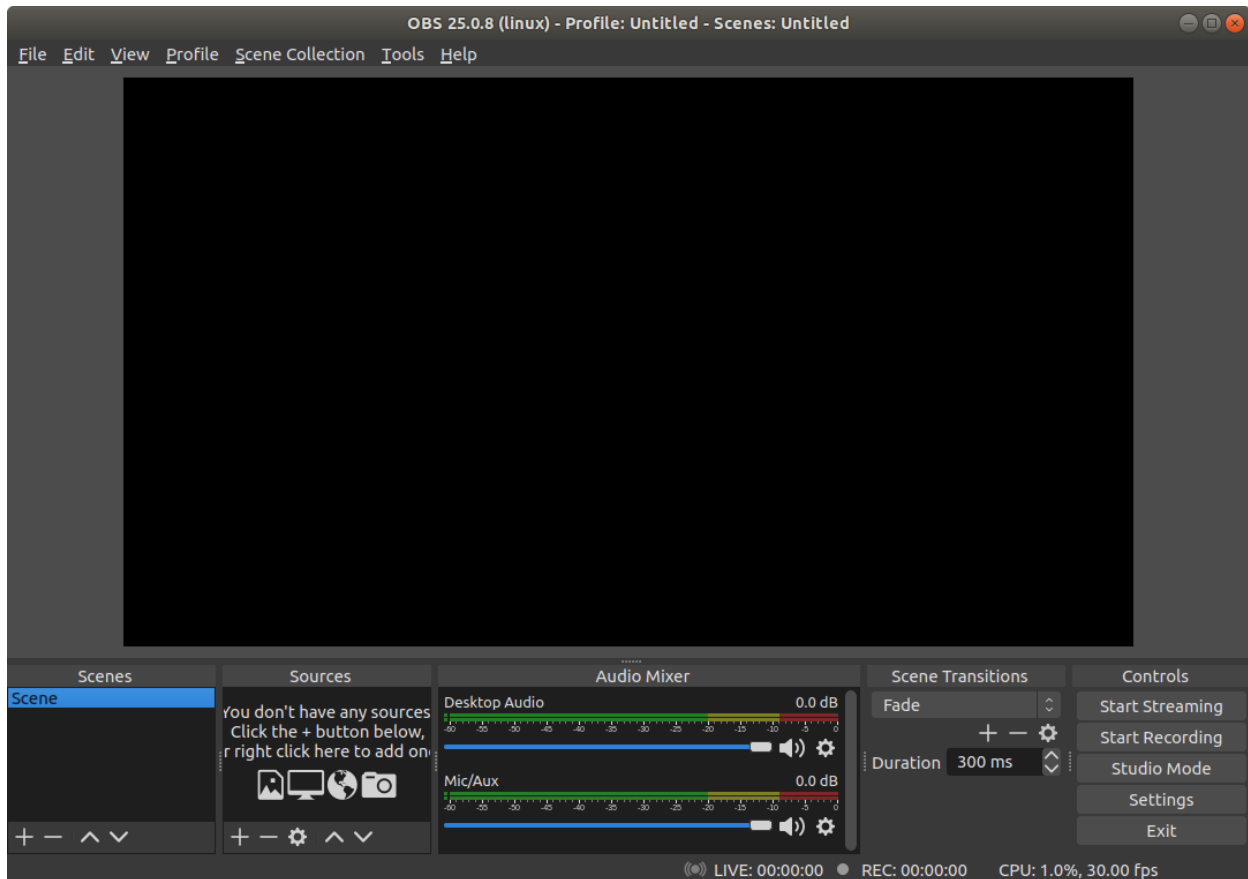


OBS Studio

OBS Studio has a main window that looks like the following



The main application window has several separate sub-windows:

1. The main sub-window that is at the top center of the main window
2. The **Scenes** sub-window on the bottom left.
3. The **Sources** sub-window on the right of the Scenes window
4. **Audio Mixer** sub-window
5. **Scene Transitions** sub-window
6. **Controls** sub-window on the bottom right that contains buttons like “Start Recording”, etc.

We will concern ourselves only with the main window (1), the scenes window (2), the sources window (3), and the controls window (6).

