

# Catalyst 4500/4000系列的路由模块(WS-X4232-L3)配置和概述

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## 简介

本文描述Cisco Catalyst 4500/4000系列交换机的WS-X4232-L3路由模块。除WS-X4232-L3的体系结构和配置的说明之外，本文也提供使用一Catalyst 4500/4000系列交换机和路由模块的一配置示例。

## 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：

- 思科Catalyst OS (CatOS)版本5.5(1)或以上
- Cisco IOS软件版本12.0(7)W5(15d)

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。

Cisco IOS软件镜像文件名对于WS-X4232-L3开始与"cat4232-"。您能找到在[下载软件地区\(仅限注册用户\)](#)的Catalyst 4232部分的文件局域网交换软件的。

**注意：**当您与管理引擎1和Supervisor引擎2一道时，使用它有路由模块的支持。然而，没有路由模块的支持，当您与Supervisor引擎2+一道时使用它，3，4或者5。

**注意：**参考[安装和配置注释的特征部分Catalyst 4000第3层服务模块](#)的关于有在路由模块的软件功能的更多信息(WS-X4232-L3)的支持。

## 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

## 体系结构概述

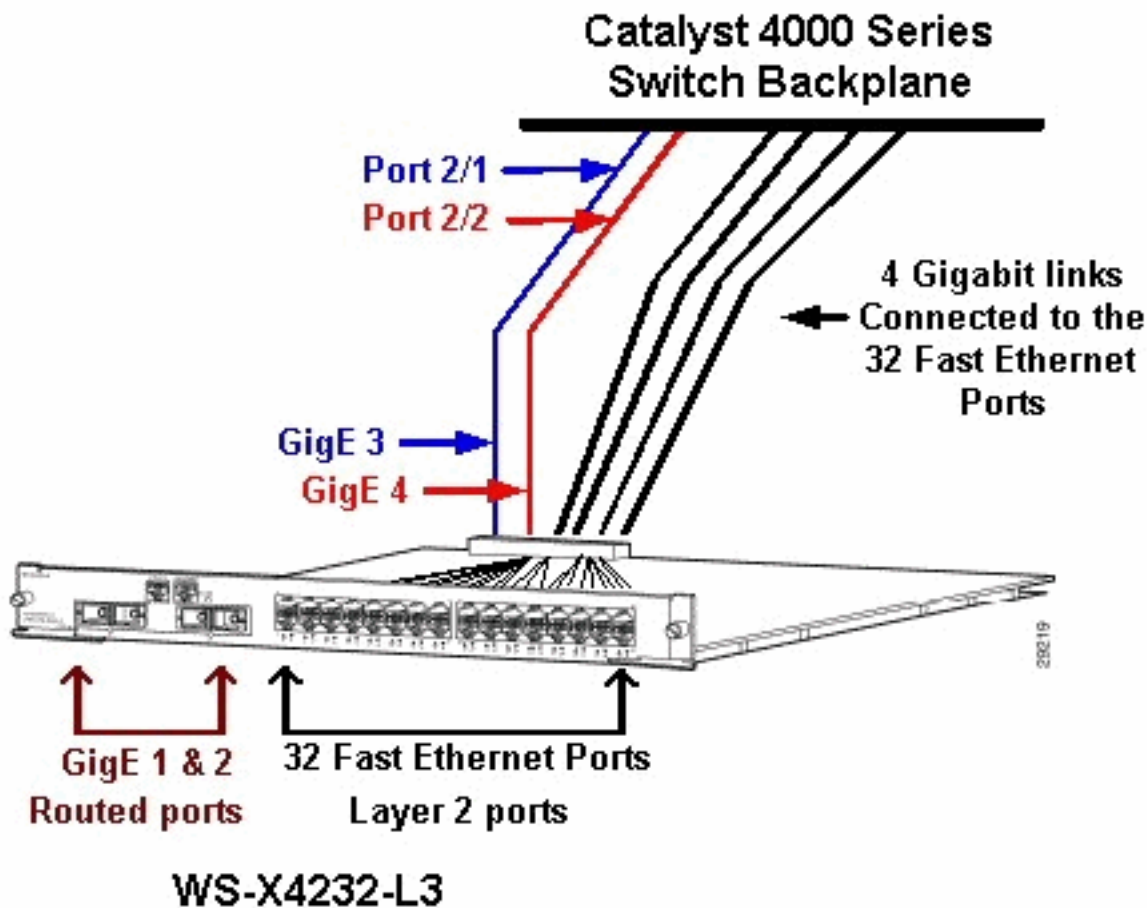
WS-X4232-L3模块有32个快速以太网端口和两千兆以太网端口。

这两千兆以太网端口在路由器配置里对应于接口千兆位1和千兆位2。这些千兆以太网端口是路由端口。

在内部，模块有两千兆以太网接口(千兆位连接路由器对交换机背板的3和千兆位4)。交换机背板在该slot使用前两个端口连接到路由模块。当您插入在slot3时的WS-X4232-L3模块，千兆以太网接口3和4连接到背板端口3/1和3/2。端口3/1和3/2是有配置的Layer2端口在交换机Supervisor引擎。千兆以太网接口3和4是有配置的第3层端口在路由模块。

有路由模块的32个快速以太网端口。这些端口是Layer2端口，并且不执行任何第3层功能。虽然端口有路由模块的一个物理位置，您必须配置交换机Supervisor引擎的端口。

此图表提供体系结构的一视觉说明。对于此设置，请安装在Catalyst交换机的slot 2的路由模块。



