CHAPTER 7

Configuring Virtual Connections

This chapter describes how to configure a typical ATM network after autoconfiguration has established the default network connections. The network configuration modifications described in this chapter are used to optimize your ATM network operation.

This chapter uses the following virtual path (VP) and virtual channel (VC) terminology:

- Virtual Channel (VC)—A generic term used to describe unidirectional transport of ATM cells associated with a common unique identifier value.
- Virtual Channel Link—A means of unidirectional transport of ATM cells between a point where a VCI value is assigned and the point where that value is translated or terminated.
- Virtual Channel Identifier (VCI)—Identifies a particular VC link for a given VPC.
- Virtual Channel Connection (VCC)—A concatenation of VC links that extends between two points where the adaptation layer is accessed. VCCs allow user-to-user, user-to-network, or network-to-network information transfer. Cell sequence integrity is preserved for the cells belonging to the same VCC.
- Virtual Path (VP)—A generic term for a bundle of VC links: all the VC links in a bundle have the same endpoints.
- Virtual Path Link—A group of VC links, identified by a common value VPI, between a point where the VPI value is assigned and the point where that value is translated or terminated.
- Virtual Path Identifier (VPI)—Identifies a particular VP link.
- Virtual Path Connection (VPC)—A concatenation of VP links that extends between two points where the VCI values are assigned and the point where those values are translated or removed. VPCs allow user-to-user, user-to-network, or network-to-network information transfer.

The characteristics of the VC are established when the VC is created and include the following:

- Quality of service (QOS)
- AAL mode (AAL5)
- Peak and average transmission rates
- Cell sequencing integrity

These switching features can be turned off with interface configuration commands; autonomous switching must be explicitly enabled per interface.

Note For a complete description of the commands mentioned in this chapter, refer to the *LightStream 1010 ATM Switch Command Reference* publication.

When configuring virtual connections perform the following tasks:

- Configure Permanent Virtual Channel Connections
- Configure Permanent Virtual Path Connections
- Configure Point-To-Multipoint PVC Connection
- Configure Point-To-Multipoint PVP Channel
- Configure Soft Permanent Virtual Channel (Soft PVC) Connections
- Configure Terminating PVC Connections

When the switch is powered on, an SVC is dynamically established for each end node with which the switch communicates. Table 7-1 list the types of supported virtual connections.

Table 7-1 Supported LightStream 1010 Virtual Connection Types

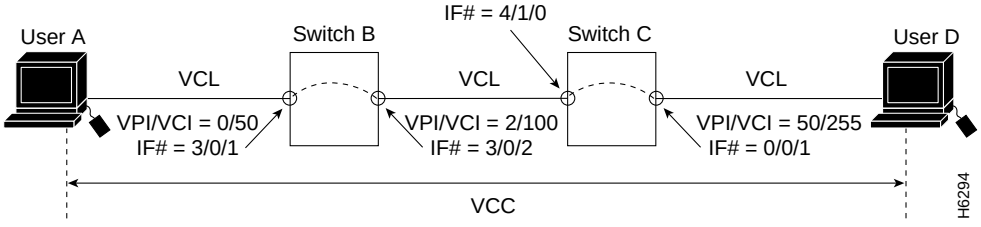
Connection	Point-to-Point	Point-to-Multipoint	Transit	Terminate
Permanent virtual channel link (PVCL)	✓	✓	—	—
Permanent virtual path link (PVPL)	✓	✓	—	—
Permanent virtual channel connection (PVCC)	✓	✓	✓	✓
Permanent virtual path connection (PVPC)	✓	✓	✓	—
Soft permanent virtual channel connection (Soft PVCC)	✓	—	✓	—
Soft permanent virtual path connection (Soft PVPC)	✓	—	✓	—
Switched virtual channel connection (SVCC)	✓	✓	✓	✓
Switched virtual path connection (SVPC)	✓	✓	✓	—

For an overview description of LightStream 1010 ATM switch configuration examples see the *Light Stream 1010 ATM Switch User Guide* publication. The *LightStream 1010 ATM Switch Command Reference* publication provides the complete syntax for every switch configuration command and describes the **no** form of each command.

