

Screen Output Function (outputting images to projectors and video walls in scenery)



The description is valid for software version [2.10.114.99](#) and newer.



This function can be used together with [function Edge Blending](#).

The **Screen Output** function of the [Program](#) module allows you to generate and output frame-per-frame images based on a playlist for output to:

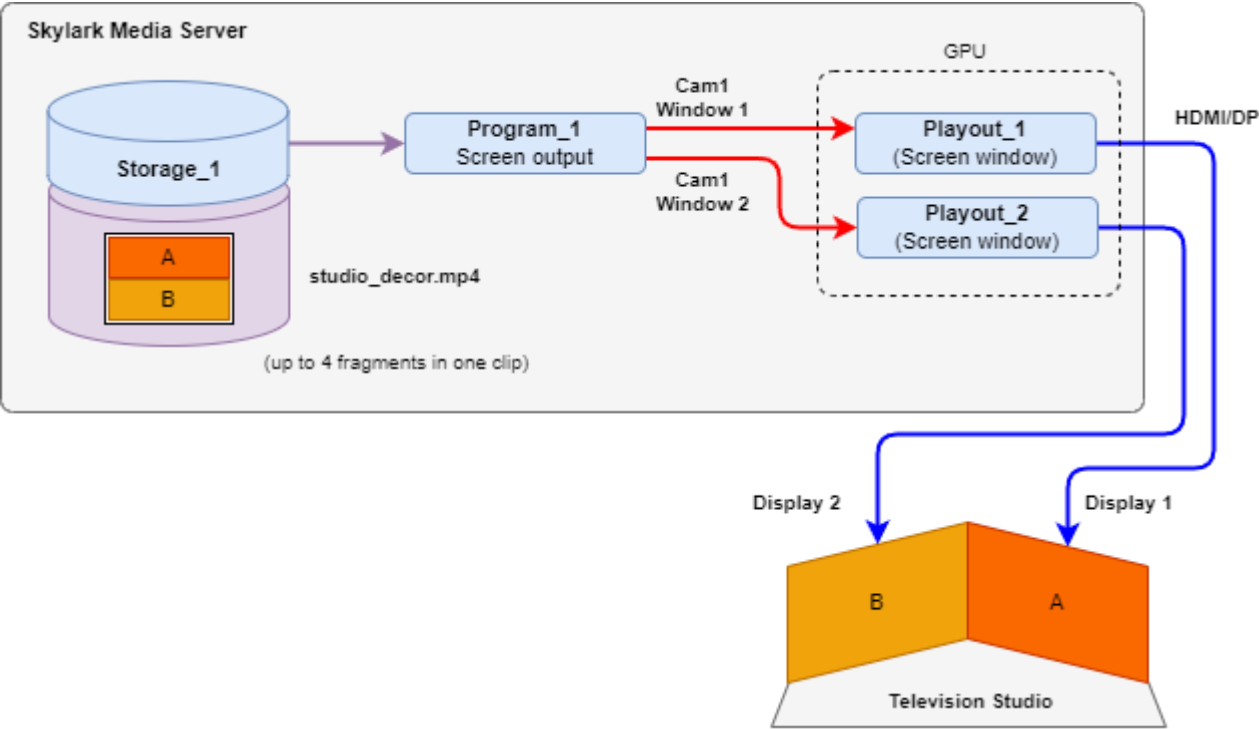
- monitors or video walls in studio sets,
- multimedia projectors (image overlay and [edge blending](#)).

Operating Modes

Composite clip

In this mode, a single clip is played back in the Program module that contains within it images for output to different monitors. In this mode, images are played back and sliced arbitrarily before output. For example, a scheme is often used where images for 4 HD screens are stitched into one UHD file during preparation, and during playback they are cut and processed as four separate HD signals.

