MasterSwitch *plus*
Power Control Unit

AP9225
AP9225EXP

Addendum

APC®

APC® MasterSwitch Plus

Contents

Contents

APC® MasterSwitch Plus

Chapter 1 Web/SNMP Management Card Wizard

Introduction

Overview

The Web/SNMP Management Card Wizard is a Windows application designed specifically to pre-configure, reconfigure, and upgrade multiple Web/SNMP Management Cards. The Wizard works locally through the serial port of your PC or remotely over your TCP/IP network. Using the Wizard to configure the Management Card, you can:

- Configure the required settings by automatic discovery remotely or locally
- Preconfigure multiple Management Cards before deployment
- Reconfigure multiple Management Cards after being deployed
- Upgrade the Firmware of the Management Card
- Create a Configuration file for BOOTP
- Create a Configuration file

System Requirements

The Wizard runs on Windows 95, Windows 98, and Windows NT 4.0 Intel-based workstations.

Obtaining updated versions of the Wizard

Updated versions of the Wizard are available as a free download from the Download Software page at http//:www.apcc.com. Access to some of the new features may require a firmware upgrade, which may involve a charge. For details on updating Management Card's firmware, "Firmware & Configuration File Transfers," on page 12.

Configuring Management Card settings

Using the Wizard, all of the Management Card's settings, except URL names and links, can be configured locally or remotely.

Note: You cannot configure any MasterSwitch Plus settings using the Wizard.

Web/SNMP Management Card Wizard

Introduction *continued*

Installing the Wizard

If autorun is enabled on your CD-ROM drive, the installation program will start automatically when the Utility CD is inserted. Otherwise, run the setup.exe installation program found in the Wizard directory and follow the on-screen instructions. During installation, a shortcut link is created in the Start menu. Use this link to launch the Wizard application.

On-line Help

The Wizard is equipped with on-line Help. To access this feature, click the Help button located in the left hand corner of the Wizard screen.

Quick Configuration of the required settings

You can quickly configure only the required settings using the Wizard. For instructions, see "Configuring the required settings," on page 4.

Pre-configuring multiple Management Cards before deployment

Pre-configuring multiple Management Cards before they are deployed depends on your organization's deployment strategy. The following list describes the different deployment options:

- Using the Wizard, you can pre-configure and deploy all of the Management Card's settings locally or the TCP/IP settings remotely through auto discovery of the Management Card. See "Pre-configuring the Management Card," on page 5 for instructions.

- You can deploy your Management Cards without any pre-configuration and let a BOOTP server assign the TCP/IP settings (System IP, Subnet Mask, and Default Gateway) and use the Wizard to reconfigure any of the Management Card's settings remotely. See "Reconfiguring deployed Management Cards," on page 8 for details.

- You can deploy your Management Cards without any pre-configuration and let a BOOTP server assign the TCP/IP settings (System IP, Subnet Mask, and Default Gateway) and specify a configuration file (*.cfg* extension). The Management Card will assume all settings specified in the configuration file. Configuration files are created using the Wizard. See "Creating a configuration file for BOOTP," on page 6 for instructions.

Web/SNMP Management Card Wizard

Introduction *continued*

Reconfiguring multiple Management Cards after they are deployed

Reconfiguring multiple Management Cards after they are deployed depends on your organization's preferences. The following list describes the options available:

- You can use the Wizard to reconfigure any of the Management Card's settings remotely. See "Reconfiguring deployed Management Cards," on page 8 for instructions.

- You can create a configuration file (.*cfg* extension) with the Wizard, and then transmit it to the Management Card. See "Creating a configuration file," on page 9 for instructions.

Upgrading firmware using the Wizard

You can easily upgrade the firmware of many Management Cards simultaneously using the Wizard. See "Upgrading firmware," on page 10 for instructions.

Web/SNMP Management Card Wizard

Using the Management Card Wizard

Overview

The Management Card Wizard allows you to direct the configuration of Management Cards to fit your needs. This section provides instructions on how to pre-configure, reconfigure, and upgrade Management Cards using the Management Card Wizard. Use the procedure that would best fit your needs.

Configuring the required settings

To configure the Management Card's required settings, follow the steps below in the order given:

1 Use the link in the Start menu to launch the Wizard application.
The Wizard will automatically detect any unconfigured Management Cards and will prompt you to configure the network settings.

2 Configure the Management Cards TCP/IP settings:
For remote configuration, wait until the Wizard prompts you for the TCP/IP settings and go on to Step 3.
To configure the Management Card's TCP/IP settings locally:

    a Select the Express (Recommended) option from the Installation Options screen. Click NEXT > to continue.

    b Select the Locally (via. Serial Port) option from the Express Configuration screen.Click NEXT > to continue.

