

Nonstop Power Supply Monitoring  
Program  
Instruction Manual  
for NSP Pro 2

Ver. 2.0.2

Apr. 27, 2007  
Nipron Co., Ltd.

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## 1 FUNCTIONS

Nonstop Power Supply Monitoring program provides Nonstop Power Supply Monitoring Service that runs on Windows 2000 (for both Japanese and English version), Windows XP (for both Japanese and English version), or Windows Vista (for both Japanese and English version).

This program monitors supply mains condition signals that come to a serial port from Nonstop Power Supply via RS-232C cable, and notify the user's application of power failure and battery voltage drop to execute its system shutdown.

Major functions are as follows,

### 1.1 SUPPLY MAINS MONITORING FUNCTION

Supply mains condition signals, such as power failure occurrence/recovery signals via CTS line and Battery voltage drop signal via DCD line, that are delivered by Nonstop power supply and monitored to execute the operations below when the above mentioned phenomena occur.

When power failure occurred:

To notify the user's application under control of the of the power failure occurrence and then monitor the power recovery during the specified time (power recovery monitoring time). The notification may be audio output (wav file running or BEEP sound output) or message display.

When power recovered:

When power is recovered during power recovery monitoring, the power recovery notification is delivered to the user's application under control, and the normal monitoring condition is restored. The notification may be audio output (wav file running or BEEP sound output) or message display.

When power recovery is unavailable:

In the case that the power is not recovered during power recovery monitoring time, the notification of unavailable power recovery and shutdown-start is delivered to the user's application under control assuming that power recovery is unavailable. The notification of shutdown-start may be audio output (wav file running or BEEP sound output) or message display. Also, user specified application program such as EXE file or BAT file can be run.

After that, monitoring the shutdown of the user application under control

and termination of the user specified program during the specified time (shutdown delay time), the system shutdown is executed at the time when all applications under control have stopped or terminated, or the shutdown delay time has elapsed.

After the system shutdown, the outputs of Nonstop Power Supply come to a halt upon receipt of Remote OFF signal. In addition, the system is resumed when the power is recovered during the shutdown delay time after the shutdown.

When Battery voltage dropped:

When Battery voltage has dropped, the battery drop notification is delivered to the user's application under control, the system shutdown is immediately carried out.

After the system shutdown, the outputs of Nonstop Power Supply come to a halt upon receipt of Remote OFF signal.

## 1.2 SOFTWARE INTERFACE FUNCTION

Communication Interface is provided to notify user application of the power failure occurrence/recovery and the supply mains events such as battery voltage drop, and to respond to the inquiry from user application for supply mains conditions.

The software interface functions consist of:

Application Entry Function:

To register user applications as the object to notify of supply mains events and to respond to the inquiry for supply mains condition. Up to 64 applications can be registered.

Supply Mains Condition Information Response Function:

To respond to the inquiries from user applications registered for supply mains conditions.

Supply mains conditions are as follows,

- Normal
- During power failure (under monitoring)
- During power failure (Power recovery is unavailable).

#### Supply Mains Event Notification Function:

To notify the user applications registered of supply mains events such as power failure occurrence, recovery, recovery unavailable, and shutdown start.

The events to be notified are as follows,

- Power failure occurrence
- Power recovery
- Power recovery unavailable
- Shutdown start
- Shutdown execution
- 

#### Shutdown Command Function:

Upon receipt of shutdown requirement from the registered user application, shutdown is executed after shutdown delay time.

After the system shutdown, if supply mains is still in failure, the outputs of Nonstop power supply is stopped by the Remote OFF signal.

#### Application shutdown Function:

To delete the user application registration form the object to notify of supply mains event and supply mains condition response.

### 1.3 LOG FUNCTION

To record on a file the logs such as supply mains events and the requirements from the user applications.

Log file is a text file named Npnsprv.log located in the directory in which this program is installed

As operating condition, log file size (kbyte) can be specified. (The default size is 10 kbyte). In the case that the log exceeds the specified size, the log is deleted in the order of oldness so that the log does not exceed the size.

Moreover, the presence or absence of the log output on each item can be specified as operation condition.

Items for Log output are as follows,

- Monitoring Start

- Monitoring Stop
- Power Failure Occurrence
- Power Recovery
- Shutdown Start
- Shutdown Execution
- Battery Voltage Drop
- Application Registration
- Supply Mains Condition Response
- Shutdown Command
- Application Shutdown
- User Application Startup Failure
- Key file error (only for Evaluation version)
- Expired (only for Evaluation version)

## 1.4 OPERATING CONDITION

The operating condition of this program can be specified. For Evaluation version, however, it runs on Default conditions. To specify the operating condition, a text file named Npnspsrv.ini in the directory in which this program is installed is to be created to edit.

The following items can be specified as the operating conditions.

- Nonstop power supply connection port name  
To specify the port name to which RS-232C cable from Nonstop power supply is connected. Default name is COM1.
- Power recovery monitoring time  
Specify the time in second order since power failure occurrence to the time to decide that power recovery is unavailable. One second or longer shall be specified. Default is 60 seconds.
- Shutdown delay time  
Specify the delay time in second order since the decision that power recovery is unavailable to shutdown before the user applications shutdown, etc. One second or longer shall be specified. Default is 60 seconds.
- Socket port number used by this program for software interface  
Specify the socket port number on this program side when it communicates with user applications using software interface. As port numbers not more than 1024 have been reserved, select those that exceeds 1024 and up to 64000 in integer and that are not used for other applications. Default is 2000.
- Log file size  
Specify max. Log file size in kbyte order. The size shall be one up to 1000. Default is 10 kbyte.
- Log output items  
Specify Log output items by ON/OFF to be presence or absence. Default is ON for all items meaning to be output.
- RS-232C signals polarity  
Specify the signal polarity (Positive/Negative) with “+/- “ for power failure signal, battery voltage drop signal, and output shutdown signal in this order.  
Default is as follows,  
-Negative for power failure signal

- Negative for battery voltage drop
- Positive for output shutdown signal

- Output shutdown signal delay time

Specify the delay time of the output shutdown signal to Nonstop power supply after the system shutdown at power recovery unavailable, battery voltage drop and the shutdown requirement from the applications. In practice, the delay time is the time since Nonstop power supply monitoring service executed the shutdown operation. So, specify enough time for the system to shut down completely (approx. 30 seconds or more). Default is 60 seconds.

- Necessity of audio output notice at Power failure, Recovery and Shutdown start

Specify by ON/OFF the necessity of audio output notice (wav file running or BEEP sound output) at power failure, recovery and shutdown start.

Default is ON (The notice is delivered). Upon receipt of the three signals above, this program runs Npacfail.wav, Nprecovery.wav and Npshutdown.wav located in the directory where Nonstop power supply monitoring program has been installed. If any of those files are not found, BEEP is output.

- Power Failure BEEP sound pattern

Specify BEEP sound pattern at power failure for frequency (Hz), output duration (millisecond) and number of times in this order. Default is 1000 Hz, 200 milliseconds and 2 times respectively.

- Power Recovery BEEP sound pattern

Specify BEEP sound pattern at power recovery for frequency (Hz), output duration (millisecond) and number of times in this order. Default is 1000 Hz, 200 milliseconds and one time respectively.

- Shutdown BEEP sound pattern

Specify BEEP sound pattern at shutdown start for frequency (Hz), output duration (millisecond) and number of times in this order. Default is 1000 Hz, 200 milliseconds and three times respectively.

