
UPSMON

User Manual

This release supersedes all previous releases. Specifications are subject to change without any prior notice.

0MNSWK011NPENUB

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I. What is UPSMON?

The UPSMON software package is a client/server-application for networks and local workstations used for monitoring UPS systems and other devices such as ATS, STS, MDU and MPW systems. The server-module of the UPSMON Software is the *Upsagent*, this communicates via an RS-232 or TCP/IP network cable with the devices. When the *Upsagent* is operating, it collects (as a background program) the messages sent from the devices. The *Upsagent* interprets the received messages and makes them available to the client-module, which is known as *Upsview*. The communication of the data between the *Upsagent* and the *Upsview* either can be done via TCP/IP or shared memory on a local computer.

If the *Upsagent* detects mains supply voltage variations or even a total power loss, it can execute various command scripts, which for example may either perform a shutdown of the server or send warnings to the connected users. These scripts that are a part of the UPSMON package can be adapted to suit your specific requirements. When is detected a change in the device alarm-status, a corresponding file (i.e. shell script/command file) will be executed either when the alarm is activated or deactivated. If an alarm condition remains for a long duration, the user can customise the system to shut down.

The user may also prompt the UPS to shutdown to save autonomy time, which allows the system adequate time to enable further shutdowns in the unfortunate event of a repetitive alarm condition.

The configuration of the UPSMON package (primarily used for the *Upsagent*), is performed using the *Upsetup* module.

The *Upsview* module is used for operating and monitoring the active *Upsagent* module that is connected to the devices. It is possible to check the status of the devices using various views, for example block diagram or alarm tables. The *Upsview* can be used to constantly monitor and evaluate the event file (log file) which is permanently updated with the changing status of the devices by the *Upsagent*.

II. Quick Start Guide

1. Quick start guide to installing the software

1. Make a note of the device PRTK code, this code is located on a label that will be positioned on either the front or the rear of the UPS (e.g. SENTR...).
2. If the connection to the device(s) is to be made via a network using a NetMan adaptor, first setup the NetMan following the NetMan user manual, the most important information required for the NetMan is the IP address, netmask and the router address, all of which are entered in the specific NetMan configuration menu.
3. Enter the PRTK code (from note 1) into the NetMan configuration menu.
4. Once the software is installed, select the section "Devices configuration" in *UpsSetup* by pressing the relative icon, then add your device: enter the PRTK code and the method of communication (ensure to use the correct IP address as set in the NetMan).
5. For further information, refer to this User Manual.

III. Installation of UPSMON

1. Before the installation

Before start the software installation, please read this manual carefully.

1.1 Hardware requirements

Device: Connect the device to the chosen serial port of your computer, various device provide several methods of communication interfacing; please ensure that the interface for RS-232 communication is used.

Cable: To ensure correct operation of this software ensure that the correct communications cable is used; the correct cable should be supplied with the device. Do not connect any other cable between device and computer.

1.2 Software requirements

TCP/IP: UPSMON is based on TCP/IP; therefore, for this function to operate, TCP/IP must be installed. If TCP/IP is not installed, communication with the device is only possible via a local serial connection, and thus the *Upsview* can only connect to the *Upsagent* via shared memory on the local computer.

A dedicated system port for the device: To ensure the correct communication with a local device via a serial port, please ensure that the selected port is free (not required by any other device or program).

This is very important for UNIX environments, when the system is often running some demon how getty for connection terminal through the serial port.

No other process must be operational using the selected serial port used by UPSMON. To uninstall any processes (e.g. getty demon) please refer to the operating system user manual.

1.3 User requirements



NOTE: to ensure correct installation of this software, many systems require the user to have super user rights, therefore when installing this software ensure that you are logged on as an administrator, super user or root, prior to the installation procedure.

2. Installation

2.1 Windows

1. To install UPSMON, run the program ***Upsmon-<Version>-windows-intel-<architecture>.msi***. For Windows you need administrator rights.
2. When prompted, select the destination folder for the program files.
3. The Installation program will automatically copy all of the necessary files, create a program group and install the startup shortcut for the *Upsagent*.
4. After successfully installing the software, the *UpsSetup* (or *UpsWizard*, the wizard of UPSMON) program will start automatically.
5. The configuration of UPSMON is performed using the *UpsSetup* program; this will enable correct communication with the device and complete setup of the software operational parameters. It is possible otherwise to use the wizard (*UpsWizard*) that allow a basic software configuration.



NOTE: to confirm the correct installation on Windows, it is possible to view a list of all installed services in the Control Panel / Services.



NOTE: the destination PC must have Windows Installer in order to run the installation package.

2.2 Linux and UNIX

1. To install UPSMON run the specific command for the operating system where the software is to be installed:

Operating System	Command
AIX	installp -d directory upsmon
Digital UNIX OSF/1	setld -a directory
Compaq Tru64 UNIX	/usr/sbin/setld -l
FreeBSD NetBSD OpenBSD BSD	cd directory pkg_add upsmon
HP-UX	swinstall -s directory upsmon
IRIX	swmgr -f directory
Linux Debian	dpkg -i directory/upsmon-xxx.deb
Linux rpm	rpm -i directory/upsmon-xxx.rpm
Solaris	pkgadd -d directory upsmon

2. The install command will expand automatically all the files and will create the startup shortcut for *Upsagent* in the correct directory for the specific Linux/UNIX operating system.
3. After successfully installing the software, launch the *Upsetup* program. When prompted enter the correct PRTK code for the device to be monitored, this code is located on a label which can be found on either the front or the rear of the device; failure to input this code will prevent the operation of UPSMON.

4. When installing UPSMON on UNIX, the software requires the serial number and license number. The serial and license number can be obtained from the UPS manufacturer or local supplier.
5. The configuration of UPSMON is performed using the *Upsetup* program; this will enable correct communication with the device and setup of the software operational parameters.



ATTENTION: when configuring UPSMON on a Linux platform, it is possible to use the graphical version of *UpsSetup*. It is possible to use also the wizard *UpsWizard* that perform a basic configuration to ensure a correct communication with the device.

2.3 Novell Netware

1. The Installation must be started from an MS Windows workstation that is connected to the server by a user with administrator rights.
2. To install UPSMON start the SETUP.EXE program located on the installation CD.
3. When prompted, select the destination folder for the program files.
4. The Installation program will automatically copy all of the necessary files and create a program group, however a shortcut to start the *Upsagent* module must be created in Autoexec.ncf (by system utility Install or NwConfig).
5. After successfully installing the software, the *Upsetup* program will start automatically, when prompted enter the correct PRTK code for the UPS to be monitored, this code is located on a label which can be found on either the front or the rear of the UPS, and failure to input this code will prevent the operation of UPSMON.
6. The configuration of UPSMON is performed using the *Upsetup* program; this will enable correct communication with the UPS and setup of the software operational parameters.



ATTENTION: after the installation, it is possible to configure the UPSMON using the Windows programs *Upsetup.exe* and *Upsview.exe*, or it is possible to use NLM module *Upsetup.nlm* and *Upsview.nlm* directly on the server console.



ATTENTION: to successfully start the *Upsagent* on some systems a successful start of UPSMON is required. This system NLM modules must be started before you start the *Upsagent* or *Upsview* module: *AIOCOMX.NLM* (for specified serial port) and *TCPIP.NLM*. For more details consult the system user manual.



ATTENTION: the standard version of UPSMON for Novell Netware only supports Novell Netware 4.x and 5.x. For Novell Netware 3.12 you must use the special version of UPSMON located in directory 312.

2.4 Mac OS X

1. The installation must be performed by a user with root rights.
2. To install UPSMON start the file *Upsmon-<Version>-macOS.dmg*, that will unpack the installation package *Upsmon<Version>macOS.pkg*.
3. Select and execute the package.
4. The installation program will automatically copy all the necessary files and create on the Applications directory 3 new icons for the viewer, configuration program and wizard. The *Upsagent* module will startup automatically at the next reboot.
5. After successfully installing the software, the *UpsWizard* program will start automatically.
6. The basic configuration of UPSMON is performed using the *UpsWizard* program; this will enable correct communication with the device. The full configuration of UPSMON is performed using the *Upsetup* program; this will enable correct communication with the device and complete setup of the software operational parameters.

IV. Simple UPSMON Configuration (Wizard)

The basic configuration of UPSMON (Windows, MacOS or Linux graphical version) is performed using the *UpsWizard* program; this will enable correct communication with the device and setup of the main software operational parameters.



ATTENTION: bad parameters or undesirable manual changes of the `upsmon.ini` file may cause incorrect operation of the UPSMON software, primarily the *Upsagent* module.






1. UpsWizard



ATTENTION: administrative rights are required when saving the configuration.

The basic configuration of UPSMON performed using the *UpsWizard* program is done in three step.

In *UpsWizard* you can find the follows buttons:

	Exit the program without save. The <code>upsmon.ini</code> file will not be modified and any changes will be lost.
	Launch of the complete setup program <i>UpsSetup</i> .
	Navigate to the next page of the <i>UpsWizard</i> .
	Navigate to the previous page of the <i>UpsWizard</i> .
	Exit the program by saving all the changes made. The <code>upsmon.ini</code> file will be saved with the new settings.



ATTENTION: button with white icon is enabled; button with grey icon is disabled.

1. **Step 1 - Welcome page:** in this page is possible to select the language of UPSMON. All messages and text in UPSMON (except some system messages) is described in lang_xx.ini files. The default is lang_00.ini used for the standard English language interface. To change the language, click on the corresponding flag. Language change is instantaneous. To save the language correctly you need to save upsmon.ini from the *UpsWizard* final page.



2. **Step 2 - UPS Configuration page:** in this page is possible to configure UPS parameters and the connection parameters to use to communicate with UPS.

UPSMON Wizard Configuration / **Version 6.0.3**

Ups Configuration

Ups Data

Ups Name
UPS 01

PRTK Code
GPSER11201XX

Ups Connection

Local Serial Port USB

Remote IP Address

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3. **Step 3 - Shutdown page:** in this page is possible to configure the system shutdown and the UPS shutdown.



V. Advanced UPSMON Configuration

The configuration of UPSMON is performed using the *UpsSetup* program; this will enable correct communication with the devices and setup of the software operational parameters.



ATTENTION: bad parameters or undesirable manual changes of the *upsmon.ini* file may cause incorrect operation of the UPSMON software, primarily the *Upsagent* module.

1. UpsSetup (available on Windows, MacOS and Linux)





ATTENTION: administrative rights are required when saving the configuration.



ATTENTION: in *UpsSetup* you can find many buttons in the grey menu situated in the top right of the window: for these buttons a white colour icon means that the button is enabled; a grey colour icon means that the button is disabled.



The *UpsSetup* program consists into 7 main sections, each of which is accessible by clicking on a specific icon in the main window:

	Language: the language section is used to configure the language of UPSMON.
	Device connections: the device connections section is used to configure the list of the device to be monitored by the <i>Upsagent</i> and the communication parameters for each device.
	Jobs parameters: the jobs parameters section is used to configure the jobs to be carried out by the UPSMON when an alarm condition occurs, for example it is possible to customise each alarm to carry out a specific set of tasks such as run a shutdown user defined script, send email, SMS or network messages etc.
	Schedule parameters: the schedule parameters section is used to configure any scheduled actions. It is possible to specify scheduled actions such as UPS shutdown, reboot, test, etc.; these actions will be executed at a specified time.
	Configurations: the configurations section is used to specify the method used to send a message to personnel who will be required to be notified with regards to an alarm condition occurring with the device.

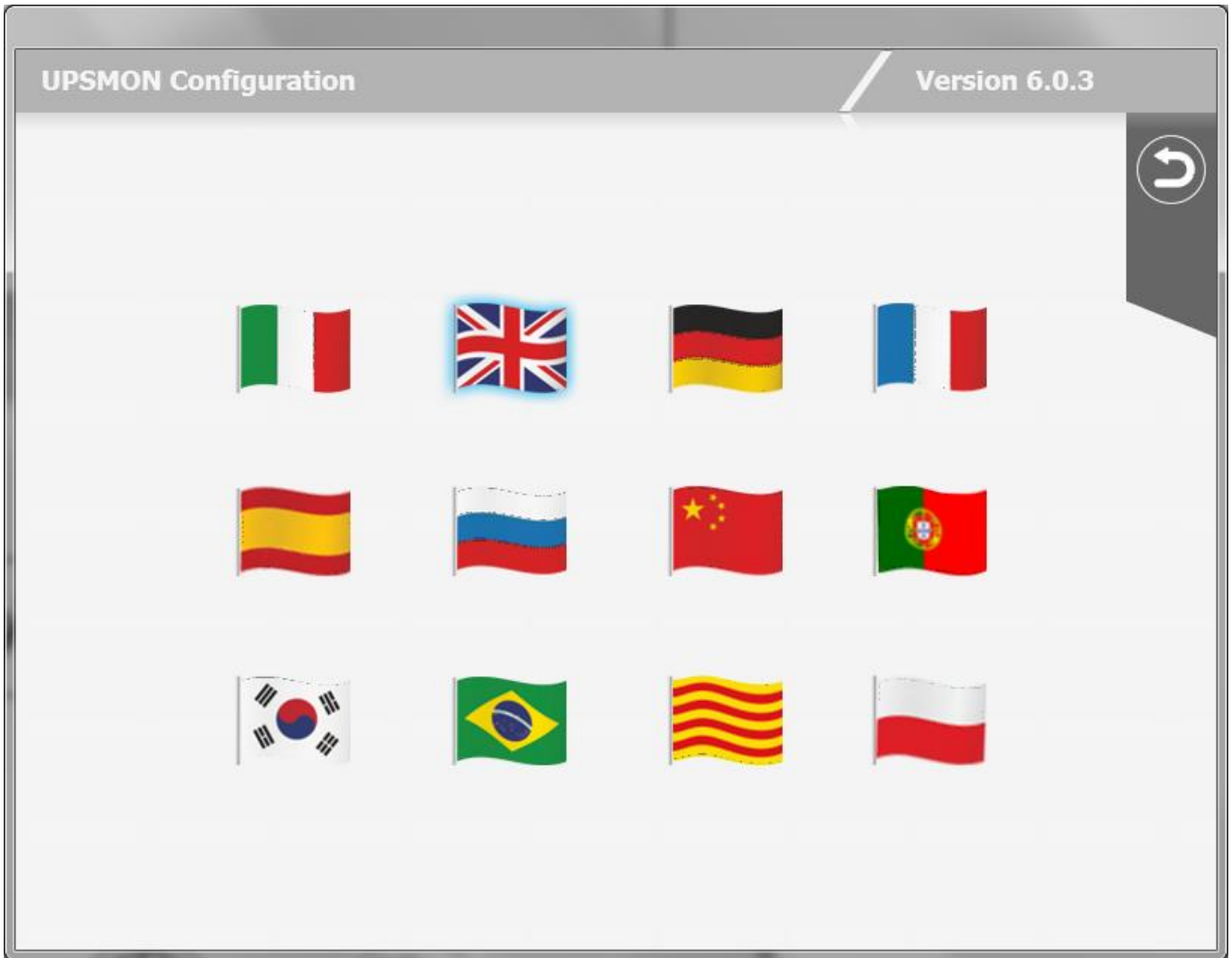
	<p>Network services: the network services section is used to configure the network services such as TCP/IP, SNMP, etc.</p>
	<p>About and logs: the about and logs section show the software version and permit to pass to the FULL version of the program (in which it could be possible to monitoring up to 32 device). Furthermore, permit to set up parameters for log files.</p>



In the menu present on this page you can find the following buttons:

	<p>Exit from <i>UpsSetup</i> without save. The upsmon.ini file will not be modified and any changes will be lost.</p>
	<p>Exit the program by saving all the changes made. The upsmon.ini file will be saved with the new settings.</p>

1.1 Language section




In this page is possible to select the language of UPSMON.

All messages and text in UPSMON (except some system messages) is described in lang_xx.ini files. The default is lang_00.ini used for the standard English language interface.


To change the language, click on the corresponding flag. Language change is instantaneous. To save the language correctly you need to save upsmon.ini from the main page.

On this page you can find the following buttons:

	Exit from the language section and return to the main page.
---	---

1.2 Network services section

UPSMON Configuration Version 6.0.3



TCP/IP service

Server enabled

UDP Port

HTTP service

HTTP enabled

SNMP service

SNMP enabled

System name

System location

System contact

Network security


Ignore remote UPS commands

UDP server password

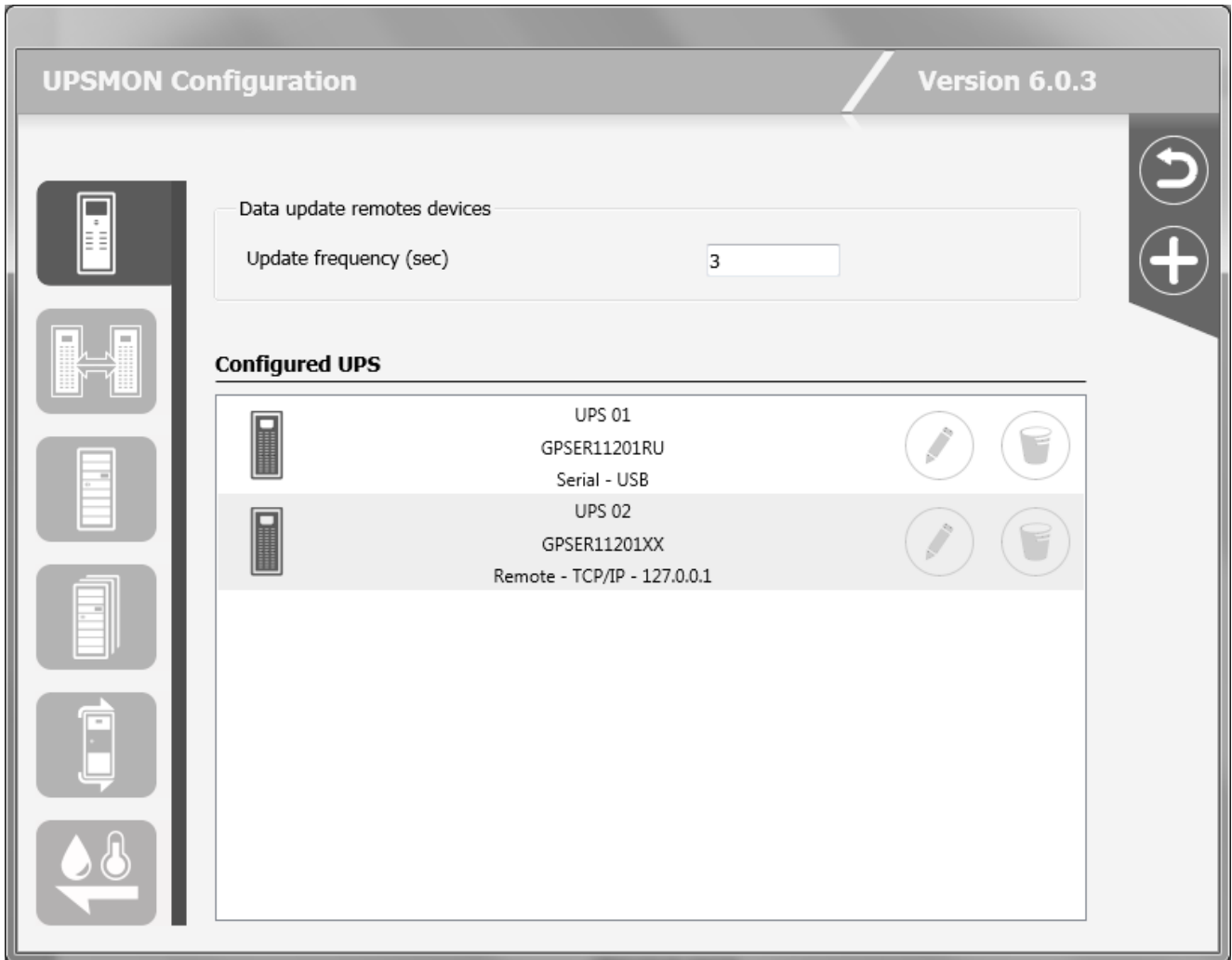
In this page is possible to configure the network services such as TCP/IP, SNMP, etc.

Parameter name	Parameter description	Default
TCP/IP Service: Server enabled	Enables or disables the connection access of other computers running the <i>Upsagent</i> or <i>Upsview</i> programs.	Enabled
TCP/IP Service: UDP Port	The UDP communication port. This must be same on all system using UPSMON	33000
HTTP Service: HTTP enabled	Allows the support for HTTP. The data and the status of the UPS can be monitored via HTTP through the html static page created by <i>Upsagent</i> .	Disabled
HTTP Service: HTTP path	Used to specify where the <i>Upsagent</i> creates the html static page with the UPS data and status for HTTP monitoring.	Empty
SNMP Service: SNMP enabled	Allows the support for SNMP. The data and the status of the UPS can be monitored via SNMP.	Disabled
SNMP Service: System name	Defines the name of the local system.	Server
SNMP Service: System location	Defines the location of the local system.	Server room
SNMP Service: System contact	Defines the contact person's name for the local system.	Administrator
Network security: Ignore remote UPS commands	Enables or disables access from remote computers to make commands to the UPS (by <i>Upsagent</i> or <i>Upsview</i>). This feature is used to prevent a remote user from forcing a command to the UPS, such as UPS shutdown or test etc.	Disabled
Network security: UDP server password	If selected the software will require a password for communication with the UPS. This password is to protect the <i>Upsagent</i> connection. If the user doesn't know the password, it will not be possible to connect the agent.	Disabled

On this page, you can find the following buttons:

	Exit the network services section and return to the main page.
---	--

1.3 Devices connections section



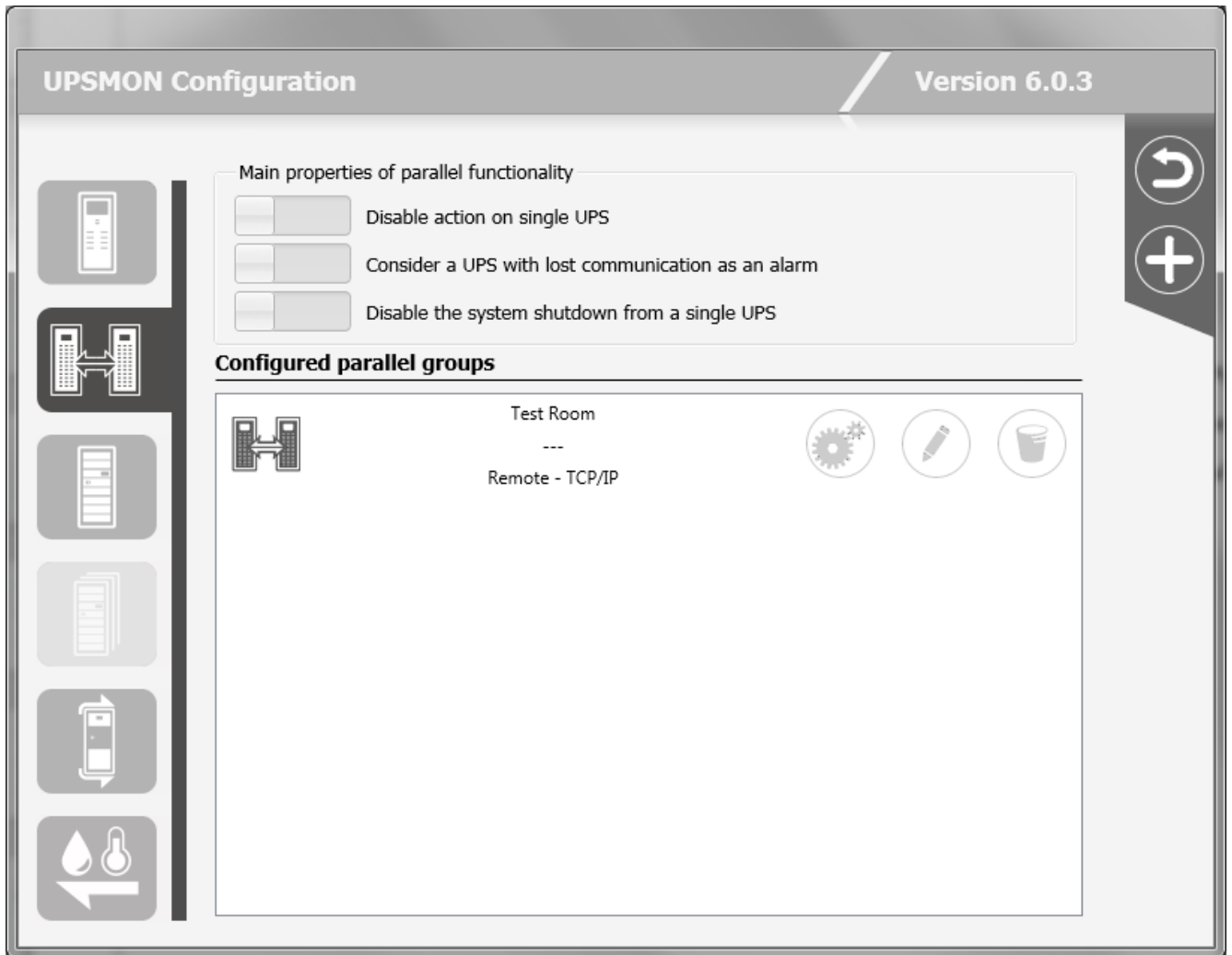
The devices connection section contains the list of the devices that will be monitored by the *Upsagent*.

It is possible to add, delete or edit the devices listed.

The STANDARD version of UPSMON will only allow one device to be monitored either locally or via a network by the *Upsagent*. The FULL version will allow one device to be monitored locally and up to 31 devices to be monitored via a network by the *Upsagent*. To change the STANDARD version to the FULL version you must enter the serial number and relevant License number using the “About and logs” section. The License number is available from the UPS manufacturer or local supplier.







The FULL version of UPSMON also enables the operation of Parallel functionality. This function enables the setup of groups of UPS, which are working in redundant operation. It is possible to create up to 10 groups, with each group containing up to 8 UPS (2 UPS minimum) with up to 64 event actions.

Parameter name	Parameter description	Default
Update frequency	Defines the time-interval (in seconds) in which the <i>Upsagent</i> polls for data from the device (if the <i>Upsagent</i> is connected to remote device via network). This parameter is enabled only if there is at least one device connected via TCP/IP in the list of connected device. The system speed may be reduced due to permanent communication with the device if this value is too small. If the value is too high the system will react slower in the case of an alarm from the device. The recommended values are from 1 second (for smaller networks) or 5-10 seconds (on larger networks).	3 seconds





Parameter name	Parameter description
Disable actions on single Ups	If selected, the standard configuration for the single UPS event will be ignored. The <i>Upsagent</i> controls only the group status. If it is not selected, the <i>Upsagent</i> controls both the group events and also the single UPS events. If this parameter is selected, the job actions defined in the job dialog box are disabled for the single UPS.
Consider a Ups with lost communication as an alarm	If selected, the active alarm level is raised, specified on the parallel event list, for each UPS in communication lost condition.
Disable the System shutdown from a single UPS	If selected, this disables the system and UPS shutdown time defined on the single UPS configuration. This function shutdown time is the same time for the UPS parallel group.



The devices you can configure are as follows:

	Single UPS.
	Parallel group.
	MPW cabinet.
	MPW system.
	STS/ATS/MDU.
	Netman Sensors.


On this page you can find the following buttons:

	Exit the device connections section and return to the main page.
	Add a device of the type indicated by the tab highlighted to the left

You can find the following buttons for each device present in the lists:



	Edit the highlighted device in this item in the list.
	Delete the highlighted device in this item in the list.

