

AU 2014 Social Media Feed

<http://aucache.autodesk.com/social/visualization.html>

Go With the Flow: Common Workflow Process in Autodesk VRED Professional

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Instructional Designer

About Me

- Renu Muthoo, Instructional Designer
- Used Autodesk Products since 1996
- Writing Courseware since 1997
- With ASCENT (Rand Worldwide) since 2010



Class summary

In this class you learn the common workflow process for VRED Professional software to create high-quality, real-time renderings that realistically visualize design ideas.

Key learning objectives

At the end of this class, you will be able to:

- Work with Scenegraph and optimize the model geometry
- Learn how to assign and modify materials
- Learn how to apply an HDR image and set it as a background environment
- Learn how to work with different render setting options in OpenGL rendering method and create an image

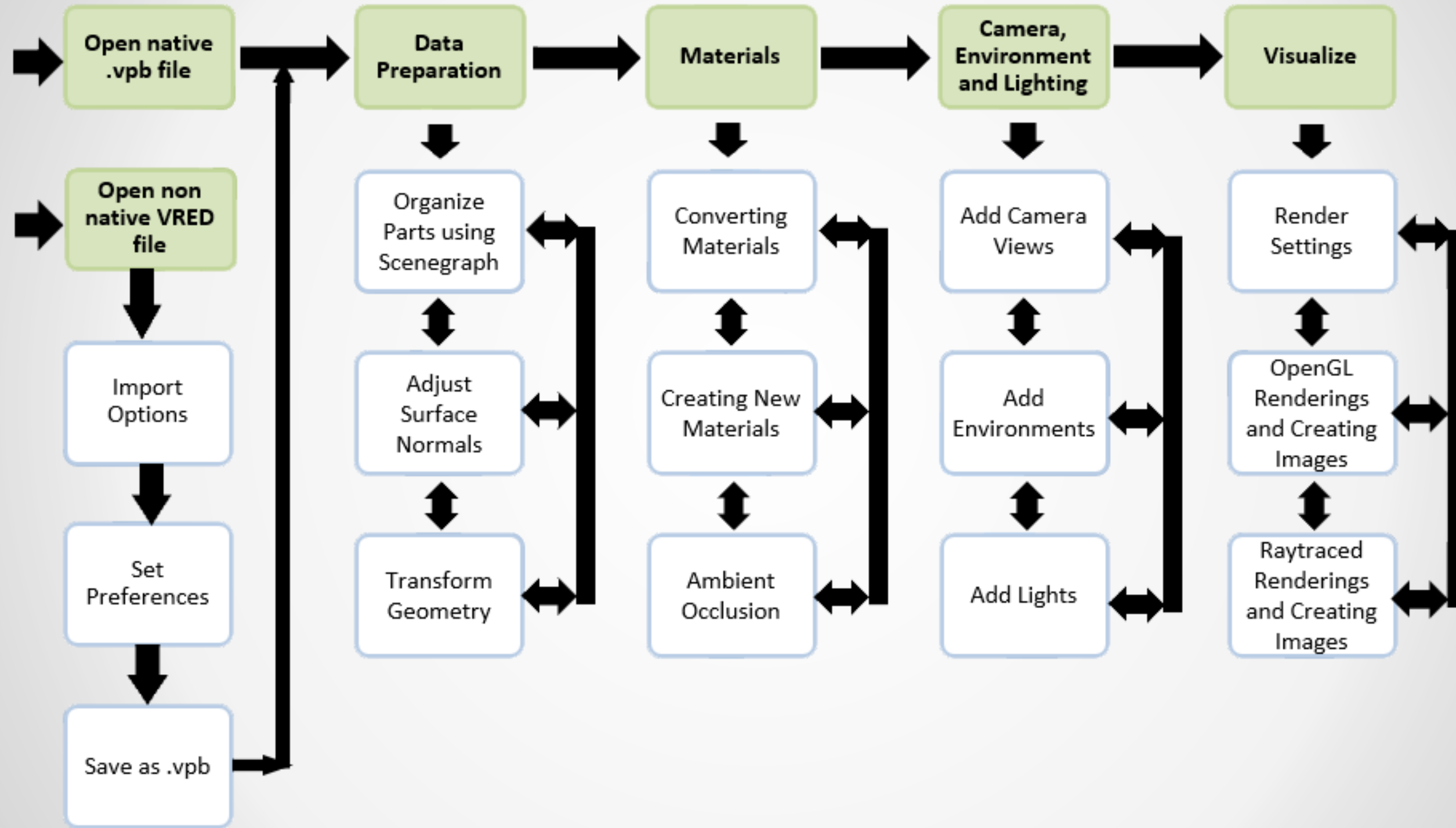
Introduction

Autodesk VRED Professional Software

- Visualize
- Evaluate and review
- Real-time graphic renderings
- Design Presentation
- Photorealistic Images

