

# Step-by-Step Tutorial for Installing and Using BRKRAW on Mac OSX

## 1. Installing BRKRAW on Mac OSX (Terminal)

### 1.1 Prerequisites

Before installing BRKRAW, ensure you have:

- **Updated Mac OSX**
- **Python 3.6 or 3.7** (You can download it from [python.org](https://python.org) or use [Anaconda](https://anaconda.org)).
- **pip** installed (automatically installed with Python).

To verify Python and pip installations, open Terminal and run:

```
python3 --version  
pip3 --version
```

If you see version numbers, you are ready to continue.

### 1.2 Step-by-step Installation

1. Open the **Terminal** (from Applications → Utilities → Terminal).
2. Run the following command to install BRKRAW from PyPI:

```
pip3 install bruker
```

1. For additional support (recommended), install with:

```
pip3 install "bruker[SimpleITK]"
```

1. (Optional) To install the latest version from GitHub:

```
pip3 install git+https://github.com/brkraw/bruker
```

### 1.3 Verifying the Installation

To confirm that BRKRAW was successfully installed, run:

```
brkraw --version
```

If a version number appears, the installation was successful.

Optionally, you can launch the graphical interface with:

```
brkraw gui
```

## 2. Creating and Editing the BIDS Template (.xlsx)

### 2.1 Creating the Template

1. Place your Bruker data in a specific folder, for example:

```
/Users/your_username/bruker_data/
```

1. Open the Terminal and run:

```
brkraw bids_helper /Users/your_username/bruker_data/ dataset_template -j
```

This command will generate two files in your folder:

- `dataset_template.xlsx` (to edit in Excel)
- `dataset_template.json` (for metadata)

### 2.2 Editing the Template (.xlsx)

1. Open `dataset_template.xlsx` in Excel.
2. Carefully complete the required columns, for example:

folder	modality	task	acq
acqp1	bold	resting	echo-1
acqp2	T1w		

- **folder**: Original Bruker folder names.
- **modality**: Type of images (bold, T1w, T2w).
- **task**: Only required for functional images (e.g., resting).
- **acq**: Optional additional parameters according to your experiment.
- Save the changes before closing Excel.

## 3. Converting Data to BIDS Format Using the Template

### 3.1 Executing the Full Conversion

In the Terminal run:

```
brkraw bids_convert /Users/your_username/bruker_data/ dataset_template.xlsx -j  
dataset_template.json -o /Users/your_username/output_BIDS/
```

This command:

- Converts original data into NIfTI format.
- Automatically generates the BIDS data structure in the output folder.

### 3.2 Final Review

Check the content in the `/Users/your_username/output_BIDS/` folder. The typical structure should look like this:

```
/Users/your_username/output_BIDS/  
├─ sub-01/  
│   ├─ func/  
│   │   ├─ sub-01_task-resting_bold.nii.gz  
│   │   └─ sub-01_task-resting_bold.json  
│   └─ anat/  
│       ├─ sub-01_T1w.nii.gz  
│       └─ sub-01_T1w.json
```

### 3.3 Validation

To ensure everything was generated correctly, validate your dataset with [BIDS Validator](#).

## 4. Additional Tips for Beginners

- **Always use the Terminal in normal mode** (no need to run it as administrator).
- Basic navigation commands:

```
cd /Users/your_username/bruker_data/ # Enter the directory  
ls # View directory contents
```

- Always use the **BIDS Validator** to confirm the correct organization.

Done! Your data is now organized and ready for analysis using BRKRAW in BIDS format on Mac OSX.