Ryan Trecartin *Comma Boat* (2013)

3-channel movie. Technical information and installation instructions

GENERAL INSTALLATION OUTLINE

When installed in a gallery or museum for public exhibition, *Comma Boat* is ideally projected on three walls of equal width, arranged to feel as though they enclose a square room in which the viewer is standing. Each of the three projections should be centered on its wall, taking up at least 3/4 of the wall's width. The images on all three walls should be identical sizes. If the layout of the exhibition space requires, the walls may be splayed outward so that the angles between them are greater than 90 degrees, up to a limit of 115 degrees (closer to 90 is better).

Important note regarding the multi channel nature of *Comma Boat*: The original and proper format of the artwork includes all three channels, and as such all three channels *must* be exhibited together. The only exceptions to this rule are where 3-channel installation is prohibited due to format restrictions i.e. theatrical or online exhibition. In either of these cases, the single-channel version of *Comma Boat* may be used.

VIDEO FILE SPECIFICATIONS

Comma Boat **is a 3-channel movie. Each channel is 16:9 (48:9 considered together). Duration 33 minutes and 2 seconds. The preferred image resolution is 5760 x 1080p (three 1920 x 1080 displays.)**

These are the various specifications of the master movie files:

- Each video channel as a separate QuickTime movie file with the following specifications: Apple ProRes 4444 codec, 1920 x 1080, 29.97 fps, progressive scan, 32 bit Linear PCM audio, 48 kHz, stereo.

- One QuickTime movie file with all three channels combined in a 48:9 aspect ratio, with the following specifications: Apple ProRes 4444 codec, 5760 x 1080, 29.97 fps, progressive scan, 32 bit Linear PCM audio, 48 kHz, stereo.

- One QuickTime movie file with all three channels combined in a 48:9 aspect ratio with the following specifications: Apple ProRes 4444 codec, 3840 x 720, 29.97 fps, progressive scan, 32 bit Linear PCM audio, 48 kHz, stereo. This file should be used for the purpose of exhibition with the method described in the **SYNCHRONIZATION** section below.

- A version of the work in a single-channel, 16:9 format intended for theatrical or online exhibition (ProRes 4444 encoded QuickTime movie file). Copies of this file should be used for the production of a DCP or other theatrical format, or any encodings made to present the work online in single-channel form.

You will have received from EAI one of the above, or an alternative file compressed from these masters to suit your requirements.

MOVIE DISPLAY

Preferred image size
Each of the 3 channels of *Comma Boat* should be a minimum of 11 feet wide (6 feet, 2¼ inches high). In general, image sizes should feel large and encompassing in the exhibition space. Due to the image size requirement, projection is the requested display method.

For more on projector specifications see **DISPLAY EQUIPMENT** section below.

In the case that there are strong contextual or curatorial reasons why it is desirable, it is acceptable to install the movie on large-screen monitors. If shown on monitors, the displays should preferably be an LED backlit LCD TV with full array local dimming, and a minimum diagonal measurement of 55 inches.

Should future display technologies allow the minimum dimensions (width 11' x height 6' 2¼") to be achieved using flat-panel monitors, the general projection requirement may be reassessed.

Preferred room size
Taking into account the minimum projection sizes described above, and the ideal layout in the **GENERAL INSTALL NOTE**, the minimum room size for *Comma Boat* should be approx. 16' x 16' wide, with walls that are approx. 8' high (assuming a square room). In considering a maximum, the effect of the size of the installation space on the quality of the sound reproduction should be the most important consideration. A bigger space will generally be preferable to a smaller space up to the point where the size of the space begins to negatively affect clean and clear sound reproduction, or unless there are specific reasons why the sound will be better in the smaller space (i.e. constraints due to general exhibition design).

For more information on sound installation, see **SOUND** section below.
For more information on room preparation, see **EXHIBITION SPACE** section below.

SYNCHRONIZATION

The method used in the past to synchronize the three video channels of *Comma Boat* was to render out a single combined triple-wide QuickTime video file, which was then transmitted across three separated displays by using a Matrox TripleHead2Go module to distribute the video signal. The video source used has been an Apple MacMini. Due to the contemporary limitations of the MacMini's graphics processor, this method has required exhibiting the movie at a height of 720 pixels (a total resolution of 3840 x 720).

This synchronization method is not requisite. As long as perfect synchronization of the three channels is assured, a different synchronization method may be used. Separate archival copies of each of the three channels are also provided to facilitate this potentiality.

