
UPS-Management Software

(UPSMAN, UPSMON, UPS View, UNMS)

User Manual

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-012	New functions: “Attach log files to mail events”, Write raw data to file”	02/2009
-013	Added: UPSMAN configuration without graphical interface (Linux)	03/2009
-014	Added: Multiple UPSMAN Installations	05/2009
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-016	Added: Silent Installation	11/2009
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-018	Added: Remote UPSMAN Configuration	01/2010
-019	Added: Threshold Events	03/2010
-020	Added: NTP time synchronization (UNIX)	06/2010
-021	Added: Installation/configuration on WIN 2008 Server Core x64	07/2010
-022	Added: Know How Pool: UPSMON Windows PollRate Edit	11/2010
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1. What is the UPS-Management Software?

The UPS-Management Software is a client/server application for networks and local workstations. The server module of the UPS-Management Software is UPSMAN, which communicates via RS-232/USB or network cable with the UPS. When UPSMAN starts, it collects the protocol messages from the UPS as a background program (service). UPSMAN interprets received messages and makes them available to the client module, a webserver interface UPS View, the WINDOWS UPSMON, JAVAMON or to any other SNMP application. The data communication to the client modules is achieved via TCP/IP or SNMP.

The SNMP protocol of UPSMAN with UPSMAN.MIB is a special private MIB type 1, the UNIX UPSMAN and CS121 web adapters use the newer MIB 2 standard RFC 1213 & 1628. All UPSMAN clients using TCP/IP may use the GENEREX communication protocol UPSMON, which is provided as an API to all OEM customers in order to create own applications.

If UPSMAN detects voltage variations or a power loss it can execute different *system event routines* (EVENTS), which, for example, may shutdown the server or send warnings to connected users. These *system event routines*, which are part of the UPS-Management Software, are fully customisable.

The client modules are used for operating and monitoring the active UPSMAN software connected to an UPS. You can program UPS-Routines (e.g. define dates for automatic UPS-tests, shutdown the system at defined dates, etc.), check the status of the UPS, execute different UPS-tests or create power quality statistics. With the client modules you can also constantly monitor and evaluate the event protocol (log file) that is permanently updated by UPSMAN.

RCCMD ("Remote Console Command") is an additional module which executes a command on a remote system, similar to the Remote Shell-Program (RSH) known in the UNIX world. RCCMD is used to provide a simultaneous shutdown of several servers that are all supported by the same UPS.

The following listed features depend on the UPS model. Please ask your UPS dealer which of these functions are available with your UPS model. The following list shows you the maximum variety of features of the current UPS-Management Software.

- ☒ Client/server software for heterogeneous networks with one and three-phase UPS. "Look & feel" is identical on all platforms.
- ☒ Support for almost all UPS types and UPS manufacturers with serial (RS-232), USB, network or dry contact UPS protocols.
- ☒ Integrated proxy SNMP agent for WINDOWS and Linux.

- ☒ Modular structure; optional it is possible to extend the system for multi-UPS surveillance via UNMS. External modules (hardware) allow for a variety of system extensions such as: SENSORMAN, RASDIALER (modem solution), UPS SNMP Watch, JAVAMON, HP OpenView UPSMON and others.
- ☒ Support all important network protocols for the graphical control of the UPS from every Windows station in the network.
- ☒ Automatic unattended shutdown of local and remote computers in networks (Master/Slave via RCCMD module)
- ☒ Low battery warning, on-screen autonomy time, battery time countdown, low battery warning, UPS temperature such as battery and internal temperature, defect battery warning, time and data stamp event logging, extensive logging of all UPS activity and user messaging.
- ☒ Battery management, surveillance and counter for power events.
- ☒ SMTP compatible system with messaging service for e-mail, e-mail to SMS or other external services.
- ☒ Menu for several UPS test functions, such as economy mode, UPS temperature, battery load, power socket switching and UPS emergency power-off.
- ☒ Shutdown and test functions can be executed with a scheduler
- ☒ Graphical display of quality of incoming power load frequency in minimum/maximum or average values.
- ☒ Also monitors UPS systems, via SNMP connection.

1.1 UPSMAN double function - UPS and RCCMD Server

The UPSMAN module is not only reading and managing the computer where the UPSMAN is running on; it is at the same time the "RCCMD server" – to the computer which sends RCCMD commands into the network which will start the shutdown procedure on remote computers. The program RCCMD is designed to execute a command on a remote system in a TCP/IP network. RCCMD works like the Remote Shell (RSH) known in the UNIX environment. Inside the UPS-Management Software RCCMD is used to shutdown several servers that are all powered by a single UPS. For this job, one of these computers is configured as UPS-master server.

Install the UPS-Management Software UPSMAN on your UPS server and connect it to the UPS. Alternatively, a SNMP adapter type CS-121 or compatible device can be used for this as well. The other servers are only connected to the UPS power supply, no RS-232 connection is necessary. On these remote systems, install RCCMD client software and create a shutdown routine for every system. This shutdown routine may be a batch or

shell script file, that contains the down and other commands for this system. After that, add *RCCMD* to the shutdown job or to the *EVENT* configuration of the computer running as UPS master server.

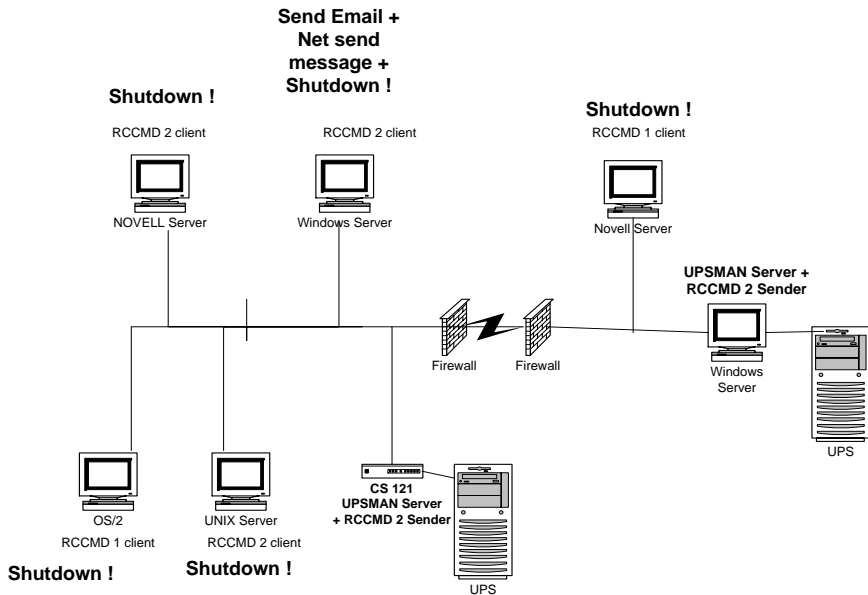


Figure 1: UPSMAN and RCCMD in a network environment

2. Quickstart – Installation/Configuration UPS Software

2.1 Preparation of the Installation

Before you install the UPS-Management Software, please ensure that your UPS is working correctly. Connect the UPS to the relevant serial/USB port of your computer using the original cable coming with the UPS. Some UPS models provide several connections/interfaces, please check the user manual for detailed information which port has to be used for the UPSMAN software.



Attention:

The UPS comm. cable is very often a special cable, which is provided by the manufacturer of your UPS system. Please see the corresponding cable configurations in the appendix of your UPS manual.

2.2 Windows 2000/XP/2003/VISTA/7/2008 UPSMAN Installation

General

The UPSMAN for Windows is a real background service and has no graphical output. The UPSMAN is the only necessary process for all UPS management actions. The graphical client modules (eg. Webinterface or UPSMON) are only for viewing the UPS data or for the graphical administration, but not compulsory for normal operation of a UPS software like shutdown, messaging, etc.

Installation

The UPS-Management Software is distributed on a CD-ROM or as full version download from the web site of the UPS manufacturer. A license key is required for both distributions. The Windows part of the software is found in the root directory of the distribution package and is started automatically or executing the "INSTALL.EXE" command. This SETUP process copies the desired UPS files to your local hard drive.

Licensing

The first input window is the license key of the CD (license = license key = key code). This key code is shipped separately (as electronic document, paper document, or in any other form – please contact your UPS dealer for information where to find the key code).

Every license key allows the customer to install one UPSMAN software (suite, consisting of UPSMAN and several graphical client modules). To install RCCMD, another - separate license key - is required – for every installation a new RCCMD key is needed – DO NOT install the same license key more than once !

(The RCCMD sender functionality is already integrated into the UPSMAN. Only for the client computers a new RCCMD license is required!) Additional RCCMD installations can be executed from the same CD ROM or download image, using different license keys.

Beside copy protection, the license key distinguishes the different OEM UPS customers from each other. It is not permitted to use any other license key than the one provided with the software.

3. Start Installation + Basic configuration of UPSMAN

To start, please make sure that you have full administrator rights in order to complete the installation.

Step 1:

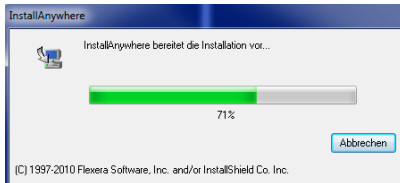
Put the CD into the CD-ROM drive of your computer or download the software into a specific directory on your computers harddisk.

Step 2:

Please execute the installation program *install.exe* in order to install the files to your system and choose a desired setup language.

Step 3:

Please enter your UPSMAN or RCCMD license key to choose the correct software package. The license key determines, which module can be installed. The installation software shows a progress bar until the software has been extracted and the installation begins.



You can choose the language of your installation in the welcome screen. Choose your language and click the "OK" button.

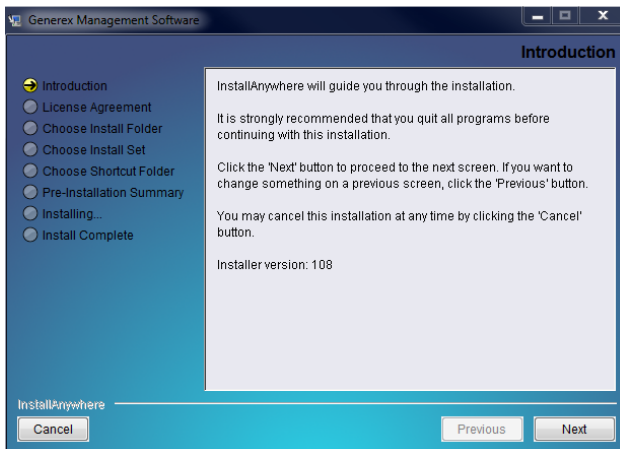


Figure 2: Introduction

In the next menu you can see the progress column where the next steps are visible. Click the “NEXT” button to continue.

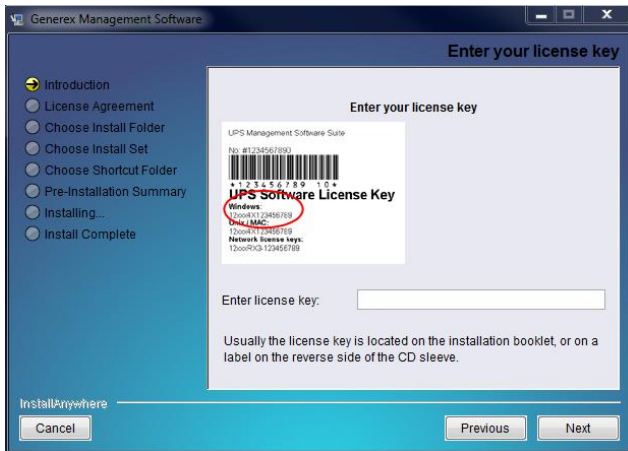


Figure 3: Enter your License Key

In the next menu you have to enter your license key – a picture shows an example. Enter the license key and click the “NEXT” button to continue.



Attention:

If you enter a wrong license number at this stage, the UPS-Management software will be set to a 30 day trial version. You may enter the correct license in the main window of the UPSMAN configuration at a later stage. (Please see figure below)

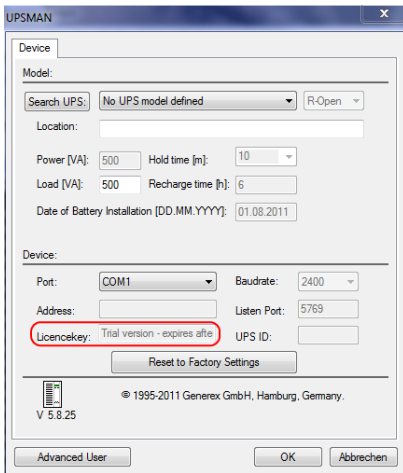


Figure 4: Thirty-Day Trial Version without Key Code

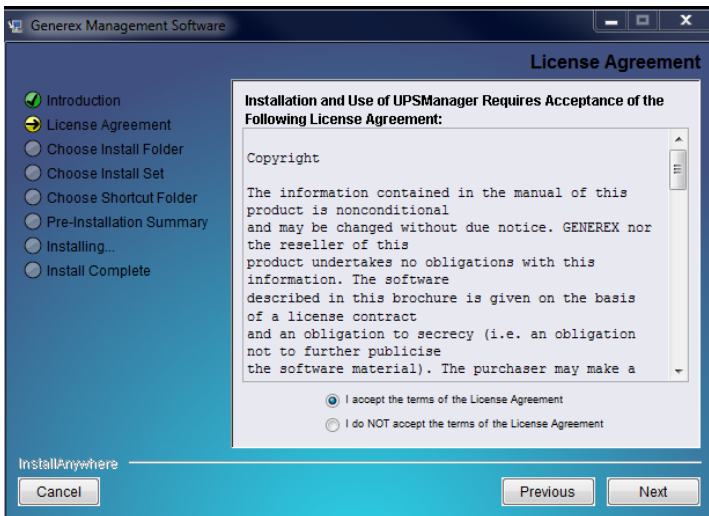


Figure 5: License Agreement

Read and confirm the license agreement and continue with the “NEXT” button.

In the next window enter the path where you want to install the software. Default is the subdirectory “UPS” into the program files folder onto the hard disk “C:”.

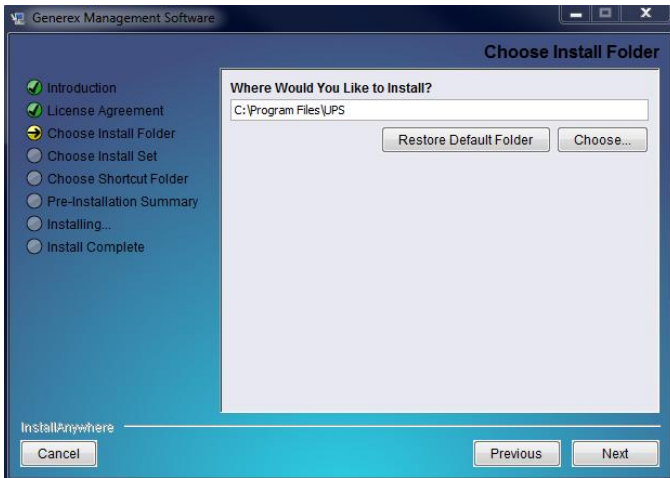


Figure 6: Choose Install Folder

Click the « Next » button and choose the install set.

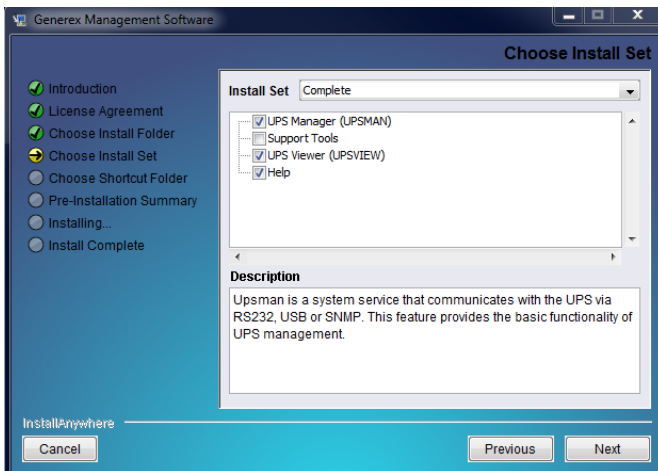


Figure 7: Choose Install Set

In the Install Set menu you can choose the following modules:

☒ **UPS MANAGER (UPSMAN)** - This is a background process UPSMAN, the core of the system. The UPSMAN is the service, which maintains the direct UPS RS-232/USB or network connection with the computer and the UPS.

☒ **Support Tools** – This is the UPS Monitor Software. It is used to display a graphical visualization of the data the UPS manager provides. This feature and the gchart software are disabled by default and will not be installed automatically.

☒ **UPS Viewer (UPSVIEW)** – The webinterface of the UPS accessible through Webbrowser. It shows the most important UPS data and alarms.

☒ **Help files** are provided with the software, basically it's the user manual which you are reading here and some extra informations which may be added from time to time.

In next menu you can choose to create a new program group (default) or to choose icons elsewhere or not at all.

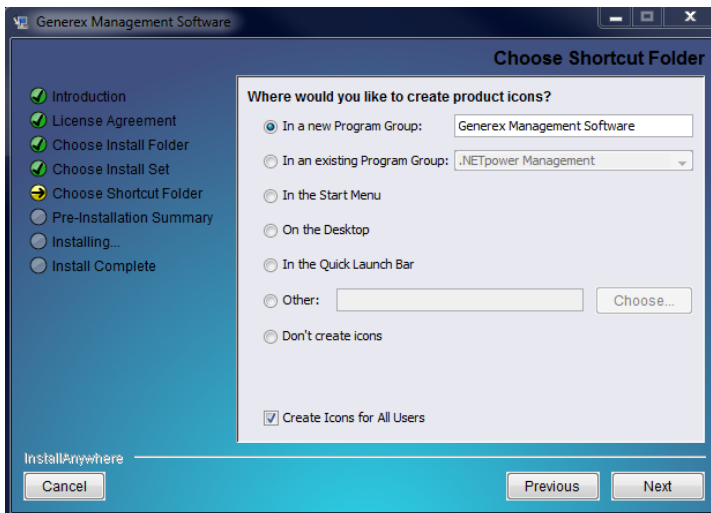


Figure 8: Choose Shortcut Folder

In the next menu you see an overview of your installation and you may now press "INSTALL" to begin.

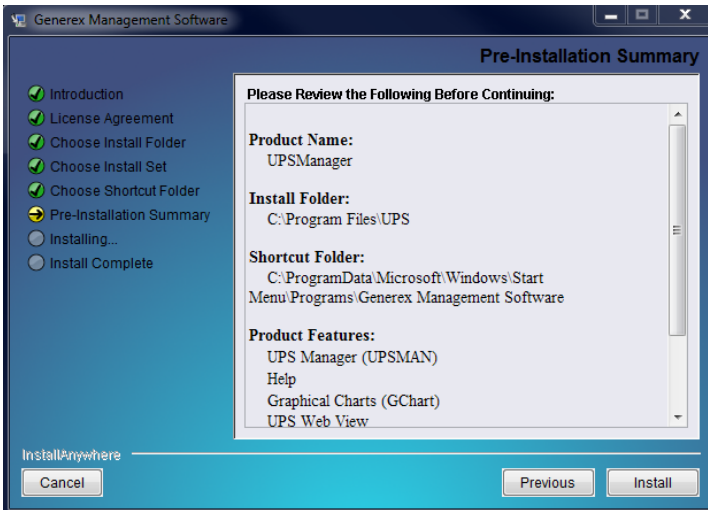


Figure 9: Pre-Installation Summary

Into the next window, you got the opportunity to open the required firewall ports 960 and 5769 automatically.

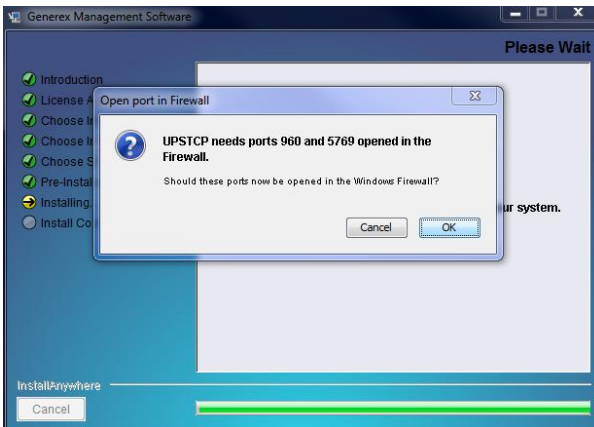


Figure 10: Firewall Configuration

The port 960 is used by the UPSMAN tray.

The UPSMAN tray provides the appearance of the UPSMAN message box as pop-up into the foreground. If you do not want to receive messages from the UPSMAN, please close the UPSMAN tray via the context menu. To disable the UPSMAN tray permanently, you can disable it into the UPSMAN configuration.

The UPSMAN tray appears into the taskbar.

From UPSMAN version 5.8.75 the UPSMAN tray displays the status or rather a change of the status of the UPSMAN as follows :

Green : Output Active, ECO Mode

Yellow : Bypass Mode, UPS Test Active, Inverter Warning, Overtemperature, Input High, Output High, Inverter Failure, Battery Bad

Red : Backup Mode, Battery Low, Shutdown Active

Grey : Communication Lost



Figure 11: UPSMAN Tray Icon Status

In addition from UPSMAN tray version 1.0.0.7 the UPSMAN tray provides a context menu with the following features :

- About : Opens the UPSMAN tray window with its version number, copyright
- UPSMAN Configuration : Start of the UPSMAN configuration directly
- Start UpsView : Start of the UpsView directly
- Close UPSMAN Tray : Close UPSMAN tray

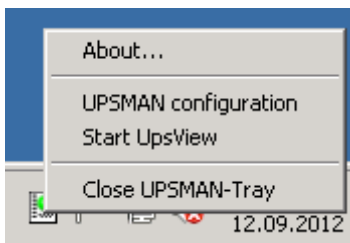


Figure 12: UPSMAN Tray Context Menu

The USB support of your UPS depends on the hardware interface. In some cases (HID compatible interface) – no additional driver is needed, since HID is already part of

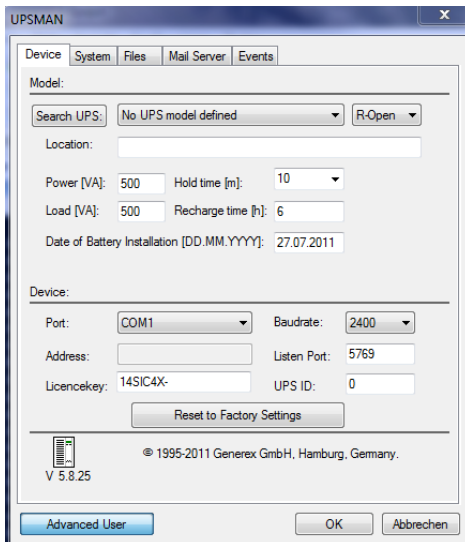
Windows and Linux. In all other cases you receive a USB driver (eg. LibUSB driver) with the UPSMAN software which is installed separately – or you receive a USB-2-serial driver which creates a new virtual com port on your system. The difference between an USB and an USB-2-serial driver is that using USB driver you use “USB” as communication port in UPSMAN, and with USB-2-serial driver you use a COM port.

The installation of 3rd party drivers will be through in some seconds - after this you may receive a message to reboot your computer. This may be ignored if you have already a USB driver from prolific on your system. In other cases please try first to communicate with the UPS through UPSMAN and restart your system only if the communication or the “search UPS” does not work at once.

NOTE: If a reboot is necessary, you can continue the configuration by clicking in the Program group on “UPSMAN configuration” – the configuration will pop up and you can continue the configuration – following the instruction on the next pages.

The main configuration page of UPSMAN is the DEVICE PAGE:

DEVICE PAGE:



The screenshot shows the 'UPSMAN' application window with the 'Device' tab selected. The window contains several configuration fields and buttons. At the top, there are tabs for 'Device', 'System', 'Files', 'Mail Server', and 'Events'. The 'Model' section includes a 'Search UPS' button, a dropdown menu showing 'No UPS model defined', and an 'R-Open' button. Below this is a 'Location' text field. The 'Power' section has 'Power [VA]: 500' and 'Hold time [m]: 10'. The 'Load' section has 'Load [VA]: 500' and 'Recharge time [h]: 6'. The 'Date of Battery Installation [DD.MM.YYYY]: 27.07.2011' is displayed. The 'Device' section includes a 'Port' dropdown set to 'COM1', a 'Baudrate' dropdown set to '2400', an 'Address' text field, a 'Listen Port' set to '5769', a 'Licencekey' set to '14SIC4X-', and a 'UPS ID' set to '0'. A 'Reset to Factory Settings' button is located below these fields. At the bottom left, there is a version indicator 'V 5.8.25' and a copyright notice '© 1995-2011 Generex GmbH, Hamburg, Germany.'. At the bottom right, there are three buttons: 'Advanced User', 'OK', and 'Abbrechen'.

Figure 13: UPSMAN Configuration

When the UPSMAN configuration starts up, choose from the UPS modellist your UPS type – or use “Search UPS” to make UPSMAN try to identify your UPS type. If not clearly identified, the UPSMAN will show you a list of UPS devices which are corresponding to the search requests – please pick the right model from the list and confirm with OK.



During the auto search process this box will appear, you may stop the search at anytime and choose the UPS from the drop-down list manually to speed up the process.

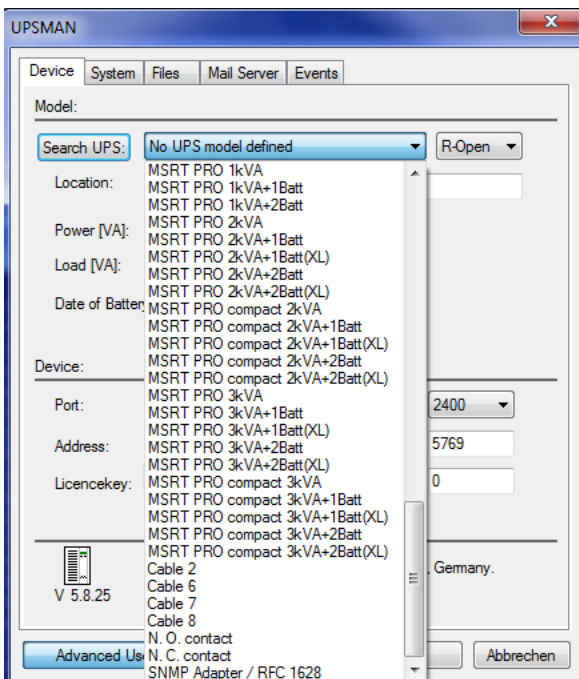


Figure 14: Select UPS Model

If the model “SNMP Adapter / RFC1628” is selected, please note that it is required that the battery installation date is identical in the UPSMAN **and** CS121 configuration.

After having chosen the correct UPS type the UPSMAN standard installation is finished. If you press now OK, the UPSMAN service will ask to start – press YES and if no further error message appears within 1 minute, the UPSMAN will now watch the UPS and send messages in case that an alarm occurs. If the UPS runs on battery and the battery have

only 3 minutes left, the UPSMAN will automatically shutdown this computer. In case of alarms a messagebox will pop up similar to the one above and the user can connect with UPS VIEW, UPSMON or any other graphical viewer to see the actual UPS alarms.

UPSMAN runs in windows as “service” -see windows service list how to stop/start the upsmen and related services.

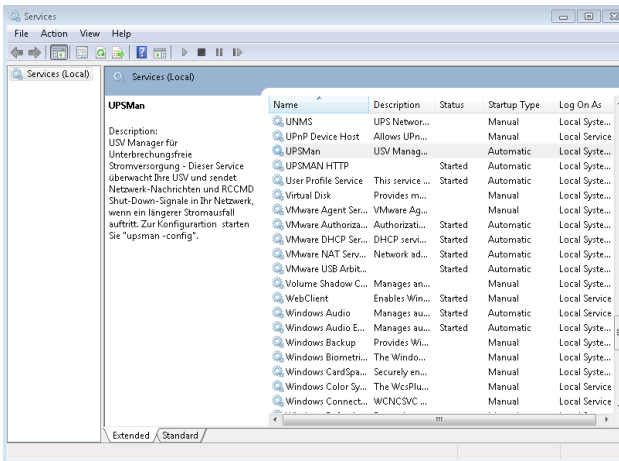


Figure 15: Windows Services

Installation and basic configuration FINISHED. Your computer is now UPS protected and will be shutdown automatically in case of an extended Powerfailure.

