Universal PMBus™ GUI User's Manual

DOCUMENT REVISION HISTORY

REV	DATE	SOFTWARE DESCRIPTION	S/W REV.	REMARKS
01	06242008	Universal PMBus GUI User's Manual	00.01.00Beta	First Issue
02	02062009	Universal PMBus GUI User's Manual	00.08.00 Beta	For Universal PMBus GUI version 00.008 Beta
03	02142009	Universal PMBus GUI User's Manual	00.09.00	For Universal PMBus GUI version 00.09.00 Beta
04	11272009	Universal PMBus GUI User's Manual	00.11.00	For Universal PMBus GUI version 00.11.00 Beta
05	12292009	Universal PMBus GUI User's Manual	00.12.00	For internal user's manual
06	06092010	Universal PMBus GUI User's Manual	00.16.00	For internal user's manual
07	09092010	Universal PMBus GUI User's Manual	00.17.00	For internal user's manual
08	10182010	Universal PMBus GUI User's Manual	00.20.00	Common User's Manual
09	11082011	Universal PMBus GUI User's Manual	00.40.00	Updated Version
10	04172012	Universal PMBus GUI User's Manual	1.00.00	Release Version
11	03042013	Universal PMBus GUI User's Manual	1.01.05	Beta Version
12	10092013	Universal PMBus GUI User's Manual	1.01.18	Beta Version
13	01052014	Universal PMBus GUI User's Manual	1.01.23	Beta Version
14	04072015	Universal PMBus GUI User's Manual	1.02.19	Beta Version
15	07292015	Universal PMBus GUI User's Manual	1.02.22	Beta Version
16	01152015	Universal PMBus GUI User's Manual	1.02.25	Beta Version
17	03312016	Universal PMBus GUI User's Manual	1.02.25	Beta Version

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GENERAL INFORMATION

This GUI Software is designed to make PSU accessible to the user using PMBus protocol. It is intended to provide information gathered from the PSU and interactive controls to the basic capabilities of Emerson Power Supply Product which complies in PMBus Protocol. This Software must be installed to PC before the user can make use all of the function of this program. This program can support AC-DC and DC-DC power supplies series. Please refer to the system requirement before starting the installation.

SYSTEM REQUIREMENT:

Minimum Hardware Requirements:

Intel/AMD Dual Core Processor 1.6GHz
1GB RAM (add more RAM if more than 64MB is shared for the video)
ENP USB-to-I2C Adapter

Software Requirements:

Windows XP, Win VISTA (32Bit), Win7 (32Bit / 64Bit)
Dot Net Framework Version 3.5 installed to run the GUI.
Windows 10 – only 73-769-001 and 73-769-003 are the supported I2C adapter.

Software limitations

Only works on following Windows Settings.
For XP - Set Windows Style into Window XP
For **Windows 7** and above – Other Windows themes are supported except windows classic.

Note: *Classic Windows Style not yet supported because most of the GUI controls and indicators uses Windows Visual style using 100% default text screen. 125% and 150% screen text DPI settings not yet supported.*

INSTALLATION

Note: Make sure that other applications are closed before starting the installation.

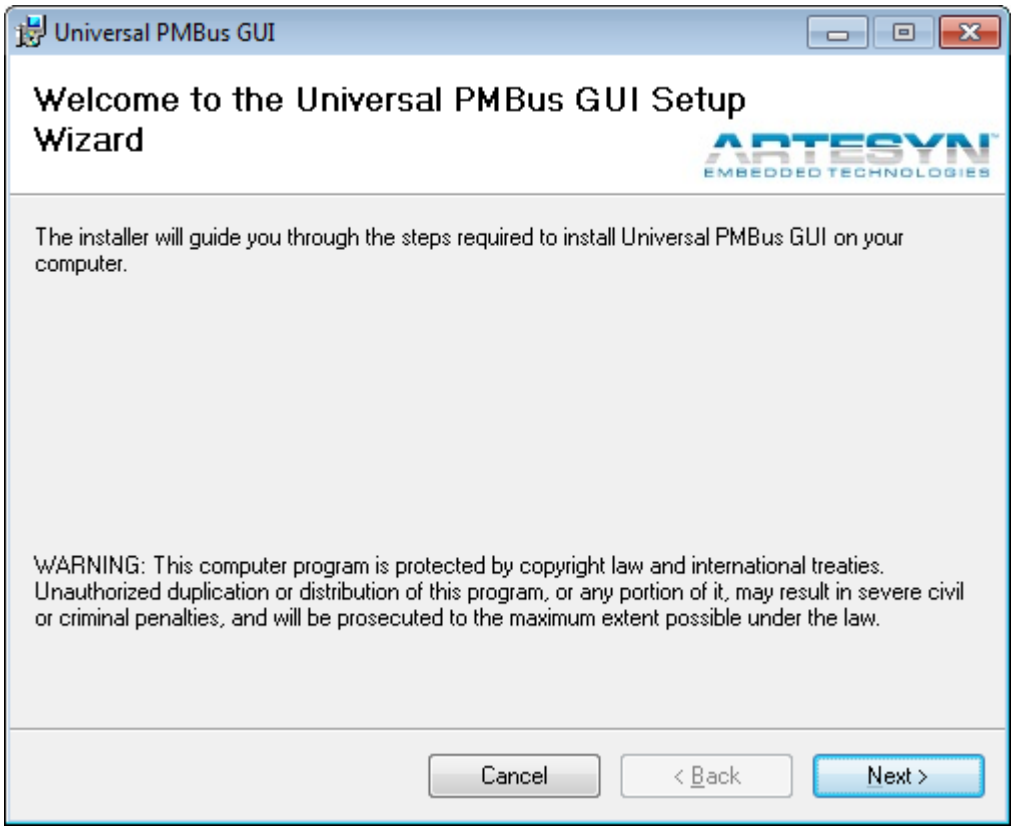
Installation Procedure

Run the installer CD, a pop up window for installation will come out. Select Install software to begin installation.

Once CD is inserted, this installer window panel will appear.

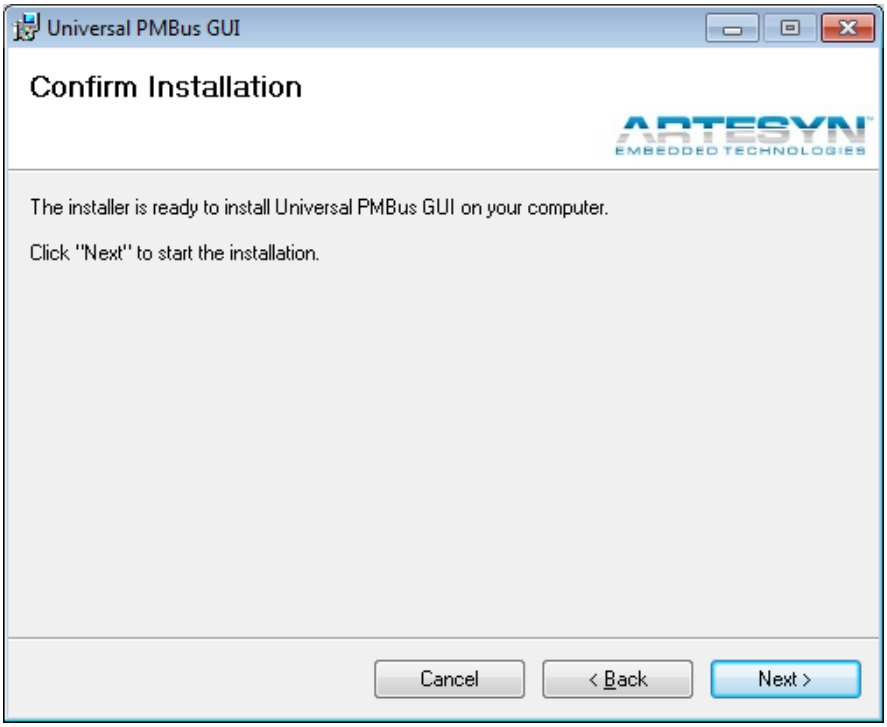
1) Once Install Software was selected, a pop up window wizard will appear to guide you through the installation process.

   Figure below is the welcome window for software installation. Just click **"NEXT"** to begin installation.

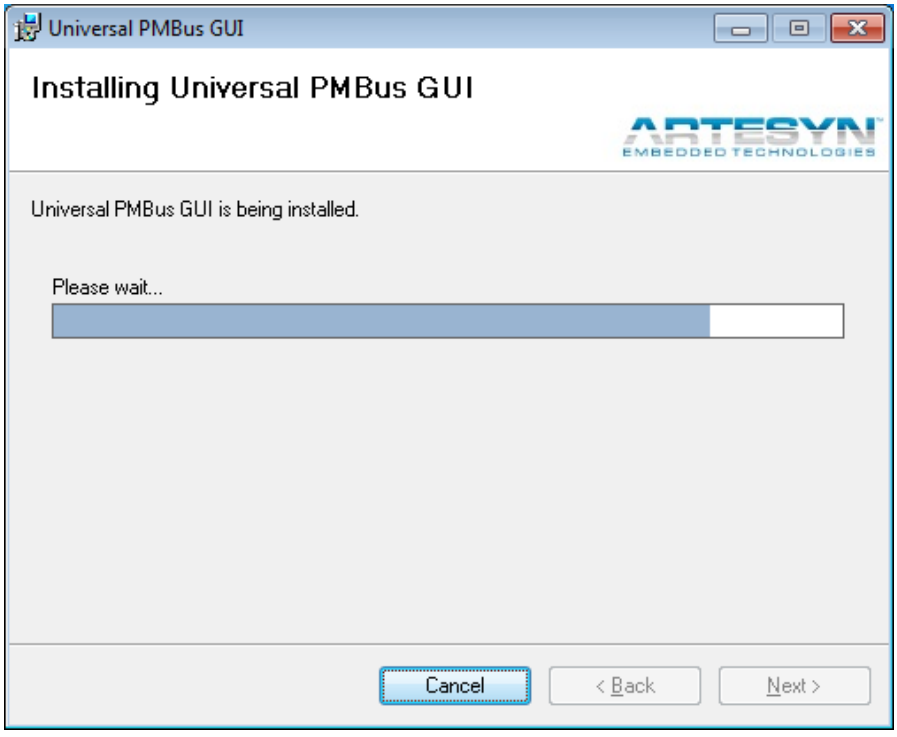


Note:
If you do not have the **Dot Net Framework Version 3.5** installed, the installation process will prompt you to first install Dot Net Framework Version 3.5. If not, click the "**Install .Net Framework 3.5"** in installer menu window. Once framework installed, proceed the installation of the GUI by selecting the **"Install Software GUI"** in installer menu window.

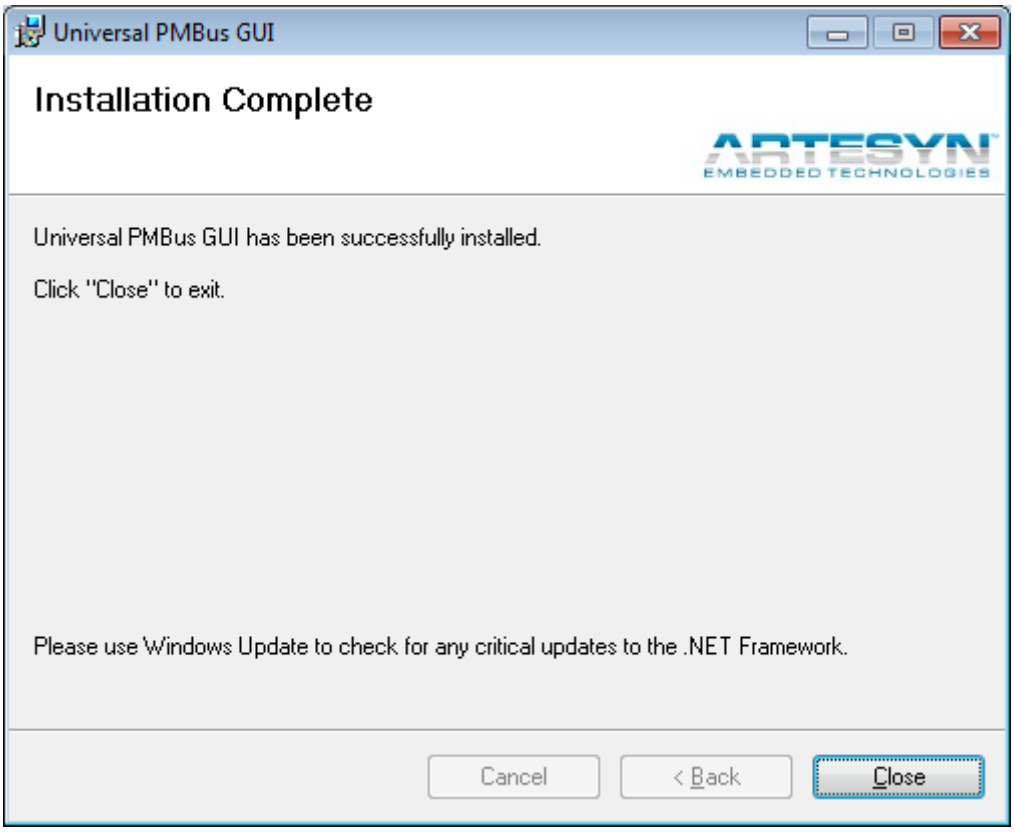
2) This window serves as a confirmation window that installation for GUI is now ready. Click "Next" to start installation.



3) GUI driver and reference file will be installed to your PC. Wait until installation completed.



4) Once installation completed successfully, a pop up wizard will appear that installation completed. See figure below.



Now, you can already start using the Universal PMBus GUI.

GETTING STARTED

GENERAL SETUP

To provide proper communication between the Universal PMBus GUI software and power supply, both PSU must be loaded with correct firmware version compatible with the GUI. The PSU must also be calibrated to make use of all the function correctly and to get correct data from actual PSU.

PSU COMPATIBILITY

PSU Case with PMBus Protocol Compatibility

HARDWARE SETUP

1. Plug Standard USB adapter to your PC using compatible USB cable.

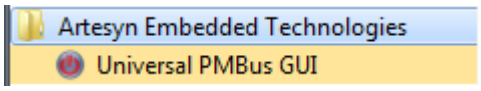
2. Wait until you PC detect it as new Hardware (It only happens when first time use in USB port).

3. If USB adapter is detected by your PC, plug the connecting cable from USB adapter to I2C port of the PSU Case.

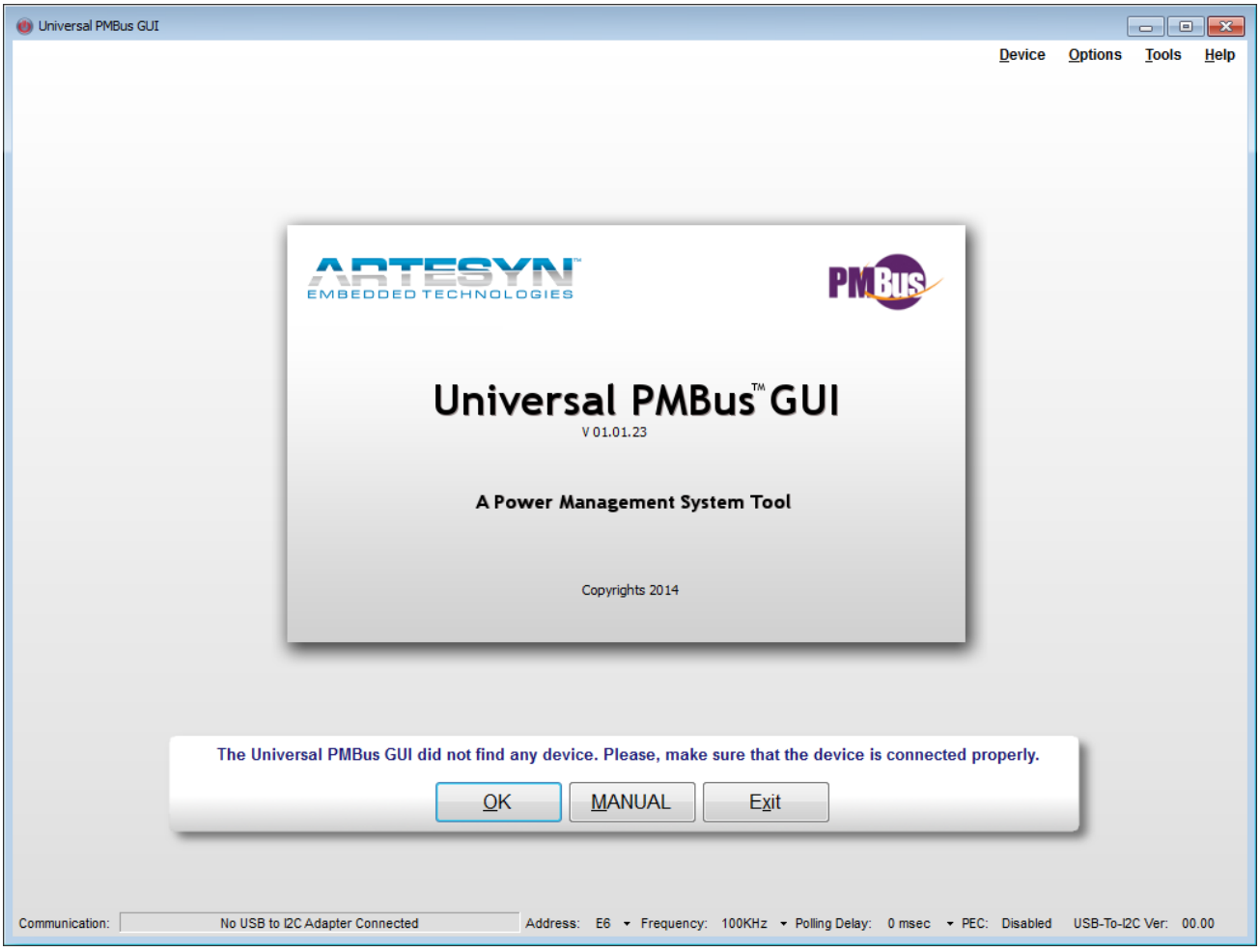
Note: Make sure that the Power Supply already power up to have proper communication with Universal PMBus GUI Software.

LAUNCHING THE UNIVERSAL PMBUS GUI

Connect the hot PSU device to the I2C-to-USB adapter, then I2C-to-USB adapter to the PC.



On the Start Menu Program or in your desktop, double-click the **Universal PMBus GUI** (red power) icon. A window will appear as seen below shows that the GUI is currently detecting the connected device.



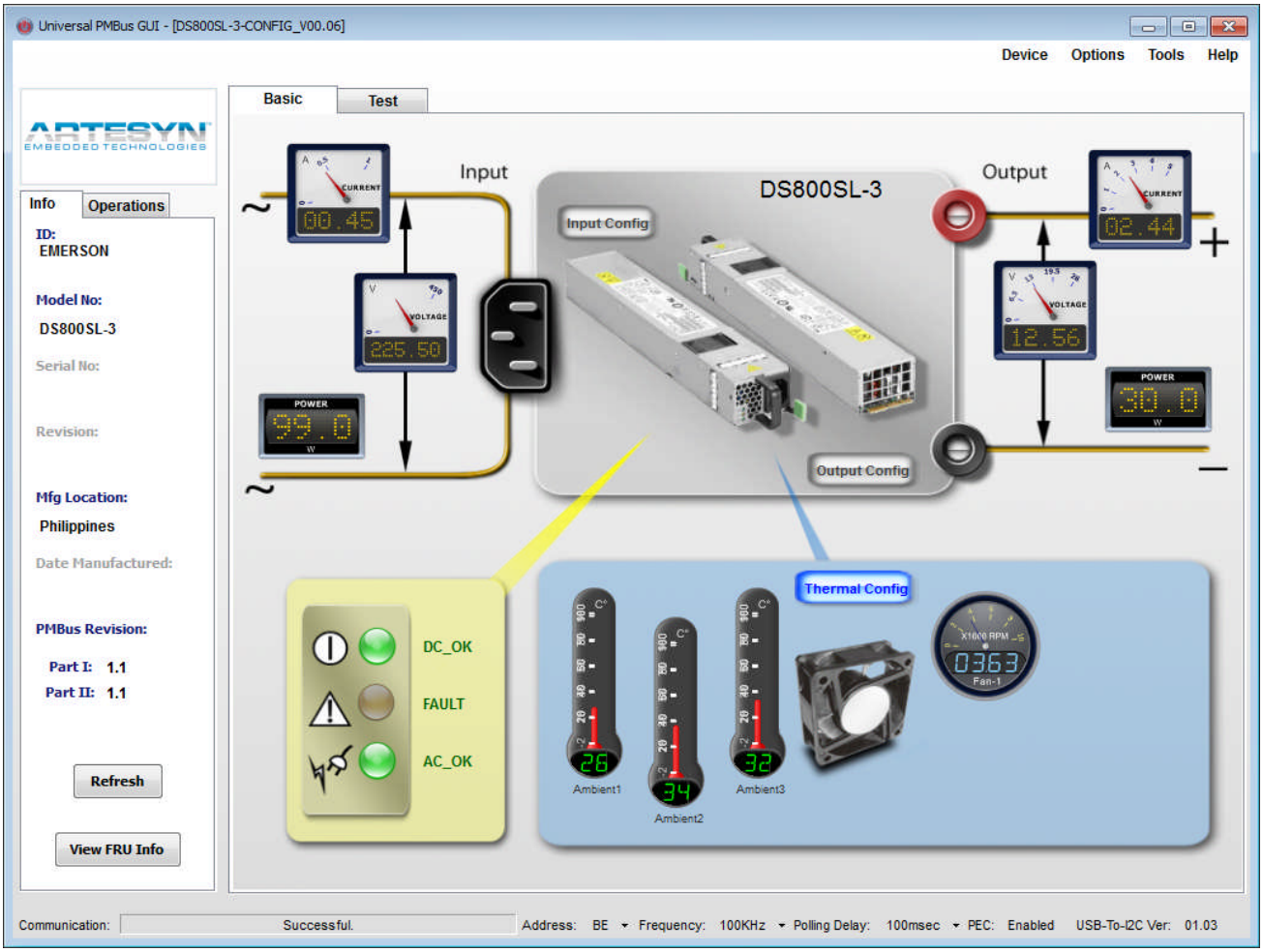
Note: Make sure that power supply and USB to I2C adapter are connected, this is to avoid pro long process of detection then prompt the user above the invalid address.

GUI can automatically detect USB to I2C adapter and Device connected to it.

If your unit was not belong in the auto detection unit, press skip auto detection button to bypass the auto detection process then select the Manual button for loading configuration file.

Manual loading are use for special cases only and password protected. This feature was added to support model that don't have MFR_ID and MFR_MODEL value.

Once the GUI has automatically detected the device the window will appear as seen below:



As an example this window shows that the DS800SL-3 unit has been detected.

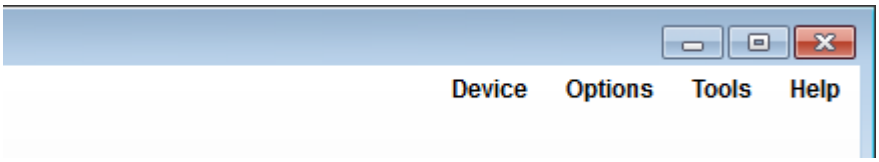
GUI DETAILS

GUI consists of different controls and indicators to support the power supply functionality. Most of the common parameters of the power supply are being displayed in the GUI. Configuration and controls are also made available to support actual interaction with the device. Universal PMBus GUI also has the capability to configure, monitor and upgrade firmware of the power supply.

Here are the lists of GUI features available and functional on this version:

MAIN MENU

This is located at the upper rightmost part of the Universal PMBus GUI. It consists of the following menu.



- **Device** menu for making, editing, importing and exporting device configuration.
- **Option**s Menu – Simulation Mode and Detect Device.
- **Tools** Menu- use to enable advance panel, error log and for firmware update.
- **Help** Menu – was use to view User's Manual, GUI updates and detailed information.

MAIN PANELS

Basic Panel Tab – it display basic parameter of the power supply such as voltage, current, power, flags and temperatures.

Test Panel Tab – this commonly use for debugging power supply debugging of PMBus Command. It is also use for burn-in testing and data logging.

GUI ADD ON FEATURES

Device Configuration – this is design for authorized personnel only. This function was design for editing configuration file to support available power supply.

Error Panel Log – it logs all I2C communication error the GUI encounter while it is in basic panel is currently active.

FRU Reader – it is design to read and access FRU of the power supply.

Advance Panel Tab – this will be use for updating and changing of software configurable Firmware. Most of this feature are for design for field application and design engineer.

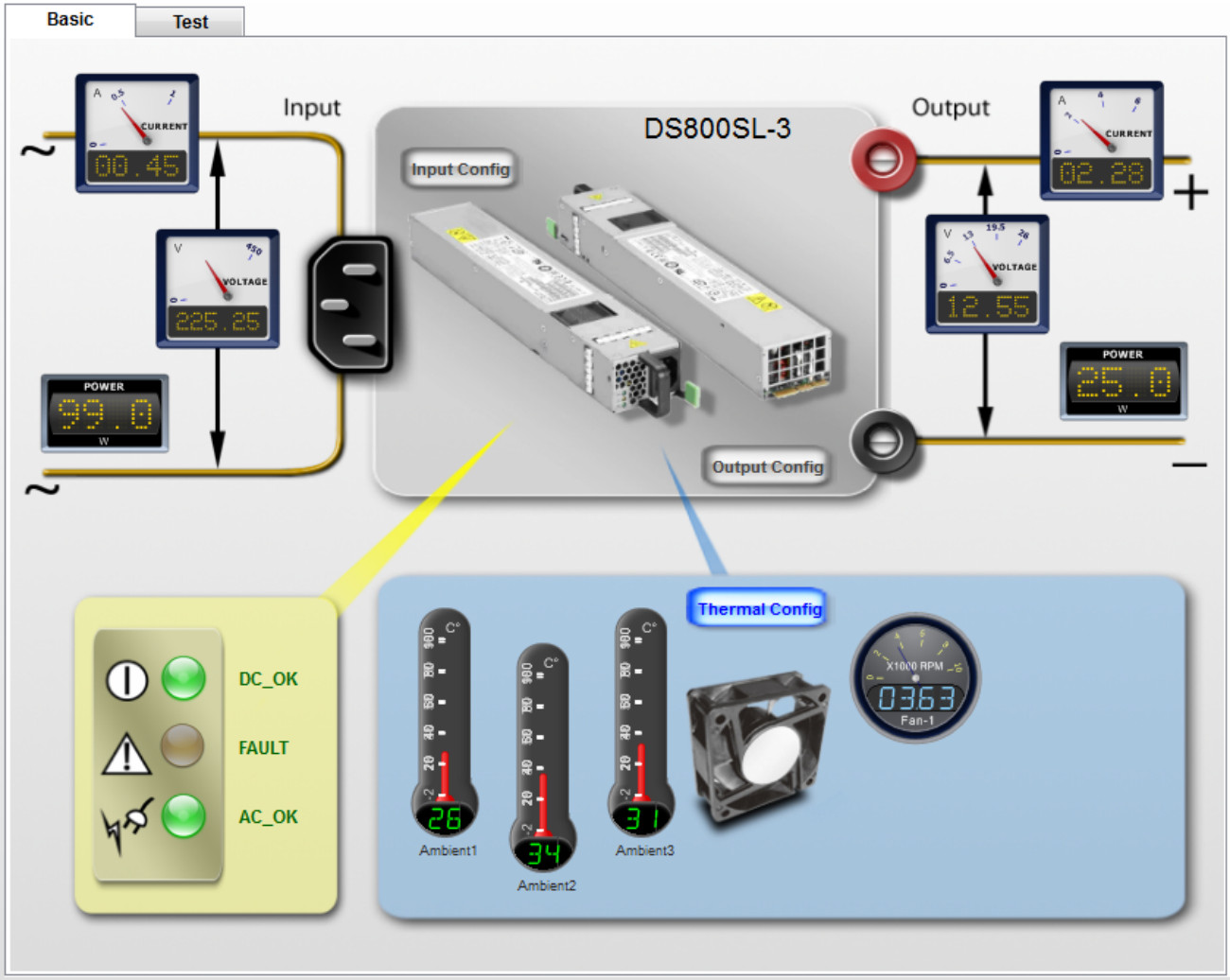
Firmware Update – use for upgrading firmware of power supply.

GUI FEATURES AND DETAILED DESCRIPTION

BASIC TAB

This panel was design to display basic parameters of the power supply. Input, output and thermal parameters are common display to be seen in this section.

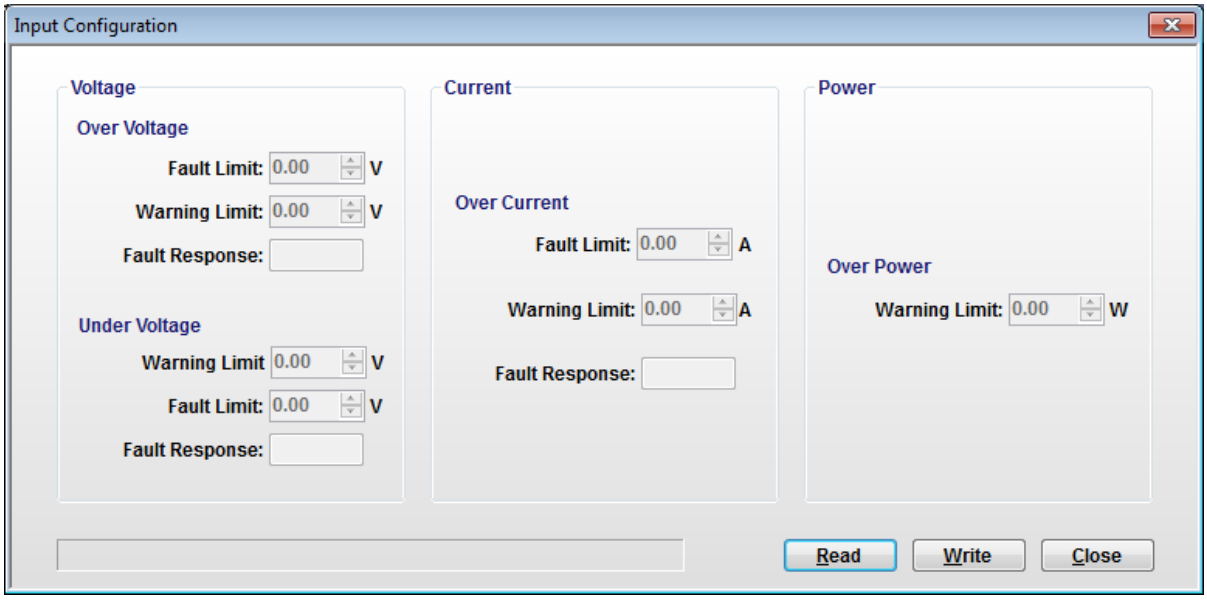
See figure below:



This view contains graphical gauges indicating input and output parameters of the power supply (e.g. ***input and output voltage, current and power***). It also shows the ***temperature*** reading and ***fan speed*** depending on how many temp sensors and fans are installed in the PSU. There is also an LED indicator emulation to provide easy indication of the PSU status.

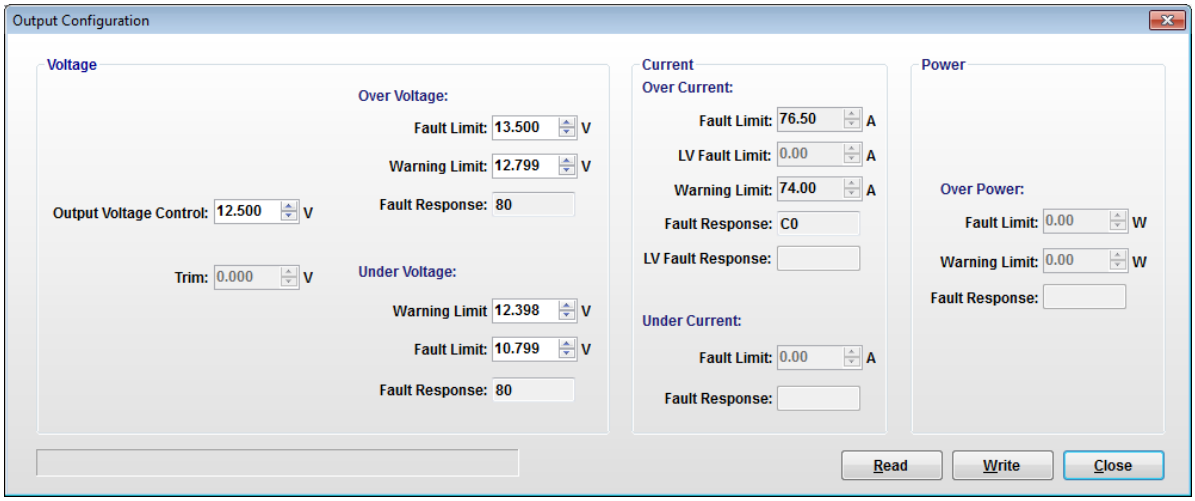
INPUT CONFIGURATION

– appears when the Input **"Config**" button is clicked on the Basic panel. Here you can set the input limits of the power supply.



