

Preparing a Video Tutorial for AESS

The introduction of the IEEE Aerospace Electronic Systems Society (AESS) Resource Center is an exciting opportunity for industry professionals to access high quality continuing education resources, and for authors to reach an expanded audience with their course materials. It is important for both users and authors that a high quality be maintained on the Resource Center, both in the technical content of tutorials, and in the video/audio recording quality.

Many universities and conference AV providers have dedicated hardware solutions and/or staff for recording lectures and tutorials. Subject to cost considerations (which can be significant for conference AV providers), we recommend utilizing these services where the venue is able to provide them, as the quality will generally be superior to that obtained using the approach described here.

This guide describes methods for producing recordings of tutorials in circumstances where dedicated AV hardware and staff support are not available. For most tutorials, adequate impact can be obtained using screen recording software, which is able to capture screen content and synchronized audio with high quality. A short video introduction produced using a tripod-mounted camera provides a sense of context. If the tutorial includes hand-written components, these can be captured either using the screen recording software with a pen-enabled tablet (see below), or using a camera directed at a board.

Hardware Considerations for Recording Audio

If the tutorial is being recorded at a desk (not in front of a live audience), acceptable audio quality can be obtained using a variety of low-cost microphones, such as a USB headset, or wired USB microphone. These solutions will be inadequate when recording in front of a live audience.

The recommended solution for recording in front of a live audience is a USB wireless lavalier microphone, such as the Samson XPD1 Lavalier. These enable freedom of movement for the presenter, and yet capture sufficiently high quality audio.

Testing should be performed beforehand to ensure that the recording volume is appropriate. The XPD1 has a gain adjustment in the battery compartment that may need to be varied.

Hardware Considerations for Capturing Hand Writing

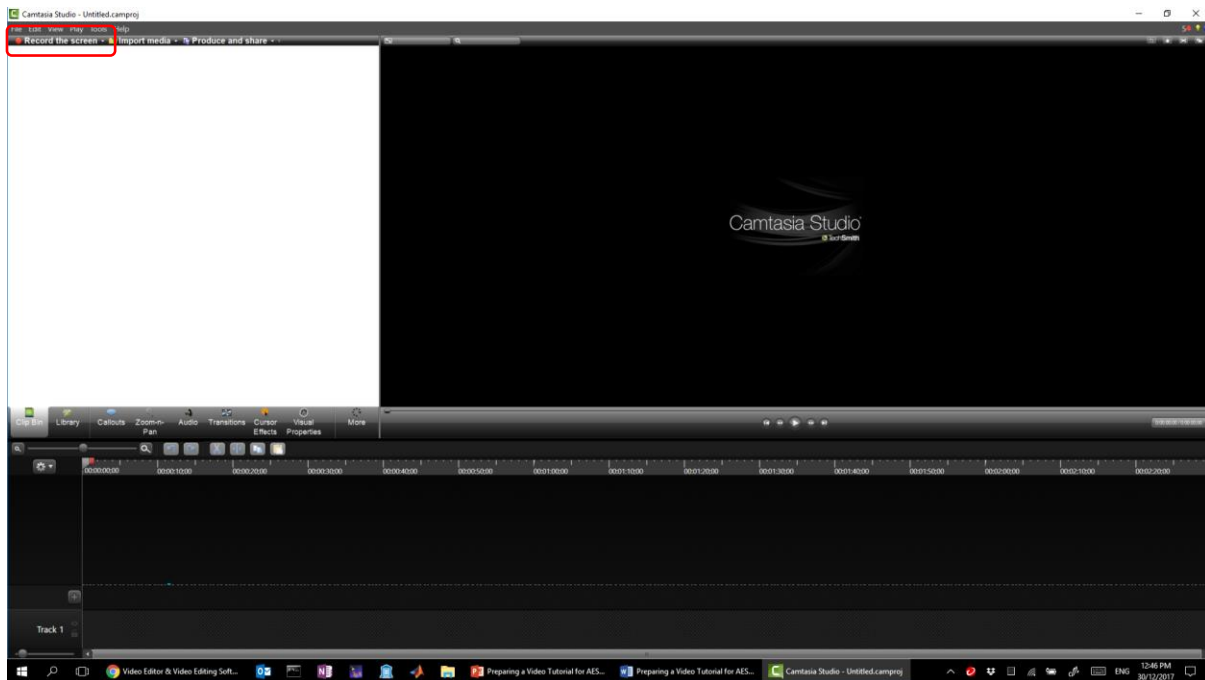
Many Windows tablets/hybrids are now available with a stylus, allowing lecture notes to be marked up with handwriting directly on the screen during a tutorial. Examples of these include the Microsoft Surface Pro and Surface Book, HP Spectre X360, and certain Dell Inspiron 2-in-1 models.

Microsoft PowerPoint includes functionality to markup slides directly in presentation mode. [PDF Annotator](#) is an excellent solution for marking up PDF-format slides during presentation.