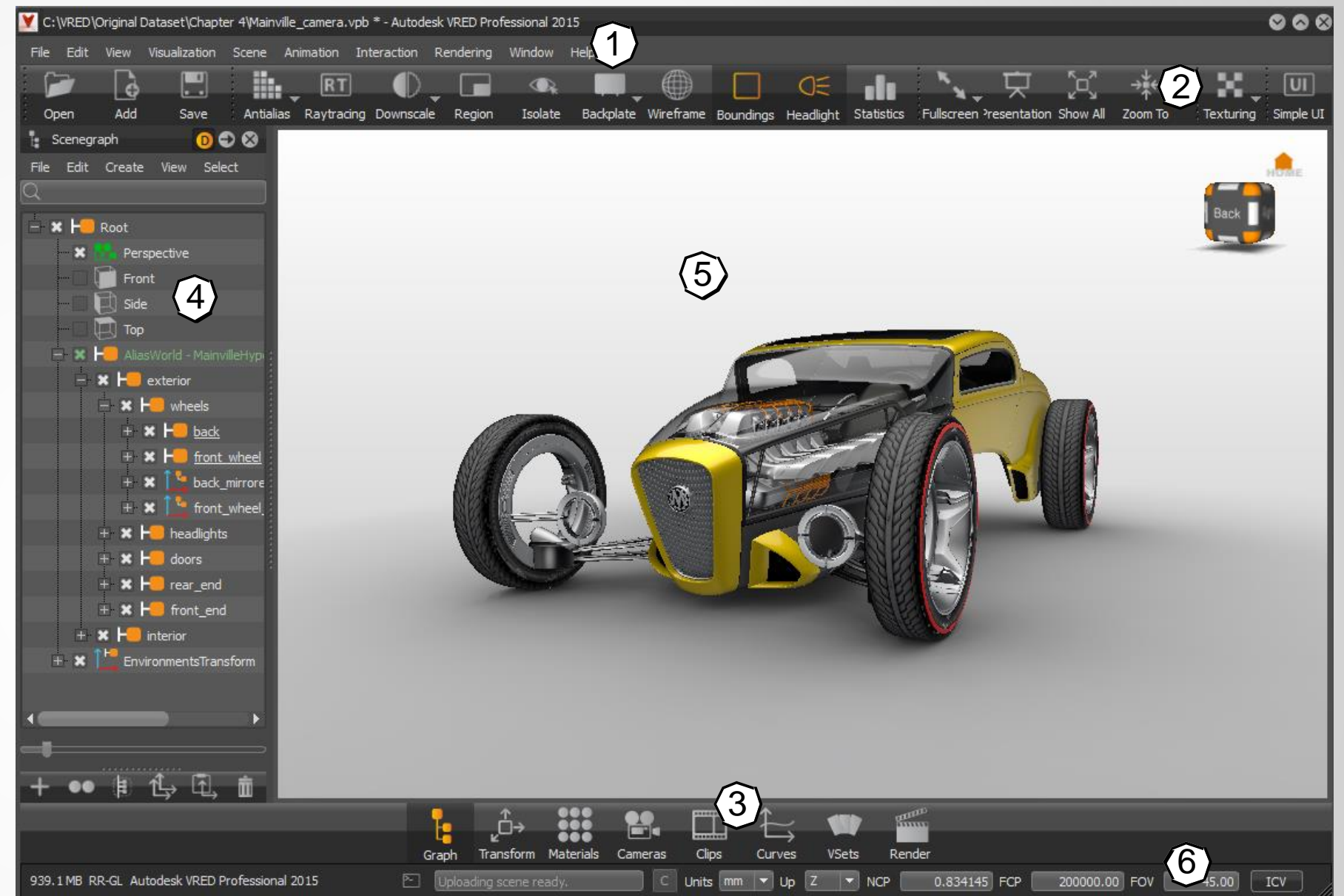


Overall Suggested Workflow




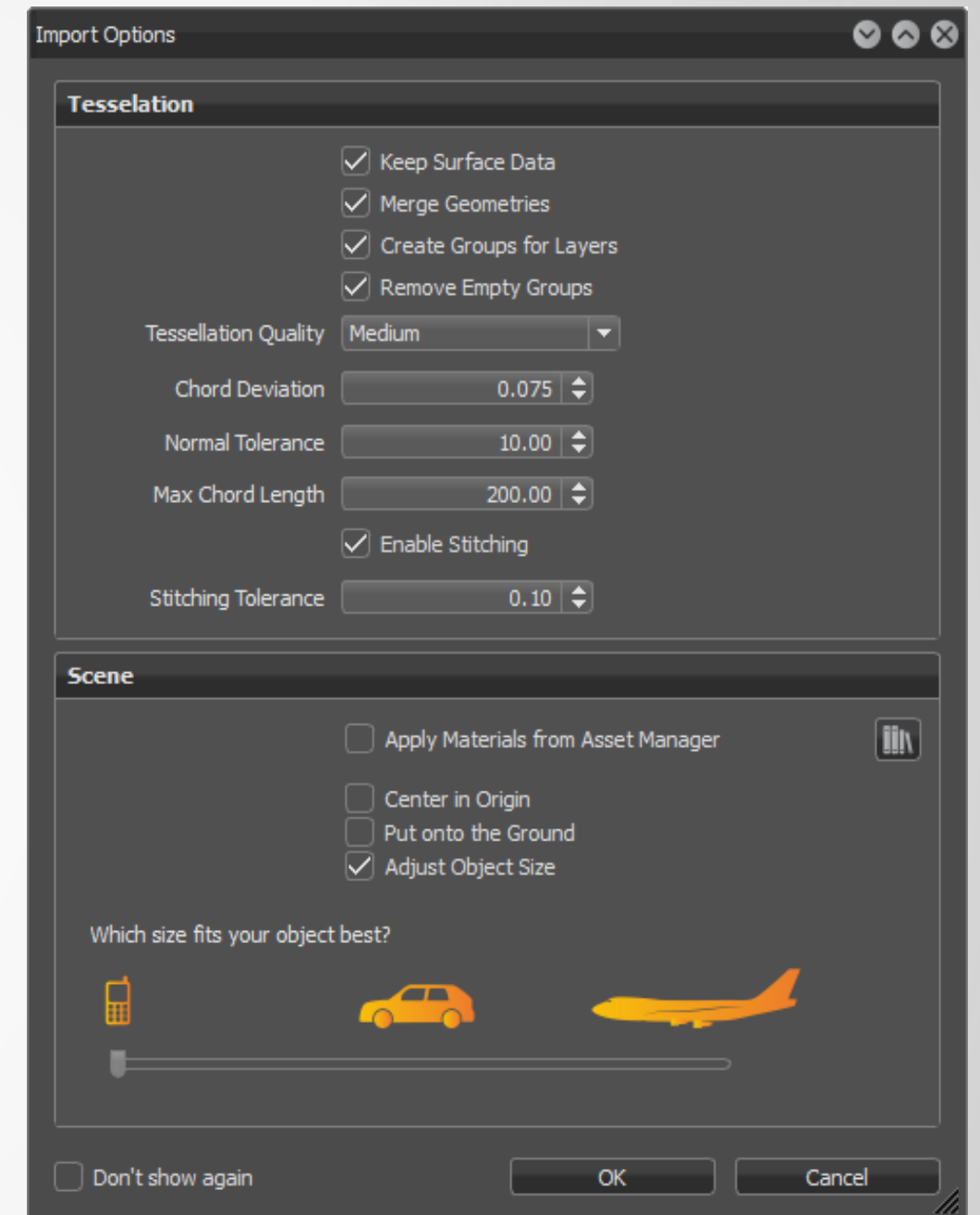
Interface

1. Menu Bar
2. Icons Bar
3. Quick Access Bar
4. Modules
5. Render Window
6. Status Bar



Open Scene/Import

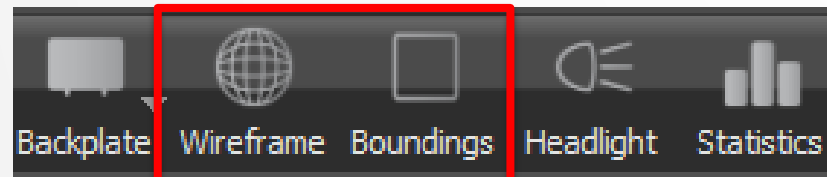
- Icons Bar> ; File>Open
 - .vpb file
 - Non native file
- Import Options
 - Apply Materials from Asset Manager- clear
 - Center in Origin – selected
 - Put onto the Ground – selected
 - Adjust Object Size – selected
 - Tessellation Quality- High



Selecting Objects

- Mouse: <Shift> + click
- Window: <Shift> + click and drag (left to right)
- Crossing: <Shift> + click and drag (right to left)
- Scenegraph: Select











Selection Display

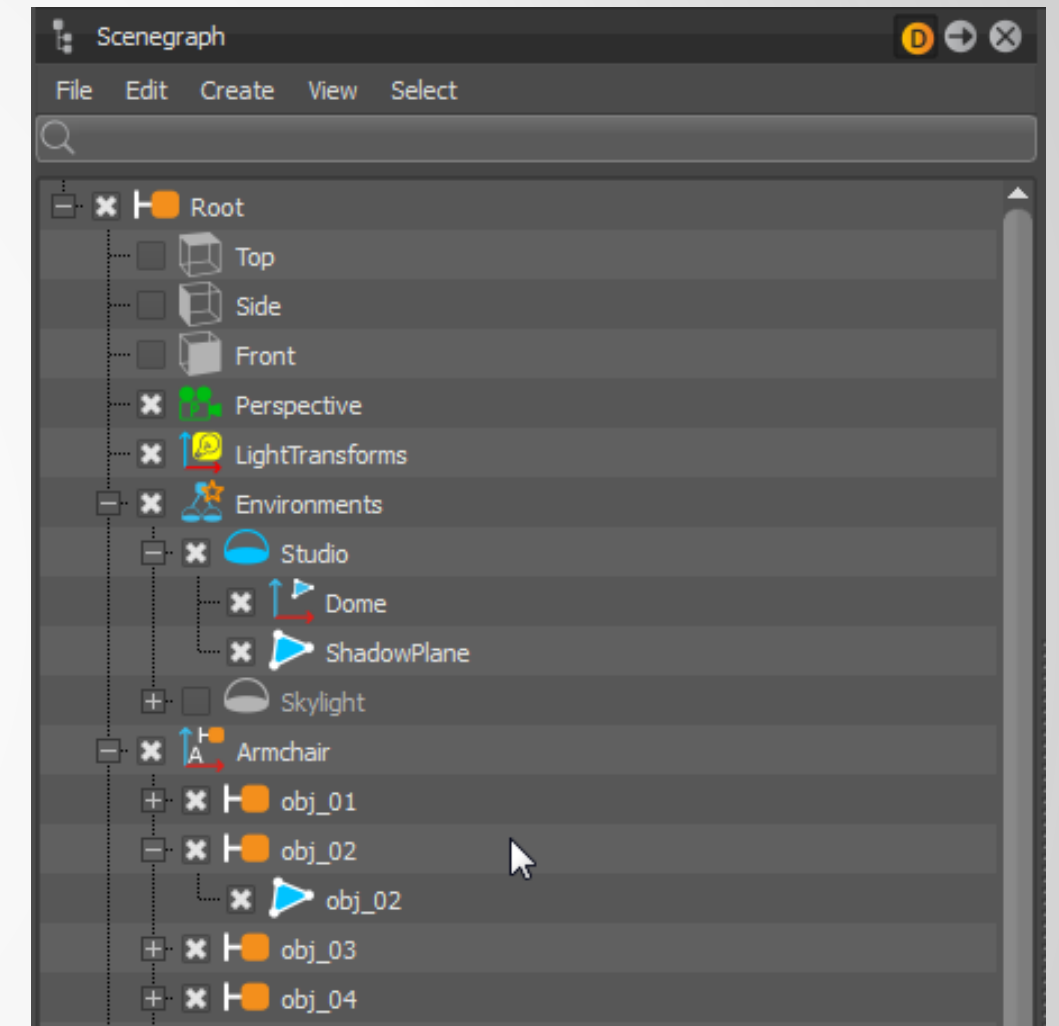


Work with Scenegraph and optimize the model geometry

Scenegraph

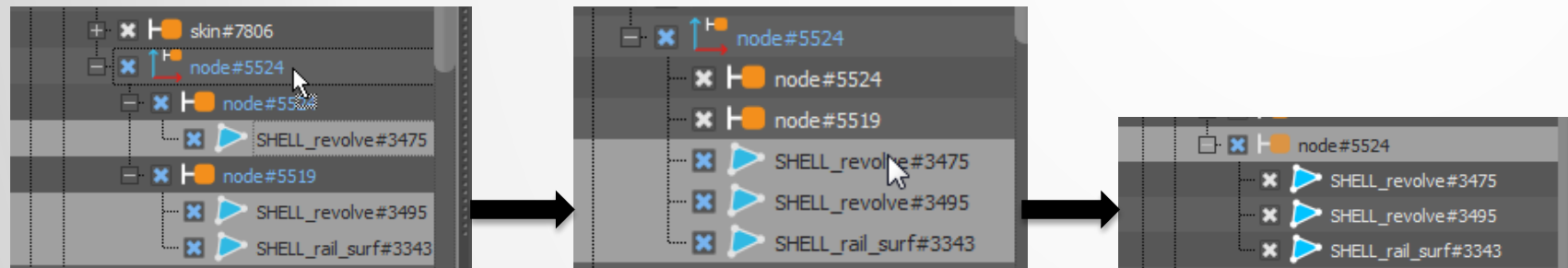
Access: Quick Access Bar>; Scene>Scenegraph; Shortcut menu>Scenegraph

- Hierarchical tree structure
- Objects as Nodes
- Node types
 -  (Regular group)
 -  (Transform group)
 -  (Animation group)
 -  (Geometry Transform)
 -  (Environment)
 -  (Cloned group)
 -  (Material)
 -  (Geometry)
 -  (Nurbs geometry)
 -  (Light Transform)

