

Virtual Production Tool Set  
**Camera and Display Plugin**

User Guide  
Software Version 2.0

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# Overview

## About Camera and Display Plugin

“Camera and Display Plugin” is a plugin for Unreal Engine for in-camera VFX shooting used in virtual production. It comprises “Virtual Camera actors” for the pre-vis process, and an “On-set Camera component” and a “Camera Control Panel” for the on-set (shooting) process. It is compatible with the Sony “VENICE (CineAltaV series) / “BURANO” / “FR7” Cinema Line cameras, “HDC-5500” / “HDC-5500V” / “HDC-3500” / “HDC-3500V” / “HDC-F5500” system cameras, and the “Crystal LED B-series” and “Crystal LED VERONA (VP-series)” large, high-definition LED displays.

## Virtual Camera actor

Sony Virtual Camera actor is a camera actor for Unreal Engine, designed as a digital twin of Sony cameras.

Virtual Camera actor reproduces the characteristics of a Sony camera, including the Look, by performing signal processing equivalent to that of a real Sony camera. In the pre-vis process, it is possible to create images in the same way as when using a Sony camera.

The camera settings also correspond to the same items as a Sony camera. For VENICE series cameras, you can quickly reproduce the image creation of a real VENICE camera in the pre-vis process by transferring Virtual VENICE settings to an actual VENICE camera using the Camera Control Panel in the on-set (shooting) process.

In addition, a moiré alert function can predict the occurrence of moiré, even in the pre-vis process, where there is no real camera or LED display.

## On-set Camera component

The On-set Camera component is an Unreal Engine component that adds the necessary functions for virtual production by associating it with the Unreal Engine standard Cine Camera actor used for nDisplay in-camera VFX. You can also calibrate the color characteristics of a Sony camera and LED display to reproduce colors as intended using the Camera Control Panel (VENICE series only), for configuring camera settings over a network, and the “Color Calibrator” application (option). The On-set Camera component functions facilitate efficient color workflows during the on-set (shooting) process.

It also supports an LED grading function, allowing you to adjust the brightness and color of HDR video output to an LED display. In addition, the moiré alert function can predict the occurrence of moiré in shooting environments where it would be difficult to see.

## Camera Control Panel

The Camera Control Panel is a function for checking and changing settings on a real VENICE camera from Unreal Engine via a network.

The image creation from the pre-vis process can be reproduced in the on-set (shooting) process by transferring Virtual VENICE settings to a real VENICE camera. You can also transfer settings from a real VENICE camera to Virtual VENICE to restart the pre-vis process using the same settings. Sharing settings between the pre-vis process and the on-set (shooting) process helps improve the work efficiency in each process.

Furthermore, using the live camera sync function allows you to synchronize the camera settings and lens settings (PL-mount Cooke/i lens or E-mount lens only) between a real

VENICE camera, the on-set (shooting) process Cine Camera actor, and Virtual VENICE. It supports automatic adjustment of the size of the inner frustum that is output to the LED display, depending on the real VENICE camera imager mode setting, and also allows the camera lens settings to be applied to the on-set (shooting) process Cine Camera actor as an alternative to using a lens encoder.

## Software Licenses

Camera and Display Plugin allows you to use all the functions provided in the pre-vis process free of charge. However, a watermark is embedded in the output video of a Virtual Camera actor.

The watermark in the pre-vis process can be removed and all functions provided in the on-set (shooting) process can be used by purchasing and installing the “Camera and Display Plugin License.”

The functions that are available in the pre-vis process and on-set (shooting) process vary depending on the camera model.

For details, see “Supported Functions of Each Camera Model” (page 41).

To use the plugin, an Internet connection is required when launched for the first time and every 28 days thereafter to access the license server. However, an Internet connection is not required for render nodes running nDisplay only.

For details, see “Operating Environment” (page 8).

## Shared license

A single software license can be installed on only one computer. However, there is a shared license mechanism that allows you to use all of the features of the plugin simultaneously on multiple editor computers and nDisplay render nodes.

For details, see “Shared License” (page 43).

## Purchasing a software license

For details about purchasing a software license, visit the following sites.

Global:

<https://pro.sony/products/digital-cinema-cameras/camera-and-display-plugin>

Japan:

<https://www.sony.jp/professional/solution/virtual-production/camera-and-display-plugin>

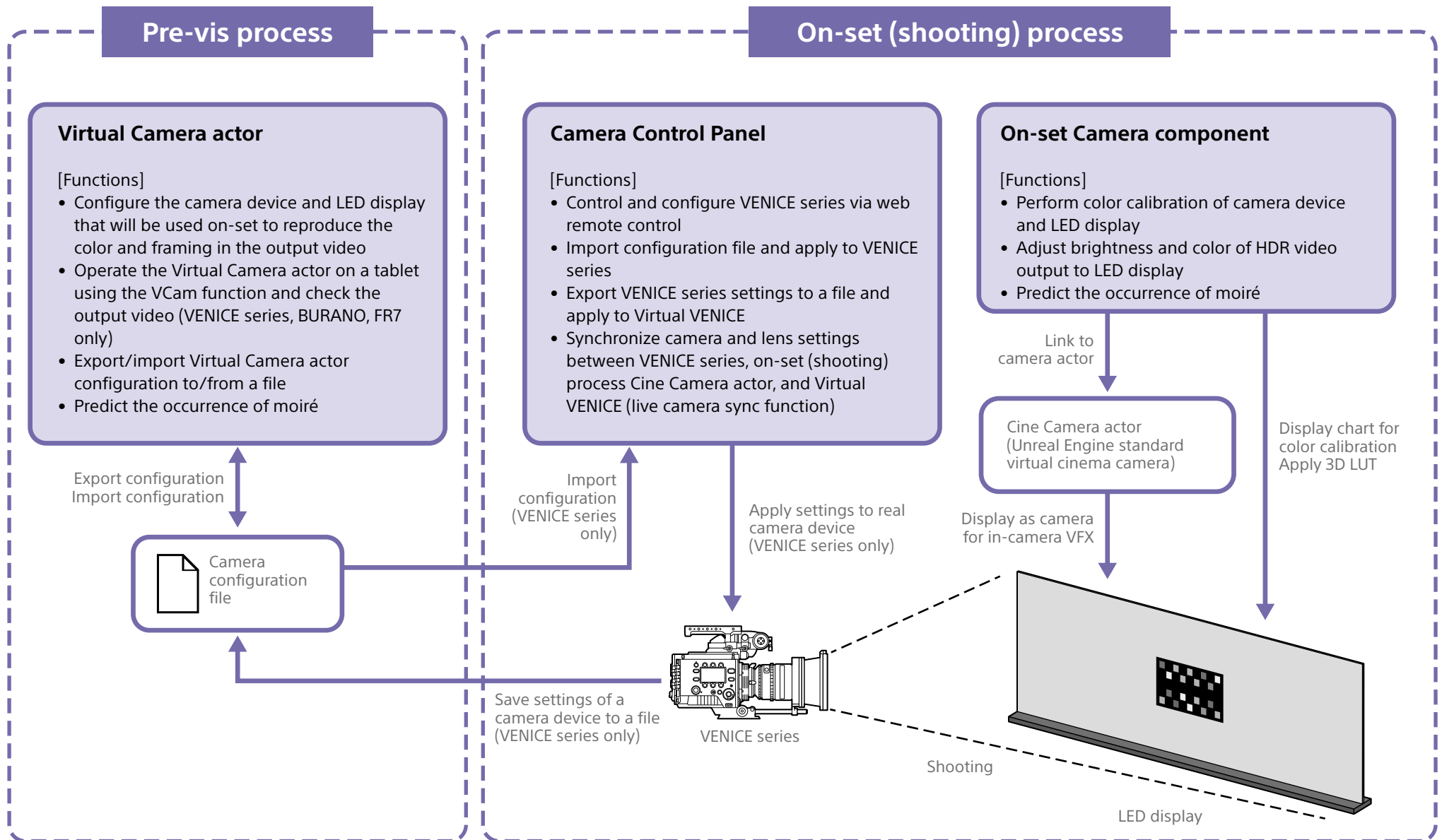
Mainland China:

<https://www.sonystyle.com.cn/professional/products/professional-cameras/digital-cinema-cameras-series/digital-cinema-cameras/CameraandDisplayPlugin.html>

For details about installing a software license, refer to the license installation guide.

The installation guide can be downloaded from the purchase site.

## Camera and Display Plugin Structure



# Usage Precautions

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# About This Manual

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## About the Display Screen

The displayed screen may vary from that shown in this document, depending on the computer and operating environment.

# Setup

This section describes how to install Camera and Display Plugin and enable the plugin in Unreal Engine.

## Operating Environment

### Operating conditions

To use the plugin, an Internet connection is required when launched for the first time and every 28 days thereafter to access the license server. However, an Internet connection is not required for render nodes running nDisplay only.

The proxy server for Internet connection uses the Windows OS proxy settings.

#### [Note]

The plugin is enabled for 28 days after accessing the license server.

Note that when working offline, you will need to connect to the Internet and access the license server every 28 days.

## Recommended operating environment

OS:

Windows 10 version 22H2 (64-bit)

CPU:

Quad core Intel (4th generation Core or later) or AMD (Zen series or later), 2.5 GHz or higher

Memory:

8 GB RAM or higher

Graphics card:

DirectX 11 or DirectX 12 compatible graphics card

### For in-camera VFX shooting

You must prepare an operating environment that is recommended by Epic Games, Inc.

For details, visit the Unreal Engine site by Epic Games, Inc.

## Installing Camera and Display Plugin

This section describes how to install Camera and Display Plugin using the “CameraAndDisplayPlugin\_xxxxx\_yyyyy.msi” installer. “xxxx” in the file name indicates the version of the plugin and “yyyy” indicates the version of Unreal Engine.

- 1 Run “CameraAndDisplayPlugin\_xxxxx\_yyyyy.msi.” The setup wizard launches. The software end user license agreement appears. Check the contents and place a check mark in [I accept the terms in the License Agreement] to proceed.

- 2 Specify the installation destination folder. Specify the folder in which to install the plugin on the installation destination folder selection screen. If Unreal Engine is installed, by default the plugin will be installed directly in Unreal Engine. “Unreal Engine installation folder\Engine\Plugins” is displayed as the installation destination folder.

#### To install in an arbitrary folder

Change the folder on the installation destination folder selection screen. If the plugin is installed in an arbitrary folder, copy the installation folder of the plugin to “Project\_folder\Plugins” to reference the plugin from your project.

#### [Notes]

- Even if Unreal Engine is installed, the Unreal Engine installation folder may not be detected properly. In this case, enter the folder path manually.
- If you install the plugin directly into Unreal Engine and then copy the installation folder of

the plugin to a project folder, the copy of the plugin in the project folder takes precedence.

- 3 Follow the on-screen instructions to complete the installation.

## Uninstalling

Run “CameraAndDisplayPlugin\_xxxxx\_yyyyy.msi.”

The setup wizard launches. Follow the on-screen instructions to uninstall the plugin.

## Enabling Camera and Display Plugin

This section describes how to enable Camera and Display Plugin using the Unreal Engine editor (Unreal Editor) after installing the plugin.

You can enable/disable the plugin for each project.

- 1 Select [Edit] > [Plugins] from the Unreal Editor menu bar. The [Plugins] window appears.
  - 2 Select [INSTALLED]. A list of the installed plugins is displayed.
  - 3 Place a check mark in [Camera and Display Plugin]. A message appears prompting you to restart Unreal Editor.
- To disable the plugin**  
Clear the check mark from [Camera and Display Plugin].
- 4 Restart Unreal Editor when prompted. The plugin is enabled.

### To check the installation/enabled status

When the plugin is installed and enabled correctly, [Sony Virtual VENICE Actor] is displayed on the [Place Actors] panel of Unreal Editor.

#### [Note]

In addition to [Sony Virtual VENICE Actor], Virtual Camera actors of Sony cameras supported by the plugin are also displayed on the [Place Actors] panel. For details, see “Virtual Camera actors” (page 10).



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## Setting the Privacy Policy

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When you open an Unreal Engine project with this plugin enabled, a window appears that prompts you to set the privacy policy.

You can also change the privacy policy setting by selecting [Tools] > [Privacy Policy Agreements] from the Unreal Editor menu bar.

**[Note]**

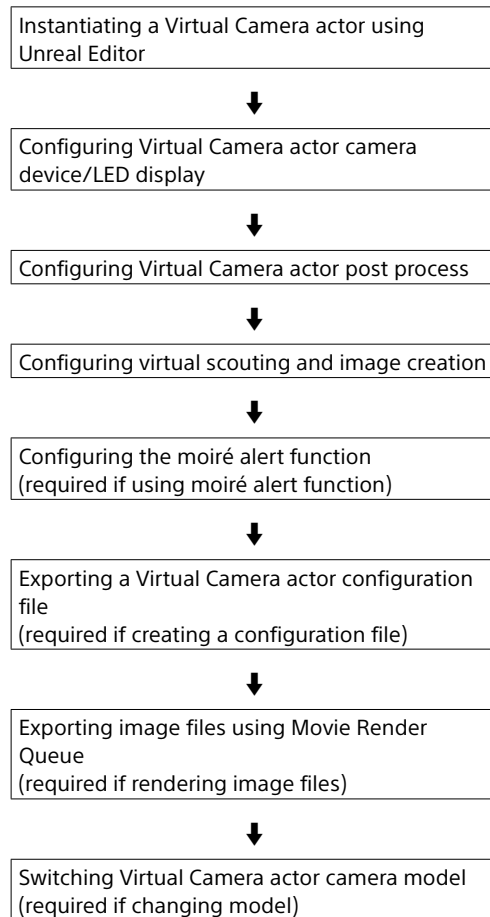
Depending on your country or region, agreement to some privacy policies is mandatory to use this plugin.

# Pre-Vis Process Operations

This section describes how to use the Virtual Camera actor of this plugin in pre-vis process operations.

You must instantiate a Virtual Camera actor using the Unreal Engine editor (Unreal Editor) and configure the instance for scouting and image creation.

The basic operations and workflow in the pre-vis process are shown below.



## [Note]

A watermark is embedded in the output video of a Virtual Camera actor. A software license is required to remove the watermark.

For details, see “Software Licenses” (page 3).

## Instantiating a Virtual Camera actor using Unreal Editor

Place a Virtual Camera actor into a level in the same way as the Unreal Engine standard camera actor using Unreal Editor to make it available for use.

For details about operation, see “Instantiating a Virtual Camera Actor” (page 11).

## Virtual Camera actors

The following Virtual Camera actors are provided for use with Sony cameras supported by the plugin.

- Sony Virtual VENICE Actor
- Sony Virtual BURANO Actor
- Sony Virtual FR7 Actor
- Sony Virtual HDC-5500 Actor
- Sony Virtual HDC-3500 Actor
- Sony Virtual HDC-F5500 Actor

## Configuring Virtual Camera actor camera device/LED display

Select the Virtual Camera actor placed into a level and configure each item on the [Details] panel.

In addition to the same configuration items for a Cine Camera actor, the [Details] panel shows the configuration items for the Virtual Camera actor in a Virtual Camera section specific to the Sony camera.

In [Camera Settings], select the camera type (VENICE series, HDC-5500, HDC-3500 only) and configure the filmback, frame rate, and other camera settings.

For VENICE series, BURANO, and FR7 Virtual Camera actors, enabling the [On-screen

Display] setting allows you to adjust the camera settings and shooting area while displaying the settings and frame lines in the output video in the same way as a real camera device.

Also, set your LED display and the color space of the input signal in [LED Settings].

For details about configuration items, see “Virtual Camera Actor Configuration Items” (page 24) and refer to the manual for the camera device.

## About Virtual Camera section names

The name of the section displaying configuration items for a Sony Virtual Camera actor will vary depending on the selected Virtual Camera actor.

The following section names are displayed according to the Virtual Camera actor.

- Sony Virtual VENICE
- Sony Virtual BURANO
- Sony Virtual FR7
- Sony Virtual HDC-5500
- Sony Virtual HDC-3500
- Sony Virtual HDC-F5500

## Working color space

The plugin supports the following [Working Color Space] settings in an Unreal Engine project.

- sRGB / Rec709
- Rec2020
- ACES AP0
- ACES AP1 / ACEScG
- P3DCI
- P3D65

## Configuring Virtual Camera actor post process

To reproduce the image creation made by the Virtual Camera actor during the pre-vis process in the on-set (shooting) process, the

post process settings must match between the Virtual Camera actor, the on-set (shooting) process Cine Camera actor, and the post process volume.