Download and Installation

You can download OBS Studio from <http://obsproject.com> for your OS.

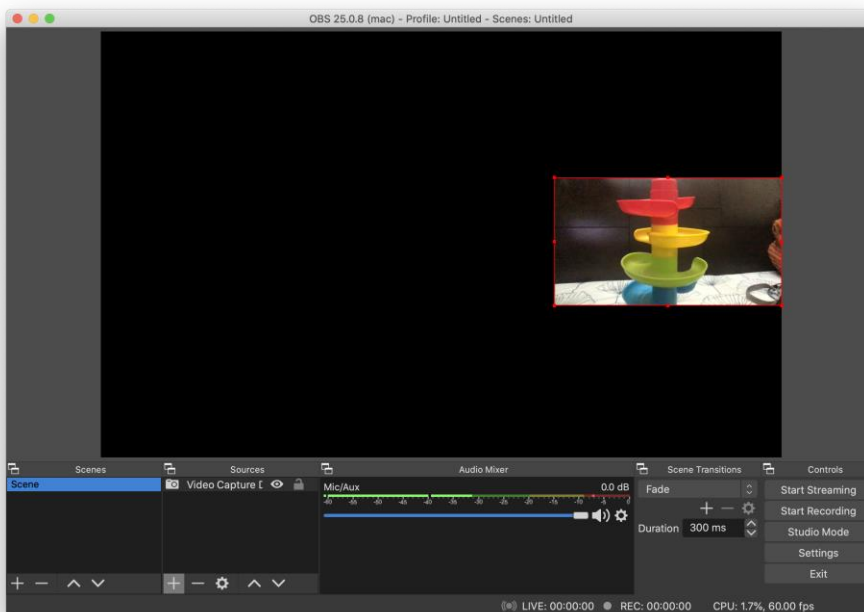
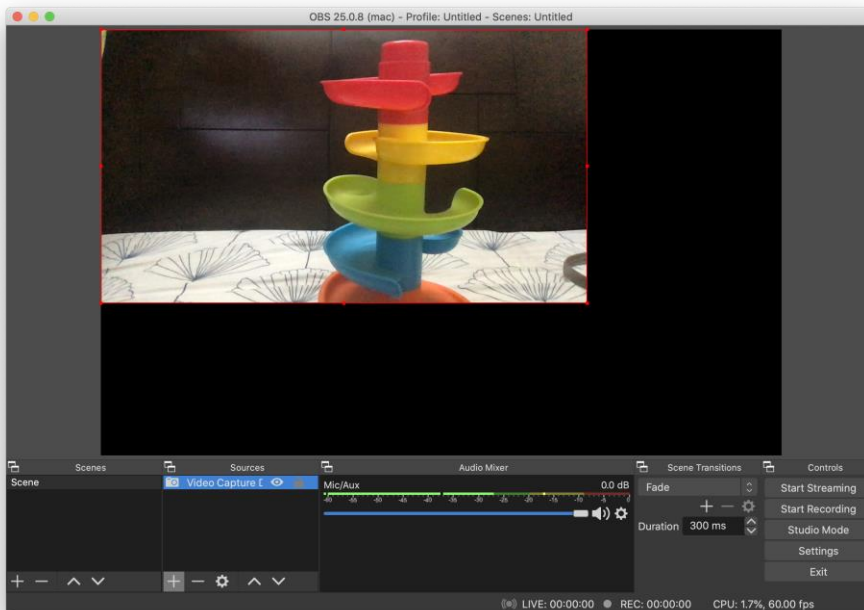
- During installation and during use, the software tool may request permission for accessing your microphone, camera, and recording your desktop screen – please grant these permissions whenever prompted.
- Then it would ask whether you would like to manually configure OBS or if you would like to run the auto-configuration wizard. Unless you know what you are doing, it is best to run the auto-configuration wizard.
- The auto-configuration wizard will ask you to “Specify what you want to use the program for”. Choose the option “Optimize just for **recording**, I will not be streaming”.
- You will be prompted with a form called “Video Settings”. Usually, selecting the default options (which are already chosen by the software) works fine.
- It would then take some time to perform “Testing” at different resolution levels. At the end you will be presented with some “settings that are the most ideal for you”. Choose “Apply Settings” to put them into effect.

