PowerShield SNMP Adaptor

This manual describes the setup and operation of the PowerShield SNMP adaptor for the Sentinel battery monitoring system

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1. Connecting the SNMP Adaptor

The SNMP adaptor must be connected to a PowerShield battery monitoring system that has strings already configured and is properly working. The SNMP adaptor cannot monitor a system with strings that are "INVALID" or don't exist.

a) The SNMP adaptor must be connected to PORT2 of the Sentinel using a null modem serial cable and to the local Ethernet network using a patch network cable. These connections are located on the front panel of the adaptor.
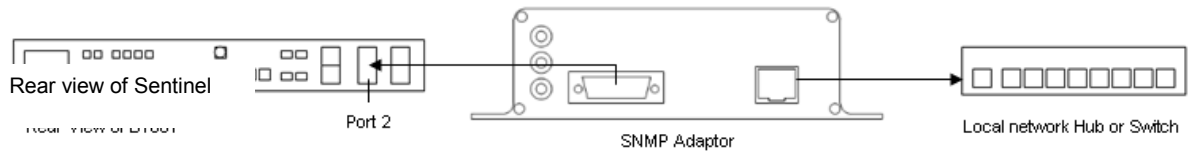

b) The device needs to be powered with a regulated 5V DC supply. This connection is located on the rear of the adaptor.

The power supply must be 5V DC. The centre pin is positive.

2. Configuring the SNMP Adaptor

The PowerShield SNMP adaptor is configured using PowerShield Config software. To edit the configuration you will need to be using Config with 'Installer' level access. The required settings as detailed by the following instructions are located in the 'System' area of Config.
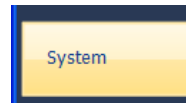
Configuration Part 1

Check that 'PORT 2' of the Sentinel is enabled. For the SNMP adaptor to function the status must be "Installed" and the Card Type must be "SNMP Interface Card" as shown in the picture below.

Configuration Part 2

The parameters of the SNMP adaptor must be specified. These parameters are located under the 'SNMP' tab.

| System	Monitors	Communications	SNMP	Port 2 Modbus

Enter the parameters with values that are **specific** to your organization. You may need to contact your system administrator to obtain a dedicated IP address for the adaptor and to confirm the trap destination IP address. The image below shows an **example** set of parameters only.

Enable DHCP	☑	System location:	Battery monitor
IP Address:		Read-only Community	public
Subnet mask:		Write Community:	private
Gateway:		Trap Community:	public
		Trap Destination IP:	192.168.1.127

Once completed, the parameters need to be saved. This can be achieved by clicking on the 'Update SNMP Parameters' button as shown in the picture below.

Update SNMP Parameters
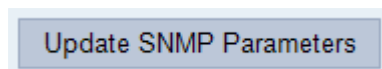
Then press the 'Save Configuration' button on the 'System' tab.
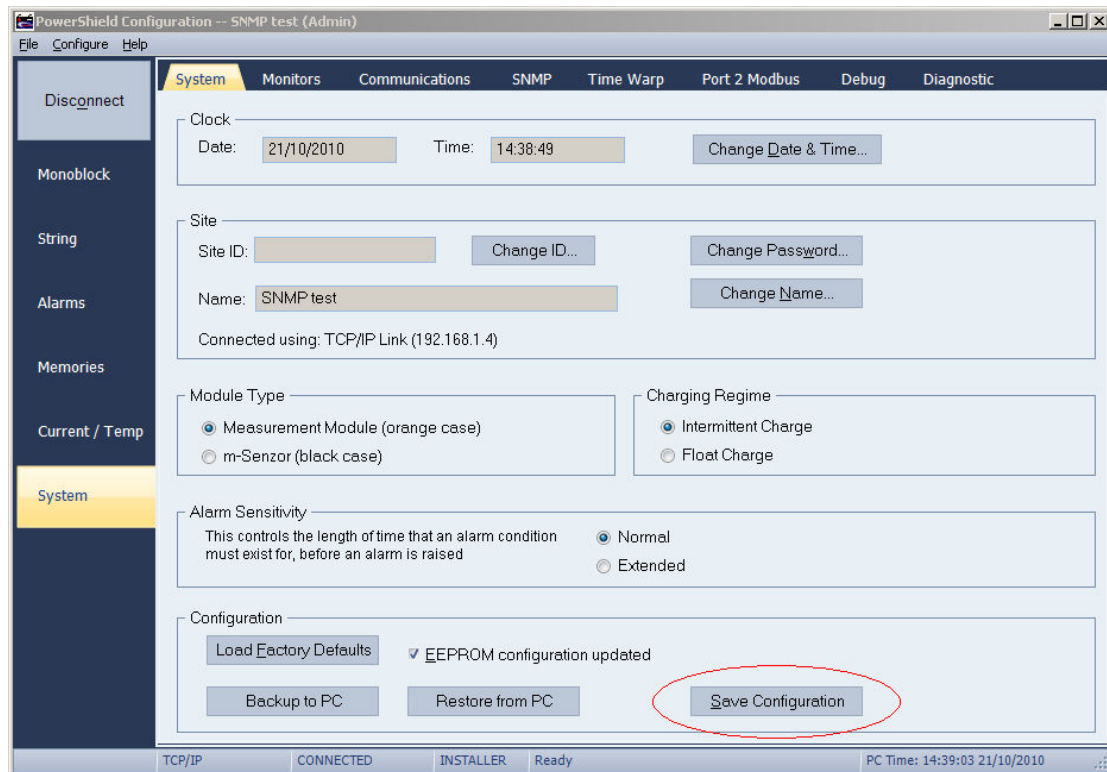
Once the parameters have been saved, the SNMP adaptor will need to be restarted for the new parameters to take effect.

