
UPS-Management Software

User manual

Version 4.2

Limited Warranty

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The UPS-Management software includes a license key for each license. This license is valid for using the UPS service on one server with one UPS and an unlimited number of connected UPSMON-WINDOWS workstations. For operation on several servers a license for every new server is required, disregarding the fact if UPS service runs at that location or if the server is halted by an UPS service via remote command RCCMD. The same regulations are applicable to the use of remote send/receive modules RCCMD and multiserver shutdown under Windows OS, MAC OS and Unix. The service programs are generally delivered as a single license. If there is more than one disk in one package all of them have the same serial number and must not be used for future installations. To use a single CD-ROM for several multiserver shutdown installations you have to purchase additional CD license keys.

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I. 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 cable with the UPS. When UPSMAN begins, it collects the messages sent from the UPS as a background program. UPSMAN also interprets received messages and makes them available to the client module, the UPSMON and to any SNMP station. The data communication to the UPSMON is achieved via TCP/IP, IPX, Named Pipes or SNMP.

The protocol of UPSMAN with UPSMAN.MIB is a special private MIB type 1, the UNIX UPSMANB corresponds to the MIB 2 standard RFC 1213 & 1628. All UPSMAN programmes are using the GENEREX own 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 *systemeventroutines* (EVENTS), which, for example, may shutdown the server or send warnings to connected users. These *systemeventroutines*, which are part of the UPS-Management Software, are fully customisable.

UPSMON is 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 UPSMON 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 environment. 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-phased UPS. "Look & feel" is identical on all platforms.

Supports most kinds of UPS of all major UPS manufacturers with serial (RS-232) or contact UPS protocols.

- ✓ Integrated SNMP agent for NetWare, MS-WINDOWS™ NT/2000, Linux and SUN
- ✓ 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: TempMan, UPS Dialer (modem solution), UPS Switcher, UPS SNMP Watch, JAVAMON HP OpenView UPSMON and others.
- ✓ Supports 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 date 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 cut-off.
- ✓ Shutdown and test functions can be executed with a Scheduler
- ✓ Graphic display of quality of incoming power load frequency in minimum-maximum or average values.
- ✓ Also monitors UPS systems, via SNMP connection.

II. Network Shutdown with RCCMD

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 CS-111 or CS-121 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 (copy the modules) and create a shutdown routine for every system. This shutdown routine may be a batch file, shell script or ncf-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.

So now you have a computer in your server network supervising the UPS. The other servers execute RCCMD and wait for the RCCMD signal of the UPS server. If a power failure forces the master computer to shutdown the server-network, the shutdown-job of the UPS-server will start RCCMD. RCCMD now sends the RCCMD-signal to all computers in its list. The computers receive this signal and the installed RCCMD will execute the programmed command.

Please note that RCCMD must always installed in two different operating ways:

1. as a sending process on the UPS-server,
(RCCMD -s) (send)
2. as a receiving process (background-process)
on the receiving computers.
(RCCMD -l) (listen)

In contrast to the RSH, RCCMD does not include the command that is to be executed in the sending process but instead deposits the command with the receiving process. This provides a security advantage in comparison to the RSH. Furthermore the receiving process may check which computer sends the RCCMD-signal and determines whether to accept it or not.



Attention:

If a name resolution is achieved via DNS, please always use the IP-address (and not the computer name) for a network shutdown with RCCMD. In case the DNS is not available, the network shutdown will not work, if this method is not used.

III. How to install/configure the UPS Management Software?

1. Preparation of the Installation

Before you start with the installation of the UPS-Management Software you should familiarise yourself with the UPS installation. Make sure not to overload the UPS and charge the batteries before connecting to any device.

Before you install the UPS-Management Software, please ensure that your UPS is working. Connect the UPS to the relevant serial port of your computer. Some UPS models provide several connections/interfaces. Please inform yourself about which connection/interface to use and use the provided interface cable for the connection with your PC.



Attention:

This cable is a special cable, which is provided by the manufacturer of your UPS system. Please see the corresponding cable configurations in the appendix of this technical user manual of the UPS hardware.

This software also provides a number of updates and patches for your system. If you are unsure as to whether your system software has outdated modules (Patches, DLL's) you can use the enclosed updates/patches for your operating system. Please note that a reboot is necessary after a system module upgrade. For Novell NetWare, additional modules (Error correction status as provided by Novell) may be required for a current patch level status in contrast to the ones automatically provided on our cd.

In case problems occur we recommend to obtain NetWare drivers and patch levels from the Internet, other providers, your manufacturer or dealer in order to ensure perfect operation.

Updates and patches for your copy of the UPS-Management Software, or other Models that are no longer part of the CD-ROM ("no longer supported systems") can be downloaded from the Internet. Please note that only 1 UPSMAN and 1 RCCMD (1 RCCMD sender and receiver) are allowed to run simultaneously on a network –RCCMD is mostly optional. Your UPS

Dealer will provide you with additional licenses or simply visit (www.generex.de), if you wish a faster delivery.

2. Windows 95/98/NT/2000/XP UPSMAN

General

The UPSMAN for 95/98/NT/2000/XP is a real background service and has no graphical output. The UPSMAN is the only necessary process for all UPS monitoring. The UPSMON module is responsible for the graphical administration, but not compulsory for normal operation.

Installation

The UPS-Management Software is distributed on a CD-ROM or as full version download from the web site of the UPS manufacturer (license key required) The Windows 95/98/NT/2000/XP part of the software is found in the root directory and is started automatically or via the SETUP 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 can be found in every printed user manual or on the backside of the bundling UPS software Jewel cases. For the multiserver shutdown additional RCCMD licenses are needed. The additional (optional) key codes are available depending on the number of the ordered licenses.

Every CD-ROM gives the customer the permission to install 1 UPSMAN software with RS-232 communication and/or RCCMD modules for the multiserver shutdown.

(The RCCMD send function is already integrated into the UPSMAN. For every computer to perform a shutdown using RCCMD, additional license keys are necessary. Additional RCCMD installations can be executed from the same cd, using the additional 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.

2.1 UPSMAN

2.1.1 Installation of the UPS-Management Software

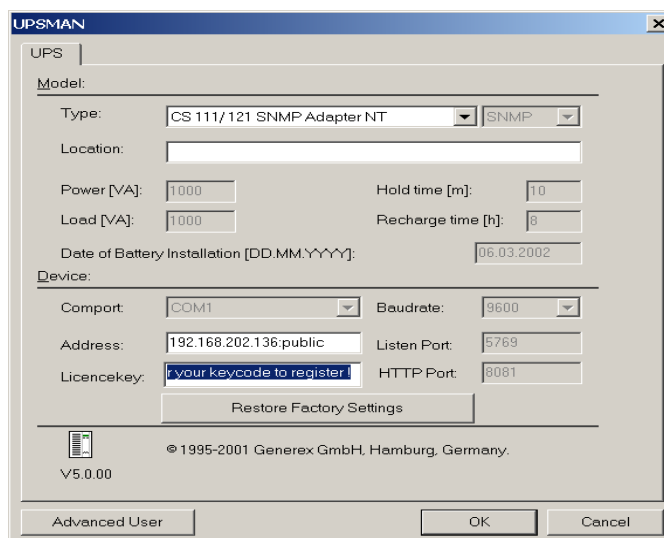
To start, please make sure that you have full administrator rights in order to complete the installation.

- Step 1: Put the CD into the CD-ROM drive of your computer.
- Step 2: Please execute the installation program *setup.exe* in order to copy the files to your system and chose a desired language.
- Step 3: Please enter your CD-key an choose your corresponding Windows OS from the list.



Attention:

If you enter a wrong license number at this stage, the UPS-Management software will be set to a 30 day trial version. Please contact your UPS dealer for the full, correct license if it was not with the original CD-ROM. You may enter the correct license in the main window of the configuration at a later stage. (Please see picture)



- Step 3: The used license determines, which module can be installed one by one.
- ✓ **UPS Dialer:** The UPSDIALER software is able to monitor UPS devices and other device via a the telephone network.
 - ✓ **UPS SNMPWatch:** This software enables the monitoring of parallel redundant connected UPS systems, with a a lot of Evnet configuration options.
 - ✓ **HP OpenView:** Grafical monitoring tool, which is integrated as a snap-in tool into the HP OpenView interface.

- ✓ **UPS Temperature Manager:** This software measures temperature and humidity data via a hardware measuring unit and visualises the data with the UPS-Management software.
- ✓ **RCCMD Multi Server shutdown module:** This module is used for the multiserver shutdown. It will run as a Service (LISTENER/SLAVE) on the Client computer and as a foreground program (SENDER/MASTER) for the server computer.
- ✓ **UPS MANAGER:** This is a background process (UPSMAN), which maintains the direct UPS RS-232 connection with the computer.
- ✓ **UPS Monitor Windows 32bit Client:** This is the remote Windows client software. This may also be installed on remote clients in order to monitor the UPS remotely. In most cases it can be installed on the local UPS protected Windows computer together with the UPSMAN software.
- ✓ **UPS Network Management system:** This is a limited version of the UPS network management software (9 UPS max.), which is able to display the statistics of the UPS installed in the network. This limited version is also available as customised version without restrictions.
- ✓ **UPSMAN Webserver:** This is a grafic UPSMON variation, which supports the new JAVA script based Internet browser, such as Netscape Communicator 4.6x and 6.x, MS-Internet Explorer 5.x. The JAVAMON tool can connect to a SNMP adapter or UPSMAN process from all platforms, with an Internet browser. All UPSMAN/UPSMON functions and features are available with the JAVAMON. A remote configuration is hence possible without user access rights on the remote computer.
- ✓ MS-Word doc help files
- ✓ HTML Help files
- ✓ PDF Help files
- ✓ Windows CHM help files

After the desired options have been chosen, the files are copied (default) into the c:\programfiles\ups\. Directory. Here the files of the UPSMAN, UPSMON and UPSJAVAMON have subdirectories.



Attention:

We recommend not to use any subdirectory name(s) e.g. Program files UPSMAN 10kva\ or "SYS\UPS\U P S\" with < > (blank spaces). This may cause problems within the customised configuration.

The customer may change the default program group name UPS SOFTWARE into any other name, if desired.

from the program directory UPSMAN configuration). This icon is only available from the user account from which the installation was performed in the first place. From other user accounts the configuration can be started with upsman_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, go to the NT control panel, services and mark the UPSMAN Service under "Start". Change the start up now from automatic to manual.

Using Windows 95/98 this procedure is achieved manually by using the tool regedit.exe. Start regedit.exe and change to the key

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\Current\Version\Run

and delete the entry current entry there. An automatic is possible by making a shortcut to upsman.exe in the auto start folder. Under NetWare please insert a load call for the upsman.nll into to the autoexec.ncf (after testing successfully) manually.

Step 1: 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 communication.

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 $\text{Watt}/0,8 (= \text{VA})$



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.

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.

Enter the name or place of your server, in the section *Location* (e.g. "Berlin")

Step 2: Selecting the serial port

To select a serial port (*Comport*) click with the mouse on the COM checkbox 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.

Possible problems with older versions (4.17 /UPSMAN v. 4.52)

A critical installation is possible under Windows and NetWare, with the use of "cable 2" UPS types. The service will start in any situation, but will shutdown the computer immediately if the cable is not correct or the wrong com port has been chosen. If a cable 2 UPS is installed on a NT computer, the customer should set the automatic start of the UPSMAN service to "manual" **before trying to start** the UPSMAN. In this case a wrong configuration does not cause constant up and down of the system, just because the cable is defect of the user has just tried all kind of cables. Most UPS work with serial communication, so this problem is rarely the case.

The Comports 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.

In case your system is continuously starting and stopping, because of wrong settings with the cable type 2, please restart your system in the DOS-mode (via disk or F8 key during the boot procedure.) and rename the UPSMAN.EXE file.



ATTENTION:

The selection of the serial interface has to be carried out manually, since the UPS-Management Software cannot detect which comport the UPS is connected to.

The configuration is now completed. Please click "OK" 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, preset configuration values, please click on the button "Restore factory settings".

Additional configuration data

All configuration data in the menus have "tool tips" in the corresponding language. Every menu feature will be explained "online", please find identical information also in the following chapter of this user manual.

System

UPSMON Password: Default – no password - The user may enter a password here, which will be asked when UPSMON connect is executed. Without this password, no UPSMON or JAVAMON connect is permitted.

UPS Check rate Defines the time-interval (in seconds) in which the UPS-Management Software polls data from 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 relative high value of between 15 and 30 seconds.

System parameter: System Shutdown

Enable 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.

In the case of a shutdown, the internal event routine will close down all active applications, which allow this. The Windows-program will also be closed. This mechanism is not supported by the Windows95/16-bit version. In order to make this mechanism work for the 16-bit version, the shutdown-routine needs to be replaced with the provided program *exitw32.exe*, *shutcmd.exe* or *shutcmd.nlm*. If you have installed the Windows95 version of the UPSMAN software, these settings are automatically pre-configured by default.



ATTENTION:

Make sure that the checkbox "System Shutdown enabled" is always active if you do not want to use a user-defined shutdown-job. If not, the UPS might be turned off during a power failure before the system has been shutdown properly.

Downtime	Defines how many minutes before the UPS battery is discharged, that the shutdown procedure begins. This time interval 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 before the batteries are exhausted [=default]).
Enables local shutdown	(Default = on) When OFF, the UPSMAN computer will not execute a shutdown.
Initiate shutdown always after x minutes	Determines how many minutes after power fail the UPSMAN computer is performing a shutdown.
Configure shutdown	The type of shutdown can be selected here. Please note that the UPS can not boot the computer after power returned when POWEROFF. (ATX boards) Default is Shutdown.

System parameter: UPS Shutdown

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

Enable UPS shutdown	Defines if the UPS will be turned off after the completion of the shutdown procedure of the server.
UPS down 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 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" an automatic restart is disabled and the UPS needs to be switched on manually.

Enable SNMP support

Activates or deactivates 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 occurred. No message means that function is working. SNMP is not available for Windows 95. Under NetWare this function is always active and not configurable.

Restart SNMP Service

This will activate a stop/start of the SNMP service under Windows NT/2000/XP. This function avoids start problems of the UPSMAN agents, using older or not maintained systems.

Files

Editor Log file

This UPSMON feature determines (configurable only when disconnected) which editor is used to view the Event log file. The default is notepad.exe.

Event Log file upslog.csv

This creates the name of the Event protocol. The default is a MS-Excel compatible csv file format.

Input Line Statistics

upslog.dat – This file is used for the UPSMON statistics. This is a log file for the input voltage and frequency values/data.

Data Log file	upsdata.csv – This file contains all UPSMAN variables ID 700 or 800 which are part of the message.dat. This way, an individual MS-Excel compatible Log file can be created.
Broadcast Rate	Defines the time interval (in seconds) in which the UPS-Management Software informs the network user via the broadcast command during a power failure of the remaining time until the shutdown is initiated. This value is overwritten with entries made in the EVENT configuration. Please note that EVENT configuration always overwrites the default settings.
Logfile Update Rate	Defines the interval (in seconds) in which the UPS-Management Software logs the Input Voltage and Frequency Values. The standard entries into the text file are made every 15 minutes, if no unusual events occur. If "0" is entered, no logfile is made.
Logfile Size min.	Defines the minimum time range (in hours) of the log file 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 log - file Size min.) if the log file contains more data than the configured value.

2.1.3 Configuration of the JOBS

File: Jobs

This part of the configuration exists only because of compatibility to older version of this software. All Alarms and Jobs are controlled and configured via the EVENR section of the configuration. Because of certain system events, the software makes the execution of jobs (**.bat-file* or **.ncf*) available to enable you to adjust the UPS-Management software to your requirements. As standard the UPS-Management Software executes

internal system event routines (Default: no entry, corresponds to the parameters "own" or "default" in older versions of the software.) This jobs are by default without any entries, as the functionality is entirely controlled by the Event configuration. User, who would like to utilise this feature known from the previous releases of the software, can still use the batch program start. Please note that the JOBS entries are executed in addition to the Event JOBS.

- | | |
|---------------|---|
| Broadcast | <ol style="list-style-type: none"> 1. This job is executed during a power failure in the time-interval Broadcast Rate (see System parameter: Timeframe/Broadcast Rate) 2. The system informs the user about the remaining uptime of the server. ("own") |
| Power failure | <ol style="list-style-type: none"> 1. This job is executed immediately after a power failure has been detected. 2. The system informs the user that the power supply is interrupted. |
| Pwr Restored | <ol style="list-style-type: none"> 1. This job is executed when the power has returned. 2. The system informs the user that the power has been restored. |
| Shutdown | <ol style="list-style-type: none"> 1. This job is executed at the moment the system starts the shutdown (see System parameter: Downtime). 2. The system will be shutdown and the UPS may be switched off, if configured. |

Under NetWare an adjustment of the path name in the UNC syntax is necessary, e.g. \\netwareserver\sys\ups\upsman\myscript.ncf



Attention:

If you created your own shutdown-job, you have to make sure that it has a down command at the end of your script; otherwise the system will not be shutdown. Please use the provided shutcmd.exe program for this.



Attention:

the UPSMAN program delays the shutdown, in case a script is entered here. Every script will be executed first and then the shutdown will be initiated.

Special: Special Jobs

These special jobs allow the execution of own programs and batch files. These jobs can be set in the time frame when the UPS is running on battery mode. As soon as the UPS "Remaining Time" is equal or less to the preset value, the program or batch procedure is started.



Attention:

In the Event configuration the user can configure, if a JOB is executed when the Event occurs or after a certain delay. The corresponding event has to be selected from the configuration, using the EDIT button and selecting the option "do after x seconds". Please refer to the section 2.1.4 "EVENTS" in this manual.

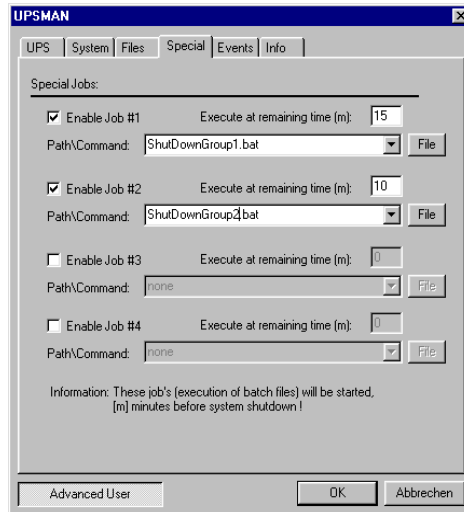
Once the checkbox is active, the user is able to enter a PATH\COMMAND of the corresponding program or batch file, for the desired script. This script will be started once the Remaining Time ([m] in minutes) is reached.

For example: Different network-server should perform a shutdown via the shutdown script, depending on the importance of each computer. In this case more UPS time can be provided for the more important components of the system.

Additionally, up to four different JOBS can be executed time controlled

Job #1, #2, #3 #4

These jobs will be executed if the remaining time is lower or equal than the configured values. All jobs are executed again and again until the last job (shutdown) is executed. Usually these "remaining related jobs" are used for the sequenced multiple computer shutdown in larger networks. So the first group of computers in the network will be shutdown at e.g. 20 minutes remaining time, the next group of computers at 15 min, etc. If these remote computers have a ATX Board or are able to shut-off after the system is down, the load of the UPS will be reduced. Now the UPS will have more autonomytime than before, so the more important computers or group of computers are still working, until the next job #2 is executed (see picture)



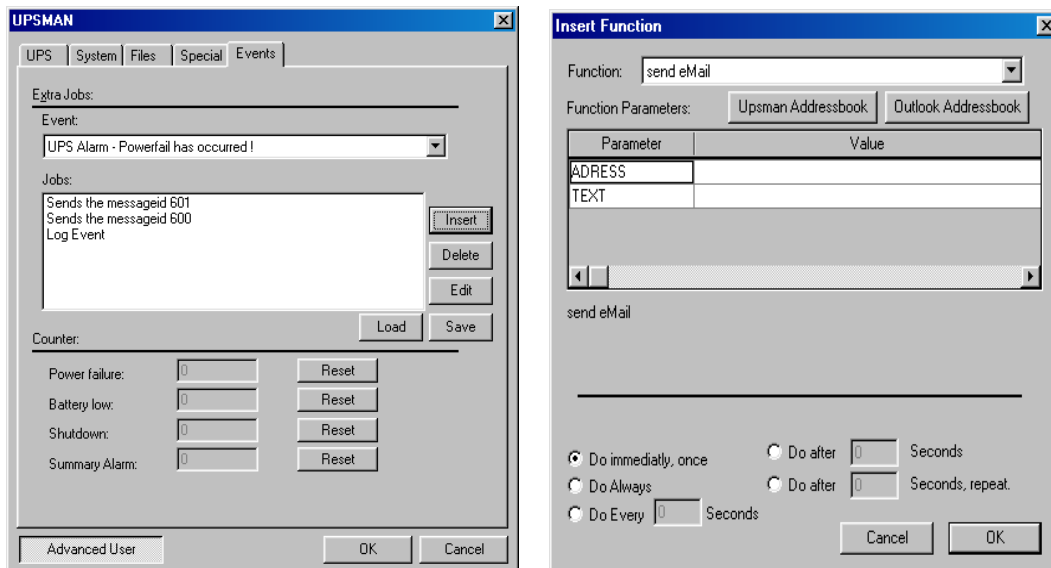
Hint: Analog to this, for a sequential execution of Jobs a Event group can be used.

Additional module

During the installation of the UPSMAN-Management Software for Windows 95\98\NT\2000\XP the module:

- QBlat

is also installed. Qblat is the UPSMAN software integrated SMTP E-mail tool and is configured via the Event configuration. This module can be used via the Event windows and command line and is only suitable for use with MS-Outlook Express. Please check the following screens:



In the right window the user can configure a job, responding to an event (see section 2.1.4) (Button: Insert) which then sends an e-mail (see left window) to all entered e-mail addresses. Please see also the example configuration in section 2.1.7.

Please enter *qblat.exe*, to see the syntax.

The UPSMAN offers an own addressbook in order to send E-mail to groups of users. Please select this addressbook and create one or more groups. The Outlook Express will show you the standard E-mail addressbook, where only single addresses can be selected.

Configuration of Qblat.exe

The SMTP server must be configured, using the ENABLE-MAIL.EXE. Once this process is completed, the Qblat can send E-mails from every script or batch file directly. If this e-mail should be sent manually and not from the UPSMANservice, the UPSMAN service rights have to be altered.

Start the UPSMAN under a user-account (control panel->service->UPSMAN->start up->account). This user should have valid e-mail access.

Restart UPSMAN and test the mail service. If errors occur, please check first if Qblat.exe executes the mail using the command line.

2.1.4 Configuration: EVENTS

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.).



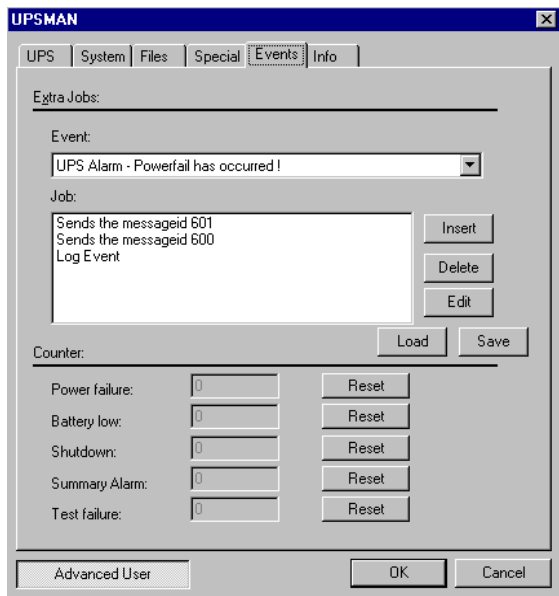
Attention:

Different to previous versions (up until version 4.16) all Events will be executed one by one, top-down, meaning that the user has to make sure that e.g. RCCMD signals are sent to the remote client before the local RCCMD sender is executing a shutdown. The order of the Event jobs can be sorted using the drag&drop method with the mouse.

