

LANE and CES (Using PVCs) in Unshaped VP Tunnels

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Introduction

This document provides a sample configuration for LAN emulation (LANE) and circuit emulation service (CES) with the use of permanent virtual circuits (PVCs) in unshaped virtual path (VP) tunnels.

Prerequisites

Requirements

These sample configurations are based on these prerequisites:

- You need to transport CES and LANE across the WAN. Therefore, Cisco recommends ASP–PFQ on the LS1010 to ensure good clocking operations. Cisco also recommends RP–NetClock–3 on the 8540–MSR for the same reason.
- This example uses unshaped VP tunnels.
- Because LANE uses unspecified bit rate (UBR) SVCs, CES uses constant bit rate (CBR) PVCs. Also, since this configuration uses regular VP tunnels, you must have two VP tunnels (one for each service category: CBR and UBR). You might use only one VP tunnel if you used the hierarchical type.
- Since unshaped tunnels can be of any service category, this example has a CBR VP tunnel that can only contain CBR VCs. It is used for CES CBR PVCs (labeled **VPI1** in the network diagram).

Note: The VPI number is locally significant to the switch port. Therefore, you can have the same VPI number on the same switch, but two different switch ports.

- Because a CBR VP tunnel cannot transport non–CBR VCs, you must create another VP tunnel for LANE (which uses UBR service category VCs). Therefore, the second VP tunnel (labeled **VPI2** in the network diagram) is a UBR VP tunnel with UBR LANE SVCs that pass through it.
- You need to purchase two VPs from the service provider. These are CBR and UBR.
- In this example, it is assumed that the CBR VP has a peak cell rate (PCR) of 10 Mbps and a cell delay variation tolerance (CDVT) of 500 cells.

- Device 5500–asp–f is for VP switching. The service provider typically performs this function.
- LANE services are defined on 8540–MSR. LAN Emulation Clients (LECs) are on 8540–MSR and 5500–asp–e.

Note: LANE services are placed on the ATM switch in this example for simplicity. However, that is not the optimal location for LANE services.

- The two private branch exchanges (PBXs) in the diagram use a CES CBR circuit. For details on how to configure circuit emulation, refer to the CES documentation.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

For more information on document conventions, refer to Cisco Technical Tips Conventions.

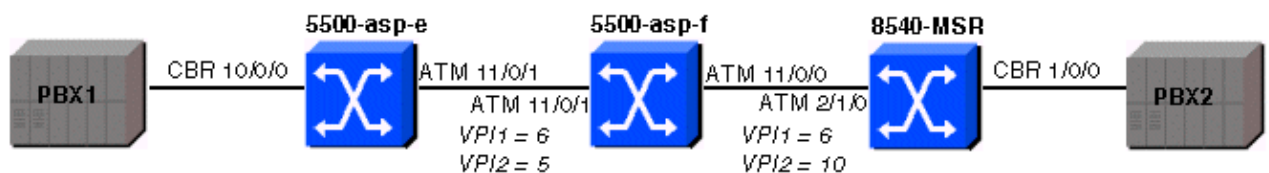
Configure

In this section, you are presented with the information to configure the features described in this document.

Note: To find additional information on the commands used in this document, use the Command Lookup Tool (registered customers only) .

Network Diagram

This document uses this network setup:



Configurations

This document uses these configurations:

- 5500–asp–e
- 5500–asp–f
- 8540–MSR

5500–asp–e
<pre> 5500-asp-e# show running-config Building configuration... Current configuration: !</pre>

```

version 11.3
no service pad
service timestamps debug datetime msec
service timestamps log uptime
no service password-encryption
!
hostname 5500-asg-e
!
boot system flash slot0:ls1010-wp-mz.120-3c.W5.9.bin
!
ip host-routing
!
atm connection-traffic-table-row index 64000 cbr pcr 10240 cdvt 500
atm lecs-address-default 47.0091.8100.0000.0090.2144.8401.0090.2144.8405.00 1
atm address 47.0091.8100.0000.0050.537e.1401.0050.537e.1401.00
atm router pnni
  no aesa embedded-number left-justified
  node 1 level 56 lowest
  redistribute atm-static
!
!
!
interface CBR10/0/0
  no ip address
  ces circuit 0 circuit-name test
  ces pvc 0 interface ATM11/0/1.6 vpi 6 vci 100
!
interface ATM11/0/1
  no atm signalling enable
  no ip address
  atm pvp 5
  atm pvp 6 rx-cttr 64000 tx-cttr 64000
!
interface ATM11/0/1.5 point-to-point
!
interface ATM11/0/1.6 point-to-point
!
interface ATM13/0/0
  no ip address
  atm maxvp-number 0
!
interface ATM13/0/0.1 multipoint
  ip address 100.100.100.2 255.255.255.0
  lane client ethernet test
!
interface Ethernet13/0/0
  no ip address
!
no ip classless
!
logging buffered 16000 debugging
!
line con 0
line aux 0
line vty 0 4
  login
!
end

