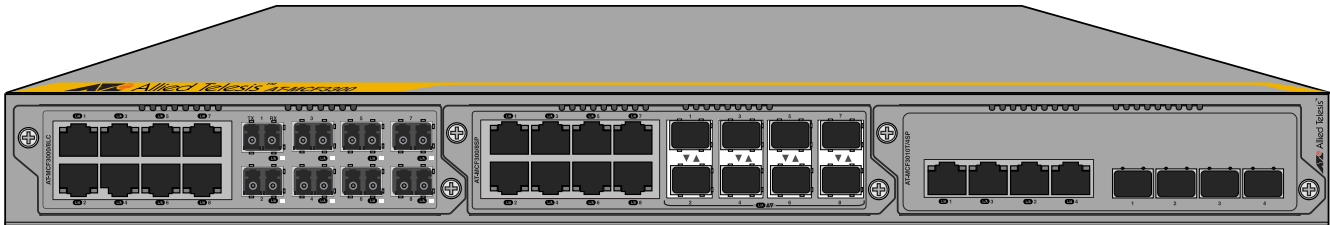# MCF3000 Series

Multi-channel Media Converters

- ❑ MCF3300 Chassis
- ❑ MCF3000/8LC Media Converter
- ❑ MCF3000/8SP Media Converter
- ❑ MCF3010T/4SP Media Converter
- ❑ MCF3000M Management Module
- ❑ MCF3300AC Power Supply
- ❑ MCF3300DC Power Supply

Command Line Interface User Guide

Version 1.0

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Preface

This guide describes the command line management interface on the MCF3000M management module for the MCF3000 series of multi-channel media converters. The guide contains instructions on how to configure the parameter settings of the media converter and management modules, view traffic statistics, upload new firmware, and more. This preface contains the following sections:

❒ "Document Conventions" on page 14
❒ "Contacting Allied Telesis" on page 15

Document Conventions

This document uses the following conventions:

Note
Notes provide additional information.

Caution
Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.

Warning
Warnings inform you that performing or omitting a specific action may result in bodily injury.

Warning
Laser warnings inform you that an eye or skin hazard exists due to the presence of a Class 1 laser device.

Contacting Allied Telesis

If you need assistance with this product, the Services & Support section of the Allied Telesis web site at **www.alliedtelesis.com/services-support** has links to the following technical services:

❐ Helpdesk (Support Portal) - Log onto Allied Telesis interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorizations (RMAs), and contact Allied Telesis technical experts.

❐ Software Downloads - Download the latest software releases for your product.

❐ Licensing - Register and obtain your License key to activate your product.

❐ Product Documents - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.

❐ Warranty - View a list of products to see if Allied Telesis warranty applies to the product you purchased and register your warranty.

❐ Allied Telesis Helpdesk - Contact a support representative.

To contact a sales representative or find Allied Telesis office locations, go to **www.alliedtelesis.com/contact**.

Chapter 1

Overview

This chapter contains a hardware overview of the MCF3000 series of multi-channel media converters. For further information, refer to the *MCF3000 Media Converter Installation Guide.* The sections in this chapter are listed here:

Introduction

The MCF3000 product family of multi-channel media converters provides a simple and reliable way to consolidate large numbers of geographically separated Fast Ethernet, Gigabit Ethernet, or 10 Gigabit Ethernet networks into a central location with fiber optic cables. The media converter modules feature up to eight channels that function as independent media converters for transferring network traffic between copper and fiber optic cables. Designed for managed or unmanaged network environments, the modules operate with low latency to minimize the impact on network performance along with cyclic redundancy check (CRC) detection to prevent the propagation of incomplete or fragmented packets on your network. Featuring a standard 1U height, the chassis can be installed on a table or in a standard 19-inch equipment rack.

The optional MCF3000M module adds management capability to the media converter modules. It has both command line and web browser management interfaces for you to control the operating parameters of the modules, media converter channels, and individual ports. Management functions include displaying status information and traffic statistics, and enabling or disabling media converter modules or ports. Management is supported directly through the CONSOLE port, which does not require an IP address, as well as remotely over your network from your management workstation, with the following tools:

- ❒ Telnet protocol (command line interface)
- ❒ Secure Shell (SSH) protocol (command line interface)
- ❒ Web browser (web browser interface)

The chassis can be powered with one or two AC or DC power supples. A single power supply can fully power the unit. Installing two power supplies adds power redundancy, protecting your network against disruptions from power supply failures. The chassis also supports hot-swapping so that you can install or replace power supplies or media converter modules without powering off the unit.

The product components are listed in Table 1 on page 19.

Table 1. MCF3000 Product Family

Component	Description
MCF3300	Chassis with three slots for media converter modules, two slots for AC or DC power supplies, and one slot for the MCF3000M management module.
MCF3000/8LC	Media converter module with eight channels. Each channel has one 10/100/ 1000Mbps copper port and one 1000Mbps fiber optic port with a duplex LC connector. The fiber optic ports have a maximum operating distance of 500 meters (1640 ft.) with 50/125µm multimode cable or 220 meters (722 ft.) with 62.5/125µm cable.
MCF3000/8SP	Media converter module with eight channels. Each channel has one 10/100/ 1000Mbps copper port and one port for an 100Mbps or 1000Mbps SFP transceiver.
MCF3010T/4SP	Media converter module with four channels. Each channel has one 10/ 100M/1G/10Gbps copper port and one port for a 1000Mbps SFP or 10Gbps SFP+ transceiver.
MCF3000M	Optional management module for local or remote management of the chassis. The module has the following ports: - One micro-USB CONSOLE port for local management with the command line interface. - One 10/100/1000Mbps MGMT port for remote management over your network with the web browser or command line interface. - One USB host port for storing or transferring firmware files on USB storage devices. - One STACK port reserved for future use.
MCF3300AC	AC power supply for the chassis.
MCF3300DC	DC power supply for the chassis.

MCF3300 Chassis

The front and rear panels of the MCF3300 Chassis are shown in Figure 1.

**Three Slots for Media
Converter Modules**

**MCF3300 Power
Supply Slot**

**Slot for MCF3000M
Management Module**

**MCF3300 Power
Supply Slot**
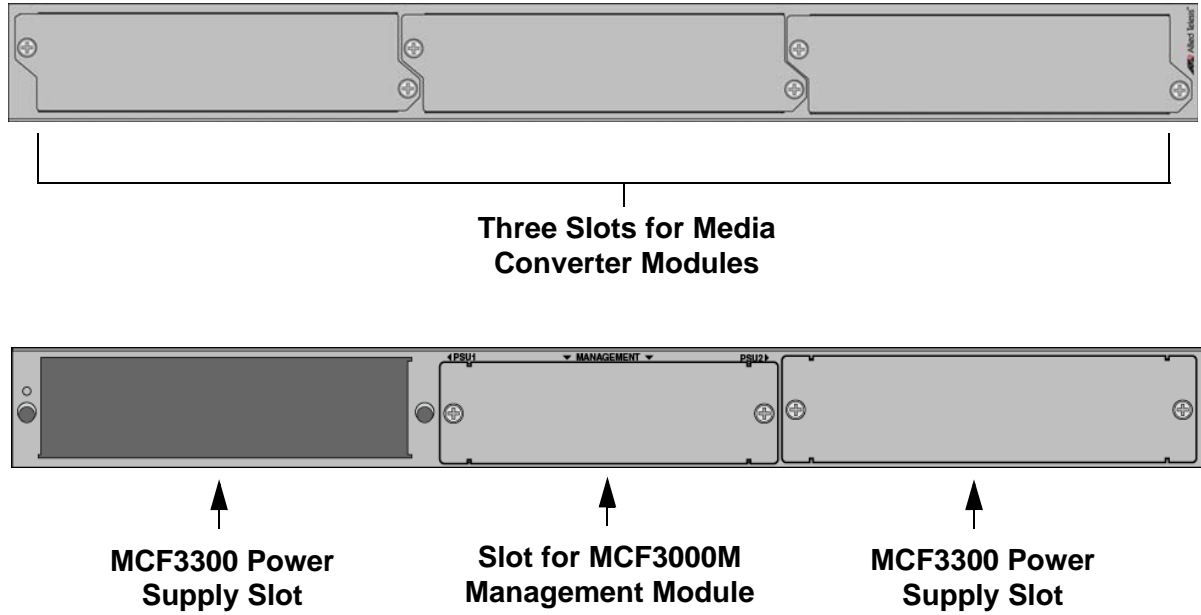
Figure 1. Front and Rear Panels of the MCF3300 Chassis

Media Converter Modules

The media converter modules are shown in Figure 2.

MCF3000/8LC

**Eight 10/100M/1Gbps
Copper Ports**

**Eight 1000Mbps Fiber Optic
Ports with Duplex LC
Connectors**

MCF3000/8SP

**Eight 10/100M/1Gbps
Copper Ports**

**Eight ports for 100Mbps or
1000Mbps SFP Transceivers**

MCF3010T/4SP

**Four 10/100M/1G/10Gbps
Copper Ports**

**Four ports for 10Gbps
SFP+ Transceivers**
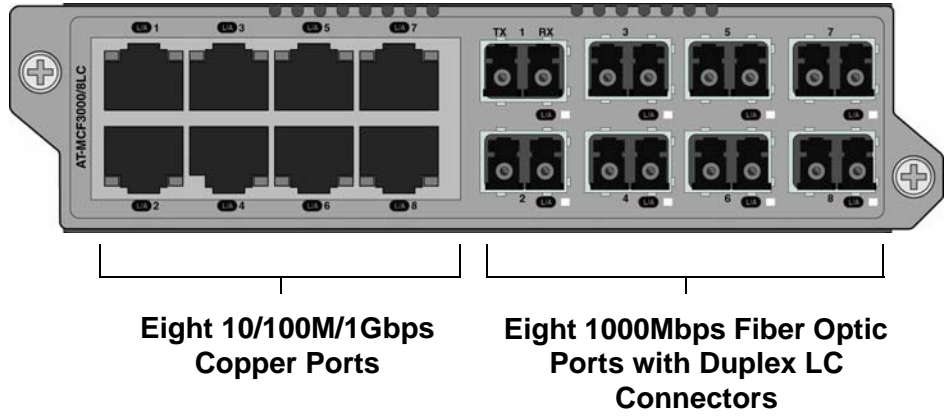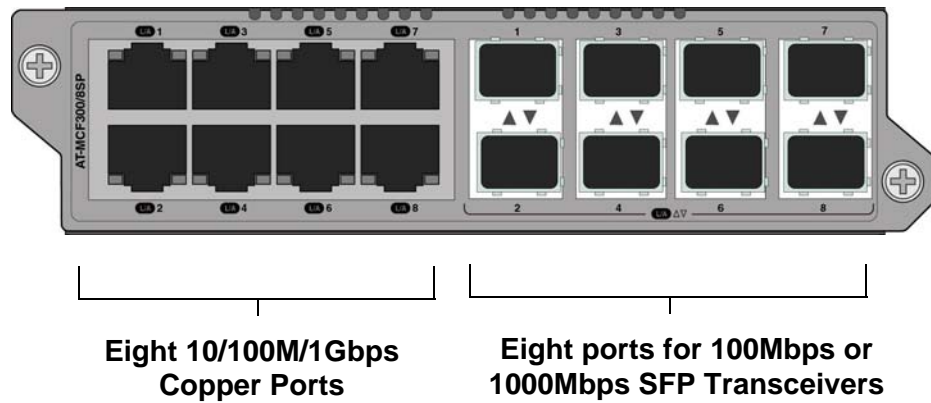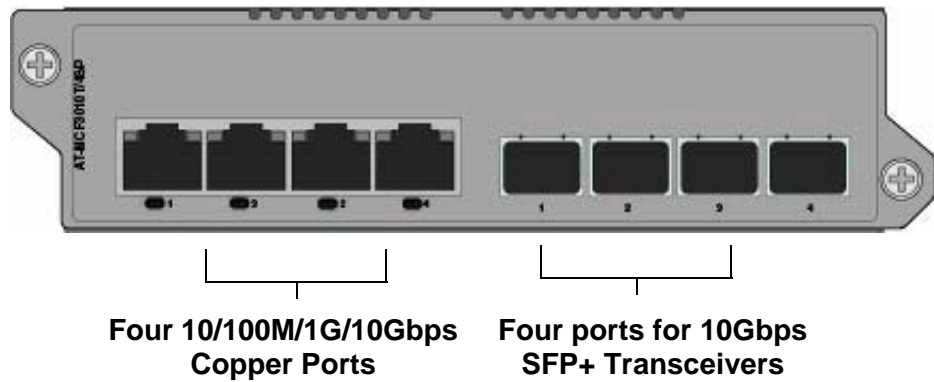
Figure 2. Media Converter Modules

The basic features of the media converter modules are listed in Table 2.

Table 2. MCF3000 Media Converter Modules

Media Converter Module	Number of Channels	Copper Ports	Maximum Distance	Fiber Optic Fixed Ports or Transceivers	Maximum Distance
MCF3000/8LC	8	10/100/ 1000Mbps	100 meters (328 feet)	1000Mbps (fixed)	220 or 500 meters (722 or 1640 feet.)[1]
MCF3000/8SP	8	10/100/ 1000Mbps	100 meters (328 feet)	100/1000Mbps	Varies by transceiver
MCF3010T/ 4SP	4	10/100/1000M/ 10Gbps	100 meters (328 feet)	1000M/10Gbps	Varies by transceiver

1. Maximum distance of 220 meters with 62.5/125μm multimode cable or 500 meters with 50/125μm multimode cable.

Refer to the product data sheet for a list of supported SFP and SFP+ modules.

The standards and features of the modules are listed here:

❑ IEEE 802.3 Ethernet

❑ IEEE 802.3u 100Base-X

❑ IEEE 802.3z 1000Base-X

❑ IEEE 802.3ab 1000Base-T

❑ IEEE 802.3ae 10 Gigabit Ethernet

❑ IEEE 802.3an 10GBase-T

❑ IEEE 802.3u Auto-Negotiation on copper ports

❑ IEEE 802.3x Flow control - full duplex operation

❑ Hot-swapping so modules can be installed while a chassis is powered on.

❑ MissingLink operating mode

❑ Store and forward packet processing with cyclic redundancy check (CRC)

Media Converter Channels

The copper and fiber optic ports on the media converter modules are paired together. Each pair contains one copper port and one fiber optic port. The pairs function as independent media converter channels. The MCF3000/8LC and MCF3000/8SP media converter modules have eight independent media converter channels. The MCF3010T/4SP module has four channels. Each channel consists of the following ports:

- ❏ MCF3000/8LC module: one 10/100/1000Mbps copper port and one fixed 1000Mbps fiber optic port.

- ❏ MCF3000/8SP module: one 10/100/1000Mbps copper port and one port for a 100Mbps or 1000Mbps SFP transceiver.

