SANUPS

UPS Control System

SANUPS
SOFTWARE

User Guide

SANYO DENKI

E

ENGLISH

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1. Introduction

1.1 Outline

SANUPS SOFTWARE can shut down computers that are connected to a UPS and stop the UPS safely when there is power trouble. It also enables the condition of the UPS to be controlled from a computer.

1.2 Notations Used in This Document

- Unless otherwise stated, "**Windows**" is used to denote a **Windows** operating system supported by this system.
- "PC" is used to denote a **Windows** computer and "WS" is used to denote a **UNIX** computer.
- Unless the name of the operating system is stated, **UNIX** computer denotes a computer running a main **UNIX** operating system, including **Linux**.
- "Computer" is used to denote both a PC and WS.
- "Default" is used to denote the initial state after the introduction of software.
- **Windows** is used for the screenshots of diagrams in this document. Although the display may vary slightly because of differences in your operating system, the functions and display items do not differ.
- "UPS" is used to denote a UPS with a serial interface, a UPS with a LAN interface card or a UPS with an interface for an external connection.
- "UPS with a serial interface" is used to denote a UPS equipped standard with a serial interface or a UPS incorporating a serial interface card.
- "UPS with a LAN interface" is used to denote a UPS incorporating a LAN interface card.
- "UPS control software" is used to denote **SANUPS SOFTWARE**.
- "UPS control system" is used to denote an environment combining UPS control software and a UPS.
- **"JavaVM"** or "**Java** runtime environment" is used to denote **Java Virtual Machine**.
- "Service program" is used to denote a **UNIX/Linux** daemon program to match the term to that used for the **Windows** version.
- "CUI" is used to denote a character user interface.
- "GUI" is used to denote a graphical user interface.

1.3 Main Functions of SANUPS SOFTWARE

（1） Computer automatic shutdown function

This function shuts down computers automatically when power trouble occurs or a scheduled stop time elapses. Computers can also be shut down when major breakdowns and overloads occur of the UPS. A script set by the user can be run during the process of starting a shutdown. This enables running applications to be stopped and data to be saved*.
The power supply of the UPS can also be turned off after confirming that all computers have been shut down. Thus conserving battery power.

* For details on saving the data of **Microsoft Office** applications, refer to "Appendix F About the Application Shutdown".

（2） Computer automatic startup function

This function turns on the power supply of the UPS and then starts the computers automatically when a recovery from power trouble occurs or a scheduled start time elapses. Furthermore, you can also add the battery charge rate as a condition for automatic startup. (Only available for a supported UPS)
With some types of computer equipped with the latest power control functions, just supplying the main power will not turn on the computer. For such a computer, support is provided for turning on the computer using the ring signal or Wake On LAN function.

Note 1: The computer unit needs to include support for the ring signal and Wake On LAN functions.
Note: 2: The ring signal function is only available when you use a UPS that supports sending ring signals. These signals are referred to as "modem signals" on some computers.

< What is the ring signal function? >
A mechanism for sending a pseudo signal similar to a signal from a modem to the serial port of a computer to start the computer automatically.
The serial port and motherboard of the computer need to be supported.

< What is the Wake On LAN function? >
A mechanism for receiving a computer startup packet from the network to start the computer automatically.
The network interface card (NIC) and motherboard of the computer need to support Wake On LAN.

（3） Support for multiple platforms

Use in an environment where **Windows**, **UNIX**, and **Linux** operating systems exist together is possible.
Up to 50 devices can be registered and shut down.

⑷　Scheduled operation function
　　Schedules to stop and start the UPS can be set and operation can be performed according to the schedules.
　　The effort required to run the system is reduced because automatic shutdown takes place when the UPS is stopped.

⑸　UPS state display function
　　The input/output power supply state, battery state, and other states can be monitored in real time. In addition, a log is saved for changes in the states of the UPS.

⑹　Message function
　　Messages are displayed on the computer screen to notify you when there are events such as the occurrence of or recovery from power trouble, or to notify you of the progress of operations such as an automatic shutdown.
　　The e-mail notification function can promptly notify the system administrator by e-mail of abnormal states such as the occurrence of a power failure. Furthermore, e-mail can be used to obtain information about conditions.

⑺　UPS operating history recording function
　　A record of the operating state (condition information, measurement information, and event logs) of the UPS can be maintained. Outputting the operating history as a file enables processing of the data in other applications.

⑻　Support for various UPS interfaces
　　Support for contact signal output, serial communication, LAN connection, and other external output interfaces of Sanyo's UPS lineup is flexible. You can even use the software as is if you change the UPS type.

⑼　Support for the power distribution control UPS
　　Support is included for the UPS with power distribution control. You can set a delay for turning on/off the output for each system separately. This allows you to set the order with which to start and stop computers.

⑽　UPS remote control
　　Stopping the UPS (shutting down the computers) from a computer running **SANUPS SOFTWARE** is possible. A battery check can also be performed.

⑾　Support for Web browsers and Telnet
　　When the software is set up as the server version, you can display the conditions of the UPS and configure various settings by remotely operating the computer used as the server from a Java compatible browser or with Telnet.

⑿　Shutdown test function
　　When the software is set up as the server/client version, shutdown test is available for the connected target device (client vision and "WS(Telnet connection)"device). When add the new connected device to the system which is already operated, shutdown test is available to be done easily without real power failure.

When the software is connected to LAN interface card as Network connection, shutdown test is also available for the connected device.

（13）Confirm function of shutdown sequence

Shutdown order for the shutdown target devices is available to confirm by the screen.

（14）Supporting for the computer which supports power redundancy

When using the UPS which mount LAN interface card which supports UPS linkage function, available to make shutdown composition for the power redundancy computer by using maximum 5 UPS.

If using this function, LAN interface card which supports UPS linkage function is required.

（15）Corresponding to the IPv4 and IPv6 address

SANUPS SOFTWARE is able to use in the environment using IPv4 and IPv6 address.

You can also be used for IPv6 support LAN interface card.

* There is not support OS to IPv6. For supported OS, please refer the install guide "1.1 operating environments."

Regarding abolition of the SNMP agent function from SANUPS SOFTWARE Version 3

Starting with Version 3, the **SNMP**(Simple Network Management Protocol) agent function has been obsoleted from this software. UPS monitoring by **SNMP** is still possible by incorporating a LAN interface card into the UPS.

1.4 Operating Environment

For details on the minimum system configuration required to set up and run **SANUPS SOFTWARE**, refer to Section 1.1, "Operating Environments" of "Install Guide."

2. System Configuration and Standard Operation of the UPS Control System

2.1 System Configuration

For details on the system configuration of the UPS control system, refer to Section 2.3, "Checking the Connection Method of a Computer" of "Install Guide."

2.2 Standard Operation of the UPS Control System

2.2.1 Operation Sequence

In the UPS control system, you can define as events various phenomena such a power failure/recovery, UPS breakdown, and the impossibility of recovering from a power failure. For each of these events, you can set, for example, whether to send a message, the content of the display message, and the content of the execution script.

The following explanations outline the operation sequence of the UPS control system and related events that occur during operation.

(1) Sequence when power failure
(2) Sequence when battery power becomes low
(3) Remote control sequence
(4) Sequence when scheduled operation
(5) Sequence when major breakdown or overload

You can set the message to be displayed, whether to save a log, the script to be executed, and the destinations to send e-mail when each event occurs during operation. For details on each event, refer to "Appendix B   Explanation of events".

（1） Power failure sequence

Operation sequence of UPS control system when power failure with no prospect of recovery occurs
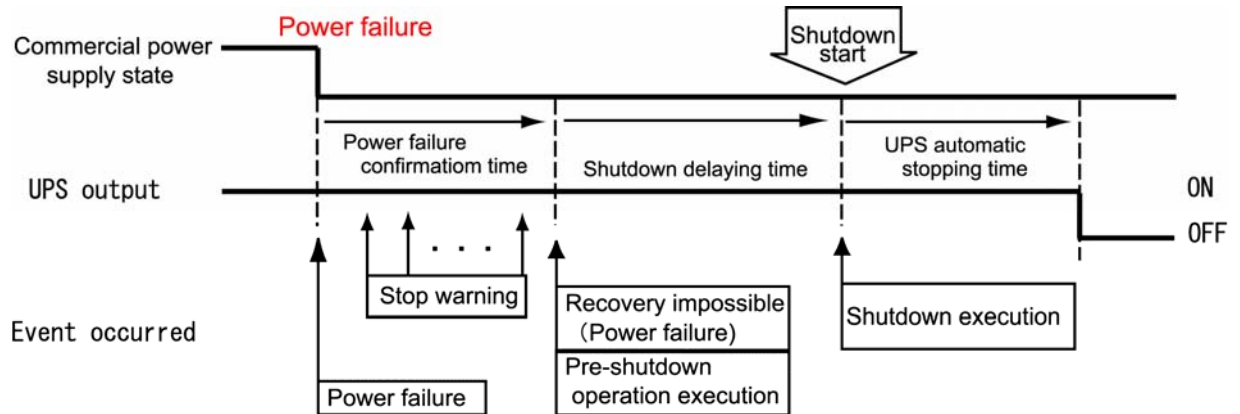
●Standard operation

(a) When power failure occurs, UPS will wait for recovery from power failure during Power failure confirmation time.
   If it recovers from power failure within Power failure confirmation time it will not conduct procedure hereafter.

(b) After Power failure confirmation time has elapsed, UPS will judge as recovery impossible from power failure, and carry out prior procedure for shutdown.
   (Power failure operation sequence will not be suspended even when it recovers from power failure hereafter.)
   In prior procedure for shutdown, it is possible to carry out procedure that was specified by a user before starting the shutdown of the computer.   This time zone is called Shutdown delaying time .

(c) After Shutdown delaying time has elapsed, the computer will start shutdown.
   If automatic stop of UPS is set, UPS will stop after UPS automatic stop time has elapsed.

Please refer to Section 6.11 , "Make Settings Related to UPS Operation" for time setting of UPS operation at the occurrence of power failure.

《Caution》
Even when it recovers from power failure during Shutdown delaying time and UPS automatic stop time, the procedure will continue until shutdown.   In case automatic stop of UPS for power failure is being set, the procedure will continue until it stops UPS.   Please do not reboot the computer (OS) even when it recovers from power failure in the middle.

（2） Low battery voltage sequence

Low battery voltage sequence will operate when the battery voltage becomes less than a certain level because of battery life etc.
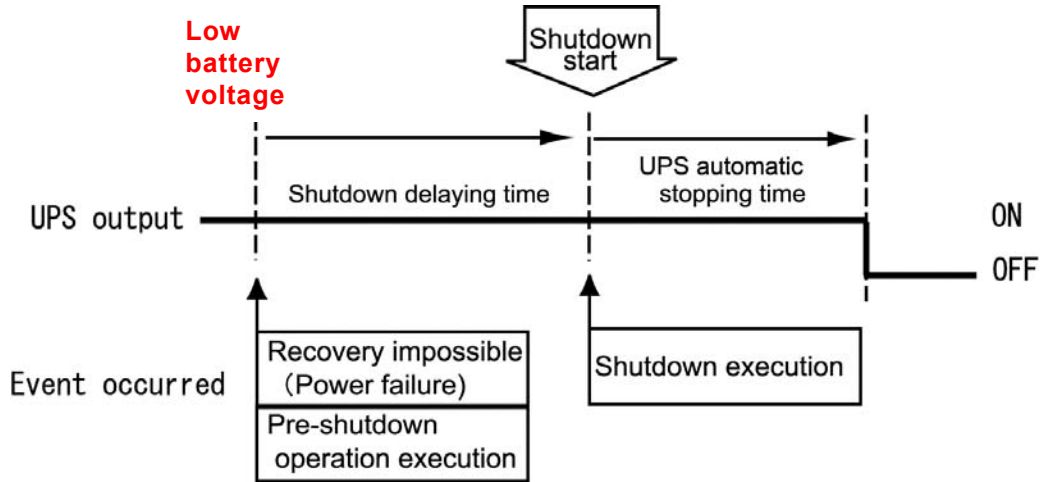
●Standard operation
(a) When UPS detects "low battery voltage," it will conduct prior procedure for shutdown.
In prior procedure for shutdown, it is possible to carry out procedure that was specified by a user before starting the shutdown of the computer. This time zone is called Shutdown delaying time .

(b) After Shutdown delaying time has elapsed, the computer will start shutdown.
If automatic stop of UPS is set, UPS will stop after UPS automatic stop time has elapsed.

《Caution》
If uncheck "Shutdown when the low battery voltage occurred" on setting screen of shutdown trigger, low battery voltage sequence will not start under the low battery voltage occurred.

（3） Remote control sequence

It is an operation sequence by stop control from UPS remote switch or stop control from SNMP Manager[Note 3] or UPS Control Tool.
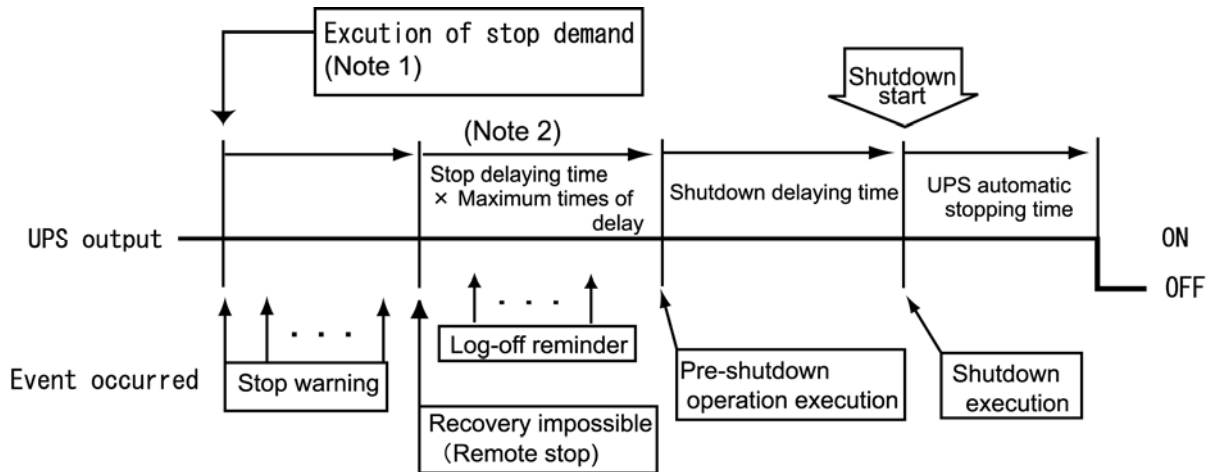
Note 1) In case of stopping by UPS remote switch, it will become recovery impossible immediately.   Thus, stop notice event will not occur.

Note 2) It is valid when it is set to conduct stop delay.   In such case, if there is a user that is logged on to PC, it will display a message that press for log-off and can delay prior procedure for shutdown or execution of shutdown.   If it is set not to conduct stop delay, two events (recovery impossible and execution of prior procedure for shutdown) will occur conconsecutively.

Note 3) In case of using the LAN interface card.

●Standard operation

(a) In case of carrying out UPS stop control from SNMP Manager[Note 3] or UPS Control Tool, you can delay the execution of control for certain length of time by specifying the delaying time.

(b) If UPS is set to conduct stop delay, it will conduct delaying procedure.

(c) After Shutdown delaying time has elapsed, it will shutdown the computer and stop UPS after UPS automatic stop time has elapsed.

(d) After the stop of UPS, UPS will start by start control from SNMP Manager or UPS Control Tool. (Note 3)

（4） Scheduled operation sequence

It is stop operation sequence in case UPS scheduled operation is set.
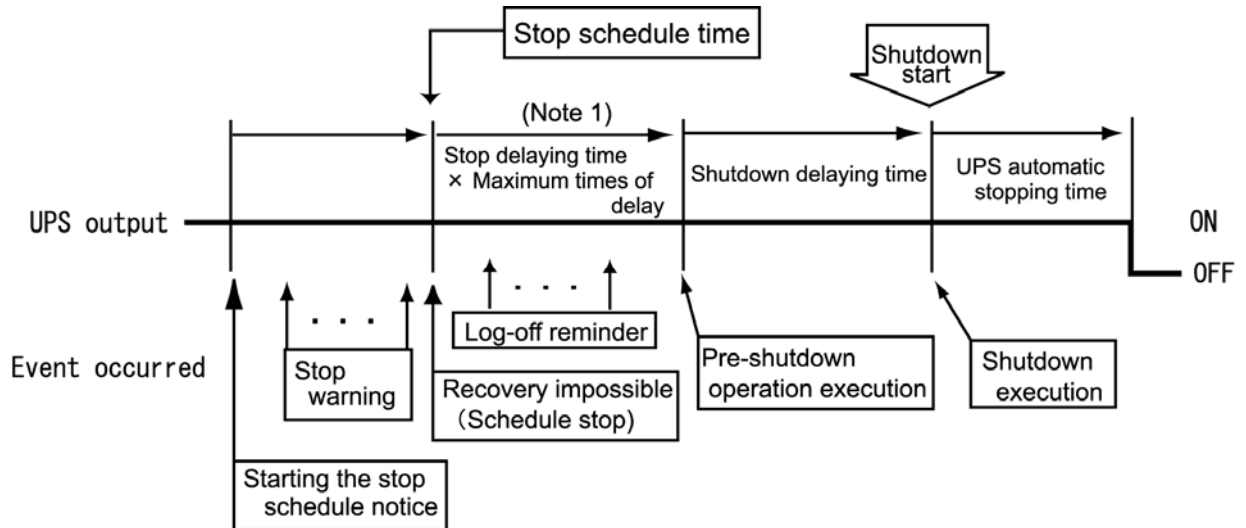
Note 1) It is valid when it is set to conduct stop delay.   In such case, if there is a user
that is logged on to PC, it will display a message that press for log-off and
can delay prior procedure for shutdown or execution of shutdown.   If it is set
not to conduct stop delay, two events (recovery impossible and execution of
prior procedure for shutdown) will occur conconsecutively.

●Standard operation

(a) When it becomes Scheduled stop time set by schedule, it will conduct stop delaying
operation.

(b) After Shutdown delaying time has elapsed, it will shutdown the computer and stop
UPS after UPS automatic stop time has elapsed.

(c) When it becomes Scheduled-starting time set by schedule, it will start UPS.
(Computer will turn on by starting of UPS.)

**Please refer to Section 6.17 , "About scheduled operation" for schedule setting of
UPS.**

**In case of using "Scheduled operation" for automatic stop or start of computer,
please get power supply of the computer from UPS.**

（5） Sequence when major breakdown or overload

Operation sequence of UPS control system when major breakdown occurs
(Since the operation sequence when an overload occurs is the same as that when a major
breakdown occurs, read "major breakdown" as "overload" in the case of an overload.)
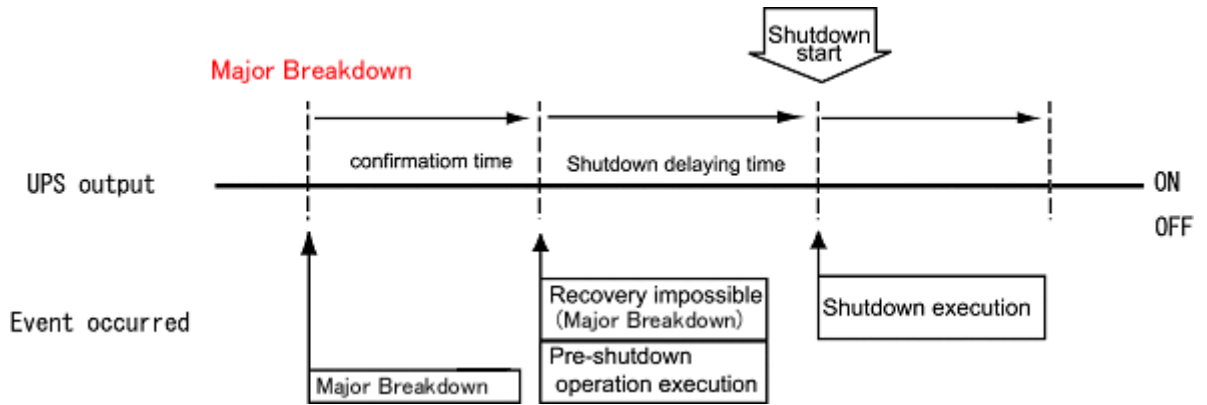
● Standard operation

(a) When a major breakdown occurs, the UPS will wait for recovery from for the major
breakdown during the confirmation time. If the UPS recovers from the major breakdown
within the confirmation time, it will not conduct the subsequent procedure.

(b) After the confirmation time has been exceeded, the UPS will judge recovery to be
impossible and execute the pre-shutdown operation.
**(The sequence for when a major breakdown occurs will not be suspended even if the
UPS subsequently recovers from the major breakdown.)**
In the pre-shutdown operation, a procedure that was specified by the user can be carried
out before starting the shutdown of the computer. This time zone is called the shutdown
delaying time.

(c) After the shutdown delaying time has been exceeded, the computer will start shutdown.
The UPS does not stop.

**For time settings related to UPS operation upon occurrence of a major breakdown, refer to
Section 6.11 , "Make Settings Related to UPS Operation".**

2.3 Requirements for System Configuration

2.3.1 Network environment

In order to use UPS control system under network environment, it is necessary to satisfy the following requirements.

- In case of using several computers connected to UPS with serial interface, computers must be connected by network and be able to communicate by TCP or IP.
- In case of using UPS with LAN interface, the computer and UPS must be connected by network and be able to communicate by TCP or IP.
- UPS and computer must be able to communicate even during power failure until the specified time for UPS stop has elapsed.　(Router or HUB must be backed up by UPS etc.)
- UPS with LAN interface must have its own IP address.
- In case of using network name, it must be changeable to IP address by DNS etc.
- You cannot use the UPS in an environment where the port numbers are converted by NAT or IP masquerade.
- In case of assigning IP address of UPS by DHCP, the network name must be changeable to IP address by following method.

  In case of using UPS control system under network environment, register the IP address that is corresponding to MAC address of UPS to DHCP server.　Then, register the IP address and the corresponding network name to either the DNS server, WINS server or the Hosts file.

2.3.2 Operational requirement

- In case of setting other PC (PC that has been installed of a UPS service of UPS control system) from **SANUPS SOFTWARE**, the user that will be using the **SANUPS SOFTWARE** must know the administrators account of that PC.
- During waiting by power control function, such as suspension, the operation of **SANUPS SOFTWARE** cannot be guaranteed.　Thus, never forget to nullify the power control function such as suspension for usage.
- In case its structure is serial connection with UPS, the maximum number of device that can be registered is 50.
- In case its structure is serial connection with UPS, one serial port that the application can use for serial communications is needed.
- When using a UPS with a LAN interface, see the user's guide for the LAN interface card to configure items that you cannot set from the **SANUPS SOFTWARE**.
- On UPS with LAN I/F card, maximum number of registrable devices depends on used LAN I/F card type. (up to 10, or up to 50) Refer to a LAN I/F User's guide for details.

3. Installation

For details on the installation procedure for **SANUPS SOFTWARE**, refer to Section 3, " Installing SANUPS SOFTWARE" of "Install Guide."

4. Setup

After **SANUPS SOFTWARE** installed, use the wizard described in ,
"4.1 Using the Setup Wizard (GUI Configuration Tool) " to register the UPS. (If you want to use the software in a window-less environment, see , "4.2 Using the SETUP Wizard (CUI Setup Tool)" and register the UPS. When the registration is finished, **SANUPS SOFTWARE** can start normally.

4.1 Using the Setup Wizard (GUI Configuration Tool)

On the computer where **SANUPS SOFTWARE** is installed, if you start **SANUPS SOFTWARE** while the connected UPS is not registered (immediately after the installation or when the connected device is deleted), the setup wizard starts automatically. When this happens, register the connected UPS.
Content of the registration created using the connection wizard can be changed even after the registration operation.

The UPS can be registered on the computer using one of the following three connections.

Connection Type	Comment
Server connection with UPS	*1
Client connection with UPS	*2
Network connection with UPS	*3

*1 When the computer is in direct serial connection or contact connection with the UPS

*2 When the computer is connected to the computer described in (*1) via a network

*3 When the computer is connected with the UPS (with LAN interface installed) via a network

If setting up your computer by the setup wizard function, refer to "4.1 Using the Setup Wizard (GUI Configuration Tool)" of the "Installation Guide".

4.2　Using the SETUP Wizard (CUI Setup Tool)

If a GUI (graphical user interface) environment is not available, you can use a character-based tool to set up **SANUPS SOFTWARE** (**UNIX** and **Linux** only). The SETUP Wizard can be used to set up a computer so that when power failure occurs, the computer can be shut down automatically. Contents registered by the connection wizard can be changed later by using this tool.
This Setup wizard function can be used not only from workstation where UPS service is installed, but also from remote PC for administrator.

4.2.1　About the registration (configuration) of the UPS
（A）From the console or the terminal, enter and then execute the **"./sg4setup"** command in the **SANUPS SOFTWARE** installation directory.　(*1)

（B）The SETUP Wizard starts. Move the cursor to **[NEXT]** and press the space bar to accept it and then move to the next screen. (Use the arrow keys to move the cursor.)

```
  ###  ## #   # #  # ###   ###   ### ## #### ##### # # #  ## ### ####
  #  # # # ## # #  # # #  #  #  #   #  #    #   #   # # # #  # # #  # #
   ## # # # # # #  # # ### ##   ## # # ###  #   # # # # # ### ###
    # #### # ## # # # #     #       # # # #  #   #  # # #### # # #
  ### # # #  # ## #   ###   ###   ## #    #   ## # # # # # #### 

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     This is SETUP Wizard.




                                            NEXT      CANCEL
-------------------------------------------------------------------------
Next Page.
```
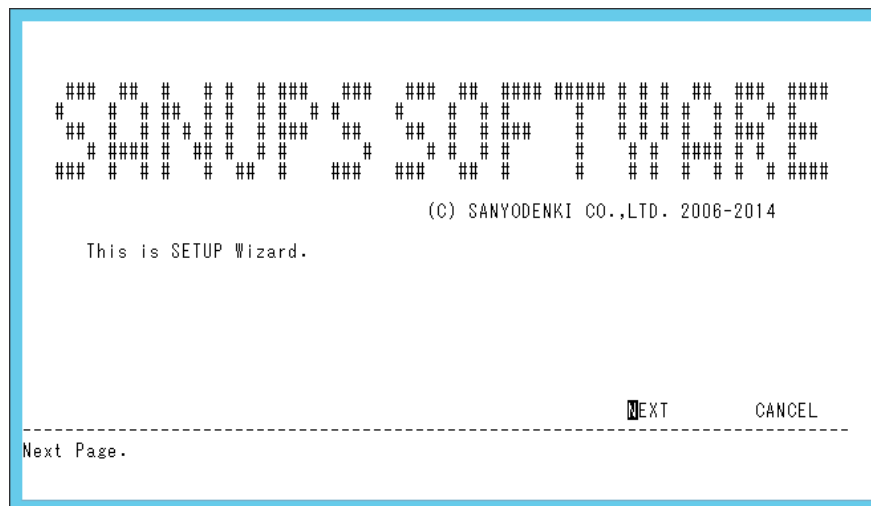
(*1) The **sg4setup** tool can be used to set up **SANUPS SOFTWARE** in the same way even after the

UPS registration.

（C） Select a method to connect to the UPS. Move the cursor to a desired connection method, and then use the space bar to select the method. An asterisk (*) appears in front of the selected connection method.

After selecting a connection method, move the cursor to **[NEXT]** and then use the space bar to accept it.

```
UPS Connection select.

----------------------------------------------------------------------
  * Direct Connection with Serial Cable.
    Network Connection for SANUPS SOFTWARE Server.
    Network Connection for UPS(LAN I/F Card).






                                        BACK     NEXT     CANCEL
----------------------------------------------------------------------
Next Page.
```
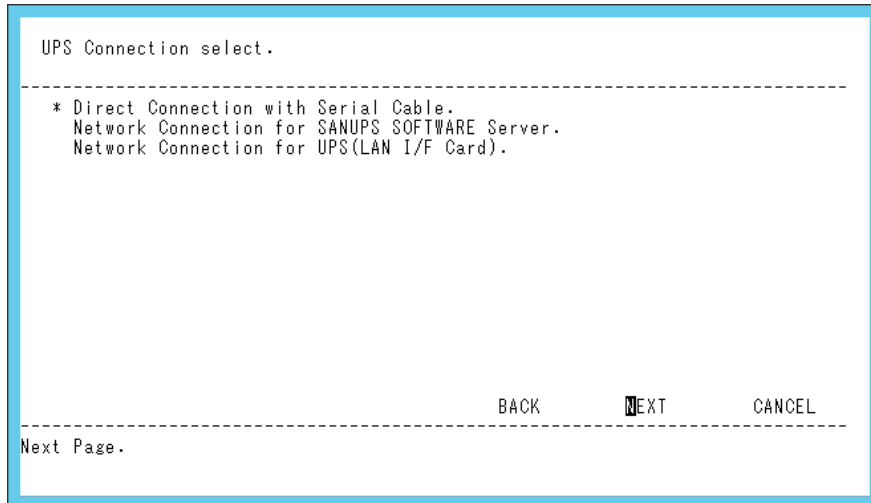
Setting	Description
Direct Connection with Serial Cable.	Connect to UPS using a serial cable.
Network Connection for SANUPS SOFTWARE Server.	Connect to server via network. (Connect to a computer that is connected to the UPS using a serial cable.)
Network Connection for UPS (LAN I/F Card) .	Connect to the UPS (LAN/IF card) via a network.

If **[Direct Connection with Serial Cable.]** is selected

→ **(D)**

If **[Network Connection for SANUPS SOFTWARE Server.]**

or **[Network Connection for UPS (LAN I/F Card) .]** is selected

→ **(F)**

<table>
<tr><td>

<Information>
This screen is displayed at initial setup only.

</td></tr>
</table>

（D） Select an environment to use UPS. You can specify to use a network environment and use as a UPS server, or as standalone without using any network environment.

After selecting an environment to use UPS, move the cursor to **[NEXT]** and then press the space bar to accept it.

  (Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space bar can be used to select the setup content.)

```
  UPS Connection Information

-----------------------------------------------------------------------------
   Use Network Environment (+)       Yes

   Computer
     Network Name / IP Address (+)   IP Address
        Network Name

     IP Address (+)                  172.30.3.43




                                        BACK       NEXT      CANCEL
-----------------------------------------------------------------------------
Next Page.
```

Setting	Description
Use Network Environment	Specify whether to use (Yes) or not use (No) a network environment.
Network Name / IP Address	Specify whether to use network name or IP address.
Network Name	Specify a network name.
IP Address	Specify an IP address.

（E）Select a serial cable connection method. Specify a connection method according to the environment. After specifying a connection method, move the cursor to **[NEXT]** and then press the space bar to accept it.
(Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space bar can be used to select the setup content.)

When performing serial communication with the UPS

```
   Serial Cable Information
  ------------------------------------------------------------------------------
   Serial Port Type (+)            Communication



   Serial Port Name (+)            /dev/ttyS0




                                            BACK       NEXT       CANCEL
  ------------------------------------------------------------------------------
  Next Page.
```

Setting	Description
Serial Port Type	Specify UPS connection type: serial (**Communication**) or contact connection (**Contact**).
Serial Port Name	Specify the type of UPS (appears when **[Contact]** is selected)

After specifying the connection method of serial cable, proceed to **(G)**.

When performing contact connection with the UPS

```
Serial Cable Information

---------------------------------------------------------------------------
  Serial Port Type (+)              Contact
    UPS Type (+)                    A11F
    Output Signal
      Power Failure (+)             HIGH
      Low battery voltage (+)       HIGH
      UPS Stop (+)                  HIGH

  Serial Port Name (+)              /dev/ttyS0




                                    BACK      NEXT       CANCEL
---------------------------------------------------------------------------
Next Page.
```

Setting	Description
Serial Port Type	Specify UPS connection type: serial (**Communication**) or contact connection (**Contact**).
UPS Type	Specify the type of UPS (appears when **[Contact]** is selected) *1
Output Signal **Power Failure**	(Appears when **[Signal]** is selected) Displays whether the power failure signal is enabled or disabled, as well as power failure signal polarity. You can select LOW or HIGH.
Low battery voltage	Displays whether low battery voltage signal is enabled or disabled, as well as battery low signal polarity. You can select LOW or HIGH.
UPS Stop	Displays whether UPS shutdown is enabled or disabled, as well as UPS shutdown polarity. You can select LOW or HIGH.
Serial Port Name	Specify the serial port (device name) of the computer.

*1 In **[UPS Type]**, if the appropriate UPS model does not exist, select **[OTHER]**; in **[Output Signal]**, specify the UPS polarity. (The parameters of **[Output Signal]** can be changed only when **[UPS Type]** is set to **[OTHER]**.) For details of the value of each polarity, refer to the operating manual that comes with the UPS.

After specifying the connection method of serial cable, proceed to （**G**）.

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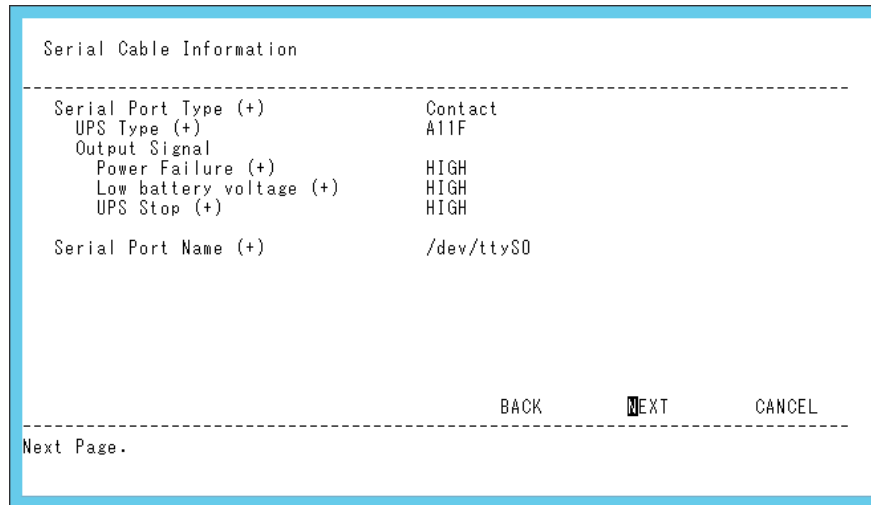（F） Enter the network name or IP address of the UPS, as well as the network name or IP address of the computer. Check that the entered network names or IP addresses are correct. Move the cursor to **[NEXT]**, and then press the space bar to accept it.
(Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space bar can be used to select the setup content.)

```
 Network Information

 -----------------------------------------------------------------------
   UPS
     Network Name / IP Address (+)     IP Address
        Network Name

        IP Address                     172.30.3.91

   Computer
     Network Name / IP Address (+)     IP Address
        Network Name

        IP Address (+)                 172.30.3.43

   When you use a Network Name, please confirm that DNS Server is registered.


                                    BACK      █EXT      CANCEL
 ----------------------------------------------------------------------
Next Page.
```

Setting	Description
UPS	
Network Name / IP Address.	Select a network setting method.
Network Name	Enter the network name.
IP Address	Enter a IP address.
Computer	
Network Name / IP Address.	Select a network setting method.
Network Name	Enter the network name.
IP Address	If the computer has multiple IP addresses, select an IP address for communication with the UPS.

< Note >
If network name is used, it is necessary that the specified network name can be converted to an IP address using DNS server, etc.

<Information>
This screen is displayed at initial setup only.

(*) IP addresses when using a LAN interface card

When using a LAN interface card for IPv6, the link local address set for the LAN interface card is the address specific to the LAN interface card. When replacing the LAN interface card, a new address is assigned to the link local address. When connecting **SANUPS SOFTWARE**, use a fixed IP address.

（G）Enter the account and password of the UPS. Then, move the cursor to **[NEXT]** and then press the space bar to accept it. (To move the cursor, use the arrow keys.)

```
 Account Information

------------------------------------------------------------------------
   User Name

   Password




                                    BACK        NEXT        CANCEL
------------------------------------------------------------------------
Next Page.
```

Setting	Description
User Name	Enter a user name. (The input is not case sensitive.)
Password	Enter a password. (The input is case sensitive.)

To configure the settings for using a serial cable to connect to the UPS, proceed to screen（I）next.

（H）Set up $WakeOnLAN$. Select the $WakeOnLAN$ execution conditions and enter a MAC address. Move the cursor to **[NEXT]** and then press the space bar to accept it.
(Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space bar can be used to select the setup content.)
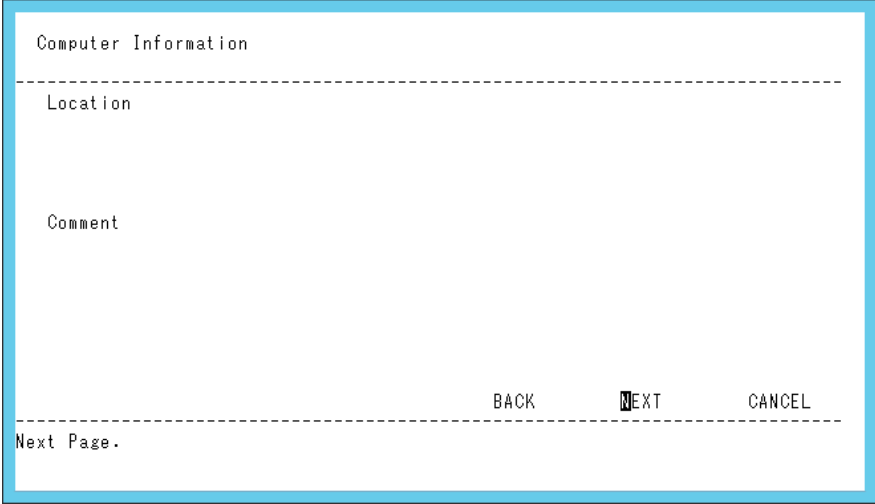
```
  Wake On LAN Information

  ------------------------------------------------------------------------------
  Wake On LAN (+)                      Disable
  MAC Acquisition Condition (+)        Automatic
  MAC Address                          00-0C-29-76-08-2E
  MAC Address Acquisition (+)          Press Space
  Magic Packet Send Delay Time(sec)    0




                                    BACK       NEXT       CANCEL
  ------------------------------------------------------------------------------
  Next Page.
```
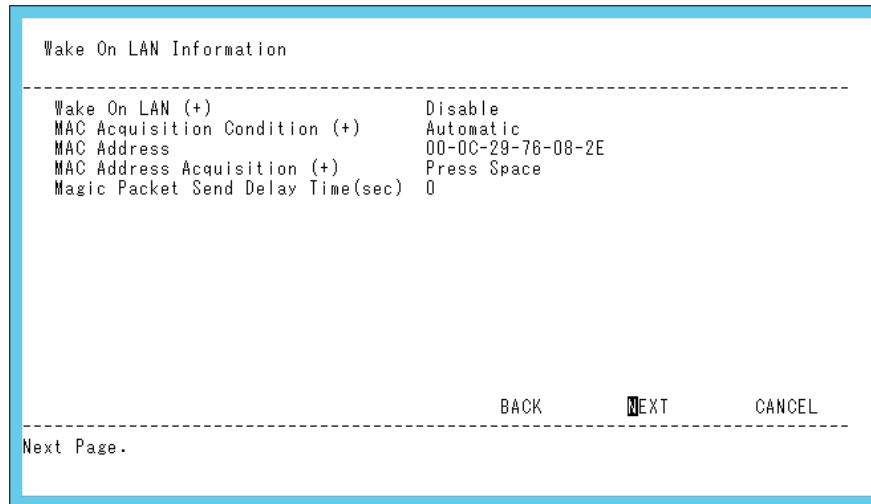
Setting	Description
Wake On LAN	Specify to enable or disable Wake On LAN.
MAC Address Acquisition Condition	If [Wake On LAN] is enabled, specify how to obtain the MAC address. (You can select [Automatic] or [Fixation] (set up the MAC address manually).)
MAC Address	If [MAC Address Acquisition Condition] is set to "Fixation", specify a MAC address here.
Default MAC Address	If [MAC Address Acquisition Condition] is set to [Fixation], [MAC Address] indicates the MAC address of the local computer.
Magic Packet Send Delay Time（*）	Specify the delay time in sending Magic Packet.

（*）This setting value will be available to set when the LAN interface card is used. However, the LAN interface card which is unsupported this function is unavailable.

（I） Enter the location of the computer as well as a comment, as necessary. Then, move the cursor to **[NEXT]** and then press the space bar to accept it.
(To move the cursor, use the arrow keys.)

```
 Computer Information
 ----------------------------------------------------------------------------
   Location



   Comment




                                   BACK       NEXT       CANCEL
 ----------------------------------------------------------------------------
Next Page.
```

Setting	Description
Location	Enter the location of the computer (can be blank).
Comment	Enter a comment (can be blank).

（J） Specify the number of the outlet that supplies power to the computer. After checking the information, move the cursor to **[NEXT]** and then press the space bar to accept it. For UPS with only one outlet, this setup is not performed. (The setup screen does not appear.)
(Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space bar can be used to select the setup content.)
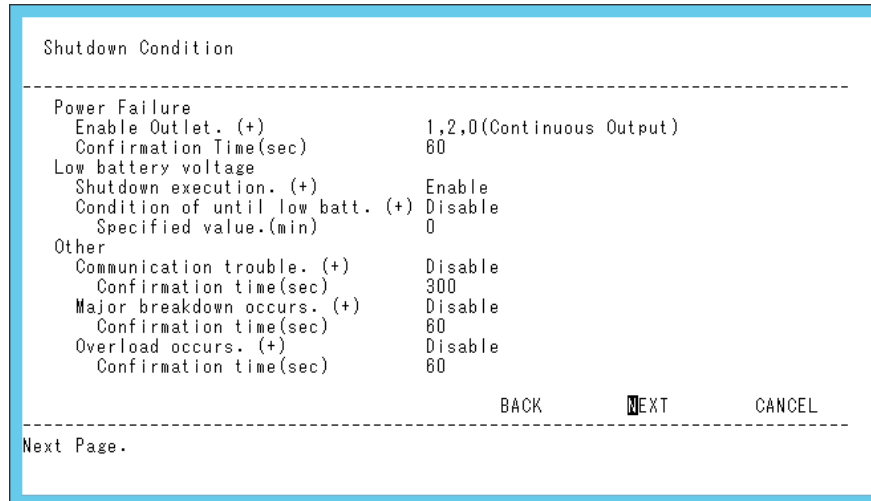
```
Computer Use Outlet Select
----------------------------------------------------------------------------
 Outlet No. (+)                     1




                                    BACK      NEXT      CANCEL
----------------------------------------------------------------------------
Next Page.
```

Setting	Description
Outlet No.	Specify the number of the outlet that supplies power to the computer. [1] outlet 1 [2] outlet 2 [0 (Continuous Output)] Continuous output

While [Continuous output] allows connection of peripheral devices that do not require shutdown, do not connect to the computer using [Continuous output].

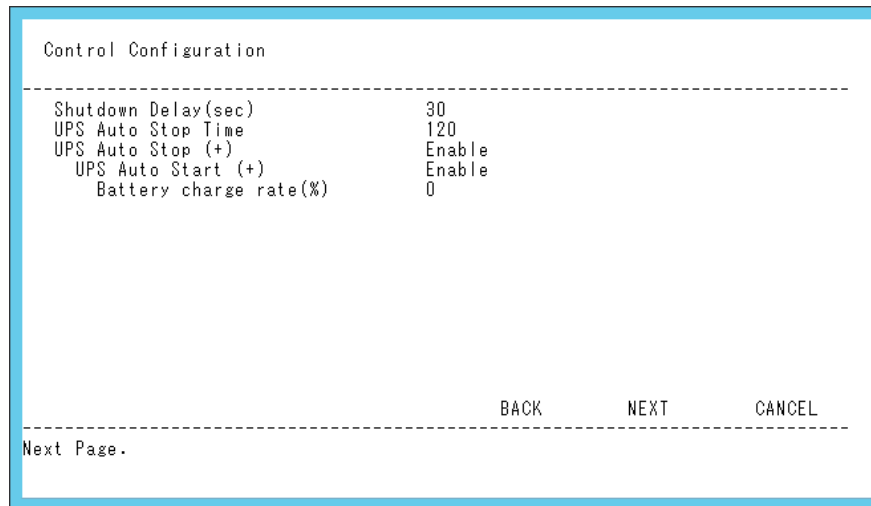（K）Set up the shutdown trigger. After checking the content of the setup, move the cursor to **[NEXT]** and then press the space bar to accept it.
(Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space bar can be used to select the setup content.)

```
 Shutdown Condition

------------------------------------------------------------------------
 Power Failure
    Enable Outlet. (+)              1,2,0(Continuous Output)
    Confirmation Time(sec)         60
 Low battery voltage
    Shutdown execution. (+)        Enable
    Condition of until low batt. (+) Disable
      Specified value.(min)        0
 Other
    Communication trouble. (+)     Disable
      Confirmation time(sec)       300
    Major breakdown occurs. (+)    Disable
      Confirmation time(sec)       60
    Overload occurs. (+)           Disable
      Confirmation time(sec)       60

                                 BACK      NEXT      CANCEL

------------------------------------------------------------------------
Next Page.
```

Setting	Description
Power Failure	
Enable Outlet	Specify the number of the outlet to perform shutdown after the power failure confirmation time has elapsed.
Confirmation Time (sec)	Specify the power failure confirmation time, in seconds.
Low Battery voltage	
Shutdown execution.	Shut down the computer when the battery voltage becomes low.
Condition of until low battery	Specify whether to regard (Enable) or not (Disable) as low battery voltage when the battery's estimated backup time is shorter than the specified value.
Specified value. (min)	Specify the battery's estimated backup time, in minutes.
Other	
Communication trouble.	Specify whether to shut down (Enable) or not (Disable) when a serial communication error with the UPS occurs.
Major breakdown occurs.	Specify whether to shut down (Enable) or not (Disable) when major breakdown with the UPS occurs.
Overload occurs.	Specify whether to shut down (Enable) or not (Disable) when an overload with the UPS occurs.
Confirmation time (sec)	Specify the confirmation time of each shutdown trigger, in seconds.

（L） Set up the UPS stop control. After checking the content of the setting, move the cursor to
[NEXT] and then press the space bar to accept it.
(Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space
bar can be used to select the setup content.)

```
 Control Configuration

 ---------------------------------------------------------------------
  Shutdown Delay(sec)              30
  UPS Auto Stop Time               120
  UPS Auto Stop (+)                Enable
    UPS Auto Start (+)             Enable
       Battery charge rate(%)      0




                                   BACK        NEXT        CANCEL
 ---------------------------------------------------------------------
 Next Page.
```

Setting	Description
Shutdown Delay (sec)	Specify the shutdown delaying time, in seconds.
UPS Auto Stop Time	Specify the automatic stop time of the UPS, in seconds.
UPS Auto Stop	Specify whether to automatically stop (Enable) or not (Disable) the UPS when there is a power failure.
UPS Auto Start	Specify whether to automatically start (Enable) or not (Disable) the UPS during power recovery.
Battery charge rate (%)	Specify a rate so that when the battery charge rate exceeds this rate, the UPS output is turned on. (This setting is not possible if the UPS does not support this function.) If the value is set to 0%, when the power is recovered, the UPS output is turned on immediately.

< Information >

The default UPS stop control values are listed below. (When a power failure occurs,

the UPS stops after approximately 3 minutes 30 seconds.)

● Confirmation time : 60 seconds

● Shutdown delaying time : 30 seconds

● UPS stop time : 120 seconds

（M）Specify how to store the status/value log of the UPS. After checking the content of the setup, move the cursor to **[EXEC]** and then press the space bar to accept it.

The setup is finished.

(Use the arrow keys to move the cursor. A selection with (+) after it indicates that the space bar can be used to select the setup content.)

UPS and serial cable connection configuration

```
Computer Information

--------------------------------------------------------------------------------
   Store UPS Status/Values Log (+)      Yes
     Collection Interval(sec)           600
     Store Term(date)                   30
     Store Directory                    /usr/sg4/service/PCLOG

   Store UPS Event Log
     Store Term(date)                   30

   Shutdown wait time(sec)              0
   User command Exec(sec)               0




                                        BACK      █XEC      CANCEL
--------------------------------------------------------------------------------
Execute.
```

Setting	Description
Store UPS Status/Values Log	Specify whether to store (Yes) or not (No) a log of the status and measurement values of the UPS.
Collection Interval (sec)	Specify the UPS monitoring interval, in seconds.
Store Term (date)	Specify the recording duration, in days.
Store Directory	Displays the directory where the log file is stored (cannot be changed).
Store UPS Event Log **Store Term (date)**	Specify the recording duration of event information, in days.
Shutdown wait time	Specify the wait time as seconds until execute the script by the event of "Shutdown execution" after "shutdown delay time" is passed.
User command Exec	Specify the time as seconds until execute the event script of "Shutdown execution". (Shutdown will start after "Shutdown wait time" and "User command Exec" time is passed.　It is available to set the delay time by using those times until starting the shutdown in each computer.)

LAN interface card connection configuration

```
Computer Information

-------------------------------------------------------------------
  Store UPS Status/Values Log (+)       Yes
    Collection Interval(sec)            600
    Store Term(date)                    30
    Store Directory                     /usr/sg4/service/PCLOG

  Store UPS Event Log
    Store Term(date)                    30

  UPS Connection Trouble
    Auto Shutdown (+)                   No
    Wait Time(sec)

  Shutdown wait time(sec)               0
  User command Exec(sec)                0

                              BACK      ▉XEC       CANCEL
-------------------------------------------------------------------
Execute.
```

Setting	Description
Store UPS Status/Values Log	Specify whether to store (Yes) or not (No) a log of the status and measurement values of the UPS.
Collection Interval (sec)	Specify the UPS monitoring interval, in seconds.
Store Term (date)	Specify the recording duration, in days.
Store Directory	Displays the directory where the log file is stored (cannot be changed).
Store UPS Event Log **Store Term (date)**	Specify the recording duration of event information, in days.
UPS Connection Trouble /Server Connection Trouble **Auto Shutdown**	Specify whether to automatically shut down (Yes) or not (No) when there is an error in the communication between the LAN interface card the server.
Wait Time (sec)	If [Auto Shutdown] is set to [Yes], specify the duration from the time the shutdown warning message appears to the time shutdown activates, in seconds.
Connection Trouble UPS Counts	When use the LAN interface card which supports UPS linkage function, choose the counts of the device to make shutdown under communication error occurs.
Shutdown wait time	Specify the wait time as seconds until execute the script by the event of "Shutdown execution" after "shutdown delay time" is passed.
User command Exec	Specify the time as seconds until execute the event script of "Shutdown execution". (Shutdown will start after "Shutdown wait time" and "User command Exec" time is passed. It is available to set the delay time by using those times until starting the shutdown in each computer.)

5. Starting and Exiting SANUPS SOFTWARE GUI Tool

5.1 Starting

5.1.1 For Windows

From the [Start] button on task bar, select [All Programs] – [UPS control system] – [SANUPS SOFTWARE].