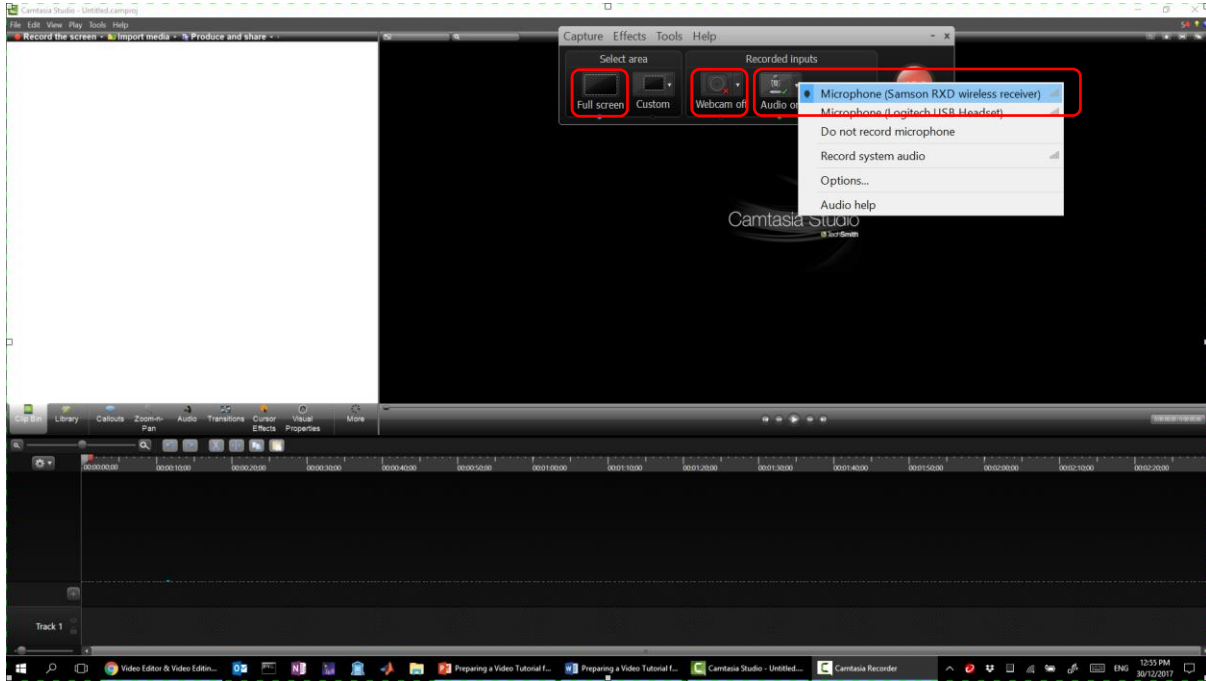
Recording Using Camtasia for Windows

[Camtasia](#) provides a broad range of capabilities for screen and video recording and editing. Here we provide brief instructions for recording a tutorial using Camtasia Studio 8.6. We assume that Camtasia has been installed.

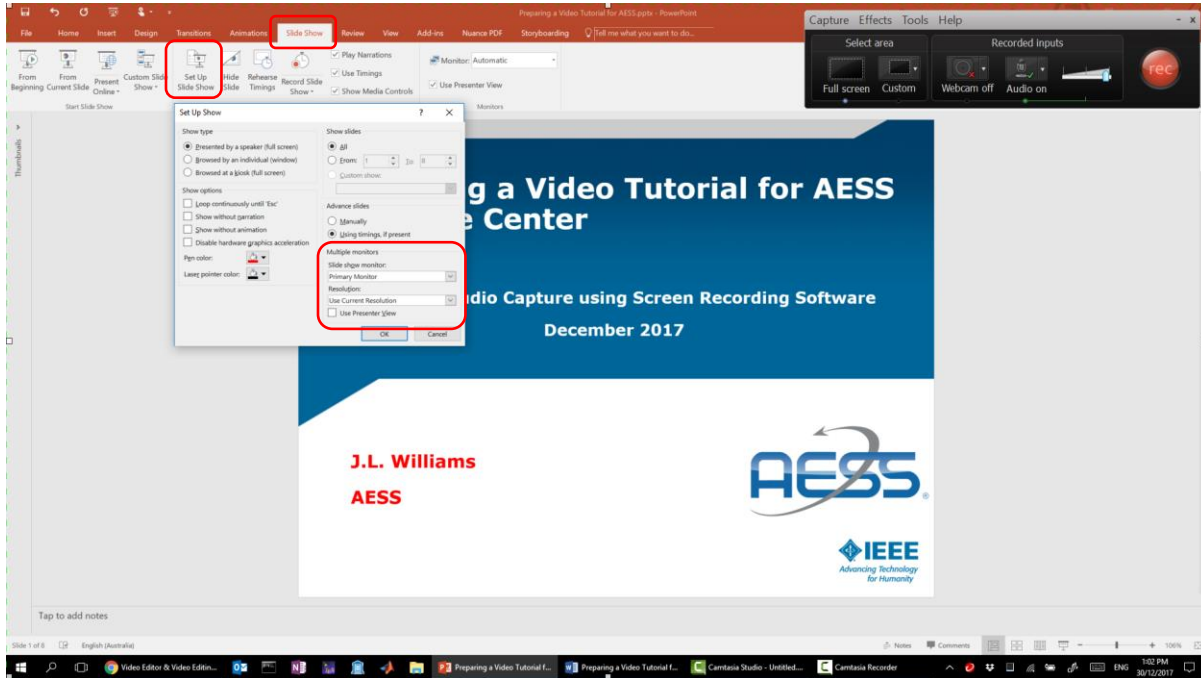
1. Set the screen resolution to an appropriate size for recording. Resolutions of 1280x720 or 1920x1080 are good choices. This can be done in Windows 10 by selecting “System” and “Display” from the Settings app.
2. Run Camtasia Studio (installed in the TechSmith folder).
3. Click “Record the Screen” below.



