Release Notes for Mari 3.1v2

Release Date
16 August 2016

NOTE: The Mari documentation available in PDF format will soon be deprecated in favor of the help in HTML format. This documentation is shipped with the product and can accessed without Internet connection.

System Requirements

NOTE: Mari increases its level of performance with newer, more advanced hardware configurations. However, Mari is tested and capable of operating on many older, prior-generation systems. For this reason we are listing below-minimum requirements, which are recommended, and on which tests have been performed. Your particular needs may vary from that of other users.

Officially Supported Operating Systems

• Mac OS X 10.9.5 (Mavericks) or higher
• Windows 7 64-bit or higher
• Linux 64-bit operating system (CentOS/RHEL 6)

Minimum Hardware Requirements

• Quad-core processor
• 10+GB disk space available for caching and temporary files
• At least 4GB RAM
• Display with 1680 x 1050 pixel resolution
• An NVIDIA or AMD* graphics card with the latest drivers
• 1GB of graphics memory
• OpenGL 3.2* or higher

*Displacement preview is currently only available on the cards and drivers that support OpenGL 4.0 or newer.

Recommended System Requirements

• 2.5+Ghz Quad-core processor
• 250+GB disk space available for caching and temporary files. SSD is preferable.
• 16GB RAM with additional virtual memory*
• Display with 1920 x 1080 pixel resolution
• An NVIDIA or AMD* graphics card with the latest drivers
• 2+GB of graphics memory
• OpenGL 4.4 or higher support

*The use of virtual memory improves stability and helps prevent data loss on large projects.

'Recommended' does not guarantee that it meets your particular needs.

Tested Workstation Hardware

The configurations listed below are those that The Foundry have tested with Mari 3.0v3. Due to the constantly changing nature and wide variety of computer hardware available in the market, The Foundry is unable to officially certify hardware. The list below can be used as a recommendation and does not guarantee that it meets your particular needs.

Please download and install the latest graphics driver from the NVIDIA or AMD websites, and ensure that you are using 8.982.1 drivers or higher for AMD cards.

If you encounter any issues, please contact support@thefoundry.co.uk.

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New Features

There are no new features for this release.

Feature Enhancements

• BUG ID 166679 - Loading animated geometry is now less restricted. Missing data in animated frames is now supplemented by another frame.
• BUG ID 208461 - The GL version has been updated to 4.3 (hardware dependent).
• BUG ID 216043 - mGo: mGo now checks for incremental changes when exporting channels from Mari to Maya.
• BUG ID 218253 - A Virtual Texture Depth preference has been added to control the number of 2D texture layers used in the virtual texture Mari uses for display. Increasing this may resolve issues with flickering textures. This value is dependent on the graphics card capabilities. This preference is disabled for Mac OS X platforms.
• BUG ID 219552 - It is now possible to create a Tiled node in the Node Graph by dragging and dropping an image from the Image Manager palette.

