

RELEASE NOTES FOR MARI 1.4v2

Release Date 12 December 2011

System Requirements

Officially Supported Operating Systems

- Windows 7 64-bit, or a Linux 64-bit operating system (Fedora 12 or Red Hat Enterprise Linux 5.4)

Minimum Hardware Requirements

- Quad-core processor
- 250GB disk space available for caching and temporary files (or a minimum of 50GB if you're working on a small project)
- At least 4GB RAM
- Display with 1680 x 1050 pixel resolution
- An NVIDIA graphics card with at least 1GB of RAM and OpenGL 3.0 support (see Supported Graphics Cards below)

Supported Graphics Cards

- NVIDIA GeForce GTX 480*
- NVIDIA GeForce GTX 580*
- NVIDIA Quadro FX 3800***
- NVIDIA Quadro FX 3800M***
- NVIDIA Quadro FX 4800***
- NVIDIA Quadro FX 5800***
- NVIDIA Quadro (Fermi Series) 600*
- NVIDIA Quadro (Fermi Series) 4000*
- NVIDIA Quadro (Fermi Series) 5000*
- NVIDIA Quadro (Fermi Series) 6000*

Please download and install the latest graphics driver for your card from the NVIDIA website.

Note **Displacement preview is currently only supported by these cards.*

****Please note that as of Mari 2.0v1 we will cease to officially support these cards.*

New Features

There are no new features in this release.

Feature Enhancements

There are no feature enhancements in this release.

Bug Fixes

- BUG ID 23381 - The **Watch** feature of layered painting projections sometimes stopped watching files after the first reprojection.
- BUG ID 23418 - Ptex: Mari crashed while creating projects from meshes with triangular faces.
- BUG ID 23583 - Custom post process filters, including the ones under **Python > Examples**, did not compile against the GLSL 1.3 specifications in Mari 1.4v1. Shader code that compiled for post process filters in Mari 1.3 may require some modification to comply with the new GLSL specification.
- BUG ID 23626 - Clicking **Objects > Ambient Occlusion** sometimes caused a crash.

Known Issues & Workarounds

- BUG ID 23706 - Clicking in the **LUT File** box in the **Color Manager** palette and then clicking elsewhere on the palette causes a crash.
To work around this, select a LUT via the **Color Space** toolbar instead.
- BUG ID 11874 - Mari doesn't recognize 3-digit padded OBJ sequences as animation.
- 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 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 and one of the [Supported Graphics Cards](#), navigate to:
NVIDIA X Server Settings > X Screen 0 > OpenGL Settings and turn off **Sync to VBlank**. Then, restart Mari.
- 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.
- BUG ID 13481 - Making a selection using the **Marquee Select Tool** with the selection mode set to **Magic Wand** sometimes ignores regions that are completely surrounded by other selected regions, despite differences in color.
- 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 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 13700 - Adjusting the **Camera > Perspective** settings for a **Projector** is not reflected on the canvas until the **Projector** is made Current.
- BUG ID 14201 - Linux only: Mari becomes unresponsive after the system is woken from sleep.
- BUG ID 14208 - Windows only: Sometimes the canvas will only partially refresh after a menu, palette or dialog box has been closed. To refresh the canvas:

- Double-click on Mari's title bar, or click the maximize button,

OR

- Click on another application's window, and then back to Mari,

OR

- Switch to another canvas using the tabs, and then back again.
- BUG ID 15491 - Python: PyQt bindings are missing for some enumerations and types such as `QFileSystemModel`. For enumerations, you can usually work around the problem by passing in the integer value instead.
- BUG ID 15810 - The black borders at the edge of the canvas in **Perspective** view are selected, if an object overlaps the borders when a selection is made using the **Marquee Select** tool, with the selection mode set to **Magic Wand**.
- 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 16616 - Python: PyQt sometimes crashes when adding temporary objects to layouts, or compound widgets such as QTreeWidgetItem. This is because of incorrect reference counting. To work around the problem, always store a reference to every GUI item until you are sure it is no longer needed.
- BUG ID 17018 - Required channels are not created when a shader is copied.
- BUG ID 17618 - Ptex will not bake properly if the resolution of the face is too small.
The work around is to increase the resolution of the selected faces you are having problems with.
- BUG ID 17623 - Using the Wacom stylus pen nib to simulate a mouse button press on dialogs appears to intermittently get stuck so that further presses on the nib temporarily fail to be acknowledged.
Waiting for a few seconds may free the problem. Moving the stylus off of the pad also may work.
Using a button on the stylus pen, registered to a mouse click, does not appear to have this issue
- BUG ID 17626 - It can take a long time to import very large or very high polygon count Ptex models.
The work-around 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 17690 - The **Tiled** shader module and the **Masked Tiled** shader module do not render correctly on Ptex channels. They are only intended for use with a UV mapped object.
- BUG ID 18292 - Loading Mari on a Fedora Linux distribution may cause the application to crash upon startup. If you encounter this problem, try the following:
 - Launch Mari with the `--nobrowser` command line option. This disables any web-browser related functionality in Mari, and should resolve the issue.
 - Update the java-1.6.0.0 package to a version newer than version 41.
 - Update or uninstall OpenJDK.
 - Update or uninstall Flash Player.
- BUG ID 18457 - Using "Fermi Series" NVIDIA graphics cards 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 18610 - Ptex: Loading an OBJ with multiple geometries can be slow.
- BUG ID 19780 - Nuke<>Mari Bridge: A projector created in **Ortho** view in Mari does not re-project correctly in Nuke.
- BUG ID 19829 - Nuke<>Mari Bridge: Unprojecting a displaced piece of geometry does not project correctly in Nuke.
- 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 atlas resolution is low, and you're working on a complex model with displacement. Possible work-arounds include increasing your virtual texture atlas 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), or to disable displacement temporarily.

- 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, move them out of the way and restart Mari.
- BUG ID 21800 - The images used as inputs for shader modules (for example, those for Triplanar Projection) are linked via the **Image Manager**. When you load an image for a shader, its location on disk is remembered, and a copy is loaded into the **Image Manager**. The copy of the image in the **Image Manager** is used across all shaders that use it. This results in the following two oddities:
 1. When you attempt to reload an image modified on disk from the **Shaders** palette, it will look up the image with corresponding (previously used) file name in the **Image Manager**, and use that instead. The image will not be reloaded.
 2. When you reload an image modified on disk from the **Image Manager** palette, it will be loaded as a new image. This will cause the thumbnails for shaders parameter list to be updated, but internally the shader will still use the old image - so there is a mismatch in the image shown in the parameters and the image actually used by the shader. The shaders will only use the new image once all the similarly named old copies have been removed from the **Image Manager**.If you need to work around the above behavior, then:
 - 1) use different file names for images you want to change separately for different shaders, and
 - 2) if you need to reload a modified image, clear out old copies in the **Image Manager** and then load the updated image.
- BUG ID 22099 - The way that Mari converts quad faces to triangular faces is different to other applications. As a result, normal map renders from other applications may not always match.



- 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.

RELEASE NOTES FOR MARI 1.4V1

Release Date 30 November 2011

System Requirements

Officially Supported Operating Systems

- Windows 7 64-bit, or a Linux 64-bit operating system (Fedora 12 or Red Hat Enterprise Linux 5.4)

Minimum Hardware Requirements

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****Please note that as of Mari 2.0v1 we will cease to officially support these cards.*

New Features

- A color space toolbar based on the OpenColorIO library has been added to Mari with controls for the following:
 - Input color space
 - Display color space
 - Viewing of individual color channels
 - Gain and gamma levels
 - Loading custom LUTs.

In addition, a **Color** tab has been added to the **Mari Preferences** dialog, allowing you to set the default values for the controls in the toolbar.