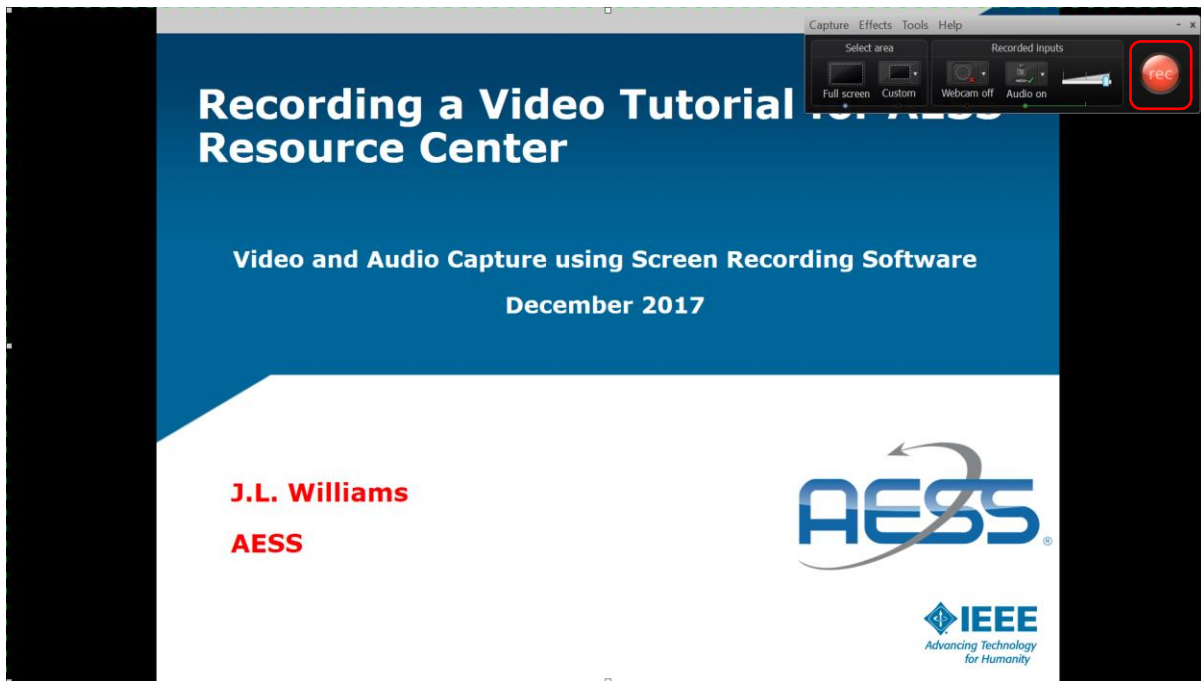
4. Set the “Select area” to “Full screen”, Webcam off and Audio on. Click on the down-arrow next to the Audio button and select the audio source (in this instance, “Samson RXD wireless receiver”, for the Samson XPD1). Adjust volume slider to right of audio button to ensure that adequate recording volume is being obtained. Real-time volume will display graphically in the slider.



5. Prepare the content to be recorded. If using PowerPoint, it may be necessary to disable presenter view and resolution adjustment. This can be done by clicking on “Slide Show”, “Set Up Slide Show”, setting “Slide Show Monitor” to “Primary Monitor”, “Resolution” to “Use Current Resolution”, and disabling “Use Presenter View”.