For a simple UPS communication and automatic shutdown of the UPSMAN computer – the configuration is complete!

For further UPSMAN configuration issues please continue to read in **chapter 3.2 – Advanced User – UPSMAN Windows configuration.**

To check your configuration you may use one of the monitoring tools provided with your UPSMAN software (UPS View, UPSMON, UNMS, JAVAMON or other). The moment you can read UPS data from your monitoring interface, the installation was successful and you may close the monitoring tool and keep the UPSMAN running in the background .

In the following figure is the UPS VIEW webinterface of a Protect 3.33 UPS. It shows the most important UPS data and alarms. The “UPSMANHTTP” windows service running in the background and provides the data for this webinterface. The following chapters explain now the various UPSMAN monitoring tools, starting with most common UPS interface for Windows “UPSMON”.

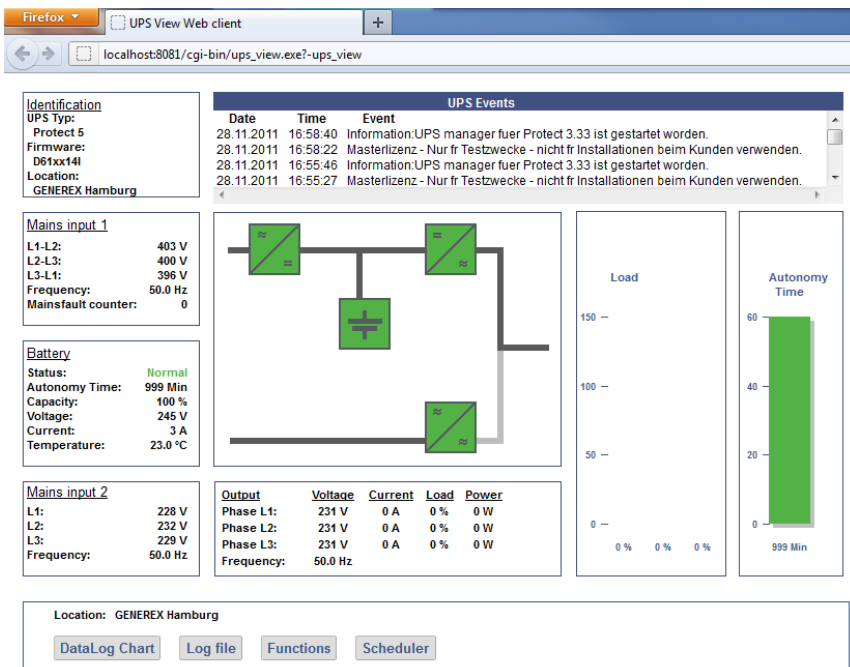


Figure 16: Protect 3.33 UPS Webinterface

3.1 Settings of the Authorization of the UPSMAN Service

This function is used for the commitment of the user authorization of the UPSMAN service, which exceeds the system shutdown, e.g. execution of batch files, script files etc.

Open the menu of the properties window for the UPSMAN service (via control panel, administration and services) and click the “Log On” button.



Figure 17: UPSMAN Properties

Enable « This account », delete the passwords and click the « Browse... » button.

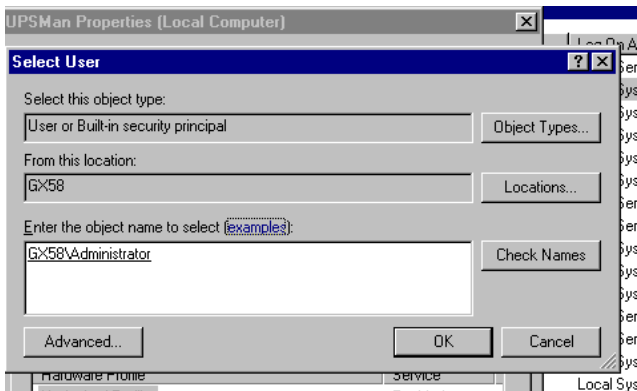


Figure 18: Select User

Enter the object name « Administrator », click the « Check Names » button and click the « OK » button.

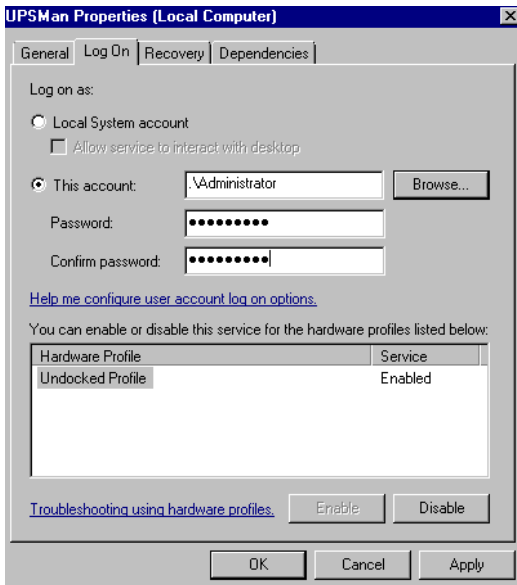


Figure 19: UPSMAN Properties – This account

Enter the password for the Administrator, confirm it, click the « Apply » button and restart the RCCMD service.

3.2 Silent Installation of the UPSMAN Installation

The UPS Management Software provides a silent installation, but it is required to enter some settings into the “installer.properties” file. This file is located into the CD folder \Upsman\Windows\OEM-ID (2 for AEG, 3 for Piller etc.).

```

## Choose Feature List
## -----
## If you want to install a subset of features from this installer,
## make a list of all the features you want to be installed.
## The List must be entered in the CHOSEN_INSTALL_FEATURE_LIST variable.
## Options for the list are: UPSMan, UPSWeb, UPSMon, Plfc2, Help
## CHOSEN_INSTALL_FEATURE_LIST=UPSMan,UPSWeb,UPSMon,Plfc2,Prolifi,Help

## Choose OEM
## -----
## Enter your OEM number here.
## OEM=0

## Choose locatization
## -----
## If you want to install a different language than English
## you will want to provide the valid country code here
## This is only important for silent installations.
## Valid codes are: zh_cn, de, en, fr, el, it, ja, ko, pt, ru, es, tr
## INST_LANG=de

## Choose License Key
## -----
## For silent installation your License Key must
## be provided here.
## GXLICENSEKEY=yournumber
#GXLICENSEKEY=

## Choose Installer User Interface
## -----
## If you want to use the installer in Console mode with a command line interface,
## or in silent mode with no user interaction, you can set this variable to
## one of the offered value.
## Options are: silent, console
## INSTALLER_UI=silent
INSTALLER_UI=silent

```

Figure 20: Content of the „installer.properties“

It is required to remove the hash mark prior of the variable `INSTALLER_UI=silent`. In addition the setting of the license key is required behind the variable `GXLICENSEKEY=`.

The UPS Management Software 5.8.04. or higher provides the parameter preselection for the UPS communication. Remove the hash mark prior of the variable `UPSDEVICE=COM20:2400,e,8,1`, and adjust the parameters accordingly.

3.3 UPSMON for Windows

UPSMON for windows is a graphical interface which is individually customized for every UPS maker, for this a large variety of screens exists. Depending on the UPS makers design and functions in the UPS the UPSMON appear more or less complex. In this manual we describe the basic functions which are part of any UPSMON version.

When UPSMON starts it will ask for a connection to a server. Enter the IP address or hostname. To start a connection click on the button *Connect*.

NOTE: The UPSMON windows is a monitoring tool for any UPSMAN, unregarded on which OS this UPSMAN is running. So you may use this tool to connect via an UPSMAN server at UNIX, MAC or CS121.

To start a connection to different UPSMAN processes at the same IP address, enter the port and the IP-address, or host name respectively separated by a comma (e. g. 5769,192.10.200.6). The port address can also be left out, if a single UPSMAN has been started at the default port. The entry of the IP address (191.10.200.6) is enough. We recommend using the TCP/IP protocol as a communication protocol.

Once connected with a server, the UPSMON responds with the main screen, allowing all features to be operated.

After a connection has been established, the status main screen shows several windows. The menu- and toolbar is at the top of the status chart. The bar contains the buttons "Open A Connection", "Close A Connection", "Searching The LAN For Active UPSMAN Services", "Get Datalog As Text", "Get Graphical Datalog", "Open Scheduler", "Change Of Logdata Program" and "Open Remote Configuration".

The Windows installation of UPSMON contains gChart, a graphical log file viewer.

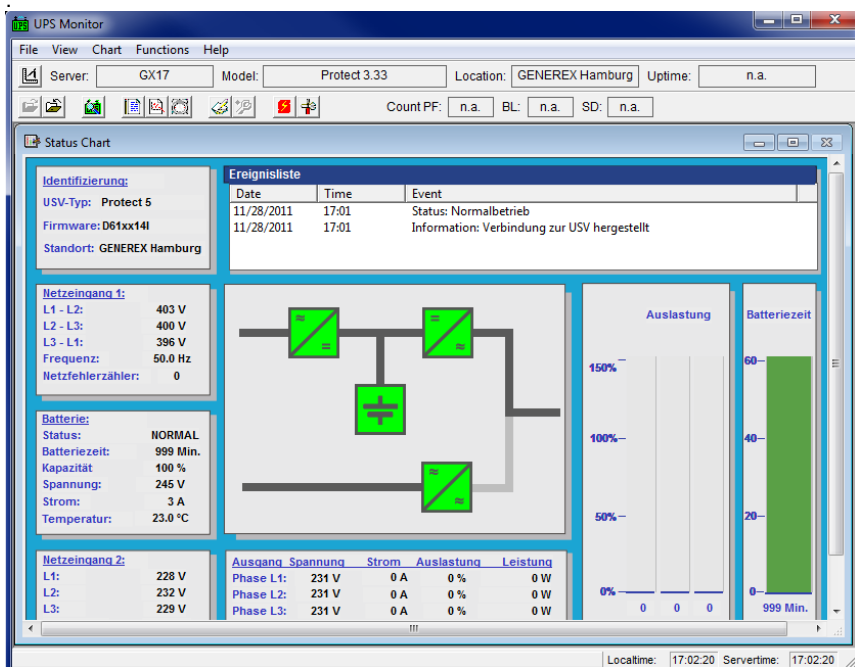


Figure 21: UPSMON Statuspage of a Protect 3.33 UPS

The Windows UPSMON versions and the UPS VIEW Webinterface have an inbuilt Scheduler interface to program actions on the remote UPSMAN. This Scheduler interface is in both applications identical and allow to execute UPS tests or regular shutdowns on certain days or time settings. Following a screenshot of the Scheduler in Windows, the UNIX version is identical to this.

When connecting to your UPSMAN you can choose "SCHEDULER" . If you have password on your UPSMAN configured, a password request will pop-up. After this you will receive a scheduler screen, similar to the one we show below.

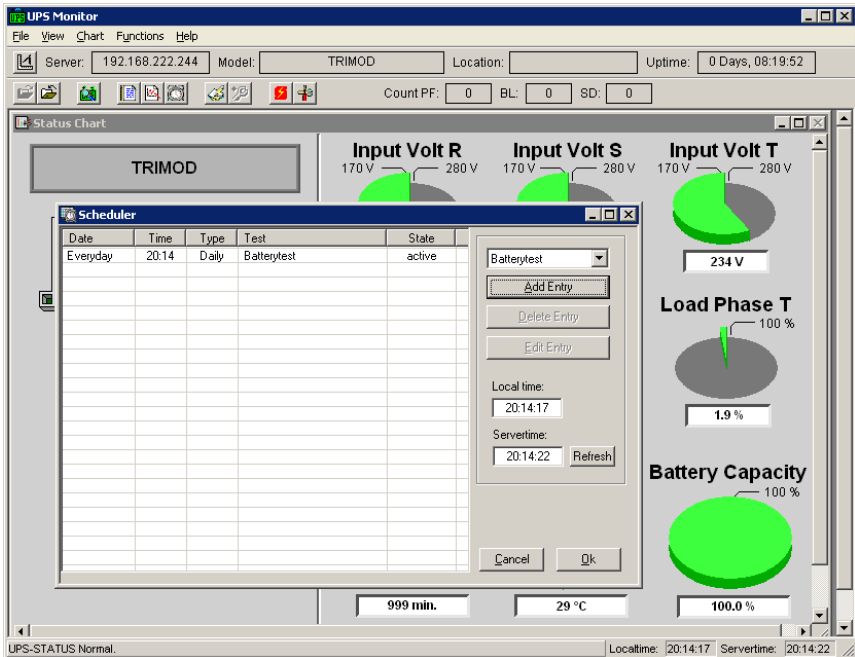


Figure 22: Scheduler in UPSMON, interface to program actions on your UPSMAN

The scheduler allows you to add new jobs which will be executed at the programmed time. The UPSMAN logfile will show after the job has been executed about the results of the programmed action. Generally the Scheduler shows the actual active job and the time or date when it will be executed. Already executed actions are list and automatically removed from the list if those jobs are expired or not longer recursing. By ADD Entry a new job is created and added to the list. With DELETE Entry jobs may be removed from the list. With EDIT entry you can change an already existing job. The other functions on the Scheduler should be self-explanatory and do not require further explanation. Generally we recommend NOT to program more batterytest jobs than once a month. Especially fulltests may discharge your UPS batteries to a low level which may damage your batteries if this is made too often. We recommend to do only short battery tests and replace the UPS

batteries in regular terms (interval depends on battery type). If you use BACS (Battery Analyse and Care System) on your UPS batteries, you can see the actual status of the batteries and decide when change is necessary. Without BACS we recommend to this on a regular basis.

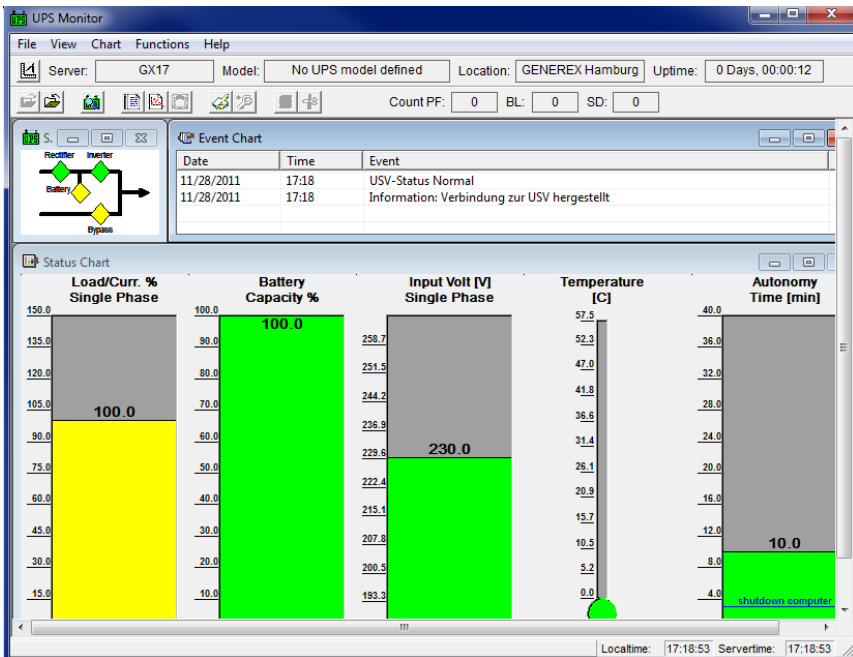


Figure 23: UPSMON Statuspage of a Standard UPS without OEM Design

Since there are too many UPSMON screens we can not show those all in this manual.

UPS Functions

To execute tests of your UPS system choose *UPS Functions* from the menu *Functions*. The results will be displayed in a table. The outcome of the tests depend on the settings of the manufacturer. *Selftest* is a UPS hardware check. *Battery Test* is a short test of the UPS working on battery. *Custom Test* switches the UPS on battery mode and will keep discharging the batteries until the "downtime" has passed. With this command you may check your batteries to see if they are still capable of supplying your system with the "downtime" configured autonomy. *Full UPS test* is a deep discharge of the batteries and is used for calibrating the battery. Tests should only be carried out if no user users are active. Some tests may be deactivated depending if the UPS supports those features.



Note:

Some OEM versions require the **default password** „cs121-snmp“, to get access to the *UPS Functions*.



Attention:

When running a UPS Full test, please note not to interrupt the test, as long as it is active. If the test gets interrupted, the software will configure the autonomy time as the time-span of which the test has been running on the UPS before it has been interrupted. A test can be re-started after a 8 hour waiting period.



Note:

A manual reset is possible by starting the upsman.bat.

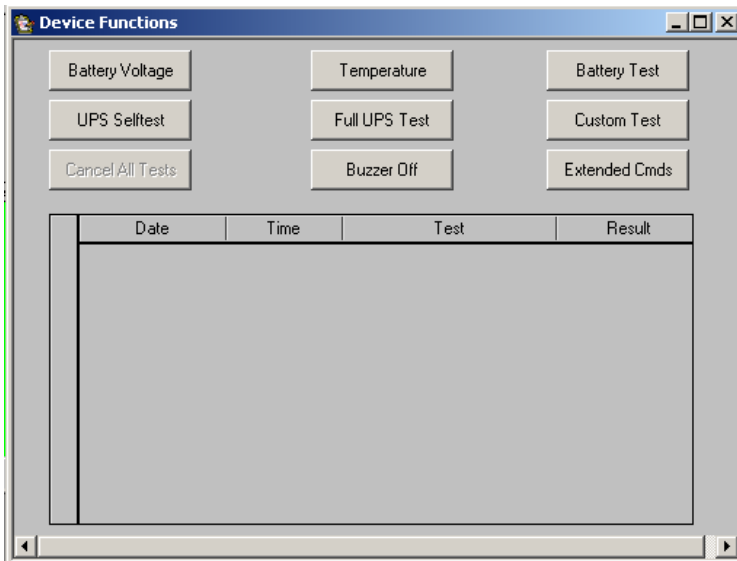


Figure 24: UPSMON Device Command Window

UPS Extended Commands – Outlet switching

You can program the switching of the outlets or manually switch on or rather off the outlets into the menu *Extended Commands*.



Note:

Not every UPS supports this option.

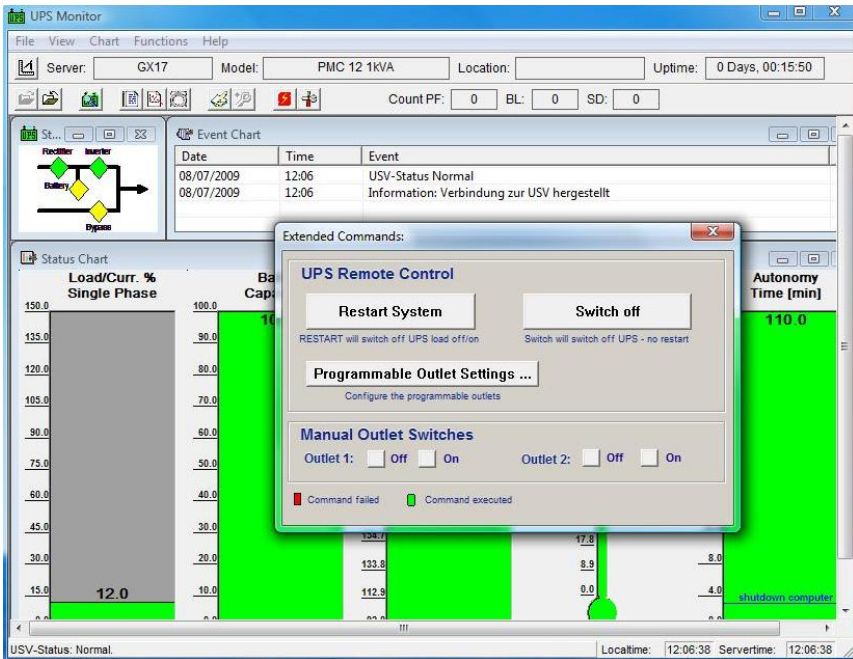


Figure 25: UPSMON Extended Commands Window

Click the „Programmable Outlet Settings...” button for the configuration of the Outlets.

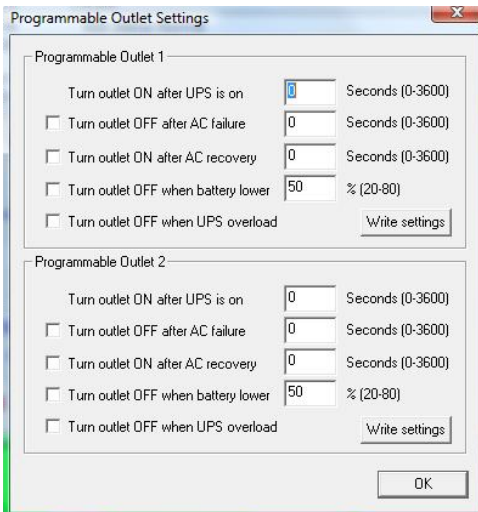


Figure 26: UPSMON Programmable Outlet Settings Window

The following configuration options are available for the outlets:

Turn Outlet ON after UPS is on – Delayed switching on of the outlets in seconds, after the UPS was switched on.

Turn Outlet OFF after AC failure – Delayed switching off of the outlets in seconds during a power failure.

Turn Outlet ON after AC recovery – Delayed switching on of the outlets in seconds after a power failure.

Turn outlet OFF when battery lower – Definition of the switching off, if the battery capacity is lower than x in percent.

Turn Outlet OFF when UPS overload – Switching off of the outlets during UPS overload.

Click the "Write settings" button, after you finished the configuration.

Voltage- and Frequence-Chart

Here the input voltage and frequency values of the last 24 hours (default) are displayed in a bar or line chart/graphic. Depending on the UPS system (single or thriple-phased) one measurement per phase is recorded.

In the menu *File* choose *Get DataLog-File for Charts* and wait for the measurements to be transferred from *UPSMAN* to *Upsmon*. After the file transfer has been completed, you may display the measurements of voltage and frequency via the menu *Chart*.

The menu *Chart* lets you choose between a chart showing minimum/maximum-results or mean values.

The bar colours show whether the results have been outside the range of tolerance. The accepted tolerance of the UPS-rectifier is displayed by a blue-line.

To monitor a certain part of the recorded time period, use the command *Time Frame* from the menu *Chart*. After selecting a time period with the desired frame choose a voltage or frequency chart again to display the measurements. It shows only the measurements within this range (higher resolution of input data).

Textlog

In the menu *File* select *Get TextLog-File* and wait for the measurements to be transferred from *UPSMAN* to *Upsmon*. The event-protocol includes all UPS events that have occurred to date. A default UPS dump is printed if no errors have occurred. Only messages like "Power fail", "Alarm", "Overload", "Battery low" etc. show a unusual situation.

The UPSMAN log file can also be opened directly from the UPSMAN directory, please use any standard text editor for this.

All other UPSMON functions which are not described in this manual come with a self-explanatory description in the interface itself ("tooltips"). For further questions about those functions, please contact your UPS reseller.

3.4 UPSVIEW for Windows

The Unix WEB SERVER offers the possibility to display all UPS data with a platform independent WEB-Browser. In order to establish a connection from a WEB-Browser to a UNIX WEB SERVER, please enter the IP address and a port number. Example:

<http://192.168.202.91:8081>. Port 8081 is used as a standard at the start up of the server.

Enter the following into a web-browser, if you want to get a remote connection to an UPS:

http://IP-address of the UPSMAN server:8081/cgi-bin/ups_view.exe?-ups_view

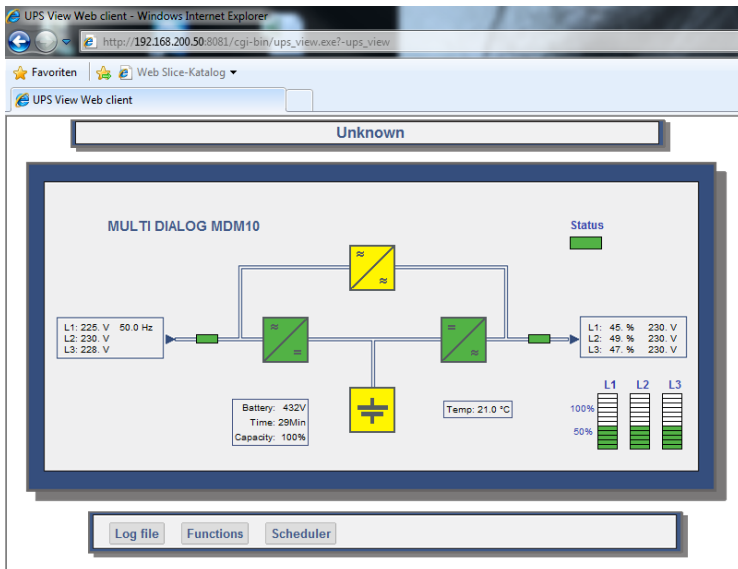


Figure 27: UPSView Remote Access

Via the « Log file » button, you can get the Data or rather Log files.

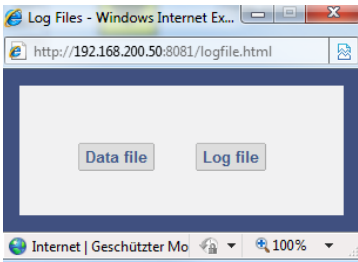


Figure 28: UPSView Log File

Via the menu « Functions », you can execute UPS tests.

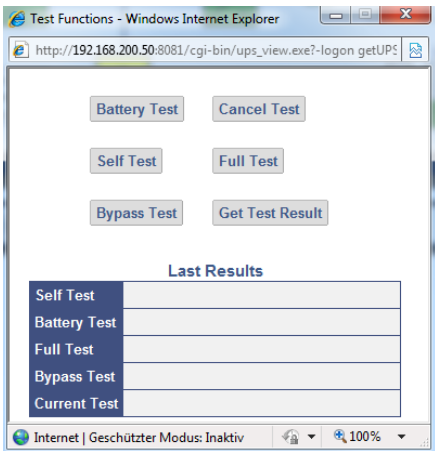


Figure 29: UPSView Functions

To execute tests of your UPS system choose *UPS Functions* from the menu *Functions*. The results will be displayed in a table. The outcome of the tests depend on the settings of the manufacturer. *Selftest* is a UPS hardware check. *Battery Test* is a short test of the UPS working on battery. *Custom Test* switches the UPS on battery mode and will keep discharging the batteries until the "downtime" has passed. With this command you may check your batteries to see if they are still capable of supplying your system with the "downtime" configured autonomy. *Full UPS test* is a deep discharge of the batteries and is used for calibrating the battery. Tests should only be carried out if no user users are active. Some tests may be deactivated depending if the UPS supports those features.



Note:

Some OEM versions require the **default password** „**cs121-snmp**“, to get access to the *UPS Functions*.



Attention: When running a UPS Full test, please note not to interrupt the test, as long as it is active. If the test gets interrupted, the software will configure the autonomy time as the time-span of which the test has been running on the UPS before it has been interrupted. A test can be re-started after a 8 hour waiting period.

Via the menu „Scheduler“, you can schedule appointments for your UPS.

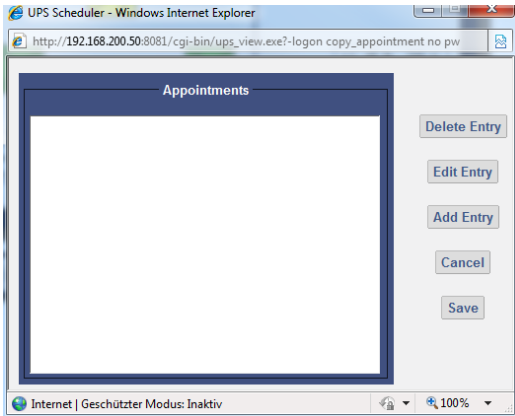


Figure 30: UPSView Scheduler

The scheduler allows you to add new jobs which will be executed at the programmed time. The UPSMAN logfile will show after the job has been executed about the results of the programmed action. Generally the Scheduler shows the actual active job and the time or date when it will be executed. Already executed actions are list and automatically removed from the list if those jobs are expired or not longer recurring. By Add Entry a new job is created and added to the list. With Delete Entry jobs may be removed from the list. With Edit Entry you can change an already existing job. The other functions on the Scheduler should be self-explanatory and do not require further explanation. Generally we recommend NOT to program more batterytest jobs than once a month. Especially fulltests may discharge your UPS batteries to a low level which may damage your batteries if this is made too often. We recommend to do only short battery tests and replace the UPS batteries in regular terms (interval depends on battery type). If you use BACS (Battery Analyse and Care System) on your UPS batteries, you can see the actual status of the batteries and decide when change is necessary. Without BACS we recommend to this on a regular basis.

