



Working with a Cryptomatte pass

Blender Cycles Workflow



Theme



Compositing example, basic scene

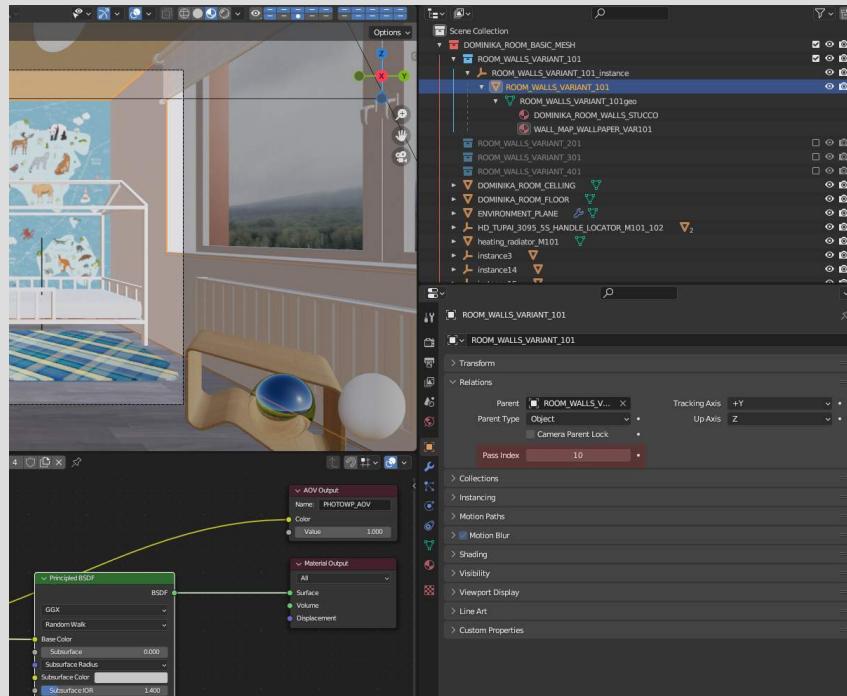


Compositing example, after corrections with cryptomatte render pass

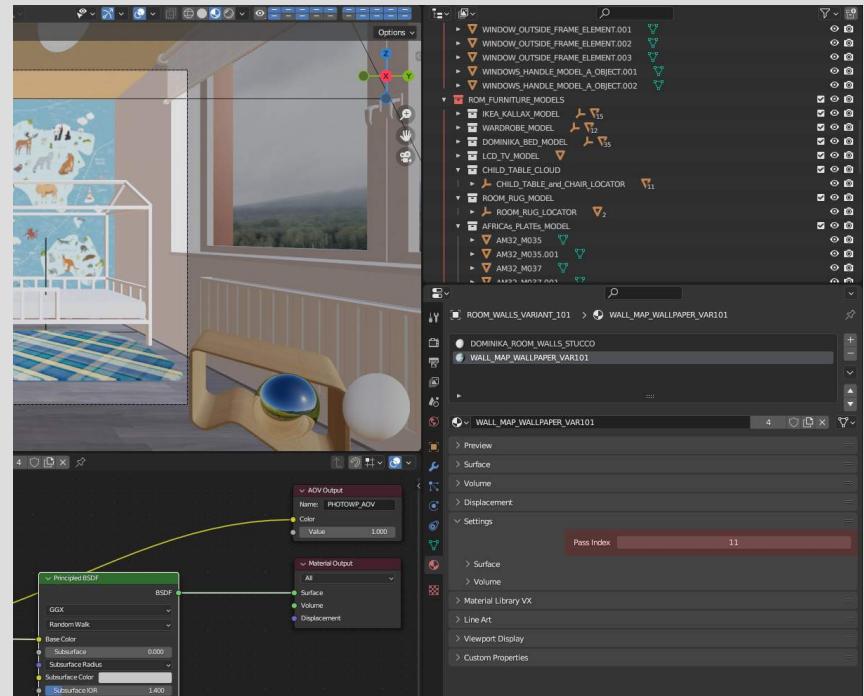
Object and Material ID's

In the Blender scene, you can assign individual ID's to objects or materials.

Each ID can be assigned to multiple objects or materials, creating groups of scene elements in an image.



Object ID assignment in Object Properties tab.



Material ID assignment in Material Properties tab.



