PA-A3-T3, PA-A3-E3, PA-A3-OC3MM, PA-A3-OC3SMI, and PA-A3-OC3SML ATM Port Adapters

The PA-A3-T3 and PA-A3-E3 port adapters were introduced in Cisco IOS Release 11.1(18)CC. This feature module has been updated to include information on the PA-A3-OC3MM, PA-A3-OC3SMI, and PA-A3-OC3SML ATM Port Adapters, which were introduced in Cisco IOS Release 11.1(19)CC.

Feature Summary

The enhanced ATM port adapter is a new generation of single-wide, single-port ATM port adapters available on Cisco 7200 series routers, Cisco 7500 series routers, and Cisco 7000 series routers with the 7000 Series Route Switch Processor (RSP7000) and 7000 Series Chassis Interface (RSP7000CI). The PA-A3 port adapters include five hardware versions that support the following standards-based physical interfaces:

- DS3

- E3

- OC-3c/STM1 multimode

- OC-3c/STM-1 single-mode intermediate reach

- OC-3c/STM-1 single-mode long reach

The PA-A3 port adapters support all Cisco IOS features and ATM-specific features available in Release 11.1(18)CC except for the available bit rate (ABR) permanent virtual circuit (PVC) and LAN emulation (LANE) features. ABR and LANE will be supported in a future maintenance release of Cisco IOS Release 11.1 CC.

For more information on the PA-A3 port adapters, refer to the *PA-A3 Enhanced ATM Port Adapter Installation and Configuration* publication that accompanies the hardware.

Benefits

The enhanced ATM port adapter supports the following features:

- Up to 4,096 total connections (open VCs)

- Up to 1024 segmentation and reassemblies (SARs) on the VIP2, up to 800 SARs on the NPE-200, and up to 200 SARs on the NPE-150

- ATM adaptation layer 5 (AAL5) for data traffic

- Physical interface: DS3 and E3 electrical coax (UNI3.x), (G.707), and (G.708); SONET/SDH optical fiber (OC-3 or STM-1)

- Traffic shaping on a per-VC basis

- Non-real time variable bit rate (NRT VBR) and unspecified bit rate (UBR) quality of service (QoS)

- Operation, Administration, and Maintenance (OAM) cells

- Online insertion and removal (OIR) on Cisco 7200 series routers

Platforms

This feature is supported on these platforms:

- Cisco 7200 series routers

- Cisco 7500 series routers

- Cisco 7000 series routers with the RSP7000 and RSP7000CI

Configuration Tasks

To configure the PA-A3 ATM port adapters, refer to the *PA-A3 Enhanced ATM Port Adapter Installation and Configuration* publication that accompanies the hardware. For further information on configuring an ATM port adapter, see the "Configuring ATM" chapter of the *Wide-Area Networking Configuration Guide*. For information on other commands that can be used by an ATM interface, refer to the Cisco IOS Release 11.1 configuration guides.

Configuration Examples

For configuration examples for the PA-A3 port adapters, refer to the *PA-A3 Enhanced ATM Port Adapter Installation and Configuration* publication that accompanies the hardware. For further information on configuring the PA-A3 port adapter, see the "Configuring ATM" chapter of the *Wide-Area Networking Configuration Guide*.

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 11.1 command references.

- **atm ds3-scramble**

- **atm e3-scramble**

- **atm framing (DS3)**

- **atm framing (E3)**

- **atm lbo**

- **loopback**

atm ds3-scramble

To enable scrambling of the ATM cell payload for the DS-3 PLIM on an ATM interface, use the **atm ds3-scramble** interface configuration command. To disable scrambling of the ATM cell payload for the DS-3 PLIM, use the **no** form of this command.

atm ds3-scramble
no atm ds3-scramble

Syntax Description

This command has no keywords and arguments.

Default

DS3 scrambling is disabled.

Command Mode

Interface configuration

Usage Guidelines

This command was modified in Cisco IOS Release 11.1 CA to change the command syntax from **ds3 scramble** to **atm ds3-scramble**.

D3 scrambling is used to assist clock recovery on the receiving end.

Example

The following example disables DS3 scrambling on the interface:

```
Router(config)# interface atm 4/0
Router(config-if)# no atm ds3-scramble
```

atm e3-scramble

To enable scrambling of the ATM cell payload for the E3 PLIM on an ATM interface, use the **atm e3-scramble** interface configuration command. To disable scrambling of the ATM cell payload for the E3 PLIM, use the **no** form of this command.

> **atm e3-scramble**
> **no atm e3-scramble**

Syntax Description

This command has no keywords and arguments.

Default

E3 scrambling is enabled.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1 CA.