For details about configuring the Virtual Camera actor post process, see “Configuring Post Process Settings” (page 12).

For details about configuring on-set (shooting) process Cine Camera actor post process and post process volume settings, see “Live Camera Sync Function (VENICE series only)” (page 21).

## Configuring virtual scouting and image creation

After configuring a camera device, configure settings for virtual scouting and image creation.

In 3D assets, place the Virtual Camera actor in an appropriate position and adjust the lens settings.

The following virtual scouting methods are supported.

- Adjust the Virtual Camera actor camera settings/lens settings using the VCam function of Unreal Engine (VENICE series, BURANO, FR7 only).

For details about the VCam function, see “VCam Function (VENICE series, BURANO, FR7 only)” (page 12).

- Adjust the camera settings/lens settings by operating a Virtual Camera actor using Unreal Editor.

You can also link the Virtual Camera actor position and lens settings using a position tracker and lens encoder.

For details about using a tracker, refer to the manual for the tracker.

The Virtual Camera actor also supports the Unreal Engine sequencer function. You can place a Virtual Camera actor in a created level sequence and save some of the settings of the Virtual Camera actor as a key frame,

allowing you to preview the output video from the camera device while managing multiple shots with different settings in the sequencer. For VENICE series, BURANO, and FR7 Virtual Camera actors, you can also create a level sequence using the VCam function.

For details about configuration items, see “Virtual Camera Actor Configuration Items” (page 24) and refer to the manual for the camera device.

For details about the sequencer function, visit the Unreal Engine site by Epic Games, Inc.

#### [Note]

The property names added to a level sequence may differ from the item names in the [Details] panel for the Virtual Camera actor.

For example, the value of the “EI for VENICE 2 8K - ISO 800” property displayed in the sequencer may not be applied if [Camera Type] is set to [VENICE 2 6K] or if [Base ISO] is set to [3200].

You can add properties that correspond to the settings of the current Virtual Camera actor to a level sequence by adding properties from the [Details] panel.

## Configuring the moiré alert function

In virtual production using an LED display, moiré (a phenomenon such as striped patterns and color shifts on the screen) may occur when the camera lens focus is close to the display surface.

You can enable the moiré alert function that can predict the occurrence of moiré during the pre-vis process.

For details about configuring, see “Moiré Alert Function” (page 37).

#### [Note]

If the current camera position/orientation and lens settings information cannot be acquired correctly, the moiré alert function will not produce correct results. For details, see “Configuring a Camera and Lens” (page 37).

## Exporting a Virtual Camera actor configuration file

You can export the settings configured for a Virtual Camera actor to a file.

You can restore settings by importing a created configuration file into a Virtual Camera actor.

If you are using the VENICE series, you can reproduce the same image creation as when virtual scouting during the pre-vis process in the on-set (shooting) process by applying the configuration file to a real camera device. You can also import a camera device configuration file created using the Camera Control Panel during the on-set (shooting) process into a Virtual Camera actor.

For details about operation, see “Exporting a Configuration File” (page 13) and “Importing a Configuration File” (page 14).

## Exporting image files using Movie Render Queue

You can export a preview video of a level sequence created with the sequencer function as a sequence of still image files (\*.jpg, \*.png, \*.bmp, etc.) using the Movie Render Queue function of Unreal Engine.

When rendering images using the Movie Render Queue function, configure the OCIO settings for the Virtual Camera actor so that the images are output with the appropriate color.

For details about configuring OCIO, see “Configuring OCIO Settings for Movie Render Queue” (page 14).

For details about the Movie Render Queue function, visit the Unreal Engine site by Epic Games, Inc.

## Switching Virtual Camera actor camera model

You can change the camera model after adjusting the Virtual Camera actor position/orientation, camera settings, and lens settings using a level sequence or other method.

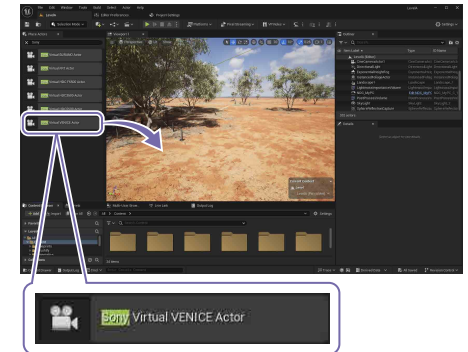
For details about operation, see “Switching the Camera Model” (page 15).

## Instantiating a Virtual Camera Actor

Placing a Virtual Camera actor into a level in Unreal Editor creates an instance.

- 1 Select a Virtual Camera actor in the [Place Actors] panel of Unreal Editor. Enter “Sony Virtual” in the search box on the [Place Actors] panel and select the Virtual Camera actor corresponding to your camera device. For details about the names of actors, see “Virtual Camera actors” (page 10).

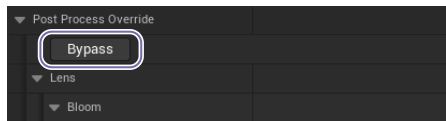
- 2 Drag & drop the selected Virtual Camera actor into the viewport.



## Configuring Post Process Settings

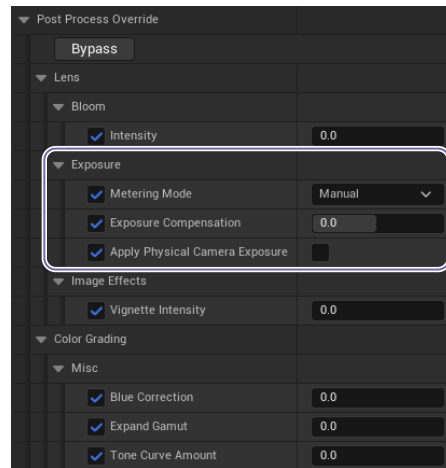
Apply the standard post process settings for in-camera VFX to the Virtual Camera actor. You can configure all post process items at the same time.

- 1 Click the [Bypass] button in [Post Process Override] in the Virtual Camera section in the [Details] panel for the Virtual Camera actor.



- 2 Click the [OK] button in the confirmation message. The items, excluding [Exposure], are configured with the recommended values for in-camera VFX.

- 3 Configure the exposure in [Exposure]. The [Exposure] settings are optional. Configure as follows, as required.
  - Place a check mark in [Metering Mode] and select [Manual].
  - Place a check mark in [Exposure Compensation] and configure the exposure compensation.
  - Place a check mark in [Apply Physical Camera Exposure] and clear the check mark from the checkbox on the right side.



## VCam Function (VENICE series, BURANO, FR7 only)

When the VCam function of a Virtual Camera actor is enabled, you can operate/configure the Virtual Camera actor and check the output video from a tablet, such as an iPad. Launching the “Unreal VCam (Live Link VCam)” application on the tablet and establishing a network connection with Unreal Editor enables operation using the VCam function. For details about Unreal VCam (Live Link VCam), refer to the download site of the application.

### [Notes]

- This plugin provides unique support for Sony camera settings and configuration file operations as part of the VCam functionality. The other functions follow the VCam actor functions provided by Unreal Engine. For details, visit the Unreal Engine site by Epic Games, Inc.
- When the VCam function is enabled, a camera actor with a “\_Record” suffix is created separately for the target Virtual Camera actor. This camera actor is used to save camera settings in a level sequence.

- 1 Select [Edit] > [Plugins] from the Unreal Editor menu bar. The [Plugins] window appears.
- 2 Enable the required plugins. Select the following plugins and restart Unreal Editor when prompted.
  - VirtualCamera
  - VirtualCameraCore
  - Live Link
  - Take Recorder
  - Movie Render Queue
- 3 Click the [Add VCam] button in [VCam] in the Virtual Camera section in the [Details] panel for the Virtual Camera actor. The VCam component is added to the Virtual Camera actor.

- 4 Enable the VCam function in the Virtual Camera actor. Check that a check mark is placed in [Enable VCam] in [VCam].
- 5 Select the viewport to display the VCam function output. Select the viewport in [Target Viewport] in [VCam].
- 6 Check the IP address of the computer that is running Unreal Editor. Select [Pixel Streaming] in Unreal Editor and check the IP address displayed in [SIGNALLING SERVER URLS].
- 7 Download the “Unreal VCam (Live Link VCam)” application from the App Store to the tablet.
- 8 Connect the tablet to the same local area network as the computer that is running Unreal Editor.
- 9 Launch Unreal VCam (Live Link VCam) on the tablet and connect to the IP address that you checked in step 6. The output video of the Virtual Camera actor is displayed on the tablet. The output (Virtual Camera actor output video and Unreal VCam (Live Link VCam) control interface) of the VCam function is also displayed in the Unreal Editor viewport configured in step 5. Check that the output video of the Virtual Camera actor changes in response to the tablet operations.

## Unreal VCam (Live Link VCAM) control interface



### 1. Camera setup menu

Displays the setup menu of the camera device. Use to configure the lens, EI, ISO, ND filter, white balance, and other settings.

### Configuration file operations

You can save/import a configuration file using the [CFG] button.

To save camera settings, select the save destination slot and tap/click the [SVE] button.

To import saved camera settings, select a slot and tap/click the [OPN] button.

The configuration file created using the [SVE] button is saved for each camera model and slot in "Project\_folder\Plugins\SonyCameraAndDisplayResources\VCamConfig" on your computer.

You can also import a configuration file created using the VCam function into a Virtual Camera actor in Unreal Editor or into a real camera device (VENICE series only).

### 2. Bookmark function

Saves/recalls Virtual Camera actor camera position/orientation and camera settings.

### 3. Take Recorder function

Use for sequencer operations.

### 4. VCam menu

Displays the setup menu of the application.

## Exporting to a level sequence (Take Recorder function)

You can record Virtual Camera actor operations and settings to a level sequence using the Take Recorder function of Unreal Engine, and export a preview video of the level sequence as image files using the Movie Render Queue function.

For details about configuring Movie Render Queue, see "Configuring OCIO Settings for Movie Render Queue" (page 14).

For details about the Take Recorder function and Movie Render Queue function, visit the Unreal Engine site by Epic Games, Inc.

1 Tap/click the ● (Record) button displayed at the bottom right of Unreal VCam (Live Link VCAM).

The [Take Recorder] panel and [Sequencer] panel are displayed in Unreal Editor.

2 Tap/click ● (Record) again to start recording to a level sequence. The Virtual Camera actor operations and configuration are recorded to a level sequence.

3 Change the camera settings and lens settings, as required.

4 Tap/click ● (Record) again to stop recording to a level sequence.

5 Tap/click the level sequence button in the VCam menu on the right side. A list of level sequences is displayed.

6 Select the level sequence. A preview of the output video of the Virtual Camera actor recorded in the level sequence is played back.

7 Disable the VCam function in the Virtual Camera actor of Unreal Editor. Clear the check mark from [Enable VCam] in [VCam] in the Virtual Camera section in the [Details] panel.

### [Note]

When the VCam function is enabled, the preview video is not exported correctly to image files.

8 Launch Movie Render Queue in the [Sequencer] panel of Unreal Editor and export the level sequence preview video as image files.

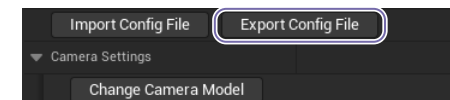
## Exporting a Configuration File

You can export the settings configured for a Virtual Camera actor to a file.

If you are using the VENICE series, you can import a configuration file into a real camera device using the Camera Control Panel. You can reproduce the same image creation as the pre-vis process during the on-set (shooting) process by applying the pre-vis process settings to the camera device.

For details about importing a configuration file in the on-set (shooting) process, see "Importing a Configuration File (applying settings to a camera device) (VENICE series only)" (page 20).

1 Click the [Export Config File] button in the Virtual Camera section in the [Details] panel for the Virtual Camera actor.



A settings information confirmation dialog appears.

2 Check the settings information and click the [OK] button.

3 Specify a folder and file name, then save the file. A configuration file (\*.vcfg) is created.

### [Note]

You cannot save to the Content folder or subfolders within the Content folder in your Unreal Engine project folder. Specify a different folder.

## When using User 3D LUT (VENICE series only)

When [Shooting] > [Look] is set to [User 3D LUT], you can use the same User 3D LUT settings for both the pre-vis process and the on-set (shooting) process by transferring both

the configuration file and the User 3D LUT CUBE file (\*.cube) to the on-set (shooting) process.

Only VENICE 2 supports the transfer of CUBE files via a network. For VENICE, transfer CUBE files using an SD card.

**[Note]**

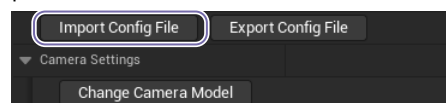
If transferring CUBE files over a network with VENICE 2, the CUBE files must be saved in the "Project\_folder\Plugins\SonyCameraAndDisplayResources\User3DLUT" folder for User 3D LUTs or in the same folder as the configuration file.

## Importing a Configuration File

You can restore settings by importing a configuration file created using the [Export Config File] button of a Virtual Camera actor. When using the VENICE series, you can also import a camera device configuration file created using the Camera Control Panel into a Virtual Camera actor. This allows you to resume a pre-vis process workflow with the same settings as the on-set (shooting) process by applying the real camera device settings to the Virtual Camera actor.

For details about exporting a configuration file in the on-set (shooting) process, see "Exporting a Configuration File (saving camera device settings) (VENICE series only)" (page 21).

- 1 Click the [Import Config File] button in the Virtual Camera section in the [Details] panel for the Virtual Camera actor.



- 2 Select the configuration file (\*.vcfg) to import. The settings are applied to the Virtual Camera actor.

## Configuring OCIO Settings for Movie Render Queue

You can export a preview video of a level sequence as image files using the Movie Render Queue function.

To export image files, configure the OCIO settings for the Virtual Camera actor in the [Movie Render Queue] window in Unreal Editor.

For details, visit the Unreal Engine site by Epic Games, Inc.

- 1 Display the rendering settings window for the target level sequence.
- 2 Click [+ Setting] and select [Color Output]. [Color Output] settings are added to the rendering settings window. Configure OCIO in [Color Output] > [OCIO Configuration].
- 3 Place a check mark in [Enable OCIO]. [OCIO Configuration] is enabled.
- 4 Select [Sony\_OCIO\_v2] in [Configuration Source]. Click the input field of [Configuration Source] and select [Sony\_OCIO\_v2] from the list.
 

**If [Sony\_OCIO\_v2] is not displayed**  
Click the ⚙️ (Settings) icon and enable [Show Plugin Content] and [Show Engine Content]. [Sony\_OCIO\_v2] appears in the list and can be selected.
- 5 Select [Source for Bypass] in [Transform Source].

- 6 Select [Destination for Bypass] in [Transform Destination].
- 7 Configure other rendering settings, as required. When finished, click the [Accept] button to apply the settings.
- 8 Execute rendering.

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## Switching the Camera Model

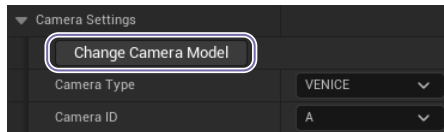
---

You can change the model of a Virtual Camera actor camera device between “VENICE series, BURANO, FR7” and between “HDC-5500, HDC-3500, HDC-F5500.”

### [Notes]

- Switching the camera model in a Virtual Camera actor also changes the sequencer camera model setting. The Virtual Camera actor camera settings are inherited to the extent possible. Settings that cannot be inherited are reset to their default values and the corresponding level sequence track is also deleted.
- Changing the camera model will delete components added to the Virtual Camera actor.

- 1 Click the [Change Camera Model] button in [Camera Settings] in the Virtual Camera section in the [Details] panel for the Virtual Camera actor.



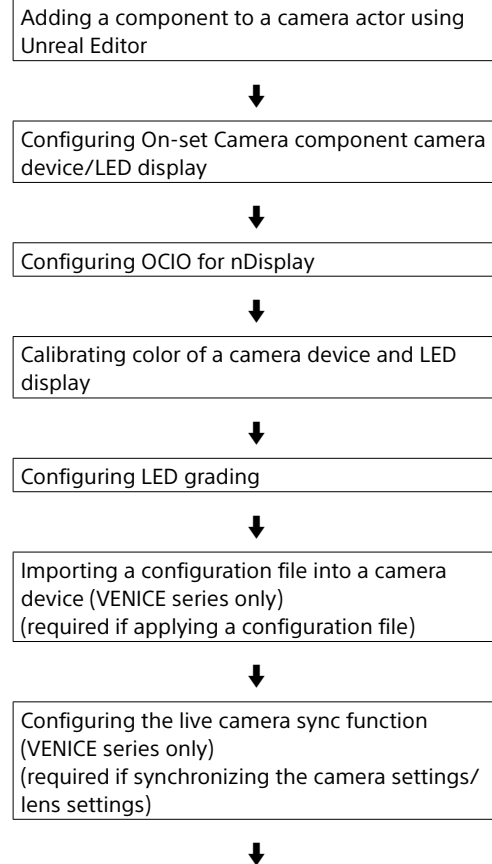
The [Change Camera Model] dialog appears.

