

User Manual
Envi CPT logger G1, C1 & CS1
Version: R1D ENG
Date: 2013-01-17

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Introduction

Envi logger G1, C1 & CS1 are PC based logger systems where all data is saved in a database installed on the PC. Data from rig sensors are stored as raw values. If original data is analogue it is sampled/digitalized before being stored. Data is stored continuously after START has been pressed until STOP is pressed. This results in a very robust data collection mechanism where data can be retrieved for a sounding at any time after the sounding has been executed.

Digital data from depth transducer and inductive transducer is transferred on a CAN bus to the logger. This makes data transfer very secure and insensitive to noise; quite a lot better than in a traditional analogue system.

You can specify what parameters to view during the sounding and also what parameters to include in the files you create. Parameters you view can differ from what you include in the file.

File formats allowed this far is SGF/STD format and a simple tab separated format suitable for import to Excel. (More formats may be added on request).

Settings made by the user are remembered by the system and used next time the system is used.

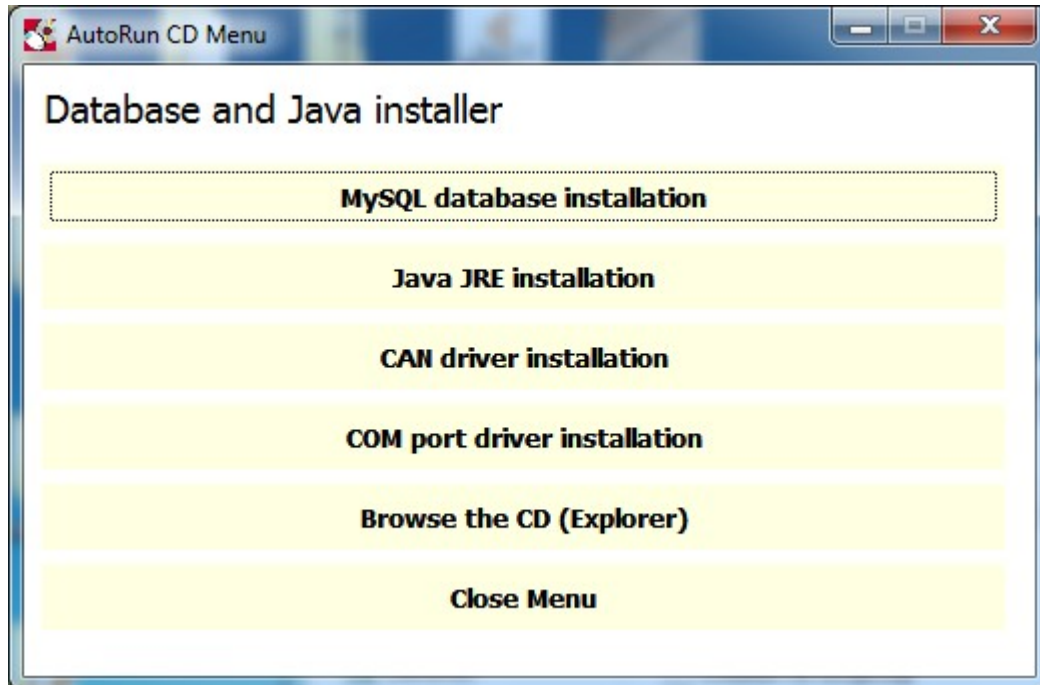
The system consists of two program modules:

- | | |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EnviPackage | The foundation software that handles transducer data collection and database interaction is started automatically when you start the application and is visible as a Windows tray icon |
| CptApplication | The application you start when you want to work with CPT or SPT |

First start the hardware by applying power to the C1 logger box. Start the CPT application by double clicking the icon called CptApplication.

Installing the software

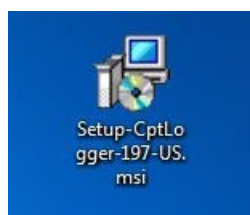
You will have received the installer for the database and drivers either on a USB memory stick or CD or as a downloaded zipped folder. Extract all files to a folder “installDB” that you place on your computer desktop. To install this software run the AUTORUN.EXE file which is in installDB folder. You will then get this pop up window:



Follow these steps to install this software:

1. Install the database by pressing first tab, “MySQL database installation”.
2. Install java runtime environment (JRE) if not already installed on the PC. Nothing bad happens if you try to install this despite it is already installed. Press second tab “java JRE installation” to install JRE. If you get a pop-up saying that there is a newer JRE version installed on the PC you can abort this installation
3. Install the CAN driver software by pressing tab marked “CAN driver installation”
4. Install COM port driver by pressing tab “COM port driver installation”. This driver installation sometimes behaves a bit strange (it is commercial software so not much we can do about it) and no DOS window is popped up. To ensure installation if no DOS window pops up please press the tab again
5. When done you can close the menu by pressing “Close Menu” tab

Now database and drivers have been installed and the application shall be installed. This is done by running (double click) the Setup-CptLogger-<Version number>-<Language>.msi.



Please note that you will probably be prompted if network access shall be granted one or several times during installation. It is then essential that you grant network access. Otherwise the system will not run.

Starting the system

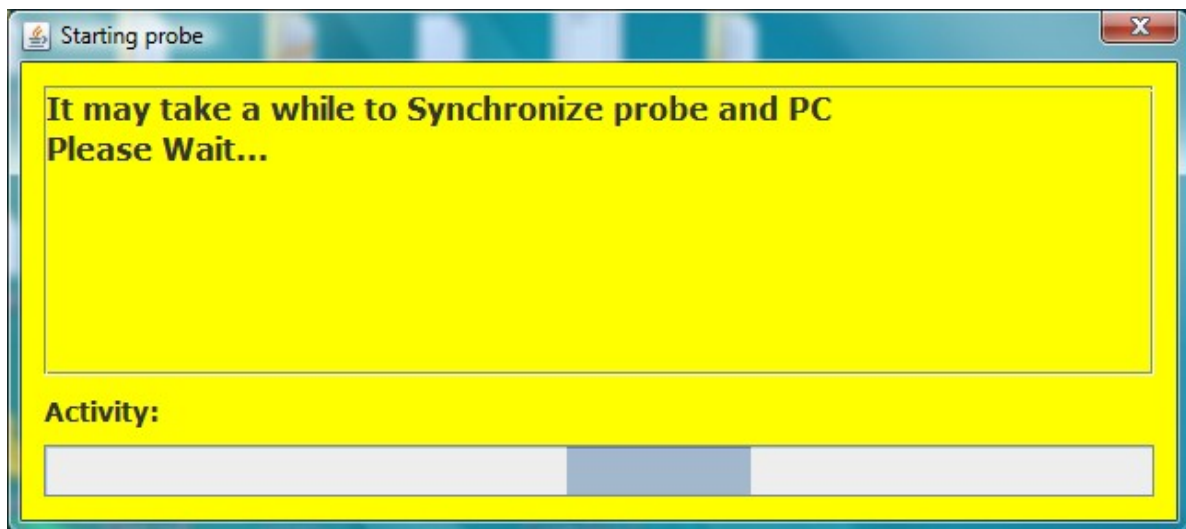
After installation an icon called CPTapplication is placed on your desktop. The application is started by double clicking that icon.



