

# Configuring and Traffic Policing Point-to-Multipoint PVC Connections on LightStream 1010, Catalyst 8510MSR and Catalyst 8540MSR Switches

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## Introduction

### Prerequisites

Requirements

Components Used

Conventions

### Configure

Network Diagram

Configurations

### Verify

### Troubleshoot

### Related Information

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## Introduction

This document shows how to configure Point-to-Multipoint Permanent Virtual Connections (PVC) on Cisco LightStream 1010s, Catalyst 8510MSRs and Catalyst 8540MSRs. It also looks at how to implement traffic policing configurations on this type of PVC.

The typical application for Point-to-Multipoint PVCs is video stream that needs to go to multiple destinations. The flow of cells is unidirectional from one PVC (root) to multiple PVCs (leaf). Multiple destinations are made possible by replicating the cells from the root PVC and sending them over to the leaf PVCs.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

The information in this document is based on these software and hardware versions:

- Cisco LightStream 1010
- Catalyst 8510MSR
- Catalyst 8540MSR

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

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

## Configure

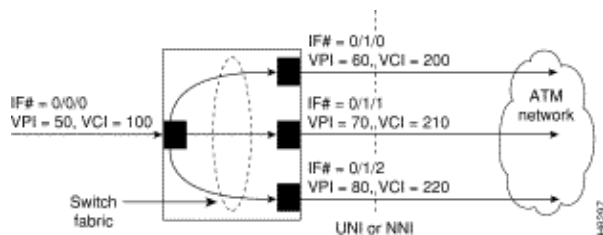
In this section, you are presented with the information to configure the features described in this document.

**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:

**Note:** The commands are the same across LightStream 1010 and Catalyst 8500MSR switches.



## Configurations

This configuration creates a single root PVC and multiple leaf PVCs.

### LightStream 1010, 8510MSR and 8540MSR

```
interface ATM0/0/0
 no ip address
 no ip directed-broadcast
 atm pvc 50 100 cast-type p2mp-root interface ATM0/1/0 60 200 cast-type p2mp-leaf
 atm pvc 50 100 cast-type p2mp-root interface ATM0/1/1 70 210 cast-type p2mp-leaf
 atm pvc 50 100 cast-type p2mp-root interface ATM0/1/2 80 220 cast-type p2mp-leaf
 !
interface ATM0/1/0
 no ip address
 no ip directed-broadcast
 !
interface ATM0/1/1
 no ip address
 no ip directed-broadcast
 !
interface ATM0/1/2
 no ip address
 no ip directed-broadcast
 !
```

The second configuration enables traffic policing on the point-to-multipoint PVC. Since it is unidirectional, the point-to-multipoint PVC still requires two entries from the ATM connection traffic table row (CTTR) index. One is for the forward direction and one is for the backward direction. Refer to Configuring the Connection Traffic Table for more information. The backward direction must have zero traffic rate. Failure to do so results in this error message:

```
%connection creation fails: bad parameters
```

The zero traffic rate for the backward direction is a strict requirement on all service classes. This includes constant bit rate (CBR), variable bit rate (VBR) and available bit rate (ABR) except for unspecified bit rate (UBR). This restriction for UBR has been removed due to interoperability issues with other vendors' equipment. UBR traffic policing can use non-zero traffic rate on the backward direction. This is documented under Cisco bug ID CSCdv20934 ( registered customers only ).

