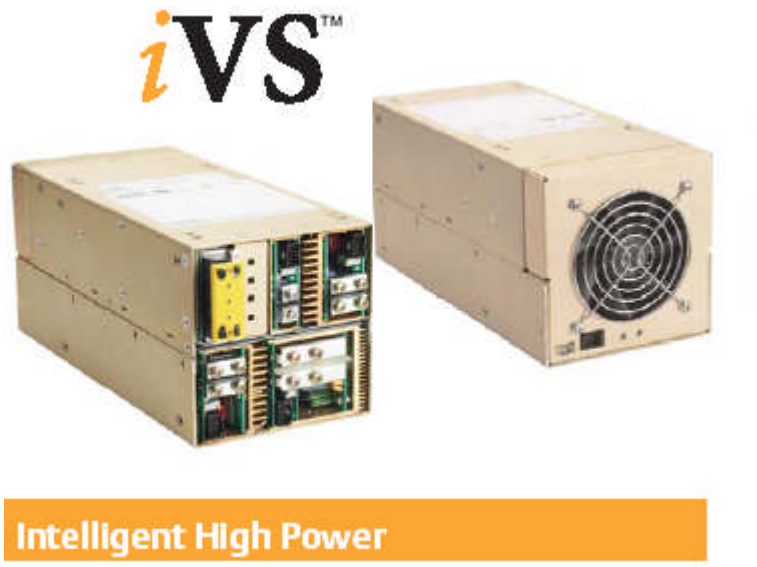
iVS SOFTWARE PANEL USER'S GUIDE



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11/30/16
Rev 12.0

1 REVISION LEVEL

1.1 REVISION HISTORY

ISSUE	CRN # DATE	REVISION DESCRIPTION	AUTHOR	APPROVED
01		Initial Release. Revise Use's manual from iMP User's manual rev 7	Wedner A. Palad	Michael Tumabcao
02		Add Sync Function for IVS Case setup Add New set RPM settings Input parameter set for Single Phase and Three Phase Setting Sync Calibration Function	Wedner A. Palad	Michael Tumabcao
03		Add Set Predefined settings using Voltage and Current command. Modify Parallel Code Setup for IVS Use Output Table for Predefined set reference. Shutdown Mode Function Included Add Fan Speed Override and Frequency Function Correction on Switching Frequency range from 40kHz – 440kHz to 400kHz to 600kHz Correction on View Upper Part to View Upper Slot Button Correction on View Lower Part to View Lower Slot Button	Wedner A. Palad	Michael Tumabcao
04		Add 36W Module in the configuration of the GUI. Add Wireless Communication as added feature (via RS232). Add Data Logging for IVS Parameter then save to file. Update All setting related to 36W module.	Wedner A. Palad	Michael Tumabcao

		Replacing Brand Name for GUI and User's Manual.			
05	20082406	New Bootloader for PIC18F4520 Add New Function for Auto Switch Back for Output Index Update on Auto PSU Configuration sequence [Module 1st before Case Update]. Support 3phase IVS Power Supply [IVS6, IVS8, IVS8H]	Wedner A. Palad	Melanio Sindayen	Danilo
06	20082008	Add FRU Writer Add New Function for CC Mode and voltage adjust feature for 1500W Module Disable inhibit function for V2 of 144W module 36W Module already working in this version	Wedner A. Palad	Melanio Sindayen	Danilo
07	20082910	Add more retries during GUI launch for IVS CASE Bootloader Mode Detection. Add New Feature for Check GUI Update on website Update on GUI Hanging Problem Removing on User's Manual the FAN Voltage and Fan Override Description	Wedner A. Palad	Melanio Sindayen	Danilo
08	20080412	Add Reference file for Module Look-Up table. Add Check GUI Update function	Wedner A. Palad	Melanio Sindayen	Danilo
09	20092604	Include High Speed adapter in the Option. Implement Support for 3phase IVS Case Model and Multiple output modules. Support Back up Memory reference for Update	Wedner A. Palad	Melanio Sindayen	Danilo

10	20121408	Update in Auto switch Back for Multiple Output. Support Window 7 32 Bit Operating System Support Hi speed Usb to I2C Adapters	Wedner A. Palad	Kenneth Enrile
11	20141408	Updated Adapter Support for 73-558-0005i and 73-558-0006i	Wedner A. Palad	Kenneth Enrile
12	20161130	Add Save PSU Update Report	Wedner A. Palad	Kenneth Enrile

1.2 REVISION HISTORY

REV	DATE	SOFTWARE DESCRIPTION	S/W REV.	REMARKS
01	23 March 2007	iVS Software Panel User's Guide	1.1.4	Initial Release.
02	17 May 2007	iVS Software Panel User's Guide	1.1.5	Customer Beta Release
03	28 Aug. 2007	iVS Software Panel User's Guide	1.1.9	Customer 1st Release
04	22 Nov. 2007	iVS Software Panel User's Guide	1.2.0	Customer 2nd Release
05	24 June 2008	iVS Software Panel User's Guide	2.00.00	Customer Release New Version
06	20 Aug 2008	iVS Software Panel User's Guide	2.00.04	Customer Beta Release New Version
07	29 October 2008	iVS Software Panel User's Guide	2.00.05	Customer Beta Release New Version
08	04 December 2008	iVS Software Panel User's Guide	2.00.07	Customer Beta Release New Version
09	26 March 2009	iVS Software Panel User's Guide	2.00.13	Customer Beta Release New Version
10	14 August 2012	iVS Software Panel User's Guide	2.03.00	Customer Release Version
11	14 August 2014	iVS Software Panel User's Guide	2.03.15	Customer Beta Release New Version
12	30 November 2016	iVS Software Panel User's Guide	2.03.32	Customer Beta Release New Version

1.3 DESIGN AUTHORITY:

SOFTWARE GROUP
ARTESYN EMBEDDED TECHNOLOGIES
EMBEDDED POWER

2 GENERAL DESCRIPTION AND CONTENTS

2.1 TABLE OF CONTENTS

3 GENERAL INFORMATION

This GUI Software is designed to make PSU (iVS Power Supply Unit) accessible to the user. It is intended to provide information gathered from the PSU and interactive controls to the basic capabilities of iVS Power supply. The iVS Software must be installed to PC before the user can make use all of the function of this program. This program also support Single-phase and Three-phase power supplies series. Please refer to the system requirement before starting the installation.

3.1 SYSTEM REQUIREMENT:

Before you can install iVS software to your Computer or Laptop, make sure to meet at least the minimum requirement.

1. PC or Laptop: Pentium TM (1GHz or higher).
2. 100 MB HDD space
3. With 512MB minimum memory
4. OS: Win2000, Win XP, VISTA
5. CD-ROM for Software Installation (Optional), you need LAN card if you don't have CD-ROM
6. Communication Interface: iVS/iMP USB to I2C adapter or USB to I2C Adapter from USB to I2C Tools (must be purchase separately).
7. USB port.

4 iVS GUI (Graphical User Interface) SOFTWARE INSTALLATION

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

4.1 GUI Installation

1. Insert the installation CD and wait for iVS Software Panel Installer to pop up. To start install program select "Install IVS GUI".

Figure 4-1 iVS Software Panel Installer. Select "Install IVS GUI" to start IVS Software Installation.

2. A pop up window will appear to your screen (see figure below). Click "Next" to proceed.

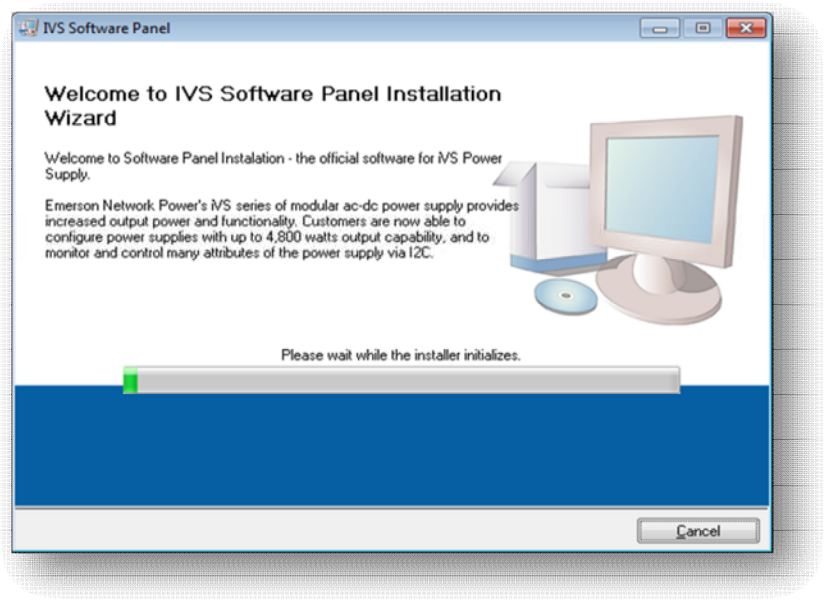


Figure 4-2 This is the first popup window that will appear to screen after "Install IVS GUI" has been selected.

3. You can also select a folder where the application will be installed by clicking "Browse"
4. If you want to install iVS program to default folder, just click "Next" to proceed.

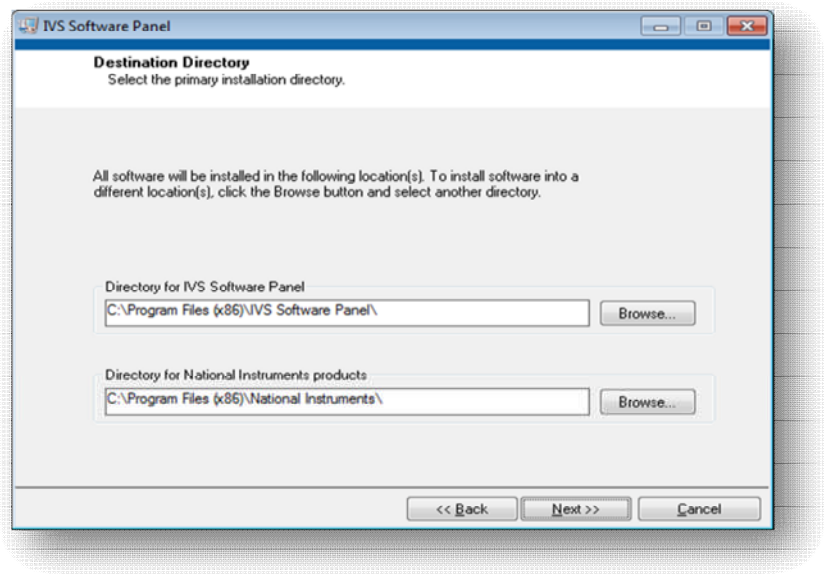


Figure 4-3 This window has an option to install iVS program to other directory. Click "Browse" to select location to install program. If you want installation to be installed in the default directory, click "Next" to continue installation.

5. You must accept the ASTEC iVS Software Panel License Agreement before you can proceed installation. Make sure that you read the license and terms condition before accepting the license agreement then click "Next".

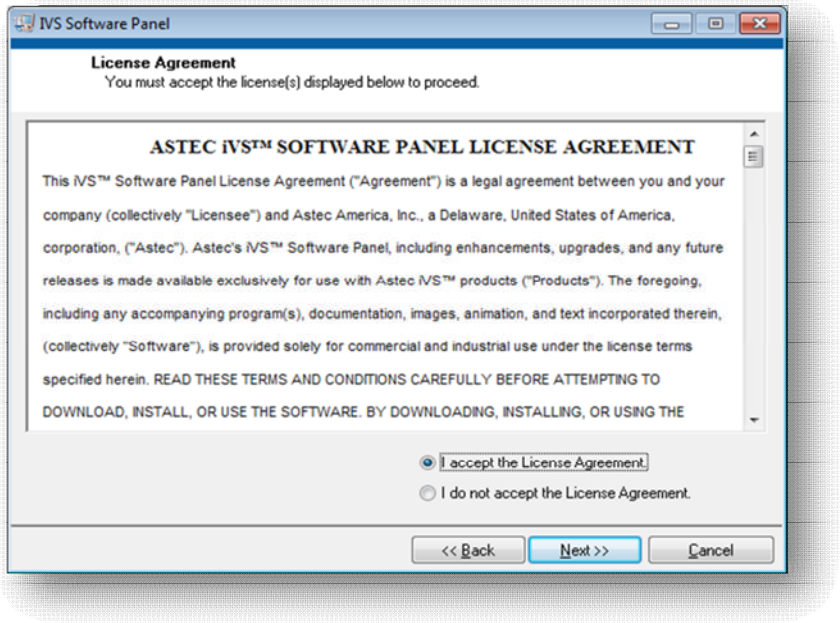


Figure 4-4 This window is for ASTEC iVS Software Panel License Agreement.

6. You must accept the National Instrument Software License Agreement before you can proceed installation. Make sure that you read the license and terms condition before accepting the license agreement then click "Next".

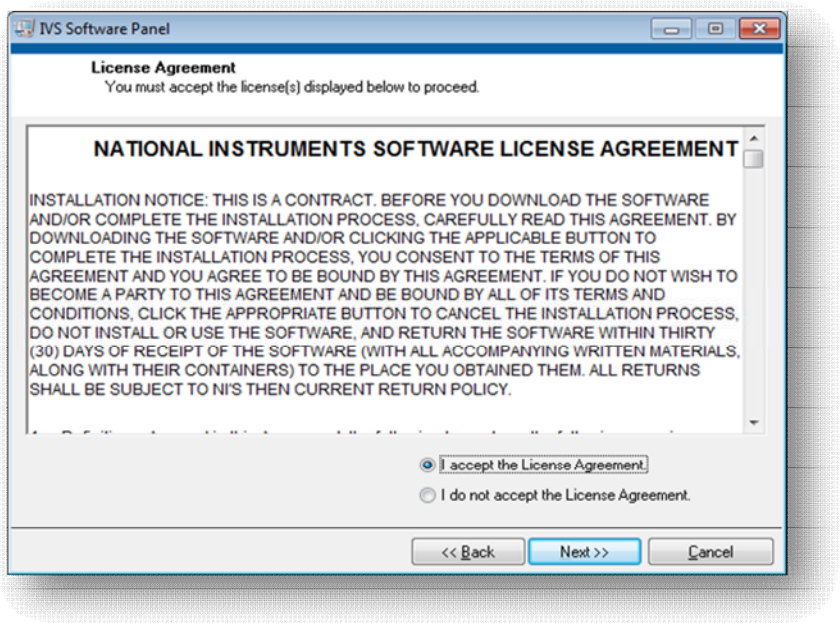


Figure 4-5 This window is for National Instrument Software License Agreement.

7. Click "Next" to proceed installation.

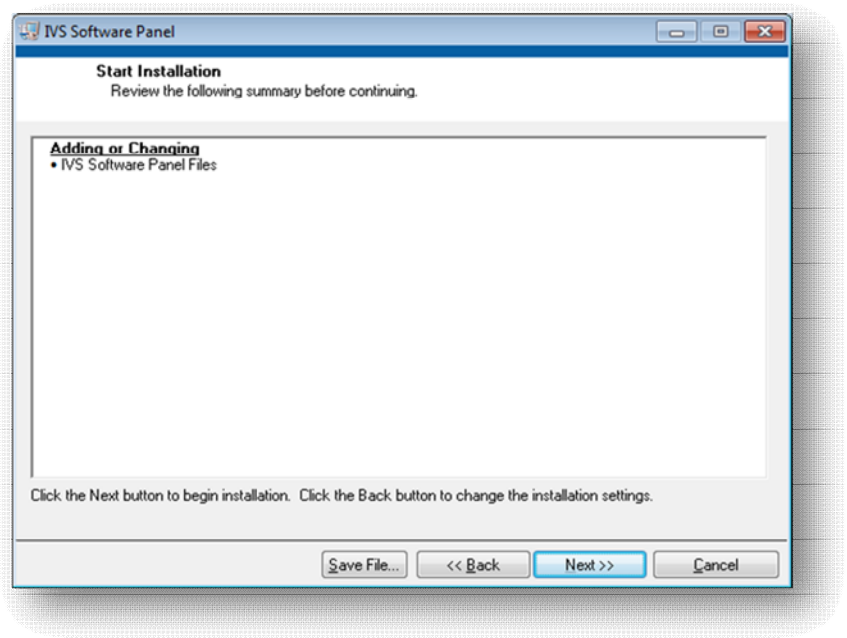


Figure 4-6 This is the installation summary for software to be installed.

8. Wait until the installation is complete.

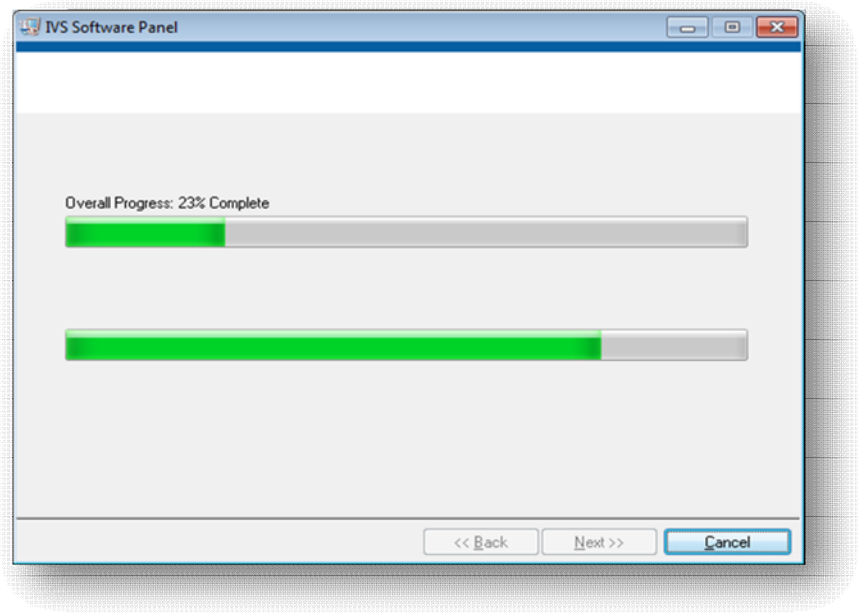


Figure 4-7 Some files are to be copied and place to the directory being set.
Please wait for the installation to complete before you can make use all the features of the iVS software including some NI Software Drivers.

9. Click "Finish" to exit from the pop up window and begin using iVS program.

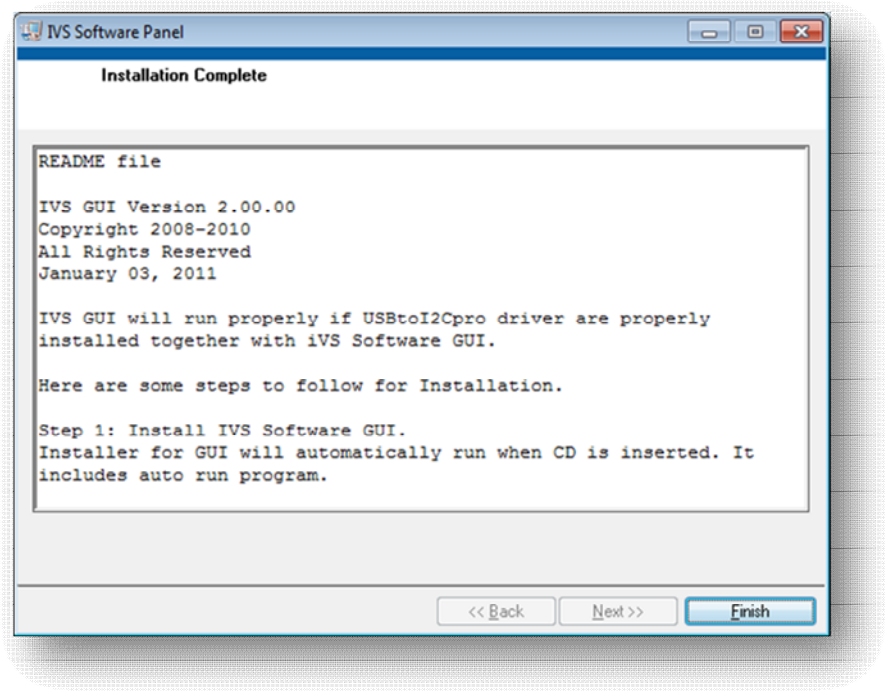


Figure 4-8 Once iVS installation becomes successful then clicked "Finish" to use the program.

10. Install USB-to-I2C Drivers after iVS Installation completed. Once USB-to-I2C installation completed, you can now use the iVS Software Panel.

4.2 USB Adapter Installation

IVS GUI will not work without this USB adapter driver. This GUI uses three different drivers and must be installed before it will work. Two of these drivers are already been install together with IVS GUI Installation package. The last USB adapter came from third party vendor serves as another option for USB port communication.

The GUI use this third party USB driver as reserved driver for iVS case communication. This driver must be installed also.

Hardware for this driver must be purchase separately (visit: www.I2Ctools.com)

Here are some quick steps for USB adapter driver installation:

1. To Start USB driver Installation click "Install USB to I2C Drivers".
2. A Welcome pop up window will appear, click "Next" to proceed installation.

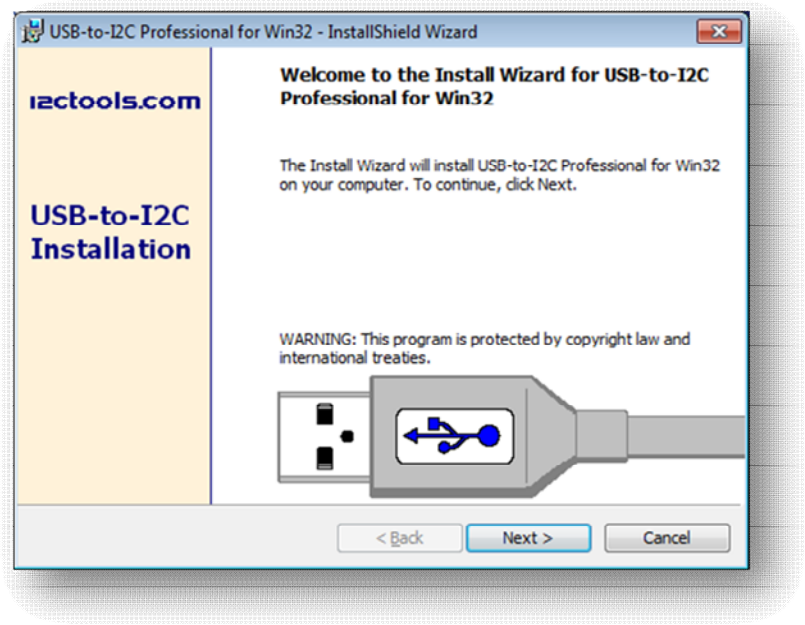


Figure 4-9 This is the first popup window that will appear to screen after "Install USB to I2C Drivers" has been selected.

3. An agreement window will appear, select "I accept…" then click next to start installation

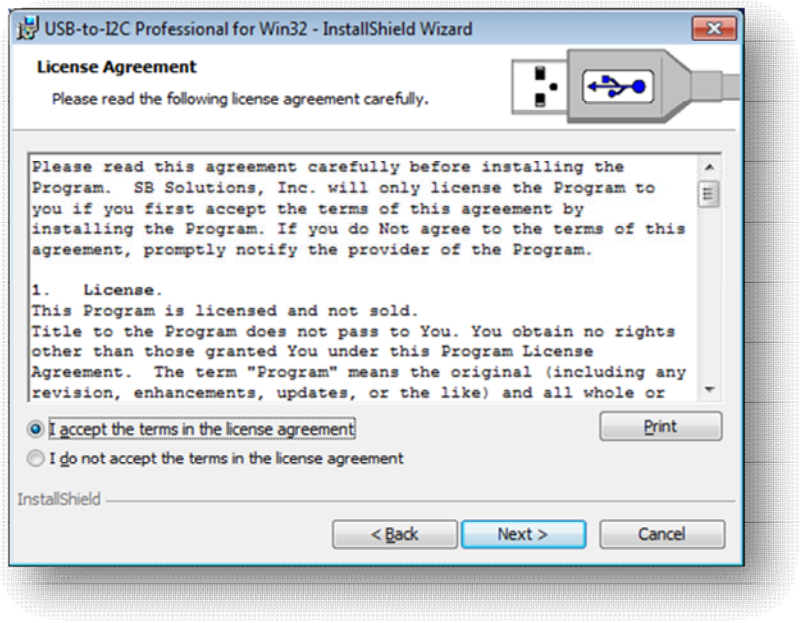


Figure 4-10 The user must select I accept option before installation will proceed.

4. Click "Next" to install this driver into default directory.

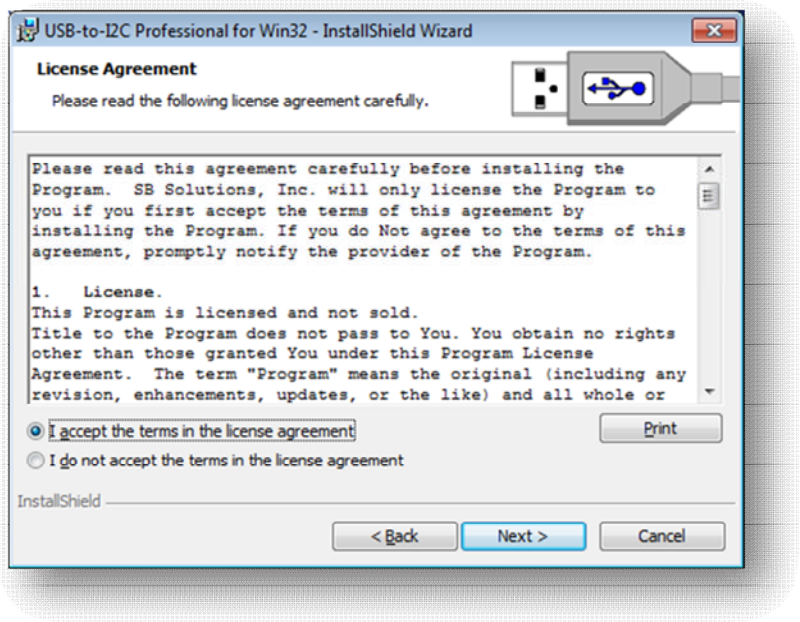


Figure 4-11 It is better to install this driver to default location, just click "Next".