- ❏ MCF3010T/4SP module: one 10/100/1000M/10Gbps copper port and one port for a 1000Mbps or 10Gbps fiber optic transceiver.

Channel ports are predefined. Channel 1 contains copper port 1 and fiber optic port 1, channel 2 has copper port 2 and fiber optic port 2, and so forth. You cannot change the channel port assignments. Refer to Figure 3.

Channel 1:
Copper Port 1 and
Fiber Optic Port 1
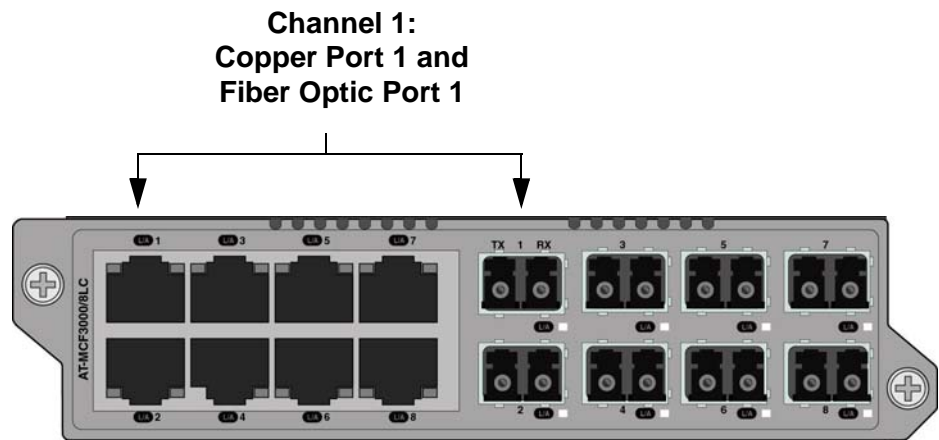
Figure 3. Channel 1 on a Media Converter Module

Each channel functions as an independent media converter. The two channel ports forward traffic to each other, but not to any other ports. Local and remote network devices that need to forward traffic to each other through a media converter module have to be connected to ports of the same channel. For example, for a local Ethernet switch to communicate with a remote switch, the copper cable from the local switch and the fiber optic cable from the remote switch have to be connected to ports in the same channel, such as copper port 4 and fiber optic port 4. Devices that are connected to ports in different channels cannot communicate with each other through the media converter modules.

The ports of a channel use "store and forward" to forward traffic. A packet is forwarded to the egress port of a channel after it has been fully received and buffered on the ingress port and checked for CRC errors. Packets without a CRC error are forwarded to the egress port where CRC is regenerated prior to the transmission of the packet, while packets with CRC errors are discarded to prevent their propagation on the network.

Here are the media converter guidelines:

❑ Local and remote devices that need to communicate with each other through the media converter have to be connected to ports in the same channel. That is, the copper cable from the local device and the fiber optic cable from the remote device have to be attached to ports in the same channel. As explained in "Media Converter Channels" on page 23, the ports of the channels are predefined. Channel 1 contains copper port 1 and fiber optic port 1, channel 2 of copper port 2 and fiber optic port 2, and so forth.

❑ You cannot change the port assignments of the channels.

❑ You can use the media converter channels in any order.

❑ The copper and fiber optic ports in a channel on the media converter modules can operate at different speeds.

❑ Copper ports at 10/100Mbps support half or full-duplex mode. Full-duplex mode is recommended for best performance.

❑ Copper ports at 1000Mbps or 10Gbps support full-duplex mode only.

❑ SFP fiber optic ports at 100Mbps, 1000Mbps or 10Gbps support full-duplex mode only.

❑ Adjusting the settings of the ports on the media converter modules requires the optional MCF3000M management module.

❑ There are no adjustable switches on the media converter modules.

MCF3000/8LC and MCF3000/8SP Media Converter Modules

Here are the properties of the copper and fiber optic ports on the MCF3000/8LC and MCF3000/8SP media converter modules:

Media Converter Channels

The media converter channels are predefined. Channel 1 contains copper port 1 and fiber optic port 1, channel 2 has copper port 2 and fiber optic port 2, and so on. The port-to-channel assignments cannot be changed. For guidelines, refer to "Media Converter Channels" on page 23.

Copper Ports

Here are the basic properties of the copper ports:

❐ Standard RJ-45 8-pin connectors. For port pin-outs, refer to the *MCF3000 Series Installation Guide*.

❐ Speeds of 10/100/1000Mbps.

❐ Half or full-duplex mode at 10/100Mbps. Full-duplex mode is recommended for best performance.

❐ Full-duplex mode only at 1000Mbps.

❐ Maximum operating distance of 100 meters (328 feet) at 10/100/1000Mbps.

❐ IEEE 802.3u. Auto-Negotiation that automatically sets speeds and duplex modes. You can manually adjust the ports with the optional management module.

❐ Auto-MDI/MDI-X that automatically adjusts the wiring configurations to MDI or MDI-X, depending on the wiring configuration of the local devices. This allows you to use straight-through UTP Ethernet copper cable regardless of the wiring configuration of the ports on network devices.

Auto-MDI/MDI-X does not require Auto-Negotiation. Ports support Auto-MDI/MDI-X even when Auto-Negotiation is disabled.

Copper Cable

The minimum copper cable requirements for the ports are listed in Table 3.

Table 3. Copper Cable Requirements for the MCF3000/8LC and MCF3000/8SP Modules

Speed	Cable
10Mbps	Standard TIA/EIA 568-B unshielded Category 3 cabling or better.
100/1000Mbps	Standard TIA/EIA 568-A/B unshielded Enhanced Category 5 (Cat 5e) cabling or better.

MCF3000/8LC Fiber Optic Ports

The fiber optic ports on the MCF3000/8LC media converter module have the following properties:

- ❐ Fixed speed of 1Gbps.

- ❐ Full-duplex mode.

- ❐ Maximum operating distance of 500 meters (1640 ft.) with 50/125μm multimode fiber optic cable or 220 meters (722 ft.) with 62.5/125μm (core/cladding) multimode cable.

- ❐ Duplex LC connectors

MCF3000/8SP Fiber Optic Ports

The fiber optic ports on the MCF3000/8SP media converter module support 100Mbps or 1Gbps SFP transceivers: They do not support 10Mbps or 10Gbps transceivers. Refer to the product data sheet for a list of supported transceivers.

MCF3010T/4SP Media Converter Module

Here are the properties of the copper and fiber optic ports on the MCF3010T/4SP media converter module:

Media Converter Channels

The media converter channels are predefined. Channel 1 contains copper port 1 and fiber optic port 1, channel 2 has copper port 2 and fiber optic port 2, and so on. The port-to-channel assignments cannot be changed. For guidelines, refer to "Media Converter Channels" on page 23.

Copper Ports

The basic properties of the copper ports are listed here:

❐ Standard RJ-45 8-pin connectors. For port pin-outs, refer to the *MCF3000 Series Installation Guide*.

❐ Speeds of 10/100/1000M/10Gbps.

❐ Half or full-duplex mode at 10/100Mbps. Full-duplex mode is recommended for best performance.

❐ Full-duplex mode only at 1000M/10Gbps.

❐ Maximum operating distance of 100 meters (328 feet). Refer to Table 4 for cable requirements.

❐ IEEE 802.3u. Auto-Negotiation that automatically sets speeds and duplex modes. You can manually adjust the ports with the optional management module.

❐ Auto-MDI/MDI-X that automatically adjusts the wiring configurations to MDI or MDI-X, depending on the wiring configuration of the local devices. This allows you to use straight-through UTP Ethernet copper cable regardless of the wiring configuration of the ports on network devices.

Auto-MDI/MDI-X does not require Auto-Negotiation. Ports support Auto-MDI/MDI-X even when Auto-Negotiation is disabled.

Copper Cable

The minimum copper cable requirements for the ports are listed in Table 4.

Table 4. Copper Cable Requirements for the MCF3010T/4SP Module

Speed	Distance	Cable
10Mbps	100 meters (328 feet)	Standard TIA/EIA 568-B unshielded Category 3 cabling or better.

Table 4. Copper Cable Requirements for the MCF3010T/4SP Module

Speed	Distance	Cable
100/1000Mbps	100 meters (328 feet)	Standard TIA/EIA 568-A/B unshielded Enhanced Category 5 (Cat 5e) cabling or better.
10Gbps	55 meters (189 feet)	Standard ANSI/TIA 568 unshielded Category 6 cable or better.
	100 meters (328 feet)	Standard ANSI/TIA 568-2-D unshielded Category 6a cable or better.

Fiber Optic Port Transceivers

The fiber optic ports on the MCF3010T/4SP module have the following properties:

❏ Support 1000Mbps and 10Gbps fiber optic transceivers

❏ Full-duplex mode only.

Note
The ports do not support 10/100Mbps transceivers.

MissingLink Mode

The MissingLink mode is a feature of the copper and fiber optic ports in the channels on the media converter modules. It has two functions.

❐ It forces the two channel ports to always operate in the same link state. They can both be linked up to network devices or linked down. As explained in this section, this is to take advantage of network devices that can respond to changes in port link states by notifying you of network problems or possibly resolving them, autonomously.

❐ Another feature of the mode is that it flashes the port Link LEDs to assist you in identifying channels that do not have network connectivity.

The MissingLink mode makes it possible for the two ports of a channel to always operate in the same link state, They do this by sharing their "link" states with each other. A change to the state of a link on a port is automatically replicated on the other port. In this way, both channel ports, and the network devices connected to them, are made aware of changes to the link states on ports.

When the MissingLink mode detects that a channel port cannot establish a link to its network device or has lost its link, the module copies the loss on the other channel port by disabling its transmitter. This action is to notify the network device connected to the port that there is no link on the other channel port. To explain it another way, the MissingLink mode does not allow a channel port to establish or maintain a link to a network device unless its companion channel port also has a link to 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 channel ports can again forward traffic to each other from the network devices.

This fault notification is to take advantage of network devices, such as managed Ethernet switches, that can react to ports without links by performing specific actions. For example, they might send traps to network management stations, and so alert network administrators of the existing problems. Or, if the devices are running spanning tree protocols, they might seek redundant paths around disconnected links.

Here is an example. Assume that the two ports of a channel on a media converter module are connected to two Ethernet switches, one local and one remote. The fiber optic channel port is connected to remote Switch A, while the copper channel port is connected to local Switch B. If the fiber optic port cannot establish or loses its link to Switch A, the mode disables the transmitter on the copper port to signal Switch B of the lack of a 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.

In the example the initial loss occurred on the fiber optic port. But the operating mode operates the same if the initial loss of the link is on the copper port. Here, a loss of the link on the copper port causes the mode to disable the transmitter on the companion fiber optic port in the channel.

Another feature of the MissingLink mode relates to the port Link LEDs. It slowly flashes them to help you identify lost links. When a port in a channel cannot establish a link or loses its link to a network device, the mode slowly flashes the Link LED on the other channel port. This can be helpful in troubleshooting network problems because you can readily identify the channel port where network connection was initially lost.

Here is an example. If both channel ports have links to network devices when the copper port suddenly loses its link, the mode turns off the Link LED for the copper port and slowly flashes the Link LED on the fiber optic port. This signals that the loss of channel connectivity initially occurred on the copper port.

The feature works the same if the fiber optic port is without a link. If the copper port in a channel has a link to a network device when the fiber optic port loses its link, the mode slowly flashes the Link LED on the copper port to signal that the loss of channel connectivity initially occurred on the fiber optic port.

Guidelines

Here are the MissingLink guidelines:

❒ The default MissingLink setting is enabled.

❒ Disabling the MissingLink mode requires the MCF3000M management module.

❒ You can enable or disable the MissingLink mode on the individual media converter channels.

❒ The mode does not block or interfere with the flow of traffic between the ports of a channel during normal network operations.

❒ When the MissingLink mode is disabled on a channel, the Link LEDs reflect the link states of the ports. They are on when ports are linked to network devices and off when they are not linked.

MCF3000M Management Module

Figure 4 illustrates the front panel of the MCF3000M management module.
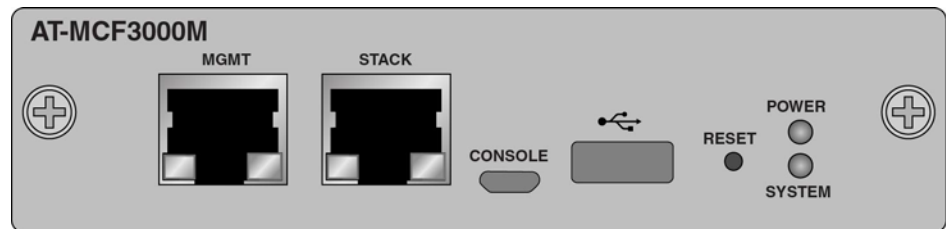
Figure 4. Front Panel of the MCF3000M Management Module

The front panel components are briefly described here:

❒ MGMT port - Use this copper 10/100/1000Mbps Ethernet port to connect the management module to your network. The management module uses the port to communicate with your network for selected management functions, such as performing remote Telnet or web browser management sessions or obtaining the date and time from an NTP server.

Note
The management module cannot communicate with your network through the ports and channels on the media converter modules.

❒ STACK port - Reserved for future development.

❒ CONSOLE port - This micro-USB port is used for local management of the chassis with the command line interface. The management module does not require an IP address for local management.

❒ Reset button - Use this button to return all system parameters to their default settings.

❒ USB host port - Use this port to store or transfer firmware files on USB storage devices.

❒ Power and System LEDs - Use the LEDs to view chassis status information.

Refer to the *MCF3000 Series Installation Guide* for more information on the hardware components.

