# SCS900 and a Ohmex

Brief instructions on how to use SCS900 and a Ohmex echo sounder for a small hydrographical survey.

In Trimble's SCS900 software it is possible to combine the depths of an Ohmex echo sounder and the positions of GPS or Optical instruments. In order to do so, a dll and program should be stored in the following folder \Program Files\Trimble SCS900 there are different programs available, one for each type of data logger. In this document the TSC2 was used (Windows Mobile 5)
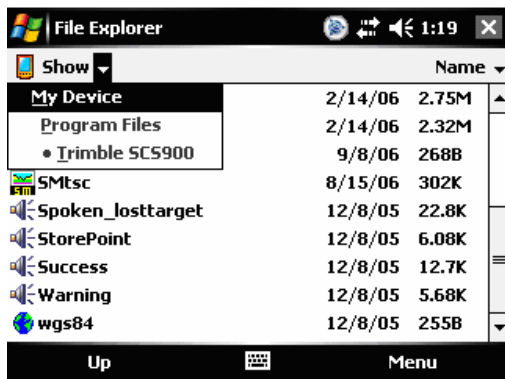
It is possible to create a shortcut of the executable in the folder \Windows\Start Menu enabling the software to be started from the start menu.

First of all, the echo sounder should be connected to the data logger, this can be done using a serial connection, i.e. via Bluetooth (it is also possible to use a serial cable if the GPS receiver supports Bluetooth)

Pairing Bluetooth devices:

Assuming the Sonarmite is not paired yet, go to **Start>Settings>Connections** and select **Bluetooth**. Make sure the checkboxes are both ticked (turn on Bluetooth and make this device discoverable to other devices) now select the page devices. At this stage, turn on the already charged Sonarmite by connecting the transducer (the green light flashes briefly) now select **new partnership** The scanning procedure


Starts. After all discoverable devices are found, select the Sonarmite (usually named SM****** where ***** stands for the serial number) and select **Next**. Enter the

