

Paraview – Houdini FX – VR CARVR Trackable Objects



PRESENTED BY

Brad Carvey

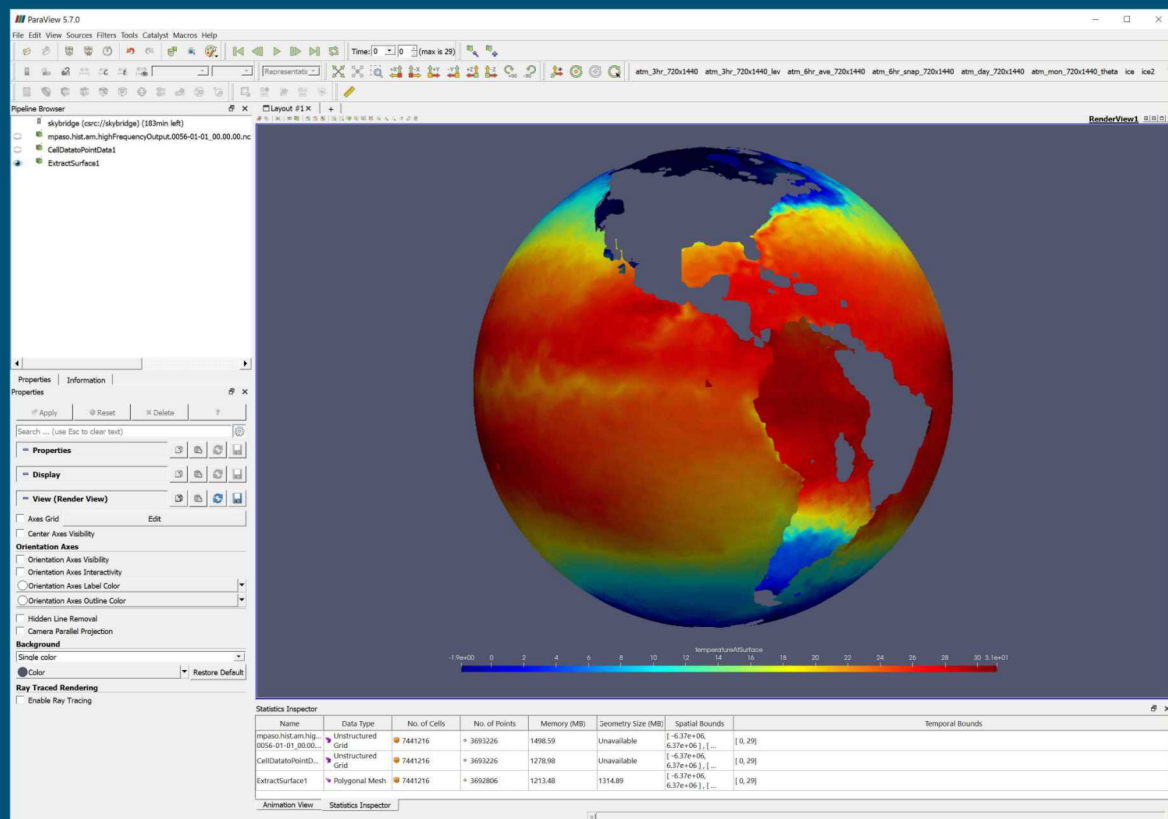
Approved for Unlimited Release

BRAD CARVEY

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Paraview

- Import Simulation data
- Apply Filters
- Export Houdini Data with Field Data (px, py, pz, velocity, density, temperature, volfrc ...)