## WS-X4232-L3 的配置

### Supervisor 引擎

**show port**命令显示两千兆端口和32个10/100 Mbps端口用第1至34。

**注意：** 您从Supervisor引擎看到的两千兆端口不是您在前面板看到的两个端口。您从Supervisor引擎看到的端口是连接到路由引擎的两交换机端口。您需要配置物理端口作为交换机端口。此配置类似于多层交换模块(MSM)的配置在Catalyst 6500/6000系列交换机的。更多这些端口的常见配置是设置他们作为千兆以太网通道(GEC)和中继。这样，您能路由在路由器的所有VLAN之间。

**注意：** 如果发出**session module-**命令，您能访问从Supervisor引擎的路由模块。此操作是类似的访问路由交换模块(RSM)在Catalyst 5500/5000系列交换机。

### 路由器

如果看到路由器提示，请寻找四千兆以太网接口用从1的编号到4 (千兆位1，千兆位2，千兆位3和千兆位4)和快速以太网带外接口。

这是默认配置：

```
Router#show run
Building configuration...
```

```
Current configuration:
```

```
!
```

```

version 12.0
service config
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Router
!
!
ip subnet-zero
!
!
!
interface FastEthernet1
no ip address
no ip directed-broadcast
shutdown
!
interface gigabitEthernet1
no ip address
no ip directed-broadcast
!--- Output suppressed.

```

**注意：** 在去背板的此配置中，千兆位3和千兆位4是连接。千兆位1和千兆位2是前面板的(路由端口)用户端口。多数时间，和在MSM，您配置端口3和端口4是同一接口端口通道的一部分。并且，您配置在该信道的子接口(与Inter-Switch Link (ISL)协议[ISL]或IEEE 802.1Q封装)。和在MSM，千兆位3和千兆位4的配置在路由模块的需要是一致与端口的配置slot/1和slot/2在转换面。如果发出**show interface port-channel**或**show interface**千兆以太网命令，您能检查路由器和交换机之间的流量。

## [WS-X4232-L3 对访问列表的支持](#)

有访问控制列表(ACL)的支持在WS-X4232-L3路由模块，但是本文讨论的配置示例不支持ACL。参考[配置在WS-X4232-L3路由模块的ACL Catalyst 4000系列的](#)关于与支持的ACL配置的更多信息WS-X4232-L3模块的。

## [示例配置](#)

配置示例包含在此列表的元素。(请参阅[网络图](#)。)

