

DIT Cart Documentation Binder

DIT Cart Setup and Important Setting

Moving the Cart

- Make sure the Flanders monitor is not on the cart when moving the cart
- Make sure the cart is fully unplugged from the wall and that the cables are wound and away from the tires
- Fold down the desk side panels
- Adjust the dell monitor so that it is mostly over the desk
 - The knobs to do this are circled below



- This is what the monitor position should look like when the cart is ready to be moved



- Check that the front tires are unlocked (**if the tires are low on air let a PA know to refill them**)

The cart can be moved within the same room without fully adjusting the monitors and table, however moving between doorways requires the monitors and table to be adjusted. **Always be aware of loose cables while moving the cart.**

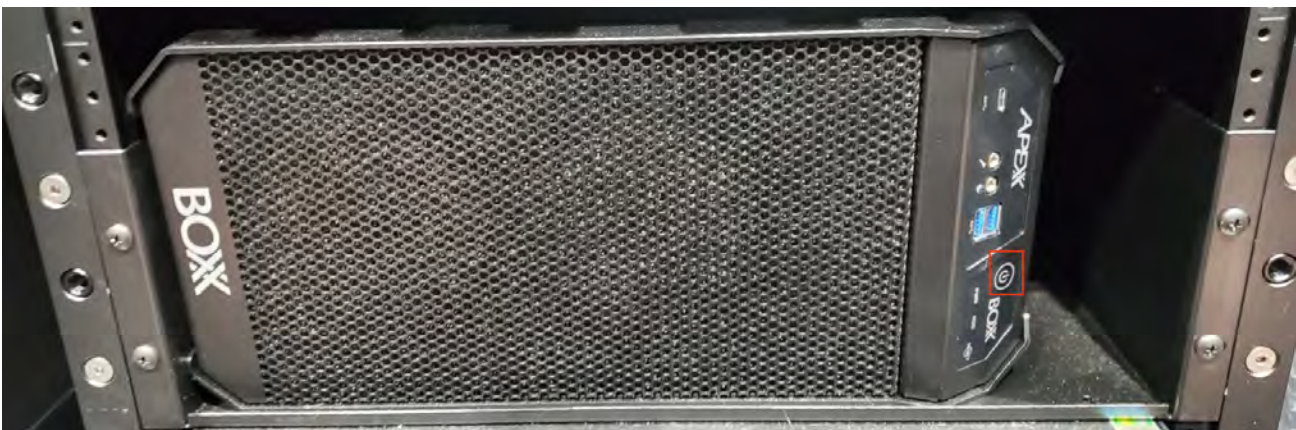
Turning on the Cart

- To turn the DIT cart on first start with plugging it in
 - This cart can be used with out being plugged in by using the power supply, the "CyberPower" power supply is located on the bottom rack will show the battery percentage on the screen to the left of the power button.
- Turn on the power for the power supply, it is on the very bottom rack under the PC and you have to flip down the plastic cover to hit the power button, when it lights up its on



Turning on the PC

- Next turn the PC power by using the power button shown below
- Then turn on the Dell monitor, the keyboard and the mouse
- **Please** remember to **turn off the monitor, keyboard, and mouse** off when you are done



Turning On the Power Panel

The power panel at the very top of the rack should only be turned on when using the following:

- Flanders DM220 Monitor
- Blackmagic Design UltraStudio 4k Extreme 3 I/O box
- Blackmagic Design UltraStudio 4k mini I/O box

It as a red switch to turn it on on the right side. Please make sure to keep this off if you are not using any of those devices and to make sure you turn it off you are done using it.

Attaching the Flanders to the DIT Cart

ALWAYS have someone holding the Flanders with two hands while attaching

- Unscrew the screw from right side "rotate" Position (this is the position it should stay screwed in for secure storage if the Flanders is **not** mounted)
- Align the pin on the Flanders with the bracket hole on the cart.
- Then that screw should be placed in the "lock" position and the screw should go through the bracket and the hole in the pin located on the Flanders
- Fully tighten the Right Screw



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- Then fully tighten the screw on the left side to secure it in place

