# Asset Processing Procedures

**Library Model Asset Prep Tool**

Troy Buckley / Jeremy Balch --- Document Ver: 1.5 Date: 5/20/22

**Tool Function:**

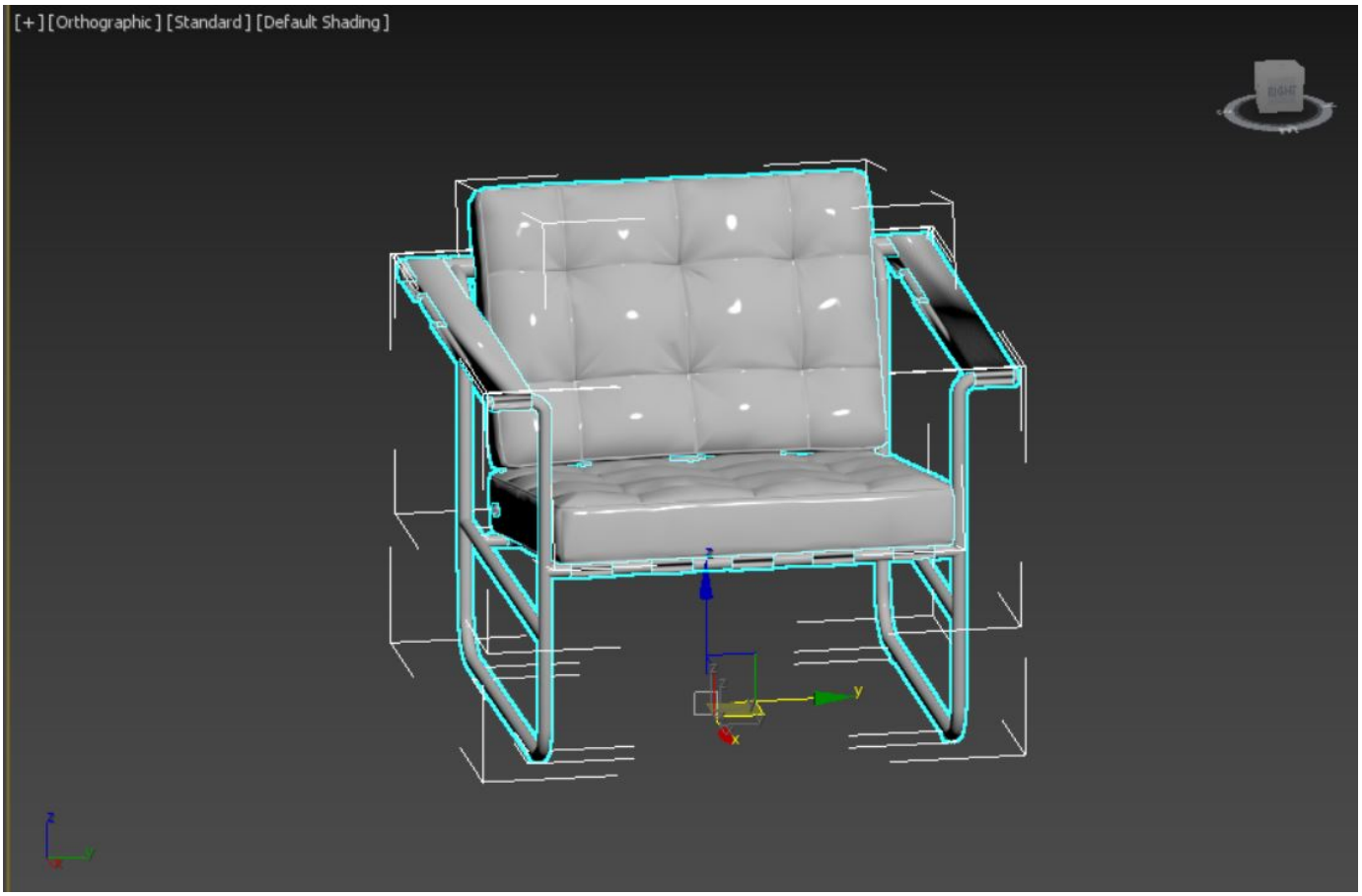
- This tool will create a UE ready asset along with it's working file. The tool will be able to process an entire folder of assets and properly prepare them for the asset library based upon the specifications provided by the UE and Asset teams. The tool will also have a setting for doing assets with custom textures which should not be removed during final prep.

