

# 配置 Cisco 6400 以支持 MUX-PPP、SNAP，并使用 atm ilmi-pvc-discovery 子接口

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## 简介

本文档介绍了针对支持 MUX-PPP 和子网接入协议 (SNAP) 并使用 atm ilmi-pvc-discovery 子接口的 Cisco 6400 通用接入复用器 (UAC) 的配置示例。

## 先决条件

### 要求

本文档没有任何特定的要求。

### 使用的组件

本文档不限于特定的软件和硬件版本。

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

有关文件规则的更多信息请参见“Cisco技术提示规则”。

## 配置

本部分提供有关如何配置本文档所述功能的信息。

注：要查找有关本文档中使用的命令的其他信息，请使用[命令查找工具](#)([仅注册客户](#))。

## 配置

本文档使用以下配置：

### 思科6400 NRP1

```
!  
version 12.0  
no service pad  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname Access-6400-NRP1  
!  
enable password <password>  
!  
username <username> password 0 <password>  
username <username1> password 0 <password1>  
username <username2> password 0 <password2>  
!  
!  
!  
!  
redundancy  
  main-cpu  
    auto-sync standard  
  no secondary console enable  
ip subnet-zero  
ip domain-name cisco.com  
ip name-server 171.68.10.70  
!  
!  
!  
bridge irb  
!  
!  
process-max-time 200  
!  
interface Loopback1  
  ip address 10.1.1.1 255.255.255.0  
  no ip directed-broadcast  
!  
interface ATM0/0/0  
  no ip address  
  no ip directed-broadcast  
  no atm ilmi-keepalive  
  atm ilmi-pvc-discovery subinterface  
  pvc 0/16 ilmi  
  !  
!  
interface ATM0/0/0.1 multipoint  
  !--- For VPI starting with number 1 (example: 1/34). no  
ip directed-broadcast class-int bridgel bridge-group 1 !  
interface ATM0/0/0.4 multipoint !--- For VPI starting  
with number 4 (example: 4/33). no ip directed-broadcast  
class-int router ! interface Ethernet0/0/1 no ip address
```

```
no ip directed-broadcast ! interface Ethernet0/0/0 ip
address 171.68.186.117 255.255.255.240 no ip directed-
broadcast ! interface FastEthernet0/0/0 no ip address no
ip directed-broadcast shutdown ! interface Virtual-
Templatel ip unnumbered Loopback1 no ip directed-
broadcast peer default ip address pool mypool ppp
authentication chap ! interface BVI1 mac-address ip
address 10.10.33.1 255.255.255.0 no ip directed-
broadcast ! ip local pool mypool 10.1.1.2 10.1.1.200 ip
classless ip route 0.0.0.0 0.0.0.0 171.68.186.113 no ip
http server ! ! vc-class atm bridgel encapsulation
aal5snap ! vc-class atm router encapsulation aal5mux ppp
Virtual-Templatel tacacs-server host 171.68.201.249
tacacs-server last-resort succeed tacacs-server
optional-passwords tacacs-server extended ! bridge 1
protocol ieee bridge 1 route ip ! line con 0 transport
input none line aux 0 line vty 0 4 password xxxxxx login
local ! 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](#)，使用此工具可以查看对 show 命令输出的分析。

### show atm pvc 命令输出

```
Access-6400-NRP1# show atm pvc
VCD / Peak Avg/Min Burst
Interface Name VPI VCI Type Encaps SC Kbps Kbps Cells Sts
0/0/0 2 0 16 PVC ILMI UBR 155000 UP
0/0/0.1 7 1 34 PVC-D SNAP UBR 155000 UP
!--- Snap (bridge). !--- Subinterface 1 took VPI . 0/0/0.4 8 4 33 PVC-D MUX UBR 155000 UP !---
mux (ppp) !--- Subinterface 4 took VPI 4.
```

## 故障排除

本部分提供的信息可用于对配置进行故障排除。

### 故障排除命令

[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。

**注意：**在发出debug命令之前，请[参阅有关Debug命令的重要信息](#)。

### 调试 ATM 事件

以下输出显示节点路由处理器(NRP)从节点交换处理器(NSP)获取的虚拟路径标识符/虚拟通道标识符(VPI/VCI)。