<Information>
For **Windows Server 2008 Server Core** or **Windows Server 2012 Server Core,** move to the folder where **SANUPS SOFTWARE** is installed, and then execute "sg4 0" using command line.

5.1.2 For an Operating System Other Than Windows
Execute **"./sg4 0"** in the installation directory of **SANUPS SOFTWARE**.

5.2 Exiting

There are the following two methods to exit the tool.

[1] Select [Exit] from the [File] menu.

[2] Click the close icon on the window title bar.

6. Explanation of Functions

* 1   If you are using a LAN card that supports this feature, please refer to this section.

6.1 About the Main Screen of GUI Tool

The main screen (The System State screen) of the **SANUPS SOFTWARE** is used to view the operational status of the system, the power-supply system image, the main measured values, the alarm information and a list of connecting devices. The view is updated automatically at an interval of approx. 10 seconds.

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[1] Menu bar

Menu name	Menu item	Description
File	Exit	Exits the main screen.
View	Event-Log (UPS)viewer	Displays the Event Log (UPS) viewer screen.
	UPS real-time viewer	Displays the UPS Real-time viewer screen.
	UPS Information	Displays information related to the UPS.
	Event-Log (computer) viewer	Displays the Event Log (Computer) viewer screen.
	UPS history viewer	Displays the UPS History viewer screen.
	Select UPS（*）	Switching displays the other UPS which is doing UPS linkage.
Settings	Schedule settings	Displays the Settings screen and then moves to the information input position corresponding to the selected menu item. (Selecting a menu item is equivalent to jumping to the corresponding destination within the Settings screen.) If [Detail settings] is selected from the menu, the Settings screen is displayed without jumping to a specific information input position.
	Event settings (UPS)	
	Event settings (computer)	
	Clock setting	
	Detail setting	
	Add. UPS（*）	Adding the other UPS for UPS linkage function.
UPS Control	UPS start/stop	Displays the control screen then moves to the control execution position corresponding to the selected menu item. (Selecting a menu item is equivalent to jumping to the corresponding destination within the control screen.)
	Battery check	
Help	Help	Displays the Help screen.
	About SANUPS SOFTWARE	Displays the program version.

（*）Menu items of "Select UPS" and "Add. UPS" are displayed during LAN interface card is used.

[2] Power-supply system image

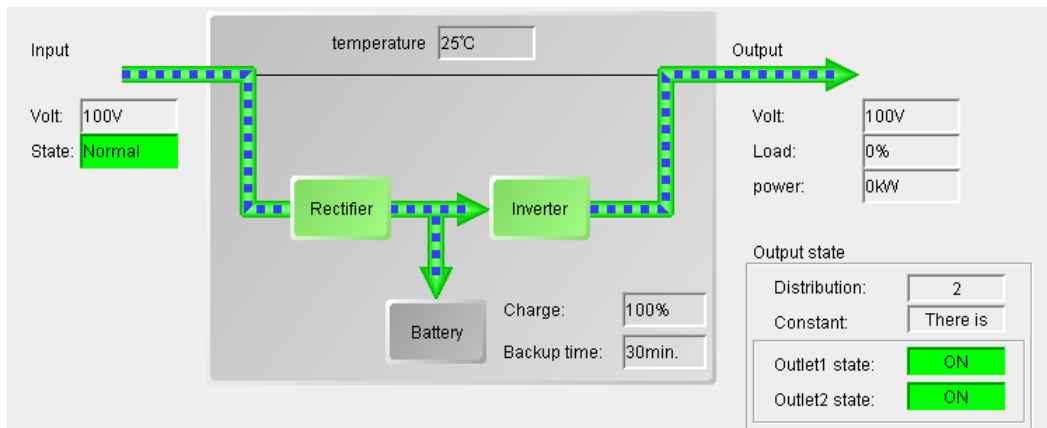System drawing of each power-supply status of the UPS is displayed.

< During normal operation >
For other than a hybrid UPS
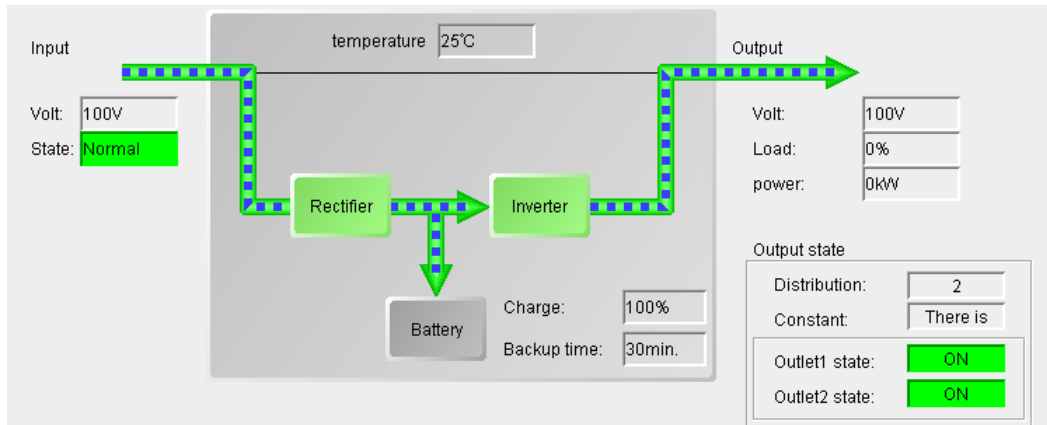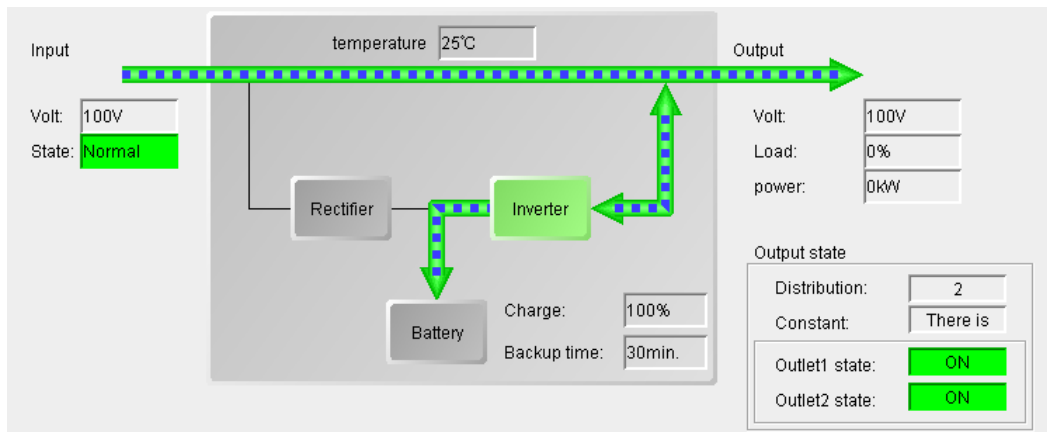

< During normal operation >
For a hybrid UPS

<In the power-supply quality priority mode （DOUBLE CONVERSION mode）>

The power-supply quality priority CVCF function and the power factor improvement function are operational.
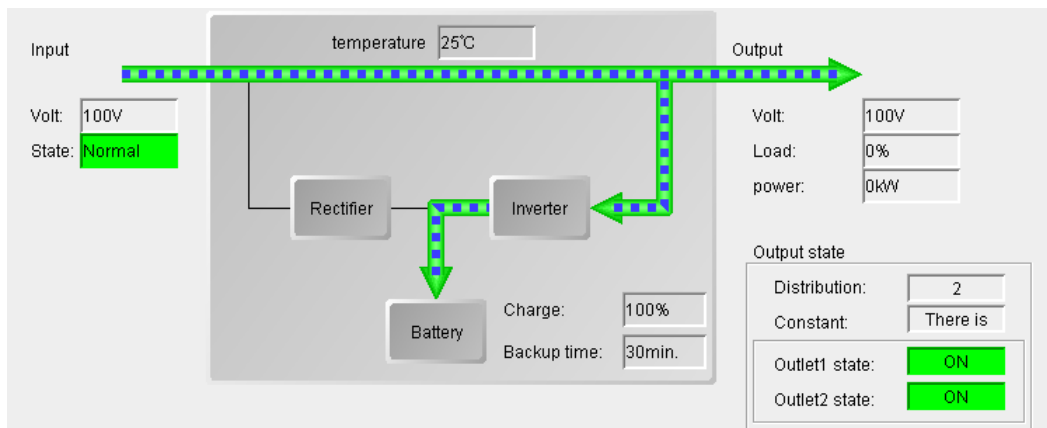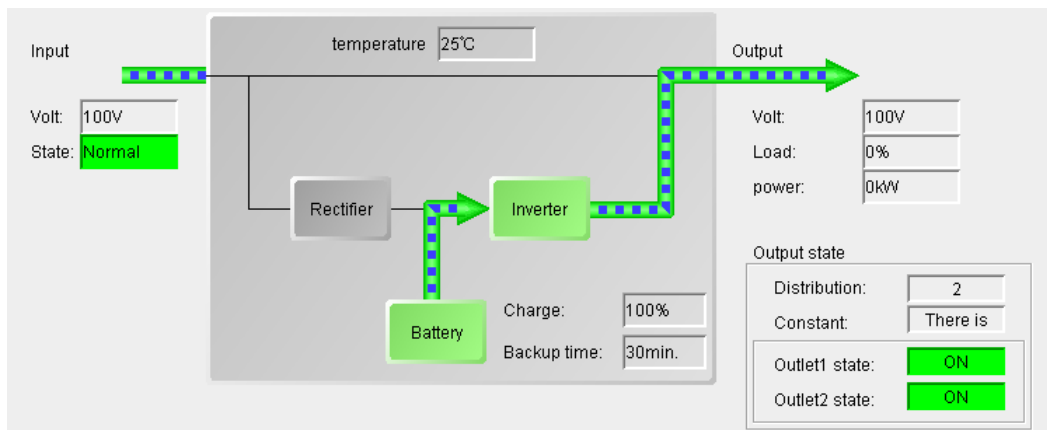
<In the active filter mode>

In the active filter mode, the CVCF function is suppressed and only the power factor improvement function is operational.
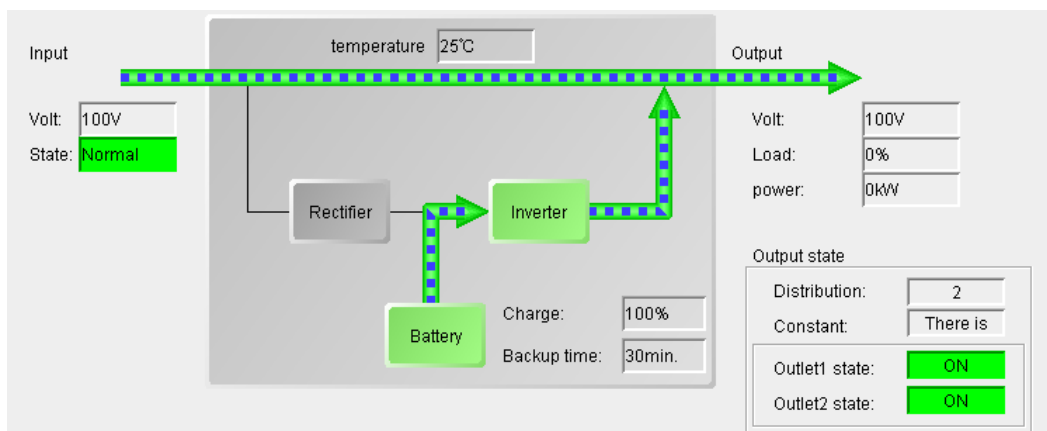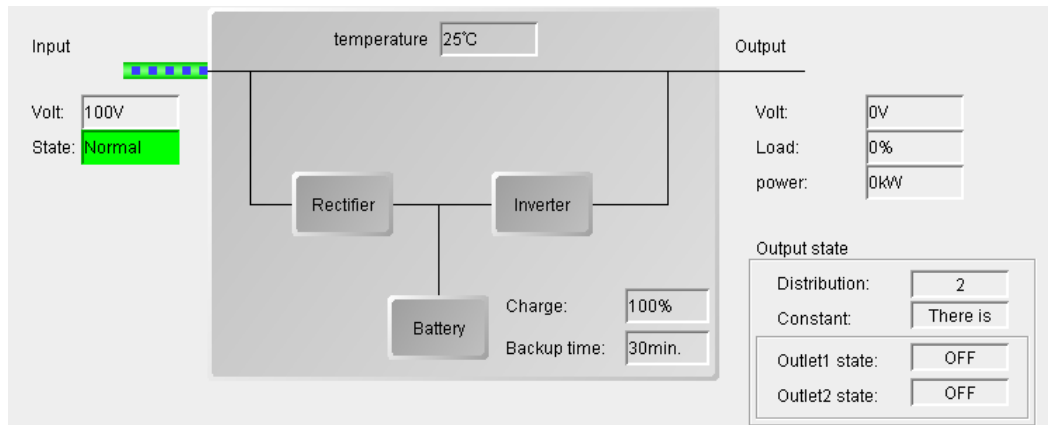This mode is applied automatically when the power-supply quality is relatively good.

<In the efficiency priority mode (ECONOMY mode)>

In the efficiency priority mode, the CVCF function and the power factor improvement function are suppressed. This mode is applied automatically when the power-supply quality is extremely good.

<During a power failure>

<During bypass operation>

<During battery test>
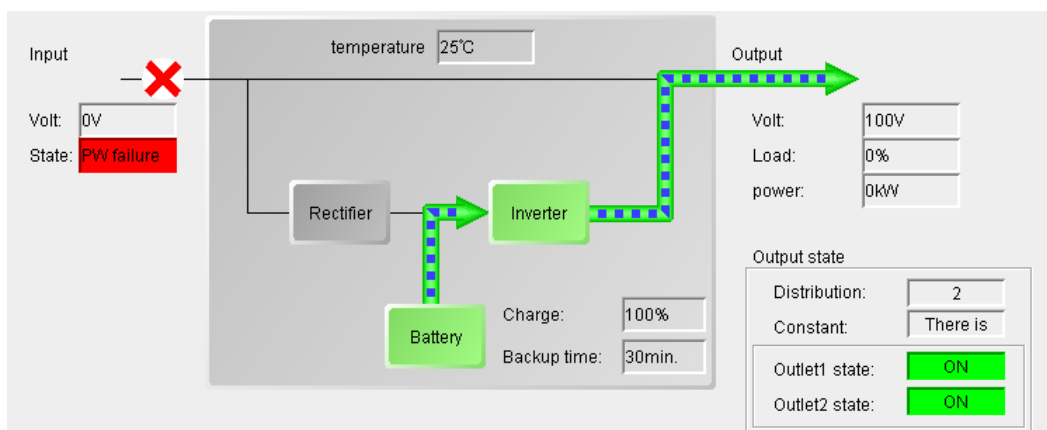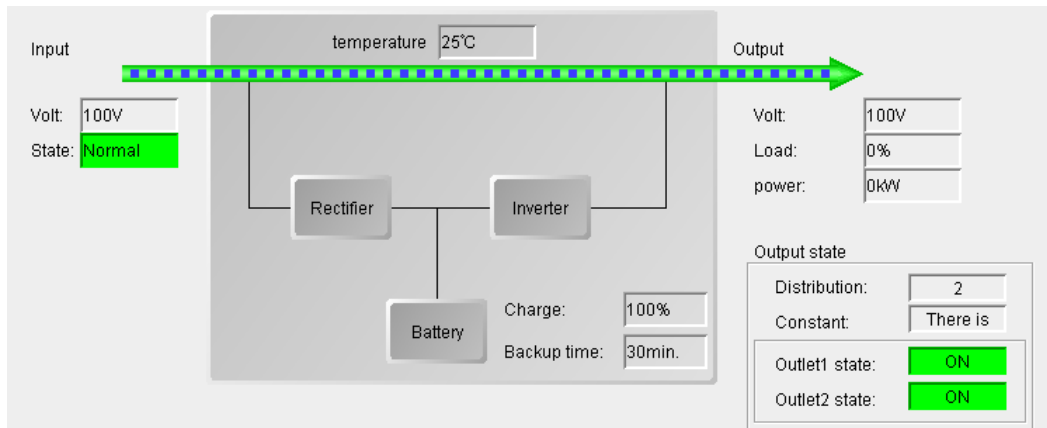
For other than a hybrid UPS or for a hybrid UPS<in the power-supply quality priority mode (DOUBLE CONVERSION mode>

Hybrid UPS<In the active filter mode or the efficiency priority mode (ECONOMY mode)>

<During standby>

<During a serial communication error>

<During a contact connection>

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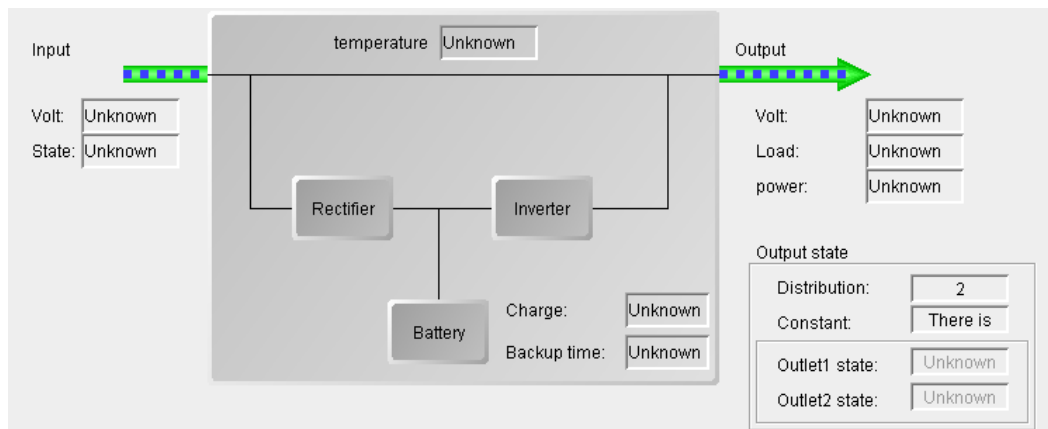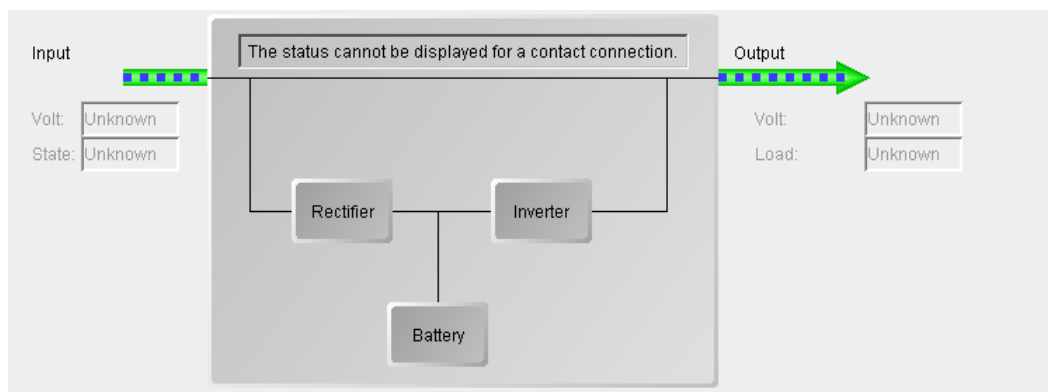
[3] Charge and Backup time

[Charge:]

This indicates the battery charge rate (%).

Note: This is not displayed if the UPS does not have a function for calculating the battery charge rate.

[Backup time:]

This indicates the backup time (in minutes) for which operation is possible under the current load conditions.

If the backup time is 1092 minutes or more, [1092min.] is displayed for the backup time.

Note: The backup time is only a rough estimation and may vary greatly depending on the load conditions. Furthermore, this is not displayed if the UPS does not have a function for calculating the backup time.

[4] Output state

If the UPS has power distribution control output, the output status is displayed by system.

[5] Alarm information

When a breakdown (minor breakdown or major breakdown), overload, low battery voltage, battery life, or battery replacement alarm is triggered, the corresponding indication lights red or yellow to indicate the alarm. The [Breakdown] and [Bat. Low] alarm indications light red and the other alarm indications light yellow.

Note: [Unknown] is displayed when there is a contact connection.

[6] Battery check information

This indicates the current battery check state (executing/stopped) and the result of the last battery check executed.

If a battery check ends abnormally, the result field lights red.

[7] Connecting device list

This lists the devices connected to the UPS.

[8] Add and Delete buttons

These buttons enable you to add and delete connecting devices. To delete a device, select the device you want to delete from the device list and then click the Delete button.

Info: For details, refer to "6.2 Additional registration of the client computer from SANUPS SOFTWARE", and "6.3 Deleting or Re-Registering Connecting Devices".

[9] UPS condition view bar

| UPS condition:Inverter operation | Outlet1:ON | Outlet2:ON |
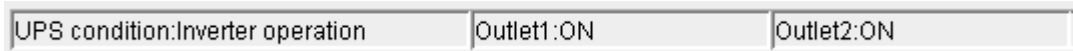
(The figure above shows the status bar as it appears when using a UPS that power distribution control output. If the UPS does not support power distribution control output, only "**UPS status:**" appears.)

The UPS operation and output conditions is displayed. The display items are shown below.

● UPS Conditions

Condition Indication	Description
Communication trouble	Indicates communication trouble between the UPS and computer.
Power failure	Indicates a power failure.
Breakdown	Indicates a UPS breakdown.
Stop	Indicates the UPS is stopped.
Bypass operation	Indicates a UPS bypass operation is being performed.
Inverter operation	Indicates a UPS inverter operation is being performed (normal condition).

  (If a contact connection is used to connect the UPS and computer, the above indications are not displayed.)

● Power distribution control output condition
If the UPS has power distribution control output, the output status is displayed by system.

Condition Indication	Description
ON	Indicates the output for the corresponding system is on.
OFF	Indicates the output for the corresponding system is off.
Unknown	Indicates the condition for the corresponding system output (abnormal condition) cannot be acquired.

  * This condition is only displayed when you are using UPS with power distribution control.

About the Main Screen of GUI Tool

About the address display of title bar

In the case of client connected device of server/client composition or the Network connected device to LAN interface card, connected server device or network address to LAN interface card will be displayed on the title bar.

The figure below shows the system status screen as it appears on each server and client screen when in a server/client configuration.
On the client side, the title bar in the system status screen shows the address of the server.

System State screen of Server version.

System State screen of Client version.

IP address or Network name of "Server version" will be displayed on the title bar of the client version.
IP address or Network name of LAN interface card will be displayed during LAN interface card is used.

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6.2 Additional registration of the client computer from SANUPS SOFTWARE

Remote computers that have the SANUPS SOFTWARE installed but which are not yet registered as connected devices, can be added to the registry by selecting them as clients from the GUI tool.
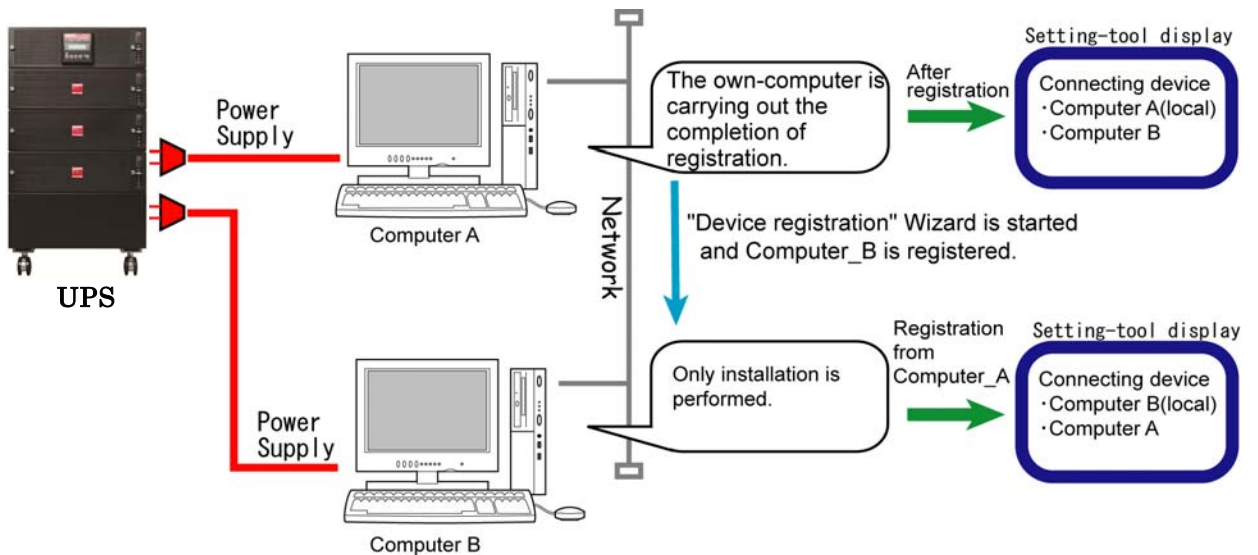
Configure setup from the other computer as described in "4.1.2 If the UPS is connected to a client" or "4.1.3 If the UPS is connected to a network" of "Installation Guide".

Use this method in situations such as when you cannot start the GUI tool on the client computer to be registered.
It is not necessary for that clients added to the registry be running under the same operating system.
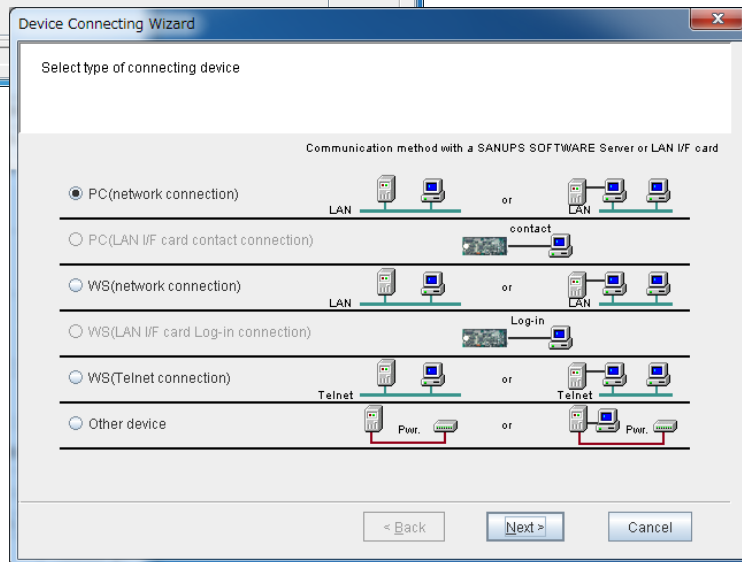For example, you can use the Windows version of the GUI tool to register a computer running Linux/UNIX.

Registration is available as the followings from the System state screen.
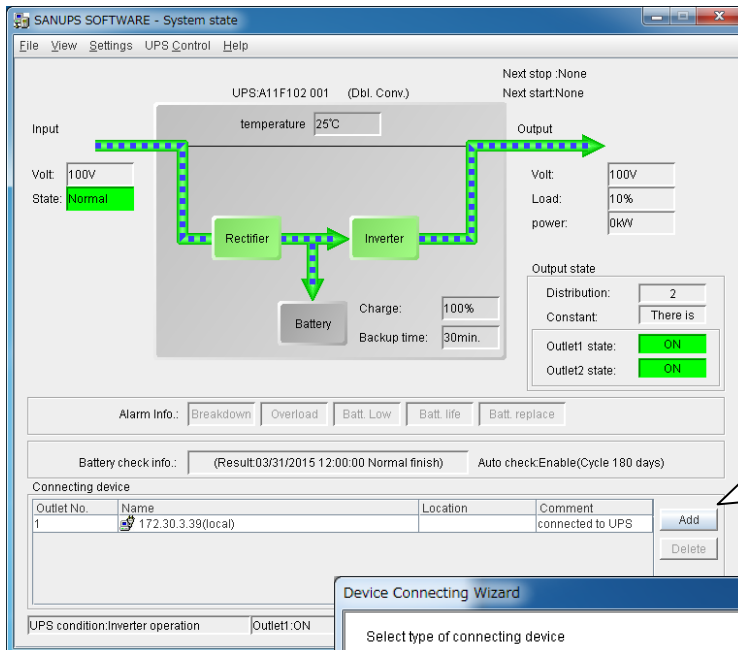
Click **Add.** Button.
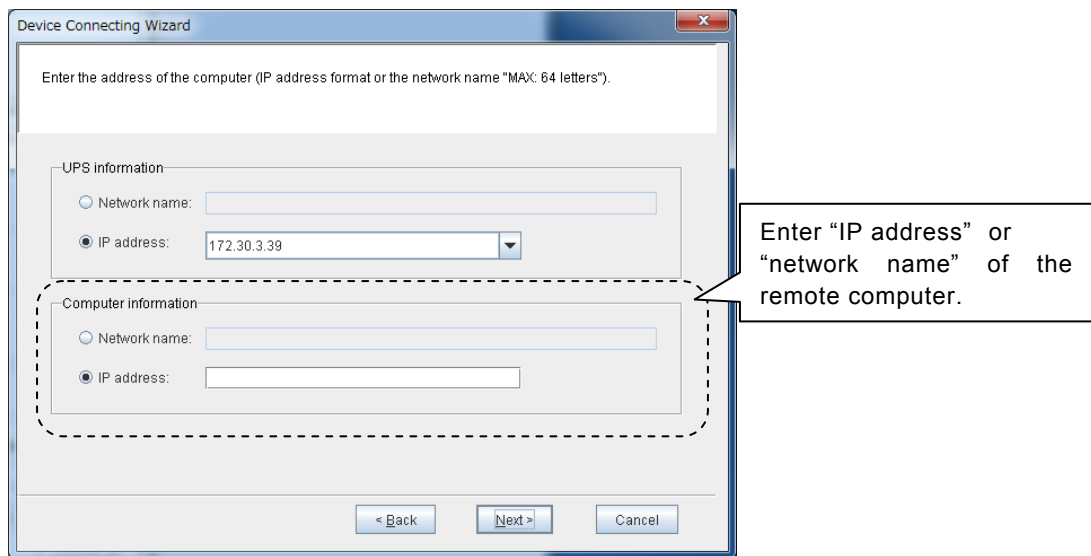The "Device connecting Wizard" screen is displayed.

Select the type of device for additional registration from the screen.
・Select "PC（network connection）" when you add the **Windows**.
・Select "WS（network connection）" when you add **Linux** or **UNIX**.

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Additional registration of the client computer from SANUPS SOFTWARE

Enter "IP address" or "Network name" of the computer for additional registration.

Enter "IP address" or "network name" of the remote computer.

If choose "Next" button, setting screen is displayed when "4.1.2 If the UPS is connected to a client" or "4.1.3 If the UPS is connected to a network" of "Installation Guide".
Device registration will complete by following the contents of setting wizard screen.
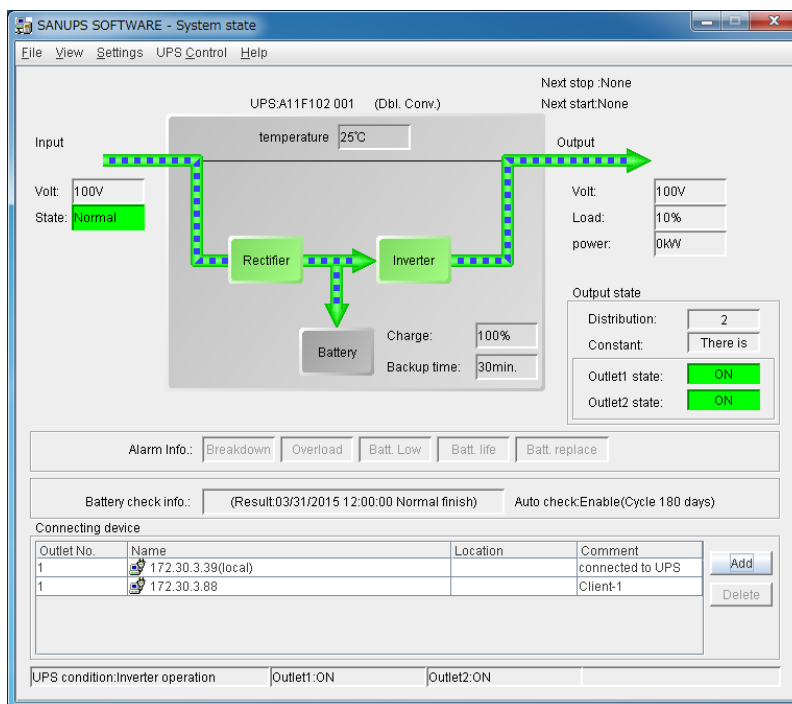
<Information>
Additional registration is also available from "Setting" screen of **SANUPS SOFTWARE.**
Choose "PC（network connection）" or "WS（network connection）" from "Device registration" of menu.

6.3　Deleting or Re-Registering Connecting Devices

When making any of the following changes during use, delete the registration information for the device, and then re-register the device connection using the SETUP Wizard.

・When changing the UPS connection method (for example, changing from serial connection to network connection)

・When changing the UPS in a UPS to client connection.

・When using a LAN interface card and changing its IP address.

・When connections are made using the network, upon changing network information after registration.

When devices are removed due to computer replacement or the like, delete the registered device information before making the replacement.

Registration of many unneeded devices restrict the number of devices that can be registered (the maximum is 50).
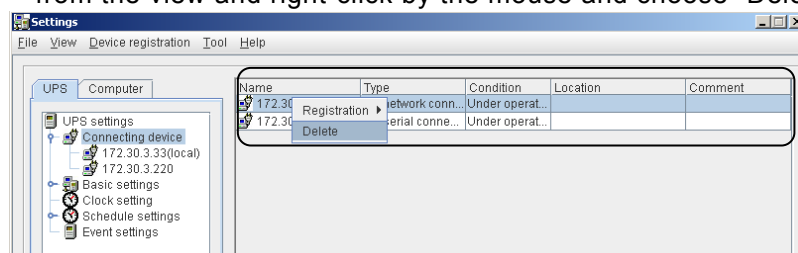
How to delete-1

Choose the device from "Connecting device" of the **System state** screen.
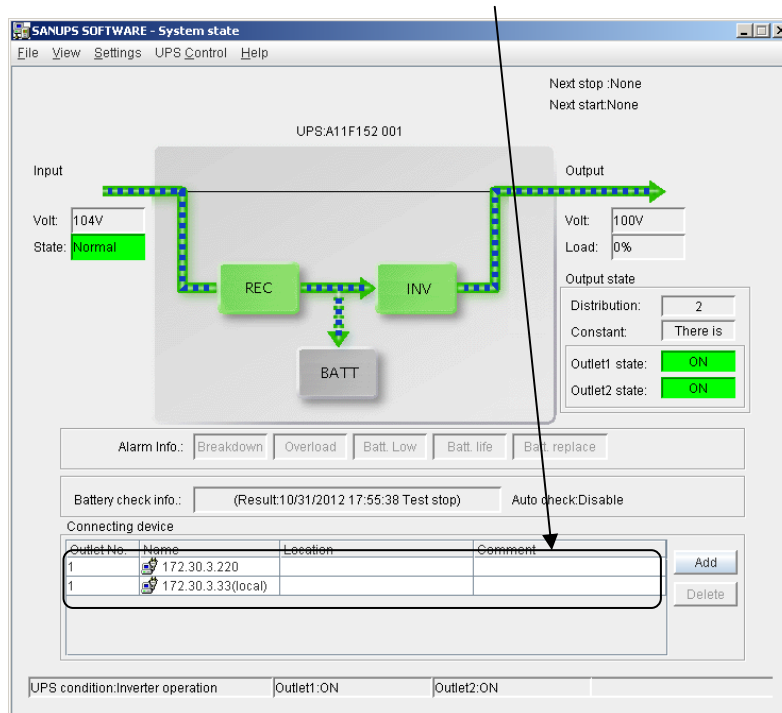
Using "Delete" button and delete information of selected device.

How to delete-2

Choose "UPS"－"Connecting device" from the **Settings** screen. Choose the target device from the view and right-click by the mouse and choose "Delete" from the displayed menu.

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How to delete-3 （UNIX, Linux only）

Enter **"./sg4delete"** command in the **SANUPS SOFTWARE** install directory from console or terminal.（Entering a account information of UPS administrator is required to enter this command.）

This command is available to delete own device.

Which device is available to delete.

(1) When the own computer is the connected device with the server.
      ・Unavailable to delete own device without deleting all client connected device.
      ・Available to delete all client devices[※].

(2) When the own computer is the client connected device.
      ・Available to delete own device or the other client connected device[※].
      ・Unavailable to delete server connected device.

(3) When the own computer is the connected device with LAN interface card and network.
      ・Available to delete the own device or the other client connected device[*].

(*) It is available to delete own device from **"./sg4delete"** command. To delete the other client connected device, GUI tool is available.

<When UPS linkage function is used>

Delete the own device is unavailable by using **"./sg4delete"** command, under connecting multi UPS by using UPS linkage function.

In this case, delete UPS information from **"./sg4setup"** command.

"Operation select." screen will be displayed by entering **"./sg4setup"**.

Choose "DEL" (Delete) from "Select Operation（+）".

Select the target device from "Select UPS（+）".

Re-registration procedure

Start up the SANUPS SOFTWARE GUI tool or CUI tool. When the SETUP Wizard appears, re-register the device.

For the re-registration procedure, see "4. Setup" in the "Installation Guide".
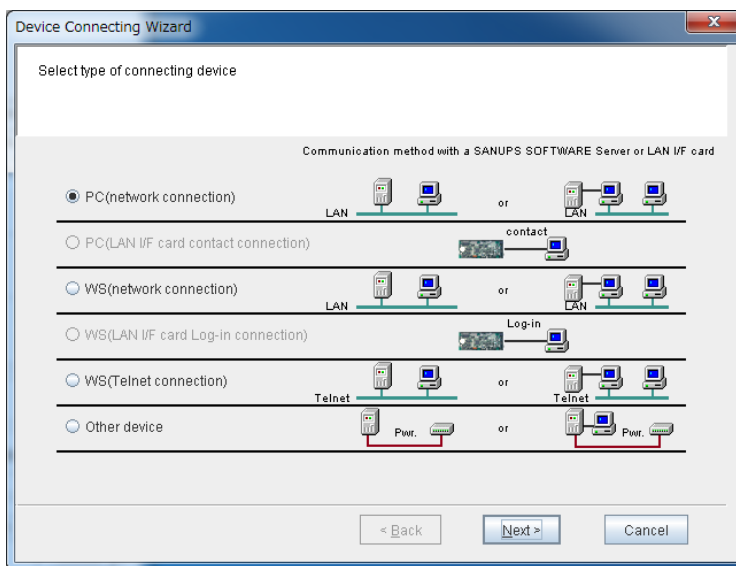
6.4 Register shutdown devices other than those with the SANUPS SOFTWARE

You can register shutdown devices other than those with the SANUPS SOFTWARE by performing the operation described in "6.2 Additional registration of the client computer from SANUPS SOFTWARE".

The following devices can be registered using the **Add** button in the System state screen and the [Device registration] menu on the Settings screen.

Depending on the UPS connection method, it may not be possible to select some devices.

"Select type of connecting device" screen during use in a server/client configuration

The following device types can be selected:
PC(network connection)
WS(network connection)
WS(Telnet connection)
Other device

"Select type of connecting device" screen when using a LAN interface card
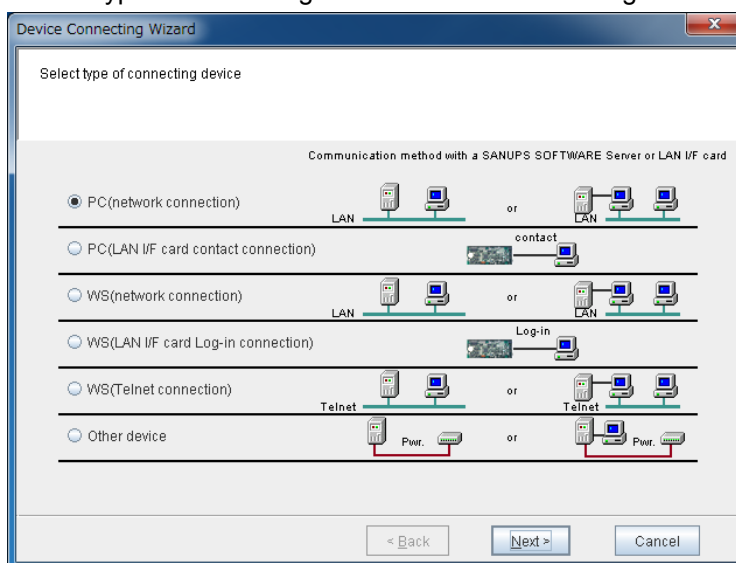
All device types can be selected.

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Register shutdown devices other than those with the SANUPS SOFTWARE

Registration device	Device information	Registration condition
PC (network connection)	PC running **SANUPS SOFTWARE** (operating as a client)	**SANUPS SOFTWARE** is installed
PC (LAN I/F card contact connection)	Uses the serial port of the LAN interface card	A LAN interface card is used
WS (network connection)	WS running **SANUPS SOFTWARE** (operating as a client)	**SANUPS SOFTWARE** is installed
WS (LAN I/F card log-in connection)	Uses the serial port of the LAN interface	A LAN interface card is used
WS (Telnet connection)	Telnet connection from LAN interface card or **SANUPS SOFTWARE** server	A LAN interface card is used or the **SANUPS SOFTWARE** can use the network
Other device	Device other than a computer	–

**Method for registering the PC(LAN I/F card contact connection).**

[1] Select [**PC (LAN I/F card contact connection)**] from the [Device registration] menu.

[2] The Device Connecting Wizard appears. Follow the on-screen instructions of the Device Connecting Wizard to register the **PC (LAN I/F card contact connection)**.

* Only one **PC (LAN I/F card contact connection)** can be registered to the LAN interface card. Therefore, registration is not possible if a device is already connected to the serial port of the LAN interface card. Furthermore, since there is a limit to the number of devices (up to 10 or 50) that can be connected to a LAN interface card, the number of devices already registered may make registration not possible even if the serial port is not being used. In such a case, delete a device that will not impact the shutdown operation such as a device registered via [Other device] and then try registration again.

Method for registering the WS (LAN I/F card log-in connection).
[1] Select [**WS (LAN I/F card Log-in connection)**] from the [Device registration] menu.
[2] The Device Connecting Wizard appears. Follow the on-screen instructions of the Device
   Connecting Wizard to register the **WS (LAN I/F card log-in connection)**.

* You can configure advanced settings for serial communication with the WS (LAN I/F card
   log-in connection). However, some setting are not currently supported, so be sure to refer to
   the table below and only configure settings which are supported. (In most cases, use is
   possible with the default settings.)
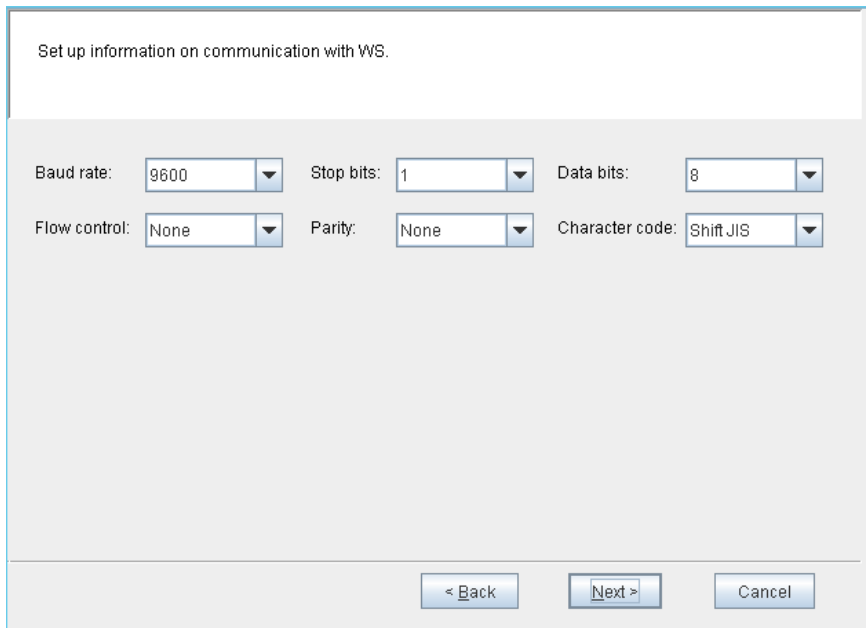
Baud rate	Data bits	Flow control	Parity	Stop bits
1200	**8** (*)	**None** (*)	**None** (*)	**1** (*)
2400	7	Hardware	Even	1.5
4800	6	XON/XOFF	Odd	2
9600 (*)	5		Mark	
19200	4		Space	

(*) Default value

　　　 Unsupported

* Only one PC (LAN I/F log-in connection) can be registered to the LAN interface card.
   Therefore, registration is not possible if a device is already connected to the serial port of the
   LAN interface card. Furthermore, since there is a limit to the number of devices (up to 10 or
   50) that can be connected to a LAN interface card, the number of devices already registered
   may make registration not possible even if the serial port is not being used. In such a case,
   delete a device that will not impact the shutdown operation such as a device registered via
   [Other device] and then try registration again.

Register shutdown devices other than those with the SANUPS SOFTWARE

Method for registering the WS(Telnet connection)
[1] Select [WS (Telnet connection)] from the [Device registration] menu.
[2] The Device Connecting Wizard appears. Follow the on-screen instructions of the Device
  Connecting Wizard to register the WS(Telnet connection).

About the WS(Telnet connection)

If there is a computer that allows a Telnet log-in on the network, it is possible to log in to that computer with Telnet and execute a registered command from **SANUPS SOFTWARE** operating as the server version or a LAN interface card. In such a case, installation of software on the target device is not necessary.

* Since there is a limit to the number of devices (up to 10 or 50) that can be registered, registration may not be possible because of the number of connection devices registered. In such a case, delete a device that will not impact the shutdown operation such as a device registered via [Other device] and then try registration again.

Method for registering the Other device.
[1] Select [Other device] from the [Device registration] menu.
[2] The Device Connecting Wizard appears. Follow the on-screen instructions of the Device
  Connecting Wizard to register the Other device.

6.5 About the Settings Screen

Open the Setting menu from the Main screen and select the Detail Setting on setting menu.   The
Settings screen is displayed.
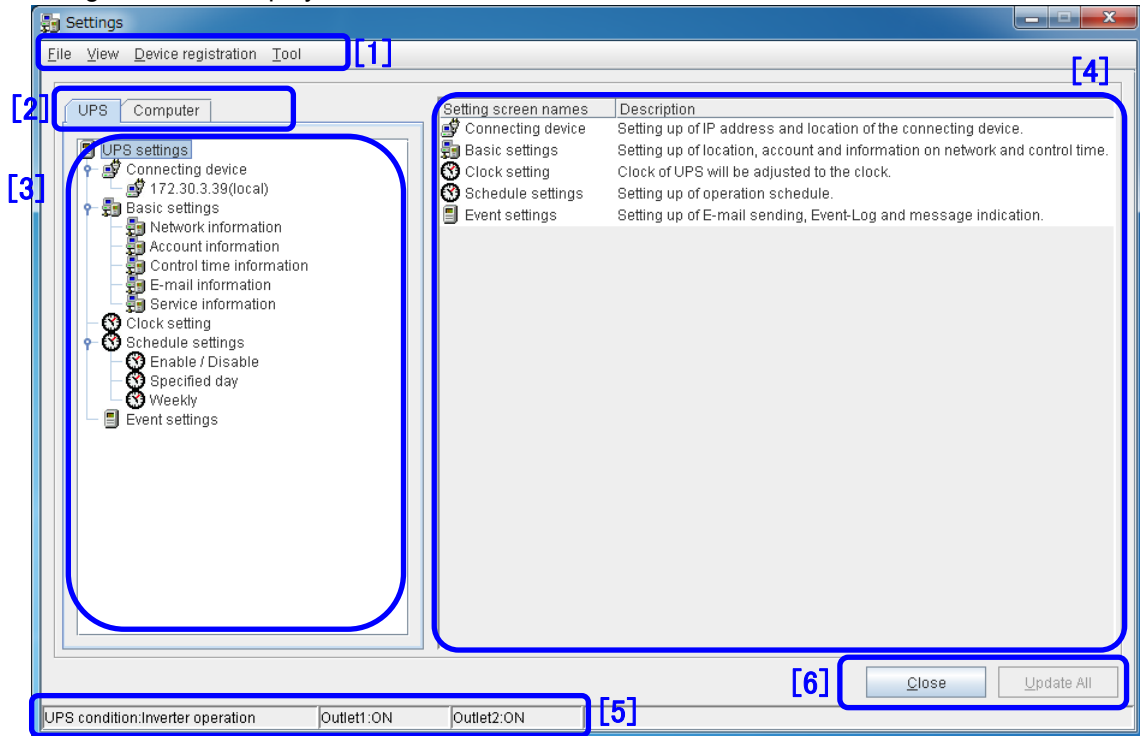
[1] Menu bar

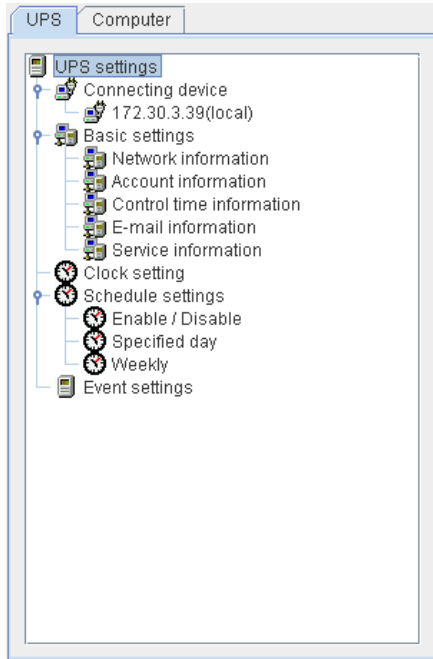| Menu name	Menu Item	Description
File	Exit	Close the Setting screen.
View	Refresh	Updates the displayed information.
Device registration	PC (network connection)	You can register a PC (UPS control tool).
	PC (LAN I/F card contact connection)	You can register a PC (contact connection).
	WS (network connection)	You can register a WS (UPS control tool).
	WS (LAN I/F card Log-in connection)	You can register a WS (serial terminal connection).
	WS (Telnet connection)	You can register a WS (Telnet connection).
	Other device	You can register a other device. (The device don't shut down.)
Tool	Shutdown test	You can execute the Shutdown test function.
	Shutdown sequence	You can execute the Shutdown sequence function.

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Register shutdown devices other than those with the SANUPS SOFTWARE

[2] [UPS] and [Computer] tabs

Use these tabs to switch between the UPS and computer setting items.

