

# Cisco 6400 configureren om MUX-PPP, SNAP en een ATM ilm-pvc-discovery subinterface te ondersteunen

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## [Inleiding](#)

Dit document beschrijft een voorbeeldconfiguratie voor een Cisco 6400 Universal Access Concentrator (UAC) die MUX-PPP en Subnetwork Access Protocol (SNAP) ondersteunt en een ATM ilm-pvc-discovery-subinterface gebruikt.

## [Voorwaarden](#)

### [Vereisten](#)

Er zijn geen specifieke vereisten van toepassing op dit document.

### [Gebruikte componenten](#)

Dit document is niet beperkt tot specifieke software- en hardware-versies.

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u de potentiële impact van elke opdracht begrijpen.

### [Conventies](#)

Raadpleeg [Cisco Technical Tips Conventions](#) (Conventies voor technische tips van Cisco) voor meer informatie over documentconventies.

## Configureren

Deze sectie bevat informatie over het configureren van de functies die in dit document worden beschreven.

**N.B.:** Als u aanvullende informatie wilt vinden over de opdrachten in dit document, gebruikt u het [Opdrachtplanningprogramma](#) (alleen [geregistreerd](#) klanten).

## Configuratie

Dit document gebruikt deze configuratie:

### **Cisco 6400 NRP1-software**

```
!  
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 bridge1 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 bridge1 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

```

## Verifiëren

Deze sectie verschaft informatie die u kunt gebruiken om te bevestigen dat uw configuratie correct werkt.

Bepaalde opdrachten met **show** worden ondersteund door de tool [Output Interpreter \(alleen voor geregistreerde klanten\)](#). Hiermee kunt u een analyse van de output van opdrachten met **show** genereren.

### ATM pvc-opdrachtoutput tonen

```

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
0/0/0.1       7    1   34   PVC-D   SNAP  UBR  155000
!--- 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.

```

## Problemen oplossen

Deze sectie bevat informatie waarmee u problemen met de configuratie kunt oplossen.

### Opdrachten voor probleemoplossing

Bepaalde opdrachten met **show** worden ondersteund door de tool [Output Interpreter \(alleen voor geregistreerde klanten\)](#). Hiermee kunt u een analyse van de output van opdrachten met **show**

genereren.

**Opmerking:** Voordat u **debug**-opdrachten afgeeft, raadpleegt u [Belangrijke informatie over Debug Commands](#).

## ATM-gebeurtenissen afbreken

De volgende output laat de virtuele pad identifieer/virtuele kanaalidentificator (VPN/VCI) zien die de knooppunt-routeprocessor (NRP) leert van de NSP-processor.

```
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 BVI1, 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 BVI1,
changed state to up
*Dec 16 15:51:49.019: nrp_sarmgr_teardown_vc(ATM0/0/0): vc:13 vpi:1 vci:34
*Dec 16 15:51:49.179: nrp_sarmgr_teardown_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#
```

## PPP Debug O voor een Cisco 675 in IP-routingmodus

```
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 CONFREQ [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

```

## Opdracht uitvoeren

```
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#
```

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