Setting up the Project

If there is not one already, create a unique folder for the project. Use the nanoHub format of Year.Month.Day-Name-Series (EX: 2017.11.27-Strachan-BIRCK) to name the folder. ***This naming format is very important. We use it for files and folders associated with each individual project, so it must remain consistent***

A capture footage video file and Powerpoint file for the project should be placed in the folder.

Open Final Cut Pro (FCP) and create a new project FILE > NEW PROJECT. Save the project using the same nanoHub naming format FILE > SAVE PROJECT into the corresponding project folder.

Import the capture file into your project FILE > IMPORT > FILE, or drag it to the Final Cut browser window.

Rename the sequence to be the exact same name as the project, and then add the video dimensions to the end (Ex: 2017.11.27-Strachan-BIRCK-1280x720). Then select the sequence in the browser or the timeline and set the sequence settings like the image below SEQUENCE > SETTINGS.

![Sequence Settings](image)

Drag the capture footage for the project to the timeline. You will be prompted to change the sequence settings to match the capture file. Click “No”.
Save project frequently.

**Editing Audio Track**

In Final Cut, select the audio in the timeline and unlink the two stereo tracks OPTION + L. Then delete one of the audio tracks.

Right-click the remaining audio track and SEND TO > SOUNDTRACK PRO AUDIO FILE PROJECT. This will automatically prompt you to save a Soundtrack Pro editing file with the same name as your sequence, but with “(sent)” added to the end of the file name. Save file in project folder. This file will now be synced with the audio track in Final Cut and update automatically when edited in Soundtrack Pro. *Must save to update.*

In Soundtrack Pro, *always remember to save after each step:*

1. Convert stereo audio tracks to mono PROCESS > CONVERT TO MONO.
2. Reduce background noise by first selecting a sample of what you want to remove. Try to select a sample that is at least a couple seconds long. Looking for just room noise/air; not someone asking a question or the presenter breathing. PROCESS > NOISE REDUCTION > SET NOISE POINT.
3. Select all and set amount of noise reduction PROCESS > NOISE REDUCTION > REDUCE NOISE.

![Noise Reduction Interface](image)

Noise Reduction takes a sample of background white noise and removes that audio from the entire track.

Press the play button to preview, and adjust the Noise Threshold slider to select how much noise is removed. Use the bypass button to hear what the original audio sounds like without the noise removed. Take out just enough to remove the air noise, but try not to affect the tone of the speaker’s voice. When you are done adjusting click Apply.

4. Compress the audio. Before running the compressor make sure the overall audio level is somewhat around -6db. Play the audio at a few different spots throughout the lecture and watch where the audio meter bounces. You may need to lower or raise the audio level (Adjust Amplitude) depending on how loud it is. After that, select all and compress PROCESS > EFFECTS > DYNAMICS > COMPRESSOR. Click Show Presets. Select *nanoHUB Standard Voice Compressor* – NEW from the User Presets. Click Apply Preset. Click Apply. *(See image on next page)*
Compression is the process of lessening the dynamic range between the loudest and quietest parts of an audio signal. This is done by boosting the quieter signals and attenuating the louder signals – or raising the valleys and lowering the mountains.

At this point you have completed the general audio edits to set up the project. Make sure you have saved in Soundtrack Pro and immediately return to Final Cut to relink the audio file. You will be automatically prompted to reconnect. Locate the correct .stap file in your project folder. Click Continue. Click Connect.

Now, double-click the audio track in Final Cut to edit in the Viewer window. Boost the level to 7dB and set the pan to middle 0.

Double-check the synchronization of the audio and video tracks, particularly at the beginning and end of the track in the Final Cut timeline. On rare occasion you may have to nudge the audio to sync up with the video.

