# Fraser Health clinical EEG channel types and how they are handled in the software

## General

The information regarding the currently known channel names, types, and their handling is summarized in a JSON file named [preproc\_conf.json](https://github.com/catvasily/eegfhabrainage/blob/feature/amoiseev/preprocessing/preproc_conf.json). Among other things, this file contains five groups of channels listed under their corresponding keys, and a mapping section.

* **"target\_channels"**are mandatory channels that must be present in the EEG record. If any of these channels are missing, the record will be skipped. The list is **case-insensitive**; for example, channel name Fpz is considered the same as FPZ.
* **“opt\_channels”** are optional channels that will be kept in the record if they are present. The list is case-insensitive.
* **“eog\_channels”**. Channels with those names (case-insensitive) are considered to be EOG channels.
* **“ecg\_channels”**. Channels with those names (case-insensitive) are considered to be ECG channels.
* **“exclude\_channels”** list consists of channels that, if present in the EEG record, will be dropped. The list is **CASE SENSITIVE**.
* **“rename\_channels”** section represents a mapping between channel names in the original EDF recording and standard EEG channel names recognized by MNE Python software. Non-standard channel names (i.e., "L EOG") are sometimes assigned by hospital technicians. The mapping defines how such channels are renamed during the first preprocessing/segmentation step. Without such remapping, some MNE Python standard functions may generate an error.

## Channel names by hospital

Channel names encountered in EEG records for specific hospitals are provided below.

### Abbotsford

['', 'A1', 'A2', 'AUX1', 'AUX2', 'AUX3', 'AUX4', 'AUX5', 'AUX6', 'AUX7', 'AUX8', 'C3', 'C4', 'CZ',

'EKG', 'F3', 'F4', 'F7', 'F8', 'FP1', 'FP2', 'FPZ', 'FZ', 'L EOG', 'L SPH', 'O1', 'O2', 'P3', 'P4',

'PG1', 'PG2', 'PZ', 'Patient Event', 'R EOG', 'R SPH', 'T3', 'T4', 'T5', 'T6', 'Trigger Event']

*Please note the* ***empty (‘’)*** *channel name. Most likely it refers to a 2nd ECG channel in addition to channel named ‘EKG’*.

### Burnaby

['A1', 'A2', 'AUX1', 'AUX2', 'AUX3', 'AUX4', 'AUX5', 'AUX6', 'AUX7', 'AUX8', 'C3', 'C4', 'CZ', 'Cz',

'DC1', 'DC2', 'DC3', 'DC4', 'DIF1', 'DIF2', 'DIF3', 'DIF4', 'ECG1', 'ECG2', 'EKG1', 'EKG2', 'EOG 1',

'EOG 2', 'EOG1', 'EOG2', 'F3', 'F4', 'F7', 'F8', 'FP1', 'FP2', 'FPZ', 'FZ', 'Fp1', 'Fp2', 'Fpz', 'Fz',

'O1', 'O2', 'P3', 'P4', 'PG1', 'PG2', 'PZ', 'Patient Event', 'Photic', 'Pz', 'T3', 'T4', 'T5', 'T6',

'Trigger Event', 'X1', 'X2', 'aux1', 'phoic', 'photic']

*Please note that there is no consistency in upper/lower case usage for some channels – for example ‘FP1’ and ‘Fp1’, ‘FPZ’ and ‘Fpz’. Besides some misprints are present: ‘phoic’/’photic’*.