



AT-S99 and AT-S102 Version 5.0.0 Management Software for the Converteon™ Media Converter Products

Software Release Notes

Please read this document before you begin to use the management software.



WARNING:

You **MUST** use XMODEM to upgrade the AT-S102 Management Software on the AT-CM301, AT-CM302, and AT-CM3K0S Line Cards to Version 5.0.0 from Version 4.0.0 or 4.0.1. Do not use TFTP. Performing the upgrade with TFTP may damage the cards.

The XMODEM application must have a retry capability that allows it to retransmit data if part of the transmission fails. Hyper-Terminal and the latest version of the TeraTerm program are examples of XMODEM applications that have this capability.

Software Files

This release includes these software release notes and the files listed here:

One AT-S99 Version 5.0.0 management software image file	This file is the new management software for the AT-CV5M02 Management Module.
One AT-S102 Version 5.0.0 management software image file	This file is the new management software for the AT-CM3 Media Converter Line Cards.
One AT-S99 management software MIB file	This file lets you manage the AT-CV5M02 Management Card and media converter line cards with an SNMP application. To use the file, you must compile it into your SNMP application. For instructions, refer to the documentation that comes with the application.

Please review the following information before you begin to use the new management software:

- This release does not include new AT-S73 Management Software for the AT-CM2 and AT-CM70S Line Cards. These line cards must have version 4.0.0 or 4.0.1 of the AT-S73 Management Software to be compatible with the AT-CV5M02 Management Module and the AT-S99 Version 5.0.0 Management Software.
- This release does not include a new version of the AT-S70 Management Software for the AT-CV5M01 Management Card.
- The AT-CV1xx Media Converter Line Cards do not use management software.

CAUTION:

The AT-CM3 Line Cards are NOT compatible with the AT-CV5M01 Management Card.

Product Documentation

Refer to the Allied Telesis web site at www.alliedtelesis.com for the latest installation and user guides for the Converteon products.

What's New in Version 5.0.0

- There are no new features in this release.

Upgrading the AT-CV5M02 Management Card and the AT-CM3 Media Converter Line Cards to Version 5.0.0 from Version 4.0.0 or 4.0.1

Please review the following information before you begin the upgrade procedures:

- You must perform the upgrade procedure using XMODEM from a local management session.
- The procedure assumes that the AT-CV5M02 Management Card has version 4.0.0 or 4.0.1 of the AT-S99 Management Software. If the card has an earlier version, refer to previous release notes for upgrade instructions.
- Allied Telesis recommends updating the AT-S102 Management Software on the AT-CM3 Line Cards before updating the AT-S99 Management Software on the AT-CV5M02 Management Card. If the management card already has Version 5.0.0, it still may be possible to use it to update the line cards. However, if you encounter problems, you may have to download Version 4.0.0 or 4.0.1 of the AT-S99 Management Software onto the management card, update the line cards, and then reinstall Version 5.0.0 on the management card.
- If you plan to add a redundant AT-CV5M02 Management Card to the AT-CV5000 or AT-CV5001 Chassis, do not add it until after you've updated all the cards. If there is a redundant AT-CV5M02 Management Card already in the chassis, remove it until you've completed the upgrade procedure.
- This procedure requires a terminal or a personal computer with a terminal emulator program that can handle lines of up to 125 characters.
- This procedure assumes that you have already obtained the Version 5.0.0 image files of the AT-S102 and AT-S99 Management Software from Allied Telesis, and loaded the software on the computer or terminal from which you'll be performing the local management session.
- Upgrading one line card takes approximately four minutes using XMODEM at a baud rate of 115200 bps on the Console port.
- Upgrading the AT-CV5M02 Management Card takes approximately four minutes using XMODEM at a baud rate of 115200 bps on the Console port.
- Allied Telesis does not recommend using the OAM-based remote peer management feature to update remote AT-CM3 Line Cards to this version of the management software. Line cards should be updated locally, through the Console port on the management card.
- When instructed to enter a value for a parameter, select the parameter with the up or down arrow keys on your keyboard and press Return. When the "->" prompt is displayed, enter the value for the parameter.

- ❑ If you are using TeraTerm Pro, Allied Telesis recommends upgrading to the most recent version of the program. The XMODEM utility in some earlier versions of TeraTerm Pro is not compatible with the same utility on the management card. The downloads will initially appear to be successful, but will fail when the management card attempts to transfer the image files to the line cards.