3. Operation

Ensure that the SNMP adaptor is powered, connected to the Sentinel and configured from within Config. The adaptor should now be operational. Operation is indicated by the LEDs on the SNMP adaptor.
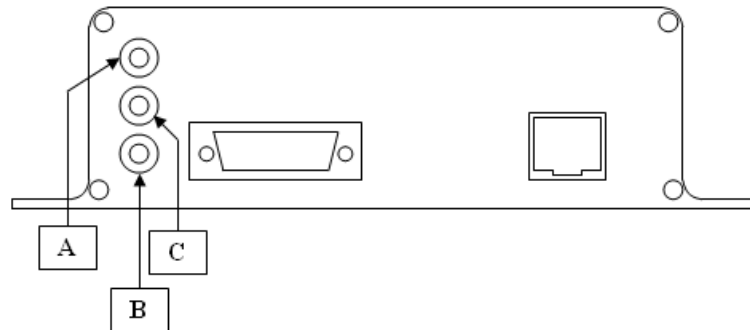

Connector	Type	Description
A	Monitor Online LED	Indicates the adaptor is connected and communicating with the Sentinel
B	Power LED	Indicates the device is powered and turned on
C	Status LED	Flashes at regular intervals to indicate the adaptor is operating.

Ensure that the 'Power LED' and the 'Monitor Online LED' are on and the 'Status LED' is constantly flashing. Note that it may take up to 30 seconds after the SNMP adaptor has been switched on before the LED's display this state. If the 'Monitor Online LED' failed to switch on, there is either a problem with the serial connection from the Sentinel to the SNMP adaptor or 'Port 2' of the Sentinel is not configured. If the later is the case, please consult 'Configuration Part 1' of this manual.

When the SNMP adaptor starts, it will fetch a list of valid strings. Any string labelled as "Invalid", at the time the SNMP adaptor starts, will not be monitored. If there are no strings configured, or all strings have an "Invalid" state the adaptor will reset and try again. It will continue to do this until there are valid strings present.

String states can be confirmed under the "Statistics" tab of the "String" page in Config.
In the scenario presented by the following image, String 2 is labelled as "INVALID" and will not be monitored.
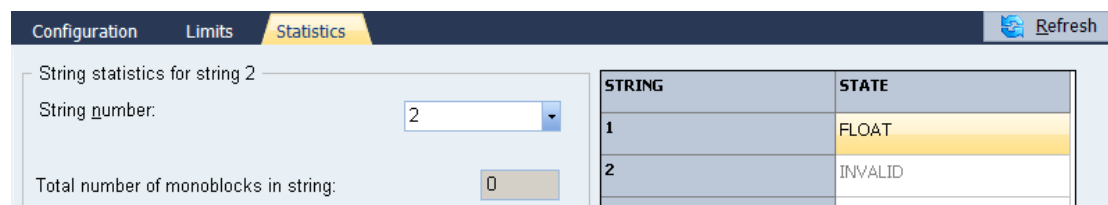
4. SNMP Monitoring

The PowerShield Sentinel MIB files needs to be downloaded and compiled. The MIB file can be located by browsing to the SNMP adaptor using your web browser. Type the IP address into the address bar. The IP address is the same address as specified in the SNMP configuration parameters as shown in the "Configuring the SNMP adaptor" section of this manual.
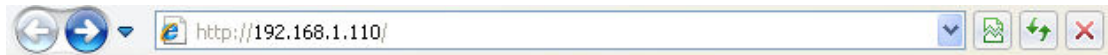
The following webpage should be displayed.