And, just for the parallel groups, you can find this button:

	Modify the actions set on the parallel group highlighted in this item in the list.
---	--

1.3.1 Device configuration – for single UPS, STS, ATS, MDU and MPW cabinet

UPSMON Configuration Version 6.0.3

Device identification

Device Name

PRTK code

Device Serial Number

Device Connection

Local

Serial port

Remote

IP Address	Device
<input type="text"/>	<input type="text"/>

UDP password

Remote sensor

SNMP

IP Address	Device
<input type="text"/>	<input type="text"/>

Get community

Set community

Action on system shutdown

Delay after AC Fail (min)

If autonomy time is less than (min)



Device shutdown

Enable

Delay (sec)

Parameter name	Parameter description
Device Name	Device identification name.
PRTK Code	The PRTK is used to determine the type of device to be monitored, the code to be entered can be located on the device.
Device Serial number	The device have unique serial numbers, this number used to identify the device. Enter the serial number as printed on the device identification label.
Device connection	The device connection must be set to the chosen method to be used for the communication between the computer and device(s). The first method of connection is local, this connection method is used when the connection to the device is to be made via a serial port, if this method is to be used ensure that the correct serial port and is selected. All the other settings for the serial connection (baud speed etc) are automatically set for the selected device type. The second method of connection is remote via a network, for this connection an IP address for the computer or Network adapter must be specified and the device number (usually 1). Note: The software supports USB communication via USB-COM adapter. The USB communication is also supported. Note: The TCP/IP communication allows the user to specify a remote <i>Upsagent</i> or Network adapter location by host name (or DNS name). Some devices can only enable some of these options.
UDP password	It is possible to specify a connection password for each device connected. This password must always be specified to connect the specific device.
Remote sensors	It is possible to specify whether temperature, humidity and/or digital I/O sensors are associated with the Network adapter to which the remotely connected device is connected. This will make it possible to configure the sensors in the right section and activate the relative alarms.
System shutdown (only UPS)	This field is used to specify the parameters for the system shutdown, the system Shutdown can be triggered by either a specified time after AC Fail or if the UPS autonomy time is below a specified time. If the UPS sends a low battery signal to the computer (i.e. the UPS backup time is low), the <i>Upsagent</i> will ignore the specified times and start the system shutdown procedure immediately.
UPS shutdown (only UPS)	This field can be used to send a shutdown signal to the UPS once all remote computers have shutdown, at this point the UPS will then shutdown

On this page you can find the following buttons:

	Exit the device configuration page and return to the previous page without applying the changes.
	Exit the device configuration page and return to the previous page with modifications applied. To save the applied changes, you must exit from the main page.

1.3.2 Parallel group configuration

UPSMON Configuration Version 6.0.3

Selected parallel group

- ▲ Test Room
 - UPS 01
 - UPS 02

Parallel group configuration

Parallel group setup

Parallel group name: Level of redundancy:

UPS 1:



UPS 2:

Action on system shutdown



<input type="checkbox"/>	Enable the system shutdown if all UPS are on battery	Delay (min)	<input type="text"/>
<input type="checkbox"/>	Enable the system shutdown if the autonomy is low	Threshold (min)	<input type="text"/>
<input checked="" type="checkbox"/>	Enable the UPS shutdown after system shutdown	Delay (sec)	<input type="text"/>

Parameter name	Parameter description
Selected parallel group	In the three “Selected parallel group” it will be shown the defined parallel group. By expanding the group, it is possible to see the UPS that belong to the group. It is possible to add or remove an UPS to a parallel group clicking on the relative icon (see below). Note: Each parallel group must contain at least two UPS.
Redundancy level	Defines the redundancy level of the parallel group: possible choices are N (default), N+1 (for groups with a minimum of 2 UPS), N+2 (for groups with a minimum of 3 UPS) and N+3 (for groups with a minimum of 4 UPS). N.B. A parallel group with redundancy N+i will stay active and operational even if “i” UPS within the group fail. The load will be shared between the remaining UPS.
Enable system shutdown if all of the UPS are supplied from the batteries	System shutdown parameters for the parallel group can be defined. The shutdown may depend on the fact that all the UPS comprising the parallel group are operating in battery mode.
Enables system shutdown in the event of low back up time	The shutdown may depend on the fact that the “i-th” backup time of the parallel group selected is lower than the preset time. N.B. If the redundancy level is N, the lowest backup time is considered; if it is N+1, the second lowest time is considered; if it is N+2, the third lowest time is considered, while if it is N+3, the fourth lowest time is considered.
Enable the Ups shutdown after system shutdown	It is possible to shut down the groups’ UPS together with the system after the specified delay.

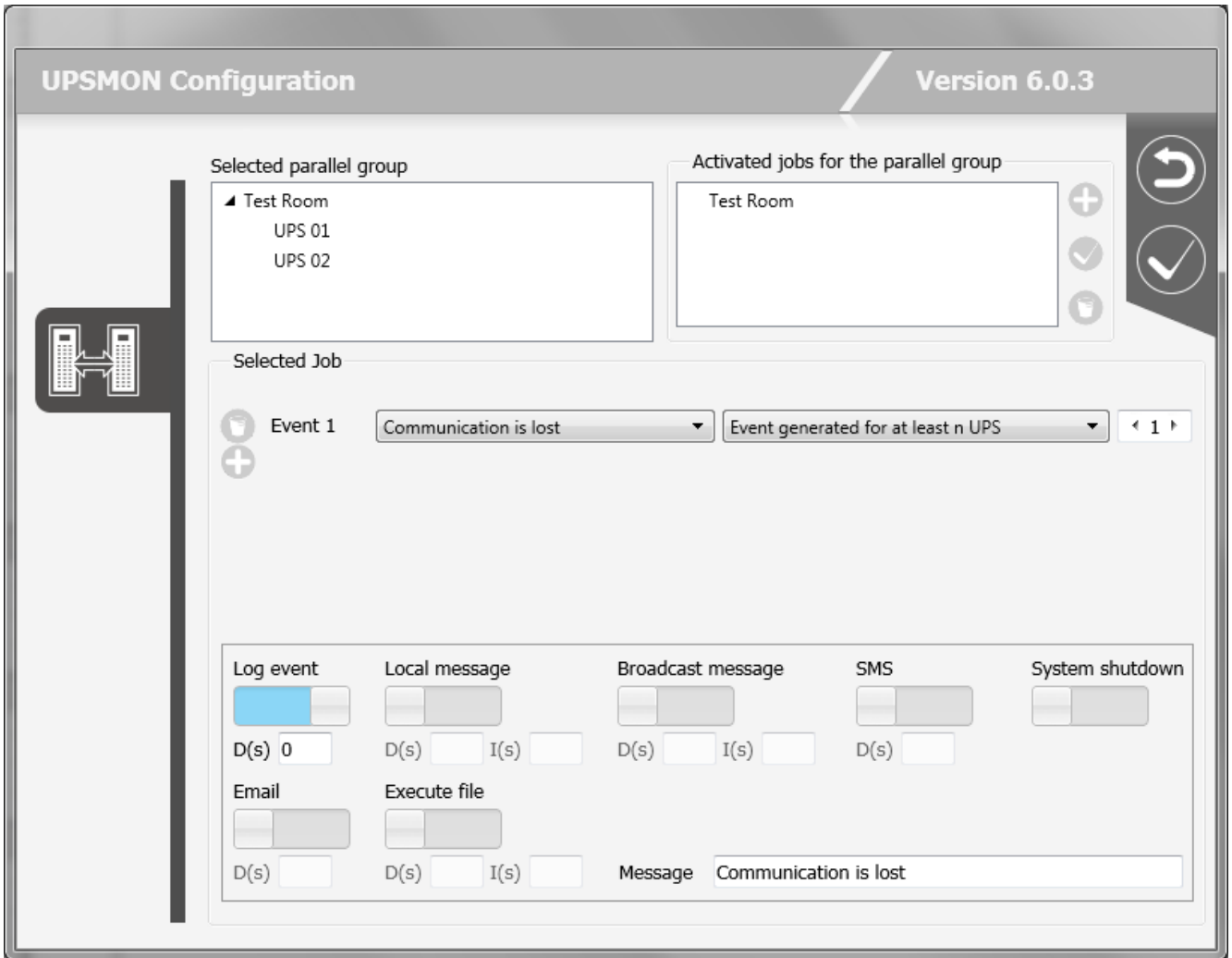
On this page, you can find the following buttons:

	Exit the Parallel Groups Configuration Page and return to the previous page without applying the changes.
	Exits the Parallel Group Configuration Page and Returns to the Previous Page with Application Changes. To save the applied changes, you must exit from the main page.

To add and remove an UPS from the Parallel Group:

	Adding an UPS to the Parallel Group. You will see a list from which to choose the UPS to add to the group. You cannot add one UPS twice.
	Removing an UPS from the Parallel Group. To define a parallel group you must add at least 2 UPSs.

It is possible to define a set of actions related to states or events for each parallel group. In order to configure these actions it is necessary to press the Edit button on the row in the list.



The selected parallel group is shown on the “Selected parallel group” tree. The user can add, modify, or remove the composite events related to the selected parallel group. The composite events defined on the parallel group are shown on the “Activated jobs for parallel group” tree.

To add, remove, or modify a composite event, you must act on the buttons in the "Activated jobs for the parallel group" box:


	Adding a composite event to the parallel group.
	Apply the changes made to the selected composite event.
	Removing the composite event selected by the parallel group.

Every composite event related to the group is made up of one or more simple events that may occur on the groups’ UPS. These simple events are visible on the “selected job” part. The composite event occurs, and the defined actions are performed, only when all the simple events on the list are verified on the same time. A composite event is made up to 6 simple event.



It is possible to add or remove a simple event to the composite event selected clicking on the relative button (see below).

	Add a single event to the composite event. Two lists will appear in which to choose the event to occur and the UPS number on which the event should occur to trigger the action (priority). Priority can be set in the appropriate box (if necessary).
	Removing a single event from the composite event.

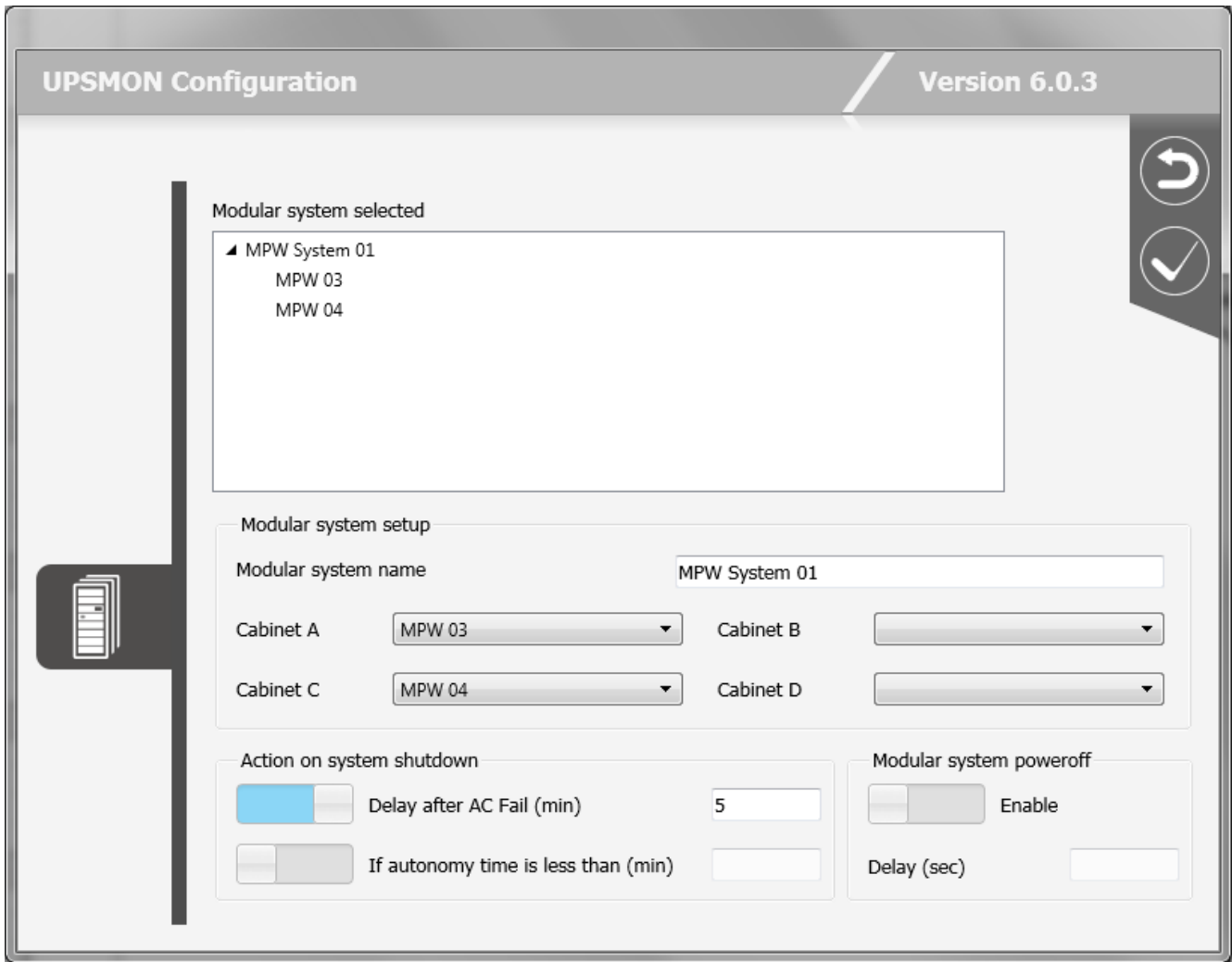
For each composite event related to the parallel group it is possible to set the actions that *Upsagent* will perform when the composite event will occur. It is possible to define the message that will be sent.

Action name	Action description
Message	<p>In the message text it is possible to add actual values or information which will be displayed along with the original information, these are as follows:</p> <p>\$NAME The UPS or Group name will be added to the message (See main parameters dialog box).</p> <p>\$\$SYSNAME The System name will be added to the message (See main parameters dialog box).</p> <p>\$\$SYSLOC The System location will be added to the message (See main parameters dialog box).</p> <p>\$\$SHUTTIME The time before shutdown of the local system in seconds.</p> <p>\$\$SHUTTIME1 The time before shutdown of the local system in the format: hh:mm:ss</p> <p>\$\$STH, \$\$STM e The three values: the time before the shutdown of the local system in hours, minutes and seconds.</p> <p>\$\$STS The remaining UPS battery autonomy.</p> <p>\$\$REMTIME The remaining UPS battery capacity.</p>
Log event	<p>If selected the event will to be logged into event log file.</p> <p> ATTENTION: On Windows the events are also logged in the system Application event log. On UNIX platforms the events are also logged into the system log (this depends on system configuration: see syslog manual).</p>
Execute file	<p>If selected the <i>Upsagent</i> will execute a specified command file when a selected condition occurs.</p> <p>Recommendation: Always use the full path name for the file.</p>
Local message	<p>If selected this enables message to be displayed on the local computer, the messages can be delayed to stop short event changes being displayed unnecessarily (e.g. short power problems) or repeated to ensure acknowledgment.</p> <p>For Windows the message is displayed on the desktop, Novell Netware sends the message to the server console and Unix executes the ups_loc.scr script.</p>
Broadcast message	<p>If selected this enables a message to be sent to remote users via the network. For Windows the message is broadcast to all connected users or only to some users depend on the configuration inserted in the page Configurations, for other systems the ups_mess.scr (or ncf for Novell Netware) script is executed.</p> <p>Recommendation: Use the wall command to send message to all connected users on Unix systems.</p>
Shutdown system	<p>If selected this option enables the shutdown of the system, for Windows the ups_shut.cmd file is searched for possible user specified commands before shutdown (e.g. quit databases, ...) then the standard system shutdown is executed using the WIN API functions.</p> <p>For other systems, the ups_shut.scr (or .cmd or ncf) script is started with the appropriate commands to provide the correct shutdown of the computer.</p>
Email	<p>It is possible to specify a name and email address for email recipients in the Configuration icon. If the Email checkbox is selected, then the message is sent to the specified users, by standard SMTP interface or via script (Linux, UNIX and MacOS). Before using this option the email service must be configured on the computer.</p>
SMS	<p>Enables the option to send the message as SMS to a specified GSM phone number.</p>

On this page you can find the following buttons:

	Exit the Parallel Group Action Configuration Page and return to the previous page without applying the changes.
	Exit from the Parallel Group Actions Configuration Page and return to the previous page with application modifications. To save the applied changes, you must exit from the main page.



1.3.3 MPW System configuration



The selected MPW System is shown on the “Modular system selected” tree. You can configure in the MPW System up to 4 MPW cabinets previously configured in the “MPW cabinet” section. All the MPW cabinets in the system will be shown on the lists, allowing the physical cabinets to be coupled to the logic cabinets A, B, C, D.

Parameter name	Parameter description
Modular system name	MPW System identification name.
Cabinet A, B, C, D	The MPW cabinet paired with logic MPW cabinet A, B, C, D.
System shutdown	This field is used to specify the parameters for the system shutdown, the system Shutdown can be triggered by either a specified time after AC Fail or if the MPW System autonomy time is below a specified time. If the MPW System sends a low battery signal to the computer (i.e. the MPW System backup time is low), the <i>Upsagent</i> will ignore the specified times and start the system shutdown procedure immediately.
MPW system power off	This field can be used to send a shutdown signal to the MPW System once all remote computers have shutdown, at this point the MPW System will then shutdown

On this page you can find the following buttons:

	Exit the MPW setup page and return to the previous page without applying the changes.
	Exit the MPW configuration page and return to the previous page with applying modifications. To save the applied changes, you must exit from the main page.

1.3.4 Remote sensors configuration

The screenshot shows the 'UPSMON Configuration' window, Version 6.0.3. The configuration is for a remote sensor. The 'Sensor identification' section includes a 'Name' field with 'Sensor 01' and a 'Sensor type' dropdown menu set to 'Temperature'. The 'Device connection' section has a 'Device name' dropdown menu and a 'Sensor index' field with '1'. The 'Temperature thresholds (°C)' section has 'High threshold' set to '100' and 'Low threshold' set to '-20'. The 'Humidity thresholds (%)' section has empty 'High threshold' and 'Low threshold' fields. The 'Digital input logic' section has two radio buttons: 'Normally open' (selected) and 'Normally close'. The 'Digital output logic' section has two toggle switches: 'Digital output change on sensor alarm' and 'Digital output change on device alarm', both currently turned off. A navigation bar on the right contains a refresh icon and a checkmark icon. A sidebar on the left contains a water and thermometer icon and a back arrow icon.

Up to 6 different types of remote sensor can be associated with an Network adapter using the serial port (see sensor cable wiring specifications). The remote sensors are divided into three categories:



- Temperature sensors that measure the environmental temperature around the sensor. Alarms can be set to indicate when high or low temperature thresholds are exceeded so that certain actions can be taken (sending an SMS or an e-mail or system shutdown).
- Temperature and humidity sensors that measure the environmental temperature and humidity around the sensor. Alarms can be set to indicate when high or low temperature thresholds are exceeded so that certain actions can be taken (sending an SMS or e-mail or system shutdown).
- Temperature and digital I/O sensors that measure the environmental temperature around the sensor and have two contacts – an Input and an Output. Alarms can be set to indicate when high or low temperature thresholds are exceeded so that certain actions can be taken (sending an SMS or e-mail or system shutdown). It is also possible to set parameters for the Input contact so that certain actions are taken (sending an SMS or e-mail or system shutdown) whenever the contact opens (or closes),

One of the actions that can be taken is the closing of the Output contact of the digital I/O sensors. This can be set to signal a general alarm condition on the UPS (e.g. AC Failure), or a general alarm condition on a sensor (e.g. high temperature).

Up to 32 remote sensors can be configured. Given that a maximum of 32 UPS systems can be controlled, it is evident that if each UPS has 6 sensors, it will not be possible to monitor all the sensors. It is up to the user to choose which of the 32 sensors he intends to monitor.




Name of parameter	Description of parameter
Name	Name of the sensor connected to the Network adapter
Type of sensor	Type of sensor: temperature, humidity or digital I/O.
Name of UPS	Name of the device connected to the Network adapter with which the sensors have been associated. Note: this combo box shows only the device for which the item "Remote Sensors" has been selected in the device configuration.
Sensor Index	Index of the sensors (from 1 to 6) connected to the Network adapter.
Temperature and humidity thresholds	Maximum and minimum temperature and humidity threshold settings on the sensor. When these values are exceeded, the actions specified for the respective alarm in the section "Status and actions" (see paragraph 1.7) will be carried out. Note: humidity thresholds are active only for humidity type sensors.
Digital input parameter	Determines whether the digital I/O sensor has the input contact normally open (the alarm is triggered when the contact is closed) or normally closed (the alarm is triggered when the contact is opened). This section is active only for digital I/O type sensors.
Digital output parameter	Determines whether the digital I/O sensor must close the output contact when a general alarm occurs on any of the sensors associated with the same Network adapter (switching for sensor alarm), and/or when an alarm occurs on the UPS connected to the same adapter (switching for UPS alarm). This section is active only for digital I/O type sensors.

On this page you can find the following buttons:

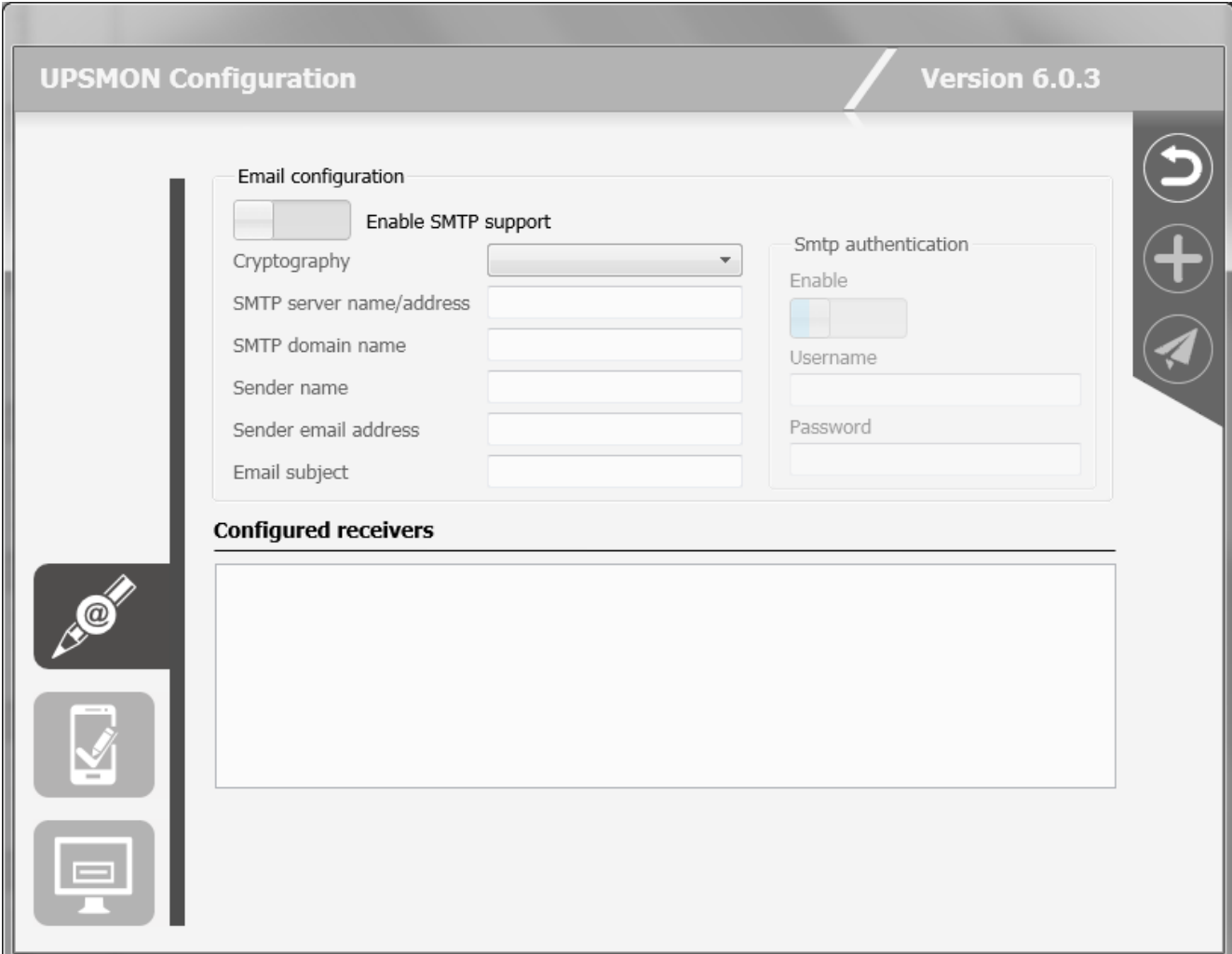
	Exit the sensor configuration page and return to the previous page without applying the changes.
	Exits the sensor configuration page and returns to the previous page applying the changes. To save the applied changes, you must exit from the main page.

1.4 Configurations section

Possible configurations are the follows:

	Email configuration.
	SMS configuration.
	Broadcast message configuration (only Windows).

1.4.1 Email support configuration



The screenshot shows the 'UPSMON Configuration' window, version 6.0.3. The 'Email configuration' section is active, featuring a sidebar with navigation icons for Email, SMS, and Broadcast. The main area contains the following fields:




- Email configuration:**
 - Enable SMTP support
 - Cryptography:
 - SMTP server name/address:
 - SMTP domain name:
 - Sender name:
 - Sender email address:
 - Email subject:
- Smtp authentication:**
 - Enable
 - Username:
 - Password:
- Configured receivers:**

On the right side of the configuration area, there are three circular navigation icons: a refresh icon, a plus icon, and a paper plane icon.

This feature enables the configuration to send email by SMTP interface. To use this support, the email service must be correct configured on the computer.

Parameter name	Parameter description
Enable SMTP support	Enable or disable SMTP support. When disabled the UPSMON cannot send emails through SMTP support.
Cryptography	Encryption supported by the SMTP server.
SMTP server name/address	The IP address or host name of your SMTP server. The SMTP server is a specific computer in the local network or Internet service provider which is used to collect and distribute email to the users. For detailed information contact the administrator of the network.
SMTP domain name	The domain name is used to correctly log into the SMTP server. Some SMTP servers control it for authorised access. For detailed information contact the administrator of the network.
Sender name	The name of the sender which is included in the email. Informational only.
Sender email address	The sender email address is also included in email header and will allow possible replies to be received on the email message for UPSMON.
Email subject	The subject of the email.
SMTP authentication	Enable SMTP authentication. By enabling authentication, you must enter Username and Password for the correct functioning of the email.

On this page you can find the following buttons:

	Exit the configuration section and return to the main page.
	Add an email receiver. Pressing this button will display a box where you can enter the name and email of the receiver to be added.
	Make a sending test.

It is possible to specify the name and email address (or GSM number) for the recipients. This will only operate if the Email messages checkbox (or SMS checkbox) in jobs parameters section has been selected. In the event of an alarm condition occurring a message about the UPS status will be sent to the specified users, this message will be sent by the standard SMTP interface.

The maximum number of email recipients is 10.

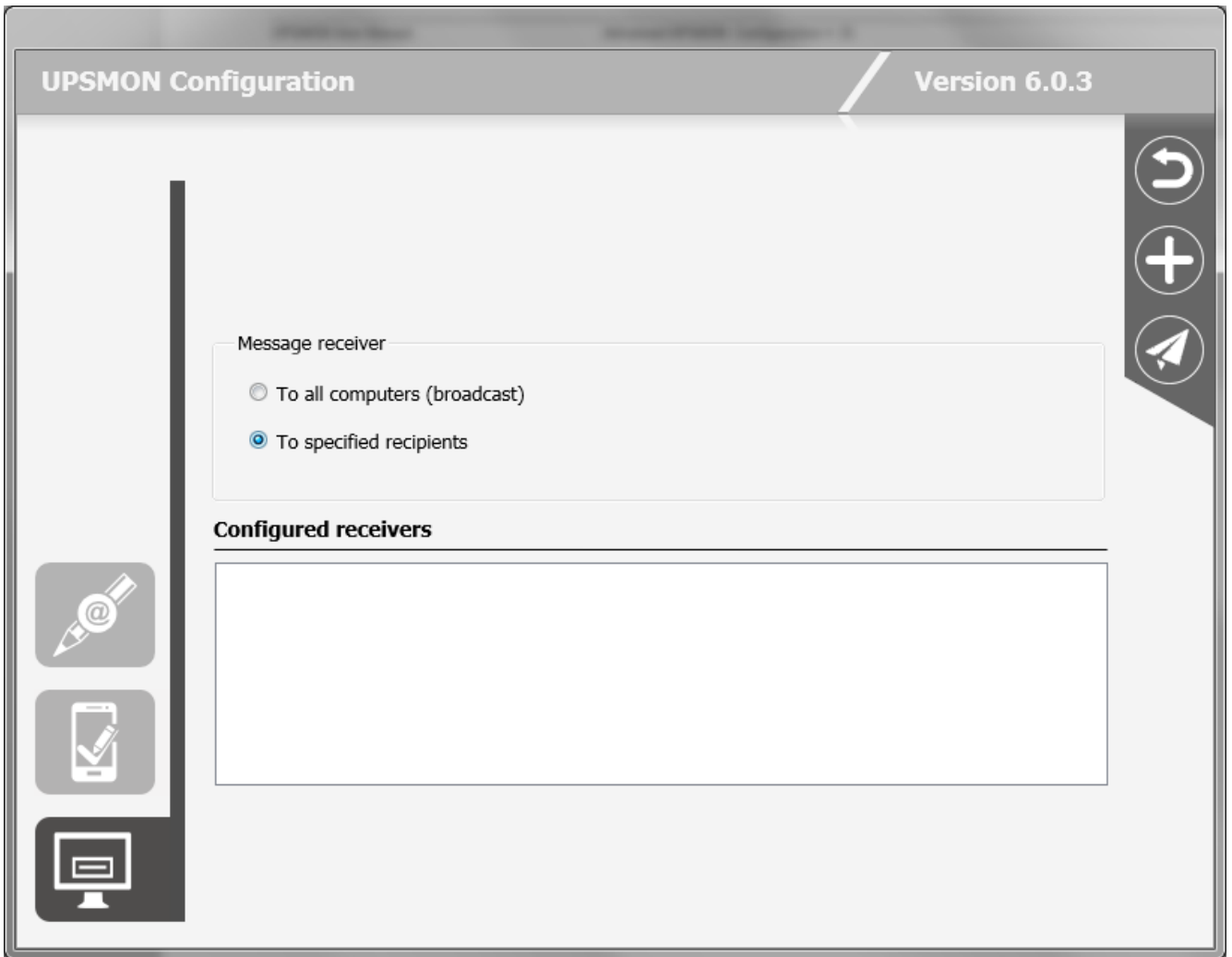
1.4.2 GSM support configuration

This window is used to configure the GSM modem connection. The GSM modem may be used to send SMS to normal GSM phones.