- Necessity of reboot at power recovery during shutdown delay time

Specify by ON/OFF the necessity for system to reboot at power recovery during shutdown delay time. Default is OFF (No reboot).



- Necessity of service at initial power failure detection
 

In the case that power failure is detected at Nonstop power supply monitoring service startup, whether the service is to keep or stop shall be specified.

0 (Nil) for service keeping, and 1 for service stop. Default is 0 (service keeping).
- Necessity of PC power supply OFF at shutdown
 

Specify by ON/OFF the necessity of PC power supply OFF in shutdown operation of Nonstop power supply monitoring service. In the case that PC power supply turns off, set ON for PC power supply OFF and OFF for PC power supply to remain ON respectively. Default is ON (PC power supply turns OFF). In the case that outputs of Nonstop power supply are shut down by remote OFF signal, this item shall be set to ON (PC power supply OFF).
- Path for the program to start up at shutdown operation
 

Specify the path of the program to be executed at the shutdown operation by Nonstop power supply monitoring service. If no program exists for shutdown operation, this item is not specified. (Delete this parameter).
- Parameter for the program to start up at shutdown operation
 

Specify the parameter to be passed to the program that Nonstop power supply monitoring service executes for shutdown. If no parameter exists, this item is not specified. (Delete this parameter).
- Current directory of the program to be executed at shutdown operation
 

Specify the current directory of the program that Nonstop power supply monitoring service executes for shutdown. If not specified (this item is deleted), the current directory becomes the same current directory as Nonstop power supply monitoring service, usually same as Windows's system root directory.
- Necessity of message
 

At the power failure, power recovery and shutdown startup, whether the message is to be displayed on the screen or not shall be specified by ON/OFF. Default is OFF (No message on the screen). Also, no message comes out unless Windows is logged on.
- Power failure occurrence message
 

Specify the message to be displayed on the screen at power failure. If

not specified, "Power Failure Occurred" comes out.

- Power recovery message

Specify the message to be displayed on the screen at power recovery. If not specified, "Power Recovered" comes out.

- Shutdown startup message

Specify the message to be displayed on the screen at shutdown startup. If not specified, "Shutdown starts" comes out.

- Initial power failure unresponsive time

In the case that no power failure detection is required for specific time after Nonstop power supply monitoring service startup, specify the time in second order. Default is 0 (Nil).

Format for operating condition file is as follows,

Set each value right after the braces [] where item name is in showing the description of the operating condition.

```

[INSTALL PORT] COM1
[RECOVERY TIME] 60
[SHUTDWON DELAY] 60
[SWIF SOCKET PORT] 2000
[LOG SIZE] 10
[START LOG] ON
[STOP LOG] ON
[ACFAIL LOG] ON
[RECOVERY LOG] ON
[BATTERYLOW LOG] ON
[BATTERYHIGH LOG] ON
[SHUTDOWN START LOG] ON
[SHUTDOWN EXEC LOG] ON
[APENTRY LOG] ON
[APDELETE LOG] ON
[REQ STATE LOG] ON
[SHUTDWON COMMAND LOG] ON
[AP EXEC FAIL LOG] ON
[RS-232C] --+

[RECHECK TIME] 60
[AUDIO NOTIFY] ON
[ACFAIL BEEP] 2000 200 2
[RECOVERY BEEP] 2000 200 1
[SHUTDOWN BEEP] 2000 200 3
[REBOOT] ON
[INITIAL CHECK] 0
[POWER OFF] ON
[AP PATH] c:¥nipro¥usrap1.exe
[AP PARAMETER] 10
[AP DIRECTORY] c:¥nipro¥
[DEBUG] OFF
[ACFAIL MESSAGE] Power failure occurrence
[RECOVERY MESSAGE] Power recovery
[SHUTDOWN MESSAGE] Shutdown startup
[IGNORE TIME] 0

```

```

Nonstop power supply connection port
Power recovery monitoring time
Shutdown delay time
User Interface port number
Log file size
Monitoring startup Log output
Monitoring completion Log output
Power failure detection
Power recovery
Battery voltage drop
Battery voltage recovery
Shutdown startup
Shutdown execution
Application registration
Application stop
Supply mains condition response
Shutdown command
Application startup failure
RS-232C signal polarity
(power failure signal, battery voltage drop signal and output stop
signal)
Output stop signal delay time
Necessity of audio output notice
Power failure occurrence BEEP sound pattern
Power recovery BEEP sound pattern
Shutdown BEEP sound pattern
Necessity of reboot at power recovery during shutdown delay time
Necessity of service stop at the initial power failure detection
Necessity of PC power supply OFF at shutdown
Pass for the program to start up at shutdown operation
Parameter for the program to start up at shutdown operation
Current directory of the program to start up at shutdown operation
Necessity of message
Power failure occurrence message
Power recovery message
Shutdown startup message
Initial power failure unresponsive time

```

## 2 SETUP

### 2.1 TCP/IP PROTOCOL INSTALLATION

TCP/IP protocol needs to be installed in the system as this program uses socket for software interface. Confirm that TCP/IP protocol has been registered in network setting. One sample of Network setting is shown below. If not registered, register TCP/IP protocol.

[Control panel] - [Network connection] - [Local area connection] - [Property]