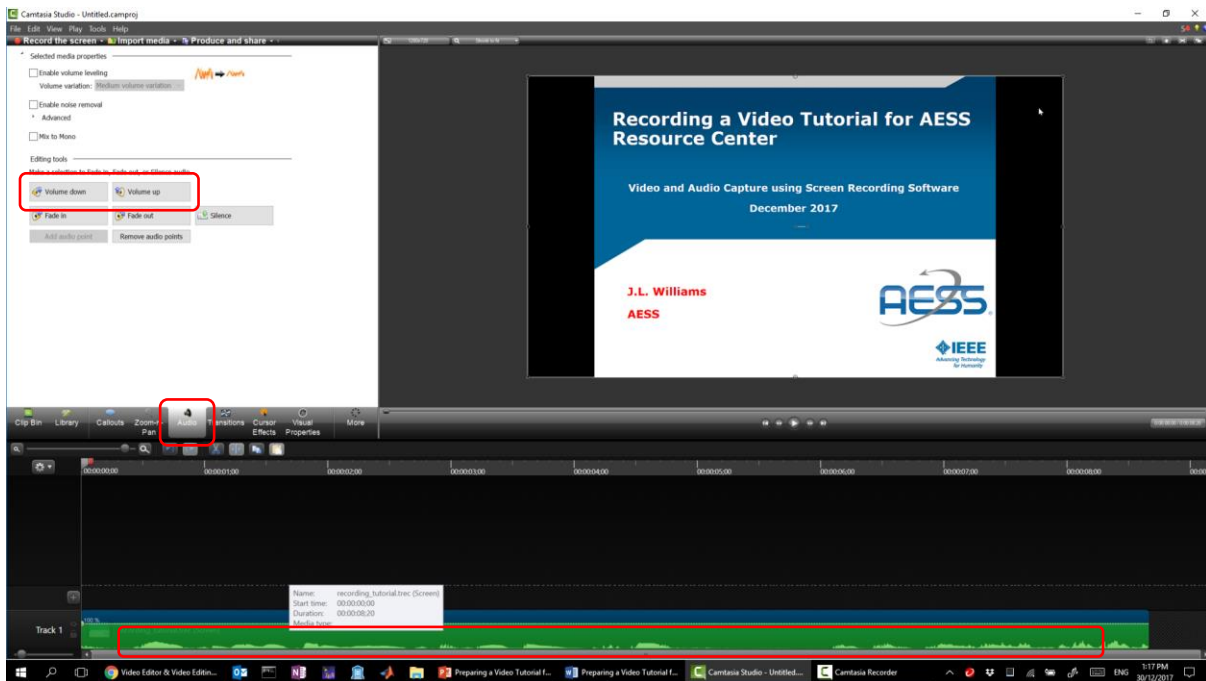
6. Commence presentation, then click on “rec” button in Camtasia Recorder window.



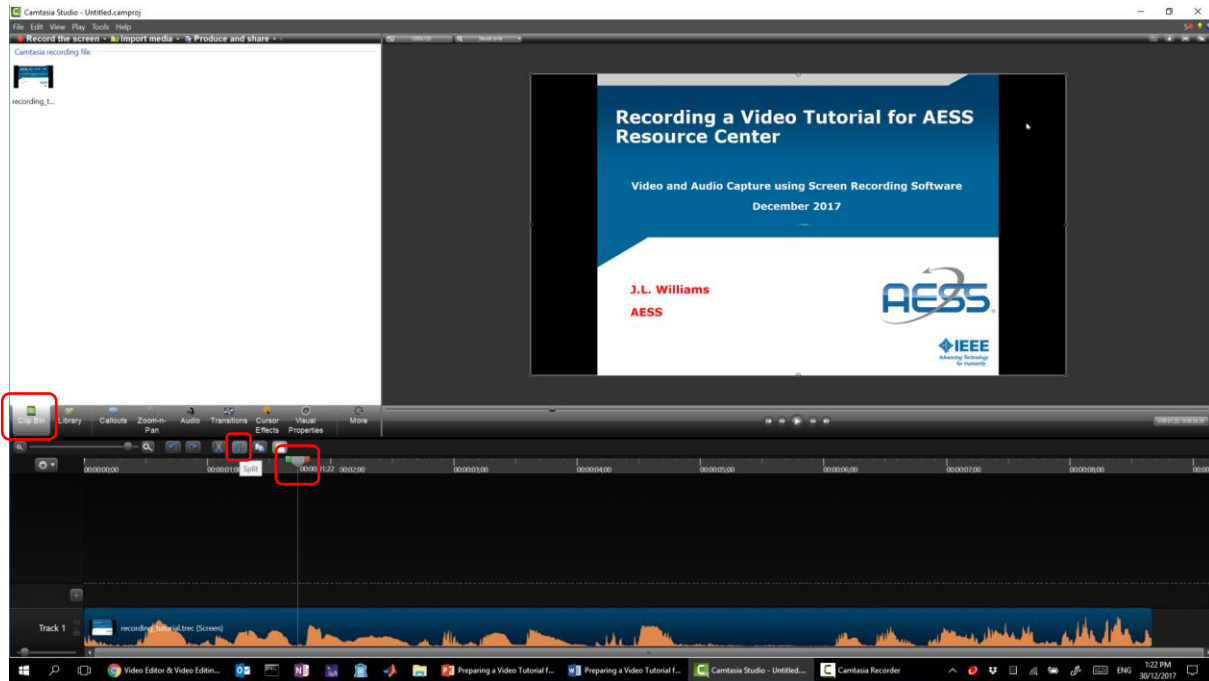
- When finished recording, press F10. Click “Save and Edit” to save the file to an appropriate location on the disk, and open using Camtasia Studio.