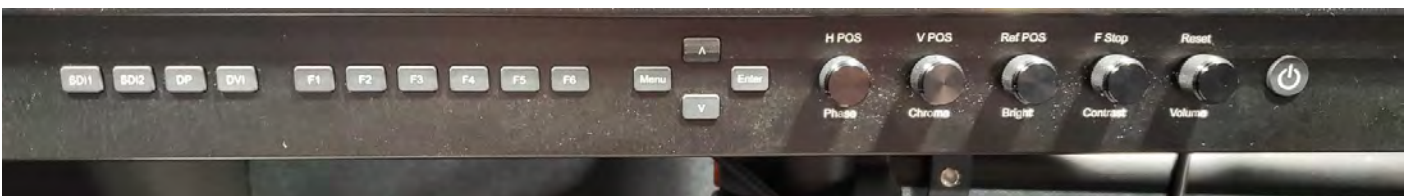
Make sure the screws are FULLY TIGHTENED before letting go of the monitor

- Attach the AC Power and SDI cable to the Flanders (shown below). The cables are fed through the top of the desk and have orange tape and labels on them.
- There are 2 SDI ports, cables can be attached to either SDI1(top left) or SDI2(bottom left) be aware of which one you select as you need to select it on the buttons on the front of the monitor when turning the Flanders on.



Flanders Button Guide

The Flanders DM220 monitor user manual is linked on the magic helpdesk knowledge for more detailed information on the controls. At <https://helpdesk.magic.rit.edu/kb>



Buttons:

- SDI 1: Used to select SDI Input 1 as the active Input.
- SDI 2: Used to select SDI Input 2 as the active Input.
- DP: Used to select the Display Port Input as the active Input.
- DVI: Used to select the DVI-D Input as the active Input.

- F1: Displays waveform and Vectorscope
- F2: Displays parade scopes
- F3: Displays audio meters
- F4: Frame lines 4:3 with safe area highlighted
- F5: Displays data about how much R,G and B is being displayed on screen
- F6: N/A
- MENU / LEFT: Used to toggle and navigate On Screen Menu.
- UP: Used to navigate On Screen Menu.
- DOWN: Used to navigate On Screen Menu.
- RIGHT / ENTER: Used to navigate On Screen Menu and to confirm selections within the On Screen Menu.
- Power Button is located at the Far Right

Please do not change any of the settings or knobs in the menu directly related to color management, as the monitor is calibrated to a specific profile

Knobs:

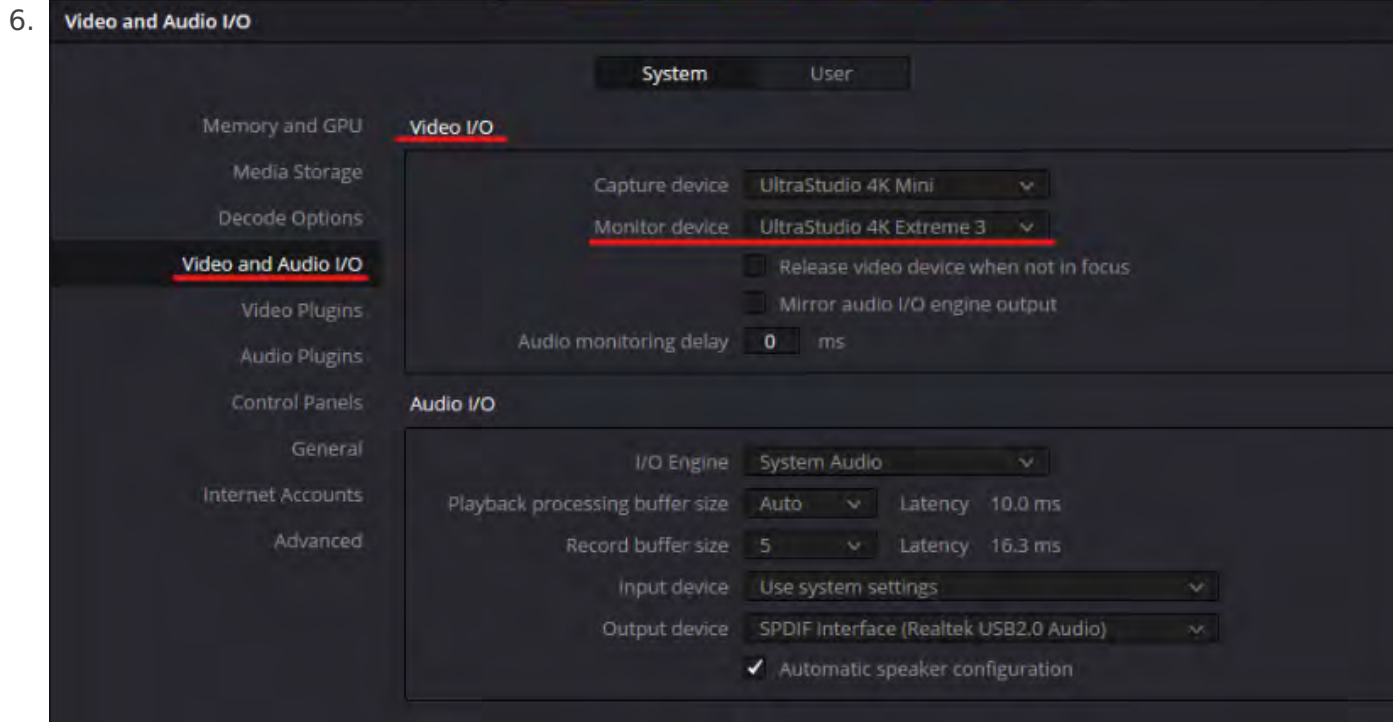
- PHASE / H POS: Used to adjust phase. Pressing down on the center of this button will return the setting to default. Hue is locked by default on SDI, but can be unlocked by the SDI Hue Adjustment option on the System Menu
- CHROMA / V POS: Used to adjust chroma higher or lower. Pressing down on the center of this button will return the chroma setting to its default position.
- BRIGHT / Ref POS: Used to adjust brightness higher or lower. Pressing down on the center of this button will return the brightness setting to its default position. The brightness knob should NOT be used increase the overall peak white luminance of the unit, use the Luminance setting on the System Menu to adjust overall luminance.
- CONTRAST / F Stop: Used to adjust contrast higher or lower. Pressing down on the center of this button will return the contrast setting to its default position.
- VOLUME: Used to adjust volume. Press down on this knob to instantly mute or unmute the volume.

Connecting the Flanders to DaVinci

When on the coloring with the Flanders, make sure to reference the Flanders as the Monitor you use to grade while on the color page. The PC monitor is calibrated but not to the same standards as the Flanders, so to get accurate color information when on the color page only use the Flanders as the Reference monitor.

1. Click the words "**DaVinci Resolve**" at the top left corner of the resolve window
2. Navigate to and click on "**Preferences...**"
3. Open the "**Video and Audio I/O**" tab
4. In the "**Video I/O**" section change the monitor device to "**UltraStudio 4K Extreme 3**" and the Capture Device to "**UltraStudio 4k Mini**"

