

Eyelink User Guide Version 1.2:

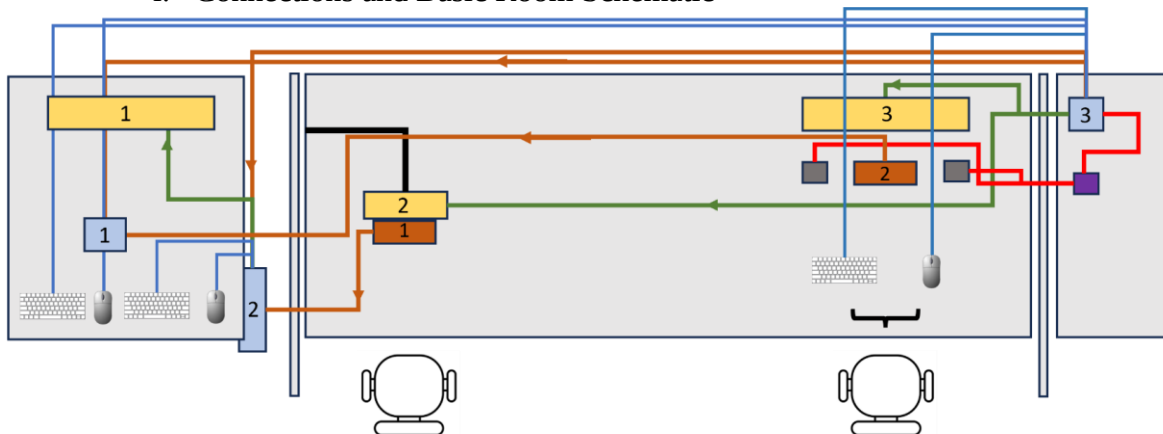
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1. Getting Started

a. Connections

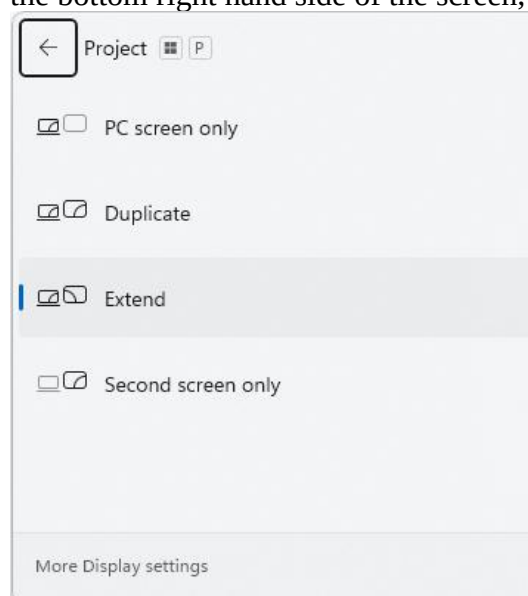
i. Connections and Basic Room Schematic



- | | | | | |
|-----------------------|--------------------|----------------------|-------------------------------|-----------------|
| — Monitor Connection | 1. Eyelink Laptop | 1. Eyelink Monitor | 1. Infant/Toddler Eye-tracker | Speakers |
| — Ethernet Connection | 2. Eyelink Desktop | 2. Arm Mount Monitor | 2. Adult Eye-Tracker | |
| — USB Connection | 3. DisplayPC | 3. Desktop Monitor | | Audio Interface |
| — Audio Connection | | | | |

ii. Setup

1. Start up the displayPC
2. Start the eye-tracking system for your study (adult or child system)
3. Check to see that the correct monitor is receiving display output from the displayPC
 - a. If it is, proceed
 - b. If not, hold the $\boxtimes$ key and press the 'p' key. A window will pop up in the bottom right hand side of the screen, seen below:



- c. Using either the mouse or by tapping the 'p' key to change the selection
 - i. If you need the Arm Mount display, select 'PC Screen Only'
 - ii. If you need the Desktop Monitor display, select 'Second screen only'
4. Ensure the participant is seated in front of the eye tracker and confirm appropriate settings on the eye tracking PC appropriate for your study
5. Confirm appropriate lens is being used
6. Begin!

