

在 CatOS 交换机与外部路由器之间配置 ISL 与 802.1q Trunking (VLAN 间路由)

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简介

本文为交换机间链路(ISL)提供在运行CatOS和Cisco 7500路由器能执行InterVLAN路由的Catalyst 6500/6000交换机之间的配置示例和802.1q中继。执行命令时，每个命令的结果都将显示出来。虽然Catalyst 6500交换机用于此配置，可以用运行CatOS没有在配置步骤上的变化的Catalyst 4500/4000或5500/5000系列交换机替代。

开始使用前

背景理论

建立中继

中继是方式运载从多个VLAN的流量一条点到点Layer2 (L2)链路。用于以太网中继的两封装是：

- ISL (思科所有权中继线封装)
- 802.1q (IEEE标准中继线封装)

欲知更多信息和配置示例与ISL或802.1q中继涉及，参考本文：

- [LAN 交换机产品支持](#)

VLAN 间路由

为了设备用连通的不同的VLAN彼此，路由器要求发送在VLAN之间。可以为此使用一个内部路由器例如在Catalyst 6500/6000的多层交换机特性卡(MSFC)。一个路由交换模块(RSM)在Catalyst

5500/5000是另一示例。如果交换机Supervisor引擎只是有能力的L2，或者没有在交换机的第3层(L3)模块，一个外部路由器例如Cisco 7500是需要的发送在VLAN之间。

重要说明

- 记住运行CatOS不支持ISL中继的该Catalyst 4500/4000系列交换机。确保发出[show port capabilities <mod>命令](#)为了确定什么中继封装特定模块在Catalyst 5500/5000支持。在Catalyst 6500/6000的所有模块支持ISL和802.1q中继。
- 确保使用指南为了配置根据您的中继您的交换机软件文档。例如，如果运行在Catalyst 5500/5000的软件版本5.5.x，参考[软件配置指南\(5.5\)](#)和认真地检查所有配置指南和限制。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

先决条件

在您尝试此配置前，请保证您满足这些前提条件：

- Catalyst 6500/6000系列交换机：所有软件和硬件支持ISL和802.1q中继
- Cisco 7000或7500系列路由器：有7000系列路由交换机处理器的(RSP7000)思科7000系列路由器7000系列机箱接口(RSP7000CI)思科7500系列路由器用FastEthernet Interface Processors (FEIP)或通用接口处理器(VIP2)端口适配器如果使用PA-2FEISL端口适配器，您必须有硬件修订版1.2或更加高。欲知更多信息，参考[2端口快速以太网ISL的\(PA-2FEISL\)替换建议](#)。
- **encapsulation dot1q native**命令在Cisco IOS软件版本12.1(3) T介绍。此命令更改配置。欲知更多信息，[早于](#)在本文的[配置部分](#)查找的[12.1\(3\)T](#)参考[在Cisco 7500的配置示例输出802.1q配置Cisco IOS版本的](#)。
- 默认情况下[Cisco快速转发](#)在思科7500系列路由器启用。然而，IP路由的Cisco快速转发支持在IEEE 802.1Q VLAN之间不是可用的直到Cisco IOS 12.2和12.2T版本。配置802.1q在更早版本的封装是可能的，但是您必须首先禁用Cisco快速转发用**no ip cef**命令在全局配置模式。
- Cisco IOS版本11.3(1)T (其中任一个加上特性组)或以后要求支持ISL中继。Cisco IOS版本12.0(1)T (其中任一个加上特性组)或以后要求支持IEEE 802.1Q建立中继。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 用于此配置的Catalyst 6500运行CatOS版本5.5(14)
- 用于此配置的Cisco 7500系列路由器运行Cisco IOS版本12.2(7b)

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：要查找有关本文档中所使用的命令的详细信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。

在[配置部分](#)，这些任务执行：

- 配置Catalyst 6500的两个接入端口。一在VLAN1的Workstation1的和另一个在VLAN 2的Workstation2的。
- 配置Workstation1和Workstation2的各自默认网关能是10.10.10.1 /24和10.10.11.1/24在Cisco 7500。
- 配置ISL或802.1Q中继在Catalyst 6500交换机和Cisco 7500路由器之间。
- 配置与IP地址的两快速以太网sub-interface InterVLAN路由的。