- Basic PSD file support has been added for UV based projects. You can now:
 - Export a selection of channels as layers to a .psd file.
 - Import a .psd file, where image data layers are imported onto channels of the same name, or if no channels exist, new ones are created.
 - Load/Save .psd files via the **Image Manager**.
- You can also unproject a painting to a layered PSD file by clicking **Camera > Painting Unproject**. The resulting PSD file includes a wireframe and pseudo-lighting layers. Once unprojected, Mari automatically launches your image editor where you can paint on the individual layers. Once finished, you can reproject these layers back into Mari. The **Painting Projection Settings** dialog has fields for specifying your **Image Editor** and whether file watching is enabled.
- There is a new button in the **Shaders** palette called **Create Layered Shader**. Clicking this creates a new shader from channels loaded from a layered PSD file.
- You can now apply a mask to control areas on a model affected by filters. The following can be used as masks:
 - Channels
 - Images in the **Image Manager**
 - Marquee Selections (for paint that has not been baked)
- Seven new shader modules have been added to the **Shaders** palette:
 - **Diffuse Brightness/Contrast** - Adjusts the brightness and contrast of the base diffuse channel.
 - **Diffuse HSV** - Applies an HSV adjustment to the base diffuse channel.
 - **Masked Brightness Contrast** - Adjusts the brightness and contrast of the base diffuse channel using another channel as a mask.
 - **Masked Diffuse HSV** - Applies an HSV adjustment to the base diffuse channel using another channel as a mask.

- **Masked Blend Constant Color** - Adds a selected color to the surface, using a channel as a mask. The result is blended with the underlying diffuse channel according to the **Blend Amount** and **Blend Mode**.
- **Triplanar** - Provides more efficient control of tiled textures in 3D space. You can set three separate images (Front, Top, and Side) for tiling. The repetition and rotation angle can be adjusted for each individual image.
- **Masked Triplanar** - A Triplanar shader module using a channel as a mask.
- Two new filters have been added to the **Filters** menu:
 - A **Color Correction** filter based on the OpenColorIO library.
 - An **Add Noise** filter to apply noise to the current channel or painting.
- A new tool called **Zoom Paint Buffer** has been added. This lets you zoom the scene and the paint buffer together. You can enable this via the **Tools** toolbar or by pressing **Z**. Zooming is reset when paint is baked.
- Mari now includes a C API for importing custom geometry formats and importing/exporting custom image formats. Documentation can be found under **Help > SDK > C API > Documentation**. Headers and examples are in the installation directory under **SDK/include** and **SDK/examples**, respectively.

To see a list of the plug-ins loaded, select **Tools > Plugins**. Any user plug-ins are displayed in the box underneath the list.

To build the examples, Makefiles are provided on Linux, and a Visual Studio solution with build batch files are provided on Windows. The build process for these examples should be simple as there are no libraries to link to, and no special options should be required other than using the single include directory.

Feature Enhancements

Mari Preferences

- A new preference has been added to **Preferences > Data** to improve stability and prevent Windows driver resets. Increasing **Deferred Quad Split Count** splits the canvas into smaller parts, which can help to avoid Windows graphics driver resets.
- **Preferences > Data > Gpu 0** has been renamed to **Graphics Card**, and the tooltips for it have been improved.
- An option has been added to the **Mari Preferences** dialog under **Data > Graphics Card** to turn **Deferred Texture Array** on/off. When this is active, Mari makes more efficient use of OpenGL.
- A **Max Tile Size for Tiled Renders** preference has been added to **Preferences > Data > Graphics Card**. This preference lets you set the

maximum tile size for tiled render operations like unprojections. Setting this to a lower value improves accuracy but may result in a slower render operation.

- **Preferences > Data > Channels > Autosnapshot** is now disabled by default.
- The **Virtual Texture Size** in the **Mari Preferences** dialog is now expressed in pixels.
- The texture size options under **Preferences > Data > Graphics Card > Virtual Texture Size** are now defined by numerical values.

Ptex

- The scaling of constant color faces now makes better use of available CPU resources.
- Mari now uses a CPU based algorithm for generating proxy textures during the last step of face resizing.
While efficiency has been improved, the interface may appear unresponsive when the CPU is updating the proxy textures.
- Ptex project creation and face resizing operations have been optimized.
- Hashing has been added for Ptex channels, taking into account pixel data and face sizing. Hashes uniquely identify Ptex content and can be compared to determine if a Ptex channel has changed.
- **Worldspace Texels** are now expressed as floating point values.
- Choosing a clear color for an empty Ptex project now uses a standard Mari color swatch that also displays transparency.