CAUTION:

The media converter line cards stop forwarding network traffic during the upgrade procedure. If the line cards are part of a live network, you should perform the procedure during a period of low network activity to minimize the impact to your network users.

CAUTION:

The AT-CV5M02 Management Card and the AT-CM3 Media Converter Cards have bootloader files in addition to the AT-S99 and AT-S102 Management Software programs. Never attempt to update the bootloader files. Doing so may damage the cards.

This procedure consists of the following phases:

- ❑ “Phase 1: Installing the AT-CV5M02 Management Card” on page 3
- ❑ “Phase 2: Starting a Local Management Session” on page 4
- ❑ “Phase 3: Displaying the Version Numbers of the Management Software” on page 4
- ❑ “Phase 4: Upgrading the AT-S102 Management Software on the AT-CM3 Line Cards to Version 5.0.0” on page 5
- ❑ “Phase 5: Upgrading the AT-S99 Management Software on the AT-CV5M02 Management Card to Version 5.0.0” on page 6

If you encounter a problem, refer to “Troubleshooting the Upgrade Procedure” on page 8.

Phase 1: Installing the AT-CV5M02 Management Card

If the AT-CV5M02 Management Card is new, install the card with these steps:

1. If the chassis contains the AT-CV5M01 Management Card, remove the card from the chassis.

Note:

You cannot use the AT-CV5M01 Management Card to monitor or manage media converter line cards that have Version 5.0.0 of the management software.

2. Install the AT-CV5M02 Management Card. For instructions, refer to the Installation Guide included with the card. The card, which supports hot-swapping, can be installed while the chassis is powered on.
3. Wait approximately one minute for the AT-CV5M02 Management Card to initialize its AT-S99 Management Software. The card is ready when its RDY LED is on.

Phase 2: Starting a Local Management Session

To start a local management session on the Console port of the AT-CV5M02 Management Card:

1. Connect the management cable that ships with the management card to the Console port on the management card and to an RS-232 port on a terminal or a personal computer with a terminal emulator program.
2. Configure the terminal or terminal emulator program to the following settings:
 - Bits per second: 115200 bps
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: None
3. Press the Return key to display the login prompt.
4. Enter "manager" for the username.
5. When prompted for the password, enter the password. If the management card is new, the default password is "friend." The management software displays the Main Menu. Go to the next procedure to determine the version numbers of the management software programs currently installed on the AT-CV5M02 Management Card and the AT-CM3 Line Cards.

Phase 3: Displaying the Version Numbers of the Management Software

Before you begin to update the management card and the AT-CM3 Line Cards, you should determine the current versions of their respective management programs. To view the version numbers of the management software programs on the cards:

1. From the Main Menu, select **Module Status and Configuration**.
2. In the Module Status and Configuration menu, examine the 'VER' column for the version numbers of the management software programs on the AT-CV5M02 Management Card and the AT-CM3 Line Cards. Line cards that already have Version 5.0.0 do not need to be updated.

Management Software Version Numbers

Module Status and Configuration
Conversion

MODULE_INFO										FIBER_PORT					COPPER_PORT						
Mod_Name	CardType	Ver	ST	OperMod	IPC	FrmSz	LPM	AC	VER	ST	SP	FC	IngRL	EgrRL	OAM	ST	SP	FC	IngRL	EgrRL	AN
1	----	AT-CV5M02	*	Active	800	----	ON_		V400	-	----	-	----	----	----	*	100	-	----	----	-
2	Reg11	AT-CM302	*	OAM_LT	o*o	10240	ON_	N	V400	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
3	Reg20	AT-CM302	*	OAM_LT	o*o	10240	ON_	N	V400	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
4	Reg21	AT-CM302	*	OAM_LT	o*o	10240	ON_	N	V400	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
5	Area2a	AT-CM302	*	OAM_ML	o*o	10240	ON_	N	V400	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
6	Area2b	AT-CM302	*	LT	o*o	10240	ON_	N	V400	*	100	Y	0	0	---	*	100	Y	0	0	Y
7	a121	AT-CM3K0S	*	OAM_LT	o**	10240	ON_	N	V400	*	1G	Y	0	0	oo*	*	1G	Y	0	0	Y
8	Reg12	AT-CM202-v2	*	OAM_V	o*o	----	----	N	V400	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
9		AT-CM202-v2	*	OAM_V	o*o	----	----	N	V400	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
10		AT-CM202-v2	*	OAM_V	o*o	----	----	N	V400	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
11		AT-CV102	*	LT	----	----	----	*	----	*	100	----	----	----	----	*	100	----	----	----	----
12		AT-CV102	*	LT	----	----	----	*	----	*	100	----	----	----	----	*	100	----	----	----	----
13		AT-CV102	*	LT	----	----	----	*	----	*	100	----	----	----	----	*	100	----	----	----	----
14		AT-CV102	*	LT	----	----	----	*	----	*	100	----	----	----	----	*	100	----	----	----	----
15		AT-CV102	*	LT	----	----	----	*	----	*	100	----	----	----	----	*	100	----	----	----	----