```

5500-asg-f

!--- The switch is configured for VP switching.

```
5500-asp-f# show running-config

Building configuration...

Current configuration:
!
version 11.3
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption

!
hostname 5500-asp-f
!
!
!
atm connection-traffic-table-row index 64000 cbr pcr 10240 cdvt 500
atm address 47.0091.8100.0000.0050.5308.2401.0050.5308.2401.00
atm router pnni
  no aesa embedded-number left-justified
  node 1 level 56 lowest
  redistribute atm-static
!
!
!
interface ATM11/0/0
  no ip address
!
interface ATM11/0/1
  no ip address
  atm pvp 5 interface ATM11/0/0 10
  atm pvp 6 rx-cttr 64000 tx-cttr 64000 interface ATM11/0/0 6
!
interface ATM13/0/0
  no ip address
  atm maxvp-number 0
!
interface Ethernet13/0/0
  no ip address
!
ip classless
!
!
line con 0
line aux 0
line vty 0 4
  login
!
end
```

8540-MSR

```
8540-MSR# show running-config

Building configuration...

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

```
!  
hostname 8540-MSR  
!  
logging buffered 4096 debugging  
!  
redundancy  
  main-cpu  
    sync config startup  
    sync config running  
facility-alarm core-temperature major 53  
facility-alarm core-temperature minor 45  
ip subnet-zero  
!  
atm connection-traffic-table-row index 63999 cbr pcr 10240 cdvt 500  
atm lecs-address-default 47.0091.8100.0000.0090.2144.8401.0090.2144.8405.00 1  
atm address 47.0091.8100.0000.0090.2144.8401.0090.2144.8401.00  
atm router pnni  
  no aesa embedded-number left-justified  
  node 1 level 56 lowest  
  redistribute atm-static  
!  
!  
lane database PVP  
  name test server-atm-address 47.00918100000009021448401.009021448403.01  
!  
!  
interface CBR1/0/0  
  no ip address  
  no ip directed-broadcast  
  ces circuit 0 circuit-name test  
  ces pvc 0 interface ATM2/1/0.6 vpi 6 vci 100  
!  
interface ATM2/1/0  
  no atm signalling enable  
  no ip address  
  no ip directed-broadcast  
  atm pvp 6 rx-cttr 63999 tx-cttr 63999  
  atm pvp 10  
!  
interface ATM2/1/0.6 point-to-point  
  no ip directed-broadcast  
!  
interface ATM2/1/0.10 point-to-point  
  no ip directed-broadcast  
!  
interface ATM0  
  no ip address  
  no ip directed-broadcast  
  atm maxvp-number 0  
  lane config auto-config-atm-address  
  lane config database PVP  
!  
interface ATM0.1 multipoint  
  ip address 100.100.100.1 255.255.255.0  
  no ip directed-broadcast  
  lane server-bus ethernet test  
  lane client ethernet test  
!  
interface Ethernet0  
  no ip address  
  no ip directed-broadcast  
!  
!  
ip classless  
!  
!
```

```

line con 0
  transport input none
line aux 0
line vty 0 4
!
end

```

Verify

Verify 5500-asp-e

This section provides information you can use to confirm your configuration is working properly.

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

- **show atm vp** Used to verify that the VP tunnel is up.

```

5500-asp-e# show atm vp

Interface      VPI    Type  X-Interface      X-VPI    Status
ATM11/0/1     5      PVP   TUNNEL
ATM11/0/1     6      PVP   TUNNEL

```

```
5500-asp-e#
```

- **show atm vc interface atmx/y/z.n** Used to verify that the LANE SVCs are established through the UBR VP tunnel.