5. Wait until installation been completed.

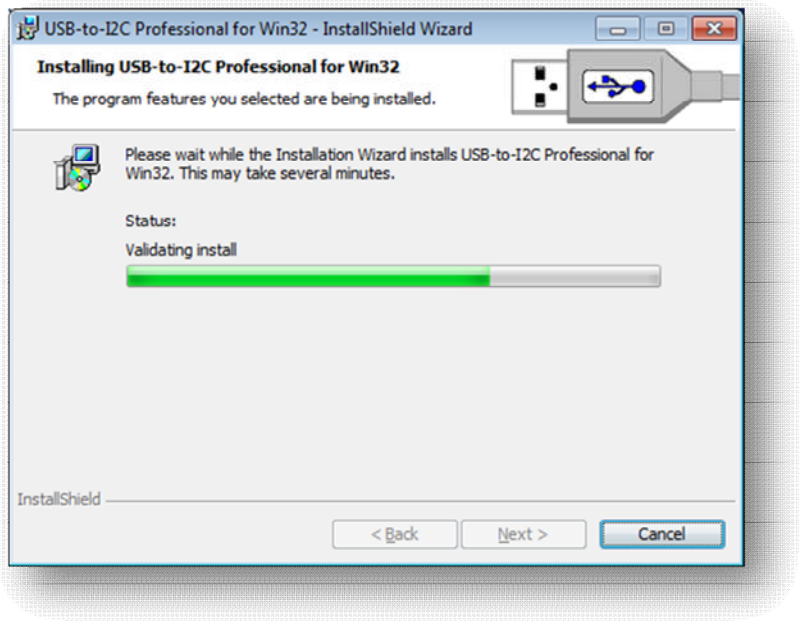


Figure 4-12 Installation will take only few seconds, wait until installation completed.

6. Click "Finish" to exit from the pop up window and begin using iVS program.

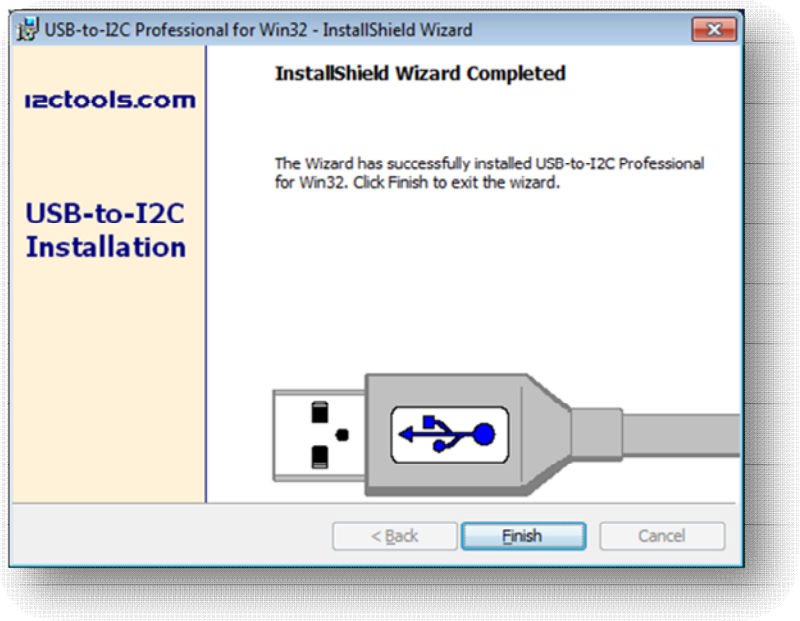


Figure 4-13 Installation completed.

Now those installations already complete, you can now start using IVS GUI.

5 GETTING STARTED

GENERAL SETUP

To provide proper communication between the GUI software and power supply, both case and the modules must be loaded with correct firmware version compatible with the GUI.

FIRMWARE COMPATIBILITY

1. iVS PMBus Protocol
2. Case Firmware Version: Primary v2.01 / Secondary v1.06 or latest
3. Module Firmware: v2.14 or latest for 210W, 360W, 750W
   : v1.51 or latest for 1500W
   : v3.18-01 or latest for 144W

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 iVS Power Supply already power up to have proper communication with iVS's GUI Software.

5.1 LAUNCH iVS SOFTWARE PANEL PROGRAM

To start using the iVS GUI Software Panel, go to "Start" menu, select "Programs" then select the "**iVS Software Panel 2.03.00**" .

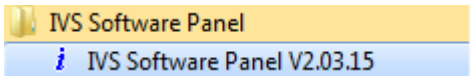


Figure 5-0 Click the iVS Soft Panel Rev 2.03.00 or above version of executable file to launch the program.

5.2 SOFTWARE PANEL INITIALIZATION

Once the program has been launched, iVS GUI software will run through initialization process for Panel and USB adapter detection. Panel below is the updated version of the iVS GUI. (See *figure below*).

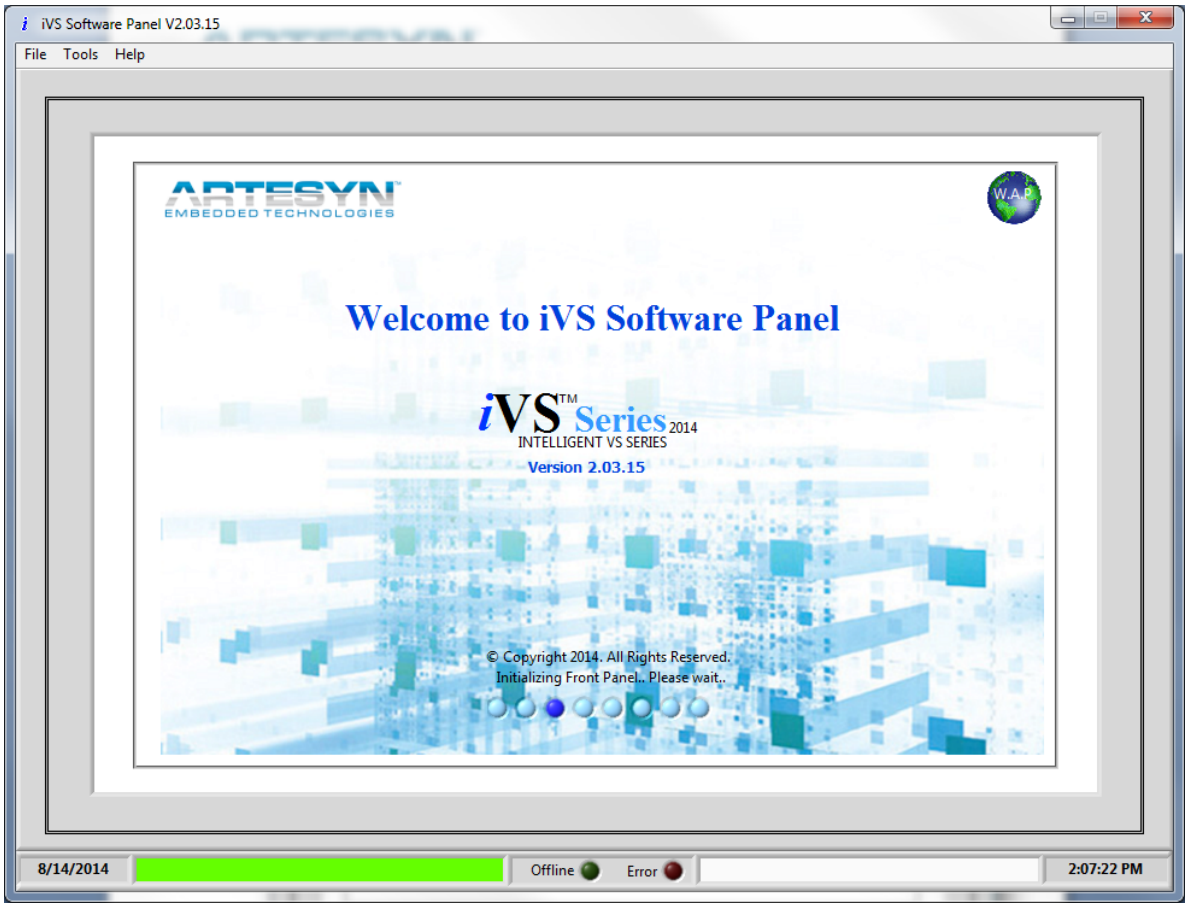


Figure 5.1 This is the first window that will be displayed once the program is executed.

5.3 GUI MAIN WINDOW

If the iVS Software detect the iVS device it will be display as "**iVS Device in Normal Mode**" with green background. You will have initial reading once communication became successful upon launching the software.

The initial readings to be displayed are the following:

1. iVS Case
2. Model Part Number
3. Primary SW Version
4. Secondary SW Version
5. Mod (Modification number for Primary Version)
6. Mod (Modification number for Secondary Version)
7. Adapter FW Version

Figure 5-2 This is the main window for iVS program. If communication is successful after initialization, all necessary information will be displayed.

The default setup for iVS GUI is "**USB iVS I2C Port**" using "**PMBus Mode**".

Note: If you got error upon launching the program, proceed to the troubleshooting guide of this manual to provide you proper solution on this matter.

Once the device is detected, you can continue using the GUI with the default setup.
At SIMULATION Mode iVS Case and Model Part Number can be change for Setup (See **Section** 7).

5.3.1 CONTINUOUS READING

Set this button to ON to set the iVS software in real time operation. This means that it will give you continuous reading and update upon using this program.

Figure 5-3 This switch is used to enable continuous polling on PSU. It will also update the monitoring screen with module display and information gathered from the PSU.

Once this function is set to ON, the prompt of "Communication Disabled" at the bottom of the window will change to "Communication On-going", and Online (green) LED lights ON and a progress pop up window will appear to your screen.

Wait until the upload process complete then windows will automatically change to Monitoring Panel.

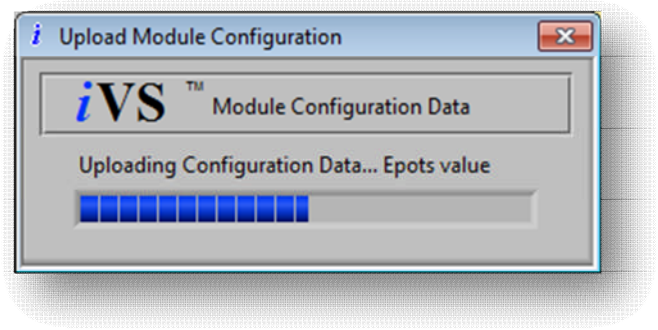


Figure 5-4 Wait until uploading of module information from smart module attached to case slot is complete.

5.3.2 SETUP CONFIGURATION

Click "**SETUP CONFIGURATION**" to enter in the iVS Monitoring Panel.

Figure 5-5 Press this button to proceed to iVS Monitoring Panel.

5.4 MONITORING PANEL

This panel represents the whole iVS power supply. This window will only appear after Upload Module configuration completed.

It contains information provided by the PSU. This monitoring panel consists of the following sub panels:

1. Input Readings (Dependent on Case Model – for Single and Three Phase Power Supply)
2. PSU Case Status
3. Module Status

See figure below.

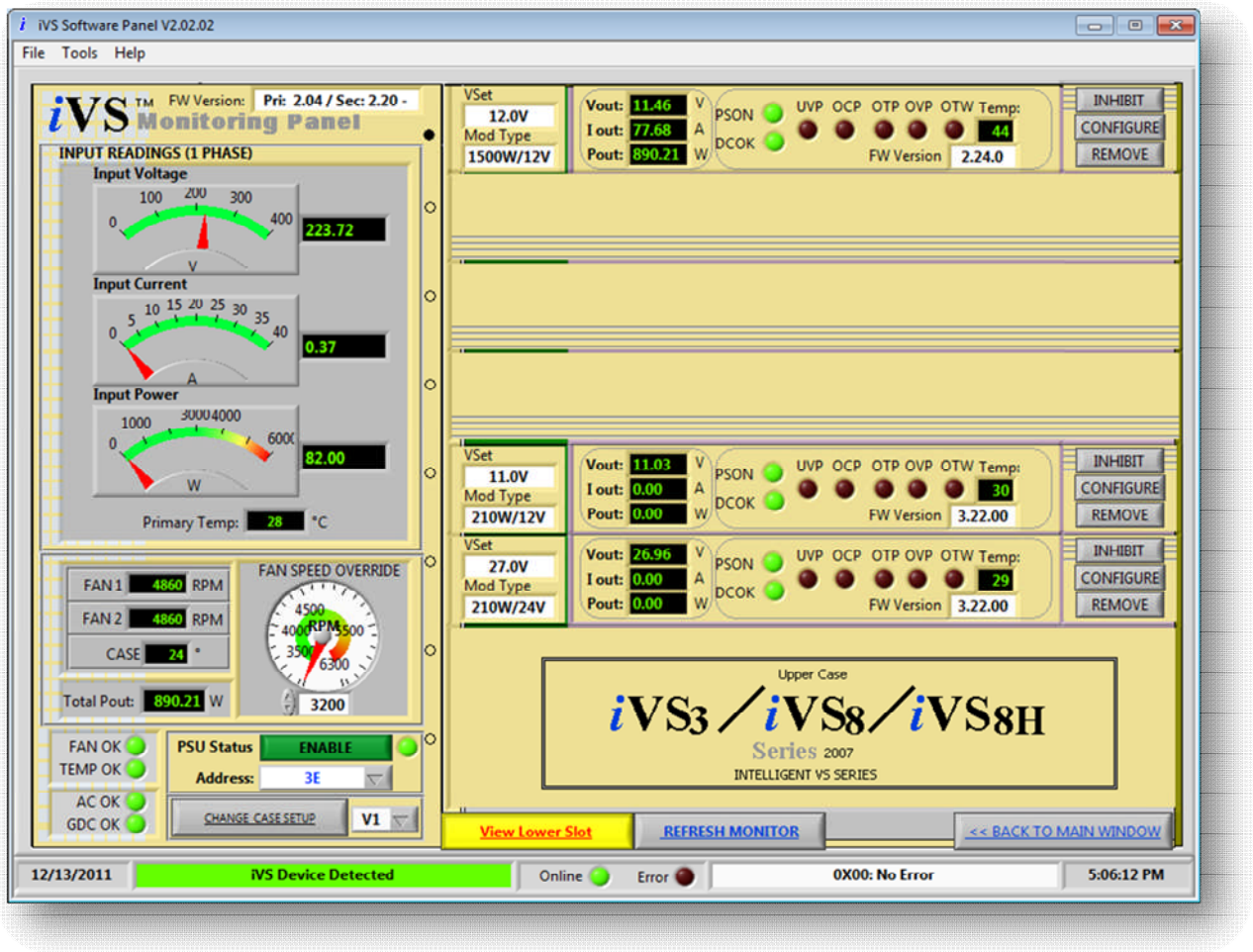


Figure 5-6 This is the Monitoring Panel of iVS Program, the life of the whole software. It contains information gathered from the PSU and some controls for PSU basic function.

DESCRIPTION AND PRIORITY FOR MONITORING PANEL

Some information being showed on this panel serves as indicator and other serves as control to change PSU conditions and status. The following only serve as indicator that shows the information gathered from the PSU.

Note: Readings for monitoring panel depends on the polling rate settings. Refer to iVS Settings to change the polling rate.

5.4.1 DISPLAY INFORMATION FROM MONITORING PANEL

5.4.1.1 Input Readings

This sub panel shows the recently captured readings from primary circuit of the PSU. Description of this panel changes every time a different PSU type is detected. It changes display for Single-Phase Power supply to Three Phase Power Supply.

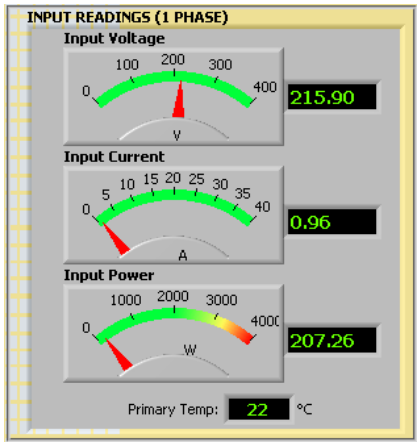


Figure 5-7 Sub panel for Input readings from the PSU Unit. It only serves, as display not controls. Description varies depending on case model detection.

- ***Input Voltage*** (Return input AC RMS Voltage of the PSU)
- ***Input Current*** (Return input current of the PSU)
- ***Input Power*** (Return computed input power of the PSU)
- ***Primary Temp***(Return Temperature of the PSU Primary Side)

5.4.1.2 Case Ambient Temperature and FAN Speed

This sub panel displays fan speed and case temperature readings from PSU. Display varies depending on case model. For IVS1 and IVS6, it has only has single Fan Display. And there are Two Fan display for IVS3, IVS8 and IVS8H.

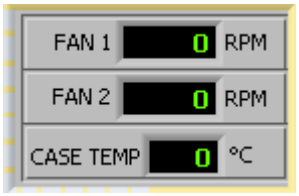


Figure 5-8 Sub panel for PSU Case Status.

- ***FAN 1*** (Speed Reading in FAN1)
- ***FAN 2*** (Speed Reading in FAN2)
- ***CASE*** Temp (PSU Temperature reading)

5.4.1.3 Total Output Power

It displays the total power of all smart modules connected to case.

Figure 5-9 It displays total power of smart module connected to case.

5.4.1.4 PSU Status Flag

It indicates the PSU Condition while it running.

Figure 5-10 It displays the condition of the PSU.

- ***FAN OK*** (Green LED if Good condition, off if Fault Condition)
- ***TEMP OK*** (Green LED if Good condition, off if Fault Condition)
- ***AC OK (Green LED if Good condition, Red if Fault Condition)***
- ***DC OK (Green LED if Good condition, Red if Fault Condition)***

5.4.1.5 Module Monitoring

This sub panel shows the output characteristics of the module attached on the case slots. It displays the voltage, current, and power output as well as the fault condition of every module. When the module is not detected on the slot, then module panel will display empty slot.

Figure 5-11 This sub panel represents the whole module conditions and status.
It only serves, as display and not controls.

- ***Vout*** → Shows module output voltage.
- ***Iout*** → Shows module output current.
- ***Pout*** → Shows module computed output power.
- ***PSON*** →PS Turn ON/OFF Flag (Green LED lights ON if Good condition).
- ***DCOK*** →DC OK Flag(Green LED lights ON if Good condition).
- ***UVP*** → Under Voltage Protection (Red LED lights ON if Fault condition).
- ***OCP*** → Over Current Protection (Red LED lights ON if Fault condition).

- ***OTP*** → Over Temperature Protection (Red LED lights ON if Fault condition).
- ***OVP*** → Over Voltage Protection (Red LED lights ON if Fault condition).
- ***OTW*** → Over Temp Warning (Red LED lights ON if Fault condition).
- ***UVP*** → Under Voltage Protection (Red LED lights ON if Fault condition).
- ***Temp*** → Shows module temperature reading.
- ***SW Version*** → Shows Module current version and the Firmware Branch.

5.4.1.6 Module Information Monitoring

This shows the current operating condition of the module attached to the case slot.

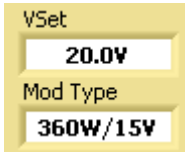


Figure 5-12 It only serves as display for Voltage range and Power rating for the corresponding module.

- **VSet** → Display Current Voltage Setting of the Module
- **Mod Type** → Power rating and Voltage Range of the module

5.4.2 CONTROL INFORMATION FROM MONITORING PANEL

5.4.2.1 FAN SPEED OVERRIDE

This will set the FAN override flag in the PSU Configuration Register and it contains the Minimum Fan speed (in RPM) that the unit will operate on. This Override works in conjunction with the temperature-based fan control as well as the load base control. Whichever requires the higher fan speed will control the fan.

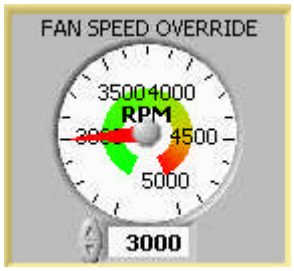


Figure 5-13 This is used to adjust the speed of the PSU FAN.

5.4.2.2 PSU Status

This is used to Turn ON and OFF the iVS PSU.

Figure 5-14 This control serve as control to activate the Global Inhibit of the PSU.

5.4.2.3 Address

This function was commonly use in redundancy test. The users change the address to corresponding MCU address of the PSU connected.

Figure 5-15 This function is commonly use in redundancy test only.

5.4.2.4 Module Output Index

This is use to read the second output of the Dual Output module. The monitoring panel will show only the modules, which are categorized as dual output. Single output display will be visible only when V1 is selected.

Figure 5-16 It is use to display the corresponding output. If no multiple output modules are detected then this function is disabled.

5.4.2.5 Configure and Remove Panel

This is used to proceed in the Module configuration window. Remove button is used to hide the module display from the panel and disabling the module from the PSU configuration. It also include inhibit button to disable module output.

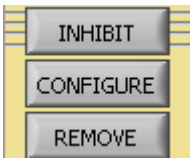


Figure 5-17 To configure Module, click "CONFIGURE" button else if you want to remove the Module from display screen click "REMOVE" button.

5.4.2.6 Change CASE Setup Button

This will direct you to the next window for PSU case configuration. Function of this button is almost the same on "CONFIGURE" buttons in configure and remove panel.

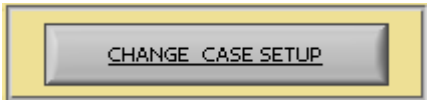


Figure 5-18 This button is used to show the configuration panel window for PSU Case.

Note: For "CONFIGURE" button, the configuration window that will appear to your screen will be two items, one for PSU Case configuration and the other item were for module configuration. For "CHANGE CASE SETUP" button, only the PSU configuration window can be view from the screen. Proceed to the next item for iVS Configuration window.

5.4.2.7 View Case Part

5.4.2.7.1 View Lower Slot

This is use to change the Monitoring panel view from Upper Part of the Case to Lower Part of Case Panel.

Note:
For IVS1 and IVS6: Module views are from Slot location 1 to 5.
For IVS 3, IVS8, and IVS8H: Module views are from Slot Location 1 to 8.

Figure 5-19 This is use to change Monitoring Panel of IVS case to lower Part view.

5.4.2.7.2 View Upper Slot

This is use to change the Monitoring Panel view from Lower Part of the Case to Upper Part of Case Panel.

Note:
For IVS1 and IVS6: Module views are from Slot location 6 to 9.
For IVS3: Module views are from Slot Location 9 to 15.
ForIVS8 and IVS8H: Module views are from Slot Location 9 to 14.

Figure 5-20 This is use to change Monitoring Panel of IVS case to Upper Part view.

5.4.2.8 Refresh Monitor

This is use to Reinitialized detection of the PSU. This will read all the current configuration of the PSU then display it monitoring Panel. Function of this button is almost the same function of the Continuous Reading button (see Section 5.3.1).

Figure 5-21 It will update the monitoring screen with module display and information data gathered from the PSU.