Object and Material ID's

The image shows a complex Houdini node graph titled "Compositing Flow". The graph is organized into several sections:

- Input Layered EOR Image:** A node on the far left with many outputs: Combined, Alpha, Depth, AO, normal, Vector, UV, Env, Env, IndexMA, DIFR, DiffR, DIFG, GlossI, GlossG, GlosS, Cryptoset1, Cryptoset2, Cryptoset3, Cryptoset4, CryptMaterial1, CryptMaterial2, CryptMaterial3, CryptMaterial4, CryptObject1, CryptObject2, CryptObject3, CryptObject4, Denoising Alpha, Denoising Depth, Denoising Normal, FLOORCOLOR_ADV, PHOTOW_ADV, Position, ROOFPLUG_ADV, ROOMWALLS_ADV.
- Object IDs Mask:** A purple section containing:
 - ID Mask:** Node with "Index" set to 11 and "Anti-Aliasing" checked.
 - Add:** Node with "Add" set to "Clamp" and "Fac" set to 1.000.
 - Composite:** Node with "Image" and "Alpha" inputs.
- Material IDs Mask:** An orange section containing:
 - ID Mask:** Node with "Index" set to 10 and "Anti-Aliasing" checked.
- Color Balance:** A node with "Correction Form" set to "Lift/Gamma/Gain". It has three color swatches and controls for "Lift", "Gamma", and "Gain".
- Alpha Over:** A node with "Convert Premultiplied" checked and "Premultiply" set to 0.000. It takes "Image", "Fac", and "Image" inputs.
- Viewer:** A node showing a preview of the final composite image.

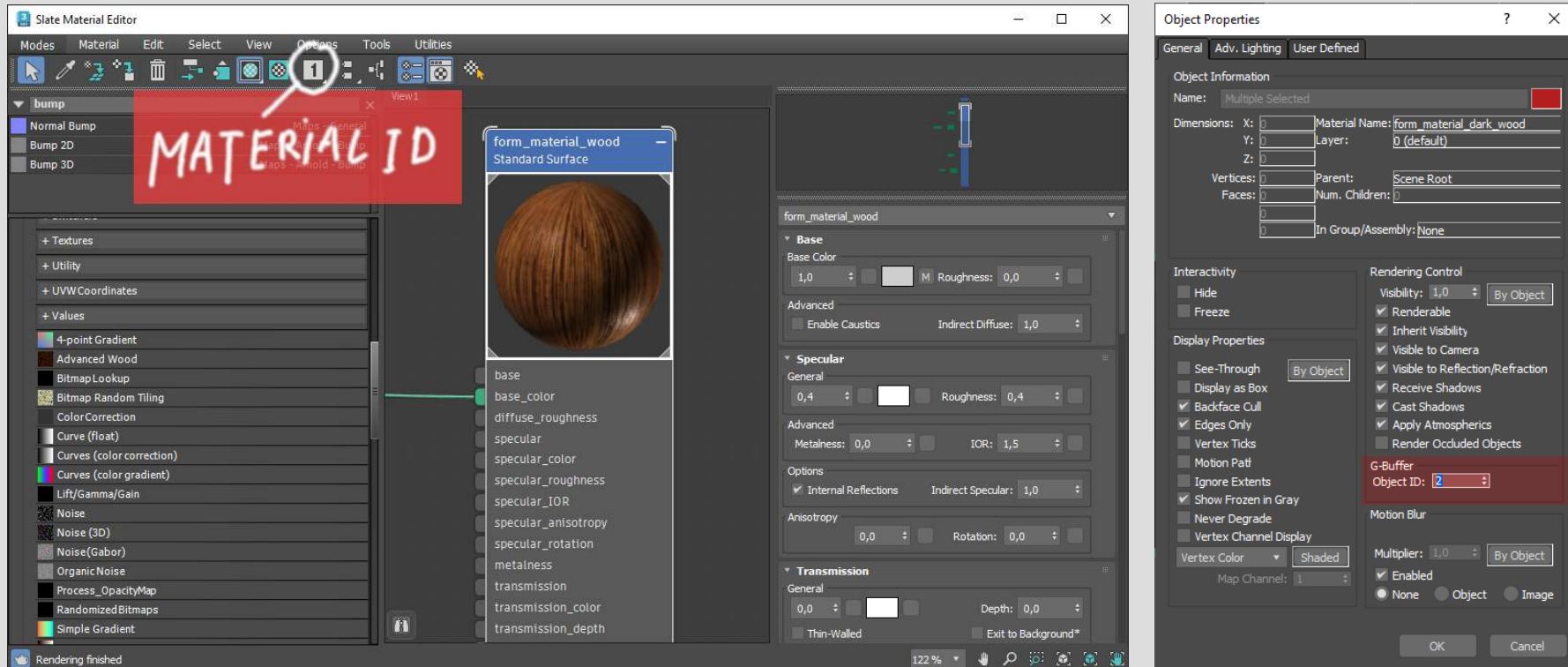
The graph uses yellow lines to connect specific outputs from the "Input Layered EOR Image" node to the "Object IDs Mask" and "Material IDs Mask" nodes. It also shows how these masks are combined and processed through "Add", "Composite", and "Alpha Over" nodes to produce the final result seen in the "Viewer".