passkey (usually this is **1111**) and enter the partnership settings, by checking the serial port service. After this, the Sonarmite is visible under the tab **Devices**.
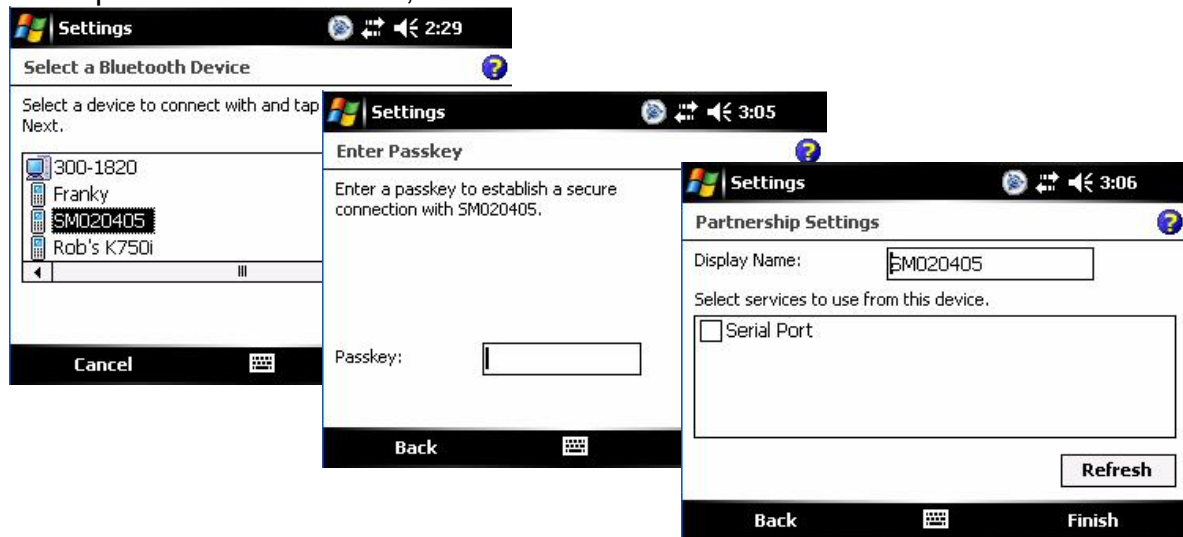
After this, the serial port has to be assigned by selecting the tab COM ports and select **New Outgoing Port.** Again select the Sonarmite and select **Next**. Now deselect (uncheck) secure connection and select **Finish**.
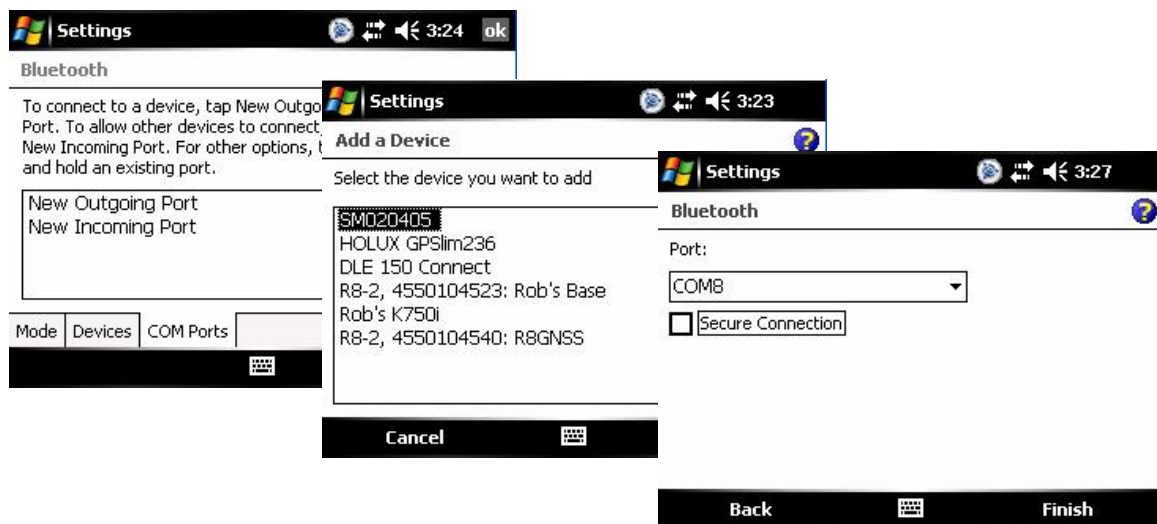
Remember the comport number assigned to this service (in this case COM 8)

Starting a Hydrographic survey.

In order to combine the depths from the SonarMite and the positions in SCS900 it is essential the SonarMite software is started and remains running during the survey.

