

# **Digital Video Editing Fundamentals Plus**

A presentation  
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For PATACS + OPCUG  
January 16, 2021

# Why video editing is useful to you

- Video is everywhere, and people expect to see it
- Make a presentable video highlights collection of vacations, children, grandchildren, pets
- Create a resume of your public speaking skills
- Create virtual backgrounds for Zoom meetings
- Create DVDs, Blu Ray discs, or post video to social media
- Learn video vocabulary so you can communicate with a video contractor



# Agenda

- The word processing analogy for editing video
- The audio editing analogy for editing video
- Fundamental tools: media, preview, timeline placement of media in tracks
- Transitions: Cuts, crossfades, fade in, fade out, and more
- Motion types: pans, tilts, zooms, rotations

# Agenda

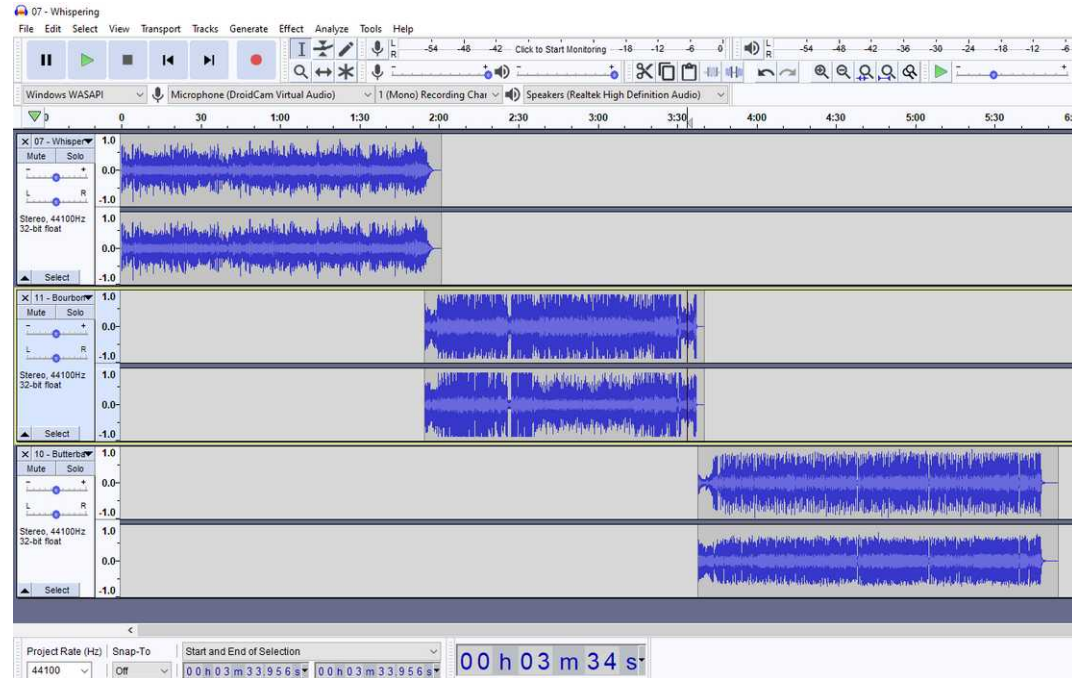
- Turning a slide deck into a video
- Saving the video project, and how to break a video project
- Adding motion to still images
- Making a Zoom loop virtual background video
- Rendering a finished product to create a video file

# The Word Processing analogy

- Using a word processor, we control and alter the **sequence of words**.
- Broadly speaking, the sequence flows from top to bottom on paper. The intro appears at the top, and the conclusion at the bottom.
- Think of **finished video** as a **sequence of scenes**.

# The Audio editing analogy

- Using Audacity or another audio editor is a **similar experience**.
- We edit the **sequence of sounds**.
- The sequence is displayed **horizontally**.
- **Multiple tracks** are a powerful way to organize multiple songs or sounds.



# Fundamental tools of video editing

- Video editor software: I use **Movie Studio 16 Platinum**, published by Magix
- All Video editing software I have tried works with a **horizontal timeline**. The sequence begins at the left and ends at the right.
- You can organize and sequence media on the timeline via drag & drop: **video, audio and still images**
- On the timeline, you can tailor a single video, for instance dividing into multiple pieces, cut & paste, delete
- You can preview the results using the editor



# Fundamental concepts

- **Media:** generic term for videos, still images, music, titles and so forth
- **Tracks:** where media are sequenced for inclusion in a finished video file
- **Project:** a file containing pointers to media files, and current state of all tracks

Make Movie Show Me How

1 Add/Arrange Media  
2 Add Text and Titles  
3 Add Graphic Elements  
4 Add Video Transitions  
5 Add Video Effects  
6 Make Movie  
Power User Mode

Explorer Auto Preview

All Media  
Media By Type  
Custom Bins  
Storyboard Bins  
Main Timeline

**MEDIA**

PATACS holiday audio 2020.flac  
Slide 1.png  
Slide 2.png  
Slide 3.png  
Slide 4.png  
Slide 5.png  
Slide 6.png  
Slide 7.png  
Slide 8.png

Welcome to Our Meeting  
Osher Lifelong Learning Institute  
PC User Group (OPUG)  
&  
Potomac Area Technology  
and Computer Society  
(PATACS)

PREVIEW

Project: 1280x720x32, 29.970p  
Preview: 1280x720x32, 29.970p  
Video Preview

Frame: 0  
Display: 482x271x32

Master Bus

Dashboard Project Media Explorer Transitions Video FX Media Generators

00:00:00;00

00:00:00:00 00:00:59:28 00:01:59:28 00:02:59:29 00:03:59:29 00:04:59:29 00:05:59:29 00:06:59:29 00:08:00:02 00:09:00:02 00:10:00:00 00:10:59:28 00:11:59:28 00:12:59:29 00:13:59:29 00:14:59:29 00:15:00:00