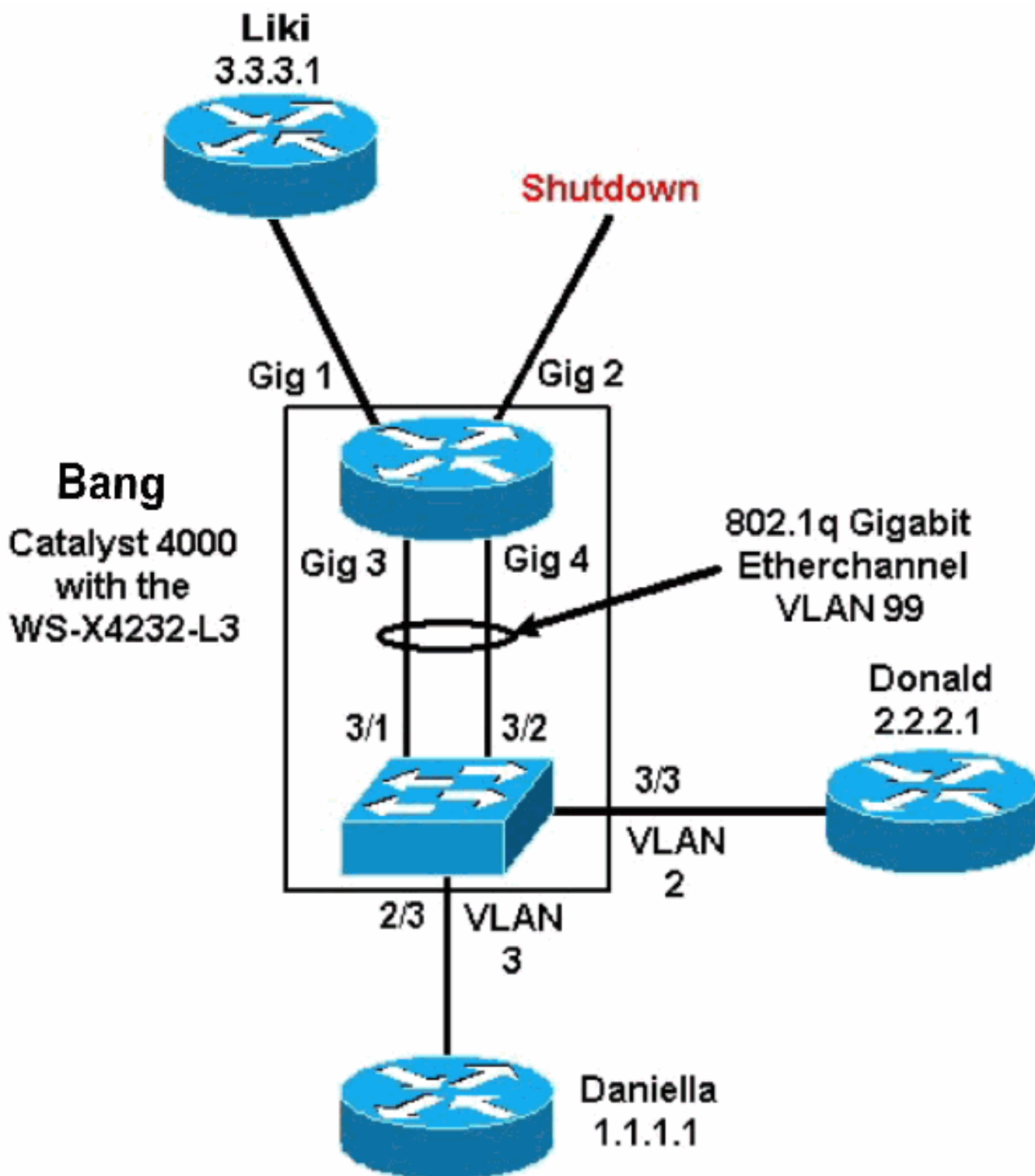
- **爆炸的**——Catalyst 4500/4000系列交换机用在slot3的一个路由模块。
- **Liki** —附加对在路由模块的千兆以太网1的路由器。
- **唐纳德**— 在端口爆炸的3/3的VLAN 2附加的路由器。波尔特3/3是其中一个路由模块的Layer2端口。
- **Daniella** —在端口爆炸的2/3的VLAN3附加的路由器。

