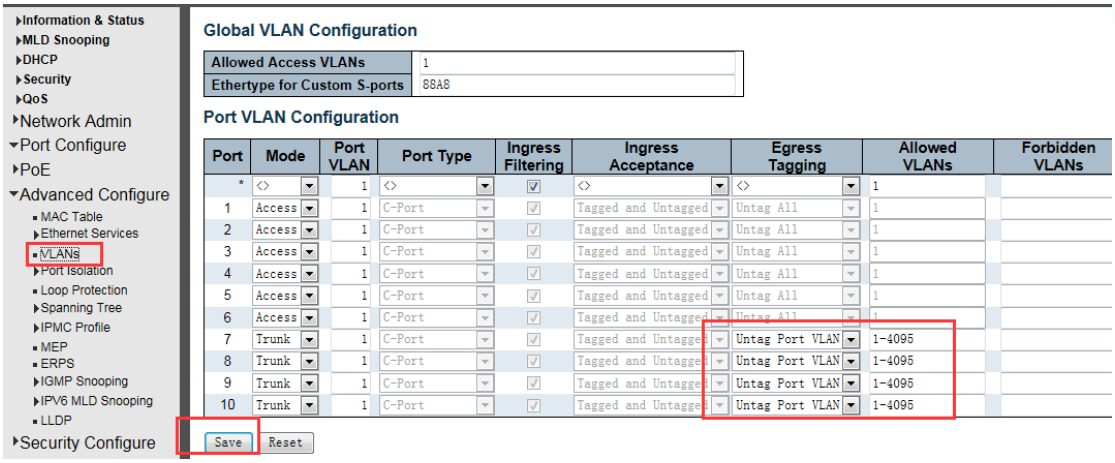
C. Intersecting-ring Configuration

1. Form SW1 - SW9 to a intersecting ring through ERPS, Users can ping SW1-SW9 in PC, also can ping them if Ring is disconnected.