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.

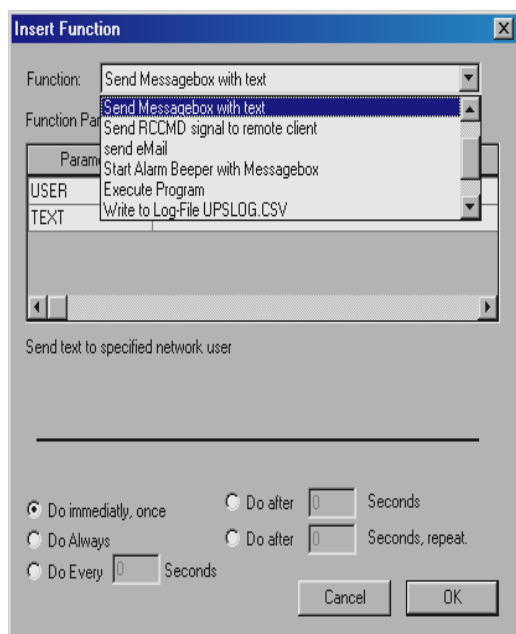
The following section explains the pre-settings.

The register card Events



In order to configure the Event, please click Advanced User Button. For every Event there are pre-settings. In the above example there are three Jobs configured for the Event „UPS Alarm – Power fail has occurred!“ Two Jobs will send out standard messages, which can be edited in the "Message.dat", whereas the third Event writes a message into the log-file of the UPS- Management Software. In order to add a Job, please click Insert and the following dialog opens.

Insert Function Dialog



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 functions are available:

<p>Send a Shutdown UPS Signal</p>	<p>Switches the UPS off after a preset 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 Messagebox 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 Signal 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</p>

	<p>any supported operation system. (starting from CD 4.17).</p> <p>Is is not possible to use the (*) wildcard in order to enter all IP addresses or other syntax. Every single computer must be entered individually, with the IP address in ordr to initiate a shutdown. In case the user wants to shutdown several RCCMD clients, single Event jobs can be added. However it is recommended to add the IP address of the single computer to ensure a shutdown. If a large number of RCCMD clients need to receive the shutdown signal, a batchfile containing the RCCMD –s command can be used, which is easier to manage than a long list of Event jobs.</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>
<p>Send eMail</p> <p>(only some Windows 95/98/NT/2000/XP and some UNIX Variations)</p>	<p>Sends an E-mail. Please enter the E-mail address and the corresponding text into the field.</p> <p>Please note that you need a configured SMTP server. For test purposes, you can also start the program qblat.exe manuall and send an E-mail. The UPSMAN can nnow sent out E-mail messages, if this test is successful.</p>
<p>Start Alarm Beeper with Messagebox</p>	<p>This Event function displays a message box with an accoustic warning on the screen, if a certain configured Event occurs. The acoustic signal stays active until the return key is pressed.</p>
<p>Execute Programm</p>	<p>Executes a configured program. Please enter the full path to the executable file. Is the</p>

	desired executable in 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	Writes the Event into the log file
Send default messages Ids from file messages.dat	Sends preset 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 (e.g. Ultraedit) in order to change or check the text of the corresponding message ID. A separate "send message" job has to be inserted for every user, if messages should be send to several users.
Write to MS Event Viewer	When an certain Event occurs, an entry into the Windows NT/2000/XP event viewer system program can be made in addition to the UPSMON event log file (upslog.csv). The event jobs in the UPS-Management software can therefore be integrated if e.g. a warning message during a power fail should be written to the event viewer.

2.1.5 E-Mail to SMS

A major change to previous versions have been made in the SMS functionality of the software. Because of the limitations of the mobile phone networks, we have restructured the event jobs section. In order to send a SMS message as an event message, the E-mail to SMS method is recommended. This method will be more expensive than the free modem version, but however more reliable and it works in all countries with GSM mobile phone networks. Please also refer to the example configuration 2 in section 2.1.7

Using this method, an E-mail address of a mobile phone user is configured as receiver and the UPS event messaging is achieved as an SMS on receiver side.

Please note following method:

Provider D1

Receiving

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

Sending:

- In order to send a SMS via mobile phone to E-mail addresses worldwide, please attach the E-mail address of the receiver at the beginning of the SMS message to be followed by the actual message.

It is possible that some characters of an E-mail address may not be entered via mobile phones. The following list give alternatives and replacement characters.

Alternatives:

"at" character @ wildcard *
Under score _ double minus sign –

Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send generally.

If the message has been send from a D1 mobile phone, the reply function of the mail programm can be used. The message starts with "Re:" or "AW:". The D1 system will recognise the command and transfer the content of the text field as SMS.

Is the e-mail the answer to an SMS that is originally from your phone, the content of the reply-to field of the E-mail programm will be transferred as sender address. Other e-mail programms will transfer the data of the original field in the envelope of the e-mail –if not present- the content of the "from" field as sender address.

Close Gateway:

Important: please note that when receiving E-mail via D2 Message Plus, costs will occur. If you want to stop receiving e-mail, please send a SMS to the number 8000, with the text CLOSE.

(If at a later time you want to enable the e-mail transfer again, just send a message to the number 8000, containing the text OPEN, as described above.)

Provider D2

Receiving

- e.g. your D2 E-mail address will be D2Nr.@D2-Message.de (e.g.:01731234567@d2-Message.de) Please note that you enable receiving E-mail on your phone. This is done by sending a SMS with the message "OPEN", to the number 3400.

Sending

- In order to send a SMS via mobile phone to E-mail addresses worldwide, please attach the E-mail address of the receiver at the beginning of the SMS message to be followed by the actual message.

It is possible that some characters of an E-mail address may not be entered via mobile phones. The following list give alternatives and replacement characters.

Alternatives:

"at" character @ wildcard *

Under score _ double minus sign –

Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send generally.

If the message has been send from a D2 mobile phone, the reply function of the mail programm can be used. The message starts with "Re:" or "AW:". The D2 system will recognise the command and transfer the content of the text field as SMS.

- Is the e-mail the answer to an SMS that is originally from your phone, the content of the reply-to field of the E-mail programm will be transferred as sender address. Other e-mail programms will transfer the data of the original field in the envelope of the e-mail –if not present- the content of the "from" field as sender address.

Close Gateway:

Important: please note that when receiving E-mail via D2 Message Plus, costs will occur. If you want to stop receiving e-mail, please send a SMS to the number 3400, with the text CLOSE.

- (If at a later time you want to enable the e-mail transfer again, just send a message to the number 3400, containing the text OPEN, as described above.

Provider E-Plus

Receive:

- Please send a SMS to the following number: S-M-S-M-A-I-L (7676245)
Please enter the text: START only. You will be send a SMS with the following information: Ihre e-mail Adresse lautet: 0177xxxxxx@smsmail.eplus.de (Your e-mail address is:)

Sending:

- In order to send an e-mail from your mobile phone, please enter the address of the e-mail account in the format: username@providername.xx.

It is possible that some characters of an E-mail address may not be entered via mobile phones. The following list give alternatives and replacement characters.

Alternatives:

“at“ character @ wildcard *
Under score _ double minus sign –

- Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send generally.

Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send in general. In order to do this, the text “Body#” should inserted in the subject line of the e-mail and the message can now be written in the text field. However, sending more than 160 characters is not possible.

Close Gateway:

Please send an SMS to the number: S-M-S-M-A-I-L (7676245) Please also enter the text message text „STOP“. You will now receive the following confirmation: “E-Plus Info: Ihr Handy ist für den e-mail Empfang gesperrt.

Please repeat the procedure from above, if you want to receive e-mails again.

Die standard setting of the e-mail incoming gateway is „STOP“ for all E-Plus users. In this setting you can only send e-mail, but not receive e-mail.

E-Plus has no information, what the current gateway status of its customers is.

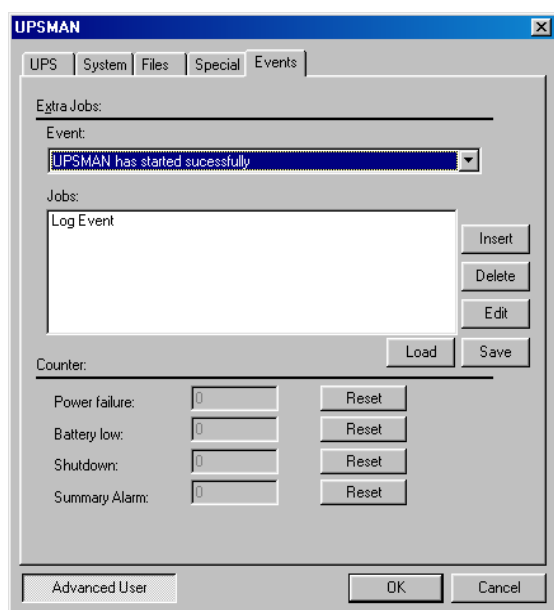
Other providers

Please ask your mobile phone network provider for information about e-mail to SMS settings.

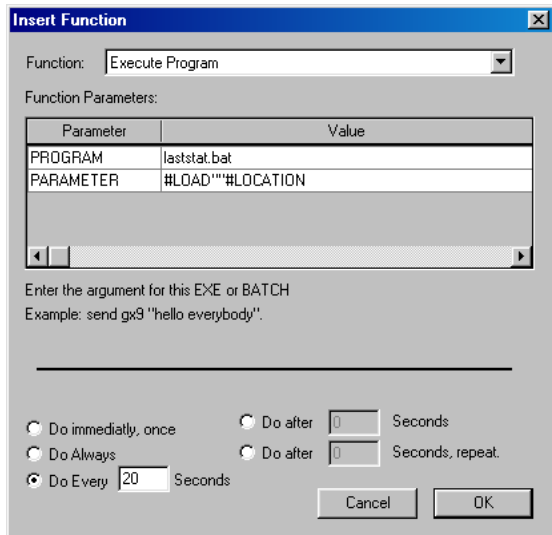
2.1.6 Example configuration 1

Creating a load statistic via UPS EVENTS on Windows 95/98/NT/2000

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, how load statistics can be configured. 0



On the register card Events, please choose the Event "UPS has started successfully". Next click on the *Insert* button, right of the Job field.



Please chose 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 executable 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 is done.

Please note that when entering several parameters, every parameter has to be separated by a " ". See the following example:

#LOAD" "#LOACATION" "#INVOLT

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

By clicking of the OK button the configured function is allocated to the chossen Event.

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

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

```

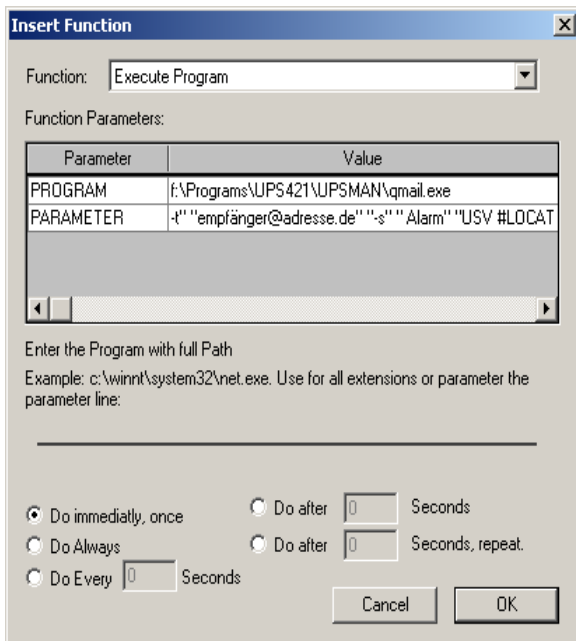
UltraEdit-32 - [C:\Program Files\UPS\laststat.bat]
File Edit Search Project View Format Column Macro Advanced Window Help
laststat.bat
@echo off
echo. >>"Load statistics.txt"
echo Date: >>"Load statistics.txt"
date /t >>"Load statistics.txt"
echo Time: >>"Load statistics.txt"
time /t >>"Load statistics.txt"
echo. >>"Load statistics.txt"
echo %1 Volt Ampere at UPS %2 >>"Load statistics.txt"
echo. >>"Load statistics.txt"
echo --- >>"Load statistics.txt"

```

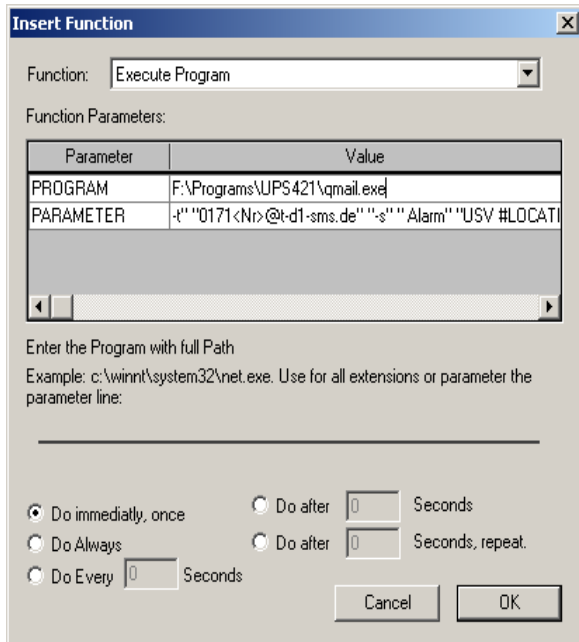
Start the Upsman service. If you have followed the above example now every 20 seconds the file "Load statistics.txt, containing the current values of the UPS load, is created and updated.

2.1.7 Example configuration 2

E-mail service via Qblat.exe



In order to receive "Alarm" or "Message" instead of "UPSMAN service" in the subject line an e-mail, please use the feature "Execute program" and not "Send mail". Please enter the program "qblat.exe" with its full directory entry. The following parameters are valid: `-t "user@address.de" "-s" "Alarm" "USV #LOCATION`. Please note that the " " are in the correct position. The subject will now be "Alarm" and the text will be "UPS Location", which was configured in the UPSMAN configuration.



If the user wants to send a SMS, we recommend the same method as above. With the difference that the telephone number of the receiver has to be entered instead. Please enter the number e.g. like this: `-t "0171<number of user>@t-d1-sms.de" -s " Alarm" "USV #LOCATION`. Please also note the sections E-mail to SMS in 2.1.5

2.1.8 Executing own scripts: Examples variables

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 der 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 Autonomytime and battery capacity, which are transferred directly from the UPSMAN. welche der UPSMAN direkt übergibt. 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 * "Powerfail 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
\$OUTPOWER	Actual load in % at the
\$TEMPDEG	Actual UPS temperatur 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.

2.1.9 Start the UPS-Management Software

Upsman.exe is a Windows NT service/ Windows 95/98 application. The configuration parameter are read from the Windows NT/95/98NT\2000 registration database.

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. When using just Windows NT, "NT pipes" can also be used.



Attention:

Windows 95/98 always needs a TCP/IP installation, if the UPSMON modul is used.

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

- install** installs the UPSMAN as a service
- remove** deinstalls the UPSMAN service
- config** starts the configuration program
- debug** starts the UPSMAN as foreground process (not as service) and displays windows for male function analysis.

In order to allow an automatic start of the UPSMAN modul at server boot, please set the service startup status in the control panel to automatic. (=default for Windows NT/95/98)

In case the service needs to be removed or deactivated, please change the startup status in the control panel section SEVICES to manual. In case an automatic start under Windows 95/98 is not wanted, please enter the comand 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". The UPSMAN service is now reinstalled and the configuration programm will start.

2.1.10 Installation of several UPSMAN as Service unter Windows NT /2000

1. Please insert the CD and start setup.exe
2. Enter the first CD-Key for your 1st UPSMAN Installation and preceed as described in section "Preparation of the installation".
3. Continue the installation and start the configuration program. Configure you UPS but answer the question to start the service with NO.
4. Use the Windows Explorer (or similar tool) to rename the UPSMAN path into UPSMAN2.
5. Please open the file UPSCFG.INI in the UPSMAN directory with any Editor and change the path ro your new directory name.
6. Restart the SETUP from your CD and enter the 2nd license keycode.

7. Install UPSMAN only this time, using the same directory as before (default). When the configuration starts, do not configure anything, simply press OK and do not allow to start the service.
8. Open a DOS prompt and change to the UPSMAN-Directory. Enter „Upsman.exe –remove“ <Enter> and after this „Upsman –install –n1“ <Enter>. Start the configuration program with „Upsman –config –n1“ <Enter>. Now press again OK and do not start the service, (you do not have to configure your UPS now , this will happen later.)
9. Please open another DOS prompt and change to your UPSMAN2-directory. Enter „Upsman –install –n2“ <Enter>. Start the configuration program „Upsman –config –n2“ <Enter>. Now press OK and do not start the service, (the user does not have to configure your UPS at this stage
10. Please start the REGEDIT.EXE and change to HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Services. Here the user will find 2 UPSMAN-entries. Delete the extensions –n1 and –n2 in the ImagePath.
11. Open any editor and change in both directories UPSMAN and UPSMAN2 the file UPSCFG.INI. Please change the setting „Registry=1“ to „Registry=0“. Please save both changes.
12. It is possible to configure both services via a DOS prompt using the command „Upsman –config“ <Enter> from any directory. Note: make sure that every UPSMAN has a different com port and listen port (for UPSMON connection).
13. After the settings have been made, please confirm with OK – there will be no dialog asking to start the service. Start the service via the control panel. A start from the commandline via Net Start UPSMAN – n1 bzw. –n2 is no longer possible.
14. If the user wants to use the UPSMON; the UPSMAN can be reached via the corresponding IP address and the listen port, Example: Enter in UPSMON “127.0.0.1:5770“ for a UPSMAN running with listen port 5770.

The user can also create links from your desktop to avoid the configuration from the DOS prompt.

In order to remove the services: Enter from a DOS prompt of every UPSMAN directory „Upsman –remove –n1“ <Enter> or „Upsman –remove –n2“ <Enter>.

2.2 RCCMD

2.2.1 RCCMD auf Windows NT/2000

The RCCMD (remote console command) is a program that allows the execution of programs on remote computers. This tool is part of all UPSMAN supported operating systems with the exception of Windows 3.x.. With this tool it is possible to connect different operating systems. Is the UPS-Management Software installed on a Windows NT/2000/XP computer and should a remote shutdown be executed on a computer with a different operating system in heterogene network, the RCCMD tool is necessary.

The RCCMD tool is based on the TCP/IP protocol. During the installation under Windows NT, the TCP/IP protocol should be installed in the first place. The RCCMD tool works in two different modes. The modul works like a normal program start, as "Send mode" in order to send RCCMD commands `-s -a` to other computers. In the so called "Listen" mode, installed as a NT/2000 service, the program (as background process) waits for a command from the "Send" mode, of the RCCMD modul. In the "Listen" mode the RCCMD modul waits for the "ping" signal. After reception of this signal the modul executes a batch file or program.



Attention:

For first time users we do recommend the use of the RCCMD Wizard, which makes the configuration easier. Please start the RCCMD Wizard from your program group.



Attention:

Please do not use the wizard and manual settings at the same time.

A manual edit of the RCCMD.INI is also possible if the RCCMD Wizard should not be used.

RCCMD.INI

`\Registry\Machine\System\CurrentControlSet\Services\RCCMD`

Parameters

Port = REG_DWORD 600

IP addresses of the UPS-Servers. Up to 10 different UPS server can entered here. Only IP addresses are allowed to send a signal and accepted from this receivers. Unknown IP addresses will be denied access. No entry ("") allows every computer to send a signal.

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Addr1 = REG_SZ "192.168.10.1"
Addr2 = REG_SZ "192.168.20.2"
Addr3 = REG_SZ "192.168.30.3"
Addr4 = REG_SZ ""
Addr5 = REG_SZ ""
Addr6 = REG_SZ ""
Addr7 = REG_SZ ""
Addr8 = REG_SZ ""
Addr9 = REG_SZ ""
Addr10 = REG_SZ ""
Addr11 = REG_SZ ""
Addr12 = REG_SZ ""
Addr13 = REG_SZ ""
Addr14 = REG_SZ ""
Addr15 = REG_SZ ""
ExecutePrg = REG_SZ "C:\ups\shutdown.bat"

Parameter of the rccmd.ini Datei :

Port	TCP-Port which receives the RCCMD-signal.
------	---

Addr 1... 1= Please enter the IP address here, from which RCCMD signals should be accepted. An empty entry allows that from every IP address a RCCMD signal can be send. In case " " is the entered as the sender address, every computer with an IP address and installed RCCMD process can initialise the shutdown process. Please enter one or more specific IP addresses from which the shutdown process can be initialised. The IP address or host name specify which computer is authorised to initialise the ExecutePrg c:\ups\shutdown.bat Other computers can send a "ping" signal but not execute any action thereafter.

ExecutePrg

This command is executed after a RCCMD signal is being received. Please note the path for the batch file: Windows NT 3.51 needs also CMD/C as parameter, whereas Windows 4.0 does not need this parameter. In this path/file the shutdown procedur of the local computer must be entered. The start of the batch file must initiate a immediate shutdown.



Attention:

The length of the ExecutePrg must not exceed 31 letters. The text length, given with the command SHUTCDM.EXE must not exceed 20 letters. Always use the full path of the program that you want to start in your batch files

After the RCCMD.INI file has been adjusted to the users configuration and file installation, the RCCMD in receiving-mode (*listen*) must be installed as a Windows NT-service.

Execute the batch *rc_init.bat*. RCCMD will read its parameters from the NT registration database and installs a new service in the NT service list. The *regedit32.exe* maybe started to configure the RCCMD-function (the parameters can be found under the following registration-keys:

HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\RCCMD\Parameters)

or change the configuration via the RCCMD.ini file. Every *rc_init.bat* will change the registration database with your new commands.

After this the RCCMD Service has to receive extra rights: Only in WINDOWS NT you must give the RCCMD service extra rights to be executed. You have to change the RCCMD startup parameters in the control panel to the administrator /superuser account (enter pass word twice) together with the correct password. If you are not allowed to use the administrator account you have to create an account who has all the rights to shutdown this NT/2000 computer. Change to the control panel and mark the RCCMD in the list, change the the startup parameters to "this account" and enter the any administrative account.

Now the RCCMD has been installed and configured to execute C:\ups\shutdown.bat.

2.2.2 RCCMD on Windows 95/98

RCCMD for Windows 95/98 functions similar to RCCMD on Windows NT. The only difference is the program name, which changes to RCCMD95.EXE. Please also refer to chapter 2.2.1 in this manual.



Attention:

For Windows 95/98 users we do recommend the installation of the TCP/IP protocol first and then run the configuration program making use of the RCCMD WIZARD.



Attention:

In case Winpop.exe is used on Windows 95/98, RCCMD can not be started on port 6003 otherwise the computer will hang-up. Please change the sender and receiver call up accordingly.

Trained users may use the RCCMD Wizard and enter all changes manually. Please check the following: In order to start the RCCMD process in the "Listen" mode, the RCCMD parameter have to be entered in the registration database. Please enter:

regedit.exe rccmd95.reg or simply start rc_init.bat

The parameters are now located under the registration-key

HKEY_LOCAL_MACHINE\CurrentControlSet\Services\RCCMD95\Parameters

Start *regedit.exe* again if you want to reconfigure RCCMD.

If you are unfamiliar with the registration editor of Windows 95 you can also modify the file *rccmd95.reg* and execute the command *regedit.exe rccmd95.reg* again.