You are now all set to start using the software.

Recording your presentation

1. Open OBS Studio, and you will be greeted with the main window shown on the first page.
2. Click “+” at the bottom of the **Sources** sub-window
3. **Setting up video recording through camera.** When you click “+”, you will see a menu of options like “Audio Input Capture”, “Audio Output Capture”,
One of the options would be “**Video Capture Device**”. Select this option to record a video of yourself speaking as you present your work.
 - a. You will be presented with a dialog box with options “Create new” and “Add existing”. Choose “Create new”. Also, there will be a checkbox called “Make source visible” which would be checked by default. Please leave it as it is (checked).
 - b. Then you will be presented with a window called “Properties for Video Capture Device”, where you are supposed to select the “Device” and the resolution. Choose your camera from the drop-down list of devices available. Leave the resolution and buffering settings to their default values. Press OK.
4. You should now return to the main window where you should be able to see the camera feed in the main sub-window. The camera feed would be outlined to indicate a **camera region**. The main subwindow indicates the contents of the final video that would be recorded. So you can position and resize the camera region inside the main subwindow as you would like it to appear in the final video. You can use your mouse to resize the camera feed (by click/drag/drop on the

outline). For example, the following two images show two different sizes and positions of the same camera feed.



5. **Setting up screen recording for your on-screen presentation.** Open your presentation developed in your favourite presentation software, such as Microsoft Powerpoint. Now go back to "OBS Studio" and add another "Source" by clicking the "+" symbol in the "Source" sub-window. Choose "Display capture" this time.

- a. In the dialog box that appears, choose “Create new” (and leave the “Make source visible” checkbox checked, as it is by default).
 - b. You may be greeted with a dialog box titled “Properties for Display Capture”. Simply retain the default options and press OK.
6. **Arranging your video sources.** At this point, you have set up **two** video sources: one is your video camera, and the other is your screen display. They both should now appear on your main sub-window. However, it is possible that you see only one of them. This is because one of them may be getting precluded by another. It is now time to arrange the two video sources so that they both appear at the proper positions in the final video screen. Here are a few tools that allow you to create an arrangement.
 - a. You can mouse-click on any of the video region (camera or display) and drag it around. You can click on the bottom-right corner of a video region to resize it. A video region may overflow the main sub-window, and so the bottom-right corner may not be always visible. But you can drag the video region up and left to reach the bottom right corner eventually.
 - b. You can vary the front-to-back orders of the different video sources by clicking the “^” and “v” buttons at the bottom of the “Sources” sub-window. These buttons control what happens if two video sources overlap at some regions of the screen. In these cases, the video source that appears earlier in the “Sources” list is displayed and the others are hidden behind it.

Important: Please ensure that the entire main sub-window is covered (I.e., there is a video source at each pixel of the displayed sub-window. Otherwise, your final video would have a “dark region” (the region which is not covered by any video source present) for the entire duration of the video.

At the end of this document, we show some example arrangements for your video.

7. **Starting the recording.** After you are satisfied with the arrangement, press the “Start Recording” button in the “Controls” sub-window. Switch to your presentation software and start presenting in full-screen mode.
8. **Stopping the recording.** After you are done presenting, switch back to the OBS window, and press “Stop Recording” in the “Controls” sub-window. Review your recorded video, and re-record if you are not satisfied.
9. If you are satisfied, you can proceed to the next step, i.e., either sharing the video with the video-editing team, or editing the video yourself using the video-editing software.

Example video arrangements

Here are some example arrangements of the video sources. You can create such arrangements by manipulating the video regions in the main sub-window of OBS.

Expressions in C

- Expressions may have side effects

$$(i = --j) + k$$


Using the language and its semantics

Semantics

A small diagram showing the relationship between syntax and semantics. It includes the text 'Syntax' and 'Semantics' with arrows indicating their interaction, and a small icon of a person.

Now that you have
a sense of how the
semantics and the
compiler work,
I'd like to talk

zoom

*We have a typechecker that reports error locations, fancy custom syntax, and syntax highlighting!