Object ID workflow example. Mask build from two different ID's, and change floor and walls color in image.



Object and Material ID's

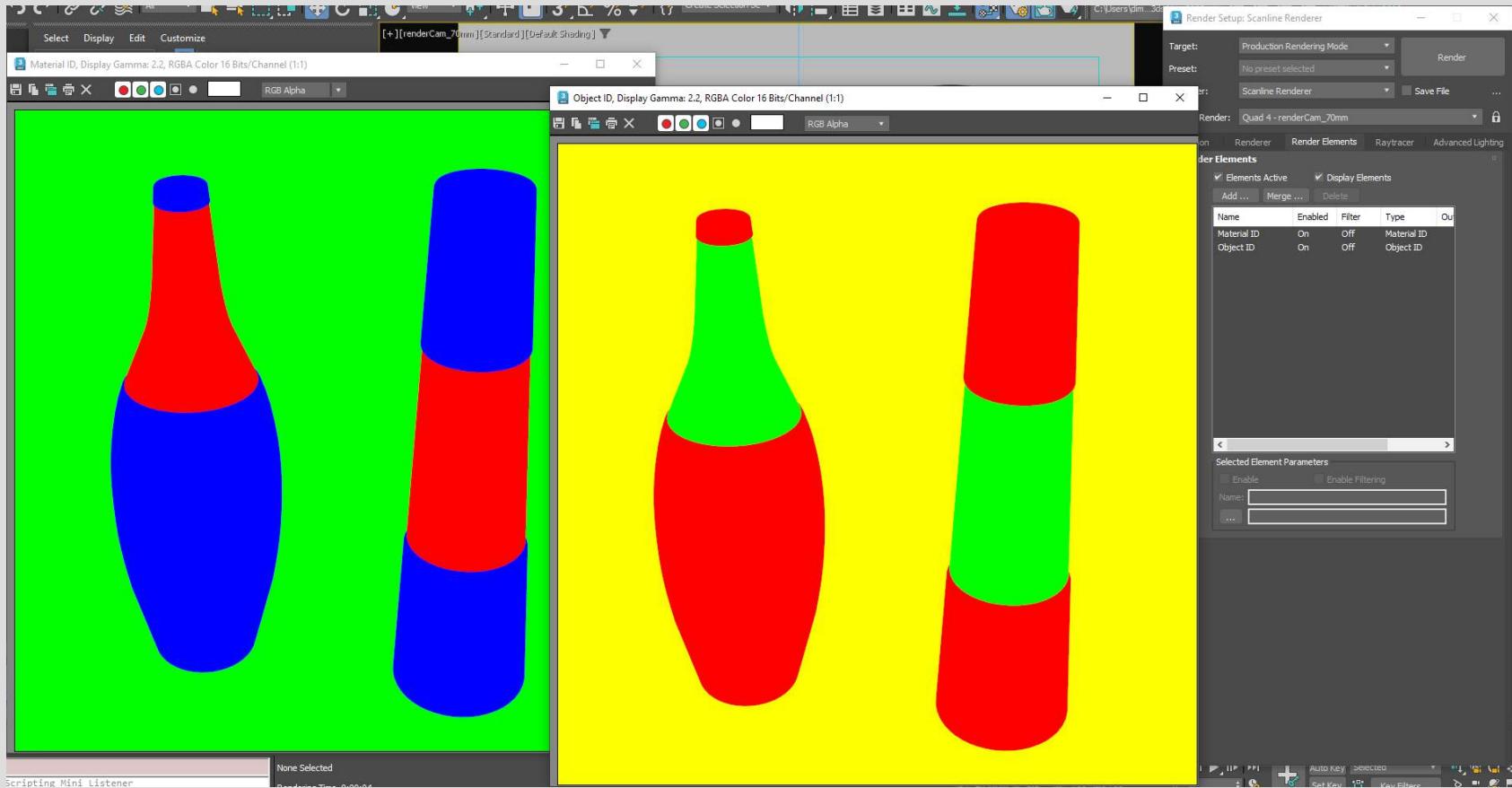
In the classic rendering and compositing workflow, artists use object and material IDs. Which are stored in passes and elements of rendered images.