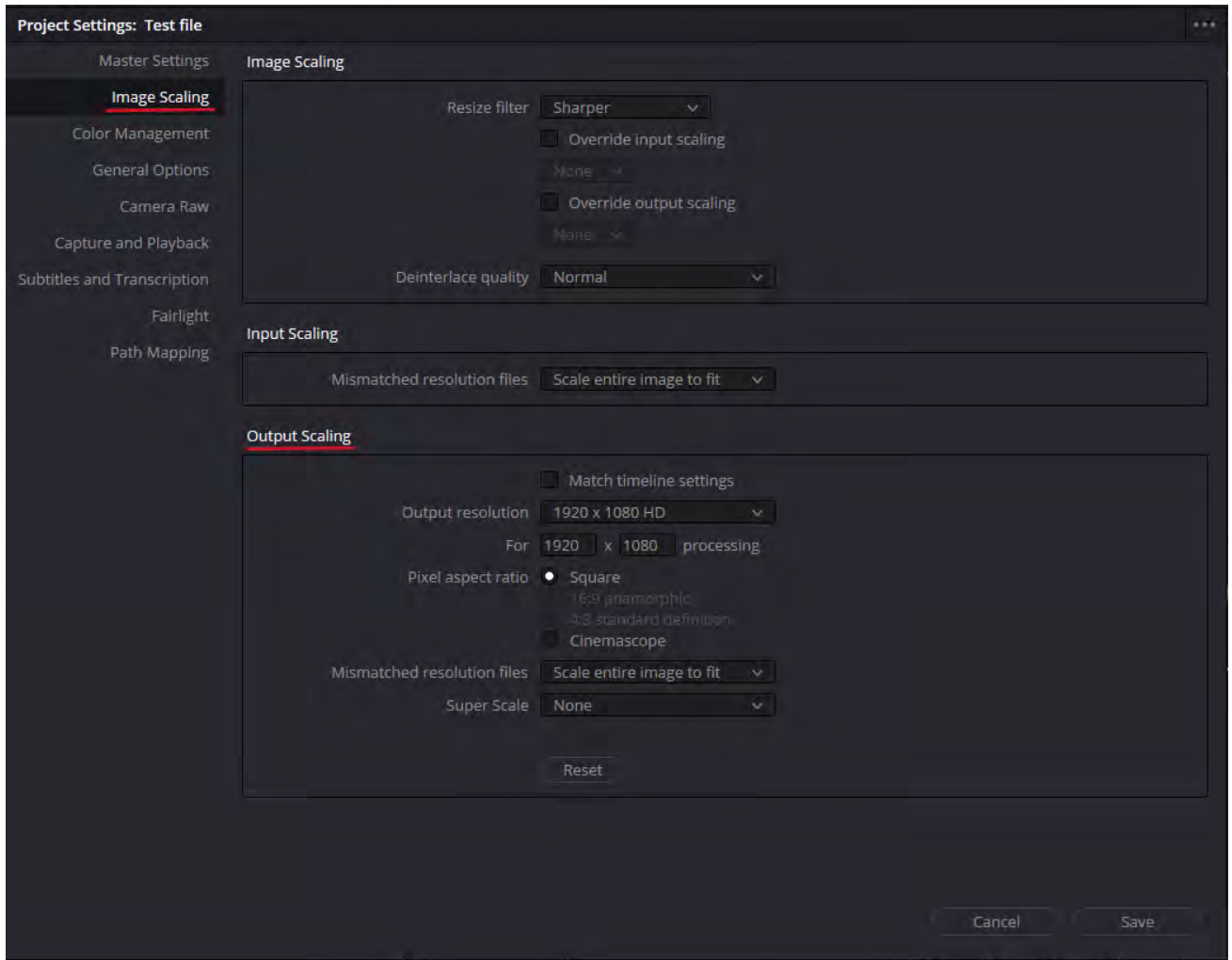
5. For the updated preferences to work click **save** and completely **exit and re-open resolve.**



Troubleshooting

1. If you are having image scaling issues (the image does not display across the whole screen)
 1. Go to Project settings (gear in the bottom right corner) > Image Scaling > Output Scaling and set the output resolution to 1920x1080 (the resolution of the Flanders DM220)

2.



2. If the SDI to HDMI converter is not showing up in the "Blackmagic Converters Setup" app.
 1. Try unplugging the converter and plugging it back in and/or try closing the app and opening it again.
 2. If it says there is an update try closing it and opening the app again.
3. If you are having issues with the output looking green/magenta make sure to double check your Video monitoring settings
 1. **do not** have the 4:4:4 SDI on, that is what will cause the image to look incorrect
 2. also make sure to have the SDI configured to Single Link

4. Project Settings: DIT Cart Demo

Master Settings

- Image Scaling
- Color Management
- General Options
- Camera Raw
- Capture and Playback

Subtitles and Transcription

Fairlight

Path Mapping

Video Monitoring

- Video Resolution: 1920 x 1080 HD
- Format: 24p
- Use 1080PsF
- Use 4:4:4 SDI
- Use Level A for 3Gb SDI
- Use dual outputs on SDI
- SDI configuration:
 - Single link
 - Dual link
 - Quad link
- Data levels:
 - Video
 - Full
- Retain sub-black and super-white data
- Video bit depth: 10 bit
- Monitor scaling: Bilinear
- Use Rec.601 matrix for 4:2:2 SDI output
- Enable HDR metadata

Optimized Media and Render Cache

Down media resolution: Choose automatically

Cancel Save

Tangent

- Take the tangent out of its case and put it on top of the desk, the tangent is shown below