Bug Fixes

• BUG ID 118852 - The Erase mode in the Slerp tool did not work.
  To improve performance of the Slerp tool, the incremental undo has been removed, but slerps can still be removed by using the newly fixed Erase mode.
• BUG ID 127948 - Smart selection didn’t work correctly in Edge Angles and Orientation modes.
• BUG ID 173066 - Copying and pasting layers across objects rendered the wrong default colors as well as shallow copies of the layers.
• BUG ID 176239 - The layer hash method did not take into consideration any non-layer nodes or the Node Graph.
• BUG ID 196364 - The Objects palette sort option didn't work.
  It now sorts the root object names alphabetically, leaving the children objects names in the same order they were imported in Mari.
• BUG ID 201092 - Layers lost their cache when upgrading archives across versions.
• BUG ID 201143 - Mari was significantly slower when using OCIO roles rather than using the corresponding colorspace.
• BUG ID 201151 - Mari wasn't clamping the results to the zero to one range from the colorspace conversion on the images used in the Paint through tool. This meant the texture image in the paint buffer didn't match the paint that was being sent through it.
• BUG ID 201428 - Disabling a mask caused a rendering artifact and detached the channel from the current Viewer.
• BUG ID 201968 - Mac OS X 10.11 only: Context-sensitive help pages sometimes did not load.
• BUG ID 202151 - The tooltip of the Steady Stroke Delay slider only showed partial text.
• BUG ID 207548 - Mari introduced very noticeable stepping artifacts when painting byte (8-bit) textures.
• BUG ID 207662 - Adding multiple output nodes in a Group node did not show an error dialog and stop the action.
• BUG ID 207907 - Node Graph: Node inputs were sometimes incorrectly connected to random nodes when inputs were released in an empty area of the Node Graph.
• BUG ID 208471 - Baking in Mari was potentially slower when the Virtual Texture Type was set to anything other than float.
• BUG ID 208567 - Zoom to selected faces (A key by default) didn't work.
• BUG ID 215278 - Copying Paint nodes across objects resulted in empty Paint nodes.
• BUG ID 216026 - mGo: mGo did not support the Force Subdivision feature.
• BUG ID 216030 - mGo: In Maya, mGo grayed out its connected state if it could not find Mari, and remained as such until it was re-opened.
• BUG ID 216035 - mGo: When using mGo, objects were sometimes sent from Maya incorrectly.
• BUG ID 216040 - mGo: Shaders were not correctly assigned to objects when imported into Maya from Mari.
• BUG ID 216041 - mGo: Channels were sometimes connected incorrectly, or not at all, in the Maya shader after mGo export from Mari.
• BUG ID 216042 - mGo: Displacement exported from Mari to Maya through mGo was not always correctly connected or disconnected.
• BUG ID 216423 - The Third Party Library Versions appendix did not include the GCC, OpenSubDiv, and Ptex libraries.
• BUG ID 216569 - mGo: The mGo shaders node inputs were cluttered and overlapped.
• BUG ID 216751 - Toggling a mask in the layer stack did not synchronize properly with the Node Graph and vice versa.
• BUG ID 216761 - Mari 3.0 was significantly slower than earlier versions, such as 2.6. This was particularly the case when working with large and complicated projects.

• BUG ID 217000 - Reverting snapshots caused Mari to crash.

• BUG ID 217790 - mGo: mGo failed to load in Maya.

• BUG ID 218222 - Mac OS X only: Mari sometimes failed to export channels with flattened layers.

• BUG ID 218557 - mGo: Sending geometry from Maya to Mari caused an error in mGo.

• BUG ID 219347 - The Layout.mws could become corrupted, causing a crash on startup when migrating from Mari 2.6.

• BUG ID 219482 - Mac OS X only: Very noticeable lighting artifacts appeared in the canvas render when using environment lights with an AMD GPU.

• BUG ID 227456 - Mari incorrectly applied the blend mode in the project’s blending colorspace for procedurals in 16- and 32-bit channels.

Known Issues and Workarounds

Mari Tools

• BUG ID 13640 - The Blur tool can be slow to use on the initial stroke.

  Wait for Mari to process the blur before applying a second stroke.

• BUG ID 13394 - Using the Select Items tool with the Facing set to Front to select and hide a portion of faces causes some of the faces within the selection to remain visible when zoomed in.

  To catch all selected faces, either:

  • select Facing > Through instead of Front, or

  • zoom in closer to the object.

Shaders

• BUG ID 34729 - Mari displays a rendering error on the canvas when it is unable to create a shader. More information has been included to help you determine the cause of the error. Some solutions might be to hide groups and layers, or to cache parts of your layer stack until a shader can be created.

• BUG ID 34679 - On extremely large projects, issues can arise with shader limits, and reaching the maximum allowed texture slots available. To avoid reaching these shader limits on large projects, try the following workarounds:

  • hide groups and layers, or

  • cache groups and layers.

Layers

• BUG ID 34690 - Flattening or caching layers or channels on complex projects may cause Windows to reset the graphics driver due to the long processing time. To work around this issue, you can try to flatten or cache fewer
layers at a time, or reduce the value of the **Max Render Size For Baking** setting. This setting can be found under **Preferences > GPU > Baking and Projection**.

Reducing this size breaks the flattening or caching operation up into smaller pieces, which individually take less time to calculate, and thereby avoids a Windows graphics driver reset.

- **BUG ID 26460** - Painting a mask in a Mask Layer Group sometimes results in unexpected paint results. To prevent this from happening, either:
  - Use a white “color” layer at the bottom of your mask stack. Any layer used over this initial “color” layer should then be fine, or
  - If you want to create a mask in a Mask Layer Group, simply add another layer on your Mask Layer Group instead, and paint white into it to create a mask.