Power Supplies

The power supplies for the chassis are the MCF3300AC and MCF3300DC modules. Refer to Figure 5.
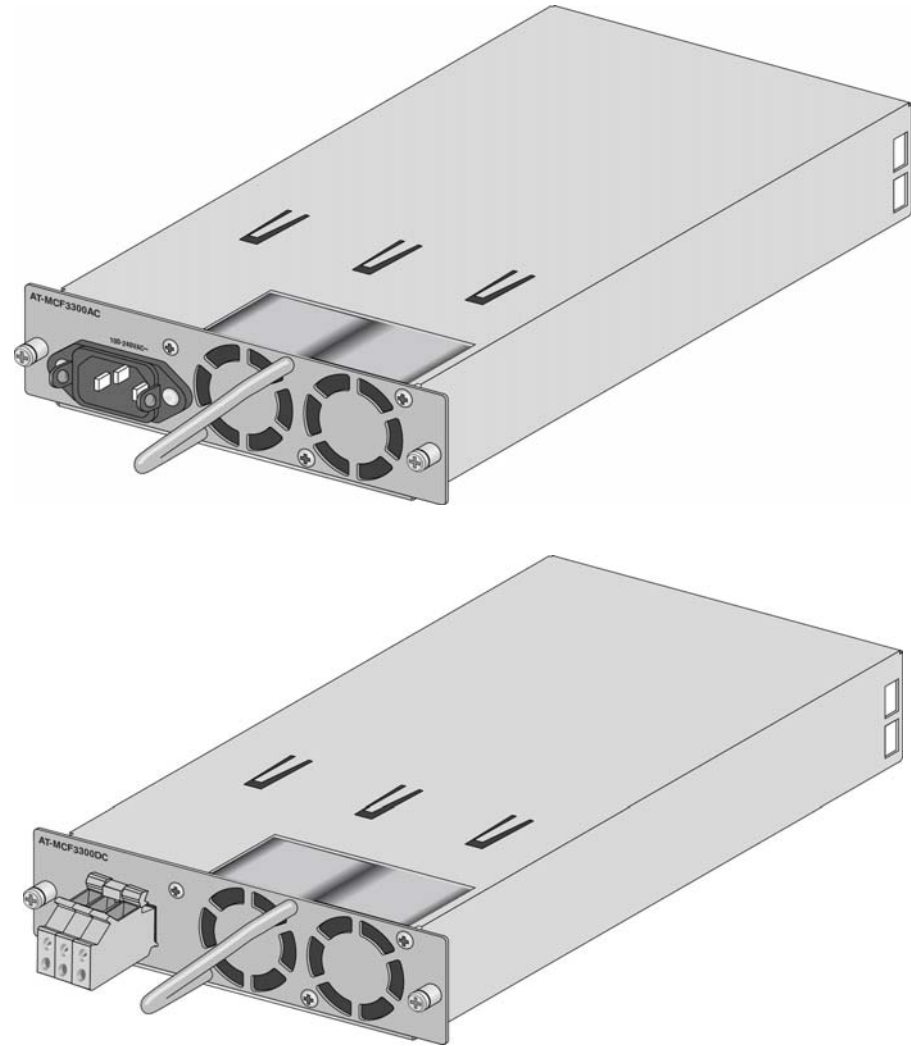
Figure 5. MCF3300AC and MCF3300DC Power Supplies

Power supplies are installed in the two slots on the rear panel. Refer to Figure 1 on page 20. You can power the media converter with one or two power supply modules. A single power supply module can power a full chassis with three media converter modules. Adding a second power supply adds power redundancy. The power specifications are found in the *MCF3000 Media Converter Installation Guide*.

Note
Power supplies are ordered separately.

Chapter 2
Getting Started

This chapter contains the following sections:

Management Interfaces

The MCF3000M management module has two management interfaces:

❑ Command line interface

❑ Web browser interface

Command Line Interface

This interface consists of a series of commands. You enter the commands at a command prompt to adjust or display the parameter settings of the management and media converter modules. This management interface is supported as follows:

❑ Micro-USB CONSOLE port. You can access the command line interface by connecting a computer with a terminal emulator program to the CONSOLE port on the management module, with the micro-USB management cable included with the module. The CONSOLE port is not a networking port, but rather a serial port to the processor on the module, hence the need for the terminal emulator. The management module does not need an IP address configuration for this type of management.

❑ Remote Telnet or Secure Shell (SSH): You can also use the command line interface over your network from your workstation, with the Telnet or SSH protocol. This requires connecting the MGMT port on the management module to a device on your network, such as an Ethernet switch or router. Remote management sessions have to be conducted through the MGMT port.

The command line interface is explained in this guide.

Web Browser Interface

This interface consists of a series of web browser windows for viewing and adjusting the parameter settings of the device. The web browser interface is accessed remotely over your network from your workstation, through the MGMT port on the management module. The web browser interface is not supported on the CONSOLE port. For instructions, refer to the *MCF3000 Media Converter Web Browser Interface User Guide*.

Manager and User1 Accounts

The MCF3000M management module has two on-board accounts:

❐ Manager: You can use this account to view and change all the parameter settings in the media converter modules and management module. The login name is "manager" and the default password is "friend".

❐ User1: This account lets you view, but not change the parameter settings. You can also view traffic statistics. The login name is "user1" and the default password is "user1".

You cannot add more on-board accounts or change the user names. But you can change their passwords, as explained in "Changing the Passwords to the On-Board Manager and User1 Accounts" on page 66.

Starting a Local Management Session

This section contains the procedure for starting a local management session on the MCF3000M management module using the micro-USB Console port and the provided management cable. For instructions on remote command line interface sessions, refer to "Starting a Remote Secure Shell or Telnet Management Session" on page 39.

Note
Local management of the management module requires the CP210x USB to UART Bridge Virtual COM Port (VCP) driver from Silicon Labs. You have to install the driver on your management workstation or laptop computer. The driver is not available from Allied Telesis.

Note
For instructions on how to start a remote web browser session, refer to the *MCF3000 Series Web Browser Interface User Guide*.

To start a local management session on the MCF3000M management module:

1. Connect the micro-USB connector on the management cable to the CONSOLE port on the management module. Refer to Figure 6.
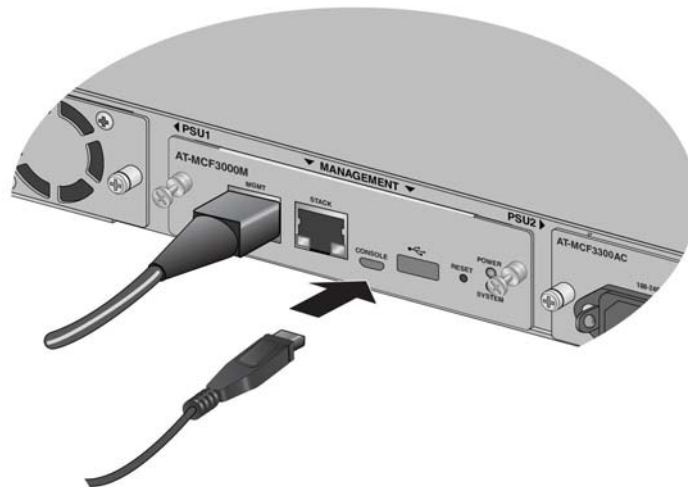
Figure 6. Connecting the Management Cable to the CONSOLE Port

2. Connect the USB Type A connector on the management cable to a USB port on your computer. Refer to Figure 7.
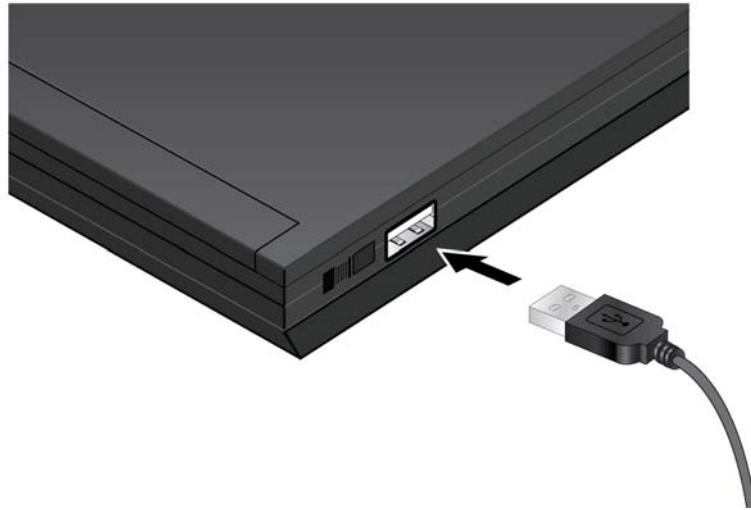
Figure 7. Connecting the USB Cable to Your Computer

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

❐   Baud rate: 115200 bps (The baud rate of the RS-232 Terminal port is adjustable from 9600 to 115200 bps. The default is 115200 bps.)

❐   Data bits: 8

❐   Parity: None

❐   Stop bits: 1

❐   Flow control: None

The terminal emulator also needs to know the COM number of the Silicon Labs driver. If your program does not automatically display COM numbers and you are using Microsoft Windows, open the Device Manager and display Ports (COM & LPT) to view the numbers.

Note

The port settings are for a DEC VT100 or ANSI terminal, or an equivalent terminal emulator program.

Note

If you reset or power cycle the chassis during a local management session and press any key while the system is initializing its operating system, the management module might not complete the initialization process and instead display the "MCF3000>" prompt without the login prompt. If this happens, type "boot" to instruct the management module to perform the initialization process again.

---

4. Press Enter.

    The management module displays:

    ```
    Welcome...
    MCF3000 login:
    ```

5. Enter the user name of a manager account. The module comes with two on-board accounts. The login names are "manager" and "user1". The manager account lets you view and change all system parameters, as well as view traffic statistics. The user1 account is only used to view the parameter settings and traffic statistics.

    After you enter the user name, the management module displays:

    ```
    Password:
    ```

6. Enter the password of the manager account you are using. The "manager" account has the default password "friend". The "user1" account has the default password "user1".

    The management session starts and the command line interface prompt is displayed:

    ```
    You are logged in as manager:
    MCF3000>>
    ```

7. To display a list of commands, press the Return key.

8. If this is the first management session, go to "What to Configure First" on page 44.

9. To end a management session, enter **quit**.

    > **Note**
    > To protect the security of the media converter, you should always log out after completing your management sessions.

Starting a Remote Secure Shell or Telnet Management Session

You can manage the media converter over your network from your management workstation, with the Secure Shell (SSH) or Telnet protocol. Here are the guidelines:

❏ Your computer must have a SSH or Telnet client. The clients are not available from Allied Telesis.

❏ The MCF3000M management module must have an IP address. Refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48 or "Assigning a Static IP Address to the MCF3000M Management Module" on page 50.

❏ The module comes with the default IP address 192.168.1.1.

❏ The management module has a DHCP client for networks that use DHCP servers to assign IP addresses to their network devices. The default setting for the client is disabled.

❏ The MGMT port on the management module has to be connected to a device on your network, such as a Fast Ethernet or Gigabit Ethernet switch. Remote management sessions with the management module are conducted through this port.

❏ Your workstation has to be a member of the same network as the management module or have access to it through Layer 3 routing devices.

❏ If your remote workstation and the management module reside on different networks, the IP address on the management module has to include a default gateway address. It specifies the IP address of the routing interface of the first hop to reaching your workstation.

Note
The Telnet protocol is not recommended for remote management of the media converter because its management sessions are conducted in "clear text," leaving them vulnerable to snooping. The SSH protocol is the recommended protocol for remote management with the command line interface. It uses encryption to protect communications against snooping.

Perform these additional steps before starting a SSH or Telnet management session if the management module is still using its default IP address 192.168.1.1:

1. Change the IP address of your computer to 192.168.1.*n*, where "*n*" is a value between 2 and 254.

2. Set the subnet mask on your computer to 255.255.255.0.

3. Connect the MGMT port on the management module to a network device, such as a router or Ethernet switch. Alternatively, connect a network cable to the MGMT port and network port on your computer.

   Note
   If your network has virtual LANs (VLANs), connect the LAN port on your computer and the MGMT port on the management module to ports on an Ethernet switch that are members of the same VLAN.

To start a remote SSH or Telnet management session:

1. Start your SSH or Telnet client.

2. Enter the IP address of the management card in the client. The module comes with the default IP address 192.168.1.1. Your SSH or Telnet client displays:

   ```
   Welcome...
   MCF3000 login:
   ```

3. Enter the user name of a manager account. The module comes with two on-board manager accounts. The login names are "manager" and "user1". The manager account lets you view and change all system parameters, as well as view traffic statistics. The user1 account can only be used to view the parameter settings and traffic statistics. Refer to "Manager and User1 Accounts" on page 35.

   After you enter the user name, the management module displays:

   ```
   Password:
   ```

4. Enter the appropriate password for the manager account. The "manager" account has the default password "friend". The "user1" account has the default password "user1".

   The management session starts and the command line interface prompt is displayed:

   ```
   MCF3000>>
   ```

5. If this is the first management session, go to "What to Configure First" on page 44.

6. To end a management session, enter **quit**.

   Note
   To protect the security of the media converter, you should always log out after completing your management sessions.

Saving and Activating Your Configuration Changes

The configuration settings of the management and media converter modules in the chassis are stored in a configuration file on the MCF3000M management module. You can download this file to your computer to maintain a history of the configuration settings of the device, or restore settings by uploading it to the same device or replacement media converters. Refer to "Saving Backup Configuration Files from the MCF3000M Management Module" on page 98 and "Restoring Backup Configuration Files to the MCF3000M Management Module" on page 100.

The changes that you make to the parameter settings of the device with the commands in the command line interface are saved in the configuration file as soon as you enter the commands. This differs from the web browser interface, where you have to click the Save button in the management windows to save your changes.

In most cases, your changes are immediately implemented on the ports, channels, or modules. However, there are some parameters that require booting the chassis. For those parameters, the management module activates your changes only after you boot the device. An example is setting the IP address of the management module. The instructions in this guide indicate when booting the device is required to activate a new parameter setting.

Quitting a Management Session

To end a management session, enter QUIT at the command prompt. You should always log off from a management session when you are finished managing the media converter. This will protect the device from unauthorized individuals using your computer to make changes to its configuration.

Command Line Interface Features

The command line interface supports the following features:

❐ Command history - You can scroll through a history of your commands with the up and down arrow keys.

❐ Context-specific help - Enter HELP or press Return to display a list of the command keywords.

❐ Command completion with the Tab key - Some commands can be recognized by entering an unambiguous prefix and pressing the Tab key, for example, "CO" for CONFIGURE.

The following formatting conventions are used in this manual:

❐ screen text font - This font is used in command examples.

❐ *screen text font* - Italicized screen text indicates a variable for you to enter.

❐ | - Vertical line separates parameter options that you can choose from.

❐ [ ] - Brackets indicate optional parameters.

To view help messages about the NETWORK, PORT, and SWUPDATE commands, enter:

MCF3000>>**configure network**

MCF3000>>**configure port**

MCF3000>>**configure linecard swupdate**

What to Configure First

Here are suggestions on what to configure during the first management session:

1. To verify the operations of the power supplies, use the SHOW SYSTEM command, explained in "Displaying System Information" on page 56.

2. To verify the status of the media converter modules, use the SHOW LINECARD command, explained in "Displaying the Names and States of Media Converter Modules" on page 78.

3. To change the on-board manager and user1 passwords, refer to "Changing the Passwords to the On-Board Manager and User1 Accounts" on page 66.

4. To set the date and time, refer to "Manually Setting the Date and Time" on page 60 or "Setting the Date and Time with Network Time Protocol Servers" on page 62.

5. To change the IP address of the management module, refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48 or "Assigning a Static IP Address to the MCF3000M Management Module" on page 50.

6. To verify the status of the links on the individual ports on the media converter modules, refer to "Displaying Port Settings" on page 86.