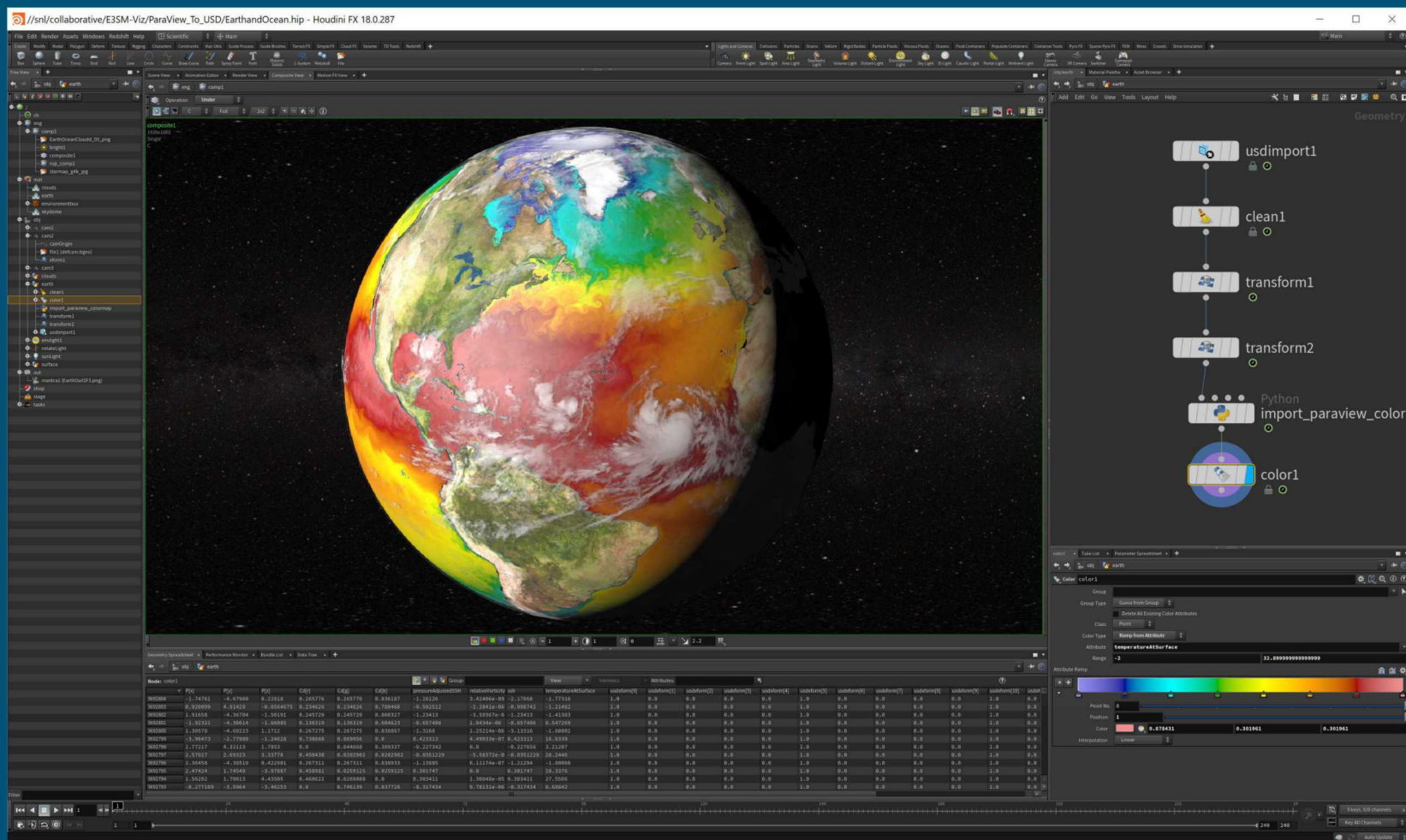


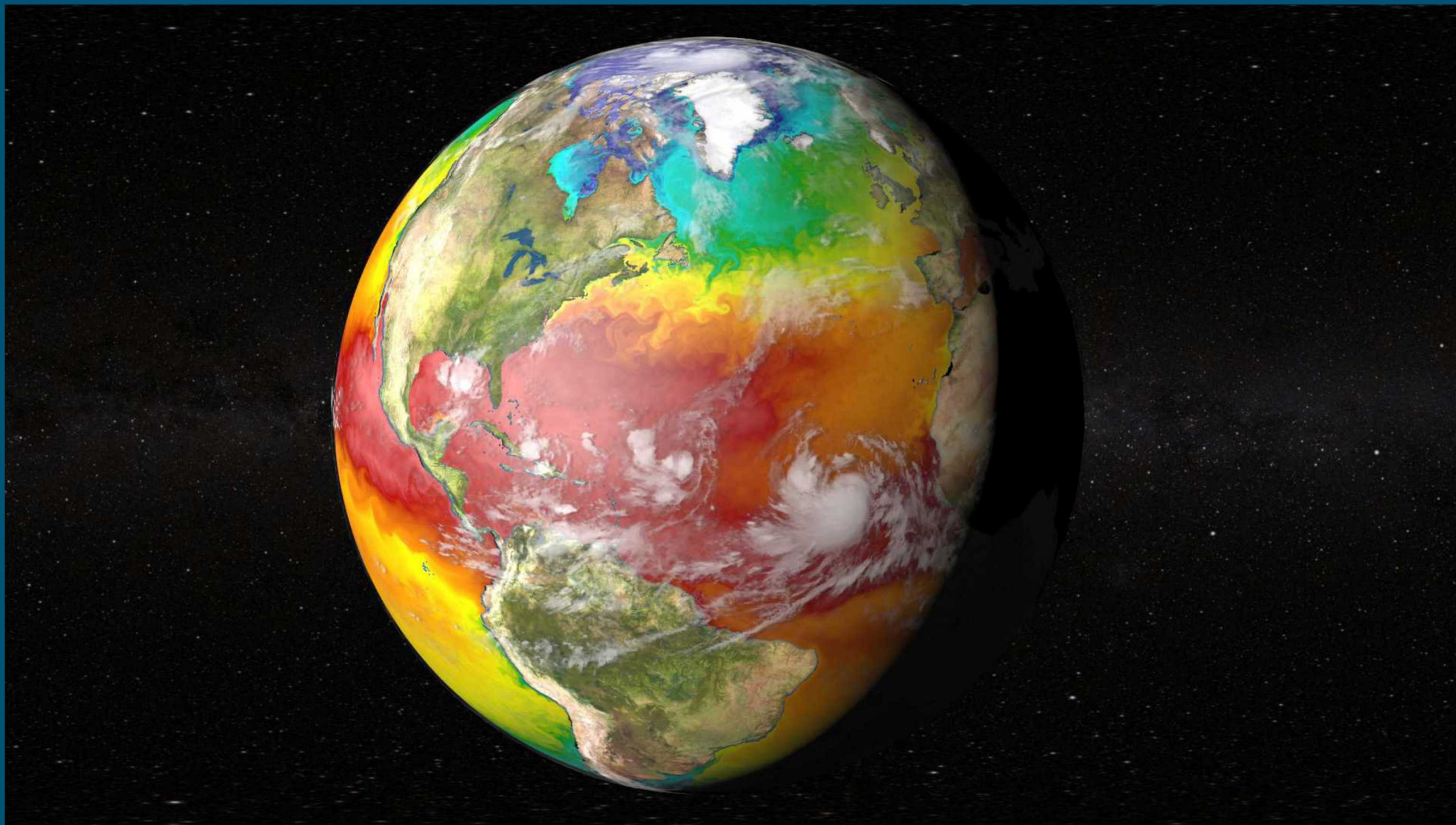
Slide 2

CBJ1

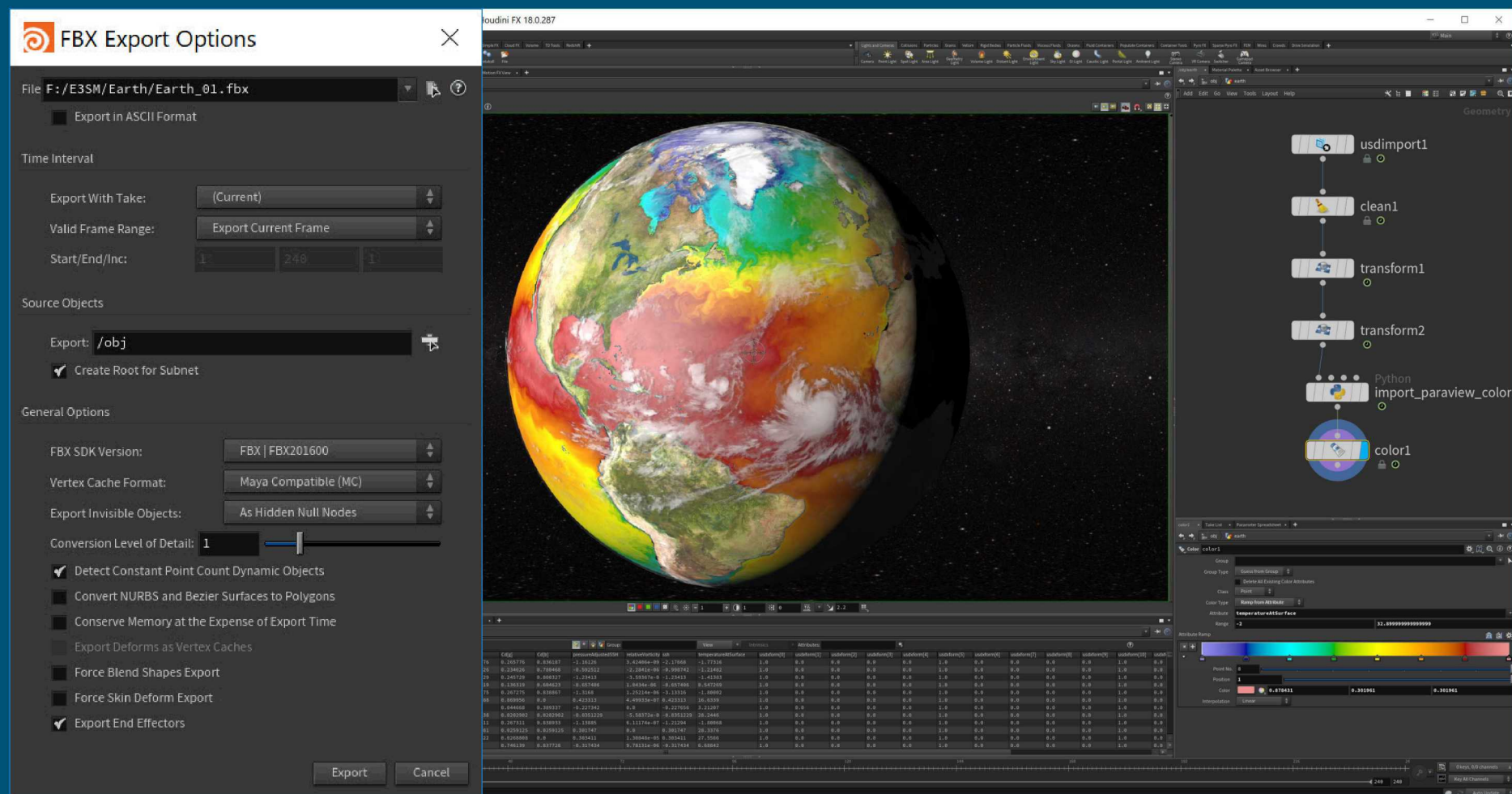
Carvey, Bradley John, 4/20/2020

Import Paraview Generated Houdini geo file into Houdini



