

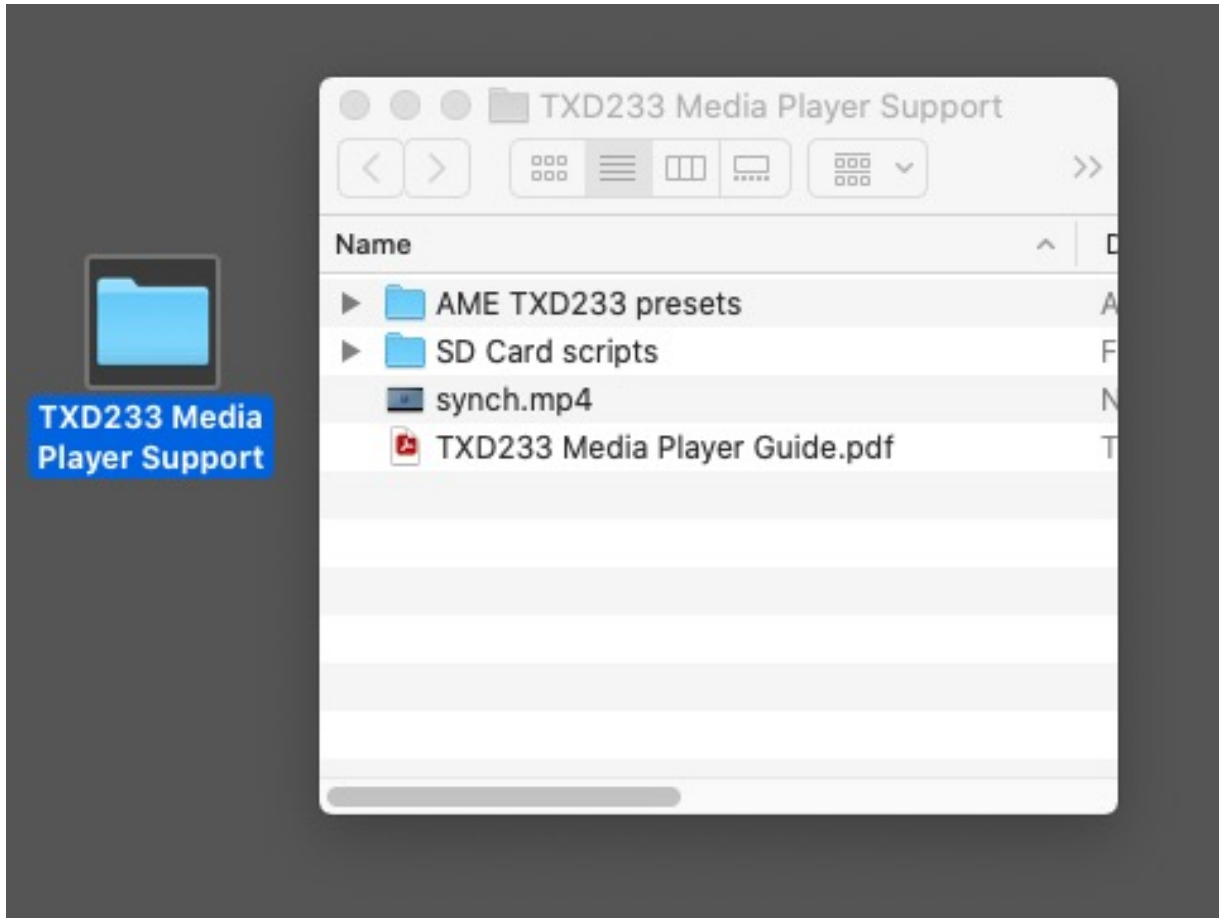
TXD233 Media Player

HD and 4K Video Media Player

Quick Start Guide v.2

2022

About the TXD233 Media Player Support Folder



The file you have just downloaded should contain:

-this guide
-video encoding presets for Adobe Premiere
(They also work in Adobe Media Encoder.)
- two scripts for the media player SD cards
-a short 1080 24p video test file

All of these elements will be explained in this guide.

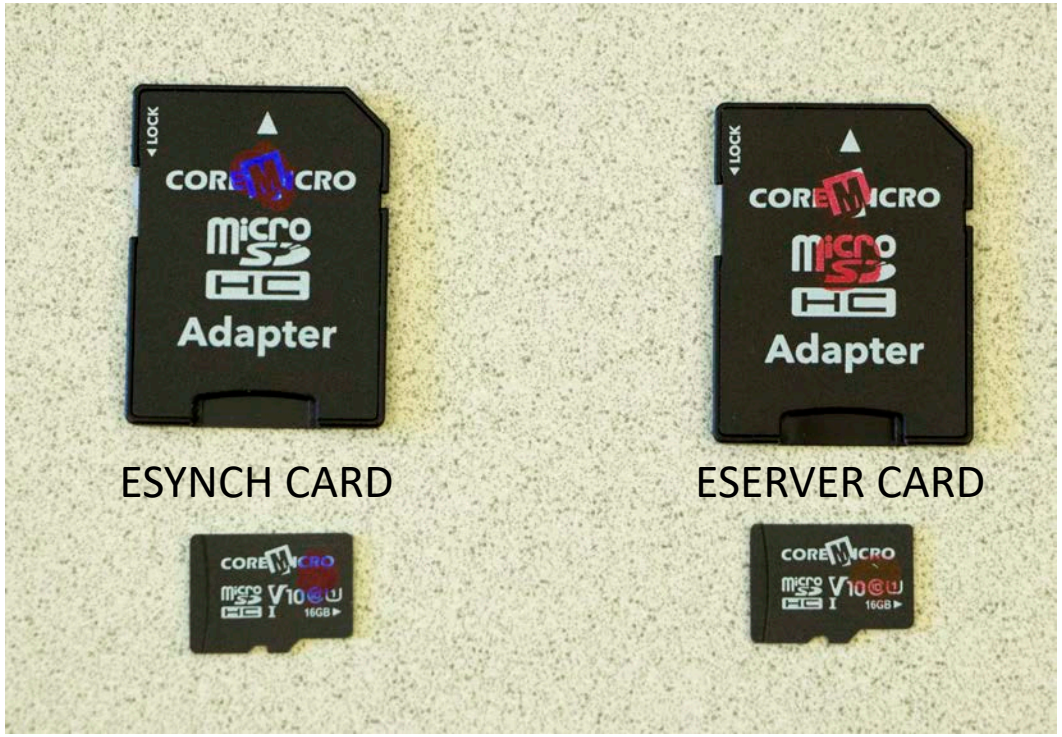
Contents of this Guide

There are three steps to using these media players. First, the SD cards should be formatted. Second, the video files need to be encoded correctly. Third, you must complete the setup depending on whether it is a single player or synchronized multi-player installation.

1. Step One: Formatting the SD cards (P. 4)
2. Step Two: Preparing the video files (P. 13)
3. Step Three Part One: Single Player setup (P. 26)
4. Step Three Part Two: Synchronized Multi-Player setup (P. 32)
5. Troubleshooting Tips (P. 41)

Step One:
Formatting the SD Cards

About the SD Cards



ESYNCH CARD

ESERVER CARD

The TXD233 (Bright Sign) media players come with one or two micro SD cards and holders.

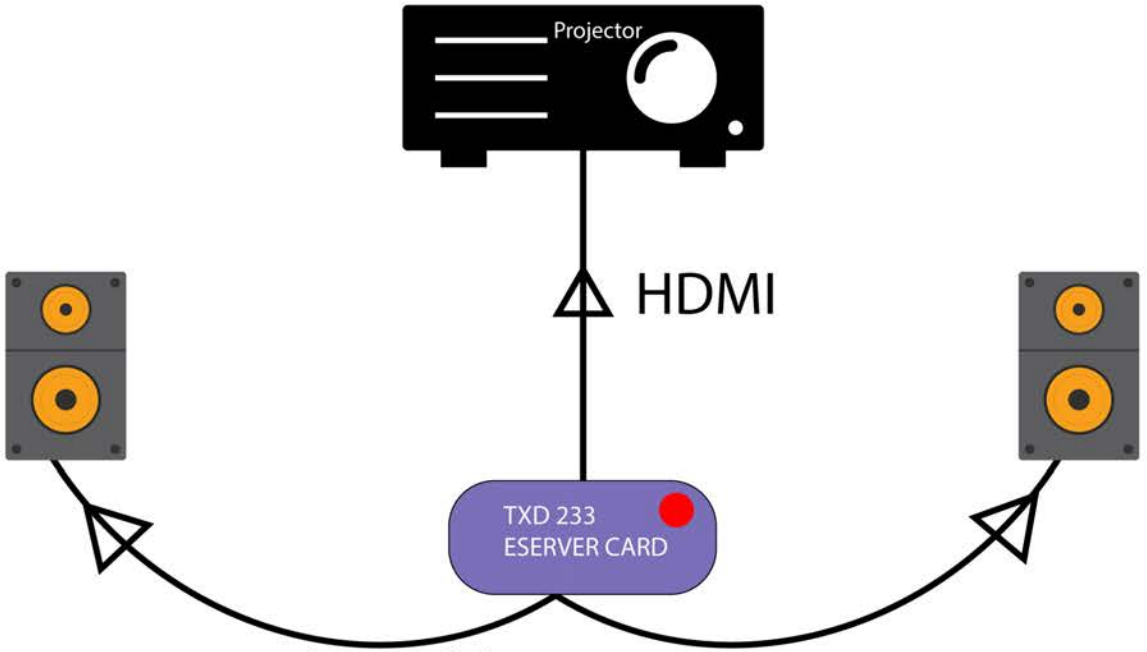
The SD cards with the red dot are ESERVER cards.
These are used in a single player setup and as the controller card in a setup of multiple players.