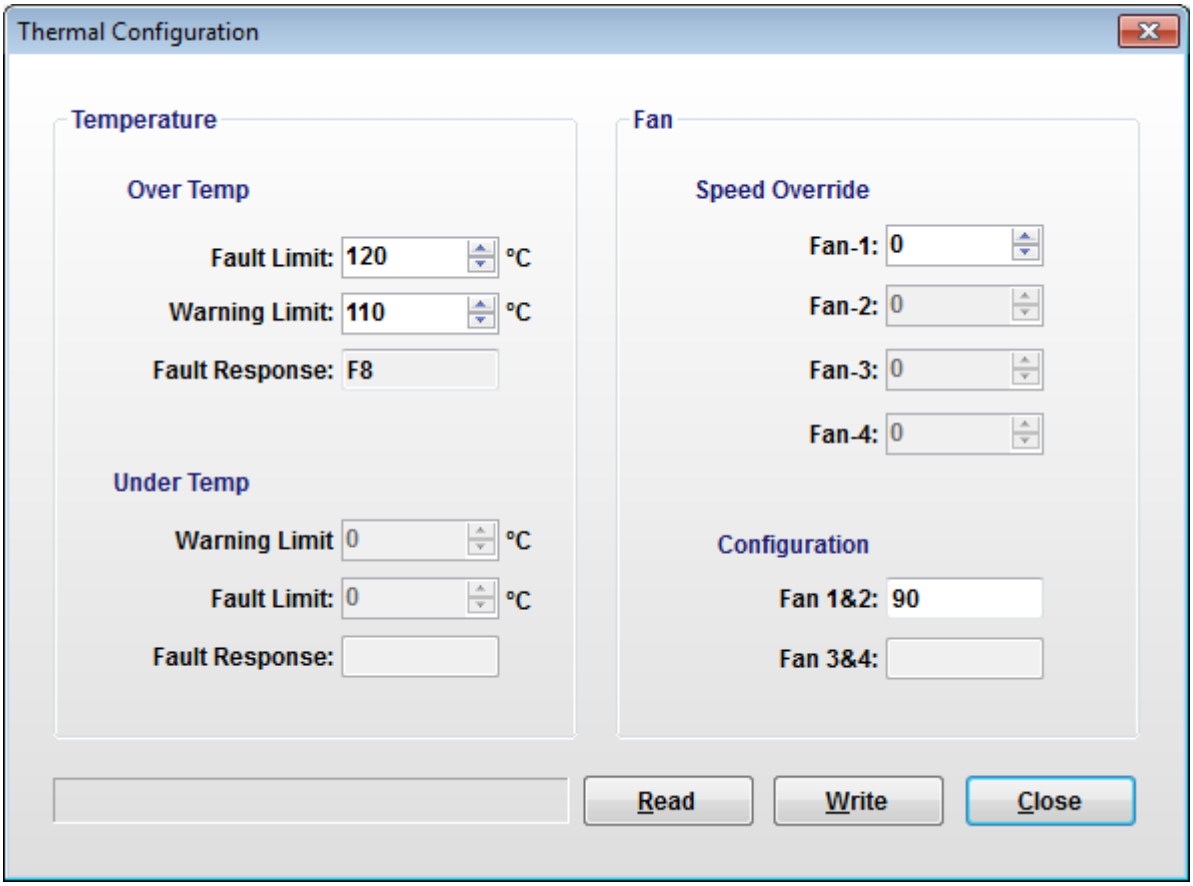
OUTPUT CONFIGURATION

- appears when the Output "**Config**" button is clicked on the Basic folder. Here you can set the output control and limits and of the power supply.



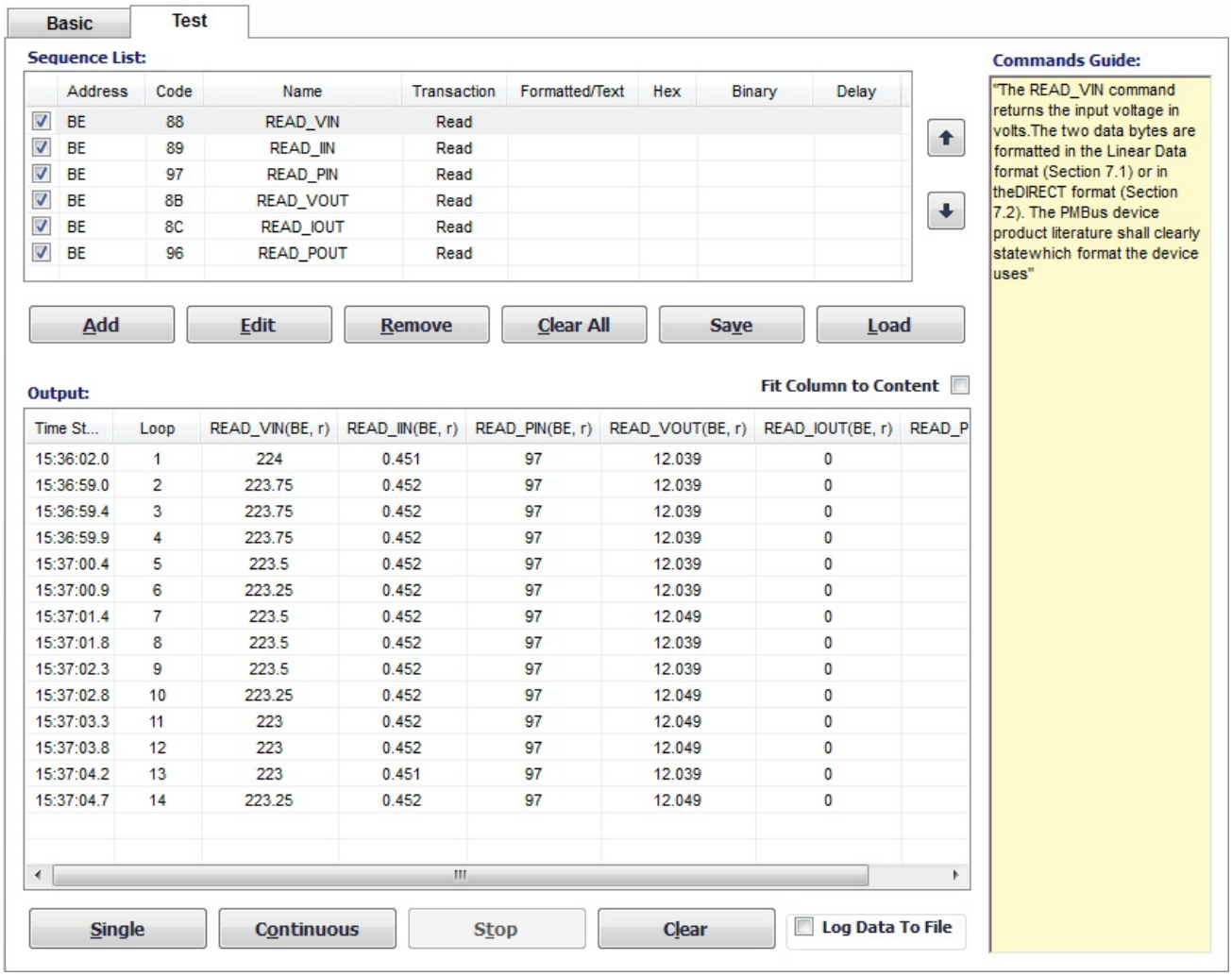
THERMAL CONFIGURATION

– appears when the Thermal "**Config**" button is clicked on the Basic folder. Here you can set the thermal limits and fan configurations of the power supply.



Test Panel

In this section you can set commands and execute them once or continuously. This also allows you to connect to multiple devices because the **Address** column is changeable per command on the **Sequence List** view. You can also arrange the command sequence, save and load it for future use. The output data on the **Output** view, acquired to the power supply device can also be exported to a text file. The **Command Guide** shows corresponding PMBus command information by clicking a row on the **Sequence List** view.



A sequence list can be created by clicking the "**Add**" button. A list of supported commands by the PSU will appear and can be selected to be added to the sequence list. Each command in the sequence list can be edited according to your preference by highlighting the command and clicking "**Edit**". Commands may be removed from the list by using the "**Remove**" and "**Clear All**" button. The sequence list may be saved to a sequence list file by using the "**Save**" button, which can be reused and reloaded by using the "**Load**" button.

The sequence list can be executed either as a Single burst or Continuous execution by using the "**Single**" or "**Continuous**" button. Continuous execution may be paused by using the "**Stop**" button.
The logged results can be cleared using the "Clear" button or can be saved in a text file using the "**Export to File**" button. The text file is formatted in a way that it can also be easily exported to Microsoft Excel™ format.

For more detail about Using Test Panel Section, proceed to Using Test Panel Chapter of this user's manual.

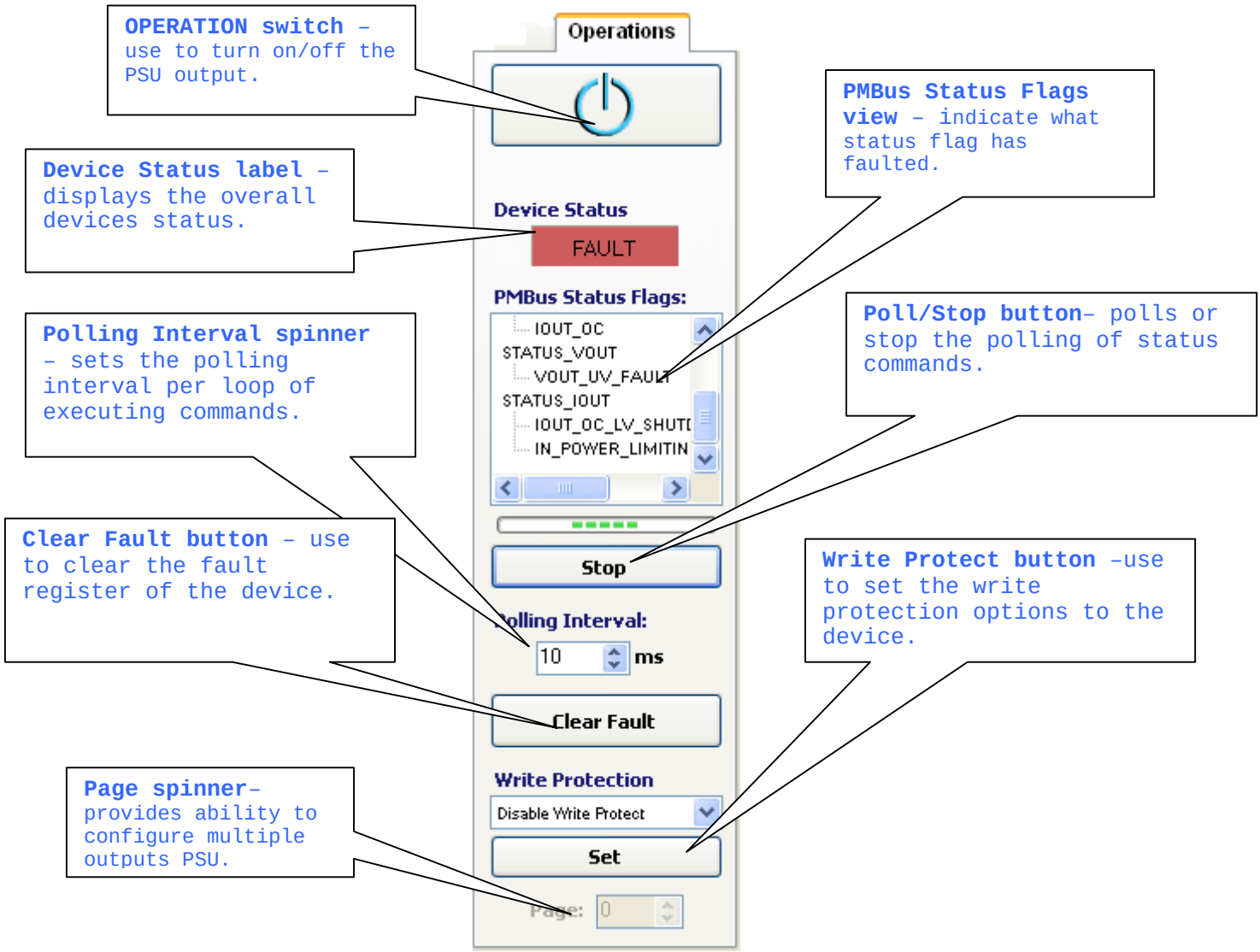
Favorites Panel

Info Tab displays the manufacturing information of the power supply device.

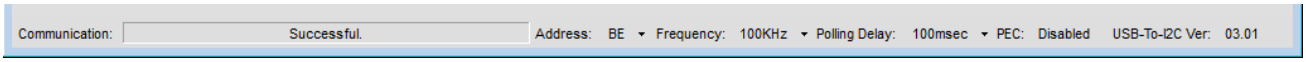
Note: Only supported command codes by the PSU will be displayed in this panel.

Operations Tab

This was design support power supply operations and PMBus Status flags. See detailed description below.



MAIN STATUS



Communication - displays the current USB-to-I2C communication status.

Address – displays the current devices address. The device address be changed by clicking its value and choosing or entering a new value. The address indicated is only applicable for the Basic Panel and Favorites Panel.

Frequency - displays the current USB-to-frequency.

Polling Delay – displays the polling delay of the execution loop.

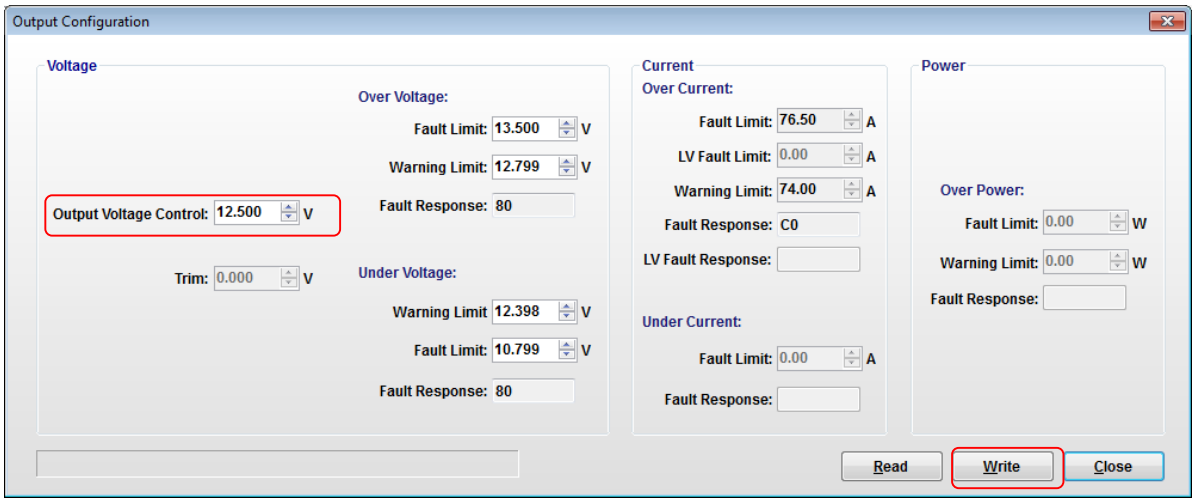
PEC – indicated whether the device is PEC enabled or disabled.

USB-to-I2C Ver – displays the USB-toI2C version.

USING THE BASIC PANEL

ADJUSTING POWER SUPPLY PARAMETERS

1) For example to adjust the output voltage of the power supply device, click the **Output "Config"** button. The Output Configuration dialog window will appear on the screen, as seen below, with the current Output settings of the power supply device.



2) If the VOUT_COMMAND is supported by your device then the "**Output Voltage Control**" is enabled. Change its value with your desired value, and click the "Write" button. The GUI will then write to the power supply device and automatically returns the value written if it is a valid value for the device.

3) You may do the same steps for the other basic power supply parameters.

CHANGING THE ADDRESS

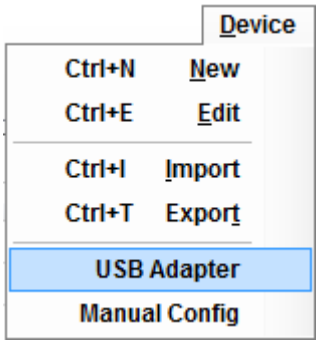
If you have a multi-device connection, you can view other devices' parameter on the Basic Panel.

1) Click the Address value in the Status. A list of the addresses will appear on the top of it plus a text field

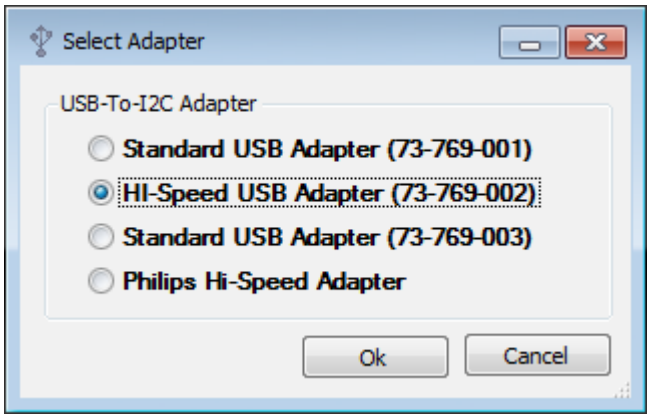
2) Select from the list or you can enter the desired address if it is not in the list.

CHANGING USB ADAPTER

To change the adapter selected, go to menu then select USB Adapter.



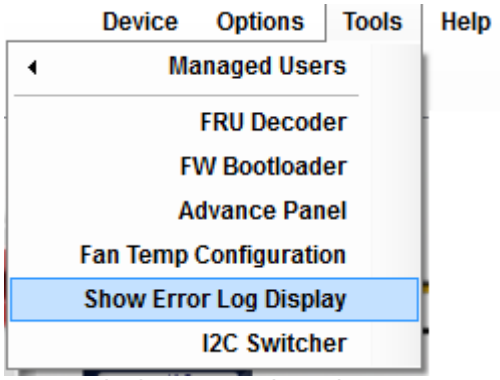
Standard Adapters are the USB adapter that uses HID driver.
USB to I2C adapter (73-769-001 / 73-769-003) are slow communication interface device.



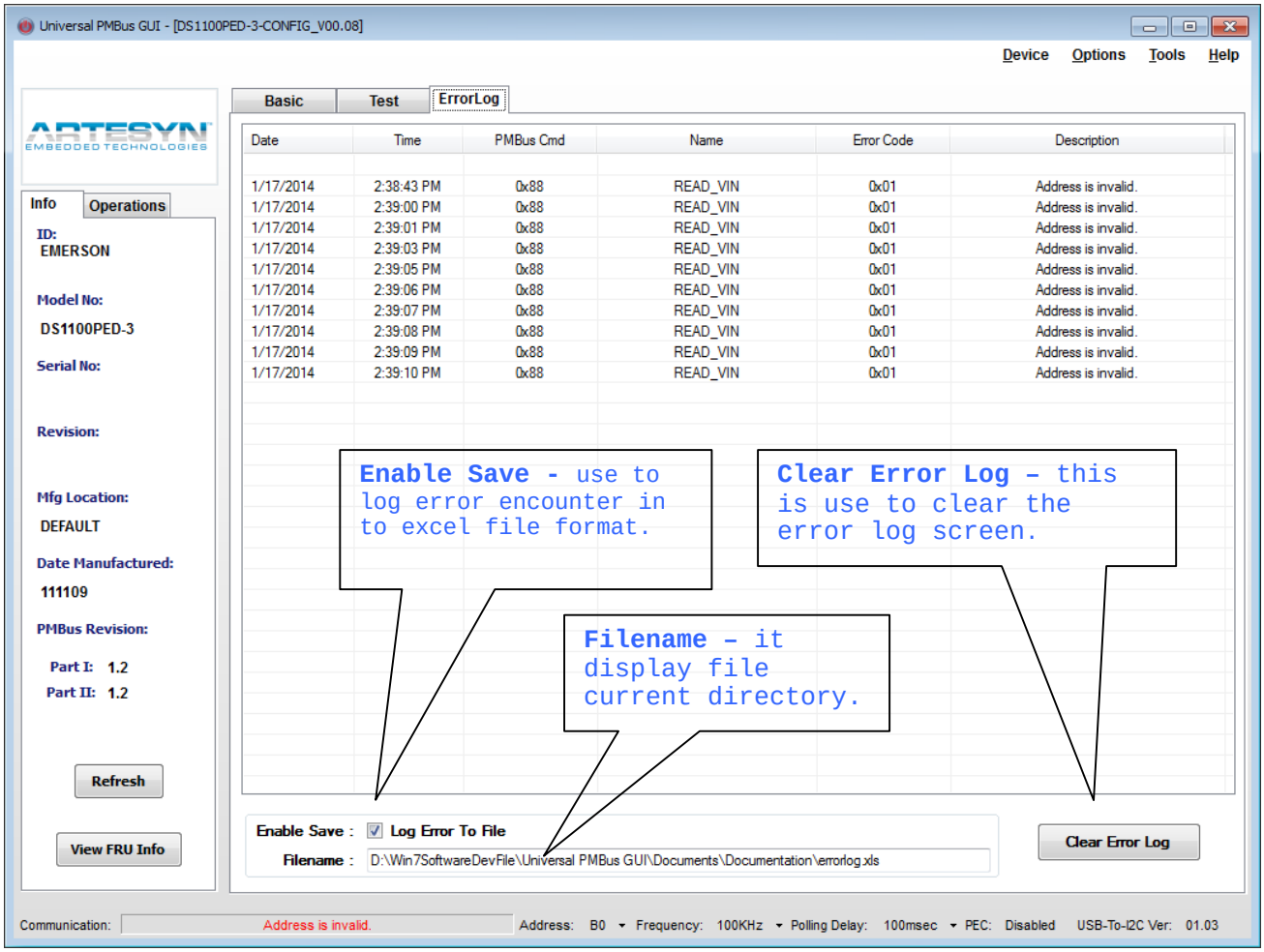
SHOW ERROR LOG DISPLAY

Error log display was also base on basic panel real time display. Once basic panel encounter communication error it will log the error it encounter in Error Panel Display.

To enable the panel, go to Tool Menu then select "Show Error Log Display".



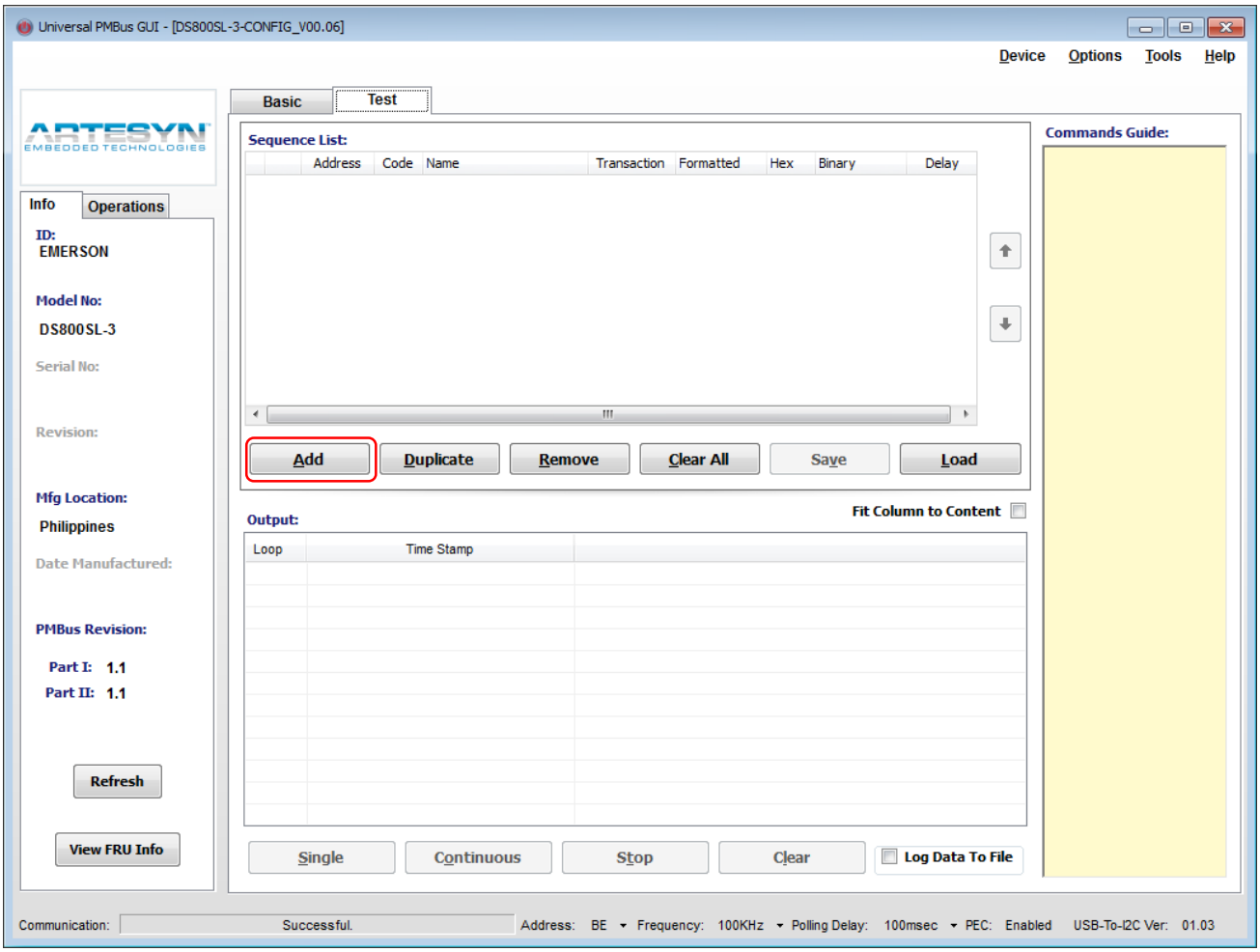
Once "Show Error Log Display" was selected, "**Error Log**" tab will be added in Universal PMBus Panel.



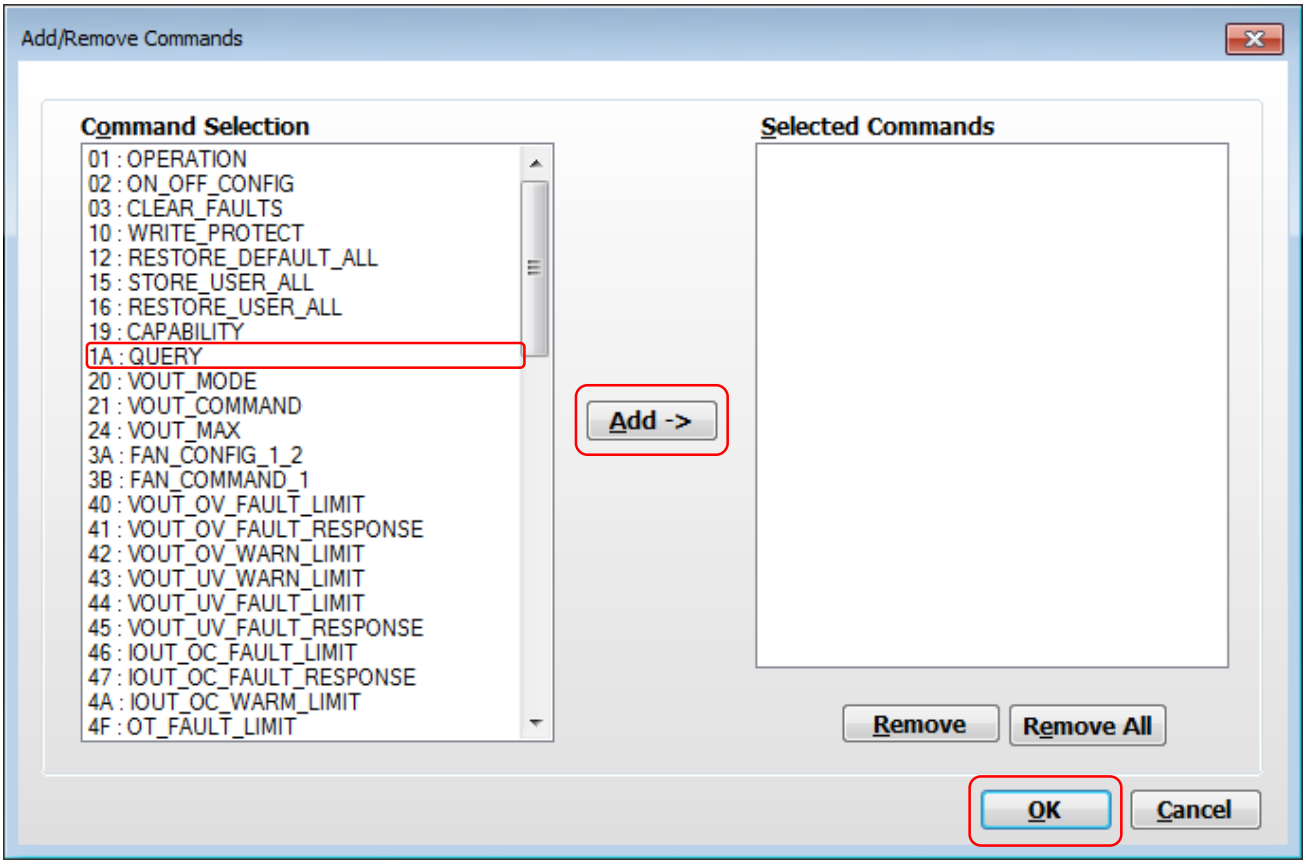
USING THE TEST PANEL

ADDING A COMMAND ON THE SEQUENCE LIST VIEW

1) To add a command on the Sequence List view click the Add button on the Test Panel



2) And the dialog window will appear as seen below.



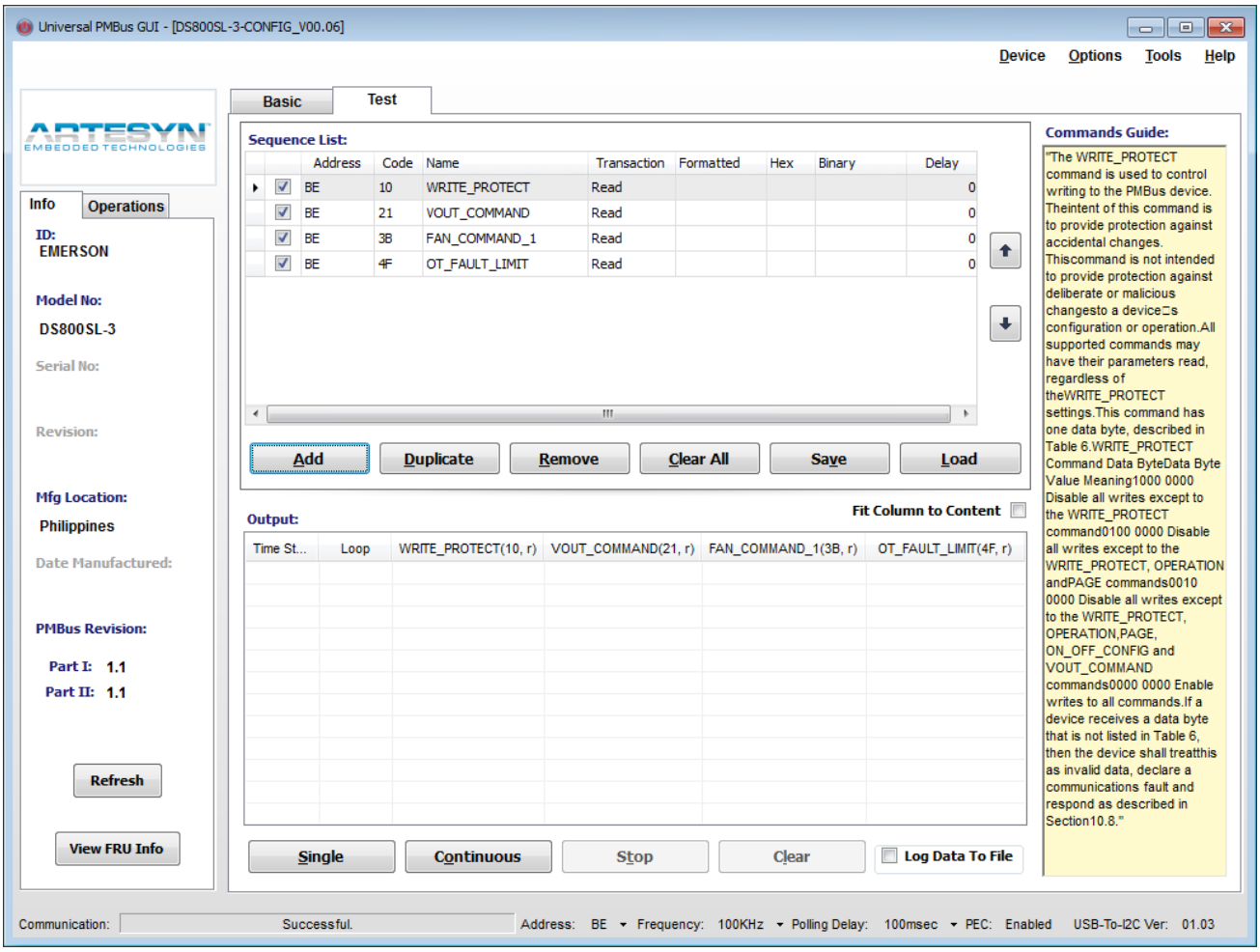
3) Select the desired command/s in the **Command Selection** list and press the **Add->** button. The command/s you selected will appear on the **Selected Commands** list.

4) You can remove command/s from the **Selected Commands** list by clicking the **Remove** button or by clicking the **Remove All** to remove them all.

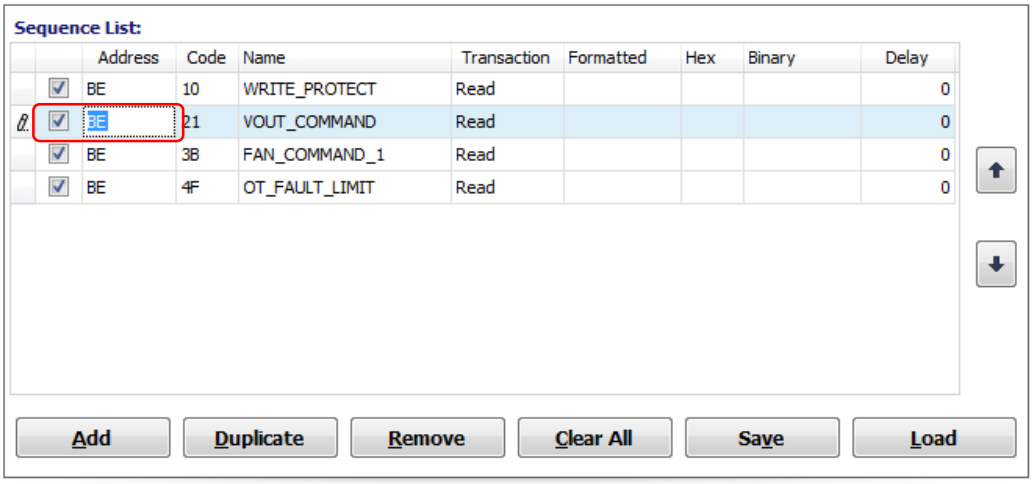
5) To add it to the **Sequence List** view in the **Test Panel**, click the **OK** button.