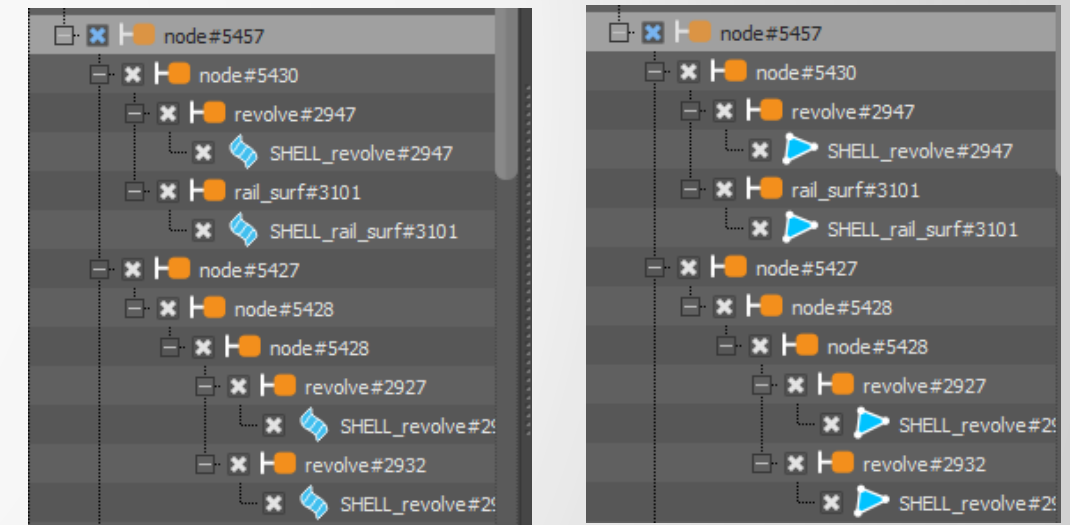


Scenegraph

- Reorder Nodes
- Sort and Group Objects - Shortcut menu
- Optimize geometry - (Optimize module)
- Create, modify nodes - Shortcut menu
- Isolate Parts



Consolidating and Optimizing nodes

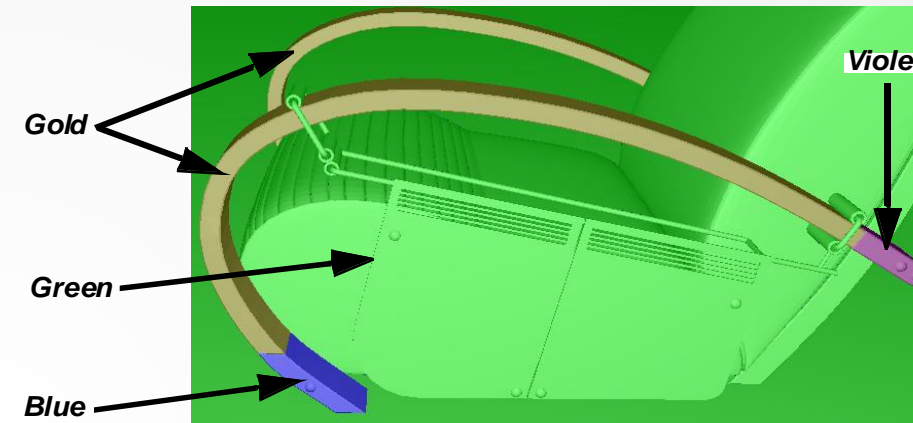


Converting nodes

Adjust geometry

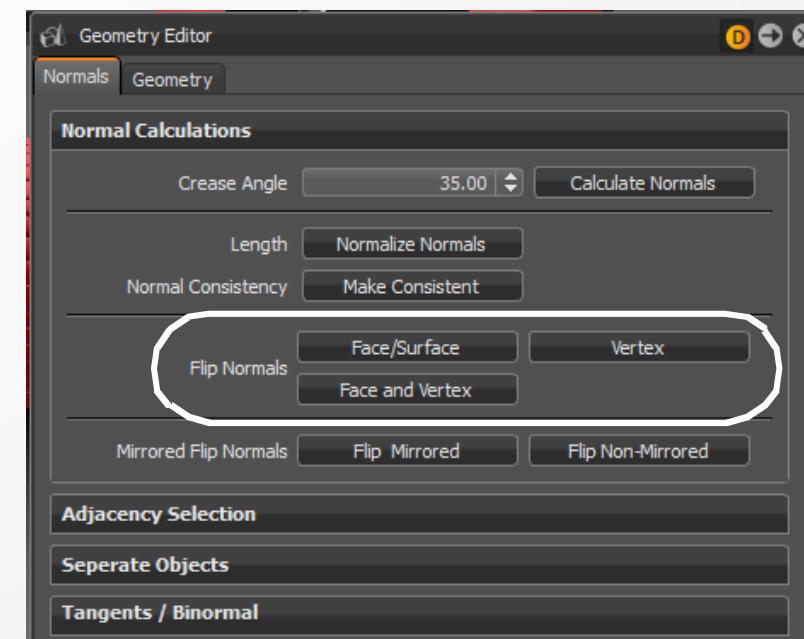
- Check Geometry - Vertex/Face Normal Rendering Mode (Visualization; <F5>)

- Green - Correct
- Blue - Reverse
- Gold - Reverse
- Violet - Reverse



- Fix Geometry – Geometry Editor (Scene>Geometry Editor; Shortcut Menu)

- Face and Vertex Repairs blue
- Face/Surface Repairs gold
- Vertex Repairs violet
- <Alt> + Right-click



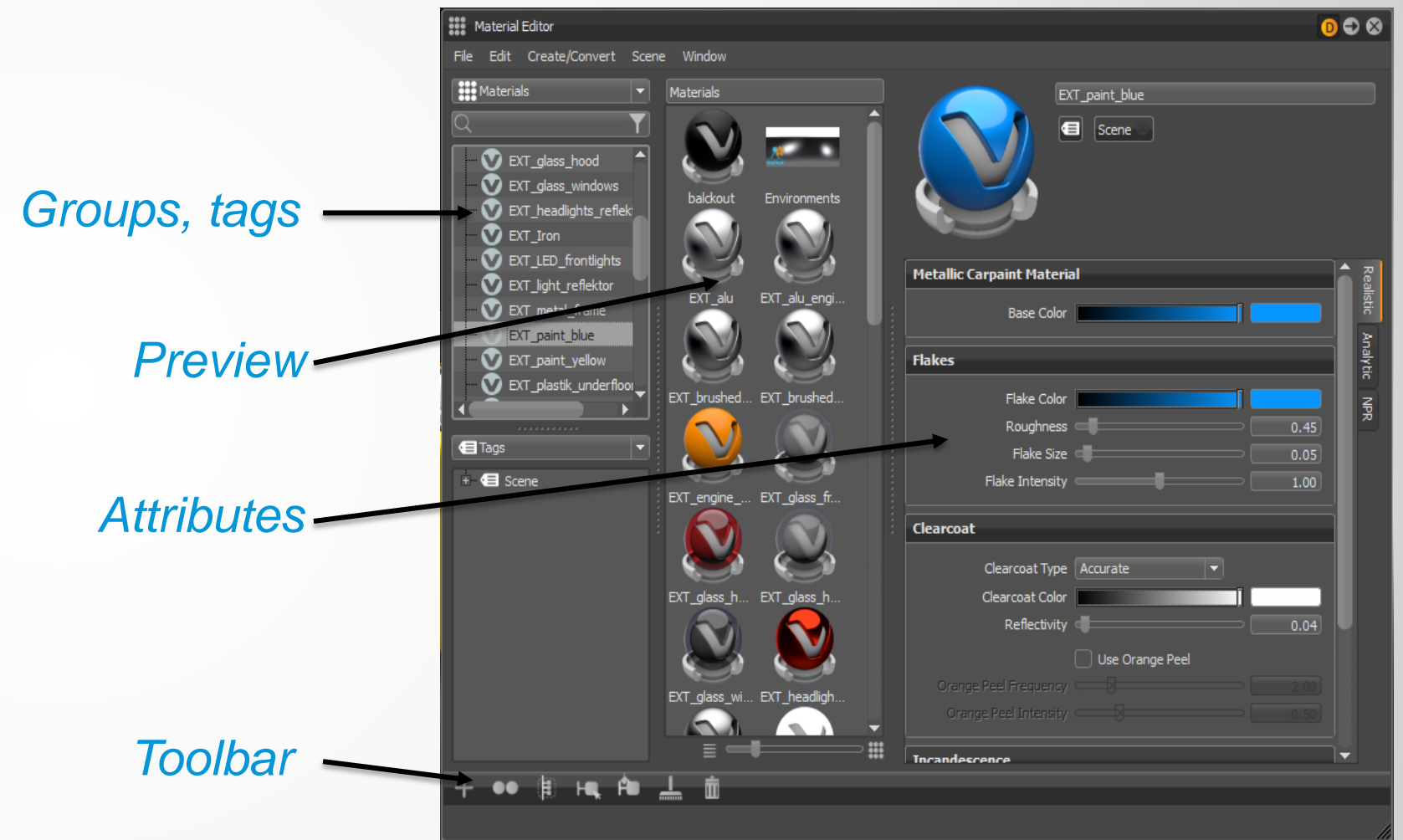
Learn how to assign and modify materials

Material Editor

Access: Quick Access Bar >  ; Scene > Material Editor; Shortcut menu > Materials

- Create materials
- Convert materials
- Modify materials
- Assign materials

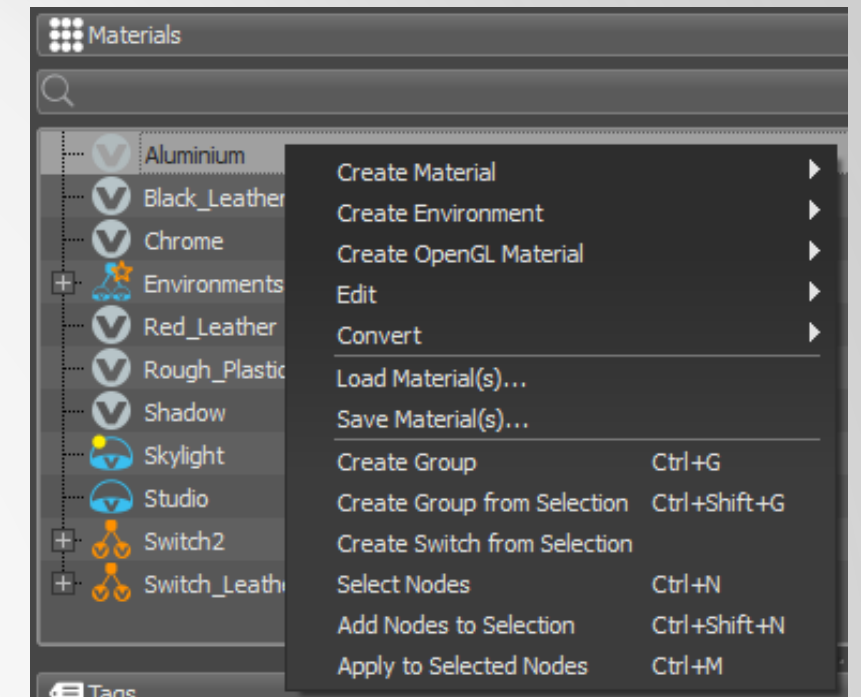
*17 VRED Truelight materials –
Designed for automobile visualization.*



