

Introduction

This document describes the changes introduced with the new software version.

- **Product:** EK80
- **Software version:** 1.12.2

This software controls all functionality in the Simrad EK80 Wide band scientific echo sounder. This includes transmission and reception, interfaces with external peripherals and sensors, and all user interface.

Software versions for the transceivers are included with this EK80 release:

- **Wide Band Transceiver (WBT) Software version:** 2.20
- **WBT Tube Software version:** 1.01
- **WBT Mini Software version:** 1.01

Software changes

This software update solves a number of software bugs that have been reported by our users, or detected during our own product testing. New functionality is also introduced.

The following specific changes have been made:

Information

- **Special attention required for processing Power/Angle data from specific transducer types**

Processing Power/Angle data obtained from Ethernet data subscription or from reading raw files containing Power/Angle data, requires special attention. Make sure to use the correct conversion formulas, in case the data is sampled by a transducer using geometry of

type Split3/Split3CenterSingle/Split3Single. Contact Simrad support to obtain documentation on the different conversion formulas.

- **New strategy for automatic splitting of raw files**

During data recording raw files are automatically split when any configuration or environment parameter is changed. With this change configuration and environment data may be read once for a file and this will be valid for all pings in the file.

- **More information added to raw data files**

More information has been added to the configuration datagram in raw data files. New information includes the transceiver fundamental sample frequency and the software version number used for data recording.

Bug fixes

- **Bug related to estimation of target position in mechanical angles for target strength (TS) estimation during Continuous Wave (CW) operation**

A bug related to estimation of target position in mechanical angles for TS estimation during CW operation has been fixed.

The angle sensitivity used for estimation of target position in mechanical angles for CW operation was internally adjusted to correspond to the centre frequency for the most recent FM frequency sweep settings.

In cases where the most recent settings for the FM frequency sweep band were not symmetric around the CW frequency, this

resulted in using inaccurate angle sensitivity values for estimating mechanical angles for TS estimation. In these cases, calibrated mechanical beam opening angles became inaccurate. Inaccurate angle sensitivity resulted in inaccurate estimation of target position in mechanical angles.

Inaccurate mechanical beam opening angles will result in inaccurate estimation of beam compensation for TS calculations. The error will depend on the difference between the adjusted angle sensitivity and the angle sensitivity for the nominal frequency. The error will be larger for targets further off the acoustic main axis where the beam compensation is larger. This bug has no significant impact on SV calculations.

Depending on the most recent FM frequency sweep settings used prior to the previous CW calibrations you may observe a change in the resulting beam opening angles compared to previous calibration results when calibrating next time.

Previous calibration results may be evaluated if raw data files from the calibration are available. To evaluate the calibration results, perform a new calibration using the new software version to replay the calibration raw data files and compare the calibration results with the original results.

- **Constant water sound speed used when estimating theoretical target strength for calibration sphere**

The theoretical target strength (TS) for a calibration sphere has been estimated using a constant water sound speed of 1490 m/s. This has been changed to use the sound speed for the water column as defined in the Environment dialog.

- **Bug related to a mismatch in frequency mapping when estimating theoretical target strength for calibration sphere**

A bug related to a mismatch in frequency mapping when estimating the theoretical target strength (TS) for a calibration sphere has been fixed. The mismatch could have resulted in a shift of the frequency used for estimating the theoretical TS for the calibration sphere.

This bug affected calibration accuracy for CW calibrations and for FM frequency sweep calibration where the start- or end-frequency was not an integer kHz value.

In the case of calibrating a 38 kHz transducer, using 1 ms pulse duration, the reference TS for the calibration sphere will be estimated at 37.5 kHz instead of 38 kHz. The change in reference TS represented by the frequency shift will depend on the calibration sphere selected. The change in reference TS represented by the frequency shift will depend on the calibration sphere selected.