此配置包括路由模块和Catalyst 4500/4000系列交换机之间的一GEC连接。您配置在GEC的中继允许多个VLAN通过到InterVLAN路由的路由器。此GEC配置是标准配置。所有命令特定对此设置搬入端口信道子接口。

当您使用第3层模块时，请记住到达在本地VLAN的路由器的所有流量在软件方面路由。此情况有对交换机的性能的负面作用。在WS-X4232-L3的微码不处理在本地VLAN进来，不用标记的802.1Q数据包。反而，数据包去CPU和CPU进程数据包。如果CPU以高速率收到数据包，不用标记在本地VLAN子接口，此进程导致高CPU利用率。所以，请创建不包含任何用户数据流的假的VLAN (作为本地VLAN。在本例中配置示例([网络图](#))，VLAN99担当本地VLAN。配置在GEC的仅本地VLAN在路由器和交换机之间。请勿配置交换机的任何其他端口在此假的VLAN。

**注意：** 创建假的VLAN作为在中继链路的本地VLAN路由器和交换机之间。CPU在软件方面路由传送本地VLAN，有对交换机的性能的负面作用的所有流量。创建您在网络不使用别处的其他VLAN并且做此VLAN中继链路的本地VLAN路由器和交换机之间。

## 网络图



本文存在的一些配置和输出的[交换机Supervisor引擎配置](#)和[路由器模块配置](#)部分显示命令。配置在Catalyst 4500/4000系列交换机和路由模块的Supervisor引擎。这允许在三子网(VLAN1、VLAN 2和附加对千兆以太网1)的路由器之间的路由。

## 交换机Supervisor引擎配置

路由器交换卡显示show module命令的34个端口。这34个端口包括直接地连接到两路由器端口的32交换机端口到前面板和2个千兆交换端口。这是示例：

```
bang> (enable) show module
Mod Slot Ports Module-Type Model Sub Status
-----
1 1 0 Switching Supervisor WS-X4012 no ok
2 2 34 10/100/1000 Ethernet WS-X4232 no ok
3 3 34 Router Switch Card WS-X4232-L3 no ok

Mod Module-Name Serial-Num
-----
1 JAB02380AYG
2 JAB03210B6Y
3 JAB0417055S

Mod MAC-Address(es) Hw Fw Sw
-----
1 00-50-73-2a-f3-00 to 00-50-73-2a-f6-ff 1.0 4.5(1) 5.5(1)
2 00-50-73-42-a9-68 to 00-50-73-42-a9-89 1.6
3 00-01-42-06-73-a8 to 00-01-42-06-73-c9 1.0 12.0(7)W5( 12.0(7)W5(14.90
```

因为此示例显示，在Catalyst 4000侧添加的唯一的配置关连到GEC中继与路由模块：

```
bang> (enable) show config

# ***** NON-DEFAULT CONFIGURATION *****
!
!
!
!
!
set port channel all distribution mac both
!
#ip
set interface s10 down
set interface me1 down
!
#set boot command
set boot config-register 0x102
set boot system flash bootflash:cat4000.5-5-1.bin
!
#port channel
set port channel 3/1-2 156
!
#module 1 : 0-port Switching Supervisor
!
#module 2 : 34-port 10/100/1000 Ethernet

set VLAN 3 2/3

!
#module 3 : 34-port Router Switch Card
set VLAN 2 3/3
set VLAN 99 3/1-2
!--- This interface has a configuration for 802.1Q routing. !--- The interface uses VLAN 99 as
the native VLAN. The native VLAN on the !--- router switch must match the one that you have
configured on the router. !--- VLAN 99 is a dummy native VLAN. For more information, !--- see
the note in the Sample Configurations section. set trunk 3/1 nonnegotiate dot1q 1-1005

!--- Note: Trunk mode needs to be in no-negotiate status !--- because the router module does not
```

support Dynamic Trunking Protocol (DTP).

```
set trunk 3/2 nonegotiate dot1q 1-1005
set port channel 3/1-2 mode on
```

!--- Note: You need to force the channel mode to on because !--- the router module does not support Port Aggregation Protocol (PAgP).

end

在交换机上， **show cdp neighbor**命令显示路由模块，好象模块由在千兆端口3/1和3/2的一GEC中继连接的外部路由器。这是示例：

```
bang> (enable) show cdp neighbor
```

\* - indicates vlan mismatch.  
# - indicates duplex mismatch.