5.5 CONFIGURATION PANEL

This panel is used for iVS case and module configuration. There are two ways to go through this panel. These are the following:

1. Click "Change CASE Setup" button
2. Click "Configure" Button in the Module Monitoring display.

5.5.1 PSU CASE CONFIGURATION PANEL

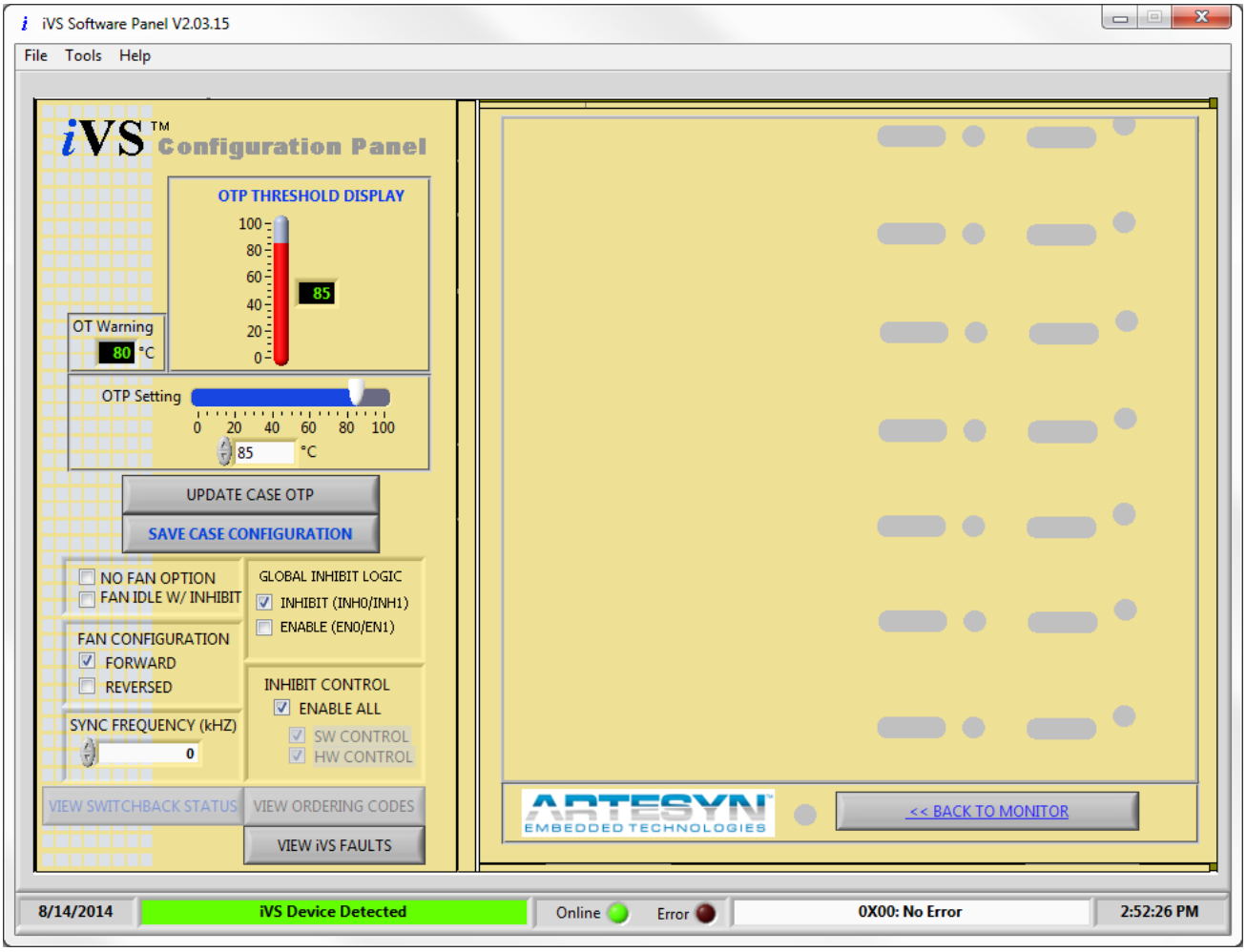


Figure 5-22 This is used to configure PSU Case. This screen will be display after "CHANGE CASE SETUP" button was clicked. To return to the preview window, click "BACK TO MONITOR" button.

Description and Priority for Module Configuration Panel

PSU Configuration is used to set the OTP Limit of the PSU and some configuration of the PSU such as the following:

1. ***OTP Settings*** → this is used to set the Over Temperature Limit of the Case. Press Update Case OTP to include new setting to EEPROM. (Note: Need Log-in name and password to update case OTP.)

2. ***NO FAN OPTION*** → if this flag is set, FAN Fault detection for the PSU is disabled (useful for the PSU without fans).

3. ***FAN OFF at STBY*** → at standby, fans operates at quite mode by default. If this flag is set, the fans will be turned off at standby mode.

4. ***FAN Direction*** → Fan speed is based on the hottest temperature reading and reaches the maximum speed at 50 degrees Celsius. If reverse direction is set, reverse fan airflow is assumed and fan speed reaches the maximum speed at 40 degrees Celsius.

5. ***GLOBAL INHIBIT Logic***
   - INHIBIT (INH0/INH1) → if this flag is set PSU Control signal is set to High.
   - ENABLE (EN0/EN1) → if this flag is set PSU control signal is set to Low.

6. ***INHIBIT CONTROL***
   - ***Enable all*** → if this flag is set, PSU status will be functional. It means that the PSU can be enabled or disabled through the use of PSU Status button (see function in the Monitoring Panel section). SW Control and HW Control can be also enabled and disabled if this flag is set.
   - ***SW Control*** (Software Inhibit) → if this flag is set, Inhibit through software will be available.
   - ***HW Control*** (Hardware Inhibit) → if this flag is set, Inhibit through switch or hardware will be available.

7. ***View Ordering Code*** button
   It only works in simulation mode (see Section 7.3).

8. ***Frequency***
   This command is used to set the switching frequency of the device to a specific value. Frequency ranges from 400kHz to 600Khz only.

9. ***Save Case Configuration***
   This is use to store all contents of the Operating Memory in User Configuration Memory Location of the IVS Case. It is use to stored PSU configuration to its Permanent Memory. Once Power Supply power been recycled, it will use its stored configuration setup.

Figure 5-23 Use to Store configuration into IVS Case.

Sync Duty - this is use to control the duty of a PWM signal which is use to determine Sync Frequency.

Sync Frequency – this is the value of sync frequency being read and need to be loaded to complete a calibration point.

10. ***View iVS Faults*** button

This is used to view the PSU faults (applicable on PSU with PMBus version only).

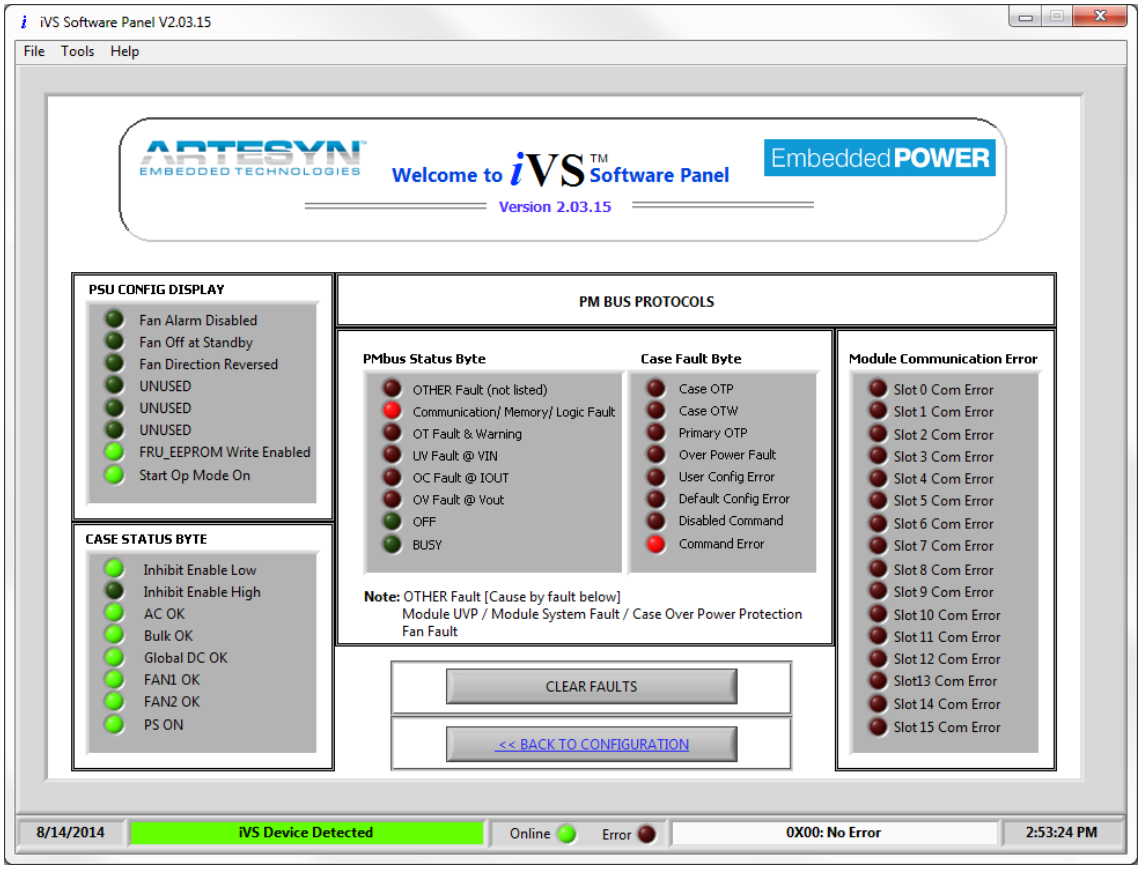


Figure 5-24 This window is used to see the current configuration of the PSU and the faults given by the PSU and output modules. Faults being display in the windows are errors and fault conditions happen before. This window serves as history of fault for the iVS while the PSU is ON.

Click "**CLEAR FAULT**" button to clear the fault flags set in PM bus Status byte, Case Fault Byte, and on Module Communication Error.

11. ***View Switch Back Status*** button

This feature was use for changing the automatic switch back delay of output index dictated by the case to V1 from any state of V2 and V3. It will only applicable on Case with multiple output of module attached on it (144W and 36W). It also supports case with firmware version of 2.19 and above.

Figure 5-25 Use to view Switchback Status window.

11.1 Auto Switch Back Panel – this panel consist of Auto Switch Back enabling and the delay. You can set the setting you desired by pressing the set button then return to monitoring panel. Change the output index from V1 to V2 and wait till V2 return to V1 again.

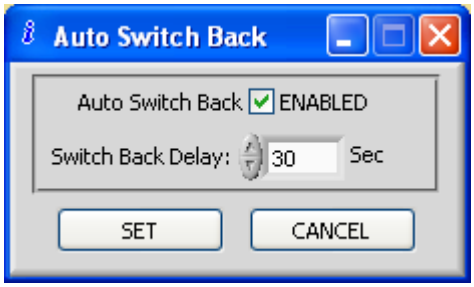


Figure 5-26 This is the Switchback Status window

5.5.2 MODULE CONFIGURATION PANEL

To be able to adjust voltage setting and current limit of the module, the user must configure the smart module. Smart module limit can be also set in this panel. Make sure to follow instruction to configure module correctly.

Also refer to PSU Configuration.

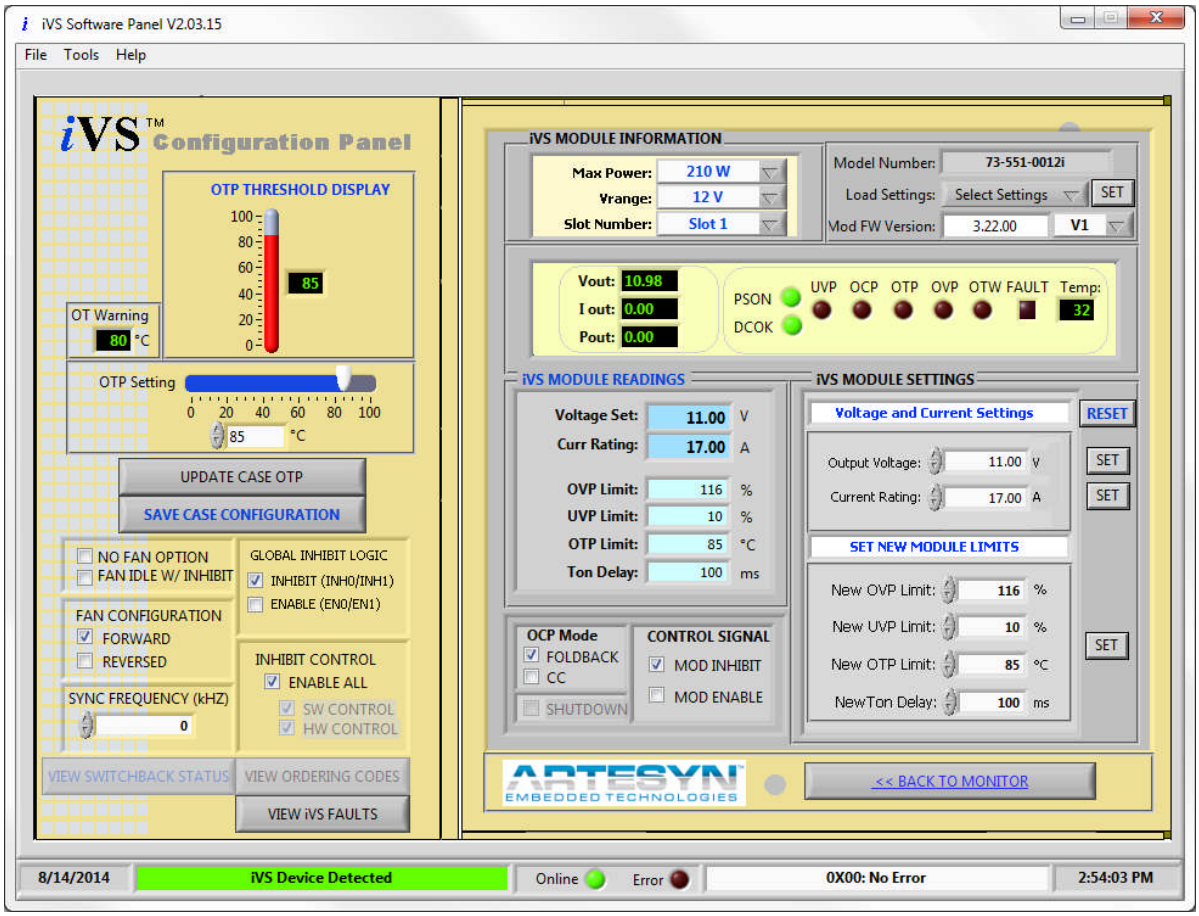


Figure 5-27 This window is used mainly for Module configuration. The user can set new output voltage and current rating for the smart module. Other limits such as OVP, UVP, OTP limit, and Turn-ON delay can be set in this window. The user can also change OCP Mode and Control Signal.

Description and Priority for Module Configuration Panel

Below are the description of each display and controls for Module configuration.

5.5.2.1 Module Information

It displays Voltage range and Power rating of the current module being configured.

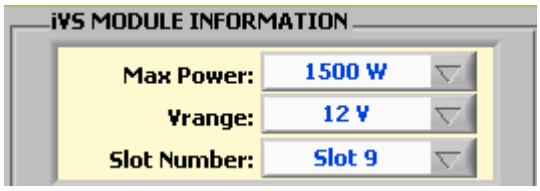


Figure 5-28 This window is used as reference for module being configure. It also sometimes serves as control if the user wants to go on the other slot location. By selecting slot number, module configuration will automatically update the panel to corresponding module.

- ***Max Power*** → it serves as display for Power rating of current smart module attached to the PSU case slot. This function becomes a control for non-smart module setup only.
- ***Vrange*** → this serve as display for Power rating of current module attached to the PSU case slot.
- ***Slot Number*** → the user can use this function to get through on other module configuration with exiting the configuration window.

5.5.2.2 Preset and Firmware Version Display Panel

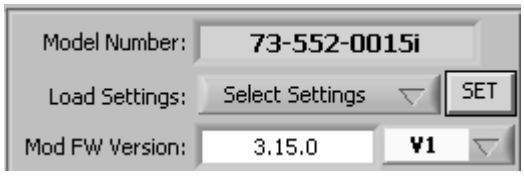


Figure 5-29 It Display current Module location and the firmware version of the module attached to PSU case. Load settings only serve as preset value of the module.

- ***Module Number*** → Display the part number of the module
- ***Module Version*** → Firmware version of the module being configured.
- ***Load Settings*** → this is the Pre-defined setting being stored inside the smart module. It will set the calibrated value of voltage and current setting (Factory Default).
- ***Module Output Index*** → this is use to change the current display of the Multiple output module. If **V1** is selected then the module will read and display settings of the first output. If **V2** is selected then it will read and display setting of the second output. If module is a single module output then this function is disabled.

Click "**SET**" to load the pre-defined value inside the smart module.

5.5.2.3 Module Monitoring

Refer to Section 5.4.1.4.

5.5.2.4 iVS Module Readings

This is the uploaded data setting from the smart module. Data display in this panel was extracted from the smart module when "Continuous Reading" switch was set to ON. It is also updated after "Refresh Monitor" button was set.

Module readings also get updated every time the user set new value and limits in Module settings.

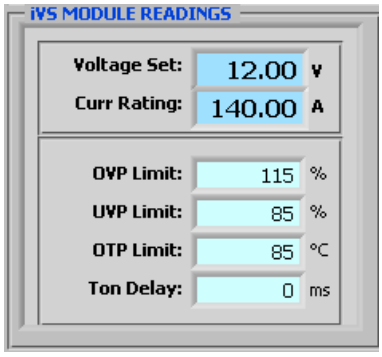


Figure 5-30 It Display current Module configuration of the module attached to the PSU case slot. It updates every time the user set new limit to the module. This is the reading coming from stored data inside the smart module.

These values are only readings of the configured module and only used as reference, if the data being set in the module settings are being stored inside the module EEPROM after it is being set.

5.5.2.5 iVS Module Settings

This sub panel is used to configure module settings and fault limits. The user can initially put value but it will only be set after "SET" button was pressed.

To check if the value is being set to the module is accepted, see iVS Module Readings for the updated value.

Some values that the user that will be inputted will be restricted dependent on the current voltage and power rating of the module being configured. Make sure to input values that are within the desired limits of module. Refer to module specification for output load limit value.

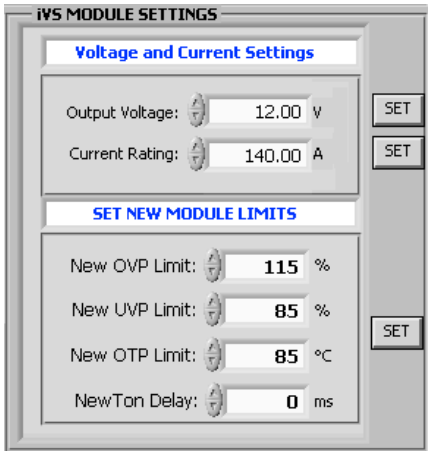


Figure 5-31 This is used to configure the module. By means of inputting new limit and updating it by "Set" command button, value will be stored inside the module and will be used as the default setting.

5.5.2.5.1 Output Voltage

This is the value to be input in module as new voltage setting.

Click "**SET**" to update the voltage of the output module.

Voltage Range	Adjustment Ranges (V)
5V	1.8 - 6.1
12V	5.4 -13.2
15V	12.6 - 22.0
24V	21.6 - 39.6
48V	37.8 - 60.0

5.5.2.5.2 Current Rating

This is the value to be input in module as new current setting. Need actual external load connected to the output module to be configured – for re-calibration.

Click "**SET**" to set new maximum current of the output module.

Current Rating Limitation Table						
Voltage	Voltage Range	210Watts	360Watts	750Watts	144Watts	
					V1	V2
2.00 V	1.8 - 2.09	35.00A	60.00A	150.00A	--	10.00A
2.20 V	2.10 - 2.59	35.00A	60.00A	150.00A	--	10.00A
3.00 V	2.6 - 3.14	35.00A	60.00A	150.00A	--	10.00A
3.30 V	3.15 - 4.14	35.00A	60.00A	150.00A	--	10.00A
5.00 V	4.15 - 5.09	35.00A	60.00A	150.00A	10.00A	10.00A
5.20 V	5.10 - 5.34	35.00A	60.00A	144.00A	--	10.00A
5.50 V	5.35 - 6.10	34.00A	58.00A	137.00A	--	10.00A
6.00 V	5.40 - 6.99	23.00A	42.00A	97.50A	10.00A	10.00A
8.00 V	7.0 - 8.99	20.00A	36.00A	84.37A	10.00A	4.00A
10.00 V	9.0 -10.49	18.00A	32.00A	75.00A	10.00A	4.00A
11.00 V	10.5 - 11.49	17.00A	31.00A	68.00A	10.00A	4.00A
12.00 V	11.5 - 13.2	17.00A	30.00A	62.50A	10.00A	4.00A
14.00 V	12.6 - 14.49	14.00A	21.00A	53.5A	9.00A	4.00A
15.00 V	14.5 - 16.49	14.00A	20.00A	50.00A	8.00A	4.00A
18.00 V	16.5 - 18.99	11.00A	19.00A	41.60A	--	--
20.00 V	19.0 -22.0	10.50A	18.00A	37.50A	--	--
24.00 V	21.6 - 25.99	8.50A	15.00A	30.00A	4.00A	2.00A
28.00 V	26.0 - 28.99	6.70A	11.00A	26.80A	3.00A	2.00A

30.00 V	29.0 - 31.49	6.50A	11.00 A	25.00A	--	--
33.00 V	31.5 - 34.49	6.20A	10.90A	22.70A	--	--
36.00 V	34.5 - 39.6	5.80A	10.00A	20.80A	--	--
42.00 V	37.8 - 44.99	4.20A	7.50A	16.00A	--	--
48.00 V	45.0 - 50.99	4.00A	7.50A	15.60A	--	--
54.00 V	51.0 - 56.99	3.70A	6.00A	13.90A	--	--
60.00 V	57.0 - 60	3.50A	6.00A	12.50A	--	--

- ***20% Load*** → Value for 20 percent loading of the output module. This value must be set after current rating value was set.

  Click "**SET**" to set 20% loading of the maximum current of the output module.

Note: If New Current Rating value to be set is higher than the existing current rating, select from Load Settings (Pre-defined setting, refer to S*ection 5.5.2.2)* with higher current rating. This will require recalibration using actual external load; then perform above procedures.

5.5.2.5.3 New OVP Limit

This is the value to be input in module will be new Over Voltage Limit.

For Single Output

- GUI Range: **5V Range**
- Actual Range: 2-5.5V
- OVP LIMIT: 122% to 134%.

- GUI Range: **12V Range**
- Actual Range: 6-12V
- OVP LIMIT: 110% to 120%.

- GUI Range: **15V Range**
- Actual Range: 14-20V
- OVP LIMIT: 110% to 120%.

- GUI Range: **24V Range**
- Actual Range: 24-36V
- OVP LIMIT: 110% to 120%.

- GUI Range: **48V Range**
- Actual Range: 42-60V
- OVP LIMIT: 110% to 120%.

For Dual Output

- GUI Range: **5V Range**
- Actual Range: 2-6V
- OVP LIMIT: 122% to 134%.

- GUI Range: **12V Range**
- Actual Range: 12-15V
- OVP LIMIT: 110% to 120%.

- GUI Range: **15V Range**

- Actual Range: Not Available.
- OVP LIMIT: Not Available.

- GUI Range: **24V Range**
- Actual Range: 24-28V
- OVP LIMIT: 110% to 120%.

- GUI Range: **48V Range**
- Actual Range: Not Available.
- OVP LIMIT: Not Available.

For Triple Output

- No OVP provided yet.

5.5.2.5.4 New UVP Limit

This is the value to be input in module will be new Under Voltage Limit.
Range: 0 - 96% Maximum.

5.5.2.5.5 New OTP Limit

This is the value to be input in module will be new Over Temperature Limit.
Range: 20°C to 90°C.

5.5.2.5.6 New Ton Delay

This is the value to be input in module as new Turn-ON delay.
Range: 0 mSec to 255 mSec.

Click "**SET**" to set new limits to the output module. To configure OVP, UVP, OTP limit, and Ton Delay there is only one command button available for all.

Update Module configuration pop up window will appear every time "**SET"** command button been accessed. Let the update configuration complete before attempting to do other task.

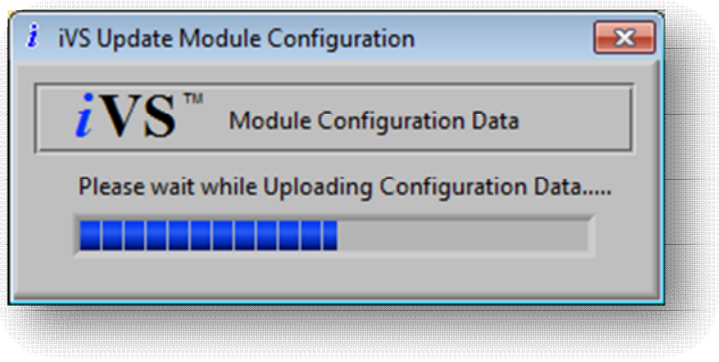


Figure 5-32 Uploading pop up window always appear every time the "SET" button was pressed. It uploads the data from the module being configured.

5.5.2.6 OCP Mode and Control Signal Panel

This Panel contains Configuration flag that Control Module Operation such as OCP Mode and Control Signal.

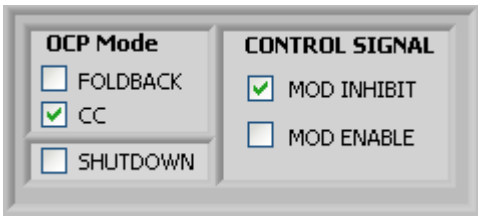


Figure 5-33 To is use to change Module Operation. This change will only take effect after PSU Power Cycling.

- OCP Mode → This will only be applicable for 210W/ 360W/ 750W Module with Version 3.xx and up . 1500W module already supported.
- Control Signal → If Inhibit mode is set, Module output is disabled if the inhibit signal is high.
- Shutdown Mode → if this mode is enabled: Latched Shutdown at OCP, it overrides OCP Mode. If this mode is disabled, then OCP Mode function will be active.

6 SOFTWARE PANEL MENU FUNCTION

Additional program and iVS function can be viewed and use through the help of Menu function. This is the additional feature of the iVS Software Panel Program. Current setup of the PSU can be saved and uploaded through the use of "File Menu" option.

Other function such as "Display Current Setup", "Graphical Display", "FRU reader", and "Communication settings" are some added features for this program. It also has Context help menu to provide proper description of each display and function inside the Software Panel program.

Access security of this program is one of the added features also. It also provides security for some function that is not to be change and unsafe to be configured.

It also has the revision history being placed in the "Program Information".

6.1 File Menu of Option

This is the first function in the menu option for Software panel. In this function, you can load the previous setup being done and save the current setup of the PSU.

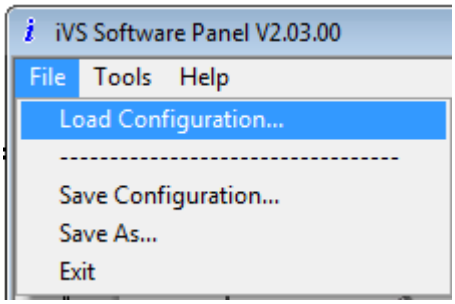


Figure 6-1 Click "File Menu" to view its function available for Software Panel.