```

5500-asp-e# show atm vc interface atm11/0/1.5

Interface      VPI    VCI    Type    X-Interface      X-VPI  X-VCI  Encap  Status
ATM11/0/1.5   5      3      PVC     ATM13/0/0        0      68     SNAP  UP
ATM11/0/1.5   5      4      PVC     ATM13/0/0        0      69     SNAP  UP
ATM11/0/1.5   5      5      PVC     ATM13/0/0        0      67     QSAAL  UP
ATM11/0/1.5   5      16     PVC     ATM13/0/0        0      66     ILMI   UP
ATM11/0/1.5   5      18     PVC     ATM13/0/0        0      72     PNNI   UP
ATM11/0/1.5   5      43     SVC     ATM13/0/0        0      94     LANE   UP
ATM11/0/1.5   5      44     SVC     ATM13/0/0        0      95     LANE   UP
ATM11/0/1.5   5      45     SVC     ATM13/0/0        0      96     LANE   UP
ATM11/0/1.5   5      46     SVC     ATM13/0/0        0      97     LANE   UP
ATM11/0/1.5   5      47     SVC     ATM13/0/0        0      103    LANE   UP

```

- **show atm pnni neighbor** If LANE SVCs do not come up through the VP tunnel, use this command to verify that the PNNI neighbors are in full state.

```

5500-asp-e# show atm pnni neighbor

Neighbors For Node (Index 1, Level 56)
Neighbor Name: 8540-MSR, Node number: 9
Neighbor Node Id: 56:160:47.009181000000009021448401.009021448401.00
Neighboring Peer State: Full
Link Selection Set To: minimize blocking of future calls
Port           Remote Port Id    Hello state
ATM11/0/1.6    ATM2/1/0.6        2way_in
ATM11/0/1.5    ATM2/1/0.10       2way_in    (Flooding Port)

```

```
5500-asp-e#
```

- **show lane client** Used to verify that the LEC is operational.

```
5500-asp-e# show lane client
```

```

LE Client ATM13/0/0.1 ELAN name: test Admin: up State: operational
Client ID: 2 LEC up for 1 hour 7 minutes 39 seconds
ELAN ID: 0
Join Attempt: 17
Last Fail Reason: Config VC being released
HW Address: 0050.537e.1402 Type: ethernet Max Frame Size: 1516
ATM Address: 47.0091810000000050537E1401.0050537E1402.01
VCD rxFrames txFrames Type ATM Address
0 0 0 configure 47.009181000000009021448401.009021448405.00
94 1 6 direct 47.009181000000009021448401.009021448403.01
95 9 0 distribute 47.009181000000009021448401.009021448403.01
96 0 70 send 47.009181000000009021448401.009021448404.01
97 5 0 forward 47.009181000000009021448401.009021448404.01
103 11 14 data 47.009181000000009021448401.009021448402.01

```

```
5500-asp-e#
```

- **show atm vc interface atm $x/y/z.n$** Used to verify that the CES PVC goes through the CBR VP tunnel.

```
5500-asp-e# show atm vc interface atm11/0/1.6
```

Interface	VPI	VCI	Type	X-Interface	X-VPI	X-VCI	Encap	Status
ATM11/0/1.6	6	3	PVC	ATM13/0/0	0	100	SNAP	UP
ATM11/0/1.6	6	4	PVC	ATM13/0/0	0	101	SNAP	UP
ATM11/0/1.6	6	5	PVC	ATM13/0/0	0	99	QSAAL	UP
ATM11/0/1.6	6	16	PVC	ATM13/0/0	0	98	ILMI	UP
ATM11/0/1.6	6	18	PVC	ATM13/0/0	0	102	PNNI	UP
ATM11/0/1.6	6	100	PVC	ATM-P10/0/3	0	16		UP

```
5500-asp-e#
```

Show Commands for VPs and VCs within the VP

Use the **show** commands in this section to view details about each VP and VC within the VP.

In this example, in order to ensure that the signalling VCs go through both VPs, signalling is disabled on the main interface. The command used to do this is **no atm signalling enable**. The same has been done on the 8540-MSR.

Well known VCs change their VPI number from zero to the VPI number of the VP tunnel. Well known VCs are also of the same service category as the VP tunnel. Therefore, for one VP tunnel the signalling VC is UBR, and the other is CBR. Use the **show atm vp interface atm $x/y/z n m$** and **show atm vc interface atm $x/y/z.n n m$** commands to view information about the service categories.