Material Editor

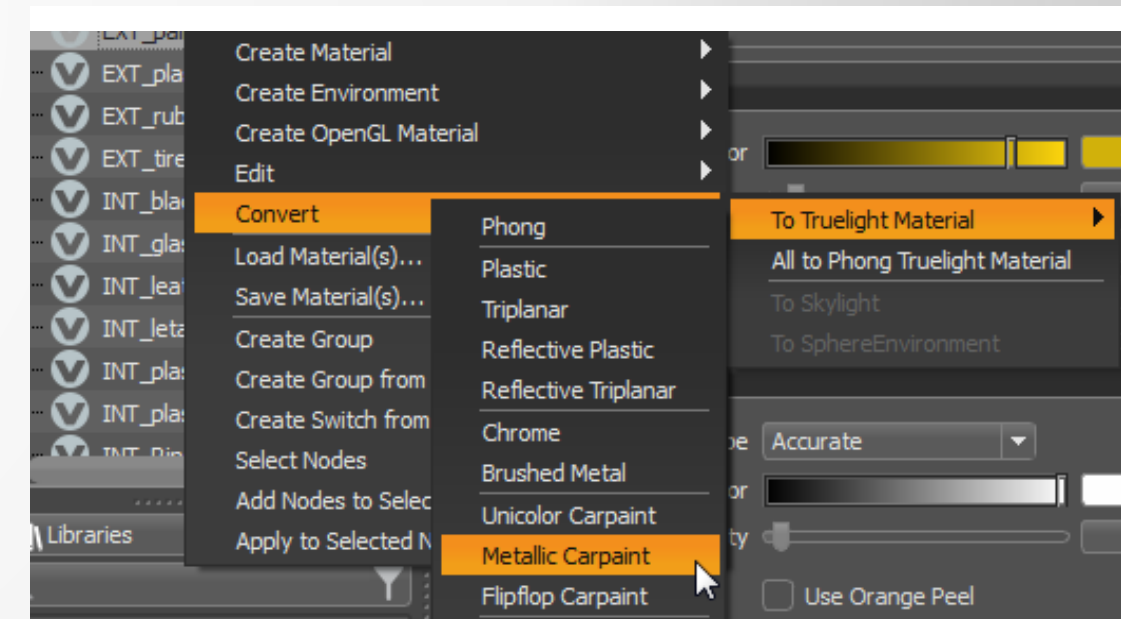
Create Materials

- Group, Tags section>shortcut menu>**Create**>select material



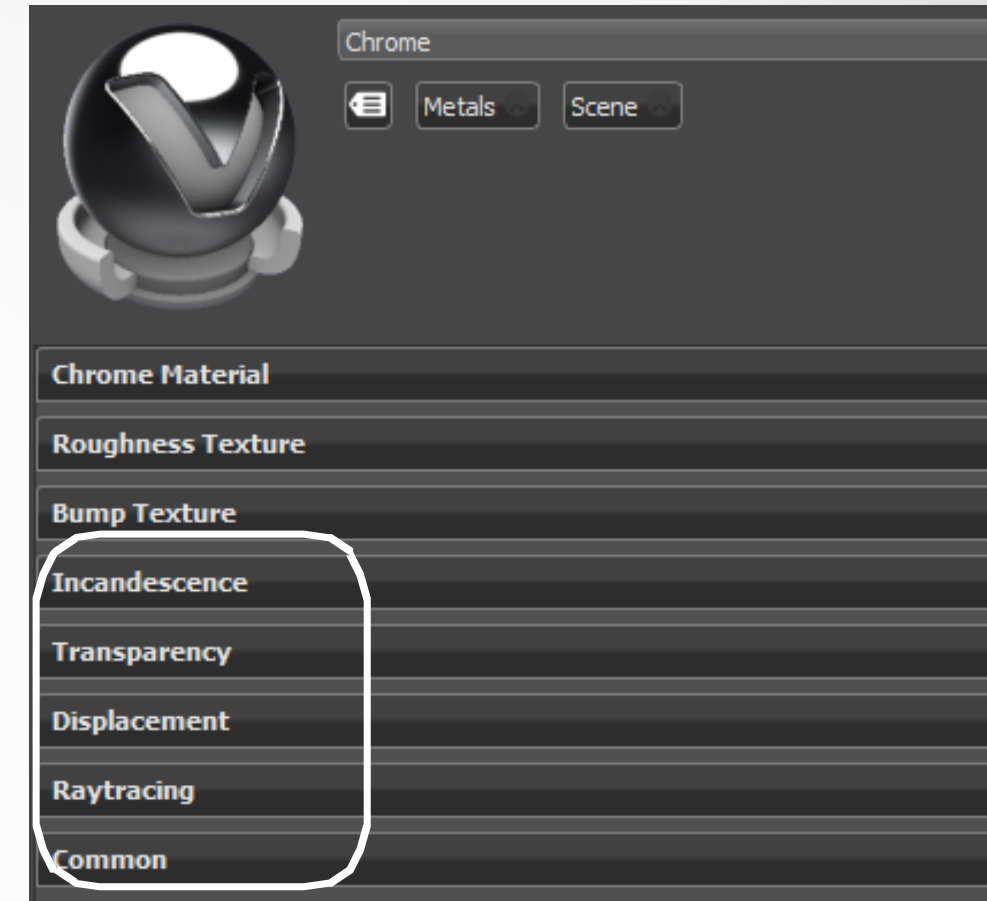
Convert Materials

- Group, Tags section>shortcut menu>**Convert**> **To Truelight Material**>select material



Modify Materials

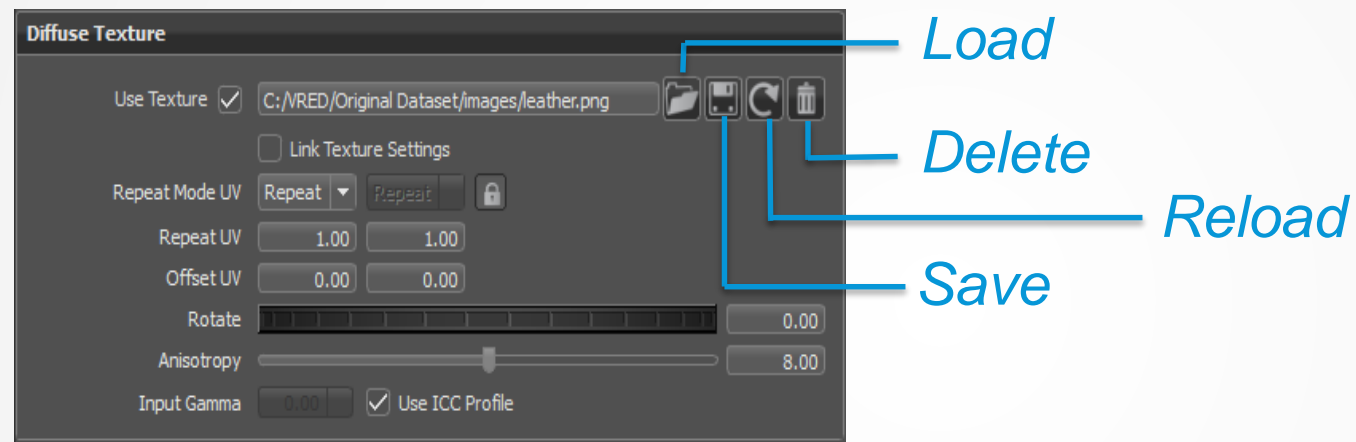
- Attributes section – common rollouts
 - Incandescence
 - Transparency
 - Displacement
 - Raytracing
 - Common