Note regarding playback: The movie may be exhibited as a continuous loop. The end of the video file(s) fade to black for a few frames and can cover any slight reset that might be needed by the playback equipment (as in the case of disc media) but no additional pause between loops should be added and any pause caused by playback equipment should be as minimal as possible.

VIDEO DISPLAY EQUIPMENT

*The following presumes the display/synchronization method used in the past, as described in the **SYNCHRONIZATION** section above. If a different method is used, additional or different equipment may be required.*

Three projectors with a native display resolution of 1280 x 720 or 1280 x 800
Unless rear-projection is used, the projectors will likely require short-throw lenses (due to the geometry of the room in relationship to the projections). The display technology should preferably be 3LCD or LCoS but it is understood that with the pricing of current short-throw HD projectors it may be necessary to use single-chip DLP models. For small to medium-sized installation spaces the projector should have a brightness rating of 3000 ANSI lumens or more. For installations at the large end of the spectrum, or in situations where ambient light cannot be avoided, a brighter projector will likely be needed. The Artist has had good experiences with the color reproduction of Panasonic and Canon brand projectors (see note below for further explanation).

Important notes regarding projector specifications: In the case where an alternative display/synchronization method is used that allows for the full, preferred resolution video files to be used, (three 1920 x 1080 or one 5760 x 1080) the minimum native display resolution for the projectors used is 1920 x 1080.

The choice of projector display technology has been guided by preferences in color reproduction. The work was created on LED-backlit active-matrix LCD monitors, and the desire has been to find projectors that more easily recreate the effect on color of the specific combination of brightness, contrast, image stability, and color gamut provided by these displays. The color reproduction of single-chip DLP projectors in this respect is poor, which is why the Artist prefers 3LCD and LCoS projectors.

One computer capable of processing the included media
In the case that the ProRes 4444 encoded file is used for playback in an exhibition setting, it is important to consider the high data-rate required for image processing (~330 Mbps) and use a computer configuration that will handle this successfully over the course of the exhibition. For reference, if a MacMini is used it should be configured with enough RAM to allow for the maximum allotment of memory to VRAM, as system memory is shared with the graphics processor (in current models this means more than 4GB), and a solid-state drive (either internal or Thunderbolt-connected external) is recommended.

Matrox TripleHead2Go (or similar graphics expansion device)
The graphics expansion device is used to distribute the video signal across the three displays. Please note that the computer will need to have the Matrox drivers properly installed in order for the three images to display correctly.

SOUND EQUIPMENT

The Artist's preference is for the movie's sound to be played through open speakers. Exact details of the speaker system will depend upon the size of the installation space, however a minimum of two full-range speakers, a subwoofer, and an appropriate amplifier. The speakers used should have a relatively flat frequency response curve over the range of 50 Hz - 20 kHz for accurate reproduction of the sound. A subwoofer should be included to bring out the low end of the movie sound.

If there are reasons in the context of the exhibition why playing the sound out loud is problematic, it is possible to use headphones for the movie soundtrack. The headphones used should be comfortable, closed-ear headphones with a good response at low frequencies, such as the Audio Technica ATH-M50. The number of headphones required is dependent on the seating and expected audience traffic. It will be necessary to use one or more headphone amplifiers, such as the Tascam MH-8, depending on the number of headphones.

Important notes regarding sound: In sound reproduction, the equipment used should maintain a strong response at the low end of the frequency spectrum and a generally flat response curve otherwise, in order to accurately reproduce the sound mix. Making sure the speaker system is arranged optimally for the acoustics of the room is of great importance – it may be necessary to install soundproofing materials to the room, and/or frequency equalization controls to the sound system. Sound levels should be loud, though not uncomfortable.

EXHIBITION SPACE

Room
The installation should preferably inhabit a closed space with no ambient light leakage, and minimal sound leakage. The walls of the room should be grey or black. The projection surface should be finished with a high-contrast, reflective paint intended for displays, such as Screen Goo. The display and sound equipment should not be overly visible, but it is not necessary that it be completely hidden either.

Seating
The seating should be grey or black. It should ideally be individual and comfortable, and if possible the seats should swivel to maximize viewing angles. For installations with smaller seating requirements, small armchairs could be used; for installations where more visitors are expected, stools (with a back) and/or small couches are suggested. Seating should not look like office furniture. Overall, choices of seating elements and wall colors should aim for comfort and neutrality, unless the selection is done in consultation with the Artist.

Carpet
The space should be carpeted to diminish the noise of foot traffic, and avoid excessive echo from the movie sound. The carpet should be dark grey, with a densely woven, low pile loop. Wherever the budget allows, a carpet underlay should also be used.