**Timeline cursor** **TIMELINE TRACKS** **Track Scroll bar**

Text  
Picture-in-picture  
Video  
Audio  
Vol: -5.5 dB  
Pan: Center

PATACS holiday audio 2020 00:14:31;11

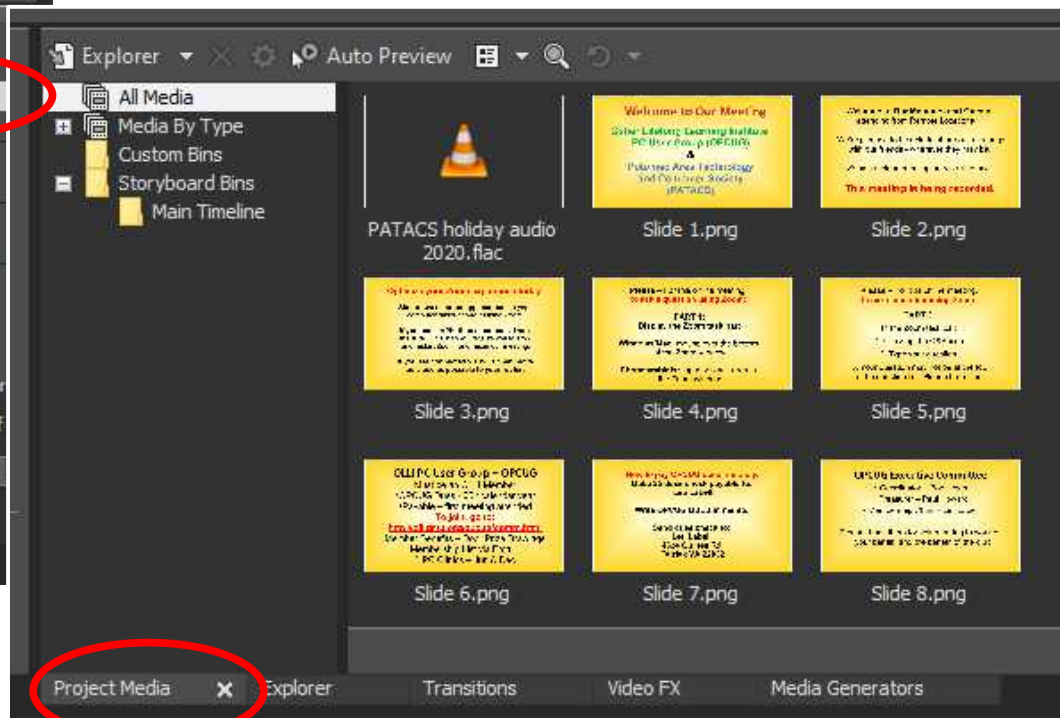
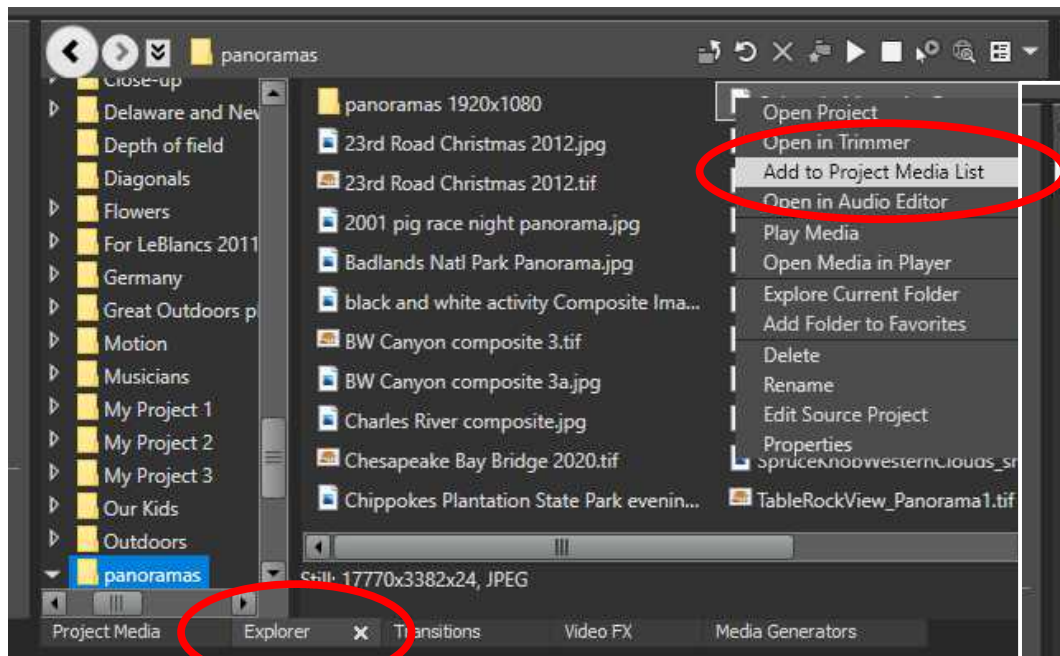
Rate: 0.00

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# Adding media to a Video Project

- Movie Studio provides an Explorer window, letting you browse through your drives and folders to find video files, sound files, and still image files.
- You can select each desired file, right-click, and choose to **Add to the Project Media list**.
- The added files appear in the **Project Media** window.
- **Save your Project frequently!** Project menu->Save

# Explorer and Project Media windows



# How to break a project file

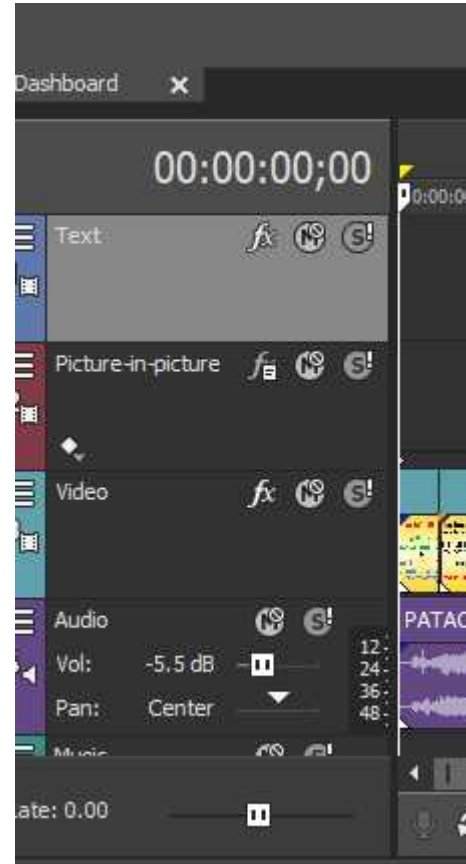
- Your project file contains the location of each one of the files in the Project Media window.
- If you **delete or move** any of those files after saving the Project, and then later you resume work on the Project, Movie Studio will not be able to find the deleted or moved files.

# The purpose of Timeline tracks

- Helps organize media that happen simultaneously
- For instance, video, audio, and titles
- You can tweak one without affecting any other
- You can adjust audio level, video brightness, title text

# Types of Timeline tracks

- **Text (titles)**
- **Picture-in-Picture**
- **Video**
- **Audio**
- **Music**
- You can add more tracks of each type