3 Configure your network settings. At a minimum, you must configure the TCP/IP settings (System IP, Subnet Mask, Default Gateway). Please contact your network administrator to obtain valid TCP/IP settings. As long as the Management Card's TCP/IP settings are configured before deployment, the Management Card can be reconfigured remotely at a later time.

4 Click the checkbox 'Start a Web browser when finished' to connect over the Web to the Management Card that you are about to configure. This launches a default Web browser. Click Finish and wait for a few seconds to let the Card reboot.

5 After the correct (IP format) information is entered, the Finish button becomes enabled. Click this button to transmit the TCP/IP settings. The Wizard automatically checks to see if the System IP address you entered is in use on the Network. If it is discovered as an IP address in use, then simply re-enter a valid IP address and click Finish.

Note: The Finish button becomes enabled only after the all TCP/IP is entered correctly.To continue, follow the on-screen instructions.

Web/SNMP Management Card Wizard

Using the Management Card Wizard *continued*

Pre-configuring the Management Card

To pre-configure the Management Card, follow the steps below in the order given:

1 Use the link in the Start menu to launch the Wizard application. Click Next > to continue.

2 Select the Custom (Advanced) option from the Installation Options screen. Click Next > to continue.

3 Select the 'Define a New Configuration File (Typical)' option from the Custom Installation screen. Click NEXT > to continue.

4 Configure your network settings. At a minimum, you must configure the TCP/IP settings (System IP, Subnet Mask, Default Gateway, and BOOTP). As long as the Management Card's TCP/IP settings are configured before deployment, the Management Card can be re configured remotely at a later time.

   Note: If you intend to use the Management Card Wizard to reconfigure Management Cards after deployment then do NOT disable FTP Server Access.

5 Continue clicking NEXT > to cycle through the Management Card's various settings. Any settings that you do not want to configure should be left alone.

6 Stop at the screen titled "Customize the settings that will be transmitted to the Management Card," and choose to transmit the TCP/IP settings (System IP, Subnet Mask, Default Gateway, and BOOTP) and any additional options you wish to configure. Click NEXT > to continue.

7 Verify the selections you have made on the Configuration Summary screen; you can save or print the settings. If you save the settings, you can load them into the Wizard at a later time. Click Next > to continue.

8 Select the Locally (via serial port) option from the Transmit Current Settings screen. Click Next > to continue.

9 Follow the on-screen instructions. Click Apply to transmit the new settings to the Management Card. You will be prompted when the transmission is complete or if there was a communications failure.

10 To define the TCP/IP settings for the next Management Card that you want to configure, click the Rewind button on the Transmit Settings Locally screen.

Using the Management Card Wizard *continued*

Creating a configuration file for BOOTP

To create a BOOTP configuration file, follow the steps below in the order given:

1. Use the link in the Start menu to launch the Wizard application. Click Next > to continue.

2. Select the Custom (Advanced) option from the Installation Options screen. Click Next > to continue.

3. Select the 'Define a New Configuration File (Typical)' option from the Custom Installation screen

4. Click NEXT > to continue.

   Note: Generally, when using a configuration file in conjunction with BOOTP, the configuration file will contain only settings that are generic across multiple Management Cards.

5. Click Next > to continue through the Management Card's various settings. Any settings that you do not want to configure should be left alone.

   Note: If you intend to use the Management Card Wizard to reconfigure Management Cards after they are deployed, then do NOT disable FTP Server Access.

6. Stop at the screen titled "Customize the settings that will be transmitted to the Management Card," and choose the settings you want to transmit to the Management Card. At a minimum, you should deselect the TCP/IP settings (System IP, Subnet Mask, Default Gateway, and BOOTP) since those settings are specified by the BOOTP server. It is also recommended that FTP Server Access be deselected. Click Next > to continue.

7. Verify the selections you have made in the Configuration Summary screen and print the summary text box.

8. Save your settings.

   Note: Saving automatically produces two files. One of the files is a text-editable configuration file (.ini extension) that can be reloaded into the Wizard, the other is a binary configuration file (.*cfg* extension). The binary configuration file contains only the settings that were selected in the Customize the settings that will be transmitted to the Management Card screen

Web/SNMP Management Card Wizard

Using the Management Card Wizard *continued*

Creating a configuration file for BOOTP, continued

9 Specify the Management Card's System IP, Subnet Mask, and Default Gateway in the BOOTPTAB file of your BOOTP server. Specify the binary configuration file(*.cfg* extension) that was saved in the previous step as the Bootup Filename, which may be up to 32 characters in length and may contain path information.

