AarhusNavigator
Quick-start guide and manual
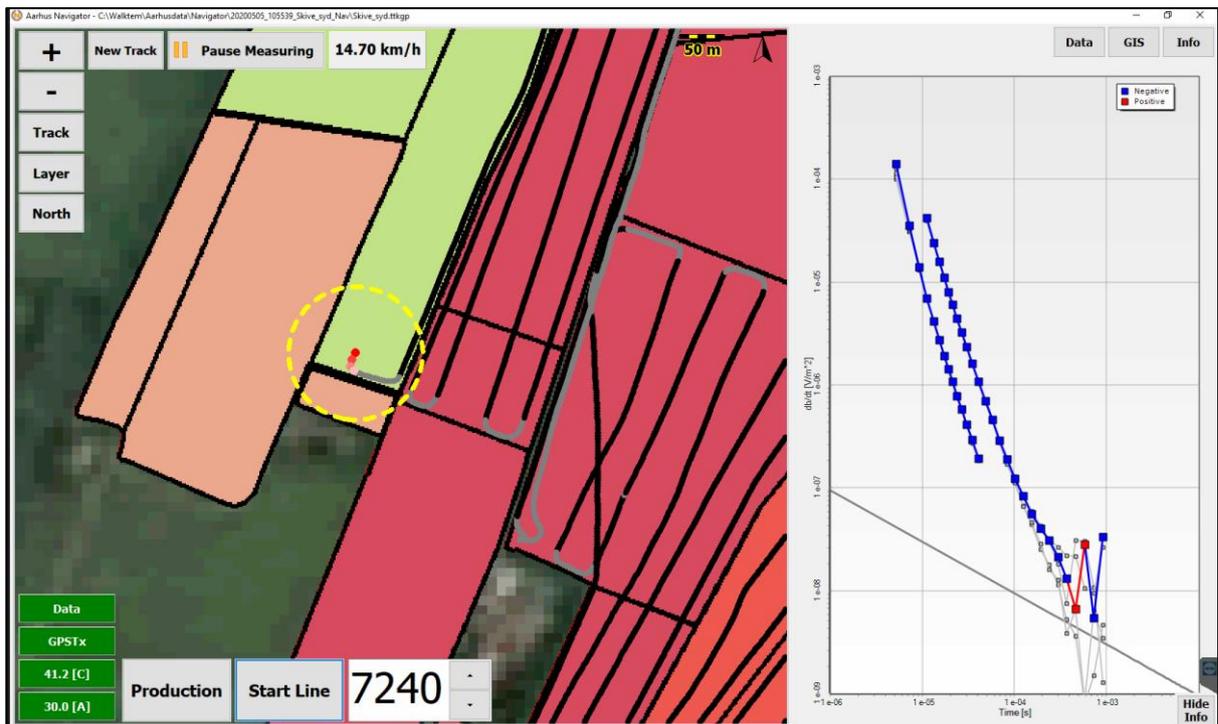
Version 1.05

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1 Setup

The AarhusNavigator software is a tool for logging and displaying GPS data in real time. This can be used for visualizing where one is mapping. Software has an integrated GIS platform, so it is possible to import both predefined track lines and areas in the form of shape files, which enables an easy overview of the desired areas of interest. This manual is a quick-start guide detailing the setup and logging for the AarhusNavigator software, followed by documentation of the different configuration (.ini) files used for the more advanced settings. Users, who either are continuing a current campaign or opening an existing campaign, can move directly to section 2 – LOGGING. Software also requires a valid license. If the license is not available, the program will not continue.

1.1 Start new campaign

Open the program and if the license is available window shown in figure-1 will appear. If you are working on an existing campaign, jump to section 2 – LOGGING. To create a new campaign, press **New.** Note- if the program cannot find a valid license, it will prompt a new window where you can enter a new license. Internet connection is required for license registration.
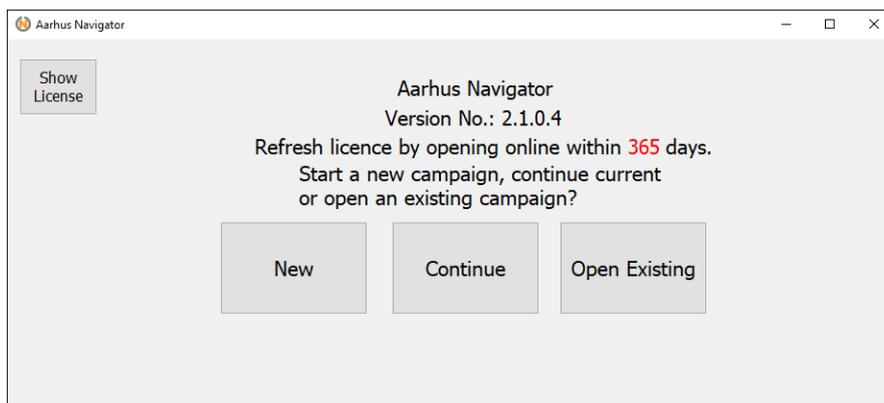

