



**Screenberry™**

Product Brochure 2020



## About

The Screenberry™ media server is a powerful and intuitive tool with broad automation capabilities for real-time, multi-screen playback in extremely high resolutions. It's the perfect solution for 3D mapping, dome projection, stage screens, and multimedia installations.

## Impossible Made Easy

## Origin

Screenberry was born in 2007 as an internal show production tool of the Front Pictures studio, as other solutions available at that time did not give us enough creative freedom. Seeing the results of our work over the years, other media artists started asking us to use this 'magical software' in their shows and installations. This encouraged us to convert our in-house technology into a product which is now available for the entire industry.





## Features at a Glance

- ▶ High-resolution video playback: to 12K x 12K 30 fps / 8K x 8K 60 fps / or 32 x Full HD layers at 60 fps on a single machine\*
- ▶ Canvas size: up to 32K x 32K\*\*
- ▶ High frame rates: 48, 60, 96, 120, 240, or custom\*
- ▶ Can drive up to 16 x 4K video outputs from a single machine; can be extended to 64 x Full HD (or even more) with the help of external video processors\*
- ▶ Capture cards support: a variety of SDI, DVI, HDMI, DP boards from Blackmagic Design, Datapath, Deltacast, Magewell
- ▶ Audio hardware support: ASIO, WASAPI, WINMM
- ▶ Video codecs: RVA, H.264, H.265, MPEG-2, ProRes, HAP, CineForm
- ▶ Image files and sequences: PNG, JPG, TGA
- ▶ Alpha channel support\*\*\*
- ▶ Audio codecs: WAV, AC3, MP3
- ▶ Encrypted content playback (ERVA only)
- ▶ NDI®, RTSP, RTMP streaming (in/out)
- ▶ Manual and automatic camera-based calibration (soft edge blending, warping, black level, white level, gamma matching)
- ▶ Flat, curved, dome, full sphere, free-form shaped screens
- ▶ NOTCH playback integration
- ▶ Video sharing between applications with the Spout framework support
- ▶ Control protocols: DMX, Art-Net, MIDI, RS232, UDP, OSC, TCP, HTTP, PJLink, vendor-specific projector/display protocols
- ▶ Visual node-graph editor for building processing pipelines
- ▶ 2D/3D workflow: 3D objects import, virtual projectors, and cameras
- ▶ Timelines, playlists, and cues
- ▶ Multi-user control
- ▶ Stereoscopic content support: frame sequential and side-by-side
- ▶ SMPTE and MTC timecode
- ▶ Customization with JavaScript and GLSL shaders
- ▶ HTML5 web interface for platform-independent control
- ▶ Modular and extensible architecture
- ▶ Integration API. Bundled with plugins for Unreal® Engine 4, Unity®, TouchDesigner for calibration data import
- ▶ Multi-platform (Windows, Linux)

\* The number of displays, total resolution, and frame rate depend on the hardware configuration

\*\* Depends on the maximum texture size supported by GPU

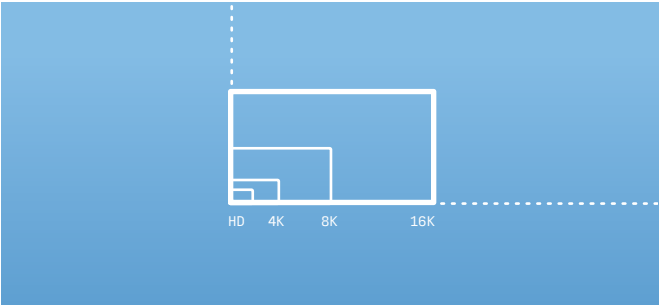
\*\*\* Video codecs that support alpha channel: *RVA, ProRes, HAP, CineForm*; image formats that support alpha channel: *TGA, PNG*



# Key Features

Screenberry is designed with the utmost efficiency in mind. A single Screenberry machine can handle up to 16 x 4K (or 64 x Full HD) outputs, which is enough for even the most demanding events and installations. The single server approach provides incredible creative freedom and unmatched performance, combined with ease of use as well as greatly reduced hardware and maintenance costs.

## Highest Image Resolution & Quality



Due to its hybrid video processing engine, which efficiently uses both the GPU and CPU, one single Screenberry server can handle media playback up to 12K x 12K 30 fps / 8K x 8K 60 fps / 32 x Full HD layers at 60 fps with canvas sizes up to 32K x 32K\*. A high frame rate (120, 240 fps)\* and custom frame rates are also supported. All of this allows you to implement the most ambitious projects without getting into complicated clustered systems!