Configure Permanent Virtual Channel Connections

This section describes configuring LightStream 1010 virtual channel connections (VCCs). A VCC is established as a bidirectional facility to transfer ATM traffic between two ATM layer users. Figure 7-1 shows a VCC between ATM user A and user D.

Figure 7-1 Virtual Channel Connection Example



Note The value of the virtual path and virtual channel identifiers may change as the traffic is relayed through the ATM network.

Virtual Channel Connection Command Description

To configure a point-to-point VCC, use the following configuration command using the **no** form of this command to remove an entry:

Task	Command
At the privileged EXEC prompt, enter configuration mode from the terminal.	**configure**[1] [**terminal**]
Select the interface to be configured.	**interface atm** *card/sub_card/port* [*.sub-inter #*]
Configure the PVC.	**atm pvc** *vpi vci* [**upc** *upc*] [**pd** *pd*] [**rx-cttr** *index*] [**tx-cttr** *index*] **interface atm** *card/subcard/port[.vpt #] vpi vci* [**upc** *upc*]

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

Note The row index for **rx-cttr** and **tx-cttr** must be configured before using this optional parameter. See the section "Configure Connection Traffic Table" in the chapter "Configuring Resource Management Functions."

Parameter *pd* is not applicable to a virtual path.

Note When configuring PVC connections configure the lowest VPI and VCI numbers first.

Example

The following example configures the internal cross-connect PVC on Switch B between interface 3/0/1, VPI=0, VCI =50 and interface 3/0/2, VPI=2, VCI=100 (see Figure 7-1):

```
Switch-B(config)#interface atm 3/0/1
Switch-B(config-if)#atm pvc 0 50 interface atm 3/0/2 2 100
```

The following example configures the interswitch PVC link connection between Switch-B, interface 3/0/2, VPI=2, VCI =100 and Switch-C, interface 4/1/0, VPI=2, VCI =100:

```
Switch-B(config)#interface atm 3/0/2
Switch-B(config-if)#atm pvc 2 100 interface atm 4/1/0 2 100
```

The following example configures the internal cross-connect PVC on Switch-C between interface 4/1/0, VPI=2, VCI =100 and interface 0/0/1, VPI 50, VCI=255:

```
Switch-C(config)#interface atm 4/1/0
Switch-C(config-if)#atm pvc 2 100 interface atm 0/0/1 50 255
```

Each subsequent VC cross-connection and link must be configured until the VC is terminated to create the entire VCC.

Use the show vc Command to Display Virtual Channel Connections

To show the VC configuration use the following EXEC mode commands:

Task	Command
Show the ATM interface configuration.	**show atm vc** *card/sub_card/port*
Show the PVC interface configuration.	**show atm vc interface atm** *card/sub_card/port vpi vci*

Examples

The following example displays Switch-B PVC configuration on interface 3/0/1:

```
Switch-B#show atm vc interface atm 3/0/1
Interface    VPI     VCI     Type   X-Interface  X-VPI   X-VCI   Status
ATM3/0/1     0       50      PVC    ATM3/0/2     2       100     UP
Switch-B#
```

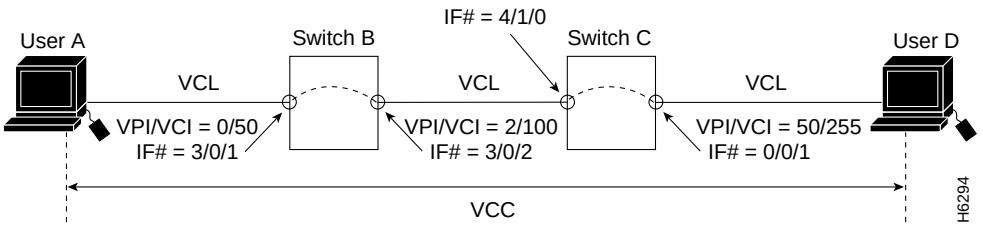
The following example displays Switch-B VC configuration on interface 3/0/1, VPI = 0, VCI = 50:

```
Switch-B#show atm vc interface atm 3/0/1 0 50
Interface: ATM3/0/1
VPI = 0  VCI = 50
Status: UP
Last-status-change-time: 15:44
Connection-type: PVC
Cast-type: point-to-point
Packet-discard-option: enabled
Usage-Parameter-Control (UPC): pass
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states:  Not-applicable
Cross-connect-interface: ATM3/0/2
Cross-connect-VPI = 2
Cross-connect-VCI = 100
Cross-connect-UPC: pass
Cross-connect OAM-configuration: disabled
Cross-connect OAM-state:  Not-applicable
Encapsulation: AAL5PNNI
Rx cells: 0, Tx cells: 0
Rx connection-traffic-table-index: 3
Rx service-category: VBR-RT (Realtime Variable Bit Rate)
Rx pcr-clp01: 424
Rx scr-clp01: 424
Rx tolerance: 50
Tx connection-traffic-table-index: 3
Tx service-category: VBR-RT (Realtime Variable Bit Rate)
Tx pcr-clp01: 424
Tx scr-clp01: 424
Tx tolerance: 50
Crc Errors:0, Sar Timeouts:0, OverSizedSDUs:0
Switch-B#
```