*Figure 1: Startup screen for Aarhus Navigator. Press **New** to start a new campaign.*

Fill out site- and operator name (mandatory) as well as description (optional) and .ini-file path (same folder as AarhusNavigator.exe by default). When using an .ini-file specifically for the campaign at hand, be sure to select the proper file. .ini-files will be copied into the project folder) and press **OK**. If Aarhus Navigator configuration file ("AarhusNavigation_Default.ini") contains EPSG information, the program will open with GIS interface (Figure 4) else it will wait (see Figure 3) for initial GPS coordinates to decide EPSG automatically. Once the program is successfully opened with GIS interface, it will automatically open a secondary logging program depending on the instrument in use (tTEMLog, MagLog, or GCMLog).
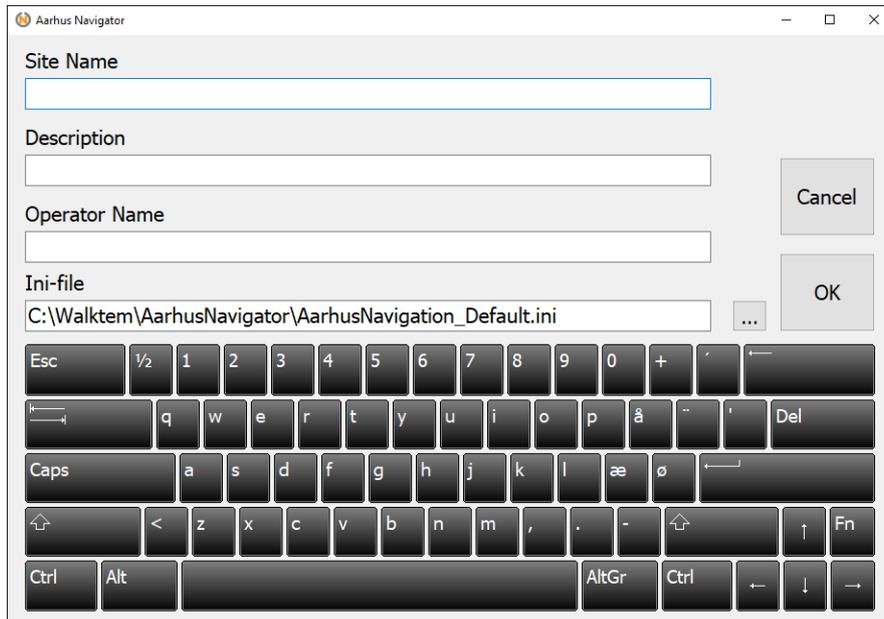
Figure 2: Site name, description (optional), operator name and .ini-file path must be filled out.
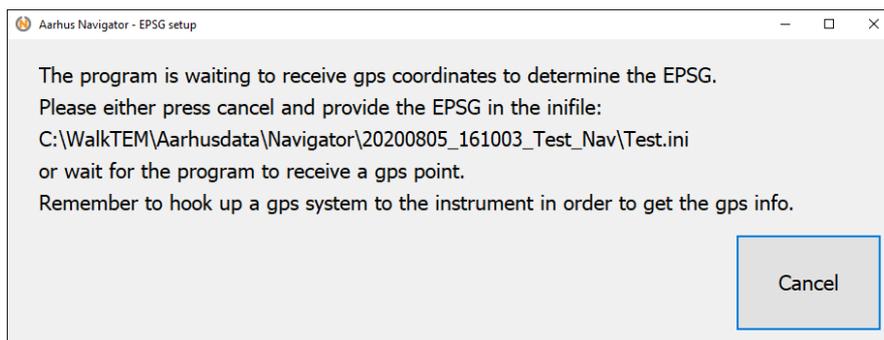

Figure 3: Program waiting for GPS coordinates to find EPSG.

1.2 Adding GIS-layer(s)

This feature allows for the use of background maps, elevation models as well as shape files – for instance lines to be driven or areas of interest to be added. First press *Config Map* and in the popup window press *Add Layers*. Press *Apply*. Your GIS-layer have been added.