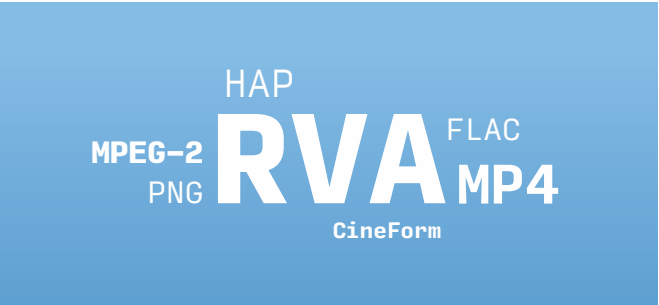
## Content Encryption & Distribution



Worried about leasing your media content? Screenberry media server can directly play back video in a proprietary encrypted format ERVA. This enables producers and media designers to safely distribute media files worldwide and benefit from time-based or pay-per-play licensing.

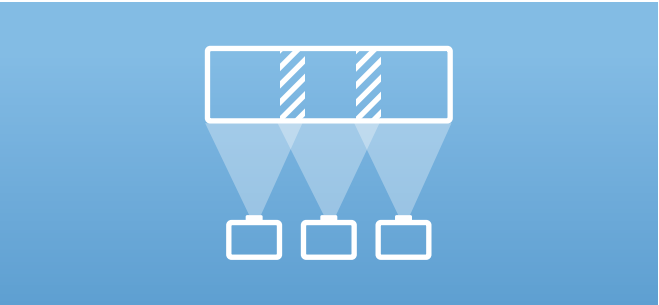
\* The number of displays, total resolution, and frame rate depend on the hardware configuration.

## Variety of Media



Screenberry supports a wide range of media sources: video files (RVA, H.264, H.265, MPEG-2, ProRes, HAP, CineForm), image files and sequences (PNG, JPG, TGA), audio files (WAV, AC3, MP3), 3D models (OBJ), live capture (SDI, DVI, HDMI, DP).

## Rich Projection Calibration Toolset



Screenberry can warp and blend projectors onto flat, curved, and dome-shaped screens or onto 3D objects. The toolset includes:

- Automatic single or multiple camera-based projection alignment\*\* (soft edge blending, warping, black level compensation, brightness calibration, gamma matching)
- Automatic projector pose estimation for faster and more precise projection alignment on complex 3D objects
- Manual image warping tools: corner pin, bezier, tri-mesh etc.

\*\* Auto-alignment is an optional feature and it may not be included in your package

## Protocols & Automation



Screenberry is capable of communicating with a variety of hardware and software by utilizing a wide range of protocols: Art-Net, MIDI, UDP, OSC, TCP/IP, RS-232, HTTP, PJLink, numerous vendor-specific projector/display control protocols.

## Notch Integration



Screenberry natively supports Notch playback\*\*\*. This extends Screenberry capabilities with a vast array of real-time VFX tools for more impactful shows and performances.

\*\*\* Notch requires a separate licence.

## Video over IP



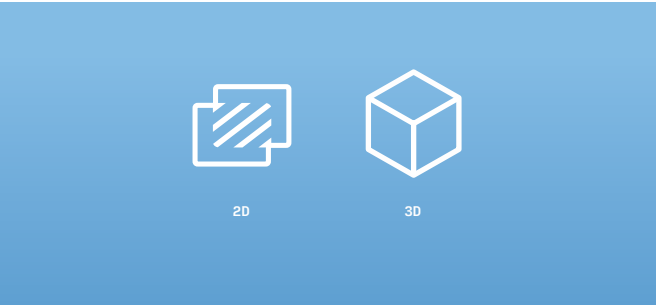
Screenberry supports video over IP via the NDI® protocol. The server can receive and output multiple broadcast-quality video streams over standard Ethernet networks. This offers additional possibilities for fixed installations and live productions. IP-based video streaming is also enabled via RTSP/RTMP protocols.

## Flexible Show Programming



Screenberry provides a full range of show creation and control tools including multiple timelines, playlists, cues, and independent media players.

