

User Tip: Panasonic Varicam Support

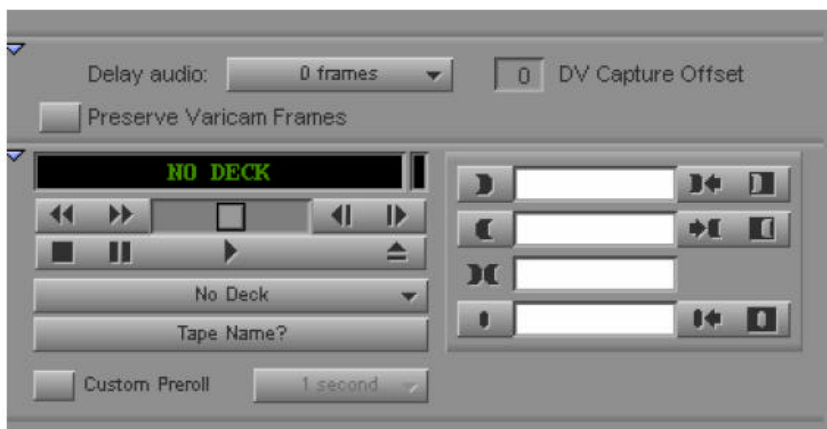
Video cameras are becoming more like film cameras in the sense that they can shoot at variable frame rates creating a “speed up” or “slow down” of the material when played back. Doing these effects in camera allows for much higher quality images since the frames are not processed using slow motion techniques in post – the full frame is just played back at a new rate.

The [Panasonic Varicam](#)® is a camera that allows the recording of a variety of frame rates between 1fps and 60fps. For example, material captured at 24 frames per second and played back at 24 frames per second will have no speed change, but the same action captured at 48 frames per second and played back at 24 frames per second will result in playback that is twice as long or, in video terms, a 50% slomo.

With Avid Xpress Pro 5.2.x and Media Composer Adrenaline HD 2.2.x, variable frame rate capture over FireWire is available. Because this was added in at a late stage of the development process, there is no documentation of this feature in the Avid documentation.

Using Variable Frame Rate (VFR) is very straightforward. The 720p format is always recording to a progressive 60 (59.94) frame tape format. The different frame rates are achieved by selecting the desired frame rate and the camera flags the „true” frames within the 60 frame sequence. When these flags are detected by the Avid editing systems, only those frames are captured and stored to disk. When played back at the project’s frame rate, either a slow motion or fast motion will result.

There is a “Preserve Varicam Frames” check box in the Capture Tool Interface. If turned off (the default state of the button), the capture will observe the flags in the video stream and only capture those frames. This type of capture will result in a slow motion or fast motion depending on original recording speed. If it is turned on, then every frame is captured (all 60 frames), essentially ignoring the flagged frames.



Because of the nature of tape-based recording formats for VFR, there are some caveats the user needs to be aware of when capturing and using VFR material:

- The first time a capture is performed, it must be done on-the-fly or from a START point. The user cannot log ahead of time the first time a capture is done. This is because the duration of the logged clip will be different than the actual duration of the captured clip depending on frame rate. The true duration of the clip will be known once the first capture is done.
- Once the first capture is done, it is possible to go back and „batch capture” the master clip at any point in the process.

- Since the duration is properly logged for the clip on the master clip, a rebatch capture of a VFR clip in a sequence will not be possible because the system needs the original START point of the original master clip. The same goes for a consolidation. As long as the user keeps the bin with the original master clip or does a “set bin display” for a sequence that has never been consolidated or decomposed, it will be possible to recapture. VFR will only work in progressive projects, so 720p/23.976 and 720p/59.95 will be your project type choices. Keep in mind that only 23.976p projects will allow slow motion and fast motion while a 720p/59.94 will only allow fast motion. This is because in order to create slow motion, the camera must shoot at a frame rate that is higher than the playback rate. Since the top speed of the camera is 59.94fps – the same as the project and timeline rate – there can be no slow down of the material during playback resulting in a slow motion of the material.

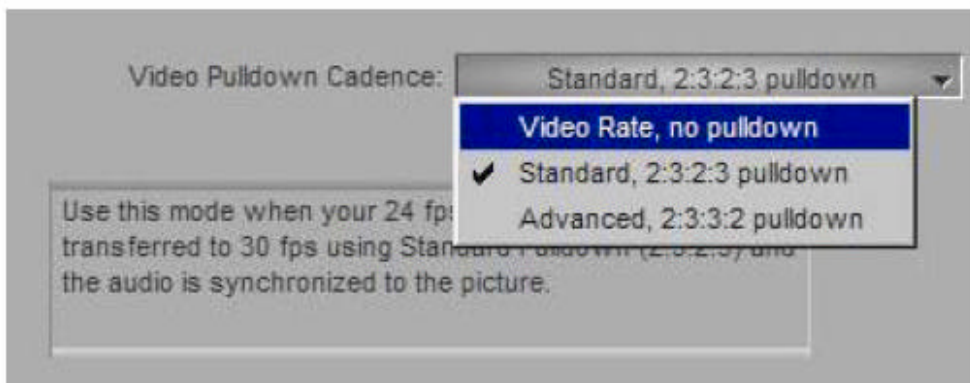
Other Forms of Slow Motion Capture

If all the user wants to do is have slow motion, then there are several other cameras that can be used in order to achieve this result. This will only work in a 23.976 or 24p project type and from cameras that can capture in either 30p or 60p. The following will work with all versions of Avid Xpress Pro, Avid Media Composer Adrenaline, and Avid Media Composer Adrenaline HD.

In order to create the slowest motion possible when playing back at 24 frames per second, the camera needs to be recording at its highest progressive frame rate. For now that is the 720p/59.94 format shooting at 59.94 (60) frames per second. When all 59.95 frames are captured and played back at 23.976 (24) frames per second it creates a 2.5x slow motion of the material. Or on a standard definition camera, 29.97fps will be the highest progressive frame rate.

How is this done? When in a 23.976p or 24p project, the user needs to go to the Film/24p settings and select “Video Rate, no pulldown” under the “Video Pulldown Cadence” setting. When “no pulldown” is set, the project will capture every frame of video and not assume that there is pulldown or redundant frames in the video signal.

Once captured, the clip just plays back at 23.976 (24) because that is the frame rate of the project. The result is real time, high quality slow motion.



This can also be done with a standard definition DV camera that shoots at 29.97 (30) frames per second progressive such as the Panasonic DVX100 or the Canon XL2. When 30 progressive frames per second are captured and played back at 24 frames per second, the result is a 25% slow motion. Although not as dramatic as 2.5x from a 59/94/60p format, it is still quite useful for smoothing out non-sync handheld or traveling shots. When capturing with the Video Pulldown Cadence set to this selection, only video is supported and the audio channels will be turned off. Clips captured this way can be tracked in the bin when the CADENCE column is displayed in the bin. The clips will say NONE. This allows for a rebatch capture of the material if needed with no need to reset the setting.