Port	Device-ID	Port-ID	Platform
2/3	daniella	Ethernet0	cisco 2500
3/3	donald	Ethernet0	cisco 2500

```
bang> (enable) show trunk
```

\* - indicates vtp domain mismatch

Port	Mode	Encapsulation	Status	Native	vlan
3/1	nonegotiate	dot1q	trunking	99	
3/2	nonegotiate	dot1q	trunking	99	

```
Port Vlans allowed on trunk
```

Port	Vlans allowed on trunk
3/1	1-1005
3/2	1-1005

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

Port	Vlans allowed and active in management domain
3/1	1-3, 99
3/2	1-3, 99

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

Port	Vlans in spanning tree forwarding state and not pruned
3/1	1-3, 99
3/2	1-3, 99

如果有输出一**show trunk**命令从您的Cisco设备，您能使用[Output Interpreter Tool](#) (仅限注册用户)显示潜在问题和修正。

```
bang> (enable) show port channel
```

Port	Status	Channel Mode	Admin Ch Group Id
3/1	connected	on	156 833
3/2	connected	on	156 833

Port	Device-ID	Port-ID	Platform
3/1	bang-rp	GigabitEthernet3	cisco Cat4232
3/2	Not directly connected to switch		

-----  
如果有输出一**show port channel**命令从您的Cisco设备，您能使用[Output Interpreter Tool](#) ([仅限注册用户](#))显示潜在问题和修正。

## [路由器模块配置](#)

```
bang-rp#show verify
Cisco Internetwork Operating System Software
IOS (tm) L3 Switch/Router Software (CAT4232-IN-M), Version 12.0(7)W5(14.90)  INTERIM
TEST SOFTWARE
Copyright (c) 1986-2000 by cisco Systems, Inc.
Compiled Fri 26-May-00 15:26 by integ
Image text-base: 0x60010928, data-base: 0x605C8000
```

```
ROM: System Bootstrap, Version 12.0(7)W5(15b) RELEASE SOFTWARE
```

```
bang-rp uptime is 1 day, 22 hours, 7 minutes
System restarted by power-on
System image file is "bootflash:cat4232-in-mz.120-7.W5.14.90"
```

```
cisco Cat4232 (R5000) processor with 57344K/8192K bytes of memory.
R5000 processor, Implementation 35, Revision 2.1
Last reset from power-on
1 FastEthernet/IEEE 802.3 interface(s)
4 Gigabit Ethernet/IEEE 802.3z interface(s)
123K bytes of non-volatile configuration memory.
```

```
16384K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x1
```

```
bang-rp#show run
Building configuration...
```