3.5 Advanced User – Windows UPSMAN Configuration

The following part of the user manual explains the advance user configuration items, which are optional.

3.5.1 Advanced User - DEVICE Page

The configuration window is opened automatically and the user has to choose the correct UPS model (manual startup of configuration : "UPSMAN –CONFIG). This is the most important part of the configuration, because with the model name the correct UPS RS-232/USB protocol is linked. If a wrong model is chosen from the list, the UPSMAN can not start. If you would like to enter the configuration at a later point in time, you may do so by logging on as administrator and click on "UPSMAN configuration" from the program group UPS software. This icon is only available from the user account from which the installation was performed in the first place (default). From other user accounts the configuration can be started from the command line calling "upsman_config" in the UPSMAN folder.

Automatic start at server boot : The default of every UPSMAN is to start automatically at every new server boot. If you want to change this, go to the control panel, services and mark the UPSMAN Service under "Start". You can now change the start up now from automatic to manual.

Selecting the UPS-Model: To select your UPS-model, click with the mouse on the scroll box symbol on the right side of the model list. Next, choose the UPS model that you want to install. All other adjustments which correspond with your selected UPS model will be done automatically, if the UPS has serial or USB communication.

We recommend NOT to change the default settings of communication parameters of the UPS – most UPS have a fixed baudrate which must not be changed.

UPS models with serial connections do not need additional adjustments, because these models transfer all values to the UPS-Management software. If you have a UPS-model with a port-type *cable* which does not transfer the connected *Load* to the UPS-Management Software, you have to enter the values of the actual *load* manually. Add the input power requirements in Watts of all connected units and calculate the Watt/0,8 (= VA).



ATTENTION:

If you use a UPS-model with the port-type "cable", please notice that the values for Hold- and Recharge time are in accordance with the manufacturers specifications and should only be altered in special configurations since the UPS could be discharged before the system has been shutdown.

"Power", "Load", "Hold Time", "Recharge Time" are usually only for informative purposes, but we strongly recommend to set these values properly, because UPSMAN uses these configuration data whenever the UPS can not transmit such informations. We recommend

in any case to set the values for “Hold Time” and “Recharge Time” correctly, because the user can not know, which UPS calculate the autonomy time out of these data.

UPSMAN

Device System Files Mail Server Events

Model:

Search UPS: No UPS model defined R-Open

Location:

Power [VA]: 500 Hold time [m]: 10

Load [VA]: 500 Recharge time [h]: 6

Date of Battery Installation [DD.MM.YYYY]: 27.07.2011

Device:

Port: COM1 Baudrate: 2400

Address: Listen Port: 5769

Licencekey: 14SIC4X- UPS ID: 0

Reset to Factory Settings

V 5.8.25 © 1995-2011 GenereX GmbH, Hamburg, Germany.

Advanced User OK Abbrechen

Figure 31: UPSMAN Device Configuration

- Power in VA – Nominal UPS voltage output in VA. Please do not change the default value, unless you want to use the dry contacts communication.
- Current UPS load in VA – Enter here the load currently supplied from your UPS in VA. You can read this from the UPSMON, the webinterface or from the UPS display. E.g.: If your UPS shows a load of 25% and has a nominal power of 1000 VA, enter here “250”.
- Hold time – UPS autonomy time in minutes at 100% load. E.g.: If your UPS provide, according to the manufacturer, at 100% load an autonomy time of 30 minutes, than enter here “30”.
- Recharge time – Battery recharge time in hours. Please do never change the default value, unless you get an advice from the manufacturer.
- Date of Battery Installation – A warning for the battery durability will be reported after 4 years (depend of type of the UPS).

Some UPS models have both port types (*cable* and *serial*). To guarantee the correct function of your UPS-Management Software use the default settings and the cable provided with the UPS or the software. Different cables will be required for different port types.

- **Set battery health level in %** - The UPSMAN version 5.8.00 or higher provides an option for UPSs, which are not able to give a result after a battery test. The default is 10%, that means, if the battery voltage got a difference of more than 10% PRIOR of the battery test, an error will be logged. Advice: Always execute a battery test with load. Please use the nominal load, which will be present in normal mode.
- **Location:** Enter the name or place of your server or where the UPS is installed. (e.g. "Berlin").
- **Port:** Selecting the serial port/USB port

To select a serial port (*COM port*) click with the mouse on the COM check box on the right side. The communication parameter will be set automatically, corresponding to the in step 1 selected UPS model. Normally these settings do not have to be changed by the user.

The COM ports are in most cases already installed and activated. See in the Control Panel if the COM ports exist. The baud rate mentioned here is not important for the UPSMAN, the UPSMAN has its own internal baud rate settings which match the UPS manufacturer defaults.

- **OK button and Reset to factory settings.**

When you click on the "OK" button in the dialog window; the new configuration settings will be stored in the registration database. The UPSMAN configuration will ask you, if you wish to start the UPSMAN service now. If you like to return to the old, pre-set configuration values and to start from scratch - please click the "Restore factory settings" button. This will execute in the background the file upsman.bat which resets your configuration and returns with an empty configuration page.

3.5.2 Advanced User – Menu SYSTEM Page

Beside the UPS configuration page, more pages will appear if you click the "Advanced User" button. All configuration data in the menus have "tool tips" in the corresponding language. Every menu feature will be explained "online", following we start to describe the SYSTEM page of UPSMAN:

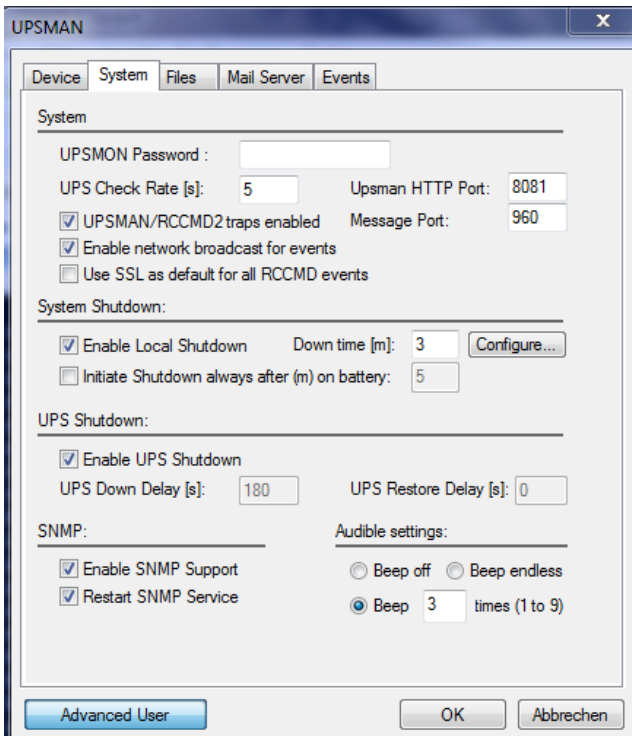


Figure 32: UPSMAN System Configuration

- **UPSMON Password:** Default - no password - The user may enter here a password, which will be requested whenever you open the UPSMAN onfiguration program or the sheduler and device functions in UPSVIEW.
- **UPS Check Rate (s):** Defines the timing (in seconds) of the polling data from the UPSMAN to the UPS. The system will be slowed down, if this value is too small, because of continous communication with the UPS. If the value is too high, the system will react more slowly in case of a power failure. For continous use we recommend a value between 15 and 30 seconds.
- **UPSMAN/RCCMD2 Traps enabled:** When this function is activated, UPS events will be send in form of UPSMAN text message traps to RCCMD clients. On the RCCMD client side, the two functions „Check UPSMAN alive“ and „RCCMD2/UNMS traps“ have to be activated to receive such messages. When a power failure occurs e.g. a message box is displayed on the RCCMD client.

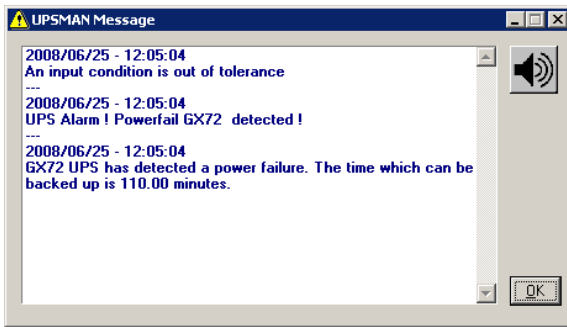


Figure 33: Message on RCCMD client when UPSMAN trap has been received

- **Enable network broadcast for events:** This enables the NET SEND broadcast (MS Messenger Service has to be enabled) with alarm messages to the network. If the messenger service is not running, a local message will pop up automatically.
- **Use SSL as default for all RCCMD events:** This will activate that all RCCMD (Remote Console Commands to client computers) events will use SSL (Secure Socket Layer) encryption. This requires that ALL your RCCMD clients use SSL as well !
- **Enable Local System Shutdown:** Defines if the system will start the shutdown routine in the event of a shutdown call from the UPS during a power failure. If you disable this function, no shutdown will be performed ! In the case of a shutdown, the internal event routine will close down all active applications. The shutdown of the UPSMAN computers is following the script in the file shutdown.bat (in unix : shutdown.sh) from where the shutdown programs (in windows "exitwin.exe" and other commands will be started.



ATTENTION:

Make sure that the check box "System Shutdown enabled" is always active if you have additionally the "UPS Shutdown" fuction active ! Otherwise the UPS might be turned off during a power failure before the system has been shutdown properly.

- **Down time:** Defines how many minutes before the UPS battery is discharged, that the shutdown procedure begins. This timing has to be large enough to guarantee a proper shutdown of the system before the UPS is turned off. Ensure that this value is calculated on a large scale: (e.g. with 10 minutes hold time of the UPS, start the shutdown procedure at least 3 minutes (default) before the batteries are empty (battery low).

- **Enable UPS Shutdown:** (Default = on) When OFF, the UPSMAN computer will not execute the UPS shutdown.
- **Initiate shutdown always after x minutes:** This enables/disables the execution of the shutdown after a period of time wherein the UPS is working on batteries.
- **Configure shutdown:** The type and sequence of a shutdown can be selected and edited here. Please note, that the UPS can not boot the computer after power returned, when POWEROFF is active (ATX boards). Default is shutdown windows "Exit – shutdown". In the shutdown-configuration users can add self-defined actions to the shutdown sequence via the "Add custom application" button. In addition users can determine the shutdown sequence order.

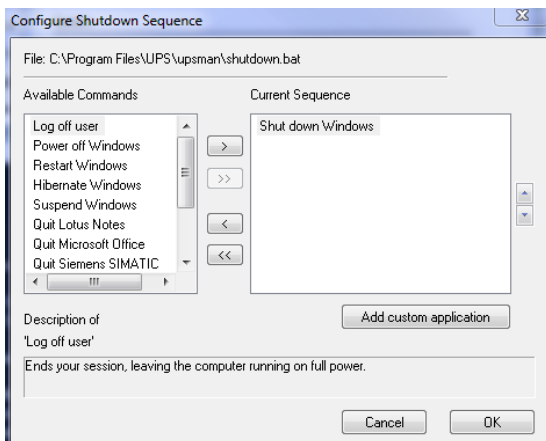


Figure 34: Windows UPSMAN Shutdown Sequence Configuration

- **Enable UPS shutdown:** Defines if the UPS will be turned off after the completion of the shutdown procedure of the server. The UPS shutdown section is not supported by all UPS manufacturers. In particular, devices with the connection-type *cable* do not support a schedule-controlled shutdown and restore function.
- **UPS Down Delay (s):** Defines how many seconds after beginning the shutdown procedure (see Down time) the UPS will turn off.
- **UPS Restore Delay (s):** Defines how many seconds after turning off the UPS the system is turned on again. For most UPS types it is necessary, that the power has been restored before the UPS has completely switched off. With some UPS devices the entry "0" disables an automatic restart and the UPS needs to be switched on manually.
- **Enable SNMP Support:** Enables or disables the SNMP support. Please check in the event log, if this function is properly started. A message "SNMP

communication could not be started" shows, that an error occurs. No message means, that this function is working. To install SNMP service add this software function via Microsoft additional software installation.

- **Restart SNMP Service:** This will activate a stop/start of the SNMP service under Windows. This function avoids start problems of the UPSMAN agents, using older or not maintained systems.
- **Audible Settings:** You can define the audible settings of the UPSMAN message box:
 - **Beep off**
 - **Beep endless**
 - **Beep (1 to 9 times)**

3.5.3 Advanced User – Menu FILES Page

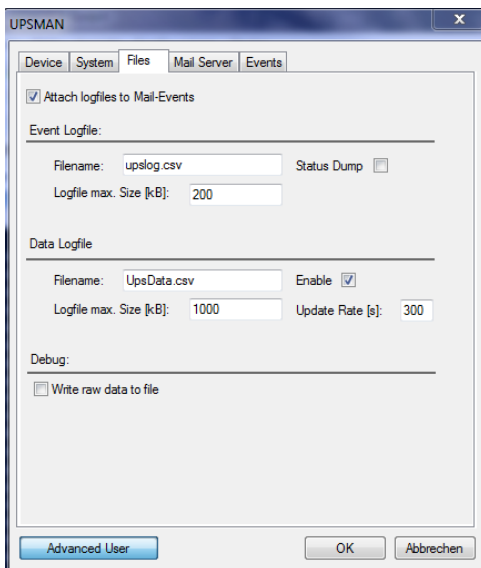


Figure 35: UPSMAN Files Configuration

Attach log files to Mail-Events: Enable this function, if you want to attach the “upslog.csv” and the “UpsData.csv” at all emails that will be send by the UPSMAN.

- **Event Logfile Filename:** “upslog.csv” is the name of the event/alarm text protocol. The default is a MS-Excel compatible CSV file format. “Status Dump” writes regularly (approx. every 10 minutes) the current UPS status into the text log file.

- **Data Log File:** “upsdata.csv” – This file contains the logged measurement values of the UPSMAN, like voltages and currents.
- **Logfile max. Size (kb):** Defines the size of the log files in KB.
- **Write raw data to file:** Enable this function for logging of the RS232/USB communication between the UPS device and your computer to a file called “line.raw” into the UPSMAN folder. This features will be used for the analysis by the UPSMAN support team.



Attention:

This file can be very huge in a short time, especially at USB communications. We recommend to enable this function for the analysis only.

3.5.4 Advanced User – Menu MAIL SERVER Page

This page is for the Email Server configuration of the email client module “QBLAT”, which is provided with your UPSMAN installation. This configuration has to be made, if you want that the UPSMAN send emails in case of alarms.

A valid mail server/email address, SMTP authentication has to be entered in the UPSMAN “Mail Server Configuration” in order to use the mail service.

The screenshot shows the UPSMAN Mail Server Configuration window. It has a title bar with 'UPSMAN' and a close button. Below the title bar are tabs: 'Device', 'System', 'Files', 'Mail Server' (active), and 'Events'. The main content area is divided into three sections:

- E-Mail-Configuration:**
 - ☒ Use E-Mail
 - E-Mail address of the sender:
 - Name of the mail server:
 - UPS Administrator E-Mail:
- SMTP Authentication:**
 - ☒ Use SMTP Authentication
 - Login:
 - Password:
- Server-Configuration:**
 - SMTP port:
 - ☒ Use secure connection (TLS encryption)

At the bottom, there are three buttons: 'Advanced User' (highlighted in blue), 'OK', and 'Abbrechen'.

Figure 36: UPSMAN Mail Server Configuration

SMTP Authentication is required in networks, where the mail server is not locally, but elsewhere (eg. at an internet provider). For the correct configuration please contact your system administrator.

Since UPSMAN version 5.9.42 the TLS encryption is provided. In addition you can define the SMTP port.

3.5.5 Advanced User – Menu EVENTS Page

Actions and reactions to UPS events/alarms will be defined in the “UPSMAN Event Manager”. The UPSMAN service can execute certain actions (jobs).



NOTE:

Although the jobs in the joblist of the EVENT manager are executed top-down – but since every job has its own timer (eg. delayed, immediately, etc.), the priority of the jobs depend on the individual timers, not on the rank in the job list. If you want to change the rank of a job, you can drag & drop the job in this list, but still the individual timer remains unchanged.

Which events are configurable depends on the type of UPS. Every UPS contain individual alarms, large UPS have usually more alarms than smaller UPS. The following section explains the pre-settings of such an event list on the example of a 1 phase UPS.

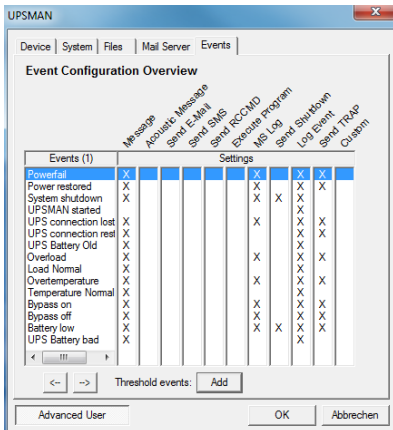


Figure 37: UPSMAN Event Config.

The event overview displays all available events of this type of UPS and the user configuration of the corresponding actions. Every “X” means that this event has at least 1 job as executable listed. With a double mouse click the user may open the event to see, which jobs are already configured. Now the user may add extra jobs or actions to this event. The most important event is “Powerfail” – here the user has to configure which RCCMD clients are to be triggered in case of alarms. In addition it is possible to define „Threshold Events“ for the variables „Battery Voltage“, „Seconds On Battery“, „Battery Autonomy“, „Battery Charge“, „UPS Temperature“, „Input Voltage“ and „Output Load“. Please also check the following chapters of the manual.

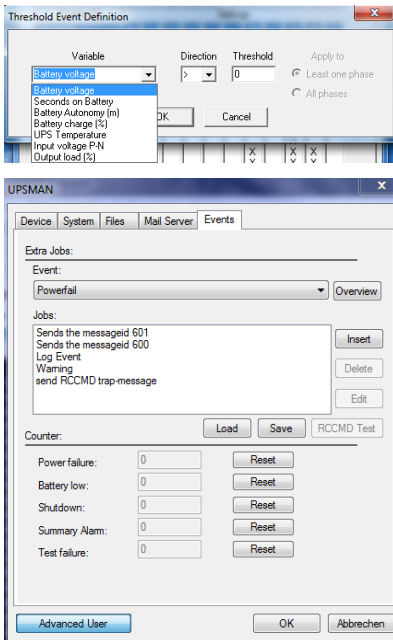


Figure 38: Advanced Buttons

In order to configure the event, click on the designated event and the “Event Jobs” list opens. For every event there are pre- settings, most of them are log file entries and RCCMD messages as traps. In the example there are three jobs configured for the event „Powerfail” - 2 jobs will send out standard text messages, (can be edited in the "Message.dat" file), whereas the 3rd event writes a message into the log-file. In order to add a job, please click the “Insert” button and the following functions page opens.

The “Reset” buttons below are to reset the alarm counters of UPSMAN, visible in the UPSMON or other graphical viewers (statistical information since the software has started).

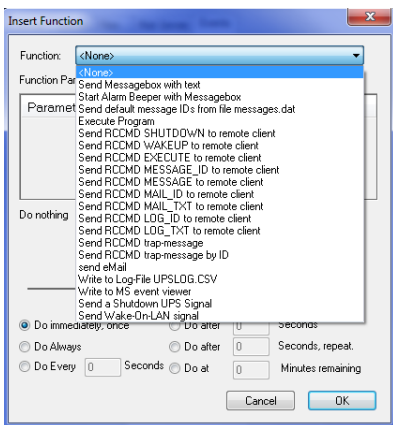


Figure 39: Insert Functions

Choose the desired function and set a timer and define, when and how often this function should be executed. Any event that contains a delay will be executed ONLY, if the alarm is still valid when the timer has run out. E.g. if you configure to send an RCCMD shutdown after 30 sec. – this job will be executed ONLY, if the powerfail is still the case after the 30 sec. have run out. If the power has returned at 29 sec. – nothing will happen.

The following functions are available in most UPS :

<p>Send a Shutdown UPS Signal</p>	<p>Switches the UPS output off after a pre-set time. Please make sure that the UPS is not being switched off before a system shutdown is executed, as otherwise important data may get lost.</p> <p>This shutdown signal only executes the output switch off - but NOT the shutdown of connected computers! If you define such an action, make sure that RCCMD is triggered before! The user can configure a delay (in seconds) before the switch off is executed.</p>
<p>Send Message box with text</p>	<p>Sends a network message using "net send". The Windows Messenger Service has to be active to use this function. Enter a user or a machine name or use the "*" character in order to send the message to all users. If you want to add several addresses, please part them with semicolon and a blank.</p>
<p>Send RCCMD SHUTDOWN to remote client</p>	<p>This is the most important function in this job list, it sends a RCCMD shutdown message to RCCMD clients in the network! RCCMD (Remote Console Command) is a program used for the execution of executable files via network, mainly used for the remote shutdown of computers with different OS using TCP/IP as common basis. From RCCMD Version 2.0 it is possible to use the (*) as wildcard to shutdown complete segments, e.g. 192.168.202.255 will send the signal to all computers in the network 192.168.202.0 to 255. RCCMD can be used as client (receive a signal) and a server (transmitting a signal). So, the syntax to send a shutdown signal to a specific computer is "RCCMD -s -a 192.168.200.201" - This example will send a shutdown signal to this IP which will be executed if on this IP also an RCCMD client is running and the sender is in the valid address list of senders. The entry of a IP address or hostname will send RCCMD only to those named. If it is required to shutdown more than one client, additional event jobs can be configured. Note: If the number of additional RCCMD clients is very large, a batch</p>

	<p>file, which contains the RCCMD -s commands can be used instead ("rccmd relay"). This allows you to send rccmd calls much faster and is easier to handle than the executing of a long list of jobs by the UPSMAN. Such a batchfile can be executed from the "Special" or "Events Execute Program" functions.</p> <p>Please note that RCCMD shutdown calls should always be configured in the "UPS Battery low" without any further delay.</p>
Send email	<p>Sends an individual email text at this event. Enter an email address and the corresponding text into the field. Please note that you need a configured SMTP server on the UPSMAN computer. "Qblat" is the email program which is triggered by UPSMAN email configuration.</p>
Send RCCMD EXECUTE to remote client	<p>This action initiates the execute.bat on a defined RCCMD remote client (IP-address). Through this function the UPSMAN can execute any command on the remote computer if the correct path and name of the program is known on this remote computer with RCCMD running.</p>
Send RCCMD MESSAGE ID to remote client	<p>In this menu the user can send an ID from the messages.dat to other users. These IDs are pre-defined text messages. Open the file message.dat to see the default text of such messages. Text entries can be altered with an editor. The edited text is then given out in a textbox at the remote client. This is useful if you want to send a messagebox from Windows UPSMAN to a UNIX system - the problem of sending messages to different operating systems can be solved through this.</p>
Start Alarm Beeper with messagebox	<p>This function displays a message box with an audible warning on the screen of the UPSMAN computer.</p>
Send RCCMD MAIL ID to remote client	<p>Similar to RCCMD message ID, a message ID is send, which is then forwarded from the RCCMD client as an email to the corresponding receivers. This is useful if the UPSMAN computer for any</p>

	reason can not send emails directly, than the remote client can do this job. The user can pick on of the default text messages as ID no. from the file message.dat or us RCCMD MAIL TXT instead to create its own text.
Send RCCMD MAIL TXT to remote client	Like the send RCCMD mail function, an email is send from the RCCMD client as relay. The user may enter here any individual text.
Send RCCMD LOG TXT / LOG ID to remote client	This writes a log file text (customized or as predefined text if you use ID) into the RCCMD remote clients log file. This maybe useful if a common log file is wanted, where all UPSMAN computers write into. This log file maybe on any network computer with RCCMD.
Send RCCMD MESSAGE (ID or TEXT) to remote client	The user can configure a text message (customized or as predefined text if you use ID) which is transferred to the RCCMD client and pops up as text box. This is useful if you want to send a messagebox from Windows UPSMAN to a UNIX system - the problem of sending messages to different operating systems can be solved through this.
Execute Program	Executes a configured program on this computer. Please enter the full path to the executable file on the UPSMAN computer. It is recommended that the executable file is located in the UPSMAN folder or in any other folder where a path is set to.
Write to Log file UPSLOG.CSV	Writes any text into the upslog.csv text file on this UPSMAN computer.
Send default messages IDs from file messages.dat	Sends pre-set network messages, using the receiver name and message ID. This standard message can be configured in the "message.dat". Open the file with an editor in order to change or check the text of the corresponding message ID.
Write to MS Event Viewer	When an alarm occurs, this function write to the MS EVENT LOG called also "Event Viewer". The user can now alter the Windows standard event viewer entries by choosing the type

	<p>(informational, warning and error) and by adding text to the event viewer entries.</p> <p>In the “Event Viewer” you will find the UPSMAN events as :</p> <p>Information 8 Upsman Stopped</p> <p>Information 7 Upsman Started</p> <p>For further text entries use this function and add your text and severity.</p>
Send RCCMD trap message by ID	<p>This function enables UPSMAN to send RCCMD2/UNMS traps, which shows the UPS status as a text message on the remote client. If activated it will display a local message box on the client whenever the UPS status changes. Please also note that the “RCCMD2/UNMS trap enabled” box is activated at the RCCMD client to receive the trap messages.</p>
Send RCCMD trap message	<p>Identical to RCCMD trap messages by ID, but the user may define his own text.</p>

3.6 Advanced User – Special Tools and Configuration Advices

3.6.1 Advanced User - UPSMAN Debug and Line.raw Tools

After the installation the files are found in (default) c:\program files\ups\ Directory. Here the files of the UPSMAN and UPSMON, other optional components have subdirectories.

UPSMAN DEBUG: Usually UPSMAN windows starts as service in the background. If you want to start UPSMAN as application in the foreground to create tracefiles, than open a command line, stop any upsman service and enter "upsman –debug“. Thereby the UPSMAN service will display support information at the command line. This information may be requested from the UPS support service if you encounter communication problems with your UPS.

3.6.2 Email to SMS

In order to send a SMS message in case of an alarm, you have to use the “Email to SMS Service” of your GSM provider. This is a service where the UPSMAN sends an email to the service center of your GSM provider, who converts the email into an SMS. This service is standard in most GSM networks and very reliable compared to modem solutions. For receiving emails as SMS you have to contact your GSM provider to open

this service. In the following we describe how this works with some GSM providers in Europe, since these providers change this very often, please refer to the website of your GSM provider to find out how “Email to SMS” can be activated for your cell phone.

Example:

GSM Provider T-Systems D1

Your D1 email address will be D1Nr.@t-d1-SMS.de (e.g.:01711234567@t-d1-sms.de) Please note that you enable receiving emails on your cell phone. This is done by sending a SMS with the message “OPEN”, to the number 8000.

Only the subject or the text field of the email will be transferred as a SMS, 160 characters from the subject and text field.

Important: If you want to stop receiving emails, please send a SMS to the number 8000, with the text “CLOSE”.

(If you want to enable the email transfer again, just send a message to the number 8000, containing the text “OPEN”, as described before.)

GSM Provider Vodafone

In germany the vodafone email-to-SMS server is called „vodafone-sms.de“. Please take a look onto the vodafone website of your country for the accordant server name.

Please note that you enable receiving emails on your cell phone. This is done by sending a SMS with the message “OPEN”, to the number 3400.

Only the subject or the text field of the email will be transferred as a SMS, 160 characters from the subject and text field.

Important: If you want to stop receiving emails, please send a SMS to the number 3400, with the text “CLOSE”.

