

STAR sleep recording export software instructions

Cite this software and the associated article introducing the software as:

Nikkonen S, Korkalainen H, Töyräs J, Leppänen T. STAR sleep recording export software for automatic export and anonymization of sleep studies. Scientific Reports 12, 15859 (2022).

<https://doi.org/10.1038/s41598-022-19892-0>

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<https://doi.org/10.5281/zenodo.7056195>

Main things to note

The main publication with detailed software description and full instructions for installation and use is available in open access at: <https://doi.org/10.1038/s41598-022-19892-0>

Although the software UI has been made to be as self-explanatory as possible, it is recommended that the user reads the full article before first use.

When testing the software for the first time, it is recommended to copy five or so recordings to a separate folder and test the software on these. Thus, if something goes wrong, the original recordings are not affected.

Make sure the folder structure of the recordings is correct before starting the export. Refer to the full article for detailed description of correct structure. If the recordings are organized in some other way, the export will not work.

Make sure you have write privileges on the drive the exports will be saved to. The recordings can be read-only. The only exception is Profusion PSG which needs write privileges also in the recordings folder to generate a temporary folder used in the export process.

The software will generate alerts.txt file in the subject folder if there are something unusual in the recordings such as a partially broken recording. If this is the case, some exports may be skipped as it might not be possible to perform them. The reason for the alert generation is written in the alerts.txt-file. If this file is present, please check the reason for the alert manually and verify the recording.

If the anonymization tool does not work or crashes, make sure you have correctly installed the correct version of Matlab runtime.

If the export crashes or starts doing something unexpected, simply press “Esc” to kill the program before attempting to manually reset it. This can also be done at any point to prematurely stop the export process immediately.

Make sure that there are no UI modifications to the sleep recording software such as custom reports etc. as these may interfere with the export software. In other words, the software UI should be similar to a fresh install. Also, make sure that the sleep recording software you have installed is the same version as the with the software was developed with. The software may also work with an older version but this has not been tested.

Windows language of the PC running the SSRE program must be set to English.

Do not use debug options when exporting data that needs to be anonymized as the extra files that are generated may contain patient data.

If you are encountering problems with the export not working correctly, use display resolution 1920x1080 with no scaling. This may fix some issues.

Background information

The software is mainly implemented in AutoHotkey (version 1.1.33.06). The pseudonymization of the exports is implemented with Matlab (version R2021b). The software was developed completely independently from the export software companies using Windows 10 and Noxturnal 6.0.2, RemLogic 4.0.1, Profusion PSG V4.5 and Sleepware G3 3.9.7.

Installation

The installation consists only of extracting the zip-archive to a desired folder. The archive contains the export program itself, data files needed to run the program, and the license terms which must be followed when using the software. Installing and using the export portion of the software does not require admin privileges or the installation of any other software, apart from the sleep scoring software associated with the recordings. However, the anonymization tool requires Matlab runtime R2021b, which can be downloaded and installed for free from <https://se.mathworks.com/products/compiler/matlab-runtime.html>.

Relevant links

The main publication: <https://doi.org/10.1038/s41598-022-19892-0>

SSRE software at Zenodo: <https://doi.org/10.5281/zenodo.6139578>

Sleep technology and analytics research group: <https://sites.uef.fi/star/>

Matlab runtime: <https://se.mathworks.com/products/compiler/matlab-runtime.html>