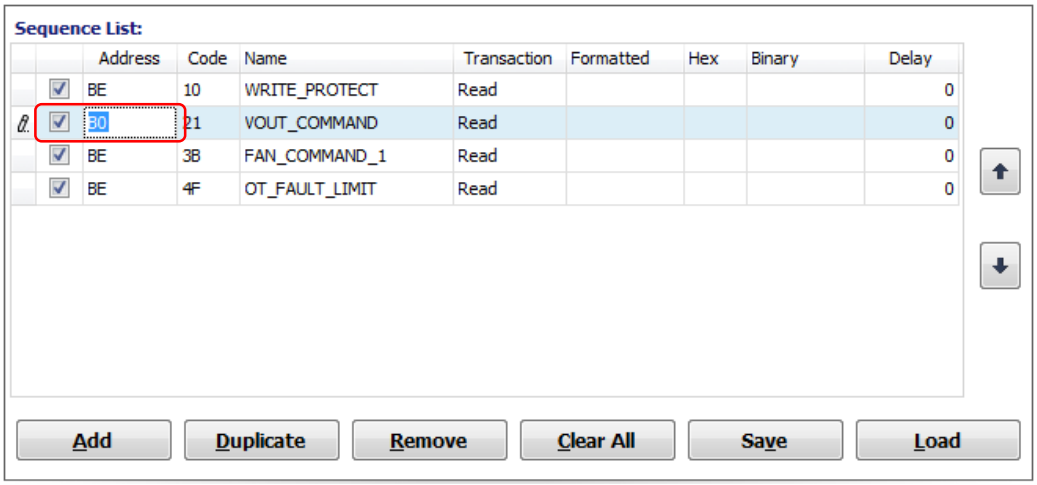
EDITING A COMMAND FROM THE SEQUENCE LIST VIEW

1) Double Click corresponding column to edit parameter Test Panel.



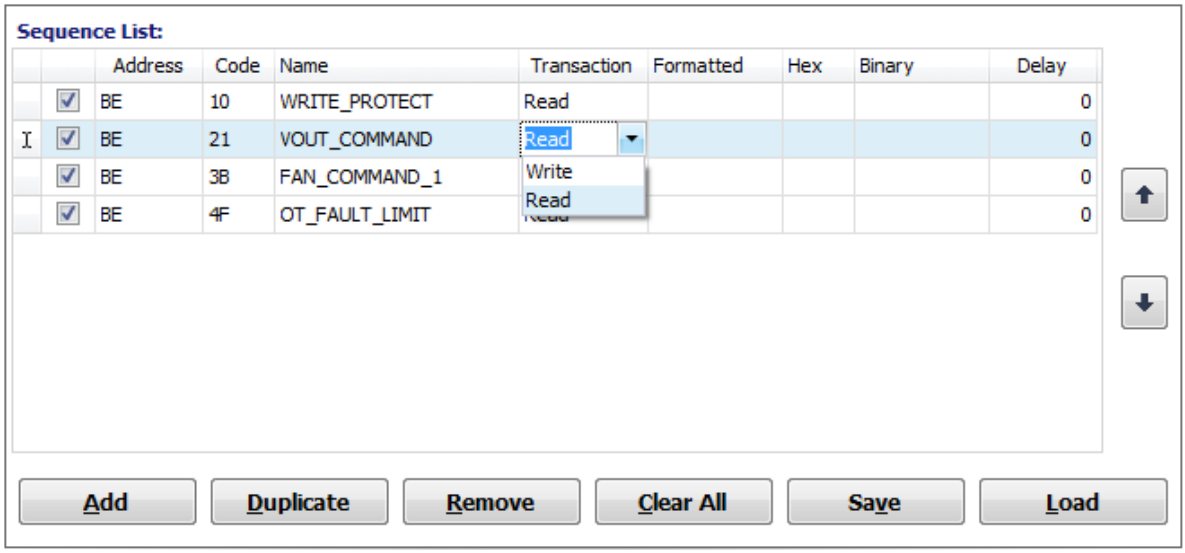
2) The dialog will appear as seen below. Change the **Address** value, say from **BE** to **B0**. Then press the OK button.



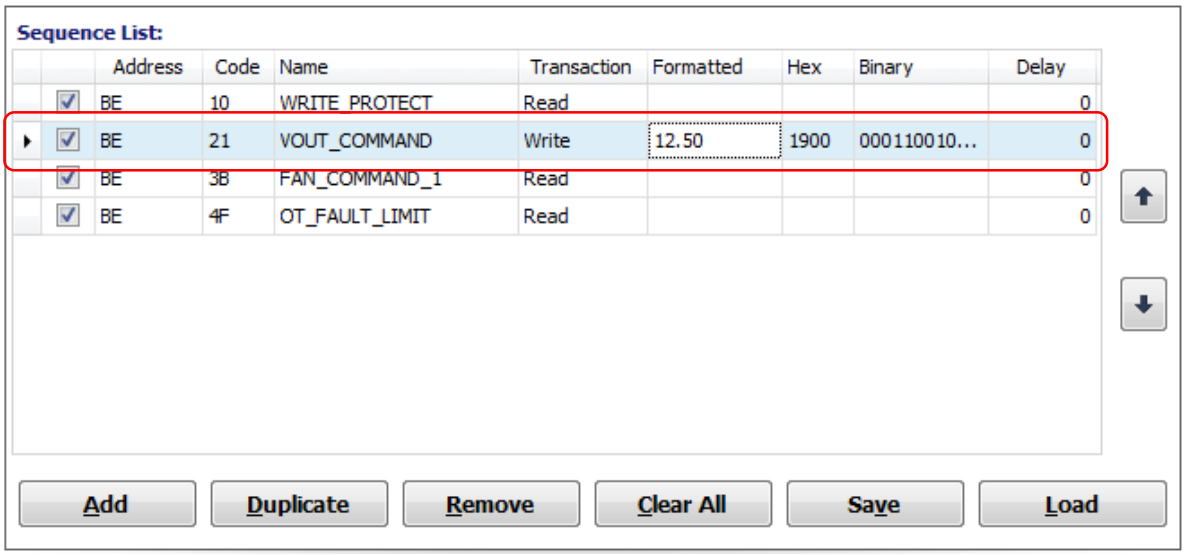


WRITING DATA TO THE DEVICE IN THE SEQUENCE LIST VIEW

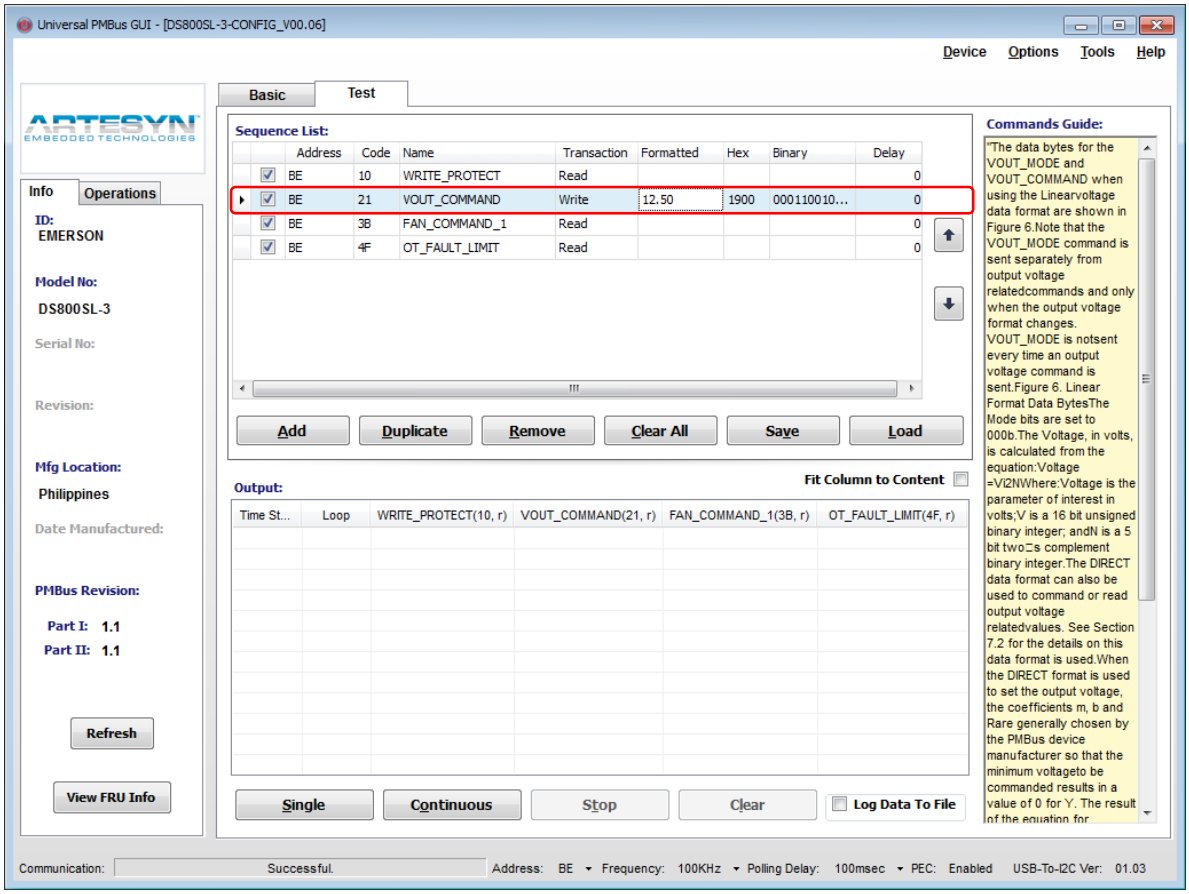
1) The commands in the **Sequence List** view are read transactions by default. We can make a command a write transaction. For example we want to make the VOUT_COMMAND write a 12.50 to the power supply device to change its output voltage to 12.50V, double click the selected cell to enable editing. Double click Transaction cell to change the transaction format from **Read** to **Write**.



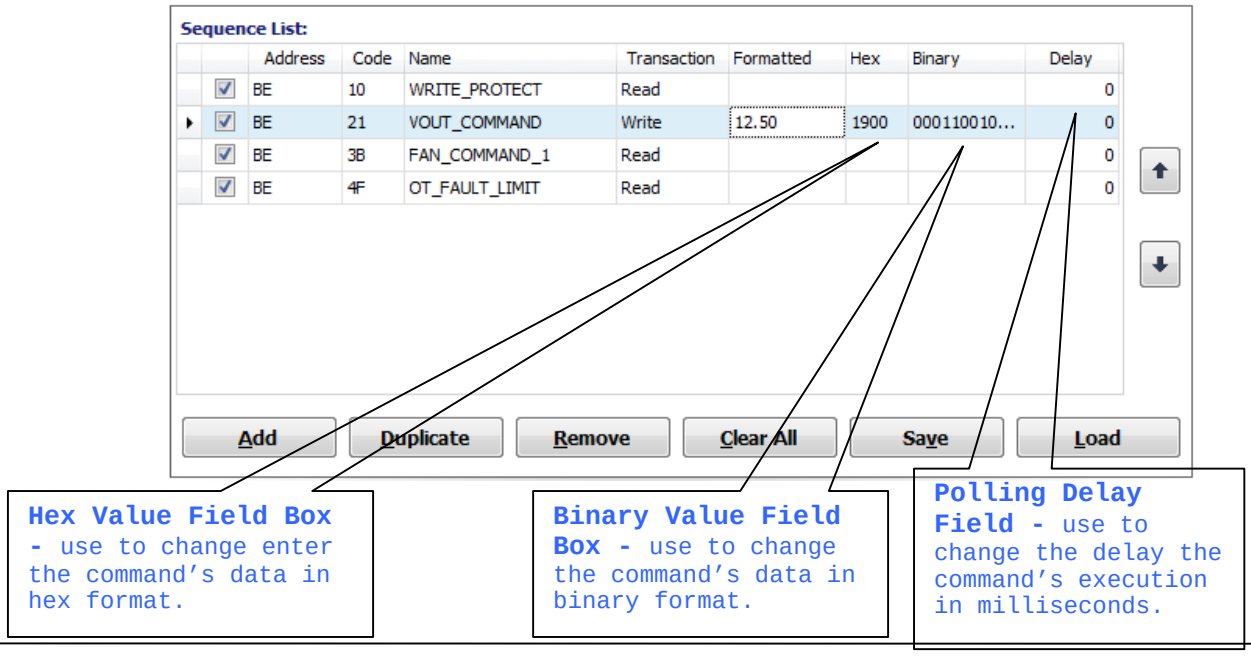
2) Then change or type the **Formatted/Text** field value to **12.5** then click the **ENTER** button.



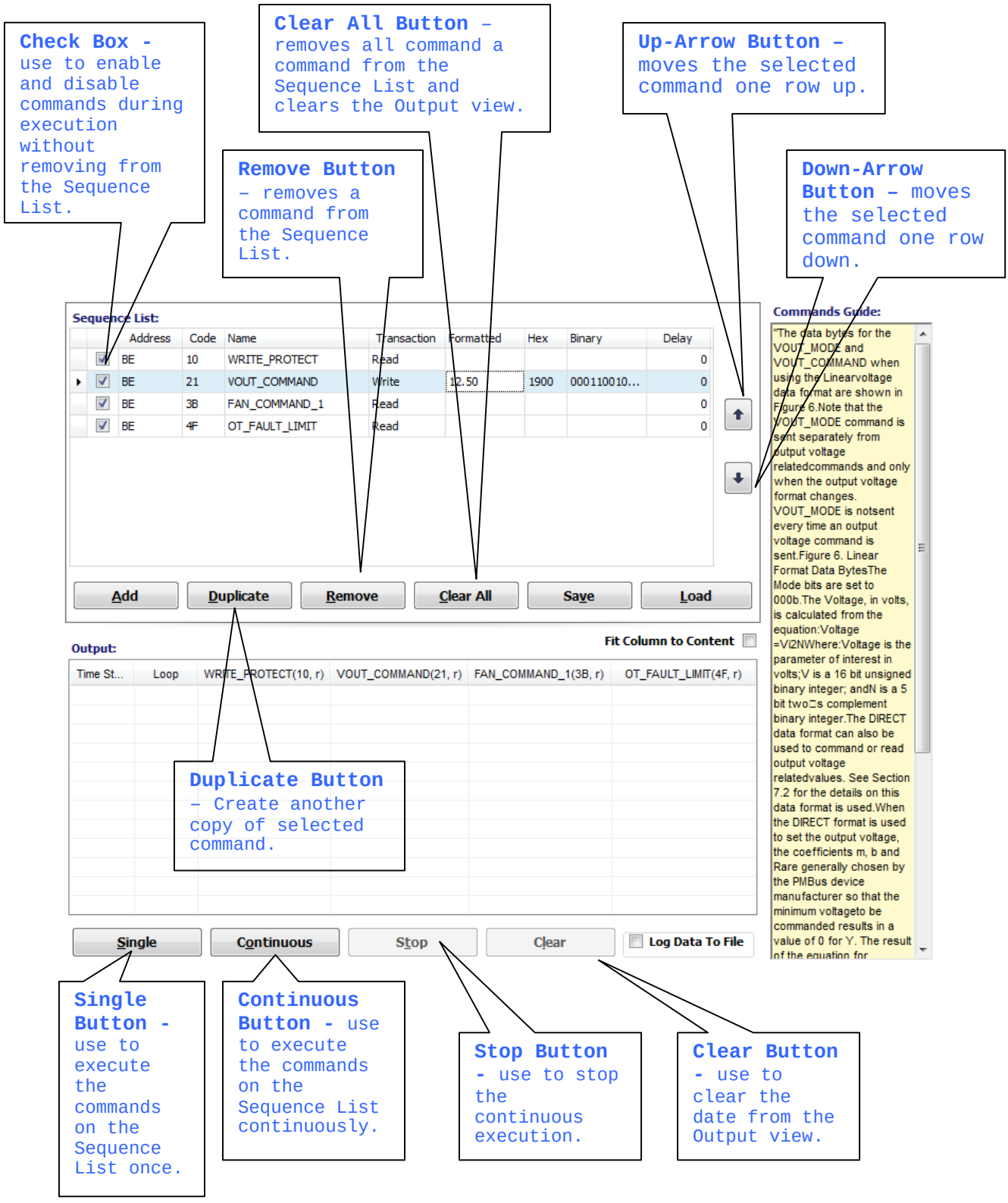
3) The command is now a write transaction and it will write 12.50 to the power supply device when a **Single** or **Continuous** button is clicked.



A. OTHER EDIT COMMAND DATA DIALOG CONTROL PARAMETERS



B. CONTROLS FOR DISABLING, REMOVING AND ARRANGING THE COMMANDS ON THE TEST PANEL

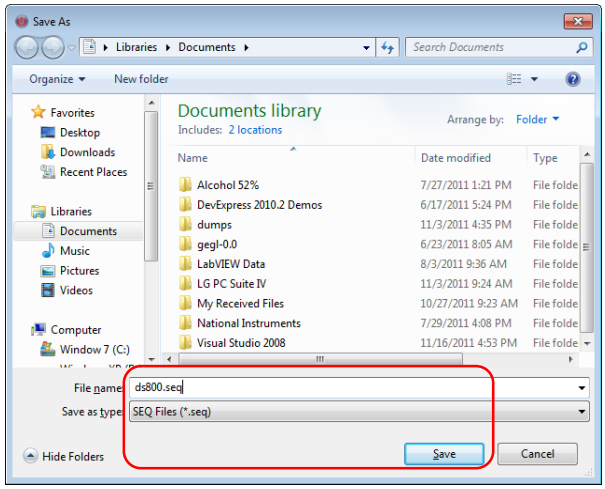


SAVING THE COMMAND SEQUENCE

The command sequence you made can be saved for future use or for use with the other power supply device model.

1) Click the **Save** button and the **Save** dialog will appear as seen below.

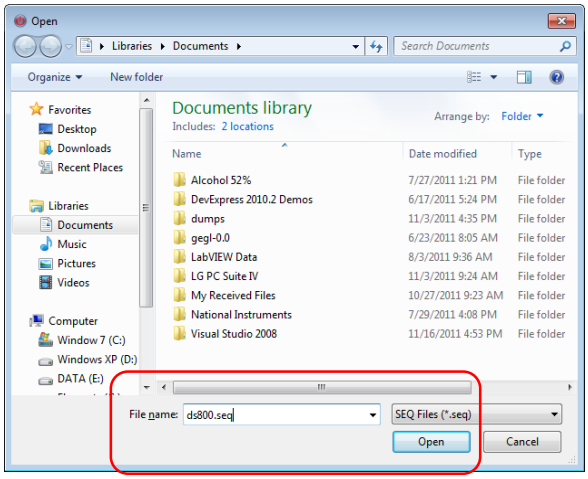
2) On the **Save** dialog, enter the desired filename of the sequence with an extension of .**seq**. Then click the Save button on the **Save** dialog. For example the command sequence we have will be saved as ds1200.seq.



C. LOADING THE COMMAND SEQUENCE FILE.

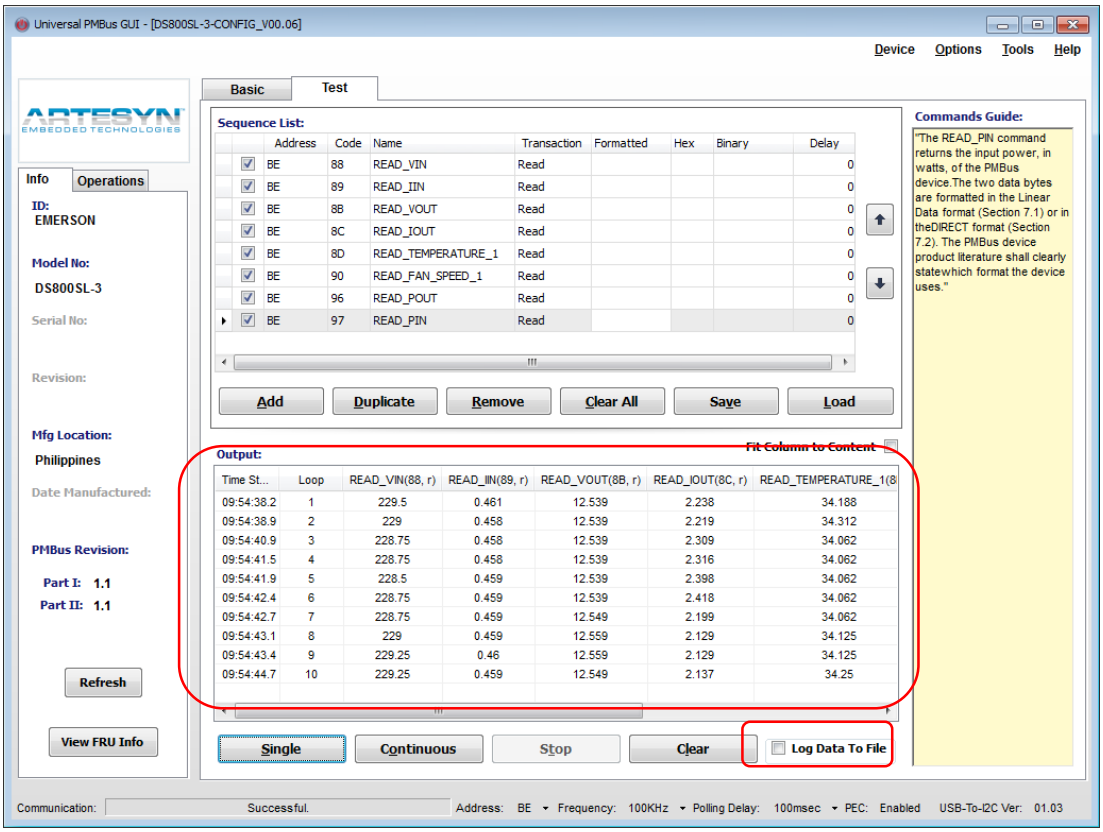
1) Click the **Load** button and the **Open** dialog will appear as seen below.

2) On the **Open** dialog window, enter the filename of the command sequence for example to load. Then click the **Open** button to load the file. Here the **ds1200.seq** will be opened.

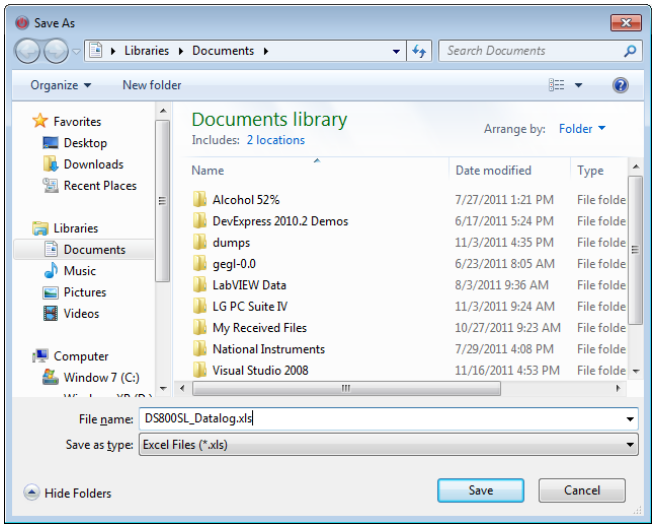


LOG THE OUTPUT DATA TO TEXT FILE

Data can be directly log to file in excel format. To enable this feature in Universal PMBus GUI, select the "**Log Data To File**" to set logging in active. Below are some of the steps to enable log to file.

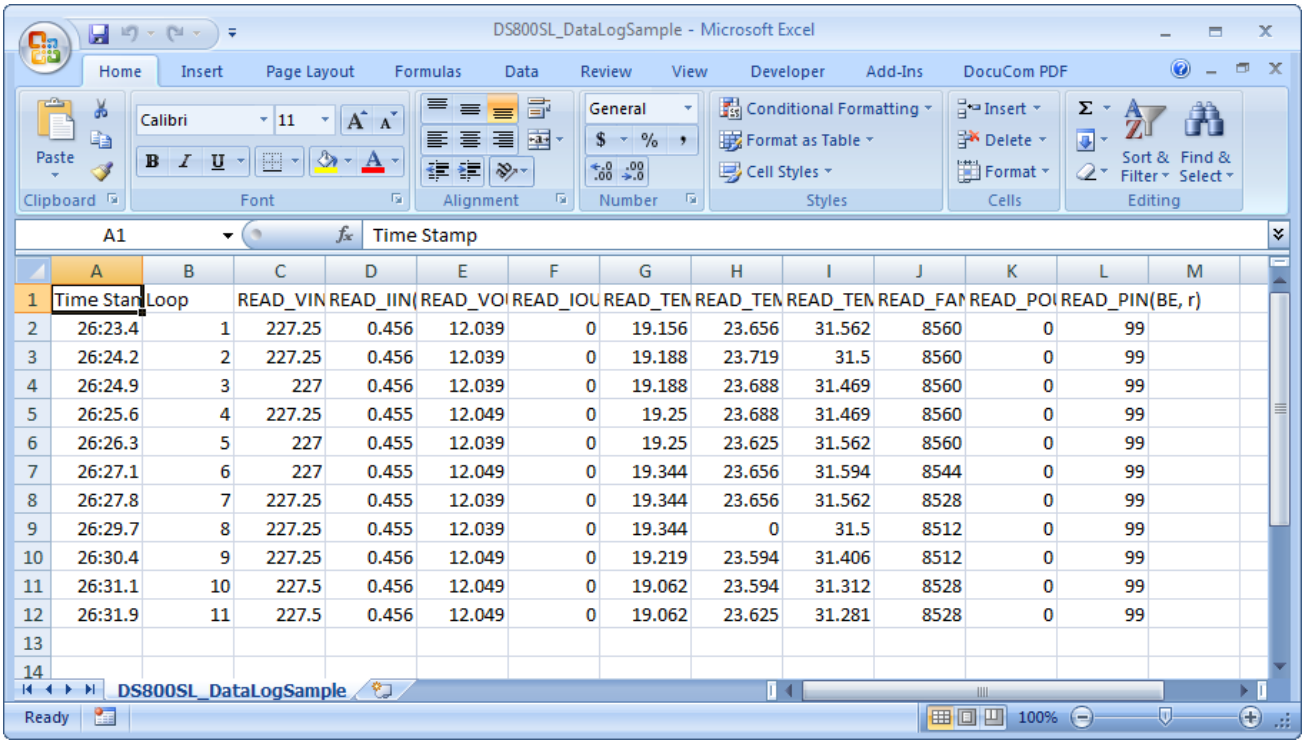


1) Click on the "**Log Data To File**" checkbox and a **Save** dialog will be appear on the screen.



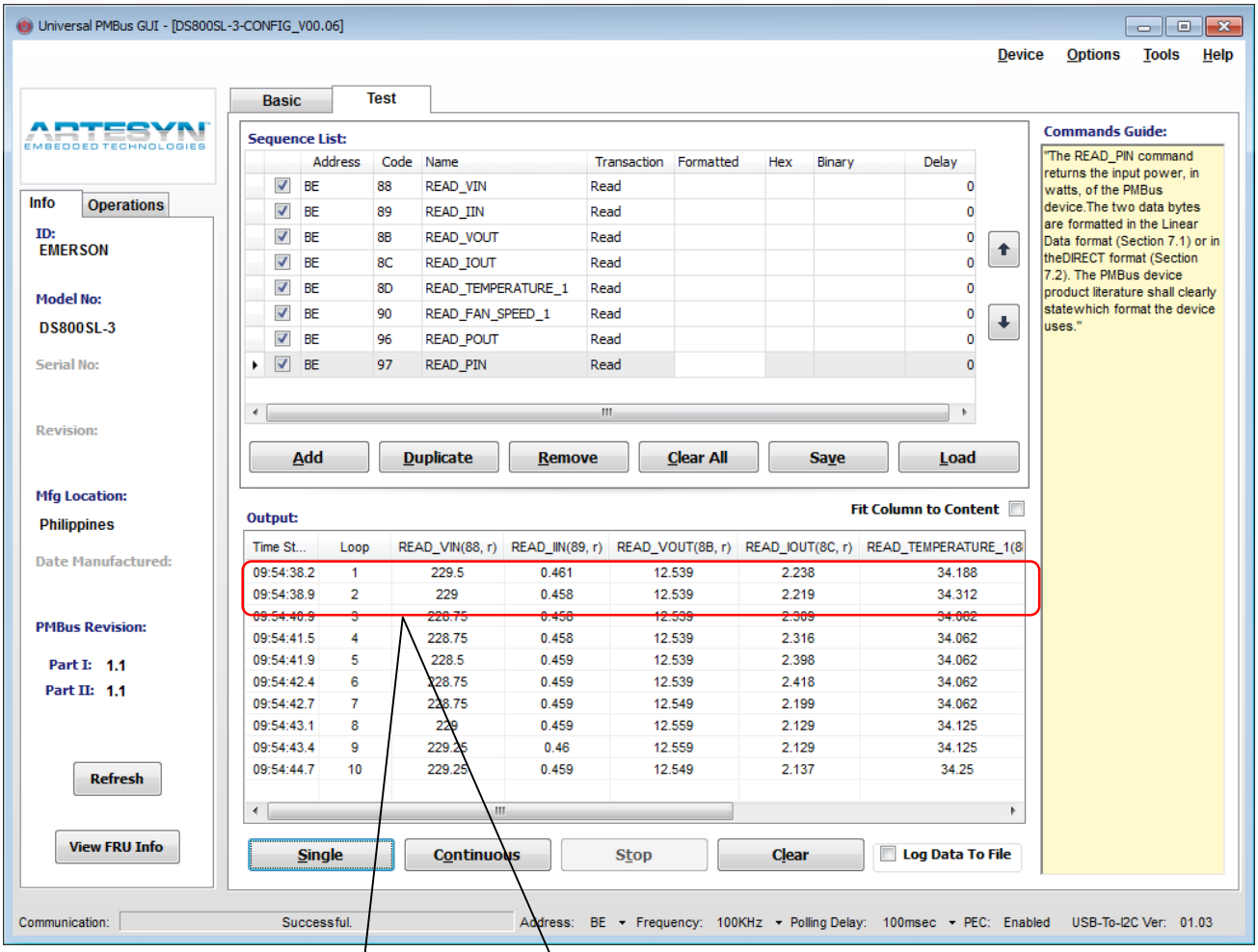
2) Enter the desired filename and then click the **Saved** button.
   Every time Test Panel read from the device it will automatically log data on the Output list and directly to the file.

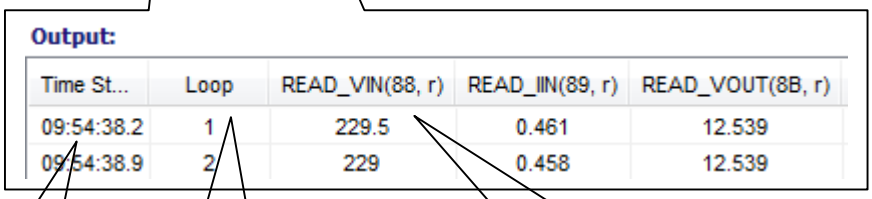
3) Press Stop Button then Go to the Location of file to open the Log file.



Note: *Don't open file if Test Panel Data Logging is still ongoing. It will cause error. If you want to review data you can directly see data in the Output Log display of the test Panel. You can only review the file once test already completed.*

OUTPUT VIEW INFORMATION





Time Stamp column – displays the moment of time a loop was executed.

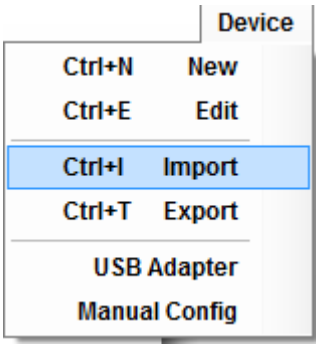
Loop column – displays the number of execution of a sequence.

Command columns – displays the value read, or the status of send/write transaction. Here **"B2"** is the address, and **"r"indicates** a read transaction.

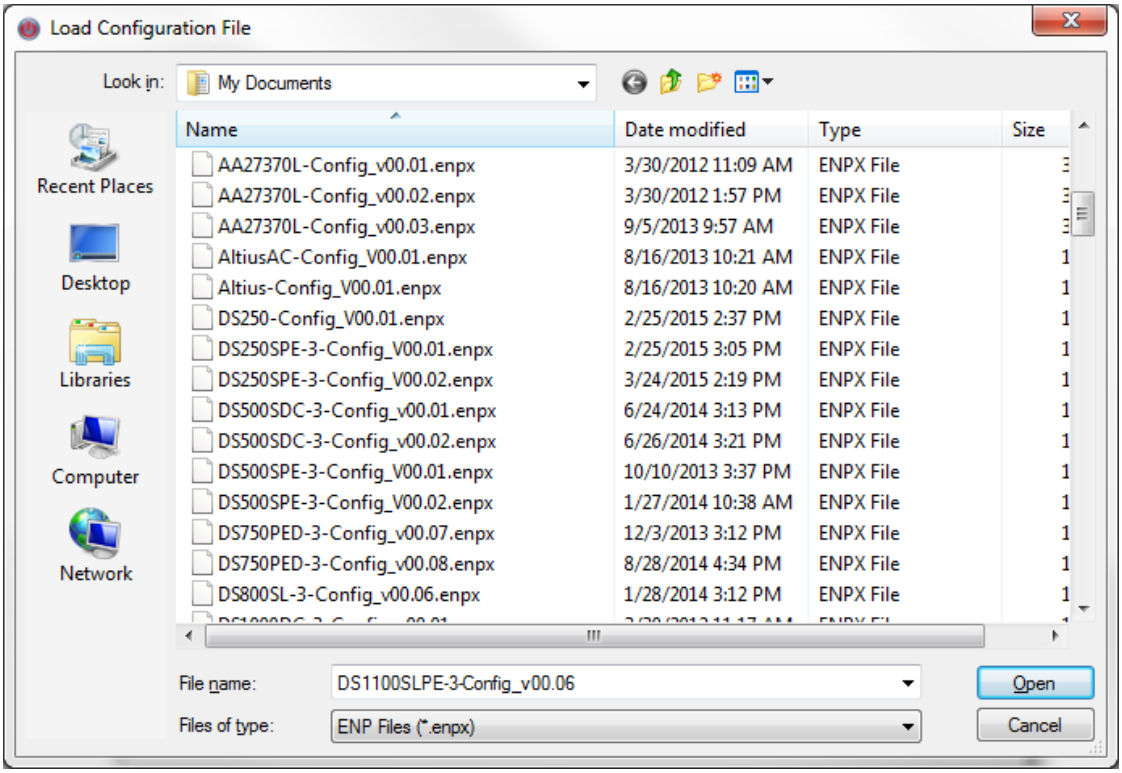
Import Configuration File

Generated configuration file can also be imported into the GUI. For new devices it also need new configuration file. Existing GUI will still be applicable to support new model by importing newly generated configuration file.