Clearing the Screen

If your screen becomes cluttered with commands, you can start fresh by clearing the screen with the CLS command:

MCF3000>>cls

Chapter 3
IP Address Management

This chapter contains the following sections:

Overview to IP Address Configuration

You can assign an IPv4 address and support values, such as subnet mask and default gateway, to the MCF3000M management module. The IP address configuration can be assigned manually or with a DHCP server on your network. The management module has to have an IP address to support the following features:

❒ HTTP - Lets you remotely manage the media converter with a web browser.

❒ Network Time Protocol (NTP) client - Lets the module set its date and time from an NTP server on your network or the Internet.

❒ Secure Shell (SSH) server - Lets you remotely manage the media converter using SSH.

❒ Telnet server - Lets you remotely manage the media converter using a Telnet client.

Here are the default values:

❒ Host name: MCF3000

❒ IP address: 192.168.1.1

❒ Broadcast address: 192.168.1.255

❒ Subnet mask: 255.255.255.0

❒ Gateway address: 192.168.1.1

❒ IP address of Domain Name System Server: 8.8.8.8

❒ Broadcast address: 192.168.1.255

Here are the IP address guidelines:

❒ To view the current IP address of the management module, use the SHOW NETWORK command. Refer to "Displaying the IP Address Configuration of the MCF3000M Management Module" on page 47.

❒ The MGMT port on the management module has to be connected to a network device, such as a router or switch. All communications between the management module and the network are conducted through this port. The management module cannot communicate with the network through the channel ports on the media converter modules.

❒ The management module can have only one IPv4 address.

❒ You can assign the address manually or with a DHCP server.

❒ The media converter modules do not use the address.

Displaying the IP Address Configuration of the MCF3000M Management Module

To view the current IPv4 address of the management module, use the SHOW NETWORK command, shown here:

```
MCF3000>>show network
Host name:      MCF3000
DHCP            disabled
IP Address:     192.168.1.1
Broadcast:      192.168.1.255
Subnet Mask:    255.255.255.0
Gateway:        192.168.1.1
DNS:            8.8.8.8
```

To assign the IP address from a DHCP server, refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48. To assign the address manually, refer to "Assigning a Static IP Address to the MCF3000M Management Module" on page 50.

> **Note**
> The management module displays the error message "Failed to get network connection information" if its DHCP client is enabled, but there is no response from a DHCP server. To resolve the problem, verify that the DHCP server is operating correctly and then restart the client with the CONFIGURE NETWORK RESTART DHCP command. Or, disable the DHCP client as explained in "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48 and assign the address manually, as explained in "Assigning a Static IP Address to the MCF3000M Management Module" on page 50,

Assigning a Dynamic IP Address to the MCF3000M Management Module

Many networks use Dynamic Host Control Protocol (DHCP) servers to assign IP addresses to network devices. If this is true for your network, then you might want the MCF3000M management module to receive its IP address from the server, as well. This is accomplished with its DHCP client. When the client is enabled, the management module queries your network for its IP address assignment from a DHCP server, whenever it is powered on or rebooted.

Here are the guidelines to using the DHCP client on the management module:

❐ The default setting for the client is disabled. To view the current state of the client or the IP address of the management module, use the SHOW NETWORK command. Refer to "Displaying the IP Address Configuration of the MCF3000M Management Module" on page 47.

❐ The MGMT port on the management module has to be connected to a network device, such as an Ethernet switch or router. The module queries your network on this port for the DHCP server whenever it is powered on or booted.

❐ The management module can have only one IP address.

❐ The IP address has to be IPv4 format. (The module does not support IPv6 addresses.)

❐ To learn the MAC address of the management module to enter on the DHCP server, refer to "Displaying System Information" on page 56.

❐ The management module uses the IP address to perform management functions on the MGMT port, such as communicating with NTP servers and supporting remote web, Telnet, and SSH management sessions.

❐ The media converter modules do not use the IP address.

❐ Enabling or disabling the client requires booting the management and media converter modules. This will interrupt your management session and the network operations of the modules.

❐ The DHCP client issues two requests to the DHCP server. If there is no response, the management module operates without an IP address. If this happens, verify that the management module has a network pathway from its MGMT port to the server and then restart the client with the CONFIGURE NETWORK RESTART DHCP command.

❐ If the management module has a static IP address and you enable the DHCP client, the address from the DHCP server overwrites the static address.

Enabling or Disabling the DHCP Client

The command for enabling or disabling the DHCP client is the CONFIGURE NETWORK DHCP command, shown here:

```
configure network dhcp 0|1
```

The parameters are defined here:

❐ 0 - Disables the DHCP client. This is the default setting.

❐ 1 - Enables the DHCP client.

This example enables the client:

MCF3000>>**configure network dhcp 1**

The management module shows the change to the status of the DHCP client by performing the SHOW NETWORK command.

This example disables the client:

MCF3000>>**configure network dhcp 0**

To activate your change now, reboot the system with the REBOOT SYSTEM command, explained in "Booting the Media Converter Chassis" on page 72. If you enabled the DHCP client, the management module does not query the network for the server and its IP address assignment until you reboot the system.

Restarting the DHCP Client

If the DHCP client does not receive a response from a DHCP server to its queries for an IP address assignment,.the management module operates without an IP address. If, after resolving the problem that prevented the client from receiving an address, you want the client to retry contacting the server, you have two choices. One is to boot the management module, which can be disruptive to network operations. Another is to issue the CONFIGURE NETWORK RESTART DHCP command. The command has the client reissue its queries to the DHCP server for an IP address assignment.

MCF3000>>**configure network restart dhcp**

If there is again no response from the server, the management module continues to operate without an IP address.

Assigning a Static IP Address to the MCF3000M Management Module

This section contains the commands for assigning a static IP address to the management module. You might assign the module a static address if your network does not have a DHCP server or to give it a temporary address during installation. Review "Overview to IP Address Configuration" on page 46 before using these commands. Here are the guidelines:

❑ The management module can have only one IP address.

❑ The address has to be IPv4 format.

❑ The management module uses the IP address to perform management functions on the MGMT port, such as remote web browser, Telnet, and SSH management.

❑ The media converter modules do not use the IP address.

❑ The DHCP client has to be disabled, its default setting, for you to assign a static address to the module. To view the current state of the DHCP client, use the SHOW NETWORK command in "Displaying the IP Address Configuration of the MCF3000M Management Module" on page 47. To disable the client, refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48.

❑ If you are remotely managing the management module with Telnet or SSH, changing its IP address will interrupt your session. To resume managing the device, start a new management session using the new IP address.

❑ Changing the IP address configuration requires booting the management and media converter modules. This will interrupt your management session and the network operations of the modules. Refer to "Booting the Media Converter Chassis" on page 72.

Here are the procedures for assigning a static IP address to the MCF3000M management module:

❑ "Adding a Static IP Address" on page 51

❑ "Adding a Broadcast Address" on page 51

❑ "Adding a Subnet Mask" on page 52

❑ "Adding the IP Address of a Default Gateway" on page 52

❑ "Adding the IP Address of a Domain Name System Server" on page 53

Adding a Static IP Address

Here is the command for adding a static IP address:

`configure network ipaddress` *ipaddress*

The parameter is defined here:

- ❏ *ipaddress* - Specifies the static IP address for the management module.

Here are the guidelines:

- ❏ The default address is 192.168.1.1.
- ❏ The address has to be IPv4.
- ❏ The IP address has to be entered in this format: xxx.xxx.xxx.xxx.
- ❏ To delete the current static address without assigning a new address, enter 0.0.0.0.
- ❏ The management module can have only one IP address.

This example assigns the IP address 10.43.101.32 to the MCF3000M management module:

MCF3000>>`configure network ipaddress 10.43.101.32`

This example removes the current address without assigning a new value:

MCF3000>>`configure network ipaddress 0.0.0.0`

Adding a Broadcast Address

The command for assigning a broadcast address to the management module is CONFIGURE NETWORK BROADCAST. Here is its format:

`configure network broadcast` *ipaddress*

The parameter is defined here:

- ❏ *ipaddress* - Specifies the broadcast address.

Here are the guidelines:

- ❏ The management module can have only one broadcast address.
- ❏ The address has to be entered in this IPv4 format: xxx.xxx.xxx.xxx.
- ❏ To delete the current broadcast address without assigning a new value, enter 0.0.0.0.
- ❏ The default is 192.168.1.255.

This example assigns the broadcast address 145.11.45.255 to the management module:

MCF3000>>`configure network broadcast 145.11.45.255`

This example removes the current address without assigning a new value:

MCF3000>>`configure network broadcast 0.0.0.0`

Adding a Subnet Mask

This command assigns the subnet mask:

`configure network netmask` *subnet_mask*

The parameter is defined here:

❑ *subnet_mask* - Specifies the subnet mask for the IP address.

Here are the guidelines:

❑ The IP address can have only one subnet mask.
❑ The mask has to be entered in this format: xxx.xxx.xxx.xxx.
❑ To delete the current mask without assigning a new value, enter 0.0.0.0.
❑ The default is 255.255.255.0.

This example assigns the mask 255.255.0.0 to the management module:

MCF3000>>`configure network netmask 255.255.0.0`

This example removes the current subnet mask without assigning a new mask:

MCF3000>>`configure network netmask 0.0.0.0`

Adding the IP Address of a Default Gateway

The default gateway defines the IP address of an interface on a router or other Layer 3 routing device that represents the first hop to reaching the subnets or networks where management devices, such as management workstations or NTP servers, reside. The command for setting the default gateway is shown here:

`configure network gateway` *ipaddress*

The parameter is defined here:

❑ *ipaddress* - Specifies the IP address of the default gateway.

Here are the guidelines:

❑ The default gateway address is 192.168.1.1.
❑ The management module can have only one gateway address.
❑ The IP address has to be entered in this format: xxx.xxx.xxx.xxx.
❑ The network portion of the address has to be the same as the network portion of the IP address of the management module.

❏ To delete the current address without assigning a new value, enter 0.0.0.0.

❏ The management module uses the gateway to communicate with management devices, such as Telnet management stations or NTP servers, that reside on different networks other than its own.

This example defines the IP address of the default gateway as 10.43.101.78:

MCF3000>>**configure network gateway 10.43.101.78**

To delete the current gateway without assigning a new value, enter 0.0.0.0, as shown here:

MCF3000>>**configure network gateway 0.0.0.0**

Adding the IP Address of a Domain Name System Server

This section explains the CONFIGURE NETWORK DNS command for adding the IP address of a domain name system (DNS) server to the management module. Here is the format.

configure network dns *ipaddress*

The parameter is defined here:

❏ *ipaddress* - Specifies the IP address of the DNS server.

Here are the guidelines:

❏ The default address is 8.8.8.8.

❏ The management module can have only one IP address of a DNS server.

❏ The IP address has to be entered in this format: xxx.xxx.xxx.xxx.

❏ The address has to be IPv4.

❏ To delete the current address without assigning a new value, enter 0.0.0.0.

Adding the IP address of a DNS server is optional.

This example adds the IP address 10.32.101.21 as the DNS server:

MCF3000>>**configure network dns 10.32.101.21**

This example removes the current IP address without adding a new address:

MCF3000>>**configure network dns 0.0.0.0**

Chapter 4

Basic Management

This chapter contains the following procedures:

Displaying System Information

You can display the following basic information about the media converter with the SHOW SYSTEM command:

❒ System Information: Displays the serial number and MAC address of the MCF3000M management module, the current and running time, and the ambient temperature of the media converter.

❒ Power Supplies: Displays the operating status of the power supplies.

❒ Network Statistics: Displays traffic statistics on the MGMT port on the management module. To view the port statistics for the media converter modules, refer to "Displaying Port Statistics" on page 92.

Here is the command:

MCF3000>>**show system**

There are no variables. Here is an example of the output:

```
Host Name:              MCF3000
Serial Number:          A0193982017R912 A1
MAC Address:            3A:A0:DF:54:A2:34
System Uptime:          54:32:11
System Time:            April 11th 2021 10:23:02 am
System Temp:            28.0°C
Power Supply #1:        Present
        FAN #1:         9174 RPM
        FAN #2:         8854 RPM
        Voltage:        12.05 V
        Current:        1823 mA
Power Supply #2:        Present
        FAN #1:         8967 RPM
        FAN #2:         8869 RPM
        Voltage:        12.05 V
        Current:        1820 mA
Network statistics:
        Bytes Rx:       936543
        Bytes Tx:       926482
        Packets Rx:     6987
        Packets Tx:     8902
        RX Discards:    0
        TX Discards:    0
        RX Errors:      0
        TX Errors:      0
```

The fields are described in Table 5.

Table 5. System Information

Field	Description
Host Name	Displays the host name of the management module. Refer to "Changing the Host Name" on page 70.
Serial Number	Displays the serial number of the MCF3000M management card.
Mac Address	Displays the MAC address of the MCF3000M management card.
System Uptime	Displays the hours, minutes, and seconds that the management card has been operating since it was last powered on or reset.
System Time	Displays the date and time of the management card. Refer to "Manually Setting the Date and Time" on page 60 or "Setting the Date and Time with Network Time Protocol Servers" on page 62.
System Temp	Displays the internal temperature of the chassis.
Power Supply #1/ #2	Displays whether the chassis slot contains a power supply. The states are listed here: - Present: The slot contains a power supply. (This does not indicate whether the power supply is on or off.) - Not Present: The slot does not contain a power supply.
Fan #1/#2	Displays fan speed.
Voltage	Displays the output voltage from the power supply to the media converter chassis.
Current	Displays the output current from the power supply to the media converter chassis.
Bytes Rx	Displays the number of bytes received on the MGMT port on the management module.
Bytes Tx	Displays the number of bytes transmitted on the MGMT port.
Packets Rx	Displays the number of packets received on the MGMT port.

Table 5. System Information (Continued)

Field	Description
Packets Tx	Displays the number of packets transmitted from the MGMT port on the management module.
Rx Discards	Displays the number of packets that were discarded from ingress queues on the MGMT port because of errors or insufficient memory resources.
Tx Discards	Displays the number of packets with errors that were discarded from egress queues on the MGMT port before transmission.
Rx Errors	Displays the number of packets with errors that could not be forwarded from the MGMT port to higher-layer protocols.
Tx Errors	Displays the number of packets with errors that could not be transmitted from the MGMT port.

Displaying the Date and Time

The command for displaying the date and time on the management module, and the status of the NTP client, is the SHOW DATE command:

```
MCF3000>>show date
Current system time: April 10, 2021, 10:10:37 am
Time Zone: US/Pacific
Use NTP disabled
Server 1: 0.pool.ntp.org
Server 2: 1.pool.ntp.org
Server 3: 2.pool.ntp.org
Server 4: 3.pool.ntp.org
```

To set the date and time, refer to "Manually Setting the Date and Time" on page 60 or "Setting the Date and Time with Network Time Protocol Servers" on page 62.