Additional audio edits should be made in Soundtrack Pro to remove isolated coughs, loud breaths or lip smacks, doors closing, etc. PROCESS > ADJUST AMPLITUDE (Command + Shift + L) will open the Amplitude Level window. Apply approximately -12dB to soften noises, -48dB to eliminate unwanted sounds. Questions should be boosted to be audible, but not up to the presenter’s volume – don’t use more than 12dB as low sounds boosted heavily can suffer quality issues.

Typically it is best to watch the whole presentation through in Final Cut, laying down markers and making cuts, and then bounce to Soundtrack Pro as needed to make an edit, save, and return. In the special case that there are a ton of audio edits to make, it may be better to listen through in Soundtrack Pro and bounce to Final Cut as needed to lay down markers.

*Before you watch through the presentation, prepare the slides so you can follow along*
Preparing Presentation Slides for Final Cut

To Capture Slides from a Powerpoint File (PPT):
Copy the PPT file to a flash drive and drag it to the desktop on the laptop computer.

Open the PPT Presentation. Briefly review the PPT to ensure it appears visually as it should (aspect ratio, images, fonts, formulas, etc)

Under the nanoWind tab click on Capture Slides.

Select Manual Capture.

Press “P” to capture and advance each slide. Be sure to let any slide animations finish before advancing. The slides will be saved as image files in a newly created folder on the desktop.

To Capture Slides from a PDF File:
Copy the PDF file to a flash drive and drag it to the desktop on the laptop computer. Create a folder on the desktop with the exact same name as the PDF file.

Make sure the screen resolution is set to 1024x768, and then open ScreenHunter. Click on the “To” tab and set the save location to your folder.
Open the PDF in Adobe Acrobat/Reader and view in Full Screen Mode. Use F6 to capture each slide and then click the arrow to advance to the next. When you’re done, the folder will be full of images. You may need to rename them to our standard slide name format (EX: 001.01.jpg).

Once you’ve got a folder of slide images, copy it to the flash drive. Delete it and the presentation file from the laptop.

Copy the image folder from the flash drive to the project folder on your computer.

Drag the slide images folder from the Finder into the Final Cut Browser window where your assets are located. Now you can double-click on each image as you watch through the presentation to make sure you have the correct corresponding slides.

*If a presentation requires a reordering or removal of slides you may have to edit the presentation file and repeat the steps above. Do not delete or write-over the original presentation file. Save a new version with “-Edit” at the end of the file name. Lastly, wide aspect ratio slide images will need to be photoshopped to fill in the blank space on the top and bottom.*

**Placing Slides into the Timeline**

Watch the whole presentation and place a marker on the video and audio tracks of the capture clip for when each slide transition should occur. Placement should occur in consideration of the dialogue of the speaker, which may not be exactly when they advance their slide. Typically, you should let the speaker finish their last words on the slide before advancing to the next one. Try to place slide transitions in the middle of a pause.

To place markers, make sure the video and audio tracks of the capture are selected. Press “M” on the keyboard when you’ve positioned the scrubber at the transition point. To delete a marker, position the scrubber on a marker and press “M” again. Click “Delete” in dialogue box.

While watching for slide placement continue to listen for any coughs, loud breaths, door slams, or questions that can be edited from the audio track in Soundtrack Pro. In addition, make any necessary cuts to the audio and video tracks (B to cut, BB to cut all layers) – starting point, ending point, technical difficulties or “dead time”. Make the cuts, but don’t delete them till you’ve gone through all the audio. Otherwise you’ll mess up the timecode of the video when following along.

When markers are all in place and the audio editing is complete, go ahead and delete the footage that you’ve cut. Add the proper fade transitions to the video and audio layers. Then you can drag each slide image down, one at a time, to the layer above the video track. Make sure the images are perfectly lined up from marker to marker. “N” is the hot key to turn timeline Snapping on and off. You can zoom in to check that edges are snapped to the proper frame.