Starting the SonarMite Software
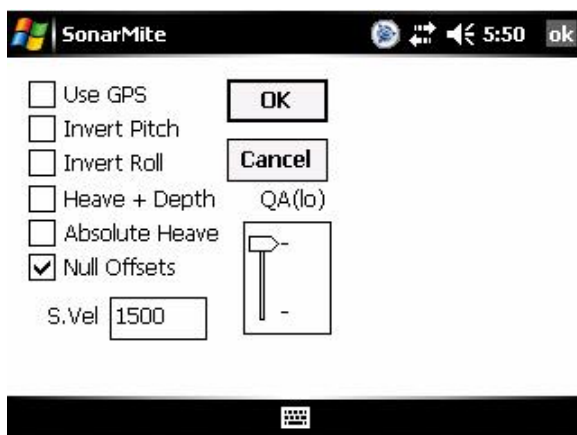If a shortcut is created, select Start>SMtsc. If the shortcut is not created, find the executable located under \Program Files\Trimble SCS900 If the software is not registered , enter the registration key by selecting the yellow question mark (**?**) the activation key is 19652
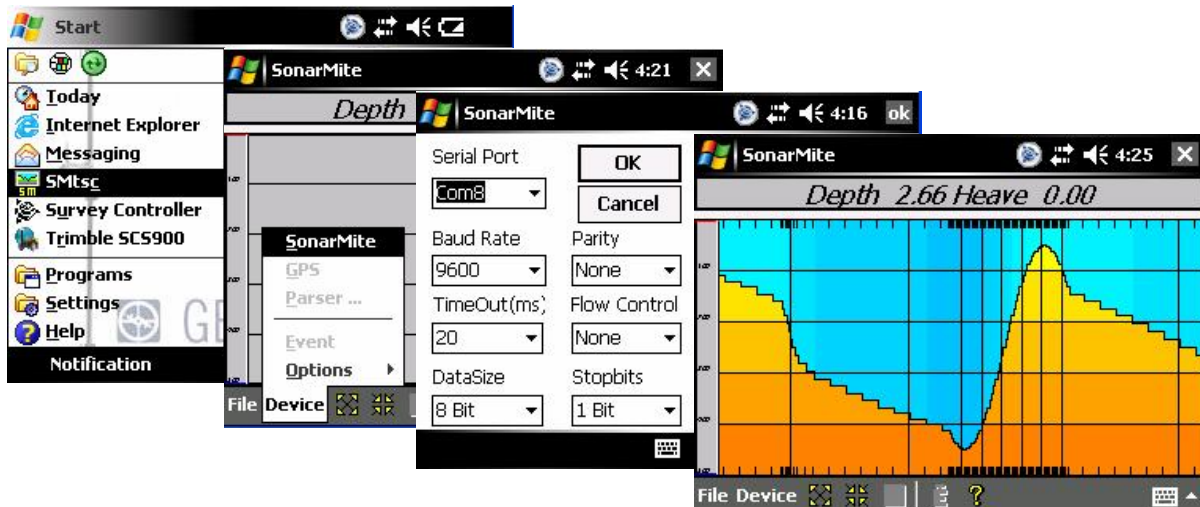
Now select **Device>SonarMite** and select the previously assigned COM port (in this case COM 8) Leave the other settings as per default (9600,8,n,1 no flow control) Select **OK** and the echo sounder should now return depths. It is possible to fine-tune the Quality threshold, it is advised to leave it low in order to pass all data. Leave the SonarMite software running and continue with the next part. If you encounter problems (unable to connect etc) reset the TSC2 (switch Bluetooth back on) and retry. If this fails, start from the beginning (pairing devices)

New Feature:

In the latest version of the SonarMite SW or SCS900, it is now possible to set the sound velocity. To do this, double tap the center of the SonarMite screen and the following display appears. The functions that Now select **Device>SonarMite** and select the previously assigned COM port (in this case COM 8) Leave the other settings as per default (9600,8,n,1 no flow control) Select **OK** and the echo sounder should now return depths. It is possible to fine-tune the Quality threshold, it is advised to leave it low in order to pass all data. Leave the SonarMite software running and continue with the next part. If you encounter problems (unable to connect etc) reset the TSC2 (swIn this


document I assume the user is familiar with the basics of SCS900. The concept of Sites, Designs and Work orders are assumed as common knowledge. If not, please refer to the SCS900 manual. If a folder structure is prepared by the Survey office, simply start SCS. If not, it is assumed the following files are selectable on the data logger:

- Design (DXF or TTM)
- Site Calibration (or DC file)
- Control points or Bench Marks (TXT)
- Background map

In this example we take this step, which is not required if a folder structure is prepared by the Survey office.

Before starting the Hydrographic survey, be sure to check the system setup by measuring a bench mark.
Start SCS900 and create a new Work Order Select the site or create a new one (A site contains the items mentioned above) in this case a new site is created.
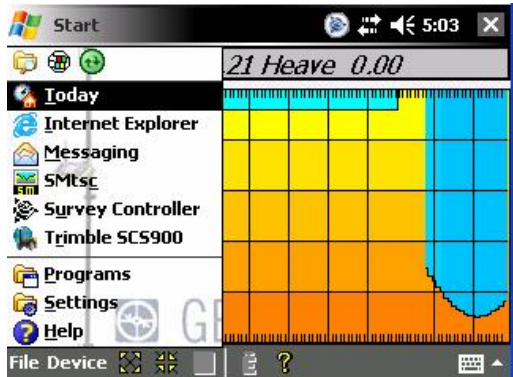

