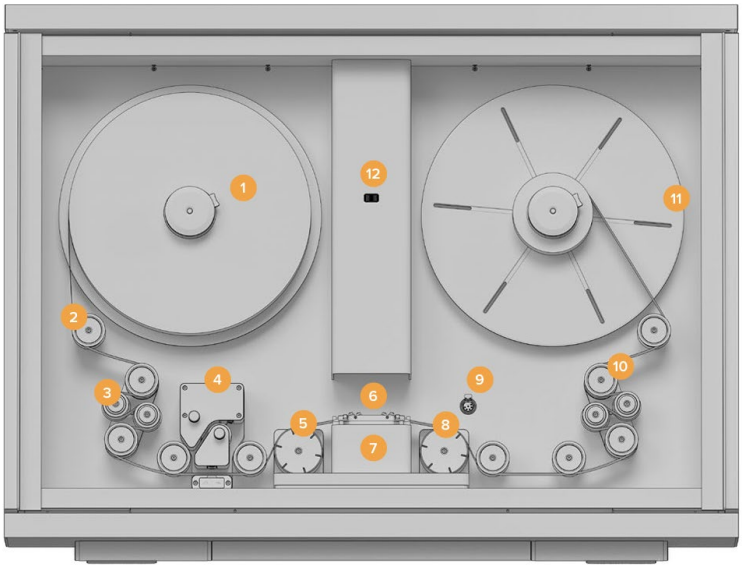
CINTEL FILMSCANNER CHEAT SHEET

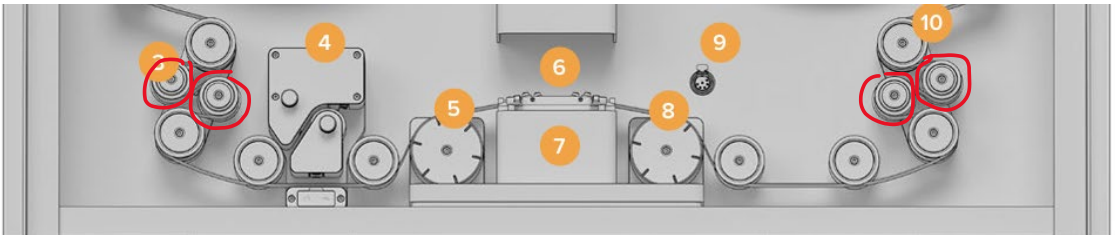


This guide will provide you with a step by step walkthrough of how to run a “best light” scan of a film using the Blackmagic Cintel Film Scanner.

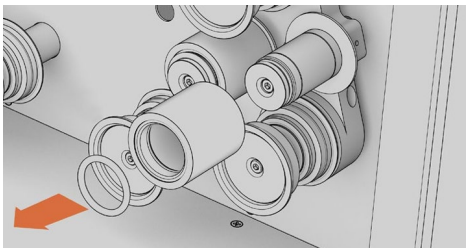
SETUP / LOADING

- Turn on or Log-in to Workstation.

- Check the transfer rollers (orange) to ensure they are not dirty from the last scan (check dust not discoloration.)



  - If the rollers are not clean, remove the O rings, pull the rollers off, wash them in warm or cold (NOT HOT) water in the kitchen with dish soap and put them end up on a piece of paper towel to dry. (You must avoid touching the tacky sides of the rollers from this point on)



- Check the machine for general dustyness, if it is dusty use a swiffer to clean it.

- Check your film, if it is not already, ensure it is on a core and added a proper amount of leader.
    - If you need to rotate a film onto a core from a reel do the following: 1, use the rewind to transfer to another reel (film will be backwards), 2, use the rewind to wind onto a split reel with a core. Open split reel.
    - If you absolutely need to scan on a reel, you will have better luck with reels that have a large flat area near the spindle hole. This is because the reel must be held in tension, so the more surface area the better the tension.