Configure Permanent Virtual Path Connections

This section describes configuring a permanent virtual path (PVP) connection. Figure 7-2 is an example of an LightStream 1010 switch with PVPs configured through the switch.

Figure 7-2 Virtual Path Connection Example



To configure a permanent virtual path connection, use the following EXEC commands using the **no** form of this command to disable:

Task	Command
At the privileged EXEC prompt, enter configuration mode from the terminal.	**configure**[1] [**terminal**]
Select the physical interface to be configured.	**interface atm** *card/sub_card/port*
Configure interface PVP.	**atm pvp** *vpi* [**cast-type** type] [**upc** *upc*] [**rx-cttr** *index*] [**tx-cttr** *index*] **interface** *card/sub_card/port*

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

Note The row index for **rx-cttr** and **tx-cttr** must be configured before using this optional parameter. See the section "Configure Connection Traffic Table" in the chapter "Configuring Resource Management Functions."

Note When configuring PVP connections configure the lowest VPI numbers first.

Example

The following example configures the internal cross-connect PVP within Switch-B between interfaces 3/0/1, VPI=0 and interface 3/0/2, VPI=2:

```
Switch-B(config)#interface atm 3/0/1
Switch-B(config-if)#atm pvp 1 interface atm 3/0/2 2
Switch-B(config-if)#
```

The following example configures the inter-switch PVP link between Switch-B interface 3/0/2, VPI=2 and Switch-C, interface 4/1/0, VPI=2:

```
Switch-B(config)#interface atm 3/0/2
Switch-B(config-if)#atm pvp 2 interface atm 4/1/0 2
Switch-B(config-if)#
```

The following example configures the internal cross-connect PVP within Switch-C between interfaces 4/1/0, VPI=2 and interface 0/0/1, VPI=50:

```
Switch-C(config)#interface atm 4/1/0
Switch-C(config-if)#atm pvp 2 interface atm 0/0/1 50
Switch-C(config-if)#
```

Each subsequent PVP cross-connection and link must be configured until the VP is terminated to create the entire PVP.

Use show atm vp Command to Display Virtual Path Connection

To show the ATM interface configuration, use the following command:

Task	Command
Show the ATM VP configuration.	**show atm vp**

Example

The following example displays the PVP configuration of Switch-B:

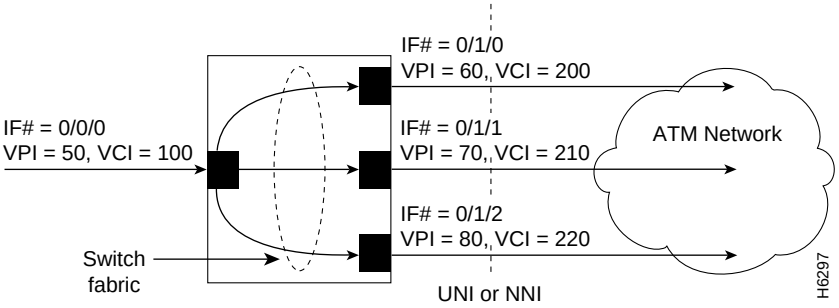
```
Switch-B#show atm vp
Interface     VPI    Type  X-Interface     X-VPI     Status
ATM3/0/1      0      PVP   ATM3/0/2        2         UP
Switch-B#
```

Configure Point-To-Multipoint PVC Connection

This section describes configuring point-to-multipoint PVC connections.