Nuke<>Mari Bridge

- When the **Send Sequence Projections** option finds multiple temporary files that already exist, it now shows a single dialog asking which to overwrite, instead of one dialog for each file.
- There is now an option for switching the lighting mode to **flat** when sending LUTs from Nuke.

Image Manager

- There is now an option for **Color Space Conversion** when importing an image via the **Image Manager**.
- You can now change the **Color Space** of an image in the **Image Manager** by selecting either **COLOR** or **SCALAR** from the dropdown menu under **Image Info**.
- The **Image Manager > View Image** dialog now has marquee selection width and height fields when set to **Fixed** and **Aspect** modes.

Palettes

- The **Update Masks** button in the **Projectors** palette has been renamed to **Update Only Masks From Projector**.
- Clicking **Update Global Settings From Projector** in the **Projectors** palette updates the global projection settings in the **Projection** palette. Clicking **Update Only Masks From Projector** in the **Projectors** palette updates only the global mask settings in the **Projection** palette.
- The **Color Manager** and the **Color Picker** tool have been improved.

Brushes

- Added a set of new brushes. You can find them in the **Brad's New Brushes** tab of the brush presets in the **Brush Editor** palette.
- Mari's default brush has been replaced with a much smoother, softer edge brush.

Command Line

- Three new command line options have been added. They are alternative versions of three existing options:
 - **--execute** (This is the equivalent of **-x**)
 - **--terminal** (This is the equivalent of **-t**)
 - **-v** (This is the equivalent of **--verbose**)
- Launching Mari via the command line with the option **--nobrowser** disables any web browser related functionality in the application.

Projectors

- You can now export an approximation of the effect of the lighting in Mari as a layer or separate image in the **Quick Projection** dialog.
- UV scale has been added for all projections to allow for negative values which allows flipping.
- In the **Projectors** palette, projector file path fields have been moved next to their corresponding **Project** and **Unproject** buttons.
- **Projectors > Image** has been renamed to **Unproject**.

Miscellaneous

- The **Environment Sphere** shader module now has controls for both **Falloff Start** and **Falloff End**.
- A **Ctrl+Shift+C** hotkey has been added to clear the paint buffer.
- Pressing **Ctrl+Tab** and **Ctrl+Shift+Tab** now cycles forwards and backwards through the tabs above the canvas.

- There is now an option in the Canvas toolbar called **Whole Patch Project**. When turned on, this allows the projection of paint onto UV patches located outside of the shells of the original geometry. This function is only available in UV views.
- There are new icons for the status of the virtual texture atlas in Mari:
 -  - Loading data from disk.
 -  - Loading data from RAM to GPU memory.
 -  - No space left for this operation. Please see BUG ID 20021 in the [23249 - The Snapshots palette kept re-appearing even if you closed it](#) section for more information.
- A warning is now displayed if you attempt to change the **Virtual Texture Size** or the size of your **Paint Buffer** to a value that is not supported by your graphics card.
- A **Values** tab has been added to the **Color Picker** that allows color values to be edited as **Byte**, **Half**, or **Float**.
- A checkbox has been added to the **Import Image Summary** dialog to disable the dialog for subsequent imports.
- A **Lookup Shortcut** search field has been added to the **Manage Toolbars** and **Manage Keyboard Shortcuts** dialogs. Enter a keyboard shortcut here and Mari searches for the associated action.
- The virtual texture system has been optimized.
- The **Space** key can no longer be used for custom shortcuts.
- The **Export** dialog now supports additional options for some layered file formats.
- You can now rename a project by right-clicking on it in the **Projects** tab.
- Memory management has been improved, so that Mari is less likely to use system swap space when working with large projects or complex operations.
- You can now adjust the strength of the **Blur** tool using the **Blur** slider in the **Blur** toolbar.
- A dropdown menu called **Mask Component** has been added to the **Masked Diffuse** shader module. Use this to select the color component from the channel in the **Mask Texture** that you want to use as a mask.
- You can now import OBJ files that define faces with negative vertex attribute indices.
- You can now remove images from shader modules by clicking on the reset button next to the image.
- You can now edit and delete curve editor points via the right-click menu.
- You can now rename the currently open project by clicking **File > Rename**.

