**EDF data - position**

In the ‘Set Options’ screen, set ‘File Sample Contents’ to ‘GAZE position’.

Gaze position data reports the actual (x, y) coordinates of the subject’s gaze on the display, compensating for distance from the display. The units are in actual Data Files display coordinates (usually pixels) which can be set in the EyeLink configuration file PHYSICAL.INI. The default EyeLink coordinates are mapped to a 1024x768 display, with **(0,0) at the top left** and (1023,767) at the bottom right. Note that the settings of your presentation screen and the presentation software may overwrite the settings in PHYSICAL.INI.

**EDF data - pupil**

Pupil size data can be recorded as ‘area’ or ‘diameter’ in pixels. The area is recorded in scaled image pixels. Diameter is calculated from pupil area fit using a circle model. Note that when pupil diameter is your variable of interest, you should correct for viewing direction. When the eye rotates away from the camera during viewing, the pupil seems smaller. This effect can be corrected for with a geometrical model described by [Hayes and Petrov (2016)](https://www.ncbi.nlm.nih.gov/pubmed/25953668), but this requires that you know the geometry of the eye tracking camera relative to the eye and the computer screen. Alternatively, you could use ft\_regressconfound to try and remove the influence of viewing direction on pupil diameter.

**Mapping to Presentation Stimuli**

If you want to inspect the accuracy of the recorded Gaze positions compared to what you presented on the screen, you need to convert the Presentation coordinates to screen coordinates. The convention in Presentation is that {x = 0; y = 0;} refers to the center of the screen. In case of even screen width and height, Presentation assumes an extra Pixel, i.e., in that case Presentation’s central pixel is one pixel to the right and one pixel below the true screen center.

An example for mapping between Gaze postions and presented stimuli (trials 1 to 5) is shown below (+ indicates presented targets, Gaze position depicted in blue).

Source: <https://www.fieldtriptoolbox.org/getting_started/eyelink/>