10 Install or reboot the Management Card to make a BOOTP request. You can reboot the Management Card in the Control Console or Web Interface using the System->Tools menu, or in SNMP via the mcontrolRestartAgent OID. You can also reboot by pressing the white Reset button on the faceplate

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BOOTP summary of events

When the Management Card receives the BOOTP response, it will assume the System IP, Subnet Mask, and Default Gateway. The Management Card will also automatically recognize that a configuration file has been specified in the Bootup Filename and it will attempt to download that file.

The Management Card will first make a TFTP request for the Bootup Filename from the same IP address that supplied the BOOTP response. If a TFTP server is present on that computer, and the configuration file is in the appropriate directory then the Management Card will download the configuration file and assume all of the specified settings.

If the TFTP request fails then the Management Card will make an FTP request for the Bootup Filename from the same computer which supplied the BOOTP response. The FTP request will use the FTP Client User Name and Password (defaults for both are apc) previously configured in the Management Card to login to the FTP server. If the FTP server is present and the configuration file is in the appropriate directory then the Management Card will download the configuration file and assume all of the specified settings.

Using the Management Card Wizard, *continued*

Reconfiguring deployed Management Cards

To reconfigure the Management Card, follow the steps below in the order given:

1 Use the link in the Start menu to launch the Wizard application. Click Next > to continue.

2 Select the Custom (Advanced) option from the Installation Options screen. Click Next > to continue.

3 Select the 'Define a New Configuration File (Typical)' option from the Custom Installation screen

4 Click NEXT > to continue.

> **Note**: Generally, when using a configuration file in conjunction with BOOTP, the configuration file will contain only settings that are generic across multiple Management Cards.

5 Click Next > to continue through the Management Card's various settings. Any settings that you do not want to configure should be left alone.

> **Note:** If you intend to use the Management Card Wizard to reconfigure Management Cards after they are deployed, then do NOT disable FTP Server Access.

6 Stop at the screen titled "Customize the settings that will be transmitted to the Management Card." Select the settings you want to transmit to the deployed Management Cards. Deselect, the TCP/IP (System IP, Subnet Mask, Default Gateway, and BOOTP) and FTP Server Access settings because the are not transmitted. Finish selecting the options you want to reconfigure.

7 Click Next > to continue. Verify the selections you have made, on the Configuration Summary Screen. Save and print the summary text box by clicking the appropriate buttons. If you save these settings, you can load them into the Wizard at a later time.

> **Note:** Make sure that you have selected ONLY the settings that you want to reconfigure. You can inadvertently overwrite the deployed Management Card settings if you have not properly deselected the settings that you do NOT want to reconfigure. All settings that have a YES in the Send column of the Configuration Summary screen will be transmitted.

8 Click Next > to continue.

Web/SNMP Management Card Wizard

Using the Management Card Wizard *continued*

Reconfiguring deployed Management Cards, continued

9. Select the Remotely (over network via FTP Server) option from the Transmit Current Settings screen. Click Next > to continue

10. Add the IP addresses of the Management Cards that you want to reconfigure on the Remote File Transfer screen. If the deployed Management Cards have different settings for the Administrator User Name, Password, and FTP Server Port then change the values in the wizard to reflect those values. If you have a saved list of Management Card IP addresses, you can load them by clicking the Load... button. Click Next > to continue.

11. Click Apply in the Remote File Transfer via FTP screen to transmit the new settings to all of the Management Cards specified in the previous screen. After transmitting the settings to all of the Management Cards, a transmission log will be available. The log can be saved, printed, or cleared by clicking the appropriate button.

Creating a configuration file

To create a configuration file, follow the steps below in the order given:

1. Use the link in the Start menu to launch the Wizard application. Click Next > to continue.

2. Select the Custom (Advanced) option from the Installation Options screen. Click Next > to continue.

3. Select the 'Define a New Configuration File (Typical)' option from the Custom Installation screen.

4. Click Next > to continue through the Management Card's various settings. Any settings that you do not want to configure should be left alone.

   Note: If you intend to use the Management Card Wizard to reconfigure Management Cards after they are deployed, then do NOT disable FTP Server Access.

5. Stop at the screen titled 'Customize the settings that will be transmitted to the Management Card,' and choose the settings you want to transmit to the Management Card. At a minimum, you should deselect the TCP/IP settings (System IP, Subnet Mask, Default Gateway, and BOOTP) since those settings are specified by the BOOTP server. It is also recommended that FTP Server Access be deselected.

Web/SNMP Management Card Wizard

Using the Management Card Wizard *continued*

Creating a configuration file, continued

6 Click Next > to continue.

7 Verify the selections you have made in the Configuration Summary screen and print the summary text box.

Note: Make sure that you have selected ONLY the settings that you want to reconfigure. You can inadvertently overwrite the deployed Management Card settings if you have not properly deselected the settings that you do NOT want to reconfigure. All settings that have a YES in the Send column of the Configuration Summary screen will be transmitted.