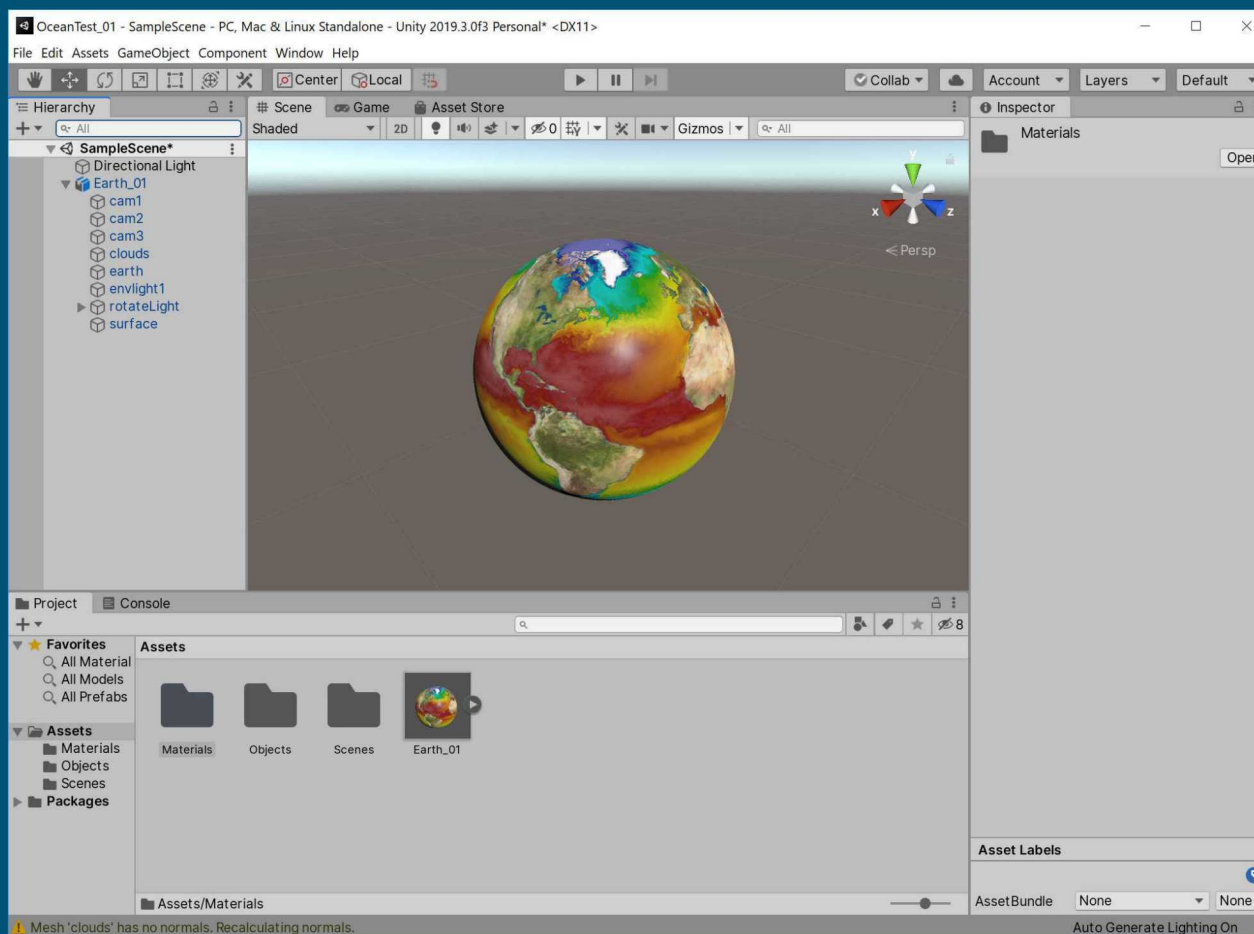


Export FBX file with UV map and materials



Unity

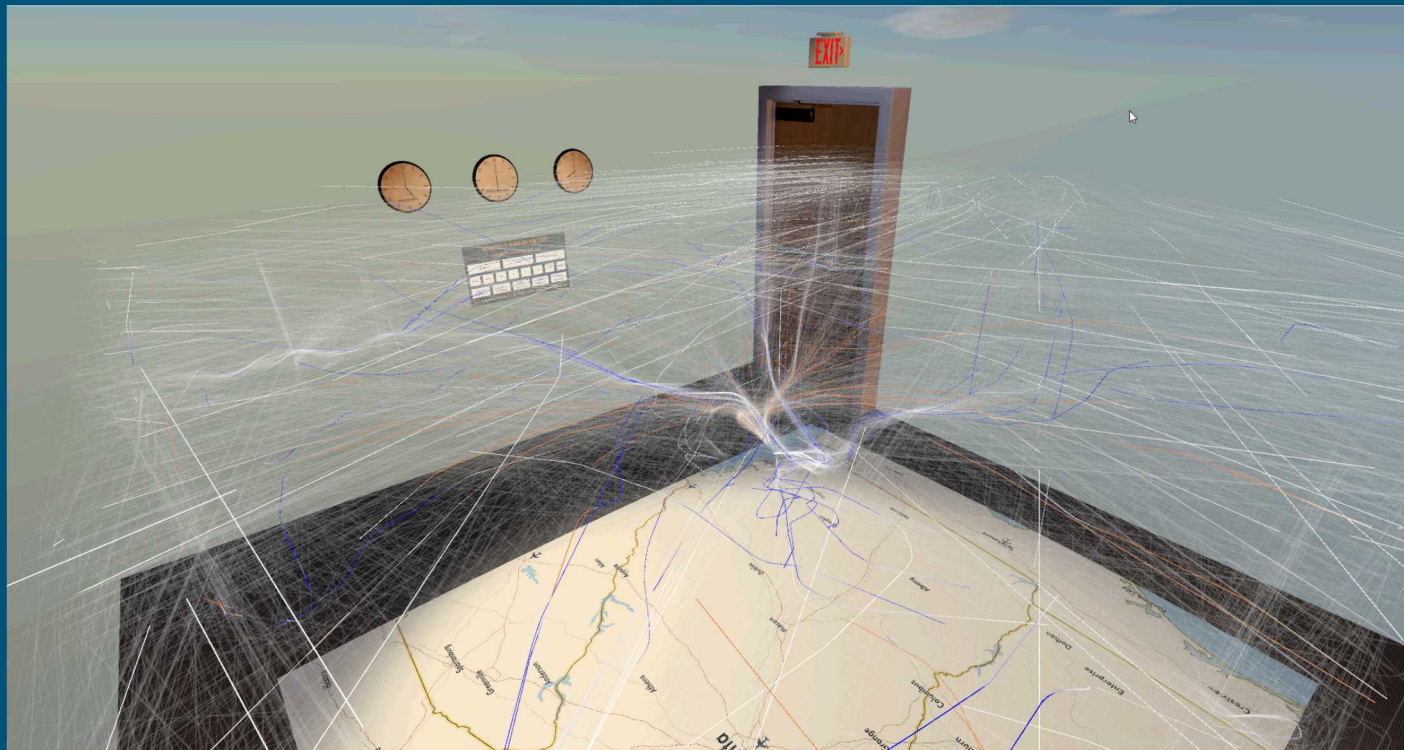
- Open Idea Lab Room Project