When you start the application the enviPackage will be automatically started prior to the application and an icon will appear in the Windows system tray.



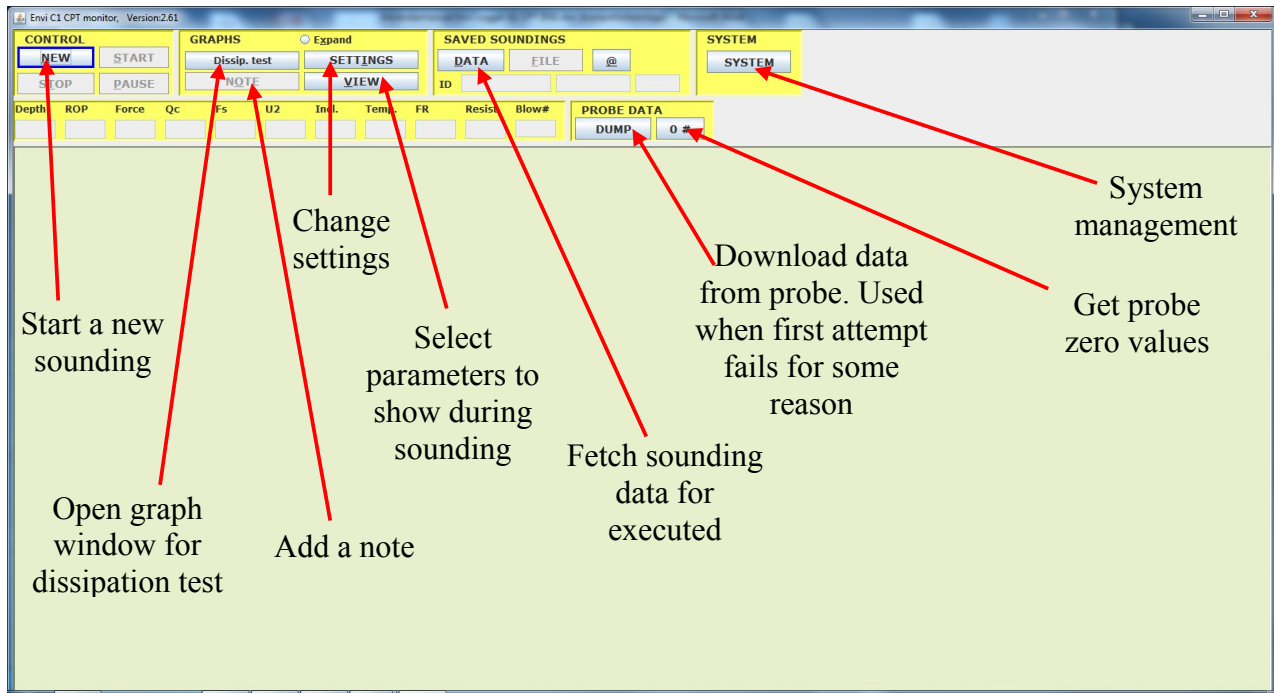
When you start the system all processes are started and the application and database are synchronized etc. This may take some time and you will have a wait dialog that will be showing until this has been accomplished:



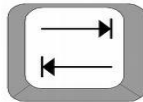
As soon as the synchronization is finished the wait dialog is closed and the main window opens. Any problem/failure will be reported through pop-up-windows. There are several such pop-up windows; below is one example that will appear when the PC can not connect to the gateway box or C1 logger (called gateway box in this dialog).



The main window looks like this:



Please note that the leftmost button has a blue frame. This is since this button currently has focus and will be pushed if you have a keyboard and press Return or Space depending on your computer setup. To change button focus you use the TAB key (see below).



When you press this key focus will move from one button to another in a predefined manner. After pushing it enough times you will have passed all focusable objects and you are back to having focus on the NEW button.

There are also keyboard commands for pressing almost all buttons. One letter in the name of each button is underlined. The underlined character is the keyboard command key for pressing it. To use the keyboard command you press ALT + <the underlined character>. So to press the NEW button using keyboard commands you press ALT+N.

This is a complete list of available keyboard commands in main window:

NEW	ALT+N
START	ALT+S
PAUSE	ALT+P
STOP	ALT+T
SETTINGS	ALT+I
VIEW	ALT+V
NOTE	ALT+O
DATA	ALT+D
FILE	ALT+F

Some buttons are gray showing that they are disabled. What buttons are disabled and enabled varies depending on what state the application is in. Initially the buttons for START, STOP, PAUSE and FILE are gray/disabled since there is no active sounding.

You have two main options for continuing at this stage:

1. Start a new sounding to record data for
2. Get sounding data from database

In addition to the two main choices you may also alter SETTINGS. You can define many different settings to make the system personalized for your needs. More detailed descriptions of settings are found in later chapters.

The NOTE button is initially enabled but has no function at this stage.

Initialize a new sounding

If you press NEW a dialog window appears (see below). You must enter both a project ID, a Sounding ID and a method in order to be able to proceed. The system will then detect if the three parameters as a combination are unique. If not you will be requested to change name or approve to replace the old data.

The dialog window is titled 'Initialize a new sounding'. It contains the following fields and sections:

- IDENTIFIERS**: Project ID (Test 999), Sound. ID (Test3), Location, Company, Operator, Supervisor.
- METHOD**: CPT (selected, with a red arrow pointing to it and the text 'Method to use.').
- CLIENT**: Company, Contact person.
- ENVIRONMENTAL FACTORS**: Ground water table [cm], Barometric pressure [hPa], Temperature [C], predrill depth [cm].
- PROBE FACTORS**: CPT mode (A 0.68, B), Mode (Cable checked, Wireless), VINGSOUND (Diameter 65, Max Mom., Typ).
- COORDINATS**: X, Y, Z.
- Buttons: SAVE, CLEAR, ABORT.