The SD cards with the blue dot are ESYNCH cards.
These are only used in a synchronized multi-player set-up in conjunction with the one ESERVER card player.

In the single player setup, the player uses the ESERVER card.

In the multi-player set-up, one player has an ESERVER card and all the other players have ESYNCH cards.

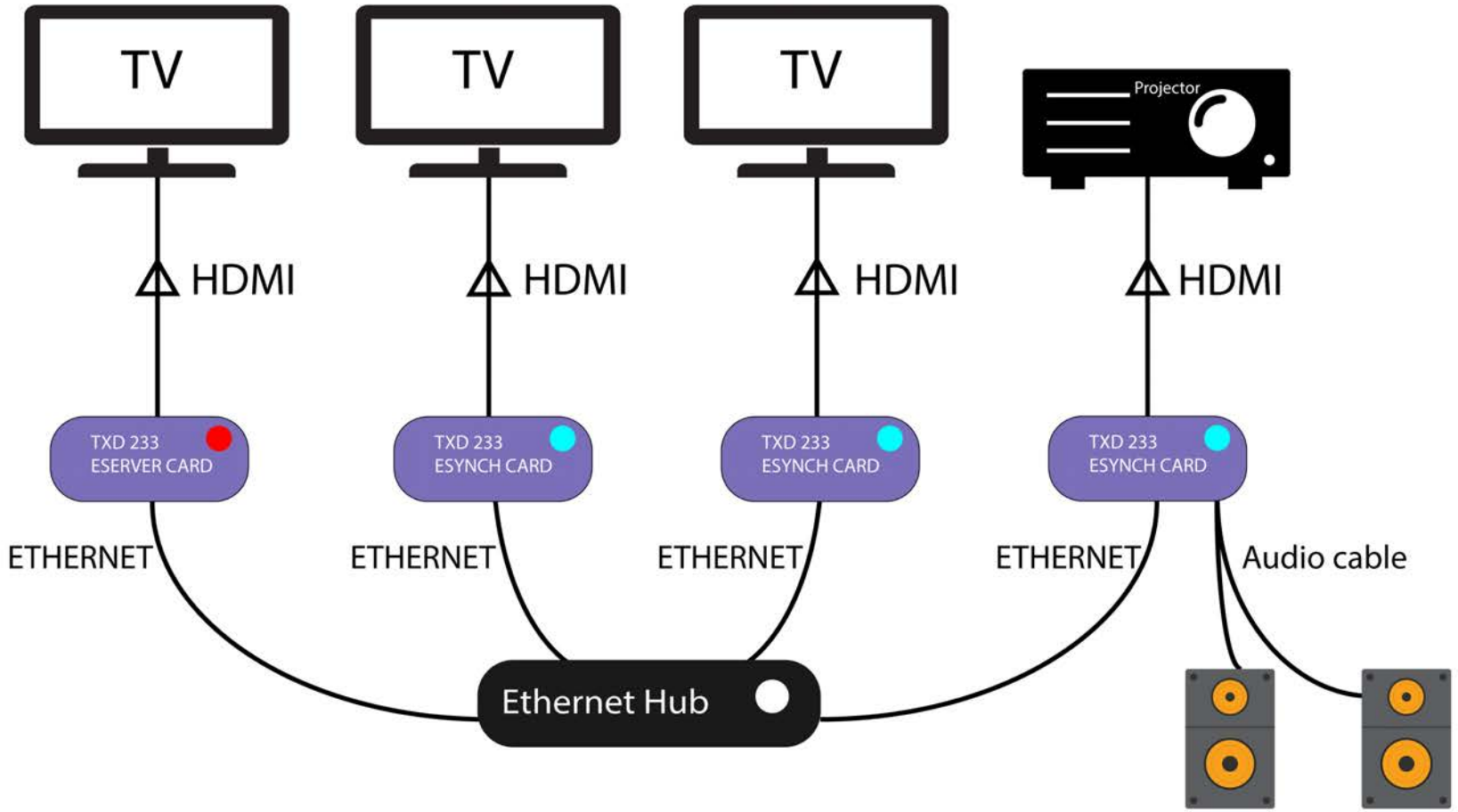
A Sample Single Player Setup



Audio Cable

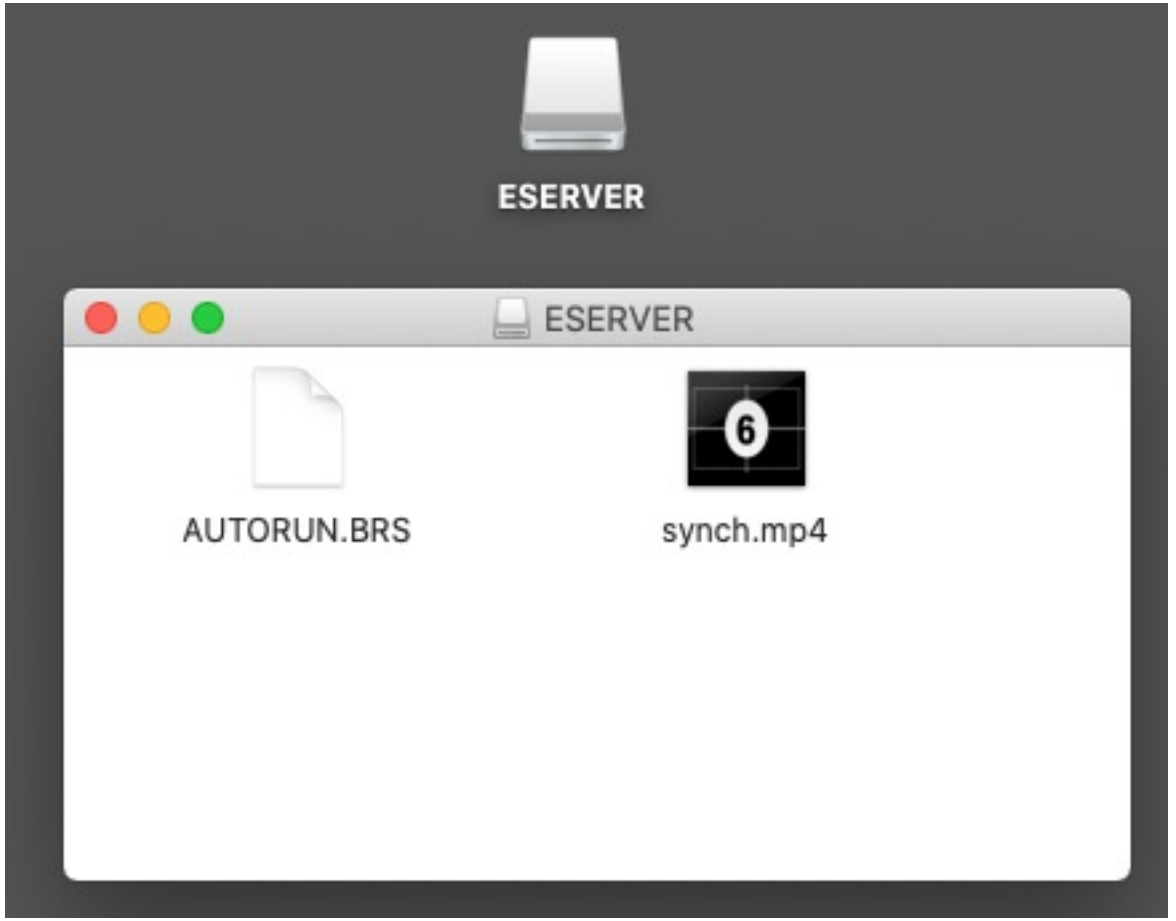
Stereo Mini Jack to two 1/4” or two XLR or two RCA

A Sample Synchronized Multi-player Setup



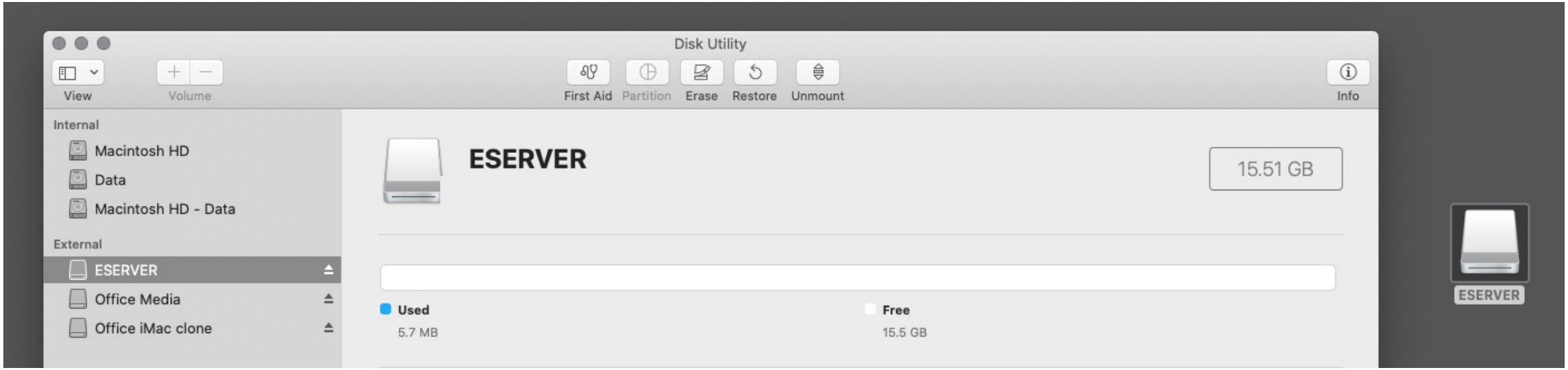
Why format the SD cards?

