



C I S C O S Y S T E M S

Doc. No. 78-2103-02 Rev. A0

Cisco ATM SBus Adapter Release Note for Release 1.1

This release note describes the features, modifications, and caveats for the Cisco ATM SBus adapter Release software 1.1.

Documentation

The *Cisco ATM SBus Adapter User Guide* is available in printed form and in electronic form on UniverCD.

Important Notes

This section describes warnings and cautions about using the Cisco ATM SBus adapter software Release 1.1.

Solaris and SunOS Systems

Before you implement and use the Cisco ATM SBus adapter on a Solaris or SunOS system, consider the following information:

- This software has been tested with Solaris 2.3, Solaris with mandatory patch level 1, and Solaris 2.4. Make sure to apply any mandatory patches to your operating system. On a Solaris system, to display installed patches, enter the **showrev -p** command.
- In master, when you start the AAL tests, you cannot stop the tests or refresh the screen until the test is completed. The standard number of packets used for the test is large and the user may want to reduce the number of packets to reduce the time it takes to complete the test.
- Some fields, which show the number of packets or bytes transmitted or received, reflect a negative number when the value becomes large.
- Currently, only one Cisco ATM SBus adapter per host is supported.
- The Cisco ATM SBus adapter does not support the SPARCstation 10-model 20, model 30, and the early versions of model 40, with bus speeds less than 20MHz. These workstations will exhibit cell loss (reported as CRC errors) under some heavily-loaded conditions. The bus speed can be found for most of the systems by pressing <stop> <a>. If the system is booted with **kadb**, enter **\$q** to enter the <ok> prompt. At the <ok> prompt, enter **module-info**. This will point to the bus speed along with other information. The system can be restored to its original state by entering **go** at the <ok> prompt and **:c** at the **kadb** prompt.

- The Cisco ATM SBus adapter utility does not save permanent ARP table entries. To save permanent ARP table entries, modify the **catmlancfg.db** file.
- When you use the Cisco ATM SBus adapter utility to initialize and then delete a VLAN without starting it, the Cisco ATM SBus adapter driver does not recognize that the VLAN existed. A “no such interface” error message appears. This error message can be ignored.
- If you use the window manager menu (accessed by clicking on the icon at the top left corner of the window) instead of the OK or Close options to exit windows that are periodically updated, the Cisco ATM SBus Adapter utility will exit with a segmentation fault. This fault is recorded and stored in a core dump file.
- When you select menu options in the Cisco ATM SBus Adapter utility, the windows displayed are inactive until subwindows are closed.
- The Cisco ATM SBus Adapter Utility can be accessed from a remote system by setting the DISPLAY environment variable just like for any other X application. You cannot access the Cisco ATM SBus Adapter utility remotely using Telnet.
- The default MTU size is 9180. In Solaris, if the MTU size for a VLAN is changed using the atmstat or the catmlancfg utility, the MTU size must be set explicitly to the new value in the IP layer using the **ifconfig** command:

```
ifconfig <interface_name> mtu <mtu_size>
```

In SunOS, the MTU size cannot be changed.

- The Cisco ATM SBus adapter utility does not function as expected if the Numlock function on the keyboard has been activated.
- Some tables shown in the Cisco ATM SBus adapter utility are wider than the normal screen width. You can view the right portion of the table by scrolling to the right. Data in these tables is updated after a preset interval. When data is updated, the screen is returned to the left portion of the table. To ease this inconvenience, set the refresh interval to a longer period of time, so that the right side of the screen is visible for a longer period.
- The Timer value for the ARP table is displayed in minutes (as shown in the Cisco ATM SBus adapter utility).
- Performance on the SPARCstation 5 is relatively poor.
- You can set the physical transmission mode to SDH or SONET by modifying the **catmlancfg.db** file. The transmission mode can be specified after the line “BEGIN_LINK” and before the definition of VLANs.

The syntax is as follows:

SONET_FRAMING_TYPE: STS-3c|SDH

The following example shows how to set the transmission mode to SONET (STS-3c):

```
BEGIN_LINK_GLOBAL
SONET_FRAMING_TYPE: STS-3c
END_LINK_GLOBALS
```

- The Cisco ATM SBus adapter software release 1.1 for SunOS will be shipped with new shipments of WA-C850 (the software media kit), and is also available on CIO.
- Cisco ATM SBus adapter software release 1.1 has been tested with SunOS 4.1.3, patch level U1, and SunOS 4.1.4 with no patches.
- The Cisco ATM SBus adapter software for SunOS is supported only on machines with “Sun4m” architecture, which includes the models Sparc-5, Sparc-10, and Sparc-20. The Sun architecture can be found by executing the command **uname -m**.
- The Cisco ATM SBus adapter driver for SunOS cannot be unloaded. However, you can remove the driver using the **/etc/uninstall_Catm** command.
- In SunOS, the IP layer supports only packet sizes up to 32K. If you attempt to transmit or receive packets greater than this size, an error is reported.
- The installation of the CATM SBus Adapter software requires at least 8MB of available disk space under the **/usr/tmp/unbundled** directory.