- 2 Select the model of camera device in [Camera Model].
- 3 Specify the actor name in [Actor Name]. The default actor name is entered in [Actor Name]. Change the actor name, as required.
- 4 Click the [OK] button.
- 5 Click the [OK] button in the confirmation message.

# On-Set (Shooting) Process Operations

The on-set (shooting) process workflow uses the On-set Camera component provided by the plugin and the Camera Control Panel. In the Unreal Engine editor (Unreal Editor), add the On-set Camera component to the Cine Camera actor used for nDisplay in-camera VFX and configure the camera device and LED display.

If you are using the VENICE series, you can also launch the Camera Control Panel and perform camera device operations via a network. The basic operations and workflow in the on-set (shooting) process are shown below.



Configuring the moiré alert function  
(required if using moiré alert function)



Conducting on-set shooting

## [Note]

A software license is required to use the plugin functions in the on-set (shooting) process. For details, see “Software Licenses” (page 3).

## Adding a component to a camera actor using Unreal Editor

You can add the On-set Camera component to the Unreal Engine standard Cine Camera actor and camera actors that have a Cine Camera component that are used for nDisplay in-camera VFX.

For details about operation, see “Adding the On-set Camera Component” (page 17).

## [Notes]

- Some camera actors may not support the On-set Camera component even though they have a Cine Camera component.
- A Virtual Camera actor can only be used in the pre-vis process. A Virtual Camera actor cannot be used by adding the On-set Camera component to the actor.

## Configuring On-set Camera component camera device/LED display

Select the On-set Camera component in the [Details] panel of the camera actor, and set each item in [Camera Settings] in the [Sony On Set Camera] section.

Select your camera model in [Camera Model], select the camera type (VENICE series, HDC-5500, HDC-3500 only) in [Camera Type], and configure the filmback and other camera settings.

Also, set your LED display and the color space of the input signal in [LED Settings].

For details about configuration items, see “On-set Camera component configuration items”

(page 31) and refer to the manual for the camera device.

## Working color space

The plugin supports the following [Working Color Space] settings in an Unreal Engine project.

- sRGB / Rec709
- Rec2020
- ACES AP0
- ACES AP1 / ACEScsg
- P3DCI
- P3D65

## Configuring OCIO for nDisplay

Depending on the color space of the input signal of the LED display, configure the OCIO settings of the nDisplay outer frustum and inner frustum associated with the camera actor with the attached On-set Camera component.

For details about configuring, see “Configuring OCIO for nDisplay” (page 18).

## Calibrating color of a camera device and LED display

Select the On-set Camera component in the [Details] panel of the camera actor, and configure the color calibration items in [Calibration] in the [Sony On Set Camera] section.

You can calibrate the color characteristics of the camera device and LED display using a color chart or 3D LUT.

For details about configuration items, see “On-set Camera component configuration items” (page 31).

For details about configuring, see “Calibrating Color” (page 18) and refer to the manual for Color Calibrator.

## Configuring LED grading

You can adjust the brightness and color of HDR video output to an LED display.

For example, if you convert the brightness represented as 100% SDR in Unreal Engine to HDR for output to an LED display, the brightness will be about 100 nits with the default OCIO settings, which may not be bright enough to display an HDR image on the LED display.

The LED grading function increases the brightness gain of the HDR video for display on an LED display to improve visibility of the video. In addition, the brightness is gradually rolled off to prevent high-luminance areas from being clipped at the maximum display brightness of the LED display, making it possible to display high-quality HDR video that maintains the gradation of high-luminance areas.

You can preview the final video captured by the camera device during the pre-vis process by applying the same settings as [LED Grading] of the On-set Camera component to [LED Grading] of the Virtual Camera actor. For details about configuring, see “Configuring LED Grading” (page 19).

## [Note]

The LED grading is an experimental feature. The specifications may change in future versions based on user feedback.

## Importing a configuration file into a camera device (VENICE series only)

You can import a configuration file created by a Virtual Camera actor into a real camera device using the Camera Control Panel. This allows you to reproduce the same image creation in the on-set (shooting) process as the virtual scouting performed in the pre-vis process by applying Virtual Camera actor settings to a camera device.



You can also prepare multiple configuration files for switching the camera device settings according to the environment or other conditions.

You can also export the settings of a camera device used during the on-set (shooting) process to a file.

For details about operation, see “Importing a Configuration File (applying settings to a camera device) (VENICE series only)” (page 20) and “Exporting a Configuration File (saving camera device settings) (VENICE series only)” (page 21).

### Configuring the live camera sync function (VENICE series only)

If you use a configuration file to configure matching camera device and camera actor settings, you will need to export and import a configuration file every time the camera settings change. Changes to the camera device settings may go unnoticed on the Unreal Editor side, resulting in inconsistencies in camera settings.

You can keep the camera settings synchronized between the camera device, on-set (shooting) process Cine Camera actor, and pre-vis process Virtual Camera actor by using the live camera sync function of the Camera Control Panel. The live camera sync function can also be used as an alternative to a lens encoder by reflecting the lens settings of a camera device (focal length, aperture, focus distance) to the lens settings of the on-set (shooting) process Cine Camera actor. For details about configuring, see “Live Camera Sync Function (VENICE series only)” (page 21).

#### [Notes]

- In order to reflect the lens settings of a camera device in the lens settings of a camera actor, the camera device must be equipped with a lens that supports the display of lens settings information (focal length, aperture, focus distance).

Also, the synchronization of lens settings is supported only when using PL-mount Cooke/i lenses or E-mount lenses.

- You can operate multiple camera devices simultaneously by launching multiple instances of the Camera Control Panel. However, the same camera device or camera actor cannot be configured as the sync target from multiple Camera Control Panel instances.
- The live camera sync function does not guarantee realtime synchronization of camera settings and lens settings. This function is intended for automatically synchronizing lens and camera settings for each shooting environment, not for changing lens settings while recording video.

### Configuring the moiré alert function

You can enable the moiré alert function that can predict the occurrence of moiré that may be difficult to see in the on-set shooting environment.

For details about configuring, see “Moiré Alert Function” (page 37).

#### [Note]

If the current camera position/orientation and lens settings information cannot be acquired correctly, the moiré alert function will not produce correct results. For details, see “Configuring a Camera and Lens” (page 37).

### Conducting on-set shooting

Launch nDisplay and conduct on-set shooting. Operations using the plugin are supported, even after launching nDisplay, using the multi-user editing function of Unreal Engine.

If you are using the VENICE series, you can configure and operate a real camera device using the web remote control in the Camera Control Panel.

For details about launching the Camera Control Panel, see “Launching the Camera Control Panel (VENICE series only)” (page 19).

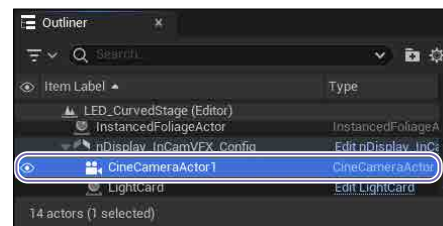
## Adding the On-set Camera Component

You can add the On-set Camera component to the Unreal Engine standard Cine Camera actor and camera actors that have a Cine Camera component that are used for nDisplay in-camera VFX.

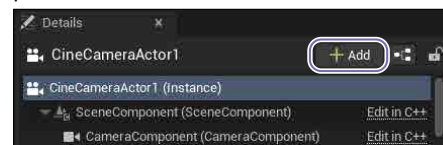
#### [Notes]

- Some camera actors may not support the On-set Camera component even though they have a Cine Camera component.
- A Virtual Camera actor can only be used in the pre-vis process. A Virtual Camera actor cannot be used by adding the On-set Camera component to the actor.

- 1 Select the target camera actor to configure in the [Outliner] panel of Unreal Editor.

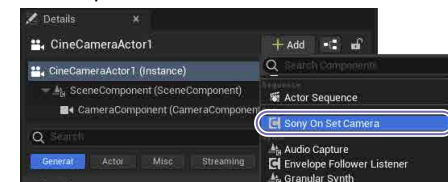


- 2 Click the [+ Add] button in the [Details] panel of the camera actor.



A list of components that can be selected is displayed.

- 3 Select [Sony On Set Camera] from the list of components.



The On-set Camera component is added to the camera actor.

## Calibrating Color

You can calibrate the color of the camera device and LED display using the Color Calibrator application (option). For details, refer to the manual for Color Calibrator.

- 1 Select the On-set Camera component in the [Details] panel of the camera actor.
- 2 Place a check mark in [Display Chart] in [Calibration] in the [Sony On Set Camera] section.  
[Display Chart] is enabled and a color calibration chart is displayed in the nDisplay inner frustum.
- 3 Set [Chart Type] and [Chart Scale] in [Calibration] by referring to the Color Calibrator manual.  
**[Note]**  
When setting [Calibration], disable [Calibration LUT].
- 4 Shoot the chart using the camera device to generate a 3D LUT CUBE file (\*.cube) using Color Calibrator.
- 5 Click the [Add] button for [LUT Filename] in [Calibration LUT] and select the CUBE file generated in step 4.  
The selected CUBE file is added to the [LUT Filename] drop-down list.
- 6 Select the CUBE file added in step 5 from the [LUT Filename] drop-down list in [Calibration LUT].
- 7 Place a check mark in [Enable] in [Calibration LUT].  
[Calibration LUT] is enabled and the

settings for the selected CUBE file are applied.

- 8 Copy the CUBE file to the render node folder.  
The CUBE file added in step 5 is saved in the "Project\_folder\Plugins\SonyCameraAndDisplayResources\Calibration\_LUT" folder.  
Copy the CUBE file to the same folder of the render node.

### **[Note]**

If the CUBE file is not copied correctly to the render node, the inner frustum image that is output by the render node will be displayed in grayscale when [Calibration LUT] is enabled.

### If LED display controller settings are changed after a CUBE file is generated

When [LED Type] is set to [Crystal LED B-series], you can adjust the [Contrast], [Brightness], [Light Output], and [Color Temperature] items of [Crystal LED B-series Settings] in [Calibration LUT].

You can apply color calibration without regenerating a CUBE file by setting [Crystal LED B-series Settings] to the same values as the changed settings.

When [LED Type] is set to other than [Crystal LED B-series] and [Input Color Space] is SDR ([SDR (sRGB/G2.4)] or [SDR (sRGB/G2.2)]), color shifts may occur if you change the peak luminance of the LED display controller to a value different from when color calibration was performed, depending on the type of LED display controller. It is recommended that you perform color calibration again with the new peak luminance setting.

When [LED Type] is set to other than [Crystal LED B-series] and [Input Color Space] is HDR ([HDR (Rec.2020/PQ)] or [HDR (ACEScg/PQ)]), it will be necessary to regenerate a CUBE file each time you change the LED display controller settings.

## Configuring OCIO for nDisplay

Configure the OCIO settings of the nDisplay outer frustum and inner frustum associated with the camera actor with the attached On-set Camera component.  
When OCIO settings are executed, appropriate values are applied automatically according to the color space of the LED display input signal.

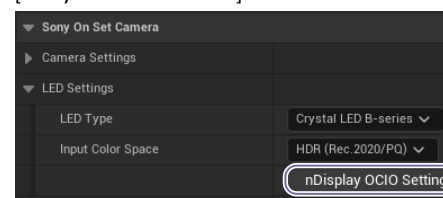
### Preparation

First, the files required for the nDisplay render node must be transferred.

For each project, copy the contents of the following folders from the computer running Unreal Editor to the nDisplay render node.

- Project\_folder\Plugins\SonyCameraAndDisplayResources
- Project\_folder\Content\SonyCameraAndDisplay

- 1 Select the On-set Camera component in the [Details] panel of the camera actor.
- 2 Click the [nDisplay OCIO Setting] button in [LED Settings] > [Input Color Space] in the [Sony On Set Camera] section.



The [nDisplay OCIO Setting] dialog appears.

When OCIO settings are executed, each item is set to the following values.

- Status: "Enabled"  
nDisplay Root actor > [Enable Viewport OCIO] and ICVFXCamera > [Enable Inner Frustum OCIO] are set to [Enabled].

- OCIO Asset: "Sony\_OCIO\_v2"
- Source:  
Sets the same value as the [Working Color Space] setting in the Unreal Engine project.  
The On-set Camera component supports the following [Working Color Space] settings.
  - sRGB / Rec709
  - Rec2020
  - ACES AP0
  - ACES AP1 / ACEScg
  - P3DCI
  - P3D65
- Destination:  
Sets the color space of the LED display input signal ([Input Color Space] setting).
- Setting execution target:  
A check mark is automatically inserted for any nDisplay instances whose current settings differ from the values above to select them as a target for execution.

### **[Note]**

If you clear the check mark for a setting execution target nDisplay, the color of the output video may vary from the expected color.

- 3 Click the [Overwrite] button.
- 4 Click the [OK] button in the confirmation message.  
The OCIO settings are executed.

## Configuring LED Grading

You can adjust the brightness and color of the HDR video output to an LED display when [Input Color Space] is set to HDR ([HDR (Rec.2020/PQ)] or [HDR (ACEScg/PQ)]) in [LED Settings] in the On-set Camera component. After adjustment of the inner frustum video, apply the adjustment results to the outer frustum.

## Configuring the inner frustum LED grading

You can adjust the brightness and color while viewing the inner frustum video displayed on an LED display.

- 1 Select the On-set Camera component in the [Details] panel of the camera actor.
- 2 Place a check mark in [Enable LED Grading] in [LED Grading] in the [Sony On Set Camera] section.
- 3 Set the brightness gain in [Linear Gain]. When set to the default value of 4.0, the brightness represented by SDR 100% in Unreal Engine is displayed at a brightness of approximately 400 nits on an LED display.
- 4 Set the brightness roll-off in [Roll-off Luminance (Nit)]. Adjust the gradation of high-luminance areas based on the maximum brightness that the LED display can display. When set to the default value of 1500, the high-luminance area is adjusted to fit within 1500 nits.

- 5 Adjust the color in [ASC CDL]. Set each [ASC CDL] item, as required, to adjust the saturation in high-luminance areas and the gradations of dark areas.

## Configuring the outer frustum LED grading

You can apply the inner frustum adjustment results to the outer frustum.

### [Notes]

- If the inner frustum LED grading settings are changed, reconfigure the outer frustum LED grading settings.
- If OCIO LUT is updated using the [Update LUT] button, the outer frustum [Destination] setting displayed in the [nDisplay OCIO Settings] dialog changes. For example, when [HDR (Rec.2020/PQ)] is selected in [LED Settings] > [Input Color Space], the [Destination] setting changes from [Rec.2020/PQ] to [Rec.2020/PQ w LED grade].

- 1 Exit the multi-user edit function session and the nDisplay running on the render node.
- 2 Select the On-set Camera component in the [Details] panel of the camera actor.
- 3 Click the [Update LUT] button in [LED Grading] in the [Sony On Set Camera] section. The inner frustum adjustment results are applied to the nDisplay outer frustum OCIO LUT.
- 4 Transfer the adjustment results to the nDisplay render node. Copy the contents of the "Project\_folder\Content\SonyCameraAndDisplay" and "Project\_folder\Plugins\SonyCameraAndDisplayResources" folders to the nDisplay render node.

- 5 Launch the multi-user edit function session and nDisplay.
- 6 Place a check mark in [Apply LED Grade LUT in Outer Frustum OCIO] in [LED Grading] in the [Sony On Set Camera] section. The LED grading settings are applied to the outer frustum using the OCIO LUT.

## To save LED grading settings as a 3D LUT CUBE file

Click the [Export LED Grade] button.

## Launching the Camera Control Panel (VENICE series only)

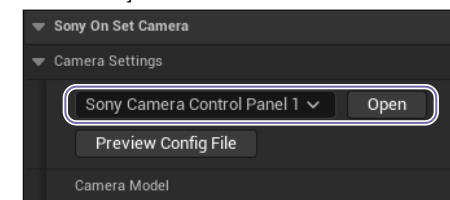
Open the Camera Control Panel from Unreal Editor and log in to the camera device. After logging in, the camera device is connected and the web remote control and settings information of the camera device are displayed.

