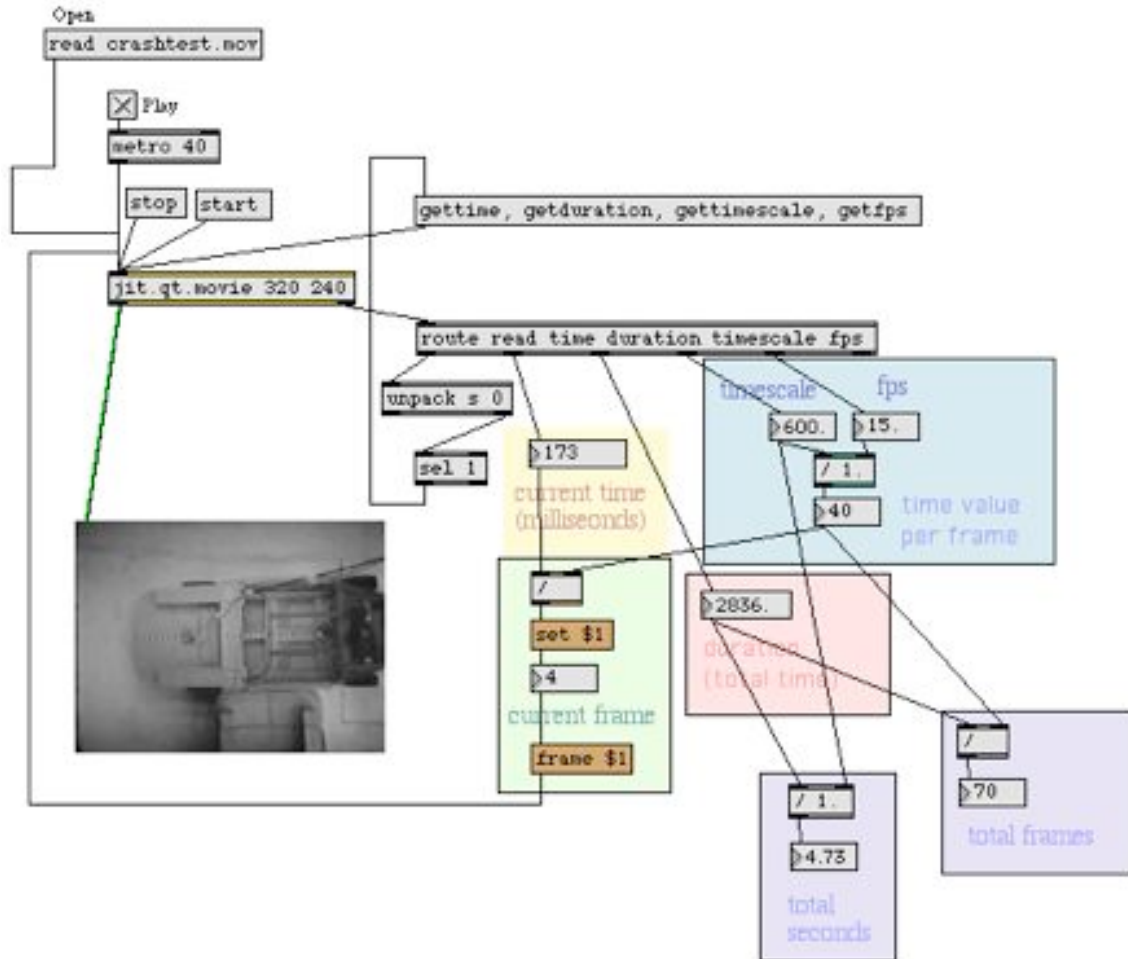


JITTER MOVIE CONTROLS (PT 2)

1. Scrubbing a movie.



Scrubbing requires quite a lot of information to work properly. In particular, we will make use of some of a QuickTime movie's existing features. A QuickTime movie file stores what is called metadata; that is, vital information about the movie that is usually not directly visible on screen. It is usually stored in what is known as the "file header"; that is, information near the beginning of the file. Metadata includes the file type, creator, date of creation, etc., as well as information having to do with different aspects of time. These are somewhat complicated, but in essence there are 3 preset temporal factors for any QuickTime movie: **duration**, **timescale**, and **frames per second (fps)**. From these factors, 3 other temporal characteristics can be calculated: **time value per frame (tvpf)**, **total number of frames**, and **total length of the movie in seconds**.

Duration expresses the total length of the movie, not in frames or seconds but in what are known as "QuickTime units". The true (realtime) length of these units depends in turn on the timescale of the movie. The duration of crashtest.mov is 2836 QuickTime units.

Timescale is understood as the "timing resolution" of the movie, which has to do with how often frames are sent to the screen (more on this below). The `crashtest.mov` has a timescale of 600.

Frames per second (fps) is the number of frames of video in each second. Around 30 fps is normal full-resolution video. Around 15 fps is usual on the web, where file size is at a premium. The `crashtest.mov` has an fps of 15.

And here are the calculations that can be made with these 3 factors:

Duration divided by timescale equals length in seconds. ($\text{Duration}/\text{timescale}=\text{seconds}$)
The `crashtest.mov` movie should run for about 4.73 seconds ($2836/600$).

Timescale divided by fps gives what is called the "time value per frame".
($\text{Timescale}/\text{fps}=\text{tvpf}$). The `crashtest.mov` has a tvpf of 40 ($600/15$). That is, at a rate of 15 frames per second, our movie file throws out a new frame every 40 milliseconds. This is why the `metro` object is set to 40 (try it at other timings!).

Duration divided by time value per frame equals total number of frames.
($\text{Duration}/\text{tvpf}=\text{frames}$) The `crashtest.mov` movie has about 70 frames ($2836/40$).
It's also possible to get the total number of frames by sending a `getframecount` message.