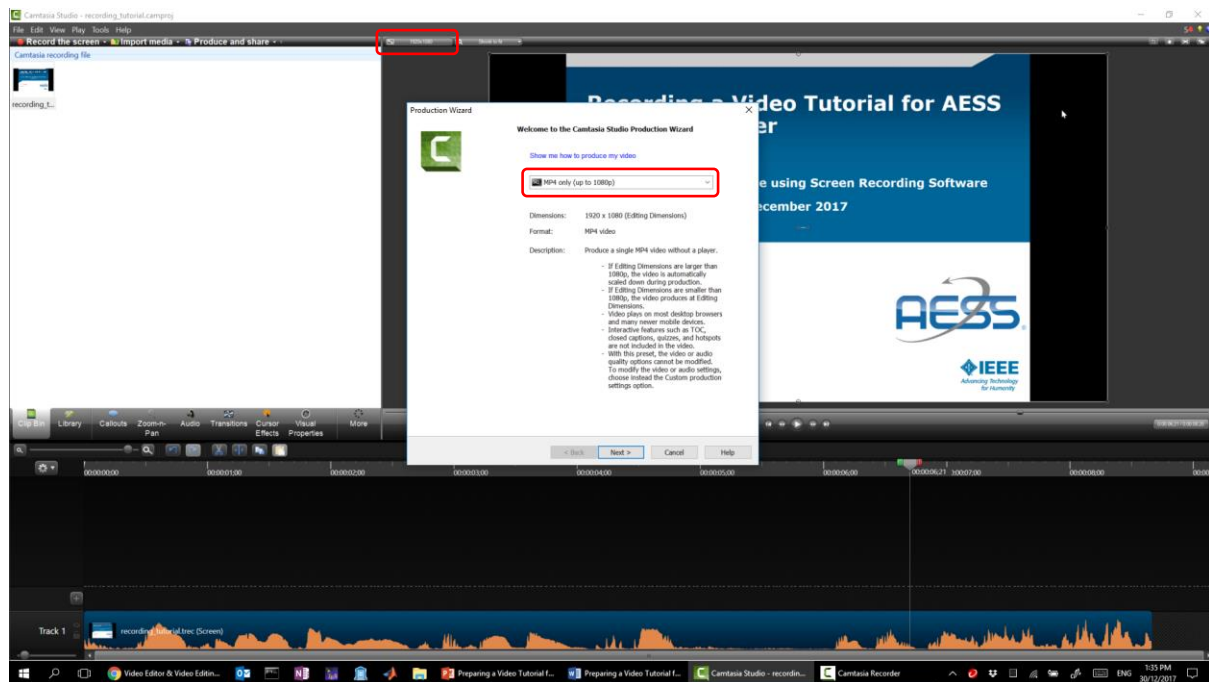
- If it is necessary to adjust the audio volume, click on Audio, and then select track 1 by clicking on the track in the timeline representation. Adjust volume as desired using “Volume down” and “Volume up”.



- Basic editing may be performed by selecting the “Clip Bin” tab, moving the time slider to the point where a cut is to be made, and clicking the split icon. After splitting, segments may be deleted or reordered as desired.



