Converteon™ Management Software

AT-S73, AT-S99 and AT-S102

User's Guide

Converteon Family of Media Converter Products

AT-S73 Version 4.0.1 Management Software for the AT-CM2XX and AT-CM70S Media Converter Cards

AT-S99 Version 4.0.1 Management Software for the AT-CV5M02 Management Card

AT-S102 Version 4.0.1 Management Software for the AT-CM3XX Media Converter Cards

613-001017 Rev B

Allied Telesis™

Contents

Preface 15
Where to Find Web-based Guides 16
Product Name Conventions 17
Contacting Allied Telesis 18
Online Support 18
Email and Telephone Support 18
Returning Products 18
Sales and Corporate Information 18
Warranty 18
Management Software Updates 19

Chapter 1: AT-CV5M02 Management Card 21
Features 22
AT-S99 Management Software 23
Console Port 23
10/100Base-TX Port 23
IP Address Configuration 23
Event Log 24
Activity Monitor 24
Syslog Client 24
Network Time Protocol Client 24
Manager and Operator Accounts 25
Management Access 26
Local Management 26
Remote Telnet Management 26
Remote Web Browser Management 26
SNMP Management 27
Active and Standby Management Cards 28
Accessing Your Network 31
Configuration Files 32
AT-CM Line Cards 32
AT-CV Line Cards 32
AT-CV5M02 Management Card 32
Restoring Configurations to the AT-CM Line Cards 33
AT-CM Line Cards and Remote Peer Management 35
Active and Standby Management Cards 36
SNMPv3 Configuration Files 37
Converteon Chassis 38

Chapter 2: AT-CM and AT-CV Media Converter Line Cards 39
AT-CM2 and AT-CM70S Media Converter Line Cards 40
AT-CM3 Media Converter Line Cards 42
AT-CV Media Converter Line Cards 44
Management Software 46
Maximum Frame Sizes 46
Low Power Mode 46
Packet Rate Limiting 47
Operating Modes 48
Link Test Mode 49
Link Test and OAM Visible Mode 49

MissingLink Mode 49
MissingLink and OAM Visible Mode 51
Smart MissingLink Mode 52
Smart MissingLink and OAM Visible OAM 53
OAM Visible Mode 53
OAM Bypass Mode 53
Setting the Operating Mode 54

Chapter 3: OAM-based Features 55
Remote Peer Management 56
Remote Updates of the AT-S73 or AT-S102 Management Software 60
OAM Loopback Tests 61
Dying Gasp and First RPS Failure Signals 62
Dying Gasp 62
First RPS Failure 64
OAM Variable Requests 68
OAM Client Settings 69

Chapter 4: Starting a Management Session 71
Starting a Local Management Session 72
Starting a Telnet Management Session 75
Starting a Web Browser Management Session 76
Saving Your Configuration Changes 78
Saving the Configuration of the AT-CV5M02 Management Card 78
Saving the Configurations of the Local AT-CM Line Cards 80
Saving the Configurations of the Remote AT-CM Line Cards 83
Updating the Master Configuration File on a Standby Management Card 83
What to Configure First on the AT-CV5M02 Management Card 85
Changing the Manager and Operator Passwords 85
Assigning an IP Address Configuration and Changing the Community Strings 86
Setting the Date and Time 87
Naming the Management Card 88
Saving Your Changes 89
Configuring the AT-CM2, AT-CM3, and AT-CM70S Line Cards for the OAM-based Features 90
Setting the Operating Mode 90
Configuring the OAM Settings 93
Testing the OAM Settings 95

Chapter 5: Configuring the AT-CV5M02 Management Card 99
Assigning an IP Address Configuration 100
Menus 100
Web Browser 103
Assigning a Name 104
Menus 104
Web Browser 104
Assigning Contact and Location Information 106
Menus 106
Web Browser 106
Configuring the SNMP Community Strings 108
Menus 108
Web Browser 108
Specifying the IP Addresses of the SNMP Trap Receivers 110
Menus 110
Web Browser 110
Configuring the Management Security 111
Menus 111
Web Browser 113
Enabling or Disabling the Web Server 114
Menus 114
Web Browser 114

Manually Setting the Date and Time ... 115
Menus ... 115
Web Browser ... 116
Configuring the Network Time Protocol Client ... 117
Menus ... 117
Web Browser ... 117
Resetting the Management Card ... 119
Menus ... 119
Web Browser ... 120
Viewing the Event Log ... 122
Menus ... 122
Web Browser ... 129
Viewing the Activity Monitor ... 130
Menus ... 130
Web Browser ... 130
Configuring the Syslog Client ... 131
Menus ... 131
Web Browser ... 131
Configuring the 10/100Base-TX Port ... 133
Menus ... 133
Web Browser ... 136
Restoring the Default Setting on the 10/100Base-TX Port ... 138
Menus ... 138
Web Browser ... 138
Restoring the Default Values on the AT-CV5M02 Management Card ... 140
Menus ... 140
Web Browser ... 141
Configuring the Temperature Threshold ... 142
Menus ... 142
Web Browser ... 142
Activating a Standby AT-CV5M02 Management Card ... 144
Menus ... 144
Web Browser ... 145
Setting the Baud Rate of the Console Port ... 146
Menus ... 146
Web Browser ... 147
Displaying the Operational Status of the Chassis ... 148
Menus ... 148
Web Browser ... 150
Pinging Network Devices ... 152
Menus ... 152
Web Browser ... 152
Displaying the Inter-process Communication Monitor ... 153
Menus ... 153
Web Browser ... 154
Displaying Information about the Management Card ... 155

Chapter 6: Configuring the Media Converter Line Cards ... 157
Displaying the Status of the Line Cards ... 158
Menus ... 158
Web Browser ... 164
Displaying the Parameter Settings of the AT-CM Line Cards ... 166
Menus ... 166
Web Browser ... 167
Configuring the Port Parameters on the AT-CM Line Cards ... 169
Menus ... 169
Web Browser ... 174
Setting the Operating Mode ... 176
Menus ... 176
Web Browser ... 179

Assigning Names to the AT-CM Line Cards 181
Menus 181
Web Browser 181
Configuring the Maximum Frame Size on the AT-CM2K0S Line Card 182
Menus 182
Web Browser 182
Setting the Auto-copy Feature 183
Menus 183
Web Browser 184
Setting the Low Power Mode on the AT-CM3 Line Cards 186
Menus 186
Web Browser 187
Setting the Low Power Mode on all the AT-CM3 Line Cards 188
Menus 188
Web Browser 189
Restoring the Default Settings 191
Menus 191
Web Browser 193
Restoring the Last Saved Configurations to the AT-CM3 Line Cards 195
Menus 195
Web Browser 196
Resetting an AT-CM3 Line Card 198
Menus 198
Web Browser 198
Resetting All of the AT-CM2, AT-CM3, and AT-CM70S Media Converter Line Cards 199
Menus 199
Web Browser 200
Resetting All of the AT-CM, AT-CM70S, and AT-CV Media Converter Line Cards 201
Menus 201
Web Browser 202
Displaying Port Statistics 203
Menus 203
Web Browser 206
Displaying the Version Numbers of the Management Software 207
Menus 207
Web Browser 209
Displaying the MAC Addresses and Serial Numbers 210
Menus 210
Web Browser 211
Displaying SFP Module Information 213
Menus 213
Web Browser 215

Chapter 7: Configuring the Media Converter Line Cards with Remote Peer Management 217
Configuring the Remote Line Cards with the Menus 218
Displaying the Status of the Remote Line Cards 218
Naming a Remote Line Card 223
Displaying the Parameter Settings of a Remote Line Card 223
Configuring Remote Ports 223
Configuring the Low Power Mode on the AT-CM3 Line Cards 224
Configuring the OAM Clients 224
Changing the Operating Mode 224
Restoring the Default Settings 225
Restoring the Last Saved Configuration 226
Saving the Parameter Settings 227
Resetting the Remote AT-CM3 Line Cards 227
Configuring the Remote AT-CM Line Cards with the Web Browser Windows 228
Displaying the Status of the Remote Line Cards 228
Displaying the Current Configuration 229
Naming a Remote Line Card 230
Configuring the Remote Ports 230

Configuring the Low Power Mode on AT-CM3 Line Cards ... 230
Configuring the OAM Clients on Remote Line Cards ... 231
Changing the Operating Mode ... 231
Restoring the Default Parameter Settings ... 232
Restoring the Last Saved Configuration ... 233
Saving the Parameter Settings ... 233
Resetting the Remote AT-CM3 Line Cards ... 234
Displaying the Version Numbers of the Remote AT-CM Line Cards ... 235
Menus ... 235
Web Browser ... 236
Displaying the MAC Addresses and Serial Numbers of the Remote AT-CM Line Cards ... 238
Menus ... 238
Web Browser ... 239
Displaying SFP Module Information from the Remote AT-CM Line Cards ... 240
Menus ... 240
Web Browser ... 240

Chapter 8: Configuring the T1/E1 Ports on the AT-CM70S Media Converter Line Card ... 241
Selecting the Management Method for the AT-CM70S Line Card ... 242
Configuring the T1/E1 Ports from the AT-CV5M02 Management Card ... 246
Configuring the T1/E1 Ports from the Console Port on the Line Card ... 249

Chapter 9: Configuring the Operations, Administration, and Maintenance Client ... 253
Configuring the OAM Client ... 254
Menus ... 254
Web Browser ... 258
Performing the OAM Loopback Test ... 259
Menus ... 259
Web Browser ... 262
Displaying OAM Information on Local OAM Clients ... 264
Menus ... 264
Web Browser ... 270
Displaying OAM Information on Remote OAM Clients ... 271
Menus ... 271
Web Browser ... 272
Displaying OAM Statistics ... 273
Menus ... 273
Web Browser ... 274
Sending OAM Variable Requests to View MIB Variables ... 275
Menus ... 275
Web Browser ... 276

Chapter 10: Configuring SNMPv3 ... 279
SNMPv3 Overview ... 280
SNMPv3 Authentication Protocols ... 281
SNMPv3 Privacy Protocol ... 281
SNMPv3 MIB Views ... 281
SNMPv3 Storage Types ... 283
SNMPv3 Message Notification ... 283
SNMPv3 Tables ... 284
SNMPv3 Configuration Example ... 288
Configuring SNMPv3 Entities ... 289
Configuring the SNMPv3 User Table ... 290
Configuring the SNMPv3 View Table ... 293
Configuring the SNMPv3 Access Table ... 296
Configuring the SNMPv3 Group Table ... 300
Configuring the SNMPv3 Notify Table ... 303
Configuring the SNMPv3 Target Address Table ... 306
Configuring the SNMPv3 Target Parameters Table ... 309

Chapter 11: Uploading and Downloading Files 315
Overview 316
Configuring the TFTP Client to Download New Management Software Programs 317
Downloading New Management Software Using TFTP 320
Downloading New Management Software Using XMODEM 325
Transferring Configuration Files 328
Requirements 328
Saving the Configuration Settings 329
Transferring the Master and SNMPv3 Configuration Files with the Menus 330
Transferring the Master Configuration File with the Web Browser Windows 334

Appendix A: Default Settings for the Management Card and the Line Cards 337
AT-CV5M02 Management Card 338
AT-CM2 and AT-CM70S Media Converter Line Cards 340
AT-CM3 Media Converter Line Cards 342
AT-CV Media Converter Line Cards 343

Appendix B: SNMPv3 Configuration Examples 345
SNMPv3 Manager Configuration 346
SNMPv3 Operator Configuration 348
SNMPv3 Worksheet 349

Appendix C: Packet Rate Limiting on the AT-CM2K0S Line Card 351

Index 371

Figures

Figure 1. Updating the Master Configuration File on a Standby Card 37
Figure 2. MissingLink and OAM Operating Mode 51
Figure 3. Remote Peer Management - Example 1 56
Figure 4. Remote Peer Management - Example 2 57
Figure 5. Remote Module Status and Configuration Menu 58
Figure 6. Remote Module Status and Configuration Window 58
Figure 7. Downloading New AT-S73 Management Software to Remote AT-CM Line Cards 60
Figure 8. Loopback Test 61
Figure 9. Dying Gasp Feature 63
Figure 10. AT-CM2 Line Cards and First RPS Failure Signal 65
Figure 11. AT-CM3 Line Cards and First RPS Failure Signal 66
Figure 12. Connecting the Management Cable to the Management Card's Console Port 72
Figure 13. Main Menu 73
Figure 14. URL Field in a Web Browser 76
Figure 15. Chassis View 77
Figure 16. Save Command in the System Configuration Menu 79
Figure 17. Save Command in the System Tab 79
Figure 18. Configuration Pop-up Window 80
Figure 19. Save Command for a Local AT-CM Line Card - Menus 81
Figure 20. Save Command for a Local AT-CM Line Card - Web Browser Windows 81
Figure 21. All CM Line Cards Tab 82
Figure 22. All CM Line Cards Pop-up Window 82
Figure 23. Management Card Redundancy Menu 83
Figure 24. Management Card Redundancy Tab 84
Figure 25. Module Status and Configuration Menu 91
Figure 26. Viewing the OAM Client Status 97
Figure 27. Configuration Menu 100
Figure 28. System Configuration Menu 100
Figure 29. System Parameters Configuration Menu 101
Figure 30. IP Parameters Menu 101
Figure 31. System Tab 103
Figure 32. SNMPv1 & SNMPv2c Tab 107
Figure 33. Omega Options Menu 111
Figure 34. Web Server Configuration Menu 114
Figure 35. System Clock Menu 115
Figure 36. Module Configuration Menu (Management Card) 120
Figure 37. General Tab 121
Figure 38. Administration Menu 122
Figure 39. Event Log Menu 122
Figure 40. Event Log 123
Figure 41. Event Log Tab 129
Figure 42. Activity Monitor 130
Figure 43. Syslog Tab 131
Figure 44. Port Configuration Menu for the 10/100Base-TX Port on the AT-CV5M02 Management Card 134
Figure 45. Port Configuration Menu for the 10/100Base-TX Port on the AT-CV5M02 Management Card 134
Figure 46. Port A Tab for the Management Card 136
Figure 47. 10/100Base-TX Port on the Management Card 136
Figure 48. Temperature Threshold Configuration Menu 142
Figure 49. Management Card Redundancy Menu 144
Figure 50. Confirmation Prompt for Switch Over Management Cards 144

Figure 51. Management Card Redundancy Tab ... 145
Figure 52. Terminal Configuration Menu ... 146
Figure 53. Terminal Data Rate Menu ... 147
Figure 54. Diagnostics Menu ... 148
Figure 55. Chassis Diagnostics Menu ... 148
Figure 56. Chassis Information Menu ... 149
Figure 57. Chassis Diagnostics Tab ... 151
Figure 58. Real-time IPC Message ... 153
Figure 59. Module Status and Configuration Menu ... 158
Figure 60. Chassis View ... 164
Figure 61. Menu View ... 165
Figure 62. Display Current Configuration Window ... 166
Figure 63. Current Configuration Tab ... 168
Figure 64. Module Configuration Menu (Media Converter Line Card) ... 169
Figure 65. Port Management Menu ... 170
Figure 66. Port Configuration Menu ... 171
Figure 67. Port Configuration Window ... 175
Figure 68. Operating Mode Configuration Menu for the AT-CM2 and AT-CM70S Line Cards ... 176
Figure 69. Operating Mode Configuration Menu for the AT-CM3 Line Cards ... 177
Figure 70. Configure Operating Mode via Management Card Menu ... 177
Figure 71. Setting Window ... 179
Figure 72. Max Frame Size Config Menu for the AT-CM2K0S Line Card ... 182
Figure 73. Line Card Configuration Menu ... 183
Figure 74. Auto-copy Line Card Configuration Prompt ... 184
Figure 75. Auto-copy Tab ... 185
Figure 76. Low Power Mode Configuration Prompt ... 186
Figure 77. All CM Line Card Configurations Menu ... 188
Figure 78. CM301/CM302/CMCM3K0S LPM Menu ... 188
Figure 79. Line Card Low Power Mode Information ... 189
Figure 80. All CM Line Card Tab ... 189
Figure 81. Display Default Configuration Window ... 192
Figure 82. Default Configuration Tab ... 193
Figure 83. Last Saved Configuration Tab ... 197
Figure 84. Local CM Line Card Diagnostics Menu ... 199
Figure 85. General tab ... 202
Figure 86. Line Card Module Software Image Version Window ... 208
Figure 87. Image Version Window ... 209
Figure 88. Line Card Module Information ... 210
Figure 89. MAC Address & Serial Number Window ... 212
Figure 90. SFP Information Window ... 214
Figure 91. SFP Information Tab ... 216
Figure 92. Remote Module Status and Configuration Menu ... 218
Figure 93. Remote Module Configuration Menu ... 222
Figure 94. Remote Module Status & Configuration Tab ... 228
Figure 95. Remote Module Status & Configuration Page ... 229
Figure 96. Remote Line Card Module Software Image Version Window ... 235
Figure 97. Remote Image Version Page ... 236
Figure 98. Remote Line Card Module Information Window ... 238
Figure 99. UART Settings on the AT-CM70S Line Card ... 243
Figure 100. TDM Management Menu ... 244
Figure 101. UART Configuration Menu ... 245
Figure 102. LIU Mode and Channel Select Menu ... 246
Figure 103. TDM Channel Configuration Menu 1 ... 247
Figure 104. TDM Channel Configuration Menu 2 ... 247
Figure 105. Local Console Menu on the AT-CM70S Line Card ... 250
Figure 106. OAM Configurations Menu ... 254
Figure 107. OAM Configuration Submenu ... 255
Figure 108. OAM Configuration Tab ... 258
Figure 109. OAM Loopback Test Menu ... 259
Figure 110. Show Loopback Test Statistics Window ... 261

Figure 111. OAM Loopback Test Tab 262
Figure 112. OAM Test Statistics 263
Figure 113. Show Local OAM Information Window 265
Figure 114. OAM Local Information Tab 270
Figure 115. Show Remote OAM Information Window 271
Figure 116. Remote OAM Information Tab 272
Figure 117. Show OAM Statistics Window 273
Figure 118. OAM Statistics Tab* 274
Figure 119. Enter Branch Number Prompt 275
Figure 120. Enter Leaf Number Prompt 276
Figure 121. OAM Variable Request Tab 276
Figure 122. MIB Tree 282
Figure 123. SNMPv3 User Configuration Process 284
Figure 124. SNMPv3 Message Notification Process 285
Figure 125. Configure SNMPv3 User Table Menu 290
Figure 126. SNMPv3 User Table Tab 291
Figure 127. Configure SNMPv3 View Table Menu 293
Figure 128. SNMPv3 View Table Tab 294
Figure 129. Configure SNMPv3 Access Table Menu 296
Figure 130. SNMPv3 Access Table Tab 297
Figure 131. Configure SNMPv3 Group Table Menu 300
Figure 132. SNMPv3 Group Table Tab 301
Figure 133. Configure SNMPv3 Notify Table Menu 303
Figure 134. SNMPv3 Notify Table Tab 304
Figure 135. Configure SNMPv3 Target Address Table Menu 306
Figure 136. SNMPv3 Target Address Table Tab 307
Figure 137. Configure SNMPv3 Target Parameters Table Menu 310
Figure 138. SNMPv3 Target Parameters Table Tab 310
Figure 139. TFTP Image Download Configuration 317
Figure 140. Image Download Menu 321
Figure 141. Image Download via TFTP Menu 321
Figure 142. Image Download via XMODEM Menu 326
Figure 143. TFTP File Upload Download Configuration Menu 331
Figure 144. Configuration File Upload/Download with TFTP 332
Figure 145. Files Tab 334
Figure 146. Rate Limit Input vs. Hardware Configured Values 351

Tables

Table 1. Converteon Chassis 38
Table 2. AT-CM2 and AT-CM7 Media Converter Line Cards 40
Table 3. Features of the AT-CM2 and AT-CM70S Media Converter Line Cards 41
Table 4. AT-CM3 Media Converter Line Cards 42
Table 5. Features of the AT-CM3 Media Converter Line Cards 42
Table 6. AT-CV Media Converter Line Cards 44
Table 7. Features of the AT-CV Media Converter Line Cards 45
Table 8. Versions of the AT-CM2 Line Cards that Support Dying Gasp 64
Table 9. Versions of the Management Software that Support Dying Gasp 64
Table 10. OAM Parameter Settings for the OAM-based Features 69
Table 11. Menu Selection Options 74
Table 12. Omega Options Menu 112
Table 13. Event Log Format 123
Table 14. General Event Messages 124
Table 15. SFP Module Event Messages 127
Table 16. Module Configuration Menu for a Management Card 133
Table 17. Port Configuration Menu for the 10/100Base-TX Port on the Management Cards 135
Table 18. Chassis Information Menu 149
Table 19. IPC Message 153
Table 20. Module Status and Configuration Menu 158
Table 21. Module Configuration Menu 170
Table 22. Port Configuration Menu 171
Table 23. Port Statistics for the AT-CM3 Line Cards 203
Table 24. Port Statistics for AT-CM2 and AT-CM70S Line Cards 206
Table 25. Line Card Module Software Image Version Window 208
Table 26. Line Card Module Information Window 211
Table 27. Remote Module Status and Configuration Menu 219
Table 28. Line Card Module Software Image Version Window 236
Table 29. Remote Image Version Window 237
Table 30. Remote Line Card Module Information Window 239
Table 31. T1/E1 Port Settings 248
Table 32. OAM Client Parameters 255
Table 33. Show Local OAM Information Window 265
Table 34. SNMPv3 User Table Parameters 291
Table 35. SNMPv3 View Table Parameters 294
Table 36. SNMPv3 Access Table Parameters 297
Table 37. SNMPv3 Group Table Parameters 301
Table 38. SNMPv3 Notify Table Parameters 304
Table 39. SNMPv3 Target Address Table Parameters 307
Table 40. SNMPv3 Target Parameters Table Parameters 311
Table 41. TFTP Image Download Configuration Menu 318
Table 42. Image Download via TFTP Menu 322
Table 43. Image Download via XMODEM Menu 326
Table 44. TFTP File Upload Download Configuration 331
Table 45. Configuration File Upload/Download with TFTP Menu 332
Table 46. Default Settings for the AT-CV5M02 Management Card and the AT-S99 Management Software 338
Table 47. Default Settings for the AT-CM2 and AT-CM70S Line Cards and the AT-S73 Management Software 340
Table 48. Default Settings for the AT-CM3 Line Cards and the AT-S102 Management Software 342
Table 49. Default Settings for the AT-CV Line Cards 343
Table 50. Rate Limits Equivalents 352

Preface

This is the management guide for the Converteon™ product line of media converter line cards and management card. In this guide you'll learn about the features of the AT-CM and AT-CV Media Converter Line Cards and the AT-CV5M02 Management Card, and how to monitor and configure the devices from the menus and the web browser windows in the AT-S99 Management Software on the management card.

This preface contains the following sections:

- "Where to Find Web-based Guides" on page 16
- "Product Name Conventions" on page 17
- "Contacting Allied Telesis" on page 18

Where to Find Web-based Guides

The installation and user guides for all of the Allied Telesis products are available for viewing in portable document format (PDF) from our web site at **www.alliedtelesis.com**.

Product Name Conventions

This manual uses the following product name conventions:

- AT-CM Line Cards: This name is used to refer to all of the line cards in the AT-CM2 Line Card series and the AT-CM3 Line Card series.
- AT-CM2 Line Cards: This name is used to refer to all of the line cards in the AT-CM2 Line Card series, such as the AT-CM201, AT-CM2K0S, and AT-CM212A/1 Line Cards. For a complete list of the line cards, refer to Table 1 on page 40.
- AT-CM3 Line Cards: This product name is used to refer to the three line cards in the AT-CM3 Line Card series: the AT-CM301, AT-CM302, and AT-CM3K0S Line Cards.
- AT-CV Line Cards: This product name is used to refer to all of the line cards in the AT-CV Line Card series, such as the AT-CV101, AT-CV102/2, and AT-CV1KSS Line Cards. The complete list of the AT-CV Line Cards is provided in Table 5 on page 44.

Contacting Allied Telesis

This section provides Allied Telesis contact information for technical support and for sales and corporate information.

Online Support

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

Email and Telephone Support

For Technical Support via email or telephone, refer to the Allied Telesis web site at **www.alliedtelesis.com**. Select your country from the list on the web site and then select the appropriate tab.

Returning Products

Products for return or repair must have Return Materials Authorization (RMA) numbers. A product sent to Allied Telesis without an RMA number will be returned to the sender at the sender's expense.

To obtain an RMA number, contact the Allied Telesis Technical Support group at **www.alliedtelesis.com/support/rma.aspx**.

Sales and Corporate Information

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

Warranty

The Converteon products listed here have a Lifetime Warranty (Two Years Fan and PSU):

- AT-CM Media Converter Line Cards
- AT-CV Media Converter Line Cards
- AT-CV1000 One-slot Chassis
- AT-CV1200 Two-slot Chassis
- AT-CV1203 Two-slot Chassis

These Converteon products have a Five Year Warranty:

- AT-CV5M01 Management Card
- AT-CV5M02 Management Card

This Converteon product has a Lifetime Warranty (Five Years Fan and PSU):

- AT-CV5000 Eighteen-slot Chassis

Go to **www.alliedtelesis.com/warranty** for the terms and conditions of the warranty and for warranty registration.

Management Software Updates

New releases of the 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.

Chapter 1

AT-CV5M02 Management Card

The sections in this chapter are:

- “Features” on page 22
- “AT-S99 Management Software” on page 23
- “Console Port” on page 23
- “10/100Base-TX Port” on page 23
- “IP Address Configuration” on page 23
- “Event Log” on page 24
- “Activity Monitor” on page 24
- “Syslog Client” on page 24
- “Network Time Protocol Client” on page 24
- “Manager and Operator Accounts” on page 25
- “Management Access” on page 26
- “Active and Standby Management Cards” on page 28
- “Accessing Your Network” on page 31
- “Configuration Files” on page 32
- “Converteon Chassis” on page 38

Features

Here are the features of the AT-CV5M02 Management Card:

- Local (out-of-band) management through the RS-232 Console port.
- Remote (in-band) management using the card's Telnet server from clients on your network.
- Remote (in-band) management using a web browser.
- Remote (in-band) management using SNMPv1, SNMPv2c, and SNMPv3.
- Easy-to-use menus and web browser windows.
- Event log for viewing operational messages about the line cards.
- Activity monitor for viewing the event messages in real-time.
- Syslog client for storing the event messages on a syslog server on your network.
- Network Time Protocol (NTP) client for setting the card's date and time from an NTP server on your network or the Internet.
- Dynamic Host Control Protocol (DHCP) client for assigning the management card's IP address configuration from a BOOTP or DHCP server on your network.
- Redundant management cards in the AT-CV5000 Chassis.
- Manual or automatic restoration of previous configurations to the local or remote AT-CM Line Cards.

AT-S99 Management Software

The AT-CV5M02 Management Card uses the AT-S99 Management Software. This program comes pre-installed on the card with default values for all of the operating parameters. New versions of the software can be downloaded onto the card using XMODEM or Trivial File Transfer Protocol (TFTP), as explained in Chapter 11, "Uploading and Downloading Files" on page 315.

Console Port

The management card has an RS-232 Console port for local management of a Converteon chassis with a terminal or a personal computer and a terminal emulator program. The initial management session of the management card has to be a local session. For instructions, refer to "Starting a Local Management Session" on page 72.

10/100Base-TX Port

The management card has a standard 10/100Base-TX port for communicating with your network. This port has to be connected to a network device, such as a Fast Ethernet switch, if the management card will be performing any of these management functions:

- Supporting remote Telnet, web browser, or SNMP management
- Sending event messages to a syslog server
- Setting the date and time from a Network Time Protocol server
- Sending SNMP traps to trap receivers
- Uploading or downloading files to a TFTP server
- Pinging remote devices

IP Address Configuration

The management card must have an IP address configuration to perform the functions listed in "10/100Base-TX Port." The configuration consists of an IP address, a subnet mask, and possibly a default gateway address. The management card can have only one IP address configuration. The configuration can be assigned manually or supplied by a DHCP or BOOTP server on your network. For instructions, refer to "Assigning an IP Address Configuration" on page 100.

Event Log

The management card has a log for recording operational events, like the removal of line cards from the chassis or the loss of links on the ports on the media converter cards. The events are composed of descriptions of the events and the dates and times of when they occurred. If your network encounters a problem, you may be able to more readily identify its cause by reviewing the history of the events in the log. For more information, refer to “Viewing the Event Log” on page 122.

Activity Monitor

The activity monitor displays the same event messages stored in the event log, but in real-time. When you open the activity monitor you can watch the event messages as they occur. For more information, refer to “Viewing the Activity Monitor” on page 130.

Syslog Client

The management card has a syslog client for sending the event messages to a syslog server on your network. For instructions, refer to “Configuring the Syslog Client” on page 131.

Network Time Protocol Client

The management card has a Network Time Protocol (NTP) client for setting its date and time from an NTP server on your network or the Internet. The card adds the date and time to the event messages stored in the event log and to the SNMP traps sent to SNMP trap receivers. Although the date and time can be set manually, the NTP client is the recommended method for setting this information because the card cannot maintain the date and time when it is reset or when the chassis is powered off. For instructions, refer to “Configuring the Network Time Protocol Client” on page 117.

Manager and Operator Accounts

The management software has two accounts. There is a manager account for viewing and configuring the parameter settings and an operator account for just viewing the settings. The manager account has the username "manager" and the default password "friend", and the operator account has the username "operator" and the default password "operator". The usernames and passwords are case sensitive. For the instructions on changing the passwords, refer to "Configuring the Management Security" on page 111.

To change to a different account after you've started a management session, you have to log out from your current session and log in again. For example, if you log on using the operator account and afterwards want to configure the parameter settings of the line cards, you have to log out of the operator account and log in again with the manager account.

Note
The management card can support up to one manager session and ten operator sessions at the same time.

Management Access

There are four ways to manage the Converteon product:

- Local management
- Remote Telnet management
- Remote web browser management
- Remote SNMP management

Local Management

The AT-CV5M02 Management Card has an RS-232 Console port for local (out-of-band) management. This type of management, which has to be performed at the chassis, hence the term “local,” is accomplished with the management cable that ships with the card and a terminal or a PC with a terminal emulator program. The management card does not need an IP address for local management. Your initial management session of a management card has to be a local session. For instructions, refer to “Starting a Local Management Session” on page 72.

Remote Telnet Management

The management card has a Telnet server for remote management from Telnet clients on your network. Because this type of management is performed over the network, you may find it more convenient than local management, which has to be performed in the wiring closet where the chassis is located. Remote Telnet management, also referred to as in-band management, uses the same menus as local management and supports all of the same management capabilities. The requirements for remote Telnet managed are detailed in “Accessing Your Network” on page 31. For further instructions, refer to “Starting a Telnet Management Session” on page 75.

Remote Web Browser Management

The AT-CV5M02 Management Card can also be managed from a web browser on a network workstation. This is an alternative to the menus and it supports nearly all of the same management functions. The requirements for remote web browser management are detailed in “Accessing Your Network” on page 31. To start this type of management session, refer to “Starting a Web Browser Management Session” on page 76.

Note
The web browser windows are supported on the AT-CV5000 Chassis, but not on the AT-CV1200 or AT-CV1203 Chassis.

SNMP Management

The management card can be managed with a Simple Network Management Protocol (SNMP) program, like HP Openview. This type of management requires a familiarity with Management Information Bases (MIBs). To manage the product with SNMP, you have to load and compile the ATCV5000.mib file, found on the Allied Telesis web site, into your SNMP program.

Active and Standby Management Cards

The AT-CV5000 Chassis can have two AT-CV5M02 Management Cards. The second card functions as a backup card should the primary management card fail or have to be removed from the chassis.

When the AT-CV5000 Chassis has two management cards, one of the cards functions as the active card. The other is placed in a standby mode. Your local and remote management sessions have to be performed through the active card. You can discern the states of the cards by examining their RDY LEDs. On the active card this LED will be on; it will be off on the standby card.

The management cards automatically determine their active and standby states when the chassis is powered on. Their states are based on their chassis slot numbers. The management card in the lower numbered slot acts as the active card and the card in the higher numbered slot functions as the standby card. For example, if two management cards are installed in slots 3 and 5 of the chassis, the card in slot 3 becomes the active card and the card in slot 5 is the standby card.

The standby card continuously monitors the state of the active card over the backplane inside the AT-CV5000 Chassis. If the active card fails, is reset or is removed from the chassis, the standby card automatically transitions to the active state, usually within twenty seconds.

If a second management card is installed while the chassis is powered on, the new management card is placed in the standby mode, even if it occupies a lower numbered slot than the active management card. However, if the chassis is later power cycled or the active card is reset, the management card in the lower numbered slot becomes the active card.

The management software has an option to force the two management cards to change states. You might choose to use this option if the active card is experiencing difficulties and you want to use the standby card to perform your management tasks. The switchover, however, is not permanent. The active and standby states are again determined according to their slot numbers the next time the chassis is power cycled. For instructions, refer to “Activating a Standby AT-CV5M02 Management Card” on page 144.

The requirements and guidelines for redundant AT-CV5M02 Management Cards are:

- There can be only one standby management card in the AT-CV5000 Chassis.
- You can install the active and standby management cards in any of the slots in the AT-CV5000 Chassis.

- All of your local and remote management sessions have to be conducted through the active management card
- The RDY LED on the active card will be on. This LED on the standby card will be off.
- The standby management card automatically transitions to the active state in about 20 seconds if the active card fails or is removed from the chassis or reset.
- The network operations of the media converter line cards in the chassis are not affected when the management cards change states.
- If the standby card transitions to the active state, it uses the same IP address configuration as the previously active card, because the standby card and the active card have the same configuration files. For further information, refer to the "Configuration Files" on page 32.
- The receiver on the 10/100Base-TX port is blocked on the standby card to prevent the card from communicating with your network and to prevent an IP address conflict with the active card. However, the standby card automatically activates the port if it becomes the active card.
- Even though the 10/100Base-TX port on the standby card is disabled, you should connect it to your network so that those management functions that rely on the card's access to network will be immediately available in the event the card becomes the active card.
- The Console port is also blocked on the standby card to prevent you from using the card to manage the chassis. However, by connecting a terminal to the port you can view the status messages between the standby card and the active card that are sent over the backplane in the chassis.
- The active management card automatically updates the configuration file on the standby card so that the standby card has the same configuration settings in the event it becomes the active card. For information, refer to "Configuration Files" on page 32.

Note
When installing a second management card into an existing chassis, you should install it while the chassis is powered on. If the chassis is powered off, you should install it in a higher numbered slot than the existing card. If you install a second management card into a lower numbered slot than the existing card while the chassis is powered off, the master configuration file of the new card, which will become the active card, will overwrite the configuration file on the existing card when you power on the chassis. If the auto-copy settings in the new master configuration file is enabled for the chassis slots, the configuration settings of the line cards may change. For further information, refer to "Configuration Files" on page 32.

You can monitor the communications between the active management card and the standby card over the chassis' backplane by connecting a personal computer with a terminal emulator program to the Console port on the standby card. There are Update, Copy, and Heartbeat messages. Update and Copy messages are sent by the active management card when updating the master configuration file on the standby card. Heartbeat messages are generated periodically by the standby card to check the status of the active card.

Accessing Your Network

The management card must have access to your network to perform the functions listed here:

- Supporting remote Telnet, web browser, or SNMP management
- Sending event messages to a syslog server
- Setting the date and time from a Network Time Protocol server
- Sending SNMP traps to trap receivers.
- Uploading or downloading files to a TFTP server.
- Pinging remote devices

Here are the requirements:

- The management card must have an IP address configuration. You can assign it manually or it can be supplied by a BOOTP or DHCP server on your network. For instructions, refer to "Assigning an IP Address Configuration" on page 100.
- The card's 10/100Base-TX port has to be connected to a device on your network, such as an Ethernet switch. The management card communicates with your network through that port.
- If the chassis has two management cards, the 10/100Base-TX port on the standby card should also be connected to your network so that in the event the card becomes the active card, it, too, will be able to support those management functions that require network access.
- The management card should reside on the same subnet as the remote devices (i.e., Telnet client, syslog server, or SNMP trap receivers) or have access to their subnet through routers or other Layer 3 routing devices.
- If the management card and the remote devices reside on different subnets, the card's IP address configuration should include a default gateway address that specifies the IP address of the router interface of the first hop to reaching the remote devices.

Configuration Files

The management card and the media converter line cards store their parameter settings in a series of configuration files. These files enable the cards to retain their settings even when they are removed from the chassis or when the chassis is powered off.

AT-CM Line Cards

The parameter settings of the AT-CM Line Cards are stored in the configuration files in the flash memory on the cards. The files contain the operating modes, the port settings, the ingress and egress filters, and the OAM client settings of the line cards.

The cards automatically update their configuration files when you change a parameter setting. There is no “Save” command needed to perform this operation. For example, if you adjust the OAM settings on a line card, the card automatically updates its configuration file so that it retains the new settings even if you immediately afterwards remove the card and install it in another slot or chassis.

AT-CV Line Cards

The configuration files on the AT-CV Line Cards operate the same as the files on the AT-CM Line Cards. These line cards, however, have only one adjustable parameter, the operating mode. So their configuration files contain just that one parameter. These configuration files are also automatically updated whenever you change the operating modes of these line cards through the AT-CV5M02 Management Card.

AT-CV5M02 Management Card

The AT-CV5M02 Management Card has four configuration files. Two of the files are referred to as the master configuration files and the other two as the SNMPv3 configuration files. Most of the following sections discuss the master configuration files. To learn about the SNMPv3 configuration files, refer to “SNMPv3 Configuration Files” on page 37.

The master configuration files contain most of the settings of the management card itself. For example, stored in these files are the card’s IP address, the syslog server address, and the settings of its 10/100Base-TX port.

The master configuration files also contain the settings of all of the AT-CM2, AT-CM3, and AT-CM70S Line Cards in the chassis. This includes their operating modes, their port settings, and the OAM settings. The reason the configurations of the line cards are stored here as well as on the cards themselves is so that you can restore them to the cards, should that be necessary, such as if you replace a card.

The two master configuration files differ in where they are stored and how they are updated. One of the master configuration files is stored in DRAM. The management card updates this file automatically when you change a parameter on the management card or on a line card. It does this by

constantly polling the line cards over the backplane in the chassis for their current parameter settings. However, this file is temporary. It is discarded whenever the chassis is powered off or the management card is reset or removed from the chassis.

The second master configuration file on the AT-CV5M02 Management Card is stored in flash memory and retained even when the chassis is powered off. However, this master configuration file is not updated automatically. Instead, you have to instruct the management card to do it by issuing one of the save commands. When you enter a save command, the management card copies the master configuration file in DRAM to flash memory for permanent storage. For information on the save commands, refer to "Saving Your Configuration Changes" on page 78.

Here are the steps that the management card and the line cards perform when one of their parameter settings is changed.

1. When you enter a new setting on a line card, the management card sends the change to the designated card over the backplane of the chassis.

2. The line card implements the change and updates its configuration file in flash memory so that it retains the change even if you remove the line card or power off the chassis.

3. The management card automatically updates its master configuration file in DRAM the next time it polls the line card, which it does every few seconds.

4. The next time you issue a save command the management card copies the master configuration file from DRAM to flash memory.

> **Note**
> Unless stated otherwise, all future references to the master configuration file in this guide refer to the permanent file in flash memory on the management card.

Restoring Configurations to the AT-CM Line Cards

As just explained, the parameter settings of the AT-CM Line Cards are stored in two locations— the configuration files on the line cards themselves and the master configuration file on the management card. The purpose of this redundancy is to make it easier for you to replace the line cards. In the event you need to replace a line card, you can assign the new card the same configuration as its predecessor by restoring to the new card the previous configuration from the master configuration file on the management card. This relieves you from having to manually configure new line cards.

With the AT-CM3 Line Cards you can restore previous configurations either automatically or manually. The former is referred to as auto-copy.

This is set on a per-slot basis. A line card in a slot where auto-copy is enabled always obtains its parameter settings from the master configuration file on the management card. Thus, a replacement AT-CM3 Line Card is automatically assigned the same settings as its predecessor.

You can also restore previous configurations manually to the AT-CM3 Line Cards. You may find this valuable if you replace a line card in a slot where auto-copy is disabled. After installing the new line card, you can instruct the management card to send the previous configuration to the card.

You can also restore previous configurations to the AT-CM2 Line Cards using auto-copy, just as you can with the AT-CM3 Line Card. When one of these line cards is installed in a chassis slot where the auto-copy feature is enabled, it receives its configuration from the management card whenever it is reset or powered on.

However, you cannot manually restore configurations to the AT-CM2 Line Cards. They do not support that feature. So if you install a replacement AT-CM2 Line Card in a slot where auto-copy is disabled and you want the new card to have the same configuration as the previous card, you have to manually configure it.

When the management card restores a configuration to a line card, it takes the configuration not from the master file in DRAM, but from the file in flash memory. So keeping that file up-to-date is important. Otherwise, the line cards could receive incomplete or out-of-date configurations. The best way to do that is to always remember to save your changes whenever you configure the line cards, as explained in “Saving Your Configuration Changes” on page 78.

The configuration of a line card in the master configuration file includes the active or inactive state of a card’s DIP switches. These switches are an alternative method for setting the operating mode of a line card. As such, when a line card receives a new configuration from the management card, the card’s method for setting its operating mode along with the operating mode itself may change. For example, if you have a line card whose DIP switches are active and you restore to it a previous configuration where the operating mode is controlled by the management software, the card’s DIP switches will be deactivated and its operating mode will be determined by the management software.

Here is an overview of the configuration process that occurs when an AT-CM2 or AT-CM3 Line Card is installed in an active chassis or when a chassis is powered on:

1. The line card initializes its management software, a process that takes approximately one minute to complete. During this process the line card uses the default values for its parameter settings to forward network traffic through its ports.

2. After the line card initializes its software, it queries for a management card over the backplane of the chassis.

3. If the chassis does not have a management card, the line card configures its operating parameters using the settings in its configuration file in flash memory.

4. If the chassis has a management card, the following occurs:

    a. The management card examines its master configuration file in flash memory for the auto-copy setting for the line card's slot.

    b. If the auto-copy feature for the slot is enabled, the management card copies the settings of the line card for that slot from its master configuration file in flash memory and sends them to the line card over the backplane. When the line card receives the settings, it examines them to determine whether or not they are from the same line card model. If they are, it implements the settings. If they are not, it discards the settings and instead uses the settings in its own configuration file in flash memory to configure its parameters.

    c. If auto-copy for the slot is disabled, the line card uses the settings in its own configuration file in flash memory to configure its operating parameters.

The settings for the auto-copy parameters for the slots in a chassis are stored in the master configuration file on the management card. They are not stored in the configuration files on the line cards. Consequently, the line cards do not carry this setting with them when they are moved to different slots or different chassis.

AT-CM Line Cards and Remote Peer Management

The discussions so far have concerned the configuration files found on the local AT-CM Line Cards. These are the line cards that reside in the same chassis as the management card. But most of this information also happens to apply to remote AT-CM Line Cards. These are line cards that are managed through the remote peer management feature. This feature, which is explained in "Remote Peer Management" on page 56, lets you manage remote line cards through their local AT-CM Line Card counterparts.

When the management card polls a local line card for its parameter settings, it checks to see if the local line card has a remote peer connection to a remote line card. If there is a remote peer connection, the management card also polls the remote line card for its configuration, as well, and stores the configuration in its master configuration file. This makes it possible for you to restore the configurations to the remote line cards just as you can to the local line cards. For instance, if you install a new line card in a remote chassis, you can download the last saved configuration to the line card from the management card to give the new card the same configuration as the previous card in the remote chassis.

Here are two items of importance to restoring configurations to remote AT-CM Line Cards:

- There is no auto-copy for remote line cards. To restore a previous configuration to a remote line card, you have to do it manually. The instructions can be found in “Restoring the Last Saved Configuration” on page 226.
- You have to configure a remote line card for remote peer management before you can remotely restore a previous configuration. For instructions, refer to “Configuring the AT-CM2, AT-CM3, and AT-CM70S Line Cards for the OAM-based Features” on page 90.

Active and Standby Management Cards

When there are two management cards in the AT-CV5000 Chassis, the active card automatically copies its master configuration file over the backplane to the standby card in response to specific events. In this manner, the active and standby cards always have the same master configuration file. Thus, if the active card is removed from the chassis or fails, the standby card, after completing the transition to the active state, will operate with the same master configuration file.

Here are the events that cause an active management card to copy its master configuration file to a standby card:

- When you issue one of the save commands, the active card updates its master configuration file in flash memory and then transmits the changes to the standby card.
- When the AT-CV5000 Chassis is powered on, the two management cards initialize their AT-S99 Management Software programs and afterwards share their slot numbers to ascertain which is the active card. The card in the lowered numbered slot than transitions to the active state and automatically transmits its master configuration file to the standby card.
- If you install a second management card in an operating chassis, the active management card waits for the new card to initialize its management software and enter the standby state. Afterwards, it transmits its master configuration file to the new card.

If you install a second management card during a local management session, you’ll be able to watch the process as status messages similar to those in Figure 1 are displayed on your screen.

```
============================================================
Active Management Card (AT-CV5M02) founded in Slot [ 2]
Standby Management Card (AT-CV5M02) founded in Slot [ 5]
============================================================
-> Waiting for Standby to be Ready ... Please Wait ....... Not Ready
-> Waiting for Standby to be Ready ... Please Wait ....... Not Ready
-> Waiting for Standby to be Ready ... Please Wait ....... Ready

<- Copy Configuration to Standby .... Please Wait ..078.. Succeeded
```

Figure 1. Updating the Master Configuration File on a Standby Card

(The incrementing number at the bottom of the screen is the ID number of the parameter setting the active card is transmitting to the standby card. All parameter settings have unique ID numbers. The number can be ignored.)

After the management card has sent the entire master configuration file, it displays "Succeeded." To resume managing the chassis**,** press any key.

The status messages are somewhat different if you install a second management card while viewing the Module Configuration and Status menu or the Remote Module Configuration and Status menu; but their meanings are the same.

SNMPv3 Configuration Files

If you plan to manage the chassis with SNMPv3, you should know that the settings to the SNMPv3 tables are not stored in the master configuration file, but rather in an auxiliary file called the SNMPv3 configuration file. Just like the master configuration files, there are two of them, one in DRAM, which is updated automatically by the management card whenever you change a value in the SNMPv3 tables, and the other in flash memory, which is updated in response to the save command.

The management software does not have different save commands for updating the master configuration file and the SNMPv3 configuration file to flash memory for permanent storage. Instead, the same command, Save System Configuration, stores both files. When you enter that command, the management card stores both files, the master configuration file and the SNMPv3 configuration file, from DRAM to flash memory. For more information about this command, refer to "Saving the Configuration of the AT-CV5M02 Management Card" on page 78.

Converteon Chassis

Table 1 lists the four chassis in the Converteon product line.

Table 1: Converteon Chassis

Chassis	Number of Slots	Supports Redundant Power Supply	Supports Redundant Management Card
AT-CV1000	1	No	No
AT-CV1200	2	Yes	No
AT-CV1203	2	Yes	No
AT-CV5000	18	Yes	Yes

The AT-CV1200 Chassis and AT-CV1203 Chassis are physically identical. The only difference between them is that the AT-CV1203 Chassis supports the OAM-based dying gasp feature, which is explained in “Dying Gasp and First RPS Failure Signals” on page 62.

The AT-CM and the AT-CV Media Converter Line Cards can be installed in any of the chassis. The only exception is the double-slot AT-CM70S Line Card, which is not supported in the AT-CV1000 Chassis.

Chapter 2

AT-CM and AT-CV Media Converter Line Cards

The sections in this chapter are:

- “AT-CM2 and AT-CM70S Media Converter Line Cards” on page 40
- “AT-CM3 Media Converter Line Cards” on page 42
- “AT-CV Media Converter Line Cards” on page 44
- “Management Software” on page 46
- “Maximum Frame Sizes” on page 46
- “Low Power Mode” on page 46
- “Packet Rate Limiting” on page 47
- “Operating Modes” on page 48

AT-CM2 and AT-CM70S Media Converter Line Cards

Table 1 lists the AT-CM2 and AT-CM70S Converteon Line Cards.

Table 1: AT-CM2 and AT-CM7 Media Converter Line Cards

Model	Type	Port/Slot	Connector	Cable	Maximum Distance
AT-CM201	Fast Ethernet	100Base-FX fiber optic	Duplex ST	50/125 or 62.5/125 micron multi-mode	2 kilometers (1.24 miles)
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM202	Fast Ethernet	100Base-FX fiber optic	Duplex SC	50/125 or 62.5/125 micron multi-mode	2 kilometers (1.24 miles)
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM202/1	Fast Ethernet	100Base-FX fiber optic	Duplex SC	9/125 micron single-mode	15 kilometers (9.4 miles)
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM202/2	Fast Ethernet	100Base-FX fiber optic	Duplex SC	9/125 micron single-mode	40 kilometers (24.8 miles)
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM2K0S	Gigabit Ethernet	SFP[1] slot for 1000Base-X transceiver	Varies by SFP transceiver	-	Varies by SFP transceiver
		10/100/1000Base-T twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM212A/1 AT-CM212B/1	Fast Ethernet	100Base-FX fiber optic	Simplex SC	9/125 micron single-mode	15 kilometers (9.4 miles)
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM70S	Fast Ethernet and T1/E1	SFP[1] slot for 100Base-FX transceiver	Varies by SFP transceiver	-	Varies by SFP transceiver
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
		T1/E1[2]	RJ-48	Twisted-pair	n/a
		RS-232 Console	Mini-DIN	RS-232 Serial	n/a

1. SFP transceiver sold separately.
2. Four T1/E1 ports.

Note
The maximum operating distances of the fiber optic ports assume full-duplex operation. The distances will be significantly less for half-duplex mode.

Table 2 lists the features of the line cards.

Table 2: Features of the AT-CM2 and AT-CM70S Media Converter Line Cards

Twisted Pair Port	❒ IEEE 802.3u Auto-Negotiation ❒ Half- or full-duplex mode ❒ Auto-MDI/MDI-X ❒ RJ-45 connector ❒ Back pressure in half-duplex mode ❒ IEEE 802.3x flow control in full-duplex mode
Operating Modes	❒ Link Test ❒ MissingLink™ ❒ Smart MissingLink ❒ OAM Visible ❒ OAM Bypass
Operations, Administration, and Maintenance (OAM)	❒ Loopback test[1] ❒ Remote Converteon line card management[1] ❒ Remote management software downloads[1] ❒ Dying gasp[2] ❒ Variable requests[1]
Other Features	❒ Standard Ethernet frames up to 1522 bytes[3] ❒ Ingress and egress packet rate limiting[1] ❒ LEDs for unit and port status ❒ Cyclical redundancy check ❒ Suitable for managed and unmanaged network environments ❒ Management available with the AT-CV5M02 Management Card ❒ AT-S73 Management Software

1. Requires the AT-CV5M02 Management Card.
2. Require one AT-CV5M02 Management Card in the upstream AT-CV5000 Chassis.
3. The maximum frame size of the AT-CM2K0S Line Card is 1632 bytes.

AT-CM3 Media Converter Line Cards

Table 3 lists the AT-CM3 Line Cards.

Table 3. AT-CM3 Media Converter Line Cards

Model	Type	Port/Slot	Connector	Cable	Maximum Distance
AT-CM301	Fast Ethernet	100Base-FX fiber optic	Duplex ST	50/125 or 62.5/125 micron multi-mode	2 kilometers (1.24 miles)
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM302	Fast Ethernet	100Base-FX fiber optic	Duplex SC	50/125 or 62.5/125 micron multi-mode	2 kilometers (1.24 miles)
		10/100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CM3K0S	Fast or Gigabit Ethernet	SFP[1] slot for a 100Base-FX or a 1000Base-X transceiver	Varies by SFP transceiver	-	Varies by SFP transceiver
		10/100/1000Base-T twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)

1. SFP transceiver sold separately.

Table 4 lists the common features.

Table 4: Features of the AT-CM3 Media Converter Line Cards

Twisted Pair Port	❒ IEEE 802.3u Auto-Negotiation ❒ Half- or full-duplex mode ❒ Auto-MDI/MDI-X ❒ RJ-45 connector ❒ IEEE 802.3x flow control in full-duplex mode at 10 or 100 Mbps
SFP Slot - AT-CM3K0S Line Card	❒ Supports 100Base-FX and 1000Base-X SFP modules (SFP module purchased separately.)

Table 4: Features of the AT-CM3 Media Converter Line Cards

Operating Modes	❒ Link Test ❒ MissingLink ❒ Smart MissingLink ❒ Link Test and OAM Visible ❒ MissingLink and OAM Visible ❒ Smart MissingLink and OAM Visible
OAM	❒ Loopback test[1] ❒ Remote Converteon line card management[1] ❒ Remote management software downloads[1] ❒ Dying gasp[2] ❒ Variable requests[1]
Other Features	❒ Jumbo frames up to 10,240 bytes ❒ Ingress and egress packet rate limiting[1] ❒ LEDs for unit and port status ❒ Low power mode ❒ Cyclical redundancy check ❒ Suitable for managed and unmanaged network environments ❒ Management available with the AT-CV5M02 Management Card ❒ AT-S102 Management Software

1. Requires the AT-CV5M02 Management Card.
2. Requires one AT-CV5M02 Management Card in the upstream AT-CV5000 Chassis.

AT-CV Media Converter Line Cards

Table 5 lists the line cards in the AT-CV Series.

Table 5. AT-CV Media Converter Line Cards

Model	Type	Port/Slot	Connector	Cable	Maximum Distance[1]
AT-CV101	Fast Ethernet	100Base-FX fiber optic	Duplex ST	50/125 or 62.5/125 micron multi-mode	2 kilometers (1.24 miles)
		100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CV102	Fast Ethernet	100Base-FX fiber optic	Duplex SC	50/125 or 62.5/125 micron multi-Mode	2 kilometers (1.24 miles)
		100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CV102/1	Fast Ethernet	100Base-FX fiber optic	Duplex SC	9/125 micron single-mode	40 kilometers (24.8 miles)
		100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CV102/2	Fast Ethernet	100Base-FX fiber optic	Duplex SC	9/125 micron single-mode	15 kilometers (9.4 miles)
		100Base-TX twisted pair	RJ-45	Twisted-pair	100 meters (328 feet)
AT-CV1KSS	Gigabit Ethernet	SFP[2] slot for a 1000Base-X twisted pair or fiber optic transceiver	Varies by SFP transceiver	-	Varies by SFP transceiver
		SFP[1] slot for a 1000Base-X twisted pair or fiber optic transceiver	Varies by SFP transceiver	-	Varies by SFP transceiver

1. The maximum operating distances of the fiber optic ports assume full-duplex operation. The distances will be significantly less for half-duplex mode.
2. SFP transceivers sold separately.

The features of the cards are listed in Table 6.

Table 6: Features of the AT-CV Media Converter Line Cards

100Base-TX Twisted Pair Port	❒ IEEE 802.3u Auto-Negotiation ❒ Half- or full-duplex mode ❒ Auto-MDI/MDI-X ❒ RJ-45 connector ❒ Back pressure in half-duplex mode ❒ IEEE 802.3x flow control in full-duplex mode
Operating Modes	❒ Link Test ❒ MissingLink ❒ Smart MissingLink
Other Features	❒ Jumbo Ethernet frames up to 9000 bytes ❒ LEDs for unit and port status ❒ Cyclical redundancy check

Management Software

The line cards use the following management programs:

- AT-CM2 and AT-CM70S Line Cards: AT-S73 Management Software
- AT-CM3 Line Cards: AT-S102 Management Software

The devices come with the programs preinstalled. The default settings for the parameters can be found in Appendix A, “Default Settings for the Management Card and the Line Cards” on page 337.

Allied Telesis may periodically make available on our web site new versions of the management programs. Installing the new programs requires the AT-CV5M02 Management Card. For instructions, refer to Chapter 11, ”Uploading and Downloading Files” on page 315.

The AT-CV Line Cards do not have management software

Maximum Frame Sizes

The line cards have the following maximum frame sizes:

- AT-CM2 and AT-CM70S Line Cards: 1522 bytes
- AT-CM3 Line Cards: 10240 bytes
- AT-CV Line Cards: 9000 bytes

With one exception, the maximum frame sizes are not adjustable on the line cards. The sole exception is the maximum frame size for the AT-CM2K0S Line Card, which can be increased to 1632 bytes. For instructions, refer to “Configuring the Maximum Frame Size on the AT-CM2K0S Line Card” on page 182.

Low Power Mode

The AT-CM3 Line Cards have a low power mode that lets you conserve power by turning off the LEDs when you are not monitoring them. The feature can be controlled either through the AT-CV5M02 Management Card or with the recessed ECO Friendly button on the front panels of the line cards.

Activating or deactivating the low power mode does not interfere with the network operations of the cards. Additionally, this mode does not control the RDY LEDs on the line cards.

The low power mode is not available on the AT-CM2, AT-CM70S and AT-CV Line Cards.

Packet Rate Limiting

You can set packet rate limits on the network traffic on the ports of the AT-CM2, AT-CM3 and AT-CM70S Line Cards. You might use this feature to deal with traffic bottlenecks in a network. They can be set on both ports and for either the ingress or egress traffic. For instructions, refer to "Configuring the Port Parameters on the AT-CM Line Cards" on page 169. Setting this feature requires the AT-CV5M02 Management Card.

The AT-CV Line Cards do not support packet rate limits.

Operating Modes

The operating modes of the line cards are used to determine the states of the links on their ports, to troubleshoot link problems and, in the case of the AT-CM2, AT-CM70S and AT-CM3 Line Cards, to implement the OAM-based features.

The AT-CM2 and AT-CM70S Line Cards support these operating modes:

- Link Test mode
- MissingLink mode
- Smart MissingLink mode
- OAM visible mode
- OAM bypass mode

The AT-CM3 Line Cards support these operating modes:

- Link Test mode
- MissingLink mode
- Smart MissingLink mode
- Link Test and OAM Visible mode
- MissingLink and OAM Visible mode
- Smart MissingLink and OAM Visible mode

The AT-CV Line Cards support these operating modes:

- Link Test mode
- MissingLink mode
- Smart MissingLink mode

The AT-CV Line Cards do not have an OAM operating mode and do not support the OAM-based features.

The operating modes are discussed in the following sections:

- “Link Test Mode,” next
- “Link Test and OAM Visible Mode” on page 49
- “MissingLink Mode” on page 49
- “MissingLink and OAM Visible Mode” on page 51
- “Smart MissingLink Mode” on page 52
- “Smart MissingLink and OAM Visible OAM” on page 53
- “OAM Visible Mode” on page 53
- “OAM Bypass Mode” on page 53

Link Test Mode

This operating mode is supported on all of the Converteon media converter line cards.

Contrary to its name, this operating mode is not a diagnostic utility program. Rather, it simply displays on the Link LEDs on a line card the states of the links on the ports. That is, a port's Link LED will be on and a port's status in the management software will be online when the port has a link to a network device. Conversely, a port's Link LED will be off and its status in the management software will be offline when it does not have a link to a network device.

This operating mode is typically used when the ports on a card are connected to network devices that are unable to take advantage of the features of the MissingLink mode. You might also use this mode instead of an OAM mode if the device connected to the fiber optic port is not OAM-compatible, meaning that you cannot implement the OAM features. This mode is also particularly useful when you want to use the Link LEDs or the management software to troubleshoot a network problem, or after the installation of a line card to verify the links on the ports.

As with all of the operating modes, this mode does not interfere with the forwarding of traffic by a media converter line card during normal network operations.

Link Test and OAM Visible Mode

The AT-CM3 Line Cards have two versions of the Link Test operating mode, one with and another without support for the OAM-based features. To use the Link Test mode together with the OAM-based features on the fiber optic port, set the card to this operating mode. Or, to use the Link Test mode without the OAM-based features, set the line card to just the Link Test mode.

MissingLink Mode

This operating mode makes it possible for the two ports of a line card to share their "link" states with each other so that a change to the state of a link on a port is automatically replicated on the other port. In this way, both ports on a line card, and the network devices connected to the ports, are kept aware of any changes to the states of a link on a port.

When a line card in the MissingLink mode detects that a port cannot establish a link to its network device or has lost its link, the card replicates the loss on the other port on the card by disabling the port's transmitter. This notifies the network device connected to the port that there is no link on the other port. To explain it another way, the MissingLink mode will not allow a port to establish a link to a network device unless the companion port on the card can also establish a link with a network device.

When a link is reestablished on a port, the MissingLink mode automatically reactivates the transmitter on the other port so that the two network devices can again forward traffic to each other through the two ports of the media converter line card.

The value to this type of fault notification is that some network devices, such as managed Fast Ethernet switches, can respond to the loss of a link by performing a specific action. For example, the network device might send a trap to a network management station, and so alert the network administrator of the problem. Or, if the device is running a spanning tree protocol, it might seek a redundant path to a disconnected node.

Here is an example of how the MissingLink mode works. Assume that two Fast Ethernet switches, one local and one remote, are connected to the two ports on a media converter line card. Switch A, the remote switch, is connected to port A on the line card, while Switch B, the local device, is connected to port B. If the link to Switch A cannot be established or is lost, the line card disables the transmitter on port B to signal Switch B of the lack of the link to Switch A. This notifies Switch B of the problem so it too, along with Switch A, can take remedial action, such as activating a redundant path if it is running a spanning tree protocol, or sending an SNMP trap to a management workstation. Without the MissingLink mode, Switch B would be unaware of the problem because it would still have a link to the media converter line card.

In the example the initial loss occurred on port A. But the operating mode operates the same when the initial loss of the link is on port B. Here, the transmitter on port A is disabled to notify the node connected to that port of the loss of the link on port B.

The states of the ports on a line card running in this mode operate in tandem. Either both of the ports have a link or neither of the ports. This is reflected on the Link LEDs and in the management software. If both ports can form links with their network devices, their Link LEDs will both be on and their status in the management software will be Online. If one or both ports cannot establish a link, then the Link LEDs will be off and their status in the management software will be Offline.

This operating mode is useful when the network devices connected to the ports of a line card can react to a loss of a link on a port, such as managed Fast Ethernet switches running SNMP or a spanning tree protocol. Conversely, the MissingLink mode will be of little value if the network devices of a line card cannot react to a lost link. In the latter scenario, the Link Test mode would probably be a better operating mode for a line card during normal network operations.

Furthermore, Allied Telesis does not recommend using the MissingLink mode when troubleshooting a network problem that may be rooted in a link problem. The MissingLink mode will not allow you to use the port’s Link LEDs or the management software to diagnose the problem, since neither port will show a link. Rather, the Link Test and the Smart MissingLink modes are more useful when troubleshooting a link problem.

MissingLink and OAM Visible Mode

This operating mode for the AT-CM3 Line Cards combines the MissingLink mode and OAM. The ports of a line card in this mode function exactly as they do in the MissingLink mode, with the additional of the OAM-based features on Port A, the fiber optic port.

As explained in the previous section, the two ports on a line card set to the MissingLink mode operate in tandem. If one of the ports does not have or loses its link to its network device, the companion port on the card is disabled to prevent it from forming a link with its network device.

For OAM to work in this combined operating mode, there has to be a link not only on the fiber optic port on a card but on the twisted pair port, too. If the twisted pair does not have a link, the fiber optic port is disabled and OAM will not work, even if the fiber optic port is connected to an active device.

This principal is illustrated in Figure 1. It shows two AT-CM Line Cards, one in the AT-CV5000 Chassis and another in the remote AT-CV1000 Chassis, connected over fiber optic cable. If the line cards are set to the MissingLink and OAM operating mode, the fiber optic link that connects the cards is active only if the twisted pair ports also have links. If either of the twisted pair ports does not have a link to a network device, the fiber link is disabled and so is OAM. For example, if the twisted pair port on the line card in the AT-CV1000 Chassis at the remote site did not have a link to its device, the fiber optic port on the card would be disabled, along with OAM.

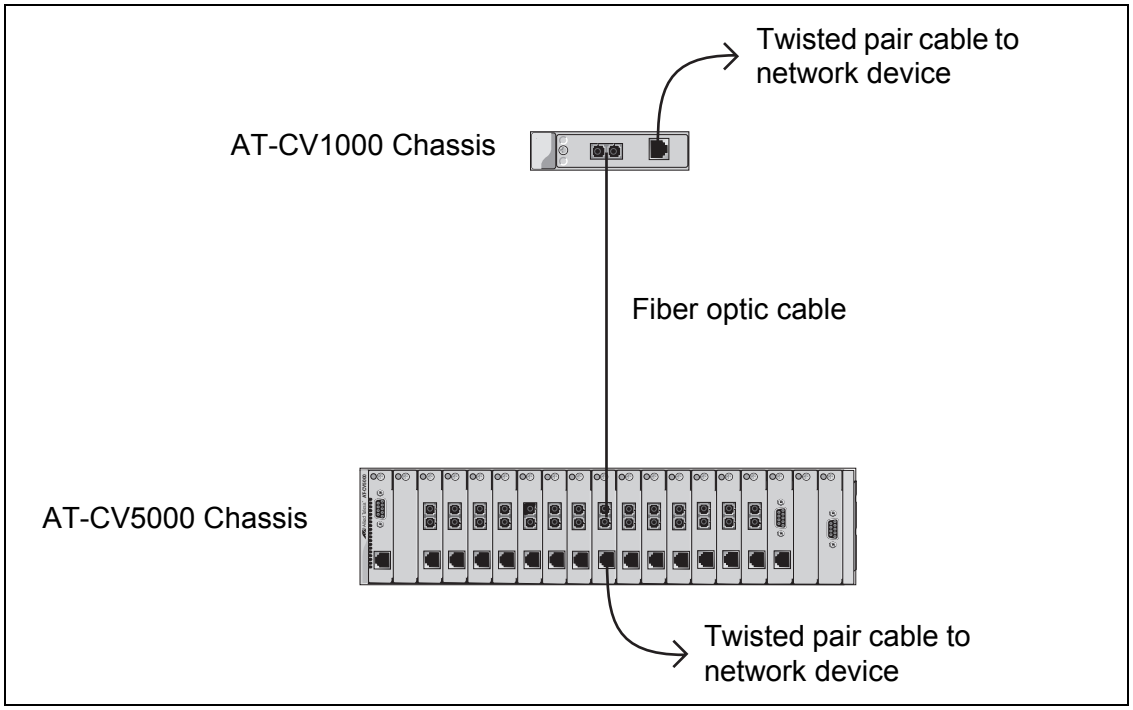


Figure 1. MissingLink and OAM Operating Mode

The same would happen if the twisted pair port on the line card in the AT-CV5000 Chassis did not have a link with its device. The fiber optic link across the line cards would be unavailable.

This relationship between OAM on the fiber optic port and the state of the link on a twisted pair port has to be taken into account when using this operating mode. You must remember that in order for OAM and the OAM-based features to work on a line card set to this operating mode, there have to be links on both ports on the line card, and not just on the fiber optic port. If you want to have access to OAM even when there is no link on a twisted pair port on the line card, you should use the Link Test and OAM operating mode instead.

Smart MissingLink Mode

This mode, which is supported on all of the media converter line cards, is nearly identical to the MissingLink mode. It, too, lets the two ports on a media converter line card share the link status of their network connections. The difference is that this mode does not completely shut off the transmitter of a port when a companion port on the line card loses or cannot establish a link to a network device. Rather, it pulses the port's transmitter and flashes the port's Link LED once a second to signal that the port can still establish a link to its network device and that the link loss originated on the companion port on the line card.

When the connection is reestablished on a port, the companion port automatically resumes normal operations to permit the two ports to forward traffic again.

The advantage of the Smart MissingLink mode over the MissingLink mode is that troubleshooting network problems is easier because you can use the Link LEDs. For example, assume that the fiber optic port on a media converter line card set to the Missing Link mode did not have a link to its network device. The mode's response would be to disable the transmitter on the companion port, the twisted pair port. The result would be that the Link LEDs for both ports would be off, making it difficult for you to determine which port experienced the original link loss.

In contrast, the Smart MissingLink mode would respond by pulsing the transmitter on the twisted pair port and flashing the port's Link LED about once a second, to signal that the failure originated on the fiber optic port.

The behavior of the operating mode is the same regardless of which port does not have a link. In the previous example, the loss was on the fiber optic port. But if the loss happened on the twisted pair port, the mode pulses the transmitter and the Link LED for the fiber optic port.

As with the other operating modes, this mode does not interfere with the flow of network traffic through the ports of a line card during normal network operations of a media converter line card. However, Allied Telesis recommends limiting its use to diagnosing link failures, particularly if the network devices connected to the ports are managed devices. The pulsing

of the transmitter on a port and the constantly changing state of a link could prove problematic for some managed devices. For example, the device might send a constant stream of SNMP traps or, if the device is running a spanning tree protocol, the protocol might become confused as the status of the device's link to the media converter constantly changes.

Smart MissingLink and OAM Visible OAM

This mode is supported on the AT-CM3 Line Cards. It is not supported on the AT-CM2, AT-CM70S, and AT-CV Line Cards.

The only difference between this mode and the Smart Missing Link mode is the addition of support for the OAM-based features on the fiber optic port of the line card. You might choose this mode if your network would benefit from the operating characteristics of the Smart MissingLink mode and if the fiber optic port is connected to an OAM-compatible device, such as another Converteon line card.

Even though the OAM-based features are present only on the fiber optic port, in this operating mode they are dependent on the state of the twisted pair port, just as in the MissingLink and OAM visible mode. For OAM to work, there have to be links on both ports, not just the fiber optic port, on the line card. For more information, refer to "MissingLink and OAM Visible Mode" on page 51. If you want the availability of the OAM-based features to be independent of the state of the twisted pair port on the line card, use the Link Test with OAM mode.

OAM Visible Mode

This operating mode is supported on the AT-CM2 and AT-CM70S Line Cards. Use this mode to add support for the OAM-based features on the fiber optic ports of these line cards

When a line card is set to this operating mode, the Link LEDs for the ports operate the same as in the Link Test mode. A port's Link LED will be on when the port has a link to a network device and it will be off when the port does not have a link.

As with the other operating modes, this mode does not interfere with the forwarding of network packets and so can be used by a line card during normal network operations.

OAM Bypass Mode

This operating mode is supported on the AT-CM2 and AT-CM70S Line Cards. A line card set to this mode ignores the OAMPDUs received on its fiber optic port and forwards the packets as normal network traffic.

For all intents and purposes, this operating mode is identical to the Link Test mode. Even the ports' Link LEDs operate the same.

Note
This mode does not support the OAM-based features.

Setting the Operating Mode

There are two ways to set the operating modes on the AT-CM and AT-CV Media Converter Line Cards. You can use the DIP switches on the line cards or the management card. If you use the management card to set the operating mode on a line card, the DIP switches are deactivated and reactivating them requires the management card. For instructions on how to set the operating modes of the line cards, refer to “Setting the Operating Mode” on page 176.

Chapter 3

OAM-based Features

The Operations, Administration, and Maintenance (OAM) is a standard that defines a set of tools and utilities for remotely monitoring, testing, and troubleshooting a network. It provides network operators the ability to monitor the condition of the network and to determine the location of the failing links or fault conditions. For background information on OAM, refer to the IEEE 802.3ah standard.

The AT-CM2, AT-CM3 and AT-CM70S Line Cards support five OAM-based features on their fiber optic ports. Some of the features are part of the IEEE 802.3ah standard while others are specific to this product. The sections in this chapter describe the features and the appropriate line card settings. The sections are:

- ❒ “Remote Peer Management” on page 56
- ❒ “Remote Updates of the AT-S73 or AT-S102 Management Software” on page 60
- ❒ “OAM Loopback Tests” on page 61
- ❒ “Dying Gasp and First RPS Failure Signals” on page 62
- ❒ “OAM Variable Requests” on page 68
- ❒ “OAM Client Settings” on page 69

Remote Peer Management

This feature lets you configure remote line cards through their local line card counterparts. This saves you from having to travel to the remote sites to configure the cards or from having to install AT-CV5M02 Management Cards in all the remote Converteon enclosures. The remote management sessions, which are conducted over the fiber optic cables that link the local and remote line cards, do not interfere with the network operations of the line cards.