网络图

本文档使用此图中所示的网络设置：

配置

本文档使用以下配置：

- [Catalyst 6500 交换机](#)
- [Cisco 7500 路由器](#)
- [802.1q在Cisco 7500的配置Cisco IOS版本的早于12.1\(3\)T](#)

本文档中的信息都是基于特定实验室环境中的设备创建的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您是在真实网络上操作，请确保您在使用任何命令前已经了解其潜在影响。

Catalyst 6500 交换机

```
!-- Set the sc0 IP address and VLAN. Catalyst6500>
(enable) set int sc0 10.10.10.2 255.255.255.0 Interface
sc0 IP address and netmask set. Catalyst6500 (enable)
set int sc0 1 !-- Set the default gateway. Catalyst6500>
(enable) set ip route default 10.10.10.1 Route added. !-
- Set the VLAN Trunk Protocol (VTP) mode. !-- In this
example, the mode is set to transparent. !-- Depending
on your network, set the VTP mode accordingly. !-- For
details on VTP, refer to Understanding and Configuring
!-- VLAN Trunk Protocol \(VTP\). Catalyst6500> (enable)
set vtp mode transparent VTP domain modified !-- Add
VLAN 2. VLAN 1 already exists by default. Catalyst6500>
(enable) set vlan 2 VLAN 2 configuration successful !--
Add port 3/4 to VLAN 2. Port 3/3 is already in VLAN 1 by
default. Catalyst6500> (enable) set vlan 2 3/4 VLAN 2
modified. VLAN 1 modified. VLAN Mod/Ports ----
-----
2 3/4 ! -- Set the port speed and duplex
at 100 and full. One of !-- the requirements for
trunking to work is for speed and duplex to be the same
on !-- both sides. To guarantee this, hardcode both
speed and duplex on port 3/1. !-- You can also make the
devices auto-negotiate, but make sure you correctly !--
do so on both sides. Catalyst6500> (enable) set port
speed 3/1 100 Ports 3/1 transmission speed set to
100Mbps. Catalyst6500> (enable) set port duplex 3/1 full
Ports 3/1 set to full-duplex. !-- Enable trunking on
port 3/1. !-- Because routers do not understand Dynamic
Trunking Protocol (DTP), !-- the trunking mode is set to
nonegotiate, which causes ports to trunk !-- but not
generate DTP frames. !-- Enter the trunking
encapsulation as either ISL or as 802.1q. Catalyst6500>
(enable) set trunk 3/1 nonegotiate isl Port(s) 3/1 trunk
mode set to nonegotiate. Port(s) 3/1 trunk type set to
```

```

isl. ! -- Make sure the native VLAN (default is VLAN 1)
matches across the link. ! -- For more information on
the native VLAN and 802.1q trunking, refer to ! --
Trunking Between Catalyst 4500/4000, 5500/5000, and
6500/6000 Family Switches Using !-- 802.1q
Encapsulation. Catalyst6500> (enable) set trunk 3/1
nonegotiate dot1q Port(s) 3/1 trunk mode set to
nonegotiate. Port(s) 3/1 trunk type set to dot1q.
Catalyst6500> (enable) show config This command shows
non-default configurations only. Use 'show config all'
to show both default and non-default configurations.
..... .. begin ! # ***** NON-
DEFAULT CONFIGURATION ***** !! #time: Thu May 2 2002,
01:26:26 ! #version 5.5(14) !! #system set system name
Catalyst6500 ! #! #vtp set vtp mode transparent set vlan
1 name default type ethernet mtu 1500 said 100001 state
active set vlan 2 name VLAN0002 type ethernet mtu 1500
said 100002 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 1003 name token-ring-default type trcrf mtu
1500 said 101003 state active mode srb aremaxhop 7
stemaxhop 7 backupcrf off ! #ip set interface sc0 1
10.10.10.2/255.255.255.0 10.10.10.255 set ip route
0.0.0.0/0.0.0.0 10.10.10.1 ! #set boot command set boot
config-register 0x2102 set boot system flash
bootflash:cat6000-sup.5-5-14.bin ! #port channel ! #
default port status is enable !! #module 1 empty !
#module 2 : 2-port 100BaseX Supervisor ! #module 3 :
48-port 10/100BaseTX Ethernet set vlan 2 3/4 set port
disable 3/5 set port speed 3/1 100 set port duplex 3/1
full set trunk 3/1 nonegotiate isl 1-1005 !-- If IEEE
802.1q is configured, !-- you will see the following
output instead: !-- set trunk 3/1 nonegotiate dot1q 1-
1005 ! #module 4 : 24-port 100BaseFX MM Ethernet !
#module 5 empty ! #module 6 empty ! #module 15 empty !
#module 16 empty end