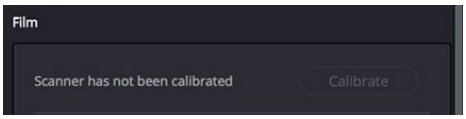
- Check the machine setup if it is set for 16mm or 35mm.
    - For 35mm make sure all metal spacers are removed (behind backplates and between core and locking knob.) Then ensure the larger 35mm gate is installed on the machine, flick both locks outwards, they will drop and release the plate on the machine, replace, lift and center them to relock.

    - For 16mm, add the metal backplates onto the machine. (Larger behind backplates, smaller between core on backplate and locking knob.) Make sure you have the smaller 16mm gate installed. Flick the locks outwards and they will drop to release the plate, install new plate, lift and center the locks to finish installing the new plate.

    - In either case check the plate for residue, if there is residue simply buff it off with a piece of paper towel.

- Open DaVinci Resolve. Open a new project. Go to the Media Workspace (Bottom Left Most Workspace Button). Click on the "Capture" button to see the preview (Top left, looks like a VHS Tape.)

- Check for temporary burn in / after image in the preview. If you see signs of this, hit the calibrate button.

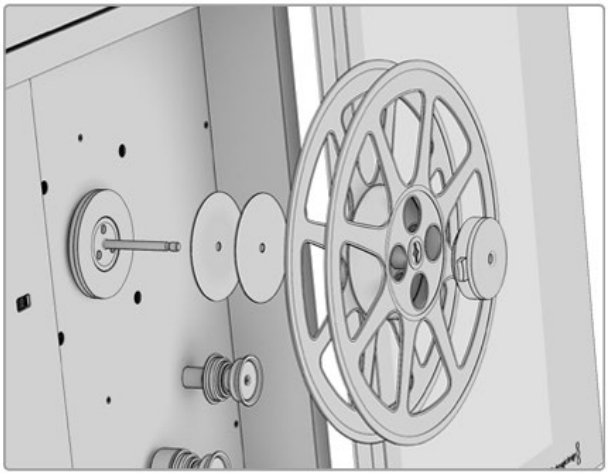
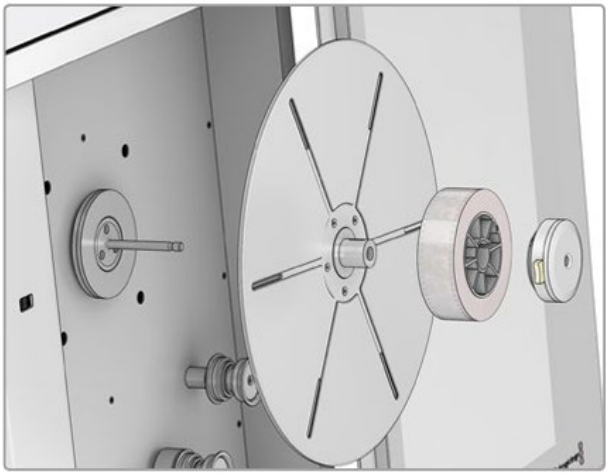


    - This can take on the appearance of faint white frame lines or faint extra perforations on screen.

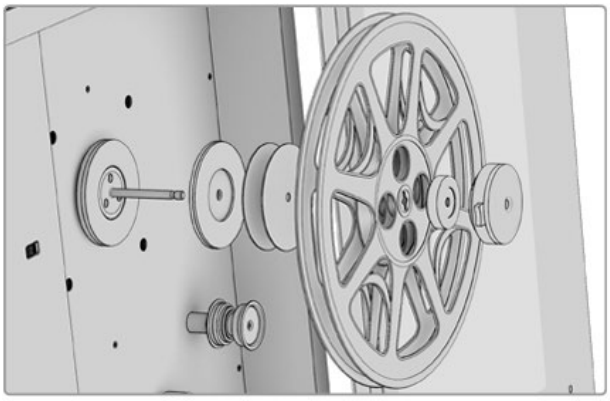
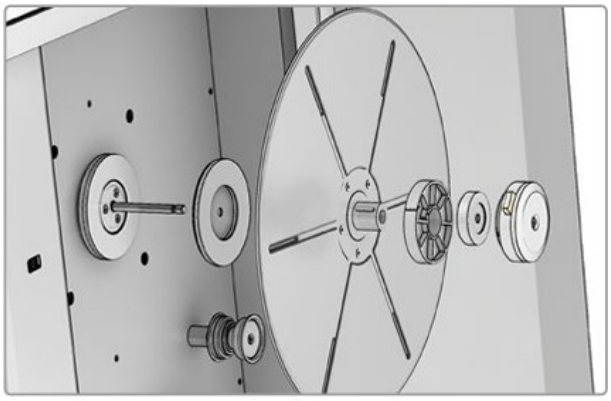
    - To calibrate, ensure there is no film in front of the scanning plane, close the Cintel's doors and hit the calibrate button in Resolve.