Material ID and Object ID assignment in 3ds max 2024.



Object and Material ID's



Material ID and Object ID passes in 3ds max Scanline Renderer.



Problems classic ID's method

- Colored information
Needs color keying in compositing process
- Working with motion blur, transparency and depth of field, is challenging
- It is not possible to accurately identify the object, materials or assets from groups of parent objects
Artist can't select objects, assets and materials during rendering process



Cryptomatte pass tech

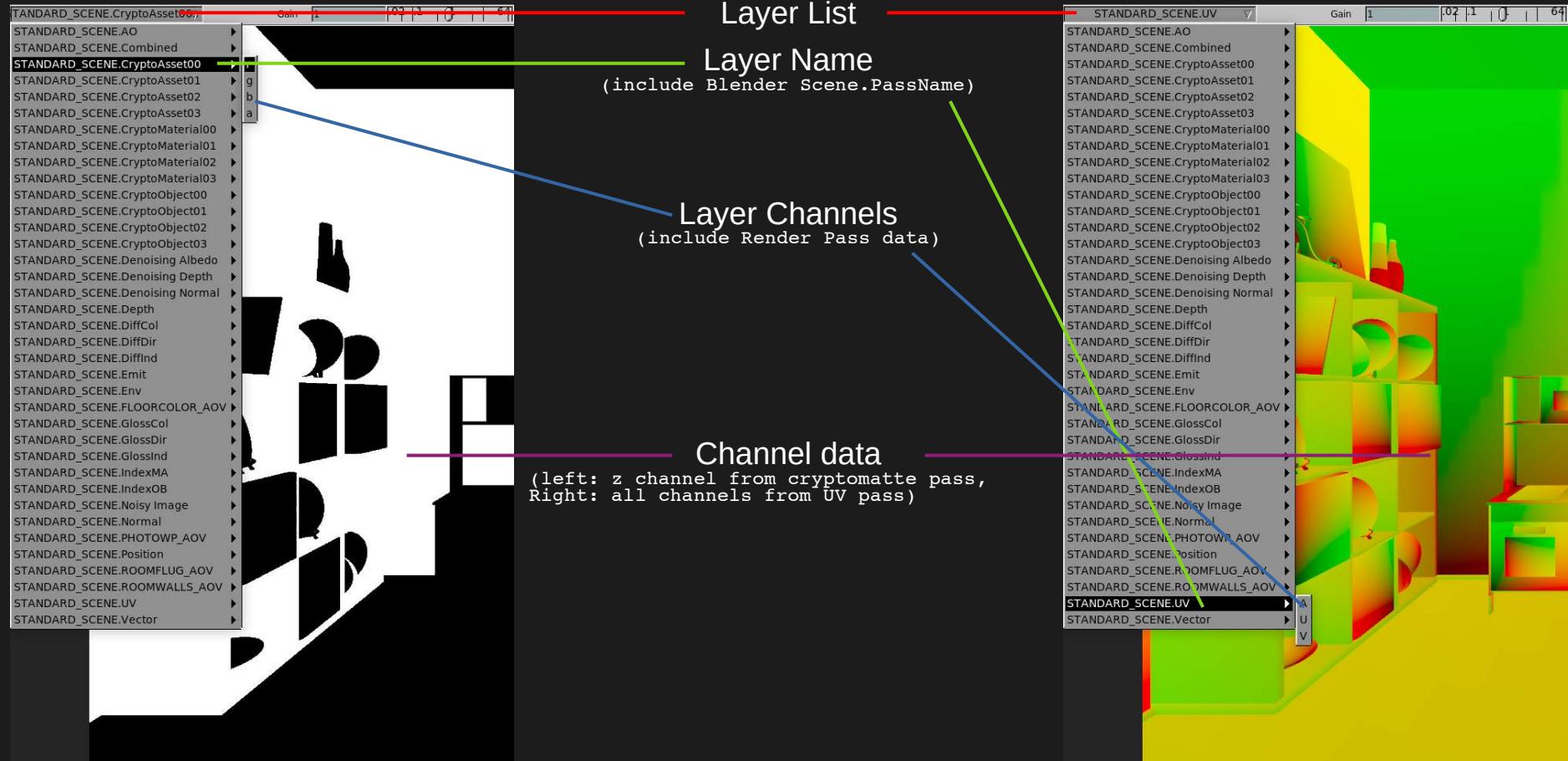


Cryptomatte

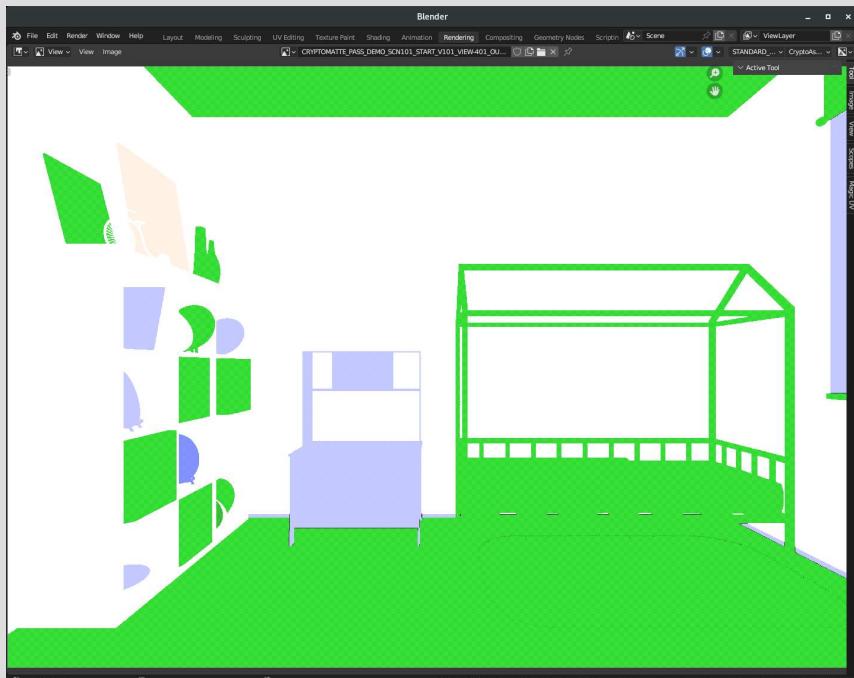
Cryptomatte is a tool created at Psyop by Jonah Friedman and Andy Jones. It creates ID mattes automatically with support for motion blur, transparency, and depth of field, using organizational information already available at render time. This organizational information is usually names, object namespaces, and material names.



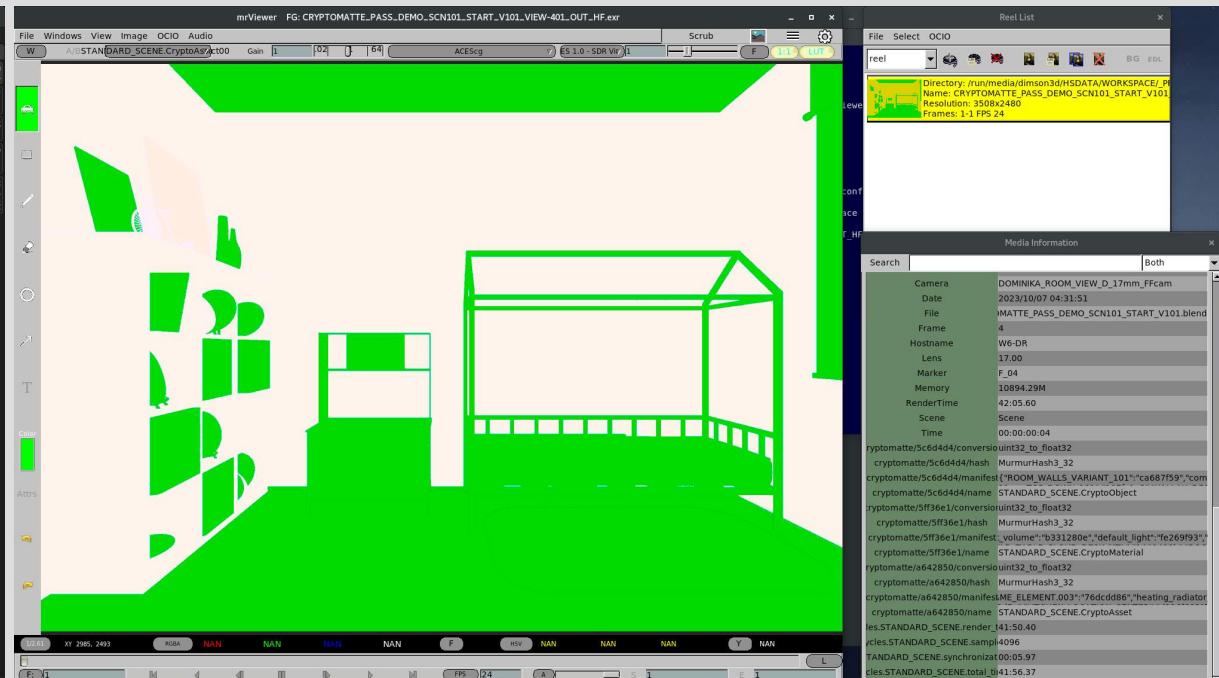
Layers, Channels and data realization in OpenEXR



