CA400 User Manual

Project Title: LiveFocus
Students: Cormac Duggan and Sean Hammond
Student Numbers: 17100348, 17374356
Supervisor: Graham Healy
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Abstract

In the current environment of online work and school in the form of synchronous and asynchronous lectures, it can be hard to retain a student's focus over an extended period of time. With the extent of information and distractions available to students at an instant, it is almost a given that unengaging learning environments will lose the attention of the people they are being provided to. To combat this inevitability, we have developed an application which will allow lecturers or video creators to track their viewer's attention retention. With the use of a Muse EEG device, users will be able to record and analyse the results of a viewing session of one of their provided videos. With sufficient sample sizes they can then find key points in a video where the viewer's attention is lost and adjust their videos accordingly prior to distributing them to students.

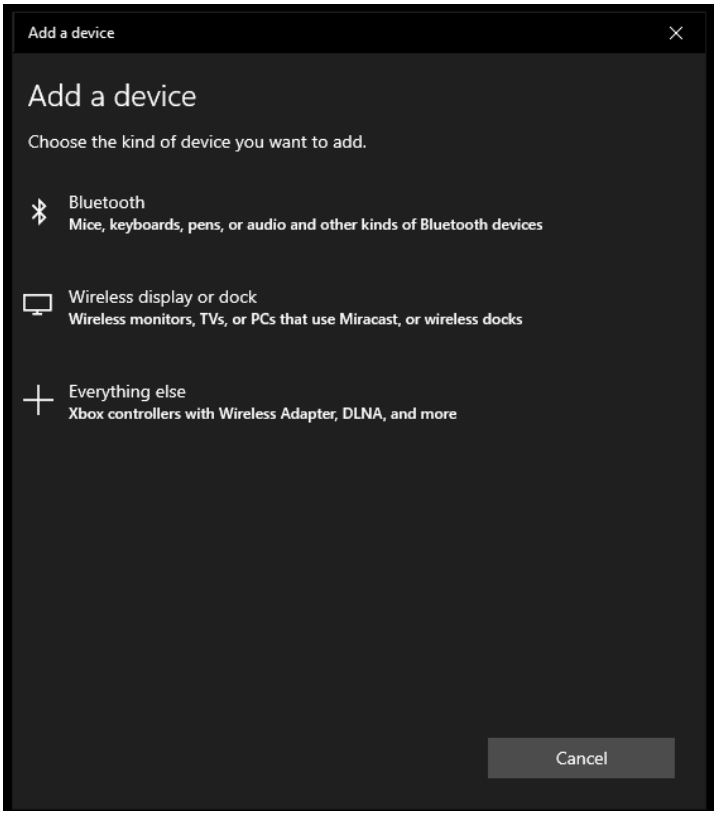
Installation

After cloning the project repo into a new local directory, the project should be opened in a Java IDE. In order to successfully build the project and run the Main class, the following Java dependencies must be added to the project.

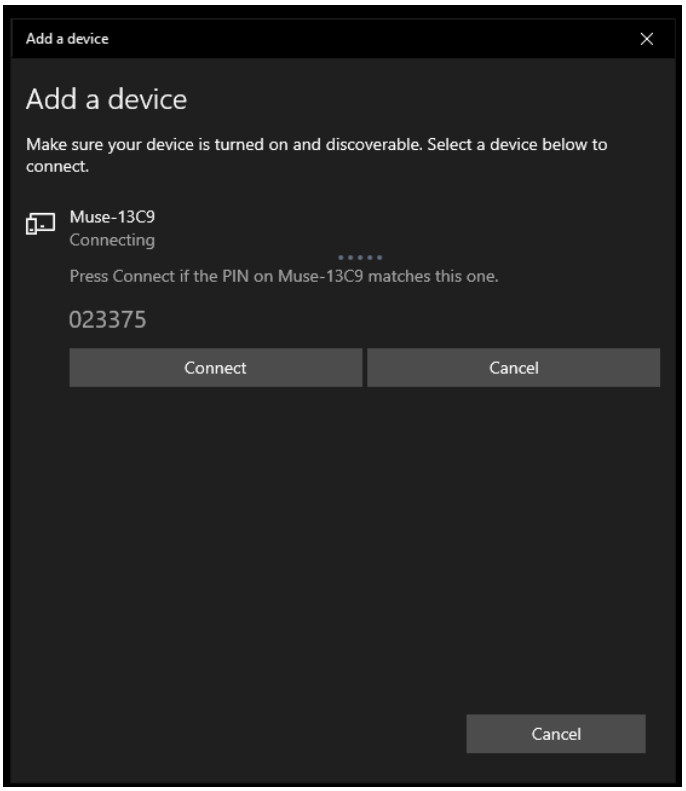
1. Maven
2. XChart (3.8.0 jar): https://knowm.org/open-source/xchart/
3. JGoodies-Commons (1.8.1 jar): http://www.jgoodies.com/downloads/libraries/
4. JGoodies-Forms (1.8.0 jar): http://www.jgoodies.com/downloads/libraries/
5. JUnit (4.13.2 jar): https://search.maven.org/search?q=g:junit%20AND%20a:junit
6. Hamcrest (1.3 jar): https://search.maven.org/artifact/org.hamcrest/hamcrest-core/1.3/jar
7. Mockito (1.9.5 jar): https://mvnrepository.com/artifact/org.mockito/mockito-all/1.9.5