Parameters:

<i>Port</i>	Special TCP-Port that receives the RCCMD signal.
<i>Addr1... 10</i>	TCP/IP address of the computer that accepts the RCCMD-signal.
<i>ExecutePrg</i>	Command that is to be executed when receiving the RCCMD-signal.

To start RCCMD execute the command:

rccmd95

or start the program using the Windows 95/98 launch bar.

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To start RCCMD in sending-mode (*send*) enter the following line in your shutdown-job:

RCCMD95 -s -a <address> [-p 6003]

For *<address>* enter the TCP-address of the machine to which you want to send the RCCMD-signal.

Optional parameters:

-p <port> TCP-Port on which the RCCMD-signal is sent

The option *-a* can be used several times, if a shutdown on moore remote computers in the network should be executed.

Do not use the CD License key more than twice. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for the actual installation.

2.2.3 Testing the RCCMD connection

Finally test your configuration if all RCCMDs are present and working. For this you may use the RCCMD in the Debug mode Syntax *RCCMD -debug -s/l -a*), so that you have screen output. "PING" every remote computer with the command "ping [hostname] [IP adress]". If the PING works fine, you can now start to test the RCCMD connection with the Debug mode. If everything works fine, you will see that a connection is established and closed again. This means that the remote RCCMD received your signal. It does not mean that the RCCMD will now executed a program. Please see the following graphic for more information:



```
Microsoft Windows [Version 4.0.9504]
Copyright (c) 1996 Microsoft Corporation

D:\UPSMAN>rccmd -s -a 192.168.202.52
started in sending mode

RCCMD U3.0 - Windows NT Remote Command Program
copyright (c) QUAZAR/GENEREX GmbH 1996, All rights reserved

+ 08.01.99, 15:09:53 - Send Mode wird gestartet
+ 08.01.99, 15:09:53 - Es wird probiert eine Verbindung zu 192.168.202.52 aufzu
bauen
+ 08.01.99, 15:09:55 - Send Mode wird beendet.
+ 08.01.99, 15:09:55 - Verbindung zu 192.168.202.52 hergestellt.

D:\UPSMAN>
```

2.2.4 Shutdown.bat file (example)

Now you have to check that this batch works properly: The shutdown.bat of the RCCMD may look like the following on NT. On other platforms a UNIX "init 0" or Novell "DOWN" is executed. On Windows NT/2000 the SHUTCMD.EXE tool is used or any other NT shutdown program. Call Shutcmd -? for Syntax help.

An example SHUTDOWN.BAT is copied into the UPS directory, which will assist you further.

UPS Verzeichnis kopiert wird, die Sie als zusätzliche Hilfe aufrufen können:



ATTENTION:

If your configuration works fine in the DEBUG mode, does not necessarily mean that it works also with the RCCMD as NT service. Please ensure that the RCCMD as service has been started in a user account with administrative rights, otherwise it may happen that only non-restrictive programs may be executed (like notepad.exe) but no Shutdown. (This will result in the NT error message "Adjust Token Privileges failed".) If a program has in fact started or not can be seen in Taskmanager window (ALT+CTRL+DEL), because a service does not a started program in the current user session due to non-interactive transaction with the desktop.

The full command syntax for the NT consol for RCCMD in <Listen mode>:

rccmd [-debug] -l [-a IP adress] [-h hostname] [-p port] "command"

where the option in brackets are optional. The command can be either a program or a path for another batchfile to be found on this computer. The command file should be given with full path. The -p port option can be included if you want to start rccmd more than once at a single computer to proceed different commands for different events. The default port number is 6003, use any other available port number for different RCCMD commands.

RCCMD in the send mode :

rccmd [-debug] -s [-a IP adress] [-h hostname] [-p port]

This command is regularly used in the Senders batchfile (Shutdown.bat) and sends a "ping" to the computers IP adress or hostname. If this "ping" has been transferred, the next command RCCMD -s may be executed, etc.

2.2.5 RCCMD in a homogenous Windows NT/2000/XP network

In a smaller, plain NT network, it may be useful to shutdown the remote NT computers by using the SHUTCMD.EXE instead of the more complicated RCCMD configuration. But beware that there are several restrictions and security risks:

The user who sends the shutdown call must have an administrative account on all other computers and must have administrative rights.

Any user with this name and the correct password can shutdown any computer at any time from any place.

The following example shows how to install the UPSMAN software on a Windows NT server and configure a shutdown for a second BACKUP NT server in a NT Network:

Create a user with administrative rights on the NT SERVER and also on the NT BACKUP SERVER. This user must have the rights to shutdown the NT SERVER AND the NT BACKUP SERVER.

Install the software as described in the chapter 2 in this manual.

Change to the SPECIAL card in the UPSMAN configuration and change the following parameters: Enable JOB 1 (or 2 or 3) and enter 15 minutes for execution. Delete "own" and enter the path of your shutdown.bat file: e.g. *c:\ups\upsmen\shutdown.bat*. (This will now execute the job shutdown.bat, whichs closes the NT BACKUP Server at 15 minutes rest battery capacity in the UPS). If you want that the shutdown is initiated simultaneously as the shutdown of the NT SERVER, enter this job in the section FILES. Start the UPSMAN software.

Please enter a job of your desire and test it with the command line. This job can entered in the FILES section in the UPSMAN configuration if it is working. Please use the following syntax:

```
c:\ups\shutcmd.exe \WT_BACKUP /T:15 /C /Y "UPS Alarm Remote shutdown !"
```

If the shutdown works fine, please test it with the UPS. (Force a power failure and wait – or – change the downtime of the UPSMAN for this test to the needed values to perform a shutdown earlier.

3. Novell NetWare UPSMAN

General

In order to load the UPS-Management Software onto your Novell-System a MS-Windows 95/98/NT/2000 Workstation is required, which has access to the hard drive of the network server. The UPSMAN files are copied onto the Novell NetWare server when installing from a Windows computer. Please ensure that you have administrator rights on the network drive in order to complete the installation.

3.1 Installation of a NetWare Moduls from a Windows 95/98/NT/2000/XP NetWare Station

The installation of NetWare is executed from a Windows 95/98/NT/2000 Workstation vorgenommen. **Please see chapter 2.1.1.** Please also note that the network drive is connected to the server e.g.: F:\SYS

3.2. Configuration des UPSMAN from a Windows 95/98/NT/2000/XP Workstation

General

The UPS-Management Software can only be configured using Windows 95 or higher. Please compare the chapter 2.1 in this manual. In order to get detailed information to certain parts of the configuration.

To start the utility please start Icon in the UPS program group. Instead the file *upsconf.bat* may be started manually from the UPS NetWare directory. Which also starts the configuration.

A detailed description can be found in chapter **2.1.2**

3.2.1 Configuration of JOBS

A detailed description can be found in chapter **2.1.3**

3.2.2 Configuration of EVENTS

A detailed description can be found in chapter **2.1.4**

3.2.3 Execution of Scripts

A detailed description can be found in chapter 2.1.5

3.2.4 Command syntax for NetWare

UPSMAN/ SHUTCMD

upsman.nlm The *upsman.nlm* is loaded without the command line parameter. E.g. *load sys:ups\upsman\upsman.nlm*. This start line is to be copied into the AUTOEXEC.NCF after testing successfully.

shutcmd.nlm This modul is used in order to enable a shutdown out of a script from the local server.

shutcmd -f Forces a shutdown

shutcmd -? Help

Beispiel: *load sys:ups\shutcmd.nlm -f* (=immediate local shutdown)

TCP/IP minimal Configuration for NetWare Server

A minimal TCP/IP configuration exists for NetWare Servers. This happens by loading the

tcpip.nlm

with **LOAD TCPIP**. Loading the network card drivers works in this example via a network card and the corresponding driver of the manufacturer *epro.lan* Syntax:

LOAD EPRO PORT=340 INT=A FRAME=ETHERNET_II

NAME=EPRO_TCPIP

The connection to the IP Protocols to the network card is achieved via:

BIND IP TO EPRO_TCPIP ADDRESS=192.168.10.1

The configuration is now finished.

List of the NetWare loadable moduls (NLM), which are used by UPSMAN: *aiocomx*, *mathlib*, *aio*, *snmp*, *clib*, *clibaux*, *spx*, *ipxs*, *streams*, *nwsnut*, *tcpip*, *tli*, *lib0*.

3.1.5 Command syntax for Novell NetWare System moduls

aiocomx.nlm

The *aiocomx.nlm* is responsible for the proper functionality of the serial interfaces of a NetWare server. This module is often changed by software that uses the serial interface e.g. Arcserve, Faxware. Not using the original *aiocomx.nlm* in conjunction with UPS-Management Software, that is distributed by Novell, could cause problems, when installing UPS-Management Software. To prevent such problems, it is possible to load for each serial device it's own *aiocomx.nlm* from different directories.

```
aiocomx.nlm <port=W> <int=X> <name=Y> <node=Z> <force> <nofifo>
<rxt=A> <txq=B> <maxrate=C>
```

where,

W	is the port I/O address (hex)
X	is the port IRQ (hex)
Y	overrides default board name
Z	overrides default board number
force	overrides default test which verifies, that a COM port exists
nofifo	overrides 16550 to operate in non-FIFO mode
A	overrides 16550 receiver FIFO trigger – 1(*), 4 (**), 8, 14
B	overrides 16550 transmit FIFO queue – 1(*), 4, 8, 12, 16(**)
C	overrides devices capable of higher than rated speed 9600, 19200, 38400, 57600, 115200
(*)	Non-FIFO mode setting – 8250/16450/16550 device
(**)	FIFO mode default – 16550 device only

Example: `load aiocomx.nlm port=0x2f8 int=3 nofifo`

3.2.6 Start of the UPS-Management Software

The *upsman.nlm* is started from the fileserver console. Select the system console and enter `load load <volume>:\ups\upsman\upsman.nlm` (for <volume> enter the name of your volume, e.g. sys). *Upsman.nlm* needs for its execution

more Novell standard NLMs. These will be loaded automatically, if there are not already in the memory.

After the start of *upsman.nlm* the program reports its UPS information status with a status screen and a user menu and the following functions:

display of current UPSMON connections from Windows terminals
ending *upsman.nlm*

For an automatic start of *upsman.nlm* when booting the system, enter the command *load <volume>:ups\upsman\upsman.nlm* into the *autoexec.ncf*.

After the start of *upsman.nlm* the program reports its UPS information status with a status screen and a user menu and the following functions:

display of current UPSMON connections from Windows terminals
ending *upsman.nlm*

For an automatic start of *upsman.nlm* when booting the system, enter the command *load <volume>:ups\upsman\upsman.nlm* into the *autoexec.ncf*.

3.2.7 Stop the UPS-Management Software

Please choose the UPSMAN screen and then Exit. Please ensure that there is no active UPSMON connection when exiting.

The *upsman.nlm* can also be closed by using the command *unload upsman.nlm*. Upon stopping the UPSMAN, the server is not protected anymore.



Attention:

Explanation for the UPSMON modul of the UPS-Management Software can be found in section IV in this manual.

3.3 RCCMD on NovellNetWare

To start RCCMD in receiving-mode (*listen*) enter the following line:

```
load <path> RCCMD -l [-a 192.200.100.10] [-p 6003] load <path>  
shutcmd.nlm -f
```

Optional parameters:

-a <address> TCP/IP address of the master computer(s), which sends the RCCMD-signal.
-p <port> (optional) TCP-Port address, on which the master computer is sending

To start RCCMD in sending-mode (*send*) enter the following line in your shut-down-job:

load RCCMD -s -a <address> [-p 6003]

For <address> enter the TCP-address of the machine to which you want to send the RCCMD-signal. (Computers in "listening" mode, with an active RCCMD with parameter -l)

Optional parameters:

-p <port> TCP-Port, which the RCCMD-signal is using.

The option *-a* can be used multiple times, if a shutdown on remote network servers should be initiated.

Example: (Example path <path> = sys:\ups\upsman\rccmd.nlm)

```
load <path> RCCMD.NLM -s -a 192.168.210.3 -a 192.168.210.4 -a 192.168.210.10
```

...etc.until "end of line"

unload RCCMD

```
load <path> RCCMD.NLM -s -a 192.168.210.8...etc.
```

unload RCCMD

Do not use the CD License key more than twice. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for the actual installation.

rccmd.nlm

Modul for the multiserver shutdown in IP-networks.

The rccmd.nlm contains different command line parameters, which are either for the "send" or "listen" modul of the RCCMD modul.

rccmd -?	Help
rccmd -s	Sending off a "ping" signal to a waiting program
rccmd -l	Waiting for a "ping" signal. A command can be executed after the reception of the "ping" signal.
rccmd -p	Setting the port address (default = 6003).
rccmd -a	Address in IP format e.g. 192.168.202.1 (max. 10)
rccmd -t	Time in seconds until a connection will be established. (default timeout = 10)

Example:

```
load sys:ups\rccmd.nlm -s -a 192.168.202.1 [-a 192.168.202.1]
```

```
load sys:ups\rccmd.nlm -s -a 192.168.202.1 -t 10
```

```
load sys:ups\rccmd.nlm -l -a 192.168.202.1 shutcmd.nlm [/para]
```

rccmdipx.nlm

This is a modul for just IPX networks. This modul sends a shutdown command (or any other console command) directly to every IPX server name. Please start RCCMDIPX on all Novell consols. The modul needs to be loaded on both servers.

This modul has to loaded on on both servers first

(1. Rename RCCMDIPX to RCCMS.NLM 2. Load RCCMD The following syntax is valid:

rccmd <server name> <console command>

Whereas <server name> is a valid server in a network enviroment and <console command> a valid NetWare command is.

Example:

1. load sys:ups\rccmdipx (or load RCCMD if RCCMDIPX.NLM is renamed to RCCMD.NLM)

2. rccmd gnw1 forcedown

or 1. load sys:ups\rccmdipx

2. rccmd gnw1 sys:ups\down.ncf

Instead of the down command for older *clib.nlm* files, the *forcedown* command maybe used.

4. Unix

4.1 UPSMAN

4.1.1 Installation of the UPS-Management Software

Installation

To copy the UPS-Management Software into your Unix-system 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 (via a network) to install the software.

The Unix part of the management software can be found in the Unix directory. As there is no standard binary executable format for the different Unix systems we use a shell script to install the software onto your computer. Usually this shell script should have execute permissions; if so you can start it direct from CD-ROM.

If you do not have a CD-drive available, you may order the software on disks or tapes in TAR-format from your UPS dealer.

Otherwise 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.

Only the UPSMAN modul command line based version of the UPSMON will be installed on your Unix system. In order to use the Windows version of the UPSMON modul, please start the installation again, using the second CD-key on a Windows workstation. ("Install Windows NT//95/98/2000/XP") It is not necessary to install the Windows version of the UPSMON modul to make use of the UPS server power protection.

Please make sure you have root user rights in order to proceed with the installation.

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: 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 usual command at all Unix systems to mount the CD-ROM has the following form

mount cd-rom-device mount-directory

However, there are several specific options for this command depending on the used Unix system. The following table displays these options:

Unix	Options	Device names
------	---------	--------------

Linux	-o mode=777 -t iso 9660	/dev/cdrom
Sinix	-F hs	/dev/ios0/sdisk(id)s0
HP UX	-o case	/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
Reliant Unix	-F hsfs -r	/dev/ios0/device/cdrom

Step 3:

(id) is the SCSI-Id. 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 program 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 4:

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 5:

Please enter your CD-key at this point and choose the desired operating system from the list.

The installation script will copy all required files into the directory `/usr/ups`. If you don't want to have the software at this directory you can move the whole subdirectory `/usr/ups` to another directory. Please note that the so called start-up- script must edited in the directory `"/etc/rc2.d"` together with the scripts `"S99upsman"` and `"K99upsman"`. This is necessary because these files contain reference to the directory `"/usr/ups"`. In case the above mentioned files have to be relocated into another directory this reference would have to be changed appropriately.

Step 6:

After the files have been copied to the system, the configuration program `ups_conf` starts automatically.

4.1.2 Configuration of the UPSMAN

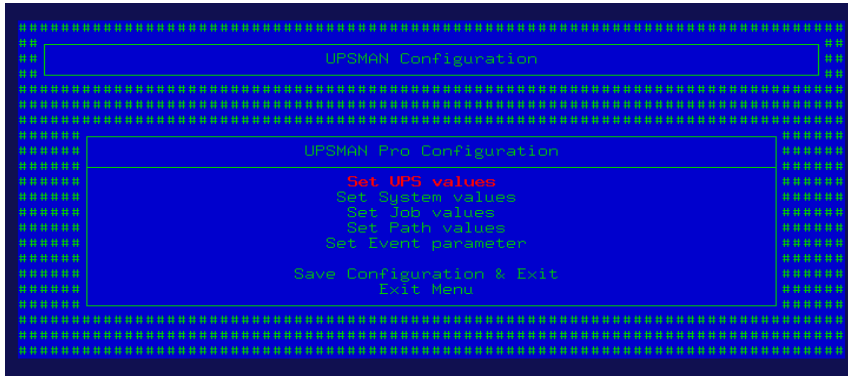
After a successful first installation of the UPS-Management Software the configuration starts automatically. If you want to start the configuration program at a later stage, start `./ups_conf`. The file `ups.cfg` contains the configuration data and has to be in the same directory as that in which the UPSMAN process is started from. The file `ups.cfg` is an ASCII-file and may be configured with any editor.

Within the configuration program the

?-key	is available to read the help texts and the
Esc-key	is available to close the menu.

The UPSMAN configuration menu looks like this:

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A possible problem is the identification or correct serial device name on Unix. The following table gives the usual device names for different 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

The configuration program ups_conf is based on the so called "Curses Library". The most important entries are:

1. **Com port options**
2. **Ups cable**
3. **UPS model name**

These entries have to be done in a correct manner, 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. This information **must** be included after a colon (":") with this entry, otherwise the UPSMAN program will not start. The entry UpsDevice has the following structure:

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

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.

Usually it is not necessary to change the default entries for the serial port settings, because these are depending on the UPS model which is used. These options are read off the data basis which comes with the software. Only if you are sure that there is a mistake you should change the defaults.



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-programmed settings of the UPS previously. (UPS usually have fixed baudrate settings!)

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.

If you are not sure if you are connected to the right device, you can find it out with the following procedure:

1. Choose cable settings to "Type O"
2. Plug a serial 1-1 cable to your computer
3. Start the software at the directory /usr/ups: ./upsman
4. 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.

Step 1: Selecting a serial port

To select a serial port (*Comport*) enter the name of your TTY-device in the field *COM port options*. Use the default settings for the UPS model communication parameters (baud rate, parity, data length and stop bits).

Example: /dev/tty01:2400,n,8,1



Attention:

Please ensure you have entered the correct serial port device name because the UPS-Management Software cannot identify to which com port the UPS is connected.

Corresponding to the UPS model you have selected in Step 1 the UPS-Management Software has automatically set the UPS parameters. Usually you do not have to alter these settings unless you want to customise the system.

In general there are three different **UpsCables**:

Serial setting: The UPS-Management Software uses a data protocol to get status information from and to send commands to the UPS. Depending on the UPS type these data packages are more or less extensive. For the case of serial connection to the UPS there is usually only a 2 wire (send and receive) cable necessary. But some UPS are answering, i.e. give a return package, only if there is a "high" signal at the DTR pin. In this case you need at least a three wire cable. Your UPS dealer will be able to provide the correct cable settings.

Cable 2 to 9: 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 immediately. The cable settings 2 to 9 are not very appropriate for UNIX systems, because some of them do not support modem control exploitation. The ones which don't support these settings are: SCO Unix, Unixware, Sinix. If you use other Unix systems you can try a modem control connection with cable Typ 2. However we recommend that you use the settings "closed" or "opened", which are supported by every Unix system. Please ask your UPS dealer for the correct standard cable.

Typ O and Typ C: In this case the software sends a byte to the UPS and tries to get it again via the usual send/receive wires. The UPS must be a relays one, i.e. it switches a on powerfail. In the case of Type O (=opened) the relay is usually open, e.g. the send byte can not be received except there is a power failure, because the relay is closed in this case. Notice that in the case of "Typ O" cable setting there is no way to check whether the UPS is connected to the computer or not! The logic is other way round in the case of setting cable type to Typ C (=closed). I.e. the relay is usually closed and the software will notice the power failure on opening

the relay. UPS interface without relays (dry contacts) can therefore not be operated with Typ 0 or C. We do recommend to use "real" RS-232 protocols for Unix systems. The use of cable type "closed" may cause the computer not to be able to boot. This can happen, when the computer shutdown afetr the boot process, because off a powerfial.

The entry **UPS model name** This entry contains the UPS model name. This name can not be arbitrary, because it must be coincide with an entry in the software's database. If a UPS model is not found in the data base you will get an "setup" error. Furthermore the default device mode settings and the appropriate cable type are depending on this entry. Please always choose the correct UPS model from the list and use the pre-settings for the communication parameters.

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 automaticaly. A prepared startup script which is enclosed in the software package. The startup shell startupsman.sh can look like this:

```
#!/bin/sh

#

#ident "@(#)ups 4.21 - 2001/12/14"

[ -x /usr/ups/upsman ] || exit 0

PATH=/sbin:/usr/sbin:/bin:/usr/bin

case "$1" in
start)

    cd /usr/ups

    upsmanpid=`ps -e | awk '$4 ~ /upsman/ && $4 !~ /[0-9]/ && $2 ~ /[?|-]/ { print $1 }`

    [ -z "${upsmanpid}" ] && ./upsman && ./upstcp

    if [ -x ./upshhttpd ]; then

        upshhttpdpid=`ps -e | awk '$4 ~ /upshhttpd/ { print $1 }`

        [ -z "${upshhttpdpid}" ] && ./upshhttpd.sh
```

```

fi

if [ -x ./upssnmpd ]; then
    upssnmpdpid=`ps -e | awk '$4 ~ /upssnmpdpid/ { print $1 }'`
    [ -z "${upshttpdpid}" ] && ./upssnmpd.sh
fi

;;

stop)
    cd /usr/ups
    upsmanpid=`ps -e | awk '$4 ~ /upsman/ && $4 !~ /[0-9]/ && $2 ~ /[?|-]/ { print $1 }'`
    [ -x ./upshttpd ] && upshttpdpid=`ps -e | awk '$4 ~ /upshttpd/ { print $1 }'`
    [ -x ./upssnmpd ] && upssnmpdpid=`ps -e | awk '$4 ~ /upssnmpd/ { print $1 }'`
    [ -n "${upsmanpid}" ] && ./upsman -s
    [ -n "${upshttpdpid}" ] && kill ${upshttpdpid}
    [ -n "${upssnmpdpid}" ] && kill ${upssnmpdpid}
    ;;

*)
    echo "Usage: $0 start|stop"; exit 1
    ;;

esac

exit 0

~

```

The directory change `cd /usr/ups` is necessary for the UPSMAN modul to find its configuration file. The alternative version is to call UPSMAN with the option "-f": `upsman -f /usr/ups/ups.cfg`. By doing this all file names have to be configured with absolute pathes, e.g give `/usr/ups/ups_log.txt` instead of `ups_log.txt`, etc.

Most Unix systems use a general nomenclature for the names of the startup scripts. The scripts may look like this:

SnnName and *KnnName*, where *S* stands for start and *K* stands for kill, respectively. *Name* and *nn* are arbitrary names and numbers, respectively. Sometimes there are links in the startup directories referring to the scripts, which

can be found in a different directory. If your system uses such a naming, you should rename the file *ups.rc*, e.g. *mv ups.rc S99upsman, cp S99upsman K99upsman*. You can include the auto startup of *upstcp* into the file mentioned above as well.

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.

Additional configuration:

In the next next section you will find explanations and additional for further configuration data.

Set UPS Values:

Step 1: 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 communication.