### **Current Configuration:**

```
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
```

```
!
hostname bang-rp
```

```
!
!
ip subnet-zero
```

```
!
!
interface Port-channel1
  no ip redirects
  no ip directed-broadcast
  hold-queue 300 in
```

```
!
interface Port-channel1.2
```

```
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses a VLAN 2 tag.
encapsulation dot1Q 2
```

```
ip address 2.2.2.2 255.255.255.0
no ip redirects
no ip directed-broadcast
```

```
!
interface Port-channel1.3
```



```

!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses a VLAN 3
tag. encapsulation dot1Q 3 ip address 1.1.1.2 255.255.255.0 no ip redirects no ip directed-
broadcast ! interface Port-channel1.99
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses VLAN 99
as the native VLAN. The native VLAN on the router !--- must match the one that you have
configured on the switch. VLAN 99 is a dummy !--- native VLAN. For more information, see the
note !--- in the Sample Configurations section. encapsulation dot1Q 99 native
no ip address
no ip redirects
no ip directed-broadcast
!
interface FastEthernet1
!--- You can use this out-of-band interface for management. no ip address no ip directed-
broadcast shutdown ! interface GigabitEthernet1 ip address 3.3.3.2 255.255.255.0
no ip directed-broadcast
!
interface GigabitEthernet2
no ip address
no ip directed-broadcast
shutdown
!
interface GigabitEthernet3
no ip address
no ip directed-broadcast
no negotiation auto
channel-group 1
!--- Both Gigabit Ethernet 3 and Gigabit Ethernet 4 !--- are part of channel group 1. !
interface GigabitEthernet4 no ip address no ip directed-broadcast no negotiation auto channel-
group 1
!--- Both Gigabit Ethernet 3 and Gigabit Ethernet 4 !--- are part of channel group 1. ! router
eigrp 1 passive-interface FastEthernet1 network 1.0.0.0 network 2.0.0.0 network 3.0.0.0 ! ip
classless ! arp 127.0.0.2 0050.732a.f300 ARPA ! line con 0 transport input none line aux 0 line
vty 0 4 login ! end bang-rp#show cdp neighbor
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
S - Switch, H - Host, I - IGMP, r - Repeater

Device ID          Local Intrfce      Holdtme    Capability Platform  Port ID
liki                Gig 1
160                T S
WS-C3508G-Gig 0/1
!--- Liki connects to gigabit 1 on the router. !--- You can only see Liki from the router; you
cannot !--- see Liki from the Supervisor Engine. JAB02380AYG(bang)Port-channel1 148 T S WS-C4003
3/2 JAB02380AYG(bang)Port-channel1 147 T S WS-C4003 3/1

```

## 故障排除

### 在为一会儿后，运行会话从Supervisor到4232-L3模块不工作

在交换机为一会儿后运行，从Supervisor的一会话到4232-L3模块失效与此错误消息：

```

bang-rp#show verify
Cisco Internetwork Operating System Software
IOS (tm) L3 Switch/Router Software (CAT4232-IN-M), Version 12.0(7)W5(14.90) INTERIM
TEST SOFTWARE
Copyright (c) 1986-2000 by cisco Systems, Inc.
Compiled Fri 26-May-00 15:26 by integ
Image text-base: 0x60010928, data-base: 0x605C8000

ROM: System Bootstrap, Version 12.0(7)W5(15b) RELEASE SOFTWARE

bang-rp uptime is 1 day, 22 hours, 7 minutes

```

System restarted by power-on  
System image file is "bootflash:cat4232-in-mz.120-7.W5.14.90"

cisco Cat4232 (R5000) processor with 57344K/8192K bytes of memory.  
R5000 processor, Implementation 35, Revision 2.1  
Last reset from power-on  
1 FastEthernet/IEEE 802.3 interface(s)  
4 Gigabit Ethernet/IEEE 802.3z interface(s)  
123K bytes of non-volatile configuration memory.

16384K bytes of Flash internal SIMM (Sector size 256K).  
Configuration register is 0x1

bang-rp#**show run**

Building configuration...