8 Save your settings.

Note: Saving automatically produces two files. One of the files is a text-editable configuration file (.ini extension) that can be reloaded into the Wizard, the other is a binary configuration file (.*cfg* extension). The binary configuration file contains only the settings that were selected in the Customize the settings that will be transmitted to the Management Card screen

9 Transmit the binary configuration file (.*cfg* extension) to the Management Card. "Firmware & Configuration File Transfers," on page 12 for detailed explanations of the various file transfer options available.

Upgrading firmware

Make sure that the Management Cards that you want to upgrade have had their TCP/IP settings configured and that they are connected to the network.To upgrade the Management Card's firmware, follow the steps below in the order given:

1 Use the link in the Start menu to launch the Wizard application.

2 The main screen displays the software version of the Wizard. Click Next > to continue.

3 Select the Custom (Advanced) option from the Installation Options screen. Click Next > to continue.

4 Select the 'Upgrade Firmware' option from the Custom Installation screen. Click Next > to continue.

Note: You cannot configure any MasterSwitch *plus* settings either locally (via the serial port) or remotely (over the network via FTP) using the Wizard.

Web/SNMP Management Card Wizard

Using the Management Card Wizard *continued*

Upgrading firmware, continued

5 Press the Browse buttons for both the APC Operating System and Application Firmware Modules. Select the appropriate file. If the wrong file type is selected a warning will be displayed. "Firmware & Configuration File Transfers," on page 12 for details about how to obtain new firmware modules from APC.

6 Add the IP addresses of the Management Cards that you want to upgrade. If the deployed Management Cards have different settings for the Administrator User Name, Password, and FTP Server Port then change the values in the wizard to reflect those values. If you have previously saved a list of Management Card IP addresses then you can load them by clicking the Load… button. Click Next > to continue.

7 Click Apply to transmit the new firmware to all of the Management Cards specified in the previous screen. After transmitting the firmware to all of the Management Cards, a transmission log will be available. The log can be saved, printed, or cleared by clicking the appropriate button.

Chapter 2   Firmware & Configuration File Transfers

Introduction

Overview

The Web/SNMP Management Card (hereby referred as the Management Card) automatically recognizes two types of binary files: firmware and configuration. Both types of files contain a header and one or more Cyclical Redundancy Checks (CRCs) to ensure that the data contained in the files is not corrupted before or during the transfer operation.

When new firmware is transmitted to the Management Card, the program code is updated and new features become available. When a configuration file is transmitted to the Management Card, the configuration settings are updated accordingly, and the Management Card ignores any other type of files transmitted.

There are several ways to transfer firmware and configuration files to the Management Card. This chapter describes the following options available for transferring files to the Management Card: Upgrading the Management Card's Firmware and Updating the Management Card's Configuration Settings.

Note: Firmware upgrade is available for the Management Card, not the Master-Switch *plus* device.

Transferring Firmware & Configuration Files

Upgrading the Management Card's Firmware

Firmware defined

Broadly defined, firmware is highly specialized, reliable software that runs on non-PC type computers. The firmware allows the Management Card to perform useful work, like managing the MasterSwitch *plus* device.

Benefits of upgrading firmware

Upgrading the firmware on the Management Card has several benefits. First, new firmware will have the latest bug fixes and performance improvements. Second, any new features that have been added will become available for immediate use. Third, keeping the firmware versions consistent across your network simplifies the management task, since all Management Cards will support the same features in the same manner.

Obtaining latest firmware version

To get the latest firmware version, contact APC Customer Support. The firmware upgrade consists of the following two files: the AOS (APC Operating System) module and the application module. The AOS module contains the operating system and network stack. The application module provides the Management Card with several user interfaces and the ability to speak to MasterSwitch *plus* and Measure-UPS *II*. Depending on the type of upgrade, there may be a charge. Contact APC Customer Support for details.

Before you begin upgrading your firmware

Before you begin a firmware upgrade, it is important that you understand some basic terminology, as well as the steps required. Becoming familiar with the information in this section will save you time when upgrading firmware on a Management Card.

Transferring Firmware & Configuration Files

Upgrading the Management Card's Firmware *continued*

Firmware files

A firmware upgrade consists of two files; one of the files is the APC Operating System module (AOS), and the other is the application module.

The AOS module. This file contains the operating system and network stack. The AOS module file name has the following format:

AOS101.bin

- AOS: indicates that this is a APC Operating System module.
- 101: indicates that the version is v1.0.1.
- bin: indicates that this is a binary file.