[3] [UPS settings] and [Computer settings] menus

● **[UPS] tab（server/client composition）**

Item	Description
Connecting device	Displays a list of devices for which a connection to the UPS is set.
Connected device name	Displays information unique to each connected device.
Basic settings	
Network information	Allows you to set the network information for the UPS (*1)
Account information	Allows you to set the account information for the UPS.
Control time information	Allows you to set times related to UPS control when a power failure occurs, etc.
E-mail information	Allows you set mail server information (*2)
Service information	Allows you to set services provided for access from an external device. (*2)
Clock setting	Allows you to set the clock for the UPS (*3) (*4)
Schedule settings	(*4)
Enable / Disable	Allows you to enable/disable scheduled operations.
Specified day	Allows you to set a schedule to occur on a specified day.
Weekly	Allows you to set a schedule to occur weekly.
Event settings	Allows you to set the e-mail send information, event log recording information, and the display message content for each event.

(*1) [Location, etc.] appears in the menu in the case of an environment with no network.

(*2) This item is not displayed in the case of an environment with no network.
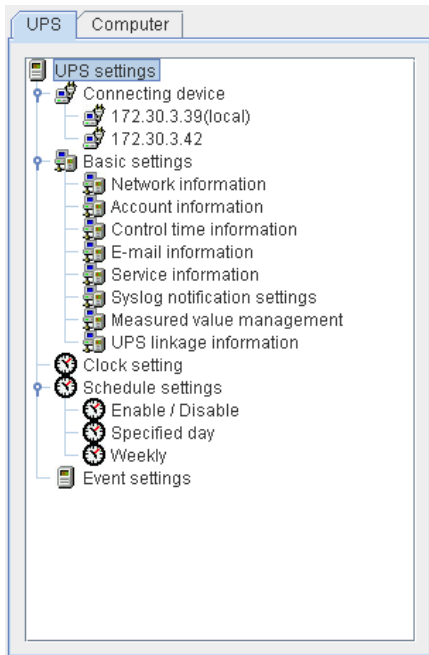
(*3) This item is not displayed when a client is connected to the **SANUPS SOFTWARE** server via a network.

(*4) This item is not displayed when there is a contact connection to the UPS.

Settings for "UPS Settings" are saved to the **SANUPS SOFTWARE** server.

Register shutdown devices other than those with the SANUPS SOFTWARE

● **[UPS] tab**（**LAN interface card composition**）

Item	Description
Connecting device	Displays a list of devices for which a connection to the UPS is set.
Connected device name	Displays information unique to each connected device.
Basic settings	
Network information	Allows you to set the network information for the UPS (*1)
Account information	Allows you to set the account information for the UPS.
Control time information	Allows you to set times related to UPS control when a power failure occurs, etc.
E-mail information	Allows you set mail server information (*2)
Service information	Allows you to set Network service of HTTP and Telnet.
Syslog notification setting	Allows you to set syslog notification.(*1)
Measured value management	Allows you to set monitoring measured value collecting data and threshold value collecting date.(*1)
UPS linkage information	Allows you to set UPS linkage function.(*1)
Clock setting	Allows you to set the clock for the UPS
Schedule settings	(*2)
Enable / Disable	Allows you to enable/disable scheduled operations.
Specified day	Allows you to set a schedule to occur on a specified day.
Weekly	Allows you to set a schedule to occur weekly.
Event settings	Allows you to set the e-mail send information, event log recording information, and the display message content for each event.

(*1) This item is displayed when the LAN interface card which is support this function.

(*2) This item is not displayed when there is a contact connection to the UPS.

> Settings for "UPS Settings" are saved to the LAN interface card.
> The settings are kept even if **SANUPS SOFTWARE** is removed.

Register shutdown devices other than those with the SANUPS SOFTWARE

● [**Computer] tab**
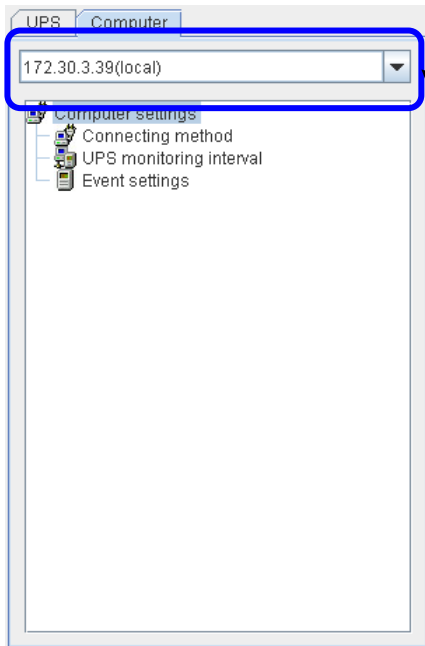
Select the connecting device. Switch to the setting screen of the selected device.

Item	Description
Connecting method	Displays information on the connected computer.
UPS monitoring interval	Allows you to set the interval and other settings for monitoring UPS information.
Event settings	Allows you to set the following information for each event. (a) WS script information 　Set the script for the WS for when there is a Telnet connection, SSH connection　or a serial log-in connection to a UPS with a LAN interface. (*1) (b) Set the script to execute on the computer. (c) Set the log conditions to save to the computer. (d) Set message content and conditions for sending messages to the computer.

(*1) This menu item is displayed when you select a WS connected by a Telnet connection, SSH
　　　connection or a serial log-in connection to a UPS with a LAN interface.

[4] Menu item setting (display) area

　　This area displays settings for the item selected from the [UPS]/[Computer] tab. You can
　　configure (modify) settings in this area.

[5] Operation buttons

　　These buttons are for performing operations such as reflecting the changes made to settings and
　　closing the setting function.

Register shutdown devices other than those with the SANUPS SOFTWARE

[6] UPS condition indication bar

| UPS condition:Inverter operation | Outlet1:ON | Outlet2:ON |
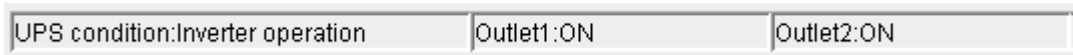
(The screen above is when you are using a power distribution control UPS. Only the UPS condition is indicated for a UPS without power distribution control.)

Indicates the operation and output conditions of the UPS. The display items are shown below.

● UPS Conditions

Condition Indication	Description
Communication trouble	Indicates communication trouble between the UPS and computer.
Power failure	Indicates a power failure.
Breakdown	Indicates a UPS breakdown.
Stop	Indicates the UPS is stopped.
Bypass operation	Indicates a UPS bypass operation is being performed.
Inverter operation	Indicates a UPS inverter operation is being performed (normal condition).

(If the UPS and computer are connected with a contact connection, the above indications are not displayed.)

● System output condition
This indicates the condition of each system output when you are using a power distribution control UPS.

| Condition Indication	Description
ON	Indicates the output for the corresponding system is on.
OFF	Indicates the output for the corresponding system is off.
Unknown	Indicates the condition for the corresponding system output (abnormal condition) cannot be acquired.

* This indication is only displayed when you are using a power distribution control UPS.

6.6 Checking the status of "connecting device" of UPS

You can check the operating state of the connecting device.

Select [connection device] from the tab of [UPS settings].
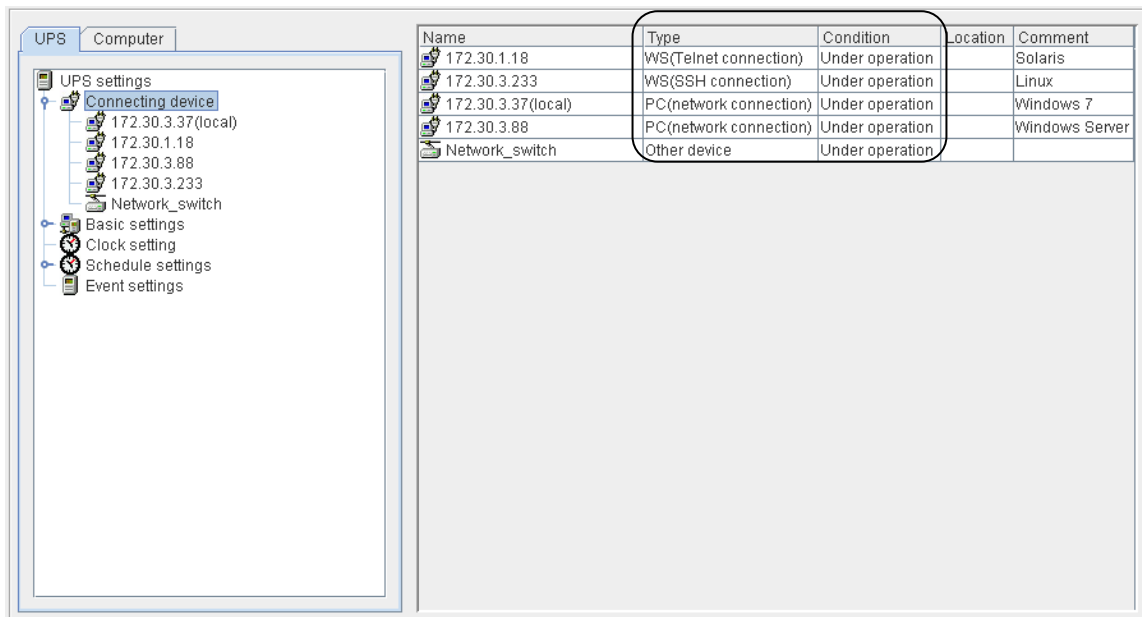
(This screen is a screen image of the LAN interface card use.)

Display the contents of the "Type" and "Condition" is the following.

About "Type"

Type name	Content
PC(serial connection)	PC of serial communication connection to UPS.
WS（serial connection）	WS of serial communication connection to UPS.
PC(contact connection)	Contact connection PC.
WS（contact connection）	Contact connection WS.
PC(network connection)	Network connection PC.
WS（network connection）	Network connection WS.
PC(LANI/F card contact connection)	Using the serial port of the LAN interface card, perform contact connection PC/WS.
WS LANI/F card Log-in connection)	Using the serial port of the LAN interface card, perform serial login connection WS.
WS(Telnet connection)	Device for performing a Telnet login from the LAN interface card or SANUPS SOFTWARE server.
WS(SSH connection)	Device for performing a SSH login from the LAN interface card.
Other device	Device that does not shut down.

Checking the status of "connecting device" of UPS

About "Condition"

| Display of Condition	Content
Under operation	Device is started.
Under stop	Device is stopped.
Under operation(PC access not allowed)	Device is started, but UPS management software is stopped, or can not be performed normally communicate.
Shutting down	During shutdown

6.7   Changing the Settings of the Connecting device to the UPS

You can change the information for the Connecting device. The settings configured when the device was registered with the wizard can be changed.

Select the [Connecting device] on the [UPS] tab. View and change the information of the connecting device.
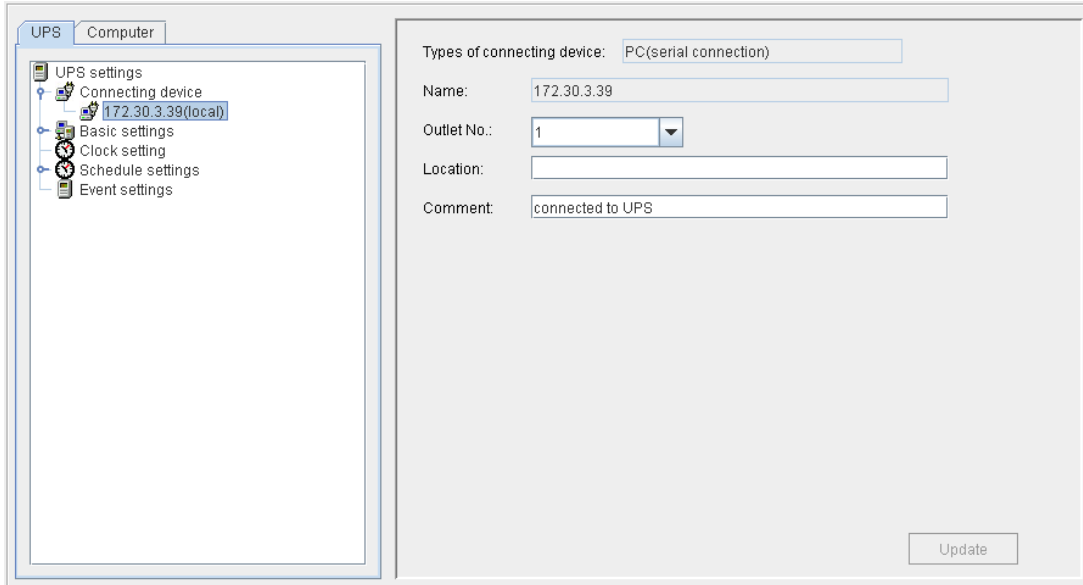
(The screenshot above is the server version of **SANUPS SOFTWARE**.)
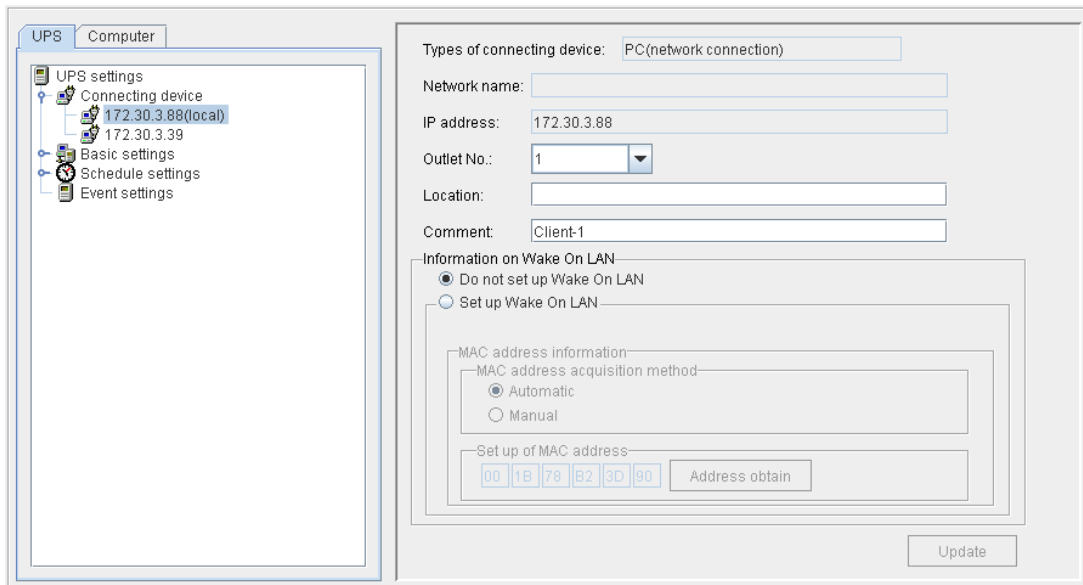
(The screenshot above is the client version of **SANUPS SOFTWARE**.)

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Changing the Settings of the Connecting device to the UPS
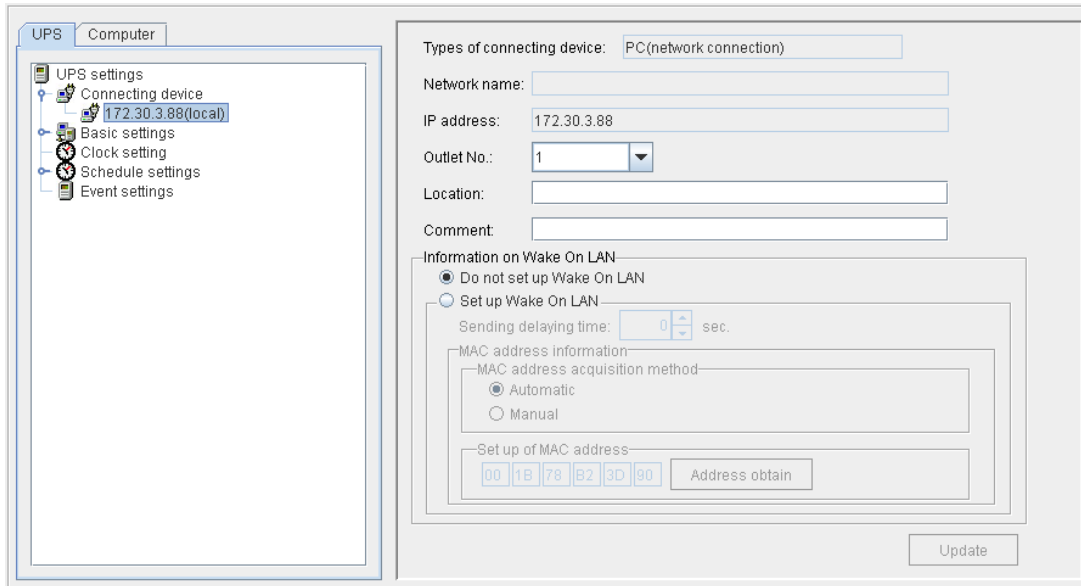
(The screenshot above is the network version of **SANUPS SOFTWARE**.)
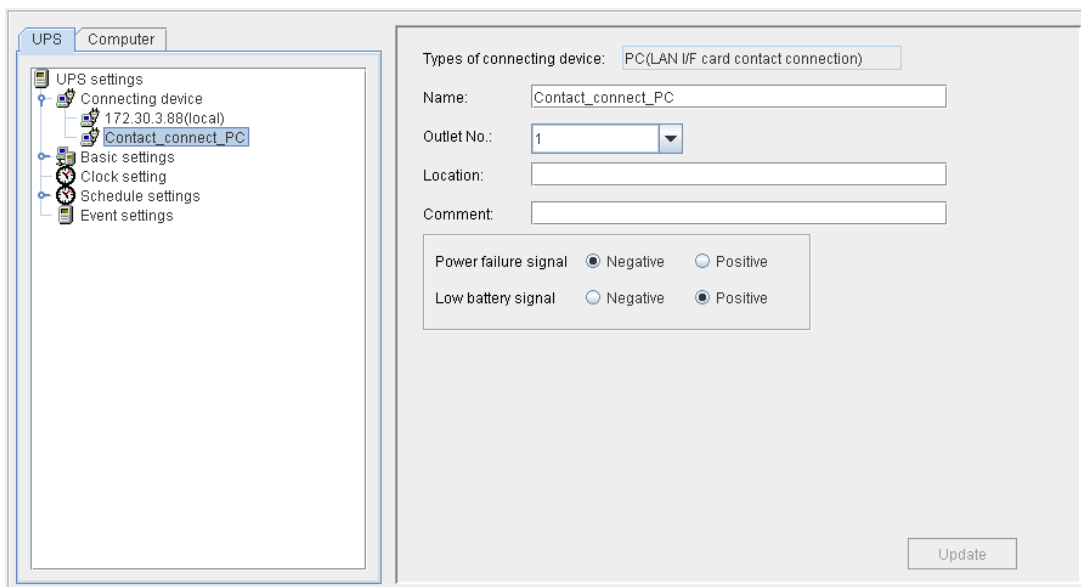
(The screenshot above is the PC(LAN I/F card contact connection).)

Changing the Settings of the Connecting device to the UPS

(The screenshot above is the WS(Telnet connection).)

(The screenshot above is the WS(LAN I/F card Log-in connection).)
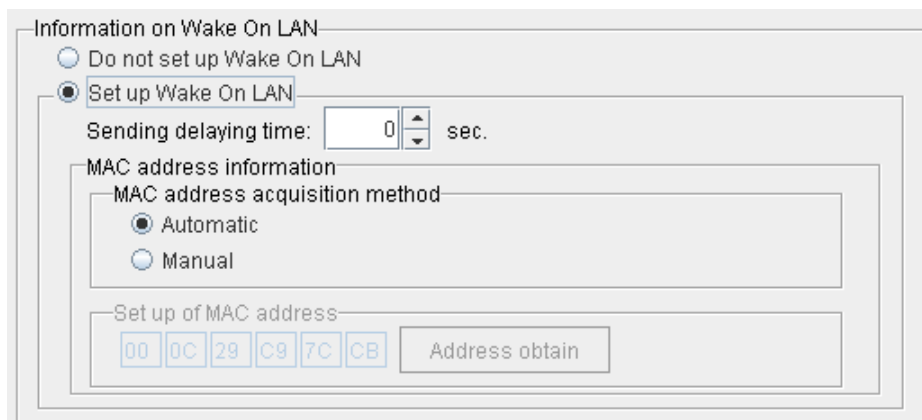
6.8 About Wake On LAN settings

About Wake On LAN
This function starts up a networked computer from another computer via the network.
The computer starts up when it receives the "magic packet". This must be supported by the computer hardware such as the network card, mother board, and BIOS for this function to be available.

About the Wake On LAN function of the UPS
If you select [Set up Wake On LAN] when registering a device connected to the UPS, a "magic packet" is sent to the device when the UPS output is turned ON, or after the delay time if "sending delaying time" is specified.

When you are using UPS with serial interface and client connected or using UPS with LAN interface, you can set Wake On LAN from [UPS] tab – [Connecting device].

(Above is an excerpt of page on computer information selected from [UPS] tab –[Connecting device].)

Items on Wake On LAN setting	Content
Do not set up Wake On LAN	Do not start computer by Wake On LAN.
Set up Wake On LAN	Start computer by Wake On LAN.
Sending delaying time （sec.） (Note1)	Sets the delay time of magic packet sending.
MAC address acquisition method "automatic"	Automatically acquire MAC address.
MAC address acquisition method "manual"	Manually acquire MAC address.
Set up MAC address area (Note2)	Display acquired MAC address. Or edit MAC address.
Address obtain button (Note3)	Tries to acquire MAC address by clicking the button.

(Note 1) There is a LAN interface card that does not correspond to the sending delay time.(If not supported, it will not be displayed.)

(Note 2) In case of controlling WS by Telnet connection, you cannot automatically acquire MAC address of that WS. (Because there is no UPS control software.) In such case, manually set MAC address of that WS.

(Note 3) Generally, MAC address will be automatically acquired on computer that has **SANUPS SOFTWARE** installed. However, if the computer does not start after Wake On LAN has already been set, check MAC address of network card and MAC address acquired by address acquisition.

Note:IPv4 address environment
The Wake On LAN function may not work on WS(Telnet) devices even if you specify [Set up Wake On LAN].
The following conditions apply.

Condition 1	Condition 2	Wake On LAN function
The WS(Telnet) is in the same segment as the UPS.		○
WS(Telnet) is not in the same segment as the UPS.	The UPS management software installed in the same segment as the WS(Telnet) is **registered** to the UPS.	○
	The UPS management software installed in the same segment as the WS(Telnet) is **not registered** to the UPS.	×

Note: For computers that have been registered by specifying the IPv6 global address
If the device and UPS is on a different segment, to send a "magic packet" to the device of other segment, you need to configure the router to deliver static multicast address below.

The multicast address is [ff05::13f].

6.9 Changing the Basic Settings of the UPS

The procedure for displaying/changing settings related to UPS operation, such as UPS network information, control time information, and output system information is as follows. Select [Basic settings] on the [UPS] tab to display the screen for the Basic settings.

The following items can be configured in the [Basic settings].

- Network information (Note 1)
- Account information
- Control time information
- E-mail information (Note 2)
- Service information (Note 2)
- syslog nitification settings (Note 3)
- Measured value management (Note 3)
- UPS linkage information (Note 3)

Note 1: When you are using the **SANUPS SOFTWARE** as a stand-alone system (without using a network), [Location, etc.] appears as the menu item for this function.

Note 2: When you are using the **SANUPS SOFTWARE** as a stand-alone system (without using a network), this menu item is not displayed.

Note 3: When using a LAN interface card that supports this function, function names will appear in the tree.
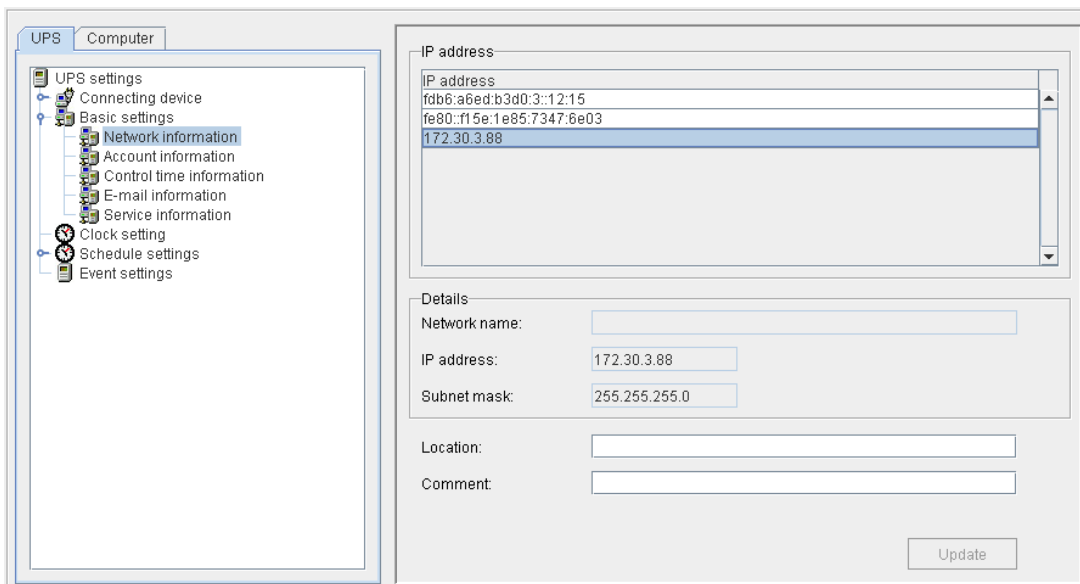
6.9.1 Network Information (Device Information) Settings

• Displays and settings of the network information for the USP (server connected computer or the LAN interface card connected computer)

• Settings such as the installation location of the UPS

The figure below shows how the network information screen appears when the UPS and server are connected. (In the case of IPv6 address)
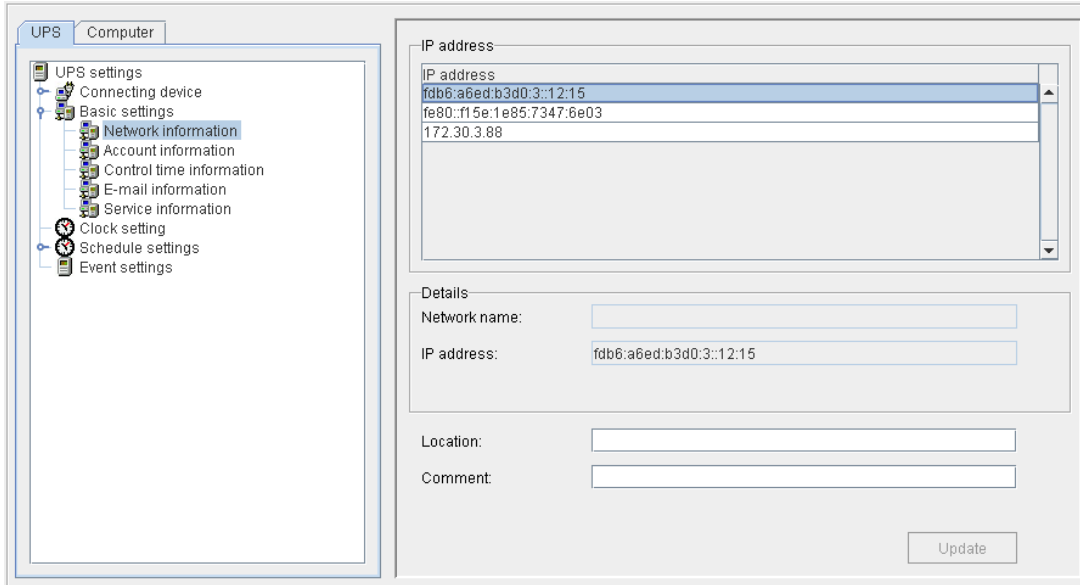
The figure below shows how the network information screen appears when the UPS and server are connected. (In the case of IPv4 address)

Setting item	Description
Location	Enter the comment on the location. (Optional)
Comment	Enter the comment on the UPS. (Optional)

The figure below shows how the network information screen appears when connected to the UPS (LAN interface card that supports IPv6).

The figure below shows how the network information screen appears when connected to the UPS (LAN interface card that does not support IPv6).

Setting item	IPv4	IPv6
IP address	Select [Dynamic address from DHCP] or [Static address].	Enter the static address.
Sub netmask	Enter your network configuration information.	
Default gateway	Enter your network configuration information.	
DNS server	Enter your network configuration information.	
Link local address	-	The setting is displayed. This cannot be modified.
Location	Enter the comment on the location. (Optional)	
Comment	Enter the comment on the UPS. (Optional)	

* For details, refer to the User Guide of the LAN interface card.

<Caution>

Although the IP address of the LAN interface card can be set from this screen when using a LAN interface card, changing the IP address will make it impossible for the SANUPS SOFTWARE to communicate with the LAN interface card. Exercise caution when changing IP addresses.

Further, use following LAN interface card IP address change will require re-registration in the SANUPS SOFTWARE.

6.9.2 Account Information Settings

In order to prevent unauthorized access, you may be prompted to enter the account information when you access the UPS.

Use the account information settings function to change the account information for accessing the UPS.

For details on these settings, refer to Section 6.10 , "Modifying login account on the UPS".

6.9.3 Control Time Information Settings

Configure settings related to operation times for shutdown when there is a power failure or scheduled stop operation. These settings will become the standard operations.

For details on these settings, refer to Section 6.11 , "Make Settings Related to UPS Operation".

6.9.4 E-mail Information Settings

Configure the information related to sending and receiving e-mail.

For details on these settings, refer to Section 6.14 , "Setting the E-mail Server Information".

6.9.5 Service Information Settings

Configure the information related to services (HTTP, Telnet, and SNMP) provided by the **SANUPS SOFTWARE** server or LAN interface card.

For details on these settings, refer to Section 6.15 , "Using HTTP, FTP, Telnet, and SNMP".

6.10 Modifying login account on the UPS

Select [Account information] of [Basic settings] on the [UPS] tab.
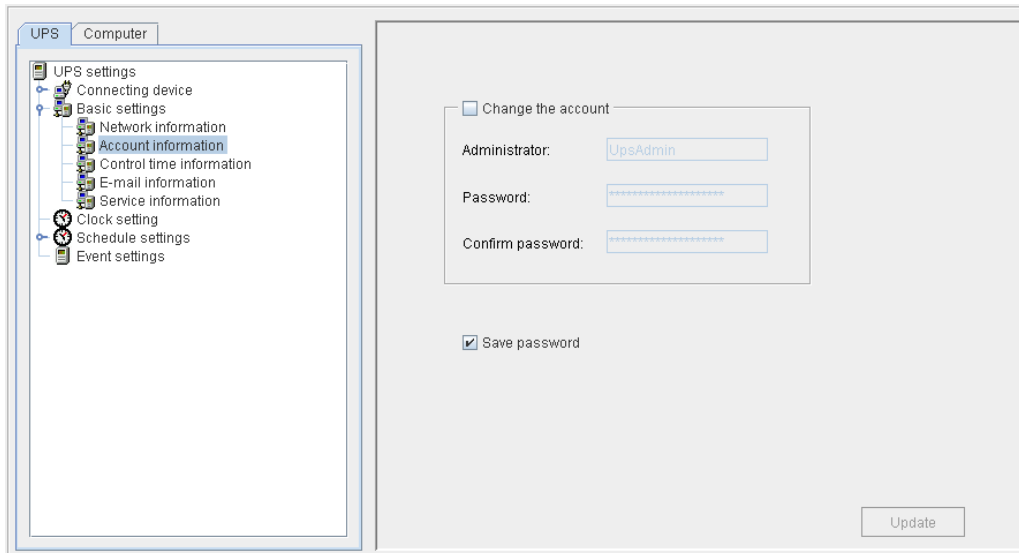
In order to prevent unauthorized access, you may be prompted to enter the account information when you access the UPS.

The default information to enter is as follows.

Item	Default setting	Input condition
Administrator	**UpsAdmin**	Not case sensitive
Password	**UpsAdmin**	Case sensitive

Use this function to change the default account information during use.

Select the [Change the account] checkbox and change the account information.

Enter a new administrator name and password and then enter the password again for confirmation.

If you select the [Save password] checkbox, you will not need to enter the account information when you set the UPS.

6.11 Make Settings Related to UPS Operation

Select [Control time information] of [Basic settings] on the [UPS] tab. The settings are divided by category into four tabs: Shutdown trigger, UPS control, Common information, and Battery.

6.11.1 [Shutdown trigger] Tab

Here, set the conditions under which devices are shut down when trouble occurs. Power failure, low battery voltage, serial communication trouble with UPS, major breakdown, and overload are defined as the shutdown triggers. Select check boxes of conditions under which initiation of shutdown is to be enabled. For "co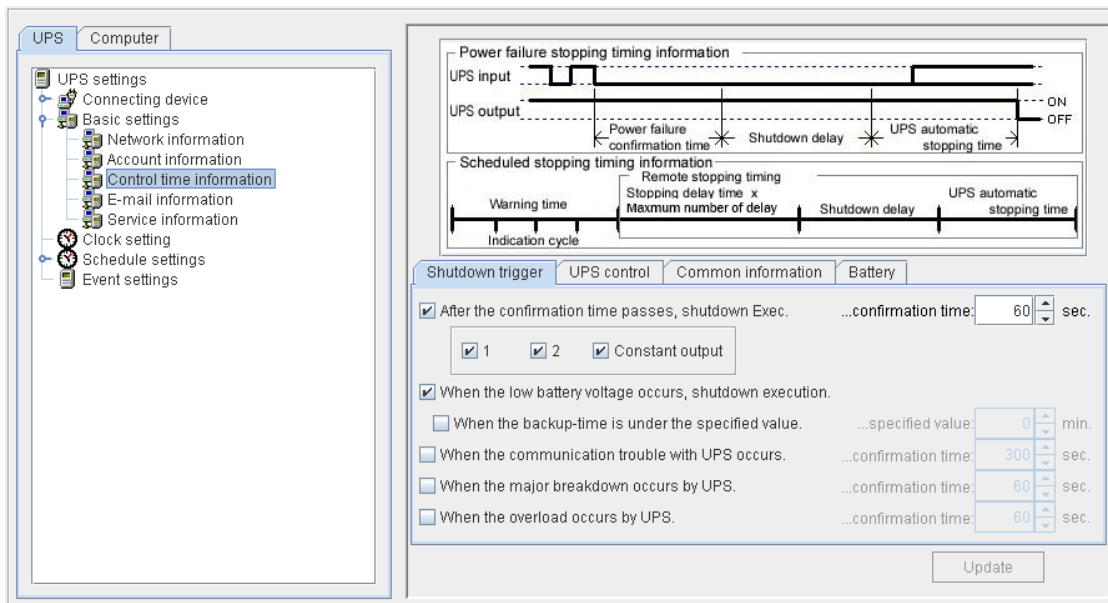nfirmation time," set the amount of time to wait after trouble occurs before determining that it is irreversible. Shutdown does not take place if trouble recovery takes place within the confirmation time. Shutdown processing goes ahead if the trouble is resolved after passage of the confirmation time.

About [After the confirmation time passes, shutdown execution] (Default value: Enabled)

If recovery does not occur within the confirmation time after the occurrence of a power failure, a computer connected to an outlet with a checkmark added is shutdown. For details, refer to Section 6.12 , "Operating a Connected Computer for as Long as Possible during a Power Failure".

About […confirmation time] (Default value: 60 sec.)

Configure the time (in seconds) from the occurrence of a power failure to when recovery is considered to be impossible. If recovery from the power failure occurs within this time, the shutdown process does not take place and the state switches back to the normal state. If this time is exceeded without recovery from the power failure, the shutdown process continues, regardless of whether there is a subsequent recovery from the power failure.

〔When the low battery voltage occurs, shutdown execution.〕(Default value: Enabled)

Start shutdown execution when detects low battery voltage within Power failure confirmation time.

If uncheck this setting value, shutdown execution by low battery voltage will not be operated.

〔When the backup-time is under the specified value〕(Default value: Disabled)

This setting is available to the UPS which supports measuring of Battery remainder hold time.

If battery remainder hold time is shorter than setting value(minutes), **SANUPS SOFTWARE** considers as low battery voltage occurs without detection of UPS low battery voltage and then start shutdown execution.

〔When the communication trouble with UPS occurs〕(Default value: Disabled)

Under composition of serial communication between computer and UPS, shutdown execution setting is available when UPS serial communication error occurs and communication error after the setting time.

In this situation, all computers will be shutdown executed.

〔When the major breakdown occurs by UPS〕(Default value: Disabled)

Under UPS major breakdown occurs shutdown execution setting is available when UPS does not back to normal past the specified time.（If major breakdown occurs, UPS will switches to bypass operation so back up is not available under power failure.

In this situation, all computers will be shutdown executed.

〔When the overload occurs by UPS〕(Default value: Disabled)

Under UPS state is overload, shutdown execution setting is available when UPS does not back to normal past the setting time.（If UPS state is overload, UPS switches to bypass operation so back up is not available under power failure occurs.）

In this situation, all computers will be shutdown executed.

<u>Settings transmitted when performing UPS link configuration using a LAN interface card that supports IPv6</u>

When linking is enabled due to causes in "Synchronization setting by causes" for the UPS group settings, the following settings are transmitted to the UPS group members, and the settings for each UPS are updated.

・When "Run in sync at a power failure or low battery voltage" is enabled on the Synchronization setting by causes screen.

The selection status for "After the confirmation time passes, shutdown execution" and "When the low battery voltage occurs, shutdown execution" on this screen is transmitted.

・When "Run in sync at major malfunction" is enabled on the Synchronization setting by causes screen.

The selection status for "When the major breakdown occurs by UPS" on this screen is transmitted.

・When "Run in sync at major malfunction" is enabled on the Synchronization setting by causes screen.

The selection status for " When the overload occurs by UPS " on this screen is transmitted.

6.11.2 [UPS control] Tab
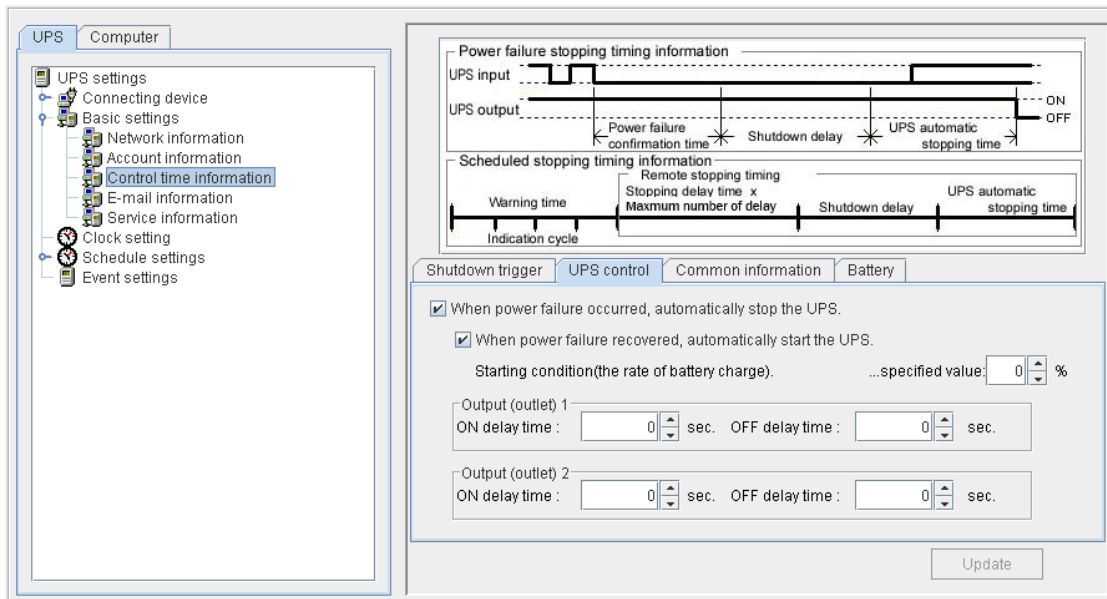
This tab is for configuring the conditions for controlling the starting and stopping of the UPS when there is a power failure and recovery.

For a UPS that supports power distribution control, you can also set the output off delay time and output on delay time for each system separately.

For details, refer to Section 6.13 , "Delaying Turning on and Turning off of Connecting Devices".

[When power failure occurred, automatically stop the UPS] (Default value: Depends on the types)

　　Selecting this checkbox enables you to specify whether to turn the output of the UPS off after the UPS auto stop time is exceeded when a power failure occurs. Configure the automatic stop time on the [Common information] tab.

　　If a device other than a computer is connected to the UPS and output of the UPS cannot be turned off, unselecting this checkbox enables supply of the output of the UPS to continue.

[When power failure recovered, automatically start the UPS] (Default value: Depends on the types)*

　　Selecting this checkbox enables the output of the UPS that was stopped automatically upon occurrence of the power failure to be turned on automatically after recovery from the power failure. Furthermore, the battery charge rate is used as an additional condition for automatically starting the UPS after recovery from the power failure (if the UPS has a function for calculating the battery charge rate).

　　*This setting value of default may be "disable" depends on the type of LAN interface card. Please confirm setting value is as "unable" when restart computer after power recover.

<u>Settings transmitted when performing UPS link configuration using a LAN interface card that supports IPv6</u>

When linking is enabled due to causes in "Synchronization setting by causes" for the UPS group settings, the following settings are transmitted to the UPS group members, and the settings for each UPS are updated.

・When "Run in sync at a power failure or low battery voltage" is enabled on the Synchronization setting by causes screen

The selection status for "When power failure occurred, automatically stop the UPS" and "When power failure recovered, automatically start the UPS" on this screen is transmitted.

6.11.3 [Common information] Tab
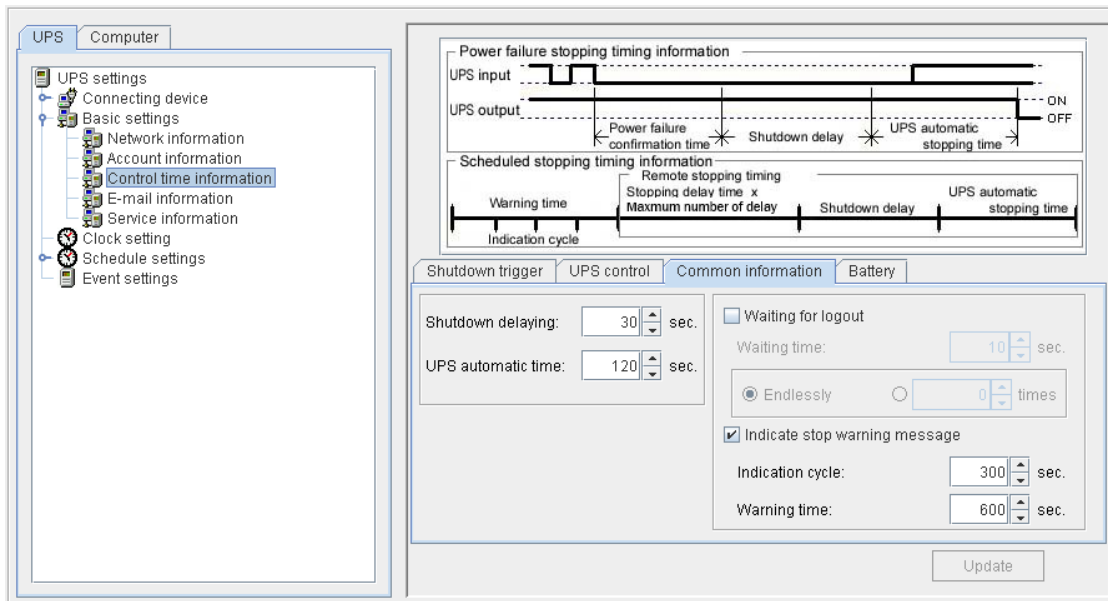
This tab is for configuring common control time information.

[Shutdown delaying] (Default value: 30 sec.)

Set the preparation time (in seconds) for from when recovery is considered impossible to when shutdown of the computer starts. In addition to setting this time, you can define a script to perform tasks such as ending applications during the delay time prior to shutdown.

[UPS automatic time] (Default value: 120 sec.)

Set the time (in seconds) from the start of shutdown of the computer until output of the UPS is turned off. If the [When power failure occurred, automatically stop the UPS] checkbox is selected, output of the UPS is turned off after this time is exceeded.

<Note>
For the UPS automatic stop time, set a time period longer than that required to complete shutdown of the computer.

[Waiting for logout] (Default value: Disabled)

You can specify shutdown not to occur until all users log out in the case in which users are logged in to a PC (network connection) or WS (network connection) at a time scheduled for a UPS stop or when a controlled UPS stop is to be performed.

[Indicate stop warning message] (Default value: Enabled)

Specify whether to display a notification message at a specified interval to indicate a UPS stop will occur. In [Warning time], set how many seconds prior to the scheduled stop time you want the stop notification message to be displayed. After this, the stop notification message is displayed at the timing set for [Indication cycle].
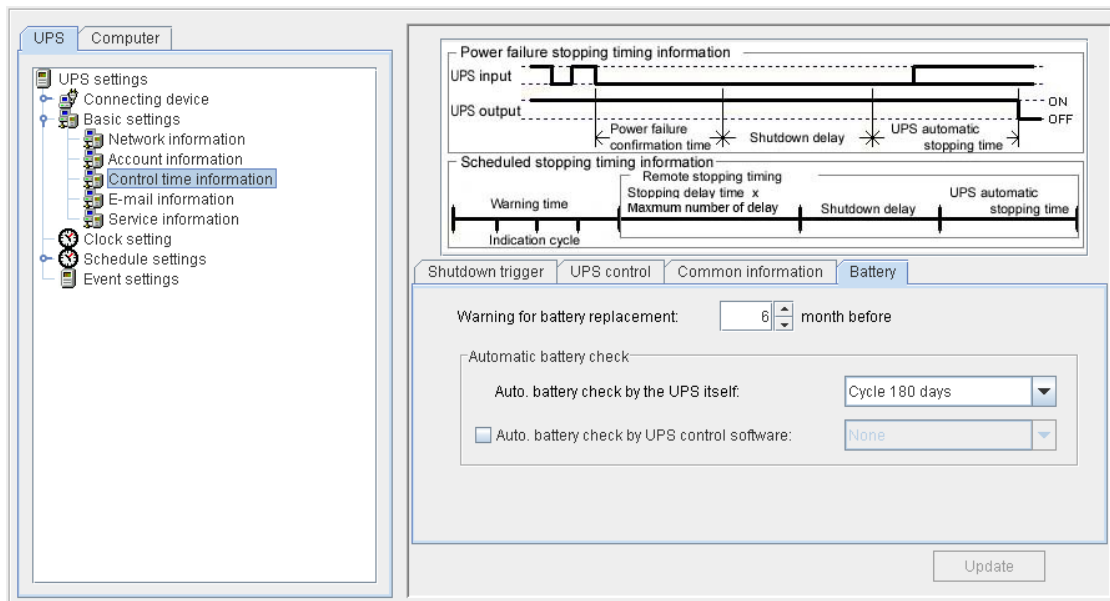
<Note>

Depending on the using OS, there are restrictions on this function.

Read "Appendix I About constraint by the using OS", confirm whether there are any corresponding items, then use it.

6.11.4 [Battery] Tab

This tab is for configuring information related to the battery.

[Warning for battery replacement]（Default value：6month before）

When set battery replacement period is coming, notify battery replacement message.

After passed battery replacement period, notify every one week.

About [Automatic battery check]

For a UPS that has an automatic battery check function, you can set [None], [Cycle 30 days], [Cycle 90 days], or [Cycle 180 days] for the setting for the UPS to automatically check its battery.

Furthermore, if you want an automatic battery check to be performed from the control software, select the [Auto. battery check by UPS control software] checkbox and select [None], [Cycle 30 days], [Cycle 90 days], or [Cycle 180 days].

A cycle is calculated as the number of days that have elapsed since the point in time the battery check last began.

If battery checks are set to be performed by the control software and the control software is stopped at a time scheduled for an automatic battery check, a battery check is not requested until the control software starts.

It is possible for the administrator to be notified of the battery check results if you configure the corresponding settings for message display, sending e-mail, and script execution as instructed in Section 6.22 , "About Event Settings".

<Note>
If you want automatic battery checks to be performed, set them to be performed by either the UPS or the control software. If you set automatic battery checks to be performed by both the UPS and the control software, the cycle in which battery checks take place will be short.

6.12 Operating a Connected Computer for as Long as Possible during a Power Failure

Select [Control time information] of [Basic settings] on the [UPS] tab.
Select the [After the confirmation time passes, shutdown Exec.] checkbox.
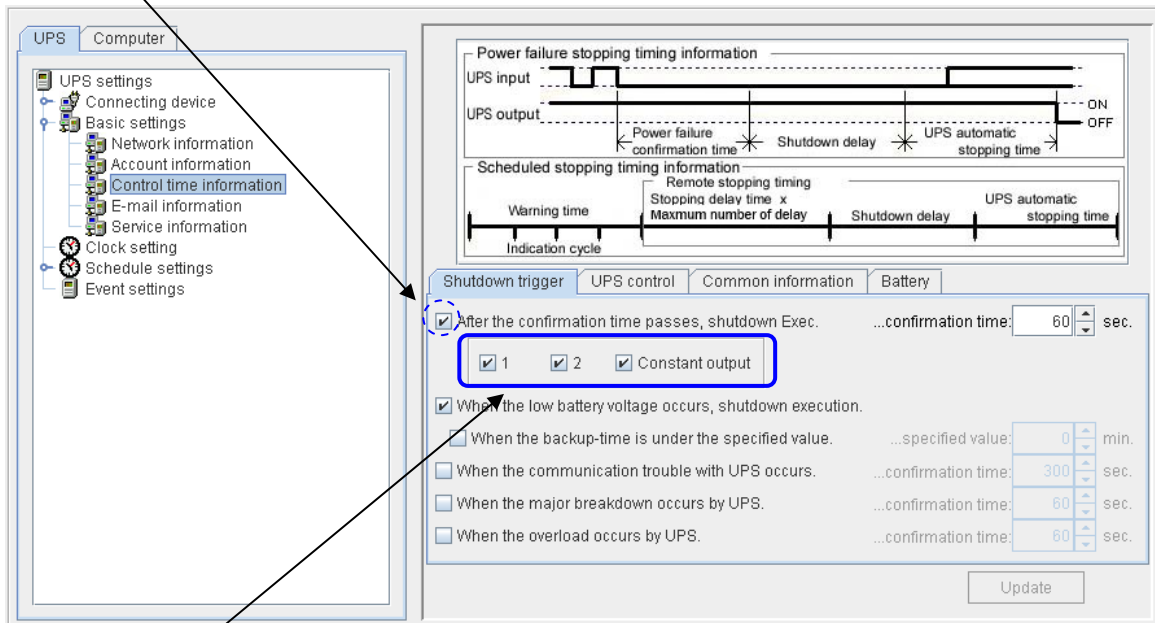
About the outlet numbers targeted for shutdown

If the checkmark is removed from the checkbox for an outlet number, recovery from a power failure after the power failure confirmation time has elapsed is not considered to be impossible for the device that is connected to that outlet. When the UPS detected the low battery voltage signal, the computer is started to the shutdown process in accordance with the sequence for when the low battery voltage becomes. (In other words, you can stop the device of the outlet with the checkbox selected (to lighten the load on the UPS) in order to enable the applicable device to operate as long as possible.) When you want to remove the checkmarks from all the checkboxes for the outlet numbers, remove the checkmark from the [After the confirmation time passes, shutdown Exec.] checkbox.