```
Access-6400-NRP1# debug atm events
ATM events debugging is on
```

```

Shut/no Shut on main ATM0/0/0 interface
Access-6400-NRP1#
*Dec 16 15:51:43.667: ATM0/0/0 nrp_sarmgr_shutdown: state=0
*Dec 16 15:51:44.515: Resetting ATM0/0/0
*Dec 16 15:51:45.015: Resetting ATM0/0/0
*Dec 16 15:51:45.015: nrp_sarmgr_config(ATM0/0/0)
*Dec 16 15:51:45.015: nrp_sarmgr_enable(ATM0/0/0)
*Dec 16 15:51:45.215: nrp_sarmgr_enable(ATM0/0/0): restarting VCs: 0
*Dec 16 15:51:45.215: nrp_sarmgr_setup_vc(ATM0/0/0): vc:2 vpi:0 vci:16
*Dec 16 15:51:45.223: %SYS-5-CONFIG_I: Configured from console by console
*Dec 16 15:51:45.667: %LINK-3-UPDOWN: Interface ATM0/0/0, changed state to up
*Dec 16 15:51:46.667: %LINEPROTO-5-UPDOWN: Line protocol on Interface ATM0/0/0,
    changed state to up
*Dec 16 15:51:47.219: %LINK-3-UPDOWN: Interface BV11, changed state to up
*Dec 16 15:51:47.471: Reserved bw for 1/34 Available bw = 155000
*Dec 16 15:51:47.471: nrp_sarmgr_setup_vc(ATM0/0/0): vc:13 vpi:1 vci:34
*Dec 16 15:51:47.475: Reserved bw for 4/33 Available bw = 155000
*Dec 16 15:51:47.527: nrp_sarmgr_setup_vc(ATM0/0/0): vc:14 vpi:4 vci:33
*Dec 16 15:51:48.219: %LINEPROTO-5-UPDOWN: Line protocol on Interface BV11,
    changed state to up
*Dec 16 15:51:49.019: nrp_sarmgr_tearardown_vc(ATM0/0/0): vc:13 vpi:1 vci:34
*Dec 16 15:51:49.179: nrp_sarmgr_tearardown_vc(ATM0/0/0): vc:14 vpi:4 vci:33
*Dec 16 15:51:49.339: PPP-ATM(Virtual-Access1) deleting vaccess on VC 14
*Dec 16 15:51:49.351: %LANE-6-INFO: ATM0/0/0: ILMI prefix add event received
*Dec 16 15:51:49.659: Reserved bw for 1/34 Available bw = 155000
*Dec 16 15:51:49.659: nrp_sarmgr_setup_vc(ATM0/0/0): vc:15 vpi:1 vci:34
*Dec 16 15:51:49.659: Reserved bw for 4/33 Available bw = 155000
*Dec 16 15:51:49.715: nrp_sarmgr_setup_vc(ATM0/0/0): vc:16 vpi:4 vci:33
*Dec 16 15:51:55.419: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
Access-6400-NRP1#

```

## IP 路由模式中的 Cisco 675 的 PPP Debug 输出