### Importing and Exporting

- **BUG ID 51655** - Mari becomes unresponsive when attempting to export Ptex textures.
- **BUG ID 50886** - Session Scripts: Imported shaders don’t have channels assigned.
- **BUG ID 49634** - Session Scripts: Not all features new to Mari 3.0 are supported by session scripts.
- **BUG ID 49131** - High polygon .obj files, exported using the OBJ Exporter plug-in, cannot be read back in to Mari.
- **BUG ID 29386** - When using the Export for Maya script, Maya’s viewport may incorrectly show some patches as transparent. This can be resolved by selecting **High Quality Rendering** or **Viewport 2.0** from the Renderer menu within Maya.
- **BUG ID 16324** - Windows only: you cannot currently import an image into a channel using a relative file path. To work around this, use an absolute path when importing images.
- **BUG ID 14985** - There may be a slight pause after importing textures when creating new projects, while Mari saves the project.

### Nuke<>Mari Bridge

- **BUG ID 23010** - Nuke<>Mari Bridge: If Mari crashes when receiving incoming components from Nuke when the **Virtual Texture Type** is set to **Float**, lower the **Virtual Texture Size** to a value below 8192x8192.
- **BUG ID 19780** - Nuke<>Mari Bridge: A projector created in **Ortho** view in Mari does not re-project correctly in Nuke.

### Ptex

- **BUG ID 17626** - It can take a long time to import very large or very high polygon count Ptex models.
  The workaround is to assign a small uniform face size (1x1 or 2x2) on import, and then increase the resolution of the relevant bits of the model as necessary after loading.
- **BUG ID 17618** - Ptex does not bake properly if the resolution of the face is too small.
  The workaround is to increase the resolution of the selected faces you are having problems with.
Graphics Cards

• BUG ID 217864 - Mac OS X only: AMD D500 and D700 graphics cards, found on modern Mac Pro's, are physically limited to 16 Texture Mapping Units, which can block operations such as multiple procedural layers.

• BUG ID 207913 - Mari may crash, or operate with lower than expected performance, when using the latest graphics drivers with some AMD FirePro cards.

    There have been reports that Plays.tv and Raptr, which come bundled with the AMD FirePro drivers, can cause instability in Mari. If you are experiencing instability, please try uninstalling these applications.

• BUG ID 18457 - Using NVIDIA graphics cards from the Fermi series with drivers older than version 270 results in various rendering issues when the Virtual Texture Type is set to Half or Float.

    To resolve this, please download and install the latest graphics driver for your card from the NVIDIA website.

• BUG ID 12567 - Enabling Sync to VBlank in NVIDIA settings can drastically reduce Mari's performance. If you experience very slow interaction, even with low-polygon models, on one of the Tested Workstation Hardware, navigate to:

    • Linux: NVIDIA X Server Settings > X Screen 0 > OpenGL Settings and turn off Sync to VBlank.
    • Windows: NVIDIA Control Panel > 3D Settings > Manage 3DSettings > Vertical Sync > Force off

    Then, restart Mari.

Node Graph

• BUG ID 168753 - AIStandard nodes created in Mari3.0v1 are not compatible with Mari 3.0v2, or later.

    As a workaround, remove the old AIStandard nodes and recreate them in Mari 3.0v2, or later.

• BUG ID 51462 - Creating a shader and attempting to view it in the Node Graph palette gives the impression that the DiffuseColor input edge is missing from the shader node. The input is present, but is incorrectly hidden. This is related to bug 51263 below.

• BUG ID 51452 - When importing a gizmo, the nodes in the gizmo do not retain their organization if they were created using the item name in the menu.

• BUG ID 51263 - It is not currently possible to attach the Viewer node to standard Mari shaders, because they are hidden.

    As a workaround, you can click the View the current channel button above the Node Graph.

• BUG ID 51247 - Channel transfer doesn't transfer Graph Layers as expected.

• BUG ID 51082 - The Ambient Occlusion node's properties don't include a generate AO option.

• BUG ID 48790 - Autoplace does not respect Backdrop nodes.

Miscellaneous

• BUG ID 226265 - Gray areas appear when changing the Virtual Texture Depth.
• BUG ID 221920 - When copying channels between objects, a warning message can pop up stating the requested channel cannot be created. However, clicking **OK** to this message usually results in the channel copying successfully, regardless.
• BUG ID 208632 - Mac OS X only: Mari now allocates an additional Texture Mapping Unit to improve performance.
• BUG ID 194832 - Bake times were significantly increased when baking into channels containing non-linear data.
• BUG ID 177430 - Mari occasionally crashes on startup during the initialization of Python.
• BUG ID 167883/51934 - When a project that contains a Tiled procedural is upgraded from 2.6 to 3.0, the frame rate drops drastically.
• BUG ID 129292/51771 - Removing, changing, or hiding subdivided objects takes a long time.

