

# Layer-2 Link Aggregation Configuration

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# Chapter 1 Configuring Port Aggregation

## 1.1 Overview

Link aggregation, also called trunking, is an optional feature available on the Ethernet switch and is used with Layer 2 Bridging. Link aggregation allows logical merge of multiple ports in a single link. Because the full bandwidth of each physical link is available, inefficient routing of traffic does not waste bandwidth. As a result, the entire cluster is utilized more efficiently. Link aggregation offers higher aggregate bandwidth to traffic-heavy servers and reroute capability in case of a single port or cable failure.

Supported Features:

- Static aggregation control is supported  
Bind a physical port to a logical port, regardless whether they can actually bind to a logical port.  
Aggregation control of LACP dynamic negotiation is supported  
Only a physical port that passes the LACP protocol negotiation can bind to a logical port. Other ports won't bind to the logical port.
- Aggregation control of LACP dynamic negotiation is supported  
When a physical port is configured to bind to a logical port, the physical port with LACP negotiation can be bound to a logical port. Other ports cannot be bound to the logical port.
- Flow balance of port aggregation is supported.  
After port aggregation, the data flow of the aggregation port will be distributed to each aggregated physical port.

## 1.2 Port Aggregation Configuration Task

- Configuring logical channel used for aggregation
- Aggregation of physical port
- Selecting load balance mode after port aggregation
- Monitoring the concrete condition of port aggregation

## 1.3 Port Aggregation Configuration Task

### 1.3.1 Configuring Logical Channel Used to Aggregation

You should establish a logical port before binding all the physical ports together. The logical port is used to control the channel formed by these binding physical ports.

Use the following command to configure the logical channel:

Command	Description
<code>interface port-aggregator id</code>	Configures aggregated logical channel.

### 1.3.2 Aggregation of Physical Port

To aggregate multiple physical ports into a logical channel, you can use static aggregation or LACP protocol for negotiation.

In the case when the static aggregation is used, it is required that the link of the physical port should be up, and the VLAN attribute of aggregation port and physical port should be identical, and then this port will be aggregated to the logical channel, regardless of whether the current port accords with the conditions of port aggregation and whether the port that connects with the physical port accords with the aggregation conditions.

Prerequisites for ports to be aggregated:

- The link of the port must be up and the port should be negotiated to full-duplex mode.
- The speed of all physical ports should be same during aggregation process, that is, if there is one physical port that has been aggregated successfully, then the speed of the second physical port must be the same as the first configured one. Also the vlan attributes of all physical ports must be identical to the aggregated port.

LACP packets are exchanged between ports in these modes:

- Active—Places a port into an active negotiating state, in which the port initiates negotiations with remote ports by sending LACP packets.
- Passive—Places a port into a passive negotiating state, in which the port responds to LACP packets it receives but does not initiate LACP negotiation. In this mode, the port channel group attaches the interface to the bundle.

If both ports use Passive method, then the aggregation fails. This is because both sides will wait for the other side to launch aggregation negotiation process.

VALN attributes: PVID, Trunk attribute, vlan-allowed range and vlan-untagged range.

Use the following command to perform aggregation on the physical ports:

Command	Description
<code>aggregator-group <i>agg-id</i> mode { lACP   static }</code>	Configures aggregation option of the physical port.

### 1.3.3 Selecting Load Balance Method After Port Aggregation

You can select the load share method to ensure that all ports can share the data traffic after the aggregation of all physical ports. The switch can provides up to six load balance strategy:

- src-mac

It is to share the data traffic according to the source MAC address, that is, the message with same MAC address attributes is to get through a physical port.

- **dst-mac**

It is to share the data traffic according to the destination MAC address, that is, the message with same MAC address attributes is to get through a physical port.

- **both-mac**

It is to share the data traffic according to source and destination MAC addresses, that is, the message with same MAC address attributes is to get through a physical port.

- **src-ip**

It is to share the data traffic according to the source IP address, that is, the message with same IP address attributes is to get through a physical port.

- **dst-ip**

It is to share the data traffic according to the destination IP address, that is, the message with same IP address attributes is to get through a physical port.

- **both-ip**

It is to share the data traffic according to the destination and source IP addresses, that is, the message with same IP address attributes is to get through a physical port.

Use the following command to configure load balance method:

Command	Description
<b>aggregator-group load-balance</b>	Configures load balance method.

**Note:**

The command is unavailable at the switch that does not support load balance methods or supports only one method. The switch using the command only selects the load balance strategies supported by itself.

The following table shows different switches support different kinds of load balance strategies:

Model	src-mac	dst-mac	both-mac	src-ip	dst-ip	both-ip
<b>S2008, S2116, S2026B</b>	x	x	x	x	x	x
<b>S2224D</b>	√	√	√	x	x	x
<b>S2224M, S2226, S2448</b>	√	√	√	√	√	√
<b>S2516, S2524, S2524GX</b>	√	√	x	x	x	√
<b>S2448B, S2226C</b>	√	√	√	x	x	x
<b>S3224, S3224M S3424, S3448</b>	√	√	√	√	√	√

<b>S3512</b>						
<b>S6508</b>	√	x	x	x	x	x
<b>S8500</b>	√	√	√	√	√	√

#### 1.3.4 Monitoring the Concrete Conditions of Port Aggregation

Use the following command to monitor port aggregation state in EXEC mode:

<b>Command</b>	<b>Description</b>
<b>show aggregator-group</b>	Displays port aggregation state.