

Release Notes for Mari 4.0v1.000346b

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Release Date

31 October 2017

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 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

- 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. 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 Customer Support directly through the Support Portal at the following address: <https://support.foundry.com>.

Tested Workstation Hardware	
HP	<ul style="list-style-type: none"> • HP XW6600 • HP Z600 • HP Z620 • HP Z640

Tested GPU Hardware	
AMD Prosumer Graphics Cards	<ul style="list-style-type: none"> • AMD Radeon HD - D500
NVIDIA Prosumer Graphics Cards	<ul style="list-style-type: none"> • NVIDIA Geforce GTX 660TI • NVIDIA Titan X • NVIDIA Geforce GT 650M • NVIDIA Geforce GT 675M
NVIDIA Enterprise Graphics Cards	<ul style="list-style-type: none"> • NVIDIA Quadro 4000 • NVIDIA Quadro K4200 • NVIDIA Quadro K5000 • NVIDIA Quadro M6000 • NVIDIA Quadro M6000 24GB

New Features

There are no new features in this release.

Feature Enhancements

- BUG ID 312836 - The default perspective camera's **FoV** value is now 34.
- BUG ID 315317 - Highlight colors for keywords in the **Python Console** palette have been updated to make them clearer against the new Mari user interface.
- BUG ID 315351 - The **Megascans** palette has been renamed to **Texture Sets** palette.
- BUG ID 315360 - Opensubdiv can now snap subdivided vertices and UVs to the limit surface. The Mari Python API has been extended to allow you to remap subdivision settings from Alembic to OpenSubdiv.

Bug Fixes

- BUG ID 297535 - **Environment Light** default images were not all displayed when the arrow keys were used to cycle through them.
- BUG ID 304053 - The **Picker** tab could be removed from the **Colors** palette.
- BUG ID 308078 - Some palettes displayed adjacent double scroll bars when displayed at their minimum size.

- BUG ID 311136 - The bevels of some palettes were too thick.
- BUG ID 311826 - The **Export Current Object** option in the **Export Manager** was unclear. It has been updated to **Export Current** to indicate the current **Export Manager** object.
- BUG ID 314129 - The Curve editor was locked to its position when opened so that it could not be moved around.
- BUG ID 315446 - Dragging-and-dropping Megascans assets to the **Image Manager** palette did not add them to a new **Image Manager**'s tab.
- BUG ID 315590 - Multiple images selected in the **Image Manager** palette can now be added to the **Node Graph** palette as:
 - **Triplanar Projection** by holding **Shift** and dragging-and-dropping nodes.
 - **Tiled Procedural** by dragging-and-dropping nodes.
- BUG ID 315806 - You can now add images as Triplanar Projection nodes when you hold **Shift** and drag-and-drop them into the **Node Graph** palette.
- BUG ID 315814 - The **Shift** shortcut used while dragging-and-dropping Megascans assets to add them to the **Image Manager** palette's **Project** tab has been updated to **Ctrl+Shift**.

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 50886 - Session Scripts: Imported shaders don't have channels assigned.
- 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 recent graphics drivers with some AMD 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 126902 - In **No Port List** mode (top-to-bottom navigation), creating a shader and attempting to view it in the **Node Graph** palette gives the impression that the DiffuseColor input pipe is missing from the shader node. The input is present, but is incorrectly hidden. (Bugzilla ID: 51462)
- 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 200836 - Scrolling in the **Tool Properties** palette makes the scratch pad go blank.
- 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:

```
ng = mari.geo.current().nodeGraph()
ng.createPaintNode(width, height, bitDepth)
```

- BUG ID 51084 - Animated objects can take a long time to subdivide.
- 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 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 **GDIPProcessHandleQuota**.

- 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.

Release Notes for Mari 4.0v1.000331b

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Release Date

25 October 2017

System Requirements



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Officially Supported Operating Systems

- 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. 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.

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NVIDIA Enterprise Graphics Cards	<ul style="list-style-type: none"> • NVIDIA Quadro 4000 • NVIDIA Quadro K4200 • NVIDIA Quadro K5000 • NVIDIA Quadro M6000 • NVIDIA Quadro M6000 24GB

New Features

There are no new features in this release.

Feature Enhancements

- BUG ID 282402 - The layout of the **Shaders** palette's buttons have been updated in alignment with other palettes.
- BUG ID 312328 - The **Megascans** palette now has a **Set Path** button to add the repository's location path to where your Megascans assets are stored.
- BUG ID 308138 - In the **Megascans** palette, the Megascans previews now have a context sensitive menu to load the assets directly to the **Image Manager** palette.
- BUG ID 308668 - Attributes' names are now displayed with a minimum width and truncated text.
- BUG ID 309656 - As the **Brush Editor** palette has been removed, the **F8** shortcut was no longer relevant and has been removed from the **DefaultShortcuts.conf** file.