In the new site, the various files are selected, a minimum is the site calibration file (DC file) in order to get the proper coordinate system, or a csv file containing control points (Since it is recommended to check the system setup, a .csv file is important). Currently this site calibration can contain a Geoid model, but CAN NOT contain a shiftgrid!..
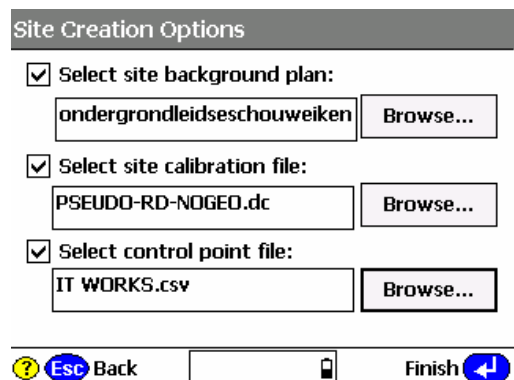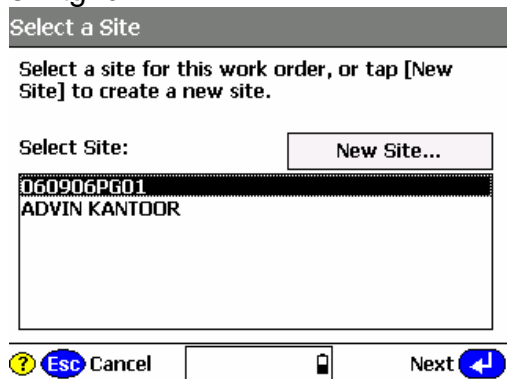
If no calibration file (DC) is at hand, it is possible to calibrate the site using the known points in the .csv file. Simply select calibrate site in the Systems Setup menu
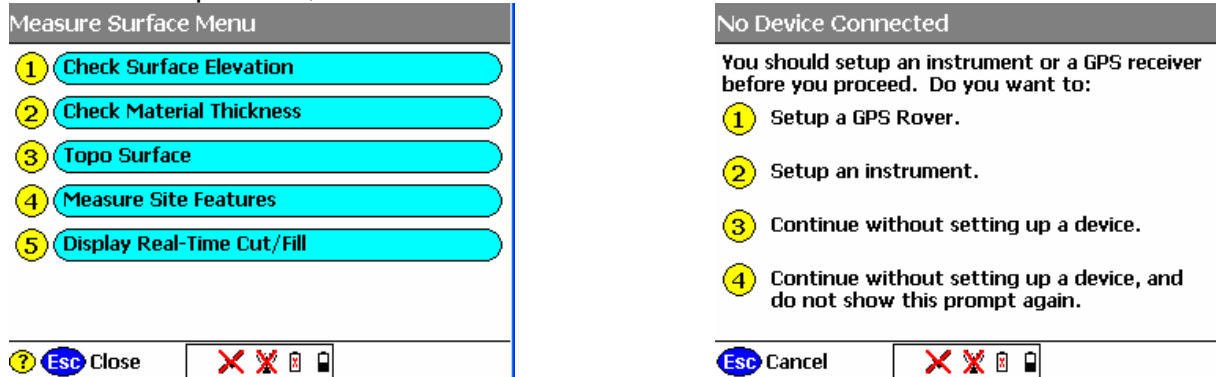
System Settings
It is possible to set the required accuracies under Settings , this can vary from one jobsite to another. There is a difference in acceptance criteria (will it store a position and depth or not) and the Calibration tolerance (will it accept a System Setup check)
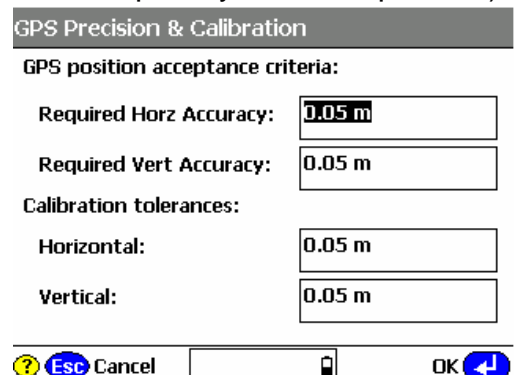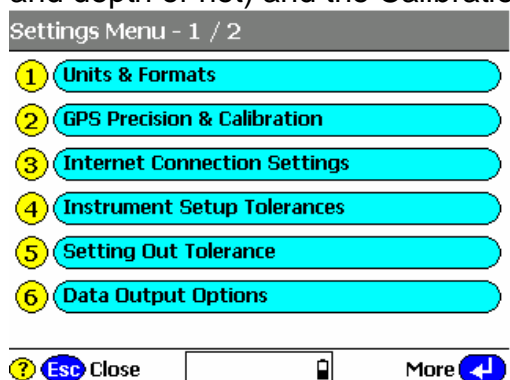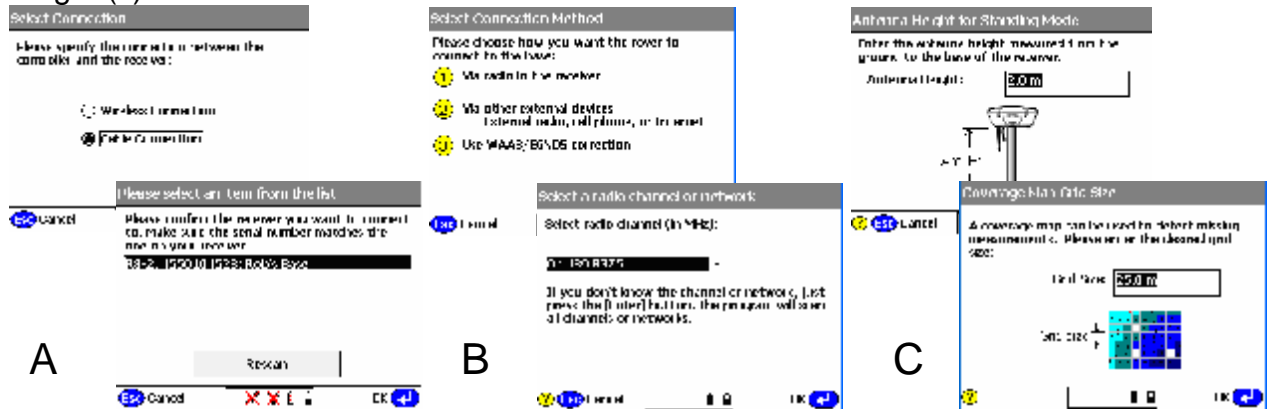
System Setup