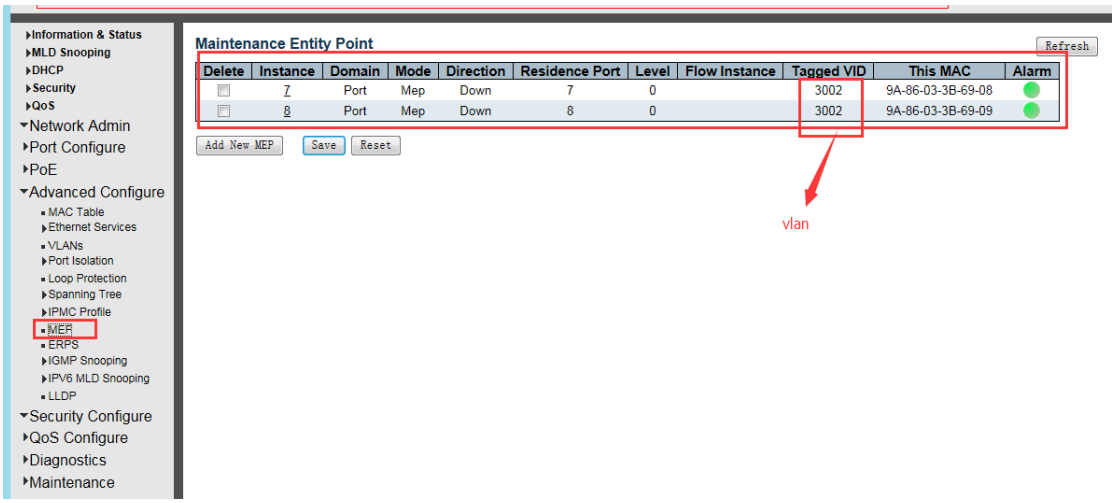


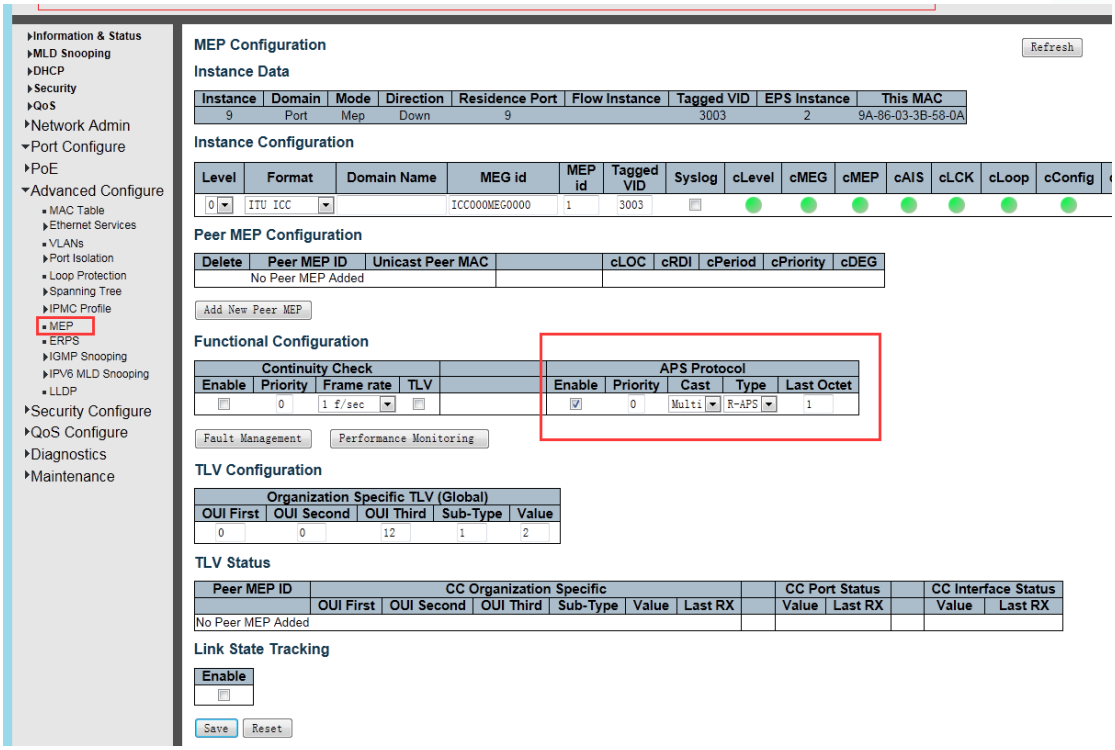
2. Set the IP of SW1-SW9 as (192.168.2.1) - (192.168.2.9), and set the port to trunk port, which is used to connect with the ring.