In Figure 7-3, cells entering the switch at the root point (on the left side at interface 0/0/0, VPI=50, VCI=100), are duplicated and switched to the leaf points (output interfaces), on the right side of the example.

Figure 7-3 Point-to-Multipoint PVC Example



Note If desired, one of the leaf points can terminate in the LightStream 1010 at the CPU interface ATM 2/0/0.

Point-To-Multipoint PVC Connection Command Description

This section describes the commands needed to configure the example in Figure 7-3.

To configure point-to-multipoint PVC connections use the following EXEC commands using the **no** form of this command to disable:

Task	Command
At the privileged EXEC prompt, enter configuration mode from the terminal.	**configure**[1] [**terminal**]
Select the interface to be configured.	**interface atm** *card/sub_card/port* [*.vpt #*]
Configure the PVC between ATM switch connections.	**atm pvc** *vpi-A vci-A* [**cast-type** *p2mp-leaf p2mp-root p2p*] [**upc** *upc-A*] [**pd** *pd*] [**rx-cttr** *index*] [**tx-cttr** *index*] **interface atm** *card-B/subcard-B/port-B[.vpt #] vpi-B vci-B* [**cast-type** *type*] [**upc** *upc*-B]

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

To configure the point-to-multipoint PVC connections using the **atm pvc** command the root point is port-A and the leaf points are port-B.

Note The row index for **rx-cttr** and **tx-cttr** must be configured before using this optional parameter. See the section "Configure Connection Traffic Table" in the chapter "Configuring Resource Management Functions."

Example

The following example configures the root point PVC on switch interface 0/0/0, VPI=50, VCI =100 to the leaf point interface 0/1/0, VPI=60, VCI=200 (see Figure 7-3):

```
Switch(config)#interface atm 0/0/0
Switch(config-if)#atm pvc 50 100 cast-type p2mp-root interface atm 0/1/0 60 200 cast-type p2mp-leaf
```

The following example configures the same root point PVC to the leaf point interface 0/1/1, VPI=70, VCI=210:

```
Switch(config-if)#atm pvc 50 100 cast-type p2mp-root interface atm 0/1/1 70 210 cast-type p2mp-leaf
```

The following example configures the same root point PVC to the leaf point interface 0/1/2, VPI=80, VCI=220:

```
Switch(config-if)#atm pvc 50 100 cast-type p2mp-root interface atm 0/1/2 80 220 cast-type p2mp-leaf
```

show atm vc Example to Display Point-To-Multipoint PVC Configuration

To show the point-to-multipoint PVC configuration use the following EXEC mode commands:

Task	Command
Show the ATM interface configuration.	**show atm vc** *card/sub_card/port*
Show the PVC interface configuration.	**show atm vc interface atm** *card/sub_card/port vpi vci*

Examples

The following example displays the point-to-multipoint PVC configuration on interface 3/0/1:

```
Switch#show atm vc interface atm 0/0/0
Interface    VPI     VCI     Type   X-Interface  X-VPI   X-VCI   Status
ATM0/0/0     50      100     PVC    ATM1/1/0     60      200     UP
ATM0/0/0     50      100     PVC    ATM1/1/1     70      210     UP
ATM0/0/0     50      100     PVC    ATM1/1/2     80      220     UP
Switch#
```

The following example displays the VC configuration on interface 3/0/1, VPI = 50, VCI = 100:

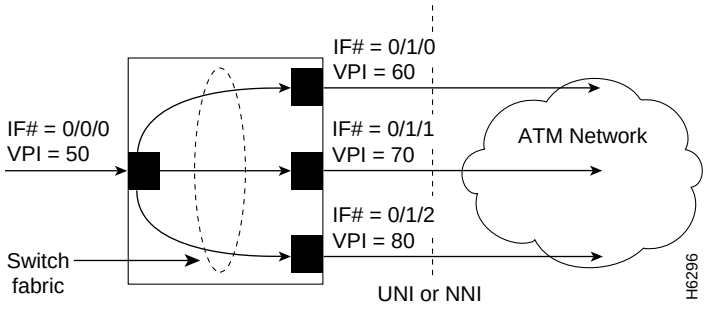
```
Switch#show atm vc interface atm 0/0/0 50 100
Interface: ATM3/0/1
VPI = 50  VCI = 100
Status: UP
Last-status-change-time: 15:44
Connection-type: PVC
Cast-type: point-to-multipoint
Packet-discard-option: enabled
Usage-Parameter-Control (UPC): pass
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states:  Not-applicable
Cross-connect-interface: ATM0/1/0
Cross-connect-VPI = 60
Cross-connect-VCI = 200
Cross-connect-UPC: pass
Cross-connect-interface: ATM0/1/1
Cross-connect-VPI = 70
Cross-connect-VCI = 210
Cross-connect-UPC: pass
Cross-connect-interface: ATM0/1/2
Cross-connect-VPI = 80
Cross-connect-VCI = 220
Cross-connect-UPC: pass
Encapsulation: AAL5PNNI
Rx cells: 0, Tx cells: 0
Rx connection-traffic-table-index: 3
Rx service-category: VBR-RT (Realtime Variable Bit Rate)
Rx pcr-clp01: 424
Rx scr-clp01: 424
Rx tolerance: 50
Tx connection-traffic-table-index: 3
Tx service-category: VBR-RT (Realtime Variable Bit Rate)
Tx pcr-clp01: 424
Tx scr-clp01: 424
Tx tolerance: 50
Switch#
```

Configure Point-To-Multipoint PVP Channel

This section describes configuring point-to-multipoint PVP connections.

Figure 7-4 provides an example of point-to-multipoint PVP connections.

Figure 7-4 Point-to-Multipoint Permanent Virtual Path Example



In Figure 7-4, cells entering the switch at the root point (the left side at interface 0/0/0), VPI=50, are duplicated and switched to the leaf points (output interfaces), on the right side of the example.

The following section describes the commands needed to configure this example.

Point-To-Multipoint PVP Command Description

To configure point-to-multipoint PVP connections, use the following EXEC commands using the **no** form of this command to disable:

Task	Command
At the privileged EXEC prompt, enter configuration mode from the terminal.	**configure**[1] [**terminal**]
Select the interface to be configured.	**interface atm** *card-A/sub_card-A/port-A*
Configure interface PVP.	**atm pvp** *vpi-A* [**cast-type** *p2mp-leaf p2mp-root p2p*] [**upc** *upc-A*] [**rx-cttr** *index*] [**tx-cttr** *index*] **interface** *card-B/sub_card-B/port-B vpi-B* [cast-type *type*]

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

To configure the point-to-multipoint PVP connections using the **atm pvp** command the root point is Port A and the leaf points are Port B.

Note The row index for **rx-cttr** and **tx-cttr** must be configured before using this optional parameter. See the section "Configure Connection Traffic Table" in the chapter "Configuring Resource Management Functions."

Examples

The following example configures the root point PVP on switch interface 0/0/0, VPI=50 to the leaf point interface 0/1/0, VPI=60 (see Figure 7-4):

```
Switch(config)#interface atm 0/0/0
Switch(config-if)#atm pvc 50 cast-type p2mp-root interface atm 0/1/0 60 cast-type
p2mp-leaf
```

The following example configures the same root point PVP to the leaf point interface 0/1/0, VPI=70:

```
Switch(config-if)#atm pvc 50 cast-type p2mp-root 0/1/0 70 cast-type p2mp-leaf
```

The following example configures the same root point PVP to the leaf point interface 0/1/2, VPI=80:

```
Switch(config-if)#atm pvc cast-type p2mp-root 50 0/1/2 80 p2mp-leaf
```

Use show atm vp Command to Display Point-To-Multipoint PVP Configuration

To show the ATM interface configuration use the following command:

Task	Command
Show the ATM VP configuration.	**show atm vp**

Example

The following example displays the PVP configuration of the point-to-multipoint PVP connections:

```
Switch#show atm vp
Interface    VPI    Type  X-Interface     X-VPI     Status
ATM0/0/0     50      PVP   ATM0/1/0       60         UP
                           ATM0/1/1       70         UP
                           ATM0/1/2       80         UP
Switch#
```

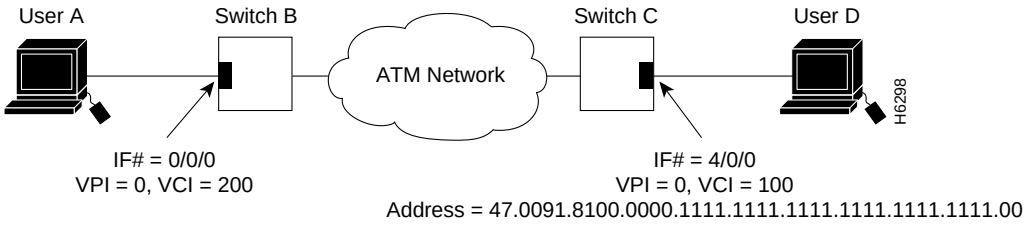
Configure Soft Permanent Virtual Channel (Soft PVC) Connections

This section describes configuring soft PVC connections. Soft PVC connections provide the following features:

- Connection to another host or switch that does not support signaling
- Configuration of PVCs without the manual configuration steps described in the section “Configure Permanent Virtual Channel Connections”
- Configuration of PVCs with the reroute or retry capabilities when a failure occurs within the network

Figure 7-5 is an illustration of the soft PVC connections used in the following examples:

Figure 7-5 Soft Permanent Virtual Channel Connection Example



Soft Permanent Virtual Channel Command Description

To configure a soft PVC connection, use the following EXEC commands using the **no** form of this command to disable:

Task	Command
Determine dstination ATM address.	**show atm address**
At the privileged EXEC prompt, enter configuration mode from the terminal.	**configure**[1] [**terminal**]
Select the interface to be configured.	**interface atm** *card/sub_card/port* [*.vpt #*]
Configure soft PVC connection.	**atm soft-vc** *src-vpi src-vci dest-address dest-vpi dest-vci* [**pd** *pd*] [**rx-cttr** *index*] [**slow-retry-interval** *seconds*] [**tx-cttr** *index*] [**upc** *drop pass tag*]

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

Note The row index for **rx-cttr** and **tx-cttr** must be configured before using this optional parameter. See the section "Configure Connection Traffic Table" in the chapter "Configuring Resource Management Functions."

Example

The following example allows User A to determine the destination ATM address of the interface connected to User D:

```
Switch-C#show atm address

Switch Address(es):
  47.00918100000000603E5ADB01.00603E5ADB01.00 active

Soft VC Address(es):
  47.0091.8100.1111.1111.1111.1111.1111.1111.1111.00 ATM4/0/0

ILMI Switch Prefix(es):
  47.0091.8100.0000.0060.3e5a.db01

ILMI Configured Interface Prefix(es):

LECS Address(es):
Switch-C#
```

The following example configures a soft PVC on Switch-B between interface 0/0/0, source VPI = 0, source, VCI = 200, and Switch-C, destination ATM address = 47.0091.8100.00.0000.1111.1111.1111.1111.1111.1111.00, VPI = 0, VCI = 100 (see Figure 7-5):

```
Switch-B(config)#interface atm 0/0/0
Switch-B(config-if)#atm soft-vc 0 200 47.0091.8100.00.0000.1111.1111.1111.1111.1111.1111.00 00 100
```

show vc Example

To display the soft VC configuration at either end switch use the following EXEC mode commands:

Task	Command
Show the ATM interface configuration.	**show atm vc** *card/sub_card/port*
Show the soft VC interface configuration.	**show atm vc interface atm** *card/sub_card/port vpi vci*

Examples

The following example displays the soft VC configuration of Switch-B, on interface 0/0/0 out to the ATM network:

```
Switch-B#show atm vc interface atm 0/0/0
Interface    VPI     VCI     Type   X-Interface  X-VPI   X-VCI   Status
ATM0/0/0     0       200     softvc ATM2/0/0     50      135     UP
Switch-B#
```