1. ***Load Configuration*** → these is used to upload previous setup being saved and then display to the Monitoring panel. Uploaded data are useful for new PSU unit to be configured.

   Use this file as reference for setting up new PSU to be configured. This is the prerequisite of the "Update PSU Config" in Tools menu.

   Make sure to follow procedure to accomplish complete loading without warning upon loading the file.

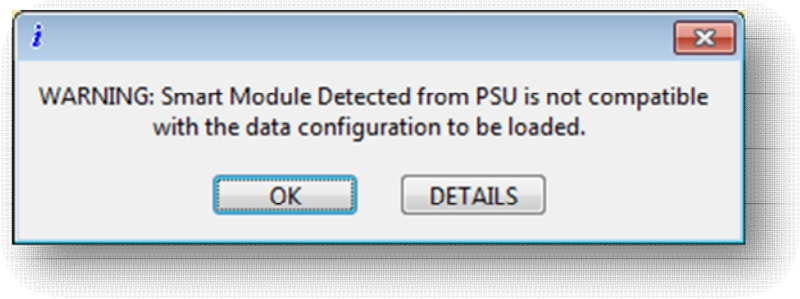


Figure 6-2 Click "Details" to see the warning information and instruction to remove warning.

Click "Details" to see the warning information and follow the instruction given. It will not allow the user to load file until correct file have been loaded.

Follow instruction correctly, this setup will be the reference for Updating PSU configuration. If warning always exist, you will not allowed to update you PSU using "Update PSU Config" in Tools menu.

PROCEDURE:

Place or Replace Module with the right Power Rating.

To replace/place a new Smart module Switch Off the Power Supply
then place new SMART Module to Case Slot.

Switch ON the PSU then Clicked Refresh Monitor to
detect new Smart Module being place on Case Slot
then Load Configuration Again.

If no warning detecting, this means that your setup that PSU detected during initialization is the same to file to be configured (see Update PSU Config)

2. ***Close*** → this is use to stop the iVS program execution then close it windows afterward.
3. ***Save Configuration*** → this use for saving current setup of the PSU. It can also save the newly setup of PSU in simulation mode.
4. ***Save As*** → same functions of save configuration, just need to make a new name of the file. Formats of file are text format.
5. ***EXIT*** → use to close the program and closing all windows related to iVS software.

6.2 Tools Menu of Option

This is the function related to the iVS Software Panel operation. Some functions in this program are software related to the main operation and other are independent program which can be run alone. See more details in the following topic below.

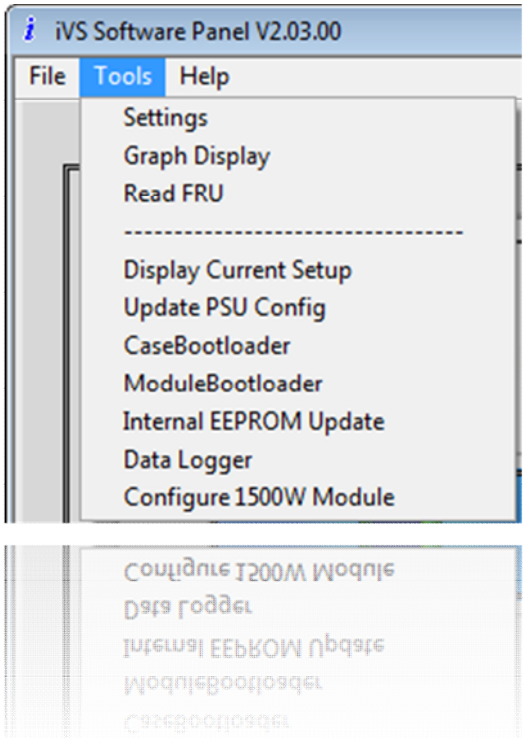


Figure 6-3 Click "Tools Menu" then select function you want to perform.

6.2.1 Settings

There are different firmware versions and format used in iVS PSU. To be able to make the iVS software program to communicate with those formats, the user must change the setting of the iVS software.

To go through the settings window, click on "Tools Menu" then select "Settings" to configure communication interface and select firmware format being used by the PSU.

This setup window is being used to change the Mode of I2C format, communication interface, address, and polling rate. Refer to description for further information.

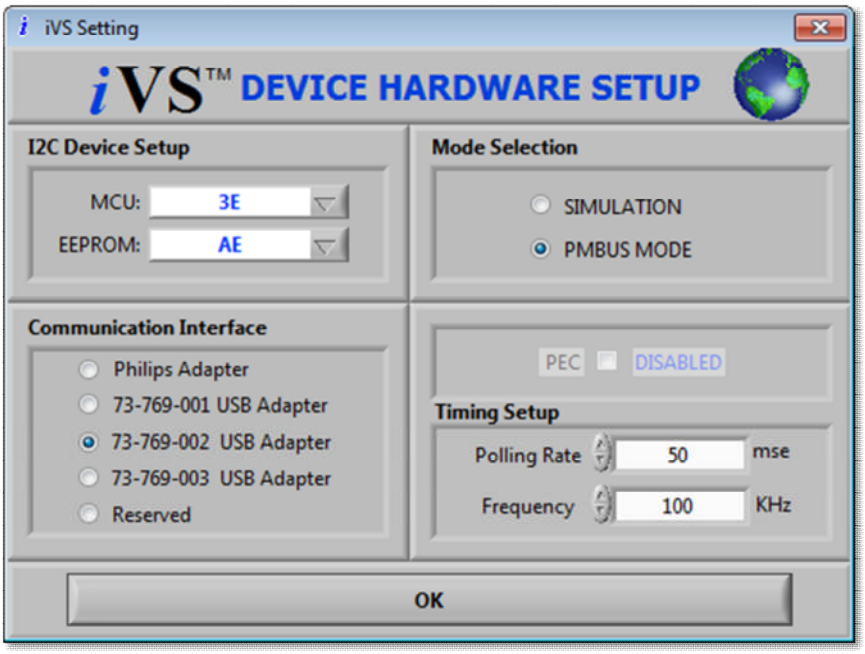


Figure 6-4 This is the communication setup window, the location where communication interface and firmware format option of the PSU must be selected. It also includes the addresses for microcontroller (MCU) and EEPROM address being used inside the iVS Power Supply. Look on the manufacturer manual to get the correct addresses of the MCU and EEPROM.

Description and Priority for Device Hardware Setup

Below are the descriptions of each function for Device Hardware Setup.

1. ***I2C Device Setup***
   1.1 ***MCU*** → Microcontroller address of the PSU Case (Currently set to default: **3E**).
   1.2 ***EEPROM*** → Storage address for PSU case (Currently set to default: **AE**).

2. ***Communication Interface***
   2.1 ***USB I2C Standard Port*** → USB adapter made by other manufacturer. (Preferred: USB to I2C adapter by Philips)
   2.2 ***USB iVS I2C PORT*** → USB adapter to be use is the ASTEC USB to I2C adapter. (Default)
   2.3 ***CAN*** → for future application (not yet available)
   2.4 ***RS232***→ (not yet available)

3. ***Mode Selection***
   3.1 ***SIMULATION*** → use for manual configuration without the actual unit. If hardware is not detected (USB adapter) the program will automatically set to this mode.
   3.2 ***PMbus Mode*** → this is the currently standard firmware format use by the new release product of iVS Power Supply. This is the default setup for Mode selection. (Default)

4. ***Timing Setup*** → this is the polling rate of the iVS Software panel. Time interval of each reading. (Default: 100ms).

6.2.2 Graphical Display

Data gathered from the monitoring panel is graphically being displayed in this window. It can be displayed simultaneous with the iVS Software Panel.

To display this window, click "Tools" then select "Graph Display".

Data being graph to this window are the real time reading from the PSU case and output module of iVS power supply.

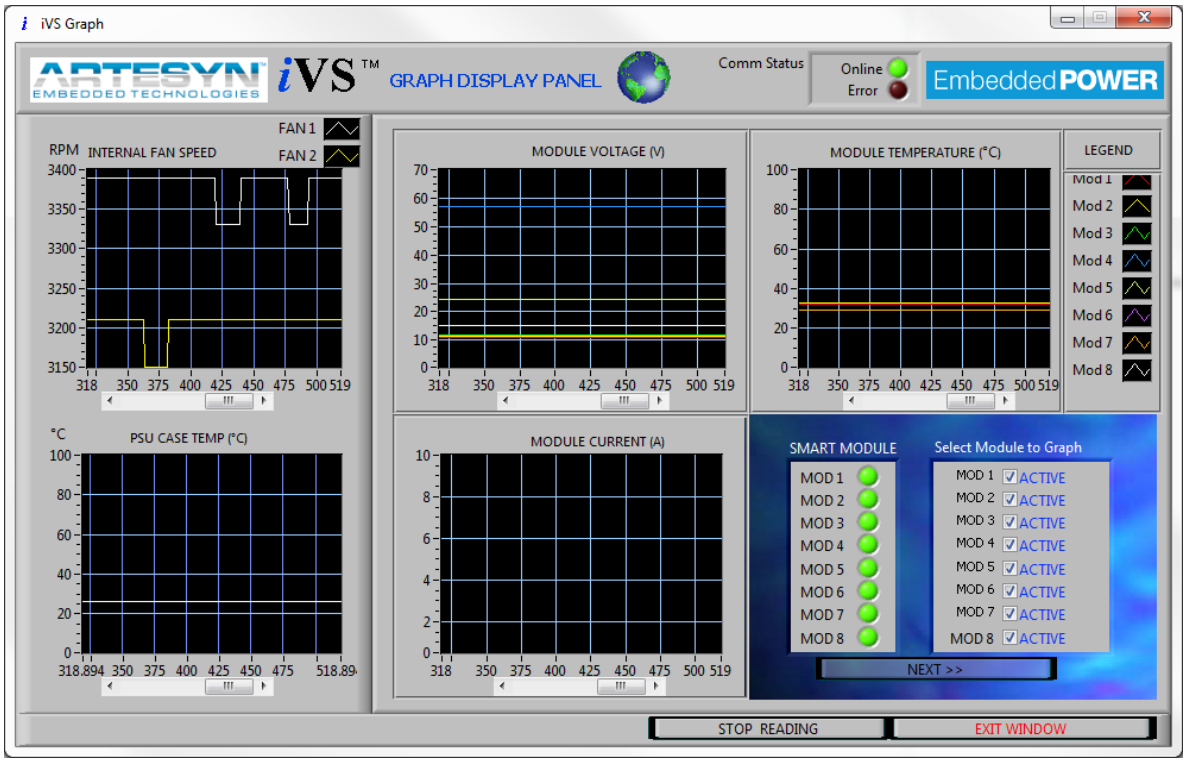


Figure 6-5 Value being displayed in this panel is the same as in the monitoring panel of the iVS Software. Data are being displayed in graphical form rather than in digital display.

For Fan Speed, display depends on the model of the IVS's Case being monitored. For IVS1 and IVS6, only one fan is being used and for other model (IVS3, IVS8, IVS8H) there are two fan speed data to be displayed.

For Output Voltage, Current, and Temperature graph, it will be graphed dependent on the numbers of the smart module detected by the iVS Software.

In IVS Series, Module number also varies. Graph display only show up to maximum of 8 Module per window. For the user to be able to see the rest of the module graph date click "NEXT", then wait for window to change. See figure below for details.

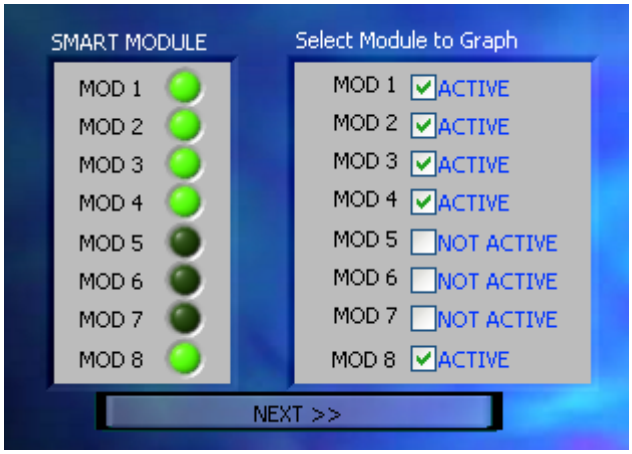


Figure 6-6 Press next to proceed to next window for Graph Display Panel.

See figure below about next window upon press "NEXT" function.

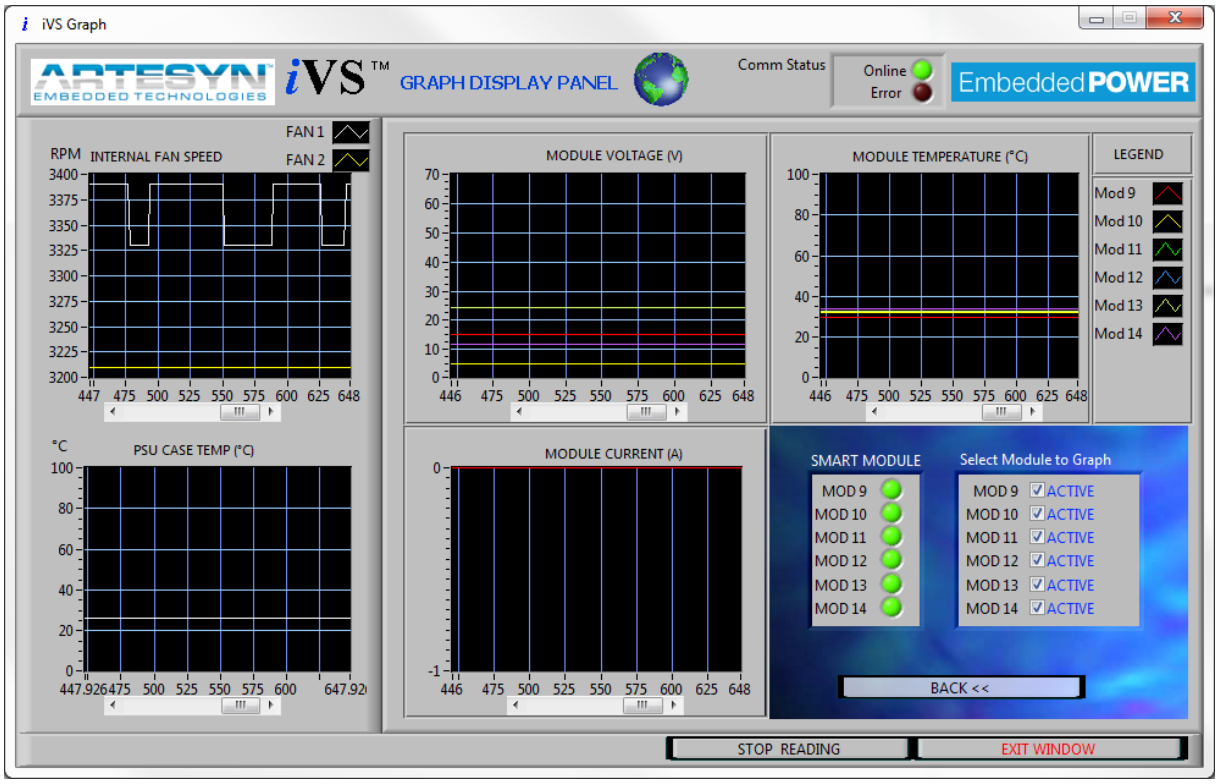


Figure 6-7 This is the graphical window for Module in slot location 9 to 15. Click Back to change window from slot location 1 to 8.

6.2.3 FRU Reader

To be able to view all the data being stored inside the PSU EEPROM, this window will display all the necessary information of the PSU. To display this window, click "Tools" then select "Read FRU".

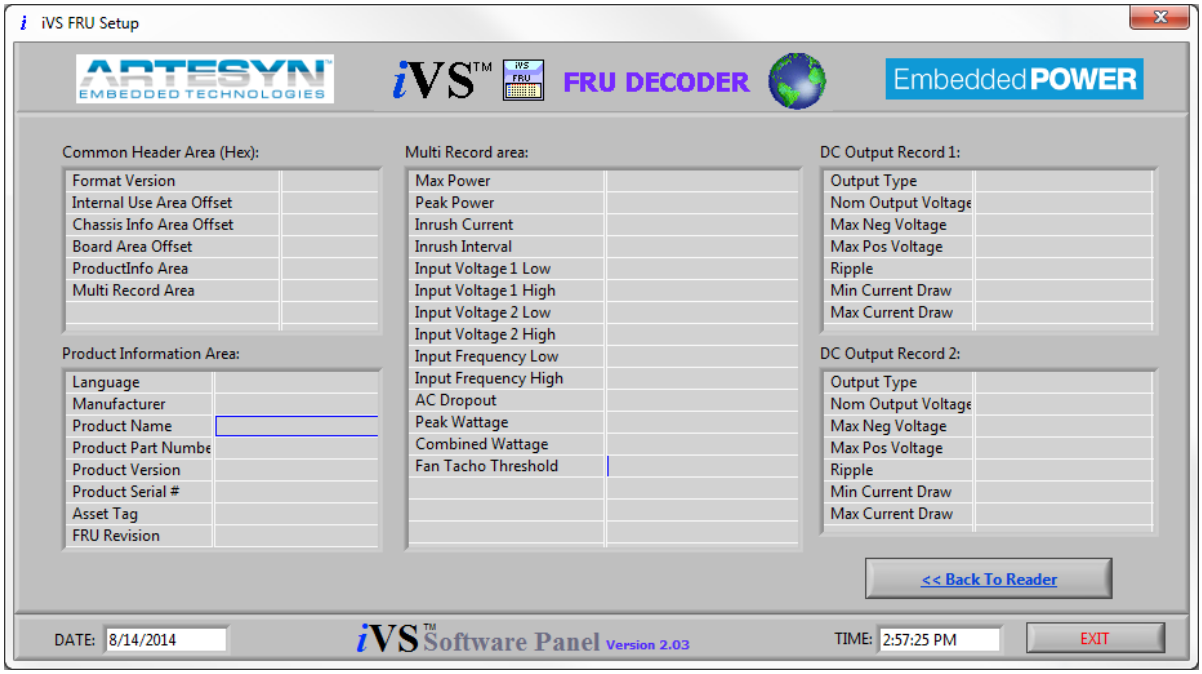


Figure 6-8 This is the default value being set to the EEPROM of the PSU.

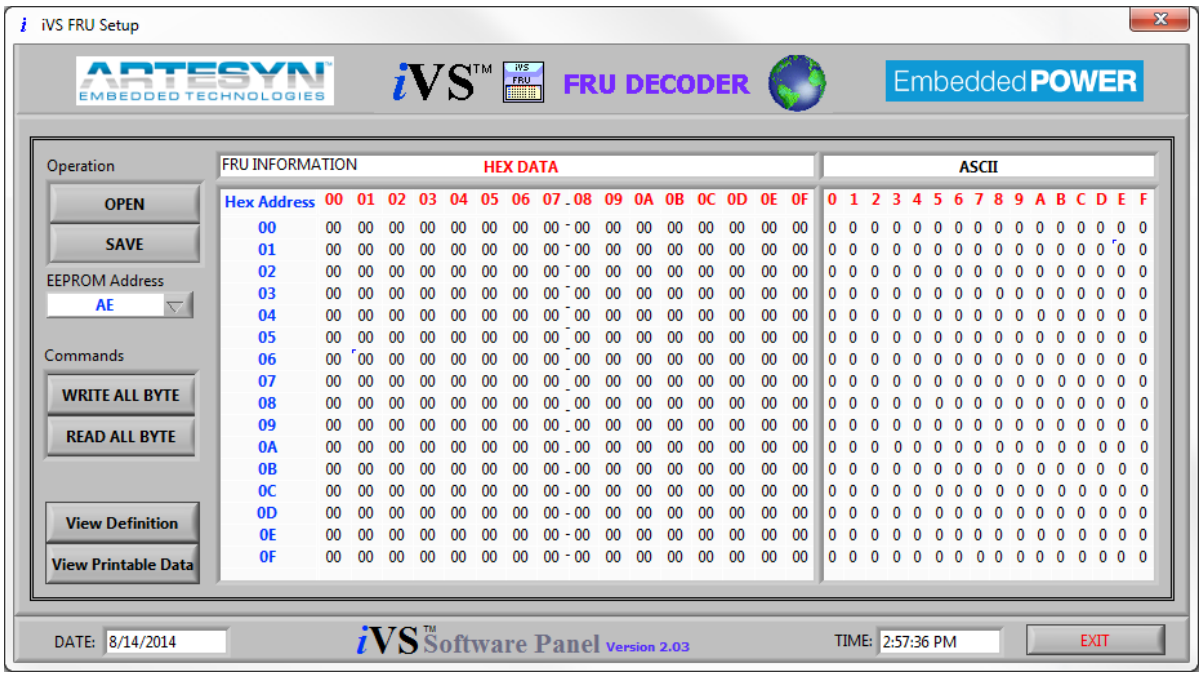


Figure 6-9 This is the Definition Table for the EEPROM being read from the FRU.

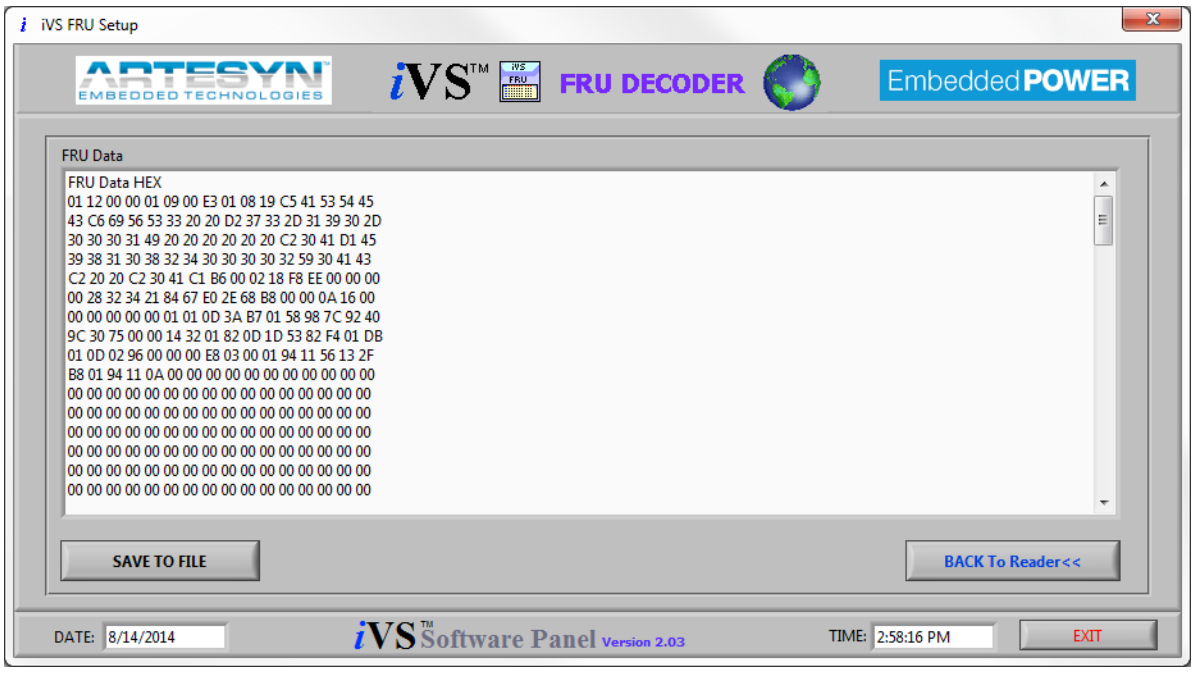


Figure 6-10 This is the Printable Definition Table for the EEPROM being read from the FRU (*Save as Text File*).

6.2.4 Display Current Setup

This is the current setup both for PSU case and the entire output module. To display this window, click "Tools" then select "Display Current Setup".

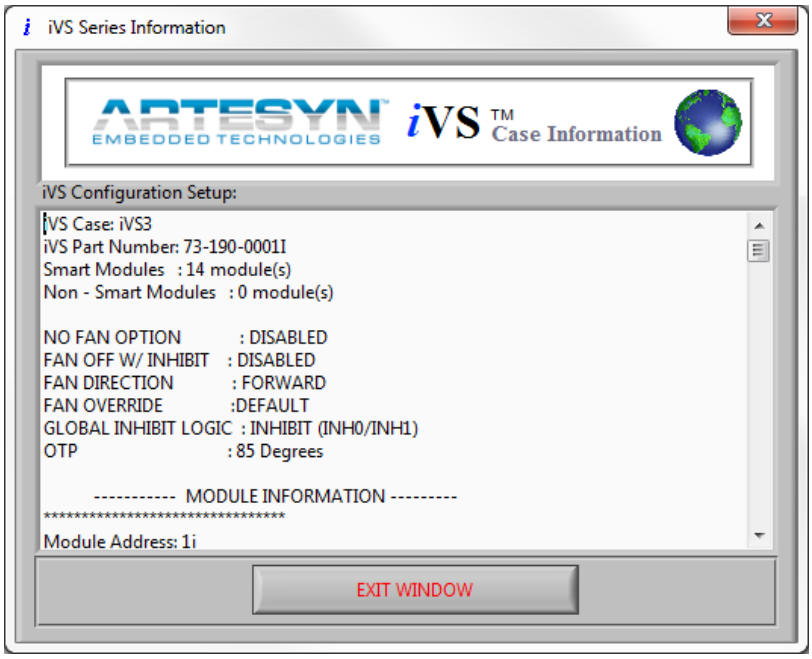


Figure 6-11 It display all the necessary information about the PSU case and the module connected to the case slot of the power supply.