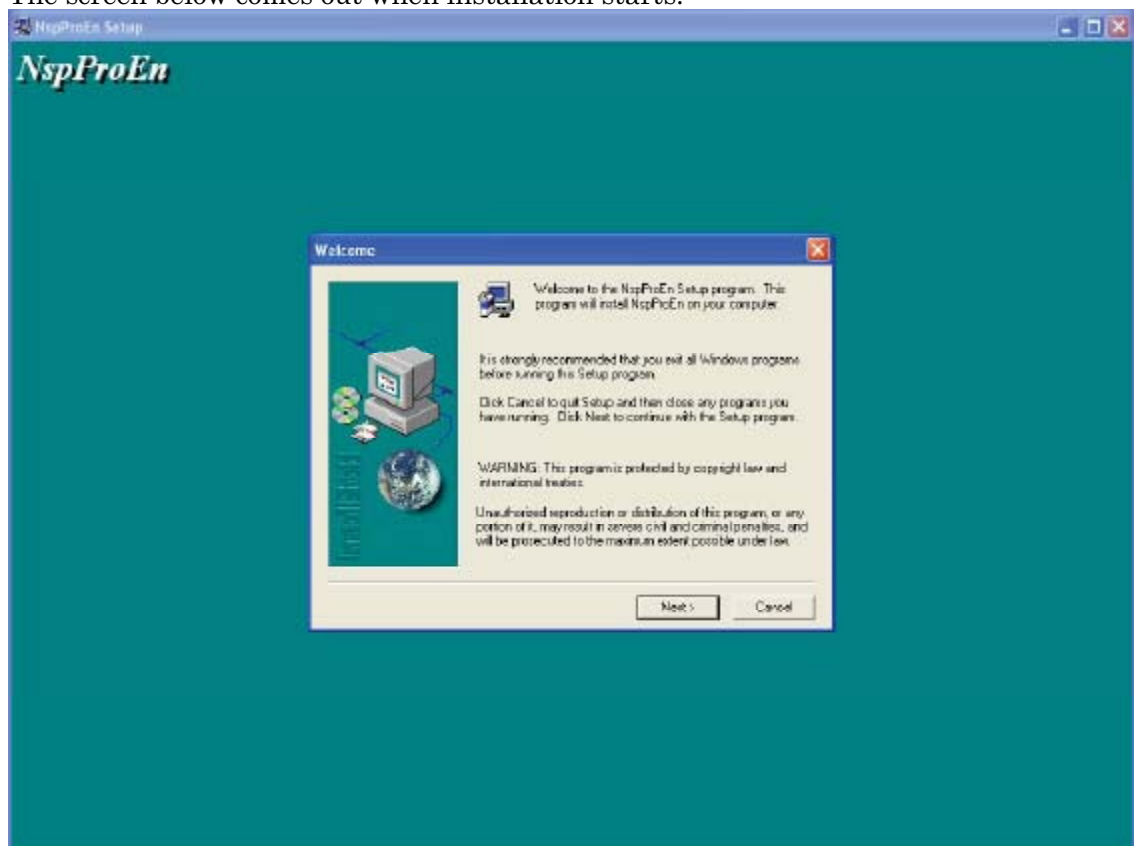
### 2.2 NONSTOP POWER SUPPLY MONITORING PROGRAM INSTALLATION BY INSTALLER

#### 2.2.1 Installation

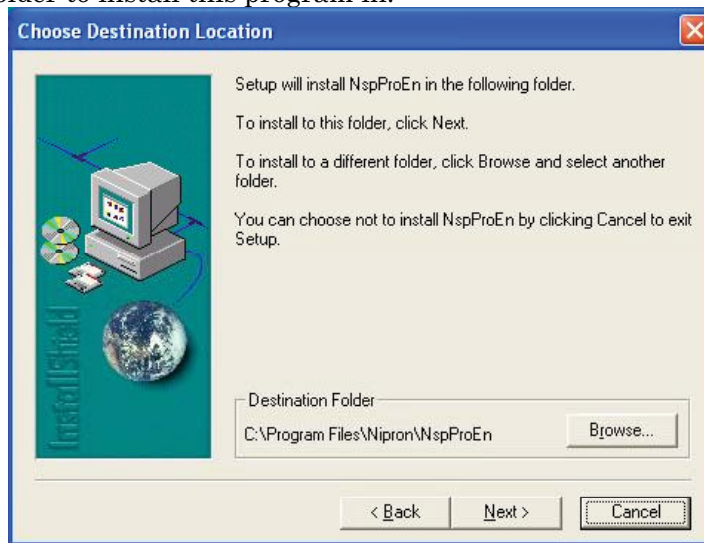
Install Nonstop power supply monitoring program from CD.

Installation starts when SETUP.EXE in En folder for English version, in EvalEn folder for Evaluation version, or in Lmt folder for Basic version in the CD is run.

The screen below comes out when installation starts.



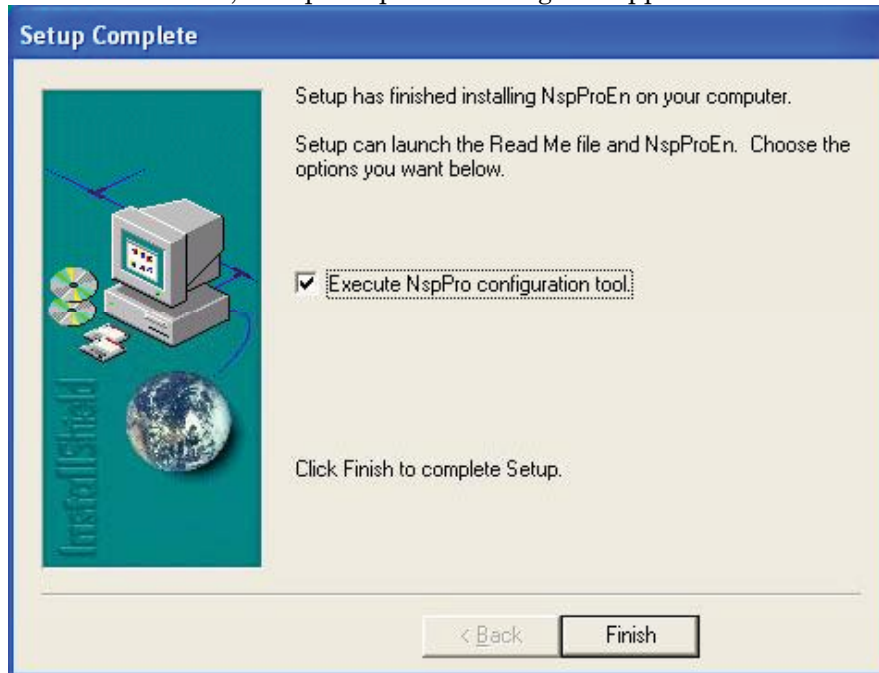
Click [Next] button, and the dialog box appears to specify the installation folder to install this program in.



Dialog box to select a folder where this program is installed appears by clicking on [Browse...].

Select the folder to install the program and click [Next]. Nonstop power supply monitoring program is installed in the designated folder.

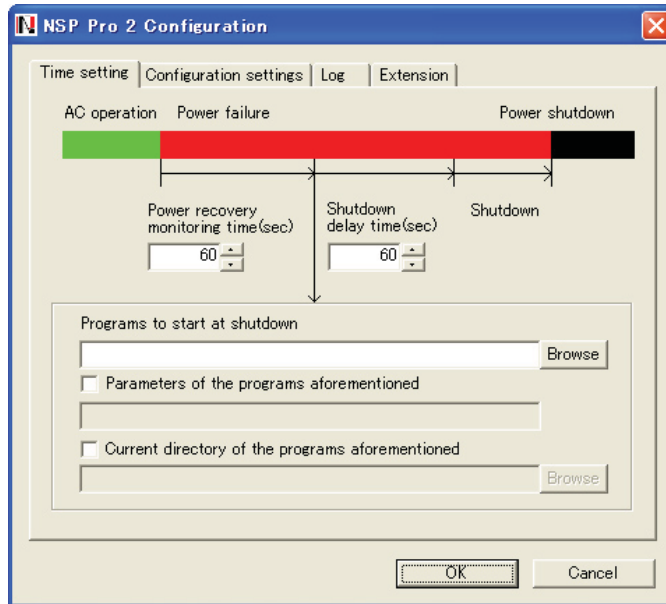
After installation, Setup completion dialog box appears.



Clicking on “Finish” button without a check mark on “Start up NspPro2 operating condition setup tool” on Setup completion screen goes to finishing

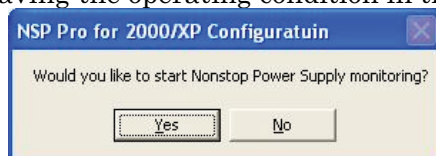
the installation. In this case, Nonstop power supply monitoring service has been registered, but it is not in service yet. (However, as the service is set to automatic start, it starts automatically when the system is rebooted.

When “Start up NspPro2 operating condition setup tool” is checked on the Setup completion screen and then “Finish” button is clicked, operation condition setup tool starts to work following installation completion



For operating condition setup, refer to “1.4. OPERATING CONDITION” and “3. OPERATING CONDITIDION SETUP TOOL.”

Clicking on [OK] button after setting each operation condition item, a message comes out to ask if Nonstop power supply monitoring service is to start right away after the designated conditions are saved in the operating condition file. (If [Cancel] button is clicked instead, this process finishes the setup without saving the operating condition in the file).



If Nonstop power supply monitoring is ready to start, click [Yes] button to start Nonstop power supply monitoring service. If not ready yet, click on [No] button. In either case, operating condition setup tool quits.

## 2.2.2 File configuration after installation

The following table shows the file configuration after installation.

