

在运行 CatOS 的 Catalyst 5000/6000 交换机之间配置 ISL 聚合

目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[规则](#)

[重要说明](#)

[配置](#)

[网络图](#)

[配置](#)

[验证](#)

[Catalyst 5500 交换机](#)

[Catalyst 5000 交换机](#)

[故障排除](#)

[相关信息](#)

简介

本文提供了 Catalyst 5500 和 Catalyst 5000 交换机 (都运行 Catalyst OS (CatOS)) 之间的 Inter-Switch Link (ISL) 配置示例。所有运行 CatOS 的 Catalyst 5000 或 6000 系列成员可以用于此方案，以获得相同结果。

简单来说，中继是一种在两个设备之间点对点链路上传输来自若干 VLAN 的流量的方式。实施以太网中继的方法有如下两种：

- ISL (Cisco 专有 Inter-Switch 链路协议)
- 802.1Q (IEEE 标准)

本文档仅显示交换机的配置文件，以及相关 show 命令示例的输出。有关怎样在 Catalyst 交换机之间配置 ISL 中继的详细信息，请参阅[在 Catalyst 5500/5000 和 6500/6000 的 ISL 系列交换机上配置 ISL 中继](#)。

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 Catalyst OS 6.1(1) 软件的 Catalyst 5500 交换机
- 运行 Catalyst OS 6.1(1) 软件的 Catalyst 5000 交换机

[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。](#)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。用clear config all和write erase命令清除所有设备的配置，以保证它们有一个默认配置。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

重要说明

运行 CatOS 的 Catalyst 4000 系列（包括 Catalyst 2948G 及 Catalyst 2980G）只支持 802.1Q 中继，不支持 ISL 中继。

Catalyst 6000 系列的所有以太网端口都支持 802.1Q 和 ISL 封装。

根据模块，支持 Catalyst 5000 中继的端口只支持 ISL 封装，或同时支持 ISL 和 802.1Q。验证这一点的最佳方式是发出 **show port capabilities** 命令。明确地陈述了中继容量。例如：

```
cat5000> show port capabilities 3
```

```
Model                WS-X5225R
Port                 3/1
Type                 10/100BaseTX
Speed                auto,10,100
Duplex               half,full
Trunk encap type     802.1Q,ISL
Trunk mode           on,off,desirable,auto,nonegotiate
Channel              3/1-2,3/1-4
Broadcast suppression percentage(0-100)
Flow control         receive-(off,on),send-(off,on)
Security             yes
Membership           static,dynamic
Fast start           yes
QoS scheduling       rx-(none),tx-(none)
CoS rewrite          yes
ToS rewrite          IP-Precedence
Rewrite              no
UDLD                 yes
AuxiliaryVlan       1..1000,1025..4094,untagged,dot1p,none
SPAN                 source,destination
```

确保整个中继链路范围内的中继模式匹配。如果链路的一端配置为 ISL 中继，那么链路的另一端也应该配置为 ISL；同样地，如果链路一端配置为 802.1Q，那么链路另一端应该配置为 802.1Q。