In order to pair the Muse to the PC during first time setup, navigate to the Bluetooth Settings page in Windows Settings and turn on Bluetooth, then click add Bluetooth or other device.

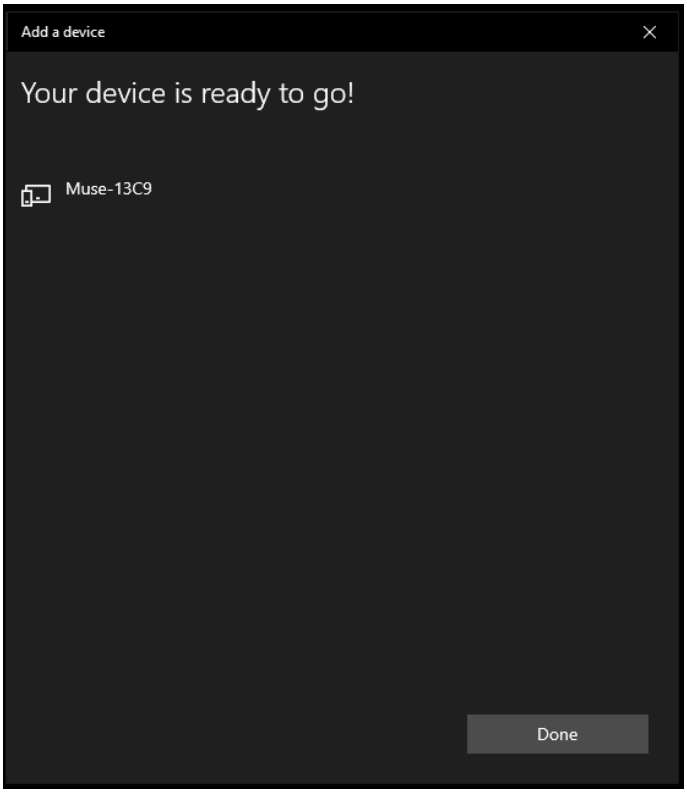
Select Bluetooth, then hold down the power button on the device for 5 seconds to turn it on in pairing mode.



Select the Muse when it appears and click Connect.