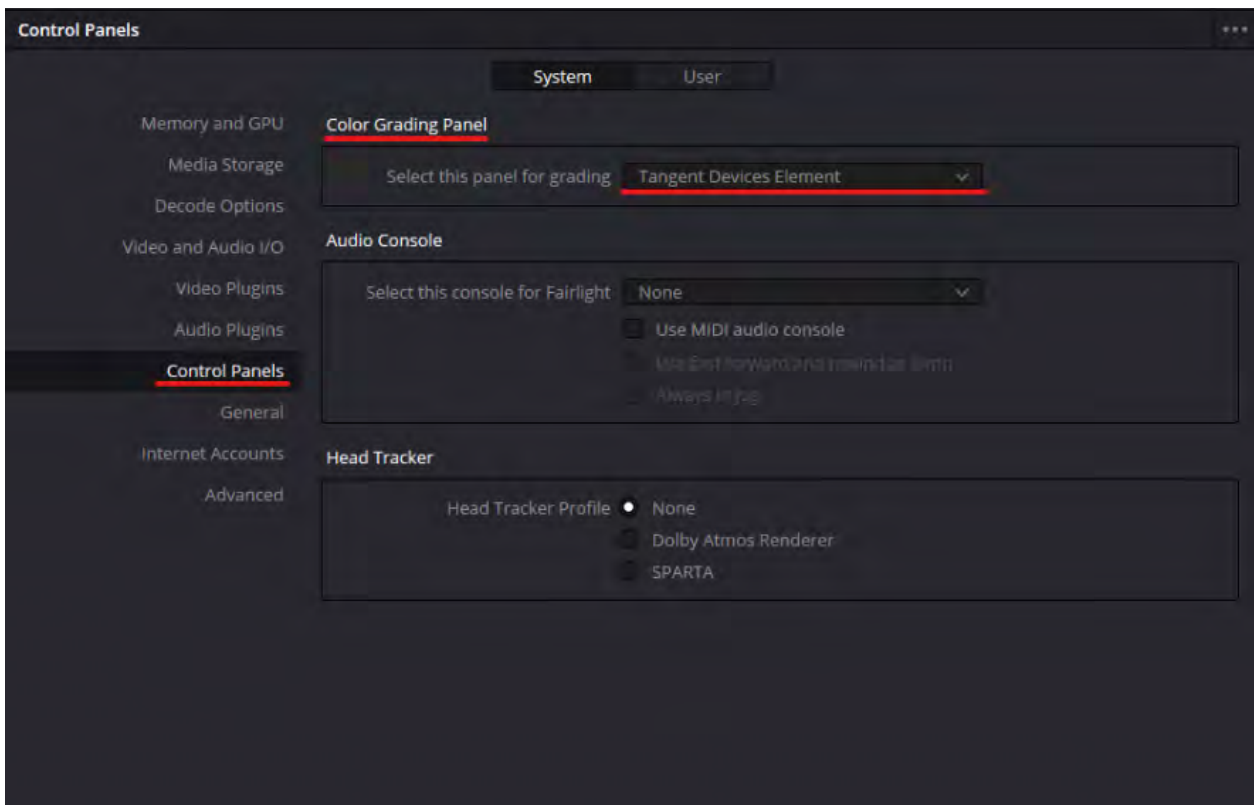


- The tangent power cable is fed through the top of the desk along with the cables for the Flanders and Dell monitors
- Attach the cable labeled tangent to the port in the back of the tangent



Connecting the Tangent to Davinci Resolve

- To connect the Tangent Panel to Resolve click the words "DaVinci Resolve" at the top left corner of the resolve window
- Navigate to "Preferences..."
- Inside the user preferences window navigate to Control Panels > Color Grading Panel > and select "Tangent Devices Element"