```

Cisco 7500 路由器

```

7500#configure terminal Enter configuration commands,
one per line. End with CNTL/Z. !-- Configure the
FastEthernet interfaces for speed 100 depending on the
port adapter. !-- Some FastEthernet port adapters can
auto-negotiate speed (10 or 100) !-- and duplex (half or
full). Others are only capable of 100 (half or full).
7500(config)#int fa 5/1/1 !-- Configure full-duplex to
match the duplex setting on the Catalyst switch side.
7500(config-if)#full-duplex 7500(config-if)#speed 100
7500(config-if)#no shut 7500(config-if)# 01:46:09:
%LINK-3-UPDOWN: Interface FastEthernet5/1/1, changed
state to up 01:46:10: %LINEPROTO-5-UPDOWN: Line protocol
on Interface FastEthernet5/1/1, changed state to up
7500(config-if)#exit !-- If you are using ISL trunking,
configure two FastEthernet !-- sub-interfaces and enable
ISL trunking by issuing !-- the encapsulation isl <vlan>
command. !-- Configure the IP addresses for InterVLAN
routing. 7500(config)#int fast 5/1/1.1 7500(config-
subif)#encapsulation isl 1 7500(config-subif)#ip address
10.10.10.1 255.255.255.0 7500(config-subif)#exit
7500(config)#int fast 5/1/1.2 7500(config-
subif)#encapsulation isl 2 7500(config-subif)#ip address
10.10.11.1 255.255.255.0 7500(config-subif)#exit !-- If

```

```

you are using 802.1q trunking, configure two !--
FastEthernet sub-interfaces, enable 802.1q trunking !--
by issuing the encapsulation dot1Q <vlan> (native)
command, !-- and configure the IP addresses for
InterVLAN routing. !-- Note: The encapsulation dot1Q 1
native command !-- was added in Cisco IOS version
12.1(3)T. If you are using an earlier !-- version of
Cisco IOS, refer to the sample configuration output !--
802.1q configuration for Cisco IOS Versions Earlier than
12.1\(3\)T !-- to configure 802.1q trunking on the router.
!-- Make sure the native VLAN (default is VLAN 1)
matches across the link. !-- For more information on the
native VLAN and 802.1q trunking, refer to !-- Trunking
Between Catalyst 4500/4000, 5500/5000, and 6500/6000
Family Switches Using !-- 802.1q Encapsulation.
7500(config)#int fast 5/1/1.1 7500(config-
subif)#encapsulation dot1Q 1 native 7500(config-
subif)#ip address 10.10.10.1 255.255.255.0 7500(config-
subif)#exit 7500(config)#int fast 5/1/1.2 7500(config-
subif)#encapsulation dot1Q 2 7500(config-subif)#ip
address 10.10.11.1 255.255.255.0 7500(config-subif)#exit
!-- Remember to save the configuration. 7500#write
memory Building configuration... [OK] 7500# !-- Note: In
order to make this setup work, and to successfully ping
!-- between Workstation 1 and Workstation 2, you need to
make sure that the default !-- gateways on the
workstations are setup properly. For Workstation 1, the
default !-- gateway should be 10.10.10.1 and for
Workstation 2, the default gateway should !-- be
10.10.11.1. 7500#show running-config Building
configuration... Current configuration : 1593 bytes !
version 12.2 no service pad service timestamps debug
uptime service timestamps log uptime no service
password-encryption no service single-slot-reload-enable
! hostname 7500 ! boot system disk1:rsp-jsv-mz.122-
7b.bin ! ip subnet-zero ! ip cef call rsvp-sync ! ! !
! interface FastEthernet5/1/0 no ip address no ip
mroute-cache speed 100 full-duplex ! interface
FastEthernet5/1/1 no ip address no ip mroute-cache speed
100 full-duplex ! interface FastEthernet5/1/1.1
encapsulation isl 1 ip address 10.10.10.1 255.255.255.0
! interface FastEthernet5/1/1.2 encapsulation isl 2 ip
address 10.10.11.1 255.255.255.0 !-- If 802.1q trunking
is configured, !-- you will see the following output
instead: !-- interface FastEthernet5/1/1.1 !--
encapsulation dot1Q 1 native !-- ip address 10.10.10.1
255.255.255.0 !-- ! !-- interface FastEthernet5/1/1.2 !-
- encapsulation dot1Q 2 !-- ip address 10.10.11.1
255.255.255.0 ! ! ip classless no ip http server ip pim
bidir-enable ! ! ! ! line con 0 line aux 0 line vty 0 4
login ! end 7500#