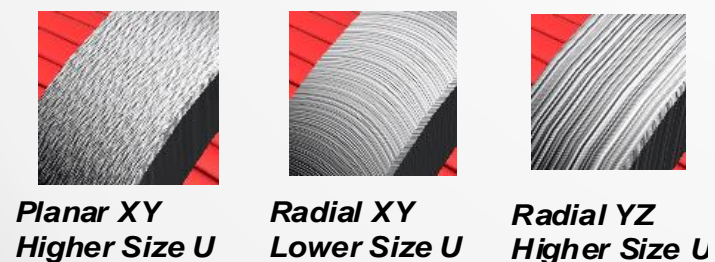
Material Attributes

Modify Materials

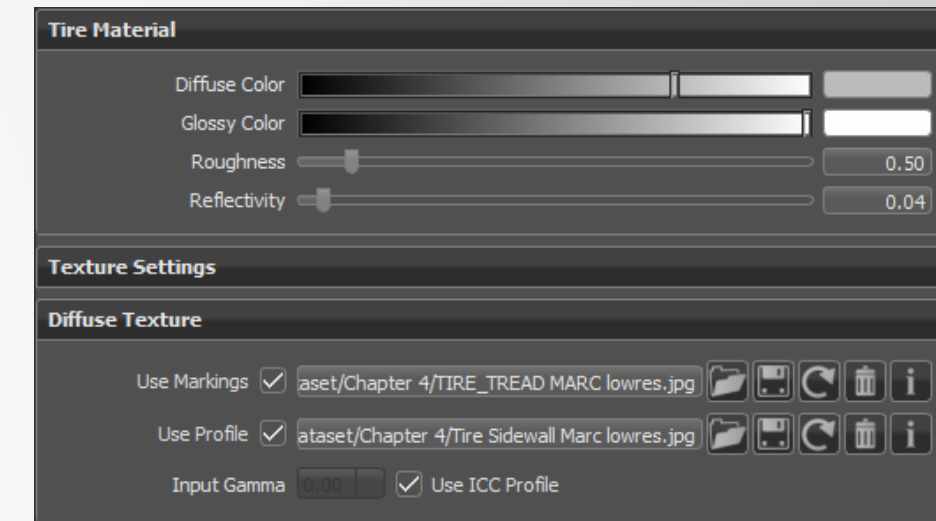
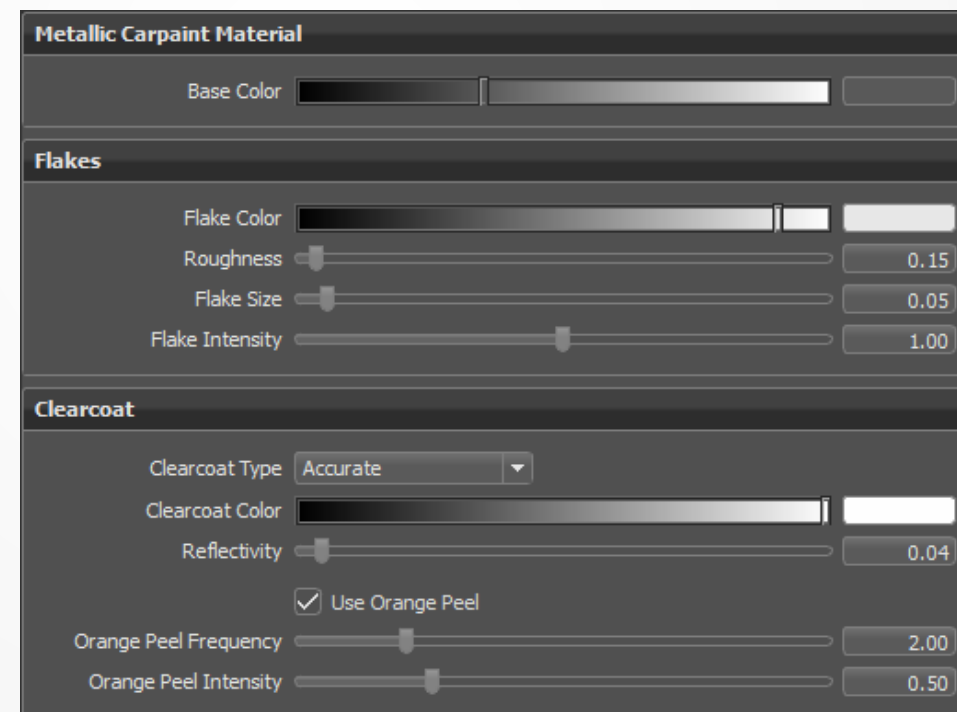
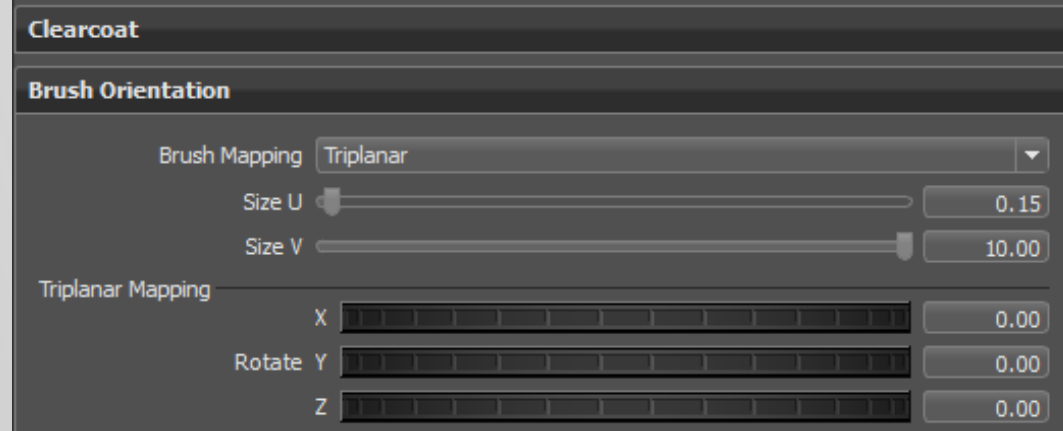
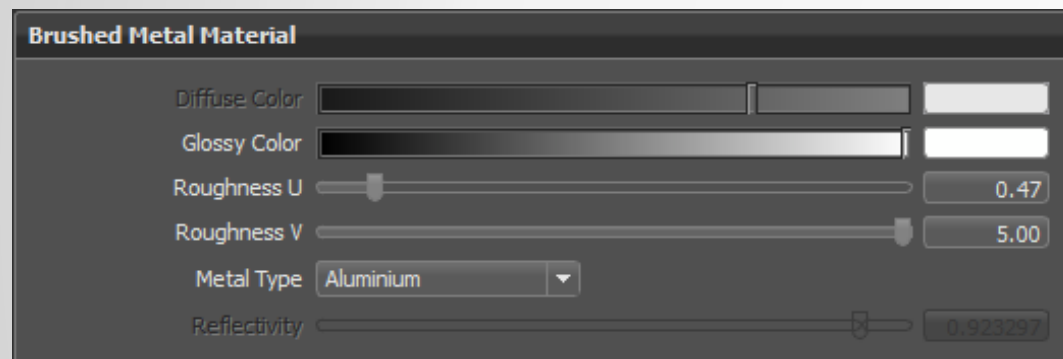
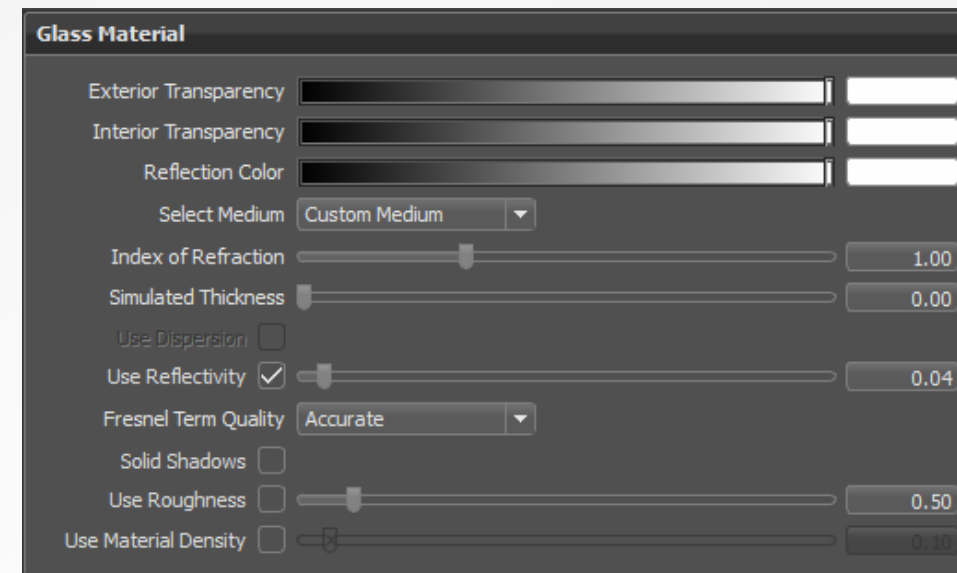
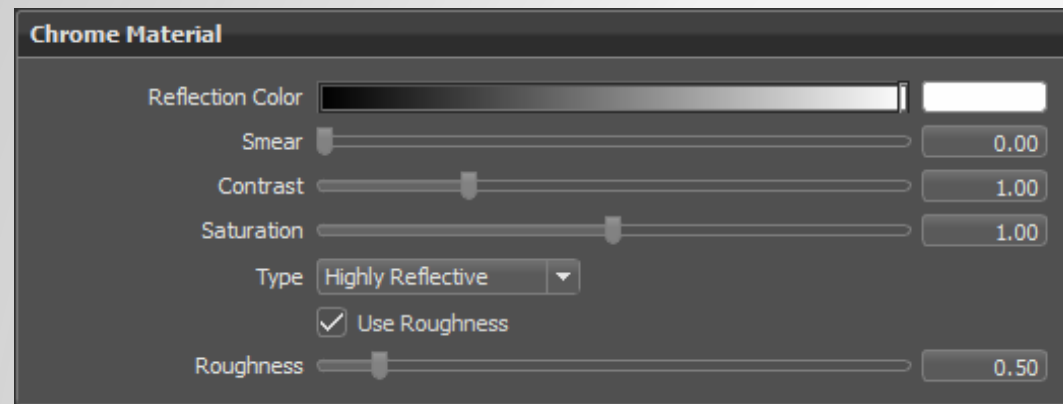
- Attributes section – Specific attributes
 - Texture Channels