To start Importing configuration file go to Device Menu -> Import



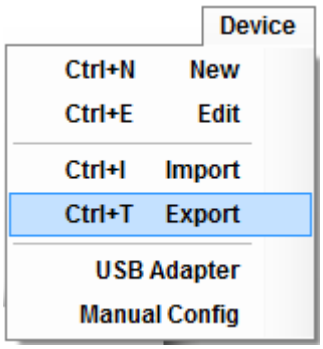
Then select Configuration File through directory then click Open.



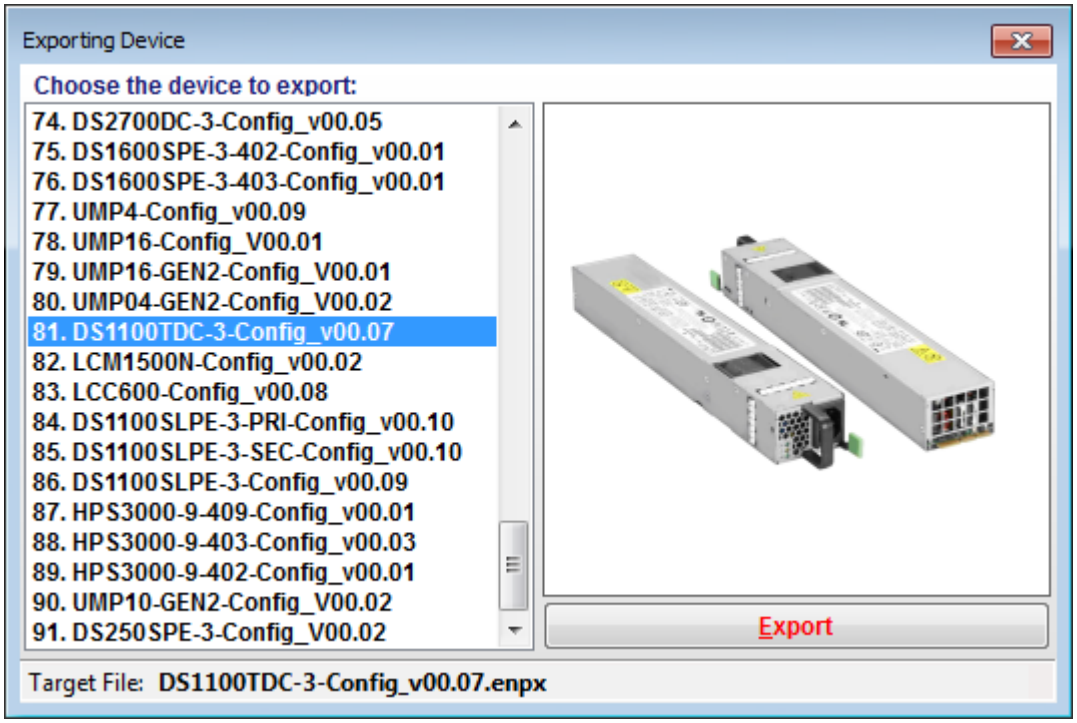
Then Configuration file will automatically included in the GUI Device Library.

Export Configuration File

Exporting file is easy, just go to Device Menu → Select Export Menu.

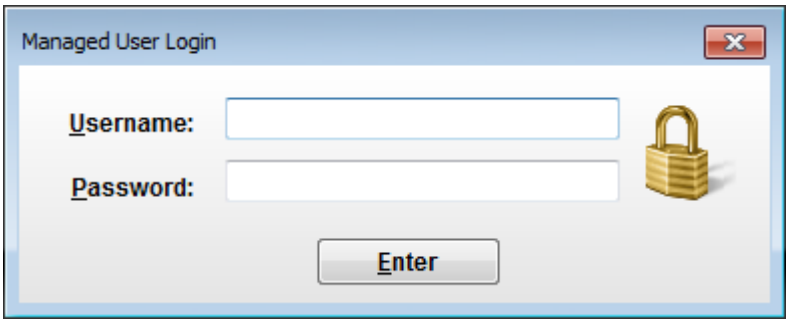


Then Select specific device you want to Export. Default Directory of Exported file is in "My Documents". File extension is ".enpx".



Configuration File Update (Authorized personnel only)

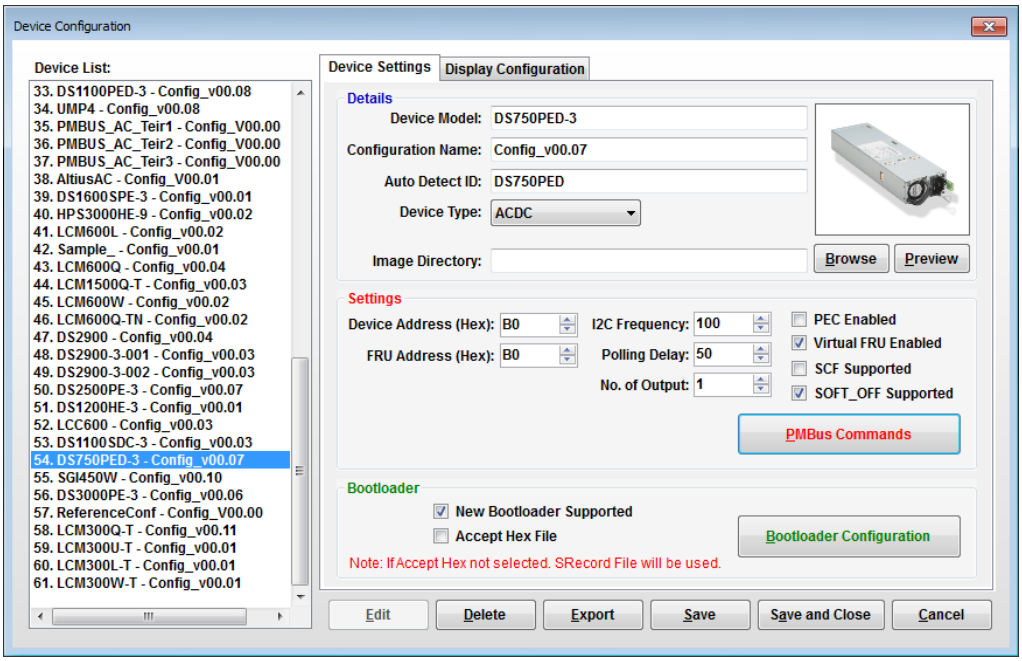
This section was designed for authorized personnel only. It is also password protected for security protection to change any setting and update supported PSU and configuration file.



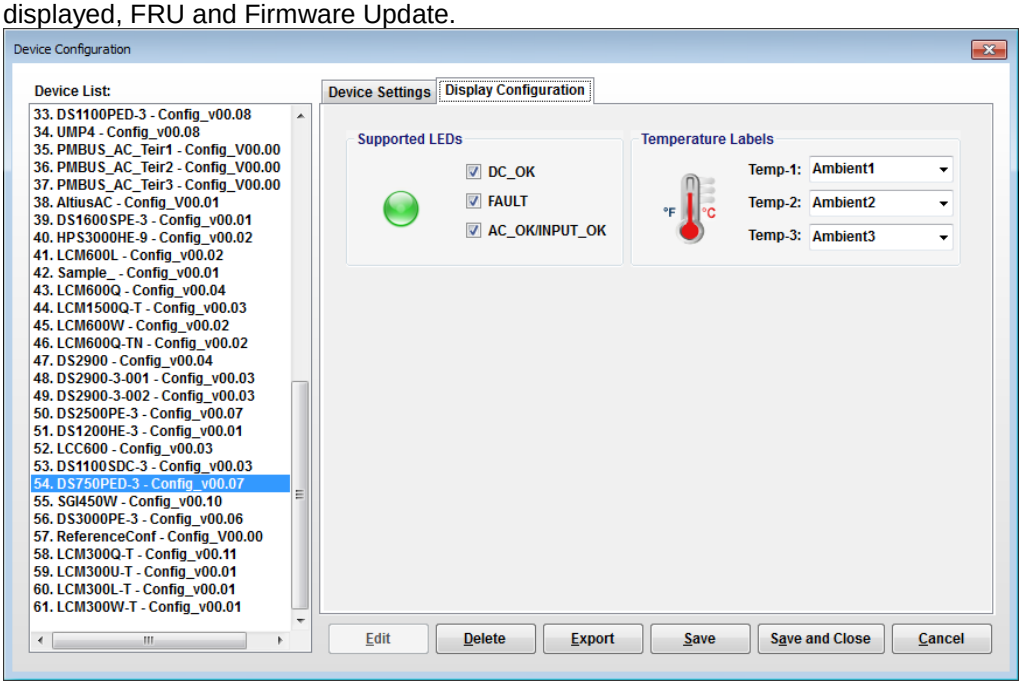
Configuration File Update (Authorized personnel only)

Device Configuration

This will show the list of supported Power Supply model. Display and supported command can be change and update in this section.

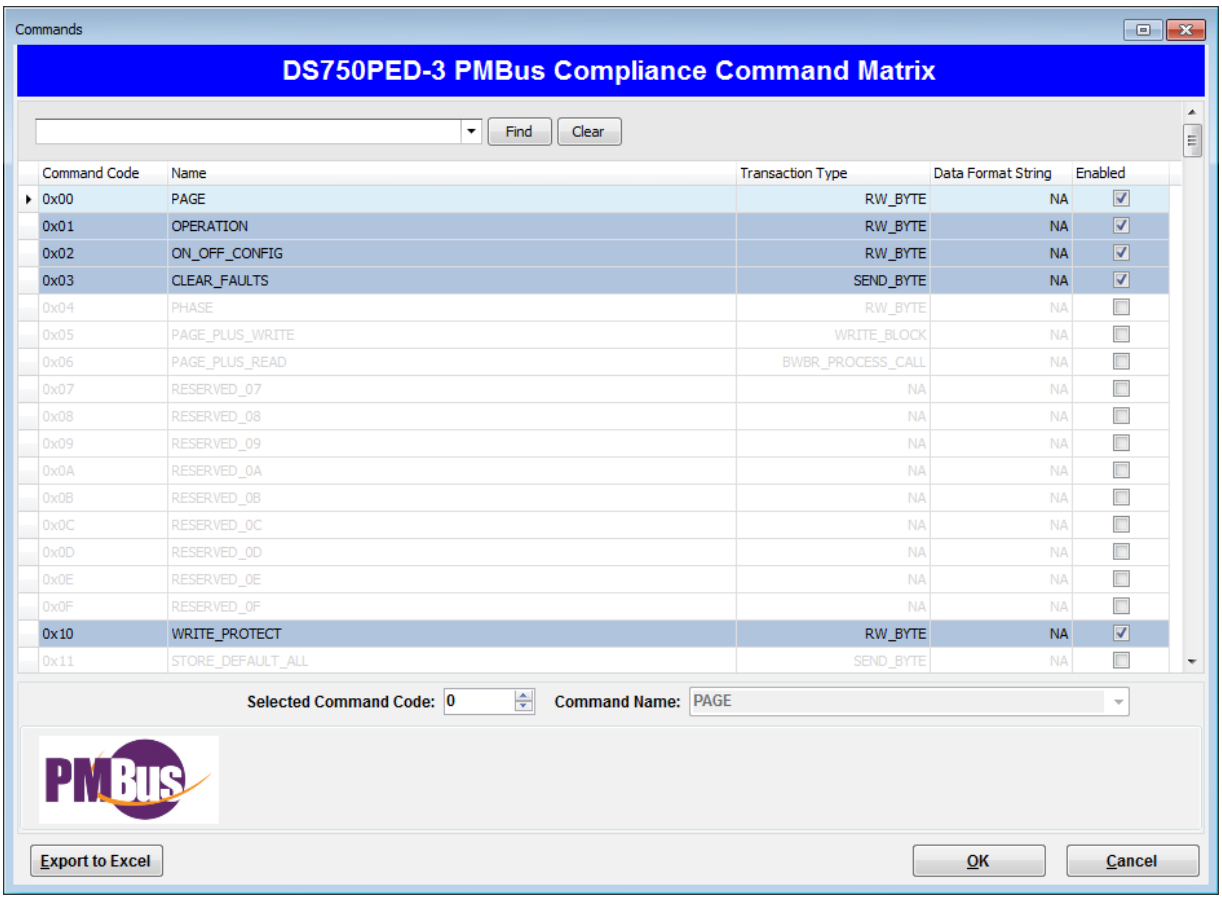


Configuration File will be the reference of Universal PMBus GUI for data conversion, parameter to be displayed, FRU and Firmware Update.



PMBUS COMPLIANCE COMMAND MATRIX

PMbus supported command are also declared on this section.

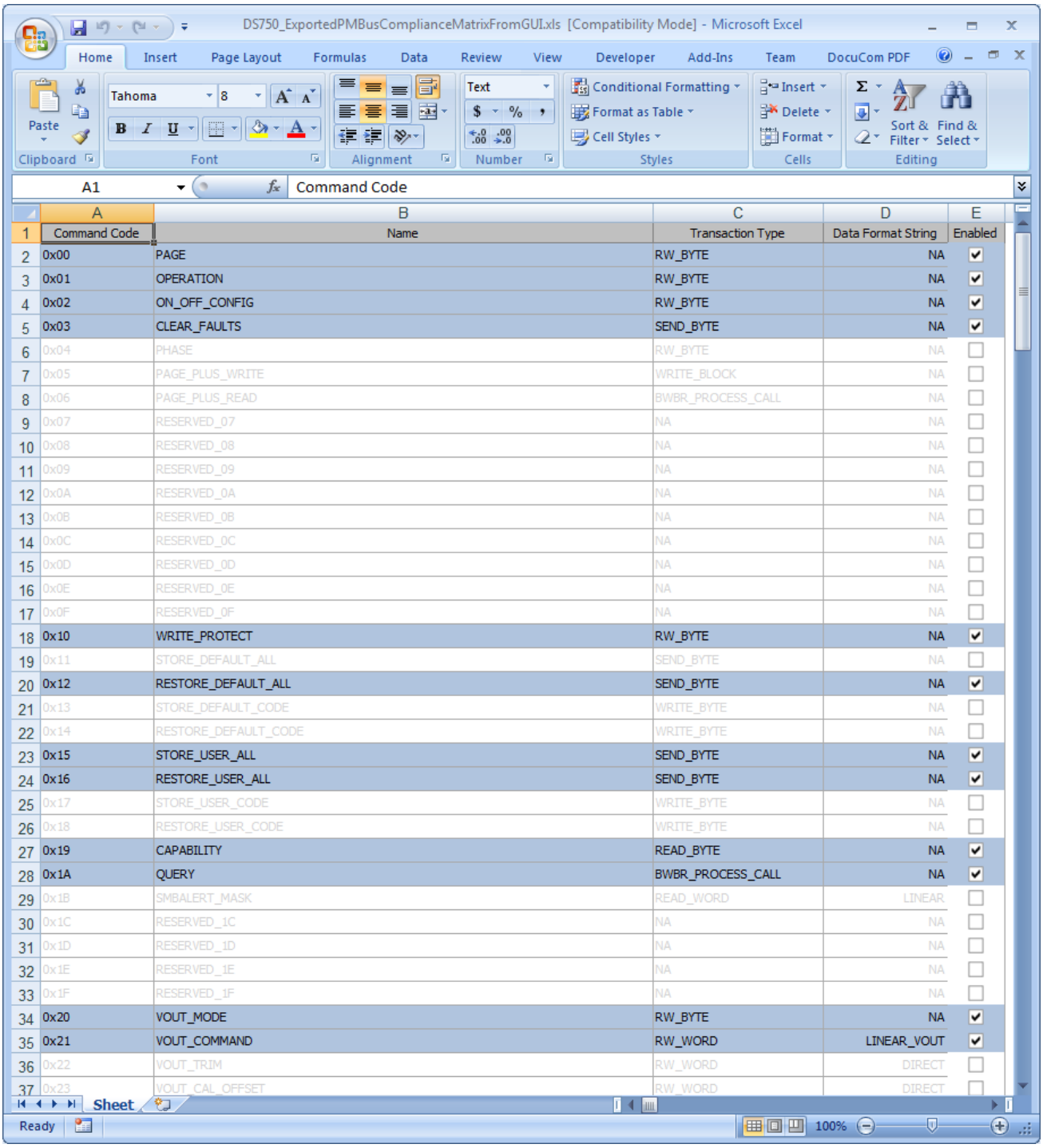


Supported command varies in every model so it is better to make sure that configuration files are updated base on the latest PMBus Compliance matrix from Design Engineering.

PMBus Compliance Command matrix update in the GUI was made easy. To add or remove PMBus command from supported command just enable or disable command in GUI. Select proper Transaction and Data format, this is to make sure that actual value will be displayed correctly in the GUI.

PMBUS Command EXPORT to Excel

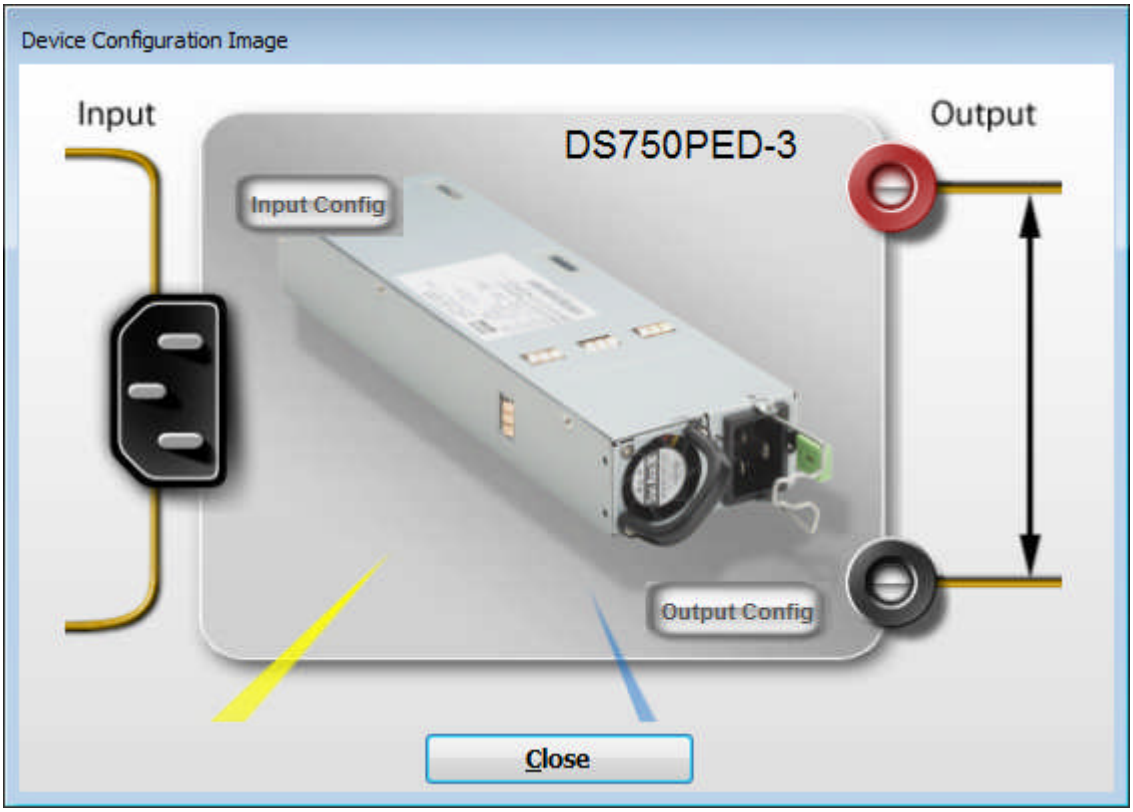
PMBus Command from GUI can also be exported to excel which is very useful for reviewing command supported by the GUI to command declare by design engineering.



	A	B	C	D	E
1	Command Code	Name	Transaction Type	Data Format String	Enabled
2	0x00	PAGE	RW_BYTE	NA	☑
3	0x01	OPERATION	RW_BYTE	NA	☑
4	0x02	ON_OFF_CONFIG	RW_BYTE	NA	☑
5	0x03	CLEAR_FAULTS	SEND_BYTE	NA	☑
6	0x04	PHASE	RW_BYTE	NA	☐
7	0x05	PAGE_PLUS_WRITE	WRITE_BLOCK	NA	☐
8	0x06	PAGE_PLUS_READ	BWBR_PROCESS_CALL	NA	☐
9	0x07	RESERVED_07	NA	NA	☐
10	0x08	RESERVED_08	NA	NA	☐
11	0x09	RESERVED_09	NA	NA	☐
12	0x0A	RESERVED_0A	NA	NA	☐
13	0x0B	RESERVED_0B	NA	NA	☐
14	0x0C	RESERVED_0C	NA	NA	☐
15	0x0D	RESERVED_0D	NA	NA	☐
16	0x0E	RESERVED_0E	NA	NA	☐
17	0x0F	RESERVED_0F	NA	NA	☐
18	0x10	WRITE_PROTECT	RW_BYTE	NA	☑
19	0x11	STORE_DEFAULT_ALL	SEND_BYTE	NA	☐
20	0x12	RESTORE_DEFAULT_ALL	SEND_BYTE	NA	☑
21	0x13	STORE_DEFAULT_CODE	WRITE_BYTE	NA	☐
22	0x14	RESTORE_DEFAULT_CODE	WRITE_BYTE	NA	☐
23	0x15	STORE_USER_ALL	SEND_BYTE	NA	☑
24	0x16	RESTORE_USER_ALL	SEND_BYTE	NA	☑
25	0x17	STORE_USER_CODE	WRITE_BYTE	NA	☐
26	0x18	RESTORE_USER_CODE	WRITE_BYTE	NA	☐
27	0x19	CAPABILITY	READ_BYTE	NA	☑
28	0x1A	QUERY	BWBR_PROCESS_CALL	NA	☑
29	0x1B	SMBALERT_MASK	READ_WORD	LINEAR	☐
30	0x1C	RESERVED_1C	NA	NA	☐
31	0x1D	RESERVED_1D	NA	NA	☐
32	0x1E	RESERVED_1E	NA	NA	☐
33	0x1F	RESERVED_1F	NA	NA	☐
34	0x20	VOUT_MODE	RW_BYTE	NA	☑
35	0x21	VOUT_COMMAND	RW_WORD	LINEAR_VOUT	☑
36	0x22	VOUT_TRIM	RW_WORD	DIRECT	☐
37	0x23	VOUT_CAL_OFFSET	RW_WORD	DIRECT	☐

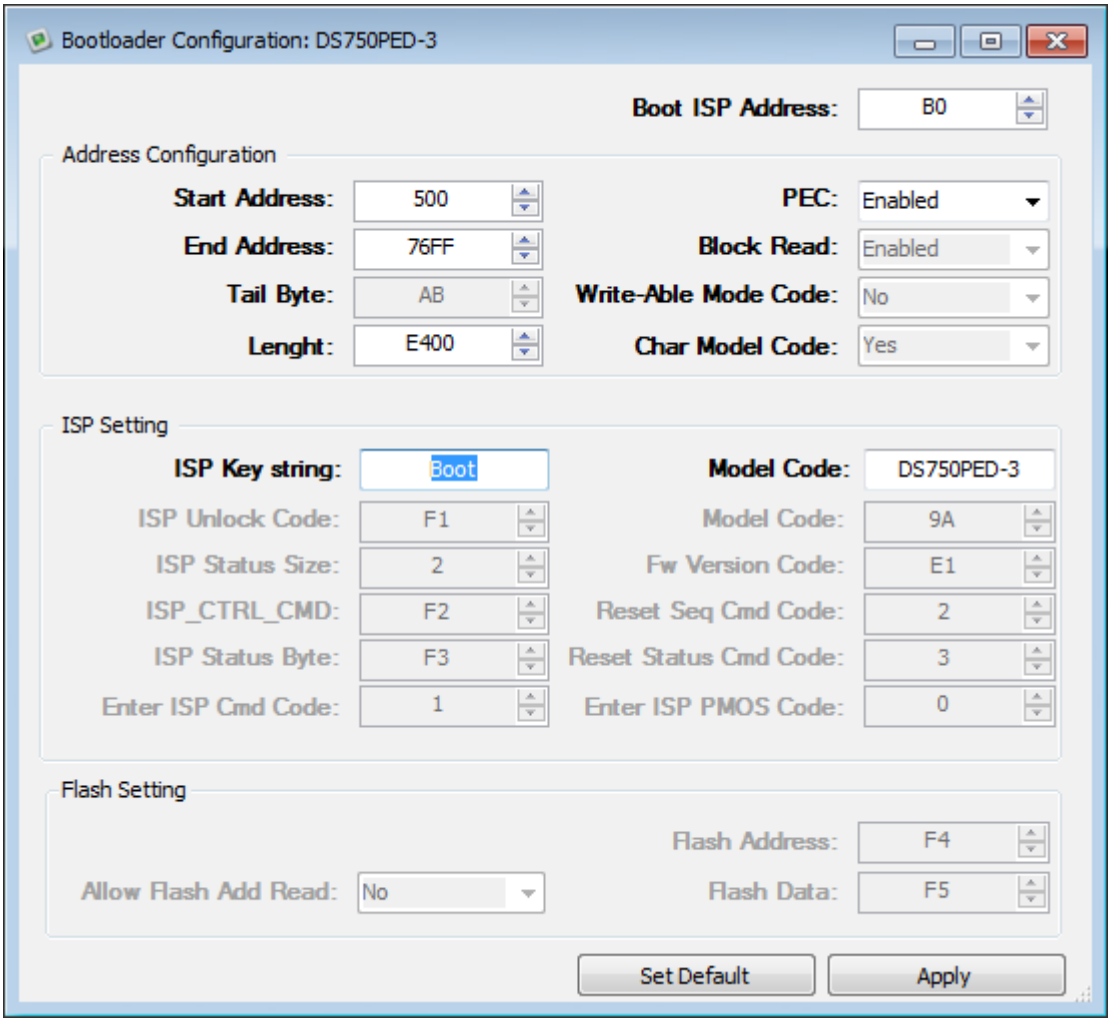
Device Unit Actual Image

Actual device image are also store in the configuration file. Actual image should also match exact model declared in configuration file.



Device Bootloader Configuration

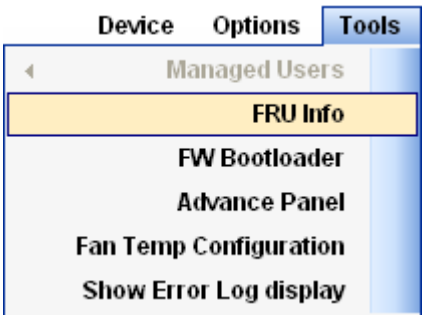
Firmware Update Settings are also save in the configuration file. This setting was use by the Firmware Update panel as reference when updating the device.



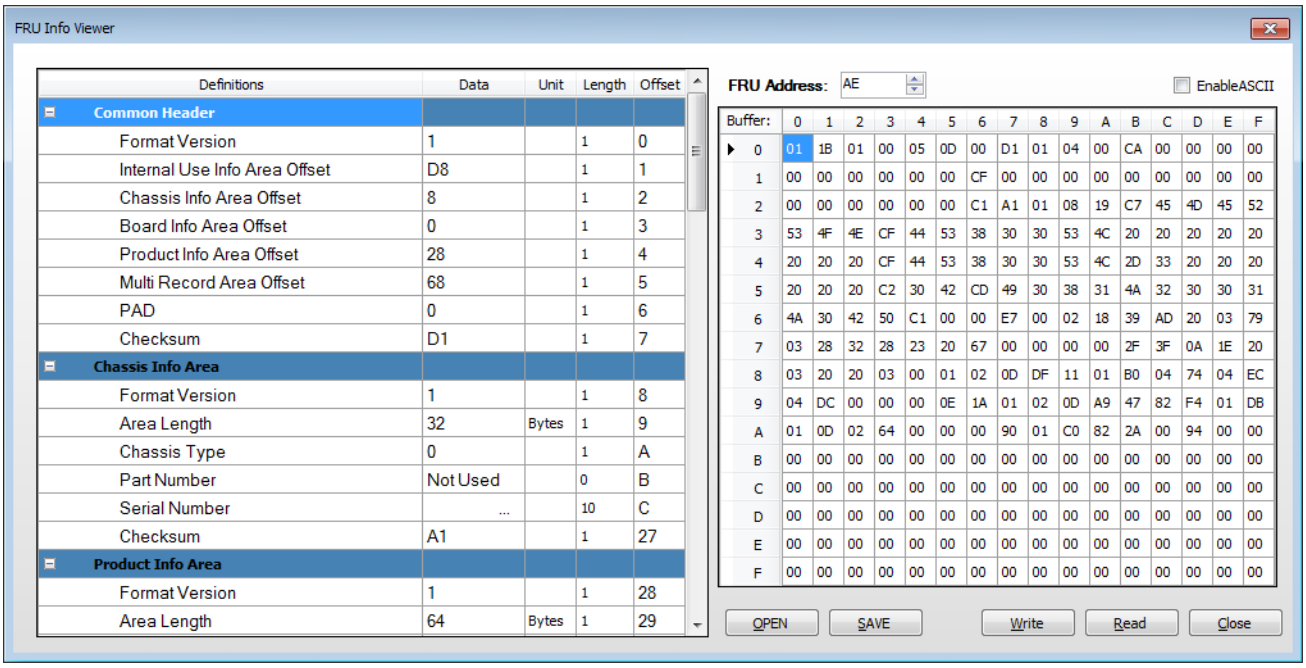
ACCESSING FRU Information

Emerson power supply product has the capability to store product information. It is being stored in **EEPROM** (Electrically Erasable Programmable Read-Only Memory) of the power supply. **FRU** (Filed Replaceable Unit) information can be access through Universal PMBus GUI.

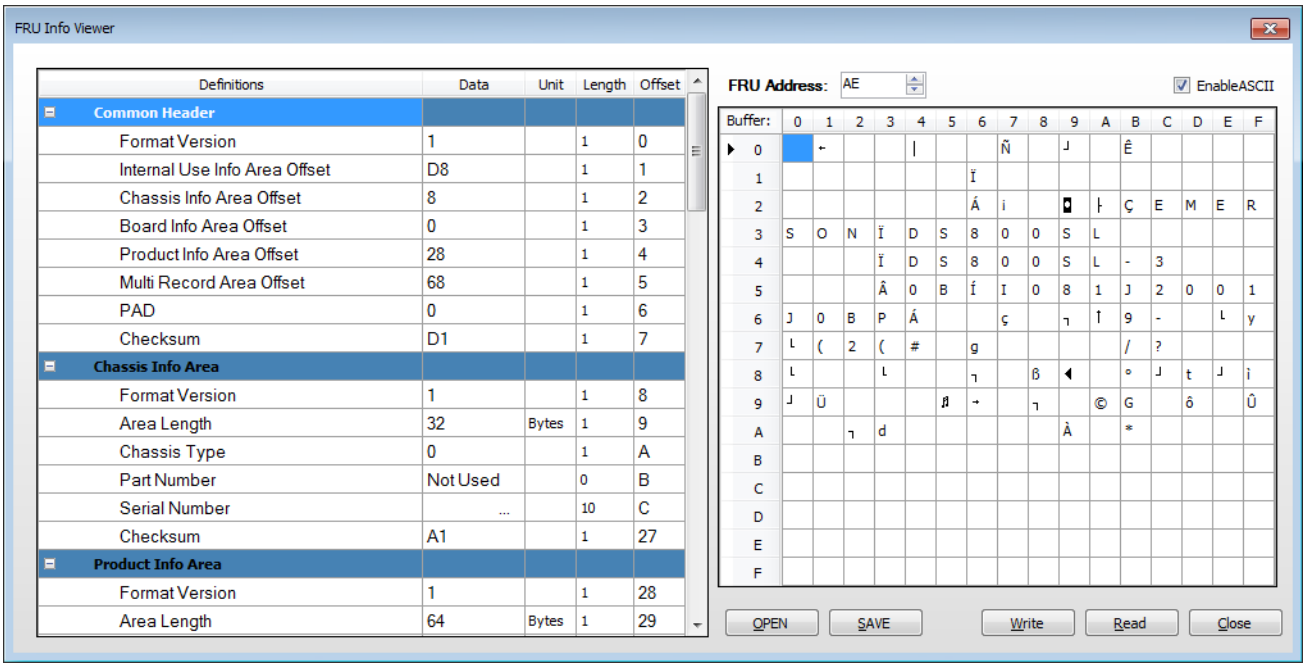
Go to Tools then Select FRU Info to launch FRU Viewer.



FRU can be view in Hex format or in ASCII format.



To Enable ASCII Format, click "**EnableASCII**" checkbox.



FRU Information view also has the capability to store FRU data into file with "***.EEP**" extension.

OPEN – it will load *.EEP file which are stored in local drive.