Save the "MONITOR.MIB" file to your computer.

Installing the MIB file

The process of compiling and installing the MIB file will be specific to the SNMP management software you are using.

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5. SNMP Monitoring using SNMPB

If you do not have existing SNMP monitoring software you may wish to use a free solution such as SNMPB. This can be obtained from http://sourceforge.net/projects/snmpb/ or the SNMP adaptor itself, located on the same webpage as the MIB file.

The following instructions are specific to SNMPB software.

1) Download, install then run SNMPB

2) Select the "Editor" tab.
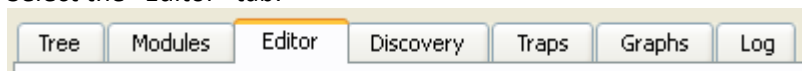
3) Select "Open MIB…" from the file menu. Locate and select the PowerShield B1001 MIB file provided with the adaptor.
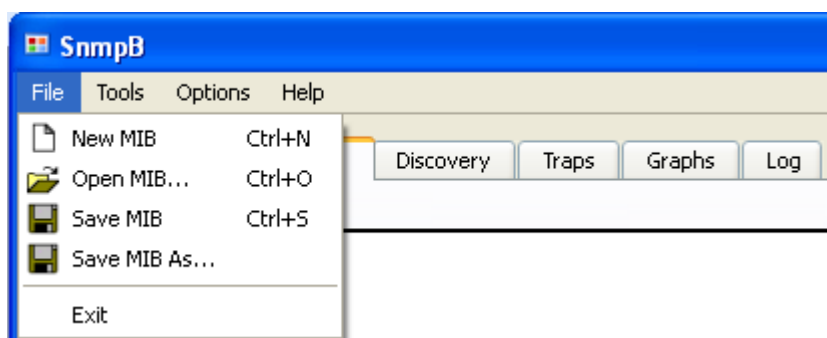
4) Select "Save MIB As…" from the file menu. Save the MIB file to the "mibs" folder of SNMPB. Use the filename "POWERSHIELD-SENTINEL.mib".

5) Close then Reopen the SNMPB program.

6) Select the "Modules" tab.
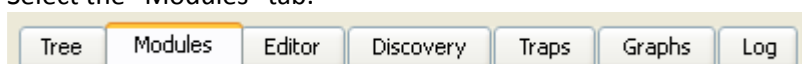
7) Scroll down the list then locate and select "POWERSHIELD-SENTINEL.mib". Click the right arrow button "->" to move it to the list on the right side.
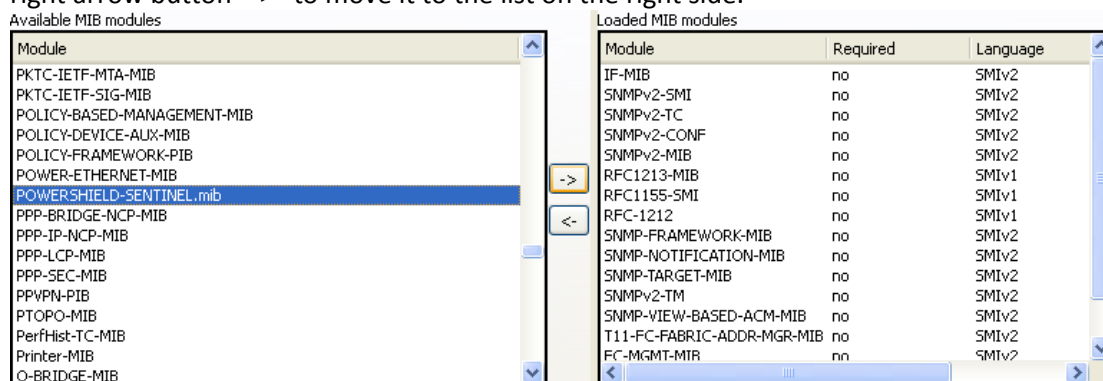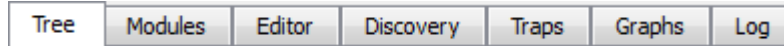