# Video Transitions

- A **transition** refers to a visual change from one video scene to another

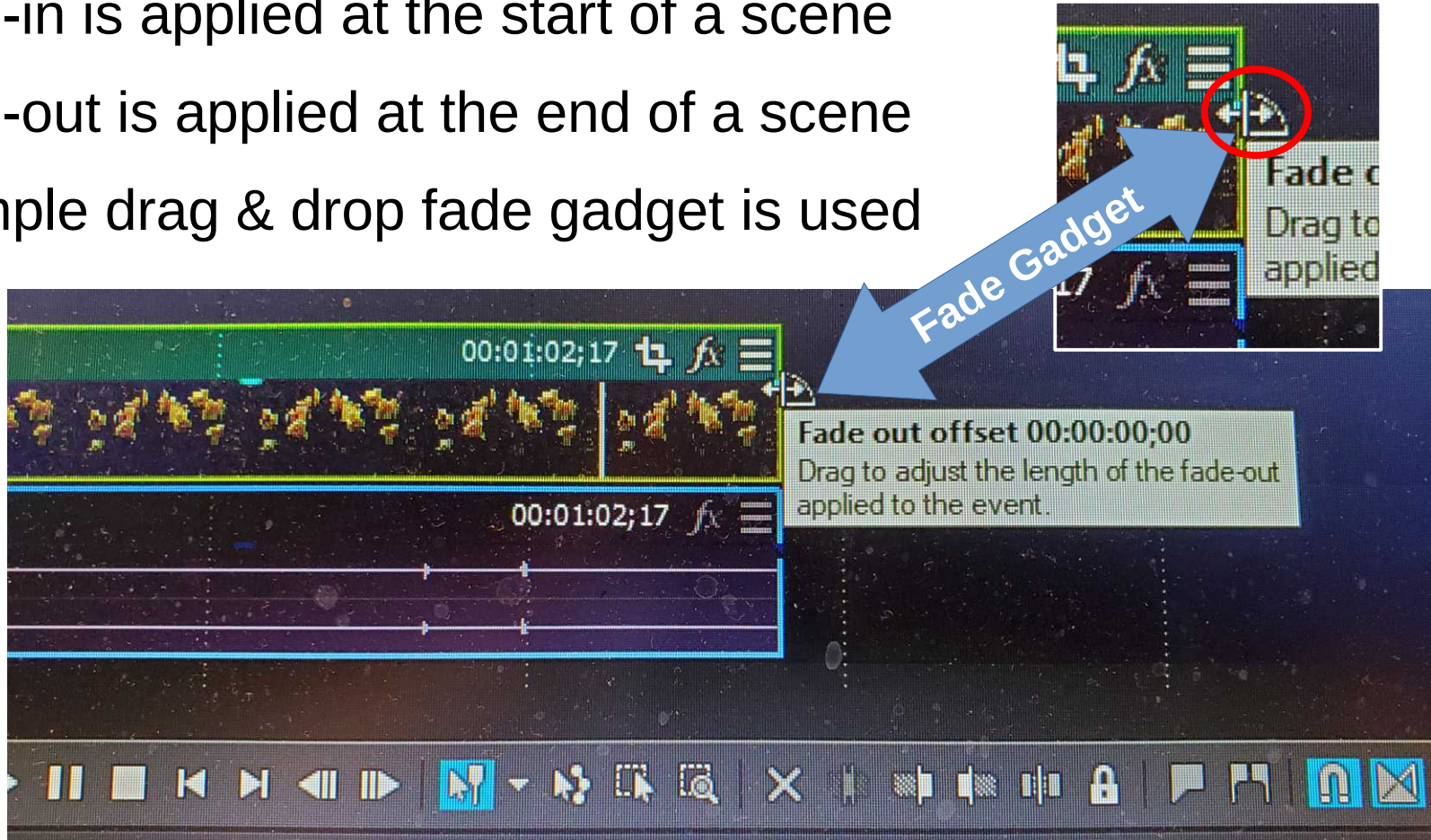


# The simplest transition: hard cut

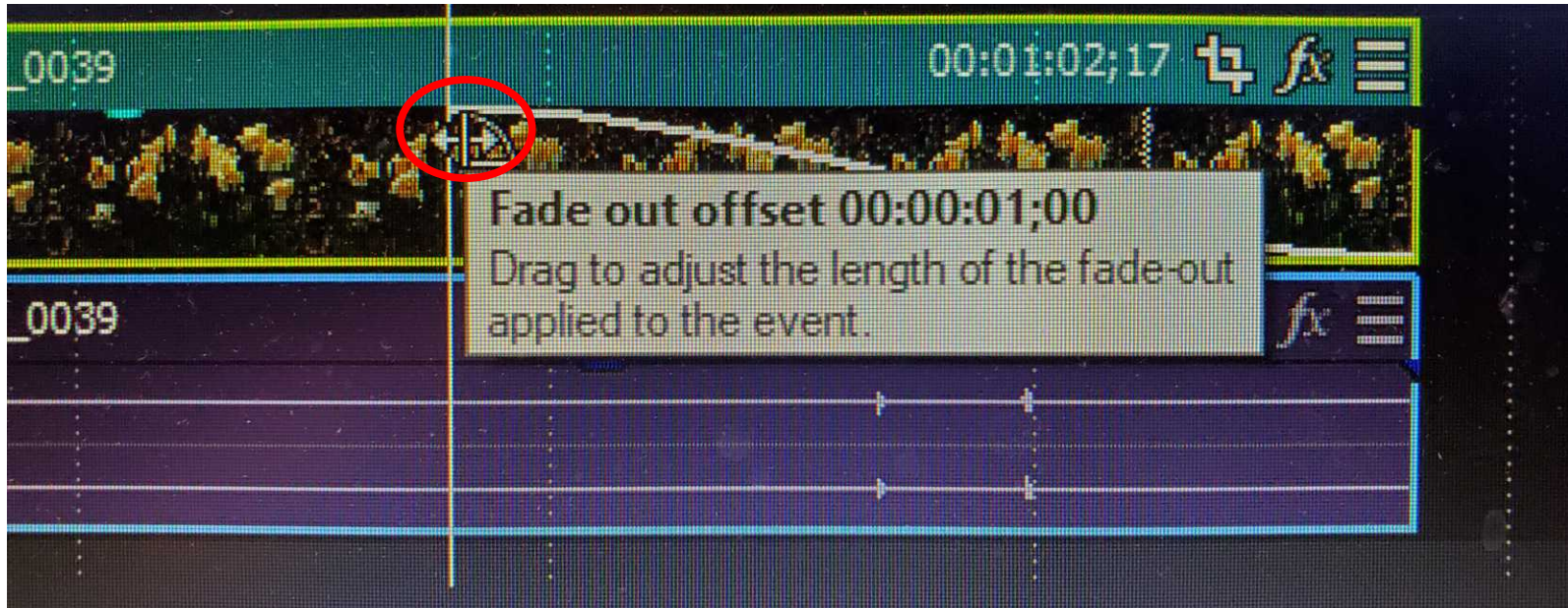
- At the end of one scene, start the beginning of the next.
- The image changes instantly, perhaps abruptly.
- George Lucas used a fadeout followed by an abrupt cut to action to heighten audience tension in the first Star Wars movie (Episode IV A New Hope, the one directed by Lucas).

# Fade-In and Fade-Out

- Fade-in is applied at the start of a scene
- Fade-out is applied at the end of a scene
- A simple drag & drop fade gadget is used



# Fade-Out: drag gadget to the left



# Audio transitions

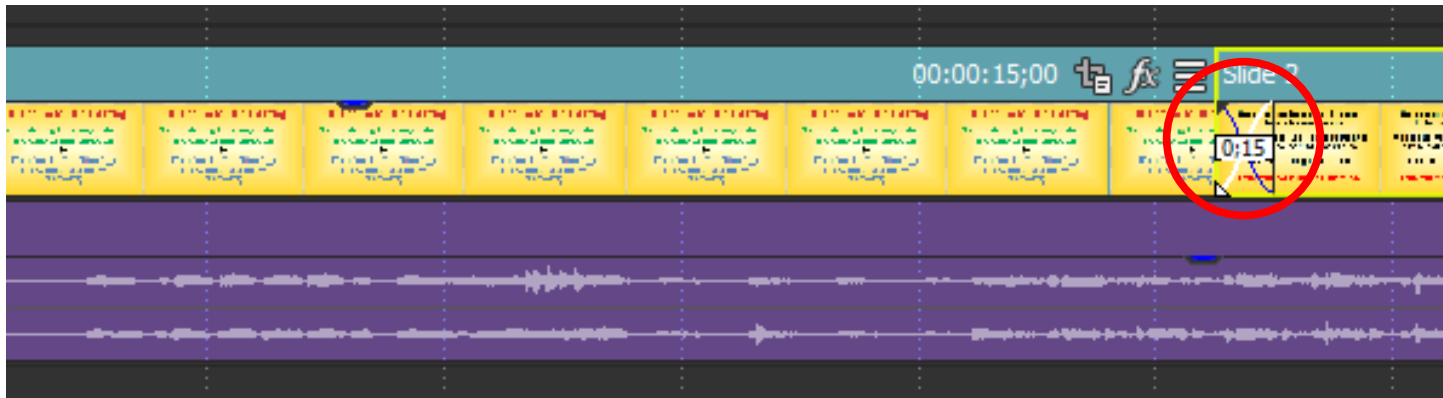
- Fade-in and Fade-out
- Abrupt cut
- Overlap crossfade

# Overlap transitions

- At the end of one scene, drag the next scene slightly left so that its start overlaps the end of the prior scene. As you do that, the software displays the overlap duration in **seconds;frames** (30 frames per second is the default)
- Typical overlap duration is  $\frac{1}{2}$  second (0;15) to 2 seconds (2;00)
- Overlap gives the audience a visual signal that the scene is changing
- The default overlap **transition** type is known as a **cross fade**
- Many other types of overlap transitions are available too