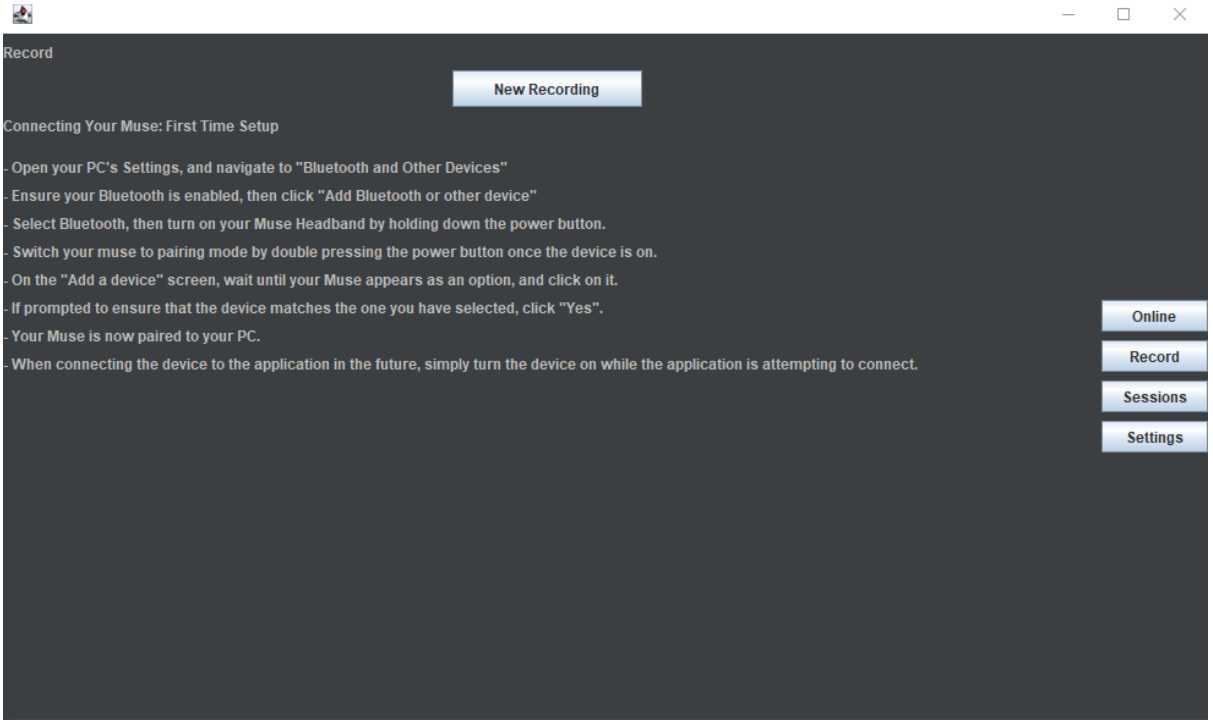
If the pairing is successful, this screen should appear.



