

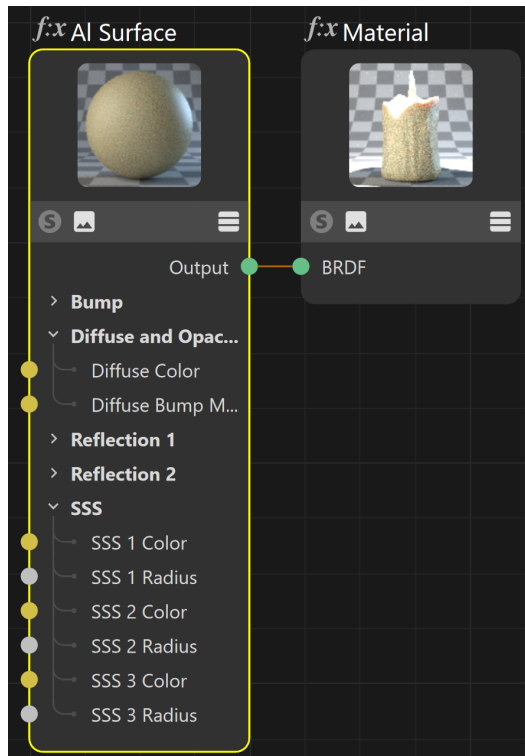
# AI Surface Node

This page provides information about the AI Surface node in V-Ray for Cinema 4D.

## Overview

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The V-Ray AI Surface shader is V-Ray's implementation of Anders Langland's alShader, which is designed to reproduce the appearance of skin. The current version takes into account diffuse reflection, two levels of reflection, and subsurface scattering.



## Bump

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**Bump Map** – Attach a bump map to apply a bump/normal effect.

**Bump Amount** – A multiplier for the bump/normal effect.

**Bump Type** – Allows the user to specify whether a bump map or a normal map effect is added to the base material.

**Bump Map** – Uses a bump map to determine the bump effect of the material.

**Normal Map in Tangent Space** – Uses a tangent normal map to determine the bump effect on the material.

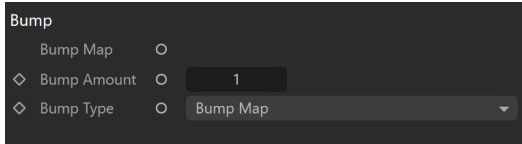
**Normal Map in Object Space** – Uses an object space normal map to determine the bump effect on the material.

**Normal Map in Screen Space** – Uses a screen space normal map to determine the bump effect on the material.

**Normal Map in World Space** – Uses a world space normal map to determine the bump effect on the material.

**From Texture Bump Output** – Uses the texture bump output to determine the bump effect on the material.

**Explicit Normal** – Uses the mesh's set normal to determine the bump effect on the material.



## Diffuse and Opacity

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**Opacity** – Assigns transparent properties to the material, where white is completely opaque and black is completely transparent. Maps can also be assigned to create a material that has a non-uniform opacity.

**Diffuse Color** – The color of the material. Note: The actual diffuse color of the surface also depends on the reflection and refraction colors. You can use a texture map for the diffuse color.

**Diffuse Strength** – A multiplier for the **Diffuse Color**.

**Diffuse Bump Map** – Allows a bump or normal texture node to be connected, as the diffuse component. The bump effect here is added to the **Bump** effect. If no map is set in the Bump parameters or the map there is disabled, the map in this layer produces its bump effect.

Diffuse Bump Amount – A multiplier for the **Diffuse Bump Map**.

**Diffuse Bump Type** – Defines how the bump input is read by the material.

**Bump Map** – Uses a bump map to determine the bump effect on the material.

**Normal Map in Tangent Space** – Uses a tangent normal map to determine the bump effect on the material.

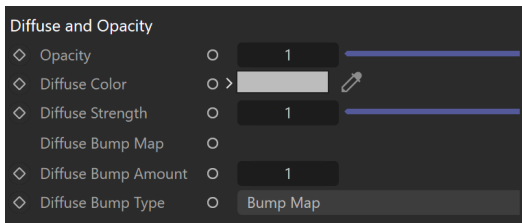
**Normal Map in Object Space** – Uses an object space normal map to determine the bump effect on the material.

**Normal Map in Screen Space** – Uses a Screen space normal map to determine the bump effect on the material.

**Normal Map in World Space** – Uses a world space normal map to determine the bump effect on the material.

**From texture bump output** – Uses the texture bump output to determine the bump effect on the material.

**Explicit normal** – Uses the mesh's set normal to determine the bump effect on the material.



## Reflection

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*The AI Surface Material has two reflection tabs with identical parameters for precise control over two types of reflection.*

**Reflect Color** – The reflection color. Note that the reflection color dims the diffuse surface color.

**Reflect Strength** – A multiplier for the **Reflect Color**.

**Reflect Roughness** – Simulates rough surfaces or surfaces covered with dust.

**Reflect IOR** – The IOR used when calculating Fresnel reflections. Normally this is locked to the Refraction IOR parameter, but you can unlock it for finer control.