If you are using the adapter with a switch that does not support ILMI registration, you must set up manual ILMI registration on the switch. For example, the LightStream 100, Release 2.5 or lower does not support ILMI registration. To set up manual registration of the routes on the switch, use the **route add** command. For example, to add the route for an end station with IP address 99.1.1.145, connected to port 12, issue the following command:

where the values are as follows:

- 39000000000000000000000000000000 is the net prefix specified in the /etc/catmilmi.db file
- 63010191 is the end station identifier (ESI) address (the IP address in hexadecimal)
- 00 is the selector
- nsap is the type
- 12 is the primary line number
- 5 is the secondary line number
- 0 is the first tunneling VPI number
- 0 is the secondary tunneling VPI number

Troubleshooting the Adapter Installation and Configuration

For the adapter to function properly, it must be installed and set up correctly for your configuration. This section contains steps to follow for troubleshooting your configuration. It also contains sample files for specific configurations.

Use the following guidelines for setting up or troubleshooting your configuration:

- Step 1** Make sure that the system memory is at least 32 MB.
- Step 2** Make sure that the operating system has the most current patches installed for Solaris 2.3/2.4 or SunOS 4.1.3/4.1.4.
- Step 3** Make sure the adapter is installed properly in the correct SBus slot.
- Step 4** Make sure the green LED light on the adapter is on.
- Step 5** Make sure the LED on the switch port to which the adapter is connected is steady green.
- Step 6** Make sure you remove any previously installed software by using the **pkgrm** command (Solaris only).
- Step 7** Make sure the software was successfully installed using the **pkgadd** command (Solaris) or the **extract_unbundled** default command for installation from diskettes or **install_unbundled** for installation from a network directory (SunOS).
- Step 8** Make sure all files were installed. Refer to the “On the CIO server, the SunOS package image will be kept in a tar format. You need to copy the image from the CIO server into a directory with approximately 20MB of available space. The contents of this tar image can be extracted under the current directory using the following command:” section for a list of installed files.
- Step 9** Make sure the `/etc/catmlancfg.db` file is configured for each workstation.
- Step 10** Make sure the adapter driver is installed properly (`/dev/catm,prtconf`).
- Step 11** Make sure the IP addresses are set up properly (`/etc/hosts`).
- Step 12** Make sure the netmasks file is set up properly (`/etc/netmasks`).
- Step 13** Set up `/etc/catmilmi.db` with the correct network prefix on both SunOS and Solaris if the switch does not support ILMI functions. Also, insure that the correct steps for static registration are followed per the Section “ILMI Registration on the Switch” found on page three of this release note.
- Step 14** Make sure the netprefix is set up for the switch.
- Step 15** Make sure the `catmsig` and `catmilmid` files exist in the `/etc/rc2.d/S69catm` file (Solaris) or the `/etc/catmstartup` file (SunOS).
- Step 16** Execute the **ping** command after the systems are booted.
- Step 17** Make sure that the configuration is correct. Refer to Table 1 for configuration specifications for your particular configuration.

Table 1 Configuration Matrix

Configuration	/etc/catmlancfg.db	/etc/system	/bin/catmilmid	/bin/catmsig	Switch
PVC back to back No switch	Set configuration the same for both ARP client and ARP server.	Configure the file for the appropriate operating system.*	Kill process	Kill process	—
PVC Switch no signalling (UNI 3.0) no ILMI	Set configuration the same for both ARP client and ARP server.	Configure the file for the appropriate operating system.*	Kill process	Kill process	Set PVC
PVC Switch signalling (UNI 3.0) no ILMI	Configure for either ARP client or ARP server.	—	Normal boot	Normal boot	Set PVC
PVC Switch signalling (UNI 3.0) ILMI	Configure for either ARP client or ARP server.	—	Normal boot	Normal boot	Set PVC
SVC signalling (UNI 3.0) no ILMI	Configure for either ARP client or ARP server.	—	Set switch prefix in /etc/catmilmi.db.	Normal boot	Add route using route add command.
SVC signalling ILMI	Configure for either ARP client or ARP server.	—	—	Normal boot	Automatic

***NOTE:** Refer to the “Setting Systems for Connecting Adapters Back to Back (SunOS)” section or the “Setting Systems for Connecting Adapters Back to Back (Solaris)” section, as appropriate.