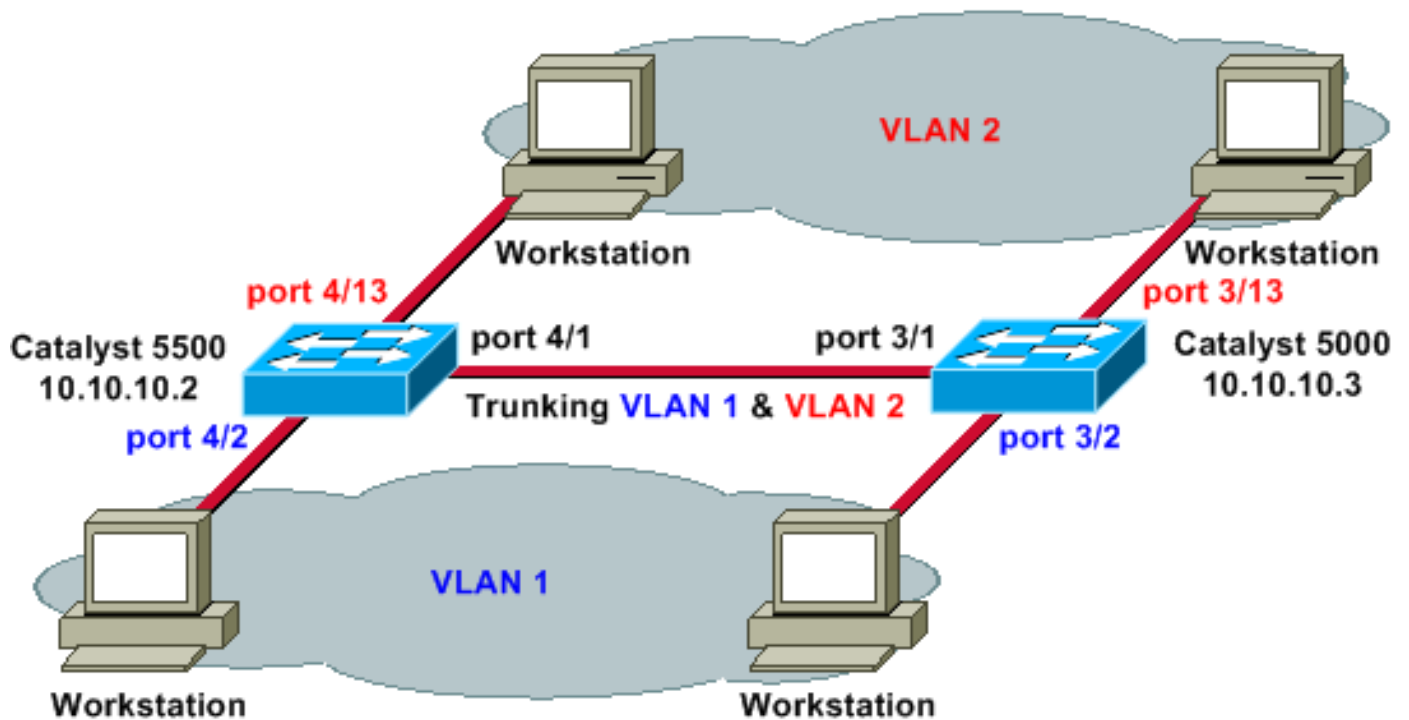
配置

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

本文档使用以下网络设置：



配置

本文档使用以下配置：

- [Catalyst 5500](#)
- [Catalyst 5000](#)

Catalyst 5500

```
#version 6.1(1)
!
set option fddi-user-pri enabled
set password $2$q.J7$05n.pwx7aEC6NHWJfXadx1
set enablepass $2$o.h/$bAxfjJ4XUA/RMUHqBr1YQ0
!
#errordetection
set errordetection portcounter enable
!
#system
set system name cat5500
!
#frame distribution method
set port channel all distribution mac both
!
#vtp
!--- In this example, the VLAN Trunking Protocol (VTP)
mode is set to be transparent. !--- Depending on your
network, set the VTP mode accordingly. set vtp mode
transparent
!--- For details on VTP, refer to Configuring VTP. set
vlan 1 name default type ethernet mtu 1500 said 100001
state active set vlan 1002 name fddi-default type fddi
mtu 1500 said 101002 state active set vlan 1004 name
```

```

fddinet-default type fddinet mtu 1500 said 101004 state
active stp ieee set vlan 1005 name trnet-default type
trbrf mtu 1500 said 101005 state active stp ibm set vlan
2
set vlan 1003 name token-ring-default type trcrf mtu
1500 said 101003 state acti
ve mode srb aremaxhop 7 stemaxhop 7 backupcrf off
!
#ip
!--- IP address used for management. set interface sc0 1
10.10.10.2/255.255.255.0 10.10.10.255
!
#set boot command
set boot config-register 0x2102
set boot system flash slot0:cat5000-sup3.6-1-1.bin
!
# default port status is enable
!
!
#module 1 empty
!
#module 2 : 2-port 1000BaseSX Supervisor
!
#module 3 empty
!
#module 4 : 24-port 10/100BaseTX Ethernet
!--- Ports 4/13-24 are assigned to VLAN 2. set vlan 2
4/13-24
!--- The ISL trunking mode is set to on. !--- Depending
on your network and requirements, set the trunking mode
accordingly. set trunk 4/1 on isl 1-1005
!--- For details on different trunking modes, refer to
!--- Configuring VLAN Trunks on Fast Ethernet and
Gigabit Ethernet Ports !--- Portfast has been enabled on
the ports connected to the workstations. set spantree
portfast 4/2-24 enable
!--- For details on why to enable portfast, refer to !--
- Using Portfast and Other Commands to Fix Workstation
Startup Connectivity Delays ! #module 5 empty ! #module
6 empty ! #module 7 empty ! #module 8 empty ! #module 9
empty ! #module 10 empty ! #module 11 empty ! #module 12
empty ! #module 13 empty end