Supported filetypes are .tab, .mif, .shp, .tif, .tiff, .jpg, .jp2 and .ecw. It is recommended to use a medium file size (~25 mb or less) for smooth navigation. GIS layers can be ordered using the *up* or *down* buttons.
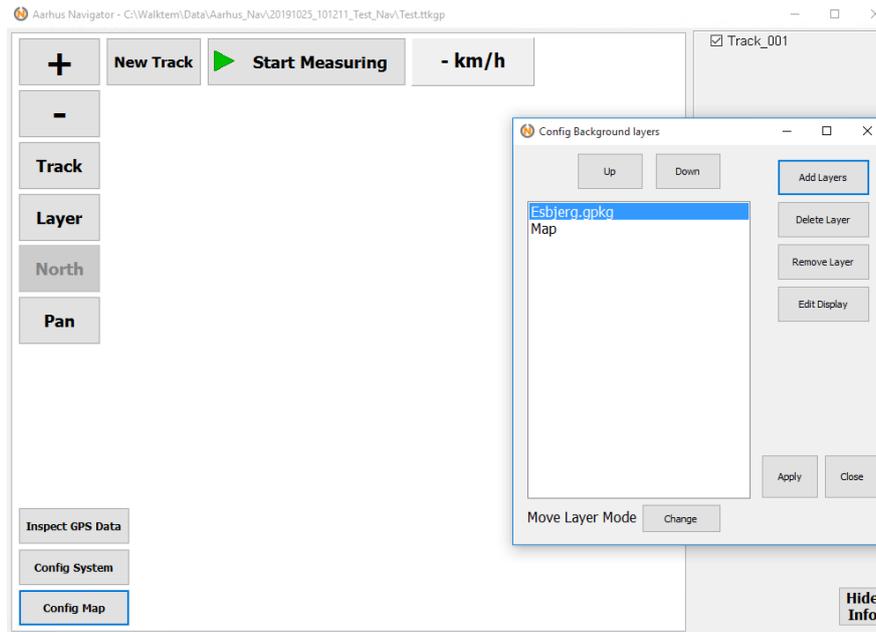
*Figure 4: To add one or more GIS-layers, first press **Config Map**, and then in the popup window press **Add Layers**.*

1.3 Editing GIS-layer(s)

Select your layer in the popup window in Figure 4 and press **Edit Display**. The following window appears (Figure 5):
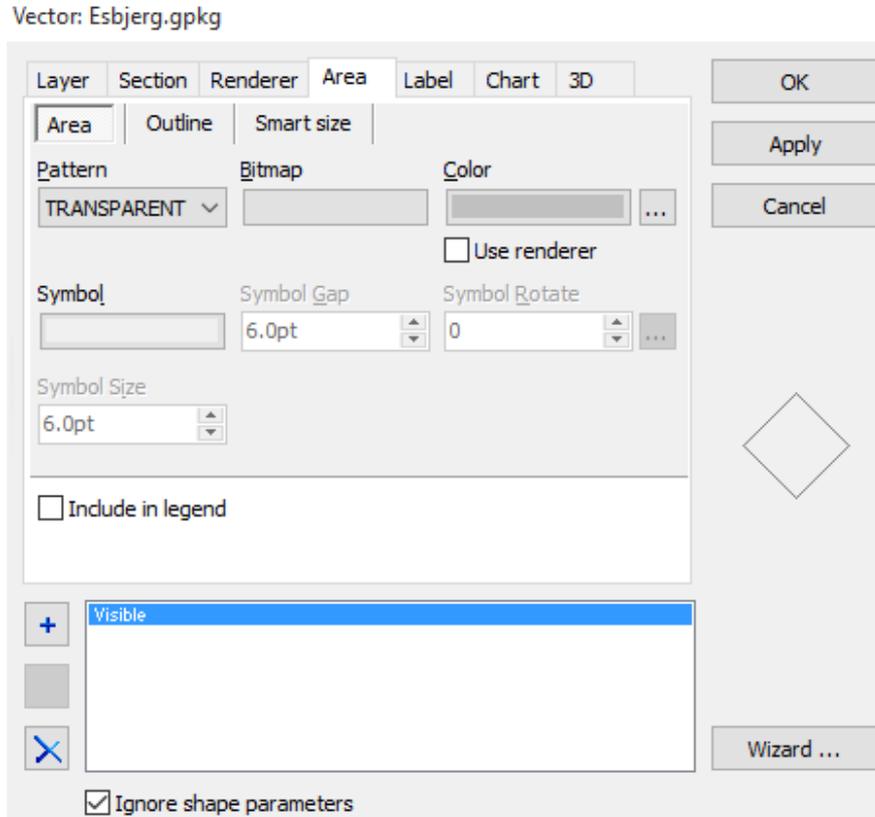

Figure 5: Editing the display of a GIS Layer.