**Current Configuration:**

```
!  
version 12.0  
no service pad  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname bang-rp  
!  
!  
ip subnet-zero  
!  
!  
interface Port-channel1  
  no ip redirects  
  no ip directed-broadcast  
  hold-queue 300 in  
!  
interface Port-channel1.2  
  
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses a VLAN 2 tag. encapsulation dot1Q 2  
ip address 2.2.2.2 255.255.255.0  
no ip redirects  
no ip directed-broadcast  
!  
interface Port-channel1.3  
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses a VLAN 3 tag. encapsulation dot1Q 3 ip address 1.1.1.2 255.255.255.0 no ip redirects no ip directed-broadcast  
! interface Port-channel1.99  
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses VLAN 99 as the native VLAN. The native VLAN on the router !--- must match the one that you have configured on the switch. VLAN 99 is a dummy !--- native VLAN. For more information, see the note !--- in the Sample Configurations section. encapsulation dot1Q 99 native  
no ip address  
no ip redirects  
no ip directed-broadcast  
!  
interface FastEthernet1  
!--- You can use this out-of-band interface for management. no ip address no ip directed-broadcast shutdown  
! interface GigabitEthernet1 ip address 3.3.3.2 255.255.255.0  
  no ip directed-broadcast  
!  
interface GigabitEthernet2  
  no ip address  
  no ip directed-broadcast  
  shutdown
```

```

!
interface GigabitEthernet3
  no ip address
  no ip directed-broadcast
  no negotiation auto
  channel-group 1
!--- Both Gigabit Ethernet 3 and Gigabit Ethernet 4 !--- are part of channel group 1. !
interface GigabitEthernet4 no ip address no ip directed-broadcast no negotiation auto channel-
group 1
!--- Both Gigabit Ethernet 3 and Gigabit Ethernet 4 !--- are part of channel group 1. ! router
eigrp 1 passive-interface FastEthernet1 network 1.0.0.0 network 2.0.0.0 network 3.0.0.0 ! ip
classless ! arp 127.0.0.2 0050.732a.f300 ARPA ! line con 0 transport input none line aux 0 line
vty 0 4 login ! end bang-rp#show cdp neighbor
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater

Device ID          Local Intrfce      Holdtme    Capability Platform  Port ID
liki                Gig 1
160                 T S
WS-C3508G-Gig 0/1
!--- Liki connects to gigabit 1 on the router. !--- You can only see Liki from the router; you
cannot !--- see Liki from the Supervisor Engine. JAB02380AYG(bang)Port-channell 148 T S WS-C4003
3/2 JAB02380AYG(bang)Port-channell 147 T S WS-C4003 3/1

```

此的多数可能原因归结于在4232-L3模块带内MAC地址的Supervisor模块地址解析服务(ARP)表里形成的一不正确邻接。

此问题可以用系统软件的升级解决对Cisco Bug ID [CSCdx30617](#)没影响的CatOS版本([仅限注册用户](#))的。

如果系统软件的升级不是可能的，您能尝试这些应急方案：

- 而不是对模块的会话，对对此配置的telnet任何IP地址。
- 4232-L3模块的重置能临时地恢复问题。
- sc0接口的移动到不同的VLAN里能也解决此问题。

## [从4232-L3的定期TFTP请求](#)

4232-L3模块连续设法装载从网络的一配置并且显示此错误消息：

```

bang-rp#show verify
Cisco Internetwork Operating System Software
IOS (tm) L3 Switch/Router Software (CAT4232-IN-M), Version 12.0(7)W5(14.90) INTERIM
TEST SOFTWARE
Copyright (c) 1986-2000 by cisco Systems, Inc.
Compiled Fri 26-May-00 15:26 by integ
Image text-base: 0x60010928, data-base: 0x605C8000

ROM: System Bootstrap, Version 12.0(7)W5(15b) RELEASE SOFTWARE

bang-rp uptime is 1 day, 22 hours, 7 minutes
System restarted by power-on
System image file is "bootflash:cat4232-in-mz.120-7.W5.14.90"

cisco Cat4232 (R5000) processor with 57344K/8192K bytes of memory.
R5000 processor, Implementation 35, Revision 2.1
Last reset from power-on
1 FastEthernet/IEEE 802.3 interface(s)
4 Gigabit Ethernet/IEEE 802.3z interface(s)

```

123K bytes of non-volatile configuration memory.

16384K bytes of Flash internal SIMM (Sector size 256K).  
Configuration register is 0x1

bang-rp#**show run**

Building configuration...