```

Catalyst 5000

```

#Version 6.1(1)
!
set option fddi-user-pri enabled
set password $2$J75L$Ug4163kfeHTDcLJZ/L9es1
set enablepass $2$h/BN$i3S54iNvIXknFelh6gOve0
!
#errordetection
set errordetection portcounter enable
!
#system
set system name cat5000
!
#frame distribution method
set port channel all distribution Mac both
!
#vtp
!--- In this example, the VTP mode is set to be
transparent. !--- Depending on your network and
requirements, set the VTP mode accordingly. set vtp mode
transparent

```

```

!--- For details on VTP, refer to Configuring VTP. set
vlan 1 name default type ethernet mtu 1500 said 100001
state active set vlan 1002 name fddi-default type fddi
mtu 1500 said 101002 state active set vlan 1004 name
fddinet-default type fddinet mtu 1500 said 101004 state
active stp IEEE set vlan 1005 name trnet-default type
trbrf mtu 1500 said 101005 state active stp IBM set vlan
2
set vlan 1003 name token-ring-default type trcrf mtu
1500 said 101003 state acti
ve mode srb aremaxhop 7 stemaxhop 7 backupcrf off
!
#ip
!--- IP address used for management. set interface sc0 1
10.10.10.3/255.255.255.0 10.10.10.255
!
#set boot command
set boot config-register 0x2102
set boot system flash slot0:cat5000-sup3.6-1-1.bin
!
# default port status is enable
!
!
#module 1 : 0-port Supervisor III
!
#module 2 : 12-port 10/100BaseTX Ethernet
!
#module 3 : 24-port 10/100BaseTX Ethernet
!--- Ports 3/13-24 have been assigned to VLAN 2. set
vlan 2 3/13-24
!--- The ISL trunking mode is set to on. !--- Depending
on your network and requirements, set the trunking mode
accordingly. set trunk 3/1 on isl 1-1005
!--- For details on different trunking modes, refer to
!--- Configuring VLAN Trunks on Fast Ethernet and
Gigabit Ethernet Ports !--- Portfast has been enabled on
the ports connected to the workstations. set spantree
portfast 3/2-24 enable
!--- For details on why to enable portfast, refer to !--
- Using Portfast and Other Commands to Fix Workstation
Startup Connectivity Delays !! #module 4 : 24-port
10/100BaseTX Ethernet ! #module 5 : 12-port 10BaseFL
Ethernet end

```

验证

本部分所提供的信息可用于确认您的配置是否正常工作。

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

[Catalyst 5500 交换机](#)

show port capabilities module/port — 此命令用于验证端口是否可以进行中继。

```
cat5500> (enable) show port capabilities 4/1
```

```
Model                WS-X5234
Port                 4/1
```

```

Type                10/100BaseTX
Speed               auto,10,100
Duplex              half,full
Trunk encap type    802.1Q,ISL
Trunk mode          on,off,desirable,auto,nonegotiate
Channel             4/1-2,4/1-4
Broadcast suppression percentage(0-100)
Flow control        receive-(off,on),send-(off,on)
Security            yes
Membership           static,dynamic
Fast start          yes
QOS scheduling      rx-(none),TX(1q4t)
COs rewrite         yes
ToS rewrite         IP-Precedence
Rewrite             no
UDLD                yes
AuxiliaryVlan       1..1000,1025..4094,untagged,dot1p,none
SPAN                source,destination