You are now able to edit the display of your GIS-layer as needed. For example, change the area pattern to transparent and the outline width to 2.0 pt. and the color to red, in order to show boundaries without obscuring the background image.

Once done, click *Apply* and *OK*. Then click *Apply* and *Close*.

2 LOGGING

2.1 Introduction to Navigator setup

NOTE: Before measuring, make sure all parameters are within the limits set in the logging software (tTEMLog, tMAGLog or GCMLog) and that no warnings are present. The limits can be seen and altered in the .ini-files. (See also manual for the specific system). In case AarhusNavigator is used for the tTEM system, make sure that the PaPc program is running and system is transmitting LM and HM current, and the data curves in PaPc are displayed correspondingly.
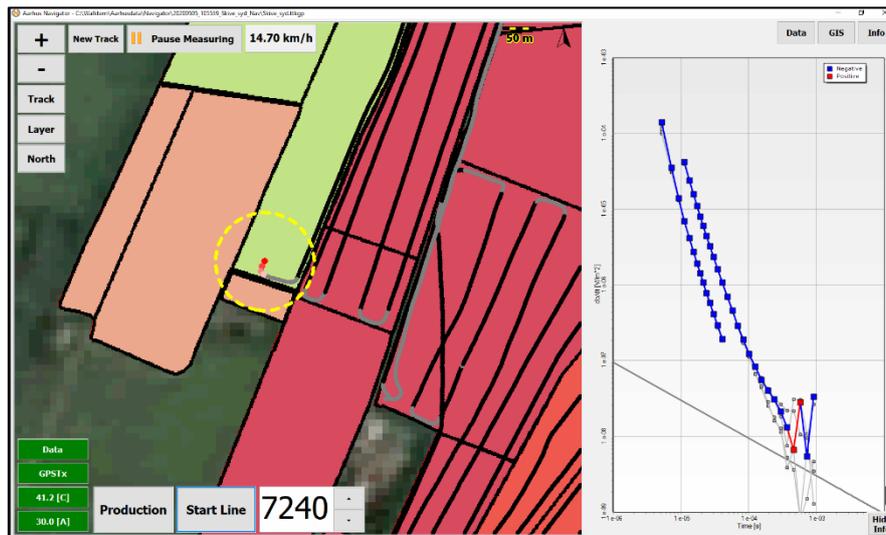

Figure 6: A typical Aarhus Navigator setup when system is running in production. In the data plot, the grey line indicates a typical noise floor of the tTEM data.

First, press ***Start Measuring*** and select the **Data** tab in the upper right corner (for tTEM logging). If the PaPc program is running in the case of tTEM, the same data curve would be displayed on the right side of the Navigator (See figure 6). Please Note that ***Start and Stop Measuring*** **in** Aarhus Navigator does not start and stop the PaPc program, which is always running in the background unless stopped manually. Figure 6 shows a typical layout of the Aarhus navigator when the tTEM system is running in production. On the right panel, LM and HM curves can be seen. On the left side, the GIS interface is seen with a background map and track lines. The red dot shows the current position of the system. There is a moving yellow circle around the red dot drawn with a chosen diameter set in the setup (.ini) file. This circle is to help the driver to maintain the desired line spacing. On the GIS interface in the bottom left there are four-status alarms. If all the alarms are shown in green, the system is running within normal parameters, otherwise the alarm color will change. See section 2.3 for alarm colors.

Once ready to begin measuring, click ***Start Line*** or ***Start Test***. To end a line or test, press ***End Line*** or ***End Test***. Both starting and ending can also be done by pressing in

the middle of the GIS screen. Lines should be ended before beginning to turn and started after the system is approximately straight behind.