**Reflect Distribution** – Determines the type of BRDF (the shape of the highlight):

**Beckmann** – Uses a Beckmann distribution for the reflection.

**GGX** – Uses GGX distribution for the reflection. The GGX distribution has a longer "tail" compared to the Beckmann distribution.

**Reflect Bump Map** – Allows the user to select a texture for the bump or normal map for the reflection component. The bump effect here is added to the **Bump** effect. If no map is set in the Bump parameters or the map there is disabled, the map in this layer still produces its bump effect.

**Reflect Bump Amount** – A multiplier for the **Reflect Bump Map**.

**Reflect Bump Type** – Defines how the bump input is read by the material.

**Bump Map** – Uses a bump map to determine the bump effect on the material.

**Normal Map in Tangent Space** – Uses a tangent normal map to determine the bump effect on the material.

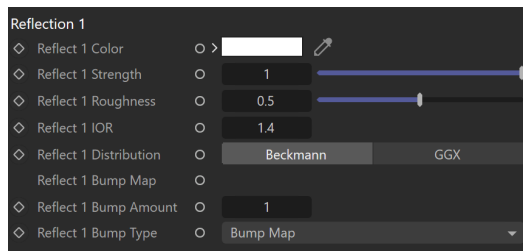
**Normal Map in Object Space** – Uses an object space normal map to determine the bump effect on the material.

**Normal Map in Screen Space** – Uses a Screen space normal map to determine the bump effect on the material.

**Normal Map in World Space** – Uses a world space normal map to determine the bump effect on the material.

**From texture bump output** – Uses the texture bump output to determine the bump effect on the material.

**Explicit normal** – Uses the mesh's set normal to determine the bump effect on the material.



## SSS

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The SSS tab has three identical options for subsurface scattering control.

**SSS Mix** – Blend between full scattering (1) and pure refraction (0). When this option is set to 0, all other options in this rollout are inactive.

**SSS Mode** – Determines how illumination is computed for sub-surface scattering. This option is not supported on V-Ray GPU.

**Diffusion** – Scatters light uniformly inside the material. Useful for recreating skin and such translucent materials.

**Directional** – Scatters more light in the direction from which a light source illuminates the surface. This method requires the Affect Shadows option to be enabled so that shadows extend below the surface. Directional Illumination Method may also produce a faceted look on low-poly objects.

**SSS Density Scale** –

**SSS Weight** – The relative contribution of the shallow scattering layer to the material.

**SSS Color** – The color for the shallow scattering layer.

**SSS Radius** – The distance that light is scattered within the shallow layer.



## Options

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### MATERIAL ID

**Material Id Enabled** – Enables the use of Material ID.

**Material ID** – The color used by the [Material ID render element](#). You can also use a shader [here](#).

**Multimatte ID** – The integer ID of the material to be used by the [Multi Matte render element](#).

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### ROUND EDGES

**Round Edges Enabled** – Enables the round edges effect which uses bump mapping to smooth out the edges of the geometry during render time.

**Radius** – Specify a radius (in world units) for the Round Edges effect. Since the actual geometry is not being changed and only the normals of the faces are affected, large values may produce undesirable effects.

**Consider Same Object Only** – When enabled, the rounded corners are produced only along edges that belong to the object, which has the attribute applied. When disabled, rounded corners are also produced along edges formed when the object with the attribute intersects other objects in the scene.

**Corners** – Choose which edges are considered in the calculation. Possible options are:

**Covex and Concave** – Considers all edges.

**Convex Only** – Only applies Round Edges effect to edges with convex angles.

**Concave Only** – Only applies Round Edges effect to edges with concave angles.

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**Reflect Max Depth** – The number of times a ray can be reflected. Scenes with many reflective and refractive surfaces might require higher values to look correct.

**Reflect Subdivs** – Determines the number of samples when V-Ray is calculating **Reflection**.

**SSS Subdivs** – Determines the number of samples when V-Ray is calculating **SSS**.

**Consider All Objects** – When enabled, the V-Ray AI Surface considers all intersecting objects with AI Surface when calculating the sub-surface scattering effect to allow for the effect to "bleed through". *This option is not available in V-Ray GPU.*

Options

▼ MATERIAL ID

Material Id Enabled

◇ Material ID

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◇ Multimatte ID

0

▼ ROUND EDGES

Round Edges Enabled

◇ Radius

1

◇ Consider Same Object Only

◇ Corners

Convex and Concave

◇ Reflect Max Depth

5

◇ Reflect Subdivs

8

◇ SSS Subdivs

8

◇ Consider All Objects