When placing a slide into the timeline make sure the arrow is pointing down, not to the right, otherwise Final Cut will create a gap on the other tracks. You can lengthen the duration of the slide by dragging the handles of the clip in the timeline and/or double-clicking the clip and editing the duration in the Viewer window. (For Go-Back Slides and Videos see Specialty Edits section)
Creating nanoHUB Title Slide and Corner Image

From the assets folder open nanoHUB-corner.psd and nanoHUB-title.psd in Photoshop.

Edit each image with appropriate Title, Series, Name, and Date information.

Save each as a jpeg in the project folder.

Name the jpegs with the nanoHub format, for example: 2017.11.27-Strachan-BIRCK.jpeg. For the corner image add “-corner” to the end of the file name.

In Final Cut, go to FILE > IMPORT > FILE to bring the images into your project or drag them to the Browser window.

Drag the corner image to its own video track above the slides in the timeline and extend the duration of the image to the end of the capture.

Before placing the title slide, import the introduction audio file titled 2011-nanoHUB-IntroNEW3.wav from your assets folder to the Final Cut Browser window. Then drag it to its own audio track at the beginning of the sequence in the timeline, prior to the capture video and slides starting (the lecture will be bumped over to the right to make room for intro).

Drag the title slide and drop it in the beginning of the sequence to its own track above the corner image in the timeline. Adjust the duration to match that of the introduction audio. The corner image duration should be adjusted to occur duration the intro as well.
Positioning and Resizing Clips

Now that all the necessary elements are on the timeline, they need to be sized and positioned to fit next to each other within the canvas to look like this:

The placement would be flipped horizontally if the presenter in the video were standing to the right of the projection in the video. If possible, the capture footage can be scaled and cropped to maximize the size of the presenter. Do not exceed 100% when scaling the capture footage.

To add this placement to the project, start by opening a previous Final Cut project sequence with the same settings as the current project. The size and placement settings of the clips in the source project can be copied to the current project through the following steps.

1. Select a clip in the timeline of the source project.
2. Right-click and choose copy.
3. Go back to the current project and select the corresponding clips. Select all the clips from a video track by clicking at the beginning of it with the Select Track Forward Tool (T).
4. Right-click and choose Paste Attributes. Tick the box for Basic Motion. Click OK. Do this for the corner image, title image, and slide images.

The capture footage may not be formatted to a uniform size. You can manually adjust the attributes by double-clicking a clip in the timeline and adjusting them under the Motion tab in the Viewer window. Set Scale as large as possible, but not to exceed 100%. Crop as needed so that the capture footage remains a 4:3 ratio. Avoid cropping the presenter from the footage.

When scaled and cropped the capture footage should sit above the corner image with a slight gap on the right and left sides. The top edge should level with the slide images.

If footage is dark, use the Color Corrector filter to increase brightness of mids, usually to about 114. If the footage appears too yellow or blue, you can edit with the color wheel within the same filter.
Creating Freeze Frame for Introduction
At the very beginning of the sequence in Final Cut there should now be a gap on the video track in front of the capture footage clip that matches the duration of the introduction audio. A freeze frame needs to be created so it appears that the capture footage is on pause while the introduction audio plays.

Set the scrubber bar at the front handle of the capture footage clip and double-click the capture footage clip. The freeze frame should appear in the Viewer window. You may need to place your scrubber at a different location for the freeze frame if the very beginning of the capture footage clip is not ideal (presenter not in frame or not facing camera, etc).

Go to MODIFY > MAKE FREEZE FRAME or use Shift+N to set the freeze frame.

Click on the image in the Viewer window and you can drag the freeze frame to the Timeline to fill the gap in front of the capture footage.

If you made brightness/color adjustments to your capture footage you may have to apply them to the freeze frame as well.

Inserting Beeps at Slide Transitions
A beep is inserted into the audio tracks to indicate each slide transition.