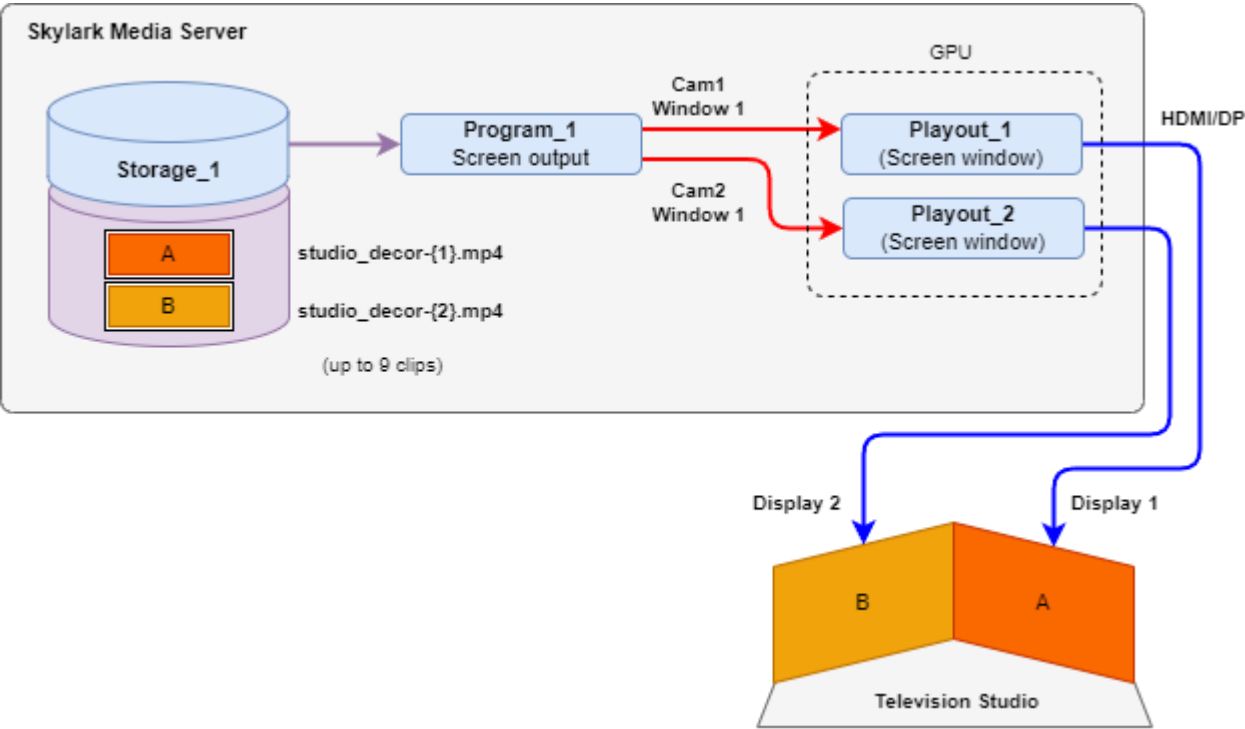
The image shows an example of cutting two areas from one playback file and outputting them to two screens in the studio:



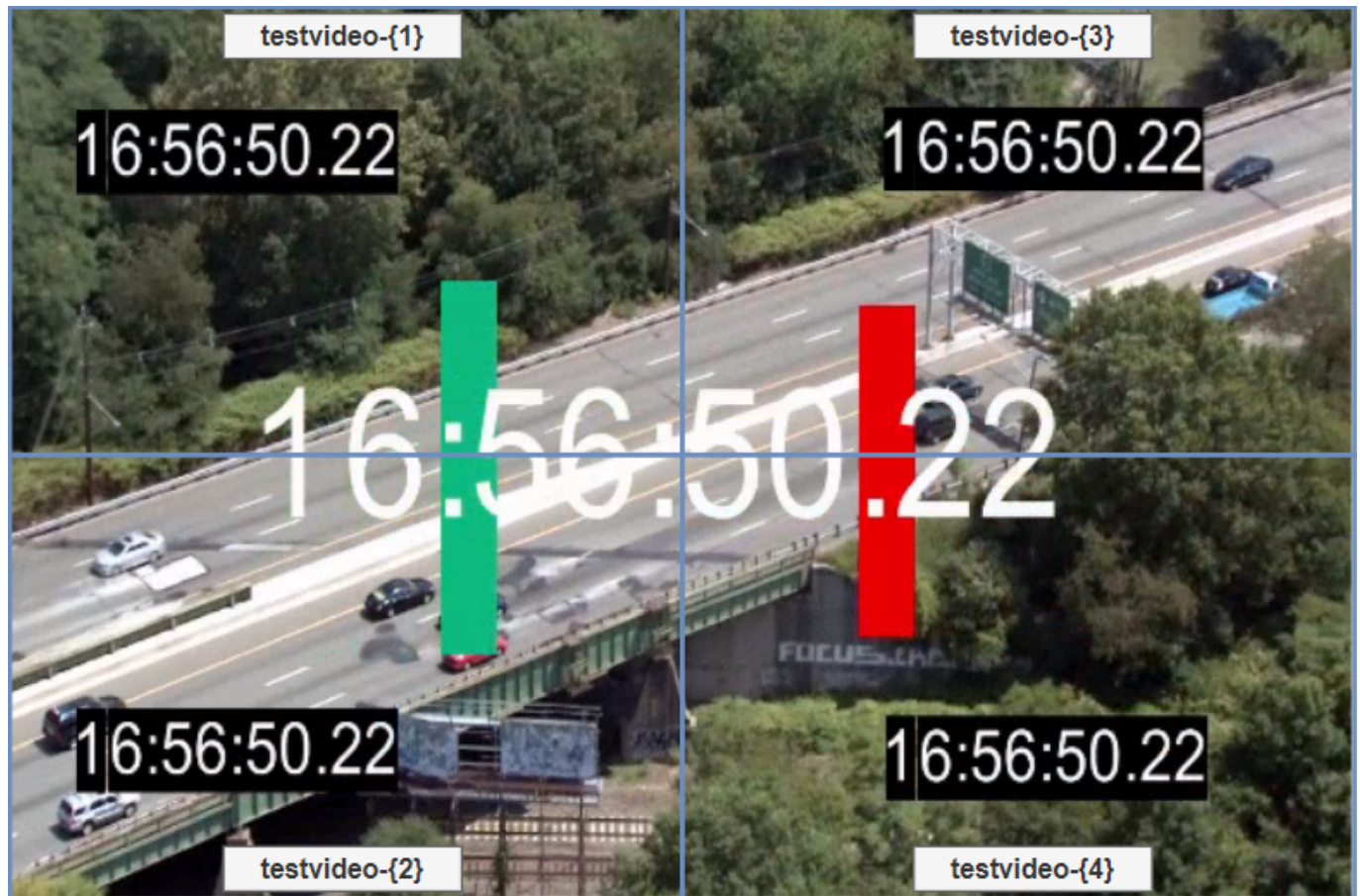
Multi-Camera Clip

In this mode, all files are prepared separately as multicamera clips, and then played simultaneously by the Program module. This mode is convenient because it does not require splicing to a higher resolution format in the pre-mount.

The image shows an example of simultaneous playback of two multi-camera clips and outputting them to two screens in the studio:



Example of simultaneous output of a poly-screen image from four files:



Configuration

The function is enabled in the menu: Administrator Control Panel→Manage→Program Outputs→Playout Parameters→General→Output Mode = Screen.

Status

Manage

Transfer

API Keys

License

Users

Files

Logs

Quit

neovid

Configuration loaded

Reload

Reapply

CPU clusters: Auto

☐ Use NVENC for Preview

Video IO Boards

Program Outputs

Recorders

Storages

Godot Engines

Program output 1

☒ Service Enabled

Name: Program_1 ([Change](#))

1 Storage(s) added.

Automation type: Internal

CPU Cluster: Auto

Playout Parameters

Storages

Automation

Actions

Main/Backup Sync

BXF Connector

General

Closed Captions

Open Captions

DVB Subtitles

Video mode: 1080p50

Color Mode: Unspecified

Audio channels: 2

TimeCode Output: None

Stop frame timeout (sec): Infinite

☒ SCTE-104 PassThrough

Packet filtering...

Show cue frame: Default

Teletext Options...

Opaque layer: ☐ Secondary Events as Graphics

Audio transp change (frm): 0

☒ M
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6
☐ 7
☐ 8
☐ 9

Playback correction (frm): 1

☐ Force NoMedia clips transparent
☐ Layer Playlists Enabled

Aud Mix 2ch:

Insertion postroll (frm): ☐ Graphics over open captions

Aud Mix 4ch:

M: 2: 3: 4: 5: 6: 7: 8: 9:

Aud Mix 6ch:

444444

444444

Aud Mix 8ch:

☐ Keep graphics when paused
☐ Start playback on restart
☐ SCTE104 Generation

SCTE104 Repeat count: 1

External Captions Dir:

SCTE104 Repeat delay (frm): 1

Multicamera: 4

Output mode: Screen

Edit Resolutions...

Screen Configuration...

The Screen Configuration button allows you to open the settings window.