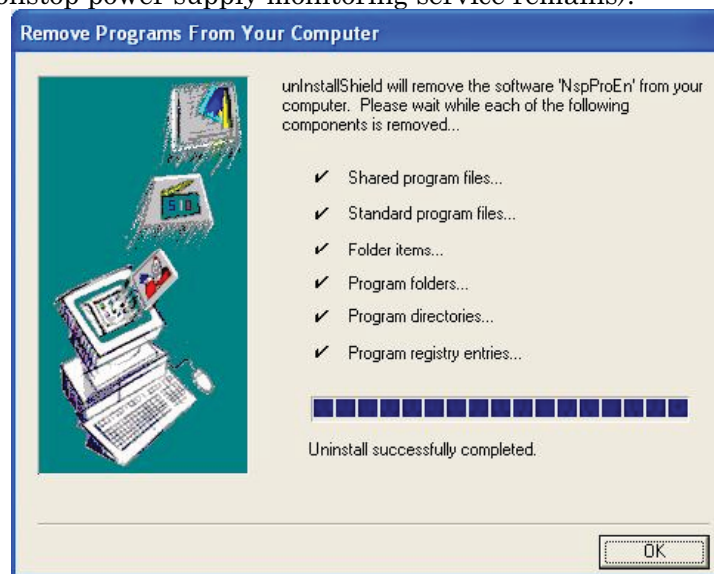
Installation	NpnpsrvEn.exe	(Nonstop power supply monitoring service NpnpsrvEvalEn.exe for Evaluation NpnpsrvLmtEn.exe for Basic version)	
	NspconfEn.exe	(Operation setup tool program)	
	Npnpsrv.ini	(Operating condition file)	
	npnspkey.dat	(Key file for Evaluation version) To be installed only for Evaluation version	
	Npacfail.wav	(wav file to run at power failure)	
	Nprecovery.wav	(wav file to run at power recovery)	
	Npshutdown.wav	(wav file to run at shutdown start)	
	Npinstl.dll	(DDL file for installation)	
	Npuninst.dll	(DDL file for uninstallation)	
	Include	Np_msg_en.h (software interface header file)	
	Sample1	Samplelib_en.h	(sample library header file)
		Samplelib_en.cpp	(sample library source file)
		Sample_en.cpp	(sample application source)
		Sample1En.exe	(sample application execution)

### 2.2.3 Uninstallation

For uninstallation, select NspPro2<sup>(\*1)</sup> in [Add/Remove Applications] in [Control Panel], (for WindowsXP, [Add/Remove Programs] in [Control Panel]), and click [Change/Remove].

\*1: Application name to be selected is NspPro2 (English) for English version, NspPro2 (Evaluation) for Evaluation version, or NspPro2 (Limited) for Basic version.

Uninstallation deletes Nonstop power supply monitoring service from services and removes the files installed. (However, Log file generated in installation folder by Nonstop power supply monitoring service remains).





## 2.3 NONSTOP POWRE SUPPLY MONITORING PROGRAM INSTALLATION BY BAT FILE

### 2.3.1 Installation

When installation is carried out by bat file, open command prompt, move current directory to bat\En in CD and type “NpinstallEn.bat <directory for installation>.” (\*1)

(\*1): Directory to install and bat file name for each version are as follows,

Version	Current Directory	bat file
English version	bat\En	NpinstallEn.bat
Evaluation version	bat\EvalEn	NpinstallEvalEn.bat
Basic version	bat\LmtEn	NpinstallLmtEn.bat

### 2.3.2 File configuration after installation

The following table shows the file configuration after installation.

Installation Folder	NpnspsrvEn.exe	(Nonstop power supply monitoring service program)
	NpnspsrvEvalEn.exe	for Evaluation version
	NpnspsrvLmtEn.exe	for Basic version
	NspconfEn.exe	(Operation setup tool program)
		Not installed for Basic version
	Npnspsrv.ini	(Operating condition file)
		Not installed for Basic version
	npnskey.dat	(Key file for Evaluation version)
		Installed only for Evaluation version
	Npacfail.wav	(wav file to run at power failure occurrence)
	Nprecovery.wav	(wav file to run at power recovery)
	Npshutdown.wav	(wav file to run at shutdown start)
	Include	Np_msg_en.h (software interface header file)
Sample1	Samplelib_en.h (sample library header file)	
	Samplelib_en.cpp (sample library source file)	
	Sample_en.cpp (sample application source file)	
	Sample1En.exe (sample application execution file)	

### 2.3.3 Nonstop power supply monitoring service installation

Open dialog box by clicking on “Run” from Start menu and execute NpnspsrvEn.exe<sup>(\*1)</sup> in the directory where NpnspsrvEn.exe is installed specifying “- install” option to the exe file.

The message, “Nipron NSP monitor service installed.,” appears and Nonstop power supply monitoring service is registered as one of services. (Open “Services” in “Administrative Tools,” you can find “Nipron NSP monitor service” in it). At this stage, however, the program is not in service yet.

(\*1) The program to be executed is NpnspsrvEn.exe for English version, NspProEvalEn.exe for Evaluation version, and NspProLmtEn.exe for Basic version.

### 2.3.4 Nonstop power supply monitoring service start

Set up operating conditions with the operating condition file as needed before starting Nonstop power supply monitoring service. The setup in the operating condition file is read in at the service startup. (The operating condition file is generated in the installation directory under the name of Npnspsrv.ini).

Select “Nipron NSP monitor service” in “Services” in “Administrative Tools” and click “Start” button. For a while a message “Windows is attempting to start the following service on Local computer Nipron NSP monitor service” is displayed, “Started” is displayed on “Nipron NSP monitor service” on the service listing.

### 2.3.5 Use of Nonstop power supply monitoring service

After the processes above, Nonstop power supply monitoring service is ready for service.

Register an application from user applications to utilize software interface such as an inquiry for supply mains condition and acquisition of supply mains events.

### 2.3.6 Nonstop power supply monitoring service stop

To stop Nonstop power supply monitoring service, go to “services” in “Administrative Tools”, select “Nipron NSP monitor service” and click “Stop” button. For a while a message “Windows is attempting to stop the following service on Local computer ”Nipron NSP monitor service,” the service comes to a stop and the display “Started” disappears on ”Nipron NSP monitor service.”

### 2.3.7 Nonstop power supply monitoring service uninstallation

To uninstall Nonstop power supply monitoring service, open the dialog box to specify NpnspsrvEn.exe<sup>(\*1)</sup> that has been installed in the directory and execute the file specifying

“- remove” option to the exe file after the service stop. A message, “Nipron NSP monitor service removed,” is displayed and Nonstop power supply monitoring service is removed from Windows service. (When “Services” in “Administrative Tools” is opened, you can find “Nipron NSP monitor service” has been removed).

(\*1) The program to be executed is NpnspsrvEn.exe for English version, NspProEvalEn.exe for Evaluation version, and NspProLmtEn.exe for Basic version.

### 2.3.8 Nonstop power supply monitoring program uninstallation

After Nonstop power supply monitoring service uninstallation, remove all files copied at Nonstop power supply monitoring program installation.

### **3 OPERATING CONDITION SETUP TOOL**

Utilizing operating condition setup tool enables you to edit operating condition file on GUI screen.