The screenshot shows the 'UPSMON Configuration' window with 'Version 6.0.3' in the top right corner. The main content area is titled 'GSM configuration' and contains a toggle switch for 'Enable GSM modem support', a dropdown menu for 'Connection serial port', and a text input field for 'SMS Centre number'. Below this is a section titled 'Configured receivers' with an empty list box. On the left side, there is a vertical toolbar with three icons: a pencil with an '@' symbol, a smartphone with a checkmark, and a computer monitor. On the right side, there is a vertical toolbar with three icons: a refresh arrow, a plus sign, and a paper airplane.

Parameter name	Parameter description
Enable GSM modem support	Enable or disable GSM modem support. When disabled, the UPSMON cannot send SMS.
Connection serial port	The serial port name where the modem is connected.
SMS Centre number	Contact your SIM card provider to obtain this number.

1.4.3 Network Messages support configuration (only Windows)



This window is used to configure network messages. It is possible to send the message in broadcast (to all computer present in the network) or select some user, that will be shown in the recipients list.

1.5 Action scheduler section

This window is used to specify various actions such as UPS shutdown, reboot, test, etc. that will be executed at a specified time. The maximum number of scheduled actions is 16. The configured actions will be shown in the “Configured scheduled actions” list.

The action can be executed once, daily, weekly or monthly. In the window “Scheduled actions settings” the user can choose these time parameters, and also the type of actions and the Ups on which the action is executed. It is recommended to set only one action in same time, if multiple action have been specified at the same time, some of these actions may be ignored. Any actions which are not supported by the UPS will be ignored.

On this page you can find the following buttons:

	Exit from the scheduler section and return to the main page.
	Add a scheduled event.

1.6 States and actions section

In the section “Action on System shutdown” the user can configure some actions to execute before system shutdown. It is possible to launch an external editing program to write a user defined shutdown script (“Edit script” button).


The user defined shutdown script is executed before the normal system shutdown. This can be used for specific commands, which will be executed before the shutdown, for example, stop the web server, close some special application or shutdown database server. The name of this script is ups_shut, however the extension will depend on the operating system (ups_shut.bat for Windows, ups_shut.ncf for Novell Netware and ups_shut.scr for UNIX).





ATTENTION: If you specify an incorrect command in the user shutdown script or this command stops (not correctly ended) then the *Upsagent* will not provide a correct system shutdown and thus possibly lose some data or a failure on the file system will occur. The last command in the user shutdown script must be the command to shutdown of system (except Windows versions – the shutdown is executed by using the system routines directly from the *Upsagent*). In some operating system it is possible change the script ups_mess.scr , which is used to send messages to users about the UPS status.




Parameter name	Parameter description
Hibernate support	When selected it enables the possibility to suspend the system instead of a normal shutdown. This function is supported by Windows 2000 and higher on supported hardware.

In the “Jobs configuration” section, the user may define the actions to be taken when a given event is detected on the device or on the sensors connected. A number of actions can be associated with a particular event on the device or on the sensors connected, such as for example the possibility of executing a series of external commands defined by the user. A runtime delay can be programmed for the actions associated with a particular event (to filter events that only last for a short time). Similarly, an interval can be programmed for the repetition of the action, should the associated event still be active. Both values are expressed in seconds.

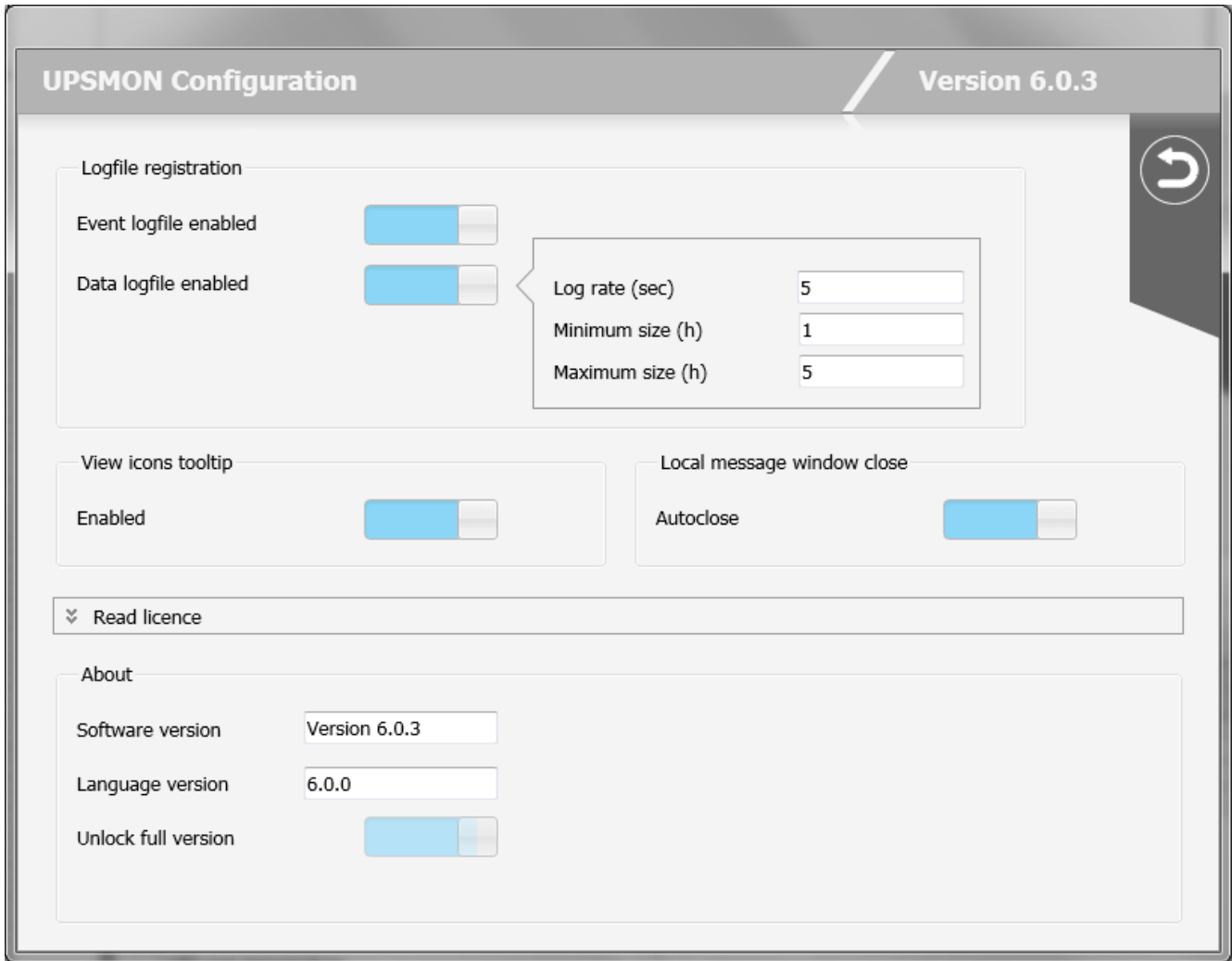
Action name	Action description
Disable all jobs	Enables or disable all of the jobs, if selected no jobs can be executed.
Generation event delay	The event that occurs is recognized by UPSMON only after the specified delay.
Message	<p>It is possible to alter the default message for a particular event. It is not recommended to change the basic message text, as this may cause an incorrect message to be sent, which does not correspond to the actual event.</p> <p>Note: in the message text it is possible to add actual values or information which will be displayed along with the original information, these are as follows:</p> <p>\$NAME The UPS or Group name will be added to the message (See main parameters dialog box).</p> <p>\$\$SYSNAME The System name will be added to the message (See main parameters dialog box).</p> <p>\$\$SYSLOC The System location will be added to the message (See main parameters dialog box).</p> <p>\$\$SHUTTIME The time before shutdown of the local system in seconds.</p> <p>\$\$SHUTTIME1 The time before shutdown of the local system in the format: hh:mm:ss</p> <p>\$\$STH, \$\$STM e The three values: the time before the shutdown of the local system in hours, minutes and seconds.</p> <p>\$\$STS The remaining UPS battery autonomy.</p> <p>\$\$REMTIME The remaining UPS battery capacity.</p> <p>\$\$REMCAP The remaining UPS battery capacity.</p> <p>\$\$SENSORNAME Name of the sensor on which the event occurred. Valid only if events have been associated with the sensors.</p>
Log event	<p>If selected the event will to be logged into event log file.</p> <p> ATTENTION: On Windows platforms, the events are also logged in the system Application event log. On UNIX platform, the events are also logged into the system log (this depends on system configuration: see syslog manual).</p>
Execute file	<p>If selected the <i>Upsagent</i> will execute a specified command file when a selected condition occurs.</p> <p>Recommendation: Always use the full path name for the file.</p>
Local message	<p>If selected this enables message to be displayed on the local computer, the messages can be delayed to stop short event changes being displayed unnecessarily (e.g. short power problems) or repeated to ensure acknowledgment.</p> <p>For Windows the message is displayed on the desktop, Novell Netware sends the message to the server console and Unix executes the ups_loc.scr script.</p>
Broadcast message	<p>If selected this enables a message to be sent to remote users via the network. For Windows the message is broadcast to all connected users or only to some users depend on the configuration inserted in the page Configurations, for other systems the ups_mess.scr (or .ncf for Novell Netware) script is executed.</p> <p>Recommendation: Use the wall command to send message to all connected users on Unix systems.</p>

<p>Shutdown system</p>	<p>If selected this option enables the shutdown of the system, for Windows the ups_shut.cmd file is searched for possible user specified commands before shutdown (e.g. quit databases, ...) then the standard system shutdown is executed using the WIN32 API functions. For other systems the ups_shut.scr (or .cmd or .nfc) script is started with the appropriate commands to provide the correct shutdown of the computer.</p> <p> ATTENTION: System shutdown conditions defined in the UPS connection dialog box is not dependent on this checkbox.</p> <p> ATTENTION: You cannot specify a Shutdown system action for AC Fail or Battery low; these are dependent on the UPS connection configuration. The system shutdown time after AC Fail may be defined by two independent values (fixed time from AC Fail and/or specific remaining backup time). The Battery Low event causes an immediate system shutdown.</p>
<p>Email</p>	<p>Direct email support is for Windows only, when using other system a script must be used to suit the individual system. It is possible to specify a name and email address for email recipients in the Configurations page. If the Email checkbox is selected, then the message is sent to the specified users, by standard SMTP interface.</p>
<p>SMS</p>	<p>Enables the option to send the message as SMS to a specified GSM phone number. It is possible to specify a name and telephone number in the Configurations page.</p>
<p>Default</p>	<p>Used to reset the event action parameters to the default state.</p>
<p>Default All</p>	<p>Used to reset all of the parameter to the default state.</p>

On this page, you can find the following buttons:

	<p>Button to edit the shutdown script.</p>
	<p>Button default.</p>
	<p>Button default all.</p>

1.7 About and logs section



Parameter name	Parameter description	Default
Event logfile enabled	Enables or disables the use of the event logfile for logging the events by the <i>Upsagent</i> module.	Enabled
Data logfile enabled	Enables or disables the use of the data logfile for logging measured values by the <i>Upsagent</i> module.	Disabled
Log rate	Defines the interval (in seconds) in which the <i>Upsagent</i> writes the measured values into the data log file.	5 seconds
Minimum size	Defines the minimum time (in hours) of the data logfile for the measured values.	1 hour
Maximum size	Defines the maximum time (in hours) of the data logfile for the measured values. The data logfile will be reset back to the minimum size (value of Minimum size) if the logfile contains more data than the configured values.	5 hours
Local message window close (only for Windows)	When selected the window that appears with the message with regards to the UPS status displayed on desktop will automatically be closed after 10 seconds, if this is not selected the message must be cleared manually by the OK button.	Enabled
View icon tooltip	Enable icon tooltip display.	Enabled

The About group contains the information with regards to the UPSMON, including the version and copyright. In addition to this the switch “Unlock full version” is used to enter the serial and license number, to convert the STANDARD version to the FULL version of UPSMON. **The STANDARD version is used for Windows, Novell Netware, Linux and MacOs version, when one UPS is to be monitored.** The FULL version will allow one UPS to be monitored locally and up to 31 UPS to be monitored via a network by the *Upsagent*. To change the STANDARD version to the FULL version you must enter the provided Serial number and relevant License number.

2. Upsetup (textual) for UNIX, Linux and MacOs

To configure the parameters for UPSMON on UNIX, Linux and MacOs use the text version of *Upsetup*. The style and parameters to be set is of course dependent on the text interface used.

A common problem is finding the correct serial device name for the UNIX system. The following table gives the usual device names for different UNIX systems.

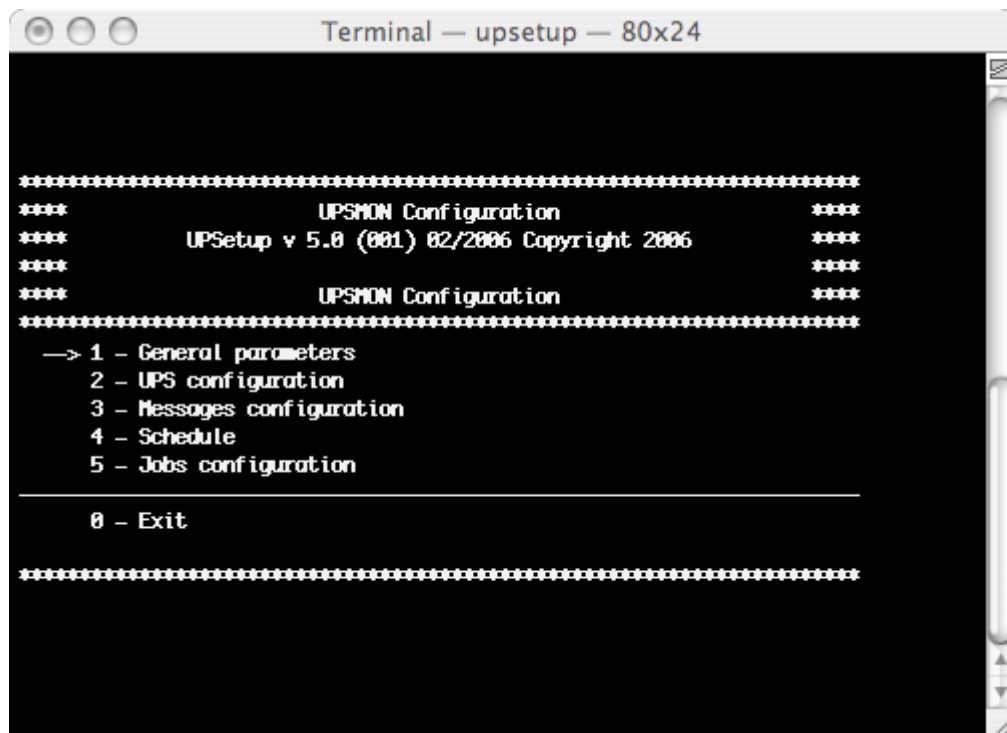
UNIX System	Device name
Linux	/dev/ttyS0
HP UX	/dev/tty0p0
Solaris	/dev/ttya
Unixware	/dev/tty00
SCO Unix	/dev/tty1a
IRIX	/dev/ttyd0
IBM AIX	/dev/tty0
Tru64	/dev/tty00



ATTENTION: When the *Upsetup* program is started for first time, the correct PRTK code for the UPS to be monitored must be input, this code is located on a label which can be found on either the front or the rear of the UPS.

The *Upsetup* program has 5 main sections:

1. **General parameters:** this section is used to set up all of the common parameters, such as the system name, location, personnel contact name, parameters for log files and for network communication.
2. **UPS configuration:** this section is used to configure a list of the UPS to be monitored by the *Upsagent* and the communication parameters for each UPS.
3. **Message configuration** : this section is used configure the GSM phone list to send SMS and also to configure the modem for a teleservice connection.
4. **Schedule:** this section is used to configure any scheduled actions. It is possible to specify scheduled actions such as UPS shutdown, reboot, test, etc.; these actions will be executed at a specified time.
5. **Jobs configuration:** this section is used to configure the jobs to be carried out by the UPSMON when an alarm condition occurs, for example it is possible to customize each alarm to carry out a specific set of tasks such as run a shutdown user defined script, send email, SMS or network messages etc.



```
Terminal — upsetup — 80x24
*****
****                UPSMON Configuration                ****
****      UPSSetup v 5.0 (001) 02/2006 Copyright 2006      ****
****                UPSMON Configuration                ****
*****
-> 1 - General parameters
   2 - UPS configuration
   3 - Messages configuration
   4 - Schedule
   5 - Jobs configuration

-----
   0 - Exit

*****
```

2.1 General parameters

```

Terminal — upsetup — 80x24
*****
***                                     ***
***                               Main                               ***
***                                     ***
*****
-> 1 - System name:      Server
   2 - System location:  Server room
   3 - System contact:   Administrator
-----
   4 - Language:        English
-----
   5 - Event logfile enabled:  [Yes]
   6 - Data logfile enabled:   [No]
   6.1 - Log rate (sec):
   6.2 - Minimum size (h):
   6.3 - Maximum size (h):
-----
   7 - Network services
-----
   0 - Exit
*****

```

Parameter name	Parameter description	Default
System name	Defines the name of the local system.	Server
System location	Defines the location of the local system.	Server room
System contact	Defines the contact person's name for the local system.	Administrator
Language	Language selection. All messages and text in UPSMON (except some system messages) is described in lang_xx.ini files. The default is lang_00.ini used for the standard English language interface.	Lang_00 (english language)
Event logfile enabled	Enables or disables the use of the event logfile for logging the events by the <i>Upsagent</i> module.	Enabled
Data logfile enabled	Enables or disables the use of the data logfile for measured values by the <i>Upsagent</i> module.	Disabled
Log rate	Defines the interval (in seconds) in which the <i>Upsagent</i> writes the measured values into the data log file.	5 seconds
Minimum size	Defines the minimum time (in hours) of the data logfile for the measured values.	1 hour
Maximum size	Defines the maximum time (in hours) of the data logfile for the measured values. The data logfile will be set back to the minimum size (value of Minimum size) if the logfile contains more data than the configured values.	5 hours

2.1.1 Network services

```

Terminal — upsetup — 80x24
*****
****                               ****
****           Network services       ****
****                               ****
*****
-> 1 - Update frequency (sec):      3
  2 - Server enabled:              [Yes]
  3 - UDP Port:                    33000
  4 - Ignore remote UPS commands:  [No]
  5 - HTTP enabled:                [No]
  6 - HTTP Path:
  7 - Password protection:         [No]
    7.1 - Enter or modify password

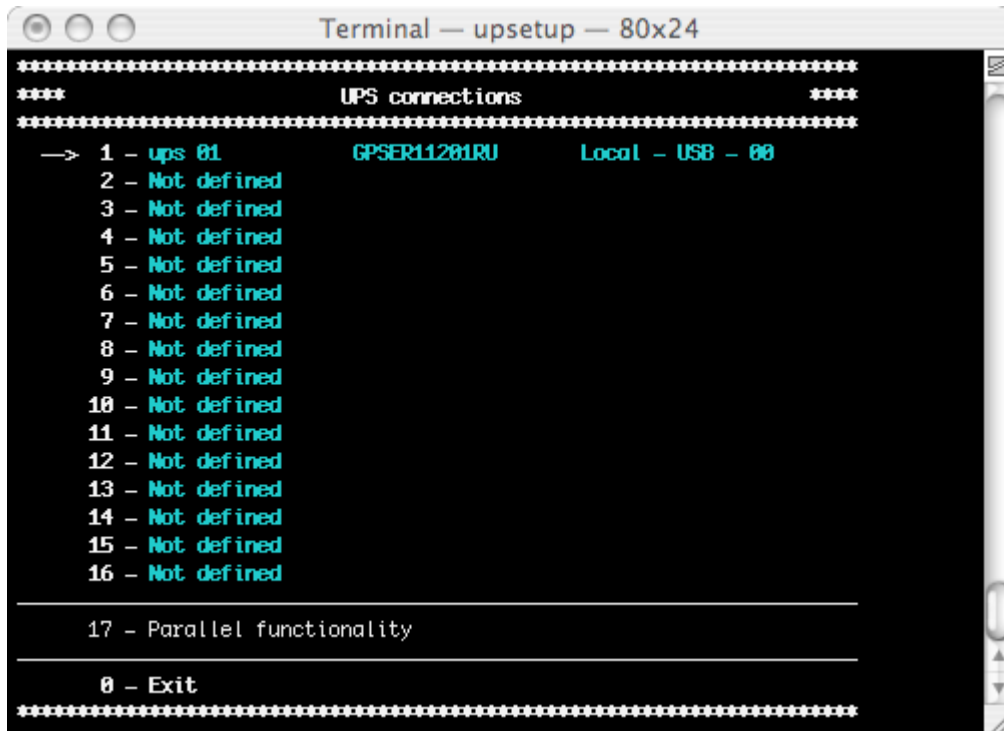
-----
  0 - Exit

*****

```

Parameter name	Parameter description	Default
Update frequency	Defines the time-interval (in seconds) in which the <i>Upsagent</i> polls for data from the UPS (if the <i>Upsagent</i> is connected to remote UPS via network). The system speed may be reduced due to permanent communication with the UPS if this value is too small. If the value is too high the system will react slower in the case of an alarm from the UPS. The recommended values are from 1 second (for smaller networks) or 5-10 seconds (on larger networks).	3 seconds
Server enabled	Enables or disables the connection access of other computers running the <i>Upsagent</i> or <i>Upsview</i> programs.	Enabled
UDP Port	The UDP communication port. This must be same on all system using UPSMON.	33000
Ignore remote UPS commands	Enables or disables access from remote computers to make commands to the UPS (by <i>Upsagent</i> or <i>Upsview</i>). This feature is used to prevent a remote user from forcing a command to the UPS, such as UPS shutdown or test etc.	Disabled
HTTP enabled	Allow the support for HTTP.	Disabled
HTTP path	Used to specify where the <i>Upsagent</i> creates the files with the UPS status for HTTP monitoring.	Empty
Password protection	If selected the software will require a password for communication with the UPS. This password is to protect the <i>Upsagent</i> connection. If the user doesn't know the password, it will not be possible to connect the agent.	Disabled

2.2 UPS Configuration

A terminal window titled "Terminal — upsetup — 80x24" displays the "UPS connections" configuration menu. The menu is enclosed in a border of asterisks. At the top, it says "**** UPS connections ****". Below this, a list of 16 numbered items is shown. Item 1 is selected with a blue arrow and shows "1 - ups 01" with "GPSE11201RU" and "Local - USB - 00" in cyan text. Items 2 through 16 are listed as "Not defined". At the bottom of the menu, there are two more options: "17 - Parallel functionality" and "0 - Exit".

```
**** UPS connections ****
*****
-> 1 - ups 01          GPSE11201RU      Local - USB - 00
   2 - Not defined
   3 - Not defined
   4 - Not defined
   5 - Not defined
   6 - Not defined
   7 - Not defined
   8 - Not defined
   9 - Not defined
  10 - Not defined
  11 - Not defined
  12 - Not defined
  13 - Not defined
  14 - Not defined
  15 - Not defined
  16 - Not defined

-----
17 - Parallel functionality

-----
0 - Exit
*****
```

The UPS connection window contains the list of the UPS that will be monitored by the *Upsagent*.

It is possible to add, delete or edit the UPS list.

The STANDARD version of UPSMON will only allow one UPS to be monitored either locally or via a network by the *Upsagent*. The FULL version will allow one UPS to be monitored locally and up to 15 UPS to be monitored via a network by the *Upsagent*. To change the STANDARD version to the FULL version you must enter the relevant License number. The License number is available from the UPS manufacturer or local supplier.

The FULL version of UPSMON also enables the operation of Parallel functionality. This function enables the setup of groups of UPS, which are working in redundant operation. It is possible to create up to 10 groups, with each group containing up to 8 UPS (2 UPS minimum) with up to 64 event actions. To enable this function the user must define at least 2 Ups.

2.2.1 UPS definition

```

Terminal — upsetup — 80x24

*****
****                                     ****
****                               UPS configuration                               ****
****                                     ****
*****
*****
-> 1 - UPS Name:      ups 01
   2 - PRTK code:    GPSER11201RU
   3 - UPS Serial Number:
   4 - Connection

-----

5 - System shutdown:  [Disabled]
  5.1 - Delay after start AC Fail (min):

-----

6 - System shutdown:  [Disabled]
  6.1 - If autonomy time is below than (min):

-----

7 - UPS shutdown:     [Disabled]
  7.1 - Delay (sec):

-----

0 - Exit

*****

```

Parameter name	Parameter description
UPS Name	UPS identification name.
PRTK Code	The PRTK is used to determine the type of UPS to be monitored, the code to be entered can be located on the UPS.
UPS Serial number	The UPS have unique serial numbers, this number used to identify the UPS. Enter the serial number as printed on the UPS identification label. This field is important for the correct operation with Teleservice program.
System shutdown	This field is used to specify the parameters for the system shutdown, the system Shutdown can be triggered by either a specified time after AC Fail or if the UPS autonomy time is below a specified time. If the UPS sends a low battery signal to the computer (i.e. the UPS backup time is low), the <i>Upsagent</i> will ignore the specified times and start the system shutdown procedure immediately.
UPS shutdown	This field can be used to send a shutdown signal to the UPS once all remote computers have shutdown, at this point the UPS will then shutdown.

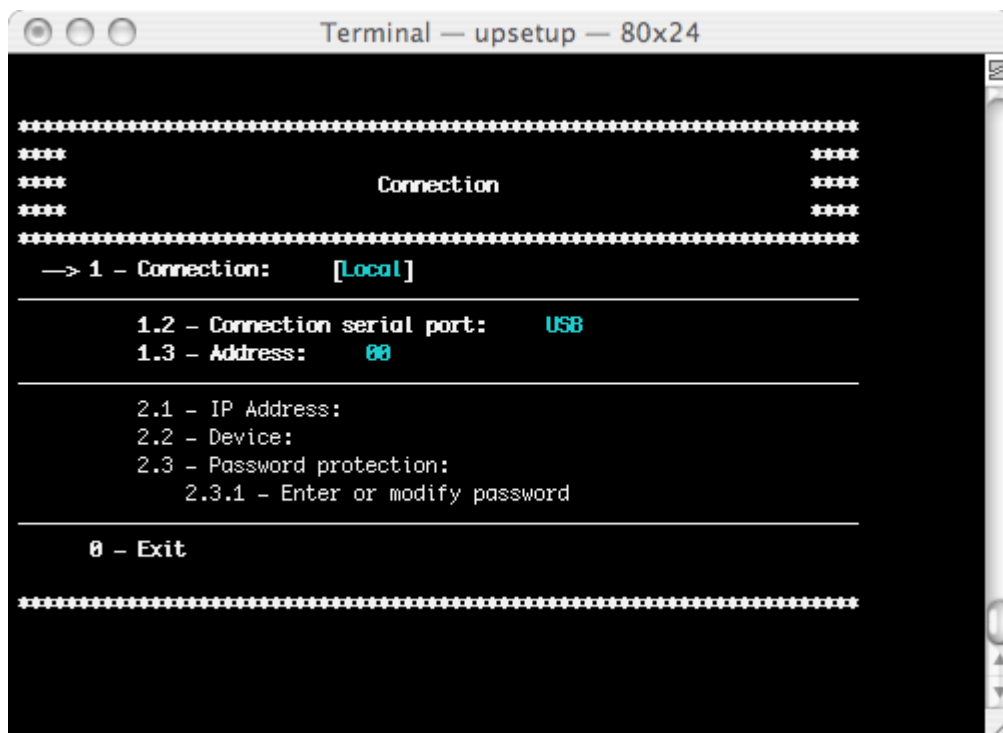
2.2.2 Ups Connection

The UPS connection must be set to the chosen method to be used for the communication between the computer and UPS(s). The first method of connection is local, this connection method is used when the connection to the UPS is to be made via a serial port, if this method is to be used ensure that the correct serial port and UPS address is selected. All the other settings for the serial connection (baud speed etc.) are automatically set for the selected UPS type. The second method of connection is remote via a network, for this connection an IP address for the computer or Network adapter must be specified for the device where the UPS is connected and the device number (usually 1).