More ...
Return to Main Menu ...

3. Write down on a piece of paper the slot numbers of the AT-CM3 Line Cards that need the new management software.
4. Return to the Main Menu.

Phase 4: Upgrading the AT-S102 Management Software on the AT-CM3 Line Cards to Version 5.0.0

To update the AT-CM3 Line Cards:

1. From the Main Menu, select **Image Download** to display this menu.

```

Image Download Menu

Image Download via TFTP
Image Download via XMODEM

Return to Main Menu ...

```

2. Select **Image Download via XMODEM** to display this menu.

```

Image Download via XMODEM

Management Card Image Download

Single Local CM Line Card Image
Single Local CM Line Card Bootloader

Single Remote CM Line Card Image
Single Remote CM Line Card Bootloader

Return to Image Download Menu ...

```

3. Select **Single Local CM Line Card Image**. This prompt is displayed:

Ready to download application image through XModem.

Warning: During Image Download Management activity is disabled.
Do XMODEM download now? (Yes or No):

4. Enter **Y** to continue with the download or **N** to cancel the procedure. If you continue with the procedure, this prompt is displayed:

Enter LineCard Slotnum: ->

5. Enter the slot number of the line card you want to upgrade. You can specify just one slot number. This prompt is displayed:

Ready to download image...

6. Use your terminal or terminal emulator program to begin the download.

After the management card has received the entire image file from your terminal emulator program, it transmits the file over the backplane of the chassis to the designated AT-CM3 Line Card. The transfer takes approximately two and a half minutes. After the card has received the file, it writes it to flash memory, which takes about thirty seconds. The line card then resets and initializes its new management program, which takes another minute. (The RDY LED on the line card does not light up until the card has initialized its management software.)

CAUTION:

Do not remove a line card or power off the chassis while a card is writing the image file to flash memory. Doing so may damage the card.

Here is an example of the messages you'll see after the management card has received the new management software and as it begins to transfer the file over the backplane to the designated line card.

```
-- Receiving data complete --

Verifying Checksum. . . CRC_Obtained      [f7b1d5672]
                       CRC_Calculated   [f7b1d5672]. . . SUCCESS
                       Time Elapsed: <0 sec, 35 msec

Local Line Card in Slot 2:
-----
Downloading Image to Local Line Card. . . . . 100%
-----
Transfer New Image to Line Card Elapsed:           <2 min. 40 sec>
-----
Line Card Start to Erase & Write New Image to Flash. . SUCCESS
Line Card Update New Image to Flash Time Elapsed: < 0 min. 29 sec >
-----
Total Image Download Time Elapsed:                << 2 min. 57 sec >

(Press any key to continue.)
```

7. To verify the upgrade process after it is finished, return to the Main Menu and select **Module Status and Configuration**.

Note:

If the line card does not return to normal operations within five minutes after the completion of the upgrade procedure, you will need to manually reset the card. This can be accomplished either by removing and reinstalling the line card in the chassis or by power cycling the chassis.

8. Examine the Ver. column for the version numbers of the AT-S102 Management Software on the AT-CM3 Line Card. The version should be "V500."
9. Return to the Main Menu.
10. To upgrade additional AT-CM3 Line Cards, repeat this procedure starting with step 1.