6.2.5 UPDATE PSU CONFIG

This is used for updating PSU configuration. Configuration file must load before we can start the configuration update. To load, go to File menu then select "Load Configuration" then click OPEN. If no warning has been detected, it means that your configuration file and the actual PSU setup are compatible, and ready for update.

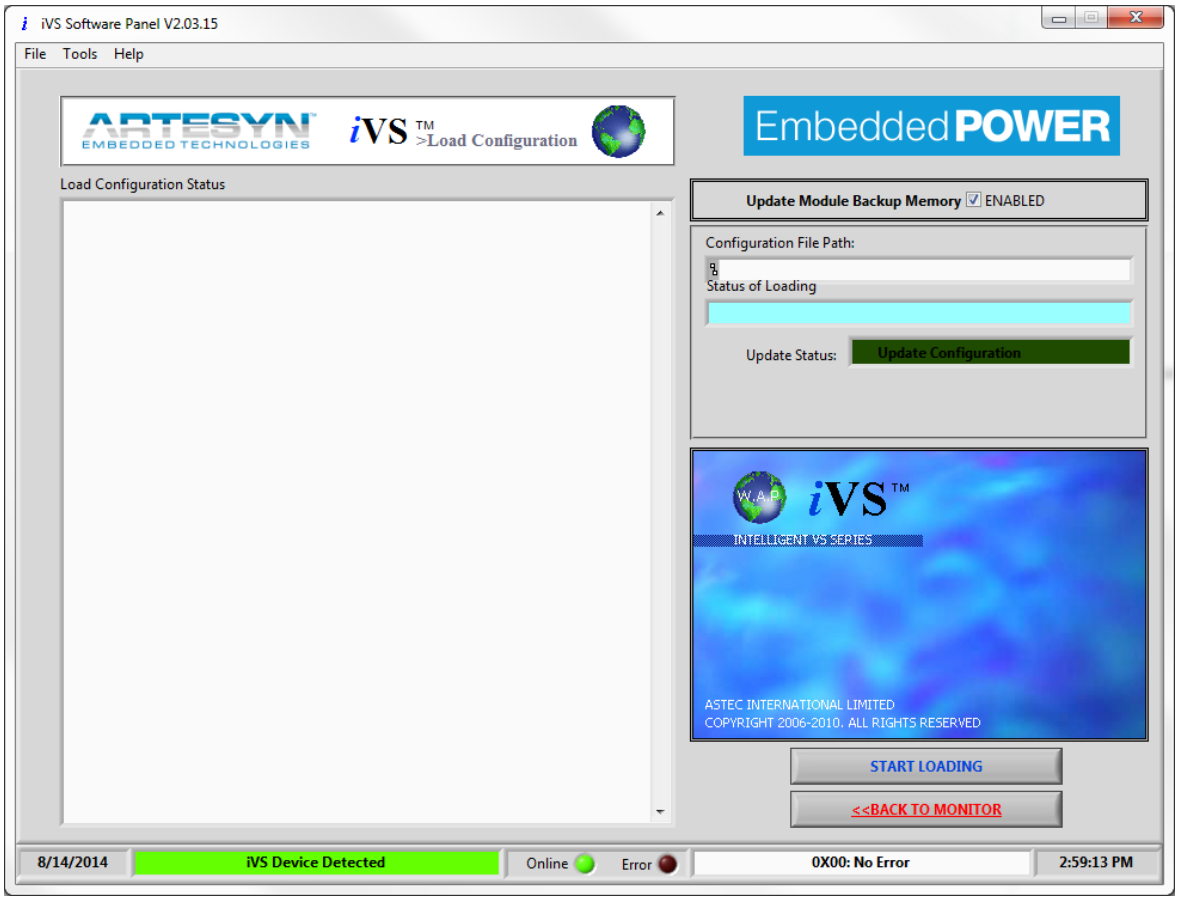


Figure 6-12 This is the Auto Configuration window, use for updating PSU base on configuration file.

You can start update the PSU by clicking the "START LOADING" button.

Status of configurations will be displayed in status panel, if PSU Configuration was loaded in to the Power supply successfully then Update Status will indicate "SUCCESSFUL" if not then it will indicate "Failed".

6.2.6 VS CaseBootloader

This is use to Update PSU Case Firmware version. Instead of using MPlab to update PSU Microcontroller, this GUI already has the capability of upgrading firmware. This Case bootloader can support PIC16F and PIC18F microcontroller firmware update. If firmware versions are old, as it is required, that is the time you will need to use MP lab.

This operation was supported by **user login**. The users need to enter correct user access before Bootloader Start.

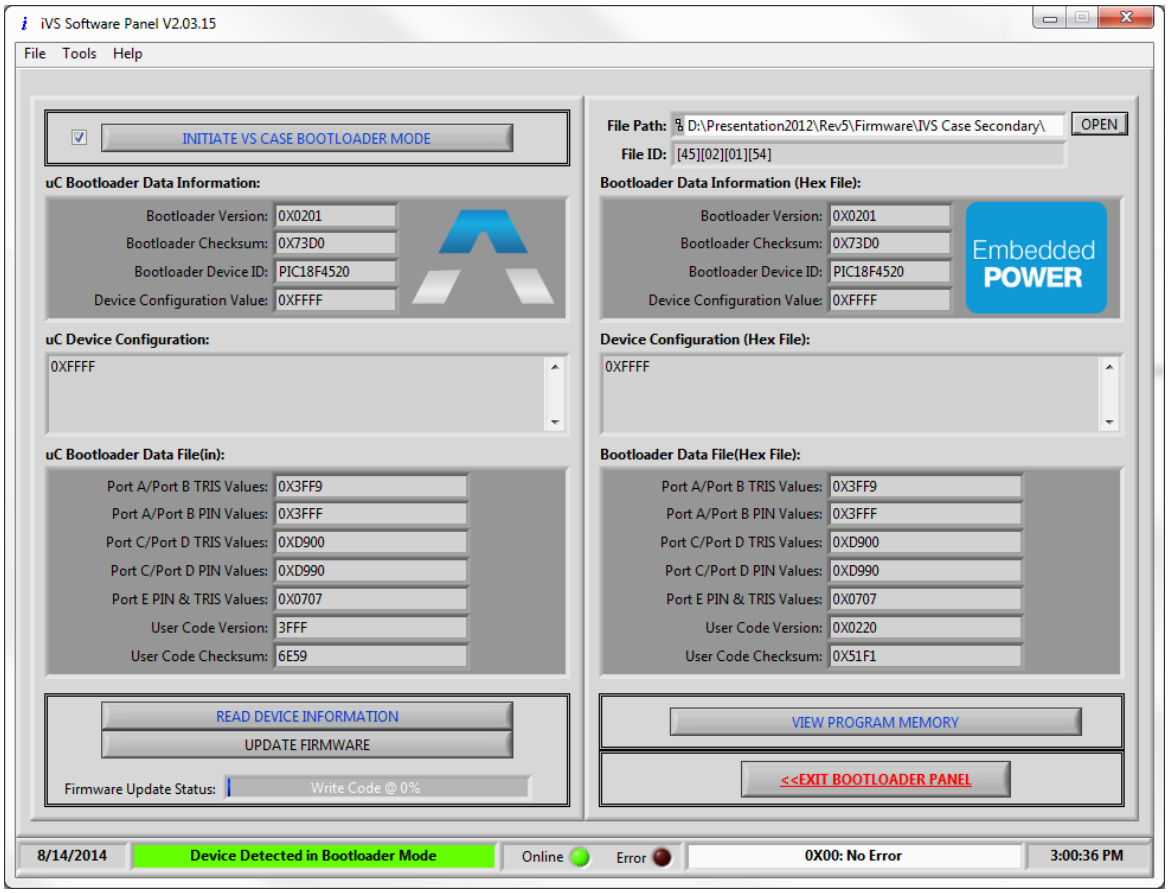


Figure 6-13 This is the bootloader panel for PSU Case. To Update Firmware Case Version refer to the following steps below.

Here are quick steps for Case Bootloading operation:

1. You must load the correct hex file first. If incorrect file have been loaded, IVS Case bootloading will not proceed. Once loaded the correct hex file then follow next step.

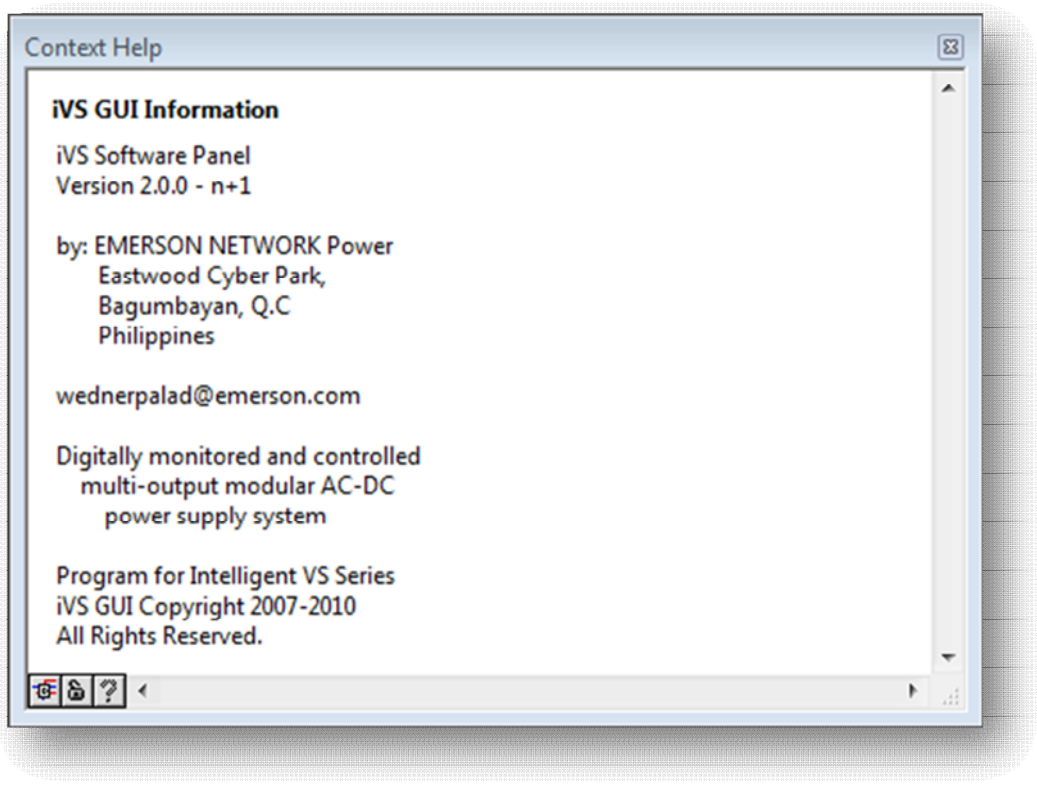


Figure 6-14 Load the correct file first before initiating the Case Bootloader mode.

2. Click Initiate VS Case to Bootloader Mode button to set the case mode from normal to bootloader mode.

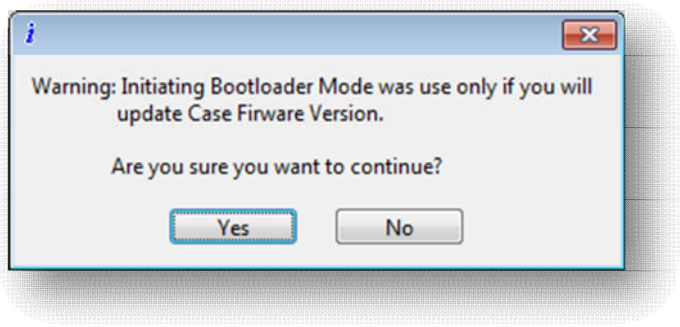


Figure 6-15 Select yes to set Case to Bootloader Mode.

3. Wait until it prompt that case already on Bootloader Mode.

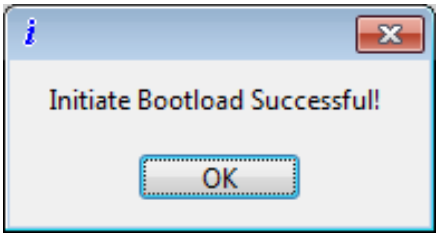


Figure 6-16 This will inform the user if initiation to bootloader mode is successful.

4. Then press "Update Firmware" button to start firmware update. Wait until bootloader update completed.

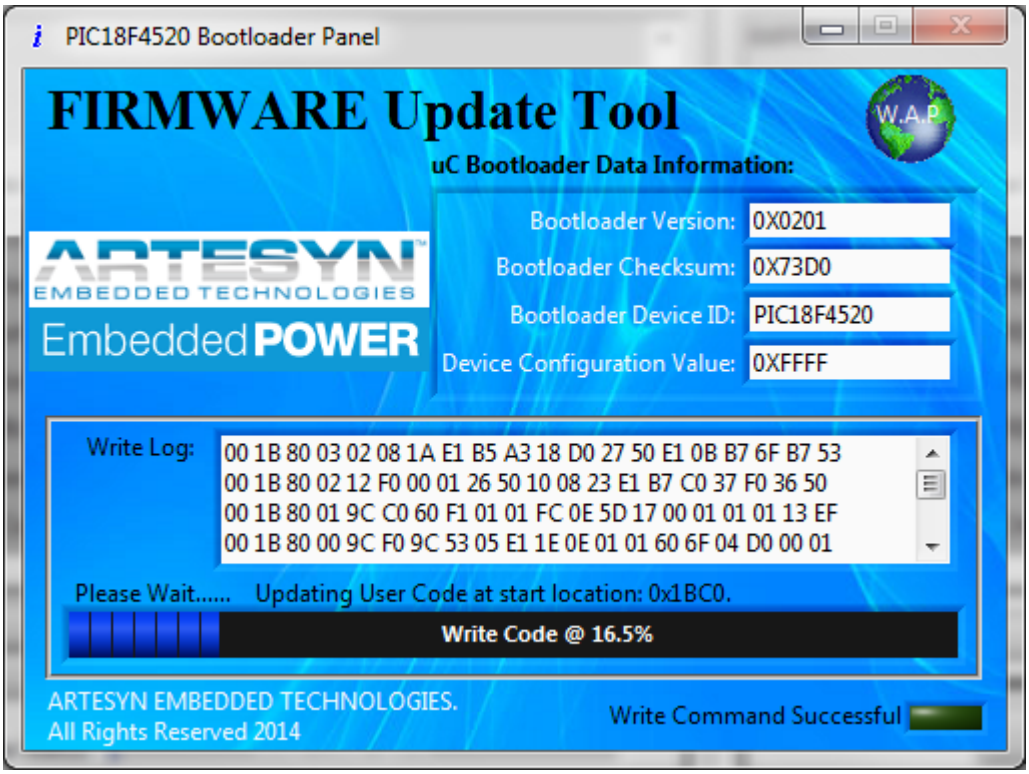


Figure 6-17 Wait until firmware update completed.

5. If Update Successful window will return to its previous window after your confirmation, else you need to update the firmware again.

6.2.7 VS ModuleBootloader

This is use to Update Module Firmware version. There are some restrictions for Module firmware Update. Firmware Update from Version 2.16 and below was not allowed to be updated in this GUI. You will need MP Lab instead. Version 2.17 to Version 3.0 and above will be accepted to be update in this GUI.

Note: Make sure that you selected the correct module to be update. Read restriction carefully before proceeding to Module firmware Update.

This operation was supported by **user login**. The users need to enter correct user access before Bootloader Start.

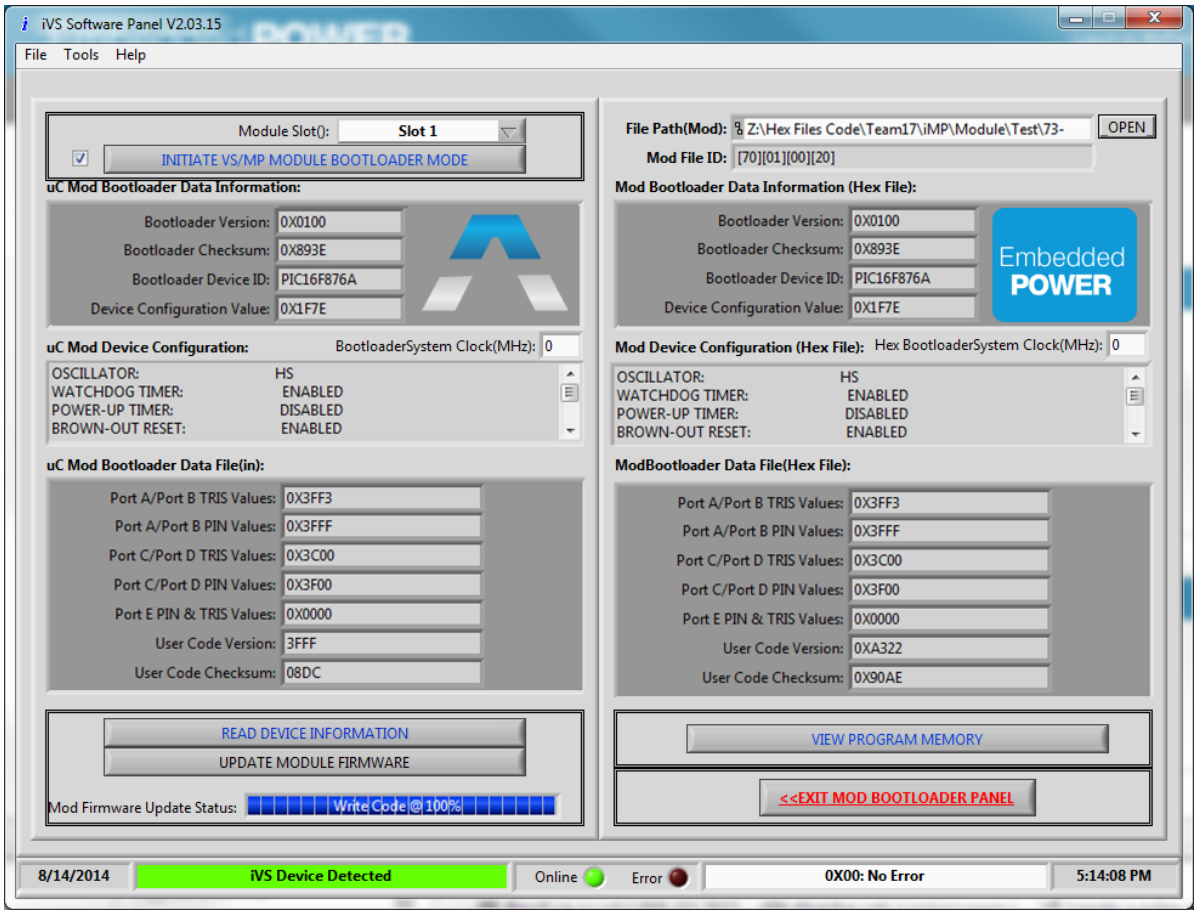


Figure 6-18 This is the bootloader panel for Module Firmware Update. To Update Module firmware refer to the following procedures below.

Module Bootloader Procedure:

1. Select the corresponding Module for update (*Strictly need to follow first*).
2. Load correct hex file. If incorrect file have been loaded VS Module bootload will not proceed.

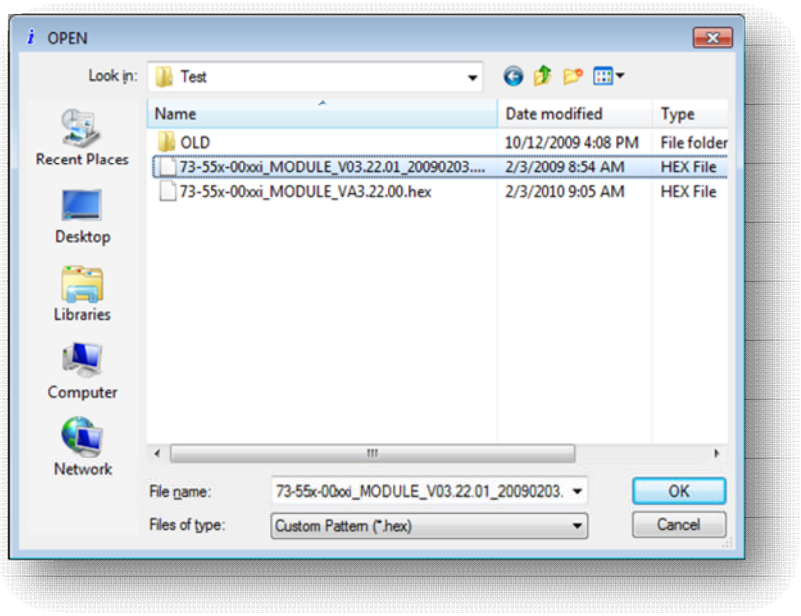


Figure 6-19 Load the correct file first before initiating the Module Bootloader mode.

3. Initiate VS Module to Bootloader Mode to be able to update firmware. Press the "Initiate VS Module to Bootloader Mode button to set Module to Bootloader Mode.

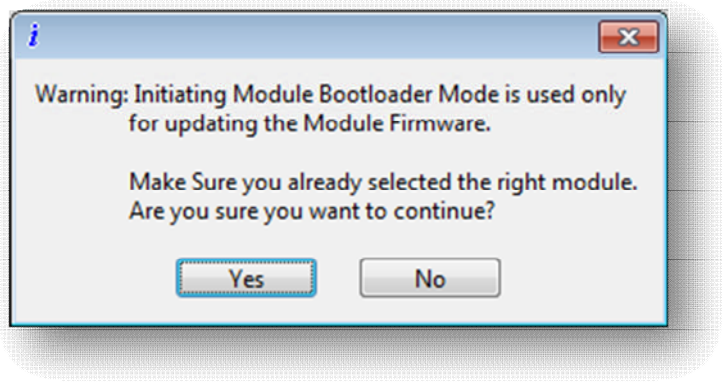


Figure 6-20 Select "Yes" to set selected module to Bootloader Mode.

4. Wait until it prompt for Module Bootloader Mode Enabled.

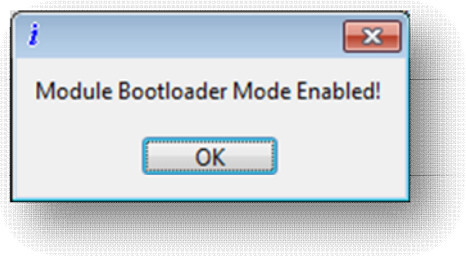


Figure 6-21 This will inform the user if initiation to bootloader mode is successful.

5. Then Update Module Firmware. Wait until bootload update completed.

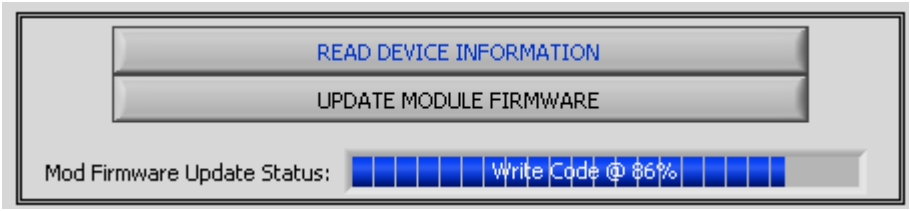


Figure 6-22 Wait untill module firmware update completed.

6. If Update Successful window will return to monitoring panel or if Update version was from V2.17 to 3.XX it will send the user to EEPROM Update for EEPROM Comparison.

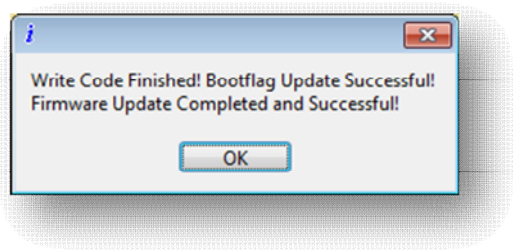


Figure 6-23 Click "OK" to return on Monitoring panel.

7. If Firmware Update Failed, Update firmware again.

6.2.8 *Internal EEPROM Update*

This is use for monitoring Internal and external EEPROM data of the current module selected. EEPROM reading was dependent on current module version. If module versions are 2.XX then EEPROM data are coming from the External EEPROM. While module versions V3.XX and above, EEPROM data will be read from Internal EEPROM (*Applicable in 210W, 360W and 750W module only*).

This is also use by module bootloader if update version is coming from Version V2.X (v2.17 to v2.19) to V3.XX (v3.0 and above). It is commonly use for verification of EEPROM data.