- Load the film on the core onto the left plate in the Cintel.

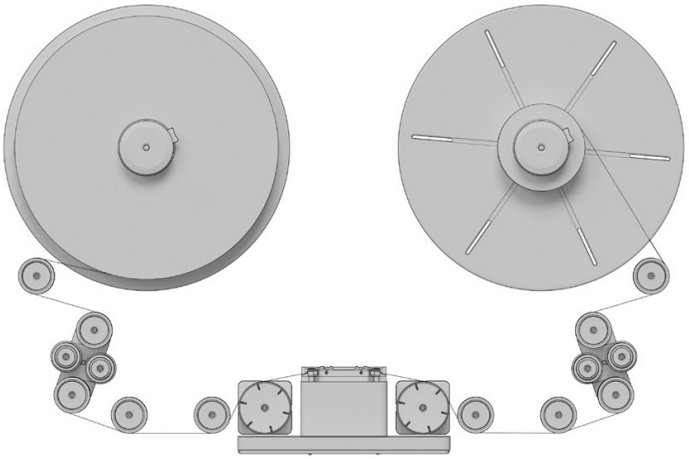
- 35mm: Load the film on a core onto the backplate and then place the knob on the end by pressing the gold button and pushing it onto the spindle. It should click when it is locked in place.

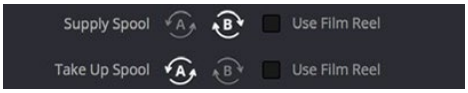
- 16mm: Place the metal spacer on the spindle, then Load the backplate, the core with the film, then the smaller metal spacer and then place the knob on the end by pressing the gold button and pushing it onto the spindle. It should click when it is locked in place.

- Wind the film through the film path.

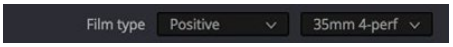


- Check the wind type on each side of the machine and set it in Resolve.



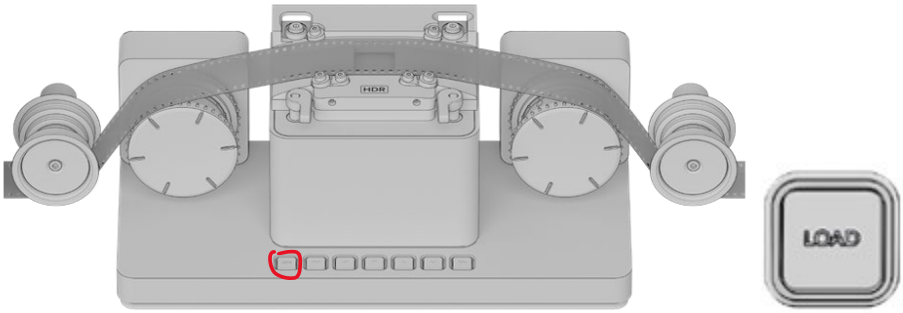
  - A WIND goes towards the top of the spool, B WIND comes off the bottom.
  - In Resolve at the top of the Film Scanner Controls set the appropriate wind for both “Supply Spool” and “Take Up Spool”
  - Note: If you set this incorrectly it will not damage the film, however the film will fail to load and you will be unable to continue.

- Set the appropriate Film Type.



  - This is fairly self explanatory, but set whether Positive or Negative and the film size.

- Return to the Scanner and press the “Load” button.