You can run up to four Camera Control Panel instances to connect to different camera devices.

### [Note]

The Camera Control Panel is intended to be connected to a camera device on a local network. The proxy settings in Windows OS cannot be used.

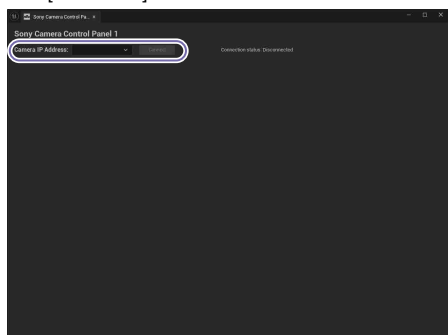
- 1 Open the Camera Control Panel. Open the Camera Control Panel using one of the following methods. When you open the Camera Control Panel, the [Sony Camera Control Panel] window appears.
  - Select the On-set Camera component in the [Details] panel of the camera actor, select [Sony Camera Control Panel 1] to [Sony Camera Control Panel 4] in [Camera Settings] in the [Sony On Set Camera] section.



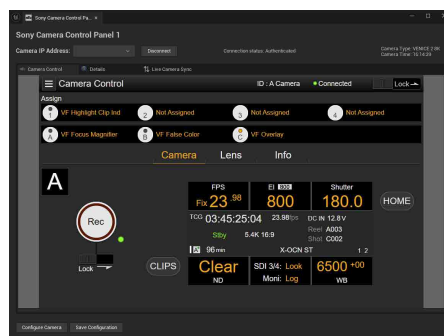
- Select [Window] > [Sony Camera Control Panel] > [Sony Camera Control Panel 1] to [Sony Camera Control Panel 4] from the Unreal Editor menu bar.



- 2 Enter the IP address of your camera device in [Camera IP Address] and click the [Connect] button.



- 3 Enter the user name and password of the camera device and click the [Login] button.  
Enter the user name configured for the camera device in [Username] and the password in [Password].  
After logging in, the web remote control of the camera device is displayed on the [Camera Control] tab.  
You can check the settings information of the camera device on the [Details] tab.  
You can configure the live camera sync function on the [Live Camera Sync] tab.



For details, see “[Sony Camera Control Panel] Window” (page 34).  
For details about operation using the web remote control, refer to the manual for the camera device.

To disconnect a camera device  
Click the [Disconnect] button.

## Importing a Configuration File (applying settings to a camera device) (VENICE series only)

You can import a configuration file created by a Virtual Camera actor into a real camera device.

This allows you to reproduce the same image creation in the on-set (shooting) process as in the pre-vis process by applying Virtual Camera actor settings to a real camera device.

For details about exporting a configuration file in the pre-vis process, see “Exporting a Configuration File” (page 13).

You can also re-import a configuration file created using the [Save Configuration] button in the Camera Control Panel.

- 1 Launch the Camera Control Panel.  
For details about operation, see “Launching the Camera Control Panel (VENICE series only)” (page 19).
- 2 Click the [Configure Camera] button in the [Sony Camera Control Panel] window.
- 3 Select the configuration file (\*.vcfg) to import.  
The [Configure Camera] dialog appears in which you can check the settings information.  
For details, see “[Configure Camera] dialog” (page 35).
- 4 Click the [OK] button in the [Configure Camera] dialog.
- 5 Click the [Yes] button in the confirmation message.  
The settings are applied to the camera device.

### [Notes]

- Some items, such as lens settings and LED display settings, cannot be set automatically. Items that cannot be set are displayed in a list after the configuration file is imported. Configure each device manually, as required.  
Only VENICE 2 supports ASC CDL configuration via a network. For VENICE, create an ASC CDL file (\*.cdl) using the [Generate CDL file] button and configure for the camera device using an SD card.  
For details, see “[Configure Camera] dialog” (page 35).
- To use a User 3D LUT, only VENICE 2 supports the transfer of CUBE files via a network. For VENICE, transfer CUBE files using an SD card. CUBE files for transfer must be saved in the “Project\_folder\Plugins\SonyCameraAndDisplayResources\User3DLUT” folder for User 3D LUTs or in the same folder as the configuration file.  
You can open the folder for User 3D LUTs using the [Open User 3D LUT folder] button in the [Configure Camera] dialog.
- When a configuration file is imported, the configuration file settings are applied to “Input Color Space” and “Look” on the camera device, but “LUT Select” is not configured automatically. You can reproduce the color specified in the configuration file by changing “LUT Select” to “Look” for the outputs of the camera device (SDI 1/2, for example).  
Settings such as “Input Color Space,” “Look,” and “ASC CDL Process” applied to a camera device may differ from the values displayed in the [Configure Camera] dialog, but the signal processing that is applied will be equivalent.

## Displaying a list of the configuration file settings information

You can display the settings of items saved in the configuration file.  
When settings cannot be applied to a camera or other device via a network, you can configure the device manually while browsing the display.

- 1 Select the On-set Camera component in the [Details] panel of the camera actor.

- 2 Click the [Camera Settings] > [Preview Config File] button in the [Sony On Set Camera] section.
- 3 Select the configuration file (\*.vcfg) to display. The [Preview Configuration File] dialog appears. You can check the value of each item saved in the configuration file. To close the [Preview Configuration File] dialog, click the [OK] button.

## Exporting a Configuration File (saving camera device settings) (VENICE series only)

You can export the settings of a camera device used during the on-set (shooting) process to a file.

You can import a created configuration file into a Virtual Camera actor. This allows you to resume a pre-vis process workflow with the same settings as the on-set (shooting) process by applying the on-set (shooting) process settings to the Virtual Camera actor.

For details about importing a configuration file in the pre-vis process, see “Importing a Configuration File” (page 14).

- 1 Launch the Camera Control Panel. For details about operation, see “Launching the Camera Control Panel (VENICE series only)” (page 19).
- 2 Click the [Save Configuration] button in the [Sony Camera Control Panel] window. A settings information confirmation dialog appears.
- 3 Check the settings information and click the [OK] button.
- 4 Specify a folder and file name, then save the file. A configuration file (\*.vcfg) is created.

### [Note]

You cannot save to the Content folder or subfolders within the Content folder in your Unreal Engine project folder. Specify a different folder.

## Live Camera Sync Function (VENICE series only)

You can synchronize the lens settings and camera settings between a camera device and a camera actor using the live camera sync function.

### [Notes]

- You can operate multiple camera devices simultaneously by launching multiple instances of the Camera Control Panel. However, the same camera device or camera actor cannot be configured as the sync target from multiple Camera Control Panel instances.
- The synchronization of lens settings is supported only when using PL-mount Cooke/i lenses or E-mount lenses.

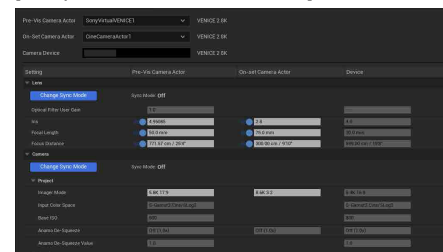
## Configuring the sync target camera actor

You can set the pre-vis camera actor and on-set (shooting) process camera actor that will be synchronized using the live camera sync function.

### [Note]

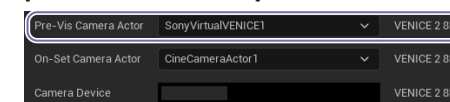
Depending on the application, you can specify only one camera actor to be synchronized (either the pre-vis process or on-set (shooting) process).

- 1 Launch the Camera Control Panel. For details about operation, see “Launching the Camera Control Panel (VENICE series only)” (page 19).
- 2 Open the [Live Camera Sync] tab in the [Sony Camera Control Panel] window.



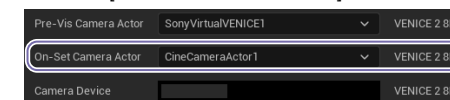
The IP address of the currently logged-in camera device is displayed in [Camera Device]. For details, see “[Live Camera Sync] tab” (page 36).

- 3 Set the pre-vis process camera actor in [Pre-Vis Camera Actor].



Select the sync target Virtual Camera actor.

- 4 Set the on-set (shooting) process camera actor in [On-set Camera Actor].



Select the sync target Cine Camera actor to which the On-set Camera component has been added.

### If a warning mark is displayed for the camera type

A warning mark will be displayed if the camera type of [Pre-Vis Camera Actor], [On-set Camera Actor], and [Camera Device] do not match. Change the camera type in the [Details] panel for the camera actor so that they are all set to the same type.

## Configuring the live camera sync function

Configure the live camera sync function synchronization for the intended purpose.

### [Notes]

- To use the multi-user edit function, you must join a multi-user session before configuring live camera function synchronization settings.

- If the camera device or camera actor settings are changed manually after configuring the sync mode using the [Change Sync Mode] button, the changed items will no longer be targeted for synchronization. If you configure the sync mode again using the [Change Sync Mode] button, all items will again be targeted for synchronization.
- The live camera sync function synchronization settings are maintained even if you close the Camera Control Panel. To disable the synchronization settings, set the sync mode to [Off] using the [Change Sync Mode] button or disconnect the camera device from the network.

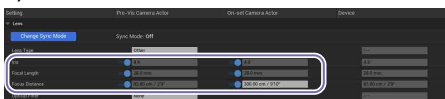
### To synchronize the lens settings

You can reflect the lens settings of a camera device to the lens settings of a camera actor as an alternative to using a lens encoder.

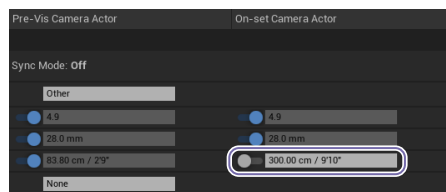
#### [Note]

To synchronize the lens settings using the live camera sync function, disable the reception of settings information from a lens encoder.

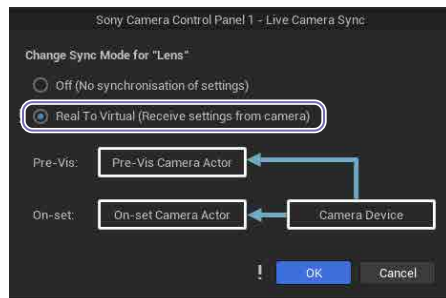
- 1 Check the sync target camera actor. Check that the sync destination camera actors are specified in [Pre-Vis Camera Actor] and [On-set Camera Actor].
- 2 Enable/disable synchronization for each [Lens] category item. Enable/disable synchronization separately using the switch displayed on the left side of the [Iris], [Focal Length], and [Focus Distance] settings. Slide the switch to the right so that the color changes to blue to enable synchronization.



For example, to set the focus setting of the on-set (shooting) process camera actor to a fixed value, slide the [Focus Distance] switch in the [On-set Camera Actor] column to the left to disable synchronization.



- 3 Click the [Change Sync Mode] button in the [Lens] category.
- 4 Select the [Real To Virtual] radio button and click the [OK] button.



Synchronization starts.

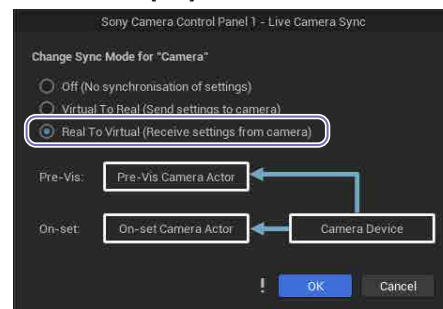
If you change the lens settings on the camera device, check that the same setting is reflected on the camera actor lens.

### To adjust the inner frustum size automatically

You can reflect the imager mode and other camera device settings on the on-set (shooting) process camera actor and adjust the size of the inner frustum displayed on the LED display automatically.

- 1 Check the sync target on-set (shooting) process camera actor. Check that the sync destination camera actor is specified in [On-set Camera Actor].

- 2 Click the [Change Sync Mode] button in the [Camera] category.
- 3 Select the [Real To Virtual] radio button and click the [OK] button.



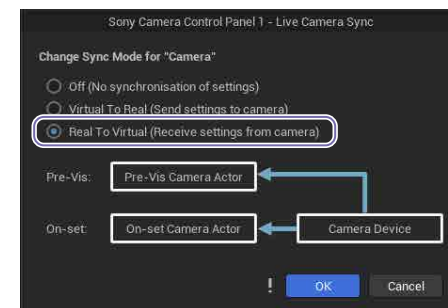
Synchronization starts.

If you change the imager mode or other settings on the camera device, check that the same settings are reflected on the on-set (shooting) process camera actor and that the size of the inner frustum changes.

### To reproduce the camera device image creation in the pre-vis process

You can reflect the camera settings of a camera device on the pre-vis process camera actor to reproduce the image creation of the camera device in the pre-vis process.

- 1 Check the sync target pre-vis process camera actor. Check that the sync destination camera actor is specified in [Pre-Vis Camera Actor].
- 2 Click the [Change Sync Mode] button in the [Camera] category.
- 3 Select the [Virtual To Real] radio button and click the [OK] button.



Synchronization starts.

If you change the camera settings (such as ND, white balance, Look) on the camera device, check that the same settings are reflected on the pre-vis process camera actor and that the output video brightness and color change.

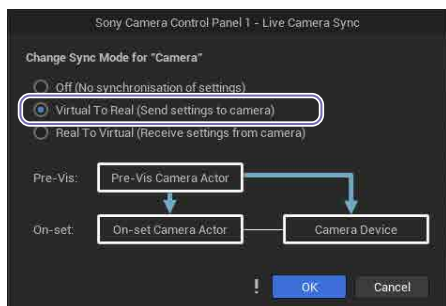
#### [Note]

If a User 3D LUT is selected on the camera device, you can apply the User 3D LUT by making the same User 3D LUT CUBE file (\*.cube) available to the pre-vis process camera actor.

### To reproduce the pre-vis process image creation on a camera device

You can reflect the camera settings of a pre-vis process camera actor on a camera device to reproduce the image creation in the pre-vis process on the camera device.

- 1 Check the sync target pre-vis process camera actor. Check that the sync source camera actor is specified in [Pre-Vis Camera Actor].
- 2 Click the [Change Sync Mode] button in the [Camera] category.
- 3 Select the [Virtual To Real] radio button and click the [OK] button.



Synchronization starts.

If you change the camera settings (such as ND, white balance, Look) on the pre-vis process camera actor, check that the same settings are reflected on the camera device and that the output video brightness and color change.

#### [Notes]

- The project frame rate setting of a camera device is not synchronized. You can click the [Set] button to reflect the [Project Frame Rate] setting of a pre-vis process camera actor on the camera device.
- Only VENICE 2 supports User 3D LUT and ASC CDL configuration via a network. For details about configuring VENICE, see "Importing a Configuration File (applying settings to a camera device) (VENICE series only)" (page 20).
- The camera actor settings are applied to "Input Color Space" and "Look" on the camera device, but "LUT Select" is not configured automatically. You can reproduce the color specified in the camera actor by changing "LUT Select" to "Look" for the outputs of the camera device (SDI 1/2, for example). Settings such as "Input Color Space," "Look," and "ASC CDL Process" applied to a camera device may differ from the values displayed in [Device] on the [Live Camera Sync] tab, but the signal processing that is applied will be equivalent.

#### To synchronize post process settings

To reproduce the same image creation between a pre-vis process camera actor and a camera device, the post process settings must match between the pre-vis process camera

actor, the on-set (shooting) process camera actor, and the post process volume. You can synchronize the post process settings using the live camera sync function.

- 1 Configure the post process on the pre-vis process camera actor. Configure [Post Process Override] settings on the pre-vis process camera actor specified in [Pre-Vis Camera Actor]. For details, see "Configuring Post Process Settings" (page 12).
- 2 If using a post process volume, select the target volume. Place a check mark in [Overwrite Post Process Volume] in the [Post Process] category and select the target post process volume from the drop-down list on the right side.

#### [Note]

If the color of the outer frustum displayed on an LED display is not required to match the inner frustum, the check mark in [Overwrite Post Process Volume] is not required. However, the color of the inner frustum is dependent on the post process settings of the post process volume, so the image creation and color of the pre-vis process camera actor may not match.

- 3 Click the [Copy Post Process of Pre-Vis Camera to On-set Camera] button. The post process settings of the pre-vis process camera actor are copied to the on-set (shooting) process camera actor. Check that the post process settings are reflected on the on-set (shooting) process camera actor. If there is a check mark in [Overwrite Post Process Volume], check that the post process settings are also reflected on the post process volume.

# Virtual Camera Actor Settings

In addition to the same configuration items for a Cine Camera actor, the [Details] panel of a Sony Virtual Camera actor displays a Virtual Camera section specific to the Sony camera.