You are now ready to use SNMPB to monitor the PowerShield Sentinel.
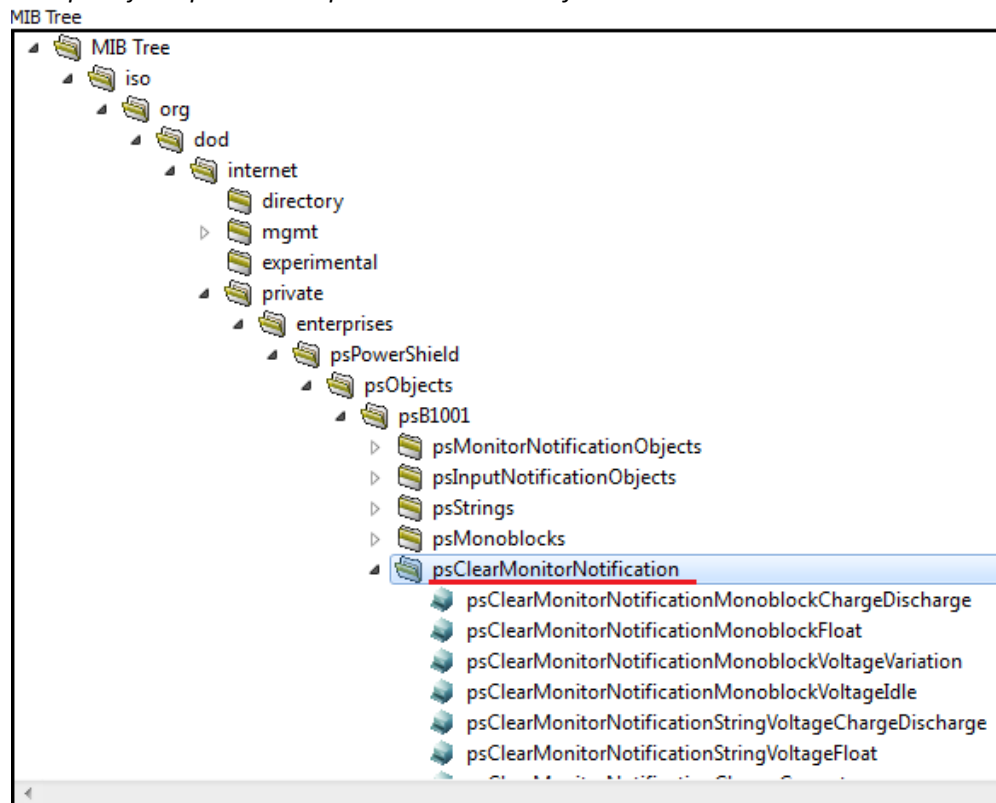
6. Alarm clearing using SNMPB

This functionality is only available for PowerShield SNMP adaptors running firmware 3.2.xx or later.

1) Select the "Tree" tab.

Tree	Modules	Editor	Discovery	Traps	Graphs	Log

2) Expand the MIB tree until psClearMonitorNotification is shown.
   MIB Tree ->iso -> org -> dod -> internet -> private -> enterprises -> psPowershield -> psObjects psB1001 -> psClearMonitorNotification
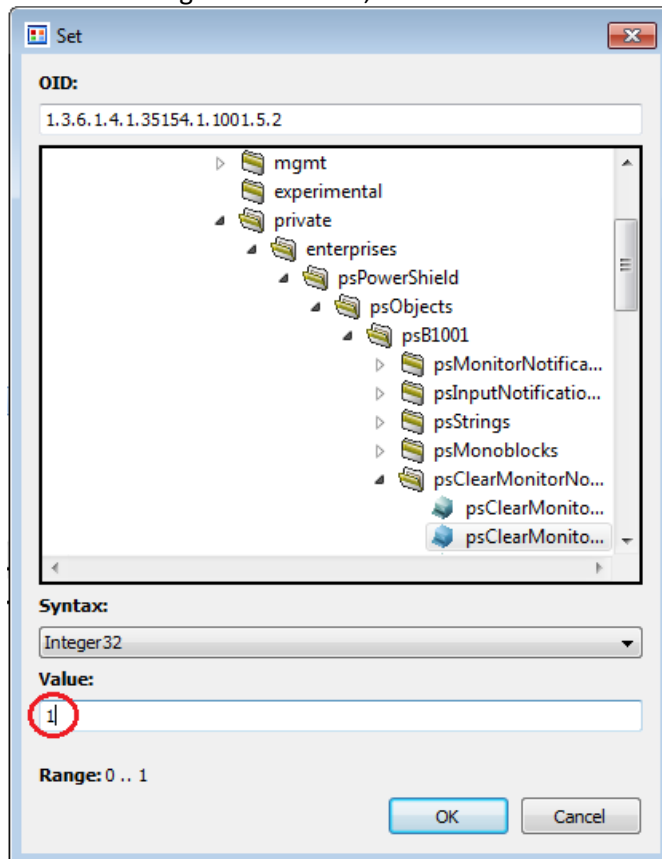
MIB Tree