The application module. This file provides the Management Card with several user interfaces and the ability to communicate with the MasterSwitch *plus* and Measure-UPS. The application module file name will have the following format:

msp101.bin

- msp: indicates that this is an application module for the MasterSwitch *plus*.
- 101: indicates that the version is v1.0.1.
- bin: indicates that this is a binary file.

The AOS module must be transmitted to the Management Card first. Once the new AOS module has been successfully transferred, the application module must be transmitted to the Management Card. See "Upgrading the Firmware" on page 14 for detailed instructions on how to transfer both modules to the Management Card.

Upgrading the Firmware

Below are the methods, listed in order of simplicity, used to upgrade the Management Card's firmware:

- Upgrading using the Web/SNMP Management Card Wizard
- Upgrading multiple Management Cards that are available on the network See "Upgrading firmware using the Wizard" on page 3 for detailed instructions.
- Upgrading using XMODEM for Management Cards that are not available on the network. See "Procedure for upgrading using XMODEM" on page 17 for detailed instructions.

Transferring Firmware & Configuration Files

Upgrading Using the Network

Upgrading a single Management Card on the network

To upgrade a single Management Card that is available on the network, use a command prompt FTP Client. To perform an upgrade using this method, the Management Card must be:

- configured with a System IP, Subnet Mask, and Default Gateway;
- attached to the network; and
- set up so that FTP Server is enabled.

To upgrade using a command prompt FTP Client, perform the following steps in the order given:

1 Open an MS-DOS command prompt window on a PC that is connected to the network. Go to the directory that contains the firmware upgrade files and enter the commands shown in **bold**:

```
C:\>cd\apc
C:\apc>dir
 Volume in drive C has no label
 Volume Serial Number is 405F-1BD2
 Directory of C:\apc
. <DIR>        10-08-98 4:59p .
.. <DIR>       10-08-98 4:59p ..
AOS101 BIN     327,680 10-08-98 1:02p aos101.bin
MSP101 BIN     458,752 10-07-98 4:39p msp101.bin
2 file(s)      786,432 bytes
2 dir(s)       763,691,008 bytes free

C:\apc>
```

2 Open an FTP client session:

```
C:\apc> ftp
ftp>
```

3 Connect to the Management Card:

- If the Management Card's FTP Server Port is 21 (the default), use the following command:

    ftp> **open 150.250.6.10**

- If you have changed the Management Card's default FTP Server Port to a value other than 21, then use the following command:

    ftp> **open 150.250.6.10 21000**

Continued on next page

Upgrading Using the Network *continued*

Upgrading a single Management Card on the network, continued

4 Log in using the Administrator user name and password. If you have changed your passwords, they may be different than the defaults shown below, "apc" and "apc".

```
Connected to 150.250.6.10.
220- APC FTP server ready.
220
User (150.250.6.10:(none)):apc
331 User name okay, need password.
Password:apc
230 User logged in, proceed.
ftp>
```
Note: Typically, the password will appear on the screen as ***.

5 Upgrade the AOS:

```
ftp> bin
200 Command okay.
ftp>
ftp> put AOS101.bin
200 Command okay.
150 Opening data connection for AOS101.bin
250 Requested file action okay, completed.
Management Card Rebooting....
327680 bytes sent in 5.99 seconds (54.70 Kbytes/sec)
ftp>
```

6 Close the FTP client session:

```
ftp>quit
C:\apc>
```

7 Wait 20 seconds.

8 Repeat Steps 3–8 for the application module. In Step 6, use the application module file name (the one with the msp prefix) in place of the AOS module file name.

Upgrading multiple management cards on the network

To upgrade multiple management cards using an FTP client, write a script which automatically performs the steps in the previous section.

Transferring Firmware & Configuration Files

Upgrading Using XMODEM

Procedure for upgrading using XMODEM

To upgrade the firmware using XMODEM, follow the steps below in the order given:

1 Connect serially to the Management Card:

    a Connect the Management Card to an available serial port on the host computer using the supplied cable (APC part number 940-0024C).

    b If PowerChute is running, stop that service.

    c Open a terminal session. Configure the terminal session to 2400bps, no parity, 8 data bits, 1 stop bit, and no flow control.

        Note:If you are using HyperTerminal select Call->Disconnect and then Call->Connect to apply the changes to the serial port.

    d Press ENTER until a User Name prompt appears.

        Note:If you do not see the prompt, make sure that you have the proper cable and that the communication settings are correct.

2 Log into the Management Card:

    a Enter the Administrator User Name and Password.

        Note:The default for both is "apc". If you have changed the Administrator User Name and Password, use the new settings.

3 Start an XMODEM transfer:

    a Select option 3—System.

    b Select option 4—File Transfer.

    c Select option 2—XMODEM.

    d Enter **Yes** at the prompt to continue with the transfer.

