
Clearing and Re-setting the System settings of the SmarT-Trigger4 system

Technical note 26th July 2014

In recent weeks it has been observed that some systems settings have become corrupted aboard the vessels and erratic or problematic channel operation has resulted.

Beforehand however it is important to understand some information regarding the master channel within the Smart-Trigger interface unit, the master channel performs multiple functions.

- 1 All serial communications with the PC control program.
- 2 Master and Slave channel settings storage and saving to EEPROM and passing these settings on to each of the four slave channels , and reporting their channel status back to PC control program.
- 3 All on line timing of external triggers and calculation of next expected trigger and Inhibit turn on time prior to the next expected trigger. These calculations are done on every trigger or every two three four or five triggers (averaged).

The logic of the system is such that there is no switch (software or otherwise) to turn off the external triggering from the navigation system , as soon as a TTL pulse or closure arrives at the master channel external trigger inputs , the system immediately begins to act as if the unit is on line and recording has started , it was thought that a software switch may have been forgotten prior to the start of each and every survey line , and so the system is primed for action as soon as its set up by the PC control program or (automatically) from its own interface unit stored settings , and so as soon as the interface unit is up and running and external triggers arrive at the unit , the system begins timing these triggers and controlling inhibit on and off for the slave channels immediately.

As the functions of reading saving storing settings between the PC and master channel involve intensive internal data bus and external serial activity, these multiple activities are not conducive to concurrent accurate timing operations, or indeed to accurate settings values saving or reading, so for example when the box is booting up or trying to do one of these operations listed above, and triggers are coming in, this occurrence will lead to trouble the way the system is currently configured.

Its proposed to prevent these scenarios from occurring in firmware 4:104 to compliment the new PC software 4:104 (but for now please heed the warnings) Ver 4:104 is currently delivered to the galaxy , and now available for download from the web site. (<http://rovtec-systems.com/software-downloads/> then click on [Trigger_Ver4104](#))

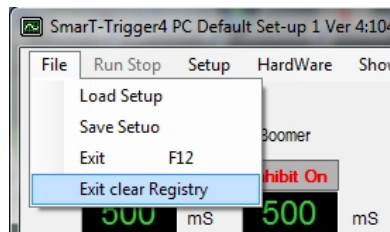
Some of the problems experienced aboard the Galaxy were to do with corrupted settings as on other vessels, when these were cleared and the system was brought back to using clean default settings, the problems were resolved (some channels not outputting pulses etc) but more importantly the settings on the screen were the same as were currently loaded in the Interface unit.

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To completely clear the systems settings there are two operations.

1 Clear the PC registry settings.

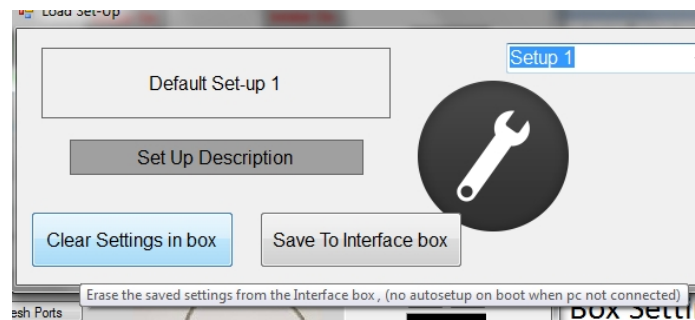


Select the Menu command “Exit clear registry” option, and confirm the desire to clear the registry and exit the program.

On re-starting the program it is only necessary to input the serial comports number in use, and the system will boot with default settings. These new settings will be stored to the windows Registry.

2 Clear the Interface unit stored settings.

The Menu “Load Setup” and press the “Clear Settings in Box” button to clear the box settings



(if they have been saved previously) and after several seconds a message will appear in the status panel on the main control window saying all EEprom settings have been cleared .. Power down and up the interface unit and the next time the PC Program runs it will install the newly installed PC default settings to the box.

This completes the clearing of the system settings.

Next section will detail how to install new setting as default to the interface unit.

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Setting new default settings to the Interface unit

Using the latest PC software (Ver 4:104) to set the channels to their desired settings and after sending these settings to the Interface unit , then press the “Save to Interface box” button in the Menu “Load Setup” control as shown on the previous page , power down the box and stop the PC program.

Power up the box and it should go through the following sequence all LED’s showing from left to right Ch1 “EXTRA” Led on, Ch 2 “INHIBIT” Led on, Ch3 “FIRE” Led on, Ch4 “EXT” Led on.

Then all the EXTRA Led’s should flash for about four seconds and after that time ch1-4 should automatically set themselves to the newly saved box settings. The new settings are now default and will be automatically installed and used whenever the box is powered up with no PC program running,

The sequence of LED’s after power up of the box when the settings have been cleared should show exactly as before.....from left to right
Ch1 “EXTRA” Led on, Ch 2 “INHIBIT” Led on, Ch3 “FIRE” Led on, Ch4 “EXT” Led on. Followed by

Flashing EXTRA LEDS forever, or until the PC program boots and the current PC settings will be quickly loaded into the box and the control program should have the status message
“Box fully setup “ The box is now operating with the PC settings that are stored in the Windows registry. This method of operation requires the PC to setup the box each time it powers up and means that only the PC stored settings will ever be used in the box. This method is recommended where the slave channel settings are changing minute to minute , and you wish to ensure the settings in the box are always the same as those on the PC screen, the other pre saved box settings method is fine for when the channel settings are not changing much at all, and you can safely assume the PC and box are the same each time the PC program is booted after the box has auto set itself up.