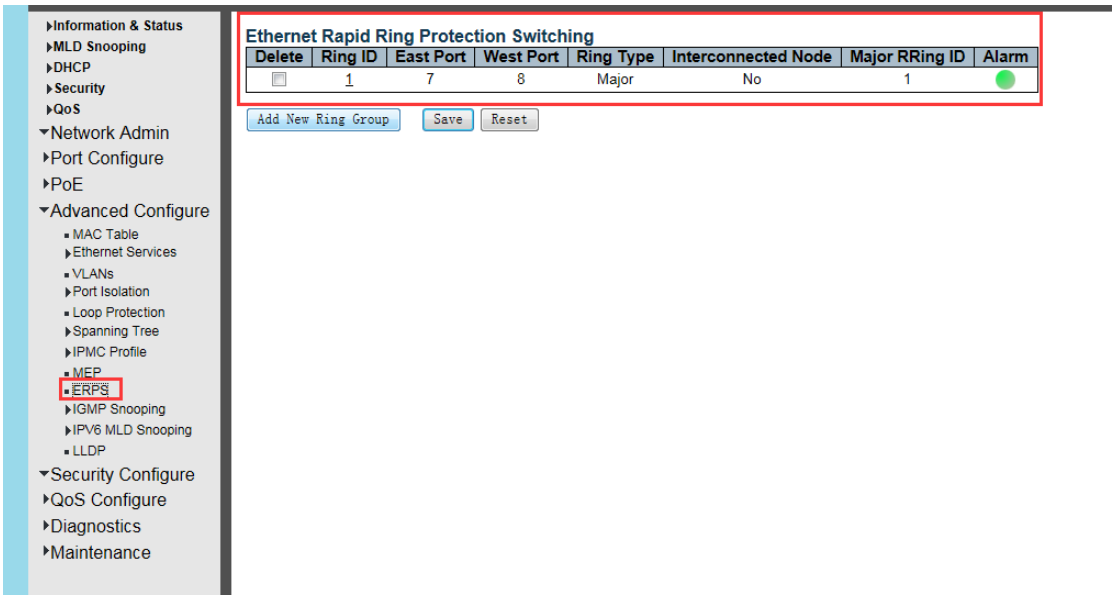




3. Set SW1 as Ring1, the type is Major, and set control VLAN as 3002. Enable APS Protocol in MEP, the type is R-APS. And set Port 7 as the East port, Port 8 as the West port. Port 8 is as the owner. New added VLAN 3003 & 3004 to protect Ring1 from message in Ring2 & Ring3.




Information & Status
MLD Snooping
DHCP
Security
QoS
Network Admin
Port Configure
PoE
Advanced Configure
MAC Table
Ethernet Services
VLANs
Port Isolation
Loop Protection
Spanning Tree
IPMC Profile
MEP
ERPS
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
MEP Configuration
Refresh
Instance Data
Instance | Domain | Mode | Direction | Residence Port | Flow Instance | Tagged VID | EPS Instance | This MAC
9 | Port | Mep | Down | 9 | | 3003 | 2 | 9A-86-03-3B-58-0A
Instance Configuration
Level | Format | Domain Name | MEG id | MEP id | Tagged VID | Syslog | cLevel | cMEG | cMEP | cAIS | cLCK | cLoop | cConfig
0 | ITU ICC | | ICC000MEG0000 | 1 | 3003
Peer MEP Configuration
Delete | Peer MEP ID | Unicast Peer MAC | | cLOC | cRDI | cPeriod | cPriority | cDEG
No Peer MEP Added
Add New Peer MEP
Functional Configuration
Continuity Check
Enable | Priority | Frame rate | TLV
0 | 1 f/sec
APS Protocol
Enable | Priority | Cast | Type | Last Octet
0 | Multi | R-APS | 1
Fault Management
Performance Monitoring
TLV Configuration
Organization Specific TLV (Global)
OUI First | OUI Second | OUI Third | Sub-Type | Value
0 | 0 | 12 | 1 | 2
TLV Status
Peer MEP ID | CC Organization Specific | CC Port Status | CC Interface Status
OUI First | OUI Second | OUI Third | Sub-Type | Value | Last RX | Value | Last RX | Value | Last RX
No Peer MEP Added
Link State Tracking
Enable
Save
Reset