To manage a remote card, you start a local or remote management session on the AT-CV5M02 Management Card and then redirect the session to the remote card by selecting its local counterpart.

This feature is illustrated in Figure 2 on page 56. At a central location is the AT-CV5000 Chassis with the AT-CV5M02 Management Card. To manage the remote card, you select its local counterpart to establish a remote management connection over the fiber optic cable that links the line cards.

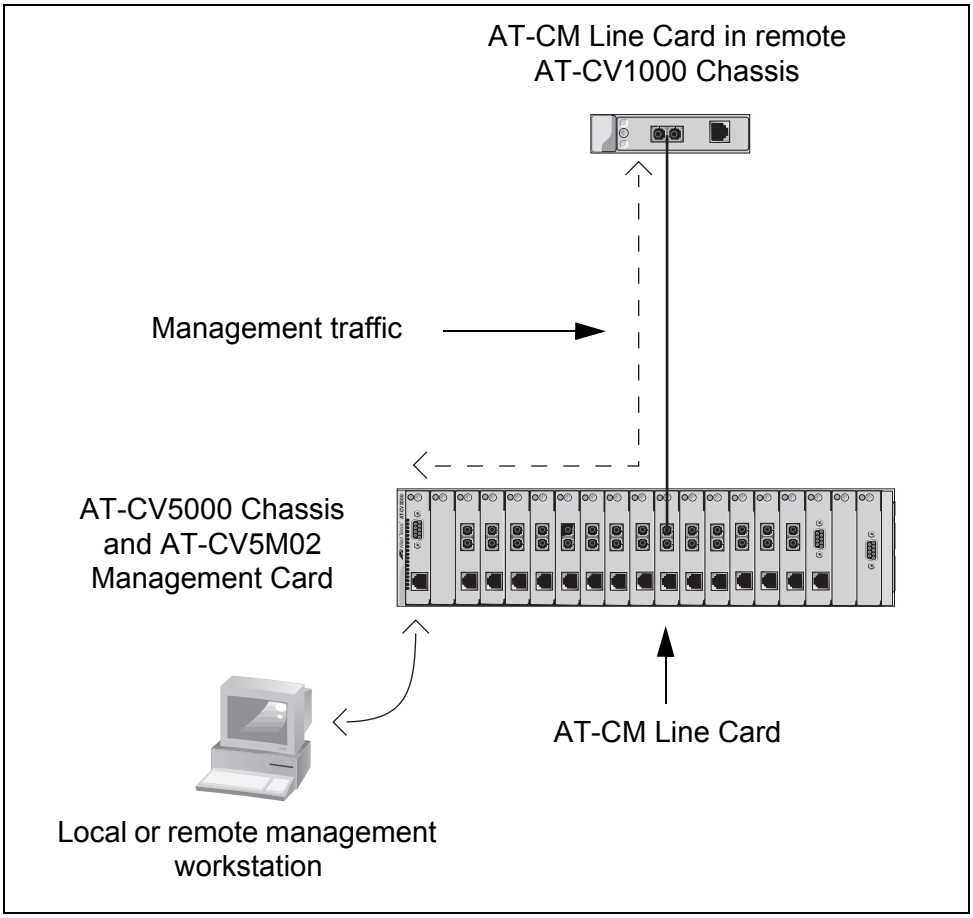


Figure 2. Remote Peer Management - Example 1

This feature is supported on all of the Converteon chassis. In the next example the chassis with the management card is the AT-CV1203 Chassis.

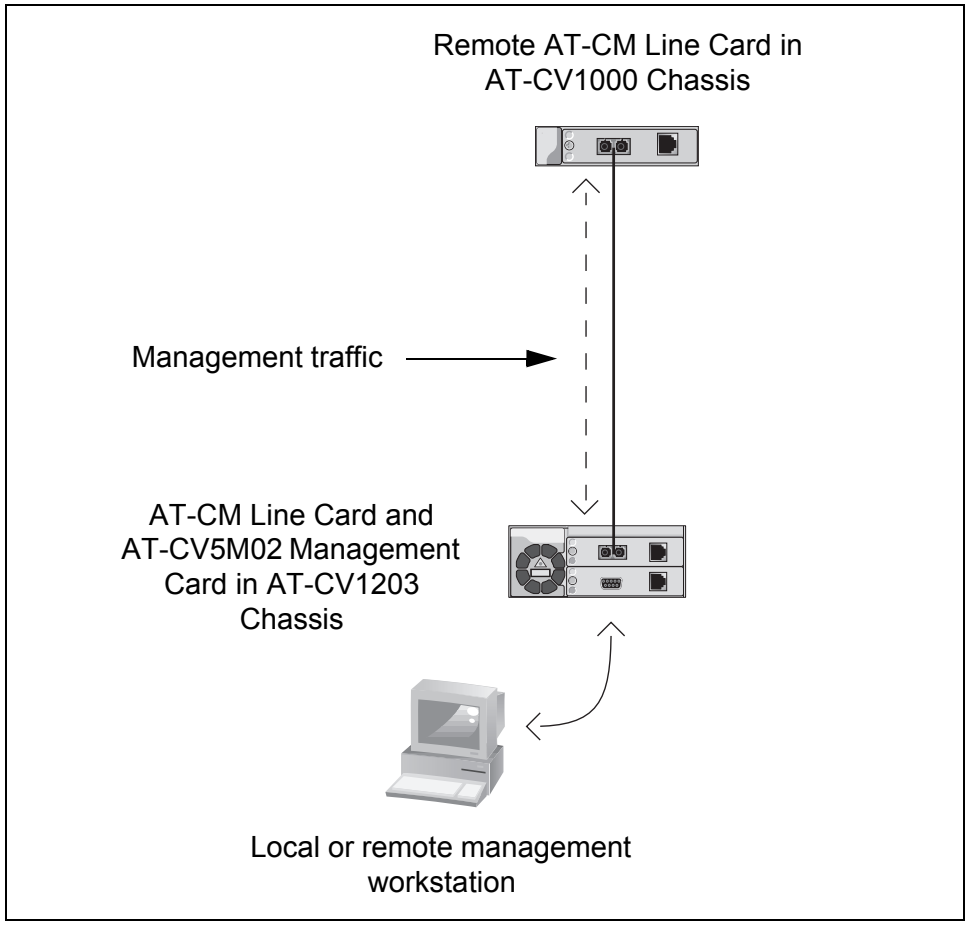
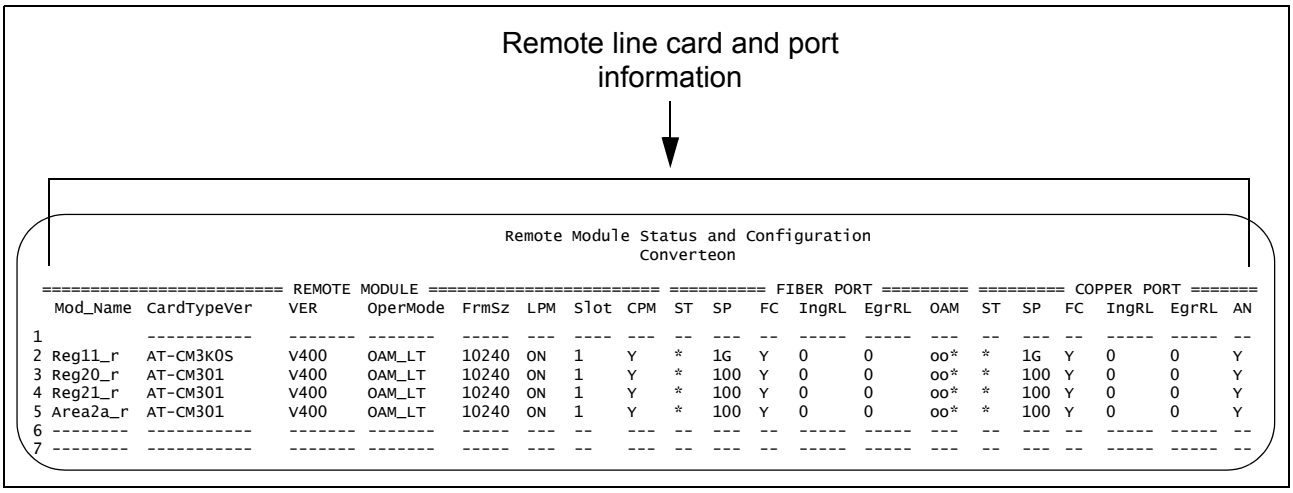


Figure 3. Remote Peer Management - Example 2

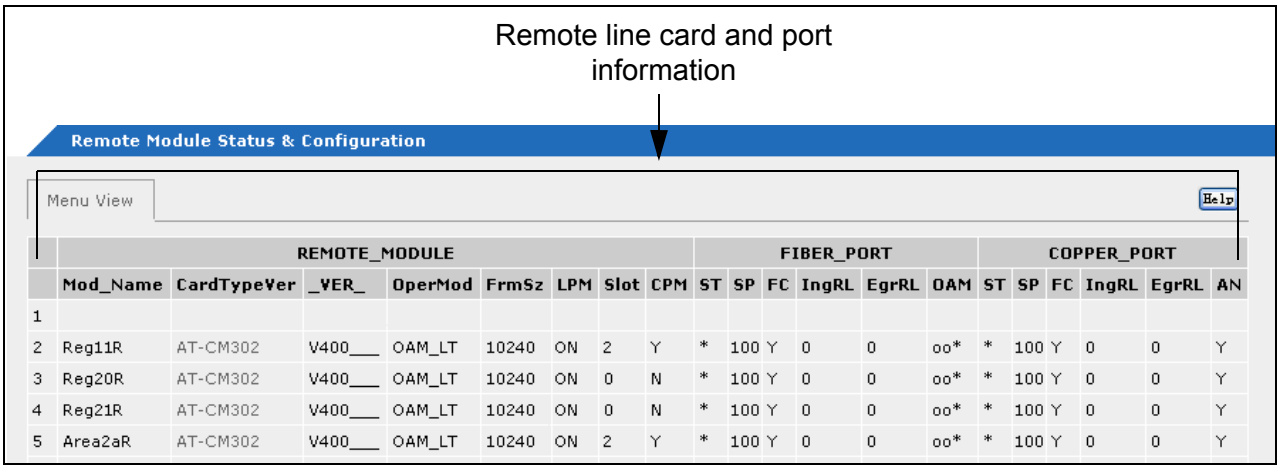
Remote management is supported in both the menus and the web browser windows in the AT-S99 Management Software. To configure remote line cards from the menus, you use the Remote Module Status and Configuration menu, selected directly from the Main Menu. An example of the menu is shown in Figure 4. The menu lists those remote line cards with remote peer connections to their local line card counterparts. To manage a remote AT-CM Line Card, you select it from the menu. This redirects the session to the remote line card. For more information on this menu, refer to "Configuring the Remote Line Cards with the Menus" on page 218.



	Mod_Name	CardTypeVer	VER	OperMode	FrmSz	LPM	Slot	CPM	ST	SP	FC	IngRL	EgrRL	OAM	ST	SP	FC	IngRL	EgrRL	AN
	REMOTE MODULE								FIBER PORT						COPPER PORT					
1																				
2	Reg11_r	AT-CM3K0S	V400	OAM_LT	10240	ON	1	Y	*	1G	Y	0	0	oo*	*	1G	Y	0	0	Y
3	Reg20_r	AT-CM301	V400	OAM_LT	10240	ON	1	Y	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
4	Reg21_r	AT-CM301	V400	OAM_LT	10240	ON	1	Y	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
5	Area2a_r	AT-CM301	V400	OAM_LT	10240	ON	1	Y	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
6																				
7																				

Figure 4. Remote Module Status and Configuration Menu

The corresponding window in the web browser windows has the same name as its menus peer and is used in much the same manner. To redirect the session to a remote line card, you select its local counterpart in the window. For more information on this window, refer to “Configuring the Remote AT-CM Line Cards with the Web Browser Windows” on page 228.



	Mod_Name	CardTypeVer	_VER_	OperMod	FrmSz	LPM	Slot	CPM	ST	SP	FC	IngRL	EgrRL	OAM	ST	SP	FC	IngRL	EgrRL	AN
	REMOTE_MODULE								FIBER_PORT						COPPER_PORT					
1																				
2	Reg11R	AT-CM302	V400___	OAM_LT	10240	ON	2	Y	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
3	Reg20R	AT-CM302	V400___	OAM_LT	10240	ON	0	N	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
4	Reg21R	AT-CM302	V400___	OAM_LT	10240	ON	0	N	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
5	Area2aR	AT-CM302	V400___	OAM_LT	10240	ON	2	Y	*	100	Y	0	0	oo*	*	100	Y	0	0	Y

Figure 5. Remote Module Status and Configuration Window

You cannot perform the following management functions on remote line cards through remote peer management:

- You cannot disable the twisted pair ports or the fiber optic ports on the remote line cards.
- You can view but not configure the OAM settings on remote AT-CM2 and AT-CM70S Line Cards. (This limitation does not apply to remote AT-CM3 Line Cards, because you can configure their OAM settings.)

- You cannot change the operating modes on AT-CM2 and AT-CM70S Line Cards, but you can on AT-CM3 Line Cards.
- You cannot reset AT-CM2 and AT-CM70S Line Cards, but you can AT-CM3 Line Cards.

For instructions on how to use this feature, refer to Chapter 7, ”Configuring the Media Converter Line Cards with Remote Peer Management” on page 217.

Remote Updates of the AT-S73 or AT-S102 Management Software

Allied Telesis may periodically release new versions of the AT-S73 Management Software for the AT-CM2 and AT-CM70S Line Cards and the AT-S102 Management Software for the AT-CM3 Line Cards. New software can be downloaded to remote media converter line cards through the OAM-based remote peer management feature. This saves you from having to visit the remote sites when you want to update their management software.

This feature is illustrated in Figure 6. The remote AT-CM Line Card in the AT-CV1000 Chassis receives a new version of the AT-S73 or AT-S102 Management Software over the fiber optic link on Port A from its line card counterpart in the managed chassis, in this case the AT-CV5000 Chassis. The file is downloaded through the management card from a local management session using XMODEM or from a remote TFTP server. For instructions, refer to Chapter 11, ”Uploading and Downloading Files” on page 315.

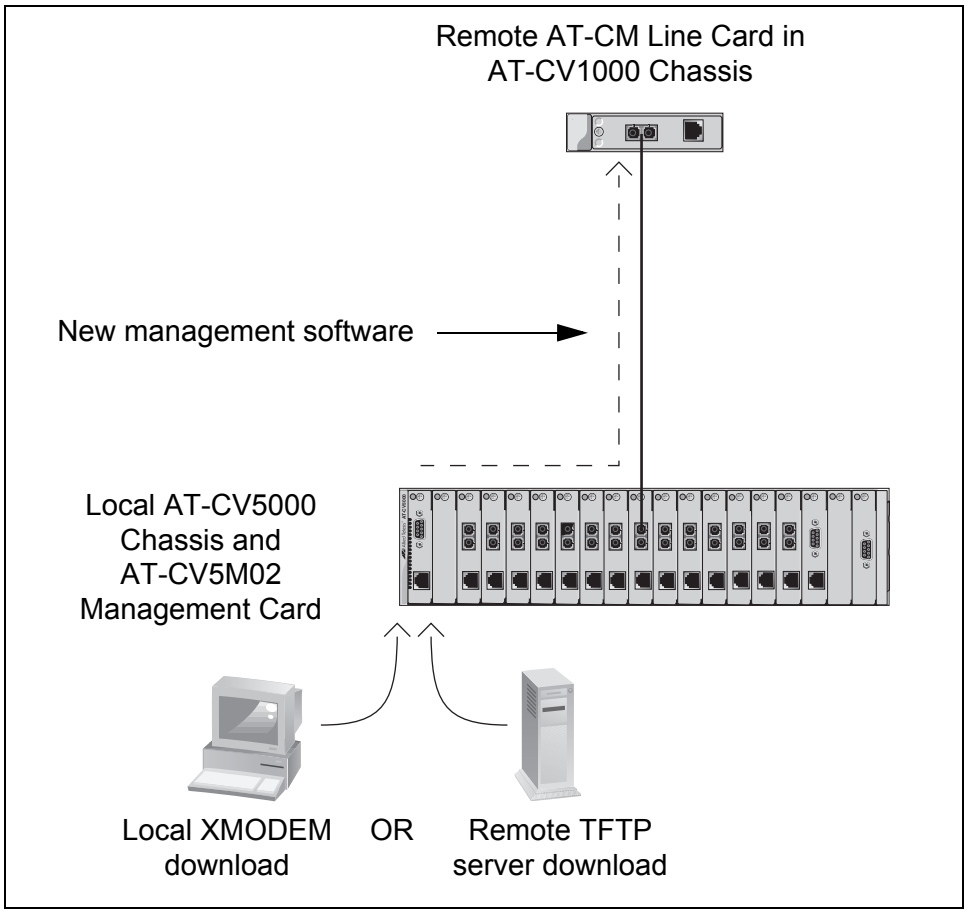


Figure 6. Downloading New AT-S73 Management Software to Remote AT-CM Line Cards

OAM Loopback Tests

OAM loopback tests are used to test the quality of the fiber optic connection that serves as the link between two AT-CM Line Cards or between a line card and another OAM-compliant device. The test consists of a local line card in a managed chassis transmitting test packets from Port A, the fiber optic port, to a remote line card, which transmits the packets back to the local line card over the same fiber optic cable. As a local line card receives its original test packets, it checks for lost packets and for packets with errors, and displays the results in statistics counters.

Figure 7 illustrates a loopback test between two AT-CM Line Cards. The test packets are generated by a line card in the AT-CV5000 Chassis at the central office and are returned by a line card in the AT-CV1000 Chassis at a remote site.

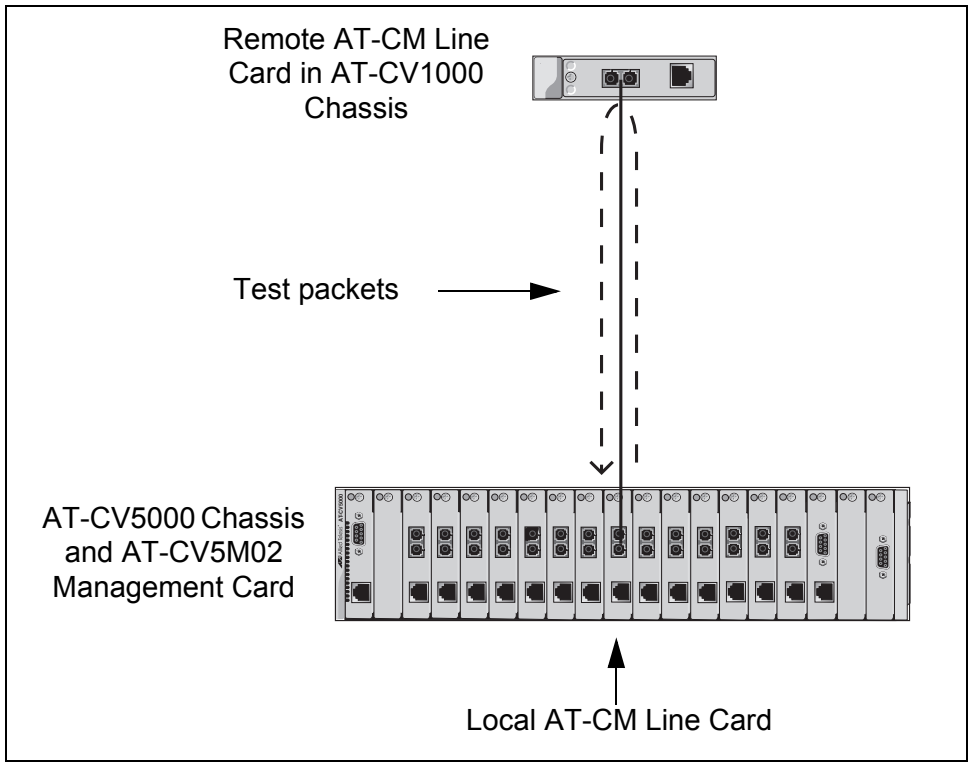


Figure 7. Loopback Test

For instructions, refer to "Performing the OAM Loopback Test" on page 259.

Caution
Loopback tests are disruptive to network operations. The local and remote line cards do not forward network traffic during the test. Some network traffic may be lost.

Dying Gasp and First RPS Failure Signals

The dying gasp and the first RPS failure are signals that the AT-CM Line Cards automatically transmit on their fiber optic ports to notify you of power supply problems with the AT-CV1203 Chassis. They indicate either that a chassis has lost all power and has stopped functioning, or, if a chassis has both a primary and a redundant power supply module, that just one of the modules has lost power.

The remote AT-CM Line Cards send the signals to their local line card counterparts in the AT-CV5000 at the central office, where the signals are stored in the event log on the AT-CV5M02 Management Card and are transmitted as SNMP traps to alert you to the events.

The signals are:

- Dying gasp - The AT-CM Line Cards send this signal if the AT-CV1203 Chassis loses all power.
- First RPS failure - The line cards send this signal if the AT-CV1203 Chassis has two power adapters and just one of the adapters loses power.

The signals, along with their rules and restrictions, are described in the following subsections.

Dying Gasp

The AT-CM Line Cards send this signal if they detect that the AT-CV1203 Chassis has just lost all power. Just before shutting down, the line cards transmit the signal from their fiber optic ports to their line card counterparts in the AT-CV5000 Chassis.

The process is illustrated in Figure 8. When the remote AT-CV1203 Chassis loses power, the AT-CM Line Card in the chassis transmits the dying gasp signal from Port A over its fiber optic link to its line card counterpart in the AT-CV5000 Chassis at the central office. The local card sends the signal over the chassis' backplane to the management card which enters the event in its event log and sends an SNMP trap to alert you to the problem.

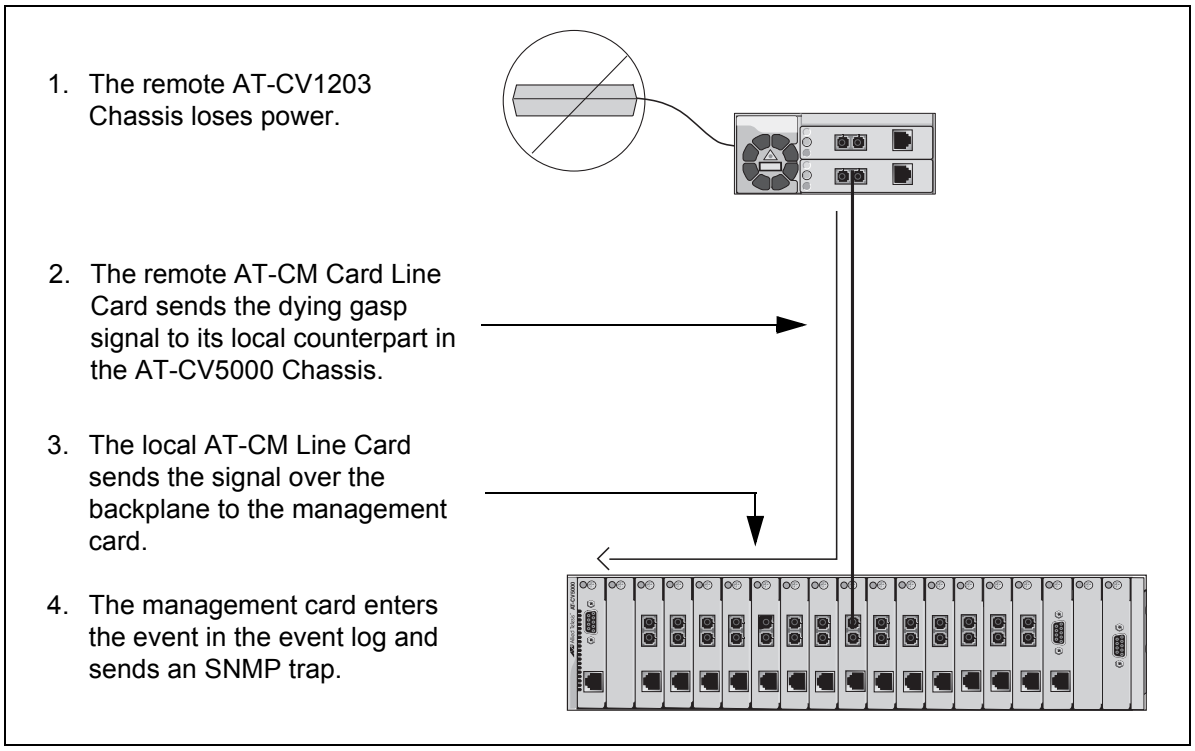


Figure 8. Dying Gasp Feature

If there are two line cards in the remote chassis, both cards send the signal.

The requirements for the dying gasp signal are listed here:

- Only AT-CM Line Cards in the AT-CV1203 Chassis can send the signal and only AT-CM Line Cards in the AT-CV5000 Chassis can recognize the signal and pass it to the management card in the chassis. This feature is not supported on the AT-CV Line Cards, the AT-CV1000 Chassis, or the AT-CV1200 Chassis.
- This feature is supported on all the AT-CM3 Line Cards and on the newer versions of the AT-CM2 and AT-CM70S Line Cards listed in Table 7. Determining the version levels of the AT-CM2 Line Cards requires the management card because the version levels are not included on the faceplates on the cards. When viewed with the management software, the newer AT-CM2 Line Cards display their version levels as extensions to the model names, like AT-CM201-v2. AT-CM2 Line Cards that do not display a version level do not support this feature.

Table 7. Versions of the AT-CM2 Line Cards that Support Dying Gasp

Media Converter Line Card	Hardware Version
AT-CM201	Version 2
AT-CM202	Version 2
AT-CM202/1	Version 2
AT-CM202/2	Version 2
AT-CM212A/1	Version 2
AT-CM212B/1	Version 2
AT-CM70S	Version 2
AT-CM2K0S	Version 3

- Refer to Table 8 for the required version levels of the management software.

Table 8. Versions of the Management Software that Support Dying Gasp

Management and Media Converter Line Cards	Management Software Versions
AT-CV5M01 Management Card	Version 2.0.2 or later of the AT-S70 Management Software.
AT-CV5M02 Management Card	Version 3.0.0 or later of the AT-S99 Management Software
AT-CM2 Line Cards	Version 2.0.2 or later of the AT-S73 Line Card Management Software.
AT-CM3 Line Cards	Version 3.0.0 or later of the AT-S102 Line Card Management Software.

First RPS Failure

The AT-CM Line Cards send this signal if the AT-CV1203 Chassis has both a primary power supply and a redundant power supply, and just one of the power supplies loses power. The signal indicates that the remote chassis is continuing to operate after having lost power on one of its power modules.

The following subsections explain how this feature works on the AT-CM2 and AT-CM3 Line Cards.

AT-CM2 Line Cards

The AT-CM2 Line Cards cannot detect if an AT-CV1203 Chassis that has two power supplies loses power on just one of them. Instead, a management card is required. If a single power supply fails, it is the management card that detects the loss and generates the signal, sending it over the backplane in the chassis to the line card, which transmits it to its local counterpart in the AT-CV5000 Chassis.

This feature is illustrated in Figure 9.

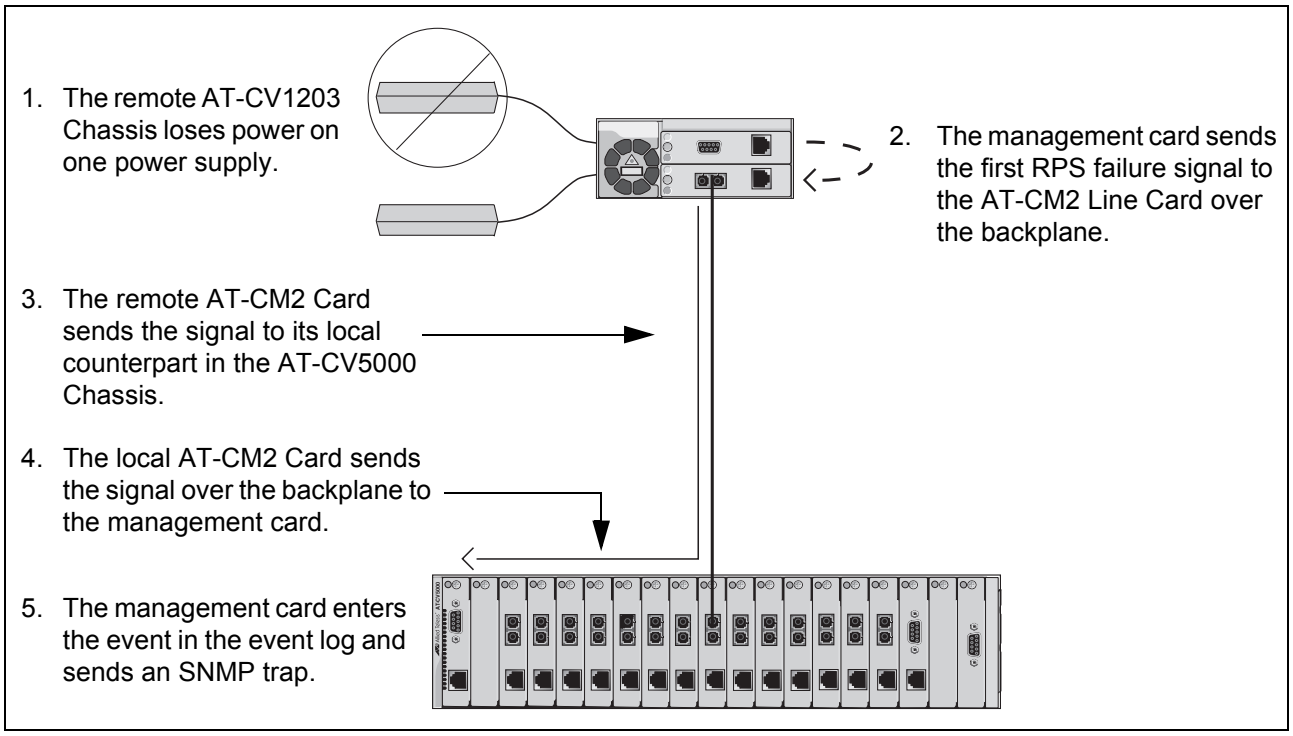


Figure 9. AT-CM2 Line Cards and First RPS Failure Signal

Listed here are the requirements of this feature:

- The first RPS failure signal is supported only on the AT-CM Line Cards in the AT-CV1203 and AT-CV5000 Chassis. This feature is not supported on the AT-CV Line Cards, the AT-CV1000 Chassis, or the AT-CV1200 Chassis.
- You do not have to configure any of the settings on the management card in the remote AT-CV1203 Chassis for it to support the first RPS failure signal, and you do not have to connect its 10/100Base-TX port to the network. The card simply has to be present in the AT-CV1203 Chassis.

Note
The AT-CM70S Line Card, which is a double-slot card, does not support the first RPS failure signal because it uses both slots in the AT-CV1203 Chassis, leaving no available slot for a management card.

AT-CM3 Line Cards

The AT-CM3 Line Cards also support the first RPS failure signal. And as with the AT-CM2 Line Cards, they send the signal when the AT-CV1203 Chassis loses power on just one of its two power supplies.

The difference is that these line cards, when installed in the newer version of the AT-CV1203 Chassis, do not require the AT-CV5M02 Management Card because they are able to determine for themselves when the chassis loses power on a single power supply module. This leaves the second slot in the chassis available for another media converter line card. This is illustrated in Figure 10.

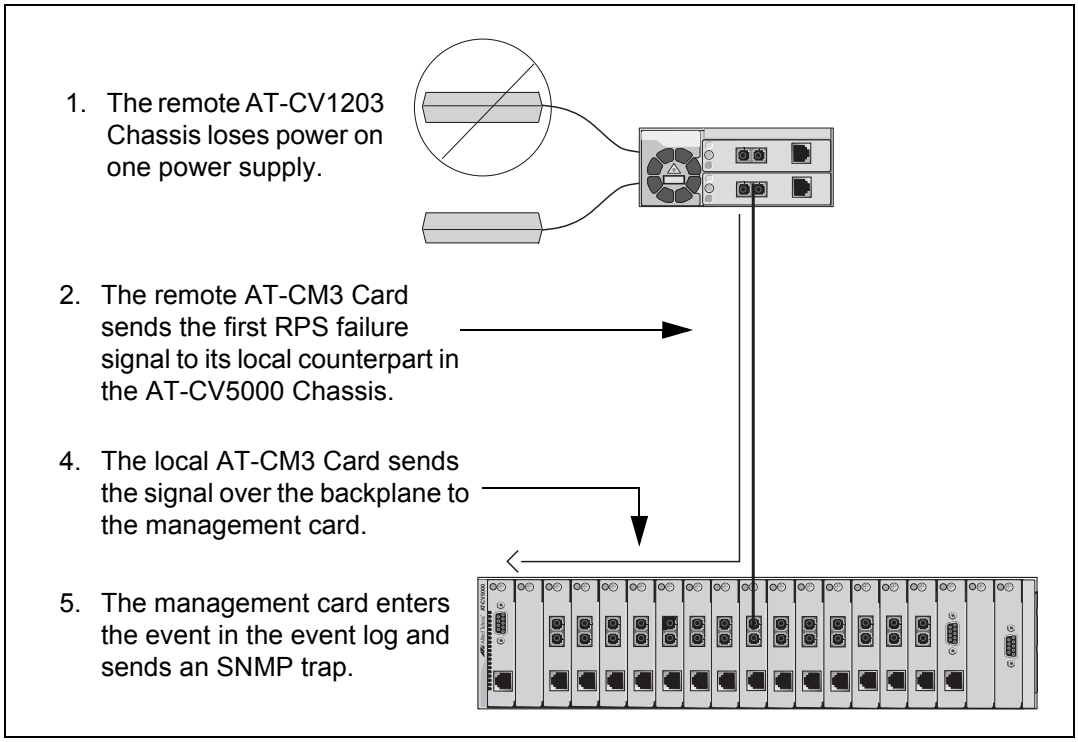


Figure 10. AT-CM3 Line Cards and First RPS Failure Signal

However, if you have the older version of the AT-CV1203 Chassis, then just as with the AT-CM2 Line Cards the chassis must have the management card to support the first RPS failure signal. As stated earlier, you do not have to configure the management card or connect its 10/100Base-TX port to your network. The card simply has to be in the chassis.

How do you know whether you have an older or a newer version of the AT-CV1203 Chassis? You have to look at its serial number. You'll find it on the labels on the shipping container and on the bottom of the unit. Examine the first six characters. If the characters are "A04187" or "A04188," the chassis is the newer version and it doesn't need the management card to support the first RPS failure signal with the AT-CM3 Line Cards. If it's any other number, than the management card is required.

This discussion about the different versions of the AT-CV1203 Chassis does not apply to the AT-CM2 Line Cards. If you want these cards to support the first RPS failure signal, the chassis, regardless of its version, must have the management card.

OAM Variable Requests

This feature, which is part of the IEEE 802.3ah Ethernet OAM standard, lets you view the performance and error statistics that are stored in the Management Information Bases (MIBs) on remote OAM devices. To use the feature, you specify the branch and leaf of the object identifier (OID) of the MIB object you want to view. These are the last two parts of an OID. The prefix of the OID predefined in the OAM clients on the line cards is not adjustable. This feature has the following restrictions:

- Variable requests use the following MIB tree prefix:

  iso(1) member-body(2) us(840) ieee802dot3(10006) csmacdmgt(30)

- Variable requests are transmitted from Port A, the fiber optic port, on the line cards. This feature is not supported on Port B, the twisted pair port.
- You can use OAM variable requests to view, but not change MIB values.
- This feature cannot be used to view the MIB objects in the private Allied Telesis MIB.

Note
The AT-CM Line Cards do not support any of the MIB objects in the portion of the MIB tree that variable requests can access. So although the line cards can be used to send variable requests to query other OAM-compatible devices for MIB values, they will not respond to variable requests from other OAM-compliant devices.

For instructions, refer to “Sending OAM Variable Requests to View MIB Variables” on page 275.

OAM Client Settings

Table 9 lists the parameter settings for the OAM clients for the OAM-based features on the AT-CM Line Cards. The instructions on how to configure the clients can be found in "Configuring the AT-CM2, AT-CM3, and AT-CM70S Line Cards for the OAM-based Features" on page 90 and "Configuring the OAM Client" on page 254.

Table 9. OAM Parameter Settings for the OAM-based Features

OAM Parameter	Local AT-CM Line Card in a Managed Chassis	Remote AT-CM Line Card or Other OAM-Compatible Device
AT-CM3 Line Card Operating Mode	Link Test with OAM, MissingLink with OAM or Smart MissingLink with OAM	Link Test with OAM, MissingLink with OAM or Smart MissingLink with OAM
AT-CM2 Line Card Operating Mode	OAM Visible	OAM Visible
OAM Admin State	Enabled	Enabled
OAM Mode	Active	Active or Passive
OAM Loopback Support This parameter controls whether or not the OAM client on a line card will participate in OAM loopback tests by returning test packets received on port A from another OAM client. This parameter only applies to OAM clients that return the test packets and has no affect on OAM clients that generate the test packets.	This parameter can be set to Yes or No on the local AT-CM Line Cards because these line cards generate the test packets.	The possible settings for this parameter on remote line cards are: ❒ Yes - The remote line cards can participate in loopback tests by returning test packets. ❒ No - The remote line cards cannot participate in loopback tests
OAM Variable Requests Support This parameter controls whether or not the OAM client on a line card will respond to variable retrieval requests from other OAM clients. A variable retrieval request is a query of an OAM client by another OAM client for the current value of a MIB object. This parameter applies only to OAM clients that are queried, and not to OAM clients that send the variable requests.	This parameter can be set to Yes or No on the local AT-CM Line Cards because these line cards generate the variable requests.	The possible settings on remote OAM-compatible devices are ❒ Yes - The OAM client responds to variable retrieval requests. This is the default setting. ❒ No - The OAM client does not respond to variable retrieval requests.

Chapter 4

Starting a Management Session

This chapter has the following sections:

- “Starting a Local Management Session” on page 72
- “Starting a Telnet Management Session” on page 75
- “Starting a Web Browser Management Session” on page 76
- “Saving Your Configuration Changes” on page 78
- “What to Configure First on the AT-CV5M02 Management Card” on page 85
- “Configuring the AT-CM2, AT-CM3, and AT-CM70S Line Cards for the OAM-based Features” on page 90

Starting a Local Management Session

This procedure explains how to start a local, out-of-band management session using the RS-232 Console port on the AT-CV5M02 Management Card. The management card does not need an IP address for local management. Your initial management session has to be a local session.

The Console port on the management card requires a DEC VT100 or ANSI terminal, or an equivalent terminal emulator program, capable of displaying up to 125 characters per line.

To start a local management session:

1. Connect one end of the management cable included with the management card to the Console port on the management card, as shown in Figure 11. If the chassis has two AT-CV5M02 Management Cards, start the session on the active management card, identified by its green RDY LED.

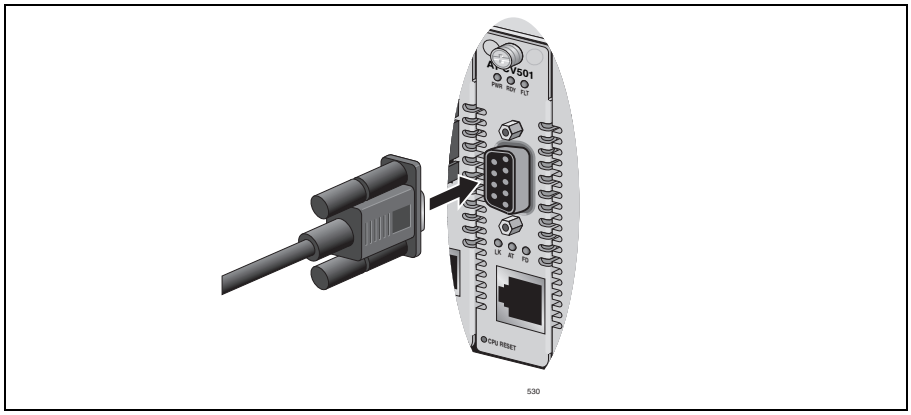


Figure 11. Connecting the Management Cable to the Management Card's Console Port

2. Connect the other end of the cable to an RS-232 port on a terminal or a PC with a terminal emulator program.

3. Configure the terminal or the terminal emulation program as follows:

   - Bits per second: 115200 default (range 2400 to 115200 bps)
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: None

4. When prompted, enter the username and password of the manager or operator account on the management card. The manager account has the username "manager" and the default password "friend." The operator account has the username "operator" and the default password of "operator." Usernames and passwords are case sensitive. For further information, refer to "Manager and Operator Accounts" on page 25. For instructions on how to change a password, refer to "Configuring the Management Security" on page 111.

   After you log on, the Main Menu in Figure 12 is displayed on your screen.

```
   Allied Telesis AT-CV5M02 Management Module Software
                      AT-CV5000 AC

                         Main Menu

Module Status and Configuration

Remote Module Status and Configuration

Administration

Image Download

Diagnostics

Configuration

Management Card Redundancy

Quit
```

Figure 12. Main Menu

Note
The Main Menu for the AT-CV1200 or AT-CV1203 Chassis does not include the Management Card Redundancy option. That menu option applies only to the AT-CV5000 Chassis.

Note
You should always remember to select Quit from the Main Menu when you are finished managing the chassis with the manager account. If you close your terminal emulator program without logging out, the management session remains active and the management card rejects any further attempts to log on until the console timer has timed out.

The instructions in Table 10 explain how to move through the menus and select menu options.

Table 10. Menu Selection Options

When directed to	You must
Select an option	Highlight the option by pressing the Up (↑) or Down (↓) arrow key and then pressing Return. or Type the first character of the option at the prompt and press Return. If two or more options have matching initial characters, type the initial characters until the option you want is highlighted and press Return.
Enter information (for example, the IP address of a management card)	Type the information and press Return.
Return to the previous screen	Press Esc or select the “Return to...” option at the bottom of the menu.

Activated options are preceded with the > symbol in a menu. In the following example, the first option is activated:

```
>  Enable this port
   Disable this port
```

When you select a field that accepts a value, the -> symbol is displayed. For example:

```
System name:   ->
```

When you see the -> symbol, enter a new value for the parameter. After entering a value, press Return. Unless stated otherwise, all changes are immediately implement by the AT-CV5M02 Management Card and the AT-CM Line Cards.

Starting a Telnet Management Session

Note
The requirements for remote Telnet management are described in "Accessing Your Network" on page 31.

The large windows in the management software require a Telnet client that can support up to 125 characters per line.

To start a remote Telnet management session on the AT-CV5M02 Management Card:

1. Specify the IP address of the management card in the Telnet client at your workstation. If the chassis has two management cards, enter the IP address of the active card.

2. When prompted, enter the username and password of the manager or operator account of the management card. The manager account has the username "manager" and the default password "friend." The operator account has the username "operator" and the default password "operator." Usernames and passwords are case sensitive.

   After you log on, the Main Menu in Figure 12 on page 73 is displayed. For instructions on how to use the menus, refer to Table 10 on page 74.

   A Telnet management session gives you the same management capability as a local management session. You can perform all of the same management functions and configure all of the same line card parameters.

3. To end a management session, select **Quit** from the Main Menu.

Note
You should always remember to select Quit from the Main Menu when you are finished managing the chassis with the manager account. If you close your terminal emulator program without logging out, the management session remains active and the management card rejects any further attempts to log on until the console timer has timed out.

Starting a Web Browser Management Session

Note
The requirements for remote web browser management are described in “Accessing Your Network” on page 31.

Note
The web browser windows are supported on the AT-CV5000 Chassis, but not on the AT-CV1200 or AT-CV1203 Chassis.

To start a remote web browser management session:

1. Enter the IP address of the management card in the URL field of your web browser, as shown in Figure 13. If the AT-CV5000 Chassis has two management cards, enter the IP address of the active card.

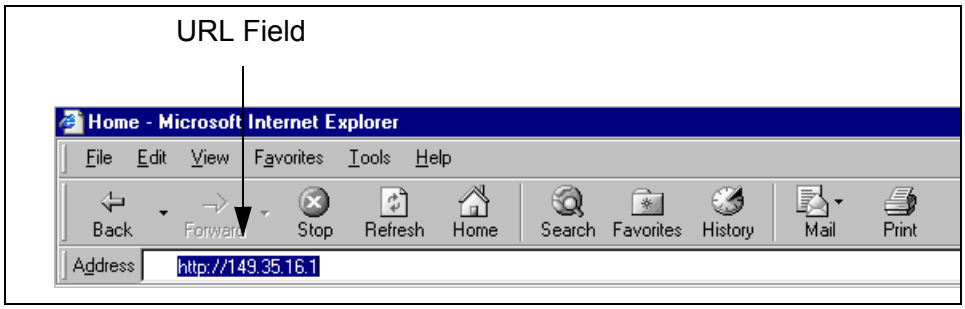


Figure 13. URL Field in a Web Browser

2. When prompted, enter the username and password of the manager or operator account on the management card. For the manager account the username is “manager” and the default password is “friend.” For the operator account the username is “operator” and the default password is “operator.” Usernames and passwords are case sensitive.

   After you log on, the Chassis View, shown in Figure 14 and described in “Displaying the Status of the Line Cards” on page 158, is displayed.

3. To end a management session, click **Log-Out** in the menu bar.

Note
You should always remember to select Quit from the Main Menu when you are finished managing the chassis with the manager account. If you close your web browser program without logging out, the management session remains active and the management card rejects any further attempts to log on until the console timer has timed out.

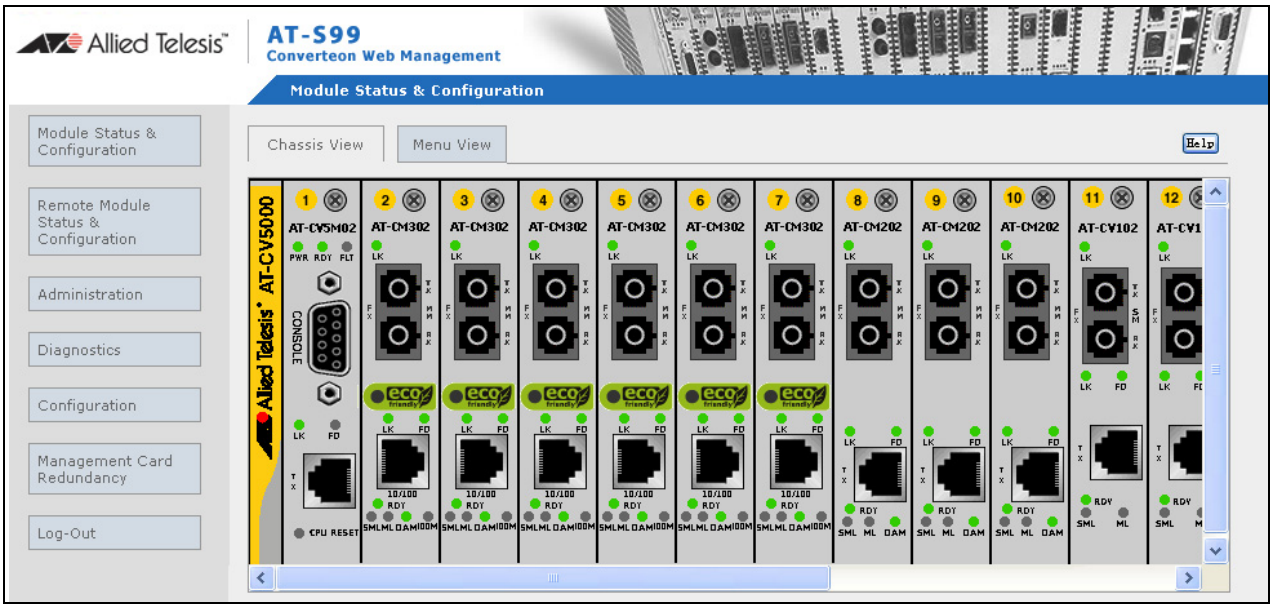


Figure 14. Chassis View

Saving Your Configuration Changes

As you configure the parameter settings on the AT-CV5M02 Management Card and the AT-CM2, AT-CM3, and AT-CM70S Line Cards, it's important to keep in mind how the cards go about the task of permanently saving their settings. Otherwise, you may find yourself having to reenter the same settings if you have to reset a card or a chassis. You'll also miss out on an important feature of the Converteon product line that lets you restore previous configurations to the line cards.

There are two parts to this discussion. The first has to do with the commands that you use in the menus and the web browser windows to save the configuration settings. This part of the discussion is the focus of the following subsections. As you'll learn, all of these commands do basically the same thing, which is they update the master configuration file in flash memory on the management card. Where they differ is in the amount of information that's saved. There are commands for saving just the changes to the management card, the changes to a single line card, or the changes to all of the line cards in the chassis.

The second part of the discussion has to do with the configuration files themselves. There are actually several configuration files on the management card and a separate configuration file on each of the line cards. This part of the discussion is explained in "Configuration Files" on page 32.

Saving the Configuration of the AT-CV5M02 Management Card

When you enter a change to a parameter setting on the management card, your change is automatically saved by the card in a file in DRAM. For instance, if you change the card's IP address, adjust the speed or duplex setting of its 10/100Base-TX port, or enter the IP address of a syslog server, the management card automatically records the new setting in the file. However, since this file is stored in DRAM, it's only temporary, which is why its referred to as the temporary master configuration file. If you turn off the chassis or reset or remove the management card, your changes are discarded.

If you want to permanently save your changes, which, in most cases, you probably will, you have to instruct the management card to copy its temporary master configuration file in DRAM to permanent storage in flash memory. The configuration file, after stored in flash, will retain the settings even when the card is powered off.

The command in the menus for instructing the management card to save its configuration settings to permanent storage is in the System Configuration Menu. The menus that lead to the command and the command itself are:

Main Menu -> Configuration -> System Configuration -> Save System Configuration

When you select this command, the management card copies its settings from the temporary master configuration file in DRAM to flash memory for permanent storage.

```
                System Configuration Menu

System Parameters Configuration

Save System Configuration

Return System Configuration to Default

Return to Main Menu ...
```

Figure 15. Save Command in the System Configuration Menu

The same command can be found in the web browser windows in the System window, shown Figure 16.

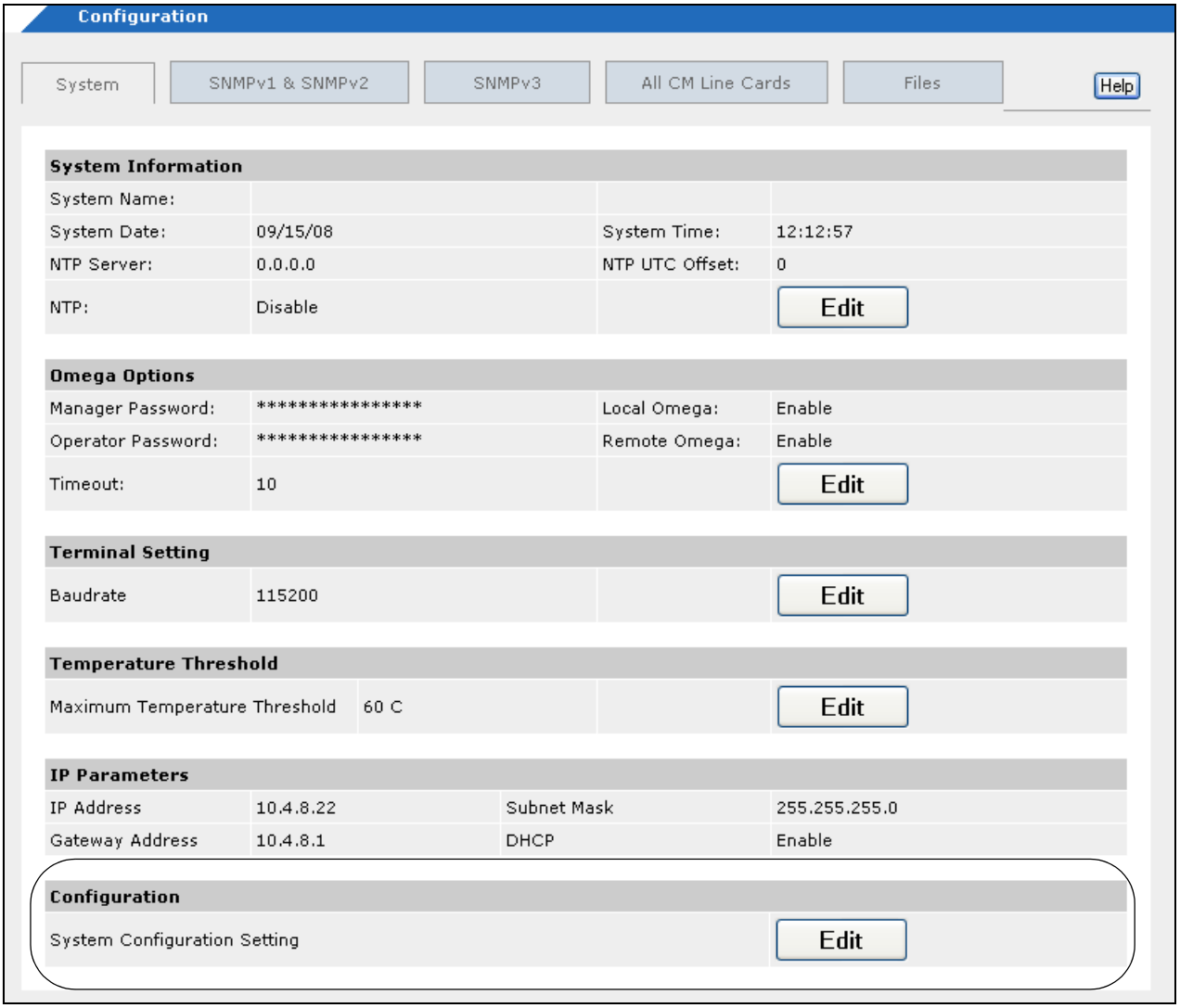


Figure 16. Save Command in the System Tab

Clicking the Edit button in the Configuration section of the tab displays the pop-up window, shown in Figure 17, which has the Save System Configuration.

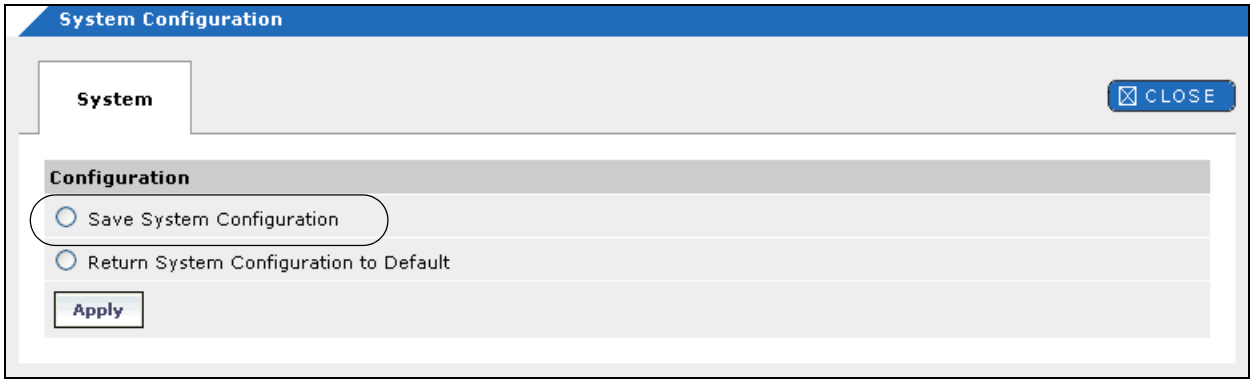


Figure 17. Configuration Pop-up Window

When should you use the Save System Configuration command? Whenever you want to permanently save the changes you've made to the parameter settings on the management card. You aren't, however, required to enter the command after every change. That's because the command copies all of the management card's settings to permanent storage, not just your last change. Instead, you might make it a practice to enter the command at the end of your management sessions, just before logging off.

Saving the Configurations of the Local AT-CM Line Cards

How do you save your changes to the parameter settings on the AT-CM Line Cards? Actually, you don't have to because the line cards do it for you, automatically. Each line card maintains in its flash memory a configuration file that it updates whenever you enter a new value for a parameter setting. Since the file is in flash memory, the contents are retained even when the line card is reset or is not operating. For example, if you were to disable a port on a line card or change a port's speed, and immediately afterwards were to remove the line card or power off the chassis, the card would still retain your new setting.

You can, however, save the configuration settings of the AT-CM Line Cards in the master configuration file on the AT-CV5M02 Management Card, from where they can be restored to the line cards, should that ever prove necessary. For example, if you replaced a line card, you could restore the previous configuration stored on the management card to the new card, thereby giving the new line card the same configuration at its predecessor. This relieves you from having to adjust the settings manually.

There are several commands for saving a line card's configuration in the master configuration file. You can save the changes to each card individually, or you can save the changes to all of the line cards at the same time. If you're configuring just one card, the former might be easier.

But if you're configuring several cards, the latter might be more convenient.

The command for saving a single line card's configuration is found in a submenu beneath the Module Configuration Menu, which is the principal menu for configuring the settings of a line card. An example of the menu is shown in Figure 63 on page 169. The command is in the Line Card Configuration menu. When you select that menu option, the menu in Figure 18 is displayed. In that menu is the Save Line Card Configuration. That command instructs the management card to update its master configuration file in flash memory with the latest configuration settings of the selected line card.

```
                Line Card Configuration

Auto-copy Line Card Configuration
Display Current Configuration
Display Last saved Configuration
Display Default Configuration
Restore Last Saved Configuration
Return Line Card to Default Configuration
Save Line Card Configuration
Return to Module Configuration Menu...
```

Figure 18. Save Command for a Local AT-CM Line Card - Menus

The web browser windows also features the same command. It's a button located in the Current Configuration tab of the Line Card Configuration window.

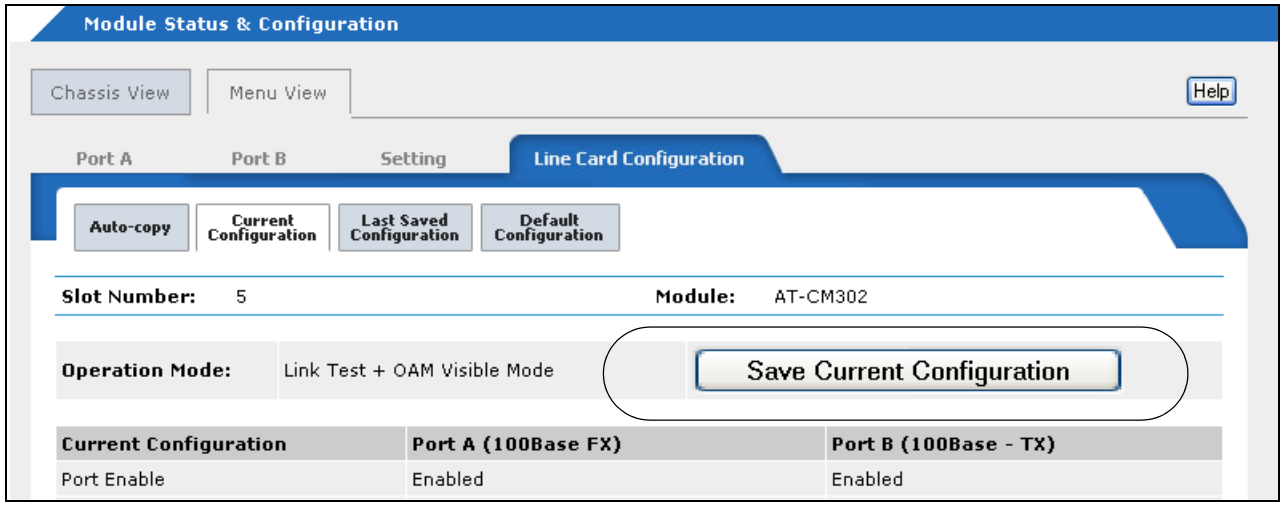


Figure 19. Save Command for a Local AT-CM Line Card - Web Browser Windows

If you have a lot of line cards to configure, rather than saving the changes of each card individually, you can use this command instead:

Configuration - > All CM Line Cards Configuration -> Save All CM Line Cards Configurations

When you select this command, the management card saves in its master configuration file in flash memory the settings of all of the AT-CM2, AT-CM3 and AT-CM70S Line Cards in the chassis.

To locate this same command in the web browser windows, click the Configuration button in the menu bar and then the All CM Line Cards tab.

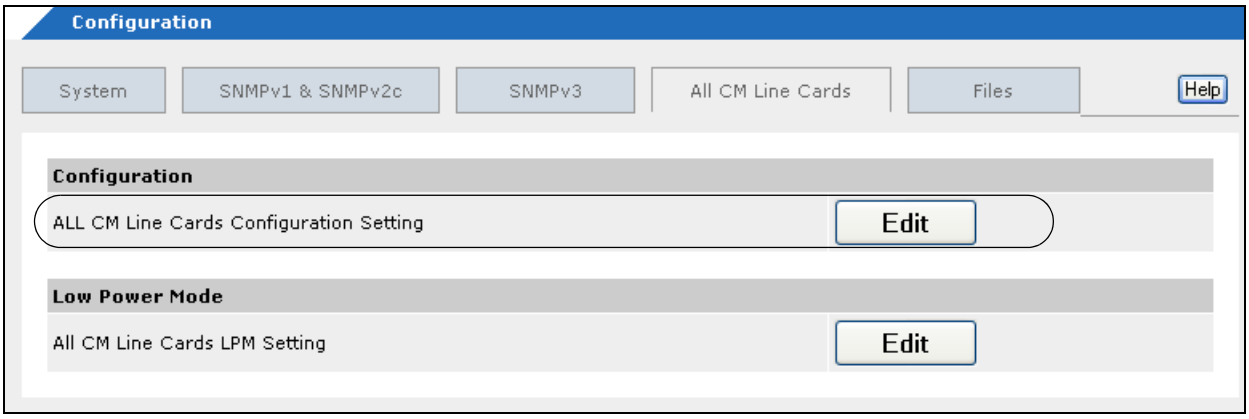


Figure 20. All CM Line Cards Tab

Click the Edit button for the All CM Line Cards Configuration Setting option to display the pop-window where the command resides.

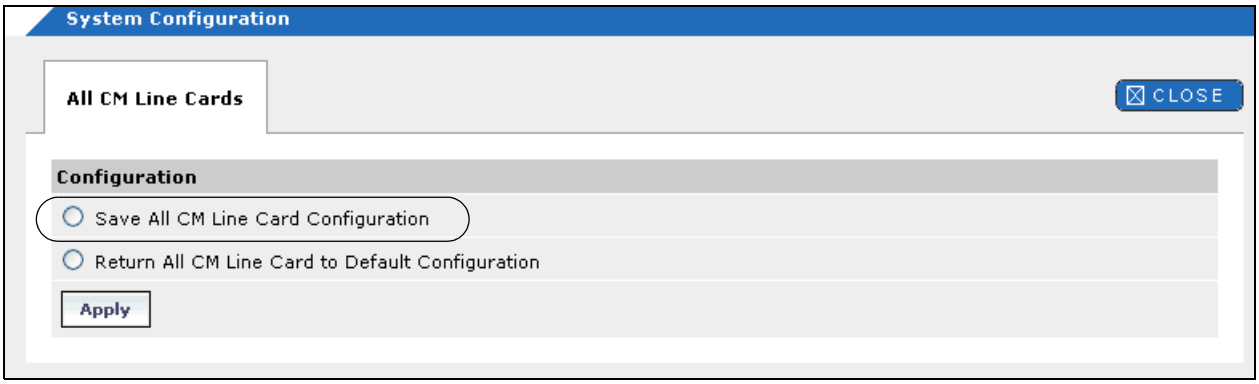


Figure 21. All CM Line Cards Pop-up Window

Saving the Configurations of the Remote AT-CM Line Cards

The Converteon product has a series of OAM-based features. One of them is remote peer management. This feature lets you manage remote AT-CM Line Cards from their local line card counterparts that are installed in a chassis that has the AT-CV5M02 Management Card. The value to this feature is that it can save you from having to travel to the remote sites when you need to configure the remote cards.

Remote line cards function exactly the same as local line cards when it comes to saving their configuration changes. When you configure the parameter settings on the remote line cards through remote peer management, they immediately save their changes in their configuration files in flash memory for permanent storage. There is no save command for you to perform and the settings are retained even if the remote line cards are powered off or are removed from their chassis.

But, just like the configurations of the local line cards, the parameter settings of the remote line cards can also be stored in the master configuration file of the local AT-CV5M02 Management Card. Once stored there, the configurations can be restored to the remote cards, if the need arises. For instance, if you replace a remote line card, you could restore the predecessor's configuration to the new card so that it has the same settings.

The commands for saving the configurations of the remote line cards to the master configuration file are the same as those for the local cards. To save the configuration of a single remote line card, use the Save Line Card Configuration command from the menus or the Save Current Configuration from the web browser windows. To save the configurations of all of the local and remote line cards, use the Save All CM Line Card Configuration menu command or web browser button.

Updating the Master Configuration File on a Standby Management Card

If the AT-CV5000 Chassis has two AT-CV5M02 Management Cards, an active card and a standby card, the active card automatically updates the master configuration file on the standby card. This is explained in "Active and Standby Management Cards" on page 36.

You can manually update the master configuration file on the standby card using two of the commands in the Management Card Redundancy menu and tab, shown in Figure 22 and Figure 23, respectively.

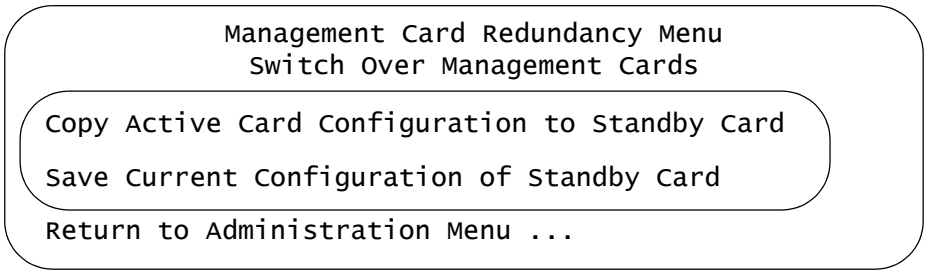


Figure 22. Management Card Redundancy Menu

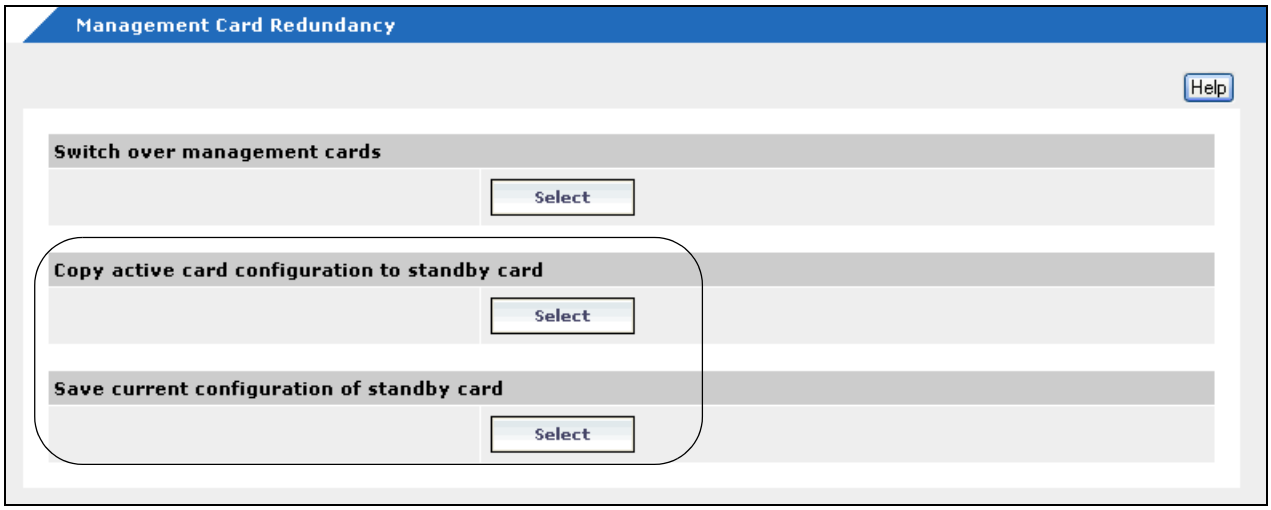


Figure 23. Management Card Redundancy Tab

The functions of these commands are described here:

- Copy Active Card Configuration to Standby Card - This command is used to copy the temporary master configuration file from DRAM in the active management card to DRAM in the standby card.
- Save Current Configuration of Standby Card - This command instructs the standby card to copy its master configuration file from DRAM to flash memory for permanent storage.

To use the commands, select the Copy command and wait for the active card to send its file to the standby card. Then select the Save command.

In all likelihood, you'll probably never use these commands because the active and standby management cards perform these functions automatically as part of their normal operations. About the only situation where you might feel inclined to use them is if you suspect that the active management card is failing and, prior to removing it from the chassis, you want to manually update the configuration file on the standby card, to insure that it has the latest settings.

What to Configure First on the AT-CV5M02 Management Card

This section has a few suggestions on what to configure during your initial management session of the management card. The first management session has to be a local session from the Console port on the card. For instructions on how to start a local management session, refer to "Starting a Local Management Session" on page 72.

Changing the Manager and Operator Passwords

Since the default passwords for the manager and operator accounts on the management card are included in this guide, you should change them to protect the unit from unauthorized access.

To change the passwords:

1. From the Main Menu, select **Configuration**.
2. From the Configuration Menu, select **System Configuration**.
3. From the System Configuration Menu, select **System Parameters Configuration**.
4. From the System Parameters Configuration menu, select **Omega Options** to display the Omega Options Menu
5. In the Omega Options Menu, select **Manager Password** to change the Manager password or **Operator Password** to change the Operator password.
6. Enter a new password of 0 to 16 alphanumeric characters. A password is case-sensitive and can consist of the letters A to Z in uppercase and lowercase, and the numbers 1 to 9. Do not use special characters such as spaces, asterisks (*), or exclamation points (!) in a password. To delete the current password without assigning a new password, enter a space in the password field. The default passwords are "friend" for the manager account and "operator" for the operator account.

   For information on the other options in the Omega Options Menu, refer to "Configuring the Management Security" on page 111.
7. Return to the Main Menu.

Assigning an IP Address Configuration and Changing the Community Strings

You have to assign the management card an IP address configuration if the card will be performing any of these management functions:

- ❒ Remote Telnet, web browser, or SNMP management
- ❒ Sending event messages to a syslog server
- ❒ Setting the date and time from a Network Time Protocol server
- ❒ Sending SNMP traps to trap receivers.
- ❒ Uploading or downloading files to a TFTP server.
- ❒ Pinging a remote device.

The IP address configuration has to consist of a unique IP address and a subnet mask. If the management card and the network devices (e.g., syslog server or TFTP server) are located on different networks, the configuration must also include a default gateway address. The default gateway address is the IP address of the router interface that represents the first hop to reaching the remote networks where the devices reside.

Since a management card with an IP address configuration is vulnerable to unauthorized access from an intruder with an SNMP program, you should change the card's SNMP community strings to protect the management card and the media converter line cards. If an intruder were to learn the IP address and the community strings of the management card, he could use an SNMP application program to gain access to the card, without having to know the password to the manager account.

The IP address configuration of the management card can be assigned manually or, since the management card has a DHCP client, by a DHCP server on your network.