In Final Cut, import the sound file iPod.nav_short-new.wav from your Assets folder.
FILE > IMPORT > FILES

Drag the file from the Browser to the Timeline to place it at the beginning of the first slide transition. Select the audio clip in the Timeline and copy it (Command+C). Use the down arrow key to proceed to the beginning of each sequential slide transition and paste the beep (Command+V).

Do not place beeps for slide animation steps such as 001.02.jpg, 001.03.jpg, 001.04.jpg, and so forth.

While placing the beeps it is beneficial to zoom-in and do a quality check for gaps as well as the timing of the slide transitions.
Specialty Edits

Adding Go-Back Slides
Add a go-back slide if the presenter returns to a previous slide.

Without the go-back slide on top.

With the go-back slide on top.

In a new video track just above the slides layer, drag down a slide that the speaker is going back to. Set Basic Motion Attribute the same as the regular slides.

Double-click on the go-back slide clip and under the Motion tab in the Viewer window adjust Scale to 66 (for 1280x720 projects). Then tick the Drop Shadow box and adjust Offset to 3 and Softness to 25.

Then under the Filter tab in the Viewer window tick the Basic Border box and adjust Border to 5:

If you have any other go-back slides, simply copy and paste these Attributes to them. Be sure Basic Motion, Drop Shadow, and Filters boxes are ticked in the Paste Attributes window.
Capture Video From Powerpoint Slides
Open the PPT file and use ScreenFlow to video capture the screen as the videos from the slides play. (If you don’t have ScreenFlow, you may be able to expand the PPT file as a ZIP file to extract some of the video files used in the PPT. Copy the PPT file and change the extension to .zip and then expand.)

Open ScreenFlow.

When you press the red record button, ScreenFlow will start recording your computer screen. If you need the video’s sound, be sure to check the box for Record Computer Audio.

Go through the slide presentation in Powerpoint and stop on any individual slides that contain video clips. Press Shift+Command+2 to stop the recording. The footage you captured from your screen will open automatically in ScreenFlow.

Go to FILE > EXPORT. Use Preset Web-High and Dimensions Scale 50% (Scale depends on how many pixels you actually need). Uncheck audio if not needed.

Create a new folder titled “Slide Videos” for the project. Save each clip with a name that numerically will correspond to its placement within the Powerpoint presentation.

Import the videos folder into Final Cut.

Adding Video Clips
If the PPT presentation had video files that were captured with ScreenFlow they can be added in their own video track on top of the slides in Final Cut. If there is already a track for go-back slides, the track for the slide videos should sit on top of that.

Drag each video clip from the Browser window to its corresponding slide in the Timeline. Match up the duration of the clip so it is synced as closely as possible to what is seen in the original capture footage. Crop, scale, and position the video clip so it seamlessly blends into the static jpeg image of the slide that is behind it. Hint: Lower the slide video clip opacity to help align with slide and return to 100% once aligned.
Making the Wind Version

Now that the 1280x720 is complete it can be converted to a second video sized to 320x240. The smaller video will be used in conjunction with data from the Timeline to create an interactive version of the presentation. Here is a link to a completed presentation posted on nanohub.org, click on View Presentation to see the interactive version.

http://nanohub.org/resources/27743

In Final Cut, right-click the 1280x720 sequence in the Browser window and select Duplicate from the menu.

Right-click on the new sequence and go to settings, the sequence settings window will appear. Change the suffix of the sequence from “1280x720” to “320x240-wind”. For Preset select the Multimedia Large (4:3) option. This will alter the sequence frame size to 320x240. All other settings stay the same.

Now the tracks in the Timeline need to be formatted. Follow these steps:

1. Delete all beeps from the audio track.
2. Turn off the slide layer, corner image layer, and any layers that have go-back slides or video clips.
3. Use the padlock icon to the left of the tracks in the Timeline window to lock any tracks with go-back slides or video clips.
4. Double-click on the capture footage video clip. Scale to fit the 320x240 frame.
5. Delete the Freeze Frame clip from the beginning of the timeline.
6. Delete the cover slide image from the beginning of the Timeline and then drag it again from the Browser window back to the Timeline. This will automatically resize it to fit the 320x240 sequence settings. Adjust the duration again to match that of the intro audio.