Information & Status
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Port Isolation
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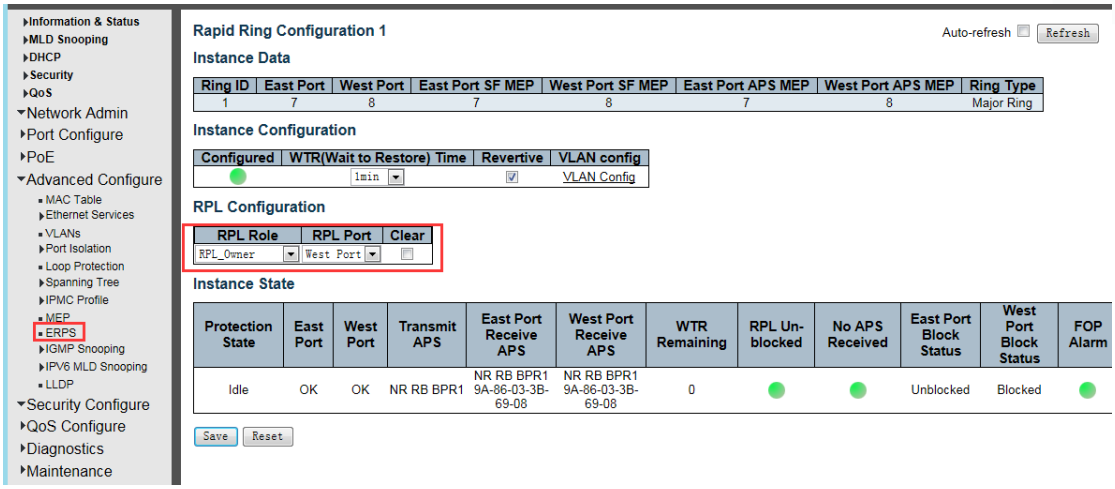
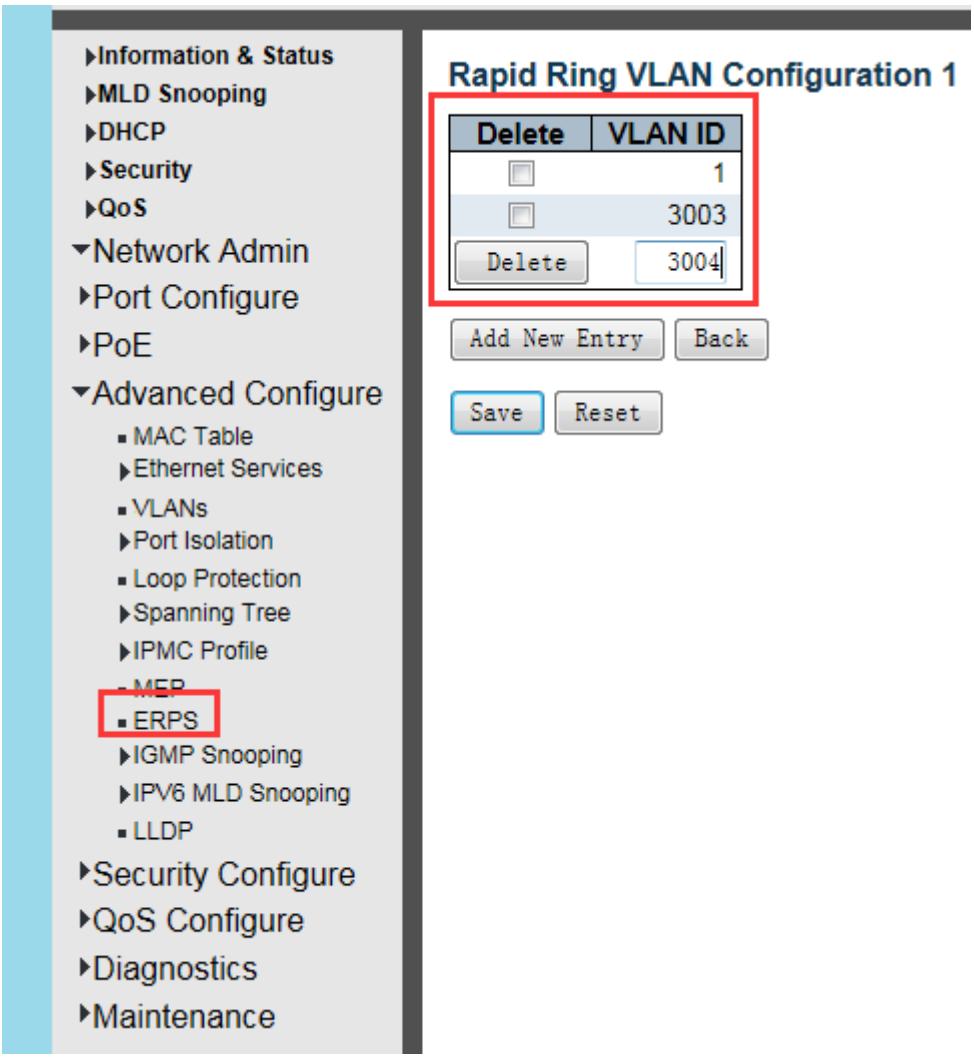
IPMC Profile
MEP
ERPS
IGMP Snooping
IPV6 MLD Snooping
LLDP
Security Configure
QoS Configure
Diagnostics
Maintenance
Ethernet Rapid Ring Protection Switching
Delete | Ring ID | East Port | West Port | Ring Type | Interconnected Node | Major RRing ID | Alarm
1 | 7 | 8 | Major | No | 1
Add New Ring Group
Save
Reset