- Use Structure

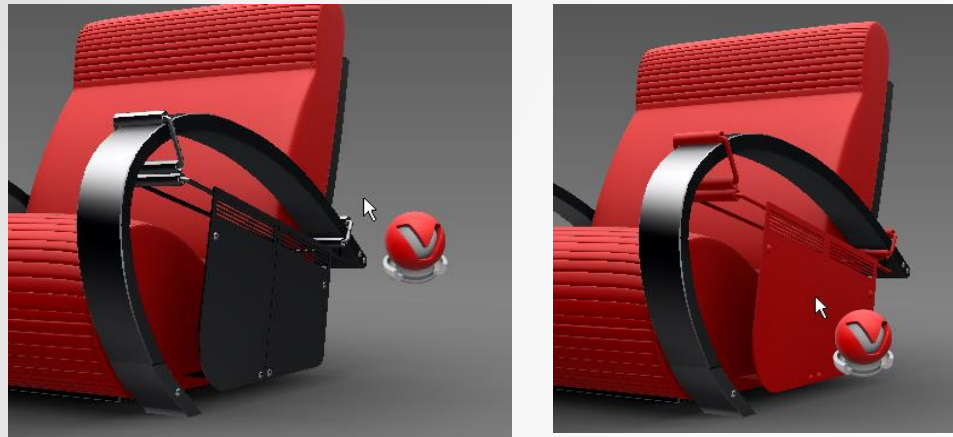


Some VRED Truelight Materials

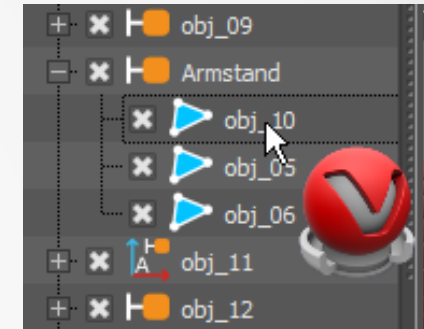


Assign Materials

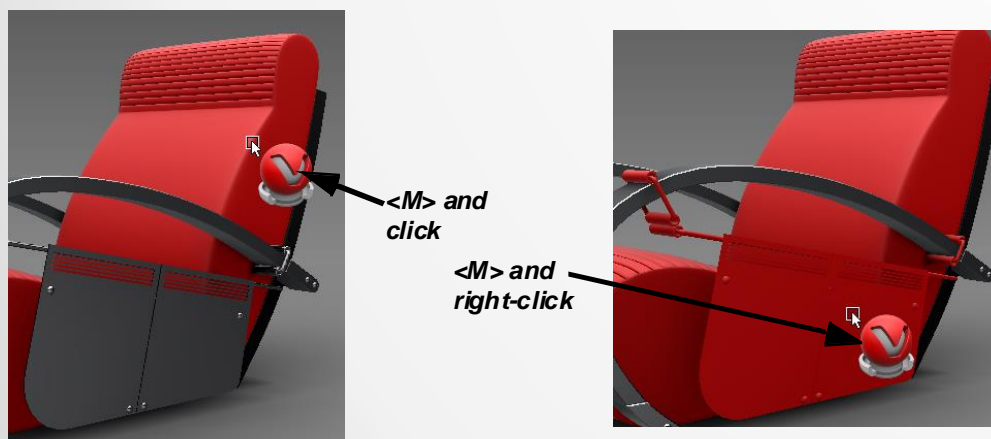
- Drag and drop in the Render Window



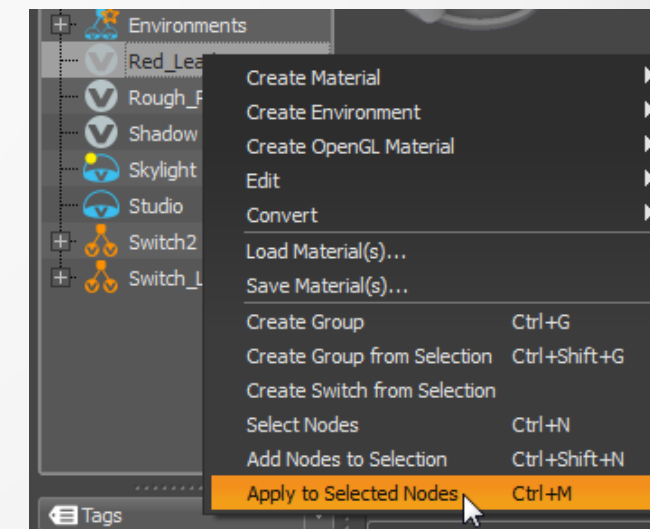
- Drag and drop in Scenegraph



- Copy and Paste Material

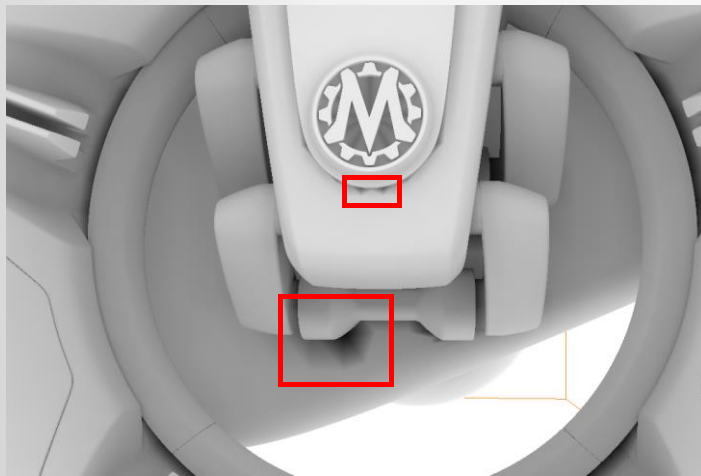


- Using Material Editor shortcut menu

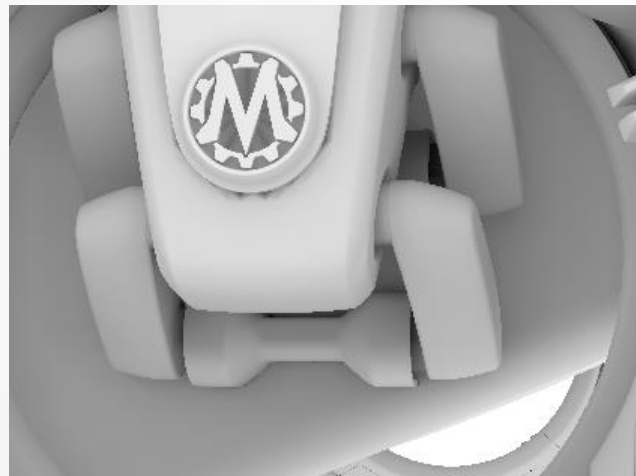


Ambient Occlusion

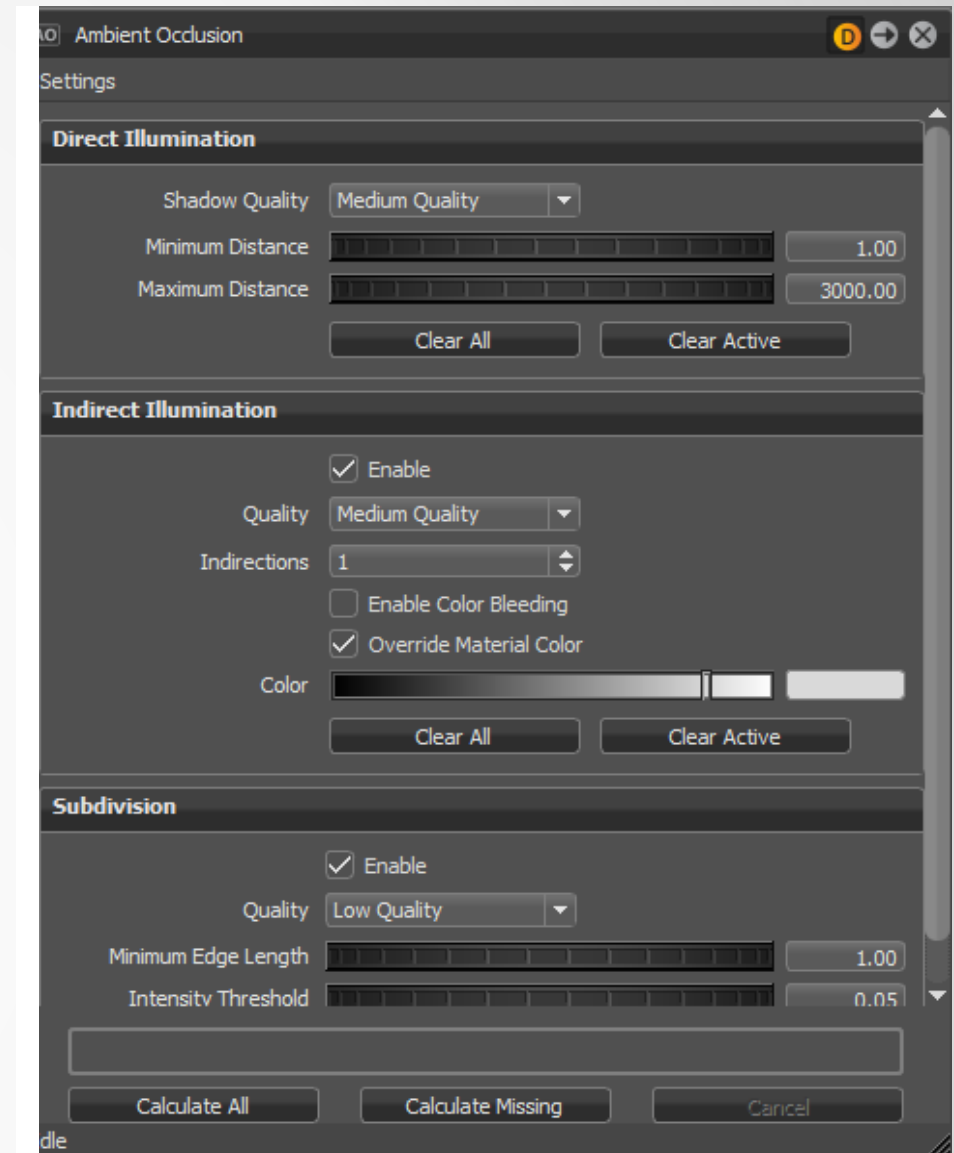
- Simulate shadows
- Not physically accurate
- Check AO – Visualization>Ambient Occlusion Rendering; <F7>
- Calculate AO – Ambient Occlusion Module (Scene>Ambient Occlusion)



