g·**NEED**ACCESS
NETWORK ENABLED EASY DATA ACCESS

g.NEEDaccess is a server that facilitates simple and platform independent data acquisition from (multiple) devices over a network or direct connection, which considerably reduces workload.

g.NEEDaccess allows you to acquire data easily from g.tec devices without having to take care of low-level aspects of data acquisition. The server handles acquisition and preprocessing of data such that the user receives data ready to analyze.

Since data acquisition is also realized over the network, it is now possible to collect the acquired data on a different computer than the one connected to the g.tec device (if both are connected to the network). Moreover, the server is able to provide data from a single acquisition simultaneously for multiple clients. Thus, multiple users across different systems can simultaneously review data in real-time.

The reference implementation of the server's network API provides a wide range of functions that ease data acquisition and also support device-specific operations. The Client API provides a high-level C and .NET library to facilitate integration in your own projects, which handle communication with the server using the network API underneath. Besides the network-based access to the server, direct access with increased communication speed is also possible.

PRODUCT HIGHLIGHTS

- Platform independent data acquisition for g.tec devices
- Data acquisition from multiple devices
- Easily access ready-to-analyze data
- Remote access to data acquisition devices
- Client C/C++ and MATLAB API available

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MATLAB API

The toolbox is a device driver that lets users read biosignal data like EEG, ECoG, EMG, EOG and ECG within the MATLAB environment. MATLAB is a very flexible development environment, which allows you to easily set up your own signal acquisition and analysis by utilizing all available toolboxes from MATLAB (like Statistics, Neural Networks, and Signal Processing). One of the key advantages of the API for MATLAB is that it is fully integrated into MATLAB. Therefore, you can start data acquisition within minutes, and build your application easily and quickly.

The API for MATLAB is available for g.HIamp, g.USBamp, g.Nautilus and g.MOBIlab+ (only MATLAB 32 bit, requires data acquisition toolbox).

PRODUCT HIGHLIGHTS

- Acquire EEG, ECoG, ECG, EMG, EOG data directly within MATLAB
- Control g.HIamp, g.USBamp, g.Nautilus and g.MOBIlab+ from the MATLAB command line
- Write your own MATLAB programs for on-line visualization and signal analysis
- Easily use the MATLAB API to handle g.tec amplifiers
- Data can be read directly into MATLAB for further off-line processing
- Speed up your development time – from months to hours

TECHNICAL SPECIFICATIONS

The API for MATLAB contains commands that provide full access to the amplifier. There are commands for reading the data, setting the bandpass and Notch filters, changing the sampling frequency of the amplifier, defining bipolar derivations and calibrating the system.

FEATURES

- Connect Devices to the Computer: This function returns all g.tec devices available at a defined endpoint (IP address and port). Host and local IP and corresponding ports are required to use this function.
- Measure Impedance: g.NEEDaccess allows the measurement of channel impedances for g.Nautilus, g.HIamp and g.USBamp.
- Get Available Channels: This allows you to check which EEG channels are available.
- Get Available Filters: This command reads out all available bandpass and notch filters.
- Get Supported Sampling Rates: This reads out supported sampling frequencies.
- Get Device Info: This command reads out the serial number of the device.
- Get Scaling: This reads out the scaling factor and offset for each EEG channel.
- Set Configuration: This sets the configuration of the devices.
- Start Data Acquisition: This starts the data acquisition with the settings provided.
- Stop Data Acquisition: This stops the data acquisition.
- Get Data: This command reads out EEG data during data acquisition.

C API

The Application Programming Interface (API) allows you to access the amplifier from many programming environments. The API has functions to fully control the amplifier from C, C++, Visual Basic, LabView and many more programming languages. The API is available for Windows operating systems. It enables you to program your own sophisticated biosignal acquisition and data processing applications. Sample programs and the well documented source code in the electronic manual serve as a template for your programs. The device driver package contains demo programs that show you how to use of all functions and help to get started with the API.

The C API is available for g.HIamp, g.Nautilus, g.USBamp and g.MOBIlab+.

PRODUCT HIGHLIGHTS

- Acquire EEG, ECoG, ECG, EMG, EOG data in your own programs
- Available for Windows
- Include your own sophisticated data processing algorithms
- Develop stand-alone programs for biosignal analysis

Find g.tec's complete product list online in the Download section of www.gtec.at