- MIB Tree
  - iso
    - org
      - dod
        - internet
          - directory
          - mgmt
          - experimental
          - private
            - enterprises
              - psPowerShield
                - psObjects
                  - psB1001
                    - psMonitorNotificationObjects
                    - psInputNotificationObjects
                    - psStrings
                    - psMonoblocks
                    - psClearMonitorNotification
                      - psClearMonitorNotificationMonoblockChargeDischarge
                      - psClearMonitorNotificationMonoblockFloat
                      - psClearMonitorNotificationMonoblockVoltageVariation
                      - psClearMonitorNotificationMonoblockVoltageIdle
                      - psClearMonitorNotificationStringVoltageChargeDischarge
                      - psClearMonitorNotificationStringVoltageFloat

3) Select a type of an alarm to be cleared.

4) Right click on selected alarm type and select "Set…".

5) In the following "Set" window, enter **1** in "Value" tab and click "OK" button.

6) Below result will be displayed on "Query Results" and alarm is now cleared.

7. Troubleshooting

The status may only display intermittently on the LEDs, stop then after a short delay, display again. The Orange LED will flash and not remain constantly on.

| Symptom	Led	Solution
Not Working		The SMNP adaptor is failing to communicate with the Sentinel. Check the "SNMP Interface Card" is detected under the "Port 2 Modbus" Tab in settings. If it is, confirm it is working with the "Port 2 Tester".
Not Working + "ColdStart" traps being received.		The SNMP adaptor is communicating, but it can not detect any strings, so it restarts thus sending another "ColdStart" trap. In the "Statistics" tab under "Strings", ensure that there are strings present and that no strings have an "Invalid" state.

8. SNMP Adaptor Firmware Upgrade

The following section provides instructions for upgrading the firmware of the SNMP adaptor.
PowerShield may release upgrades to match new features or requirements.
Please note that some upgrades may produce a break in operation and require a new MIB file and additional work to be done at the customer SNMP interface side.

Firmware version	MIB version	Release date	
3.0.x.x	3.0.x.x	2010	
3.2.x.x	3.2.x.x	2015	Customer side work required after upgrade