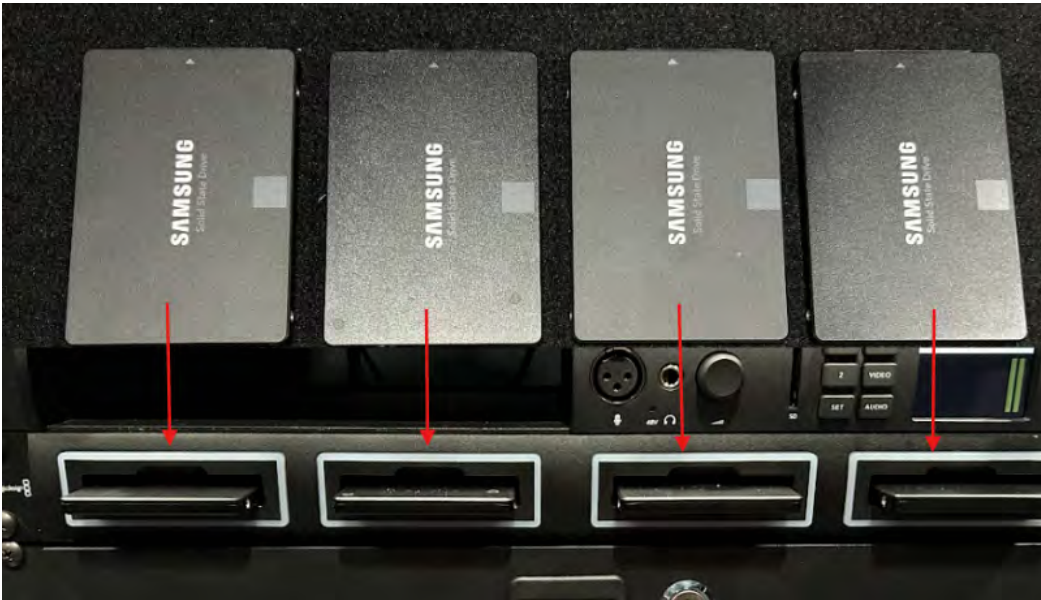


- For the updated preferences to work click **save** and completely **exit and re-open resolve**.

Data Wrangling

The DIT Cart has a SSD Rack where four 4TB Hard Drives can be mounted for a total of 16TB of space to be used for data. These can be found in a Pelican Case in the Rolling Kit. There are 4 drives in this case and 2 layers, once you take the top 2 drives out there is a foam divider then then 2 more of the drives. They all go in the mount 4 down from the top in the cart shown below. When you mount the drives start with DIT 1 at the far left, DIT 2, DIT 3, and DIT 4 on the far right slot so there is no confusion in the numbers and ports. They should be empty, but if there is any folders in feel free to delete it. **It is your responsibility to make sure you leave the cart with all your data on a personal drive, nothing is guaranteed to saved on the DIT cart and is subject to be deleted when your reservation is over, always have a back up.**

The DIT cart has software that Supports Mac and Windows formatted drives.



There are several card readers in the drawer in bags to offload media and they can all be plugged in to the PC.

- **CFexpress Reader**

- The ProGrade CFexpress B/XQD has a thunderbolt connection to attach to the DIT cart (cable is provided in bag) and reads CFexpress cards.

- **CFast Reader**

- The SanDisk Professional reader reads CFast 2.0 and connects to the DIT cart with USB-C connection (cable is provided in bag).