Other UPS models with "cable" connections need additional adjustments. 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. Some UPS show the actual load on a display in % or in VA. Otherwise add the input power requirements in Watts of all connected units and calculate the Watt into VA ($\text{Watt}/0,8 = \text{VA}$). Enter this calculated *load* value into the configuration via the "load" selection. Do not change the default settings for hold time and recharge time, unless you install a specific UPS model or a battery expansion.

If you do not alter the default settings of the software (100% load), only a limited UPS autonomy time will be available.

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.

Enter the name or place of your server, in the section *Location* (e.g. "Berlin").



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.

Configuration Parameters

Standard 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.

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 configuration is now complete. Exit the configuration program by choosing the menu entry *Save Configuration & Exit*, as only this way the configuration data is saved in the ups.cfg file. The UPSMAN may be started now.

4.1.3 Configuration of Jobs

The Special Jobs allow for 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 then 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.

Set job values

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
----------------------	---

	<p>software) on another computer. This function is normally used for sending a shutdown command over the network to another computer, of any supported operation system. (starting from CD 4.17).</p> <p>Is is not possible to use the (*) wildcard in order to enter all IP addresses or other syntax. Every single computer must be entered individually, with the IP address in ordr to initiate a shutdown. In case the user wants to shutdown several RCCMD clients, single Event jobs can be added. However it is recommended to add the IP address of the single computer to ensure a shutdown. If a large number of RCCMD clients need to receive the shutdown signal, a batchfile containing the RCCMD –s command can be used, which is easier to manage than a long list of Event jobs.</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.</p>
<p>Send eMail (only some UNIX Variations)</p>	<p>Sends an E-mail. Please enter the E-mail address and the corresponding text into the field.</p> <p>Please note that you need a configured SMTP server. For test purposes, you can also start the program qblat.exe manuall and send an E-mail. The UPSMAN can nnow sent out E-mail messages, if this test is successful.</p>
<p>Start Alarm Beeper with Messagebox</p>	<p>This Event function displays a message box with an accoustic warning on the screen, if a certain configured Event occurs. The acoustic signal stays active until the return key is pressed.</p>

Execute Programm	Executes a configured program. Please enter the full path to the executable file. Is the desired executable in the same directory as the upsman.exe, no path entry is necessary. Example: /usr/ups/rccmd.exe
Write to Log file	Writes the Event into the log file
Send default messages Ids from file messages.dat	Sends preset 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. A separate "send message" job has to be inserted for every user, if messages should be send to several users.

4.1.5 Start of the UPS-Management Software

The UPSMAN is started from the command line. As a standard the UPSMAN uses the configuration file *ups.cfg*.

If you want to monitor UPSMAN from the network, start *upstcp* after UPSMAN is active. With this program it is possible to use the Windows UPSMON modul via the TCP/IP protocol.

UPSMAN is a background process. To start UPSMAN enter *./upsman* (from the directory /usr/ups) The program starts automatically as a background process

UPSMAN supports the following start parameters:

- f <cfg-file> load configuration file <cfg-File>
- v display of program information (Prozeß ID)
- s stops UPSMAN
- n Start of the UPSMAN as multiple process on this Unix computer.

4.1.6 Multiple-Start UPSMAN on Unix:

1. Copy the directory: /usr/ups to /usr/ups1

2. Change to /usr/ups1 and start UPS_CONF, please change the UPS parameter for the second device and also change under EVENTS the devices, which still refer to the original path.
3. Please change the file UPS_EXE path and program calls according to the changes.
4. Please open the file UPS.CFG with an editor (e.g. Ultraedit) und check if all paths refer correctly to the new directory and also correct wrong entries.
5. The two UPSMAN processes need to be started differently: e.g. "usr/ups/upsman -n1" will start UPSMAN with the /usr/ups/ups.cfg configured settings on e.g. TTY0. A second call: "usr/ups1/ upsman -n2" will start a second UPSMAN on e.g. TTY1 from the /usr/ups1 directory. Two UPSMAN processes now run simultaneously on the same Unix machine and read data from the corresponding UPS parallel.
6. If the user requires UPSTCP to be active for the monitoring of Windows UPSMON32.EXE, the following parameters -n1, bzw. -n2 need to be started from the corresponding directories e.g. "usr/ups1/upstcp -n1 -p 5000". These will start the UPSTCP on the port address 5000 on the Unix machine: A second cue

"usr/ups2/upstcp -n2 -p 5999"

will start the second network daemon on a different port address. As soon as both UPSTCP are running, every system can be directly communicated with via the UPSMON for Windows. The UPSMON for Windows is started and TCP/IP is activate in the command line with the following syntax.

"192.168.202.16:5770". The UPSMON will now establish a connection to the UPSTCP on IP Address 192.168.202.16 and display the UPSMAN on port 5770.

7. If the user wants to use the UPSMAN Webbrowser in order to monitor both UPSMAN processes, the following method is recommended:

Please check if both UPSMAN are active and also check the shared memory areas. Commands like e.g. icps show that the UPSMAN processes reserve the shared memory area n=1:0x0034b203 and n=2:0x0034b204, demonstrating that 2 UPSMAN processes are active.

Please check where the first Web-server upshttp is running. Using netstat -a a running upshttp on port 8081 can be seen as active.

In order to start the second Web-server, the port has to be changed to e.g. 8082 in the `upshttp_conf` of the 2 UPSMAN. The Web-server may now be started.

Using a Web-browser the corresponding UPSMAN can be displayed:

e.g. <http://<IP adresse>:8081/upsman.html?n=1>

(for the first UPSMAN `upsman -n 1` and `upshttpd -p 8081`)

<http://<IPadresse>:8082/upsman.html?n=2>

(for the second UPSMAN `upsman -n 2` and `upshttpd -p 8082`)

4.1.7 Beenden der USV-Management Software

Please enter the command `upsman -s` at the command line in order to stop UPSMAN ein `-upstcp` will stop automatically.

4.2 Unix 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

Unix commands

Some of the most common Unix commands are listed here. On all UNIX systems you will find an explanation to these commands via the man pages by typing "man *command*". The output can be redirected with the ">" sign to any filename or device, e.g. cat ups.cfg >/dev/lp0 (print file ups.cfg).

Function	UNIX command	options & comments
Change directory	cd <i>directory</i>	
List directory entries	ls	-l (long) with date and size
Show file	cat <i>filename</i>	
Show file page by page	more <i>filename</i>	type q to quit more
Find files	find	-name, -print -ctime e.g. find all files which begins with "ups": find / -name "ups*" -print
Copy files	copy <i>source target</i>	-r include subdirectories -p use date and time of source file
Rename files	mv <i>source target</i>	
Edit a text file	vi <i>filename</i>	The vi is a editor with different modes: input-, replace-command mode, etc. To escape from a certain mode type ESC. To quit the vi editor change to command mode (type ":") and q
Search for a string in a file	grep " <i>string</i> " <i>filename</i>	-i (case insensitive)
Handle archive files	tar vtf <i>archive</i> tar xvf <i>archive</i>	list an archive extract files from an archive

4.3 RCCMD on Unix

The RCCMD (remote console command) is a program that allows the execution of programs on remote computers. This tool is part of all UPSMAN supported operating systems. With this tool it is possible to connect different operating

systems. E.g. is the UPS-Management Software installed on a Unix computer and should a remote shutdown be executed on a computer with a different operating system in heterogene network, the RCCMD tool is necessary.

The RCCMD tool is based on the TCP/IP protocol. During the installation, the TCP/IP protocol should be installed in the first place.

The RCCMD tool works in two different modi. In the so called "Listen" modus, the program (as background process) waits for a command from the "Send" modus of the RCCMD modul.

To start RCCMD in receiving-mode (*listen*) enter the following line:

```
<path>/rccmd -l {-a IP Address or Host Name}[-p portaddress]"command"
```

Example

```
/usr/ups/rccmd -l -a 192.200.100.10 -p 6003 /usr/ups/sups_exe 3
```

Optional parameters:

-a <address> Computer, which accepts the RCCMD-signal.

-p <port> TCP-Port, which receives the RCCMD-signal.

The "command" file should be given in the full path. The *-p* port option maybe used, if you want to start the RCCMD modul on more the one computer, in order to execute different commands for different Events. Please check the following example, also note that the default port is 6003.

To start RCCMD in sending-mode (*send*) enter the following line in your customised script: (see chapter 4.1.3) for reference:

```
RCCMD -s -a <address> [-p 6003]
```

For *<address>* enter the TCP-address of the machine to which you want to send the RCCMD-signal.

Optional parameters:

-p <port> TCP-Port from which the RCCMD-signal is sent, in this case default 6003

The option *-a* (address) can be entered several times in case you want to shutdown several remote server.

Example:

The UPS Management Software is running at computer UPS-host. It should shutdown the database at server data-host at UPS powerfail and shutdown the server data-host and the host users at the end of battery capacity. The doshutdown script at UPS-host can look like:

```
# powerfail
1)
    sleep 1
    ${MSGTOALL}<<-!

    UPS ALARM / UPS POWERFAIL!

    Stop applications and log out!
!
/usr/ups/rccmd -s -a ups-host -p 6000
    ;;
...
# powerdown
3)
    sleep 1
    ${MSGTOALL}<<-!
    UPS ALARM / NOW SYSTEM SHUTDOWN !
!
/usr/ups/rccmd -s ups-host -p 6003
/usr/ups/rccmd -s users
sync; sync; sync
/etc/init 0
    ;;
```

And at data base server data the rccmd programs should be started as

```
/usr/ups/rccmd -l -p 6003 -a ups-host "/usr/ups/db-down" (shutdown)
```

```
/usr/ups/rccmd -l -p 6001 -a ups-host "/sbin/init 0". (warning)
```



Note:

Do not use the CD License key more than twice. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for installations.

UNIX RCCMD multiple sender configuration:

In case the user wants to utilise more than one sender address the rccmd.sh has to be modified like this:

```
#!/bin/sh

# You may specify a sender IP to accept signals from,
# default is everyone.
SENDER="-a 10.55.52.82 -a 10.55.52.83 -a 10.55.52.84"

# You may change the port to listen on,
# default is 6003.
PORT=

# You must define a command to be executed upon
# receiving signal.
SCRIPT=/usr/ups/doshutdown.sh

# test -z $SENDER || SENDER="-a $SENDER"
test -z $PORT || PORT="-p $PORT"

# to start:
./rccmd -l $SENDER $PORT $SCRIPT
```

4.4 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/upshttpd.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.

Starten the WEB-Server:

Configure and start the UPSMAN as described in the chapters 4.1.2 and 4.1.3

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

Displayed data:

Capacity of the UPS in percent

Battery capacity in percent

UPS- Input load

UPS-Status

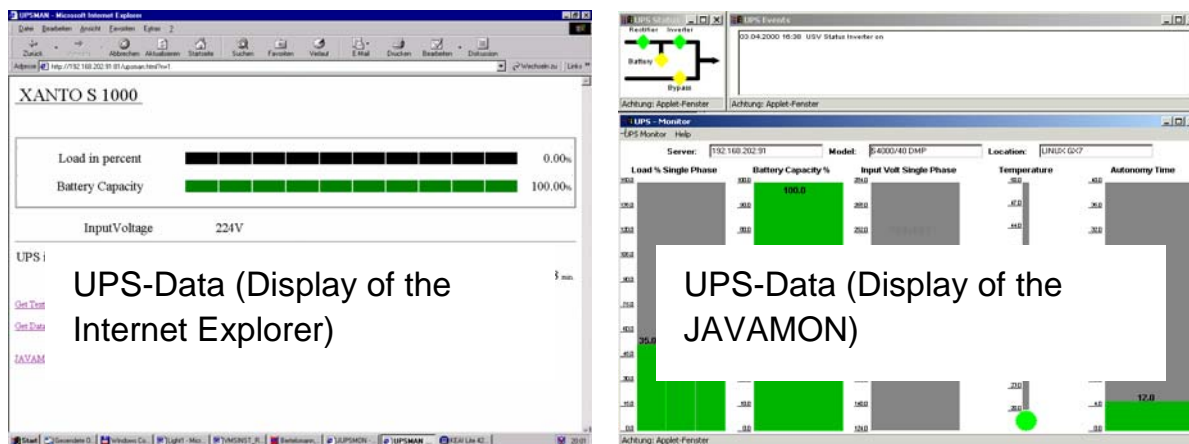
Battery remaining time

In addition the button "Get TextLog File" transfers the log file which has been written by the server and displays the information via the WEB-Browser.

The button "JAVAMON" starts the JAVAMON, which displays the UPS data analog to the Windows-client.

The display for both kinds of displays is depending on the typ of UPS one or three-phased.

Please see the graphics also on the next page.



5. DEC VMS

5.1 UPSMAN

5.1.1 Installation der UPS-Management Software



Note:

The VMS license is not part of the standard CD; It is to be ordered separately. It is not permitted to use the VMS version and its RCCMD modules without registered license.

General

Before the installation you should make sure that you know the logical device name of the serial interface, which communicates with the UPS. Make sure that no other process is executed over this interface (e.g. TTA1 or TTA4). Please refer to the instructions of the following paragraphs. If you need further assistance on this topic, look up the Troubleshooting section in this manual. Also contact your UPS dealer for further information.



Attention:

The alpha version was created with OpenVMS 7.1. For OpenVMS 6.x you should select the version 6.x manually, on the subdirectory on the CD, e.g.: DKA200:[vms.alpha.6x]

Installation:

Step 1: Please insert the desired medium in its corresponding drive.

Step 2: Connect UPS cable between UPS and the computer serial interface. Login to VMS system via the SYSTEM login.

Step 3: Mount the CD ROM, floppy or tk 50 tape with label UPS and give it the logical name UPS:

CD-ROM: MOUNT DKA500: UPS UPS: (Mount DKA500 as your CD-ROM device)

Floppy disk: MOUNT DVA0: UPS UPS: (Mount DVA0 as your floppy device)

TK-50 tape: MOUNT MKA300: UPS UPS: (Mount MKA300 as your tape device)

Step 4: Please copy the archiv VMSA.ZIP (Alpha directory) and UNZIP.EXE into a temporary directory on your system.

```
COPY VMSA.ZIP DKA100:[TEMP]
COPY UNZIP.EXE DKA100:[TEMP]
```

After the copy process has been finished, the directory upsa0441 will be located in its own directory [temp].

If you do not have the ZIP-utilities on your computer, please ensure you have assigned a system value e.g.

```
UNZIP=="$DKA100:[VMS.ALPHA]UNZIP.EXE
```

Step a: Unpack your VMS UPS archive: SET DEF DKA100:[TEMP] UNZIP VMSA.ZIP

Step b: Start the VMS installation routine:
@SYS\$UPDATE:VMSINSTAL UPSA
DKA100:[TEMP]

This is a system specific command. Please use the VMS help pages for your system or ask the system operator, if you have problems with mounting your input device.

Step 5: Start the VMS installation:
@SYS\$UPDATE:VMSINSTAL UPSA
DKA100:[TEMP]

VMSINSTAL is an interactive script, please follow the installation instructions on the screen. (All instructions are also listed in the steps 5-11)

Step 6: Answer YES at the prompt: "Are you satisfied with the backup of your system disk [YES]"

Step 7: Answer the prompt: "Where will the distribution volumes be mounted:" with your correct input device name, e.g. :

DKA:100[temp]

- Step 8: Answer the prompt: "Products": with: "upsvv010" for VMS/VAX, or "upsa0441" for VMS/ALPHA
- Step 9: Answer the prompt: "Enter installation options you wish to use (none):" by pressing RETURN
- Step 10: Enter the license code of your UPSMAN version (See license document! Do not use this license key on any other VMS station).
- Step 11: At the prompt: "Please enter the target directory (complete path) "[DKA1:[ups]]" with the entry of the complete path and confirm with the enter key.
- Step 12: Answer the prompt: "Do you want the UPSTCP servers to be started (Y/N)"

The UPSTCP servers are necessary, if you want to monitor the UPS in a TCP/IP network form one more MS-Windows UPSMON clients. If you do not want to monitor the UPS via Windows clients, answer "N" and proceed with step 14.

- Step 13: Answer the question "How many simultaneous tcp connections should be possible (1-99):"

This defines the number of Windows UPSMON clients that can monitor the UPS simultaneously. Enter 0 if no Windows UPSMON clients should be able to connect to the UPS. Enter e.g. 2 if you want to allow a parallel access of 2 Windows UPSMON clients.

- Step 13: Exit the VMSINSTALL procedure by RETURN at the "* Product:" prompt and change to your target UPS directory. (e.g. set default dka100:[ups])

5.1.2 Configuration of the UPS-Management Software with DEC VMS

Configure the UPS-Management Software by starting *UPS_CONF.EXE: RUN UPS_CONF.EXE.*

Please refer to the user manual section (UNIX) 4, to learn how to use the configuration program UPS_CONF. Only the VMS typical device names for the serial interfaces have to be used instead of the UNIX syntax. (E.g. TTAx, where x indicates the port number, TTA2:2400,n,8,1). Do not change the default baudrate of the UPS model unless you have changed the settings manually.

We recommend to set the "check UPS interval(s)" to 11-30 seconds, because the UPSTCP process is not capable of delivering the data for the Windows UPSMON clients fast enough.

Please check the script UPS_EXE.COM, which is spawned on powerfail, battery-low, etc. Use an editor to modify this file to your needs. Please notice, that the "shutdown" command, used in the ups_exe.com file must be valid and should down the system without further input. Please see the enclosed sample file *ups_exe.com* and the default value here. Please notice: If the serial interface the UPSMAN is using for the monitoring process is using a SET TERM command, you have to change the entry in your VMSStartup-file.

Example: (Sample out of SYSTARTUP_V5.COM, System Startup File)

```
SET TERMINAL TTA1: /PERMANENT /NOAUTOBAUD /SPEED=9600  
/PROTOCOL=DDCMP
```

Please delete this line if TTA1 is the UPS device.

- a. Start the UPS monitoring via the start of the UPSMAN: @upsman
- b. After the display of the "UPSMAN started" message, you may test the software functions. Please note that the messages to the user depend on the correct configuration in the ups_exe file and the correct setting of the paths. If you do not receive a message, please check the path and command of the message command in the ups_exe file and ups_cfg. In case the UPSMAN process is not starting, please check the configuration (cable, baud rate, port, other processes etc.) and refer to the "Troubleshooting" section of this manual.
- c. The automatic start of the UPSMAN should be initiated from the VMS startup file. You can use the attached script for this.

upsstart.com.

Please add a line just before the Exit command, e.g.

```
$ @your_disk:[your_path]upsstart.com (e.g. $ dka100:[ups]upsstart.com)
```

The installation is complete, after the successful execution of the UPSMAN start under DEC VMS. After starting UPSTCP, the Windows UPSMON may be used to graphically monitor and operate the UPS.

5.2 RCCMD on VMS

The RCCMD software for VMS ist part of the UPS-Management-Software CD. Before starting with the installation, please read the installation instructions for RCCMD on Unix in this manual. The same installation procedure is valid for the VMS software.

Please check the command "netstat -an" in order to see if the port 6003 is used by other programs. In case the port 6003 is busy, please start the RCCMD Deamon on another available port. The extension -p <address> can be used for this. Please follow the instructions below:



Attention:

The Alpha-version was linked on OpenVMS 7.1. For OpenVMS 6.x the version 6.x from the CD should be used. (ex. DKA200:[VMS.ALPHA.6X]).

Installation:

1. Connect the computer with the network. Log on to the VMS system with the SYSTEM login.
2. Pleasae mount your CD-ROM, disk or tape and name it with the following logical name:

```
UPS:CD ROM: MOUNT DKA500: UPS UPS:
```

(replace DKA500: with your CD-ROM drive)

This is a system specific command. In case a problem occurs during the mounting, please contact your system adminstrator or refer to your VMS manual. If there are problems with the DEC ALPHA hardware, please refer to section 14. in this chapter.

3. Start the VMS installation with:

```
@SYS$UPDATE:VMSINSTAL
```

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or @SYS\$UPDATE:VMSINSTAL <device>

e.g. @SYS\$UPDATE:VMSINSTAL RCCMDA DKA200:[VMS.ALPHA]

VMSINSTAL is a interactive script. Please follow the instructions on the screen. (All instructions can also be found in the section 4-13.) Please use the license key only to install the RCCMD software!

4. Please enter "Yes" when: "* Are you satisfied with the backup of your system disk [YES]"
5. Confirm: "* Where will the distribution volumes be mounted: " with the exact device name e.g. :
6. CD ROM : dka500:[VMS] (Your CD-ROM drive and path Laufwerk [VMS], in case the device is different on your machine.
7. Confirm: "* Products:" with: "rccmda031" for VMS/VAX, or "rccmda031" for VMS/ALPHA
8. Confirm: "* Enter installation options you wish to use (none):" with the RETURN-key
9. At the prompt: "Please mount the first volume of the set on MKA300:." "* Are you ready?", please insert the CD-ROM, disk or tape into the device and enter "YES".
10. Please enter the license key for the RCCMD version. (Please also refer to the license regulations.) Do not use this license on any other machine.
11. Enter the absolute path for the destination directory, e.g. dka100:[ups]
12. Confirm with "Would you like to start the RCCMD Module automatically on your system"
13. Finish the VMSINSTALL routine with the RETURN key, when: "* Product:" and change to the destination-UPS-directory.
(e.g. set default dka100:[ups])

14. Install the RCCMD software in send mode on your RCCMD-server computer. This is the computer on which the UPSMAN is installed and uses the RS-232 interface to communicate with the UPS.

DEC ALPHA CD Problems: If you were not able to mount the CD or problems occurred while executing VMSINSTAL, please refer to the following instructions:

- a. Copy the file VMSA.ZIP (ALPHA directory) into a temporary directory on your computer.

```
COPY RCCMD.ZIP DKA100:[TEMP]
```

In case there are no ZIP tools installed on your computer, please define the system variables:

```
UNZIP=="$DKA200:[VMS.ALPHA]UNZIP.EXE if DKA200: is your CD-ROM-drive.
```

- b. Unpack the VMS UPS archive:

```
SET DEF DKA100:[TEMP]
```

```
UNZIP RCCMD.ZIP
```

- c. Start the VMS installation routine:

```
@SYS$UPDATE:VMSINSTAL
```

Configuration of the software:

1. After the installation you will find three (3) command files:
 - RCCMDSTART.COM: RCCMD startup commandfile should be called in the VMS startup file
 - RCCMD.COM: Command file to start the RCCMD-program, please adjust this file according to your requirements.
 - RCCMD_SHUTDOWN.COM: Example file which can be started from the RCCMD module in order to initiate the system shutdown. Please configure the RCCMD.COM so the program is started „rccmd -l“. Optional you may enter the address of the sending computer („rccmd -l -a <IP-address of the sending computer> -p <port (standard 6003)>“). After this you can execute RCCMD by executing RCCMDSTART.COM with "@rccmdstart"
2. Please check the process with "show system". A process by the name of RCCMD must exist.

3. The automatic start of RCCMD should be executed from the VMS Start-script. The following line must be inserted:

rccmdstart.com. Please insert a line into the Start-script (before executing the command)

e.g. \$ @your_disk:[your_path]rccmdstart.com (e.g. \$ @dka100:[ups]rccmdstart.com)

The UPS-Management-Software will start automatic after the computer has been rebooted.

6. OS/2

6.1 UPSMAN Installation

General

The OS/2 development has been discontinued 1998. The UPS-Management Software version 3 however remain included in the delivery of the standard CD – only devices that where part of the programm 1998 will be supported. 8 eingestellt.

Die USV-Management Software wird nur bestimmte USV Typen angeboten. Bitte wenden Sie sich bei Fragen an ihren USV Hersteller.

