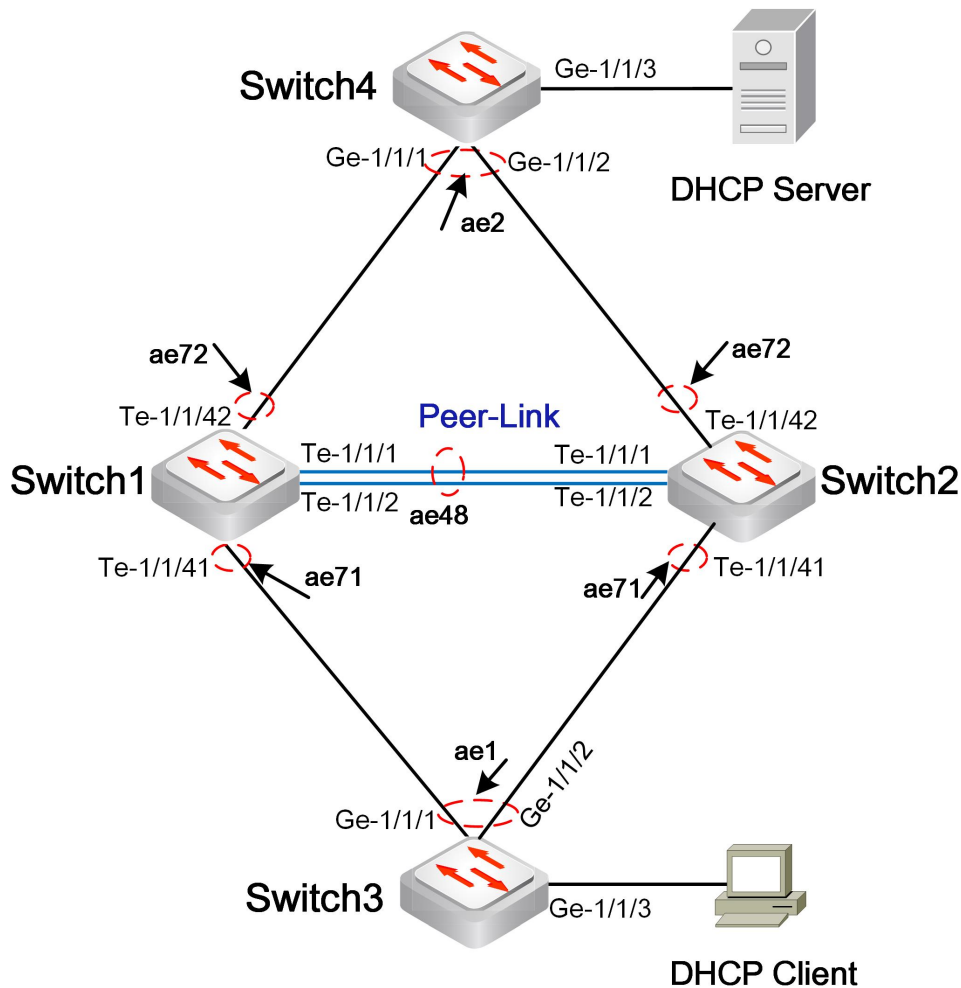


# Example for Configuring MLAG with DHCP Snooping

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## Networking Requirements

Figure 1 User Configuration Topology of MLAG with DHCP Snooping



As shown in **Figure 1**, Switch 1 and Switch 2 are Layer 2 switches and form a pair of MLAG peer devices. The DHCP client is connected to Switch3 which is dual-homed to the MLAG network. The DHCP server is connected to Switch4 which is dual-homed to the MLAG network. In the MLAG topology, to provide better services to DHCP client, the network administrator can configure DHCP snooping on Switch1, Switch2, Switch3 and Switch4, to defend against DHCP attacks.

When configuring the network, you need to pay attention to the following points:

- Switch3 is dual-homed to MLAG peer devices Switch 1 and Switch 2, the link ID is 1. Switch 4 is dual-homed to Switch 1 and Switch 2, the link ID is 2.
- DHCP snooping configuration should be identical on both MLAG peer devices.
- The peer link port should be configured as trust port on demand.
- On Switch1, Switch2, Switch3 and Switch4, configure the interfaces in the direction of the DHCP server as DHCP snooping trusted interfaces.

## Procedure

# Switch1

**Step1** Configure the VLANs.

```
admin@Switch1# set vlans vlan-id 10
admin@Switch1# set vlans vlan-id 4088 l3-interface vlan4088
admin@Switch1# set interface aggregate-ethernet ae48 family ethernet-switching native-vlan-id 4088
admin@Switch1# set interface aggregate-ethernet ae48 family ethernet-switching port-mode trunk
admin@Switch1# set interface aggregate-ethernet ae48 family ethernet-switching vlan members 10
admin@Switch1# set interface aggregate-ethernet ae71 family ethernet-switching port-mode trunk
admin@Switch1# set interface aggregate-ethernet ae71 family ethernet-switching vlan members 10
admin@Switch1# set interface aggregate-ethernet ae72 family ethernet-switching port-mode trunk
admin@Switch1# set interface aggregate-ethernet ae72 family ethernet-switching vlan members 10
```