(If you want to enable the email transfer again, just send a message to the number 3400, containing the text “OPEN”, as described before.)

Other providers

Please ask your cell phone network provider for informations about the email to SMS settings.

3.6.3 Save & Load Configurations

The number of available events and jobs depend on the type of the UPS. Although each event and job may differ from UPS to UPS, the general configuration process for each job is the same as follows. Your configured event files can be saved and loaded for backup purposes or for simply having alternative configurations available.

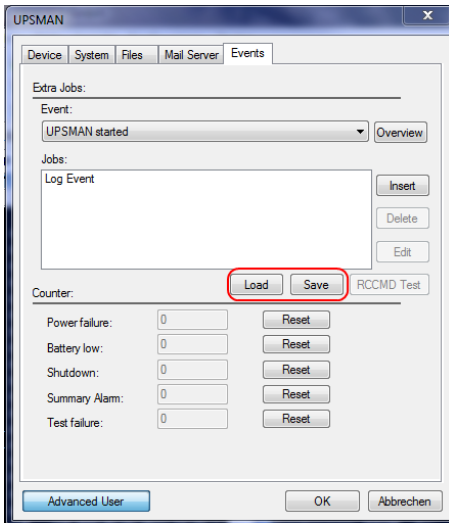


Figure 40: Load/Save Jobs

Your configuration for this UPS model will be saved into a file. If you later want to use this configuration again, please make sure that the UPS type has NOT changed! Only event files which have been recorded previously will work when reloaded, if the UPS type has not changed.

3.6.4 Examples - Execute Program with Parameters

The following shows some examples for customized configurations of UPSMAN.

Example: How to create a load statistic via UPS EVENTS on Windows:

The log file `datalog.csv` constantly creates the current MS-Excel compatible log file with all important UPS data and can also be extended or adjusted via the `messages.dat` ID 700 file (single-phased UPS) or `messages.dat` ID 800 (three-phased UPS). In the following example, we show how the EVENT manager can be used to create a "load" statistic:

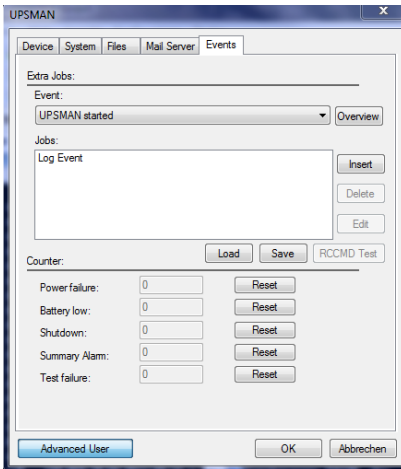


Figure 41: Insert Job Instructions

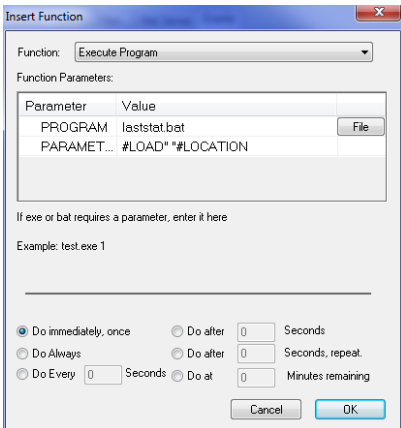


Figure 42: Execute Program

On the register card “Events”, please choose the event “*UPS MAN started*”. This is the only event, which is always “TRUE” when the UPS runs normally. So if you want to start actions, which are executed anytime, choose the event “UPSMAN started”.

Next click the “Insert” button.

Select the function "Execute Program". Enter the name of a batch file in the field (here laststat.bat) “Program”. The field “Parameter” should be filled with the variables #LOAD (connected to load to the UPS) and #LOCATION. Enter the full path to the executable file. Is the desired file in the same directory as the \UPSMAN, no path entry is necessary.

The bottom part of the dialog contains the buttons for the configuration of the time and how often the execution of the configured function should be done. Here, the load will be written to the “laststat” file every 20 sec.

Please note that when entering several parameters, every parameter has to be separated by a set of quotation marks separated by one space " ". See the following example:

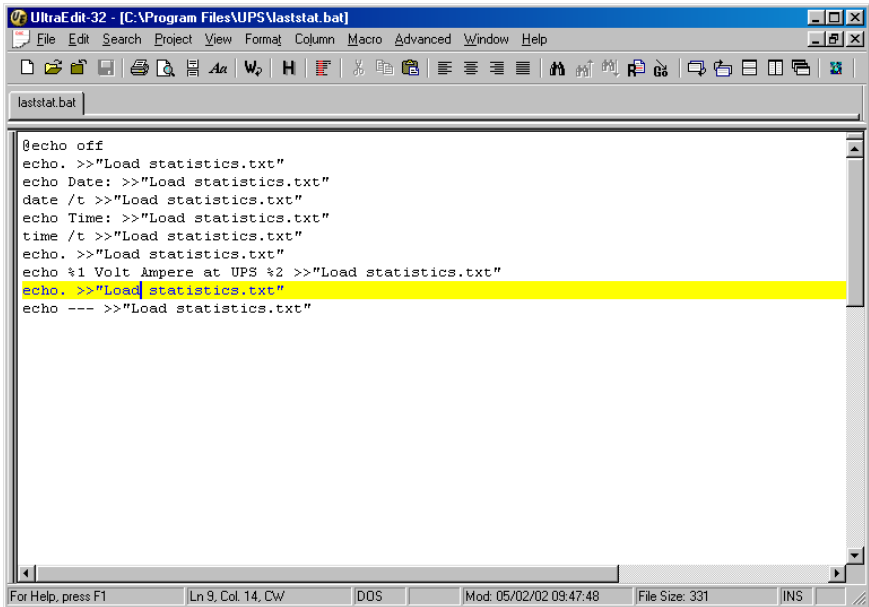
#LOAD“ #LOCATION“ #INVOLT

At the beginning and at the end no " " are allowed! The " " are only for separating the variables.

By clicking the “Ok” button the configured function is allocated to the chosen event.

Before starting the UPSMAN service, please create the file "laststat.bat" via e.g. "NOTEPAD.EXE".

The content of this example file may look like the following:

A screenshot of the UltraEdit-32 text editor window. The title bar reads "UltraEdit-32 - [C:\Program Files\UPS\laststat.bat]". The menu bar includes File, Edit, Search, Project, View, Format, Column, Macro, Advanced, Window, and Help. The toolbar contains various icons for file operations and editing. The text area shows the content of the "laststat.bat" file, with the line "echo. >>"Load statistics.txt"" highlighted in yellow. The status bar at the bottom indicates "For Help, press F1", "Ln 9, Col. 14, CW", "DOS", "Mod: 05/02/02 09:47:48", "File Size: 331", and "INS".

```
@echo off
echo. >>"Load statistics.txt"
echo Date: >>"Load statistics.txt"
date /t >>"Load statistics.txt"
echo Time: >>"Load statistics.txt"
time /t >>"Load statistics.txt"
echo. >>"Load statistics.txt"
echo %1 Volt Ampere at UPS %2 >>"Load statistics.txt"
echo. >>"Load statistics.txt"
echo --- >>"Load statistics.txt"
```

Figure 43: Laststat File using a Text Editor

Start the Upsman service. If you have followed the above example, now every 20 seconds the file "Load statistics.txt", containing the current values of the UPS load, is created and updated.

3.6.5 Examples - Send Email Function

The screenshot shows a dialog box titled "Insert Function" with a close button in the top right corner. Inside, the "Function:" dropdown is set to "send eMail". Below it, the "Function Parameters:" section includes a button labeled "Outlook Addressbook". A table with two columns, "Parameter" and "Value", contains the following entries:

Parameter	Value
ADDRESS	monitoring@somewhere.com
TEXT	...

Below the table, a text label states: "This function will send an e-mail via SMTP". At the bottom, there are six radio button options for scheduling:

- ☒ Do immediately, once
- ☐ Do after Seconds
- ☐ Do Always
- ☐ Do after Seconds, repeat.
- ☐ Do Every Seconds
- ☐ Do at Minutes remaining

At the bottom right are "Cancel" and "OK" buttons.

The send email job can send individual emails to single receivers or receiver groups. These users or groups may be defined in the MS Outlook address book. Click the "Outlook Addressbook" button and create a new group. Enter a list of email addresses in this group, which will receive the text message for this event, if an alarm occurs.

Figure 44: Send Email Configuration

3.6.6 Examples - RCCMD Mail ID

The 'Insert Function' dialog box is shown with the 'Function' dropdown set to 'Send RCCMD MAIL_ID to remote client'. Below this, the 'Function Parameters' section contains a table with the following data:

Parameter	Value
ADDRESS	
PORT	6003
<input checked="" type="checkbox"/> SSL	Enable SSL
ID	

Below the table, there is a 'Browse' button next to the 'ID' field. Underneath the table, there is a text field for 'RECIPIENT' with the instruction 'Enter the e-mail address of your recipient'. Below this, there is a text field for 'The RCCMD client will forward your e-mail to this recipient' with the example 'generex@generex.de'. At the bottom, there are several radio button options for scheduling: 'Do immediately, once', 'Do after 0 Seconds', 'Do Always', 'Do after 0 Seconds, repeat.', 'Do Every 0 Seconds', and 'Do at 0 Minutes remaining'. 'Cancel' and 'OK' buttons are at the bottom right.

Figure 45: RCCMD Email Example

With this function an email will be send from the RCCMD client as relay. Instead of an individual text, a pre-defined message ID will be send. Enter the IP address or hostname of the RCCMD client, which you want to relay this email. Enter the port parameter into the field "PORT". The standard port is 6003 for receiving RCCMD signals. The message ID can be selected by clicking the "Browse" button (see next figure). This function may be useful, if the UPSMAN computer is not able to send emails directly. Using an RCCMD client as relay solves this problem.

The 'Select Message ID' dialog box shows a list of message IDs and their corresponding messages. The list is as follows:

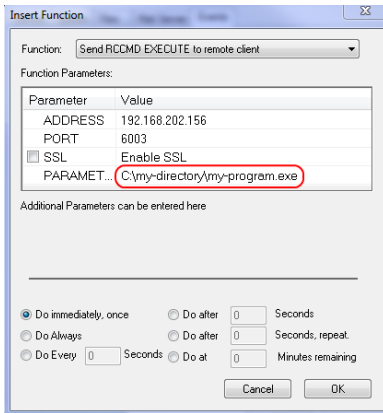
ID	Message
600	#SERVER USV hat einen Stromausfall erkannt. Die al
601	USV Alarm! Stromausfall bei #LOCATION #SERVER
602	USV Stromversorgung bei USV #LOCATION #SERVE
603	Sichere Dateien und fahre das System #SERVER her
604	USV #LOCATION RS232/USB Verbindung gestoe
605	USV #LOCATION RS232/USB Verbindung wiederher
606	USV #LOCATION Batterien sind zu alt. USV benoetigt
607	USV #LOCATION Ueberlast Alarm!

At the bottom, there are 'Cancel' and 'OK' buttons.

Figure 46: Message ID Example

Using an editor you can modify message IDs in the default messages.dat file.

3.6.7 Examples - Send RCCMD execute to remote client



This action initiates the execution of a batchfile “execute.bat” on a defined remote RCCMD client (IP-address). This bat file is configured to start programs on the remote machine.

In this example the “execute.bat file” will be executed at remote client (IP address 192.168.202.156), at port 6003. The entry made in the parameter field will be sent from UPSMAN as a parameter to execute.bat and in this way “my-program.exe” is started.

Figure 47: RCCMD Execute Example

3.6.8 Examples – RCCMD with SSL via UPSMAN

The Secure Sockets Layer (SSL) protocol is a cryptographic protocol that provides security and data integrity for communications over TCP/IP networks.

Open the UPSMAN configuration. Click the “Advanced User” button on the lower left side, then the tab “System” and enable the “Use SSL as default for all RCCMD events” box.

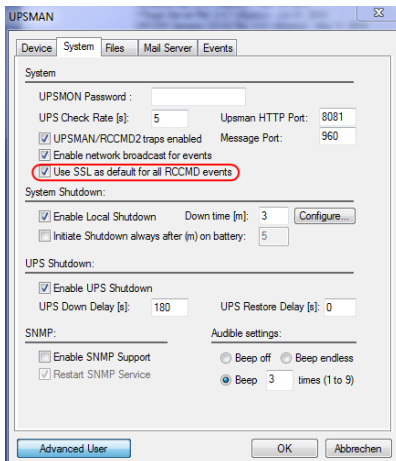


Figure 48: SSL Main Activation

The SSL network feature requires correct time settings, so it is required to configure a correct time at the work station, where the UPSMAN software is installed.

It is required to enable SSL for each RCCMD event function. Click the tab „Events“. Click on the desired event, to add an accordant function. Click the „Insert“ button and select the desired RCCMD function. Enable the SSL box to activate the SSL feature.

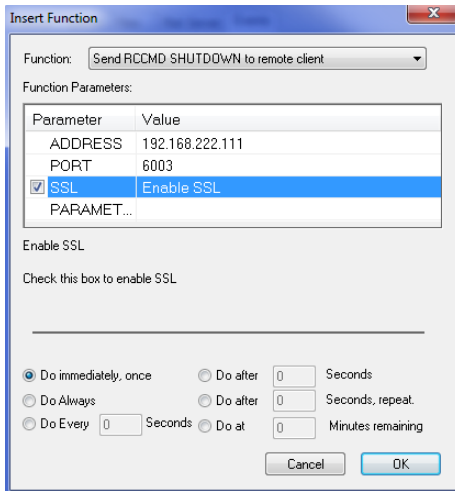


Figure 50: SSL Activation of a single function

Close the configuration windows with the “Ok” button and restart the UPSMAN service.

Start the RCCMD Wizard installation and enable the SSL network feature.

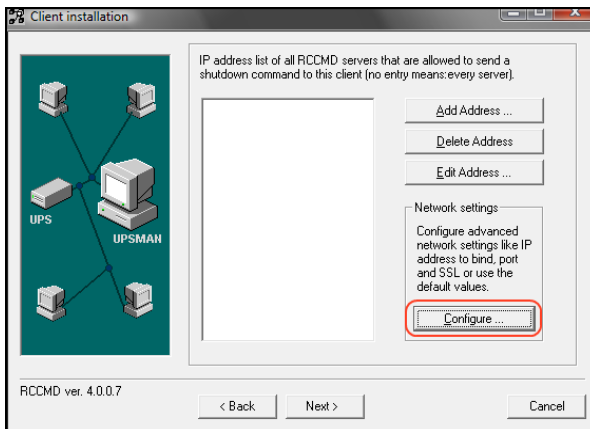


Figure 51: SSL Configuration

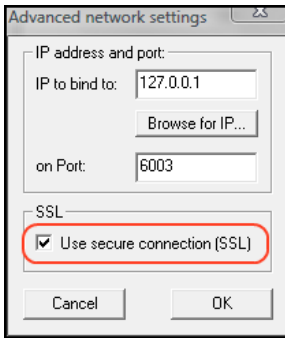


Figure 52: Advanced Network Settings

3.6.9 Examples - RCCMD with own SSL certificates

In this chapter we will describe, how to use an own SSL certificate with RCCMD, e. g. OpenSSL (<http://www.openssl.org>):

Be your own CA

Using OpenSSL it is quite simple to become your own CA. Just run:

```
CA.pl -newca
```

Done! Just ensure, that you select a useful CN (common name)!

Create your RCCMD certificate

You need to create your certificate for RCCMD now. As it will use it for verification, it should contain the same useful common name (CN), that you selected for the CA. The private key must not be encrypted to let the RCCMD Client (service) start without trouble. Therefore we use the “-nodes” option and the “-newreq” command:

```
CA.pl -newreq -nodes
```

Sign with your CA:

```
CA.pl -sign
```

Now create an empty file named “rccmd.pem” and copy the cert information of *newcert.pem* (rccmd certificate), *newkey.pem* (private key) and *cacert.pem* (CA) into it. Please note, that the exact copying is required to use it without trouble!

Use your own RCCMD certificate

Do the following steps at the RCCMD Client and every sender (UPSMAN default directory: C:\Programs\UPS\Upsman):

- Backup the existing “rccmd.pem”
- Replace the existing “rccmd.pem” with your own

- Restart the RCCMD Client

Restart the RCCMD Sender

3.6.10 Examples - WOL – Wake On LAN

The screenshot shows a dialog box titled "Insert Function". The "Function:" dropdown is set to "Send Wake-On-LAN signal". Below it, the "Function Parameters:" section contains a table with three rows: "HOST_OR...", "MAC_ADDR", and "PASSWO...". Below the table, there is a text prompt: "Required: Enter the MAC address of the computer to wakeup". An example text says: "Example: The format is x:x:x:x:x where x is a hexadecimal number." At the bottom, there are radio buttons for scheduling: "Do immediately, once" (selected), "Do Always", "Do Every", "Do after", "Do after", "Do at". There are also input fields for "Seconds", "Seconds, repeat.", and "Minutes remaining". "Cancel" and "OK" buttons are at the bottom right.

Parameter	Value
HOST_OR...	
MAC_ADDR	
PASSWO...	

This function will wake up hibernating or sleeping computers to go back online. The receiving computers of this signal must have network cards, and operating systems that support this function ("magic packet"). The MAC address can be determined in dos consoles by entering the command:

"ipconfig /all" at the DOS prompt. Here you can find your network card MAC address. To wake up this computer, enter the MAC address in this UPSMAN job. A password is not needed unless you have a BIOS where you can define such a password for WOL magic packets.

Figure 53: Wake-On-LAN Signal

3.6.11 Examples - Scripting

The transfer of internal variables of the UPSMAN to self-created batch files is possible with the UPS-Management software. The normal batch file programming is used for this. In the batch file the values can be selected with %1, %2 etc. as usual. The definition is created directly in the JOB.

Example 1:

```
"net send GX9 UPS autonomy time #AUTONOMTIME"
```

This entry in the JOB sends a network message to GX9 with the information on #AUTONOMTIME, which is transferred directly from the UPSMAN.

Example 2:

```
"net send GX9 autonomy time #AUTONOMTIME minutes Battery Capacity #BATTCAP
%"
```


This entry in the JOB sends a network message to GX9 with the information on UPS Autonomy time and battery capacity, which are transferred directly from the UPSMAN. The receiver GX9 gets this: "message from GX 0 to GX 9": "Autonomy Time 46 minutes battery capacity 85.000 %"

Example 3:

JOB Power fail: c:\ups\mybatch.bat #AUTONOMTIME #INVOLT #OUTPOWER

This entry defines #AUTONOMYTIME as "%1", #INVOLT as "%2", #OUTPOWER as "%3" etc.. In the batch file itself, the following can be configured:

Mybatch.bat

Net send * "Power fail at UPS detected!!"

Net send <USER> "Power fail! Inputvoltage %2 Volt, only %1 minutes left!"

Every UPSMAN provides at least the following *variables*

Variable	Function
#OUTPOWER	Actual load in % at the UPS
#OUTPOWER	Actual load in % at the UPS
#TEMPDEG	Actual UPS temperature in Celsius
#AUTONOMTIME	Actual autonomy time in minutes
#LASTTSTBUPT	Last tested BACKUPTIME (UPS test) in minutes
#STATUS	Actual UPS Status in minutes
#LASTERR	Last error
#TIMEUNTILSHTDWN	Actual Remaining time (remaining battery time until SD)
#RUNTIME	Actual Remaining time (remaining battery time until SD)
#INCURR	Voltage input power
#BATTVOLT	Battery load in Volt (V)
#INFREQ	Input frequency in Hz
#OUTFREQ	Output frequency in Hz
#CNT_PF	Counter for power failure
#CNT_BL	Counter for battery low

#CNT_SD	Counter for shutdown
#CNT_SA	Counter for summary alarms
#CNT_TF	Counter for test errors
#INVOLT	Current Input voltage in Volt (V)

For the special UPS integration into the UPSMAN software, more variables can be provided. Please ask your UPS dealer/manufacturer for more information on additional variables.

3.6.12 Start Options of the UPSMAN Module

Upsman.exe is a Windows service application. The configuration parameters are read from the Windows registration database. By default the UPSMAN service is set to start "automatic" – In the following we describe options to start and configure UPSMAN service.

Please start the *upsman.exe* via the control panel with the help of the service icon. Alternatively start the UPSMAN with a command line: *net start upsman*. To use the UPSMON (graphical interface), please install the TCP/IP protocol on your system.

Upsman.exe can also be started from the command line as foreground process. The following parameters are supported:

- *-install* installs the UPSMAN as a service
- *-remove* uninstalls the UPSMAN service
- *-config* starts the configuration program
- *-libver* shows the version release of the UPSMAN
- *-debug* starts the UPSMAN as foreground process (not as service) and displays a window for error function analysis. In addition a "line.raw" file is created, which logs the entire communication between COM port and end device. The file can be decoded by our service team in order to track down errors.

In order to allow an automatic start of the UPSMAN module at server boot; please set the service start-up status in the control panel to automatic.

In case the service needs to be removed or deactivated, please change the start-up status in the control panel section SERVICES to manual. In case an automatic start under Windows is not desired, please enter the command line: *Upsman -remove* or deactivate via the corresponding icon "UPSMAN Remove".

In order to reinstall the service after removing it, please change to the UPSMAN directory and enter the command line: "UPSMAN.BAT". This is a "reset" command where UPSMAN service is now reinstalled and the configuration program will start.

The local UPSMAN directory contains "send.bat", log file entries, "messages.dat", which are part of the event configuration, where the file is existing. Using an editor all of these files can be edited and modified. The event configuration however enables a complete configuration of these files.

Stop the USV-Management Software

In order to stop the UPSMAN service, a command line with the command: *net stop Upsman* can be entered. Also, the control panels (services) in the Windows UPSMAN icon in the status panel can be used.

3.6.13 UPS Management Software for WIN Hyper-V 2008 Server Core x64

The installation/configuration of the UPS Management Software on a Windows 2008 Core x64 system got some specifics. The default folder is:

C:\Program Files (x86)\UPS

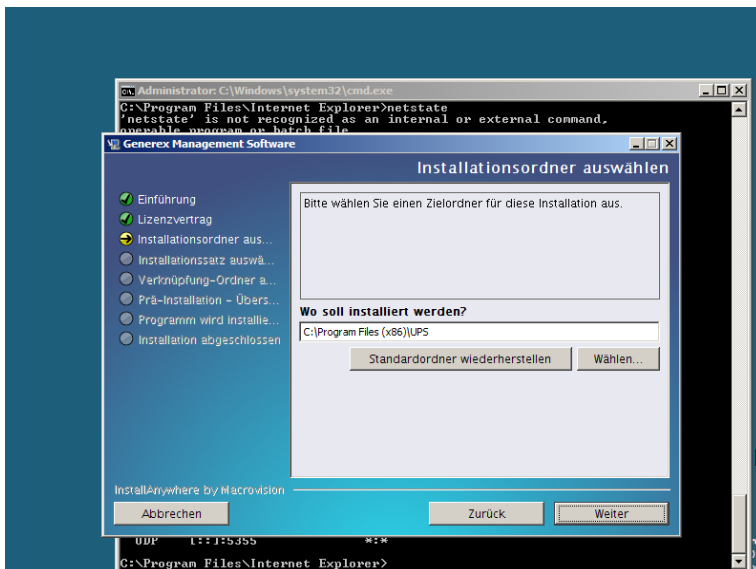


Figure 54: Installation Folder

Please take a look into chapter 3 on page 7 for further information of the installation procedure and the basic configuration.

The UPSMonitor will be started out of the following folder :

C:\Program Files (x86)\UPS\upsmon

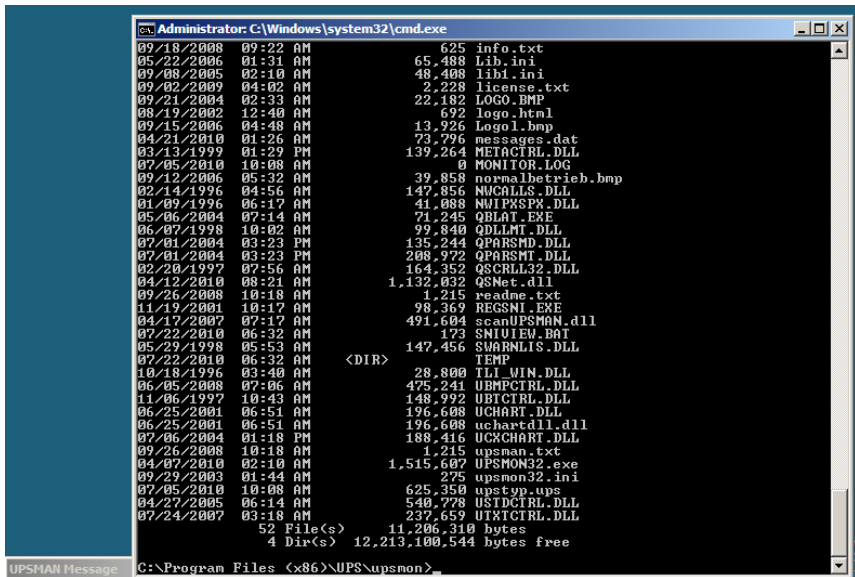


Figure 55: UPSMON Folder

Execute the « upsmon32.exe » to start the UPSMonitor.

The UPSView enables the remote access to the UPS data via web-browser. To be able to use the UPSView, it is required to open the firewall port 8081 as follows :

```
netsh firewall add portopening tcp 8081 "upsviewport"
```

Enter the following into your web-browser :

<http://IP-AddressCore:8081/>

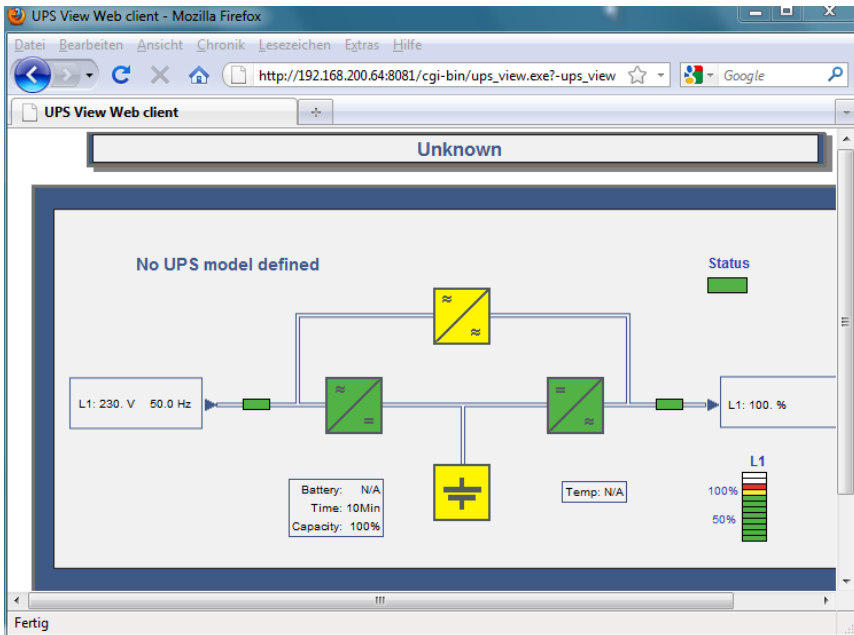


Figure 56: UPSView

4. Unix & MAC X

4.1. Basic - Installation UPSMAN on UNIX and MACX

General

The UPSMAN modules installation on UNIX exists in 2 versions: The older command line based “install” version which is based on the installation script “install” and the new graphical based “installupsman.bin” installation.

Since the graphical installation “installupsman.bin” is the new standard, we describe this procedure first. The older scriptbased “install” version is found in chapter 4.4.6 of this manual.



ATTENTION: If you got an OS without graphical interface, please take a look into the FAQs, how to mount a USB stick.

INSTALLATION via CD

Open your CD-ROM folder and click the „start.html“ (HTML file, starts a web-browser) button. Enter your license key (see below, where to find it).