## 2D / 3D Workflow



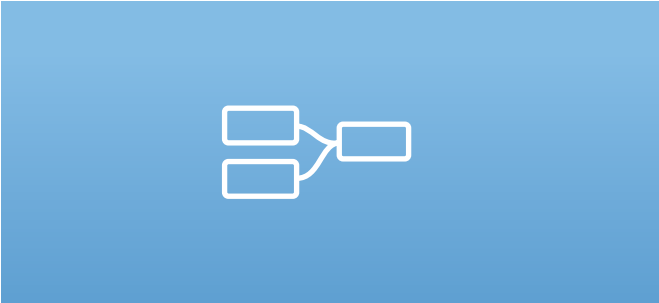
2D and 3D compositing pipelines are available. The 2D workflow is designed for flat and relatively simple screen setups. The 3D environment is primarily used for projection mapping onto complicated objects such as building facades or automobiles; it allows users to import 3D models and set up virtual projectors and cameras. There is no need to pre-warp your content, as Screenberry will do it for you in real-time.

## Spout



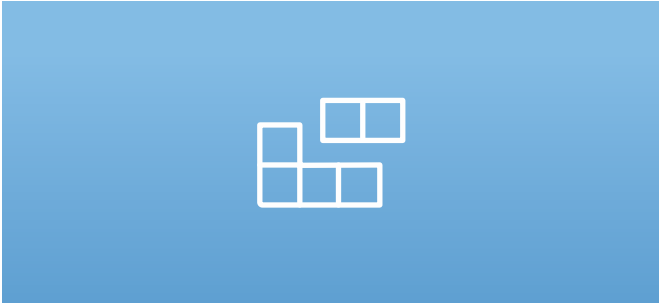
Using the Spout real-time video sharing framework, you can effortlessly inject visuals from 3rd party applications into Screenberry with no latency. This means Screenberry possibilities can be combined with other visual software such as Resolume, Unreal® Engine 4, Unity®, Processing, and VVVV while running on the same machine.

## Node-Graph Editor



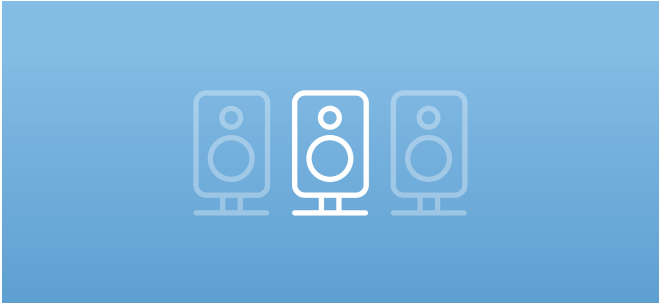
Screenberry, with node-based architecture at its core, provides creative freedom and intuitive control even for complex AV setups. Visual programming with nodes allows for a great number of setups, configurations, and control scenarios, as well as flexible audio/video stream routing.

## Modular Architecture



Screenberry has a modular architecture and its functionality can be extended with external plug-in modules. You can choose from a growing range of Screenberry-compatible plug-ins and applications.

## Multi-Channel Audio



Screenberry supports multi-channel audio configurations with up to 64 channels via such interfaces as MAD1 and Dante®.

## Stereoscopic



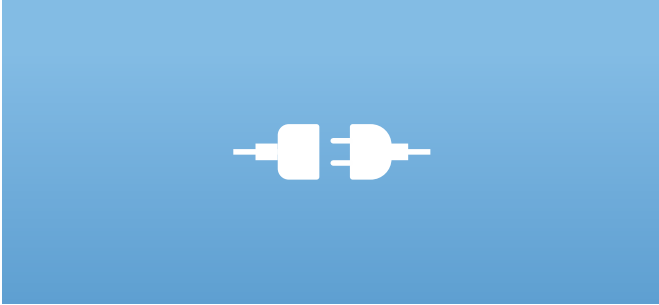
Different types of 3D stereo are supported: passive and active technologies with frame-sequential and side-by-side layouts. Screenberry is capable of outputting stereoscopic video on flat, curved, and dome screens.

## Multi-User Remote Control



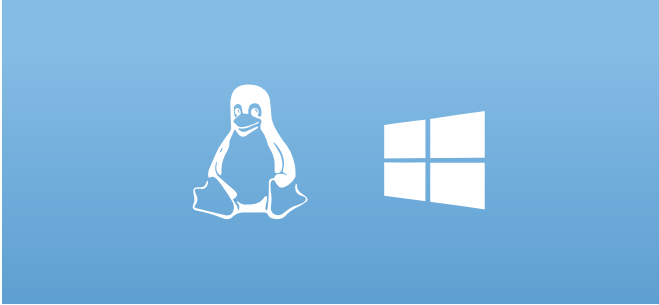
Thanks to the full-fledged control over IP, multiple operators can simultaneously configure the system, upload content, and control shows remotely. The feature permits one to implement more complex show control scenarios and to operate fixed installations via a local network or the Internet.