```

show port module/port — 此命令用于确定特定端口的状态以及端口是否正在中继。

```
cat5500> (enable) show port 4/1
```

```

Port  Name                Status      Vlan      Level  Duplex Speed Type
-----
4/1                connected  trunk      normal  a-full a-100 10/100BaseTX

```

```

Port  AuxiliaryVlan AuxVlan-Status
-----
4/1  none           none

```

```

Port  Security Violation Shutdown-Time Age-Time Max-Addr Trap      IfIndex
-----
4/1  disabled  shutdown           0         0         1 disabled    11

```

```

Port  Num-Addr Secure-Src-Addr Age-Left Last-Src-Addr Shutdown/Time-Left
-----
4/1      0             -         -             -             -

```

!--- Output suppressed.

show trunk — 此命令用于验证中继状态和配置。

```
cat5500> (enable) show trunk
```

```

* - indicates vtp domain mismatch
Port      Mode      Encapsulation  Status      Native vlan
-----
4/1      on        isl            trunking    1

```

```
Port      Vlans allowed on trunk
-----
```

```
4/1      1-1005
```

```
Port      Vlans allowed and active in management domain
-----
```

```
4/1      1-2
```

```
Port      Vlans in spanning tree forwarding state and not pruned
-----
```

```
4/1      1-2
```

show vtp domain — 此命令用于检查 VTP 信息。

```
cat5500> (enable) show vtp domain
```

```

Domain Name                               Domain Index VTP Version Local Mode Password
-----
                                           1           2           Transparent -

Vlan-count Max-vlan-storage Config Revision Notifications
-----
6           1023           0           disabled

Last Updater V2 Mode Pruning PruneEligible on Vlans
-----
10.10.10.2   disabled disabled 2-1000

```

Catalyst 5000 交换机

show port capabilities module/port — 此命令用于验证端口是否可以进行中继。

```
cat5000> (enable) show port capabilities 3/1
```

```

Model                WS-X5225R
Port                 3/1
Type                 10/100BaseTX
Speed                auto,10,100
Duplex               half,full
Trunk encap type     802.1Q,ISL
Trunk mode           on,off,desirable,auto,nonegotiate
Channel              3/1-2,3/1-4
Broadcast suppression percentage(0-100)
Flow control         receive-(off,on),send-(off,on)
Security             yes
Membership           static,dynamic
Fast start           yes
QOS scheduling       rx-(none),TX(none)
COs rewrite          yes
ToS rewrite          IP-Precedence
Rewrite              no
UDLD                 yes
AuxiliaryVlan        1..1000,1025..4094,untagged,dot1p,none
SPAN                 source,destination

```

show port module/port — 此命令用于确定特定端口的状态以及端口是否正在中继。

```
cat5000> (enable) show port 3/1
```

```

Port Name           Status      Vlan      Level Duplex Speed Type
-----
 3/1                connected  trunk    normal a-full a-100 10/100BaseTX

Port AuxiliaryVlan AuxVlan-Status
-----
 3/1 none           none

Port Security Violation Shutdown-Time Age-Time Max-Addr Trap IfIndex
-----
 3/1 disabled shutdown 0 0 1 disabled 57

```

!--- Output suppressed.

show trunk — 此命令用于验证中继状态和配置。

```
cat5000> (enable) show trunk
```

```

* - indicates vtp domain mismatch
Port      Mode      Encapsulation Status      Native vlan
-----
 3/1      on        isl          trunking    1

```

```

Port      Vlans allowed on trunk
-----
3/1      1-1005

Port      Vlans allowed and active in management domain
-----
3/1      1-2

Port      Vlans in spanning tree forwarding state and not pruned
-----
3/1      1-2

```

show vtp domain — 此命令用于检查 VTP 信息。

```
cat5000> (enable) show vtp domain
```

```

Domain Name                Domain Index VTP Version Local Mode Password
-----
                                1             2             Transparent -

Vlan-count Max-vlan-storage Config Revision Notifications
-----
6           1023             0             disabled

Last Updater V2 Mode Pruning PruneEligible on Vlans
-----
10.10.10.3   disabled disabled 2-1000

```

故障排除

目前没有针对此配置的故障排除信息。

相关信息

- [LAN 产品支持页](#)
- [LAN 交换技术支持页](#)
- [技术支持和文档 - Cisco Systems](#)