To assign the management card an IP address configuration and to change the SNMP community strings:

1. From the Main Menu, select **Configuration**.
2. From the Configuration Menu, select **System Configuration**.
3. From the System Configuration Menu, select **System Parameters Configuration**.
4. From the System Parameters Configuration menu, select **IP Parameters** to display the IP Parameters Menu.
5. To manually assign an IP address configuration to the management card, enter values for the **IP address**, **Subnet mask**, and **Gateway address** parameters. When entering the values, observe the following guidelines:
   - ❒ The values have to be entered in this format: xxx.xxx.xxx.xxx.
   - ❒ The DHCP client has to be disabled.

- ❒ To delete a value without assigning a new value, enter 0.0.0.0.
- ❒ A default gateway address is needed if the management card will be communicating with a network device, like a TFTP server or a syslog server, located on a different subnet. The address, which has to be a member of the same subnet as the card's IP address, should identify the first hop to reaching the remote subnet.

6. To activate the DHCP client to assign the IP address from a DHCP server on the network, select **Enable DHCP**. Review the following guidelines before activating the DHCP client:

   - ❒ If you want to learn the management card's MAC address so that you can enter it on the DHCP server, refer to "Displaying the Operational Status of the Chassis" on page 148.
   - ❒ The 10/100Base-TX port on the management card has to be connected to a device on your network, such as a Fast Ethernet switch. The card communicates with your network through that port.
   - ❒ If the card already has a static IP address, the address is overwritten by the address from the DHCP server.
   - ❒ When you activate the client, the management card immediately transmits up to two queries to the DHCP server. If there is no response, the management card operates without an IP address.

7. To change the community strings, enter the new values in the **Get Community String**, **Set Community String**, and **Trap Community String** fields. Community strings are case sensitive and can have up to thirteen characters. Spaces and special characters are permitted.

8. Return to the Main Menu.

Setting the Date and Time

The management card adds the date and time to event messages and SNMP traps. You can set the date and time manually or you can configure the Network Time Protocol (NTP) client so that the card obtains this information from an NTP server on your network or the Internet. If you choose to use the NTP client, review "Accessing Your Network" on page 31 to learn the client's requirements.

Note
If you enter the date and time manually, you'll have to reenter it whenever the management card is reset or the chassis is powered off, because the card does not have an onboard battery to maintain the information. For this reason, the NTP client is the recommended method for setting the date and time.

To set the date and time:

1. From the Main Menu, select **Configuration**.
2. From the Configuration Menu, select **System Configuration**.
3. From the System Configuration Menu, select **System Parameters Configuration**.
4. From the System Parameters Configuration menu, select **System Clock Configurations**.
5. To set the date and time manually, do the following:
    a. In the System Clock Menu, select **System Date (mm/dd/yy)** and enter a new date in the format “mm/dd/yy” format. For example, April 5, 2008 would be 4/5/08.
    b. Select **System Time (hh:mm:ss)** and enter a new time in 24-hour, “hh:mm:ss” format. The seconds are optional. For example, 8:15 am would be 08:15.
6. To configure the NTP client, do the following:
    a. Select **NTP Server** and enter the IP address of the NTP server.
    b. Select the **NTP UTC Offset** field and enter the time difference, in hours, between the Universal Time Coordinated (UTC) and your local time. The range is between -12 and +12 hours. The default is 0 hours.
    c. To enable the client, select **Enable NTP**.
7. Return to the Main Menu.

Naming the Management Card

The management card will be easier to identify if you assign it a name. The name is displayed at the top of the menus in the management software. To assign a name to the management card:

1. From the Main Menu, select **Configuration**.
2. From the Configuration Menu, select **System Configuration**.
3. From the System Configuration Menu, select **System Parameters Configuration**.
4. Select **System Name** and enter a new name of up to 39 characters for the card. Spaces and special characters are permitted.
5. Return to the Main Menu. The new name does not appear in the menus until you return to the Main Menu.

Saving Your Changes

This completes the initial configuration of the management card. To save your changes in the permanent master configuration file in flash memory on the card:

1. From the Main Menu, select **Configuration**.
2. From the Configuration Menu, select **System Configuration**.
3. From the System Configuration menu, select **Save System Configuration**.

   The following message is displayed:

   ```
   Saving system configuration ... Please Wait
   ```

   After updating its master configuration file, the management card changes the message to:

   ```
   Saving system configuration ... Please Wait ... OK

   Press any key to continue...
   ```

4. Return to the Main Menu.

Configuring the AT-CM2, AT-CM3, and AT-CM70S Line Cards for the OAM-based Features

Are you planning to use any of these OAM-based features on the AT-CM Line Cards?

- Remote peer management
- Remote downloads of new management software
- Dying gasp
- OAM loopback tests
- OAM variable requests

If so, this procedure shows you how to configure the line cards. It explains how to set their operating modes to an OAM mode and how to verify the settings of the OAM clients.

This procedure has to be performed at a Converteon chassis that has the management card. Thus, those AT-CM Line Cards that you plan to deploy at remote sites must initially be installed and configured in a chassis that has a management card.

You can use either the menus or the web browser windows to configure the line cards. This procedure uses the menus.

This procedure is divided into the following tasks:

- “Setting the Operating Mode,” next
- “Configuring the OAM Settings” on page 93
- “Testing the OAM Settings” on page 95

Setting the Operating Mode

To set the operating mode on the AT-CM Line Card for the OAM-based features:

1. Install the AT-CM Line Card in a Converteon chassis that has the AT-CV5M02 Management Card and start a local management session or a remote Telnet management session on the chassis.

2. Wait one minute for the AT-CM Line Card to initialize its management software. The card’s Ready (RDY) LED turns on when it has finished initializing the software.

3. From the Main Menu select **Module Status and Configuration**.

4. In the OpMode column of the Module Status and Configuration Menu, examine the operating mode of the line card you want to configure. For the AT-CM2 and AT-CM70S Line Cards, the operating mode has to be the OAM Visible mode (OAM_V). For the AT-CM3 Line Cards, the operating mode can be any one of the following:

   - ❒ Link Test and OAM Visible mode (OAM_LT)
   - ❒ MissingLink and OAM Visible mode (OAM_ML)
   - ❒ Smart MissingLink and OAM Visible mode (OAM_SML)

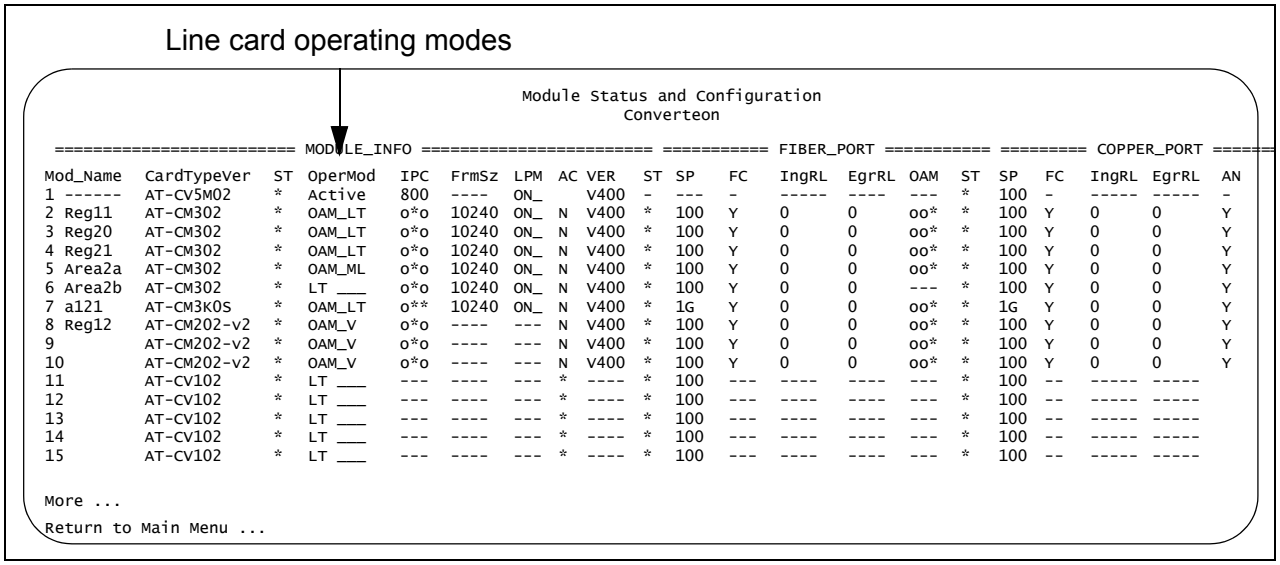


Figure 24. Module Status and Configuration Menu

For information about the Module Status and Configuration Menu, refer to "Displaying the Status of the Line Cards" on page 158.)

5. If you are configuring an AT-CM2 or AT-CM70S Line Card and want to use the OAM-based dying gasp feature, examine the card's model name in the CardTypeVer column. To support dying gasp, the card must have the suffix "v2" or "v3", designating it as a newer version of the card. If the model name does not have a suffix, the AT-CM2 or AT-CM70S Line Card supports all of the OAM-based features, but not dying gasp. (This restriction does not apply to the AT-CM3 Line Cards.)

   Note
   If the line card is already set to the desired OAM mode, go to "Configuring the OAM Settings" on page 93. Otherwise, continue to the next step to configure the card's operating mode.

6. Select the AT-CM2, AT-CM3, or AT-CM70S Line Card you want to configure and press Return to display the Module Configuration Menu for the card.

7. Select **Configure Operating Mode** to display the Operating Mode Configuration Menu for the line card.

   Note
   If you are configuring an AT-CM2 or AT-CM70S Line Card, go to step 9.

8. From the Operating Mode Configuration Menu, select **Line Card Management Mode** to display the Configure Operating Mode via Management Card menu, which lists the available operating modes of the card.

9. From the menu, do one of the following:

   - To configure an AT-CM2 or AT-CM70S Line Card, select **OAM Visible Mode**. (The OAM Bypass mode doesn't support the OAM-based features.)
   - To configure an AT-CM3 Line Card, select one of the following:
     - **OAM_Link Test** (Link Test and OAM Visible mode)
     - **OAM_MissingLink** (MissingLink and OAM Visible mode)
     - **OAM_Smart MissingLink** (Smart MissingLink and OAM Visible mode)

   This confirmation prompt is displayed:

   ```
   Warning: Changing the Operation Mode will reset the line
   card.
   Change Operation Mode now? (Yes or No):
   ```

10. Type **Y** to continue or **N** to cancel the procedure. This prompt is displayed:

    ```
    If auto-copy is enable, operation mode change need to be
    saved to take affect.
    Save line card configuration before rebooting? (Yes or
    No):
    ```

11. Type **Y** for yes to update the master configuration file on the management card with the new setting for the card's operating mode. This step is especially important if the auto-copy feature is activated on the card's slot. If the card's operating mode isn't saved in the master configuration file, the new setting will not take affect because the card, after it resets, will revert to its previous operating mode. Since this is the initial configuration, you probably don't know the auto-copy setting for the slot. But respond with Yes anyway. In fact, there is little

likelihood you will ever respond with No to this prompt. (This step isn't applicable to the AT-CM70S Line Card because it doesn't support the auto-copy feature.)

The operating mode on the line card is changed to OAM visible and the card resets.

12. Wait one minute for the line card to initialize its management software and for the RDY LED to turn on. Then go to the next procedure.

Configuring the OAM Settings

To configure the OAM settings:

1. From the Main Menu, select **Module Status and Configuration Menu**:
2. Select the line card you want to configure.
3. From the line card's Module Configuration Menu, select **Port A**, the fiber optic port, to display the Port Management Menu.
4. Select **OAM Configurations** to display the OAM Configuration menu. (If the OAM Configurations selection is not included in the menu, you need to set the line card to an OAM mode. Return to the Main Menu and repeat the procedure "Setting the Operating Mode" on page 90, starting with step 4.)
5. Select **OAM Configuration** to display the OAM Configuration submenu.
6. In the OAM Configuration menu, check the Admin State parameter. It must be Enabled. If it is set to Disabled, select **Admin State** and press Return to toggle the parameter to **Enabled**.
7. Check the Mode parameter. It has to be set to Active. If it is set to Passive, highlight **Mode** and press Return to toggle the parameter to **Active**.
8. If the line card will be installed at a remote site and you want it to support the OAM loopback test, verify that the Loopback Support parameter is set to Yes. If it is set to No, highlight **Loopback Support** and press Return to toggle the parameter to **Yes**. This parameter has to be set to Yes only if the line card will be returning test packets from remote sites. This parameter can be set to Yes or No if the line card will be generating the test packets.

Note
The Link Event Support and the Variable Retrieval Support parameters can be ignored. For information on all of the OAM parameters, refer to "Configuring the OAM Client" on page 254.

9. The line card is now configured for the OAM-based features. If there are no other parameters you want to configure, such as port speed or the card's name, and if the card will be deployed at a remote site in an unmanaged chassis, you can remove it from the chassis. Entering a save command is unnecessary because the card automatically saves your changes in its configuration file.

   If, however, the line card will remain in the chassis with the management card, you should add the card's configuration to the master configuration file on the management card. To accomplish this, do the following:

   a. Return to the card's Module Configuration Menu.

   b. Select **Line Card Configuration**.

   c. From the Line Card Configuration menu, select **Save Line Card Configuration** to add the card's configuration to the master configuration file. For further information, refer to "Configuration Files" on page 32.

10. Return to the Main Menu.

    The line card is now configured for the OAM-based features. If there are other AT-CM Line Cards you want to support the features, repeat this procedure starting with "Setting the Operating Mode" on page 90.

    If you have a large number of AT-CM Line Cards to configure, you can speed up the process with the auto-copy feature. To use the feature, you configure one line card with the necessary settings and then activate the auto-copy feature on the slot. Line cards subsequently installed in the same slot will be assigned the same settings, automatically.

    For the auto-copy feature to work, the line cards have to be of the same model. For instance, if you were to install the AT-CM302 Line Card in a slot that had been configured for the AT-CM202 Line Card, the new card would reject the configuration from the management card and would instead use the parameter settings in its own configuration file. For background information, refer to "Configuration Files" on page 32.

    To use the auto-copy feature to configure multiple AT-CM Line Cards with the same settings, perform these additional steps:

1. After configuring the parameter settings for the OAM client on the line card, return to the card's Module Configuration Menu.

2. Select **Line Card Configuration.**

3. From the Line Card Configuration menu, select **Auto-copy Line Card Configuration**.

4. From the Display Current Configuration menu, select **Auto-copy Enable**. (Although the setting of the auto-copy feature is set in a card's Module Configuration Menu, it applies to the slot. The setting is not transferred if the line card is installed in a different slot or chassis.)

5. Return to the line card's Module Configuration Menu.

6. To configure other parameters on the line card, refer to Chapter 6, "Configuring the Media Converter Line Cards" on page 157.

7. Return to the card's Module Configuration Menu and select **Line Card Configuration**.

8. From the Line Card Configuration menu, select **Save Line Card Configuration**.

9. You can now remove the line card from the slot.

10. To assign the same configuration to another AT-CM Line Card, install the card in the same slot and wait a full minute for the line card to initialize its management software and to receive its parameter settings from the management card. Afterwards, remove the card. Repeat this step to assign the same settings to other AT-CM Line Cards.

Testing the OAM Settings

The following procedure shows you a quick and easy way to test the OAM-based settings on the line cards. The test consists of connecting the fiber optic ports on two identical AT-CM Line Cards, such as two AT-CM302 Cards, and checking to see whether the cards can establish a remote peer connection to each other. If they can, then their OAM settings are correct.

To test the OAM settings of two identical AT-CM Line Cards:

1. Install one of the line cards in a Converteon chassis that has the AT-CV5M02 Management Card.

2. Install the second line card in a different Converteon chassis. (If you want to test the dying gasp feature, the enclosures have to be the AT-CV5000 Chassis and the AT-CV1203 Chassis.)

3. If the enclosures are not powered on, power them on now.

4. Connect a fiber optic cable between the fiber optic ports on the two line cards.

5. If you are testing AT-CM3 Line Cards and one or both of the cards are set to the MissingLink and OAM Visible mode or the Smart MissingLink and OAM Visible mode, you have to connect their twisted pair ports to live network equipment. Otherwise, the fiber optic ports will not establish a connection with each other. If the enclosures are close to each other you can, for the purposes of this test, connect the twisted

pair ports of the two cards together. This requirement does not apply to the OAM Visible mode for the AT-CM2 and AT-CM70S Line Cards, or to the Link Test and OAM Visible mode for the AT-CM3 Line Cards.

6. Start a local management session on the management card. For directions, refer to “Starting a Local Management Session” on page 72.

7. From the Main Menu, select **Remote Module Status and Configuration**. An example of the menu is shown in Figure 91 on page 218. If the local line card in the chassis with the management card has established a remote peer connection to the other line card, the second card appears as an entry in this menu. This would indicate that the OAM clients on the two line cards were configured correctly.

   Note
   The AT-CM Line Cards have to be in the OAM operational state to support the OAM-based features. The cards, when powered on or reset, may take up to two minutes to achieve this state because they have to initialize their management software and negotiate the OAM states with their local or remote counterpart.

   If the remote line card does not appear in the menu, wait one to two minutes to give the line cards time to initialize their management software and negotiate their OAM states, and then try the following:

   a. Return to the Main Menu and select **Module Status and Configuration**.

   b. Examine the three characters in the OAM column for the fiber optic port of the line card you are testing. This column displays information about the status of the OAM client on the card. The third character in the OAM column should be an asterisk, indicating that the OAM client on the card is operational and that it has established a connection to the OAM client on the other line card.

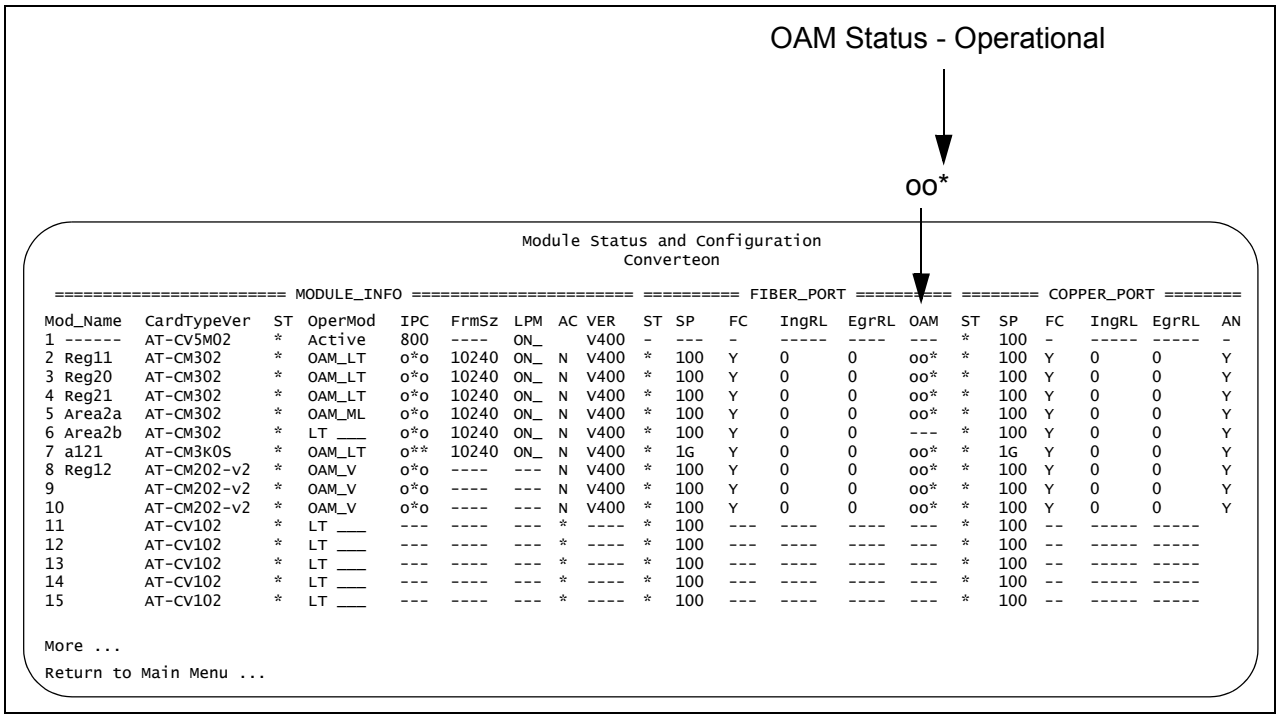


Figure 25. Viewing the OAM Client Status

If the third character is a "o", the fiber optic port has not established a connection to the port on the other line card. Try the following:

- ❒ Check that the fiber optic cable is firmly connected to the ports on the two cards.
- ❒ Check that the other Converteon chassis is powered on and that the line card is fully inserted in the slot in the enclosure.
- ❒ If the cards are AT-CM3 Line Cards set to the MissingLink and OAM mode or the Smart MissingLink and OAM mode, check to be sure that their twisted pair ports are connected to live network equipment.

If the third character is a letter, such as an "L" or "P", the fiber optic port has established a link with the other line card and the OAM client is attempting to negotiate with the other client. If the character does not transition to an asterisk, it probably means that the OAM settings on one or both of the cards is incorrect. To verify their settings, repeat the procedures "Setting the Operating Mode" on page 90 and "Configuring the OAM Settings" on page 93.

8. To test the dying gasp feature, do the following:

   a. Power off the AT-CV1203 Chassis. If the chassis has two power supplies, disconnect one of the supplies, wait a second or two and power off the second supply.

b. From the Main Menu, select **Administration**.

c. From the Administration Menu, select **Event Log** and **Display Event Log**. If the AT-CV1203 Chassis has just one power supply or if it has two power supplies but not a management card, you should see this message in the event log:

   `Dying Gasp has occurred on remote linecard` *`number`*`.`

   Number is the slot number of the line card in the AT-CV5000 Chassis that received the dying gasp signal from its remote counterpart line card in the AT-CV1203 Chassis.

   If the remote AT-CV1203 Chassis has two power supplies and the AT-CV5M02 Management Card, the event log should also contain this message, logged when the first power supply on the remote chassis lost power.

   `CV1203 RPS Failure on Remote Line Card` *`number`*

   The *number* variable performs the same function in this message as it does in the previous message, indicating the slot number of the line card that received the signal in the AT-CV5000 Chassis.

Chapter 5

Configuring the AT-CV5M02 Management Card

This chapter has the following sections:

- “Assigning an IP Address Configuration” on page 100
- “Assigning a Name” on page 104
- “Assigning Contact and Location Information” on page 106
- “Configuring the SNMP Community Strings” on page 108
- “Specifying the IP Addresses of the SNMP Trap Receivers” on page 110
- “Configuring the Management Security” on page 111
- “Enabling or Disabling the Web Server” on page 114
- “Manually Setting the Date and Time” on page 115
- “Configuring the Network Time Protocol Client” on page 117
- “Resetting the Management Card” on page 119
- “Viewing the Event Log” on page 122
- “Viewing the Activity Monitor” on page 130
- “Configuring the Syslog Client” on page 131
- “Configuring the 10/100Base-TX Port” on page 133
- “Restoring the Default Setting on the 10/100Base-TX Port” on page 138
- “Restoring the Default Values on the AT-CV5M02 Management Card” on page 140
- “Configuring the Temperature Threshold” on page 142
- “Activating a Standby AT-CV5M02 Management Card” on page 144
- “Setting the Baud Rate of the Console Port” on page 146
- “Displaying the Operational Status of the Chassis” on page 148
- “Pinging Network Devices” on page 152
- “Displaying the Inter-process Communication Monitor” on page 153
- “Displaying Information about the Management Card” on page 155

Assigning an IP Address Configuration

This section explains how to assign an IP address, subnet mask and default gateway to the management card. A management card can have only one IP address configuration, which can be assigned manually or by a DHCP server on your network. For background information, refer to “IP Address Configuration” on page 23.

You have to use the menus from a local management session or a Telnet management session to change the IP address configuration. The web browser windows allow you to view, but not change, this information.

Changing the IP address configuration of the management card from a Telnet client ends your management session. To resume managing the card, you have to start a new management session.

Menus

To assign an IP address configuration to the card from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26.

```
                    Configuration Menu

System Configuration

All Line Cards Configurations

Configuration File Upload/Download with TFTP

Return to Main Menu ...
```

Figure 26. Configuration Menu

2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27.

```
                System Configuration Menu

System Parameters Configuration

Save System Configuration

Return System Configuration to Default

Return to Configuration ...
```

Figure 27. System Configuration Menu

3. Select **System Parameters Configuration** to display the menu in Figure 28.

```
          System Parameters Configuration Menu

System Name
Omega Options
Terminal Configuration
Web Server Configuration
Temperature Threshold Configuration

IP Parameters
System Clock Configuration
TFTP Image Download Configuration
TFTP File Upload Download Configuration

SNMPv3 Configurations

Return to System Configuration Menu...
```

Figure 28. System Parameters Configuration Menu

4. From the System Configuration Menu, select **IP Parameters** to display the menu in Figure 29.

```
                  IP Parameters Menu
                      Converteon

  IP address:               10.0.0.1
  Subnet mask:              255.255.252.0
  Gateway address:          0.0.0.0

  Manager address:          0.0.0.0
  Manager address:          0.0.0.0
  Manager address:          0.0.0.0
  Manager address:          0.0.0.0

  Get community string:     public
  Set community string:     private
  Trap community string:    public

  Location:                 California USA
  Contact:                  Allied Telesis

> Disable DHCP
  Enable DHCP

  Return to System Parameters Configuration Menu...
```

Figure 29. IP Parameters Menu

5. To assign a static IP address configuration to the card, enter the values in the **IP address**, **Subnet mask**, and **Gateway address** fields. Here are the guidelines for assigning a static IP address configuration:

   - The values have to be entered in this format: xxx.xxx.xxx.xxx.
   - The DHCP client has to be disabled.
   - To delete a value without assigning a new value, enter 0.0.0.0.
   - The IP address configuration has to include a default gateway address if the management card will be communicating with network devices, like a TFTP server or syslog server, that are located on a different subnet. This address should specify the first hop to reaching the remote subnet. It has to be a member of the same subnet as the card's IP address.
   - The default values are 10.0.0.1 for the IP address, 255.255.255.0 for the subnet mask, and 0.0.0.0 for the default gateway address.

6. If you want the card to obtain its IP address from a DHCP server on the network, select **Enable DHCP** to activate the DHCP client. Or, to deactivate the client to assign the IP address manually, select **Disable DHCP**. The default setting for the client is disabled. Here are the guidelines to the DHCP client:

   - The 10/100Base-TX port on the AT-CV5M02 Management Card has to be connected to a network device, such as a Fast Ethernet switch, because the card transmits the DHCP requests from that port.
   - If the card already has a static IP address, the address is overwritten by the address from the DHCP server.
   - When the client is activated the management card issues two requests to the DHCP server. If there is no response from the server, the management card operates without an IP address configuration.
   - If you want to learn the MAC address of the management card to enter on the DHCP server, refer to "Displaying the Operational Status of the Chassis" on page 148. The management card does not have a MAC address. Instead, it adopts the MAC address of the backplane of the chassis as its MAC address to communicate with your network.

7. To save your changes in the master configuration file, return to the System Configuration Menu and select **Save System Configurations**.

Web Browser

To view the IP address configuration of the management card from the web browser windows:

> **Note**
> You cannot use the web browser windows to change the IP address configuration of the management card. To change that information, you have to use the menus from either a local management session or a remote Telnet management session.

1. Select **Configuration** from the menu bar.
2. If the **System** tab is not selected, select it. The System tab is shown in Figure 30.

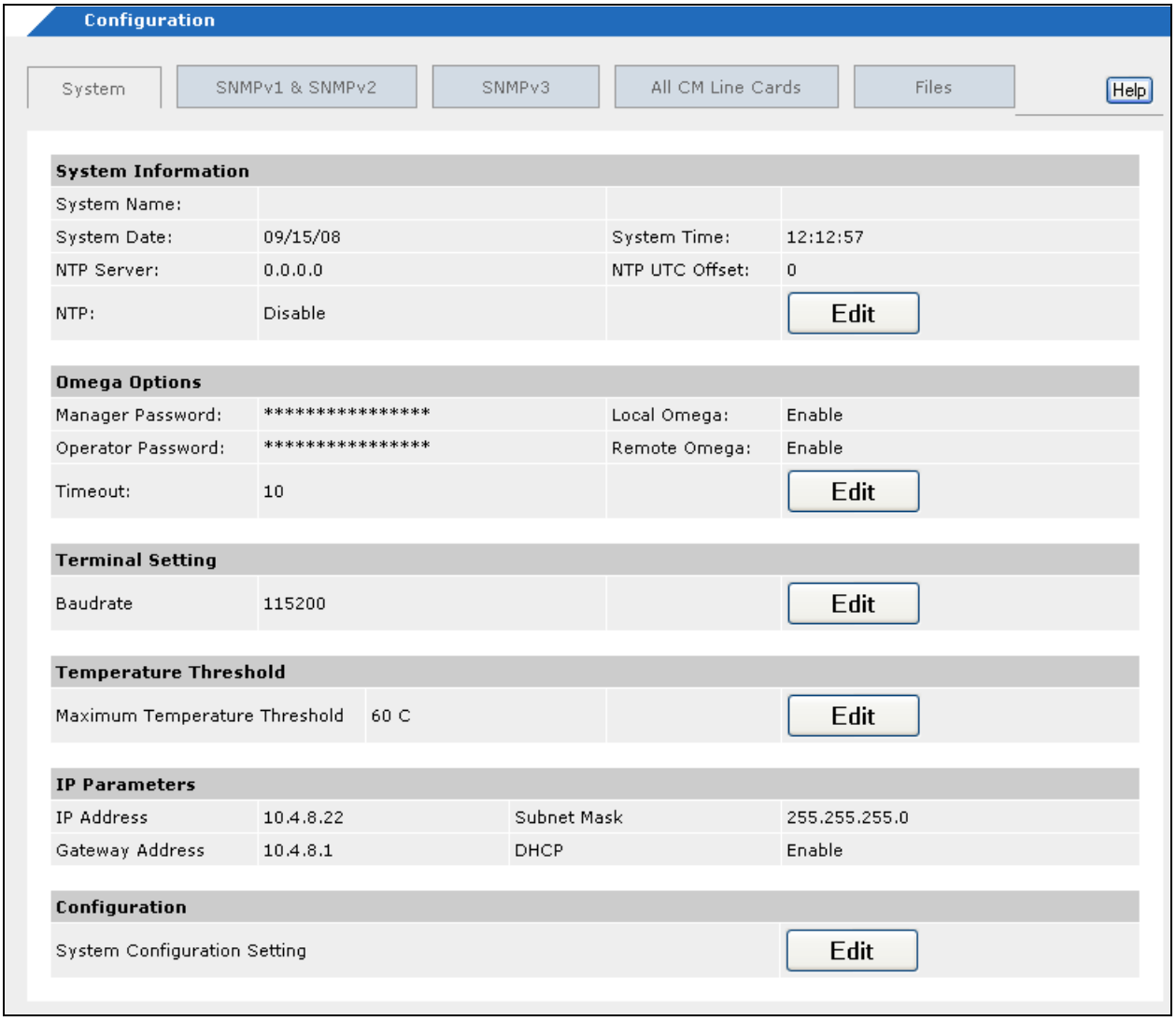


Figure 30. System Tab

The IP Parameters section of the window displays the IP address configuration of the management card.

Assigning a Name

You can assign a name to the management card to make the card and the chassis easier to identify. The name is displayed at the top of the menus of the management software during your local management sessions and remote Telnet sessions. (The web browser windows do not display the name.)

Menus

You can assign a name to the management card from the System Configuration Menu or the Omega Options Menu. This procedure uses the System Configuration Menu. To assign a name to the management card from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. Select **System Name** and enter a new name of up to 40 characters for the card. Spaces and special characters are permitted. To delete the current name without entering a new name, press the space bar once.
5. To save your changes in the master configuration file, return to the System Configuration Menu and select **Save System Configuration**.

   The new name for the management card doesn't start to appear in the menus until you return to the Main Menu.

Web Browser

To assign a name to the management card from the web browser windows:

1. Select **Configuration** from the menu bar.
2. If the **System** tab is not selected, select it. The System tab is shown in Figure 30 on page 103.
3. Click the **Edit** button in the System Information section of the tab.
4. In the pop-up window, select the **System Name** field and enter a new name for the card of up to 40 characters. Spaces and special characters are permitted. To delete the current name without entering a new name, press the space bar once.
5. Click the **Update** button.

6. To save your changes in the master configuration file, click the **Edit** button in the Configuration section of the window and select the **Save System Configuration** option.

Assigning Contact and Location Information

Menus

To enter the chassis' location and the name of the network manager responsible for managing the chassis:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. Select **IP Parameters** to display the menu in Figure 29 on page 101.
5. To enter the location of the chassis, select **Location**. The location can be up to 20 alphanumeric characters. Spaces and special characters are permitted. To delete the current location without entering a new location, press the space bar once.
6. To enter the name, phone number, or other information that identifies the person responsible for managing the system, select **Contact** and enter a value of up to 20 alphanumeric characters. Spaces and special characters are permitted. To delete the current location without entering a new location, press the space bar once.
7. To save your changes in the master configuration file, return to the System Configuration Menu and select **Save System Configurations**.

Web Browser

To enter the contact and location information from the web browser windows:

1. Select **Configuration** from the left menu bar.
2. Select the **SNMPv1 & SNMPv2c** tab. The SNMPv1 & SNMPv2c tab is shown in Figure 31.

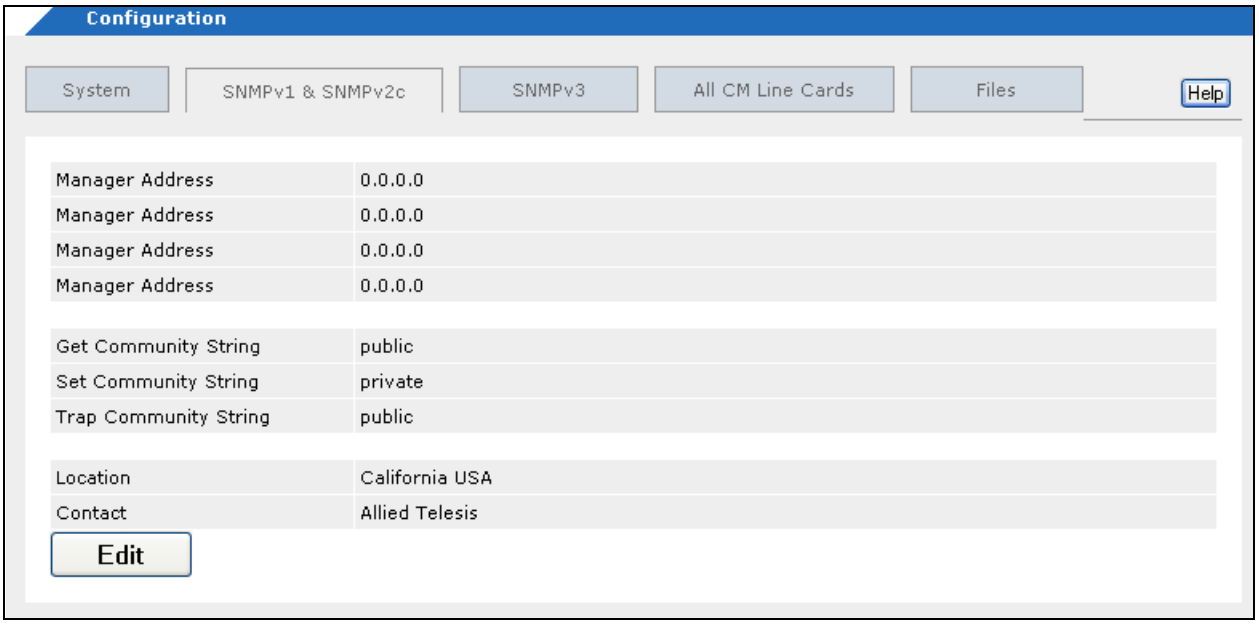


Figure 31. SNMPv1 & SNMPv2c Tab

3. To change the contact and location information, click the **Edit** button to display a pop-up window.

4. To enter the location of the chassis, select the **Location** field and enter a new location of up to 20 alphanumeric characters. Spaces and special characters are permitted. To delete the current location without entering a new location, press the space bar once.

5. To enter the name, phone number, or other information that identifies the person responsible for managing the system, select the **Contact** field and enter a value of up to 20 alphanumeric characters. Spaces and special characters are permitted. To delete the current location without entering a new location, press the space bar once.

6. Click the **Update** button to close the pop-up window.

7. To save your changes in the master configuration file, refer to "Saving Your Configuration Changes" on page 78.

Configuring the SNMP Community Strings

The procedures in this section are used to set the three SNMP community strings Get, Set, and Trap on the management card. The strings are used to manage the media converter with an SNMP application and for trap verification. To protect the card from unauthorized access, you should change the community strings even if you do not plan to employ an SNMP application. Anyone who learns the device's IP address and community strings can alter its settings with an SNMP program, without having to know the manager account password.

Menus

To change the SNMP community strings from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. Select **IP Parameters** to display the menu in Figure 29 on page 101.
5. Enter the new community strings in the **Get Community String**, **Set Community String**, and **Trap Community String** fields. A community string can have up to thirteen characters. Spaces and special characters are permitted. Community strings are case sensitive.
6. To save your changes in the master configuration file, return to the System Configuration Menu and select **Save System Configurations**.

Web Browser

To change the SNMP community strings from the web browser windows:

1. Select **Configuration** from the menu bar.
2. Select the **SNMPv1 & SNMPv2c** tab. The SNMPv1 & SNMPv2c tab is shown in Figure 31 on page 107.
3. To change the community strings, click the **Edit** button to display a pop-up window.
4. Enter the new community strings in the **Get Community String**, **Set Community String**, and **Trap Community String** fields. A community string can have up to thirteen characters. Spaces and special characters are permitted. Community strings are case sensitive.
5. Click the **Update** button.

6. To save your changes in the master configuration file, refer to "Saving Your Configuration Changes" on page 78.

Specifying the IP Addresses of the SNMP Trap Receivers

The management card can send SNMP traps to up to four trap receivers on your network. The traps alert you to significant events in the operations of the Converteon chassis, like the removal of line cards, the failure of a cooling fan, or the loss of a link on a port on a media converter line card. The requirements for this feature are described in “Accessing Your Network” on page 31.

Menus

To specify the IP addresses of SNMP trap receivers from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. Select **IP Parameters** to display the menu in Figure 29 on page 101.
5. In the **Manager Address** fields enter the IP addresses of the trap receivers. To remove an IP address, enter 0.0.0.0.
6. To save your changes in the master configuration file, return to the System Configuration Menu and select **Save System Configurations**.

Web Browser

To specify the IP addresses of SNMP trap receivers from the web browser windows:

1. Select **Configuration** from the left menu bar.
2. Select the **SNMPv1 & SNMPv2c** tab. The SNMPv1 & SNMPv2c tab is shown in Figure 31 on page 107.
3. To change the addresses of the SNMP trap receivers, click the **Edit** button to display a pop-up window.
4. In the **Manager Address** fields enter the IP addresses of up to four trap receivers.
5. Click the **Update** button.
6. To save your changes in the master configuration file, refer to “Saving Your Configuration Changes” on page 78.

Configuring the Management Security

The AT-S99 Management Software on the AT-CV5M02 Management Card has several security features that protect the card from unauthorized access. There are manager and operator passwords and a console time-out feature that automatically ends inactive management sessions. Additionally, there are controls for enabling or disabling local or remote access to the management card.

Menus

To configure the security features from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. Select **Omega Options** to display the menu in Figure 32.

```
                Omega Options Menu


  System Name:

  Manager Password:           ****************
  Operator Password:          ****************

  Timeout:                    10

> Local Omega Enabled
  Disable Local Omega

> Remote Omega Enabled
  No Remote Omega

  Return to System Parameters Configuration Menu...
```

Figure 32. Omega Options Menu

5. Configure the parameters as needed. The options are described in Table 11.

Table 11. Omega Options Menu

Parameter	Description
System Name	This parameter assigns a name to the management card. The name can have up to 40 characters. Spaces and special characters are permitted. To delete an existing name without entering a new name, press the space bar once.
Manager Password Operator Password	These parameters are used to set the manager and operator passwords. Passwords can have 0 to 16 alphanumeric characters of the letters A to Z in uppercase and lowercase, as well as the numbers 1 to 9. Passwords are case-sensitive and should not contain special characters, such as spaces, asterisks (*), or exclamation points (!). The default passwords are “friend” for the manager account and “operator” for the operator account. The password is displayed as a series of asterisks. To delete the current password without assigning a new password, enter a space in the password field.
Timeout	This parameter is used to set the console timer, which controls the amount of time in minutes the management software waits before it automatically ends an inactive local or remote management session. The management software automatically logs off a management session if there is no management activity for the duration of the timer. This security feature can prevent unauthorized individuals from using your management station to alter the configuration settings of the media converter chassis should you step away from your system during a management session. The console timer has a range of 0 to 60 minutes. The default value is 10 minutes. A value of 0 (zero) disables the console timer so that inactive management sessions are never timed out. This value should be used with caution. If you disable the console timer, you must remember to always log off after your local and remote management sessions of the media converter. Otherwise. future management sessions may be blocked.

Table 11. Omega Options Menu

Parameter	Description
Local Omega Enabled Disable Local Omega	These parameters are used to enable or disable the Console port on the management card. When the Console port is disabled, local management of the chassis through the RS-232 Console port is prohibited. The default setting for the Console port is enabled. If you disable local management during a local management session, your current session is not interrupted. However, the card will not allow you to establish any new local management sessions. When disabled, the Console port still displays bootup information when the card is powered on.
Remote Omega Enabled No Remote Omega	These parameters are used to enable and disable the Telnet server on the management card. The default setting is enabled. When this option is set to disabled, you cannot manage the chassis from a remote Telnet client. **Note** To set the web browser server, refer to "Enabling or Disabling the Web Server" on page 114.

6. To save your changes in the master configuration file, return to the System Configuration Menu and select **Save System Configurations**.

Web Browser

To configure the security features of the management software from the web browser windows:

1. Select **Configuration** from the left menu bar.
2. If the **System** tab is not selected, select it. The System tab is shown in Figure 30 on page 103.
3. To configure the security features, click the **Edit** button in the Omega Options section of the tab to display a pop-up window.
4. Configure the parameters as needed. The options are defined in Table 11, "Omega Options Menu" on page 112.
5. Click the **Update** button.
6. To save your changes in the master configuration file, click the **Edit** button in the Configuration section of the window and select the **Save System Configuration** option.

Enabling or Disabling the Web Server

The web server on the AT-CV5M02 Management Module allows you to use a web browser on a remote workstation on your network to manage the module and the chassis. If you do not intend to use a web browser to manage the device, disabling the server will increase the security of the unit from unauthorized access.

Menus

To set the web server from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. Select **Web Server Configuration** to display the menu in Figure 33.

```
            Web Server Configuration Menu


  Disable Web Server
> Enable Web Server

  Return to System Parameters Configuration Menu...
```

Figure 33. Web Server Configuration Menu

5. To activate the web server to remotely manage the module with a web browser, select **Enable Web Server**. This is the default setting. To deactivate the server to prohibit this type of management, select **Disable Web Server**.
6. To save your change in the master configuration file, return to the System Configuration Menu and select **Save System Configurations**.

Web Browser

You cannot disable the web browser server from a web browser management session.

Manually Setting the Date and Time

To manually set the date and time on the management card, perform the procedures in this section. The date and time are added to event messages and SNMP traps.

Note
When the date and time are set manually, they are not retained when the chassis or management card is reset or powered off.

Menus

To manually set the management card's date and time from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. From the System Parameters Configuration Menu, select **System Clock Configuration** to display the menu in Figure 34.

```
                    System Clock Menu

   System Date (mm/dd/yy)      00/00/00
   System Time (hh:mm:ss)      00:17:00

   NTP Server:                 0.0.0.0
   NTP UTC Offset              0

>  Disable NTP
   Enable NTP

 Return to System Parameters Configuration Menu ...
```

Figure 34. System Clock Menu

5. To set the date, select **System Date (mm/dd/yy)** and enter a new value in the format "mm/dd/yy" format. For example, here is April 5, 2008: 4/5/08.
6. To set the system time, select **System Time (hh:mm:ss)** and enter a new value in 24-hour, "hh:mm:ss" format. The seconds are optional. Each part requires two digits. For example, 8:15 a.m. would be 8:15.

Web Browser

To manually set the date and time from the web browser windows:

1. Select **Configuration** from the menu bar.
2. If the **System** tab is not selected, select it. The System tab is shown in Figure 30 on page 103.
3. To manually set the date and time, click the **Edit** button in the System Information section of the tab.
4. In the pop-up window, select **System Date** and enter the date in the format “mm/dd/yy” format. For example, here is April 5, 2008: 04/05/08.
5. Select **System Time** and enter the time in 24-hour, “hh:mm:ss” format. For example, 8:15 am would be 8:15:00.
6. Click the **Update** button.

Configuring the Network Time Protocol Client

The AT-CV5M02 Management Card has an NTP client for setting the date and time from a Network Time Protocol (NTP) server on your network or the Internet. The date and time are added to event messages and SNMP traps. Refer to "Accessing Your Network" on page 31 for the NTP client requirements.

Menus

To configure the NTP client from the menus:

1. From the Main Menu, select **Configuration**. The Configuration menu is shown in Figure 26 on page 100.
2. From the Configuration menu, select **System Configuration**.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. From the System Configuration Menu, select **System Clock Configuration** to display the menu in Figure 34 on page 115.
5. Select the **NTP Server** field and enter the IP address of the NTP server.
6. Select the **NTP UTC Offset** field and enter the time difference, in hours, between the Universal Time Coordinated (UTC) and your local time. The range is between -12 and +12 hours. The default is 0 hours.
7. To enable the client, select **Enable NTP**.
8. To save your changes in the master configuration file, return to the System Configuration Menu and select **Save System Configurations**.

Web Browser

To configure the NTP client from the web browser windows:

1. Select **Configuration** from the menu bar.
2. If the **System** tab is not selected, select it. The System tab is shown in Figure 30 on page 103.
3. in the System Information section, click the **Edit** button.
4. Select the **NTP Server** field in the pop-up window and enter the IP address of the NTP server.
5. Select the **NTP UTC Offset** field and enter the time difference, in hours, between the Universal Time Coordinated (UTC) and your local time. The range is between -12 and +12 hours. The default is 0 hours.

6. Select **Enable** from the NTP pull-down menu to activate the client. Or, to disable the client, select **Disable**.

7. Click the **Update** button.

8. To save your changes in the master configuration file, click the **Edit** button in the Configuration section of the window and select the **Save System Configuration** option.

Resetting the Management Card

This procedure is used to reset the management card in the chassis. You might reset the card if it is experiencing a problem. You can also reset the card using the CPU Reset button on the card's front panel.

Review the following information before resetting the management card:

- In most situations, resetting the management card will not affect the network operations of the media converter line cards in the chassis. However, if you changed but did not save the parameter settings of a media converter line card in a slot where the auto-copy feature is enabled, the line card will revert to its previous settings after the management card resets. This may affect the operations of the line card, resulting in the loss of some network traffic.
- Any changes you've made to the parameter settings of the management card but not saved in the master configuration file are discarded when the card is reset. To save the parameter settings, return to the Main Menu and select **Configuration** and **Save System Confirmation** or **Save System and All Line Card Confirmations**.
- Resetting the management card ends your management session. To continue managing the chassis, wait approximately one minute for the management card to initialize its management software and afterwards start a new management session.
- If the chassis has two AT-CV5M02 Management Cards, resetting the active card activates the standby management card. To resume managing the chassis, wait twenty seconds for the standby card to transition to the active state and then start a new management session. For more information, refer to "Active and Standby Management Cards" on page 28.

Menus

To reset the AT-CV5M02 Management Card from the menus:

1. From the Main Menu, select **Module Status and Configuration**. For the description and an example of the Module Status and Configuration window, refer to "Displaying the Status of the Line Cards" on page 158.

2. Select the AT-CV5M02 Management Card. If the chassis has two management cards, select the active card. This displays the Module Configuration Menu in Figure 35.

```
                Module Configuration Menu

                        Module 1


Module: AT-CV5M02

Port                Link        Speed       Mode
A(100BaseTx)        Online      100M        Full

Module name

Reset Management and Restart System Software

Return Management Card Port Configuration to Default

Return to Module Status and Configuration Menu...
```

Figure 35. Module Configuration Menu (Management Card)

3. Select **Reset Management and Restart System Software**.

4. At the confirmation prompt, select **Yes** to reset the card or **No** to cancel the procedure.

5. To resume managing the chassis, wait approximately one minute for the management card to initialize its management software and then start a new management session.

Web Browser

To reset the AT-CV5M02 Management Card from the web browser windows:

1. Select **Module Status and Configuration** from the menu bar.

2. From the Chassis View, click the 10/100Base-TX port on the AT-CV5M02 Management Card. Alternatively, select the Menu View and click the model name of the management card.

3. Click the **General** tab, shown in Figure 36.

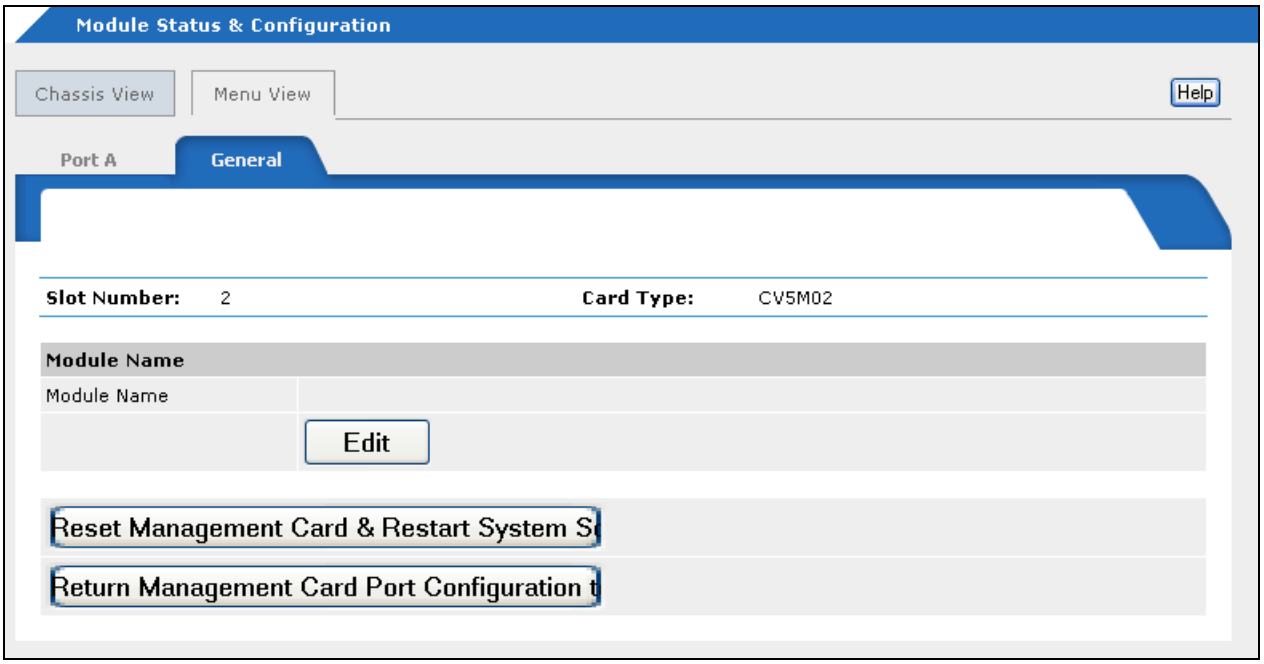


Figure 36. General Tab

4. Click **Reset Management Card and Restart System Software**.

5. At the confirmation prompt, click **OK** to reset the management card or **Cancel** to cancel the procedure.

6. To resume managing the chassis, wait one minute for the management card to initialize its management software and then start a new management session.

Viewing the Event Log

For background information, refer to “Event Log” on page 24.

Menus

To display the event log from the menus:

1. From the Main Menu, select **Administration**. The Administration Menu is shown in Figure 37.

```
                Administration Menu
                     Converteon

   Ping a Remote System
   Syslog Server Address:    Null (not configured)
   Syslog Facility Code:     1
   Event Log
   Activity Monitor
   Start Activity Monitor
>  Stop Activity Monitor

   Return to Main Menu...
```

Figure 37. Administration Menu

2. From the Administration Menu, select **Event Log** to display the Event Log Menu window shown in Figure 38.

```
                    Event Log Menu
                      Converteon

Display Event Log

Clear Event Log

Return to Administration Menu ...
```

Figure 38. Event Log Menu

3. From the Event Log Menu, select **Display Event Log**. An example of the event log is shown in Figure 39. The messages are displayed from oldest to newest.

```
                                Converteon
                                 Event Log


Total Events: 8. Displaying: 1 to 4

Date     Time               ModuleName        Message
-------------------------------------------------------------------

10/12/08 11:32:02: REPORT:  Region21    Line Card 2 Port 1 Online
10/12/08 11:32:05: REPORT:  Region21    Line Card 2 Port 2 Online
10/12/08 11:32:10: REPORT:  Region22    Line Card 3 Port 1 Online
10/12/08 11:32:15: REPORT:  Region22    Line Card 3 Port 2 Online


N - Next Page, P - Previous Page, F - First Page, L - Last Page, R - Return
```

Figure 39. Event Log

The columns in the event log are described in Table 12.

Table 12. Event Log Format

Column	Definition
Date	This column displays the dates of the events.
Time	This column displays the times of the events.
(Classification)	This unlabeled column displays the classifications of the events. An event's classification can be REPORT or CLEAR. A report signals an event's occurrence while a clear signifies the resolution of a prior event. For example, if a chassis' operating temperature exceeds the temperature threshold, the management module marks the event's occurrence by entering a "High Temperature Threshold" event in the log with a classification of report. After the temperature returns below the threshold, the management card logs the same event message with a clear classification. All of the messages are reports, but only a few can also be clear signals.
ModuleName	This column displays the names of the line cards that generated the event messages.
Message	This column displays the event messages. The messages are described in Table 13.

Table 13 lists the general event messages. For the event messages related to SFP modules in the AT-CM3K0S Line Card, refer to Table 14 on page 127.

Table 13. General Event Messages

Message	Chassis	Classi-fication	Definition
Auto Copy Succeeded on linecard *n*	AT-CV1200 AT-CV1203 AT-CV5000	Report	The AT-CM Line Card in slot *n* successfully received its configuration from the master management card and the master configuration file, through the autocopy feature. A card installed in a slot where autocopy is enabled receives its configuration automatically whenever the chassis is powered on, the card is reset, or a replacement card is installed.
n Voltage Failed	AT-CV5000	Report	The AT-PWR14 or AT-PWR15 Power Supply Module in the AT-CV5000 Chassis had an output voltage failure. The variable *n* can be 3.3V, 5V, or 12V and signals which voltage failed.
		Clear	The AT-PWR14 or AT-PWR15 Power Supply Module resumed normal operations or was replaced.
Copper port failure on remote linecard *n*.	AT-CV1200 AT-CV1203 AT-CV5000	Report	The twisted pair port on a remote AT-CM Line Card lost its link to its network device. This message requires remote peer management.
		Clear	The twisted pair port on a remote AT-CM Line Card established a link to its network device. This messages requires remote peer management.
CPM Card Reboot	AT-CV1200 AT-CV1203 AT-CV5000	Report	The AT-CV5M02 Management Card was reset or powered on.

Table 13. General Event Messages

Message	Chassis	Classi-fication	Definition
CV1203 Local RPS Failure A/B	AT-CV1203	Report	One of the two external power supplies connected to the AT-CV1203 Chassis failed. (A failed power supply has no detectable output voltages.) "A" and "B" designate the power connectors on the back panel of the chassis. This message only appears if the AT-CV1203 Chassis has two power supplies and just one of the power supplies fails.
		Clear	A power supply connected to the AT-CV1203 Chassis resumed normal operations or was replaced.
CV1203 RPS Failure on Remote Line Card *n*	AT-CV1203 AT-CV5000	Report	The media converter line card in slot *n* of the AT-CV5000 Chassis received a report from its line card counterpart in a remote AT-CV1203 Chassis that one of the two power supplies connected to the remote chassis lost power. This message requires remote peer management. For background information, refer to "Dying Gasp and First RPS Failure Signals" on page 62. For instructions on how to configure the line cards for this feature, refer to "Configuring the AT-CM2, AT-CM3, and AT-CM70S Line Cards for the OAM-based Features" on page 90. If a remote AT-CV1203 Chassis loses all power and has at least one AT-CM Media Converter Line Card, it sends the dying gasp signal instead of this signal.
		Clear	The media converter line card in slot *n* of the AT-CV5000 Chassis received a clear signal from its line card counterpart in a remote AT-CV1203 Chassis, indicating that power has been restored. This message requires remote peer management.

Table 13. General Event Messages

Message	Chassis	Classi-fication	Definition
Dying Gasp has Occurred on Remote Line Card *n*	AT-CV1203 AT-CV5000	Report	The media converter line card in slot *n* in the AT-CV5000 Chassis received the dying gasp signal from its line card counterpart in a remote AT-CV1203 Chassis. The remote line card sent the signal because the AT-CV1203 Chassis lost power. For background information, refer to “Dying Gasp and First RPS Failure Signals” on page 62.
Fan Tray A/B: Fan Temperature Exceeds Limit	AT-CV5000	Report	The temperature of the chassis exceeded the temperature threshold.
		Clear	The temperature of the chassis returned below the temperature threshold.
Fan Tray A/B has been Installed	AT-CV5000	Report	The AT-CVFAN Fan Module was installed in the AT-CV5000 Chassis.
Fan Tray A/B has been Removed	AT-CV5000	Report	The AT-CVFAN Fan Module was removed from the chassis.
Fan Tray Module A/B Fan *n* Failed	AT-CV5000	Report	A cooling fan stopped.
		Clear	A cooling fan resumed operations.
Line Card *n* Missing	AT-CV1200 AT-CV1203 AT-CV5000	Report	The line card in slot *n* was removed from the chassis.
		Clear	The line card removed from slot *n* was reinstalled in the slot.
Line Card *m* Port *n* Offline	AT-CV1200 AT-CV1203 AT-CV5000	Report	Port *n* on the line card in slot *m* lost its link to a network device.
Line Card *m* Port *n* Online	AT-CV1200 AT-CV1203 AT-CV5000	Report	Port *n* on the line card in slot *m* established a valid link with a network device.
Line Card *n* Reboot	AT-CV1200 AT-CV1203 AT-CV5000	Report	The line card in slot *n* was rebooted using the AT-CV5M02 Management Card.
Power Module A/B has been Installed	AT-CV5000	Report	The AT-PWR14 or AT-PWR15 Power Supply Module was installed in the AT-CV5000 Chassis.

Table 13. General Event Messages

Message	Chassis	Classi-fication	Definition
Power Module A/B has been Removed	AT-CV5000	Report	The AT-PWR14 or AT-PWR15 Power Supply Module was removed from the AT-CV5000 Chassis.

The event messages listed in Table 14 are restricted to the AT-CM3K0S Line Card and to SFP modules that support digital diagnostic monitoring (DDM). The messages are grouped into Local Messages and Remote Messages. Local messages are generated by AT-CM3K0S Line Cards in the same chassis as the management card. Remote messages are sent by remote line cards through remote peer management.

For local messages the variable *n* identifies the slot of the AT-CM3K0S Line Card that generated the message. For remote messages the variable identifies in the local chassis the slot of the local line card that received the message from the remote AT-CM3K0S Line Card.

The values that generate these messages on SFP modules are vendor-specific and are not adjustable.

Table 14. SFP Module Event Messages

Message	Classification	Definition
Local Messages		
SFP Insertion (local) in linecard *n*	Report	An SPF module was installed in the AT-CM3K0S Line Card.
SFP Removal (local) in linecard *n*	Report	An SPF module was removed from the AT-CM3K0S Line Card.
SFP Temp High|Low Alarm (local) in linecard *n*	Report	The operating temperature of an SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The operating temperature of an SFP module returned to the operating range.
SFP Vcc High|Low Alarm (local) in linecard *n*	Report	The input voltage of an SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The input voltage of an SFP module returned to the operating range.

Table 14. SFP Module Event Messages

Message	Classification	Definition
SFP Tx Bias High|Low Alarm (local) in linecard *n*	Report	The laser bias of an SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The laser bias of an SFP module returned to the operating range.
SFP Tx Power High|Low Alarm (local) in linecard *n*	Report	The laser output of an SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The laser output of an SFP module returned to the operating range.
SFP Rx Power High|Low Alarm (local) in linecard *n*	Report	The laser input of an SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The laser input of an SFP module returned to the operating range.
Remote Messages		
Remote SFP Temp High|Low Alarm in linecard *n*	Report	The operating temperature of a remote SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The operating temperature of a remote SFP module returned to the operating range.
Remote SFP Vcc High|Low Alarm in linecard *n*	Report	The input voltage of a remote SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The input voltage of a remote SFP module returned to the operating range.
Remote SFP Tx Bias High|Low Alarm in linecard *n*	Report	The laser bias of a remote SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The laser bias of a remote SFP module returned to the operating range.

Table 14. SFP Module Event Messages

Message	Classification	Definition
Remote SFP Tx Power High|Low Alarm in linecard *n*	Report	The laser output of a remote SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The laser output of a remote SFP module returned to the operating range.
Remote SFP Rx Power High|Low Alarm in linecard *n*	Report	The laser input of a remote SFP module either exceeded the operating range (High) or dropped below the range (Low).
	Clear	The laser input of a remote SFP module returned to the operating range.

4. To clear all the messages from the log, select **Clear Event Log** from the Event Log Menu.

Web Browser

To view the event log from the web browser windows:

1. Select **Administration** from the menu bar.
2. If the **Event Log** tab isn't selected, select it. The Event Log tab, shown in Figure 42, displays the messages from oldest to newest. Refer to Table 12 on page 123 for the descriptions of the columns and Table 13 on page 124 for the event messages and their meanings.

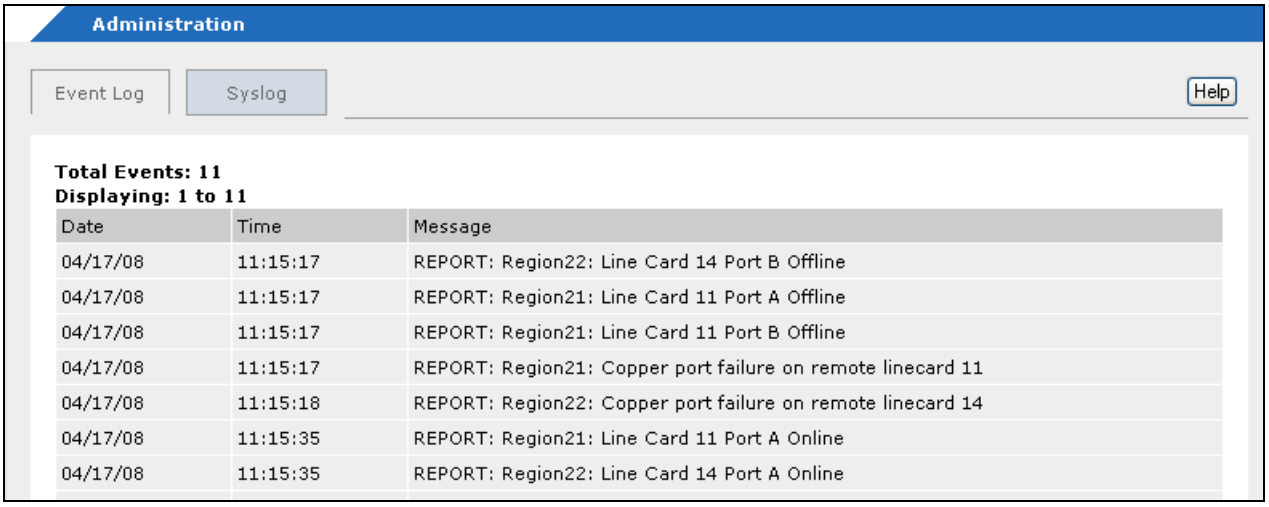


Figure 40. Event Log Tab

3. To clear all of the messages in the log, click the **Clear Event Log** button at the bottom of the tab.

Viewing the Activity Monitor

The activity monitor displays the event messages in real-time. For background information, refer to “Activity Monitor” on page 24.

Menus

To view the activity monitor from the menus:

1. From the Main Menu, select **Administration**. The Administration Menu is shown in Figure 37 on page 122.
2. From the Administration Menu, select **Start Activity Monitor.**
3. From the Administration Menu, select **Activity Monitor** to display the monitor. An example of the Activity Monitor is shown in Figure 41. The monitor displays the messages as they occur on the line cards in the chassis.

```
                    Converteon
                 Activity Monitor

       (hit Return to resume the previous menu)

10/12/08 12:05:23 Module #5 has been removed!
10/12/08 12:08:02 Module #5 has been Installed!
10/12/08 12:10:30 Module #10 has been removed!
10/12/08 12:14:02 Module #10 has been Installed!
10/12/08 12:17:34 Power Tray A has been Installed!
10/12/08 12:28:34 Power Tray B has been removed!
```

Figure 41. Activity Monitor

   For the descriptions of the columns and messages, refer to Table 12 on page 123, Table 13 on page 124, and Table 14 on page 127.

4. To return to the Administration menu, press Return.
5. If you return to the Activity Monitor during the same management session, the monitor displays those event messages that occurred in the interim. If you start a new session, the monitor displays those events that occurred since the start of the management session.
6. To stop the activity monitor, select **Stop Activity Monitor** from the Administration Menu.

Web Browser

The activity monitor is not supported in the web browser windows.

Configuring the Syslog Client

For background information, refer to "Syslog Client" on page 24.

Menus

To configure the syslog client from the menus:

1. From the Main Menu, select **Administration** to display the menu shown in Figure 37 on page 122.
2. From the Administration Menu, select the **Syslog Server Address** field and enter the IP address of the syslog server on your network. To stop the management card from sending any further event messages to the server, enter 0.0.0.0 as the server address.
3. Select the **Syslog Facility Code** field and enter a facility code for the events. The management card adds this code to the messages when it sends the messages to the syslog server. The range is 0 to 23. The default is 1. The numerical codes are defined in the RFC 3164 standard.
4. To save your changes in the master configuration file, return to the Main Menu and select **Configuration**, **System Configuration** and **Save System Configuration**.

Web Browser

To configure the syslog client from the web browser windows:

1. Select **Administration** from the menu bar.
2. Click the **Syslog** tab to display the tab in Figure 42.

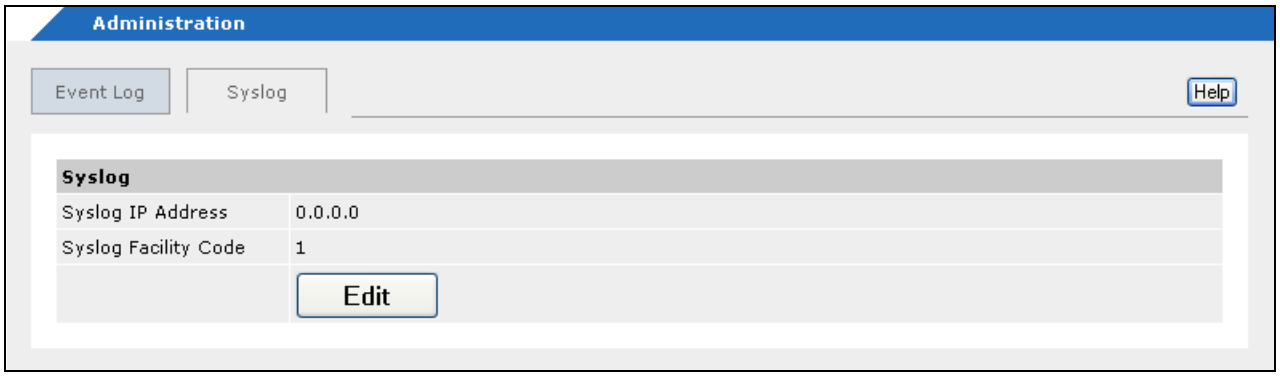


Figure 42. Syslog Tab

3. Click the **Edit** button to display the Syslog pop-up window.

4. Select the **Syslog IP Address** field and enter the IP address of the syslog server on your network. To stop the management card from sending any further event messages to the server, enter 0.0.0.0 as the server address.

5. To specify a facility code, select **Syslog Facility Code** and enter a facility code for the events. The management card adds this code to the messages when it sends the messages to the syslog server. The range is 0 to 23. The default is 1. The numerical codes are defined in the RFC 3164 standard.

6. Click the **Update** button.

7. To save your changes in the master configuration file, refer to “Saving Your Configuration Changes” on page 78.

Configuring the 10/100Base-TX Port

The procedures in this section explain how to set the speed and duplex mode on the 10/100Base-TX port on the AT-CV5M02 Management Card. The management card uses this port to communicate with your network for those management functions that require it, such as sending event messages to a syslog server or uploading or downloading files to a TFTP server. For background information, refer to the "10/100Base-TX Port" on page 23.

Note
The port cannot be disabled and the port's wiring configuration of MDI cannot be changed.

Menus

To configure the settings of the 10/100Base-TX port on the AT-CV5M02 Management Card from the menus:

1. From the Main Menu, select **Module Status and Configuration**. For the description and an example of the Module Status and Configuration window, refer to "Displaying the Status of the Line Cards" on page 158.

2. Select the AT-CV5M02 Management Card. If the chassis has two management cards, select the active card. This displays the Module Configuration Menu in Figure 35 on page 120. The columns in the Module Configuration Menu are described in Table 15.

Table 15. Module Configuration Menu for a Management Card

Column	Description
Port	The port type is 10/100Base-TX.
Link	The status of the link on the port. Possible values are: ❒ Online: The port has established a link to a network device. ❒ Offline: The port is not connected to a network device or has not established a link to a device.
Speed	The operating speed of the port. Possible values are 10M or 100M.
Mode	The duplex mode of the port. ❒ Full - The port is operating in full-duplex mode. ❒ Half - The port is operating in half-duplex mode.

3. Select **1: A (100Base-TX)** to display the Port Configuration Menu shown in Figure 43.

```
                Port Configuration Menu

             Module 1 - Port A (100Base-TX)


Link State: Online

>  Auto negotiate
   Manual negotiate

   Return to Module Management Menu...
```

Figure 43. Port Configuration Menu for the 10/100Base-TX Port on the AT-CV5M02 Management Card

4. Configure the settings of the port as needed. To activate Auto-Negotiation, select **Auto negotiate**. To set the speed and duplex mode manually, select **Manual negotiate** to display the additional parameters shown in Figure 44.

```
                Port Configuration Menu

             Module 1 - Port A (100Base-TX)


Link State: Online

     Auto negotiate
   > Manual negotiate

   > Full
     Half

   > Hundred Base<100Base-TX>
     Ten Base <10Base-T>

   Return to Module Management Menu...
```

Figure 44. Port Configuration Menu for the 10/100Base-TX Port on the AT-CV5M02 Management Card

The parameters in the menu are described in Table 16.

Table 16. Port Configuration Menu for the 10/100Base-TX Port on the Management Cards

Setting	Description
Auto negotiate Manual negotiate Full Half Hundred Base <100Base-TX> Ten Base <10Base-T>	These selections are used to control the speed and duplex mode settings of the twisted pair port on the management cards. The Auto negotiate setting, the default setting, activates IEEE 802.1u Auto-Negotiation so that the speed and duplex mode of the port are established automatically. Auto-Negotiation is designed to ensure that the ports on the management card and the network device are operating at the same speed and that they are communicating at the highest possible common speed of the devices. The Manual negotiate setting deactivates Auto-Negotiation on a port so that you can set the parameters manually. When you select this option, additional settings are displayed in the menu. The Full and Half settings control the duplex mode of the port, which can be either full-duplex or half-duplex. The Hundred Base and Ten Base selections set a port's speed.to 100 or 10 Mbps, respectively. Observe the following guideline when configuring this port: ❒ If the network device connected to a line card port does not use Auto-Negotiation and has a fixed duplex mode of full duplex, disable Auto-Negotiation on the port and set the speed and duplex mode manually to avoid a duplex mode mismatch.