```

在Cisco IOS版本中早于12.1(3)T，**encapsulation dot1Q 1 native**命令在sub-interface下不是可用的。然而，匹配在链路间的本地VLAN如描述是仍然必要的。

为了配置在软件版本的802.1q中继早于12.1(3)T，本地VLAN的(在本文的VLAN1 IP地址)在主要快速以太网接口配置与快速以太网sub-interface相对。

在Cisco 7500的802.1Q配置Cisco IOS版本的早于12.1(3)T

```
7500#configure terminal Enter configuration commands,
```

```

one per line. End with CNTL/Z. !-- Configure the
FastEthernet interfaces for speed 100 !-- depending on
the port adapter. Some FastEthernet port adapters can !-
- auto-negotiate speed (10 or 100) and duplex (half or
full). !-- Others are only capable of 100 (half or
full). 7500(config)#int Fast 5/1/1 !-- Configure full-
duplex to match the duplex setting !-- on the Catalyst
switch side. 7500(config-if)#full-duplex 7500(config-
if)#speed 100 7500(config-if)#no shut 7500(config-if)#
01:46:09: %LINK-3-UPDOWN: Interface FastEthernet5/1/1,
changed state to up 01:46:10: %LINEPROTO-5-UPDOWN: Line
protocol on Interface FastEthernet5/1/1, changed state
to up 7500(config-if)#exit !-- Do not configure an
interface FastEthernet5/1/1.1. !-- Instead, configure
the IP address for VLAN 1 (the native VLAN).
7500(config)#int Fast 5/1/1 7500(config-if)#ip address
10.10.10.1 255.255.255.0 7500(config-if)#exit
7500(config)# !-- It is still necessary to create a sub-
interface for VLAN 2. 7500(config)#int Fast 5/1/1.2
7500(config-subif)#encapsulation dot1Q 2 7500(config-
subif)#ip address 10.10.11.1 255.255.255.0 7500(config-
subif)#exit -- Remember to save the configuration.
7500#write memory Building configuration... [OK] 7500#
!-- Note: Remember also that in any version of software
previous !-- to Cisco IOS 12.2 or 12.2T for the 7000 or
7500 series router, you !-- have to issue the no ip cef
command globally before configuring !-- 802.1q trunking
on a sub-interface. Otherwise, you will see the !--
following error message: !-- 802.1q encapsulation not
supported with CEF configured on the !-- interface. !--
For more information, refer to the Components Used
section of !-- this document. 7500#show running-config
Building configuration... Current configuration : 1593
bytes ! version 12.1 no service pad service timestamps
debug uptime service timestamps log uptime no service
password-encryption ! hostname 7500 ! ! ip subnet-zero !
no ip cef ! ! interface FastEthernet5/1/0 no ip
address no ip mroute-cache speed 100 full-duplex !
interface FastEthernet5/1/1 ip address 10.10.10.1
255.255.255.0 speed 100 full-duplex hold-queue 300 in !
interface FastEthernet5/1/1.2 encapsulation dot1Q 2 ip
address 10.10.11.1 255.255.255.0 ! ! ! ip classless no
ip http server ! ! ! line con 0 line aux 0 line vty 0 4
login ! end 7500#