Errors caused by the frequency shift bug have been estimated for the following spheres and frequencies in CW operation using a pulse duration of 1 ms:

- Copper 60 mm, 38 kHz: Error of approx. 0.1 dB
- Tungsten 38.1 mm, 38 kHz: Error < 0.05 dB
- Tungsten 38.1 mm, 70 kHz: Error < 0.2 dB
- Tungsten 38.1 mm, 120 kHz: Error < 0.05 dB
- Tungsten 38.1 mm, 200 kHz: Error < 0.05 dB

- **Inaccuracy in processing data when replay of complex raw data files**

Inaccuracy in processing data when replay of complex raw data files has been removed. Bit manipulation during re-selection of transceiver

gain chain during replay of complex raw data files caused the inaccuracy.

- **Bug in graphical presentation of gain and beam widths after calibration of FM sweeps**

Drawing of gain and beam width curves as a function of frequency has been improved.

Previous versions could indicate spikes at the edges of each of the valid frequency bands.

- **No views created when channel name contains special characters**

Special characters in the transducer name are now supported by the channel name.

- **Software crash observed with many annotations**

Removed error occurring when creating annotation automatically over a long time.

- **Incorrect time stamp for XYZ output files**

Fixed incorrect timestamp for data in the XYZ output files.

New functionality

- **Improved multi-screen support**

New display organization with improved support for customizing views and multiple display has been added. Any echogram view may be moved by clicking the title bar of the view and drag. The echogram views may be dragged outside of the EK80 application frame and into a secondary display or repositioned inside the EK80 application frame.

Select **Docking View** in the **Display** menu to activate this functionary.

Use the docking guide icons to select where to reposition the view. Additional echogram views may be added by selecting the **Add Windows** button under **Docking View**, in the **Display** menu. Use the **Add Window** dialog to select which channel to present in the new echogram view. Select the title bar of the new view and drag it to the desired position. The

configured layout is stored and memorized for each tab in the bottom bar. Select the **Reset Layout** button, under **Docking View**, in the **Display** menu to get back to the default layout.

- **Secure download of software to WBT**

Transceiver Software download is inhibited if several EK80 programs is in use on the same network. A popup message will show this information and list the IP addresses of the echo sounders that needs to be shut down, before transceiver Software download may be completed.

- **Enhanced Multiplexing**

Possibility to multiplex between two different transducers when using WBT Mini and WBT Tube, has been added. Both transducers must have the same transducer geometry. Supported transducer geometries are split beam transducers with 3 sectors or 4 quadrants.

- **Improved handling of towed transducer**

Support for towed transducers has been added. In the transducer **Installation dialog** select mounting **Towed**. If depth of towed body is provided by a sensor, input the depth in terms of an NMEA DPT datagram, using the second field, "Offset from transducer". Alternatively, set depth manually in the **Sensor Configuration dialog**, Towed Body Depth section.

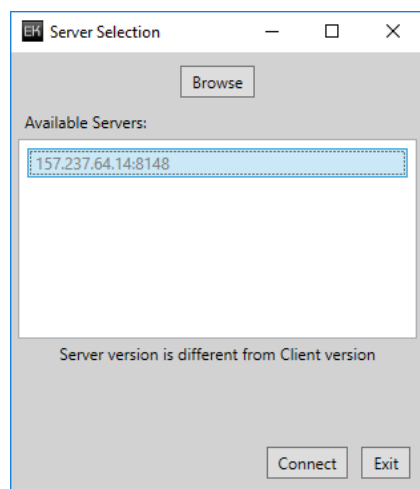
- **Added support for NMEA THS datagram**

Support for the NMEA THS datagram has been added.

EK80 Client

The EK80 Client program allows you to monitor the EK80 Wide band scientific echo sounder from another computer on the same local area network. The majority of the functionality offered by the EK80 can be used. The EK80 Client offers the same user interface as the EK80.

In order to use the EK80 Client program, the same software version must be installed on both the client computer and the EK80 Processor Unit.



If you fail to use the same software version, a relevant message is provided.

Known issues

Certain software issues related to the Simrad EK80 are known. Issues in the EK80 software will be corrected in future upgrades.

Constant water density used when estimating theoretical target strength for calibration sphere

The theoretical target strength, TS, for a calibration sphere is estimated using a constant water density of 1000 kg/m³.