Cryptomatte realization with OpenEXR



Cryptomatte render pass with **CryptoAsset** data-set preview.
Image opened in Blender Image Viewer.



Cryptomatte render pass with **CryptoAsset** data-set preview.
Image opened in mrViewer 6.2.3 application.
In Media Information window you can see Cryptomatte Pass data.



Cryptomatte in Blender

Cryptomatte is a standard to efficiently create mattes for compositing. Cycles outputs the required render passes, which can then be used in the Blender Compositor or another compositor with Cryptomatte support to create masks for specified objects.

Unlike the Material and Object Index passes, the objects to isolate are selected in compositing. The mattes will be anti-aliased and take into account effects like motion blur and transparency.

Object

Render cryptomatte object pass, for isolating objects in compositing.

Material

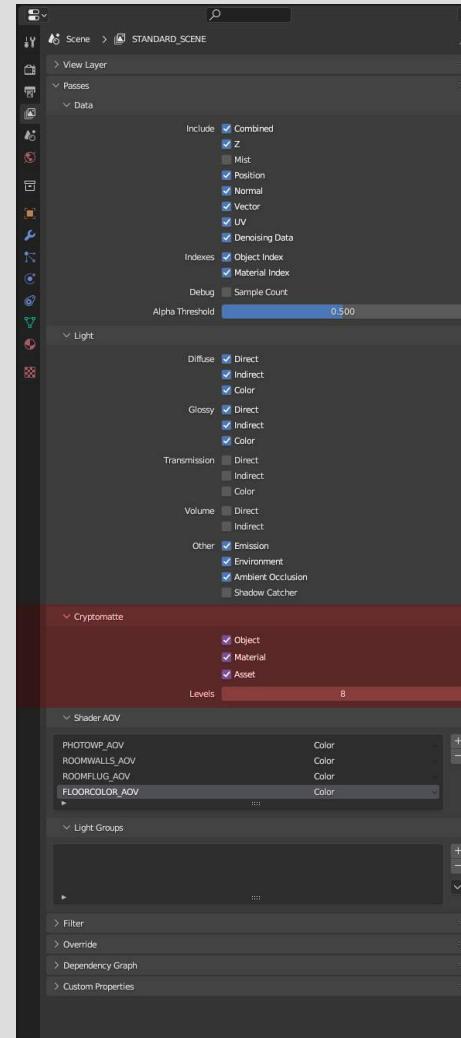
Render cryptomatte material pass, for isolating materials in compositing.