Note: The Windows version, the Linux version, the Solaris version and the Mac OS X version supports USB communication via USB-UPS adapter.

Note: The TCP/IP communication allows the user to specify a remote *Upsagent* or Network adapter location by host name (or DNS name).

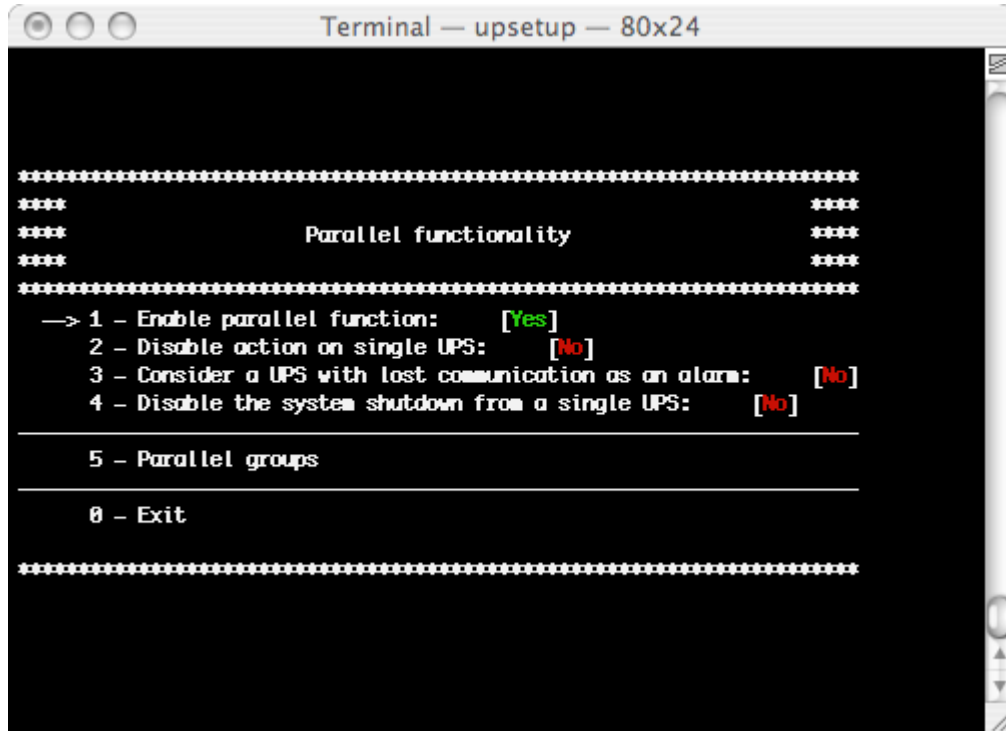
Note: It is possible to specify a connection password for each UPS connected via TCP/IP. This password must always be specified to connect the specific UPS.



```
Terminal — upsetup — 80x24

*****
****                                     ****
****                               Connection                               ****
****                                     ****
*****
-> 1 - Connection:      [Local]
-----
      1.2 - Connection serial port:    USB
      1.3 - Address:      00
-----
      2.1 - IP Address:
      2.2 - Device:
      2.3 - Password protection:
            2.3.1 - Enter or modify password
-----
      0 - Exit
*****
```

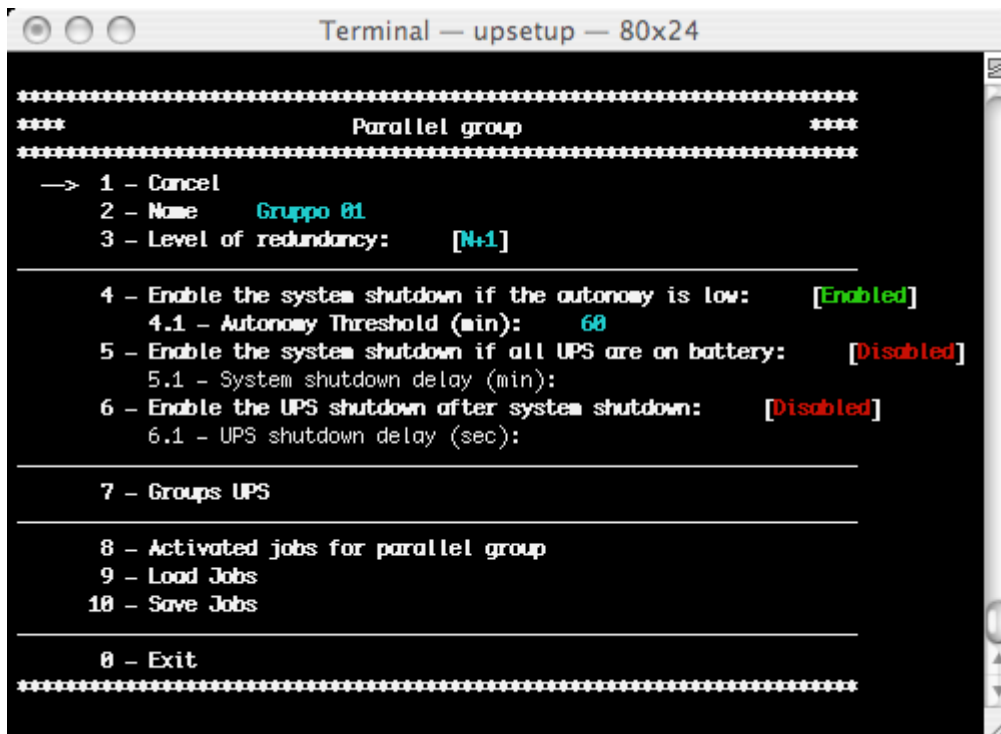
2.2.3 Parallel functionality



Parameter name	Parameter description
Enable parallel function	Enable or disable the parallel functionality.
Disable action on single Ups	If selected, the standard configuration for the single UPS event will be ignored. The <i>Upsagent</i> controls only the group status. If it is not selected, the <i>Upsagent</i> controls, both the group events and also the single UPS events. If this parameter is selected, the job actions defined in the job dialog box are disabled for the single UPS.
Consider a Ups with lost communication as an alarm	If selected, the active alarm level is raised, specified on the parallel event list, for each UPS in communication lost condition.
Disable the System shutdown from a single UPS	If selected, this disables the system and UPS shutdown time defined on the single UPS configuration. This function shutdown time is the same time for the UPS parallel group.
Parallel Groups	Used to add, modify or delete groups.

2.2.4 Parallel Groups

The name and UPS number of each parallel group, and the events associated to the parallel group are described or configured using the next menu:

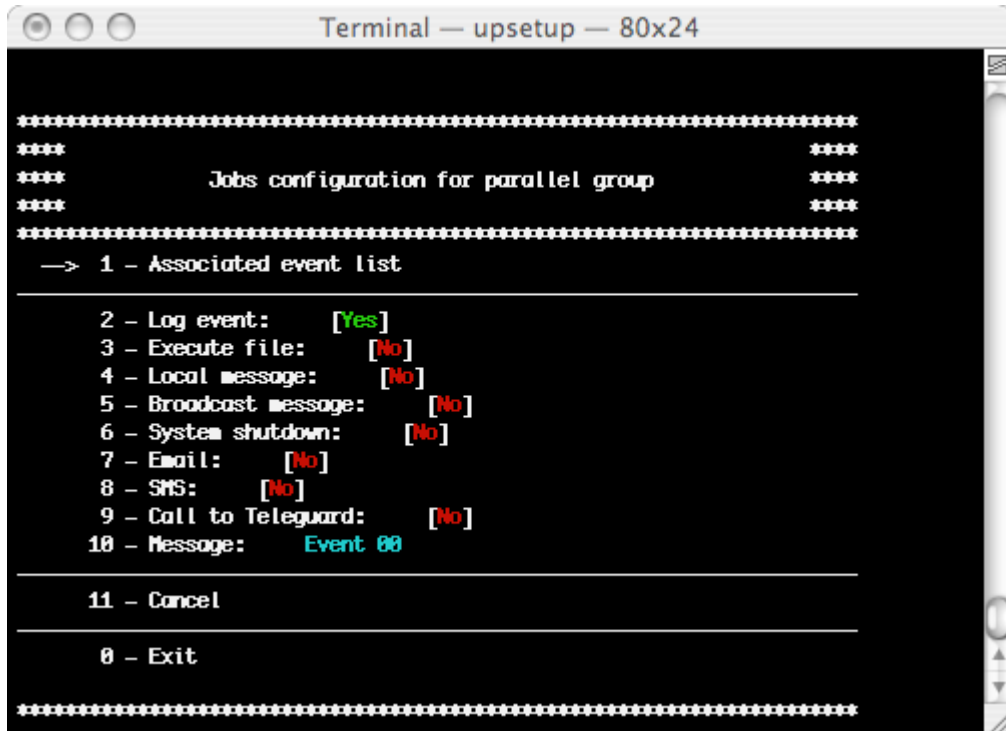



A group name must be specified, a minimum of two UPS added (from the list of UPS monitored by *Upsagent*, shown by selecting “Groups UPS”) and configured the selected actions for the group events.

Parameter name	Parameter description
Redundancy level	Defines the redundancy level of the parallel group: possible choices are N (default), N+1 (for groups with a minimum of 2 UPS), N+2 (for groups with a minimum of 3 UPS) and N+3 (for groups with a minimum of 4 UPS). N.B. A parallel group with redundancy N+i will stay active and operational even if “i” UPS within the group fail. The load will be shared between the remaining UPS.
Enables system shutdown in the event of low back up time	The shutdown may depend on the fact that the “i-th” backup time of the parallel group selected is lower than the preset time. N.B. If the redundancy level is N, the lowest backup time is considered; if it is N+1, the second lowest time is considered; if it is N+2, the third lowest time is considered, while if it is N+3, the fourth lowest time is considered, on so on.
Enable system shutdown if all of the UPS are supplied from the batteries	System shutdown parameters for the parallel group can be defined. The shutdown may depend on the fact that all the UPS within the parallel group are operating in battery mode.
Enable the Ups shutdown after system shutdown	It is possible to shut down the groups’ UPS together with the system after the specified delay.

It is possible to save the UPS parallel event configuration, and also possible to load it on another computer without re-inserting the same configuration, this can be done using the “Load jobs” and “Save jobs”.

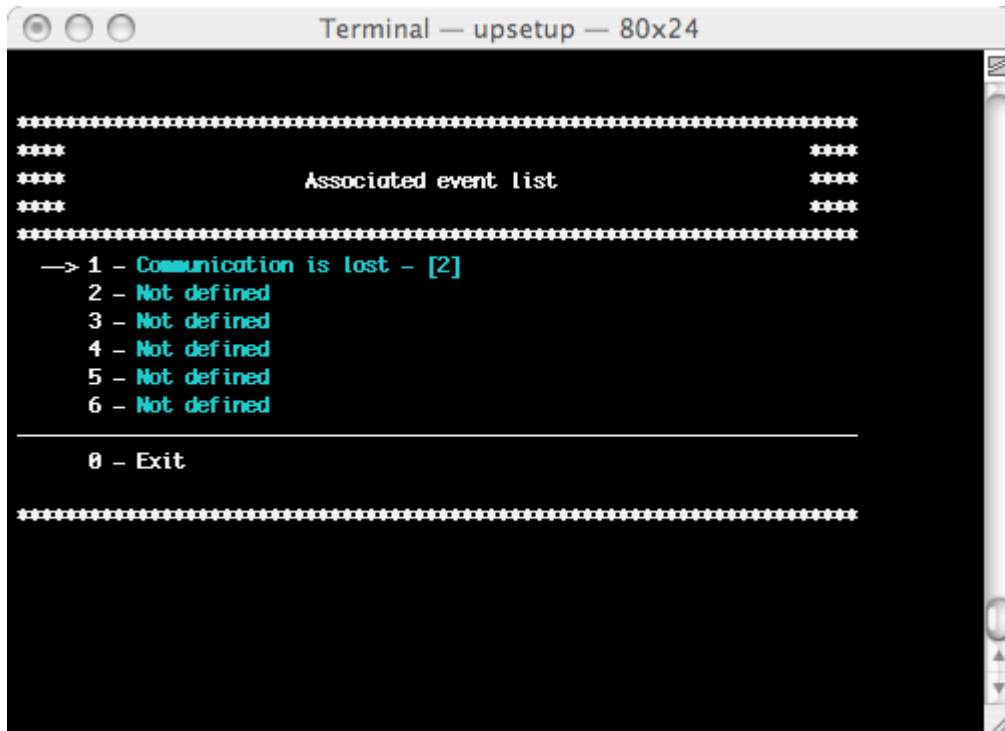
To configure the selected actions for the group events there are the next menu:



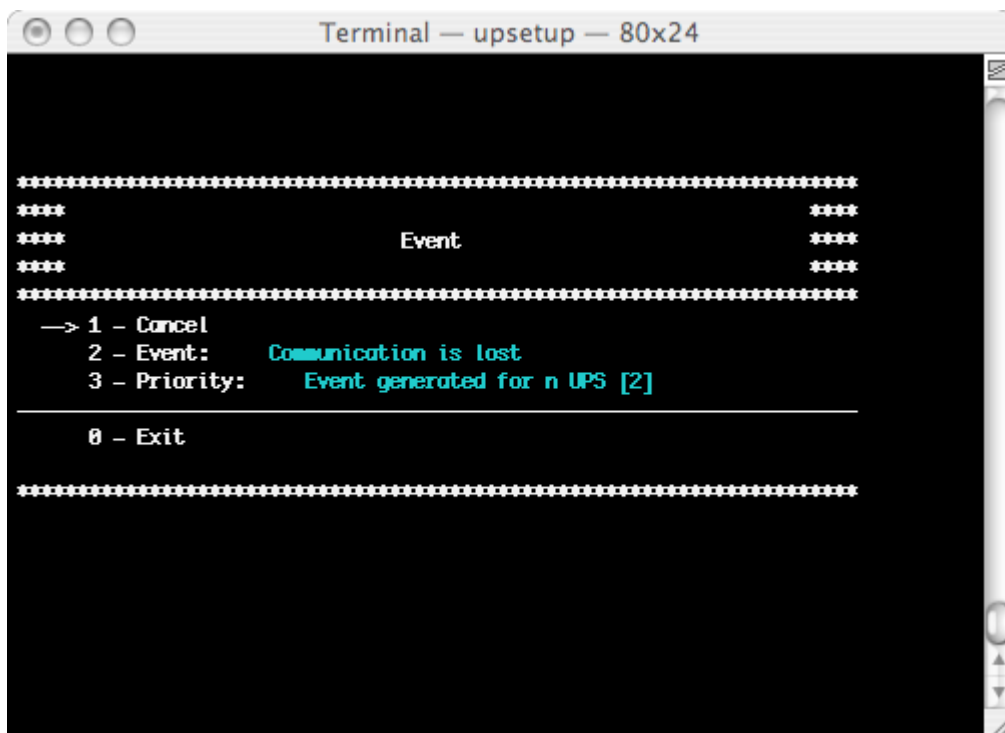
Action name	Action description
Message	<p>In the message text it is possible to add actual values or information which will be displayed along with the original information, these are as follows:</p> <p>\$NAME The UPS or Group name will be added to the message (See main parameters dialog box).</p> <p>\$SYSNAME The System name will be added to the message (See main parameters dialog box).</p> <p>\$SYSLOC The System location will be added to the message (See main parameters dialog box).</p> <p>\$SHUTTIME The time before shutdown of the local system in seconds.</p> <p>\$SHUTTIME1 The time before shutdown of the local system in the format: hh:mm:ss</p> <p>\$STH, \$STM e The three values: the time before the shutdown of the local system in hours, minutes and seconds.</p> <p>\$STS The remaining UPS battery autonomy.</p> <p>\$REMTIME The remaining UPS battery capacity.</p>
Log event	<p>If selected the event will to be logged into event log file.</p> <p> ATTENTION: On Windows platforms the events are also logged in the system Application event log. On UNIX platforms the events are also logged into the system log (this depends on system configuration: see syslog manual).</p>
Execute file	<p>If selected the <i>Upsagent</i> will execute a specified command file when a selected condition occurs. Recommendation: Always use the full path name for the file.</p>
Local message	<p>If selected this enables message to be displayed on the local computer, the messages can be delayed to stop short event changes being displayed unnecessarily (e.g. short power problems) or repeated to ensure acknowledgment.</p> <p>For Windows the message is displayed on the desktop, Novell Netware sends the message to the server console and Unix executes the <i>ups_loc.scr</i> script.</p>

Broadcast message	<p>If selected this enables a message to be sent to remote users via the network. For Windows the message is broadcast to all connected users or only to some users depend on the configuration inserted in the page Configurations, for other systems the ups_mess.scr (or .ncf for Novell Netware) script is executed.</p> <p>Recommendation: Use the wall command to send message to all connected users on Unix systems.</p>
Shutdown system	<p>If selected this option enables the shutdown of the system, for Windows the ups_shut.cmd file is searched for possible user specified commands before shutdown (e.g. quit databases, ...) then the standard system shutdown is executed using the WIN32 API functions.</p> <p>For other systems the ups_shut.scr (or .cmd or .ncf) script is started with the appropriate commands to provide the correct shutdown of the computer.</p>
Email	<p>Direct email support is for Windows only, when using other system a script etc must be used to suit the individual system.</p> <p>It is possible to specify a name and email address for email recipients in the Configuration tab. If the Email checkbox is selected, then the message is sent to the specified users. Before using this option the email service must be configured on the computer.</p>
SMS	<p>Enables the option to send the message as SMS to a specified GSM phone number.</p>
Call to Teleguard ©	<p>The UPSMON can be used to contact a teleservice monitoring and control system with regards to the event occur on the parallel group.</p>

The “associated event list” is the list of simple event that compose the composite event. Composite event related to the group is made up of one or more simple events that may occur on the groups’ UPS. The composite event occurs, and the defined actions are performed, only when all the simple events on the list are verified on the same time. A composite event is made up to 6 simple event.

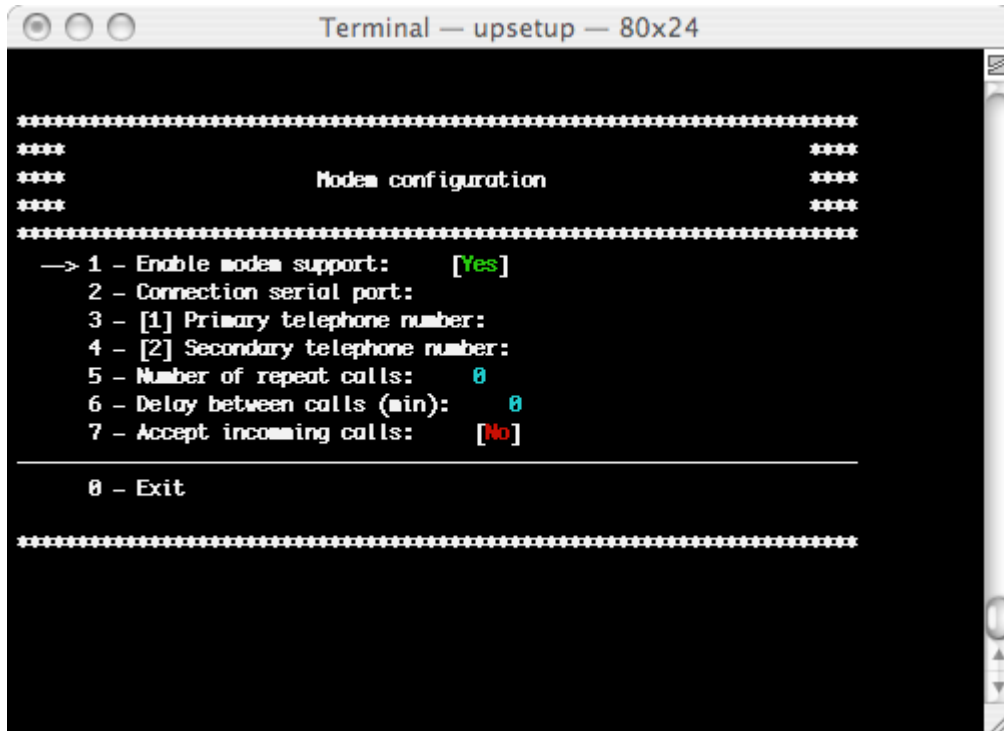


To add a simple event to the list of the composite events there is next menu. On this window it is possible to set also the event priority: i.e. the number of the groups’ UPS on which the simple event must occur for making it acknowledgeable.



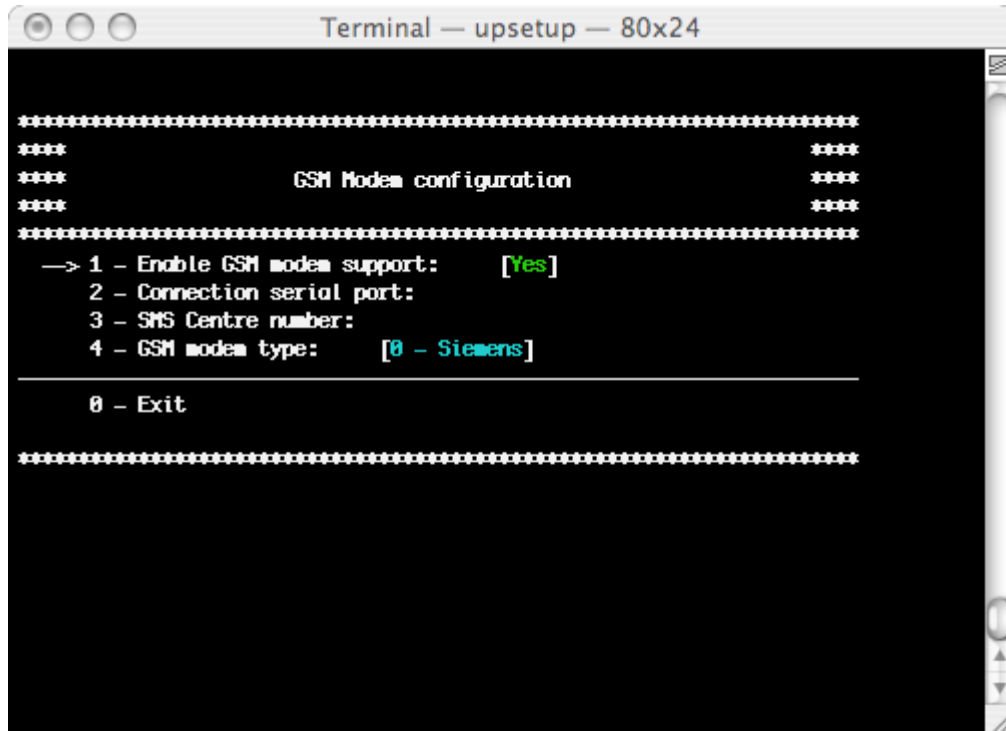
2.3 Message configuration

From this menu is possible to configure the modem for the teleservice call, the GSM Modem and the WAP support. It is also possible to add telephone numbers used by GSM modem for the SMS send.



```
Terminal — upsetup — 80x24
*****
***                                     ***
***           Modem configuration       ***
***                                     ***
*****
-> 1 - Enable modem support:   [Yes]
  2 - Connection serial port:
  3 - [1] Primary telephone number:
  4 - [2] Secondary telephone number:
  5 - Number of repeat calls:   0
  6 - Delay between calls (min): 0
  7 - Accept incoming calls:   [No]
-----
  0 - Exit
*****
```

Parameter name	Parameter description
Enable modem support	Enable or disable modem support. When disabled, the UPSMON cannot call teleservice control service.
Connection serial port	The serial port where the modem is connected.
Primary/Secondary telephone number	The telephone numbers of the teleservice control centre, these are the number where the modem will call in case of an emergency.
Number of repeat calls	The number of times the system will attempt to call in the event of a busy line or no answer.
Delay between calls	The minutes of delay between each call attempt.
Accept incoming calls	Accepts incoming calls from a teleservice control centre. This can be turned off for security reasons.

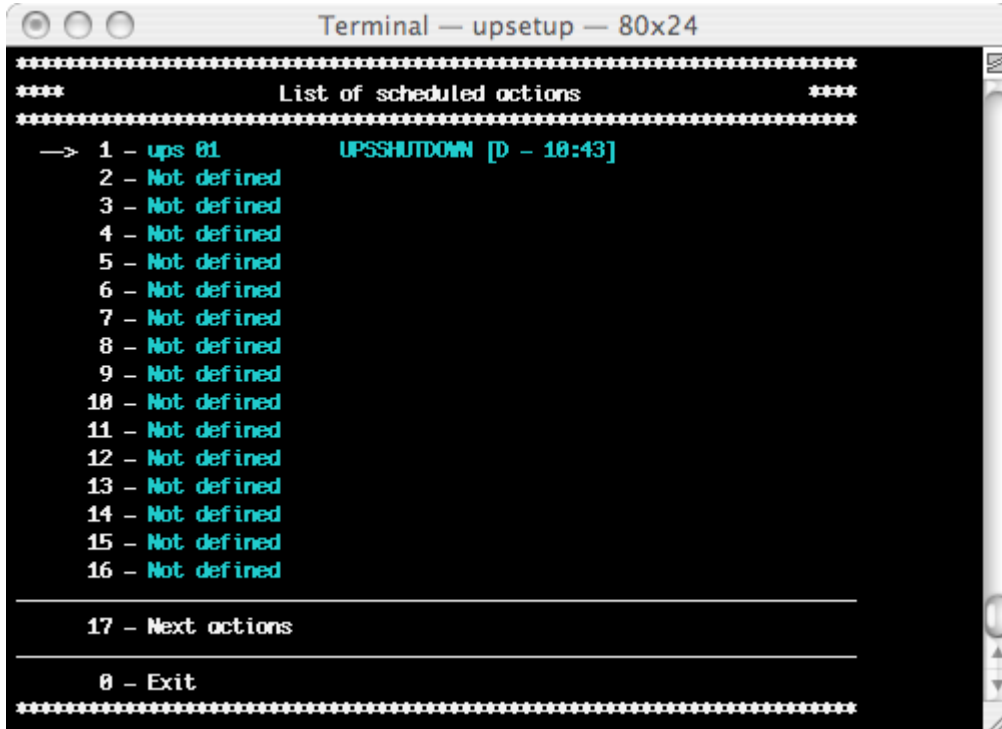


Parameter name	Parameter description
Enable GSM modem support	Enable or disable GSM modem support. When disabled, the UPSMON cannot send SMS.
Connection serial port	The serial port name where the modem is connected.
SMS Centre number	Contact your SIM card provider to obtain this number.
GSM modem type	The supported modems are Siemens and Falcon.

2.4 Scheduler

Configuration of the scheduled actions. Using this function it is possible to specify various actions such as UPS shutdown, reboot, test, etc., these actions will then be executed at a specified time.

It is recommended to set only one action in same time, if multiple action have been specified at the same time, some of these actions may be ignored. Note - The maximum number of scheduled actions is 16. The "Next actions" function can be used for showing the actions that will be executed ordered by time.