```

验证

本部分提供了可用于确认您的配置是否正常运行的信息。

[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。

在Catalyst 6500交换机上，请发出这些命令：

- **show interface**
- **show ip route**
- **show port capabilities <mod/port>**
- **show port counters <mod/port>**
- **show port <mod>**

- show vlan
- show trunk

在Cisco 7500路由器上，请发出此命令：

- show interfaces fastethernet <slot/port-adapter/port>

Catalyst 6500 show 命令

show interface命令显示sc0管理接口IP地址和VLAN。在本例中，使用默认VLAN，是VLAN1。

```
Catalyst6500> (enable) show interface s10: flags=51<UP,POINTOPOINT,RUNNING> slip 0.0.0.0 dest
0.0.0.0 sc0: flags=63<UP,BROADCAST,RUNNING> VLAN 1 inet 10.10.10.2 netmask 255.255.255.0
broadcast 10.10.10.255 Catalyst6500> (enable)
```

show ip route命令显示默认网关。在本例中，10.10.10.1是port-channel1的IP地址(802.1q中继)，或者Port-Channel 1.1 (ISL中继)。

```
Catalyst6500> (enable) show ip route Fragmentation Redirect Unreachable -----
----- enabled enabled enabled The primary gateway: 10.10.10.1 Destination Gateway RouteMask
Flags Use Interface -----
----- default
10.10.10.1 0x0 UG 0 sc0 10.10.10.0 10.10.10.2 0xfffff00 U 8 sc0 default default 0xff000000 UH 0
s10 Catalyst6500> (enable)
```

show port capabilities <mod/port>命令看看交换模块硬件功能。此示例显示端口3/1 (同样3/2)是有能力的EtherChannel，中继封装它支持和其他信息。

```
Catalyst6500> (enable) show port capabilities 3/1 Model WS-X6248-RJ-45 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 yes Broadcast suppression percentage(0-100) Flow
control receive-(off,on),send-(off) Security yes Membership static,dynamic Fast start yes QOS
scheduling rx-(1q4t),tx-(2q2t) CoS rewrite yes ToS rewrite DSCP UDLD yes Inline power no
AuxiliaryVlan 1..1000,untagged,dot1p,none SPAN source,destination COPS port group not supported
Catalyst6500> (enable)
```

show port counters <mod/port>命令给查看在可能的端口错误。在本例中，此端口免于所有错误。如果经历在端口的错误，参考[故障排除交换机端口问题](#)欲知更多信息。

```
Catalyst6500> (enable) show port counters 3/1 Port Align-Err FCS-Err Xmit-Err Rcv-Err UnderSize
-----
----- 3/1 0 0 0 0 0 Port Single-Coll Multi-
Coll Late-Coll Excess-Coll Carri-Sen Runts Giants -----
--
----- 3/1 0 0 0 0 0 0 - Last-Time-Cleared -----
Thu May 2 2002, 02:11:55 Catalyst6500> (enable)
```

show port <mod>命令显示端口状态、VLAN、中继和速度和双工信息。在本例中，Workstation1的接入端口是3/3，在VLAN1。Workstation2的接入端口是3/4，是VLAN 2。波尔特3/1是中继端口。

```
Catalyst6500> (enable) show port 3 Port Name Status VLAN Duplex Speed Type -----
-----
----- 3/1 connected trunk full 100 10/100BaseTX
3/2 connected 1 full 100 10/100BaseTX 3/3 connected 1 a-half a-10 10/100BaseTX 3/4 connected 2
a-full a-100 10/100BaseTX !-- Output truncated
```