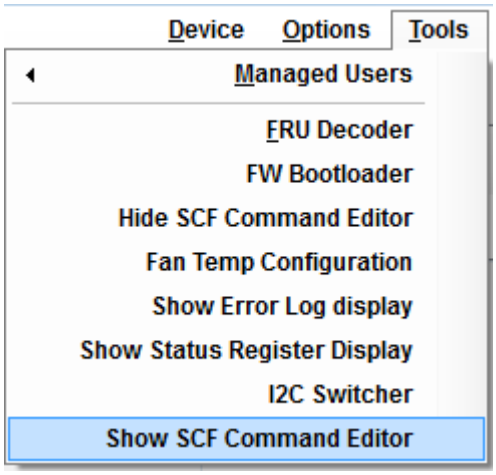
SAVE – save FRU information into file (*.EEP format).

Write – it will write the *.EEP file being loaded into the power supply EEPROM.

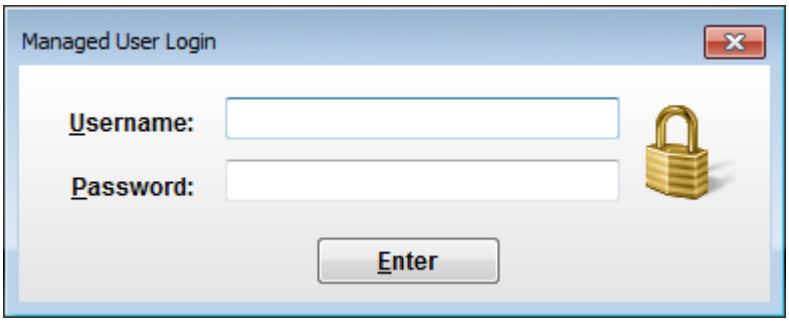
Read – extract FRU information from actual unit.

SCF Command Editor (Authorized personnel only)

Universal PMBus GUI also has the feature for Software Configurable Firmware.

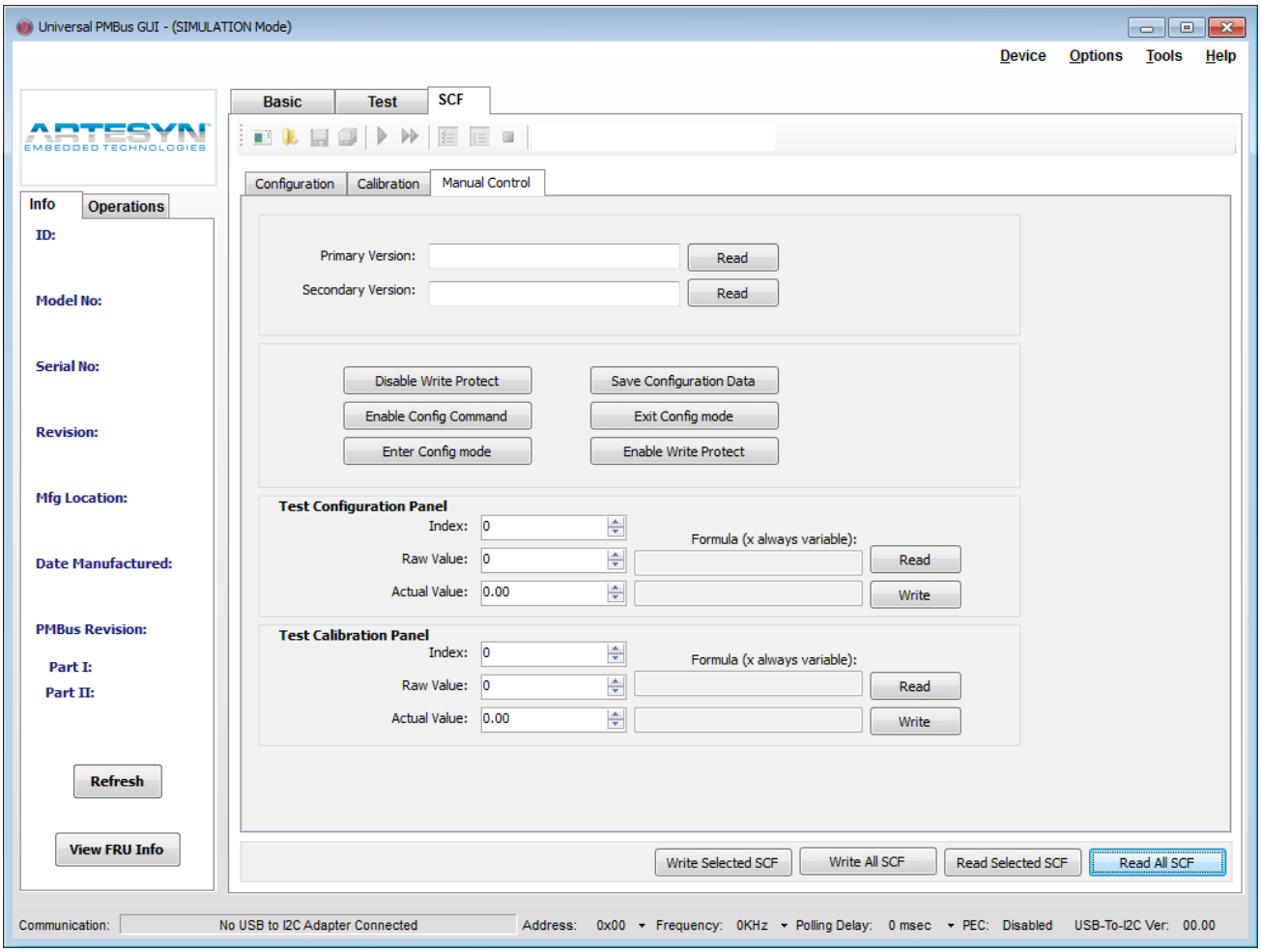


This section was designed for authorized personnel only and has the knowledge on firmware configurable operation. It is also password protected for security protection to change any setting in the power supply that may cause destroying the unit.



There are two login available for SCF Command Editor.

1. Authorized personnel
2. SCF Administrator

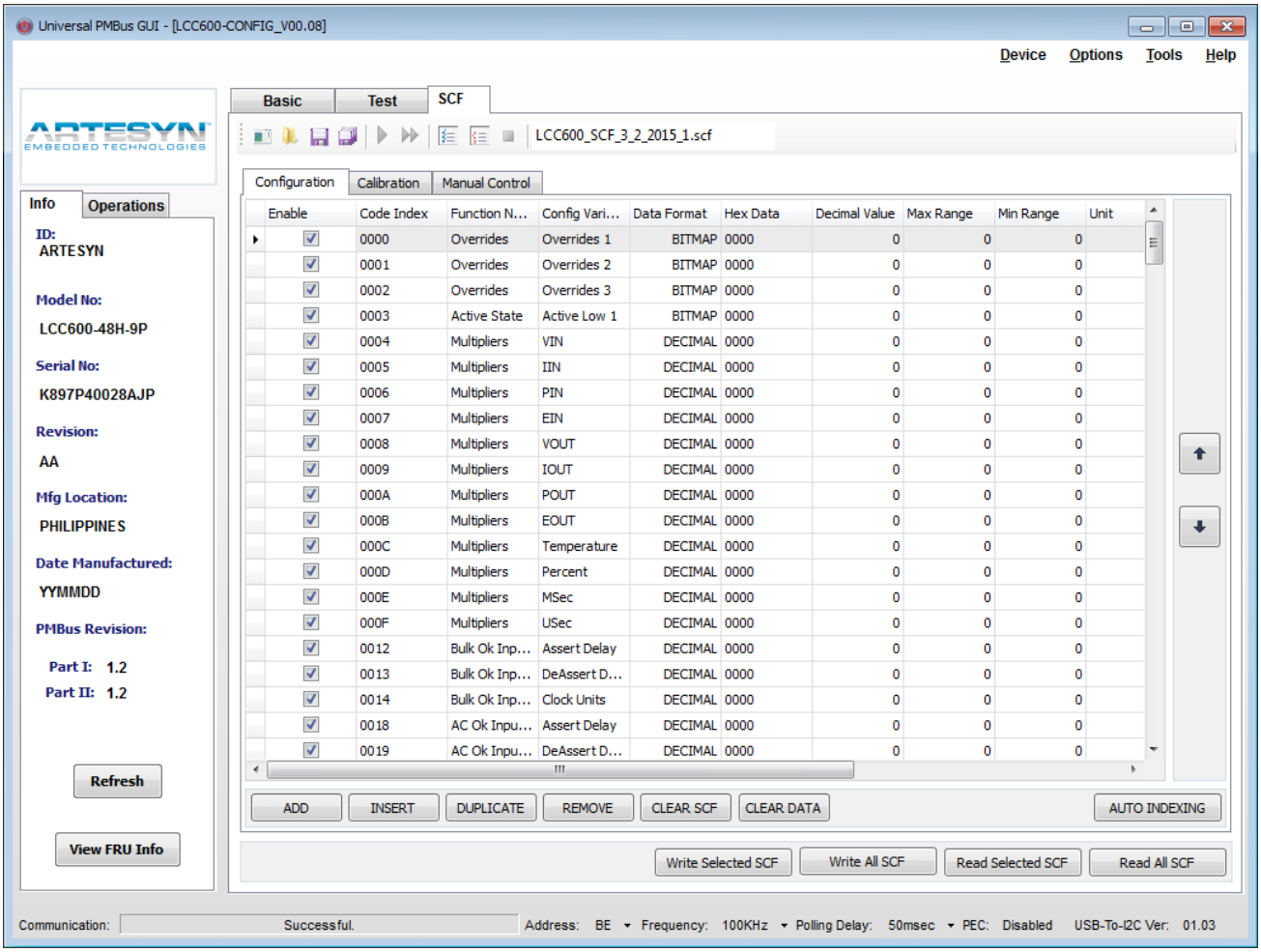


This new features of power supplies will help changing any parameter without changing the firmware. Only selected power supply has this capability. For more information about this new feature, please contact our technical support team.

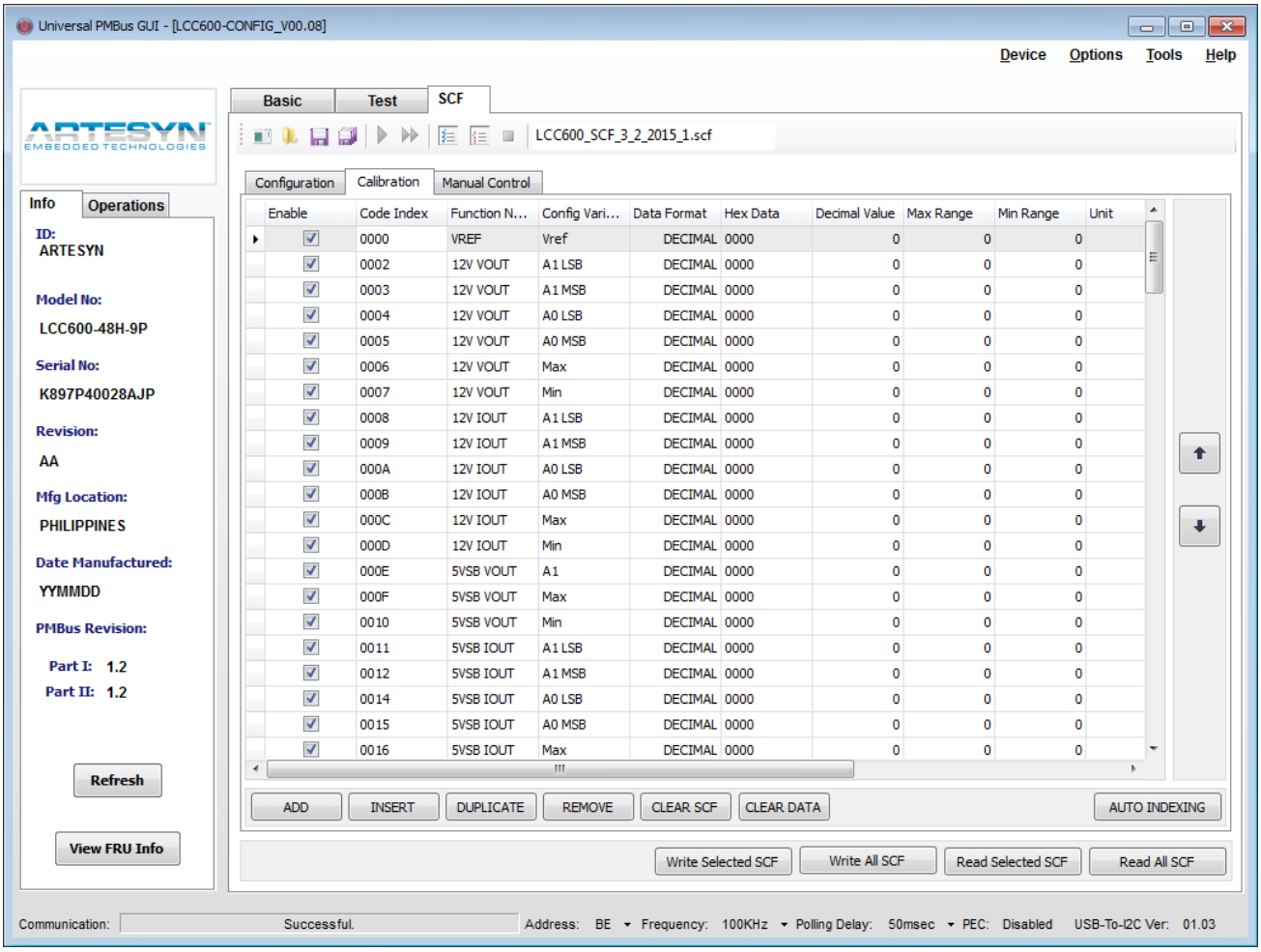
Advance Main Panel Section contains the following:

1. Configuration File
2. Calibration File
3. Manual SCF Read and Write

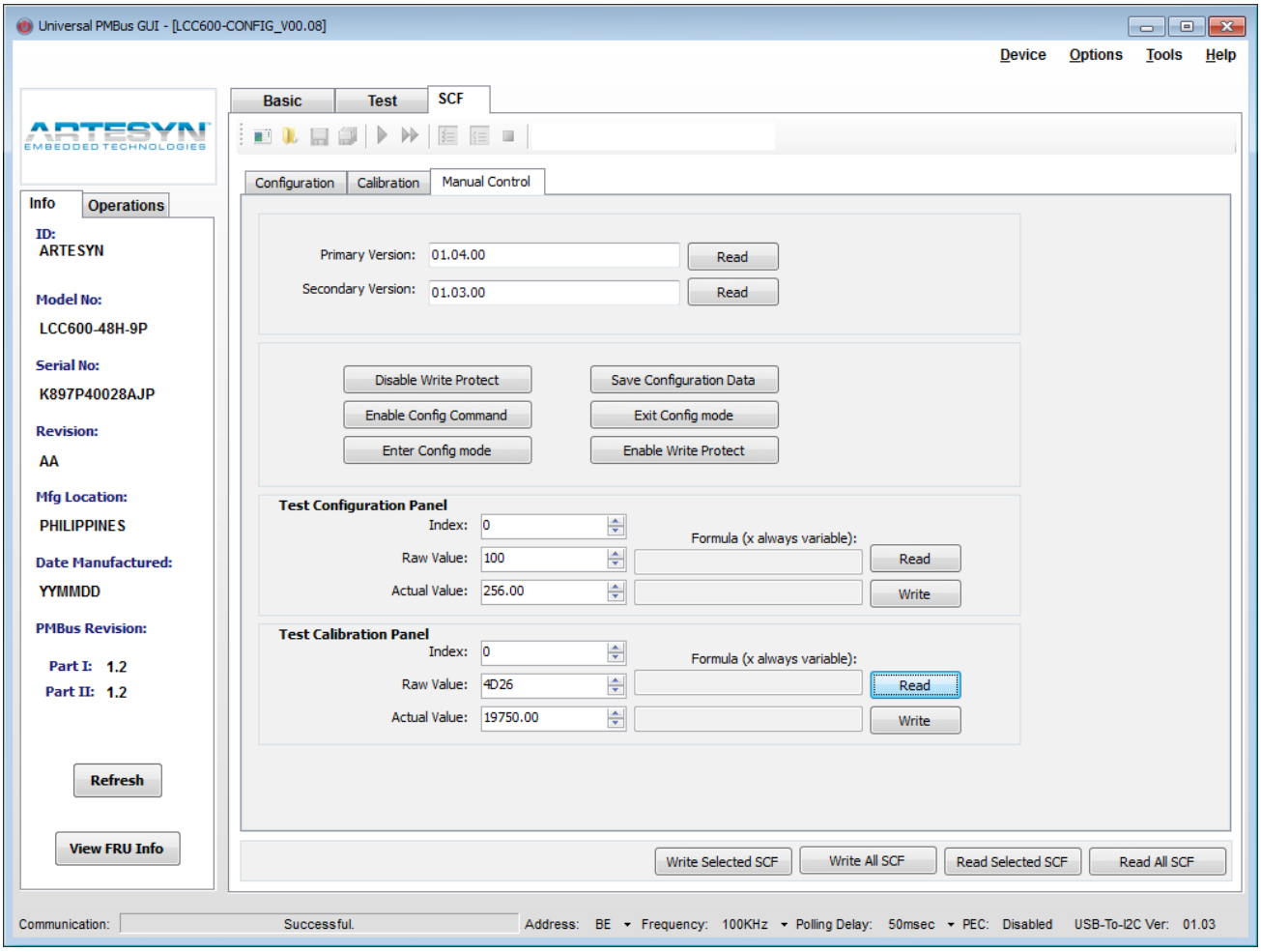
Configuration File



Calibration File

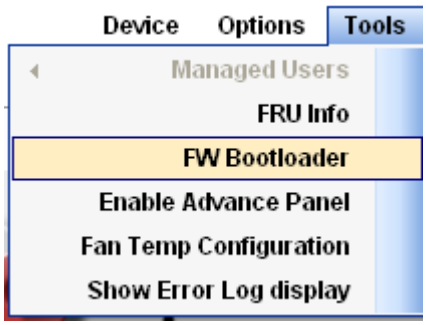


Manual Control

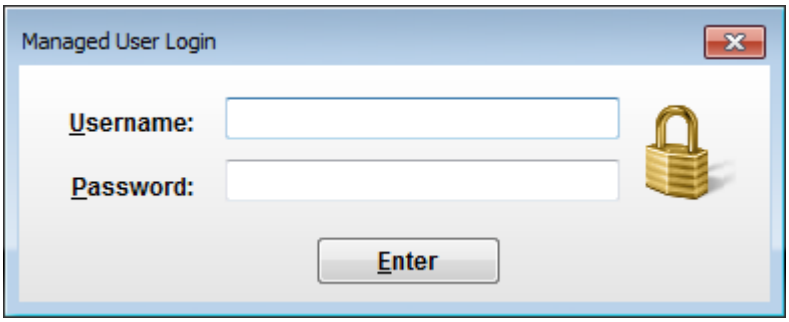


Firmware Update (Authorized personnel only)

Another Universal PMBus GUI capability is the Bootloader. This feature of GUI was design for power supply firmware update.

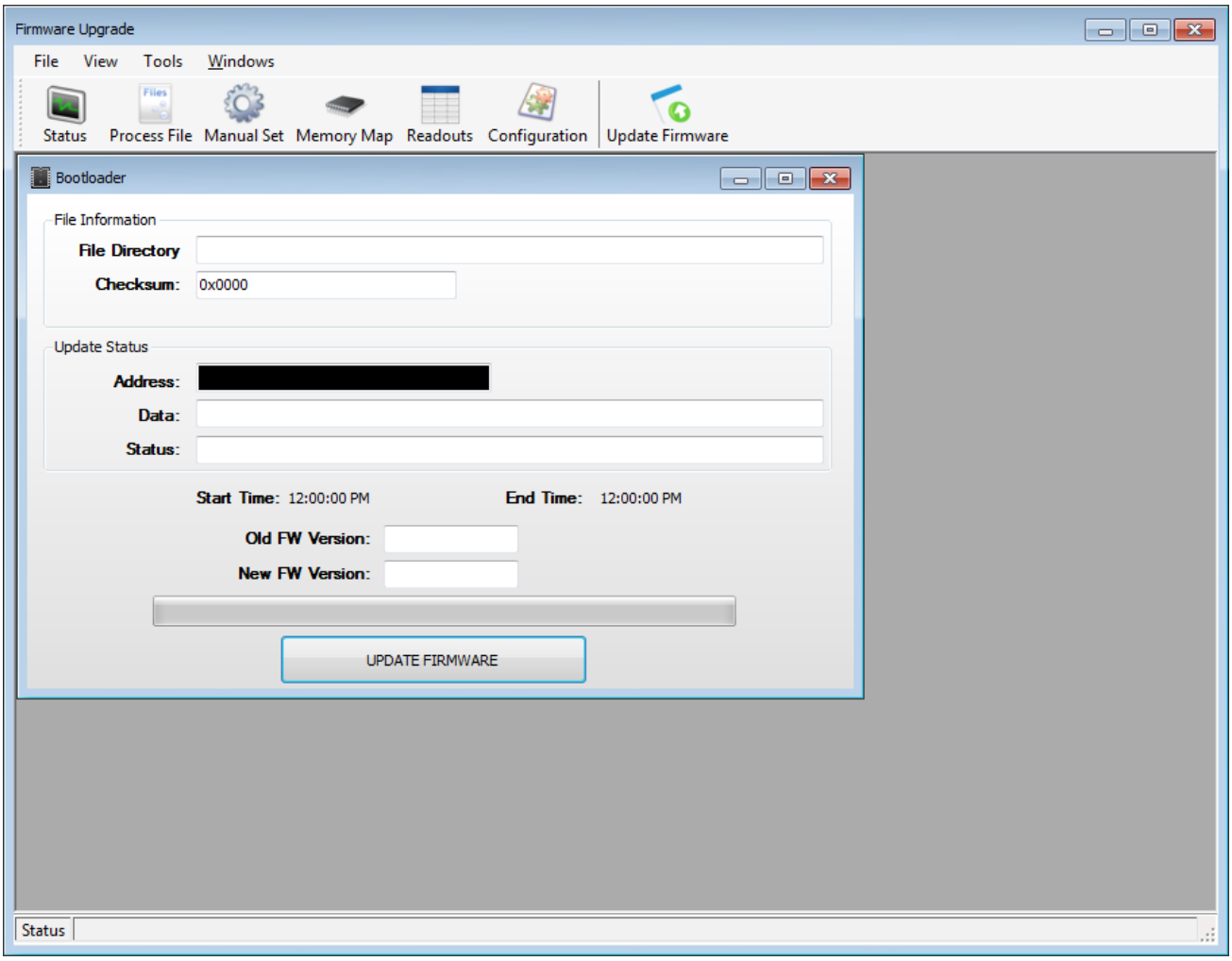


Authorized personnel only can access this feature. It is also password protected.



There are two login available for Advance Panel Section.

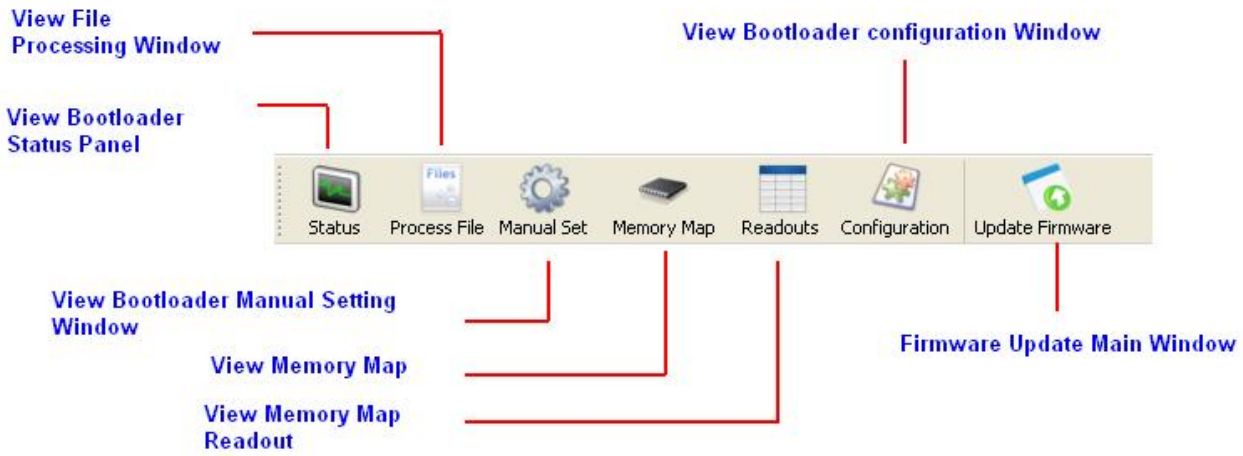
1. Authorized Personnel
2. Bootloader Administrator



This GUI feature will enable user to update the firmware of power supply anywhere.

For more information if your power supply is supported with this feature, please contact our technical support team.

Firmware Upgrade Tools Strip Icons



Definitions:

Status – This icon was use to display the Status Window.

Process File – This icon was use to display the File Processing window. This is use to convert SRecord file to Hex File and SRecord File to Checksum Updated SRecord File. This Icon is accessible only for Bootloader Administrator.

Manual Set – This icon was use to display the Bootloader Manual Setting window. This Icon is accessible only for Bootloader Administrator.

Memory Map – This icon was use to show the Memory Allocation panel for SRecord and Hex File data.

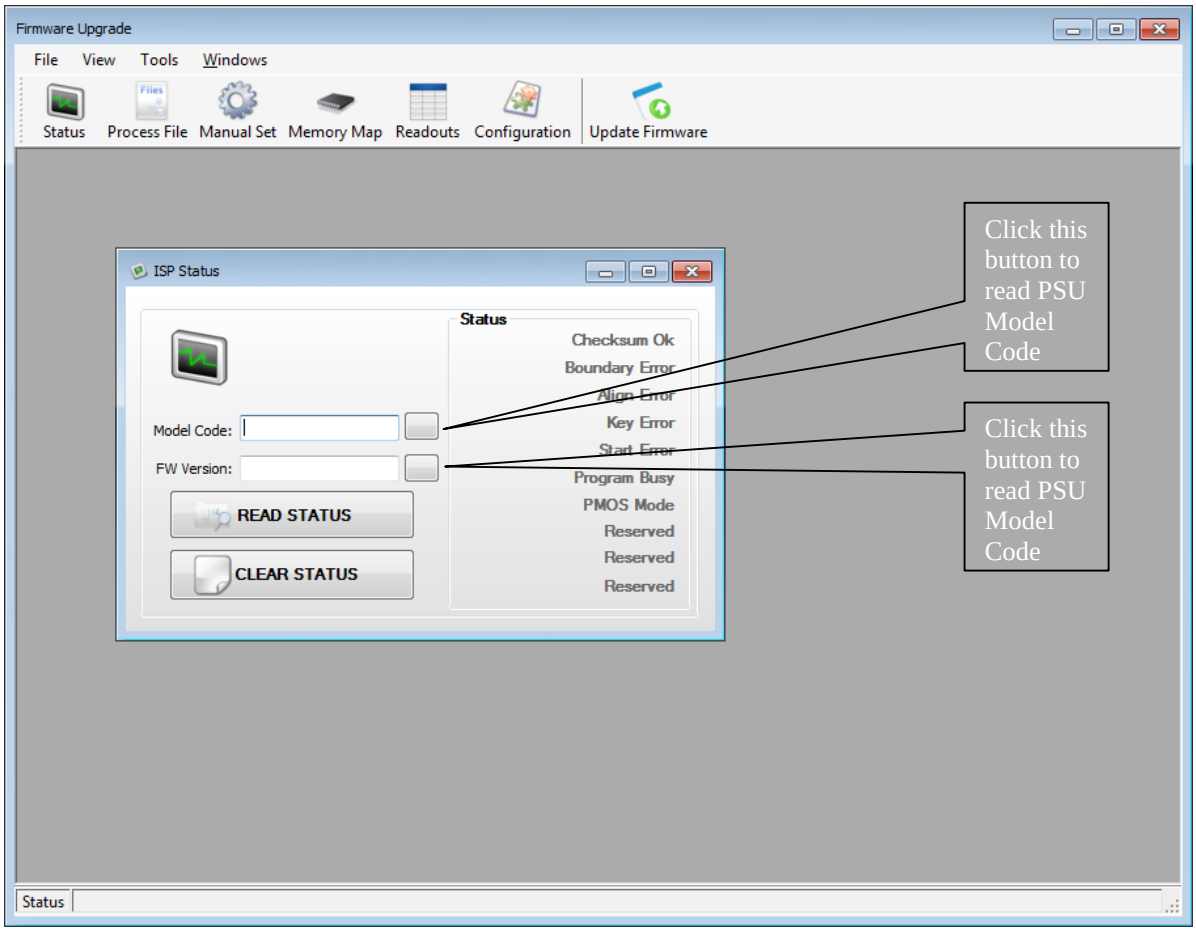
Readouts – This icon was use to show the Actual Data from PSU. This Icon is accessible only for Bootloader Administrator.

Configuration – This icon was use to display the Bootloader Configuration and Settings. Only the Bootloader Administrator has the rights to change these settings.

Update Firmware – This icon was use to show or focus the main window of Firmware Update Panel.

Firmware Bootloader Application window

Status Window:



This section was design for detecting PSU status before and during firmware upgrade. It is also capable to read the model code and firmware version of the power supply.

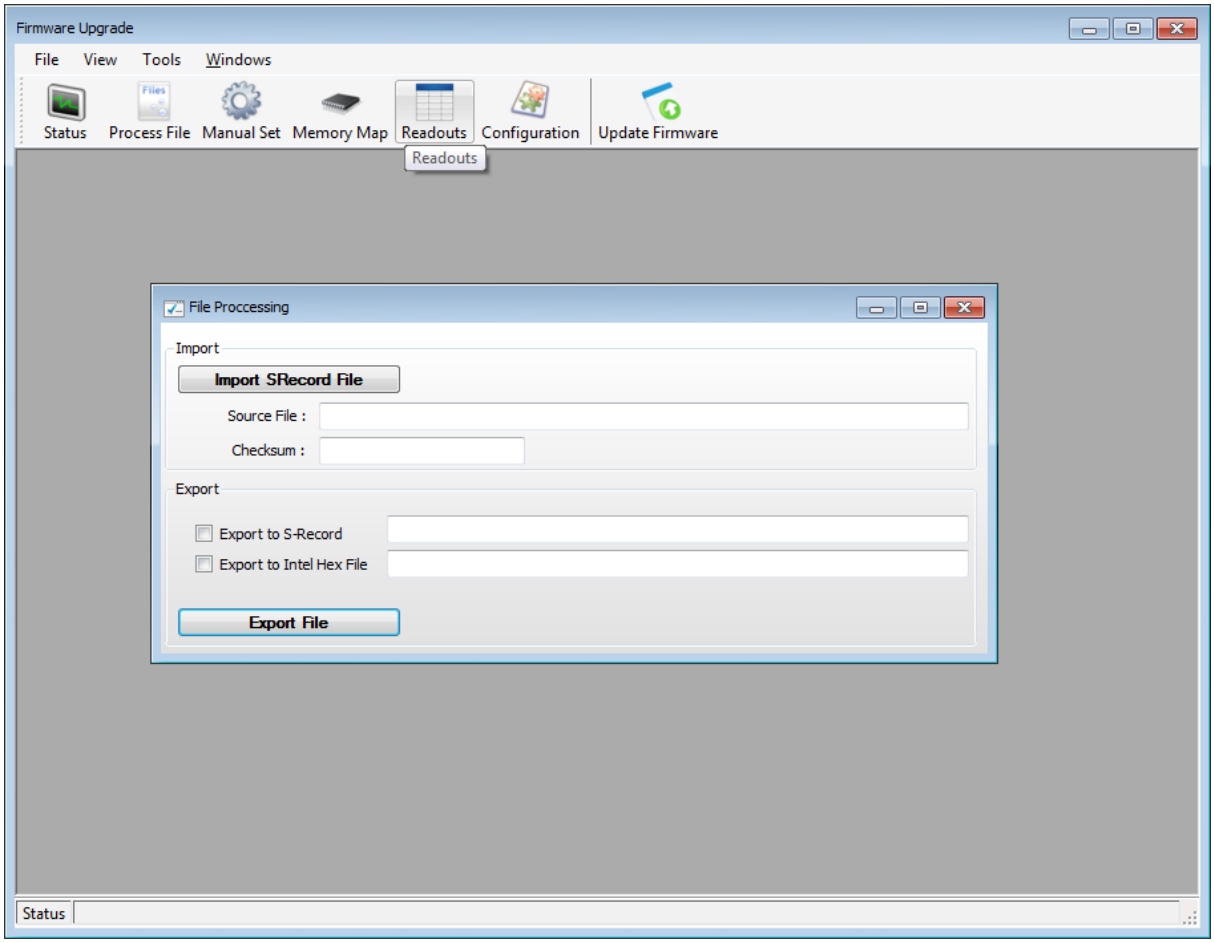
READ STATUS – This will read the current status, error and faults of the power supply.

- It will also indicate the current mode of the PSU (PMOS Mode or ISP Mode)
- PMOS Mode is the normal mode of the PSU.
- ISP Mode is the Bootloader mode.

CLEAR STATUS – will reset the current status and error of the PSU. PSU Mode will not be affected. If the PSU is in ISP Mode it will remain in ISP Mode.

Process File Window:

This window was use by firmware engineers to convert actual SRecord files into Hex File or Checksum Updated SRecord File. This function will be enabled for ***Bootloader Administrator*** login only.