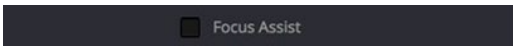
  - The machine will begin to tension the film, it should reach a locking state and Resolve will Display “Loaded” above the video preview.
  - If you brought your film on a core which was very loosely wound it is possible that it may slip and you will lose tension (stopping scan or playback). You would need to tighten the

wind to continue.

- This is part of why we run scans off cores and not off reels as they lose tesion incredibly frequently.

ADJUSTING THE SCAN SETTINGS

- Click the Focus Assist Button under the Spool directions in Resolve, look at the screen next to the Cintel to see the “focus peaking” assist. The focus mechanism is a wheel on the shaft in the middle of the Cintel.



    - You want to focus on the perf edges, spin the focus wheel until you loose a sharp green edge and then slowly spin it until you see maximum green on the edge. You have focused the scanner.

- Set the film Scan / Acceleration Speed

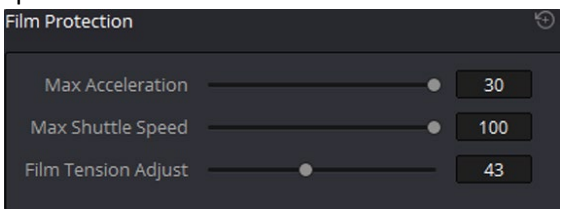
    - The scan speed and the playback speed of the resulting file are not linked.

    - A perfect condition new print can scan at up to 30fps (though I would suggest 24fps.)

    - A film in worse condition will benefit from a lower scan speed.

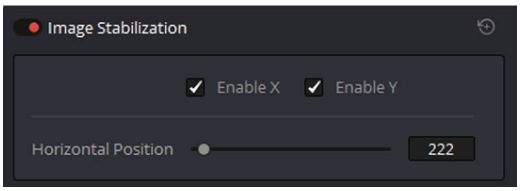
    - Generally slower speeds will be; a- easier on the film, b- easier on the stabilization process of the machine. This will result in a better scan for mixed condition prints.

    - You set your film scan at the top of the dialogue “Scan Film At” and you set the playback speed Under the “Film Protection” header.



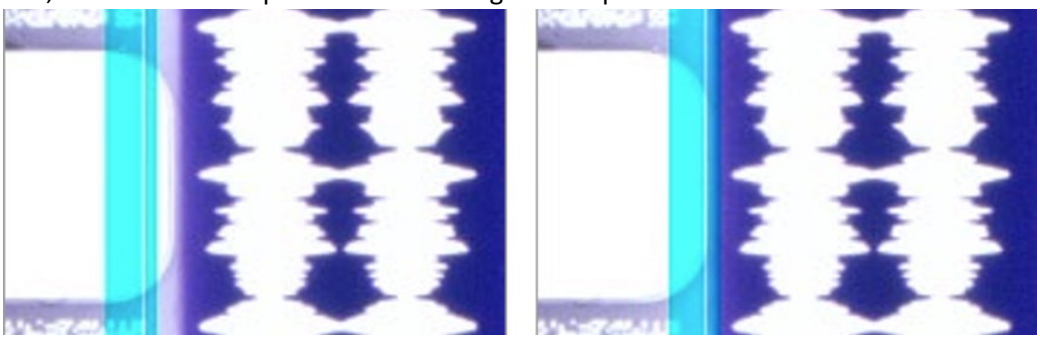
        - “Max Acceleration” is the playback speed outside of scanning.
        - “Max Shuttle Speed” is the fast forward speed.
        - “Film Tension” only works with 35mm and can help very slightly with the tensioning of 35mm.

- Check the Image Stabilization Settings

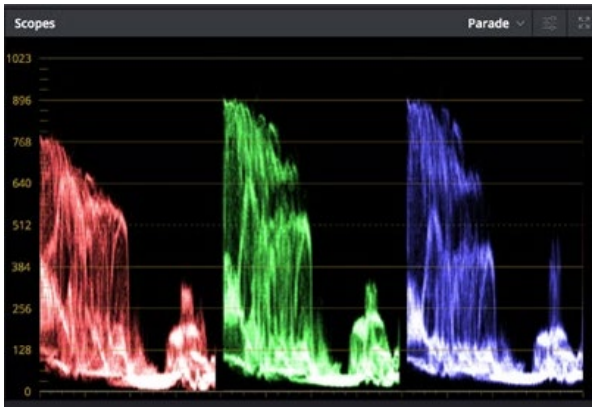


    - You must leave “Enable Y” engaged, as this keeps your frame in the center of the scan field.
    - “Enable X” attempts to reduce left/right jitter, however the machine produces very little of this Jitter. You should start your scan with this engaged, but if you notices the scan preview violently jittering you should adjust or disable the X axis stabilization.