5. To save your changes in the master configuration file, return to the Main Menu and select **Configuration**, **System Configuration** and **Save System Configuration**.

Web Browser

To configure the 10/100Base-TX port on the AT-CV5M02 Management Card from the web browser windows:

1. Select **Module Status and Configuration** from the menu bar.

2. In the Chassis View, click the 10/100Base-TX port on the management card. Alternatively, select the Menu View tab and click the name of the management card. The Port A tab for the management card is shown in Figure 45.

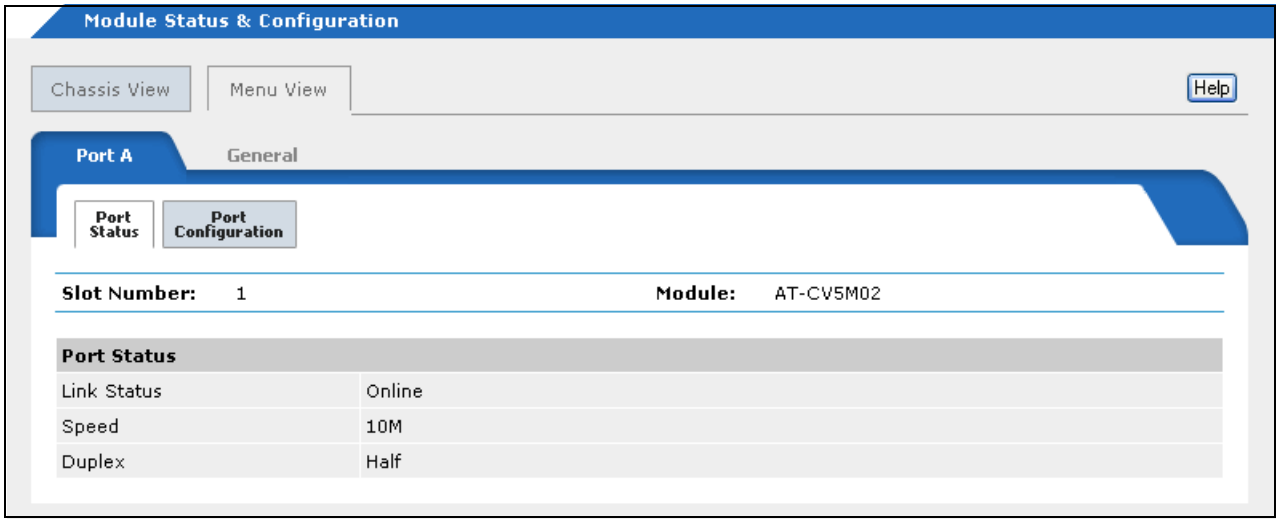


Figure 45. Port A Tab for the Management Card

3. Click the **Port Configuration** tab, shown in Figure 46.

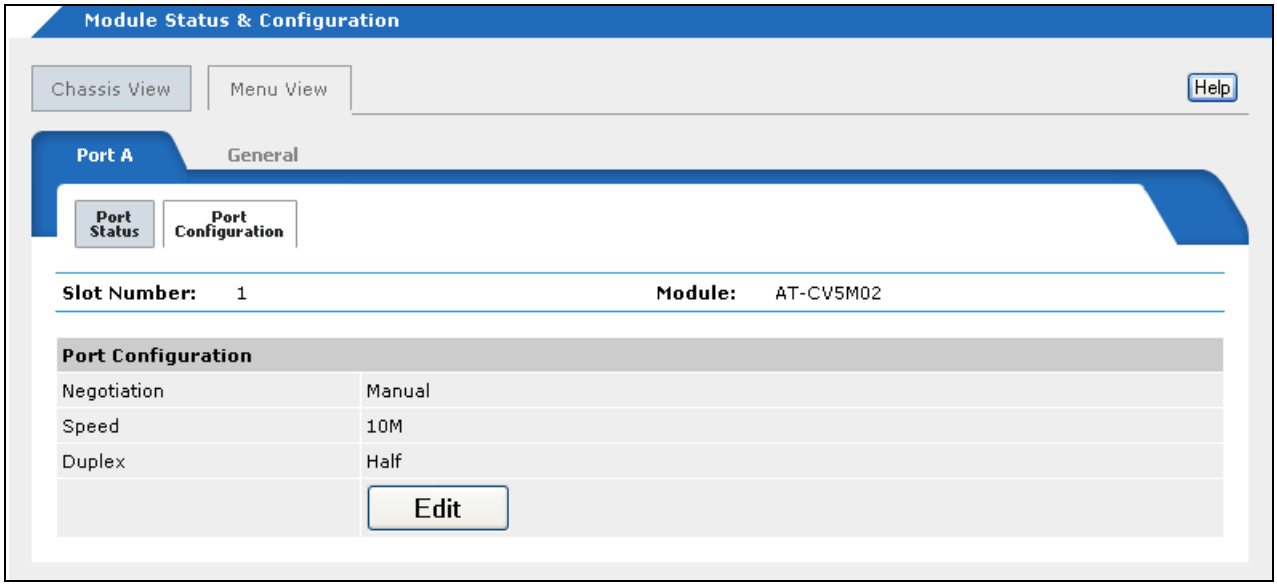


Figure 46. 10/100Base-TX Port on the Management Card

4. To adjust the settings of the port, click the **Edit** button to display the Port Configuration pop-up window.

5. Adjust the parameters as needed. The parameters are defined in Table 16 on page 135.

6. To save your changes in the master configuration file, refer to "Saving Your Configuration Changes" on page 78.

Restoring the Default Setting on the 10/100Base-TX Port

These procedures are used to restore the default setting of Auto-Negotiation on the 10/100Base-TX port on the AT-CV5M02 Management Card. Of course, you can achieve the same result by manually configuring the port to Auto-Negotiation by performing either of the procedures in the previous section. The procedures do not interrupt the network operations of the media converter line cards in the chassis.

Note
The wiring configuration of MDI on the 10/100Base-TX port is not adjustable.

Menus

To restore the default setting of Auto-Negotiation on the 10/100Base-TX port from the menus:

1. From the Main Menu, select **Module Status and Configuration**.
2. Select the AT-CV5M02 Management Card in the menu to display the Module Configuration Menu shown in Figure 35 on page 120.
3. Select **Return Management Card Port Configuration to Default**.
4. At the confirmation prompt select **Yes** to restore the default setting of Auto-Negotiation on the port or **No** to cancel the procedure.
5. To save your changes in the master configuration file, return to the Main Menu and select **Configuration**, **System Configuration** and **Save System Configuration**.

Web Browser

To restore the default setting of Auto-Negotiation on the 10/100Base-TX port from the web browser windows:

1. Select **Module Status and Configuration** from the menu bar.
2. In the Chassis View, click the 10/100Base-TX port on the AT-CV5M02 Management Card. Alternatively, select the Menu View tab and click the name of the management card. The Port A tab for the management card is shown in Figure 45 on page 136.
3. Select the **General** tab, shown in Figure 36 on page 121.
4. Click **Return Management Card Port Configuration to Default Setting**.
5. At the confirmation prompt, click **OK** restore the default setting of Auto-Negotiation on the 10/100Base-TX port or **Cancel** to cancel the procedure.

6. To save your changes in the master configuration file, refer to "Saving Your Configuration Changes" on page 78.

Restoring the Default Values on the AT-CV5M02 Management Card

In this section are the procedures for restoring the default values to all of the following operating parameters on the AT-CV5M02 Management Card:

- IP address configuration
- Name, location, and contact
- IP addresses of SNMP trap receivers
- SNMPv1 and SNMPv2c community strings
- SNMPv3 configurations
- Management security (i.e., passwords, console timer, etc.)
- Network Time Protocol client
- Syslog client
- 10/100Base-TX port
- Temperature threshold
- Console port's baud rate

Note
Before performing these procedures, you should save the current configurations of the AT-CM Line Cards to the master configuration file. For instructions, refer to “Saving Your Configuration Changes” on page 78.

Note
A management card resets when its parameter settings are returned to the default values. It will be unresponsive to management commands for one minute while it initializes its management software. To resume managing the device, start a new local management session on the unit.

Restoring the default settings on the AT-CV5M02 Management Card does not affect the parameter settings of the media converter line cards in the chassis, nor does it interrupt their network operations.

Menus

To restore the default settings on the management card from the menus:

1. If the chassis has two AT-CV5M02 Management Cards, remove the standby card.
2. From the Main Menu, select **Configuration** to display the menu in Figure 26 on page 100.

3. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.

4. Select **Return System Configuration to Default**. A confirmation prompt is displayed.

5. At the confirmation prompt select **Yes** to restore the default setting on the management card or **No** to cancel the procedure. If you respond with yes, the management card resets and your management session ends.

6. To resume managing the unit, wait one minute for the card to initialize its management software and then start a local management session on the card.

7. If you removed a standby AT-CV5M02 Management Card, reinstall the card. The active card, whose parameter settings are now at their default settings, waits for the standby card to initialize its management software and then automatically sends its configuration file to it over the backplane in the chassis, thus restoring the default values on the standby card.

Web Browser

To restore the default settings on the management card from the web browser windows:

1. If the chassis has two AT-CV5M02 Management Cards, remove the standby card.

2. Click **Configuration** from the menus bar.

3. If the Systems tab is not displayed, select it. The system tab is shown in Figure 30 on page 103.

4. Click the **Edit** button in the Configuration section of the window.

5. Click the radio button for **Return System Configuration to Default** and click the **Apply** button.

   The management card resets and your remote web browser management session ends.

6. To resume managing the unit, wait one minute for the card to initialize its management software and then start a local management session on the card.

7. If you removed a standby AT-CV5M02 Management Card, reinstall the card. The active card, whose parameter settings are now at their default settings, waits for the standby card to initialize its management software and then automatically sends its configuration file to it over the backplane in the chassis, thus restoring the default values on the standby card.

Configuring the Temperature Threshold

The management card has a temperature threshold parameter to alert you in the event the temperature of the wiring closet exceeds operating norms. If the threshold is exceeded, the management card enters an event in the event log and sends an SNMP trap. The temperature is measured on the power supply near the cooling vents of the chassis and tends to reflect the ambient air temperature.

The temperature threshold applies only to the AT-CV5000 Chassis. This feature is not supported on the AT-CV1200 or AT-CV1203 Chassis.

Menus

To set the temperature threshold from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu**,** select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. Select **Temperature Threshold Configuration** to display the Temperature Threshold Configuration Menu in Figure 47. The temperature threshold is given in Celsius (° C).

```
      Temperature Threshold Configuration Menu
                    Converteon

Maximum Temperature Threshold: 60

Return to System Parameters Configuration Menu ...
```

Figure 47. Temperature Threshold Configuration Menu

5. Select **Maximum Temperature Threshold** and enter a new value. The range is 0 to 75° C. The default is 60° C.
6. To save your changes in the master configuration file, return to the System Configuration menu and select **Save System Configuration**.

Web Browser

To set the temperature threshold from the web browser windows:

1. Select **Configuration** from the menu bar.
2. If the System tab is not selected, select it. The System tab is shown in Figure 30 on page 103.

3. Click the **Edit** button in the Temperature Threshold section.

4. In the Temperature Threshold pop-up window, click the **Maximum Temperature Threshold** field and enter a new value. The range is 0 to 75° C. The default is 60° C.

5. Click the **Update** button.

6. To save your changes in the master configuration file, click the **Edit** button in the Configuration section of the window and select the **Save System Configuration** option.

Activating a Standby AT-CV5M02 Management Card

The procedures in this section activate the standby AT-CV5M02 Management Card in a chassis that has two management cards. You might perform these procedures if the currently active management card is experiencing problems and you want to use the standby card to manage the chassis. For background information, refer to “Active and Standby Management Cards” on page 28.

These procedures do not interrupt the operations of the media converter line cards in the chassis. However, they do end your management session.

Menus

To activate the standby management card from the menus:

1. From the Main Menu, select **Management Card Redundancy** to display the Management Card Redundancy Menu, shown in Figure 49.

```
            Management Card Redundancy Menu


Switch Over Management Cards

Copy Active Card Configuration to Standby Card

Save Current Configuration of Standby Card

Return to Administration Menu ...
```

Figure 48. Management Card Redundancy Menu

2. Select **Switch Over Management Cards**. The following confirmation prompt is displayed.

```
Do Management Card switch over? (Yes or No):

   Yes
>  No

Return to Management Card Redundancy Menu ...
```

Figure 49. Confirmation Prompt for Switch Over Management Cards

3. Choose **Yes** to activate the switchover or **No** to cancel the procedure. If you select Yes, your management session ends as the active and standby management cards change states.

4. To resume managing the chassis, wait twenty to thirty seconds for the standby card to transition to the active state and, afterwards, start a new management session.

Note
For explanations of the other two selections in the Management Card Redundancy menu, refer to "Saving Your Configuration Changes" on page 78.

Web Browser

To activate the standby management card from the web browser windows:

1. Select **Management Card Redundancy** from the menu bar to display the tab in Figure 50.

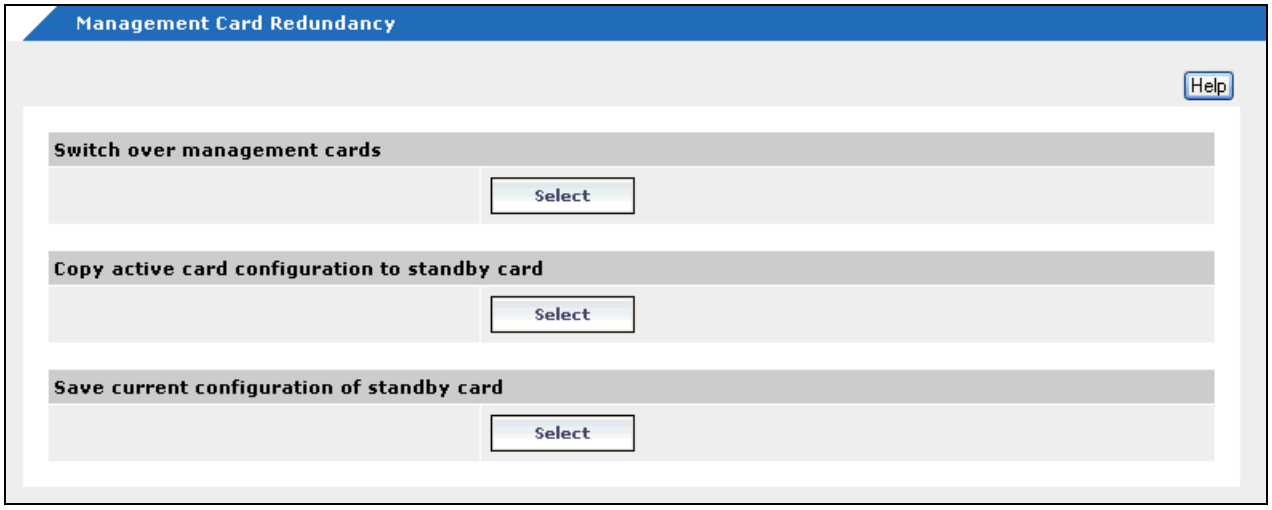


Figure 50. Management Card Redundancy Tab

2. In the section Switch Over Management Cards, click **Select**. A confirmation prompt is displayed.

3. In the confirmation prompt, click **Yes** and **Apply** to activate the standby card or **No** and **Apply** to cancel the procedure. If you select Yes, your management session ends as the active and standby management cards change states.

4. To resume managing the chassis, wait twenty to thirty seconds for the standby card to transition to the active state and afterwards start a new management session.

Note
The two other selections in the Management Card Redundancy tab are described in "Saving Your Configuration Changes" on page 78.

Setting the Baud Rate of the Console Port

The following procedures are used to set the baud rate of the Console port on the management card. The port is used to locally manage the card with a terminal or a computer with a terminal emulator program. The baud rate is the only adjustable parameter on the port. Refer to “Starting a Local Management Session” on page 72 for all of the Console port settings.

Note
Changing the baud rate of the Console port during a local management session ends your management session. To resume managing the chassis, change the baud rate of your terminal or terminal emulator program.

Menus

To set the baud rate of the Console port from the menus:

1. From the Main Menu, select **Configuration**. The Configuration Menu is shown in Figure 26 on page 100.
2. From the Configuration Menu**,** select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. From the System Parameters Configuration Menu, select **Terminal Configuration**. The Terminal Configuration Menu is shown in Figure 51.

```
              Terminal Configuration Menu


Data Rate (baud rate) ...

Return to System Configuration Menu...
```

Figure 51. Terminal Configuration Menu

5. Select **Data rate (baud rate)** to display the Terminal Data Rate Menu shown in Figure 52.

```
                Terminal Data Rate Menu
                      Converteon

> 115200 bps
  57600 bps
  19200 bps
  9600 bps
  4800 bps
  2400 bps

  Return to Terminal Configuration Menu...
```

Figure 52. Terminal Data Rate Menu

6. From the Terminal Data Rate Menu, select the desired baud rate. The default is 115200 bps.

> **Note**
> If you are managing the chassis from a local management session, your session ends. To resume managing the chassis, change the baud rate of your terminal or terminal emulator program.

7. To save your changes in the master configuration file, return to the System Configuration menu and select **Save System Configuration**.

Web Browser

To set the baud rate of the Console port from the web browser windows:

1. Select **Configuration** from the menu bar.
2. If the System tab is not selected, select it. The System tab is shown in Figure 30 on page 103.
3. Click the **Edit** button in the Terminal Setting section.
4. In the Terminal Setting pop-up window, select a new baud rate from the pull down menu.
5. Click the **Update** button.
6. To save your changes in the master configuration file, click the **Edit** button in the Configuration section of the window and select the **Save System Configuration** option.

Displaying the Operational Status of the Chassis

In this section are the procedures for displaying operational information about the power supplies and fans in the chassis. The information also includes information about the management card, including its MAC address and the states of the flash memory and the Console port.

> **Note**
> These procedures do not perform any diagnostic utilities and are not disruptive to the operations of the management card or the media converter line cards in the chassis.

Menus

To view general information about the chassis from the menus:

1. From the Main Menu, select **Diagnostics**. The Diagnostics Menu is shown in Figure 53.

```
                  Diagnostics Menu
                     Converteon

Chassis Diagnostics

Local CM Line Card Diagnostics

Remote CM Line Card Diagnostics

Real-time IPC Message Analyzer

Return to Main Menu...
```

Figure 53. Diagnostics Menu

2. From the Diagnostics Menu, select **Chassis Diagnostics** to display the menu in Figure 54.

```
               Chassis Diagnostics Menu
                     Converteon

Chassis Information

Reset Chassis and Restart All CV & CM Line Cards

Return to Diagnostics Menu...
```

Figure 54. Chassis Diagnostics Menu

3. From the Diagnostics Menu, select **Chassis Information** to display the Chassis Diagnostics Menu. The example in Figure 55 is from the AT-CV5000 Chassis. The windows for the AT-CV1200 Chassis and the AT-CV1203 Chassis do not include the power supply information. The information in this window is for viewing purposes only.

```
                          Chassis Information Menu


Serial Number:A02736
MAC Address 00:0C:46:98:22:5F
CONVERTEON Chassis: AT-CV5000 AC Revision 4.0.1

Running 0 days, 1 hours, 10 minutes, 9 seconds

Current Time: 12/08/07 01:10:47

Diagnostic Results:

Flash PROM         Good
Serial Interface   Good

RPSA            Good         Temperature:  25 C
3.3V Power:     3.2 V        5V Power:     4.9 V      12V Power:    0.0 V
Fan Status:     Good         Fan1 Speed:   3924 RPM   Fan2 Speed:   3994 RPM

RPSB            Not Present  Temperature:  25 C
3.3V Power:     0 V          5V Power:     0 V        12V Power:    0.0 V
Fan Status:     Not Present  Fan1 Speed:   Off        Fan2 Speed:   Off


Hit any key to continue ...
```

Figure 55. Chassis Information Menu

The information in the Chassis Information Menu is defined in Table 17.

Table 17. Chassis Information Menu

Row	Description
Serial Number	This field displays the serial number and hardware revision level of the chassis.
MAC Address	This field displays the MAC address of the backplane in the chassis. This is the MAC address that the management card uses when it communicates with your network through the 10/100Base-TX port.
Converteon Chassis	This field displays the chassis model name and revision level, such as "AT-CV5000 Revision 1.7."

Table 17. Chassis Information Menu

Row	Description
Running	This field displays the number of hours, minutes, and seconds since the management card was last powered on or reset.
Current Time	This field displays the current date and time.
Flash PROM	This field displays the status of the Flash PROM on the management card.
Serial Interface	This field displays the status of the Console port on the management card.
RPSA and RPSB	This field displays the status of the power supplies and fans, and the temperature and power voltage in the AT-CV5000 Chassis. A status of “Not present” indicates an empty power supply slot in the AT-CV5000 Chassis. Neither the AT-CV1200 Chassis nor the AT-CV1203 Chassis display this information.

Web Browser

To view the operational information from the web browser windows:

1. Select **Diagnostics** from the menu bar.
2. If the **Chassis Information** tab is not selected, select it. This window is for viewing purposes only. The information in the window is described in Table 17 on page 149.

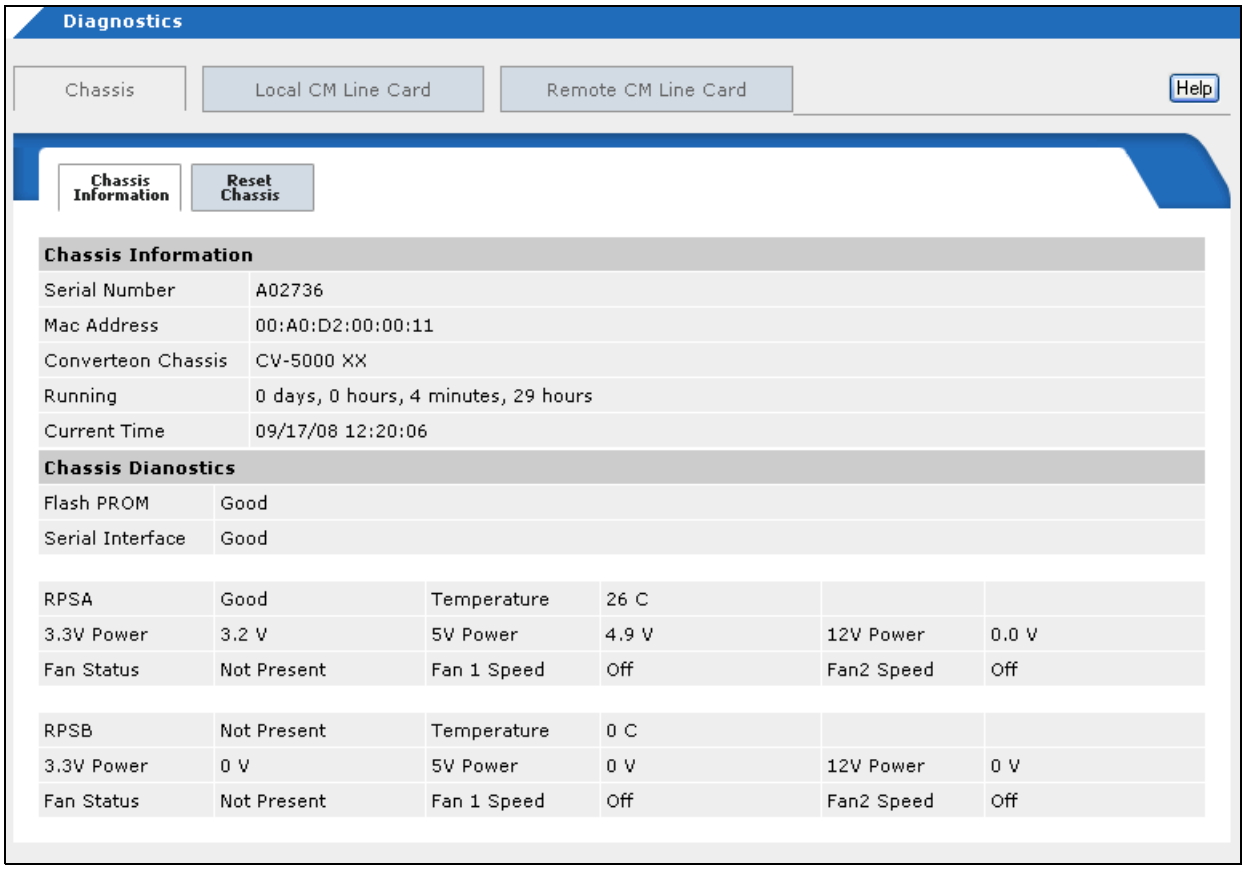


Figure 56. Chassis Diagnostics Tab

Pinging Network Devices

The procedure in this section is used to test for live connections between the 10/100Base-TX port on the AT-CV5M02 Management Card and other network devices. The management card transmits Internet Control Message Protocol (ICMP) echo requests from the 10/100Base-TX port and reports the results of the ping on the screen. You might perform this procedure if the management card is experiencing a problem communicating with another network device, such as a syslog server or a TFTP server.

The system requirements for this test are described in “Accessing Your Network” on page 31

Menus

To ping a network device from the menus:

1. From the Main Menu, select **Administration** to display the menu in Figure 37 on page 122.
2. Select **Ping a Remote System**. The following message is displayed:

   ```
   Please enter Station IP Address to ping:
   ```

3. Enter the IP address of the network device you want the management card to ping. The management card sends three ping echo requests and displays the results on the screen.
4. To return to the Administration Menu, press any key.

Web Browser

This management function is not supported from the web browser windows.

Displaying the Inter-process Communication Monitor

The management card has an inter-process communication (IPC) monitor that you can use as a diagnostic tool to view the communications between the management card and the line cards across the backplane in the chassis.

Menus

To view the IPC monitor from the menus:

1. From the Main Menu, select **Diagnostics**.
2. From the Diagnostics menu, select **Real-Time IPC Message Analyzer**. Figure 18 is an example of an entry.

```
> RX_POLL_CM3XXX_RP    [02->04] L_1352 LI(0.500s) CI(0.500s) CY(00.879s) LC(0.769s) IPC(0.449s) NMSG(00) NBUF(010)
```

Figure 57. Real-time IPC Message

The columns of information are described in Table 18

Table 18. IPC Message

Column	Description
> RX or < TX	The column indicates the direction and purpose of the transaction, and the media converter series of the affected line card. The possible symbols are: > RX The management card received a packet from the line card. < TX The management card transmitted a packet to the line card.
-> or <-	This column displays the slot numbers of the management card and the affected line card, and the direction of the communication. The first number is the slot number of the management card. The possible symbols are: -> The transmission was from the management card to the line card. <- The transmission was from the line card to the management card.
L	This column displays the length of the packet in bytes.

Table 18. IPC Message

Column	Description
LI	This column displays the time interval (in seconds) between the polling of the previous line card and the polling of the current line card by the management card.
CI	This column displays the time interval (in seconds) between the end of one complete polling cycle and the start of the next cycle. A cycle ends when the management card polls the line card in the highest numbered slot in the chassis and begins when it polls the card in the lowest numbered slot.
CY	This column displays the time interval (in seconds) since the start of the current polling cycle. A cycle starts when the management card polls the line card in the lowest numbed slot in the chassis.
LC	This column displays the time interval (in seconds) since a line card was polled.
IPC	This column displays the time interval (in seconds) the management card waited for the IPC response from a line card.
NMSG	This column displays the number of messages the management card has in its queue.
NBUF	This column displays the number of messages stored in the buffer on the management card.

Web Browser This management function is not supported in the web browser windows.

Displaying Information about the Management Card

If you're interested in seeing information about the AT-CV5M02 Management Card, here are places to go to:

- For general operational information about the card and its 10/100Base-TX port, refer to "Displaying the Status of the Line Cards" on page 158
- For the version number of the AT-S99 Management Software on the card, refer to "Displaying the Version Numbers of the Management Software" on page 207.
- For the card's MAC address, refer to "Displaying the Operational Status of the Chassis" on page 148.
- For the card's serial number, refer to "Displaying the MAC Addresses and Serial Numbers" on page 210,

Chapter 6

Configuring the Media Converter Line Cards

This chapter has the following sections:

- “Displaying the Status of the Line Cards” on page 158
- “Displaying the Parameter Settings of the AT-CM Line Cards” on page 166
- “Configuring the Port Parameters on the AT-CM Line Cards” on page 169
- “Setting the Operating Mode” on page 176
- “Assigning Names to the AT-CM Line Cards” on page 181
- “Configuring the Maximum Frame Size on the AT-CM2K0S Line Card” on page 182
- “Setting the Auto-copy Feature” on page 183
- “Setting the Low Power Mode on the AT-CM3 Line Cards” on page 186
- “Setting the Low Power Mode on all the AT-CM3 Line Cards” on page 188
- “Restoring the Default Settings” on page 191
- “Restoring the Last Saved Configurations to the AT-CM3 Line Cards” on page 195
- “Resetting an AT-CM3 Line Card” on page 198
- “Resetting All of the AT-CM2, AT-CM3, and AT-CM70S Media Converter Line Cards” on page 199
- “Resetting All of the AT-CM, AT-CM70S, and AT-CV Media Converter Line Cards” on page 201
- “Displaying Port Statistics” on page 203
- “Displaying the Version Numbers of the Management Software” on page 207
- “Displaying the MAC Addresses and Serial Numbers” on page 210
- “Displaying SFP Module Information” on page 213

Displaying the Status of the Line Cards

Menus

To view the states of the ports on the AT-CM and AT-CV Line Cards in the chassis, select **Module Status and Configuration** from the Main Menu. The Module Status and Configuration Menu is shown in Figure 58.

```
                                    Module Status and Configuration
                                           Converteon

 ======================== MODULE_INFO ======================== =========== FIBER_PORT =========== ========= COPPER_PORT =========
Mod_Name  CardTypeVer  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 ...
```

Figure 58. Module Status and Configuration Menu

The columns in the menu are described in Table 19.

Table 19. Module Status and Configuration Menu

Column	Description
MODULE INFO	
Mod_Name	This column lists the chassis slot numbers and the names of the AT-CM Line Cards. For instructions on how to assign names, refer to “Assigning Names to the AT-CM Line Cards” on page 181. The AT-CV Line Cards do not support names.
CardTypeVer	This column displays the model names of the management cards and the line cards in the chassis. The model names of newer versions of the AT-CM2 Line Cards have suffixes, like “-v2”.
ST	This column displays the states of the management cards and the line cards. The possible states are: ❒ * - The line card is operating normally. ❒ Resetting - This state, which only applies to AT-CM Line Cards, indicates that the line cards are initializing their management software.

Table 19. Module Status and Configuration Menu

Column	Description
OperMode	This column displays the operating modes of the AT-CM and AT-CV Line Cards. It also displays the status of the AT-CV5M02 Management Card. The possible operating modes and the line cards that support them are listed here: ❒ LT - Link Test (All media converter line cards) ❒ ML - MissingLink (All media converter line cards) ❒ SML - Smart MissingLink (All media converter line cards) ❒ OAM_V - OAM Visible (AT-CM2 and AT-CM70S Line Cards) ❒ OAM_B - OAM Bypass (AT-CM2 and AT-CM70S Line Cards) ❒ OAM_LT - Link Test and OAM Visible (AT-CM3 Line Cards) ❒ OAM_ML - MissingLink and OAM Visible (AT-CM3 Line Cards) ❒ OAM_SML - Smart MissingLink and OAM Visible (AT-CM3 Line Cards) ❒ LC_MGMT - The operating mode is controlled by the card's DIP switches. (All media converter line cards) ❒ Resetting - The line card is initializing its management software. This state only applies to AT-CM Line Cards. For the AT-CV5M02 Management Card this column displays the card's state. The possible states are: ❒ Active - The management card is in the active state. ❒ Standby - The management card is in the standby mode. This state only applies to redundant AT-CV5M02 Management Cards. For background information, refer to "Active and Standby Management Cards" on page 28.

Table 19. Module Status and Configuration Menu

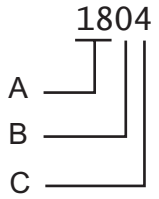
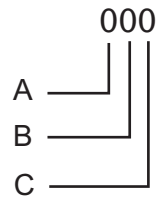
Column	Description
IPC	This column displays utilization information of the backplane by the management card and the AT-CM Line Cards, and is intended for manufacturing and test purposes. For the AT-CV5M02 Management Card this column displays the following information:  A This is the slot number of the line card the management card is currently polling. For example, the value “12” indicates that the management card is polling the AT-CM Line Card in slot 12. Slots that have AT-CV Line Cards are not polled by the management card. B This is the total number of messages the management card is waiting to transmit over the backplane to the AT-CM Line Cards. C This is the total number of responses the management card is waiting to receive from the AT-CM Line Cards. For AT-CM Line Cards this column displays the following information:  A This toggles to “*” when the management card is sending a message to the line card in the slot. B This toggles to “*” when the management card is waiting to transmit a message to the line card. C This displays the status of a line card’s response to the last transmitted message from the management card. A successful response is indicated by “*” while a bad response or no response is signalled with “o”. This column does not apply to AT-CV Line Cards.

Table 19. Module Status and Configuration Menu

Column	Description
FrmSz	This column displays the maximum frame size supported by the AT-CM301, AT-CM302 and AT-CM3K0S Line Cards, which is 10240 bytes. This value is not adjustable. This column will be blank for the AT-CM2, AT-CM70S, and AT-CV Line Cards. Here are their maximum frame sizes: ❒ The AT-CM2 Line Cards, except for the AT-CM2K0S Line Card, and the AT-CM70S Line Card have a maximum frame size of 1522 bytes. ❒ The AT-CM2K0S Line Card can have a maximum frame size of either 1522 bytes or 1632 bytes. To set this parameter, refer to "Configuring the Maximum Frame Size on the AT-CM2K0S Line Card" on page 182. ❒ The AT-CV Line Cards have a maximum frame size of 9000 bytes.
LPM	This column displays the states of the low power modes (LPM) on the AT-CM301, AT-CM302 and AT-CM3K0S Line Cards. The low power mode lets you conserve power by turning off a line card's LEDs when you are not monitoring them. (LPM does not control the RDY LED.) The possible states are: ❒ No - LPM is disabled on the line card and the LEDs are active. This is the default setting. ❒ Yes - LPM is enabled on the line card. The LEDs are off. You can set LPM on a line card using the recessed button on the card's front panel or through the management card, as explained in "Setting the Low Power Mode on the AT-CM3 Line Cards" on page 186. LPM is not supported on the AT-CV5M02 Management Card or on the AT-CM2, AT-CM70S, and AT-CV Line Cards.
AC	This column displays the status of the auto-copy feature for those chassis slots that have AT-CM Line Cards. For background information, refer to "Configuration Files" on page 32. The possible states are: ❒ N for No - The auto-copy feature is disabled on the slot. The AT-CM Line Card uses its own configuration file to set its parameter settings.

Table 19. Module Status and Configuration Menu

Column	Description
AC (Continued)	❒ Y for Yes - The auto-copy feature is activated on the slot. The configuration settings for the AT-CM Line Card in the slot are provided by the management card from the master configuration file. The AT-CM70S Line Card and the AT-CV Line Cards do not support the auto-copy feature.
VER	This column displays the version numbers of the management software programs on the AT-CV5M02 Management Card and the AT-CM Line Cards. This field may be blank for AT-CM Line Cards that have a different version of AT-S73 Management Software than the version of the management software on the management card. This field will also be blank for AT-CV Line Cards because they do not have management software.
FIBER PORT or COPPER PORT	
ST	This column displays the states of the ports. The possible states are: ❒ * - The port has establish a link to a network device. ❒ o - The port has not establish a link to a network device.
SP	This column displays the speeds of the ports. The possible speeds are: ❒ 10 - 10 Mbps ❒ 100 - 100 Mbps ❒ 1G - 1 Gbps
FC	This column displays the status of flow control on the ports of the AT-CM Line Cards. The possible states are: ❒ Y - Flow control is enabled on the port. ❒ N - Flow control is disabled on the port.
IngRL	This column displays the settings of the ingress rate limiting filters on the ports on the AT-CM Line Cards. The value “0” means rate limiting has not been set on the port. This is the default setting. For instructions on setting this parameter, refer to “Configuring the Port Parameters on the AT-CM Line Cards” on page 169. This feature is not supported on the AT-CV Line Cards.

Table 19. Module Status and Configuration Menu

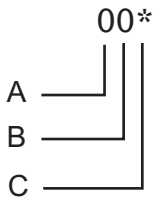
Column	Description
EgrRL	This column displays the settings of the egress rate limiting filters on the ports on the AT-CM Line Cards. The value "0" means rate limiting has not been set on the port. This is the default setting. For instructions on setting this parameter, refer to "Configuring the Port Parameters on the AT-CM Line Cards" on page 169. This feature is not supported on the AT-CV Line Cards.
OAM	This column, which applies only to AT-CM Line Cards that are operating in an OAM operating mode, displays the following OAM client information:  A This alternates between "*" and "o" when Port A, the fiber optic port, is transmitting OAMPDUs. Otherwise, it remains "o". B This alternates between "*" and "o" when Port A is receiving OAMPDUs. Otherwise, it remains "o". C This displays the operational state of the OAM client on Port A. The possible states are: * - Operational A - Active Send Local D - Disabled L - Active Send Local M - Peer Remote Reject P or W - Wait R - Peer Local Reject 1 - Active Send Remote 1 2 - Active Send Remote 2 **Note** The AT-CM Line Cards have to be in the OAM operational state to support the OAM-based features. Achieving this state may take a line card up to two minutes when it is powered on or reset, because it has to initialize its management software and negotiate the OAM state with its remote counterpart. This column does not apply to the AT-CV5M02 Management Card or to the AT-CV Line Cards.

Table 19. Module Status and Configuration Menu

Column	Description
AN	This column displays the status of Auto-Negotiation on the twisted pair ports on the AT-CM Line Cards. The possible states are: ❒ Y - Auto-Negotiation is enabled on the port. The speed and duplex mode are set automatically. This is the default setting. ❒ N - Auto-Negotiation is disabled on the port. The speed and duplex mode were set manually.

Web Browser

To view the states of the ports on the line cards from the web browser windows, click **Module Status & Configuration** in the menu bar. The web browser windows have a Chassis View and a Menu View. The Chassis View is an illustration of the front panel of the chassis. The information is static. To refresh the view, simply click **Module Status & Configuration** again.

To view or configure the parameters of the AT-CM Line Cards or the AT-CV5M02 Management Card, click a port on a card. You can configure only one card at a time.

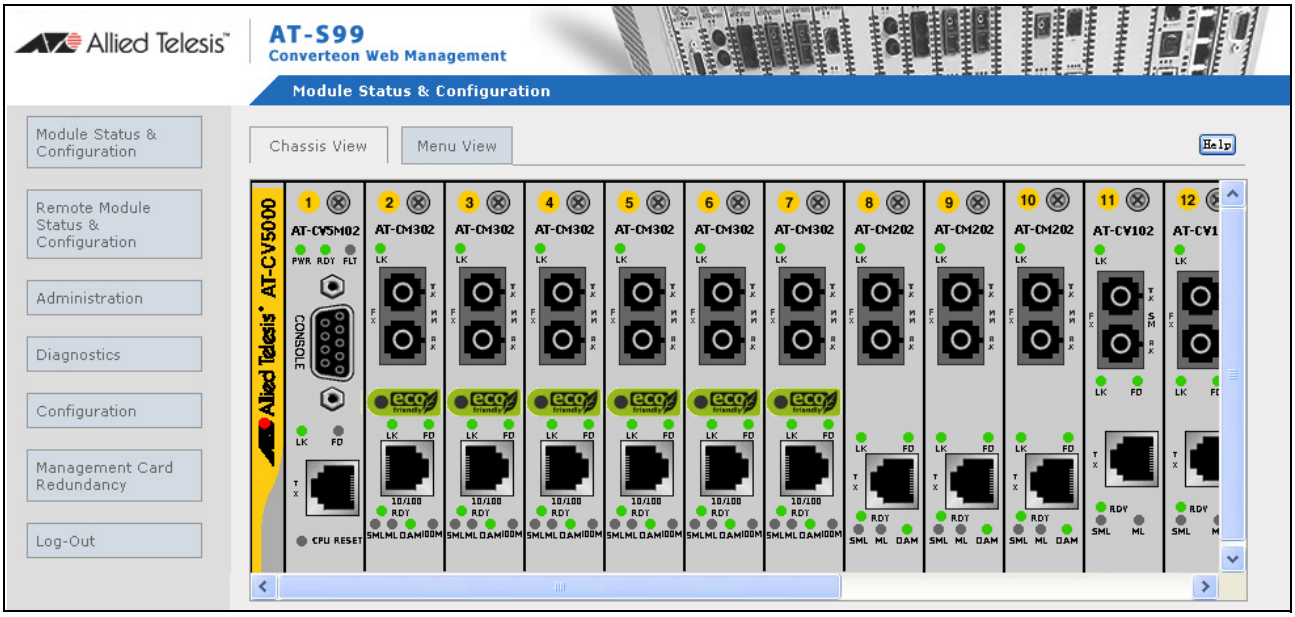
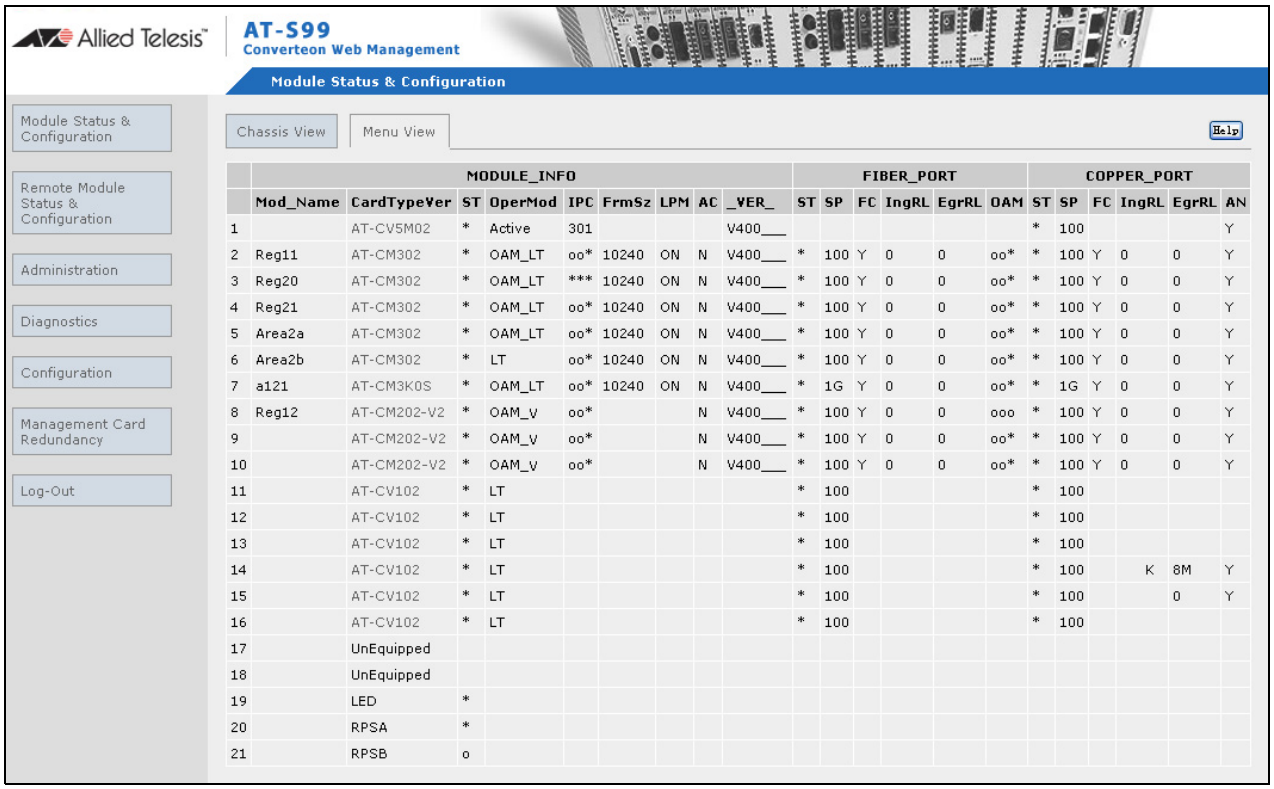


Figure 59. Chassis View

The Menu View, shown in Figure 60 on page 165, lists all of the line cards in the chassis and displays the states of the links of their ports. The information in this view is automatically refreshed every few seconds. The columns in the table are described in Table 19 on page 158. To view or configure the parameters of the line cards or a management card, click in the CardTypeVer column the model name of the card. You can configure only one card at a time.



	MODULE_INFO									FIBER_PORT						COPPER_PORT					
	Mod_Name	CardTypeVer	ST	OperMod	IPC	FrmSz	LPM	AC	_VER_	ST	SP	FC	IngRL	EgrRL	OAM	ST	SP	FC	IngRL	EgrRL	AN
1		AT-CV5M02	*	Active	301				V400___							*	100				Y
2	Reg11	AT-CM302	*	OAM_LT	oo*	10240	ON	N	V400___	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
3	Reg20	AT-CM302	*	OAM_LT	***	10240	ON	N	V400___	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
4	Reg21	AT-CM302	*	OAM_LT	oo*	10240	ON	N	V400___	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
5	Area2a	AT-CM302	*	OAM_LT	oo*	10240	ON	N	V400___	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
6	Area2b	AT-CM302	*	LT	oo*	10240	ON	N	V400___	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
7	a121	AT-CM3K0S	*	OAM_LT	oo*	10240	ON	N	V400___	*	1G	Y	0	0	oo*	*	1G	Y	0	0	Y
8	Reg12	AT-CM202-V2	*	OAM_V	oo*			N	V400___	*	100	Y	0	0	ooo	*	100	Y	0	0	Y
9		AT-CM202-V2	*	OAM_V	oo*			N	V400___	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
10		AT-CM202-V2	*	OAM_V	oo*			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		K	8M	Y
15		AT-CV102	*	LT						*	100					*	100			0	Y
16		AT-CV102	*	LT						*	100					*	100				
17		UnEquipped																			
18		UnEquipped																			
19		LED	*																		
20		RPSA	*																		
21		RPSB	o																		

Figure 60. Menu View

Displaying the Parameter Settings of the AT-CM Line Cards

Menus

To view the current parameter settings of the AT-CM Line Cards from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.
2. From the Module Status and Configuration menu, select the AT-CM Line Card you want to view. You can view only one line card at a time. The Module Configuration Menu in Figure 63 on page 169 is displayed.
3. Select **Line Card Configuration** to display the menu in Figure 72 on page 183.
4. Select **Display Current Configuration**. An example of the window is shown in Figure 61.

```
                    Display Current Configuration

Slot: 11 Module: AT-CM302
Operational Mode: Link Test + OAM Visible Mode
                          Port A(100BaseFX)       Port B(100Base-TX)
    Port Enable:          Enabled                 Enabled
    Negotiation:          --                      Manual negotiate
    Duplex:               --                      Full
    Speed                 --                      100 Base (100Base-TX)
    MDI/MDIX:             --                      MDI
    Flow Control          Enable                  Enable
    Ingress Rate Limit:   No Limit                No Limit
    Egress Rate Limit:    No Limit                No Limit

OAM Configuration
    Admin State:                        Enabled
    Mode:                               Active
    Maximum OAMPDU Size:                64
    Unidirectional Support:             Yes
    Loopback Support:                   Yes
    Event Support:                      Yes
    Variable Retrieval Support:         Yes

Return to Line Card Configuration...
```

Figure 61. Display Current Configuration Window

This window is for viewing purposes only. The parameters for the fiber optic port and the twisted pair port are described in Table 21 on page 171. The fiber optic port will not display any values for the Negotiation, Duplex, Speed and MDI/MDIX parameters because these parameters are not adjustable or in the case of the MDI/MDIX setting do not apply on that type of port. A twisted pair port will display values for these parameters only if Auto-Negotiation is disabled and the parameters are set manually. The OAM settings, which are described in Table 31 on page 255, are displayed if the line card is set to an OAM operating mode.

Web Browser

To view the current parameter settings of the AT-CM Line Cards from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. In the Chassis View, click either of the ports on the AT-CM Line Card you want to view. Alternatively, select the Menu View tab and click the model name of the line card. You can view only one line card at a time.
3. Select the **Line Card Configuration** tab.
4. Select the **Current Configuration** tab, shown in Figure 62 on page 168.

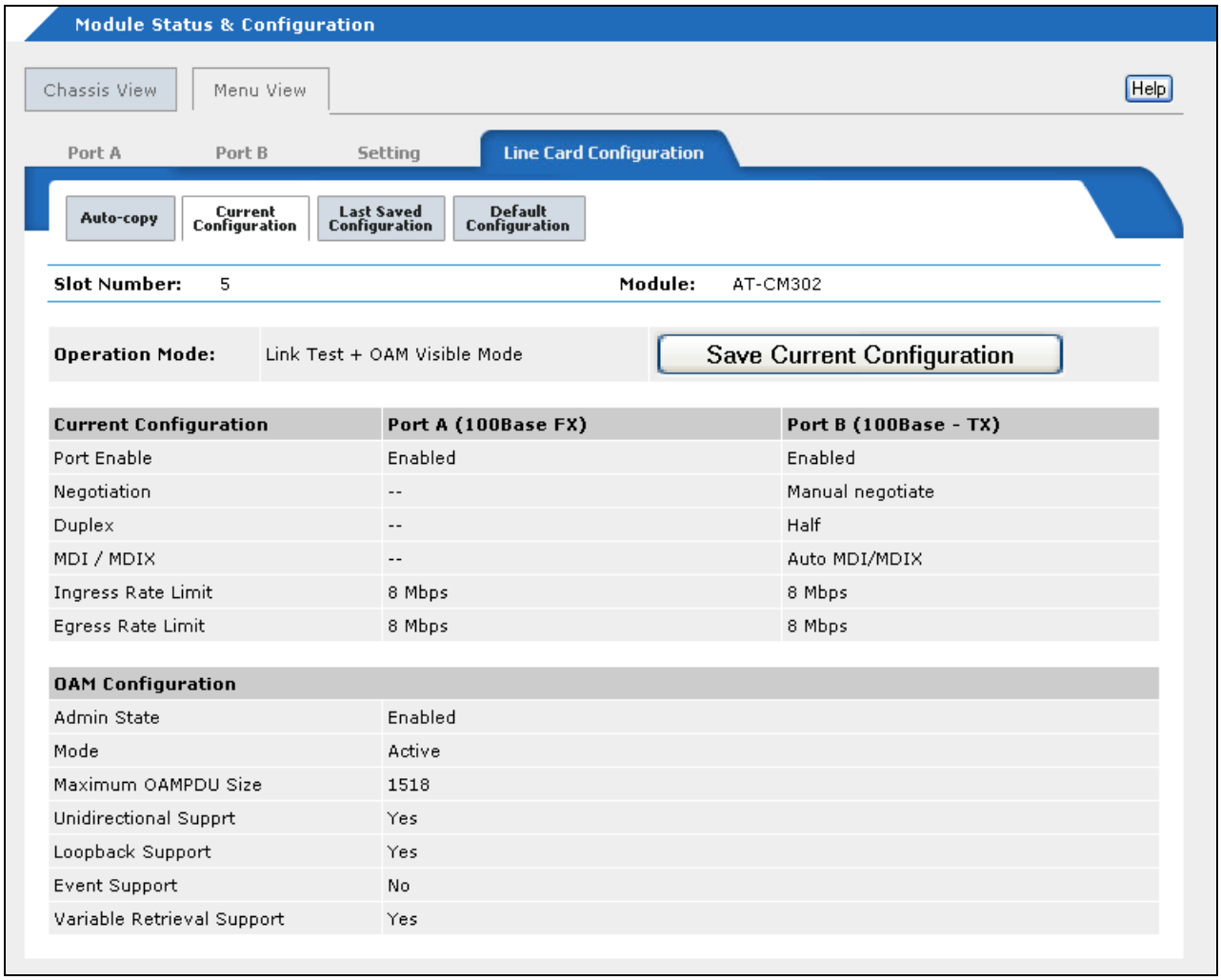


Figure 62. Current Configuration Tab

This window is for viewing purposes only. The parameters for the fiber optic port and the twisted pair port are described in Table 21 on page 171. The OAM settings, described in Table 31 on page 255, are displayed if the line card is set to an OAM operating mode. For an explanation of the Save Current Configuration button, refer to “Saving Your Configuration Changes” on page 78.

Configuring the Port Parameters on the AT-CM Line Cards

Note
The port settings on the AT-CV Line Cards are not adjustable.

Menus

To configure the parameter settings on the ports on the AT-CM Line Cards from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu, shown in Figure 58 on page 158.

2. From the Module Status and Configuration menu, select the AT-CM Line Card you want to configure. You can configure only one line card at a time. The current states of the line card's two ports are displayed in the Module Configuration Menu.

   An example of the menu is shown Figure 63. The example is from an AT-CM3 Line Card. The AT-CM2 and AT-CV Line Cards have fewer menu selections.

```
                Module Configuration Menu
                       Converteon
                        Module 4


Module: AT-CM302

  Port                    Link        Speed       Mode
  A(100BaseFX)            Online      100M        Full
  B(100BaseTX)            Online      100M        Full

  Module Name
  Maximum Frame Size: 10240 bytes
  Configure Low Power Mode
  Configure Operating Mode
  Line Card Configuration
  Reset Line Card

  Return to Module Status and Configuration ...
```

Figure 63. Module Configuration Menu (Media Converter Line Card)

Note
The maximum frame size parameter applies only to AT-CM3 Line Cards and cannot be changed.

The columns in the table are described in Table 20.

Table 20. Module Configuration Menu

Column	Description
Module	This field displays the model name of the line card. Newer versions of the AT-CM2 and AT-CM70S Line Cards are identified with suffixes like “v2” in their names.
Port	This column identifies the port types.
Link	This column displays the states of the links between the ports and the network devices connected to the ports. The possible states are: ❒ Online: The port has established a link to a network device. ❒ Offline: The port is not connected to a network device or has not established a link to a device.
Speed	This column displays the current speeds of the ports, in Mbps.
Mode	This column displays the current duplex modes of the ports. The possible duplex modes are: ❒ Full: Full-duplex mode. ❒ Half: Half-duplex mode.

3. Select the port you want to configure. You can configure only one port at a time. This displays the Port Management Menu shown in Figure 64.

```
                Port Management Menu
                  Module 4 - Port A


Port Configurations

OAM Configurations

Return to Module Configuration Menu...
```

Figure 64. Port Management Menu

Note
The OAM Configurations selection applies only to Port A on AT-CM Line Cards. The line card has to be set to an OAM operating mode. Otherwise, the selection is hidden from view. The AT-CV Line Cards do not support OAM.

4. Select **Port Configurations**. The Port Configuration Menu for the selected port is displayed. The options in the menu vary depending on the type of port and card. The example in Figure 65 is for a twisted pair port.

```
                Port Configuration Menu
                      Converteon
                   Module 4 - Port A

>  Port Enable
   Port Disable

>  Flow Control Enable
   Flow Control Disable

   Auto negotiate
>  Manual negotiate
>  Full
   Half
>  Hundred Base (100Base-TX)
   Ten Base (10Base-T)

   Auto MDI/MDIX
>  MDI
   MDIX

   Ingress_Rate_Limit
   Egress_Rate_Limit

   Port Statistics

   Return to Module Management Menu...
```

Figure 65. Port Configuration Menu

5. Configure the settings of the port, as needed. Table 21 explains the possible parameters for both twisted pair and fiber optic ports.

Table 21. Port Configuration Menu

Setting	Description
Port Enable Port Disable	These two selections enable and disable a port. When a port is enabled, it forwards traffic to and from the network device connected to it. This is the default setting. When you disable a port, it stops forwarding traffic. You might disable a port if there is a problem with the cable or with the network device connected to it. You might also disable unused ports to secure them from unauthorized connections.

Table 21. Port Configuration Menu

Setting	Description
Flow Control Enable Flow Control Disable	Flow control regulates the flow of network traffic on ports set to full-duplex mode. When flow control is enabled on a port on a line card, the port issues pause packets whenever it needs to stop the network device from sending packets. The default setting for flow control is enabled.
Auto negotiate Manual negotiate Full Half Hundred Base <100Base-TX> Ten Base <10Base-T>	These selections control the speed and duplex mode settings of the twisted pair ports on the AT-CM Line Cards. The Auto negotiate setting, the default setting, activates IEEE 802.1u Auto-Negotiation which configures the speed and duplex mode automatically. The Manual negotiate setting deactivates Auto-Negotiation on a port so that the parameters can be set manually. Selecting this option displays additional settings. The Full and Half settings establish the duplex mode of the port, which can be either full-duplex or half-duplex. The Hundred Base and Ten Base selections set a port's speed.to 100 or 10 Mbps, respectively. Here are guidelines for setting the speed or duplex mode on a port: ❒ If the network device connected to a port on a line card does not support Auto-Negotiation and has a fixed duplex mode of full duplex, disable Auto-Negotiation on the port and set the speed and duplex mode manually to avoid a duplex mode mismatch. ❒ To operate at 1000 Mbps, the twisted pair ports on the AT-CM2K0S and AT-CM3K0S Line Cards have to be set to Auto-Negotiation. You can not manually set the ports to 1000 Mbps.
MDI MDIX	When the twisted pair port is set to Auto-Negotiation, the wiring configuration is set automatically with Auto-MDI/MDIX. When Auto-Negotiation is disabled, the MDI/MDIX setting is manually controlled with these two selections.

Table 21. Port Configuration Menu

Setting	Description
Ingress Rate Limit Egress Rate Limit	These selections are used to impose packet rate limiting on the ports of the line cards and so restrict the flow of network traffic through the AT-CM Line Cards. Packet rate limiting is used for storm prevention and to protect against the formation of bottlenecks in a network topology. The rate limits, which are in kilobits and megabits per second, can be applied separately on the two ports on a line card. The Ingress Rate Limit controls the maximum number of bits per second a port accepts from the device connected to it. The port discards any frames that exceed the limit. The Egress Rate Limit controls the maximum number of bits per second a port transmits to the network device connected to it. Traffic exceeding the limit is discarded by a port. To set a rate limit on a port on the AT-CM2 Line Cards, you can choose from the following predefined values: ❒ 128 Kbps ❒ 256 Kbps ❒ 512 Kbps ❒ 1 Mbps ❒ 2 Mbps ❒ 4 Mbps ❒ 8 Mbps ❒ 0 - No rate limiting (default setting) For instance, if you select 512 Kbps as the ingress rate limit for a port on a line card, the card would accept up to that number of bits per second from the network device connected to the port and would discard bits exceeding the threshold. Rate limiting on the AT-CM3 Line Cards is handled differently. You can specify a value rather than select from predefined numbers. However, the value that you set has to conform to a specific increment, which varies depending on the range in which you are filtering. The ranges and increments are listed here:

Table 21. Port Configuration Menu

Setting	Description
Ingress Rate Limit Egress Rate Limit (Continued)	❒ For ingress or egress rate limiting from 64 Kbps to 1 Mbps, the value has to be an increment of 64 Kbps (e.g., 64, 128, etc.). ❒ For ingress or egress rate limiting from 1 Mbps to 100 Mbps, the value has to be an increment of 1,000 kbps in the range of 1,000 to 100,000 kbps (e.g., 1000, 2000, etc.). ❒ For ingress rate limiting from 100 to 200 Mbps, the value has to be an increment of 10,000 Kbps in the range of 100,000 to 200,000 kbps (e.g., 110000, 120000, etc.). The AT-CM3 Line Cards do not support ingress rate limiting above 200 Mbps. ❒ For egress rate limiting from 100 Mbps to 1 Gbps, the value has to be an increment of 10,000 kbps in the range of 100,000 to 1,000,000 kbps (e.g., 110000, 120000, etc.). ❒ To disable ingress or egress filtering, enter the value 0.
Port Statistics	For information on this menu option, refer to “Displaying Port Statistics” on page 203.

6. To save your changes in the master configuration file, return to the Module Configuration Menu and select **Line Card Configuration** and **Save Line Card Configuration**.

Web Browser

To configure the parameter settings of the ports on the AT-CM Line Cards from the web browser windows:

1. Select **Module Status & Configuration** from the left menu bar.
2. In the Chassis View, click the line card port you want to configure. Alternatively, select the Menu View tab and click the name of the line card. You can configure only one line card at a time.
3. Click the **Port A** tab to configure the fiber optic port on the media converter line card or the **Port B** tab to configure the twisted pair port. You can configure only one port at a time.

4. Click the **Port Configuration** tab to display the current settings of the port. The example in Figure 66 is from Port B, the twisted pair port, on a line card.

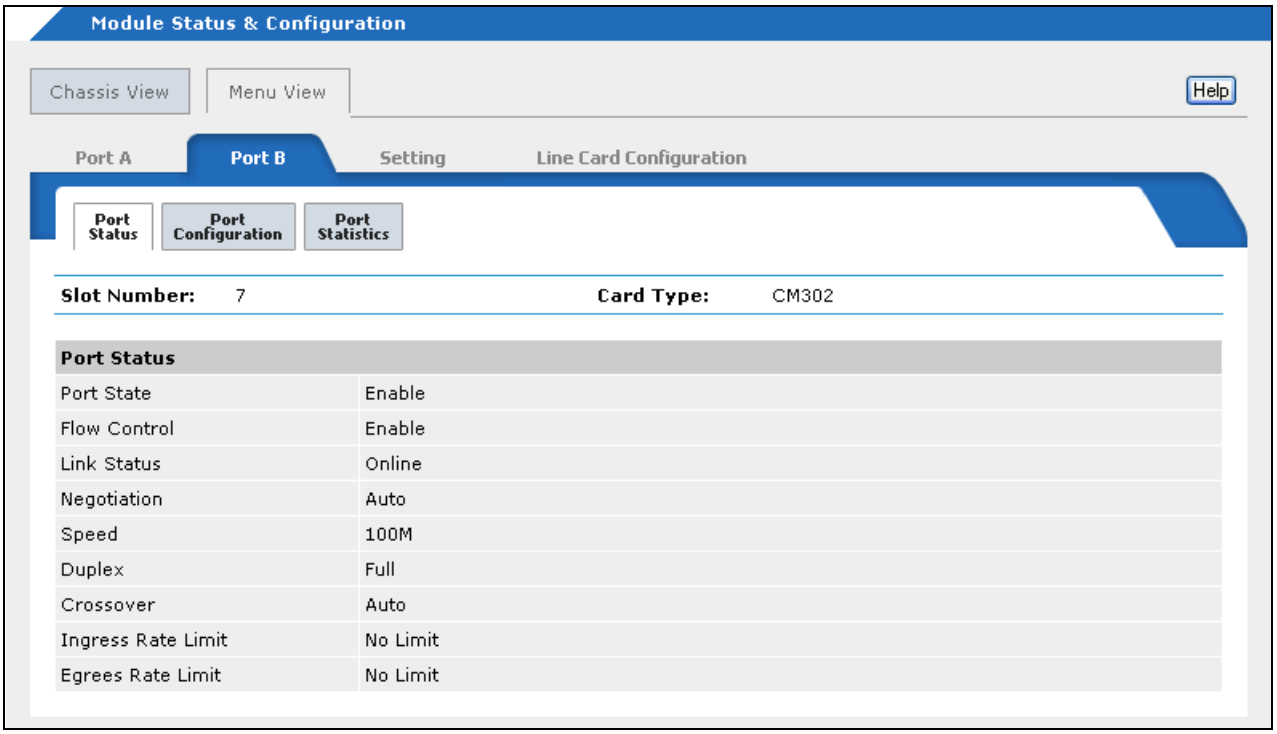


Figure 66. Port Configuration Window

5. To adjust the settings, click the **Edit** button to display the Port Configuration pop-up window.

6. Adjust the parameters, as needed. The parameters are defined in Table 21 on page 171.

7. Click the **Update** button. The new parameter settings take affect immediately on the port.

8. To save your changes in the master configuration file, click the **Line Card Configuration** tab, the **Current Configuration** tab, and the **Save Current Configuration** button.

Setting the Operating Mode

This procedure is used to change the operating modes on the AT-CM and AT-CV Line Cards. For background information, refer to “Operating Modes” on page 48.

Caution
Changing the operating mode of a line card causes the card to reset, possibly resulting in the loss of network traffic. An AT-CM Line Card immediately resumes forwarding network traffic using the default values for its parameter settings while it initializes the management software, a process that takes approximately one minute. Afterwards, the card configures its operating parameters from the settings in its configuration file or from the management card. The AT-CV Line Cards, which do not have management software, immediately resume normal operations.

Menus

To change the operating mode of a line card from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.

2. From the Module Status and Configuration menu, select the line card you want to configure. You can configure only one line card at a time. This displays the Module Configuration Menu in Figure 63 on page 169.

3. From the Module Configuration Menu, select **Configure Operating Mode**. The next menu you’ll see is the Operating Mode Configuration Menu. This menu for the AT-CM2 and AT-CM70S Line Cards is different from the menu for the AT-CM3 Line Cards. Here is the menu that you’ll see for the AT-CM2 and AT-CM70S Line Cards.

```
          Operating Mode Configuration Menu
                       Module 4

   Smart Missing Link Mode
   Missing Link Mode
   OAM BYPASS Mode
   OAM Visible Mode
   Link Test Mode
>  Line Card DIP Switch Mode

   Return to Module Configuration Menu ...
```

Figure 67. Operating Mode Configuration Menu for the AT-CM2 and AT-CM70S Line Cards

If you configuring an AT-CM3 Line Card, here is the menu you'll see.

```
          Operating Mode Configuration Menu
                       Module 4

>  Line Card DIP Switch Mode
   Line Card Management Mode

   Return to Module Configuration Menu ...
```

Figure 68. Operating Mode Configuration Menu for the AT-CM3 Line Cards

4. To configure an AT-CM2 or AT-CM70S Line Card, select the new operating mode for the card from the menu. You can select only one operating mode. The "Line Card DIP Switch Mode" selection activates the DIP switches on the line card so that the operating mode is controlled with the switches instead of the management software. After selecting the new operating mode, go to step 7.

5. To configure an AT-CM3 Line Card, do one of the following:

   - If want to use the DIP switches on the card itself to set the card's operating mode, select **Line Card DIP Switch Mode**, and skip to step 7. This is the default setting.
   - If you prefer to set the card's operating mode using the management software, select **Line Card Management Mode** to display the menu in Figure 69.

```
     Configure Operating Mode via Management Card
                       Module 4

   Link Test Mode
   Missing Link Mode
   Smart Missing Link Mode
>  OAM Link Test Mode
   OAM Missing Link Mode
   OAM Smart Missing Link Mode

   Return to Operating Mode Configuration Menu ...
```

Figure 69. Configure Operating Mode via Management Card Menu

6. Select the new operating mode for the line card from the menu. You can select only one operating mode.

Note
If you set the operating mode through the software, the DIP switches on the card remain deactivated even if you move the card to a different slot or a different chassis. To reactivate the switches, you have to install the card in a chassis that has the management card and select “Line Card DIP Switch Mode” from the Operating Mode Configuration Menu.

The following prompt is displayed:

```
Warning: Changing the Operation Mode will reset the
line card.
Change Operation Mode now? <Yes or No>:
```

7. Type **Y** to continue or **N** to cancel the procedure. This prompt is displayed:

```
If auto-copy is enable, operation mode change need to be
saved to take affect.
Save line card configuration before rebooting? (Yes or
No):
```

8. Type **Y** for yes to update the master configuration file on the management card with the new setting for the card’s operating mode. This step is especially important if the auto-copy feature is activated on the card’s slot. If the card’s operating mode isn’t saved in the master configuration file, the new setting will not take affect because the card, after resetting, will simply revert to its previous operating mode. If you are not sure whether or not the auto-copy feature is enabled on the slot, select Yes anyway. There is little likelihood you would ever respond with No to this prompt. (This step isn’t applicable to the AT-CM70S Line Card because it doesn’t support the auto-copy feature.)

   At this point, the line card resets. Before an AT-CM Line Card can return to normal network operations, it has to initialize its management software and configure its operating parameters. This process takes approximately one minute. In contrast, AT-CV Line Cards immediately return to normal operations because they do not have management software.

Web Browser

To set the operating mode of a line card from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. In the Chassis View, click one of the ports on the line card you want to configure. Alternatively, select the Menu View tab and click the name of the line card. You can configure only one line card at a time.
3. Click the **Setting** tab, shown in Figure 70.

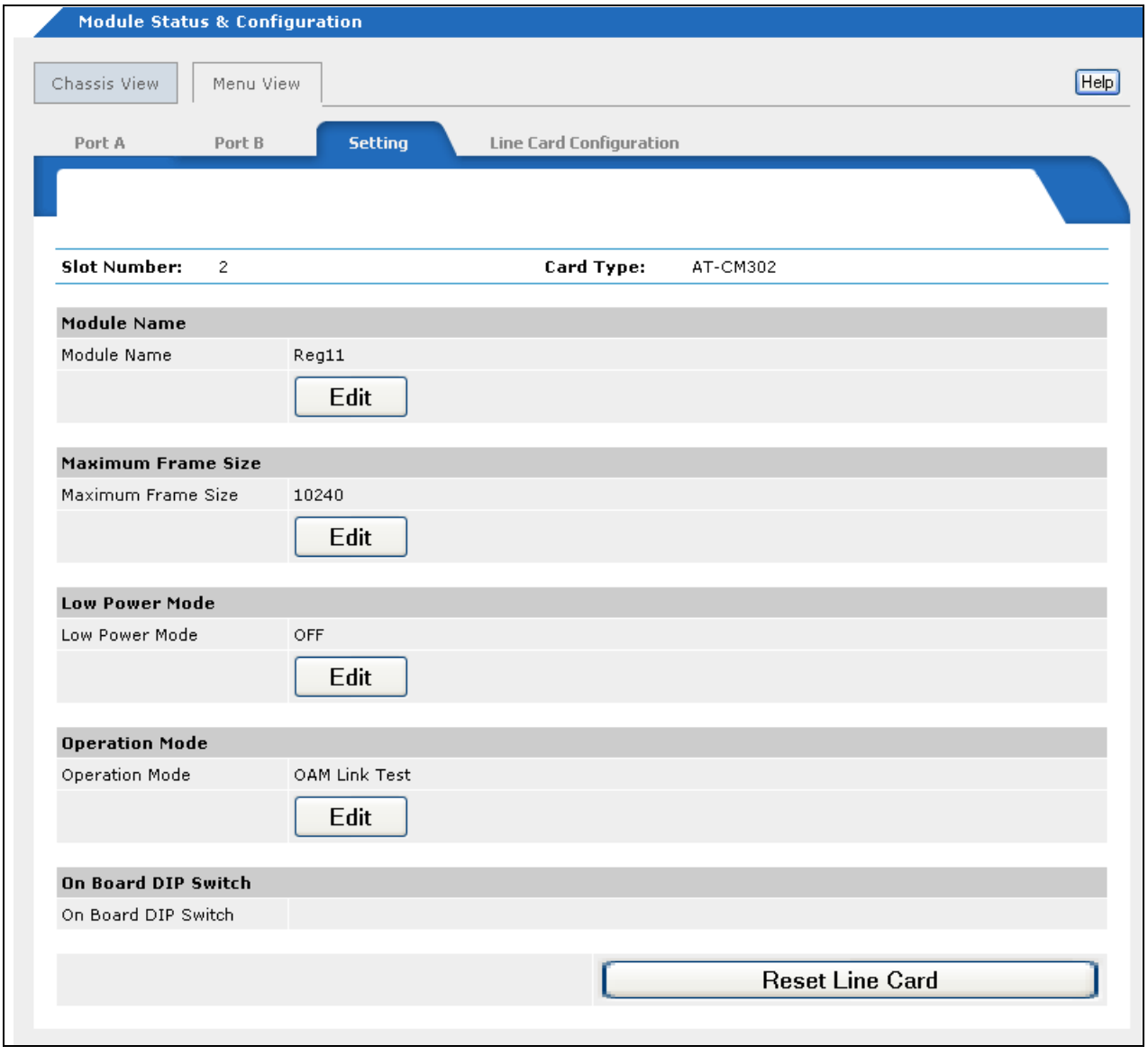


Figure 70. Setting Window

4. Click the **Edit** button in the Operation Mode section of the window.

5. In the Operation Mode pop-up window, select the new operating mode for the line card from the pull-down menu. You can select only one operating mode. The “Line Card DIP Switch Mode” selection activates the DIP switches on the line card so that the operating mode is controlled with the switches instead of the management software.