# How to create an overlap transition

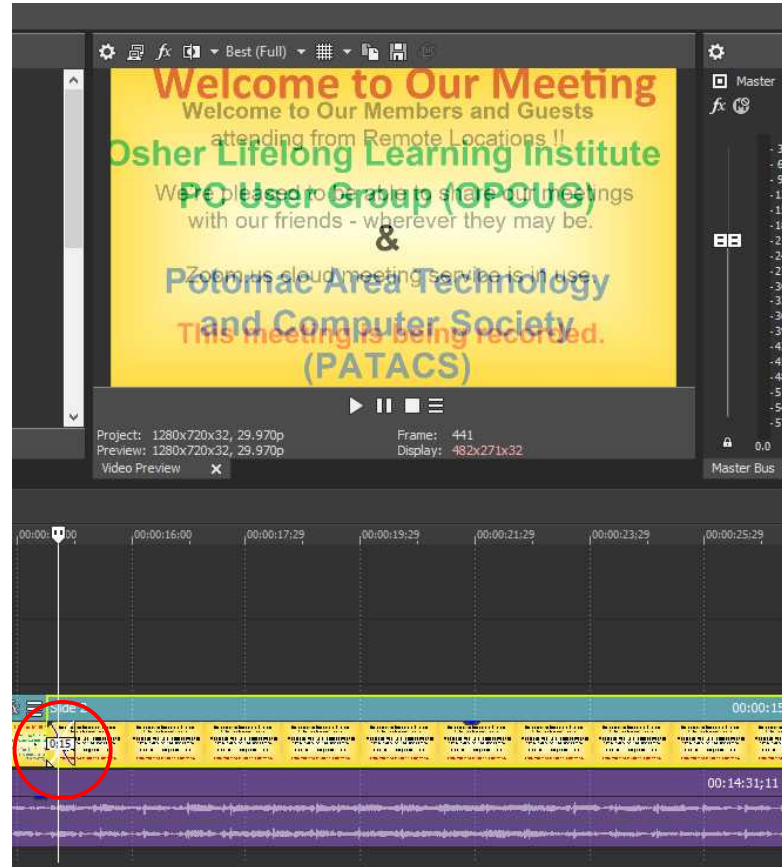
- Define terms: video on the left is the **first scene**, and the one after that is the **second scene**.
- Click and drag second scene to the left, so that it overlaps the end of the first scene.
- Editor applies the default **cross fade** transition. Frame count of overlap is displayed. In this example, 15 frames =  $\frac{1}{2}$  second.





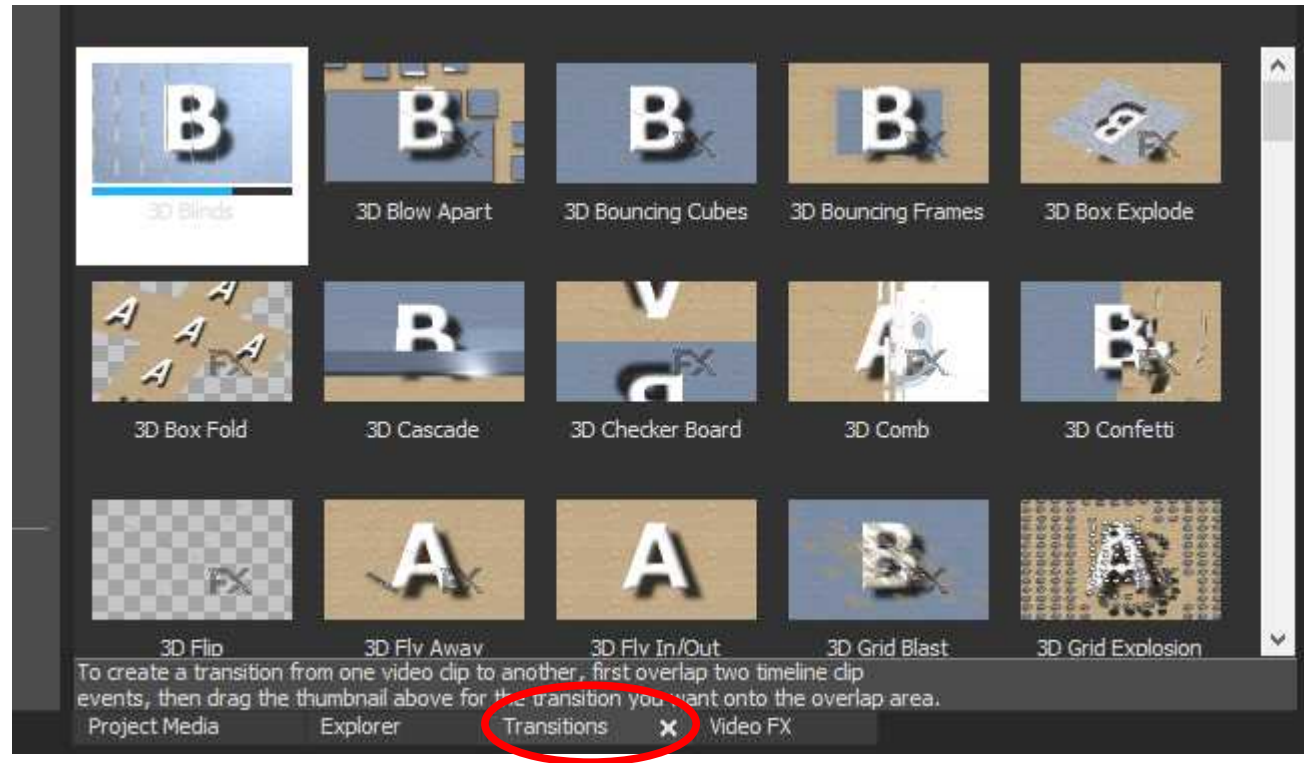
# Crossfade example

- In the Preview window, playback of a 15-frame overlap crossfade between slides 1 and 2 of the PATACS pre-meeting slide show.
- In the illustration, the vertical timeline cursor is right in the middle of the 15-frame overlap crossfade. See the Preview window.



# How to alter an overlap transition

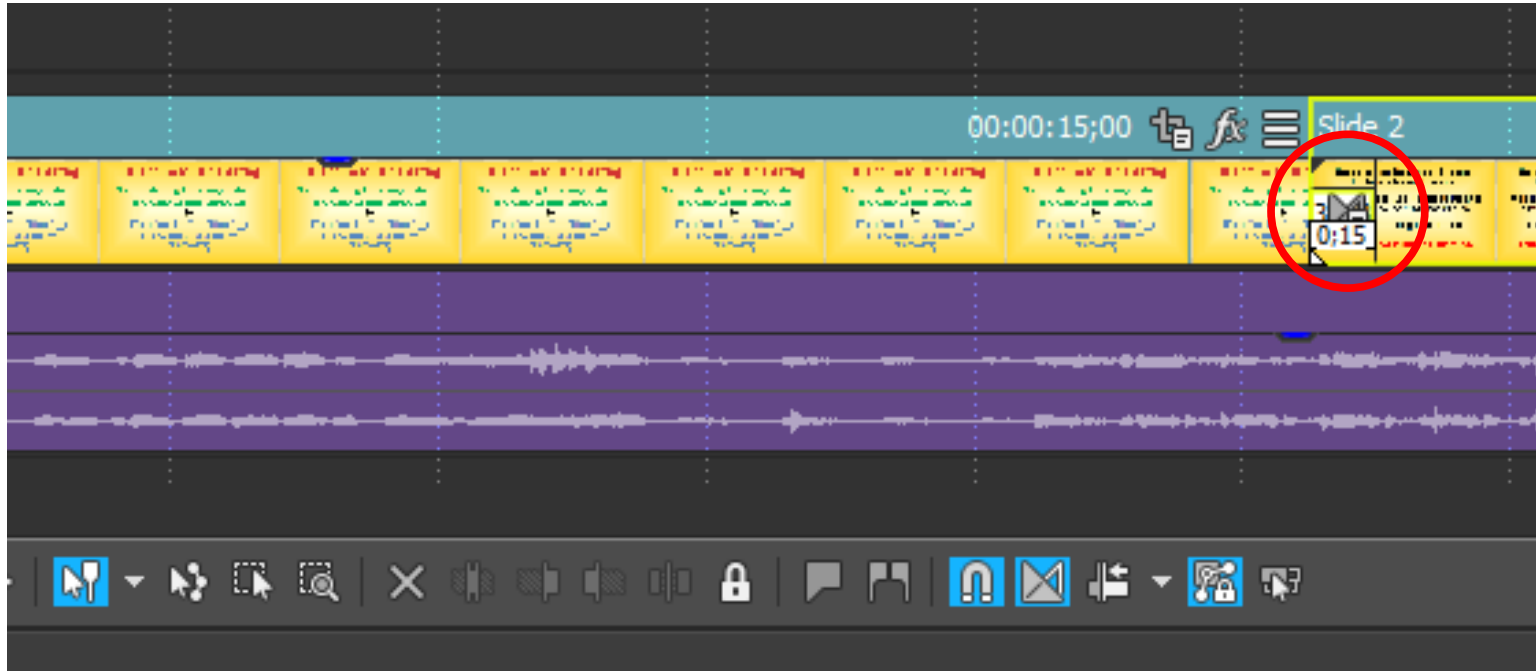
- In the Media area, click on the Transitions tab.
- You will see a scrollable list of transition types.
- Click and drag the desired transition type to an overlap.