6.1.1 CID Method

Before you copy the UPS-Management software via CID onto your system, please execute the following job first.

1. Install TCP/IP for OS/2 and WinOS/2 (The latter is recommended in order to use the UPSMON module under Windows. However, not needed for the stand-alone operation.)



Note:

The UPSMON module is not required for just UPS monitoring and shutdown.

2. Please write down the CD-ROM drive letter and the future installation directory. You may start CIDSTART from the CD-ROM now
3. Choose between WARP and LAN SERVER installation.

4. Install "All components" and enter the installation path. Please notice this path, because you will be asked for it afterwards during the license key installation.
5. The files will be copied now. Leave the installation at the end of this process via F3 or via "close".
6. The License Key is requested now. Please enter your correct CD ROM drive letter (eg. "g:"), enter your installation directory path (eg. "c:\UPS\UPSWARP"), enter the correct License Key Code of your CD ROM. (eg. "6K01xxxxxxx").
7. Afterwards a new folder "UPS Software OS/2 WARP or LANSERVER" with several icons will be created.
8. "UPS Config WARP bzw. LANSERVER" is the configuration program that has to be started to configure your UPS. Follow the configuration instructions in the user manual chapter 6.2
8. The icon "UPSMAN WARP or LANSERVER" is the background task for the UPS monitoring. After a correct configuration you may start this process now. WARP: If no error message occurs, the configuration is correct and the UPSMAN process now active. LANSERVER: The box "UPSMAN: COMING UP..." will appear. Please notice that you have to make an entry in the IBMLAN.INI (See user manual) to be able to start the UPSMAN as network service. You may test your configuration and simulate a powerfail. A messagebox will appear. Under LANSERVER the UPSMAN will be started as a background process, using "net start UPSMAN" and using "net stop UPSMAN" to stop the UPSMAN process.
9. The icon UPSTCP starts the process UPSTCP, which needs an active UPSMAN and a correct TCP/IP configuration to start. When this process is active, you may monitor the UPSMAN and use the graphic management tools from any Windows computer with TCP/IP



Hinweis:

UPSTCP ist für die einwandfreie UPS Überwachung und Shutdown nicht notwendig.

10. The icon UPSMON16 starts this Windows 16-bit Monitoring Programm, which may now connect via TCPIP with the UPSMAN. You may start this program also from a windows OS/2 shell.

11. The icon UPSMON is a commandline driven program, which shows the actual UPS data of the UPSMAN monitoring process. This tool may be used to check the actual UPS data and if the UPSMAN process is still running. UPSMON runs only on the local computer, no network connection possible.
12. The installation and configuration is now finished. The UPSMAN and UPSTCP may be now entered into your automatic cold boot routine of OS/2.

6.1.2 DOS Method

Alternativ, the DOS installation program `install.bat` may be used. However, we recommend the CID method.

6.2 Configuration of the UPS-Management Software

After a successful first installation of the UPS-Management Software the configuration program starts automatically. Load the existing configuration file (*ups.cfg*) found in the UPS directory. The file *ups.cfg* contains the configuration-data and is located in the actual program-directory where *upsman.exe* is started.

For configuration of UPS-Management Software for OS/2 two configuration programs are available. One program is *ups_conf.exe* which is a windows program, the other one is *upsconf.exe* which is a MS-DOS program. We recommend the use of the Windows version.

Step 1: 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 communication.

Other UPS models with "cable" connections need additional adjustments. 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. Some UPS show the actual load on a display in % or in VA. Otherwise add the input power requirements in Watts of all connected units and calculate the Watt into VA

(Watt/0,8 = VA). Enter this calculated *load* value into the configuration via the "load" selection. Do not change the default settings for holdtime and rechargetime, unless you install a specific UPS model or a battery expansion.

If you do not alter the default settings of the software (100% load), only a limited UPS autonomy time will be available.

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.

Enter the name or place of your server, in the section *Location* (e.g. „Berlin“).



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 manufacturer's specifications and should only be altered in special configurations since the UPS could be discharged before the system has been shutdown.

Step 2: Selecting the serial port

To select a serial port (*Comport*) click with the mouse on the check box on the right side of the menu. Do not change the default settings for speed/ baud rate, unless you want to use a special UPS model. Most UPS have a fixed baud rate and must not be used with higher speeds than the default values.



Attention:

You have to select the correct serial port, because the UPS-Management Software is unable to identify the UPS automatically.

Corresponding to the UPS model you have selected in Step 1 the UPS-Management Software will automatically set the communication parameters. Usually you do not have to change these settings.

With this step the configuration is completed. With a mouse-click on *OK* you exit the menu. Save the new configuration into the file *ups.cfg* in the directory of the *upsman.exe*. *Upsman.exe* can be started now.

Custom Parameters

System parameter: Timeframe

UPS Check Rate	Defines the time-interval (in seconds) in which the UPS-Management Software polls data from the UPS. The system will be slowed down if this value is too small. If the value is too high the system will react more slowly in case of a power failure.
Broadcast Rate	Defines the time interval (in seconds) in which the UPS-Management Software informs the network user via the broadcast command during a power failure of the remaining time until the shutdown is initiated. NB. LAN Server only.
Logfile Update Rate	Defines the interval (in seconds) in which the UPS-Management Software logs the Input Voltage and Frequency Values.
Logfile Size min.	Defines the minimum time range (in hours) of the log file 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 log file Size min.) if the log file contains more data than the configured value.

System parameter: System Shutdown

Enable 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.
------------------------	--



Attention:

Make sure that this checkbox is active if you do not want to use a user-defined shutdown-job. If not, the UPS might be turned off during a power failure before the system has been shutdown.

Downtime

Defines how many minutes before the UPS battery is discharged, that the shutdown procedure begins. This time interval 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 before the batteries are exhausted).

System parameter: UPS Shutdown

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

Enable UPS shutdown

Defines if the UPS will be turned off after the completion of the shutdown procedure of the server. This feature will enable the UPS to be turned off before a complete discharge of the batteries.

UPS down delay

Defines how many seconds after beginning the shutdown procedure (see Downtime) that the UPS will turn off. Caution: Take care that the system is down before this count down ends and the UPS is switched off. The timer for the UPS down command is initiated simultaneously with the system shutdown command. Eg. If the system shutdown starts 3 minutes before battery end, the UPS down delay is started at the same time. So if the UPS down delay is set to 120 sec., the UPS will be switched off after 2 minutes. So your system has to finish it's shutdown within 2 minutes.

UPS restore delay

Defines how many seconds after turning off the UPS that 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.

File Configuration: Logging

Editor	Defines which editor is used for viewing the event protocol file.
Textfile	Defines the event protocol filename.
Datafile	Defines the filename of the log file for Input Voltage and Frequency Values.

File Configuration: Scheduler

Termin File	Defines the filename in which the data of the scheduler will be saved.
-------------	--

Job Configuration: Jobs

The software makes the execution of jobs (**.ncf-file*) available to enable you to adjust the UPS-Management software to your requirements. As standard the UPS-Management Software executes internal system event routines by the parameter "own".

Broadcast	<ol style="list-style-type: none">1. This job is executed during a power failure in the time-interval Broadcast Rate (see System parameter: Timeframe/Broadcast Rate), as long as the UPS is running on battery.2. The system informs the user about the remaining up-time of the server, if parameter "own" is used.
Powerfail	<ol style="list-style-type: none">1. This job is executed immediately after a power failure has been detected.2. The system informs the user about the problem.
Restored	<ol style="list-style-type: none">1. This job is executed when the power has returned and the UPS switched back to normal mode.2. The system informs the user that the power has been restored.

- Shutdown
1. This job is executed at the moment the system starts the shutdown (see System parameter: Downtime).
 2. The system will be shutdown and the UPS may be switched off (if configured and the UPS is capable of accepting this command).



Attention:

If you created your own shutdown-job, you have to make sure that it has a down-command at the end of your script, otherwise the system will not be shutdown. In order to utilise this function, please use the provided OS/2 program shutcmd.exe

With the OS/2 modules for WARP and LAN Server it is not possible to execute all programs and commands. The following table(s) is showing programs and commands, which can be executed with the UPSMAN and which not. "PM" stands for Presentation manager (Programs). The "PM" programs can be all kinds of OS/2 commands. None "PM" programs are batches, DOS commands or other commands, which are not supported by OS/2. It is not possible to execute a batch file (*.cmd) from UPSMAN WARP. Please use the original OS/2 commands (not batch files) or utilise the LANSERVER UPSMAN

OS/2 UPSMAN Warp:

Job	PM-Programs	None-PM-Programs
Power fail	yes	No
NetMessage	yes	No
PowerResto	yes	No
Shutdown	yes	Yes

OS/2 UPSMAN LanServer:

Job	PM-Programs	None-PM-Programs
Power fail	yes	yes
NetMessage	yes	yes
PowerResto	yes	yes
Shutdown	yes	yes

All Jobs can now be called up with the parameters. The corresponding job needs to be entered with the full path, so that job can be executed, even it is not entered in one of the path-variables configured path.

6.3 Start UPS-Management Software

The *upsman.exe* is started from the OS/2 command shell. As a standard *upsman.exe* uses the configuration file *ups.cfg*.

If you want to communicate with the *upsman.exe* from a windows terminal in the network, start *upstcp.exe* after *upsman*. With this program the UPS data is available for any Windows *upsmon* using TCP/IP for Windows within the network. Notice that the TCP/IP protocol has to be installed in OS/2 and your WIN/OS2 for connecting from WIN/OS2 to UPSMAN.

6.3.1 Start with OS/2 2.x and Warp

Upsman.exe is a background process. To start *upsman.exe* enter "*start upsman*" at the command line.

upsman.exe can be started with the following parameters:

- v display of program information (process ID)
- s stops Upsman

To execute an automatic start of *upsman.exe* when booting the system, enter the command *start upsman* into the OS/2 file *startup.cmd*.

When using OS/2 Warp a reference can be created in the system start folder for an automatic start of *upsman.exe*.

Use the same procedure for auto-starting the network module *upstcp.exe*.

6.3.2 Start with Lan Server

Upsman.exe within LAN SERVER runs as a service. Before you can start *upsman.exe* you have to install the program as a service. For this purpose you have to make an entry to the file *ibmlan.ini*, directory *ibmlan*, section *services*. Enter the following lines, if you installed the software in the default directory:

```
upsman = c:\ups\upsman.exe
```

If you want to use the network module *upstcp.exe*, you have to enter a second line to the *ibmlan.ini*:

```
upstcp = c:\ups\upstcp.exe
```

Now *upsman.exe* and *upstcp.exe* may be started from the command line by the commands *net start upsman* resp. *net start upstcp*. In addition, the services can be started and stopped via the *servicelist* or the commands *net stop*.

For an automatic start enter the above mentioned start commands into the file *startup.cmd*.

6.4 Stop with OS/2 2.x and Warp

To stop *Upsman* enter the command *upsman -s* at the OS/2 command line.

To stop *upstcp* proceed accordingly. Notice, that *upstcp* should be stopped before *Upsman*.

6.4.1 Stop with Lan Server

To stop the *Upsman*, enter the command *net stop upsman* at the command line. Proceed in the same way for *upstcp*. Notice, that *upstcp* should be stopped before *Upsman*.

Otherwise both services can be stopped with the *servicelist*.

6.6 RCCMD auf OS/2

To start RCCMD in the receiver mode (*listen*), please enter this line:

```
RCCMD -l [<address>] shutcmd.exe
```

Optional Parameter:

```
<address>    Computer, from a RCCMD signal is accepted
```

To start RCCMD in the send mode (*send*), please enter this line into the *ups_exe.cmd*:

```
RCCMD -s <address>
```

Please enter the TCP address of the computer to which you want to send a RCCMD signal in the field *<address>*. The batch *waitups* and *sendups* might also be used. The option *-a* maybe used several times, if a shutdown should be initiated on a remote network server.

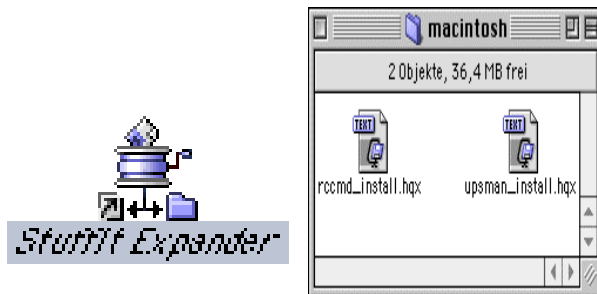
Do not use the CD License key more than twice. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for the actual installation.

7. Apple Macintosh

7.1 UPSMAN Installation

Every UPS-Management software CD contains the UPSMAN/UPSMON software for the operation on the Apple Macintosh MAC OS 9.x. The installation is user friendly.

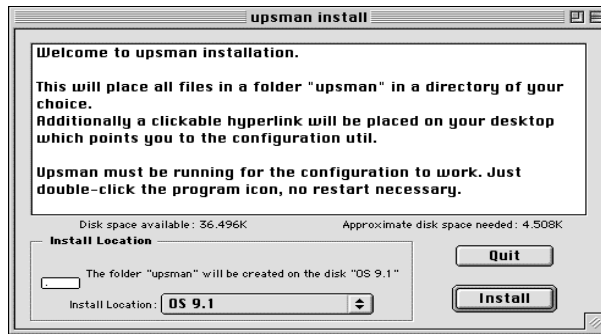
1. After inserting and opening the UPS-Management software CD, the user should drag or copy the files *upsman_install.hqx* and *rccmd_install.hqx* from the CD-ROM directory onto the desktop. Those two packed archives require an hqx (MAC OS standard) unpack tool e.g. Stuffit Expander. (see picture)



2. After unpacking, two installation archives are displayed:

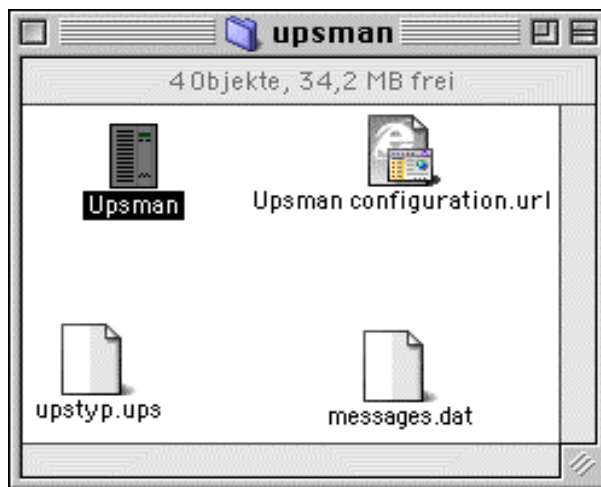


3. In order to install the archives the user needs to double-click the icons. The following window is displayed: (see chapter 7.3 for RCCMD)

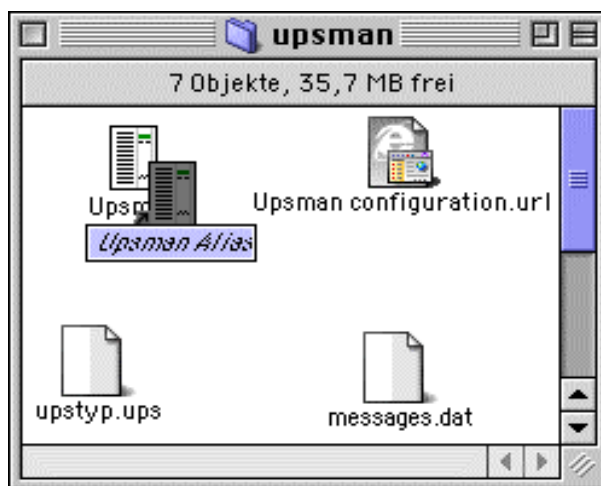


4.

By confirming the dialogue, the entry of the license key is requested by the software. After entering the correct licenses, the software installs into the following directory: (see picture)

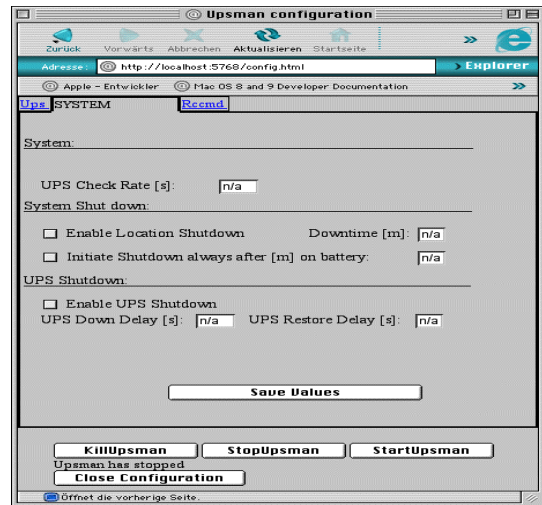
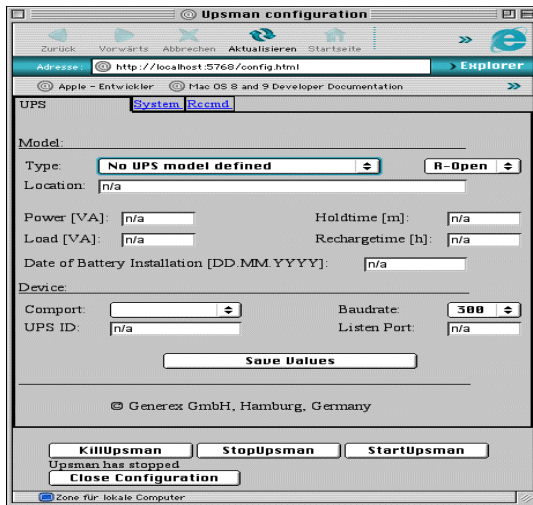


We recommend to create an alias from the UPSMAN and the Upsman configuration.url. The icons should be palce in the Apple menu or the desktop for easy access.

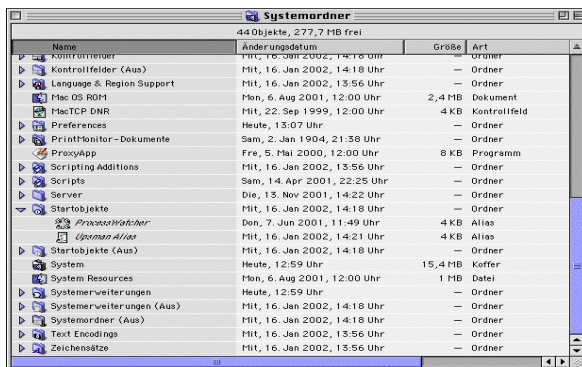


7.2 UPSMAN Configuration

The configuration under MAC OS is executed via a web-browser (Internet Explorer, Netscape Navigator). Please start the alias upsmanconfiguration.url by double-clicking the mouse on the icon. The following dialogue opens:



The configuration of the UPSMAN software under MACOS is similar to the Windows OS versions. However the menu "Special" is not available under Windows. We would therefore like to refer the user to the Windows configurations chapter in this manual. In the bottom part of the configuration windows of the UPS and System card, the user can use the features "Killupsman", which stops the UPSMAN process until a restart is done, "StopUpsman", which stops the UPSMAN and "StartUpsman", which re-starts the UPSMAN after the configuration.

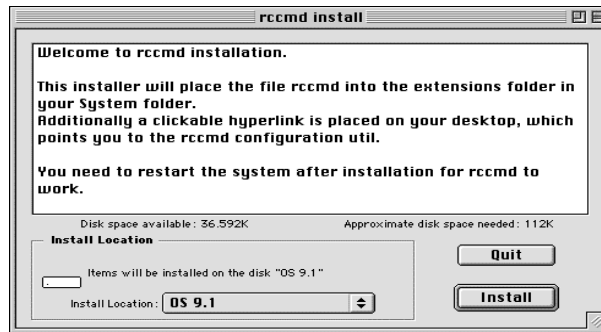


Generally, the MAC OS configuration allows an automatic start when the computer is booted. Simply copy the UPSMAN alias into the Startobjects-Folder, which is located under: System folder>Start objects (see picture)

7.3 RCCMD under MAC OS

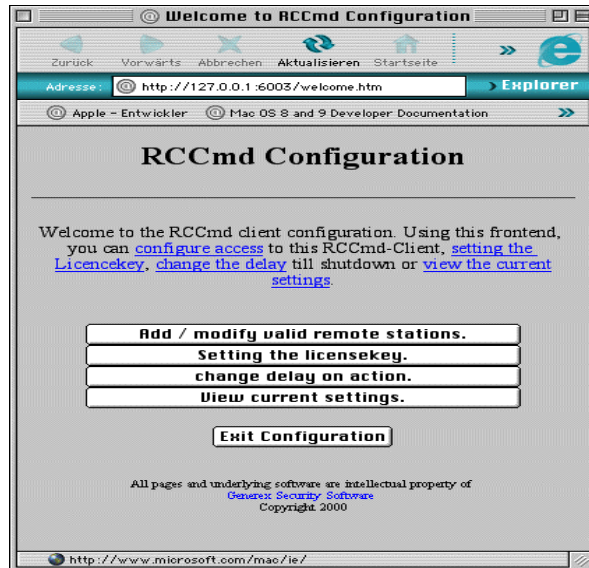
The installation of RCCMD under MAC OS functions like describes in section 7.2. The RCCMD installation automatically copies an alias onto the desktop (rccmd configuration.url)

3. After the installation of the RCCMD archives , the following dialogue opens:



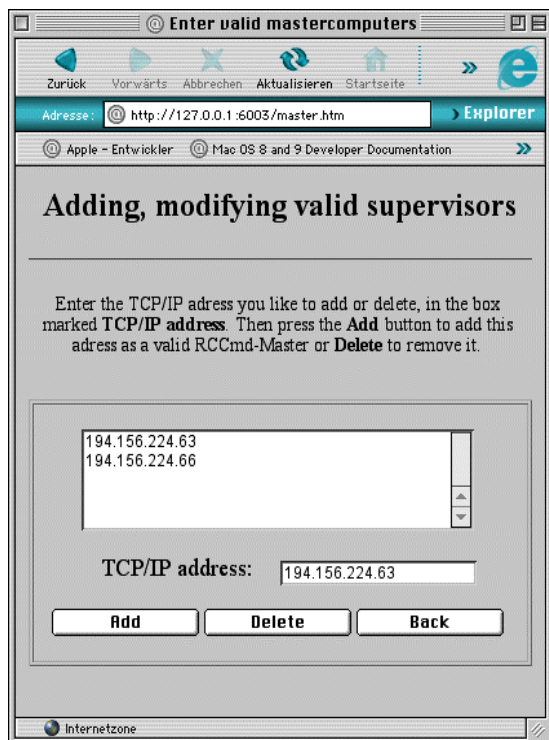
4. After restarting the computer, the RCCMD configuration tools can begin. In order to do this, please click on the alias "rccmd configuration.url" A standard Web-browser (e.g. IE 5.x or Netscape Navigator 4.x) will start now.

5. The following window opens:



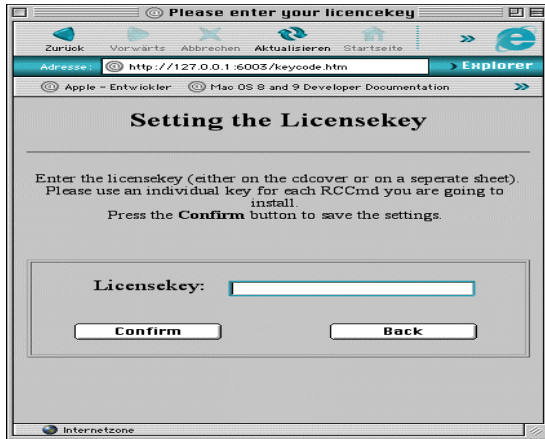
It is recommendable to execute the menu options from top down.