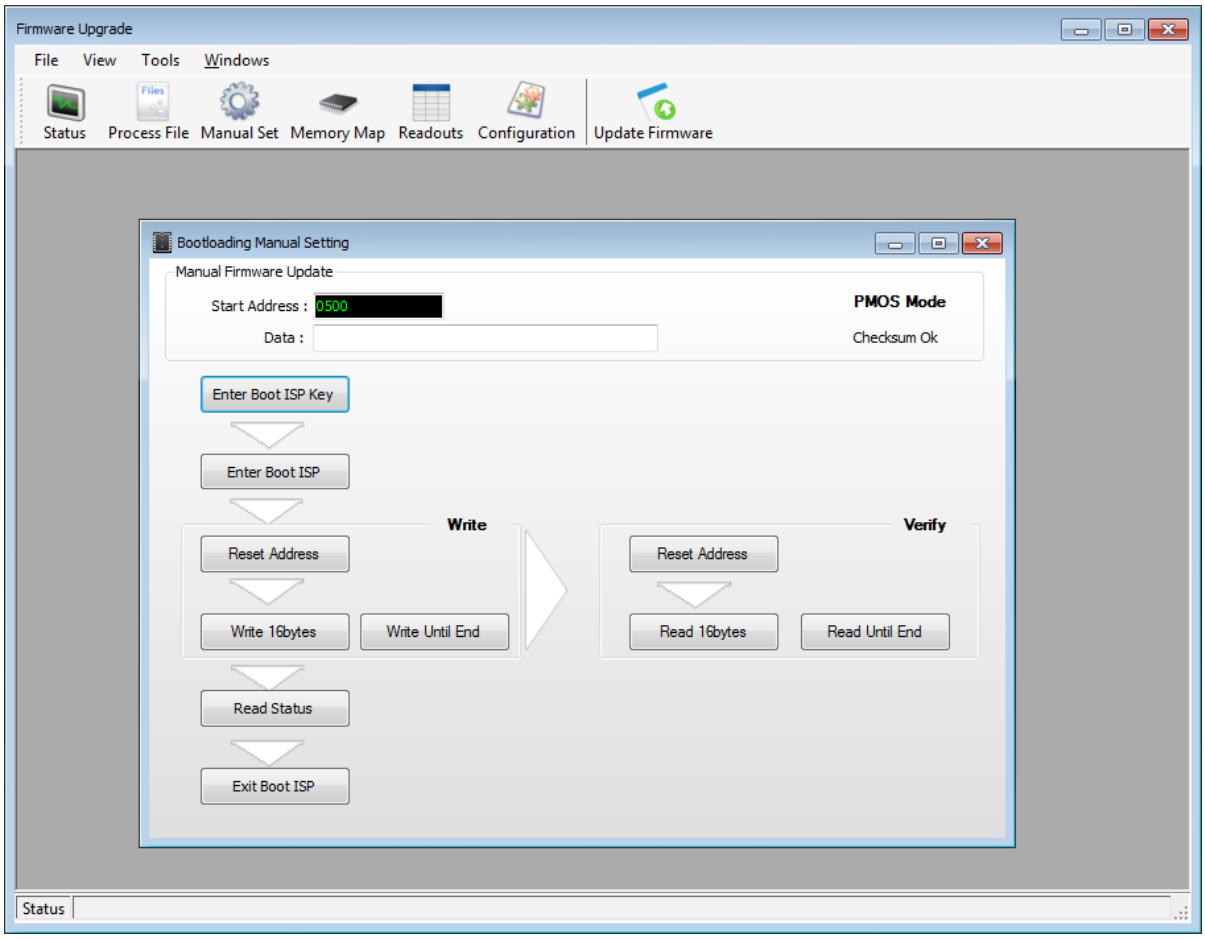
Import SRecord File – this is use to load a reference file to be process and convert into hex or SRecord checksum updated file.

Export File – this is use to initiate file conversion, either to SRecord or Hex file or choose both format.

Manual Set Window:

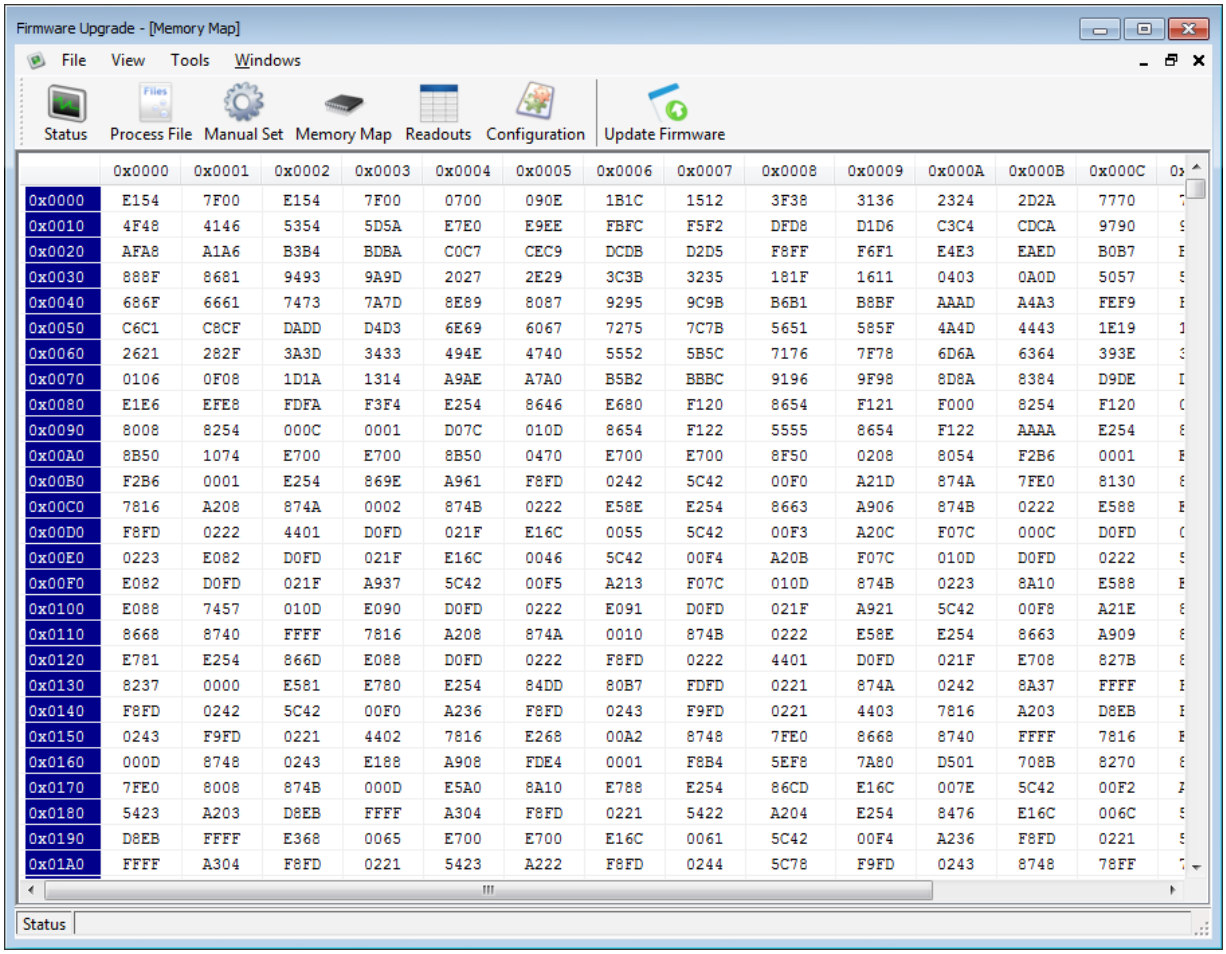
This window was commonly use by firmware engineer for debugging and testing of Bootloader. It can also be use for updating the firmware of the PSU in step by step manner.

This function will be enabled for ***Bootloader Administrator*** login only.



Memory Map Window:

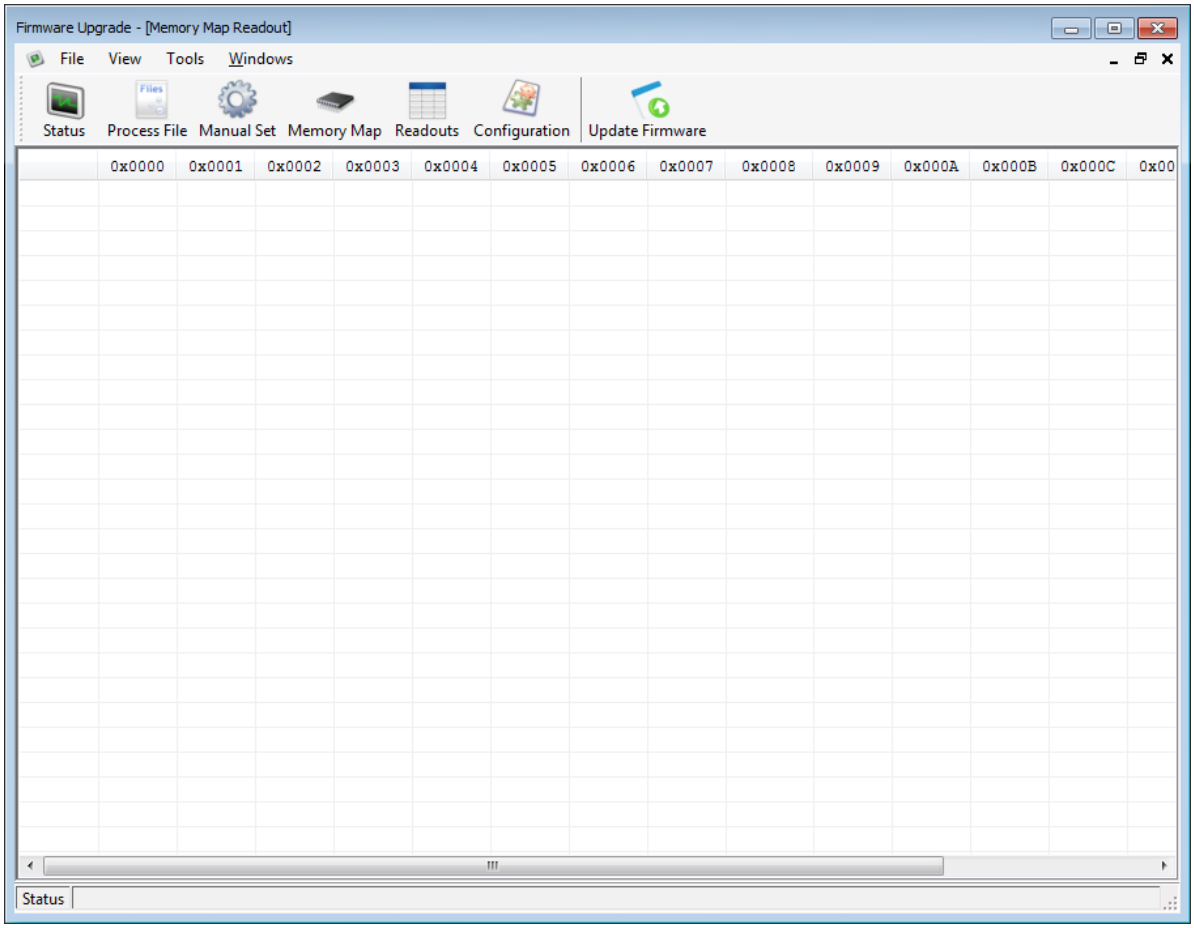
This show the list of data for firmware upgrade base from loaded SRecord or Hex file.



	0x0000	0x0001	0x0002	0x0003	0x0004	0x0005	0x0006	0x0007	0x0008	0x0009	0x000A	0x000B	0x000C
0x0000	E154	7F00	E154	7F00	0700	090E	1B1C	1512	3F38	3136	2324	2D2A	7770
0x0010	4F48	4146	5354	5D5A	E7E0	E9EE	FBFC	F5F2	DFD8	D1D6	C3C4	CDCA	9790
0x0020	AFA8	A1A6	B3B4	BDBA	C0C7	CEC9	DCDB	D2D5	F8FF	F6F1	E4E3	EAED	B0B7
0x0030	888F	8681	9493	9A9D	2027	2E29	3C3B	3235	181F	1611	0403	0A0D	5057
0x0040	686F	6661	7473	7A7D	8E89	8087	9295	9C9B	B6B1	B8BF	AAAD	A4A3	FEF9
0x0050	C6C1	C8CF	DADD	D4D3	6E69	6067	7275	7C7B	5651	585F	4A4D	4443	1E19
0x0060	2621	282F	3A3D	3433	494E	4740	5552	5B5C	7176	7F78	6D6A	6364	393E
0x0070	0106	0F08	1D1A	1314	A9AE	A7A0	B5B2	BBBC	9196	9F98	8D8A	8384	D9DE
0x0080	E1E6	EFE8	FDFA	F3F4	E254	8646	E680	F120	8654	F121	F000	8254	F120
0x0090	8008	8254	000C	0001	D07C	010D	8654	F122	5555	8654	F122	AAAA	E254
0x00A0	8B50	1074	E700	E700	8B50	0470	E700	E700	8F50	0208	8054	F2B6	0001
0x00B0	F2B6	0001	E254	869E	A961	F8FD	0242	5C42	00F0	A21D	874A	7FE0	8130
0x00C0	7816	A208	874A	0002	874B	0222	E58E	E254	8663	A906	874B	0222	E588
0x00D0	F8FD	0222	4401	D0FD	021F	E16C	0055	5C42	00F3	A20C	F07C	000C	D0FD
0x00E0	0223	E082	D0FD	021F	E16C	0046	5C42	00F4	A20B	F07C	010D	D0FD	0222
0x00F0	E082	D0FD	021F	A937	5C42	00F5	A213	F07C	010D	874B	0223	8A10	E588
0x0100	E088	7457	010D	E090	D0FD	0222	E091	D0FD	021F	A921	5C42	00F8	A21E
0x0110	8668	8740	FFFF	7816	A208	874A	0010	874B	0222	E58E	E254	8663	A909
0x0120	E781	E254	866D	E088	D0FD	0222	F8FD	0222	4401	D0FD	021F	E708	827B
0x0130	8237	0000	E581	E780	E254	84DD	80B7	FDFD	0221	874A	0242	8A37	FFFF
0x0140	F8FD	0242	5C42	00F0	A236	F8FD	0243	F9FD	0221	4403	7816	A203	D8EB
0x0150	0243	F9FD	0221	4402	7816	E268	00A2	8748	7FE0	8668	8740	FFFF	7816
0x0160	000D	8748	0243	E188	A908	FDE4	0001	F8B4	5EF8	7A80	D501	708B	8270
0x0170	7FE0	8008	874B	000D	E5A0	8A10	E788	E254	86CD	E16C	007E	5C42	00F2
0x0180	5423	A203	D8EB	FFFF	A304	F8FD	0221	5422	A204	E254	8476	E16C	006C
0x0190	D8EB	FFFF	E368	0065	E700	E700	E16C	0061	5C42	00F4	A236	F8FD	0221
0x01A0	FFFF	A304	F8FD	0221	5423	A222	F8FD	0244	5C78	F9FD	0243	8748	78FF

Memory Map Readout Window:

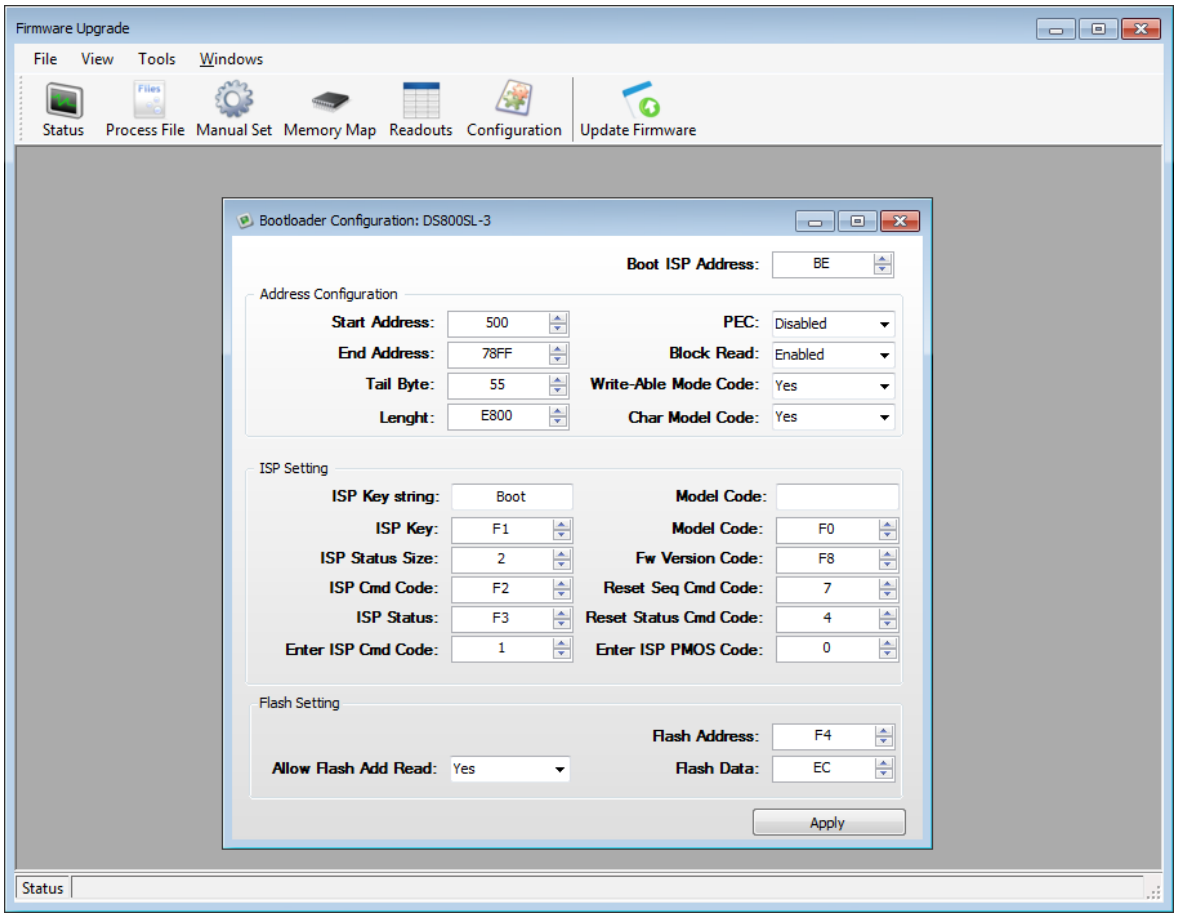
This window will only be available for Manual Bootloading; it will automatically display the actual firmware data from power supply.



Configuration Window:

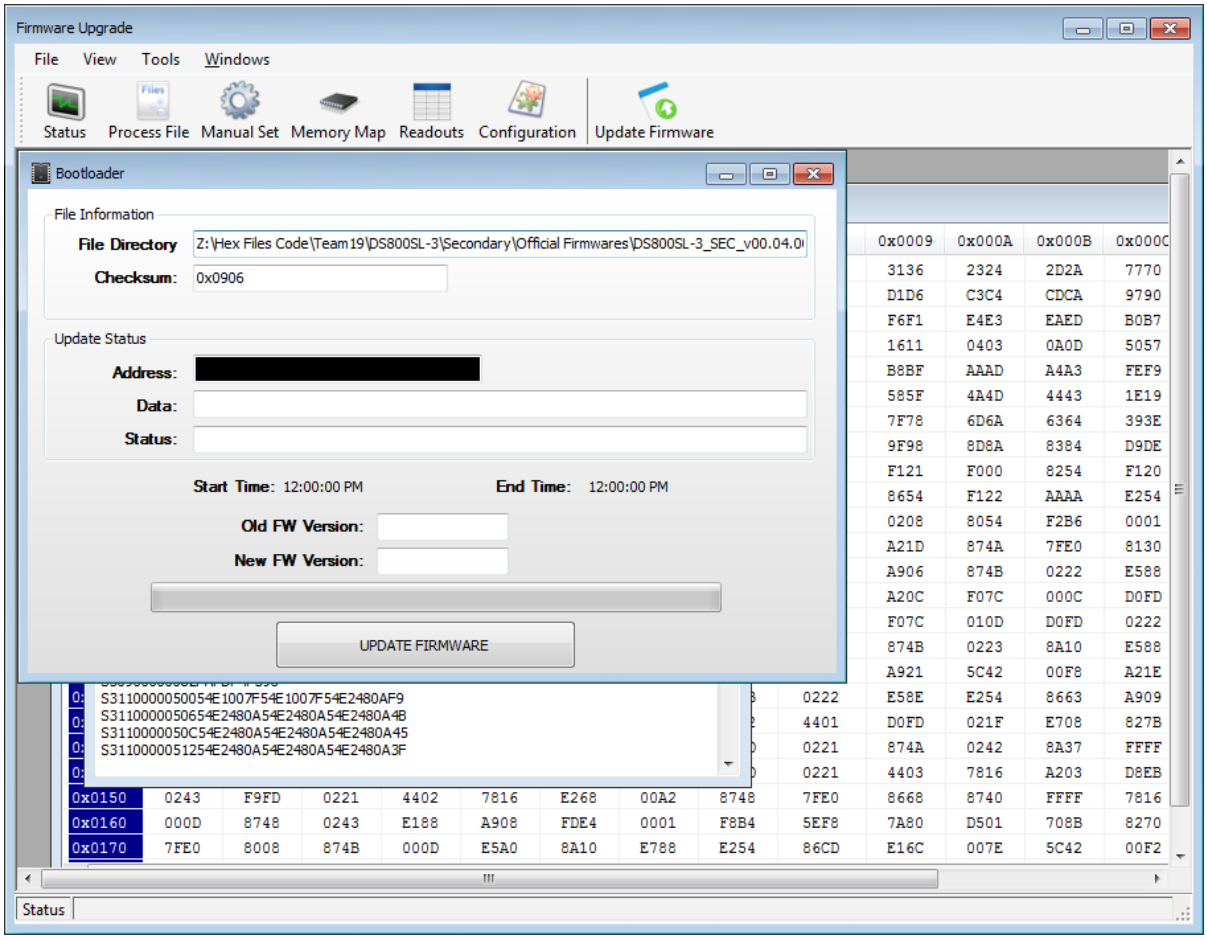
This window was use to update settings of Bootloader configuration. Firmware engineers and GUI administrator are the only allowed personnel to change this configuration.

This function will be enabled for ***Bootloader Administrator*** login only.



Update Firmware Window:

This is the main window for Firmware Bootloading. Firmware update can be done in two ways. One is by automatic update which is done through this panel and other is by manual firmware update. See next section to learn how to update power supply firmware.

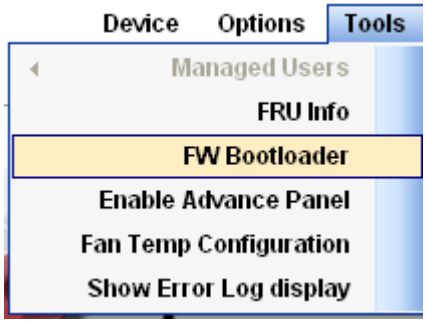


AUTOMATIC FIRMWARE UPDATE

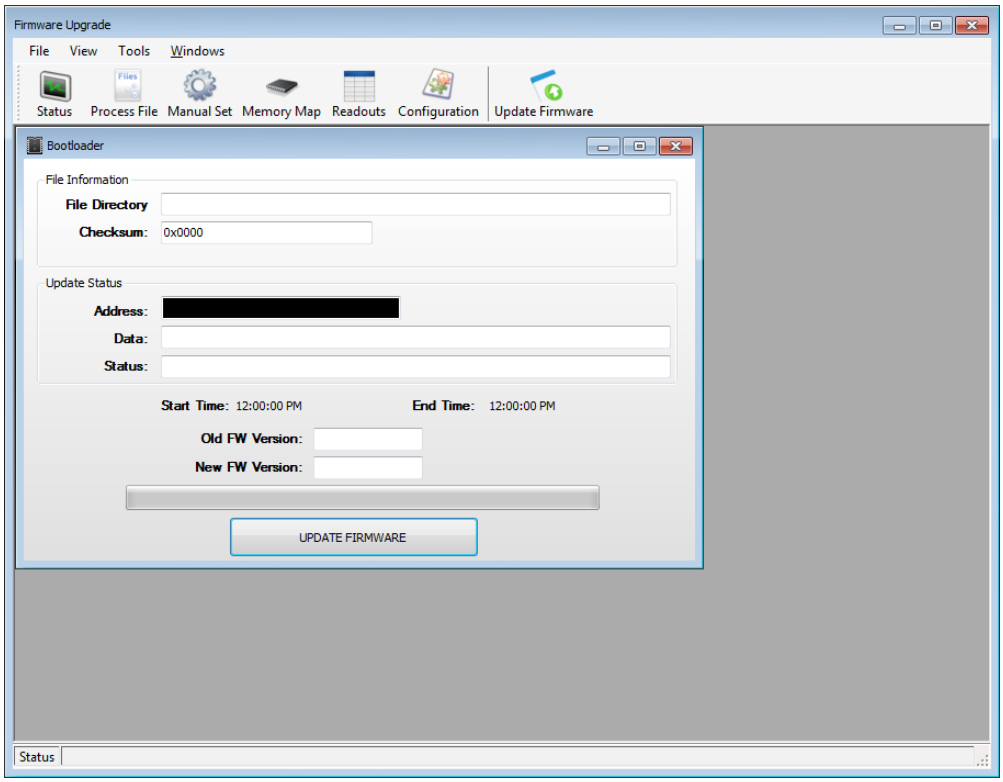
This is the default way of upgrading power supply firmware. It takes a few minutes to update power supply using USB to I2C standard adapter and take few seconds in HI-Speed USB to I2C Adapter.

Procedure for PSU firmware update:

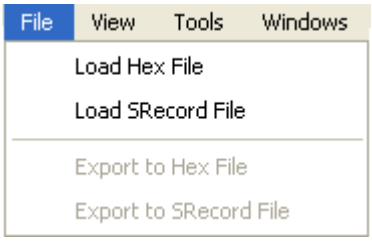
1. Open Firmware Update window. Go to Menu then select Tools and go to FW Bootloader.



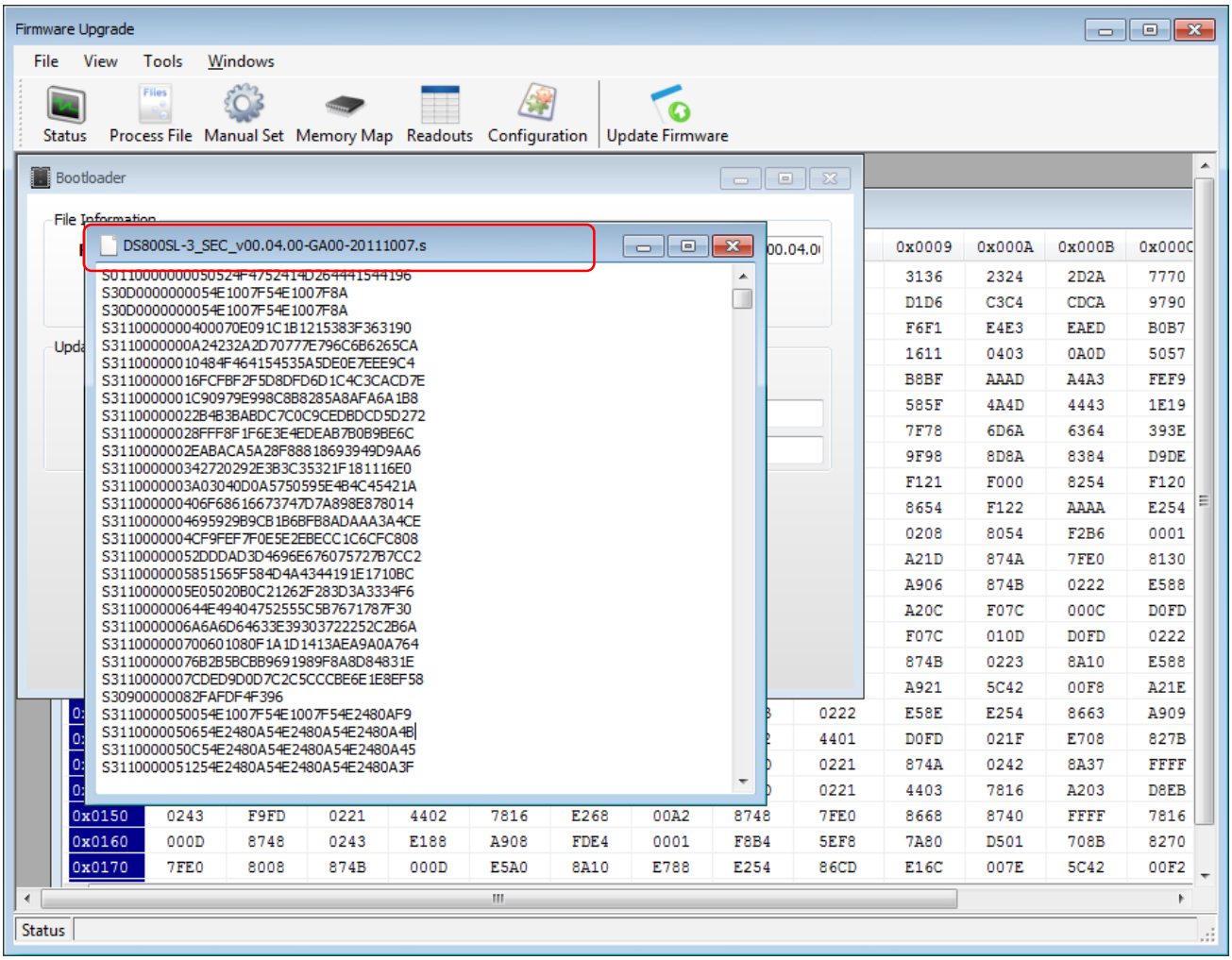
2. Firmware Update Window will appear with the default Bootloader window inside.



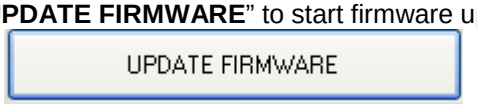
3. Load the Bootloading file (either **SRecord** or **Hex File**).
   Go to file then choose Bootloading file format to load.



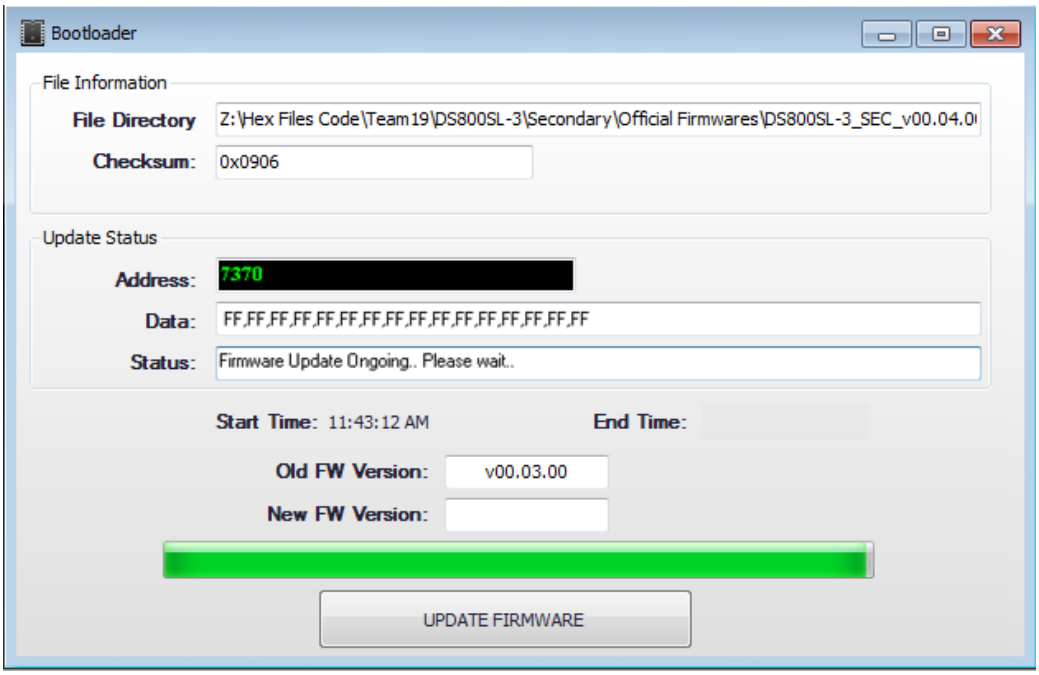
4. Once file is loaded, Memory map will and open the open loader file.



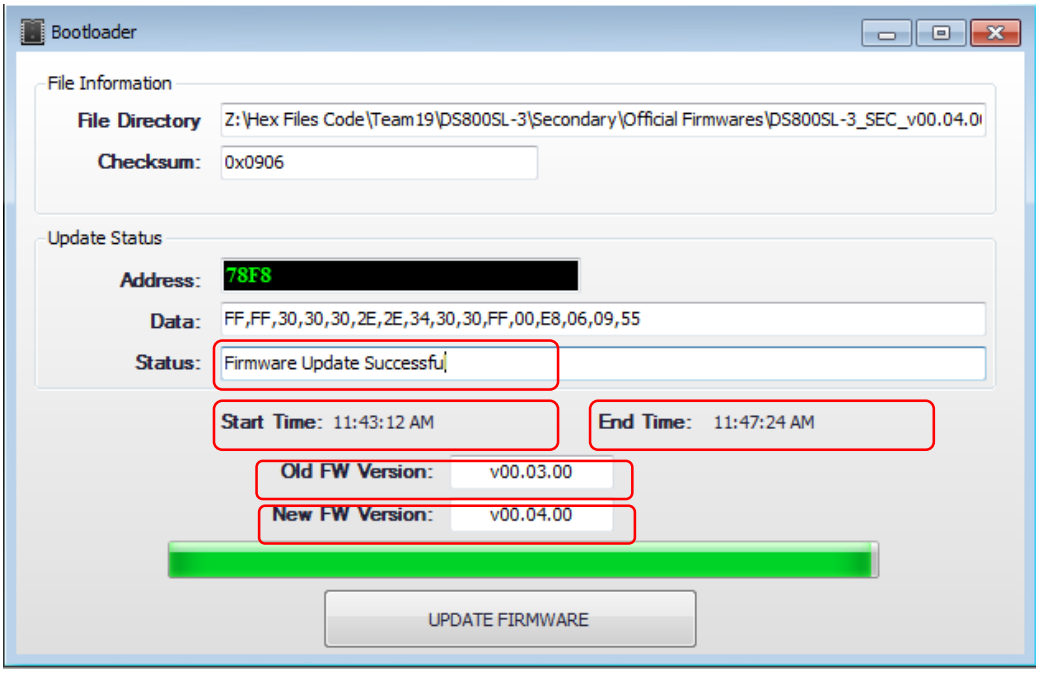
5. Click "**UPDATE FIRMWARE**" to start firmware update.