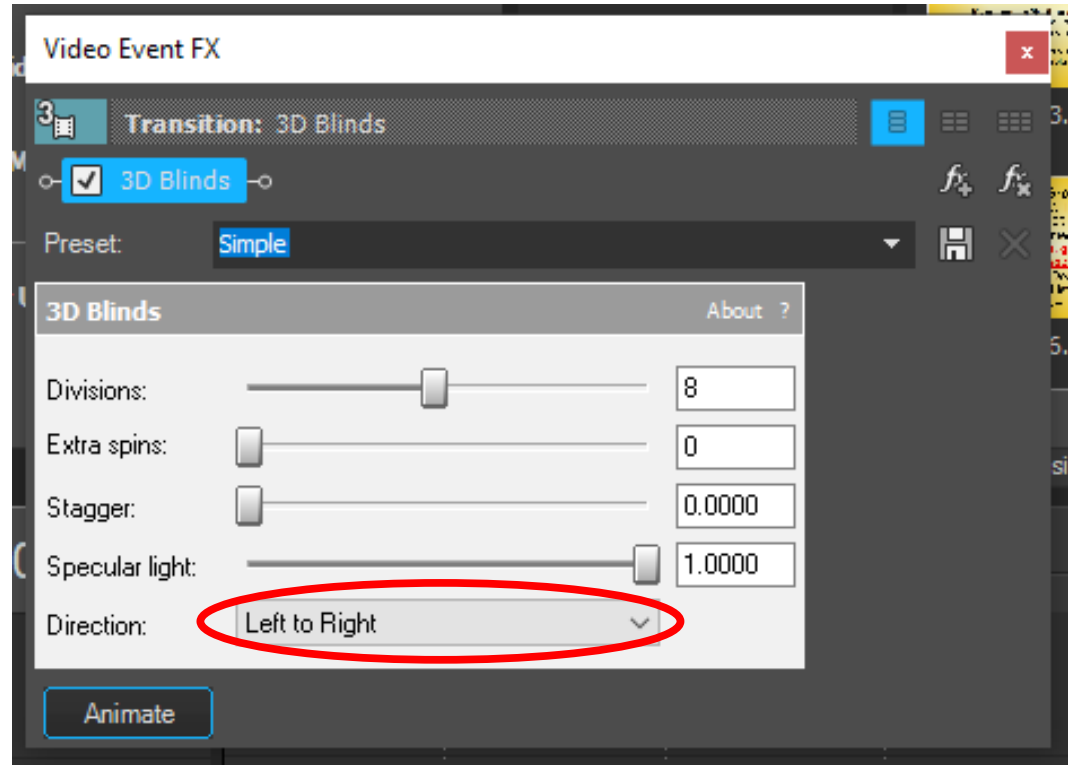
# How to alter an overlap transition

- The overlap transition appearance changes, showing that a plug-in transition was applied. Note the icon in the overlap.



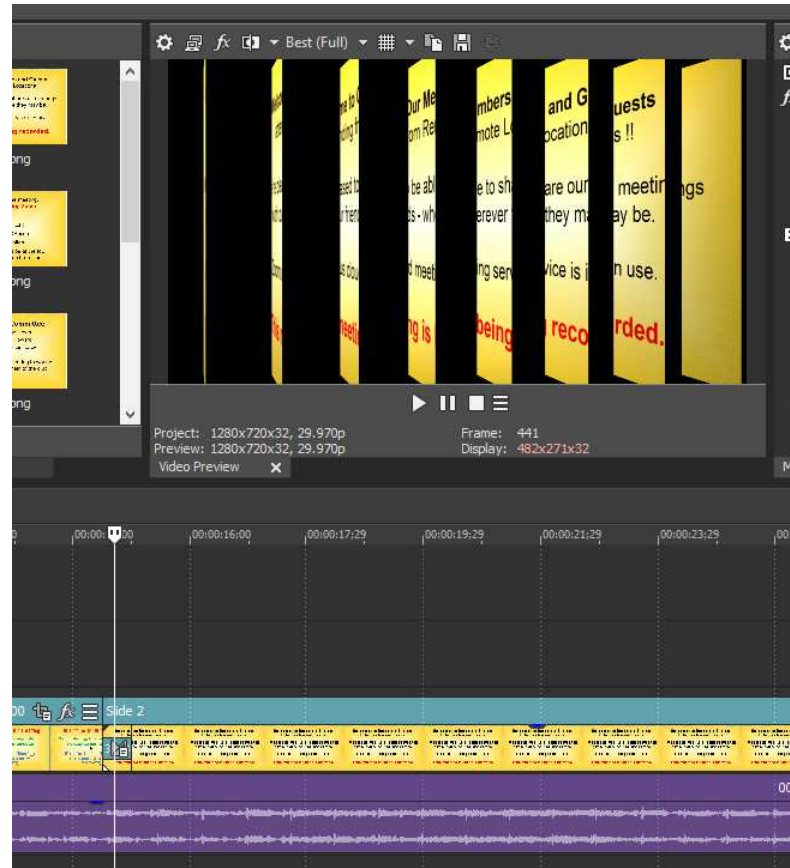
# How to tweak an overlap transition

- Click on the transition icon in the overlap.
- A **Video Event FX** window opens. 
- You can reconfigure details of the transition in this window.
- Tap the red X to close the window.



# 3D Blinds example

- In the Preview window, playback of an overlap crossfade between slides 1 and 2 of the PATACS pre-meeting slide show.
- The vertical timeline cursor is right in the middle of the 15-frame overlap.
- You can change the direction of the blinds movement in the Video Event FX window.



Adding still photos as video media

# Still Photos as media

- The editor software treats each photo as a video scene
- Movie Studio 16 Platinum assigns a default duration of 5 seconds to each photo
- It is possible to change the default duration: for the PATACS slide show, I use a default of 15 seconds per slide
- It is possible to **increase or decrease the duration** of any photo in the timeline, using click & drag on the right edge of the photo in the Video track

Adding motion to still images

# Types of motion

- **Pan:** move video camera either left-to-right or right-to-left.
- **Tilt:** move video camera up or down
- **Zoom:** move video camera forward or backward
- It is also possible to use Movie Studio Platinum to add these motions (and **rotation**) to still photos

# Using keyframes to control motion

- A **frame** is a single still image in a video scene. The typical frame rate in video is 30 frames per second.
- A **keyframe** is a point in the video where you choose to begin or end a motion effect.
- Typically you will select **two keyframes**: one at the beginning of the photo duration, and another at the end.

