Contents

About This Guide

Purpose of the Guide

Use this guide to assist you in managing American Power Conversion products that can be monitored and configured with the Simple Network Management Protocol (SNMP).

Related Documents and Files

This guide describes how to use the PowerNet® MIB only.

- See the *User's Guide* and any other documentation shipped with your product for information about other interfaces you can use to manage that product.

- See the documentation provided with your Network Management System (NMS) for information about your NMS.

- For information on product-specific OIDs, use a standard MIB browser to view their descriptions in the MIB.

- For information on traps, open the .mib file itself and go to the consecutively numbered traps at the end of the file.

For assistance with this or any other American Power Conversion product, contact APC Worldwide Customer Support.

PowerNet MIB Structure

Traps

Management Cards, devices, and agents can send traps to a Network Management System (NMS) when specific events occur. The trap receiver definitions that a particular Management Card, device, or agent uses determine which NMSs can receive traps. The MIB provides the meaning of each trap.

See PowerNet MIB Traps.

OIDs

Products than can use OIDs

PowerNet MIB OIDs allow an NMS to use its SNMP browser to manage the following:

- Any product that relies on an external, pre-installed, or embedded (built-in) Management Card for its network interface and that has its SNMP access controls set to allow an NMS to have SNMP access.
- A PowerNet Agent and the devices it controls. A PowerNet Agent has limited control over a UPS and does not use SNMP access controls.

SNMP access controls

You can use the Web interface or control console of a Management Card or a device with an embedded Management Card to define these SNMP access controls for up to four SNMP communities (SNMPv1), four user profiles (SNMPv3), or both:

- Disable SNMP access to prevent access by any NMS (SNMPv1 and SNMPv3).
- Associate an NMS IP address to an SNMP community name (SNMPv1) or to a user profile (SNMPv3) to limit access to only the defined NMS.

Schneider Electric

- Configure the access for an NMS to an SNMP community as write access, read access, or no access (SNMPv1).

For more information on SNMP access controls, see the *User's Guide* for your Management Card or network-enabled device.

Structure of the OID hierarchy in the SNMP browser

The PowerNet MIB fits into a hierarchical structure within your SNMP browser's categories. For example, for an HP OpenView for Windows SNMP browser, the OID categories from the top of the structure down to the top category of PowerNet MIB OIDs are as follows:

- **[iso]** (for International Standards Organization)
- **[org]** (for organization)
- **[dod]** (for Department of Defense)
- **[internet]**
- **[private]**
- **[enterprises]**
- **[apc]** (for American Power Conversion)

Structure of the OID hierarchy in the PowerNet MIB

In the hierarchical structure of the PowerNet MIB, the **[apc]** category of OIDs is at the top, and individual OIDs are in specific OID categories or within specific *OID tables*.

See Tabled OIDs.

There are two categories under **[apc]**:

- **[products]** for OIDs to manage specific products.
- **[apcmgmt]** for OIDs that affect the operation of hardware-based SNMP agents (for example, Management Cards and MasterSwitch™ units).

See Manage Agents and Management Cards.

Schneider
Electric

There are three categories under **[products]**:

- **[hardware]** contains sub-categories for each type of hardware product that you can manage using PowerNet MIB OIDs.

- **[software]** contains one sub-category, **[powerNetSubAgent],** of read-only OIDs to monitor a software PowerNet agent only.

     See Manage Agents and Management Cards.

- **[system]** contains read-only OIDs that identify models of American Power Conversion UPSs and other devices by unique numbers that other OIDs can reference. For example, the system OIDs in other OID categories of the PowerNet MIB use a PowerNet MIB **[system]** OID number for the MIB-II's **[sysObjectID]** value.

Tabled OIDs

For any PowerNet MIB OID category listed in the SNMP browser, you can access a list of the current values for all OIDs in that category and in all sub-categories below it in the hierarchy, except OIDs grouped in a table. To access the current values of OIDs in an OID table, select the OID table (always enclosed in braces {}) in the SNMP browser. For example, to access the OIDs that define all four trap receivers that you can configure through SNMP for a device, select **{mconfigTrapReceiverTable}** in the SNMP browser.

