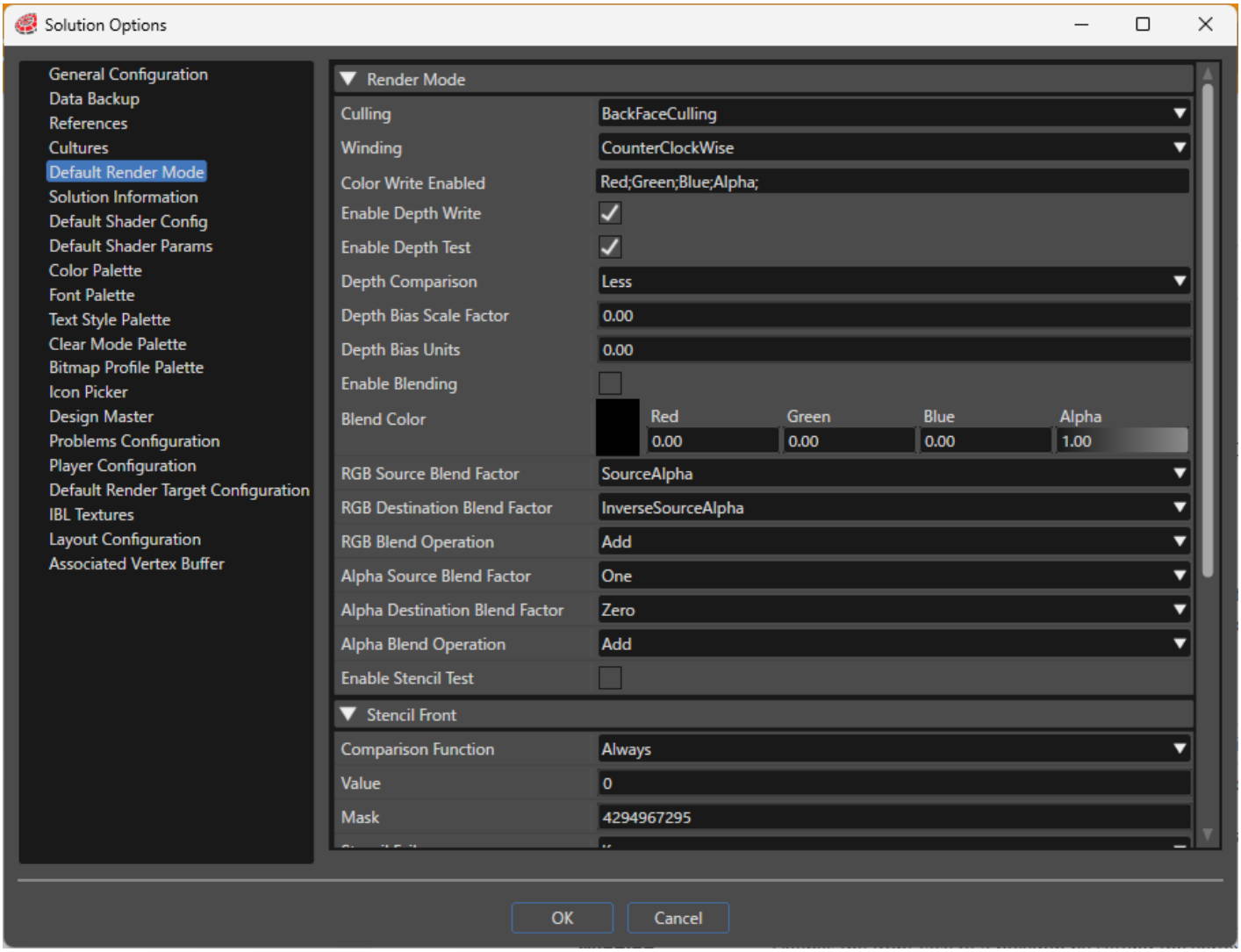
# Default Render Mode

## Default Render Mode Settings

You can open the Solution Options dialog from [ File > Solution Options ] in the menu bar to configure various rendering properties under [ Default Render Mode ]. These properties are automatically applied by SCHost unless another render mode is explicitly set for the object.




If there is a render mode associated with an object, Scene Composer compares these property values with the default render mode settings and includes a bitmask used by the Candera engine within the asset to optimize rendering.

## Render Mode

| Setting | Description |
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| **CullMode** | Configure culling (excluding surfaces from rendering) according to the selected setting. Applying front or back culling optimizes rendering.<br>• **FrontFaceCulling:** Does not render the front faces.<br>• **BackFaceCulling:** Does not render the back faces.<br>• **NoCulling:** Renders all faces without culling. |
| **Winding** | Defines the front face of a polygon by setting the vertex drawing order to clockwise or counterclockwise.<br>• **Clockwise:** Renders with clockwise winding.<br>• **CounterClockwise:** Renders with counterclockwise winding. |
| **Color Write Enabled** | Enables or disables writing fragment color values to the color buffer, configurable per RGBA channel. |
| **Enable Depth Write** | Enables or disables writing to the depth buffer during rendering. When enabled, depth information is recorded in the depth buffer during rendering. |
| **Enable Depth Test** | Enables or disables depth testing. When enabled, the depth buffer is used to control rendering based on depth. If disabled, depth writing is also disabled. |
| **Depth Comparison** | Configure the comparison function that determines which source (new) pixel depth values pass the depth test. The source depth is compared with the destination (existing) pixel depth using the selected comparison function.<br>• **Never:** Always fails (never passes any comparison).<br>• **Less:** Passes when the source depth is smaller than the destination depth.<br>• **Equal:** Passes when the source depth is the same as the destination depth.<br>• **LessEqual:** Passes when the source depth is smaller than or the same as the destination depth.<br>• **Greater:** Passes when the source depth is greater than the destination depth.<br>• **NotEqual:** Passes when the source depth does not match the destination depth.<br>• **GreaterEqual:** Passes when the source depth is greater than or the same as the destination depth.<br>• **Always:** Always passes (passes every comparison). |
| **Depth Bias Scale Factor** | Specifies the scale factor to determine how much bias to apply to primitives, mainly used to avoid z-fighting (depth conflicts). |
| **Depth Bias Units** | Specifies a constant depth offset value used together with the scale factor to adjust and avoid z-fighting. |
| **Enable Blending** | Enables or disables blending (color composition). When enabled, the source color is blended with the destination color in the framebuffer. |
| **Blend Color** | Defines the constant blend color used when a constant color blend factor is selected. |