- To adjust the X axis there is a Horizontal Position slider, this will move the teal overlay you see on the scan preview in Resolve. In the middle of teal strip there is a transparent line, this should line up with the inner edge of the perforation.



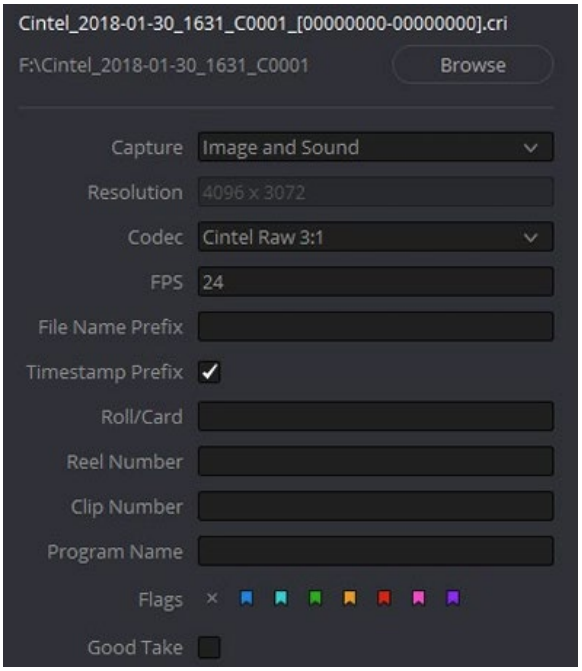
- Light Source Adjustment



  - Play the film forward to a point in which you see a pure white object (This could be a sky, clouds, white shirt, possibly white text, etc.)
  - We will now need to adjust the color balance and brightness of the scan.
  - I like to set the machine to Color Bars instead of Color Wheel for this. You should see the Parade Scopes open on the Second Monitor.
  - Parade scopes represent the brightness value of a given color in the image, the left and right side of the graph relate to the left and right side of the image.
  - You do not want any value (other than possibly peaks of pure light through the perforations) to exceed the penultimate top notch on the Y axis. This keeps any data from being “clipped” or lost during the scan.
  - You want the film to be scanned “high” like this because it’s exposure can be adjusted afterwards and this will result in more data and less noise in the shadows/blacks of the image.
  - Find a spot in the image that has this bright white object, find that peak in the Parade. Adjust the Red Green and Blue levels to get this peak to the same brightness on each of the parade graphs.
  - You will notice that the colors skew each other, so if you adjust Red greatly the blue and green may need to be counter balanced.

- From this point you will need to adjust based on the specific film itself, the source film may be slightly warm in color (common of Kodak Stock) or cold (common of Fuji stocks.) So “perfect” white might not be the most accurate.
- The scan file has a lot of latitude, so if you provide a reasonable start point, it can be adjusted after the scan to ensure accuracy.

- Lastly set the Capture Info



  - First set the scan location where the files will be written.
    (This must be the Thunderbay 4 RAID drive.)

  - Please select the “Capture” folder and make a subfolder with your name.

  - NOTE: This is not a permanent repository for files, they are subject to deletion at any time. If you need to leave them on this drive, please email teagan.lance@concordia.ca and tell me the details.

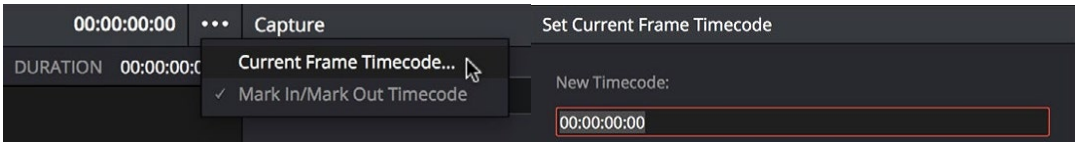
  - NOTE: This is a very fast drive, your hard drive will likely not be that fast, so transferring your scan to a hard drive after your scan may take a substantial amount of time.