Prior to any upgrade, you will require the appropriate *.tgz file, an example shown below.
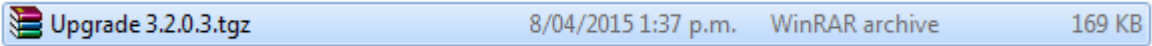
1) Access SNMP adaptor web interface by entering IP address of SNMP adaptor in Firefox browser. (page may not load fully on IE or Chrome)
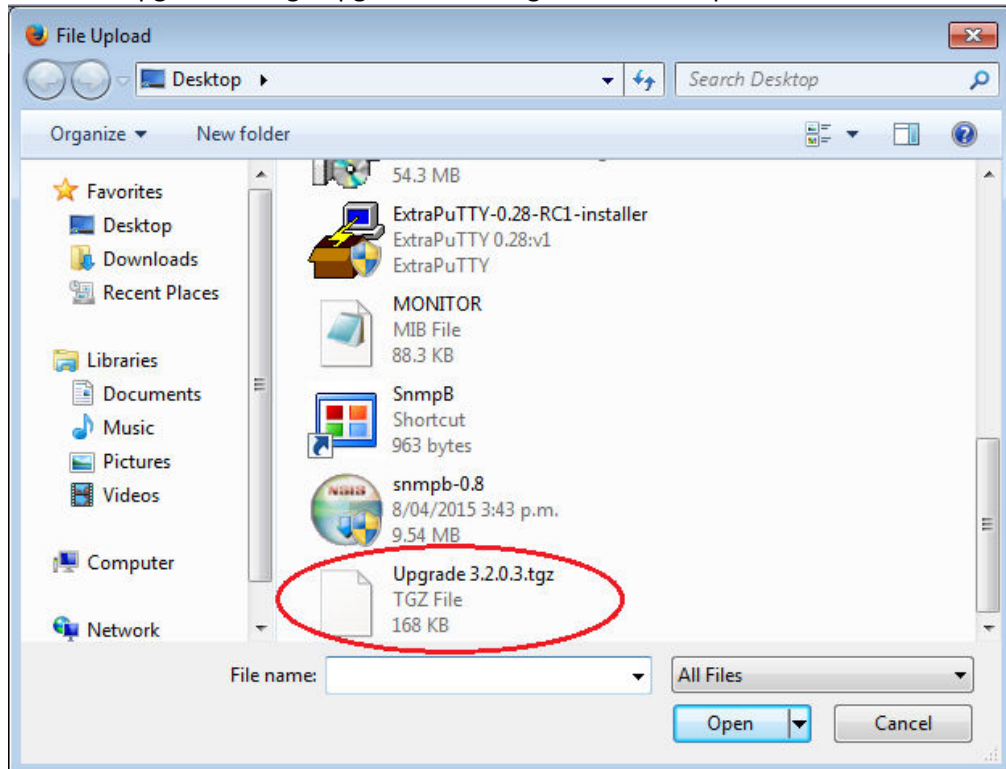   **Note:** Default IP address for SNMP adaptor is 192.168.1.222
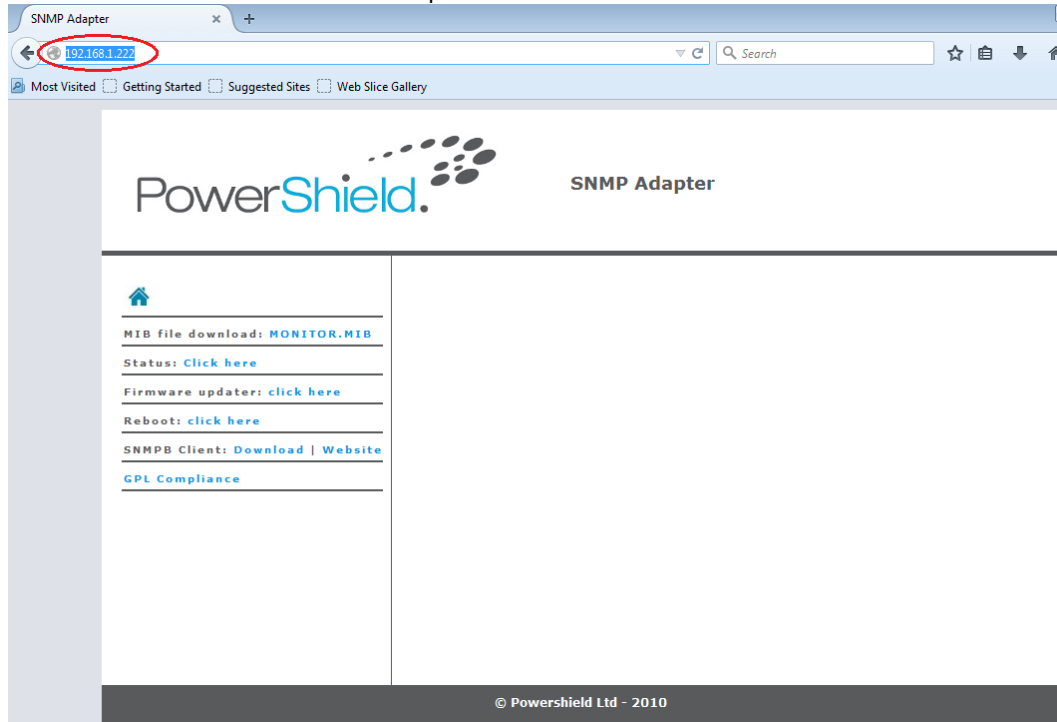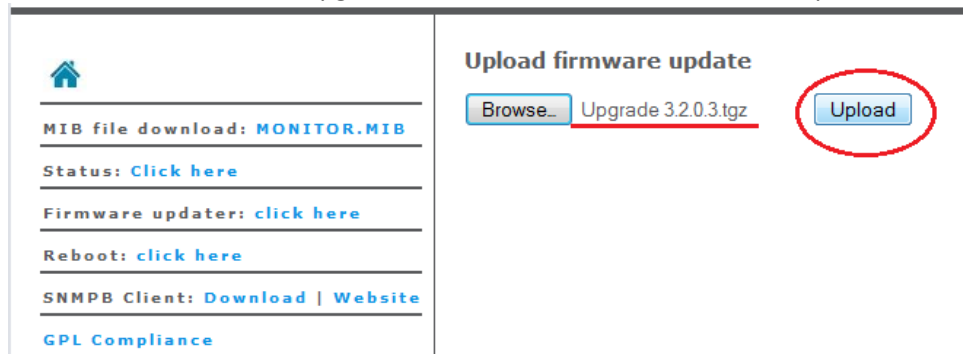