**Core Functionality:**

- Select folder to process
- Open model
- Verify Asset scale
- Research Spike: Check for single-sided polys / find solution to 'correct issue
- Center / align object to world
- Research Spike: Analyze geo mesh density
- Research Spike: Decimate / retopo mesh
- Research Spike: Check UV mapping is properly unwrapped
- Research Spike: Auto-Unwrap Geo with Rizom UV
    - Use Bridge to Rizom from Max?
    - UV Channel 1
- Assign Box mapping
    - UV Channel 2
- Research Spike: Determine proper Box mapping UV orientation so materials are going in the correct direction{s)
- Research Spike: Identify unique materials bespoke to asset
    - *Keep this material*
    - *Setup material based upon VRayMtl Library standards for UE export*
- Save Working file before collapsing
- Collapse Geo into single object
- Research Spike: Optimize collapsed geo for Lumen optimization
    - *An asset may end up being a few objects based on the asset*
- Research Spike: Identify material category assigned to each object ID and put this information into the multi-sub object material ID label for future automation
    - *E.g.: Wood, Fabric, Metal, Plastic, etc.*
- Remove all materials from the Multi-Sub material
- Replace multi-sub materials with standard material using bright colors
- Properly place Pivot point
- Reset Xform
- Collapse stack
- Properly name object(s)
- Save new Max file w/ proper name.
    - working file / finished asset

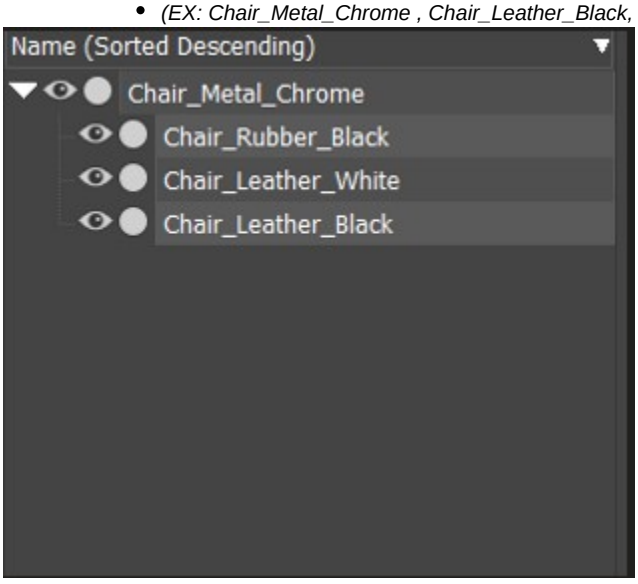
**Scale and Transform:**

- On Load ensure that Assets are adjusted to cm scale
- Center Pivots to object then adjust pivot to Z =  bottom of the asset.
- Once this is done ensure object is set to 0,0,0
- Once Centered in the world, rotate the asset to face X+




**Naming and part Breakup:**

- Using an Edit Poly or Edit Mesh modifier use the Attach or Detach function to break up the asset by Material Type Then choose one mesh to function as the master and drag the others Under the master in the scene explorer.
- If a material will need to have the material direction adjusted for multiple pieces (ex wood grain) break it up into additional sub items labeled with a _000 suffix counter added to the name.
- To name the objects follow this convention:
    - AssetType_MaterialType_Modifier
    - *(EX: Chair_Metal_Chrome , Chair_Leather_Black, Chair_Wood_Walnut, Chair_Wood_Walnut_002, ect...)*




**Light Mapping UVs:**

- Select the whole mesh then Apply a Unwrella unwrap to the Asset.
- Choose the Appropriate Mapping type (Usually Hard Surface)
- Ensure the target UV is set to 1
- Trigger unwrap

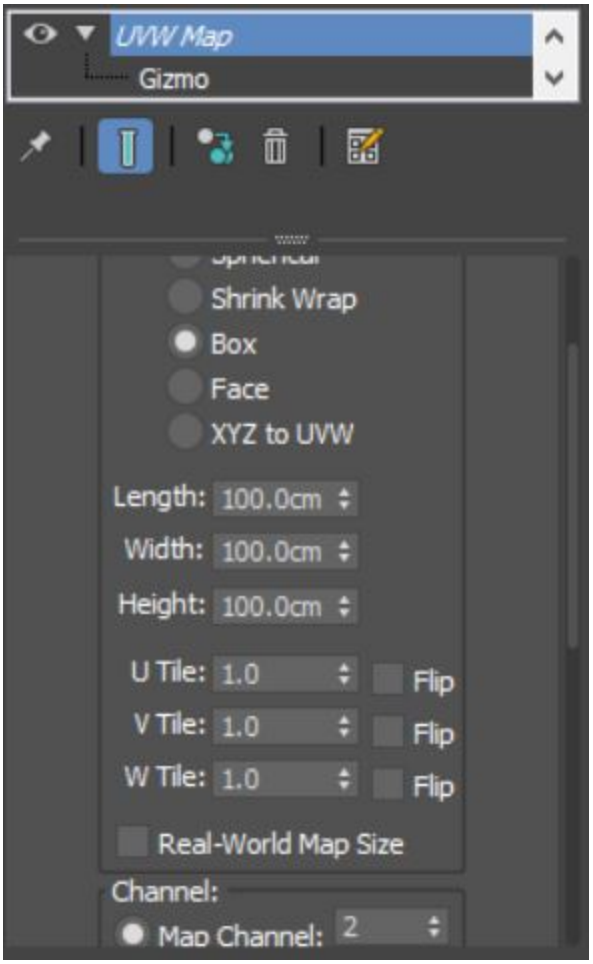

**NOTE:**

*May look into using RizomUV for a more robust solution, but still in dev at this point.*