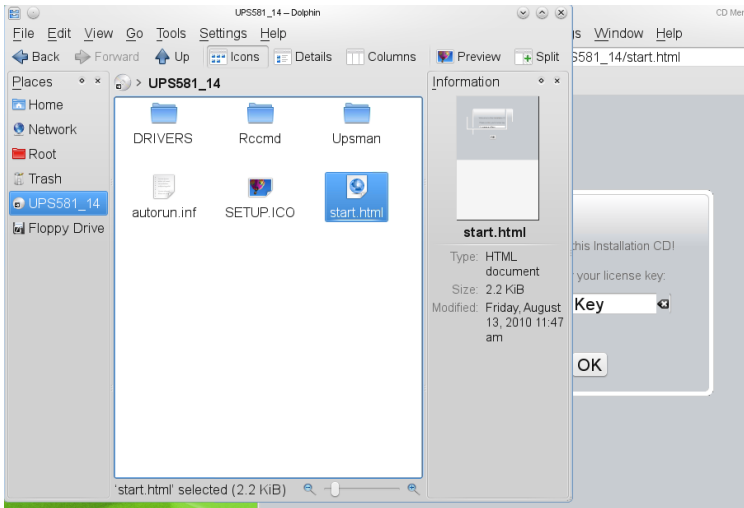


Figure 57: CD-ROM Folder

Click into the download menu the « UPSMAN Suite » button and select the accordant operating system.

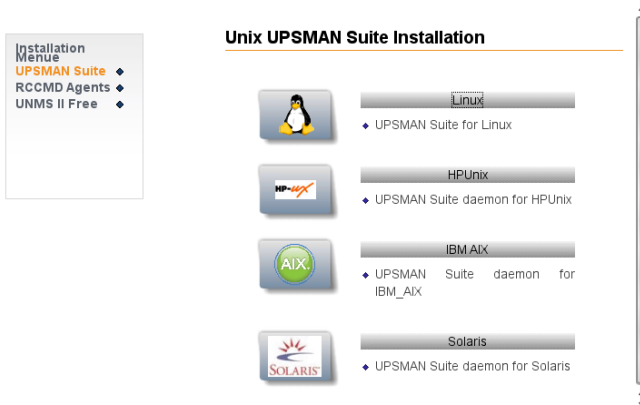


Figure 58: Download Menu

A tab will appear on the upper left side with your OEM ID (UPS, inverter, rectifier, accumulator manufacturers number). This number indicates your device manufacturer. You will find the required data into the accordant folder, e. g. Linux OS : OEM ID 14 is the manufacturers number, the folder « 14 » contains the accordant files.

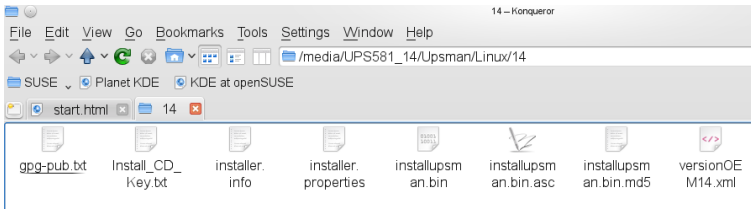


Figure 59: Installation Files

The displayed files are your required installation files ! Copy the data into a desired folder and execute the « installupsman.bin ».

INSTALLATION using ANYWHERE installer “installupsman.bin



Advice : Please note, that it is required, to execute the installation on Ubuntu OS via `sudo -s`.

Start the “installupsman.bin” (command `./installupsman.bin`). If you get “permission denied”, use the “`chmod 777`” on `install.bin` command to make the file executable.

The installation will show the following sequence of screens, please follow the instructions during the installation.

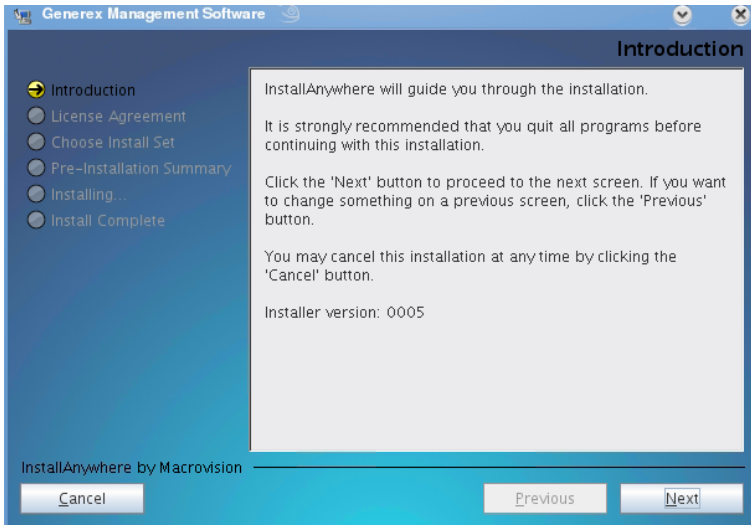


Figure 60: Introduction Page

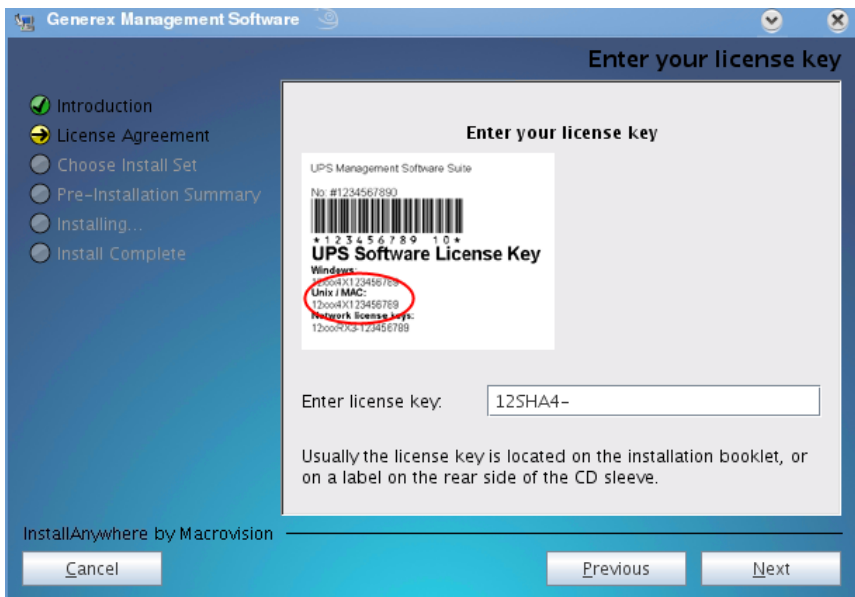


Figure 61: Enter Licence Key Page

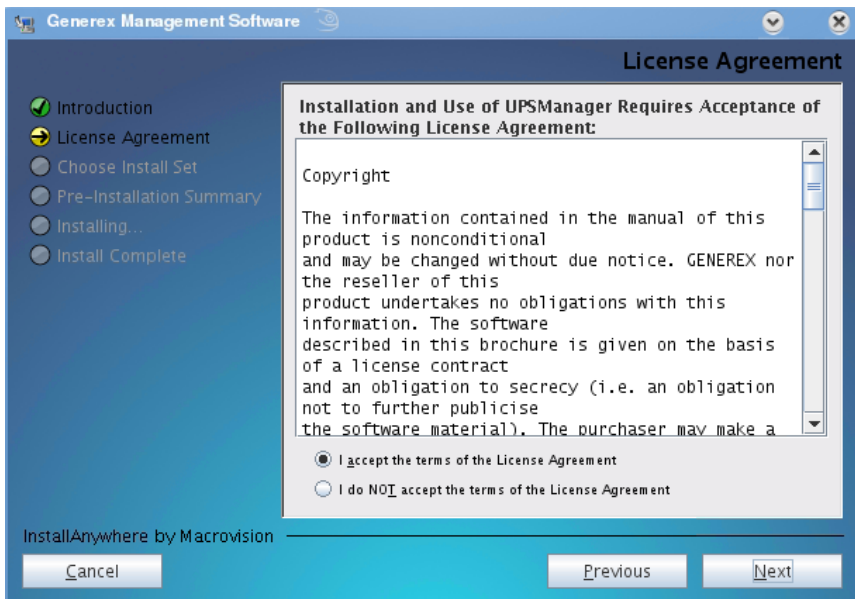


Figure 62: License Agreement Page

Press NEXT to continue.

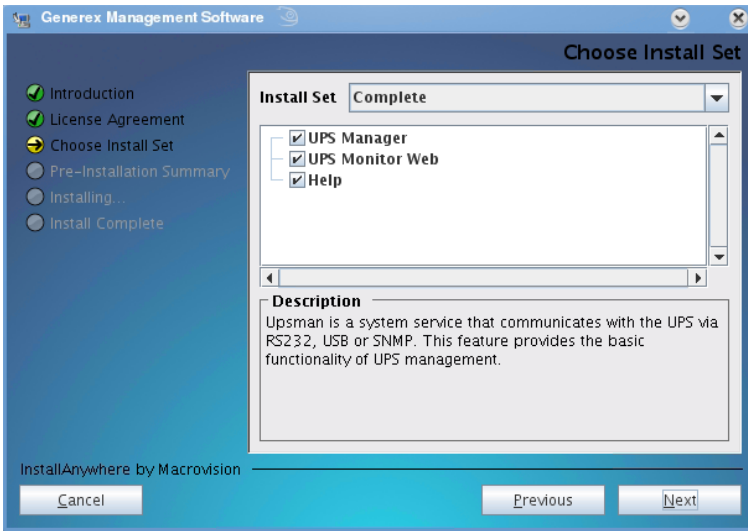


Figure 63: Install Custom Page

- **UPS MANAGER (UPSMAN daemon):** This is a background process UPSMAN, the core of the system. The UPSMAN is the service, which maintains the direct UPS RS-232/USB or network connection with the computer and the UPS.
- **UPS Monitor Web:** This is the graphical interface for the UPS monitoring.
- **Help** files are provided with the software, additionally this folder contains the user manual.

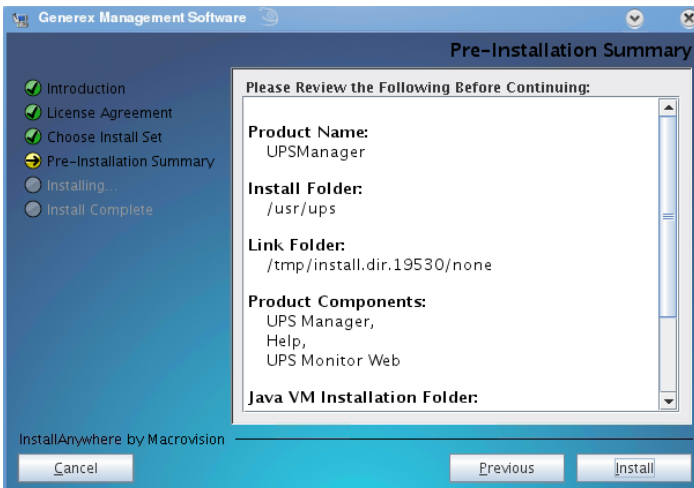


Figure 64: Pre-Installation Summary Page

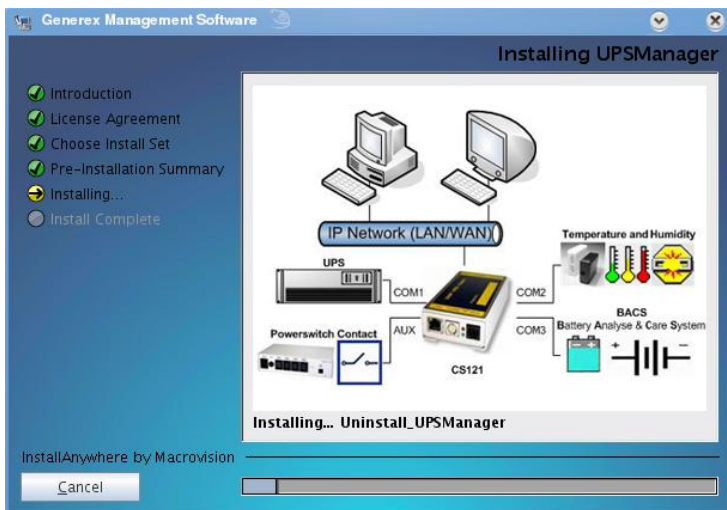


Figure 65: Installing UPSMAN

Selection of the UPSMAN start:

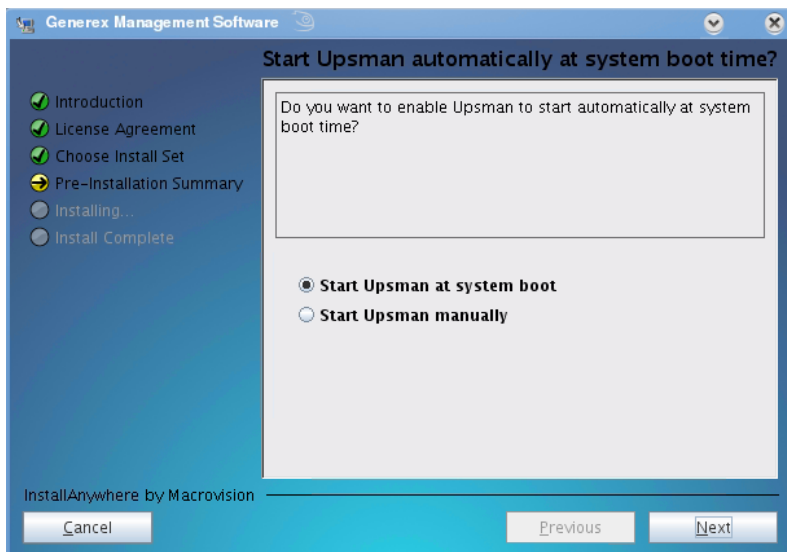


Figure 66: UPSMAN Start Selection

Click the „Next“ button to continue.

Press DONE to continue with UPSMAN graphical configuration. It is required to allocate a password, which will be requested prior of the calling of the configuration, because a remote configuration is also available.



Figure 67: JUPSCFG – Authorization

The system requires a moment to startup the graphical configuration (“./JUPSCFG”).

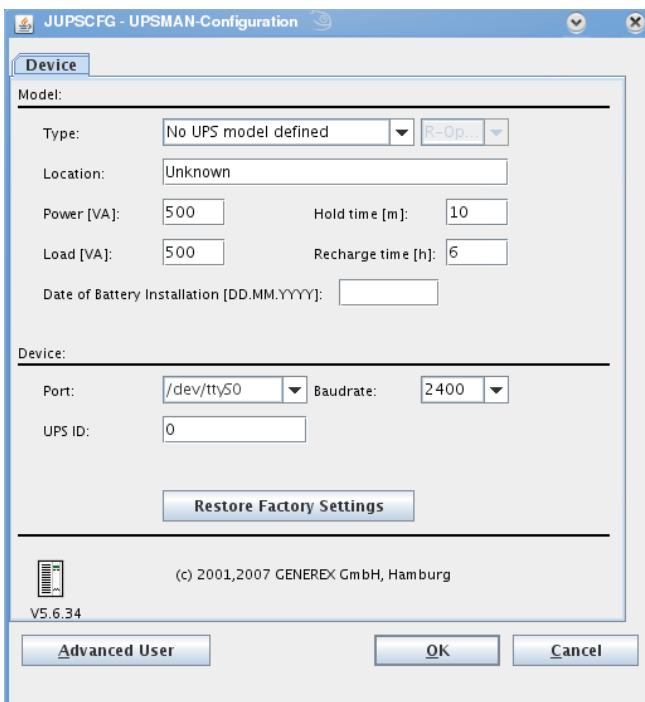


Figure 68: JUPSCFG – UPSMAN Configuration Device Page

When the UPSMAN configuration starts up, choose from the UPS model list your UPS type – or use “Search UPS” to make UPSMAN try to identify your UPS type. If not clearly identified, the UPSMAN will show you a list of UPS devices which are corresponding to the search requests – please pick the right model from the list and confirm with OK.

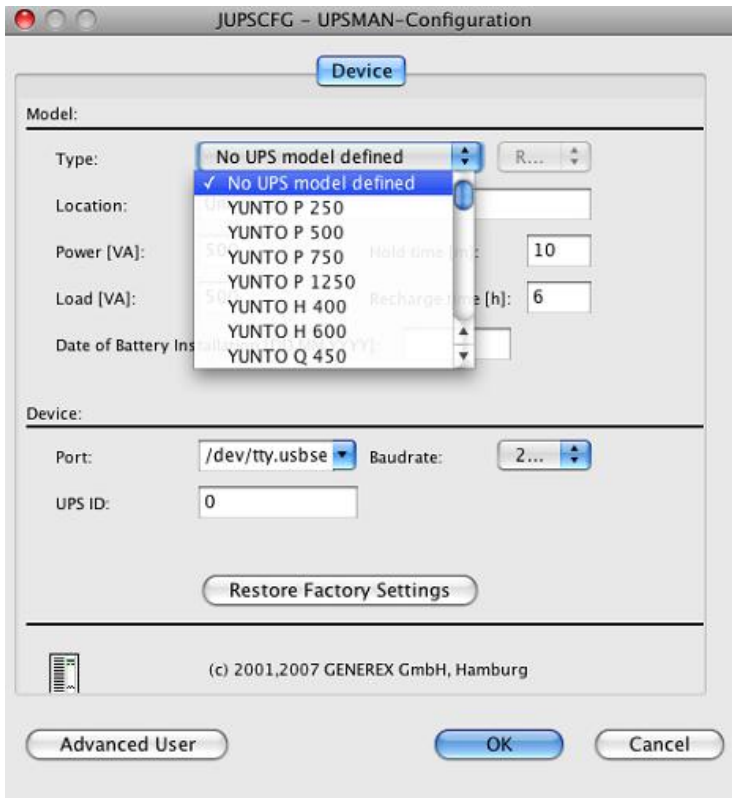


Figure 69: Select UPS Model Page - call “startupsman –config” for reopening this page

Serial interface

You have to choose now the correct serial or USB interface where the UPS cable is connected. NOTE: If you use a USB-2-serial converter, your interface will appear as tty – not as USB.

The identification of the correct serial device name on UNIX is not easy to find . The following table gives the usual device names for some popular UNIX systems.

Unix system	Normal device name for the first interface
Linux	/dev/ttyS0
HP UX	/dev/tty0p0
SPARC	/dev/ttya
Solaris	/dev/ttya
Unixware	/dev/tty00
SCO Unix	/dev/tty1a
IRIX	/dev/ttyd0
IBM AIX	/dev/tty0
Sinix	/dev/term/ser0
DEC Unix	/dev/tty00

Make sure that there is no "active" entry (getty process) within your system file inittab concerning the device which should be connected to the UPS. If there is an entry with the same device name, this entry must be disabled (commented or respawn), otherwise the UPS-Management Software will not work.

Tip:

If you are not sure if you are connected to the right device(COM port) on your UNIX system, you can find it out with the following procedure:

Choose cable settings to "Type O"

Plug a serial 1-1 cable to your computer

Start the software at the directory /usr/ups: ./upsman

Shorten the pins 2 and 3 with a paper clip. If you don't see a message like "powerfail ...", you are using the wrong device. In this case choose another device name and repeat the procedure above until you see this message. Now your port has been identified and you can reconfigure your correct UPS model from the drop-down list box.

Using Keyspan's USB Serial Adapter with UPSMAN on MACX

- 1) Use the **Keyspan Serial Assistant** to display the name stub of the serial port on the Keyspan product (You can find the **Keyspan Serial Assistant** in the Program Group on your Mac). **Be sure to use the last displayed name in the list.** The name of the serial port in our example screenshot is: "KeySerial".

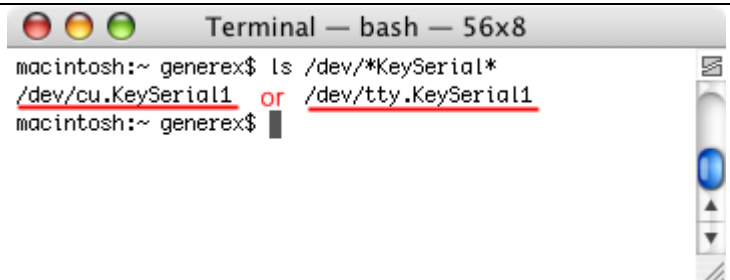


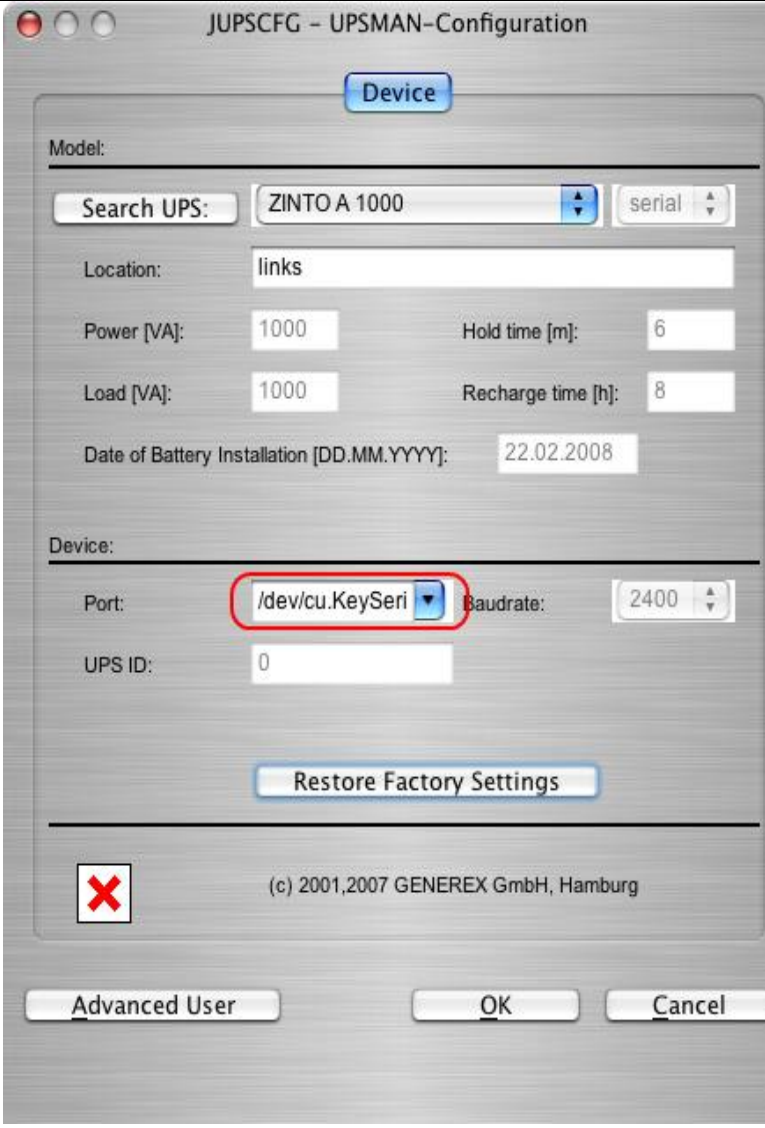
- 2) Depending on your Keyspan product the serial port name maybe be extended by additional characters. To display the real device name that is used by your Mac: Open a **Terminal** windows and execute the following find command

"ls

/dev/*Key
Serial*".

This will
display a list
of the
Keyspan
port(s) on



<p>your Mac.</p>	
<p>3) Now type the device name from above in the Port Configuration field, in our example: "/dev/cu.KeySerial1".</p>	
<p>4) Click the OK button to save the configuration and restart UPSMAN to listen on this Port.</p>	

USB interface

If you want to use an USB interface, just enter "USB" into the "Port:" area.

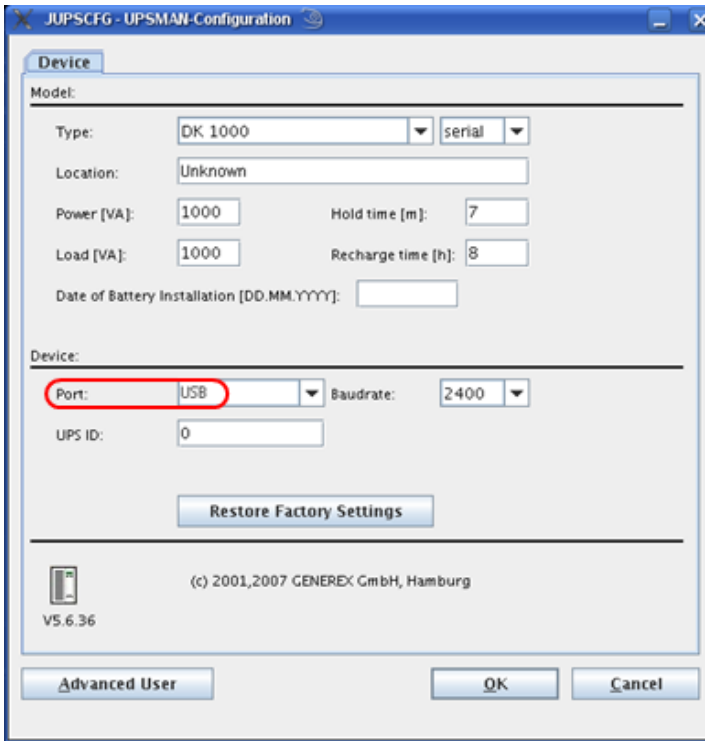


Figure 70: USB configuration

Finishing installation and basic configuration

After having chosen the correct UPS type and serial/USB device the UPSMAN standard installation is finished. If you press now OK, the UPSMAN daemon will ask to start – press YES to make the service/daemon start. If no further error message appears within 1 minute, the UPSMAN will now watch the UPS and send messages in case that an alarm occurs. If the UPS runs on battery and the battery have only 3 minutes left ("downtime"), the UPSMAN will automatically shutdown this computer. In case of alarms a messagebox will pop up similar to the one above and the user can connect with UPS VIEW, UPSMON or any other graphical viewer to see the actual UPS alarms.

4.1.1 Silent Installation of the UPSMAN Installation

The UPS Management Software provides a silent installation, but it is required to enter some settings into the "installer.properties" file. This file is located into the CD folder \Upsman\Linux\OEM-ID (2 for AEG, 3 for Piller etc.).


```

## Choose Feature List
## -----
## If you want to install a subset of features from this installer,
## make a list of all the features you want to be installed.
## The List must be entered in the CHOSEN_INSTALL_FEATURE_LIST variable.
## Options for the list are: UPSMan, UPSWeb, UPSMon, Plfc2, Help
## CHOSEN_INSTALL_FEATURE_LIST=UPSMan,UPSWeb,UPSMon,Plfc2,Prolifi,Help

## Choose OEM
## -----
## Enter your OEM number here.
## OEM=0

## Choose locatization
## -----
## If you want to install a different language than English
## you will want to provide the valid country code here
## This is only important for silent installations.
## Valid codes are: zh_cn, de, en, fr, el, it, ja, ko, pt, ru, es, tr
## INST_LANG=de

## Choose License Key
## -----
## For silent installation your License Key must
## be provided here.
## GXLICENSEKEY=yournumber
#GXLICENSEKEY=

## Choose Installer User Interface
## -----
## If you want to use the installer in Console mode with a command line interface,
## or in silent mode with no user interaction, you can set this variable to
## one of the offered value.
## Options are: silent, console
## INSTALLER_UI=silent
INSTALLER_UI=silent

```

Figure 71: Content of the „installer.properties“

It is required to remove the hash mark prior of the variable `INSTALLER_UI=silent`. In addition the setting of the license key is required behind the variable `GXLICENSEKEY=`. Execute the “installupsman.bin” as root.

If you want to activate the console installation, it is required to remove the hash mark prior of the variable `INSTALLER_UI=console` and to set the word console instead of silent.

The UPS Management Software 5.8.04. or higher provides the parameter preselection for the UPS communication. Remove the hash mark prior of the variable `UPSDEVICE=/dev/ttyS0:2400,e,8,1`, and adjust the parameters accordingly.

4.2 Start UPSMAN on UNIX and MACX

General

After the configuration has been done, the installscript will ask to start the UPSMAN service.

To start / stop the UPSMAN process use always the prepared script `./startupsman`. For starting the UPSMan with all its necessary processes and services type

`“./startupsman start”`

To stop the processes call the script with the parameter stop as follows:

`“./startupsman stop”`

By `“./startupsman config”` you open the JUPSCFG graphical configuration page again.