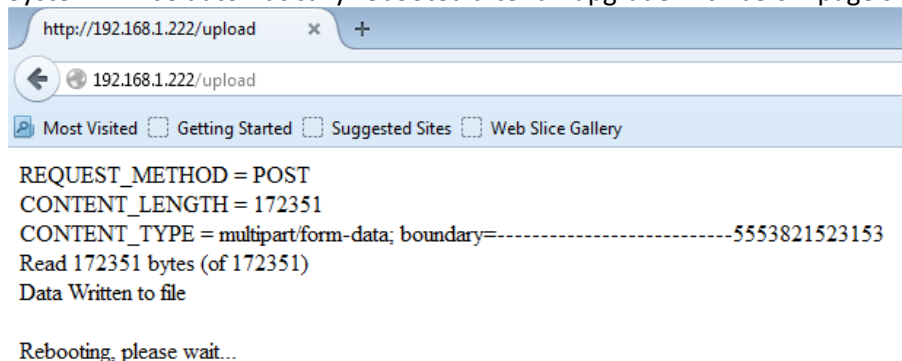2) Click "click here" button beside "Firmware update:" then click "browse" button.

3) Select an upgrade file eg "Upgrade 3.2.0.3.tgz" and click "Open" button.

4) Ensure correct firmware upgrade file has been selected and click "Upload" button.

5) System will be automatically rebooted after an upgrade with below page shown.


The upgrade process is complete for the SNMP adaptor. Remember that you may need to do some work at the SNMP interface side too.

If you are using SNMPB monitoring software, you will need to perform the following steps too. Note the following instructions are specific to SNMPB software.
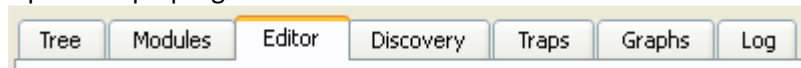
6) After an upgrade, re-access SNMP web interface and download MIB file for upgraded version of firmware. By clicking "Monitor.MIB" file beside "MIB file download"
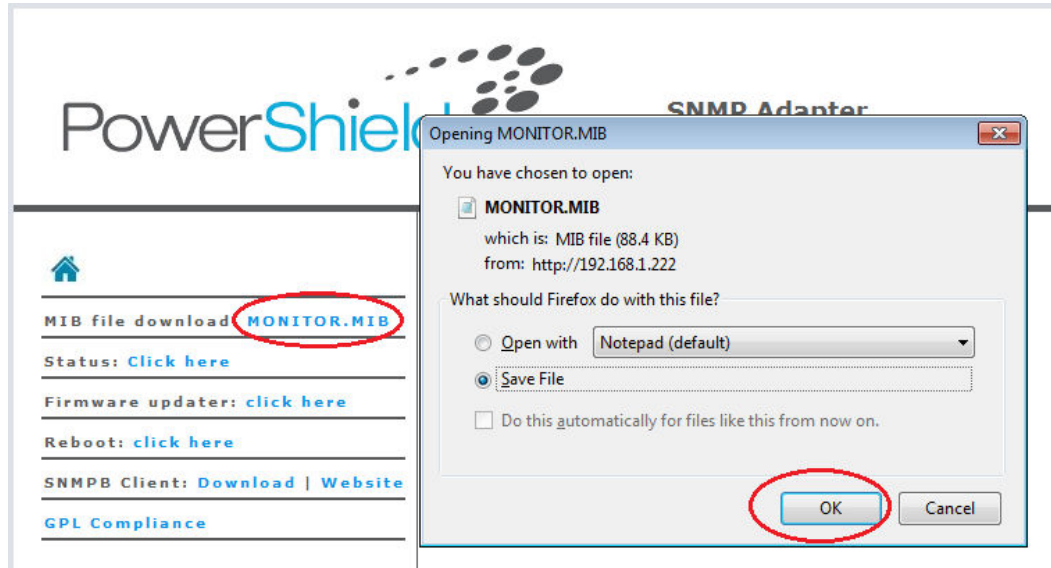
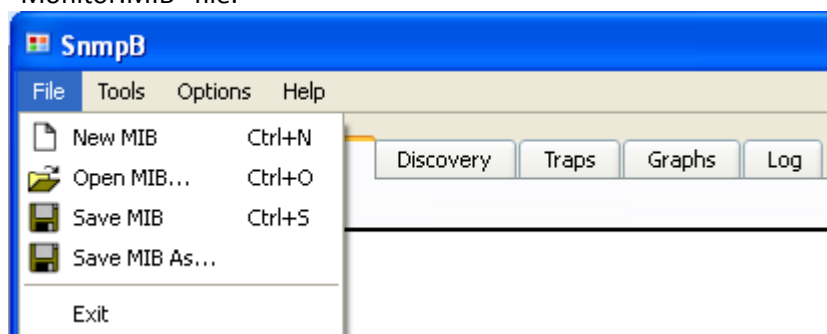
7) Copy the downloaded mib file to following directory "C:\Program Files (x86)\SnmpB\mibs"
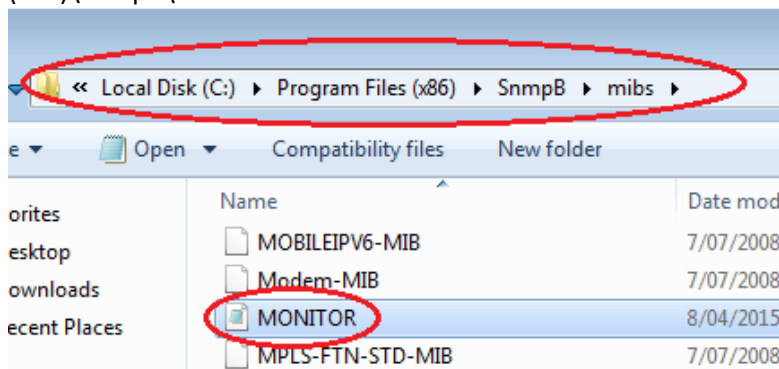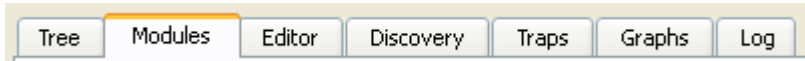