The settings you can set differ depending on the UPS type.

	Power distribution control UPS	Other UPS	Default condition
Outlet 1	Can be used	Can be set	Selected
Outlet 2	Can be used	Cannot be set	Selected
Constant output	Can be used	Cannot be set	Selected

*   For a UPS without power distribution control function, only output outlet 1 is available.

*   For a UPS with power distribution control function but no constant output, the constant output outlet cannot be set.

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The operation sequence when outlet 1 is not selected (when using power distribution control UPS)
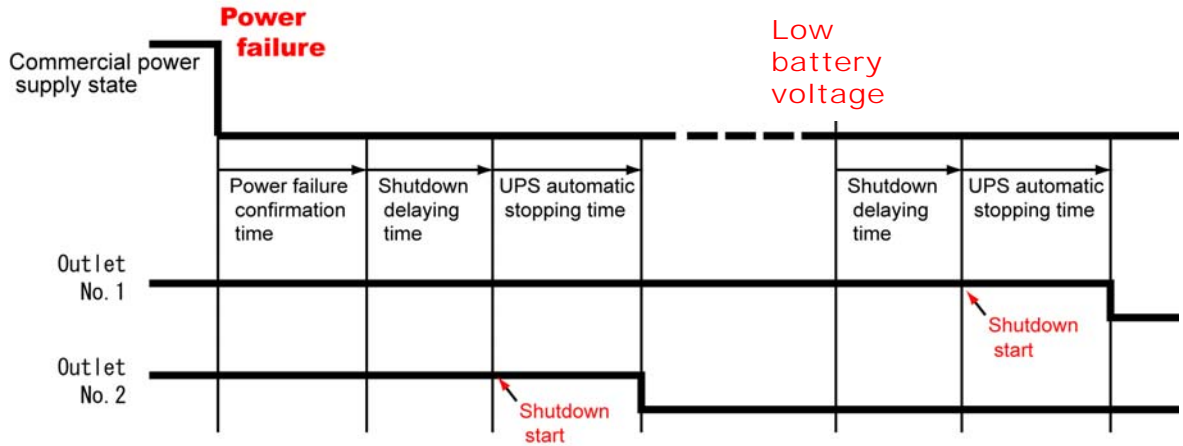
The computer connected to outlet 2 shuts down ordinarily and then the output of outlet 2 is turned off. After that, the computer connected to outlet 1 starts the shutdown process at the point in time when it detects the low battery voltage signal from the UPS.

The operation sequence when outlet 1 is not selected and a recovery from a power failure occurs (when using power distribution control UPS)
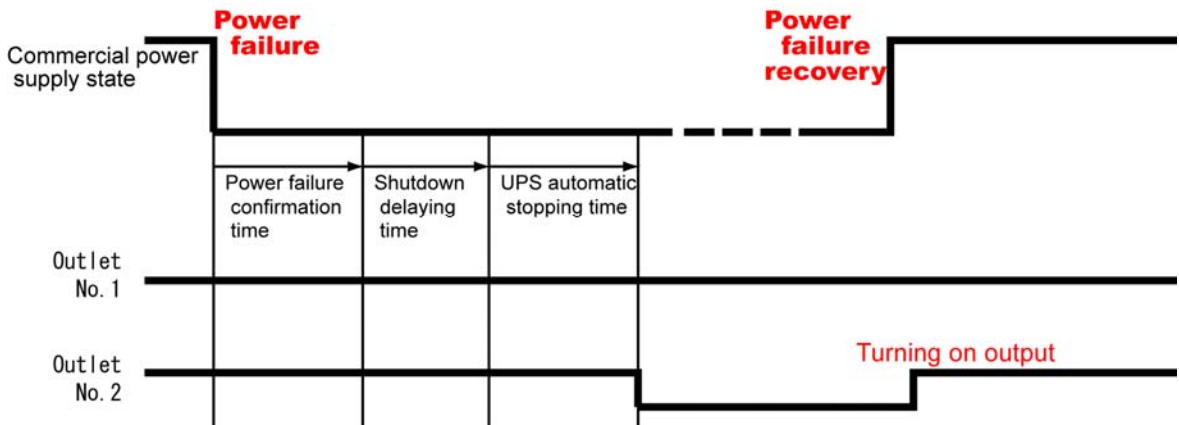
If recovery from a power failure occurs before a low battery voltage signal is received from the UPS, the shutdown start process is suspended at that point in time.
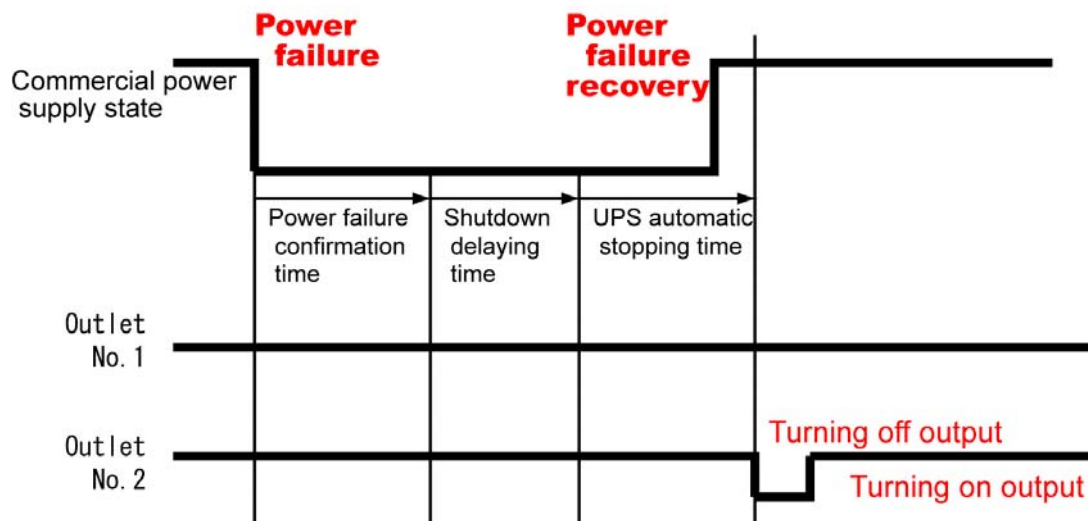
If there is a recovery from a power failure during the shutdown delay time or UPS automatic stop time, the shutdown process for the outlet continues. Output is turned on again after it is turned off.

<Note>
If a checkmark is removed for an outlet number of [After the confirmation time passes, shutdown Exec.], recovery from a power failure after the power failure confirmation time has elapsed is not considered to be impossible for the device that is connected to that outlet. Therefore, the "Power failure (AC input power trouble)" event message is displayed as shown below when a power failure occurs.

"Power failure has occurred.

If you are using the initial setting, the event message will be displayed as follows.
"Power failure has occurred. Shutdown will start after 0 minute 0 second."

6.13 Delaying Turning on and Turning off of Connecting Devices

These settings can only be set for a UPS that supports power distribution control.
(These settings are not displayed for other UPS.)

If you use a UPS that supports power distribution control, you can set the start and stop delay time for output outlets separately.
Use this function to turn off or turn on the computer earlier (or later) than other computers.

Select [Control time information] of [Basic settings] on the [UPS] tab.
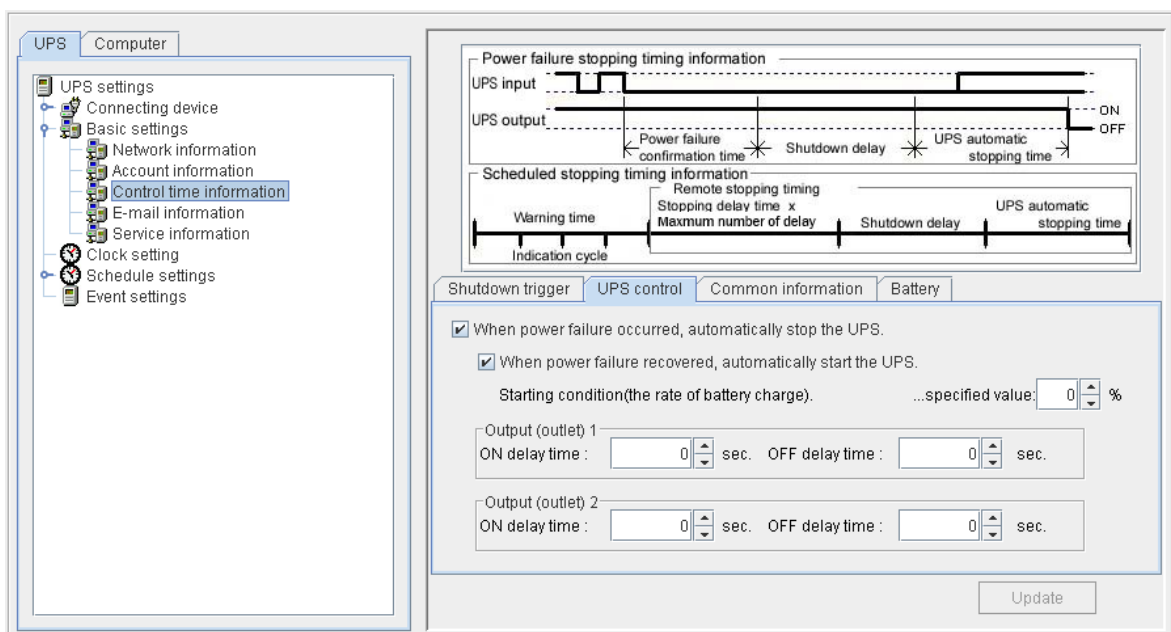
In the screen above, you can set [ON delay time] and [OFF delay time] for each of the output outlets.
The default state for all settings is 0 sec., therefore:

ON delay time = UPS output ON time (Turned ON immediately with UPS output)

OFF delay time = UPS output OFF time (Simultaneously turned OFF with stopping of UPS output)

<Caution>
"OFF delay time" is the delay time of the each consents after "UPS automatic time" is passed.
This setting can not set delay setting of shutdown starting time of computer.

The following diagram shows the operation sequence when output system information is set.
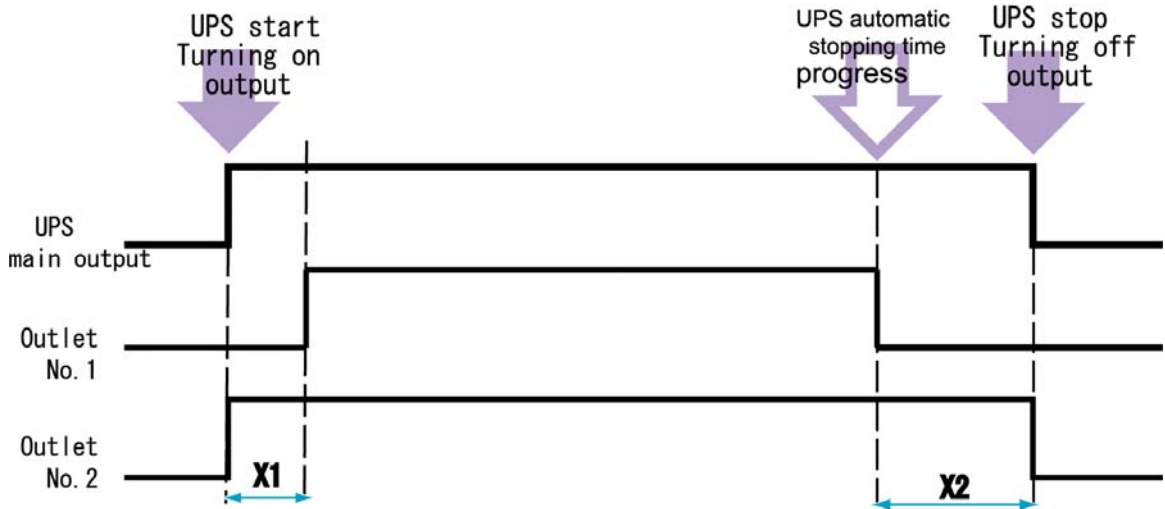
Timing of UPS start

When the output of the UPS is turned ON (as a result of a scheduled operation or a recovery from a power failure:

- Output outlet 1 turns ON after X1 seconds. **(In the diagram above, turns ON after X1 seconds have elapsed.)**
- Output outlet 2 turns ON immediately.

Timing of UPS stop

When the output of the UPS is turned OFF after the time set for [UPS automatic time] elapses according to the UPS stop process being performed (as a result of a scheduled operation or a power failure):

- Output outlet 1 turns OFF immediately.
- Output outlet 2 turns OFF after X2 seconds. **(In the diagram above, turns OFF after X2 seconds have elapsed.)**

6.14 Setting the E-mail Server Information

You need to configure an e-mail server (SMTP server) to transmit notification e-mails to specified addresses in the event of errors, and an e-mail server (POP3 server) to query the status to the UPS and receive the stats information e-mails. (For details on setting of an e-mail notification address for each event, refer to Section, "6.24 Sending E-mail Notifications to Specified Addresses when Trouble Occurs".)
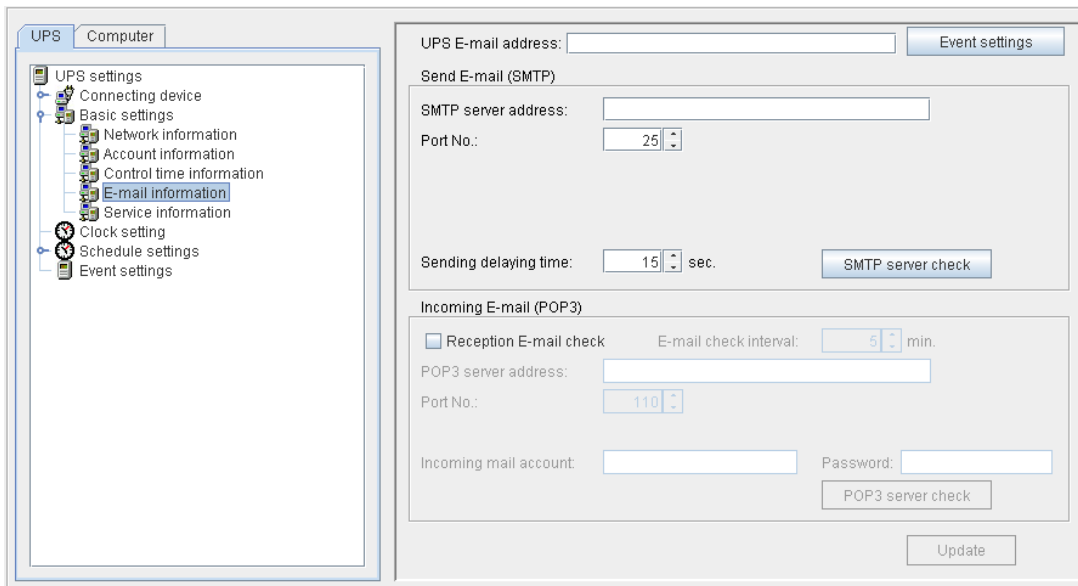
●In the case of server/client composition
Select [E-mail information] of [Basic settings] on the [UPS] tab.

Setting	Description
UPS E-mail address	Set the address for sending e-mail.
Event settings	Switch to the Event settings screen.
Send E-mail (SMTP)	
SMTP server address	Set the address of the SMTP server.
Port No.	Set the port number of the SMTP server.
Sending delaying time	Set how many seconds after the occurrence of an event to send e-mail. If several events occur within the specified time, the several events are notified in a single e-mail message.
SMTP server check	Check whether use of the SMTP server is possible.
Receive E-mail (POP3)	
Reception E-mail check	Set whether to check for incoming e-mail. If you set e-mail to be received, you can use e-mail to acquire information such as the condition of the UPS.
POP3 server address	Set the address of the POP3 server.
Port No.	Set the port number of the POP3 server.
Receiving mail account	Set the account for POP3 server authentication.
Password	Set the password for POP3 server authentication.
E-mail check interval	Incoming e-mails on the POP3 server are checked at this interval.
POP3 server check	Check whether to enable POP3.

Setting the E-mail Server Information

●In the case of LAN interface card composition.
Choose [UPS]－[Basic settings]－[E-mail information].

Setting	Description
UPS E-mailaddress	Set the address for sending e-mail.
Event settings	Switch to the Event settings screen.
Send E-mail (SMTP)	
Authentification	Specify the authentication method for e-mail transmission.[*1] [*2]
Account	Set the account name for SMTP server authentication.[*1]
Password	Set the password for SMTP server authentication.[*1]
SMTP server address	Set the address of the SMTP server.
Port No.	Set the port number of the SMTP server.
Encryption	Specify the encryption method for e-mail transmission.[*1] [*3]
Sending delaying time	Set how many seconds after the occurrence of an event to send e-mail. If several events occur within the specified time, the several events are notified in a single e-mail message.
SMTP server check	Check whether use of the SMTP server is possible.
Incoming E-mail (POP3)	
Reception E-mail check	Specify whether or not to check the incoming e-mails on the POP3 server. If this is cleared, the incoming e-mails on the POP3 server are not checked.
E-mai check interval	Incoming e-mails on the POP3 server are checked at this interval.
SMTP server address	Set the address of the POP3 server.
Port No.	Set the port number of the POP3 server.
Authentication	Set the authentication method.[*4]
Incoming mail account	Set the account name for POP3 server authentication.
Password	Set the password for POP3 server authentication.
Encryption	Set the encryption method.[*1] [*5]
POP3 server check	Check whether to enable POP3.

(*1) It may has unsupported function up to the version of LAN interface card.　Unsupported function will not be displayed.

(*2) Authentication of Send E-mail（SMTP）.

Item	Description
None	No authentication.
POP before SMTP	Authenticate POP.　Account password uses setting value of "Incoming E-mail（POP3）".
SMTP Auth.（Automatic）	Authenticate SMTP by automatically selecting of UPS（LAN interface card）. If the type of authentication which supported by SMTP server is unsure, select "SMTP Auth.（Automatic）".
SMTP Auth.（PLAIN）	Authenticate SMTP.（Authenticate name is PLAIN）
SMTP Auth.（LOGIN）	Authenticate SMTP.（Authenticate name is LOGIN）
SMTP Auth.（CRAM-MD5）	Authenticate SMTP.（Authenticate name is CRAM-MD5）

(*3) Encryption of sending mail（SMTP）

Set when select "SMTP Auth." by authentication.
Please select up to the using SMTP server.

(*4) Authentication of receiving mail（POP3）.

Set method of POP3 authentication.

Select according to the using POP3 server.

(*5) Authentication of receiving mail（POP3）.

Specify this item if you have selected [Incoming E-mail] or if you have selected [POP before SMTP] for [Authentication] for the e-mail transmission setting.
Select according to the using POP3 server.

If using the LAN interface card, the display screen may be different and it is depends on the version.（The above screen uses the latest version.）

For details, please refer to the "Users guide" of LAN interface card.

Information

If the e-mail check interval is set to "0," a special operation is performed. In such a case, POP3 account authentication takes place when e-mail is sent even though a check for incoming e-mail does not take place. This process is performed because some mail servers require POP3 authentication to take place prior to the sending of e-mail.

When sending an information request message to the UPS from the mailer of a mobile phone or computer.

Enter the send destination address and one of the following items for the subject, and then send the message.

• Enter the e-mail address of the UPS as the send destination address.

• Enter one of the following items as the subject.

(Enter single-byte characters. A distinction is made between uppercase and lowercase letters.)

• **UPS Status Request**   UPS status and measurement information

• **UPS Info Request**   UPS information

• **Setting Request**   Device setting information

• **Log Request**   Event log information (last 10 items)

• **Log Request All**   Event log information (all items)

Do not enter anything for the body text of the message.

For details on the content of reply messages, refer to "Appendix D   List of Received Mail".

6.15 Using HTTP, FTP, Telnet, and SNMP

The UPS control system enables you to use HTTP, FTP, Telnet, and SNMP.

●In the case of server/client composition
Select [Service information] of [Basic settings] on the [UPS] tab.
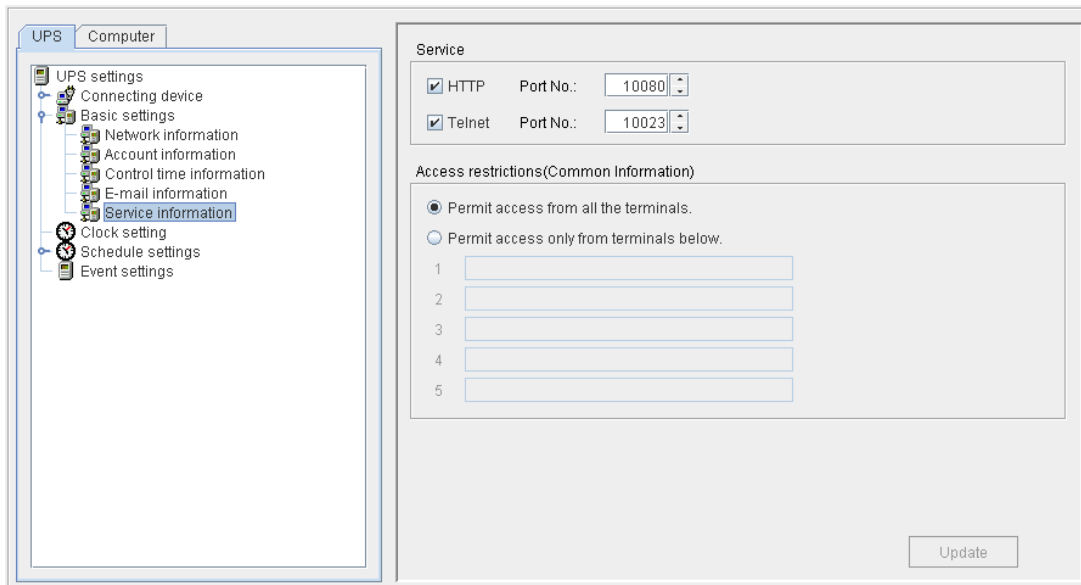
Setting	Description
HTTP	Set whether to enable access from the Web.
Port No. (HTTP)	Set the port number to use for HTTP.
Telnet	Set whether to enable access from Telnet.
Port No. (Telnet)	Set the port number to use for Telnet.
Access restrictions	Restrict external access to each service. If you set the IP address or network name of the terminals you want to permit access, you can permit access from those terminals. (Set up to 5 addresses.)

Using HTTP, FTP, Telnet, and SNMP

●In the case of LAN interface card composition

The following screen are enhanced security version of the LAN Interface card.(Support HTTPS,FTPS,SNMPv3）

Select [UPS]－[Basic settings]－[Service information]

［Service］tab
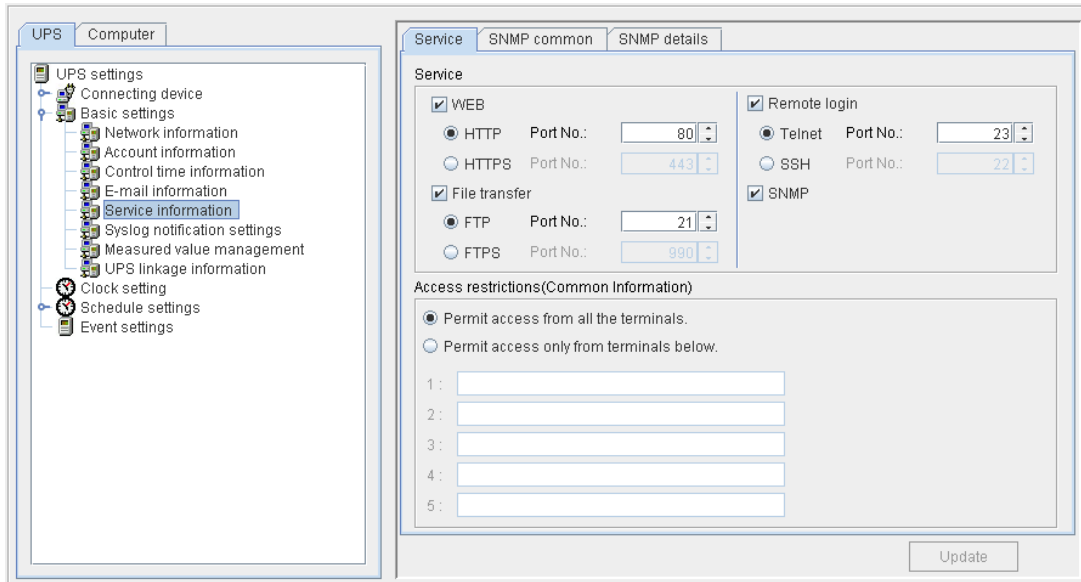
Setting	Description
Web	Turns Web access on and off.
HTTP Port No.	Modifies HTTP service port number.
HTTPS Port No.	Modifies HTTPS service port number.
File transfer	Turns upload/download of settings via FTP(FTPS) on and off.
FTP Port No.	Modifies FTP service port number.
FTPS Port No.	Modifies FTPS service port number.
Remote login	Turns Telnet access on and off.
Telnet Port No.	Modifies Telnet service port number.
SSH Port No.	Modifies Telnet service port number.
SNMP	Turns SNMP operation on and off.
Access restrictions	Restricts access by external services. Enter the IP address or network name of terminals that will allow access to the network. (Enter up to five addresses.)

［SNMP common］tab
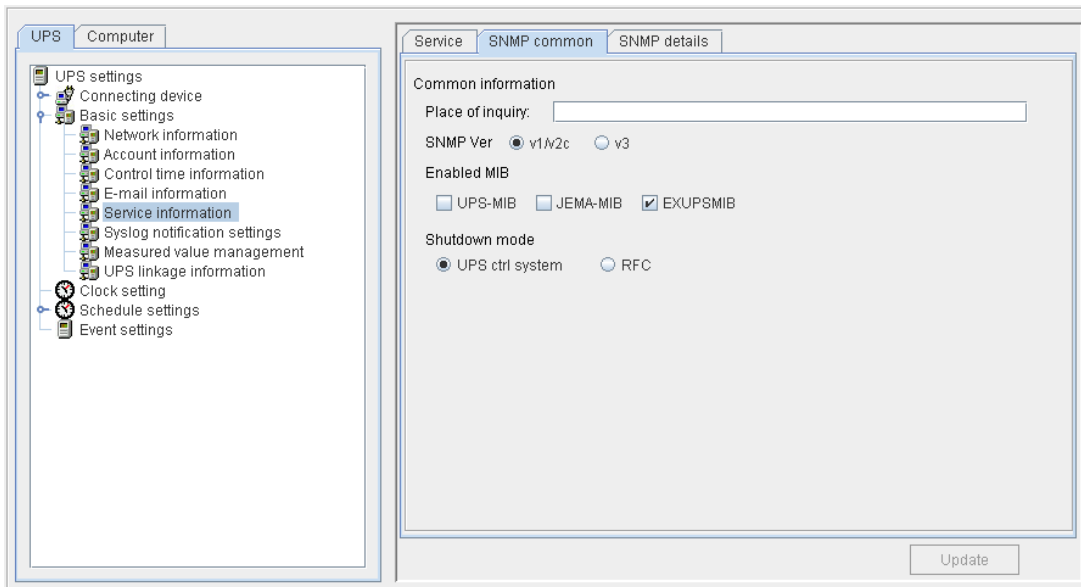
Setting	Description
Place of inquiry	Enter place of inquiry for SNMP.
SNMP Ver.	Select a SNMP version.
Enable MIB	Select for use MIB. UPS-MIB（RFC1628）、JEMA-MIB、EXUPSMIB（private MIB）
Shutdown mode	The SNMP manager specifies the shutdown method output by UPS stop control output.
Addresses to send trap	Enter the network address for the destination when sending trap.
Sending auth. trap	Turns auth. Trap on and off.
Trap Test	The trap send test is performed.(Send the "Cold start" trap)
Read community	Enter SNMP community name.
Write community	Enter SNMP community name.
Trap type	Select a trap type from SNMPv1 or SNMPv2.

・Shutdown mode

Mode	Description
UPS ctrl system	When PCs and workstations are connected, computers are shutdown and ths UPS is turned off according to the [Shutdown delay time] and [UPS automatic stopping time] settings.
RFC	Turns off the UPS output regardless of whether devices are connected to it. This mode does not shutdown connectes computers. (Operation in this mode is possible only when UPS-MIB is selected.)

［SNMP details］tab (Select SNMP Ver. V1 or V2)

Setting	Description
Addresses to send trap	Enter the IP address or network name for the destination when sending trap.
Sending auth. trap	Turns auth. Trap on and off.
Trap Test	The trap send test is performed.(Send the "Cold start" trap)
Read community	Enter SNMP community name.
Write community	Enter SNMP community name.
Trap type	Select a trap type from SNMPv1 or SNMPv2.

［SNMP details］tab (Select SNMP Ver. v3)
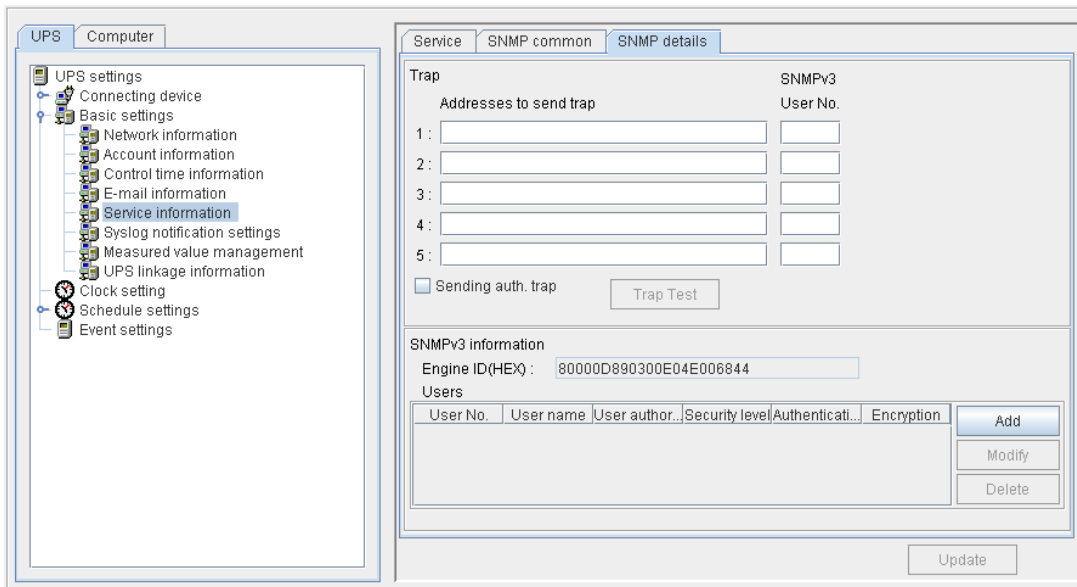
Setting	Description
Addresses to send trap	Enter the IP address or network name for the destination when sending trap.
SNMPv3 User No.	Enter the SNMPv3 user number..
Sending auth. trap	Turns auth. Trap on and off.
Trap Test	The trap send test is performed.(Send the "Cold start" trap)
Engine ID	Display the EngineID.
Users	Display the list of SNMPv3 user information.
Add	Add SNMPv3 user information.
Modify	Modify SNMPv3 user information.
Delete	Delete SNMPv3 user information.

The following screen is the version before performing the corresponding security.
(Selection of trap type, corresponding to the private MIB)

Select [UPS]－[Basic settings]－[Service information]
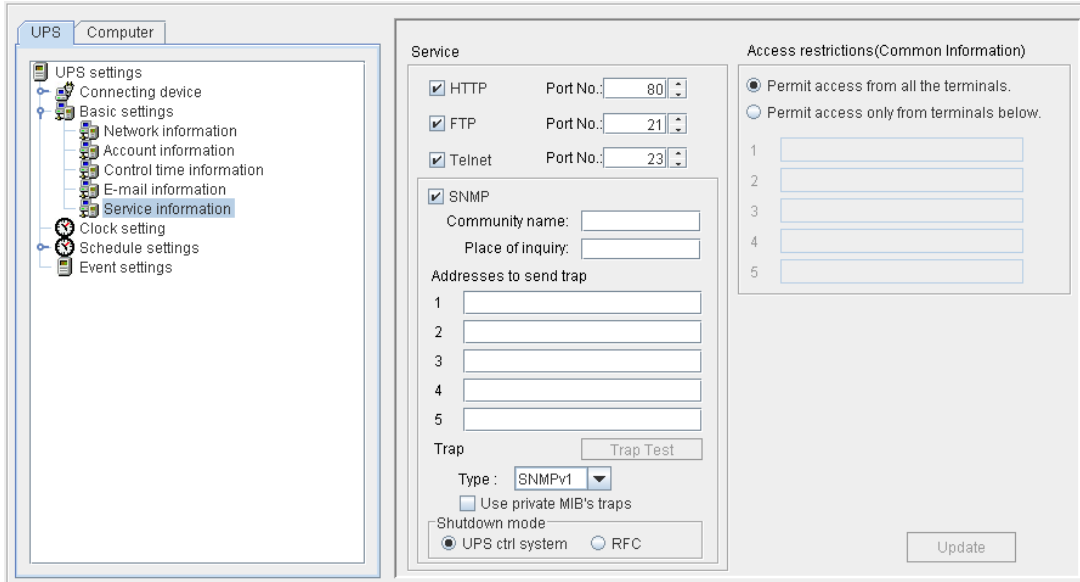
Setting	Description
HTTP	Turns Web access on and off.
Port No.	Modifies HTTP service port number.
FTP	Turns FTP access on and off.
Port No.	Modifies FTP service port number.
Telnet	Turns Telnet access on and off.
Port No.	Modifies Telnet service port number.
SNMP	Turns SNMP operation on and off.
Community name	Enter SNMP community name.
Place of inquity	Enter place of inquiry for SNMP.
Addresses to send trap	Enter the IP address or network name for the destination when sending trap. (Enter up to five addresses.)
Trap Test	The trap send test is performed.(Send the "Cold start" trap)
Trap type	Select a trap type from SNMPv1 or SNMPv2.
Use private MIB's trap	Sets enable/disable of SANYO private MIB trap.
Shutdown mode	The SNMP manager specifies the shutdown method output by UPS stop control output.
Access restrictions	Restricts access by external services. Enter the IP address or network name of terminals that will allow access to the network. (Enter up to five addresses.)

(Note.1) Depends on the version of LAN interface card, there is unavailable situation to set service disable.

(Note.2) Setting is unavailable for LAN interface card which does not support upload/download function of setting value by FTP.

(Note.3) Depends on the version of LAN interface card, there are Access restrictions for SNMP only.

<Note>
Set port numbers for HTTP, FTP, and Telnet that are not used or reserved for the operating system or other application.

• Shutdown mode

Mode	Description
UPS control system	When stopping the UPS from SNMP Manager, the connected computer is shutdown in accordance with the control settings and then the UPS is stopped. The default values are set.
RFC compatible	When stopping the UPS from SNMP Manager, the UPS is stopped after the delay time specified upon receiving the stop request has elapsed, regardless of the condition of the computer. (Operation in this mode is possible only when UPS-MIB is selected.)

When using the IT Monitor Manager

(1) From this version, the SANUPS SOFTWARE does not support the SNMP agent function. The SANUPS SOFTWARE cannot monitor configurations that use a serially connected UPS. To monitor with SNMP, use the LAN interface card.

(2) When monitoring a LAN interface card, select "v1/v2c" as the SNMP version. Set "SNMPv1" as the trap type.

6.16 Setting the Time on the UPS

Incorrect clock information may result in improper operation, such as wrong log record times and failure of scheduled operations to take place at the scheduled times.
It is recommended that the UPS clock setting be periodically corrected.
The UPS clock setting should also be corrected whenever the computer clock setting is changed.

●**In the case of server/client composition**
Select the Clock setting of [UPS]tab on the Setting screen.
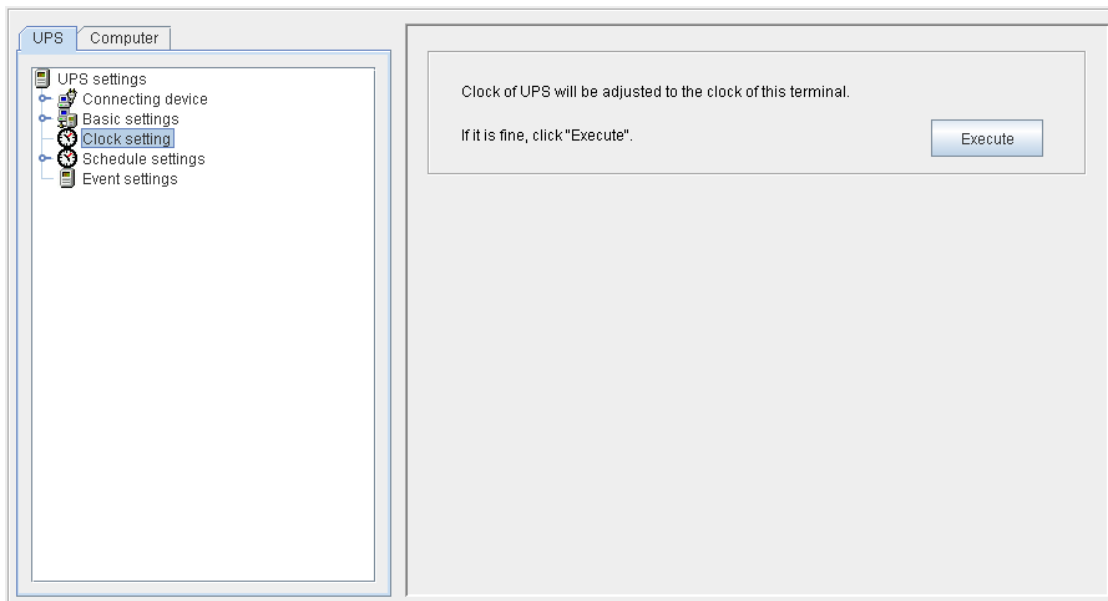
Click the **Execute** button to apply the time of this computer to the UPS.

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●In the case of LAN interface card composition

Select the Clock setting of [UPS]tab on the Setting screen.
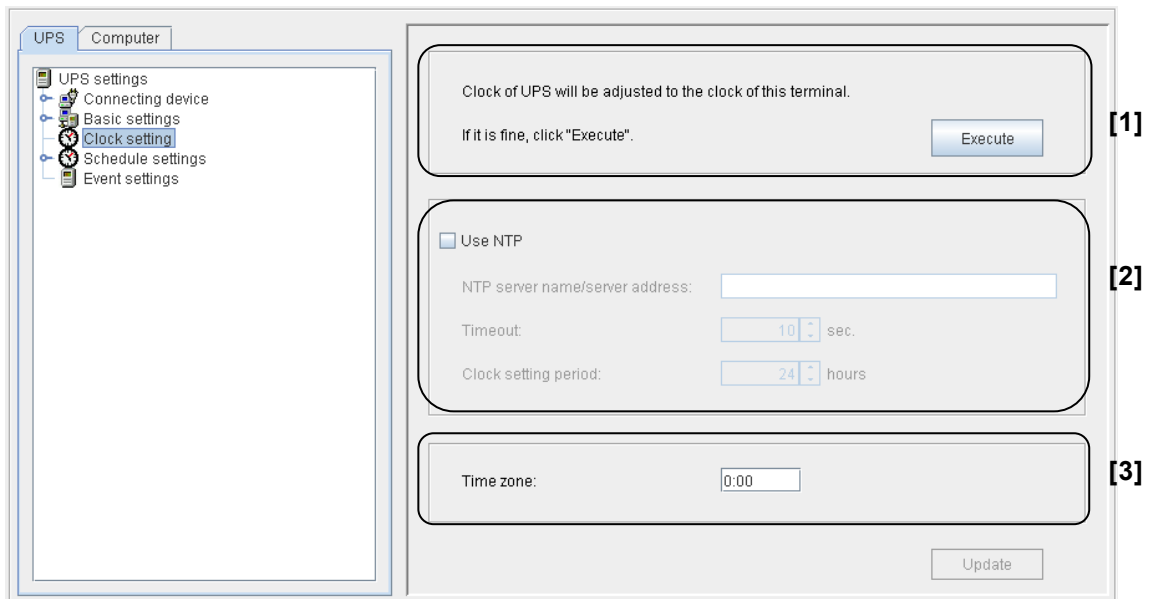
［1］ Click the Execute button to apply the time of this computer to the LAN interface card.

［2］ If you have an NTP server in your network, select the **Use NTP**, and enter the items in the following table.

Setting item	Description
NTP Server name/Server address	Specify the address of the NTP server in your network.
Timeout	Specify the waiting time for the response from the NTP server when obtaining the time. If no response is received within this duration, an error is recorded in the event log. Specify a larger value if the error occurs frequently.
Clock setting period	Specify the interval for obtaining the time from the NTP server. The clock is adjusted at the specified intervals. Enter the time in hours.

［3］Specify the time zone.

6.17 About scheduled operation

You can schedule UPS shutdowns and restarts.

This function is useful in the following cases.
・To shut down and start computers at a specified time every day.
・To shut down computers before a bank holiday and restart when the holiday is over.

You can specify 2 types of schedules for the UPS.

| Weekly schedule |

You can set a common schedule from Sunday to Saturday and repeat it for 365 days.
You can specify the start-up time and shutdown time for each week day.

| Schedule for specific dates |

You can schedule a start-up time and shutdown time for specific dates.
For example, you can specify the start-up time at 8:00 and shutdown time at 17:00 on May 1, 2015.

The schedule for a specific date takes precedence when weekly and specific dates are scheduled.

The following schedule settings operate as shown in the figure.
Weekly schedule: Monday to Friday, start at 8:00 and shut down at 18:00
Specific date: May 8, start at 6:00 and shut down at 17:00

Thursday, May 7, 2015

Friday, May 8, 2015

The schedule on a specific day takes precedence on May 8 and the UPS operates from 6:00 to 17:00.

Saturday, May 9, 2015

Sunday, May 10, 2015

Monday, May 11, 2015

Tuesday, May 12, 2015

Wednesday, May 13, 2015

Thursday, May 14, 2015

Operations return to the weekly schedule from the next week.

Friday, May 15, 2015

6:00 8:00   12:00   17:00 18:00

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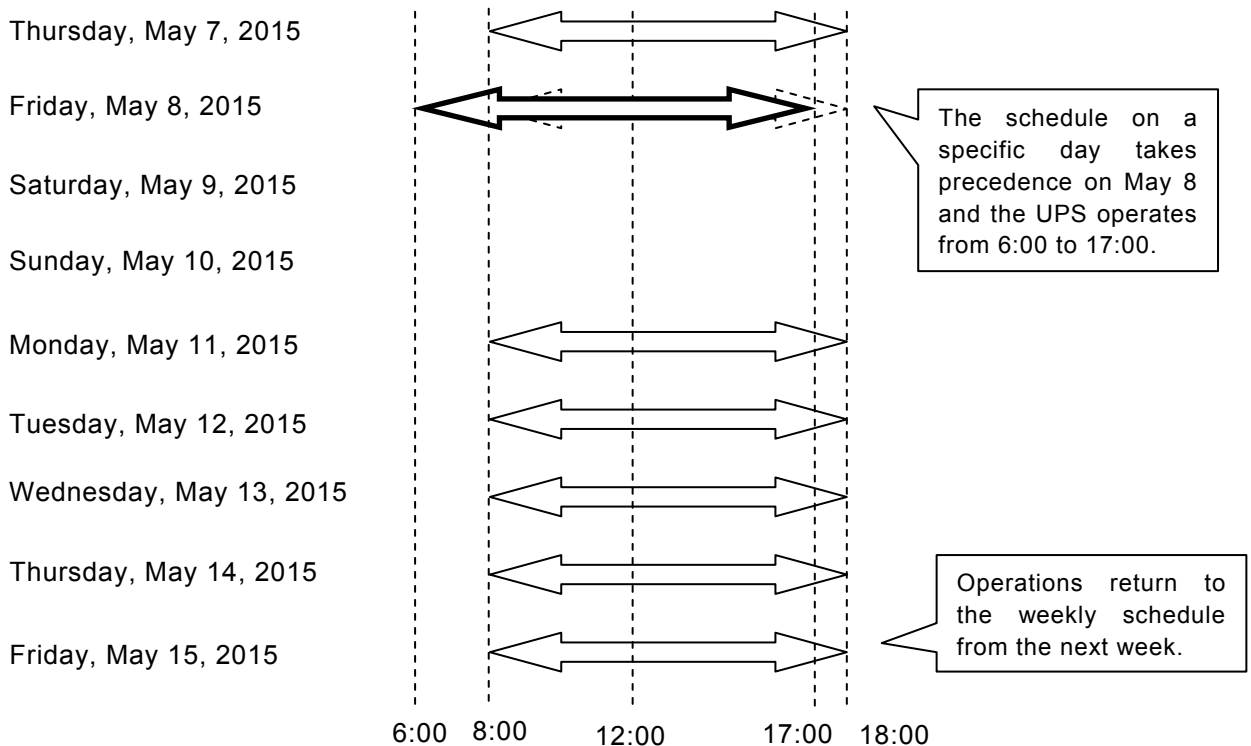
6.18 Setting weekly schedule

You can set a common schedule from Sunday to Saturday.

Select [UPS] tab – [Schedule settings] – [Weekly], and the following page will be displayed.
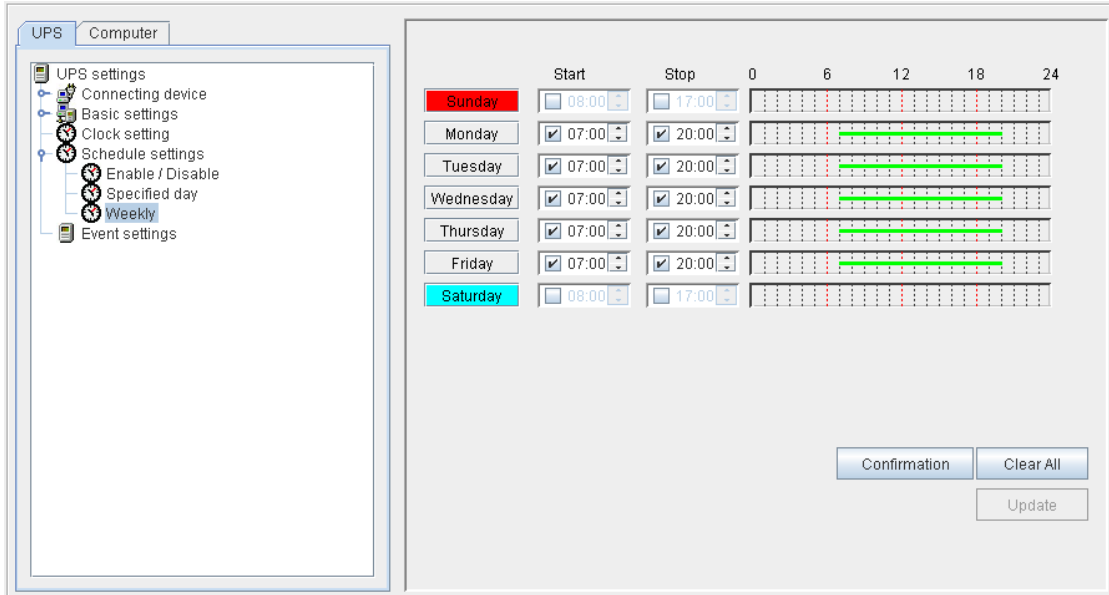
The above screenshot shows the weekly schedule to start at 7:00 and shut down at 20:00 from Monday to Friday.
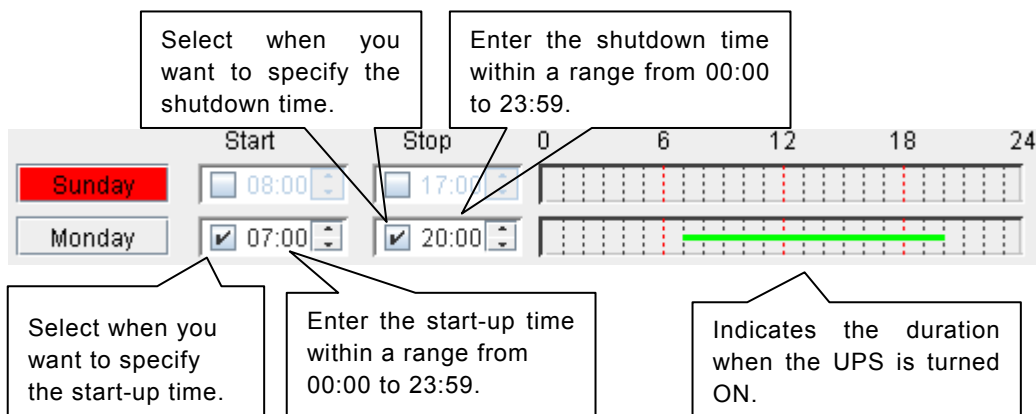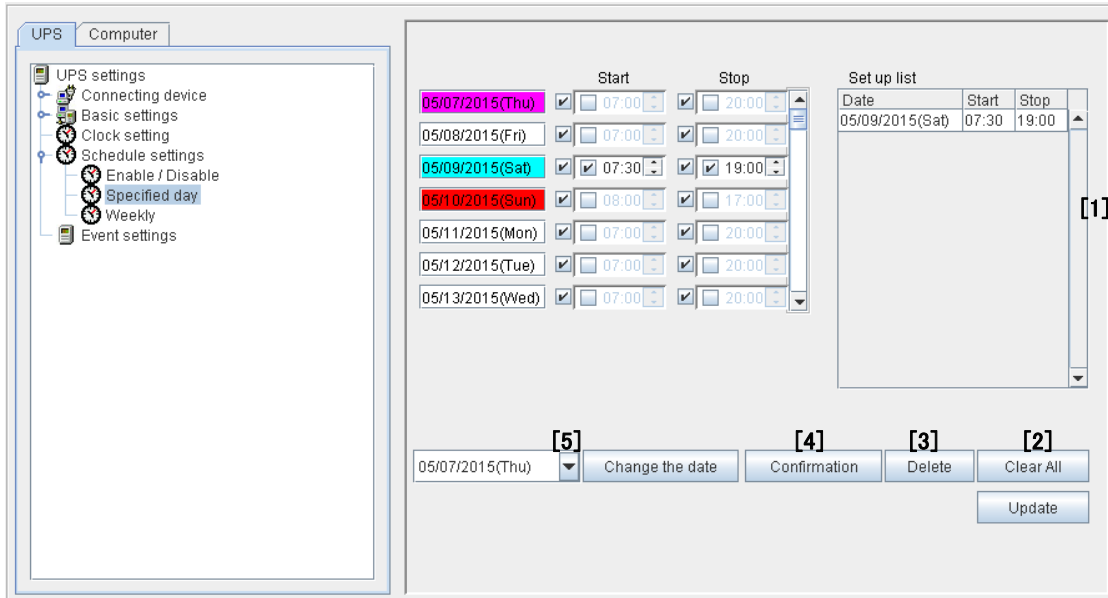
［**Configuration**］

6.19 Setting schedule of the specified day

This section describes how to configure the schedule for a specific date.