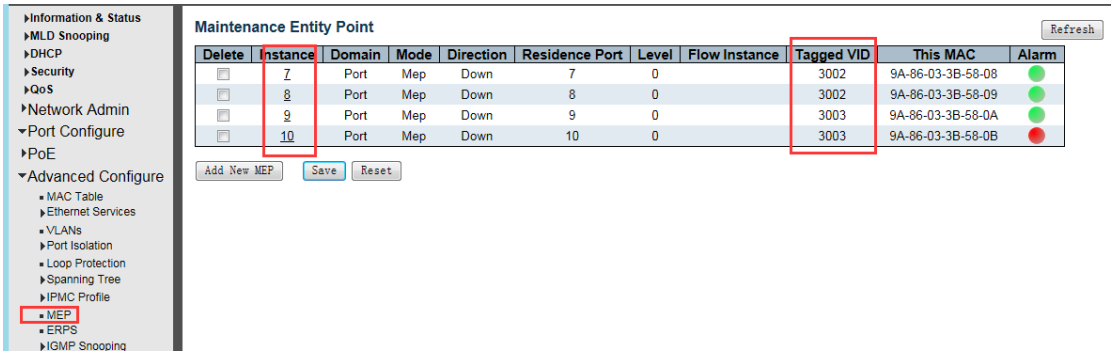


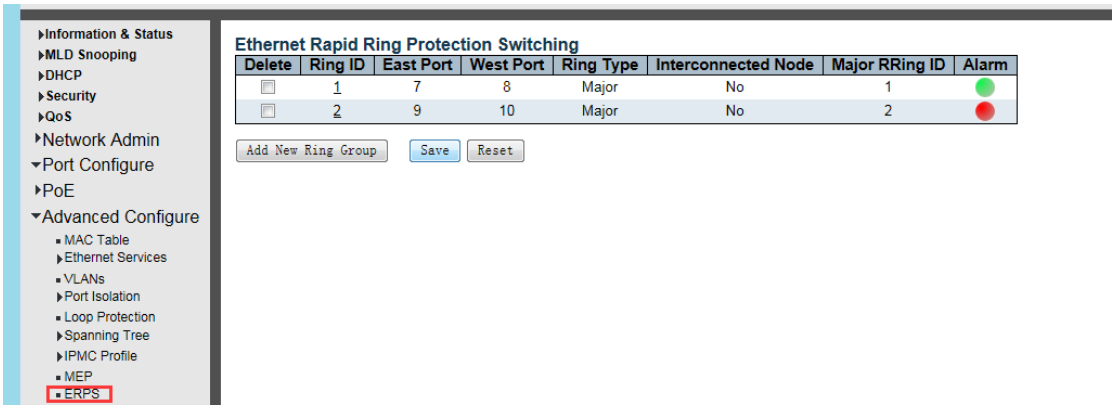


4. Configuration of SW2 is same with SW1.

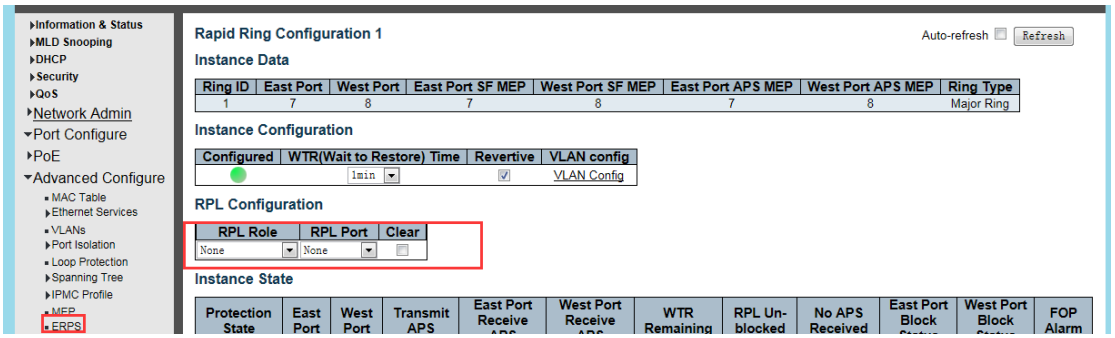
5. Set port 7-8 of SW3 as Ring1, the type is Major, and set control VLAN as 3002. And set Port 7 as the East port. New added VLAN 3003 & 3004 to protect Ring1 from message in Ring2 & Ring3.

