Release notes for MNE software 2.6

1. Manual

The changes described below briefly are documented in the relevant sections of the manual. Change bars are employed to indicate changes with respect to manual version 2.5. Chapter 5 now contains a comprehensive discussion of the various coordinate systems used in MEG/EEG data.

2. Command-line options

All compiled C programs now check that the command line does not contain any unknown options. Consequently, scripts that have inadvertently specified some options which are invalid will now fail.

3. Changes to existing software

mne_add_patch_info

- Changed option `--in` to `--src` and `--out` to `--srcp`.
- Added `--labeldir` option.

mne_analyze

New features include:

- The name of the digital trigger channel can be specified with the MNE_TRIGGER_CH_NAME environment variable.
- Using information from the fif data files, the wall clock time corresponding to the current file position is shown on the status line
- *mne_analyze* can now be controlled by *mne_browse_raw* to facilitate interactive analysis of clinical data.
- Added compatibility with Elekta-Neuromag Report Composer (*cliplab* and improved the quality of hardcopies.
- Both in *mne_browse_raw* and in *mne_analyze*, a non-standard default layout can be set on a user-by-user basis, see Section† .
- Added the `--digtrigmask` option.
- Added new image rotation functionality using the mouse wheel or trackball.
- Added remote control of the *FreeSurfer* MRI viewer (*tkmedit*).
- Added fitting of single equivalent current dipoles and channel selections.
- Added loading of *FreeSurfer* cortical parcellation data as labels.
- Added support for using the *FreeSurfer* average brain (fsaverage) as a surrogate.
- The surface selection dialog was redesigned for faster access to the files and to remove problems with a large number of subjects.
- A shortcut button to direct a file selector to the appropriate default directory was added to several file loading dialogs.
- The vertex coordinates can now be displayed.

mne_average_forward_solutions

EEG forward solutions are now averaged as well.

mne_browse_raw and mne_process_raw

Improvements in the raw data processor *mne_browse_raw*/ *mne_process_raw* include:

- The name of the digital trigger channel can be specified with the MNE_TRIGGER_CH_NAME environment variable.
- The format of the text event files was slightly changed. The sample numbers are now "absolute" sample numbers taking into account the initial skip in the event files. The new format is indicated by an additional "pseudoevent" in the beginning of the file. *mne_browse_raw* and *mne_process_raw* are still compatible with the old event file format.
- Using information from the fif data files, the wall clock time corresponding to the current file position is shown on the status line
- *mne_browse_raw* can now control *mne_analyze* to facilitate interactive analysis of clinical data.
- If the length of an output raw data file exceeds the 2-Gbyte fif file size limit, the output is split into multiple files.
- `-split` and `--events` options was added to *mne_process_raw*.
- The `--allowmaxshield` option was added to *mne_browse_raw* to allow loading of unprocessed data with MaxShield in the Elekta-Neuromag systems. These kind of data should never be used as an input for source localization.
- The `--savehere` option was added.
- The *stderr* parameter was added to the averaging definition files.
- Added compatibility with Elekta-Neuromag Report Composer (*cliplab* and improved the quality of hardcopies.
- Both in *mne_browse_raw* and in *mne_analyze*, a non-standard default layout can be set on a user-by-user basis.
- *mne_browse_raw* now includes an interactive editor to create derived channels.
- The menus in *mne_browse_raw* were reorganized and an time point specification text field was added
- Possibility to keep the old projection items added to the new projection definition dialog.
- Added `--cd` option.
- Added filter buttons for raw files and Maxfilter™ output to the open dialog.
- Added possibility to create a graph-compatible projection to the *Save projection* dialog
- Added possibility to compute a projection operator from epochs specified by events.
- Added the *keepsamplemean* option to the covariance matrix computation files.
- Added the `--digtrigmask` option.
- Added *Load channel selections...* item to the *File* menu.
- Added new browsing functionality using the mouse wheel or trackball.
- Added optional items to the topographical data displays.
- Added an event list window.
- Added an annotator window.
- Keep events sorted by time.
- User-defined events are automatically kept in a fif-format annotation file.
- Added the *delay* parameter to the averaging and covariance matrix estimation description files.

mne_compute_raw_inverse

The `--digtrig`, `--extra`, `--noextra`, `--split`, `--labeldir`, and `--out` options were added.

mne_convert_surface

The functionality of *mne_convert_dfs* was integrated into *mne_convert_surface*. Text output as a triangle file and and file file containing the list of vertex points was added. The Matlab output option was removed. Consequently, *mne_convert_dfs*, *mne_surface2mat*, and *mne_list_surface_nodes* were deleted from the distribution.

mne_dump_triggers

This obsolete utility was deleted from the distribution.

mne_epochs2mat

The name of the digital trigger channel can be specified with the MNE_TRIGGER_CH_NAME environment variable. Added the `--digtrigmask` option.

mne_forward_solution

Added code to compute the derivatives of with respect to the dipole position coordinates.

mne_list_bem

The --surfno option is replaced with the --id option.

mne_make_cor_set

Include data from mgh/mgz files to the output automatically. Include the Talairach transformations from the FreeSurfer data to the output file if possible.

mne_make_movie

Added the --noscalebar, --nocomments, --morphgrade, --rate, and --pickrange options.

mne_make_source_space

The `--spacing` option is now implemented in this program, which means *mne_mris_trix* is now obsolete. The *mne_setup_source_space* script was modified accordingly. Support for tri, dec, and dip files was dropped.

mne_mdip2stc

This utility is obsolete and was removed from the distribution.

mne_project_raw

This is utility is obsolete and was removed from the distribution. The functionality is included in *mne_process_raw*.

mne_rename_channels

Added the `--revert` option.

mne_setup_forward_model

Added the `--outershift` and `--scalpshift` options.

mne_simu

Added source waveform expressions and the `--raw` option.

mne_transform_points

Removed the `--tomrivol` option.

Matlab toolbox

Several new functions were added.

The matlab function *fiff_setup_read_raw* has a significant change. The sample numbers now take into account possible intial skip in the file, *i.e.*, the time between the start of the data acquisition and the start of saving the data to disk. The *first_samp* member of the returned structure indicates the initial skip in samples. If you want your own routines, which assume that initial skip has been removed, perform indentically with the previous version, subtract *first_samp* from the sample numbers you specify to *fiff_read_raw_segment*. Furthermore, *fiff_setup_read_raw* has an optional argument to allow reading of unprocessed MaxShield data acquired with the Elekta MEG systems.

4. New utilities

mne_collect_transforms

This utility collects coordinate transformation information from several sources into a single file.

mne_convert_dig_data

This new utility convertes digitization (Polhemus) data between different file formats.

mne_edf2fiff

This is a new utility to convert EEG data from EDF, EDF+, and BDF formats to the fif format.

mne_brain_vision2fiff

This is a new utility to convert BrainVision EEG data to the fif format. This utility is also used by the *mne_eximia_2fiff* script to convert EEG data from the Nexstim eXimia EEG system to the fif format.

mne_anonymize

New utility to remove subject identifying information from measurement files.

mne_opengl_test

New utility for testing the OpenGL graphics performance.

mne_volume_data2mri

Convert data defined in a volume created with *mne_volume_source_space* to an MRI overlay.

mne_volume_source_space

Creates a grid of source points within a volume. *mne_volume_source_space* also optionally creates a trilinear interpolator matrix to facilitate converting values a distribution in the volume grid into an MRI overlay using *mne_volume_data2mri*.