AO issues



AO modified



Ambient Occlusion Module

Learn how to apply an HDR image and set it as a background environment


Environments

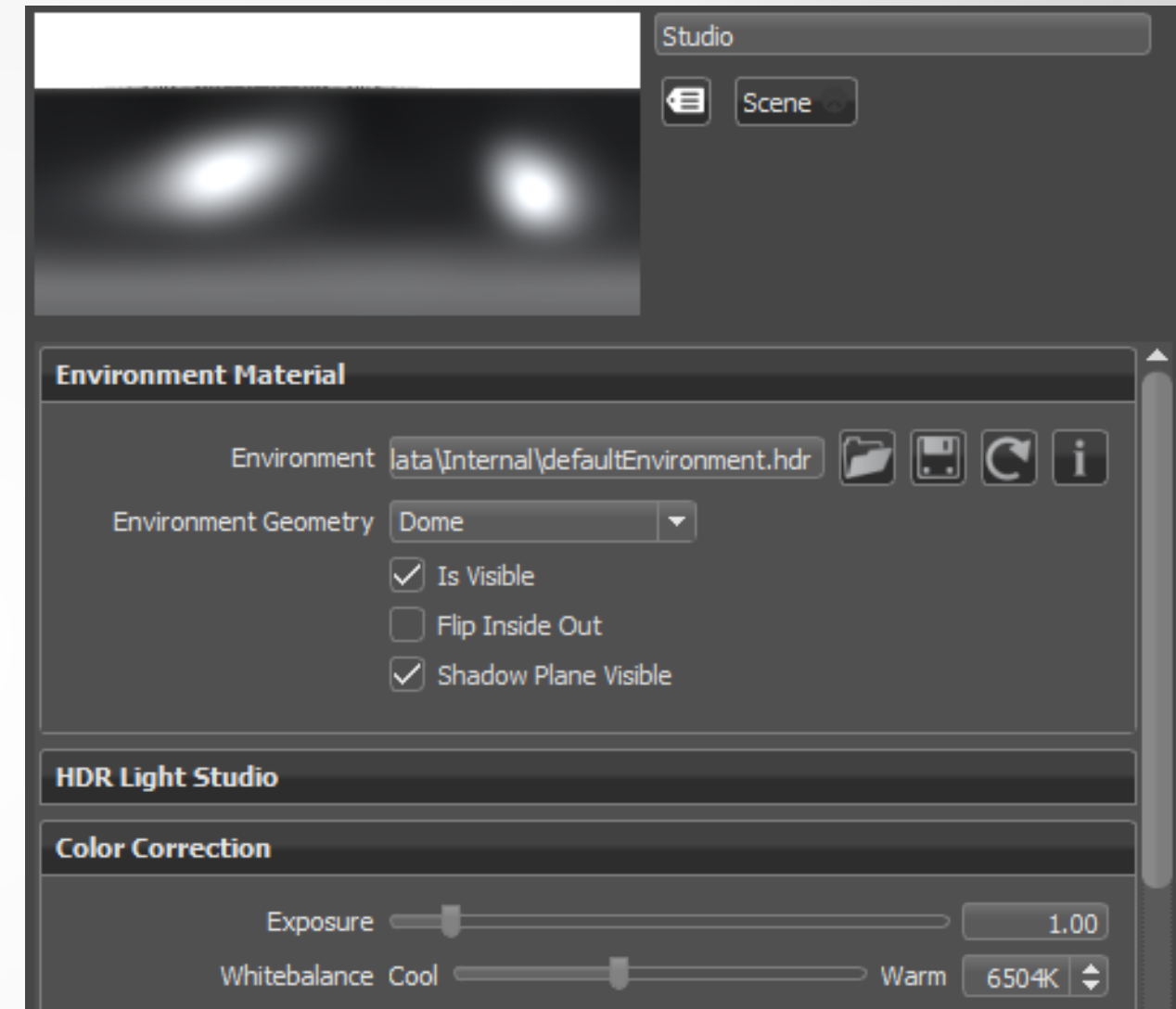
Access: Quick Access Bar> ; Scene>Material Editor; Shortcut menu>Materials

- Background HDR Image
- Lighting
- Highlights
- Reflections



Environments

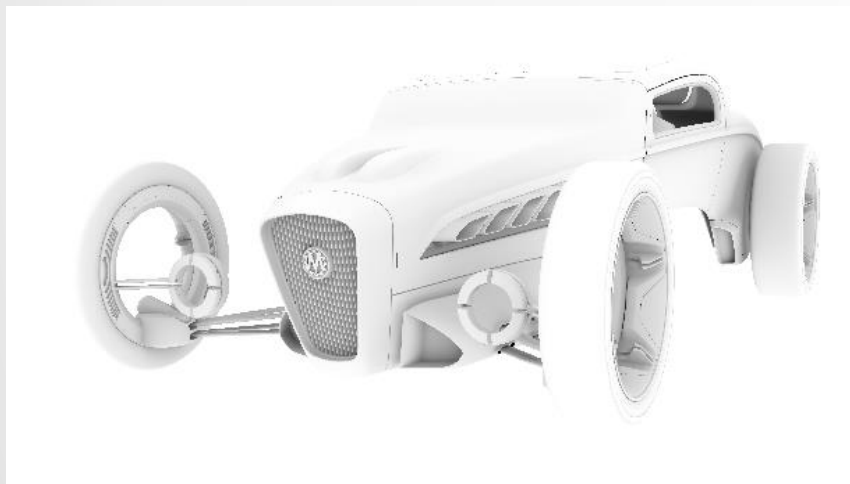
- Create Environment (Load HDR Image)
- Color Correction
- Transformation
-  icon in Material Editor



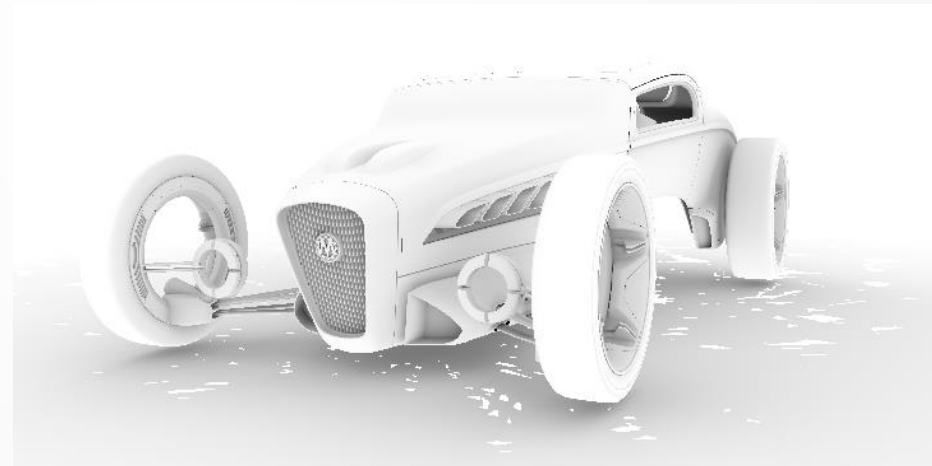
Environment Attributes in Material Editor

Environments

- New Shadow plane for new Environment
- Calculate Ambient Occlusion for new shadow plane
- Copy the original AO settings and load into new shadow plane



No AO for new Shadow Plane



AO calculated for new Shadow Plane



Learn how to work with render settings and create an image

Rendering

- OpenGL render method
 - Fast Calculations
 - AO shadows
 - Decent visualizations
- Raytracing (Global Illumination)
 - Physically correct lighting, reflection, refraction, shadows
 - Time consuming
 - Photorealistic visualizations



Rendering

- Real-time rendering
- OpenGL render method (default)
 - Icons Bar> clear ; clear Visualization>Toggle Raytracing; <F3>
- Raytracing
 - Icons Bar> ; Visualization>Toggle Raytracing; <F4>
- Status Bar
 - RR-GL - OpenGL
 - RR-RT - Raytracing