Phase 5: Upgrading the AT-S99 Management Software on the AT-CV5M02 Management Card to Version 5.0.0

Note:

If the AT-S99 Management Software on the management card is earlier than 4.0.0 or 4.0.1, you must install the previous versions in sequence, before installing version 5.0.0. Skipping a version may damage the card. All the versions are available on the Allied Telesis web site. For upgrade instructions, refer to the previous software release notes.

To update the management software on the management card:

1. From the Main Menu, select **Image Download**.
2. Select **Image Download via XMODEM**.
3. In the Image Download via TFTP menu, select **Management Card Image Download**. This prompt is displayed:

Ready to download application image through XModem.

Warning: During Image Download Management activity is disabled.

Do XMODEM download now? (Yes or No):

4. Enter **Y** to continue with the download or **N** to cancel the procedure. If you continue with the procedure, this prompt is displayed:

Ready to download...

5. Use your terminal or terminal emulator program to begin the download.

After the management card has received the file from your terminal or terminal emulator program, it writes the file to flash memory and then resets. The entire process takes about two minutes. (The RDY LED on the line card does not light up until the card has initialized its management software.)

CAUTION:

Do not remove the management card or power off the chassis while it is writing the image file to flash memory. Doing so may damage the card.

Here is an example of the messages you'll see after the management card has received the new management software from the terminal or terminal emulator program.

```
-- Receiving data complete --
SUCCESS
Verifying Checksum... CRC_Obtained      [04dadfe4]
                       CRC_Calculated   [04dadfe4]... SUCCESS
                       Time Elapsed: <0 sec, 133 msec
Management Card in Slot 1:
-----
Please DON'T power cycle during flash update
as it could corrupt the flash.
-----
Erasing flash image length (6160384), region <47> sectors...
 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 ... SUCCESS

Image size: Part-1 (1966080), Part 2 (1605696), Total (3571776)
-----
Writing image to flash start... SUCCESS
Image download time elapsed: < 0 min. 39 sec >
-----
Rebooting Management Card...
Total Image Download Time Elapsed:          << 0 min. 39 sec >>
```

6. To verify the upgrade process after it is finished, start a new management session and select **Module Status and Configuration** from the Main Menu.
7. Examine the Ver. column for the AT-CV5M02 Management Card. The upgrade was successful if the version number is "V500."

Troubleshooting the Upgrade Procedure

If the upgrade process stops or freezes while the management card is transferring an image file to a line card or while a line card is writing an image file to flash memory, try performing the following procedure:

1. If no further status messages appear after five minutes, try pressing Return. If the management card is unresponsive, reset the card using the CPU Reset button on the front faceplate. Or, remove the card from the chassis and then reinstall it.
2. Wait one minute for the management card to initialize its management software and then start a new local management session.
3. From the Main Menu select **Module Status and Configuration**. An example of the menu is shown on page 4.
4. Examine the Ver column to determine which, if any, of the cards were successfully updated. For those line cards that were not updated, repeat Phase 6 and upgrade the cards individually using the Single Local Line Card Image option or, for remote line cards, the Single Remote Line Card Image option.
5. If you are unable to upgrade a particular line card after repeated attempts, try installing it in a different slot in the chassis and repeat Phase 4 for that card.
6. If you are using TeraTerm Pro, upgrade your computer to the most recent version of the program. The XMODEM utility in some earlier versions of TeraTerm Pro is not compatible with the same utility on the management card. The downloads will initially appear to be successful, but will fail when the management card attempts to transfer the image files to the line cards.

Known Issues

- ❑ **DHCP client.** The DHCP client on the AT-CV5M02 Management Card has the following known issues:
 - The management card must have a valid link on its 10/100Base-TX port for you to enable or disable DHCP.
 - If, after the management card has received an IP address configuration from a DHCP server, the server stops operating, the card retains its configuration. However, because the DHCP client doesn't periodically query the server for the status of its IP address configuration, it is unable to determine whether or not its configuration is still valid when the DHCP server resumes operations.
- ❑ **AT-CM70S Line Card.** This line card has these known issues:
 - The line card does not support the Line Card Configuration menu or tab, used to restore previous configurations or the default configuration.
 - The line card does not support packet rate limiting or flow control on the ports.
- ❑ **Remote peer management.** The remote management feature may not work during periods of heavy traffic between local and remote line cards. If this problem occurs, the network operations of the cards are not affected, but the remote cards do not appear in the Remote Configuration and Status menu. Here are possible workarounds:
 - For the AT-CM2 Series Line Cards you can leave flow control activated on the ports on the local and remote cards. These line cards are only likely to encounter the problem if you deactivate flow control.
 - For the AT-CM2K0S or AT-CM70S Line Card you can temporarily set the packet rate limit on the twisted pair port on the local line card to 70 Kbps. You'll then be able to manage the remote line card. Afterwards, you can readjust the packet rate limit on the local twisted pair port back to no limit or to whatever the previous setting happened to be.