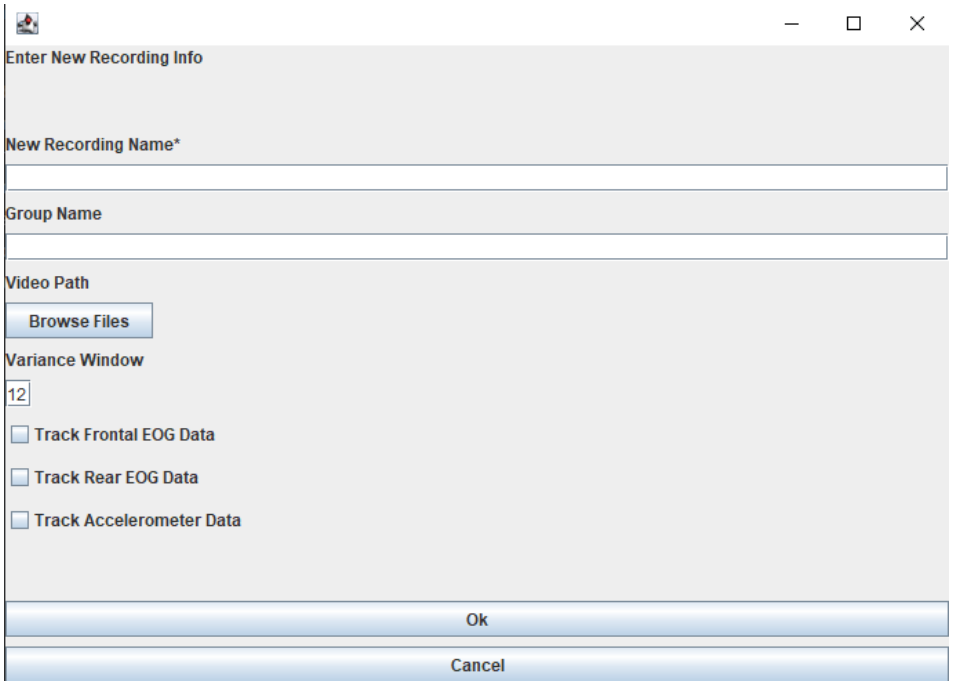
User Guide

Recording a Session

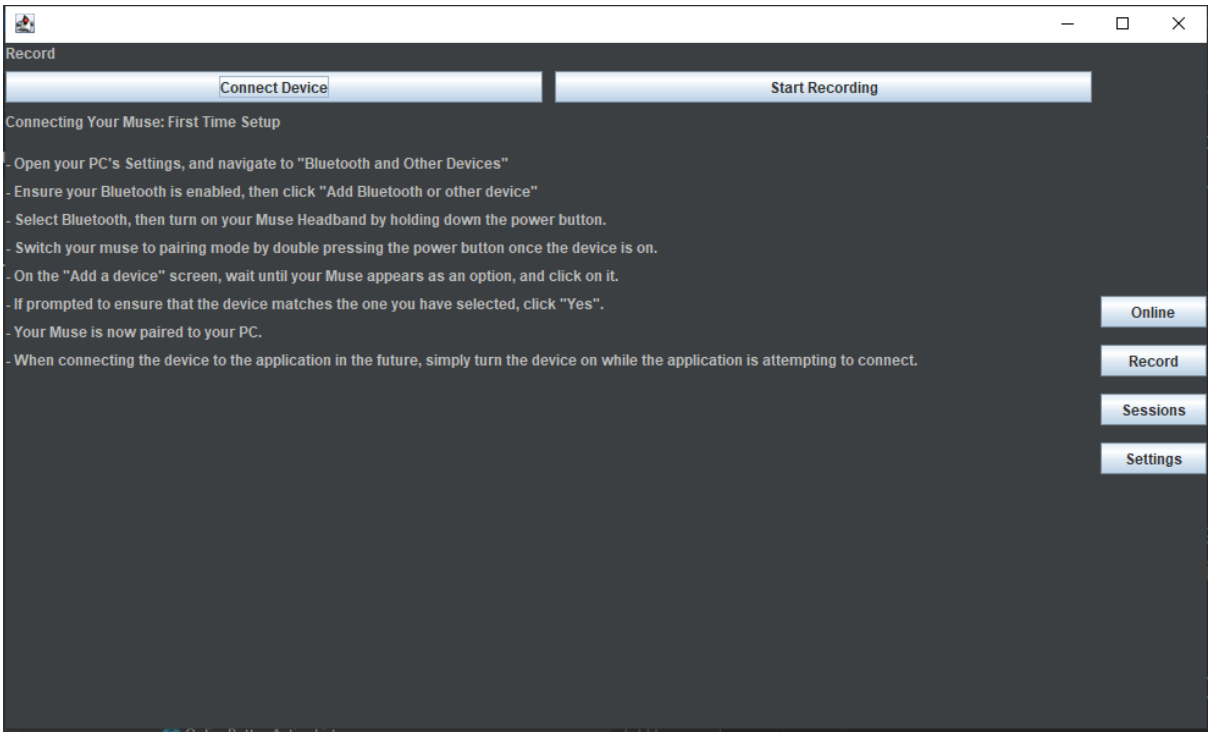
When you first open the application, you will be presented with the Record panel. You can then start a new session recording, or navigate to the Online, Sessions or Settings panels.



If New Recording is clicked, the user is presented with a dialogue to enter a number of settings and options for the recording. The user can now provide a name for the file to be created, a group to identify the file, a video file to play while recording, a variance window variable and the three available types of data to capture. The variance window effectively determines the sensitivity of the data graphing, a lower number results in more sensitivity while a higher number results in less.



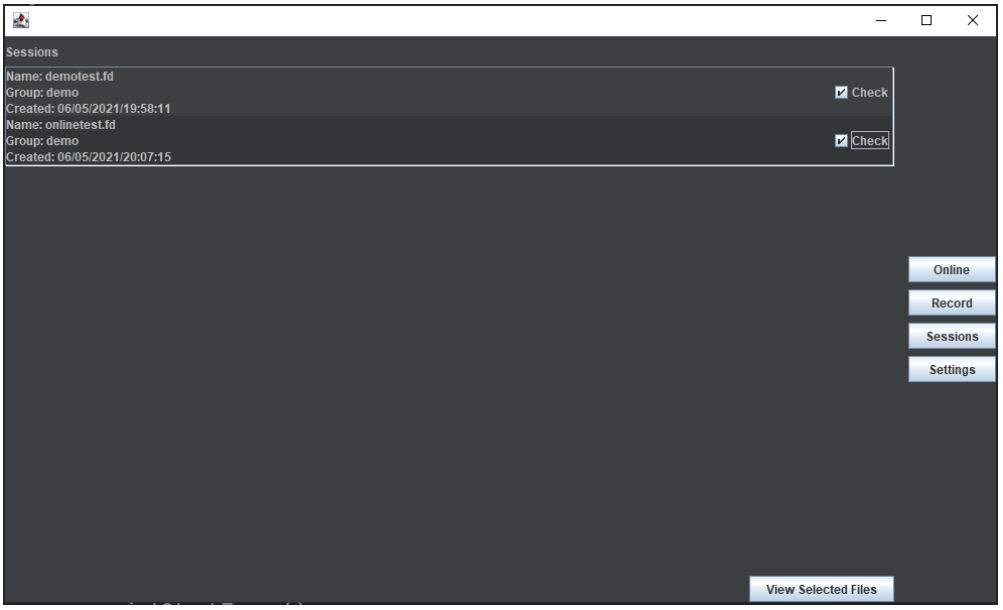
Clicking Connect will connect the application to the device, assuming the Muse is turned on. Once connected, clicking the Start Recording button will open up a new window with the selected video and a graph with the selected data types.



