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简介

本文档为如何在运行 Cisco IOS® 系统软件的 Catalyst 3550 和 Catalyst 6500/6000 之间设置 EtherChannel 提供了示例。可以根据用于形成 EtherChannel 的接口或端口的速度，将 EtherChannel 称为 Fast EtherChannel 或千兆 EtherChannel。

注意： 本文档中应用于 Catalyst 3550 交换机的 EtherChannel 命令也可以应用于 Catalyst 3750 系列交换机。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 运行Cisco IOS软件版本12.1(14)ea的Catalyst 3550交换机
- Catalyst 6500/6000交换机运行Cisco IOS软件版本12.1(13)E1

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

背景理论

在本文档中，Catalyst 3550 交换机上的两个千兆以太网接口--3500 上的千兆以太网接口是 10/100/1000 协商以太网接口--已与运行 Cisco IOS 系统软件的 Catalyst 6500/6000 交换机上的两个快速以太网接口一起被捆绑到 Fast EtherChannel 中，以形成第 2 层 (L2) EtherChannel。

注意：在本文档中，Fast EtherChannel、千兆 EtherChannel、端口信道和信道组都指 EtherChannel。

本文档中的 Catalyst 交换机配置适用于运行 Cisco IOS 系统软件的所有 Catalyst 6500/6000 或 Catalyst 4500/4000 系列交换机。

本文档只显示交换机的配置文件，以及相关示例 **show** 命令的输出。有关如何配置 EtherChannel 的详细信息，请参阅以下文档：

- [配置 EtherChannel](#) (Catalyst 3550 交换机) 的 *配置第 2 层 EtherChannel* 部分
- [配置 EtherChannel](#) (Catalyst 3560 交换机) 的 *配置第 3 层 EtherChannel* 部分
- [配置 EtherChannel](#) (Catalyst 3750 交换机) 的 *配置第 2 层 EtherChannel* 部分
- [配置第 3 层和第 2 层 EtherChannel](#) (运行 Cisco IOS 系统软件的 Catalyst 6500/6000)
- [了解和配置 EtherChannel](#) (运行 Cisco IOS 系统软件的 Catalyst 4500/4000) 的 *配置第 2 层 EtherChannel* 部分

重要说明

可以使用适当的命令手动配置 EtherChannel。还可以使用端口聚合协议 (PAgP) 自动配置 EtherChannel，以使交换机可与另一端协商信道。有关 PAgP 的详细信息，请参阅以下文档：

- [配置 EtherChannel](#) (Catalyst 3550 交换机) 的 *了解端口聚合协议 (PAgP)* 部分
- [配置 EtherChannel](#) (Catalyst 3560 交换机) 的 *了解端口聚合协议 (PAgP)* 部分
- [配置 EtherChannel](#) (Catalyst 3750 交换机) 的 *端口聚合协议 (PAgP)* 部分
- [配置 EtherChannel](#) (运行 Cisco IOS 系统软件的 Catalyst 6500/6000) 的 *了解端口聚合协议 (PAgP)* 部分
- [了解和配置 EtherChannel](#) (运行 Cisco IOS 系统软件的 Catalyst 4500/4000) 的 *了解端口聚合协议 (PAgP)* 部分

本文档中的配置是使用 desirable 模式实施的。如果计划手动配置 EtherChannel，请使用所提供的步骤来创建端口信道。这可避免在配置过程中出现生成树协议 (STP) 问题。如果一端在另一端可以配置为信道之前已配置为信道，则 STP 可能关闭一些端口状态为错误禁用 [errdisable] 的端口。

请执行以下步骤以创建端口信道：

1. 保留要用于端口信道的接口状态为管理性关闭。
2. 在 Catalyst 6500/6000 交换机上创建端口信道 (信道组)。确保将信道模式设置为 on，例如，channel-group 1 mode on。
3. 在 Catalyst 3550、3560 或 3750 交换机上创建端口信道。确保将信道模式设置为 on。
4. 使用 **no shut** 命令重新启用 Catalyst 6500/6000 交换机上之前被禁用的接口。