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| **RGB Source Blend Factor** | Sets the blend factor applied to the source color in the RGB channels.<br>• **Zero:** Treated as zero, has no effect during blending.<br>• **One:** Treated as one, uses the original value.<br>• **SourceColor:** Uses the RGB value of the source color.<br>• **InverseSourceColor:** Uses the inverse of the source RGB value (one minus source color).<br>• **SourceAlpha:** Uses the alpha value of the source color.<br>• **InverseSourceAlpha:** Uses the inverse of the source alpha value (one minus source alpha).<br>• **DestColor:** Uses the RGB value of the destination color.<br>• **InverseDestColor:** Uses the inverse of the destination RGB value (one minus destination color).<br>• **DestAlpha:** Uses the alpha value of the destination color.<br>• **InverseDestAlpha:** Uses the inverse of the destination alpha value (one minus destination alpha).<br>• **ConstantColor:** Uses the specified constant color (set in Blend Color).<br>• **InverseConstantColor:** Uses the inverse of the specified constant color (one minus constant color).<br>• **ConstantAlpha:** Uses the specified constant alpha value.<br>• **InverseConstantAlpha:** Uses the inverse of the specified constant alpha value (one minus constant alpha).<br>• **SourceAlphaSaturate:** Uses the minimum of the source and destination alpha values for saturated addition, a special blend mode heavily influenced by the source value. |
| **RGB Destination Blend Factor** | Sets the blend factor applied to the destination color in the RGB channels. Available values are the same as RGB Source Blend Factor. |
| **RGB Blend Operation** | Specifies the operation used for blending RGB values.<br>• **Add:** Adds values.<br>• **Subtract:** Subtracts the source from the destination.<br>• **ReverseSubtract:** Subtracts the destination from the source.<br>• **Min:** Uses the minimum value.<br>• **Max:** Uses the maximum value. |
| **Alpha Source Blend Factor** | Specifies the blend factor for the source alpha channel, with the same available values as RGB Source Blend Factor. |
| **Alpha Destination Blend Factor** | Specifies the blend factor for the destination alpha channel, with the same available values as RGB Source Blend Factor. |
| **Alpha Blend Operation** | Specifies the operation for blending alpha values, using the same options as RGB Blend Operation. |
| **Enable Stencil Test** | Enables or disables stencil testing on the stencil buffer, allowing control of rendering based on stencil buffer conditions (area control, masking, etc.). |

# Stencil Front / Stencil Back

| Setting | Description |
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| **Comparison Function** | Configure the comparison function that determines which source (new) values pass the stencil test. The masked reference value (Value) and the masked stencil buffer value are compared, and pass/fail is determined by the selected function.<br><br>• **Never:** Always fails (never passes any comparison).<br>• **Less:** Passes when the reference value after masking is smaller than the stencil value after masking.<br>• **Equal:** Passes when the reference value after masking is the same as the stencil value after masking.<br>• **LessEqual:** Passes when the reference value after masking is smaller than or the same as the stencil value after masking.<br>• **Greater:** Passes when the reference value after masking is greater than the stencil value after masking.<br>• **NotEqual:** Passes when the reference value after masking does not match the stencil value after masking.<br>• **GreaterEqual:** Passes when the reference value after masking is greater than or the same as the stencil value after masking.<br>• **Always:** Always passes (passes every comparison). |
| **Value** | Specifies the reference value used with the comparison function for stencil testing. |
| **Mask** | Specifies the mask value applied to the source and destination data during stencil testing, useful for targeting specific bits during comparison. |
| **StencilFail** | Sets the stencil buffer operation if the stencil test fails.<br>• **SetToZero:** Sets the value to zero.<br>• **Keep:** Keeps the current value.<br>• **Replace:** Replaces with the reference value.<br>• **Increment:** Increments by one, clamps at max.<br>• **Decrement:** Decrements by one, clamps at zero.<br>• **Invert:** Inverts bits.<br>• **IncrementWrap:** Increments by one, wraps to zero if exceeded.<br>• **DecrementWrap:** Decrements by one, wraps to max if below zero. |
| **DepthFail** | Sets the operation if the stencil test passes but the depth test fails. Options are the same as StencilFail. |
| **DepthPass** | Sets the operation if both the stencil and depth tests pass. Options are the same as StencilFail. |
| **WriteMask** | Specifies the mask value used when writing values to the stencil buffer, allowing control over which bits are written. |

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