# **3** 26.2 Editors - Properties Editor - Render Properties Tab

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# **Detailed Table of content**

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### **Render Tab**

Rendering is the process of calculating a 2D image (or video) from your 3D scene. For this you use a so called render engine.

The Render tab contains the functionality and settings around the available render engines in Bforartists. and here you can choose the renderer with which you render your still or animation.

There are three different render engines available: Workbench, EEVEE, and Cycles.



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Cycles is a so called offline renderer. It is an unbiased physically correct renderer with some biased adjustments to make it usable for animations.

Cycles can render at the CPU or the GPU.

EEVEE and Workbench are so called Realtime Renderers. They render on the GPU. Workbench relies at the OpenGL render features of the graphics card. EEVEE is a full independent realtime render engine.

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All renderers have different settings. And the choice of the renderer influences the tab and panel content of the whole Scene section.

This content will be covered in the chapters for the other tabs.

### **Cycles Feature Set**

When you choose Cycles then you will see a new drop down box called Feature set. Cycles has two feature set settings. Supported and Experimental.

Supported means you have all common Cycles settings available.

Experimental means that you have access to some further experimental features of Cycles, which are somehow functional, but are still experimental features. Like Adaptive subdivision. Those features may or may not work proper. Use at own risk!



# **Cycles Device**

When you turn on Cuda in the User Preferences then you will get a Device drop down box to choose if you want to render with the CPU or the GPU.

### **Open Shading Language**

When you render with Cycles at the CPU, then you can choose to use the Open Shading Language.

# **EEVEE Feature Set**

When you choose EEVEE, you will be able to user a raster based render engine that uses your GPU to render light and materials. This includes features like screenspace raytraced reflections and global illumination, light and reflection volumes, raytraced cast shadows, and more.

This renderer is akin to modern game engine rendering techniques.

# Workbench Feature Set

When you choose Workbench, this use the internal viewport rendering typical of mesh editing and playback. You can use matcaps and other viewport settings to render to disk from here.

**Note:** Changing these settings will also change the sequencer preview of scene strips.

# **Grease Pencil panel**

# Anti Aliasing Threshold

Threshold for edge detection algorithm.

Note that a higher value might overblur some image parts.

# Freestyle panel

# What is FreeStyle?

Freestyle is an edge- and line-based non-photorealistic (NPR) rendering engine that works on top of the other engines except Eeevee. It relies on mesh

data and z-depth information to draw lines on selected edge types. Various line styles can be added to produce artistic or technical looks.

The two operating modes - *Python Scripting* and *Parameter Editor* - allow a diversity of line styles and results. Line styles such as Japanese big brush, cartoon, blueprint, thickness-with-depth are already pre-scripted in Python. The Parameter Editor mode allows intuitive editing of features such as dotted lines and easy setup of multiple line types and edge definitions.

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Device CPU 

Open Shading Language

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Anti-Aliasing Threshold	1.000	

There are more Freestyle settings in the View Layer tab wAdjust and define various parameters.



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### Enable

In the header is a checkbox where you can enable the Freestyle renderer.

Enabling the checkbox reveals the Freestyle Settings in the View Layer Properties.

### Line Thickness Mode

#### Absolute

The line thickness is given by a user-specified number of pixels. The default value is **1.0**.

#### Relative

The unit line thickness is scaled by the proportion of the present vertical image resolution to **480** pixels. For instance, the unit line thickness is **1.0** with the image height set to **480**, **1.5** with **720**, and **2.0** with **960**.

### **Line Thickness**

Line Thickness is only available for *Absolute* line thickness. The base line thickness in pixels.



### **Color Management panel**

Color management is important to create renders and assets that are physically accurate and look great on multiple display devices. It is used both to ensure all parts of the pipeline interpret colors correctly, and to make artistic changes like exposure and color grading.

Bforartists color management is based on the OpenColorIO library. By using the same OpenColorIO configuration in multiple

applications, the same color spaces and transforms will be available for consistent results.

