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## How to: Import a File

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ClearView has the ability objective score the video quality, graph the result, and show you why. To begin, video sequences must get into ClearView. ClearView can either Import a file or Record from a hardware device.

### *Background*

ClearView imports files and records from many hardware devices. These video sequences are decoded and stored as completely uncompressed video frames in 4:2:2 Y'CbCr or 4:4:4 RGB space. Since the video sequences are completely uncompressed, any compressed video standard can be compared to another compressed video standard.

Before performing any objective measurement, the video sequences must be completely aligned. To do this, please refer to our Align Video Sequences application note.

### *Import a File*

Before you import a file, you must think about how you want to display the file. ClearView plays any canvas at any rate. A canvas is defined as a width/height and normally a video sequence fits exactly into this, but this does not need to be the case. Below are some examples,

**Figure 1: Canvas versus Video Size**

| Canvas Size | Video Size | Description  |
|-------------|------------|--|
| 1920x1080   | 1920x1080  | ClearView plays a 1920x1080 video  |
| 1920x1080   | 720x480    | ClearView plays a 1920x1080 video. The original video sequences is matted with black and centered. |
| 720x486     | 1280x720   | ClearView plays a 720x486 video. The original video sequence is cropped from the center.           |

Once imported, these canvases can be played at any rate without being re-imported. Below we are showing a canvas size of 1920x1080 at 50Hz (Pal) playing out our Broadcast modules output (HD-SDI, Component).

To import a file, 2 methods exist:

- Browse to a file to import
- Drag & Drop a file onto the desktop

Four different types of files can be imported into ClearView

- Compressed or Uncompressed A/V file
- Play List
- Load List
- Objective Metric Log File

ClearView determines the type based on the file extension. Below is a list of files that can be imported.

**Figure 2: File Extensions**

| Extension  | File                                   |
|------------|--|
| .264, .h4v | MPEG-4/AVC, H.264 video file           |
| .avi       | Video for Windows – any CODEC loaded   |
| .bmp       | Bitmap                                 |
| .cin       | Cineon                                 |
| .cvp       | ClearView auto play list               |
| .dib       | Device Independent Bitmap – MS Windows |

| <b>Extension</b>                                      | <b>File</b>                         |
|---|-------------------------------------|
| .dif  | DIF Stream                          |
| .dps  | DPS Velocity Video Editing Files    |
| .dpx  | DPX                                 |
| .gen  | AvidDS                              |
| .icb  | TGA Still Image Variant             |
| .jpg  | JPEG Still Image                    |
| .jnd  | ClearView Sarnoff's JND parameters  |
| .js   | Jaleo – SGI editor                  |
| .mpg, .mpeg, .vob,<br>.m1v, .m2v, .m2p,<br>.m2t, .mpv | MPEG-2                              |
| .mpg, .mpeg, .m1v                                     | MPEG-1                              |
| .m4v, .dat  | MPEG-4 video part 2                 |
| .mov  | QuickTime Video – any CODEC loaded  |
| .mp4  | MPEG-4 part 2 file; then H.264 file |
| .omf, .omfi   | AVID file – any CODEC loaded        |
| .pbm  | Portable Bitmap                     |
| .pcx  | Paintbrush Image                    |
| .pgm  | Portable Gray map                   |
| .pic, .pct  | Picture Still Image File            |
| .pnm  | Portable Any map Still Image        |
| .ppm  | Portable Pixel map Still Format     |
| .psd  | Photoshop                           |
| .psnr   | ClearView PSNR parameters           |
| .ras  | Sun Microsystems Raster             |
| .rgb  | Raw RGB image file                  |
| .rgba   | Raw RGB image with Alpha            |
| .rtv  | Video Toaster                       |
| .sgi  | SGI still image                     |
| .spatial  | ClearView SPATIAL parameters        |
| .sun  | Sun Raster Image                    |
| .temporal   | ClearView TEMPORAL parameters       |
| .tga  | Targa Still                         |
| .tiff   | Tagged Image Format                 |
| .txt  | ClearView auto load list            |
| .vda  | TGA Image Variant                   |
| .vst  | Targa Vista Image Format            |
| .xmb, .xpm  | X Windows                           |
| .yuv  | Raw YUV image                       |
| .yuv10  | Raw YUV 10-bit format               |

**Figure 3: File Import**

|       | Memory | MB | Frames | Disk   | MB | Frames |
|-------|--------|----|--------|--------|----|--------|
| Total | 738    |    | 140    | 111094 |    | 23732  |
| Used  | 0      |    | 0      | 2036   |    | 3052   |
| Free  | 738    |    | 140    | 109058 |    | 20680  |

The Video Output pane defines the canvas as 1920x1080, which can be also see in the W, H on the Memory/Disk pane.