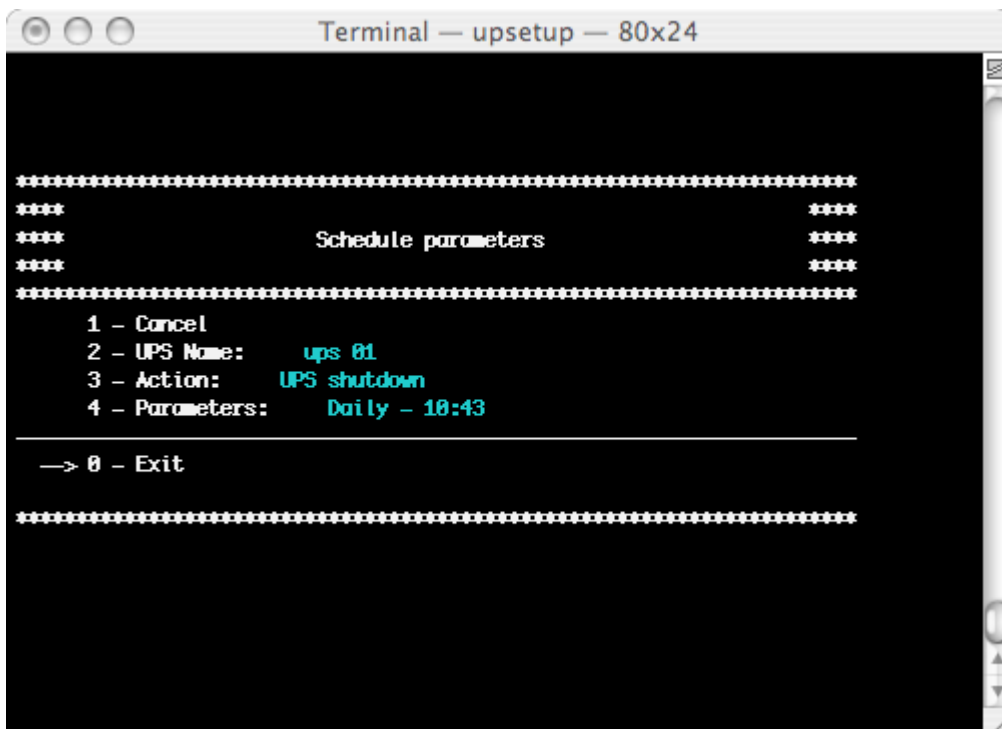


```
Terminal — upsetup — 80x24
*****
***                               ***
*****
-> 1 - ups 01          UPSSHUTDOWN [D - 10:43]
   2 - Not defined
   3 - Not defined
   4 - Not defined
   5 - Not defined
   6 - Not defined
   7 - Not defined
   8 - Not defined
   9 - Not defined
  10 - Not defined
  11 - Not defined
  12 - Not defined
  13 - Not defined
  14 - Not defined
  15 - Not defined
  16 - Not defined

-----
17 - Next actions

-----
 0 - Exit
*****
```

The action can be executed once, daily, weekly or monthly. In the menu "Schedule parameters" the user can choose these time parameters, and also the type of actions and the Ups on which the action is executed. Any actions which are not supported by the UPS will be ignored.



```
Terminal — upsetup — 80x24
*****
***                               ***
***                               ***
***                               ***
*****
 1 - Cancel
 2 - UPS Name:    ups 01
 3 - Action:     UPS shutdown
 4 - Parameters:  Daily - 10:43

-----
-> 0 - Exit
*****
```

2.5 Job configuration

The jobs configuration menu is used to define the jobs that will be executed when an event of the UPS occurs. It is possible to configure multiple jobs for a particular event. It is possible to execute an external command defined by the user. Using the jobs configuration menu it is possible to launch an external editing program to write a user defined shutdown script. The user defined shutdown script is executed before the normal system shutdown. This can be used for specific commands, which will be executed before the shutdown, for example, stop the web server, close some special application or shutdown database server. The name of this script is ups_shut.scr for the UNIX system.



ATTENTION: If you specify an incorrect command in the user shutdown script or this command stops (not correctly ended) then the *Upsagent* will not provide a correct system shutdown and thus possibly lose some data or a failure on the file system will occur. The last command in the user shutdown script must be the command to shutdown of system (except Windows versions – the shutdown is executed by using the system routines directly from the *Upsagent*). In some operating system it is possible change the script ups_mess, which is used to send messages to users about the UPS status.

```
Terminal — upsetup — 80x24
*****
****                               ****
****                               ****
****                               ****
*****
--> 1 - Disable all jobs:      [No]
-----
    2 - Event action manager - basic events
    3 - Event action manager - other events
-----
    4 - Default All
-----
    5 - Edit script
-----
    6 - Exit
*****
```

Action name	Action description
Disable all jobs	Enables or disable all of the jobs, if selected no jobs can be executed.
Default All	Used to reset all of the parameter to the default state.

For each event, it is possible to set an action from the list below:

1. Log event (L)
2. Execute file (E)
3. Local message (O)
4. Broadcast message (B)
5. System shutdown (S)
6. Email (E)
7. SMS (M)

```

Terminal — upsetup — 80x24

*****
****
****          Event action manager – basic events          ****
****
*****
-> 1 – Communication is lost      [LE0BSEMC]
   2 – Communication is established [LE0BSEMC]
   3 – AC Fail. UPS on battery    [LE0BSEMC]
   4 – UPS is on line            [LE0BSEMC]
   5 – Low battery capacity      [LE0BSEMC]
   6 – Normal battery status     [LE0BSEMC]
   7 – Output UPS is overload    [LE0BSEMC]
   8 – Output UPS is normal     [LE0BSEMC]
   9 – UPS on bypass            [LE0BSEMC]
  10 – UPS return from bypass    [LE0BSEMC]

-----

0 – Exit

*****

```

```

Terminal — upsetup — 80x24

*****
****
****          Communication is lost          ****
****
*****
-> 1 – Log event:                [Yes]
   2 – Execute file:            [No]
   3 – Local message:           [Yes]
   4 – Broadcast message:       [No]
   5 – System shutdown:        [No]
   6 – Email:                   [No]
   7 – SMS:                     [No]
   8 – Call to Teleguard:       [No]
   9 – Message:                 Communication is lost.

-----

10 – Default



-----

0 – Exit

*****

```

Action name	Action description
Log event	If selected the event will to be logged into event log file.
Execute file	If selected the <i>Upsagent</i> will execute a specified command file when a selected condition occurs. Recommendation: Always use the full path name for the file.
Local message	If selected this enables message to be displayed on the local computer, the messages can be delayed to stop short event changes being displayed unnecessarily (e.g. short power problems) or repeated to ensure acknowledgment. For Windows the message is displayed on the desktop, Novell Netware sends the message to the server console and Unix executes the ups_loc.scr script.

Broadcast message	<p>If selected this enables a message to be sent to remote users via the network. For Windows the message is broadcast to all connected users or only to some users depend on the configuration inserted in the page Configurations, for other systems the ups_mess.scr (or .ncf for Novell Netware) script is executed.</p> <p>Recommendation: Use the wall command to send message to all connected users on Unix systems.</p>
Shutdown system	<p>If selected this option enables the shutdown of the system, for Windows the ups_shut.cmd file is searched for possible user specified commands before shutdown (e.g. quit databases, ...) then the standard system shutdown is executed using the WIN32 API functions.</p> <p>For other systems the ups_shut.scr (or .cmd or .ncf) script is started with the appropriate commands to provide the correct shutdown of the computer.</p> <p> ATTENTION: System shutdown conditions defined in the UPS connection menu is not dependent on this job.</p> <p> ATTENTION: You cannot specify a Shutdown system action for AC Fail or Battery low; these are dependent on the UPS connection configuration. The system shutdown time after AC Fail may be defined by two independent values (fixed time from AC Fail and/or specific remaining backup time). The Battery Low event causes an immediate system shutdown.</p>
Email	<p>Direct email support is for Windows only, when using other system a script etc must be used to suit the individual system.</p> <p>Note: for UNIX operating system it is possible to send email message adding the command in the script ups_eml.scr.</p>
SMS	<p>Enables the option to send the message as SMS to a specified GSM phone number. It is possible to specify a name and telephone number in the Configurations Message menu.</p>
Message	<p>It is possible to alter the default message for a particular event. It is not recommended to change the basic message text, as this may cause an incorrect message to be sent, which does not correspond to the actual event.</p> <p>Note: in the message text it is possible to add actual values or information which will be displayed along with the original information, these are as follows:</p> <p>\$NAME The UPS or Group name will be added to the message (See main parameters dialog box).</p> <p>\$SYSNAME The System name will be added to the message (See main parameters dialog box).</p> <p>\$SYSLOC The System location will be added to the message (See main parameters dialog box).</p> <p>\$SHUTTIME The time before shutdown of the local system in seconds.</p> <p>\$SHUTTIME1 The time before shutdown of the local system in the format: hh:mm:ss</p> <p>\$STH, \$STM e The three values: the time before the shutdown of the local system in hours, minutes and seconds.</p> <p>\$STS The remaining UPS battery autonomy.</p> <p>\$REMTIME The remaining UPS battery capacity.</p>
Default	<p>Used to reset the event action parameters to the default state.</p>

For the actions associated to a particular event it is possible to specify a delay in the execution (in order to filter events that last for a brief time) and an interval for the repeat of the actions if the associated event is still active. Both values are expressed in seconds.

3. Upsetup for Novell Netware

To configure the Novell Netware version of UPSMON it is possible use the alpha-numeric interface program Upsetup.nlm directly on the server Novell or the graphical *Upsetup* program for Microsoft Windows.



Novell Netware 3.12 only uses a black-white interface (due to system limitations), but for Novell Netware 4.x and 5.x the interface of the NLM module is in colour.

VI. Running the UPSMON

After the *Upsagent* service is active, the system is protected by the UPS. The *Upsview* is used to connect to the *Upsagent* service to view the UPS data and to inspect the monitoring process. This is also possible via remote access (only if TCP/IP is installed on the system).



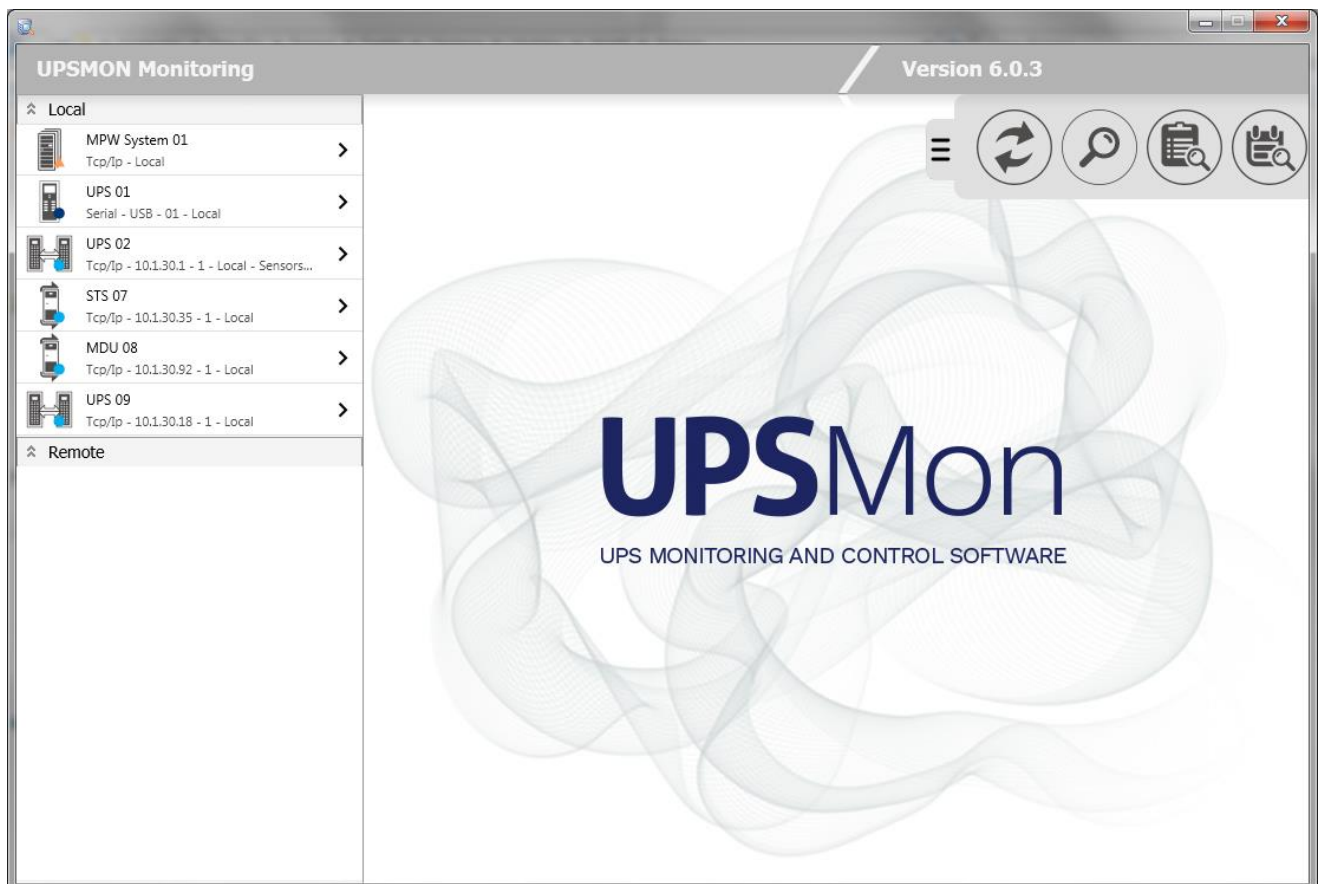
ATTENTION: To confirm if the *Upsagent* is running and the system is protected, access the system utility for a list of operating processes. For Linux/UNIX/MacOs use the command “ps” and for Windows confirm that the icon on the toolbar is present (usually bottom right or left of the desktop).

1. Upsview






1.1 Connecting with Upsagent

The *Upsview* enables the monitoring of a local or remote connected devices (devices connected to other computers or Network adapters). Each *Upsview* can monitor one device, but it is possible to start multiple *Upsviews* to monitor different device at the same time.

In the list will be shown all selectable devices. The list is divided in two section: Local, to monitor devices connected to the local *Upsagent*; Remote, to monitor devices connected to other remote *Upsagent* or remote Network Adaptors.



At the top right of the main screen you can find a drop-left menu within which you can find the following buttons:

	Used to find on the local network, all of the agents (remote <i>Upsagent</i> or Network adapter) that are activated at any particular moment without remembering the individual name or address. The refresh will take about ten seconds. The IP address of the active agents and the device that they controlled will be put in the list under Remote voice.
	Used to select a device directly by the IP address of the computer or Network adapter where the device is connected.
	<p>The data log list displays logged measured parameters from the UPS such as the input voltage, battery voltage, capacity, runtime and output load. All of the information contains the date, time, device name and measured values. To use data log you must configure it in the <i>Upsetup</i> module.</p> <p>The data logged can be used by other programs, for example if you need to generate a graphic view. The data is logged into a standard text file, which may be simply imported into other programs.</p>
	The Event list displays the current <i>Upsagent</i> activities. This is the list of events and information about the device and its agent during the <i>Upsagent</i> monitoring activity. All events contain the date, time, device name and the name of the event. The event is logged into a standard text file, which may be simply imported into other programs. To use the event log you must configure it in the <i>Upsetup</i> module.
	This button will only appear in presence of multiple network interfaces to allow the user to select the correct network interface.

Selecting one of the device from the Local list, it is being monitored by the *Upsagent* module running on the same computer. In this case, the connection between *Upsview* and *Upsagent* is made via the shared memory. In the Local tree will be shown all the devices configured in the *Upsetup* module (eventually with the parallel groups defined).





Selecting one of the UPS from the Remote list, it is being monitored via TCP/IP. The default UDP port for the *Upsagent* is 33000. It is possible to find on the local network, all of the agents that are activated at any particular moment without remembering the individual name or address: to do this, used the Refresh button. It is also possible to select a device directly by the IP address of the computer or Network adapter where the device is connected. To do this use the button in the menu. Host names or DNS names are also supported. The following window will appear where you can enter the IP address you want.

IP address







Device number




For the devices present in the Local and Remote list there are the following icons:

	Single UPS.
	Parallel UPS (UPS belonging to at least one parallel group).
	MPW System.
	STS/ATS/MDU

For the list of local devices associated with the device icon there is a small symbol indicating the status of that device:

	All is Ok.
	Device from bypass.
	Device from battery.
	Device have warning.
	Device in fault.
	Device in communication lost.

1.2 Standard UPS single view

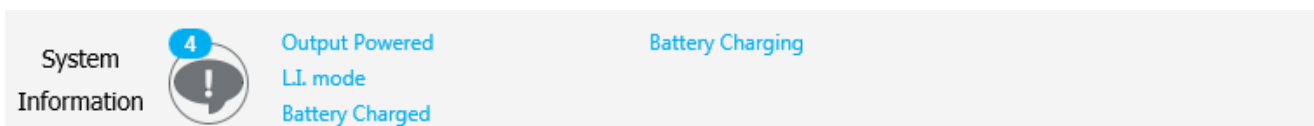


ATTENTION: The screen shots are only examples and will vary between different UPS system.

At the top right of the screen you can find the same drop-left menu on the main screen with the option of having two more buttons:






	<p>used to execute some commands on the connected Ups such as shutdown and reboot. Some of these functions depend on the type of monitored Ups;</p> <p>ATTENTION: this menu is available only for Ups monitored by local <i>Upsagent</i>.</p> <p>ATTENTION: the list of available commands depends of the Ups type, but the Shutdown/Reboot command is always supported.</p>
	<p>Used to start <i>UpsSetup</i>.</p> <p>ATTENTION: this menu is available only for Ups monitored by local <i>Upsagent</i>.</p>

At the bottom, any alarms and/or states in the selected device are displayed:







At the top left, you will see the overall status of the device:



	Clicking on this icon the input value is displayed.
	Clicking on this icon the bypass value is displayed.
	Clicking on this icon the output value is displayed.
	Clicking on this icon the battery value is displayed.
	Clicking on this icon the sensor and UPS additional info is displayed.

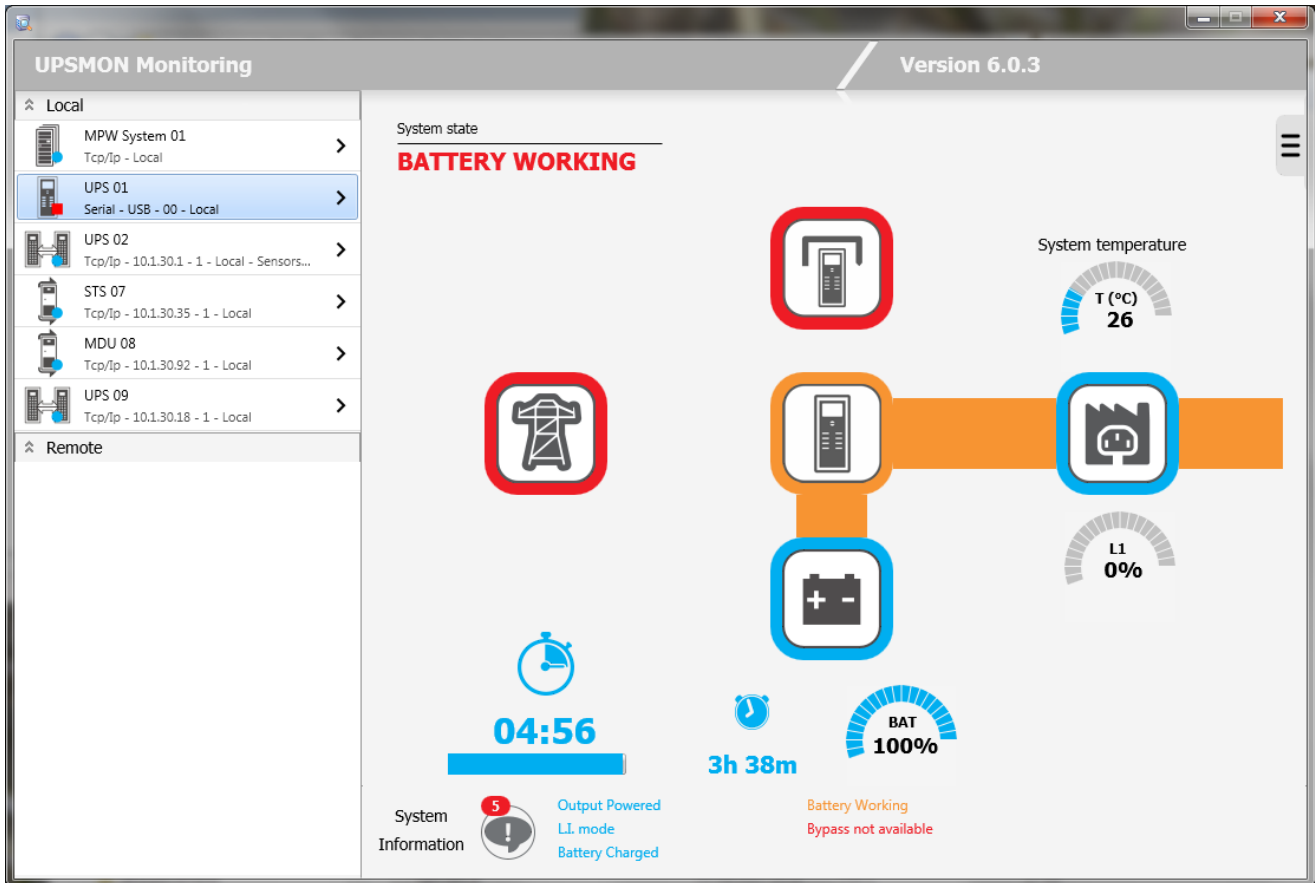
Icons, state and alarms can be displayed in 4 colors:

	All is Ok: normal working.
	The stage described by the icon has a warning. The relative warning was shown in the alarm list and the device is in warning state.
	The device is on bypass. The device is in bypass state.
	The stage described by the icon has a fault. The relative fault was shown in the alarm list and the device is in fault state.

Under the icon representing the battery it is shown the autonomy (in hours and minutes) and the charge percentage of the battery.



ATTENTION: the value of autonomy depends on the load of the UPS.



If the UPS runs on battery and *UpsSetup* has enabled the operating system shutdown when the UPS is running on battery, the effective working time before system shutdown will be shown at the bottom left.



ATTENTION: in normal condition (line present) this information is hidden. In battery on condition and shutdown configuration enabled, will be shown the countdown before the shutdown of the system.



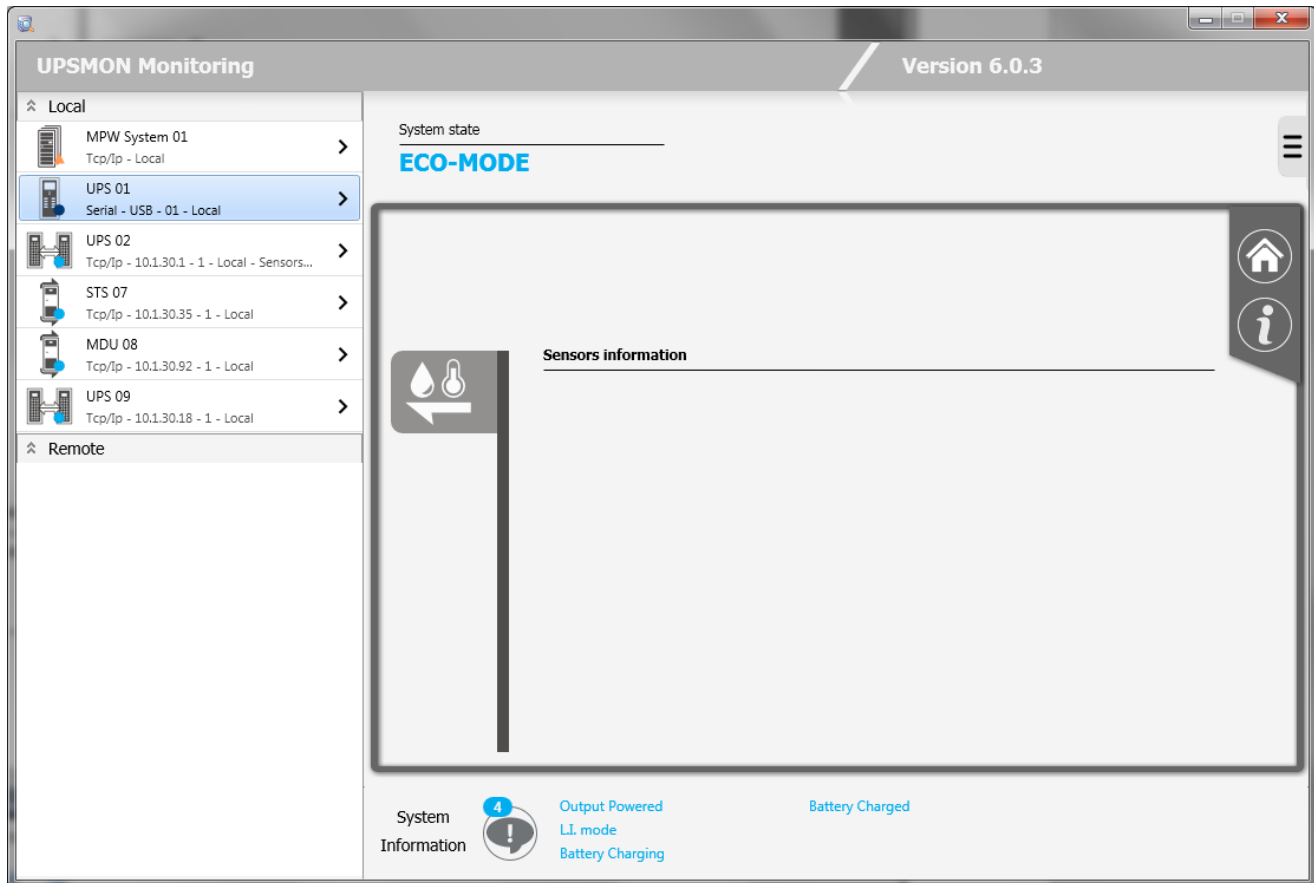
ATTENTION: the UPS battery autonomy, the charge percentage of the battery and the countdown could be unavailable for some Ups type.

1.2.1 Data UPS single view



The screenshot shows the UPSMON Monitoring software interface. The title bar indicates 'UPSMON Monitoring' and 'Version 6.0.3'. The left sidebar lists several UPS units under 'Local' and 'Remote' categories. The main display area shows the 'System state' as 'ECO-MODE'. Below this, the 'Battery values' section displays 'Voltage (V)' at 204.6, 'Autonomy' at 3h 38m, and 'Charge' at 100%. A home button is visible in the top right corner of the main display area.

	Returns to the UPS Single View Standard screen.
--	---

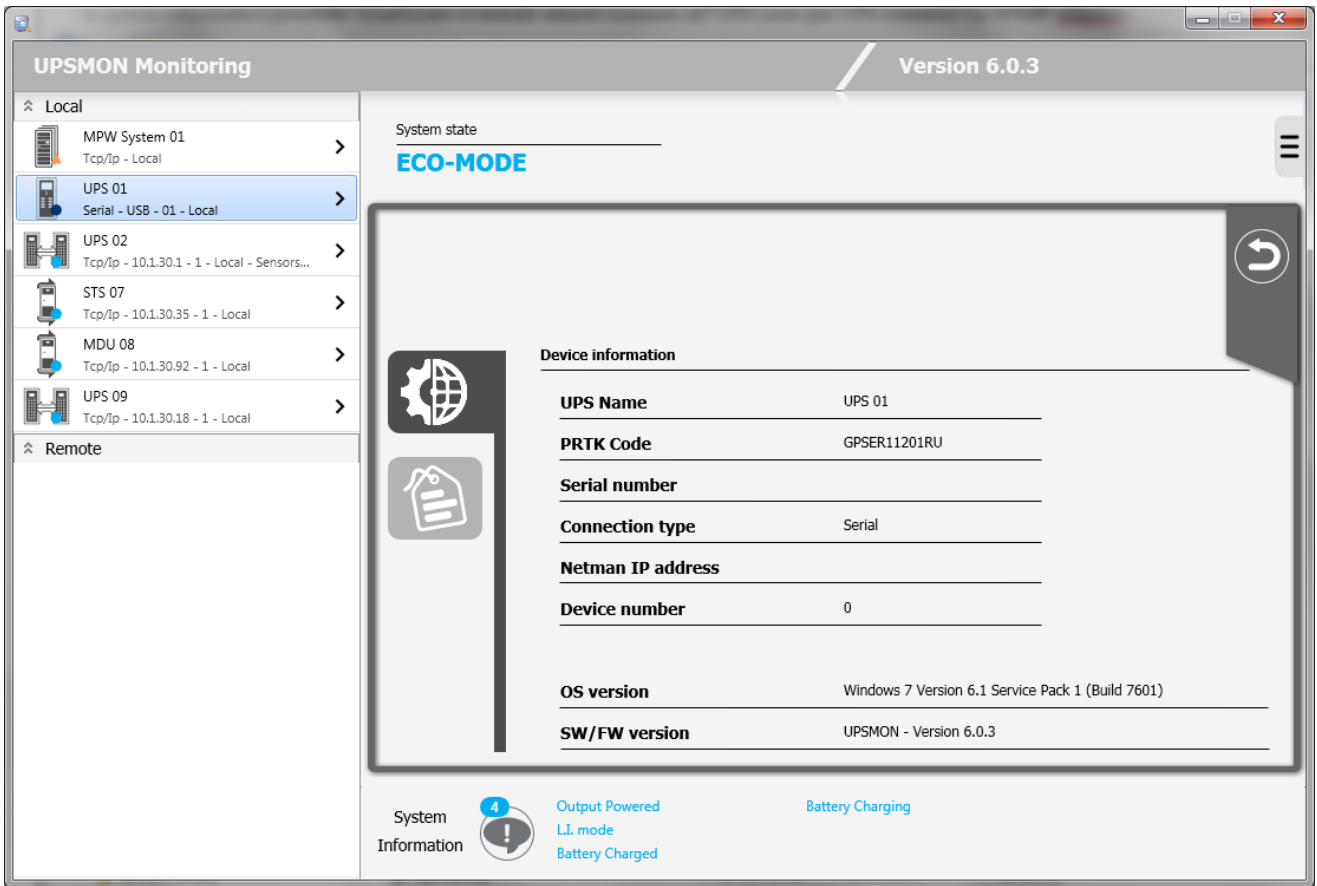
1.2.2 Sensor UPS single view



On this screen, you can view any UPS-connected sensors (only for UPS connected via Network adapter).