**Step2** Configure aggregation interfaces with LACP mode.

```
admin@Switch1# set interface aggregate-ethernet ae71 aggregated-ether-options lACP enable true
admin@Switch1# set interface aggregate-ethernet ae72 aggregated-ether-options lACP enable true
```

**Step3** Add member interfaces to a LAG.

```
admin@Switch1# set interface gigabit-ethernet te-1/1/1 ether-options 802.3ad ae48
admin@Switch1# set interface gigabit-ethernet te-1/1/2 ether-options 802.3ad ae48
admin@Switch1# set interface gigabit-ethernet te-1/1/41 ether-options 802.3ad ae71
admin@Switch1# set interface gigabit-ethernet te-1/1/42 ether-options 802.3ad ae72
```

**Step4** Configure an MLAG domain ID.

```
admin@Switch1# set protocols mlag domain 10
NOTE: Currently, only one MLAG domain is allowed to be configured on one MLAG device.
```

**Step5** Specify Switch1 as MLAG Node 0.

```
admin@Switch1# set protocols mlag domain 10 node 0
```

**Step6** Configure the peer IP address and peer link port.

```
admin@Switch1# set protocols mlag domain 10 peer-ip 10.10.0.2 peer-link ae48
NOTE: Peer-link port should be configured as a LAG port.
```

**Step7** Configure the L3 interface IP address for peer link port on local MLAG peer device.

```
admin@Switch1# set l3-interface vlan-interface 4088 address 10.10.0.1 prefix-length 24
```

**Step8** Configure link ID for the MLAG member port.

```
admin@Switch1# set protocols mlag domain 10 interface ae71 link 1
admin@Switch1# set protocols mlag domain 10 interface ae72 link 2
NOTE: The paired MLAG member ports must be bound to the same MLAG link ID.
```

**Step9** Configure MLAG peer VLAN.

```
admin@Switch1# set protocols mlag domain 10 peer-ip 10.10.0.2 peer-vlan 4088
```

**Step10** Enable DHCP snooping function.

```
admin@Switch1# set protocols dhcp snooping vlan 10 disable false
```

**Step11** Configure the interface connected to the DHCP server and peer-link port as DHCP snooping trusted interfaces.

```
admin@Switch1# set protocols dhcp snooping trust-port ae48
```

```
admin@Switch1# set protocols dhcp snooping trust-port ae72
```

**Step12** Commit the configuration.

```
admin@Switch1# commit
```

## Switch2

**Step1** Configure the VLANs.

```
admin@Switch2# set vlans vlan-id 10
```

```
admin@Switch2# set vlans vlan-id 4088 l3-interface vlan4088
```

```
admin@Switch2# set interface aggregate-ethernet ae48 family ethernet-switching native-vlan-id 4088
```

```
admin@Switch2# set interface aggregate-ethernet ae48 family ethernet-switching port-mode trunk
```

```
admin@Switch2# set interface aggregate-ethernet ae48 family ethernet-switching vlan members 10
```

```
admin@Switch2# set interface aggregate-ethernet ae71 family ethernet-switching port-mode trunk
```

```
admin@Switch2# set interface aggregate-ethernet ae71 family ethernet-switching vlan members 10
```

```
admin@Switch2# set interface aggregate-ethernet ae72 family ethernet-switching port-mode trunk
```

```
admin@Switch2# set interface aggregate-ethernet ae72 family ethernet-switching vlan members 10
```

**Step2** Configure aggregation interfaces with LACP mode.

```
admin@Switch2# set interface aggregate-ethernet ae71 aggregated-ether-options lacp enable true
```

```
admin@Switch2# set interface aggregate-ethernet ae72 aggregated-ether-options lacp enable true
```

**Step3** Add member interfaces to a LAG.

```
admin@Switch2# set interface gigabit-ethernet te-1/1/1 ether-options 802.3ad ae48
```

```
admin@Switch2# set interface gigabit-ethernet te-1/1/2 ether-options 802.3ad ae48
```

```
admin@Switch2# set interface gigabit-ethernet te-1/1/41 ether-options 802.3ad ae71
```

```
admin@Switch2# set interface gigabit-ethernet te-1/1/42 ether-options 802.3ad ae72
```

**Step4** Configure an MLAG domain ID.

```
admin@Switch2# set protocols mlag domain 10
```

NOTE: Currently, only one MLAG domain is allowed to be configured on one MLAG device.

**Step5** Specify Switch2 as MLAG Node 1.

```
admin@Switch2# set protocols mlag domain 10 node 1
```

**Step6** Configure the peer IP address and peer link port.

```
admin@Switch2# set protocols mlag domain 10 peer-ip 10.10.0.1 peer-link ae48
```

NOTE: Peer-link port should be configured as a LAG port.