Automatic Start at Server Boot

Every Unix system has a certain method to start programs at the boot procedure. Usually a main start-up script or program reads off specific directories (e.g. `/etc/rc1.d`, `/etc/rc2.d`, etc.) and executes the enclosed shell scripts. If you use this method you can start the UPS-Management Software at system boot time automatically. The UPSMAN installation will enter a new startup script (and remove older ones) automatically. In the Appendix you find a section which describes the technical details of such a startup script so that you may change it yourself.

4.3 UNIX WEB-Server

The Unix WEB SERVER offers the possibility to display all UPS data with a platform independent WEB-Browser. In order to establish a connection from a WEB-Browser to a UNIX WEB SERVER, please enter the IP address and a port number. Example: <http://192.168.202.91:8081>. Port 8081 is used as a standard at the start up of the server. Please adjust the script `/usr/ups/startupsman.sh`, if you would like to use a different port. It is possible to start the Web-server with different port addresses, if several UPS monitor a Unix server.

Start the WEB-Server by executing the script `/usr/ups/upshttpd.sh`

When connecting with your browser a graphical UPS viewer will open and show the UPS data according to the specifications of the UPS maker.

The Webserver interface are varying for every OEM – following some examples for such interfaces. All interface have in common that they are mainly viewers, so not essential for a UPS/USPMAN installation.

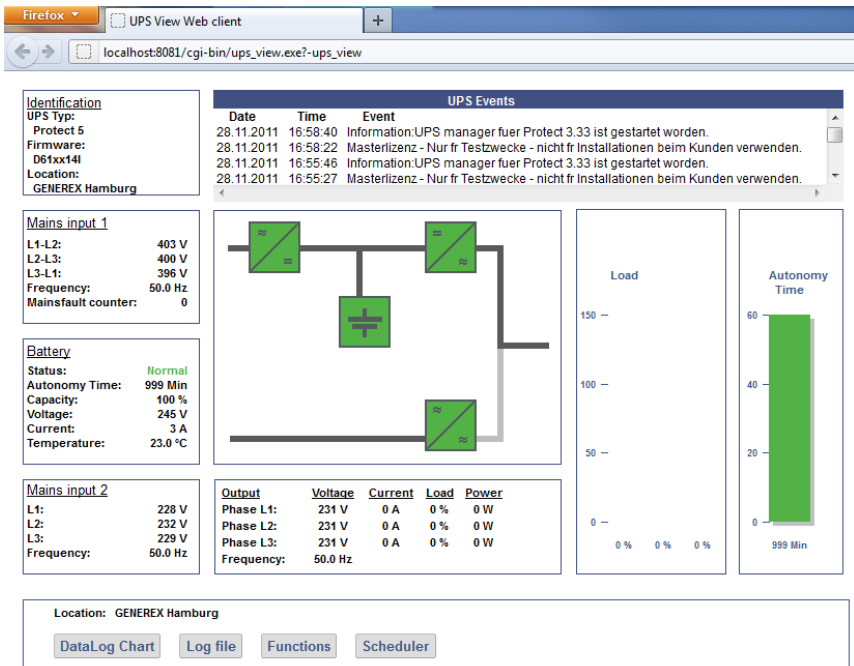


Figure 72: Protect 3.33 UPS Webinterface

NOTE: For installations without a grafical interface (runtime level 2 or without KDE or other desktop) – we provide a non grafical UPSMON through the commandline. For syntax please refer to chapter 3.8.7, page 87.

4.4.1 Advanced User - DEVICE Page

The graphical configuration is started by **“./startupsman config”** – the JUPSCFG windows is opened automatically and the user has to choose the correct UPS model – similar to the windows configuration described above. You may reopen the configuration at anytime by entering **“./startupsman config”** again. The DEVICE page shows a drop-down list of UPS models which is the most important part of the configuration, because with the model name links the correct UPS RS-232/USB protocol wiouth each other. If a wrong model is chosen from the list, the UPSMAN can not start.

The configuration may also be started from the user account from which the installation was performed, the install.bin creates a link to startupsman config automatically (default). From other user accounts the configuration can be started from the command line in the /usr/ups directory **“./startupsman config”**.

Automatic start at server boot: The default of every UPSMAN is to start automatically at every new server boot. If you want to change this, edit your startup script entries in /etc/rc directoy.

Selecting the UPS-Model: To select your UPS-model, click with the mouse on the scroll box symbol on the right side of the model list. Next, choose the UPS model that you want to install. All other adjustments which correspond with your selected UPS model will be done automatically, if the UPS has serial or USB communication.

We recommend NOT to change the default settings of communication parameters of the UPS – most UPS have a fixed baudrate which must not be changed.

Set battery health level in % - The UPSMAN version 5.7.3 or higher provides an option for UPSs, which are not able to give a result after a battery test. The default is 10%, that means, if the battery voltage got a difference of more than 10% PRIOR of the battery test, an error will be logged. Advice: Always execute a battery test with load. Please use the nominal load, which will be present in normal mode.

UPS models with serial connections do not need additional adjustments, because these models transfer all values to the UPS-Management software.

JUPSCFG - UPSMAN-Configuration

Device System Files Events

Model:

Type: YUNTO Q 450 serial

Location: Unknown

Power [VA]: 450 Hold time [m]: 1

Load [VA]: 450 Recharge time [h]: 8

Date of Battery Installation [DD.MM.YYYY]: 04.03.2011

Set Battery health level in %: 10

Device:

Port: usb Baudrate: 2400

UPS ID: 0

Restore Factory Settings

V5.7.3 (c) 2001,2011 GENEREX GmbH, Hamburg

Advanced User OK Cancel

Figure 73: Advanced User – Device Page

4.4.2 Advanced User – Menu SYSTEM Page

Beside the UPS configuration page, more pages will appear if you click the "Advanced User" button. All configuration data in the menus have "tool tips" in the corresponding language. Every menu feature will be explained "online", following we start to describe the SYSTEM page of UPSMAN.

The screenshot shows a window titled "JUPSCFG - UPSMAN-Configuration" with a close button. It has four tabs: "Device", "System" (selected), "Files", and "Events". The "System" tab contains the following settings:

- System:**
 - Upsmon Password: [text box]
 - UPS Check Rate [s]: [5]
 - Upsman HTTP Po...: [8081]
- System Shutdown:**
 - ☒ Enable Local Shutdown
 - Down time [m]: [7]
 - ☐ Initiate Shutdown al... after (m) on battery: [5]
- UPS Shutdown:**
 - ☒ Enable UPS Shutdown
 - UPS Down Delay [s]: [180]
 - UPS Restore Delay [...]: [60]

At the bottom of the dialog are three buttons: "Advanced User", "OK", and "Cancel".

Figure 74: Advanced User - System Page

- UPSMON Password: Default - no password - The user may enter here a password, which will be requested whenever any UPSMON or other graphical interface tries to connect.
- UPS Check Rate (s): Defines the timing (in seconds) of the polling data from the UPSMAN to the UPS. The system will be slowed down, if this value is too small, because of continuous communication with the UPS. If the value is too high, the system will react more slowly in case of a power failure. For continuous use we recommend a value between 15 and 30 seconds.
- Enable Local System Shutdown: Defines if the system will start the shutdown routine in the event of a shutdown call from the UPS during a power failure. If you disable this function, no shutdown will be performed! In the case of a shutdown, the internal event routine will close down all active applications. The

shutdown of the UPSMAN computers is following the script in the file shutdown.sh from where the shutdown programs will be started.

- Down time: Defines how many minutes before the UPS battery is discharged, that the shutdown procedure begins. This timing has to be large enough to guarantee a proper shutdown of the system before the UPS is turned off. Ensure that this value is calculated on a large scale: (e.g. with 10 minutes hold time of the UPS, start the shutdown procedure at least 3 minutes (default) before the batteries are empty (battery low).
- Enable UPS Shutdown: (Default = on) When OFF, the UPSMAN computer will not execute the shutdown file.
- Initiate shutdown always after x minutes: This enables/disables the execution of the shutdown after a period of time wherein the UPS is working on batteries.
- UPS Down Delay (s): Defines how many seconds after beginning the shutdown procedure (see Down time) the UPS will turn off.
- UPS Restore Delay (s): Defines how many seconds after turning off the UPS the system is turned on again. For most UPS types it is necessary, that the power has been restored before the UPS has completely switched off. With some UPS devices the entry "0" disables an automatic restart and the UPS needs to be switched on manually.
- Enable SNMP Support: Enables or disables the SNMP support. Please check in the event log, if this function is properly started. A message "SNMP communication could not be started" shows, that an error occurs. No message means, that this function is working.

4.4.3 Advanced User – Menu Files Page

- Event Logfile Filename: “upslog.txt” is the name of the event/alarm text protocol. The default is a MS-Excel compatible CSV file format.
- Data Log File: “upsdata.txt” – This file contains all UPSMAN variables ID 700 or 800 which are part of the message.dat.
- Logfile max. Size (kb): Defines the size of the log files in KB.

The screenshot shows the 'JUPSCFG - UPSMAN-Configuration' dialog box with the 'Files' tab selected. The dialog has four tabs: 'Device', 'System', 'Files', and 'Events'. The 'Files' tab contains two sections: 'Event Logfile' and 'Data Logfile'. In the 'Event Logfile' section, the 'Filename' is 'upslog.txt' and the 'Logfile max. Size [kB]' is '200'. In the 'Data Logfile' section, the 'Filename' is 'upslog.csv', the 'Enable' checkbox is checked, the 'Logfile max. Size [kB]' is '1000', and the 'Update Rate [s]' is '30'. At the bottom of the dialog are three buttons: 'Advanced User', 'OK', and 'Cancel'.

Section	Field	Value
Event Logfile	Filename	upslog.txt
	Logfile max. Size [kB]	200
Data Logfile	Filename	upslog.csv
	Enable	<input checked="" type="checkbox"/>
	Logfile max. Size [kB]	1000
	Update Rate [s]	30

Figure 75: Advanced User – Files Page

4.4.4 Advanced User – Menu Events Page

Actions and reactions to UPS events/alarms will be defined in the “UPSMAN Event Manager”. The UPSMAN service can execute certain actions (jobs).



NOTE:

Although the jobs in the joblist of the EVENT manager are executed top-down – but since every job has its own timer (eg. delayed, immediately, etc.), the priority of the jobs depend on the individual timers, not on the rank in the job list. If you want to change the rank of a job, you can drag & drop the job in this list, but still the individual timer remains unchanged.

Which events are configurable depends on the type of UPS. Every UPS contain individual alarms, large UPS have usually more alarms than smaller UPS. The following section explains the pre-settings of such an event list on the example of a 1 phase UPS.

In order to configure the event, click on the designated event and the “Event Jobs” list opens. For every event there are pre-settings, most of them are log file entries and RCCMD messages as traps. In the example there are three jobs configured for the event „Powerfail” - 2 jobs will send out standard text messages, (can be edited in the "Message.dat" file), whereas the 3rd event writes a message into the log-file. In order to add a job, please click the “Insert” button and the following functions page opens.

The “Reset” buttons below are to reset the alarm counters of UPSMAN, visible in the UPSMON or other graphical viewers (statistical information since the software has started).

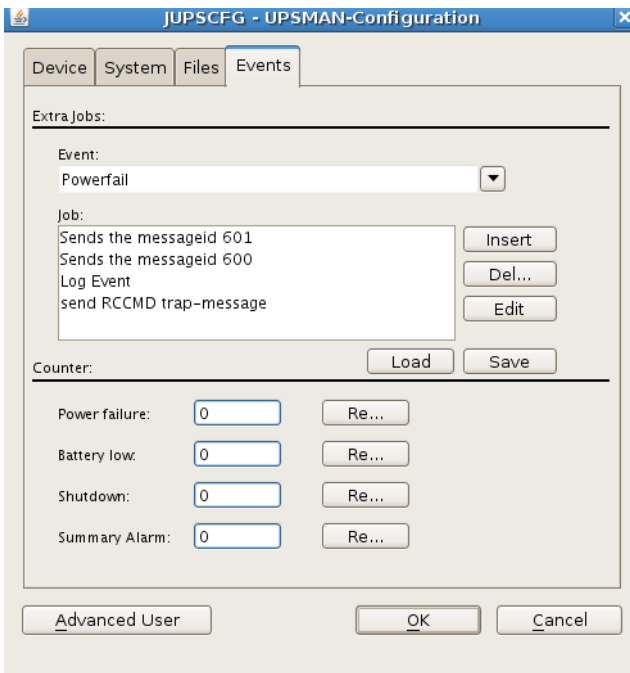


Figure 76: Advanced User – Events Page

Choose the desired function and set a timer and define, when and how often this function should be executed. Any event that contains a delay will be executed ONLY, if the alarm is still valid when the timer has run out. E.g. if you configure to send an RCCMD shutdown after 30 sec. – this job will be executed ONLY, if the powerfail is still the case after the 30 sec. have run out. If the power has returned at 29 sec. – nothing will happen.

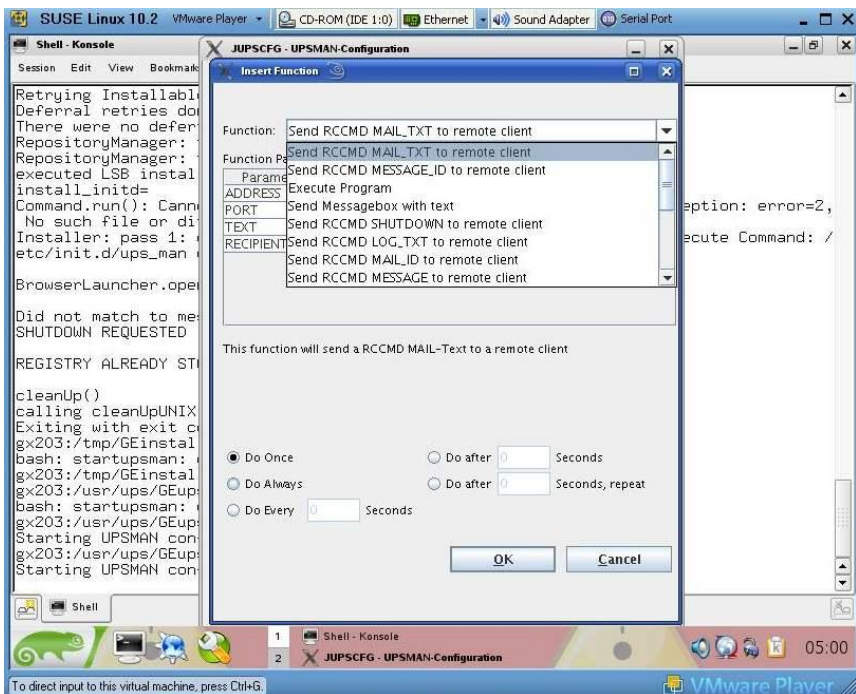


Figure 77: Advanced User – Insert Function Page

The following functions are available in most UPS:

<p>Send a Shutdown UPS Signal</p>	<p>Switches the UPS output off after a pre-set time. Please make sure that the UPS is not being switched off before a system shutdown is executed, as otherwise important data may get lost.</p> <p>This shutdown signal only executes the output switch off - but NOT the shutdown of connected computers! If you define such an action, make sure that RCCMD is triggered before! The user can configure a delay (in seconds) before the switch off is executed.</p>
<p>Send Message box with text</p>	<p>Sends a network message to the user at this terminal. Enter a user or a machine name or use the "*" character in order to send the message to all users.</p>
<p>Send RCCMD SHUTDOWN to</p>	<p>This is the most important function in this job</p>

remote client	<p>list, it sends a RCCMD shutdown message to RCCMD clients in the network! RCCMD (Remote Console Command) is a program used for the execution of executable files via network, mainly used for the remote shutdown of computers with different OS using TCP/IP as common basis. From RCCMD Version 2.0 it is possible to use the (*) as wildcard to shutdown complete segments, e.g. 192.168.202.255 will send the signal to all computers in the network 192.168.202.0 to 255. RCCMD can be used as client (receive a signal) and a server (transmitting a signal). So, the syntax to send a shutdown signal to a specific computer is "RCCMD -s -a 192.168.200.201" - This example will send a shutdown signal to this IP which will be executed if on this IP also an RCCMD client is running and the sender is in the valid address list of senders. The entry of a IP address or hostname will send RCCMD only to those named. If it is required to shutdown more than one client, additional event jobs can be configured. Note: If the number of additional RCCMD clients is very large, a batch file, which contains the RCCMD -s commands can be used instead ("rccmd relay"). This allows you to send rccmd calls much faster and is easier to handle than the executing of a long list of jobs by the UPSMAN. Such a scriptfile can be executed from the "Special" or "Events Execute Program" functions.</p> <p>Please note that RCCMD shutdown calls should always be configured in the "UPS Battery low" without any further delay.</p>
Send email	<p>Sends an individual email text at this event. Enter an email address and the corresponding text into the field. Please note that you need a configured SMTP server on the UPSMAN computer. "sendmail" is the email program which is triggered by UPSMAN email configuration. Please make sure that sendmail is configured correctly before using email.</p>
Send RCCMD EXECUTE to	This action initiates the execute.bat on a defined

remote client	RCCMD remote client (IP-address). Through this function the UPSMAN can execute any command on the remote computer if the correct path and name of the program is known on this remote computer with RCCMD running.
Send RCCMD MESSAGE ID to remote client	In this menu the user can send an ID from the messages.dat to other users. These IDs are pre-defined text messages. Open the file message.dat to see the default text of such messages. Text entries can be altered with an editor. The edited text is then given out in a textbox at the remote client. This is useful if you want to send a messagebox from Windows UPSMAN to a UNIX system - the problem of sending messages to different operating systems can be solved through this.
Start Alarm Beeper with messagebox	This function displays a message box with an audible warning on the screen of the UPSMAN computer.
Send RCCMD MAIL ID to remote client	Similar to RCCMD message ID, a message ID is send, which is then forwarded from the RCCMD client as an email to the corresponding receivers. This is useful if the UPSMAN computer for any reason can not send emails directly, than the remote client can do this job. The user can pick on of the default text messages as ID no. from the file message.dat or us RCCMD MAIL TXT instead to create its own text.
Send RCCMD MAIL TXT to remote client	Like the send RCCMD mail function, an email is send from the RCCMD client as relay. The user may enter here any individual text.
Send RCCMD LOG TXT / LOG ID to remote client	This writes a log file text (customized or as predefined text if you use ID) into the RCCMD remote clients log file. This maybe useful if a common log file is wanted, where all UPSMAN computers write into. This log file may be on any network computer with RCCMD.
Send RCCMD MESSAGE (ID or TEXT) to remote client	The user can configure a text message (customized or as predefined text if you use ID) which is transferred to the RCCMD client and

	pops up as text box. This is useful if you want to send a messagebox from Windows UPSMAN to a UNIX system - the problem of sending messages to different operating systems can be solved through this.
Execute Program	Executes a configured program on this computer. Please enter the full path to the executable file on the UPSMAN computer. It is recommended that the executable file is located in the UPSMAN folder or in any other folder where a path is set to.
Write to Log file UPSLOG.CSV	Writes any text into the upslog.csv text file on this UPSMAN computer.
Send default messages IDs from file messages.dat	Sends pre-set network messages, using the receiver name and message ID. This standard message can be configured in the "message.dat" file. Open the file with an editor in order to change or check the text of the corresponding message ID.
Send RCCMD trap message by ID	This function enables UPSMAN to send RCCMD2/UNMS traps, which shows the UPS status as a text message on the remote client. If activated it will display a local message box on the client whenever the UPS status changes. Please also note that the "RCCMD2/UNMS trap enabled" box is activated at the RCCMD client to receive the trap messages.
Send RCCMD trap message	Identical to RCCMD trap messages by ID, but the user may define his own text.

4.4.5 Email Usage on Linux OS

Linux OS contain the program mailx, which is using the settings of the mail server. A configuration is required, to send emails of root via e. g. GMX. An account at GMX for the authentication is required. In the following we use the account username@gmx.de with the password "geheim".

We created the file .mailrc into the home folder of root with the following content:

```
set smtp-use-starttls
```

```
set ssl-verify=ignore
set smtp-auth=login
set smtp=smtp://mail.gmx.net:25
set from="user name <username@gmx.de>"
set smtp-auth-user=user_name
set smtp-auth-password=geheim
```

The rights were set, that root only can read this file:

```
chown root:root .mailrc
chmod 600 .mailrc
```

4.4.6 Remote UPSMAN Configuration

To accomplish the remote UPSMAN configuration onto a system without graphical interface via web-browser, it is required to start as root the UPSHTTPD onto the system, where the UPSMAN is installed:

```
/upsman_path# ./upshhttpd
```



Advice : Please note, that it is required, to start the UPSHTTPD on Ubuntu OS via `sudo -s`.

Open a web-browser on a random system and enter the following into the address line:

<http://IP Console System:8081/upscfg/upscfg.html>

Then the UPSMAN configuration will be displayed:

Device

Model:

Type:

Location:

Power [VA]: Hold Time [Min]:

Load [VA]: Recharge time [h]:

Date of Battery Installation [DD.MM.YYYY]:

Device:

Port: Baudrate:

UPS ID:

© 2001, 20018 GENEREX GmbH, Hamburg
UPSMAN version: 5.10.19 driver: 1132

Figure 78: Remote UPSMAN configuration

4.4.7 Older “Install” Script Based Installation with “ups_conf”

This “install” script runs also without a graphical interface but is not supported for new UNIX/MACX versions. We recommend to use for new OS the graphical installation, which is almost 100% identical to the windows version, described above.

INSTALL Script based installation

The software is distributed on CD ROM or as downloaded TAR file from the internet. In both cases you find (after mounting CD ROM or having the file unpacked tar -xovf ...) you find a new directory UNIX or GENEREX which contains the “install” script and the install

executable for the graphical installation. To start the script installation you have to use "install" .

Tip: CD Rom instalaltion: On UNIX itself you need a CD-ROM drive and a CDFS filesystem driver (ISO 9660). If there is no CD-drive on the system where the software could be installed from, you can use any other Unix-system or PC with a CD driver (via a network) to install the software.

Other way: Use a DOS- or Windows workstation in your network and insert the CD there. Now you can copy the software (e.g. via FTP) to the hard drive of your Unix-system, /tmp directory. For that purpose, copy the complete Unix-directory-tree.

The Unix part of the UPSMAN modules is found in the Unix directory. As there is no standard binary executable format for non graphical installations for all the different Unix systems, we use a shell script to install the software onto your computer. Usually this shell script should have executable permissions. If permissions are set correctly on your CD ROM drive, you can start it directly from CD-ROM. In other cases you have to copy the UNIX folder on your system and use "chmod" to make the "install" script executable.

Using the install script, only the UPSMAN modul command line based version of the UPSMON (scripting tool to read/write to the UPSMAN module, eg. for reading variables like UPS batteryvoltage, start tests, etc.) will be installed on your Unix system.

Please make sure you have root user rights in order to proceed with the installation using the install script :

Step 1:

Insert your CD - If the reading of the CD file format is not supported by your system, proceed as described above.

Step 2:

Mount CD ROM - The first step you have to do after inserting the CD-ROM into your CD-ROM drive is to mount this device, i.e. give the system access to the files at the CD-ROM. The comon command at Unix systems to mount the CD-ROM is like this: mount cd-rom-device mount-directory

However, there are serveral specific options for this command depending on the used Unix system. The following table displays these options, but please check yourself if this matches also for your system and OS:

Unix	Options	device name
Linux	-o mode=777 -t iso 9660	/dev/cdrom
Sinix	-F hs	/dev/ios0/sdisk(id)s0

Reliant UNIX	-F hs -o dos,ro	/dev/ios0/device/cdrom
HP UX	-F cdfs -o cdcase,ro	/dev/dsk/c0t(id)d0
SCO Unix	-oro	/dev/cd0
Unixware	-F cdfs -r o fperm=777	/dev/cdrom/c0b0t(id)l0
DEC Unix	-f cdfs -o noversion	/dev/rz(id)a
SPARC	-F hsfs -r	/dev/dsk/c0t(id)d0s2
Solaris	-F hsfs -r	/dev/dsk/c0t(id)d0s2
IBM AIX	-o ro -v cdrfs	/dev/cdrom

There are two possible case modes of filenames at your CD-ROM: all file names are upper or lower case. This has to be noted when you call the installation programm or when you change the subdirectory at the CD-ROM. The ISO 9660 specification supports also version numbers at filename, so at some systems you will find suffixes ";" (semicolon) or "." (dot) with filenames. As you can abbreviate filenames with wildcards "**". After successfully mounting the CD-ROM into your system, you can start with installation by calling the install script, i.e.

Step 3:

Start the install script - As a next step, please start the install script *install* by entering: (*"/install" or "../install"* from the CD/Unix directory). In case your CD file system does not support the execution please copy the complete Unix directory tree to e.g. */TMP* and change with *CHMOD* the execution rights of the install script. Start the the installation with *./install* again. The procedure can look like this for e.g.:

```
cd /CDROM
cp -pr unix/ /tmp
cd /tmp
chmod +700 inst*
./inst*
```

Step 4:

Enter UPSMAN license key - Please enter your CD-key at this point and choose the desired operating system from the list. The installscript

tries to recognize your OS and shows a list of OS versions to choose from. The found system is already preset and you simply need to confirm the with a “Y” or RETURN.

The installation script will copy all required files into the default directory `/usr/ups`. (If you move manually the installation directory later, don't forget that also the startup scripts have to be changed ! Edited the scripts in the directory `/etc/rc2.d` , the start/stop scripts usually carry the names `"S99upsman"` andr `"K99upsman"`. This is necessary because these files contain reference to the directory `"/usr/ups"`.

Step 5:

Configuration tools - After the files have been copied to the system, the configuration program starts automatically. Per Default the JAVA based configuration will be started (`"./startupsman conf"`). On as UNIX with a grafical shell the JAVA UPSMAN configuration tool starts and the configuration and look & feel is identical to the WINDOWS version as described above. If no grafical interface is present the user may use the former on CURSES based configuration tool `"./ups_conf"` . This tool has a different look and feel compared to WINDOWS, so we describe in the following this tool and not the JAVA based configuration.



NOTE:

`ups_conf` is not longer supported since CURSES libraries do not exist on most modern UNIX. If your system does have a GUI – nor supports CURSES – you may configure your UPSMAN via a network computer (eg. Windows) with a Webbrowser and JAVA runtime.

The software is now extraced and installed, the basic configuration of UPS model and interface is the next step.

“ups_conf” - Basic - Device Configuration

As described in Step 6 .- the grafical configuration is identical to the Windows UPSMAN configuration described in this manual and is self-explanatory. In the following pages we focus only on the older CURSES based version “ups_conf” which is no longer supported but may be needed if no graphical interface is present or if you configure a no longer supported OS version of UPSMAN.

After a successful extraction through the installscript “install” the UPS-Management Software tries to start the graphical configuration “JUPSCFG” – if this fails and you can not use any other computers Webrowsers to connect to this UNIX machine ([HTTP://<IP address>:8081](http://<IP address>:8081)) , you may fall back to the configuration tool “ups_conf” which is found in the target installation folder (default /usr/ups).You can start this tool again by typing: “./ups_conf” in the folder /usr/ups.

All configuration tools use the same config file “ups.cfg” which may also be changed by an Editor, but some technical knowledge is required here and you may need the help of our support. The ups_conf will ask you to create this file if it does not exists.

The file *ups.cfg* contains the configuration data and has to be in the same directory as that in which the UPSMAN process is started from.

Within the configuration program ups_conf the ?-key is available to read the help texts and the Esc-key is available to close the menu. Finally do not forget to save your settings and restart UPSMAN.

We continue with the “ups_conf” configuration with Step 7 – configuration of the UPS comport and interface. Choose in the ups_conf menu “Set Ups values” to enter your Ups model and interface.