- **Color Manager > Use Color Correction** has been renamed to **Enable Color Management**.
- The default UI layout has been updated.
- The Snapshot function has been updated to manage Snapshots more efficiently. As a result, the interface is more responsive with a large number of Snapshots.
- Some of the icons in the GUI have been improved.
- When Baking a shader, there is now an **Auto** option that bakes according to the highest/lowest patch sizes present in the shader. Additionally, Mari now remembers the previous setting used to bake a particular shader.
- Graph editor boxes now have spline point right-click menu items to edit and delete points.
- **Camera > Painting** options have been renamed to **Layered Painting** options and have new tooltips.
- Paint through **Lock Object** has been split into **Pan Lock** and **Scale Lock**.
- The filter for the Sequence import tab has been modified so that, when the search **Template** is empty, images without the \$UDIM naming convention are also listed.
- The font size in the **Python Console** is now retained.
- The **Community** tab has been renamed to **Forums**.
- Shader modules with image inputs now display thumbnails.
- Mari now uses slightly less CPU resources when idle.
- Slider behavior has been improved.
- The layout of the Mari documentation set has changed.
- The Mari EULA has been updated.

Bug Fixes

- The select tool stopped working when **Quick Copy**, **Quick Paste** or **Ctrl+** shortcuts were selected.
- Tessellation shaders are no longer automatically created for projects that use tessellation, when they are opened on cards that do not support it.
- The **Add Version** dialog now remembers its size.
- Mari now properly displays errors when unable to rename projects.
- BUG ID 11902 - In the **Projection palette**, under **Channel Mask > Mask Channel**, the available channels list displayed the channels for all objects. This has been changed to show only the channels for the current object for clarity.
- BUG ID 12020 - Submenus did not appear as soon as the pointer moved over them, making navigation difficult for tablet input.

- BUG ID 15603 - Windows only: USER Objects in the **Task Manager** increased indefinitely when switching between tools.
- BUG ID 15693 - Undoing the addition of a new shader module was not possible.
- BUG ID 16571 - Undoing a **Remove SurfaceShader** didn't always work as expected.
- BUG ID 17017 - Mari crashed if you closed a project immediately after creating it.
- BUG ID 17359 - Windows only: Upgrading a project from an older version resulted in a black thumbnail for that project in the **Projects** tab.
- BUG ID 17765 - Pressing **Ctrl+B** to bake paint into a new channel did not work correctly for channels without an alpha.
- BUG ID 18101 - Some specific user shortcut keys were overwritten by Mari's default shortcuts.
- BUG ID 18319 - The **Towbrush** tool showed two cursors at once.
- BUG ID 18364 - Images imported by the **Tiled** shader module came in upside down.
- BUG ID 18655 - Ptex: The default export path ended with .ptx.ptx instead of .ptx.
- BUG ID 18969 - The **Help** menu has moved to the end of the menubar.
- BUG ID 19039 - All filter options now have reset buttons to return values to their default state.
- BUG ID 19549 - Switching between tools using keyboard shortcuts did not work correctly.
- BUG ID 19700 - Resizing images on import now works as expected.
- BUG ID 19739 - Applying blur to an alpha channel with paint on it and then painting over was leaving an outline where the previous paint was.
- BUG ID 20115 - Warping paint with the **Pinup** tool did not work as expected.
- BUG ID 20118 - Filling selected faces on a Ptex channel with the format set to **half** did not work.
- BUG ID 20148 - Baking through a shader setup with **Channel Mask** active failed.
- BUG ID 20155 - The Snapshot function was updating once per channel per Snapshot add or delete and Python registered palettes were not set up correctly.
- BUG ID 20169 - Python: ChannellInfo file templates and paths were not applied correctly.
- BUG ID 20173 - Dragging a shader module onto itself removed it from the **Shaders** palette.
- BUG ID 20251 - OBJ files with empty group names did not load properly.