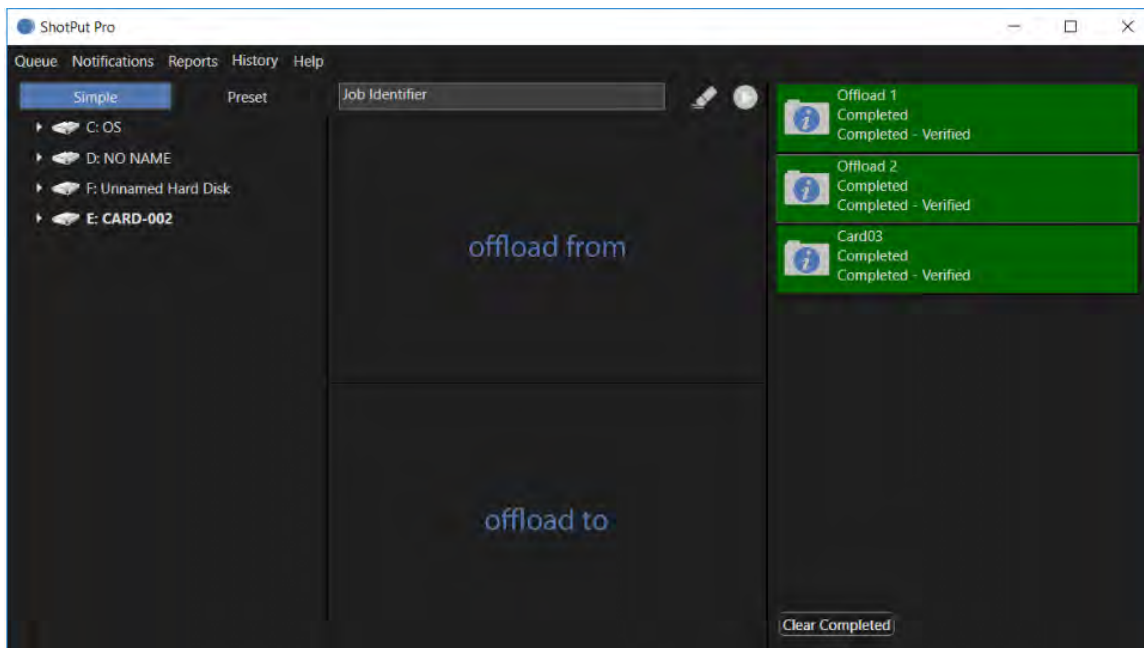
- **Multi Card Reader**

- The Togconn Multi Card Reader used USB 3.0 to either USB-C or USB cable connection to the DIT cart (cables are provided in bag).
- It had a CFI/CFII slot, a XD/XD1.21 slot, 2 Micro SD slots, 2 SD Slots, and a MS Pro slot.

The DIT cart has 2 programs you can use to data wrangle, DaVinci Resolve and ShotPut Pro.

Using ShotPut Pro:

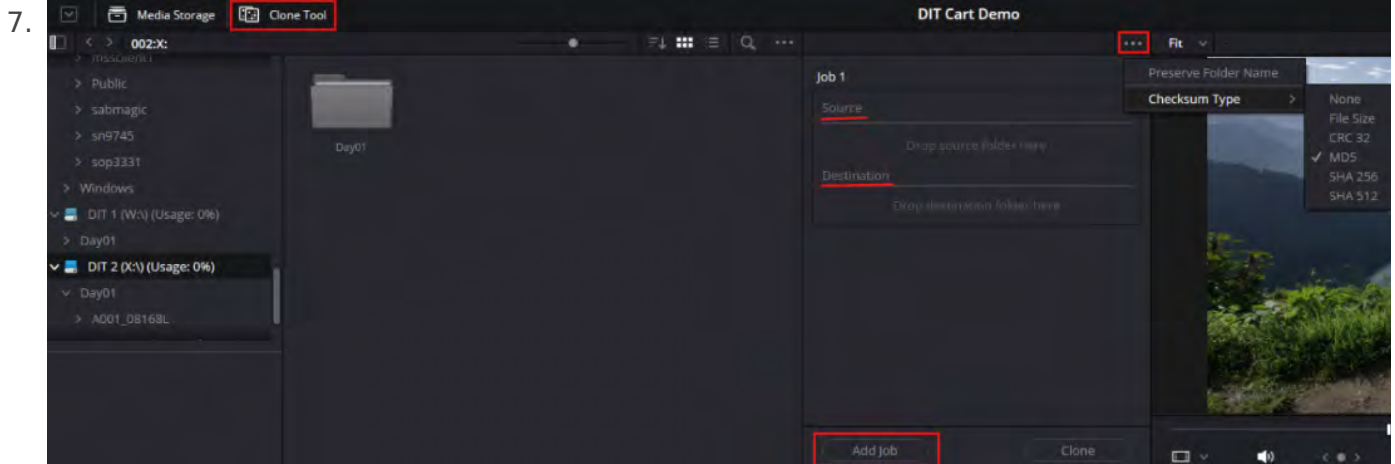
- First open the app Shot Put Pro



- Then drag the folders or files from the source you want to offload media from into the "offload from" section
- Drag folders from the drive you want as the destination to the "offload to" section
- Once you have your source and destinations set hit the blue play button to transfer
- To get change checksum settings hit "Queue" in the top left corner select "Checksum Verification" and all if the different Checksum options are listed
 - When the data is transferred in the complete area it will say "Completed - Verified" if the checksum works

Using DaVinci Resolve:

1. Open Resolve from the desktop and go to the media page
2. Next Select the Clone Tool tab at the top left of the screen
3. A window will pop up and say "No jobs in Queue" select the add job button right below this
4. You can now select the source where the data is coming from (most likely a card reader) and destination (most likely the DIT card SSDs)
5. When you have your source and destinations selected hit clone and the data will transfer to that location.
6. The Checksum can be edited with the 3 dots above the jobs area. Checksum is recommended for reverifying all the data is downloaded. If you don't want to use Checksum the data will download faster, but you wont have a double check that all the data is there.