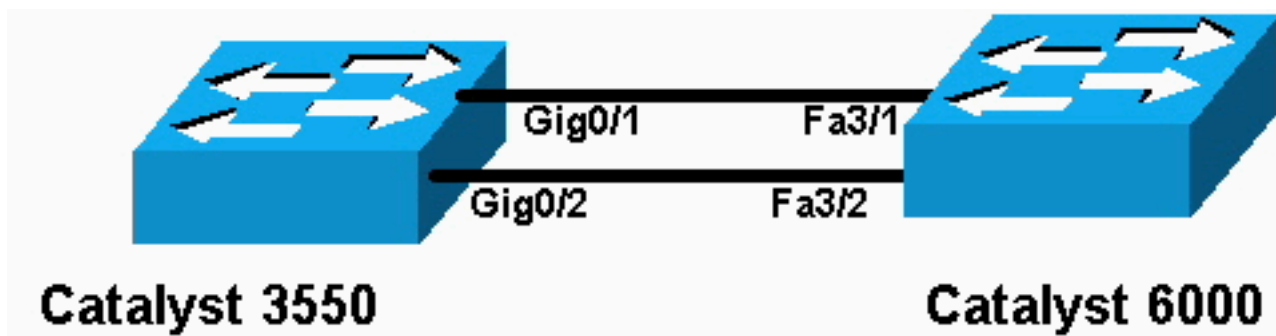
配置

本部分提供有关如何配置本文档所述功能的信息。

注意：要查找本文档所用命令的其他信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。 [↗](#)

网络图

本文档使用此图中所示的网络设置：



注意：Catalyst 3550 上的千兆以太网接口是 10/100/1000 Mbps 协商以太网接口。Catalyst 3550 上的千兆端口还可以连接到 Catalyst 6500/6000 上的快速以太网 (100 Mbps) 端口。

注意：Catalyst 3750 系列交换机支持跨堆叠 EtherChannel，该 EtherChannel 允许不同堆叠交换机的接口成为同一个 EtherChannel 组的成员。有关堆叠交换机环境中 EtherChannel 的详细信息，请参阅 Catalyst 3750 系列交换机的文档[配置 EtherChannel](#)的 *EtherChannel* 和交换机堆叠部分。

配置

本文档使用以下配置：

- [Catalyst 3550](#)
- [Catalyst 6500/6000](#)

Catalyst 3550

```
Building configuration...Current configuration : 1610
bytes!version 12.1no service padservice timestamps debug
uptime!service timestamps log uptime!no service password-
encryption!hostname Cat3550!enable password ww!ip
subnet-zero!ip finger!!!!!--- A logical port-channel
interface is automatically created !--- when ports are
grouped into a channel group.interface Port-channel 1!---
- In this example, the L2 EtherChannel is configured. !-
-- A Layer 3 (L3) EtherChannel can also be configured on
the Catalyst 3550 switches. !--- For more information,
refer to the document Configuring
EtherChannel.switchport mode access no ip address snmp
trap link-status!--- Note: The Gigabit Ethernet
interface on the Catalyst 3550 is a !--- 10/100/1000
Mbps negotiated Ethernet interface. The Gigabit port on
the Catalyst 3550 is !--- connected to a FastEthernet
(100 Mbps) port on the Catalyst 6500/6000. !--- The port
is a member of channel group 1.interface
```

```
GigabitEthernet0/1 switchport mode access no ip address
snmp trap link-status channel-group 1 mode desirable!!--
- The port is a member of channel group 1.interface
GigabitEthernet0/2 switchport mode access no ip address
snmp trap link-status channel-group 1 mode
desirable!interface GigabitEthernet0/3 switchport mode
access no ip address snmp trap link-status!!-- Output
suppressed.interface GigabitEthernet0/12 switchport mode
access no ip address snmp trap link-status!!-- Interface
VLAN1 is required for management purposes.interface
Vlan1 ip address 10.1.1.1 255.255.255.0!ip classlessip
http server!!line con 0 transport input noneline vty 5
15!end
```