https://www.rizom-lab.com/bridges/

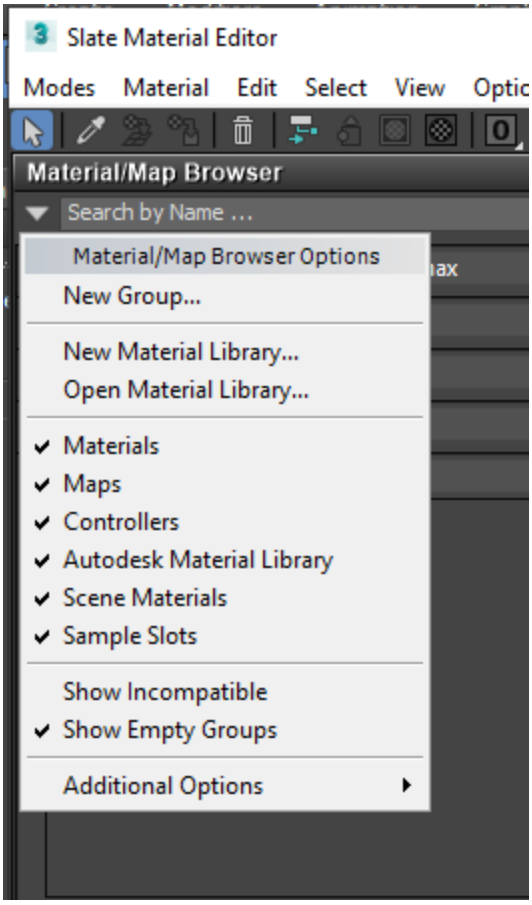
**Box Mapping UVs:**

- Select Individual named parts of the mesh then apply a UVW Map modifier.
- Select Box
- Set Length, Width, and Height to 100 cm
- Set map channel to 2
- Adjust box map orientation if it does not match up with the mesh's orientation
    - Select the UVW map Gizmo and rotate to match the orientation.




**Materials:**

- **Functionality:** Some assets will have unique textures and should not be removed during prep, so an option to toggle the material prep functionality will be needed.
- Open up the Slate Material Editor.
- Under the Material/Map Browser
    - select the browser options dropdown menu to the left of the search bar
    - In the dropdown, select “open material library”
    - Navigate to the following Folder location.
        - Z:\01_Asset_Library\Sprint Materials\00_VRayMtl_Library
    - Select the Library and load it into your scene.
- Once loaded, select your desired materials
- Drag them into your editor.
- Select the mesh you wish to apply material to.
- Right click material to assign to mesh, select “apply to selected”.




**NOTE:**

In the case of needing to adjust a materials orientation, select the mesh and navigate to the modifier stack. Select the UVW modifier and open the drop down menu. Select the Gizmo then in the scene rotate it accordingly.

For Bespoke maps follow our guide linked below:

Bespoke Materials For Assets

**Collapsing:**

- Assign a unique material ID to each object based upon the texture assigned.
- Create a multi-sub object material
- Name each ID based upon the characteristic trait of the texture *(fabric, wood, metal, etc.)*
- Save out copy of scene at this state *(original textures will still be applied for reference)*

- Assign “clown” materials to each ID
    - Use bright colors:
        - *(Red, Yellow, Green, Cyan, Magenta, etc.)*
- Save out copy of scene at this state
    - *(clown materials assigned / multimate materials applied with correctly named labels in the Multi mat material)*
- Then collapse the stacks
- Collapse the named asset down to a single mesh with a multi sub object texture node.
- Verify the Collapsed asset’s Pivot is set to 0,0,0.
- Finally Rename the single mesh object to the File name
- Save file

**NOTES / Future Expansion:**

- **Research Spike:** Need to look at moving from Unwrella to Rizom UV for auto UV stage

    - https://www.rizom-lab.com/rizomuv_rs/
    - Bridge to 3DS Max: https://www.rizom-lab.com/bridges/
- **Research Spike:** Automate material ID label assignment based on material type
- **Research Spike:** Proper geo collapsing optimized for UE5 Lumen cards
- **Research Spike:** Check for single-sided polys / water tight meshes
    - *Evaluate 3DS Max native tools? (Anything existing or custom script?)*
    - *Evaluate Modo tools for similar features?*
    - *Nanite works best with water tight meshes*
- **Research Spike:** Testing the UV orientation before collapsing
    - *Especially important for wood-grain type materials which need to flow in a specific direction*
    - *Also important for stainless steel materials with the brushed grain going in the correct direction.*