The Virtual Camera section displays the following section names according to the selected Virtual Camera actor.

- Sony Virtual VENICE
- Sony Virtual BURANO
- Sony Virtual FR7
- Sony Virtual HDC-5500
- Sony Virtual HDC-3500
- Sony Virtual HDC-F5500

Configure the items for a Sony Virtual Camera actor in the Virtual Camera section.

## Virtual Camera Actor Configuration Items

You can import/export configuration files and configure camera devices, the moiré alert function, LED displays, LED grading, and post process in the Virtual Camera section of the [Details] panel.

### [Note]

If a software license has not been installed, an [Install License] button is displayed in the Virtual Camera section.

### [Import Config File] button

Imports a camera device configuration file into a Virtual Camera actor.

You can import an on-set (shooting) process configuration file (VENICE series only) created using the Camera Control Panel or a configuration file created using the [Export Config File] button of a Virtual Camera actor.

For details about operation, see “Importing a Configuration File” (page 14).

### [Export Config File] button

Exports a Virtual Camera actor configuration file.

If you are using the VENICE series, you can import a created configuration file into a real camera device using the Camera Control Panel.

For details about operation, see “Exporting a Configuration File” (page 13).

### [Camera Settings]

Configures a camera device.

For details, see “[Camera Settings] configuration items” (page 24).

### [Moiré Alert]

Configures the moiré alert function.

For details, see “[Moiré Alert] Configuration Items” (page 38).

### [LED Settings]

Configures an LED display.

For details, see “[LED Settings] configuration items” (page 29).

### [LED Grading]

Configures LED grading function settings.

For details, see “[LED Grading] configuration items” (page 30).

### [Post Process Override]

Configures post process settings.

For details, see “[Post Process Override] configuration items” (page 30).

## [Camera Settings] configuration items

Use to configure camera settings and lens settings according to your camera model.

For configuration items that are common to your camera device, you can set the same values as on the camera device.

For details about settings, refer to the manual for the camera device.

### [Camera Settings] configuration items for VENICE series, BURANO, FR7

Item	Description
[Change Camera Model] button	Changes the model of the camera device. You can switch between the following models. <ul style="list-style-type: none"> <li>• VENICE series</li> <li>• BURANO</li> <li>• FR7</li> </ul> For details, see “Switching the Camera Model” (page 15).
Camera Type	Displayed when the camera model is a VENICE series. Sets the camera type. The following types of VENICE series devices are supported. <ul style="list-style-type: none"> <li>• VENICE (CineAltaV)</li> <li>• VENICE 2 6K (CineAltaV 2 6K)</li> <li>• VENICE 2 8K (CineAltaV 2 8K)</li> </ul>
Camera ID	Sets the ID of the camera device. The camera ID is displayed as status information, depending on the [On-screen Display] setting.
<b>VCam</b> Configures settings related to the VCam function.	
Item	Description
[Add VCam] button	Adds a VCam component to a Virtual Camera actor.
[Delete VCam] button	Deletes a VCam component from a Virtual Camera actor.
Enable VCam	Enables/disables the VCam function.



VCam	
Configures settings related to the VCam function.	
Item	Description
Restore Transform when disabled	Sets whether to restore camera position/orientation settings. When a check mark is placed here, the camera position/orientation settings in force before enabling the VCam function are stored and then will be restored when the VCam function is disabled.
Target Viewport	Selects the Unreal Editor viewport to display the VCam function output.
Lens	
Configures settings related to lenses.	
Item	Description
Lens Type	<p>Displayed when the camera model is a VENICE series or BURANO.</p> <p>Sets the lens model.</p> <p>The ranges for the [Iris (Current Aperture)], [Current Focal Length (mm)], and [Current Focus Distance] settings will vary depending on the lens model. The distortion and vignetting effects also change.</p> <p><b>Supported lens models</b></p> <ul style="list-style-type: none"> <li>• Angenieux Super35 25-250mm</li> <li>• Canon CN-E20-50mm</li> <li>• Canon CN-E45-135mm</li> <li>• Canon CN8×15 IAS S</li> <li>• Canon CN8×15 IAS S (1.5× Extender)</li> <li>• FUJINON Premista19-45mm T2.9</li> <li>• FUJINON Premista28-100mm T2.9</li> <li>• FUJINON Premista80-250mm T2.9-3.5</li> <li>• FUJINON XK20-120mm T3.5</li> <li>• FUJINON ZK14-35mm T2.9</li> <li>• FUJINON ZK19-90mm T2.9</li> <li>• FUJINON ZK25-300mm T3.5-3.85</li> <li>• FUJINON ZK85-300mm T2.9-4.0</li> <li>• Zeiss Compact Prime CP.3 series</li> <li>• Zeiss Supreme Prime series</li> </ul>
Iris (Current Aperture)	Sets the aperture of the lens. Can also be configured automatically using the [Auto-Adjust] button.
[Auto-Adjust] button	Automatically sets the appropriate aperture according to the shutter, FPS, and ISO settings.
Current Focal Length (mm)	Sets the focal length of the lens.
Current Focus Distance	Sets the focus distance of the lens.

Lens	
Configures settings related to lenses.	
Item	Description
Lens Simulation	<p>Displayed when the camera model is a VENICE series or BURANO.</p> <p>When [Lens Type] is not set to [Other], this sets whether to apply lens distortion and vignetting.</p>
Enable Distortion	Enables/disables distortion.
Enable Vignetting	Enables/disables vignetting.
	<p><b>[Note]</b></p> <p>To apply the vignetting effect correctly, place a check mark in [Vignette Intensity] under [Post Process] &gt; [Lens] &gt; [Image Effects] and set it to "0.0" in the [Details] panel of the Virtual Camera actor.</p>
Optical Filter (Density Only)	<p>Sets the light attenuation (percentage of light transmission) according to the filter type.</p> <p>Selecting [User] allows you to set an arbitrary value.</p> <p><b>[Note]</b></p> <p>The [Optical Filter (Density Only)] setting does not simulate the effect of light diffusion or the change in brightness due to the diffusion effect.</p>
Optical Filter (User)	<p>Displayed when [Optical Filter (Density Only)] is set to [User].</p> <p>Sets the light attenuation (percentage of light transmission).</p> <p>Set value: Value in the range 0.00 to 1.00</p>
Project	
Configures basic settings for a project.	
Corresponds to the Project menu of the camera device.	
For details about items and settings in the Project menu, refer to the manual for the camera device.	
Item	Description
VENICE series: Imager Mode	The configuration item varies depending on the camera model.
BURANO: Imager Scan Mode	Sets the filmback of the Cine Camera component.
FR7: Output Resolution	<p><b>[Note]</b></p> <p>For the VENICE series, depending on the [Imager Mode] setting, a warning message may appear indicating that a software license must be installed on the camera device, but Virtual Camera actor functions are always available for use.</p>
VENICE series: Project Frame Rate	The configuration item varies depending on the camera model.
BURANO, FR7: Frequency	Sets the frame rate.
	<p><b>[Note]</b></p> <p>The VENICE series frame rate of 47.95p is not supported.</p>

**Project**  
Configures basic settings for a project.  
Corresponds to the Project menu of the camera device.  
For details about items and settings in the Project menu, refer to the manual for the camera device.

Item	Description
<b>VENICE series:</b> Input Color Space <b>BURANO, FR7:</b> Color Gamut	The configuration item varies depending on the camera model. Sets the color space of the input signal.
Base ISO	Sets the base sensitivity.
Noise Simulation	Sets whether to simulate the generated noise due to the [Base ISO] and [Shooting] > [Exposure Index] settings for display in the output video.
Anamo. Desqueeze	Displayed when the camera model is a VENICE series or BURANO. Sets whether to perform de-squeeze processing of the output signal when using an anamorphic lens. It sets the de-squeeze ratio of the de-squeeze processing. Selecting [User] allows you to set an arbitrary value that is different from your camera device.
User	Displayed when [Anamo. Desqueeze] is set to [User]. Sets the de-squeeze ratio. Set value: Value in the range 1.0 to 2.0  <b>[Note]</b> When [User] is selected, the de-squeeze ratio setting is not applied to the camera device.

**Shooting**  
Configures settings related to shooting.  
Corresponds to the Shooting menu of the camera device.  
For details about items and settings in the Shooting menu, refer to the manual for the camera device.

Item	Description
FPS	Displays the same value as [Project] > [Project Frame Rate]/ [Frequency].
Shutter	Sets the electronic shutter.
Mode	Sets the operating mode of the electronic shutter. Set value: Angle / Speed
Angle	Displayed when [Mode] is set to [Angle]. Sets the opening angle of the electronic shutter. If the camera model is a VENICE series, selecting [User] allows you to set an arbitrary value.

**Shooting**  
Configures settings related to shooting.  
Corresponds to the Shooting menu of the camera device.  
For details about items and settings in the Shooting menu, refer to the manual for the camera device.

Item	Description
User	Displayed when [Angle] on a VENICE series is set to [User]. Sets the opening angle of the electronic shutter (equivalent to the setting when the electronic shutter operation is set to "Continuous" on your camera device).
Speed	Displayed when [Mode] is set to [Speed]. Sets the speed of the electronic shutter. If the camera model is a VENICE series, selecting [User] allows you to set an arbitrary value.
User (inverse)	Displayed when [Speed] on a VENICE series is set to [User]. Sets the speed of the electronic shutter (equivalent to the setting when the electronic shutter operation is set to "Continuous" on your camera device).
ND Mode	Displayed when the camera model is BURANO or FR7. Sets the mode of the ND filter. On BURANO, select from [Step], [Variable (Optical Density)], and [Variable (Transmittance)]. On FR7, select from [Step] and [Variable].
<b>VENICE series:</b> ND <b>BURANO, FR7:</b> ND Value	The configuration item varies depending on the camera model. Sets the ND filter position.  <b>[Note]</b> On BURANO and FR7, the settings vary depending on the mode selected using [ND Mode].
Exposure Index	Sets the EI value.
White Balance	Sets the white balance.
Color Temp.	Sets the color temperature. Set value: 3200K / 4300K / 5500K / 6500K / User Selecting [User] allows you to set an arbitrary value.
User	Displayed when [Color Temp.] is set to [User]. Sets the color temperature. Set value: Integer in the range 2000 to 15000
Tint	Sets the tint value. Set value: Integer in the range -99 to 99

Shooting	
Configures settings related to shooting. Corresponds to the Shooting menu of the camera device. For details about items and settings in the Shooting menu, refer to the manual for the camera device.	
Item	Description
VENICE series: Look	The configuration item varies depending on the camera model.
BURANO, FR7: Base Look	Sets the Look. When [User 3D LUT] (VENICE series)/[User] (BURANO, FR7) is selected, you can load any CUBE file (*.cube) to use settings other than the preset Look settings for your camera device.
VENICE series: User 3D LUT	The configuration item varies depending on the camera model.
BURANO, FR7: User Base Look	Sets the CUBE file when [Look]/[Base Look] is set to [User 3D LUT]/[User]. Select the CUBE file to load from the drop-down list. For details about CUBE files that can be loaded, refer to the manual for the camera device.
[Add] button	Adds a CUBE file to the [User 3D LUT]/[User Base Look] drop-down list.  <b>[Note]</b> Up to 32 CUBE files can be displayed in the drop-down list.
[Delete] button	Deletes the CUBE file selected in [User 3D LUT]/[User Base Look].
ASC CDL	Displayed when the camera model is a VENICE series. Sets the ASC CDL.
Process	Sets whether to apply ASC CDL to the output video. When applying ASC CDL, set the ASC CDL processing sequence. <ul style="list-style-type: none"> <li>• CDL Off: Do not apply ASC CDL to the output video.</li> <li>• Look -&gt; CDL: Apply CDL after applying Look.</li> <li>• CDL -&gt; Look: Apply CDL before applying Look.</li> </ul>
[Import CDL File] button	Loads an ASC CDL file (*.cdl) and applies the [Slope], [Offset], [Power], and [Saturation] parameters.
[Export CDL File] button	Writes the [Slope], [Offset], [Power], and [Saturation] parameters to an ASC CDL file (*.cdl).  <b>[Note]</b> The [Export CDL File] button function is used to export the ASC CDL parameter values configured by a Virtual Camera actor to third-party applications. To apply the ASC CDL settings to your camera device, use a configuration file created using the [Export Config File] button. ASC CDL parameter values are included in configuration files.

Shooting	
Configures settings related to shooting. Corresponds to the Shooting menu of the camera device. For details about items and settings in the Shooting menu, refer to the manual for the camera device.	
Item	Description
Slope	Sets the slope (R, G, B). Set value: Value in the range 0.000 to 3.999
Offset	Sets the offset (R, G, B). Set value: Value in the range -1.000 to 1.000
Power	Sets the power (R, G, B). Set value: Value in the range 0.400 to 4.000
Saturation	Sets the saturation. Set value: Value in the range 0.000 to 3.999
On-screen Display	
Configures settings related to the on-screen display (OSD) embedded in the output video of the Virtual Camera actor. The OSD setting is also applied to the camera actor output video of the VCam function.	
Item	Description
Status Info	Sets the status information of the camera device.
Show Status Info	Shows/hides the status information.
Focus Distance Format	Sets the focus display method (units). Set value: Meter / Feet
Frame Lines	Sets the frame lines. For details, refer to the manual for the camera device.
Show Frame Lines	Shows/hides the frame lines.
Color	Sets the color of frame lines. Also applied to the color of the camera ID displayed as status information. Set value: White / Yellow / Cyan / Green / Magenta / Red / Blue
Center Marker	Shows/hides the center marker.
Picture Area	Shows/hides the picture area marker (effective picture area).
Safety Zone	Shows/hides the safety zone. When shown, set the safety zone range (ratio). Set value: 80% / 90% / 92.5% / 95%
Aspect Ratio	Shows/hides the aspect marker. When shown, set the aspect ratio of the aspect marker. Set value: 17:9 / 16:9 / 15:9 / 14:9 / 13:9 / 9:16 / 4:3 / 1:1 / 1.43:1 / 1.66:1 / 1.85:1 / 2:1 / 2.2:1 / 2.35:1 / 2.39:1
Aspect Ratio Type	Sets the type of aspect marker. Set value: Line / Mask / Line&Mask

**On-screen Display**

Configures settings related to the on-screen display (OSD) embedded in the output video of the Virtual Camera actor.

The OSD setting is also applied to the camera actor output video of the VCam function.

Item	Description
Mask Level	Sets the brightness of the video outside the aspect marker when [Aspect Ratio Type] is set to [Mask] or [Line&Mask]. Set value: Integer in the range 0 to 15
Aspect Safety Zone	Sets the safety zone range (ratio) of the aspect marker. Set value: 80% / 90% / 92.5% / 95%
User Frame Line (Variable)	Sets the user frame lines (arbitrary rectangular frame).
Show User Frame Line	Shows/hides the user frame lines.
Width	Sets the user frame line width (distance from the center to the left and right edges). Set value: Integer in the range 3 to 480
Height	Sets the user frame line height (distance from the center to the top and bottom edges). Set value: Integer in the range 3 to 270
H Position	Sets the horizontal position of the center of the user frame lines. Set value: Integer in the range -477 to 477
V Position	Sets the vertical position of the center of the user frame lines. Set value: Integer in the range -267 to 267

**[Camera Settings] configuration items for HDC-5500, HDC-3500, HDC-F5500**

Item	Description
[Change Camera Model] button	Changes the model of the camera device. You can switch between the following models. <ul style="list-style-type: none"> <li>• HDC-5500</li> <li>• HDC-3500</li> <li>• HDC-F5500</li> </ul> For details, see "Switching the Camera Model" (page 15).
Camera Type	Displayed when the camera model is HDC-5500 or HDC-3500. Sets the camera type. The following types of HDC-5500 are supported. <ul style="list-style-type: none"> <li>• HDC-5500</li> <li>• HDC-5500V</li> </ul> The following types of HDC-3500 are supported. <ul style="list-style-type: none"> <li>• HDC-3500</li> <li>• HDC-3500V</li> </ul>

Item	Description
Lens	Sets the lens.
Lens Type	Displayed when the camera model is HDC-F5500. Sets the lens model. The ranges for the [Iris (Current Aperture)], [Current Focal Length (mm)], and [Current Focus Distance] settings will vary depending on the lens model. The distortion and vignetting effects also change. For details about supported lens models, see "Lens Type" (page 25).
Iris (Current Aperture)	Sets the aperture of the lens. Can also be configured automatically using the [Auto-Adjust] button.
[Auto-Adjust] button	Automatically sets the appropriate aperture according to the shutter and frame rate settings.
Current Focal Length (mm)	Sets the focal length of the lens.
Current Focus Distance	Sets the focus distance of the lens.
Lens Simulation	Displayed when the camera model is HDC-F5500. When [Lens Type] is not set to [Other], this sets whether to apply lens distortion and vignetting.
Enable Distortion	Enables/disables distortion.
Enable Vignetting	Enables/disables vignetting.
	<b>[Note]</b> To apply the vignetting effect correctly, place a check mark in [Vignette Intensity] under [Post Process] > [Lens] > [Image Effects] and set it to "0.0" in the [Details] panel of the Virtual Camera actor.
System Format	Sets the system format.
Resolution	Sets the filmback of the Cine Camera component.
Frequency	Sets the frame rate.
Color	Sets the color space. Only [BT.709] is configurable.
5600K	Enables/disables electrical color temperature correction (5600K).
HDC-5500V, HDC-3500V: ND (Inverse)	The configuration item varies depending on the camera model and type.
HDC-5500, HDC-3500, HDC-F5500: ND	Sets the ND filter position.
CC Filter	Sets the CC filter (color temperature conversion).