Clicking start recording begins the video player and the data capture, which is graphed in real time. The user can then end the recording at any time by clicking the Finish Recording button.

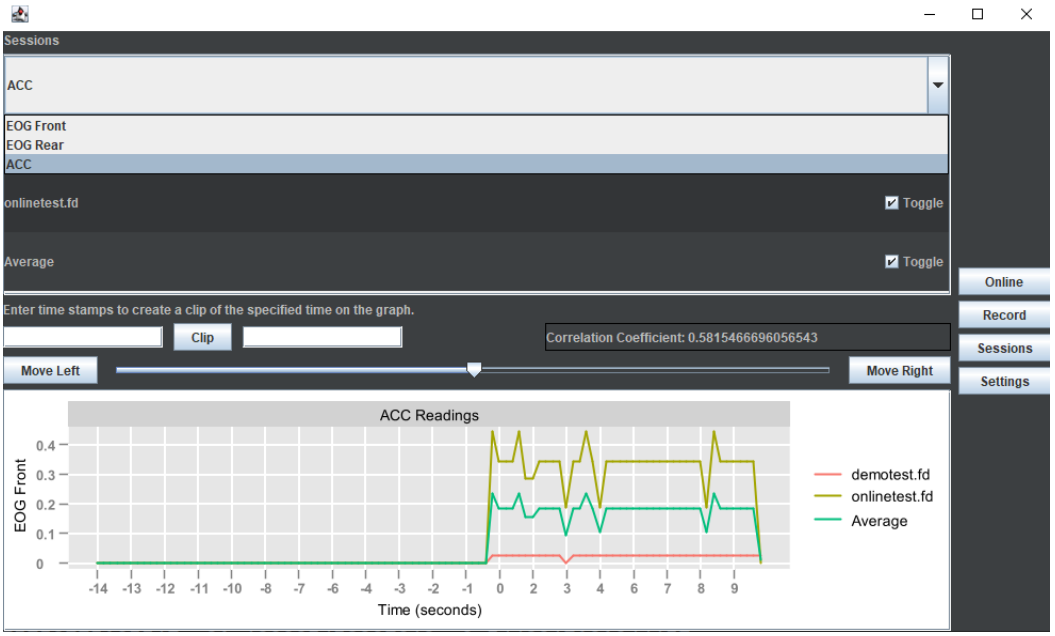
Viewing Sessions

In order to view sessions, the user must navigate to the Sessions panel using the sessions button. From here, the user can select any number of files and view them with the View Selected Files button.

