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## BESA Research 7.1 - Reader Documentation

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## Data readers for BESA Research 7.1

BESA Research supports most major EEG and MEG file formats. This document gives an overview of all the data formats that can be imported in BESA Research 7.1. If your file format cannot be found in this list, please contact us via our support portal: <https://besagmbh.atlassian.net/servicedesk/customer/portals>.

## Supported EEG data formats

Format	Extension
BESA / FOCUS high compression format	.foc .fsg
BESA new data format	.besa
BESA ASCII (avr + multiplexed format)	.avr .mul

FOCUS (1.x binary), EEGFOCUS (2.x binary)	.foc .fsg
Alpha-Trace (alpha-trace medical software)	.alp
ATES *	
BDF (BioSemi)	.bdf
Beekeeper64 (Telefactor)	.eeg .dat
Bio-logic (Natus, CEEGraph) *	.eeg
BrainAmp / Brain Vision (Brain Products)	.eeg .vhdr
BrainLab (Schwarzer)	.sig
BrainStar (Schwind Medizintechnik)	.eeg
Cadwell *, **	.flex
DCmes, PolyDC (MES)	.dat
Deltamed (Natus, Coherence) *	.eeg
EBNeuro (Galileo.NT and Galileo.NET 3.5) *	.gnt, .set
EDF (European Data Format) and EDF+	.edf
EEProbe (ANT)	.cnt
Electrical Geodesics, Inc. (EGI)	.raw .ses
EGI MFF*	.xml
magstim EGI (Philips) MFF *	.mff
ERPSS	
g.Tec (Guger Technologies) *	.hdf5

Galileo (EBNeuro, installation required) *	.nt
Generic Reader (any simple binary or ASCII formats; see BESA Program Help)	
Grass-Telefactor (TWinREF) *	.ref
InstEP (installation of manufacturer software required) *	.c .is .ia
Konstanz file format *	.raw .sum
MANSCAN interchange format (SAM) *	.mbi
MED Dark Horse Neuro	
Medtronic *	.wg1
MEF (Multiscale Electrophysiology File 2.0) *	.xml
Micromed *	.trc
Neuralynx *	.ncs
NeurOne *	
Neuronic *	
NeuroScan	.cnt .avg
NeuroScan Curry 7 *	.rs3 .dap .dat .ce*
NeuroScan Curry 8 *	.dpa .cdt .ceo
NeuroScan Curry 9 *	.dpo .cdt .ceo
NexStim	.nxe
NicoletOne / Nervus (Nicolet Biomedical Inc., installation required) *	.e .eeg
Nihon Kohden EEG 1100 / 1200 / 2100	.eeg

Phoenix II (EMS) *	s*.0 s*.1 ...
Stellate Systems (Harmonie, installation required) *	.sig
Stellate Systems (Monitor)	.eeg
Vangard (LaMont Medical Inc.) *	B****, no extension
XDF	.xdf
XLTEK	.eeg .erd

If files are in one of these formats, they can be read directly and conversion is not required.

BESA Research also has a new, flexible interface for importing ASCII files which can be used in conjunction with the ASCII export functions of your software.

Any EEG format can be converted to the compressed BESA binary format, ASCII format, EDF+ or simple binary format.

For more information, please submit your support request here: <https://besagmbh.atlassian.net/servicedesk/customer/portals>.

\* Install this reader using *Install Additional Readers.htm* in the *Utilities\Additional Readers\* folder.

\*\* The Cadwell reader requires the installation of the Cadwell Arc API. If this API is not already installed on your computer, download it from the following link and install it on your computer: <https://my.hidrive.com/link/PFh5kbFb>. The API must be installed in the suggested default path on your C: drive.

## Supported MEG data formats

Format	Extension
ASCII	
BESA 2000 / FOCUS high compression format	.foc .fsg
Cerca Magnetics OPM*	.fif
CTF	.meg4
Neuromag	.fif
Ricoh **	.con
Yokogawa **	.con

MEG format details can be provided upon request.

For more information, please submit your support request here: <https://besagmbh.atlassian.net/servicedesk/customer/portals>.

\* Requires prior conversion to .fif using a proprietary script supplied by Cerca Magnetics.

\*\* Install this reader using *Install Additional Readers.htm* in the *Utilities\Additional Readers\* folder.

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