```
5500-asp-e# show atm vp interface atm11/0/1 5
```

```

Interface: ATM11/0/1, Type: oc3suni
VPI = 5
Status: TUNNEL
Time-since-last-status-change: 01:15:49
Connection-type: PVP
Cast-type: point-to-point
Usage-Parameter-Control (UPC): pass
Wrr weight: 2
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states: Not-applicable
Threshold Group: 5, Cells queued: 0
Rx cells: 0, Tx cells: 0
Tx Clp0:0, Tx Clp1: 0
Rx Clp0:0, Rx Clp1: 0
Rx Upc Violations:0, Rx cell drops:0

```

```
Rx Clp0 q full drops:0, Rx Clp1 qthresh drops:0
Rx connection-traffic-table-index: 1
Rx service-category: UBR (Unspecified Bit Rate)
Rx pcr-clp01: 7113539
Rx scr-clp01: none
Rx mcr-clp01: none
Rx      cdvt: 1024 (from default for interface)
Rx      mbs: none
Tx connection-traffic-table-index: 1
Tx service-category: UBR (Unspecified Bit Rate)
Tx pcr-clp01: 7113539
Tx scr-clp01: none
Tx mcr-clp01: none
Tx      cdvt: none
Tx      mbs: none
```

5500-asp-e# **show atm vp interface atm11/0/1 6**

```
Interface: ATM11/0/1, Type: oc3suni
VPI = 6
Status: TUNNEL
Time-since-last-status-change: 00:06:25
Connection-type: PVP
Cast-type: point-to-point
Usage-Parameter-Control (UPC): pass
Wrr weight: 2
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states: Not-applicable
Threshold Group: 1, Cells queued: 0
Rx cells: 0, Tx cells: 0
Tx Clp0:0, Tx Clp1: 0
Rx Clp0:0, Rx Clp1: 0
Rx Upc Violations:0, Rx cell drops:0
Rx Clp0 q full drops:0, Rx Clp1 qthresh drops:0
Rx connection-traffic-table-index: 64000
Rx service-category: CBR (Constant Bit Rate)
Rx pcr-clp01: 10240
Rx scr-clp01: none
Rx mcr-clp01: none
Rx      cdvt: 500
Rx      mbs: none
Tx connection-traffic-table-index: 64000
Tx service-category: CBR (Constant Bit Rate)
Tx pcr-clp01: 10240
Tx scr-clp01: none
Tx mcr-clp01: none
Tx      cdvt: 500
Tx      mbs: none
```

5500-asp-e# **show atm vc interface atm11/0/1.6 6 5**

```
Interface: ATM11/0/1.6, Type: oc3suni
VPI = 6 VCI = 5
Status: UP
Time-since-last-status-change: 00:10:22
Connection-type: PVC
Cast-type: point-to-point
Packet-discard-option: enabled
Usage-Parameter-Control (UPC): pass
```

```
Wrr weight: 15
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states: Not-applicable
Cross-connect-interface: ATM13/0/0, Type: ATM Swi/Proc
Cross-connect-VPI = 0
Cross-connect-VCI = 99
Cross-connect-UPC: pass
Cross-connect OAM-configuration: disabled
Cross-connect OAM-state: Not-applicable
Encapsulation: AALQSAAL
Threshold Group: 6, Cells queued: 0
Rx cells: 131, Tx cells: 134
Tx Clp0:134, Tx Clp1: 0
Rx Clp0:65, Rx Clp1: 66
Rx Upc Violations:0, Rx cell drops:0
Rx pkts:131, Rx pkt drops:0
Rx connection-traffic-table-index: 2
Rx service-category: CBR (Constant Bit Rate)
Rx pcr-clp01: 424
Rx scr-clp01: none
Rx mcr-clp01: none
Rx      cdvt: 1024 (from default for interface)
Rx      mbs: none
Tx connection-traffic-table-index: 2
Tx service-category: CBR (Constant Bit Rate)
Tx pcr-clp01:

424
Tx scr-clp01: none
Tx mcr-clp01: none
Tx      cdvt: none
Tx      mbs: none
Crc Errors:0, Sar Timeouts:0, OverSizedSDUs:0
BufSzOvfl: Small:0, Medium:0, Big:0, VeryBig:0, Large:0
```

```
5500-asp-e# show atm vc interface atm11/0/1.5 5 5
```

```
Interface: ATM11/0/1.5, Type: oc3suni
VPI = 5 VCI = 5
Status: UP
Time-since-last-status-change: 01:09:56
Connection-type: PVC
Cast-type: point-to-point
Packet-discard-option: enabled
Usage-Parameter-Control (UPC): pass
Wrr weight: 15
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states: Not-applicable
Cross-connect-interface: ATM13/0/0, Type: ATM Swi/Proc
Cross-connect-VPI = 0
Cross-connect-VCI = 67
Cross-connect-UPC: pass
Cross-connect OAM-configuration: disabled
Cross-connect OAM-state: Not-applicable
Encapsulation: AALQSAAL
Threshold Group: 6, Cells queued: 0
Rx cells: 917, Tx cells: 921
Tx Clp0:921, Tx Clp1: 0
Rx Clp0:449, Rx Clp1: 468
Rx Upc Violations:0, Rx cell drops:0
Rx pkts:909, Rx pkt drops:0
```