Asset

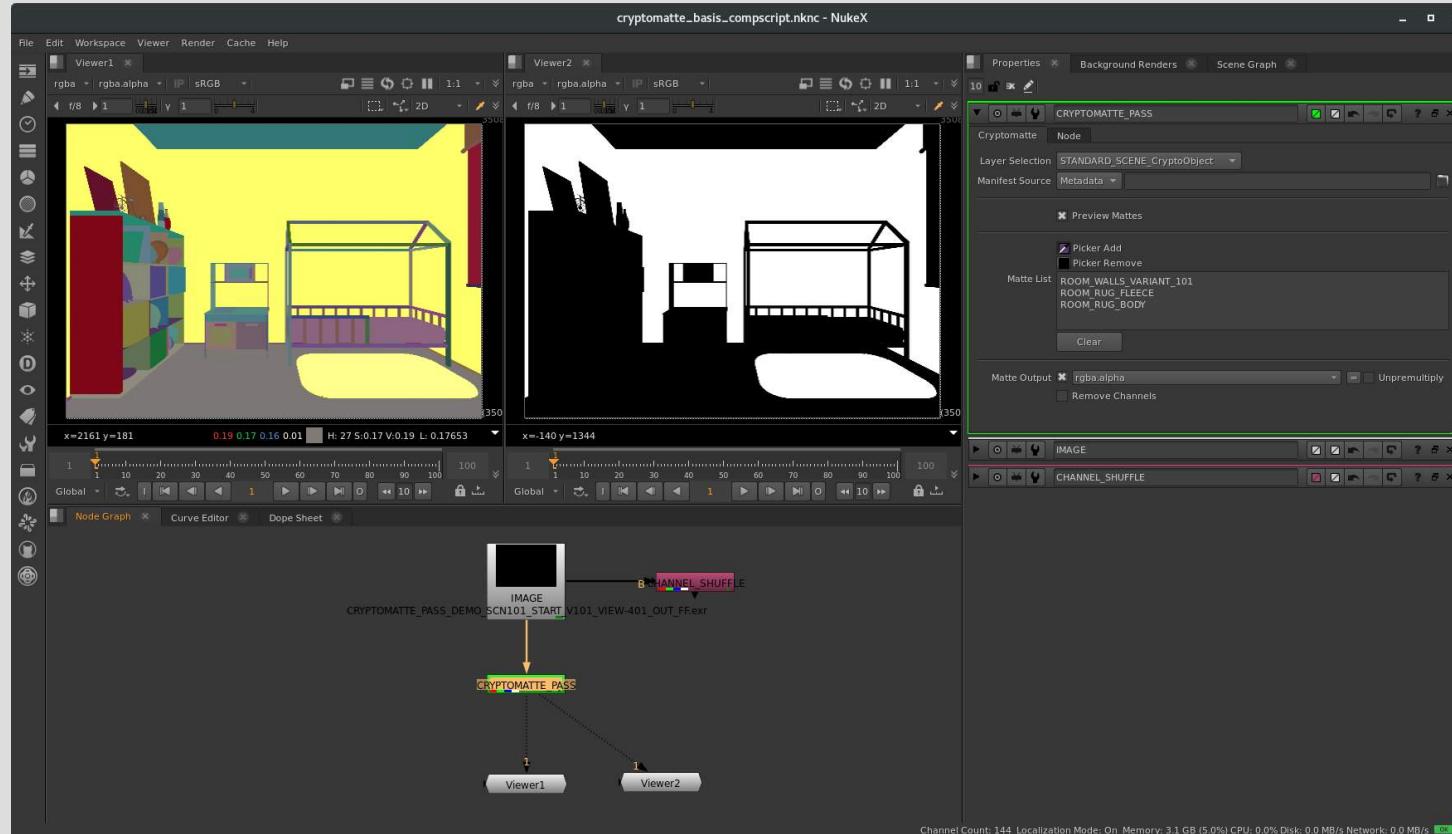
Render cryptomatte asset pass, for isolating groups of objects with the same parent in compositing.

Levels

Sets how many unique objects can be distinguished per pixel.



Cryptomatte in compositing software



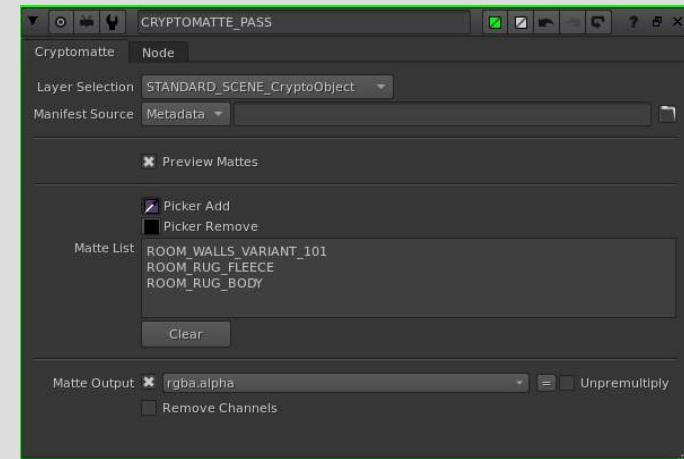
Example of matte, created with Cryptomatte pass. Pass saved in EXR image, objects selected in Cryptomatte node.