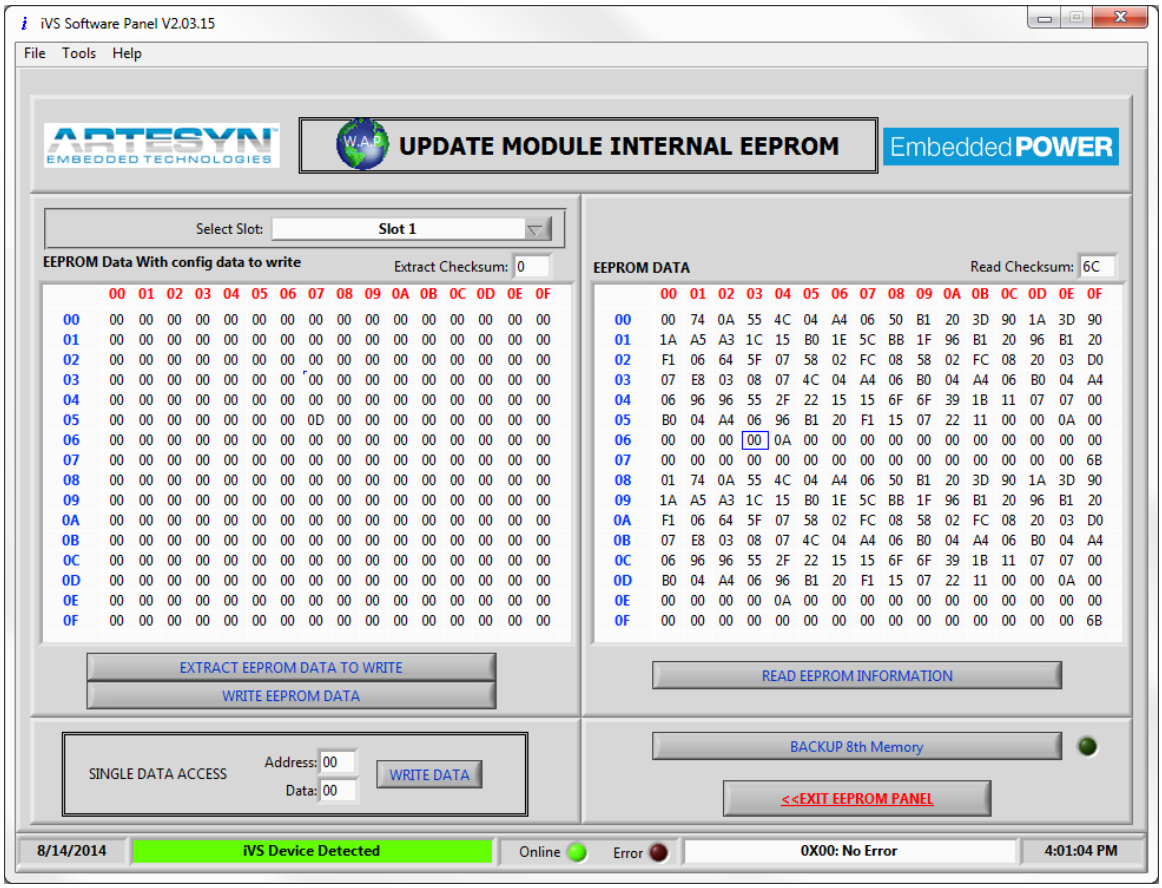


Figure 6-24 This is used for displaying EEPROM data. It is dependent on the Module version. If Module versions are V2.XX then EEPROM data will be read from External EEPROM. If Module Versions are V3.XX then EEPROM data will be read from Internal EEPROM.

EEPROM Data with Config data to write → It displays the Extracted default and calibration data together with the computed load setting which are base on Power and Voltage range. Data will be displayed after pressing EXRACT EEPROM DATA TO WRITE button.

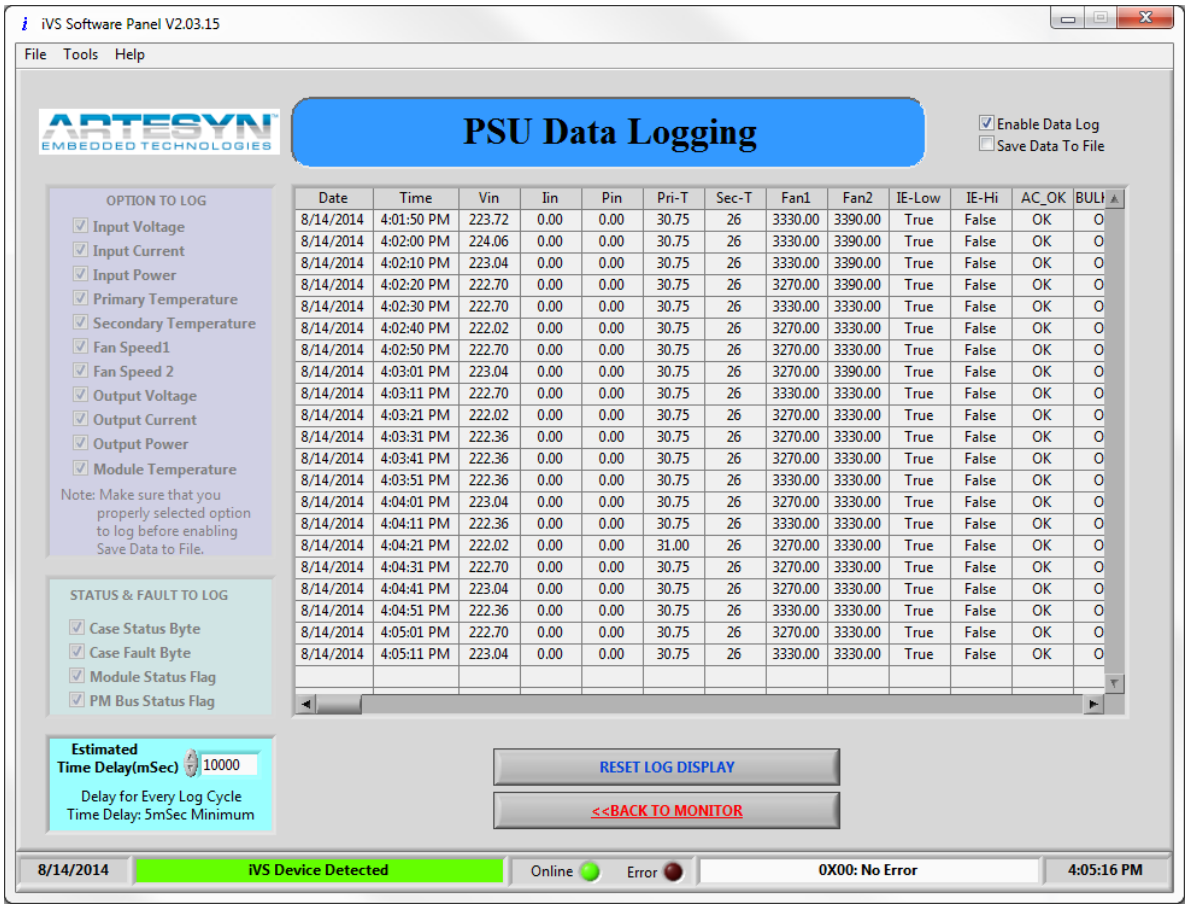
EEPROM Data→ It displays all the EEPROM data from current module. (Either version v2.XX and v3.XX). Data will be displayed after pressing READ EEPROM INFORMATION button.

WRITE EEPROM DATA→ (Restricted) it will write data to EEPROM location. (Dependent on the Module Version)

6.2.9 Data Logger

This is use for monitoring input and output parameter. Save Data to file also available in this version. Data to be log on file will start only after enabling Save Data to File.

Logging time interval every complete reading can be change, depending on the polling rate setting. Minimum Interval time is 100mSec if the polling rate is also set to 100mSec. Minimum Interval time varies depending on the current setting of the polling rate.



Date	Time	Vin	Iin	Pin	Pri-T	Sec-T	Fan1	Fan2	IE-Low	IE-Hi	AC_OK	BULI
8/14/2014	4:01:50 PM	223.72	0.00	0.00	30.75	26	3330.00	3390.00	True	False	OK	O
8/14/2014	4:02:00 PM	224.06	0.00	0.00	30.75	26	3330.00	3390.00	True	False	OK	O
8/14/2014	4:02:10 PM	223.04	0.00	0.00	30.75	26	3330.00	3390.00	True	False	OK	O
8/14/2014	4:02:20 PM	222.70	0.00	0.00	30.75	26	3270.00	3390.00	True	False	OK	O
8/14/2014	4:02:30 PM	222.70	0.00	0.00	30.75	26	3330.00	3330.00	True	False	OK	O
8/14/2014	4:02:40 PM	222.02	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:02:50 PM	222.70	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:03:01 PM	223.04	0.00	0.00	30.75	26	3270.00	3390.00	True	False	OK	O
8/14/2014	4:03:11 PM	222.70	0.00	0.00	30.75	26	3330.00	3330.00	True	False	OK	O
8/14/2014	4:03:21 PM	222.02	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:03:31 PM	222.36	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:03:41 PM	222.36	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:03:51 PM	222.36	0.00	0.00	30.75	26	3330.00	3330.00	True	False	OK	O
8/14/2014	4:04:01 PM	223.04	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:04:11 PM	222.36	0.00	0.00	30.75	26	3330.00	3330.00	True	False	OK	O
8/14/2014	4:04:21 PM	222.02	0.00	0.00	31.00	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:04:31 PM	222.70	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:04:41 PM	223.04	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:04:51 PM	222.36	0.00	0.00	30.75	26	3330.00	3330.00	True	False	OK	O
8/14/2014	4:05:01 PM	222.70	0.00	0.00	30.75	26	3270.00	3330.00	True	False	OK	O
8/14/2014	4:05:11 PM	223.04	0.00	0.00	30.75	26	3330.00	3330.00	True	False	OK	O

Figure 6-25 Data Logging section for Logging PSU and Module information.

OPTION TO LOG – Use this option for selecting parameter that you want to log in display and to file.

STATUS & FAULT TO LOG – Use this option for selecting case status and Flags parameter that you want to log in display and to file.

Use RESET LOG DISPLAY to clear data logger display. This will not affect the file that was being saved to file. This function is only applicable on display panel.

6.2.10 Configure 1500W Module

This is to configure 1500W as new features. This function will only work if IVS Case detect 1500W connected to it. Once no module detected then it will prompt the user about this matter. See figure below.

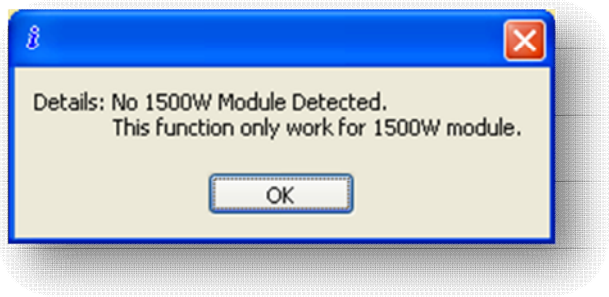


Figure 6-26 No1500W Module detected in the IVS Case.

There are two features available in 1500W module.

1. Output CC Mode Enabling – this is use the enable the original CC mode configuration.
2. Voltage Adjust Unlocked – this is use to unlocked hardware trimming function located at the back of the 1500W module.

Here is the 1500W Configure window.

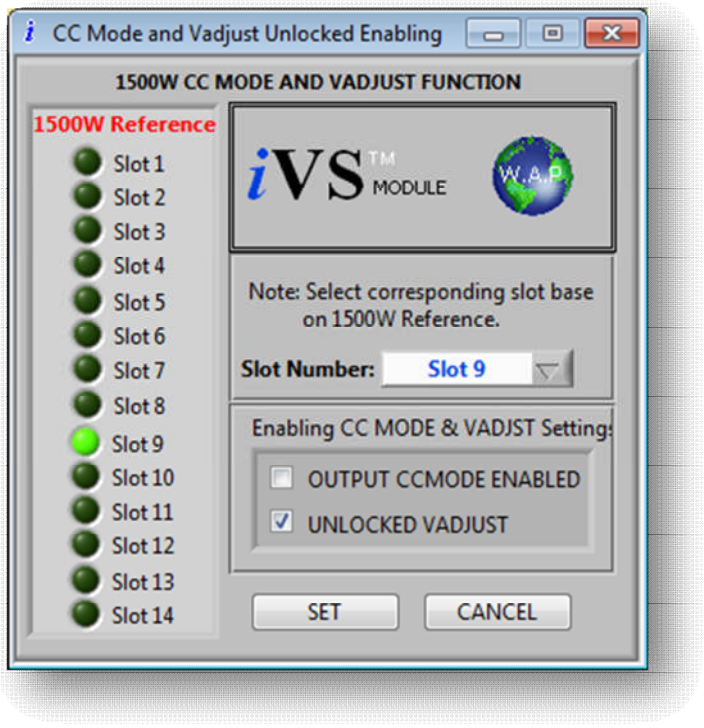
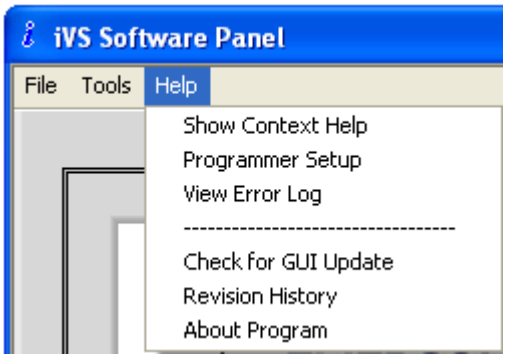


Figure 6-27 This is the new feature of 1500W module. Make sure to select slot number base on the 1500W reference.

6.3 Help Menu of Option

Help menu option are used for supporting all the instruction and information about the iVS Program. It also has the information about the history of the Software structure and revision for iVS Software Panel.



Figures 6-28 Click "Help" Menu then select function you want to perform.

6.3.1 Show Context Help

It shows the description of every indicators and controls inside the iVS Software Panel.
Point the mouse pointer to the control you want to know the description and it will be displayed in the Context help window.

To display this window, click "Help" then select "Show Context Help".

Figure 6-29 It shows the description of each control and indicators inside the iVS Software Panel.

6.3.2 Programmer Setup

For Authorized Personnel use only.

6.3.3 View Error log

This is use for logging I2C errors. It is useful for error reference in iVS Case module communication by saving data into file by enabling the Log file.

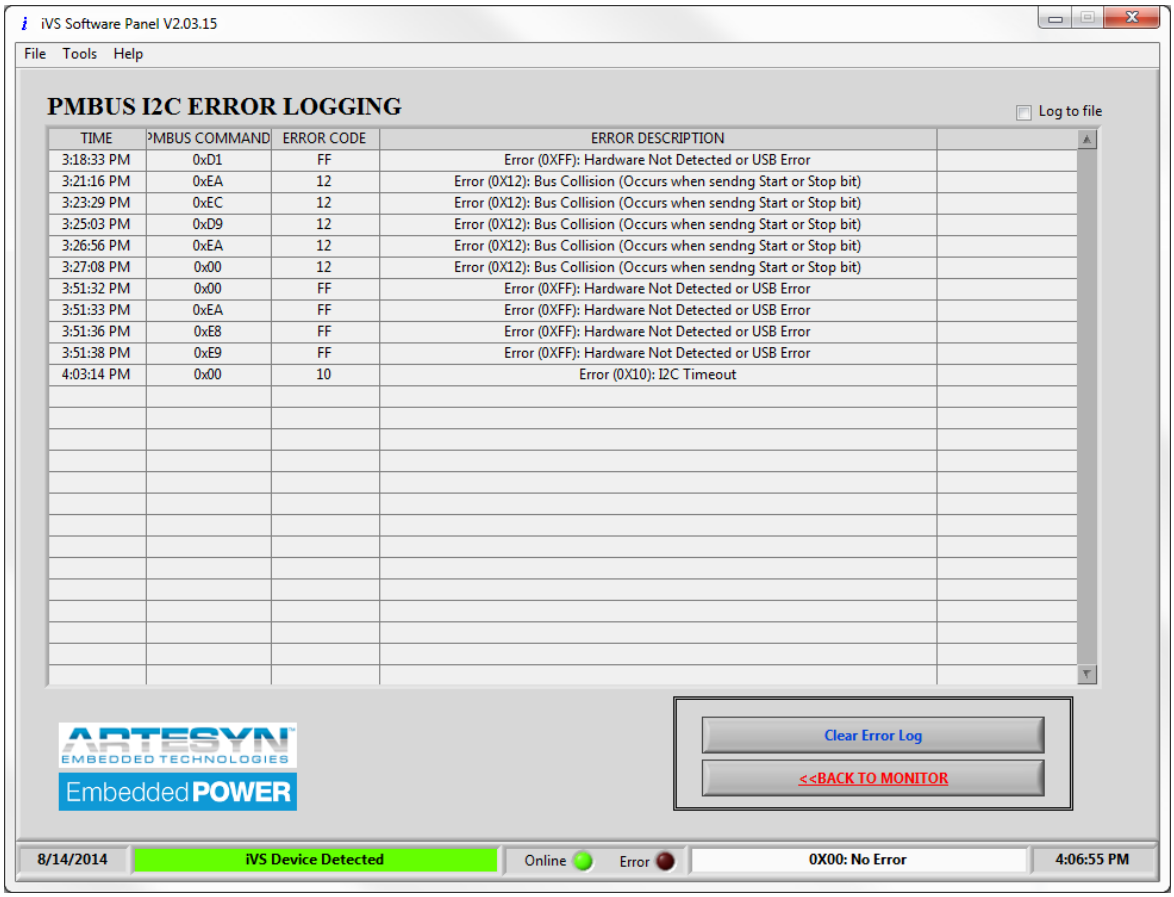


Figure 6-30 It shows I2C Errors and description, including the time when the error occurred.

The following error codes are returned by the various functions in USB-to-I2Cpro.dll:

```
0x00: No error
0x01: Address not Acknowledged
0x02: Data not Acknowledged
0x07: Arbitration lost
0x08: I2C Time Out
0x80: Unsupported function (make sure you have the latest firmware)
0xFF: Hardware not detected or USB error
```

6.3.4 Check for GUI Update

This will direct you to the Emerson Network Power website for Updated GUI Version.

Figure 6-31 Official download site for IVS GUI.

6.3.5 Revision History

This give the details of update being made per version release.

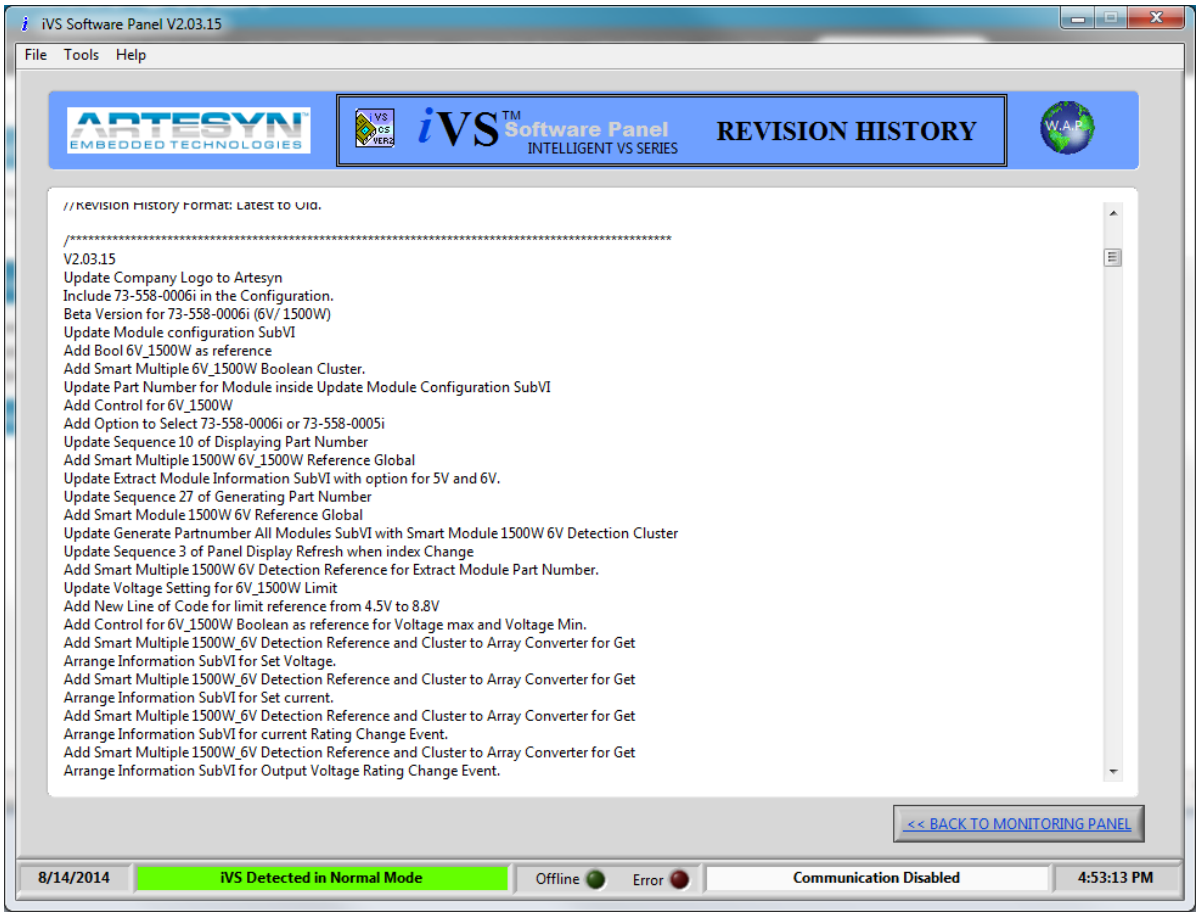


Figure 6-32 It shows the updates made through the release versions.

6.3.6 About Program

It is the information about iVS Software Program.

To display this window, click "Help" then select "About Program".

Figure 6-33 It shows Information about the iVS Software Panel.

7 SIMULATION Mode Functionality

Some GUI features only work at Simulation Mode. This Function was designed for marketing purposes. It will enable the functions of creating new PSU profile and setup depending on customer's demands.

Special features:

7.1 Manual Case Model Selection

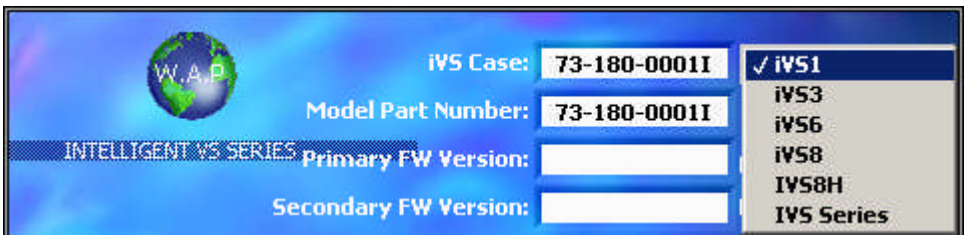


Figure 7-1 It is use to select Case Model.

- This is use to select case model for iVS before creating new configuration.
- IVS case options are iVS1, iIVS3, iVS6, IVS8 and iIVS8H.
-

Display at monitoring panel for iVS1 and iVS6 cover 9 slots:

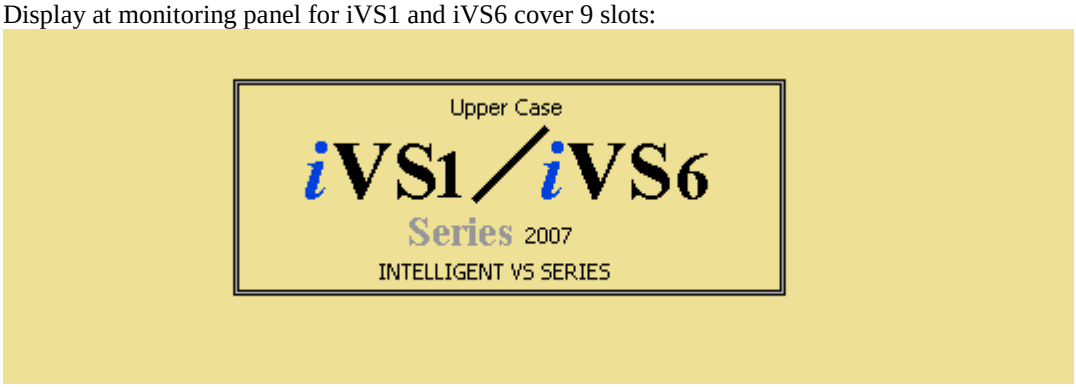


Figure 7-2 Label for iVS1 and iVS6 at Monitoring Panel.

Display at monitoring panel for iVS3, iIVS8 and iVS8H covers 14 Slots:

Figure 7-3 Label for iVS3, iVS8 and iVS8Hat Monitoring Panel.

7.2 Create Case Model Part number

- This is the marketing choice of Part number X can be change by the user.
- ***IVS1*** = 73-180-XXXXI
- ***IVS3*** = 73-190-XXXXI
- ***IVS6*** = 73-650-XXXXI
- ***IVS8*** = 73-680-XXXXI
- ***IVS8H*** = 73-680-XXXXIH
- Response if incorrect input: "Error: Invalid Model Part Number".

7.3 Set New PSU Configuration

PSU settings will work the same even in SIMULATION Mode. Restriction will remain the same.
For setting up new PSU Settings please refer to ***Section 5.5*** to ***Section 5.5.1*** of this manual.

Some functions only exist in Simulation mode such as HUP Code, Software Code and Parallel Code. These functions are useful during Ordering code generation (commonly use by marketing).