In the Color Management panel you will find the settings around color management. It allows an artist to make sure that an image stays the same from rendering, to saving, to post-processing. Color management also allows an artist to tweak things like exposure, gamma, or the overall color grade.

The Color Management panel is the same for all render engines.

### **Display Device**

The device that the image is being viewed on. Your monitor.

Most computer monitors are configured for the sRGB color space.

### **View Transform**

Choose between different ways to view the image on the same monitor.

#### Standard

Does no extra conversion besides the conversion for the display device.

#### **Khronos PBR Neutral**

A tone mapper designed specifically for PBR color accuracy. It aims to get sRGB colors in the output render that match as faithfully as possible the input sRGB baseColor under gray-scale lighting.

#### AgX

AgX is a further development to Filmic. It brings an implementation of False Colors view transform, and replaces Filmic-based. It is available for all display devices.

#### Filmic

For more photo realistic results and better handling of high dynamic range. The contrast can be adjusted by changing the *Look* option for the Filmic view transform.

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► Display			
Use Curves			





#### **Filmic Log**

Converts to Filmic log color space. This can be used for export to color grading applications, or to inspect the image by flattening out very dark and light areas.

#### Raw

Intended for inspecting the image but not for final export. Raw gives the image without any color space conversion.

#### **False Color**

Shows a heat map of image intensities, to visualize the dynamic range.

### Look

Adjust the contrast.

#### hy 1.000 scale High Contrast Contrast Contrast Contrast Low Contrast Low Contrast

### Exposure

Used to control the image brightness (in stops) applied before color space conversion. The calculation is:  $output\_value=render\_value\times 2(exposure)$ 

### Gamma

Extra gamma correction applied after color space conversion. Note that the default sRGB or Rec709 color space conversions already include a gamma correction of approximately 2.2 (except the *Raw* and *Log* views), so this would be applied in addition to that.

### **Sequencer Color Space**

The color space that the sequencer operates in. By default, the sequencer operates in sRGB space, but it can also be set to work in Linear space like the Compositing nodes, or another color space. Different color spaces will give different results for color correction, cross fades, and other operations.



# Display subpanel

# Enable High Dynamic range dispaly in rendered viewport. This uncaps display brightness. And requires a monitor with HDR support and a veiw transform designed for HDR.

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Filmic and AgX does not generate HDR colors. And so the option is greyed out.

# Use Curves subpanel

Adjust RGB Curves to control image colors before color space conversion.

### **Navigation elements**

The navigation elements at the top are described from left to right.

#### Zoom in and out

The two buttons with the magnifying glass at it zooms in and out in the curve window.

#### Tools

Tools is a menu that contains some cuve related tools.

**Reset View** Resets the curve windows zoom.

**Vector Handle** Set handle type to Vector.

**Auto Handle** Set handle type to Auto.

#### Auto Clamped Handle

Set handle type to Auto Clamped.

#### **Extend Horizontal**

Causes the curve to stay horizontal before the first point and after the last point.

#### **Extend Extrapolated**

Causes the curve to extrapolate before the first point and after the last point, based on the shape of the curve.

#### **Reset Curve**

Resets the curve to the initial shape.





▼ Display

### Use Clipping

Clipping options. Set up clipping for the stroke.

#### Delete Points

Deletes selected curve points.

#### Black Level

The color that Black is mapped to.

#### White Level

The color that White is mapped to.

### Hotkeys for Black and White Level

You may want to sample the black and white level colors directly in the image by clicking at an area. There are hotkeys for that.

**Ctrl + Left Mouse** click in the image sets the Black level value from that position.

**Shift + Left Mouse** click in the image sets the White Level value from that position.

To see the result you need to tick the View as Render button.





Black Level:	White Level:
R: 0.000	R: 1.000
G: 0.000	G: 1.000
B: 0.000	B: 1.000

#### Reset

Resets the Curve and the Black and White Level values to the default values.