- BUG ID 20264 - Front face selection did not work as expected in **Perspective** view.
- BUG ID 20327 - When creating a new project, selecting a single texture for import using the file browser did not work.
- BUG ID 20376 - Mari crashed when importing some 16-bit floating point TIFF files.
- BUG ID 20415 - Python: `$GEO` and `$ALLGEO` patch attributes are now updated when new geometry is added.
- BUG ID 20433 - Filter **Preview** did not work for multiple objects.
- BUG ID 20634 - Python: Importing images smaller than 512x512 caused a crash.
- BUG ID 20648 - Smart selections did not work with all geometries.
- BUG ID 20666 - Python: Changing a shader parameter was not reflected in the GUI.
- BUG ID 20699 - Smart selections did not always work with multiple geometries.
- BUG ID 20765 - Mari did not allow snapshots to be created for projects with mixed UV and Ptex objects/channels.
You can now create snapshots for the UV channels in such projects. Snapshots for Ptex channels may be supported at some point in the future.
- BUG ID 20904 - The **Clone Stamp** and **Towbrush** tools were clamped.
- BUG ID 20922 - A project did not load because of a missing thumbnail in the **Image Manager**.
- BUG ID 20952 - The Mari command socket allows the execution of arbitrary Python code with the same access rights as the Mari application. For improved security when the socket will only be used by other applications on the same machine (for example, the Nuke<>Mari Bridge where Nuke and Mari are on the same machine), there is now the option to make the Mari command socket allow connections from localhost only.
- BUG ID 20964 - Image **Import** and **Export** dialogs contained multiple copies of the same file extension and didn't appear in alphabetical order.
- BUG ID 20972 - Nuke<>Mari: Nuke's default listening port conflicted with Maya's. This has now been changed to 50107.
- BUG ID 20997 - Navigating a model with a **Projector** active and **Edge Mask** enabled resulted in unexpected behavior.
- BUG ID 21018 - Using the **Paint** tool on a transparent channel with the **Painting Mode** set to **Clear** did not work as expected.
- BUG ID 21130 - You can no longer remove all geometry from a project.

- BUG ID 21146 - Some keyboard shortcuts for the **Slerp** tool did not work.
- BUG ID 21149 - **Paint Through** image previews were clamped.
- BUG ID 21154 - Selecting **Camera > Quick Project Front** did not work.
- BUG ID 21184 - **Gaussian, Soften** and **High-Pass** filters sometimes caused a display driver reset.
- BUG ID 21191 - Integer sliders in **Preferences > Data** did not behave as expected.
- BUG ID 21193 - Image export failures were unclear.
- BUG ID 21262 - Some filter dialog boxes were too small.
- BUG ID 21269 - The **Mask to Alpha** function did not work correctly when the bit depths of the two channels did not match.
- BUG ID 21294 - Increasing the exposure in the **Color Manager** resulted in a slightly red hue.
- BUG ID 21410 - Quickly switching to the **Clone Stamp** tool or the **Blur** tool caused the application to hang.
- BUG ID 21458 - Ptex: Face flood filling was slow and used too much memory for models with large face counts.
- BUG ID 21480 - Previewing images in the **Image Manager** caused problems with image previews in shader modules.
- BUG ID 21508 - Ptex: Exporting certain Ptex files took a long time.
- BUG ID 21525 - Unprojecting an image greater than 2K corrupted it.
- BUG ID 21552 - Ptex: Exporting Ptex files for triangle only meshes caused a crash.
- BUG ID 21591 - Using smart face selection on certain Ptex projects caused a crash.
- BUG ID 21603 - Face selection did not work correctly in **Perspective** view.
- BUG ID 21612 - Baking a shader with an image preview swatch crashed Mari.
- BUG ID 21628 - Mari was unable to import OBJ files with negative face indices.
- BUG ID 21664 - Renaming patches, through Python or the GUI, now correctly updates the UV view and persists with a save.
- BUG ID 21678 - The **Brush Editor** palette failed to load correctly if the **Select** tool was in use.
- BUG ID 21719 - Nuke<>Mari: **Send Current View** only worked for the first frame of an animated projector.
- BUG ID 21948 - The result of applying a filter did not match the preview for 32-bit RGBA channels.