To avoid this, replace the image in the Tiled procedural once the project has been upgraded.

• BUG ID 99115/46223 - The **Sponge Desaturate** mode does not work through the full dynamic range as it uses HSL for desaturation. HSL cannot be used with HDR because HSL works well only in LDR values.
• BUG ID 51370 - Heavier projects are initially slower to render when colorspace is enabled.
• BUG ID 51322 - Modo Render: The preview occasionally fails to update fully.
• BUG ID 51273 - Mac OS X 10.10 and above: Rendering is occasionally incorrect when using multiple lights.
• BUG ID 51199 - The AiStandard, RedshiftArchitectural, and VRayMtl shaders are not connected to the Current Channel automatically.
• BUG ID 51185 - PythonAPI: Mari’s Paint node does not appear in **typeList()**.

To add a Paint node Pythonically, call:
```python
ng = mari.geo.current().nodeGraph()
ng.createPaintNode(width, height, bitDepth)
```
• BUG ID 51084 - Animated objects can take a long time to subdivide.
• BUG ID 50830 - The **Objects** palette lock doesn’t prevent objects from being transformed.
• BUG ID 50548 - Modo Render: Only camera moves are respected by live update.
• BUG ID 50520 - Although faces with degenerate UVs can be loaded into Mari, they can cause issues in some cases. They do not occupy any space in UV, so it’s impossible to properly paint on such faces. There is also the risk that some shaders may show undesirable lighting effects on faces with degenerate UVs.
• BUG ID 50149 - Texture transfer does not take object transformation into account.
• BUG ID 50898 - Existing subdivision calculations are lost when recalculating, even if recalculation fails.
• BUG ID 49557 - Shadows and colors can appear incorrect after subdividing geometry.
• BUG ID 47180 - Mac OS X 10.10 and above: Resizing palettes is restricted to a certain width or height per drag action.
• BUG ID 46600 - Ambient Occlusion must be updated after any OpenSubdiv calculation.
• BUG ID 43020 - Mac OS X with retina screens only: When a hidden menu is unfurled over the canvas, the canvas zooms in dramatically.
• BUG ID 41573 - Windows 8 only: The Windows key (Meta key) does not disengage when used in conjunction with a Wacom pen.

To successfully disengage, you need to press the Windows key again over the desktop, which rectifies the problem.
• **BUG ID 37140** - Mac OS X only: By default, when you first install Mac OS 10.8 or higher, the security preferences are set so that any applications not downloaded from the Apple App Store can't be installed. To ensure that Mari installs correctly, navigate to *System Preferences > Security & Privacy* on your Mac and select *Anywhere* for the *Allow applications download from* field.

• **BUG ID 33293** - Linux: Launching Mari with the language set to one without certain character symbols resulted in Mari failing with an error that the specified transform could not be loaded.

To work around this, set the locale (language) to English.

• **BUG ID 31946** - Sometimes paint is not baked because of memory management issues on the graphics card. This can be due to issues such as a high resolution paint buffer, a high bit-depth paint buffer, large virtual texture size, or even a large scale value on the paint buffer transform. These issues can usually be identified by `glError: 0x505 out of memory` messages in the log.

Try reducing any or all of these values to prevent it happening. Graphics drivers are continually improving, so it's also worth checking whether upgrading your drivers resolves the problem.

• **BUG ID 20510** - If you find that the startup time for Mari is longer than usual, please check that the LIC files in your RLM licensing data folder do not refer to obsolete server ports. If they do, place them in another directory and restart Mari.

• **BUG ID 20021** - Textures in the canvas intermittently switch between lower and higher resolutions.

This issue is more likely to occur if your virtual texture resolution is low, and you're working on a complex model with displacement. Possible workarounds include increasing your virtual texture size, reducing the number of channels Mari has to access at once (for example, by reducing the number of channels required for the current shader), to reduce the patch resolution of patches in the channels used in the shader, or to use a smaller canvas window or monitor.

• **BUG ID 14201** - Linux only: Mari becomes unresponsive after the system is woken from sleep.

• **BUG ID 13700** - Adjusting the *Camera > Perspective* settings for a *Projector* is not reflected on the canvas until the *Projector* is made Current.