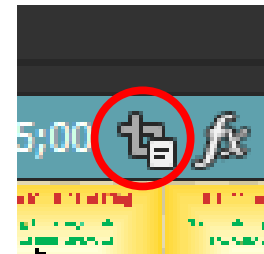
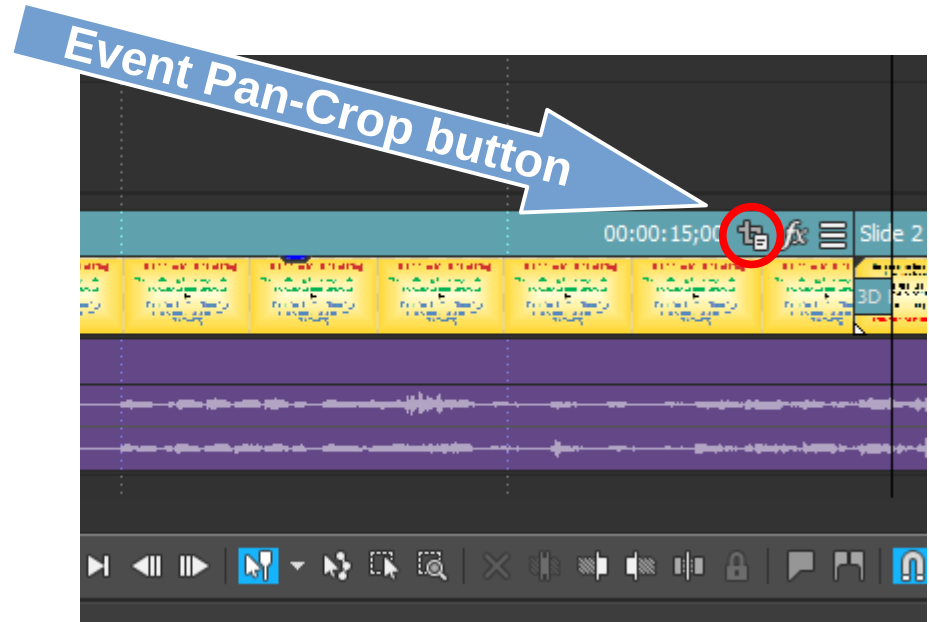


# Using keyframes to control motion

- At each keyframe, you can control zoom, pan, tilt and rotation.
- The editor software will modify every video frame between the two keyframes to create smooth continuous motion. This is called **software interpolation**.
- For instance, if the motion occurs across 500 video frames (a bit more than 16 seconds), then the software will modify each frame so that  $1/500$ th of the motion occurs in each frame.

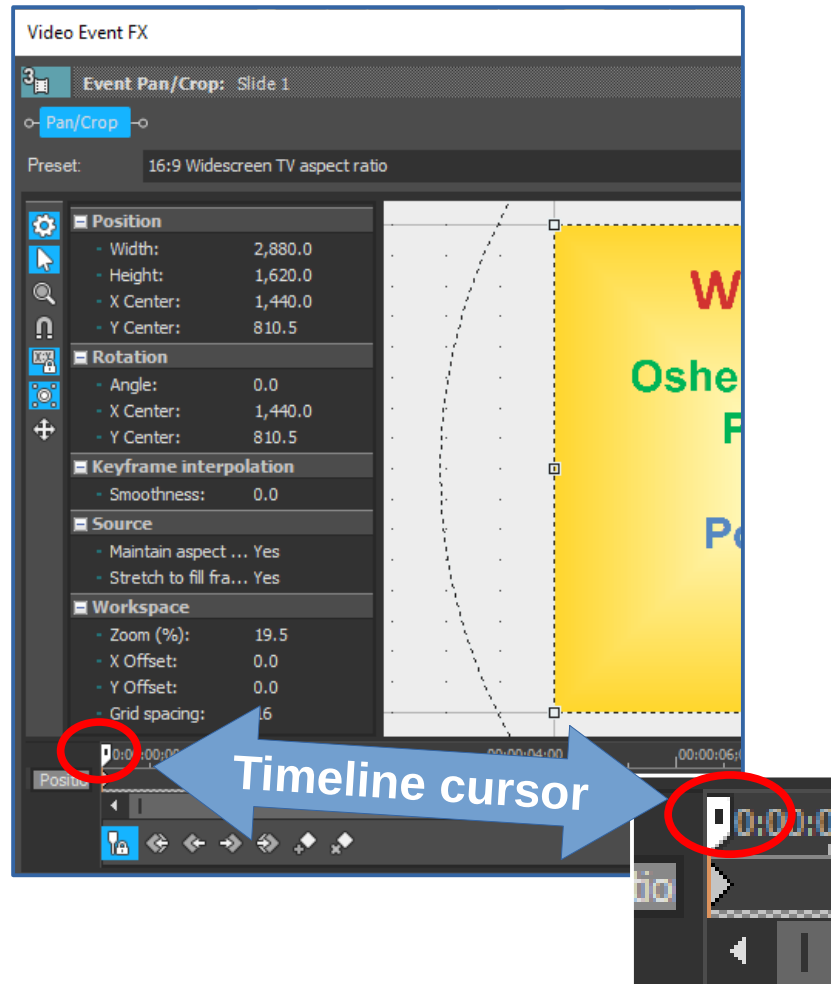
# Adding motion to a still image

- Magnify the timeline by dragging the timeline slider bar right end to the left
- Find the still image
- Click on the image's **Event Pan-Crop** button



# Adding motion to a still image

- A **Video Event FX** window opens, displaying the first video frame of the still image at normal magnification (full image)
- The window includes its own timeline and a **timeline cursor**



# Adding motion to a still image

- Other important **keyframe buttons** appear below the start of the timeline:



1. Move to first keyframe
2. Move to prior keyframe
3. Move to next keyframe
4. Move to final keyframe
- 5. Add keyframe here**
6. Delete this keyframe

# Adding Zoom-in to a still image

- Add a keyframe at the **starting point**
- Click and drag the keyframe timeline cursor to the end of the video
- Add a keyframe at the **ending point**
- By zooming in at that end keyframe, you tell the software to interpolate the steady zoom in from the start to the end

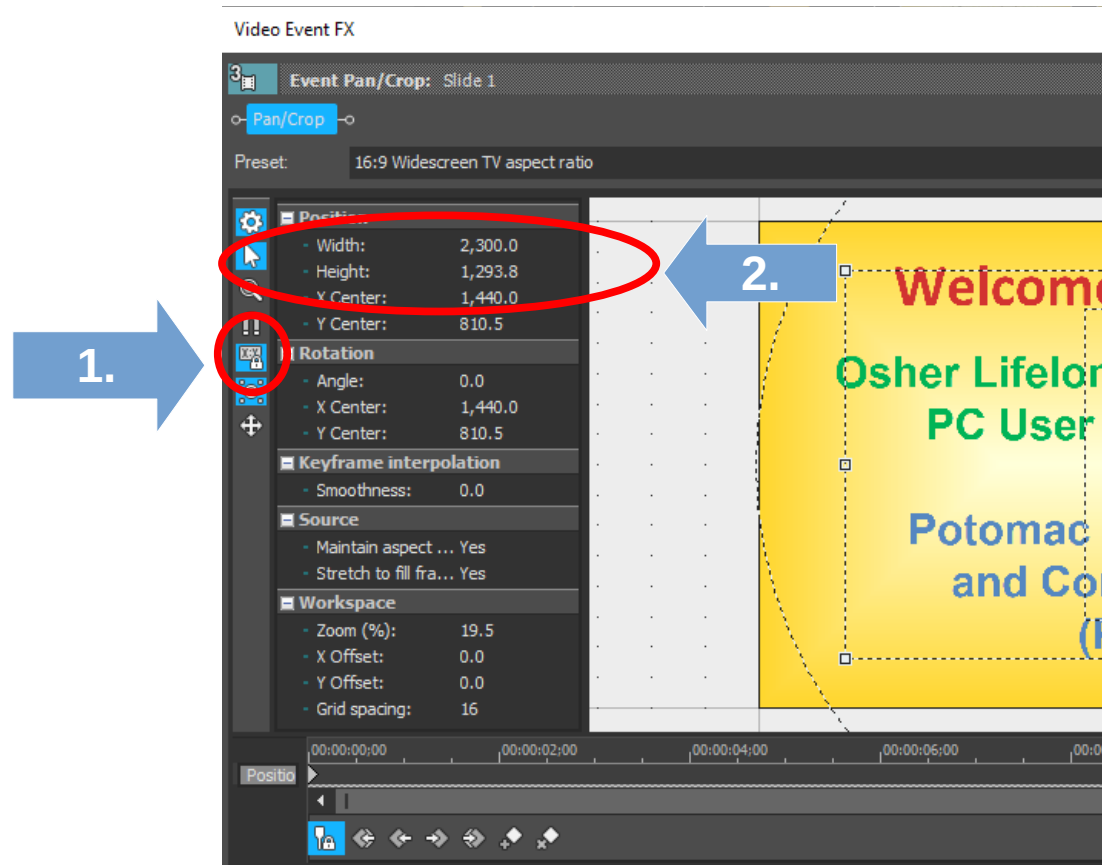
# General concept of Zoom-in

- The first frame displays the entire image
- The final frame only displays the **center of the image**, a smaller area
- Final frame is magnified by the editor software to the full resolution of the video