- We recommend formatting the SD cards as a precautionary measure.
- Reformatting the cards will eliminate files from a previous user and ensure that the script for automatic looping and synchronization is present.
- The SD cards should only have two files on them when you put them into the players: your video file called ”synch” and a script called “AUTORUN.BRS”.



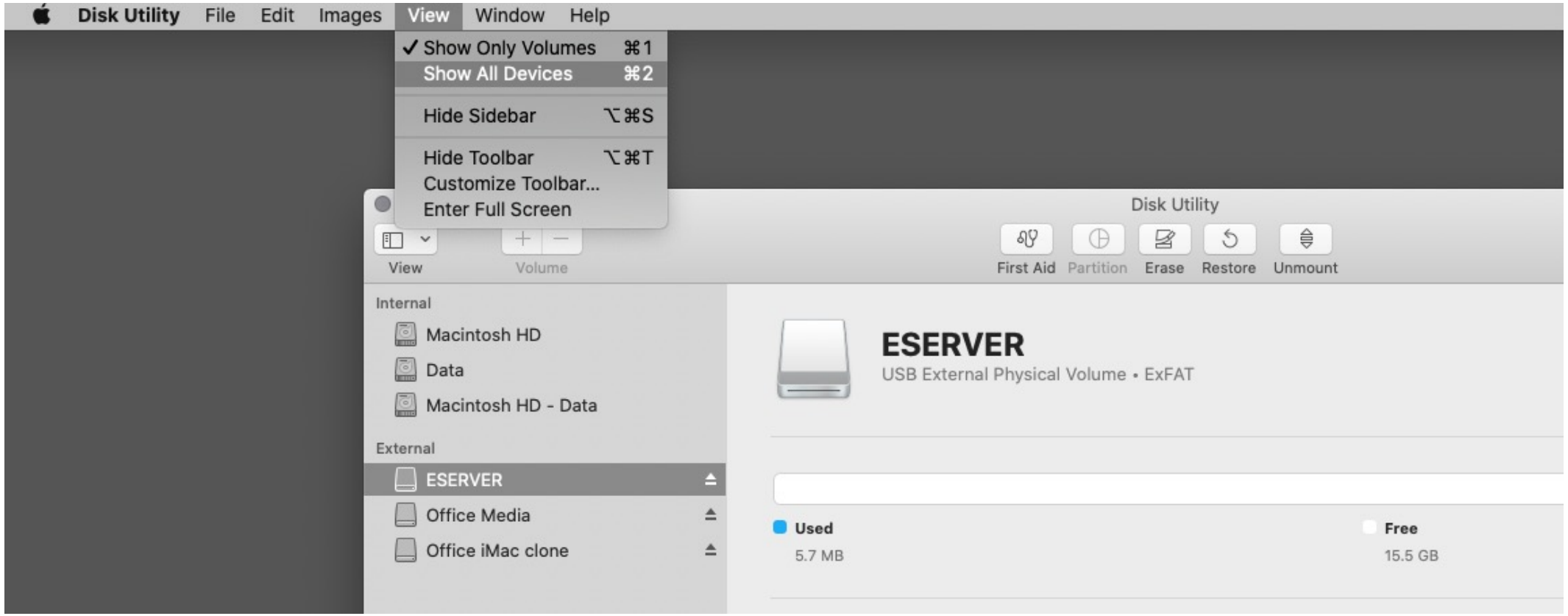
Formatting the SD Cards on a Mac

- Make sure the SD card lock (on the side of the card) is not engaged. Insert the SD card into the card slot on the computer. To avoid accidents, do not have any external hard drives connected to the computer.
- Go to Macintosh HD/Applications/Utilities/Disk Utility
- Use Disk Utility to format. You must select the **Device not the Volume**. The devices may be hidden by default, like in the image below. The next page shows how to view devices.



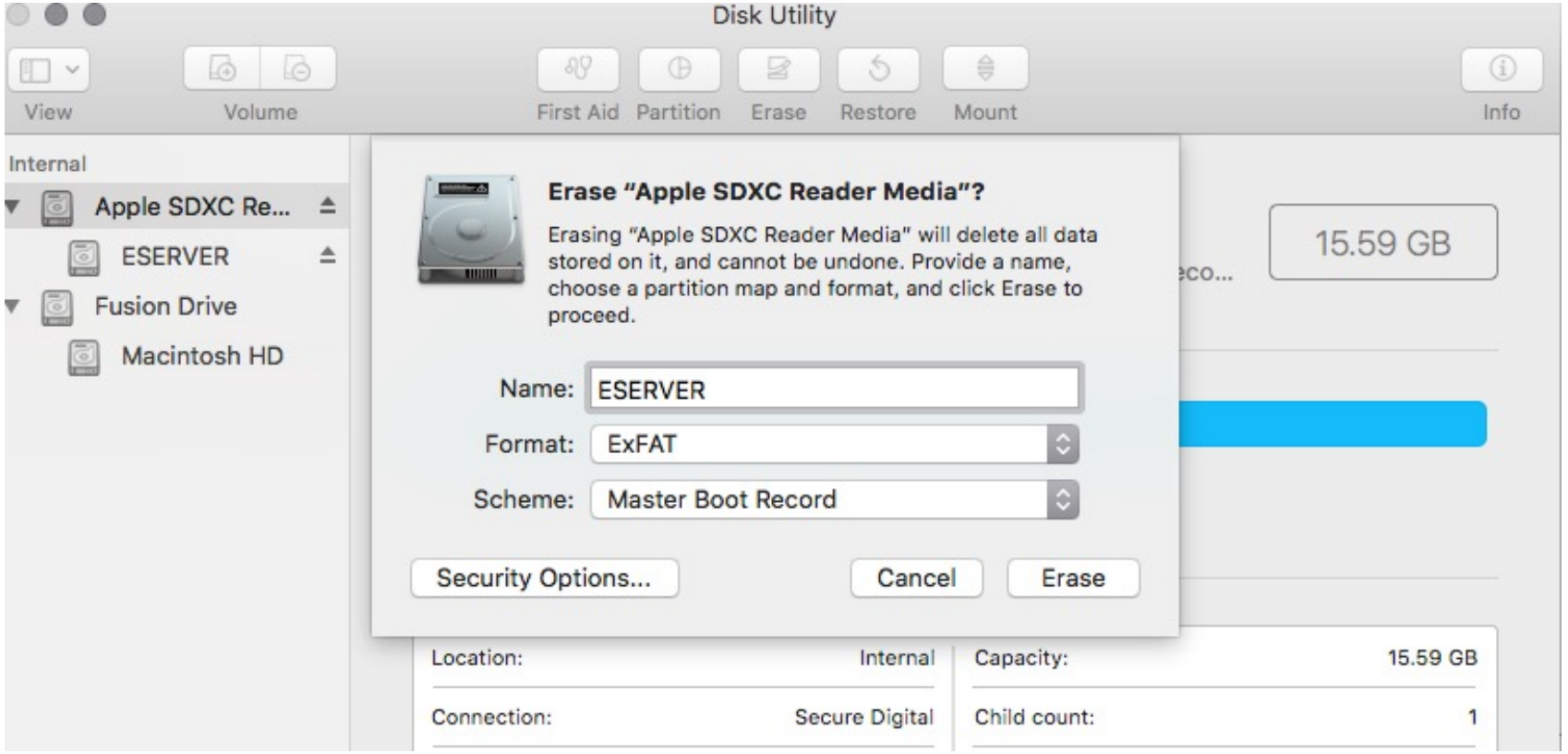
Showing Devices in Disk Utility

- View/Show All Devices.



Select the Device to format

- Select the Device (it will be called something like Apple SDXC Reader Media) and then choose ERASE.
- The Format and Scheme should be set exactly like the image below: EXFAT and Master Boot Record.
- Rename the card ESERVER or ESYNCH depending on the type of card. Then erase.



Put the AUTORUN script on the card

- The scripts for the ESERVER card and the ESYNCH card are both called AUTORUN.BRS but the contents are different.
- Place the appropriate script on the card. Do not rename the scripts.
- These scripts tell the player to loop a video file and, in the case of the ESYNCH cards, to synchronize with the ESERVER player.