- ❑ **Web browser windows.** The web browser windows have the following issues:
 - You cannot configure the T1/E1 port settings on the AT-CM70S Line Card from the web browser windows. To configure these ports you have to use the menus on the management card or the card's Console port. (6401)
 - You can use the web browser windows to view but not change the IP address configuration of the AT-CV5M02 Management Card.
- ❑ **First RPS failure.** The AT-CM3 Series Line Cards do not support the OAM first RPS failure signal if the AT-CV1203 Chassis has one AT-CM3 Series Line Card and one AT-CM2 Series Line Card. The line cards forward network traffic normally, but the AT-CM3 Series Line Card will not generate the signal if a power supply loses power.

Resolved Issues

- ❑ **AT-CV1203 Chassis:** The AT-CV5M02 Management Card in the AT-CV1203 Chassis failed to recognize the chassis model and displayed "Unknown Chassis" above the Main Menu and in the Chassis Diagnostics Menu. This issue has been resolved. (6392)

Operational Notes

- ❑ The default operating mode of the AT-CM2 and AT-CM70S Line Cards was changed in Version 3.0.0 to OAM Visible from Link Test. (The default operating mode for the AT-CV Line Cards remains Link Test.)
- ❑ The maximum frame sizes of the line cards are:
 - AT-CV Line Cards: 9000 bytes
 - AT-CM2 and AT-CM70S Line Cards: 1522 bytes
 - AT-CM2K0S Line Card: 1522 or 1632 bytes
 - AT-CM3 Line Cards: 10240 bytes
- ❑ When a remote AT-CV1203 Chassis loses power on one power supply, there may be a delay of up to 25 seconds before the AT-CM Media Converter Line Card sends the first RPS failure signal. If power is restored to the secondary power adapter before the signal is sent, the card does not send the signal.
- ❑ The AT-CM202 and AT-CM212 Line Cards in the MissingLink mode may take up to three seconds to establish links on their ports.
- ❑ If you are using TeraTerm Pro to manage the Converteon product, Allied Telesis recommends upgrading to the most recent version of the program. This is particularly important if you will be using XMODEM to download image files to the AT-CV5M02 Management Card or to the AT-CM Line Cards. The XMODEM utility in some earlier versions of TeraTerm Pro is not compatible with the same utility on the management card. The downloads will initially appear to be successful, but will fail when the management card attempts to transfer the image files to the line cards.
- ❑ If the DIP switches that control the operating mode appear to be nonfunctional on a new media converter line card, they might have been disabled during manufacturing. Resolving the problem requires the AT-CV5M02 Management Card. You have to install the line card into a chassis that has the management card and either reactivate the DIP switches or select another operating mode on the line card. If you do not have the AT-CV5M02 Management Card, contact Allied Telesis technical support at www.alliedtelesis.com for assistance.
- ❑ The SW 2 DIP switch block on the circuit boards of the AT-CM2 Line Cards has four switches. The only active switch is switch 2, used to control auto-MDI/MDI-X on the twisted pair port. When the

switch is in the off position, auto-MDI/MDI-X is active on the port. When the switch is in the on position, auto-MDI/MDI-X is disabled and the port defaults to the MDI-X configuration. The three other switches on SW 2 are inactive.

- ❑ When you add or hot-swap line cards in an operational AT-CV5000 or AT-CV5001 Chassis, Allies Telesis recommends installing the cards one at a time and verifying with the management card that a new card is operating properly before installing the next card.
- ❑ The Link LED for the fiber optic port on the AT-CM70S Line Card remains on after the port is disabled. (5910)
- ❑ The Activity LED on the twisted pair port on the AT-CM202-v2 Line Card continues to flash after the port is disabled. (6083)
- ❑ The UART parameter on the AT-CM70S Line Card must set to the UART Local Console Mode if the line card is installed in the AT-CV1200 Chassis. Otherwise, the line card might not function properly. Setting this parameter requires the AT-CV5M02 Management Card. This guideline does not apply if the line card is installed in the AT-CV5000 or AT-CV5001 Chassis. (5015)

Features History

This section lists the history of the new features in the Converteon product.