• **BUG ID 13571** - Launching a new version of Mari for the first time, when a config file exists from a previous version, sometimes results in an object not appearing in the *Ortho* view.

To solve this, close Mari, delete the following config file and relaunch Mari:

- **Linux**: `~/.config/TheFoundry/Mari.conf`
- **Windows**: `C:/Users/<login>/.mari/TheFoundry/Mari.ini`

• **BUG ID 13294** - Windows: Mari sometimes crashes when trying to load data on large projects due to the program exhausting all window manager objects.

To reconfigure the user object limit:

- Open regedit and navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\NT\CurrentVersion\Windows`, and
- Edit `USERProcessHandleQuota` to a larger number.

If this number gets too large, you may also have to modify `GDIProcessHandleQuota`.

• **BUG ID 12102** - Current brush settings do not get saved as part of the project. Instead, Mari reverts to the default settings when you close and relaunch it.

• **BUG ID 11874** - Mari doesn't recognize 3-digit padded `.obj` sequences as animation.
Developer Notes

These are the changes relevant to developers.

New Features

There are no new features for this release.

Feature Enhancements

- BUG ID 201721 - Documentation on how to work with environment lights in the Custom Shader API help has been added.
- BUG ID 216397 - C API support for renaming objects has been added.
- BUG ID 216405 - A C API example, which demonstrates the loading of hierarchical geometry files, has been added.
- BUG ID 216401 - C API support to add entities has been added.
- BUG ID 221275 - A Python method that returns the list of selected nodes in the Node Graph has been added.
- BUG ID 221787 - A Python API that returns the image object for an image parameter in a node has been added.

Bug Fixes

- BUG ID 218210 - The C API GeoReader plug-in failed to read test files correctly and aborted geometry loading.
- BUG ID 218211 - The C API GeoReader plug-in crashed when UV data was passed.
- BUG ID 219561 - The Python API function `mari.images.addImage()` did not add the newly added image to the project and did not save or load properly with the project.
- BUG ID 221266 - The Python API function `setMetadata` did not accept an image object and incorrectly parsed a file path when setting the value for an image parameter.
Release Notes for Mari 3.1v1

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Release Date

10 May 2016

System Requirements

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New Features

Steady Stroke

Mari now includes the Steady Stroke mode, a brush mode that smoothes the stroke when you draw.

You can choose between three modes, **Off**, **Distance**, or **Smoothing**, and then for **Distance** and **Smoothing** modes, set how much delay to use for the stroke.

- In **Distance** mode, the **Delay** uses the specified amount of screen pixels keeping a fixed distance to define the brush stroke.
- In **Smoothing** mode, the **Delay** uses the moving average of the cursor movement to define the brush stroke.

You can access the Steady Stroke mode by navigating to Brush Editor palette > **Properties** tab > **Steady Stroke**.

Two new actions have been added to the Shortcut list under:

- /Mari/Painter/Change Steady Stroke Mode, and
- /Mari/OnscreenControls/Adjust Delay.
mGo

Mari now supports mGo. mGo is a set of scripts that allow you to share shader setups from Maya to Mari, and export them back to Maya, ready to be rendered.

You can access the mGo tool by navigating to Python > Examples > mGo.

Mari Non-Commercial

Mari is now available as a non-commercial version. Mari Non-commercial is a free version of Mari that runs outside the regular licensing model. It includes most of the features of the commercial version of Mari, offering you a chance to explore and learn the application fully while using it from the comfort of your own home.

Context-Sensitive Online Help

Mari now includes context-sensitive Online Help. The Mari palettes and the following widgets, Project Settings, Mari Preferences, Manage Toolbars, Manage Keyboard Shortcuts, and New Project, contain a new ? icon, which when clicked, leads you directly to the related web page of the Mari documentation.

Feature Enhancements

• BUG ID 175230 - Mari now detects whether to subdivide each Alembic geometry piece, based on subdivision flags set in the file. It is also possible for you to force Mari to subdivide Alembic geometry pieces no matter how the subdivision flags are set.

Bug Fixes

• BUG ID 185357 - Calling the hash function for channels within a specific archive caused Mari to crash.
• BUG ID 196928 - The Triplanar Projection node declared the mask input but didn’t make use of it in the shader.
• BUG ID 201161 - In the Import Archive dialog, the File of type control defaulted to All files (*) instead of (*.mra).

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