All other fields are optional to use. As of now you must manually enter GPS coordinates if you want to include those.

Fields are automatically populated with the same data as was used for latest sounding next time you press NEW. After having changed the fields you need to change you press SAVE (Alt+S) and you will be back in the main window and the system is ready for start a new sounding.

If you choose method CPT the system will verify that a Memocone CPT probe is connected to the logger. If not you will be requested to connect one. When a Memocone is connected the C1/CS1 logger system and the Memocone will synchronize. This may take a while and a wait dialog will appear.

You must specify what type of Memocone you will use. The options are (see lower left corner in image above):

Wireless Select this when you use a Cordless Memory or a Cordless Acoustic Memocone. When this is selected the system will download both zero values after test and data from the Memocone after retraction

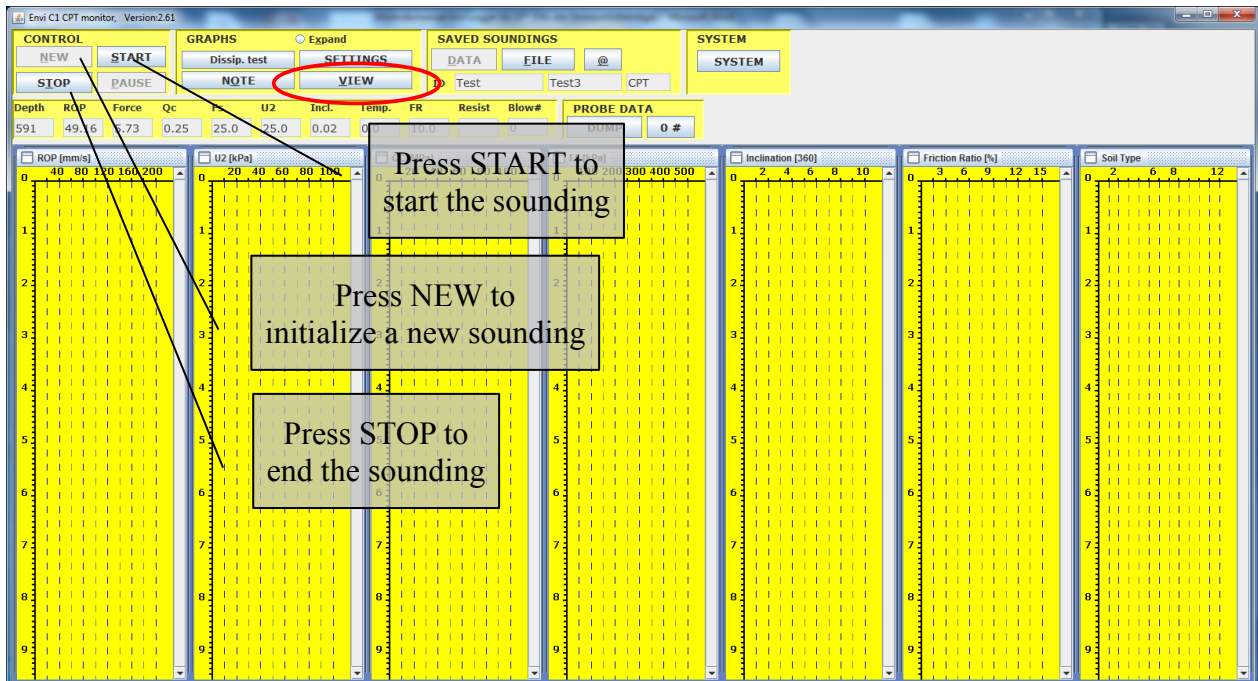
Cable Select this when you use a Corded Memocone. When this is selected the system will not download data is downloaded from the Memocone after retraction. The Memocone must however be connected to the logger again after test anyway since zero values after test shall be read

NB: The first time you use a method (e.g. CPT) you will be requested to define what parameters to view graphs for during the sounding after you have pressed the SAVE button. The SENSORS dialog (see page below) will pop up and ask you to define parameters to view. This selection will not have any impact on what parameters you can later include in the output file.

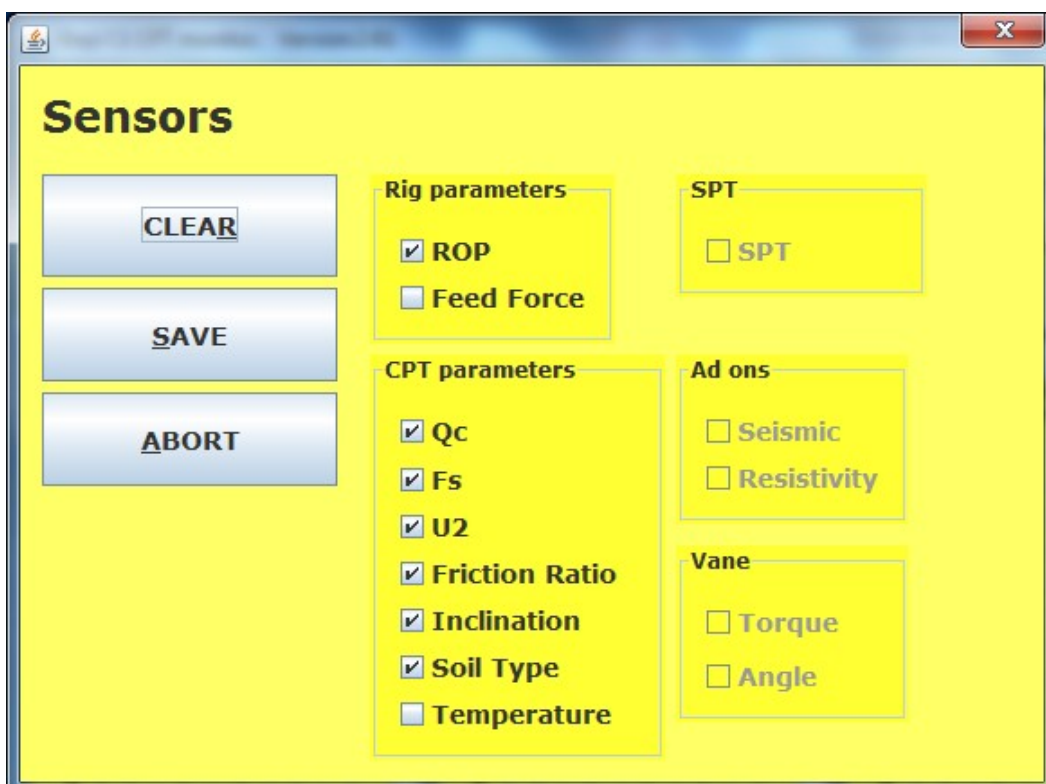
ABORT will take you back to the main window in the state you left it.