```

Success rate is 0 percent (0/5)
Access-6400-NRP1#
*Dec 16 15:38:03.439: Vi1 LCP: I CONFREQ [Open] id 42 len 14
*Dec 16 15:38:03.439: Vi1 LCP: MagicNumber 0xA60C0000 (0x0506A60C0000)
*Dec 16 15:38:03.439: Vi1 LCP: MRU 2048 (0x01040800)
*Dec 16 15:38:03.439: Vi1 IPCP: State is Closed
*Dec 16 15:38:03.439: Vi1 PPP: Phase is ESTABLISHING
*Dec 16 15:38:03.439: Vi1 LCP: O CONFREQ [Open] id 132 len 15
*Dec 16 15:38:03.439: Vi1 LCP: AuthProto CHAP (0x0305C22305)
*Dec 16 15:38:03.439: Vi1 LCP: MagicNumber 0x30995E50 (0x050630995E50)
*Dec 16 15:38:03.439: Vi1 LCP: O CONFACK [Open] id 42 len 14
*Dec 16 15:38:03.439: Vi1 LCP: MagicNumber 0xA60C0000 (0x0506A60C0000)
*Dec 16 15:38:03.439: Vi1 LCP: MRU 2048 (0x01040800)
*Dec 16 15:38:03.443: Vi1 IPCP: Remove route to 10.1.1.2
*Dec 16 15:38:03.443: Vi1 LCP: I CONFACK [ACKsent] id 132 len 15
*Dec 16 15:38:03.443: Vi1 LCP: AuthProto CHAP (0x0305C22305)
*Dec 16 15:38:03.443: Vi1 LCP: MagicNumber 0x30995E50 (0x050630995E50)
*Dec 16 15:38:03.447: Vi1 LCP: State is Open
*Dec 16 15:38:03.447: Vi1 PPP: Phase is AUTHENTICATING, by this end
*Dec 16 15:38:03.447: Vi1 CHAP: O CHALLENGE id 4 len 37 from "Access-6400-NRP1"
*Dec 16 15:38:03.451: Vi1 CHAP: I RESPONSE id 4 len 26 from "cisco"
*Dec 16 15:38:03.451: Vi1 CHAP: O SUCCESS id 4 len 4
*Dec 16 15:38:03.451: Vi1 PPP: Phase is UP
*Dec 16 15:38:03.451: Vi1 IPCP: O CONFREQ [Closed] id 5 len 16
*Dec 16 15:38:03.451: Vi1 IPCP: Address 10.1.1.1 (0x03060A010101)
*Dec 16 15:38:03.451: Vi1 IPCP: Type20 (0x900600000000)
*Dec 16 15:38:03.455: Vi1 IPCP: I CONFREQ [REQsent] id 43 len 10
*Dec 16 15:38:03.455: Vi1 IPCP: Address 10.1.1.2 (0x03060A010102)
*Dec 16 15:38:03.455: Vi1 IPCP: O CONFACK [REQsent] id 43 len 10

```

```
*Dec 16 15:38:03.455: Vi1 IPCP: Address 10.1.1.2 (0x03060A010102)
*Dec 16 15:38:03.455: Vi1 IPCP: I CONFREJ [ACKsent] id 5 len 10
*Dec 16 15:38:03.455: Vi1 IPCP: Type20 (0x900600000000)
*Dec 16 15:38:03.455: Vi1 IPCP: O CONFREQ [ACKsent] id 6 len 10
*Dec 16 15:38:03.455: Vi1 IPCP: Address 10.1.1.1 (0x03060A010101)
*Dec 16 15:38:03.463: Vi1 IPCP: I CONFACK [ACKsent] id 6 len 10
*Dec 16 15:38:03.463: Vi1 IPCP: Address 10.1.1.1 (0x03060A010101)
*Dec 16 15:38:03.463: Vi1 IPCP: State is Open
*Dec 16 15:38:03.463: Vi1 IPCP: Install route to 10.1.1.2
```

## show 命令输出

```
Access-6400-NRP1# show user
```

Line	User	Host(s)	Idle	Location
* 0	con 0	idle	00:00:00	
Vi1		Virtual PPP (ATM)	00:06:45	
Interface	User	Mode	Idle	Peer Address

```
Access-6400-NRP1# show interface atm 0/0/0 accounting
```

```
ATM0/0/0
Protocol      Pkts In   Chars In  Pkts Out  Chars Out
Trans. Bridge      0         0         3         222
Spanning Tree      0         0        1384      65048
PPP over ATM      358       6646      605      11657
```