```

Rx connection-traffic-table-index: 6
Rx service-category: UBR (Unspecified Bit Rate)
Rx pcr-clp01: 424
Rx scr-clp01: none
Rx mcr-clp01: none
Rx      cdvt: 1024 (from default for interface)
Rx      mbs: none
Tx connection-traffic-table-index: 6
Tx service-category: UBR (Unspecified Bit Rate)
Tx pcr-clp01: 424
Tx scr-clp01: none
Tx mcr-clp01: none
Tx      cdvt: none
Tx      mbs: none
Crc Errors:0, Sar Timeouts:0, OverSizedSDUs:0
BufSzOvfl:  Small:2, Medium:0, Big:0, VeryBig:0, Large:0

```

Use the **show atm interface resource atmx/y/z.n** command to see what resources are available in each tunnel and which resources are reserved by VCs that go through the tunnel.

```
5500-asp-e# show atm interface resource atm11/0/1.5
```

```

Resource Management configuration:
  Service Categories supported: ubr
  Link Distance: 0 kilometers
  Best effort connection limit: disabled 0 max connections
  Max traffic parameters by service (rate in Kbps, tolerance in cell-times):
    Peak-cell-rate RX: none ubr
    Peak-cell-rate TX: none ubr
    Minimum-cell-rate RX: none ubr
    Minimum-cell-rate TX: none ubr
    CDVT RX: none ubr
    CDVT TX: none ubr
Resource Management state:
  Best effort connections: 5 pvcs, 5 svcs

```

```
5500-asp-e# show atm interface resource atm11/0/1.6
```

```

Resource Management configuration:
  Service Categories supported: cbr
  Link Distance: 0 kilometers
  Best effort connection limit: disabled 0 max connections
  Max traffic parameters by service (rate in Kbps, tolerance in cell-times):
    Peak-cell-rate RX: none cbr,
    Peak-cell-rate TX: none cbr,
    Minimum-cell-rate RX:
    Minimum-cell-rate TX:
    CDVT RX: none cbr,
    CDVT TX: none cbr,
Resource Management state:
  Available bit rates (in Kbps):
    7986 cbr RX, 7986 cbr TX, 0 vbr RX, 0 vbr TX,
    0 abr RX, 0 abr TX, 0 ubr RX, 0 ubr TX
  Allocated bit rates:
    1741 cbr RX, 1741 cbr TX, 0 vbr RX, 0 vbr TX,
    0 abr RX, 0 abr TX, 0 ubr RX, 0 ubr TX

```

Verify 5500-asp-f

This section provides information you can use to confirm your configuration is working properly.

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

- **show atm vp** Used to verify that VP is operational.

```
5500-asp-f# show atm vp
```

Interface	VPI	Type	X-Interface	X-VPI	Status
ATM11/0/0	6	PVP	ATM11/0/1	6	UP
ATM11/0/0	10	PVP	ATM11/0/1	5	UP
ATM11/0/1	5	PVP	ATM11/0/0	10	UP
ATM11/0/1	6	PVP	ATM11/0/0	6	UP

```
5500-asp-f#
```

- **show atm interface resource atmx/y/z** Used to see resources reserved by these two VPs on an interface.

```
5500-asp-f# show atm interface resource atm11/0/1
```

```
Resource Management configuration:
```

```
Service Classes:
```

```
Service Category map: c1 cbr, c2 vbr-rt, c3 vbr-nrt, c4 abr, c5 ubr
```

```
Scheduling: RS c1 WRR c2, WRR c3, WRR c4, WRR c5
```

```
WRR Weight: 8 c2, 1 c3, 1 c4, 1 c5
```

```
Pacing: disabled 0 Kbps rate configured, 0 Kbps rate installed
```

```
Service Categories supported: cbr,vbr-rt,vbr-nrt,abr,ubr
```

```
Link Distance: 0 kilometers
```

```
Controlled Link sharing:
```

```
Max aggregate guaranteed services: none RX, none TX
```

```
Max bandwidth: none cbr RX, none cbr TX, none vbr RX, none vbr TX,  
none abr RX, none abr TX, none ubr RX, none ubr TX
```

```
Min bandwidth: none cbr RX, none cbr TX, none vbr RX, none vbr TX,  
none abr RX, none abr TX, none ubr RX, none ubr TX
```

```
Best effort connection limit: disabled 0 max connections
```

```
Max traffic parameters by service (rate in Kbps, tolerance in cell-times):
```