Manually Setting the Date and Time

This section contains the commands for manually setting the date and time on the management module. The module adds the date and time to event messages in the event log. To set the date and time from NTP servers, refer to "Setting the Date and Time with Network Time Protocol Servers" on page 62.

> **Note**
> Activating your changes to the date and time require booting the management module. Refer to "Booting the Media Converter Chassis" on page 72.

The first step to manually setting the date and time of the management module is to use the CONFIGURE TIMEZONE command to specify the time zone of the physical location of the media converter. The client uses the time zone to determine whether the location observes daylight savings and when daylight savings time starts and ends. Here is the command format:

```
configure timezone number
```

The parameter is defined here:

❐ *number* - Specifies the time zone reference number, displayed with the SHOW TIMEZONES command. You can enter only one time zone.

This example displays the time zone reference numbers:

```
MCF3000>>show timezones
0 - Africa/Abidjan
1 - Africa/Accra
2 - Africa/Addis Ababa
3 - Africa/Algiers
4 - Africa/Asmara
5 - Africa/Asmera
.
.
```

This example sets the time zone to number 585 for US/Pacific:

```
MCF3000>>configure timezone 585
```

After setting the time zone, use the CONFIGURE DATE command to set the date and time, The command has this format:

configure date *mm-dd-yyyy hh:mm*

Here are the variables:

- ❐ *mm*: Specifies the month. The range is 1 (January) to 12 (December).
- ❐ *dd*: Specifies the day of the month.
- ❐ *yyyy*: Specifies the year. The year can be entered in two or four digits (e.g., 20, 21, etc.or 2020, 2021, etc.).
- ❐ *hh:mm*: Specifies the hours and minutes in 24-hour format. (You cannot specify seconds.)

The command has to include both the date and time.

To confirm your change, use the SHOW DATE command.

This example sets the date and time to November 4, 2021, 4:11 pm:

MCF3000>>**configure date 11-4-21 16:11**
Date/time successfully set.

This example sets the date and time to May 11, 2021, 7:05 am:

MCF3000>>**configure date 5-11-21 7:5**
Date/time successfully set.

Setting the Date and Time with Network Time Protocol Servers

The MCF3000M management module has a Network Time Protocol (NTP) client. It enables the module to automatically obtain the date and time from NTP servers on your network or the Internet. Here are the client guidelines:

❒ You can enter up to four NTP servers.

❒ You can specify the servers by their IP addresses or host names.

❒ The management module polls the servers when powered on or booted.

❒ The management module polls one server at a time. If there is no response, it polls the next server in the list.

❒ The management module has to have an IP address. For instructions, refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48 or "Assigning a Static IP Address to the MCF3000M Management Module" on page 50.

❒ The MGMT management port has to be connected to a network device, such as a Fast Ethernet or Gigabit switch. The management module communicates with the NTP servers through this port.

❒ The NTP servers have to be members of the same network as the management module or have access to it through Layer 3 routing devices.

❒ If the management module and NTP servers are on different networks, the IP address configuration on the management module has to include a default gateway specifying the IP address of the first hop to reaching the servers.

Note
You have to boot the management module to implement changes to the NTP client. Refer to "Booting the Media Converter Chassis" on page 72.

The procedures for configuring the NTP client are listed here:

❒ "Displaying the NTP Servers" on page 63

❒ "Adding the Time Zone" on page 63

❒ "Adding NTP Servers" on page 64

❒ "Enabling or Disabling the NTP Client" on page 65..

To view the current date and time on the management module, or the IP addresses of the NTP servers, use the SHOW DATE command. Refer to "Displaying the Date and Time" on page 59.

Displaying the NTP Client Status

There are two commands for displaying the status of the NTP client. One is the SHOW DATE command. It displays both the status of the client as well as the IP addresses of the NTP servers. Refer to "Displaying the Date and Time" on page 59. The other is the SHOW NTP command, which displays only the client's status:

```
MCF3000>>show ntp
NTP is disabled.
```

To view the IP addresses of the servers, use the SHOW NTP SERVERS command in "Displaying the NTP Servers" on page 63 or the SHOW DATE command in "Displaying the Date and Time" on page 59.

Displaying the NTP Servers

There are two commands for displaying the addresses of the NTP servers in the client. One command is the SHOW DATE command, explained in "Displaying the Date and Time" on page 59. The other is the SHOW NTP SERVERS command, shown here:

```
MCF3000>>show ntp servers
Server 1: 0.pool.ntp.org
Server 2: 1.pool.ntp.org
Server 3: 2.pool.ntp.org
Server 4: 3.pool.ntp.org
```

Adding the Time Zone

Before enabling the NTP client, you need to specify the time zone of the physical location of the media converter. This is performed with the CONFIGURE TIMEZONE command. The client uses the time zone to determine whether the location observes daylight savings and when daylight savings time starts and ends. Here is the command format:

```
configure timezone number
```

The parameter is defined here:

❒ *number* - Specifies the time zone reference number, displayed with the SHOW TIMEZONES command.

```
MCF3000>>show timezones
0 - Africa/Abidjan
1 - Africa/Accra
2 - Africa/Addis_Ababa
3 - Africa/Algiers
4 - Africa/Asmara
5 - Africa/Asmera
.
.
```

This example sets the time zone to number 585 for US/Pacific:

MCF3000>>**configure timezone 585**

> **Note**
> Changes to the NTP client are activated the next time you boot the media converter. To activate the changes now, go to "Booting the Media Converter Chassis" on page 72.

Adding NTP Servers

The command for adding IP addresses or host names of NTP servers to the management module is the CONFIGURE NTP SERVERS command. You can add up to four servers. Here is its format:

configure ntp servers 1|2|3|4 *ipaddress|hostname*

You can add only one NTP server at a time. Here are the parameters:

❑ 1|2|3|4 - Specifies the order number of the server IP addresses. Number 1 is the highest priority and 4 the lowest. The management module queries the servers one at a time, starting with 1, whenever the media converter is booted or powered on.

❑ *ipaddress|hostname* - Specifies an NTP server by its IP address or host name.

To view the current addresses, use the SHOW DATE or SHOW NTP SERVERS command. Refer to "Displaying the Date and Time" on page 59 or "Displaying the NTP Servers" on page 63.

This example adds 10.77.122.54 as the IP address of an NTP server, assigning it order number 1:

MCF3000>>**configure ntp servers 1 10.77.122.54**

This example adds an NTP server by its host name clock12.abc.org, assigning it order number 2:

MCF3000>>**configure ntp servers 2 clock12.abc.org**

This example removes the NTP server from order number 3 without adding a new server:

MCF3000>>**configure ntp servers 3 0.0.0.0**

> **Note**
> Changes to the NTP client are activated the next time you boot the media converter. To activate the changes now, go to "Booting the Media Converter Chassis" on page 72.

Enabling or Disabling the NTP Client

The default setting for the NTP client is disabled. To enable it, use the CONFIGURE NTP command. Here is its format:

```
configure ntp 0|1
```

The parameters are defined here:

❒ 0 - Disables the NTP client. This is the default setting.

❒ 1 - Enables the NTP client.

This example enables the client:

MCF3000>>**configure ntp 1**

This example disables it:

MCF3000>>**configure ntp 0**

Note
Your change to the NTP client status is activated the next time you boot the media converter. To activate your change now, go to "Booting the Media Converter Chassis" on page 72.

Changing the Passwords to the On-Board Manager and User1 Accounts

The MCF3000M management module has two on-board accounts:

❐ Manager: With this account you can view and change the parameter settings in the media converter, and display traffic statistics. The login name is "manager" and the default password is "friend".

❐ User1: With this account you can only view the settings and traffic statistics. You cannot change any settings. The login name is "user1" and the default password is "user1".

Note
You cannot add on-board accounts.

You cannot change the names of the on-board accounts, but you can change their passwords with the CONFIGURE PASSWORD command. Here is the format:

```
configure password password
```

Here is the variable:

❐ *password*: Use this parameter to specify the new password.

Here are the password guidelines:

❐ You can only change the password of your current account. For example, if you are logged in as manager, you can change that account's password. To change the user1 password, you have to log out as manager and log in as user1.

❐ An account can have only one password.

❐ A password can be up to 16 characters.

❐ Passwords are case sensitive.

❐ Special characters, such as asterisks, questions marks, and quotation marks, are permitted.

❐ Spaces and the percent character (%) are not allowed.

This example changes the password of the logged in account to "Clearsky67":

```
MCF3000>>configure password Clearsky67
Password successfully changed.
```

Displaying Your Current Management Account

If you happen to forget which management account you are currently using to access the management module, you can issue the SHOW USER command. It displays the name of the account you used to log in, which can be either "manager" or "user1." For more information, refer to "Manager and User1 Accounts" on page 35. Here is the command:

```
MCF3000>>show user
Current user: manager
```

Enabling or Disabling the Secure Shell Server

The management module has a Secure Shell server for remote management over your network with an SSH client and the command line interface. You can also remotely management the device with the Telnet protocol, but the SSH protocol is more secure. It uses encryption to protect management sessions from being snooped by network intruders. In contrast, Telnet sessions are performed in "clear text," leaving them vulnerable to snooping. Refer to "Starting a Remote Secure Shell or Telnet Management Session" on page 39.

To display the current status of the server, use the SHOW SSH command:

```
MCF3000>>show ssh
SSH enabled.
```

The SSH server on the management module can be enabled or disabled. The default is enabled. To configure the server, use the CONFIGURE SSH command. You should disable the server if you do not plan to use it to remotely manage the device. This can protect the device from unauthorized access. Here is the command format:

```
configure ssh 0|1
```

The variables are listed here:

❐ 0 – Disables the SSH server:

❐ 1 – Enables the SSH server: This is the default.

This example disables the server:

```
MCF3000>>configure ssh 0
SSH disabled.
```

This example enables the server:

```
MCF3000>>configure ssh 1
SSH enabled.
```

Note
Changing the status of the SSH server is activated the next time you boot the management module. To activate your change now, go to "Booting the Media Converter Chassis" on page 72.

Enabling or Disabling the Telnet Server

The management module has a Telnet server for remote management of the device over a network with a Telnet client. Allied Telesis does not recommend using the Telnet protocol to manage the media converter because it is not a secure communications tool. Telnet communications are sent in "clear text," leaving them vulnerable to snooping from network intruders. For remote management with the command line interface, Allied Telesis recommends the SSH protocol, which encrypts communications to protect against snooping. Refer to "Enabling or Disabling the Secure Shell Server" on page 68.

To display the current status of the server, use the SHOW TELNET command:

```
MCF3000>>show telnet
Telnet disabled.
```

The server can be enabled or disabled. The default is enabled. To configure the server, use the CONFIGURE TELNET command. You should disable the server if you do not plan to remotely manage the device with Telnet, to protect the device from unauthorized access. Here is the command format:

```
configure telnet 0|1
```

The variables are listed here:

❐ 0 – Disables the Telnet server:

❐ 1 – Enables the Telnet server: This is the default.

This example disables the server:

```
MCF3000>>configure telnet 0
Telnet disabled.
```

This example enables the server:

```
MCF3000>>configure telnet 1
Telnet enabled.
```

Note
Your change to the Telnet server is activated the next time you boot the chassis. To activate the change now, go to "Booting the Media Converter Chassis" on page 72.

Changing the Host Name

The MCF3000M management module has the default host name MCF3000. The host name is displayed in the login prompt and the SHOW NETWORK command. The module can have only one host name. The command for assigning the name is CONFIGURE NETWORK HOSTNAME. Here is the format:

`configure network hostname` *hostname*

The variable is described here:

❏ *hostname*: Specifies the new host name. The name can be from 1 to 15 alphanumeric characters. Special characters are allowed. Spaces and the percent character (%) are not allowed.

This example changes the host name to MCF3_bldg2:

`MCF3000>>`**`configure network hostname MCF3_bldg2`**

The management module confirms your change by performing the SHOW NETWORK command.

Viewing the Event Log

The management module maintains a log of the dates and times that managers log on as well as the accounts (i.e., manager or user1). To display the log, enter the SHOW SYSTEM LOG command.

MCF3000>>**show system log**

Booting the Media Converter Chassis

This section describes the REBOOT SYSTEM command. You use the command to boot the MCF3000M management module and media converter modules. You might boot the system to activate configuration changes or to apply the settings in the configuration file.

Warning
Booting the management and media converter modules is disruptive to network operations. The media converter modules stop forwarding traffic on their ports while they initialize their management software. ⌐ E132

Here is the command:

MCF3000>>`reboot system`

Caution
The command does not display a confirmation prompt. The management and media converter modules immediately begin reinitializing their firmware as soon as you enter the command.

Booting the system ends your management session. To continue managing the chassis, wait one minute for the modules to initialize their management software and then start a new management session.

Displaying Network Interface Troubleshooting Information

The IFCONFIG command is a network interface troubleshooting tool. You might be asked to perform the command and provide the output to Technical Support if you contact Allied Telesis for assistance. Here is an example of the output:

```
MCF3000>>ifconfig
Link encap:Ethernet HWaddr nn:nn:nn:nn:nn:nn
inet add:nnn:nnn:nnn:nnn Bcast:0.0.0.0
Mask:255.255.255.0
UP BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
```

Querying a Domain Name Server for Domain Names

The management module has a command for querying a domain name server for domain names of network devices or sites. The command is NSLOOKUP. Here is the format:

nslookup *ipaddress*

The variable is described here:

❒ *ipaddress*: Specifies the IPv4 address of a network device or web site. You can specify only one address.

> **Note**
> This command requires that the management module contain the IP address of a domain name server in its IP address configuration. Refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48 or "Assigning a Static IP Address to the MCF3000M Management Module" on page 50.

This example returns the domain name of the device or site with the IP address 14.87.109.87, from the domain name server:

nslookup 14.87.109.87

Pinging Network Devices

The TCP/IP PING command is used to test for physical network connections between the MGMT port on the management module and remote devices on your network. If the management module is experiencing a problem communicating with a network device, such as an NTP server, you can use the command to determine whether a valid network link exists between the module and the other device.

The command sends four TCP/IP ping requests and displays the results of the requests on your workstation. Here are the guidelines to using this command:

❒ The management module must have an IP configuration. For instructions, see Chapter 3, "IP Configuration Commands" on page 47.

❒ The MGMT port on the management module has to be connected to a device on your network, such as an Ethernet switch. The ping requests are transmitted from that port.

❒ The management module must be a member of the same subnet as the remote device or have access to the device's subnet through routers or other Layer 3 routing devices.

❒ If the management module and the remote device are members of different networks, the IP configuration on the module must include a default gateway address that specifies the IP address of the routing interface of the first hop to reaching the device. For instructions, refer to Chapter 3, "IP Configuration Commands" on page 47.