Catalyst 6500/6000

```
Building configuration... Current configuration : 5869
bytes ! version 12.1 service timestamps debug uptime
service timestamps log uptime no service password-
encryption ! hostname cat6500 ! boot buffersize 126968
boot bootldr bootflash:c6msfc-boot-mz.121-4.E1 enable
password ww ! redundancy main-cpu auto-sync standard
ip subnet-zero ! ! no ip finger ! ! ! !!-- A logical
port-channel interface is automatically created !--
when ports are grouped into a channel group. interface
Port-channel 1 no ip address switchport switchport mode
access ! interface GigabitEthernet1/1 no ip address
shutdown ! interface GigabitEthernet1/2 no ip address
shutdown !!-- Note: The Gigabit Ethernet interface on
the Catalyst 3550 is a !!-- 10/100/1000 Mbps negotiated
Ethernet interface. The Gigabit port on the Catalyst
3550 is !-- connected to a FastEthernet (100 Mbps) port
on the Catalyst 6500/6000. interface FastEthernet3/1 no
ip address!!-- In this example, the L2 EtherChannel is
configured. !-- An L3 EtherChannel can also be
configured on the Catalyst 6500/6000 running !-- Cisco
IOS System Software. For more details, refer to the
document !-- Configuring EtherChannel. !-- On a
Catalyst 6500/6000, you must issue the switchport !--
command once, without any keywords, in order to
configure the interface as an L2 port. !!-- By default,
all the ports are router ports (L3 ports). !-- On a
Catalyst 4500/4000 switch, all ports are L2 ports by
default; !-- no additional command is required.
switchport!!-- This command puts the interface in VLAN1,
by default. switchport mode access!!-- The port is a
member of channel group 1. channel-group 1 mode
desirable ! interface FastEthernet3/2 no ip address!!--
On a Catalyst 6500/6000, you must issue the switchport
!-- command once, without any keywords, in order to
configure the interface as an L2 port. !-- By default,
all the ports are router ports (L3 ports). !-- On a
Catalyst 4500/4000 switch, all ports are L2 ports by
default; !-- no additional command is required.
switchport!!-- This command puts the interface in VLAN1,
by default. switchport mode access!!-- The port is a
member of channel group 1. channel-group 1 mode
desirable ! interface FastEthernet3/3 no ip address
switchport switchport mode access !!-- Output
suppressed. ! interface FastEthernet3/48 no ip address
switchport switchport mode access !!-- Interface VLAN1
is required for management purposes. interface Vlan1 ip
address 10.1.1.2 255.255.255.0 ! ip classless no ip http
server ! ! ! line con 0 transport input none line vty 0
```

```
4 ! end
```

注意：本配置示例显示一个使用接入链路的 EtherChannel 配置。同一配置也适用于 EtherChannel 中继链路。发出 `switchport mode trunk` 命令，或者允许交换机使用 `dynamic desirable` 模式来协商模式。有关如何配置中继的详细信息，请参阅文档 [配置 VLAN](#) 的配置 VLAN 中继部分。

Port-Channel子接口配置

Port-Channel的配置的另一示例与子接口的在Catalyst 3560交换机运行Cisco IOS软件版本12.2(25)。

Catalyst 3560

```
Building configuration... Current configuration : 5869
bytes ! version 12.1 service timestamps debug uptime
service timestamps log uptime no service password-
encryption ! hostname cat6500 ! boot buffersize 126968
boot bootldr bootflash:c6msfc-boot-mz.121-4.E1 enable
password ww ! redundancy main-cpu auto-sync standard
ip subnet-zero ! ! no ip finger ! ! ! !!--- A logical
port-channel interface is automatically created !---
when ports are grouped into a channel group. interface
Port-channel 1 no ip address switchport switchport mode
access ! interface GigabitEthernet1/1 no ip address
shutdown ! interface GigabitEthernet1/2 no ip address
shutdown !!--- Note: The Gigabit Ethernet interface on
the Catalyst 3550 is a !--- 10/100/1000 Mbps negotiated
Ethernet interface. The Gigabit port on the Catalyst
3550 is !--- connected to a FastEthernet (100 Mbps) port
on the Catalyst 6500/6000. interface FastEthernet3/1 no
ip address!--- In this example, the L2 EtherChannel is
configured. !--- An L3 EtherChannel can also be
configured on the Catalyst 6500/6000 running !--- Cisco
IOS System Software. For more details, refer to the
document !--- Configuring EtherChannel. !--- On a
Catalyst 6500/6000, you must issue the switchport !---
command once, without any keywords, in order to
configure the interface as an L2 port. !--- By default,
all the ports are router ports (L3 ports). !--- On a
Catalyst 4500/4000 switch, all ports are L2 ports by
default; !--- no additional command is required.
switchport!--- This command puts the interface in VLAN1,
by default. switchport mode access!--- The port is a
member of channel group 1. channel-group 1 mode
desirable ! interface FastEthernet3/2 no ip address!---
On a Catalyst 6500/6000, you must issue the switchport
!--- command once, without any keywords, in order to
configure the interface as an L2 port. !--- By default,
all the ports are router ports (L3 ports). !--- On a
Catalyst 4500/4000 switch, all ports are L2 ports by
default; !--- no additional command is required.
switchport!--- This command puts the interface in VLAN1,
by default. switchport mode access!--- The port is a
member of channel group 1. channel-group 1 mode
desirable ! interface FastEthernet3/3 no ip address
switchport switchport mode access !!--- Output
suppressed. ! interface FastEthernet3/48 no ip address
switchport switchport mode access !!--- Interface VLAN1
is required for management purposes. interface Vlan1 ip
address 10.1.1.2 255.255.255.0 ! ip classless no ip http
server ! ! ! line con 0 transport input none line vty 0
```