Step Two:
Preparing the Video Files

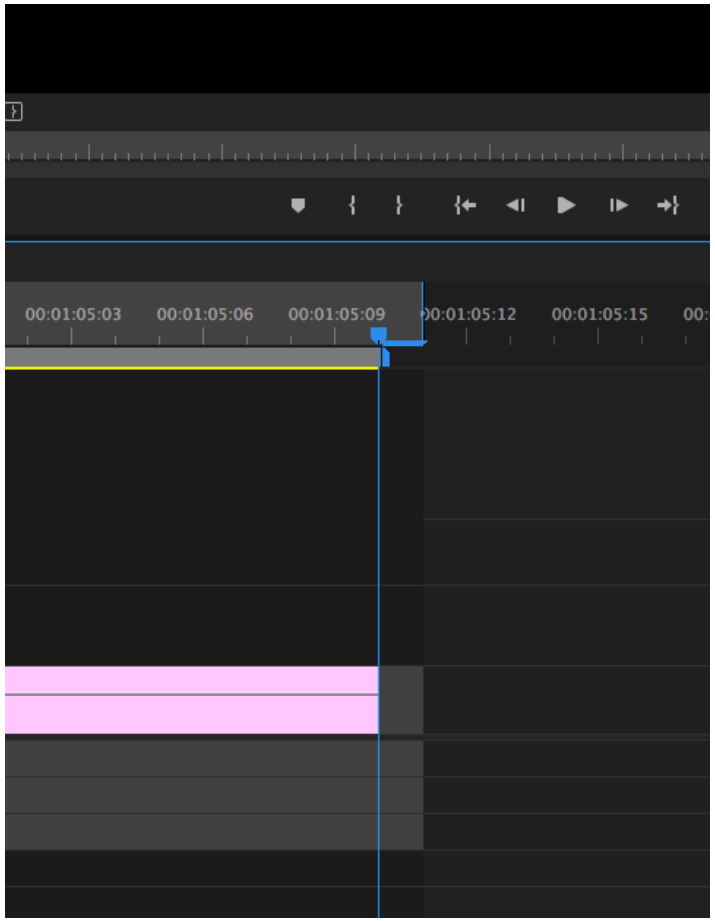
This example uses Adobe Premiere

- Concordia's Faculty of Fine Arts supports Adobe CC applications running on Apple computers, so this example is based on this scenario.
- However, you can adapt these instructions to the software of your choice.
- I have given you precise parameters for the video encoding that you can use with any encoding software.

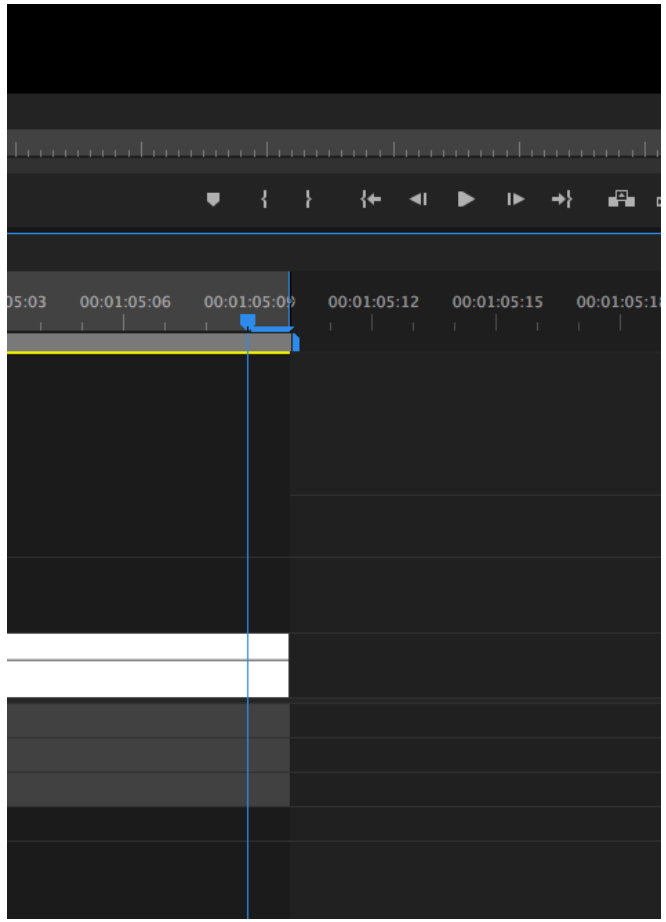
Exporting from Premiere- Mark In and Out Points

- Mark IN and OUT points (I and O on the keyboard) in the Premiere sequence. This seems simple BUT:
- Pressing END on the keyboard (or UP arrow repeatedly until you hit the last edit point) and then making the OUT point, will make an OUT point one frame AFTER your final frame of video. This will encode as a frame of black.
- The TXD233 always loops playback. If you video starts and ends on black then do not worry about an extra frame of black.
- But to avoid this frame of black, press END to go to the end of the sequence. Then go one frame back with the left arrow key. Then make the OUT point.
- The next slide indicates the difference.

OUT point one frame AFTER the video



OUT point right at the end of the video



This distinction can be critical if you are encoding several videos for synchronized play back with multiple TXD233 players.

The videos must have the same duration, to the FRAME.

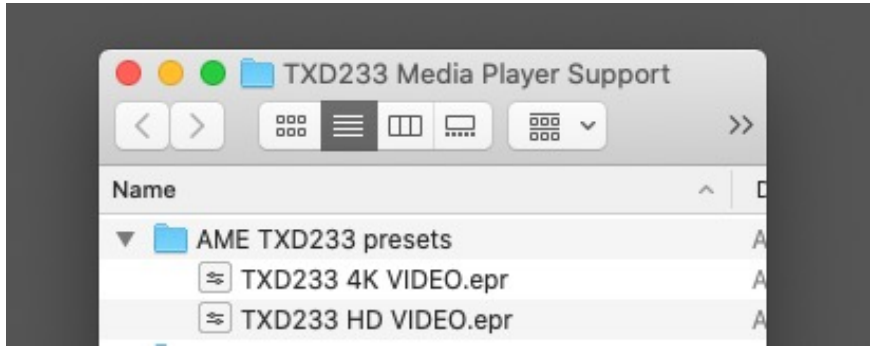
Video Encoding Specifications to use with any Software (Detailed Instructions for Premiere follow on the next page)

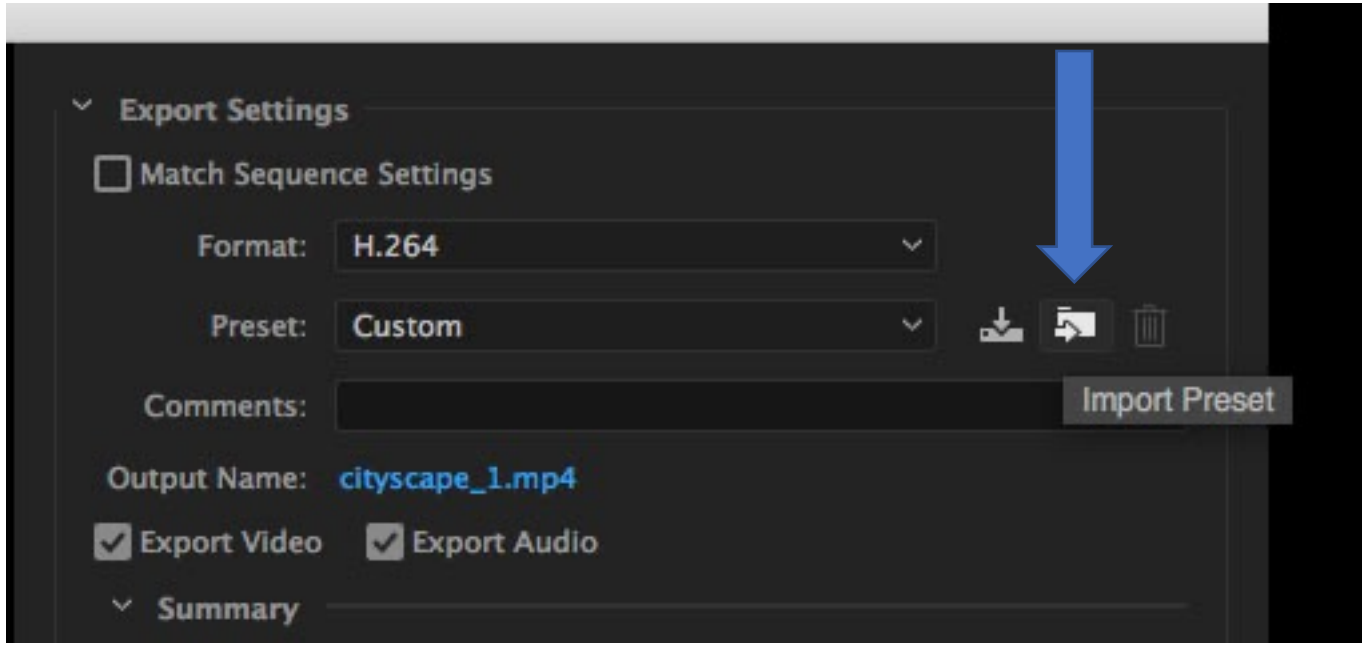
- The player supports 720p, 1080p and 4K (Ultra HD) playback at 24p,30p or 60p.
- These are NTSC frame rates: 23.976, 29.97, 59.94 fps.
- When encoding your video, match the resolution of the video to the size of your display or projector (HD 1920 x 1080 is the most common).
- Make sure the frame rate is supported by your display or projector.
- For HD encoding use:
- H.264, level 4.1 MAIN with a CBR target bit rate of of 25 mbits/sec
- For 4K (Ultra HD) use:
- level 5.1 MAIN with a CBR target bit rate of of 30 mbits/sec
- The target bit rates can be lowered if you experience playback issues (motion not smooth, jittery playback). Try lowering it in increments of 5 mbits/sec.
- Audio encoding: AAC encoding up to 320 kbps.
- Supported video file extensions are: .mp4, .mov, .ts, .mpg, .vob, and .m2ts

Import the .epr Encoding Presets into Premiere

- These presets are already installed on CDA open access lab and AV suite computers. So these import instructions are for your own or any other computer.
- In Premiere, go to the Export Media Window: “Command M” (or File/Export/Media).
- For HD video, in the Export Window choose **H.264** as the Format and click on the import preset button.
- The presets are .epr files included in the TXD233 Media Player Support folder. Choose the TXD233 HD VIDEO.epr preset.
- For 4K video, choose **HEVC (H.265)** as the Format and import the TXD233 4K Video.epr preset.