	Returns to the UPS Single View Standard screen.
	Displays the UPS information screen.

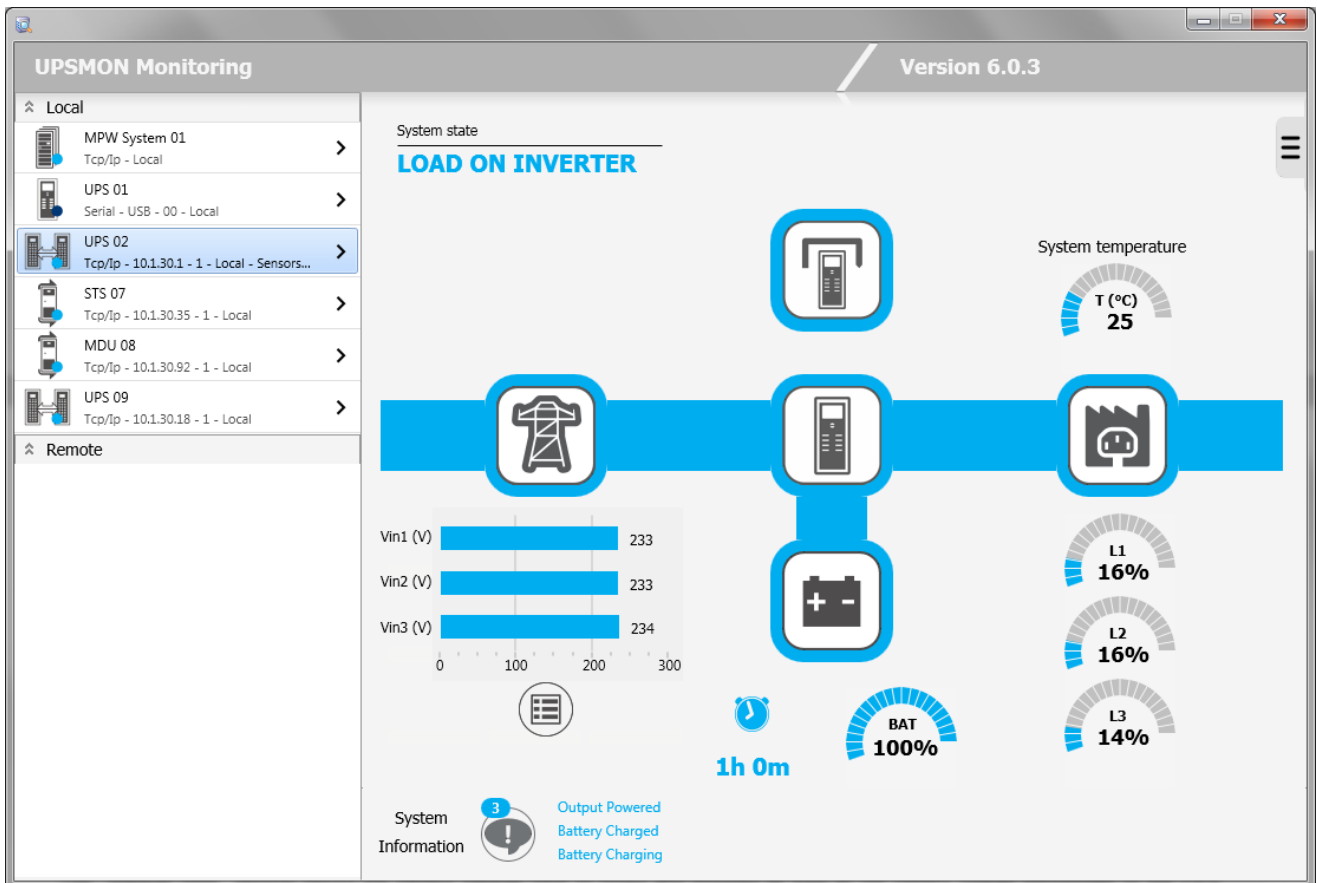
1.2.3 Additional info UPS single view



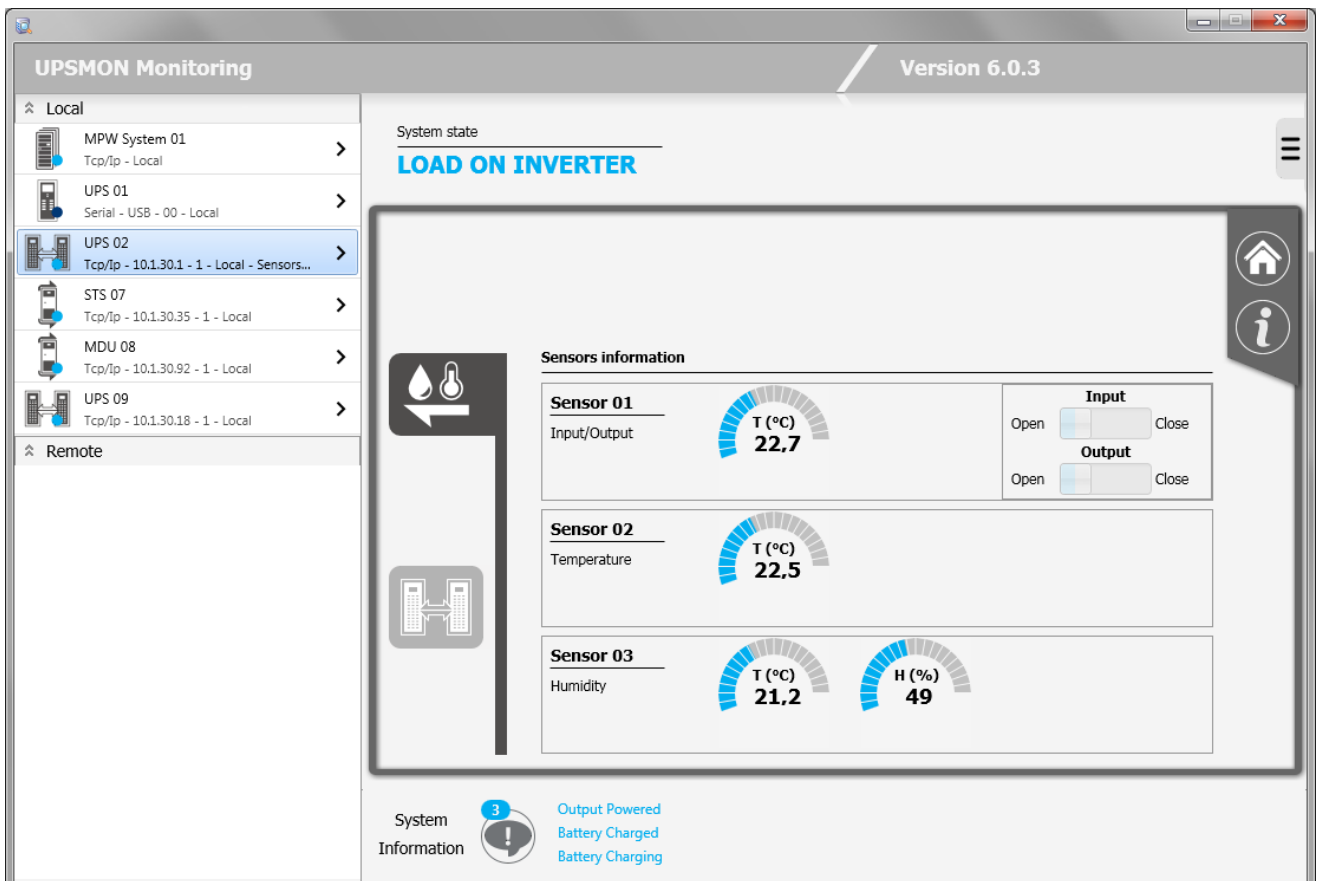
	Information of the device displayed, software and the connection type.
	Nominal data of the device displayed.

	Returns to the sensor view screen.
--	------------------------------------

1.3 Standard UPS parallel view



The view is basically the same as the single UPS except for the central button that will lead to a different screen than that of a single UPS.



In this example, the selected UPS has also three sensors (I/O sensors, temperature and humidity respectively). A maximum of six temperature, humidity or input/output sensors may be connected to the Network adapter through the serial port (refer to the sensor cable wiring specifications). If these sensors are connected, the *Upsview* module can be used to check that they are operational and view the measurements being recorded.

The types of sensors available are:

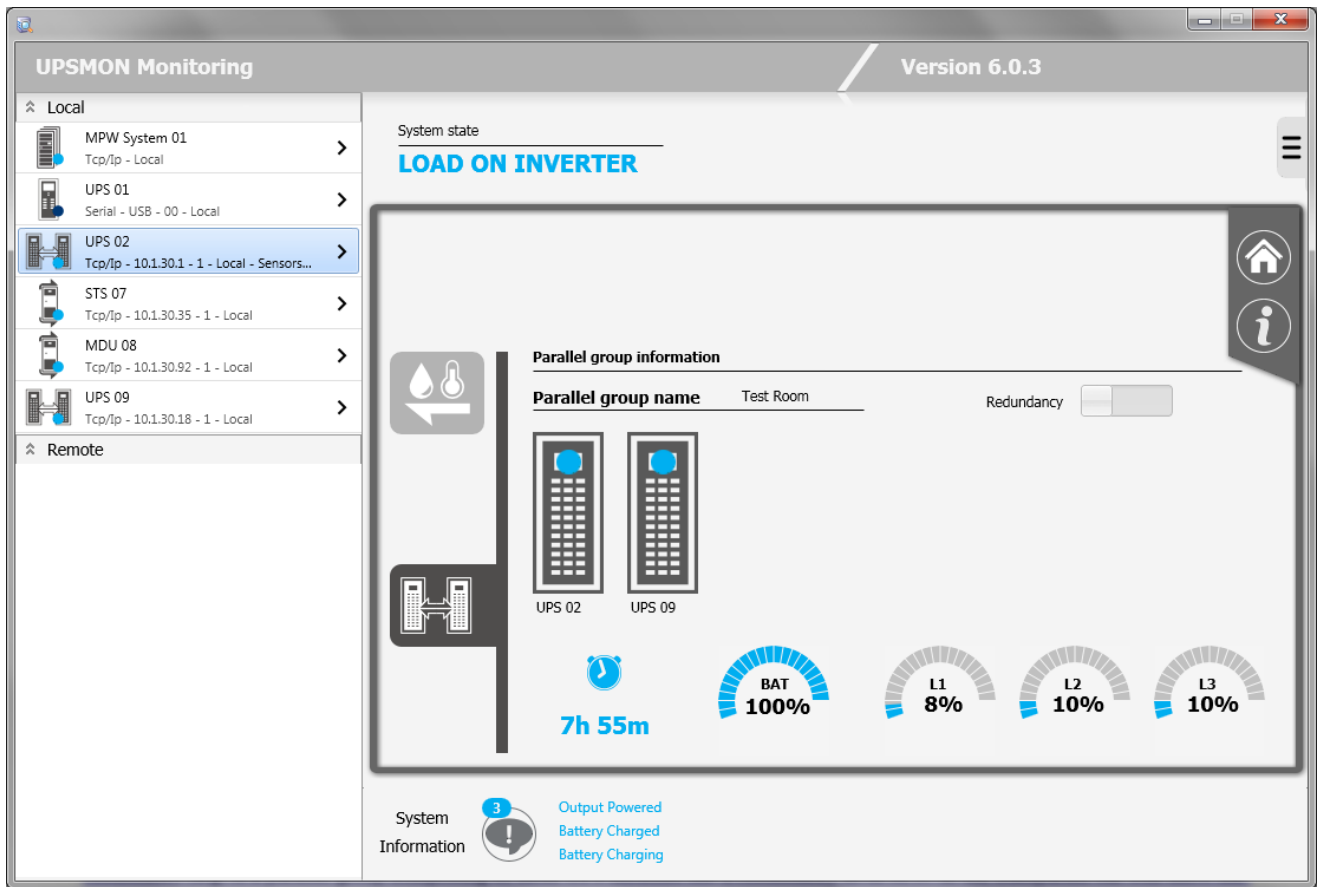
- Temperature: measures the environmental temperature in °C.
- Humidity and temperature: measures the relative humidity in % and the environmental temperature in °C.
- In/Out and temperature: measures the environmental temperature in °C and provides one digital input and one digital output.

Please refer to the Network adapter manual for further information on the sensors that can be associated with the adapter.



ATTENTION: this function is active only for remotely connected Network adapters. In order to see the sensors, they must be configured (up to a maximum of 32 sensors) in the *Upsetup* module, or a Refresh operation executed. The threshold settings are active on the sensors configured in the *Upsetup* module.

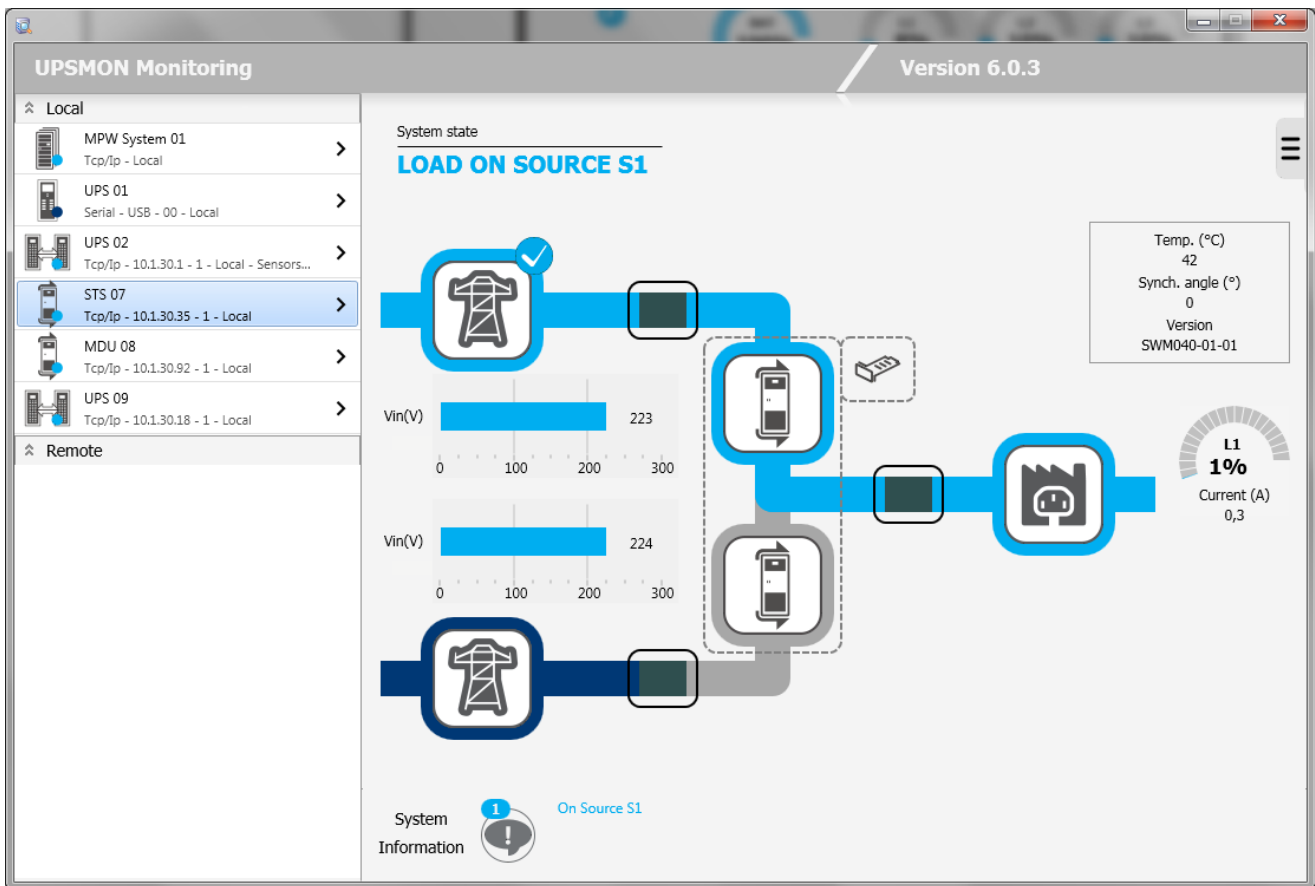
It is possible to see a previously invisible tab that will bring to a specific display page of the parallel group.



You will be able to see, in addition to the name of the parallel group, the status and the name of the individual UPS belonging to the group. By clicking on the Redundancy button, you can see a projection of the load supported in the event of loss of group redundancy (e.g. if a parallel group comprising of three UPS modules has a redundancy level of N+2, the load that the remaining UPS module would have to support should the other two redundant modules fail.)

The autonomy shows the battery backup time in hours and minutes as well as the battery charge percentage of the UPS which has the lowest backup time (for redundancy level N), or the UPS with the second lowest time (for redundancy level N+1, the third lowest time (N+2) or the fourth lowest time (N+3).

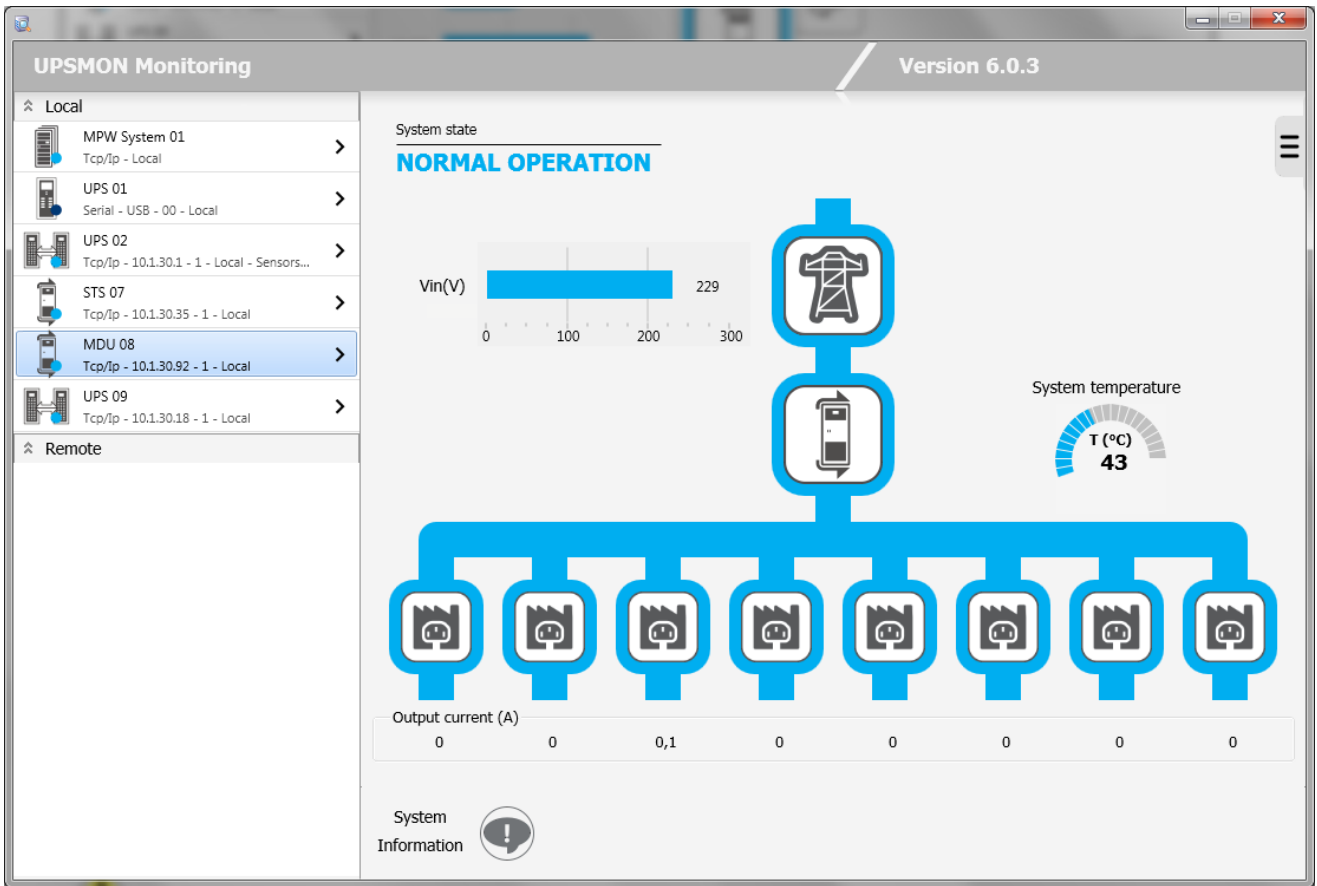
1.4 STS/ATS standard view



You can see the information on the ATS/STS as well as any sensors connected to the Network adapter by clicking on the icon:



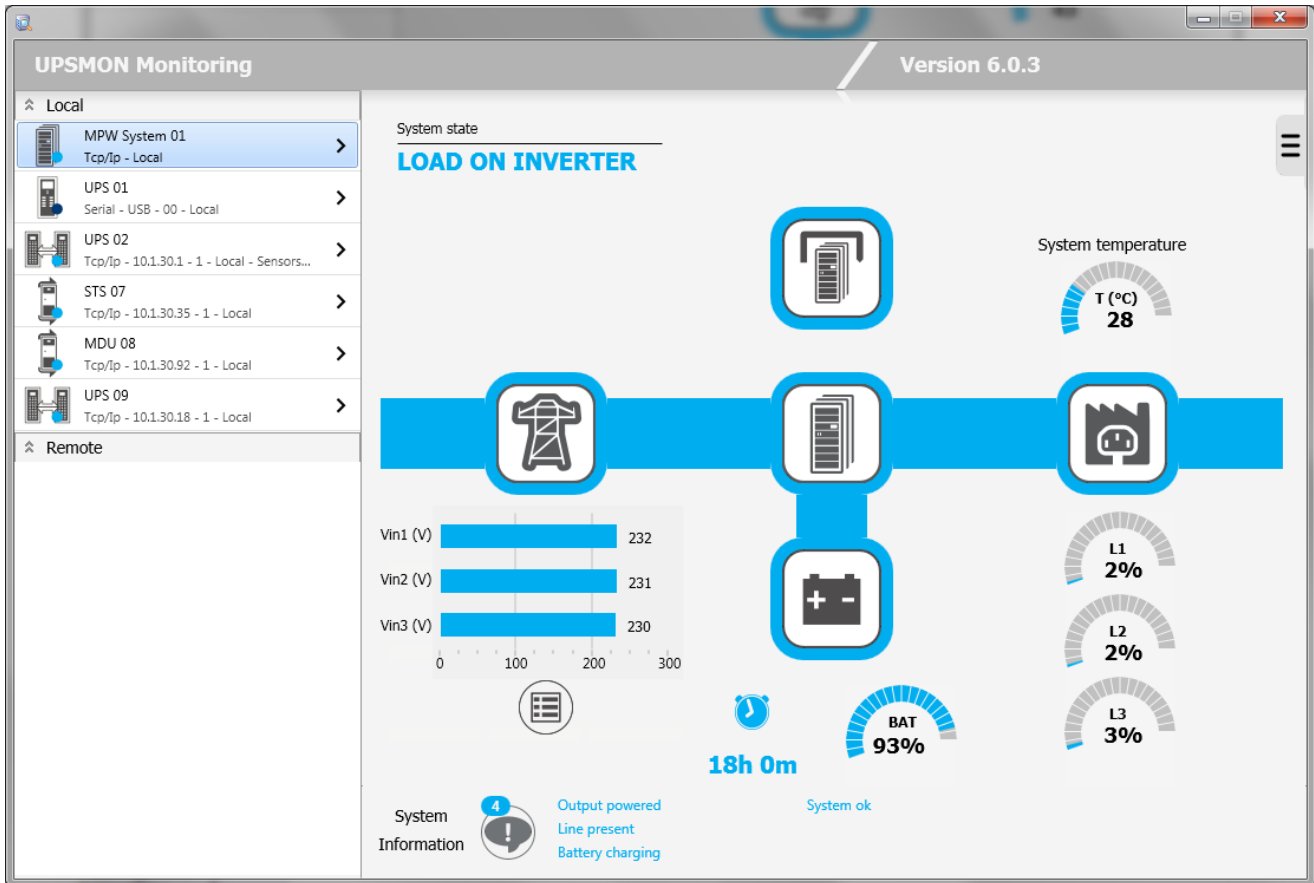
1.5 MDU standard view



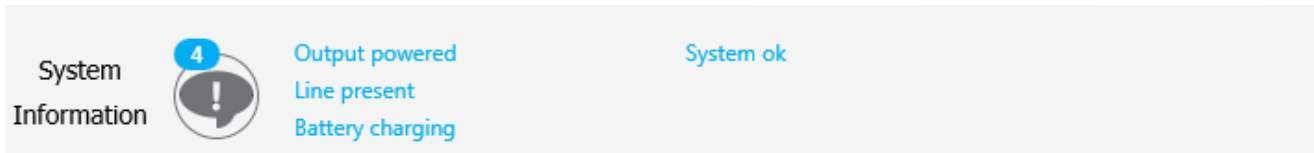
You can see information about the MDU as well as any sensors connected to the Network adapter by clicking on the icon:



1.6 MPW System standard view








At the bottom, any alarms and / or states in the MPW system are displayed:







At the top left, you will see the overall state of the MPW system:



	Clicking on this icon the input value is displayed.
	Clicking on this icon the bypass value is displayed.
	Clicking on this icon the output value is displayed.
	Clicking on this icon the battery value is displayed.
	Clicking on this icon the MPW cabinet are displayed.

Icons, states and alarms can be displayed in 4 colours:

	All is Ok: normal working.
	The stage described by the icon has a warning. The relative warning was shown in the alarm list and the device is in warning state.
	The device is on bypass. The device is in bypass state.
	The stage described by the icon has a fault. The relative fault was shown in the alarm list and the device is in fault state.

Under the icon representing the battery it is shown the autonomy (in hours and minutes) and the charge percentage of the battery.



ATTENTION: the value of autonomy depends on the load of the MPW system.

As with the single UPS, if the MPW system works on battery and in the *UpsSetup* was activated the Operating System shut down when the MPW is working on battery, the left-hand side will be shown the effective working time before shutdown system.



ATTENTION: in normal condition (line present) this information is hidden. In battery on condition and shutdown configuration enabled, will be shown the countdown before the shutdown of the system.