```
Peak-cell-rate RX: none cbr, none vbr, none abr, none ubr
```

```
Peak-cell-rate TX: none cbr, none vbr, none abr, none ubr
```

```
Sustained-cell-rate: none vbr RX, none vbr TX
```

```
Minimum-cell-rate RX: none abr, none ubr
```

```
Minimum-cell-rate TX: none abr, none ubr
```

```
CDVT RX: none cbr, none vbr, none abr, none ubr
```

```
CDVT TX: none cbr, none vbr, none abr, none ubr
```

```
MBS: none vbr RX, none vbr TX
```

```
Resource Management state:
```

```
Available bit rates (in Kbps):
```

```
137503 cbr RX, 137503 cbr TX, 137503 vbr RX, 137503 vbr TX,
```

```
137503 abr RX, 137503 abr TX, 137503 ubr RX, 137503 ubr TX
```

```
Allocated bit rates:
```

```
10240 cbr RX, 10240 cbr TX, 0 vbr RX, 0 vbr TX,
```

```
0 abr RX, 0 abr TX, 0 ubr RX, 0 ubr TX
```

```
Best effort connections: 1 pvcs, 0 svcs
```

```
5500-asp-f#
```

8540-MSR

This section provides information you can use to confirm your configuration is working properly.

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

- **show atm vp** Used to verify that the VP tunnel is up.

8540-MSR# **show atm vp**

Interface	VPI	Type	X-Interface	X-VPI	Status
ATM2/1/0	6	PVP	TUNNEL		
ATM2/1/0	10	PVP	TUNNEL		

- **show atm vc interface atmx/y/z.n** Used to verify that the CES PVC is going through the CBR VP tunnel.

8540-MSR# **show atm vc interface atm2/1/0.10**

Interface	VPI	VCI	Type	X-Interface	X-VPI	X-VCI	Encap	Status
ATM2/1/0.10	10	3	PVC	ATM0	0	140	SNAP	UP
ATM2/1/0.10	10	4	PVC	ATM0	0	141	SNAP	UP
ATM2/1/0.10	10	5	PVC	ATM0	0	139	QSAAL	UP
ATM2/1/0.10	10	16	PVC	ATM0	0	138	ILMI	UP
ATM2/1/0.10	10	18	PVC	ATM0	0	142	PNNI	UP
ATM2/1/0.10	10	43	SVC	ATM0	0	149	LANE	UP
ATM2/1/0.10	10	44	SVC	ATM0	0	132	LANE	UP
ATM2/1/0.10	10	45	SVC	ATM0	0	150	LANE	UP
ATM2/1/0.10	10	46	SVC	ATM0	0	136	LANE	UP

8540-MSR# **show atm vc interface atm2/1/0.6**

Interface	VPI	VCI	Type	X-Interface	X-VPI	X-VCI	Encap	Status
ATM2/1/0.6	6	3	PVC	ATM0	0	153	SNAP	UP
ATM2/1/0.6	6	4	PVC	ATM0	0	154	SNAP	UP
ATM2/1/0.6	6	5	PVC	ATM0	0	152	QSAAL	UP
ATM2/1/0.6	6	16	PVC	ATM0	0	151	ILMI	UP
ATM2/1/0.6	6	18	PVC					
ATM0	0	155	PNNI	UP				
ATM2/1/0.6	6	100	PVC	ATM-P1/0/3	0	16		UP

- **show atm vp interface atmx/y/z n m** Used to view service category information.

8540-MSR# **show atm vp interface atm2/1/0 10**

```
Interface: ATM2/1/0, Type: oc3suni
VPI = 10
Status: TUNNEL
Time-since-last-status-change: 01:25:46
Connection-type: PVP
Cast-type: point-to-point
Usage-Parameter-Control (UPC): pass
Wrr weight: 2
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states: Not-applicable
Threshold Group: 5, Cells queued: 0
Rx cells: 0, Tx cells: 0
Tx Clp0:0, Tx Clp1: 0
Rx Clp0:0, Rx Clp1: 0
Rx Upc Violations:0, Rx cell drops:0
Rx Clp0 q full drops:0, Rx Clp1 qthresh drops:0
Rx connection-traffic-table-index: 1
Rx service-category: UBR (Unspecified Bit Rate)
Rx pcr-clp01: 7113539
Rx scr-clp01: none
Rx mcr-clp01: none
Rx cdvt: 1024 (from default for interface)
Rx mbs: none
Tx connection-traffic-table-index:1
Tx service-category: UBR (Unspecified Bit Rate)
```