## API & Integration



Screenberry can be easily integrated into most content production pipelines and AV installations. API provides convenient tools for the integration of 3rd party applications. Calibration data import is available for Unreal® Engine 4, Unity®, and TouchDesigner.

## Multi-Platform



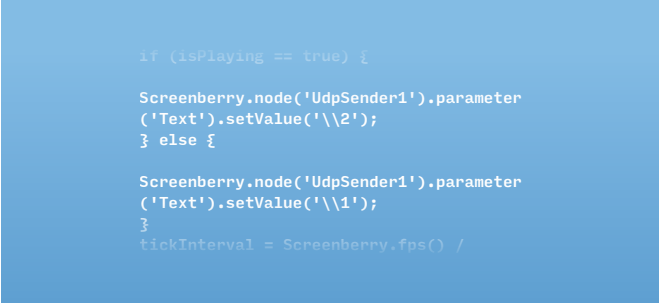
Screenberry server natively runs on Windows and Linux. Screenberry Control Panel is available for Windows, macOS, iOS and has a customizable web interface.

## Reliability



Since 2007, Screenberry media servers have proven their rock-solid stability in thousands of events and installations for the most demanding clients around the globe. Whether it is a live event or a large installation in a museum or planetarium, Screenberry is the platform you can rely on.

## Customization



Most of Screenberry's features can be accessed and automated via JavaScript. You can also create GLSL shaders for custom image processing and visual effects.

## HTML 5 Web Interface



Thanks to the built-in web service, Screenberry can be controlled not only via its native desktop application but also from a smartphone or tablet. HTML 5 support enables the creation of custom platform-independent web interfaces which allows multiple users to operate the server via a web browser.

## Service & Support



The Screenberry support team is ready to assist you with any help you may need\*. We can also train your crew or provide full support at your event.

## Features on Request



Sometimes new functionality is required to push the limits of your project. Our development team is ready to implement any specific feature you may need upon request.

\* Free and paid support plans are available based on your software package.



## Typical Applications

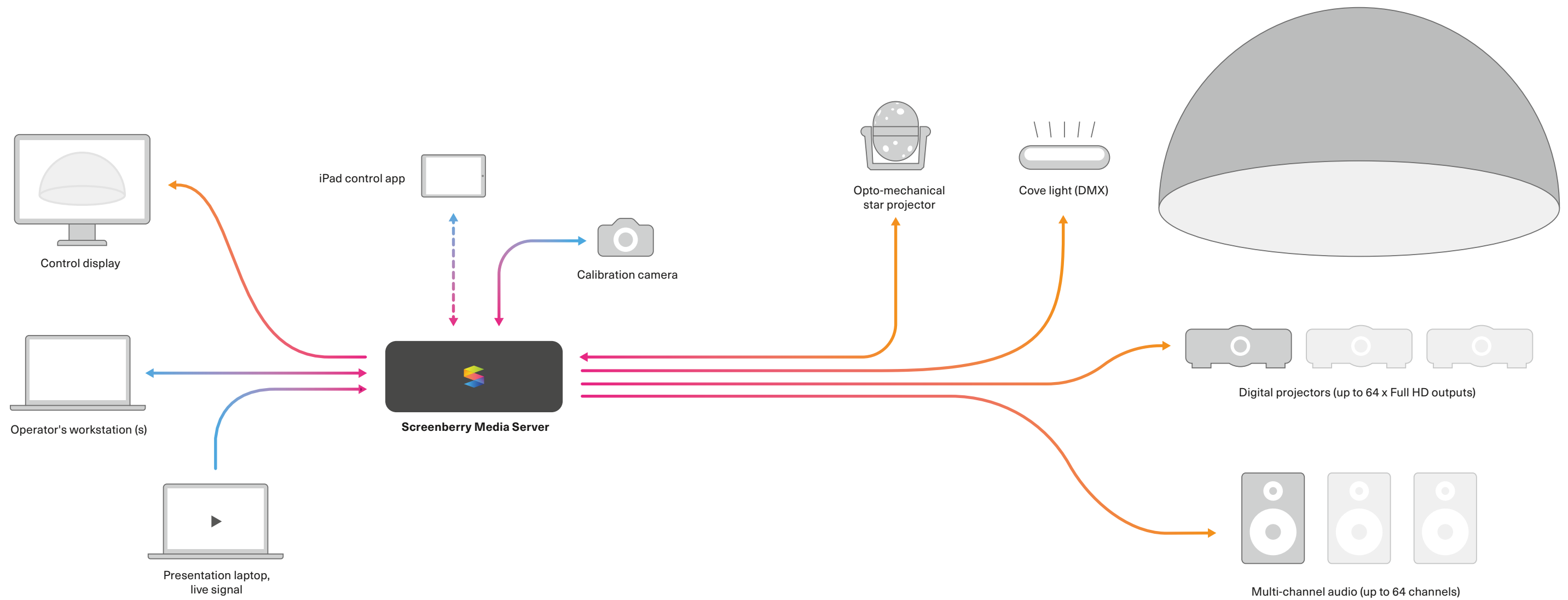
- ▶ Live Shows
- ▶ Fulldome & Planetariums
- ▶ Museums & Science Centers
- ▶ Art Installations & Exhibitions
- ▶ Amusement Parks
- ▶ Corporate Events
- ▶ Architectural Projection
- ▶ Theaters
- ▶ Digital Signage
- ▶ Broadcast & Film Production
- ▶ Simulation