Starting and execute a sounding

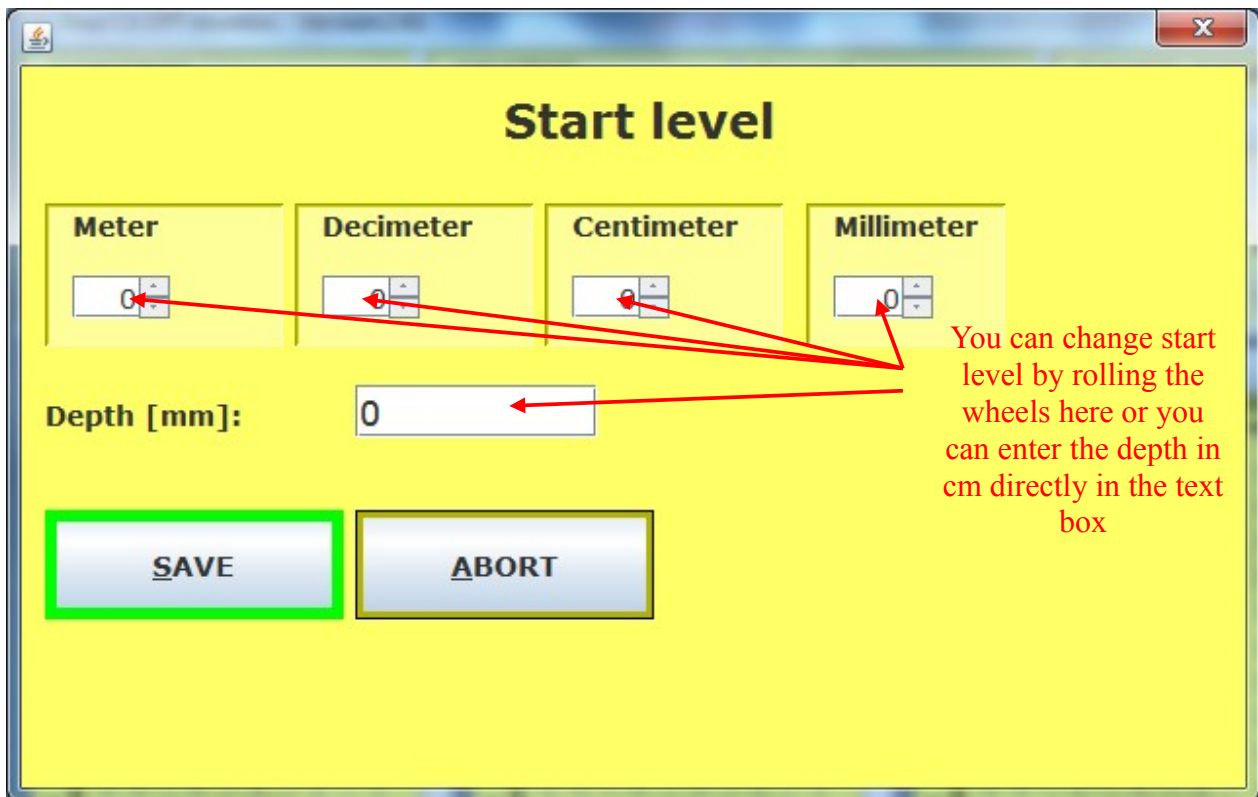
The System opens graph windows for the parameters specified for the method you use.



If you want to change what parameters to view you press VIEW button (see red ellipse in the picture above) and the below SENSOR pop-up window will appear and you can mark the check-boxes for the parameters you want to view. Only parameters for which you have a sensor will be selectable. Please note that the parameters you want to view are not the same as the parameters you want to output in a file. That is defined later and can differ from this selection. In order to be able to select the Soil Type parameter you must first define what classification method you want to use in the SETTINGS dialog (see chapter, Graph presentation settings).

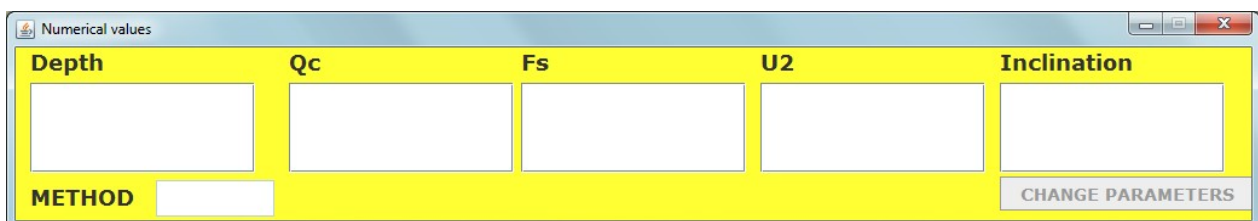


In order to start a sounding you first position the Memocone for start and then press START. You will then have a pop-up (see below) where you can set start depth for the sounding by scrolling value up and down with scroll wheels or enter an integer depth value in mm in the Depth text area. You save the start depth by pressing SAVE (keyboard command ALT+S). If you press ABORT no sounding will be started and you will return to the main window in the state you left it.

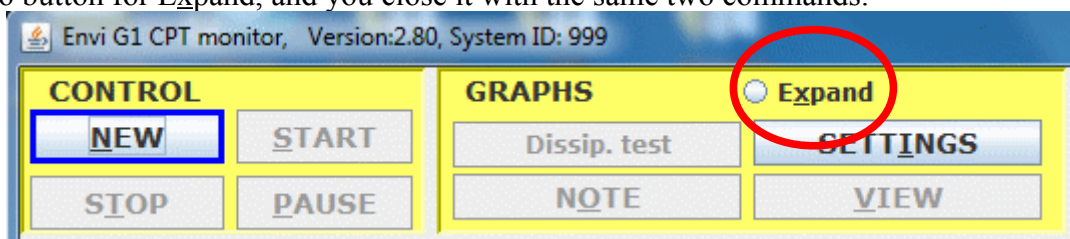


The system now starts to read and store sensor data. As soon as you have a change in depth graphs will start to be plotted. Measure values can also be seen in the different squares above and in graph window headers.