Manage Agents and Management Cards

Locate the OIDs

To find the OIDs to perform the tasks described in Monitor a PowerNet Agent, use your MIB browser to select, in order, the following OID categories:

- **[apc]**
- **[products]**
- **[software]**
- **[powerNetSubAgent]**
- **[powerNetSoftwareSystem]** or **[powerNetSoftwareConfig]**

To find the OIDs to perform the tasks described in Manage an SNMP Agent of a Hardware Device, use your MIB browser to select, in order, the following OID categories:

- **[apc]**
- **[apcmgmt]**
- Any of the following:
  - **[mcontrol]**
  - **[mconfig]**
  - **[mtrapargs]**
  - **[mfiletransfer]**

Monitor a PowerNet Agent

Use the **[powerNetSubAgent]** OIDs to view information about a PowerNet agent. These OIDs are in two sub-categories, **[powerNetSoftwareSystem]** and **[powerNetSoftwareConfig]**.

Schneider
Electric

View information about an agent

Use the **[powerNetSoftwareSystem]** OIDs to view information about the agent, including its version number, the technology that it uses to implement the PowerNet MIB, and the length of time it has been running continuously on the network.

```
powerNetSoftwareSystemDescription
powerNetSoftwareOid
powerNetSoftwareSystemUpTime
```

View information about an agent's software modules

Use the **[powerNetSoftwareConfig]** tabled OIDs to view the version number, name, and installation date (in the format *mm-dd-yy*) of any of the agent's software modules.

```
powerNetSoftwareTableSize
{powerNetSoftwareTable}
  [powerNetSoftwareEntry]
      moduleNumber
      moduleName
      moduleVersion
      moduleDate
```

Manage an SNMP Agent of a Hardware Device

Use the **[apcmgmt]** OIDs to manage the SNMP agent of a hardware device, such as the Network Management Card (installed, pre-installed, or embedded) of a UPS or other device. The **[apcmgmt]** OIDs are in four subcategories: **[mconfig]**, **[mcontrol]**, **[mtrapargs]**, and **[mfiletransfer]**.

View BOOTP value; set trap receivers, date, and time

Use the **[mconfig]** OIDs to perform the following tasks:

- Identify whether BOOTP is enabled (so that BOOTP provides the device's IP configuration) or disabled (so that the device uses its stored IP configuration).
- Configure up to four NMSs as trap receivers as described in How To Define Trap Receivers.

Schneider
Electric

6

- Configure the date and time on a Management Card or other device.

```
mconfigBOOTPEnabled
mconfigNumTrapReceivers
{mconfigTrapReceiverTable}
  [mconfigTrapReceiverEntry]
      trapIndex
      receiverAddr
      communityString
      severity  (obsolete: always returns 0)
      acceptThisReceiver
      receiveTrapType  (obsolete: always returns 1)
mconfigClock
mconfigClockDate
mconfigClockTime
```

Control the agent's rebooting behavior

Use the one **[mcontrol]** OID to control when a Network Management Card or network-enabled device reboots and whether basic network settings or agent code are changed. No reboot occurs if a user is logged on to the Management Card or device.

```
mcontrolRestartAgent
```

Use the available values described in the MIB file to do any of the following:

- Reboot the Management Card or device now.
- Download new agent code (if available) and reboot the Management Card or device.
- Reset basic TCP/IP settings of the Management Card or device to their defaults (optionally including the resetting of its boot mode to **DHCP and BOOTP**) and perform a reboot.

> **Note**
>
> Value 3 now applies to the Network Management Card and to other network-enabled devices. The three PowerNet adapters mentioned in the description in the MIB file for value 3 are not longer sold by AmericanmPC.
>
> Value 4 is now obsolete.

Enable traps to use a specific argument type

Use the **[mtrapargs]** OIDs to enable traps to use an argument of a specific type (integer, IP address, octet string, Gauge, or TimeTicks), which may not be defined as part of the APC MIB.

```
mtrapsapargsInteger
mtrapsapargsIpAddress
mtrapsapargsString
mtrapsapargsGauge
mtrapsapargsTimeTicks
```

Enable transfer of any file that is supported by the Management Card

Use the **[mfiletransfer]** OIDs to allow the transfer of any type of file that the Management Card can recognize. The **[mfiletransfer]** OIDs are in three sub-categories: **[mfiletransferStatus]**, **[mfiletransferConfig]**, and **[mfiletransferControl]**.

View the results of the most recent file transfer attempt. Use the one OID in the **[mfiletransferStatus]** category to find out whether the most recent attempt to transfer a file succeeded or failed, and if it failed, the reason for the failure.