# Typical System Layouts

## ► Hybrid Planetarium

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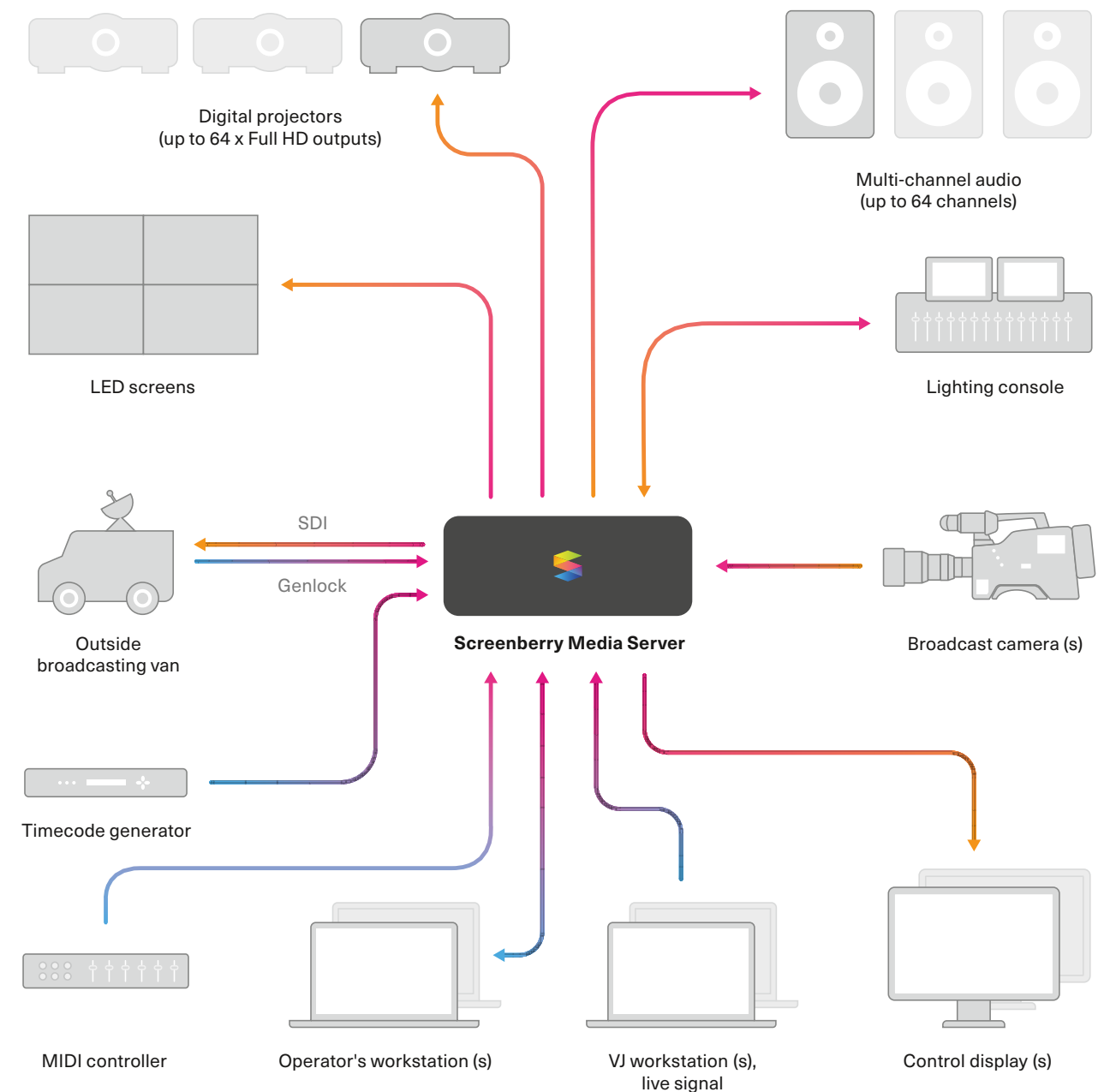
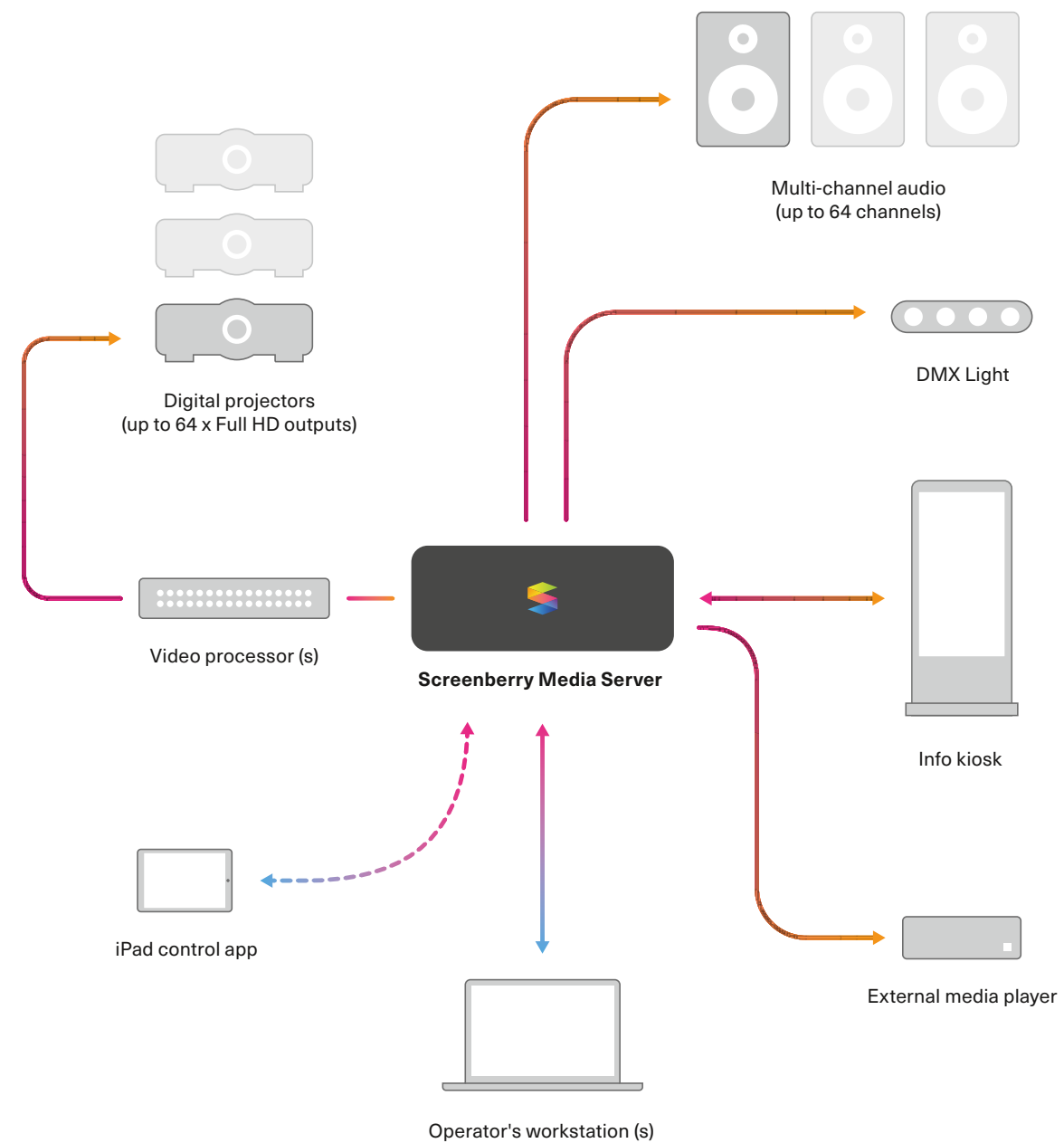