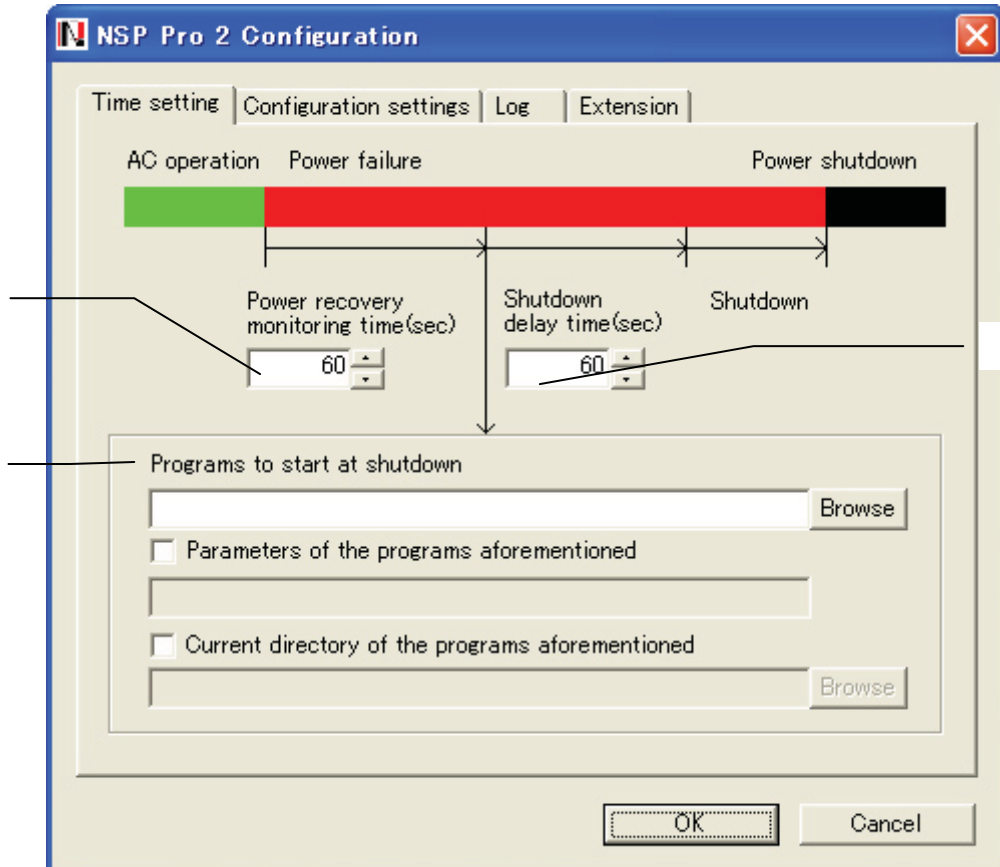
#### **3.1 STARTUP OF OPERATING CONDITION SETUP TOOL**

Executing NspconfEn.exe in the folder installed at Nonstop power supply monitoring program installation makes operating condition setup tool start up. Operating condition setup tool displays the content of the operating condition file (Npnspsrv.ini) when started.

The operating condition setup tool consists of the following 4 (four) tab pages.

- Time setting
- Configuration settings
- Log
- Extension

### 3.2 TIME SETTING



In setting time, the following items are to be set.

Power recovery monitoring time

Specify the period of time in second order to recognize that power recovery is unavailable since power failure occurrence.

Shutdown delay time

Specify the period of delay time to execute shutdown since recognition of unavailable power recovery.

Path, Parameter and Current directory of program activated at shutdown

Specify the path when you would like to start a specific program such as .EXE or .BAT file at shutdown. Clicking "Browse..." button opens file selection dialog box to select the program.

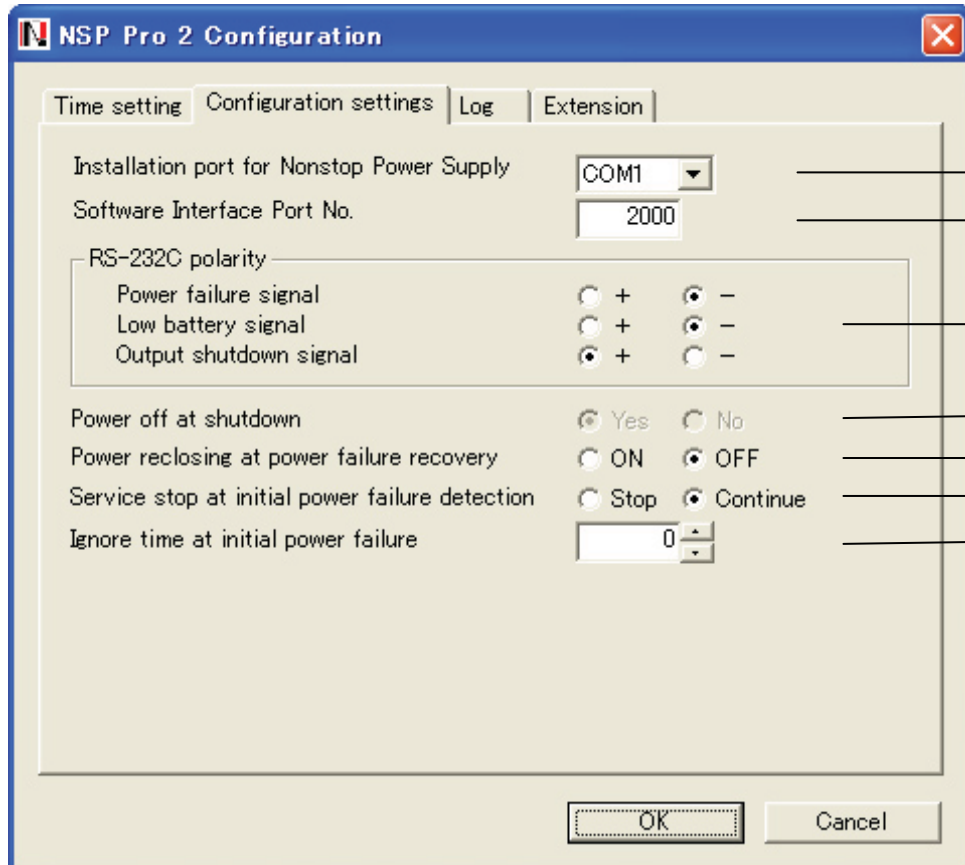
If parameters need to be passed to the program activated, enter the parameters putting a check mark on "parameters of the program

above.” If not, remove the check mark.

If current directory of the program activated needs to be specified, put a check mark on “current directory of the program above” and enter the directory, or open the selection dialog box clicking “Browse” button to select it. If not necessary, remove the check mark.

(Refer to 1.4 OPERATING CONDITION for details on each item).

### 3.3 CONFIGURATION SETTINGS



The following items are to be set in configuration settings.

#### Nonstop power supply connection port

Select a serial port name from a list for connection with RS-232C cable from Nonstop power supply.

#### Software interface port number

Specify a socket port number used by the monitoring service program for communication between Nonstop power supply monitoring service and user application via software interface.

#### RS-232C signals polarity

Specify the signal polarity (Positive/Negative) with “+/-“ for power failure signal, battery voltage drop signal, and output shutdown signal in this order.

#### Power ON/OFF at shutdown

Specify whether PC power supply is to be off when Nonstop power supply executes shutdown.

For Windows XP and Windows Vista, “Power is to be off” is performed.

Reboot at power recovery

Specify whether the system is to be rebooted at power recovery during shutdown delay time.

Service stop at initial power failure detection

Specify whether the service is to be stopped or continued when power failure is detected during Nonstop power supply monitoring service startup.