b. General Information/Equipment

- i. Adult Study
 - 1. System
 - a. Dell Laptop (EyelinkPC)
 - i. Address: 100.1.1.1
 - b. Minisforum DisplayPC
 - i. Address: 100.1.1.2
 - c. Chinrest
 - d. Desktop Monitor
 - i. Positions
 - 1. Distance from chinrest
 - 2. Distance from eye tracker
 - ii.
 - e. Infrared
 - i. DM-890
 - f. Lens: 25mm
 - ii. Child Study
 - 1. System
 - a. Dell Desktop Computer (EyelinkPC)
 - i. Address: 100.1.2.1
 - b. Minisforum DisplayPC
 - i. Address: 100.1.2.2
 - c. Arm Mount and monitor
 - d. Infrared
 - i. DM-890
 - e. Lens: 16mm
 - iii. Infant Study
 - 1. System
 - a. Dell Desktop Computer (EyelinkPC)
 - i. Address: 100.1.2.1
 - b. Minisforum DisplayPC
 - i. Address: 100.1.2.2
 - c. Arm Mount and monitor
 - d. Infrared
 - i. AM-940
 - e. Lens: 16mm
- c. Troubleshooting
 - i. No display on screen
 - 1. Ensure the display PC is powered
 - 2. Check to see if the screen is active by pressing the power button
 - 3. Refer to the screen switching process on page 1
 - ii. Error Message: Cannot connect to eye tracker (address)
 - 1. Confirm correct eye tracker has power and is on
 - 2. Check ethernet cable connection
 - 3. Restart eyetracker
 - 4. Restart DisplayPC
 - 5. Confirm experiment file is attempting to connect to the correct eye tracker
 - iii. Data issues?
- 2. Stimulus Software
 - a. Experiment Builder
 - i. Provided by SR Research, this is most easily integrated with the Eyelink system for presentation of stimuli and creation of new research projects.
 - ii. Experiment builder uses a 'drag and drop' interface for users to build experiments.
 - 1. Example images and explanations of what the symbols mean
 - 2. Basic example study?

- iii. Simple creation steps
 - 1. Conceptualize
 - 2. Build
 - a. (Screenshots with brief instructions on major interaction points)
 - 3. Test
 - a. How to test
 - 4. Deploy
 - a. Conversion from test run to deployed and usable study
 - iv. If you would like a more detailed guide, there are several available at www.sr-research.com on the forum (requires registration) or contact the lab engineer
 - b. E-Prime 3
 - i. The system utilises the E-Prime Extension for Eyelink which creates dedicated E-Prime objects for more effective integration
 - ii.
 - c. PsychoPy
 - i. Please contact the lab engineer if you wish to install and use PsychoPy or python with the Eye-link system
 - ii. Currently unsupported, but can be implemented
- 3. Data Analysis
 - a. DataViewer
 - i. Designed to work with Eyelink eye tracker data recorded with EDF (Eyelink Data Files) and is used to display, filter, or create output files.
 - ii. Basic Workflow
 - 1. Create a new viewing session
 - 2. Import EDF files
 - 3. Set your time period(s) of interest
 - 4. Set or modify regions of interest
 - 5. Set trial condition variables
 - 6. Create reports
 - iii. A more detailed user manual can be found on the forums at www.sr-research.com, or contact the lab engineer
 - b. Matlab
 - i. There are two ways to import data into Matlab for data analysis
 - 1. EDF Files
 - a. These files are ‘Eyelink Data Files’ and may require additional packages or plugins to be imported into Matlab (ex: Eyelink Toolbox)
 - b. Once imported, these files can be processed via the researcher directed pipeline
 - 2. ASCII Files
 - a. A general text based file, usually fixed-width or delimited format, that allows for import to Matlab and many other programs
 - b. Once imported, these files can be processed via the researched directed pipeline
- 4. Care and Cleaning
 - a. Ensure all devices are turned off after study completion
 - b. Place lens cover on camera lens
 - c. Wipe surface of chin rest if used during study
 - d. Put any supplies back in the storage cabinets
 - e. Turn off the lights
 - f. Lock the door
- 5. Advanced Integration
 - a. EEG
 - i. Integration with the EEG system (Brainproducts EEG) is through TCP/IP Communication (for configuration and control) and TTL signalling (for trial events).

- ii. Stimulus presentation software must send TTL signals to the EEG equipment via parallel port (virtual or real) and messages to the EyelinkPC.