Intelligent High Power

Parallel Code	iVS1, 6	iVS3, 8, 8H	Possible Configurations
1		1 & 2 	210 210; 210 144; 144 144
2		2 & 3 	360 360; 360 210; 360 144; +above
3		3 & 4 	750 750; 750 360; 750 210; 750 144; + above
4		4 & 5 	1500 1500; 1500 750; 1500 360; 1500 210; 1500 144 + above
5		3, 4 & 5 	750 210 210; 750 210 144; 750 144 144
6		4 & 6	1500 1500
7		4, 5 & 6 	1500 210 210; 1500 210 144; 1500 144 144
8		4, 5 & 9	1500 1500 1500; 1500 1500 750; 1500 1500 360; 1500 1500 210; 1500 1500 144
9		4, 5, 9, 12 & 13 	1500 1500 1500 750; 1500 1500 1500 360 1500 1500 1500 210; 1500 1500 1500 144

Figure 7-4 Parallel Code Option

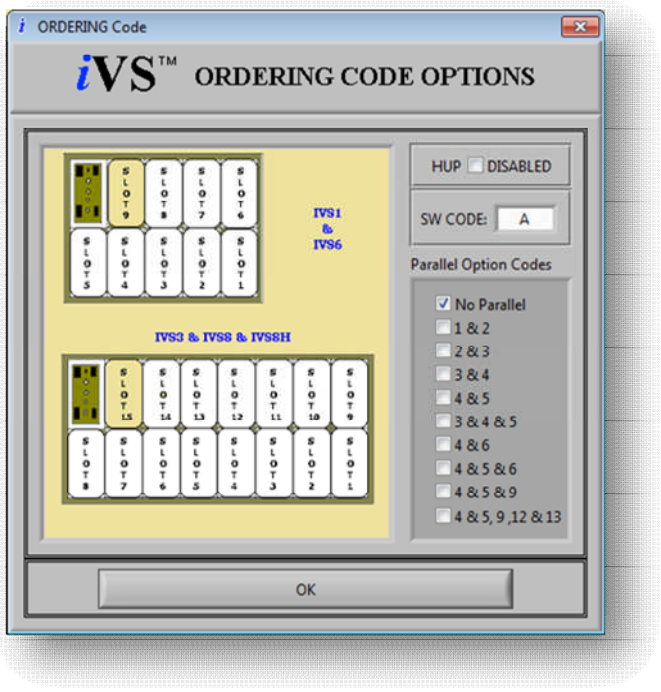


Figure 7-5 Ordering Code Option Window
[See figure 7-12 for more details.]

7.4 Add Module Functions

This is used to add smart and non-smart module. This is the first task before the qualified user can add configuration for module setup.

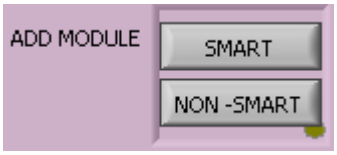


Figure 7-6 Add Command Module Function.

Note: Make sure to add a module to its proper location. Please refer into module models for slot reference.

Modules Setup	
Module Power Range	**Covered Slot**
210 Watts	1 slot
360 Watts	2 slots
600 Watts	3 slots
750 Watts	3 slots
144 Watts	1 slot
1500 Watts	4 slot
36 Watts	1 slot

600-Watts module is applicable for Non Smart Only.
750-Watts module is applicable for Smart Only.
1500-Watts module is applicable for Smart Only.

Rules for adding module: *"High Power Modules will be first in line PSU case slots."*

Reminder:
If you want to add a 1500 watts module, start to add module in 4th slot.
If you want to add a 750 watts or 600 watts module, start to add module in 3rd slot.
If you want to add a 360 watts module, start to add module in 2nd slot.
If you want to add a 210 watts and 36 watts module, start to add module in 1st slot.

7.4.1 Add Smart Module

This is use for adding Intelligent Module to new setup.

ADD Smart Module Command	
	Action
Button Activated	*TRUE*
Display	**Response**
Panel Change	*FALSE*
Smart Module	*Visible*
Non-Smart Module	*Hidden*
Add Module Panel	*Hidden*
Part number Panel	*Visible*
Configure / Remove Panel	*Visible*

Make sure to follow the **rules** for adding module in PSU case. Use figure below as reference for adding smart module.

Figure 7-7 Adding smart modules in PSU case. High Power Module should be first to add and low power module should be the last to be place in PSU Case slot.

7.4.2 Add Non-Smart Module

This is use for adding Non-Intelligent module.

ADD Non-Smart Module Command	
	Action
Button Activated	*TRUE*
Display	**Response**
Panel Change	*FALSE*
Smart Module	*Hidden*
Non-Smart Module	*Visible*
Add Module Panel	*Hidden*
Part number Panel	*Visible*
Configure / Remove Panel	*Visible*

Make sure to follow the **rules** of adding module in PSU case. Use figure below as reference for adding smart module.

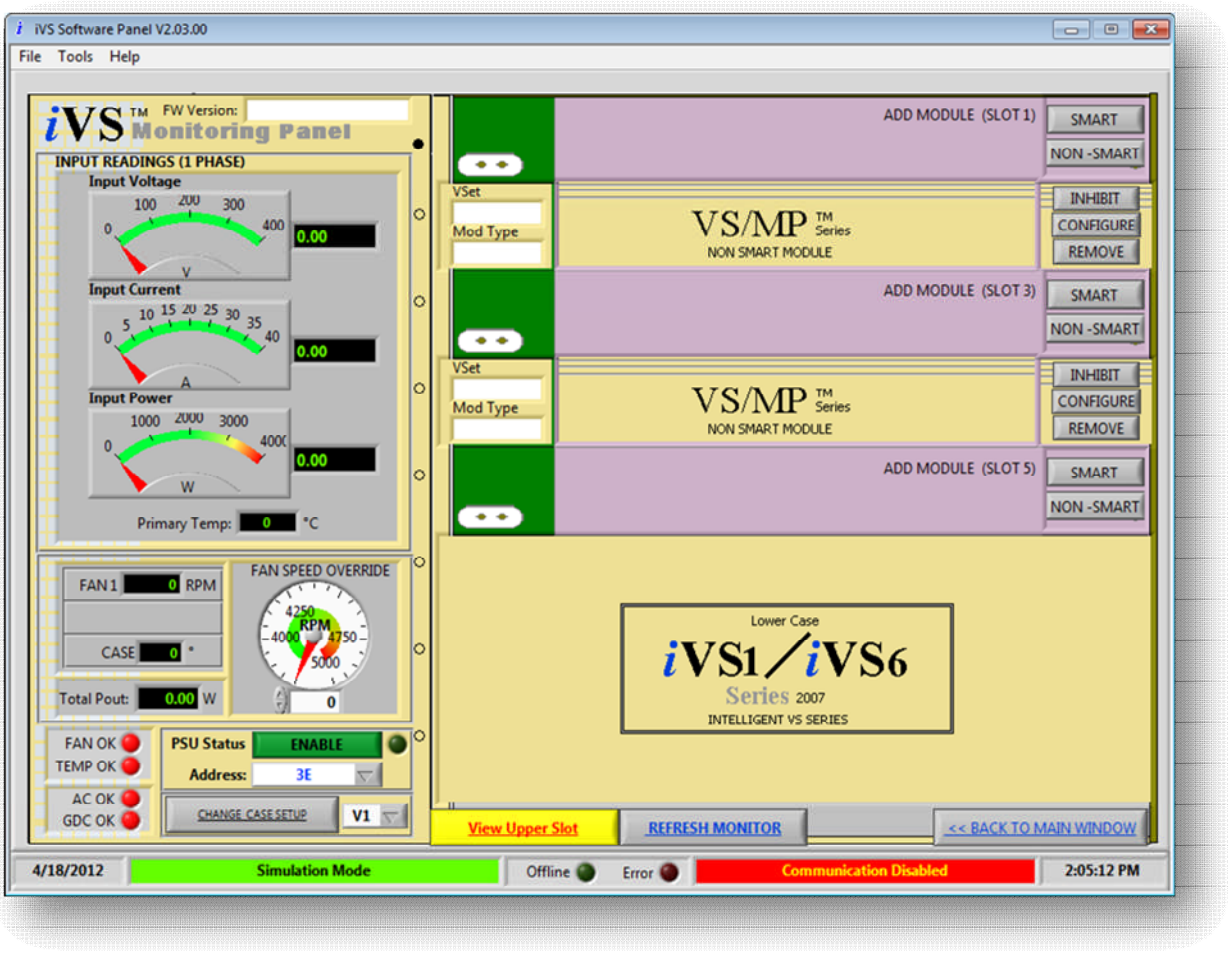


Figure 7-8 Adding non-smart modules in PSU case. High Power Module should be first to add and low power module should be the last to be place in PSU Case slot.

7.5 Configure / Remove Module function

7.5.1 Configure Module Function

This is the command button to change panel into configuration display. Smart and Non-smart Module display in configuration panel will be dependent on what did the user add. That is the pre-requisite of the configuration panel display setup. Other displays are not listed because they will remain visible regardless of module type.

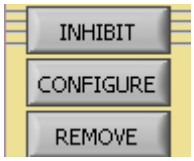


Figure 7-9 Configure and Remove Command. Inhibit Function is disabled at Simulation Mode.

Table for Configuration Panel Response for Smart Module

Configure Module Command (Smart)	
	Action
Button Activated	*TRUE*
Display	**Response**
Panel Change	*TRUE*
Smart Module	*Visible*
Non-Smart Module	*Hidden*
IVS Module Reading	*Visible*
IVS Module Setting	*Visible*
OCP Mode / Control Signal	*Visible*

Table for Configuration Panel Response for Non Smart Module

Configure Module Command (Non-Smart)	
	Action
Button Activated	*TRUE*
Display	**Response**
Panel Change	*TRUE*
Smart Module	*Hidden*
Non-Smart Module	*Visible*
IVS Module Reading	*Hidden*
IVS Module Setting	*Hidden*
OCP Mode / Control Signal	*Hidden*

7.5.2 Remove Module Function

This is the command button to remove existing module panel regardless of module types. It will also remove configuration setup from memory.

Remove Module Command	
	Action
Button Activated	*TRUE*
Display	**Response**
Panel Change	*FALSE*
Smart Module	*Hidden*
Non-Smart Module	*Hidden*
Add Module Panel	*Visible*
Part number Panel	*Hidden*
Configure / Remove Panel	*Hidden*

Inhibit Module Function -- >Not functional in SIMULATION Mode.

No message display will prompt on GUI version 1.41 and below.

Remove Module Command (v1.42)	
	Action
Button Activated	*TRUE*
Display	**Response**
Panel Change	*FALSE*
Message	"Warning: Function Disabled at Simulation Mode!"

7.6 Module Information Setup and Load Settings

- This is use to select Module Power Range and Voltage range. It is also have a connection in module configuration setup. Refer to section 5.5.2.5 for more details. It is still follows the rule from ***Section 7.3*** (Adding Modules).

Note:
Setting up a new configuration has a priority pattern. The user must select Power Range first then Vrange will be next in sequence to be selected and last but not the least is selecting the pre-defined load.

Sequence for Setting up new configuration.

Sequence 1: Select Power Range for Module (Max Power).
Sequence 2: Select Vrange for Module.
Sequence 3: Select Pre-defined Setting (Load Settings) to be input in Voltage and Current Rating.

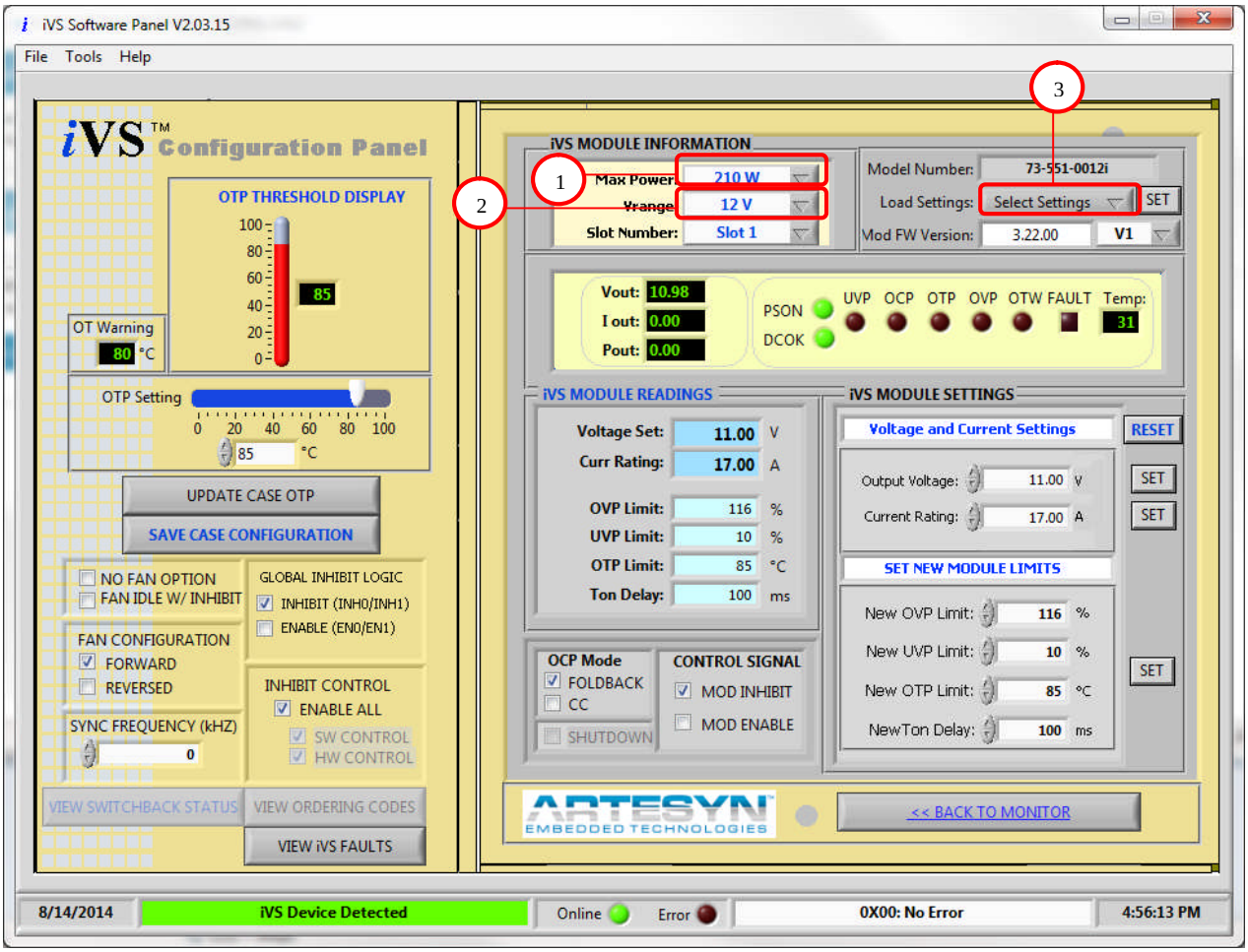


Figure 7-10 Follow the correct sequence for setting up new configuration to complete data entry in configuration panel. For Module settings please refer to ***Section 5.5.2.5.***

Table for Module information if All are selected. (Not remain in "SELECT" and "Select Settings")

Module Information Setup	
	Action
Max Power Selected	*TRUE*
Vrange Selected	*TRUE*
Load Settings Selected	*TRUE*
Display	**Response**
Panel Change	*FALSE*
Output Voltage	*Vrange Default Value*
Output Current	*Current Default Value*
Message after Back to Monitor is Selected	--

Warning:
Make sure that iVS Mode was set to SIMULATION mode. ,If it is not set to that mode then all configurations made will not be place on respective memory allocation. The user should start to configure new setup again.

Table for Module information (Vrange and Load Setting not selected)

Module Information Setup	
	Action
Max Power Selected	*TRUE*
Vrange Selected	*False*
Load Settings Selected	*False*
Display	**Response**
Panel Change	*FALSE*
Output Voltage	*Vrange Default Value*
Output Current	*Current Default Value*
Message after Back to Monitor is Selected	"Warning: Vrange and Load Setting not set! Please Set Vrange and Load Settings."

Table for Module Information (No Option Selected)

Module Information Setup	
	Action
Max Power Selected	*FALSE*
Vrange Selected	*FALSE*
Load Settings Selected	*FALSE*
Display	**Response**
Panel Change	*TRUE*
Output Voltage	--
Output Current	--
Message after Back to Monitor is Selected	--

7.7 Module Settings

Module settings will work the same even in SIMULATION Mode. Restriction will remain the same.
For setting up new module limits please refer to ***Section 5.5.25*** to ***Section 5.5.2.6*** of this manual.

7.8 Save Configuration to File

Once PSU and Module configuration already completed make sure to save all the settings into the file.
This file will be save as text format and can be use to load into the real unit. Name of the file will be dependent on your PSU Configuration. See figure 7.10 for reference.

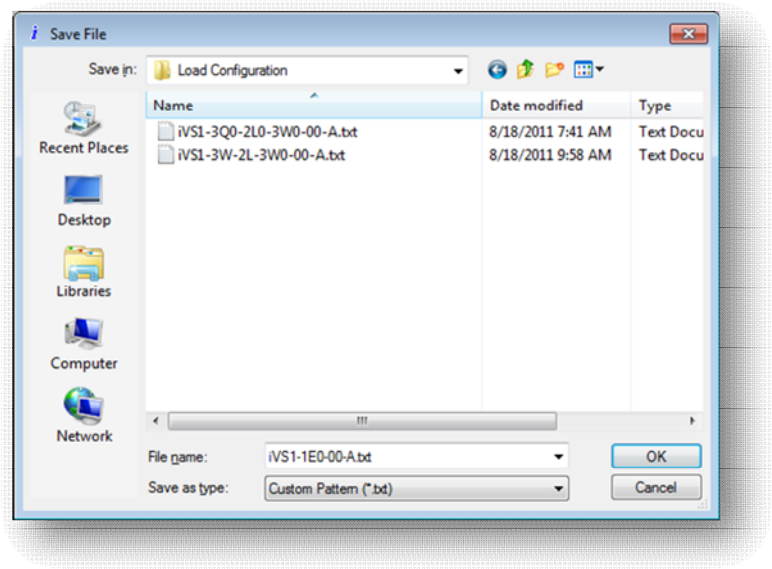


Figure 7-11 Save Complete PSU Configuration into file.

Section 8 will discuss about loading this file into the power supply.

This is a sample code generated from IVS Configuration. It will be change for IVS on next release of user's manual revisions.

Ordering Information

Sample below is 3210W case with 12V @ 125A; 24V @ 8.5A; 5V @ 60A; 12V @ 10A and 12V @ 4A; with no options.

Case Size	Module/Voltage/Option Codes (First - Module Code, Second - Voltage Code, Third - Option Code)	Case Option Codes	Software Code	Hardware Code
iVS1	- 5L1 - 1Q1 - ZEO - 4LL0 -	00	- A	- ###

Case Size (mm)
1-Phase Input
1 = 5"x 5"x 11"; 1500W - 3210W, 9 Slots (127 x 127 x 279.4)
3 = 5"x 8"x 11"; 1800W - 4170W, 15 Slots (127 x 203.2 x 279.4)
3-Phase Input
6 = 5"x 5"x 11"; 3120W, 9 Slots (127 x 127 x 279.4)
8 = 5"x 8"x 11"; 4170W, 15 Slots (127 x 203.2 x 279.4)
8H= 5"x 8"x 11"; 4860W, 14 Slots (127 x 203.2 x 279.4)

Module Codes
Module/Voltage/Option Codes
Module Codes:
(None) = 36W Triple O/P (1 slot)
1 = 210W Single O/P (1 slot)
2 = 360W Single O/P (2 slot)
3 = 750W Single O/P (3 slot)
5 = 1500W Single O/P (slot 4)
4 = 144W Dual O/P (1 slot)
HUP = Extra 30mS Hold-up (1 slot)

Voltage Codes:
See *Output Module Voltage/Current* table above

Option Codes:
0 = Standard
1 = Module Enable
2 = Constant Current
3 - 9 = Future

Case Option Codes
First Digit
0 - 9 = Parallel Code
(See Parallel Codes table above)

Second Digit
0 = No Options
1 = Reverse Air
2 = Not Used
3 = Global Enable
4 = Fan Off w/Inhibit
5 = Opt 1 + Opt 3
6 = Opt 1 + Opt 4
7 = Opt 3 + Opt 4
8 = Opt 1 +3 +4
9 = Future

Factory Assigned for Modified Standards

Figure 7-12 File names for Test Script is base on above configuration.

File name was base in the complete configuration setup below.

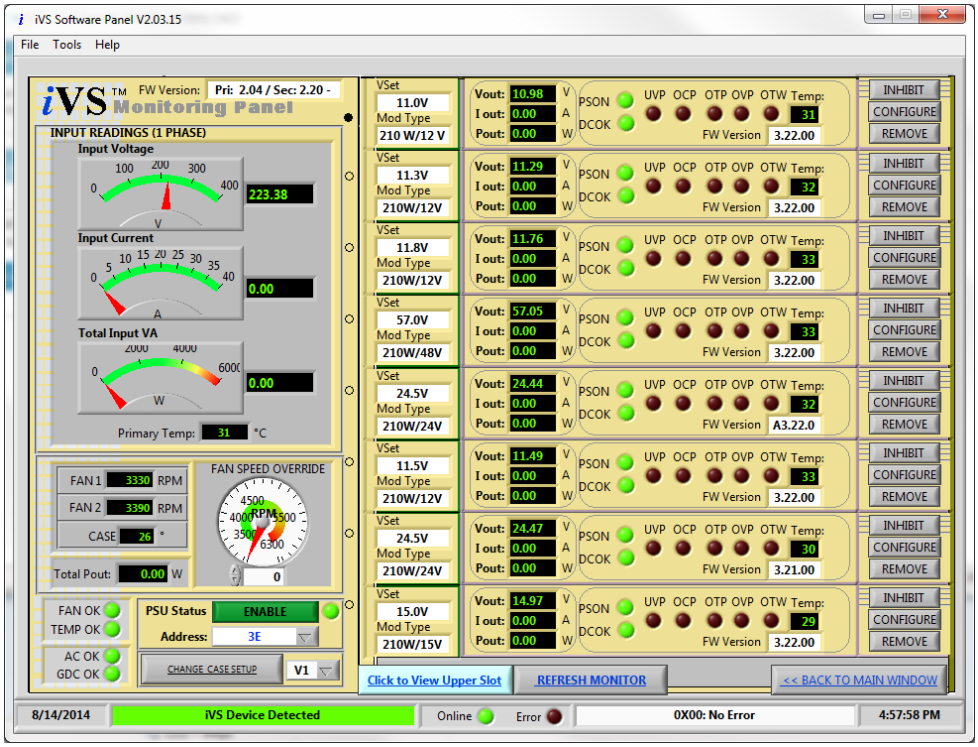


Figure 7-13 This is the complete setup for iVS Configuration at simulation mode following the RULES for adding modules into PSU.

7.9 Load Configuration from File

This function in Simulation mode will only be useful for viewing PSU configuration being saved from the original power supply or new configuration created at this mode.

Details of Load Configuration to actual PSU will be discussed in the ***Section 8***.

8 UPDATING iVS CONFIGURATION FILE TO PSU

All information from the PSU can be stored as a file and can be retrieved after sometime when it is needed. Using "Save Configuration" from files menu, current setup of the PSU can be saved and stored as a file.

The user can also make a setup even without the actual power supply. This operation can be done in SIMULATION Mode. The actual setup can be also view in monitoring panel. It will serve as a virtual setup as preparation for incoming iVS Power Supply Unit.

Reminder:
Make sure that the power range of module connected in the module slots are the same power range from the configuration file. The program will automatically detect your setup if is applicable or not. PSU Loading will not proceed if modules setup in PSU Case are not same setup in the configuration file.

8.1 PSU Update Procedure:

8.1.1 Step1: PSU Load Configuration Menu

Go to Menu then select Update PSU Config to proceed in Load Configuration Panel.

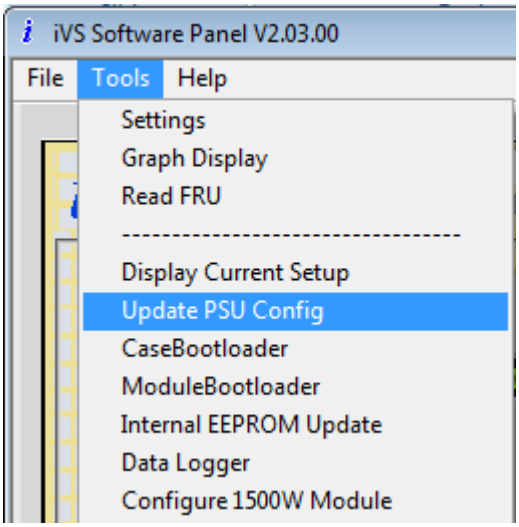


Figure 8-1 This is the Tool Menu option, select Update PSU Config to proceed.

Once "**Update PSU Config**" was selected from the Tools Menu, a new window will appear. Same as the figure 8.2

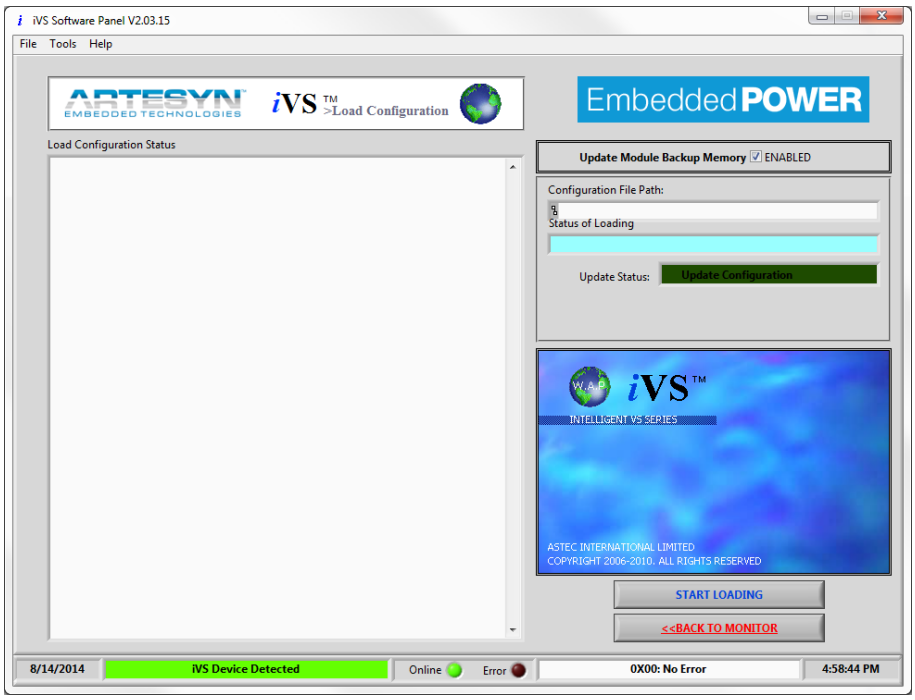


Figure 8-2 This is the Load Configuration Window.