Version 4.0.1

- ❑ This release added support for these new media converter line cards:

Model Name	Ports
AT-CM301	One 10/100Base-TX twisted pair port with a RJ-45 connector and a 100Base-FX fiber optic port with a duplex ST connector and a maximum operating distance of 2 kilometers (1.24 miles).
AT-CM302	One 10/100Base-TX twisted pair port with a RJ-45 connector and a 100Base-FX fiber optic port with a duplex SC connector and a maximum operating distance of 2 kilometers (1.24 miles).
AT-CM3K0S	One 10/100/1000Base-T twisted pair port with a RJ-45 connector and a slot for a 100Base-FX or 1000Base-X SFP module.

- ❑ The AT-CV1203 Chassis was updated to support the OAM-based first RPS failure signal on the AT-CM3 Line Cards without the need of a management card.
- ❑ Some changes were made to the menus and the web browser windows in the AT-S99 Management Software.

Version 4.0.0

- ❑ None

Version 3.0.0

- ❑ This release introduced the AT-CV5M02 Management Card.

Version 2.0.2

- This release introduced the AT-CV1203 Chassis and the dying gasp feature.
- The Diagnostics menu was expanded with a new selection for viewing the version numbers of the AT-S73 Management Software and the bootloader files on remote AT-CM Line Cards.
- The remote peer management feature was enhanced to support traffic statistics for the twisted pair ports on remote AT-CM Line Cards.
- The ability to view manufacturer's SFP information on remote AT-CM70S and AT-CM2K0S Line Cards was also added in this release to remote peer management.

Version 1.7.0

- This release added support for upgrading the AT-S73 Management Software on remote AT-CM Line Cards through remote peer management.

Version 1.6.0

- None

Version 1.5.0

- None

Version 1.4.0

- None

Version 1.3.0

AT-S70 Version 1.3.0 introduced the following new features:

- SNMPv3
- T1/E1 Configuration and Status (for AT-CM70S only)

Version 1.2.0

AT-S70 Version 1.2.0 introduced the following new features:

- Redundant CPM (Manual and Automatic CPM Switchover)
- ATI Proprietary Remote Management with Remote Port Configuration Included
- Smart MissingLink
- SFP Information

Version 1.1.0

AT-S70 Version 1.1.0 introduced the following new features:

- Event Log
- Syslog (RFC 3164 - BSD Syslog Protocol)
- User Configurable for Operating Mode via User Interface
- MissingLink capability for AT-CM202 Line Card

Version 1.0.0

AT-S70 Version 1.0.0 introduced the following new features:

- Chassis, CPM card and line card monitoring and diagnostics
- Telnet and SNMP management
- Xmodem and TFTP software downloads
- DHCP
- Activity Monitor
- IEEE 802.3ah OAM Compatible
- ATI Proprietary Remote Status

Contacting Allied Telesis

This section provides Allied Telesis contact information for technical support as well as sales or corporate information.

Online Support

You can request technical support online by accessing the Allied Telesis Knowledge Base: www.alliedtelesis.com/support/kb.aspx. You can use the Knowledge Base to submit questions to our technical support staff and review answers to previously asked questions.

Email and Telephone Support

For Technical Support via email or telephone, refer to the Support section of the Allied Telesis web site: www.alliedtelesis.com.

Returning Products

Products for return or repair must first be assigned a return materials authorization (RMA) number. A product sent to Allied Telesis without an RMA number will be returned to the sender at the sender's expense. For instructions on how to obtain an RMA number, go to the Support section on our web site at www.alliedtelesis.com.

For Sales or Corporate Information

You can contact Allied Telesis for sales or corporate information through our web site at www.alliedtelesis.com.

Obtaining Management Software Updates

New releases of management software for our managed products are available from the following Internet sites:

- Allied Telesis web site: www.alliedtelesis.com
- Allied Telesis FTP server: <ftp://ftp.alliedtelesis.com>

If the FTP server prompts you to log on, enter "anonymous" as the user name and your email address as the password.

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