Open a new window with large parameter text



You can get large text for parameters in a separate window. You open it using ALT + X or checking the radio button for Expand, and you close it with the same two commands.



Notes

During the sounding you can add notes in your graphs. You press the NOTE button (see blue ellipse above). A dialog window will then appear allowing you to add notes according to your choice.

ADD NOTE

Depth [m]

Code

Your codes

New code of your own

Index	Text
<input type="text" value="4"/>	<input type="text"/>

NOTE

In the drop-down menu "Code" all SGF note codes and notes are available. The *Depth* text box will hold the value of the depth that was when you pressed the NOTE button. You can change the depth if you want to. You can also change the depth graphically in the plotted graphs later on if desired.

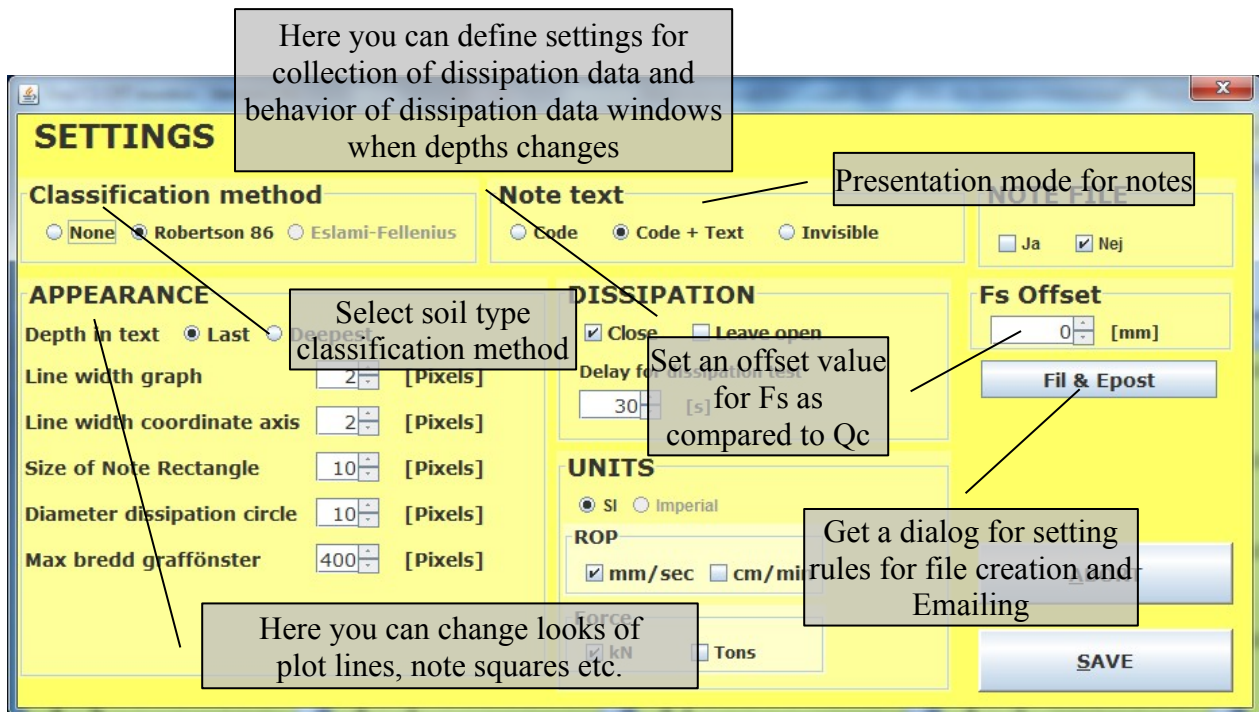
You can create your own codes by using the numbers not yet occupied by the SGF codes. All free codes can be found in the New Code panel. These personal codes will be remembered by the system. You can also add free text notes. Simply write whatever you like in the NOTE text box and it will be added to the sounding with note code "0".

When you have entered the note you want to add you press SAVE (Alt+S) to save it on the specified depth in measure data and close the NOTE dialog.

You can abort by pressing ABORT and no note will be added and the dialog closed.

Graph presentation settings

To change settings for graph drawing (like scaling of coordinate axes) you press the SETTINGS button in the GRAPHS panel in the main window.



To save your settings and close the GRAPH SETTINGS dialog you press SAVE (Alt+S). To abort and not save anything press ABORT (ALT+A). Some settings will change immediately and show in the graph drawing but they will not be stored and remembered until you press SAVE.

If you want the system to determine soil type based on Q_c and F_s according to Robertson Campanella 86 you select the "Robertson 86" radio button. To get no soil type classification you select None as classification method. Eslami-Fellenius classification will be added later.

The classification is reported as number from 1-12 for the different soil types:

1. Sensitive fine grained
2. Organic material
3. Clay
4. Silty clay to clay
5. Clayey silt to silty clay
6. Silty sand to sandy silt
7. Sand to silty sand
8. Sand
9. Gravely sand to sand
10. Very stiff fine grained*
11. Sand to clayey sand*

* Overconsolidated or cemented

Note can be presented in three different ways:

- As only a red square showing where the note has been posted. Select the slightly misleading Invisible radio button to get this presentation
- A red square + note code (according to SGF system). Select the Code radio button to get this presentation

- A red square + note code + note text. Select the Code + Text radio button to get this presentation

You can force the system to offset the Fs value so Fs measurement is on the exact same level as Qc, thus removing the existing physical offset between the two. There are different theories on how to calculate the offset between the two and it is up to you to select one. Envi has no preferences regarding this.

If you press File & Email the you will have a dialog for specifying settings for this.