This panel contains the following section:

1. **Update Module Backup Memory:**
   This is use to enable backup memory update after module configuration. It will allow you to save the default setting into the backup memory location (Password Protected).

2. **Configuration File Path:**
   It indicated the current directory of the load configuration file being loaded. These also include the file name of the load configuration.

3. **Status of Loading:**
   This section indicated the activity being done by configuration during update operation.

4. **Update Status:**
   Indicated if update being done was successful or not.

5. **Load Configuration Status:**
   This section logs every sequence and update being done by the GUI during auto configuration.

6. **START LOADING:**
   This is use to initiate to start Auto Configuration.

8.1.2 Step 2: Load Configuration File

Load the Configuration file through file Menu. Make sure to load the configuration file base on your current setup of PSU case and Module.

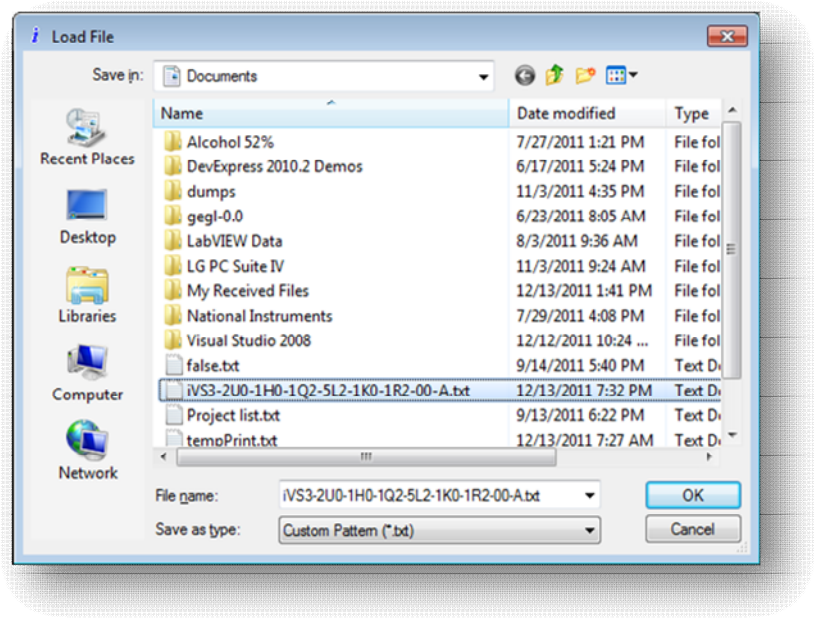


Figure 8-3 Load the corresponding PSU Configuration to GUI.

If the loading file configuration already loaded into the GUI, you will see the message in the load configuration status that "**Load Configuration already load to PC Memory**", see figure 8-4.

If file doesn't match the actual configuration you see the error details.

Make sure to follow the reminder before proceeding in PSU Load Configuration.
If Configuration file is different from the actual setup of the IVS PSU, you cannot load the file to the PSU.

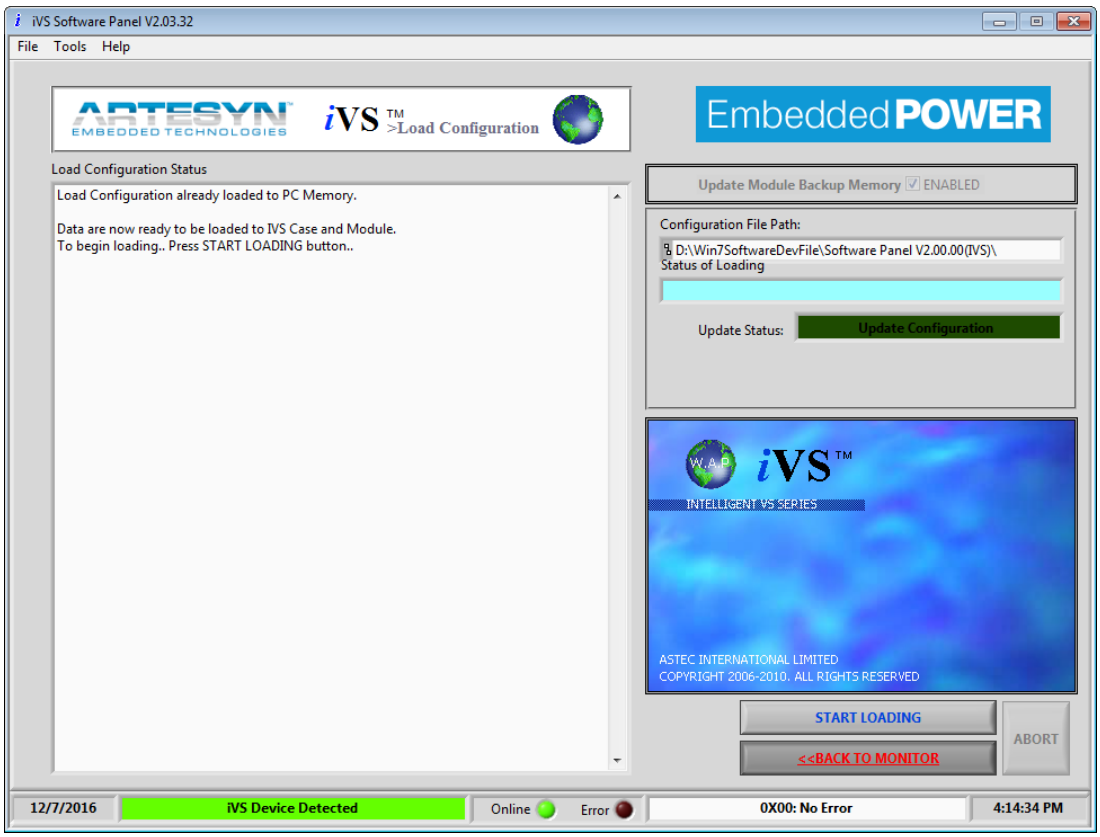


Figure 8-4 Once configuration file setup already loaded into PC Memory, it is now read to be loaded in actual IVS Case and Module.

8.1.3 Step 3: Start Loading

You can start loading the configuration file to the PSU by pressing "START LOADING" button.

Figure 8-5 Press "START LOADING" button to begin Loading the configuration file to PSU.

8.1.4 Step 4: Wait until update completed

Click OK once update completed.

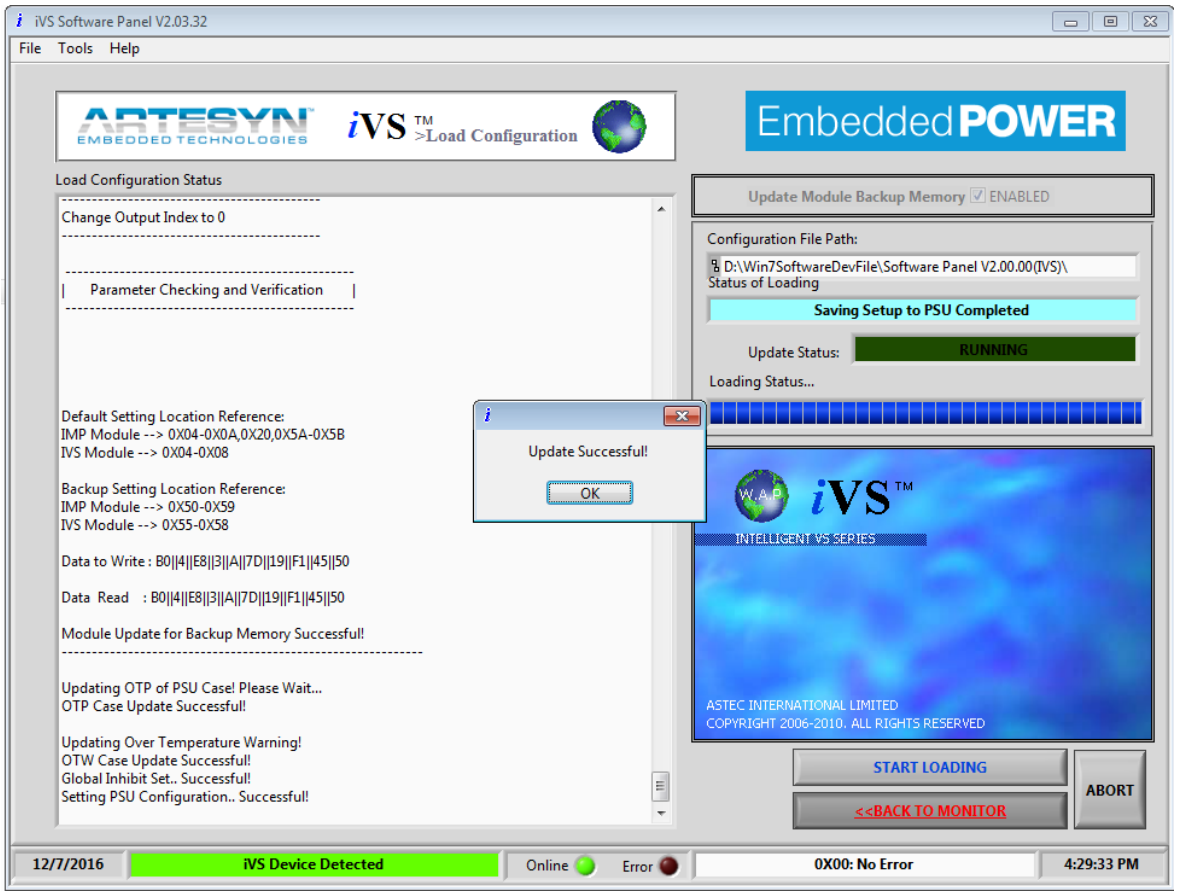


Figure 8-6 Load the corresponding PSU Configuration to GUI.

If update successful, it will ask the user's to reset power supply.

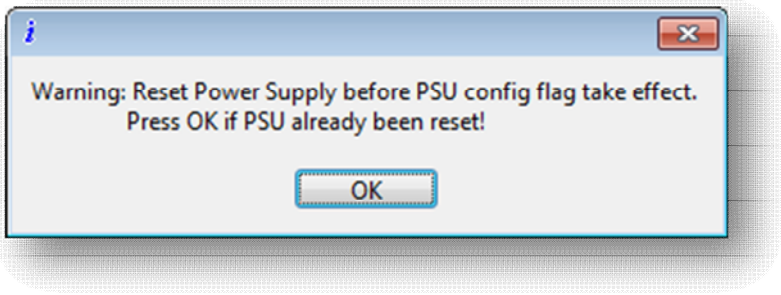


Figure 8-7 Reset the PSU and make sure that the AC Supply is properly restored before pressing the OK Button.

8.1.5 Step 5: Choose File Directory and Enter Top Assembly Serial Number

After PSU Configuration completed (pass or fail) it will ask the user to save the configuration report to file. Select directory you preferred to save the file and enter Top Assembly Serial number as your file name.

Note: No needs to add any additional name just enter the top assembly serial number and the GUI will automatically include the PSU part number and date into its filename.

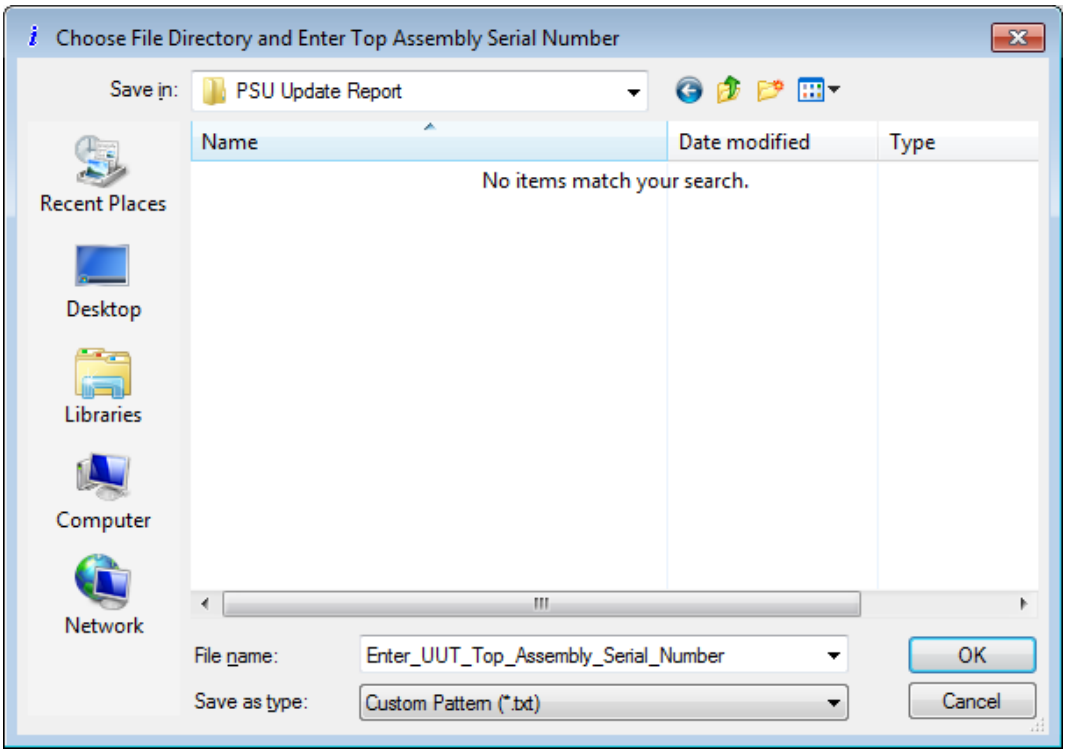


Figure 8-8 Enter Top Serial number as PSU Update Report filename.

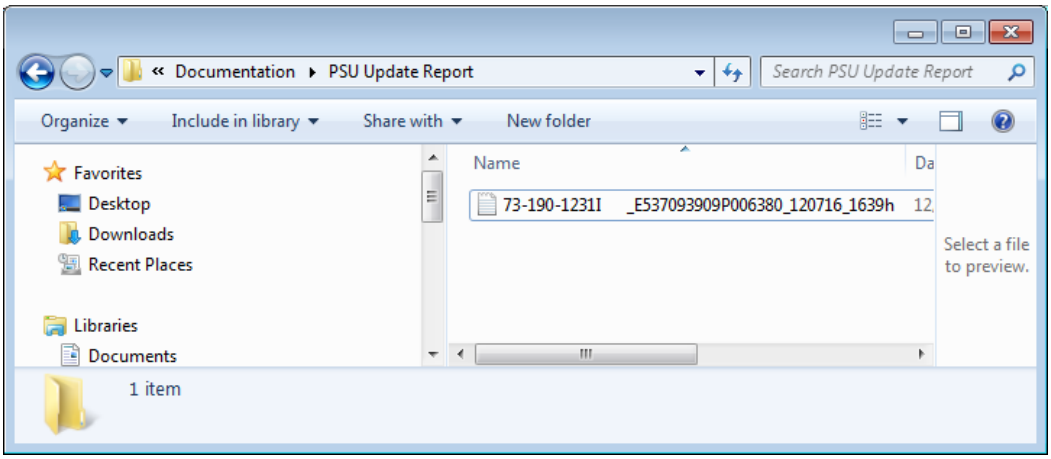


Figure 8-9 Once the user entered the serial number, GUI will automatically generate filename. Finame format: Partnumber_TopAssemblySerialNumber_Date_Time

8.1.6 Step 6: Wait for the GUI to automatically refresh Monitoring

Once update completed, the GUI will automatically refresh monitor. If update fails it will stay in PSU Update configuration window. Click start loading button to restart PSU update. If failure still occurred check the PSU Setup.

If update successful, you can see status window same as figure below.

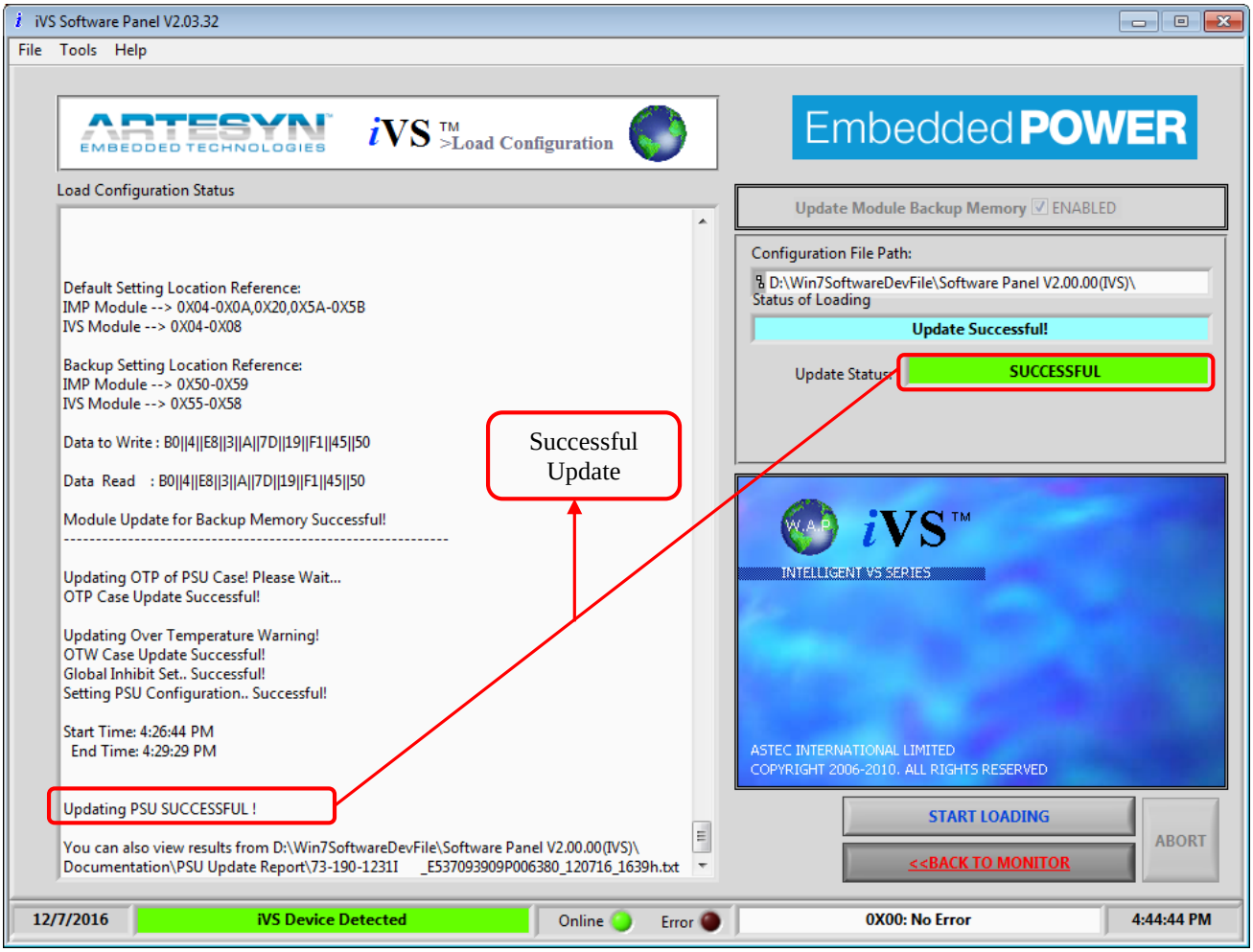


Figure 8-10 Successful status update after PSU update completed.

Make sure to follow Step 1 to 5 for Loading PSU Configuration.

9 TROUBLESHOOTING GUIDE

9.1 Errors and Solutions

9.1.1 Error: The Application failed to initialize properly.

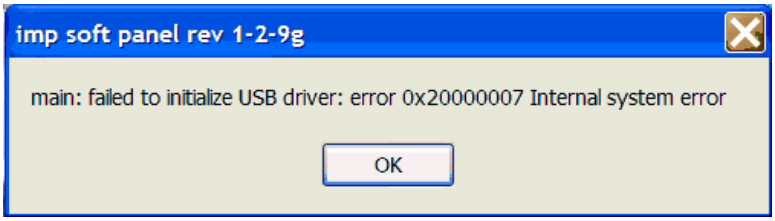


Figure 9-1 This is the error shows when USB Adapter not found (patterned in IVS GUI).

Solution: Make Sure to install USB adapter. This driver was included in the GUI Installer CD. Once the installations become successful, start running the program again.

9.1.2 USB Hardware Not Detected… Please set it manually!

Figure 9-1 This is the error displays if the program does not detect USB Adapter.

Solution 1: Check if USB Adapter is connected to the USB port of your computer. Connect USB cable from USB Port to USB Adapter. Make sure to connect the other connecting cable of the USB adapter to I2C port of the power supply to avoid another error message.

Solution 2: If USB Adapter is first time to be connected in the corresponding USB port, make sure that system has already detected the USB adapter as "Human Device Interface".

Desired Result:

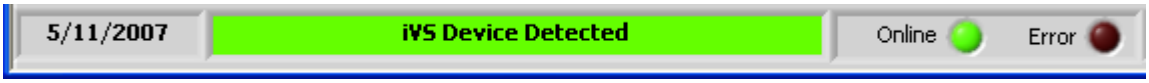


Figure 9-2 Result after the USB Adapter is being connected to the PC through the I2C Port of the PSU.

9.1.3 Communication Disabled

Figure 9-3 This is the error display if "Continuous Reading" switch is set to OFF.

Solution 1: Set the Continuous Reading switch to ON then Communication message will change to "Communication On-going".

Refer to figure below.

Figure 9-4 Set "Continuous Reading" switch to ON to set the communication to enabled status.

Desired result:

Figure 9-5 Desired result after the USB Continuous Reading switch is set to ON.

9.1.4 iVS Device Not Detected

Figure 9-5 this is the error display is USB adapter is not connected to the I2C Port of the Power supply but connected to PC only.

Solution 1: Connect the other connecting cable of the USB adapter to I2C port of the power supply. Desired result: Refer to Figure 5-2.

9.1.5 Monitor Screen is displaying scramble setup

This screen problem occurred because some computers are using screen setup.

Solution 1 for Win 2000: Go to your desktop then right click to your mouse, select properties then Appearance. Make sure to set the Scheme to "Window Standard" and Item should be set to "Desktop" and the default color should be blue.

Select Tab to Settings then make sure that your screen area is set to "1024 x 768 pixels". If already set, click on "Advanced…" button then set your font size to "Small Fonts". (Normal size = 96 DPI).

Solution 2 for Win XP: Go to your desktop then right click to your mouse, select properties then Appearance. Make sure to set the Windows and buttons to "Window XP style" and Color scheme should be set to "Default (blue)" and the Font size should be Normal.

Select Tab to Settings then make sure that your screen resolution is set to "1024 x 768 pixels". If already set, click on "Advanced" button and set the DPI setting to "Normal size (96 DPI)". Click "OK" to save all settings for your display setup.

9.1.6 Error Occurs

This Error occurred because of the frequency Setting. If frequency is to fast, iVS Case sometime did not reply on I2C Query. This causes the GUI to display some error.

Solution 1: You could change the frequency setting in Device Setup. Go to Tools menu then select settings and change frequency setting. Minimum frequency settings can be set to 50Khz.

9.1.7 Bootloading Error:

ERROR: VERSION NOT SUPPORTED
This occurs when loading incorrect file.

It is cause by incorrect bootloader version. Bootloader Version is located in address 0x2001 and 0x2002.

8192	1FFF	1F7E
8193	2000	0070
8194	2001	0001
8195	2002	0002
8196	2003	0054

Solution: Update firmware through the use of Mplab. GUI does not support incompatible bootloader version.

Error: Invalid Hex File!
Incorrect Data Configuration!
Use MPlab to update firmware.

This occurs when loading incorrect file.

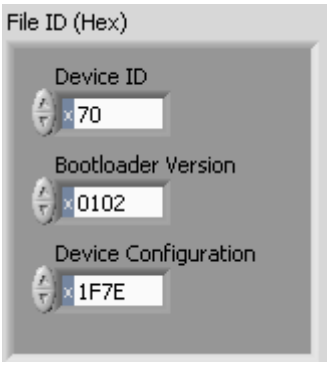


Figure 9-6 Device Setup for bootloading operation.

It is cause by incorrect device configuration. Configuration address is located in 0x1FFF.

Solution: Update firmware through the use of Mplab. GUI does not support incompatible data configuration.

9.1.8 PC hang after Change uC Address of the PSU.

This problem when the changing address in the GUI and in the PSU while there are connected.

Solution: Make sure that the GUI was not in continuous polling state before changing the address of PSU. If PSU address already been change, go to settings then change the address then goes back to original state. Now you can start using the GUI again.

9.1.9 PSU Case was hanged and remain in Bootloader mode

These happen when unsuccessful firmware update and accidentally close the GUI.

Solution: Connect the PSU for PC and launched the GUI. IVS Software Panel will automatically detect if is in bootloader mode or not. If the PSU has been detected in bootloader then you will see the user prompt like the figure below.