- Import FBX file from Houdini
- View in VR



7 CARVR Idea Lab

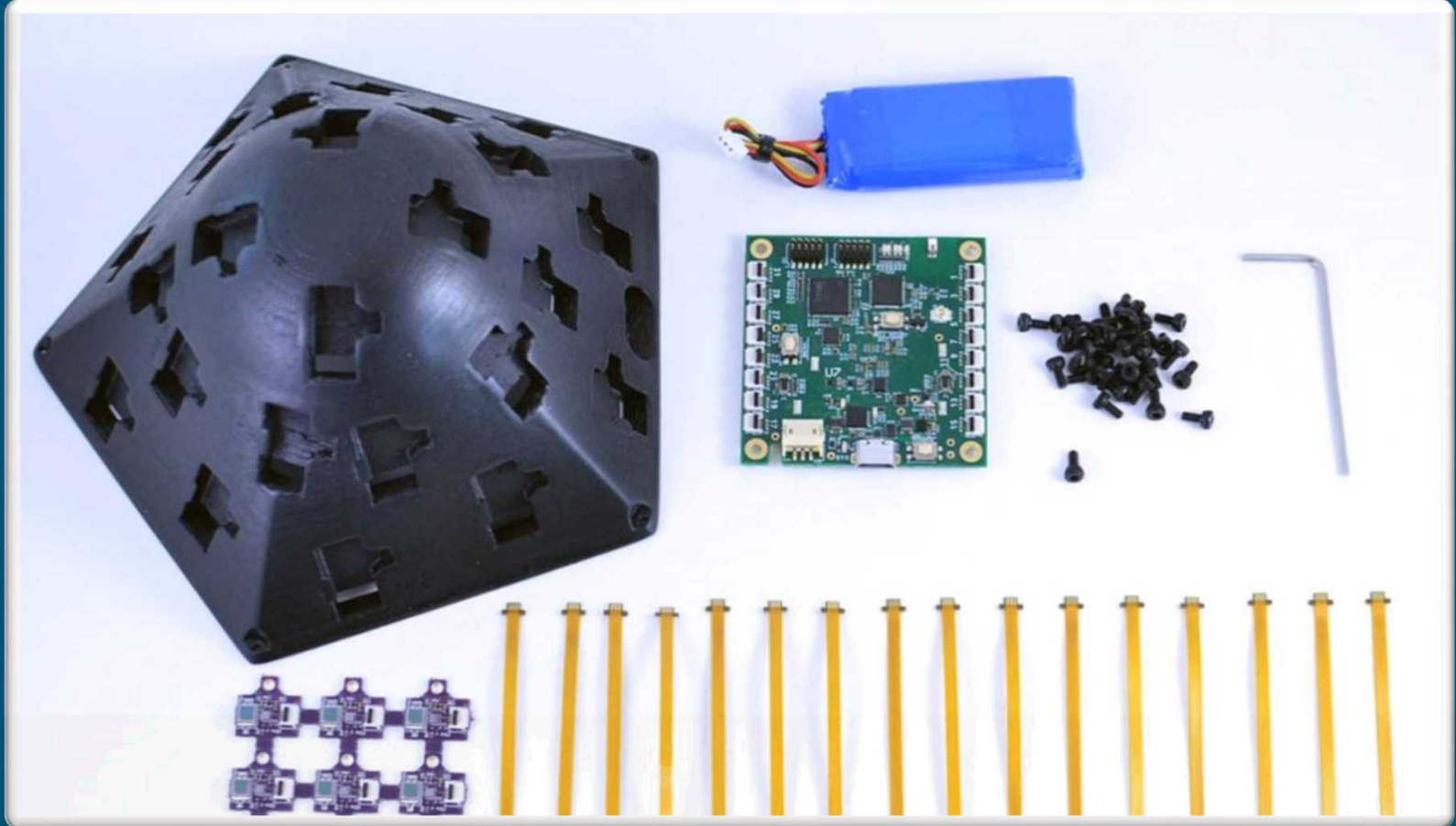
- Collaborative AR and VR
- Multiple VR users in Multiple Locations
- Any Device can be an interactive observer

