



Purpose

This document will explain the current codecs and configurations in use for creating Preservation and Presentation formats for the RUCORE/NJVid Community Portal platform. These specifications are primarily to assist those wishing to convert existing streaming video into a format suitable for inclusion in NJVid.

For videos hosted by this platform, it is important to ensure that each video presented maintains a uniform set of standards. This ensures that we know which video and audio codecs and settings were used regardless of the video source. This enables us to provide a certain level of quality, and permits us to better troubleshoot problems when they arise, applying widespread fixes when needed. Some aspects of a video codec can be custom fit to better optimize certain videos, but care should be taken not to stray too far from the base configuration.

Base codec configuration

Note: Items in [blue](#) can be customized to improve playback quality when necessary.

- **Preservation: Video Source**

The source video standards depend on what container format the video originates from

- **Analog Sources**

- Encoded into uncompressed AVI when possible
- For NTSC or PAL video: retain original resolution and frame rate
 - NTSC: 640 x 480 (square pixels), 30 fps
- Film sources: determined on a case by case basis, depending on film type and condition.

- **Digital Sources**

- DVD, Blu-Ray and other videodisc formats: a disc image is taken and stored as the preservation object
 - .ISO or original file/folder structure is archived
- DVCam, DVCPRO, MiniDV, and other Digital Video sources
 - Original DV, MPEG-2 or MPEG-4 stream is preserved.
 - Other formats: converted on a case by case basis to help ensure longevity

- **Presentation: Quicktime Videos (.MOV format)**

- Encoded using H.264 compression
- Resolution: 640 x 480 (for videos with a 4:3 aspect ratio)
- Bitrate: 860kbps (recommended minimum) to 1Mbps
 - Ensures that 1Mbps connections can view
- Default frame rate: [24 fps](#)
 - Multipass Encoding, Deinterlace video
 - [Automatic Keyframes with frame reordering](#)
- Optimized for hinted streaming
- Audio: [AAC, 64kbps stereo \(48kbps mono if source has no stereo signal\)](#)

- **Presentation: Flash Videos (.FLV format)**
 - Encoded using On2 VP6 compression with OnMetadata cuepoints
 - Encode Alpha Channel
 - Deinterlace video
 - Resolution: 640 x 480 (For videos with a 4:3 aspect ratio)
 - Bitrate: 512kbps minimum
 - FLV is recommended for slower connections that cannot view the Quicktime streamed video
 - Default frame rate: 15 fps
 - **Keyframe placement: Automatic**
 - Optimized for hinted streaming
 - Audio: **MP3, 48kbps mono**

The above standards will yield presentation video files that are approximately 150-200MB in size for a half hour of video in Quicktime format, and 100-150MB for a Flash Video of the same duration.

Preservation streams can be particularly large, but the size is necessary to maintain a video object that will remain viable for the foreseeable future. DVDs images can be as large as 9GB in size, while DV streams can take up 20GB per hour of video. High Definition (HD) video streams will be even larger.

Recommendations for encoding software converting existing video streams

Some Alpha Implementers and NJVid partners may have videos that they have already converted into a streaming format, or have only a streaming format as their original. It is possible for partners to have videos pre-encoded and ready for inclusion, as long as the above standards are followed in creating their presentation streams. Most modern computers running current operating systems (Windows XP or Vista, Mac OS X 10.4 through 10.6) will be capable of converting short videos into Quicktime and FLV formats. The Adobe Flash Media Encoder plugin may need to be installed for FLV encoding.

Existing video editing software such as Adobe Premier Pro or Apple Final Cut Pro will export video segments to NJVid specifications. For simpler situations where minimal to no editing of the video content is needed, Quicktime Pro (\$30, apple.com/Quicktime) can also be used on either Windows or Mac platforms to make the correct streams.