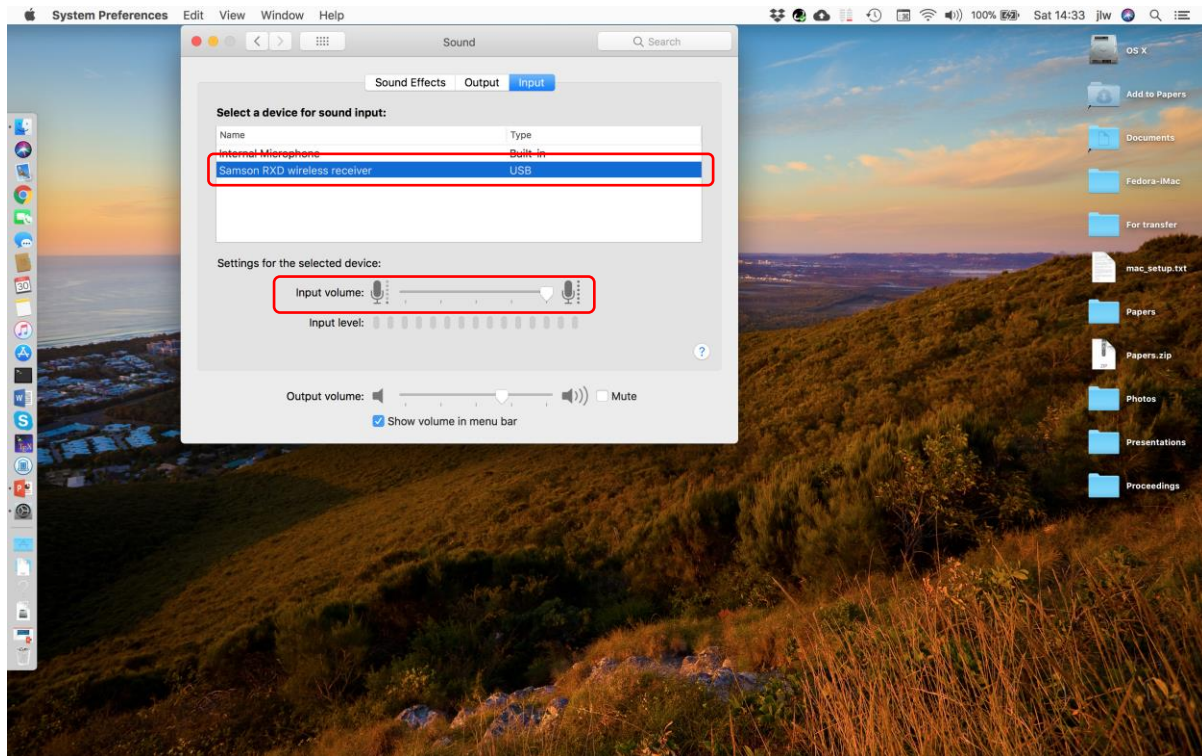
- Save the project by clicking “File”, “Save Project”. The video to be shared can be created by clicking “File”, “Produce and share...”. The suggested format is “MP4 only (up to 1080p)”. (If desired, the editing resolution can be changed by clicking on the top-left corner of the video editing pane.)



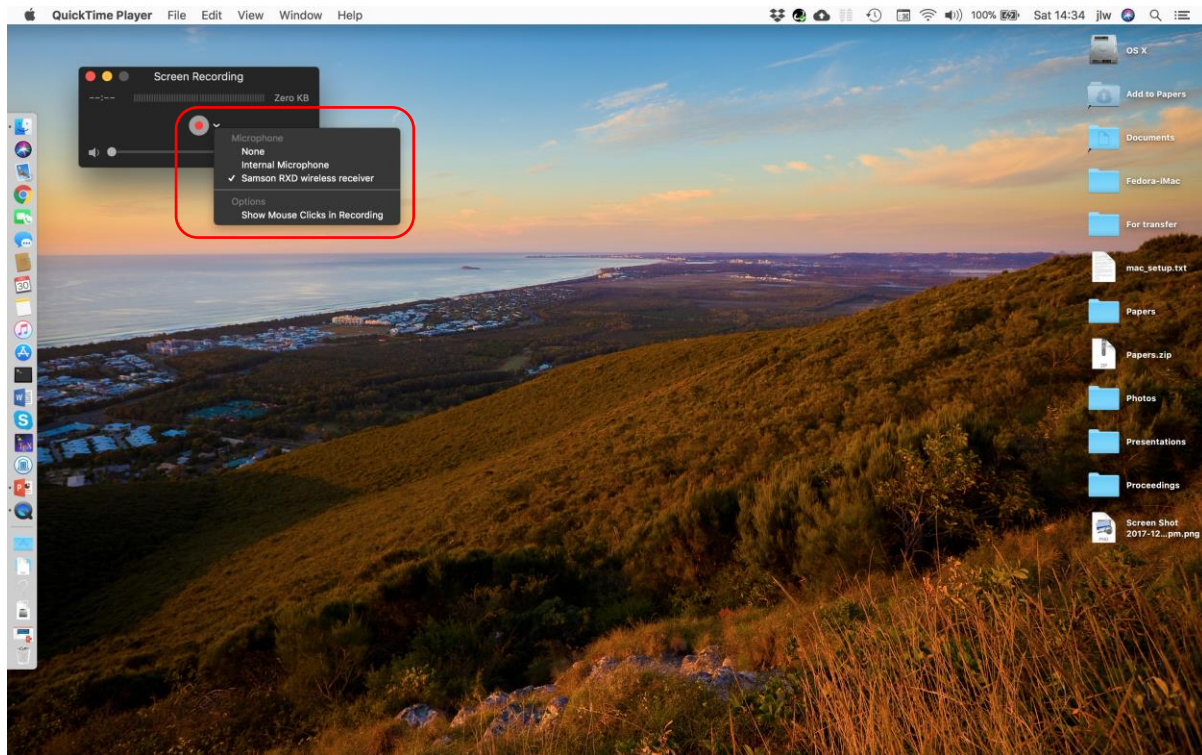
Recording Using QuickTime Player on Apple OS X

Camtasia is also available for the Mac; the steps for recording mirror those above. However, screen recording capability has been built into OS X since version 10.6, so here we provide instructions for using this built-in capability.