- BUG ID 21963 - The **Color Picker** was sometimes unresponsive when adjusting the color slider.
- BUG ID 22042 - Renaming a channel referenced by a shader before it was made current caused problems.
- BUG ID 22057 - Ptex: Resizing faces a number of times caused a crash.
- BUG ID 22099 - Normal maps did not always render correctly.
- BUG ID 22173 - Importing an invalid image onto a channel caused Mari to hang.
- BUG ID 22206 - **Mari Preferences > Painting > Projection > Supersampling** has been removed.
- BUG ID 22207 - The **vascularVeinage** brush did not work.
- BUG ID 22219 - Projects created from the command line had trashcan icons in place of their thumbnail images.
- BUG ID 22266 - Renamed projects continued to display old project names until they were saved again.
- BUG ID 22270 - A number of unnecessary windows appeared on start-up.
- BUG ID 22273 - Warning messages were repeated many times when filter dialogs were active.
- BUG ID 22332 - Resizing the **Luminosity** filter dialog corrupted the **Preview** enabled icon.
- BUG ID 22394 - Brushes could be accidentally renamed when using the k shortcut pop-up menu.
- BUG ID 22513 - Unnecessary property changes were logged in the history.
- BUG ID 22520 - Adding a new shader module and then closing the project caused a crash.
- BUG ID 22540 - Undoing the addition of a shader removed it from the history.
- BUG ID 22546 - Undo and redo did not take into account a shader module's enabled/disabled status.
- BUG ID 22555 - Channel Export did not respect **Selected only** patches for named files.
- BUG ID 22560 - **Mari Preferences > Data > Thread Count** always defaulted to 2.
- BUG ID 22599 - Disabling clamping on a projector did not allow HDR projections.
- BUG ID 22600 / 20558 - NVIDIA 270.* drivers on Linux caused crashes. Mari now warns you if you are using these drivers. If you are, we recommend upgrading to 280.*.

- BUG ID 22613 - Nuke<>Mari Bridge: Sending a camera from Nuke to Mari sometimes failed.
- BUG ID 22656 - The **Painting Projection** dialog was using too much screen real estate.
- BUG ID 22667 - The **Preview Alpha** control for the **Paint Through** tool was not working.
- BUG ID 22711 - Switching Paint Buffer sizes from 16k caused a crash.
- BUG ID 22806 - Corrected the **Mask Tiled** shader so that masked out areas do not affect the underlying color.
- BUG ID 22808 - Some soft brush opacities were accumulating in a single stroke.
- BUG ID 22844 - Exporting and re-importing 16-bit RGB channels did not work as expected.
- BUG ID 22858 - The **Environment Sphere** shader module is no longer clamped when using images with a high dynamic range.
- BUG ID 22871 - Renaming a large number of patches at once took a very long time.

Projects with a very large number of items in a collection (such as patches) are now processed much more quickly, both when renaming items and when loading.

- BUG ID 22878 - Some toolbars could not be seen clearly upon a first launch of Mari.
- BUG ID 22912 - Added a dialog that allows you to select a layer from a layered image. Added a dialog to projection if there is more than one layer in the loaded layer.
- BUG ID 22925 - Mari could not handle objects that contained faces with no UV coordinates.
- BUG ID 22950 - Nuke<>Mari Bridge: Sending projection components to Mari failed if there were any Dot or NoOp nodes between the Project3D node and the Camera.
- BUG ID 23022 - The UV view was very slow when using projects with a lot of patches.
- BUG ID 23041 - Fixed some issues loading older Ptex projects.
- BUG ID 23054 - Fixed shader rendering issues when using preset gradients in shader module parameters.
- BUG ID 23061 - Mari didn't release its handles to various files when sending things across the Nuke<>Mari Bridge causing a number of Nuke errors.
- BUG ID 23118 - Progress bars didn't always update correctly.
- BUG ID 23129 - OBJ files with many groups were slow to load.