show vlan命令显示哪些端口分配到特定VLAN。注意中继端口- 3/1在此输出中没出现，是正常。

```
Catalyst6500> (enable) show vlan VLAN Name Status IfIndex Mod/Ports, Vlans -----
-----
----- 1 default active 119 2/1-2 3/2-
3,3/5-48 4/1-24 2 VLAN0002 active 124 3/4 !-- Output truncated
```

show trunk命令显示中继模式、封装类型、允许VLAN和激活VLAN。在本例中，VLAN1 (默认情况下总是允许和激活)和VLAN 2是中继的当前活跃的VLAN。注意中继端口在VLAN1。

```
Catalyst6500> (enable) show trunk * - indicates vtp domain mismatch Port Mode Encapsulation
Status Native vlan -----
-----
----- 3/1 nonegotiate
```

```
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
```

对于802.1q中继，命令的输出这样更改：

```
Catalyst6500> (enable) show trunk * - indicates vtp domain mismatch Port Mode Encapsulation
Status Native VLAN ----- 3/1 nonegotiate
dot1q 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 Catalyst6500> (enable)
```

Cisco 7500 路由器 show 命令

这是ISL中继的输出：

```
7500#show interface FastEthernet5/1/1.1 FastEthernet5/1/1.1 is up, line protocol is up Hardware
is cyBus FastEthernet Interface, address is 0001.6490.f8a8 (bia 0001. 6490.f8a8) Internet
address is 10.10.10.1/24 MTU 1500 bytes, BW 200000 Kbit, DLY 100 usec, reliability 255/255,
txload 1/255, rxload 1/255 Encapsulation ISL Virtual LAN, Color 1. ARP type: ARPA, ARP Timeout
04:00:00 7500#show interface FastEthernet5/1/1.2 FastEthernet5/1/1.2 is up, line protocol is up
Hardware is cyBus FastEthernet Interface, address is 0001.6490.f8a8 (bia 0001. 6490.f8a8)
Internet address is 10.10.11.1/24 MTU 1500 bytes, BW 200000 Kbit, DLY 100 usec, reliability
255/255, txload 1/255, rxload 1/255 Encapsulation ISL Virtual LAN, Color 2. ARP type: ARPA, ARP
Timeout 04:00:00
```

show interfaces fastethernet <slot/port-adapter/port>命令显示路由器的物理接口的状况，并且任何错误是否在接口存在。在本例中它是无错的。

```
7500#show interface fa5/1/0 FastEthernet5/1/0 is up, line protocol is up Hardware is cyBus
FastEthernet Interface, address is 0001.6490.f8a8 (bia 0001. 6490.f8a8) MTU 1500 bytes, BW
100000 Kbit, DLY 100 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation ARPA,
loopback not set Keepalive set (10 sec) Full-duplex, 100Mb/s, 100BaseTX/FX ARP type: ARPA, ARP
Timeout 04:00:00 Last input 1d00h, output 00:00:07, output hang never Last clearing of "show
interface" counters 1d00h Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo Output queue :0/40 (size/max) 5 minute input rate 0 bits/sec, 0
packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 2929 packets input, 425318 bytes, 0
no buffer Received 0 broadcasts, 0 runts, 0 giants, 0 throttles 0 input errors, 0 CRC, 0 frame,
0 overrun, 0 ignored 0 watchdog 0 input packets with dribble condition detected 12006 packets
output, 1539768 bytes, 0 underruns 0 output errors, 0 collisions, 6 interface resets 0 babbles,
0 late collision, 0 deferred 0 lost carrier, 0 no carrier 0 output buffer failures, 0 output
buffers swapped out 7500#
```

故障排除

目前没有针对此配置的故障排除信息。

相关信息

- [在 Catalyst 2900XL/3500XL/2950 交换机上使用外部路由器配置 VLAN 间路由和 ISL/802.1Q 中继](#)
- [配置建立中继在CatOS交换机和外部路由器之间的快速以太信道和ISL/802.1q](#)
- [LAN 交换机技术支持](#)
- [LAN 交换机产品支持](#)
- [技术支持和文档 - Cisco Systems](#)