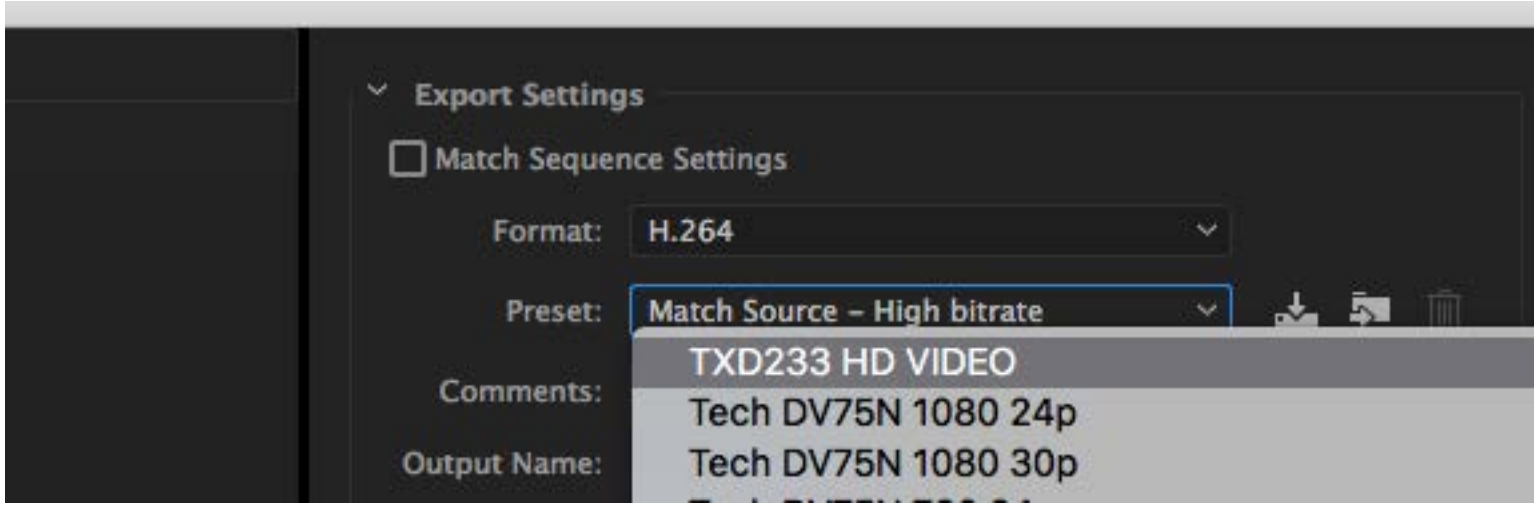
Import these presets!

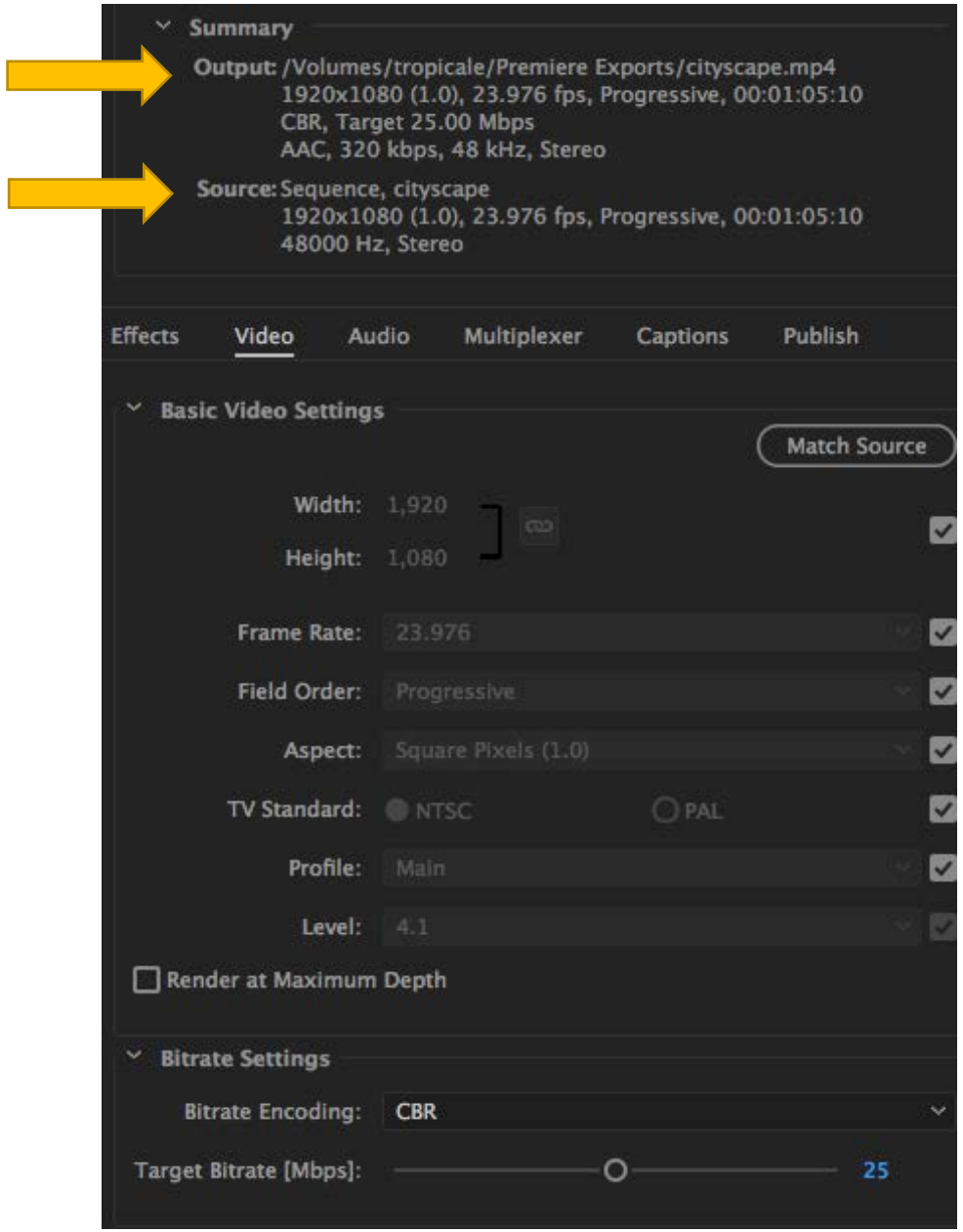




Choosing the Preset

- Choose the imported preset from the Preset drop down menu.
- The presets will automatically choose the right image size and frame rate. But check this (see next page).