```
Access-6400-NRP1# show interface atm 0/0/0
```

```
ATM0/0/0 is up, line protocol is up
Hardware is ATM-SAR
MTU 4470 bytes, sub MTU 4470, BW 156250 Kbit, DLY 80 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ATM, loopback not supported
Keepalive not supported
Encapsulation(s): AAL5, PVC mode
2047 maximum active VCs, 3 current VCCs
VC idle disconnect time: 300 seconds
Last input 00:09:37, output 00:00:00, output hang never
Last clearing of "show interface" counters never
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 1307 packets input, 57832 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 abort
 2876 packets output, 123055 bytes, 0 underruns
  0 output errors, 0 collisions, 3 interface resets
  0 output buffer failures, 0 output buffers swapped out
```

```
Access-6400-NRP1#
```

```
Access-6400-NRP1#
```

```
Access-6400-NRP1#
```

```
Access-6400-NRP1# show interface atm 0/0/0.1
```

```
ATM0/0/0.1 is up, line protocol is up
Hardware is ATM-SAR
MTU 4470 bytes, BW 156250 Kbit, DLY 80 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ATM
0 packets input, 0 bytes
1392 packets output, 59937 bytes
0 OAM cells input, 0 OAM cells output
```

```
Access-6400-NRP1# show interface atm 0/0/0.4
ATM0/0/0.4 is up, line protocol is up
Hardware is ATM-SAR
MTU 4470 bytes, BW 156250 Kbit, DLY 80 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ATM
705 packets input, 11705 bytes
615 packets output, 9415 bytes
0 OAM cells input, 0 OAM cells output
```

```
Access-6400-NRP1# show atm vc 15
ATM0/0/0.1: VCD: 15, VPI: 1, VCI: 34
UBR, PeakRate: 155000
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0
OAM frequency: 0 second(s)
InARP frequency: 15 minutes(s)
InPkts: 0, OutPkts: 321, InBytes: 0, OutBytes: 13803
InProc: 0, OutProc: 321, Broadcasts: 0
InFast: 0, OutFast: 0, InAS: 0, OutAS: 0
OAM cells received: 0
OAM cells sent: 0
Status: UP
Access-6400-NRP1#
```

```
Access-6400-NRP1# show atm vc 16
ATM0/0/0.4: VCD: 16, VPI: 4, VCI: 33
UBR, PeakRate: 155000
AAL5-MUX, etype:0x9, Flags: 0xC23, VCmode: 0x0
OAM frequency: 0 second(s)
InARP DISABLED
InPkts: 6, OutPkts: 143, InBytes: 48, OutBytes: 2420
InProc: 3, OutProc: 143
InFast: 0, OutFast: 0, InAS: 3, OutAS: 0
OAM cells received: 0
OAM cells sent: 0
Status: UP
PPP: Virtual-Access1 from Virtual-Templat1
Access-6400-NRP1#
```

```
Access-6400-NRP1# show interface virtual-access 1
Virtual-Access1 is up, line protocol is down
Hardware is Virtual Access interface
Interface is unnumbered. Using address of Loopback1 (10.1.1.1)
MTU 1500 bytes, BW 100000 Kbit, DLY 100000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
DTR is pulsed for 5 seconds on reset
LCP REQsent
Closed: IPCP
Bound to ATM0/0/0.4 VCD: 16, VPI: 4, VCI: 33
Cloned from virtual-template: 1
Last input 00:12:07, output never, output hang never
Last clearing of "show interface" counters 00:12:18
Queueing strategy: fifo > Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  3 packets input, 18 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 abort  
158 packets output, 2675 bytes, 0 underruns  
0 output errors, 0 collisions, 0 interface resets  
0 output buffer failures, 0 output buffers swapped out  
0 carrier transitions  
Access-6400-NRP1#

## [相关信息](#)

- [DSL技术支持](#)
- [产品支持](#)
- [技术支持 - Cisco Systems](#)