6. Click the **Update** button.

   The management card automatically updates its master configuration file with the new setting for the line card’s operating mode. Afterwards, the Module Status and Configuration menu is displayed again.

   The line card resets. When the operating mode is changed on an AT-CM Line Card, the device has to initialize its management software and configure its operating parameters before resuming normal operations. In contrast, the AT-CV Line Cards immediately return to normal operations because the cards in that series do not have management software.

Assigning Names to the AT-CM Line Cards

Menus

To assign names to the AT-CM Line Cards from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.
2. From the Module Status and Configuration menu, select the line card you want to name. You can configure only one line card at a time. The Module Configuration Menu in Figure 63 on page 169 is displayed.
3. From the Module Configuration Menu, select **Module Name** and enter the new name for the card. The name can be up to eight alphanumeric characters. Spaces and special characters are not allowed.
4. To save your changes in the master configuration file, select **Line Card Configuration** and **Save Line Card Configuration**.

Web Browser

To assign names to the AT-CM Line Cards from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. In the Chassis View, click a port on the line card you want to assign a name. Alternatively, select the Menu View tab and click the name of the line card. You can configure only one line card at a time.
3. Click the **Setting** tab, shown in Figure 70 on page 179.
4. Click the **Edit** button in the Module Name section of the window.
5. In the Module Name pop-up window, enter the new name for the card. The name can be up to eight alphanumeric characters. Spaces and special characters are not allowed.
6. Click the **Update** button.
7. To save your changes in the master configuration file, click the **Line Card Configuration** tab, the **Current Configuration** tab, and the **Save Current Configuration** button.

Configuring the Maximum Frame Size on the AT-CM2K0S Line Card

The AT-CM2 Line Cards and the AT-CM70S Line Card can handle packets up to 1522 bytes. An exception is the AT-CM2K0S Line Card because it can be configured to handle packets up to 1632 bytes. To adjust the maximum packet size on the AT-CM2K0S Line Card, perform either of the following procedures.

Menus

To adjust the maximum packet size on the AT-CM2K0S Line Card from the menus:

1. From the Main Menu, select **Module Status and Configuration**. The Module Status and Configuration Menu is shown in Figure 58 on page 158.

2. Select the AT-CM2K0S Line Card you want to configure. This displays the Module Configuration Menu for the line card. An example of the menu is shown in Figure 63 on page 169.

3. From the Module Configuration Menu, select **Configure Max Frame Size** to display the Max Frame Size Config Menu shown in Figure 71.

```
              Max Frame Size Config Menu
                      Module 14

> Max Frame Size: 1522/1518
  Max Frame Size: 1632

  Return to Module Configuration Menu ...
```

Figure 71. Max Frame Size Config Menu for the AT-CM2K0S Line Card

4. From the **Max Frame Size Config Menu**, select one of the following frame sizes:

   1522/1518
   Allows frames up to 1522 bytes. This is the default value.

   1632
   Allows frames of up to 1632 bytes.

   The line card immediately implements your change.

5. To save your changes in the master configuration file, return to the Module Configuration Menu and select **Line Card Configuration** and **Save Line Card Configuration**.

Web Browser

This procedure is not supported in the web browser windows.

Setting the Auto-copy Feature

These procedures are used to set the auto-copy feature on the chassis slots that contain AT-CM Line Cards. The auto-copy setting of a slot determines the source of the configuration settings of the line card installed in the slot. If auto-copy is disabled on a slot, the line card uses the configuration file in its own flash memory to set its parameters whenever it is reset or powered on. If auto-copy is enabled, the line card receives its configuration settings from the master configuration file on the management card. For further information, refer to "Configuration Files" on page 32.

Review the following information before performing these procedures:

- The auto-copy setting for a slot is stored in the master configuration file on the management card and not on the line card. Consequently, the AT-CM Line Cards do not carry this setting with them when you install them in different slots or chassis.
- The auto-copy feature is not supported on the AT-CM70S Line Card or the AT-CV Line Cards.

Menus

To set the auto-copy feature from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.
2. From the Module Status and Configuration menu, select the slot that you want to configure. The slot must have an AT-CM Line Card. You can configure only one slot at a time. The Module Configuration Menu in Figure 63 on page 169 is displayed.
3. Select **Line Card Configuration** to display the menu in Figure 72.

```
                Line Card Configuration
Auto-Copy Line Card Configuration
Display Current Configuration
Display Last saved Configuration
Display Default Configuration
Restore Last Saved Configuration
Return Line Card to Default Configuration
Save Line Card Configuration
Return to Module Configuration Menu ...
```

Figure 72. Line Card Configuration Menu

4. Select **Auto-copy Line Card Configuration**. The following prompt is displayed.

```
            Display Current Configuration


   Auto-copy Enable
>  Auto-copy Disable

   Return to Line Card Confirmation ...
```

Figure 73. Auto-copy Line Card Configuration Prompt

5. Select the desired setting for the auto-copy feature for the line card's slot. The default setting is disabled. If you enable auto-copy and later replace this line card with another card of the same model, the new card will be assigned the same parameter settings as this card.

6. To save your changes in the master configuration file, return to the Line Card Configuration Menu and select **Save Line Card Configuration**.

Web Browser

To set the auto-copy feature from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.

2. In the Chassis View, click either of the ports on the AT-CM Line Card in the slot you want to configure. Alternatively, select the Menu View tab and click the model name of the line card. You can configure only one slot at a time.

3. Select the **Line Card Configuration** tab.

4. If the **Auto-copy** tab is not selected, select it.

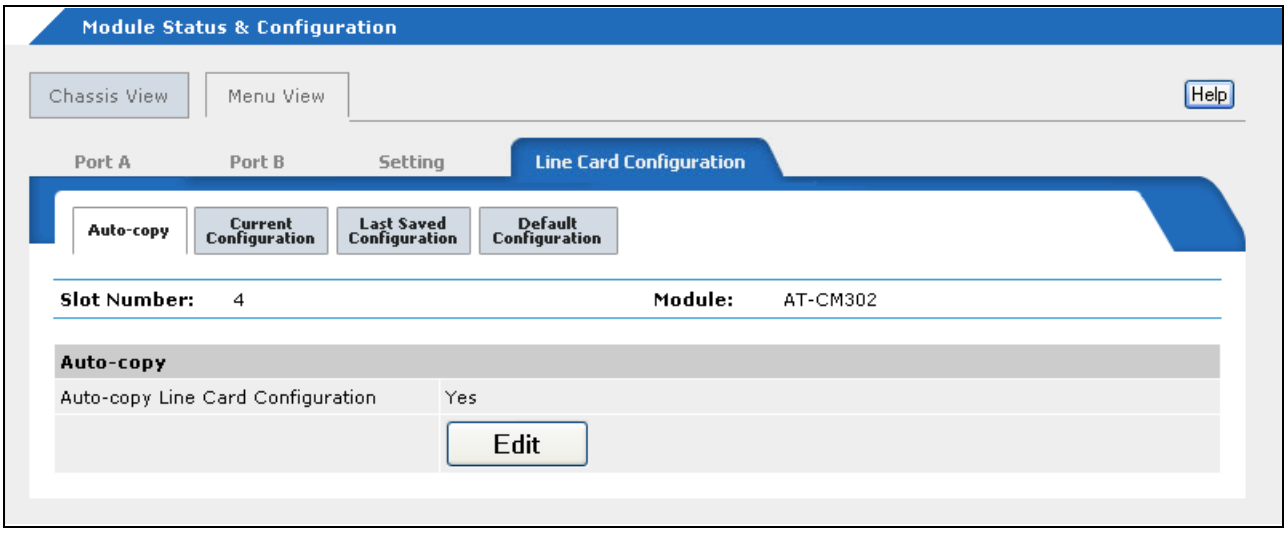


Figure 74. Auto-copy Tab

5. Click the **Edit** button.
6. In the pop-up window, select the new setting for the auto-copy feature. Selecting Yes enables auto-copy on the slot and No disables the feature.
7. Click the **Update** button.
8. To save your changes in the master configuration file, select the **Current Configuration** tab and click **Save Current Configuration**.

Setting the Low Power Mode on the AT-CM3 Line Cards

The AT-CM301, AT-CM302, and AT-CM3K0S Line Cards have a low power mode that lets you conserve power by turning off their LEDs when you are not using them to monitor the cards. The mode, which can also be set with the recessed ECO Friendly button on the front panels of the line cards, does not affect the network operations of the cards or control the RDY LED.

The procedures in this section explain on to set the mode on the line cards individually. If you want to set the mode on all the line cards in the chassis, go to “Setting the Low Power Mode on all the AT-CM3 Line Cards” on page 188.

The AT-CM2, AT-CM70S and AT-CV Line Cards do not support the low power mode.

Note
Activating or deactivating the low power mode does not affect the network operations of the AT-CM3 Line Cards.

Menus

To set the low power mode on the AT-CM3 Line Cards from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.
2. From the Module Status and Configuration menu, select the AT-CM3 Line Card you want to configure. You can configure only one line card at a time. The Module Configuration Menu in Figure 63 on page 169 is displayed.
3. Select **Configure Low Power Mode** to display the following prompt.

```
          Low Power Mode Configuration Menu
                      Module 14


   Configure Line Card to Low Power Mode (ON)
>  Configure Line Card to Normal Mode (OFF)

   Return to Line Card Confirmation ...
```

Figure 75. Low Power Mode Configuration Prompt

4. To activate the low power mode on the line card and turn off the LEDs, select **Configure Line Card to Low Power Mode (On)**. To disable the low power mode and turn on the LEDs, select **Configure Line Card to Normal Mode (Off)**.

5. To save your changes in the master configuration file, return to the Module Configuration Menu and select **Line Card Configuration** and select **Save Line Card Configuration**.

Web Browser

To set the low power mode on the AT-CM3 Line Cards from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.

2. In the Chassis View, click either port on the AT-CM3 Line Card you want to configure. Alternatively, select the Menu View tab and click the name of the line card. You can configure only one line card at a time.

3. Click the **Setting** tab, shown in Figure 70 on page 179.

4. Click the **Edit** button in the Low Power Mode section of the window.

5. To activate the low power mode and turn off the LEDs on the line card, select **On** In the Low Power Mode pop-up window. To deactivate the low power mode and turn on the LEDs, select **Off**.

6. Click the **Update** button.

7. To save your changes in the master configuration file, click the **Line Card Configuration** tab, the **Current Configuration** tab, and the **Save Current Configuration** button.

Setting the Low Power Mode on all the AT-CM3 Line Cards

If you want to set the local power mode on the AT-CM3 Line Cards individually, perform the previous procedure. If you want to set the mode on all of the AT-CM3 Line Cards in the chassis, you can save yourself some time and effort by performing one of these procedures instead.

Note
Activating or deactivating the low power mode does not affect the network operations of the AT-CM3 Line Cards.

Menus

To set the local power mode on all of the AT-CM3 Line Cards from the menus:

1. From the Main Menu, select **Configuration** to display the Configuration Menu in Figure 26 on page 100.
2. From the Configuration menu, select **All CM Line Card Configurations** to display the menu in Figure 76.

```
          All CM Line Card Configuration Menu

Save all CM Line Card Configuration
Return All CM Line Cards to Default Configuration
CM301/CM302/CM3K0S LPM
Return to Confirmation ...
```

Figure 76. All CM Line Card Configurations Menu

3. Select **CM301/CM302/CM3K0S LPM** to display the menu in Figure 77.

```
              C301/CM302/CM3K0s LPM Menu

Display Low Power Mode for All CM Line Cards
Set All CM Line Cards to Low Power Mode
Return All CM Line Cards to Normal Mode
Return to All CM Line Card Configuration Menu ...
```

Figure 77. CM301/CM302/CMCM3K0S LPM Menu

4. To activate the low power mode on all the AT-CM3 Line Cards and to turn off the LEDs, select **Set All CM Line Cards to Low Power Mode**. To disable the mode and turn on the LEDs, select **Return All CM Line Cards to Normal Mode**.

5. To view the current low power mode settings of the line cards, select **Display Low Power Mode for All CM Line Cards**. An example of the window is shown in Figure 78. If the LPM setting for a line card is ON, than the low power mode is active and the LEDs are off. If the setting is off, the default setting, the low power mode is off and the LEDs are on.

```
          Line Card Low Power Mode Information


    Module                        LPM
1   --------    AT-CV5M02         --
2   Reg11       AT-CM301          ON
3   Reg20       AT-CM301          ON
4   Reg20       AT-CM301          ON
5   Reg20       AT-CM301          ON
```

Figure 78. Line Card Low Power Mode Information

6. To save your changes in the master configuration file on the management card, return to the All CM Line Card Configurations Menu and select **Save All CM Line Card Configurations**.

Web Browser

To set the local power mode on all of the AT-CM3 Line Cards from the web browser windows:

1. Select **Configuration** from the menu bar.

2. Select the **All CM Line Cards** tab.

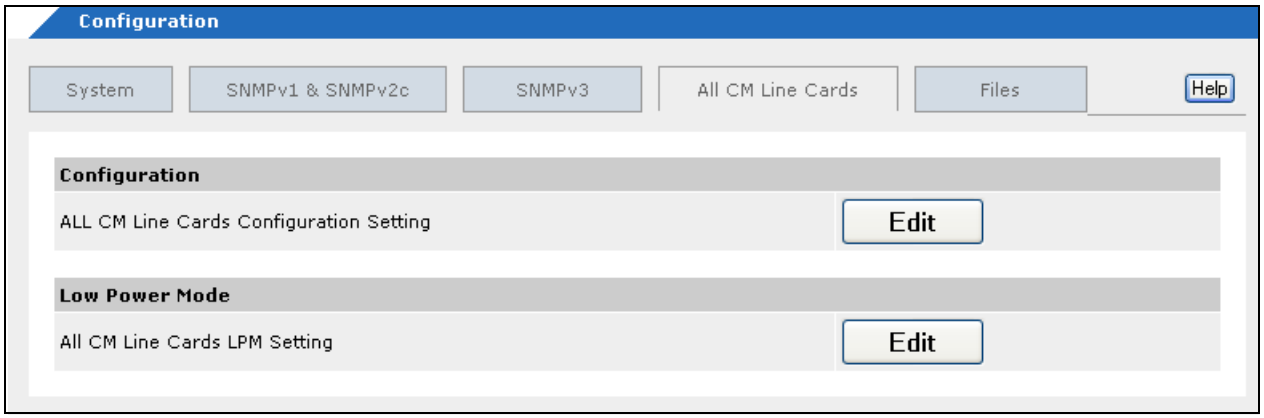


Figure 79. All CM Line Card Tab

3. Click the **Edit** button in the Low Power Mode section of the window.

4. To activate the low power mode on all the AT-CM3 Line Cards and to turn off the LEDs, select **Set All CM Line Cards to Low Power Mode** in the pop-up window. To disable the mode and turn on the LEDs, select **Return All CM Line Cards to Normal Mode**.

5. To view the current low power mode settings on the line cards, click the **Display LPM for all line cards** button. If the LPM setting for a line card is ON, than the low power mode is active and the LEDs are off. If the setting is off, the default setting, the low power mode is off and the LEDs are on.

Restoring the Default Settings

The procedures in this section are used to restore the default settings on the AT-CM Line Cards. The default settings for the line cards can be found in Chapter A, "Default Settings for the Management Card and the Line Cards" on page 337.

Caution
If the card's current operating mode is not the default mode, the card will reset, possibly resulting in the loss of some network traffic. The line card will immediately resume forwarding traffic, but it will be unresponsive to management commands for one minute while it initializes its management software.

These procedures are not supported on the AT-CM70S Line Card or the AT-CV Line Cards.

Menus

To restore the default parameter settings on a line card from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.
2. From the Module Status and Configuration menu, select the AT-CM Line Card you want to return to the default settings. You can configure only one line card at a time. The Module Configuration Menu in Figure 63 on page 169 is displayed.
3. Select **Line Card Configuration** to display the Line Card Configuration Menu in Figure 72 on page 183.

4. To view the default settings of the line card prior to activating them, select **Display Default Configuration**. An example of the window is shown in Figure 80.

```
                  Display Default Configuration


Slot: 11 Module: AT-CM302
Operational Mode: OAM Visible
                           Port A(100BaseFX)   Port B(100Base-TX)
    Port Enable:           Enabled             Enabled
    Negotiation:           --                  Auto negotiate
    Duplex:                --                  --
    Speed                  --                  --
    MDI/MDIX:              --                  --
    Flow Control           Enable              Enable
    Ingress Rate Limit:    No Limit            No Limit
    Egress Rate Limit:     No Limit            No Limit

OAM Configuration
    Admin State:                    Enabled
    Mode:                           Passive
    Maximum OAMPDU Size:            1518
    Unidirectional Support:         Yes
    Loopback Support:               Yes
    Event Support:                  No
    Variable Retrieval Support:     Yes

Return to Line Card Configuration...
```

Figure 80. Display Default Configuration Window

5. To return the parameter settings on the line card to the default values, select **Return Line Card to Default Configuration** from the Line Card Configuration Menu.

6. At the confirmation prompt, select **Yes** to return the parameter settings on the line card to the default values or **No** to cancel the procedure. If you select Yes, the parameter settings on the card are returned to the default settings. The line card will reset if its current operating mode is different from the default setting. During this process, this message is displayed on the screen:

   ```
   Setting operation mode and resetting line card.
   ```

7. To save your changes in the master configuration file, wait for the card to initialize its management software and select **Save Line Card Configuration** from the Line Card Configuration Menu.

Web Browser

To restore the default parameter settings on a line card from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. In the Chassis View, click either port on the AT-CM Line Card you want to configure. Alternatively, select the Menu View tab and click the name of the line card. You can configure only one line card at a time.
3. Click the **Line Card Configuration** tab.
4. Select the **Default Configuration** tab, shown in Figure 81.

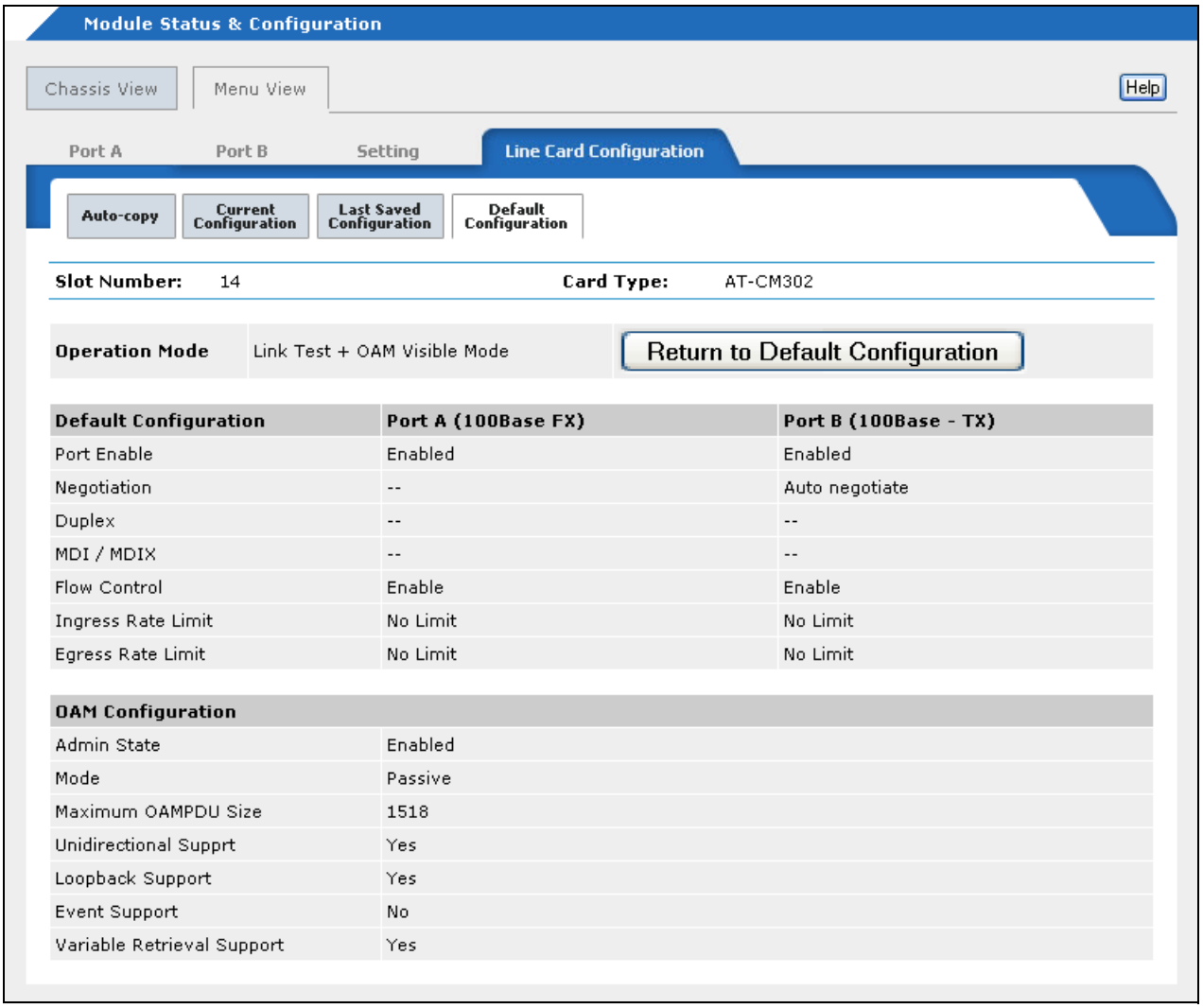


Figure 81. Default Configuration Tab

This tab displays the line card's default settings.

5. To return the parameter settings on the line card to the default values, click **Return to Default Configuration**.

   The parameter settings on the line card are returned to their default settings and the Menu View is displayed. The line card will reset if its current operating mode is not the default operating mode.

6. For instructions on how to save your changes in the master configuration file, refer to “Saving Your Configuration Changes” on page 78.

Restoring the Last Saved Configurations to the AT-CM3 Line Cards

These procedures are used to restore the AT-CM301, AT-CM302, and AT-CM3K0S Line Cards to their last saved configurations, stored on the master configuration file on the management card. You might perform this procedure to discard parameter changes you made to a line card but did not save, or to configure a new line card with the save settings as the previous card in the slot. For more information, refer to "Configuration Files" on page 32.

This procedure is not supported on the AT-CM2, AT-CM70S or AT-CV Line Cards.

Caution

If the card's current operating mode is different from its last saved configuration, the card will reset, possibly resulting in the loss of some network traffic. As the line card initializes its management software, which takes approximately one minute, it forwards traffic using its default parameter settings.

Menus

To restore the last saved configuration to a line card from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.

2. From the Module Status and Configuration menu, select the AT-CM3 Line Card you want to configure. You can configure only one line card at a time. The Module Configuration Menu in Figure 63 on page 169 is displayed.

3. Select **Line Card Configuration** to display the menu in Figure 72 on page 183.

4. To view the parameter settings of the card's last saved configuration before activating them on the line card, select **Display Last Saved Configuration**. If the card is new to the slot, the settings are from the previous card installed in the slot. If the fields are empty, the master configuration file does not have a previous configuration for this slot or the previous and current line cards of the slot are different models.

5. To return the line card to its last saved configuration, return to the Line Card Configuration menu and select **Restore Last Saved Configuration**.

6. At the confirmation prompt, select **Yes** to restore the settings or **No** to cancel the procedure. If you select Yes, the parameter settings on the card are returned to the last saved configuration. The line card will reset if its current operating mode is different from the last saved configuration.

Web Browser

To restore the last saved configuration to an AT-CM3 Line Card from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. In the Chassis View, click either of the ports on the line card you want to configure. Alternatively, select the Menu View tab and click the model name of the line card. You can configure only one line card at a time.
3. Select the **Line Card Configuration** tab.
4. To restore the previous configuration to the line card, select the **Last Saved Configuration** tab, shown in Figure 82.

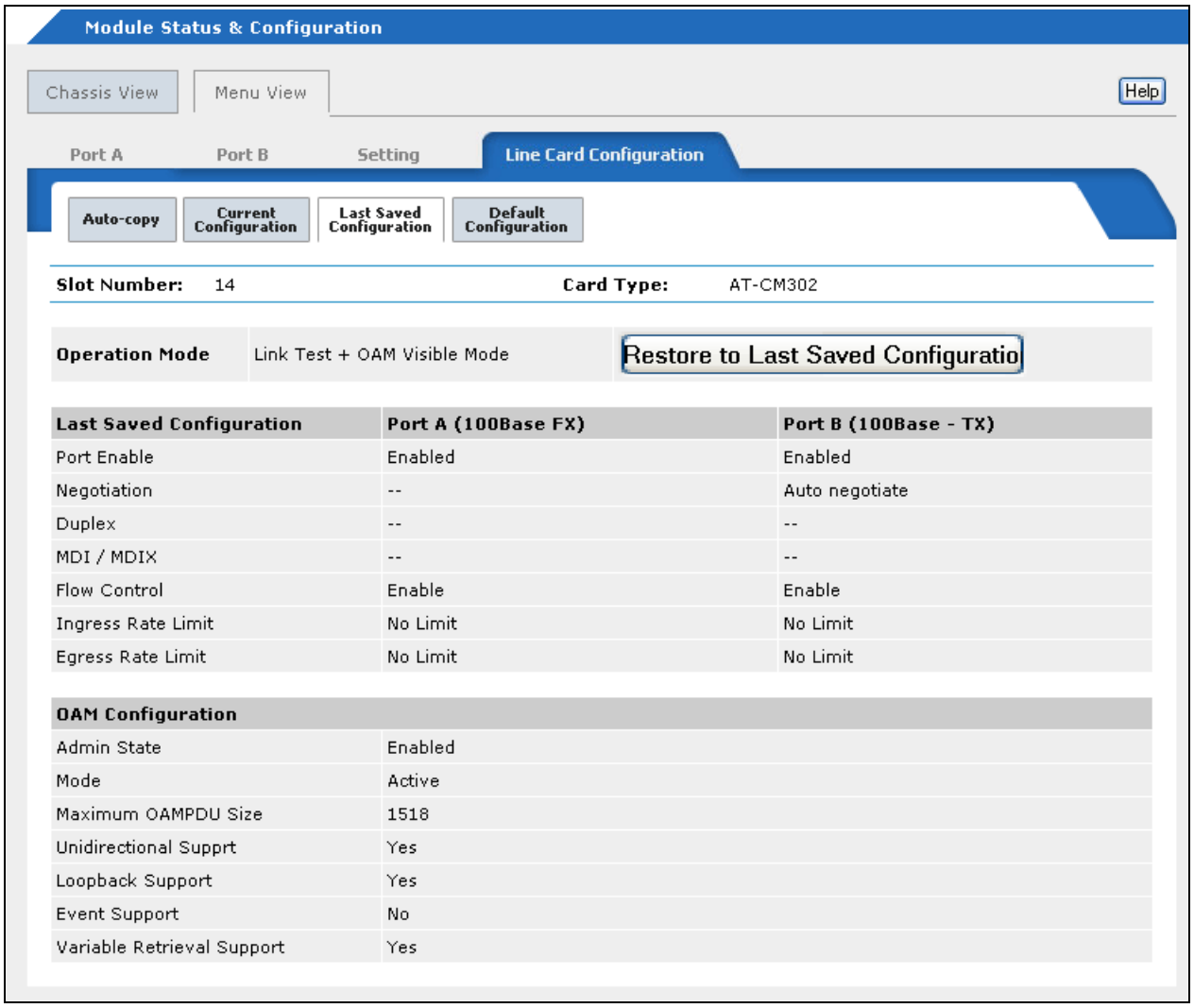


Figure 82. Last Saved Configuration Tab

This tab displays the last saved configuration settings for this card. The settings are obtained from the master configuration file on the management card. If the card is new to the slot, the settings are from the previous card installed in the slot. If the fields are empty, the master configuration file does not have a previous configuration for this slot or the previous and current line cards of the slot are different models.

5. To restore the line card to the last saved configuration, click the **Restore to Last Saved Configuration** button. The line card will reset if its current operating mode is different from the last saved configuration.

Resetting an AT-CM3 Line Card

The procedures in this section explain how to reset individual AT-CM301, AT-CM302, and AT-CM3K0S Line Cards in a Converteon chassis. You might reset a line card if you believe it is experiencing a problem.

You cannot reset individual AT-CM2 and AT-CV Line Cards through the management software. To reset one of these cards, you should remove it from its enclosure, wait a few seconds, and then reinstall it.

Caution
Resetting an AT-CM3 Line Card disrupts its normal operations. Some network traffic may be lost. When an AT-CM3 Line Card is reset, it has to initialize its management software. During the initialization process, which takes approximately one minute, the line card forwards network traffic using the default values for its parameter settings. Afterwards, it configures its parameters using the settings from the AT-CV5M02 Management Card or from its own configuration file, depending on the auto-copy setting of its slot.

For instructions on how to reset the AT-CV5M02 Management Card, refer to “Resetting the Management Card” on page 119.

Menus

To reset an AT-CM3 Line Card from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration menu shown in Figure 58 on page 158.
2. From the Module Status and Configuration menu, select the AT-CM Line Card you want to reset. The Module Configuration Menu in Figure 63 on page 169 is displayed.
3. Select **Reset Line Card**. There is no confirmation prompt. The line card resets immediately.

Web Browser

To reset an AT-CM3 Line Card from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. In the Chassis View, click either of the ports on the AT-CM3 Line Card you want to reset. Alternatively, select the Menu View tab and click the model name of the card. You can reset only one line card at a time.
3. Select the **Setting** tab.
4. Click the **Reset Line Card** button. There is no confirmation prompt. The line card resets immediately.

Resetting All of the AT-CM2, AT-CM3, and AT-CM70S Media Converter Line Cards

The procedures in this section are used to reset all of the AT-CM2, AT-CM3, and AT-CM70S Line Cards in a chassis.

> **Caution**
> Resetting an AT-CM Line Card disrupts its normal operations. Some network traffic may be lost. When an AT-CM Line Card is reset, it has to initialize its management software. During the initialization process, which takes approximately one minute, the line card forwards network traffic using the default values for its parameter settings. Afterwards, it configures its parameters using the settings from the AT-CV5M02 Management Card or from its own configuration file, depending on the auto-copy setting of its slot.

This procedure does not affect AT-CV Line Cards or the AT-CV5M02 Management Card. To reset the AT-CV Line Cards, refer to "Resetting All of the AT-CM, AT-CM70S, and AT-CV Media Converter Line Cards" on page 201. For instructions on how to reset the AT-CV5M02 Management Card, refer to "Resetting the Management Card" on page 119.

Menus

To reset all of the AT-CM2, AT-CM3, and AT-CM70S Line Cards in the chassis from the menus:

1. From the Main Menu, select **Diagnostics**. The Diagnostics Menu is shown in Figure 53 on page 148.
2. From the Diagnostics Menu, select **Local CM Line Card Diagnostics Menu** to display the menu in Figure 83.

```
          Local CM Line Card Diagnostics Menu
                       Converteon

Image Version

MAC Address and Serial Number

SFP Information

Reset All CM Line Cards

Return to Diagnostics Menu...
```

Figure 83. Local CM Line Card Diagnostics Menu

3. Select **Reset All CM Line Cards**.

4. At the confirmation prompt, select **Yes** to reset all of the media converter line cards or **No** to cancel the procedure.

5. To monitor the status of the line cards, return to the Main Menu and select **Module Status and Configuration**. After a line card has completed the reset process, its status changes from Resetting to On.

Web Browser

To reset all of the AT-CM2, AT-CM3, and AT-CM70S Line Cards in the chassis from the web browser windows:

1. Select **Diagnostics** from the menu bar.

2. Select the **Local CM Line Card** tab.

3. Select the **Reset All CM Line Cards** tab.

4. Click the **Reset All CM Line Cards** button. There is no confirmation prompt.

5. To monitor the states of the line cards, select **Module Status & Configuration** from the menu bar and the **Menu View** tab. A card has completed the reset process when the value in the CardTypeVer field changes from “Resetting” to the model name.

Resetting All of the AT-CM, AT-CM70S, and AT-CV Media Converter Line Cards

The procedures in this section explain how to reset all of the AT-CM2, AT-CM3, AT-CM70S and AT-CV Line Cards in a chassis.

> **Caution**
> Resetting a media converter line card disrupts its normal operations. Some network traffic may be lost. When an AT-CM Line Card is reset, it has to initialize its management software. During the initialization process, which takes approximately one minute, the line card forwards network traffic using the default values for its parameter settings. Afterwards, it configures its parameters using the settings from the AT-CV5M02 Management Card or from its own configuration file, depending on the auto-copy setting of its slot.
>
> The AT-CV Line Cards do not have management software and immediately resume forwarding network traffic after the reset.

For instructions on how to reset the AT-CV5M02 Management Card, refer to "Resetting the Management Card" on page 119.

Menus

To reset all of the media converter line cards in the chassis from the menus:

1. From the Main Menu, select **Diagnostics**. The Diagnostics Menu is shown in Figure 53 on page 148.
2. From the Diagnostics Menu, select **Chassis Diagnostics** to display the Chassis Diagnostics Menu in Figure 54 on page 148.
3. Select **Reset Chassis and Restart All CV & CM Line Cards**.
4. At the confirmation prompt, select **Yes** to reset all of the media converter line cards or **No** to cancel the procedure. If you choose Yes, the following message is displayed:

   ```
   The chassis will reset when FLASH writes are complete.
   ```

   Afterwards, the Chassis Diagnostics Menu is displayed again.
5. To monitor the status of the line cards, return to the Main Menu and select **Module Status and Configuration**. When a line card has completed the reset process, its status changes from Resetting to On.

Web Browser

To reset all of the media converter line cards in the chassis from the web browser windows:

1. Select **Diagnostics** from the menu bar.
2. If the **Chassis** tab isn't selected, select it.
3. Select the **Reset Chassis** tab shown in Figure 84.

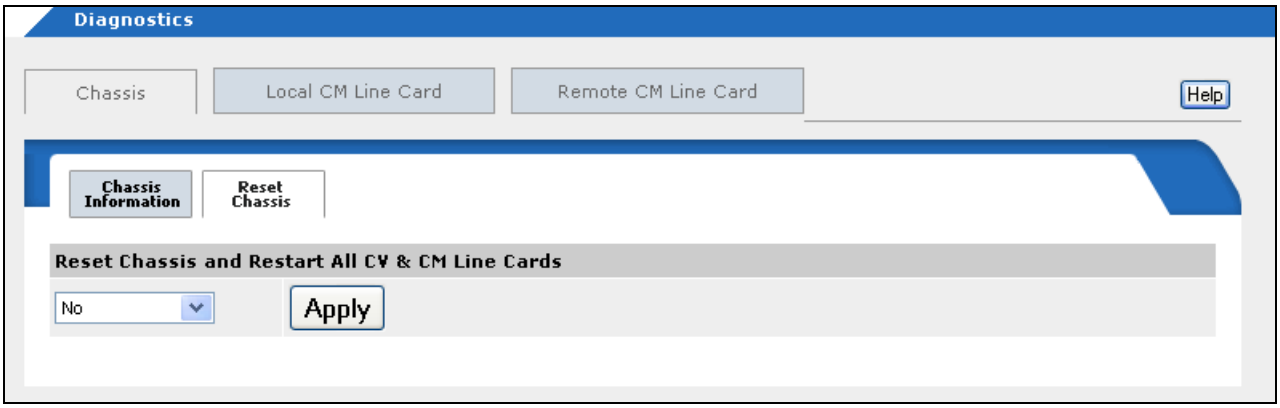


Figure 84. General tab

4. In the Reset Chassis and Line Cards section of the window, select **Yes** from the pull-down menu and click **Apply**.
5. To monitor the states of the line cards, select **Module Status & Configuration** from the menu bar and the **Menu View** tab. A card has completed the reset process when the value in the CardTypeVer field changes from "Resetting" to the model name.

Displaying Port Statistics

Menus

To display the traffic statistics for the ports on the AT-CM Line Cards from the menus:

1. From the Main Menu, select **Module Status and Configuration**. The Module Status and Configuration Menu is shown in Figure 58 on page 158.
2. Select the AT-CM Line Card whose statistics you want to view. An example of the Module Configuration Menu is shown in Figure 63 on page 169.
3. Select a port. You can select only one port. The Port Management Menu is shown in Figure 64 on page 170.
4. Select **Port Configuration** to display the Port Configuration Menu in Figure 65 on page 171.
5. From the Port Configuration Menu, select **Port Statistics**.
6. Select **Show Port Statistics**. The number of statistics depends on the line card. For the port statistics for the AT-CM3 Line Cards, refer to Table 22. For the port statistics for the AT-CM2 and AT-CM70S Line Cards, refer to Table 23 on page 206.

Table 22. Port Statistics for the AT-CM3 Line Cards

Statistic	Description
InGoodOctetsLo	The length in octets of all the good frames received by a port. The length is given in two counters. This is the lower 32-bits of the counter.
InGoodOctetsHi	The length in octets of all the good frames received by a port. The length is given in two counters. This is the upper 32-bits of the counter.
InBadOctets	The length in octets of all the bad frames received by a port.
InUnicast	The number of unicast frames received by a port.
InBroadcasts	The number of broadcast frames received by a port.
InMulticasts	The number of multicast frames received by a port.
InPause	The number of pause frames received by a port.

Table 22. Port Statistics for the AT-CM3 Line Cards

Statistic	Description
InUndersize	The number of undersize frames received by a port. An undersize frame is less than 64 octets in length and has a valid FCS.
InFragments	The number of fragments received by a port. A fragment is less than 64 octets in length and has an invalid FCS.
InOversize	The number of oversize frames received by a port. An oversize frame is larger than 10,240 bytes and has a valid FCS.
InJabber	The number of jabber frames received by a port. A jabber frame is larger than 10,240 bytes and has an invalid FCS.
InRxErr	The number of ingress frames that have an RxErr signal from the PHY.
InFCSErr	The number of ingress frames with CRC errors. Frames with this error are not counted in the InFragments, InJabber, or InRxErr counter.
OutOctetsLo	The length in octets of all the frames sent by a port. The length is given in two counters. This is the lower 32-bits of the counter.
OutOctetsHi	The length in octets of all the frames sent by a port. The length is given in two counters. This is the upper 32-bits of the counter.
OutUnicast	The number of unicast frames sent by a port.
OutBroadcasts	The number of broadcast frames sent by a port.
OutMulticasts	The number of multicast frames sent by a port.
OutPause	The number of pause frames sent by a port.
Deferred	The number of frames that were successfully transmitted without collisions after being delayed one time because the medium was busy. This counter applies only to half-duplex mode.
Collisions	The number of frames that encountered a collision and that were not counted in the Single, Multiple, Excessive, or Late counter.
Single	The number of frames that were successfully transmitted after they encountered one collision. This counter applies only to half-duplex mode.

Table 22. Port Statistics for the AT-CM3 Line Cards

Statistic	Description
Multiple	The number of frames that were successfully transmitted after they encountered more than one collision. This counter applies only to half-duplex mode.
Excessive	The number of frames that were discarded after they encountered 16 consecutive collisions. This counter applies only to half-duplex mode.
Late	The number of times that a collision was detected late in the transmission of a frame. This counter applies only to half-duplex mode.
OutFCSErr	The number of egress frames with an invalid FCS.
64 Octets	The number of ingress and egress packets with a length of 64 octets. This counter includes packets with errors.
65 to 127 Octets	The number of ingress and egress packets with a length of 65 to 127 octets. This counter includes packets with errors.
128 to 255 Octets	The number of ingress and egress packets with a length of 127 to 255 octets. This counter includes packets with errors.
256 to 511 Octets	The number of ingress and egress packets with a length of 256 to 511 octets. This counter includes packets with errors.
512 to 1023 Octets	The number of ingress and egress packets with a length of 512 to 1023 octets. This counter includes packets with errors.
1024 to Max Octets	The number of ingress and egress packets with a length of 1024 octets up to the maximum permitted by the line card. This counter includes packets with errors.

The port statistics for the AT-CM2 and AT-CM70S Line Cards are described in Table 23.

Table 23. Port Statistics for AT-CM2 and AT-CM70S Line Cards

Row	Description
Received Packets	The number of packets received by the port from the network device connected to it. This statistic is only available on the AT-CM2K0S Line Card.
Transmitted Packets	The number of packets transmitted by the port. This statistic is only available on the AT-CM2K0S Line Card.
CRC Errors	The number of received packets with CRC errors.
Collisions	The number of collisions on the port. This statistic is applicable only when a port is operating in the half-duplex mode.

Web Browser

To display the traffic statistics for the ports on the AT-CM Line Cards from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. In the Chassis View, click one of the ports of the line card whose statistics you want to view. Or, select the Menu View tab and click the model name of the line card. You can view the statistics of only one line card at a time.
3. Select the **Port A** tab to view the statistics for the fiber optic port or the **Port B** tab to view the statistics for the twisted pair port.
4. Click the **Port Statistics** tab to display the Port Statistics window for the port you selected. The port statistics for the AT-CM3 Line Cards are described in Table 22 on page 203. The port statistics for the AT-CM2 and AT-CM70S Line Cards are described in Table 23 on page 206.

Displaying the Version Numbers of the Management Software

The procedures in this section are used to view the version numbers of the management software programs for the local or remote AT-CM Media Converter Line Cards and the AT-CV5M02 Management Card. You may find this information useful if you obtain new versions of the programs and want to ascertain which line cards need the new releases. Also, you might be asked to provide this information if you contact Allied Telesis technical support for assistance. The management software programs are listed here:

- The AT-CM2 and AT-CM70S Line Cards use the AT-S73 Management Software
- The AT-CM3 Line Cards use the AT-S102 Management Software
- The AT-CV5M02 Management Card uses the AT-S99 Management Software

Note
There is no management software program for the AT-CV Media Converter Line Cards.

Menus

To view the information from the menus:

1. From the Main Menu, select **Diagnostics**. The Diagnostics Menu is shown in Figure 53 on page 148.
2. To view the version numbers of the management software for the local line cards, select **Local CM Line Card Diagnostics** to display the menu in Figure 83 on page 199.
3. Select **Image Version**. An example of the Line Card Module Software Image Version window is shown in Figure 85 on page 208. This window is for viewing purposes only.

```
          Line Card Module Software Image Version
                        Converteon

  Module                          App Ver.     BootLdr Ver.
 1: --------   AT-CV5M02          V4.0.1
 2: Reg11      AT-CM3K0S          V4.0.1       V1.7.0
 3: Reg20      AT-CM301           V4.0.1       V1.7.0
 4: Reg21      AT-CM301           V4.0.1       V1.7.0
 5: Area2a     AT-CM301           V4.0.1       V1.7.0
 6: Area2b     AT-CM302           V4.0.1       V1.7.0
 7: a121       AT-CM202-v2        V4.0.1       V1.7.0
 8: Reg12      AT-CM202-v2        V4.0.1       V1.7.0
 9: --------   AT-CM202-v2        V4.0.1       V1.7.0
10: --------   AT-CM212A/1        V4.0.1       V1.7.0
11: --------   AT-CV102           --
12: --------   AT-CV102           --
13: --------   AT-CV102           --
14: --------   AT-CV102           --
15: --------   Unequipped         --
16: --------   Unequipped         --
17: --------   Unequipped         --
18: --------   Unequipped         --
Hit any key to continue ...
```

Figure 85. Line Card Module Software Image Version Window

The columns in the window are described in Table 24.

Table 24. Line Card Module Software Image Version Window

Row	Description
Module	This column displays the slot numbers, the names and the model names of the cards. For instructions on how to assign a name to a line card, refer to “Assigning Names to the AT-CM Line Cards” on page 181.
App Ver.	This column displays the version numbers of the management software on the AT-CV5M02 Management Card and the AT-CM Line Cards.If this field is blank for an AT-CM Line Card, the line card and the management card have different versions of the management software. This column does not apply to the AT-CV Line Cards because they do not have management software.

Table 24. Line Card Module Software Image Version Window

Row	Description
BootLdr Ver.	This column displays the version numbers of the bootloader files on the AT-CM Line Cards. This column does not apply to the AT-CV5M02 Management Card or to the AT-CV Line Cards because they do not have bootloader files.

Web Browser

To view the version numbers of the management software and bootloader files on the line cards from the web browser windows:

1. Select **Diagnostics** from the menu bar.
2. Select the **Local CM Line Card** tab.
3. If the Image Version tab isn't selected, select it. The columns in the window are described in Table 24 on page 208.

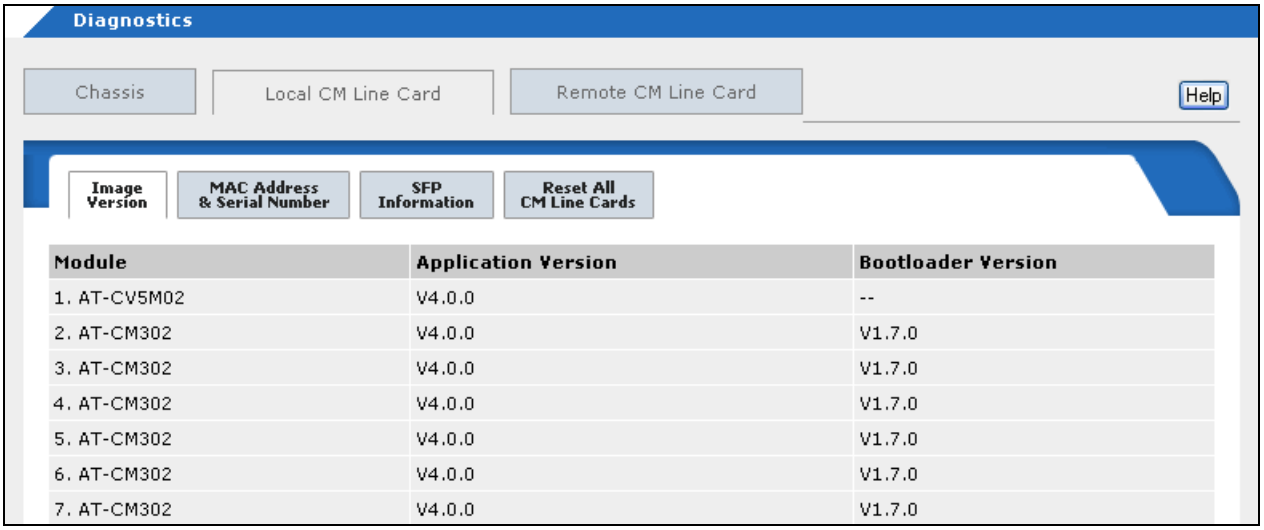


Figure 86. Image Version Window

Displaying the MAC Addresses and Serial Numbers

This section has the procedures for displaying the MAC addresses and serial numbers of the cards in the chassis. You may be asked to provide this information if you contact Allied Telesis for technical assistance.

Menus

To view the information from the menus:

1. From the Main Menu, select **Diagnostics**. The Diagnostics Menu is shown in Figure 53 on page 148.
2. To view the MAC addresses and serial numbers of the local line cards, select **Local CM Line Card Diagnostics** to display the menu in Figure 83 on page 199.
3. Select **MAC Address and Serial Number** to display the window shown in Figure 87.

```
                    Line Card Module Information
                             Converteon

   Module                    MAC Address          Serial Number

 1: --------  AT-CV5M02       --                   A02803L05060001S C
 2: Reg11     AT-CM3K0S       00:0C:46:CE:D9:60    A03572L061100040 B
 3: Reg20     AT-CM301        00:0C:46:CE:D9:72    A03572L061100170 B
 4: Reg21     AT-CM301        00:0C:46:CE:D9:02    A03572L061100014 B
 5: Area2a    AT-CM301        00:0C:46:CE:DA:12    A03572L061100111 B
 6: Area2b    AT-CM302        00:15:77:52:5C:6F    A03578G071400012 A
 7: a121      AT-CM202-v2     00:15:77:52:5C:A1    A03578G071400225 B
 8: Reg12     AT-CM202-v2     00:15:77:52:52:44    A03713G070500081 B
 9: --------  AT-CM202-v2     00:15:77:52:24:12    A03713G070500120 B
10: --------  AT-CM212A/1     00:15:77:52:11:22    A03713G070500120 B
11: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A03713G070500012 B
12: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A03713G070500087 B
13: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A03713G070500055 B
14: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A02765G070500146 D
15: --------  Unequipped
16: --------  Unequipped
17: --------  Unequipped
18: --------  Unequipped

  Hit any key to continue ...
```

Figure 87. Line Card Module Information

The columns in the window, which is for viewing purposes only, are described in Table 25.

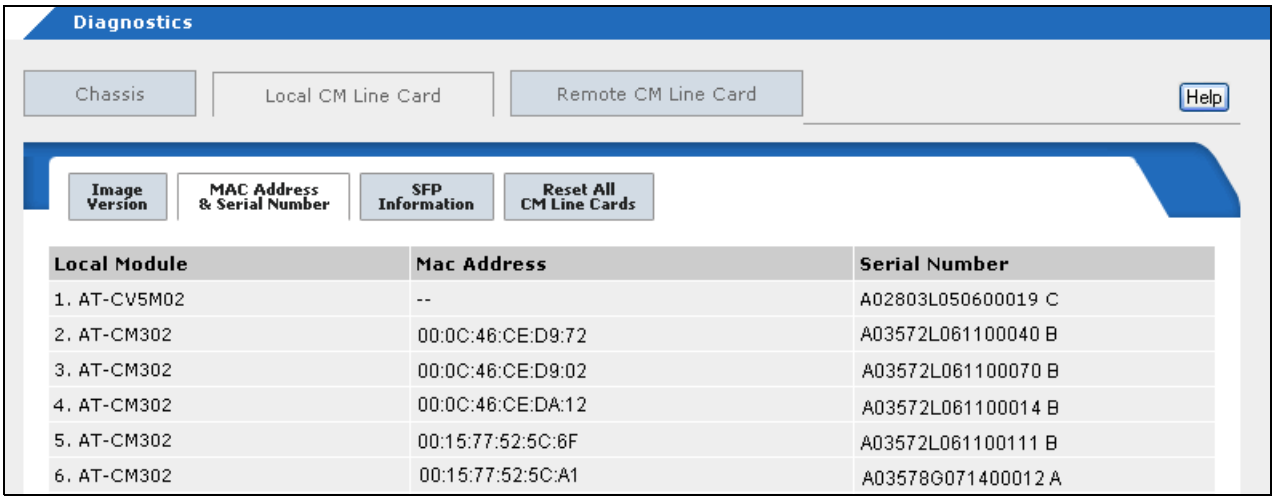
Table 25. Line Card Module Information Window

Row	Description
Module	This column displays the slot numbers, the names and the model names of the cards. For instructions on how to assign a name to a line card, refer to "Assigning Names to the AT-CM Line Cards" on page 181.
MAC Address	This column displays the MAC addresses of the AT-CM Line Cards in the chassis. The AT-CV5M02 Management Card does not have a MAC address. To communicate with your network, it adopts the MAC address of its chassis. To view the MAC address of a chassis, refer to "Displaying the Operational Status of the Chassis" on page 148. The AT-CV Line Cards have the MAC address FF:FF:FF:FF:FF:FF.
Serial Number	This column displays the serial numbers of the cards.

Web Browser

To view the MAC addresses and serial numbers of the cards from the web browser windows:

1. Select **Diagnostics** from the menu bar.
2. Select the **Local CM Line Card** tab.
3. Select the **MAC Address & Serial Number** tab, shown in Figure 88 on page 212. This window is for viewing purposes only. The columns in the window are described in Table 25 on page 211.



Local Module	Mac Address	Serial Number
1. AT-CV5M02	--	A02803L050600019 C
2. AT-CM302	00:0C:46:CE:D9:72	A03572L061100040 B
3. AT-CM302	00:0C:46:CE:D9:02	A03572L061100070 B
4. AT-CM302	00:0C:46:CE:DA:12	A03572L061100014 B
5. AT-CM302	00:15:77:52:5C:6F	A03572L061100111 B
6. AT-CM302	00:15:77:52:5C:A1	A03578G071400012 A

Figure 88. MAC Address & Serial Number Window

Displaying SFP Module Information

The procedures in this section are used to view the manufacturer's specifications for the SFP modules in the AT-CM2K0S, AT-CM70S and AT-CM3K0S Line Cards. For SFP modules that support DDM in AT-CM3K0S Line Cards, the windows are also used to display the alarm thresholds that generate the event messages listed in Table 14 on page 127.

Menus

To view the SFP information from the menus:

1. From the Main Menu, select **Diagnostics**. The Diagnostics Menu is shown in Figure 53 on page 148.
2. Select **Local CM Line Card Diagnostics** to display the menu in Figure 83 on page 199.
3. From the Diagnostics Menu, select **SFP Information**. The following prompt is displayed:

   ```
   Enter LineCard Slot Number: ->
   ```

4. Enter the slot number of the AT-CM2K0S, AT-CM70S or AT-CM3K0S Line Card with the SFP module. The following prompt is displayed:

   ```
   Enter LineCard Port [A or B]: ->
   ```

5. Enter the port of the SFP module.

   The example of the SFP Information window shown in Figure 89 is from the AT-CM3K0S Line Card. The Digital Diagnostics Monitoring Information section, which lists the thresholds that generate the event messages listed in Table 14 on page 127, is limited to SFP modules that support digital diagnostics monitoring. Otherwise, that section of the window is not displayed.

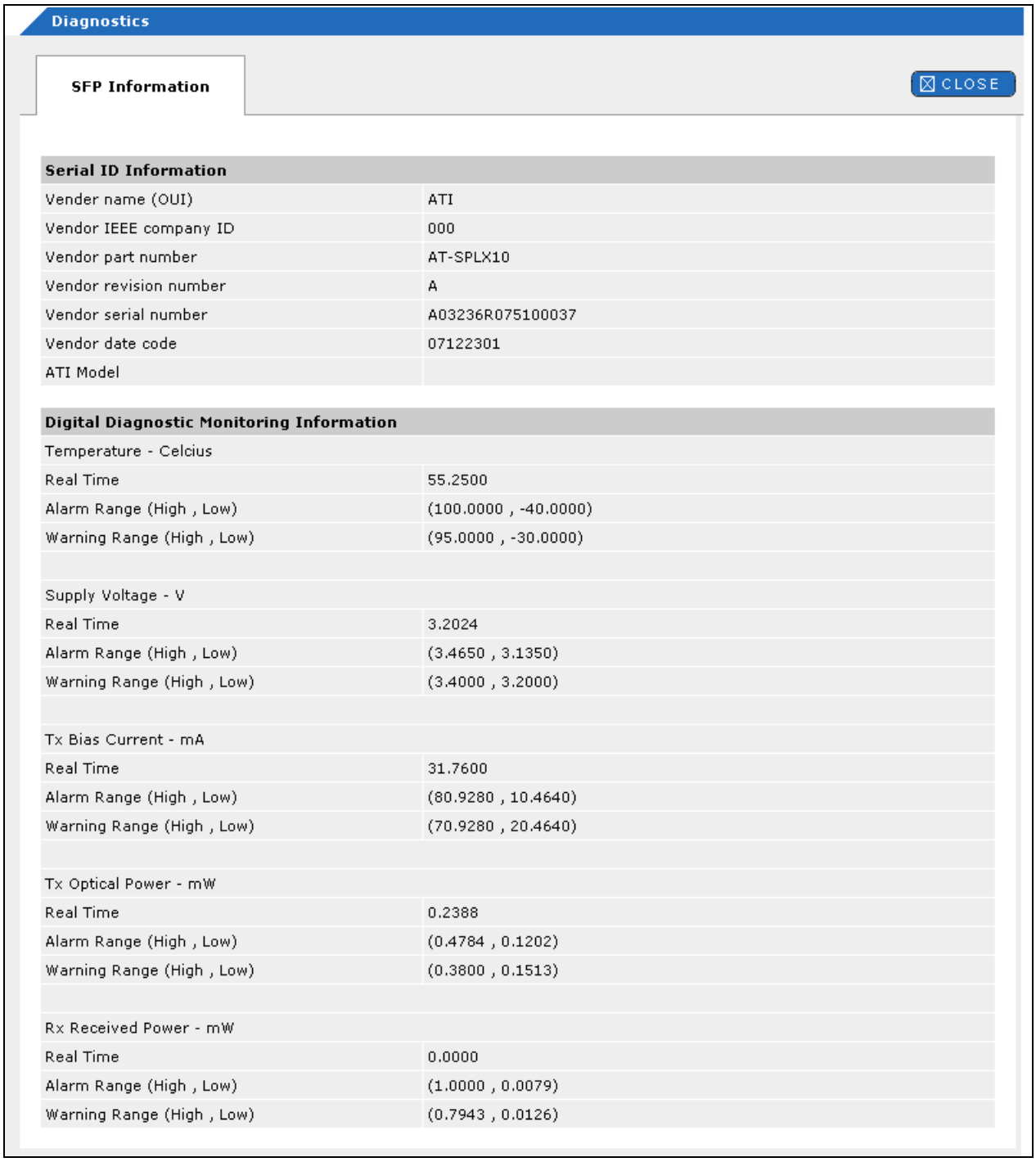
```
                    SFP Information
                     Slot 4: Port A

Serial ID Number
Vendor name (OUI)                ATI
Vendor IEEE Company ID           000
Vendor part number               AT-SPLX10
Vendor revision number           A
Vendor serial number             A03236R075100037
Vendor date code                 07122301
ATI Model

Digital Diagnostics Monitoring Information
Temperature - Celcius
Real Time                        55.2500
Alarm Range (High, Low)          (100.0000 , -40.0000)
Warning Range (High, Low)        (95.0000 , -30.0000)

Supply Voltage- V
Real Time                        3.2024
Alarm Range (High, Low)          (3.4650 , 3.1350)
Warning Range (High, Low)        (3.4000 , 3.2000)

Tx Bias Current - mA
Real Time                        31.7600
Alarm Range (High, Low)          (80.9280 , 10.4640)
Warning Range (High, Low)        (70.9280 , 20.4640)

Tx Optical Power - mW
Real Time                        0.2388
Alarm Range (High, Low)          (0.4784 , 0.1202)
Warning Range (High, Low)        (0.3800 , 0.1513)

Rx Received Power - mW
Real Time                        0.0000
Alarm Range (High, Low)          (1.0000 , 0.0079)
Warning Range (High, Low)        (0.7943 , 0.0126)

Hit any key to continue ...
```

Figure 89. SFP Information Window

Web Browser

To view SFP information from the web browser windows:

1. Select **Diagnostics** from the menu bar.
2. Select the **Local CM Line Card** tab.
3. Select the **SFP Information** tab.Select the **Slot Number** field and enter the slot number of the line card with the SFP module. You can specify only one slot number.
4. Click **Apply** to display the window in Figure 90 on page 216.



Serial ID Information	
Vender name (OUI)	ATI
Vendor IEEE company ID	000
Vendor part number	AT-SPLX10
Vendor revision number	A
Vendor serial number	A03236R075100037
Vendor date code	07122301
ATI Model	

Digital Diagnostic Monitoring Information	
Temperature - Celcius	
Real Time	55.2500
Alarm Range (High , Low)	(100.0000 , -40.0000)
Warning Range (High , Low)	(95.0000 , -30.0000)
Supply Voltage - V	
Real Time	3.2024
Alarm Range (High , Low)	(3.4650 , 3.1350)
Warning Range (High , Low)	(3.4000 , 3.2000)
Tx Bias Current - mA	
Real Time	31.7600
Alarm Range (High , Low)	(80.9280 , 10.4640)
Warning Range (High , Low)	(70.9280 , 20.4640)
Tx Optical Power - mW	
Real Time	0.2388
Alarm Range (High , Low)	(0.4784 , 0.1202)
Warning Range (High , Low)	(0.3800 , 0.1513)
Rx Received Power - mW	
Real Time	0.0000
Alarm Range (High , Low)	(1.0000 , 0.0079)
Warning Range (High , Low)	(0.7943 , 0.0126)

Figure 90. SFP Information Tab

Chapter 7

Configuring the Media Converter Line Cards with Remote Peer Management

This chapter has the following sections:

- ❒ “Configuring the Remote Line Cards with the Menus” on page 218
- ❒ “Configuring the Remote AT-CM Line Cards with the Web Browser Windows” on page 228
- ❒ “Displaying the Version Numbers of the Remote AT-CM Line Cards” on page 235
- ❒ “Displaying the MAC Addresses and Serial Numbers of the Remote AT-CM Line Cards” on page 238
- ❒ “Displaying SFP Module Information from the Remote AT-CM Line Cards” on page 240

For background information, refer to “Remote Peer Management” on page 56. For instructions on how to configure the AT-CM Line Cards for this feature, refer to “Configuring the AT-CM2, AT-CM3, and AT-CM70S Line Cards for the OAM-based Features” on page 90.

Configuring the Remote Line Cards with the Menus

The menus let you perform these functions on remote line cards:

- ❒ “Displaying the Status of the Remote Line Cards,” next
- ❒ “Naming a Remote Line Card” on page 223
- ❒ “Displaying the Parameter Settings of a Remote Line Card” on page 223
- ❒ “Configuring Remote Ports” on page 223
- ❒ “Configuring the Low Power Mode on the AT-CM3 Line Cards” on page 224
- ❒ “Configuring the OAM Clients” on page 224
- ❒ “Changing the Operating Mode” on page 224
- ❒ “Restoring the Default Settings” on page 225
- ❒ “Restoring the Last Saved Configuration” on page 226
- ❒ “Saving the Parameter Settings” on page 227
- ❒ “Resetting the Remote AT-CM3 Line Cards” on page 227

Displaying the Status of the Remote Line Cards

To view the status of the remote line cards from the menus:

1. From the Main Menu, select **Remote Module Status and Configuration** to display the Remote Module Status and Configuration Menu, shown in Figure 91. The menu contains the status of those remote line cards that have remote peer connections to their local counterparts in the managed chassis. The columns are described in Table 26. (AT-CV Line Cards are not included in this menu because they do not support remote peer management.)

```
                                        Remote Module Status and Configuration
                                                    Converteon

 ======================= REMOTE MODULE ====================== ========= FIBER PORT ======== ======== COPPER PORT =======
   Mod_Name  CardTypeVer    VER     OperMode  FrmSz  LPM  Slot  CPM  ST  SP   FC  IngRL  EgrRL  OAM   ST  SP   FC  IngRL  EgrRL  AN
 1           -----------    ------- -------   -----  ---  ----  ---  --  ---  --  -----  -----  ---   --  ---  --  -----  -----  --
 2 Reg11_r   AT-CM3K0S      V400    OAM_LT    10240  ON   1     Y    *   1G   Y   0      0      oo*   *   1G   Y   0      0      Y
 3 Reg20_r   AT-CM301       V400    OAM_LT    10240  ON   1     Y    *   100  Y   0      0      oo*   *   100  Y   0      0      Y
 4 Reg21_r   AT-CM301       V400    OAM_LT    10240  ON   1     Y    *   100  Y   0      0      oo*   *   100  Y   0      0      Y
 5 Area2a_r  AT-CM301       V400    OAM_LT    10240  ON   1     Y    *   100  Y   0      0      oo*   *   100  Y   0      0      Y
 6 --------  -----------    ------- -------   -----  ---  --    ---  --  ---  --  -----  -----  ---   --  ---  --  -----  -----  --
 7 --------  -----------    ------- -------   -----  ---  --    ---  --  ---  --  -----  -----  ---   --  ---  --  -----  -----  --
```

Figure 91. Remote Module Status and Configuration Menu

Table 26. Remote Module Status and Configuration Menu

Column	Description
Unlabeled (Managed Chassis Slot Numbers)	This column lists the slots numbers in the managed chassis. You use this column to determine the local line cards to which the remote line cards are connected.
REMOTE MODULE	
Mod_Name	This column displays the names of the remote line cards.
CardTypeVer	This column displays the model names of the remote line cards. (Actually, this column displays the model names of the local line cards. But since in most cases a local line card will be connected to a remote line card of the same model, it's easier to consider this column as showing you the model names of the remote cards.)
VER	This column displays the version numbers of the management software on the remote line cards.
OperMod	This column displays the operating modes of the remote line cards. Since remote peer management requires an OAM mode, remote line cards have to be set to one of these operating modes: ❒ OV - OAM Visible (AT-CM2 and AT-CM70S Line Cards) ❒ OAM_LT - Link Test with OAM (AT-CM3 Line Cards) ❒ OAM_ML - MissingLink with OAM (AT-CM3 Line Cards) ❒ OAM_SML - Smart MissingLink with OAM (AT-CM3 Line Cards) ❒ LC_MGMT - The operating mode is controlled by the card's DIP switches. (All media converter line cards) For background information, refer to "Operating Modes" on page 48.
FrmSz	This column displays the maximum frame size of 10240 bytes supported by the AT-CM301, AT-CM302 and AT-CM3K0S Line Cards. This value is not adjustable. This column will be blank for the AT-CM2, AT-CM70S, and AT-CV Line Cards. Here are their maximum frame sizes: ❒ The AT-CM2 Line Cards, except for the AT-CM2K0S Line Card, and the AT-CM70S Line Card have a maximum frame size of 1522 bytes. ❒ The AT-CM2K0S Line Card can have a maximum frame size of either 1522 bytes or 1632 bytes. ❒ The AT-CV Line Cards have a maximum frame size of 9000 bytes.

Table 26. Remote Module Status and Configuration Menu

Column	Description
LPM	This column displays the states of the low power modes (LPM) on the remote AT-CM301, AT-CM302 and AT-CM3K0S Line Cards. The low power mode lets you conserve power by turning off a line card's LEDs when you are not monitoring them. For more information, refer to "Low Power Mode" on page 46. The possible states are: ❒ No - LPM is disabled on the remote line card and the LEDs are active. This is the default setting. ❒ Yes - LPM is enabled on the line card. The LEDs are off. This column does not apply to remote AT-CM2 and AT-CM70S Line Cards.
Slot	This column displays the slot numbers of the remote AT-CM3 Line Cards in their remote enclosures. In order for a remote line card to return its slot number, the remote chassis must have the AT-CV5M02 Management Card. If this parameter is blank, the remote chassis does not have a management card. This parameter is not supported on remote AT-CM2 and AT-CM70S Line Cards.
CPM	This column indicates whether or not the remote Converteon enclosures with the AT-CM3 Line Cards have the AT-CV5M02 Management Card. The possible states are: Y - The remote chassis has a management card. N - The remote chassis does not have a management card. This parameter is not supported on the AT-CM2 and AT-CM70S Line Cards.
FIBER PORT or COPPER PORT	
ST	This column displays the link status of the ports on the remote line cards. The possible states are: ❒ * - The port has establish a link to a network device. ❒ o - The port has not establish a link to a network device.
SP	This column displays the speeds of the remote ports. The possible speeds are: ❒ 10 - 10 Mbps ❒ 100 - 100 Mbps ❒ 1G - 1 Gbps

Table 26. Remote Module Status and Configuration Menu

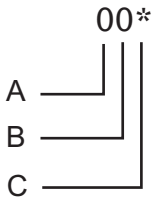
Column	Description
FC	This column displays the status of flow control on the ports of the remote line cards. The possible states are: ❒ Y - Flow control is enabled on the port. ❒ N - Flow control is disabled on the port.
IngRL	This column displays the settings of the ingress rate limiting filters on the ports on the remote line cards. The value "0" means there is no rate limiting on the port. This is the default setting.
EgrRL	This column displays the settings of the egress rate limiting filters on the ports on the line cards. The value "0" means there is no rate limiting on the port. This is the default setting.
OAM	This column displays the status of the OAM clients on Port A, the fiber optic ports, on the remote line cards. The following OAM client information is displayed:  A This alternates between "*" and "o" when a remote fiber optic port is transmitting OAMPDUs. Otherwise, it remains "o". B This alternates between "*" and "o" when a remote fiber optic port is receiving OAMPDUs. Otherwise, it remains "o". C This displays the operational state of the OAM client on the fiber optic port on a remote line card. The possible states are: * - Operational A - Active Send Local D - Disabled L - Active Send Local M - Peer Remote Reject P or W - Passive Wait R - Peer Local Reject 1 - Active Send Remote 1 2 - Active Send Remote 2

Table 26. Remote Module Status and Configuration Menu

Column	Description
AN	This column displays the status of Auto-Negotiation on the twisted pair ports on the remote line cards. The possible states are: ❒ Y - Auto-Negotiation is enabled on the port. The speed and duplex mode are set automatically. This is the default setting. ❒ N - Auto-Negotiation is disabled on the port. The speed and duplex mode were set manually.

Note
To support remote peer management, the local and remote line cards have to be in the OAM operational state. The line cards may take up to two minutes to reach that state whenever they are powered on or reset because they have to initialize their management software and negotiate the OAM state with their counterparts.

2. To configure a remote line card, select the card in the menu to display the Remote Module Configuration Menu. You can configure just one line card at a time. The example of the window in Figure 92 is from an AT-CM3 Line Card. There are fewer menu selections for the AT-CM2 and AT-CM70S Line Cards.

```
            Remote Module Configuration Menu
                        Converteon
                         Module 1


Remote Module: AT-CM302

  Port              Link              Speed         Mode
  A(100BaseFX)      Online            100M          Full
  B(100BaseTX)      Online            100M          Full

  Module Name
  Maximum Frame Size       10240 bytes
  Configure Low Power Mode
  Line Card Configuration
  Reset Line Card


  Return to Remote Module Status and Configuration ...
```

Figure 92. Remote Module Configuration Menu

The menu displays the current settings of the two ports on the remote line card. The columns are described in Table 20 on page 170.

Your changes to the settings on a remote line card are automatically saved in the card's configuration file in flash memory and are retained even if the remote chassis is powered off or the card is removed from the unit. For further information, refer to "Configuration Files" on page 32. For instructions on how to save the changes to the master configuration file on the AT-CV5M02 Management Card, refer to "Saving the Parameter Settings" on page 227.

3. When you finish configuring the remote line card, return to the Remote Module Configuration Menu and select **Return to Remote Module Status and Configuration** to display the Remote Module Status and Configuration menu again.

Naming a Remote Line Card

To assign a name to a remote line card:

1. From the Remote Module Configuration Menu, select the **Module Name** field.
2. Enter a name of up to eight alphanumeric characters.

Displaying the Parameter Settings of a Remote Line Card

To view the current settings of a remote card:

1. From the Remote Module Configuration Menu, select **Line Card Configuration**.
2. From the Line Card Configuration menu, select **Display Current Configuration**. An example of the window is shown in Figure 61 on page 166. The port parameters are described in Table 21 on page 171 and the OAM parameters in Table 31 on page 255.

Configuring Remote Ports

To configure the parameter settings of a port on a remote line card:

1. From the Remote Module Configuration Menu, select the port you want to configure. You can configure only one port at a time.
2. From the Port Management Menu, select **Port Configurations** to display the Remote Port Configuration Menu. This menu contains the current settings of the port.
3. Configure the parameters, as necessary. Refer to Table 21 on page 171 for the parameter descriptions.