If you wish to run the box with the pre saved box settings simply power up the box without the pc software running , and the box will “auto-set” up after four seconds you can start the PC program later and accept the message box that tells you that the box is already setup , Press “YES” and the PC will assume the PC settings are the same as those stored in the box , if however you are not sure then press “NO” and the entire settings from the box will be read back into the PC , and these will now become the PC and the Windows Registry default settings once the PC program is shut down,

A warning is needed here, for the reasons described on page1 only press “NO” if you are sure there are no external triggers present at the master channel at this time. (This warning has been added to all the relevant message boxes in PC software Ver 4:104)

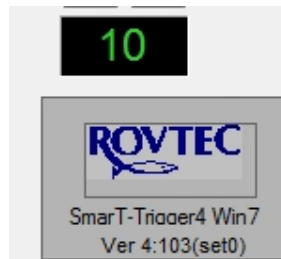
This completes the setting of new settings as default to the system

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Overview of the storage of Settings with SmarT-Trigger

To confirm if the interface box has a set up saved internally ,either power the unit up without the PC program running and wait four seconds , if there is one it will auto load after this time , or alternatively while the PC is running , the box should have indicated its setup number (if any) along with the firmware version number , The current firmware version number is located on the main program control screen just below the Rovtec systems logo the number indicates the particular number of any PC setup that was saved to the box previously (Set 1 to Set 4) The image below shows a cleared box , (Set 0) indicates no setup loaded and the interface unit should flash the extra LED's continuously following power up indicating it is waiting for a Setup to be sent from the PC control program.



The Windows Registry is capable and programmed to store up to four completely separate sets of four slave channel settings, these can all have names for particular vessel needs different sites different jobs etc, different use of the slave channels from job to Job and each one has a setting number 1 to 4 and this number is stored in the Registry and whenever the PC program loads it looks for this number and then loads either setting number 1 , 2 ,3 or 4 .

Whenever the user saves the current PC setup to the Interface box , the set up number (1-4) is also stored so that when the user selects a different PC setup to use, the system will know that for example the box may have auto set up to use a previously downloaded and saved setting number 3 but the PC for example could be now using PC setup 4 and in these instances the system strives to achieve the all important goal of ensuring the settings on the screen reflect accurately those that are actually loaded in the box. , Hence from time to time the user may see a message box saying the box is already setup and one of two scenarios can occur ,

Scenario one is simple and straight forward there is an outright setting number difference
(Box and PC have different setup numbers as default)

Question is straight forward which one should the system use the PC or BOX... ? User decides.

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Scenario two is more complex, the box is already setup and has same setting as PC or it could have no default set up at all, but it is currently fully set up and running, so the question is are the PC settings the same as the box? it can happen from time to time, minor PC settings changes may not have been saved when the PC program exited previously, This can occur if the user shuts the program down with the control box on the window, the system will always attempt to save windows registry settings on program exit but depending on the vagaries of a busy PC windows operating system, it may not actually achieve a full windows registry write on a rapid program shut down. See below to cure this problem.

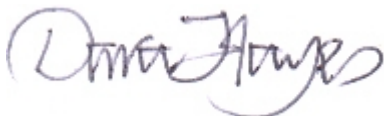
This second scenario is assuming that the box has most likely been set up by the PC recently, but the PC software has been shut down and re booted and the system needs to confirm if the settings are the same, as if minor changes were made to the PC settings these would most likely have been saved to the PC registry, but the box could have been powered down and auto setup once more between the time the PC program stopped and booting again, and if these new changes to the set up were not saved to the box, and now there will be a "bust" between actual current box and current PC settings, so the user is asked to decide.....

Accept the box settings as being fully correct as being the same as the PC, (YES do nothing) or NO read all the settings back from the Box and re sync the current PC settings with the box.

In order to fully ensure all minor setting changes made during a PC control program session are saved to the Registry before the exiting of the Program, the user should select Menu command "SAVE SETUP" and simply press OK in the input box that asks for the name of the current setup. Then press Exit Program, if this procedure has been followed then each time one sees the message box asking what to do, then the user can have full and complete confidence in pressing YES to accept the settings are the same in the box as those that are currently displayed on the PC control Program. Exiting the program normally by menu command Exit will always save the settings and any changes to the Windows Registry, however when one uses the windows control box to rapidly shut down the program a busy windows operating system may not get to write all the changes to the registry and this could be another reason for a possible "bust" between the Box and PC settings.

As with all the saving storage and reloading of settings, the goal is to ensure the PC control screen always displays what's inside the Interface unit at all times. If there is any cause for doubt the user has the opportunity to read back the settings currently in the box and so sync the PC and Box.

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