Item	Description
Shutter	Sets the electronic shutter.
Mode	Sets the operating mode of the electronic shutter. Set value: Angle / Speed
Angle	Displayed when [Mode] is set to [Angle]. Sets the opening angle of the electronic shutter.
Speed	Displayed when [Mode] is set to [Speed]. Sets the speed of the electronic shutter.
White Balance	Sets the white balance.
R	Sets the white balance (R, G, B).
G	Set value: Integer in the range -99 to 99
B	<b>[Note]</b> The default values are set to R "64" / G "0" / B "-79," assuming the color temperature of Unreal Engine and the display is 6500K. To reproduce the same image creation on a real camera device, the 5600K "On/Off" setting, CC filter setting, and white balance setting must be adjusted accordingly.
Black (ABS)	Sets the black level.
R	Sets the black level (R, G, B).
G	Set value: Value in the range -99.0 to 99.0
B	
Master	Sets the master black level. Set value: Value in the range -99.9 to 99.9
Preset Matrix	Sets a preset matrix. Set: Off / ITU-709
Gain	Sets the gain.
Step Gain	Sets the step gain. Set value: 12 dB / 9 dB / 6 dB / 3 dB / 0 dB / -3 dB / -6 dB
Master Gain (dB)	Sets the master gain. Set value: Value in the range -6.0 to 12.0
Total Gain	Displays the sum value of all gains.
Noise Simulation	Sets whether to simulate the generated noise due to gain settings for display in the output video.
Gamma	Sets the gamma. Set value: Off / Standard 1 to 7 / Hyper 1 to 4
Apply Knee	Enables/disables the knee function. Can be enabled only when [Gamma] is set to [Standard 1] to [Standard 7].

## [LED Settings] configuration items

Select the model of your LED display and configure the color space of the input signal. If using the Crystal LED B-series, configure the LED display (Crystal LED B-series Settings) items.

Item	Description
LED Type	Sets the model of the LED display.
Input Color Space	Sets the color space of the input signal of the LED display. Set value: SDR / HDR / HDR (Rec.2020/PQ)  <b>[Note]</b> The values that can be selected for [Input Color Space] will vary depending on the [LED Type] setting.
Sensitivity Simulation	Sets the operating mode for luminance management. <ul style="list-style-type: none"> <li>Mode A: Operating mode that reflects the deviation in optical luminance that occurs between the LED display and camera device. The brightness of the output video changes depending on the display selected in [LED Type], similar to the actual shooting environment.</li> <li>Mode B: Operating mode that does not reflect the deviation in optical luminance that occurs between the LED display and camera device. The brightness of the output video does not change depending on the display selected in [LED Type].</li> </ul> The type of color calibration varies depending on the selected operating mode. For details, refer to the manual for Color Calibrator.
Luminance Adjustment	Displayed when [Mode A] is selected in [Sensitivity Simulation]. Adjusts the luminance of the output video. Set value: Value in the range 0.50 to 1.50  <b>[Note]</b> The higher the value, the brighter the image.
Peak Luminance (Nit)	Displayed when a display other than [Crystal LED B-series] is selected in [LED Type]. Sets the peak luminance. Set value: Integer in the range 0 to 2000  <b>[Note]</b> [Peak Luminance (Nit)] can be configured only when [Input Color Space] is set to [SDR].

**Crystal LED B-series Settings**

Configures Crystal LED B-series display settings.

For details about settings, refer to the manual for the Crystal LED B-series.

**[Note]**

[Crystal LED B-series Settings] is displayed only when [Crystal LED B-series] is selected in [LED Type].

Item	Description
Contrast	Sets the contrast of the LED display.
Brightness	Sets the brightness of the LED display.
Light Output	Sets the optical output of the LED display.
Color Temperature	Sets the color temperature of the LED display. Selecting [User] allows you to set an arbitrary value for each parameter.
R Gain	Displayed when [Color Temperature] is set to [User].
G Gain	Sets the RGB gain.
B Gain	
R Bias	Displayed when [Color Temperature] is set to [User].
G Bias	Sets the RGB bias.
B Bias	

**[LED Grading] configuration items**

Adjusts the brightness and color of the HDR video output to an LED display when [Input Color Space] is set to HDR ([HDR] or [HDR (Rec.2020/PQ)]) in [LED Settings]. In general, you can preview the final video captured by the on-set (shooting) process during the pre-vis process by applying the same settings as [LED Grading] of the On-set Camera component.

Item	Description
Enable LED Grading	Enables/disables LED grading.
Linear Gain	Sets the gain. Set value: Value in the range 1.0 to 40.0
Roll-off Luminance (Nit)	Sets the luminance roll-off (adjusts gradations of high-luminance areas). Set value: Integer in the range 1 to 10000
ASC CDL	Sets the ASC CDL.
Slope	Sets the slope (R, G, B). Set value: Value in the range 0.000 to 3.999
Offset	Sets the offset (R, G, B). Set value: Value in the range -1.000 to 1.000
Power	Sets the power (R, G, B). Set value: Value in the range 0.400 to 4.000
Saturation	Sets the saturation. Set value: Value in the range 0.000 to 3.999

**[Post Process Override] configuration items**

Configures Virtual Camera actor post process settings. Clicking the [Bypass] button will automatically set all post process items (excluding [Exposure]) at the same time. The settings of each item are the same as for the camera component [Post Process].

Item	Description
[Bypass] button	Sets settings, excluding [Exposure], to the recommended values for in-camera VFX.

# On-set Camera Component Settings

These settings configure the functions required for virtual production shooting for a camera actor with an attached On-set Camera component.

Select the On-set Camera component in the [Details] panel of the camera actor, and set items in the [Sony On Set Camera] section.

## On-set Camera component configuration items

You can configure camera devices, LED displays, color calibration, LED grading, and moiré alert function settings in the [Sony On Set Camera] section of the [Details] panel.

### [Note]

If a software license has not been installed, an [Install License] button is displayed in the [Sony On Set Camera] section.

### [Camera Settings]

Configures a camera device and opens the Camera Control Panel (VENICE series only). For details, see “[Camera Settings] configuration items” (page 31).

### [LED Settings]

Configures an LED display and the OCIO settings for nDisplay. For details, see “[LED Settings] configuration items” (page 32).

### [Calibration]

Configures color calibration settings of a camera device and LED display. For details, see “[Calibration] configuration items” (page 32).

### [LED Grading]

Configures LED grading function settings. For details, see “[LED Grading] configuration items” (page 33).

### [Moiré Alert]

Configures the moiré alert function. For details, see “[Moiré Alert] Configuration Items” (page 38).

## [Camera Settings] configuration items

Select the model and type of your camera device and configure the filmback and other settings. If you are using the VENICE series, you can also open the Camera Control Panel. For configuration items that are common to your camera device, you can set the same values as on the camera device.

For details about settings, refer to the manual for the camera device.

Item	Description
[Camera Control Panel] button	<p>Opens the Camera Control Panel. For details, see “Launching the Camera Control Panel (VENICE series only)” (page 19).</p> <p><b>[Note]</b> The Camera Control Panel can be used only when the camera model is a VENICE series.</p>
[Preview Config File] button	<p>Displays a list of settings information for a selected camera device configuration file. You can select a configuration file created using the [Export Config File] button of a Virtual Camera actor. If the camera model is a VENICE series, you can also select a configuration file created using the [Save Configuration] button in the Camera Control Panel. When settings cannot be applied to a camera or other device via a network, you can configure the device manually while browsing the display.</p>
Camera Model	<p>Sets the model of the camera device. The following models are supported.</p> <ul style="list-style-type: none"> <li>• VENICE series</li> <li>• BURANO</li> <li>• FR7</li> <li>• HDC-5500</li> <li>• HDC-3500</li> <li>• HDC-F5500</li> </ul>
Camera Type	<p>Displayed when the camera model is a VENICE series, HDC-5500, or HDC-3500. Sets the camera type. The following types of VENICE series devices are supported.</p> <ul style="list-style-type: none"> <li>• VENICE (CineAltaV)</li> <li>• VENICE 2 6K (CineAltaV 2 6K)</li> <li>• VENICE 2 8K (CineAltaV 2 8K)</li> </ul> <p>The following types of HDC-5500 are supported.</p> <ul style="list-style-type: none"> <li>• HDC-5500</li> <li>• HDC-5500V</li> </ul> <p>The following types of HDC-3500 are supported.</p> <ul style="list-style-type: none"> <li>• HDC-3500</li> <li>• HDC-3500V</li> </ul>
<b>VENICE series:</b> Imager Mode <b>BURANO:</b> Imager Scan Mode <b>FR7, HDC-5500, HDC-3500, HDC-F5500:</b> Output Resolution	<p>The configuration item varies depending on the camera model. Sets the filmback of the Cine Camera component.</p>

Item	Description
Anamo. Desqueeze	Displayed when the camera model is a VENICE series or BURANO. Sets the de-squeeze ratio when using an anamorphic lens. Selecting [User] allows you to set an arbitrary value that is different from your camera device.
User	Displayed when [Anamo. Desqueeze] is set to [User]. Sets the de-squeeze ratio. Set value: Value in the range 1.0 to 2.0

### [LED Settings] configuration items

Select the model of your LED display and configure the color space of the input signal. Also, configure the OCIO settings for nDisplay according to the color space of the input signal.

Item	Description
LED Type	Sets the model of the LED display.
Input Color Space	Sets the color space of the input signal of the LED display. Set value: SDR (sRGB/G2.4) / SDR (sRGB/G2.2) / HDR (Rec.2020/PQ) / HDR (ACEScg/PQ)  <div style="color: red; font-size: small;">[Note]</div> The values that can be selected for [Input Color Space] will vary depending on the [LED Type] setting.
[nDisplay OCIO Setting] button	Configures the OCIO settings of the nDisplay outer frustum and inner frustum associated with the camera actor with the attached On-set Camera component. Clicking the [nDisplay OCIO Setting] button will display the [nDisplay OCIO Setting] dialog. For details, see "Configuring OCIO for nDisplay" (page 18).

### [Calibration] configuration items

Configure color calibration settings using a color chart (Calibration Chart) or 3D LUT (Calibration LUT).

Calibration Chart	
Configures settings for the color chart used for color calibration by the Color Calibrator application (option). For details, refer to the manual for Color Calibrator.	
Item	Description
Display Chart	Shows/hides the color chart.
Chart Type	Sets the type of the color chart.
Chart Scale	Sets the size of the color chart.

Calibration LUT	
Configures 3D LUT settings used for color calibration.	
Item	Description
LUT Filename	Sets the CUBE file (*.cube) of the 3D LUT. Select the CUBE file to load from the drop-down list.
[Add] button	Adds a CUBE file to the [LUT Filename] drop-down list.  <div style="color: red; font-size: small;">[Note]</div> Up to 32 CUBE files can be displayed in the drop-down list.
[Delete] button	Deletes the CUBE file selected in [LUT Filename].
Enable	Enables/disables 3D LUT operation.  <div style="color: red; font-size: small;">[Note]</div> When calibrating color by displaying a color chart, first disable [Calibration LUT].
Crystal LED B-series Settings	Displayed when [Crystal LED B-series] is selected in [LED Settings] > [LED Type]. Use when changing the color of a Crystal LED B-series display after a CUBE file is generated. For details, see "If LED display controller settings are changed after a CUBE file is generated" (page 18). For details about settings, refer to the manual for the Crystal LED B-series.
Contrast	Sets the contrast of the LED display.
Brightness	Sets the brightness of the LED display.
Light Output	Sets the optical output of the LED display.
Color Temperature	Sets the color temperature of the LED display. Selecting [User] allows you to set an arbitrary value for each parameter.
R Gain	Displayed when [Color Temperature] is set to [User].
G Gain	Sets the RGB gain.
B Gain	
R Bias	Displayed when [Color Temperature] is set to [User].
G Bias	Sets the RGB bias.
B Bias	



## [LED Grading] configuration items

Adjusts the brightness and color of the HDR video output to an LED display when [Input Color Space] is set to HDR ([HDR (Rec.2020/PQ)] or [HDR (ACEScg/PQ)]) in [LED Settings].

For details about configuring, see "Configuring LED Grading" (page 19).

Item	Description
Enable LED Grading	Enables/disables LED grading.
Linear Gain	Sets the gain. Set value: Value in the range 1.0 to 40.0
Roll-off Luminance (Nit)	Sets the luminance roll-off (adjusts gradations of high-luminance areas). Set value: Integer in the range 1 to 10000
ASC CDL	Sets the ASC CDL.
Slope	Sets the slope (R, G, B). Set value: Value in the range 0.000 to 3.999
Offset	Sets the offset (R, G, B). Set value: Value in the range -1.000 to 1.000
Power	Sets the power (R, G, B). Set value: Value in the range 0.400 to 4.000
Saturation	Sets the saturation. Set value: Value in the range 0.000 to 3.999
Apply LED Grade LUT in Outer Frustum OCIO	Enables/disables LED grading for the outer frustum.
[Update LUT] button	Applies the adjustment results of LED grading to the outer frustum OCIO LUT.  <div style="color: red; font-weight: bold;">[Note]</div> To maintain consistent LED grading adjustment results between the inner and outer frustum, you must apply the LED grading settings using the [Update LUT] button every time there are changes.
[Export LED Grade] button	Saves LED grading settings as a 3D LUT CUBE file.

# Camera Control Panel

You can connect a real camera device, and perform camera device operations and display settings information via a network using the Camera Control Panel. Also, you can synchronize the camera settings and lens settings between a camera device and a camera actor using the live camera sync function.

For details about launching the Camera Control Panel, see “Launching the Camera Control Panel (VENICE series only)” (page 19).

## [Note]

The Camera Control Panel can be used only when using the VENICE series.

## [Sony Camera Control Panel] Window

When you log in to a real camera device using the Camera Control Panel, the web remote control and settings of the camera device are displayed in the [Sony Camera Control Panel] window.



### 1. Camera IP Address

Displays the IP address of the camera device.

### 2. [Camera Control] tab

Displays the web remote control of the camera device.

For details about operation using the web remote control, refer to the manual for the camera device.

### 3. [Configure Camera] button

Imports a camera device configuration file into a real camera device.

You can import a pre-vis process configuration file created using the [Export Config File] button of a Virtual Camera actor or a configuration file created using the [Save Configuration] button of the Camera Control Panel.

Click the [Configure Camera] button to display the [Configure Camera] dialog. Check the settings information in the [Configure Camera] dialog and then start importing.

For details about operation, see “Importing a Configuration File (applying settings to a camera device) (VENICE series only)” (page 20).

### 4. [Save Configuration] button

Exports the settings of a real camera device to a file.

You can import a created file into a Virtual Camera actor.

For details about operation, see “Exporting a Configuration File (saving camera device settings) (VENICE series only)” (page 21).

### 5. [Details] tab

Displays settings information for a camera device and lens.

For details, refer to the manual for the camera device.

### 6. [Live Camera Sync] tab

Configures the live camera sync function settings.

For details, see “[Live Camera Sync] tab” (page 36).

### 7. Time and model of camera device

Displays the time configured on the camera device and the type of camera.

### 8. Connection status

Displays the connection status with the camera device.