The following example displays the soft VC configuration of Switch-C, on interface 4/0/0 out to the ATM network:

```
Switch-C#show atm vc interface atm 4/0/0
Interface    VPI     VCI     Type   X-Interface  X-VPI   X-VCI   Status
ATM4/0/0     0       100     softvc ATM0/1/0     75      250     UP
Switch-C#
```

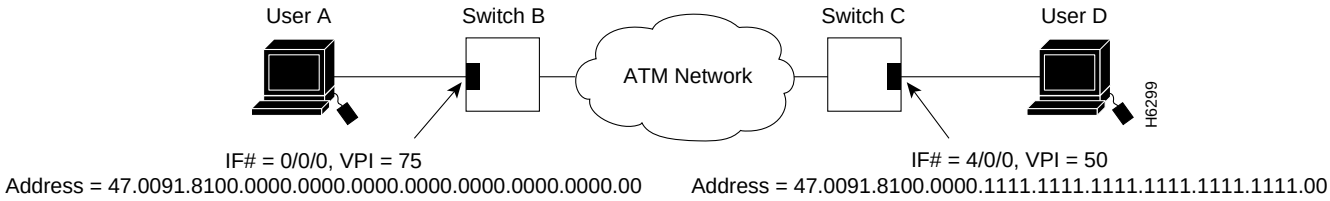
Configure Soft Permanent Virtual Path (Soft PVP) Connections

This section describes configuring soft permanent virtual path (soft PVP) connections. Soft PVP connections provide the following features:

- Connection to another host or switch that does not support signaling
- Configuration of PVPs without the manual configuration steps described in the section "Configure Permanent Virtual Channel Connections"
- Configuration of PVPs with the reroute or retry capabilities when a failure occurs within the network

Figure 7-6 is an illustration of the soft PVP connections used in the section.

Figure 7-6 Soft Permanent Virtual Path Connection Example



Soft Permanent Virtual Path Command Description

To configure a soft PVP connection, use the following EXEC commands using the **no** form of this command to disable:

Task	Command
At the privileged EXEC prompt, enter configuration mode from the terminal.	**configure**[1] [**terminal**]
Select the interface to be configured.	**interface atm** *card/sub_card/port*
Configure soft PVP connection.	**atm soft-vp** *src-vpi dest-address dest-vpi* [**pd** *pd*] [**rx-cttr** *index*] [**slow-retry-interval** *seconds*] [**tx-cttr** *index*] [**upc** *drop pass tag*]

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

Note The row index for **rx-cttr** and **tx-cttr** must be configured before using this optional parameter. See the section "Configure Connection Traffic Table" in the chapter "Configuring Resource Management Functions."

Example

The following example configures a soft PVP on Switch-B between interface 0/0/0, source VPI=75, and Switch-C, destination ATM address=47.0091.8100.00.0000.1111.1111.1111.1111.1111.1111.00, VPI=50 (Figure 7-6):

```
Switch-B(config)#interface atm 0/0/0
Switch-B(config-if)#atm soft-vp 75
47.0091.8100.00.0000.1111.1111.1111.1111.1111.1111.00 50
```

Use show atm vp Command to Display Virtual Path Connection

To show the ATM virtual path configuration use the following command:

Task	Command
Show the ATM VP configuration.	**show atm vp**

Example

The following example displays the soft VP configuration at switch B, on interface 0/0/0 out to the ATM network:

```
Switch-B#show atm vp
Interface    VPI    Type  X-Interface     X-VPI     Status
ATM0/0/0     75     SoftvpATM1/1/0        45        UP
Switch-B#
```

The following example displays the soft VP configuration at switch C, on interface 4/0/0 out to the ATM network:

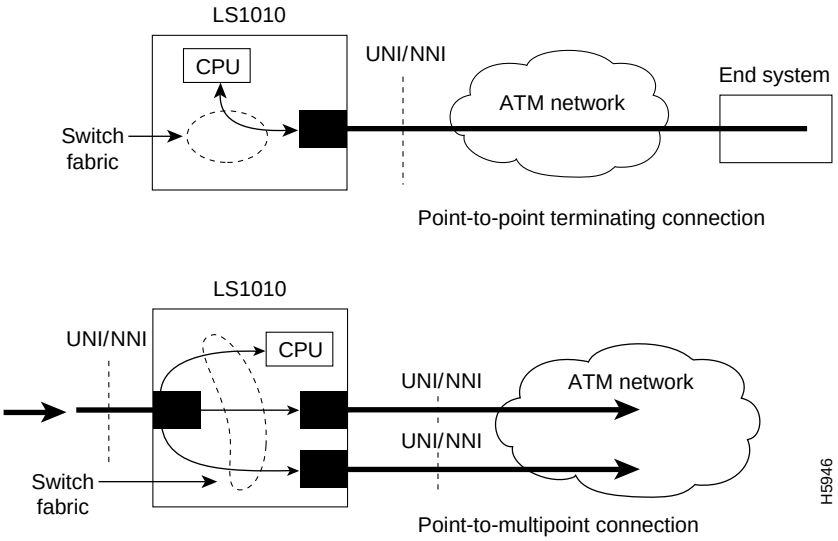
```
Switch-C#show atm vp
Interface    VPI    Type  X-Interface     X-VPI     Status
ATM4/0/0     50     SoftvpATM3/1/3        60        UP
Switch-C#
```

Configure Terminating PVC Connections

This section describes configuring terminating permanent virtual channel (PVC) connections. Terminating connections provide the network connection to the LightStream 1010 switch CPU for network management.

Figure 7-7 is an illustration of transit and terminating connections.

Figure 7-7 Virtual Connection Types Example



Point-to-point and point-to-multipoint are two type of terminating connections. Both terminating connections are configured using the same commands as transit connections (discussed in the previous sections). However, all switch terminating connections use interface 2/0/0 to connect to the switch CPU.

The following sections describe both point-to-point and point-to-multipoint configuration of PVC and PVP connections.

Terminate PVC Connection Command Description

To configure both point-to-point and point-to-multipoint terminating PVC connections, use the following EXEC commands using the **no** form of this command to disable.

Task	Command
At the privileged EXEC prompt, enter configuration mode from the terminal.	**configure**[1] [**terminal**]
Select the interface to be configured.	**interface atm** *card-A/sub_card-A/port-A* [*.vpt #*]
Configure the PVC between ATM switch connections.	**atm pvc** *vpi-A vci-A* [**cast-type** *p2mp-leaf p2mp-root p2p*] [**upc** *upc-A*] [**pd** *pd*] [**rx-cttr** *index*] [**tx-cttr** *index*] **interface atm** *card-B/subcard-B/port-B[.vpt #] vpi-B vci-B* [**upc** *upc*-B] [**cast-type** *p2mp-leaf p2mp-root p2p*]

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

When configuring point-to-multipoint PVC connections using the **atm pvc** command, the root point is port A and the leaf points are port B.

Note The row index for **rx-cttr** and **tx-cttr** must be configured before using this optional parameter. See the section "Configure Connection Traffic Table" in the chapter "Configuring Resource Management Functions."

Examples

The following example configures the internal cross-connect PVC between interface 3/0/1, VPI=1, VCI =50 and the terminating connection at the CPU interface 2/0/0, VPI=2, VCI=100:

```
Switch-B(config)#interface atm 3/0/1
Switch-B(config-if)#atm pvc 1 50 interface atm 2/0/0 2 100 encap aal-encap
```

The following example configures a point-to-multipoint connection from the root point PVC on switch interface 0/0/0, VPI=50, VCI =100 and the terminating connection at the leaf point switch CPU interface 2/0/0, VPI=60, VCI=200:

```
Switch(config)#interface atm 0/0/0
Switch(config-if)#atm pvc 50 100 interface atm 2/0/0 60 200 enacap aal-encap
```

Displaying the Terminating PVC Connections

To show the terminating PVC configuration, use the following EXEC mode commands:

Task	Command
Show the ATM interface configuration.	**show atm vc** *card/sub_card/port*
Show the PVC interface configuration.	**show atm vc interface atm** *card/sub_card/port vpi vci*

See the section "Use the show vc Command to Display Virtual Channel Connections" for examples of the **show atm vc** commands.