RenderMan for Maya 22.4

Welcome to RenderMan for Maya 22!

This latest release of RenderMan for Maya 22 (RfM), includes a number of features to address feedback as well as some fixes to RenderMan for Maya workflow and performance.

Please see the release notes below for all the new capabilities and known issues! You may also wish to visit the migration page for selected highlights.

> ⚠ Now in RfM, problems caused by the presence of non-ascii characters in file paths (diacritics, etc.), RfM will error early (fail to load) with an informative message and warn if rendering resources are loaded from non-ascii paths. Please avoid accents, symbols, spaces, and other non-standard naming conventions in file paths, source files, and user names.

What's New

- **Support for Maya 2019**
- **Prevent polygon cracking** — A new switch that attempts to prevent polygons with hard normals from coming apart when displaced. This will use some more memory and may warp some places where the discontinuity is extreme.
- **Import items ready for modern rendering** — There is a new "import GPU cache..." sub-menu in the shelf icon for Archives. It will automatically enable visibility to indirect rays which is not the Maya default behavior.

Miscellaneous and Important Changes

- OSL now supports batched SIMD execution, enabled in the advanced render globals of RFM, this may become a default in a future release. The current default is off. Please see the OSL documentation under Performance
- There is a new Deep Rendering Quality control in the advanced section of the RenderMan globals. It controls the sample decimation and by extension the final file size
- The Alembic browser: double-click a an item in the list to solo it in the viewport. To show all, either double-click the top node or clear the "Geometry Path" fleid of the gpuCache node. This has no influence on the final render
- To help troubleshoot configuration problems caused by the presence of non-ascii characters in file paths, RfM will error early (fail to load) with an informative message and warn if rendering resources are loaded from non-ascii paths. Until the renderer is updated to support unicode strings, this is the current way to warn users
- Added a primvars python module to facilitate adding __Pref data to shape nodes, which is useful for people who need their __Pref data to be exported into an alembic cache. When rendering Maya geometry directly in RfM, the recommended workflow is still to use texture reference objects from the standard Maya workflow
- Added a new "int polygon:smoothdisplacement" attribute to support crack-free displacement on polygon meshes with hard edges
- In batch mode, rfm now txmakes all needed textures using multiple workers before the render starts
- Some RenderMan object attributes are now available in the channel box for mass editing
- The Attribute Editor's Help menu will now open the current node's documentation page (instead of jumping to Autodesk's server). A 'rfmDocsRoot' optionVar can also be defined to point to a local RenderMan documentation server. See doxygen documentation for details
- colorOffset is now taken into account on Maya's ramp node
- Added shelf menu options to create volume primitives (box, sphere, cone). Right-click the volume icon to access them
- You can now specify custom Tractor settings via the RfM JSON configuration files. An example of how the settings are specified:

```
"tractor_cfg": {
        "engine": "buzz",
        "port": "8081",
        "user": "rman_user"
},
```

* "engine" specifies the hostname of the machine that is running the Tractor engine (string).
* "port" specifies the port number the engine is running on (string).
* "user" is what user the job should be submitted as (string). Note, if this is an empty string we submit the job as the current logged in user.
- The preset browser now uses RfM's preferred text editor if defined and available
- Preset Browser: imported materials will use the shadingEngine's Maya/RenderMan plugs based on user preferences
- The RfM scene updater script will try to remove old RenderMan nodes from your scene, this is destructive, save a new copy of your scene

- The Alembic procedural has been updated to support polygon:smoothdisplacement as well as a number of other attributes (dice: micropolygonlength, displacementbound, trace:displacement, trace:autoBias and trace:bias)
- RfM now exports the global's micropolygonlength so that alembic archives with shapes inheriting their value from the globals may use the correct value
- Tractor jobs spooled on Windows can now run on Linux and OSX blades given a reasonable dirmap setting. Dirmaps in rfm can be set in Documents\rfm\config\rfm.json on Windows

Fixes

- Fixed a bug where sometimes batch preview renders in RIB mode would fail to start
- MASH networks which contain a MASH_Dynamics or MASH_BulletSolver node now behave as expected
- Alembic: Normals and facevarying primvars are now rendering correctly
- Fixed incorrect string tokens expansion on frame 0
- Fixed an issue that caused two frame sequences to not denoise when "crossframe" denoise was requested
- Fix possible crash when dumping RIB
- A bug that caused Xgen to fail when using more than two motion samples for motion blur has been addressed
- RfM failed to take some keyframed attributes into account
- String substitution now works for 'procedural' nodes. All string attributes are now correctly expanded to allow developers to format their procedural's arguments
- The default module file was referencing 'plugins' instead of 'plug-ins'
- Preset Browser:
    - Fixed an error when restoring plug values on the shadingEngine plugs
    - Fixed error caused by PxrRamp nodes
    - Preview is not re-rendered if the user cancels to avoid overwriting an existing preset
    - The help menu is now working as expected
- Fixed preview render of materials with array connections
- Fixed a bug in RfM where normals of motion blurred deforming meshes were coming from last sample rather than first
- When exporting an Xgen archive, the "Include Animation" checkbox in the dialog now has the expected effect
- Batch rendering to RIB wasn't always respecting the animation settings
- Fixed a crash that could occur at the end of batch renders, especially on OSX
- Fixed a bug where sometimes batch preview renders in RIB mode would fail to start
- XGen would output error messages on expansion and randomly fails to output primvars
- Fixed a crash that could occur in Maya 2017 when starting a preview render
- Fix memory corruption when rendering archives, that would cause Maya to crash randomly

Developer Documentation

You can find a useful Doxygenated developer documentation in the Developers' Guide under RfM2

Known Limitations

RenderMan for Maya

- Light Linking volumes is not currently supported
- Only motion blurred meshes and transforms retain their blur after frame changes during IPR
- Deselecting "Receive Shadows" does not work.
- Creating a mesh light from existing geometry during IPR will duplicate the geometry in-render. Restart the render to remove the duplicate.
- We do not support Camera Facing Curves in Xgen
- Xgen will not reflect changes in the Collection
- Limited UDIM texture support in viewport
- Maya Fur Feedback is not supported

> ⊘ **Xgen** : Xgen will crash during live rendering unless you set Window > Preferences > Xgen > Multithreading to **"off"** (unchecked).