```
Tx pcr-clp01: 7113539
Tx scr-clp01: none
Tx mcr-clp01: none
Tx      cdvt: none
Tx      mbs: none
```

```
8540-MSR# show atm vp interface atm2/1/0 6
```

```
Interface: ATM2/1/0, Type: oc3suni
VPI = 6
Status: TUNNEL
Time-since-last-status-change: 01:04:52
Connection-type: PVP
Cast-type: point-to-point
Usage-Parameter-Control (UPC): pass
Wrr weight: 2
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states: Not-applicable
Threshold Group: 1, Cells queued: 0
Rx cells: 0, Tx cells: 0
Tx Clp0:0, Tx Clp1: 0
Rx Clp0:0, Rx Clp1: 0
Rx Upc Violations:0, Rx cell drops:0
Rx Clp0 q full drops:0, Rx Clp1 qthresh drops:0
Rx connection-traffic-table-index: 63999
Rx service-category: CBR (Constant Bit Rate)
Rx pcr-clp01: 10240
Rx scr-clp01: none
Rx mcr-clp01: none
Rx      cdvt: 500
Rx      mbs: none
Tx connection-traffic-table-index: 63999
Tx service-category: CBR (Constant Bit Rate)
Tx pcr-clp01: 10240
Tx scr-clp01: none
Tx mcr-clp01: none
Tx      cdvt: 500
Tx      mbs: none
```

- **show atm interface resource atm/x/y/z.n** Used to see what resources are available in each tunnel and which resources are reserved by VCs that go through the tunnel.

```
8540-MSR# show atm interface resource atm 2/1/0.6
```

```
Resource Management configuration:
  Service Categories supported: cbr
  Link Distance: 0 kilometers
  Best effort connection limit: disabled 0 max connections
  Max traffic parameters by service (rate in Kbps, tolerance in cell-times):
    Peak-cell-rate RX: none cbr,
    Peak-cell-rate TX: none cbr,
    Minimum-cell-rate RX:
    Minimum-cell-rate TX:
    CDVT RX: none cbr,
    CDVT TX: none cbr,
Resource Management state:
  Available bit rates (in Kbps):
    7986 cbr RX, 7986
cbr
TX, 0 vbr RX, 0 vbr TX,
  0 abr RX, 0 abr TX, 0 ubr RX, 0 ubr TX
  Allocated bit rates:
    1741 cbr RX, 1741 cbr TX, 0 vbr RX, 0 vbr TX,
```

0 abr RX, 0 abr TX, 0 ubr RX, 0 ubr TX

8540-MSR# **show atm interface resource atm 2/1/0.10**

```
Resource Management configuration:
  Service Categories supported: ubr
  Link Distance: 0 kilometers
  Best effort connection limit: disabled 0 max connections
  Max traffic parameters by service (rate in Kbps, tolerance in cell-times):
  Peak-cell-rate RX: none ubr
  Peak-cell-rate TX: none ubr
  Minimum-cell-rate RX: none ubr
  Minimum-cell-rate TX: none ubr
  CDVT RX: none ubr
  CDVT TX: none ubr
Resource Management state:
  Best effort connections: 5 pvcs, 4 svcs
```

- **show atm pnni neighbor** Used to verify that the PNNI neighbors are in full state.

8540-MSR# **show atm pnni neighbor**

```
Neighbors For Node (Index 1, Level 56)
  Neighbor Name: 5500-asp-e, Node number: 10
  Neighbor Node Id: 56:160:47.0091810000000050537E1401.0050537E1401.00
  Neighboring Peer State: Full
  Link Selection Set To: minimize blocking of future calls
  Port                               Remote Port Id       Hello state
  ATM2/1/0.6                         ATM11/0/1.6          2way_in
  ATM2/1/0.10                       ATM11/0/1.5          2way_in (Flood Port)
```

- **show lane** Used to display detailed information for all LANE components configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN (ELAN).

8540-MSR# **show lane**

```
LE Config Server ATM0 config table: PVP
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (23 seconds to update):
47.009181000000009021448401.009021448405.00 <----- me
ATM Address of this LECS: 47.009181000000009021448401.009021448405.00 (auto)
 vcd rxCnt txCnt callingParty
  128   3   3 47.009181000000009021448401.009021448403.01 LES test 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 6
cumulative total number of config failures so far: 0
```

```
LE Server ATM0.1, Elan name: test, Admin: up, State: operational
Type: ethernet, Max Frame Size: 1516
locally set elan-id: not set
elan-id obtained from LECS: not set
ATM address: 47.009181000000009021448401.009021448403.01
LECS used: 47.009181000000009021448401.009021448405.00 connected, vcd 126
control distribute: vcd 132, 2 members, 17 packets
proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
```

lecid ST