Observers View





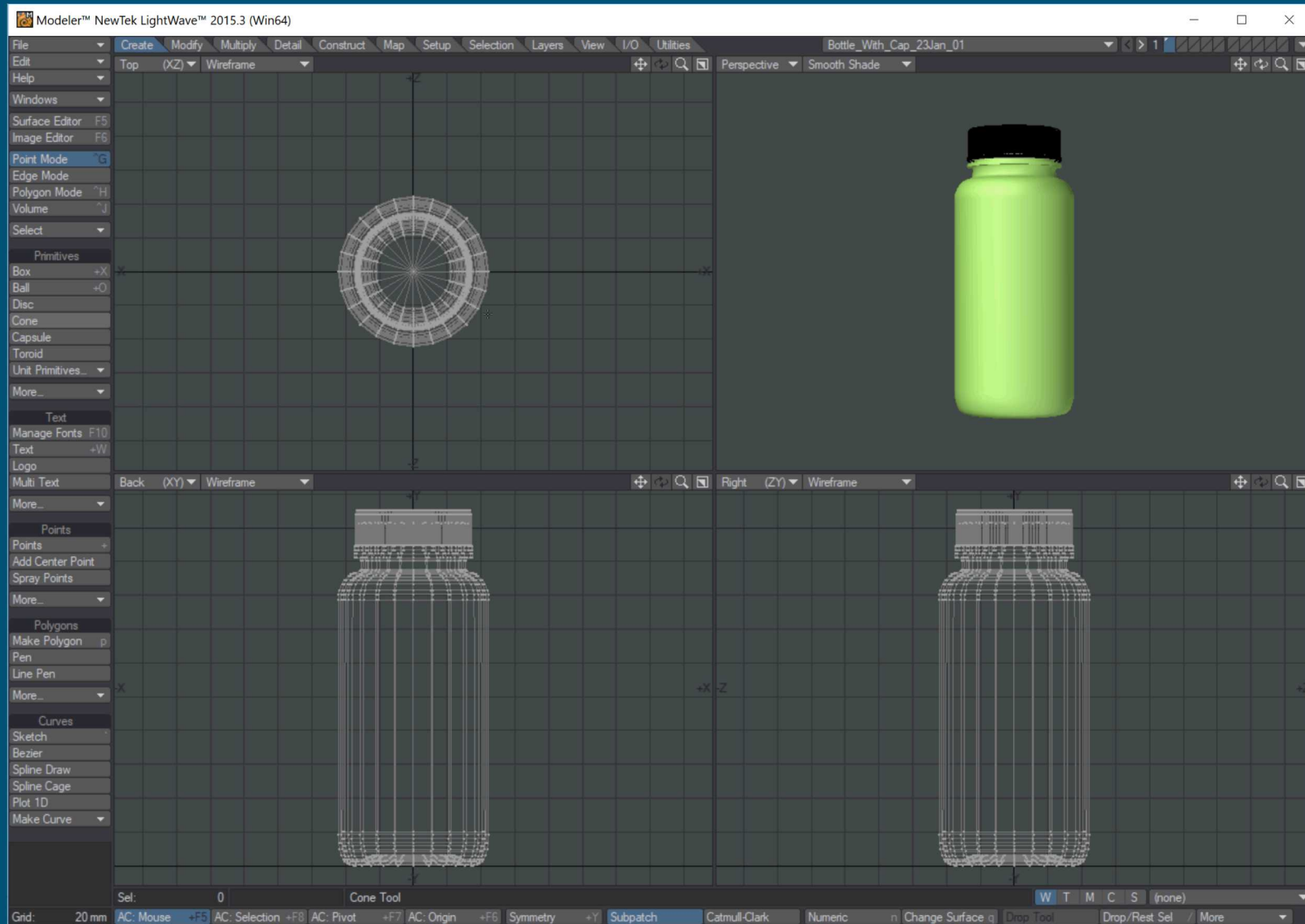
9 Development Kits



Physical Object with Tracker Attached

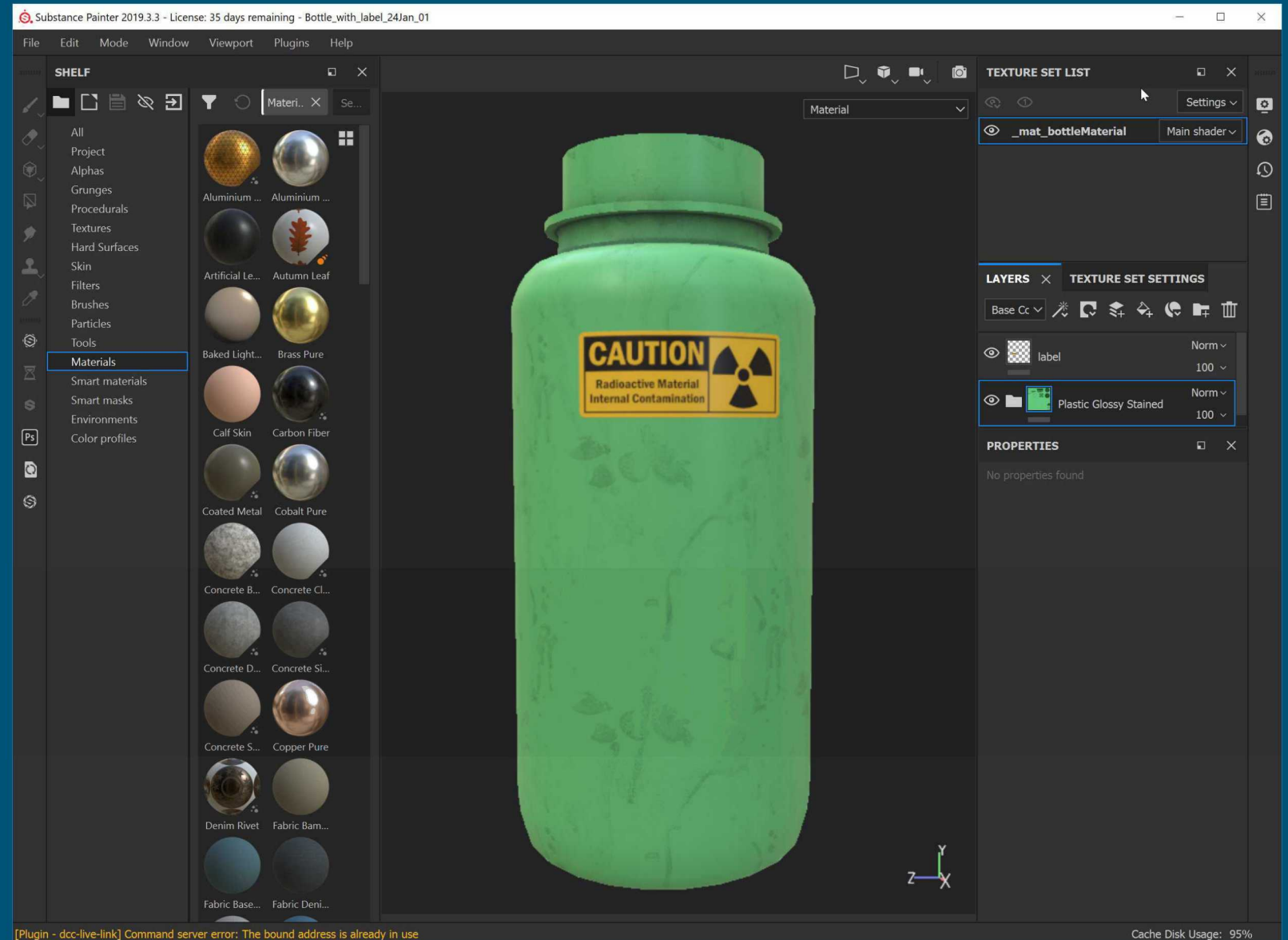


Model Object

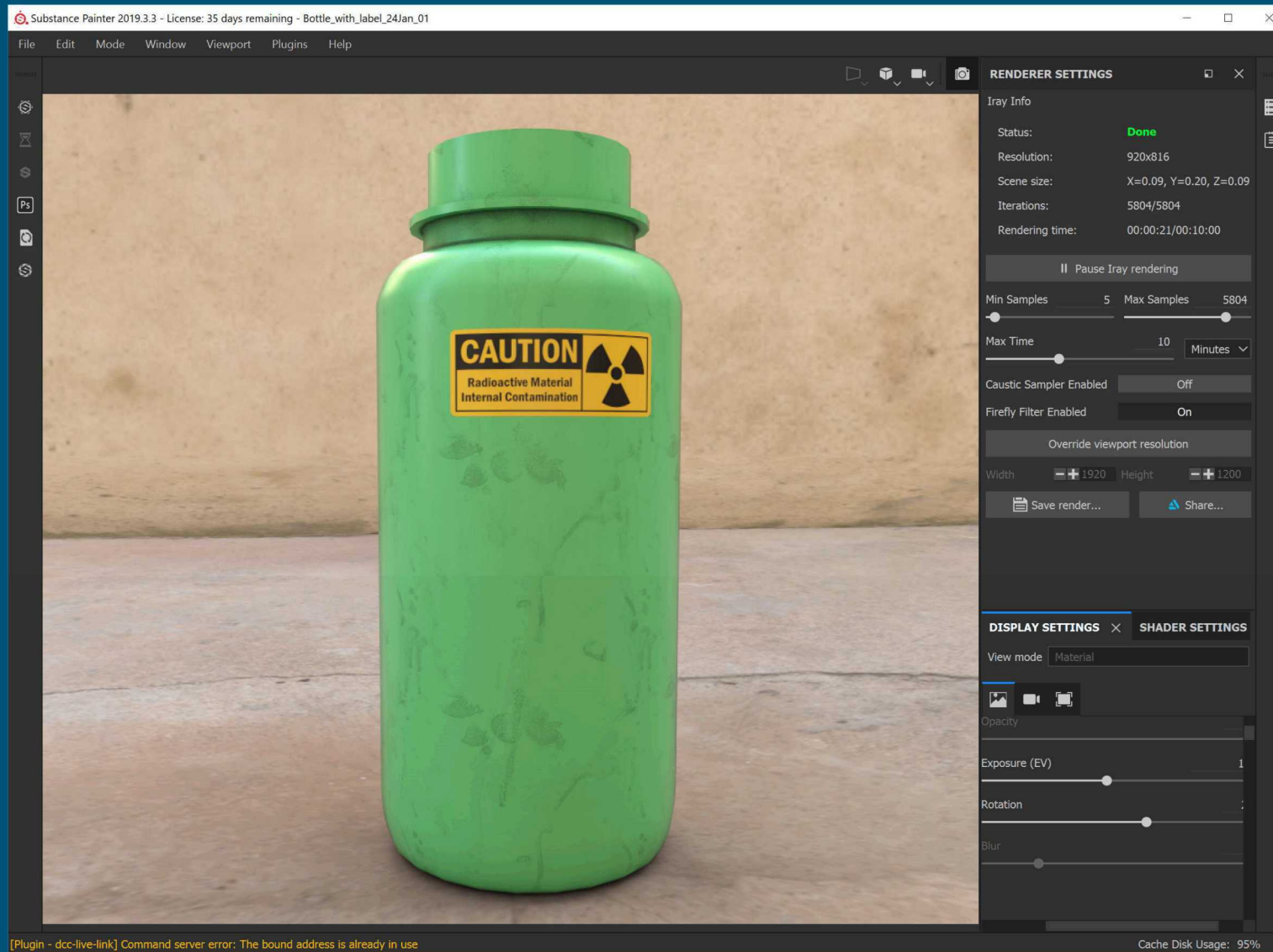


Texture Model

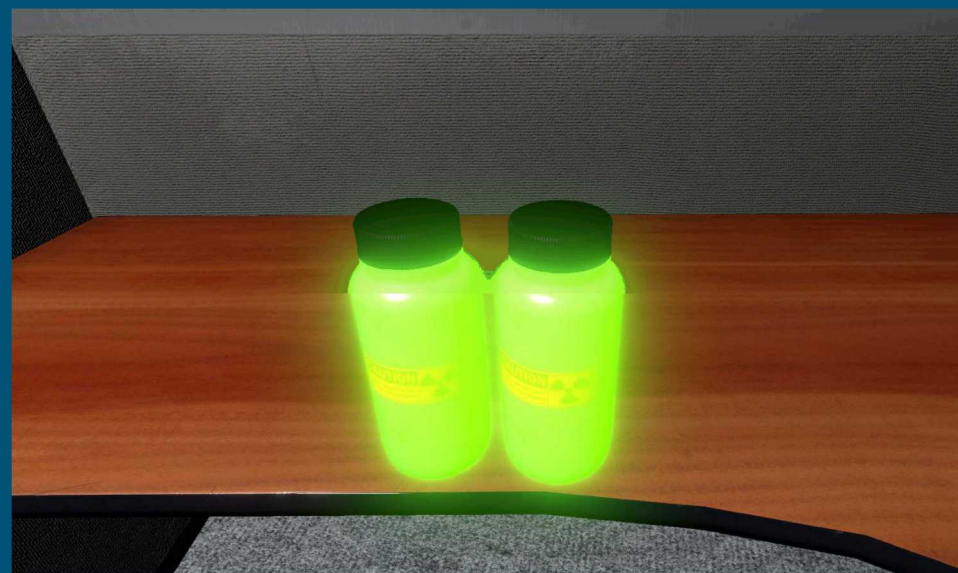
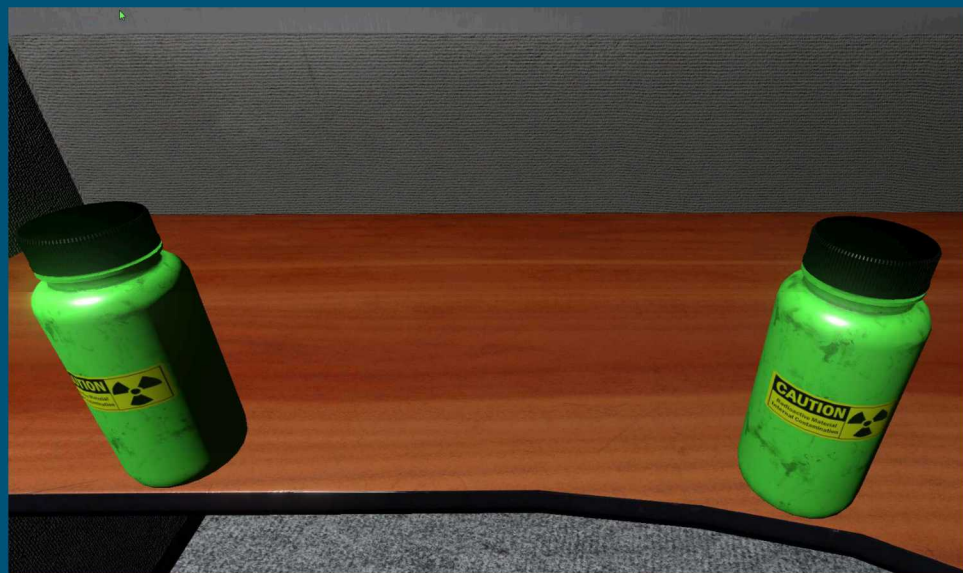
- Create Model with Uvs