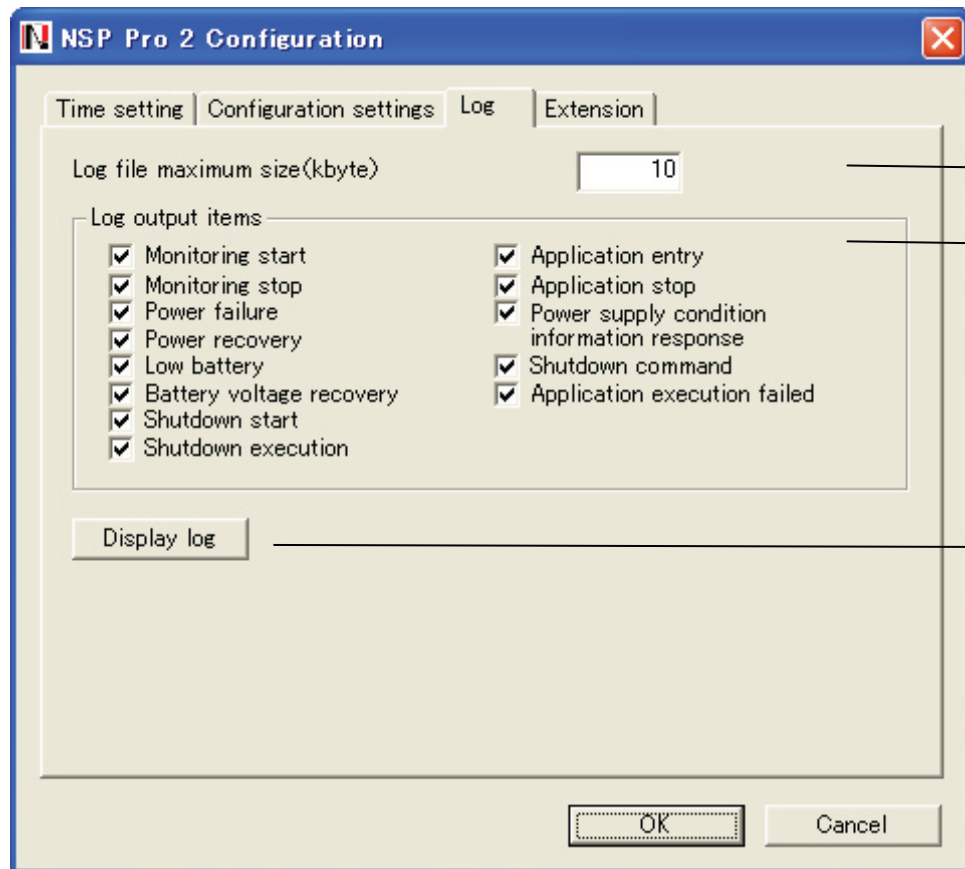
Initial power failure unresponsive time

In the case that no power failure detection is required for specific time after Nonstop power supply monitoring service startup, specify the time in second order.

(Refer to 1.4 OPERATING CONDITION for details on each item).



### 3.4 LOG



Set the following items in LOG.

Log file size

Specify max. Log file size in kbyte.

Log output items

Put a check mark in the items to be logged.

Log display

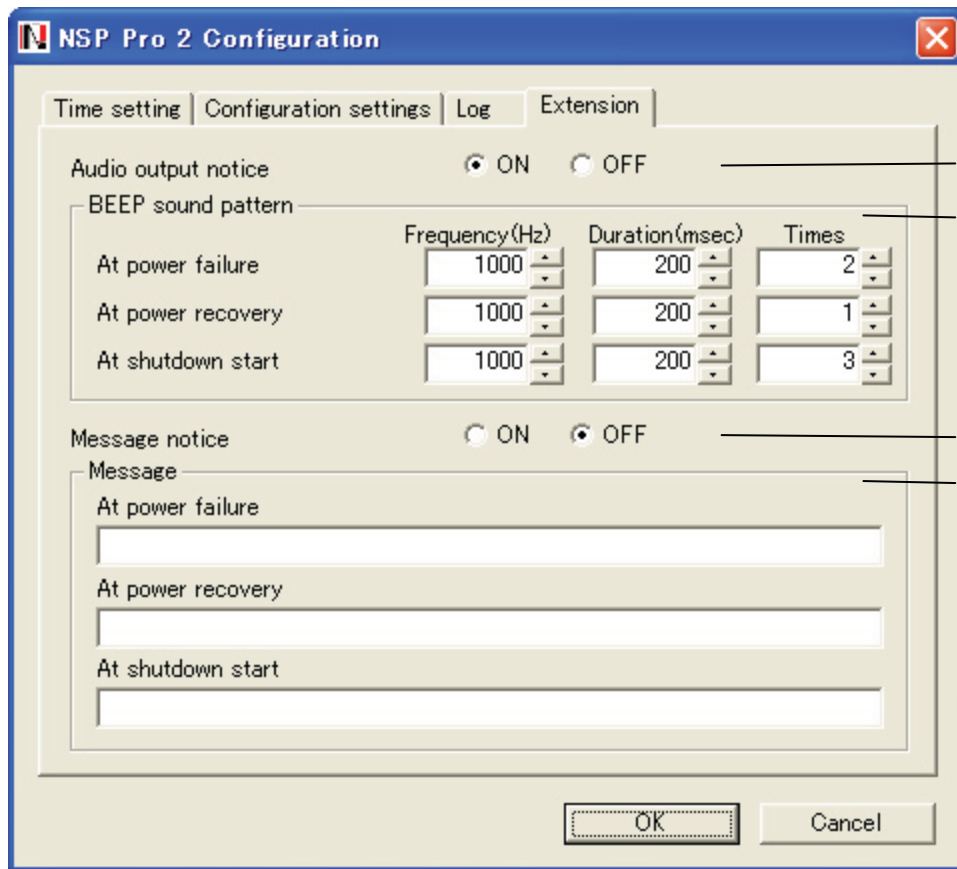
Current Log file content is displayed.

The content is displayed by an application related to extension .log file.

If no application related to extension .log file is found, a dialog box to select an application is opened.

(Refer to 1.4 OPERATING CONDITION for details on each item).

### 3.5 EXTENSION



Specify the following items in EXTENSION

#### Audio output notice

Specify whether or not audio output notice is required at power failure occurrence, power recovery and shutdown start.

#### BEEP sound pattern

Specify sound frequency, output duration and frequency of BEEP sound at power failure occurrence, power recovery and shutdown start.