Live Grading

- The cart is intended to be used with a camera that has a **Log Gamma SDI Output**
- Cameras that can be found at SOFA and MAGIC that have SDI Log Gamma output are:
 - ARRI ALEXA Mini (MAGIC)
 - Blackmagic Design URSA Mini Pro 4.6K G2 Digital Film Camera (MAGIC)
 - Canon EOS C300 (SOFA)
 - Sony FS7 (SOFA)

Connecting to the cart

To Live Grade 2 I/O boxes are required. The 2nd rack is the UltraStudio 4K extreme with will send the Davinci Resolve signal to the Flanders Monitor and the small I/O box on the 3rd rack takes in the camera signal into to DaVinci Resolve.

1. Plug the SDI cable with the output of the camera into the back of the cart.
2. Open DaVinci Resolve, to use the grading function you must create a timeline before you can start live grading
 1. A simple way to start a timeline is to go into the edit page go to effects and drag a generator to the time line (like color bars) then right click on it and select "New Compound Clip"
3. With a timeline made go back to the color page and hit **Ctrl R** to start live grading
 1. for live grading to work the cameras video format and capture settings(frame rate, resolution) must match Resolves in the project settings (gear in the bottom right corner)

How to use the LUT Box

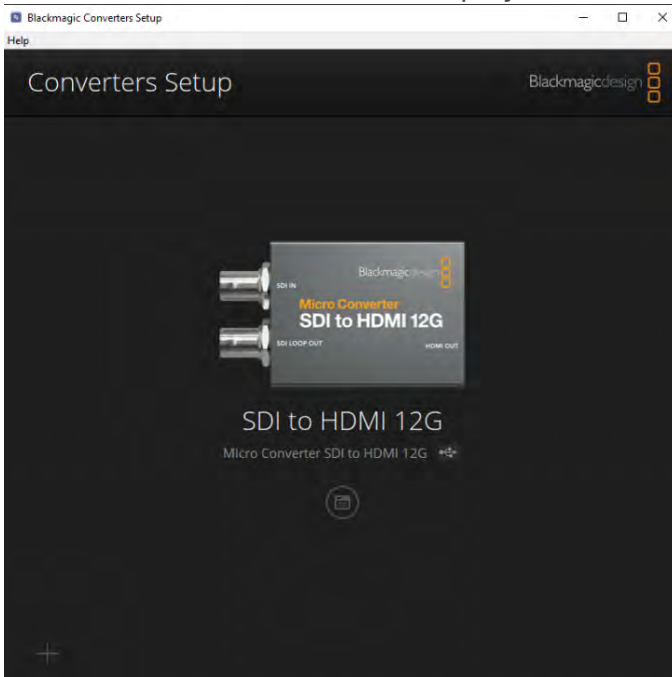
In the drawer of the cart there is a bag labeled SDI to HDMI Converter, this is a SDI to HDMI Converter and can also be used as a simple LUT Box (shown below)



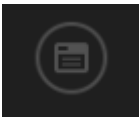
1. To load a LUT onto it pull it out and plug it into power on the PC using either the USBC or USB ports on the PC, There is extra cables and a adapter in the drawer for which ever you choose
2. The other USBC end goes into the "USB" Power Port on the side of the converter



3. On the Desktop search for the app called "Blackmagic Converters Setup" and open it
4. You should see a screen that displays the converter being connected, shown below



- 5.
6. To load a LUT hit the grey symbol with circle right under the words



7. This opens up a settings window and to get to the LUT settings select the "LUTs" tab at the top

8. Then hit import to select a LUT file. The LUT must be a **.cube** file once you have selected the LUT hit save



- 9.



10. To Display your LUT on a Monitor the Converter must be attached to power
11. Attach the SDI cable coming from the camera or I/O box into the SDI in
12. To display the LUT you can use either the SDI output or HDMI output into your viewing monitor

13. Please Make Sure to Select the "3D LUT: off" setting when you are done using the LUT box.

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