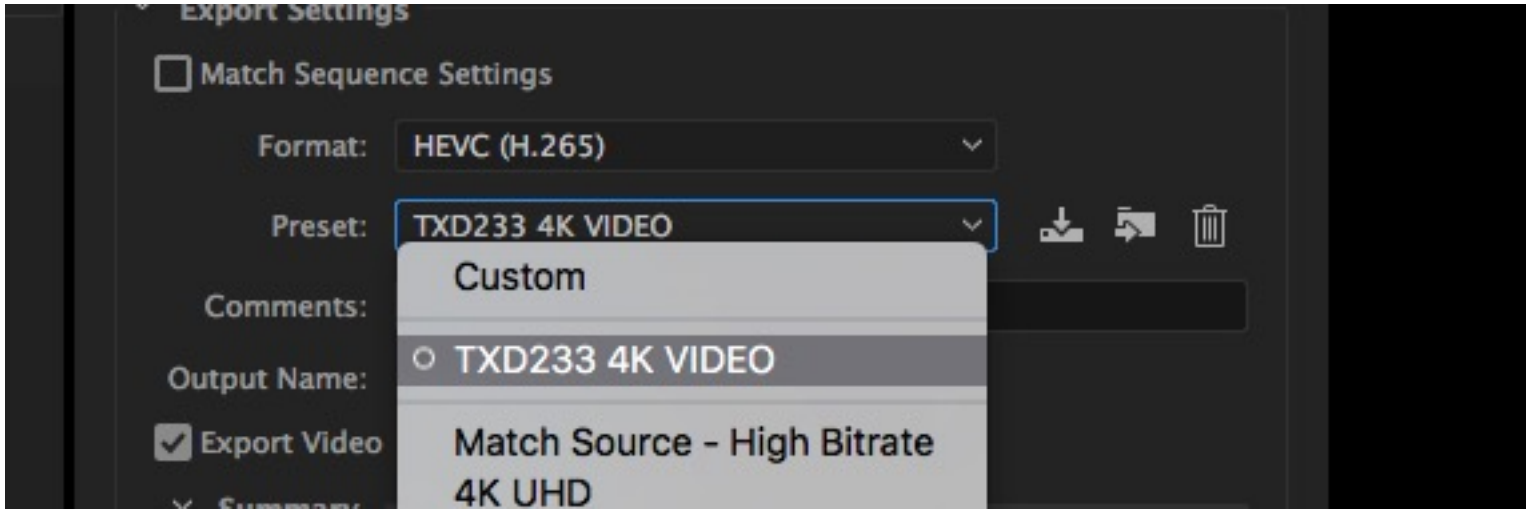




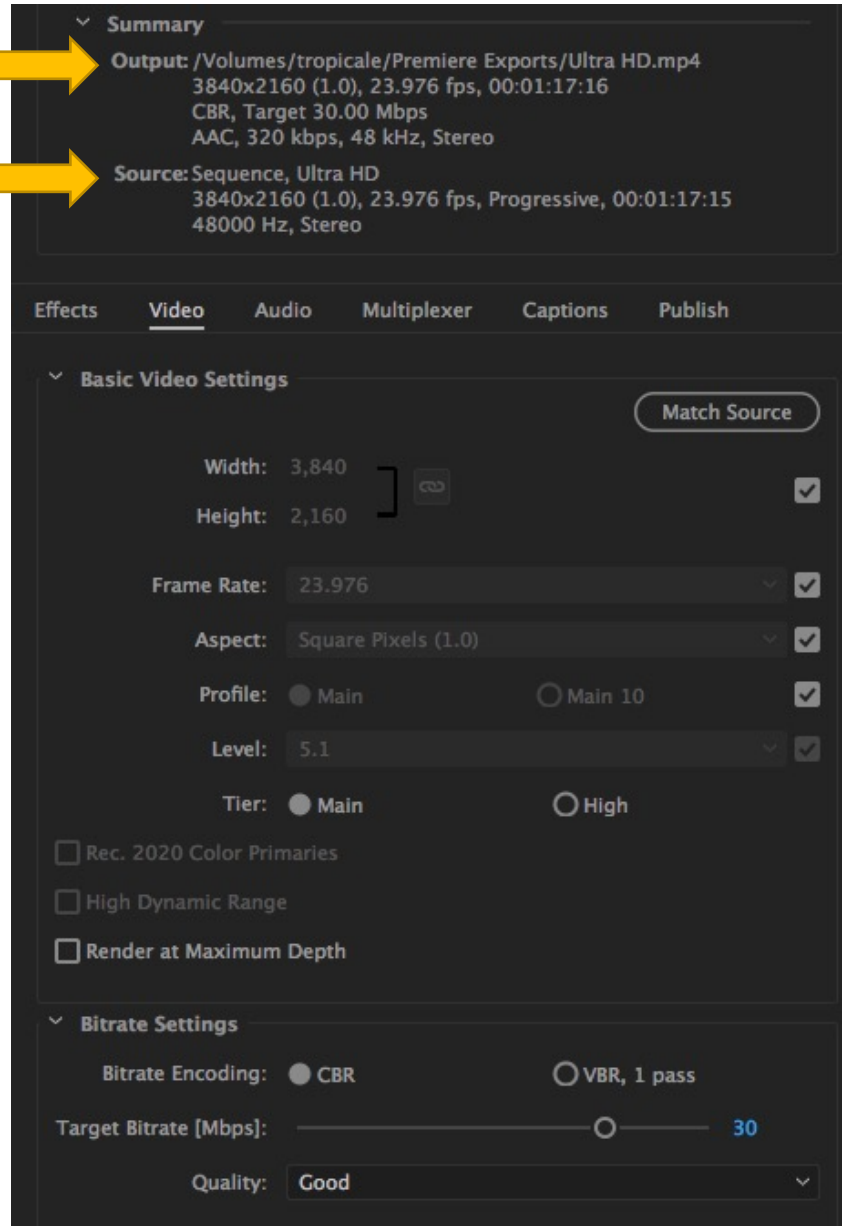
The TXD233 HD VIDEO Preset will match the frame rate and image size of your 1080p or 720p sequence.

Check the SOURCE and OUTPUT summary to make sure these two things correspond.

- For 4K encoding choose HEVC (H.265) as the Format and the TXD233 4K Video preset
- The TXD233 supports the 4K Ultra HD image size of 3840 x 2160.
- It does not support 4K DCI* image sizes or DCI frame rates (true 24 or true 30 fps).



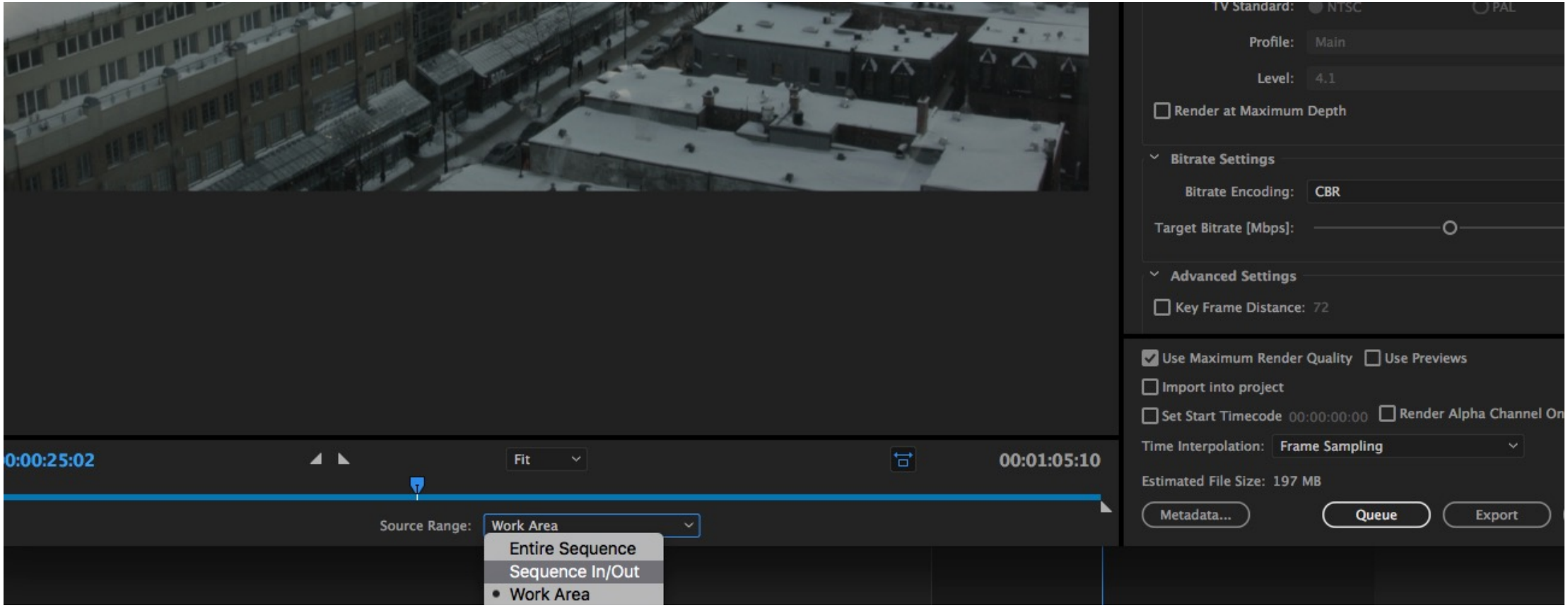
* Digital Cinema has larger frame sizes, different aspect ratios and non-NTSC frame rates.



The TXD233 4K Video preset will automatically match the frame size and frame rate of the Premiere sequence.

Compare the Output and the Source in the Summary section to make sure these things correspond.

Select ”Sequence In/Out” in the Source Range at the bottom of the image if you created IN and OUT points in the sequence.