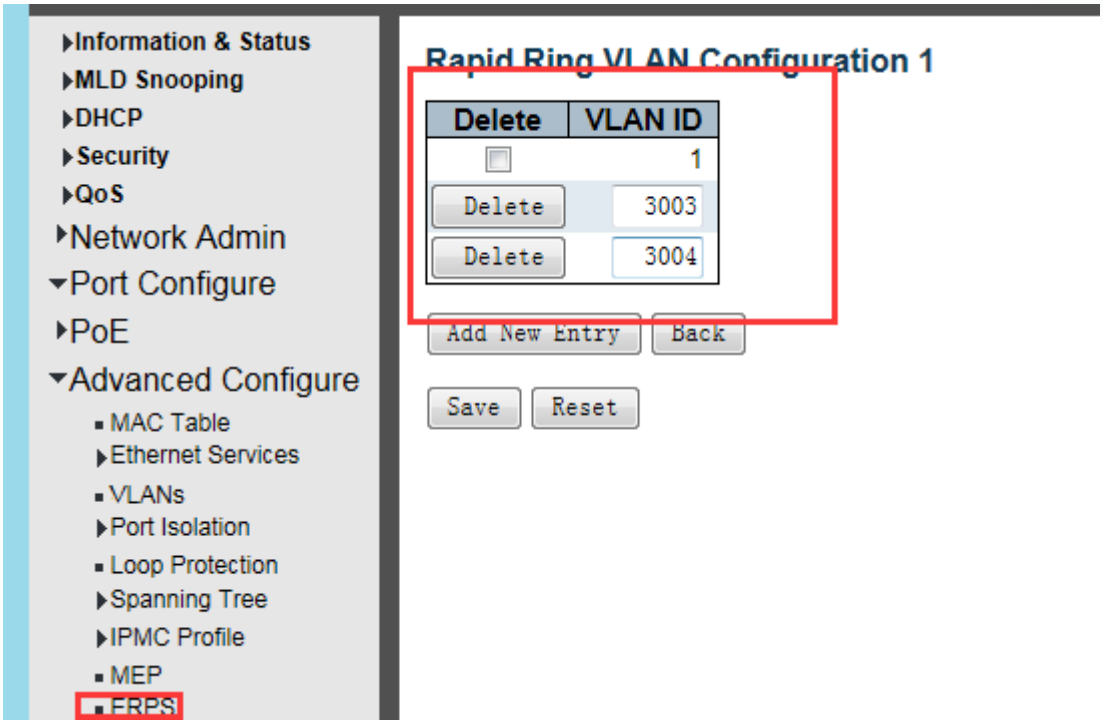
Set port 9-10 of SW3 as Ring2, the type is Major, and set control VLAN as 3003. And set Port 9 as the East port, Port 10 as the West port. New added VLAN 3002 & 3004 to protect Ring2 from message in Ring1 & Ring3.



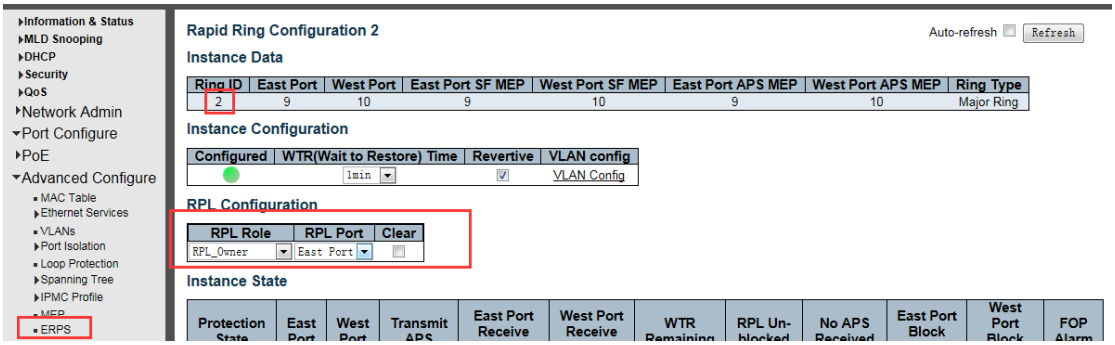


RING1:




Information & Status
MLD Snooping
DHCP
Security
QoS
Network Admin
Port Configure
PoE
Advanced Configure
MAC Table
Ethernet Services
VLANs
Port Isolation
Loop Protection
Spanning Tree
IPMC Profile
MEP
ERPS
Rapid Ring VLAN Configuration 1
Delete
VLAN ID
1
Delete
3003
Delete
3004
Add New Entry
Back
Save
Reset

RING2:


Information & Status
MLD Snooping
DHCP
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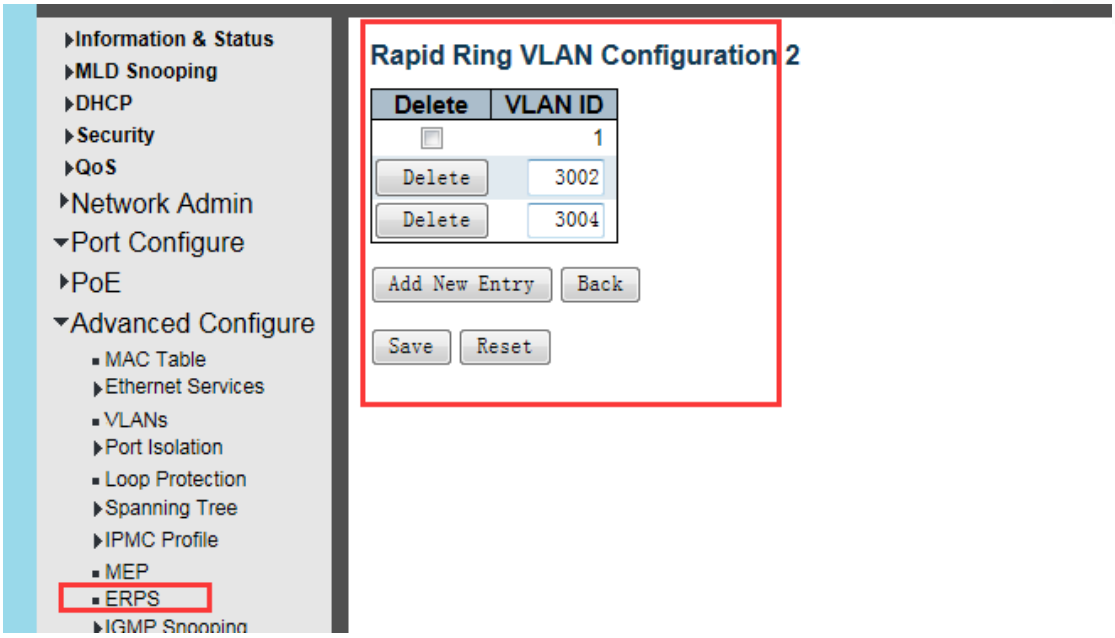
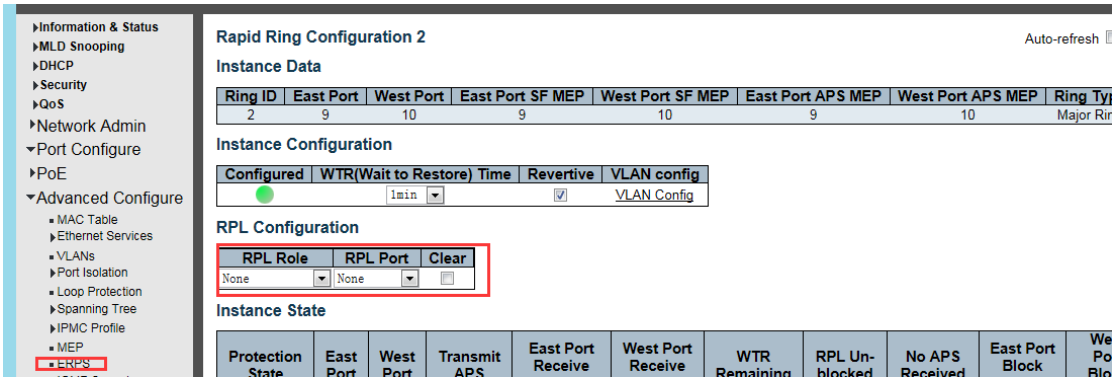
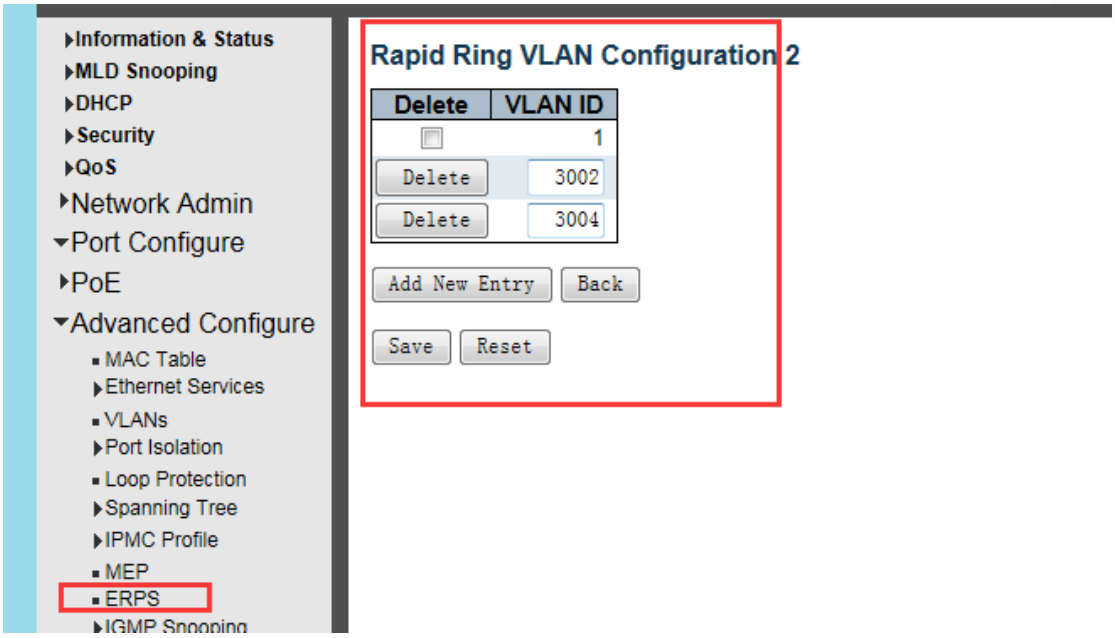
QoS
Network Admin
Port Configure
PoE
Advanced Configure
MAC Table
Ethernet Services
VLANs
Port Isolation
Loop Protection
Spanning Tree
IPMC Profile
MEP
ERPS
Rapid Ring Configuration 2
Auto-refresh
Refresh
Instance Data
Ring ID
East Port
West Port
East Port SF MEP
West Port SF MEP
East Port APS MEP
West Port APS MEP
Ring Type
2
9
10
9
10
9
10
Major Ring
Instance Configuration
Configured
WTR(Wait to Restore) Time
Revertive
VLAN config
1min
VLAN Config
RPL Configuration
RPL Role
RPL Port
Clear
RPL_Owner
East Port
Instance State
Protection State
East Port
West Port
Transmit APS
East Port Receive
West Port Receive
WTR Remaining
RPL Un-blocked
No APS Received
East Port Block
West Port Block
FOP Alarm



6. Set Port 9-10 of SW5 as Ring2, the type is Major, and set control VLAN as 3003. And set Port 9 as the East port, Port 10 as the West port. New added VLAN 3002 & 3004 to protect Ring2 from message in Ring1 & Ring3.





7. Configuration of SW4 is same with SW3.
8. Configuration of SW6-9 is same with SW5.