- BUG ID 23194 - Mari crashed when importing an OBJ file containing degenerate quads for Ptex.
- BUG ID 23210 - The Ptex project creation dialog now uses the last clear color used if a new one is not selected.
- BUG ID 23222 - Tiled shaders clamped the output to SDR ranges.
- BUG ID 23247 - The file browser icon in the **Python Console** was too bright.
- BUG ID 23249 - The **Snapshots** palette kept re-appearing even if you closed it.

Developer Notes

Here are the changes relevant to developers.

New Features

Mari now includes a C API. Documentation can be found by clicking on **Help > SDK > C API > Documentation**. Headers and examples are in the installation directory under **SDK/include** and **SDK/examples**, respectively.

To see a list of the plug-ins loaded, select **Tools > Plugins**. Any user plug-ins are displayed in the box underneath the list.

To build the examples, Makefiles are provided on Linux, and a Visual Studio solution with build batch files are provided on Windows. The build process for these examples should be simple as there are no libraries to link to, and no special options should be required other than using the single include directory.

Feature Enhancements

- A signal has been added for when GLSL filters are enabled or disabled.
- You can now get and set the lighting mode on a project.
- Signals have been added for when objects, channels, shaders, and projectors are renamed.
- You can now retrieve optional sub-properties of metadata items, such as range or display name.
- Unproject size validation has been changed to allow arbitrary sizes to be used through Python.
- Python bindings have been added for:
 - Setting and getting foreground and background colors
 - Signals when foreground and background colors are modified
 - Displaying the color picker dialog and returning the value picked

- Renaming a channel.
- A convenient static function has been added to create icons.
- You can now insert a widget before an action on a toolbar.
- Shader declarations and body parameters are now optional when creating a GLSL shader via the Python API.
- Python: The Metadata class has been refactored and extended:
 - The missing metadataChanged and metadataRemoved signals have been implemented.
 - A metadataCreated signal has been implemented.
 - You can now set sub-properties on a metadata item.
- Python: Creating channels of invalid sizes now shows an error message.
- A Python example of how to use Mari's **Command Port** has been added.
- A Python method has been added to release the physical memory used for DDI caching.
- Python: The PostFilter API has been extended to include methods for disabling a filter and querying whether it's been enabled.
- Python: Error checking has been improved when importing Python modules.
- Python: mari.images.saveImages() has been added to allow you to save a list of images as a layered file.
- Python: mari.projects.rename() has been added to enable project renaming.
- Python: A new ImageManager function that opens an image file and returns a list of images has been added.
- Python: Added the new function mari.gl_render.flushError(). This performs the same function as calling glError() in C++.
- Python: Creating mari.ChannelInfo instances no longer compares the requested dimensions against OpenGL maximum texture dimensions. Channels can now be larger than the size supported by your graphics card.
- Python: You can now set persistent metadata on ProjectInfo objects. This allows project data to be stored without opening the project.
- Python: The method blockSignals() has been added to the LineEdit and Slider UI classes.
- Python: The following functions have been added:
 - ProjectInfo.modelPathList()
 - mari.projects.get()
 - mari.projects.current().info()
- Python: Error checking has been improved when importing Mari Python modules.

- Python API documentation:
 - Improved the documentation on how UV indices and Channel Image indices relate to each other.
 - Added a better example for `Channel.importImages()`.

Bug Fixes

- BUG ID 16769 - Python: `ProjectInfo.modelPath()` was not working correctly. The correct data is now returned from projects once they have been saved at least once after this update.
- BUG ID 20666 - Python: Changing a shader's parameters via Python did not update the GUI.
- BUG ID 22033 - Command outputs in the **Python Console** were not always displayed correctly.
- BUG ID 22040 - `Canvas.repaint()` did not work while processing was active, for example, between calls to `mari.app.startProcessing()` and `mari.app.stopProcessing()`.
- BUG ID 22268 - Python: Various errors have been fixed when passing arguments to scripts run via the command line.