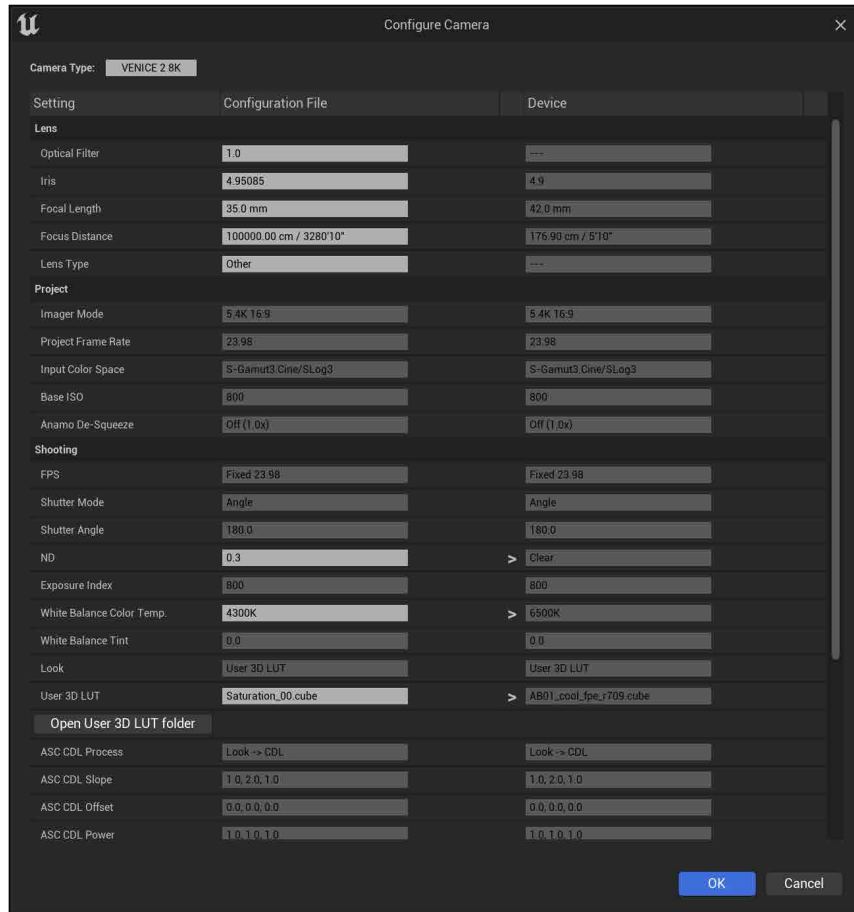
### 9. [Connect] button / [Disconnect] button

Connects to a camera device. The [Connect] button is displayed when not connected to a camera device.

Disconnects from a camera device. The [Disconnect] button is displayed when connected to a camera device.

## [Configure Camera] dialog

When importing a configuration file into a camera device, the [Configure Camera] dialog appears in which you can check the settings information.



The following information is displayed in the [Configure Camera] dialog.

- Camera Type: Type of camera
- Setting: Configuration item
- Configuration File: Set value in configuration file
- Device: Current set value of a camera device

The [Configuration File] set value is displayed highlighted if the configuration file and current setting of the camera device are different. For items with ">" displayed between the [Configuration File] set value and the [Device] set value, the configuration file set value will be applied to the camera device upon importing.

For items where ">" is not displayed, even if the display is highlighted, the setting will not be applied automatically upon importing.

### Importing a configuration file

Click the [OK] button in the [Configure Camera] dialog, then click the [Yes] button in the confirmation message.

Importing starts and the set values in the configuration file are applied to the camera device.

After importing, a dialog appears which displays a list of items that could not be applied automatically.

For items that could not be applied, configure manually on the camera device.

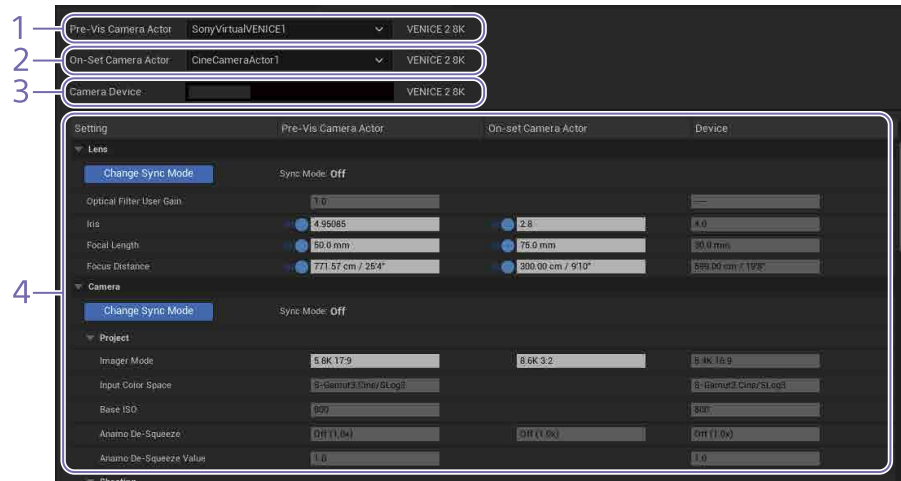
If you are using VENICE as the camera device, ASC CDL files (\*.cdl) and User 3D LUT CUBE files (\*.cube) must be transferred to the camera device via an SD card.

- You can create an ASC CDL file (\*.cdl) using the [Generate CDL file] button displayed in the dialog. You can apply the settings by loading the created ASC CDL file into VENICE via an SD card.
- You can open the "Project\_folder\Plugins\SonyCameraAndDisplayResources\User3DLUT" folder for User 3D LUTs using the [Open User 3D LUT folder] button displayed in the dialog. You can apply the settings by loading a CUBE file saved in the folder into VENICE via an SD card.

## [Live Camera Sync] tab

You can synchronize the camera settings and lens settings between a camera device and a camera actor using the live camera sync function.

For details about operation, see “Live Camera Sync Function (VENICE series only)” (page 21).



### 1. Pre-Vis Camera Actor

Sets the sync target pre-vis process Virtual Camera actor.

### 2. On-set Camera Actor

Sets the sync target Cine Camera actor to which the On-set Camera component has been added for the on-set (shooting) process.

### 3. Camera Device

Displays the IP address of the currently logged-in camera device.

### 4. Category items and settings

Displays the items and settings of the [Lens], [Camera], [LED], [LED Grading], and [Post Process] categories.

#### [Pre-Vis Camera Actor] column

Pre-vis process Virtual Camera Actor settings

#### [On-set Camera Actor] column

On-set (shooting) process Cine Camera actor settings

#### [Device] column

Camera device settings

### [Lens] category

Displays lens settings.

The sync destination value is highlighted if the sync source and sync destination settings are different.

#### [Change Sync Mode] button

Sets the sync mode for lens settings.

Off: Disables synchronization of lens settings.

Real To Virtual: Applies the lens settings of a camera device to pre-vis process and on-set (shooting) process camera actors.

#### Sync switches

Enables/disables synchronization separately using the switch displayed on the left side of the [Iris], [Focal Length], and [Focus Distance] settings.

Slide the switch to the right so that the color changes to blue to enable synchronization.

### [Camera] category

Displays the camera settings.

The sync source and sync destination settings are different.

#### [Change Sync Mode] button

Sets the sync mode for camera settings.

Off: Disables synchronization of camera settings.

Virtual To Real: Applies the camera settings of the pre-vis process camera actor to the on-set (shooting) process camera actor and camera device.

Real To Virtual: Applies the camera settings of a camera device to pre-vis process and on-set (shooting) process camera actors.

#### [Set] button

When the sync mode in the camera settings is set to [Virtual To Real], the [Project Frame Rate] setting of the pre-vis process camera actor is not synchronized automatically.

You can click the [Set] button to apply the [Project Frame Rate] setting to the camera device manually.

### [LED] category

Displays the LED display settings of the camera actors.

The LED display settings are not synchronized.

The on-set (shooting) process setting is highlighted if the pre-vis process and on-set (shooting) process settings are different.

### [LED Grading] category

Displays the LED grading settings of the camera actors.

The LED grading settings are not synchronized.

The on-set (shooting) process setting is highlighted if the pre-vis process and on-set (shooting) process settings are different.

### [Post Process] category

Displays the post process settings of the camera actors.

The post process settings are not synchronized.

The on-set (shooting) process setting is highlighted if the pre-vis process and on-set (shooting) process settings are different.

#### [Copy Post Process of Pre-Vis Camera to On-set Camera] button

Copies the pre-vis process camera actor settings to the on-set (shooting) process camera actor.

#### [Override Post Process Volume]

Enables overwriting of the post process volume settings when a check mark is placed here.

When the [Copy Post Process of Pre-Vis Camera to On-set Camera] button is clicked, the pre-vis process camera actor settings are also copied to the post process volume selected from the drop-down list on the right side.

# Moiré Alert Function

In virtual production, moiré may occur on the LED display, depending on the distance and angle between the LED display and the camera, and the settings of the camera lens. The plugin has a moiré alert function that can be used in both the pre-vis process and on-set (shooting) process.

When the moiré alert function is enabled, it can predict the occurrence of moiré, even in the pre-vis process where there is no real camera or LED display. In addition, the moiré alert function can predict the occurrence of moiré in on-set shooting environments where it would be difficult to see.

## Configuring a Camera and Lens

The camera position/orientation information and lens information (focal length, aperture, focus distance) required by the moiré alert function must be configured correctly in the camera actor.

If you are using the VENICE series, you can synchronize the lens information between a camera device and a camera actor using the live camera sync function of the Camera Control Panel.

You can report the correct values by using a position tracker and lens encoder, for example.

### Pre-vis process

Set the camera and lens information, [Camera Type] (VENICE series, HDC-5500, HDC-3500 only), and [Anamo. Desqueeze] (VENICE series, BURANO only) correctly in the Virtual Camera actor.

### On-set (shooting) process

Configure settings so that the camera and lens information is reflected in the camera actor with an attached On-set Camera component, and set [Camera Model], [Camera

Type] (VENICE series, HDC-5500, HDC-3500 only), and [Anamo. Desqueeze] (VENICE series, BURANO only) of the On-set Camera component correctly.

On-set, operation in a configuration that does not reflect the lens information of a real camera device on the camera actor for nDisplay rendering is also possible. In this case, configure a camera actor dedicated to the moiré alert function and add the On-set Camera component to the camera actor. Configure settings so that the camera and lens information is reflected in the camera actor dedicated to the moiré alert function, and set [Camera Model], [Camera Type], and [Anamo. Desqueeze] of the On-set Camera component correctly.

The moiré alert function operates in Unreal Editor, so camera and lens information must be reported to Unreal Editor, not to the render node.

#### [Note]

A Virtual Camera actor can only be used in the pre-vis process. It is not necessary to add an On-set Camera component to a Virtual Camera actor.

## Configuring the Moiré Alert Function

You can configure the moiré alert function of a Virtual Camera actor or the On-set Camera component.

When the moiré alert function is enabled, you can check if there is a risk of moiré occurring by the color displayed on the target LED display.

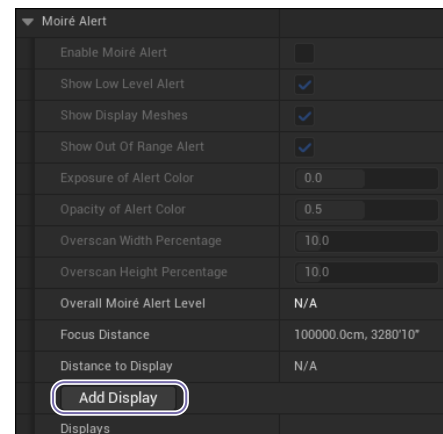
### Pre-vis process

Select a Virtual Camera actor and configure using the following procedure in the Virtual Camera section of the [Details] panel.

### On-set (shooting) process

Select the On-set Camera component in the [Details] panel of the camera actor, and configure using the following procedure in the [Sony On Set Camera] section.

- 1 Click the [Moiré Alert] > [Add Display] button.



The [Moiré Alert Setup] dialog appears. For details, see "[Moiré Alert Setup] dialog" (page 39).

- 2 Select the target nDisplay actor to set in the [Moiré Alert Setup] dialog. Placing a check mark in [Show nDisplays Only] will display the nDisplay actors only. If an nDisplay actor is not available, you can also use a Static Mesh actor that mimics the display shape.
- 3 Select meshes to construct an LED display. Place a check mark in the target mesh to set. If the displays are the same type, you can select the meshes of multiple displays at the same time. If there are displays of different type, repeat steps 1 to 6 to configure each display.

#### [Note]

You can register up to six types of LED displays using the [Add Display] button.

- 4 Select your LED display in [Display Panel Type Preset]. If you select [Other], set the pitch size in [LED Pitch Size].
- 5 Click the [Add] button.
- 6 Click the [OK] button in the confirmation message. The display is registered.
- 7 Place a check mark in [Moiré Alert] > [Enable Moiré Alert]. The moiré alert function is enabled. A colored tile mesh is attached to the mesh selected in step 3 to show the moiré occurrence level.

## Moiré alert display color

The selected mesh will be displayed in the following colors according to the moiré occurrence level.

Green: Possibility of visible moiré is low.  
 Yellow: Moiré may be visible, depending on the shooting and viewing conditions.  
 Red: Possibility of visible moiré is high.  
 Purple: The moiré alert function cannot be used because the focus position is behind the LED display.

#### [Note]

This function does not guarantee that moiré will not occur when green is displayed.

## Editing/deleting moiré alert function settings

A list of the registered displays is displayed in [Moiré Alert] > [Displays].

You can click the [Edit] button for a target display to display the [Moiré Alert Setup] dialog and edit the display settings.

Clicking the [Delete] button for a target display will delete the display.

You can also place a check mark in [Show Moiré Alert] for a target display to show/hide the moiré alert color.

## [Moiré Alert] Configuration Items

In the pre-vis process, configure the moiré alert function in [Moiré Alert] in the Virtual Camera section of the [Details] panel.

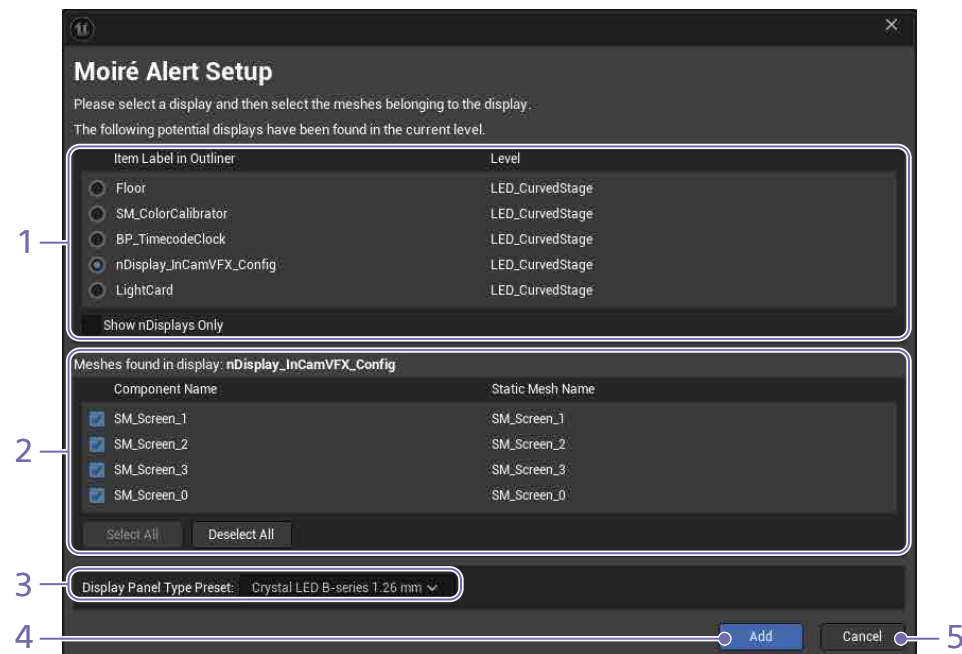
In the on-set (shooting) process, configure the moiré alert function in [Moiré Alert] in the [Sony On Set Camera] section of the [Details] panel.