6. Wait while firmware Update is ongoing.



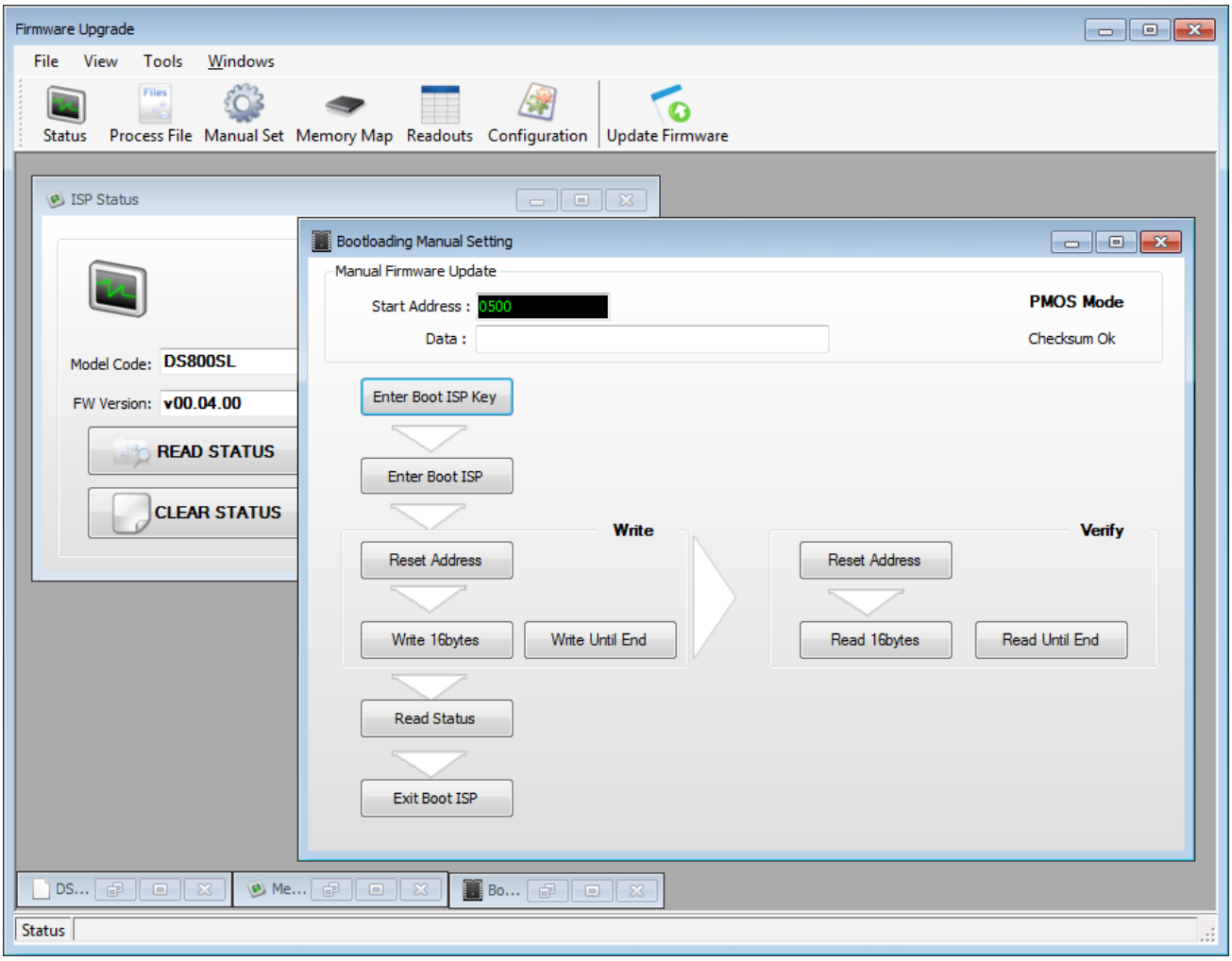
7. Wait until Status indicate that "**Firmware Update Successful**".



Once update completed, End time will be indicated including the old and new firmware version of the power supply.

MANUAL FIRMWARE UPDATE

Manual firmware update was design primarily for Bootloader debugging and to be use by power supply design engineer. It is much more complicated than using Automatic firmware update. It has a step by step procedure to attain successful firmware update.

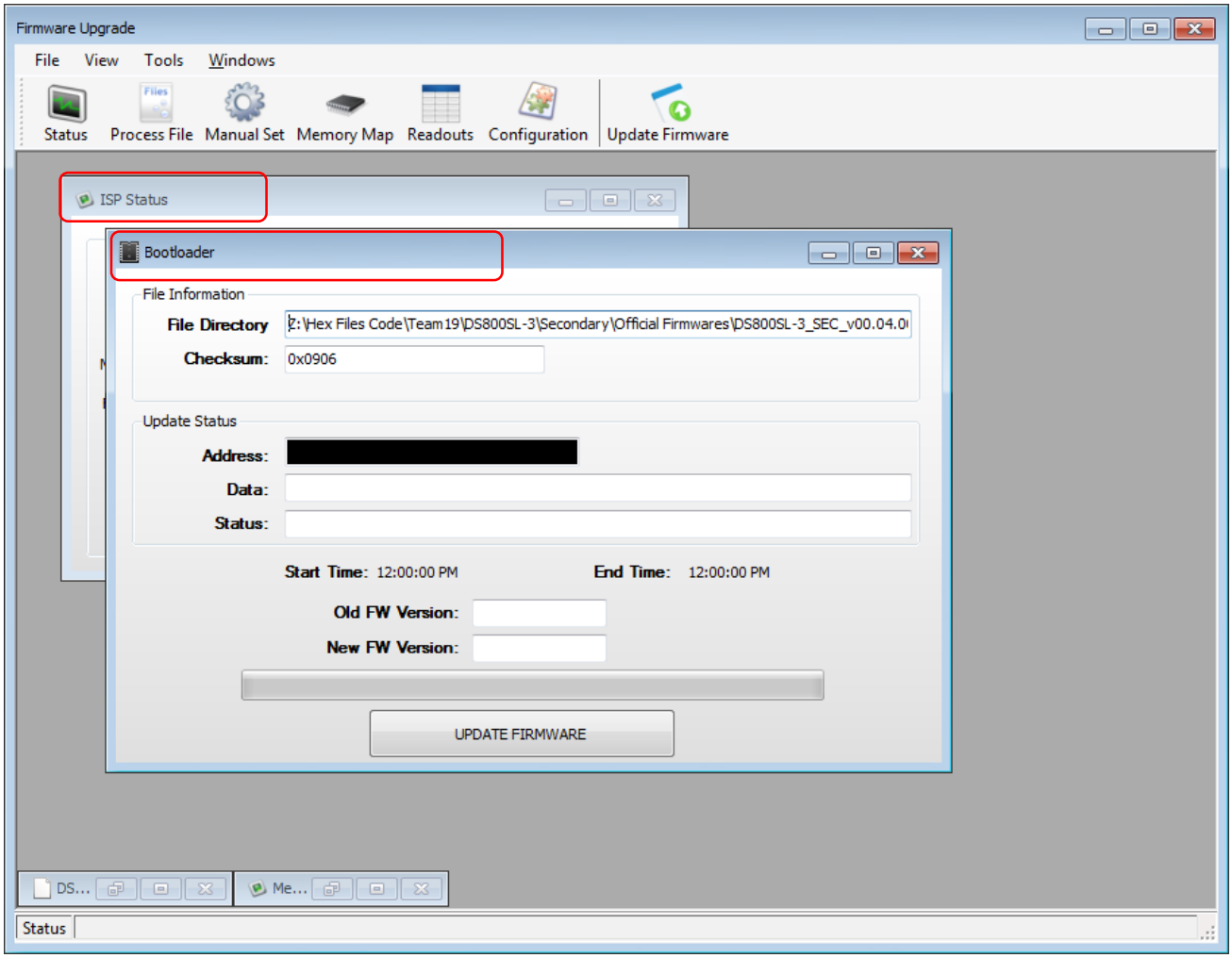


Checking of Model code and Firmware version are needed to be done manually using ISP Status window. See procedure below on how to upgrade power supply firmware using manual Bootloading.

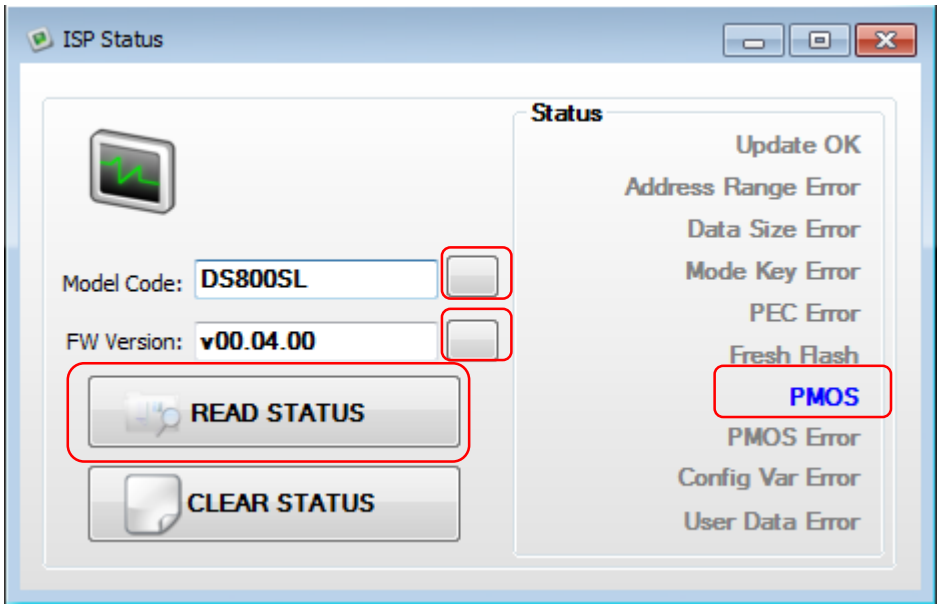
Procedure for Manual Firmware Update

4. Click "Manual Set" Button located at the top section of the Firmware Upgrade window.

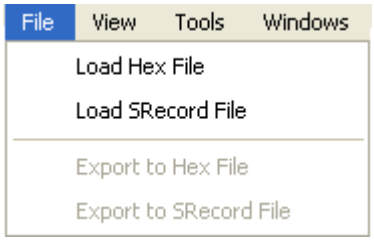
5. ISP Status and Bootloading Manual Setting window will appear.



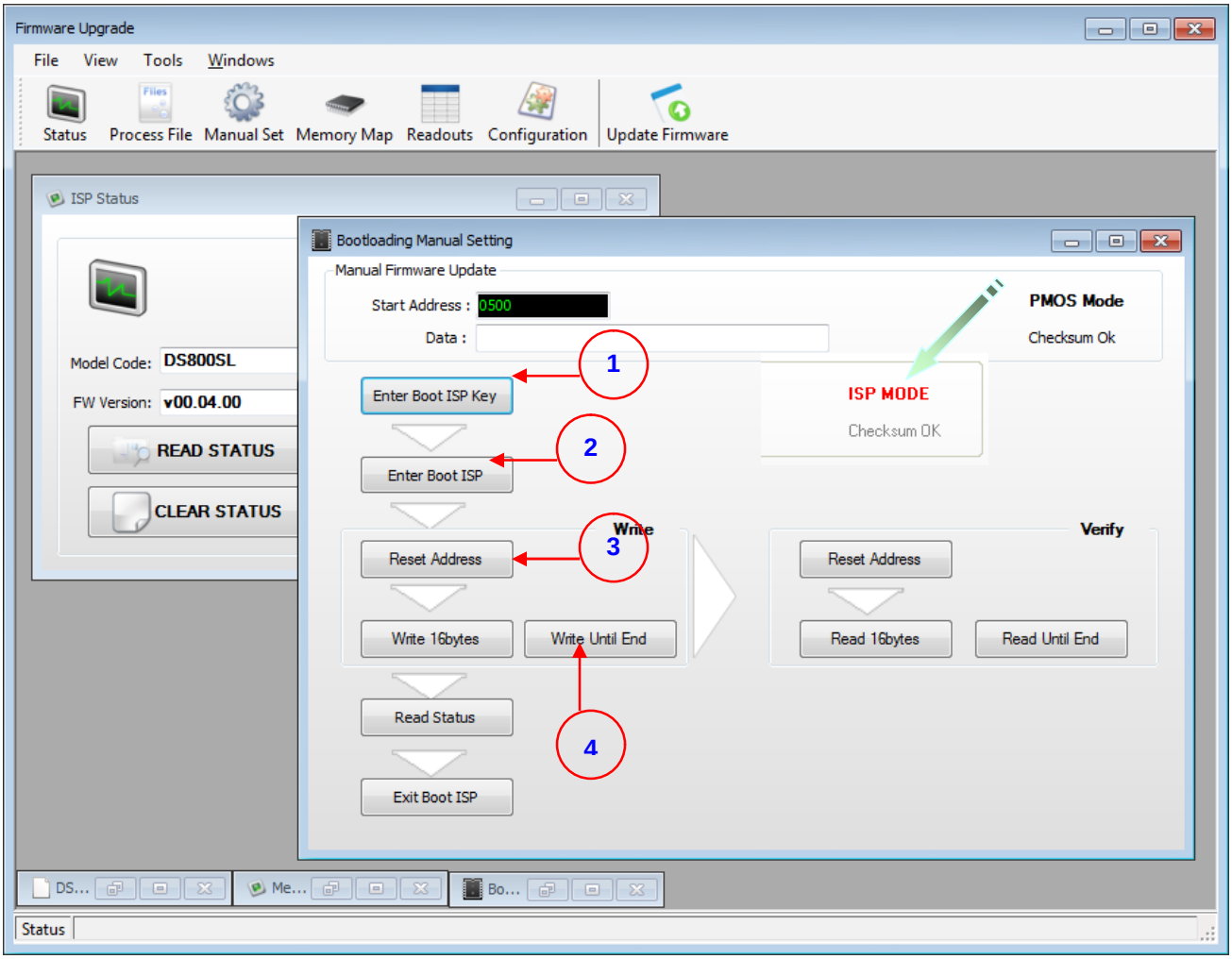
6. Go to ISP Status and click buttons to read Model Code and Firmware Version.



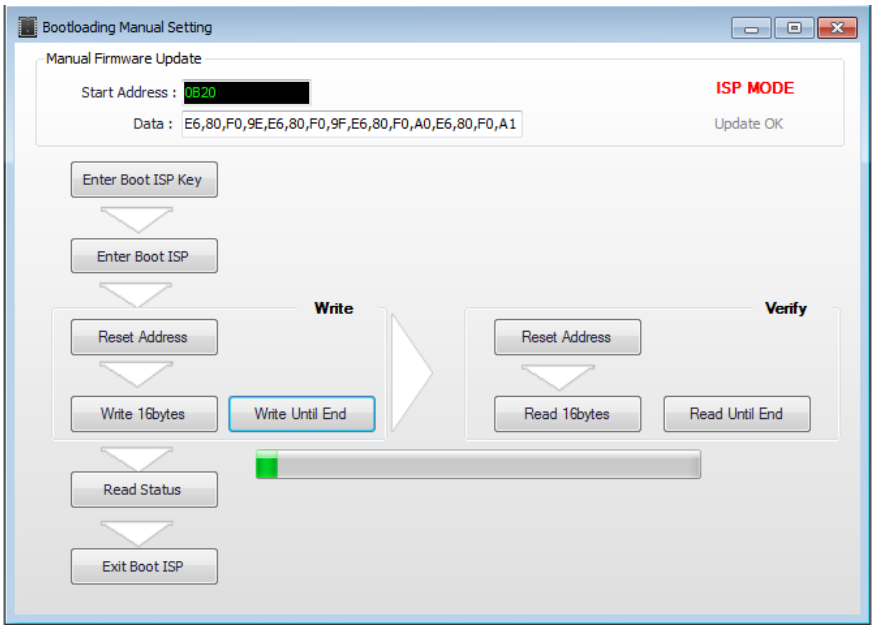
7. Click Read Status Button to verify the current status of the Bootloader.
8. Go to Bootloader Manual Setting window to start firmware upgrade.
9. Load Bootloader file 1st.



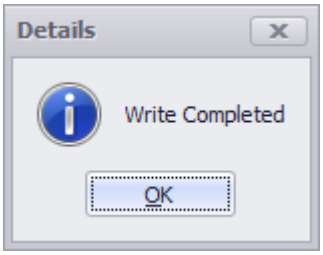
10. Once Bootloader already loaded, click "**Enter Boot ISP Key**" (**1**), then click "**Enter BOOT ISP**" (**2**) and wait until "**PMOS Mode** to change into **ISP Mode**. If Bootloader status already in the ISP Mode. "Reset Address" then press "**Write Until End**" button.



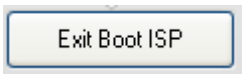
11. Wait until firmware Update Completed.



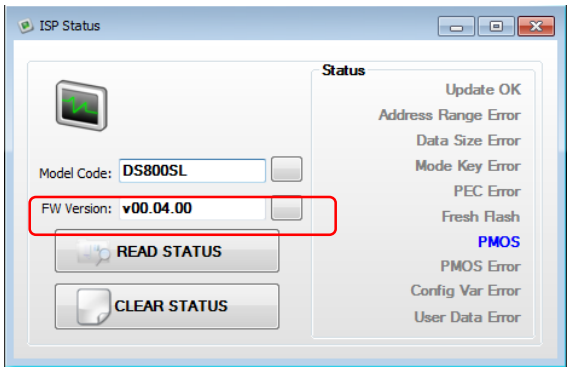
12. Wait until write already completed.



13. Click Exit Button to return in **PMOS Mode**.



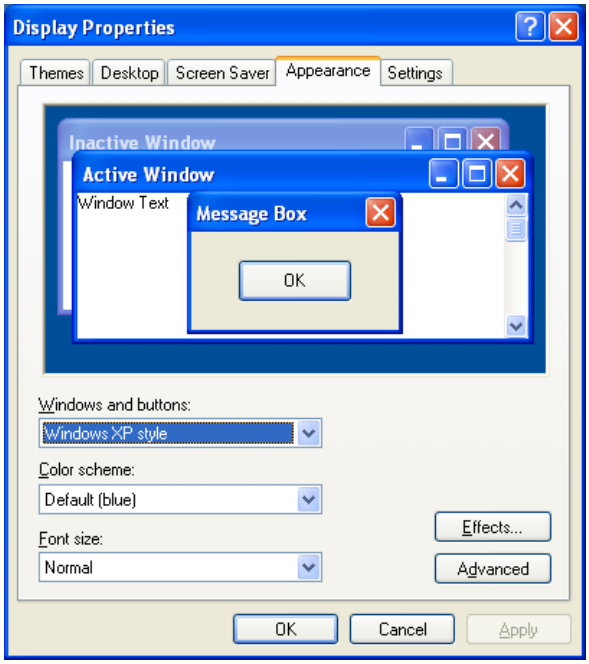
14. Go to status window then check FW Version if already updated. Once Confirmed that version already update then firmware upgrade already successful.



TROUBLE SHOOTING GUIDE

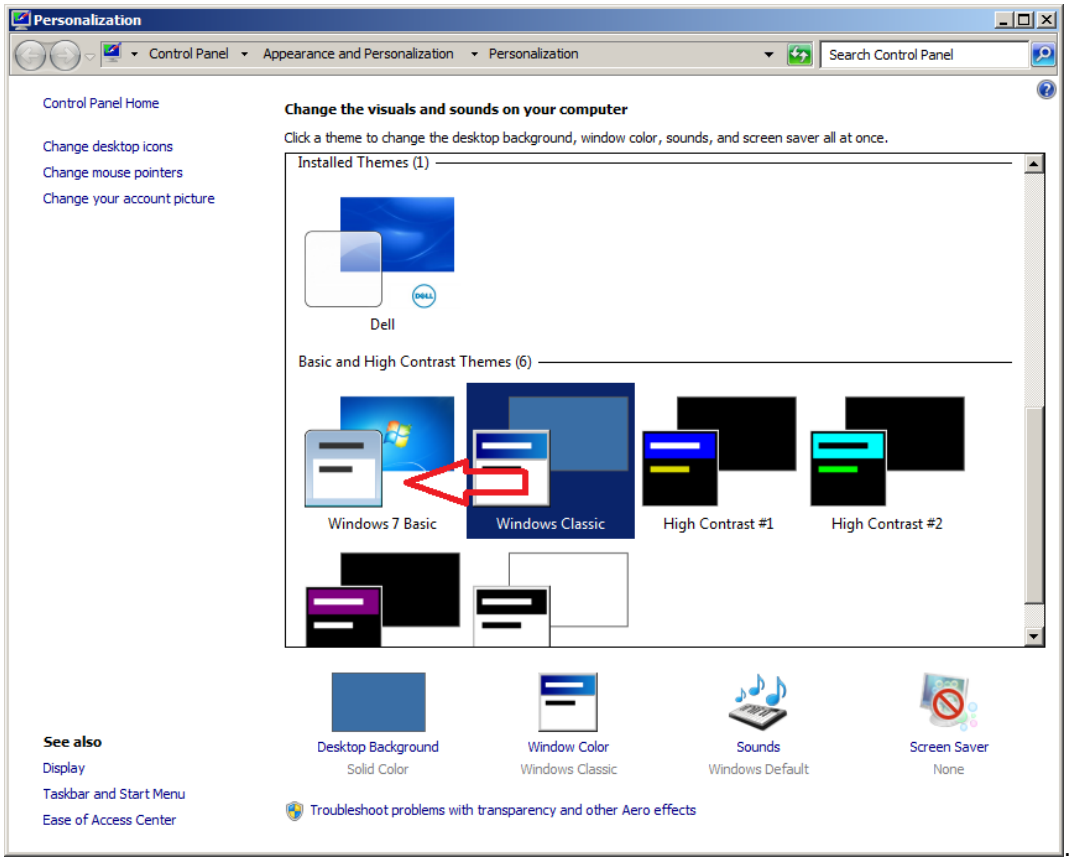
Visual Style Error XP

Cause 1: Window style was set to Classic Window.
Solution 1: Set the window and button style to Window XP Style from Window Display Properties.



Visual Style Error Window 7 and up

Cause 1: Window theme was set to Windows Classic.
Solution 1: Set the theme to Window 7 Basic from Personalization Basic and Contrast Themes

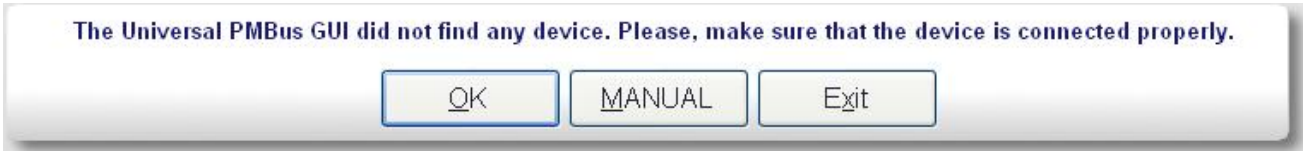


USB-I2C Hardware Not Detected

Cause 1: USB to I2C adapter not connected to USB port of the computer.
Solution 1: Make sure that it is already connected before launching the Universal PMBus GUI.

Cause 2: USB to I2C adapter set in the GUI did not match the actual adapter connect to computer.
Solution 2: Go to device menu then Select the correct USB Adapter.

Universal PMBus GUI Did not find any Device



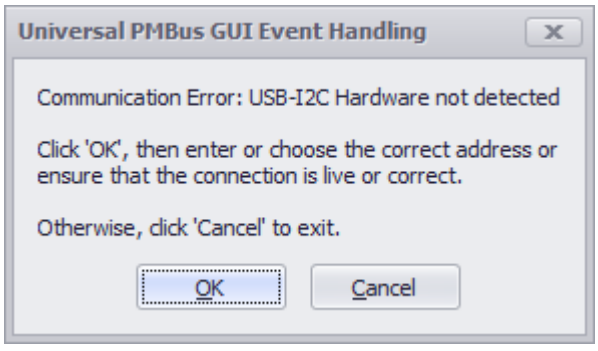
Cause 1: Power Supply not connected in the USB to I2C Adapter.
Solution 1: Make sure that USB to I2C adapter cable was connected to power supply.

Cause 2: Power Supply not powered up.
Solution 2: Make sure all connections are connected and the Unit was powered up.

Cause 3: No configuration file available for the power unit connected to the GUI.
Solution 3: Make sure that the GUI already had the configuration for the power supply unit to test.

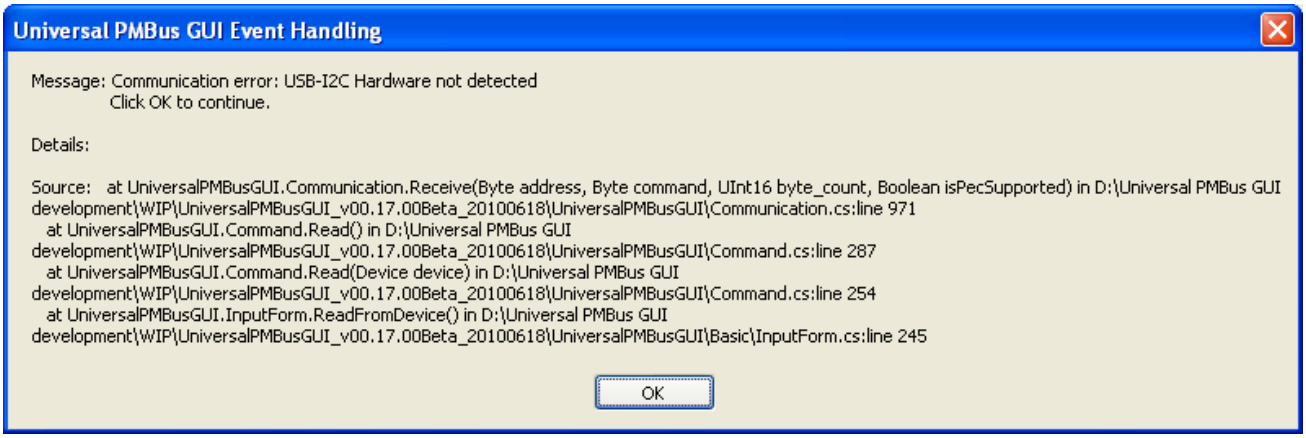
Cause 2: MFR MODEL of the power supply under test was different from the MFR MODEL being set in the configuration file.
Solution 3: Verify if the MFR MODEL of the power supply is already updated.

Communication Error: Address is invalid



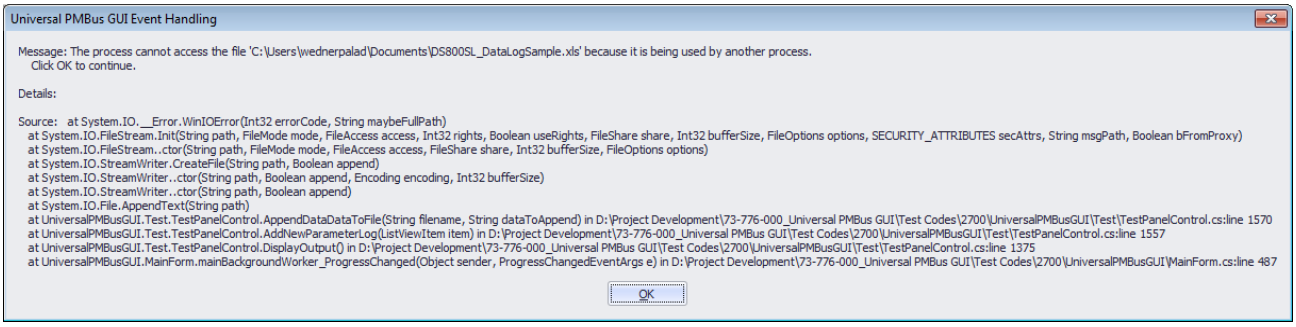
Cause 1: This error occurred when wrong address was set or adapter connection to power supply unit was disconnected.
Solution 1: Make sure that device address was correctly set and make sure that the I2C adapter was connected the power supply to avoid this error.

Communication Error: USB-I2C Hardware not detected



Cause 1: This error occurred when USB-to-I2C adapter was disconnected while Universal PMBus GUI is currently active.
Solution 1: Make sure to connect the USB-to-I2C adapter to avoid this error.

Data Log Accessing File Error

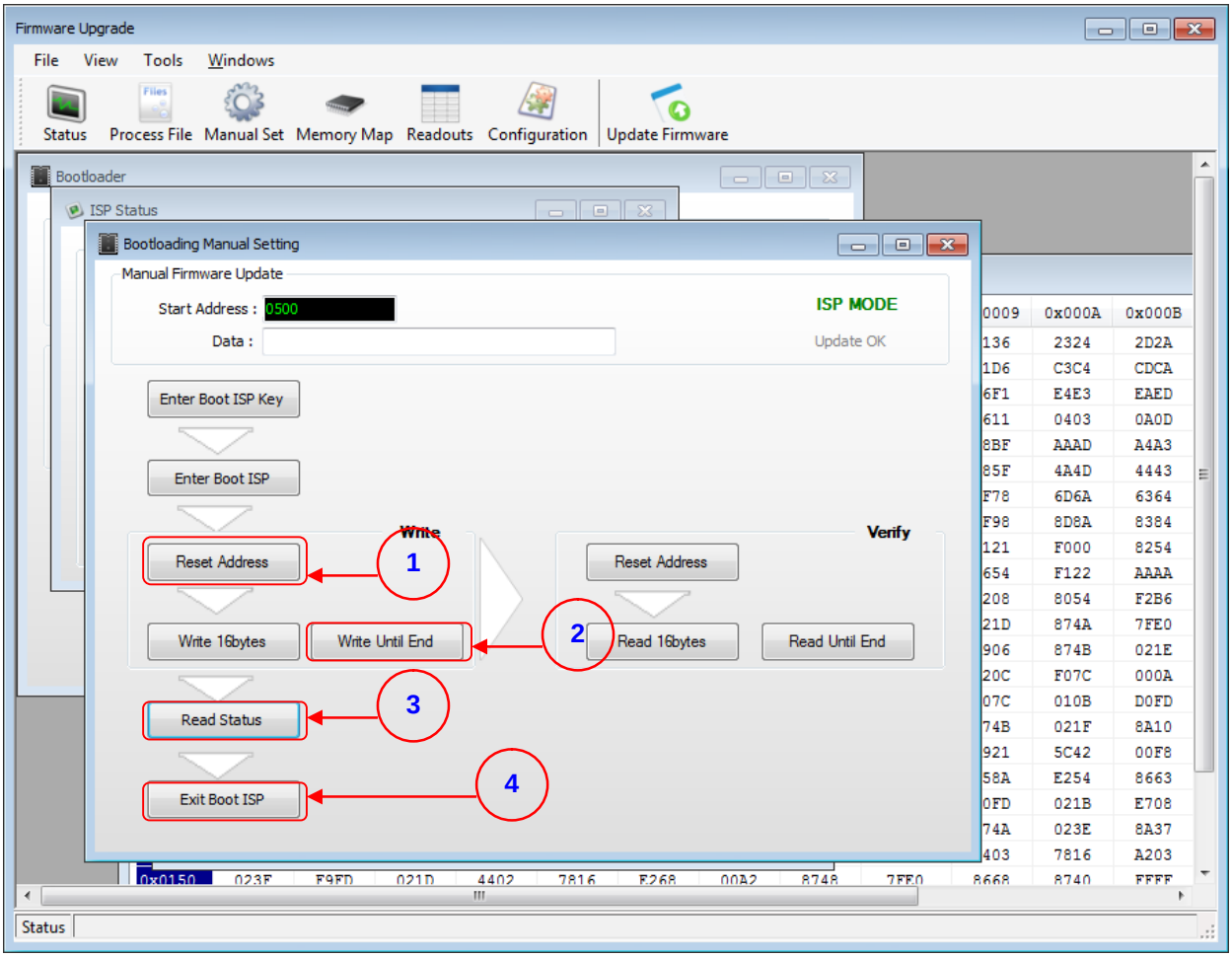


Cause 1: Opening data log file while Continuous reading in Test Panel currently active.
Solution 1: Accessing file is prohibited while data logging is still ongoing.

Power Supply Unit stuck in ISP Mode using Manual Bootloader Update

Cause 1: Communication fail.
Solution 1: Use Manual Bootloading to continue firmware update on failed unit.