Select [UPS] tab – [Schedule settings] – [Specified day], and the following page will be displayed.

You can register up to 50 schedules for specific dates.

[1] A list of the specified start-up times and shutdown times is displayed.
[2] Click the [Clear All] button to delete the schedule for all the dates.
[3] Select a date from the list and click the [Delete] button to delete the schedule for a specific date.
[4] The Schedule Confirmation screen id displayed.
[5] Enter the date you want to schedule and click the [Move to Left Date] button.

［**Configuration**］

The UPS starts up or shuts down at the specified time when the checkbox is selected.
If it is not selected, [Restrain]* is displayed in the list and the UPS will not start up or shut down.

Select when you want to specify the shutdown time.

Enter the shutdown time within a range from 00:00 to 23:59.

Select when you want to specify the start-up time.

Enter the start-up time within a range from 00:00 to 23:59.

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Setting schedule of the specified day

Restrained scheduled operations

When you have a weekly schedule to start up and shut down from Monday, there may be bank holidays where the UPS does not need to start up or shut down. In this situation, you can specify to restrain (no start-up and shutdown) the scheduled operations. There is no need to modify the weekly schedule. You can also specify to restrain the scheduled operations even when you have a schedule for the specific date.
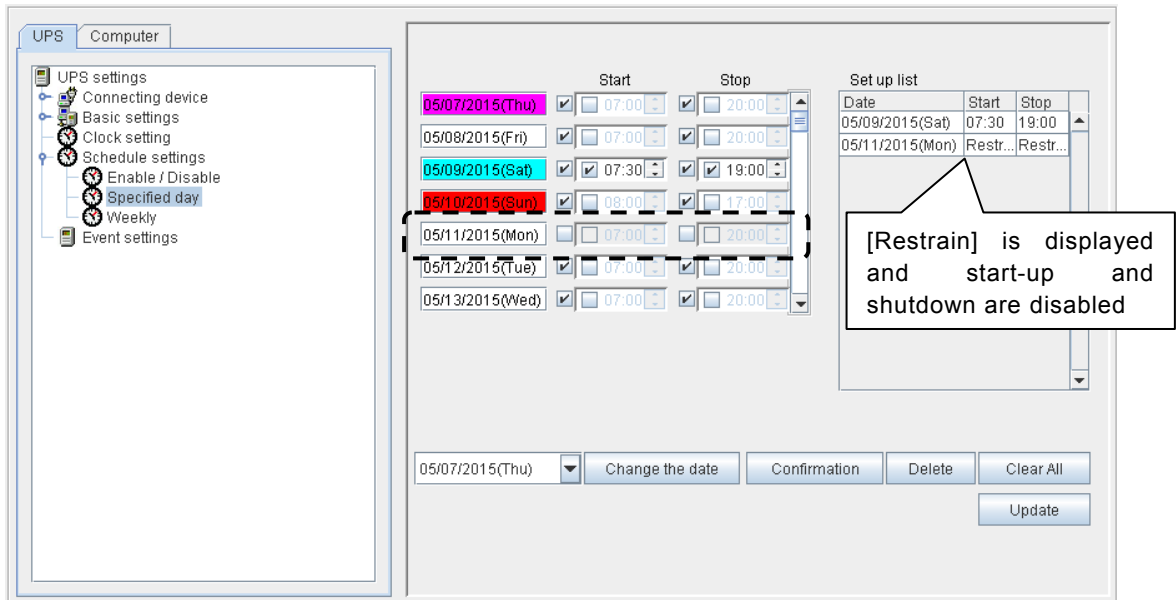
Clear the checkboxes to prevent the UPS from starting up and shutting down on Monday, May 11.

The UPS does not start up or shut down on Monday, May 11 because the scheduled operations are restrained, and will start on May 12 instead.

Changing the date

After changing the date, click the **Change the date** button to move to the set date.
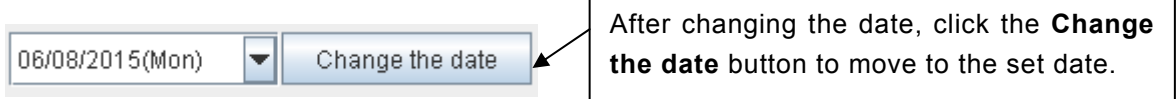
Click the ▼ button, The Set up of day screen is displayed.

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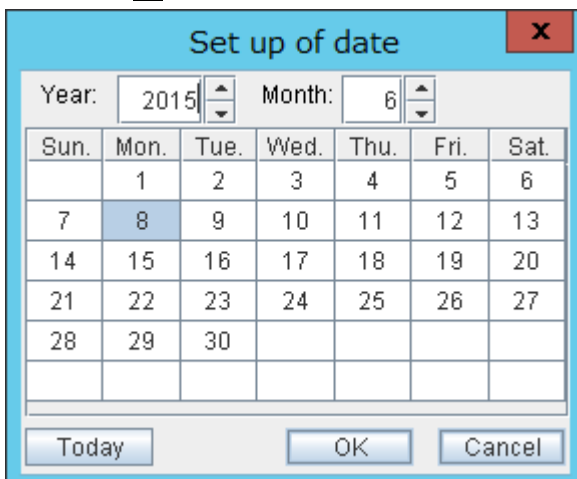
6.20 Confirmation of schedule

This section describes how to check the weekly schedule and the schedule for specific dates.
Click the [Confirmation] button on the schedule settings screen.
The [Schedule confirmation] screen is displayed.
Check the operation schedule for the UPS.
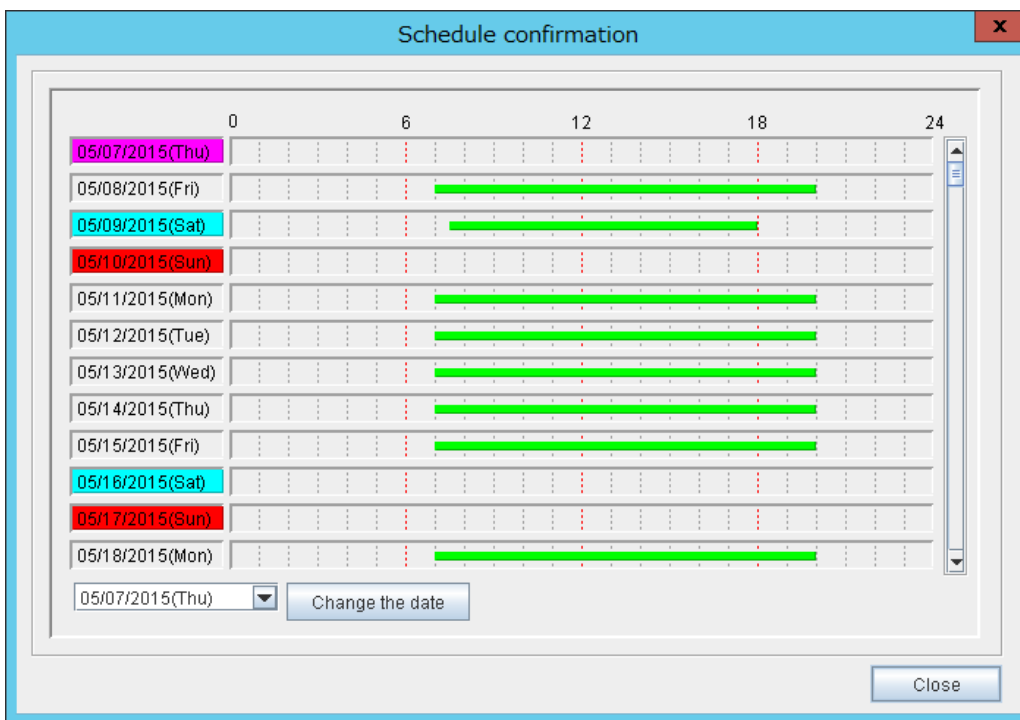
The screenshot is the confirmation screen with the following settings.
Weekly schedule
     Monday to Friday, start-up at 7:00, shutdown at 20:00
Schedule for specific dates
     May 9, start-up at 7:30, shutdown at 18:00

Confirmation of schedule
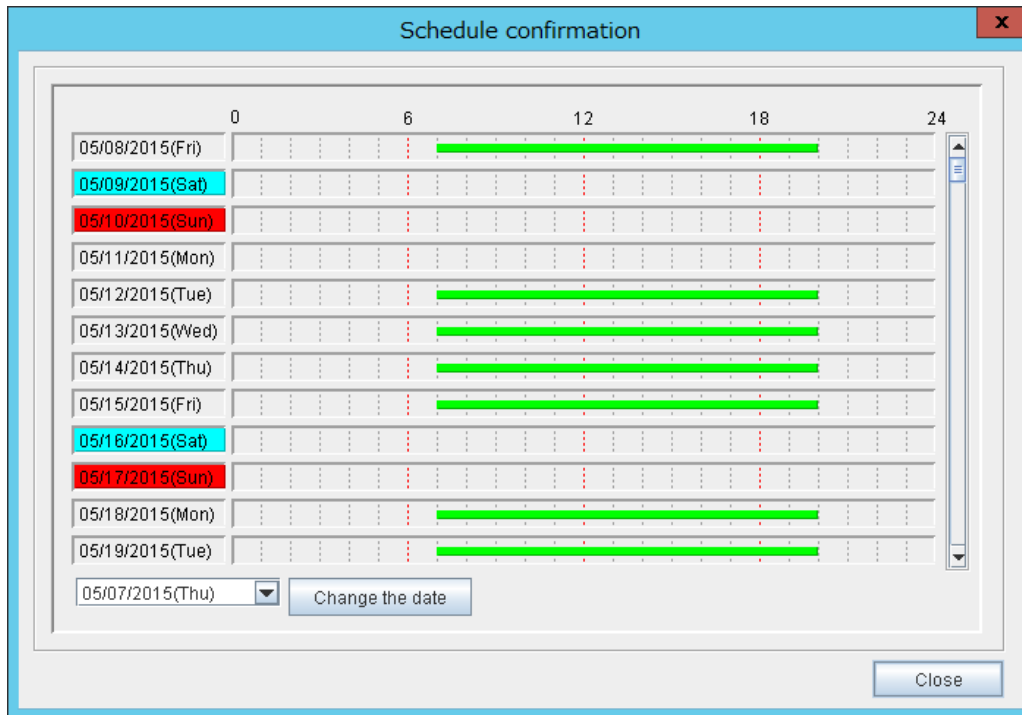
The screenshot is the confirmation screen with the following settings.
Weekly schedule
    Monday to Friday, start-up at 7:00, shutdown at 20:00
Restrained scheduled operation
    May 11

6.21 Enabled of scheduled operation

When there is no problem with the set schedule, "enable" the schedule function.
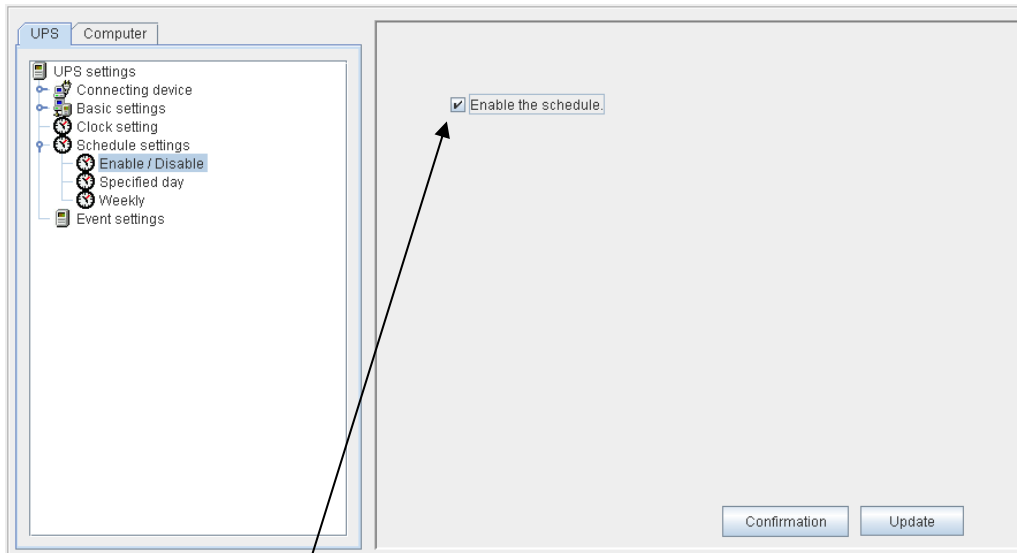
Put a check mark in this check box.

When there is no check in this check box, scheduled operation will not be carried out.

6.22 About Event Settings

Under the UPS management system, operations such as power failure and power recovery, breakdown and breakdown recovery, and shutdown execution are all referred to as "events."

When an event occurs, messages are displayed, log records created, e-mail sent, and scripts executed.

Events may be related either to the UPS or to computers.

UPS Related [1]

To set the conditions for each event separately, select an event from the list and then set a condition by selecting the checkbox.

Checkmark: Enabled
(Items highlighted in gray cannot be changed.)
No checkmark (blank):
Disabled
－: Unsupported

Computer Related [1]

To simultaneously set the same conditions for all displayed events, click the Default, Enable, or Disable button for each condition.

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WS Related - Device connection by WS (Telnet connection), WS (LAN IF card login connection

To set the conditions for each event separately, select an event from the list and then set a condition by selecting the checkbox.

Checkmark: Enabled

(Items highlighted in gray cannot be changed.)

No checkmark (blank): Disabled

－: Unsupported

To simultaneously set the same conditions for all displayed events, click the Default, Enable, or Disable button for each condition.

Function by type	Setting item	Description
UPS Related	E-mail	Allows you to set the send destination address for each event separately.
	Saving Log	Allows you to set the logs the UPS saves.
	Message edit	Allows you to set the message to send to (display on) the computer (UPS related item)
Computer Related	Saving Log	Allows you to store the logs to maintain on the computer.
	Execute Script	Allows you to set the script to execute when each event occurs.
	Send message	Allows you to set the destination to send a message when an event occurs
	Message edit	Allows you to set the message to send to (display on) another computer (computer related item)
WS Related	Send Script	Allows you to set the process to log in to the WS, and the content of the script to execute.

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In addition, **events** are differentiated depending on the control level and only the events for the selected level are displayed in the list ([1] in the screenshot). It is usually enough to just set the events of [Standard].

Control level	Description
Standard	Events used by ordinary administrators during normal operation
Advanced (UPS condition)	Events used for tasks such as maintenance of the UPS.
Advanced (UPS control system)	Events used for analyzing security problems and abnormalities of the UPS control system.
Relating	Events that occur on the computer
All settings	All events

6.23 Configuring event log recording conditions

You can enable or disable logging for each event.

（A） When setting the event log related to UPS operation

The event log contents can be checked from the Event-Log (UPS) viewer screen.

Select [Event settings] on the [UPS] tab.

[1] Select the event type. See "Appendix C. Explanation of events" for the details of event types.

[2] Select the event to be configured. (In the screenshot above, [Exec. Pre-shutdown operation] is selected.)
The line of the selected event is highlighted in reverse video.

[3] Check the [Saving Log].

[4] Click the [Update] button.

（B） When setting the event log related to computer operation

The event log contents can be checked from the Event-Log (computer) viewer screen.

Select [Event settings] on the [Computer] tab.
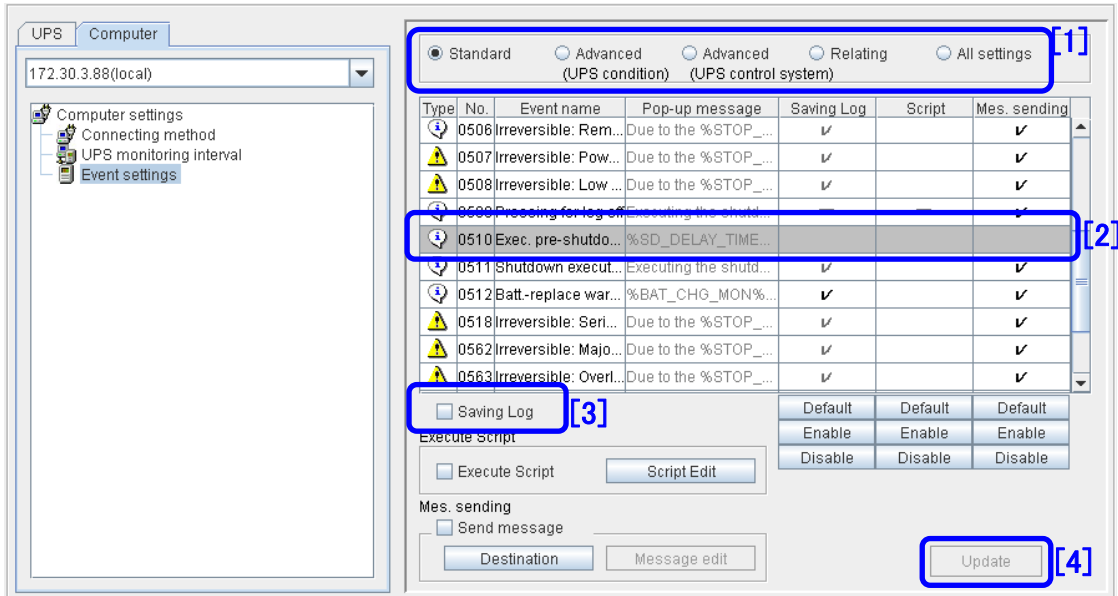
[1] Select the event type. See "Appendix B. Explanation of events" for the details of event types.

[2] Select the event to be configured. (In the screenshot above, [Exec. Pre-shutdown operation] is selected.)
   The line of the selected event is highlighted in reverse video.

[3] Check the [Saving Log].

[4] Click the [Update] button.

6.24 Sending E-mail Notifications to Specified Addresses when Trouble Occurs

The procedure for changing the sending e-mail　when events occur is explained below.

Select [Event settings] on the [UPS] tab.
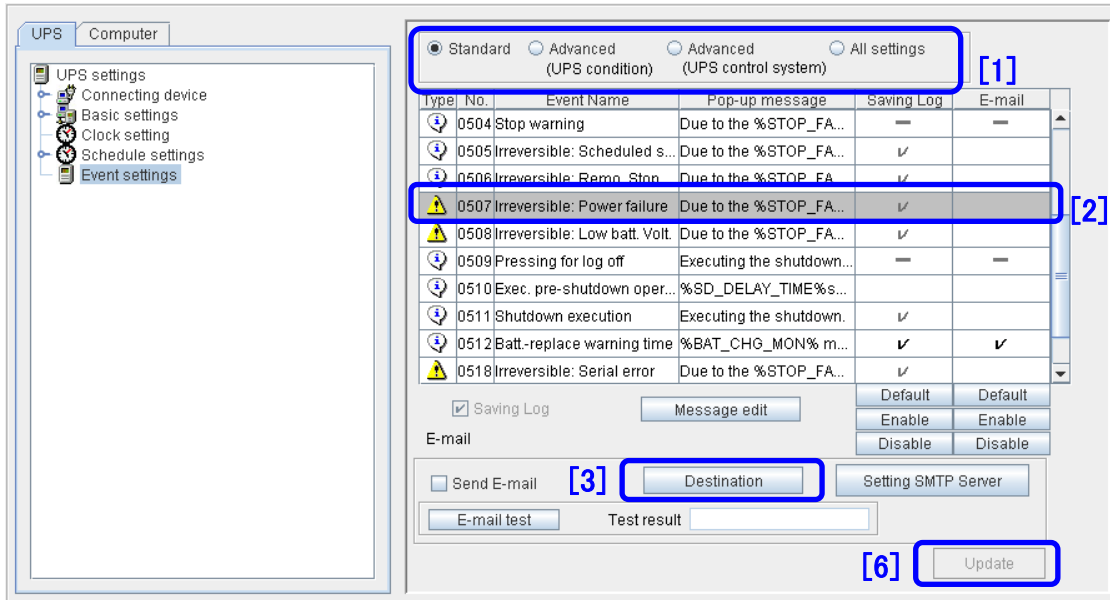
[1] Select the event type. See "Appendix C. Explanation of events" for the details of event types.

[2] Select the event to be configured. The line of the selected event is highlighted in reverse video.

[3] Set the destinations to send e-mail.

Click the Destination button to display the E-mail settings screen.
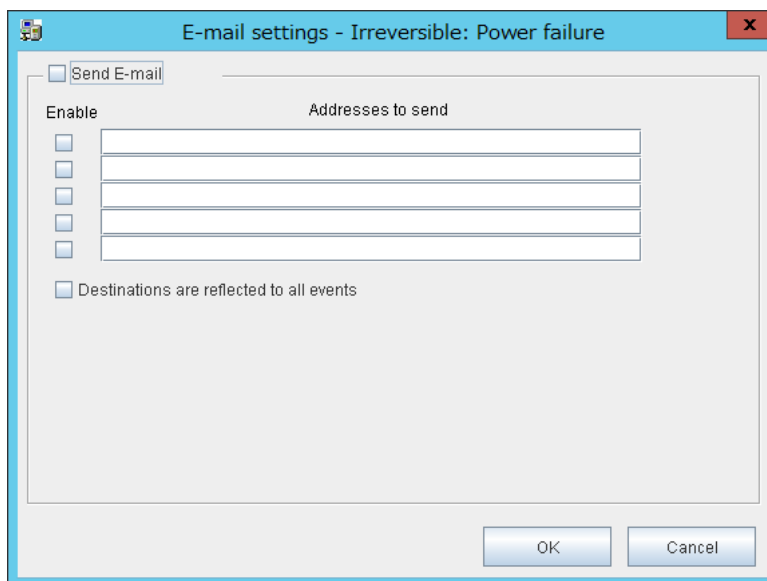
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[4] Set the e-mail destinations.

This screen displays all of the e-mail addresses specified as the destinations for events. If the e-mail addresses do not include the destination to which you want to send e-mail for this event, select a checkbox and then enter the e-mail address.

Even if an e-mail address that is registered for another event is displayed, it will not be used as a destination to send e-mail for the event currently being set unless a checkmark is added. Therefore, add a checkmark to enable a displayed destination for the event currently being set.

If you select the [Destination are reflected to all events] checkbox, the e-mail destinations of the selected event are also applied to all events.

[5] Click OK, confirm the changes to the e-mail destinations in the confirmation screen that appears and then click Yes to reflect the setting values.

[6] The event settings screen reappears. Click Update to update the settings.

Restriction

A total of up to five e-mail addresses can be registered for all events.

Information

For details on setting the mail server, refer to Section 6.14 , "Setting the E-mail Server Information."

Information

If you select any event and then press the ☐E-mail test☐ button, a test e-mail message is sent to the

destinations set for the specified event. The e-mail test function does not generate an actual

event. It just enables you to confirm whether the mail server and destinations are set correctly.

If there is still information to be updated, click the ☐Update☐ button again and then wait until

updating of the information is complete before sending a test e-mail message.

If a destination is set, you can send a test e-mail message even if the [Send E-mail] checkbox is

not selected.

The result of the e-mail test is displayed in [Test result], but make sure that you can actually

receive the e-mail message.

6.25 Changing the Content of the Messages Displayed when Events Occur

A pop-up message is displayed when an event occurs. You can set (change) the content of such messages.

The procedure for changing the content of messages displayed when events occur is explained below.

（A） Setting event messages related to UPS operation

[1] Select [Event settings] on the [UPS] tab.

[2] Select an event to set. (In the screenshot above, [Irreversible: Power failure] is selected.)
The selected event is highlighted.

[3] Click [Message edit]. The message content setting screen appears.

[4] Set the message and then click the Update button to reflect the changes to the content.

（B）Setting event messages related to computer operation

[1] Select [Event settings] on the [Computer] tab.

[2] Select an event to set. (In the screenshot above, [UPS communication error] is selected.)
The selected event is highlighted.

[3] Click [Message edit]. The message content setting screen appears.

[4] Set the message and then click the Update button to reflect the changes to the content.

6.26 Specifying the Display Destination for Event Messages

If, for example, the file server is shared by other computers, you can notify the users of the other computers of the occurrence of trouble. (See "Restrictions" below regarding message transmission.)
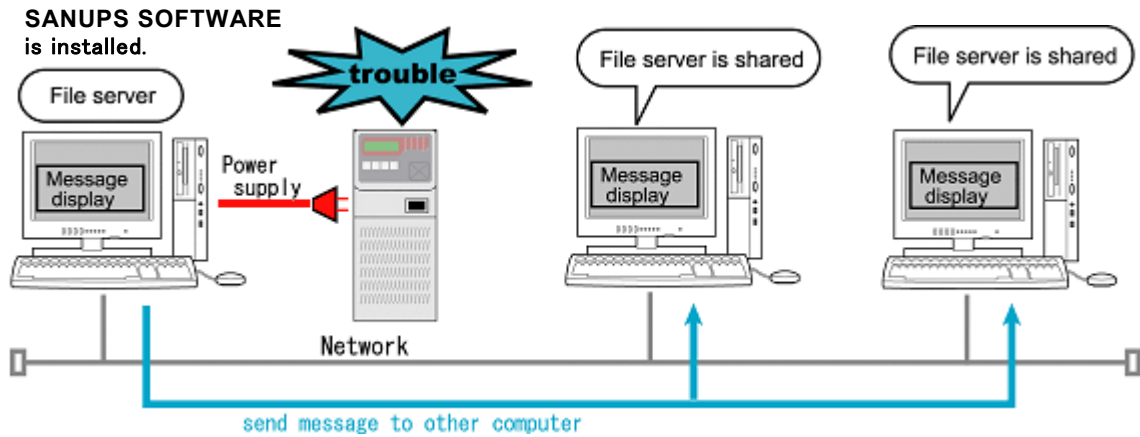
About the Setting Procedure

[1] Select [Event settings] on the [Computer] tab.

[2]   Select an event for which to send a message. (In the screenshot above, [Irreversible: Power failure] is selected.) The selected event is highlighted.

[3] Click the Destination button to display the following message destination setting screen.
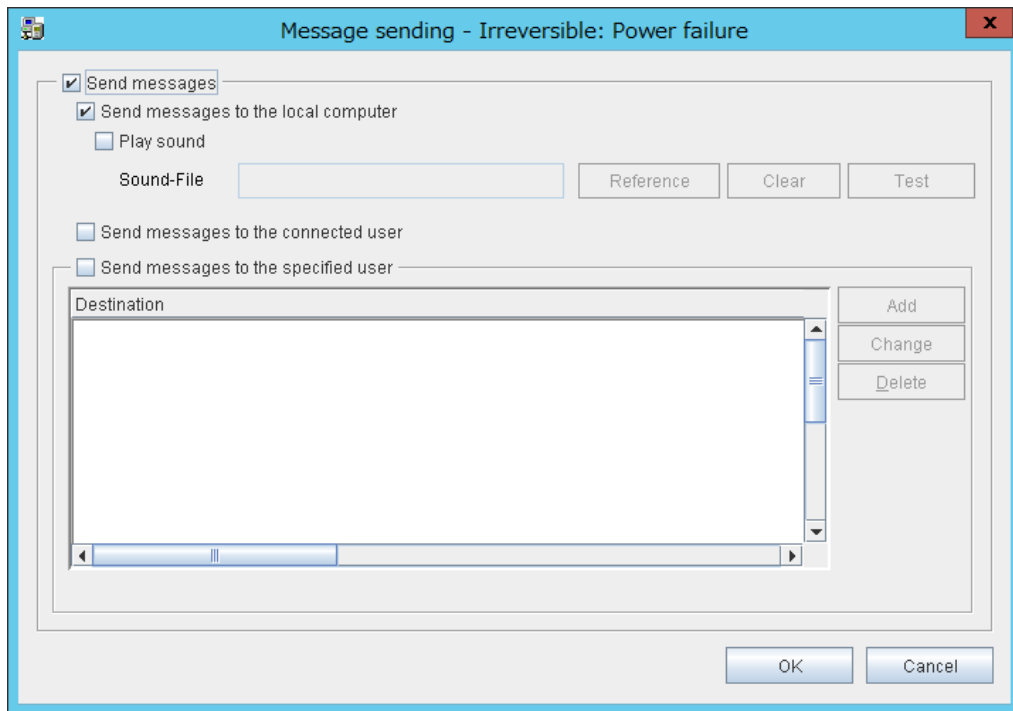
Message destination	Description
Send messages to the local computer	The message is displayed on the local computer. You can specify a sound file in order to play a sound when the message file is displayed. (This is only supported for **Windows**. The same sound is used for all messages.)
Send messages to the connected user	The message is sent to another computer connected for file sharing by NFS(Network File System).
Send messages to the specified user	The message is sent to a specified computer other than the above. In the [Destination] area, specify the computer to which to send the message.

[4] After you have finished configuring the message destination settings, click the OK button.
[5] Click the Update button to reflect the changes to the content.

 Restrictions
- In an environment where **Linux/UNIX** machines and **Windows** machines exist together, it is not possible to send messages to different platforms. For example, messages cannot be sent from a **Windows** machine to a **Linux/UNIX** machine, and visa versa.
 ・The "Send messages to the specified user" function does not function with **Windows Vista** or later.
 ・The "Play sound" function does not function with **Windows Vista** or later.

* To send messages between **Linux** and **UNIX** machines, use **rwall**.
For details on **rwall**, refer to "Appendix I: Other Q & A."

Stopping Sound Playback

When a sound file has been specified in order to play a sound when a message is displayed, the sound plays when an event occurs and the following icon appears in the task tray in **Windows**.
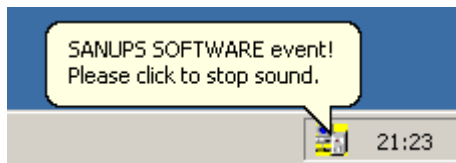
* **[SANUPS SOFTWARE event! Please click to stop sound]** appears after the event occurs and the icon flashes.

Align the mouse pointer over the icon and then right-click or left-click the icon to display the following **[Sound stop]** menu item.
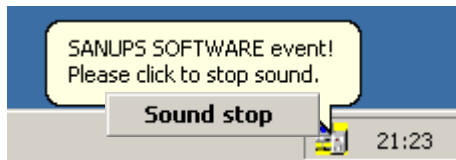
If you align the mouse pointer over the **[Sound stop]** menu item and then right-click or left-click the menu item, the icon disappears and the sound stops playing.

<Note>
Depending on the using OS, there are restrictions on this function.
Read "Appendix I About constraint by the using OS", confirm whether there are any corresponding items, then use it.

6.27 Performing a Specific Process when an Event Occurs

On a computer on which **SANUPS SOFTWARE** has been set up, setting the process you want to be performed when an event occurs on the [Execute Script] screen enables the process to be executed automatically. (The process only applies to the computer on which it is set.)

For example, if you want to end running applications prior to shutdown, set the application end process for the [Exec. pre-shutdown operation] event to enable the set process to be executed automatically prior to shutdown.

Information

In the case of the **Windows** version, any file currently being edited in a **Microsoft Office** application can be saved prior to shutdown. For details, refer to "Appendix F　About the Application Shutdown".

The procedure for setting the script executed when events occur is explained below.
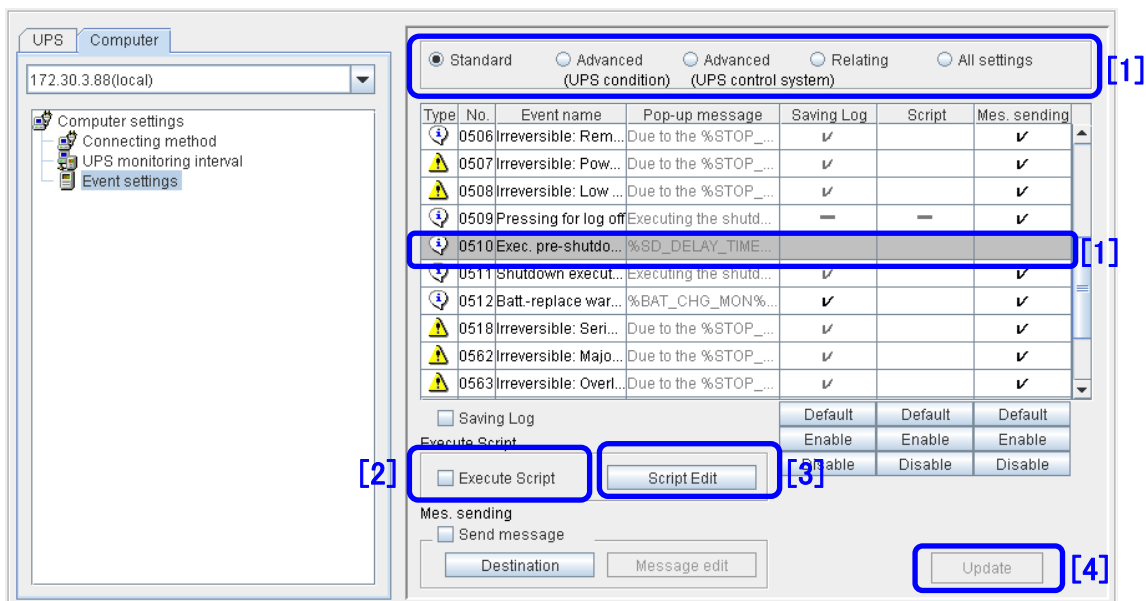
[1] Select an event to set. (In the screenshot above, [Exec. pre-shutdown operation] is selected.)
　　The selected event is highlighted.

[2] Select the [Execute Script] checkbox.

[3] Click the Script Edit button to display the following execute script settings screen.
The figure below is an example of setting the "Exec. Pre-shutdown operation".
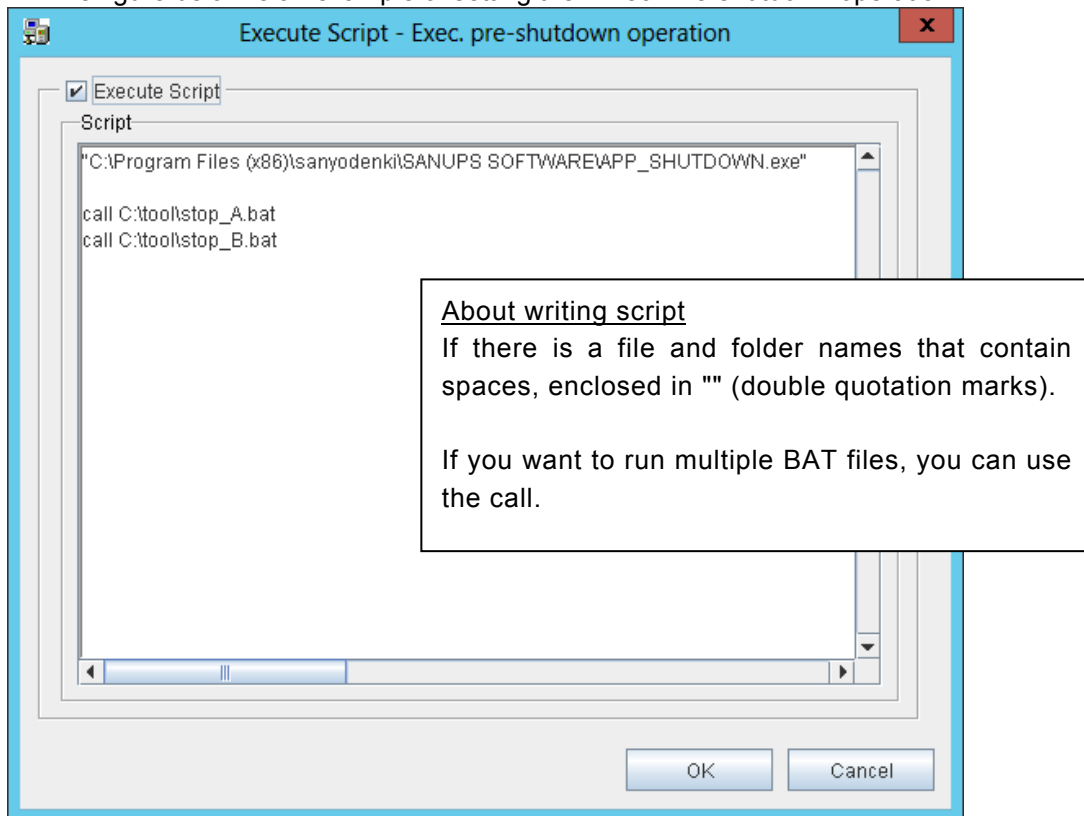
To set the process to perform (for example, ending of a database or applications) when an event occurs, click the OK button.

[4] After you have finished configuring the script settings, click the Update button to reflect the changes to the content.

The edited settings are executed from a file that is saved on the computer.
With Windows, scripts can be edited in batch file descriptions.
With Linux/UNIX, scripts can be edited in shell script file descriptions.

When controlling an interactive application with scripts on **Windows Server 2008 R2** or **Windows 8** and later versions of the Windows operating system, you must start up Interactive Services Detection (ISD).

With **Windows**, the **SANUPS SOFTWARE** operates under the local system account permissions.
The following types of commands cannot be executed.
・Commands with the screen display
・Commands for which execution under a different account is specified.

6.28 Shutting Down a WS

A WS can be shut down without using **SANUPS SOFTWARE**.

Shutdown method (connection method)	Form of registration on UPS control system
Use the Telnet protocol to log in to the WS and execute a shutdown (command)	Registered as "WS (Telnet connection)"
Use a terminal connection to connect the serial port of the LAN interface card and the serial port of the WS, log in to the WS, and execute a shutdown (command)	Registered as "WS (LAN interface card log-in connection)"

The connection methods used above differ, but the process (operation) performed by the UPS control system is exactly the same.

* This page describes settings for the shutdown operation, but as described in Section 6.27 , "Performing a Specific Process when an Event Occurs". you can set the command to execute for each event.

（A） Explanation of settings

> **Conditions of Use**
> In the case of a WS(Telnet connection), the WS must be able to accept a "Telnet log-in" from a remote device. In the case of a "log-in connection," the serial port of the WS must be able to accept a console log-in from an external device.

(1)   Select [Event settings] on the [Computer] tab.
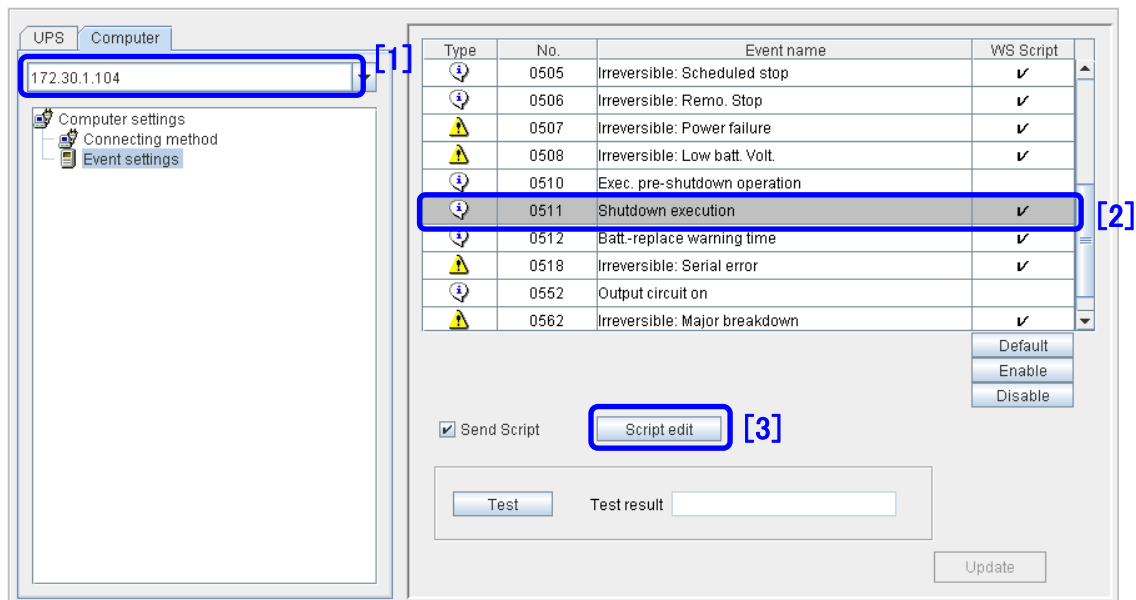
[1]   Select a WS (Telnet connection) or WS (LAN interface card log-in connection) device, and select [Event settings] .

[2]   Select the event to set. (In the screenshot above, the [Shutdown execution] event is selected.)

[3]   Click the Script edit button to display the following WS script settings screen.

Shutting Down a WS
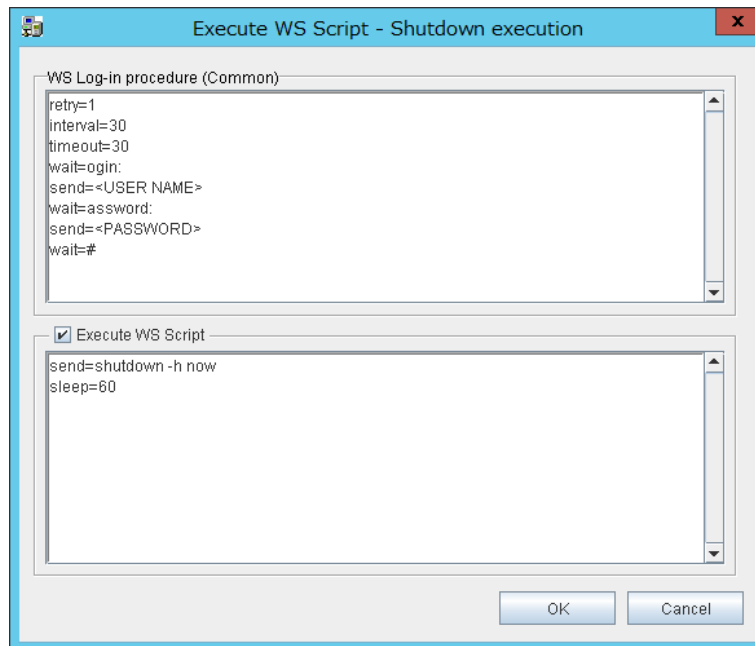
（B） About setting a WS script

● **WS log-in procedure**

Enter the WS log-in process for when an event script is executed. (Common to all events)

> **Information**
> Since the WS log-in procedure is a common procedure, it is not possible to register multiple log-in procedures on one WS.
> If there is an event that you want to execute with another user account, include an instruction to change the user account in the WS script for that event.

Line	Log-in script		Description
1	retry=1	←	Specify the number of retries for when execution of the script fails.
2	interval=30	←	Specify the interval (in seconds) for starting retries.
3	timeout=30	←	Maximum number of seconds to wait for reception of specified character data for "wait=" part.
4	wait=ogin:	←	Wait for log-in input prompt.
5	send=<USER NAME>	←	Send log-in name.
6	wait=assword:	←	Wait for password input prompt.
7	send=<PASSWORD>	←	Send password.
8	wait=#	←	Wait for log-in complete prompt from the WS. (Wait for display of prompt.)

In lines 1 to 3, the log-in script operation is set.
In lines 4 to 5, the log-in name is set.
In lines 6 to 7, the password is entered.
In line 8, the script waits for the log-in to complete (in order to display the # prompt if the log-in is a success).

List of Commands to Use for the WS Log-in Procedure

Command name	Description	Example of use
send	Set the character string to be sent to the WS.	send=shutdown
wait	Set the character string (prompt) to be received by the LAN interface card or the **SANUPS SOFTWARE** server.	wait=login
sleep	Set the time to stand by without performing any process. The unit is seconds (s).	sleep=90
timeout	Set the time to wait for a process that has been executed to end. The unit is seconds (s). The default value is 30 seconds.	timeout=60
retry	Set the number of retries when a script fails. The unit is times. (The valid range is 0 to 10 times.) The default value is 1 time.	retry=2
interval	Set the interval for retries when a script fails. The unit is seconds. (The valid range is 1 to 60 times.) The default value is 30 seconds.	interval=10
poet	Specify the Telnet port number on the WS side. The valid range is 0 to 65,535. If this is omitted, port 23 is used.	Ex: port=10023
cr_only	Set <CR> for the line break code. The setting value is "yes" or "no." If "yes" is set, the line break code for data sent after that is <CR>. If this is omitted, operation is performed as if "yes" was set. (The line break codes are <CR>.)	cr_only=yes cr_only=no

binsend	Set the 8 bit code to be sent to the WS side.
	Valid range
	Hexadecimal display: x00 to xff
	Octal display: 000 to 377
		Hexadecimal display
		  binsend=x07
		Octal display
		  binsend=004

keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range from 0 to 65,535 The following duration is used if omitted. WS(Telnet): 0 second	keep_time=120

* The existence of spaces before and after "=" will have no effect on processing.

Set a script within 510 single-byte characters (255 double-byte characters).

● **WS Script**

Enter the script process to be performed by the WS for each event.

> The term "script" mentioned here differs from the shell scripts used in UNIX, etc. It is used here to refer to a description of a series of operations to, for example, send a command to a computer.

Ex: send=shutdown -h now ← Send the shutdown command
  sleep=60 ← Wait for 60 seconds.
   (Waiting for log-out to be performed.)

List of Commands to Use for WS Scripts

Command name	Description	Example of use
send	Set the character string to be sent to the WS.	send=shutdown
wait	Set the character string (prompt) to be received by the LAN interface card or the **SANUPS SOFTWARE** server.	wait=login
sleep	Set the time to stand by without performing any process. The unit is seconds (s).	sleep=90
timeout	Set the time to wait for a process that has been executed to end. The unit is seconds (s). The default value is 30 seconds.	timeout=60
retry	Set the number of retries when a script fails. The unit is times. (The valid range is 0 to 10 times.) The default value is 1 time.	retry=2
interval	Set the interval for retries when a script fails. The unit is seconds. (The valid range is 1 to 60 times.) The default value is 30 seconds.	interval=10
cr_only	Set <CR> for the line break code. The setting value is "yes" or "no." If "yes" is set, the line break code for data sent after that is <CR>. If this is omitted, operation is performed as if "yes" was set. (The line break codes are <CR>.)	cr_only=yes cr_only=no

binsend	Set the 8 bit code to be sent to the WS side.
	Valid range
	Hexadecimal display: x00 to xff
	  Octal display: 000 to 377
		Hexadecimal display
		  binsend=x07
		Octal display
		  binsend=004

delay	Delay the execution of the script by a specified amount of time. If there is a "delay" description within an event script, the log-in script is executed after the specified time has elapsed, and then the script is executed. The unit is seconds (s).	delay=60
keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range: 0 to 65,535 The following duration is used if omitted. WS(Telnet): 0 second	keep_time=120

* The existence of spaces before and after "=" will have no effect on processing.

Set a script within 598 single-byte characters (299 double-byte characters).

Note: When you are using a UPS with a LAN interface, you can specify a type that allows up to 50 devices to be registered. For details, refer to the user's guide for the LAN interface card.

Macro character strings that can be used in scripts

You can use macros in the character strings to be sent. If the macro character strings in the following list are specified, they will be replaced by the corresponding character strings.

Macro character string	Definition
%STOP_TIME_M%	Remaining time until recovery is impossible (minutes digit)
%STOP_TIME_S%	Remaining time until recovery is impossible (seconds digit)
%SD_DELAY_TIME%	Shutdown delay time set on the UPS (seconds)
%BAT_CHG_MON%	Remaining months until battery replacement

About the Descriptions of the Log-in Script

Depending on the environment used, you may not be able to directly log in as a user with super user (root) privileges.

In such a case, use the "su" command to change to the root user to execute commands. The following is an example of a log-in script description for when the "su" command is used. Log-in example for ordinary user (user name: guest, password: guest) or root (password: root)

Line	Log-in Script	Description
1	retry=1	Set the operation of the log-in script.
2	interval=30	
3	timeout=30	
4	wait=ogin:	Ordinary user: Log in as guest
5	send=guest	Here, enter guest for the log-in name.
6	wait=assword:	Ordinary user: Enter the password for guest.
7	send=guest	Password: guest.
8	wait=$	Wait for $ prompt display after log-in.
9	send=su	Send the "su" command and then execute the command."
10	wait=assword:	Enter the password for root.
11	send=root	Password: root.
12	wait=#	Wait for $ prompt display after log-in as root.

Information

If you select any event and then press the [Test] button, the WS script set for the specified event is tested. The test does not generate an actual event. It just enables you to confirm whether the WS script is set correctly.

If there is still information to be updated, click the [Update] button again and then wait until updating of the information is complete before beginning the test.

If a WS script is set, you can perform the test even if the [Send Script] checkbox is not selected.

The result of the test is displayed in [Test result], but make sure that the script is actually executed correctly on the specified WS. Furthermore, if the script fails to send, check the details in the event log in [Failed to send Script] of [Event-Log (UPS)viewer]. For details, refer to the following description.

Details: E=XXXX, X=YZ

E=XXXX: Indicates the event number

X=YZ   X: Script type, Y: Occurrence line, Z: Cause

        Script Type

           L: Log-in procedure

           S: WS script

       Cause

           T: Timeout occurred

           F: Format error (wrong script description format)

6.29 When there is LAN communication trouble with the UPS, shutdown the computer

Power supply status cannot be monitored if trouble occurs during LAN communication between the UPS (either in server/client configuration or in LAN interface card configuration) and computer.

With [Computer setting] tab - [UPS monitoring interval], you can select whether or not to shut down automatically when there is LAN communication trouble with the UPS.

(Default: Do not shutdown automatically.)
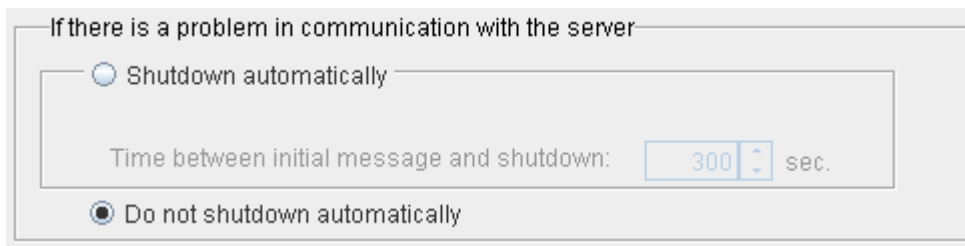
(Above is an excerpt from [Computer setting] tab – [UPS monitoring interval] page.)

Operation during communication trouble		Content
Shutdown automatically.		When there is communication trouble, it will shutdown the computer automatically as a security measure.
	Time between initial message and shutdown.	Set the delaying time until starting the shutdown procedure. (Default value: 300 seconds.)
Do not shutdown automatically.		When there is communication trouble, it will not shutdown the computer automatically.