- Import into Unity
- Open Substance Painter
- Paint texture
- Texture updates in Unity



Virtual Object Rendered Substance Painter

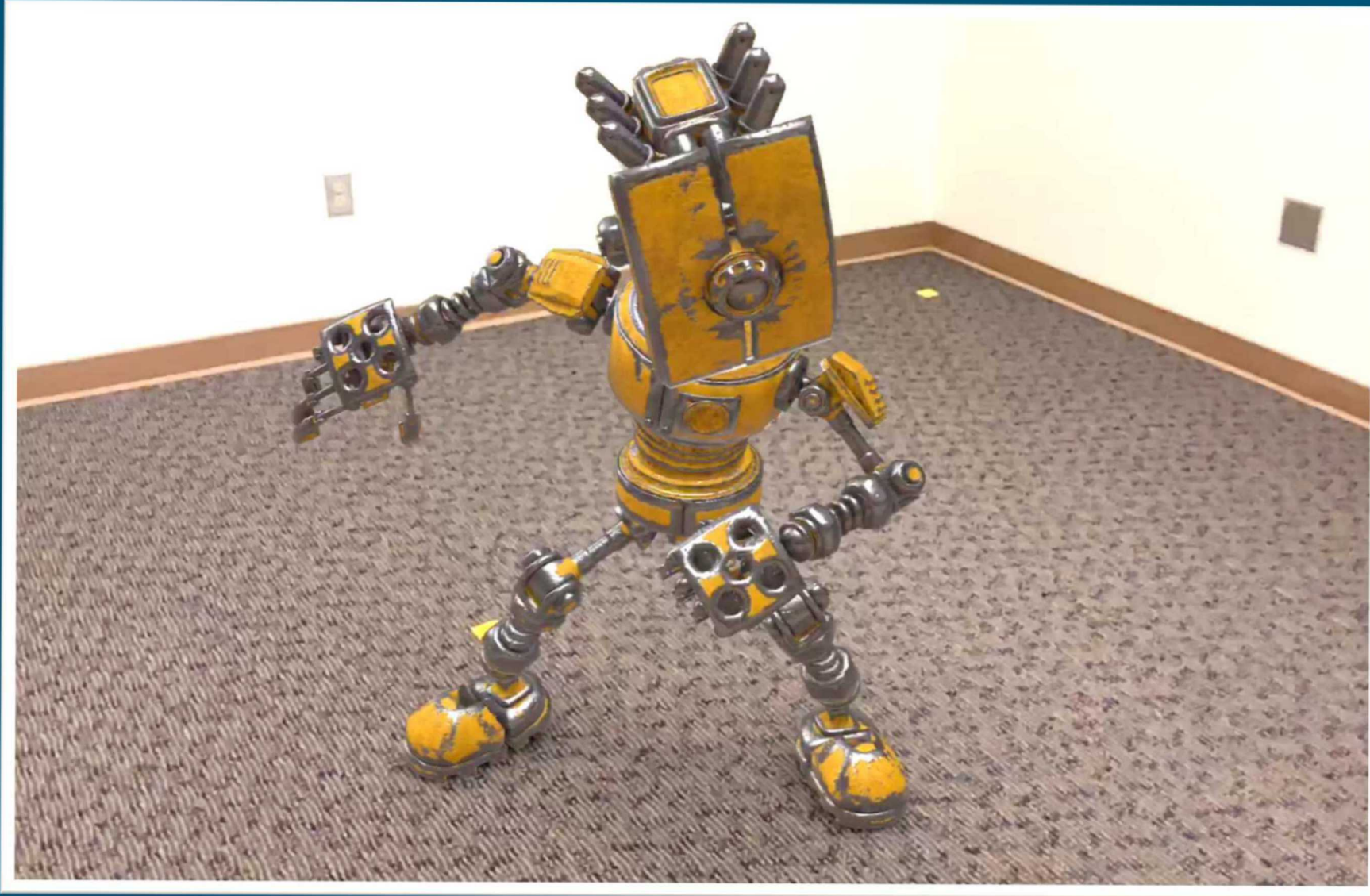


Tracker Imported in Unity





Easy Augmented Reality



USD and USDZ?

USD - Universal Scene Description

Developed by Pixar to describe 3d Scenes

Becoming an industry standard for sharing scenes between different 3d applications

Unity supports USD scene files

USDZ - Universal Scene Description Zip

Developed by Pixar and Apple to implement Augmented Reality Objects

All Apple devices and applications can display USDZ 3d object files.

iOS devices can display as 3d objects or as AR 3d objects.