Setting Systems for Connecting Adapters Back to Back (SunOS)

For configurations with no support for signalling, such as the back-to-back connection of two adapters on the end systems or an AIP to an adapter on an end system without going through a switch, the following sequence is required on the end station. The same setup is required when the switch to which these end stations are connected does not support signalling.

For SunOS systems, to connect adapters back to back, install the patch for the Cisco ATM SBus adapter driver binary as follows:

```
# cd /sys/catm
# adb -w catm.o
zipc_svc?W 0 (0 to turn SVC off; 1 to turn SVC on)
^D
# reboot
```

Setting Systems for Connecting Adapters Back to Back (Solaris)

For configurations with no support for signalling, such as the back-to-back connection of two adapters on the end systems or an AIP to an adapter on an end system without going through a switch, the following sequence is required on the end station. The same setup is required when the switch to which these end stations are connected does not support signalling.

For Solaris systems, to connect adapters back to back, add the following line to the `/etc/system` file:

```
set catm:zipc_svc = 0 (0 to turn signalling off)
```

Modifying the catmlancfg.db File

You configure the `catmlancfg.db` file depending on the type of configuration, as follows:

- PVC Connection to ARP Server (Client)
- PVC Connection to ARP Server (Server)
- ATM Client Without ARP Server (All Systems)
- SVC Connection to an ARP Server (Client)
- SVC Connection to an ARP Server (Server)

Refer to the appropriate section in the user guide for information on configuring the `catmlancfg.db` file.

PVC Connection to ARP Server (Client)

To set a PVC connection to a PVC ARP server, modify the `catmlancfg.db` file on the client as follows:

```
BEGIN_LINK 0

BEGIN_VLAN 0
  PROTOCOL : IPATM
  MYIPADDR : qaclient-ip0 (Client host name in /etc/hosts file)
  IPARPSERVER_CONNECT_METHOD : PVC
  IPARPSERVER_CONNECT : VPI=0, VCI=100 (PVC connection using VPI/VCI)
END_VLAN

END_LINK
```

PVC Connection to ARP Server (Server)

To set a PVC connection to a PVC ARP server, you must modify the catmlancfg.db file on the server as follows:

```
BEGIN_LINK 0

BEGIN_VLAN 0
  PROTOCOL : IPATM
  MYIPADDR : qaserver-ip0 (Server host name in /etc/hosts file)
  IPARPSERVER_CONNECT_METHOD : LOCAL
  IPATM_ADD : IPADDR = qaclient-ip0, VPI = 0, VCI = 100 (PVC—Provide client IP, VPI, and VCI)
END_VLAN

END_LINK
```

ATM Client Without ARP Server (All Systems)

To set up an ATM client without an ARP server, modify the catmlancfg.db file on all systems as follows:

```
BEGIN_LINK 0

BEGIN_VLAN 0
  PROTOCOL : IPATM
  MYIPADDR : qaclient-ip0 (Client host name in /etc/hosts file)
  IPARPSERVER_CONNECT_METHOD : NONE (No ARP server)
  IPATM_ADD : IPADDR = qatarget-ip0, ATMADDR=qatarget-atm0 C (SVC-Destination IP and ATM)
  IPATM_ADD : IPADDR = qatarget-ip0, VPI=0, VCI=100 (PVC - Destination IP, VPI and VCI)
  IPATM_ADD: < 1 line for each target system>
END_VLAN

END_LINK
```

SVC Connection to an ARP Server (Client)

To set an SVC connection with an ARP server configuration, modify the catmlancfg.db on the client as follows:

```
BEGIN_LINK 0

BEGIN_VLAN 0
  PROTOCOL : IPATM
  MYIPADDR : qaclient-ip0 (Client host name in /etc/hosts file)
  IPARPSERVER_CONNECT_METHOD : SVC
  IPARPSERVER_CONNECT ATMADDR: qaserver-atm0 (Server host name in /etc/atms file)
END_VLAN

END_LINK
```

SVC Connection to an ARP Server (Server)

To set an SVC connection with an ARP server configuration, modify the catmlancfg.db file on the server as follows:

```
BEGIN_LINK 0

BEGIN_VLAN 0
  PROTOCOL : IPATM
  MYIPADDR : qaserver-ip0 (Server host name entry in /etc/hosts file)
  IPARPSERVER_CONNECT_METHOD : LOCAL
END_VLAN

END_LINK
```

Note If the switch does not support the ILMI function, you must provide the switch prefix in the /etc/catmilmi.db file. Refer to the “Sample /etc/catmilmi.db File” section for more information.