# Adding Zoom-in to a still image

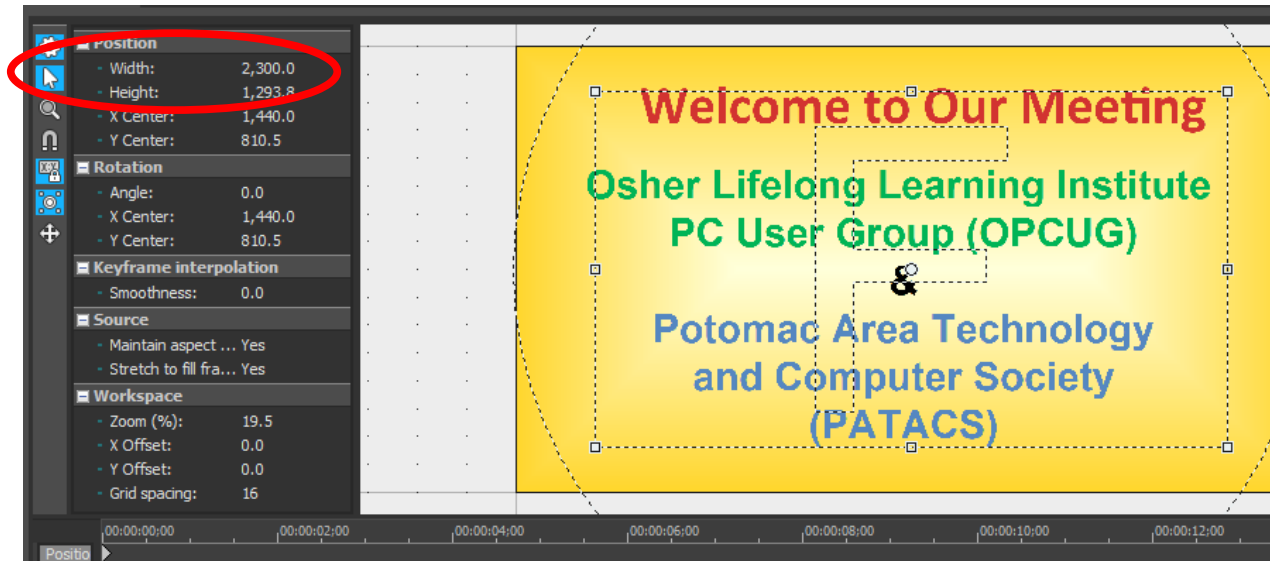
How to control zoom at the **end keyframe**:

1. Lock the **aspect ratio** button
2. Reduce the **image width**



# Adding Zoom-in to a still image

- An example end keyframe
- Width reduced from **2880** to **2300**
- Superimposed dashed rectangle shows final magnification





# Adding motion to a still image

- You can **preview** the motion effect.
- The preview window has VCR-like buttons to start, pause and stop preview.
- Then, if desired, you can increase or decrease the width in the end keyframe to right-size the motion effect.

# Zoom-in Preview screens



# Adding motion to a still image

- To add **panning** motion across a wide photo, adjust the **X position value** in both the start keyframe and the final keyframe
- To add **tilt up/down** motion on a tall photo, adjust the **Y position value** in both the start keyframe and the final keyframe
- To add **rotation motion to** a photo, adjust the **rotation angle** value in the final keyframe

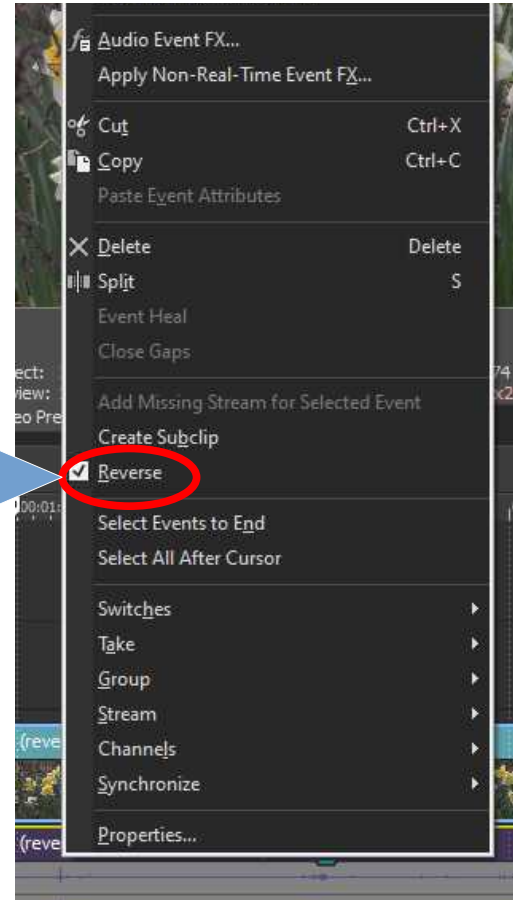
**Zoom loops:**  
video virtual backgrounds  
for Zoom online meetings

# Zoom video virtual backgrounds

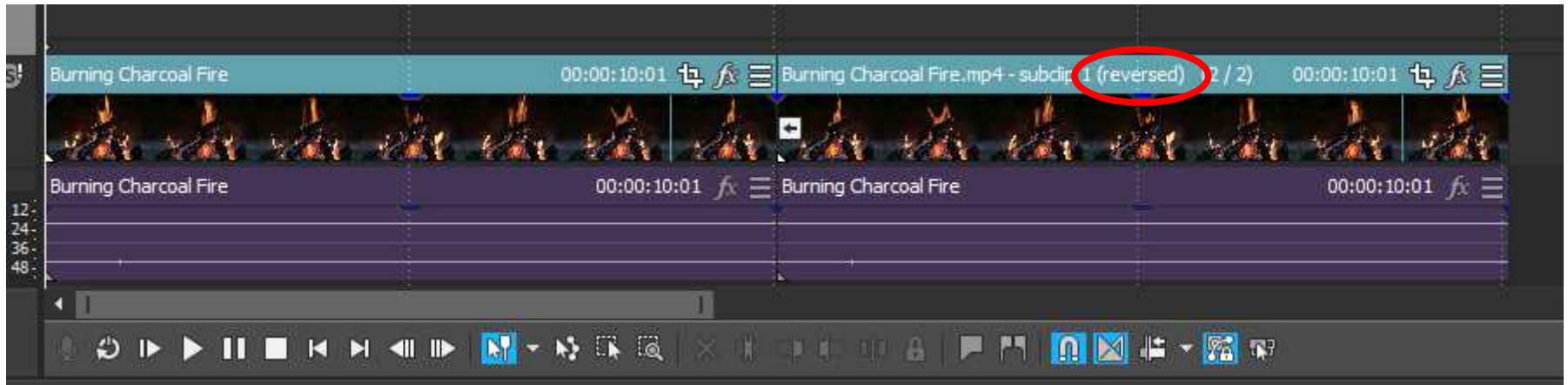
- Each video is a sequence of frames
- Visualize that sequence as letters: ABC  
A is the first frame, and C is the final frame
- The basic technique to eliminate the abrupt restart in a Zoom video background loop is to *show the video forwards and then backwards*
- The sequence becomes ABCCBA. I call this a **Zoom loop**.