1. Choose recording device and input volume by running System Preferences, selecting “Sound”, and “Input”.

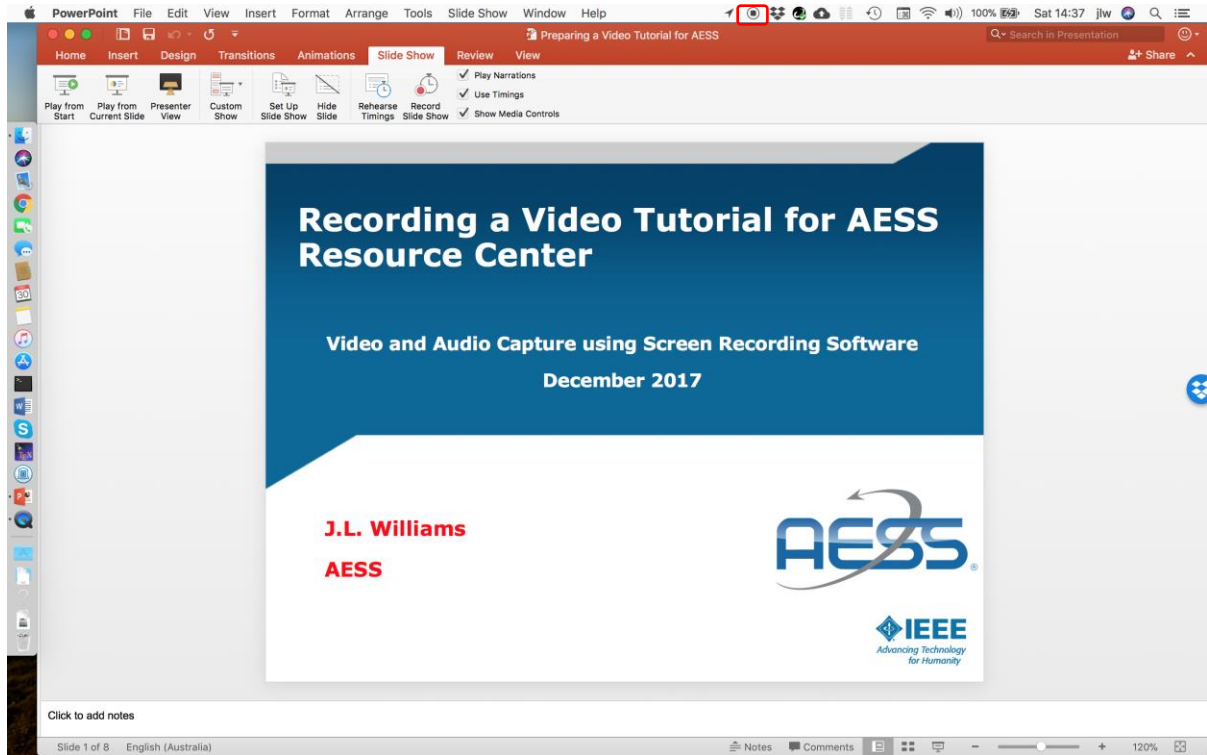


2. Run application “QuickTime Player” and select “File”, “New Screen Recording”. Click on the down arrow next to the record button to confirm the audio source.



3. Prepare the material to be presented, then switch back to the QuickTime Player “Screen Recording” window and click the record button. Click anywhere on the screen to commence recording the full screen.

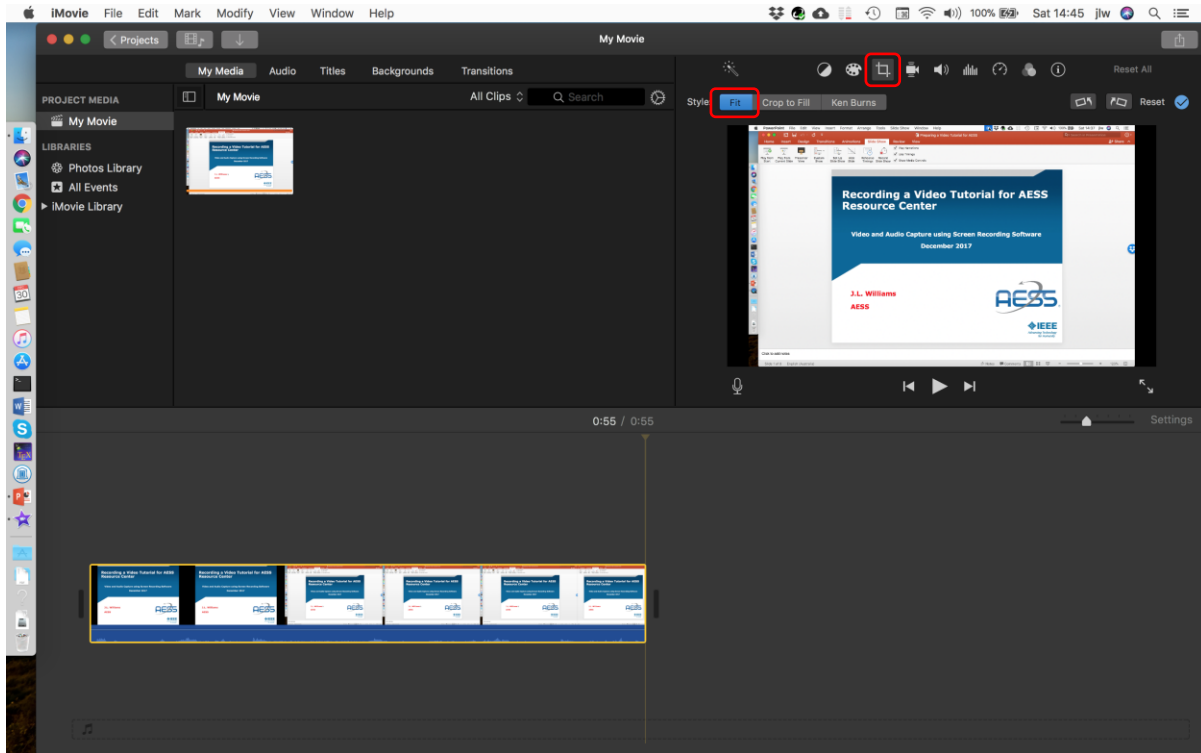
4. When finished recording, click the stop button on the menu bar. Click “File” and “Save” to save the recording to an appropriate location.