  - Capture: Image Only (Sound is converted from the completed scan)
  - Codec: Cintel Raw (You will need to convert this if you wish to work outside of Resolve)
  - Film Frame Rate: Usually 24fps, unless you know the film to be hand crank.
  - File Name Prefix: “NAME_R#” (Use a 4 letter abbreviation of the title of the film, add R# for the reel of the film you are scanning. So the first reel of Frankenstein would be “FRAN_R1”)
  - Metadata: You can fill these out, but they are only legible in Resolve.

SCANNING

- Rewind the film till just AFTER the splice from the leader to the main film. (Bad Splices can trip up stabilization.)

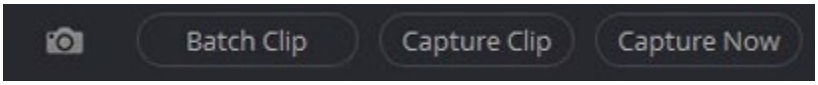
- Reset the Timecode on the top right above the preview.



- Click the "..." menu button, select "Current Frame Timecode", Reset this to 01:00:00:00 (or change 01 to 02 for Reel 2, 03 for Reel 3 etc.)
- Do not use 00:00:00:00, it can cause issues with some editing software.

You are now ready to scan!

- Turn down the lights (this doesn't actually matter, but it feels better)



  - Click Capture Now at the bottom of the Resolve menu.

- Observe the scan preview for at least the first 5 minutes.
  - Watch for stabilization issues

  - Watch scopes during bright sections to ensure you do not peak, or that you did not set your brightness too low.

  - If you observe an issue, click the stop button. Adjust the stabilization or Light Source, roll the film back to 01:00:00:00 and restart the scan.

  - From this point you can go get a coffee or use the washroom if needed. Do estimate the end time of your scan and set a timer to arrive before the end of the scan.

POST SCAN PROCESSES

- Process the audio from the optical track
  - Click the capture button to close the scanner preview.

  - Click your scan file in the file browser (bottom of Resolve screen)

- Open Cintel Audio Settings (Same place as where you set the Timecode on Step 18)

- Identify if it the film is using normal optical or variable density and select accordingly.

  - Most audio you will see will be standard optical (right).
  - Variable density is rare but you may come across it (left.)
  - However this setting is preserved from one scan to the next, so you should always verify it is correctly set for your film.

- Right-Click your file and select “Extract Audio”.

- It will run and convert the optical to a WAV audio file.
  - This generally takes up to the runtime of the scan to process.

- To get the scan out of Resolve (by converting the files).
  - If you need to work outside of Resolve, the following instructions will get a full resolution master out of Resolve. From there you can bring it into your NLE (editing program) of choice and crop / correct it further.

  - Click on you scan file in the media pool, note down the resolution in the Metadata Pane (2368x1712 for 16mm).

  - File > Project Settings > Change “Timeline Resolution” to this Value.

  - Switch to the Edit Workspace. (Second from the left)
    - Right click your scan file and select “Create new timeline” this will create a timeline with just your scan on it. (You can add extra files onto this by dragging and dropping if you needed to stop and start your scan.)

  - Then go to the Delivery Workspace.
    - Select ProRes Master from the top left settings window.
    - In the settings, set this to Custom Size (which will be what you specified earlier, ensuring it is not compressed.)
    - Choose either ProRes 422 HQ or ProRes 4444

        - ProRes 422 HQ: you lose some color data, but the file size is rougly equivalent when in 16mm format. Good if you don't need to do massive color work.
        - ProRes 4444: You retain all of the color data, but the file size will baloon a bit (more so for 16mm than 35mm.)
    - Add job to render Queue, it will appear in the right side pane.
    - Click Render.
        - This generally takes half the runtime of your scan for 16mm and the runtime of your scan for 35mm.