4 Select the appropriate baud rate. The higher the baud rate, the faster the firmware upgrades.

5 Change the terminal program's baud rate to match the one you selected in step 4.

    Note If you are using HyperTerminal select Call->Disconnect and then Call->Connect to apply changes made to the serial port. Press ENTER to continue.

6 From the terminal program's menu, select the binary AOS file to transfer via XMODEM-CRC.

Transferring Firmware & Configuration Files

Upgrading Using XMODEM *continued*

Procedure for upgrading using XMODEM, continued

7   After the XMODEM transfer is complete, set the baud rate to 2400. The Management Card will automatically reboot itself.

   Note: Never remove the Management Card before it completes the reboot cycle or the card will be damaged. The reboot cycle is complete when the status LED turns off, then turns solid green or slowly flashes red after 20 seconds.

8   Repeat Steps 1–7 to install the application module. In Step 6, substitute the application module file name (the one with the msp prefix) for the AOS module file name.

Transferring Firmware & Configuration Files

Verifying Upgrades

Overview   You can verify that the firmware upgrade was successful by looking at the Last Transfer Result message. This message is available in the Control Console and Web interface in the System->File Transfer menu and via SNMP using the mfiletransferStatusLastTransferResult OID.

Transfer result codes   Table 1 lists the possible Last Transfer Result codes.

Code	Description
Successful	The file transfer was successful.
Result not available	There are no recorded file transfers.
Failure unknown	The last file transfer failed for an unknown reason.
Server inaccessible	The TFTP or FTP server could not be found on the network
Server access denied	The TFTP or FTP server denied access.
File not found	The TFTP or FTP server could not locate the requested file.
File type unknown	The file was downloaded but the contents were not recognized.
File corrupt	The file was downloaded but at least one CRC was bad.

Table 1: Last Transfer Result Codes

You can also verify that the expected versions of the newly upgraded APC Operating System and application modules are displayed in the Web interface and Control Console System->About Card menu and via SNMP using the MIB II sysDescr OID.

Transferring Firmware & Configuration Files

Updating the Management Card's Configuration Settings

Configuration settings
The Management Card stores its configuration settings internally. These include TCP/IP, TFTP, FTP, Web, Measure-UPS II, password, and system settings. Configuration settings do not include MasterSwitch *plus* settings.

Editing configuration settings
There are several ways to edit the Management Card's configuration settings. One method is to log into either the Web interface or Control Console serially, or through Telnet. Any setting that can be edited can be changed in these interfaces. Another method is to perform Sets via SNMP. Only settings which have OIDs in the MIB defined as read-write can be edited.

Configuration files
Configuration files provide another way to alter the settings of a Management Card. A configuration file is a binary-encoded file that includes a header, multiple CRCs, and configuration data; it is not editable in a text editor, since such changes would cause the CRCs to be incorrect.

After transferring a configuration file to the Management Card, the Card will assume all of the new settings specified in the configuration file. A configuration file will have a *.cfg* extension.

Creating configuration files
Configuration files can be created with the Web/SNMP Management Card Wizard. The Wizard operates under Windows 95, Windows 98, and NT 4.0. See "Web/SNMP Management Card Wizard" on page 1 for details on how to create a configuration file.

Transferring configuration files to a Management Card
There are several ways to transfer a configuration file to a Management Card. You can:

- Specify the configuration file as the BOOTP filename in a BOOTP response.
- Use the Web/SNMP Management Card Wizard (included on CD-ROM) to transfer the configuration file to one or more Management Cards.
- Upload the configuration file to the Management Card using FTP.
- Initiate a TFTP or FTP download of a configuration file via Web, Control Console, or SNMP.

Transferring Firmware & Configuration Files

Updating the Management Card's Configuration Settings *continued*

Updating using a BOOTP bootup filename

To update the configuration settings using a BOOTP bootup filename, follow the steps below in the order given:

1 Create a binary configuration file (.*cfg* extension). See "Web/SNMP Management Card Wizard" on page 1 for details.

2 In the BOOTPTAB file of your BOOTP server, specify the Management Card's System IP, Subnet Mask, and Default Gateway. Specify the configuration file as the Bootup Filename.

   Note: The Bootup Filename must be less than 33 characters, and may contain path information.

3 Install or reboot the Management Card, to initiate a BOOTP request. You can reboot the Management Card in the Control Console or Web Interface, under the System>Tools menu, or in SNMP via the mcontrolRestartAgent OID. You can also reboot the Management Card by pressing the white Reset button on the faceplate.

Verifying the update

When the Management Card receives the BOOTP response it will assume the System IP, Subnet Mask, and Default Gateway. The Management Card will also automatically recognize that a configuration file has been specified in the Bootup Filename and will attempt to download that file.

