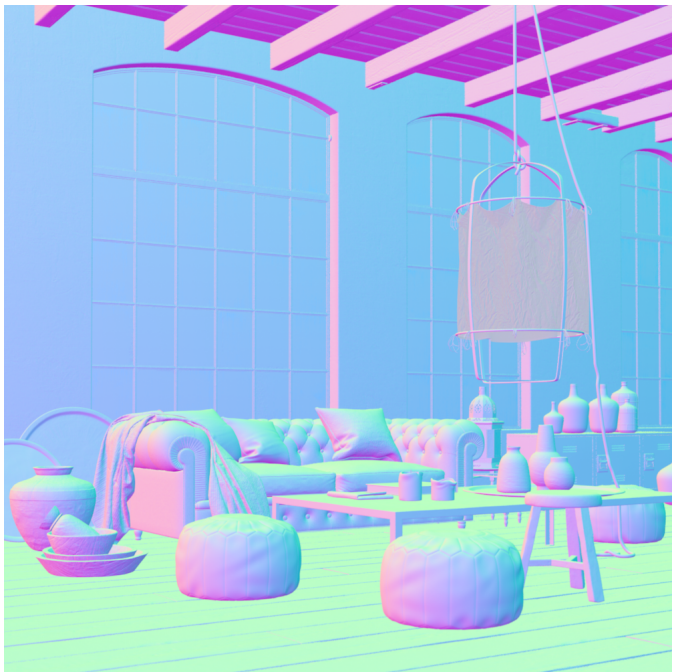


Coordinates Render Preset

This page provides information on the Coordinates Render Elements in V-Ray for Unreal.

Overview

The Coordinates Render Elements are based on the scene geometry, but serve different purposes. For more information of what each of the channels do, see below.



Normals

The Normals Render Element creates a normals image from surface normals in the scene. It stores the camera space normal map using the geometry's surface normals, but does not present any bump maps. The Normals Render Element is useful for adjusting lighting in the composite.

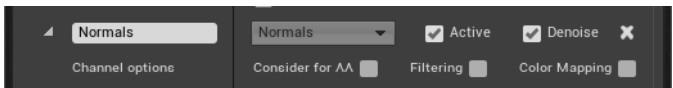
Active – Enables the render of the channel.

Denoise – Enables the render element's denoising, provided the Denoiser render element is present.

Consider for AA – By default, the Image sampler applies AA based on the RGB image. When this option is enabled, the Render Element is considered for AA.

Filtering – When enabled, it applies the antialiasing filter to the render element.

Color Mapping – Applies the default color mapping options to this render element (Reinhard).



Bump Normals

The Bump Normals Render Element creates a normal-style image from the camera view from bumps and normals in the scene. The normals are generated using screen space which uses the XYZ orientation of the camera view. With Screen space, the X axis runs left-right across the view, Y runs up-down, and Z points out of the screen. Bump maps are also represented in this render element.

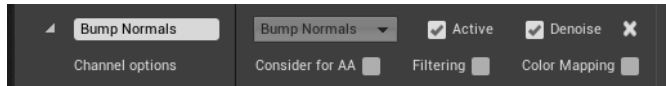
Active – Enables the render of the channel.

Denoise – Enables the render element's denoising, provided the Denoiser render element is present.

Consider for AA – By default, the Image sampler applies AA based on the RGB image. When this option is enabled, the Render Element is considered for AA.

Filtering – When enabled, it applies the antialiasing filter to the render element.

Color Mapping – Applies the default color mapping options to this render element (Reinhard).



Sampler Info

The Sampler Info Render Element is a color image that provides information about the scene, with the choice to show any of various aspects as color blocks. This render element provides information about various aspects of the shaded points such as position, normal, bump normal, reflection/refraction vectors and UVW coordinates.

Consider for AA – By default, the Image sampler applies AA based on the RGB image. When this option is enabled, the Render Element is considered for AA.

Filtering – When enabled, it applies the antialiasing filter to the render element.

Color Mapping – Applies the default color mapping options to this render element (Reinhard).

Type – Controls the type of render element produced by Sampler Info:

Point – The X, Y, and Z coordinates of the point are converted to RGB data according to the **coord system** that is set. This outputs a Position Pass for use in compositing.

Coordinate System – Extracts the UVW coordinates of the object at the particular shaded point. This can be used to apply another texture at a composite level.

Normal Vector – The direction of the normal at the particular shaded point according to which **coord system** is set (Object, World, Camera or relative space).

Reflection Vector – Commonly used for adjusting reflections in the composite.

Refraction Vector – Commonly used for adjusting refractions in the composite.

Normal Vector with Bump Mapping – Produces the bump normal according to the **coord system** that is set.

Backward Occlusion – The red and green components of this render element represent the screen position of the shaded point at the beginning of the motion-blurred frame, while the blue component represents camera occlusion at the beginning of the motion-blurred frame. Together with the **Forward occlusion** render element, this can be used for denoising and/or post-process motion blur.

Forward Occlusion – The red and green components of this render element represent the screen position of the shaded point at the end of the motion-blurred frame, while the blue component represents camera occlusion at the end of the motion-blurred frame. Together with the **Backward occlusion** render element, this can be used for denoising and/or post-process motion blur.

Point Multiplier – Acts as a multiplier when **type** is set to **Point**.

Refraction IOR – Sets the index of refraction when **Refraction vector** is set as the **type**.