#### Message notice

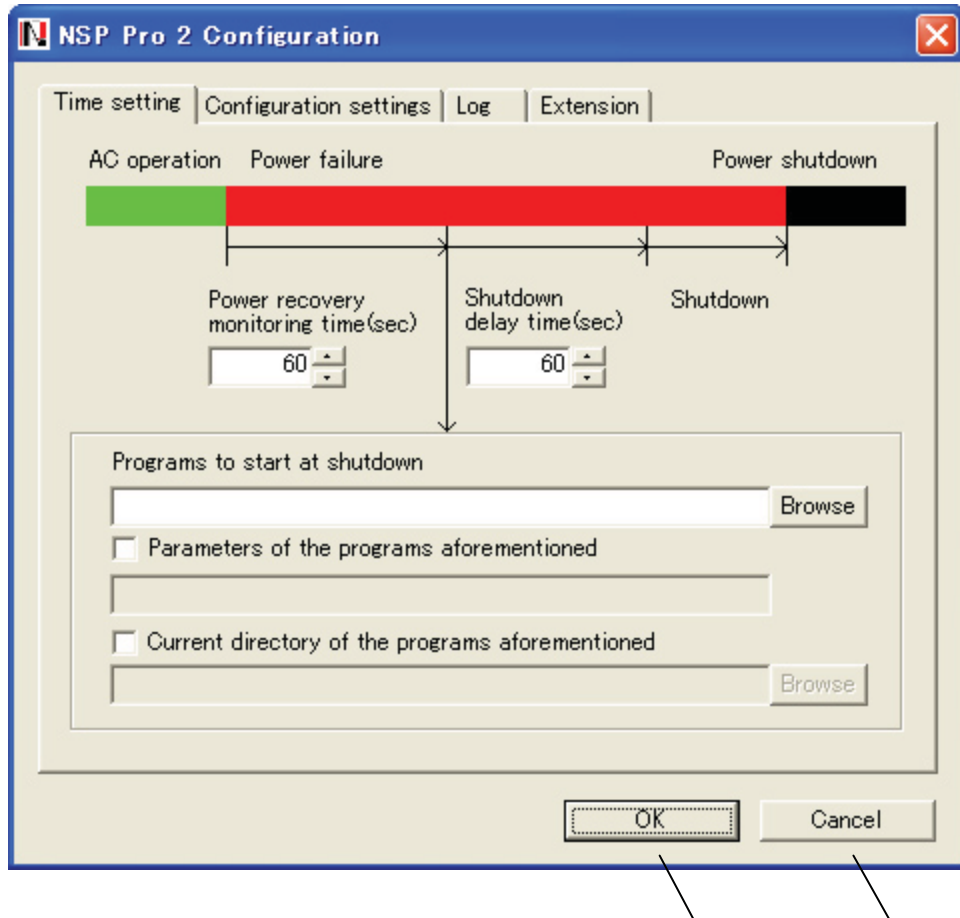
Specify whether message on the screen is required or not at power failure occurrence, power recovery and shutdown start.

#### Message contents

Specify the message displayed at power failure occurrence, power recovery and shutdown start. If not specified, default message is displayed.

(Refer to 1.4 OPERATING CONDITION for details on each item).

### 3.6 OPERATING CONDITIONS STORAGE AND SERVICE STARTUP

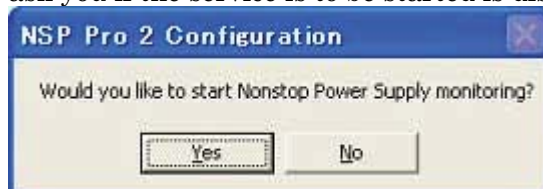


After specifying each item, save the contents and start the service.

Clicking OK button saves the specified contents in the operating condition file.

When Nonstop power supply monitoring service is already in work, the service stop or restart is performed after the file is saved.

If Nonstop power supply monitoring service is not started, the message to ask you if the service is to be started is displayed



If "Yes" is selected, the service starts.

Operating condition setup tool is terminated after saving files (and service startup).

Clicking “Cancel” button, operating condition setup tool terminates without saving the operating condition setup in the file and starting the service.

## 4 SOFTWARE INTERFACE

Software interface is built by exchanging socket (UDP) communication messages between Nonstop power supply monitoring service and user application.

You can specify the socket address (port number) on the side of Nonstop power supply monitoring service using operating condition file. (Port number change after the service starts is not acceptable. If the port number is to be changed, quit the service once to make the change, and start the service again).

Socket address on the side of user application is transferred to Nonstop power supply monitoring service together with socket address information when the application is registered.

The following items show the procedures of how to use software interface.

Transfer application registration message Nonstop power supply monitoring service together with user application' name and socket address.

The following items can be performed after application registration.

- When supply mains condition information requirement message is sent to Nonstop power supply monitoring service, current supply mains condition information is sent back as response message.
- A notification message is sent to user application when supply mains event has occurred.
- When shutdown requirement message is sent to Nonstop power supply monitoring service, shutdown starts.

When software interface is no longer required, such as in case of user application termination, send the application stop message to remove the application registration.

#### 4.1 MESSAGE FORMAT

Each message of software interface is formatted as follows,  
The structure of these messages formats and the macro constant of message ID are defined in np\_msg.h file.

##### Application entry message

Data Item	Type and Size
Message ID	long
Sender name	char · 64
Socket IP address	char · 32
Socket port number	unsigned short

Set NP\_APENTRY\_MSG to message ID.

Set application name (up to 60bytes) to sender name.

Set IP address in character string to socket IP address. (Ex. 192.13.100.1)

If Nonstop power supply monitoring service and user application are on the same system, set null character string to socket IP address.

##### Supply mains condition information requirement message

Data Item	Type and Size
Message ID	long
Sender name	char · 64

Set NP\_REQSTATE\_MSG to message ID.

Set application name to sender name.

##### Supply mains condition information response message

Data Item	Type and Size
Message ID	long
Sender name	char · 64
Supply mains condition information	long

NP\_RESSTATE\_MSG is set to message ID.

The following values are set to supply mains condition information.

NP\_NORAML\_STATE: Normal

NP\_ACFAIL\_STATE: at power failure (under monitoring)

NP\_CANNOTRECOVER\_STATE: at power failure (power recovery is unavailable)

Supply mains event notice message

Data Item	Type and Size
Message ID	long
Sender name	char · 64

The following values are set to message ID.

NP\_ACFAIL\_MSG: Power failure occurred

NP\_RECOVERY\_MSG: Power recovery

NP\_CANNOTRECOVER\_MSG: Power recovery unavailable

NP\_STARTSHUTDOWN\_MSG: Shutdown start

NP\_EXECSHUTDOWN\_MSG: Shutdown execution

NP\_BATTERYLOW\_MSG: Battery voltage drop

NP\_BATTERYHIGH\_MSG: Battery voltage recovery

Shutdown command requirement message

Data Item	Type and Size
Message ID	long
Sender name	char · 64

Set NP\_REQSHUTDWON\_MSG to message ID.

Set application name to sender name.

Application stop notice message

Data Item	Type and Size
Message ID	long
Sender name	char · 64

Set NP\_APDELETE\_MSG to message ID.

Set application name to sender name.