# Turning a **video** into a Zoom loop

- In the Video track, insert the video **twice**
- Right-click on the second instance of the video.
- A menu pops up. In that menu, select **Reverse**.
- The software then runs the second instance of the video in reverse, so the second instance ends on the first frame.



# Zoom loop including reversed video

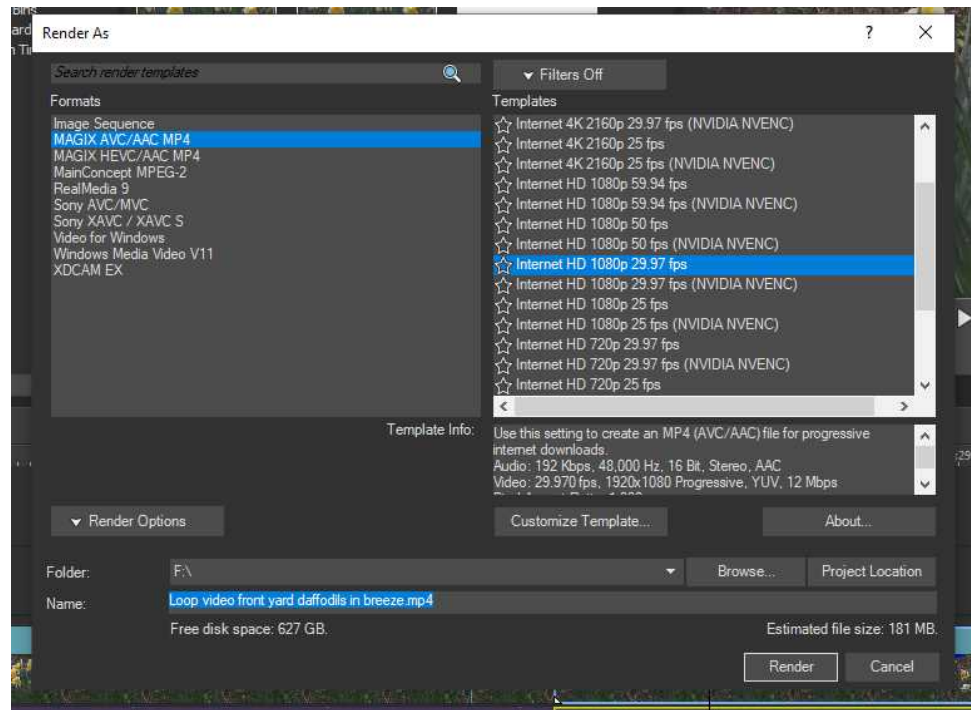


# Creating an MP4 video file



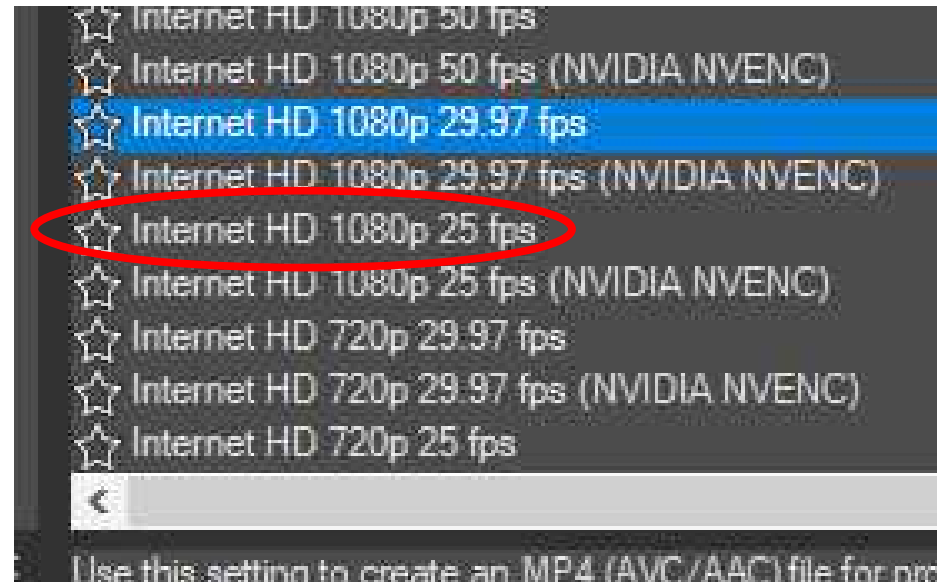
# The word is Render

- Pull down the File menu
- Select **Render as**
- The Render As window opens
- Accept the default MP4 file type in the **Formats** column
- Choose a subtype, resolution and frame rate in the **Templates** column



# The word is Render

- Typical resolution is 1080P and 29.97 frames per second for viewing on TV or computer
- Zoom transmits at 25 frames per second, so that rate is good for Zoom virtual backgrounds

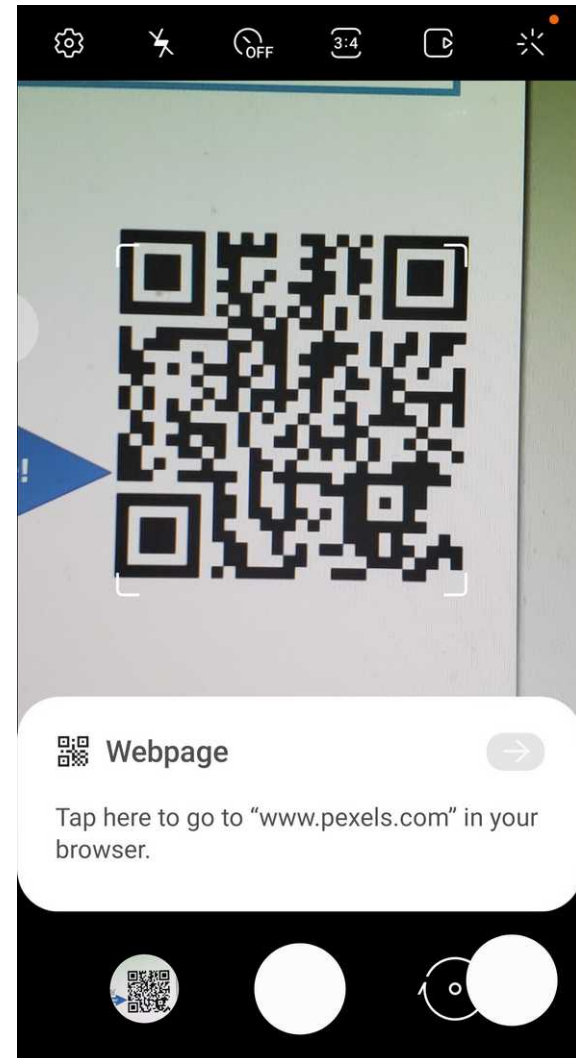


# Rendering tradeoffs

- Regardless of frame size settings for still photos, Render resizes each to a **constant resolution**.
- The choices are 4K (2160P), HD (1080P), and 720P.
- Lower resolution reduces file size and reduces quality
- Higher resolution increases file size and increases quality
- We generally call 30 frames per second, the US standard, is actually 29.97 frames per second.
- 25 frames per second reduces file size slightly

# About QR codes

- A QR Code is a **barcode** that contains useful info such as a web page address (URL)
- Recent iPhones and Android 10 phones have the ability to read QR codes in the camera app
- The camera app displays the text or URL. You can tap the URL to go to the web page immediately.



# Downloadable Sample Videos

- You can find many interesting and free short videos to download on this web site:

- <https://www.pexels.com/videos/>

Use the QR code!



# The End

- Ready for questions