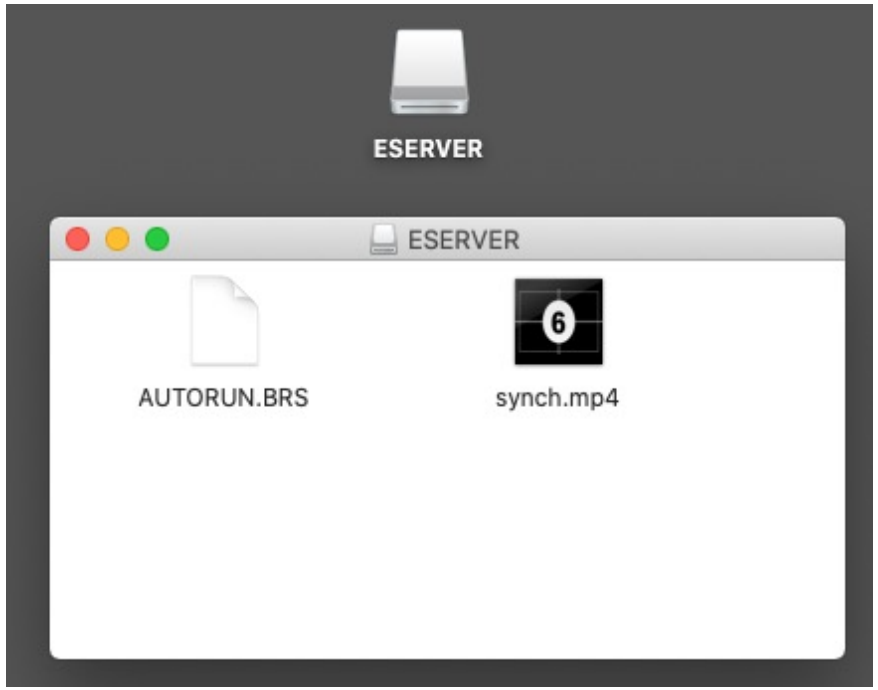


About 4K video playback

- There are currently no 4K display devices in the CDA EV depot.
- When playing back a 4K video to an HD display, the TXD233 will resize (downscale) the image to fit the display.
- You will have a greater control over the quality of the final image if you scale the video in Premiere prior to encoding: simply export a 4K sequence as HD.

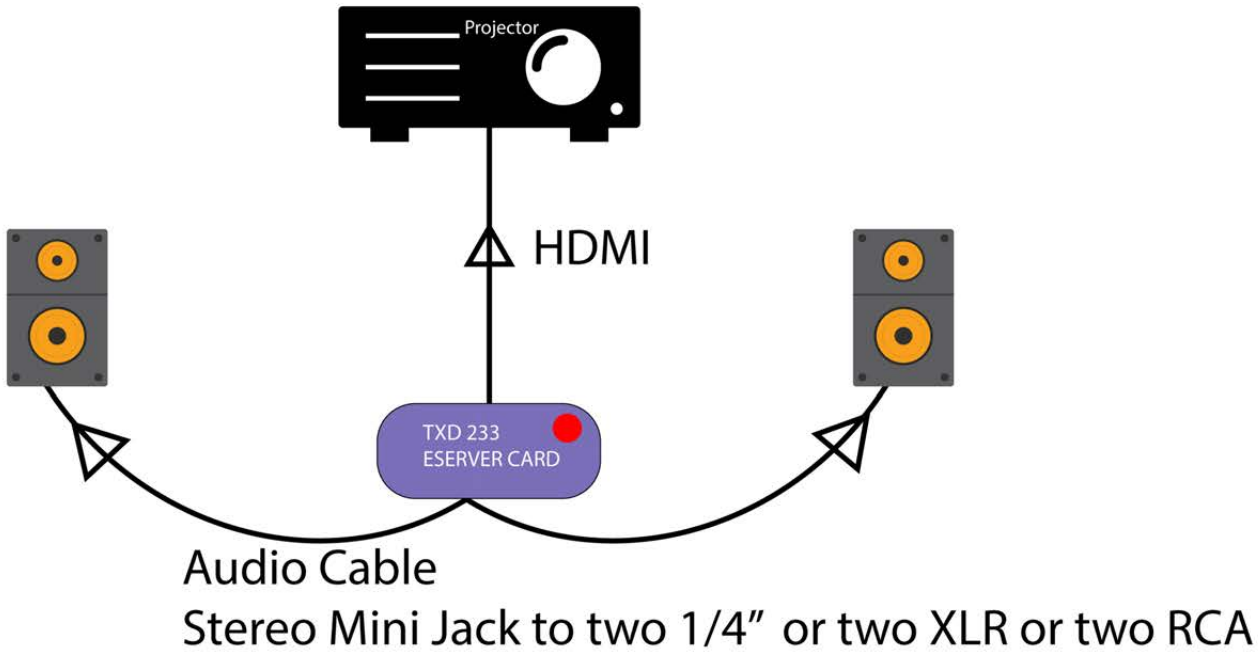
Rename the File and Place it on the SD Card

- For the playback to work, all videos must be renamed **synch**.
- For example, Premiere creates a .mp4 file so your final video must be a named: **synch.mp4**
- In this image, the video file is placed on a ESERVER card for a single player setup:



Step Three/ Part One: Single Player Setup

Single video playback from one player



Single player setup showing one ESERVER player

- Remove the micro card from the adapter so it can be inserted into the player.
- Once the MicroSD card is placed in the player and the player is powered on by plugging it in (there is no ON or OFF switch) , playback and looping begins automatically.
- Make sure to have the MicroSD card inserted before plugging in the player.





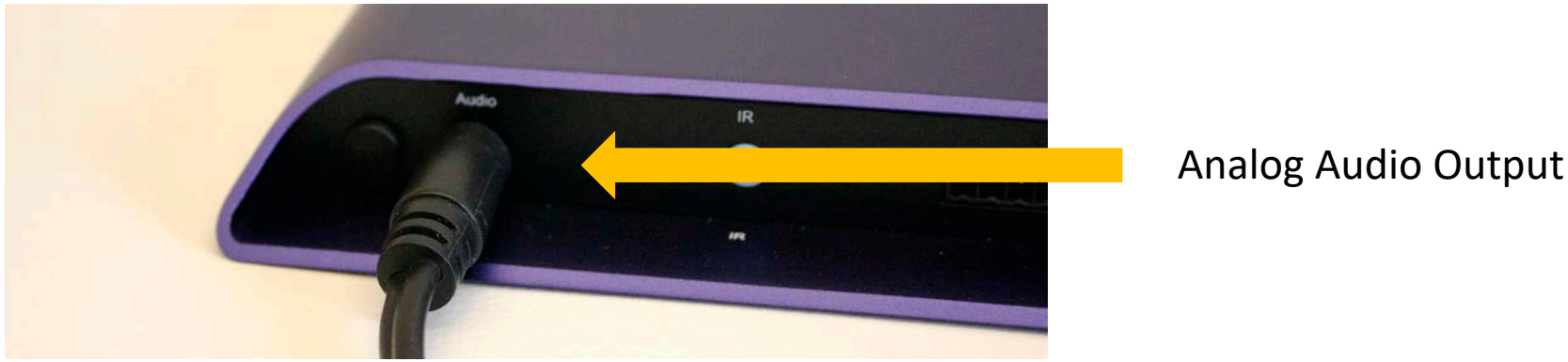
Video Connections

- You will need a HDMI display device. This could be a LCD TV, computer monitor or a data projector.
- The CDA depot has HDMI to DVI adapters if you wish to use an older display or projector with a DVI input.
- DVI inputs do not carry audio.



Audio Connections

- Audio is sent over HDMI but stereo audio is simultaneously sent out of the 1/8” mini jack analog audio output on the back of the player.
- Stereo audio can be sent to active speakers via a stereo mini jack to dual mono ¼” , XLR or RCA cable. It depends on the inputs of the speakers.
- You can also send an analog stereo signal to an audio mixer or amplifier.
- Surround sound audio options are discussed on the next page.



