RIT MAGIC Video Exhibition

SOFA Tier 1 Screenings
Technical Policy

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Prepared For
SOFA Faculty & Students

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I. Introduction

SOFA Tier 1 screenings require a video codec encoded deliverable for exhibition in the MAGIC Wegmans Theater. In order to ensure that your film will playback properly on the Digital Cinema equipment in the theater, the guidelines in this document ***must*** be followed. It is the responsibility of the filmmaker to verify that their export settings match the requirements detailed below. The SOFA FVASA technical director and those that run screenings will not be held responsible for films that fail to playback due to incorrect export settings.

Tier 1 is a simplification of the more professional Tier 2 and affords filmmakers the ability to deliver a familiar video codec encoded file. This simplification comes with constraints and drawbacks. Tier 1 films are limited to the following:

Tier 1 Screenings Limitations

Resolution	1280x720 or 1920x1080, square pixels
Aspect Ratio*	16:9
Frame Rate	23.98/24/29.97/30 ***progressive***
Sound	Stereo, bitrate-limited (320 kbps), no LFE
Compression	H.264, Interframe & Intraframe Compressed
Container	MP4
Color Bit Depth, Chroma Subsampling	8 bit, 4:2:0
Display Gamma, ColorSpace	2.4, Rec709
WhitePoint, Luminance	D65, 100 nits

Widescreen exhibition will require Tier 2. If you would like to finish in a custom aspect ratio other than 16:9 (4:3 etc.), please contact the FVASA technical director at **fvasa@rit.edu to discuss options.*

Note that these limitations can hinder the quality of film during screenings. As a filmmaker, it is important to understand these limitations and choose an exhibition tier level that fits your project.

II. Expected Users

The Tier 1 Workflow is designed for, but not limited to, underclassman filmmakers who are new to the SOFA screenings process. It is also designed for students who have resolution limitations of 720p. The Tier 1 process enables a simple deliverable and workflow for films that do not intend nor have the need to utilize the features of digital cinema exhibition.

III. Overview

The diagram below provides a brief graphical overview of the workflow. These are the steps you will have to follow for Tier 1 Screenings. The following sections describe each process in detail.
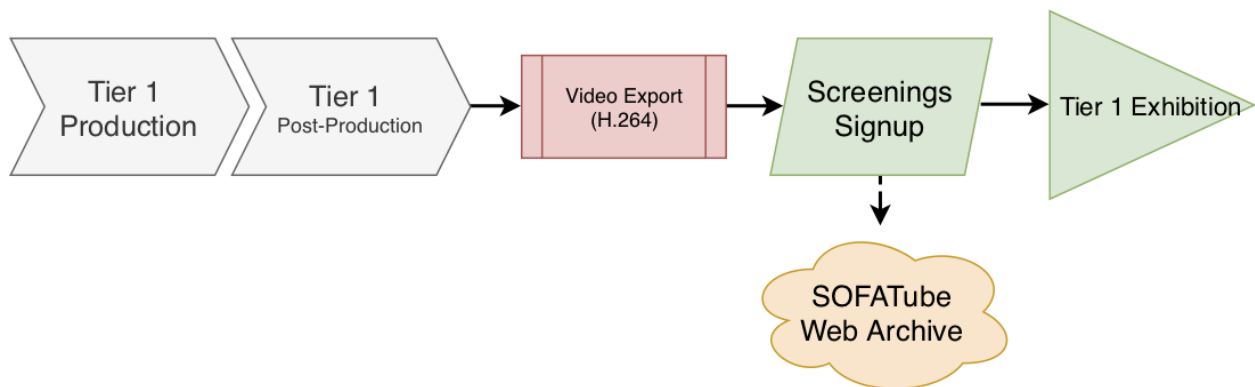
IV. Video Export Settings

A. Export Presets
Encoding presets for exporting Tier 1 deliverables from Adobe Premiere, Media Encoder and After Effects can be found in all SOFA Labs. These are preconfigured with all of the necessary encoding settings to allow for a one-click export setup. Blackmagic DaVinci Resolve and AVID Media Composer currently do not have export presets available. For exports out of those programs, please refer to Section B: Video Codec below for appropriate settings.