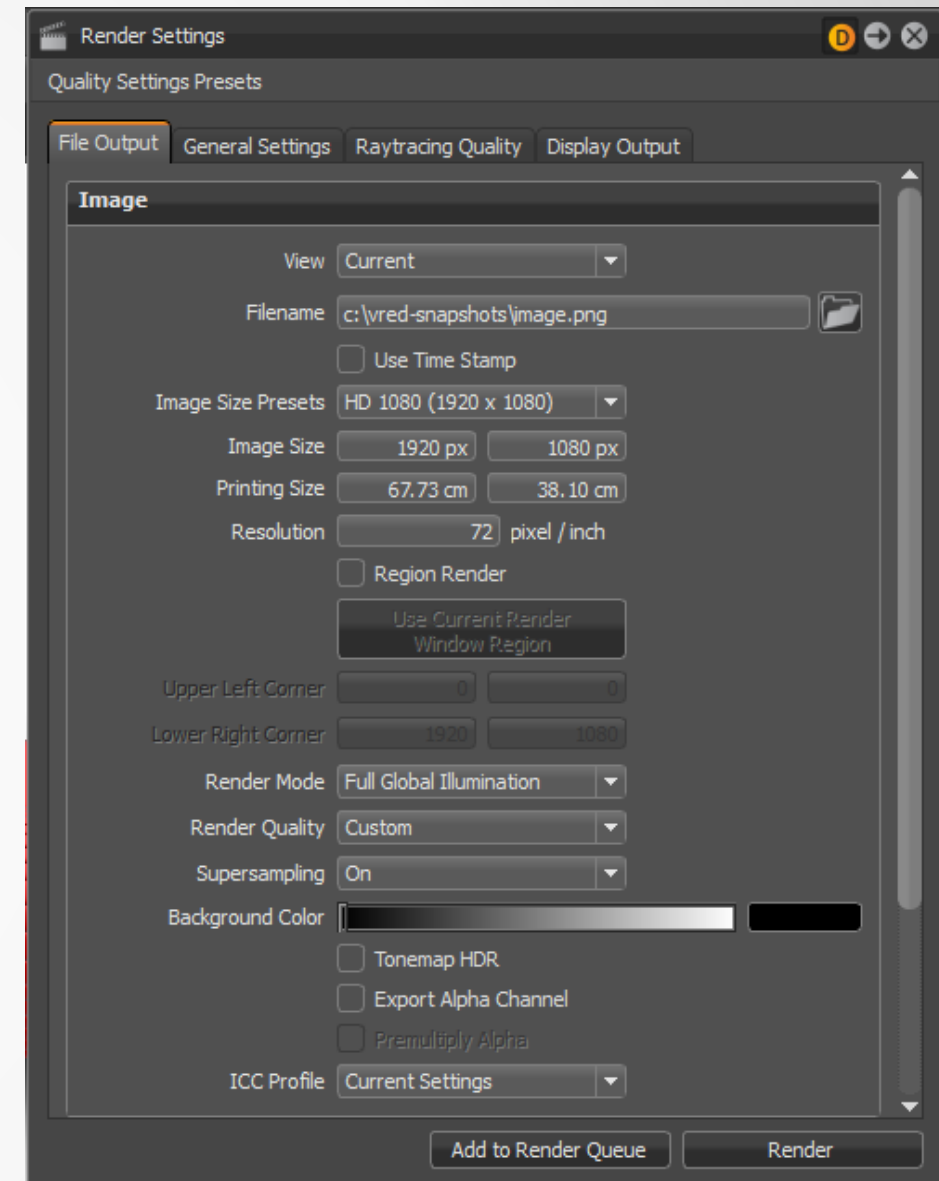
981.4 MB RR-GL

1245.1 MB RR-RT

Render Settings OpenGL

Access: Quick Access Bar > ; Rendering > Render Settings; Shortcut menu > Render Settings

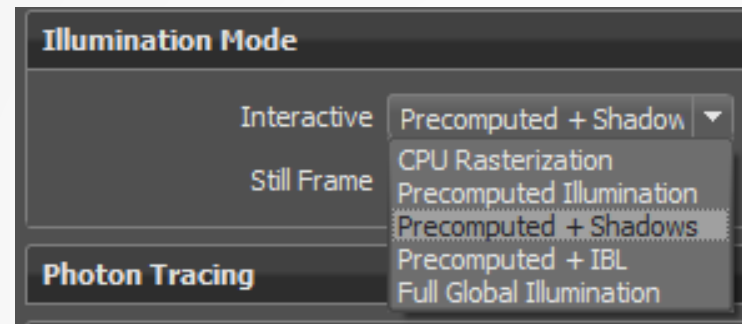
- File Output tab – Options for render image
- General settings tab - Antialiasing options



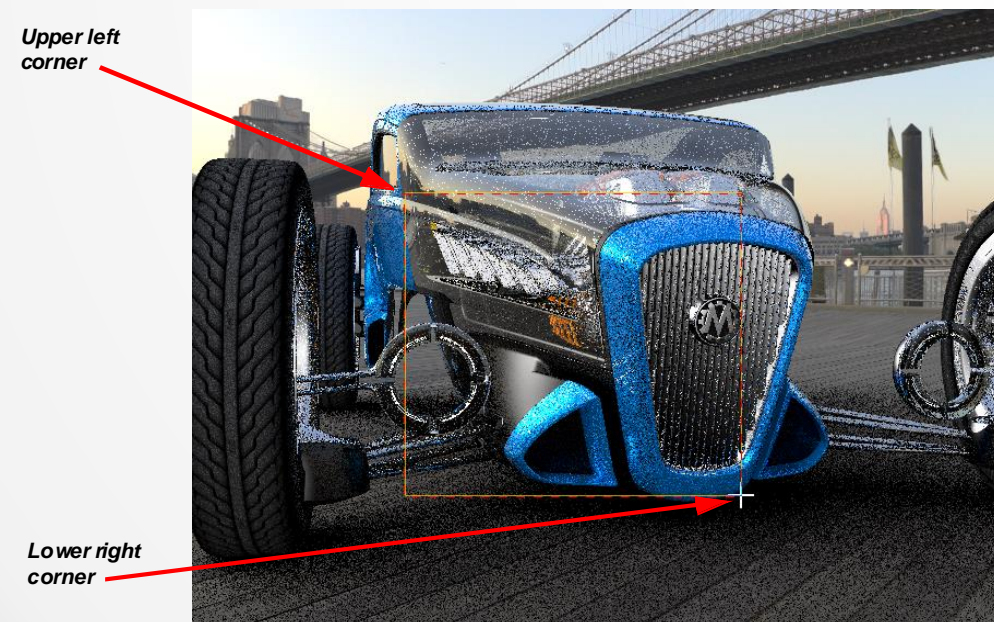
Render Settings Raytracing

Access: Quick Access Bar > ; Rendering > Render Settings; Shortcut menu > Render Settings

- Raytracing tab – Illumination Modes

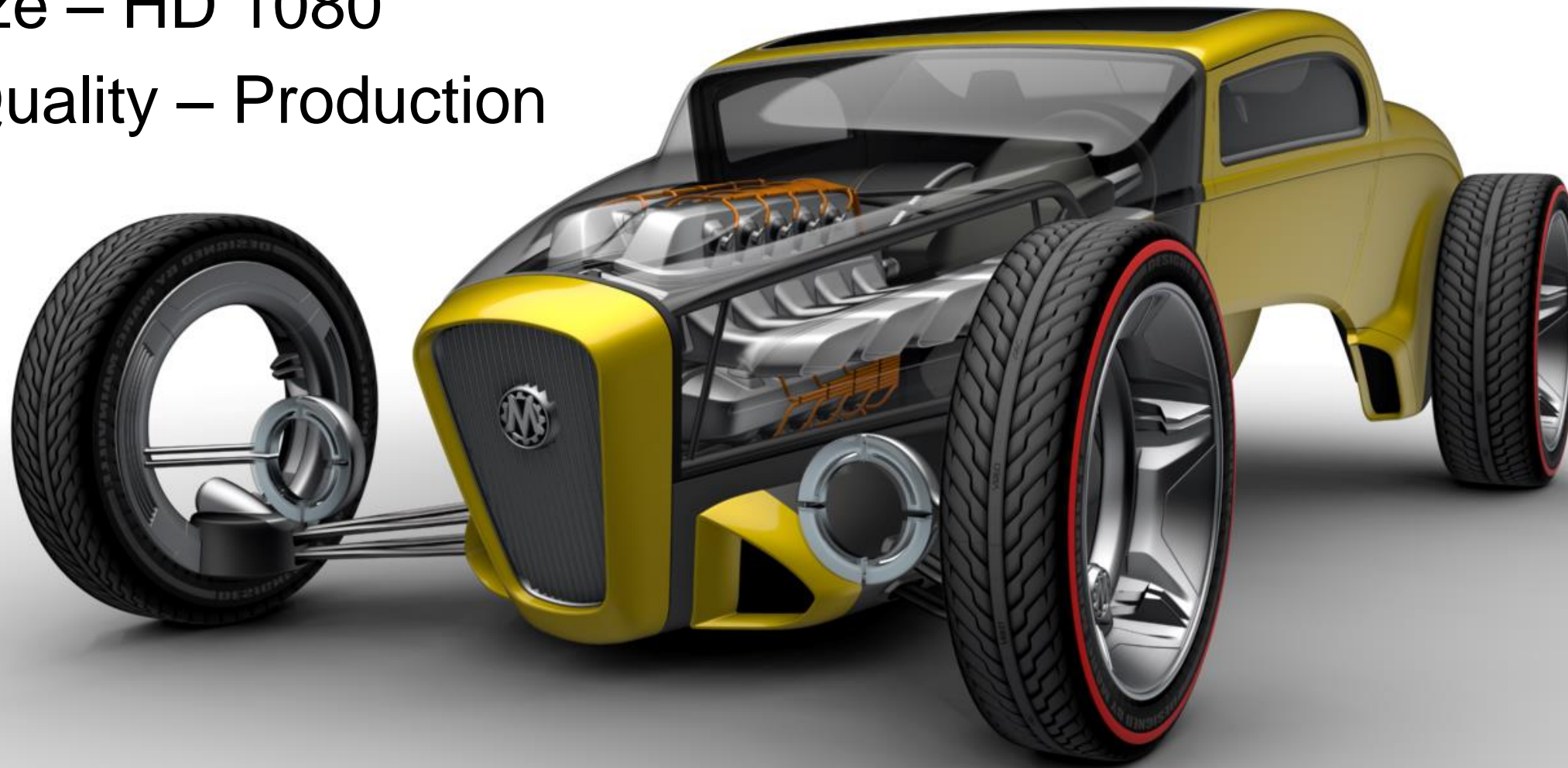


- Region Render



Rendering OpenGL

- Background- white color
- Image Size – HD 1080
- Render Quality – Production



Rendering OpenGL

- Background- HDR Image
- Image Size – HD 1080
- Render Quality – Production



Rendering Raytracing

- Region Render
- Illumination mode- Precomputed illumination



Rendering - Raytracing

- Illumination mode- Precomputed illumination



Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2015 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time







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THANK YOU!

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