8) Open SnmpB program and Select the "Editor" tab.

9) Select "Open MIB…" from the file menu. Locate and select the newly download "Monitor.MIB" file.

10) Select "Save MIB As…" from the file menu. Save the MIB file to the "mibs" folder of SNMPB. Use the filename "POWERSHIELD-SENTINEL.mib".

11) Close then Reopen the SNMPB program.

12) Select the "Modules" tab.

13) Scroll down the list then locate and select "POWERSHIELD-SENTINEL.mib". Click the right arrow button "->" to move it to the list on the right side.
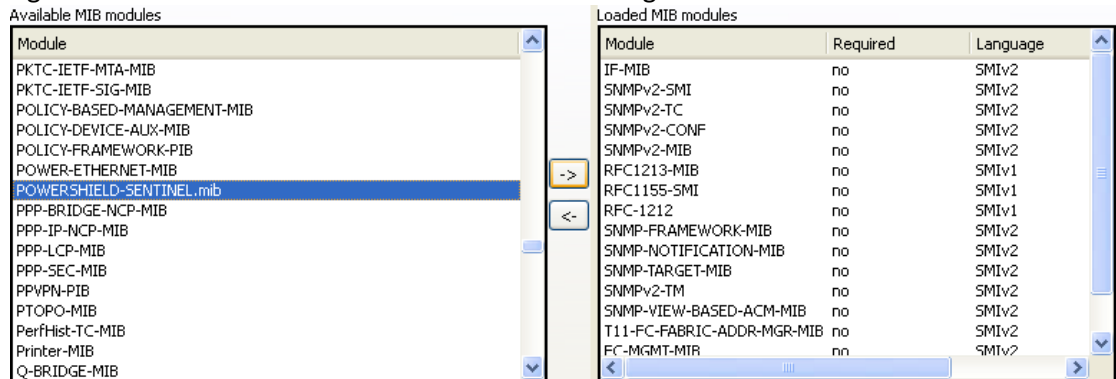
You are now ready to use SNMPB to monitor the PowerShield Sentinel with upgraded firmware.

Specifications

The PowerShield SNMP adaptor is an addition to the Sentinel battery monitoring system. It supports SNMP V1 and V2C and provides monitoring for the following parameters.

Traps/Informs
Monoblock voltage - charge / discharge
Monoblock voltage – float
Monoblock voltage – variation
Monoblock voltage – idle
String voltage - Charge / Discharge
String voltage – Float
Charge Current
Discharge Current
Float Current
String mode – Charge
String mode – Discharge
String mode – Float
String mode – Idle
Module failure
Battery monitor offline
Memory format
Memory Full
Long term memory low
Long term memory full
String ambient
Monitored mains
Comms notification
Input Alarm
String Information
String Number
First Monoblock Number
Last Monoblock Number
String State
String Voltage
String Temperature
String Current
Time of the last string update
Monoblock Information
Monoblock Number
String Number
Voltage
Temperature
Impedance
Time of the last monoblock update

Not all items are available for all systems. Refer to your product documentation or PowerShield for further information.