No wit is time to start the rover, Select System Setup and Setup Rover, or go directly to Measure Surface. Topo Surface and SCS900 will prompt you to set up a GPS rover. In this process, follow the instructions on screen

Measure Surface Menu
1. Check Surface Elevation
2. Check Material Thickness
3. Topo Surface
4. Measure Site Features
5. Display Real-Time Cut/Fill

Esc Close

No Device Connected

You should setup an instrument or a GPS receiver before you proceed. Do you want to:
1. Setup a GPS Rover.
2. Setup an instrument.
3. Continue without setting up a device.
4. Continue without setting up a device, and do not show this prompt again.

Esc Cancel

The instructions will take you step by step trough the system setup. It will ask you if the receiver is connected by cable or Bluetooth (a), if it uses an internal, external radio or other correction method (b), and the coverage map grid size and antenna height (c)

A   B   C

Once started , SCS900 will ask you if you want to check the system setup, it is advised to do so.

After the System Setup is completed and checked, the topo survey can start. Bear in mind there are survey methods, shown in the top left corner. These are Standing (red figure) Walking (yellow figure) and on vehicle mode (yellow quad) Those methods automatically set the position update rate and the different antenna heights. Changing this mode can be done by clicking it. For a hydrographic survey, select the vehicle mode (click here) and enter the height from the bottom of the transducer to the bottom of the antenna.

Finally select the measurement density required for the job, this will make the system log at a minimum interval or elevation change.

Are you recording the bottom?