验证

[命令输出解释程序工具](#) ([仅限注册用户](#)) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令输出的分析。 [↗](#)

要验证运行 Cisco IOS 系统软件的 Catalyst 6500/6000 和 Catalyst 3500 交换机中的端口信道，请发出以下命令：

- [show interfaces port-channel channel-group-number](#)
- [show etherchannel channel-group-number summary](#)

要检查运行 Cisco IOS 系统软件的 Catalyst 6500/6000 和 Catalyst 3500 交换机中的 STP 状态，请发出以下命令：

- [show spanning-tree vlan vlan-number detail](#)

Catalyst 3550

```
Cat3550#show interface port-channel 1Port-channell is up, line protocol is upHardware is
EtherChannel, address is 0002.4b28.db02 (bia 0002.4b28.db02)MTU 1500 bytes, BW 200000 Kbit, DLY
1000 usec, reliability 255/255, txload 1/255, rxload 1/255Encapsulation ARPA, loopback not
setKeepalive set (10 sec) Full-duplex, 100Mb/sinput flow-control is off, output flow-control is
off Members in this channel: Gi0/1 Gi0/2ARP type: ARPA, ARP Timeout 04:00:00Last input 00:03:27,
output 00:00:00, output hang neverLast clearing of "show interface" counters neverQueueing
strategy: fifoOutput queue 0/40, 0 drops; input queue 0/75, 0 drops5 minute input rate 0
bits/sec, 0 packets/sec5 minute output rate 0 bits/sec, 0 packets/sec26 packets input, 5344
bytes, 0 no bufferReceived 17 broadcasts, 0 runts, 0 giants, 0 throttles0 input errors, 0 CRC, 0
frame, 0 overrun, 0 ignored0 input packets with dribble condition detected59 packets output,
5050 bytes, 0 underruns0 output errors, 0 collisions, 2 interface resets0 babbles, 0 late
collision, 0 deferred0 lost carrier, 0 no carrier0 output buffer failures, 0 output buffers
swapped outCat3550#show spanning-tree vlan 1 detail VLAN1 is executing the ieee compatible
Spanning Tree protocol Bridge Identifier has priority 32768, address 0002.4b28.db01 Configured
hello time 2, max age 20, forward delay 15 We are the root of the spanning tree Topology
change flag not set, detected flag not set Number of topology changes 1 last change occurred
00:00:38 ago from Port-channell Times: hold 1, topology change 35, notification 2
hello 2, max age 20, forward delay 15 Timers: hello 0, topology change 0, notification 0, aging
0 Port 65 (Port-channell) of VLAN1 is forwarding Port path cost 12, Port priority 128, Port
Identifier 128.65. Designated root has priority 32768, address 0002.4b28.db01 Designated
bridge has priority 32768, address 0002.4b28.db01 Designated port id is 128.65, designated
path cost 0 Timers: message age 0, forward delay 0, hold 0 Number of transitions to
forwarding state: 1 BPDUs: sent 34, received 0 Cat3550# show etherchannel 1 summaryFlags: D -
down P - in port-channel I - stand-alone s - suspended R - Layer3 S -
Layer2 U - port-channel in useGroup Port-channel Ports-----+-----
-----1 Po1(SU) Gi0/1(P) Gi0/2(P)Cat3550# ping
10.1.1.2 Type escape sequence to abort.Sending 5, 100-byte ICMP Echos to 10.1.1.2, timeout is 2
seconds:!!!!!!Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms
```

Catalyst 6500/6000

```
Cat6500# show interface port-channel 1Port-channell is up, line protocol is up Hardware is
EtherChannel, address is 0002.7ef1.36e1 (bia 0002.7ef1.36e1) MTU 1500 bytes, BW 200000 Kbit,
DLY 100 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation ARPA, loopback
not set Full-duplex, 100Mb/s Members in this channel: Fa3/1 Fa3/2 ARP type: ARPA, ARP Timeout
04:00:00 Last input never, output never, output hang never Last clearing of "show interface"
counters never Queueing strategy: fifo Output queue 0/40, 0 drops; input queue 0/2000, 0 drops
5 minute input rate 1000 bits/sec, 1 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec
```