Further, when using a LAN interface card that supports the UPS linkage function, you can set the "UPS counts of a communication error" when a computer is connected to multiple UPS units so that shutdown takes place when communication trouble occurs with more than the set number of UPS units.
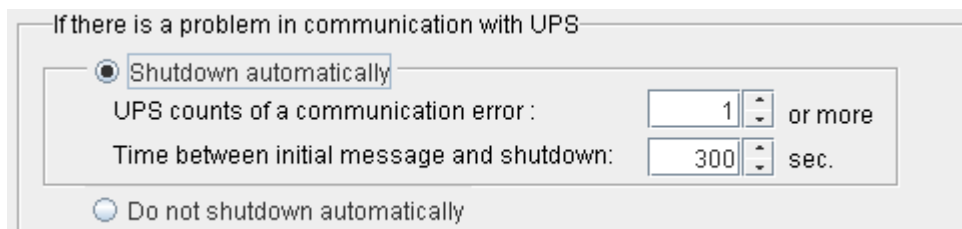
6.30 Shutting Down Connecting Devices in Order

These settings can only be set on a computer with **SANUPS SOFTWARE** installed.

You can set the shutdown wait time for each computer.
When set, the timing of computer shutdown is offset by the amount of time specified, allowing computers to be shut down sequentially.

Select [UPS monitoring interval] on the [Computer] tab.
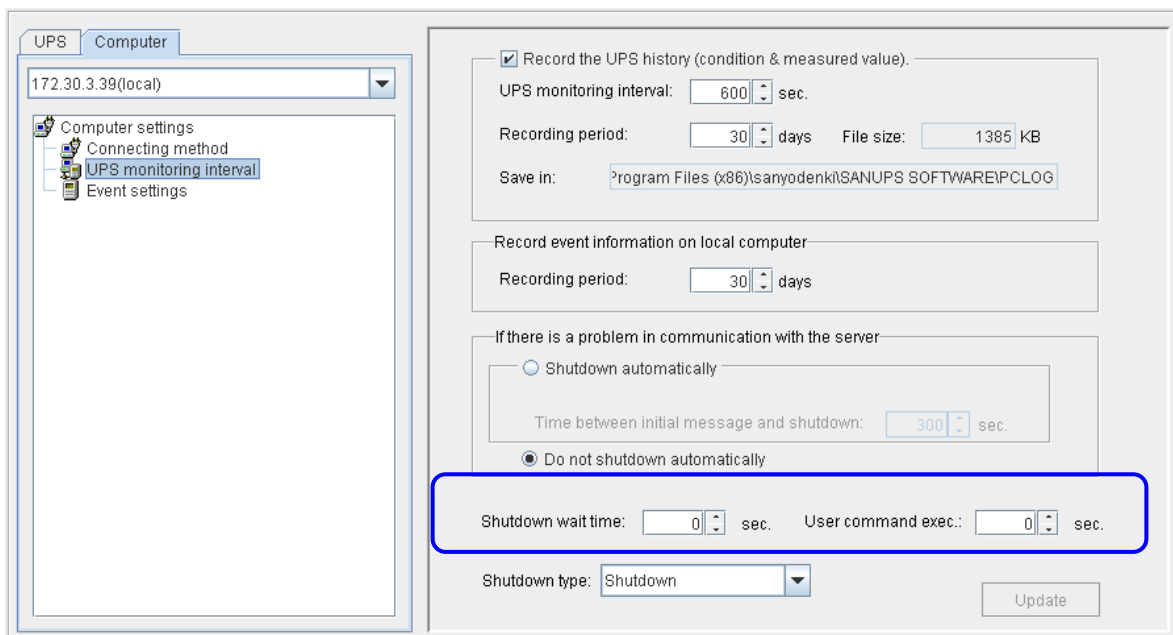
You can set [Shutdown wait time] and [User command exec.] for each computer on the screen above. (The default settings are all 0 sec.)

[Shutdown wait time]:	This is the wait time from the issuing of the [Shutdown execution] event after the shutdown delay time elapses until the executing of the script registered for [Shutdown execution].
[User command exec.]:	The delay between end of the shutdown wait time and the beginning of shutdown processing. If there is any script registered for the [Shutdown execution] event, it is executed at this time.

The operation sequence is shown below.
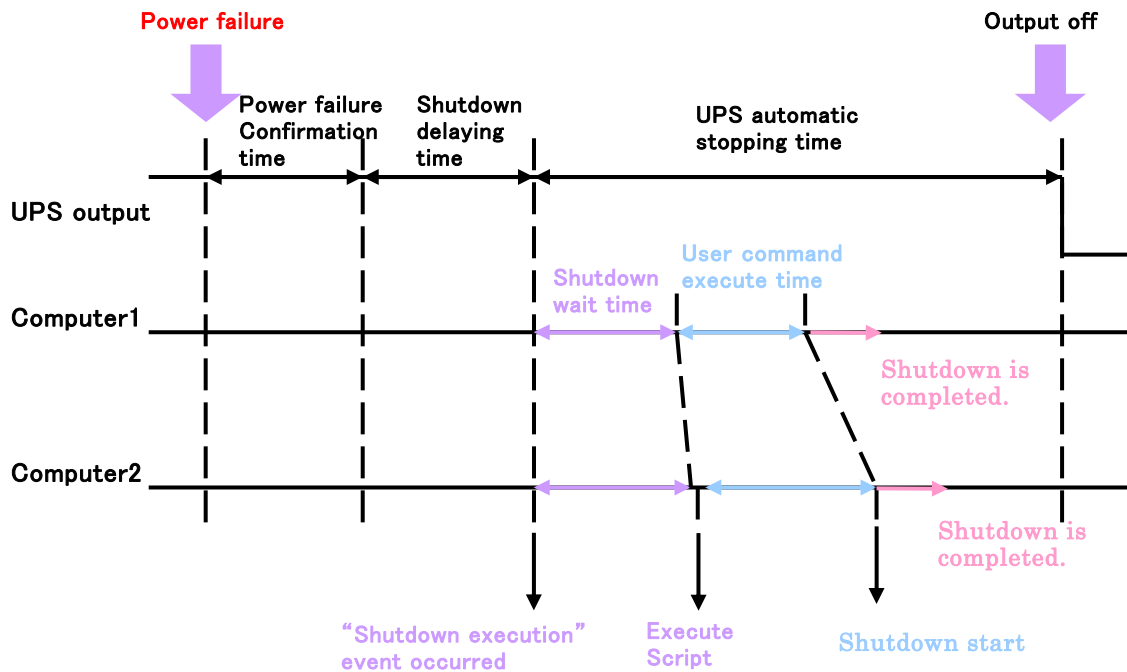
Note
The computer begins shutdown after the shutdown delay time (shutdown wait time + user command execution time) has elapsed.

Furthermore, the timing for stopping the output of the UPS is after both the shutdown delay time and UPS automatic stop time have elapsed.

With regards to the UPS automatic stop time, consideration is not given to a shutdown start delay to compensate for when you set (shutdown wait time + user command execution time). Be sure to set a sufficient amount of time for UPS automatic stop time as shown below in order to ensure that the computers can be shutdown properly before the output of the UPS is stopped.

UPS automatic stop time > (shutdown wait time + user command execution time) + time required to shutdown the computers

<Information>
Confirm shutdown sequence starting order, set shutdown wait time and user command execution time from "6.32 Confirm shutdown sequence of connected device." function.

6.31 Selecting the Computer Shutdown Method

You can select the shutdown method (shutdown type) for each computer separately.
(When using the Windows version, you can change the shutdown type. Shutdown type selection is not possible when using the Linux/UNIX version.)

Select [UPS monitoring interval] on the [Computer] tab.
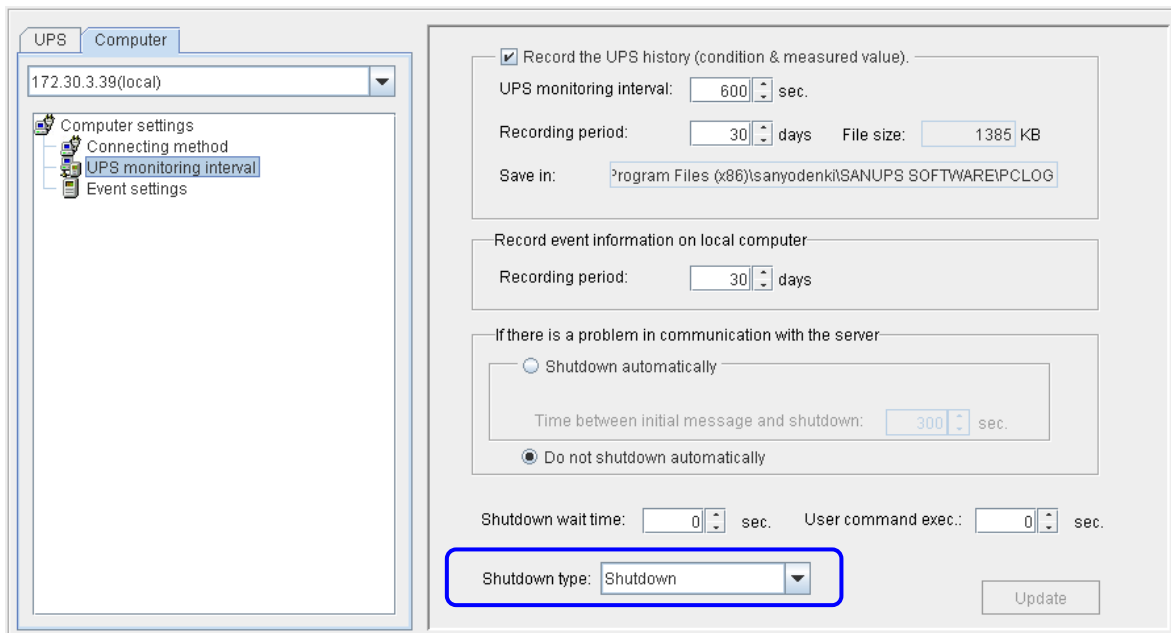
On each computer, select the [Shutdown type] pull-down list on the screen above to display a list of the available shutdown types and then select a shutdown type.

You can select one of the following shutdown types.

- **Shutdown** [Note 1]
- **Shutdown and Power OFF** (only available for the **Windows** version)
- **Hibernate** (only available for the **Windows** version)

However, only [Shutdown] may be able to be selected for [Shutdown type] in some operating systems.

> When using the Windows version, please refer to "About constraint of automatic starting function of a computer" in "Appendix A   Precautions for using Windows ". There is description about setting of the automatic start of the computer.

> When using the Linux/UNIX version, you can change shutdown operation of the **SANUPS SOFTWARE**. Please refer to "Change of shutdown command" in "Appendix H Other Q&A".

6.32 Shutdown test for registered device

Shutdown tests for client device which connect to server version of **SANUPS SOFTWARE** and client device which connect to LAN interface card are available. (If using server/client composition, server version is not covered for the test because shutdown test will be done by receiving pseudo signal from server version.)

The following three sequences shutdown test can be executed by the simulation test without an actual power failure. However, shutdown test does not run E-mail notification, SNMP trap notification, or output control.

Executing sequence	Sequence starting point	Sequence ending point
Power failure	Power failure	UPS automatic stop time pass (UPS output status is not actually controlled.)
Battery voltage low	Battery voltage low	
Shutdown	Run shutdown	

For the shutdown test, you can select and shut down the following devices (multiple selections possible). (However, don't change any setting information of the UPS or control execution during shutdown test.)

Device Type	Remakes
PC(network connection)	UPS management software / LAN interface card
PC(LAN I/F card contact connection)	LAN Interface card
WS(network connection)	UPS management software / LAN interface card
WS(LAN I/F card Login connection)	LAN Interface card
WS(Telnet connection)	UPS management software / LAN interface card
WS(SSH connection)	LAN Interface card

〔Operation procedure〕

[1] Select "Settings"－ "Detail setting" from the menu of System state screen.

[2] Select "Tool" － "Shutdown test" from the menu of Settings screen, to display Shutdown test screen.
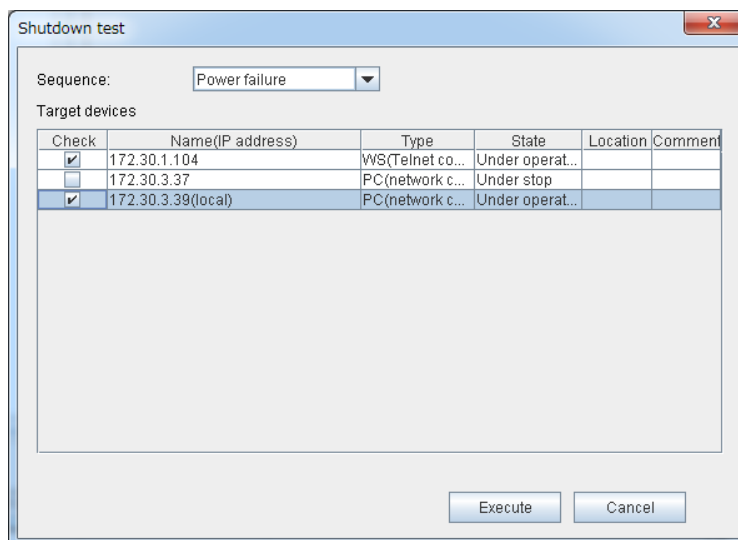
[3] Click [Execute] button after the target devices.

[4] When running Shutdown test, it is a following screen. When click the "Cancel" button, it will be able to stop.
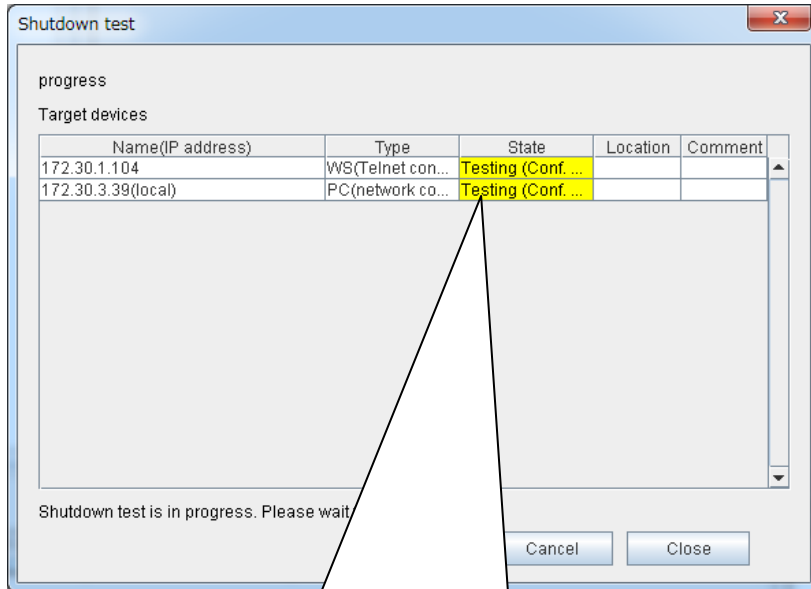
Device conditions in shutdown test are as follows.

Display	Description
Testing(Conf. PF)	Checking power failure
Testing(Wait. SD)	Shutdown delaying
Testing(Exec. SD)	Shutdown executing
Testing(Conf. SD)	Shutdown testing
Result(Success)	Shutdown test successed
Result(Failure)	Shutdown test failed
Result(Cancel)	Shutdown test canceled

About the results of shutdown test.
"Result(Success)" and "Result(Failure)" after shutdown test execution is judged by monitoring whether there is Network connection with the target device of a definite period of time.
If immediately start device after shutdown, test resuts may be "Result(Failure)".

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Shutdown test for registered device

<Shutdown test restrction>

(1) Shutdown test can not be started depending on the UPS condition. When it happens, [Shutdown test can not be started. (Error code: NN)] Message will be displayed. NN parts are actual error codes.

No.	Error code	Element
①	20	Shutdown test, mail sending test or WS script test are in execution.
②	21	Shutdown sequence is in execution due to occurrence of an unrecoverable damaged event such as a schedule abort.
③	22	Inside serial communication error.
④	23	Power failure.
⑤	25	Serious failure.
⑥	26	Overload.
⑦	27	All of devices selected in shutdown test are correspond as any follow articles and there is no available device for test. ・ Output from the outlet on the UPS that the devices are connected is off. ・ The device stops. ・ When "Power failure" is selected as the executing-sequence in shutdown test, the load devices are not connected to the outlet that is specified as shutdown trigger at the power failure. （Refer to "6.11 Make Settings Related to UPS Operation"） ・ If the "battery voltage low" is selected as the shutdown execution sequence, "Shutdown when the low battery voltage occurs" is not specified as the shutdown trigger.

(2) Shutdown test will be canceled forcibly, if any of (1)② to ⑥ condition occurs during shutdown test executing.

(3) E-mail notification, SNMP trap notification or UPS output control are not executed on the shutdown test.

(4) When the device type is "PC(LAN I/F card contact connection)", shutdown can not be executed. Therefore, after sending the shutdown signal, "Result(Success)" is displayed regardless of startup status of the devices. Verify whether shutdown was executed by checking the actual devices.

(5) When the device type is "WS(LAN I/F card Login connection)", shutdown can not be executed. Therefore, when the script process is finished normally, "Result(Success)" is displayed regardless of startup status of the devices. Verify whether shutdown was executed by checking the actual devices.

6.33 Confirm shutdown sequence of connected device.

This section can confirm shutdown starting order for SANUPS SOFTWARE of server/client composition or LAN interface card composition, and also can set shutdown wait time and user command execute time of each devices.

〔Operation order〕

[1] Select "Settings"-"Detail setting" from the menu of System state screen to display Settings screen.

[2] Select "Tool"-"Shutdown sequence" from the menu of Settings screen to display Shutdown sequence screen.

[3] Click T4 or T5 cell of the target device to change setting at shutdown sequence screen, enter numerical value directly and push the ENTER key. （If entered numerical value is wrong, put back to original value automatically.）

After changed T4 and T5 of each device, click update button.

Conclude the operation.

6.34 Viewing UPS Conditions and Measurement Values in Real Time

Using the "UPS real-time viewer" function, you can check the current UPS status and measurement values.

If you select [UPS Real-time Viewer] from the [View] menu of the System state screen, you can view (monitor) the condition and measurement value information of the connected UPS in real time.
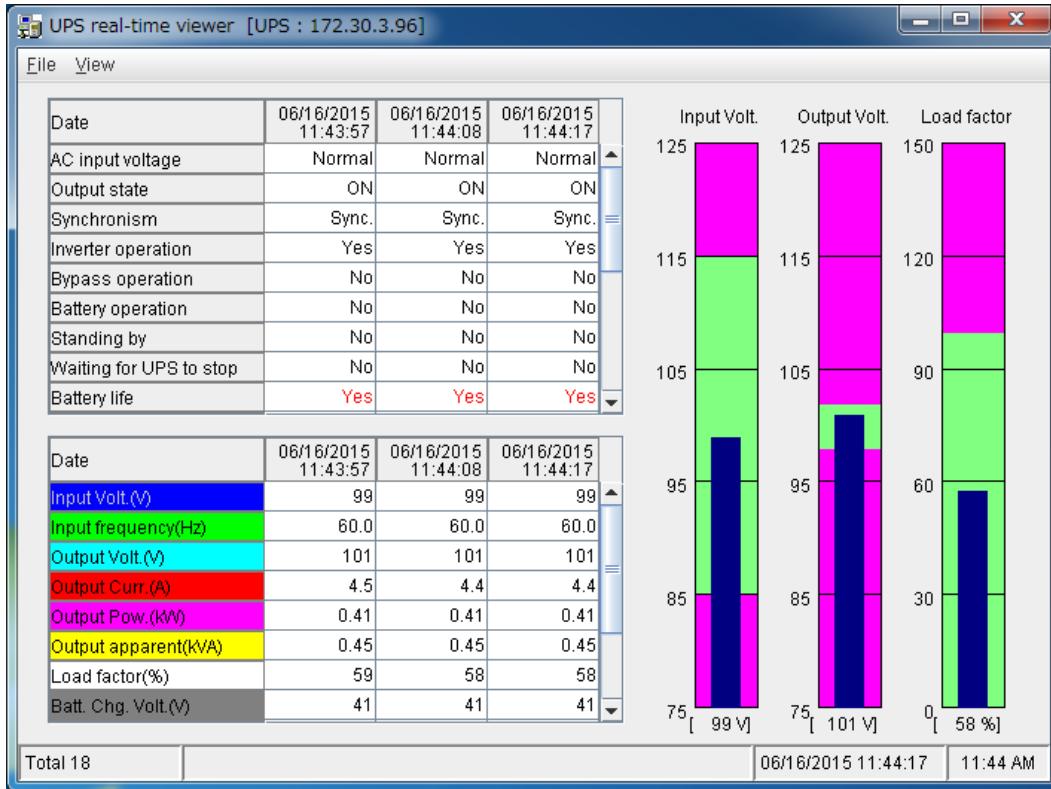
It will display the current value of **"Input voltage," "Output voltage"** and **"Load factor"** of each item in bar graphs.

It will display information on condition and measured value at every interval set.

* If UPS does not have measurement information transfer function, measurement information will not be displayed.

the contents of menu

"View" menu item	Content
Option	Displays Option page. The graph display is set up.
Type of graph	Switches between bar graph and line graph.
Interval of renewal	Switches display update interval.
Refresh	Displays the latest information compulsory.

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About the normal ranges for the input voltage and output voltage

The normal ranges for the input voltage and output voltage are indicated in lime green in the bar graph view. The initial values for the normal ranges are as follows.

• Normal range for input voltage: Within ±15% of rated input voltage

• Normal range for output voltage: Within ±2% of rated input voltage

Example:

For a rated input voltage of 100 V, the normal range for input voltage is 85 to 115 V.

For a rated input voltage of 200 V, the normal range for input voltage is 170 to 230 V.

For a rated output voltage of 100 V, the normal range for output voltage is 98 to 102 V.

For a rated output voltage of 200 V, the normal range for output voltage is 196 to 204 V.

Since the normal ranges for input voltage and output voltage differ depending on the type of UPS, be sure to refer to the Instruction Manual of the UPS and change the normal ranges if the initial values differ from the normal ranges

To change the normal ranges, select [Option] from the [View] and then change the values in the View option screen that appears.

Display Options Screen
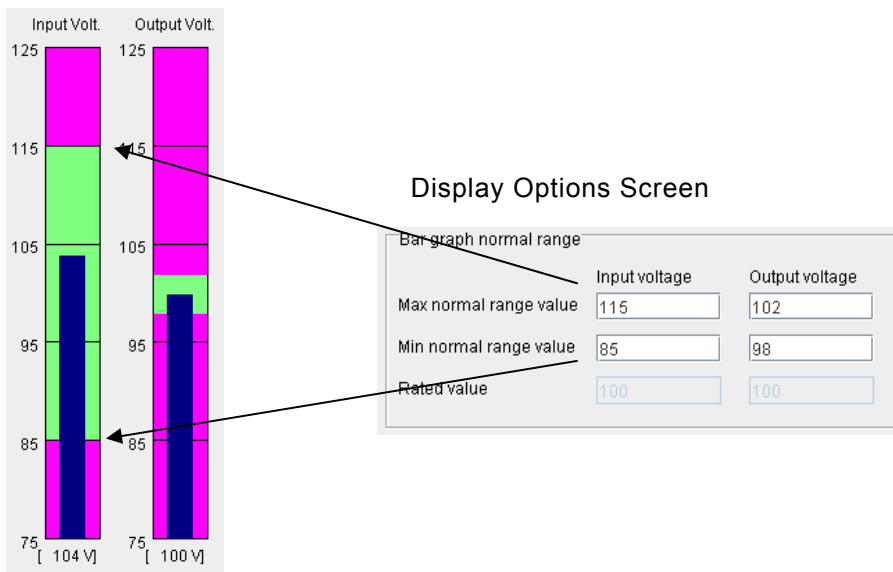
Confirmation of UPS real time viewer information from CUI command.

SANUPS SOFTWARE UNIX/Linux uses the following commands and is able to retrieve present status of UPS.

Command name : **ssrealcmd**

Overview : Output present UPS status to standard output.

Format : `ssrealcmd -a { IP address | host name| LOCAL }  [-h]`

Option description

Arguments	Function	Note
-a Point to acquire information.	Point to acquire information should be specified from the followings. (1) IP address or host name 　　Specifies LAN interface card or IP address of the device connected to SANUPS SOFTWARE server under using from network connected client device side. (2) LOCAL 　　Specifies "LOCAL", under disusing network on the device connected to SANUPS SOFTWARE.	Required
-h	Display help message. If –h is specified, all other arguments will be disable then display help message.	Optional

Usage example：
```
# ./ssrealcmd -a 192.168.1.1
```

6.35 Viewing History for Past UPS Conditions and Measurement Values

Using the "UPS history (condition & measured value) viewer," you can check for past changes in the status or measurement values of the UPS.

If you select [UPS history viewer] from the [View] menu of the System state screen, "UPS history (condition & measured value) viewer" screen will be displayed.
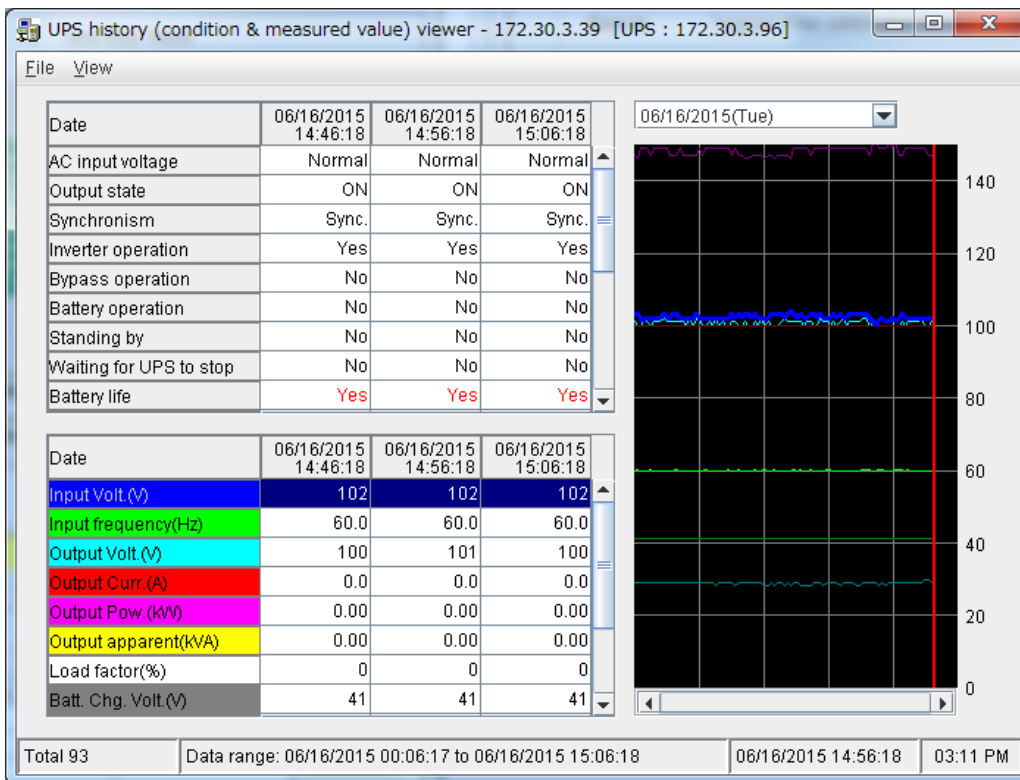
* If UPS does not have measurement information transfer function, measurement information will not be displayed.

the contents of menu

"File" menu item	Content
Delete records	Deletes the history file.
Save As	Outputs history file in CSV format. (File output page will be displayed. Specify where to output.)
Open	Reads the file saved and displays the content of the file.

"View" menu item	Content
Option	Displays Option page. The graph display is set up.
Select computer	Select remote computer and it will display history of that computer.
Refresh	Displays the latest history information.

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You can set the recording frequency and record storage period of condition and measurement values for each individual computer.

If [Record the UPS history (condition & measured value).] on the [UPS Information] setting screen of the UPS connection wizard is set or [Record the UPS history (condition & measured value)] of [UPS monitoring interval] on the [Computer] tab is set, you can acquire history information. **(History is set to be recorded at 600-second intervals for a period of 30 days by default.)**
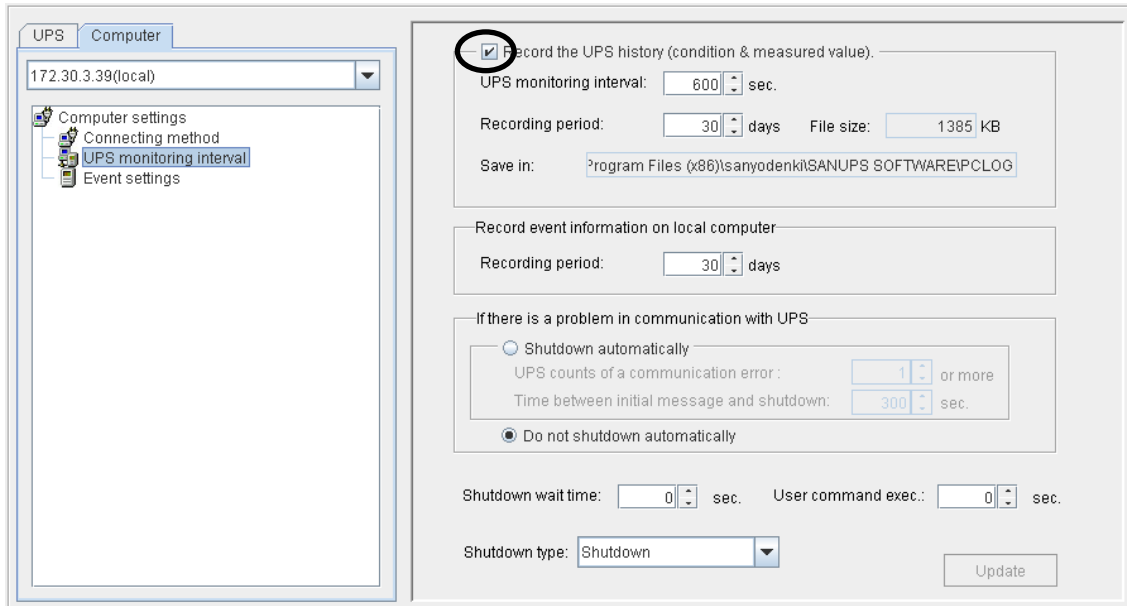
  * The screenshot above is when registered to the LAN interface card.

If you select the [Record the UPS history (condition & measured value)] checkbox, the history information is saved to the computer.

You can change the settings for **[UPS monitoring interval]** and **[Recording period]**, and specify the file size for saved data. (The size for saved data in [File size] is a rough guide.)

Note

・The history file is stored in the same location as that in which the software is installed.
・Take available disk space into account when setting the file size.
・When using the UPS linkage function to connect to multiple UPS units (LAN interface cards), the amount of space used depends on the number of UPS units that are connected.

Information

Regardless of the UPS monitoring interval, a notification is received from the UPS and stored as history if the state of the UPS changes.

Confirmation of history information of UPS status measured value from CUI command.

SANUPS SOFTWARE UNIX/Linux uses the following commands and is able to retrieve history information data of UPS status measurement value which is recorded in computer.

Command name：**sshistcmd**
Overview：Retrieving history data of UPS status measurement value which is recorded in computer under operating SANUPS SOFTWARE and output standard output or file.
Format：　sshistcmd　-a { IP address | host name | LOCAL }
　　　　　　　　　　-t target data of output
　　　　　　　　　　[-o point to output]
　　　　　　　　　　[-i output item]
　　　　　　　　　　[-u UPS name]
　　　　　　　　　　[-f CSV file name]
　　　　　　　　　　[-c Confirmation of overwriting]
　　　　　　　　　　[-h]

Option description (1 / 2)

Arguments	Function	Note
-a　Point　to acquire information	Point to acquire information should be specified from the followings. ① (1) IP address or host name 　Specifies IP address of point to acquire information under retrieving information through network for computer which is operated SANUPS SOFTWARE. (2) LOCAL 　Specifies "LOCAL", under disusing network by computer under operating SANUPS SOFTWARE.	Required
-t Target data of output	Specifies data YYYYMMDD format. ex）「-t 20090715」（Retrieving history of 2009/7/15）	Required
-o　point　to output	Specifies point to output. Specifies as "s"(standard output device) or "f"（CSV file） Regarded as "-o s" under optional.	Optional
-i output item	Specifies output item. Specifies "g"(normal display item) or "s" (SANUPS SOFTWARE compatible item）. Regarded as "-i g" under optional. "s" specification is able to use under specifying CSV file as a point to output then create CSV file which is readable by SANUPS SOFTWARE or SANUPS SOFTWARE COMBINATION.	Optional
-u UPS name	Able to specify only under SANUPS SOFTWARE client which is connected to multi UPS. Specifies connected UPS name (IP address or network name). Regarded as UPS in name ascending order.	Optional

---

Option description (2 / 2)

Arguments	Function	Note
-f CSV file name	Specifies CSV file name. (If point to output is standard output device, ignore this point.) Under optional, regarded as the following format file name. Format : [output target data] ＋ "_" ＋ [point to acquire information]＋"_" ＋[UPS name]＋".csv" （ex : 20090715_172.30.1.1_172.30.1.2.csv ）	Optional
-c Confirmation of overwriting	Specifies confirmation of overwriting under CSV file output. (If point to output is standard output device, ignore this point.) Specifies as "y" (confirmed) or "n" (unconfirmed). Under confirmation of overwriting is "n", if the same name file is already exist, overwrite without user authentication. Regarded as "-c y" under optional.	Optional
-h	Display help message. If "-h" is specified, other arguments will be all disable then display help message.	Optional

Usage example：
```
# ./sshistcmd -a 192.168.1.1 -t 20120801 -o f -f 20120801_ups01.csv -c y
```

6.36 Displaying event-log (Information maintained by UPS)

Using the Event-Log (UPS) Viewer function, you can check the UPS operation event log.

If you select [Event-Log (UPS)] from the [View] menu of the System state screen, "Event-Log (UPS) viewer" screen will be displayed.

In configurations in which the UPS is connected to a server, up to **1,000** items can be maintained in the event log.
In configurations where connection is to the LAN interface card, you can check the content of the number of event log records held by the LAN interface card. (Refer to the User Guide of the LAN interface card for the number of event log records held by the LAN interface card.)
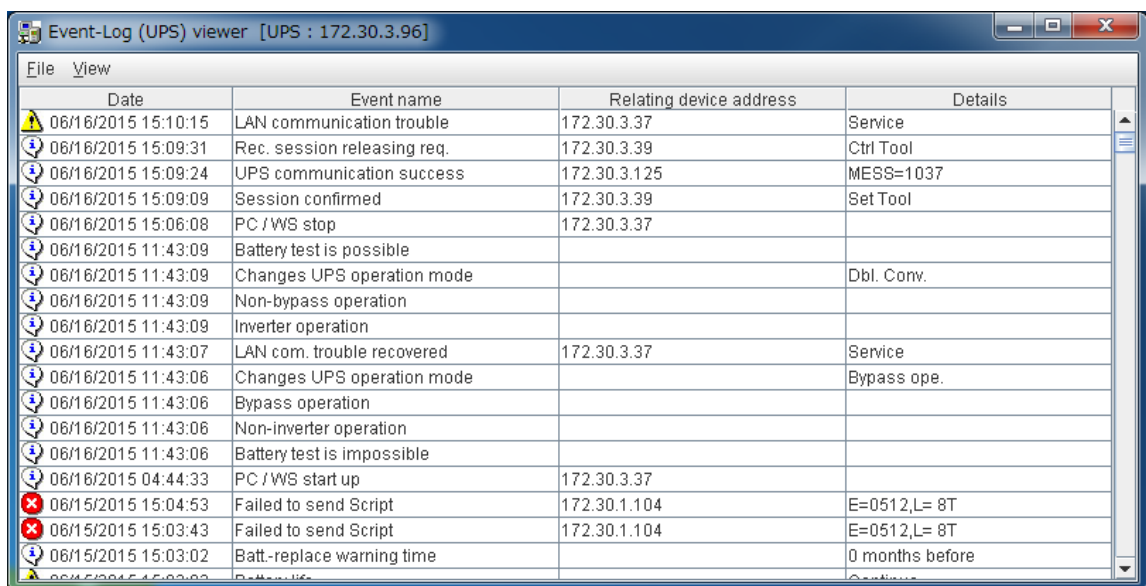
the contents of menu

"File" menu item	Content
Save As	Outputs event-log file in CSV format. (File output page will be displayed. Specify where to output.)
Open	Reads the event-log file that has been output. (File reading page will be displayed. Specify the file to read.)

"View" menu item	Content
Sort	Sets sorting order of displayed content.
Refresh	Displays latest event-log.

<About Detailed Content of Setting Modification Event>

"0x????????" (hexadecimal display) of detailed content of the setting modification event indicates for which items the settings have been modified. An item for which the setting can be modified is assigned to each of the 32 bits and 1 is set for the bit of an item that has been modified. The assignment for each bit is as follows. For details on each item, contact Sanyo Denki.

Upper 16 bit	31－28				27－24				23－20				19－16			
	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Setup change item	(Unused)	SSH client information	UPS linkage	Meas. data	syslog information	SSH client common key info.	Connection Dev. SSH information	Auto. Batt. Check Information	(Unused)	(Unused)	(Unused)	(Unused)	Encryption information	Service information	Contact polarity information	E-mail information

Lower 16 bit	15－12				11－8				7－4				3－0			
	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Setup change item	Threshold information	SNMP information	E-mail notice information	WS event script information	WS login script information	Event message information	event-log information	Statistical graph display information	NTP information	Schedule operation information	Schedule operation condition	Connection device information	System manage information	System control information	Clock information	Account information

(Example 1) When the clock information was changed

   Details：0x0000000<u>2</u>

(Example 2) When the scheduled operation condition (enable/disable) and the scheduled operation information (weekly/specific day schedule) were changed.

   Details：0x000000<u>6</u>0

Displaying event-log (Information maintained by UPS)

Confirmation of event log (UPS) information from CUI command.

SANUPS SOFTWARE UNIX/Linux uses the following commands and is able to retrieve event log of LAN interface card or UPS log which is recorded in device connected to SANUPS SOFTWARE server.

Usage command name：**ssupslogcmd**
Overview：Standard output event log of LAN interface card or UPS information of device connected to SANUPS SOFTWARE server, or output to the file.

```
Format: ssupslogcmd   -a { IP address | host name | LOCAL }
                      [-o Point to output]
                      [-f CSV file name]
                      [-c Confirmation of overwriting]
                      [-h]
```

Option description

Arguments	Function	Note

-a Point to retrieve information	Specifies the following point to retrieve information.
	(1) IP address or host name
	   Specifies LAN interface card or IP address of device connected to SANUPS SOFTWARE server.
	(2) LOCAL
	   Specifies "LOCAL", under disusing network by computer under operating SANUPS SOFTWARE.
		Required

-o Point to output	Specifies point to output. Specifies "s" (standard output device) or "f" (CSV file). Regarded as "-o s" under optional.	Optional
-f CSV file name	Specifies CSV file. (If point to output is standard output device, ignore this point.) Regarded as the following format file name under optional. Format : [upslog]＋"_"＋[point to retrieve information]＋".csv" （ex : upslog_172.30.1.10.csv）	Optional
-c Confirmation of overwriting	Specifies confirmation of overwriting under CSV file output. (If point to output is standard output device, ignore this point.) Specifies as "y" (confirmed) or "n" (unconfirmed). Under confirmation of overwriting is "n", if the same name file is already exist, overwrite without user authentication. Regarded as "-c y" under optional.	Optional
-h	Display help message. If "-h" is specified, other arguments will be all disable then display help message.	Optional

Usage example：
```
# ssupslogcmd -a 192.168.1.1 -o f -f upslog_192.168.1.1.csv -c y
```

6.37 Displaying event-log (Information maintained by computer)

Using the Event-Log (Computer) Viewer function, you can check the event log record on each computer.

If you select [Event-Log (computer)] from the [View] menu of the System state screen, "Event-Log (computer) viewer" screen will be displayed.
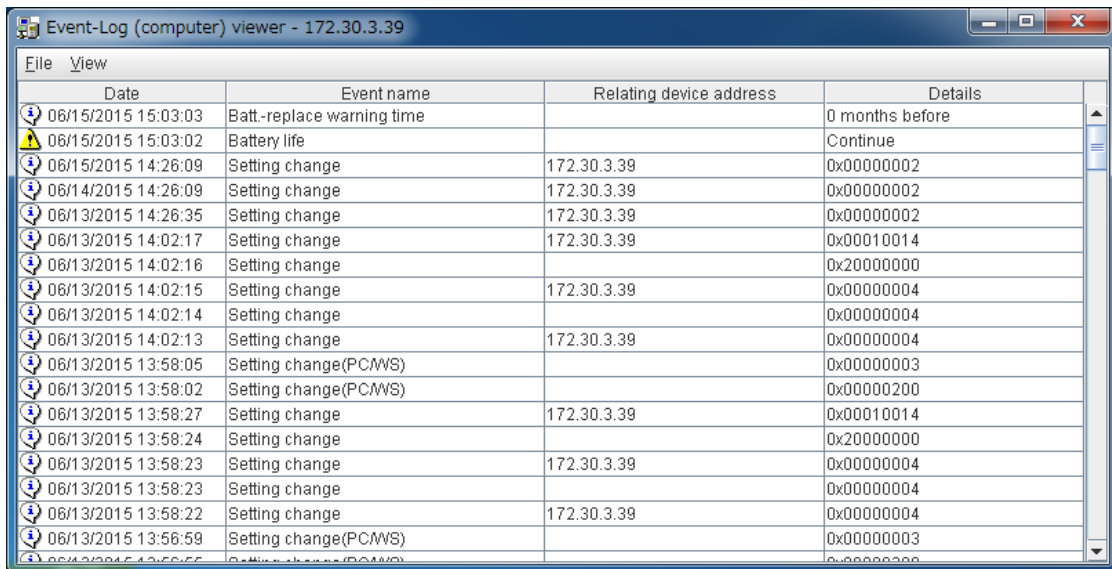
the contents of menu

"File" menu item	Content
Delete event-Log	Deletes event-log.
Save As	Outputs event-log file in CSV format. (File output page will be displayed. Specify where to output.)
Open	Reads the event-log file that has been output. (File reading page will be displayed. Specify the file to read.)

"View" menu item	Content
Sort	Sets sorting order of displayed content.
Selection of computer	Select remote computer and it will display event-log on that computer.
Refresh	Displays the latest event-log.

Selection of computer

When multiple computers are connected to a UPS, If you select "Selection of computer" menu, page shown on right will be displayed. It will display event-log of the computer that was selected from the list of computers.
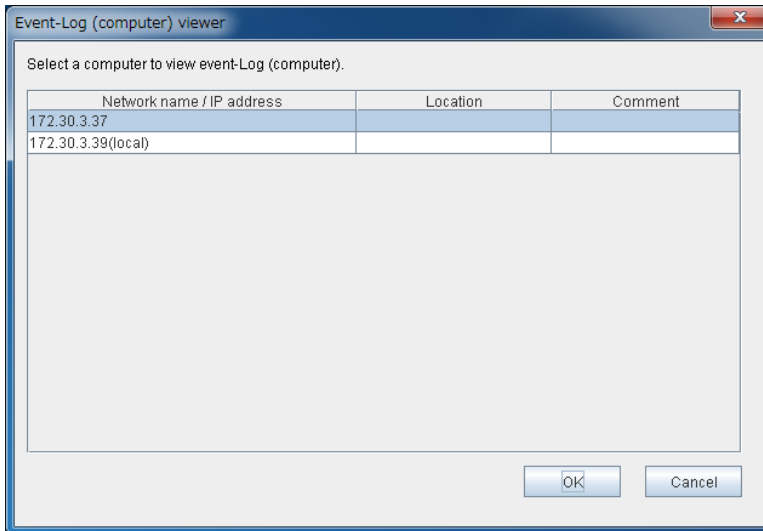
Display of (local) indicates the local computer.

The event log recording period can be set for separately for each computer.

The default recording period is 30 days.

<About Detailed Content of Setting Modification(Computer) Event (No.1109)>
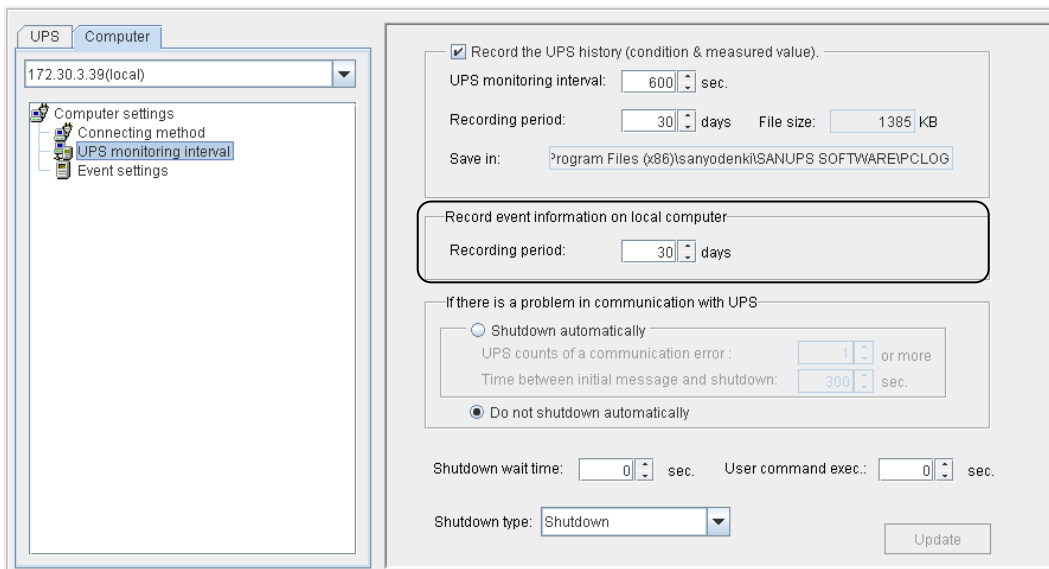
"0x????????" (hexadecimal display) of detailed content of the setting modification (Computer) event (Event No. 1109) indicates for which items the settings have been modified. An item for which the setting can be modified is assigned to each of the 32 bits and 1 is set for the bit of an item that has been modified. The assignment for each bit is as follows. For details on each item, contact Sanyo Denki.

Upper 16 bit	31－28				27－24				23－20				19－16			
	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Setup change item	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)

Lower 16 bit	15－12				11－8				7－4				3－0			
	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Setup change item	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	(Unused)	Shutdown type information	(Unused)	Event script Info.(Computer)	Event message Info.(Computer)	Log-event information	Send message information	Computer Ope. Hist. Info. delete	Log recording information	Connection UPS information

(Example) When the log recording information was changed

　　Details：0x0000000<u>2</u>

Confirmation of event log (computer) information from CUI command.

SANUPS SOFTWARE UNIX/Linux uses the following commands and is able to retrieve log which is recorded in computer operating SANUPS SOFTWARE.

Usage command name：**sspclogcmd**
Overview : Standard output operation log information which is recorded in computer operating SANUPS SOFTWARE or output to file.

```
Usage name :  sspclogcmd  -a { IP address | host name | LOCAL }
                      [-o point to output]
                      [-f CSV file name]
                      [-c confirmation f overwriting]
                      [-h]
```

Option description

Arguments	Function	Note
-a Point to retrieve information	Specifies point to acquire information from the followings. (1) IP address or host name 　Under using computer which is connected to network, specifies IP address of point to acquire information which retrieves information through network. (2) LOCAL 　Specifies "LOCAL", under disusing network by computer under operating SANUPS SOFTWARE.	Required
-o Point to output	Specifies point to output. Specifies as "s" (Standard output device) or "f" (CSV file). Regarded as "-o s" under optional.	Optional
-f CSV file name	Specifies CSV file name. (If point to output is standard output device, ignore this point) Regarded the following format file name under optional. Format : [pclog]＋"_"＋[Point to acquire information]＋".csv" （ex : pclog_172.30.1.10.csv）	Optional
-c Confirmation of overwriting	Specifies confirmation of overwriting under CSV file output. (If point to output is standard output device, ignore this point.) Specifies as "y" (confirmed) or "n" (unconfirmed). Under confirmation of overwriting is "n", if the same name file is already exist, overwrites without user authentication. Regarded as "-c y" under optional.	Optional
-h	Display help message. If "-h" is specified, other arguments will be all disable then display help message.	Optional

Usage example：
```
 # sspclogcmd -a 192.168.1.1 -o f -f pclog_192.168.1.1.csv -c y
```

6.38 About UPS control

If you start Control Tool, the page below will be displayed.
You can control the UPS that is connected.

Displays power supply condition of UPS output outlet. (Note1)

Displays result of battery check. (Note2)

Switches types of control.
・**Starting UPS**
・**Stopping UPS**
・**Starting battery check**
・**Stopping battery check**
(Note3)

Executes control (Note4)

Quits control procedure.

Page image when using a power distribution control UPS.

(Note1) In case of using UPS without power distribution control, it will display output
　　　　condition of "entire outlet.

(Note2) In case of using UPS without battery check function, there will be no display
　　　　of "Battery check condition."

(Note3) In case of using UPS without battery check function, both tabs of "Starting battery
　　　　check" and "Stopping battery check" will not be displayed.

(Note4) In case it is unnecessary to do that control because of such cases as all the outlets
　　　　are turned on or battery check has been started, [Execute] button will become
　　　　unusable.

6.39 Turning on / off the output of UPS

(A) Turning off the output of UPS

You can control the output of the connected UPS from the computer.
(Computer that is connected to that output outlet will shutdown automatically.)
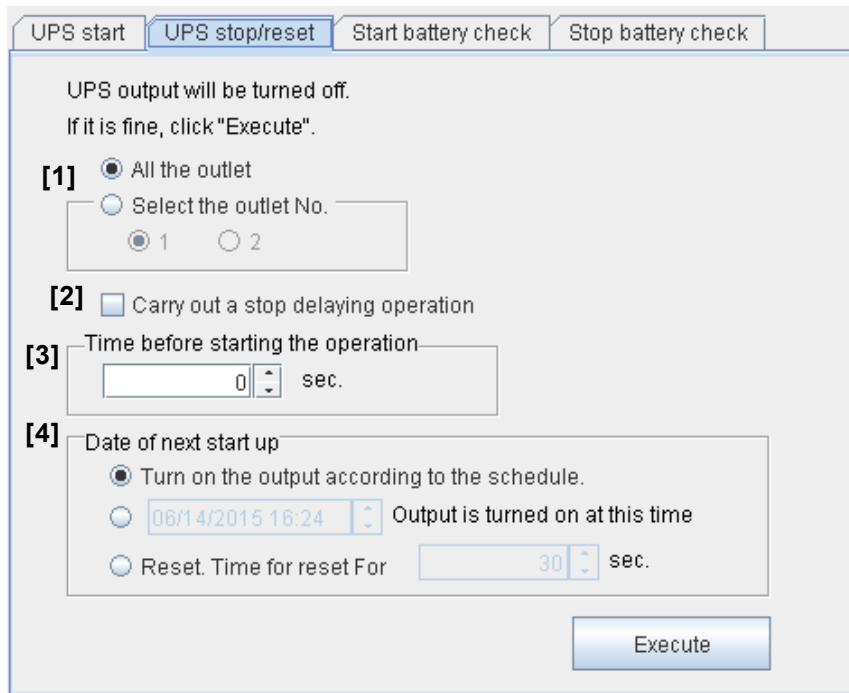
[1] Selection of outlet to control

Select the outlet to conduct stop control.