Sample /etc/atms File

The /etc/atms file contains the ATM addresses for clients and servers. An ATM address is 20 bytes in length and is constructed using the following values:

- 13 bytes of the switch prefix
- 2 bytes of trailing zeros
- 4 bytes hexadecimal equivalent to the IP address
- 1 byte of zeros

The following is a sample from the /etc/atms file showing ATM addresses for various clients:

```
#
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:63:01:01:01:00 qaclient-atm0
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:62:01:01:01:00 qaclient-atm1
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:61:01:01:01:00 qaclient-atm2
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:60:01:01:01:00 qaclient-atm3
#
```

The following is a sample from the /etc/atms file showing ATM addresses for various servers:

```
#
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:63:01:01:02:00 qaserver-atm0
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:62:01:01:02:00 qaserver-atm1
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:61:01:01:02:00 qaserver-atm2
39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:60:01:01:02:00 qaserver-atm3
#
```


Sample /etc/catmilmi.db File

The /etc/catmilmi.db file contains the network prefix (the first 13 bytes of the ATM address). The following is a sample from the /etc/catmilmi.db file showing the network prefix (NET_PREFIX):

```
#
BEGIN_LINK 0

NET_PREFIX : 39:00:00:00:00:00:00:00:00:00:00:00:00:00:00

END_LINK
#
```

Sample /etc/hosts File

The /etc/hosts file contains IP addresses of clients. The following is a sample from the /etc/hosts file showing IP addresses for clients:

```
#
100.1.1.150   qaclient      # Ethernet connection (le0)
99.1.1.1     qaclient-ip0   # ATM connection (VLAN 0)
98.1.1.1     qaclient-ip1 # ATM connection (VLAN 1)
97.1.1.1     qaclient-ip2 # ATM connection (VLAN 2)
96.1.1.1     qaclient-ip3 # ATM connection (VLAN 3)
#
```

Adding the Cisco ATM SBus Adapter Software (Solaris)

To add the Cisco ATM SBus adapter software, enter the following command:

```
root@SYS1% add_drv -i 'ZATMSBUS' catm
```

Removing the Cisco ATM SBus Adapter Software

To remove the Cisco ATM SBus adapter software, enter the following command:

```
root@SYS1% rem_drv catm
```

Network Installation for SunOS

The procedure for installing the Cisco ATM SBus adapter software for SunOS in the *Cisco ATM SBus Adapter User Guide* is for local installation. The following procedure is for network installation:

Step 1 Issue the following command to create and extract files into the directory called “+install”:

```
root@SYS1% cd /tmp
root@SYS1% bar xvfbpZ /dev/rfd0c 18
```

When prompted, remove the inserted diskette and insert the next one. The +install directory can then be exported and mounted on the client system.

Step 2 On the client system, enter the following commands:

```
root@SYS1% cd +install
root@SYS1% ./install_unbundled
```

The script is executed, as follows:

```
x +install/copyright.d, x bytes, x tape blocks, 1
x +install/Atmstat, x bytes, x tape blocks, 1
x +install/atmgui.dat, x bytes, x tape blocks, 1
x +install/atms.4, x bytes, x tape blocks, 1
x +install/atmstat, x bytes, x tape blocks, 1
x +install/catm.o, x bytes, x tape blocks, 2
x +install/catmilmi.db.sample, x bytes, x tape blocks, 2
x +install/catmilmid, x bytes, x tape blocks, 2
x +install/catmilmid.1, x bytes, x tape blocks, 3
x +install/catmlancfg, x bytes, x tape blocks, 3
x +install/catmlancfg.1, x bytes, x tape blocks, 3
x +install/catmlancfg.db.sample, x bytes, x tape blocks, 3
x +install/catmmib, x bytes, x tape blocks, 3
x +install/catmsig, x bytes, x tape blocks, 3
x +install/catmsig.1, x bytes, x tape blocks, 3
x +install/catmstartup, x bytes, x tape blocks, 3
x +install/copyright.d, x bytes, x tape blocks, 3
x +install/install_unbundled, x bytes, x tape blocks, 3
/usr/etc/extract_unbundled : Begin Install Script Execution
Installing /etc/catmstartup...
Installing /sys/catm/catm.o...
Installing /bin/catmilmid...
Installing /bin/catmlancfg...
Installing /bin/catmsig...
Installing /bin/atmstat...
Installing /etc/atmgui...
Installing /etc/Atmstat...
Installing /etc/catmilmi.db.sample
Installing /etc/catmmib.txt...
Installing /usr/man/man1/catmilmid.1...
Installing /usr/man/man1/catmsig.1...
Installing /usr/man/man4/atms.4...
```