This example has the management module send four ping requests from the MGMT port to the network device with the IP address 192.12.55.77:

```
MCF3000>>ping 192.12.55.77
PING 192.12.55.77 (192.12.55.77): 56 data bytes

--- 192.12.55.77 ping statistics ---
4 packets transmitted, 4 packets received, 100% packets
received
```

Chapter 5
Media Converter Modules

This chapter contains the following sections:

❒ "Displaying the Names and States of Media Converter Modules" on page 78

❒ "Powering On or Off Media Converter Module Slots" on page 79

Displaying the Names and States of Media Converter Modules

This section describes the SHOW LINECARD command. The command displays the names of media converter slots in the chassis. It also displays the states of the slots, which can be enabled or disabled, as well as the firmware versions. As explained in "Powering On or Off Media Converter Module Slots" on page 79, you can stop media converter modules from forwarding network traffic by powering off their chassis slots.

Note
Names are applied to media converter module slots and not to the modules themselves. Names remain with the slots when you remove or replace modules.

Here is the format of the SHOW LINECARD command:

```
show linecard slot
```

Here is the variable:

❒ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2, and 3 from left to right. You can enter only one slot number.

This example displays the name, state, and software version numbers of the media converter module in slot 1:

```
MCF3000>>show linecard 1
Slot 1 name: Linecard1 status: enabled
Bootloader firmware version: 1.1
  Linecard Firmware version: 1.00
```

Powering On or Off Media Converter Module Slots

You can power on or off the individual chassis slots for the media converter modules. Powering off chassis slots shuts down the media converter modules, thereby preventing them from forwarding traffic on their ports and channels. You might power off a slot if its media converter module is experiencing a problem or to protect against a network attack.

Note
A module slot remains powered off until you power it on again with the CONFIGURE LINECARD command, even if you remove or replace the media converter module.

The command for powering on or off a module slot is the CONFIGURE LINECARD command. Here is its format:

configure linecard *slot* 0|1

Here are the variables:

❒ *slot* - Specifies a slot number of a media converter module. The slots are numbered 1, 2 and 3 from left to right. You can enter only one slot number.

❒ 0 - Powers off the media converter module slot.

❒ 1 - Powers on the media converter module slot. This is the default.

This example powers off slot 1 to stop its media converter module from forwarding network traffic:

MCF3000>>configure linecard 1 0
Linecard in slot 1 disabled.
Changes will not take effect until the system is rebooted.

This example powers on slot 3 so that its media converter module can resume forwarding network traffic on its ports:

MCF3000>>configure linecard 3 1
Linecard in slot 3 enabled.

Note
Your change to the power status of a chassis slot is activated the next time you boot the chassis. To activate the change now, go to "Booting the Media Converter Chassis" on page 72.

Chapter 6

Copper and Fiber Optic Ports

This chapter contains the following sections:

❒ "Displaying Port Status" on page 82
❒ "Displaying Port Settings" on page 86
❒ "Configuring Copper or Fiber Optic Ports" on page 88
❒ "Displaying Port Statistics" on page 92
❒ "Enabling or Disabling the MissingLink Mode" on page 94

Displaying Port Status

The command for displaying the current operational status of ports is the SHOW PORT STATUS command. You can use this command to quickly determine whether ports have established connections to other network devices. Here is its format:

```
show port status chassis.slot.channel.port
```

Here are the variables:

❑ *chassis* - Specifies the chassis number. This is always 1.

❑ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2 and 3 from left to right. You can enter only one slot.

❑ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8), The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel.

❑ *port* - Identifies a channel port. You can enter only one port:

– 1 - copper port

– 2 - fiber optic port

This example displays the current status of the copper port in channel 5 in the media converter module in slot 3:

```
MCF3000>>show port status 1.3.5.1
```

```
          Chassis ————————┐
             Slot ——————————┐│
          Channel ————————————┐││
      Copper Port ——————————————┘
```

The *chassis* variable is always 1.

Figure 8 on page 83 is an example of the display.

```
MCF3000>>show port status 1.3.5.1
Module:        5
Port:          1
State:         Enabled
Link Status:   Link Up
Speed:         10 Mb/s
Duplex:        Half
Flow Control:  Disabled
```

Figure 8. SHOW PORT STATUS Command

This example displays the current status of the fiber optic port in channel 1 in the media converter module in slot 3:

MCF3000>>**show port status 1.3.1.2**

The fields are defined in Table 6.

Table 6. SHOW PORT STATUS Command

Parameter	Description
Module	Displays the media converter channel number.
Port	Displays the port: - 1: Copper port. - 2: Fiber optic port.
Port State	Displays one of the following: - Enabled: The port forwards all ingress and egress traffic. - Disabled: The port is blocked from forwarding all ingress and egress traffic. To enable or disable a port, refer to "Configuring Copper or Fiber Optic Ports" on page 88.

Table 6. SHOW PORT STATUS Command (Continued)

Parameter	Description
Link Status	Displays the status of the link on the port. The possible states are listed here: - Link Up: The port has established a network link to a network device. - Link Down: The port has not established a link to a network device. Possible causes of the Link Down state include: - The port is not connected to a network device. - The network device is not powered on. - The port or media converter module is disabled.
Speed - Copper Port	Displays the operational speed of the port. The possible speeds of the copper ports are listed here: - 10Mbps - 100Mbps - 1000Mbps - 10Gbps (MCF3010T/4SP module only)
Speed - Fiber Optic Port	Displays the operational speed of the port. The possible speeds of the fiber optic ports are listed here: MCF3000/8SP module: - 100Mbps - 1000Mbps MCF3000/8LC module: - 1000Mbps MCF3010T/4SP module: - 10Gbps
Duplex	Displays the operational duplex mode of the port, which can be one of the following: - Half Duplex - Full Duplex

Table 6. SHOW PORT STATUS Command (Continued)

Parameter	Description
Flow Control	Displays the status of flow control: - Enabled: Flow control is enabled on the port. - Disabled: Flow control is disabled.

Displaying Port Settings

The command for displaying the current settings of the individual ports on the media converter modules is the SHOW PORT SETTINGS command. Here is its format:

show port settings *chassis.slot.channel.port*

Here are the variables:

❏ *chassis* - Specifies the chassis number. This is always 1.

❏ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2 and 3 from left to right. You can enter only one slot.

❏ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8). The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel.

❏ *port* - Identifies a channel port. You can enter only one port:

  – 1 - copper port

  – 2 - fiber optic port

You can display the settings of only one port at a time. This example displays the current settings for the copper port in channel 4 in the media converter module in slot 2:

MCF3000>>**show port settings 1.2.4.1**

```
              Chassis  ─────────────┐   │   │   │
                 Slot  ─────────────────┘   │   │
              Channel  ─────────────────────┘   │
          Copper Port  ─────────────────────────┘
```

The *chassis* variable is always 1.

Figure 9 on page 87 is an example of the display.

```
MCF3000>>show port settings 1.2.4.1
Slot           2
Module:        4
Port:          1
State:         Enabled
Speed:         Auto Negotiation
Flow Control:  Enabled
```

Figure 9. SHOW PORT SETTINGS Command

This example displays the current settings for the fiber optic port in channel 4 in the media converter module in slot 3:

MCF3000>>**show port settings 1.3.4.2**

Configuring Copper or Fiber Optic Ports

This section contains the commands for configuring the settings on the individual copper and fiber optic ports in the channels on the media converter modules. Here are the management functions:

❒ "Enabling or Disabling Ports," next

❒ "Setting Port Speeds" on page 89

❒ "Setting Flow Control" on page 91

Enabling or Disabling Ports

You enable or disable individual ports on the media converter modules with the CONFIGURE PORT STATE command. Disabled ports do not forward ingress or egress network traffic. You might disable ports to isolate them from your network if they are experiencing problems or because of network attacks. The command format is shown here:

configure port *chassis.slot.channel.port* state *state*

Here are the variables:

❒ *chassis* - Specifies the chassis number. This value is always 1.

❒ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2 and 3 from left to right. You can enter only one slot.

❒ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8). The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel.

❒ *port* - Identifies a channel port. You can specify only one port at a time. Options are listed here:

   – 1 - Copper port.

   – 2 - Fiber optic port.

❒ *state* - Sets the port state. Options are listed here:

   – 0 - Disables a port.

   – 1 - Enables a port. This is the default setting.

You can configure only one port at a time.

This example disables the copper port in channel 6 on the media converter module in slot 2:

MCF3000>>**configure port 1.2.6.1 state 0**

Chassis ──────────
Slot ──────────
Channel ──────────
Copper Port ──────────
State - Disable ──────────

This example enables the fiber optic port in channel 1 on the media converter module in slot 3:

MCF3000>>**configure port 1.3.1.2 state 1**

Setting Port Speeds

The command for setting port speeds and duplex modes is the CONFIGURE PORT SPEED command. Here is the format:

configure port *chassis.slot.channel.port* speed *speed*

Here are the variables:

❑ *chassis* - Specifies the chassis number. This value is always 1.

❑ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2, and 3 from left to right. You can enter only one slot.

❑ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8). The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel.

❑ *port* - Identifies a channel port. You can specify only one port at a time. Options are listed here:

– 1 - Copper port.

– 2 - Fiber optic port.

❑ *speed* - Sets a port's speed and duplex mode. The settings for copper ports are listed here:

– 0 - 10Mbps, half-duplex mode.

– 1 - 10Mbps, full-duplex mode.

– 2 - 100Mbps, half-duplex mode.

– 3 - 100Mbps, full-duplex mode.

– 4 - 1Gbps, full-duplex mode.

– 5 - Auto-Negotiation. This is the default setting.

The speed settings for the fiber optic ports on the MCF3000/8LC module are listed here:

– 4 - 1Gbps, full-duplex mode.

– 5 - Auto-Negotiation. This is the default setting.

The speed settings for the fiber optic ports on the MCF3000/8SP module are listed here:

– 3 - 100Mbps, full-duplex mode.

– 4 - 1Gbps, full-duplex mode.

– 5 - Auto-Negotiation for 1Gbps, full-duplex mode.
   This is the default setting.

The speed settings for the fiber optic ports on the MCF3010T/4SP module are listed here:

– 4 - 1Gbps, full-duplex mode.

– 5 - Sets ports to Auto-Negotiation. This is the
   default setting. Use this setting for 10Gbps
   operation.

You can configure only one port at a time. This example sets the fiber optic port in channel 5 on the media converter module in slot 2 to 1Gbps, full-duplex mode:

MCF3000>>`configure port 1.2.5.2 speed 4`

```
                    Chassis ————————
                       Slot ————————
                    Channel ————————
            Fiber Optic Port ————————
      Speed - 1G, Full-duplex ————————
```
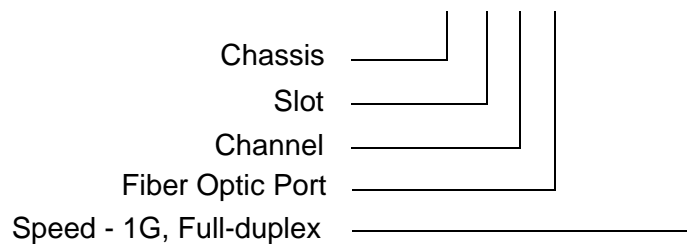
The *chassis* variable is always 1.

This example sets the copper port in channel 7 on the media converter module in slot 2 to 100Mbps, full-duplex mode:

MCF3000>>`configure port 1.2.7.1 speed 3`

Setting Flow Control

The command for setting flow control is the CONFIGURE PORT FLOW command. Here is the format:

configure port *chassis.slot.channel.port* flow *flow*
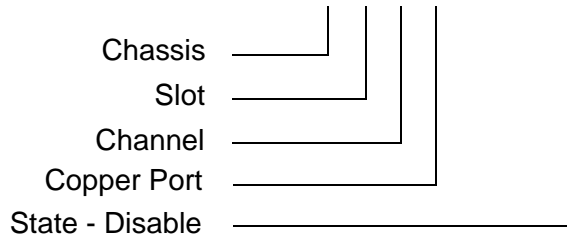
Here are the variables:

- ❏ *chassis* - Specifies the chassis number. This value is always 1.

- ❏ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2 and 3 from left to right. You can enter only one slot.

- ❏ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8). The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel.

- ❏ *port* - Identifies a channel port. You can specify only one port at a time. Options are listed here:
  - – 1 - Copper port.
  - – 2 - Fiber optic port.

- ❏ *flow* - Sets flow control. Options are listed here:
  - – 0 - Disables flow control.
  - – 1 - Enables flow control.

You can configure only one port at a time. The copper and fiber optic ports of a channel can be set to different speeds and flow control settings.

This example disables flow control on the copper port in channel 5 on the media converter module in slot 2:

MCF3000>>**configure port 1.2.5.1 flow 0**

```
            Chassis  ─────────
               Slot  ─────────
            Channel  ─────────
        Copper Port  ─────────
 Flow Control - Disable  ─────────
```
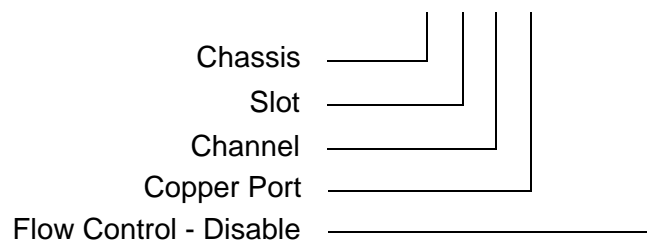
The *chassis* variable is always 1.

This example enables flow control on the fiber optic port in channel 3 on the media converter module in slot 1:

MCF3000>>**configure port 1.1.3.2 flow 1**

Displaying Port Statistics

This section describes the SHOW PORT STATISTICS command. It displays the traffic statistics for the individual copper and fiber optic ports on the media converter modules. The command format is shown here:

show port statistics *chassis.slot.channel.port*

Here are the variables:

- ❏ *chassis* - Specifies the chassis number. This value is always 1.

- ❏ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2, and 3 from left to right. You can enter only one slot.

- ❏ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8). The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel

- ❏ *port* - Identifies a channel port. You can specify only one port at a time. Options are listed here:
  - 1 - Copper port.
  - 2 - Fiber optic port.

The command displays the port statistics listed in Table 7.

Table 7. SHOW PORT STATISTICS Command

Statistic	Description
Bytes Rx	Displays the number of received bytes.
Bytes Tx	Displays the number of transmitted bytes.
Rx Packets	Displays the number of received packets.
Tx Packets	Displays the number of transmitted packets.
Rx Dropped	Displays the number of frames successfully received and buffered by the port, but discarded and not forwarded.
Late Collisions	Displays the number of late collisions.
CRC Errors	Displays the number of ingress frames with CRC errors, but with proper lengths (64-1518 bytes) received by the port.