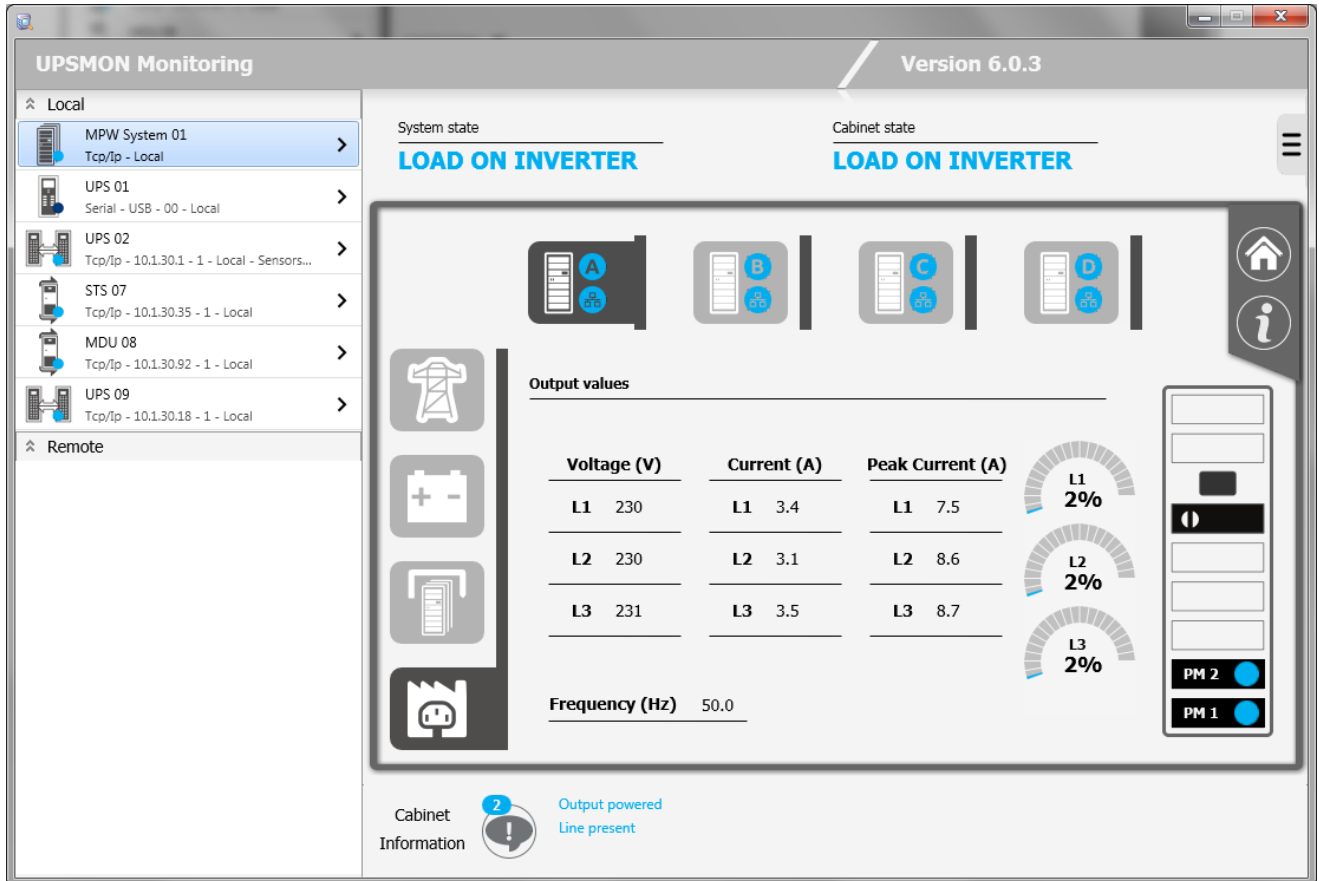
1.6.1 MPW System data view

The screenshot displays the UPSMON Monitoring software interface, Version 6.0.3. The main window is titled "UPSMON Monitoring" and shows a list of local and remote systems on the left. The selected system is "MPW System 01" (Tcp/Ip - Local). The main display area shows the system state as "LOAD ON INVERTER". Below this, there is a "Battery values" section with a table of data:

Voltage (V)	Current (A)	Battery temp. (°C)
Vbat 272.6	Ibat 0.5	Tbat 27

Below the table, there are two gauges: "Autonomy" showing 18h 0m and "Charge" showing 94% BAT. At the bottom, there is a "System Information" section with a notification icon (4) and the following status indicators: "Output powered", "Line present", "Battery charging", and "System ok".

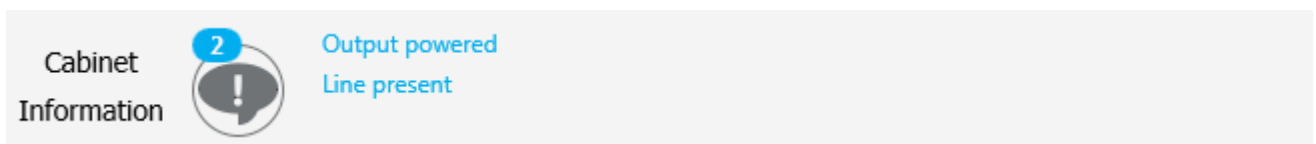
1.6.2 MPW system cabinet view



This page shows the status of the cabinet highlighted (for example, the Cabinet A status)



The state and the alarms present on the cabinet highlighted:

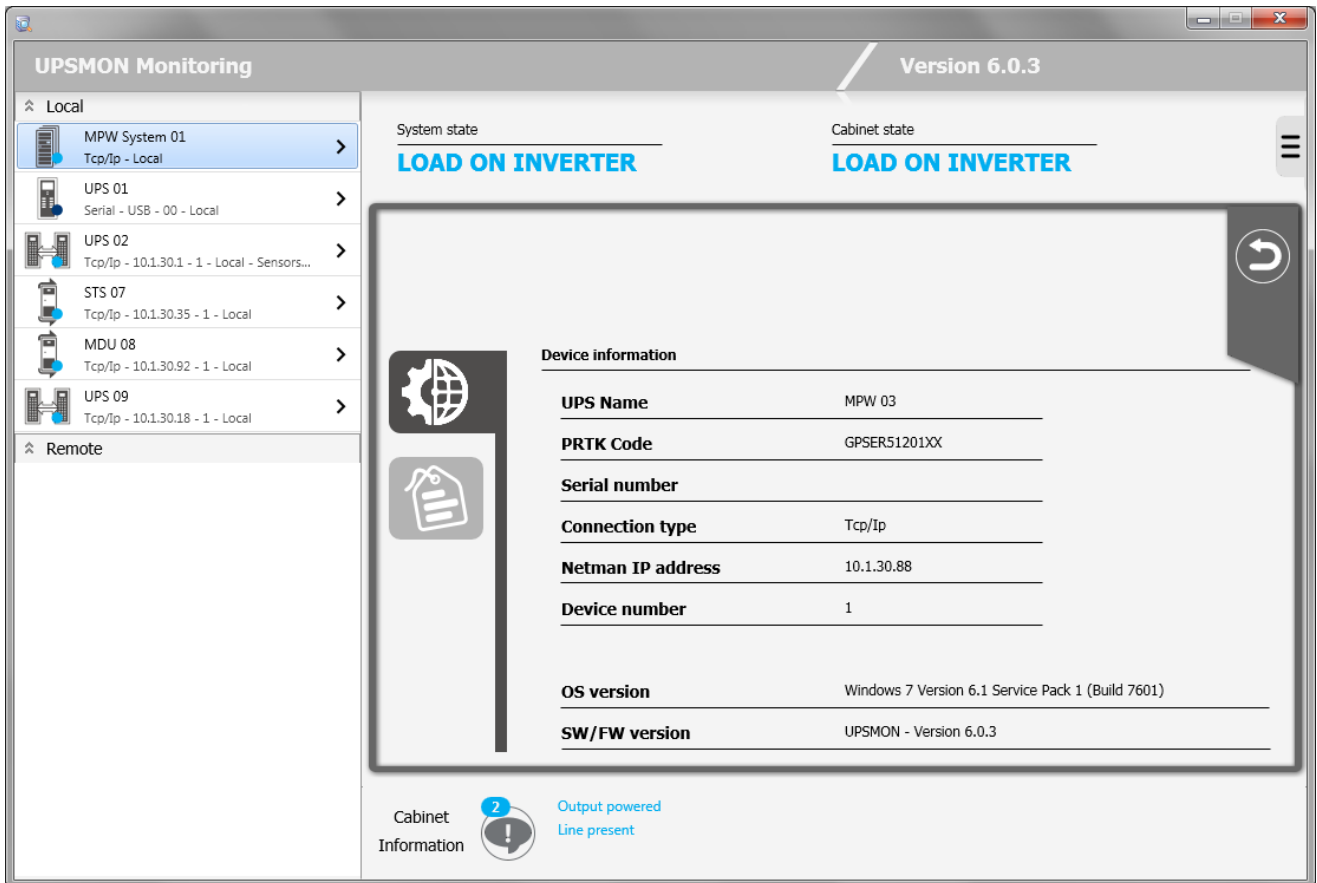


The cabinet icon provides information on the overall cabinet status of the cabinet and the state of the network communication (colour of the network icon background): this for the cabinet displayed and for the cabinets present in the MPW system.



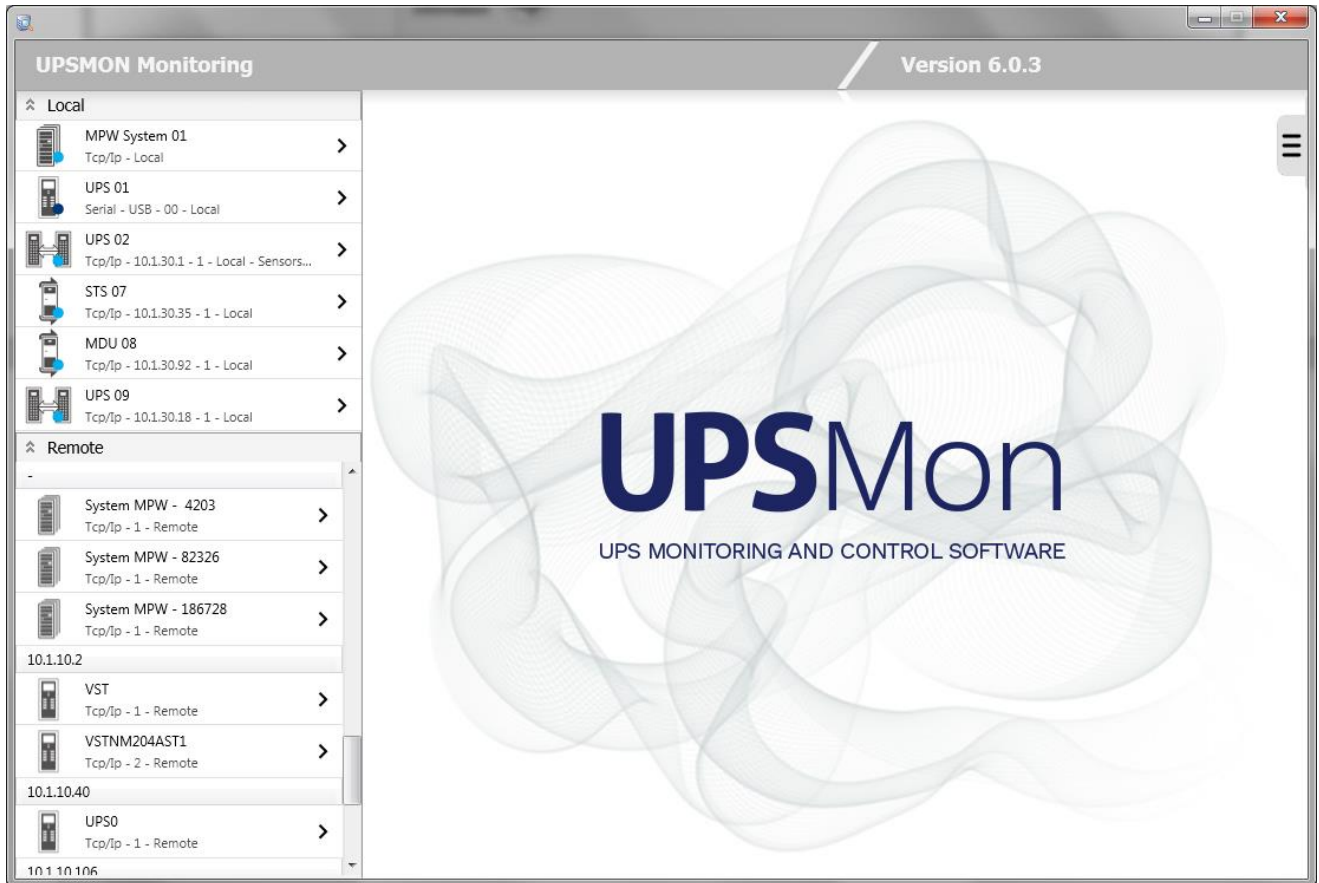
On the right you can see the presence and status of the individual modules in the selected cabinet.

1.6.3 Info MPW System cabinet view



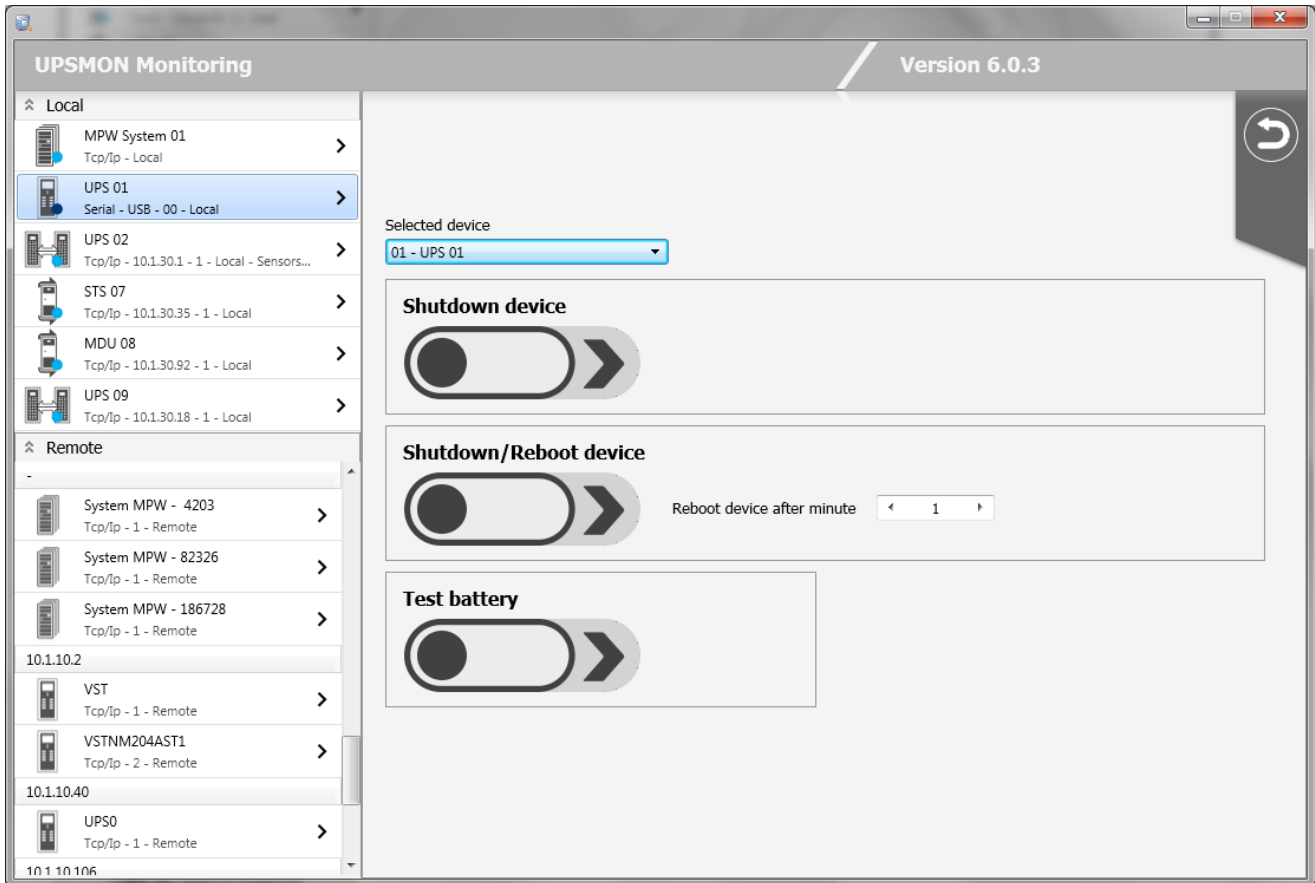
On this page, similar to the one in the single UPS, you can see the displayed cabinet information as well as the nominal data of the same cabinet.

1.7 Remote View



After a refresh has occurred, the remote list will fill up the devices found on the network grouped by IP address. You can also find the different MPW systems that will be displayed under the header - (being the cabinets of MPW systems with each different IP address).

1.8 Functions view



Used to send some command to the monitored device such as the shutdown and reboot of the UPS, the execution of test battery.



ATTENTION: this view is available only for UPS monitored by local *Upsagent*.

1.9 Event log view

The screenshot shows the UPSMON Monitoring software interface. The title bar indicates 'Version 6.0.3'. The left sidebar is divided into 'Local' and 'Remote' sections. The 'Local' section lists devices like 'MPW System 01', 'UPS 01', 'UPS 02', 'STS 07', 'MDU 08', and 'UPS 09'. The 'Remote' section lists 'System MPW' devices and 'VST' devices. The main area displays an 'Event log' table with the following data:

Date	Hour	Device	Id	Description
19.09.2017	15:25:24	MPW 03	04	SystemMPW Communication BYPASS is lost.
19.09.2017	15:25:24	MPW 03	10	UPS have internal error.
19.09.2017	15:25:25	MPW 04	04	SystemMPW Communication BYPASS is lost.
19.09.2017	15:25:25	MPW 05	04	SystemMPW Communication BYPASS is lost.
19.09.2017	15:25:26	MPW 06	04	SystemMPW Communication BYPASS is lost.
19.09.2017	15:25:27	MPW 03	18	Bypass input is bad.
19.09.2017	15:25:57	MPW 04	10	UPS have internal error.
19.09.2017	15:25:57	MPW 04	18	Bypass input is bad.
19.09.2017	15:25:58	MPW 05	10	UPS have internal error.
19.09.2017	15:26:01	MPW 05	18	Bypass input is bad.
19.09.2017	15:26:01	MPW 06	10	UPS have internal error.
19.09.2017	15:26:02	MPW 06	18	Bypass input is bad.
19.09.2017	15:26:25	MPW 05	11	UPS have not internal error.
19.09.2017	15:26:26	MPW 06	11	UPS have not internal error.
19.09.2017	15:26:26	MPW 06	19	Bypass input is normal.
19.09.2017	15:26:27	MPW 03	11	UPS have not internal error.
19.09.2017	15:26:28	MPW 04	11	UPS have not internal error.
19.09.2017	15:26:29	MPW 05	19	Bypass input is normal.
19.09.2017	15:26:30	MPW 03	19	Bypass input is normal.

The Event list displays the current *Upsagent* activities. This is the list of events and information about the UPS and its agent during the *Upsagent* monitoring activity. All events contain the date, time, device name and the name of the event. The event is logged into a standard text file, which may be simply imported into other programs. To use the event log you must configure it in the *Upssetup* module.

	Returns to the previous screen.
	Delete the event log.
	Export event log in csv format.
	Print the event log.



ATTENTION: this view is available only for Ups monitored by local *Upsagent*.

1.10 Data log view

The screenshot shows the UPSMON Monitoring software interface. The title bar indicates 'Version 6.0.3'. The left sidebar is divided into 'Local' and 'Remote' sections. Under 'Local', several devices are listed, including 'UPS 01' which is selected. Under 'Remote', there are three 'System MPW' devices and two 'VST' devices. The main area displays the 'Data log' for the selected device '01 - UPS 01'. The data log table contains the following information:

		Vinp1	Vinp2	Vinp3	Vbat	Bat%	Battime	Pout1	Pout2	Pout3
06.07.2017	17:17:03	225	224	224	436	83	415	1	0	0
06.07.2017	17:17:08	224	224	224	437	83	383	1	0	0
06.07.2017	17:17:13	225	224	224	436	83	332	1	0	0
06.07.2017	17:17:18	224	224	224	437	83	332	1	0	0
06.07.2017	17:17:23	225	224	224	436	83	454	1	0	0
06.07.2017	17:17:28	1	1	1	207	12	180	0	0	0
06.07.2017	17:17:33	1	1	1	207	12	180	0	0	0
06.07.2017	17:17:38	1	1	1	207	12	180	0	0	0
06.07.2017	17:17:43	1	1	1	207	12	180	0	0	0
06.07.2017	17:17:48	1	1	1	207	12	180	0	0	0
06.07.2017	17:17:53	1	1	1	207	12	180	0	0	0
06.07.2017	17:17:58	1	1	1	207	12	180	0	0	0
06.07.2017	17:18:03	1	1	1	207	12	180	0	0	0
07.07.2017	10:09:59	0	0	0	0	0	0	0	0	0
07.07.2017	10:10:04	0	0	0	0	0	0	0	0	0
07.07.2017	10:10:09	0	0	0	0	0	0	0	0	0
07.07.2017	10:10:14	0	0	0	0	0	0	0	0	0
07.07.2017	10:10:19	0	0	0	0	0	0	0	0	0
07.07.2017	10:10:24	0	0	0	0	0	0	0	0	0
07.07.2017	10:10:29	0	0	0	0	0	0	0	0	0

The data log list displays logged measured parameters from the UPS such as the input voltage, battery voltage, capacity, runtime and output load. All of the information contains the date, time, device name and measured values. To use data log you must configure it in the *Upsetup* module.

The data logged can be used by other programs, for example if you need to generate a graphic view. The data is logged into a standard text file, which may be simply imported into other programs.



ATTENTION: this view is available only for Ups monitored by local *Upsagent*.

2. Upsview (textual) for Linux/UNIX/MacOs

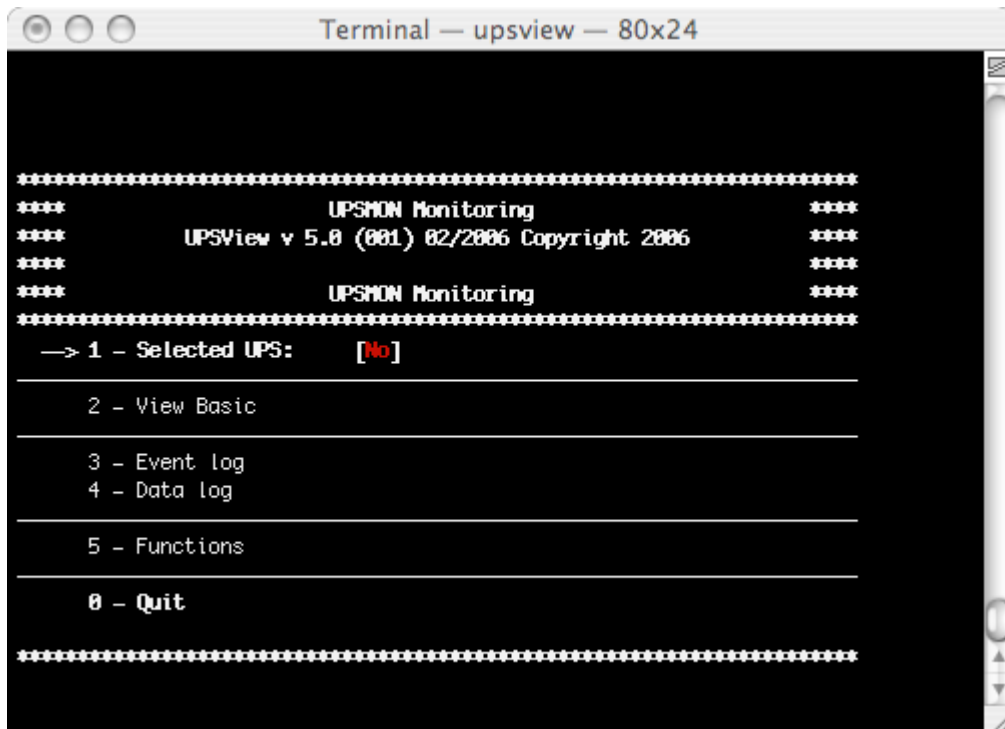
To monitor the UPS using UNIX systems, the text version of the *Upsview* program must be used.

The style of the displayed screens is dependent on the text interface.

The text version of *Upsview* does not support the automatic refresh of the screens if the UPS status changes.

2.1 Connections with Upsagent

The *Upsview* enables the monitoring of a local or remote connected UPS (UPS's connected to other computers or Network adapters). Each *Upsview* can monitor one UPS, but it is possible to start multiple *Upsviews* to monitor different UPS at the same time.



```
Terminal — upsview — 80x24
*****
****          UPSMON Monitoring          ****
****    UPSView v 5.0 (001) 02/2006 Copyright 2006    ****
****          UPSMON Monitoring          ****
*****
-> 1 - Selected UPS:  [No]
-----
2 - View Basic
-----
3 - Event log
4 - Data log
-----
5 - Functions
-----
0 - Quit
*****
```

Select one of the UPS from the list, which is being monitored by the *Upsagent* module. In this case, the connection between *Upsview* and *Upsagent* is made via the shared memory.

```
Terminal — upsview — 80x24

*****
****                               ****
****                               ****
****                               ****
****                               ****
*****

-> 1 - UPS monitored by local Upsagent.
   2 - Other UPS

-----

0 - Quit

*****
```

```
Terminal — upsview — 80x24

*****
****                               ****
****                               ****
*****

-> 1 - ups 01      GPSE11201RU      Local - USB - 00
   2 - not defined
   3 - not defined
   4 - not defined
   5 - not defined
   6 - not defined
   7 - not defined
   8 - not defined
   9 - not defined
  10 - not defined
  11 - not defined
  12 - not defined
  13 - not defined
  14 - not defined
  15 - not defined
  16 - not defined

-----

0 - Quit

*****
```

If the *Upsagent* is not running on the system, it is possible to select a UPS directly by the IP address of the computer or Network adapter where the UPS is connected. To do this set the IP address and device number (usually 1), the *Upsview* will then try to find the specified system by IP address, host names or DNS names are also supported.

Remote connection made via TCP/IP protocol. The default UDP port for the *Upsagent* is 33000.

```

Terminal — upsview — 80x24

*****
****                                     ****
****                               Remote                               ****
****                                     ****
*****
-> 1 - IP address:    127.0.0.1
   2 - Device number: 1
-----
   3 - Select this UPS
-----
   0 - Quit
*****

```

2.2 The displays



ATTENTION: The following screen shots below are only examples and will vary between different UPS system.