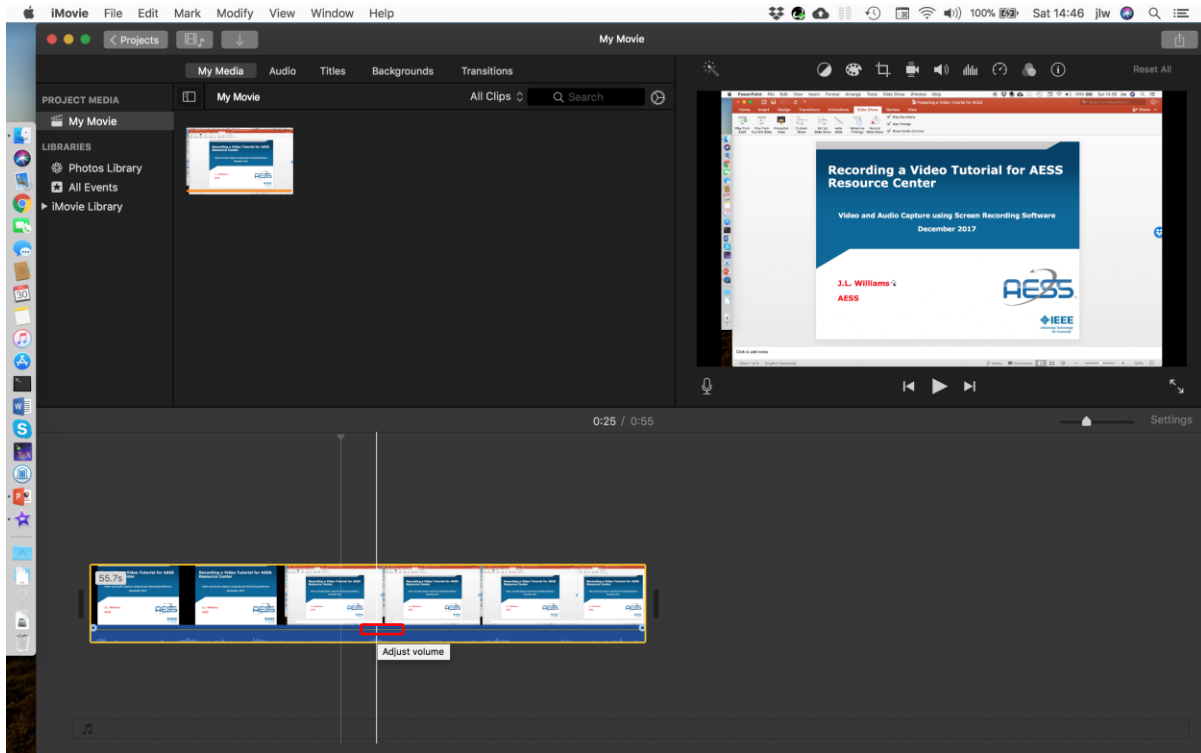
Editing Using iMovie on Apple OS X

iMovie, which is also supplied with most Apple computers, provides basic video editing tools.

1. Run iMovie and create a new iMovie project.
2. Drag the screen recording file created in the previous steps into the project timeline.
3. If necessary, click on the crop icon and “Fit” to avoid unwanted cropping of parts of the screen.



4. If volume adjustment is necessary, left-click on the clip in the timeline, then drag the audio volume line up or down.



5. To perform basic editing, drag the time selector to the desired location to cut, right-click on the clip and select "Split Clip". Clip segments may then be reordered or deleted as desired.