Table 7. SHOW PORT STATISTICS Command (Continued)

Statistic	Description
Deferred Tx	Displays the number of egress packets that were delayed due to other traffic on the cable. The counter applies only to ports operating at half-duplex mode and to packets that were successfully transmitted without collision after delay. Packets that are delayed and afterwards never successfully transmitted are counted as dropped packets.
Loss of Carrier	Displays the number of loss of carrier events, where a media converter module detects no carrier signal on a port at the conclusion of frame transmissions, indicating an idle condition.
Oversized Packets	Displays the number of received packets that exceeded the maximum size as specified by IEEE 802.3 (1518 bytes including the CRC).
Undersized Packets	Displays the number of frames that were less than the minimum length as specified in the IEEE 802.3 standard (64 bytes including the CRC).
Jabbers	Displays the number of times the port has encountered corrupted data or useless signals.

You can display only one port at a time. This example displays the traffic statistics for the fiber optic port in channel 8 on the media converter module in slot 3:

MCF3000>>**show port statistics 1.3.8.2**

Chassis ⎯⎯⎯⎯⎯⎯
Slot ⎯⎯⎯⎯⎯
Channel ⎯⎯⎯⎯
Fiber Optic Port ⎯⎯⎯
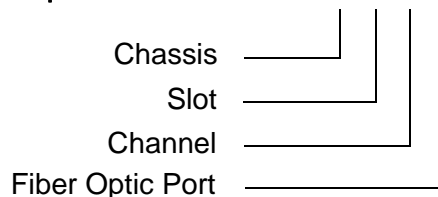
The *chassis* variable is always 1.

This example displays the traffic statistics for the copper port in channel 4 on the media converter module in slot 1:

MCF3000>>**show port statistics 1.1.4.1**

Enabling or Disabling the MissingLink Mode

This section contains the procedure for enabling or disabling the MissingLink mode on individual channels on the media converter modules. For background information, refer to "MissingLink Mode" on page 29. Here are the management functions:

❐ "Displaying the MissingLink Mode," next

❐ "Setting the MissingLink Mode" on page 94

Displaying the MissingLink Mode

To view the status of the MissingLink mode on media converter channels, use the SHOW MISSINGLINK command. Here is the format:

show missinglink *slot channel*

Here are the variables:

❐ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2, and 3 from left to right. You can enter only one slot number.

❐ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8). The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel number.

You can display only one channel at a time. This example displays the status of the MissingLink mode on the two ports in channel 4 on the media converter module in slot 2:

```
MCF3000>>show missinglink 2 4
Missing link for slot 2 mc 4 enabled
```

Setting the MissingLink Mode

This section explains the CONFIGURE MISSINGLINK command for enabling or disabling the MissingLink mode on the individual channels in the media converter modules. The command format is shown here:

configure missinglink *slot channel mode*

Here are the variables:

❐ *slot* - Specifies a chassis slot number of a media converter module. The slots are numbered 1, 2, and 3 from left to right. You can enter only one slot number.

❐ *channel* - Specifies a channel on a media converter module. The MCF3000/8LC and MCF3000/8SP modules have eight channels (1-8). The MCF3010T/4SP module has four channels (1-4). Channel 1 has copper port 1 and fiber port 1, channel 2 has copper port 2 and fiber port 2, and so on. You can enter only one channel number.

❐ *mode* - Sets MissingLink mode. Options are listed here:

– 0 - Disables the MissingLink mode.

– 1 - Enables the MissingLink mode. This is the default.

You can configure only one channel at a time. This example disables the MissingLink mode on the copper and fiber ports in channel 3 on the media converter module in chassis slot 1:

```
MCF3000>>configure missinglink 1 3 0
MissingLink disabled for slot 1 mc 3
```

This example enables the MissingLink mode on the copper and fiber ports in channel 5 on the media converter module in chassis slot 2:

```
MCF3000>>configure missinglink 2 5 1
MissingLink enabled for slot 2 mc 5
```

Chapter 7
Backup Configuration Files

This chapter has the following sections:

❒ "Saving Backup Configuration Files from the MCF3000M Management Module" on page 98

❒ "Restoring Backup Configuration Files to the MCF3000M Management Module" on page 100

❒ "Restoring the Factory Default Values" on page 102

Saving Backup Configuration Files from the MCF3000M Management Module

The media converter stores its settings in a file in flash memory. You should periodically download a copy of the file to maintain a history of the configurations of the device. You can use the file to restore the settings to the device, configure a replacement media converter, or configure media converters that are to have similar settings. Here are the guidelines:

❑ The management module stores the backup file on a flash drive in its USB port.

❑ The flash drive has to have a FAT file system.

❑ Saving a backup configuration file does not interrupt the network operations of the media converters.

❑ You cannot edit the backup file.

❑ The backup file contains the settings that you saved in the media converter's configuration file. Changes that you make but not save are not saved in the backup file.

❑ The backup filename is mcf3000_backup.bin. Do not change the filename of the backup file.

Here are the commands for downloading a copy of the configuration file on the management module to a flash USB drive in the USB port.

❑ SHOW FILES - Perform this command to confirm that the management module can access the USB drive in its USB port.

❑ BACKUP SETTINGS command - Perform this command to instruct the management module to backup its configuration to the USB drive in its USB port.

❑ UNMOUNT USB command - Perform this command to disconnect the management module from the USB port before removing the USB drive.

To store the settings of the media converter as a file on a flash USB drive in the USB port:

1. Insert a flash USB drive into the USB port on the management module. The management module automatically connects to the drive.

   Note
   There is a MOUNT USB command for manually connecting the management module to the USB port. You should never need to use it. You may see an error message if you enter it.

2. Enter the SHOW FILES command to display the directory on the USB drive. This is to confirm that the management module is connected to the drive and can read its files.

   MCF3000>>**show files**

3. Enter the BACKUP SETTINGS command.

   MCF3000>>**backup settings**

   The management module stores a copy of its configuration file on the USB drive and displays a confirmation message. The filename is "mcf3000_backup.bin". This takes only a few seconds. Here is an example of the confirmation message:

   System database successfully copied to USB drive.

   Note
   The confirmation message might include a checksum value. It can be ignored.

   ---

4. Issue the UNMOUNT USB command.

   MCF3000>>**unmount usb**

   Note
   You must issue the UNMOUNT USB command before removing a flash USB drive from the USB port. Otherwise, the USB port will be blocked and you will have to boot the chassis to unblock it.

   ---

5. Remove the flash drive from the USB port.

Restoring Backup Configuration Files to the MCF3000M Management Module

This section contains instructions for restoring backup configuration files to the management module from a flash drive in its USB port. You might perform the command to restore a configuration to a media converter, configure a replacement media converter, or configure several media converters with the same settings. Here are the guidelines:

❑ The filename of the backup file has to be mcf3000_backup.bin.

❑ The backup file has to be stored on a flash drive in the USB port of the management module.

❑ The flash drive has to have a FAT file system.

❑ You have to boot the media converter after restoring a configuration. Some network traffic may be lost. Allied Telesis recommends performing the procedure during non-business hours to minimize the disruption to your network.

❑ If you are restoring the same configuration file to multiple media converters and the configuration assigns a static IP address to the devices, be sure to change the IP addresses of the devices immediately after restoring the configuration. Otherwise, multiple media converters will have the same IP address.

Here are the commands for restoring a configuration file to the management module from a flash drive:

❑ SHOW FILES - Perform this command to confirm that the management module can access the USB drive in its USB port.

❑ RESTORE SETTINGS command - Perform this command to upload the backup configuration file from the USB drive to the flash memory in the management module.

❑ UNMOUNT USB command - Perform this command to disconnect the management module from the USB port before removing the USB drive.

❑ REBOOT SYSTEM command - Perform this command to boot the media converter.

The SHOW FILES and UNMOUNT USB commands do not have any parameters. The RESTORE SETTINGS command has this format:

```
restore settings mcf3000_backup.bin
```

The parameter is defined here:

❑ mcf3000_backup.bin - Specifies the filename of the configuration file on the USB drive. The filename must be mcf3000_backup.bin.

To restore the settings of the media converter from a file on a USB drive:

1. Insert the USB drive into the USB port on the management module. The management module automatically connects to the flash drive.

    > **Note**
    > There is a MOUNT USB command for manually connecting the management module to the USB port. You should never need to use it. You may see an error message if you enter it.

2. Enter the SHOW FILES command to display the directory on the flash drive. This is to confirm that the management module is connected to the drive and can read its files.

    MCF3000>>**show files**

3. Enter the RESTORE SETTINGS command. Here is an example:

    MCF3000>>**restore settings mcf3000_backup.bin**

    Here is an example of the confirmation message:

    ```
    Restoring settings from mcf3000_backup.bin
    System database successfully restored. Reboot
    required for settings to take effect.
    ```

4. Issue the UNMOUNT USB command.

    MCF3000>>**unmount usb**

    > **Note**
    > You must issue the UNMOUNT USB command before removing a flash USB drive from the USB port. Otherwise, the USB port will be blocked and you will have to reboot the chassis to unblock it.

5. Remove the USB drive from the USB port.

6. Boot the media converter to activate the restored settings. Refer to "Booting the Media Converter Chassis" on page 72.

Restoring the Factory Default Values

Networks change. When they do, network device settings may need to be changed as well. In some cases the configuration changes may be so major that you might find it easier to discard the current configuration and start over again. That is what the RESTORE FACTORY DEFAULTS command does. It deletes the current configuration of the media converter and restores the default values to all the parameters. Here are the command guidelines:

❑ This procedure requires booting the management card and media converter. Some network traffic may be lost. Allied Telesis recommends performing the procedure during non-business hours to minimize the disruption to your network.

❑ The IP address of the management module is returned to the default address 192.168.1.1.

❑ The default setting of the DHCP client is disabled.

❑ Your management session is interrupted. To resume managing the device, start a new local or remote management session.

The command has no variables. Here is the format:

```
restore factory defaults
```

Note
The command does not display a confirmation prompt. The management module immediately activates its default settings after you enter the command.

Here is the command:

```
MCF3000>>restore factory defaults
Factory default settings restored. System reboot required.
```

To activate the default settings, boot the media converter. Here is the command:

```
MCF3000>>reboot system
```

Refer to "Booting the Media Converter Chassis" on page 72.

Chapter 8

Management Firmware

Allied Telesis may periodically release updates to the management firmware for this product and make them available on the company's web site for customers to upload onto their media converters. This chapter contains the commands for uploading new firmware for the MCF3000M management module and media converter modules. The chapter has the following sections:

❒ "Displaying Firmware Version Numbers" on page 104

❒ "Uploading New Firmware to the MCF3000M Management Module" on page 106

❒ "Uploading New Firmware to the Media Converter Modules" on page 111

Displaying Firmware Version Numbers

To view the version numbers of the management software on the management and media converter modules, use the SHOW FIRMWARE INFO command:

```
MCF3000>>show firmware info
Management Card Firmware
   Bootloader: 1.0
   Software: 0.4

Available Linecard Firmware:
   Bootloader: 1.0
   Software: 0.5
Allow Updates: disabled
```

Linecard 1:
Bootloader: 1.0
  Software: 0.5

Linecard 2:
Bootloader: 1.0
  Software: 0.5

Linecard 3:
Bootloader: 1.0
  Software: 0.5

The sections in the command are described here:

❒ Management Card Firmware
    Bootloader: 1.0
    Software: 0.4

This section displays the version numbers of the bootloader and software for the MCF3000M management module.

❒ Available Linecard Firmware:
    Bootloader: 1.0
    Software: 0.5

This section displays the version numbers of the bootloader and software that are stored on the MCF3000M management module for the media converter modules. During normal operating conditions, this firmware and the firmware stored on the modules will be the same. If they are different, it usually means that the management module has a newer version than the media converter modules.

❒ **Allow Updates: disabled**

This section displays the status of when media converter modules can retrieve new firmware from the management module over the chassis backplane when the system is booted. Here are the possible settings:

- Enabled - Media converter modules can retrieve new firmware from the management module and begin using it the next time you boot the management module.

- Disabled - Media converter modules are blocked from retrieving new firmware when you boot the management module and instead continue using their current version. This is the default setting.

For instructions, refer to "Controlling New Bootloader and Software Status" on page 116.

❒ **Linecard 1, 2, 3**

Displays the version numbers of the bootloaders and software stored on and currently used by the media converter modules.

Uploading New Firmware to the MCF3000M Management Module

This section contains instructions for uploading new firmware for the MCF3000M management module. You can upload the firmware from a flash drive in the USB port on the front panel of the module or from a TFTP server on your network. Here are the procedures:

❐ "Using the USB Port," next

❐ "Using a TFTP Server" on page 108

Using the USB Port

This section contains instructions for uploading new firmware to the MCF3000M management module from a flash drive in the USB port in the module. Please review the following information:

❐ To view the version numbers of the current firmware on the module, use the SHOW FIRMWARE INFO command. Refer to "Displaying Firmware Version Numbers" on page 104.

❐ The management module firmware consists of two parts: software and bootloader (U-Boot).

❐ The update file for the software has this filename: mcf3000m-rootfs.ubifs-*n.n*.rel.

❐ The update file for the bootloader has this filename: mcf3000m-u-boot-a38x-*n.n*.rel.

❐ Do not change the filenames.

❐ You have to upload the software and bootloader files separately, You can upload either one first.

❐ The procedure requires the MD5 checksum value that comes with the firmware files.

❐ If you have new firmware for both the management module and media converter modules, you can update either one first.

❐ The flash drive must have a FAT format.

> **Note**
> After receiving new firmware the management module automatically boots once or twice depending on the firmware. It boots once for a new bootloader or twice for new software. Some network traffic may be lost. Allied Telesis recommends performing the procedure during non-business hours to minimize disruption to your network.

To upload new firmware to the management module from a flash drive in the USB port, use the UPDATE MGMT USB command. Here is the format:

```
update mgmt usb filename md5_checksum
```

Here are the variables:

❏ *filename*: Specifies the filename of the new firmware. You can specify only one filename. If you are updating both software and bootloader, you have to update them separately.

❏ *md5_checksum*: Specifies the checksum value that comes with the new firmware. The value is case sensitive.

Perform the following procedure to upload new MCF3000M management module firmware from a flash drive in the USB port:

1. Obtain the new firmware file from Allied Telesis and store the files on a USB flash drive that has a FAT format.

2. Insert the USB drive into the USB port on the management module.

   The management module automatically connects to the flash drive.

   > **Note**
   > The management module has a MOUNT USB command that you can use to manually connect the module to the drive. However, you should never need to use it. You may see an error message if you enter it.

3. Enter the SHOW FILES command to display the directory on the USB flash drive. This is to confirm that the management module can read the files on the flash drive.

MCF3000>>`show files`

4. Enter the UPDATE MGMT USB command to upload the new software or bootloader file. Here is an example:

MCF3000>>`update mgmt usb mcf3000m-rootfs.ubifs-1.1.rel`
`def3afb25686c45c2abc923ea4a6597bc92491`
```
verifying file exists...
Succeeded
Verifying checksum
updating firmware...
Updating the file system. The system will reboot twice
during the process.
Software update complete. Restarting system...
```

   If you have update files for both software and bootloader, you have to upload them one at a time. You can update either one first.