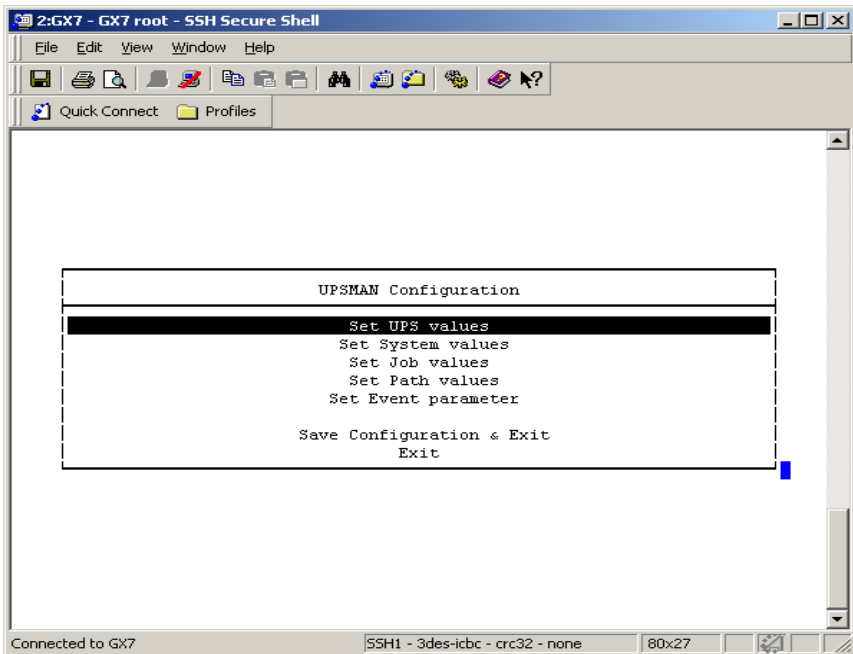


Figure 80: Unix Configuration Menu

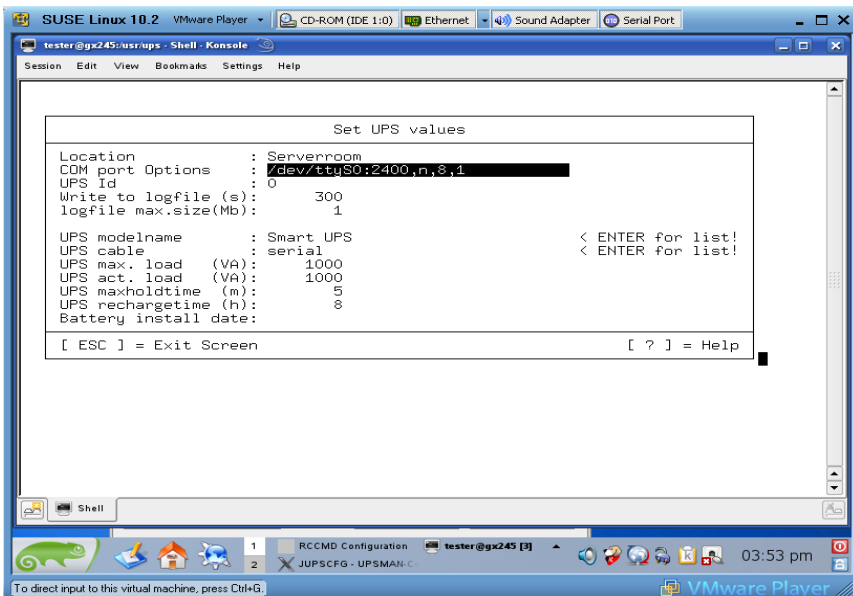


Figure 81: SUSE Linux "Set UPS Values" Menu

“ups_conf” - Basic – Set UPS Values Menu

The most important entries in this page are : Com port options & UPS model name.

For all UNIX and MACX computers you have to enter in this menu at “COM port Options” the name of your serial device, usually found in the /dev/ directory. Enter here eg. for Linux: “/dev/ttyS0:2400,n,8,1” if you want to use the first COM port. AS next step choose the UPS model (listbox) which you have connected to this COM port.

These entries have to be correct, otherwise the UPS will not start. The entry UPS com port options contains also the information about the settings of the com port, i.e. baud rate, parity, data bits, etc. Syntax is:

UPS Com port options=device:baud,parity,data,stop

Example for serial interface : “/dev/ttyS0:2400,n,8,1”

Example for USB interface : “USB:2400,n,8,12

where device is the device name, parity is either e (=even), o (=odd) or n (=no), data is the number of data bits (7 or 8) and stop is the number of stop bits respectively.

It is recommended NOT to change the default entries for the serial port parameters (baudrate, parity, databits, stopbits) for the UPS since these are default settings of the UPS maker.

The devicename depends on the driver on your UNIX/MACX system. Original drivers are using the name /dev/tty or USB and can be found in the /dev/ folder. Third party drivers add a new devicename in the folder /dev – these new devicenames have to be identified by the user and may now be used in the configuration.



Attention:

The baudrate settings and the corresponding parameters are changed to the correct settings automatically, by choosing the correct UPS model from the drop-down list. Please do not change the baudrate settings of the UPS settings, unless you have changed the pre-programed settings of the UPS previously. (UPS usually have fixed baudrate settings!)



Attention:

Please ensure you have entered the correct serial port device name because the UPSMAN Software cannot identify to which com port the UPS is connected. If a AUTOSEARCH function is provided, you may use this to find out which interface an UPS type is connected.

UPS model: Goto the UPS model list and choose from the listbox the UPS type which you have connected to your interface. If you can not find the UPS model in this list, check if you have installed the correct software OEM version for this UPS maker.

Corresponding to the UPS model you have selected the UPSMAN Software has automatically set the UPS parameters and the corresponding “UPS cable” type.

UPS cable: In general there are three different *UpsCables* which are automatically assigned by the UPS modelname:

Serial setting: (Default for all modern UPS with a serial or USB protocol). The UPS-Management Software uses a data protocol to get status information from and to send commands to the UPS. For such protocol types the original UPS cable has to be used.

Cable 2 to 13: With these settings the UPS-Management Software uses modem control connection to get the status from the UPS, e.g. the UPS sets a signal "high" or "low". In this case the software is only able to get the status "Powerfail" and "Battery Low" and to shutdown the UPS immediatly. The cable settings 2 to 9 are not very appropriate for non X86/x64 based UNIX because they do not support modem control exploitation. If you use any x86 based UNIX, we recommend to use cable logic 2. However – supported in every UNIX are the cables types “C” “closed” or “O” “opened”.

Typ O and Typ C: This is the most simple form of a dry contact monitoring - in this case the software sends a byte to the UPS and tries to get it again via the usual send/receive wires. In the case of Type O (=open) the contact is open, so the the send byte can not return in normal UPS operation. The moment the contact closes (Ups Alarm) the byte returns and the UPSMAN triggers the Powerfail EVENT. The logic is other way round in the case of setting cable type to Typ C (=closed).

Other configuration Parameters on page “Set Ups values”

Write to logfile	Defines the time-interval (in seconds) the UPS-Management Software logs the Input Voltage and Frequency Values. The standard entry to the text file (Ok status) are done every 15 minutes, if no unusual Events occur.
Logtime min.	Defines the minimum time-range (in hours) of the Logfile for Input Voltage and Frequency Values.
Logfile Size max.	Defines the maximum time-range (in hours) of the log file for Input Voltage and Frequency Values. The log file will be set back to min. size (value of logfile size min.) if the log file contains more data than the configured value.

“ups_conf” - Basic – Set System values

Check UPS interval	Defines the time-interval (in seconds) that the UPS-Management Software polls the UPS for new data via the serial port. The system will be slowed down due to permanent communication with the UPS if the value is too small. If the value is too high the system will react more slowly if a power failure occurs.
--------------------	---

Enable shutdown	Defines if the system will start the shutdown procedure in case of a power failure.
-----------------	---



ATTENTION:

Make sure that this entry needs to be “yes” at all times, if there are no customised shutdown jobs configured. This is to avoid that the UPS switches off before the system has performed a shutdown properly.

System downtime	Defines how many minutes before the UPS-battery is discharged the shutdown procedure is initiated. This time-interval has to be large enough to guarantee a graceful shutdown of the system before the UPS is switched off. Calculate the value on a large scale: (e.g. with 10 minutes hold time of the UPS start the shutdown procedure at least 3 minutes before the discharge of the battery).
-----------------	--

The following functions are not supported by all UPS types. In particular, devices with the connection-type *cable* do not support a scheduled down and restore command.

Shutdown UPS	Defines if the UPS will be turned off on completion of the server shutdown procedure. This command will turn off the UPS before a complete discharge of the batteries.
--------------	--

UPS shutdown delay	Defines how many seconds after beginning the shutdown procedure (see Downtime) that the UPS will turn off.
--------------------	--

UPS restore delay	Defines how many seconds after turning off the UPS the system is turned back on again. For most UPS types it is necessary that the power
-------------------	--

	has been restored before the UPS has completely switched off.
Enable fixed shutdown	Defines if a shutdown needs to be initiated after a power fail, independent from the remaining time of the UPS and the configured system down time.
Fixed shutdown delay	Defines after how many minutes a fixed shutdown should be initiated.

The basic configuration is now complete. Exit the menu (ESC) and leave config tool by *Save Configuration & Exit*. The UPSMAN may be started now.

“ups_conf” - Advanced User – Set Job values

Following part of this manual explains the Advanced User configuration items of UPSMAN software, using the “ups_conf” tool.

This analogue to the Windows description “ Special Jobs” and allows the execution of own programs, e.g. shell scripts at a defined point of time during the discharge of the battery. As soon as the UPS transmits a "Remaining Time" which equal or lower than the configured value, the corresponding procedure is executed.

As soon as the "Enable Extra Job“ is set to "yes“, the program name or shell script of the desired job can be entered in the "Extra Job x (Path)“ line. This script is than started at a certain set Remaining Time of [m] minutes.

Example: Different network servers should be stopped at different times via shutdown script, depending on the importance. This way it is possible to provide (depending on the circumstances) more autonomy time for the important components.

Additionally 3 jobs can be executed time controlled.

Path for textfile	Defines the filename and path of the event log.
Path for datafile	Defines the filename and path of the log file for Input Voltage and Frequency Values.
Path for custom file	Defines the file name and path of the custom file

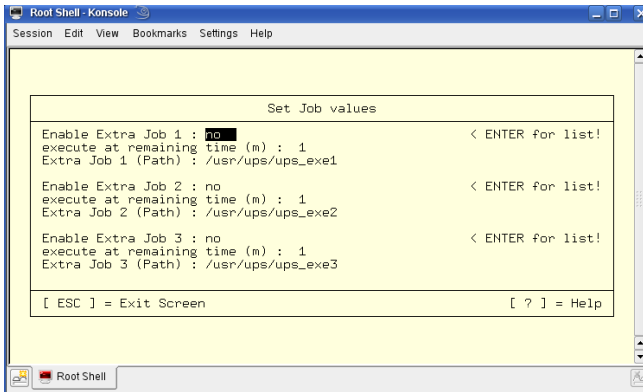


Figure 82: Defining Paths

“ups_conf” - Advanced User – Set Event Parameter

The UPS Events enables the user to utilise and configure the different applications of a UPS. Depending on the matter of use, via Events (Event messages of the UPS) certain actions (Jobs) can be executed with the UPS-Management software. Via an Event it is possible to transfer measured values, status messages to own processes, in order to process those even further (e.g. load statistics etc.). The Event configuration starts from the UPSMAN configuration. (see picture)

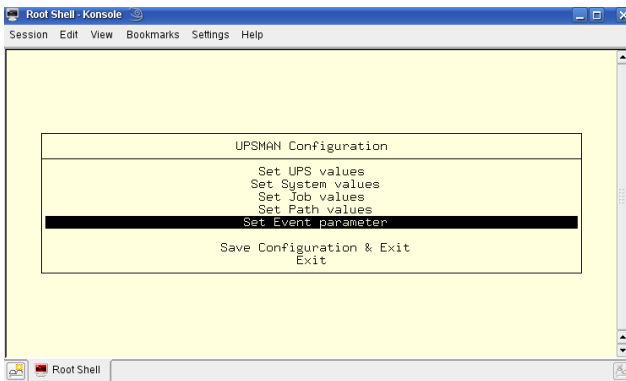


Figure 83: UNIX ups_conf Events Menu

In this part of the configuration, the event parameter will be configured. The user can now choose a event, which needs configuring. (see picture below)

Which Events are configurable depends on the type of UPS. The standard messages, which can be used, can be found in the file "message.dat" in the UPSMAN directory.

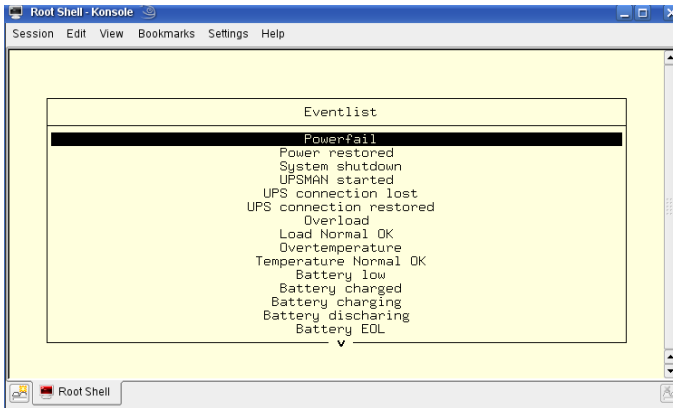


Figure 84: UNIX ups_conf Event List

In order to process the Events, please go to the Eventlist in the UPSMAN configuration. There is a pre-set (default) for every Event. In the above example, the event “UPS/System shutdown imminent...” is configured with 3 default jobs. The first will send a standard message (message id 603), which can be edited in the messages.dat file. The second job will write the event into the log file of the UPS-Management software, whereas the third job will execute a shutdown after x minutes (default).

Add Event Job:

In order to add a Job to event, please highlight the corresponding event and confirm with the “Enter” key. In the following window, the “Add Job to List” a additional job can be added. By using “Delete Job from List”, a single event job can be deleted from the list. “Exit menu” will take the user back to the Eventlist windows. (see picture)

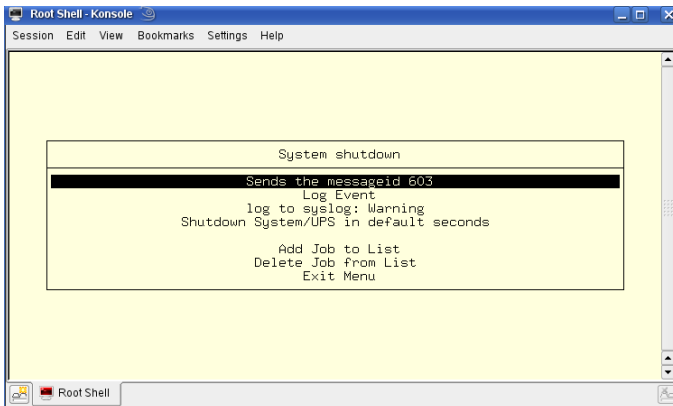


Figure 85: UNIX ups_conf Menu – Add Job Parameter

Please choose the desired function and set when and how often this function should be executed. Please note listed functions depend on the used operating system and not all of them might be available. In this case please refer to share or freeware programs, which allow the desired function. The following jobs can be added to a event.

<p>Send a Shutdown UPS Signal</p>	<p>Switches the UPS off after a pre-set time. Please be aware that the UPS is not being switched off before a system shutdown is executed, as otherwise important data may get lost.</p> <p>This shutdown signal only executes the switch off, of the UPS, but not the shutdown of connected computers. The user can configure a delay (in seconds) before the switch off is executed. This is recommendable when a switching off of an UPS is necessary because of over-heating etc.</p>
<p>Send Message box with text</p>	<p>Sends a network message. Enter a user name or use the "*" character (not with NetWare), in order to send the message to all users. Please note that the Windows 95/98 Clients NT message can only be only received if Winpopup.exe or another message service is active. Please also consider that "net send * <text> "with Windows 95/98 does not function correctly. Instead of the " * " a respective machine name e.g. "Workstation1" must be entered. In order to send messages to several users a "Send Message" job must be inserted per user. Please note that the Windows NT user database is not empty and that the computer belongs to a domain, as otherwise the network messages can not be sent.</p>
<p>Send RCCMD SHUTDOWN to remote client</p>	<p>RCCMD (remote console command) is a program used for the execution of executable files via network. This tool transmits a TCP/IP signal that is absorbed of the recipient module (RCCMD client software) on another computer. This function is normally used for sending a shutdown command (call of shutdown.bat) over the network to another computer, of any supported operation system. (starting from CD 4.17).</p> <p>From RCCMD Version 2.0 it is possible to use</p>

	<p>the (*) wildcard or other syntax. For example 192.255.255.255 will send the signal to all computers in the corresponding subnets. A RCCMD -s -a 192.168.200.255 will send the signal to all computers in the subnet 200. The entry of a IP address or hostname will send RCCMD only to those named. If it is required to shutdown more than one client, additional event jobs can be configured. Hint: If the number of the additional RCMD clients is too high, a batch file, which contains the RCCMD -s commands can be used instead. This much faster and also easier to handle than the a long list of event job list. This batch can be executed from the SPECIAL or EVENTS EXECUTE PROGRAM function.</p> <p>Please note that RCCMD should always be additionally configured in the "UPS Battery low" Event and if the Event "UPS/shutdown imminent...." is used, RCCMD must always be located before the "shutdown UPS in default seconds" command. For moving the command lines, "click" with the left mouse on the line, hold the button and now move the command.</p>
Send eMail	<p>Sends an E-mail. Here we use the SMTP email client of your UNIX system "sendmail". Configure SENDMAIL first before you use this function ! Enter the E-mail address and the corresponding text into the field.</p>
Send RCCMD EXEUTE to remote client	<p>This action initiates the execute.bat on a defined remote client (IP-address). This bat file can be configured individually by the user. The user may execute a random program on the remote client computer, where the execute.bat is located. It is also possible to attach parameters, whereas these parameters must be added to the execute.bat which is executed as described above.</p>
Execute Program	<p>Executes a configured program. Please enter the</p>

	full path to the executable file. Is the desired executable the same directory as the upsman.exe or *. nlm, no path entry is necessary. The handling of other variables is explained further on in this chapter.
Write to Log file UPSLOG.CSV	Writes the Event into the local log file of the UPSMAN computer



ATTENTION:

Since ups_conf which is CURSES based is no longer supported, we recommend to use the graphical configuration JUPSCFG (Java based) for any configuration in the advanced user area.

4.4.8 Unix/MAC commandline UPSMON

The UPSMON for Unix is a simple monitoring tool for the display of the current UPSMAN data and for the programming of own scripts for further processing UPS information.

In addition all UPS functions and UPS tests can be activated by UPSMON:

Parameter for UPSMON

usage: upsmon {-vicdtrh} [-n start-number]

-v Program information

-i <value> Query of a UPS-measurement

-c <ups command> Execution of a UPS-function

-d <ups command with duration> <seconds> Execution of a timed UPS-function

-t <ups test> Execution of a UPS-test function

-r <ups test result> Query of a UPS-test functions result

-h Display of extended help

-n <start-number> Is a definite number, if more than one UPSMAN is running on the Unix-machine (several UPS at one computer)

<values>: -i

status

inputvolt

inputcurrency

battvolt

temperature
autonomietime
autotime
battcap
batterycapacity
outputpower
inputfrequenz
outputfrequenz

<ups command>: -c

canceltest
cancelbatterytest
cancelshutdown (only certain UPS supporting this command)
alarmreset
bypassmode
shutdownrestore [down seconds] [restore seconds]
switchoutlet [0=off|1=on] [outlet nr]

<ups command with duration>: -d

shutdown
restore
cancelbypass
outputoff

<ups test>: -t

customtest
batterytest
selftest
fulltest

<ups test result>: -r

customtest

batterytest

selftest

fulltest

Example:

Command for read "autonomy time":

"/.upson -i autonom"

Response from upsman :

"upsmon: Inquiry (autonomietime)

ups answer: 25.48

Command for Shutdown UPS and Restore

"/upsmon -c shutdownrestore 90 120



Note:

More information about the UPSMON modul is given in part III of this manual.

4.5 Apple Macintosh

4.5.1 UPSMAN for MAC OS 9 – MAC OS 10

MAC OS 9 is no longer supported, only RCCMD should be used on such older MAC systems. UPSMAN is currently only supported for MAC OS X 10.4 and higher. UPSMAN on MAC X 10.4 and higher is identical to the UNIX UPSMAN description and installation.

UPSMAN for MAC X is designed for MAC OS 10.4 or higher. Its is using the same installation routine as UNIX and WINDOWS.

UPSMAN for MAC OS X is identical regarding installation and configuration as the UPSMAN for UNIX. Please refer to UPSMAN user manual for UNIX when installing UPSMAN for MAC X.

The only difference in MAC X configuration compared to UNIX is the different device name for the serial /USB interface. Since the device name for a RS232/USB interface is created during the installation of eg. a USB to Serial adapter, the user has to find out the device name for his new COM or USB port in the MAC X device finder.

5. UNMS – UPS Network Management System

UNMS is an additional viewing tool for UPS installations. It's a UPS network monitor designed to monitor your UPS devices on different locations in the network. This tool is useful if you have more than 1 UPSMAN/CS121 to manage. For standalone UPS this software is not needed.

The UNMS may be delivered as a limited version with the UPSMAN license (depends on UPS makers license regulations). The UNMS Server Service runs intermittent checks on UPS devices you specify. When problems are encountered, the UNMS Server Service can send notifications out to administrative contacts in a variety of different ways (For example: Email). Current status information, historical logs, and reports can all be accessed via a web browser (Web Console).

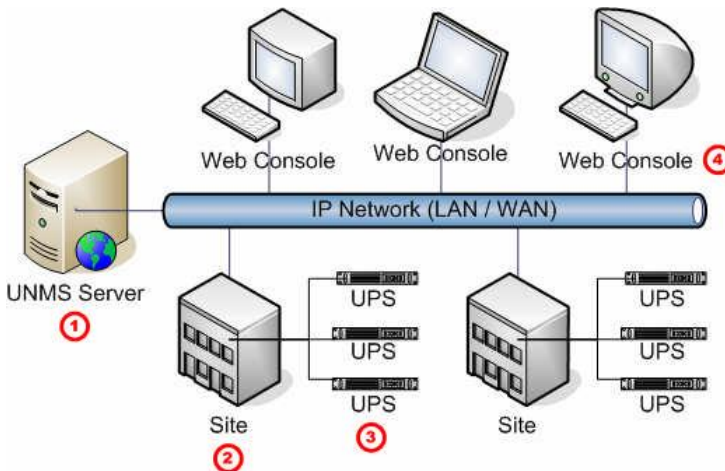


Figure 86: UNMS II Environment

The UNMS is not described in this manual, a separate UNMS user manual is distributed with the UNMS software or can be downloaded from WWW. GENEREX.DE documentation download area.

6. Simple Network Management Protocol (SNMP)

The Simple Network Management Protocol (SNMP) is a worldwide standard communication protocol. It is used to monitor any device in the network via simple control language. The UPS-Management Software also provides its data in this SNMP format.

UPSMAN supports under Windows the private GENEREX MIB, found as MIB file in the UPSMAN directory ("*upsman.mib*"). At Linux we support the RFC 1628 standard UPS MIB which is present in most SNMP software already and does not need to be compiled. With any SNMP-Management software (e.g. HP-OpenView, Novell NMS etc.) capable of compiling an external MIB (UPSMAN.MIB) or having the standard RFC MIBs already implemented – can now connect to the *UPSMAN* SNMP agent and read UPS data

The UPSMAN software supports the SNMP interfaces from Windows. On all other operating systems the UPSMAN does not have an SNMP interface. For SNMP data on such OS we recommend to use an SNMP adapter (eg. CS121) instead. In case you use a CS121, the UPSMAN software is obsolete since already running inside the CS121.

6.1 UPSMAN with SNMP on Windows

To be able to connect to the UPSMAN via SNMP you have to install and configure the Windows SNMP service.

Open the Windows Components Wizard (click Start, Control Panel, double-click Add/Remove programs and then click Add/Remove programs again). In components, click Management and Monitoring Tools (but do not select or clear its check box) and then click Details.

Select the Simple Network Management Protocol check box and click ok.

After the SNMP service has been installed you have to configure the SNMP service via the control panel icon *Administrative Tools/Services*. Enter the community string of your management station and the address of the trap target and enter the system group.

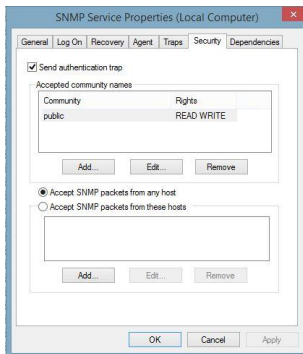


Figure 87: SNMP Service Properties – Security

Enable the „Accept SNMP packets from any host“ feature.

Start the SNMP-service from the command line by `net start snmp` or start with the help of the icon *Services* from the control panel. If the installation has been completed successfully you should receive a cold boot trap on your management console. In addition you can access system group data.

In order to connect the UPSMAN software and an SNMP adapter is it required to start the SNMP service. The UPSMAN computer needs to be configured in the SNMP adapter. Please also refer to your SNMP adapter installation manual.

The UPSMAN SNMP MIB RFC1356 is located into the „private tree“!

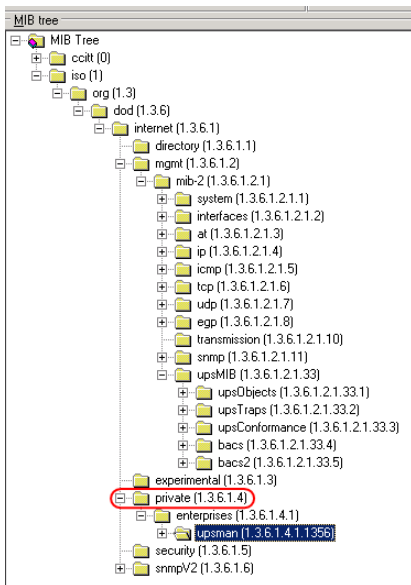


Figure 88: SNMP MIB Tree

7. FAQ

Problem with SuSE 11.3, x64: UPSMAN is running, remote configuration is possible, but UPSView does not start (no error message into web-browser)

Solution: Manually installation of the libstdc++ 32bit with the following command:

```
yast --install libstdc++-32bit
```

Problem email transmission on Windows OS: If the UPSMAN should not transmit emails, you can get more information with the program qblat into debug mode. Enter the following command out of the UPSMAN default folder C:\Program Files\UPS\upsmib:

```
qblat.exe -debug -to (email address of the receiver) (text)
```

```

C:\Program Files\UPS\upsman>qblat.exe -debug -to erik@generex.de test
qBlat v2.2.0.6 <build : May 6 2004 16:14:10>

Sending stdin.txt to erik@generex.de
Login name is erik@generex.de
>>>putline>>> AUTH PLAIN AGUyaWsAZ3JldHpreQ==
<<<getline<<< 235 Authentication successful
>>>putline>>> MAIL From: <erik@generex.de>
<<<getline<<< 250 Ok
>>>putline>>> RCPT To: <erik@generex.de>
<<<getline<<< 250 Ok
>>>putline>>> DATA
<<<getline<<< 354 End data with <CR><LF>.<CR><LF>
<<<getline<<< 250 Ok: queued as 716624800082
>>>putline>>> QUIT
<<<getline<<< 221 Bye

C:\Program Files\UPS\upsman>

```

Figure 89: qblat Debug

Solution: Send the faulty output to support@generex.de

Problem with Linux syslog messages:

Jan 8 06:25:28 ALIX1D-2 kernel: [664692.312727] usb 1-4: usbfs: process 27300 (upsman) did not claim interface 0 before use

Solution: Proceed as follows to discard messages from syslog:

Create the file `/var/log/messages/01-blocklist.conf`

Add the line `:msg, contains, « upsman »`

Restart syslog with `/etc/init.d/syslog restart`

Problem with Ubuntu 10.04 syslog messages: Since Ubuntu 10.04 rsyslog is used instead of plain syslog.