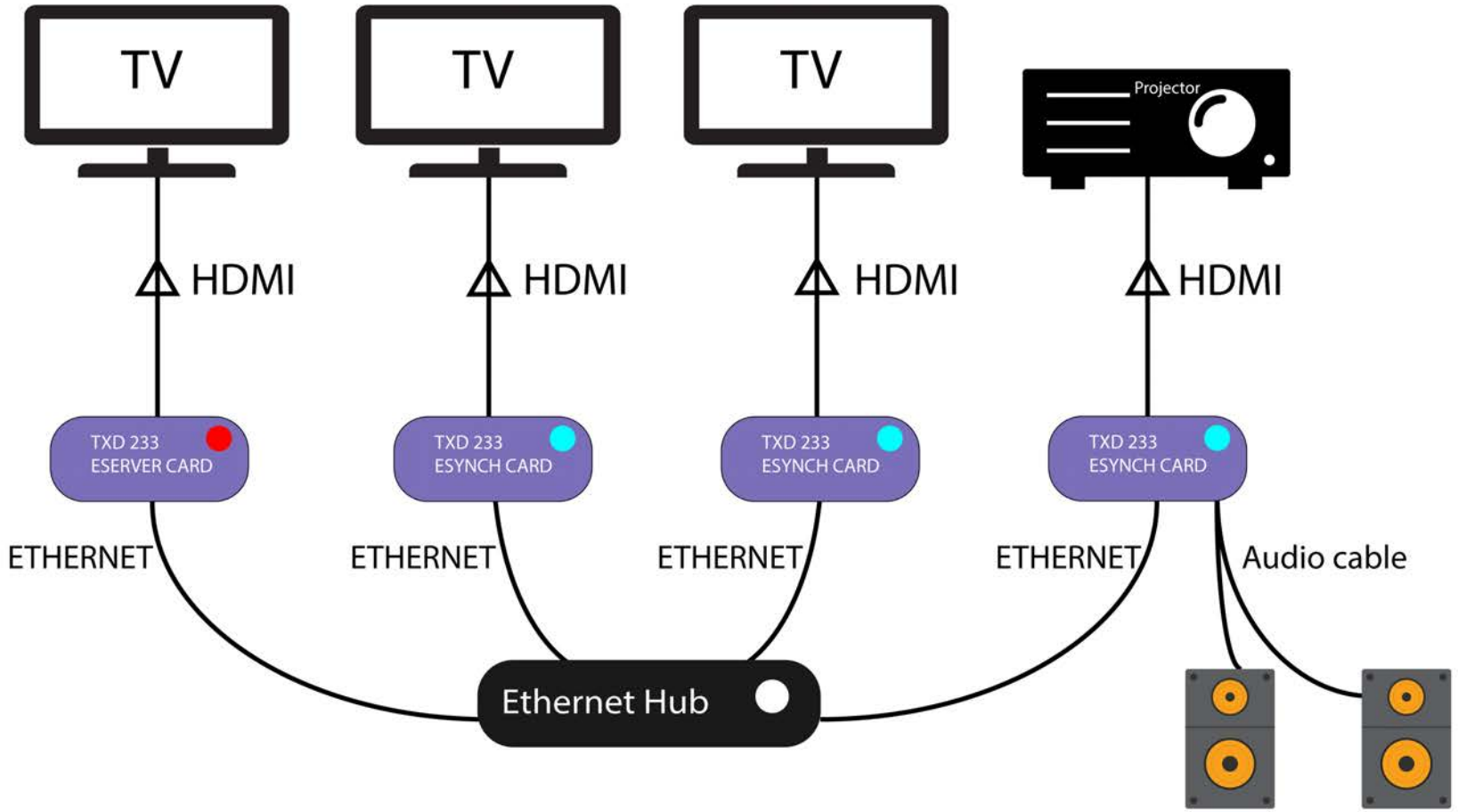
Analog Audio Output

Surround Sound Options

- The CDA EV depot has a technical solution using a different media player for the looped playback of a single video with surround sound.
- By default, a multiplayer video installation with the TXD233 players will also be a multichannel audio installation. But if you specifically require 5.1 channel surround sound (L, C, R, LFE, Ls, Rs) with the TXD233 players, there are options.
- Please email Phil Hawes to discuss these options.
- philip.hawes@concordia.ca

Step Three/ Part Two: Synchronized Multi-Player Setup

A Sample Synchronized Multi-player Setup



What is synchronized playback?

- In a synchronized multi-player setup, each individual player has one video file showing on one display.
- The players are synchronized so that each file plays back in a coordinated way with all the other players.
- The players will all loop at the same time when they reach the end of the file. There will be a split second break in the image when the loop occurs.
- Once the synchronization is established it will continue until the players are powered off.
- Sometimes the synchronization begins accurately after the first loop of playback.

Synchronized Multi-channel Playback

- For multi-channel synchronized playback, one player must have a ESERVER card, and the other players have ESYNCH cards.
- They will all have videos on them entitled “synch.mp4”.
- The videos must have the same duration (to the frame), and the same frame rate. For example, they must all be 24p.
- It does not matter which player has the ESERVER card but when you plug in the players to start the synchronized playback, the player with the ESERVER card should be plugged in last.

ESERVER player starts last

- The ESERVER player starts at the same time or ideally after the other players.
- If the ESERVER is turned on before the other players, the other players may miss the FIRST start command that is issued via ethernet by the ESERVER and you may have to wait for the show to cycle once before all the players start together.
- Whenever the ESERVER restarts its video, all the other players will restart their videos. Because of this, the file on the ESERVER has to be the same duration (or longer) than the others if you do not want the video on the other players to be cut off.

Preparing the Video Files for Synchronized Playback

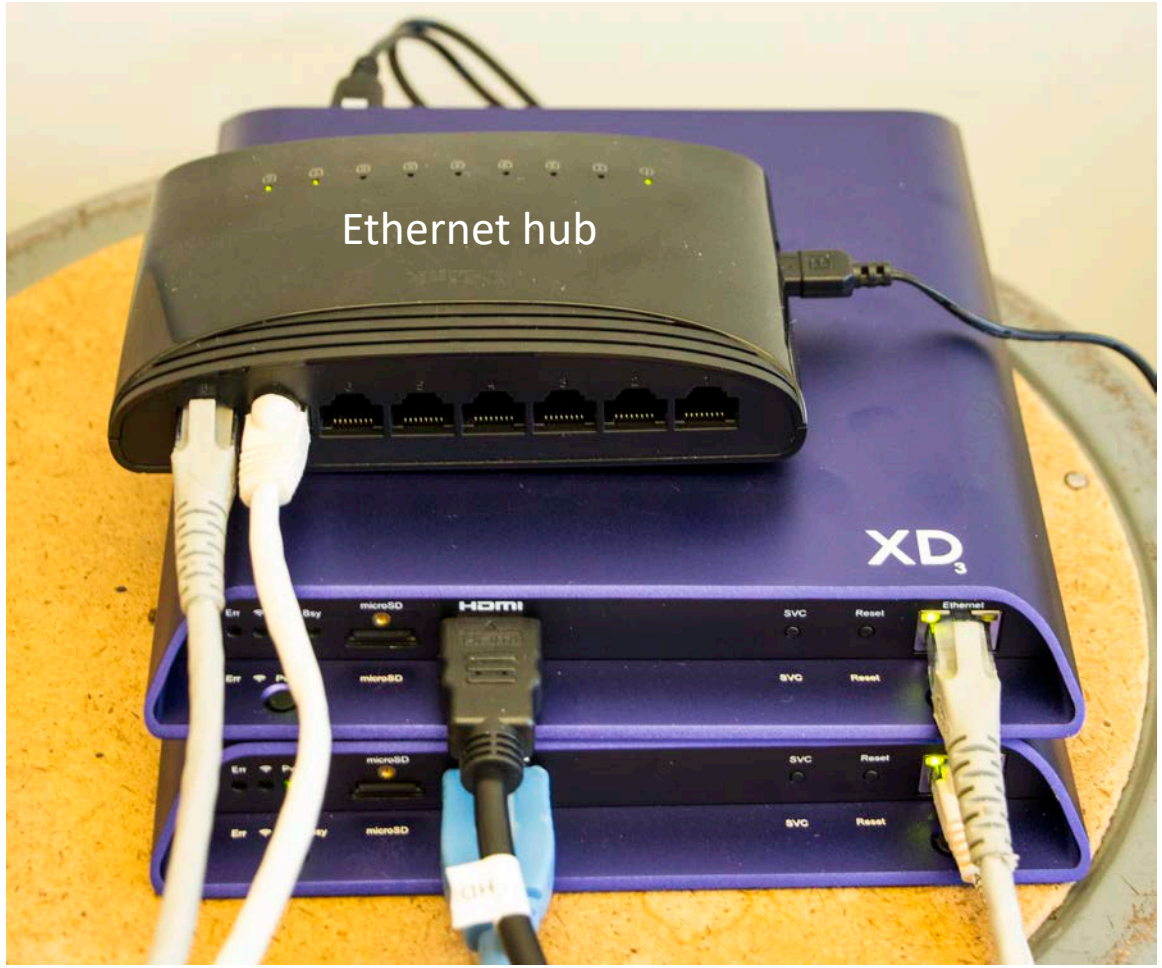
- Some other considerations when preparing the video files for synchronized playback.
- These are video players, so if you need one channel of synchronized audio only, you should create a video of black with an audio track. This video file will be exactly the same length and frame rate as the other videos.
- Sometimes the players may not all be playing at the same time during your installation. If you want one display to be inactive during one portion of the loop, place black on the video track at that point.

Preparing the Video Files for Synchronized Playback

- Look at Part Twelve: “Opacity and Motion Effects” of the CDA Premiere Video Editing Workshop on Moodle to see how you can visualize a multiplayer setup on one Premiere sequence.

- It can help to see all the video channels at once to judge the effect of the synchronization.

Connect the players to an ethernet hub.



For synchronization, the players have to be connected to an ethernet hub with ethernet cable.

There is an ethernet connection on the front of the player.

The ethernet connections must be made and the MicroSD cards must be in the players before plugging in the players into a power outlet.

Plug in the power for the ESERVER player LAST.

Consider Cable Length

- When planning your installation, consider cable length.
- Visualize the distances between the players and the displays, and your speakers.
- HDMI cable can only run short lengths, so the players should be close to the displays.
- Consider all the power requirements for each device.
- The depot has mounts for projectors to be installed on grids.

Troubleshooting Tips

- Problem: there is a black screen when you power on the player.



If you see this screen, it means that either the SD card is formatted incorrectly or the AUTORUN script is not on the card.

Format the card and place the script and video on the card.

Troubleshooting Tips:

- Problem: I see no video signal on the display.
- Solution: If the ”Bsy” light is flashing on the player, then the player is working correctly and reading your video file on the SD card. Check the HDMI cable or Display Input setting.

- Problem: In a multiplayer sync setup, one of the players is out of sync.
- Solution: This may have happened because a particular ESYNCH player started before the ESERVER player. See if synchronization is correct after the first loop. Or, the video on that player is longer or shorter than the other videos. Use the test file provided to test the synchronization of all the players.

Troubleshooting Tips

- The ethernet hub has lights on it to show that each connection is recognized. If a connection is unrecognized, try a different ethernet cable. The cables must be CAT 5 or CAT 6.

- The TXD233 players have a light above the ethernet port to show when the ethernet is active. There is a also a light ”Bsy” that will flash if media is being read from the SD card.