

BESA Research 6.0 Update History

Listed below are the changes and bugfixes provided in the updates of BESA Research 6.0:

Version 6.0 August 2014

New features

- MEG Source Analysis: Individual MEG finite element models (FEMs) can now be used for source analysis and for all source imaging features. These models can be generated with the newly released BESA MRI 2.0 August 2014.

After co-registration, the individual MEG FEM is automatically available in the head model selection in the source analysis module of BESA Research 6.0. In simultaneous EEG and MEG recordings, the same co-registration and source space can now be used for realistic modelling of EEG and MEG data.

- Data readers:
 - EGI Metafile format: The data reader was updated to the new version V1.
 - InstEP: The data reader was updated to support IWave V 7.3.

Bug fixes

- MEG: In certain conditions, when loading artefacts for Neuromag files where bad channels had been marked, a wrong error message could appear. This is now corrected.
- Data readers:
 - XLTEK: A problem with matching electrode labels that could cause a crash of the software was fixed.
 - EDF, BDF: A problem with the calculation of the start times of segments was fixed.
 - Nihon Kohden: File reading problems occurring under Windows XP, and problems with handling of very large files (larger than 4 GByte), were fixed. Also, an issue with assigning the correct channel type based on the channel label was resolved.

Version 6.0 April 2014

Bug fixes

- MEG Source Analysis: Optional interpolation allows faster computation and display of MEG scalp maps.
- Scaling options for distributed source imaging methods are now extended.
- Scaling bug (rescaling of minimum norm images was not possible if volume image was computed beforehand) for minimum norm solutions is fixed.
- Global field power (available in batch processing) is now computed by most common standard (sum of squares divided by number of channels).

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- Combine conditions bug (crash when montage was used that contained more channels than the original recording) is now fixed.
- License handling bug (in a network with >1 HASP keys only one key was addressed when retrieving licenses) is now fixed.
- Minor update of standard default electrode coordinate definitions and BESA-MRI-Standard-Electrodes.sfp in accordance with current practice.

Version 6.0 June 2013

New features

- Batch commands: New batch commands **For**, **EndFor**, **GoTo**, **FFT**, **FFTmean**.
- Batch commands: All **ICA** commands are now available in batch commands.
- ICA: Multiple **ICA** components can now be saved as artifact coefficients: up to 10 per category.
- ICA: Export of **ICA** reduced data can now be done for the whole file.
- ICA: New **ICA** Select dialog to select components and export topographies and reconstructed data.
- ICA: **ICA** reconstructed data is now exported excluding the selected components (instead of excluding all others).
- Source Analysis: Added hot key function "Save Ind. FEM Pars." for BESA Simulator Individual FEM export.
- Source Analysis: Improved dipole fitting algorithm for individual FEM head models.
- Montage Editor: Default montage can now be specified in BESA.ini. This can be either a standard montage, specified by label, or an user montage, specified by the file name.

Bug fixes

- Source Analysis: Distributed inverse methods computation speed for individual FEM head models is now much faster.
- Source Analysis: Issues with bad channels and the individual FEM head models are now fixed.
- Fixed crash when using key shortcuts to start or open batches (e.g. ctrl+R) when no file is open.
- Combine Conditions: Baseline correction is now taking an additional sample into account, fixing the inconsistency with the interval definition in the combine conditions dialog.
- Fixed crash when opening the DSA window for EEG data without default sensor labels and when switching to the next page.
- Export: Fixed export functionality for data segments crossing the midnight line.
- Export: Export with append is now again possible from the menu File -> Export.
- ICA: The wrong polarity flip of **ICA** exported data has been corrected.
- Settings stored in *fst* file are now kept as far as possible when accessing a file from two different computers, e.g. on the network.
- Research 6.0 now reads *fst* files written by Research 5.3.7.x and below.

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- Read filter settings from local *fst* files even for averaged data.
- ERP: Upgrades in fonts in the ERP module for better visualization in all screen resolutions.
- Fixed crash for very long file lists in batch mode.

BESA Research 6.0 November – Quick Patch 6.0.1.1

Bug fixes

- Fixed occasional crash when loading artifact (*atf*) files.
- TopView: BESA Research no longer crashes under Windows XP when more than two FSG-files are open and more than two peak searches are performed subsequently.
- Paradigm window: If specific font size settings were chosen in Windows some of the buttons in the Paradigm window weren't visible. This is no longer the case.

Version 6.0 November 2012

Bug fixes

- Interaction with new BESA MRI 2.0 November version has been updated. Uses individual 3D source space in case individual FEM is selected. Otherwise uses default source space.

Version 6.0 Beta September 2012

New features

- Independent Component Analysis (ICA): Decomposition of EEG/MEG data into ICA components in the main window. ICA components can be used for artifact correction or as spatial components in source analysis. It is also possible to create ICA-reconstructed data only consisting of selected ICA components.
- Dynamic Imaging of Coherent Sources (DICS, Gross et al., 2001): New source analysis method. Allows to calculate coherence between any two brain voxels or between an external source and brain voxels. DICS can be used to determine coherence in evoked or induced data.
- Source analysis can now be performed with individual volume conductor models (FEM) that were created in BESA MRI. After co-registration, the individual FEM model is automatically available in the head model selection in the source analysis module of BESA Research 6.0.