Screen Configuration

Camera 1
Camera 2
Camera 3
Camera 4

GPU: ☒ Audio

Window 1

Monitor: ☐ Title Bar ☐ Top Most

Wnd X: Wnd Y: Wnd W: Wnd H:

Crop X: Crop Y: Crop W: Crop H:

Window 2

Monitor: ☐ Title Bar ☐ Top Most

Wnd X: Wnd Y: Wnd W: Wnd H:

Crop X: Crop Y: Crop W: Crop H:

Window 3

Monitor: ☐ Title Bar ☐ Top Most

Wnd X: Wnd Y: Wnd W: Wnd H:

Crop X: Crop Y: Crop W: Crop H:

Window 4

Monitor: ☐ Title Bar ☐ Top Most

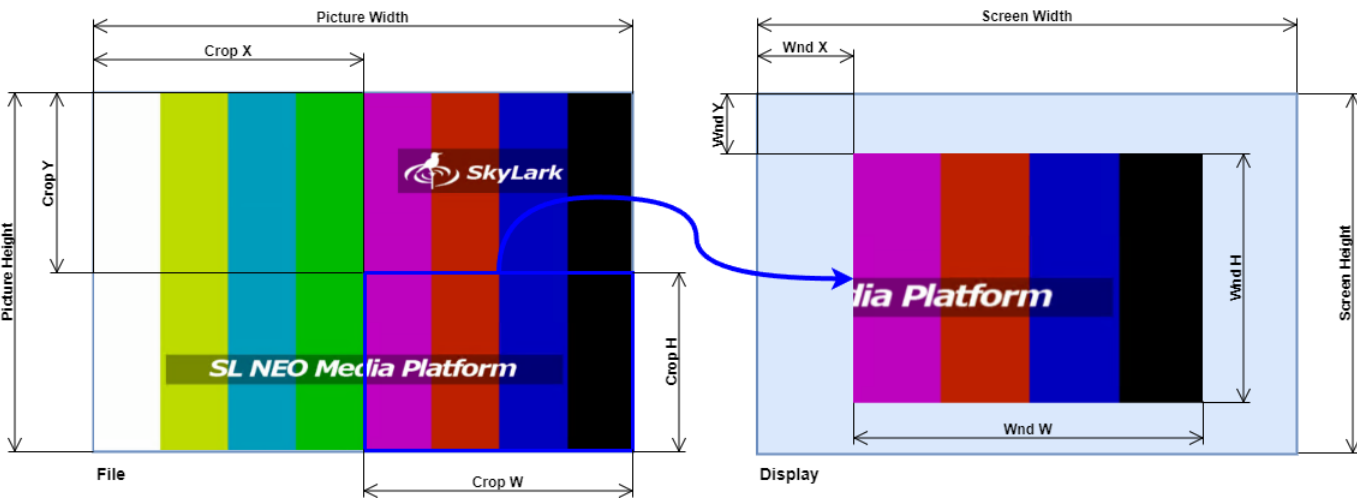
Wnd X: Wnd Y: Wnd W: Wnd H:

Crop X: Crop Y: Crop W: Crop H:

Option	Description
Camera1 - Camera9	Select playback settings for a specific camera. More than one tab appears when using the multi-camera clips playback mode, which is enabled by the option: Administrator Control Panel→Manage→Program Outputs→Playout Parameters→General→Multicamera. The number of tabs depends on the selected number of cameras.
GPU	Select GPU for output image encoding: Default - default value, 1-4 - select video adapter number from the list.
Audio	Option allows audio output.
Window 1 - Window 4	One input file can be used to create up to 4 independent windows with individual contents. For example, you can cut one UHD file into 4 HD files and output them to four different ports on your GPU. Each window formed is counted in the total number of "SD/HD/UHD Channels" licences used.
Monitor	Option specifies the number of the display connected to the server (video adapter port), which will be used for positioning the output window with the image. Default - default display, or a value from 1 to 16.

Option	Description
Title Bar	Show window title. In this case, the frame and title bar can eat up a useful part of the image.
	Program_1 CAM1 — □ ×
Top Most	
Output Window Positioning	
Wnd X	Horizontal offset from the top left corner of the display.
Wnd Y	Vertical offset from the top left corner of the display.
Wnd W	Width of the displayed window.
Wnd H	Height of the displayed window.
Cutout Area Positioning	
Crop X	Horizontal offset from the top left corner of the image.
Crop Y	Vertical offset from the upper left corner of the image.
Crop W	The width of the cutout area.
Crop H	Height of the cutout area.

The image shows an example of counts when positioning windows and cropping the output image.



Content Requirements

To achieve simultaneous multi-channel playback, content preparation requirements are necessary:

- to use HAP, h264 or hevc codecs.
- to use HAP codec for graphics.

All codecs will use the GPU, but HAP allows for minimal CPU and data bus overhead, allowing up to 10

4K cameras to be output.

Notes

- One or more NVidia Quadro with 4x DP/HDMI outputs can be used for image output.
- When playingback [multi-camera clips](#), the first camera clip (suffixed with - {1}) is placed in the playlist.
- Each clip can be in 4K format. In the OutputMode settings, each 4K clip can be cut into arbitrary rectangular areas and output to the corresponding DP/HDMI outputs.

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