Solution: Proceed as follows to discard messages from syslog:

Create the file `/etc/rsyslog.d/01-blocklist.conf` (the 01-part into the filename forces rsyslog to load this config prior it loads anything else)

Add the line `:msg, contains, "upsman" ~` (the lines into the file find any messages containing the text you want to ignore and discard those messages right away)

Restart rsyslog with `/etc/init.d/rsyslog restart`

Problem with the installation of multiple UPSMAN services on one PC:

Information: We do no longer support it (05/2011).

Problem with the installation on a 64bit UNIX OS:

Solution: If the installer is not running on a 64bit Debian/Ubuntu (GNU/Linux) system, it is required to install the compatibility libraries with the following command: `sudo aptitude install ia32-libs`

If the installer is not running on a 64bit Fedora 12 (GNU/Linux) system, please do the following :

Open an editor, create a new file called „install“ and copy the following lines into it:

```
#!/bin/sh

libs_32=( libXext.i686 libXtst.i686
libstdc++.i686)
for lib in ${libs_32[@]}
do
    yum install $lib
done
```

Call the command (as root), to install the required 32bit libs:

```
[terminal]:./install
```

Problem: No communication possible to APC UPS SURTD from 2011

Solution: This UPS model communicates with a proprietary protocol. It is required to use the APC slot card Legacy (AP9620) for the establishment of a communication.

Problem: Mount of USB stick via command line

Solution: Change into the directory /dev. Execute ls. There you will see the connected devices. Note the devices like sda, sda1... Connect your USB stick. Execute ls again into /dev. Now you should see more entries under sda. My stick got the entry sdc1.

Enter the following : mount /dev/sdc1 /mnt

Use this command on **FreeBSD OS** : mount_msdosfs /dev/da0s1 /mnt/usb

Execute ls -lisa

Now you should the folders of your stick. Change into the accordant directory : cd /mnt/name of the folder, which contains the installation data.

Extract the the upsinst.tar file : tar -xvf upsinst.tar

Execute the binary file : ./installupsman.bin

Problem: The UPSMAN Message Box does not appear in the front.

Solution: Click on the warning triangle icon with the right mouse button and select « Always on top ».

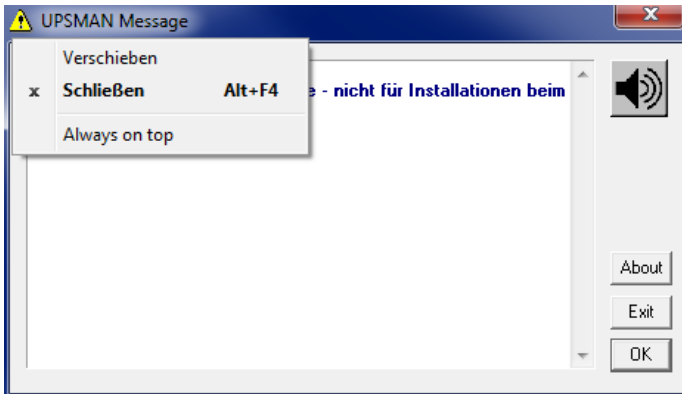


Figure 90: qblat Debug

Appendix

A. Supported Systems

The UPS Management Software supports all current operating systems. Please use our internet site for updates and additional information. <http://www.generex.de>

B. Know-How Pool

In this section you will find a collection of know-how information of different operating platforms and operating systems. Please note that an update of to the latest version of the UPS-Management software will solve many problems and minor "bugs". Please contact your UPS dealer or visit our web site under <http://www.generex.de>. The free update to the latest version of the UPS-Management software is available from CD version 4.17.

Change UPSMAN Window start-up in the registry

This can be done by changing the script, please change the path:

Hkeylocal_machine\system\currentcontrolset\services

in the registry and find the entry start. This entry should be set to 0x2 (automatic) by default, 0x3 (manual) and 0x0 means that the driver will be loaded by the Kernel loader at startup. However, 0x1 means that the driver will be loaded by the I/O subsystem at Kernel startup.

Change UPSMON Window PollRate

To change the PollRate of the UPSMON to the UPSMAN service, it is required to edit the value (in seconds) into the file „upsmon32.ini“, which is stored into the default folder C:/Program Files/UPS/upsmon:

```
[CONNECTION]
ComputerName=127.0.0.1
Servertyp=12
[SYSTEM]
PollrateSec=5
TransferLength=0
Editor=notepad
ReconnectHours=72
[MAPI]
Enabled=0
LibName=
UserName=
MagicNumber=0
RecipName=
RecipAdr=
[PLATFORM]
Windows16Bit=0
[DDESERVER]
WinName=|
WinDdeName=|
HostName=|
TliName=|
[Recent File List]
File1=C:\Programme\UPS\upsmon\127.0.0.1,IP (Windows local)
```

Figure 91: UPSMON32.INI Edit

Example settings SUN Solaris 2.6, 2.7 : TTY configuration

Settings of the serial interface with the admintool:

Admintool: Modify Serial Port

Template: Terminal - Hardwired

Detail: Basic More Expert

Port: b

☐ Service Enable

Baud Rate: 9600

Terminal Type:

Options:

☐ Initialize Only

☐ Bidirectional

☐ Software Carrier

Login Prompt: login:

Comment:

Service Tag: ttyb

Port Monitor Tag: zsmon

Expert Options:

☐ Create utmp Entry

☐ Connect on Carrier

Service: /usr/bin/login

Streams Modules: adterm,ttcompat

Timeout (secs): Never

OK Apply Reset Cancel Help

Figure 92: Example Settings SUN Solaris 2.6, 2.7 : TTY configuration

UPSTCP

This program connects the remote Windows or Java UPS monitoring software using the local UPSMAN program. It must be started, if the you want to "connect" with the UPSMON software to UNIX controlled UPS. This can be done within the *ups.rc* startup script. The *upstcp* program is based on the TCP/IP network protocol. Any UNIX system has these protocol implemented; there is no need to install TCP/IP separatly. UPSTCP has to be started, if UPSMON for the graphical UPS monitoring is used.

CS122 Network Adapter:

When using the an older CS122 UPS network adapter instead of the serial port of the UPS the following procedure must be followed :

Set the IP adress of the CS122 using ar webbbrowser or telnet as described in the Quickstart set-up for the CS122. Start "ups_conf". Go into the "Set UPS values" screen.

Replace all of the values in the field "COM port Options" uptil the colon with with the CS122 connection:

For example: replace the Linux-Comport "/dev/ttyS0:2400,n,8,1" by the virtual CS122-Comport "vcom1@192.168.202.122:2400,n,8,1" Note that the values for the baudrate and other values following the colon will automatically be set when changing the UPS model.

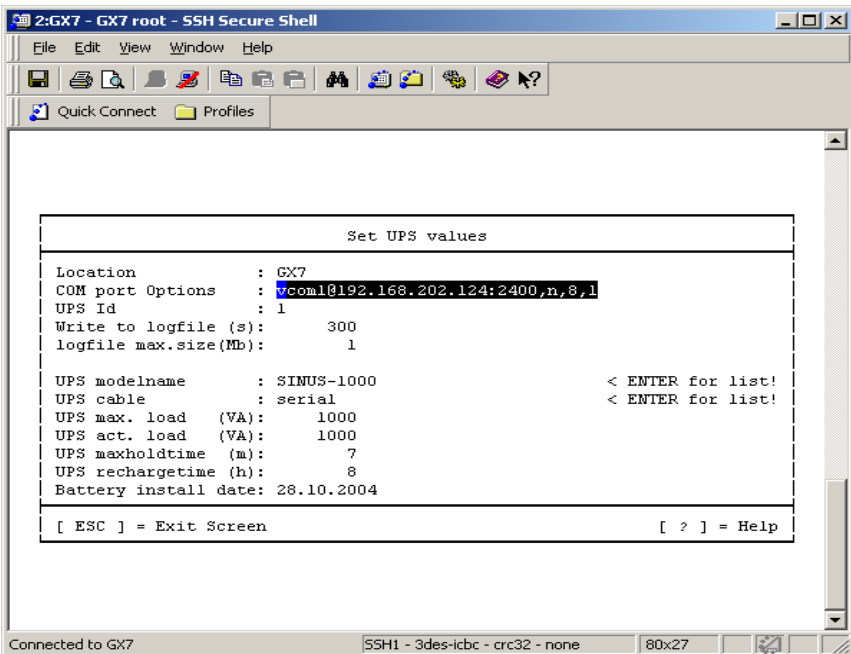


Figure 93: Settings for a CS122 network TCP/IP to Serial converter (MOXA, or other)

(No longer supported) Virtual comport in the UPS values – NOT for CS121 ! The CS121 does not need to communicate with any UPSMAN software, the UPSMAN is part of the CS121! This is only useful if you use a RS232 to TCP converter like the CS122 or devices from MOXA.

HP OPENVIEW Bug_ RFC 1628 Trap receiver does not interpret correct MIB 2 Traps

This bug is known in HP OV 5, 6 for Windows. The moment the trap definition is manually changed, HP OV transforms the version 2 trap identifier in to version 1.

How to override: You can manually correct in the trapd.conf file. You will see that the trap ID has changed from

1.3.6.1.2.1.33.2.1 to 1.3.6.1.2.1.33.0.1 (this is trap 1 ! - not trap 2). Change this string to **1.3.6.1.2.1.33.2.1** again to correct this problem.

HP OV Version 5 and 6 SNAP IN under HP UNIX:

Configuration for HP-OV-Snap-in:

in /etc/opt/OV/share/registration/C

the following file must be present: *upsmonov.reg*

After the reboot, the process *upsmonov* must be present in the process list. This process incorporates normally all objects, which are SNMP supported and also support the RFC1628-MIB or PPC-MIB.

Please check the following picture:

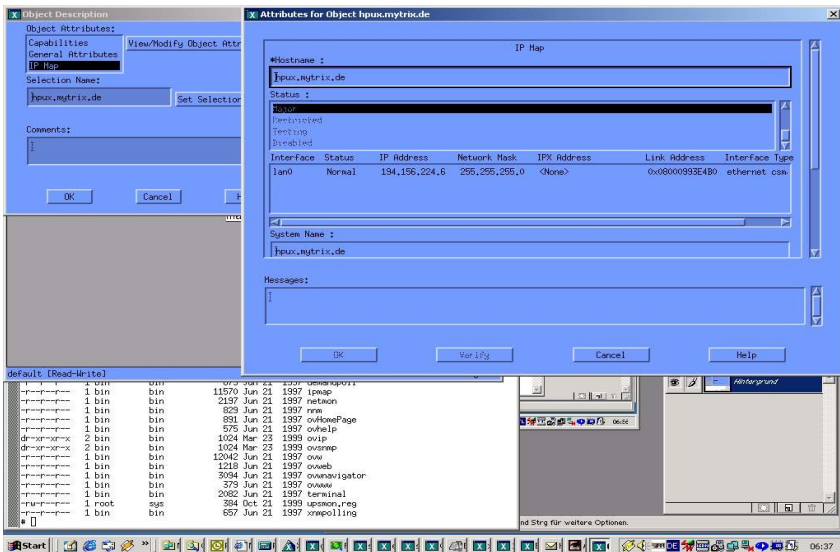


Figure 94: Configuration for HP-OV Javamon

In /etc/opt/OV/share/registration/C the following file must be present: *upsmon.reg*. The following must be configured in the symbol properties for the object:

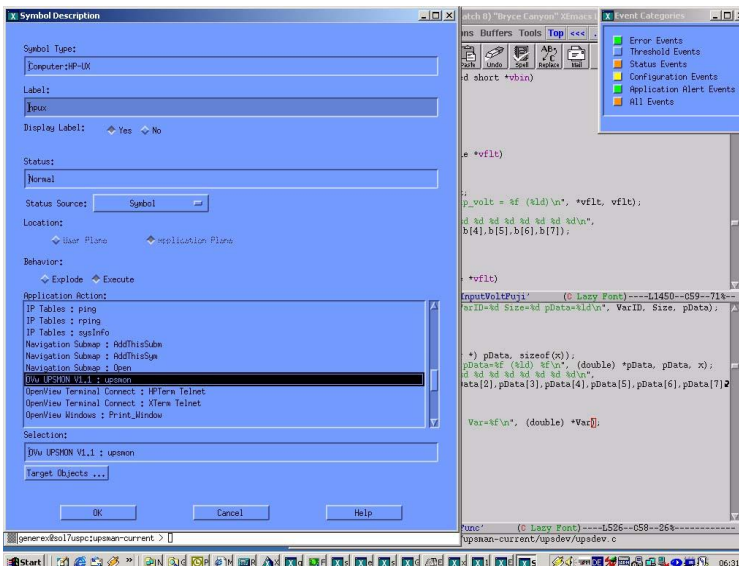


Figure 95: Symbol/ Object Properties

C. Automatic Start of the UPSMON after Reboot (Windows)

If the UPSMON should start after reboot automatically, it is required to link the supplied „GO.BAT“ file, which is located into the default folder C:\Program Files\UPS\Upsmon, into the startup of Windows.

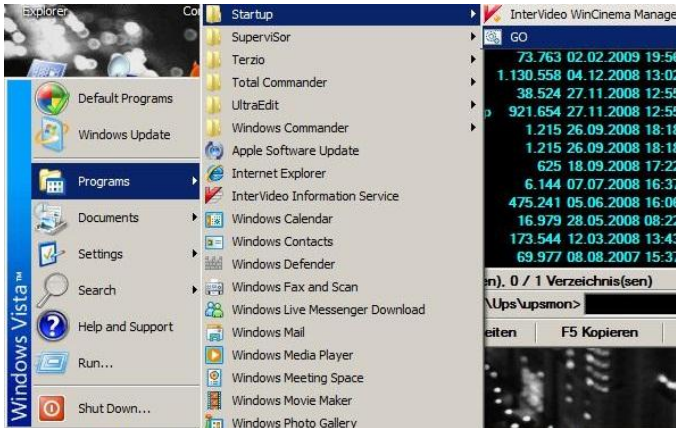


Figure 96: „GO.BAT“ into startup

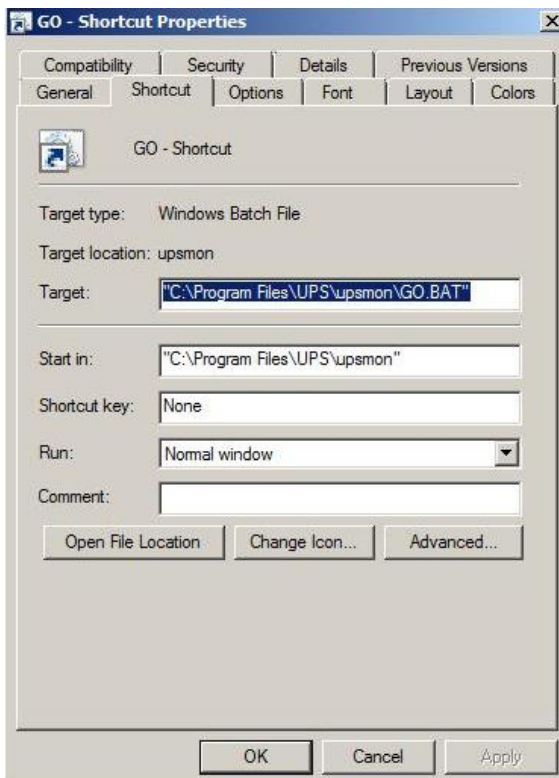


Figure 97: Properties of the „GO.BAT“ Link

D. NTP time synchronization (UNIX)

The **N**etwork **T**ime **P**rotocol is defined in RFC1305 and allows the transfer and maintenance of time functions over distributed network systems.

Basic Configuration

The following command will synchronize the local system time against another server, ensuring nearest possible time is available before configuring the NTP server:

```
[bash] #ntpd -b
```

If failed, try the following command:

```
[bash] #ntp -b
```

```
root : bash
File Edit View Scrollback Bookmarks Settings Help
Linux-f36j:~ # ifconfig
eth2      Link encap:Ethernet  HWaddr 00:0C:29:57:EC:55
          inet addr:192.168.200.60  Bcast:192.168.200.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe57:ec55/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:594 errors:0 dropped:0 overruns:0 frame:0
          TX packets:441 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:244373 (238.6 Kb)  TX bytes:50308 (49.1 Kb)
          Interrupt:19 Base address:0x2024

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:70 errors:0 dropped:0 overruns:0 frame:0
          TX packets:70 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:4364 (4.2 Kb)  TX bytes:4364 (4.2 Kb)

Linux-f36j:~ # ntpd -b
Linux-f36j:~ #
```

Figure 98: Bash – ntpd -b

Make a backup of the original file (/etc/ntp.conf):

```
[bash]#cp /etc/ntp.conf /etc/ntp.conf.original
```

Edit the configuration file and do the following changes :

```
[bash]#vi /etc/ntp.conf
```

The following declarations into the /etc/ntp.conf file are required :

```
#Finding a Time Source.

# The default configuration for ntpd servers after version 4.2 uses the NTP
#Pool for the default server sources.

Server 0.pool.ntp.org
server 1.pool.ntp.org
server 2.pool.ntp.org

# Access Controls.

restrict default kod nomodify notrap noquery nopeer

#The NTP Pool servers have been listed as a time source already (ver 4.2
#onwards), and they too need restrictions applied so the local server can
```

#synchronise from them. Ensure the access control parameters are strict
#enough that the remote servers can only be used for queries.

```
restrict 0.pool.ntp.org mask 255.255.255.255 nomodify notrap noquery  
restrict 1.pool.ntp.org mask 255.255.255.255 nomodify notrap noquery  
restrict 2.pool.ntp.org mask 255.255.255.255 nomodify notrap noquery
```

To allow all the workstations inside the internal private network to be able to query the #time
from your server, use the following access control rule (adjust subnet if needed).

```
restrict 192.168.1.0 mask 255.255.255.0 nomodify notrap  
  
server          127.127.1.0      # local clock  
fudge           127.127.1.0 stratum 10  
driftfile       /var/lib/ntp/drift  
broadcastdelay  0.008  
keys            /etc/ntp/keys
```

Starting the NTP

```
[bash]#ntpd -b
```

If failed, try the following command:

```
[bash]#ntp -b
```

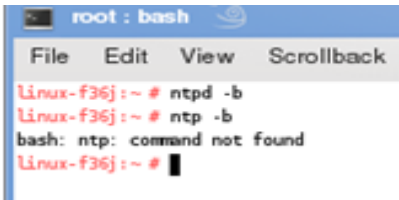


Figure 99: Bash – ntp –b

You should now set the runlevels required for the ntpd service, then restart it:

```
chkconfig --level 2345 ntpd on  
  
/etc/init.d/ntpd restart
```

or

```
chkconfig --level 2345 ntp on  
  
/etc/init.d/ntp restart
```

```
root : bash
File Edit View Scrollback Bookmarks
Linux-f36j:~ # ntpd -b
Linux-f36j:~ # ntp -b
bash: ntp: command not found
Linux-f36j:~ # chkconfig --level 2345 ntpd on
ntpd: unknown service
Linux-f36j:~ # chkconfig --level 2345 ntp on
Linux-f36j:~ #
```

Figure 100: Runlevel

You can check which runlevels the service will be active with the following command:

```
[bash]# chkconfig --list ntpd
```

or

```
[bash]# chkconfig --list ntp
```

```
root : bash
File Edit View Scrollback Bookmarks Settings Help
Linux-f36j:~ # chkconfig --list ntpd
ntpd: unknown service
Linux-f36j:~ # chkconfig --list ntp
ntp                                0:off 1:off 2:on 3:on 4:on 5:on 6:off
Linux-f36j:~ #
```

Figure 101: Check config

To see if the service started successfully, you should check the system log file with the following command:

```
[bash]# grep ntpd /var/log/messages
```

```
root : bash
File Edit View Scrollback Bookmarks Settings Help
May 4 14:52:17 linux-f36j ntpd[20974]: Listening on interface #2 lo, ::1#123 Enabled
May 4 14:52:17 linux-f36j ntpd[20974]: Listening on interface #3 eth2, fe80::20c:29ff:fe57:ec55#123 Enabled
May 4 14:52:17 linux-f36j ntpd[20974]: Listening on interface #4 lo, 127.0.0.1#123 Enabled
May 4 14:52:17 linux-f36j ntpd[20974]: Listening on interface #5 lo, 127.0.0.2#123 Enabled
May 4 14:52:17 linux-f36j ntpd[20974]: Listening on interface #6 eth2, 192.168.200.60#123 Enabled
May 4 14:52:17 linux-f36j ntpd[20974]: kernel time sync status 0040
May 4 14:52:17 linux-f36j ntpd[20974]: frequency initialized -3.749 PPM from /var/lib/ntp/drift/ntp.drift
May 4 14:52:50 linux-f36j ntpd[21194]: ntpd 4.2.4p501.1541-o Wed Dec 3 07:22:15 UTC 2008 (1)
May 4 14:52:50 linux-f36j ntpd[21195]: precision = 1.000 usec
May 4 14:52:50 linux-f36j ntpd[21195]: ntp_io: estimated max descriptors: 1024, initial socket boundary: 16
May 4 14:52:50 linux-f36j ntpd[21195]: Listening on interface #0 wildcard, 0.0.0.0#123 Disabled
May 4 14:52:50 linux-f36j ntpd[21195]: Listening on interface #1 wildcard, ::#123 Disabled
May 4 14:52:50 linux-f36j ntpd[21195]: Listening on interface #2 lo, ::1#123 Enabled
May 4 14:52:50 linux-f36j ntpd[21195]: Listening on interface #3 eth2, fe80::20c:29ff:fe57:ec55#123 Enabled
May 4 14:52:50 linux-f36j ntpd[21195]: Listening on interface #4 lo, 127.0.0.1#123 Enabled
May 4 14:52:50 linux-f36j ntpd[21195]: Listening on interface #5 lo, 127.0.0.2#123 Enabled
May 4 14:52:50 linux-f36j ntpd[21195]: Listening on interface #6 eth2, 192.168.200.60#123 Enabled
May 4 14:52:50 linux-f36j ntpd[21195]: kernel time sync status 0040
May 4 14:52:50 linux-f36j ntpd[21195]: frequency initialized -3.749 PPM from /var/lib/ntp/drift/ntp.drift
May 4 14:54:08 linux-f36j ntpd[28156]: ntpd 4.2.4p501.1541-o Wed Dec 3 07:22:15 UTC 2008 (1)
May 4 14:54:08 linux-f36j ntpd[28157]: precision = 1.000 usec
May 4 14:54:08 linux-f36j ntpd[28157]: ntp_io: estimated max descriptors: 1024, initial socket boundary: 16
May 4 14:54:08 linux-f36j ntpd[28157]: Listening on interface #0 wildcard, 0.0.0.0#123 Disabled
May 4 14:54:08 linux-f36j ntpd[28157]: Listening on interface #1 wildcard, ::#123 Disabled
May 4 14:54:08 linux-f36j ntpd[28157]: Listening on interface #2 lo, ::1#123 Enabled
May 4 14:54:08 linux-f36j ntpd[28157]: Listening on interface #3 eth2, fe80::20c:29ff:fe57:ec55#123 Enabled
May 4 14:54:08 linux-f36j ntpd[28157]: Listening on interface #4 lo, 127.0.0.1#123 Enabled
May 4 14:54:08 linux-f36j ntpd[28157]: Listening on interface #5 lo, 127.0.0.2#123 Enabled
May 4 14:54:08 linux-f36j ntpd[28157]: Listening on interface #6 eth2, 192.168.200.60#123 Enabled
May 4 14:54:08 linux-f36j ntpd[28157]: kernel time sync status 0040
May 4 14:54:08 linux-f36j ntpd[28157]: frequency initialized -3.749 PPM from /var/lib/ntp/drift/ntp.drift
May 5 09:45:32 linux-f36j ntpd[28184]: ntpd 4.2.4p501.1541-o Wed Dec 3 07:22:15 UTC 2008 (1)
May 5 09:45:32 linux-f36j ntpd[28185]: precision = 1.000 usec
May 5 09:45:32 linux-f36j ntpd[28185]: ntp_io: estimated max descriptors: 1024, initial socket boundary: 16
May 5 09:45:32 linux-f36j ntpd[28185]: unable to bind to wildcard socket address 0.0.0.0 - another process may be running - EXITING
May 5 10:30:27 linux-f36j kernel: type=1505 audit(1273048221.584:10): operation="profile_load" name="/usr/sbin/ntpd" name2="default" pid=1793
May 5 10:31:04 linux-f36j ntpd[4087]: ntpd 4.2.4p501.1541-o Wed Dec 3 07:22:15 UTC 2008 (1)
May 5 10:31:04 linux-f36j ntpd[4109]: precision = 1.000 usec
May 5 10:31:04 linux-f36j ntpd[4109]: ntp_io: estimated max descriptors: 1024, initial socket boundary: 16
May 5 10:31:04 linux-f36j ntpd[4109]: Listening on interface #0 wildcard, 0.0.0.0#123 Disabled
May 5 10:31:04 linux-f36j ntpd[4109]: Listening on interface #1 wildcard, ::#123 Disabled
May 5 10:31:04 linux-f36j ntpd[4109]: Listening on interface #2 lo, ::1#123 Enabled
```

Figure 102: Log messages

You can now query the NTP server with the `ntpq` (query) tool:

```
[bash]# ntpq -pn
```

```

root : bash
File Edit View Scrollback Bookmarks Settings Help
Linux-f36j:~ #
Linux-f36j:~ #
Linux-f36j:~ #
Linux-f36j:~ #
Linux-f36j:~ #
Linux-f36j:~ #
Linux-f36j:~ #
Linux-f36j:~ #
Linux-f36j:~ # clear
Linux-f36j:~ # ntpq -pn
      remote          refid          st t when poll reach  delay  offset  jitter
-----
127.127.1.0      .LOCL.           5 l  51   64  377   0.000   0.000   0.001
+85.214.116.15   192.53.103.108   2 u  63   256  377   27.006  -9.076   1.490
*188.193.210.74   .DCFi.           1 u  190  256  377   62.568  -9.612   2.250
+89.238.71.130   192.53.103.108   2 u  182  256  377   21.031  -1.951   2.113
127.127.1.0      .LOCL.           10 l  27   64  377   0.000   0.000   0.001
Linux-f36j:~ #

```

Figure 103: NTP query

E. UPSMAN configuration without graphical interface (Linux)

Perform a “Silent Installation” (text-only output) on the Linux machine. Store the cd-data into `/usr/ups` and start the UPSMAN web-server with the command `./upshhttpd`

Start a java-compatible web-browser on a machine with graphical interface. Enter the following address:

<http://<ip-or-name-of-upsmachine>:8081/upscfg.html>

Enter the desired configuration data and restart the UPSMAN daemon. Done!

F. Error codes (UPSMAN)

List of the UPSMAN Error codes, which consist of 4 digits e.g. 4603 indicates an error at the serial interface.

Severity information codes:

0xxx	Success information
1xxx	Severity informational
2xxx	Minor error, warning
4xxx	Major error, process stopped

Error type:

x1xx	Unknown error
------	---------------

x2xx	Out of heap space
x3xx	Module not installed
x4xx	UPS protocol failure
x5xx	Locked, failure during operation
x6xx	Connection failure
x7xx	Capability failure
x8xx	UPS database error

Extended error information:

xxx1	Unknown error
xxx2	Error in installation
xxx3	Error at serial interface
xxx4	No communication with UPS, but COM port opened OK
xxx5	No answer from UPS within 3 seconds
xxx6	Incorrect data from UPS received
xxx7	Header of UPS protocol is missing or defect
xxx8	Checksum error in protocol string of UPS
xxx9	Unspecified error
xxxA	UPS did not accept the command
xxxB	End of command string or byte was missing
xxxC	COM port could not be opened

The following error codes in table are displayed when the UPSMAN software fails to start.

Error code	Error name	Description
2	ENOENT	No such file or directory This happens if the device name is not found. The reason can be a missing colon (":") at the end of the device name
5 or 6	EIO / ENXIO	No such device or address. I.e. the device name exists, but the physical device does not. E.g. the device name is /dev/ttyS2, but the computer has only

		two serial devices.
22	EINVAL	Invalid argument. The serial port driver of the UNIX system does not support a function call the UPSMAN programm.
25	ENOTTY	Not a serial device. Please choose a device name which is not a serial device.

G. Cable types

For UPS communication cable please refer to GENEREX website download documentation or contact you UPS maker.

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