3D Models

Tap any of the 3D models below on a device running iOS 12 or later to view the object and place it in AR. Or click a model on Mac to download the USDZ file.



<https://developer.apple.com/augmented-reality/quick-look/>



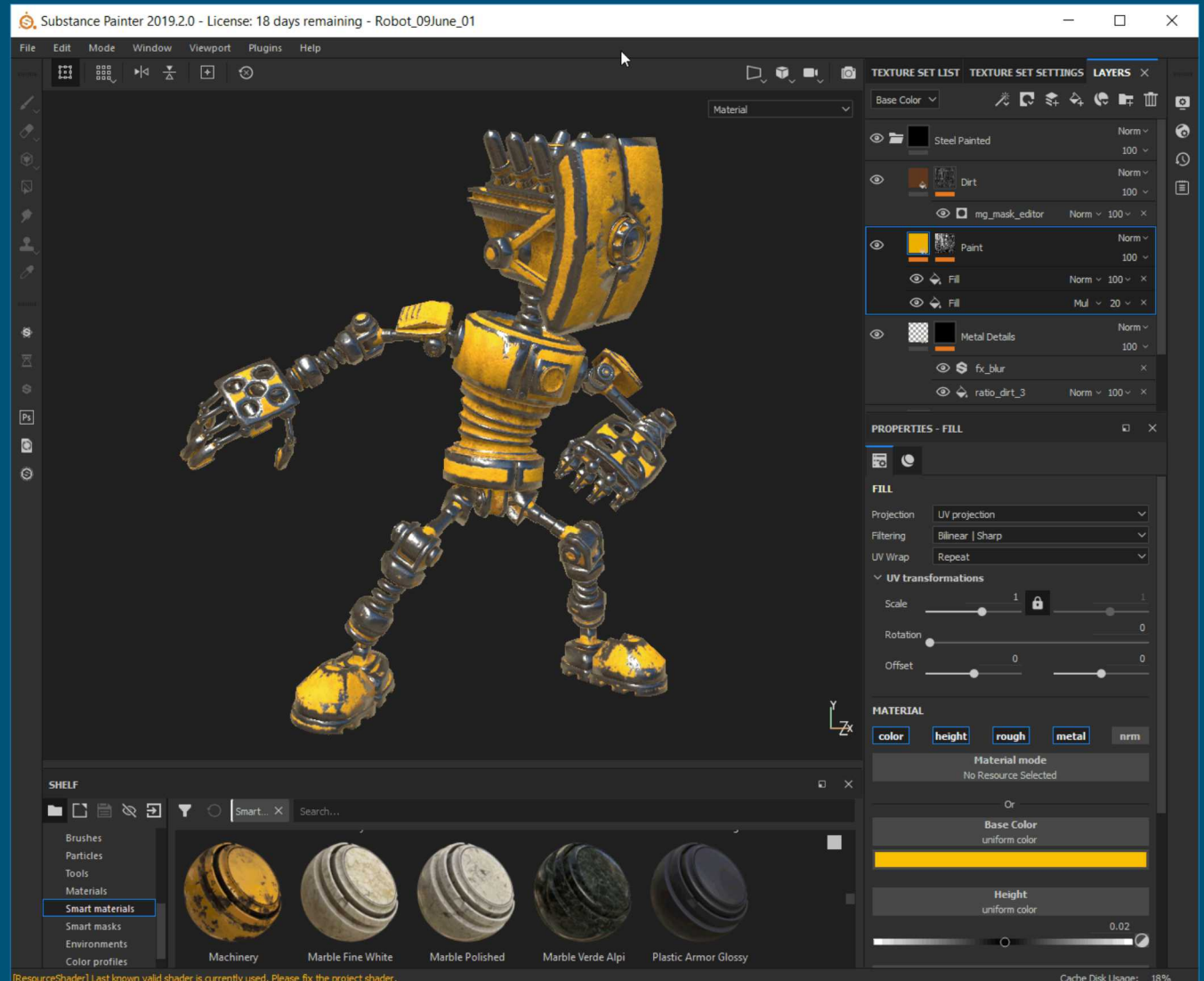
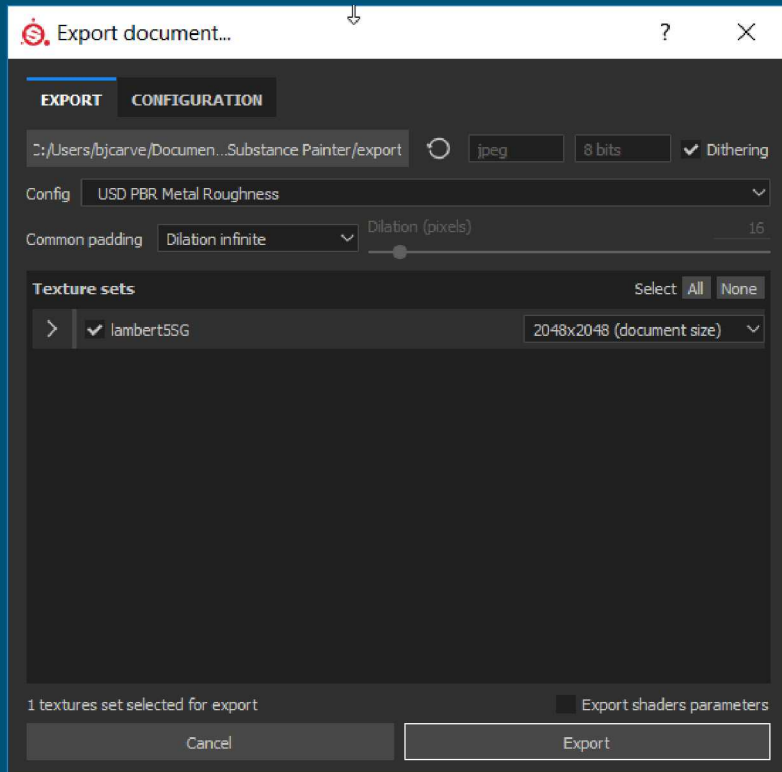


Creating a USDZ file with Xcode

```
xcrun usdz_converter my3dObject. Obj my3dObject.usdz
```

Creating a USDZ file with Substance Painter

- Load 3d Object File
- Paint Object
- Export USDZ file



Publishing a USDZ file

Enable AR Quick Look by linking a USDZ file.

```
<div>  
  <a rel="ar" href="Robot.usdz">  
      
  </a>  
</div>
```

When the user clicks on the link, Safari will display your object with AR Quick Look.

Questions?