2.2.1 View Basic

The basic information screen shows the UPS name, UPS type, connection type, type of communication protocol, status and four status boxes.

```

Terminal — upsview — 80x24

*****
****                               UPSMON Monitoring - Version 5.0 (001)                               ****
*****

      UPS Name: ups 01      Type: GPSE11201RU
      Connection: Serial    Comm. type: GPSE1
      State: [0000] Communication is OK

      [Line Present]      [Battery OK]      [Load OK]      [Normal]

*****
-> 1 - View Basic
   2 - View Standard
   3 - View Detail
   4 - View States and alarms
-----
   0 - Quit
*****

```

2.2.2 View Standard

The standard screen displays the most important operating data of the UPS-system. For further information with regards to this data, please refer to the UPS-system manual.

```
Terminal — upsview — 80x24
*****
****      UPSMON Monitoring — Version 5.0 (001)      ****
*****

ups 01 (Serial) Communication is OK

-----
[UPS On]           Input Voltage
[Line Present]     Line 1: 226 V
[On Battery]       Load (%)
[Battery Low]       Line 1: 0 %
[Bypass On]        Output voltage
[Overload]         Line 1: 230 V
[Overtemp.]        Battery Voltage: 54.5 V
[Batt. Fail]       Battery Capacity: 100 %
[Alarm]            Output frequency: 50.0 Hz
                   Autonomy (hh:mm): 5:31
-----

1 - View Basic
-> 2 - View Standard
3 - View Detail
4 - View States and alarms

-----

0 - Quit
*****
```

2.2.3 View Detail

The Detail screen shows all of the detailed information with regards to the measured values from UPS.

```
Terminal — upsview — 80x24
*****
****      UPSMON Monitoring — Version 5.0 (001)      ****
*****

ups 01 (Serial) Communication is OK

-----
Input           Frequency (Hz): 50.0 Hz
Line 1: 226 V — 0.0 A
Battery values  Autonomy (hh:mm): 5:31
Current (A): 0.0 A Voltage (V): 54.5 V Capacity (%): 100 %
Output values  Frequency (Hz): 50.0 Hz
Line 1: 230 V — 0.0 A
Line 1: 0 %
Bypass values  Frequency (Hz): 50.0 Hz
Line 1: 226 V
System temp. (?C): 34
-----

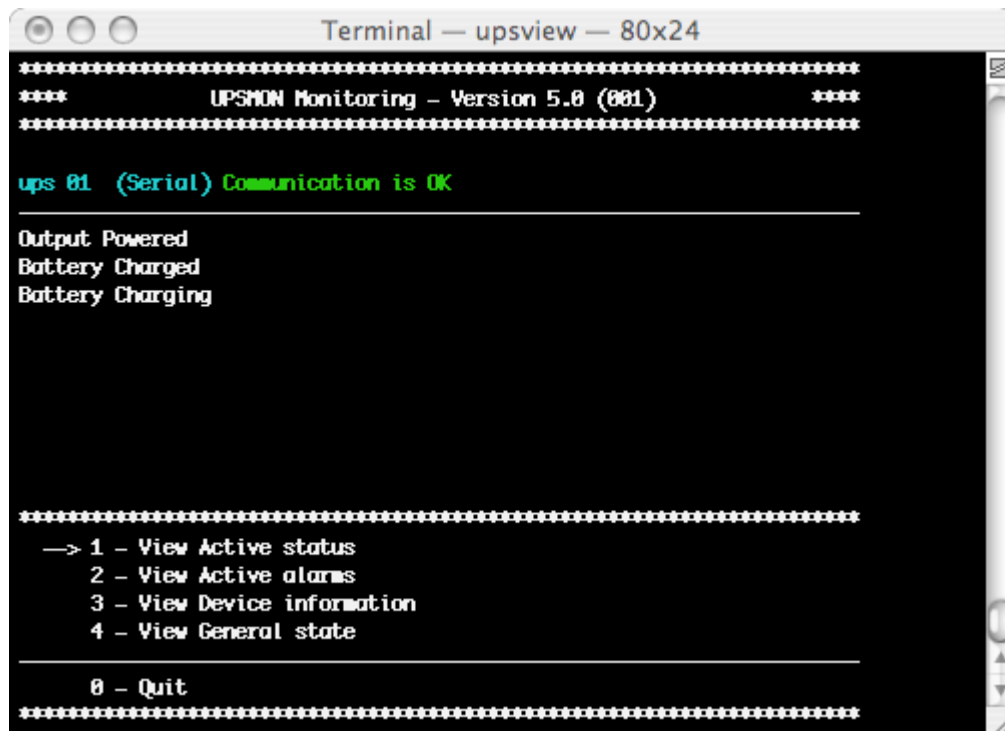
1 - View Basic
2 - View Standard
-> 3 - View Detail
4 - View States and alarms

-----

0 - Quit
*****
```


2.2.4 View Active Status

The UPS status table shows the status of the UPS, and if a situation with the UPS or the system is critical.

A terminal window titled "Terminal — upsview — 80x24" displays the output of the upsview command. The output is framed by a border of asterisks. At the top, it says "UPSMON Monitoring - Version 5.0 (001)". Below that, the status for "ups 01 (Serial)" is shown as "Communication is OK". A horizontal line separates this from a list of status indicators: "Output Powered", "Battery Charged", and "Battery Charging". Another horizontal line follows. Below that is a menu with options: "1 - View Active status", "2 - View Active alarms", "3 - View Device information", "4 - View General state", and "0 - Quit". The option "1" is currently selected, indicated by a right-pointing arrow.

```
Terminal — upsview — 80x24
*****
****      UPSMON Monitoring - Version 5.0 (001)      ****
*****

ups 01 (Serial) Communication is OK

-----

Output Powered
Battery Charged
Battery Charging

-----

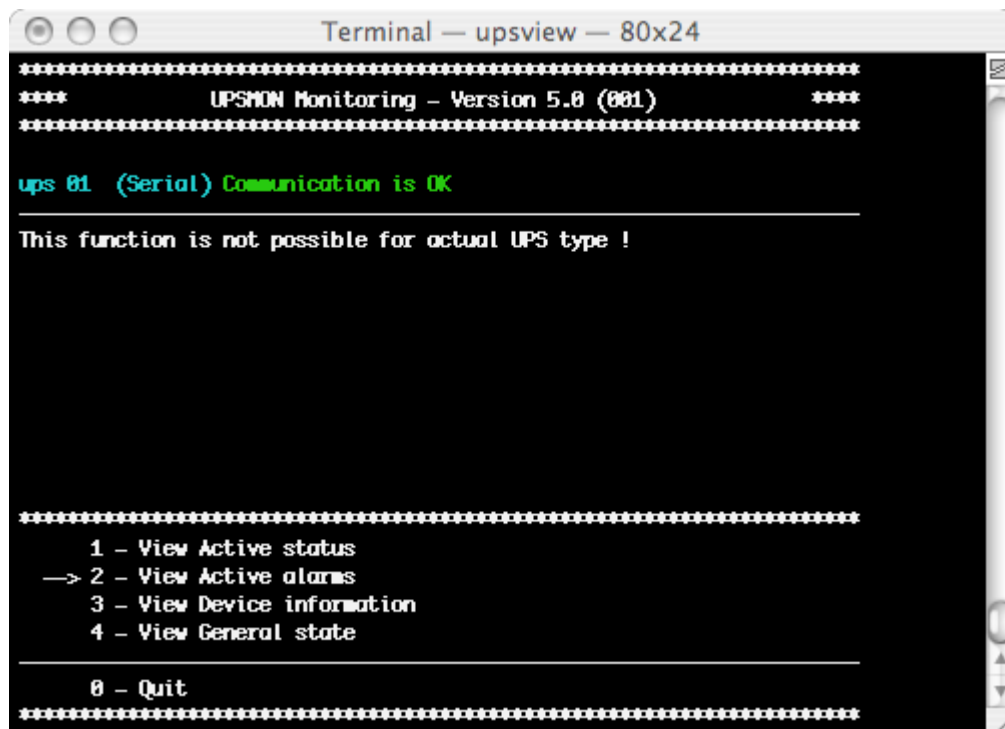
--> 1 - View Active status
    2 - View Active alarms
    3 - View Device information
    4 - View General state

-----

    0 - Quit
*****
```

2.2.5 View Active Alarms

Some UPS types have a special table facility showing the alarms status.

A terminal window titled "Terminal — upsview — 80x24" displays the output of the upsview command. The output is framed by a border of asterisks. At the top, it says "UPSMON Monitoring - Version 5.0 (001)". Below that, the status for "ups 01 (Serial)" is shown as "Communication is OK". A horizontal line separates this from an error message: "This function is not possible for actual UPS type !". Another horizontal line follows. Below that is a menu with options: "1 - View Active status", "2 - View Active alarms", "3 - View Device information", "4 - View General state", and "0 - Quit". The option "2" is currently selected, indicated by a right-pointing arrow.

```
Terminal — upsview — 80x24
*****
****      UPSMON Monitoring - Version 5.0 (001)      ****
*****

ups 01 (Serial) Communication is OK

-----

This function is not possible for actual UPS type !

-----

    1 - View Active status
-->  2 - View Active alarms
    3 - View Device information
    4 - View General state

-----

    0 - Quit
*****
```

2.2.6 View device information

Show the nominal data of the Ups.

```
Terminal — upsview — 80x24
*****
****      UPSMON Monitoring - Version 5.0 (001)      ****
*****

ups 01 (Serial) Communication is OK

-----
Identification code:
UPS model: UOC1150635
Software version: SMM020-01-19
Input/Output Configuration: Monophase//Monophase
Nominal Power (VA): 400
Nominal power (W): 240
Nominal Battery Capacity (Ah): 7
Nominal Battery Voltage (V): 12
Nominal Output Voltage (V): 230
Nominal Output Frequency (Hz): 50.0
-----

1 - View Active status
2 - View Active alarms
-> 3 - View Device information
4 - View General state

-----

0 - Quit
*****
```

2.2.7 Event log

The Event list displays the current *Upsagent* activities. This is the list of events and information about the UPS and its agent during the *Upsagent* monitoring activity. All events contain the date, time and the name of the event. To use event log you must configure it in the *Upsetup* module.

```
Terminal — upsview — 80x24
*****
****      Event log                               Page: 1/1 [4]      ****
*****

21.07.2006 16:43:18      Start UpsAgent.  [ Version 5.0 (001) ]
21.07.2006 16:44:35      Received termination signal
21.07.2006 16:44:35      Stop UpsAgent.
21.07.2006 16:44:39      Start UpsAgent.  [ Version 5.0 (001) ]

-----

-> 1 - Previous events
2 - Next events
3 - Beginning file
4 - Ending file

-----

0 - Quit
*****
```

2.2.8 Data log

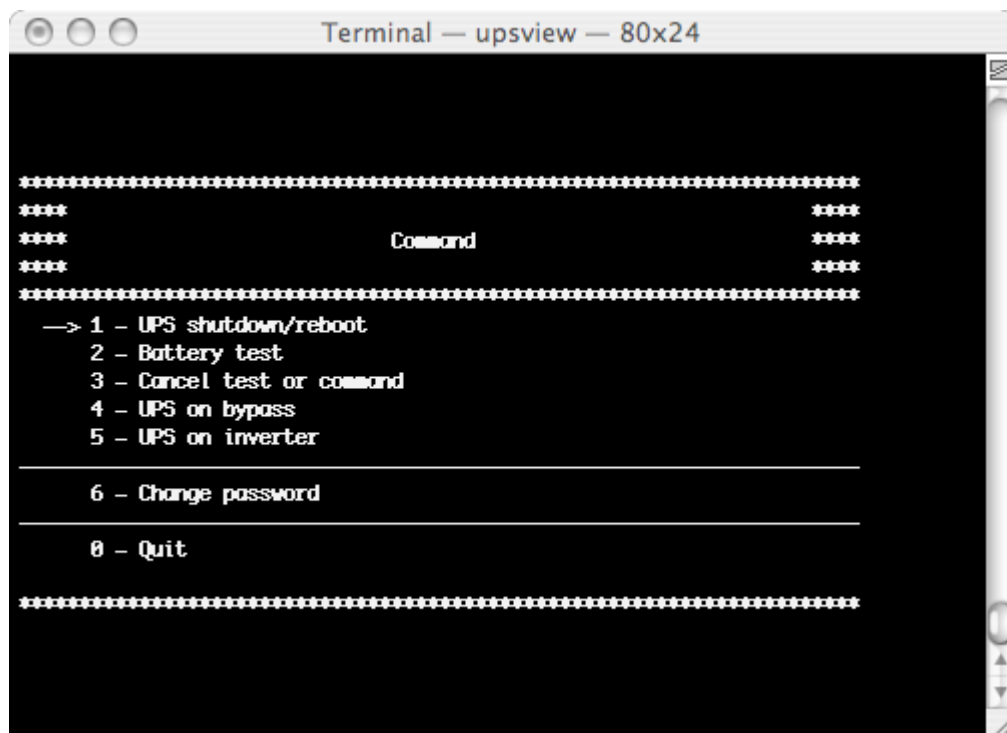
The data log list displays logged measured parameters from the UPS such as the input voltage, battery voltage, capacity, runtime and output load. All of the information contains the date, time, device name and measured values. To use data log you must configure it in the *Upsetup* module.

The data logged can be used by other programs, for example if you need to generate a graphic view. The data is logged into a standard text file, which may be simply imported into other programs.

2.2.9 Functions

It is possible to execute commands on the local UPS. A list of these commands is dependent on the UPS type, but the UPS shutdown and reboot command is supported by all UPS types.

For some UPS types, it is possible to start UPS internal tests or a UPS battery test.



```
Terminal — upsview — 80x24

*****
****                                     ****
****                               Command                               ****
****                                     ****
*****

-> 1 - UPS shutdown/reboot
   2 - Battery test
   3 - Cancel test or command
   4 - UPS on bypass
   5 - UPS on inverter

-----
   6 - Change password

-----
   0 - Quit

*****
```

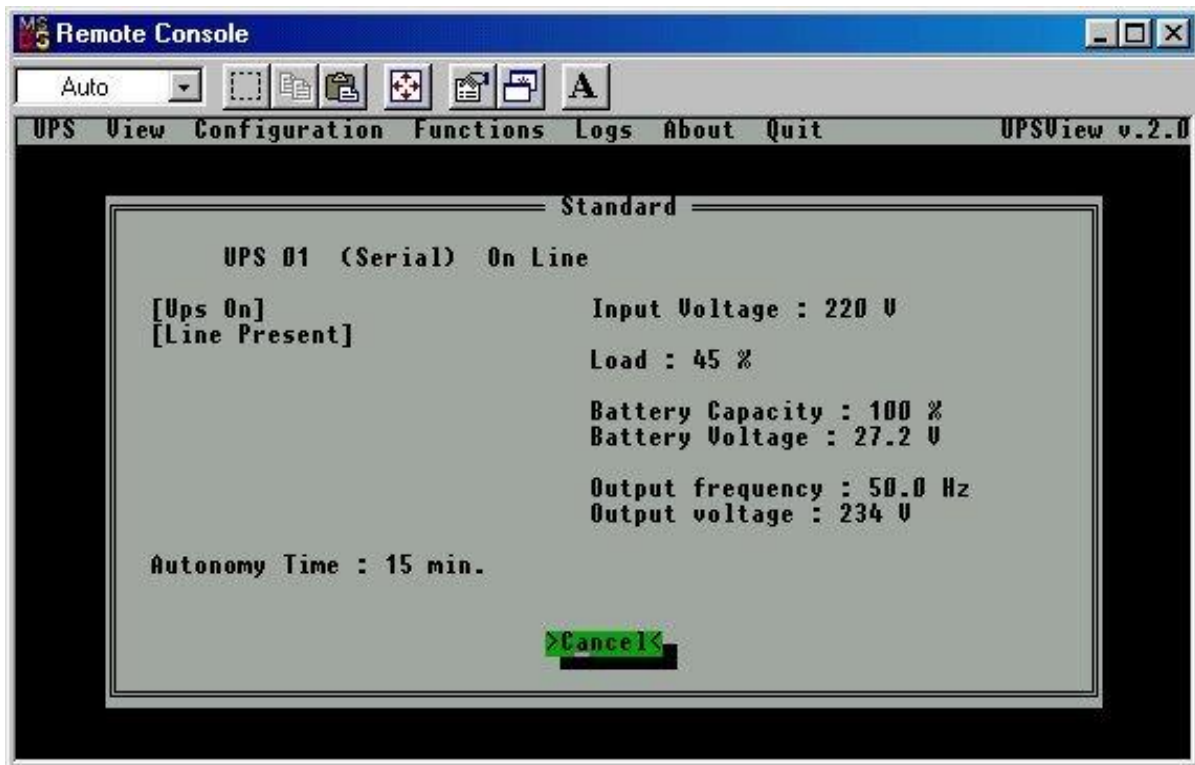
3. The Upsview for Novell Netware

On Novell Netware systems it is possible to monitor the UPS using one of two methods.

The first method is to use the *Upsview* for Windows. This has the same interface as described in the *Upsview* for Windows section.

The second method is to use the *Upsview.nlm* module directly on the server console. This is able to monitor the UPS without a connected workstation; however, this program is limited by the alpha-numeric interface (black-white for Novell 3.12 and coloured for higher versions).

The styles of the displayed screens are dependent on the type of alpha-numeric interface used.



VII. Uninstallation of the UPSMON



ATTENTION: Before attempting to carry out the uninstall procedure, ensure that the *Upsview* or *Upsetup* program are not running.

1. Uninstall procedure for Windows

To uninstall from Windows, it is possible to use the standard uninstall procedure for Windows designed applications. For example via the Control Panel / Add and remove programs or it is possible to use the uninstall icon in the UPSMON program group.

2. Uninstall procedure for UNIX

To uninstall from UNIX, the specific uninstall program for the specific UNIX operating system must be used. For further information please refer to the operating system manual.

3. Uninstall procedure for Novell Netware

To uninstall from Novell Netware, ensure that you are connected to the server using the Windows workstation which was used for the installation. Otherwise all of the files must be deleted manually.

It is possible to uninstall using the standard uninstall procedure for Windows designed applications. For example via the Control Panel / Add and remove programs or it is possible to use the uninstall icon in the UPSMON program group.

Finally ensure that the startup shortcut for the *Upsagent* from *Autoexec.ncf* is deleted.

4. Uninstall procedure for Mac OS X

To uninstall from Mac OS X, use the script `uninstall-upsmon.command` on the `upsmon` directory, this can only be executed with root rights.

VIII. Configuration for expert users

1. Manual changes of the UPSMON.INI parameters

The UPSMON.INI configuration file includes some fields that are possible to modify by editing the file.

SYSTEM section:

[System]

OEMMode=0

1 Enables the configuration menu and the functions menu;
4 Disables the display of the *Upsagent* icon on the task bar;
It is possible to use a combination of these i.e. 1+2 =3.

DebugMode=0

1 Enables the view of some extended parameters in the debug mode;
3 Decodes the entire UDP packet in the TCP/IP communication;

ShutdownType=1

0 Executes only the system shutdown (computer with AT power supply);
1 Default executes system shutdown and turns off the computer power supply (ATX power supply);

In the SERIAL_00 section:

[Serial_00]

CheckRate=1

Enables the time between one request and the next for the serial communication to be incremented. This is important if there is communications loss due to a slow computer.

2. Console execution of Upsagent

The *Upsagent* service can be executed using various parameters:

- -debug to view all the data flow between the program and the UPS;
- -log to save the data flow shown in the file debug.log;

The file created can be used to solve any problems with the communication.

In Windows there are others parameters:

- -start to start the service;
- -stop to stop the service;
- -install to write the service in the Windows configuration registry;
- -remove to cancel the service from the Windows configuration registry;

IX. Communication port specifications

1. RS-232 specifications

25 pin contact (male at the computer end):

Pin #	Signal	Name
1	GND	Ground
2	TxT	Transmit Data
3	RxD	Receive Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DTR	Data Terminal Ready
7	GND	Ground
8	DCD	Data Carrier Detect
20	DTR	Data Terminal Ready
22	RI	Ring

9 pin contact (male at the computer end):

Pin #	Signal	Name
1	DCD	Data Carrier Detect
2	RxD	Receive Data
3	TxD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring

2. IRIX - serial communication ports

All IRIS-4D Series machines have two or more general purpose serial ports. These ports may be used to connect terminals, printers, modems, other machines, or graphical input devices such as a tablet or dial and button box. Each line may be independently set to run at speed, as high as 19200 or even 38400 bps. Various character echoing and interpreting parameters can also be set.

Special files for the serial ports exist in the /dev directory. These files, tty[dfm][1-56] are created automatically when the system software is installed. Each port is referred to by three different names, represents the port number.

Some drivers are used for directly connecting simple devices including most terminals; others for the use modem control signals; and more for devices that understand hardware flow control signals.

There are four different types of connectors found on various 4D models. The DB-9 serial port connectors, which are found on the Challenge, Onyx, Personal Iris, and PowerSeries machines, have the following pin assignments.

Pin #	Signal	Name
2	TD	Transmit Data
3	RD	Receive Data
4	RTS	Request to Send
5	CTS	Clear to Send
7	SG	Signal Ground
8	DCD	Data Carrier Detect
9	DTR	Data Terminal Ready

The Challenge and Onyx systems supply an RS-422 port. This RS-422 port uses a DB-9 serial connector that have the following pin assignment:

Pin #	Signal	Name
1	DTR	Data Terminal Ready
2	TXDL	Transmit Data Low
3	RXDL	Receive Data Low
4	DCD	Data Carrier Detect
5	CTS	Clear to Send
6	SG	Signal Ground
7	TXHD	Transmit Data High
8	RXDH	Receive Data High
9	RTS	Request To Send

In order to support peripherals which draw power from the host system, the Challenge and Onyx systems provide two powered-peripheral serial ports. These ports have a DIN-8 connector. The powered ports share the tty2 and tty3 signal lines with the standard DB-9 connectors; if the DB-9 connector for tty2 is already in use, you cannot use the powered peripheral connector for tty2. Similarly, if tty3's DB-9 connector is connected to a peripheral, the powered peripheral port connected to the tty3 signal lines cannot also be used. The powered peripheral ports have the following pin assignments.

Pin #	Signal	Name
1	DCD	Data Terminal Ready
2	CTS	Clear To Send
3	STEREO	Stereo Field Sync
4	RD	Receive Data
5	TD	Transmit Data
6	SG	Signal Ground
7	GND	Ground Point
8	V10P	10V Supply

3. 4D Compatible Pin Assignments (RS-232)

The DIN-8 serial port connectors on the Personal Iris 4D/30, 4D/35, 4D/RPC (Indigo), 4D/RPC-50 (R4000 Indigo), Indy and Indigo 82 have the following pin assignments.

Pin #	Signal	Name
1	DTR	Data Terminal Ready
2	CTS	Clear To Send
3	TD	Transmit Data
4	SG	Signal Ground
5	RD	Receive Data
6	RTS	Request to Send
7	DCD	Data Carrier Detect
8	SG	Signal Ground

X. Troubleshooting

1. General

Problem: On some Computer Main boards the COM ports are mixed up, therefore it is possible that COM 1 under NOVELL is actually COM 2 under NT etc. So if any communication problems exist, configure the software intentionally on the "wrong" com port and try again.

2. All operating systems

Problem: Error message: "Ups communication lost."

Answer: There is no COM-Port available, check the COM-Port, the settings in CMOS and System-Setup.

Problem: During the system boot, the UPS Management software starts and the UPS turns off.

Answer: To guarantee the correct function of UPSMON Software use the default settings for the UPS model or the *serial* port-type, this problem can also be caused by a wrong cable-connection.

Problem: In the logfile of UPSMOM the message "Communication lost, communications restored" occurs.

Answer: Some of the data from the UPS is not correct or the bytes of software received were damaged. This may be the result of external effects on the cables or the UPS. Check the cable, cable length and the communication parameters. Check if any background software that is using the com ports is active. (e.g. Virus checker within NetWare, or others). If this message occurs periodically, it is not a critical event. Only if this message occurs continuously for a longer period should you contact the UPS software/hardware support.

3. Troubleshooting Novell NetWare

Problem: The UPSMON Software could not establish the communication to the UPS.

Answer: You may have configured a port which is not found by aiocomx.nlm. Check the ports offered by aiocomx.nlm. Pay attention to the screen display when starting aiocomx.nlm. If aiocomx.nlm has been started, unload aiocomx.nlm and start it again to check the parameters. Check if other modules are using aiocomx.nlm (like fax software, time synchronising modules, etc...).

Problem: I receive the error message: "Loader cannot find public symbol".

Answer: Has SNMP been loaded before the start of the UPS service? Check the SNMP-Version. From version 2.08 on communications is possible. Please use a CLIB.NLM that is able to work with SNMP.NLM.

Problem: I receive the error message: "Communication lost".

Answer: *Upsagent* can not identify the protocol.

Solutions:

- a. Has an original Novell NetWare aio- or aiocomx-driver been used? Some fax software products (e.g. Faxware) have their own aio-modules for serial communication which do not correspond with the NetWare-standard and overwrite the original drivers.
- b. Is the port of the system ok? In certain cases the port is unable to support the standard for NetWare-aio and -aiocomx (especially with ports on board with a 16550 components). Replace the aio- and aiocomx-modules with up-to-date drivers or try a manual start of the aiocomx-modules with the parameter "nofifo" ("load sys:system\aiocomx nofifo").

- c. Is the communication speed for aiocomx too high? Set the UPS on a communication rate of 2400 or 1200 baud, if your UPS supports this, and test it again. If you can't reduce the communication speed of your UPS-model set the parameter for aiocomx to maxrate=baud. You can find further information concerning the parameters in aiocomx help and on the CD in the *Drivers* directory.

4. Troubleshooting Windows

Problem: *Upsagent* does not start: "UPS Communications lost".

Answer: This error means that you are using a device name which does not exist. Try another device and check the NT serial connection settings.

Problem: UPS shutdown contact-closure when NT is booting.

Answer: a. This problem occurs, because of a high signal on the com port when Windows NT searches for serial mouse hardware.

b. Change the entry in BOOT.INI: **multi(0)disk(0)rdisk(0)partition(2)WINNT="Windows NT Workstation, Version 4.0" /noserialmice=comx**, where x represents the COM port where NT should not search for a mouse, because the UPS is connected here.

d. Exception: any none MS mouse drivers have to be disabled via the device manager.

5. Troubleshooting UNIX

Problem: How can I shutdown my database i.e. within the ups_exe shell?

Answer: It is sufficient to edit the ups_shut.scr file and write the command of database shutdown.

Problem: Unix problem with HP Netserver LC2.

Answer: Please switch the remote access in the BIOS to "disabled" otherwise a UPS communication is not possible, because the same IRQ is used as with the TTY port.

Problem: *Upsagent* does not start. "communication lost".

Answer: This error occurs only with cable serial setting. Possible Problems: You are using the wrong device, cable, or adapter between the computer and cable. If you are using an IRIX server you often need a adapter it to connect the computer to UPS (Mini-DIN to D-SUB 9). With the IRIX serial com port description below you can check if you are using the correct one.

Problem: A false alarm by the *Upsagent* happens in constant intervals.

Answer: Is the port "free" meaning that no "getty" processes are active? No "Login" must run on this port. In the file inittab "respawn" has to be overwritten with "off".

Problem: When I start the ups_shut.scr script I get a syntax error.

Answer: Change default shell to sh.

Problem: The configuration menu can not be read at the terminal type 978x of a Siemens-computer.

Answer: For a correct screen display the baudrate has to be set to 9600/19200.

Problem: The message "Write error on /dev/.." or TCSAGET error on..." appears.

Answer: Especially with IBM AIX a "clocal" has to be entered in the SMIT (configuration menu) in the boot-default settings of the interface that should be used by the UPS. (The interface should be without modem control signals and no hardware handshake).

Problem: After changes are made in the *Upsetup* menu the *Upsagent* starts unchanged.

Answer: Changes have been made in the *ups_conf* menu but a running *Upsagent* has not taken over the changes. Stop the daemon and restart.

Problem: Error message during start of *Upsagent*: "Communication lost".

Answer: a. Is the UPS-cable plugged in the correct way (Plug-side of the SUB D9 to the UPS)? Do you use any adapters? If so, check the contact of the cable, the pin layout and their correct correspondence to your UPS user manual interface description.

b. Has the port of the Unix-system been indicated correctly? The correct "Name" of the serial port has to be indicated in the menu *Upsetup* or with the editor in the configuration file.

Example: The entry in the configuration menu could be: "Ups Connection: /dev/tty01". If the DEVICE exists it can be entered. Even if you can enter a DEVICE it does not necessarily mean that this is the one where the UPS-cable is plugged in.

c. Is the port directly located at the computer or at a multiplexer or Terminal-server? Some Terminal-server do not give certain interface settings, but change the port address after every boot. On such a distributor a connection is not possible. With Multiplexer 1 only contact information is transmitted.

d. Have you been logged in as "root" or "superuser"? Login as "root" and restart.

e. Using Siemens RM-models this message appears if the port is unknown or has not been configured at the system-installation. If RM-models have not configured a port you can do this with the *termadd* command.

```
termadd -T serial -n UPS -b motherboard 0,2 -d -l generic
```

Where "UPS" is the name of the interface for the UPS service (/dev/UPS) and "motherboard" names the location of the interface. For "motherboard" a different device can be used, such as the ITP-interface distributor or CHASE I/OLAN on large RM models. The UPS service can also be used on all interface distributors, if a clear port is dedicated. At the command entry "motherboard 0,1" 0 stands for the board and 1 for the port address. A newly created device should be moved from the directory /dev/term to /dev.

Please print out the help documents with "man termadd". All options are stored for this command. With "termdel" this port is deleted. With "termshow | grep UPS" the configuration can be displayed.

f. Using SCO-computer systems a terminal translator (*mapchan* or *mapkey*) may be mapped on the configured tty port with /etc/default/mapchan (in most cases only on com1/ttya). This causes a malfunction of the RS 232-port. Check if this process is active and delete it if necessary. Check in the file /etc/gettydefs, which baud rate has been assigned to the port and change it to correspond to the UPS-parameter.

g. HP UNIX computers sometimes have the following entry in the *inittab*: *ups0:: respawn:rtprio 0 /usr/ups_mond -f /etc/ups_conf*. In the SAM menu Peripheral Devices > Uninterruptible Power Supplies this entry is to be found, but not activated. But this causes the device not to work correctly with UPSMON. Delete this entry and restart.