## Media Gallery



## Live Show





Screenberry Panel v2.4.3, Connected to server v2.4.3

Connect Preferences Server Window Help

Node Graph Display Editor Patch Editor Media Player +

Settings

Name Root/Blender1  
Type Blender  
Initialized Yes  
Hidden parameters 0 Show

Label

Enabled ☒

BlendMaps Size X: 1024 Y: 1024

Horizontal Panorama ☒

Maps build method Simple distance transform

Gamma value 2,20000

Gravity power value 2,00000

Blur radius 0

Disable blendMaps ☐

Save debug Images ☐

Build blends Build blends

Outputs:

Initialized ☒

blender not connected

Root /

ROOT

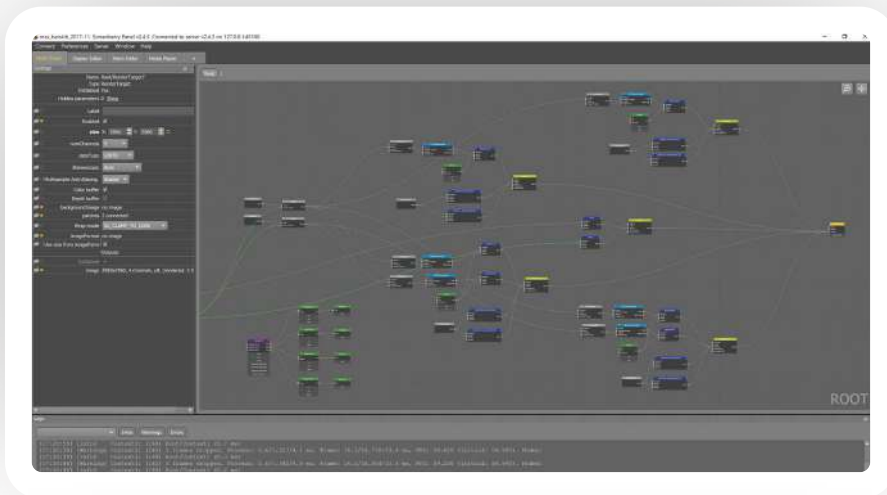
Logs

Info Warnings Errors

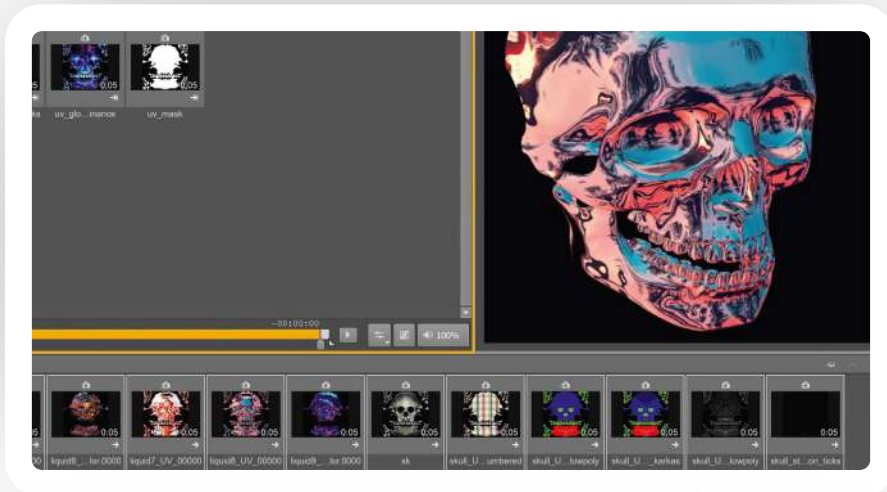
[17:59:23] [Info] MediaPlayer1: (2810) Play item: Media/FP\_Geometry\_4K\_latlong.rva  
[17:59:23] [Info] MediaPlayer1: (976) [RVA Media/FP\_Geometry\_4K\_latlong.rva] Initializing. Source: 8192x4096, out: 2288x1040, FPS: 30.000000, frames: 125  
[17:59:23] [Info] MediaPlayer1: (2738) [RVA Media/FP\_Geometry\_4K\_latlong.rva] Sync source: Video, speed: 1.000  
[17:59:23] [Info] MediaPlayer1: (2762) [RVA Media/FP\_Geometry\_4K\_latlong.rva] Video FPS rounded 30 (speed=1.0) < display FPS rounded 60. Will double video frame on every N-th display frame. N=2.00  
[17:59:23] [Info] MediaPlayer1: (2780) [RVA Media/FP\_Geometry\_4K\_latlong.rva] Initial audio speed: 1.00