2.2 Control Panel

During logging, it may be desirable to change certain settings. Many are available by using the control panel in **AarhusNavigator.** To do so the measurements must be paused using *Stop Measuring* (Figure 7).
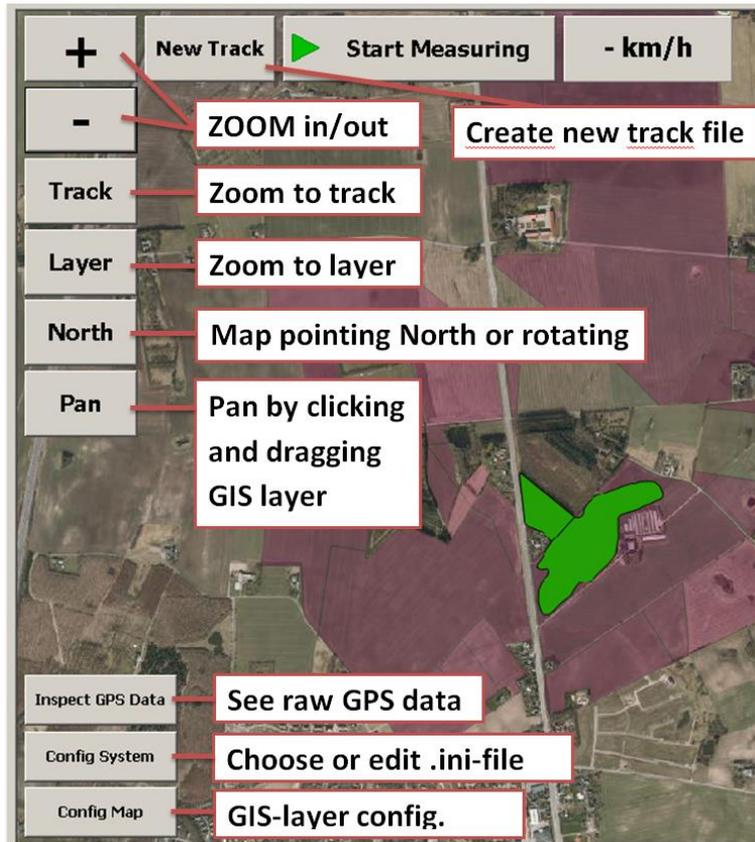

Figure 7: The control panel functions in AarhusNavigator.

2.3 Alarms

There are several different alarms in AarhusNavigator. The limits where the alarms are activated can be set and adjusted in the .ini files (See 3 DOCUMENTATION AND ADVANCED SETTINGS - .INI FILES)

The alarms appear in AarhusNavigator as a colored frame around the program window. The default alarms are as follows:

RED = GPS (primary) has no fix

MAROON = GPS (secondary) has no fix

YELLOW = Problem communicating with the log program

PURPE = Maximum allowed speed is exceeded.

3 VARIOUS SETUP FILES(.INI) FILES

The AarhusNavigator software uses three .ini-files for configuration of the different settings. Usually, once these initially have been configured, no further changes are necessary. All lines in the .ini files are commented, so it is easy to locate where changes to alarms, GPS setup and so on are to be made.

- *AarhusNavigation_default.ini* holds the main settings about alarms, GPS-setup, tracking, buffer circle diameter for line spacing etc.
- *AarhusNavigation_Instrument_Setup.ini* allows for the use of either tTEM, tMag or GCM instruments, and holds the various settings specific to these instruments
- *AarhusNavigation_Startup.ini* allows the user to alter the default window size and position of the program.

4 HOW TO:

Change the color of tracks

For existing project: go to Config System (Note that Config system is available only after pausing the measurements on the Navigator), load the .ini file from the projects folder. Usually located into c:\tTEM\Aarhusdata\ Navigator
In the .ini file, find the section "Colors for Car and tracklayer", here you can choose the color for track lines.
For new projects: you can directly change the AarhusNavigation_Default.ini file, before creating a new project.

Change the diameter of buffer circle

Follow the instructions above and navigate to the section "Params for BufferCircle". Here you can change diameter, color and width of the circle. Recommended diameter of the circle is twice the line spacing, so that the radius of the circle becomes the line spacing.

Change the data Plot width on the navigator

This can be set up in AarhusNavigation_Startup.ini file.
Change the number of the **DataPlotWidth**

Change the axis limit of the data curve

To change the limit of the data plot axis on the navigator, open the "AarhusNavigation_Instrument_Setup.ini file" and go to [tReT] section. Here you can find XAxisRange and YAxisRange.

Download the data

Data from various loggers are stored in the following folder for tTEM:
c:\tTEM\Aarhusdata\
Navigator: Aarhus Navigator projects are located here.
PaPcData: Raw Data (*.rwb files) written by PaPc Program.
tTEMLog: Raw data (*.skb files) written by tTEMLog Program.
tMag data are stored in c:\MagData

How to get data out of TX-unit

Use any PC with a windows operating system. Connect the TX- unit using remote desktop connection. Copy data folders and paste into your local pc. Folders will be copied over remote terminal. For faster transfer of data make sure to connect your PC to 5 GHz wifi network if available. Use of Mac or Linux to download data is possible, but not supported.
Note:
To import tTEM data into workbench, you will need to copy the raw data folder from tTEMLog and the production mask file (.lin) located in the Aarhus Navigator project folder.