The Management Card will make a TFTP request for the Bootup Filename from the same IP address that supplied the BOOTP response. If a TFTP server is present on that computer and the configuration file is in the appropriate directory, then the Management Card will download the configuration file and assume all of the specified settings.

If the TFTP request fails, the Management Card will make an FTP request for the Bootup Filename from the same computer that supplied the BOOTP response. The FTP request will use the FTP Client User Name and Password, previously configured in the Management Card, to log in to the FTP server. If the FTP server is present and the configuration file is in the appropriate directory, the Management Card will download the configuration file and assume all of that file's specified settings.

You can see whether the file transfer was successful by looking at the Web interface or Control Console System->File Transfer menu or SNMP via the mfiletransferStatusLastTransferResult OID.

Transferring Firmware & Configuration Files

Updating the Management Card's Configuration Settings *continued*

Updating using the Web/SNMP Management Card Wizard

To update the configuration settings using the Management Card Wizard, follow the steps below in the order given:

> **Note:** Please Refer to Chapter 6 Web/SNMP Management Card Wizard for a detailed description of how to update the configuration settings of one or more Management Cards. The following steps describe only the general process of updating the configuration settings and do not address many of the available options.

1 Install (if necessary) and run the Web/SNMP Management Card Wizard (included on CD-ROM). For details on installing the Wizard, See "Web/SNMP Management Card Wizard" on page 1.

2 If you have a saved ini file, load it and change any settings as needed. You can also create and save new settings.

3 Click Finish.

4 Select the settings you want to transmit to the Management Card.

5 Click Next> to continue.

6 You can view, print, and save your new settings. When finished click Next> to continue.

7 Choose the Network (via FTP) and click Next> to continue.

8 If you have saved a list of Management Card IP addresses, load that list now. If you do not have a saved list, enter the IP addresses of the Management Cards that you want to send the configuration settings. Enter the FTP Server Port and Administrator user name and password of the Management Cards that you are transmitting the settings to.

9 Save the new IP address list and click <Next> to continue.

10 Click Apply to transmit the configuration settings to all of the specified Management Cards. You can save, print, or clear the window containing the download results.

Updating the Management Card's Configuration Settings *continued*

Updating using an FTP Client

To update the configuration settings using an FTP Client, follow the steps below in the order given:

1 Create a configuration file by using the Web/SNMP Management Card Wizard (included on CD-ROM). See "Web/SNMP Management Card Wizard" on page 1 for details.

2 Open an MS-DOS command prompt window on a machine that is connected to the network.

3 Go to the directory containing the configuration file and enter the following commands shown in bold:

```
C:\>cd\apc
C:\apc>dir
 Volume in drive C has no label
 Volume Serial Number is 405F-1BD2
 Directory of C:\apc
. <DIR>          10-08-98 4:59p .
.. <DIR>         10-08-98 4:59p ..

MYCONFIG CFG 146 10-08-98 1:02p myconfig.cfg
1 file(s)          146 bytes
2 dir(s)           763,691,008 bytes free
C:\apc>
```

4 Open an FTP client session:

```
C:\apc> ftp
ftp>
```

5 Connect to the Management Card:

- If the Management Card's FTP Server Port is 21 (the default) use the following command:

  ftp> **open 150.250.6.10**

- If you have changed the Management Card's default FTP Server Port to a value other than 21, use the following command:

  ftp> **open 150.250.6.10 21000**

Continued on next page

Transferring Firmware & Configuration Files

Updating the Management Card's Configuration Settings *continued*

Updating using an FTP Client, continued

6 Log in using the Administrator user name and password:

> Connected to 150.250.6.10.
> 220- APC FTP server ready.
> 220
> User (150.250.6.10:(none)):**apc**
> 331 User name okay, need password.
> Password:**apc**
> 230 User logged in, proceed.
> ftp>

> **Note**: Your passwords may be different than the defaults of "apc", and
> typically will appear on the screen as ***.

7 Upload the configuration file, identified by a *.cfg* extension:

> ftp> **bin**
> 200 Command okay.
> ftp>ftp> **put myconfig.cfg**
> 200 Command okay.
> 150 Opening data connection for myconfig.cfg
> 250 Requested file action okay, completed.
> Management Card Rebooting....
> 146 bytes sent in 0.00 seconds (146000.00 Kbytes/sec)
> ftp>

8 Close the FTP client session:

> ftp>**quit**
> C:\apc>

9 Verify that the file transfer was successful by looking at the Web interface or Control Console System->File Transfer menu or SNMP via the mfiletransferStatusLastTransferResult OID.