Cryptomatte in compositing software

Decoders:

- Nuke 8+ (by Jonah Friedman, Andy Jones)
- **Foundry Nuke 13+**
- Fusion (by Cédric Duriau and Kristof Indeherberge at Grid)
- Houdini 16.5 Compositor (By Sidefx)
- Blender 2.8.0 Compositor (By Tangent Animation and Blender Foundation)
- Autodesk Flame (Autodesk)
- Adobe After Effects (Fnordware ProEXR plugin 2.0) Ships with After Effects 2020
- Adobe Photoshop (EXR-IO 2)
- FilmLight Baselight v5
- Natron (by Fahad Hasan Pathik and Fabrice Fernandez)



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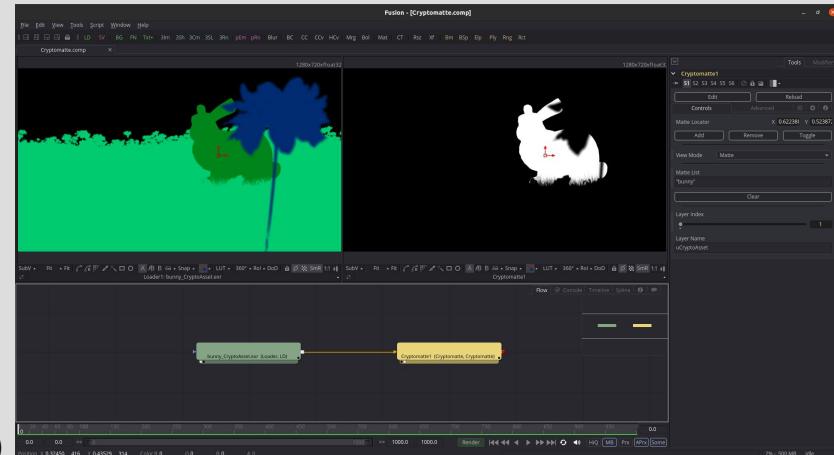


Image by Cédric Duriau and Kristof Indeherberge at Grid



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Image by fnord software



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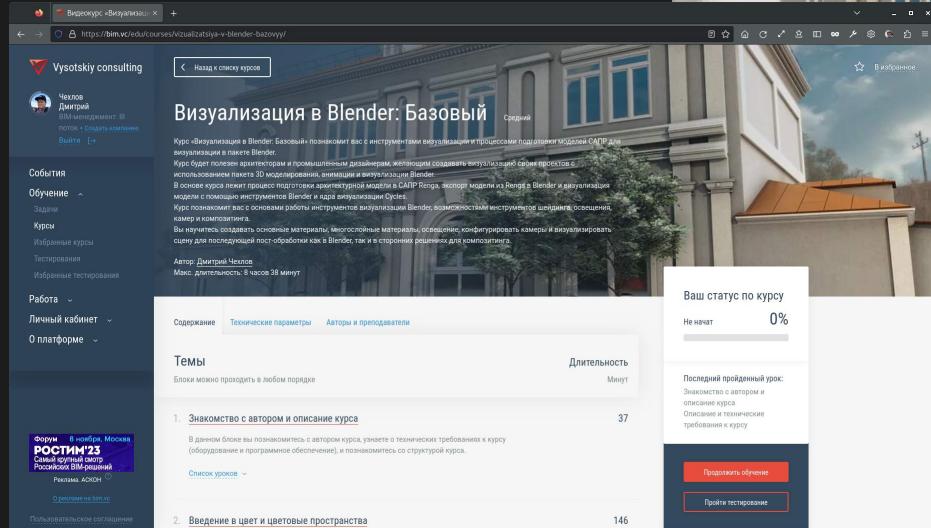
Image by 3D-IO Games & Video Production GmbH



DEMO



Visit my complete on-line course
«Rendering in Blender with Cycles Renderer»
on Vysotskiy Consulting — BIM.VC.



The screenshot shows a web browser displaying a course page. The title is 'Визуализация в Blender: Базовый'. The page includes a large image of a building's exterior, a sidebar with user information and navigation links, and a central content area with course details, a table of contents, and a progress bar indicating 0% completion.



Image by Dmitry «dimson3d» Chekhlov from Course Project



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dimson3d

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Разработка контента требует много времени и хорошего оборудования, благодаря вашей поддержке, я улучшу свои компьютеры и буду чаще радовать контентом.

=====

- В январе 2015 года прошел экзамен по сертификации Autodesk. Являюсь сертифицированным профессиональным пользователем Autodesk Maya, удостоенным сертификатом Autodesk Maya 2015 Certified Professional.

- В 2015 году из под пера вышла моя первая книга **ВИЗУАЛИЗАЦИЯ В AUTODESK MAYA. MENTAL RAY RENDERER**. ISBN: 978-5-97060-368-0 <https://dnkpress.com/catalog/computer/3d/978-5-97060-368-0/>

- В 2021 году была опубликована моя вторая книга **V-RAY ДЛЯ AUTODESK MAYA. РУКОВОДСТВО**.