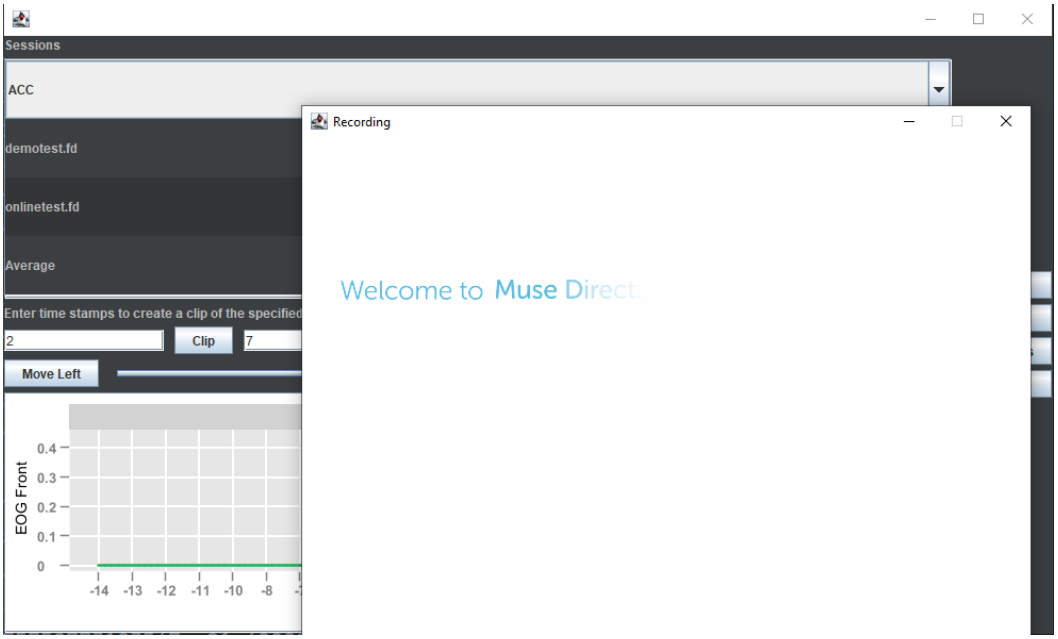


While viewing the selected sessions, the user can view all the graph lines for any recorded data type simultaneously, and toggle each line individually. When exactly two lines are selected, the Correlation Coefficient is displayed.

Using the drop-down menu at the top of the screen, the user can change between the available data types. Users can also toggle the average of the displayed lines.

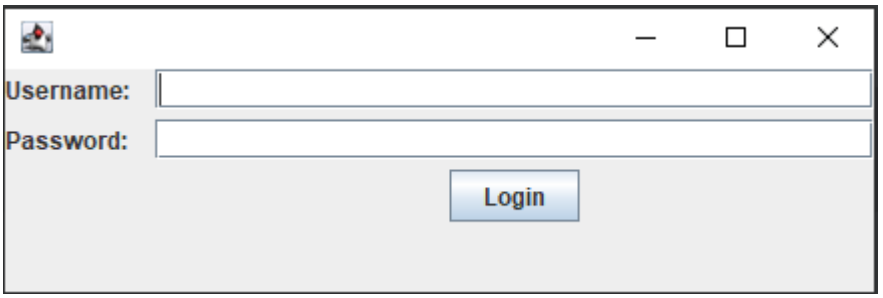


The user can give a start and end timestamp and press the Clip button to view a clipped version of the video used for recording the session, starting and ending at the provided timestamps.



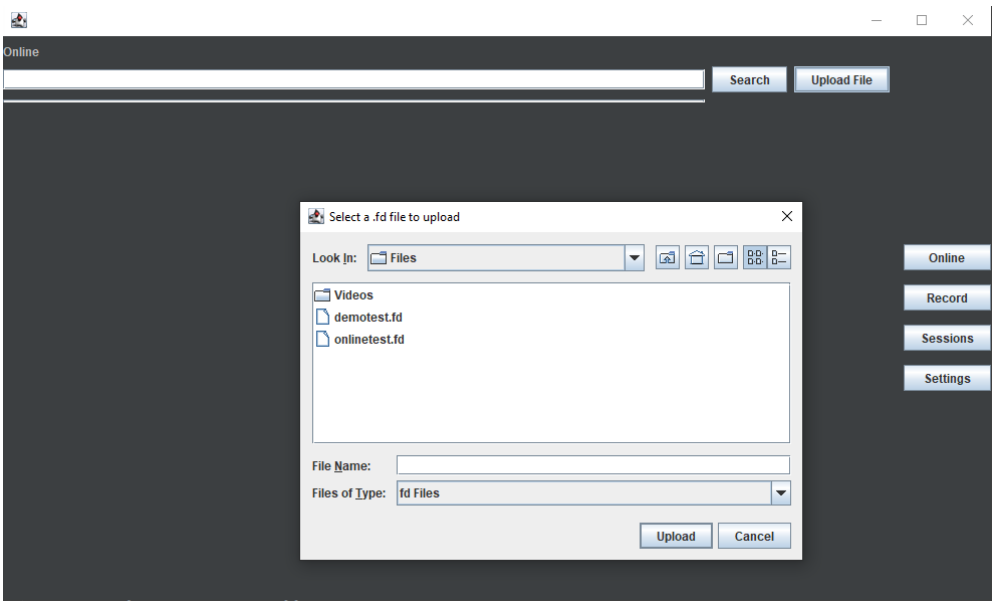
Uploading and Downloading Sessions

Clicking the Online button prompts the user to enter login information.