Transferring Firmware & Configuration Files

Updating the Management Card's Configuration Settings *continued*

Updating by initiating a TFTP download

To update the configuration settings, using a TFTP download, follow the steps below in the order given:

1. Create a configuration file by using the Web/SNMP Management Card Wizard. See "Web/SNMP Management Card Wizard" on page 1 for details.

2. Configure the TFTP Remote Server IP to the address of the computer that is running the TFTP server by using one of the following procedures:

   - Web Interface: Log in to the Web interface as the administrator, then access the Network->TFTP/FTP page. Configure the TFTP Client Remote Server IP to the address of the TFTP server.

   - Control Console: Log in to the Control Console as the administrator, then access the Network->TFTP Client menu. Configure the Remote Server IP to the address of the TFTP server.

   - SNMP: Set the mfiletransferConfigTFTPServerAddress OID to the address of the TFTP server.

3. Set the name of the configuration file by using one of the following methods:

   - Web Interface:Access the System->File Transfer page. Set the Filename to the name of the configuration file you want to download. The Filename may include path information if desired.

   - Control Console: Access the System->File Transfer->Settings menu. Set the Filename to the name of the configuration file you want to download. The Filename can include path information.

   - SNMP: Set the mfiletransferConfigSettingsFilename to the name of the configuration file you want to download. The Filename can include path information.

4. Initiate the TFTP download using one of the following methods:

   - Web Interface: Access the System->File Transfer page. Select TFTP from the Initiate File Transfer Via drop down box. Click Apply to initiate the download.

   - Control Console: Access the System->File Transfer->TFTP Client menu. Enter **Yes** to initiate the download.

   - SNMP: Set the mfiletransferControlInitiateFileTransfer OID to initiatefFileTransferDownloadViaTFTP.

5. Verify that the file transfer was successful by checking the Web interface or Control Console System->File Transfer menu or SNMP via the mfiletransferStatusLastTransferResult OID.

Updating the Management Card's Configuration Settings *continued*

Updating by initiating a FTP download

To update the configuration settings using a FTP download, follow the steps below in the order given:

1 Create a configuration file by using the Web/SNMP Management Card Wizard (included on CD-ROM). See "Web/SNMP Management Card Wizard" on page 1.

2 Configure the FTP Remote Server IP, User Name, and Password through one of the following methods:

- Web Interface: Log in to the Web interface as the administrator, then access the Network->TFTP/FTP page. Configure the FTP Client Remote Server IP, User Name and Password to the address, user name and password of the FTP server.

- Control Console: Log in to the Control Console as the administrator, then access the Network->FTP Client menu. Configure the Remote Server IP, User Name and Password to the address, user name and password of the FTP server.

- SNMP: Set the mfiletransferConfigFTPServerAddress, mfiletransferConfigFTPServerUser, and mfiletransferConfigFTP-ServerPassword OIDsto the address, user name and password of the FTP server.

3 Set the name of the configuration file through one of the following methods:

- Web Interface: Access the System->File Transfer page. Set the Filename to the name of the configuration file you want to download. The Filename can include path information.

- Control Console: Access the System->File Transfer->Settings menu. Set the Filename to the name of the configuration file you want to download. The Filename can include path information.

- SNMP: Set the mfiletransferConfigSettingsFilename to the name of the configuration file you want to download. The Filename can include path information.

Updating the Management Card's Configuration Settings *continued*

Updating by initiating a FTP download, continued

4 Initiate the FTP download through one of the following methods:

- Web Interface: Access the System->File Transfer page, then select FTP from the Initiate File Transfer Via drop down box. Click Apply to initiate the download.

- Control Console: Access the System->File Transfer->FTP Client menu. Enter **Yes** to initiate the download.

- SNMP: Set the mfiletransferControlInitiateFileTransfer OID to initiatefFileTransferDownloadViaFTP.

5 Verify that the file transfer was successful by checking the Web interface or Control Console System->File Transfer menu or at SNMP via the mfiletransferStatusLastTransferResult OID.

Verifying that the update was successful

You can verify that the configuration file transfer was successful by looking at the Last Transfer Result message. This message is available in the Control Console and Web interface in the System->File Transfer menu and via SNMP using the mfiletransferStatusLastTransferResult OID. Table 2 lists the possible Last Transfer Result codes.

Code	Description
Successful	The file transfer was successful.
Result not available	There are no recorded file transfers.
Failure unknown	The last file transfer failed for an unknown reason.
Server inaccessible	The TFTP or FTP server could not be found on the network
Server access denied	The TFTP or FTP server denied access.
File not found	The TFTP or FTP server could not locate the requested file.
File type unknown	The file was downloaded but the contents were not recognized.
File corrupt	The file was downloaded but at least one CRC was bad.

Table 2: Last Transfer Result Codes

—27—