Configuring the Low Power Mode on the AT-CM3 Line Cards

For background information, refer to "Low Power Mode" on page 46. To set the low power mode on a remote AT-CM3 Line Card:

1. From the Remote Module Configuration Menu, select **Configure Low Power Mode** to display the menu in Figure 75 on page 186.
2. To activate the low power mode on the line card and to turn off the LEDs, select **Configure Line Card to Low Power Mode (On)**. To disable the low power mode and turn on the LEDs, select **Configure Line Card to Normal Mode (Off)**.

Configuring the OAM Clients

For background information, refer to "OAM Client Settings" on page 69. To configure the settings on OAM clients on remote line cards:

1. From the Remote Module Configuration Menu, select Port A, the fiber optic port, on the line card.
2. From the Port Management Menu, select **OAM Configuration** to display the OAM Configuration submenu in Figure 106 on page 255
3. Configure the settings as needed. They are defined in Table 31 on page 255.

Note
If you disable the OAM Admin State on a remote line card, the card will continue to forward network traffic but it will stop supporting remote peer management. You will not be able to remotely manage the device and if the remote chassis does not have a management card, you'll have to visit the remote site to configure the card's parameters.

Changing the Operating Mode

For background information, refer to "Operating Modes" on page 48. Before changing the operating mode on a remote line card, review the following information:

- The AT-CM2 and AT-CM70S Line Cards must be set to the OAM Visible mode to support remote peer management. The other operating modes do not support remote peer management.
- The AT-CM3 Line Cards have three operating modes that support remote peer management: Link Test with OAM, MissingLink with OAM, and Smart MissingLink with OAM.

Caution
A line card will reset when its operating mode is changed, possibly resulting in the loss of some network traffic. When reset, the AT-CM Line Cards immediately resume forwarding network traffic using the default values for their parameter settings while they initialize the management software, a process that takes approximately one

minute. Afterwards, the cards use the settings in their configuration files to configure their operating parameters.

To configure the operating mode from the menus:

1. From the Remote Module Configuration Menu, select **Line Card Configuration**.
2. If you want to use the DIP switches on the card itself to set the card's operating mode, select **Line Card DIP Switch Mode**, and skip to step 4. This is the default setting. If you prefer to set the card's operating mode using the management software, select **Line Card Management Mode**.
3. In the Configure Operating Mode Via Management Card menu, select the desired mode for the card.

   The line card resets and begins to initialize its management software.
4. To continue managing the line card, return to the Main Menu and wait one to two minutes for the card to initialize its management software and, if you selected an OAM mode, to negotiate the OAM settings with its local counterpart. Then select the card again from the **Remote Module Status and Configuration** menu.

Restoring the Default Settings

This procedure is used to restore a remote line card to its default settings. The default settings for the line cards can be found in Chapter A, ”Default Settings for the Management Card and the Line Cards” on page 337.

Review the following information before performing this procedure:

- If the default operating mode of a line card is not an OAM mode, the line card will not support remote peer management after it is returned to its default values.

Caution
If the card's current operating mode is not the default mode, the card will reset, possibly resulting in the loss of some network traffic. The line card will immediately resume forwarding traffic, but it will be unresponsive to management commands for one minute while it initializes its management software.

To return the parameter settings on a remote line card to their default values from the menus:

1. From the Remote Module Configuration Menu, select **Configure Operating Mode**.

2. To view the default settings of the line card prior to activating them, select **Display Default Configuration**. An example of the Display Default Configuration window is shown in Figure 80 on page 192.

3. To return the parameter settings on the line card to the default values, return to the Line Card Configuration Menu and select **Return Line Card to Default Configuration**.

4. At the confirmation prompt, select **Yes** to return the parameter settings on the line card to the default values or **No** to cancel the procedure.

5. If the card changes its operating mode, it resets. To continue managing the line card, return to the Main Menu and wait one to two minutes for the card to initialize its management software and to negotiate the OAM settings with its local counterpart. Then select the card again from the **Remote Module Status and Configuration** menu.

Restoring the Last Saved Configuration

This procedure is used to restore a remote line card to the last saved configuration stored in the master configuration file on the management card in the local chassis. This procedure can be used to discard any parameter changes that you may have made to a line card but did not save in the master configuration file, or to assign to a new remote line card the save settings as its predecessor. For more information, refer to “Configuration Files” on page 32.

Caution
If the card’s current operating mode is different from its last saved configuration, the card will reset, possibly resulting in the loss of some network traffic. As the line card initializes its management software, which takes approximately one minute, it forwards traffic using its default parameter settings.

To use the menus to restore the last saved configuration to a line card:

1. From the Remote Module Configuration Menu, select **Line Card Configuration**.

2. To view the parameter settings of the card’s last saved configuration before activating them on the line card, select **Display Last Saved Configuration**. If the fields are empty, the master configuration file does not have a previous configuration for this slot or the previous and current line cards of the slot are different models.

3. To return the line card to its last saved configuration, return to the Line Card Configuration menu and select **Restore Last Saved Configuration**.

4. At the confirmation prompt, select **Yes** to restore the settings or **No** to cancel the procedure.

Saving the Parameter Settings

When you change a parameter setting on a remote line card, your change is automatically saved by the card in its configuration file in flash memory, which retains your changes even when the chassis is powered off or the card is removed from the enclosure.

The configuration settings of the remote line cards can also be saved in the master configuration file on the management card, from where they can be restored to the remote cards, should that ever be necessary. To update the master configuration file on the management card, select **Line Card Configuration** and **Save Line Card Configuration**. If you ever need to restore the setting to the line card, perform "Restoring the Last Saved Configuration" on page 226.

Resetting the Remote AT-CM3 Line Cards

This procedure is not supported on the AT-CM2 and AT-CM70S Line Cards.

Caution

This procedure will disrupt the network operations of the line card. Some network traffic may be lost.

To reset a remote AT-CM3 Line Card:

1. From the Remote Module Configuration Menu, select **Reset Line Card**. The line card immediately resets. No confirmation prompt is displayed.

2. To continue managing the remote card, return to the Remote Module Status and Configuration Menu and wait approximately one to two minutes for the card to initialize its management software and negotiate the OAM state with its local counterpart. Then select the card again from the menu.

Configuring the Remote AT-CM Line Cards with the Web Browser Windows

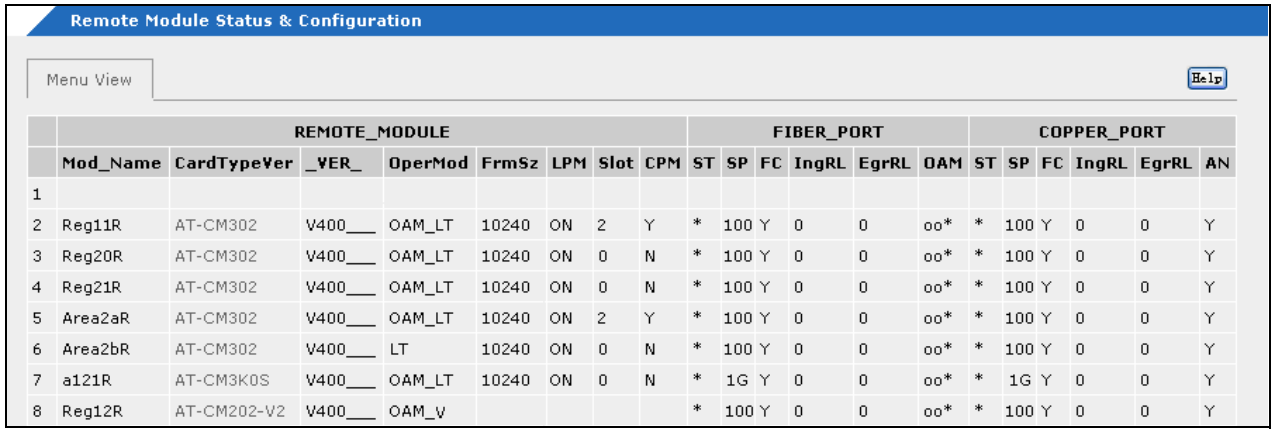
From the web browser windows you can perform these management tasks on the remote line cards:

- ❒ “Displaying the Status of the Remote Line Cards,” next
- ❒ “Displaying the Current Configuration” on page 229
- ❒ “Naming a Remote Line Card” on page 230
- ❒ “Configuring the Remote Ports” on page 230
- ❒ “Configuring the Low Power Mode on AT-CM3 Line Cards” on page 230
- ❒ “Configuring the OAM Clients on Remote Line Cards” on page 231
- ❒ “Changing the Operating Mode” on page 231
- ❒ “Restoring the Default Parameter Settings” on page 232
- ❒ “Restoring the Last Saved Configuration” on page 233
- ❒ “Saving the Parameter Settings” on page 233
- ❒ “Resetting the Remote AT-CM3 Line Cards” on page 234

Displaying the Status of the Remote Line Cards

To view the remote media converter line cards from the web browser windows:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab shown in Figure 93.



	REMOTE_MODULE								FIBER_PORT						COPPER_PORT					
	Mod_Name	CardTypeVer	_VER_	OperMod	FrmSz	LPM	Slot	CPM	ST	SP	FC	IngRL	EgrRL	OAM	ST	SP	FC	IngRL	EgrRL	AN
1																				
2	Reg11R	AT-CM302	V400___	OAM_LT	10240	ON	2	Y	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
3	Reg20R	AT-CM302	V400___	OAM_LT	10240	ON	0	N	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
4	Reg21R	AT-CM302	V400___	OAM_LT	10240	ON	0	N	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
5	Area2aR	AT-CM302	V400___	OAM_LT	10240	ON	2	Y	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
6	Area2bR	AT-CM302	V400___	LT	10240	ON	0	N	*	100	Y	0	0	oo*	*	100	Y	0	0	Y
7	a121R	AT-CM3K0S	V400___	OAM_LT	10240	ON	0	N	*	1G	Y	0	0	oo*	*	1G	Y	0	0	Y
8	Reg12R	AT-CM202-V2	V400___	OAM_V					*	100	Y	0	0	oo*	*	100	Y	0	0	Y

Figure 93. Remote Module Status & Configuration Tab

The columns in the tab are described in Table 26 on page 219.

2. To configure a remote line card, click its model name in the CardTypeVer column to display the Remote Module Status & Configuration page in Figure 94.

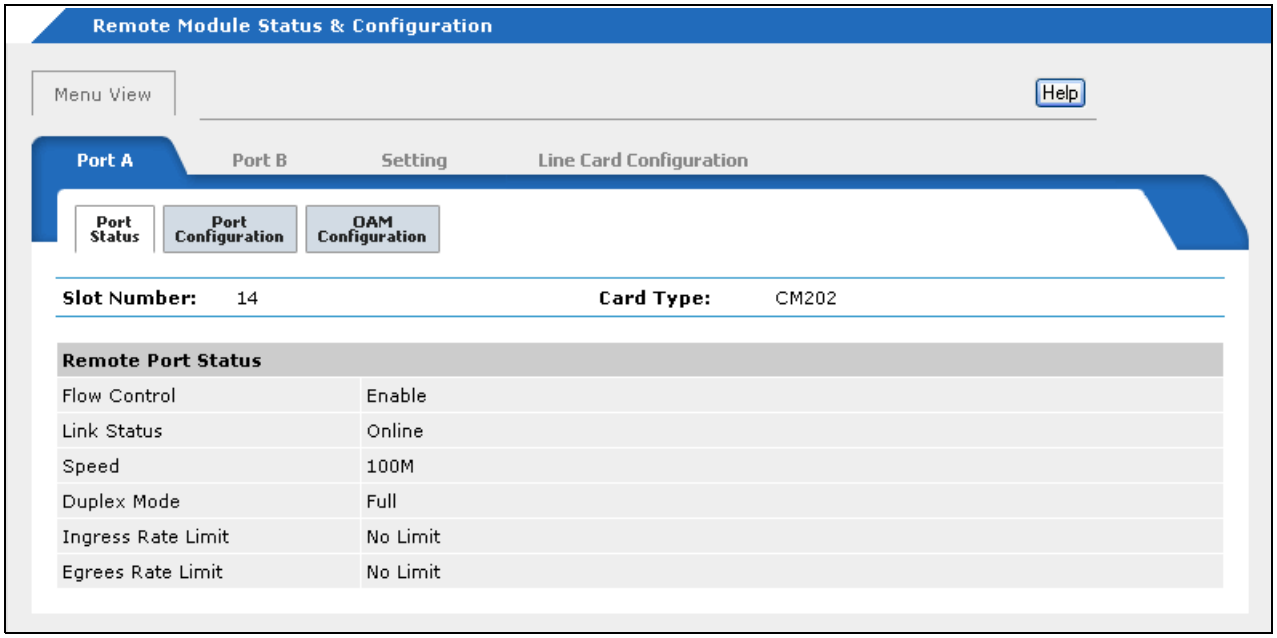


Figure 94. Remote Module Status & Configuration Page

Your changes to the settings on a remote line card are automatically saved in the card's configuration file in flash memory, where they are retained even if the remote chassis is powered off or the card is removed from the unit. For further information, refer to "Configuration Files" on page 32. For instructions on how to save your changes in the master configuration file in the AT-CV5M02 Management Card, refer to "Saving the Parameter Settings" on page 233.

3. When you finish configuring a remote line card, select **Remote Module Status & Configuration** from the menu bar.

4. You can either select another remote line card to configure or continue managing the local chassis.

Displaying the Current Configuration

To view the current parameter settings of a remote card:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.

2. Click the model name of the line card you want to configure.

3. Click the **Line Card Configuration** tab.

4. Click the **Current Configuration** tab. An example of the window is shown in Figure 62 on page 168. The port parameters are described in Table 21 on page 171 and the OAM parameters in Table 31 on page 255.

Naming a Remote Line Card

To assign a name to a remote line card:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.
2. Click the model name of the line card you want to configure.
3. Click the **Setting** tab.
4. Click the **Edit** button in the Module Name section of the window.
5. In the Module Name pop-up window, enter a new name of up to eight alphanumeric characters for the card. Spaces and special characters are not allowed.
6. Click the **Update** button to close the pop-up window.

Configuring the Remote Ports

To configure the parameter settings of a remote port:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.
2. Click the model name of the line card you want to configure.
1. Click the **Port A** tab or the **Port B** tab. You can configure only one port at a time.
2. Click the **Port Configuration** tab.
3. Configure the parameters, as necessary. The parameters are described in Table 21 on page 171.

Configuring the Low Power Mode on AT-CM3 Line Cards

Setting the low power mode does not affect the network operations of the remote line cards. For background information, refer to “Low Power Mode” on page 46.

To activate or deactivate the low power mode on remote AT-CM3 Line Cards from the web browser windows:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.
2. Click the model name of the AT-CM3 Line Card you want to configure.
3. Click the **Setting** tab.

4. Click the **Edit** button in the Low Power Mode section of the window.

5. To activate the low power mode on the line card and to turn off the LEDs, select **On** in the pull-down menu in the pop-up window. To disable the low power mode and turn on the LEDs, select **Off**. The default setting is Off.

Configuring the OAM Clients on Remote Line Cards

For background information, refer to "OAM Client Settings" on page 69. To configure the OAM client on a remote line card:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.

2. Click the model name of the line card you want to configure.

3. Click the **Port A** tab.

4. Click the **OAM Configuration** tab.

5. Configure the settings as needed. For the explanations of the parameters, refer to Table 31 on page 255.

Note
If you disable the OAM Admin State on a remote line card, the card will continue to forward traffic but it will not support remote peer management. You will not be able to remotely manage the device and if the remote chassis does not have a management card, you'll have to visit the remote site to configure the card's parameters.

Changing the Operating Mode

For background information, refer to "Operating Modes" on page 48. Before changing the operating mode on a remote line card, review the following information:

- The AT-CM2 and AT-CM70S Line Cards must be set to the OAM Visible mode to support remote peer management. The other operating modes do not support remote peer management.
- The AT-CM3 Line Cards have three operating modes that support remote peer management: Link Test with OAM, MissingLink with OAM, and Smart MissingLink with OAM.

Caution
A line card will reset when its operating mode is changed. This may result in the loss of some network traffic. When reset, the AT-CM Line Cards immediately resume forwarding network traffic using the default values for their parameter settings while they initialize the management software, a process that takes approximately one minute. Afterwards, the cards use the settings in their configuration files to configure the operating parameters.

To configure the operating mode of a line card from the web browser windows:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.
2. Click the model name of the line card you want to configure.
3. Click the **Setting** tab.
4. Click the **Edit** button in the Operation Mode section of the window.
5. From the pop-up window, select the new operating mode for the line card from the pull-down menu and click the **Update** button.

   The line card resets and initializes its operating software.
6. To continue managing the remote card, return to the Remote Module Status and Configuration Menu and wait approximately one to two minutes for the card to initialize its management software and, if you selected an OAM mode, negotiate the OAM state with its local counterpart. Then select the card again from the menu.

Restoring the Default Parameter Settings

This procedure is used to restore a remote line card to its default settings. The default settings for the line cards can be found in Chapter A, ”Default Settings for the Management Card and the Line Cards” on page 337.

Review the following information before performing this procedure:

- ❒ If the default operating mode of a line card is not an OAM mode, the line card will not support remote peer management after it is returned to its default values.

Caution
If the card’s current operating mode is not the default mode, the card will reset, possibly resulting in the loss of some network traffic. The line card will immediately resume forwarding traffic, but it will be unresponsive to management commands for one minute while it initializes its management software.

To return the parameter settings on a remote line card to their default values from the web browser windows:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.
2. Click the model name of the line card you want to configure.
3. Select the **Line Card Configuration** tab.

4. Click the **Default Configuration** tab. This tab displays the default settings for the line card. An example of the tab is shown in Figure 81 on page 193.

5. To return the card's parameter settings to the default values, click the **Return to Default Configuration** button. The parameter settings on the card are returned to the default settings.

Restoring the Last Saved Configuration

This procedure is used to restore a remote line card to the last saved configuration stored in the master configuration file on the management card in the local chassis. This procedure can be useful if you want to discard parameter changes that you may have made to a remote line card but did not save in the master configuration file, or to configure a new line card with the save settings as its predecessor. For more information, refer to "Configuration Files" on page 32.

Caution

If the card's current operating mode is different from its last saved configuration, the card will reset, possibly resulting in the loss of some network traffic. As the line card initializes its management software, which takes approximately one minute, it forwards traffic using its default parameter settings.

To use the web browser windows to restore the last saved configuration to a remote line card:

1. From the Remote Module Status & Configuration window, select the **Line Card Configuration** tab.

2. Select the **Last Saved Configuration** tab.

3. To return the line card to its last saved configuration, click the **Restore to Last Saved Configuration** button.

Saving the Parameter Settings

When you change a parameter setting on a remote line card, the card automatically saves your change in its configuration file in flash memory, which retains your changes even when the chassis is powered off or the card is removed from the enclosure.

The configuration settings of the remote line cards can also be saved in the master configuration file on the management card, from where you can restore them to the remote cards, should that ever be necessary. To update the master configuration file on the management card, click the **Line Card Configuration** tab, the **Current Configuration** tab, and the **Save Current Configuration** button. To restore the setting to the line card or to a replacement card, perform "Restoring the Last Saved Configuration" on page 233.

Resetting the Remote AT-CM3 Line Cards

This procedure is not supported on the AT-CM2 and AT-CM70S Line Cards.

Caution
This procedure will disrupt the network operations of the line card. Some network traffic may be lost.

To reset a remote AT-CM3 Line Card from the web browser windows:

1. Select **Remote Module Status & Configuration** from the menu bar to display the Remote Module Status & Configuration tab.
2. Click the model name of the line card you want to reset.
1. Select the **Setting** tab.
2. Click the **Reset Remote Line Card** button at the bottom of the tab. The line card resets.
3. Select **Remote Module Status & Configuration** from the menu bar again.
4. To continue managing the line card, wait one to two minutes for the card to initialize its management software and to negotiate the OAM state with its local counterpart, and then select the card again from the Remote Module Status & Configuration window.

Displaying the Version Numbers of the Remote AT-CM Line Cards

These procedures are used to view the version numbers of the management software and bootloader files on remote AT-CM Line Cards. The management software programs of the line cards are listed here:

- The AT-CM2 and AT-CM70S Line Cards use the AT-S73 Management Software
- The AT-CM3 Line Cards use the AT-S102 Management Software

Menus

To view the information from the menus:

1. From the Main Menu, select **Diagnostics** to display the Diagnostics Menu shown in Figure 53 on page 148.
2. Select **Remote CM Line Card Diagnostics**.
3. From the Remote CM Line Card Diagnostics Menu, select **Image Version**. An example of the Remote Line Card Module Software Image Version window is shown in Figure 95. The information in this window is for viewing purposes only.

```
          Remote Line Card Module Software Image Version
                              Converteon

   Module                          App Ver.       BootLdr Ver.

1:              AT-CV5M02           V4.0.1
2: Reg11        AT-CM301            V4.0.1           V4.0.0
3: Reg20        AT-CM301            V4.0.1           V4.0.0
4: Reg21        AT-CM301            V4.0.1           V4.0.0
5: Area2a       AT-CM301            V4.0.1           V4.0.0
6: Area2b       AT-CM202-v2         V4.0.1           V1.7.0
7: Reg12        AT-CM202-v2         V4.0.1           V1.7.0
8: Reg5         AT-CM202-v2         V4.0.1           V1.7.0
9: Reg17        AT-CM202            V4.0.1           V1.7.0
10: --------    AT-CV102            --
11: --------    AT-CV102            --
12: --------    AT-CV102            --
13: --------    AT-CV102            --
14: --------    AT-CV102            --
15:             Unequipped          --
16:             Unequipped          --
17:             Unequipped          --
18:             Unequipped          --
Hit any key to continue ...
```

Figure 95. Remote Line Card Module Software Image Version Window

The columns in the window are described in Table 27.

Table 27. Line Card Module Software Image Version Window

Row	Description
Module	This column displays the slot numbers, the names and the model names of the local AT-CM Line Cards in the chassis that has the management card.
App Ver.	This column displays the version numbers of the management software on the remote AT-CM Line Cards.
BootLdr Ver.	This column displays the version numbers of the bootloader files on the remote AT-CM Line Cards.

Web Browser

To view the version numbers of the management software and bootloader files on remote AT-CM Line Cards from the web browser windows:

1. Select **Diagnostics** from the menu bar.
2. Select the **Remote CM Line Card** tab.
3. If it is not already selected, select the **Image Version** tab. An example of the tab is shown in Figure 96.

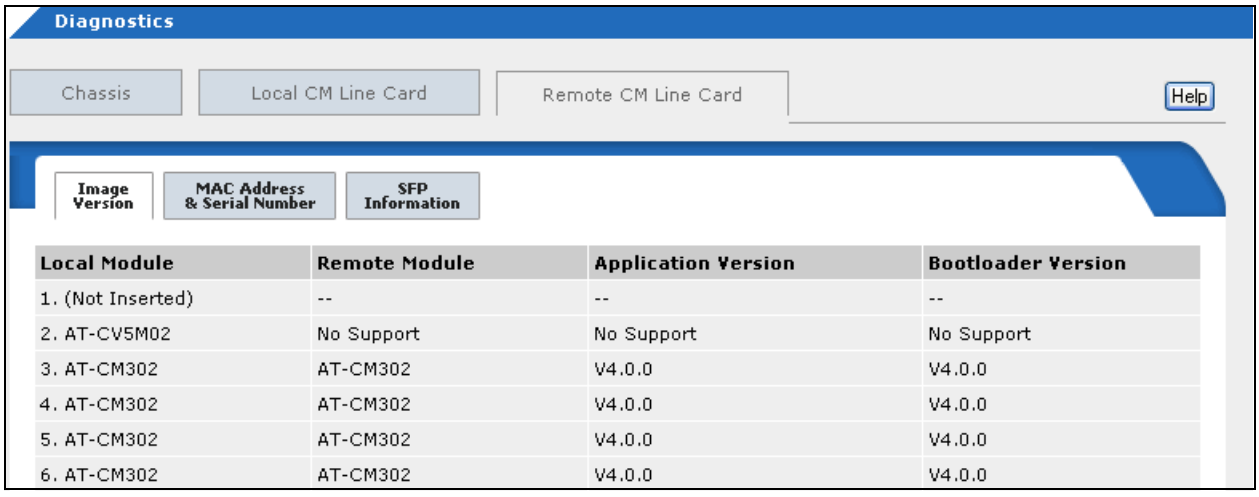


Figure 96. Remote Image Version Page

The columns in this window, which is for viewing purposes only, are described in Table 28.

Table 28. Remote Image Version Window

Row	Description
Local Module	This column displays the slot numbers and the model names of the local AT-CM Line Cards in the chassis that has the management card.
Remote Module	This column displays the model names of the remote AT-CM Line Cards.
Application Version	This column displays the version numbers of the management software on the remote AT-CM Line Cards.
Bootloader Version	This column displays the version numbers of the bootloader files on the remote AT-CM Line Cards.

Displaying the MAC Addresses and Serial Numbers of the Remote AT-CM Line Cards

These procedures are used to view the MAC addresses and the serial numbers of the remote AT-CM Line Cards through the OAM-based remote peer management feature. You may be asked to provide this information if you contact Allied Telesis for technical support.

Menus

To view this information from the menus:

1. From the Main Menu, select **Diagnostics** to display the Diagnostics Menu shown in Figure 53 on page 148.
2. Select **Remote CM Line Card Diagnostics**.
3. From the Remote CM Line Card Diagnostics Menu, select **MAC Address and Serial Number**. An example of the Remote Line Card Module Information window is shown in Figure 97. The information in this window is for viewing purposes only.

```
                Remote Line Card Module Information
                            Converteon

   Module                    MAC Address          Serial Number

 1: --------  AT-CV5M02       --                   A02803L05060001S C
 2: Reg11     AT-CM3K0S       00:0C:46:CE:D9:60    A03572L061100040 B
 3: Reg20     AT-CM301        00:0C:46:CE:D9:72    A03572L061100170 B
 4: Reg21     AT-CM301        00:0C:46:CE:D9:02    A03572L061100014 B
 5: Area2a    AT-CM301        00:0C:46:CE:DA:12    A03572L061100111 B
 6: Area2b    AT-CM302        00:15:77:52:5C:6F    A03578G071400012 A
 7: a121      AT-CM202-v2     00:15:77:52:5C:A1    A03578G071400225 B
 8: Reg12     AT-CM202-v2     00:15:77:52:52:44    A03713G070500081 B
 9: --------  AT-CM202-v2     00:15:77:52:24:12    A03713G070500120 B
10: --------  AT-CM212A/1     00:15:77:52:11:22    A03713G070500120 B
11: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A03713G070500012 B
12: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A03713G070500087 B
13: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A03713G070500055 B
14: --------  AT-CV102        FF:FF:FF:FF:FF:FF    A02765G070500146 D
15: --------  Unequipped
16: --------  Unequipped
17: --------  Unequipped
18: --------  Unequipped

   Hit any key to continue ...
```

Figure 97. Remote Line Card Module Information Window

The columns in the window are described in Table 29.

Table 29. Remote Line Card Module Information Window

Row	Description
Module	This column displays the slot numbers, the names and the model names of the local cards in the managed chassis.
MAC Address	This column displays the MAC addresses of the remote AT-CM Line Cards.
Serial Number	This column displays the serial numbers of the remote line cards.

Web Browser

To use the web browser windows to view the MAC addresses and serial numbers of the remote line cards:

1. Select **Diagnostics** from the menu bar.
2. Select the **Remote CM Line Card** tab.
3. Select the **MAC Address & Serial Number** tab. The columns in the window are described in Table 29.

Displaying SFP Module Information from the Remote AT-CM Line Cards

The procedures in this section are used to view the manufacturer's specifications for SFP modules in remote AT-CM2K0S, AT-CM70S and AT-CM3K0S Line Cards.

Menus

To view the SFP information from the menus:

1. From the Main Menu, select **Diagnostics** to display the Diagnostics Menu shown in Figure 53 on page 148.
2. Select **Remote CM Line Card Diagnostics**.
3. From the Remote CM Line Card Diagnostics Menu, select **SFP Information**. The following prompt is displayed:

   ```
   Enter LineCard Slot Number: ->
   ```

4. Enter the slot number of the AT-CM2K0S, AT-CM70S Line Card or AT-CM3K0S with the SFP module. The following prompt is displayed:

   ```
   Enter LineCard Port [A or B]: ->
   ```

5. Enter the port of the SFP module.

   An example of the SFP Information window is shown in Figure 89 on page 214.

Web Browser

To use the web browser windows to view the SFP information:

1. Select **Diagnostics** from the menu bar.
2. Select the **Remote CM Line Card** tab.
3. Select the **SFP Information** tab.
4. When prompted, select the **Slot Number** field and enter the slot number of the local line card connected to the remote card that has the SFP module you want to view. You can specify only one slot number.

   The information for the SFP module acting as port A on the remote line card is displayed.

Chapter 8

Configuring the T1/E1 Ports on the AT-CM70S Media Converter Line Card

This chapter contains the following sections:

- “Selecting the Management Method for the AT-CM70S Line Card” on page 242
- “Configuring the T1/E1 Ports from the AT-CV5M02 Management Card” on page 246
- “Configuring the T1/E1 Ports from the Console Port on the Line Card” on page 249

Selecting the Management Method for the AT-CM70S Line Card

Unlike the other Converteon line cards, the AT-CM70S Line Card comes with a Console port for local management without the AT-CV5M02 Management Card. You can use the Console port to configure the T1/E1 ports when the line card is installed in a chassis that doesn't have a management card.

During the initial configuration of the AT-CM70S Line Card, you must specify whether you intend to configure the line card with the Console port or the management card. This is referred to as setting the card's UART (universal asynchronous receiver/transmitter) setting. The card has two settings—UART local console mode and UART backplane mode. The UART local console mode lets you configure the card's parameters from the Console port on the card. This setting, the default setting, is the appropriate setting if the AT-CM70S Line Card is installed in a chassis that doesn't have a management card.

If the chassis has a management card, you should change the management method to the UART backplane mode. This settings lets you configure the line card using the menus in the management software of the management card. (The term "backplane" refers to the backplane in the AT-CV5000 Chassis.)

Here are factors to consider when choosing the UART setting for this card:

- Setting the UART setting requires the AT-CV5M02 Management Card. You cannot set the UART setting from the Console port on the AT-CM70S Line Card.
- When the line card is set to the UART local console mode, you have to use the Console port and you can only adjust the T1/E1 settings. You cannot use the management card to change any of the settings on the card.
- When the card is set to the UART backplane mode, you can use the management card to change all of the card's settings, including the T1/E1 settings.
- To download new management software to the line card, the card must be set to the UART backplane mode.

The AT-CM70S Line Card must be used in pairs, with the fiber optic port on the SFP module in one line card connected to an identical SFP module in another AT-CM70S Line Card. However, the local and remote cards do not have to use the same UART settings. In fact, they're likely to have different settings because one of the cards will probably reside in the AT-CV5000 Chassis with a management card and the other at a remote site in a chassis that does not have a management card.

Figure 98 illustrates the idea of the UART setting. It shows a deployment of two AT-CM70S Line Cards and their UART settings. The UART setting of the line card in the AT-CV5000 Chassis is set to UART backplane mode so that the T1/E1 ports on the card can be managed through the management card in the chassis. In contrast, the UART setting of the card at the remote site is set to UART console mode so that the T1/E1 ports can be managed through the card's Console port at the site. If the card at the remote site had a UART setting of UART backplane mode, you would have to remove the card from the chassis and install it into another unit that had a management card whenever you wanted to configure the T1/E1 ports.

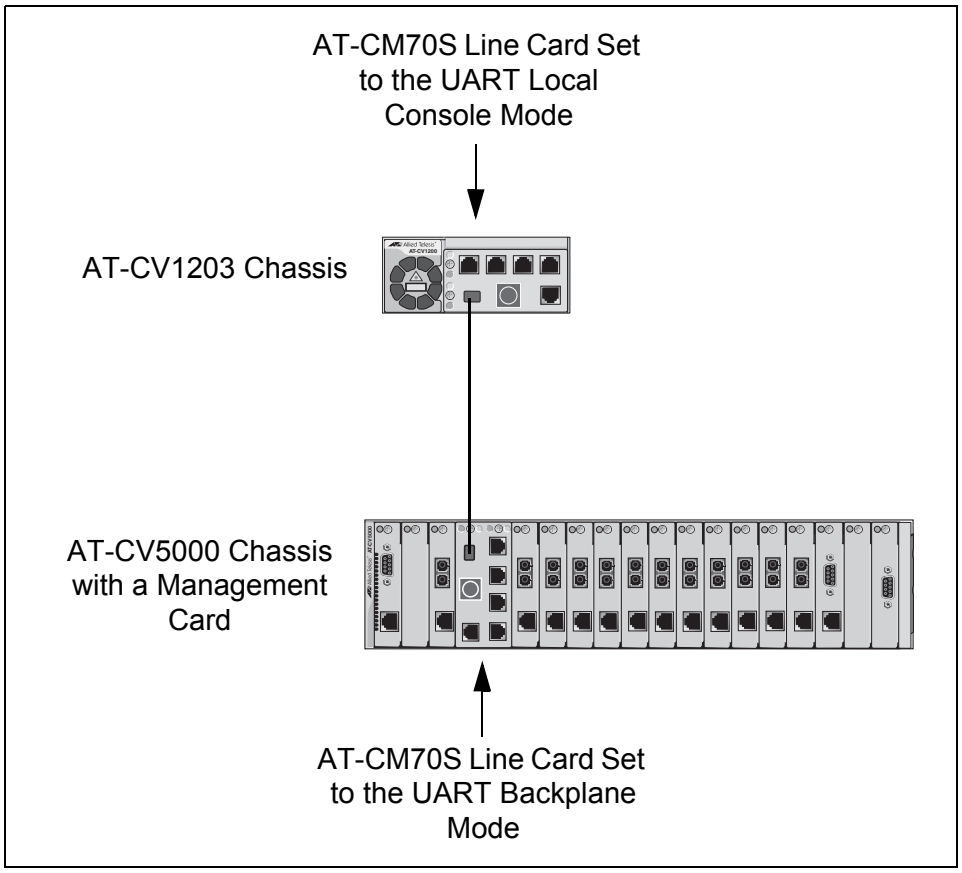


Figure 98. UART Settings on the AT-CM70S Line Card

Here are the general steps to configuring a pair of AT-CM70S Line Cards:

1. For the initial configuration, install both of the AT-CM70S Line Cards in an AT-CV5000 Chassis that has the AT-CV5M02 Management Card.

2. Using the menus interface in the management card, change the UART setting on both cards to UART backplane mode so that you can configure all of the parameter settings, including the T1/E1 ports, using the management card.

3. Using the management card, configure the settings of the two AT-CM70S Line Cards, including the settings for the T1/E1 ports, as required by your network.

4. For the AT-CM70S Line Card to be deployed at the remote site, change its UART setting to UART local console mode after configuring its T1/E1 ports. This will make it possible for you to adjust the settings of the T1/E1 ports from the Console port when the line card is installed at the remote site.

How to set the UART setting on the AT-CM70S Line Card is explained in the following procedure. The procedure requires the AT-CV5M02 Management Card. The UART setting cannot be set through the Console port on the card.

Caution
This procedure may be disruptive to network operations. The AT-CM70S Line Card resets and initializes its management software when the UART setting is changed. Some network traffic may be lost.

To set the UART setting on the AT-CM70S Line Card from the menus:

1. From the Main Menu, select **Module Status and Configuration**. The Module Status and Configuration Menu is shown in Figure 58 on page 158.

2. Select the AT-CM70S Line Card you want to configure. The Module Configuration Menu is shown in Figure 63 on page 169.

3. From the Module Configuration Menu, select **3: TDM LIU (T1/E1) Configuration** to display the TDM Management Menu shown in Figure 99.

```
                TDM Management Menu
                 Module 15, Port C


TDM Port Configurations

UART Configurations


Return to Module Configuration Menu ...
```

Figure 99. TDM Management Menu

The TDM Port Configurations selection appears in the menu only when the line card's UART setting is set to UART backplane mode.

4. From the TDM Management Menu, select **UART Configurations** to display the UART Configuration Menu, shown in Figure 100.

```
                UART Configuration Menu
                   Module 15, Port C


> UART Local Console Mode
  UART Back Plane Mode

  Return to Port Configuration Menu ...
```

Figure 100. UART Configuration Menu

5. From the UART Configuration Menu, select one of the following options:

   - UART Local Console Mode - This setting lets you configure the T1/E1 ports from the Console port on the line card. This is the appropriate setting if the line card will be installed in a chassis that does not have the AT-CV5M02 Management Card. This is the default setting.
   - UART Back Plane Mode - This setting lets you configure the T1/E1 ports through the AT-CV5M02 Management Card. This is the appropriate setting if the line card will be installed in a chassis that has the management card.

6. At the confirmation prompt, type **Y** to implement your change or type **N** to cancel it.

7. Wait one minute for the line card to reset and initialize its management software.

8. If you set the line card to the UART Local Console Mode to deploy the card at a remote site, remove the line card from the chassis.

9. If you set the line card to the UART Back Plane Mode so that you can use the AT-CV5M02 Management Card to configure its parameter settings, go to the next procedure for instructions.

Configuring the T1/E1 Ports from the AT-CV5M02 Management Card

To configure the T1/E1 ports on the AT-CM70S Line Card from the menus in the AT-CV5M02 Management Card:

1. From the Main Menu, select **Module Status and Configuration**. The Module Status and Configuration Menu is shown in Figure 58 on page 158.

2. Select the AT-CM70S Line Card you want to configure.

3. From the line card's Module Configuration Menu, select **TDM LIU (E1/T1) Configuration** to display the menu in Figure 99 on page 244.

4. From the TDM Management Menu, select **TDM Port Configurations** to display the LIU Mode and Channel Select Menu, shown in Figure 101.

Note
If the TDM Port Configurations selection is not included in the TDM Management Menu, you need to set the card's UART setting to the backplane mode. For instructions, refer to "Selecting the Management Method for the AT-CM70S Line Card" on page 242.

```
            LIU Mode and Channel Select Menu
                   Module 15, Port C

> Manufacture T1 Mode
  Manufacture E1 Mode
  Customized Mode

  Channel 1, Sub-Menu 1
  Channel 1, Sub-Menu 2

  Channel 2, Sub-Menu 1
  Channel 2, Sub-Menu 2

  Channel 3, Sub-Menu 1
  Channel 3, Sub-Menu 2

  Channel 4, Sub-Menu 1
  Channel 4, Sub-Menu 2

  Return to Port Configuration Menu ...
```

Figure 101. LIU Mode and Channel Select Menu

5. To designate the T1 or E1 carrier type for the line card, select **Manufacture T1 Mode** or **Manufacture E1 Mode**, respectively.

6. After you've designated the carrier type, configure the individual ports. Each channel in the menu represents a different port on the line card. Channel 1 represents T1/E1 port 1, channel 2 represents T1/E1 port 2, and so forth. Each port has a submenu 1, shown in Figure 102, and a submenu 2, shown in Figure 103. Some of the selections differ depending on the designated carrier type of the card.

```
            TDM Channel Configuration Menu 1
                  Module 15, Port C


>  Long Haul
   Limited Long Haul

>  T1 DSX-1(0 to 133ft)/0dB CSU
   T1 DSX-1(133 to 266ft)
   T1 DSX-1(266 to 399ft)
   T1 DSX-1(399 to 533ft)
   T1 DSX-1(533 to 655ft)
   T1 -7.5dB CSU
   T1 -15dB CSU
   T1 -22.5dB CSU

Return to LIU Mode and Channel Select Menu ...
```

Figure 102. TDM Channel Configuration Menu 1

```
            TDM Channel Configuration Menu 2
                  Module 15, Port C


   Transmit All Ones
>  Transmit Data Normally

>  Transmit PRBS Disable
   Transmit PRBS Enable

>  Remote Loopback Disable
   Remote Loopback Enable

>  Local Loopback Disable
   Local Loopback Enable

Return to LIU Mode and Channel Select Menu ...
```

Figure 103. TDM Channel Configuration Menu 2

As you configure the ports, the top selection in the LIU Mode and Channel Select Menu changes to Customized Mode to indicate that the port settings have been changed from their default values.

7. Adjust the settings as needed. Refer to Table 30 for the available settings.

Table 30. T1/E1 Port Settings

Parameter	T1 Settings	E1 Settings
Receiver Sensitivity Setting	❒ Limited Long Haul ❒ Long Haul (default)	❒ Short Haul ❒ Long Haul (default)
Line Build Out	❒ DSX-1 CSU (0 to 133ft) (default) ❒ DSX-1 (133 to 266ft) ❒ DSX-1 (266 to 399ft) ❒ DSX-1 (399 to 533ft) ❒ DSX-1 (533 to 655ft) ❒ -7.5dB CSU ❒ -15dB CSU ❒ -22.5dB CSU	❒ 75 Ohm Normal ❒ 120 Ohm Normal (default) ❒ 75 Normal with High Return Loss ❒ 120 Normal with High Return Loss
Transmit All Ones	Menu selections from the AT-CV5M02 Management Card: ❒ Transmit Data Normally (default) ❒ Transmit All Ones Menu selections from the Console Port on the AT-CM70S Line Card: ❒ Normal (default) ❒ Unframed All Ones	Menu selections from the AT-CV5M02 Management Card: ❒ Transmit Data Normally (default) ❒ Transmit All Ones Menu selections from the Console Port on the AT-CM70S Line Card: ❒ Normal (default) ❒ Unframed All Ones
PRBS	❒ Enable ❒ Disable (default)	❒ Enable ❒ Disable (default)
Remote Loopback	❒ Enable ❒ Disable (default)	❒ Enable ❒ Disable (default)

8. To save your changes in the master configuration file, return to the Module Configuration Menu and select **Line Card Configuration** and **Save Line Card Configuration**.

Configuring the T1/E1 Ports from the Console Port on the Line Card

This procedure explains how to configure the settings on the T1/E1 ports on the AT-CM70S Line Card from the card's Console port. This is the appropriate procedure for configuring the ports when the card's UART setting is set to UART local console mode and the chassis containing the line card does not have a management card.

Caution
There are no security features like a logon username or a password on the Console port on the AT-CM70S Line Card. Anyone with physical access to the location of the card can alter the configuration settings of the T1/E1 ports. To prevent unauthorized changes to its operating parameters, install the card and its chassis in a secure location, such as a locked wiring closet.

Note
The parameter settings of the SFP slot and the 10/100/1000Base-T port on the line card cannot be set through the Console port.

To configure the T1/E1 ports from the Console port on the AT-CM70S Line Card:

1. Configure the settings on your terminal or terminal emulator program as follows:
   - Bits per second: 115200
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: None
   - Echo typed characters locally: Enabled

   Note
   The settings on the Console port on the line card are not adjustable.

2. Connect the management cable included with the AT-CM70S Line Card to the Console port on the card and to the RS-232 port on your terminal or computer.

3. If the card is already running, the terminal screen will be blank. To display the card's menu in Figure 104, type **m** for menu and press Return.

```
                      AT-CM70S Local Console Menu

-----------------------------------------------------------------------

Boot Configuration:
<a> Boot Data From            : Customized in EEPROM
<b> LIU Mode                  : T1

-----------------------------------------------------------------------

Current Status:
T1 with B8ZS Coding (All 4 Channels)
                       Channel 1   Channel 2   Channel 3   Channel 4
<1> Rec Sens Set     : Long Haul   Long Haul   Long Haul   Long Haul
<2> Line Build Out   : DSX-1/0 CSU DSX-1/0 CSU DSX-1/0 CSU DSX-1/0 CSU
<3> Transmit All 1s  : Normal      Normal      Normal      Normal
<4> PRBS             : Disabled    Disabled    Disabled    Disabled
<5> Remote Loopback  : Disabled    Disabled    Disabled    Disabled

Enter <Item#><space><Channel#> to change each channel's config.

Change will be saved automatically if EEPROM data was used.

Command>
```

Figure 104. Local Console Menu on the AT-CM70S Line Card

The first selection in the menu, <a> Boot Data From, returns the parameter settings of the T1/E1 ports to the default values. This selection initially says Manufacture Default, indicating that the parameter settings on the ports are at their default values. As you configure the ports, it automatically changes to Customized in EEPROM. If at a later time you want to discard all of your changes and return the ports to the default values, type **a** (lowercase) and respond to the confirmation prompt.

The second selection, <b> LIU Mode, toggles the line card between T1 or E1 support, as explained in step 4.

The main part of the menu is a table that displays the current settings of the T1/E1 ports (channels). To change a setting of a port, refer to step 5.

4. To toggle the line card between T1 or E1 support:

Note
Changing the T1/E1 mode of the line card returns the port settings to the default values. Any changes to the port settings are discarded.

   a. Type **b** (lowercase) to select LIU Mode and press Return.

b. At the confirmation prompt, type **Y** and press Return to implement the change or **N** and Return to cancel it.

5. To configure the settings of a T1/E1 port, enter the number of the setting you want to change followed by the port (channel) number, separated by a space. For example, to change the remote loopback setting for port 2, you enter:

   5 2

   Table 30 on page 248 lists the possible settings.

6. When you finish managing the line card, simply disconnect the management cable from the Console port. There is no logout command. The card automatically updates its configuration file in flash memory with your changes. If you remove the line card from the chassis or power off the chassis, your changes are retained by the card.

Chapter 9

Configuring the Operations, Administration, and Maintenance Client

The sections in this chapter are:

- ❒ “Configuring the OAM Client” on page 254
- ❒ “Performing the OAM Loopback Test” on page 259
- ❒ “Displaying OAM Information on Local OAM Clients” on page 264
- ❒ “Displaying OAM Information on Remote OAM Clients” on page 271
- ❒ “Displaying OAM Statistics” on page 273
- ❒ “Sending OAM Variable Requests to View MIB Variables” on page 275

Note
The AT-CM2, AT-CM70S, and AT-CM3 Line Cards have to be set to an OAM operating mode before you can perform any of the procedures in this chapter. Otherwise, the OAM menus and windows are hidden from view. The appropriate mode for the AT-CM2 and AT-CM70S Line Cards is OAM Visible. For the AT-CM3 Line Cards the appropriate mode is any mode that supports OAM, such as Link Test with OAM. For more information, refer to “Operating Modes” on page 48 and “Setting the Operating Mode” on page 176.

Configuring the OAM Client

Menus

To configure the OAM clients on the line cards from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Configuration Menu shown in Figure 63 on page 169.
2. From the Module Status and Configuration Menu, select the AT-CM Line Card you want to configure. This displays the Module Configuration Menu shown in Figure 63 on page 169. You can configure only one card at a time.
3. Select **Port A**, the fiber optic port, on the line card to display the Port Management Menu shown in Figure 64 on page 170. The OAM client is supported only on Port A.
4. From the Port Management Menu, select **OAM Configurations** to display the OAM Configurations menu in Figure 105.

```
                  OAM Configurations
                   Module 4, Port A

OAM Configuration

Show Local OAM Information

Show Remote OAM Information

Show OAM Statistics

OAM Loopback Test

Send OAM Variable Request

Return to Port Management Menu ...
```

Figure 105. OAM Configurations Menu

Note
If the Port Management Menu doesn't have the OAM Configurations selection, the line card is not set to an OAM operating mode.

5. From the OAM Configuration Menu, select **OAM Configuration** to display the OAM Configuration submenu, shown in Figure 106.

```
                    OAM Configuration
                     Module 4, Port A

Admin State                              Enabled

Mode                                     Passive

Maximum OAMPDU Size                      1518

Unidirectional Support                   Yes

Loopback Support                         Yes

Link Event Support                       No

Variable Retrieval Support               Yes

Return to OAM Configurations ...
```

Figure 106. OAM Configuration Submenu

The parameters in the OAM Configuration submenu are defined in Table 31. The line card immediately implements your changes to the parameters.

Table 31. OAM Client Parameters

Parameter	Description
Admin State	This parameter controls the state of the OAM client on the line card and has the following possible values: ❒ Enabled – This enables the OAM client. The line card can participate in the OAM Discovery process and perform other OAM functions. This is the appropriate setting for the OAM-based features on the AT-CM Line Cards. This is the default setting. ❒ Disabled – This disables the OAM client. The line card cannot participate in the OAM Discovery process because it will not generate or respond to OAMPDUs.

Table 31. OAM Client Parameters

Parameter	Description
Mode	This parameter specifies the mode of the OAM client on the line card. The possible values are: ❒ Passive – This sets the client's mode to Passive. Clients in the Passive mode can not initiate the Discovery process or send Loopback Control OAMPDUs or Variable Request OAMPDUs. This is the default setting. ❒ Active – This setting sets the client's mode to Active. Clients in this mode can initiate the Discovery process. This is the appropriate setting for the OAM-based features on the AT-CM Line Cards.
Maximum OAMPDU Size	This parameter specifies the maximum size in octets of the OAMPDUs. The OAM clients negotiate the maximum OAMPDU size during the Discovery process. If a client receives an Information OAMPDU from its OAM counterpart with a different value for the maximum OAMPDU size, it uses the smaller value. For instance, if a client receives from its remote OAM counterpart an Information OAMPDU that has a smaller value for the maximum OAMPDU size than its own value, the client uses the remote client's value. The range of this value is 64 to 1518 octets. The default value is 1518 octets.
Unidirec-tional Support	This parameter controls whether or not the OAM client sends OAMPDUs if the receiver connector on the fiber optic port of Port A is not receiving a signal or network traffic. The possible values are: ❒ Yes – The OAM client sends OAMPDUs even when the receive fiber optic connector on the fiber optic port on port A is not receiving a signal or network traffic. This is the default setting. ❒ No – The OAM client sends OAMPDUs only when the receive fiber optic connector on the fiber optic port on port A is receiving a signal or network traffic, and the port has established a link with its remote counterpart.

Table 31. OAM Client Parameters

Parameter	Description
Loopback Support	This parameter controls whether or not the OAM client on the line card will participate in OAM loopback tests by returning test packets received on port A from another OAM client. This parameter applies only to OAM clients that return the test packets and has no affect on OAM clients that generate the test packets. For information on this feature, refer to "Performing the OAM Loopback Test" on page 259. The possible values are: ❒ Yes – The OAM client can return test packets from OAM loopback tests. This is the default setting. ❒ No – The OAM client cannot return test packets.
Link Event Support	This parameter is not implemented in this release.
Variable Retrieval Support	This parameter controls whether or not the OAM client on the line card will respond to variable retrieval requests from other OAM clients. A variable retrieval request is a query of an OAM client by another OAM client for the current value of a MIB object. The possible values are: Yes - The OAM client will respond to variable retrieval requests. This is the default setting. No - The OAM client will not respond to variable retrieval requests. **Note** The AT-CM Line Cards do not support any of the MIB objects in the portion of the MIB tree that variable retrieval requests can access. As a result, the line cards will never return a MIB value in response to a variable retrieval request from an OAM client, such as another AT-CM Line Card.

6. To save your changes in the master configuration file, return to the Module Configuration Menu and select **Line Card Configuration** and **Save Line Card Configuration**.

Web Browser

To configure the OAM clients on the AT-CM Media Converter Line Cards from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. From the Chassis View, click **Port A**, the fiber optic port, on the AT-CM Line Card you want to configure. The OAM client is only supported on Port A. Alternatively, select the Menu View and click the model name of the AT-CM Line Card.
3. If the **Port A** tab is not selected, select it.
4. Select the **OAM Configuration** tab to display the OAM Configuration window shown in Figure 107.

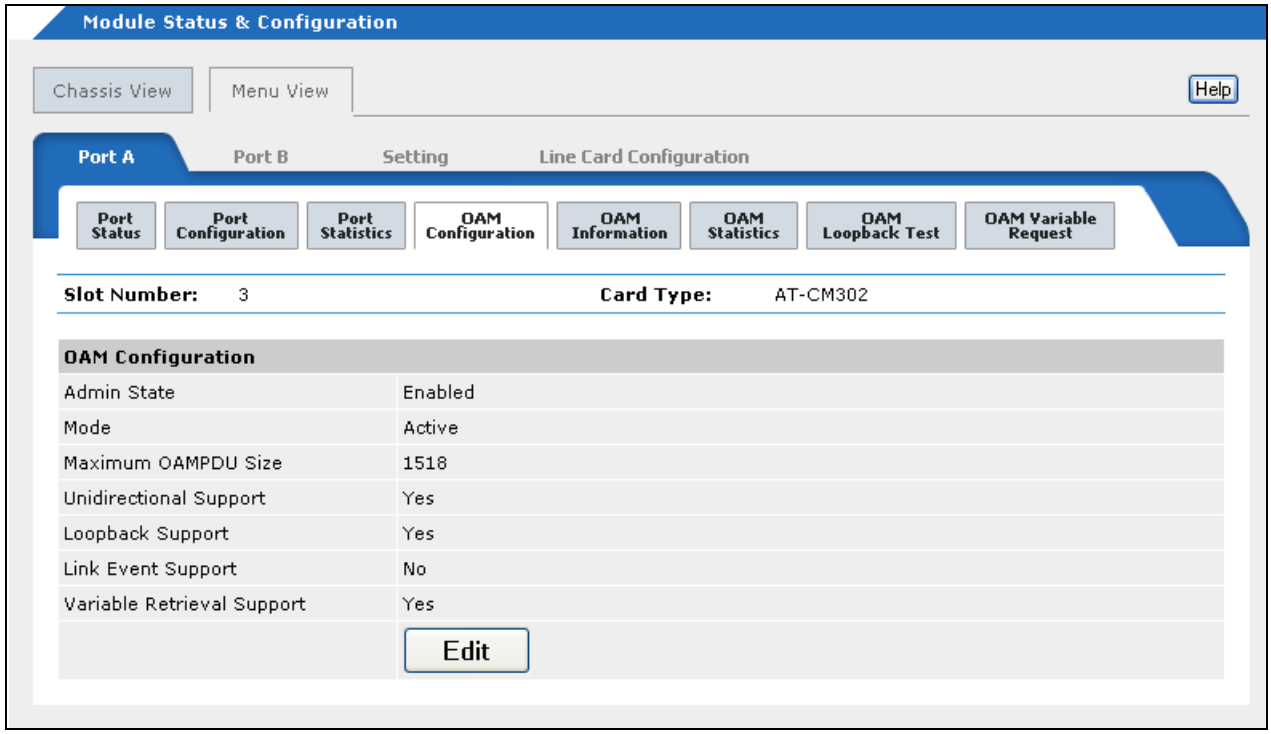


Figure 107. OAM Configuration Tab

If the OAM Configuration tab is not included in the window, either you did not select Port A or the line card is not set to an OAM operating mode.

5. To change the OAM settings, click **Edit** to display the OAM Configuration pop-up window and adjust the settings as needed. The parameters are defined in Table 31, ”OAM Client Parameters” on page 255.
6. To save your changes in the master configuration file, click the **Line Card Configuration** tab, the **Current Configuration** tab, and the **Save Current Configuration** button.

Performing the OAM Loopback Test

For background information, refer to "OAM Loopback Tests" on page 61.

Menus

To perform the OAM loopback test from the menus:

> **Caution**
> This test is disruptive to network operations. Some network traffic may be lost. The local and remote media converter line cards do not forward network traffic during the test.

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration Menu. An example of the menu is shown in Figure 58 on page 158.
2. Select the local AT-CM Line Card you want to perform the loopback test. This displays the Module Configuration Menu for the line card. An example of the menu is shown in Figure 63 on page 169.
3. Select **Port A** to display the Port Management Menu, shown in Figure 64 on page 170.
4. From the Port Management Menu, select **OAM Configurations** to display the OAM Configuration Menu in Figure 105 on page 254.
5. From the OAM Configuration Menu, select **OAM Loopback Test** to display the OAM Loopback Test Menu, shown in Figure 108.

```
                OAM Loopback Test
               Module 11, Port = 1


  Enable Remote Loopback
> Disable Remote Loopback

  Start Loopback Test
> Stop Loopback Test

  Show Loopback Test Statistics
  Clear Loopback Test Statistics

  Return to OAM Configurations ...
```

Figure 108. OAM Loopback Test Menu

6. From the OAM Loopback Test Menu, select **Enable Remote Loopback**.

Caution
The local line card and its remote counterpart stop forwarding network traffic. Some network traffic may be lost.

Note
There may be a delay of several seconds before the menu reflects your selection.

If the line card is not configured correctly for the OAM loopback test, an error message is displayed. The messages are described here.

`OAM port is disconnected.`

This message indicates that port A on the local line card has not established a link with its counterpart on the remote line card, possibly because the fiber optic cable is not connected to the ports.

`OAM is not in active mode.`

This message indicates that the OAM mode of the line card is set to the passive mode instead of the active mode. To correct the problem, perform the procedure “Configuring the OAM Client” on page 254 and change the Mode setting from Passive to Active in the OAM Configuration submenu.

`Line card not in OAM visible mode.`

This message applies only to the AT-CM2 and AT-CM70S Line Cards and indicates that the line card’s operational mode is set to the OAM bypass mode instead of the OAM visible mode. To correct the problem, perform the procedure “Setting the Operating Mode” on page 176 and select the OAM visible mode from the Operating Mode Config Menu.

If you select Enable Remote Loopback and, after several seconds, it remains deselected, it probably means that support for the loopback test is disabled on the remote line card.

7. To begin the test, select **Start Loopback Test** from the OAM Loopback Test Menu. The test starts immediately.

8. To view test statistics, select **Show Loopback Test Statistics**. The Show Loopback Test Statistics window is shown in Figure 109.

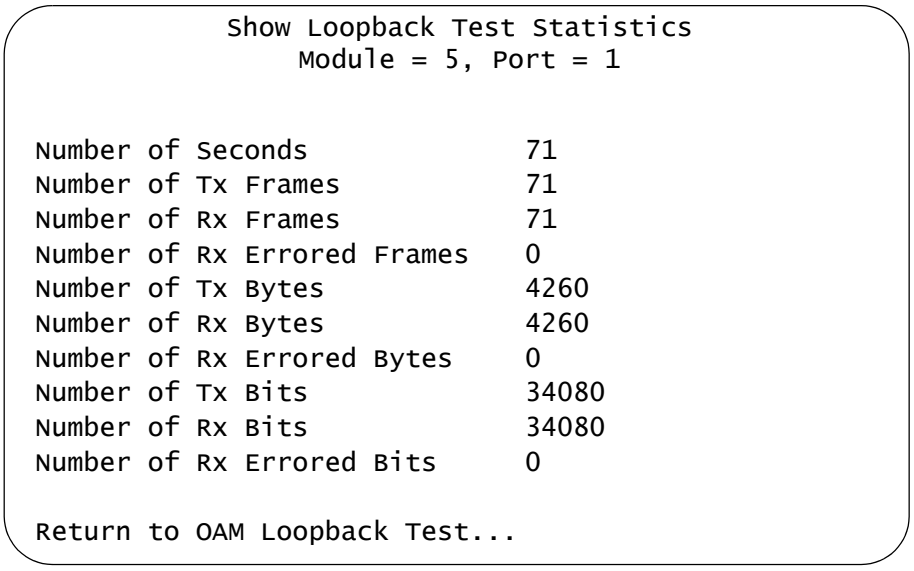


Figure 109. Show Loopback Test Statistics Window

The first line displays the duration of the test in seconds. The counters display the number of test packets the local OAM client has transmitted to its remote counterpart over the fiber optic connection, and the number of packets the local client has received back. The measurements are given in frames, bytes (octets) and bits. The local client should receive the same number of test frames, bytes, and bits as it transmitted. Test frames are sixty octets in length.

9. You can stop the test at any time by selecting **Stop Loopback Test** from the OAM Loopback Test Menu.

10. To resume normal network operations on the local and remote line cards, select **Disable Remote Loopback**.

11. To clear the statistics counters, select **Clear Loopback Test Statistics**.

Web Browser To perform the loopback test from the web browser windows:

> **Caution**
> This test is disruptive to network operations. Some network traffic may be lost. The local and remote media converter line cards do not forward network traffic during the test.

1. Select **Module Status & Configuration** from the menu bar.
2. From the Chassis View, click **Port A**, the fiber optic on the AT-CM Line Card you want to perform the loopback test. Alternatively, select the Menu View and click the model name of the AT-CM Line Card.
3. If the **Port A** tab is not selected, select it. The OAM client is only supported on Port A.
4. Click the **OAM Loopback Test** tab to display the OAM Loopback Test tab in Figure 110.

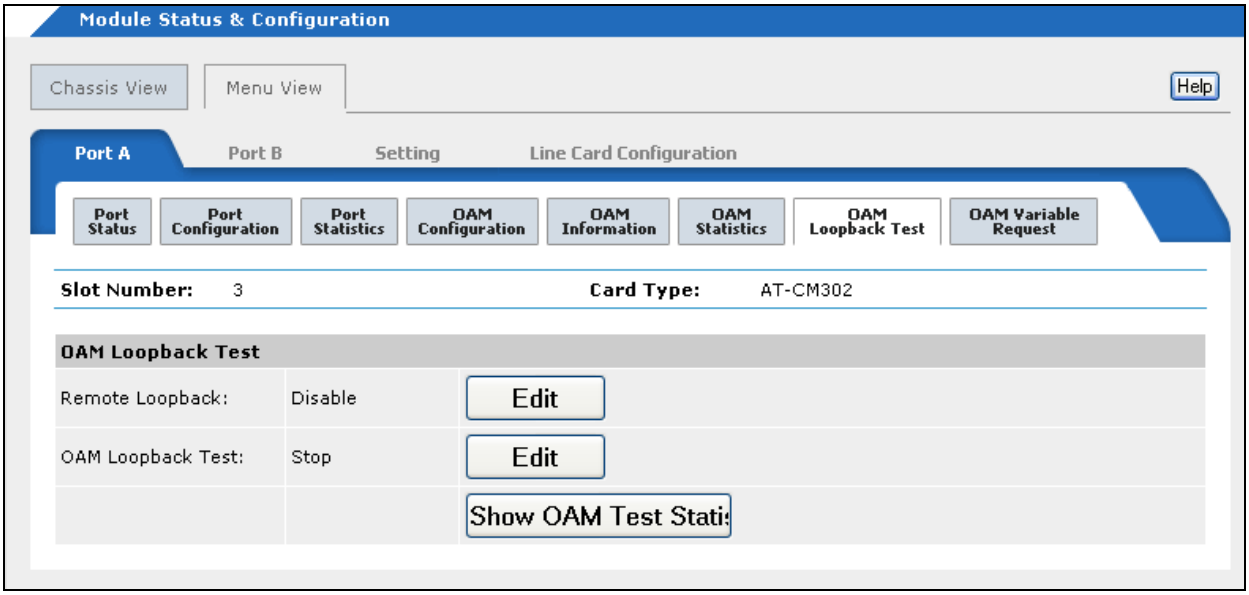


Figure 110. OAM Loopback Test Tab

5. To activate the loopback test on the local line card, click **Edit** in the Remote Loopback field to display a pop-up window and select **Enable** from the pull-down menu.

> **Caution**
> At this point, the local media converter line card and its remote counterpart stop forwarding network traffic. Some network traffic may be lost.

6. To start the test, click **Edit** in the OAM Loopback Test field to display a pop-up window and select **Start** from the pull-down menu. The local line card begins to transmit test packets to the remote line card.

7. To view test statistics, click **Show OAM Test Statistics**. An example of the counters is shown in Figure 111.

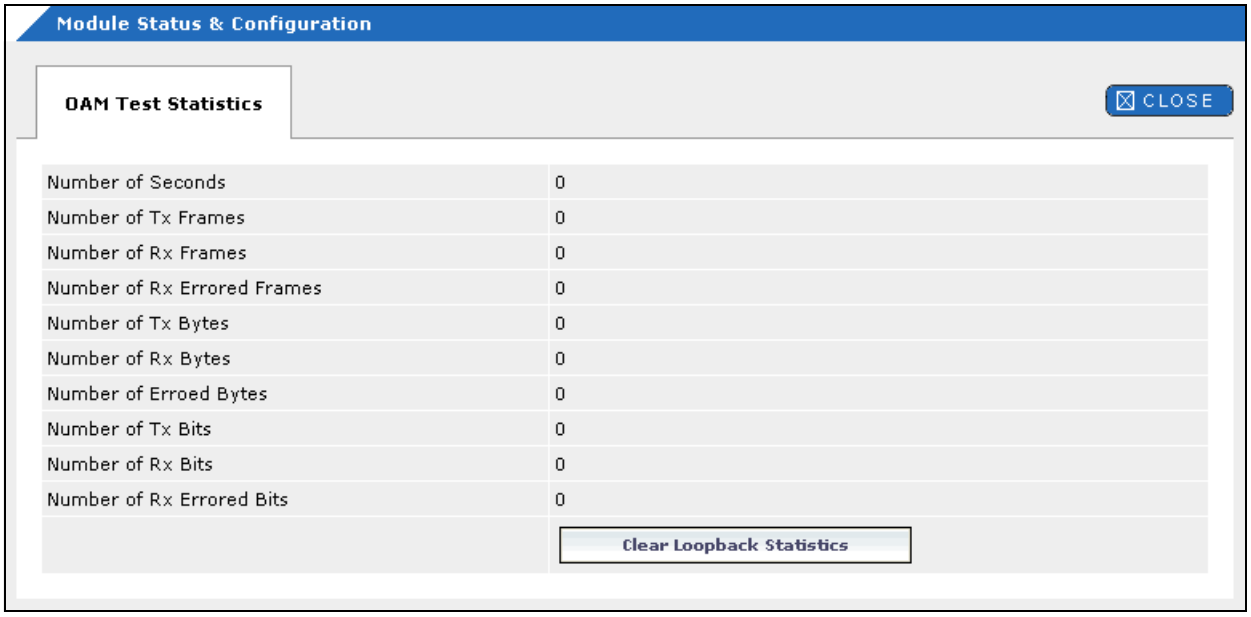


Figure 111. OAM Test Statistics

The first line displays the duration of the test in seconds. The counters display the number of test packets the local OAM client transmitted to its remote counterpart over the fiber optic connection, and the number of packets the local client received back. The measurements are given in frames, bytes (octets) and bits. Test frames are sixty octets in length.

To clear the counters, click **Clear Loopback Statistics**.

8. To stop the test, change the OAM Loopback Test field to Stop by clicking **Edit** and selecting **Stop** from the pull-down menu. The line card stops transmitting test packets.

9. To resume normal network operations on the local and remote line cards, change the Remote Loopback field to Disable by clicking **Edit** and selecting **Disable** from the pull-down menu. The line cards resume forwarding network traffic.

Displaying OAM Information on Local OAM Clients

The procedures in this section explain how to view the OAM status information on the OAM clients on the local line cards.

Menus

To display status information on the local OAM clients from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Remote Module Status and Configuration Menu. An example of the menu is shown in Figure 58 on page 158.
2. Select the local line card whose OAM information you want to view. This displays the Module Configuration Menu for the line card. An example is shown in Figure 63 on page 169.
3. Select **Port A** to display the Port Management Menu shown in Figure 64 on page 170. OAM is only supported on port A of the line cards.
4. From the Port Management Menu, select **OAM Configurations** to display the OAM Configuration Menu, An example of the menu is shown in Figure 105 on page 254.
5. From the OAM Configuration Menu, select the **Show Local OAM Information** window to display the Show Local OAM Information Menu, shown in Figure 112 on page 265.

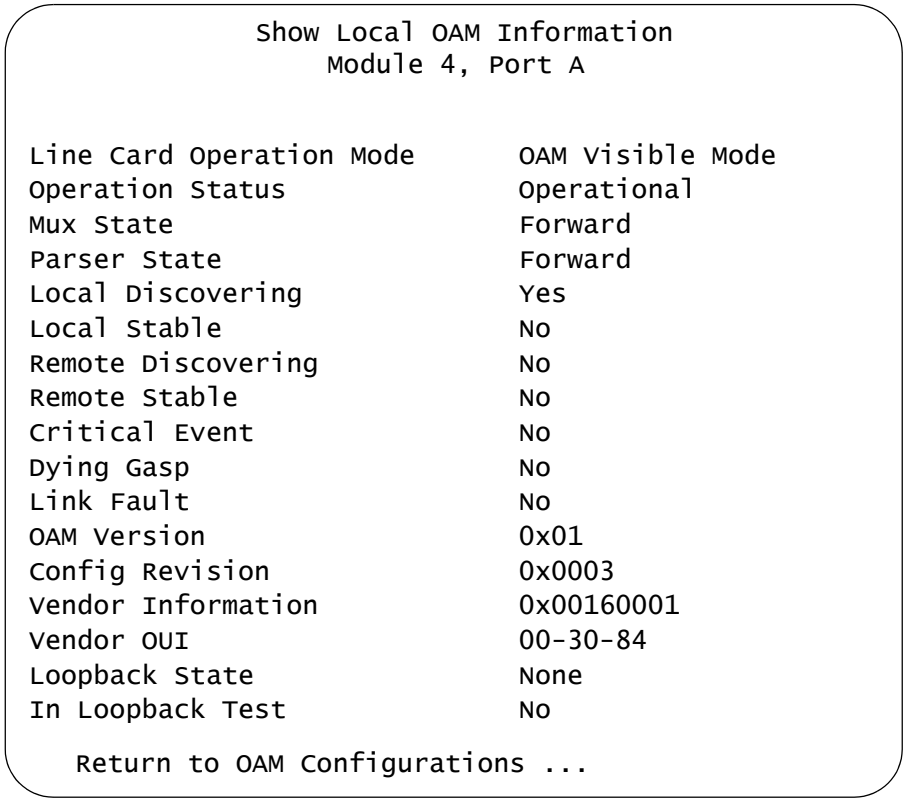


Figure 112. Show Local OAM Information Window

This window is for viewing purposes only. The items in the window are defined in Table 32.

Table 32. Show Local OAM Information Window

Column	Description
Line Card Operation Mode	Displays the OAM operating mode of the line card. The possible values are: ❒ OAM Bypass Mode – In this mode the line card does not process any OAMPDU packets it receives. Rather, it handles them like normal network traffic forwarding them onto the other port. This allows the line card to be used in a network where the Converteon chassis is not part of the IEEE802.3ah end points. In this mode, the OAM function of the line card is disabled. The module will pass all OAMPDUs whose vendor OUI is not Allied Telesis.

Table 32. Show Local OAM Information Window

Column	Description
Line Card Operation Mode (Continued)	❒ OAM Visible Mode – In this mode the line card generates and responds to OAMPDU packets. As such, it can initiate the OAM discovery process, participate in OAM loopback tests and send OAM variable requests.
Operation Status	Indicates the OAM operating status. The possible values are: ❒ Disabled – The OAM client is disabled. ❒ Passive Wait – The OAM client is waiting for its remote OAM counterpart to initiate the OAM discovery process. The client cannot initiate the OAM discovery process because its mode has been set to passive. ❒ Active Send Local – The OAM client has initiated the OAM discovery process and is waiting for a response from the remote OAM client to its queries. The client is able to initiate the OAM discovery process because its mode has been set to active. ❒ Send Local and Remote – The local OAM client is sharing its OAM settings with the remote client by sending OAM Information OAMPDUs that contain its settings and the OAM settings received from the remote client. ❒ IOAM Peering Locally Rejected – The remote OAM client has rejected the OAM information from the local client.
Operation Status (continued)	❒ OAM Peering Remotely Rejected – The local OAM client has rejected the OAM information from the remote client. ❒ Operational – The OAM client is in the operational state. The AT-CM Line Cards have to be in this state to support the OAM-based features.
Mux State	Displays the state of the multiplexer function, which governs the flow of frames from the MAC client. The possible values are: ❒ Forward – Multiplexer passes MAC client frames to subordinate sublayer. ❒ Discard – Multiplexer discards MAC client frames.