UVW Channel – The UVW mapping channel used when the **type** is set to **UVW coordinates**.

UVWMode – Specifies what happens to UVW values outside the 0.0-1.0 range of the unit texture square:

Normal – Stores the UVW coordinates without modification.

Clamp – UVW coordinates above 1.0 are clamped to 1.0, and values below 0.0 are clamped to 0.0.

Tile – Wraps the UVW coordinates to the unit texture square.

Coordinate System – Controls the coordinate system used:

World – X, Y, and Z coordinates (in world space) of the point are converted to RGB data.

Object – X, Y, and Z coordinates (in object space) of the point are converted to RGB data.

Camera – X, Y, and Z coordinates (in camera space) of the point are converted to RGB data.

Relative – X, Y, and Z coordinates in the object space of the **relative node** are converted to RGB data.

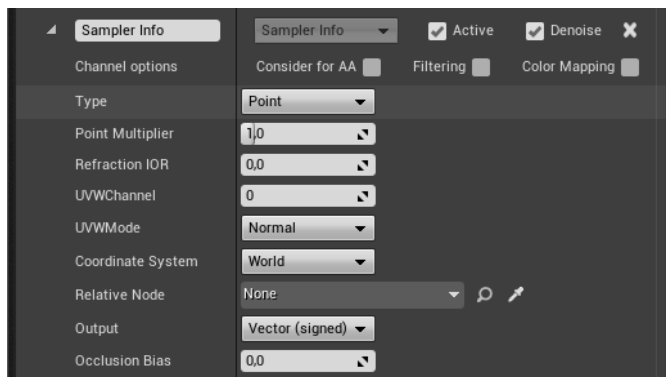
Relative Node – When **coord system** is set to relative, this specifies the scene node relative to which the point/vector data is stored. Press the drop-down menu to see a list of the objects in the scene. You can also search or pick them directly from the viewport.

Output – Controls the way data is stored in the render element when the **type** is a normal vector, or a reflection/refraction direction:

Vector (signed) – Values are stored directly without modification, including negative components.

Color (unsigned) – Values are scaled down by 0.5 and offset by 0.5 so that (0, 0, 0) maps to (0.5, 0.5, 0.5), (-1, -1, -1) maps to (0, 0, 0) and (1,1,1) maps to (1,1,1). This avoids negative values which might be necessary for some compositing packages.

Occlusion Bias – Controls the positional bias of the **Backward occlusion** & **Forward occlusion** types in order to prevent incorrect self-occlusion.



Velocity

The Velocity Render Element stores surface velocity for moving objects in the scene with different colors representing different velocities. Each moving object is rendered with a flat color or gradient. It is commonly used to create mattes for adding motion blur in a composite.

The shading in the Velocity Render Element is determined by the degree of motion for each object's pivot point. The object's motion between the current frame and the next frame on the X, Y, and Z axes is mapped to R, G, and B components, with movement along the negative axis as 0 and movement along the positive axis as the maximum value. For example, a white object has moved at the maximum velocity on all three axes in a positive direction, while a black object has moved at the maximum velocity in negative direction on all three axes. A pale yellow object has moved a great deal on all three axes in the positive direction, but mostly on X and Y, while a dark purple object has moved on the -X and -Z axes. A medium gray color indicates no motion.

Consider for AA – By default, the Image sampler applies AA based on the RGB image. When this option is enabled, the Render Element is considered for AA.

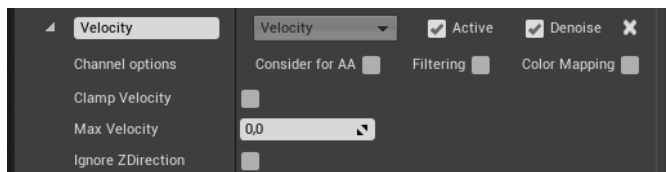
Filtering – When enabled, it applies the antialiasing filter to the render element.

Color Mapping – Applies the default color mapping options to this render element (Reinhard).

Clamp Velocity – Sets the limit for **Max Velocity**. When enabled, this option limits the max velocity value to 1 for floating point images, 255 for 8-bit images, or 65535 for 16-bit images. This option is useful only when writing to an 8-bit or 16-bit file format.

Max Velocity – This parameter scales the velocity values written to the render element so that they fit within the range specified by the **Clamp Velocity** parameter. This is only useful if writing to an 8-bit or 16-bit file format.

Ignore ZDirection – Enable to disregard the motion along the Z-axis.



ZDepth

The Z-Depth Render Element provides information about each object's distance from the camera in the current view. Each pixel representing the object is evaluated for distance individually; different pixels for the same object can have different grayscale values. In this render element, objects (or portions of objects) closest to the camera appear as black, while those furthest away appear white. Objects between the furthest and nearest points are rendered in varying shades of gray. The lighter the gray, the further an object pixel is from the camera.

Consider for AA – By default, the Image sampler applies AA based on the RGB image. When this option is enabled, the Render Element is considered for AA.

Filtering – When enabled, it applies the antialiasing filter to the render element.

Color Mapping – Applies the default color mapping options to this render element (Reinhard).

Depth Range – Set minimum and maximum limit for the depth

Clamp Depth – Clamps the Z-Depth colors to a linear 0-1 range.

Use Camera Depth – Specifies whether to use to camera clip boundaries as the minimum and maximum Z-Depth distance. Enabling this option disables the **Depth Range** parameters.