This output is a sample configuration of traffic policing point-to-multipoint PVC using CBR service class and 10 Mbps for the Peak Cell Rate (PCR). All non-compliant cells are tagged (the Cell Loss Priority (CLP) bit is set).

```
LightStream 1010, 8510MSR and 8540MSR
atm connection-traffic-table-row index 100 cbr pcr 10000
atm connection-traffic-table-row index 101 cbr pcr 0
interface ATM0/0/0
  no ip address
  no ip directed-broadcast
  atm pvc 50 100 cast-type p2mp-root rx-cttr 100 tx-cttr 101 upc tag
interface ATM0/1/0 60 200 cast-type p2mp-leaf rx-cttr 101 tx-cttr 100
atm pvc 50 100 cast-type p2mp-root rx-cttr 100 tx-cttr 101 upc tag
interface ATM0/1/1 70 210 cast-type p2mp-leaf rx-cttr 101 tx-cttr 100
atm pvc 50 100 cast-type p2mp-root rx-cttr 100 tx-cttr 101 upc tag
interface ATM0/1/2 80 220 cast-type p2mp-leaf rx-cttr 101 tx-cttr 100
!
interface ATM0/1/0
  no ip address
  no ip directed-broadcast
!
interface ATM0/1/1
  no ip address
  no ip directed-broadcast
!
interface ATM0/1/2
  no ip address
  no ip directed-broadcast
!
```

## Verify

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 vc [interface]** Displays the source and destination VCs.
- **show atm vc [interface] [vpi] [vci]** Displays the VC in detail.
- **show atm connection-traffic-table** Displays all the configured connection-traffic-table-row indexes.

```
Switch#show atm vc interface atm0/0/0
Interface      VPI   VCI   Type   X-Interface  X-VPI  X-VCI  Encap  Status
ATM0/0/0      0     5     PVC    ATM2/0/0     0      39     QSAAL  UP
ATM0/0/0      0     16    PVC    ATM2/0/0     0      35     ILMI   UP
ATM0/0/0      50    100   PVC    ATM0/1/0     60     200    UP
ATM0/1/1      70    210   UP
ATM0/1/2      80    220   UP
```

```
Switch#show atm vc interface a0/0/0 50 100
```

```
Interface: ATM0/0/0, Type: oc3suni
VPI = 50 VCI = 100
Status: DOWN
Time-since-last-status-change: 00:01:36
Connection-type: PVC
Cast-type: point-to-multipoint-root
Packet-discard-option: disabled
Usage-Parameter-Control (UPC): tag
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states: Not-applicable
Cross-connect-interface: ATM0/1/0, Type: oc3suni
Cross-connect-VPI = 60
Cross-connect-VCI = 200
Cross-connect-UPC: pass
Cross-connect OAM-configuration: disabled
Cross-connect OAM-state: Not-applicable
Cross-connect-interface: ATM0/1/1
Cross-connect-VPI = 70
Cross-connect-VCI = 210
Cross-connect-interface: ATM0/1/2
Cross-connect-VPI = 80
Cross-connect-VCI = 220
Rx cells: 0, Tx cells: 0
Rx connection-traffic-table-index: 100
Rx service-category: CBR (Constant Bit Rate)
Rx pcr-clp01: 10000
Rx scr-clp01: none
Rx mcr-clp01: none
Rx cdvt: 1024 (from default for interface)
Rx mbs: none
Tx connection-traffic-table-index: 101
Tx service-category: CBR (Constant Bit Rate)
Tx pcr-clp01: 0
Tx scr-clp01: none
Tx mcr-clp01: none
Tx cdvt: none
Tx mbs: none
```

```
Switch#show atm connection-traffic-table
```

Row	Service-category	pcr	scr/mcr	mbs	cdvt
1	ubr	7113539	none		none
2	cbr	424			none
3	vbr-rt	424	424	50	none
4	vbr-nrt	424	424	50	none
5	abr	424	0		none
6	ubr	424	none		none
<b>100</b>	<b>cbr</b>	<b>10000</b>			<b>none</b>
<b>101</b>	<b>cbr</b>	<b>0</b>			<b>none</b>
63999	cbr	1741			none
64000	cbr	1737			none
2147483643	cbr	1737			none
2147483644	cbr	1737			none
2147483645*	ubr	0	none		none
2147483646*	ubr	1	none		none
2147483647*	ubr	7113539	none		none

## Troubleshoot

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

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## Related Information

- [Configuring Virtual Connections](#)
  - [Configuring Resource Management](#)
  - [ATM Technology Support Pages](#)
  - [Technical Support – Cisco Systems](#)
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