Table 32. Show Local OAM Information Window

Column	Description
Parser State	Indicates the state of the parser function in the OAM peer as reflected in the latest OAMPDU. This value is changed based on loopback actions by either the local or remote station. The possible values are: ❒ Forward – Parser passes received non-OAMPDUs to superior sublayer. ❒ Loopback – Parser passes received non-OAMPDUs to Multiplexer during remote loopback test. ❒ Discard – Parser discards received non-OAMPDUs.
Local Discovering	Indicates whether the local station can accept or reject the configuration of the peer OAM entity. ❒ Yes – Local station accepts the configuration of the peer OAM entity. (default) ❒ No – Local station rejects the configuration of the peer OAM entity.
Local Stable	Indicates whether or not the local OAM client is satisfied with the OAM information it received from the remote OAM client. ❒ Yes – Indicates that the local OAM client is satisfied with the OAM information from the remote OAM client. ❒ No – Indicates that the local OAM client has not received any OAM information or is not satisfied with the OAM information from the remote OAM client.
Remote Discovering	Indicates the remote station can accept or reject the configuration of the peer OAM entity. ❒ Yes – Remote station accepts the configuration of the peer OAM entity. ❒ No – Remote station rejects the configuration of the peer OAM entity.

Table 32. Show Local OAM Information Window

Column	Description
Remote Stable	Indicates whether or not the remote OAM client is satisfied with the OAM information it received from the local OAM client. Possible values are: ❒ Yes – Indicates that the remote OAM client is satisfied with the information it received from the local OAM client. ❒ No – Indicates that the remote OAM client has not received any OAM information or is not satisfied with the information from the local OAM client.
Critical Event	Indicates whether or note the local OAM client received a critical event notification from the remote OAM client. A critical event notification indicates a severe error condition that does not result in a complete reset or reboot by the remote client. ❒ Yes – The local OAM client received a critical event notification from the remote OAM client. ❒ No – The local OAM client has not received a critical event notification.
Dying Gasp	Indicates whether or not the local OAM client received a dying gasp notification from the remote OAM client. A dying gasp notification indicates that the remote chassis with the remote OAM client experienced a power failure. ❒ Yes – The local OAM client received a dying gasp notification. ❒ No – The local OAM client has not received a dying gasp notification. For background information, refer to “Dying Gasp and First RPS Failure Signals” on page 62.
Link Fault	Indicates whether or not the receiver connector on the fiber optic port on port A is receiving a signal. ❒ Yes – The receiver connector is receiving a signal. ❒ No – received connector is not receiving a signal.
OAM Version	Indicates the version supported by the media converter line card. This field contains the value “0x01” to indicate compliance with Version 1 of this protocol.

Table 32. Show Local OAM Information Window

Column	Description
Config Revision	Indicates the current revision of the Information TLV. The value of this field starts at zero and be incremented each time something in the Information TLV changes. Upon reception of an Information TLV from a peer, an OAM Client may use this field to decide if it needs to be processed (an Information TLV that is identical to the previous Information TLV doesn't need to be parsed as nothing in it has changed).
Vendor Information	Indicates the 32-bit identifier that may be used to differentiate a vendor's product models/versions.
Vendor OUI	Contains the Organizationally Unique Identifier (OUI) of 00-30-84 for Allied Telesis.
Loopback State	Indicates the current loopback state of the OAM client. ❒ None – No loopback initiated. ❒ Initiating Loopback – The local OAM client is initiating a loopback test with the remote client. ❒ Remote in Loopback – The remote OAM client has received the loopback command from the local client and is ready to participate or is already participating in the loopback test. ❒ Terminating Loopback – The local OAM client is ending the loopback test.
In Loopback Test	Indicates whether or not the OAM client is currently running a loopback test. ❒ Yes – The OAM client is running a loopback test. ❒ No – The OAM client is not running a loopback test.

Web Browser

To display status information for local OAM clients from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. From the Chassis View, click **Port A**, the fiber optic port, on the AT-CM Line Card whose OAM information you want to view. Alternatively, select the Menu View and click the model name of the AT-CM Line Card.
3. If Port A is not selected, select it. The OAM client is only supported on Port A.
4. If the **Local OAM Information** tab is not selected, select it. The window in Figure 113.

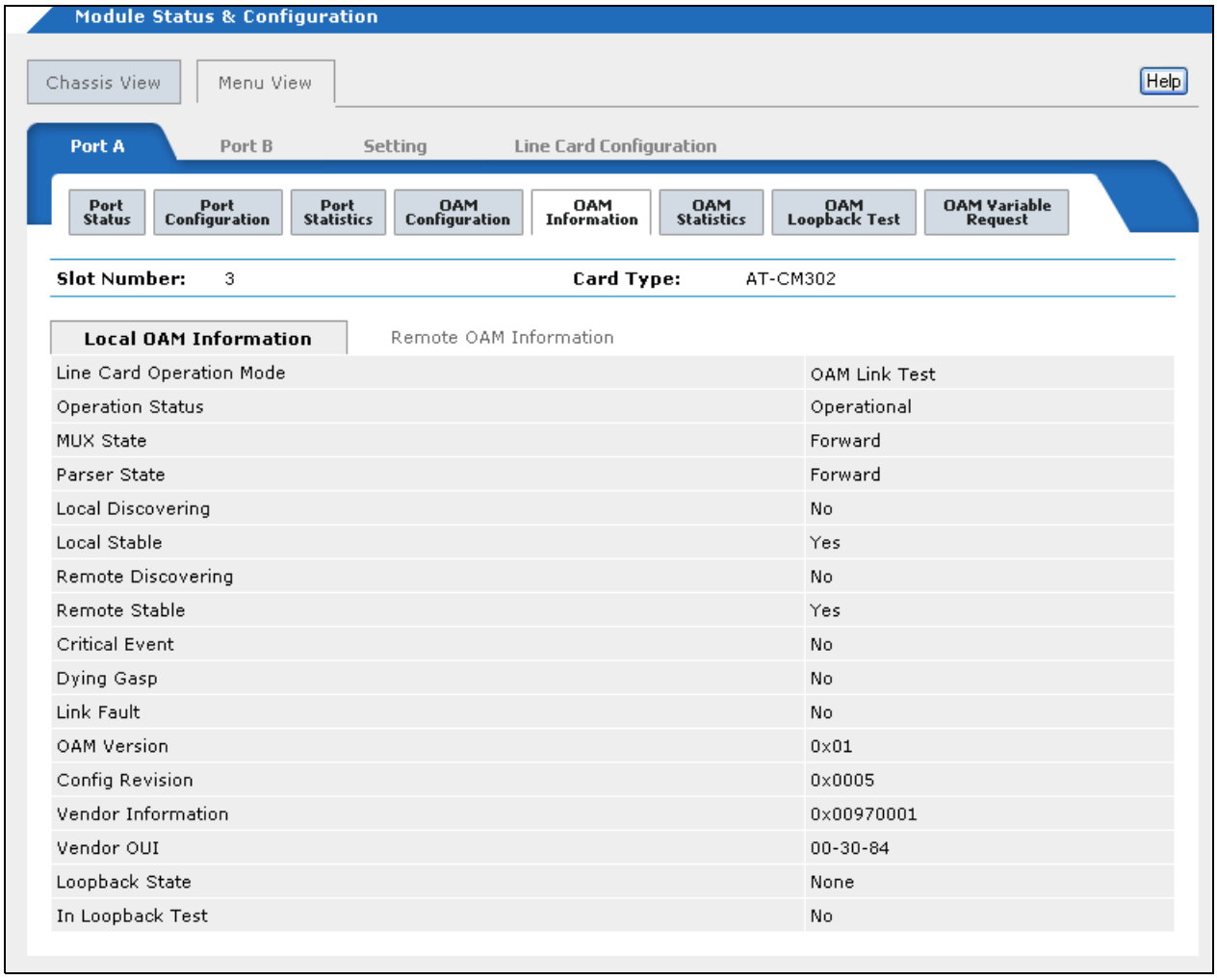


Figure 113. OAM Local Information Tab

The information in this tab, which is for viewing purposes only, is defined in Table 32 on page 265.

Displaying OAM Information on Remote OAM Clients

The procedures in this section are used to view OAM status information on the remote OAM clients connected to the local line cards.

Menus

To display status information for remote OAM clients from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration Menu, shown in Figure 58 on page 158.
2. Select the local card connected to the remote OAM device whose status information you want to view. The Module Configuration Menu is shown in Figure 63 on page 169.
3. Select **Port A**, the fiber optic port, to display the Port Management Menu in Figure 64 on page 170. OAM is only supported on port A.
4. From the Port Management Menu, select **OAM Configurations** to display the OAM Configuration Menu, shown in Figure 105 on page 254.
5. From the OAM Configuration Menu, select **Show Remote OAM Information** to display the Show Remote OAM Information window in Figure 114.

```
                    Show Remote OAM Information
                         Module 11, Port A


MAC Address         00:0c:46:9a:21:c9     Mux State            Forward
Parser State        Forward               Local Discovering    Yes
Local Stable        No                    Remote Discovering   No
Remote Stable       No                    Critical Event       No
Dying Gasp          No                    Link Fault           No
OAM Version         0x01                  Config Revision      0x0003
Vendor Info         0x00160001            Vendor OUI           00-30-84
Mode                Active                Max OAMPDU Size      1518
Loopback Support    Yes                   Event Support        No
Variable Support    Yes                   Unidirect Support    Yes

    Return to OAM Configurations ...
```

Figure 114. Show Remote OAM Information Window

This window is for viewing purposes only. Refer to Table 32 on page 265 for the definitions of the items in the window.

Web Browser

To display OAM status information about remote OAM clients from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. From the Chassis View, click **Port A**, the fiber optic port, on the AT-CM Line Card that is connected to the remote OAM device whose status information you want to view. Alternatively, select the Menu View and click the model name of the AT-CM Line Card.
3. If the **Port A** tab is not selected, select it. The OAM client is only supported on Port A.
4. Click the **OAM Information** tab to display the tab in Figure 113 on page 270.
5. Click the **Remote OAM Information** tab to display the tab in Figure 115.

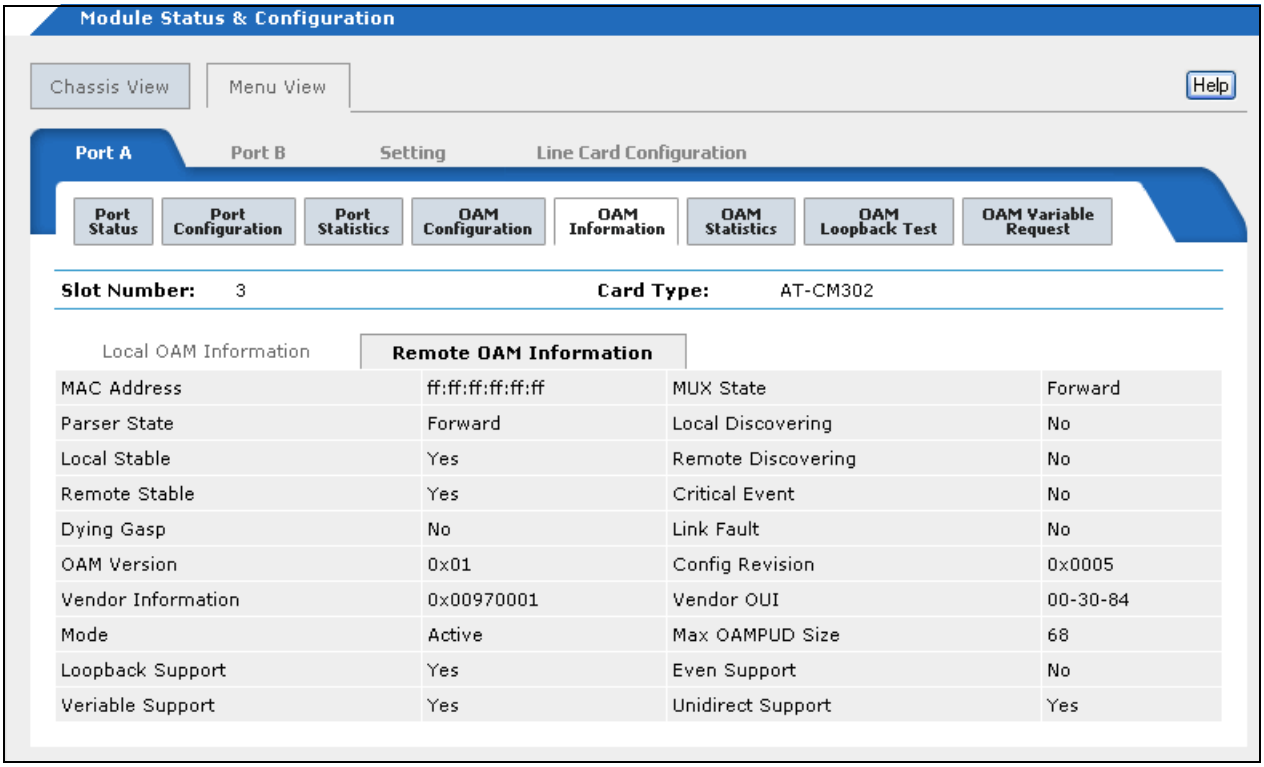


Figure 115. Remote OAM Information Tab

This tab is for viewing purposes only. Refer to Table 32 on page 265 for the definitions of the fields.

Displaying OAM Statistics

Menus

To display OAM statistics for local OAM clients from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration Menu, shown in Figure 58 on page 158.
2. Select the line card whose OAM statistics you want to view. The Module Configuration Menu is shown in Figure 63 on page 169.
3. Select **Port A** to display the Port Management Menu in Figure 64 on page 170.
4. From the Port Management Menu, select **OAM Configurations** to display the OAM Configuration Menu in Figure 105 on page 254.
5. From the OAM Configuration Menu, select **Show OAM Statistics** to display the Show OAM Statistics window in Figure 116.

```
                Show OAM Statistics
                Module 11, Port = A

Tx OAMPDUs                          70917
Rx OAMPDUs                          70918
Tx Information OAMPDUs              70917
Rx Information OAMPDUs              70918
Tx Event OAMPDUs                    0
Rx Unique Event OAMPDUs             0
Rx Duplicate Event OAMPDUs          0
Tx Loopback Control OAMPDUs         0
Rx Loopback Control OAMPDUs         0
Tx Variable Request OAMPDUs         0
Rx Variable Request OAMPDUs         0
Tx Variable Response OAMPDUs        0
Rx Variable Response OAMPDUs        0
Tx Organizational Specific OAMPDUs  0
Rx Organizational Specific OAMPDUs  0
Rx Unsupported OAMPDUs              0

  Return to OAM Configurations ...
```

Figure 116. Show OAM Statistics Window

Refer to the IEEE 802.3ah standard for the definitions of the different types of OAMPDUs.

Web Browser

To display OAM statistics for local OAM clients from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. From the Chassis View, click **Port A** on the AT-CM Line Card whose OAM statistics you want to view. Alternatively, select the Menu View and click the model name of the AT-CM Line Card.
3. If the **Port A** tab is not selected, select it. The OAM client is only supported on Port A.
4. Click the **OAM Statistics** tab to display the window in Figure 117.

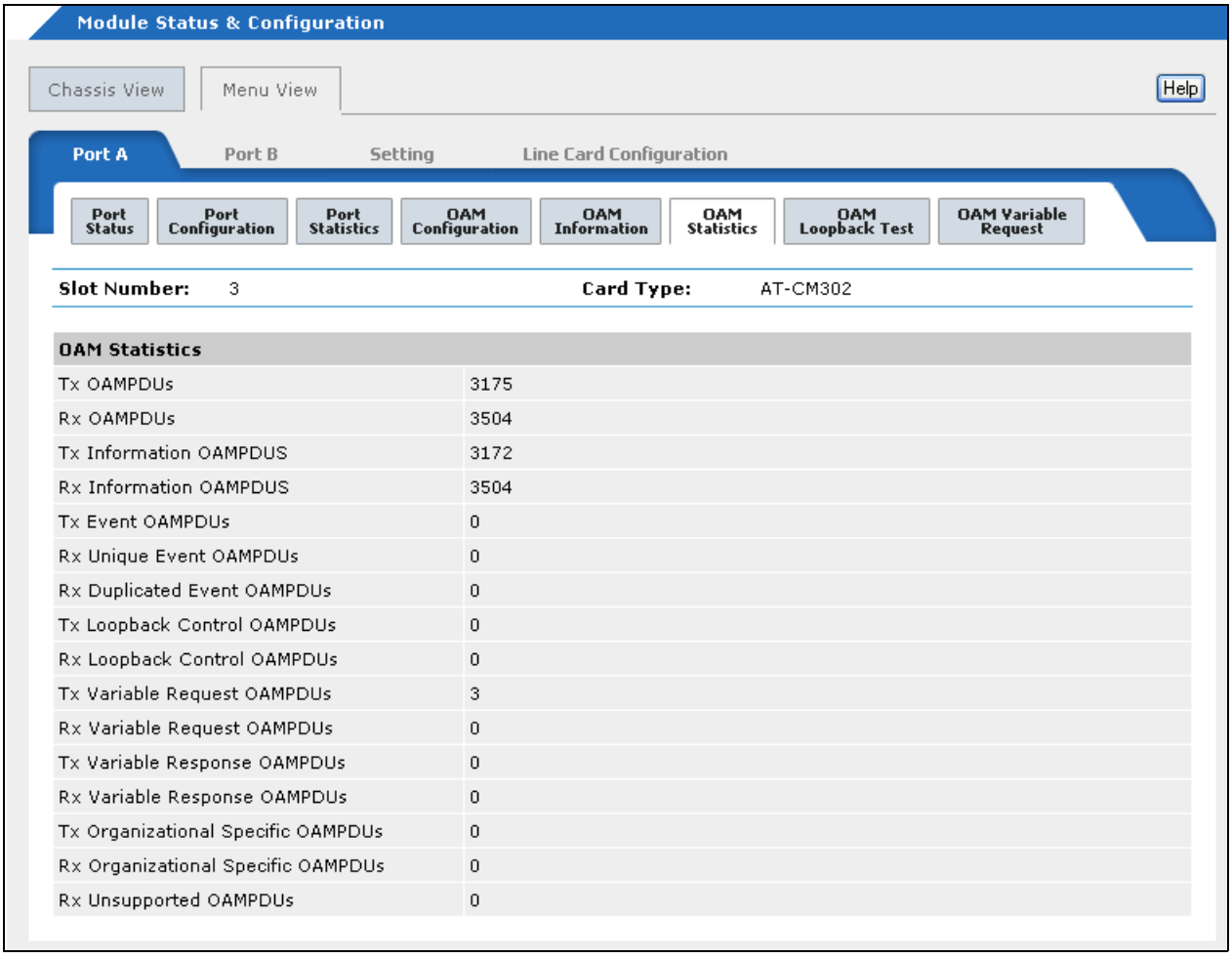


Figure 117. OAM Statistics Tab*

Refer to the IEEE 802.3ah standard for the definitions of the different types of OAMPDUs.

Sending OAM Variable Requests to View MIB Variables

These procedures are used to send OAM variable requests from the fiber optic ports on Converteon line cards to view the values of MIB objects on remote devices. For background information, refer to "OAM Variable Requests" on page 68.

Note
You can use Converteon line cards to send variable requests to query other OAM-compatible devices for MIB values. However, since the line cards do not support any of the MIB objects in the portion of the MIB tree that variable requests can access, they will not respond to variable requests sent to them by other OAM-compatible devices.

Menus

To send MIB variable requests from the menus:

1. From the Main Menu, select **Module Status and Configuration** to display the Module Status and Configuration Menu shown in Figure 58 on page 158.
2. Select the local AT-CM Line Card you want to send the OAM variable to its remote OAM counterpart. The Module Configuration Menu is shown in Figure 63 on page 169.
3. Select **Port A**, the fiber optic port, on the line card to display the Port Management Menu shown in Figure 64 on page 170.
4. From the Port Management Menu, select **OAM Configurations** to display the OAM Configuration Menu shown in Figure 105 on page 254.
5. From the OAM Configuration Menu, select **Send OAM Variable Request**. The prompt in Figure 118 is displayed.

```
                        Converteon


Enter branch number [0 - 255] -
```

Figure 118. Enter Branch Number Prompt

6. Enter the branch number of the MIB package or object to be returned. The range is 0 to 255. The prompt in Figure 119 is displayed.

```
                    Converteon


Enter leaf number [0 - 255] ->
```

Figure 119. Enter Leaf Number Prompt

7. Enter the leaf number of the package or object to be returned. The range is 0 to 255.

   If the remote OAM device has a value for the corresponding MIB object, the value is displayed on the screen.

Web Browser

To send MIB variable requests from the web browser windows:

1. Select **Module Status & Configuration** from the menu bar.
2. From the Chassis View, click **Port A**, the fiber optic port, on the AT-CM Line Card whose remote counterpart you want to query with an OAM variable request. Alternatively, select the Menu View and click the model name of the AT-CM Line Card.
3. If the **Port A** tab is not selected, select it.
4. Click the **OAM Variable Request** tab to display the window in Figure 120.

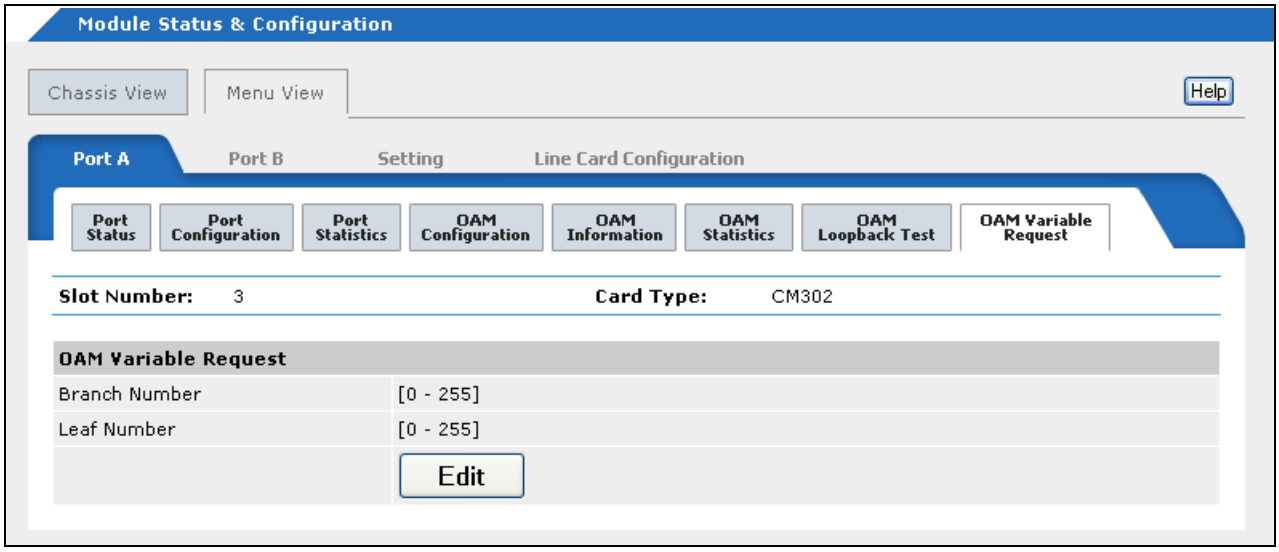


Figure 120. OAM Variable Request Tab

5. Click **Edit** to display the OAM Variable Request pop-up window.
6. Select the **Branch Number** field and enter the branch number of the MIB package or object to be returned. The range is 0 to 255.
7. Select the **Leaf Number** field and enter the leaf number of the package or object to be returned. The range is 0 to 255.
8. Click **Send**.

   If the remote OAM device has a value for the corresponding MIB object, the value is displayed on the screen.

Chapter 10

Configuring SNMPv3

This chapter provides a description of the AT-S99 implementation of the SNMPv3 protocol. In addition, the chapter contains procedures that allow you to create and modify SNMPv3 entities. The following sections are provided:

- “SNMPv3 Overview” on page 280
- “Configuring SNMPv3 Entities” on page 289
- “Configuring the SNMPv3 User Table” on page 290
- “Configuring the SNMPv3 View Table” on page 293
- “Configuring the SNMPv3 Access Table” on page 296
- “Configuring the SNMPv3 Group Table” on page 300
- “Configuring the SNMPv3 Notify Table” on page 303
- “Configuring the SNMPv3 Target Address Table” on page 306
- “Configuring the SNMPv3 Target Parameters Table” on page 309

SNMPv3 Overview

The SNMPv3 protocol builds on the existing SNMPv1 and SNMPv2c protocol implementation. In SNMPv3, User-based Security Model (USM) authentication is implemented along with encryption, allowing you to configure a secure SNMP environment.

In addition, SNMP terminology changes in the SNMPv3 protocol. In the SNMPv1 and SNMPv2c protocols, the terms *agent* and *manager* are used. An agent is an SNMP user while a manager is an SNMP host. In the SNMPv3 protocol, agents and managers are called *entitie*s. In any SNMPv3 communication, there is an authoritative entity and a non-authoritative entity. The authoritative entity checks the authenticity of the non-authoritative entity. And, the non-authoritative entity checks the authenticity of the authoritative entity.

With the SNMPv3 protocol, you create users, determine the protocol used for message authentication as well as determine if data transmitted between two SNMP entities is encrypted. In addition, you can restrict user privileges by determining the user's view of the Management Information Bases (MIB). In this way, you restrict which MIBs the user can display and modify. In addition, you can restrict the types of messages, or traps, the user can send. (A trap is a type of SNMP message.)

After you have created a user, you define SNMPv3 message notification. This consists of determining where messages are sent and what types of messages can be sent. This configuration is similar to the SNMPv1 and SNMPv2c configuration because you configure IP addresses of trap receivers, or hosts. In addition, with the SNMPv3 implementation you decide what types of messages are sent.

This section further describes the features of the SNMPv3 protocol. The following subsections are included:

- ❒ "SNMPv3 Authentication Protocols" on page 281
- ❒ "SNMPv3 Privacy Protocol" on page 281
- ❒ "SNMPv3 MIB Views" on page 281
- ❒ "SNMPv3 Storage Types" on page 283
- ❒ "SNMPv3 Message Notification" on page 283
- ❒ "SNMPv3 Tables" on page 284
- ❒ "SNMPv3 Configuration Example" on page 288

SNMPv3 Authentication Protocols

The SNMPv3 protocol supports two authentication protocols—HMAC-MD5-96 (MD5) and HMAC-SHA-96 (SHA). Both MD5 and SHA use an algorithm to generate a message digest. Each authentication protocol authenticates a user by checking the message digest. In addition, both protocols use keys to perform authentication. The keys for both protocols are generated locally using the Engine ID, a unique identifier that is assigned to the switch automatically, and the user password. You modify a key only by modifying the user password.

In addition, you have the option of assigning no user authentication. In this case, no authentication is performed for this user. You may want to make this configuration for someone with super-user capabilities.

Note
The keys generated by the MD5 and SHA protocols are specific to the SNMPv3 protocol. They have no relation to the SSL and SSH keys for encryption.

SNMPv3 Privacy Protocol

After you have configured an authentication protocol, you have the option of assigning a privacy protocol. In SNMPv3 protocol terminology, privacy is equivalent to encryption. Currently, the DES protocol is the only encryption protocol supported. The DES privacy protocol requires the authentication protocol to be configured as either MD5 or SHA.

If you assign a DES privacy protocol to a user, then you are also required to assign a privacy password. If you choose to not assign a privacy value, then SNMPv3 messages are sent in plain text format.

SNMPv3 MIB Views

The SNMPv3 protocol allows you to configure MIB views for users and groups. The MIB tree is defined by RFC 1155 (Structure of Management Information), as illustrated in Figure 121 on page 282.

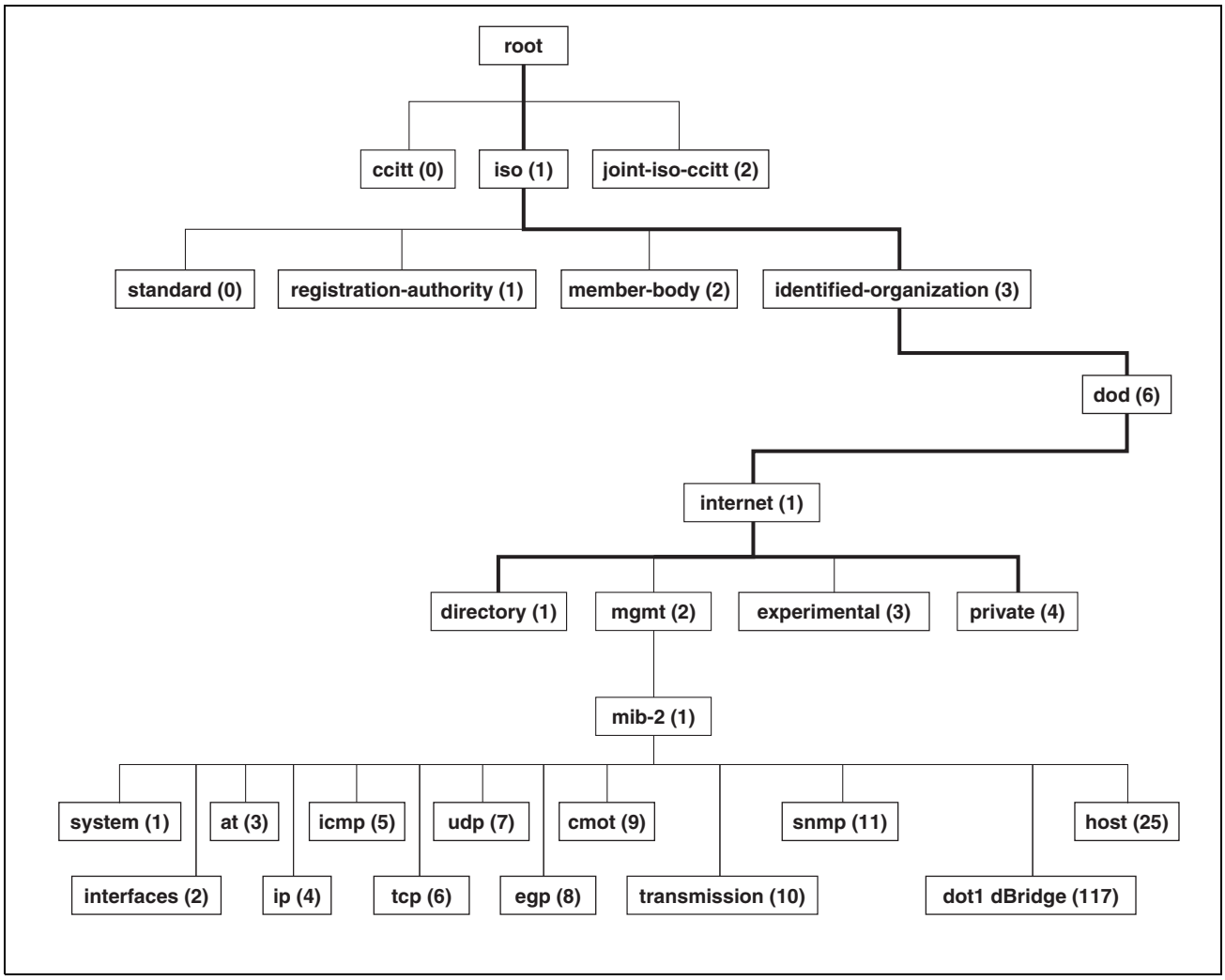


Figure 121. MIB Tree

The management software supports the MIB tree, starting with the Internet MIBs, as defined by 1.3.6.1. There are two ways to specify a MIB view. You can enter the OID number of the MIB view or its equivalent text name. For example, to specify MIBs in the Internet view, you can enter the OID format “1.3.6.1” or the text name “internet.”

In addition, you can define a MIB view that the user can access or a MIB view that the user cannot access. When you want to permit a user to access a MIB view, you include a particular view. When you want to deny a user access to a MIB view, you exclude a particular view.

After you specify a MIB subtree view you have the option of further restricting a view by defining a subtree mask. The relationship between a MIB subtree view and a subtree mask is analogous to the relationship between an IP address and a subnet mask. The switch uses the subnet mask to determine which portion of an IP address represents the network

address and which portion represents the node address. In a similar way, the subtree mask further refines the subtree view and enables you to restrict a MIB view to a specific row of the OID MIB table. You need a thorough understanding of the OID MIB table to define a subtree mask.

SNMPv3 Storage Types

Each SNMPv3 table entry has its own storage type. You can choose between nonvolatile storage which allows you to save the table entry or volatile storage which does not allow you to save an entry. If you select the volatile storage type, when you power off the switch your SNMPv3 configuration is lost and cannot be recovered.

At each SNMPv3 menu, you are prompted to configure a storage type. You do not have to configure the same storage type value for each table entry.

SNMPv3 Message Notification

When you generate an SNMPv3 message from the switch, there are three basic pieces of information included in the message:

- The type of message
- The destination of the message
- SNMP security information

To configure the type of message, you need to define if you are sending a Trap or Inform message. Basically, the switch expects a response to an Inform message and the switch does not expect a response to a Trap message. These two message types are defined in the SNMPv3 (RFC 2571-6).

To determine the destination of the message, you configure the IP address of the host. This configuration is similar to the SNMPv1 and SNMPv2c configuration.

The SNMP security information consists of information about the following:

- User
- View of the MIB Tree
- Security Level
- Security Model
- Authentication Level
- Privacy Protocol
- Group

To configure the SNMP security information, you associate a user and its related information—View, Security Level, Security Model, Authentication Level, Privacy Protocol and Group—with the type of message and the host IP address.

SNMPv3 Tables

The SNMPv3 configuration is neatly divided into configuring SNMPv3 user information and configuring the message notification. You must configure all seven tables to successfully configure the SNMPv3 protocol. You use the following tables for user configuration:

- ❒ Configure SNMPv3 User Table
- ❒ Configure SNMPv3 View Table
- ❒ Configure SNMPv3 Access Table
- ❒ Configure SNMPv3 Group Table

First, you create a user in the Configure SNMPv3 User Table. Then you define the MIB view this user has access to in the Configure SNMPv3 View Table. To configure a security group and associate a MIB view to a security group, you configure the Configure SNMPv3 Access Table. Finally, configure the Configure SNMPv3 Group menu to associate a user to a security group. Figure 122 illustrates of how the user configuration tables are linked.

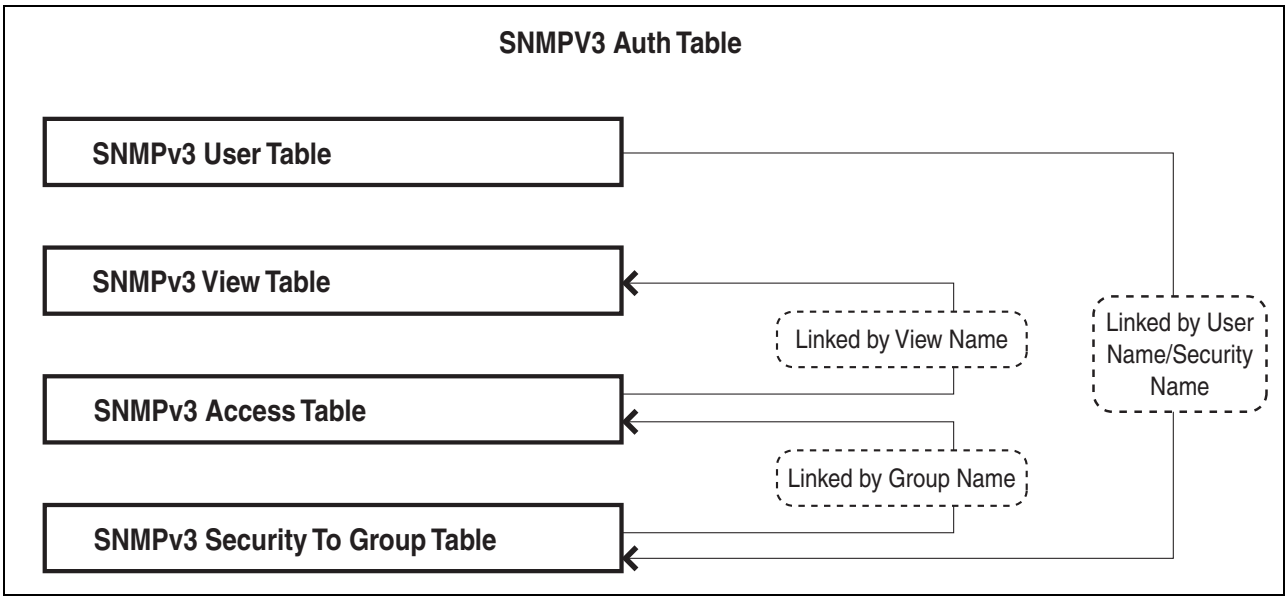


Figure 122. SNMPv3 User Configuration Process

In general, you focus on configuring security groups and then add and delete users from the groups as needed. For example, you may want to have two groups—one for manager privileges and a second one for operator privileges. Refer to Appendix B, ”SNMPv3 Configuration Examples” on page 345 for an example of manager and operator configurations.

After you configure an SNMPv3 user, you need to configure SNMPv3 message notification. This configuration is accomplished with the following tables:

- Configure SNMPv3 Notify Table
- Configure SNMPv3 Target Address Table
- Configure SNMPv3 Target Parameters Table

You start the message notification configuration by defining the type of message you want to send with the SNMPv3 Notify Table. Then you define a IP address that is used for notification in the Configure SNMPv3 Target Address Table. This is the IP address of the SNMPv3 host. Finally, you associate the trap information with a user by configuring the Configure SNMPv3 Target Parameters Table.

Figure 123 illustrates of how the message notification tables are linked.

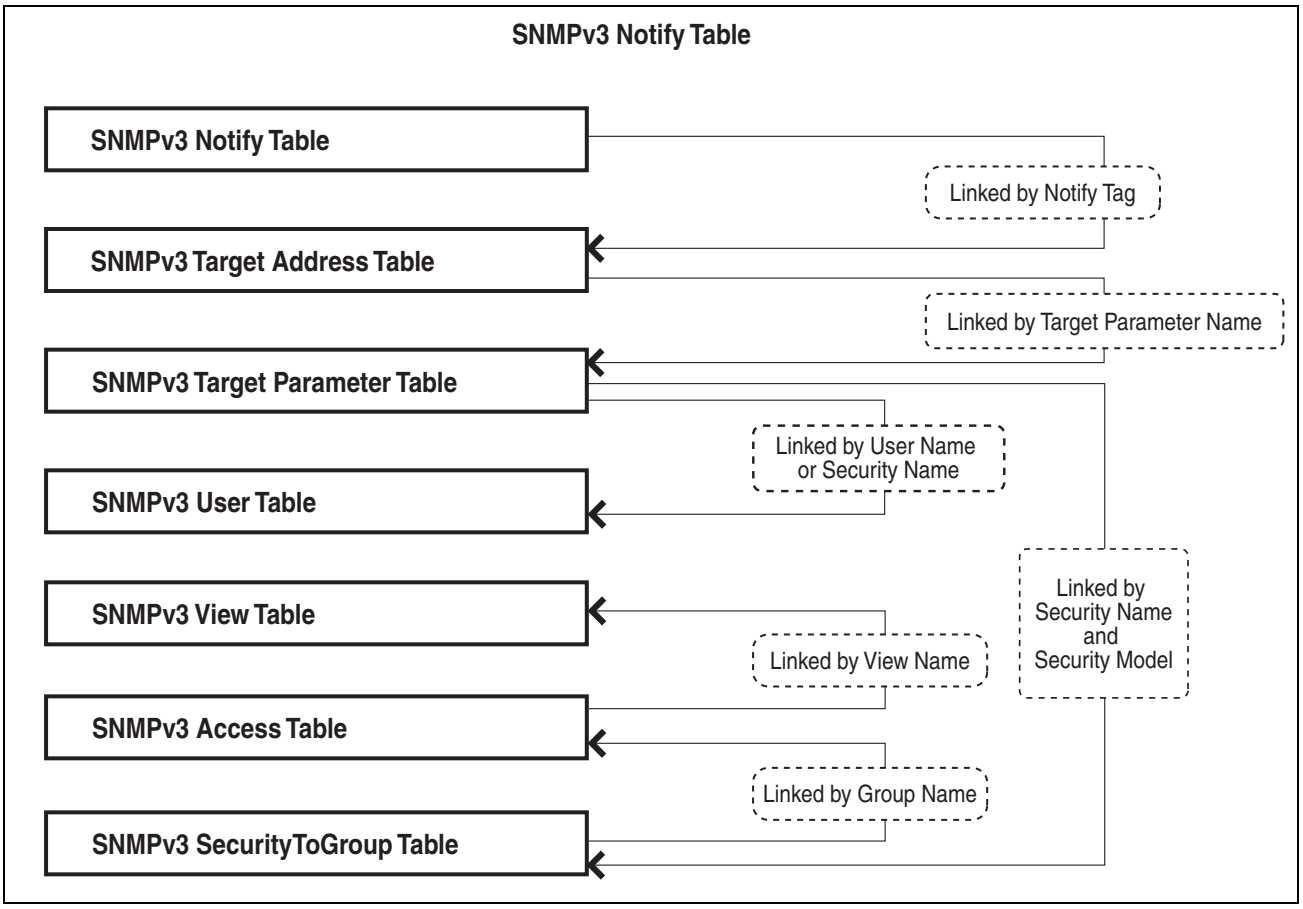


Figure 123. SNMPv3 Message Notification Process

For a more detailed description of the SNMPv3 Tables, see the following subsections:

- ❒ “SNMPv3 User Table” on page 286
- ❒ “SNMPv3 View Table” on page 286
- ❒ “SNMPv3 Access Table” on page 286
- ❒ “SNMPv3 Group Table” on page 287
- ❒ “SNMPv3 Notify Table” on page 287
- ❒ “SNMPv3 Target Address Table” on page 287
- ❒ “SNMPv3 Target Parameters Table” on page 287

SNMPv3 User Table

The Configure SNMPv3 User Table menu allows you to create an SNMPv3 user and provides the options of configuring authentication and privacy protocols. With the SNMPv3 protocol, users are authenticated when they send and receive messages. In addition, you can configure a privacy protocol and password so messages a user sends and receives are encrypted. The DES privacy algorithm uses the privacy password and the Engine ID to generate a key that is used for encryption. Lastly, you can configure a storage type for this table entry which allows you to save this user and its related configuration to flash memory.

SNMPv3 View Table

The Configure SNMPv3 View Table menu allows you to create a view of the MIB OID Table. First, you configure a view of a subtree. Then you have the option of configuring a Subtree Mask that further refines the subtree view. For example, you can use a Subtree Mask to restrict a user’s view to one row of the MIB OID Table. In addition, you can chose to include or exclude a view. As a result, you can let a user see a particular view or prevent a user from seeing a particular view. Lastly, you can configure a storage type for this table entry which allows you to save this view to flash memory.

SNMPv3 Access Table

The Configure SNMPv3 Access Table menu allows you to configure a security group. After you create a security group, you assign a set of users with the same access privileges to this group using the SNMPv3 Group Table. Consider the types of groups you want to create and the types of access privileges each group will have. In this way, you can more easily keep track of your users as belonging to one or two groups.

For each group, you can assign read, write, and notify views of the MIB table. The views you assign here have been previously defined in the Configure SNMPv3 View Table menu. For example, the Read View allows

group members to view the specified portion of the OID MIB table. The Write View allows group members to write to, or modify, the MIBs in the specified MIB view. The Notify View allows group members to send trap messages defined by the MIB view. Lastly, you can configure a storage type for this table entry which allows you to save this view to flash memory.

SNMPv3 Group Table

The Configure SNMPv3 Group Table menu allows you to associate a User Name with a security group called a Group Name. The User Name is previously configured with the Configure SNMPv3 User Table menu. The security group is previously configured with the Configure SNMPv3 Access Table menu. Lastly, you can configure a storage type for this table entry which allows you to save the entry to flash memory.

SNMPv3 Notify Table

The Configure SNMPv3 Notify Table menu allows you to define the type of message that is sent from the switch to the SNMP host. In addition, you have the option of defining the message type as either an Inform or a Trap message. The difference between these two types of messages is that when a switch sends an Inform message, the switch expects a response from the host. In comparison, the switch does not expect the host to respond to Trap messages.

In addition, you define a Notify Tag that links an SNMPv3 Notify Table entry to the host IP address defined in the Configure SNMPv3 Target Address Table menu. Lastly, you can configure a storage type for this table entry which allows you to save the entry to flash memory.

SNMPv3 Target Address Table

The Configure SNMPv3 Target Address Table menu allows you to configure the host IP address. Also, in the same table, you configure the values of the Tag List parameter with the previously defined Notify Tag parameter values. The Notify Tag parameter is configured in the Configure SNMPv3 Notify Table. In this way, the Notify and Target Address tables are linked. Lastly, you can configure a storage type for this table entry which allows you to save the entry to flash memory.

SNMPv3 Target Parameters Table

The Configure SNMPv3 Target Parameters Table menu allows you to define which user can send messages to the host IP address defined in the Configure SNMPv3 Target Address Table. The user and its associated information is previously configured in the Configure SNMPv3 User Table, SNMPv3 View Table, SNMPv3 Access Table, and SNMPv3 Group Table. Lastly, you can configure a storage type for this table entry which allows you to save the entry to flash memory.

SNMPv3 Configuration Example

You may want to have two classes of SNMPv3 users—Managers and Operators. In this scenario, you would configure one group, called Managers, with full access privileges. Then you would configure a second group, called Operators, with monitoring privileges only. For a detailed example of this configuration, see Appendix B, ”SNMPv3 Configuration Examples” on page 345.

Configuring SNMPv3 Entities

The following sections describe how to configure SNMPv3 entities using the SNMPv3 Tables. To successfully configure this protocol, you must perform the procedures in the order given here. For overview information about SNMPv3, see the "SNMPv3 Overview" on page 280.

The following SNMPv3 tables are described:

- "Configuring the SNMPv3 User Table," next
- "Configuring the SNMPv3 View Table" on page 293
- "Configuring the SNMPv3 Access Table" on page 296
- "Configuring the SNMPv3 Group Table" on page 300
- "Configuring the SNMPv3 Notify Table" on page 303
- "Configuring the SNMPv3 Target Address Table" on page 306
- "Configuring the SNMPv3 Target Parameters Table" on page 309

The SNMPv3 User, View, Access, and Group tables are concerned with setting up a user, determining authentication and privacy, and associating a user to a security group. The SNMPv3 Notify, Target Address, and Target Parameters tables are concerned with message notification. You use the SNMPv3 Community Table to configure SNMPv1 and SNMPv2 communities.

Due to the complexity of the SNMPv3 configuration, Allied Telesis recommends that you configure the SNMPv3 protocol with the procedures listed above, in the order they are listed. However, you can configure the SNMPv3 protocol using the above procedures in any order.

Configuring the SNMPv3 User Table

This section describes the parameters for SNMPv3 User Table entries. The parameters are:

- User Name
- Authentication protocol
- Authentication password
- Privacy protocol
- Privacy password

To manage the SNMPv3 User Table from the menus:

- From the Main Menu, select **Configuration** -> **System Configuration** -> **System Parameters Configuration** - > **SNMPv3 Configurations** -> **Configure SNMPv3 User Table**.

  The Configure SNMPv3 User Table menu is shown in Figure 124.

```
                  Configure SNMPv3 User Table
                          Converteon

Create SNMPv3 Table Entry

Delete SNMPv3 Table Entry

Modify SNMPv3 Table Entry

Display SNMPv3 Table Entry

Return to SNMPv3 Configurations ...
```

Figure 124. Configure SNMPv3 User Table Menu

To manage the SNMPv3 User Table from the web browser windows:

- :Click the **Configuration** button in the menu bar and then select the **SNMPv3** tab and the **User Table** tab. The SNMPv3 User Table tab is shown in Figure 125.

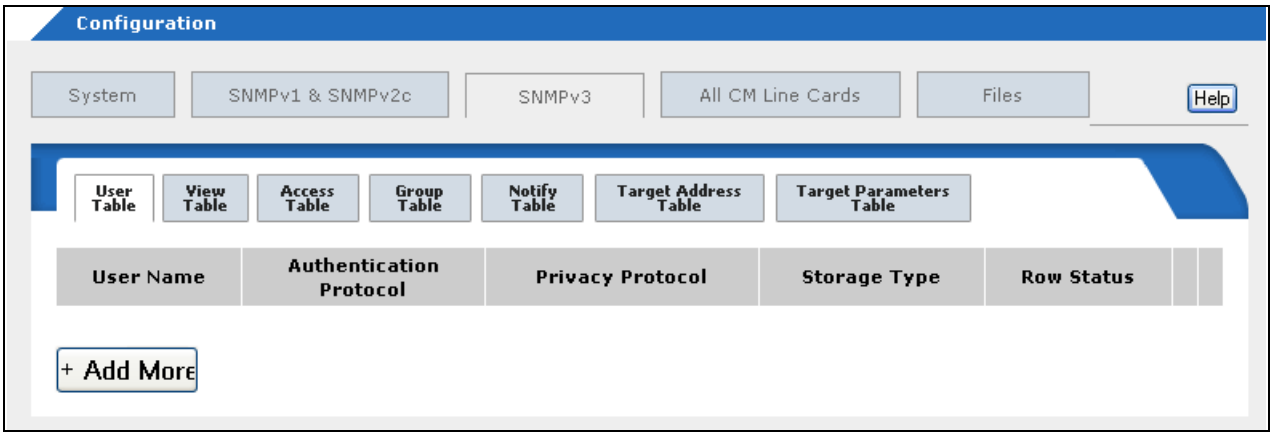


Figure 125. SNMPv3 User Table Tab

The parameters for SNMPv3 User Table entries are defined in Table 33.

Table 33. SNMPv3 User Table Parameters

Parameter	Description
User (Security) Name	A descriptive name for the user of up to 32 alphanumeric characters.
Authentication Protocol	The user's authentication protocol. The possible values are: M-MD5 This value represents the MD5 authentication protocol. Users (SNMP entities) are authenticated with the MD5 authentication protocol after a message is received. This algorithm generates the message digest. The user is authenticated when the authentication protocol checks the message digest. With the MD5 selection, you can configure a Privacy Protocol. S-SHA This value represents the SHA authentication protocol. With this selection, users are authenticated with the SHA authentication protocol after a message is received. This algorithm generates the message digest. The user is authenticated when the authentication protocol checks the message digest. With the SHA selection, you can configure a Privacy Protocol.

Table 33. SNMPv3 User Table Parameters

Parameter	Description
Authentication Protocol (continued)	N-None This value represents no authentication protocol. When messages are received, users are not authenticated. This selection does not support a Privacy Protocol. **Note** You may want to assign NONE to a super user.
Authentication Password	An authentication password of 8 to 32 alphanumeric characters. Applies only to MD5 and SHA authentication protocols.
Privacy Protocol	Applies only to MD5 and SHA authentication protocols. The possible values are: D-DES This value makes the DES privacy (or encryption) protocol the privacy protocol for this User Table entry. With this selection, messages transmitted between the host and the device are encrypted with the DES protocol. N-None Select this value if you do not want a privacy protocol for this User Table entry. With this selection, messages transmitted between the host and the switch are not encrypted.
Privacy Password	A privacy password of 8 to 32 alphanumeric characters. Applies only to DES privacy protocol.
Storage Type	The possible values are: V-Volatile This selection blocks the management card from saving the entry in the master configuration file. N-NonVolatile This selection allows the management card to save the entry in the master configuration file when a save command is issued. Allied Telesis recommends this storage type.
Row Status	This parameter appears only when you display the SNMPv3 User Table. The Active value indicates the entry takes effect immediately.

Configuring the SNMPv3 View Table

This section describes the parameters for SNMPv3 View Table entries. The parameters are:

- View Name
- Subtree OID
- Subtree Mask
- MIB OID Table View

To access the SNMPv3 View Table from the menus:

- From the Main Menu, select **Configuration** -> **System Configuration** -> **System Parameters Configuration** - > **SNMPv3 Configurations** -> **Configure SNMPv3 View Table**. The Configure SNMPv3 View Table menu is shown in Figure 126.

```
                Configure SNMPv3 View Table
                        Converteon

Create SNMPv3 Table Entry

Delete SNMPv3 Table Entry

Modify SNMPv3 Table Entry

Display SNMPv3 Table Entry

Return to SNMPv3 Configurations ...
```

Figure 126. Configure SNMPv3 View Table Menu

To manage the SNMPv3 View Table from the web browser windows:

- :Click the **Configuration** button in the menu bar and then select the **SNMPv3** tab and the **View Table** tab. The SNMPv3 View Table tab is shown in Figure 127.

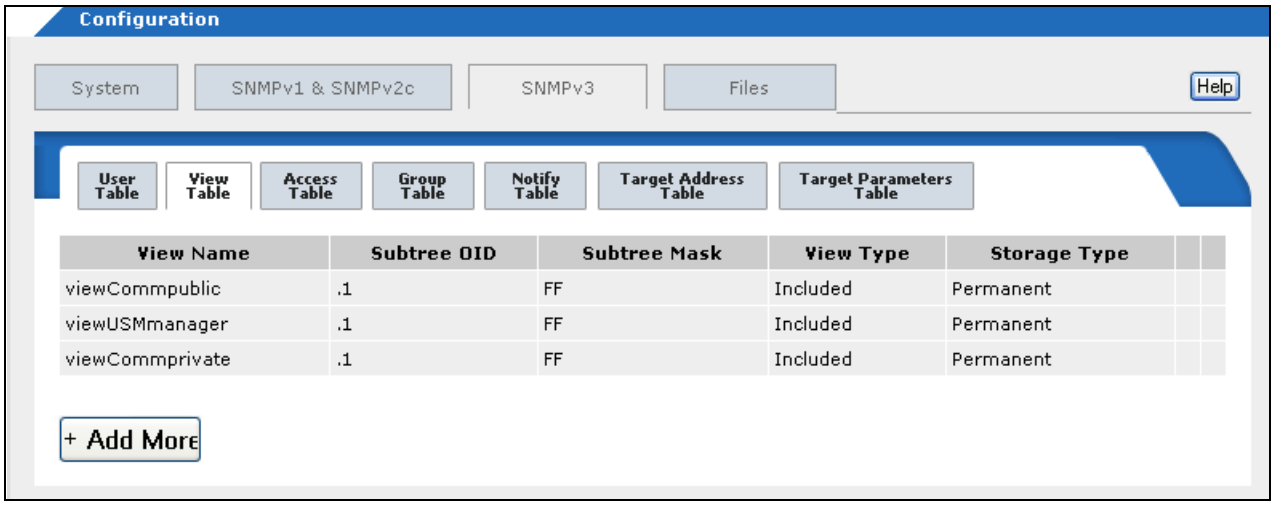


Figure 127. SNMPv3 View Table Tab

A knowledge of the OID table is required to create view entities. You can be very specific about the view a user can or cannot access—down to a column or row of the table. The AT-S99 Management Software program of the AT-CV5M02 Management Card supports the Internet subtree of the OID table.

The parameters for SNMPv3 View Table entries are defined in Table 34.

Table 34. SNMPv3 View Table Parameters

Parameter	Description
View Name	A descriptive name for this view of up to 32 alphanumeric characters. **Note** The “defaultViewAll” value is the default entry for the SNMPv1 and SNMPv2c configuration. You cannot use this default value for an SNMPv3 View Table entry.

View Subtree	The subtree that this view will or will not be permitted to display. You can enter either a numeric value in hex format or the equivalent text name. For example, the OID hex format for TCP/IP is:
	
	`1.3.6.1.2.1.6`
	
	The text format is for TCP/IP is:
	
	`tcp`

Table 34. SNMPv3 View Table Parameters

Parameter	Description

Subtree Mask	A subtree mask in hexadecimal format. This is an optional parameter used to further refine the value in the View Subtree parameter. This parameter is in binary format.
	
	The relationship between a subtree mask and a subtree is similar to the relationship between an IP address and a subnet mask. The subnet mask further refines the IP address. In the same way, the OID table entry defines a MIB View and the subtree mask further restricts a user's view to a specific the column and row of the MIB View. The value of the Subnet Mask parameter is dependent on the subtree you select. For example, if you configure the View Subtree parameter as MIB, ifEntry.0.3 has the following value:
	
	`1.3.6.1.2.1.2.2.1.0.3`
	
	To restrict the user's view to the third row (all columns) of the ifEntry MIB, enter the following value for the Subtree Mask parameter
	
	`ff:bf`

View Type	The possible values are: I-Included Enter this value to permit the View Name to see the subtree specified above. E-Excluded Enter this value to not permit the View Name to see the subtree specified above.
Storage Type	The possible values are: V-Volatile This selection blocks the management card from saving the entry in the master configuration file. N-NonVolatile This selection allows the management card to save the entry in the master configuration file when a save command is issued. Allied Telesis recommends this storage type.
Row Status	This parameter appears only when you display the SNMPv3 View Table. The Active value indicates the entry takes effect immediately.

Configuring the SNMPv3 Access Table

This section describes the parameters for SNMPv3 Access Table entries. The SNMPv3 Access Table is used to configure security groups. Each user must belong to a security group. After you have configured a security group, use the Group Table to assign users to security groups.

The parameters are:

- Group Name
- Security Model
- Security Level
- Read View Name
- Write View Name
- Notify View Name
- Storage Type

Before adding entries to the Access Table, you should configure entries in the View Table. These values are used to configure the Read, Write, and Notify View parameters. Refer to “Configuring the SNMPv3 View Table” on page 293.

To access the SNMPv3 Access Table from the menus.

- From the Main Menu, select **Configuration** -> **System Configuration** -> **System Parameters Configuration** - > **SNMPv3 Configurations** -> **Configure SNMPv3 Access Table**. The Configure SNMPv3 Access Table menu is shown in Figure 128.

```
            Configure SNMPv3 Access Table
                      Converteon

Create SNMPv3 Table Entry

Delete SNMPv3 Table Entry

Modify SNMPv3 Table Entry

Display SNMPv3 Table Entry

Return to SNMPv3 Configurations ...
```

Figure 128. Configure SNMPv3 Access Table Menu

To manage the SNMPv3 View Table from the web browser windows:

- :Click the **Configuration** button in the menu bar and then select the **SNMPv3** tab and the **Access Table** tab. The SNMPv3 Access Table tab is shown in Figure 129.

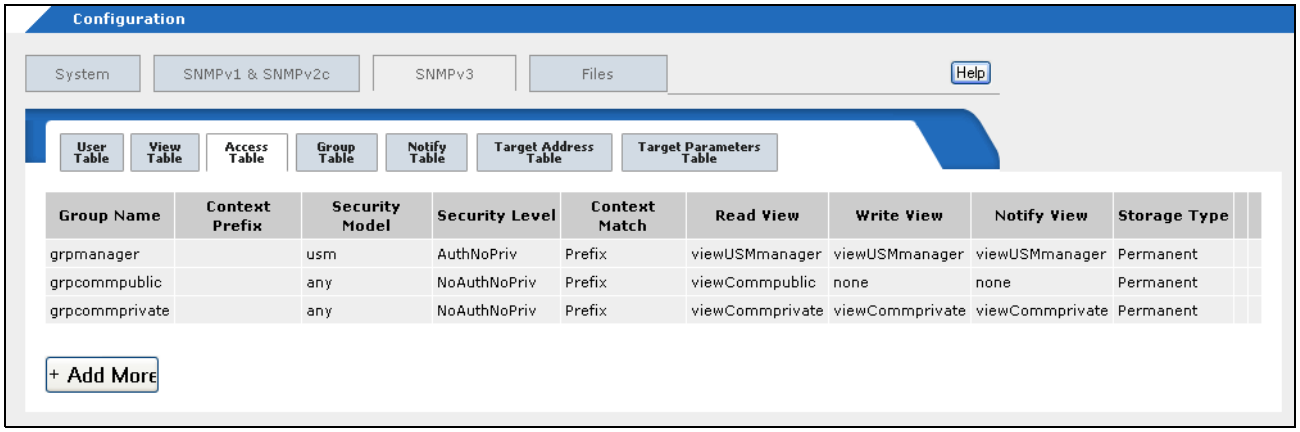


Figure 129. SNMPv3 Access Table Tab

The parameters for SNMPv3 Access Table entries are defined in Table 35.

Table 35. SNMPv3 Access Table Parameters

Parameter	Description
Group Name	A descriptive name for the group of up to 32 alphanumeric characters. You are not required to enter a unique value here because the SNMPv3 Access Table entry is indexed with the Group Name, Security Model, and Security Level parameter values. However, unique group names allow you to more easily distinguish the difference groups. There are four default values for this field: ❒ defaultV1GroupReadOnly ❒ defaultV1GroupReadWrite ❒ defaultV2cGroupReadOnly ❒ defaultV2cGroupReadWrite These values are reserved for SNMPv1 and SNMPv2c implementations.

Table 35. SNMPv3 Access Table Parameters

Parameter	Description
Security Model	The possible values are: Select one of the following SNMP protocols as the Security Model for this Group Name. 1-v1 Select this value to associate the Group Name with the SNMPv1 protocol. 2-v2c Select this value to associate the Group Name with the SNMPv2c protocol. 3-v3 Select this value to associate the Group Name with the SNMPv3 protocol. The SNMPv3 protocol allows you to configure the group to authenticate SNMPv3 entities (users) and encrypt messages.
Security Level	The possible values are: A-AuthNoPriv This option represents authentication, but no privacy protocol. Select this security level if you want to authenticate SNMP users, but you do not want to encrypt messages using a privacy protocol.You can select this value if you configured the Security Model parameter with the SNMPv3 protocol. P-AuthPriv This option represents authentication and the privacy protocol. Select this security level to encrypt messages using a privacy protocol and authenticate SNMP entities. This level provides the greatest level of security. You can select this value if you configured the Security Model parameter with the SNMPv3 protocol. N-NoauthNoPriv This option represents no authentication and no privacy protocol. Select this security level if you do not want to authenticate SNMP entities and you do not want to encrypt messages using a privacy protocol. This security level provides the least security. **Note** The only security level for SNMPv1 and SNMPv2c is N-NoauthNoPriv.

Table 35. SNMPv3 Access Table Parameters

Parameter	Description
Read View Name	The value that you configured with the View Name parameter in the SNMPv3 View Table. A Read View Name allows the users assigned to this Group Name to view the information specified by the View Table entry. This value does not need to be unique.
Write View Name	The value that you configured with the View Name parameter in the SNMPv3 View Table. A Write View Name allows the users assigned to this Security Group to write, or modify, the information in the specified View Table. This value does not need to be unique.
Notify View Name	The value that you configured with the View Name parameter in the SNMPv3 View Table. A Notify View Name allows the users assigned to this Group Name to send traps permitted in the specified View. This value does not need to be unique.
Storage Type	The possible values are: V-Volatile This selection blocks the management card from saving the entry in the master configuration file. N-NonVolatile This selection allows the management card to save the entry in the master configuration file when a save command is issued. Allied Telesis recommends this storage type.
Context Prefix	This parameter appears only when you display the SNMPv3 Access Table and is set to null.
Context Match	This parameter appears only when you display the SNMPv3 Access Table and is set to exact.
Row Status	This parameter appears only when you display the SNMPv3 Access Table. The Active value indicates the entry takes effect immediately.

Configuring the SNMPv3 Group Table

This section contains a description of the SNMPv3 Group Table and how to create, delete, and modify table entries. The SNMPv3 Group Table allows you to associate a User Name with a Group Name. The User Name is configured in the Configure SNMPv3 User Table menu while the Group Name is configured in the Configure SNMPv3 Access Table menu. In addition, the configuration in the Configure SNMPv3 Access Table menu defines which MIB views this User can read, write (modify), and send traps from. For each User Name, you can assign:

- A Security Model (SNMPv1, SNMPv2c, SNMPv3)
- A Group Name
- A Storage Type

To access the SNBMPv3 Group Table from the menus:

- From the Main Menu, select **Configuration** -> **System Configuration** -> **System Parameters Configuration** - > **SNMPv3 Configurations** -> **Configure SNMPv3 Group Table**. The Configure SNMPv3 Group Table menu is shown in Figure 130.

```
            Configure SNMPv3 Group Table
                     Converteon

Create SNMPv3 Table Entry

Delete SNMPv3 Table Entry

Modify SNMPv3 Table Entry

Display SNMPv3 Table Entry

Return to SNMPv3 Configurations ...
```

Figure 130. Configure SNMPv3 Group Table Menu

To access the SNMPv3 Group Table from the web browser windows:

- :Click the **Configuration** button in the menu bar and then select the **SNMPv3** tab and the **Group Table** tab. The tab is shown in Figure 131.

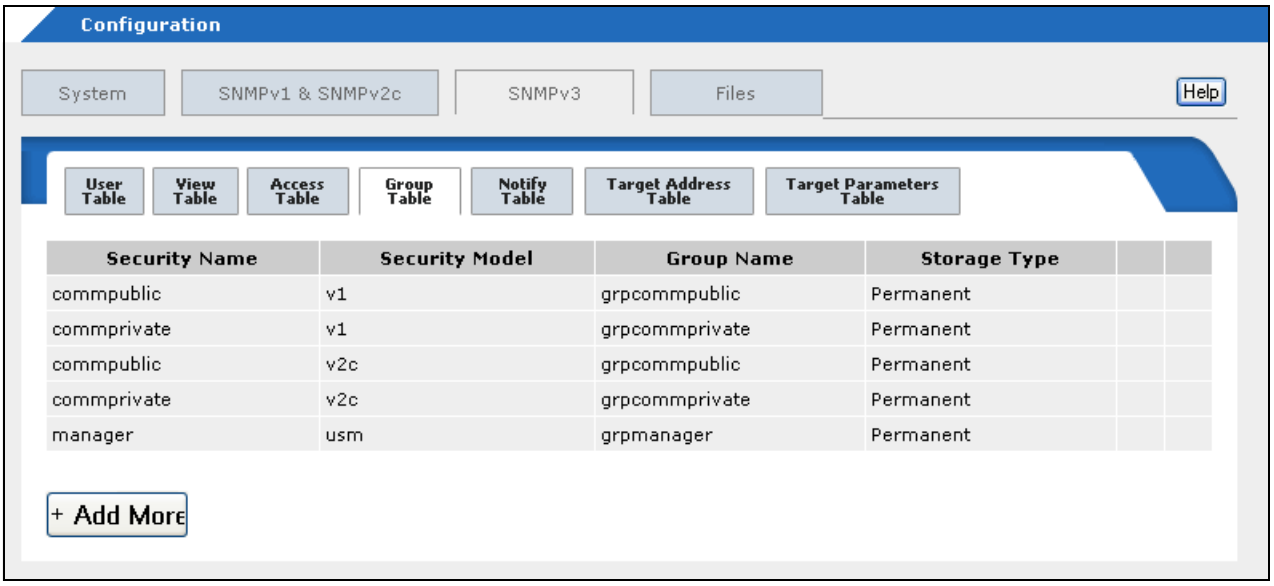


Figure 131. SNMPv3 Group Table Tab

The parameters for SNMPv3 Group Table entries are defined in Table 36.

Table 36. SNMPv3 Group Table Parameters

Parameter	Description
Security Name	The Security Name that you want to associate with a group. Enter a Security Name that you configured in "Configuring the SNMPv3 User Table" on page 290.
Security Model	The corresponding SNMP protocol of the User Name. The possible values are: 1-v1 Select this value to associate the Group Name with the SNMPv1 protocol. 2-v2c Select this value to associate the Group Name with the SNMPv2c protocol. 3-v3 Select this value to associate the Group Name with the SNMPv3 protocol.

Table 36. SNMPv3 Group Table Parameters

Parameter	Description
Group Name	a Group Name that you configured in the SNMPv3 Access Table. Refer to “Configuring the SNMPv3 Access Table” on page 296. There are four default values for this field: ❒ defaultV1GroupReadOnly ❒ defaultV1GroupReadWrite ❒ defaultV2cGroupReadOnly ❒ defaultV2cGroupReadWrite These values are reserved for SNMPv1 and SNMPv2c implementations.
Storage Type	The possible values are: V-Volatile This selection blocks the management card from saving the entry in the master configuration file. N-NonVolatile This selection allows the management card to save the entry in the master configuration file when a save command is issued. Allied Telesis recommends this storage type.
Row Status	This parameter appears only when you display the SNMPv3 Group Table. The Active value indicates the entry takes effect immediately.

Configuring the SNMPv3 Notify Table

The SNMPv3 Notify Table is used to create names for sending traps or inform messages. The entry parameters in the SNMPv3 Notify Table are:

- Notify Name
- Notify Tag
- Notify Type
- Storage Type

The parameters are defined in Table 37 on page 304.

To access the Configure SNMPv3 Notify Table from the menus:

- From the Main Menu, select **Configuration** -> **System Configuration** -> **System Parameters Configuration** - > **SNMPv3 Configurations** -> **Configure SNMPv3 Notify Table**. The Configure SNMPv3 Notify Table menu is shown in Figure 132.

```
            Configure SNMPv3 Notify Table
                      Converteon

Create SNMPv3 Table Entry

Delete SNMPv3 Table Entry

Modify SNMPv3 Table Entry

Display SNMPv3 Table Entry

Return to SNMPv3 Configurations ...
```

Figure 132. Configure SNMPv3 Notify Table Menu

To access the SNMPv3 Notify Table from the web browser windows:

- :Click the **Configuration** button in the menu bar and then select the **SNMPv3** tab and the **Notify Table** tab. The tab is shown in Figure 133 on page 304.

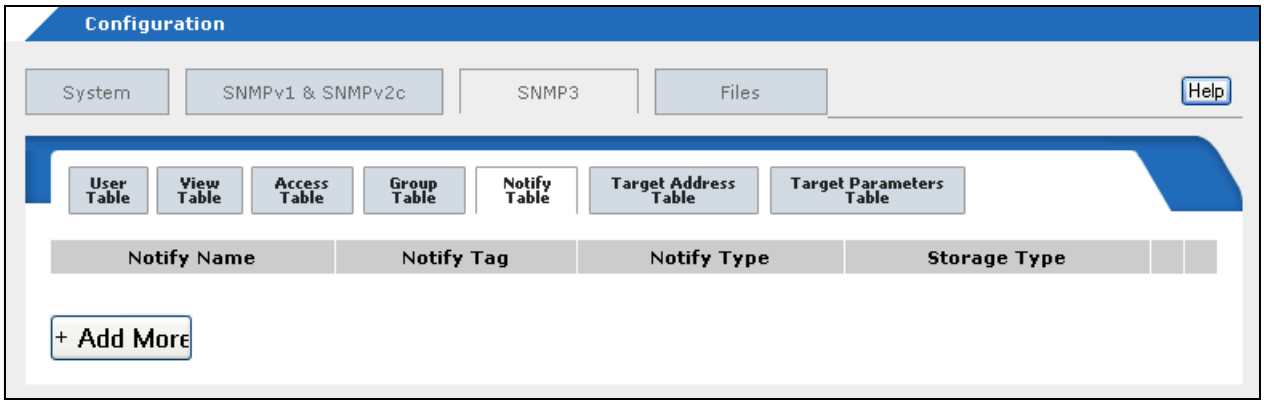


Figure 133. SNMPv3 Notify Table Tab

The parameters for SNMPv3 Notify Table entries are defined in Table 37.

Table 37. SNMPv3 Notify Table Parameters

Parameter	Description
Notify Name	The name to be associated with this trap message. The name can be up to 32 alphanumeric characters. For example, you might define a trap message for hardware engineering and enter a value of “hardwareengineeringtrap” for the Notify Name.
Notify Tag	The name of a Notify Tag. The name can be up to 32 alphanumeric characters. This parameter is added to the Tag List parameter in the SNMPv3 Target Address Table, which defines the IP addresses of the devices to receive the traps or inform messages.
Notify Type	The possible values are: T-Trap This option sends traps. SNMPv3 does not expect hosts to respond to traps. I-Inform This option sends inform messages. SNMPv3 expects hosts to respond to inform messages.
Storage Type	The possible values are: V-Volatile This selection blocks the management card from saving the entry in the master configuration file.

Table 37. SNMPv3 Notify Table Parameters

Parameter	Description
Storage Type (Continued)	N-NonVolatile This selection allows the management card to save the entry in the master configuration file when a save command is issued. Allied Telesis recommends this storage type.
Row Status	This parameter appears only when you display the SNMPv3 Notify Table. The Active value indicates the entry takes effect immediately.