Provide the required parameters to transfer the file. Use the OIDs in the three subcategories under the **[mfiletransferConfig]** to provide the following parameters needed to transfer the file:

• The file name and path

• The IP address for the remote TFTP server (if you are using TFTP for the transfer)

• The IP address, user name, and password for the remote FTP server (if you are using FTP for the file transfer)

The **[mfiletransferConfigSettings]** subcategory has one OID:

```
mfiletransferConfigSettingsFileName
```

The **[mfiletransferConfigTFTP]** subcategory has one OID:

```
mfiletransferConfigTFTPServerAddress
```

Schneider
Electric

The **[mfiletransferConfigFTP]** subcategory has these OIDs:

```
mfiletransferConfigFTPServerAddress
mfiletransferConfigFTPServerUser
mfiletransferConfigFTPServerPassword
```

Perform the file transfer. Use the OID in the **[mfiletransferControl]** category to download the file from the TFTP server or from the FTP server.

```
mfiletransferControlInitiateFileTransfer
```

PowerNet MIB Traps

Overview

This section describes how to define which NMSs can receive PowerNet MIB traps.

See How To Define Trap Receivers.

No device can generate all traps, and no NMS can receive a trap until at least one of the four trap receiver definitions exists for the device. By default, all devices, Management Cards, and agents have no trap receivers defined.

How To Define Trap Receivers

You can define trap receivers as follows:

- Each Management Card or other hardware device can send traps to up to six trap receivers, but you can define only four through the PowerNet MIB. You can define the other two through the user interface of the Management Card or device.

- Each PowerNet agent can send traps to up to four trap receivers.

- You can define only SNMPv1 trap receivers through the PowerNet MIB. To define SNMPv3 trap receivers, use the interface of the Management Card or device that will send the traps, if it supports SNMPv3.

In a MIB browser, select, in order, these OID categories to access the PowerNet MIB OIDs that you use to define a trap receiver:

- **[apc]**
- **[apcmgmt]**
- **[mconfig]**

OID	Task
mconfigNumTrapReceivers	The number of NMSs to receive traps (always 4).
{mconfigTrapReceiverTable} [mconfigTrapReceiverEntry]	A tabled set of OIDs to define parameters for each trap receiver:
trapIndex	• The trap receiver's number (i.e., the read-only index to the trap receiver entry).
receiverAddr	• The NMS's IP address. The default value, 0.0.0.0, prevents all NMSs from receiving traps.
communityString	• The password (community name) that a trap must use to be sent to this trap receiver.
severity	• This OID is obsolete and always returns zero.
acceptThisReceiver	• Enables or disables sending traps to this NMS. • **yes (1)**: Enable • **no (2)**: Disable
receiveTrapType	• The type of traps that this NMS will receive. You must use **powernet (1)**.

Index

A

Agents
  managing   5
  of hardware devices   6
  rebooting   7
  viewing information about   6

B

BOOTP value showing whether BOOTP is enabled   6

D

Date, setting for a card or device   6

F

Files, transferring   8

L

Locating the OIDs
  agents   5
  Management Cards   5

M

Managing
  agents   5
  agents of a hardware device   6
  Management Cards   5
MIB structure   2
Monitoring a PowerNet agent   5

O

OIDs
  categories above PowerNet MIB   3
  categories within PowerNet MIB   3
  major categories
    [apcmgmt]   3
    [hardware]   4
    [products]   4
    [software]   4
    [system]   4
  products that use OIDs   2
  tabled   4

P

PowerNet agent, monitoring   5
PowerNet MIB location in OID hierarchy   3

R

Rebooting an agent   7

S

SNMPv1 and SNMPv3
  access control for NMSs   2
  defining trap receivers   11
Software modules of an agent   6

T

Tabled OIDs   4
Time, setting for a card or device   6
Transferring files   8
Trap receivers
  defining   11
  setting   6

Schneider
Electric

Traps
    defining trap receivers   11
    enabling argument types for   8

V

Version of an agent   6

APC Worldwide Customer Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to access documents in the APC Knowledge Base and to submit customer support requests.
    - **www.apc.com** (Corporate Headquarters)
      Connect to localized APC Web sites for specific countries, each of which provides customer support information.
    - **www.apc.com/support/**
      Global support searching APC Knowledge Base and using e-support.
- Contact an APC Customer Support center by telephone or e-mail.
    - Regional centers

Direct InfraStruXure Customer Support Line	(1)(877)537-0607 (toll free)
APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702000 (Ireland)
Japan	(0) 35434-2021
Australia, New Zealand, South Pacific area	(61) (2) 9955 9366 (Australia)

- Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

Schneider Electric

Copyright

990-3897   **03/2010**

REFERENCE GUIDE

Management Information Base

Schneider *Electric*