Guidelines for creating file and send E-mail

☐ Create files automatically after each borehole ☐ Send files automatically

Your Email address

Your SMTP server Port

Enter the Email addresses to send to (one recipient per line)

ABORT **SAVE**

Mark this check box to get automatic file creation after each sounding

Mark this check box to get automatic file transfer by Email. You must also specify Email settings in the text boxes

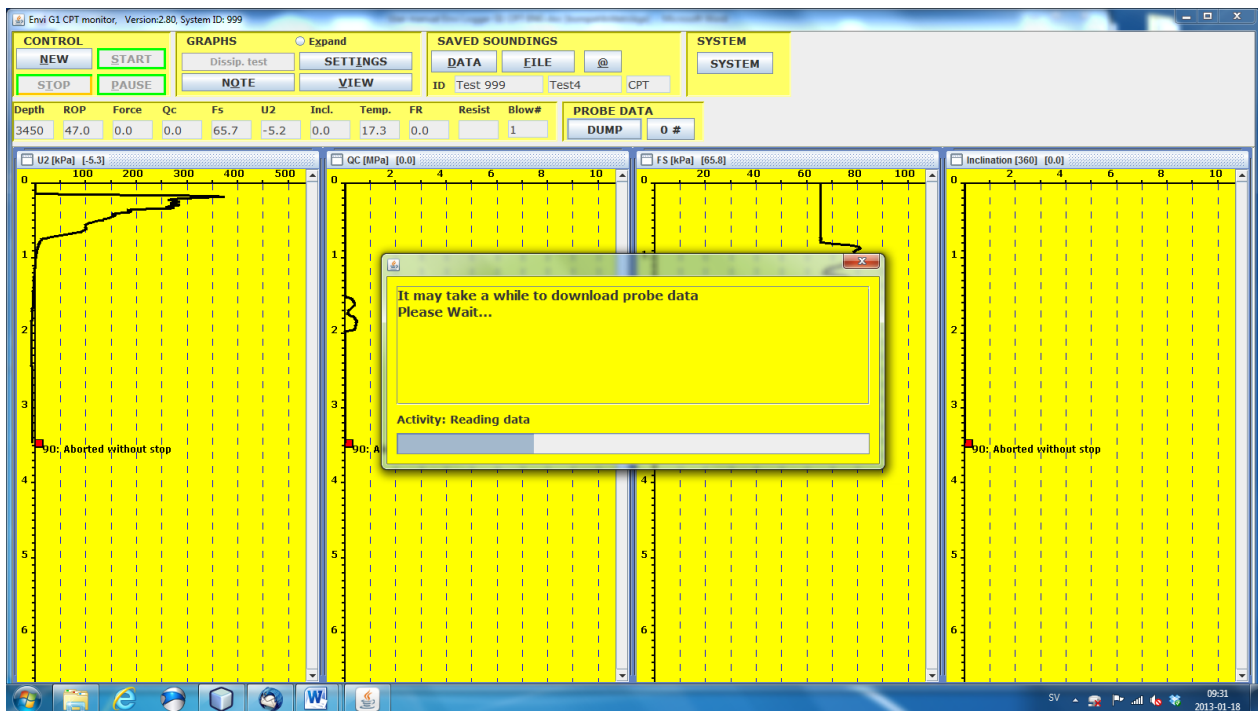
Email settings can be found in your mail client under Account settings.

<i>Your Email address</i>	specify your own Email address
<i>Your SMTP server</i>	Here you must specify the smtp server you use to send Emails. Typically such a server is called something like: "smtp.<Mail Provider>.com" or "smtp.<Your Domain>.com". You find it in you account settings
<i>Port</i>	This is typically 25 or 2525 or something. You find it in you account settings
<i>Email addresses to send to</i>	Here you specify Email addresses for all receivers of files. Email addresses are specified one address per line

After you are finished you press SAVE for the system to remember your settings. You then press SAVE also the the USER SETTINGS dialog that you are returned to.

Ending a sounding

You press STOP in the main window to end the sounding. If you use a wireless Memocone you will have a pop-up where you will be requested to reconnect the probe and press OK when done. So now you retract the probe and when you have it up on surface again you connect it to the logger. When that is done you press the OK button in the pop-up window. Data is now downloaded from Memocone to logger and you will see a wait dialog as per below.



When data is downloaded the wait dialog disappears. Sometimes the system warns that data for some depths is missing. This is generally not an issue since the system is a bit oversensitive to this, but you should be alert and study the graphs thoroughly. If there are parts of the graphs where data is 100% stable (not changing at all) you might have suffered from power failure in the Memocone. This in turn is generally caused by batteries with too little power left or by dirty connection areas in the Memocone. The Memocone uses the probe itself as ground in the electrical circuit. So it is vital that battery threads and connection area between Memocone and battery tube are clean. Moreover it is important that the brass screw on the battery plug is also clean.

Open and browse stored soundings

You press DATA button in the main window to open the dialog for selecting a sounding for which you want to browse data. The dialog now shown gives you the option to pick one of the latest 20 executed sounding (see blue ellipse below) or you can search/filter out the sounding you want to view by filtering from date and project ID (see red ellipse) and pressing respective button to the right. The soundings corresponding to your selection criteria will be available in the RETRIEVED SOUNDINGS drop down menu.