Configuring the SNMPv3 Target Address Table

The SNMPv3 Target Address Table is used to designate the IP addresses of hosts to receive notifications. The SNMPv3 Target Address Table is linked internally to the SNMPv3 Notify Table through the Tag List parameter. The entries in the SNMPv3 Notify Table receive the host IP addresses from the entries in the SNMPv3 Target Address Table.

The parameters of the entries in the SNMPv3 Target Address Table are:

- Target Address Name
- Target IP Address
- UDP Port
- Timeout Value
- Number of Retries
- Tag List
- Target Parameters
- Storage Type

The parameters are defined in Table 38 on page 307.

To access the Configure SNMPv3 Target Address Table from the menus:

- From the Main Menu, select **Configuration** -> **System Configuration** -> **System Parameters Configuration** - > **SNMPv3 Configurations** -> **Configure SNMPv3 Target Address Table**. The Configure SNMPv3 Target Address Table menu is shown in Figure 134.

```
        Configure SNMPv3 Target Address Table
                     Converteon

Create SNMPv3 Table Entry

Delete SNMPv3 Table Entry

Modify SNMPv3 Table Entry

Display SNMPv3 Table Entry

Return to SNMPv3 Configurations ...
```

Figure 134. Configure SNMPv3 Target Address Table Menu

To access the Configure SNMPv3 Target Address Table from the web browser windows:

- :Click the **Configuration** button in the menu bar and then select the **SNMPv3** tab and the **Target Address Table** tab. The Target Address Table tab is shown in Figure 135.

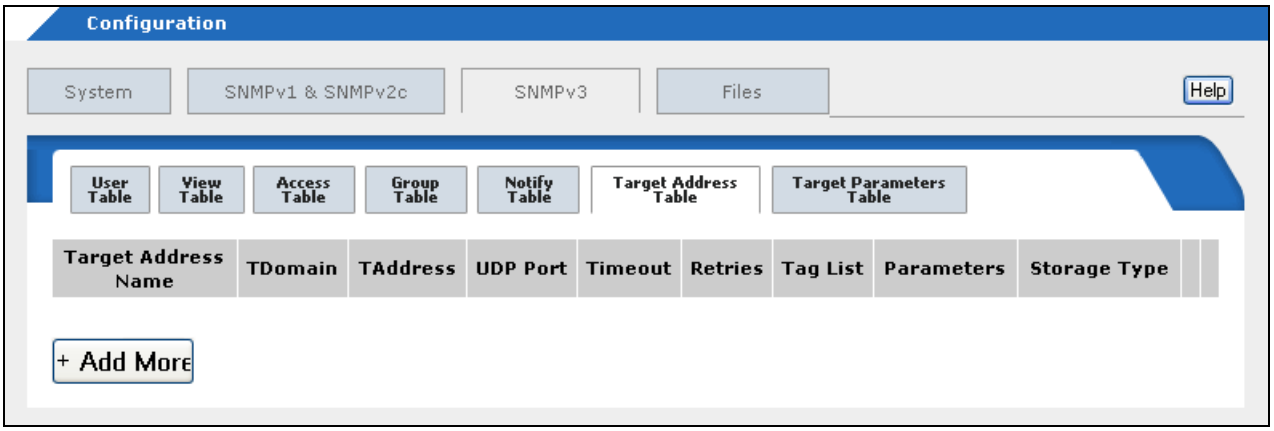


Figure 135. SNMPv3 Target Address Table Tab

Table 38. SNMPv3 Target Address Table Parameters

Parameter	Description
Target Address Name	The name of the SNMP manager, or host, that manages the SNMP activity on your switch. The name can be up to 32 alphanumeric characters.
IP Address (TAddress)	The IP address of the host. The IP address is entered in this format: XXX.XXX.XXX.XXX
UDP Port#:	The UDP port. The range is 0 to 65,535. The default port is 162.
Timeout (10mS)]	The timeout value in milliseconds. When an Inform message is generated, a response from the device is required. The timeout value determines how long SNMPv3 considers the Inform message as an active message. This parameter applies to Inform messages only. The range is from 0 to 2,147,483,647 milliseconds. The default value is 1500 milliseconds.
Retries	The number of times the switch retrles, or resends, an Inform message. When an Inform message is generated, a response from the switch is required. This parameter determines how many times the switch resends an Inform message. The Retries parameter applies to Inform messages only. The range is 0 to 255 retries. The default is 3 retries.

Table 38. SNMPv3 Target Address Table Parameters

Parameter	Description
Tag List	The tag or list of tags defined by the Notify Tag parameter in the corresponding entry in the SNMPv3 Notify Table. The tag list can be up to 256 alphanumeric characters. Separate entries with a space, for example: `hwengtag swengtag testengtag`
Target Parameters	The corresponding Target Parameters name. This value has to match the name of the corresponding entry in the SNMPv3 Target Parameters Table.
Storage Type	The possible values are: V-Volatile This selection blocks the management card from saving the entry in the master configuration file. N-NonVolatile This selection allows the management card to save the entry in the master configuration file when a save command is issued. Allied Telesis recommends this storage type.
Row Status	This parameter appears only when you display the SNMPv3 Target Address Table. The Active value indicates the entry takes effect immediately.

Configuring the SNMPv3 Target Parameters Table

This section describes the parameters for entries in the SNMPv3 Target Parameters Table, which links the user security information with the message notification information in the SNMPv3 Notify Table and the SNMPv3 Target Address Table.

In the SNMPv3 Target Parameters Table, you specify the SNMP parameters that are used when a message is generated to a target, or host, IP address. The SNMPv3 Target Parameters Table also links a User Name and its related security information, called *user security information*, with a host. The user security information consists of the following parameters listed in the SNMPv3 tables where they are configured:

- User Name parameter configured in the SNMPv3 User Table menu
- View Name parameter configured in the SNMPv3 View Table menu
- Group Name, Security Model, and Security Level parameters configured in the SNMPv3 Access Table
- User Name, Security Model, and Group Name configured in the SNMPv3 Group Table

When you enter user security information in an SNMPv3 Target Parameters Table entry, the information must match the configuration in the SNMPv3 tables listed above. If the user security information in the SNMPv3 Target Parameters Table entry does not match the configuration in the tables listed above, messages are not sent on behalf of the user.

Note
In the SNMPv3 Target Parameters Table, the Security Name parameter is the equivalent to the User Name parameter in the SNMPv3 User Table.

The parameters for the entries in the SNMPv3 Target Parameters Table are:

- Target Parameters Name
- Security Name (User Name)
- Security Model
- Security Level
- Storage Type

To access the SNMPv3 Target Parameters Table from the menus:

- From the Main Menu, select **Configuration** -> **System Configuration** -> **System Parameters Configuration** - > **SNMPv3 Configurations** -> **Configure SNMPv3 Target Parameters Table**. The Configure SNMPv3 Target Parameters Table menu is shown in Figure 136.

```
        Configure SNMPv3 Target Parameters Table
                        Converteon

Create SNMPv3 Table Entry

Delete SNMPv3 Table Entry

Modify SNMPv3 Table Entry

Display SNMPv3 Table Entry

Return to SNMPv3 Configurations ...
```

Figure 136. Configure SNMPv3 Target Parameters Table Menu

To access the Configure SNMPv3 Target Parameters Table from the web browser windows:

- :Click the **Configuration** button in the menu bar and then select the **SNMPv3** tab and the **Target Parameters Table** tab. The Target Address Table tab is shown in Figure 137.

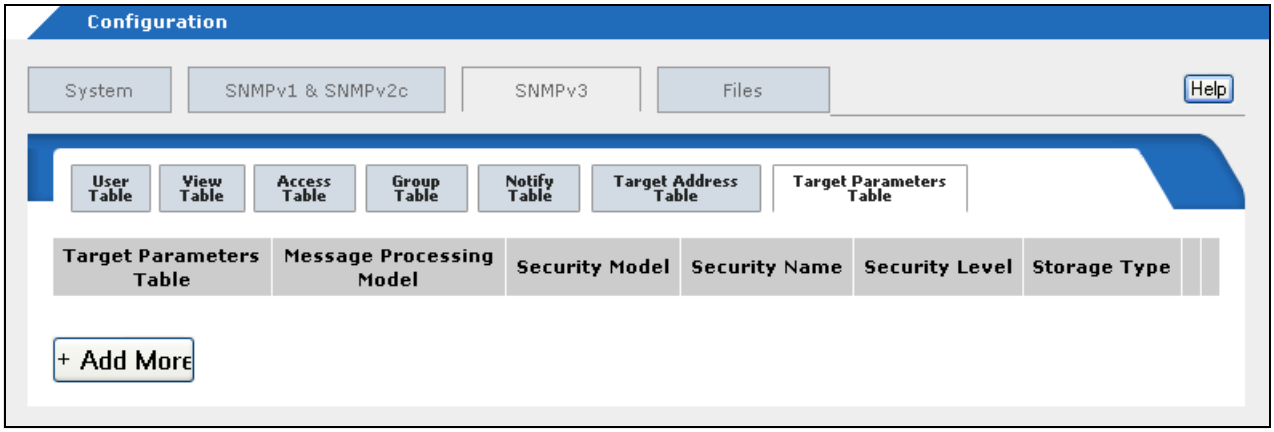


Figure 137. SNMPv3 Target Parameters Table Tab

The parameters are defined in Table 39.

Table 39. SNMPv3 Target Parameters Table Parameters

Parameter	Description
Target Parameters Name	A name for the entry of up to 32 alphanumeric characters.
User (Security) Name	The user name of the appropriate entry in the SNMPv3 User Table.
Security Model [1-v1, 2-v2c, 3-v3]	The Security Model for this Security Name or User Name. The possible values are 1-v1 This value associates the Security Name or User Name with the SNMPv1 protocol. 2-v2c This value associates the Security Name or User Name with the SNMPv2c protocol. 3-v3 This value associates the Security Name or User Name with the SNMPv3 protocol. The SNMPv3 protocol allows you to configure the group to authenticate SNMPv3 entities (users) and to encrypt messages.

Table 39. SNMPv3 Target Parameters Table Parameters

Parameter	Description
Security Level [A-AuthNoPriv, P-AuthPriv, N-NoauthNoPriv]	The possible values are: **Note** This value must match the security level of the corresponding user name in the SNMPv3 User Table. A-AuthNoPriv This option provides authentication, but no privacy protocol. The SNMP user is authenticated, but without encryption. You can select this value if you configured the Security Model parameter with the SNMPv3 protocol. P-AuthPriv This option provides authentication and the privacy protocol. This security level encrypts messages using a privacy protocol and authenticate SNMP entities. This level provides the greatest level of security. You can select this value if you configured the Security Model parameter with the SNMPv3 protocol. N-NoauthNoPriv This option provides no authentication and no privacy protocol. This security level is appropriate if you do not want authentication of SNMP entities or encryption. This security level provides the least security. **Note** The only security level for SNMPv1 and SNMPv2c is N-NoauthNoPriv.
Storage Type [V-Volatile, N-NonVolatile]	The possible values are: V-Volatile This selection blocks the management card from saving the entry in the master configuration file. N-NonVolatile This selection allows the management card to save the entry in the master configuration file when a save command is issued. Allied Telesis recommends this storage type.
Row Status	This parameter appears only when you display the SNMPv3 Target Parameters Table. The Active value indicates the entry takes effect immediately.

In an SNMPv3 Target Parameters Table entry, the Security Name parameter is linked to the User Name parameter on the SNMPv3 User Table. In an SNMPv3 User Table entry, the User Name parameter is used as an index for the entry. Because the User Name and Security Name parameters are linked, the information you configure that relates to a User Table entry must match the information you configure in the SNMPv3 Target Parameters Table entry. In addition, the values configured for the following parameters in an SNMPv3 Target Parameters Table entry must match those configured in the corresponding table entry:

- User Name parameter in the SNMPv3 User Table
- View Name parameter in the SNMPv3 View Table
- Group Name, Security Model, and Security Level parameters in the SNMPv3 Access Table
- User Name, Security Model, Group Name parameters in the SNMPv3 Group Table

Caution

If the values of the Security Model parameter in the SNMPv3 User Table and the SNMPv3 Target Parameter Table entry do not match, notification messages are not generated on behalf of this User (Security) Name.

Chapter 11

Uploading and Downloading Files

The procedures in this chapter explain how to update the management software on the AT-CV5M02 Management Card and the AT-CM Media Converter Line Cards. They also explain how to upload and download the configuration files on the management card. The sections in the chapter include:

- “Overview” on page 316
- “Configuring the TFTP Client to Download New Management Software Programs” on page 317
- “Downloading New Management Software Using TFTP” on page 320
- “Downloading New Management Software Using XMODEM” on page 325
- “Transferring Configuration Files” on page 328

Overview

Allied Telesis may periodically release new versions of the management software for the Converteon management cards and line cards. New releases are available from the company's web site.

> **Note**
> Before installing new software, be sure to read the software release notes that are included with the new release to determine whether there are any special restrictions or guidelines.

The cards in the Converteon product line use the following management software programs:

- The AT-CV5M02 Management Card uses the AT-S99 Management Software.
- The AT-CM2 and AT-CM70S Media Converter Line Cards use the AT-S73 Management Software and bootloader file.
- The AT-CM3 Media Converter Line Cards use the AT-S102 Management Software and bootloader file.
- The AT-CV Media Converter Line Cards do not use management software.

You can use XMODEM or TFTP to download new management software. Downloads using XMODEM have to be performed from a local management session at the chassis. Downloads using TFTP can be performed from local management sessions or remote Telnet management sessions.

Configuring the TFTP Client to Download New Management Software Programs

The procedure in this section explains how to configure the TFTP client on the AT-CV5M02 Management Card. This is the first step to using TFTP to download new versions of the management software programs to the management card or the AT-CM Line Cards. You can perform this procedure from a local management session or a remote Telnet session. After you've configured the client, go to "Downloading New Management Software Using TFTP" on page 320.

Note
You cannot use the web browser windows to download new versions of the management software programs to the management card or the line cards.

To configure the TFTP client:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.
4. From the System Parameters Configuration Menu, select **TFTP Image Download Configuration** to display the menu in Figure 138.

```
                    TFTP Image Download Configuration


TFTP Server IP Address:

Management Card (ATS99):

AT-CM3xx_CM3Kxx Image File Name (ATS102):
AT-CM3xx_CM3Kxx Bootloader Image File Name (ATS102):

AT-CM2x2 Image File Name:
AT-CM2Kx Image File Name:
AT-CM70x Image File Name:
AT-CM2x2/CM2Kx/CM70x Bootloader Image File Name (ATS73):

Return to System Parameters Configuration Menu ...
```

Figure 138. TFTP Image Download Configuration

5. Enter the necessary information in the fields, defined in Table 40. Be sure to specify the IP address of the TFTP server in the TFTP Server IP Address field.

   To update a line card, enter in the appropriate field the filename of its image file stored on the TFTP server. A line card cannot be updated if its field is blank. You only need to enter image filenames for those line cards you want to upgrade. For example, to upgrade the AT-S102 Management Software on AT-CM3 Line Cards, you would enter the appropriate image filename in the AT-CM3xx_AT-3Kxx Image File Name (ATS102) field. On the other hand, you would leave that field blank if you were not updating any AT-CM3 Line Cards.

Table 40. TFTP Image Download Configuration Menu

Field	Description
TFTP Server IP Address	Enter in this field the IP address of the TFTP server that has the new management software programs for the line cards.
Management Card	To update the AT-S99 Management Software on the AT-CV5M02 Management Card, enter in this field the name of the new image file that is stored on the TFTP server. Be sure to include the “.img” extension.
AT-CM3xx_AT-3Kxx Image File Name (ATS102)	To update the AT-S102 Management Software on the AT-CM301, AT-CM302, and AT-CM3K0S Line Cards, enter in this field the name of the new image file stored on the TFTP server. All of the AT-CM3 Line Cards use the same image file. Be sure to include the “.img” extension.
AT-CM3xx_AM3Kxx Bootloader Image File Name (ATS102)	To update the bootloader file on the AT-CM301, AT-CM302, and AT-CM3K0S Line Cards, enter in this field the name of the new bootloader file stored on the TFTP server. All of the AT-CM3 Line Cards use the same bootloader. Be sure to include the “.bin” extension.
AT-CM2x2 Image File Name	To update the AT-S73 Management Software on the AT-CM201, AT-CM202, AT-CM202/1, AT-CM202/2, AT-CM212A/1, and AT-CM212B/1 Line Cards, enter in this field the name of the new image file stored on the TFTP server. All of these line cards use the same image file. Be sure to include the ".img" extension.
AT-CM2Kx Image File Name	To update the AT-S73 Management Software on the AT-CM2K0S Line Card, enter in this field the name of the new image file stored on the TFTP server. Be sure to include the ".img" extension.

Table 40. TFTP Image Download Configuration Menu

Field	Description
AT-CM70x Image File Name	To update the AT-S73 Management Software on the AT-CM70S Line Card, enter in this field the name of the new image file stored on the TFTP server. Be sure to include the ".img" extension.
AT-CM2x2/CM2Kx/CM70x Bootloader Image File Name (ATS73):	To update the bootloader file on the AT-CM2 and AT-CM70S Line Cards, enter in this field the name of the new bootloader file stored on the TFTP server. All of the AT-CM2 and AT-CM70S Line Cards use the same bootloader file. Be sure to include the ".bin" extension.

6. After entering the appropriate information in the fields, click **Update**.
7. To save this information in the master configuration file, return to the System Configuration Menu and select **Save System Configuration**.

   To perform the actual upgrade, go to "Downloading New Management Software Using TFTP" on page 320.

Downloading New Management Software Using TFTP

The procedure in this section explains how to use TFTP to download new versions of the management software programs to the AT-CV5M02 Management Card and the AT-CM Line Cards. The procedure has the following requirements:

- You can perform this procedure from the menus from a local management session or a remote Telnet session. You cannot perform this procedure from the web browser windows.
- If you are updating both the AT-CV5M02 Management Card and the AT-CM Line Cards, Allied Telesis recommends updating the line cards first.
- You have to configure the TFTP client on the management card before performing this procedure. For instructions, refer to “Configuring the TFTP Client to Download New Management Software Programs” on page 317.
- The new management software files have to be stored on the TFTP server on your network and the TFTP server must be active.
- The management card must have an IP address configuration. For instructions, refer to “Assigning an IP Address Configuration” on page 100.
- The management card must reside on the same subnet as the TFTP server or must have access to its subnet through routers or other Layer 3 routing devices.
- If the management card and the TFTP server reside on a different subnets, the card’s IP address configuration has to include a default gateway address that identifies the IP address of the router interface of the first hop to reaching the server.
- The 10/100Base-TX port on the card has to be connected to a device on your network, such as an Ethernet switch. The management card communicates with your network through that port.
- To download new management software on the AT-CM70S Line Card, the card must be set to the UART backplane mode. For instructions, refer to “Selecting the Management Method for the AT-CM70S Line Card” on page 242.

Note

Allied Telesis recommends that you update the master configuration file on the management card with the current configurations of all the AT-CM Line Cards in the chassis before performing this procedure. For instructions, refer to “Saving Your Configuration Changes” on page 78.

Note
Updating the AT-S99 Management Software on the AT-CV5M02 Management Card interrupts the card's operations. The card will be unresponsive for approximately two minutes as it downloads and initializes the new software. Your management session ends and you have to start a new management session to continue managing the unit.

Caution
Updating the AT-S73 or AT-S102 Management Software on a line card interrupts the card's network operations. Some network traffic may be lost. A line card stops forwarding network traffic for approximately two minutes while it receives and initializes the new software.

To upgrade the management software on the AT-CV5M02 Management Card or the AT-CM Line Cards:

1. From the Main Menu, select **Image Download** to display the menu in Figure 139.

```
                Image Download Menu

Image Download via TFTP
Image Download via XMODEM

Return to Main Menu ...
```

Figure 139. Image Download Menu

2. Select **Image Download via TFTP**. This displays the menu in Figure 140.

```
              Image Download via TFTP

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

Multiple CM Line Cards Image by Card Type
All CM Line Cards Image

Return to Image Download Menu ...
```

Figure 140. Image Download via TFTP Menu

3. Select the desired upgrade. The options are described in Table 41:

Table 41. Image Download via TFTP Menu

Parameter	Description
Management Card Image Download	Select this option to upgrade the AT-S99 Management Software on the AT-CV5M02 Management Card.
Single Local CM Line Card Image	Select this option to upgrade the management software on a single local AT-CM Line Card. After selecting the option, you are prompted for the slot number of the line card you want to upgrade. You can specify only one slot number.
Single Local CM Line Card Bootloader	Select this option to upgrade the bootloader file on a single local AT-CM Line Card in the chassis. After selecting this option, you are prompted for the slot number of the line card you want to upgrade. You can specify only one slot number.
Single Remote CM Line Card Image	Select this option to upgrade the AT-S73 or AT-S102 Management Software on a single remote AT-CM Line Card through the remote peer management feature. After selecting this option, you are prompted for a slot number. Enter the slot number of the local line card that is connected to the remote line card you want to upgrade. You can specify only one slot number.
Single Remote CM Line Card Bootloader	Select this option to upgrade the bootloader on a single remote AT-CM Line Card through the remote peer management feature. After selecting this option, you are prompted for a slot number. Enter the slot number of the local line card that connects to the remote line card you want to upgrade. You can specify only one slot number.

Table 41. Image Download via TFTP Menu

Parameter	Description
Multiple CM Line Card Images by Card Type	Select this option to upgrade the management software on multiple local or remote AT-CM Line Cards. When you select this option, the following prompt is displayed: 1) AT-CM3xx_CM3Kxx 2) AT-CM2x2 3) AT-CM2Kx 4) AT-CM70x Enter card type group: -> Do one of the following: ❒ To update the AT-S102 Management Software on local or remote AT-CM301, AT-CM302 and AT-CM3K0S Line Cards, enter **1** to select **AT-CM3xx_CM3Kxx**. ❒ To update the AT-S73 Management Software on local or remote AT-CM201, AT-CM202, AT-CM202/1, AT-CM202/2, AT-CM212A/1, and AT-CM212B/1 Line Cards, enter **2** to select **AT-CM2x2**. ❒ To update the local or remote AT-CM2K0S Line Cards, enter **3** for **AT-CM2Kx**. ❒ To update the local or remote AT-CM70S Line Cards, enter **3** for **AT-CM70x**. The following prompt is displayed: 1) Local Line Cards Only 2) Remote Line Cards Only 3) Both Local and Remote Line Cards Enter card type group: -> Use this prompt to specify whether you want to upgrade the local line cards of the selected card type, the remote line cards, or both.
All CM Line Cards Image	Select this option to upgrade the management software on all of the local or remote AT-CM Line Cards. The upgrade process skips any line cards that do not have defined image filenames in the TFTP client.

4. After you've selected a download option and provided the necessary information, the management card, using the information you defined in its TFTP client, contacts the TFTP server on your network and requests the appropriate files.

Note
The management card or a line card may be damaged if you power off the chassis or remove it from the chassis while it is writing a file to flash memory.

Downloading New Management Software Using XMODEM

The procedure in this section explains how to use XMODEM to download new versions of the management software programs to the AT-CV5M02 Management Card and the AT-CM Line Cards. Unlike TFTP downloads, which allow you to update multiple line cards at the same time, XMODEM downloads can only update one card at a time.

Note
Allied Telesis recommends that you save the current configurations of all the AT-CM Line Cards in the master configuration file before performing these procedures. For instructions, refer to "Saving Your Configuration Changes" on page 78.

Note
Updating the AT-S99 Management Software on the AT-CV5M02 Management Card interrupts the card's operations. The card will be unresponsive for approximately two minutes while it downloads and initializes the new software. Your management session ends. To resume managing the unit, you have to start a new management session.

Caution
Updating the management software on the AT-CM Line Cards interrupts the cards' network operations. Some network traffic may be lost. The line cards stop forwarding network traffic for approximately two minutes while they store and initialize the new software.

This procedure has the following requirements:

- The procedure has to be performed from a local management session. For instructions, refer to "Starting a Local Management Session" on page 72.
- This procedure is not supported from a Telnet or web browser management session.
- You need to store the new management software programs on the computer or terminal on which you'll be performing the local management session.
- To download new management software on the AT-CM70S Line Card, the card must be set to the UART backplane mode. For instructions, refer to "Selecting the Management Method for the AT-CM70S Line Card" on page 242.

To download new management software using XMODEM:

1. From the Main Menu, select **Image Download** to display the menu in Figure 139 on page 321.

2. Select **Image Download via XMODEM** to display the menu in Figure 140.

```
                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 ...
```

Figure 141. Image Download via XMODEM Menu

3. Select the desired upgrade. You can select only one option. The options are described in Table 42:

Table 42. Image Download via XMODEM Menu

Parameter	Description
Management Card Image Download	Select this option to upgrade the AT-S99 Management Software on the AT-CV5M02 Management Card.
Single Local CM Line Card Image	Select this option to upgrade the management software on a single local AT-CM Line Card. After selecting the option, you are prompted for the slot number of the line card you want to upgrade. You can specify only one slot number.
Single Local CM Line Card Bootloader	Select this option to upgrade the bootloader file on a single local AT-CM Line Card in the chassis. After selecting this option, you are prompted for the slot number of the line card you want to upgrade. You can specify only one slot number.
Single Remote CM Line Card Image	Select this option to use the remote peer management feature to upgrade the AT-S73 or AT-S102 Management Software on a single remote AT-CM Line Card. After selecting this option, you are prompted for a slot number. Enter the slot number of the local line card connected to the remote line card you want to upgrade. You can specify only one slot number.

Table 42. Image Download via XMODEM Menu

Parameter	Description
Single Remote CM Line Card Bootloader	Select this option to use the remote peer management feature to upgrade the bootloader on a single remote AT-CM Line Card. After selecting this option, you are prompted for a slot number. Enter the slot number of the local line card connected to the remote line card you want to upgrade. You can specify only one slot number.

4. After selecting a download option and responding to the prompts, begin the file transfer with your terminal program.

Note
The management card or a line card may be damaged if you power off the chassis or remove it from the chassis while it is writing a file to flash memory.

Transferring Configuration Files

The AT-CV5M02 Management Card has two configuration file. One of the files is the master configuration file. This file contains nearly all of the parameter settings of the management card itself and all of the parameter settings of the local and remote AT-CM Line Cards. The second file is the SNMPv3 configuration file, which contains the SNMPv3 settings on the management card. For information on these files, refer to “Configuration Files” on page 32.

You can upload and download these files to a TFTP server. You might do this to maintain a history of the configuration settings of the chassis or to transfer the files to another management card in a different chassis. Of course, if you never use the SNMPv3 feature on the management card, you can ignore that configuration file.

This section has a requirements section and the procedures:

- “Requirements,” next
- “Saving the Configuration Settings” on page 329 - If you’re planning to upload the configuration files to a TFTP server, you should update them first with one of the procedures in this section so that they have the most current settings.
- “Transferring the Master and SNMPv3 Configuration Files with the Menus” on page 330 - This section has the procedures for uploading or downloading the configuration files using the menus.
- “Transferring the Master Configuration File with the Web Browser Windows” on page 334 - This section has the procedure for uploading or downloading the master configuration file using the web browser windows.

Requirements

Here are the requirements to transferring the configuration files on the management card:

- You have to use TFTP. You cannot use XMODEM to transfer the configuration files.
- To transfer the master configuration file, you can use the menus, either from a local management session or from a remote Telnet management session, or the web browser windows.
- To transfer the SNMPv3 configuration file, you have to use the menus. Transferring that configuration file from the web browser windows is not supported.
- To download a configuration file to the management card, you have to store the file on the TFTP server.

- The management card must have an IP address configuration. For instructions, refer to "Assigning an IP Address Configuration" on page 100.
- The management card must reside on the same subnet as the TFTP server or must have access to its subnet through routers or other Layer 3 routing devices.
- If the management card and the TFTP server reside on a different subnets, the card's IP address configuration has to include a default gateway address that identifies the IP address of the router interface of the first hop to reaching the server.
- The 10/100Base-TX port on the card has to be connected to a device on your network, such as an Ethernet switch. The management card communicates with your network through that port.
- Downloading the master configuration file from a TFTP server to the management card causes the card to reset. It will be unresponsive to commands for approximately two minutes while it writes the file to flash and initializes its management software. To continue managing the device, you have to start a new management session.

Saving the Configuration Settings

Are you planning to upload to the TFTP server the master and SNMPv3 configuration files? If so, then it's probably a good idea to first update the files in flash memory so that they have the most current settings. This is explained in the following procedures. For more information on the save commands, refer to "Saving Your Configuration Changes" on page 78.

To use the menus to update the master and SNMPv3 configuration files:

1. From the Main Menu, select **Configuration**.
2. From the Configuration Menu, select **System Configuration**.
3. From the System Configuration Menu, select **Save System Configuration**. This command updates the master configuration file and the SNMPv3 file with all of the current settings on the management card.
4. Return to the Configuration Menu.
5. From the Configuration Menu, select **All CM Line Cards Configuration**.
6. From the All CM Line Cards Configuration Menu, select **Save All CM Line Cards Configurations**. This command updates the master configuration file with the current settings of the local and remote line cards.

   For instructions on how to upload the files, refer to "Transferring the Master and SNMPv3 Configuration Files with the Menus" on page 330.

To use the web browser windows to update the master and SNMPv3 configuration files:

1. Click the **Configuration** button in the menu bar.
2. If it isn't selected, select the **System** tab.
3. Click the **Edit** button in the Configuration section of the window.
4. In the pop-up window, click the radio button for **Save System Configuration** and click the **Apply** button. This command updates the master configuration file and the SNMPv3 file with all of the current settings on the management card.
5. Click the **All CM Line Cards** tab.
6. Click the **Edit** button in the Configuration section of the window.
7. In the pop-up window, click the radio button for **Save All CM Line Card Configurations** and click the **Apply** button. This command updates the master configuration file with all of the current settings on the line cards.

   For instructions on how to upload the files, refer to "Transferring the Master Configuration File with the Web Browser Windows" on page 334.

Transferring the Master and SNMPv3 Configuration Files with the Menus

There are two phases to uploading or downloading the configuration files from the menus. In the first phase you configure the TFTP client. In the second you perform the actual transfer.

Configuring the TFTP Client

To configure the TFTP client to upload or download the master or SNMPv3 configuration file:

1. From the Main Menu, select **Configuration** to display the Configuration Menu shown in Figure 26 on page 100.
2. From the Configuration Menu, select **System Configuration** to display the menu in Figure 27 on page 100.
3. From the System Configuration Menu, select **System Parameters Configuration** to display the menu in Figure 28 on page 101.

4. From the System Configuration Menu, select **TFTP File Upload Download Configuration** to display the menu in Figure 142.

```
        TFTP File Upload Download Configuration


TFTP Server IP Address: 0.0.0.0

Upload Configuration File Name (Destination):

Download Configuration File Name (Source):

Upload SNMPv3 File Name (Destination):

Download SNMPv3 File Name (Source):

Return to System Configuration Menu ...
```

Figure 142. TFTP File Upload Download Configuration Menu

5. Configure the fields as necessary. The fields are described in Table 43.

Table 43. TFTP File Upload Download Configuration

Field	Description
TFTP Server IP Address	Enter in this field the IP address of the TFTP server on your network.
Upload Configuration File Name (Destination)	To upload the master configuration file from the management card to a TFTP server, enter in this field a name for the file. The file will be given this name on the TFTP server. The extension should be ".cfg".
Download Configuration File Name (Source)	To download a master configuration file from a TFTP server to the management card, enter in this field the name of the configuration file you want to download. The extension should be ".cfg".
Upload SNMPv3 File Name (Destination)	To upload the SNMPv3 configuration file from the management card to a TFTP server, enter in this field a name for the file. The file will be given this name on the TFTP server. The extension should be ".cfg".
Download SNMPv3 File Name (Source)	To download an SNMPv3 configuration file from a TFTP server to the management card, enter in this field the name of the file you want to download. The extension should be ".cfg".

6. To save this information in the master configuration file, return to the System Configuration menu and select **Save System Configuration**.

   To transfer a configuration file, go to the next procedure.

Transferring a Configuration File

To transfer a master or SNMPv3 configuration file from the menus:

1. From the Main Menu, select **Configuration** to display the menu in Figure 26 on page 100.
2. From the Configuration Menu, select **Configuration File Upload/ Download with TFTP** to display the menu in Figure 143.

```
      Configuration File Upload/Download with TFTP

Upload Configuration File from Management Card

Download Configuration File from Management Card

Upload SNMPv3 Configuration File from Management Card

Download SNMPv3 Configuration File from Management Card

Return to Configuration ...
```

Figure 143. Configuration File Upload/Download with TFTP

3. Select the desired transfer from the menu. The options are described in Table 44.

Table 44. Configuration File Upload/Download with TFTP Menu

Selection	Description
Upload Configuration File from Management Card	Select this option to upload the master configuration file from the management card to the TFTP server. After uploading the file, the management card displays the Configuration File Upload/Download with TFTP Menu again.

Table 44. Configuration File Upload/Download with TFTP Menu

Selection	Description
Download Configuration File from Management Card	Select this option to download the master configuration file to the management card from the TFTP server. After receiving the master configuration file from the TFTP server, the card writes the file to flash memory and resets. Afterwards, it initializes its management software and configures its parameters according to the settings in the downloaded configuration file. To resume managing the card, you have to start a new management session. If the auto-copy settings for the chassis slots is activated in the downloaded configuration file, the settings on the line cards may change. This may disrupt network operations and may result in the loss of network traffic. For further information, refer to "Configuration Files" on page 32.
Upload SNMPv3 Configuration File from Management Card	Select this option to upload the SNMPv3 configuration file from the management card to the TFTP server. After uploading the file, the management card displays the Configuration File Upload/Download with TFTP Menu again.
Download SNMPv3 Configuration File from Management Card	Select this option to download the SNMPv3 configuration file to the management card from the TFTP server. After receiving the master configuration file from the TFTP server, the card writes the file to flash memory and resets. Afterwards, it initializes its management software and configures its parameters according to the settings in the downloaded configuration file. To resume managing the card, you have to start a new management session.

After you've made a selection, a confirmation prompt is displayed.

4. Enter **Y** to proceed with the upload or download, or **N** to cancel the procedure.

Transferring the Master Configuration File with the Web Browser Windows

To upload or download the master configuration file with the web browser windows:

Note
You cannot use the web browser windows to transfer the SNMPv3 configuration file. You have to use the menus.

1. Click the **Configuration** button in the menus bar.
2. Click the **Files** tab, shown in Figure 144.

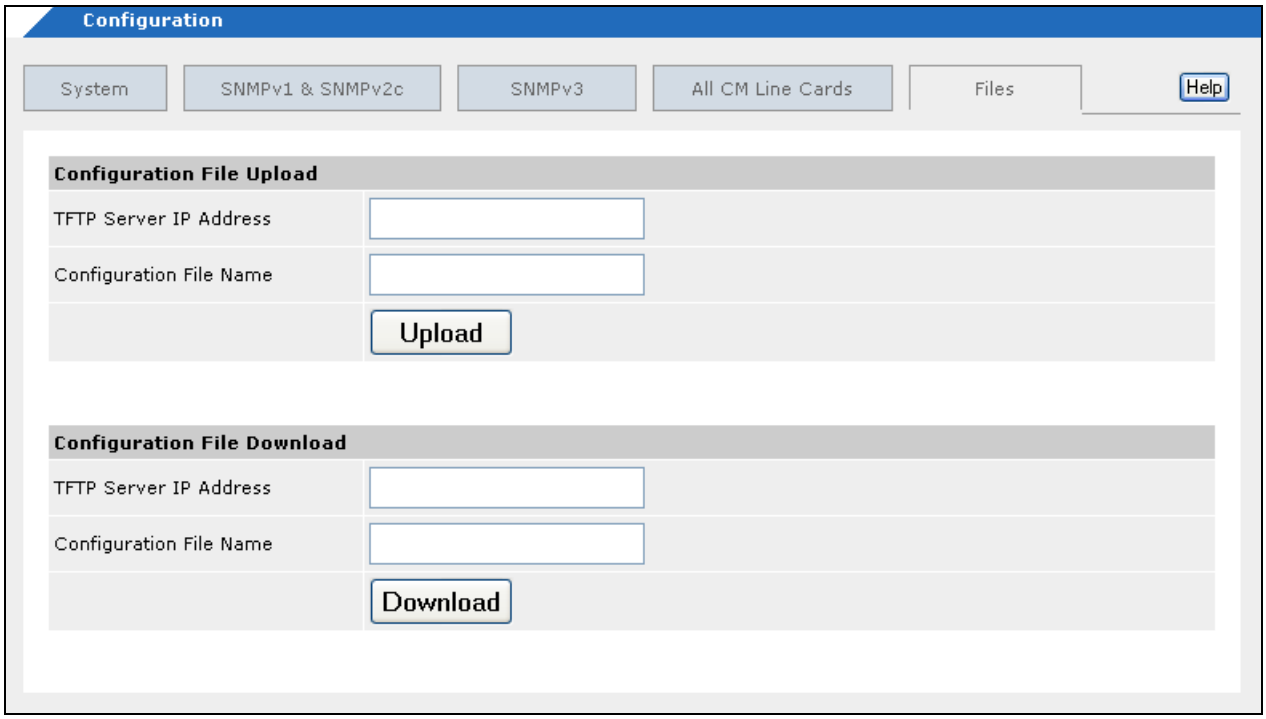


Figure 144. Files Tab

3. To upload the master configuration file from the management card to a TFTP server:
   a. In the Configuration File Upload section, select the **TFTP Server IP Address** field and enter the IP address of the TFTP server on your network.
   b. Select the **Configuration File Name** field and enter a filename for the configuration file. The file will be given this name on the TFTP server. The extension should be ".cfg".
   c. Click the **Upload** button.

4. To download the master configuration file to the management card from a TFTP server:

   a. In the Configuration File Download section, select the **TFTP Server IP Address** field and enter the IP address of the TFTP server on your network.

   b. Select the **Configuration File Name** field and enter the filename of the configuration file you want to download from the TFTP server. The extension should be ".cfg".

   c. Click the **Download** button.

      The download begins immediately. There is no confirmation prompt. After receiving the master configuration file from the TFTP server, the card writes the file to flash memory and resets. Afterwards, it initializes its management software and configures its parameters according to the settings in the downloaded configuration file. To resume managing the card, you have to start a new management session.

      If the auto-copy settings for the chassis slots is activated in the downloaded configuration file, the settings on the line cards may change. This may disrupt network operations and may result in the loss of network traffic. For further information, refer to "Configuration Files" on page 32.

Appendix A

Default Settings for the Management Card and the Line Cards

This appendix provides the default settings for the management card and the line cards in the following sections:

- ❒ “AT-CV5M02 Management Card” on page 338
- ❒ “AT-CM2 and AT-CM70S Media Converter Line Cards” on page 340
- ❒ “AT-CM3 Media Converter Line Cards” on page 342
- ❒ “AT-CV Media Converter Line Cards” on page 343

AT-CV5M02 Management Card

The following table lists the factory default settings for the AT-S99 Management Software on the AT-CV5M02 Management Card.

Table 45. Default Settings for the AT-CV5M02 Management Card and the AT-S99 Management Software

Parameter	Default Setting
IP Address	10.0.0.1
Subnet Mask	255.255.252.0
Gateway Address	0.0.0.0
DHCP Client	Disabled
Name	None
Contact	None
Location	None
10/100Base-TX Port	Auto-Negotiation
Activity Monitor	Disabled
Network Time Protocol Client	Disabled
Maximum Temperature Threshold	60° C
Auto-copy (Set Per Slot)	Disabled
Community Strings	
Get Community String	public
Set Community String	private
Trap Community String	public
Omega	
Manager Password	friend
Operator Password	operator
Time Out Value	10 minutes
Local Access	Enabled
Remote Access (Telnet)	Enabled

Table 45. Default Settings for the AT-CV5M02 Management Card and the AT-S99 Management Software

Parameter	Default Setting
Console Port	
Data Rate	115200
Terminal mode	VT-100-compatible / ANSI
Data Bits	8
Stop Bits	1
Parity	None
Flow control	None

AT-CM2 and AT-CM70S Media Converter Line Cards

This table lists the factory default settings for the AT-S73 Management Software on the AT-CM2 and AT-CM70S Media Converter Line Cards.

Table 46. Default Settings for the AT-CM2 and AT-CM70S Line Cards and the AT-S73 Management Software

Parameter	Default Setting
Default Operating Mode	OAM Visible
Name	None
Port A (Fiber Optic Port)	
State	Enabled
Flow Control	Enabled
Ingress Rate Limit	No Limit
Egress Rate Limit	No Limit
Port B (Twisted Pair Port)	
State	Enabled
Flow Control	Enabled
Speed and Duplex Mode	Auto-Negotiation
Ingress Rate Limit	No Limit
Egress Rate Limit	No Limit
OAM	
Admin State	Enabled
Mode	Passive
Maximum OAMPDU Size	1518 octets
Unidirectional Support	Yes
Loopback Support	Yes
Event Support	No
Variable Retrieval Support	Yes
T1/E1 Ports (AT-CM70S Line Card)	
Carrier Type	T1

Table 46. Default Settings for the AT-CM2 and AT-CM70S Line Cards and the AT-S73 Management Software

Parameter	Default Setting
Receiver Sensitivity	Long Haul
Line Build Out	DSX-1 (0 to 133ft)/0dB CSU
Test or Normal Transmission	Normal
PRBS	Disabled
Remote Loopback	Disabled

AT-CM3 Media Converter Line Cards

This table lists the factory default settings for the AT-S102 Management Software on the AT-CM3 Media Converter Line Cards.

Table 47. Default Settings for the AT-CM3 Line Cards and the AT-S102 Management Software

Parameter	Default Setting
Default Operating Mode	Link Test and OAM Visible
Name	None
Maximum Frame Size	10240 bytes
Low Power Mode	Disabled
Port A (Fiber Optic Port)	
State	Enabled
Flow Control	Enabled
Ingress Rate Limit	No Limit
Egress Rate Limit	No Limit
Port B (Twisted Pair Port)	
State	Enabled
Flow Control	Enabled
Speed and Duplex Mode	Auto-Negotiation
Ingress Rate Limit	No Limit
Egress Rate Limit	No Limit
OAM	
Admin State	Enabled
Mode	Passive
Maximum OAMPDU Size	1518 octets
Unidirectional Support	Yes
Loopback Support	Yes
Event Support	No
Variable Retrieval Support	Yes

AT-CV Media Converter Line Cards

This table lists the factory default settings for the AT-CV Media Converter Line Cards.

Table 48. Default Settings for the AT-CV Line Cards

Parameter	Default Setting
Default Operating Mode	Link Test
Auto MDI-X	Enabled
Maximum Frame Size	9000 bytes

Appendix B
SNMPv3 Configuration Examples

This appendix provides two examples of SNMPv3 configurations using the SNMPv3 Table menus. In addition, a worksheet is provided which you can use as an aid when configuring the SNMPv3 protocol. This appendix includes the following sections:

- ❒ “SNMPv3 Manager Configuration” on page 346
- ❒ “SNMPv3 Operator Configuration” on page 348
- ❒ “SNMPv3 Worksheet” on page 349

This appendix provides SNMPv3 configuration examples for the following types of users:

- ❒ Manager
- ❒ Operator

In addition an SNMPv3 Configuration Table is provided to record your SNMPv3 configuration.

For more information about the SNMPv3 protocol, see Chapter 10, ”Configuring SNMPv3” on page 279.

SNMPv3 Manager Configuration

This section provides a sample configuration for a Manager with a User Name of systemadmin24. Each table is listed with its parameters.

Configure SNMPv3 User Table Menu

```
User Name: manager

Authentication Protocol: MD5

Privacy Protocol: DES

Storage Type: NonVolatile
```

Configure SNMPv3 View Table Menu

```
View Name: internet

View Subtree OID: .1.3.6.1.2.1.6

Subtree Mask: ff

View Type: Included

Storage Type: NonVolatile
```

Configure SNMPv3 Access Table

```
Group Name: grpmanager

Context Prefix:

Security Model: usm

Security Level: AuthNoPriv

Context Match: Prefix

Read View Name: viewUSMmanager

Write View Name: viewUSMmanager

Notify View Name: viewUSMmanager

Storage Type: NonVolatile
```

Configure SNMPv3 Group Table

```
Security Name: commpublic

Security Model: v1
```

Group Name: grpcommpublic

Storage Type: NonVolatile

Configure SNMPv3 Notify Table

Notify Name: sysadminTrap

Notify Tag: sysadminTag

Notify Type: Trap

Storage Type: NonVolatile

Configure SNMPv3 Target Address Table

Target Address Name: host408

Ip Address: 198.35.11.1

UDP Port#: 162

Timeout: 1500

Retries: 3

Tag List: sysadminTag

Target Parameters: SNMPmgrPC

Storage Type: NonVolatile

Configure SNMPv3 Target Parameters Table

Target Parameters Name: SNMPmanagerPC

User (Security) Name: systemadmin24

Security Model: v3

Security Level: P-AuthPriv

Storage Type: NonVolatile

SNMPv3 Operator Configuration

This section provides a sample configuration for an Operator with a User Name of atiengr77. Since this user will only send messages to a group and not an SNMP host, you do not need to configure message notification for this user.

Configure SNMPv3 User Table Menu

```
User Name: atiengr77

Authentication Protocol: MD5

Privacy Protocol: None

Storage Type: NonVolatile
```

Configure SNMPv3 View Table Menu

```
View Name: internet

View Subtree OID: 1.3.6.1 (or internet)

Subtree Mask:

View Type: Included

Storage Type: NonVolatile
```

Configure SNMPv3 Access Table

```
Group Name: Operators

Security Model: SNMPv3

Security Level: Authentication

Read View Name: internet

Write View Name:

Notify View Name:
```

SNMPv3 Worksheet

This section provides a table that you can use as a worksheet when configuring SNMPv3. Each SNMPv3 Table is listed with its associated parameters.

SNMPv3 Parameters	
SNMPv3 User Table	
User (Security) Name	
Authentication Protocol	
Authentication Password	
Privacy Protocol	
Privacy Password	
Storage Type	
SNMPv3 View Table Menu	
View Name	
View Subtree (OID format/Text Name)	
Subtree Mask (Hex format)	
View Type	
Storage Type	
SNMPv3 Access Table Menu	
Group Name	
Security Model	
Security Level	
Read View Name	
Write View Name	
Notify View Name	
Storage Type	
SNMPv3 Group Table Menu	
Security Name	
Security Model	
Group Name	

SNMPv3 Parameters (Continued)	
Storage Type	
SNMPv3 Notify Table Menu	
Notify Name	
Notify Tag	
Notify Type	
Storage Type	
SNMPv3 Target Address Table Menu	
Target Address Name	
Ip Address	
UDP Port#	
Timeout (10ms)	
Retries	
Tag List	
Target Parameters	
Storage Type	
SNMPv3 Target Parameters Table Menu	
Target Parameters Name	
User (Security) Name	
Security Model	
Security Level	
Storage Type	

Appendix C

Packet Rate Limiting on the AT-CM2K0S Line Card

If you set packet rate limiting on the AT-CM2K0S Line Card, you need to know that the feature's actual performance may not correspond with the value you specify. The graph in Figure 145 shows the correlations between the ingress and egress rate limit values and the actual average rate limits. For example, the actual packet rate limit for any value between 150,000 and 250,000 is 285,714 packets. For instructions on how to set packet rate limiting, refer to "Configuring the Port Parameters on the AT-CM Line Cards" on page 169.

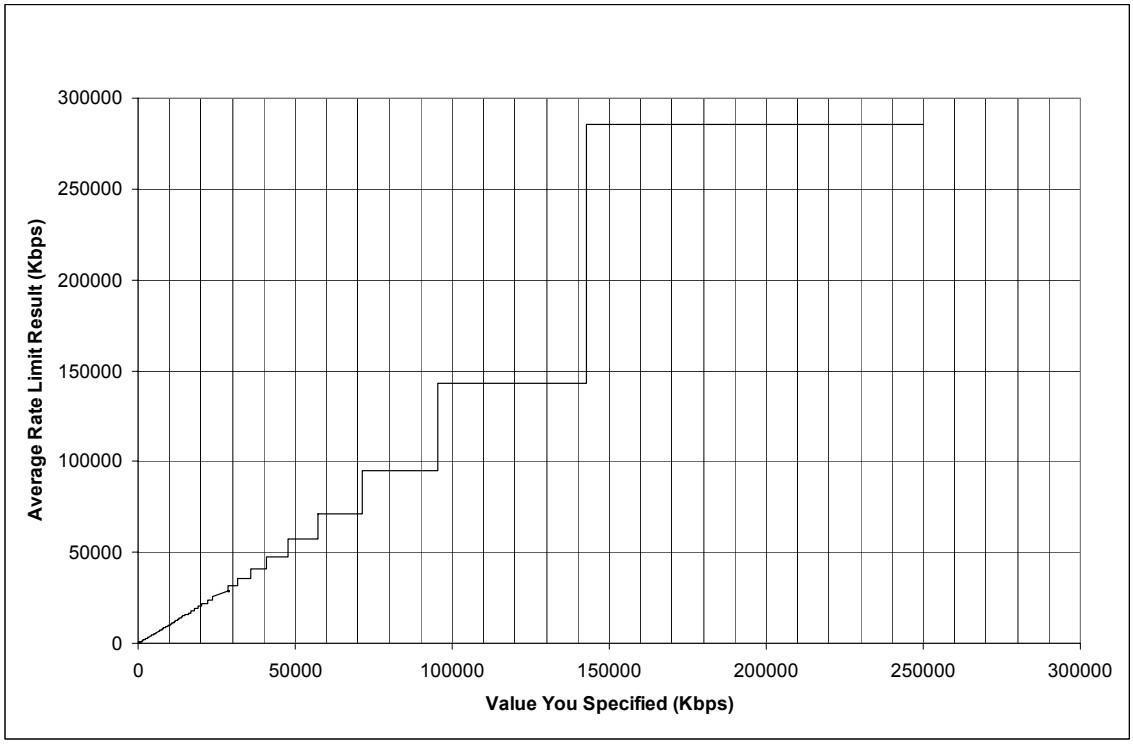


Figure 145. Rate Limit Input vs. Hardware Configured Values

Table 49 lists the values in table format. When you see multiple values in the "Specified Rate Limit (Kbps)" column and "Same" in the "Average Rate Limit (Kbps)" column, the average rate limit value equals the specified rate limit. When you see multiple values in the "Specified Rate Limit (Kbps)" column and one value in the "Average Rate Limit (Kbps)" column, all of the specified values result in the same average rate limit.

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
70 through 556	Same
557 and 558	558
559 through 566	Same
567 and 568	568
569 through 574	Same
575 and 576	576
577 through 581	Same
582 and 583	583
584 through 587	Same
588 and 589	589
590 through 592	Same
593 and 594	594
595 through 598	Same
599 and 600	600
601 through 602	Same
604 and 604	604
605 through 607	607
608 and 609	609
610 through 611	Same
612 and 613	613
614 through 615	Same
616 and 617	617
618 through 619	Same
620 and 621	621
622 through 623	Same
624 and 625	625
626 through 627	Same

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
628 and 629	629
630	Same
631 and 632	632
633 through 634	Same
635 and 636	636
637	Same
638 and 639	639
640	Same
641 and 642	642
643 through 644	Same
645 and 646	646
647	Same
648 and 649	649
650	Same
651 and 652	652
653	Same
654 and 655	655
656	Same
657 and 658	658
659	659
660 and 661	661
662	662
663 and 664	664
665 and 666	666
667	667
668 and 669	669
670	670
671 and 672	672

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
673	673
674 and 675	675
676 and 677	677
678	678
679 and 680	680
681	681
682 and 683	683
684 and 685	685
686	686
687 and 688	688
689 and 690	690
691	691
692 and 693	693
694 and 695	695
696	696
697 and 698	698
699 and 700	700
710 and 702	702
703	703
705 and 705	705
706 and 707	707
708	708
709 and 710	710
711 and 712	712
713 and 714	714
715 and 716	716
718 and 719	719
720 and 721	721

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
722 and 723	723
724 and 725	725
726 and 727	727
728	728
729 and 730	730
731 and 732	732
733 and 734	734
735 and 736	736
737 and 738	738
739 and 740	740
741 and 742	742
743 and 744	744
745	745
746 and 747	747
748 and 749	749
750 and 751	751
752 and 753	753
754 and 755	755
756 and 757	757
758 and 759	759
760 and 761	761
762 and 763	763
764 and 765	765
766 and 767	767
768 through 768	768
769 and 770	770
771 and 772	772
773 and 774	774

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
775 and 776	776
777 and 778	778
779 and 780	780
781 and 782	782
783 and 784	784
785 through 787	787
788 and 789	789
790 and 791	791
792 and 793	793
794 and 795	795
796 through 798	798
799 and 800	800
801 and 802	802
803 and 804	804
805 through 807	807
808 and 809	809
810 and 811	811
812 through 814	814
815 and 816	816
817 and 818	818
819 through 821	821
822 and 823	823
824 and 825	825
826 through 828	828
829 and 830	830
831 and 832	832
833 through 835	835
836 and 837	837

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
838 to 840	840
841 and 842	842
843 through 845	845
846 and 847	847
851 and 852	852
853 through 855	855
856 through 858	858
859 and 860	860
861 through 863	863
864 and 865	865
866 through 868	868
869 through 871	871
872 and 873	873
874 through 876	876
877 through 879	879
880 and 881	881
882 through 884	884
885 through 887	887
888 through 890	890
891 and 892	892
893 through 895	895
896 through 898	898
899 through 901	901
902 through 904	904
905 through 907	907
908 and 909	909
910 through 912	912
913 through 915	915

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
916 through 918	918
919 through 921	921
922 through 924	924
925 through 927	927
928 through 930	930
931 through 933	933
934 through 936	936
937 through 939	939
940 through 942	942
943 through 946	946
947 through 949	949
950 through 952	952
953 through 955	955
956 through 958	958
959 through 962	962
963 through 965	965
966 through 968	968
969 through 971	971
972 through 975	975
976 through 978	978
979 through 981	981
982 through 985	985
986 through 988	988
989 through 992	992
993 through 995	995
996 through 999	999
1000 through 1002	1002
1003 through 1006	1006

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
1007 through 1009	1009
1010 through 1013	1013
1014 through 1016	1016
1017 through 1020	1020
1021 through 1024	1024
1025 through 1027	1027
1028 through 1031	1031
1032 through 1035	1035
1036 through 1038	1038
1039 through 1042	1042
1043 through 1046	1046
1047 through 1050	1050
1051 through 1054	1054
1055 through 1058	1058
1059 through 1062	1062
1063 through 1066	1066
1067 through 1070	1070
1071 through 1074	1074
1075 through 1078	1078
1079 through 1082	1082
1083 through 1086	1086
1087 through 1090	1090
1091 through 1094	1094
1095 through 1098	1098
1099 through 1103	1103
1104 through 1107	1107
1108 through 1111	1111
1112 through 1116	1116

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
1117 through 1120	1120
1121 through 1124	1124
1125 through 1129	1129
1130 through 1133	1133
1134 through 1138	1138
1139 through 1142	1142
1143 through 1147	1147
1148 through 1152	1152
1153 through 1156	1156
1157 through 1161	1161
1162 through 1166	1166
1167 through 1170	1170
1171 through 1175	1175
1176 through 1180	1180
1181 through 1185	1185
1186 through 1190	1190
1191 through 1195	1195
1196 through 1200	1200
1201 through 1205	1205
1206 through 1210	1210
1211 through 1215	1215
1216 through 1221	1221
1222 through 1226	1226
1227 through 1231	1231
1232 through 1236	1236
1237 through 1242	1242
1243 through 1247	1247
1248 through 1253	1253

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
1259 through 1264	1264
1265 through 1269	1269
1270 through 1275	1275
1276 through 1281	1281
1282 through 1287	1287
1288 through 1292	1292
1293 through 1298	1298
1299 through 1304	1304
1305 through 1310	1310
1311 through 1316	1316
1317 through 1322	1322
1323 through 1328	1328
1329 through 1335	1335
1336 through 1341	1341
1342 through 1347	1347
1348 through 1354	1354
1355 through 1360	1360
1361 through 1367	1367
1368 through 1373	1373
1374 through 1380	1380
1381 through 1386	1386
1387 through 1393	1393
1394 through 1400	1400
1401 through 1407	1407
1408 through 1414	1414
1415 through 1421	1421
1422 through 1428	1428
1429 through 1435	1435

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
1436 through 1443	1443
1444 through 1450	1450
1451 through 1457	1457
1458 through 1465	1465
1466 through 1472	1472
1473 through 1480	1480
1481 through 1488	1488
1489 through 1495	1495
1496 through 1503	1503
1504 through 1511	1511
1512 through 1519	1519
1520 through 1527	1527
1528 through 1536	1536
1537 through 1544	1544
1545 through 1552	1552
1553 through 1561	1561
1562 through 1569	1569
1570 through 1578	1578
1579 through 1587	1587
1588 through 1596	1596
1597 through 1605	1605
1606 through 1614	1614
1615 through 1623	1623
1624 through 1632	1632
1633 through 1642	1642
1643 through 1651	1651
1652 through 1661	1661
1662 through 1670	1670

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
1671 through 1680	1680
1681 through 1690	1690
1691 through 1700	1700
1701 through 1710	1710
1711 through 1721	1721
1722 through 1731	1731
1732 through 1742	1742
1743 through 1752	1752
1753 through 1763	1763
1764 through 1774	1774
1775 through 1785	1785
1786 through 1796	1796
1797 through 1808	1808
1809 through 1819	1819
1820 through 1831	1831
1832 through 1843	1843
1844 through 1855	1855
1856 through 1867	1867
1868 through 1879	1879
1880 through 1892	1892
1893 through 1904	1904
1905 through 1917	1917
1918 through 1930	1930
1931 through 1943	1943
1944 through 1956	1956
1957 through 1970	1970
1971 through 1984	1984
1985 through 1998	1998

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
1999 through 2012	2012
2013 through 2026	2026
2027 through 2040	2040
2041 through 2055	2055
2056 through 2070	2070
2071 through 2085	2085
2086 through 2100	2100
2101 through 2116	2116
2117 through 2132	2132
2133 through 2148	2148
2149 through 2164	2164‘
2165 through 2181	2181
2182 through 2197	2197
2198 through 2214	2214
2215 through 2232	2232
2233 through 2249	2249
2250 through 2267	2267
2268 through 2285	2285
2286 through 2304	2304
2305 through 2322	2322
2323 through 2341	2341
2342 through 2361	2361
2362 through 2380	2380
2381 through 2400	2400
2401 through 2421	2421‘
2422 through 2442	2442
2443 through 2463	2463
2464 through 2484	2484

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
2485 through 2506	2506
2507 through 2528	2528
2529 through 2551	2551
2552 through 2574	2574
2575 through 2597	2597
2598 through 2621	2621
2622 through 2645	2645
2646 through 2670	2670
2671 through 2695	2695
2696 through 2721	2721
2722 through 2747	2747
2748 through 2773	2773
2774 through 2801	2801
2802 through 2828	2828
2829 through 2857	2857
2858 through 2886	2886
2887 through 2915	2915
2916 through 2945	2945
2946 through 2976	2976
2977 through 3007	3007
3008 through 3039	3039
3040 through 3072	3072
3073 through 3105	3105
3106 through 3139	3139
3140 through 3174	3174
3175 through 3210	3210
3211 through 3246	3246
3247 through 3284	3284

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
3285 through 3322	3322
3323 through 3361	3361
3362 through 3401	3401
3402 through 3442	3442
3443 through 3484	3844
3485 through 3527	3527
3528 through 3571	3571
3572 through 3616	3616
3617 through 3663	3663
3664 through 3710	3710
3711 through 3759	3759
3760 through 3809	3809
3810 through 3861	3861
3862 through 3913	3913
3914 through 3968	3968
3969 through 4024	4024
4025 through 4081	4081
4082 through 4140	4140
4141 through 4201	4201
4202 through 4264	4264
4265 through 4329	4329
4330 through 4395	4395
4396 through 4464	4464
4465 through 4535	4535
4536 through 4608	4608
4609 through 4683	4683
4684 through 4761	4761
4762 through 4842	4842

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
4843 through 4926	4926
4927 through 5012	5012
5013 through 5102	5102
5103 through 5194	5194
5195 through 5291	5291
5292 through 5390	5390
5391 through 5494	5494
5495 through 5602	5602
5603 through 5714	5714
5715 through 5830	5830
5831 through 5952	5952
5953 through 6079	6079
6080 through 6211	6211
6212 through 6349	6349
6350 through 6493	6493
6494 through 6644	6644
6645 through 6802	6802
6803 through 6968	5958
6969 through 7142	7142
7143 through 7326	7326
7327 through 7518	7518
7519 through 7722	7722
7723 through 7936	7936
7937 through 8163	8163
8164 through 8403	8403
8404 through 8658	8658
8659 through 8928	8928
8929 through 9216	9216

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
9217 through 9523	9523
9524 through 9852	9852
9853 through 10204	10204
10205 through 10582	10582
10583 through 10989	10989
10990 through 11428	11428
11429 through 11904	11904
11905 through 12422	12422
12423 through 12987	12987
12988 through 13605	13605
13606 through 14285	14285
14286 through 15037	15037
15038 through 15873	15873
15874 through 16806	16806
16807 through 17857	17857
17858 through 19047	19047
19048 through 20408	20408
20409 through 21978	21978
21979 through 23809	23809
23810 through 25974	25974
25975 through 28571	28571
28572 through 31746	31746
31747 through 35714	35714
35715 through 40816	40816
40817 through 47619	47619
47620 through 57142	57142
57143 through 71428	71428
71429 through 95238	95238

Table 49. Rate Limits Equivalents

Specified Rate Limit (Kbps)	Average Rate Limit Result (Kbps)
142858 through 250000	285714

Index

Numerics

10/100Base-TX port, AT-CV5M02 Management Card
- configuring 133
- default setting 338
- described 23
- restoring default setting to 138

A

activity monitor
- described 24
- displaying 130

AT-CM Line Cards
- configuration files 32
- configuring OAM client 254
- configuring port settings 169
- configuring remote port settings 223, 230
- configuring, with remote peer management 218, 228
- default settings 340, 342
- described 40, 42
- displaying MAC addresses of 210
- displaying management software version numbers of 207
- displaying parameter settings of 166
- displaying port statistics 203
- displaying remote port settings 223, 229
- displaying remote, MAC addresses 238
- displaying remote, serial numbers 238
- displaying remote, status of 218, 228
- displaying remote, version numbers 235
- displaying serial numbers of 210
- displaying SFP information 213
- displaying status of 158
- displaying status of remote 218, 228
- downloading software to, with TFTP 320
- downloading software to, with XMODEM 325
- naming 181
- naming, remote 223, 230
- resetting all 199, 201
- resetting one AT-CM3 Line Card 198
- resetting remote 227, 234
- restoring configurations 33
- restoring remote, to default settings 225, 232
- restoring remote, to last saved configuration 226, 233
- restoring, to default settings 191
- restoring, to last saved configuration 195
- setting operating modes on 176
- setting operating modes on, remote 224, 231

AT-CM2 Line Cards
- *See also* AT-CM Line Cards
- default settings 340
- described 40

AT-CM2K0S Line Card, setting maximum frame size 182

AT-CM3 Line Cards
- *See also* AT-CM Line Cards
- default settings 342
- described 42

AT-CM70S Line Card
- configuring T1/E1 ports from AT-CV5M02 Management Card 246
- configuring T1/E1 ports from Console port 249
- Console port settings 249
- default settings 340
- selecting management method for T1/E1 ports 242
- universal asynchronous receiver/transmitter (UART) setting 242

AT-CV Line Cards
- configuration files 32
- default settings 343
- described 44
- displaying serial numbers of 210
- displaying status of 158
- resetting 201
- setting operating modes on 176

AT-CV1000 Chassis 38

AT-CV1200 Chassis 38

AT-CV1203 Chassis 38

AT-CV5000 Chassis 38

AT-CV5M02 Management Card
- *See also* standby AT-CV5M02 Management Card
- default settings 338
- displaying MAC address of 148
- displaying serial number of 210
- downloading configuration files to 328
- downloading software to, with TFTP 320
- downloading software to, with XMODEM 325
- features 22
- management access methods 26
- master configuration files 32
- naming 88, 104, 111
- resetting 119
- restoring, to default settings 140
- SNMPv3 configuration files 37
- uploading configuration files from 328

AT-S102 Management Software
- *See also* AT-CM Line Cards
- default settings 342

displaying remote, version numbers 235
displaying, version numbers 207
downloading, with TFTP 320
downloading, with XMODEM 325
AT-S73 Management Software
See also AT-CM Line Cards
default settings 340
displaying remote, version numbers 235
displaying, version numbers 207
downloading, with TFTP 320
downloading, with XMODEM 325
AT-S99 Management Software
See also AT-CV5M02 Management Card
default settings 338
described 23
downloading, with TFTP 320
downloading, with XMODEM 325
restoring, to default settings 140
auto-copy
described 33
displaying status of 158
setting 183
Auto-Negotiation
AT-CM Line Cards 158, 169, 218, 228
AT-CV5M02 Management Card 133
setting, on line cards 169
setting, on remote line cards 223

C

configuration files
See also master configuration files
AT-CM Line Cards 32
AT-CV5M02 Management Card 32
Console port
default settings 72, 339
described 23
setting baud rate of 146
console timeout 111
contact 106
Converteon chassis 38

D

date and time
setting 87, 115
default settings
AT-CM2 Line Cards 340
AT-CM3 Line Cards 342
AT-CV5M02 Management Card 338
restoring line card to 191
restoring, to remote line cards 225, 232
digital diagnostic monitoring (DDM)
viewing event messages 122
viewing threshold levels on SFP modules 213
disabling a port 169
dying gasp
configuring AT-CM Line Cards for 90
testing 95

E

E1 ports. *See* T1/E1 ports
egress rate limiting
displaying status of, on line cards 158
displaying status of, on remote line cards 218, 228
setting, on line cards 169
setting, on remote line cards 223
enabling a port 169
event log
described 24
displaying 122

F

flow control
displaying status of, on line cards 158
displaying status of, on remote line cards 218, 228
setting, on line cards 169
setting, on remote line cards 223
frame sizes
described 46
displaying, on AT-CM3 Line Cards 158
displaying, on remote AT-CM3 Line Cards 218, 228
setting, on AT-CM2K0S Line Card 182

I

ingress rate limiting
displaying status of, on line cards 158
displaying status of, on remote line cards 218, 228
setting, on line cards 169
setting, on remote line cards 223
Internet Protocol (IP) address configuration
described 23
setting 86, 100

L

Link Test operating mode
described 49
selecting, on line cards 176
selecting, on remote line cards 224, 231
Link Test with OAM operating mode
described 49
selecting, on line cards 176
selecting, on remote line cards 224, 231
local management sessions
described 26
enabling or disabling 111
starting 72
location 106
loopback tests *See* OAM loopback tests
low power mode
configuring, on line cards 186, 188
configuring, on remote line cards 224, 230
described 46
displaying status of, on line cards 158
displaying status of, on remote line cards 218, 228

M

MAC addresses
- AT-CM and AT-CV Line Cards 210
- AT-CV5M02 Management Card 148
- remote AT-CM Line Cards 238

management sessions
- described 26
- starting local 72
- starting remote Telnet client 75
- starting remote web browser 76

manager account
- changing password 85, 111
- described 25

master configuration files
- described 32
- downloading to AT-CV5M02 Management Cards 328
- saving parameter settings in 78
- standby management cards 36
- uploading from AT-CV5M02 Management Cards 328

MDI, MDIX
- AT-CV5M02 Management Card 133
- setting, on line cards 169
- setting, on remote line cards 223

menus navigation 74

MissingLink operating mode
- described 49
- selecting, on line cards 176
- selecting, on remote line cards 224, 231

MissingLink with OAM operating mode
- described 51
- selecting, on line cards 176
- selecting, on remote line cards 224, 231

N

naming
- AT-CM Line Cards 181
- AT-CV5M02 Management Card 104
- remote AT-CM Line Cards 223, 230

Network Time Protocol (NTP) client
- configuring 87, 117
- described 24
- requirements for 31

O

OAM Bypass operating mode
- described 53
- selecting, on line cards 176
- selecting, on remote line cards 224, 231

OAM clients
- configuring, for OAM-based features 90
- configuring, on line cards 254
- configuring, on remote line cards 224, 231
- default settings 340, 342
- displaying statistics for 273
- displaying status of, on line cards 158, 264
- displaying status of, on remote line cards 218, 228, 271

OAM loopback tests
- configuring AT-CM Line Cards for 90
- described 61
- performing 259

OAM variable requests
- configuring AT-CM Line Cards for 90
- described 68
- sending 275

OAM Visible operating mode
- described 53
- selecting, on line cards 176
- selecting, on remote line cards 224, 231

OAM-based features
- configuring AT-CM Line Cards for 90
- described 55
- settings 69

OAMPDUs, setting maximum size of 256

operating modes
- described 48
- displaying, for line cards 158
- displaying, for remote line cards 218, 228
- methods of setting 54
- selecting, on line cards 176
- selecting, on remote line cards 224, 231

operator account
- changing password 85, 111
- described 25

P

passwords, setting 85, 111

pinging network devices
- performing 152
- requirements for 31

ports
- configuring parameters 169
- displaying statistics 203

R

redundant management card. *See* standby AT-CV5M02 Management Card

remote management software updates
- configuring AT-CM Line Cards for 90
- described 60
- with TFTP 320
- with XMODEM 325

remote peer management
- configuring AT-CM Line Cards for 90
- described 56
- using menus 218
- using web browser windows 228

resetting
- all AT-CM and AT-CV Line Cards 201
- all AT-CM Line Cards 199
- AT-CV5M02 Management Card 119
- one AT-CM3 Line Card 198

S

serial numbers 210, 238
SFP information 213, 240
Smart MissingLink operating mode
  described 52
  selecting, on line cards 176
  selecting, on remote line cards 224, 231
Smart MissingLink with OAM operating mode
  described 53
  selecting, on line cards 176
  selecting, on remote line cards 224, 231
SNMP community strings
  configuring 86, 108
  default settings 338
SNMP management 27
  described 27
  requirements for 31
SNMP traps
  adding IP addresses of receivers 110
  requirements for sending 31
SNMPv3
  described 280
  examples 345
SNMPv3 Access Table
  configuring 296
  described 286
SNMPv3 configuration files
  described 37
  downloading to AT-CV5M02 Management Cards 328
  saving parameter settings in 78
  uploading from AT-CV5M02 Management Cards 328
SNMPv3 Group Table
  configuring 300
  described 287
SNMPv3 Notify Table
  configuring 303
  described 287
SNMPv3 Target Address Table
  configuring 306
  described 287
SNMPv3 Target Parameters Table
  configuring 309
  described 287
SNMPv3 User Table
  configuring 290
  described 286
SNMPv3 View Table
  configuring 293
  described 286
standby AT-CV5M02 Management Cards
  activating, manually 144
  described 28
  displaying status messages 30
  master configuration files 36
  updating master configuration files, manually 83
statistics, displaying for AT-CM Line Cards 203
syslog client
  configuring 131
  described 24
  requirements for sending events 31

T

T1/E1 ports
  configuring, from AT-CV5M02 Management Card 246
  configuring, from Console port 249
  default settings 340
  selecting management method 242
Telnet management sessions
  described 26
  enabling or disabling 111
  requirements for 31
  starting 75
temperature threshold 142
TFTP client
  configuring, to download management software 317
  configuring, to transfer configuration files 330
  downloading management software 320
  requirements for 31

U

unidirectional support 256
universal asynchronous receiver/transmitter (UART) setting 242

W

web browser management sessions
  described 26
  requirements for 31
  starting 76
web server 114

X

XMODEM, downloading management software 325