Wrong echogram sample positions when Echogram Type is set to Trawl

When Echogram Type is set to Trawl the position of the samples in the echogram will be wrong.

Context sensitive on-line help

The first time you try to search for information in the on-line help, it takes a long time to start. This is operating system issue. The application used to open and present the online help takes this time to build the search index.

Language

This information is valid if you prefer to use the EK80 with another menu language than English.

When you start the EK80 a small dialog box allows you to start with the current settings. Most users will click to start the program instead of waiting for the dialog box to close by itself. If you wait for the dialog box to close by itself, and you use a different user interface language than English, you may see a mix of both languages in the EK80 presentation.

To fix this, switch to English, and then back to your own language again.

To fix this issue permanently, we recommend that you update the .net operating system file.

- [Updating the ".net" system file, page 6](#)

Do I need to upgrade?

This is an important update. The introduction of new functionality and improvement in the existing functionality will add value to your installation.

We recommend that all users update their software.

End user documentation

The end user documentation for the Simrad EK80 Wide band scientific echo sounder has not been updated with this release.

The current *Reference Manual* is included on the EK80 software media (USB flash drive). End user documentation can also be downloaded from the product website

- <https://www.simrad.com/ek80>

The EK80 *Reference Manual* is included with the EK80 software as context sensitive on-line help.

Software licenses

The EK80 needs one or more software licenses to work. Each software license code "unlocks" one transceiver for operational use with a set of predefined properties.

You do not need to obtain any new license string(s) when you update from a previous version of a licensed EK80.

In order to obtain a software license you must contact a Simrad dealer or distributor. You can also use the request form on <http://www.simrad.com/support>, or contact our support department directly.

Tip _____
Once you receive your software license string(s), do not lose them. We suggest that you copy the information into a text file (for example Notepad), and add relevant information. Place the text file on the Processor Unit desktop, and make sure that backup copies are made.

Software installation

When a new EK80 software version is released, it must be installed on your Processor Unit.

A dedicated installation wizard is used. You need administrative rights on your Processor Unit to do the software installation. Installation of additional operating system components may be required. These are installed automatically. Observe the information offered in the wizard.

If you have a preliminary ("Beta") software version installed, it must be removed before you can update. Use the operating system functionality to remove the old software version.

Software versions for the transceivers are included with this EK80 release:

- **Wide Band Transceiver (WBT) Software version: 2.20**

- **WBT Tube Software version: 1.01**
- **WBT Mini Software version: 1.01**

Make sure that correct transceiver software is installed on your transceivers. Select the Transceiver information field in the **Installation dialog**. Select the transceivers one by one and check that the correct Software version is listed in the Transceiver Information field. Update the transceiver software where required.

For more information, refer to the context sensitive on-line help.

Note _____
Before you update the transceiver software, make sure that you only have one computer running the EK80 software in your network. This computer must be connected to all the relevant transceivers. Recycle the power on the transceivers before you download the transceiver software.

Observe the software version in your Wide Band Transceiver (WBT). If your current software version is version 1.0 or older, the unit needs a factory upgrade. Contact our support department for advice.

Reinstall all transceivers which have not already been reinstalled during transceiver software update.

We recommend to perform new system calibrations. Refer to the *Reference manual* for calibration.

Registered dealers and distributors can download the new software version from the "Simrad Dealer Club". To access the "Simrad Dealer Club", visit our website.

- <https://www.simrad.com/sdc>

Related topics

[Blue user documentation, page 4](#)

Read this before you upgrade from 1.8.3

If you need to update from software version 1.8.3, special considerations must be made.

Before you upgrade

- 1 Write down the current transducer installation parameters.
- 2 Write down the current transceiver installation parameters.

This is because these parameters are deleted by the upgrade. Due to new installation parameter formats, all transducers and transceivers must be reinstalled. We apologize for the inconvenience.

After the upgrade

- 1 Calibrate all your transducers one more time.
- 2 Reinstall sensors that are using the VTG datagram.
- 3 Remove transducers that you have installed with port/starboard orientation, and add again with vertical or horizontal orientation.