In order to check if the system is indeed setup to record the bottom, look at the difference of the elevation shown on top of the screen and the recorded point elevation. To annotate points with their elevation, select the take the following steps. Select the button 123 Des (buttons may be changed by selecting the black triangle) Check display Point Elevations and select OK.
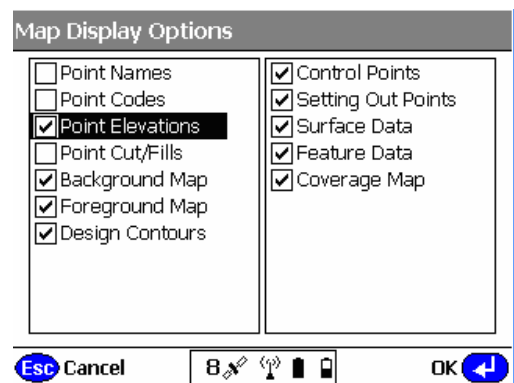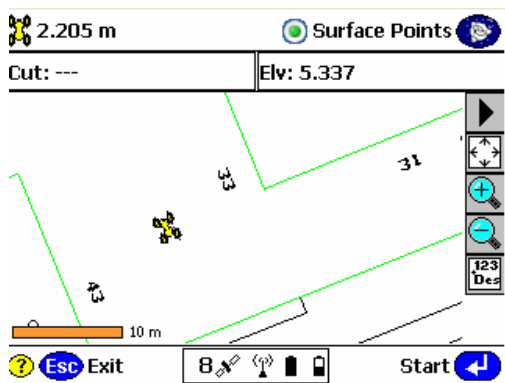
Remember that if loads of points are stored, this option can slow down the CE device and make the map hard to read, so switch of again if required.

Now Start a measurement, SCS900 will prompt you for a point name (this will increment automatically) and a code (tip, this code can be used to identify a cross section number or profile number) After selecting OK again, a point is measured and stored, annotated with the actual height. In this example, the elevation of the bottom of transducer was 5.330, the measured depth was 0.377 (bucket) and the bottom is in that case 4.953.
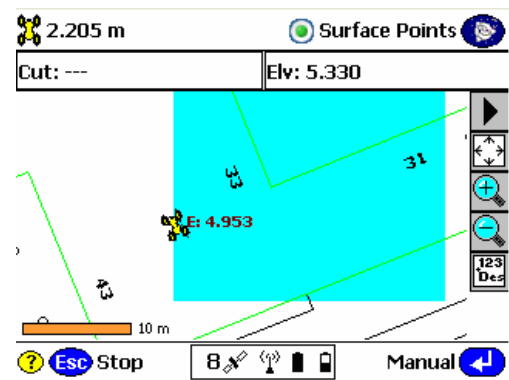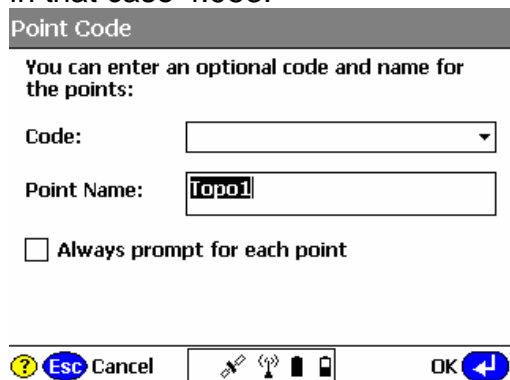
Complete Work Order

Once finished with the survey, the export files are written in the export folder those files consist of a record.TXT and report.txt optional a DXF can be written but remember this can consume a lot of memory.

Work Orders Menu

Site: Brief Instructions SM
Current W.O.: day one
Design: N/A

1. New
2. Open
3. Change Design
4. Complete Work Order
5. Export Data

? Esc Close

File Explorer   🌐 ⇄ ◀€ 5:38 ✕

📱 Show ▾   Name ▾

My Device

Trimble SCS900 Data	9/12/06	4.79K
Brief Instructions SM	9/12/06	238B
Work Orders		
• day one		

Up   ⌨   Menu