Add/ modify valid remote stations



This option allows the entry of the IP addresses of the RCCMD sender, those computers, which sends the shutdown signals to the remote computers (RCCMD clients). The configuration of the RCCMD sender is executed from the UPSMAN configuration. Please also check the chapter 2.2 in the Windows section of this manual. Please enter the IP address(es) of the RCCMD sender into the field "TCP/IP address" and click onto "Add" in order to add the address to the list. Repeat this method if several RCCMD sender should be in the list. To delete, simply highlight the IP address of a RCCMD sender from the list and click the "Delete" Button.

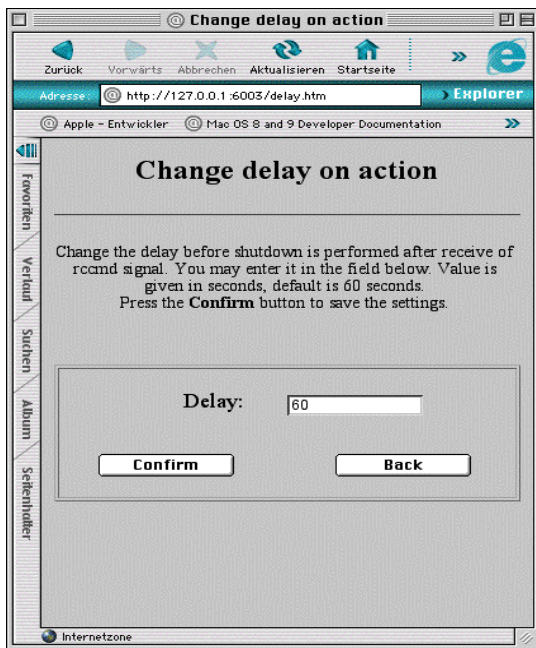
Setting the licensekey



Please enter the license key, which came with the copy of your CD or the separate purchased RCCMD license (additional license). Please confirm your entry by clicking on "Confirm" The "Back" button, will take the user back to the RCCMD main menu.

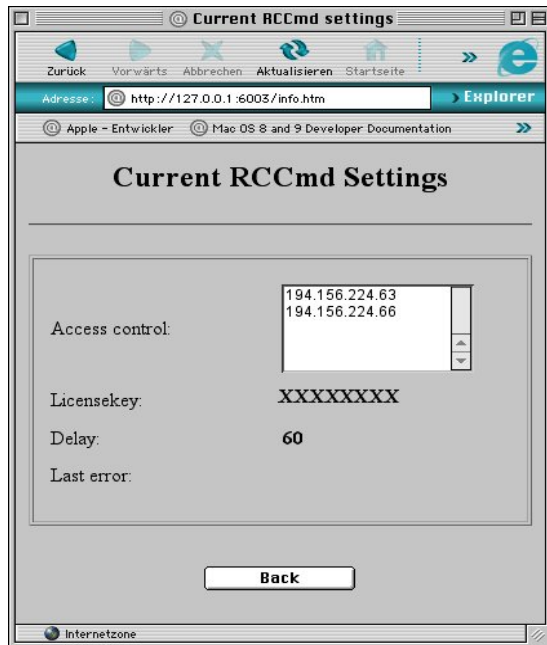
Please note the license regulations regarding RCCMD sender and clients. The standard version of the MAC OS UPS-Management software can send RCCMD (send) signals to an unlimited number of RCCMD clients. Per license only one RCCMD client can be execute a shutdown. Please contact your UPS dealer, if you require additional RCCMD licenses or order at www.generex.de.

Change delay on action



The menu "Change delay on action" allows the user to enter a delay in seconds, before the shutdown of the RCCMD client(s) is initiated and after a shutdown signal is received. The default is 60 seconds –using "Confirm" will configure your settings.

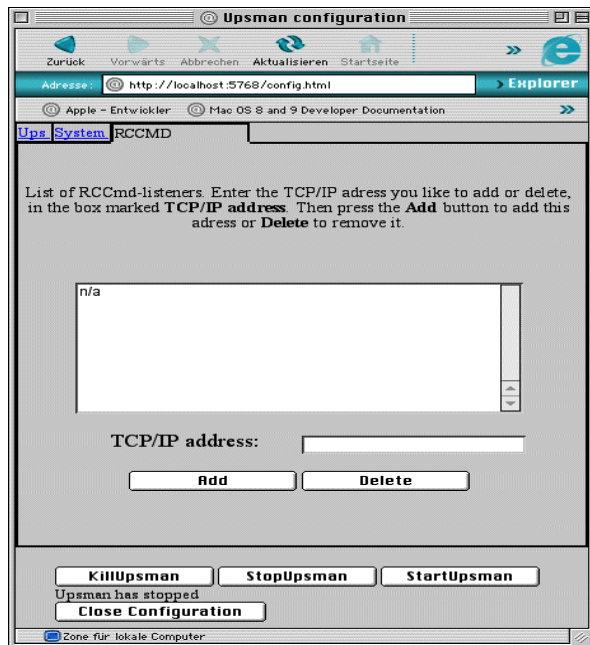
View current settings



This window shows the user the current RCCMD settings. The access control field shows RCCMD sender, which have sending authority, the license key, the current delay in seconds from the "Delay on action" feature, followed by the last RCCMD error report. The "Back" button will bring you back to the RCCMD main menu. Generally, RCCMD is started automatically after a successful installation. If this is not required. Please remove the corresponding system extension from the system extensions folder.

Add RCCMD receivers (RCCMD Clients)

Please start the alias „upsman configuration.url“, as described in section 7.2, using your standard web-browser. The following dialogue opens:



Please enter the IP address(es) of the RCCMD clients in the field "TCP/IP address" and click "Add", in order to add the addresses to the list. Please repeat the method, if several IP addresses/RCCMD clients need to be added to the list. On the other hand, deleting a IP address is simply done by highlighting the corresponding address and clicking the "Delete" button. Please note the license regulations in section 7.3 "Setting the license key"

Equal to the UPSMAN Windows configuration, we recommend to limit the group/number of RCCMD receivers, because without a entry into the receiver list, all RCCMD receivers (clients) in the network will perform a shutdown (depending on license status), when a RCCMD sender signal is executed. The RCCMD configuration is now complete.

IV. How to use the UPS-Management Software?

1. UPSMON for Windows

The UPSMON is used to operate and monitor of the UPSMAN software. 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, which are described below. For further information about working with

Windows please refer to your MS-Windows manual or use the help site of UPSMON.

In the top part of the UPSMON screen you will find the menu- and the toolbar. The toolbar shows buttons for connecting to and disconnecting from a UPS server, adjusting the windows, printing, help, and information about the server-name. The type of UPS and the location where the UPSMON is connected to is shown in the title bar.

At the bottom of this window, the status bar is displayed. Actual UPS-status will be presented as text information.

The tool bar and status bar can be either hidden or in the foreground by choosing *Toolbar* and *Statusbar* from the menu *View*.

1.1 Connecting with UPSMAN

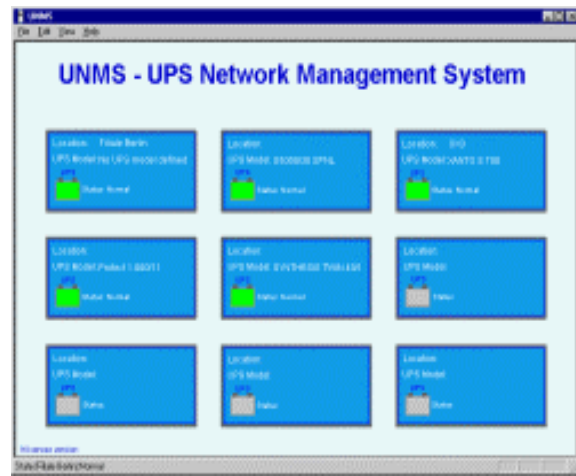
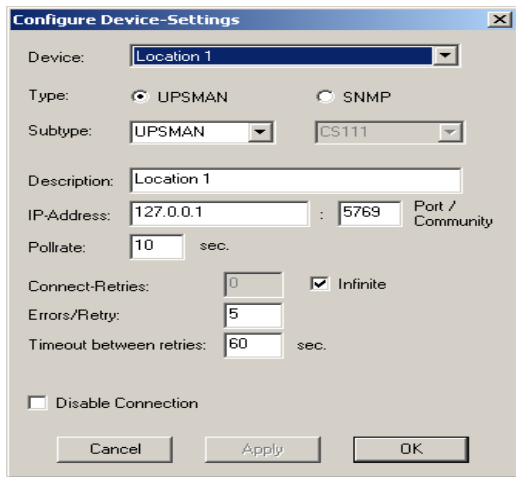
When UPSMON starts it will ask for a connection to a server. Choose the operating system and the transmission-protocol that you want to work with. TCP/IP is recommended as a communication protocol and is required for Windows 95/98/NT/2000, Novell and DEC VMS.

To start a connection click on the button *Connect*.

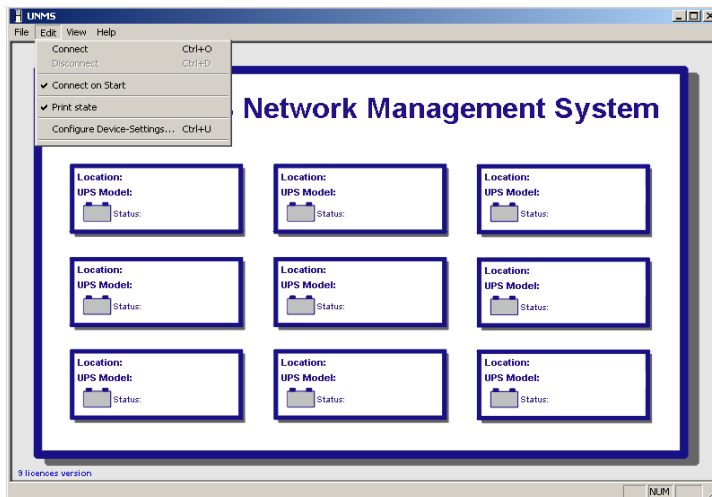
To build a connection to different processes enter the port and the IP-address, or host name respectively separated by a comma (e.g. 5769,192.10.200.6. The port address can also be left out, if the UPSMAN has been started normally. The entry of the IP address (191.10.200.6) is enough. We recommend using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

2. UNMS – UPS Network Management System

The UNMS is able to monitor up to nine UPSMAN processes in a network. To configure, please choose "Configure Device Settings" from the menu and enter (left hand screen) an IP address of a running UPSMAN process or SNMP adapter. The pollrate defines the frequency with which UPSMAN and SNMP get polled by the UNMS. Please confirm your changes with ok. Please go the menu option Connect, to start monitoring. The right hand picture shows the status after a connect:



Also in the main menu is the option "Connect on start", which determines the automatic start of the UNMS software after booting the computer. Please see the picture below:



3. The Displays

3.1 The Status display

The colours of the UPS-Service diagram show the criticality levels for the UPS and your system.

- Green: OK and working.
- Yellow: Ok, in stand-by or "Alert"
- Red: Defect or Alarm
- Grey/Blue: Not present

3.2. Status Chart

The window of the Status Chart displays the most important operating data of your UPS-system. For further information on this data please refer to the UPS-

system manual. When the operating status is critical the displayed colours will change to red.

3.3 Event List

The Event list displays the current UPSMON-activities. Use the scroll bar for information about the UPS.

3.4 Scheduler

The Scheduler is a calendar which allows you to program UPS tests, commands, shutdowns, and start/stops of the system. The Scheduler is used for following functions:

1. start and stop of the UPS- and the computer system at programmed times;
2. automatic start of UPS tests;
3. start and stop of Economy mode and/or Bypass

Features of the Scheduler

Period-selection

The jobs/functions may be executed *once*, *daily*, *weekly*, e.g. every Wednesday, or *monthly* at a programmed time. The command *time* lets you set the required time and date for this program execution.

Recurse

This function defines at what day the desired job is started, when you use *daily*, *weekly* or *monthly*. Choice 1 means that the function is only to be executed on this exact date. Choice 2, 3, ... means that the execution will be only on every second, third, ... day, e.g. Recurse 2 together with the weekly settings means that the job will be only executed every second Monday. Recurse 3 together with monthly settings means that the job will be executed only every third month on the first day. Etc.

Job-list

Here the programmed jobs (see below) will be listed. *State* displays the execution of the jobs. *Executed* shows that the job has been completed successfully. *Ignored* means that the job could not be started because the command was rejected from *UPS MAN*. *Played out* means that this job could not be started because the server was not active at this time. This job is no longer active. *Active* means that this job is waiting for the execution.

Drop-down menu Jobs

Here you can define what jobs should be executed by the scheduler. You may choose from several test routines, shutdown procedures, and restart procedures. If you choose shutdown of the system a restart time command may be set.

As soon as all adjustments are completed, you can *Add* them to the Job-list. Later changes can be updated using *Change*. To delete a date from the list, highlight/mark this job in the list and click on *Delete*.

Ascending and *Descending* sorts the jobs in the list by date correspondingly.

3.5 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.

3.6 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 three phase) 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).

3.7 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.

3.8 Mail-Events

In order to use the Mail events of the UPSMON, a connection to the UPSMAN must be established. Sending of e-mail, as describes in section 2.1.5 will only work with an active, connected UPSMAN. Please read the section "Qblat.exe" in chapter 2.1.7 for help with the syntax.

To send a message at any event choose *Enable* from the *Mail-Service* menu and enter your Windows user name and password for the Mail server.

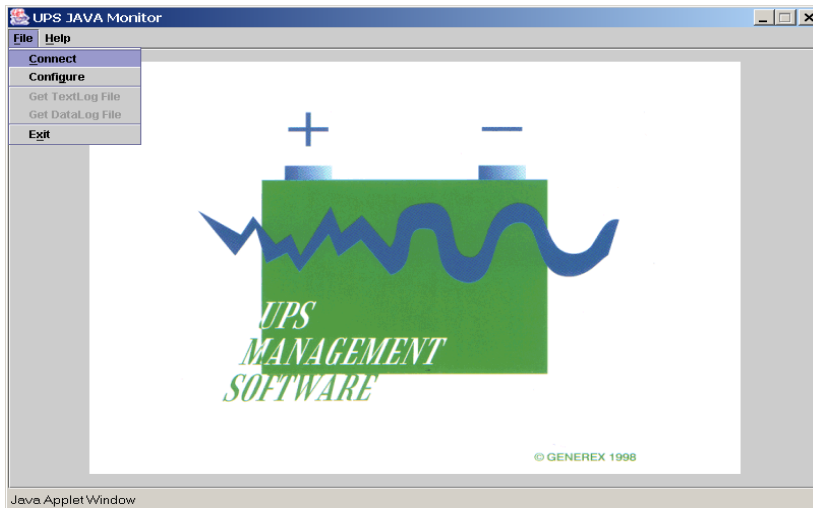
Now choose *Configuration* from the menu *Mail-Service* and select the UPS event for which you want to send a message (*Select*). Now enter a message text (*Message to send*) and the address (*Recipient*). Then enable the function. To add any recipient out of your MS mail directory click on *Insert Address from Mail-Service*. You may create a WORD or other document via this function. Please see the Windows user manual to see how to configure the internal MS-FAX service.

For further information on how to use MS-Mail, please refer to your Windows user manual or contact your Mail operator in your network.

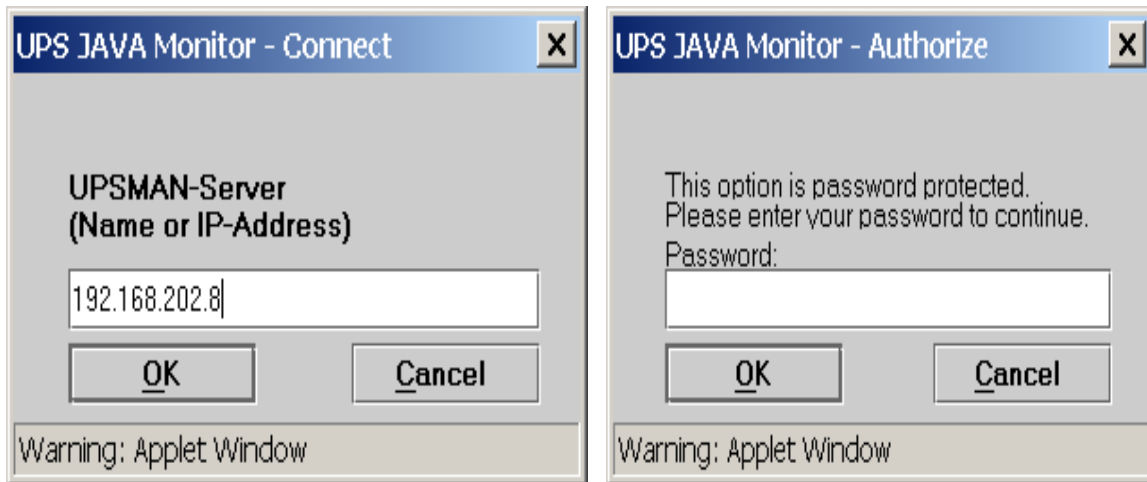
4. UPSMAN Web-server and JAVAMON

The web-server containing the JAVA applet using a web-browser, allows the user a complete platform independent display of UPS data and adjustment of the UPSMAN configuration.

The UPSMAN program group in the start menu contains the icon to start the web.-server. The configuration of the UPSMAN can now be started using the web-browser. The following window opens, whereas the startup screen (JAVAMON) can be modified, as demonstrated here:

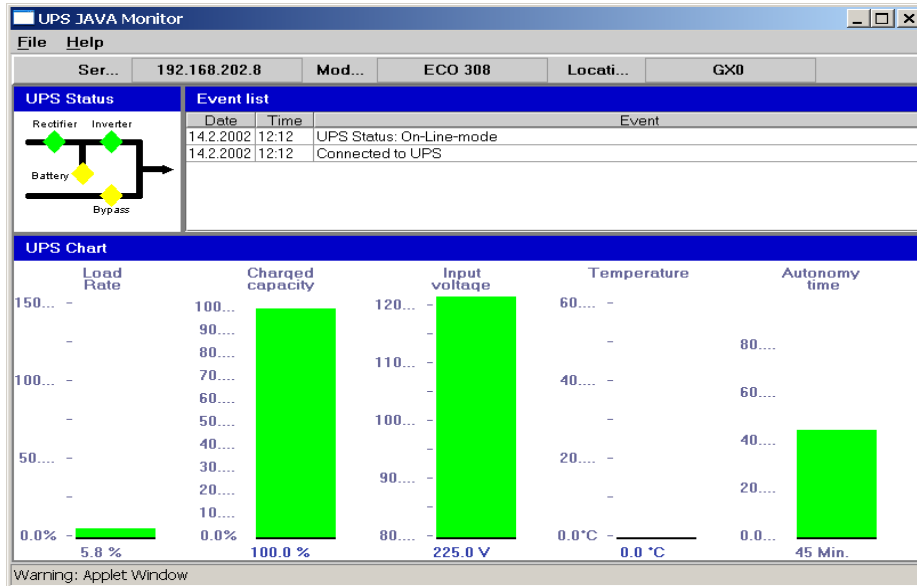


The connection to the UPSMAN is achieved by clicking on the "Connect" option in the "File" menu. The user need to configure the IP address of the computer, which is hosting the UPSMAN process.



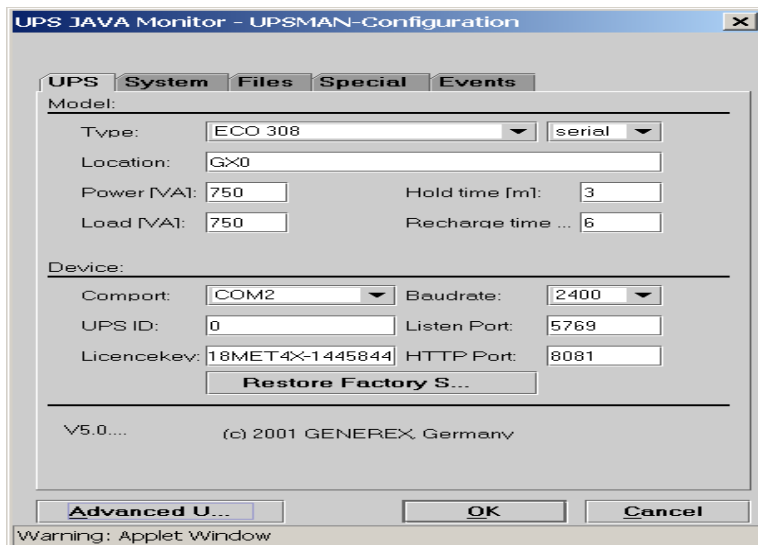
The two dialogues (above) show the password request, which protects the UPSMAN configuration.

This following window opens, showing the web-server after a successful connect. (JAVAMON)



This screen reflects the same information, as the well-known graphic tool UPSMON. The file menu contains the feature "Configuration", which allows the user to execute the complete UPSMAN configuration.

This configuration is identical to the local UPSMAN configuration. Please also check the section 2.1.3-2.1.8 of the UPSMAN Windows configuration. (See picture):



5. UPSMON for the command line

The Upsmon for Windows 95/98/NT/2000 is a command line program which can be used in batch programs. All UPS values can be displayed and used for programming of batch files and scripts for the processing UPS information further. Also, the Upsmon activates all UPS functions and UPS tests. Because of this, UPS commands can be transferred from other applications to the UPSMAN. This interface allows the access to every UPSMAN in the TCP/IP network and the control of all connected UPS devices.

Parameter for the Upsmon

usage: upsmon <hostname or IP adress> <-vicdtrh>

-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> <values>	Query of a UPS-test function result

status	(4= OK)
inputvolt	
battvolt	
temperature	(in celsius)
autonomietime	(in minutes)
autotime	(in minutes)
battcap	(in %)
batterycapacity	(in %)
outputpower	(in %)
inputfrequenz	(in Hz)
outputfrequenz	(in Hz)

<ups command>

testbatt	
batterytest	
fulltest	
canceltestbatt	
cancelbatterytest	
cancelshutdown	
alarmreset	(Buzzer off)

<ups command with duration>

shutdown
restore

<ups test>

customtest
batterytest
selftest
fulltest
shutdownrestore [down seconds] [restore seconds]

Please note that the answer depends on the type of protocol of the UPS. Returns with "0" means that the values are available for this UPS model.

Example: Command for the Shutdown UPS and Restore:

```
./upsmon -d shutdownrestore 90 120
```

Note that UPS is controlled directly, a system shutdown is not initiated using the command "upsmon -t shutdownrestore [x] [x]" The system needs to initiate its own shutdown routine after such a command. Please use the corresponding shutcmd.exe program, as in this example:

```
; Shutdown Batch for NT:
```

```
;
```

```
./upsmon <servername> -t shutdownrestore 60 90
```

```
./shutcmd.exe /L /Y /C /T:05 "Local shutdown now!"
```

Installation:

The program UPSMON.EXE requires a successful installation of the UPSMAN in the network.

Please copy the program with the DLLs MSVCRT.DLL and MSVBD60.DLL into a directory on your Windows 95/98/NT/2000/XP computer. As soon as the UPSMAN is active via the TCP/IP connection, the program is ready for use.

The use of the UPSMON API with own software is possible, please contact your software support or the Generex directly.

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.

The file *upsman.mib* in your *UPSMAN* directory describes the data that can be requested via SNMP. Up until now, the software works with a private MIB, whereas Version 4.3x is using the standard MIB RFC 1628 (last quarter 2002, which already exists in most SNMP applications 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 it is possible to connect to the *UPSMAN* SNMP agent and execute/react to UPS-specific functions. For this, the operating system on which you are using *UPSMAN* must be SNMP-compatible.