SELECT SOUNDING

RESET **ABORT**

SELECT DATE

FROM **TO**

Year Month Day Year Month Day

2,013 1 17 2,013 1 17

GET SOUNDINGS & PROJECTS

SELECT PROJECT

PROJECT

Not selected

GET SOUNDINGS

RETRIEVED SOUNDINGS **LATEST 20 SOUNDINGS**

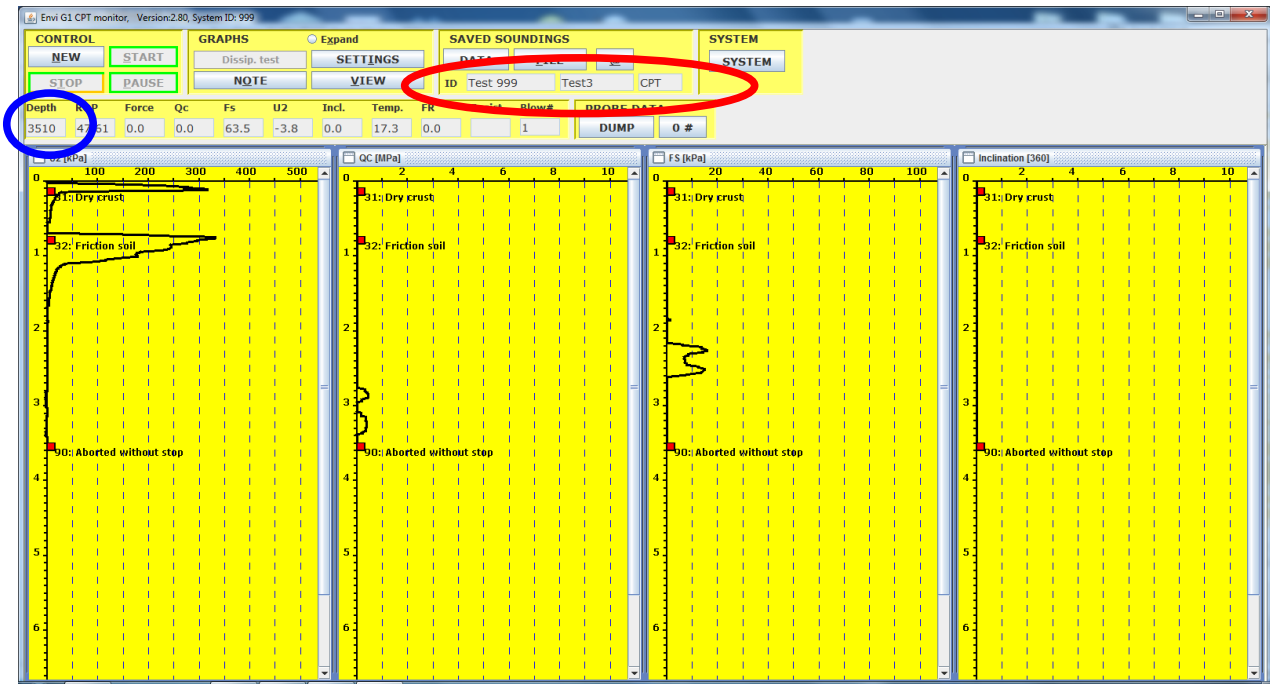
Not selected Not selected

OPEN

When you have found the sounding you want to browse in either retrieved soundings OR in latest 20 you select the sounding you want to browse and press OPEN SELECTED SOUNDING. The data for that sounding is then fetched from database and will be presented as graphs in the main window.

The final depth for the sounding you have fetched is presented in the Depth text box (see blue ellipse below). The name of the sounding (project id, sounding id and method) are all presented in the text boxes marked by the red ellipse below.

The graphs you have defined for the method will now be presented in the main window. You may now select to create a file or erase the sounding by pressing either FILE or ERASE button. You may of course also start a new sounding by pressing NEW or fetch data for another sounding by again pressing DATA



Create file

If you select FILE you will first be requested to specify the parameters you want to print in your file. These parameters are not the same as the parameters for viewing and will be remembered separately by the system. So the next time you want to create a file the system will suggest to output the same parameters as was last used.

Sensors

CLEAR

SAVE

ABORT

Rig parameters

☐ ROP

☐ Feed Force

CPT parameters

☒ Qc

☒ Fs

☒ U2

☐ Friction Ratio

☐ Inclination

☐ Soil Type

☐ Temperature

SPT

☐ SPT

Ad ons

☐ Seismic

☐ Resistivity

Vane

☐ Torque

☐ Angle

When you have selected the parameters you want to include in the file you are requested to select the type of file you want to create. Typically a TXT (Tab separated) file is used in non Nordic countries and SGF is used in Nordic countries.

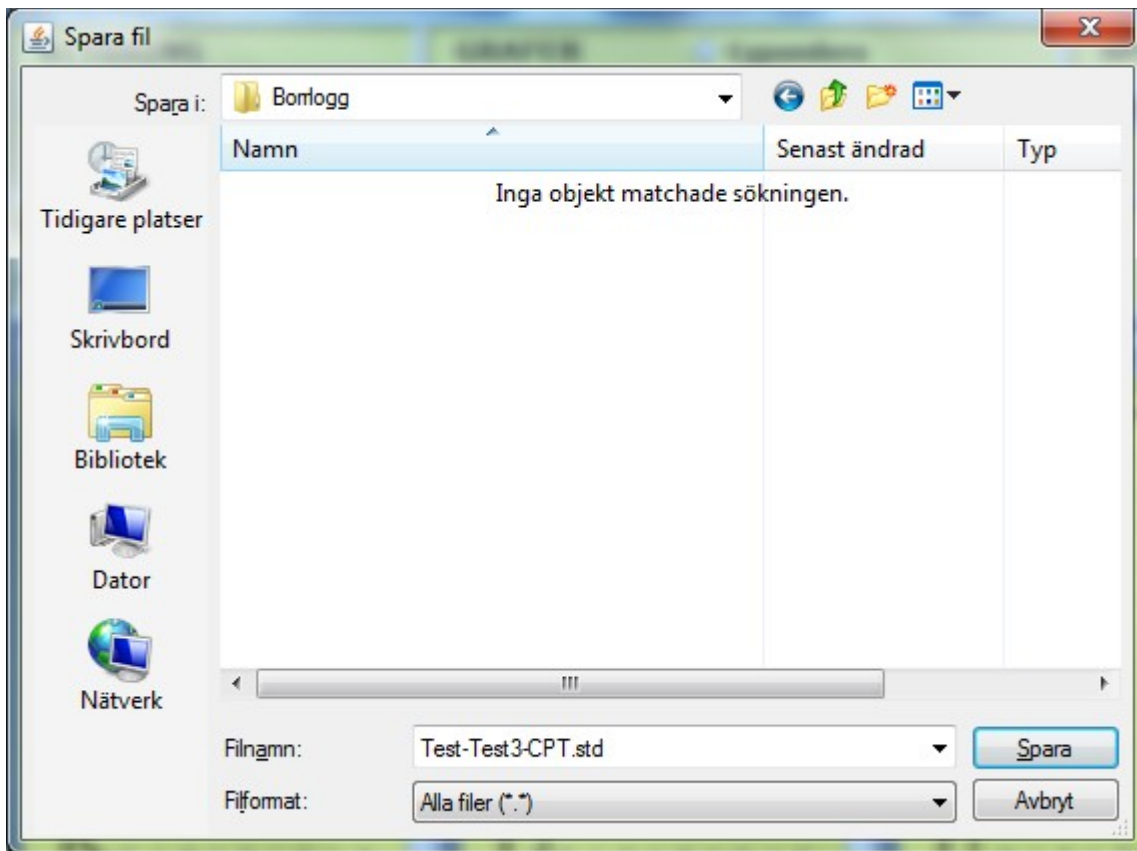
SELECT TYPE OF FILE!

? Select the type of file you want to create!

SGF **TXT**

The system suggest a file name according to: "project ID_sounding ID_method" with the extension ".std" for SGF type files and ".txt" for TXT type files.