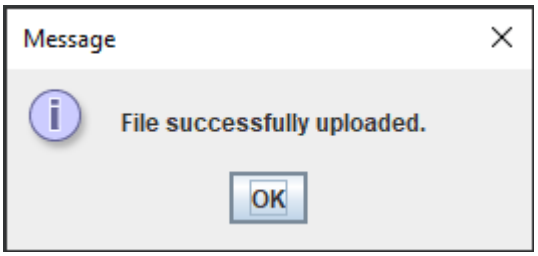


If a user provided valid credentials, they are brought to the Online panel, where they can both upload and download recording sessions.

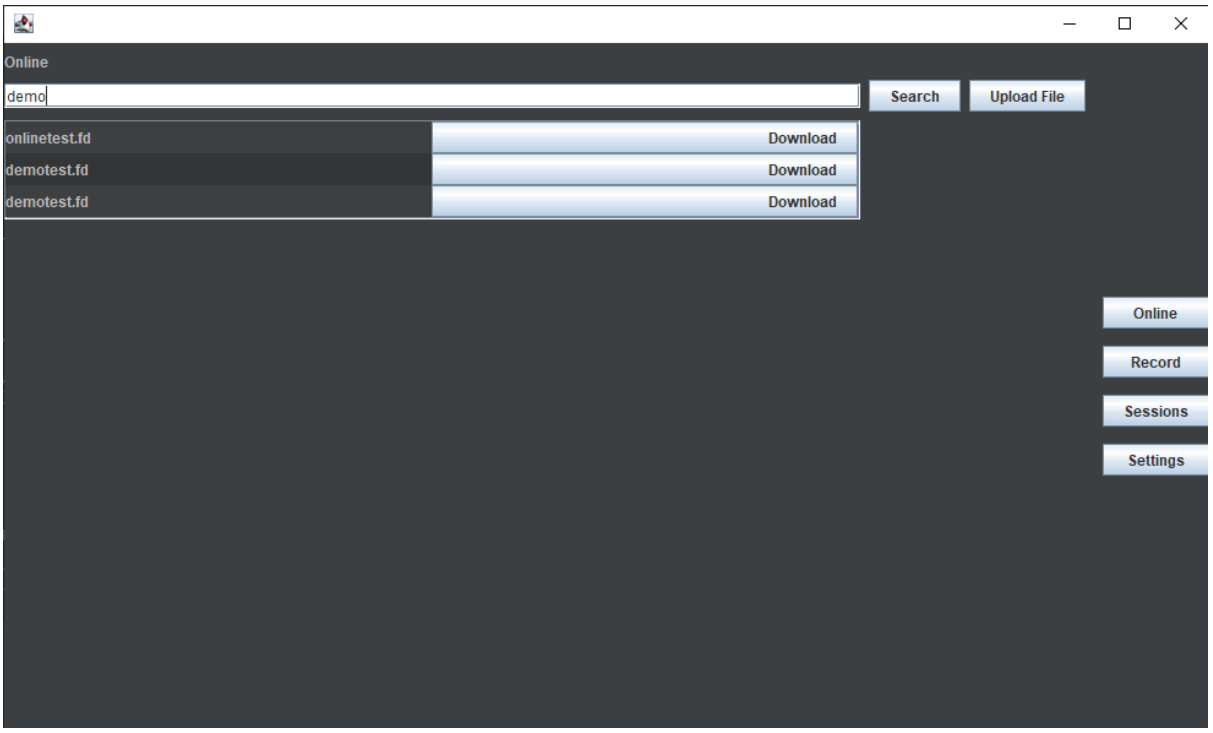
Clicking Upload File opens up a file chooser window. The user must provide a valid .fd file to be uploaded.



If the file is uploaded successfully, this message will be displayed.



If a search term is entered into the search bar and Search is clicked, all files with a matching name or group name are listed, and pressing the Download button will download the file and place it in the user's sessions directory.



Settings

If the user wishes to change the directory in which sessions are being stored, they can navigate to the Settings panel and click the Change File Save Location button. The user will be prompted to select a new directory, which files will be saved to in the future.