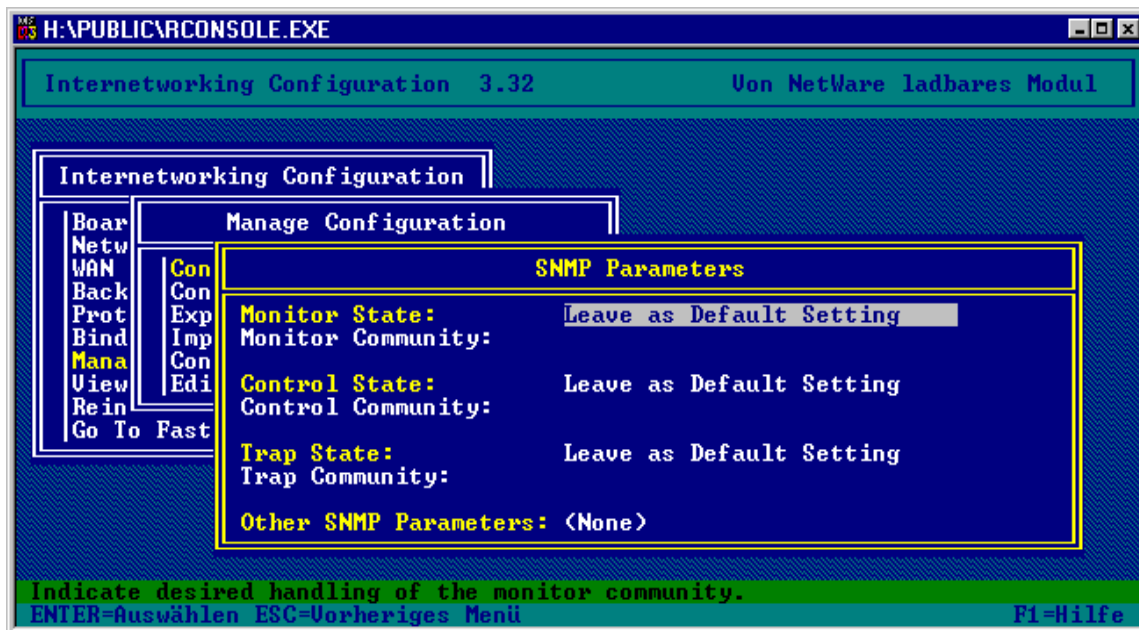
The *UPSMAN* software supports the SNMP interfaces from Windows NT/2000, Windows 98 (from 1999) OS/2 and NovellNetWare. On all other operating systems supported by the *UPSMAN* a SNMP access to the UPS is not possible. An adapter (SNMP-adapter) must be used in those cases.

6.1 UPSMAN with SNMP on NovellNetWare

In order to send *UPSMAN* traps via the SNMP protocol, SNMP must be installed on the Novell server. The following example shows a basic configuration under NetWare 4.11.

1. Change to the system console and enter "load sys:inetcfg.nlm"
2. The program for the configuration of network components will be loaded afterwards.
3. Please choose the entry "Manage Configuration"
4. Please choose the entry "Configure SNMP Parameters"
5. Here the SNMP parameter "get" and "set" and the "Trap Targets" (NMS) have to be adjusted.

Please see the following window:



- Monitor State:** Defines which communities are allowed to ask for "get" information.
- Monitor Community:** Default setting: public
- Control State:** Defines which communities are allowed to set operations with "set".
- Control Community:** Default setting: public
- Trap State:** Defines to which communities "traps" send to.
- Trap Community:** Default setting: public
- Other SNMP Parameters:** Additional entry

6. Please adjust the above mentioned entries to your SNMP network and continue with the configuration of the SNMP information.
7. Please choose the entry "Configure SNMP Information". In this entry general settings for the hardware, location and the system administrator are configured with informativ character. The entries made here are saved in the *sys:etc\snmp.cfg* file.
8. In order configure a NMS, please change from the entry "Manage Configuration" to "Protocols" and choose TCP/IP.

In the menu "SNMP Manager Table" the TCP/IP address of the management station is displayed, to which traps can be send to.

6.2 UPSMAN with SNMP on OS/2

To be able to connect to the UPS-functions via SNMP you have to install and configure the OS/2-support for SNMP (SystemView Agent for OS/2) and the TCP/IP-network-protocol first.

Configure the address of your management station that is able to access the SystemView Agent. Here you can enter a single IP-address or a complete net. Additionally configure your management station as the trap-target.

SNMP / Upsagent under OS/2 Warp Version 4

Install the SNMP demon as described in the OS/2 manual and configure the service with the following values:

Protocol: UDP

Name: public

IP-Address: e.g. 192.10.200.0. The SNMP Demon can receive information from all stations.

e.g. 192.10.200.52. The SNMP Demon can receive information from all stations.

SNMP Parameter: -transport udp -dpi tcp

If the installation has been completed successfully you should receive a cold - boot-trap on your management console. In addition you will be able to access the Systemgroup data.

SNMP-support is not included in *upsman.exe*. Start the SNMP-component *upsagent.exe* after loading *upsman.exe*. Enter the following command line to start *upsagent.exe*:

```
upsagent.exe -h <address> -c <community name>
```

-h <address> Address of the computers that you installed the SystemView Agent on.

-c <community name> Community String. (z. B. "public")

6.2 UPSMAN with SNMP on Windows NT/2000/XP

To be able to connect to the UPSMAN via SNMP you have to install and configure the Windows NT/2000-support for SNMP (Control panel, network settings, services, SNMP service) and the TCP/IP network protocol first.

Choose the icon *network* from *Systemcontrol* and then *add components*.

After the SNMP service has been installed you have to configure the SNMP service via the control panel icon *Network*. Enter the community string of your

management station and the address of the trap target and enter the Systemgroup.



Note:

The Generex UPS-Management software also supports non-generex SNMP adapter. A connection to the UPS maybe via SNMP adapter is possible, whereas actual SNMP software is not required. SNMP adpter from other manufacturers are also supported.

Start the SNMP-service from the command line by

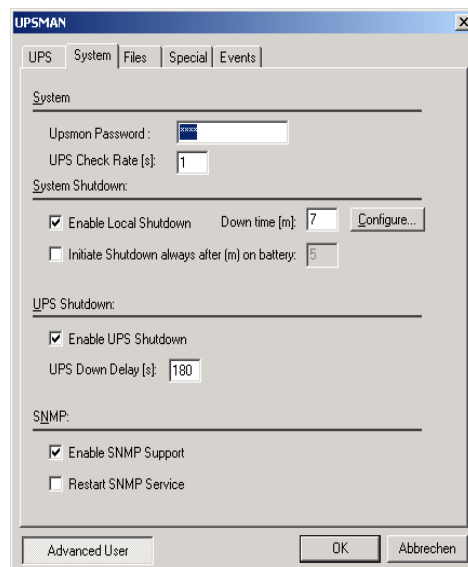
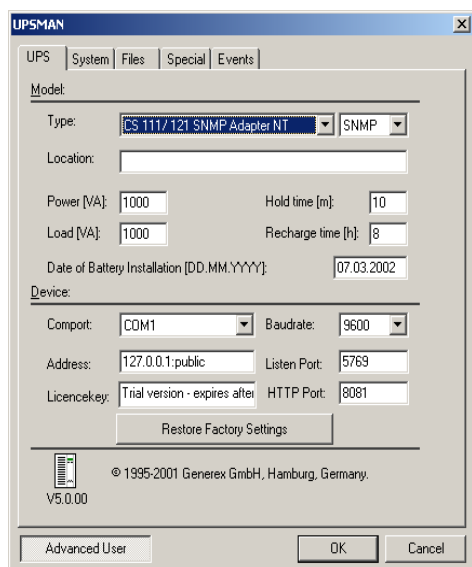
```
net start snmp
```

or start the SNMP service 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 Systemgroup data.

In order to connect the UPSMAN software and an SNMP adpter 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.

UPSMAN Configuration

The SNMP adpter can easily be selected from the list in the UPSMAN configuration. The UPS Check rate (see right-hand picture) should be rlowered once the UPSMAN is connected with the SNMP adapter, as otherwise the default settings in the UPSMAN will cause high network traffic.



Next, select the icon UPSMAN from system controls and activate the check box of the SNMP-service (*Enable SNMP Support*). Check that UPSMAN starts correctly and SNMP communication is established. See System Event Viewer or the UPSMAN log file for this information. If you receive a display message "SNMP communication cannot be started", please stop the UPSMAN software

and the SNMP service manually. Start both again (SNMP first, then UPSMAN) and check the information about the start of the UPSMAN SNMP service. You can also check with the text log file, which is containing this information.



Note:

Please refer to Troubleshooting section in this manual, which gives solutions to problems and advice on how to use the UPSMAN software under Windows NT/2000.

V. Appendix

1. 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>

2. 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 webs ite 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 NT start-up in the registry

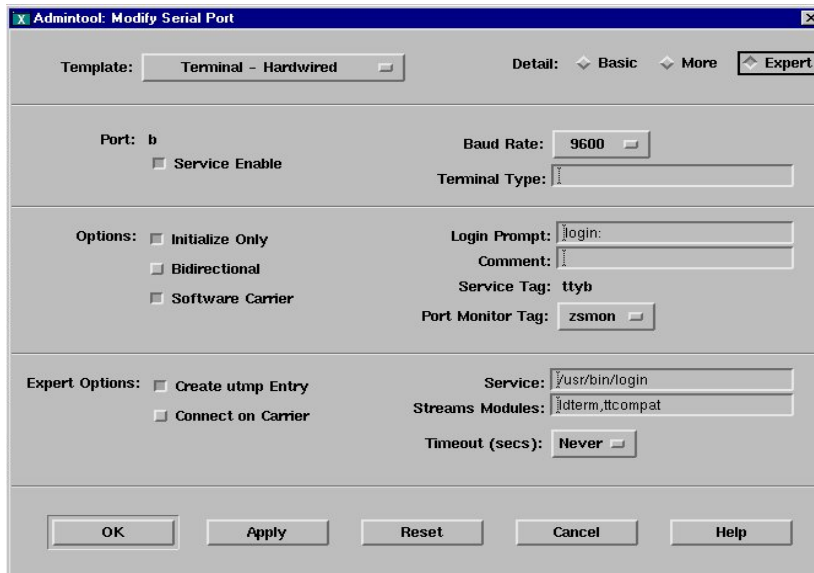
This can be done by changing the script, please change the path:

Hkeylocal_miachine\system\currentcontrolset\services

in the registry and find the entry start. This enrtly 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 dribver will be loaded by ethe I/O subsystem at Kernel startup.

Example settings SUN Solaris 2.6, 2.7 : TTY configuration

Settngs of the serial interface with the admintool:



DEC UNIX / COMPAQ TRUE UNIX with CABLE 2:

A comprehensive test series had the following result. This demonstrates that Unix is supporting "cable 2". Please also check with the section "Cable types" section of this manual.

UpsModel=No UPS model defined
UpsCable=Typ 2

Pin 2+4:
=> UPS ALARM / UPS POWERFAIL!

Pin 2+4+5:
=> BATTERY LOW
=> UPS ALARM / NOW SYSTEM SHUTDOWN!

HP OPENVIEW Bug_ RFC 1628 Trap receiver does not interpret correct MIB 2 Traps from CS 111.

This bug is known in HP OV 5 and 6 for Windows NT. The moment the trap definition is manually changed, HP OV transforms the version 2 trap identifier into 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. – Or change inside the CS 111 configuration the MIB 2 trap default to MIB 1. (Or await for fix from HP.)

Beispiel: TCP/IP minimal Konfiguration für NetWare 3.12 Server

```
# laden des tcpip.nlm
```

```
LOAD TCPIP
```

```
# loading of the network card driver
```

```
# in this example, a IntelEtherexpress card
```

```
# with corresponding driver from the manufacturer epro.lan
```

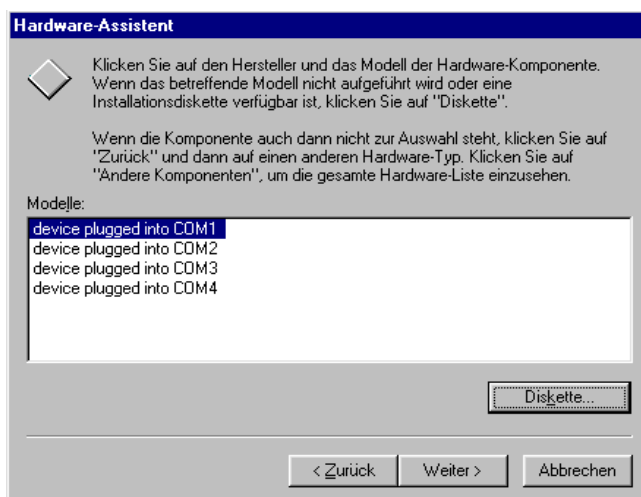
```
LOAD EPRO PORT=340 INT=A FRAME=ETHERNET_II NAME=EPRO_TCPIP
```

```
# connecting the IP Protocol to the network card
```

```
BIND IP TO EPRO_TCPIP ADDRESS=192.111.112.113
```

Disabling the Plug'n Play search process on serial interfaces at Windows 95/98. This recommend when the UPS switches off during the boot process of the computer.

1. Start the hardware assistant (control panel)
2. Do not allow a search for new hardware, activate the NO button for a manual search.
3. Choose „other components“
4. Confirm the search on a disk
5. Change the search path from A: to the directory on your Windows directory where the files COM9598.INF and Sampappl.txt. are located.



6. Choose the Com port from the list where you want to connect the UPS to.
7. Confirm your choice with „continue“ and finish the installation .

8. At the next reboot this com port will no longer monitored by Plug & Play.

HP OV SNAP IN under HP UNIX:

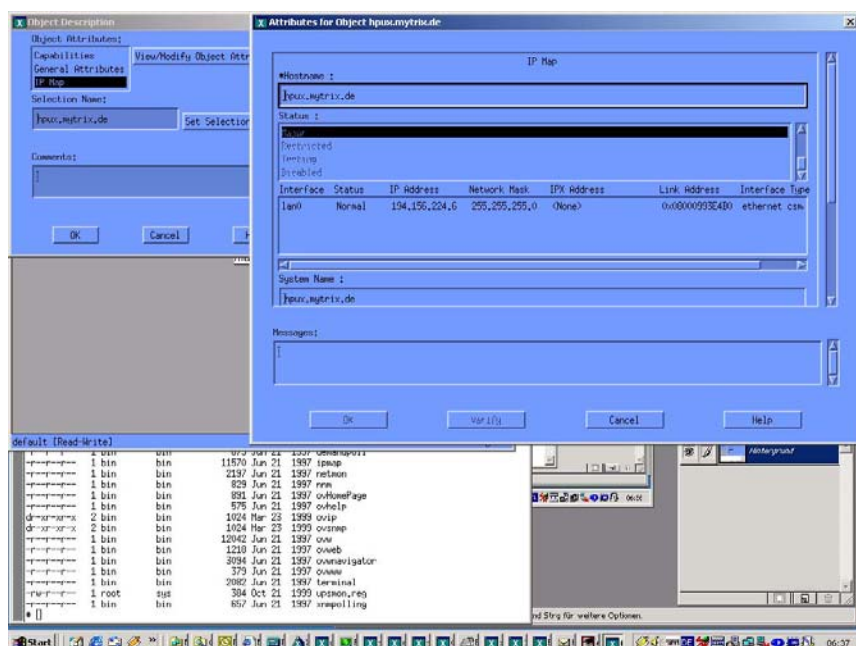
Configuration for HP-OV-Snap-in:

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:

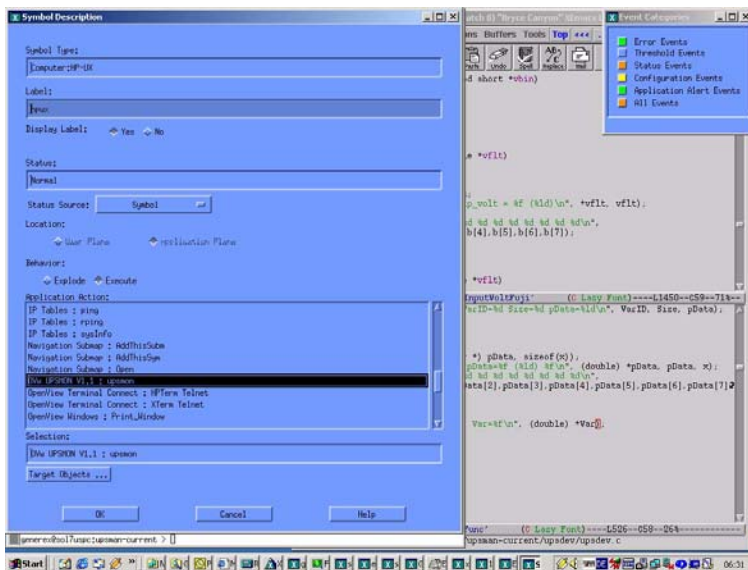
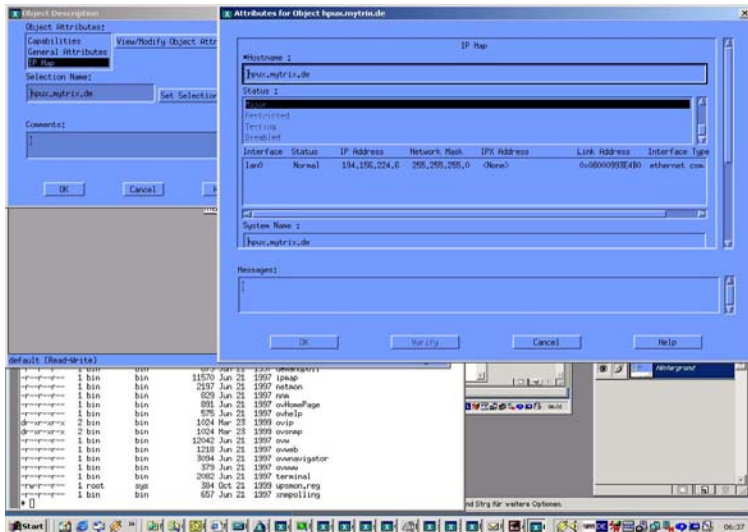


Configuration for HP-OV Javamon

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:

Please see the following pictures:



RCCMD HP UNIX: What does the RCCMD return code mean, when RCCMD is started. It seems that it is a random figure everytime when RCCMD is installed.

The interval is 2 several times (e.g. 250, 252, 254; and then e.g. 180, 182, 184) ? After the start of RCCMD the program starts as background process immediatley, whereas the parent process is terminated as usual.

The "return code" is no actual return code, but a process id of the started RCCMD. The return code cannot be used to test, whether RCCMD is running or not. The test needs to be done differently:

The RCCMD has the characteristics to run in the background after startup. This is why there is no result, if the user quires the exitcode via a script. In order to see whether RCCMD is running properly, the following method should be used:

```
LANG=${START_LANG} ${CMDStart} -l -a aatap1 -p 6003 /usr/ups/upsalarm
```

```
ps -eaf | grep '-p 6003 /usr/ups/upsalarm' > /dev/null RTC
```

UNIX information to UPSMAN Autostart at SGI IRIX:

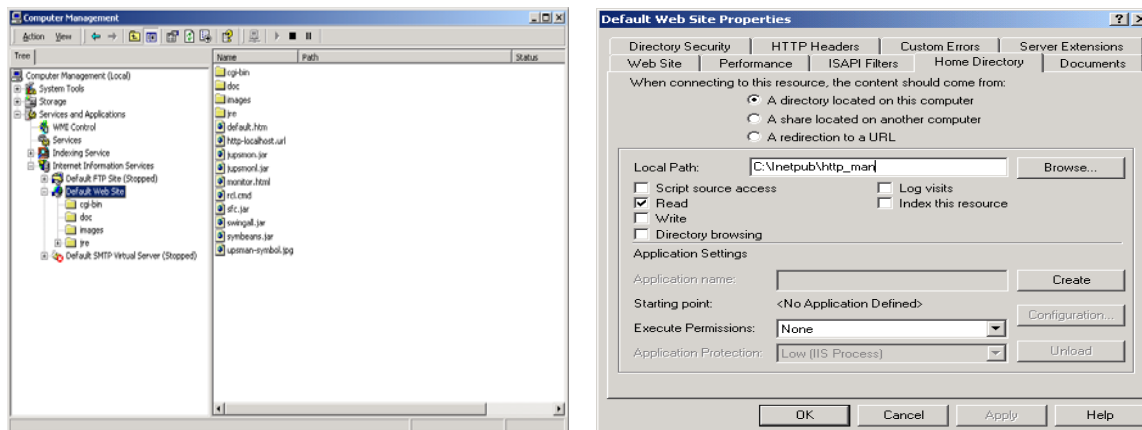
To start the UPSMAN automatically the start and stop scripts should be inside rc2.d directory or

inside rc3.d ("nfs" Mode)

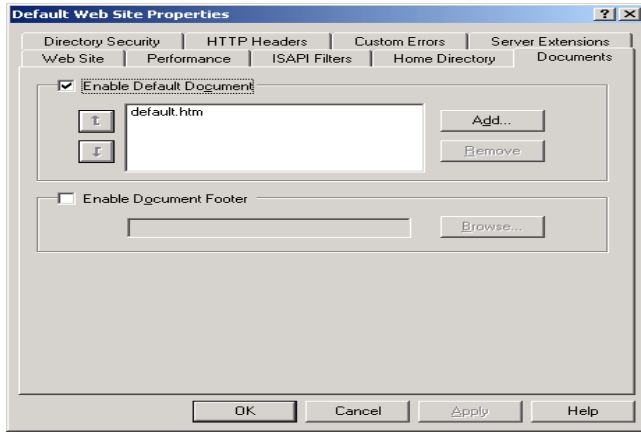
Installation instructions for UPS Management Software/JAVAMON into a MS Internet Information Server (IIS) environment.

- 1.) Install UPS Management Software, select Upsman component. (Do NOT select upsman http server!) Setup will ask later to install ONLY the files to a specific directory. Choose a directory, i.e. c:\inetpub\ups_http and proceed the installation.
- 2.) Open the IIS management console. Create a new website, i.e. UPSMAN HTTP with read permission and choose c:\inetpub\ups_http (see above) as the default directory. (pic. iis5-1.bmp, iis5-2.bmp)

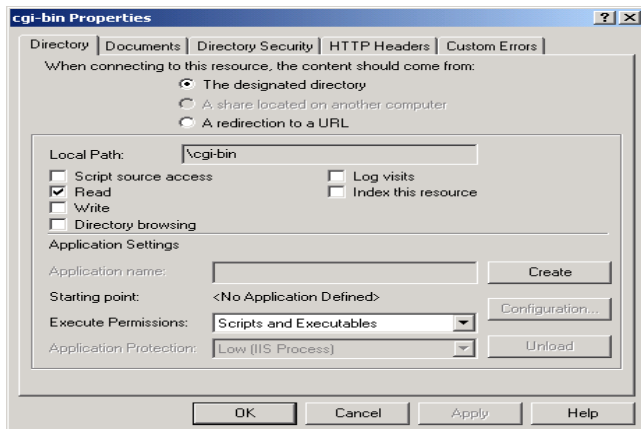
See the following picture:



Please use the "default.htm" as default document:



Allow for the directory "cgi-bin" the execute permission scripts and executables:



3.) Start the webserver and connect.

Online Yunto Q – UPSMAN is not able to initiate a shutdown of the UPS The UPSMON Windows extended commands emergency shutdown won't work either.

The Poser protocol is not able to process timer signals under the frequenz of 60 seconds. In addition a UPSMAN UPSLIB driver is required over 196. The UPSMON can not execute a emergency shutdown of the Yunto Q Poser, because the delay timer is working under signal frequency of 60 seconds. Please execute a update in order to avoid this problem.