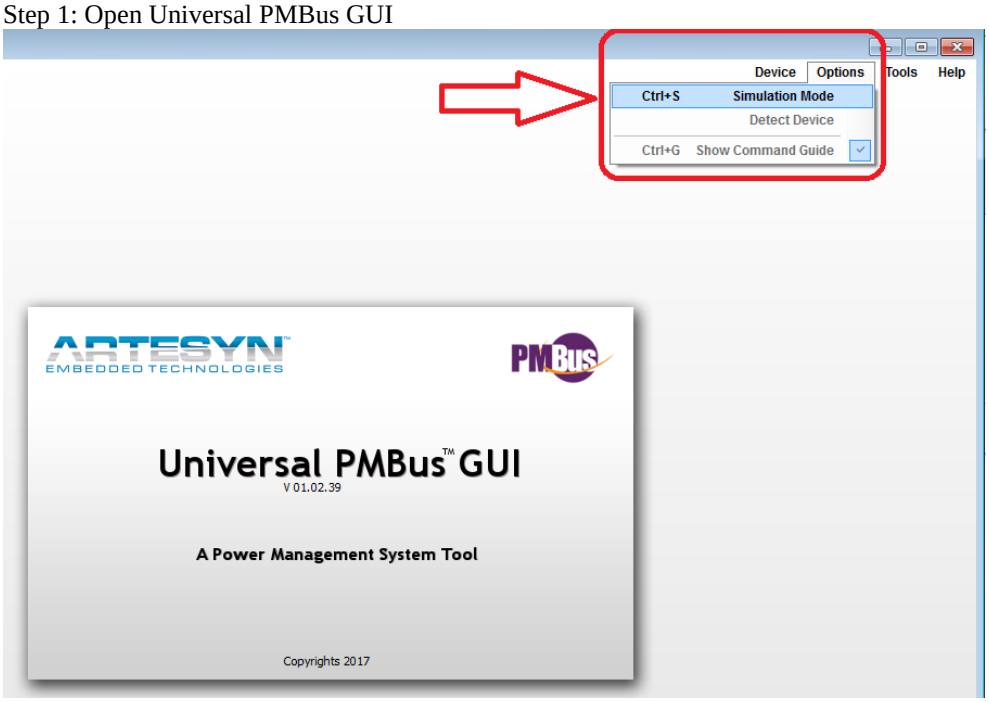
Make sure to Click Read Status to check that bootloader status mode is set in ISP Mode.
Follow steps below to complete firmware update using manual bootloading.



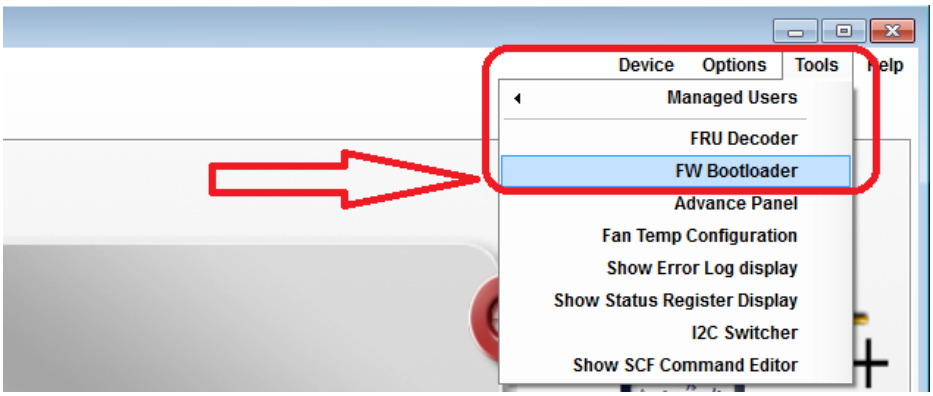
Power Supply Unit stuck in ISP Mode start from Launching

Cause 1: Communication fail.
Solution 1: Use Manual Bootloading to continue firmware update on failed unit.

Step 1: Open Universal PMBus GUI

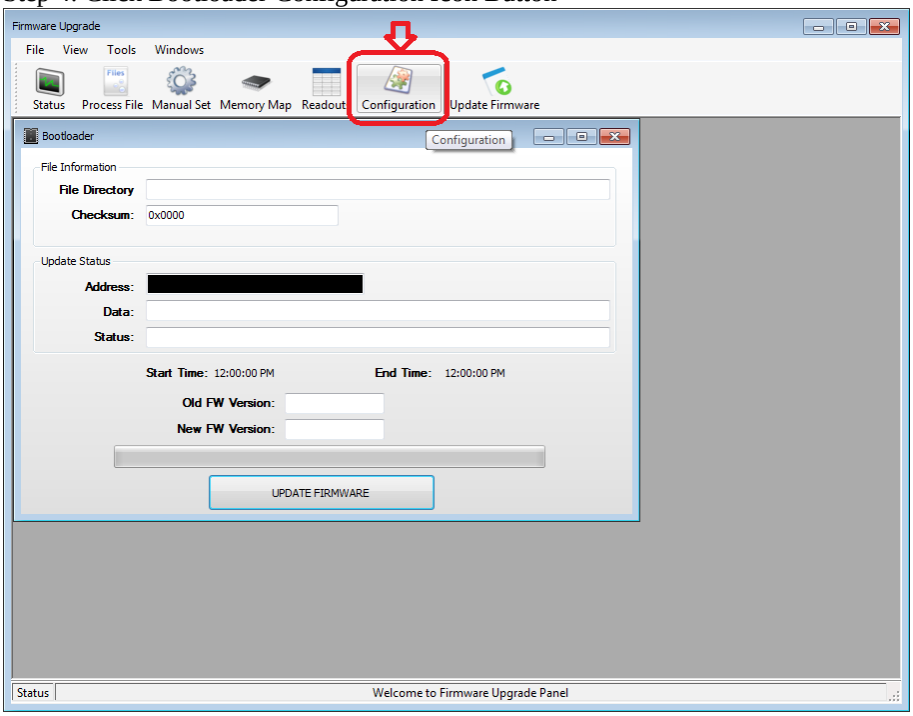


Step 2: Once already n Simulation Mode go to Tools Menu → FW Bootloader

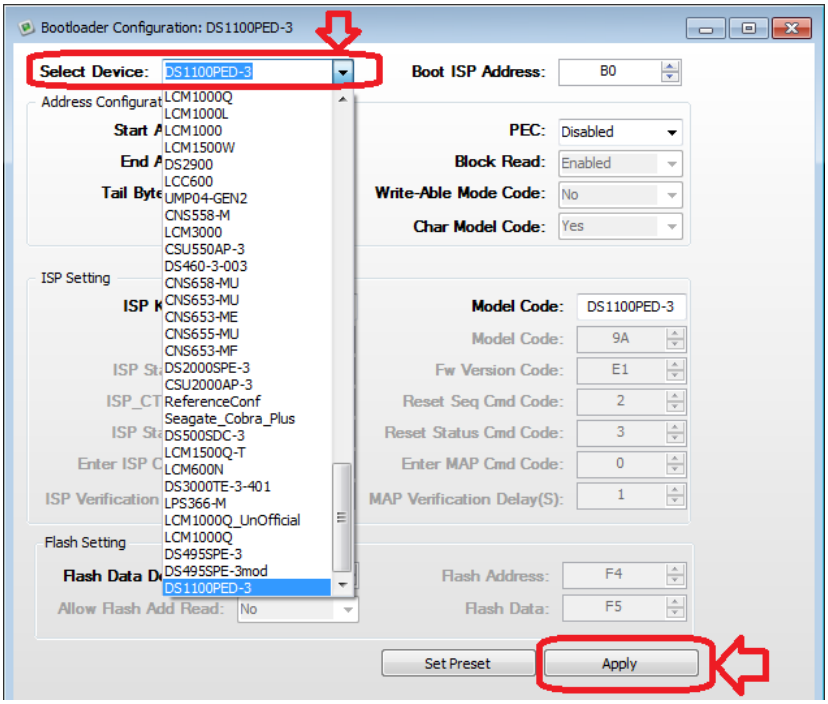


Step 3: Enter GUI Username and Password access.

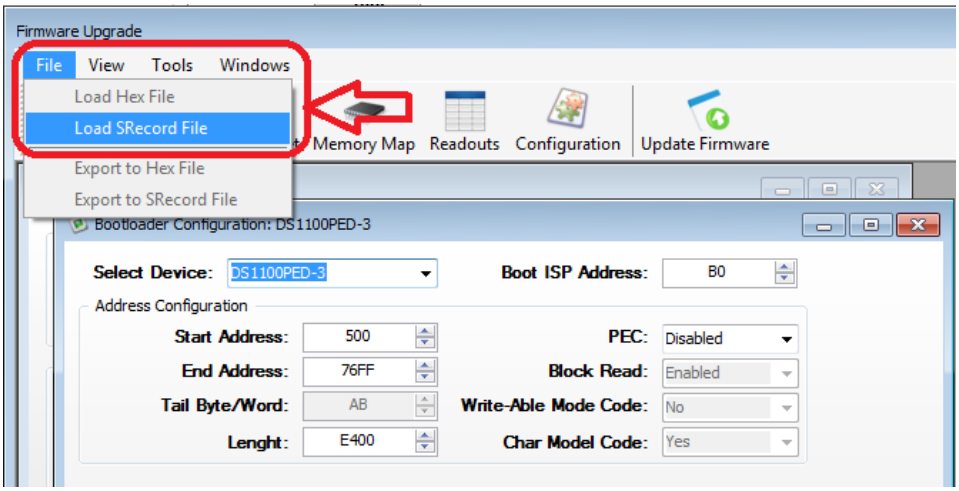
Step 4: Click Bootloader Configuration Icon Button



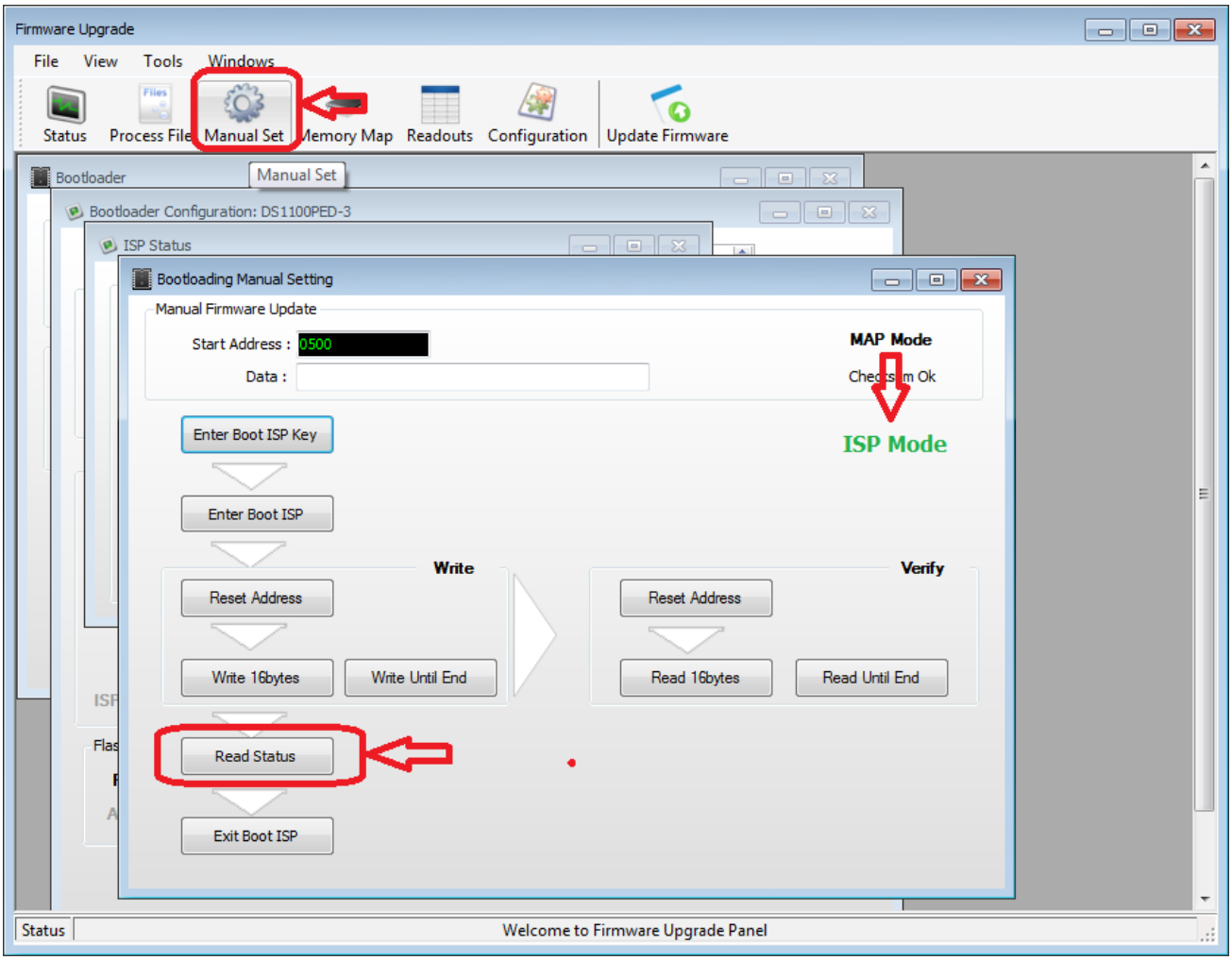
Step 5: Select Device Specific Model to recover



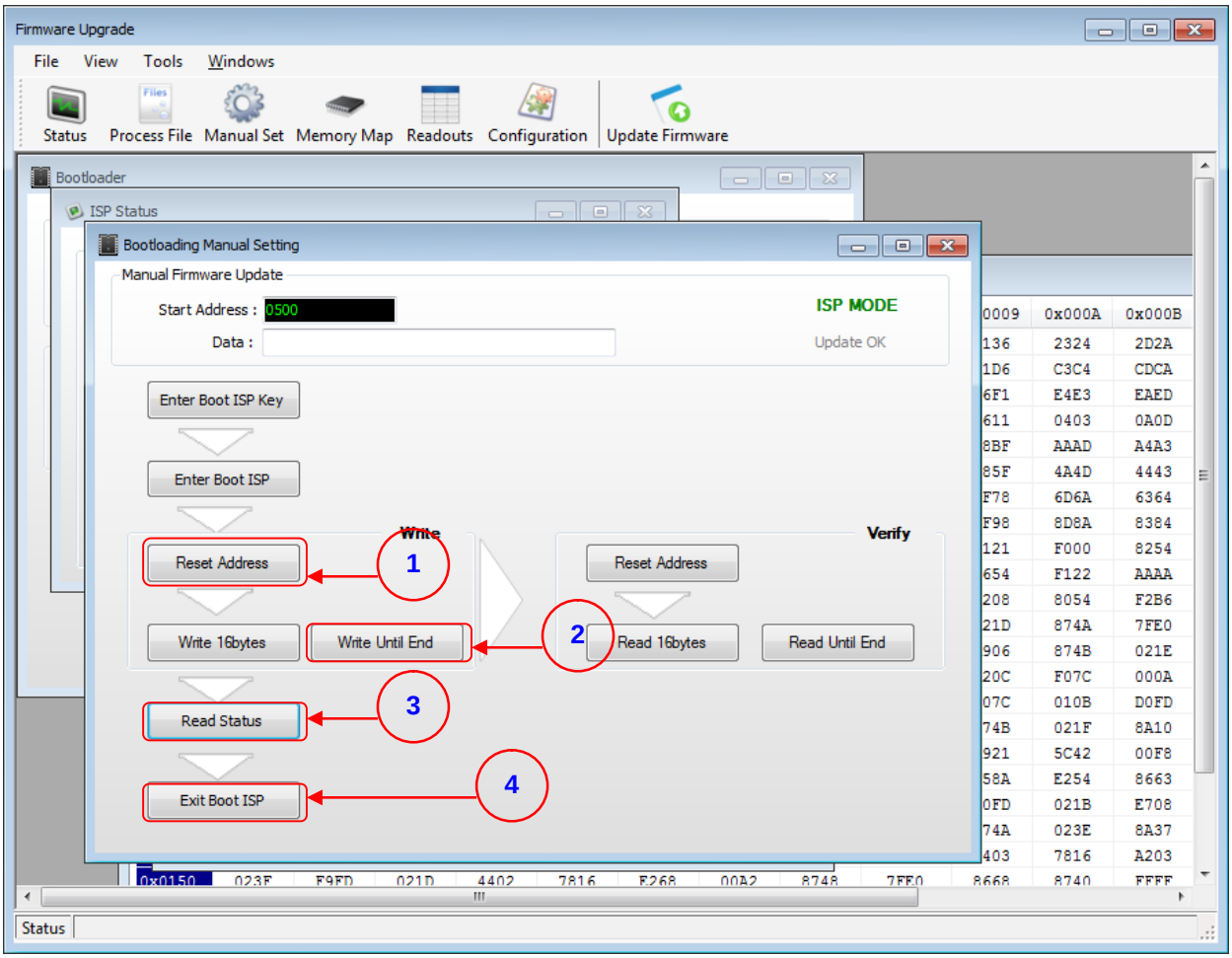
Step 6: Load Firmware File



Step 7: Click Manual Set Icon Button then click Read Status, it should indicate ISP Mode



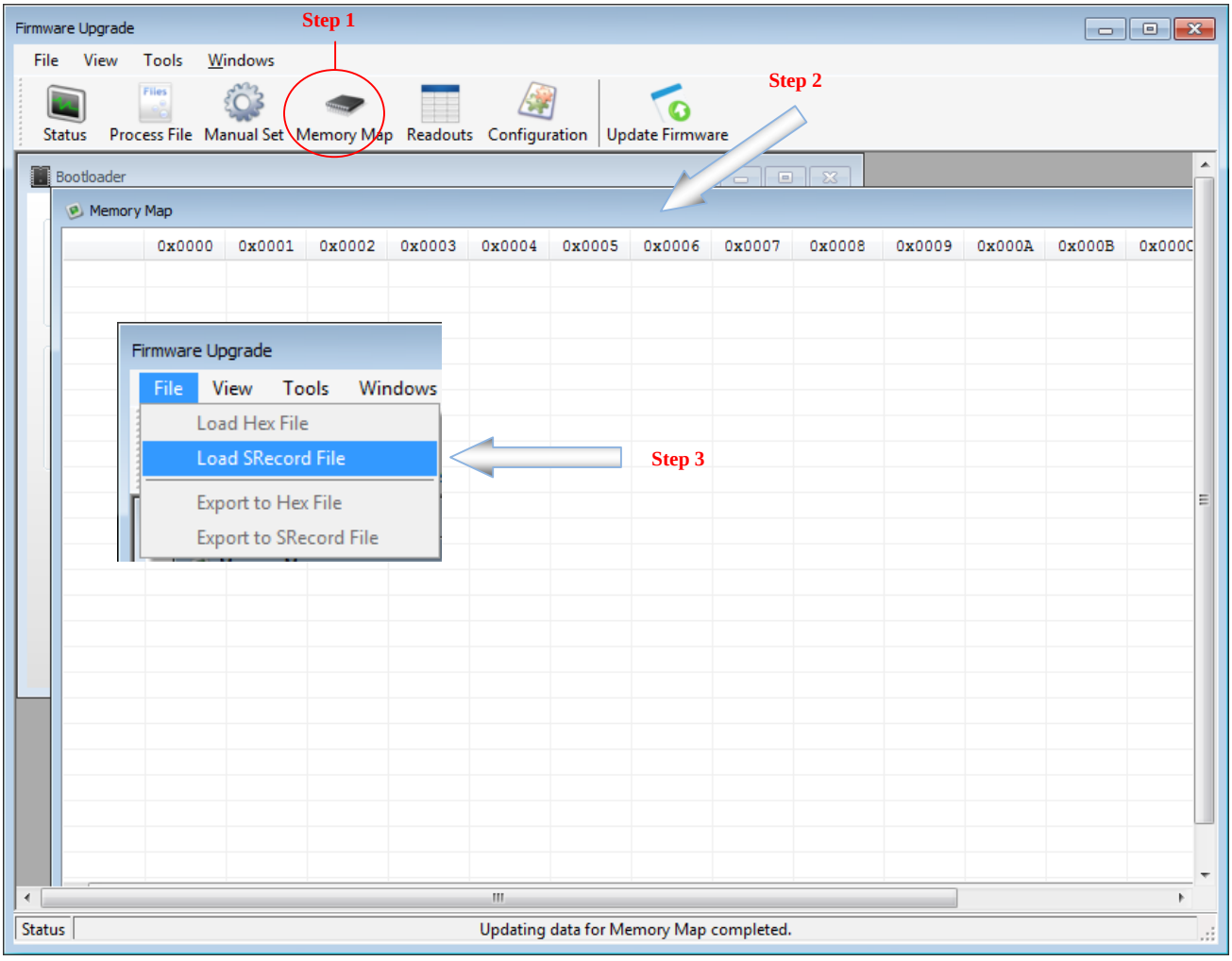
Step 8: Follow Step Figure below sequence for recovering PSU unit stuck in ISP Mode



Srecord and Hex File not Loading and Display in Memory Map

Cause 1: Window update.
Solution 1: Open memory Map Window, click the window then load SRecord or Hex File

Make sure to open Memory Map Window 1st before loading Hex or Srecord File. Memory data should be seen in memory map.



USB Adapter 73-769-002 not working in Windows 8 and Windows10.

Cause : Microsoft Implement Driver Signature Enforcement on Window 8 and Windows 10. Our USB to I2C Adapter Custom driver get affected by this implementation

Solution : Disable driver signature enforcement. Microsoft already have solution to support hardware driver already supported from Windows XP, Vista and 7.

Link: https://answers.microsoft.com/en-us/insider/forum/insider_wintp-insider_devices/how-do-i-disable-driver-signature-enforcement-win/a53ec7ca-bdd3-4f39-a3af-3bd92336d248?auth=1

Solution for Windows 8 and 10

a. Press the **Win + C** and click on **PC settings.**

b. Switch over to the "**Update & recovery**" section.

c. Then click on the **Recovery option** on the left hand side.

d. Once selected, you will see an advanced startup section appear on the right hand side. You will need to click on the "**Restart now**" button.

e. Once your Computer has rebooted you will need to choose the **Troubleshoot** option.

f. Then head into **Advanced options.**

g. Then **Startup Settings.**

h. Since we are modifying boot time configuration settings, you will need to restart your computer one last time.

I. Here you will be given a list of startup settings that you can change. The one we are looking for is "**Disable driver signature enforcement**". To choose the setting, you will need to press the**F7** key.

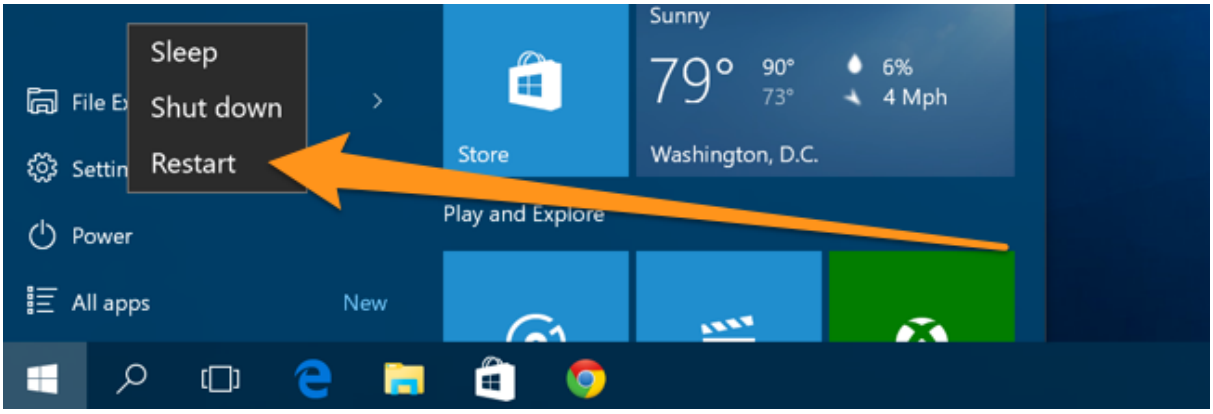
For Detailed Graphics procedure you may visit this link:
http://www.howtogeek.com/167723/how-to-disable-driver-signature-verification-on-64-bit-windows-8.1-so-that-you-can-install-unsigned-drivers/

How to Disable Driver Signature Verification on 64-Bit Windows 8.1 or 10

To disable driver signature verification, we're going to need to get into the Troubleshooting options from the boot manager. The easiest way to bring this screen up is using a secret trick.

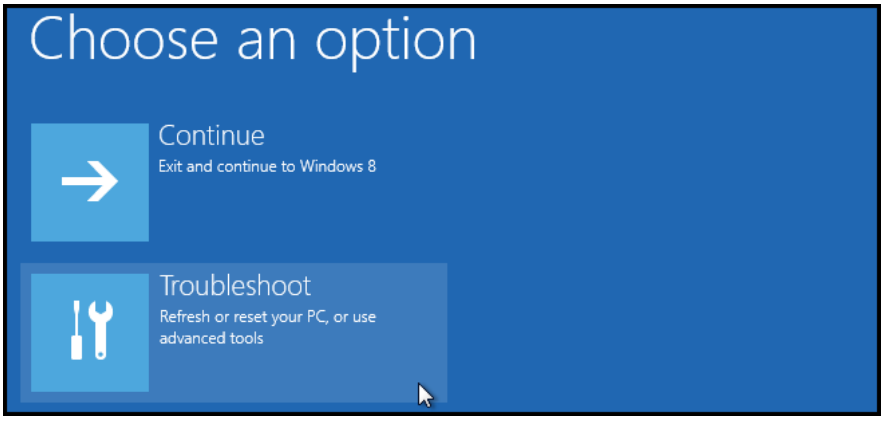
Simply select Restart from the power options menu (on Windows 8 that's under Charms or on the login screen, and in Windows 10 it's on the Start Menu).

Hold down the SHIFT key while you click Restart.

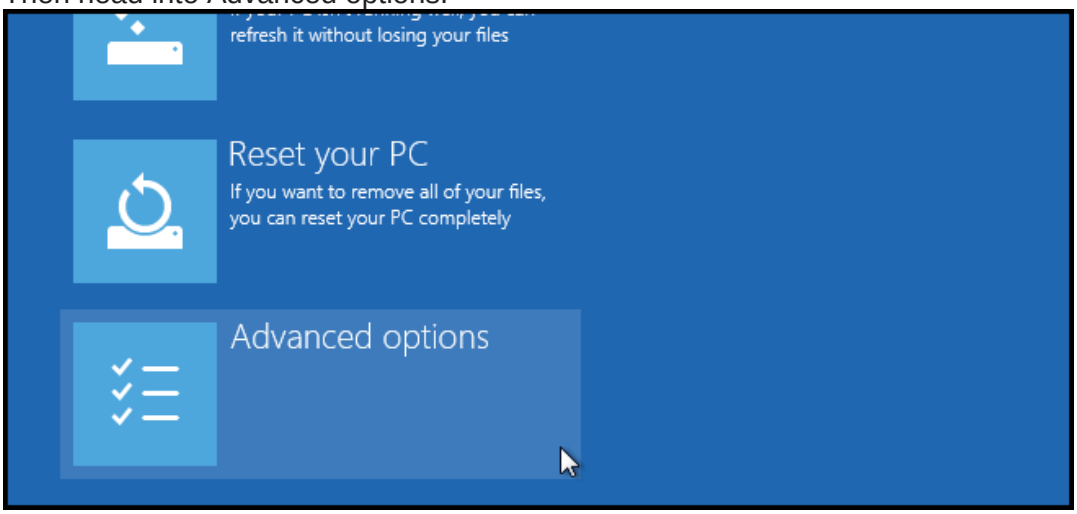


(Again, you can use this trick on any of the power menus in Windows 8 or 10, whether on the login screen, Charms bar, Start Menu, or Start Screen)

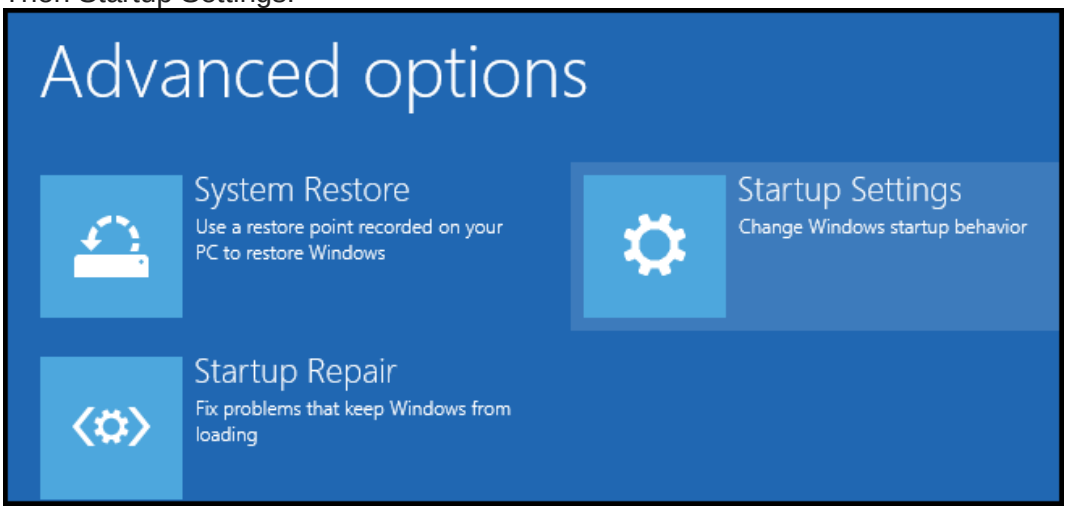
Once your computer has rebooted you will be able to choose the Troubleshoot option.



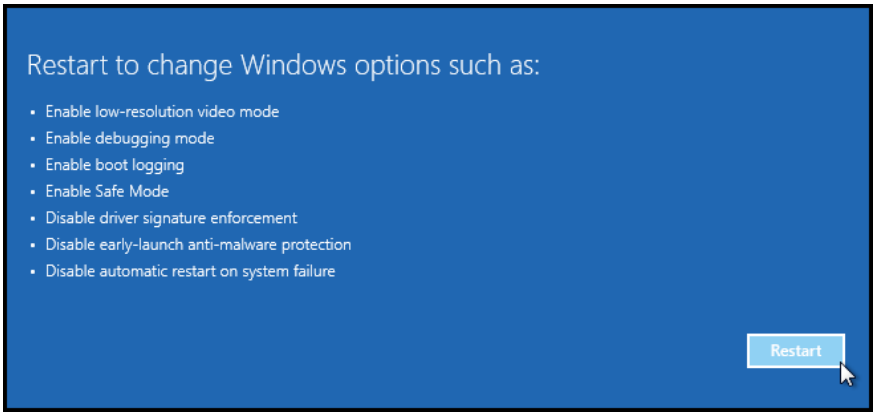
Then head into Advanced options.



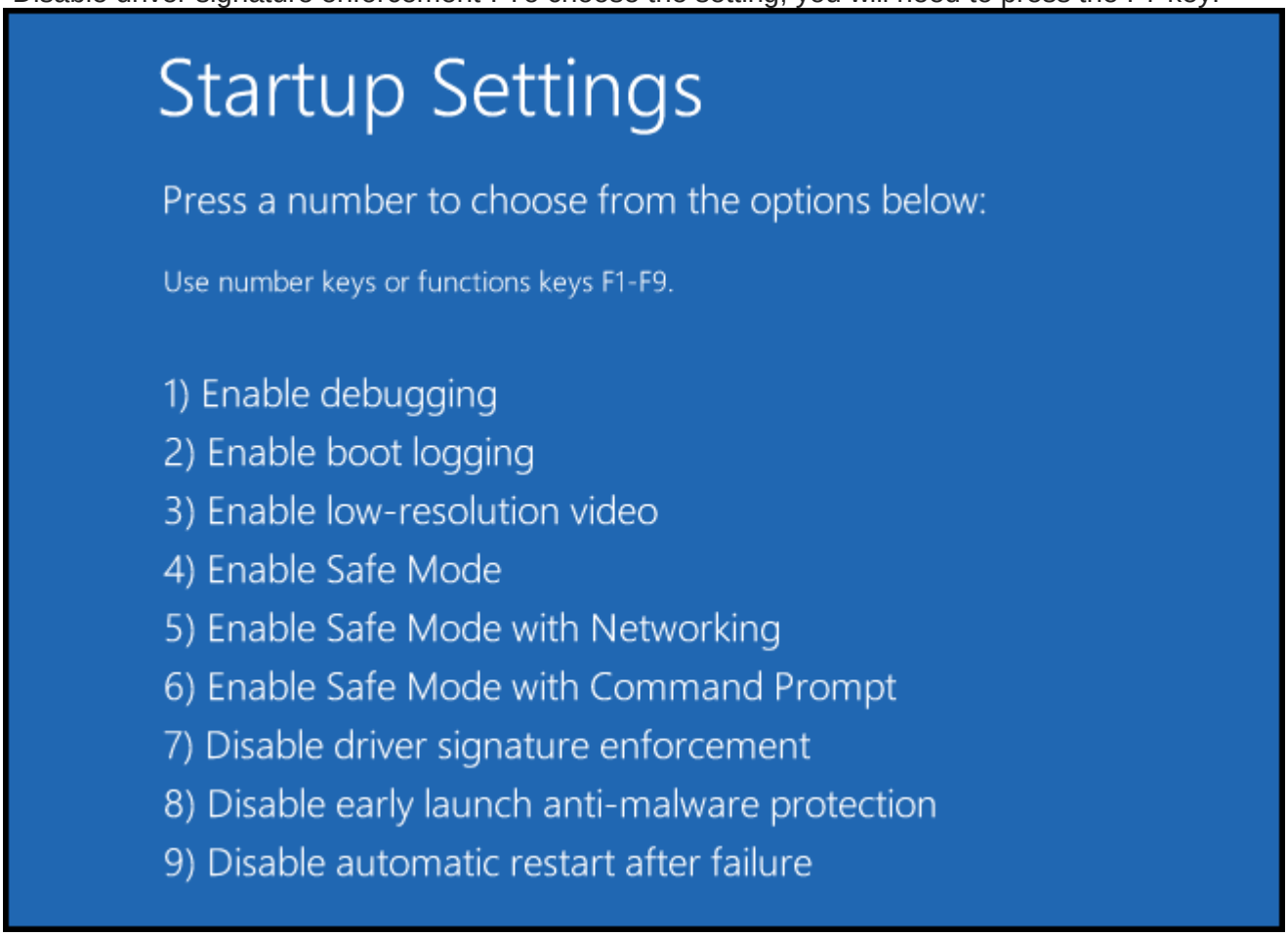
Then Startup Settings.



Since we are modifying boot time configuration settings, you will need to restart your Computer one last time.



Finally, you will be given a list of startup settings that you can change. The one we are looking for is "Disable driver signature enforcement". To choose the setting, you will need to press the F7 key.



That's all there is to it. Your PC will then reboot and you will be able to install unsigned drivers without any error message.

You can now plug the 73-769-002 USB to I2C Adapter and installer the driver.

For Technical Support and Information

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