USD WG - 2024-10-23

Conference call details

https://zoom-lfx.platform.linuxfoundation.org/meeting/96955375634?password=f8dd722d-2a2b-41bb-9fc7-f09aacaf11b2

Agenda

- Call for volunteer to take meeting notes
- Sub-working group updates
    - Camera
    - MaterialX
    - Games
    - Web
    - Assets
- OpenUSD 24.11 RC
- Florian Zitzelsberger: *OpenExec update*

Notes

- Updates ~ games
    - Godot could be a good demonstrator for USD based workflows if it is used for more than just import/export
    - Koen showed materialX workflows via UsdShadeGraph
    - TJ showed LOD schema progress
        - Spiff asks if this schema might become part of OpenUSD?
        - Francois ~ it's an exploration at the moment, proof of concept
- Updates ~ MaterialX
    - 1.39 integration PR by Lee in progress.
    - Call for testing of the 1.38.x backport of OpenPBR, need feedback soon
        - OpenUSD 24.11 will work to ensure the backport works cleanly when the backport lands. In that case the default version will remain on 1.38.10, but 1.38.11 will be compatible.
    - Karen calls attention to aligning opacity handling between USD/MaterialX PreviewSurface implementation
    - Front and back materials?
- Updates ~ Assets
    - Paolo put up notes about integration issues of USD files into VFX pipelines. He requests feedback. https://github.com/paoloemilioselva/assets/tree/structure-for-first-intent/intent-vfx

- 24.11 Release Candidate in progress, feedback welcome
    - Aaron is working on an AOUSD blog post about it
    - Boost removal is complete!
- OpenExec Presentation ~ Florian Zitzelsberger. Chat notes:
    - Jerry Gamache: Is UsdExec one of the building blocks of UsdAnim, or are these two items still separate.
        - Sebastian "spiff" Grassia (Pixar Animation Studios): Other way around… TsSpline can provide values for attributes, which OpenExec would then consume
    - Dhruv Govil (Apple Inc.): Does OpenExec require any changes to the Crate file format?
        - Sebastian "spiff" Grassia (Pixar Animation Studios): Not completely sure yet - depends on how much of the Presto OM we preserve. But there won't be new "value types" - the "arbitrary computed values" Florian mentioned cannot be serialized (this is one of the things we use the "opaque" SdfValueType for…)
        - Dhruv Govil (Apple Inc.): Good to know. Thanks.
        - Aaron Luk (NVIDIA Corporation): Presto internal computations can output structs, IIRC-- are those opaque SdfValueTypes?
        - Sebastian "spiff" Grassia (Pixar Animation Studios): If you wanted to author an attribute that represents that computation, yes, Aaron.
    - Matthew Kuruc: How are connections in material networks and connections in execution graphs disambiguated in scene description?
        - Sebastian "spiff" Grassia (Pixar Animation Studios): Short story: API schemas… if there's time, could be a discussion topic
        - Sam Warring: Connections in the execution graph are not part of scene description. The execution graph is "compiled" from scene description and managed internally by OpenExec.
        - Seth US: Is there any plan to release some of the objects that Pixar uses to compute values across connections? (mappers, expressions, etc.)
        - Deepanshi Sharma (Pixar Animation Studios): There might be some nomenclature clash between exec graph connections, i.e. VdfConnections that are purely a product of the vectorized data flow graph that we build to track dependencies. This is completely separate from scene description connections, which may/may not impart data flow according to how they are interpreted. Definitely open questions on the different interpretations of connections in e.g. shading
    - Dhruv Govil (Apple Inc.): Also I totally understand/agree with not releasing the rigging toolkit. However would it be possible to include a doc about principles you keep in mind when you design yours, so that people who make or propose their own rigging tookits can follow? I think that would help with making sure others don't conflict with what you have

- Anders Langlands (NVIDIA Corporation): Are execution markers queryable in any GetAttribute() call?
    - Aaron Luk (NVIDIA Corporation): IIRC you can list all exec markers given an object, and you can call attrib.Compute(atMyMarker)
    - Aaron Luk (NVIDIA Corporation): but I think it's more common to set up execution networks in character rigs such that builtin computations are set up to pull at specific markers, rather than explicitly Compute() ing them
    - Levi Biasco (Sony Group Corporation): So there will be direct dependencies of Usd APIs on the exec APIs?
    - Aaron Luk (NVIDIA Corporation): not sure-- in Presto, there's a library on top of USD (Mf -- MfStage, MfPrim, MfAttribute, et al) and the Compute method is on MfAttribute
    - Sebastian "spiff" Grassia (Pixar Animation Studios): We currently think that's the simpler architecture, but like Florian said, no Exec will be invoked unless you call new Compute() API's, and possibly existing Compute* API's… one reason we've tried to be careful with what methods are "Get" methods vs "Compute" methods
    - Sunya Boonyatera (Pixar Animation Studios): @Levi Biasco (Sony Group Corporation) No — the USD APIs are intended to provide access to authored values. The "Exec" library that Florian mentioned will have separate APIs for retrieving computed values
- Seth US: Will @initial be one of the canonical execution markers?
- LucasMorante LucasMorante (Illusorium S L): can computations results be backed-down back to the USD layer?
    - Sebastian "spiff" Grassia (Pixar Animation Studios): As Levi said… in our pipeline, we have an "animation baking step" where we evaluate (using Exec) all the posed points per-frame (and other computed properties), and write a new layer that ejects the rigging and bakes out point-positions computed by Exec.
    - Sebastian "spiff" Grassia (Pixar Animation Studios): Which is what w perform FX and lighting on top of
    - LucasMorante LucasMorante (Illusorium S L): similar to what baking a constraint does
- Levi Biasco (Sony Group Corporation): Do you mean as an element of the executation API? Because from what Florian's covering now, it sounds like you can just grab all the values and set them yourself after running the computation
- Levi Biasco (Sony Group Corporation): Does this mean that existing forms of computation like ComputeLocalToWorldTransform will be moved to OpenExec?
- Dhruv Govil (Apple Inc.): Would the 25.08 release be a preview style release like the way anim curves were at first?

Action Items

- …

Questions

- …