**Step7** Configure the L3 interface IP address for peer link port on local MLAG peer device.

```
admin@Switch2# set l3-interface vlan-interface 4088 address 10.10.0.2 prefix-length 24
```

**Step8** Configure link ID for the MLAG member port.

```
admin@Switch2# set protocols mlag domain 10 interface ae71 link 1
```

```
admin@Switch2# set protocols mlag domain 10 interface ae72 link 2
```

NOTE: The paired MLAG member ports must be bound to the same MLAG link ID.

**Step9** Configure MLAG peer VLAN.

```
admin@Switch2# set protocols mlag domain 10 peer-ip 10.10.0.1 peer-vlan 4088
```

**Step10** Enable DHCP snooping function.

```
admin@Switch2# set protocols dhcp snooping vlan 10 disable false
```

**Step11** Configure the interface connected to the DHCP server and peer-link port as DHCP snooping trusted interfaces.

```
admin@Switch2# set protocols dhcp snooping trust-port ae48
```

```
admin@Switch2# set protocols dhcp snooping trust-port ae72
```

**Step12** Commit the configuration.

```
admin@Switch2# commit
```

## Switch3

**Step1** Configure the VLANs.

```
admin@Switch3# set vlans vlan-id 10
```

```
admin@Switch3# set interface aggregate-ethernet ae1 family ethernet-switching port-mode trunk
```

```
admin@Switch3# set interface aggregate-ethernet ae1 family ethernet-switching vlan members 10
```

```
admin@Switch3# set interface gigabit-ethernet ge-1/1/3 family ethernet-switching native-vlan-id 10
```

```
admin@Switch3# set interface gigabit-ethernet ge-1/1/3 description "to-client"
```

**Step2** Configure aggregation interfaces with LACP mode.

```
admin@Switch3# set interface gigabit-ethernet ge-1/1/1 ether-options 802.3ad ae1
```

```
admin@Switch3# set interface gigabit-ethernet ge-1/1/2 ether-options 802.3ad ae1
```

```
admin@Switch3# set interface aggregate-ethernet ae1 aggregated-ether-options lacp enable true
```

**Step3** Enable DHCP snooping function.

```
admin@Switch3# set protocols dhcp snooping vlan 10 disable false
```

**Step4** Configure ae1 as DHCP snooping trusted port.

```
admin@Switch3# set protocols dhcp snooping trust-port ae1
```

**Step5** Commit the configuration.

```
admin@Switch3# commit
```

## Switch4

**Step1** Configure the VLANs.

```
admin@Switch4# set vlans vlan-id 10
```

```
admin@Switch4# set interface aggregate-ethernet ae2 family ethernet-switching port-mode trunk
```

```
admin@Switch4# set interface aggregate-ethernet ae2 family ethernet-switching vlan members 10
```

```
admin@Switch4# set interface gigabit-ethernet ge-1/1/3 family ethernet-switching native-vlan-id 10
```

```
admin@Switch4# set interface gigabit-ethernet ge-1/1/3 description "to-server"
```

**Step2** Configure aggregation interfaces with LACP mode.

```
admin@Switch4# set interface gigabit-ethernet ge-1/1/1 ether-options 802.3ad ae2
```

```
admin@Switch4# set interface gigabit-ethernet ge-1/1/2 ether-options 802.3ad ae2
```

```
admin@Switch4# set interface aggregate-ethernet ae2 aggregated-ether-options lacp enable true
```

**Step3** Enable DHCP snooping function.

```
admin@Switch4# set protocols dhcp snooping vlan 10 disable false
```

**Step4** Configure ge-1/1/3 as DHCP snooping trusted port.

```
admin@Switch4# set protocols dhcp snooping trust-port ge-1/1/3
```

**Step5** Commit the configuration.

admin@Switch4# commit

## Verify the Configuration

- You can use the **run show mlag domain** command to display the global MLAG domain information.

```
admin@Switch1# run show mlag domain summary
Domain ID: 10      Domain MAC: 48:6E:73:FF:00:0a      Node ID: 0
-----
Peer Link  Peer IP  Peer Vlan  Neighbor Status  Config Matched  MAC Synced  # of Links
-----
ae48      10.10.10.1  4088      ESTABLISHED      Yes             Yes         1
ae48      10.10.10.1  4088      ESTABLISHED      Yes             Yes         2
```

- You can use the **run show mlag link** command to display MLAG link information.

```
admin@Switch1# run show mlag link summary
# of Links: 2
Link  Local LAG  Link Status  Local Status  Peer Status  Config Matched  Flood
-----
1     ae71      IDLE        UP            UNKNOWN     No              No
2     ae72      IDLE        UP            UNKNOWN     No              No
```

- Run the **run show dhcp snooping** command to view the DHCP snooping binding table.

```
admin@Switch3# run show dhcp snooping binding
Total count: 1
MAC Address      IP Address      Port            VLAN ID  Lease(sec)
-----
00:1b:57:60:11:d1  71.0.0.15      ge-1/1/3      10      599/600

admin@Switch4# run show dhcp snooping
Total count: 1
MAC Address      IP Address      Port            VLAN ID  Lease(sec)
-----
00:1b:57:60:11:d1  71.0.0.15      ae2            10      599/600
```