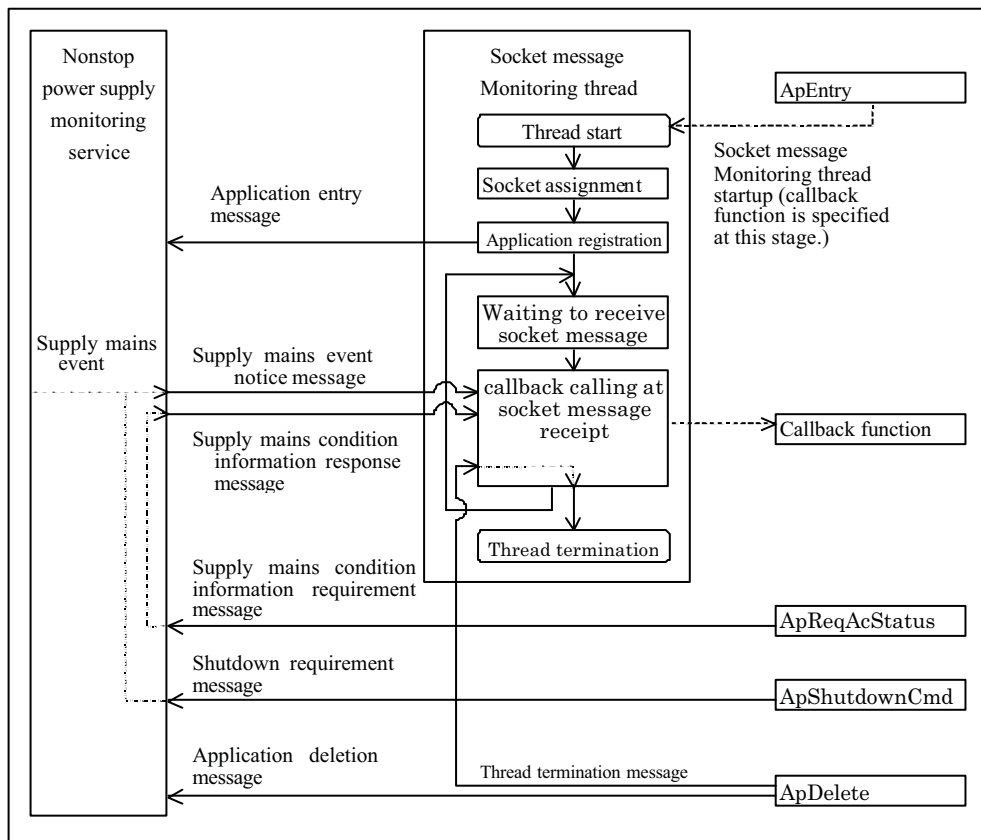
## 4.2 SAMPLES

Sample library (Samplelib.cpp and Samplelib.h) as an example of software interface use and sample application (Sample1.cpp) to show how to use sample library is provided

The sample library provides the functions below.

- ApEntry (Application entry function)
- ApDelete (Application deletion function)
- ApReqAcStatus (Supply mains condition information requirement function)
- ApShutdownCmd (Shutdown command requirement function)

These functions operate as follows,



Refer to the following pages for details of each function.

## ApEntry (Application entry function)

### Summary

ApEntry function activates the thread to monitor the socket in the address assigned by parameters. The thread creates the socket after startup to send a message with application name passed by parameters and socket address to Nonstop power supply monitoring service, and then starts to monitor the created socket.

### Calling sequence

```
DWORD ApEntry(NspSrvApEntry *apent);
```

### Parameters

- apent

To set address of NspSrvApEntry structure data containing necessary information for entry.

The following information is set to NspSrvApEntry structure.

```
typedef struct NspSrvApEntry_tag    {
    TCHAR  srvaddr[32];    /* Nonstop power supply service IP address */
    unsigned short  srvport; /* Nonstop power supply service port number */
    /*
    TCHAR  apaddr[32];    /* Application IP address */
    unsigned short  apport; /* Application port number */
    TCHAR  apname[NP_APNAMELEN+4]; /* Application name */
    /*
    int  (*cb)(Np_Msg_t msg, DWORD ecode); /* Callback */
} NspSrvApEntry;
```

### Return value

The following DWARD values are returned.

NSPSRVAP\_ERR\_NORMAL: Normal completion

NSPSRVAP\_ERR\_ENTRIED: Entry accepted

NSPSRVAP\_ERR\_INVALIDPARAM: Wrong parameter

NSPSRVAP\_ERR\_SOCKET: Socket assignment error

NSPSRVAP\_ERR\_BIND: Socket binding error

NSPSRVAP\_ERR\_SEND\_APENTRY: Application entry transmission error

NSPSRVAP\_ERR\_CREATETHREAD: Monitoring thread startup  
error

## Callback function

### Summary

On receiving supply mains event notice message at the socket, the monitoring thread calls Callback function transferred by ApEntry function as a parameter and transfers the supply mains event notice message to the specified application using. Also, on receiving the response to supply mains condition information requirement required by ApReqAcStatus function, it calls Callback function and transfers the supply mains condition information response message to the specified application.

For Callback function to conduct the procedure for supply mains event notice message and supply mains condition information response, the calling sequence as shown below is to be created by a user.

### Calling sequence

```
int Callback function name (Np_Msg_t *msg, DWORD ecode);
```

### Parameter

- msg

Address of supply mains events and supply mains condition information response message transferred by Nonstop power supply monitoring service. As to the content of each message, refer to 4 – 1 MESSAGE FORMAT

- ecode

When an error occurs at message receipt in the sample library, the error is transferred.

If no error occurs, 0 (null) is transferred.

### Return value

Return 0 (null).

AcReqAcStatus (supply mains condition information requirement function)

#### Summary

ApReqAcStatus function transfers supply mains condition information requirement message to Nonstop power supply monitoring service. Upon receipt of the response to it, the monitoring thread calls Callback function transferred as a parameter by ApEntry function and transfers the supply mains condition information response message to the application.

#### Calling sequence

```
DWORD ApReqAcStatus();
```

#### Parameter

N/A

#### Return value

The following DWARD values are returned.

NSPSRVAP\_ERR\_NORMAL: Normal completion

NSPSRVAP\_ERR\_NOTENTRIED: No Entry

NSPSRVAP\_ERR\_SEND\_REQSTATUS: Supply mains condition  
information requirement  
transfer error

## ApShutdownCmd (Shutdown command requirement function)

### Summary

ApShutdownCmd function sends shutdown command requirement message to Nonstop power supply monitoring service.

### Calling sequence

```
DWORD ApShutdownCmd();
```

### Parameter

N/A

### Return value

The following DWARD values are returned.

NSPSRVAP\_ERR\_NORMAL: Normal completion

NSPSRVAP\_ERR\_NOTENTRIED: No Entry

NSPSRVAP\_ERR\_SEND\_SHUTDOWN: Shutdown requirement transfer error

## ApDelete (Application stop function)

### Summary

ApDelete stops the thread sending application stop notice message to Nonstop power supply monitoring service.

### Calling sequence

DWORD ApDelete();

### Parameter

N/A

### Return value

The following DWARD values are returned.

NSPSRVAP\_ERR\_NORMAL: Normal completion

NSPSRVAP\_ERR\_NOTENTRIED: No Entry

NSPSRVAP\_ERR\_SEND\_APDELETE: Application stop requirement  
transfer error

NSPSRVAP\_ERR\_SOCKET: Socket assignment error

NSPSRVAP\_ERR\_SEND\_EXITTHREAD: Thread completion  
requirement  
transfer error

### Sample library error code listing

Value	Macro constant symbol	Description
1	NSPSRVAP_ERR_INVALIDPARAM	Wrong parameter
2	NSPSRVAP_ERR_ENTRIED	Application already entered
3	NSPSRVAP_ERR_NOTENTRIED	Application not entered
4	NSPSRVAP_ERR_SOCKET	Socket assignment error
5	NSPSRVAP_ERR_BIND	Binding error
6	NSPSRVAP_ERR_CREATETHREAD	Thread startup error
7	NSPSRVAP_ERR_SEND_APENTRY	Application entry transfer error
8	NSPSRVAP_ERR_SEND_APDELETE	Application stop transfer error
9	NSPSRVAP_ERR_SEND_REQSTATUS	Supply mains condition information requirement transfer
10	NSPSRVAP_ERR_SEND_EXITTHREAD	Monitoring thread stop transfer
11	NSPSRVAP_ERR_SEND_SHUTDOWN	Shutdown requirement transfer



## Sample application

Sample application operates with each function in the sample library as follows

Selecting “Entry application” button makes application entry. At this time, switch the button display to “Stop application.”

To display supply mains event in the message box at supply mains event occurrence.

Selecting “Request power supply condition” button sends supply mains condition information requirement and displays the response content in the message box.

Selecting “Request Shutdown” button sends shutdown command requirement and shutdowns the system.

Selecting “Stop application” button stops the application. At this time, switch the button display to “Entry application.”

Refer to each source file for details.