E3 scrambling is used to assist clock recovery on the receiving end.

Example

The following example disables E3 scrambling on the interface:

```
Router(config)# interface atm 2/0
Router(config-if)# no atm e3-scramble
```

atm framing (DS3)

To specify DS3 line framing on an ATM interface, use the **atm framing** interface configuration command. To return to the default C-bit with Physical Layer Convergence Protocol (PLCP) framing, use the **no** form of this command.

> **atm framing** [**cbitadm** | **cbitplcp** | **m23adm** | **m23plcp**]
> **no atm framing** [**cbitadm** | **cbitplcp** | **m23adm** | **m23plcp**]

Syntax Description

cbitadm	(Optional) Specifies C-bit with ATM direct mapping.
cbitplcp	(Optional) Specifies C-bit with PLCP framing. This is the default.
m23adm	(Optional) Specifies M23 ATM direct mapping.
m23plcp	(Optional) Specifies M23 with PLCP framing.

Default
cbitplcp

Command Mode
Interface configuration

Usage Guidelines
This command was modified in Cisco IOS Release 11.1 CA to include the ATM CES port adapter and in Release 11.1 CC to include the PA-A3 enhanced ATM port adapter.

This command is available on Cisco 4500 and Cisco 4700 routers with DS3 access speeds, on Cisco 7200 series routers with the ATM CES port adapter, and on Cisco 7200 series routers, Cisco 7500 series routers, and Cisco 7000/RSP7000 series routers with the PA-A3 enhanced ATM port adapter.

Framing on the interface must match that on the switch for this ATM link.

Example
The following example specifies M23 ADM framing on a router that has been set up with DS3 access to an ATM network:

```
Router(config)# interface atm 4/0
Router(config-if)# atm framing m32adm
```

atm framing (E3)

To specify E3 line framing, use the **atm framing** interface configuration command. To return to the default G.751 Physical Layer Convergence Protocol (PLCP) framing, use the **no** form of this command.

>**atm framing** [**g832adm** | **g751adm** | **g751plcp**]
>**no atm framing** [**g832adm** | **g751adm** | **g751plcp**]

Syntax Description

g832adm	(Optional) Specifies G.832 ATM direct mapping.
g751adm	(Optional) Specifies G.751 ATM direct mapping.
g751plcp	(Optional) Specifies G.751 PLCP encapsulation. This is the default.

Default
g751plcp

Command Mode
Interface configuration

Usage Guidelines
This command was modified in Cisco IOS Release 11.1 CA to include the **g751plcp** keyword.

The default framing is described in the ITU-T Recommendation G.751.

Note The ITU-T carries out the functions of the former Consultative Committee for International Telegraph and Telephone (CCITT).

Framing on the interface must match that on the switch for this ATM link.

Example
The following example specifies G.832 ADM framing on a router that has been set up with E3 access to an ATM network:

```
Router(config)# interface atm 4/0
Router(config-if)# atm framing g832adm
```

atm lbo

To specify the cable length (line build-out) for the ATM interface, use the **atm lbo** interface configuration command. To return to the default, use the **no** form of this command.

atm lbo {**long** | **short**}
no atm lbo

Syntax Description

long	Specifies a cable length greater than 50 feet.
short	Specifies a cable length of less than 50 feet. This is the default.

Default
short

Command Mode
Interface configuration

Usage Guidelines
This command first appeared in Cisco IOS Release 11.1 CA.

Example
The following example specifies that the ATM interface use a cable less than 50 feet:

```
Router(config)# interface atm 4/0
Router(config-if)# atm lbo short
```

loopback

To place the ATM interface into loopback mode, use the following form of the **loopback** interface configuration command. To remove the loopback, use the **no** form of this command.

> **loopback** [**cell** | **line** | **payload**]
> **no loopback** [**cell** | **line** | **payload**]

Syntax Description

cell	(Optional) Places the interface into external loopback at the cell level.
line	(Optional) Places the interface into external loopback at the line. This is the default.
payload	(Optional) Places the interface into external loopback at the payload level.

Default

line; packets loop from the ATM interface back to the ATM network.

Command Mode

Interface configuration

Usage Guidelines

This command was modified in Cisco IOS Release 11.1 CC to remove the **diagnostic** and **test** options for the PA-A3 enhanced ATM port adapter.

This command is useful for testing because it loops all packets from the ATM interface back to the interface as well as directing the packets to the network.

Use the **loopback line** command to check that the PA-A3 port adapter is working by looping the receive data back to the transmit data.

Example

The following example loops all packets back to the ATM interface:

```
Router(config)# interface atm 4/0
Router(config-if)# loopback diagnostic
```