Depending on your project resolution, select the appropriate SOFA_T1 preset:

Adobe Premiere/Media Encoder
- **SOFA_T1_720p** (Under the H.264 Format in Premiere) - for 720p deliverables
- **SOFA_T1_1080p** (Under the H.264 Format in Premiere) - for 1080p deliverables

For your reference, the table below defines the encoding parameters for the presets.

	SOFA_T1_720p	SOFA_T1_1080p
Format	H.264	H.264
Width/Height	1280/720	1920/1080
Frame Rate	Match Source	Match Source
Field Order	Progressive	Progressive
Aspect	Square Pixels	Square Pixels
Render @ Max Depth	Yes	Yes
Performance	Hardware OR Software Encoding	Hardware OR Software Encoding
Profile, Level	High, 4.2	High, 4.2
Bitrate Encoding	VBR, 1 pass	VBR, 1 pass
Target Bitrate	25 Mbps	25 Mbps
Audio Format/Codec	AAC/AAC	AAC/AAC
Sample Rate	48 kHz	48 kHz
Channels	Stereo	Stereo
Audio Quality	High	High
Bitrate	320 kbps	320 kbps
Precedence	Bitrate	Bitrate
Multiplexor	MP4	MP4
Use Max Render Quality	Yes	Yes

B. Video Codec

For export out of Davinci Resolve, Avid Media Composer or another NLE, use the H.264 encoding codec for video. The various settings required for H.264 are listed below.

Format (Codec): H.264
Target Bitrate: up to 25 Mbps
Max Bitrate: up to 30 Mbps

Other NLE and video encoding programs may show different settings. In such cases, the most important settings to ensure compatibility are that you use an H.264 codec and have a bitrate between 25-30 Mbps.

C. Container

The container that should be used to wrap the H.264 codec is MP4. This is the default wrapper when using the H.264 format in Adobe programs, but you may need to specify the container and codec separately in other programs. If the program you are using does not allow for H.264 encoding to an MP4 file, please contact ***fvasa@rit.edu*** for assistance.

V. Audio Export Requirements

The Adobe presets mentioned above also contain the correct audio settings for Tier 1 screenings submissions. If you are using another NLE or video encoding program please configure your audio settings to have the following specifications:

A. Audio Export Settings

Audio Codec: AAC
Sample Rate: 48000 Hz
Channels: Stereo
Bitrate Settings: 320 kbps
Bit Depth: 24

Other NLE and video encoding programs may show different settings. In other NLEs, ensure you use AAC, 48000 Hz, 320 kbps at 24bits.

B. Audio Levels

Before exporting your film, ensure that the maximum peak does not exceed -3 dBFS max peak and target integrated loudness of -27 LKFS/LUFS (+/-2 LU). These specifications can be monitored and verified using a variety of plugins within your DAW or NLE. For Pro Tools users, *Izotope Insight (1 or 2)* is recommended for monitoring and analyzing program loudness and peak*, while Izotope Loudness Control* is suited for hard-conforming your final mix to the -27 LKFS/ -3 dBFS technical requirement. The availability of these plugins is dependent on what plugins are installed at your workstation. *Avid Pro Limiter Loudness Analyzer* is an option freely available on all Pro Tools systems. For those mastering their audio in Premiere Pro, *Loudness Radar* is recommended.

You must ensure your film meets these requirements. Failure to do so will result in a fader penalty at screenings, in which your film will be played back at a very quiet volume level to ensure the safety of the audience.

VI. Quality Control & Playback

Please be sure to watch your film back to confirm that it was exported correctly! Audio and video should hit the specifications listed above without exception. The FVASA Technical Director reserves the right to lower playback volume if a mix is harmfully loud or above spec, but will **not** increase it. Those running screenings will not replace files that were delivered incorrectly after the submission deadline has passed, *unless* a formal technical amnesty has been granted. Please refer to the general SOFA screenings policy for more detail.

VII. Captioning/Subtitling

All accessibility procedures related to deaf and hard-of-hearing students cross-registered in RIT programs apply to those who have been admitted into SOFA. Students, whether deaf, hard of hearing, or hearing, will be responsible to manage the captioning of any short film to be submitted for screening at SOFA events, including the end-of-the-semester screenings. Refer to documentation on suggested workflows and include the addition of burned-in captions/subtitles to your quality control process prior to submitting for screenings. For more information review captioning tutorials here: https://fvasa.cad.rit.edu/documentation/captioning.

*Forward all questions regarding technical requirements to **fvasa@rit.edu***