   After uploading the file, the management module automatically boots. It boots once for a new bootloader or twice for new software.

5. Wait two minutes for the system to complete the initialization processes.

6. Start a new management session.

7. If you are updating both software and bootloader, repeat this procedure starting with step 3 to install the second update file. Otherwise, go to the next step.

8. Enter the UNMOUNT USB command to disconnect the management module from the USB drive.

MCF3000>>**unmount usb**

Note
You must issue the UNMOUNT USB command before removing a flash drive from the USB port. Otherwise, the USB port will be blocked and you will have to boot the chassis to unblock it.

---

9. Remove the flash drive from the USB port.

10. To confirm the update, enter the SHOW FIRMWARE INFO command. The fields under Management Card Firmware should now display the new version numbers of the updated firmware. Refer to "Displaying Firmware Version Numbers" on page 104.

Using a TFTP Server

This section contains instructions for uploading new firmware to the management from a TFTP server on your network. Here are the guidelines:

❐ To view the version numbers of the current firmware on the management module, use the SHOW FIRMWARE INFO command, explained in "Displaying Firmware Version Numbers" on page 104.

❐ The management module firmware consists of two parts: software and bootloader (U-Boot).

❐ The update file for the software has this filename: mcf3000m-rootfs.ubifs-*n.n*.rel.

❐ The update file for the bootloader has this filename: mcf3000m-u-boot-a38x-*n.n*.rel.

❐ Do not change the filenames.

❐ You have to upload the software and bootloader files separately. You can upload either one first.

❐ The procedure requires the MD5 checksum value that comes with the firmware file.

❐ The MGMT port on the MCF3000M management card has to be connected to a device on your network, such as an Ethernet switch or router. The management module communicates with the TFTP server through this port. It cannot communicate with the server through the ports on the media converter modules.

❐ The management module must have an IPv4 address. Refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48 or "Assigning a Static IP Address to the MCF3000M Management Module" on page 50.

❐ The IPv4 address has to include a default gateway if the IP addresses of the management module and TFTP server are on different networks.

❐ If you have new firmware for both the management module and media converter modules, you can update either one first.

Note

After receiving new firmware the management module automatically boots once for a new bootloader or twice for new software. Some network traffic may be lost. Allied Telesis recommends performing the procedure during non-business hours to minimize disruption to your network.

To upload new firmware to the management module from a TFTP server, use the UPDATE MGMT command. Here is the format:

update mgmt *ipaddress filename checksum*

Here are the variables:

❐ *ipaddress*: Specifies the IPv4 address of the TFTP server. You can specify only one IPv4 address.

❐ *filename*: Specifies the filename of a new firmware file. You can specify only one filename. If you are updating both software and bootloader, you have to update them separately. You can update either one first.

❐ *checksum*: Specifies the checksum value included with the new firmware. The value is case sensitive.

To upload new firmware to the management module from a TFTP server:

1. Obtain the new firmware from Allied Telesis and store the files on a TFTP server on your network.

2. Start the TFTP server.

3. Enter the UPDATE MGMT command to upload the new software or bootloader file to the management module.

Here is an example:

```
MCF3000>>update mgmt 10.103.45.67
mcf3000m-rootfs.ubifs-1.1.rel
def3afb25686c45c2abc923ea4a6597bc92491
verifying file exists...
Succeeded
Verifying checksum
updating firmware...
Updating the file system. The system will reboot twice
during the process.
Software update complete. Restarting system...
```

After uploading the file, the management module automatically boots once for a new bootloader or twice for new software.

4. Wait two minutes for the system to complete the initialization processes.

5. Start a new management session.

6. If you are updating both software and bootloader, repeat this procedure starting with step 3 to install the second update file. Otherwise, go to the next step.

7. To confirm the update, enter the SHOW FIRMWARE INFO command. The fields under Management Card Firmware should now display the new version numbers of the updated firmware. Refer to "Displaying Firmware Version Numbers" on page 104.

Uploading New Firmware to the Media Converter Modules

This section contains instructions for installing new firmware on the media converter modules. The update has two phases:

❏ In the first phase you upload the new firmware to the MCF3000M management module. You can do this from a flash drive in the USB port on the management module or a TFTP server on your network. Refer to "Using the USB Port," next or "Using a TFTP Server" on page 114.

❏ In the second phase you control when media converter modules can retrieve new firmware from the management module. This is called setting the Allowed Update status. Media converter modules retrieve new firmware from the management module over the backplane in the chassis when the unit is booted. You can permit or block the transfer. In most cases you will probably want the modules to start using new firmware immediately after you upload it to the management module. For this, you enable the Allow Update status. This permits the transfer the next time you boot the unit.

In situations where you want to block modules from retrieving new firmware, you can disable the Allow Update status. This prevents them from retrieving it from the management module when the device is booted. This phase is explained in "Controlling New Bootloader and Software Status" on page 116.

Using the USB Port

This section contains instructions for uploading new firmware for the media converter modules from a flash drive in the USB port in the MCF3000M management module. Please review the following information before performing the procedure:

❏ To view the version numbers of the current firmware on the media converter modules, refer to "Displaying Firmware Version Numbers" on page 104.

❏ The firmware for the media converter modules has two parts: software and bootloader (U-Boot).

❏ A software update file has this filename: mcf3000x-zimage.msys-ac3-db-*n.n*.rel

❏ A bootloader update file has this filename: mcf3000x-u-boot-msys-ac3-*n.n*.rel.

❏ Do not change the filenames.

❏ You have to upload the software and bootloader files separately. You can upload either one first.

❏ The procedure requires the MD5 checksum included with the files.

❒ All media converter modules use the same firmware.

❒ The procedure assumes you have already obtained the new firmware files from the Allied Telesis web site and stored them on a flash drive that has a FAT format.

❒ If you have new firmware files for both the management module and media converter modules, you can update either one first.

To upload new firmware for the media converter modules from a flash drive in the USB port, use the UPDATE LINECARDS USB command. Here is the format:

update linecards usb *filename md5_checksum*

Here are the variables:

❒ *filename*: Specifies the filename of a new firmware file. You can specify only one filename. If you are updating both software and bootloader, you have to update them separately. You can update either one first.

❒ *md5_checksum*: Specifies the checksum value that comes with the new firmware. The value is case sensitive.

Here is the procedure:

1. Obtain the new firmware file from Allied Telesis and store it on a USB flash drive that has a FAT format.

2. Insert the USB drive into the USB port on the management module.

   The management module automatically connects to the flash drive.

   > **Note**
   > The management module has a MOUNT USB command that lets you manually connect the module to the drive. However, you should never need to use it. You may see an error message if you enter it.

3. Enter the SHOW FILES command to display the directory on the USB flash drive. This is to confirm that the management module can read the files on the flash drive.

MCF3000>>**show files**

4. Enter the UPDATE LINECARDS USB command to transfer the new firmware file from the USB flash drive to the management module. Here is an example:

```
MCF3000>>update linecards usb mcf3000x-zimage.msys-
ac3-db-1.1.rel kd591kd54mds823wqdj93mm4j8l6ls02dj30d03
verifying file exists...
verifying checksum...
updating firmware...
Upload Successful! You must enable linecard firmware
updates and reboot the system to activate the new
firmware version.
```

> The management module uploads the new firmware for the media converter modules and stores it in its memory.

5. If you are updating both software and bootloader, repeat step 4 to install the second update file. Otherwise, go to the next step.

6. Perform the SHOW FIRMWARE INFO command to confirm that the management module has received the new firmware for the media converter modules,. The Bootloader and Software fields in the Available Linecard Firmware section of the command should display the new firmware version numbers. Refer to "Displaying Firmware Version Numbers" on page 104.

```
MCF3000>>show firmware info
```

7. Enter the UNMOUNT USB command to disconnect the management module from the USB drive.

```
MCF3000>>unmount usb
```

> **Note**
> You must issue the UNMOUNT USB command before removing a flash drive from the USB port. Otherwise, the USB port will be blocked and you will have to boot the chassis to unblock it.

8. Remove the flash drive from the USB port.

> At this point the new firmware for the media converter modules is stored on the MCF3000M management module. However, the media converter modules are still using their previous firmware version.

9. Do one of the following:

    ❐   To have the media converter modules start using the new firmware now, set Allow Updates to enabled. This will allow the media converter modules to retrieve the new firmware from the management module over the chassis backplane the next time you boot the system. This is explained in "Controlling New Bootloader and Software Status" on page 116. Afterwards, go to "Booting the Media Converter Chassis" on page 72 and then confirm the update

by performing "Displaying Firmware Version Numbers" on page 104.

❑ To prevent the media converter modules from using new firmware for now, set Allow Updates to disabled as explained in "Controlling New Bootloader and Software Status" on page 116. This will prevent the modules from retrieving the new firmware from the management module even if the device is booted. When you want the media converter modules to start using the new firmware, set Allow Updates to enabled, and then go to "Booting the Media Converter Chassis" on page 72.

10. To confirm the update, start a new management session after booting the management module and perform "Displaying Firmware Version Numbers" on page 104.

Using a TFTP Server

Here are the guidelines to using a TFTP server on your network to upload new firmware for the media converter modules:

❑ To view the version numbers of the current firmware on the media converter modules, refer to "Displaying Firmware Version Numbers" on page 104.

❑ The firmware for the media converter modules has two parts: software and bootloader (U-Boot).

❑ A software update file has this filename: mcf3000x-zimage.msys-ac3-db-*n.n*.rel.

❑ A bootloader update file has this filename: mcf3000x-u-boot-msys-ac3-*n.n*.rel.

❑ Do not change the filenames.

❑ You have to upload the software and bootloader files separately, You can upload either one first.

❑ The procedure requires the MD5 checksum included with the files.

❑ All media converter modules use the same firmware.

❑ The procedure assumes you have already obtained the new firmware files from the Allied Telesis web site and stored them on your TFTP server.

❑ If you have new firmware files for both the management module and media converter modules, you can update either one first.

❑ The MGMT port on the MCF3000M management card has to be connected to a device on your network, such as an Ethernet switch or router. The management module communicates with the TFTP server through this port. It cannot communicate with the server through ports on the media converter modules.

❑ The management module must have an IPv4 address configuration. Refer to "Assigning a Dynamic IP Address to the MCF3000M Management Module" on page 48 or "Assigning a

Static IP Address to the MCF3000M Management Module" on page 50.

❒ The IPv4 address has to include a default gateway if the IP addresses of the management module and TFTP server are on different networks.

To upload new firmware for the media converter modules from a TFTP server to the management module, perform the UPDATE LINECARDS command. Here is the format:

update linecards *ipaddress filename checksum*

Here are the variables:

❒ *ipaddress*: Specifies the IPv4 address of the network device with the TFTP server. You can specify only one address.

❒ *filename*: Specifies the filename of a new firmware file. You can specify only one filename. If you are updating both software and bootloader, you have to update them separately. You can update either one first.

❒ *checksum*: Specifies the checksum value included with the new firmware. The value is case sensitive.

Here is the procedure:

1. Obtain the new firmware file from Allied Telesis and store it on the TFTP server on your network.

2. Start the TFTP server.

3. Enter the UPDATE LINECARDS command. Here is an example:

```
MCF3000>>update linecards 56.23.90.101
mcf3000x-zimage.msys-ac3-db-1.2.rel
sdjk423kdljf09glttkaf9876cdf85asfd789b7cf
verifying file exists...
verifying checksum...
updating firmware...
Upload Successful! You must enable linecard firmware
updates and reboot the system to activate the new
firmware version.
```

The management module uploads the new firmware for the media converter modules from the TFTP server and stores it in flash memory. At this point the media converter modules are still using their previous firmware version.

4. If you are updating both software and bootloader, repeat step 3 to install the second update file. Otherwise, go to the next step.

5. Perform the SHOW FIRMWARE INFO command to confirm that the management module has received the new firmware for the media converter modules. The Bootloader or Software field in the Available Linecard Firmware section of the command should display the new firmware version numbers. Refer to "Displaying Firmware Version Numbers" on page 104.

    MCF3000>>`show firmware info`

    This step completes the first phase of uploading new firmware to the media converter modules. The firmware is now stored in permanent memory on the management module, ready to be transferred to the modules over the backplane of the chassis. Go to the next step.

6. Do one of the following:

    ❑ To have the media converter modules start using the new firmware now, set the Allow Update status to enabled. This will allow the media converter modules to retrieve the new firmware from the management module over the chassis backplane the next time you boot the system. This is explained in "Controlling New Bootloader and Software Status" on page 116. Afterwards, go to "Booting the Media Converter Chassis" on page 72 and then confirm the update by performing the next step.

    ❑ To prevent the media converter modules from using new firmware for now, set the Allow Update status to disabled as explained in "Controlling New Bootloader and Software Status" on page 116. This prevents the modules from retrieving new firmware from the management module even if the device is booted. When you are ready for the media converter modules to start using the new firmware, change the firmware status to enabled, and then do "Booting the Media Converter Chassis" on page 72.

7. To confirm the update after booting the system, start a new management session and enter the SHOW FIRMWARE INFO command. Refer to "Displaying Firmware Version Numbers" on page 104.

Controlling New Bootloader and Software Status

After you upload new firmware for the media converter modules to the MCF3000M management module, the modules have to retrieve it from the management module over the backplane of the chassis. They do this when you boot the unit. You can control when this happens by permitting or blocking the transfer. This is referred to as the Allow Update status. In most cases you will probably want to permit the transfer so that media converter modules begin using new firmware as soon as you upload it. But in some circumstances you might want to delay the media converter modules from using new firmware. Here, you can block the transfer so that the media converter modules cannot retrieve new firmware from the management module even when the system is booted.

The command for controlling the Allow Update status of the media converter modules is CONFIGURE LINECARD SWUPDATE. Here is the format:

```
configure linecard swupdate 0|1
```

Here are the variables:

❐   0 - Disables Allow Update. Media converter modules are blocked from retrieving firmware from the management module when the system is booted. This is the default setting.

❐   1 - Enables Allow Update. Media converter modules are permitted to retrieve firmware from the management module when the system is booted.

This example disables Allow Update, blocking media converter modules from retrieving firmware from the management module if the system is booted.

```
MCF3000>>configure linecard swupdate 0
```

This example enables Allow Update and boots the system, allowing the media converter modules to retrieve and begin using new firmware:

```
MCF3000>>configure linecard swupdate 1
MCF3000>>reboot system
```

Wait one minute for the modules to retrieve and initialize the firmware. To confirm the update, start a new management session and enter the SHOW FIRMWARE INFO command. Refer to "Displaying Firmware Version Numbers" on page 104.

Note
If, after two minutes, the SHOW FIRMWARE INFO command shows that the media converter modules have not completed the update, try booting the system again.