The Memory/Disk pane defines the image format as YCbCr 10bps

The file GD\_V2M\_AMP2-224K.ts was dropped on the desktop.

The audio is stereo (2-channel), 48KHz, MPEG-1 Layer 2 at 224Kbps. This will be imported as PCM audio enclosed in an 8-channel .AUD file. There are no controls to change this.

The video is 720x480, MPEG-2 at 2Mbps. This will be imported as uncompressed YUV video as one big file. Each frame is modulo 4096. A YUV viewer that can handle extra video data per frame, like Drastic Technology's YUV viewer, can display this data natively.

For information, the file has 906 frames, is encoded as 4:2:2 data (Bitdepth=16), and the frame rate was 29.97Hz.

Once imported, ClearView plays the frames of video at any rate that is defined in the Video Output pane.

*Note: if you play the video at a different rate and you enable audio playback, then the audio will sound funny.*

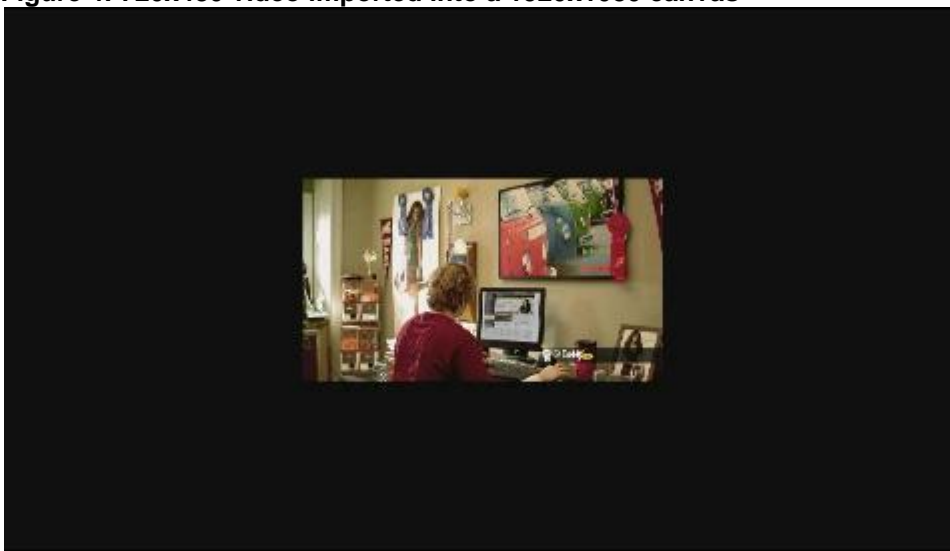
For this import, the bit rate and CODEC displayed are wrong because it could not determine these from the transport stream directly.

The rest of the data in the File Import pane is configurable:

- Sequence Name: This defaults to the first 40 characters of the file imported. You can change this at this before importing or you can rename the sequence after importing.
- To Disk: Normally, the decoded, uncompressed audio and video files are written to the file system at the location listed under Library in the Memory/Disk pane. If you uncheck this box, then the audio and video files will be written to memory. The files will disappear if you switch libraries and upon exiting ClearView.
- Field Flip: At times, you know that the video was produced with top/bottom switched. This check box will flip them during import.
- First/Last: By default, this is set to First=0; Last=number of frames – 1. You can tell ClearView to import only a portion of the file by adjusting First and Last.

Pressing load will import the video file as show below. The sequence file in the library will be updated to include the parameters about the audio and video files and the thumbnail – set to the first video frame – will be shown in the library manager.

**Figure 4: 720x480 video imported into a 1920x1080 canvas**



If the file is play list, then ClearView will play the first video sequence in the play list, followed by the second, and so forth until there are no more video sequences to play. This is useful at trade shows or when doing subjective testing to put voting screens up.

If the file is a load list, then ClearView will automatically load each of the video sequences in the file in sequence.

If the file is an objective metric log file, then the video sequence(s), objective results, and configuration will be restored to the state at the time that the measurement was captured. This is valuable when staging a demonstration.