```
vcd   pkts Hardware Addr  ATM Address
  1P O  131       9 0090.2144.8402 47.009181000000009021448401.009021448402.01
  2P O  149       9 0050.537e.1402 47.0091810000000050537E1401.0050537E1402.01
```

```
LE BUS ATM0.1 ELAN name: test Admin: up State: operational
```

```

type: ethernet Max Frame Size: 1516
ATM address: 47.009181000000009021448401.009021448404.01
data forward: vcd 136, 2 members, 34 packets, 3 unicasts

```

```

lecid vcd      pkts  ATM Address
  1   135      93  47.009181000000009021448401.009021448402.01
  2   150      79  47.0091810000000050537E1401.0050537E1402.01

```

```

LE Client ATM0.1 ELAN name: test Admin: up State: operational
Client ID: 1 LEC up for 1 hour 28 minutes 44 seconds
ELAN ID: 0
Join Attempt: 8
Last Fail Reason: Locally deactivate
HW Address: 0090.2144.8402 Type: ethernet Max Frame Size: 1516
ATM Address: 47.009181000000009021448401.009021448402.01

```

```

VCD  rxFrames  txFrames  Type      ATM Address
  0      0          0  configure 47.009181000000009021448401.009021448405.00
130      1          9  direct   47.009181000000009021448401.009021448403.01
VCD  rxFrames  txFrames  Type      ATM Address
133      17         0  distribute 47.009181000000009021448401.009021448403.01
134      0         93  send      47.009181000000009021448401.009021448404.01
137      17         0  forward

```

```
47.009181000000009021448401.009021448404.01
```

- **show ces circuit** Used to display detailed circuit information for the CBR interface.

```
8540-MSR# show ces circuit
```

```

Interface  Circuit  Circuit-Type  X-interface  X-vpi  X-vci  Status
CBR1/0/0   0        HardPVC      ATM2/1/0.6   6       100    UP

```

```
5500-asp-e# show ces circuit
```

```

Interface  Circuit  Circuit-Type  X-interface  X-vpi  X-vci  Status
CBR10/0/0  0        HardPVC      ATM11/0/1.6  6       100    UP

```

- **show atm connection-traffic-table** Use the connection traffic table to specify different service categories and traffic parameters. Once you specify the parameters, use the index to configure VC and VP category and traffic parameters. To view the connection traffic table settings, use the **show atm connection-traffic-table** command.

```
8540-MSR# show atm connection-traffic-table
```

```

Row      Service-category  pcr      scr/mcr      mbs      cdvt
  1         ubr              7113539   none         none     none
  2         cbr              424       none         none     none
  3         vbr-rt          424       424         50      none
  4         vbr-nrt         424       424         50      none
  5         abr              424       0            none     none
  6         ubr              424       none         none     none
63999    cbr              10240    none         500     none
64000    cbr              1741     none         none     none
2147483637  ubr            149760   none         none     none
2147483638  ubr            149760   none         none     none
2147483639  ubr            149760   none         none     none
2147483640  ubr            149760   none         none     none
2147483645*

```

```

ubr                0          none                none
2147483646* ubr                1          none                none
2147483647* ubr                7113539   none                none

```

5500-asp-e# **show atm connection-traffic-table**

```

Row      Service-category  pcr      scr/mcr      mbs      cdvt
1        ubr                7113539   none
2        cbr                424
3        vbr-rt            424      424      50      none
4        vbr-nrt           424      424      50      none
5        abr                424      0
6        ubr                424      none
63999   cbr                1741
64000   cbr                10240
2147483637 ubr            149760

none                none
2147483638 ubr            149760      none
2147483639 ubr            149760      none
2147483640 ubr            149760      none
2147483645*

ubr                0          none                none
2147483646* ubr                1          none                none
2147483647* ubr                7113539   none                none

```

5500-asp-f# **show atm connection-traffic-table**

```

Row      Service-category  pcr      scr/mcr      mbs      cdvt
1        ubr                7113539   none
2        cbr                424
3        vbr-rt            424      424      50      none
4        vbr-nrt           424      424      50      none
5        abr                424      0
6        ubr                424

none                none
64000   cbr                10240
2147483645* ubr            0          none
2147483646* ubr            1          none
2147483647* ubr            7113539   none

```

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

Related Information

- [ATM Support Resources](#)
- [Technical Support – Cisco Systems](#)