**Current Configuration:**

```
!  
version 12.0  
no service pad  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname bang-rp  
!  
!  
ip subnet-zero  
!  
!  
interface Port-channel1  
  no ip redirects  
  no ip directed-broadcast  
  hold-queue 300 in  
!  
interface Port-channel1.2  
  
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses a VLAN 2 tag. encapsulation dot1Q 2  
ip address 2.2.2.2 255.255.255.0  
no ip redirects  
no ip directed-broadcast  
!  
interface Port-channel1.3  
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses a VLAN 3 tag. encapsulation dot1Q 3 ip address 1.1.1.2 255.255.255.0 no ip redirects no ip directed-broadcast  
! interface Port-channel1.99  
!--- The configuration of this interface is for 802.1Q routing. !--- The interface uses VLAN 99 as the native VLAN. The native VLAN on the router !--- must match the one that you have configured on the switch. VLAN 99 is a dummy !--- native VLAN. For more information, see the note !--- in the Sample Configurations section. encapsulation dot1Q 99 native  
no ip address  
no ip redirects  
no ip directed-broadcast  
!  
interface FastEthernet1  
!--- You can use this out-of-band interface for management. no ip address no ip directed-broadcast shutdown  
! interface GigabitEthernet1 ip address 3.3.3.2 255.255.255.0  
  no ip directed-broadcast  
!  
interface GigabitEthernet2  
  no ip address  
  no ip directed-broadcast  
  shutdown  
!  
interface GigabitEthernet3  
  no ip address  
  no ip directed-broadcast  
  no negotiation auto  
  channel-group 1  
!--- Both Gigabit Ethernet 3 and Gigabit Ethernet 4 !--- are part of channel group 1. !  
interface GigabitEthernet4 no ip address no ip directed-broadcast no negotiation auto channel-
```

group 1

```
!--- Both Gigabit Ethernet 3 and Gigabit Ethernet 4 !--- are part of channel group 1. ! router
eigrp 1 passive-interface FastEthernet1 network 1.0.0.0 network 2.0.0.0 network 3.0.0.0 ! ip
classless ! arp 127.0.0.2 0050.732a.f300 ARPA ! line con 0 transport input none line aux 0 line
vty 0 4 login ! end bang-rp#show cdp neighbor
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater
```

```
Device ID          Local Intrfce      Holdtme    Capability Platform  Port ID
liki                Gig 1
160                 T S
WS-C3508G-Gig 0/1
```

```
!--- Liki connects to gigabit 1 on the router. !--- You can only see Liki from the router; you
cannot !--- see Liki from the Supervisor Engine. JAB02380AYG(bang)Port-channel1 148 T S WS-C4003
3/2 JAB02380AYG(bang)Port-channel1 147 T S WS-C4003 3/1
```

当您发出**service config**命令时，L3模块可以配置自动地下载从TFTP server的配置文件的配置。存储在TFTP server的配置文件的并且下载他们，当启动时。当配置文件的大小大于NVRAM的大小在设备时的这是有用的。

当L3模块用**service config**命令时配置，生成TFTP请求下载其从TFTP server的配置。

在IPS/IDS使用的方案中，您也许注意到路由器不断地发送tftp广播。这由来源的IP地址确认，并且目的地是255.255.255.255，流量是UDP 69 (TFTP)。

为了从生成终止日志消息，请发出这些命令：

```
Router#config terminal
Router(config)#no service config
Router(config)#exit
Router#copy running-config startup-config
```

## 结论和提示

当您配置在Catalyst 4500/4000时的路由模式请切记这些关键点：

- 您在前面板看到的千兆接口不是相同的象您看到的千兆接口，当您发出**show port**命令从Supervisor引擎时。在前面板的接口是与名称千兆位1和千兆位2的接口在路由器。
- 确保中继的本地VLAN在交换机和路由器之间的是假的VLAN。CPU在软件方面路由在本地VLAN的所有流量。所以，请创建您在交换机和路由器之间的链路在别处不使用并且做该VLAN本地VLAN的一个另外的VLAN。

## 相关信息

- [Catalyst 4000系列第3层服务模块的版本注释Cisco IOS版本12.0W5的](#)
- [在 Catalyst 4000 系列的 WS-X4232-L3 路由模块上配置 ACL](#)
- [LAN 产品支持](#)
- [LAN 交换技术支持](#)
- [技术支持和文档 - Cisco Systems](#)