There is difference in items that can be set according to types of UPS.

Types of UPS	Outlet No.1	Outlet No.2	All the outlets
Power distribution control UPS	Setting possible	Setting possible	Setting possible
UPS other than above	–	–	Setting possible (Fixed)

(Caution) Stop control cannot be conducted on constant output outlet.

[2] Stop delay execution requirement (Default condition: Invalid)

It will conduct delay according to the content set in "Scheduled stop timing information" from [UPS setting] tab – [Standard setting] – [Control time information].

Please refer to Section 2.2.1 （3）, "Remote control sequence" for the operation of stop delay.

[3] Setting time until start of procedure (Default value: 0 second)

It will set delay time before starting the stop control.

In case of immediate stop, stop procedure will start after this set time has elapsed.

Please refer to Section 2.2.1 （3）, "Remote control sequence" for stop operation.

[4] Setting next start date

It will set when to turn on the UPS output outlet that has been turned off.

Next start control items	Content
Turn on the output according to the schedule.	When weekly or specified day's schedule is set, start at that set time. When schedule is not set (including invalid execution of the schedule), output of UPS will remain turned off.
Turn on the output on (specified day and time).	Turn on the output of UPS on specified day and time.
Reset.	Turn on the output of UPS after set "Reset time" has elapsed.

(B)   Turning on the output of UPS.

It will turn on the output of an outlet that is turned off.

It can be used only when the power distribution control UPS is used.

(In case of UPS without power distribution control, turning off of output means turning off of computer. Thus, it is prohibited to turn on the UPS output outlet.)

6.40 Performing a UPS Battery Check

If you select [Battery check] from the [UPS Control] menu on the main screen (System state screen), you can perform a battery check for the connected UPS from **SANUPS SOFTWARE**. [Note 1]

Note 1: Some models of UPS do not include support for a battery check from a remote device.

Following is the result of the battery check.

Battery test result	Explanation
Unknown	It will be set when battery check is requested.
Normal finish	Battery is normal.
Error finish	If battery check is conducted when battery capacity is small, such as after battery operation during power failure, it may become an error finish. In such case, you will need to charge the battery. If the result of the test comes out as error finish even after charging the battery, battery life (defectiveness) can be considered as the cause.
Error	Battery test cannot be conducted for some reason.
Test suspended	It will be displayed when battery check is suspended.
Testing	It will be displayed during the battery test.

(*1) When you are using UPS without battery check function, there will be no indication of "Battery check condition."

(*2) "Execute" button will become unusable during the battery check.

(*3) When you are using UPS without battery check function, there will be no indication of both "Starting battery check" and "Suspending battery check" tabs.

(*4) When the computer is contact connected to UPS, battery check cannot be conducted

If you want the battery check to be performed automatically at a fixed interval, refer to Section 6.11.4 , "[Battery] Tab".

6.41 Setting for Syslog notification

When using a LAN interface card that supports syslog notification, the syslog server can be notified of the log.

The system logs of which the syslog server is notified are those pertaining to events for which [Saving log] is selected in the [UPS setting] tab – [Event setting] screen.

〔Operation order〕

[1] Select "Settings" – "Detail" from the menu of System state screen.

[2] Select "Basic settings" – "syslog notification settings" from "UPS" of setting screen, to display setting screen.
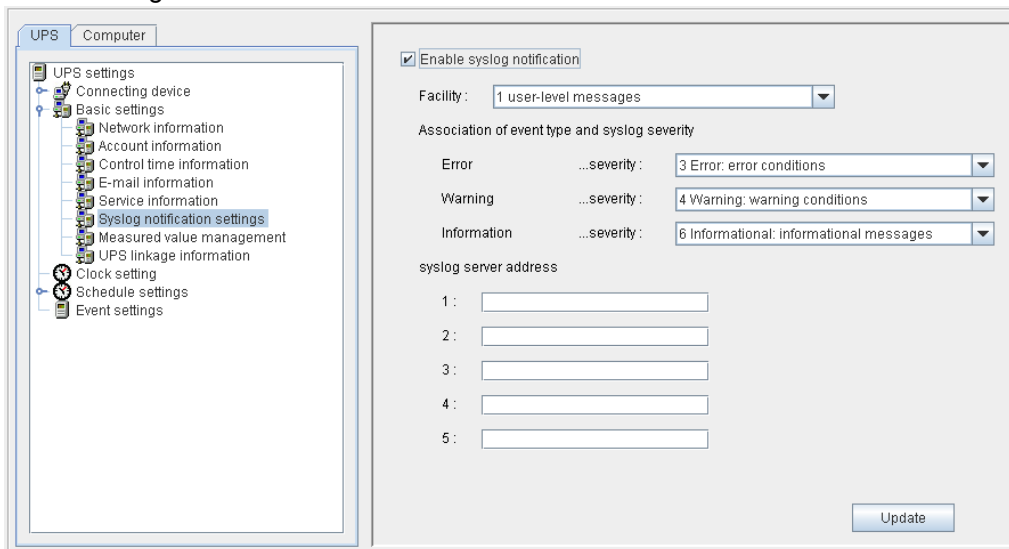
（Default uncheck "Enable syslog notification"）

〔Facility〕

Select the level of sending message from LAN interface card to the Syslog server.

It is based on "RFC3164". Select this by following the specification.

［Association of event type ans syslog severity］

Select the event type to notify Syslog server from LAN interface card.

It is based on "RFC3164". Select this by following the specification.

［syslog server address］

Set the Syslog server address to notify the event when the event occurred.

Maximum 5 addresses can be set.

＜**Testing the notification syslog**＞

Select [UPS]tab — [Event settings].

If you select any event and then press the [syslog test] button, a test syslog message is sent to syslog servers.

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6.42 Setting for measured value management

This function is available to set under using LAN interface card which supports measured value management function.

LAN interface card which has measured value management function collects measured value data and hold the data. Collection data can confirm by using Web browser.

Measured value deviation monitoring can set for the measured value for "Load factor", "UPS Temperature" and "Input Voltage" If measured value deviates from normal range, recording log or sending mail. Shutdown setting is also available for measured value deviation.

〔Operation order〕

[1] Select "Settings"-"Detail setting" from the menu of System state screen to display setting screen.

[2] Select "Basic settings"-"Measured value management" from "UPS" of setting screen.
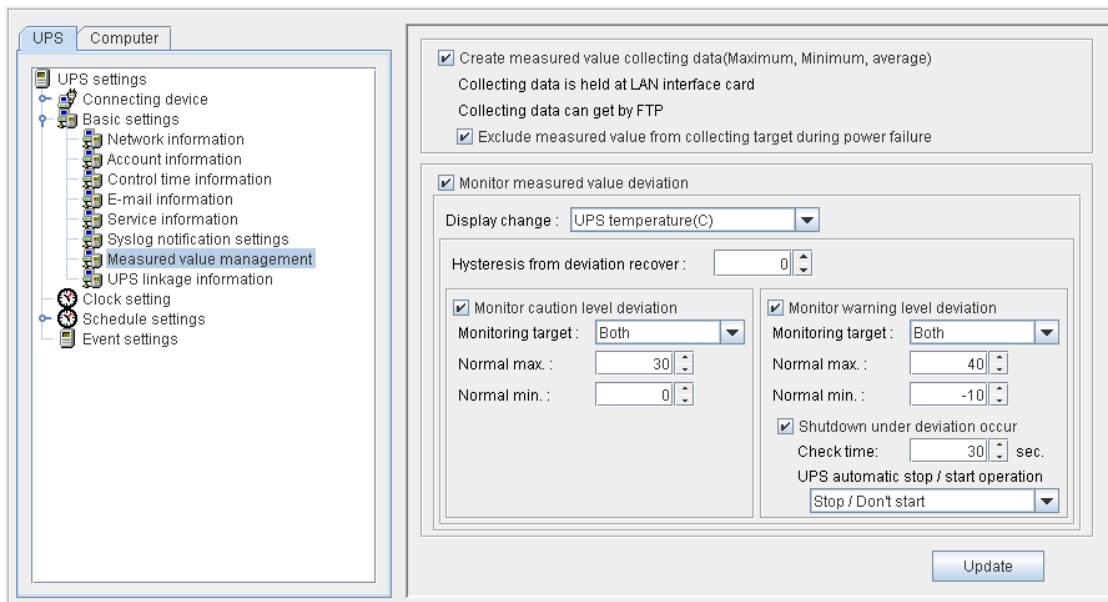
Default is uncheck "Create measured value collection data (Maximum, Minimum, avarage)" and "Monitor measured value deviation".）

If check to the [Create measured value collection data (Maximum,Minimum,avarage)]
Use Web browser to confirm collection data.
（**SANUPS SOFTWARE** can not confirm collecting data.）
Please refer to the users guide of LAN interface card about this function.

Item			Description	
Create measured value collecting data			Select this to summarize measured values.	
Exclude measured value from collecting target during power failure			This item is enabled when you select [Create measured value collecting data]. Select this if you do not want the summary data to include values taken in a power failure. If you do so, measured values for "input frequency" and "input voltage" are excluded from the summary.	
Monitor measured value deviation			Select when monitoring deviation of measured values.	
Display change			Select the subject to be monitored.	
	Load factor		The load factor of the devices connected to the UPS.	
	UPS temperature		Battery temperature; when the battery temperature is not measured, this shows the ambient temperature.	
	Input voltage		The input voltage of the UPS. Deviation monitoring is not performed while in a power failure, or when the input voltage is 30V or less.	
Monitor Caution Level Deviation			Select this to enable selecting monitoring subjects.	
	Monitored	Upper limit only	Specify the upper limit and lower limit depending on the selected value.	
		Lower limit only		
		Upper/Lower Limits		
	Normal Lower Limit		Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)	
	Normal Upper Limit		Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)	
Monitor Warning Level Deviation			Select this to enable selecting monitoring subjects.	
	Monitored	Upper limit only	Specify the upper limit and lower limit depending on the selected value.	
		Lower limit only		
		Upper/Lower Limits		
	Normal Lower Limit		Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)	
	Normal Upper Limit		Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)	
Shutdown under deviation occur			Select this if you want to shut down devices when the measured value deviated from the specified warning level range.	
Check time			Specify the confirmation time between the occurrence of the deviation and starting the shutdown process.	
UPS automatic stop / start operation			Specify whether or not to shut down the UPS after shutting down devices due to deviation of their measured values from the warning level, and whether or not to restart the UPS when the measured values returned to the specified normal range.	
Deviation Recovery Hysteresis			Specify the value to determine the recovery after the measured value deviated from the specified range. See the next page for details. Setting range: 0 to 999999 (integer)	

<u>Settings transmitted when performing UPS link configuration using a LAN interface card that supports IPv6</u>

When linking is enabled due to causes in "Synchronization setting by causes" for the UPS group settings, the following settings are transmitted to the UPS group members, and the settings for each UPS are updated.

・When "Run in sync at deviation of the load factor, UPS temperature, or input voltage" is enabled on the Synchronization setting by causes screen.

The selection status for "Shutdown under deviation occur" as well as the "UPS automatic stop / start operation" settings on this screen are transmitted.

6.43 Shutdown setting of a system made power redundancy

This section describes how to group multiple UPS on a network to implement a power redundancy system.

Up to 5 UPS can be configured as a UPS group.

These UPS perform functions in coordination such as starting up, shutting down, and scheduled operations.

(Note)

In order to use this function, the LAN interface card must support the UPS linkage function.

When you use the UPS linkage function, please use from to match the same program version in all LAN interface card. (Due to differences in program version, LAN card might specification of linkage function is different.)

The latest program of LAN interface card, it can be downloaded from SANYODENKI website.

Description of UPS linkage function

Explain an example of power redundant system composition which linkages multiple UPS.

＜Configuration example＞
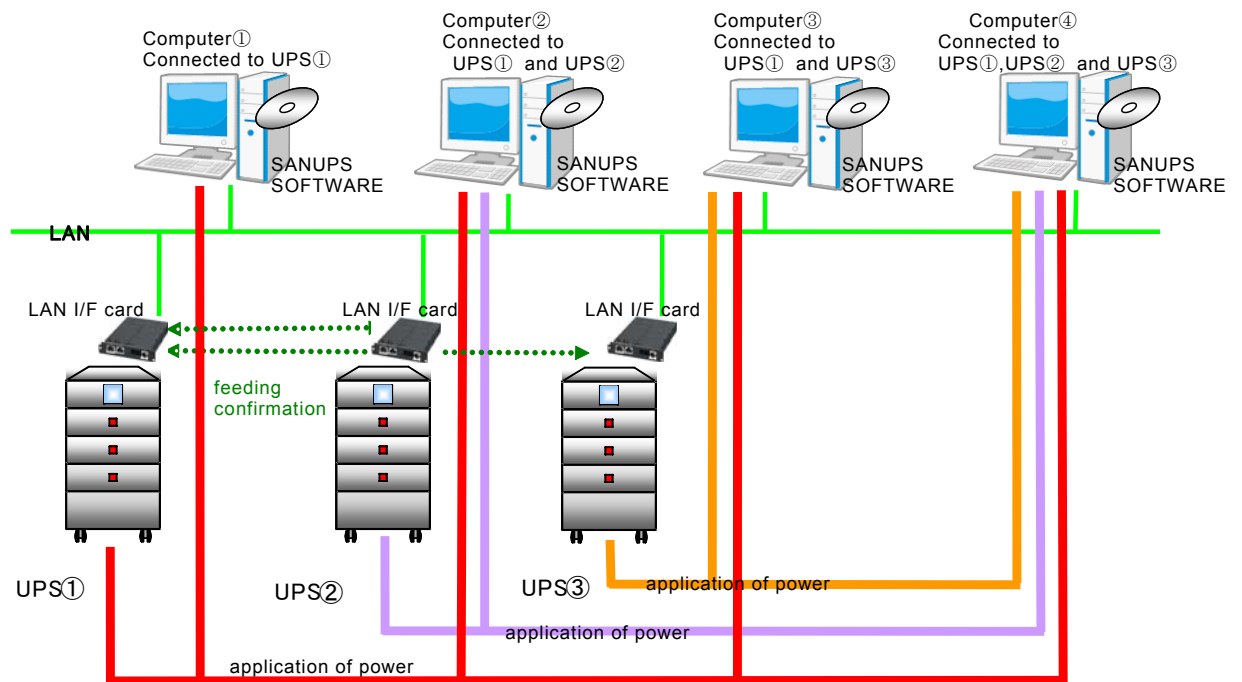
Explanation of above image

*UPS①~③ are installed LAN interface card and connected to the Network.

*Computer①~④ are connected to the same network as UPS①~③.

*Computer①~④ are installed SANUPS SOFTWARE.

*Computer① is power supplied from UPS①.

*Computer② is power supplied from UPS① and UPS②.

*Computer③ is power supplied from UPS① and UPS③.

*Computer① is power supplied from UPS①～③.

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Shutdown setting of a system made power redundancy

＜Sequence of event of a power failure＞

Computer ①
UPS①
※UPS Counts：1

SANUPS SOFTWARE

Computer ②
UPS①＋UPS②
※UPS Counts ：1

SANUPS SOFTWARE

Computer ③
UPS①＋UPS③
※UPS Counts ：2

SANUPS SOFTWARE

Computer ④
UPS①＋UPS②＋UPS③
※UPS Counts ：2

SANUPS SOFTWARE

LAN

Shutdown request

Shutdown request

feeding confirmation

UPS①

UPS②

UPS③

abnomal

application of power

application of power

application of power
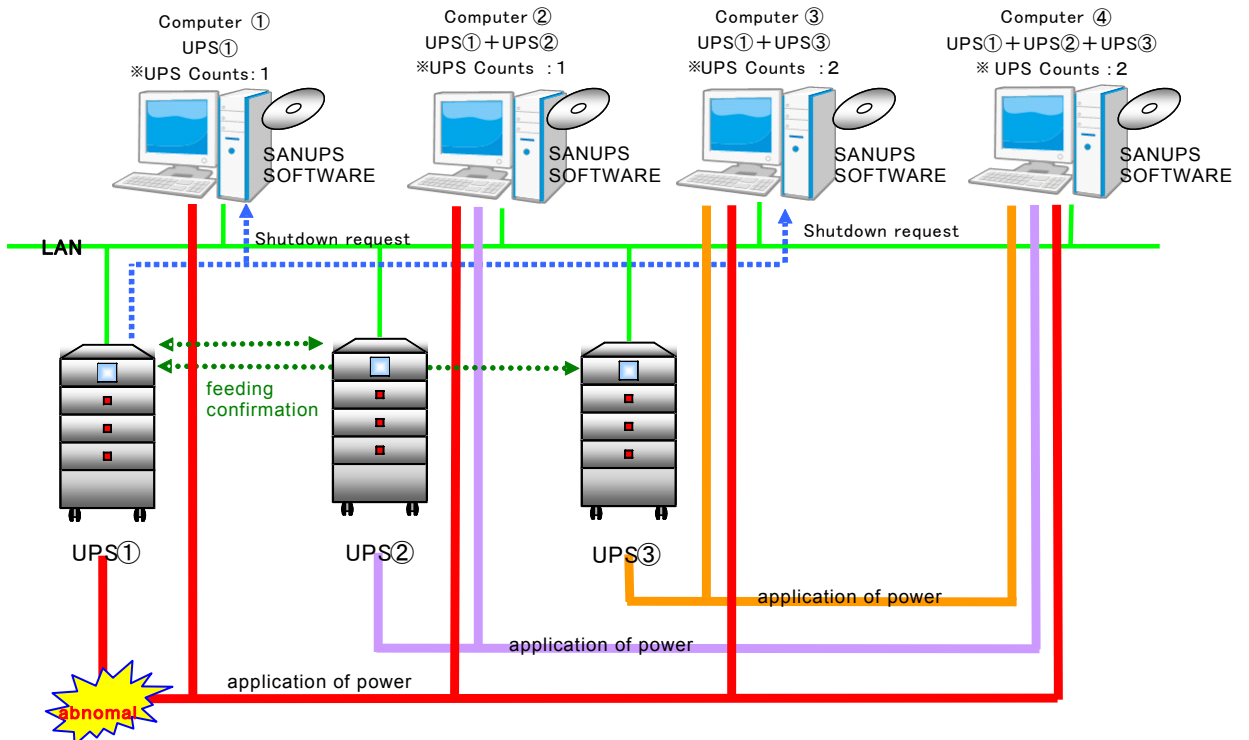
[UPS count]
The "number of UPS necessary" is the number of UPS that when the power failure, such as a power failure occurs, the power supply is normally required for the computer to continue to operate. Computer is shut down is less than that of a normal-powered UPS has set.

Operation sequence of the computer①

[UPS counts：1]
Computer① will be shutdown by UPS①, but is not connected to UPS② and UPS③.

Computer①

OFF

Commercial power supply ①

Power failure

Power failure confirmation time

Shutdown delaying time

UPS automatic stopping time

UPS① output

OFF

Events

Request continued feeding

Stop warning

Recovery impossible

Pre-shutdown operation

UPS automatic stopping time

Normal state UPS（0） ＜ UPS counts（1）
Therefore, execute shutdown.

Commercial power supply②

UPS② output

ON

Power feeding impossible
(Not registered)

Commercial power supply③

UPS③ output

ON

Power feeding impossible
(Not registered)

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Shutdown setting of a system made power redundancy

Operation sequence of the computer②

[UPS counts:1]

Computer② will keep operating by back up of UPS②.

Computer②

Commercial power supply ①

Power failure

Power failure confirmation time | Shutdown delaying time | UPS automatic stopping time

UPS① output

OFF

OFF

Events

Stop warning

Request continued feeding

Recovery impossible

Pre-shutdown operation

UPS automatic stopping time

Normal state UPS(1) ≧ UPS counts(1)
Therefore, not shutting down.

Commercial power supply②

UPS② output

ON

Power feeding possible

Commercial power supply③

UPS③ output

ON

Power feeding impossible
(Not registered)

※If UPS① is connected to shutdown target device which besides computer②, shutdown execution of those devices will be done

Operation sequence of the computer③

[UPS counts:2]

UPS③ is normally operated so it is available to backup computer③, but computer③ will be shutdown because UPS counts which can be power supplied becomes less than setting value by setting of "UPS counts" is as "2".

Computer③

OFF

Commercial power supply ①

Power failure

Power failure confirmation time | Shutdown delaying time | UPS automatic stopping time

UPS① output

OFF

Events

Stop warning

Request continued feeding

Recovery impossible

Pre-shutdown operation

UPS automatic stopping time

Normal state UPS(1) ＜ UPS counts(2)
Therefore, execute shutdown.

Commercial power supply②

UPS② output

ON

Power feeding impossible
(Not registered)

Commercial power supply③

UPS③ output

ON

Power feeding possible

If UPS① is connected to shutdown target device which besides computer③, shutdown execution of those device will also be done.

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Shutdown setting of a system made power redundancy

Operation sequence of the computer④

[UPS counts:2]

UPS① will stop, but computer④ will keep operating by backup of UPS② and UPS③. Computer④ will not be shutdown because there are two UPS which can be power supplied, against "UPS counts" setting is as "2".

Computer④   OFF

Commercial power supply①   Power failure

Power failure confirmation time   Shutdown delaying time   UPS automatic stopping time

UPS① output   OFF

Events

Request continued feeding

Stop warning

Recovery impossible

Pre-shutdown operation

UPS automatic stopping time

Normal state UPS（2） ≧ UPS counts（1）
Therefore, not shutting down.

Commercial power supply②
UPS② output   ON

Power feeding possible

Commercial power supply③
UPS③ output   ON

Power feeding possible

※If UPS① is connected to shutdown target device besides computer②, that device will be shutdown.

6.44   Making UPS linkage function settings

Make the following settings when configuring shutdown for a system that implements power redundancy using the UPS linkage function.

(1) Register connected devices for all UPS units being used to implement power redundancy. [*1]

(2) Group the UPS units being used to implement power redundancy.[*1] [*2]

(3) Set the [UPS Count] for all UPS units being used to implement power redundancy.

(*1) The settings indicated in (1) and (2) above do not have to be made in that sequence.

(*2) This setting also be made through the LAN interface card. For the setting procedure, refer to the User Guide of your LAN interface card.

(1) Register connected devices for all UPS units being used to implement power redundancy.

Register UPS units that are to supply power to computers.

〔Operation order〕

[1] Select [Settings] - [Add UPS] from the menu on the main screen (the System status screen).
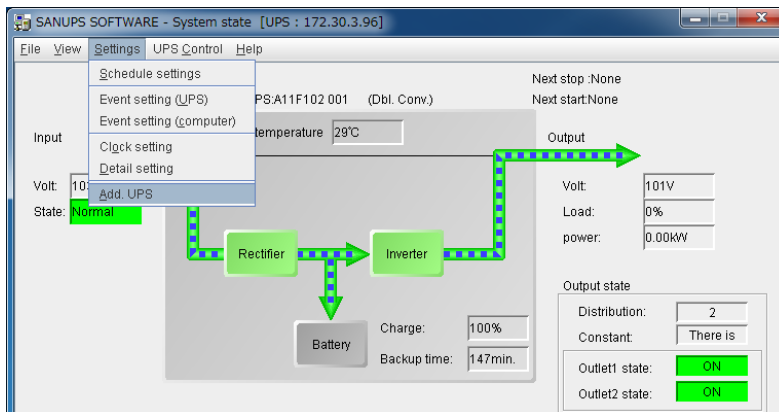
[2] The "Device connecting Wizard" screen is displayed.

From this screen, enter the IP address or network name of the UPS device to be added.

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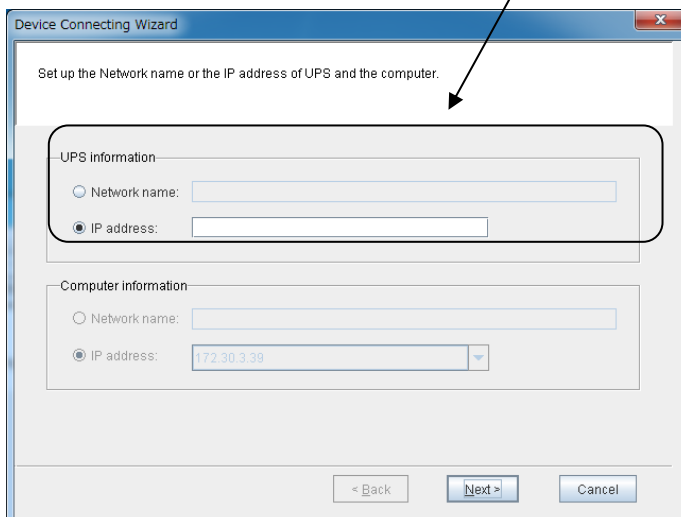
Making UPS linkage function settings

When you click the [Next] button, display changes to the UPS administrator account entry screen.
After entering the account, the Setup Wizard for registering computers to the UPS is displayed.
As you advance to the Wizard screen, the computer is registered to the UPS.

Using the [Add UPS] operation, you can register multiple UPS units (LAN interface cards) as devices in the SANUPS SOFTWARE.(The UPS linkage function allows a maximum of 5 UPS units to be registered as devices.)

Next, register a group of UPS units to be used for implementing power redundancy.

(Information)
There is a case where the message is displayed as "UPS that is not registered in the UPS group members is specified.Are you sure?".
Please complete the registration by selecting "Yes".

---

(2) Group the UPS units to be used for implementing power redundancy.

〔Operation order〕
Add the UPS units to be grouped.
From the Settings screen, select [Basic Settings] - [UPS linkage information].
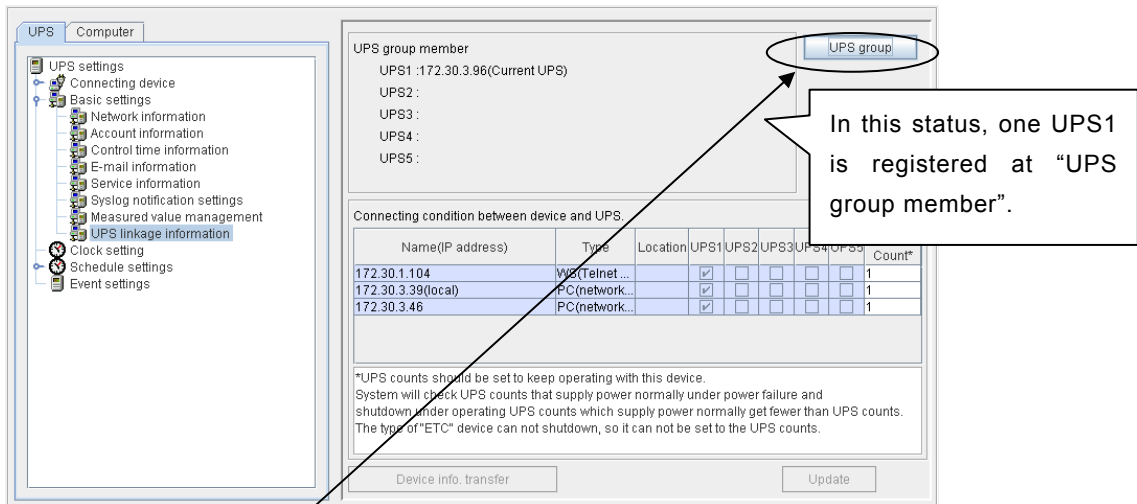
Select "UPS group" button.
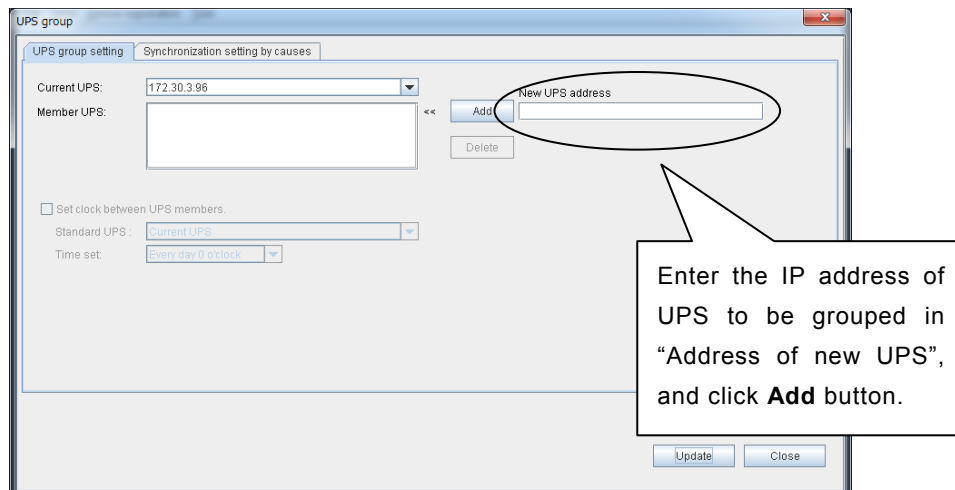
Making UPS linkage function settings
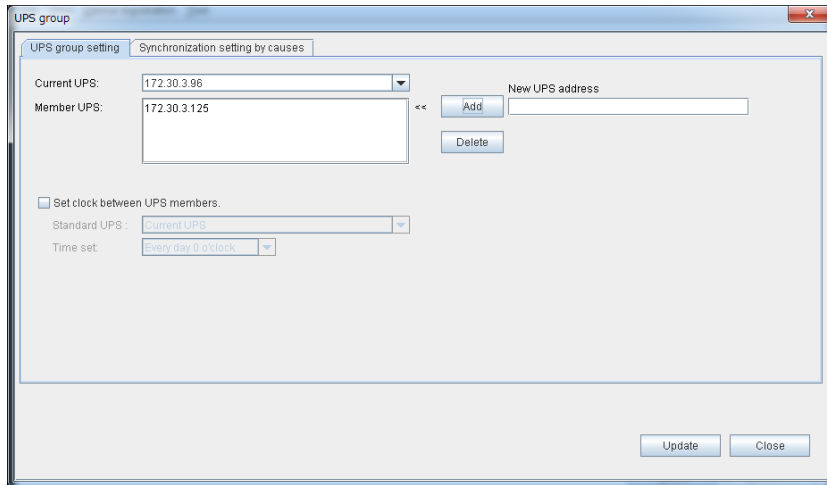
Make the required UPS group synchronization settings, and then click the [Update] button.
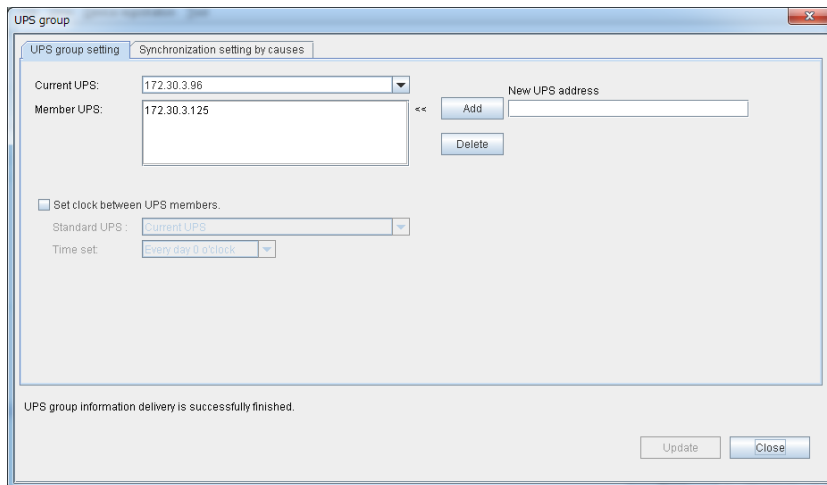
When the added UPS units have been normally grouped, the message "UPS group information delivery successfully finished" is displayed.
Click the **Close** button.
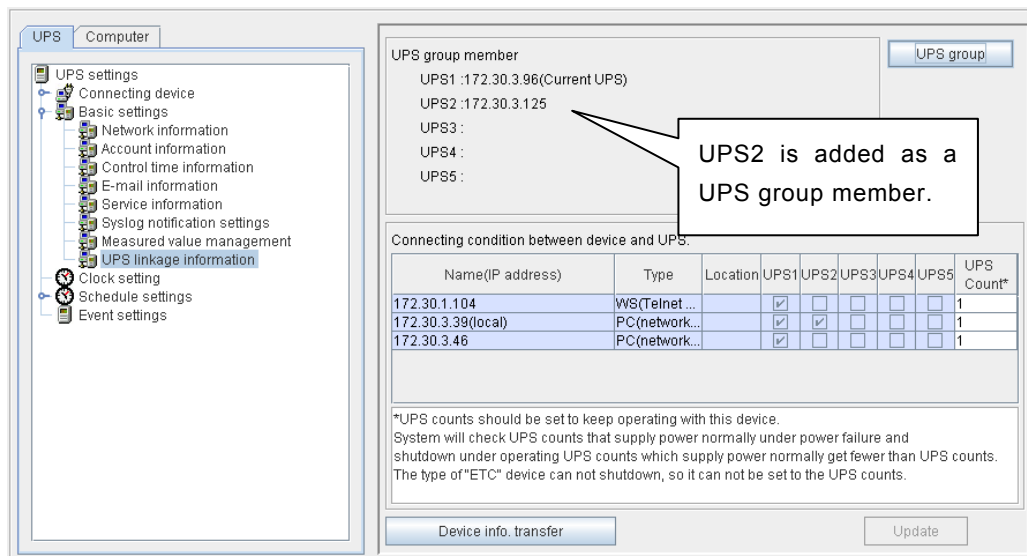
Making UPS linkage function settings

<Regarding UPS group synchronization settings>

Set the synchronization conditions for members selected as UPS group members.

The settings vary according to LAN interface card model.

Settings made can be changed at a later time.

Procedures are explained below for each LAN interface card type.

・With LAN interface cards that do not support IPv6.

UPS group	
UPS group setting	Synchronization setting by causes

Current UPS: 172.30.3.124 ▼   Address of new UPS

Member UPS: 172.30.3.123   << Add

Delete

UPS group synchronization settings
☐ Clock   ☐ Schedule management
   Standard UPS : 172.30.3.123 ▼   ☐ UPS management requirements(Set up, stop, reset)
   Time set: Every day 0 o'clock ▼   ☐ Stop other UPSes at a power failure or low battery voltage.

Update   Close

Setting item	Description
Clock	Select this to synchronize the time among the group UPS. （Default value：Not selected）
Standard UPS	Select the standard UPS for the time synchronization. （Default value： Current UPS）
Time set	Select the time to synchronize. （Default value：0:00 midnight daily）
Schedule management	Select this if you want all UPS members in the group to operate according to the schedule specified. All UPSs start up and shut down as configured if each UPS is set with a different schedule. （Default value：Not selected）
UPS management requirements (Set up, stop, reset)	Select this if you want all UPS members in the group to operate in sync when you are turning ON or OFF, or resetting UPS using Web Management Tool, Terminal Tool, UPS management software, or SNMP manager.
Stop other UPSes at a power failure or low battery voltage	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of a power failure or low battery voltage. （Default value：Not selected）

*Cannot use "Synchronization setting by causes".

Settings for "Stop other UPSes at a power failure or low battery voltage"

Settings for "Shutdown in the event of a power failure", "Shutdown when low battery voltage occurs", and "UPS automatic stop / start operation" cannot be performed in sync between each UPS. Change to the same settings for each UPS.

・**With LAN interface cards that support IPv6.**

Setting item	Description
Clock	Select this to synchronize the time among the group UPS. （Default value：Not selected）
Standard UPS	Select the standard UPS for the time synchronization. （Default value： Current UPS）
Time set	Select the time to synchronize. （Default value：0:00 midnight daily）
Schedule management	Select this if you want all UPS members in the group to operate according to the schedule specified. All UPSs start up and shut down as configured if each UPS is set with a different schedule. （Default value：Not selected）
UPS management requirements (Set up, stop, reset)	Select this if you want all UPS members in the group to operate in sync when you are turning ON or OFF, or resetting UPS using Web Management Tool, Terminal Tool, UPS management software, or SNMP manager.
Synchronization setting by causes	Specify the synchronization settings for each cause such as a power failure, low battery voltage, major breakdown, measured value deviation. See the next page for details.

Making UPS linkage function settings

(1/2)

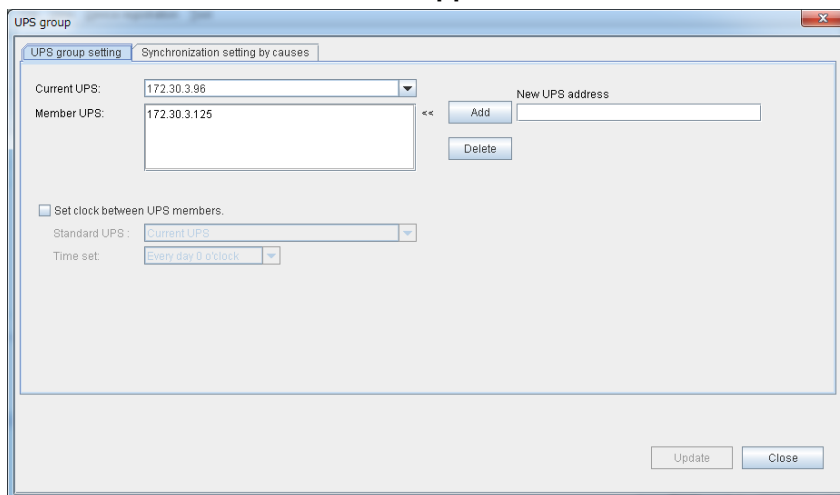| Setting item	Description
Run in sync at a power failure or low battery voltage	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of a power failure or low battery voltage. [1] (Default value : Not selected)
Power failure occurs Shutdown execution [1], [2]	Set to perform a shutdown during linkage operations due to a power failure. The value is the same value the "After the confirmation time passes, shutdown execution" on the "6.10.1 [Shutdown trigger] Tab".
Low battery voltage occurs Shutdown execution [1], [2]	Set to perform a shutdown during linkage operations due to low battery voltage. The value is the same value the "When the low battery voltage occurs, shutdown execution." on the "6.10.1 [Shutdown trigger] Tab".
UPS automatic stop / start operation [1], [2]	Set the startup and shutdown conditions for all UPSs in the UPS group in the event of a power failure or low battery voltage.
	Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of a power failure or low battery voltage. All UPSs in the UPS group do not start up at the recovery from the power failure or low battery voltage.
	Stop / Do not start	All UPSs in the UPS group shut down in the event of a power failure or low battery voltage. All UPSs in the UPS group do not start up at the recovery from the power failure or low battery voltage.
	Stop / Start	All UPSs in the UPS group shut down in the event of a power failure or low battery voltage. All UPSs in the UPS group start up at the recovery from the power failure or low battery voltage.
Run in sync at a major breakdown	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of a major breakdown. (Default value : Not selected)
Shutdown execution [1], [2]	Set to perform a shutdown during linkage operations due to a major breakdown. The value is the same value the " When the major breakdown occurs by UPS " on the "6.10.1 [Shutdown trigger] Tab".
Run in sync at an overload	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of an overload. (Default value : Not selected)
Shutdown execution [1], [2]	Set to perform a shutdown during linkage operations due to an overload. The value is the same value the " When the overload occurs by UPS " on the "6.10.1 [Shutdown trigger] Tab".

Making UPS linkage function settings

Setting item	Description
Run in sync at deviation of the load factor, UPS temperature, or input voltage	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of a deviation of the load factor, UPS temperature, or input voltage. [*2] (Default value : Not selected)
Load factor deviation occurs Shutdown execution [*3, *4]	Set to perform a shutdown during linkage operations due to a measurement value deviation. The value is the same as selected in "Shutdown under deviation occur" as the load factor in "6.41 Setting for measured value management".
UPS automatic stop / start operation [*3, *4]	Set startup and shutdown conditions for all UPSs in the UPS group when a load factor deviation occurs.
Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of a load factor deviation.
Stop / Do not start	All UPSs in the UPS group shut down in the event of a load factor deviation. All UPSs in the UPS group do not start up at the recovery from the load factor deviation.
Stop / Start	All UPSs in the UPS group shut down in the event of a load factor deviation. All UPSs in the UPS group start up at the recovery from the load factor deviation.
UPS temperature deviation occurs Shutdown execution [*3, *4]	Set to perform a shutdown during linkage operations due to a measurement value deviation. The value is the same as selected in "Shutdown under deviation occur" as the UPS temperature in "6.41 Setting for measured value management ".
UPS automatic stop / start operation [*3, *4]	Set startup and shutdown conditions for all UPSs in the UPS group when a temperature deviation occurs.
Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of a temperature deviation.
Stop / Do not start	All UPSs in the UPS group shut down in the event of a temperature deviation. All UPSs in the UPS group do not start up at the recovery from the temperature deviation.
Stop / Start	All UPSs in the UPS group shut down in the event of a temperature deviation. All UPSs in the UPS group start up at the recovery from the temperature deviation.
Input voltage deviation occurs Shutdown execution [*3, *4]	Set to perform a shutdown during linkage operations due to a measurement value deviation. The value is the same as selected in "Shutdown under deviation occur" as the input voltage in "6.41 Setting for measured value management ".
UPS automatic stop / start operation [*3, *4]	Set startup and shutdown conditions for all UPSs in the UPS group when an input voltage deviation occurs.
Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of an input voltage deviation.
Stop / Do not start	All UPSs in the UPS group shut down in the event of an input voltage deviation. All UPSs in the UPS group do not start up at the recovery from the input voltage deviation.
Stop / Start	All UPSs in the UPS group shut down in the event of an input voltage deviation. All UPSs in the UPS group start up at the recovery from the input voltage deviation.
Run in sync at schedule management	Select this if you want all UPS members in the group to operate according to the schedule specified in "6.17 Setting weekly schedule" and "6.18 Setting schedule of the specified day". All UPSs start up and shut down as configured if each UPS is set with a different schedule. [*5, *6] (Default value : Not selected)
Run in sync at UPS management requirements (Set up, stop, reset)	Select this if you want all UPS members in the group to operate in sync when you are turning ON or OFF, or resetting UPS using Web Management Tool, Terminal Tool, UPS management software, or SNMP manager. (Default value : Not selected)

Caution

*1.When settings are changed using this item and you have also specified "After the confirmation time passes, shutdown execution" in "6.10.1 [Shutdown trigger] Tab", this item is replaced by the latest value.

*2.The settings are sent to the UPSs for all UPS group members. The settings for " After the confirmation time passes, shutdown execution " in "6.10.1 [Shutdown trigger] Tab " for all UPSs are also replaced.

*3.When settings are changed using this item and you have also specified "Shutdown under deviation occur" of "UPS automatic stop / start operation" in "6.41 Setting for measured value management", this item is replaced by the latest value.

*4.The settings are sent to the UPSs for all UPS group members. The settings for "Shutdown under deviation occur" and "UPS automatic stop / start operation" in "6.41 Setting for measured value management " are also replaced for all UPSs.

*5.When performing scheduled operations at the same time between UPS group members, set the schedule for one of the UPS group members.

*6.When setting a different schedule for UPSs that are part of a UPS group, make sure that the respective startup and shutdown times do not overlap.

Making UPS linkage function settings

(3) Set the [UPS Count] for all UPS units being used to implement power redundancy.

Set the required UPS count for [172.30.3.96], the first UPS.

In the example above, the required UPS count for UPS group member 2 is 1.
When the required UPS count is 1, shutdown is not initiated as one of the two UPS units is operating normally.
If the required UPS count is set to 2, shutdown is initiated if either of the two UPS units stops functioning.
The required UPS count must be set to a value that does not exceed the number of registered UPS units.

Also set the required UPS count for [172.30.3.125], the second UPS.

Since the required UPS count can be set for each individual UPS unit, you can set the count for each UPS as required by the system configuration.
The required UPS count can be set for each UPS, but setting the same value for all UPS units ensures that operation (shutdown due to the UPS count) will be the same no matter which UPS unit might fail.

[Deleting a UPS from the UPS group]

When you need to remove a UPS from a power redundancy configuration, delete it from its UPS group.
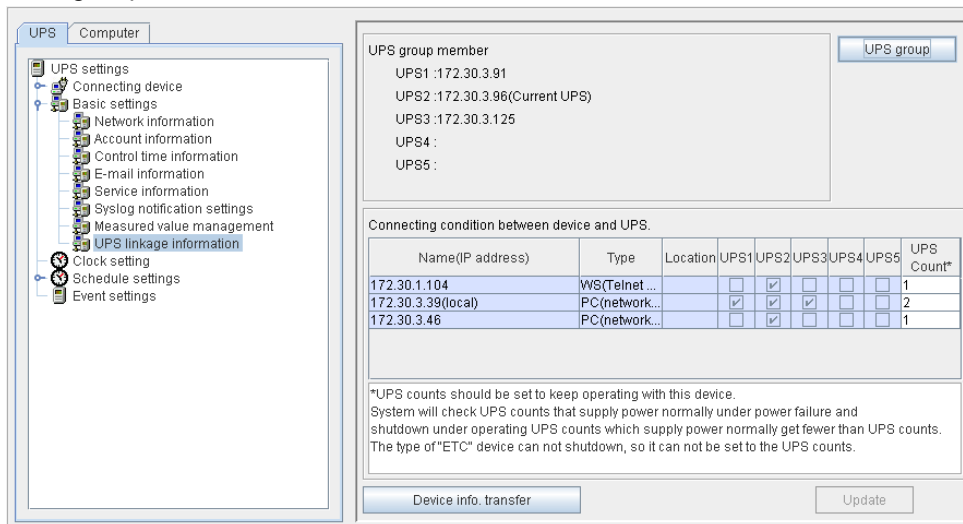
In the figure above, the three UPS units with IP addresses [172.30.3.91], [172.30.3.96], and [172.30.3.125] are included as members of a UPS group. Of these, UPS1, [172.30.3.91], is to be deleted as a member of the UPS group..

Click the [UPS group] button and the [UPS group] screen appears.

[1] Select the UPS to be deleted from the UPS member list.

[2] Click the [Delete] button and the selected UPS is deleted from the list.

[3] Click the [Update] button and the information is distributed to the other UPS units.
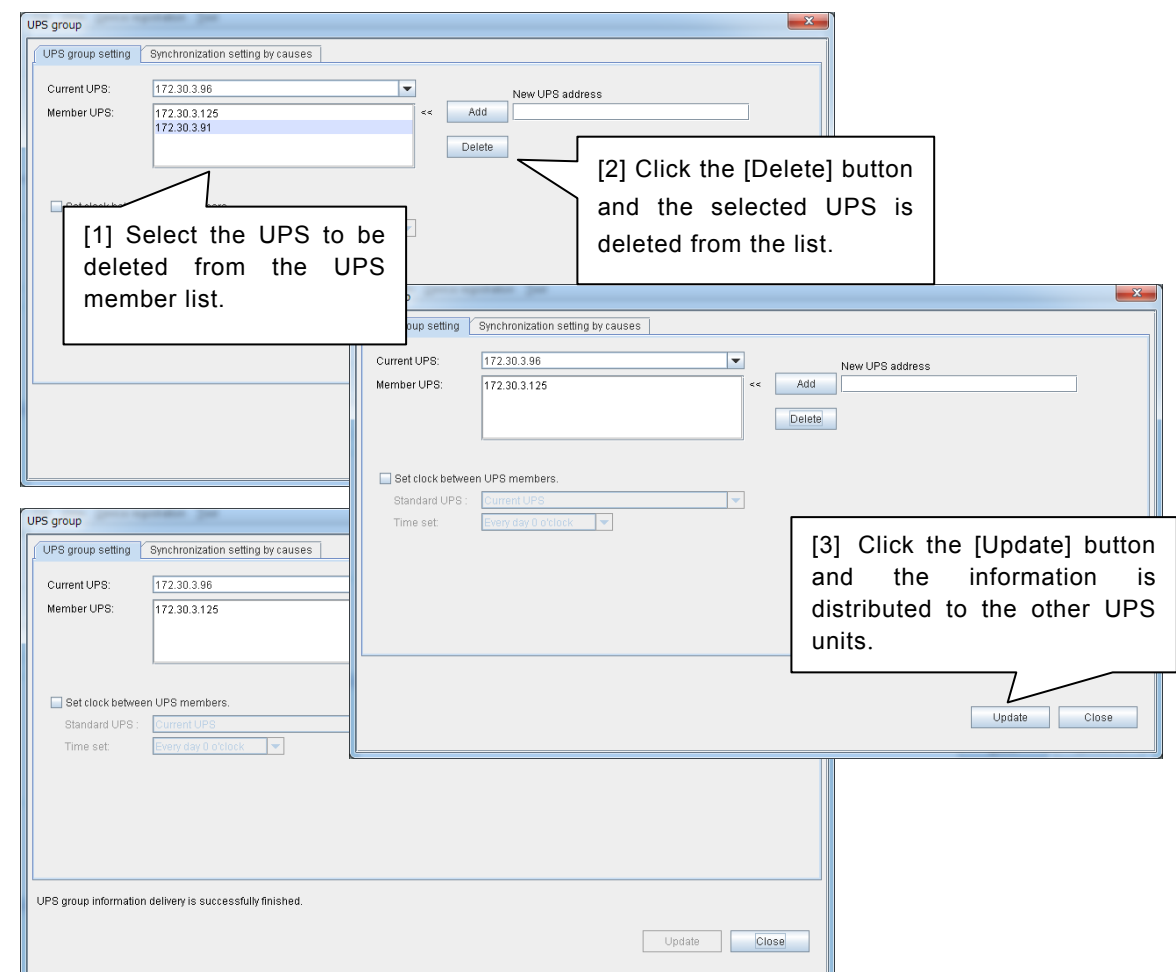
Making UPS linkage function settings
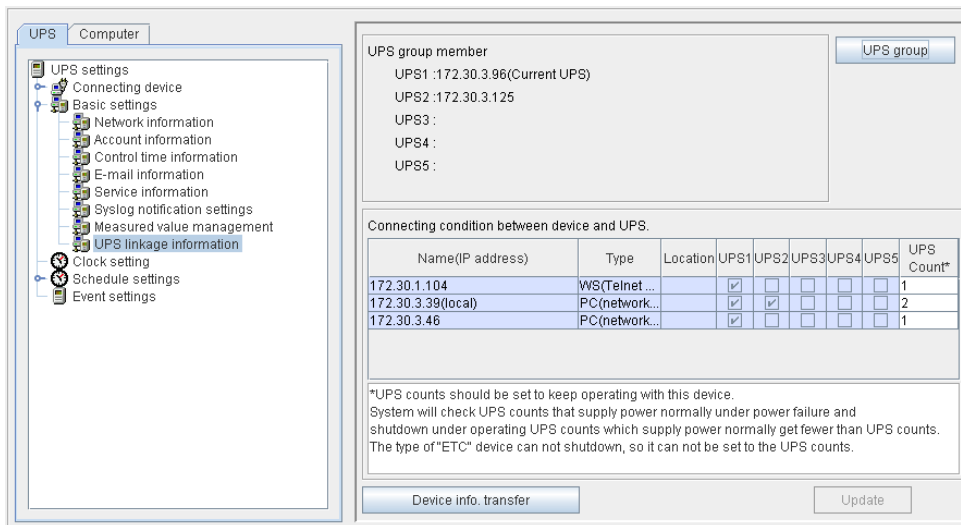
Information is distributed to the other UPS units, and UPS [172.30.3.91] is deleted from the grouping.