Item	Description
Enable Moiré Alert	Enables/disables the moiré alert function for a display registered using [Add Display].  [Note] When using the moiré alert function with multiple camera actors, only the camera actor on which the moiré alert function was last enabled is itself enabled. The moiré alert function is disabled on all other camera actors.
Extra OLPF	Displayed when the camera model is HDC-5500 or HDC-3500 and the type is HDC-5500V or HDC-3500V. Enables/disables "EXTRA OLPF" for the CC filter.
Show Low Level Alert	Sets whether to show/hide the moiré alert function in green (possibility of moiré occurrence is low). Clear the check mark to not display green.
Show Display Meshes	Sets whether to show/hide the display meshes (displayed in gray). Clear the check mark to not display meshes.
Show Out of Range Alert	Sets whether to show/hide the moiré alert function in purple (moiré alert function out of range). Clear the check mark to not display purple.
Exposure of Alert Color	Sets the exposure of the moiré alert function display color. Set value: Value in the range -8.0 to 8.0
Opacity of Alert Color	Sets the opacity of the moiré alert function display color. Set value: Value in the range 0.0 to 1.0
Overscan Height Percentage	Sets the range (height and width) outside the display mesh area for displaying a moiré alert warning. Set value: Value in the range 0.0 to 50.0
Overscan Width Percentage	
	[Note] Moiré alert warnings outside the display mesh area are not included in the [Overall Moiré Alert Level] display.

Item	Description
Overall Moiré Alert Level	Displays the moiré occurrence level. If the level varies depending on the mesh, it is displayed in the following order of priority. <ul style="list-style-type: none"> <li>• High: Possibility of visible moiré is high.</li> <li>• Middle: Moiré may be visible, depending on the shooting and viewing conditions.</li> <li>• Out of Range: The moiré alert function is out of range because the focus position is behind the LED display.</li> <li>• Low: Possibility of visible moiré is low.</li> <li>• N/A: The moiré alert function is disabled.</li> </ul>
Focus Distance	Displays the focus distance of the camera device.
Distance to Display	Displays the distance between the camera device and LED display (along the optical axis of the camera device).
[Add Display] button	Adds a display for the moiré alert function. Clicking the [Add Display] button displays the [Moiré Alert Setup] dialog. For details, see "[Moiré Alert Setup] dialog" (page 39).
Displays	Displays a list of the registered displays. [Show Moiré Alert], [Edit] button, and [Delete] button are displayed for each display.
Show Moiré Alert	Displays the color of the moiré alert for a display. Clear the check mark to not display the moiré alert color.
[Edit] button	Edits the settings of the display. Clicking the [Edit] button displays the [Moiré Alert Setup] dialog. For details, see "[Moiré Alert Setup] dialog" (page 39).
[Delete] button	Deletes the display.

## [Moiré Alert Setup] dialog

The [Moiré Alert Setup] dialog is used to add and edit displays that are the target of the moiré alert function.



### 1. Actor (display) selection area

Displays the actors within the project.  
Select the actors targeted by the moiré alert function.  
Placing a check mark in [Show nDisplays Only] will display only the nDisplay actors in the actor selection area.

#### [Note]

If you display the [Moiré Alert Setup] dialog using the [Edit] button in the list of displays, the actor selection area is not displayed.

### 2. Mesh selection area

Displays the meshes used to construct the selected actor.  
Select the meshes targeted by the moiré alert function.  
Clicking the [Select All] button will select all of the displayed meshes.  
Clicking the [Deselect All] button will deselect all of the displayed meshes.

### 3. Display Panel Type Preset

Sets the model of the display.  
If you select [Other], set the pitch size in [LED Pitch Size].

#### [Note]

[LED Pitch Size] is displayed only when [Other] is selected.

#### 4. [Add] button / [Edit] button

Registers displays.

If you display the [Moiré Alert Setup] dialog using the [Edit] button in the list of displays, the [Edit] button is displayed instead of the [Add] button.

#### 5. [Cancel] button

Closes the [Moiré Alert Setup] dialog without registering/editing a display.



# Supported Functions of Each Camera Model

The functions supported by the plugin vary depending on the camera model.

The following table shows the functions supported by each camera model ("✓" indicates supported functions).

Item	VENICE series	BURANO	FR7	HDC-5500	HDC-3500	HDC-F5500
<b>Virtual Camera actor</b>	The pre-vis process functions can be used free of charge, but a watermark is embedded in the output video of a Virtual Camera actor. Installation of a software license is required to remove the watermark.					
[Note]	You can change the camera model using the [Change Camera Model] button after adjusting the Virtual Camera actor position/orientation, camera settings, and lens settings using a level sequence or other method. For details about configuring, see "Switching the Camera Model" (page 15).					
Virtual Camera actor name	Sony Virtual VENICE Actor	Sony Virtual BURANO Actor	Sony Virtual FR7 Actor	Sony Virtual HDC-5500 Actor	Sony Virtual HDC-3500 Actor	Sony Virtual HDC-F5500 Actor
Virtual Camera section name	Sony Virtual VENICE	Sony Virtual BURANO	Sony Virtual FR7	Sony Virtual HDC-5500	Sony Virtual HDC-3500	Sony Virtual HDC-F5500
[Camera Type]	VENICE VENICE 2 6K VENICE 2 8K	-	-	HDC-5500 HDC-5500V	HDC-3500 HDC-3500V	-
Exporting/importing a configuration file	✓	✓	✓	✓	✓	✓
[VCam]	✓	✓	✓			
[Camera Settings] camera settings						
Settings related to Cine EI mode cameras	✓	✓	✓			
Settings related to system cameras				✓	✓	✓
On-screen display settings	✓	✓	✓			
[Camera Settings] lens settings						
Aperture, focal length, and focus distance settings	✓	✓	✓	✓	✓	✓
Lens type, distortion, and vignetting settings	✓	✓				✓
Filter light attenuation settings	✓	✓	✓			
[Moiré Alert]	✓	✓	✓	✓	✓	✓
[LED Settings]	✓	✓	✓	✓	✓	✓
[LED Grading]	✓	✓	✓	✓	✓	✓
[Post Process Override]	✓	✓	✓	✓	✓	✓
Sequencer function and Movie Render Queue function	✓	✓	✓	✓	✓	✓

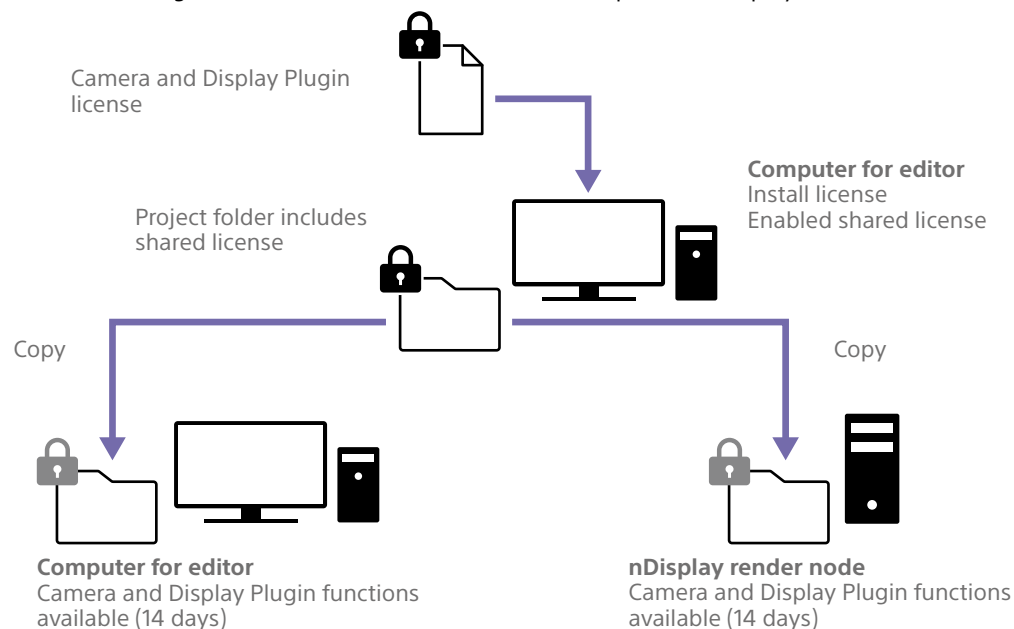
<b>On-set Camera component</b>						
Installation of a software license is required to use the on-set (shooting) process functions.						
Item	VENICE series	BURANO	FR7	HDC-5500	HDC-3500	HDC-F5500
[Camera Model]	VENICE Series	BURANO	FR7	HDC-5500	HDC-3500	HDC-F5500
[Camera Type]	VENICE VENICE 2 6K VENICE 2 8K	-	-	HDC-5500 HDC-5500V	HDC-3500 HDC-3500V	-
Displaying configuration file information	✓	✓	✓	✓	✓	✓
[Camera Settings]	✓	✓	✓	✓	✓	✓
[LED Settings]	✓	✓	✓	✓	✓	✓
[Calibration]	✓	✓	✓	✓	✓	✓
[LED Grading]	✓	✓	✓	✓	✓	✓
[Moiré Alert]	✓	✓	✓	✓	✓	✓
<b>Camera Control Panel</b>						
Installation of a software license is required to use the Camera Control Panel functions. However, the web remote control function can be used free of charge.						
Item	VENICE series	BURANO	FR7	HDC-5500	HDC-3500	HDC-F5500
Web remote control	✓ (software license not required)					
Importing a configuration file (applying camera settings)	✓					
Exporting a configuration File (saving camera settings)	✓					
Live camera sync function	✓					

# Shared License

There is a shared license mechanism that allows you to use all of the features of the plugin simultaneously on multiple editor computers and nDisplay render nodes.

When you start an Unreal Engine project on a computer on which the software license of the plugin is installed, a shared license will be created or renewed in "Project\_folder\Plugins\SonyCameraAndDisplayResources."

All the functions of the plugin are enabled for use on other computers by copying the project folder containing the shared license to another editor computer or nDisplay render node.



## Shared license expiry

A shared license expires 14 days after its creation or renewal date. If you wish to continue using the plugin, you will need to periodically renew your shared license.

Renew the shared license by launching your Unreal Engine project on the computer where the software license is installed, then re-copy the project folder to the other computer.

# Troubleshooting

## Camera output color varies between pre-vis process and on-set (shooting) process

Review the following items if the output video color of a Virtual Camera actor and the output video color of a real camera device are different.

Cause	Solution
nDisplay editor preview is being captured by a Virtual Camera actor.	You can hide the nDisplay editor preview by clearing the check mark from [Enable Editor Preview] in [Editor Preview] of the nDisplay actor.
Camera settings of a Virtual Camera actor and a real camera device are different.	<p>Check that the camera settings of the Virtual Camera actor and the real camera device are the same.</p> <p>If you are using the VENICE series, you can import a Virtual Camera actor configuration file using the Camera Control Panel and apply the camera settings of the Virtual Camera actor to the camera device (page 20). When you import a configuration file, the [Configure Camera] dialog is displayed. You can compare the Virtual Camera actor settings with the camera device settings in the dialog (page 35).</p> <p>On the VENICE series, you can also synchronize the camera settings between a camera device and a Virtual Camera actor using the live camera sync function of the Camera Control Panel (page 21).</p> <p>For a system camera (HDC series), the default values are set to R "64" / G "0" / B "-79" for the [White Balance] on a Virtual Camera actor, assuming the color temperature is 6500K. To reproduce the same image creation on a real camera device, the 5600K "On/Off" setting, CC filter setting, and white balance setting must be adjusted accordingly.</p>
Lens settings of a Virtual Camera actor and a real camera device are different.	<p>Check that the lens settings used by a Virtual Camera actor and the real camera device are the same.</p> <p>If you are using the VENICE series, you can synchronize the lens settings between a camera device and a Virtual Camera actor using the live camera sync function of the Camera Control Panel (page 21). Unlike camera settings, lens settings cannot be applied to a camera device by importing a configuration file using the Camera Control Panel.</p> <p>If you are using a camera device other than the VENICE series, lens settings can be configured manually or by using a lens encoder.</p>

Cause	Solution
Virtual Camera actor and real LED display controller settings are different.	<p>Check that [LED Settings] of the Virtual Camera actor and the real LED display controller have the same settings.</p> <p>If using the Crystal LED B-series, [Crystal LED B-series Settings] must have the same settings as the real LED display controller.</p> <p>If using an LED display other than the Crystal LED B-series, a standard HDR signal/SDR signal must be output from the LED display. Also, for SDR, the peak luminance settings must match.</p>
On-set Camera component and real LED display controller settings are different.	<p>Check that [LED Settings] of the On-set Camera component and the real LED display controller have the same settings.</p> <p>If [LED Settings] &gt; [Input Color Space] or the Unreal Engine project [Working Color Space] is changed, the OCIO settings must be configured again using the [nDisplay OCIO Setting] button.</p> <p>If using the Crystal LED B-series, [Calibration LUT] &gt; [Crystal LED B-series Settings] must have the same settings as the real LED display controller.</p>
In Unreal Editor, the post process settings or post process volume settings of a camera actor are different for the pre-vis process and on-set (shooting) process.	<p>In Unreal Editor, match the post process/post process volume settings of the Virtual Camera actor and the on-set (shooting) process Cine Camera actor.</p> <p>Specifically, the [Bloom], [Exposure], [Vignette Intensity], [Expand Gamut], and [Tone Curve Amount] settings must match.</p> <p>Note that camera actors other than the Unreal Engine standard Cine Camera actor may have different default values.</p> <p>If you are using the VENICE series, you can synchronize the pre-vis process and on-set (shooting) process post process settings using the live camera sync function of the Camera Control Panel (page 21).</p>
[Color Grading] is enabled in the ICVFXCamera component of an nDisplay actor.	Color grading settings are applied only to the output video of a camera device capturing nDisplay output. To synchronize the color with the pre-vis process Virtual Camera actor output video, disable [Color Grading].

Cause	Solution
A Virtual Camera actor in Unreal Editor and the Cine Camera actor with attached On-set Camera component on a render node do not output video with the same rendering settings.	Check that the Virtual Camera actor in Unreal Editor and the Cine Camera actor with the attached On-set Camera component on a render node are outputting video with the same rendering settings. Different settings, such as sublevels, lighting visibility, and camera position, may not output the same color. In addition, rendering the output video of a Virtual Camera actor in the Movie Render Queue may produce video that is closer to that of a camera device.
OCIO is configured for the output video of a Virtual Camera actor used in the pre-vis process.	Similarly to a real camera device, a Virtual Camera actor controls the color of the output video using the camera settings and lens settings. Hence, there is no need to configure OCIO when viewing the video in a viewport. Also, if you are using the VENICE series, BURANO, or FR7, you can output Log video as-is, such as S-Gamut3.Cine/SLog3 selected using [Input Color Space]/[Color Gamut], by setting [Look] to [Log]. Note that S-Log3 output from a computer via HDMI or other connector will be full range or legal range, depending on the computer video output settings.
When rendering the output video of a Virtual Camera actor in the Movie Render Queue, OCIO is not set correctly.	When OCIO is not set correctly, the output video rendered using Movie Render Queue may appear whiter than the video displayed in the viewport. Set OCIO correctly (page 14).
"RM/RCP Paint Control" is set to "On" on the real camera device.	The Virtual Camera actor does not support the paint functions of a remote control unit. Set "RM/RCP Paint Control" to "Off" on the real camera device.

### nDisplay output color is not displayed correctly on LED display

Review the following items if an LED display does not display colors as expected.

Cause	Solution
The OCIO settings of an nDisplay are not transferred to the nDisplay render node.	Transfer the contents of the "Project_folder\Plugins\SonyCameraAndDisplayResources" and "Project_folder\Content\SonyCameraAndDisplay" folders from the computer running Unreal Editor to the nDisplay render node. This operation must be implemented once only for each project.

### Color calibration is not applied to the nDisplay inner frustum display

Review the following items if color is not calibrated correctly.

Cause	Solution
The CUBE file specified in [LUT Filename] of [Calibration LUT] in Unreal Editor was not transferred to the nDisplay render node.	Transfer the contents of the "Project_folder\Plugins\SonyCameraAndDisplayResources" folder from the computer running Unreal Editor to the nDisplay render node.
[Camera Options] > [Post Process Blend Weight] of the camera actor with an attached On-set Camera component is set to a value other than 1.0.	When using a color calibration chart display and the color calibration function, set [Post Process Blend Weight] to 1.0.

### Moiré alert is not displayed correctly

Review the following items if the moiré alert function does not operate correctly.

Cause	Solution
The focus distance of the lens configured for the camera actor does not match the distance to the actual lens focus position.	The focus distance indicated by the focus ring of the lens or other means may not match the distance to the actual lens focus position. Accurate prediction of the occurrence of moiré can be achieved by setting the distance to the actual lens focus position to the focus distance of the camera actor.
Unreal Engine is running on a remote desktop.	Moiré alerts are not displayed correctly with the default viewport settings when running Unreal Engine on a remote desktop. Moiré alerts can be displayed by executing [Disable Realtime Override] in the viewport options and then enabling [Realtime].