3. 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 could be opened
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.

<u>Error code</u>	<u>Error name</u>	<u>Description</u>
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.

4. Error solutions

4.1 General

Problem: At some Computer Mainboards the COM ports are mixed up. So it is possible that the COM 1 under NOVELL is COM 2 under NT/2000 etc. So if there is any communication problem, ask the customer to configure the software intentionally on the "wrong" com port and try it again. This problem is known from some ASUS, Acer, GigaByte and SIEMENS Mainboards out of production 1997.

Problem: With the use of the CS-110 external SNMP adapter you have to specify a UPS model, otherwise the adapter will not respond, not even to a "PING"-signal. You can see this if you see at the agent configuration output the message "unknown UPS Model".

Important: Before installing an update which has been downloaded from the WEB-Site, please read the provided Readme-file

4.2 All operating systems

Note: SMS via Fritz card: Please use the special sms.exe tool. Download under: <ftp://ftp.avm.de/tools/fritzsms/fritz!sms.exe>

Problem: Error message: "Ups communication cannot be started. Error[x]: Setup: Device failed."

Answer: The file upstyp.ups is invalid or the UPS-Protocol is wrong or defective. Change the UPS-Communication protocol (cable or other serial protocol) and check if Upsman supports your UPS-Model.

Problem: Error message: "Ups communication cannot be started. Error[x]: Setup: Connection failed."

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

Problem: Error message: "Database not found or corrupted".

Solution: The file upstyp.ups is defective or missing. Reinstall the software installation with the correct CD-Key. Also start UPSMAN.BAT.

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

Answer: Some UPS-models have both port-types (*cable* and *serial*). To guarantee the correct function of your UPS-Management Software use the default settings of the UPS model or use the *serial* port-type. Also a wrong cable-connection at the port-type "cable" may cause this effect. (DTR high with "cable" UPS only).

Problem: I use one of the operating systems Windows 95/68, Windows NT/2000, Novell NetWare and receive the error message "Can't setup UPS communication".

Answer: The UPS-Service tries to communicate with the UPS but cannot identify the protocol.

Solution: a. Is COM1 or COM2 registered and the correct UPS type chosen from the list ? Has the correct UPS-cable been delivered and entered in the menu ? The correct UPS has to be chosen from the configuration program. Some models need a "cable" connection with an assignment to a protocol, for example Type 6 and special cable. The correct protocol will be assigned to the name when using UPS-Models with serial communication. Models with RS232-Communication use cabletype "serial" in the Setup and a special serial cable, supplied with the UPS.

b. Is the UPS-Cable defective? Please check to see if the UPS communication cable matches the description in the UPS hardware manual. Check the cable pin-layout and if all pins are connected. (Cable defect)

c. Disconnect the communication cable from the UPS-interface and turn the UPS off and back on again. After approximately 15 seconds the UPS has finished the self test. Then reconnect the UPS cable and restart the *Upsman*.

d. Test the cable connections using type 2 instead of type 6. Make sure that users are informed about a possible shutdown of the server and that they exit the system. Change the start-up of the UPSMAN service from automatic to manual

Problem: In the Textlog of UPSMAN the message "Warning: xxx" and "Communication lost, communications restored" occurs.

Answer: Some commands from the UPS were not correct or the bytes the software received were damaged. This may be the result of external effects on the cables or UPS. Check the cable and cable length and the communication parameters. Check if any background software that is using the com ports is active. (e.g.

Virus checker within NetWare, or others). If this message occurs periodically, it is not a critical event. Only if this message occurs continuously for a longer period should you contact the UPS software/hardware support.

4.3 Problem solutions Windows 95/98/NT/2000

Problem: Error message "Can't setup UPS communication" displays under NT, using a "cable" connection.

Answer: Test the cable connections using type 2 instead of type 6. Make sure that users are informed about a possible shutdown of the server and that they exit the system. Important: Set the UPSMAN automatic start process to manual start before you continue. (NT service list). If the system shutdowns right after starting UPSMAN (using a cable 2 or 6 connected to the com port and no UPS is connected to this cable), than there is a problem with the com port of your NT computer. With cable nr. 2 or nr. 6 connected to the comport but not to UPS => the NT UPSMAN must start with settings "cable2", otherwise the COM port is not correct or not working correctly. See event viewer if the UPSMAN is started or not. The NT service list is not very accurate.

Problem: Why is there a special shutdown modul for Windows 95/98?

Answer: Windows 95/98 needs a special application for a shutdown of the system. Replace the command "own" in the configuration *.cfg in the entry Job NetShutdown with the command "(\\Path\\) EXITW32.exe -shutdown". You will see more parameters when entering "exitw32.exe" from the command line.

Problem: UPSMAN does not start: "Error 4603: Connection: Connection failed error"

Answer: Error 4603 means that you use a device name which does not exist. Try another device and check the NT/2000 serial connection settings. Test if the software starts with "Cable Open".

Problem: How can I check, wether I am using the right COM port and if the port is available ?

Answer: Choose cable settings to "Type O". 2. Plug a serial 1-1 cable to your computer. 3. Start the software upsman. 4. Make a short circuit of the DB 9 pins 2 and 3 with a paper clip. If you do not see a message like "powerfail ...", you are using the wrong device, the

port may not be available or the send and receive pins are not 2 and 3.

Problem: UPSMAN does not start. "Error 4605: Connection: Timeout failure"

Answer: This error occurs only with cable settings *serial*. Possible Problems: You use the wrong device, you use the wrong cable, you use the wrong adapter between computer and cable, you are using the wrong protocol (UPS modelname).

Problem: User receives the error message: "Database not found or corrupted".

Answer: a. The Upsman-Service has not been installed or configured. Change to the control panel or UPS configuratoin and configure the Upsman-Service with a UPS model from the list.

The file upstype.ups is defect or is missing. Execute a new installation with the correct CD-Key.

This may happen during the startup of the NT computer. The UPS did not respond within the timeout peroid to the UPSMAN service. Try to start the UPSMAN manually from the control panel, when the computer finished it's startup.

There may be other services that are not working properly. See the NT Event Viewer for other problems. Solve these problems first, than retry to start UPSMAN.

Problem: NT/2000 UPSMAN responds "service failed to start".

Answer: a. Check if there is a network card in this NT computer. NT UPSMAN cannot work without the Messenger Service which works only with a network card. You may install the MS Loopback adapter from the NT CD-ROM instead of a real network card, now the other related services are installed.

b. Check if there is any other service not running or did have problems with the startup. You can see the related services of the UPSMAN in the NT Diagnostic Service. Open the SERVICE information and mark UPSMAN SERVICE. Doubleclick the UPSMAN service and see the related service which have to work correctly before the UPSMAN is able to start. (Eventlog, LanManServer, Messenger)

Problem: Windows 95/98 hangs up when RCCMD is started.

Solution: Winpopup.exe and RCCMD are both using port 6003 as a standard. Please change The UPSMAN port address to a free port on in the UPSMAN configuration menu.

Answer: Under Windows NT4.0/2000 the UPS switches off the UPS output when connected via a potential free contact.

Solution: The Boot.ini needs an entry to avoid the automatic mouse detection. Please use the following steps:

Using the Explorer, remove the attributes –r and –s in the Boot.ini.

Insert the line "/noserialmice=comx". The x stands for the number of the com port, e.g. 1

Save the changes and set the attributes back to the original value

Problem: Using a Logitech mouse driver the UPS which is connected via the pontial free contact, switches the UPS output off during the boot process.

Answer: **Windows 9x**

If under simultaneous operation of serial devices problems with MouseWare occur, please start the program "regedit.exe" under Windows 95 and open the key: "HKEY_LOCAL_MACHINE\SOFTWARE\Logitech\MouseWare\CurrentVersion\Global\PortSearchOrder", and remove the comport to wich the effected device is connected to.

Windows NT 4.0

If under simultaneous operation of serial devices problems with MouseWare occur, please start the program "regedit.exe" under Windows NT and open the key "HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Isrmous\Parameters\Global\PortSearchOrder", and remove the comport to wich the effected device is connected to.

Problem: Under Windows NT/2000 the installation of the Microsoft Peer-Web service can cause problems. An error messages indicates that the server is already installed and the computer needs to ve restarted, also the server is not installed.

The setup.exe shows that the service is already installed, although this is not true.

The software shows that the "Peer web server" has been installed from someone else and a rerun of the control panel is necessary. However, no web server is installed.

Solution: Remove the following entries from your Registry and reinstall the peer web service after that:

- a) HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\w3svc
- b) HKEY_LOCAL_MACHINE\Software\Microsoft\InetMgr
- c) HKEY_LOCAL_MACHINE\Software\Microsoft\InetSrv
- d) HKEY_LOCAL_MACHINE\Software\Microsoft\InetStp

4.4 Problem solutions Novell NetWare

Problem: ASUS P5HX/B (series 1997) does not accept any NOFIFO Parameters at NOVELL AIOCOMX Commands.

Answer: Node Parameter Problem with Novell NetWare: If AIOCOMX is installed and reponds with the message "loaded aiocomx 2F8 on port 36789690 " the node parameter, e.g. NODE=1, has to be specified otherwise the serial port will not work.

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

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

Problem: Using NetWare Smal Business it might be necessary to unload aiocomx manually and to restart the upsman.nlm. Otherwise the UPS-Management Software is not able to start.

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

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

Problem: I receive the error message: "Can't set up UPS-Communication".

Answer: UPSMAN can not identify the protocol.

Solutions: a. Has an original Novell NetWare aio- or aiocomx-driver been used? Some fax software products (e.g. Faxware) have their own

aio-modules for serial communication which do not correspond with the NetWare-standard and overwrite the original drivers.

b. Is the port of the system o.k.? In certain cases the port is unable to support the standard for NetWare-aio and -aiocomx (especially with ports on board with a 16550 components). Replace the aio- and aiocomx-modules with up-to-date drivers or try a manual start of the aiocomx-modules with the parameter "nofifo" ("load sys:system\aiocomx nofifo").

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

d. Is the server using out-dated modules? An up-to-date CLIB for example is required for RCCMD. Compare the module status in your *sys:system-directory* with the included drivers in the *sys:<UPS service>-directory* and replace them if necessary.

Problem: The UPS-Client crashes and a "Blank Screen" appears.

Solutions: a. Your system uses out-dated NetWare-drivers for IPX-communication. Use at least NetWare-VLM or newer drivers and compare the module status in your *Windows\System-directory* with the included drivers of the UPS-Service.

b. Especially for the first versions of NetWare 4.1 an upgrade to the new TLI-, STREAMS and SPXS-drivers is necessary. Those should be replaced with an error free version. We strongly recommend to load the NetWare-Patches for Version 4.1, too. You can obtain all drivers via Compuserve, the Internet or your specialist dealer. The driver section of our UPS software CD ROM also delivers several actual patches and error free modules.

c. Windows for Workgroups is distracted by the TLI-communication with NetWare in parallel use. To obtain perfect communication with the NetWare-Service the Peer to Peer functions under Windows for Workgroups have to be stopped. Use the NetWare Shell only.

Problem: A Client-connection to UPSMAN cannot be built with IPX/TLI

Solutions: a. Please upgrade your Windows system with actual drivers for TLI under Windows recommended by Novell. Those drivers have

to be copied to the NetWare server and Windows system directory.

b. For Windows NT/2000 there are IPX/TLI-functions only with the error free drivers. The CD-ROM contains these drivers as do all Novell NetWare clients systems. (Driver/Netware/...) We always recommend to use the TCP/IP-Protocol. Configure a TCP/IP-connection on the Novell-Server.

c. Use only the latest Novell NetWare-Client for NT/2000. These client can be found on the CD under /Drivers/Netware/Client/NT or download the files from the Novell-site from the Internet.

Problem: NOVELL SFT 3: UPSMAN works fine also on NetWare SFT 3, but the following installation procedure must be respected:

a. Install UPSMAN on the NetWare Servers DOS partition into eg. C:\nwserver\ups.

b. Enter the load command into autoexec.io.ncf. now start the server and load AIOCOMX on both IO engines. Start UPSMAN now.

Problem: ALPHA NT 4 Installation from CD 4.17 - Installation SETUP stops. The problem is that the file REGISTER.BAT is not on the CD. The file should be copied manually into the directory. The setup will run as normal after this.

4.5 Problem solutions - UNIX

Problem: During the start of the UPSMAN software in the version 4 a "shared memory error" maybe occur.

Answer: Please deactivate the automatic start of the UPSMAN in the RC file and exit every active UPSMAN process. Please reboot the system. The software should now start error free.

Problem: When reading the disk an error message appears "can not open file, can not read disk..."

Answer: a. You have entered the name of your disk drive wrong. Please check which driver is installed for the disk in the directoty /dev. The disk should be read as "rawdisk" on most systems.

b. Is the disk been read with the correct command? With the UPS-Management software the disk are formatted in the TAR-format.

c. Is the disk or the disk drive defect? Please try the disk on another Unix system and maybe ask your dealer for a replacement disk.

d. Is the disk drive mounted?

Problem: UPSMAN does not start: "Error 4603: Connection: Connection failed error(2)"

Answer: Error 2 means that you use a device name which does not exist. Either you forgot the colon (":") at the end of the device name or you use a false device name.

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

Answer: Use the command su with the options - and -c, e.g. su - database-user -c "command", e.g. if the login name of database user is "db" and the shutdown command of the database is "shutdb" the su command look like: su - db -c "shutdb". Note, that this command can only be executed by root.

Problem: Unix problem with HP Netserver LC2

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

Problem: UPSMAN does not start. "Error 4605: Connection: Timeout failure"

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

Problem: A false alarm by the UPS-Service happens in constant intervals.

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

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

Answer: Change default shell to sh.

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

- Answer: For a correct screen display the baudrate has to be set to 9600/19200.
- Problem: UPSTCP displays the false message "UPSMAN Process not started", which is not correct.
- Answer: This happens e.g. with LINUX, because the command `ps -ef` is different here (`ps -ax`). Enter the correct command into an extra line in the `ups.cfg` file. Syntax: `ProcessStatusCmd=ps -<options>`. Within Linux this entry would be the following: `ProcessStatusCmd=ps ax`.
- Problem: The calculation for the Realholdtime (actual discharging time of UPS) is wrong.
- Answer:
- Are power usage values of the connected device are calculated correctly? Best: Please calculate the sum of the maximum input power of the AC/DC adapters of all connected devices and divide it by 0.8. The result equals the VA value, which has to be provided by the UPS. It is not possible to enter over-load values for the UPS. If a higher value is needed, a more powerful UPS should be operated.
 - Has the Hold time of the UPS been changed?
 - Please use a value that is preset at the UPS selection.
 - Changes should only be made at the menu entry UPS load.
- Problem: The message "Write error on /dev/.." or TCSAGET error on..." appears.
- Answer:
- Especially with IBM AIX a "clocal" has to be entered in the SMIT (configuration menu) in the boot-default settings of the interface that should be used by the UPS. (The interface should be without modem control signals and no hardware handshake)
- Problem: After changes are made in the `ups_conf` menu the UPSMAN starts unchanged.
- Answer:
- Changes have been made in the `ups_conf` menu but a running UPSMAN has not taken over the changes. Stop the daemon (`./upsman -s`) and restart (`./upsman`).
- Problem: Some files on the CD-ROM are not displayed in the correct way or the install script ends abnormally.
- Answer: Mount the CD-ROM as "case sensitive". Check the correct mount commands for your system. E.g. HP UNIX may use: `mount -o cdcase <device> <mountpoint>` or DEC ALPHA OSF1 V 3.2

"mount -t cdfs -o noversion /dev/rz6c /cdrom2" (rz=Disktyp, 6=SCSI address, c=partition, c for total). SINIX: "mount -F hs /dev/ios0/sdisk005s0 /cdrom". LINUX: "mount -t iso9660 /dev/scd0 /cdrom". See your specific UNIX mount options.

Problem: Error message during start of UPSMAN: "upsman: 46xx cannot open UpsDevice:Connection Error".

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

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

c. Example: The entry in the configuration menu could be: "UpsDevice= /dev/tty01:2400,n,8,1". If the DEVICE exists it can be entered. Even if you can enter a DEVICE it does not necessarily mean that this is the one where the UPS-cable is plugged in.

d. A start of the UPS-Service can be executed for test reasons if the correct port is not found. Choose cable settings to "Type O". (in the configuration file "UpsCable"=111). Start the UPSMAN software. 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.

b. If the UPS-Service doesn't come up at the specified port even with RELAYS OPENED the tty port might be defective or the port might not work according to the RS 232-specification. If this is the case, check the technical documentation of the computer port to see where the signals SEND and RECEIVE are to be found. (e.g. SIEMENS SS97)

c. Is the port directly located at the computer or at a multiplexer or Terminal-server? Some Terminal-server do not give certain interface settings, but change the port address after every boot. On such a distributor a connection is not possible. With Multiplexer 1 only contact information are transmitted. A communication with UPSMAN version 3.x is only possible with "C" CLOSED- resp. "O" OPENED-logic.

d. Is the UPS-port an "opener" (Power fail and COMMON closed at normal status) or a "closer"? If it is a closer the "cable" settings

have to be changed in the ups_conf-menu. ROPEN (OPENED) has to be entered here.

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

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

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

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

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

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

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

Problem: UPSMAN does not start on SUN Solaris 2.6 and 2.7 starts automatically, because the network services only start after a complete UPSMAN start.

Solution: The Start-Script ups.rc in /etc/init.d, has to be changed as follows

```
start')
[ -x /bin/ps ] &&
echo `bin/su root -c "/bin/ps -e" > /tmp/upstest
pid=`grep upsman /tmp/upstest`
if [ "${pid}" = "" ]
then
cd /usr/ups
# ./upsman
./startupsman &
fi
;;
```

Also, in the directory /usr/ups a script with the name startupsman with the following content needs to be created:

```
#!/bin/sh
cd /usr/ups
loopcount=0
maxcount=360
zsmonok=0
sacadm -l -p zsmon > /tmp/sups
while [ $loopcount -le $maxcount -a $zsmonok -eq 0 ]; do
echo loopcount=$loopcount >> /tmp/sups
x=`sacadm -l -p zsmon | grep ENABLED`
echo x=$x >> /tmp/sups
if [ "$x" != " " ]; then
zsmonok=1
echo zsmon ok >> /tmp/sups
else
echo zsmon not ok >> /tmp/sups
sleep 10
fi
loopcount=`expr $loopcount + 10`
done
./upsman > /dev/console
./upstcp > /dev/console
```

As a last step the entry in /etc/inittab (if present) must be deleted

```
um:234:wait:/usr/ups/startupsman>/dev/console 2<>/dev/console </dev/console
```

Problem: UPSMAN on Linux does not start automatically when booting also there is start script

Solution: The UPSMAN start script must be entered in level 2 (sbin/init.d/rc2.d)

Problem: New UPSMAN download from the web causes Core Dump / shared memory locked:

This effect happens when a already installed UPSMAN is updated with a new UPSMAN V4.3.5C or higher. The old UPSMAN does not release the shared memory block - this causes the core dump when starting the new UPSMAN.

Lösungen: To avoid this: Reboot the UNIX computer before starting the new UPSMAN.

To avoid a reboot, you may also manually release the shared memory. With "ipcs" you can see all shared memory block which are currently in use. UPSMAN uses decimal 3453443, hex 34b203. (See "key".) By "ipcrm -options" you can release this memory block – the new UPSMAN can now start.

Problem: LINUX Upsman Fehlermeldung: upsman: shared memory error. We recommend to restart Linux when UPSMAN has been stopped or restarted. This shared memory problem will appear every now and then as a result of the UPSMAN not being stopped properly by the system. A reboot should solve this problem – alternatively the following method will help as well:

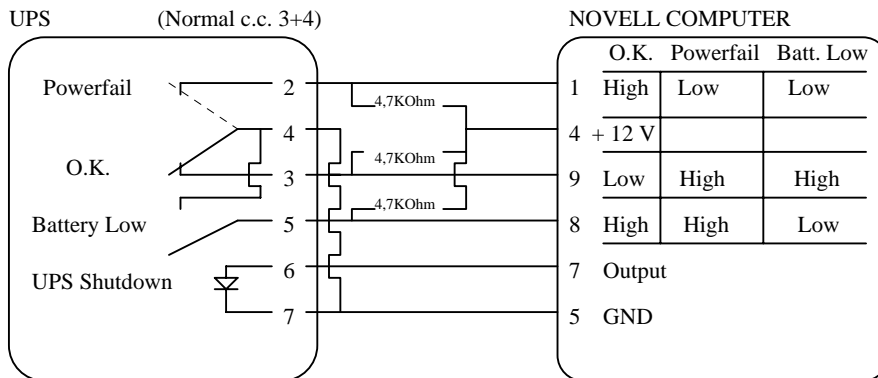
Start UPSMAN with the option -n <number> starten, which will allow for the start of several UPSMAN.

With icps the user is able to show occupied shared memory segment and using icprm the shared memory segments may be deleted.

5. Cable types

Cable type 6

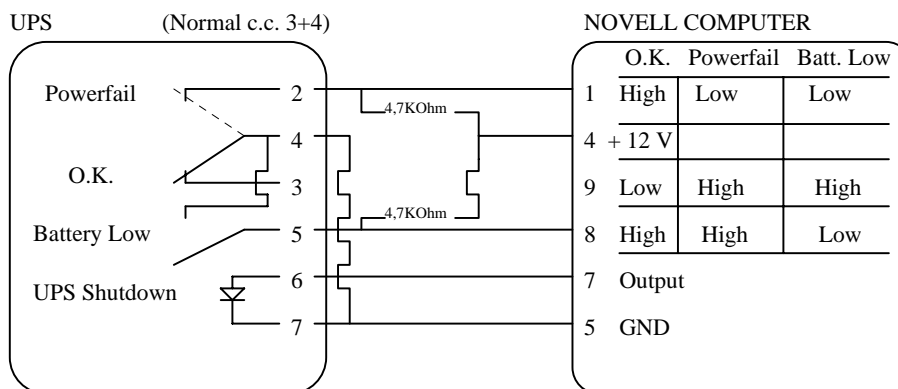
This cable type is used for Windows, NetWare but not for Unix.



Settings in the configuration menu: cable 6

Cable type2

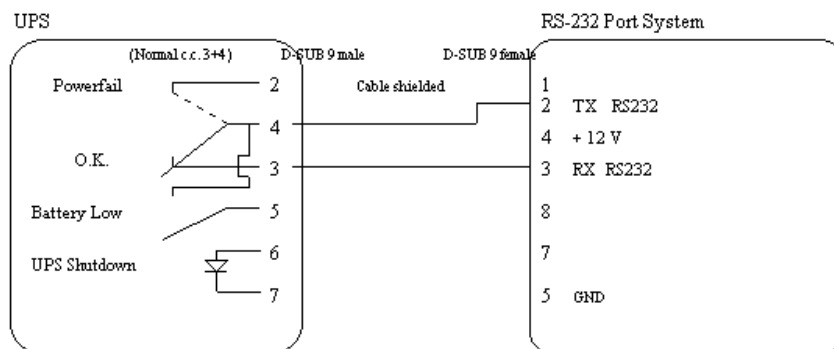
This cable type is used for Windows, NetWare but not for Unix. The difference to cable typ 6 is, that there is no contact closure when UPS is in normal mode. (Cable break recognition)



Settings in the configuration menu: Cable 2

Cable typ X34

This typ is for use with UNIX and VMS, but can also used for Windows and Novell.



Settings in the configuration menu: R-Open or R-Close

- **R-Open** for contact open at loss of network
- **R-Close** for contact open at loss of network

5. Interface-Specifications

25 pin contact (male at computer side)

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

9 pin contact (male at computer side)

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