NOTE:

original /etc/rc.local will be moved to /etc/rc.local.<Date>
execute /etc/uninstall_Catm to restore this copy

Installation of Catm is complete.

```
*****
Now edit /etc/catmlancfg.db to reflect your VLAN Configuration
and make sure that /etc/atms and /etc/hosts files have been
updated appropriately before Rebooting the System
*****
root@SYS1%
```

Step 3 Edit the system network configuration files and ATM adapter configuration files as described in the “Configure the Adapter” section of the *Cisco ATM SBus Adapter User Guide*.

Step 4 Reboot the system log using the `/usr/etc/reboot` command.

Installing the SunOS Package from CIO

On the CIO server, the SunOS package image will be kept in a tar format. You need to copy the image from the CIO server into a directory with approximately 20MB of available space. The contents of this tar image can be extracted under the current directory using the following command:

```
tar xvf <tarimagename>
```

From the same directory, execute the **./install_unbundled** command to install the SunOS package.

Installing the Solaris Package from CIO

On the CIO server the Solaris package image will be kept in tar format. You must copy the image from the CIO server in to a directory with approximately 4MB of available disk space. The contents of the tar image can be extracted under the current directory using the following command:

```
tar xvf <tarimagename>
```

From the same directory, execute **pkgadd -d.** to install the Solaris package.

Cisco ATM SBus Adapter Software Files

Following is a list of files contained in the Cisco ATM SBus adapter software:

```
/bin/atmstat  
/bin/catmilmid  
/bin/catmlancfg  
/bin/catmsig  
/etc/Atmstat  
/etc/atmgui.dat  
/etc/catmilmi.db.sample  
/etc/catmlancfg.db.sample  
/etc/catmmib.txt  
/etc/rc.local (SunOS Only - Modified by install script)  
/etc/rc2.d/S69catm (Solaris Only)  
/etc/catmstartup (SunOS Only)  
/sys/catm/catm.o (SunOS Only)  
/kernel/drv/catm (Solaris Only)  
/usr/man/man1/catmilmid.1  
/usr/man/man1/catmlancfg.1  
/usr/man/man1/catmsig.1  
/usr/man/man4/atms.4
```

Cisco Information Online

Cisco Information Online (CIO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CIO to obtain additional content and services.

Available 24 hours a day, 7 days a week, CIO provides a wealth of standard and value-added services to Cisco's customers and business partners. CIO services include product information, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CIO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously—a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CIO (called "CIO Classic") supports Zmodem, Kermit, Xmodem, FTP, Internet e-mail, and fax download options, and is excellent for quick access to information over lower bandwidths. The WWW version of CIO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CIO in the following ways:

- WWW: <http://www.cisco.com>.
- Telnet: [cio.cisco.com](telnet://cio.cisco.com).
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and baud rates up to 14.4 kbps.

For a copy of CIO's Frequently Asked Questions (FAQ), contact cio-help@cisco.com. For additional information, contact cio-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

This document is to be used in conjunction with the *Cisco ATM SBus Adapter User Guide* publication.

Access Without Compromise, Catalyst, CD-PAC, CiscoFusion, Cisco IOS, CiscoView, CiscoWorks, EtherChannel, IGRP, LAN²LAN, LAN²LAN Enterprise, LAN²LAN Remote Office, LAN²PC, LightStream, Newport Systems Solutions, *Packet*, PC²LAN/X.25, Point and Click Internetworking, SMARTnet, SwitchProbe, SwitchVision, SynchroniCD, *The Cell*, UniverCD, WNIC, Workgroup Director, Workgroup Stack, and XCI are trademarks, Access by Cisco and Bringing the power of internetworking to everyone are service marks, and Cisco, Cisco Systems, EtherSwitch, Kalpana, and the Cisco logo are registered trademarks of Cisco Systems, Inc. All other trademarks, service marks, registered trademarks, or registered service marks mentioned in this document are the property of their respective owners.

Copyright © 1995, Cisco Systems, Inc.
All rights reserved. Printed in USA.
956R