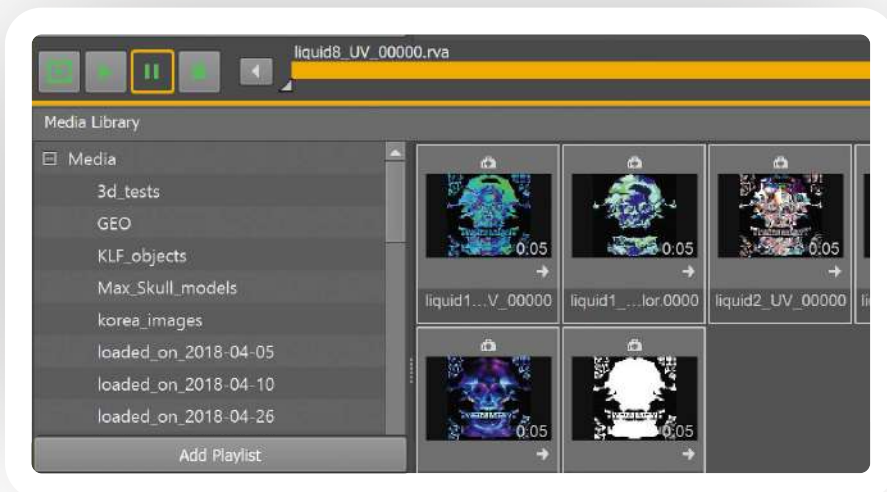
► **Typical Workflow**



**1**  
**Screenberry  
project setup**

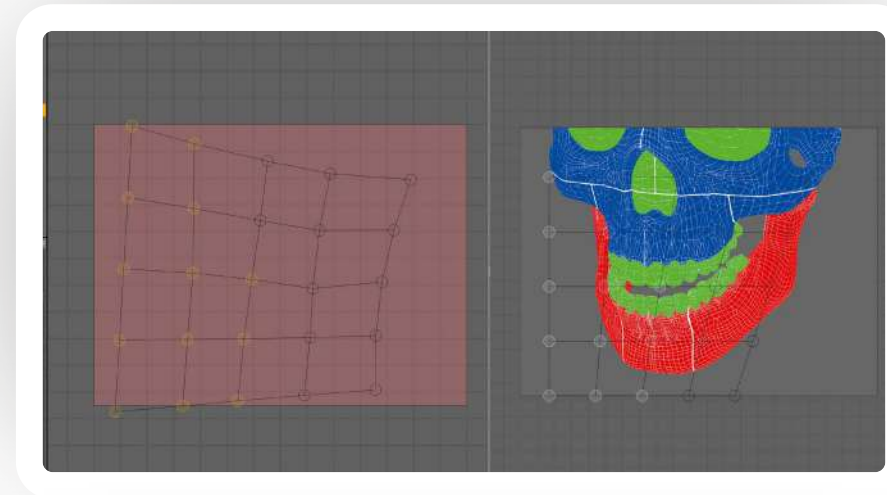


**2**  
**Content upload**



**3**  
**Show programming**

**4**  
**Projection  
alignment**



**5**  
**Show  
rehearsals**



**6**  
**Liftoff!**





## Space 360

Spherical projection theater Space 360 in Gwangju, South Korea  
1 x Screenberry server  
12 x Barco PGWU-62L WUXGA laser phosphor projectors

Front Pictures



# Melody Maker Hotel



Permanent projection mapping at Melody Maker Cancun Hotel, Mexico  
1 x Screenberry server  
16 x Barco UDX-W32 projectors

Visual content by New Media Creative Technology Studio



# National Space Centre

Full dome projection system at UK's biggest Sir Patrick Moore Planetarium  
1 x Screenberry server  
13 x BenQ LU9915 WUXGA BlueCore laser projectors



# A-Gallery

Ukraine's biggest multimedia exhibition A-Gallery in Kyiv  
1 x Screenberry server  
52 x BenQ MW814ST projectors



## Digital backdrop for shooting

Digital backdrop for Christine & the Queens music video  
1 x Screenberry server  
3 x double stacked Christie Roadster S+20K projectors



# Distributor

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