Reporting issues

Any issues related to the user interface or the performance of the Simrad EK80 can be reported to us.

Please use e-mail address.

- simrad.support@simrad.com

Include the phrase "EK80 issue" in the title of the e-mail.

Updating the ".net" system file

The language mixture described under "Known issues" can easily be fixed permanently if you upgrade the .net operating system file. We recommend that you do this to prepare your Processor Unit for future software updates. You may do this before you upgrade the echo sounder software.

Procedure

- 1 Download this file `dotNET4_6_2_install.zip` from the Simrad Dealer Club.
- 2 Unzip its content, and copy everything to a USB flash disk.
- 3 Insert the USB into your Processor Unit.
- 4 Open a file manager, and locate the folder `dotnet4.6.2_install`.
 - a If you have a 64-bit operating system computer, double-click `netfx_full_x64.msi`.
 - b If you have a 32-bit operating system computer, double-click `netfx_full_x32.msi`.

Note

Do not use the `setup.exe` file to start the installation.

If you do not know what type of computer you have, or you do not know if it has a 32- or 64-bit operating system, select **Start**→**Control Panel**→**System** and observe "System type".

- 5 Follow the on-screen instructions.
- 6 When the installation has completed, restart the Processor Unit.

Further requirements

You can now install the EK80 software.

Minimum computer requirements

Unless specifically ordered from Kongsberg Maritime, the EK80 is not provided with a computer. This item must be purchased locally.

If you purchase a computer locally, make sure that the chosen model meets the functional and technical requirements.

It is important to make sure that the chosen computer model is relatively new with sufficient processing power, a high performance graphic

adapter, and a high speed network adapter. The computer must be able to facilitate the various interface requirements made by the EK80, and you may need to add extra Ethernet and serial adapters.

Note

The computer design and construction must allow for maritime use, easy access to connectors, parts and cables, and a safe installation.

A laptop computer may be used as long as it meets the functional and technical requirements.

The minimum technical requirements are:

- **Processor:** Intel I7 (or better)
An equivalent type from another manufacturer can also be used.

- **Memory:** minimum capacity 4 GB

- **Hard disk**

If you wish to record large amounts of EK80 data, make sure that you have enough space on your hard disk. Unless your Processor Unit is equipped with a very large disk, we recommend that you save the data to an external storage device.

- **Graphic adapter**

- Minimum resolution (pixels): 1280 x 1024
- Recommended resolution (pixels): 1920 x 1200

The graphic adapter must support DirectX9.0c, and must be compatible with Direct3d and OpenGL. A large number of commercial graphic adapters are available, and we have

not tested all of them. Even adapters that meet the minimum specifications may fail with the EK80 software. We welcome any feedback with comments or experiences with graphic adapters.

- **Serial interfaces**

The number of serial lines depends on the interface requirements.

If you have connected a USB-to-serial adapter to the Processor Unit, do not remove it while the EK80 is running. Do not move the adapter to a different USB socket on the Processor Unit.

- **Operating system**

The EK80 software has been designed for Windows 10. It will also work on 32-bit systems. Windows 7 is also supported. Operating systems older than Windows 7 are not supported.

- **Ethernet adapter**

- Type: Intel 82571 (or better)
- Minimum bandwidth: 1 Gb/s

To communicate with the Transceiver Unit, a high quality Ethernet adapter is required. Two adapters are required if the Processor Unit shall also be connected to a local area network (LAN).

The Ethernet adapter communicating with the Transceiver Unit must offer a **Receive Buffers** function. This parameter must be set to its maximum value if more than one Transceiver Unit is used.

Note

Due to limitations in the Ethernet communication and the related memory requirements, you can only connect a maximum of eight transceivers simultaneously to each Processor Unit. If you operate your EK80 with a large number of transceiver channels, you may find that the memory capacity in the Processor Unit limits your operating choices. Opening additional echogram views may for example cause the memory capacity to be exceeded, and subsequently the EK80 will crash.