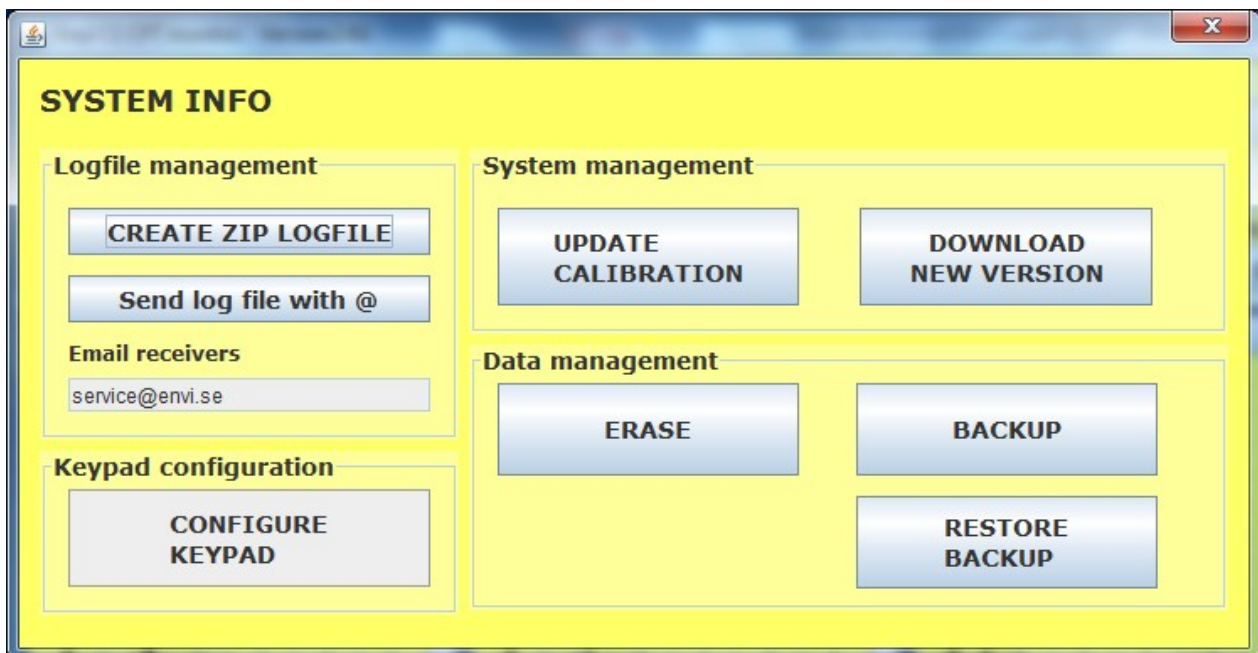
When you have specified file type to create you can also specify where to place the file in a typical save file window as per below (my desktop is in Swedish as you can see but the principle is pretty evident anyway):



If you accept the file name given by the system you can simply navigate to the folder where you want to place the file and press Save button. If you want to change the file name you can simply write whatever name you want to use.

System handling

You can update software, create a database backup, erase soundings etc., by pressing SYSTEM button and selecting in the dialog that appears.

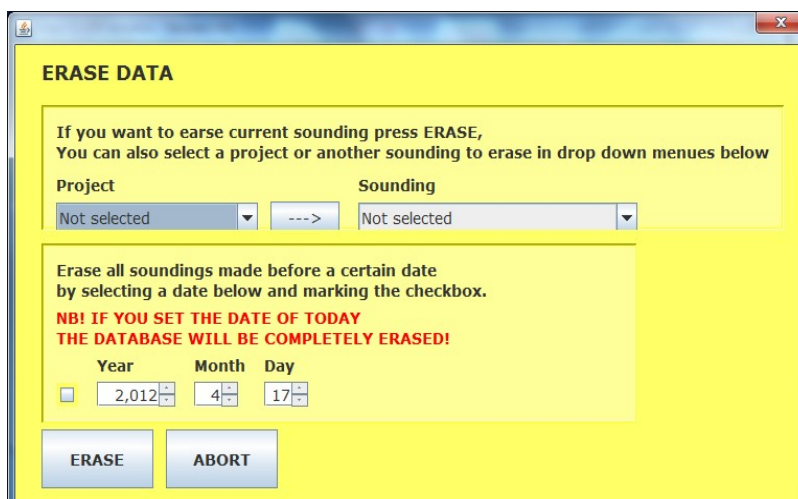


You create logfiles by pressing button CREATE ZIP LOGFILE. If the PC is connected to the logger system both calibration-/System data and logfiles will be zipped into the zip logfile that the system creates. If you are not connected to the logger system only the logfiles will be included in the zip logfile. You can choose where to save the zip logfile when the file dialog appears.

If you get a new calibration file from Envi you can easily import new calibration settings into your system by pressing button UPDATE CALIBRATION. Then select the calibration file in the file dialog and the system will update calibrations.

The system can determine if there is a new software version available and also download it. You simply press the DOWNLOAD NEW VERSION button then you place the zipped installation folder on your desktop. You extract the msi file from it and place it on your desktop. Then you double click it to install the new version. If you get any question about allowing things etc you must always answer Yes and Allow, otherwise the system may not function properly.

To erase one or several soundings from the database you press ERASE.



To erase a single sounding you select it from the Sounding menu and then press ERASE. In that menu soundings will appear with the most recently created on the top and then in chronological order.

To erase all soundings made before a certain date you define the last date for which to remove soundings and select the checkbox. Then press ERASE and all soundings made prior to the specified date will be erased

You press BACKUP in the System dialog to create a backup of the database. You will get a new dialog where you can specify rules for the backup.

BACKUP

FROM

Year Month Day

2,012 4 17

TO

Year Month Day

2,012 4 17

PROJECT

☐

RUN

You specify the dates between which you want to store backup data and press RUN. If you change your mind and do not want to backup, you cancel by pressing on the cross and close the window. If you have started the backup there is no turning back other than using Windows process manager to kill the Java process.

You can also backup a single project by specifying the project name in the text area above and select the check box and then press RUN.

To restore the database from a previous backup or load the backup on another computer, you must first enable the restore of the database, open the user settings and set the Backup possible (see previous chapter). The backup file shall be placed in folder "C: / EnviLoggerG1 /" prior to starting the database restore. The name of the backup file shall be ENVILOGGERG1BACKUP.ZIP