Deleting a UPS as a member of a UPS group does not delete the device information that is registered to the UPS (LAN interface card)..

Therefore, if a power failure occurs, shutdown is performed for devices registered to the UPS.

[Regarding registration of devices without **SANUPS SOFTWARE** installed]

When a WS (Telnet connection) or other device that does not use SANUPS SOFTWARE is added to the registry, the [Device info. transfer] function can be used to transfer the registration information to other UPS units (LAN interface cards).

Information transferred to other UPS units includes log-in script information and event script information. This means that log-in script information, event script information and so forth must be reset on the UPS (LAN interface card) to which the information is transferred with regard to the applicable device.

Setting procedure

[1] Open the [UPS linkage information] screen from the SANUPS SOFTWARE connected to UPS2 (172.30.3.96). (In the figure below, this is the [UPS linkage information] screen for UPS2, [172.30.3.96].)

WS (Telnet connection) device [172.30.1.104] is registered to this UPS (LAN interface card).
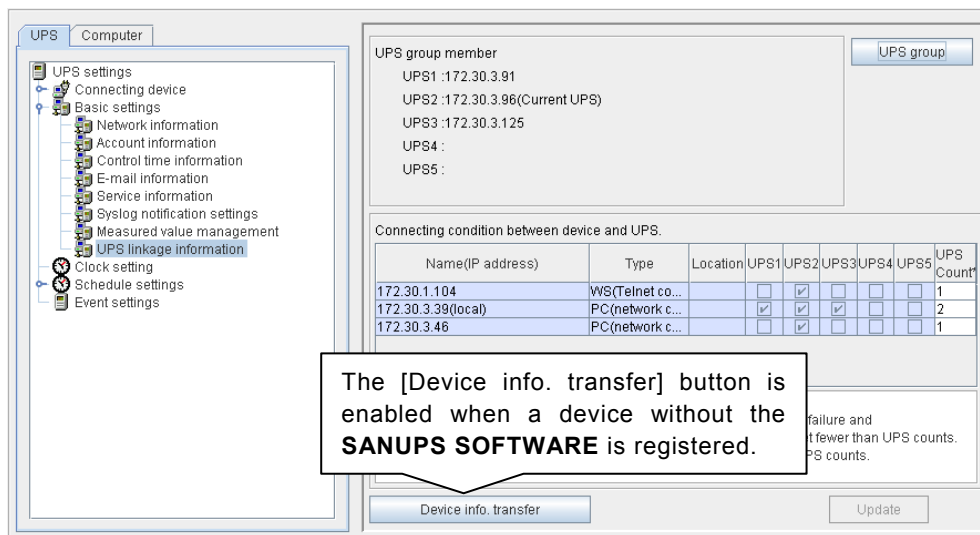
[2] Clicking the [Device info. transfer] button displays the following Settings screen.
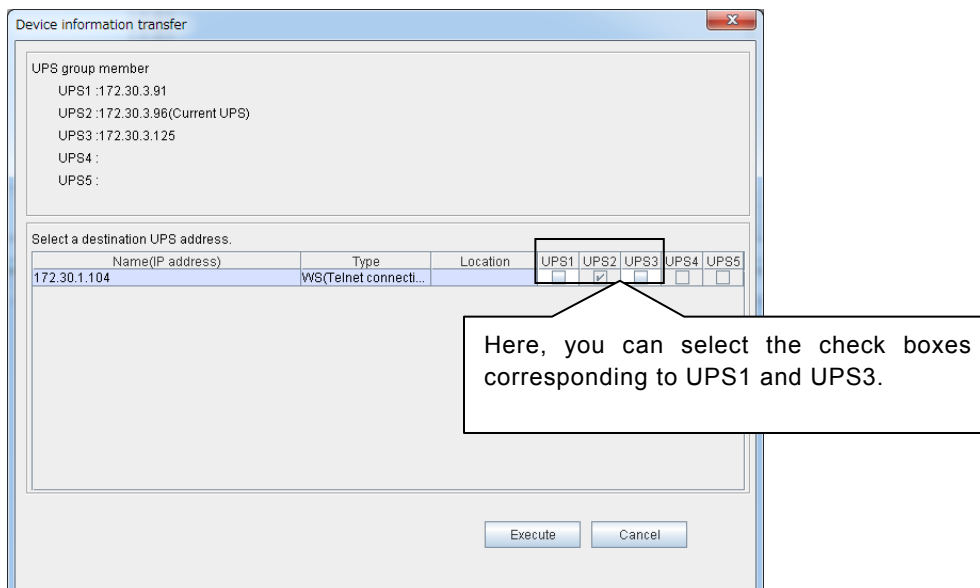
[3] Select the destination address for information transfer and transfer the device information.

Click the [Execute] button and device information is transferred to UPS3.

Connected device information transfer is successfully finished.

[172.30.1.104] is now a connected device of UPS3.
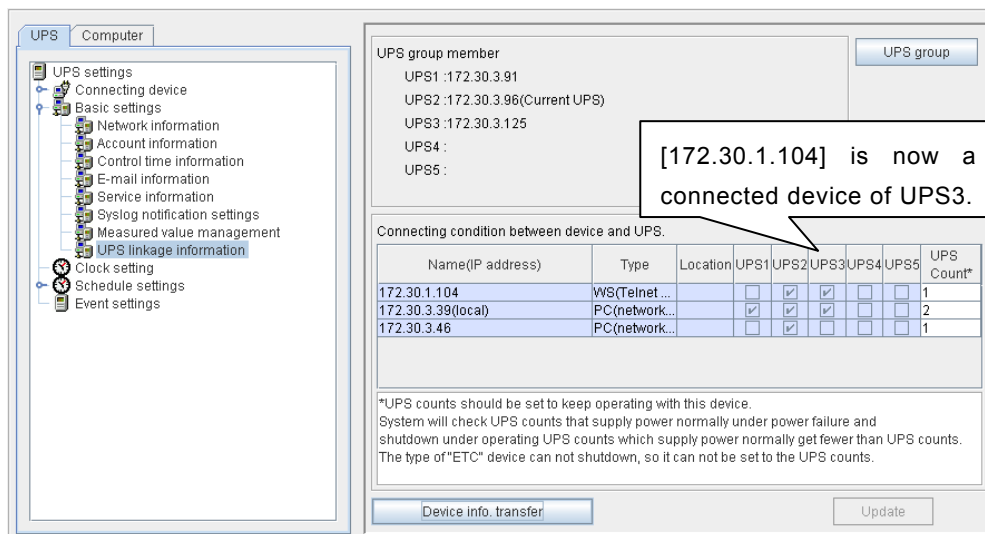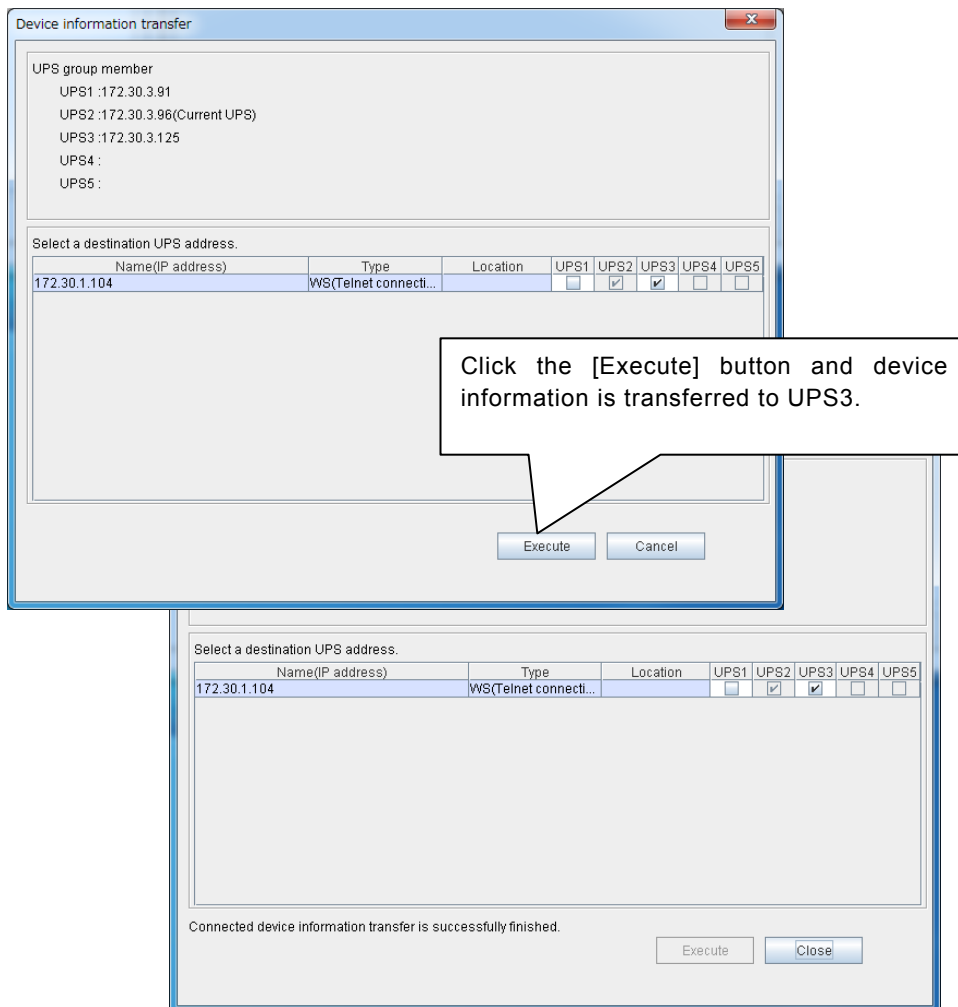
Regarding devices added using the device information transfer function

The [Device info. transfer] function allows devices to be registered to other UPS units (LAN interface cards).

However, changes to device information (such as log-in scripts) that are made subsequent to device registration are not automatically reflected in devices registered to other UPS units.

After modifying such information, be sure to use the [Device info. transfer] function to synchronize the device information.

For the setting of the UPS count

Setting value of "UPS Count", it is necessary to configure the settings for each UPS. (In the "Device info. transfer" function, this information is not transferred.)

［**UPS Linkage setting from CUI tool**］

Additional registration of own computer to new UPS is available by using "./sg4setup" command.

（Delete and edit UPS is also available.）

The follow screen will be shown by using "./sg4setup" command.

```
 Operation select.

 -----------------------------------------------------------------------
      Registered UPS list
        UPS1 : 172.30.3.151
        UPS2 :
        UPS3 :
        UPS4 :
        UPS5 :

      Select Operation (+)           MOD
      Select UPS (+)                 UPS1




                                        ▊EXT      QUIT
 -----------------------------------------------------------------------
 Next Page.
```

Status	Description
Registered UPS list	Show registered UPS list. （Maximum 5）
Select Operation	Select operation.
MOD	Edit information of registered UPS and own device. Select from "Select UPS" for changing UPS.
ADD	Additional registration of own device to new UPS.
DEL	Delete selected UPS from "Select UPS".
Select UPS	Select UPS to operate from "Select Operation".

Select operation from "Select Operation" and if it is as "MOD" or "DEL", select target UPS from "Select UPS".

Next screen will be shown by selecting "NEXT".

Operation will be complete by following shown screen.

```
 <Details for UPS grouping>
 UPS group setting is not available from CUI tool.
 To be group, please use GUI tool or access to LAN interface card by Web browser.
```

6.45 Changing settings from the CUI tool

With the Linux/UNIX version, settings can be changed using the CUI tool even after completing registration with the Setup Wizard.
You can use the CUI tool to change settings such as the WakeOnLAN setting, the UPS control information, and computer information.

〔Startup procedure〕
From a console or terminal, execute the "**./sg4setup**" command included in the **SANUPS SOFTWARE** installation directory.

〔Setting procedure〕
The screen explained in "4.2 Setup Wizard (CUI version setup tool)" of the Installation Guide is displayed.
Advance to the screen that contains the settings you need to change and then change the settings.
(1) When using a UPS with serial connection
The (D) screen shown in "4.2 Setup Wizard (CUI version setup tool)" is displayed.
Proceed with settings from this screen.

(2) Network connection using SANUPS SOFTWARE with a serially connected UPS
The screen shown in (G) of "4.2 Setup Wizard (CUI version setup tool)" is displayed.
Proceed with settings from this screen.

(3) Network connection with a LAN interface card
The screen shown in "Making UPS linkage settings from the CUI tool" in "6.43 Making UPS linkage functions settings" is displayed. When not using the UPS linkage function, skip ahead by selecting [NEXT].
Next, the screen shown in (G) of "4.2 Setup Wizard (CUI version setup tool)" is displayed.
Proceed with settings from this screen.

For the settings, refer to "4.2 Setup Wizard (CUI version setup tool)" in the Installation Guide.

Appendix A   Operation of the service

Following is the explanation on procedure for operating **SANUPS SOFTWARE** UPS service (daemon process).
Following is the only method to stop and start the service (daemon process) manually.
Other methods for stopping and starting (such as by using the kill command) are not supported.

In case of Windows

Display **[Service]** according to the procedures of the using OS.

Example) For **Windows Server 2008**

Click [Start] button－[Control tool]－[Sever manager]－[Configuration]－[Service]

・Select [**SANUPS SOFTWARE** UPS service], and then stop or start the service program from right click menus.

・Otherwise, stop or start the service program using [General] or [Service status] function in [Properties].

＜**Information**＞
When using **Windows Server 2008 Server Core**, execute the following command in order to stop or start **[SANUPS SOFTWARE UPS service]** using command line.

net start SGSVC   ・・・ Start
net stop SGSVC   ・・・ Stop

In case of Linux

Stopping SANUPS SOFTWARE UPS service (daemon process)

Conduct:

 # cd /etc/init.d

 # ./sg4lite stop

Otherwise, make the above sentence in one line and conduct:

 # /etc/init.d/sg4lite stop

Starting SANUPS SOFTWARE UPS service (daemon process)

Conduct:

 # cd /etc/init.d

 # ./sg4lite start

Otherwise, make the above sentence in one line and conduct:

 # /etc/init.d/sg4lite start

> **＜Information＞**
> **SANUPS SOFTWARE** UPS service (daemon process) uses IPC message. Thus, the maximum number（msgmni）of the message queue is dynamically changed by this script（sg4lite）.

In case of Solaris 8 or Solaris 9

Stopping SANUPS SOFTWARE UPS service (daemon process)

Conduct:

 # su

 # cd /etc/init.d

 # ./sg4lite stop

Otherwise, make the above sentence in one line and conduct:

 # /etc/init.d/sg4lite stop

Starting SANUPS SOFTWARE UPS service (daemon process)

Conduct:

 # su

 # cd /etc/init.d

 # ./sg4lite start

Otherwise, make the above sentence in one line and conduct:

 # /etc/init.d/sg4lite start

In case of Solaris 10 or later

Stopping SANUPS SOFTWARE UPS service (daemon process)

(permanently stop the **SANUPS SOFTWARE** service program)

 # svcadm   disable sg4lite

(temporarily stop the **SANUPS SOFTWARE** service program)

 # svcadm   disable -t sg4lite

Starting SANUPS SOFTWARE UPS service (daemon process)

 # svcadm   enable sg4lite

In case of AIX

Stopping SANUPS SOFTWARE UPS service (daemon process)

Conduct:

 # su

 # cd ＜directory to install＞/service

 # ./sg4lite stop

Otherwise, make the above sentence in one line and conduct:

 # ＜directory to install＞/service/sg4lite stop

Starting SANUPS SOFTWARE UPS service (daemon process)

Conduct:

 # su

 # cd ＜directory to install＞/service

 # ./sg4lite start

Otherwise, make the above sentence in one line and conduct:

 # ＜directory to install＞/service/sg4lite start

Appendix B   Explanation of events

It will explain outline of events that are registered as "Standard setting" in event setting.

Event No.	Info. Type	Event Name
0101	Warning	Power failure
0102	Info.	Power failure recovered
0141	Error	Major breakdown
0142	Info.	Major breakdown recovered
0143	Warning	Minor breakdown
0144	Info.	Minor breakdown recovered
0503	Info.	Start scheduled stop warning
0504	Info.	Stop warning
0505	Info.	Irreversible: Scheduled stop
0506	Info.	Irreversible: Remo. Stop / Irreversible: Remo. OutputOff
0507	Warning	Irreversible: Power failure
0508	Warning	Irreversible: Low batt. Volt.
0509	Info.	Pressing for log off
0510	Info.	Exec. pre-shutdown operation
0511	Info.	Shutdown execution
0512	Info.	Batt.-replace warning time
0518	Warning	Irreversible: Serial error
0551	Warning	Irreversible: Out. Ctrl. Sw.
0562	Warning	Irreversible: Major breakdown
0563	Warning	Irreversible: Overload
0652	Warning	Irreversible: UPS temp. trouble
0653	Warning	Irreversible: Load factor abnormal
0654	Warning	Irreversible: Input volt. abnormal
0655	Warning	Irreversible: Ext.-meas. abnormal

・**Power failure （Event No.：0101）**

It is an event that indicates occurrence of power failure.

・**Power failure recovered （Event No.：0102）**

It is an event that indicates recovery from power failure.

・**Major breakdown （Event No.：0141）**

It is an event that indicates occurrence of major breakdown.

・**Major breakdown recovered （Event No.：0142）**

It is an event that indicates recovery from major breakdown.

・**Minor breakdown （Event No.：0143）**

It is an event that indicates occurrence of minor breakdown.

・**Minor breakdown recovered （Event No.：0144）**

It is an event that indicates recovery from minor breakdown.

・**Start scheduled stop warning** （**Event No.：**0503）

It is an event that occurs at scheduled stop warning time.

・**Stop warning** （**Event No.：**0504）

It is an event that occurs at every stop warning message indication cycle.

・**Irreversible: Scheduled stop** （**Event No.：**0505）

It is an event that occurs at scheduled stop time.

・**Irreversible: Remo. Stop / Irreversible: Remo. OutputOff** （**Event No.：**0506）

It is an event that occurs when UPS stop control is conducted form remote.

・**Irreversible: Power failure** （**Event No.：**0507）

It is an event that occurs when it judges that it will not recover from power failure after occurrence of power failure.

・**Irreversible: Low batt. Volt.** （**Event No.：**0507）

It is an event that occurs when battery becomes low after occurrence of power failure.

・**Pressing for log off** （**Event No.：**0509）

It is an event that occurs at every warning indication interval cycle during stop delay.

・**Exec. pre-shutdown operation** （**Event No.：**0510）

It is an event that occurs at shutdown delaying time.

・**Shutdown execution** （**Event No.：**0511）

It is an event that occurs at UPS automatic stop time.
Computer will be shutdown with this event.

・**Batt.-replace warning time** （**Event No.：**0512）

It is an event that occurs at battery replacement warning time.

・**Irreversible: Serial error** （**Event No.：**0518）

It is an event that occurs when it judges that recovery is impossible from communication trouble in case it is set to shutdown at the occurrence of serial communication trouble.

・**Irreversible: Out. Ctrl. Sw.** （**Event No.：**0551）

It is an event that occurs when stop control is conducted by output control switch.

・**Irreversible: Major breakdown** 　（**Event No.：**0562）

This is an event that occurs when a major breakdown occurs and recovery is judged to be impossible, and the computer is set to be shutdown upon the occurrence of a major breakdown.

・Irreversible: Overload （Event No.：0563）

This is an event that occurs when an overload occurs and recovery is judged to be impossible, and the computer is set to be shutdown upon the occurrence of an overload.

Appendix C   Protocols and Server Ports Used

The following shows the TCP/UDP server ports and the names of the standard protocols used with **SANUPS SOFTWARE** server and client configurations.

	Protocol, etc.	Port No.	Outline	SANUPS SOFTWARE (*1)	
				Server	Client
[1]	UPS control system	UDP: 30000	Waiting for connection from the integration control tool	○	―
		TCP: 30001	Waiting for connection from the integration control tool		
[2]		TCP: 30002	Waiting for connection from the Web tool	○	―
[3]		TCP: 30000	Waiting for connection from the client device	○	―
		TCP: 30003	Waiting for connection from the GUI tool		
		TCP: 30004	Waiting for connection from the control tool		
		TCP: 30005	Waiting for connection from the display tool		
[4]		TCP：31001	Waiting for connection from the tool	○	○
[5]		TCP：31000	Waiting for connection from the UPS	―	○
		UDP：31000	Waiting for magic packet for Wake On LAN		
[6]		TCP：31010 to 31019	Waiting for connection from UPS (Dynamic, for **SANUPS SOFTWARE**)	―	○
[7]		TCP: 31020 to 31029	Waiting for connection from UPS (Dynamic, for integration control tool)	―	―
[8]	ICMP	―	Checking status with the ping (echo) For IPv4	○	○
	ICMPv6	―	Checking status with the ping (echo) For IPv6	○	○
[9]	SMTP	TCP: 25	Sending e-mail	―	―
	POP3	TCP: 110	Receiving e-mail	―	―
[10]	DNS	―	Resolving name of the client device, mail server, etc. (acquiring IP address)	―	―
[11]	DHCP	―	Acquiring dynamic address	―	―
[12]	Telnet	TCP: 23 (*2)	Waiting for Telnet connection (for WS Telnet connecting device)	―	―
[13]	Telnet	TCP: 10023 (*2)	Waiting for Telnet connection (for settings)	○	―
[14]	HTTP	UDP: 10080 (*2)	Loading Web tool	○	―

(*1): If a Firewall is enabled on a computer that **SANUPS SOFTWARE** is operating, use of the above ports needs to permitted. Otherwise operation will be affected.

(*2): This is the default setting. You can change the port number.

The following shows the TCP/UDP server ports and the names of the standard protocols used when there is a network connection to a UPS with a LAN interface.
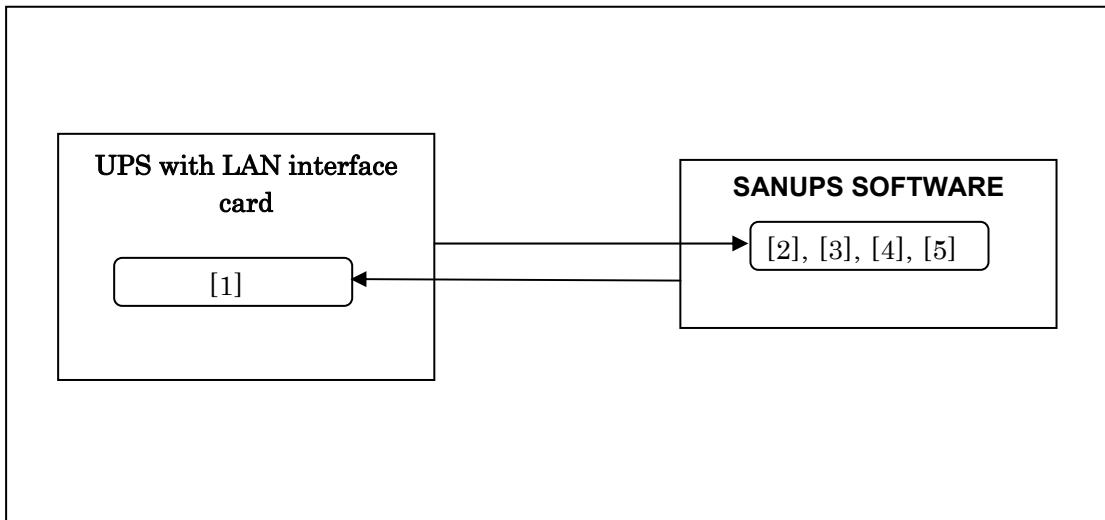
	Protocol, etc.	Port No.	Outline	SANUPS SOFTWARE (*1)
[1]	UPS control system	TCP: 30000	Waiting for connection from a device connected to the network	—
		TCP: 30003	Waiting for connection from the GUI tool	
		TCP: 30004	Waiting for connection from the control tool	
		TCP: 30005	Waiting for connection from the display tool	
[2]		TCP: 31001	Waiting for connection from the tool	○
[3]		TCP: 31000	Waiting for connection from the UPS	○
		UDP: 31000	Waiting for magic packet for Wake On LAN	
[4]		TCP: 31010 to 31019	Waiting for connection from the UPS (Dynamic)	○
[5]	ICMP	—	Checking status with the ping (echo) For IPv4	○
	ICMPv6	—	Checking status with the ping (echo) For IPv6	○

(*1): If a Firewall is enabled on a computer that **SANUPS SOFTWARE** is operating, use of the above ports needs to permitted. Otherwise operation will be affected.

Appendix D   List of Received Mail

（A）UPS condition and measurement data

Requested mail	
Subject	**UPS□Status□Request**

Note: □ indicates single-byte spaces.

Serial connection to UPS

Reply Mail 1	
Subject	**Re:UPS Status Request(UPS Condition)**
Message	[Status name] : Status description (Repeated by the number of items) Example: **[AC input voltage]** **: Normal** **[Output state]** **: ON** **:**

Reply Mail 2	
Subject	**Re:UPS Status Request(UPS Measuring Value)**
Message	[Measurement type] : Measured value (Repeated by the number of items) Example: **[Input Volt.]** **: 100V** **[Input frequency]** **: 60Hz** **:**

Direct connection to UPS

Reply Mail	
Subject	**Re:UPS Status Request**
Message	**[AC input voltage]** **: Normal**(or **Trouble**) **[Battery voltage]** **: Normal**(or **Decline**)

["

There is no attached file(OS versions that support IPv4 addresses only)*

Reply Mail	
Subject	**Re:Log Request**
Message	[Number, type, <event number>,<time of occurrence>, <related address> and <other details>]
	:
	(The newest 10 items appear in descending order)
	Example:
	[1. Inf <0514> <2015/11/06 20:32:14> <172.30.1.128> <0x00000002>]
	[2. Inf <0514> <2015/11/06 20:30:10> <172.30.1.128> <0x00000002>]
	:
	[10. Inf <0514> <2015/11/06 20:00:20> <172.30.1.128> <0x00000002>]

*Please refer to "Support for IPv6 Communications" of Installation Guide for the target OS.

There is an attached file

Reply Mail	
Subject	**Re:Log Request -f**
Message*	**upslog.txt**
Attached file name	**upslog.txt**

*By the OS using, the message may be the blank.

（D）**Event log information (All)**

Requested mail	
Subject (There is no attached file)	**Log□Request□All**
Subject (There is an attached file)	**Log□Request□All□-f**

Note: □ indicates single-byte spaces.

There is no attached file(OS versions that support communication using IPv4/IPv6 addresses)*

Reply Mail	
Subject	**Re:Log Request All**
Message	**Type No. Event Name DateTime Address Detail** --- **Inf 0514 Setting change 2016/02/23 20:14:20 0x00000808** **Inf 0514 Setting change 2016/02/23 20:13:19 0x00000814** **Inf 0514 Setting change 2016/02/23 20:13:10 0x00004006** **Inf 0514 Setting change 2016/02/23 20:13:09 0x00001ffd** : **Inf 0514 Setting change 2016/02/22 16:10:37 0x00000610**

*Please refer to "Support for IPv6 Communications" of Installation Guie for the target OS.

There is no attached file(OS versions that support IPv4 addresses only)*

Reply Mail	
Subject	**Re:Log Request All**

Message	[Number, type, <event number>,<time of occurrence>, <related address> and <other details>]
	                                        :
	(All)
	
	Example:
	[1. Inf <0514> <2015/11/06 20:32:14> <172.30.1.128> <0x00000002>]
	[2. Inf <0514> <2015/11/06 20:30:10> <172.30.1.128> <0x00000002>]
	            :
	[320. Inf <0514> <2015/11/06 20:00:20> <172.30.1.128> <0x00000002>]

*Please refer to "Support for IPv6 Communications" of Installation Guie for the target OS.

There is an attached file

Reply Mail	
Subject	**Re:Log Request All -f**
Message*	**upslog.txt**
Attached file name	**upslog.txt**

*By the OS using, the message may be the blank.

（E）UPS information

Requested mail	
Subject	**UPS□Info□Request**

Note: □ indicates single-byte spaces.

Serial connection to UPS

Reply Mail	
Subject	**Re:UPS Info Request**
Message	[Style] : Style name (16 bytes maximum) [Controlled part Ver.] : Version No.（XX） [Serial No.] : Serial number (12 bytes maximum) → "None" if no other data Example: **[Style]** **: SUNUPS001 ASD** **[Controlled part Ver.]** **: 20** **[Serial No.]** **: None**

Contact connection to UPS

Reply Mail	
Subject	**Re:UPS Info Request**
Message	**No Data**

Appendix E   Set up of serial port (COM port) of OS

In case of serial connection with UPS, the communication with UPS will not work normally if the serial port's value on the OS side is not set correctly. If there is communication trouble between UPS or if you are starting the serial connection with UPS from now, please check the set value, referring to the description below.

In case of Solaris (Solaris 8 to 10)

○**Using Admintool**

Start Admintool. (Conduct: **# admintool** <Return>)

Open "Settings of serial port."

Check if it is set as the above. (The above is the setting page of b port.)

Appendix E　Set up of serial port (COM port) of OS

○**Using Solaris Management Console**

Start Solaris Management Console.　（Conduct: **# smc** <Return>）

[1] Expand "Devices and Hardware", click "Serial Ports".
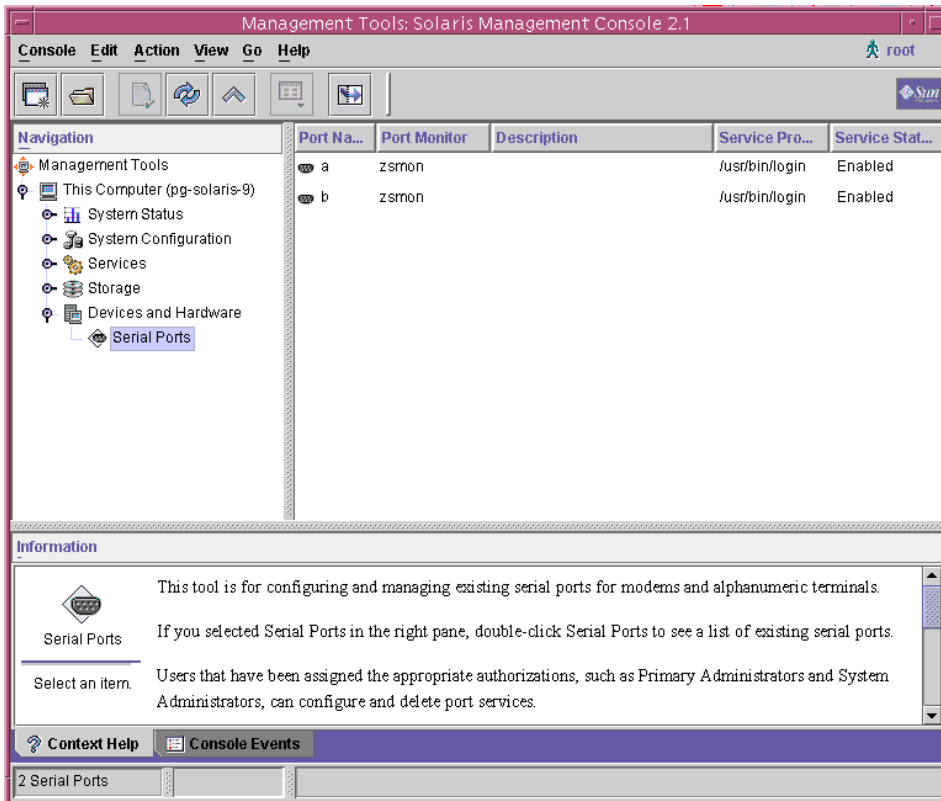
[2] Select the serial connection port, click [Action] - [Properties] in the menu.
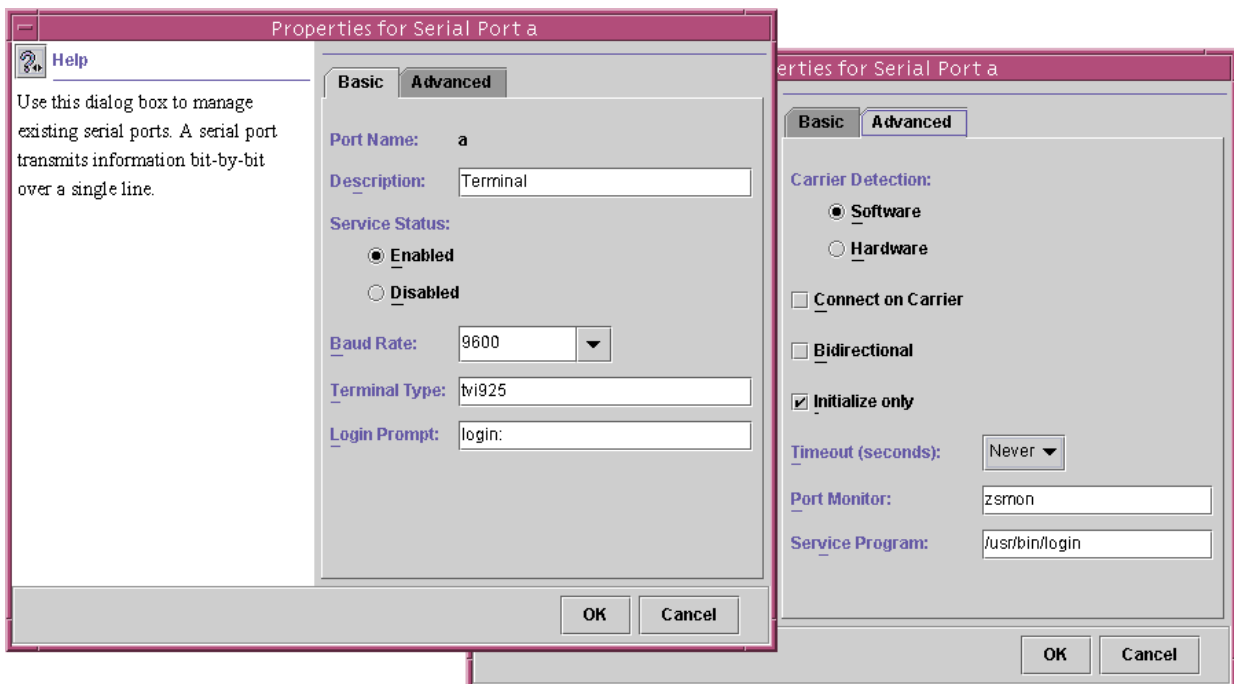
Verify that [Basic] tab and [Advanced] tab are set as shown in the above figure.

(The above is the setting page of "a" port.)

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Appendix E Set up of serial port (COM port) of OS

○**Setting with command**

Please refer to the OS manual for the details of the command to use.

The following description of command uses default indication. If name of tags, etc are changed,

please reread according to the environment you are using.

 # sacadm –l \<Return>

Checks the conditionof port monitor. PMTYPE field: Make sure that the STATUS of `ttymon`

is "ENABLED."

 # pmadm –l \<Return>

Checks the set content of the port. Following is the example of indication.

```
# pmadm -l
PMTAG        PMTYPE        SVCTAG        FLGS ID        <PMSPECIFIC>
zsmon         ttymon          ttya            u      root       /dev/term/a l - /usr/
bin/login - 9600 ldterm,ttcompat ttya login:   - tvi925 y   #
zsmon         ttymon          ttyb            u      root       /dev/term/b l - /usr/
bin/login - 9600 ldterm,ttcompat ttyb login:   - tvi925 y   #
#
```

 # pmadm -a -p zsmon -s ttya -i root -fu -v `ttyadm -V` -m "`ttyadm -d /dev/term/a –l -l

9600 –m ldterm,ttcompat -s /usr/bin/login -S n`" \<Return>

Adds the service of `a` port.

In case of Solaris (Solaris 11)

Confirmation of login service operation

Confirm login service operation by using svcs command and pick up enabled serial port.

 # svcs –a | grep console <Return>

Below is svcs command display example.

```
# svcs -a | grep console
disabled        6:30:21 svc:/system/console-login:terma
disabled        6:30:22 svc:/system/console-login:termb
online          6:31:32 svc:/system/consolekit:default
online          6:31:42 svc:/system/console-login:default
                            :
                            :

#
```

In the case of above, login service of both a port and b port are "disabled"(disabled display).
On this status, serial connection is enable from **SANUPS SOFTWARE**.
If display is "online", so login service "enabled", serial connection by using appropriate serial port is disabled.

In the case of using serial port by **SANUPS SOFTWARE**, using serial port which login service is "disabled" or changing login service status "enabled" to "disabled" is required.

Below is operation example of changing a port login service "enabled" to "disabled".

```
# svcs -a | grep console
online          6:30:21 svc:/system/console-login:terma        a port
disabled        6:30:22 svc:/system/console-login:termb        enable
online          6:31:32 svc:/system/consolekit:default
online          6:31:42 svc:/system/console-login:default
                            :
                            :
                            :
#
# svcadm disable svc:/system/console-login:terma
#
# svcs -a | grep console
disabled        6:30:21 svc:/system/console-login:terma        a port
disabled        6:30:22 svc:/system/console-login:termb        disable
                            :
```

Setting service "enabled" to "disabled" by using svcadm command.

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Appendix E   Set up of serial port (COM port) of OS

In case of AIX

Start smit.（Conduct: **# smit**   <Return>）
Select "Device" – "TTY" – "Change/view characteristic of TTY" and if "Login possible" is set as "enable," change it to "disable.
Following is the example of indication.

```
                        Change/view characteristic of TTY


   Enter or select the field value.

   When you have completed changing, press ENTER key.


   [TOP]                          [Field to enter]

   TTY                            tty0

   TTY type                       tty

   TTY interface                  rs232

   Explanation                    asynchronistic communication terminal

   Condition                      Enable

   Location                       01-S1-00-00

   Boss adapter                   sa0

   Port No.                       [0]

   Login possible                 (disable)

   Baud rate                      [9600]
```

Appendix F   About the Application Shutdown

Any file currently being edited in a **Microsoft Office** application can be saved prior to shutdown. This function is only applicable to the following applications in a **Windows** environment.

- **Office Word 2000, XP (2002), 2003, 2007, 2010, 2013**

- **Office Excel 2000, XP (2002), 2003, 2007, 2010, 2013**

- **Office PowerPoint 2000, XP (2002), 2003, 2007, 2010, 2013**

- **Office Project 2000, XP (2002), 2003, 2007, 2010, 2013**

- **Office Publisher XP (2002), 2003, 2007, 2010, 2013**

- **Office Visio 2000, XP (2002), 2003, 2007, 2010, 2013**

- **Office FrontPage 2000, XP (2002), 2003**

    * In Microsoft Office 2010/2013, it corresponds to both x86 and x64 versions.

Method of Use

(1) Installation
 [1] From the [Start] menu, select [Control Panel].
 [2] Select the following menu in [Control Panel].
  •   [Add or Remove Programs] (For **Windows XP** or **Windows Server 2003**)
  •   [Programs and Features] **(**For **Windows Vista** or since **Windows Server 2008**)
 [3] Select **[SANUPS SOFTWARE]** from the application list.
 [4] Select [Change] on the screen or right-click the mouse and select [Change] from the context menu.
 [5] The installer starts. On the [Program Maintenance] screen, select [Change].
 [6] Click the icon of "Application shutdown", select "This feature will be installed on local hard drive." from the menu, and then install.
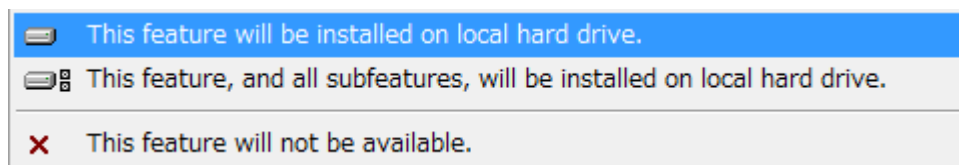
To enable Application shutdown, you will sign in again.

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(2) Settings

While referring to Section, "6.27 Performing a Specific Process when an Event Occurs" set an application shutdown command for the [Exec. pre-shutdown operation] event.

APP_SHUTDOWN.EXE□[-tnnn]□[-e]   * □ indicates a single-byte space.

The following option specifications are possible.

Specification	Specified range/format	Initial value	Description	Remarks
-tnnn	60 to 999 sec.	60 sec.	Specifies the timeout value for waiting for a file to be saved.	
-e	Stop resident program	Not stopped	Stops the resident process for all logged in users.	

* Options other than the above are ignored. The initial value is used when a set value is out of the specified range or an abnormal format.

The conditions for saving files are as follows.

• Files are saved to the following storage folder.

<My Documents or **Documents** folder>**\SANUPS SOFTWARE\Backup Office Files**

• The following format is used for the names of saved files.

User name_Name Of file being edited_Date and time (yyyymmdd_hhmmss)[_Sequence Number].(Extension for the application)
* A sequence number is added to ensure that there are no files with the same name.

Example: user1_Book1_20051231_034146_1.xls

• Even if a work file opened in an applicable application is being shared on the network, it is saved to the storage folder on the local computer.
• If multiple work file are being edited in an applicable application, they are saved individually to the storage folder.

(3) Uninstallation

By uninstall **SANUPS SOFTWARE**, the Application Shutdown should be uninstalled in the same time.
To delete this function only, operate the above "(1) Installation" and select "This feature will not be available." from the icon menu.

Appendix G　Other Q & A

●**About sending messages between Windows computers**
●**Message delivery between Linux machines**
●**Message delivery between UNIX machines**
●**Indication of message at the start of Java Tool**
●**Change of shutdown command**
●**To stop displaying message on terminal window**
●**About serial port connecting UPS using serial cable**

●**About sending messages between Windows computers**

As for the message sending function at the occurrence event, when "Send message to the connected user" or "Send message to the specified user" is selected, a message might not be displayed if "Messenger services" does not start up.

For the following computers, start up the "Messenger" service by following procedures.
- Message destination computers.
- A sending computer, only when domain user address is specified to the message destination computers

<Procedures>
1.　Select : start – control tool – service (*1)
2.　Open the property of messenger, set "automatically" start up menu.
3.　Start up messenger service.

In addition, if "Send message to the specified user" is selected and IP address of destination computer is specified, it is required that IP address is changed to computer name.

(*1) Menu configuration varies according to OS.

●**Message delivery between Linux machines**

In Section, "6.27 Performing a Specific Process when an Event Occurs", rwall program is used to display a message on **Linux** machine which **SANUPS SOFTWARE** is not operating.
The computer that you use must have rwall package installed.

・Computer that sends the message needs rwall command.
　(Package name: **rwall)**

・Computer that displays (receives) the message must have rpc.rwalld daemon started.
　(Package name: **rwall-server**

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*Please refer to the **Linux** manual for rwall.
  Depending on OS, "rwall" associated packages might not be prepared.

●Message delivery between UNIX machines

In Section, "6.27 Performing a Specific Process when an Event Occurs", rwall program is used to display a message on **UNIX** machine which **SANUPS SOFTWARE** is not operating.
The computer that you use must have rwall package installed.

・Computer that sends the message needs rwall command.

・Computer that displays (receives) the message must have rpc.rwalld daemon started.

*Please refer to the OS manual for rwall.

●Indication of message at the start of Java Tool

・Linux

The following message might be displayed when starting up the java tool.
However even in that case, there is no problem on the operating of this system.

"Cannot convert string "・・・" to type VirtualBinding"

・UNIX

When Java Tool is started, message "Font is not found" may be indicated.
This message will be indicated when font that is written on font definition file does not exis in the environment used.
However, in most of the cases, font is defined so that it will complemented by other font so that there will be no influence on the operation.
However, if you have changed X-Window environment from the standard environment, there may be an exception.

●**Change of shutdown command**

With **SANUPS SOFTWARE**, you can change the shutdown operation by changing the shutdown command.（**Linux／UNIX**）
In default condition, it will be conducted as follows:

    ・In case of **Solaris**

        shutdown –i0 –g0 –y

    ・In case of **AIX**

        cd　/

        /usr/sbin/shutdown　–F

If you want to change the option of the shutdown, edit the following file and you will be able to change the shutdown operation.

   ＜**Installation directory＞/bin/shutdown.sh**

(shutdown.sh file is a script file that has shutdown command written.)

(Caution) Please edit the shutdown.sh file under your own responsibility.

●**To stop displaying message on terminal window**

A message is displayed on the terminal window when an event occurs.
If this message is not needed, you can stop displaying the message by changing a script file (sg4lite). (The sg4lite file is the script file to start the UPS service.)（**Linux／UNIX**）

<procedures>
1. Stop the USP service. [*1]

2. Edit the script file (sg4lite), change the setting value of "SG4_TERM_MESSAGE" to "OFF" from "ON".

    SG4_TERM_MESSAGE=ON
        ↓ (change)
    SG4_TERM_MESSAGE=OFF

3. Start the UPS service. [*1]

  (*1) Refer to "Appendix A　Operation of the service".
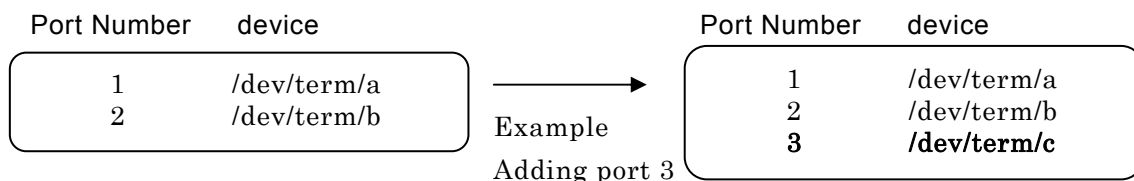
(Caution) Please edit the sg4lite file under your own responsibility.

●**About serial port connecting UPS using serial cable**

When UPS is connected to the computer with a serial cable, select a using serial port in the UPS connection setting. The selectable serial ports are defined by the following file.（**Linux／UNIX**）

　　　　＜**Installation directory ＞/bin/serial.txt**

The following is a standard display example in Solaris environment.
(Depending on the using environment, file contents may be different from the following.)

Port Number	device
1	/dev/term/a
2	/dev/term/b

Example
Adding port 3

Port Number	device
1	/dev/term/a
2	/dev/term/b
3	**/dev/term/c**

This file is made automatically at the installation of this software by detecting the using environment. However, if there is not the using serial port, edit the file to add the using serial port.

Appendix H   About constraint by the using OS

Depending on the using OS, some functions of SANUPS SOFTWARE might be unavailable. The details of restrictions are as follows.

For using "Shutdown delaying time" of scheduled operation.

Related item ： "6.11 Make Settings Related to UPS Operation" –
                            "6.11.3 [Common information] Tab"

Constraint in using Windows

When using terminal service since **Windows XP** (remote desktop connection), the computer might not shut down under the following conditions.

When "Endlessly*" is checked in "Maximum time delay" - "Scheduled timing" - "Control time information", besides there are some users who exited session (disconnected status) without logoff on the remote client side.

　 * "Endlessly" is setting that waits until all users log off.

This is because the disconnected users are considered as logon status on the terminal server.

However, if power failure occurs, the computer will shutdown regardless of the conditions above.

Constraint in using Linux (Note 1)

When using the "automatic shutdown" function of scheduled operation to the connected computers, even if all users log-off, the computer may not shutdown under the following conditions.

When "Endlessly*" is checked in "Maximum time delay" – "Scheduled timing" – "Control time information".

* "Endlessly" is setting that waits until all users log-off.

This trouble occurs due to OS. If the following OS are used, set "times" in "Maximum time delay" instead of selecting "Endlessly".

Red Hat Enterprise Linux v.3
Red Hat Enterprise Linux v.4
MIRACLE LINUX Asianux Server 3

However, if power failure occurs, the computer will shutdown regardless of above settings.

Constraint in using Linux (Note 2)

On the X-Window System, when using the "automatic shutdown" function of scheduled operation to the connected computers, if all terminal windows are shutdown, the computer may shutdown under the following conditions regardless of the setting value.

When "Waiting for logout*" is checked in "Maximum time delay" – "Scheduled timing" – "Control time information".

* "Waiting for logout" is setting that waits until all users log-off.

This trouble occurs due to OS. If the following OS is used, using the computers without setting the shutdown delaying time is recommended.

Red Hat Enterprise Linux v.5
MIRACLE LINUX Asianux Server 3

However, if power failure occurs, the computer will shutdown regardless of above settings.
When X-Window System is not used, the trouble above will not occur.

Constraint in using AIX

When using **AIX 5.2** :

In case of using "automatic shutdown" function of scheduled operation to the connected computers, even if all users logoff, the computer cannot shutdown under the following conditions.

When "Endlessly*" is checked in "Maximum time delay" - "Scheduled timing" - "Control time information", besides there are some users who logout the "CDE" without shutting the window of "dtterm" etc..

* "Endlessly" is setting that waits until all users log off.

In such a case, install "PTF" more than the correction level of "X11.Dt.rte file set" on OS side.

File set name	correction level
X11.Dt.rte	5.2.0.10

*Please contact your OS supplier for details.

In addition, if File set cannot be installed, set "times" in "Maximum time delay" instead of selecting "Endlessly".

However, if power failure occurs, the computer will shutdown regardless of above settings.

For using Send message to the other computer.

Related item ： "6.26 Specifying the Display Destination for Event Messages"

Constraint in using Windows (Sending message).

On the OS since Windows Vista, even if you set "Sending message" function, the following functions are not performed due to OS operation.
1. Sending a message to other Windows system from the OS since Windows Vista system.
2. Sending a message to the OS since Windows Vista system from other Windows system.

Constraint in using Window (Play sounds).

"Play sounds" function is not available on the OS since Windows Vista. Therefore, even if you set "Play sounds" function, the sounds are not emitted.

For using Script startup

Constraint in using Window

An interactive service is not available on Windows Vista or later.

For pop-up message display in the account input screen display

Constraint in using Linux

When using the following Linux, during the login waiting screen for display, a pop-up message window is not displayed.

When a power failure occurs, the shutdown will be executed.

・Red Hat Enterprise Linux 7
・SUSE Enterprise Linux Server 11 SP2 or later
・SUSE Enterprise Linux Server 12

When the serial connection to the UPS, if you are using a USB serial conversion cable

Constraint in using Windows

In the serial connection to the UPS, when using the USB serial conversion cable, in the model of the USB serial conversion cable, after resuming from hibernation, there is a cable that communication between the UPS is not recovery.

If you become such a state, please do not hibernation at the time of shutdown.

When using redundant network interface

Constraint in using Windows, Linux and UNIX

In an environment that uses a LAN interface card, communication from the LAN interface card is done by using the IP address and MAC address of the computer network interface (NIC).

When used with redundant NIC, when is a MAC address is assigned to each NIC, the switching of the NIC occurs, it can not perform communication for the corresponding MAC address, may become a communication error.