FILE > SAVE

REMINDER: AN INDEPENDENT VIDEO TRACK SHOULD BE USED FOR THE CORNER IMAGE, TITLE IMAGE, SLIDE VIDEOS, GO-BACK SLIDES, PRESENTATION SLIDES, AND CAPTURE FOOTAGE
Making Wind Versions of Slide Videos
If your project had any slide videos you need to make a 1024x768 sequence for each of those videos. The slide jpegs are 1024x768, so essentially you are creating a video version of that static jpeg image.

Set the scale of the slide to 100 at position 0,0. Size and position the slide video to match. All other layers, audio and video, can be deleted from the sequence. The duration of the slide should remain the same. The name of the sequence should denote the slide number (Ex: 001.01).

Exporting Completed Sequences
Once each sequence is completed they need to be rendered from Final Cut to their own video files. Before doing so, change the Compressor from H.264 to Apple ProRes 422 LT for each sequence.

Open the Export Queue. WINDOW > EXPORT QUEUE

Drag each sequence from the Browser window to the Export Queue. Name the corresponding folders in the queue “320x240” and “1280x720”. If you have any video slides, name the folder “1024x768-NoAudio”.

Click on the 320x240 folder and click the Settings button at the bottom of the Export Queue window. Follow these steps for the settings:

1. Set the Format to Quicktime (Custom).
2. Click Options.
3. In the Movie Settings window under Video, click settings and change quality to Best and click OK. Click on Filter. Select Sharpen and 1 – least and click OK. Click on Size and change to 320 x 240 QVGA and click OK.
4. In the Movie Settings window under Sound, click Settings and set Channels to Mono and set the quality to Best. Click OK.
5. Click OK to save and close the Movie Settings window.
6. Click Set Naming Options and tick the box for Add File Type Extension. Click OK.
7. Click OK to save and close the 320x240 Settings window.

To set the settings for any other export folders repeat the same steps, but set the proper size. For 1024x768 sequences you will need to enter custom size numbers and uncheck the audio.

Select all folders and sequences in the Export Queue and then click Export. This process takes a long time, so it is advantageous to wait to do this at the end of the day before leaving.
**After Exporting**

Do a quick review of the newly rendered 1280x720 mov file. If it seems to have rendered properly, open it in Handbrake and use the settings in the 854x480 preset to export an mp4 version to the Batch Renders folder.

Review the rendered 320x240-wind mov file; drag it and any 1024x768 rendered slide videos to the Queue folder in HTML5 Render Pool v3 folder. To start the queue, double click on the highlighted red ffmpeg.sh file.

When completed, a new folder with a name corresponding to the original files will be automatically created in the Done folder. Move any slide video folders into the 320x240-wind folder. Also, if a project has slide videos you need to add “-MOV” to the end of the wind folder name. (320x240-wind-MOV)

Drag the 1280x720 mov and 854x480 mp4 files from the Batch Renders folder to the original project folder. Also drag the 320x240-wind folder from the Done folder in HTML5 Render Pool v3 to the original project folder.

In the project folder, drag the PPT or PDF presentation file and slides folder into the 320x240-wind folder.

Back in Final Cut, export the 320x240-wind sequence as an xml file to the 320x240-wind folder. Right-click on the sequence and select Export > XML.

**The Final Step**

Select the 1280x720 mov file, the 854x480 mp4 file, and the 320x240-wind folder. Copy these three items to the Work Queue. In your project folder, right-click and change their color to red to indicate they are done. Likewise, change the project folder to red. DONE!

**KEY COMMAND SHORTCUTS FOR TIMELINE EDITING**

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<td>N</td>
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<td>M</td>
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<td>OPTION + L</td>
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