Bug Fixes

- BUG ID 240929 - When the **Channels** palette was docked on the right side of the screen, the **Shared By** window wasn't fully displayed on screen.

- BUG ID 278074 - Dragging-and-dropping a collapsed palette into a group of docked palettes did not expand it and left it collapsed.
- BUG ID 309753 - Switching tools using shortcuts did not work.
- BUG ID 303849 - Collapsing a palette in a custom palette didn't collapse all palettes' siblings.
- BUG ID 307917 - In the **Megascans** palette, filtering Megascans assets required pressing **Enter** while it should have filtered assets automatically after selecting from the dropdown.
- BUG ID 311120 - In the **Node Graph** palette, zooming on a node then maximizing and minimizing the canvas by pressing the **Spacebar** caused Mari to lose the set zoom level in the **Node Graph** palette.

Release Notes for Mari 4.0v1.000316b

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Release Date

17 October 2017

System Requirements



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Officially Supported Operating Systems

- 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
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Recommended System Requirements

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NVIDIA Enterprise Graphics Cards	<ul style="list-style-type: none"> • NVIDIA Quadro 4000 • NVIDIA Quadro K4200 • NVIDIA Quadro K5000 • NVIDIA Quadro M6000 • NVIDIA Quadro M6000 24GB

New Features

Project Startup

The New Project Dialog layout has been refreshed with new tabs for setting up the initial project lighting. When using channel presets, Mari now automatically builds a shader and connects the created channels to the corresponding Node Graph shader inputs.

Export Manager

A new Export Manager Dialog for managing the batch exporting of channels and Bake Point nodes has been implemented. You can now configure and manage multiple export targets from the same source, as well as perform format conversions during export.

Palettes Toolbar

A new **Palettes** toolbar that contains a button for each of Mari's palettes has been introduced. This allows for quick and easy access to your palettes.

Tool Grouping

With so many tools stacked in a toolbar, on some systems they would not all fit on screen. Mari's tools of similar function have been grouped under a single button in the **Tools** toolbar.

Node Graph's Advanced Mode

Having the full Node Graph locked away behind a preference was an obstacle. So the basic Node Graph mode has been removed and the Advanced mode is now standard. This unlocks the full Node Graph in Non-Commercial too.

Megascans Palette

A new Megascans Palette for browsing and importing Megascans assets into Mari's **Image Manager** has been added. You now have the ability to load a Megascans set of surface images in a more efficient manner.

UI Declutter

The HUD has been updated to match Modo's style. Various control palettes have been merged and tools have been grouped together to declutter the UI. The **Projection** palette has been merged with the Painting Palette and the **Brush Editor** palette has been removed. To create custom brushes in Mari 4.0, adjust the brush properties in the Tool Properties Palette. Then drag the new brush preview from the toolbar to your shelf for later use.

Drag and Drop Fill Mechanism

A drag-and-drop triggered mechanism can now be used to fill your current item selection with the color being dropped. The fill works across all selection modes (**Object**, **Patch**, and **Face**). When using the **Marquee Select** tool, dragging a color to the canvas fills the selected area of the paint buffer.

Color and Control Precision

The Colors Palette is now scalable for better precision, and the component sliders have been improved to show the resulting color at each point along the control. You can now adjust numerical values with your keyboard and mouse wheel as you would in Nuke.

Group Layer Workflow

The Layers Palette is now more intuitive when working with Group layers. Creating new Group layers, with layers selected, now groups those layers inside the new Group Layer. Creating new layers when a Group Layer is selected, adds those new layers to the selected Group Layer.

Curve Editor

A curve attribute now displays as a grayscale gradient in Mari's properties panels and a separate, scalable curve editor window displays to allow for precise editing.

Principled BRDF

Mari now contains a new shader, which is based on the 2012 paper from Brent Burley of Walt Disney Animation Studios, describing a BRDF shader that follows a set of principles to make BRDF shader control more intuitive, less complex, and artist friendly.

OpenSubdiv 3.1

The latest features from OpenSubdiv, including scheme choice, geometry, and UV boundary interpolation methods have been added. Mari now matches renderer mesh subdivision more closely, increasing efficiency when painting.

VFX Platform 2017

All libraries present in the VFX reference platform have been upgraded to the versions stated in the 2017 edition (<http://www.vfxplatform.com>).

Extended Source Grade

The source grade mechanism has been extended to match the grading controls available in the grade adjustment layer.

Palette Expansion

You can now maximize/minimize any palette by pressing the spacebar while the pointer is hovered over the palette. This allows you to easily focus on a single palette.

Mari Per-Version User Preferences

Mari's user preference files are now saved with the application version embedded in the file names. This allows you to switch between different versions of Mari without the danger of corrupting the UI layout or preferences.

Feature Enhancements

- BUG ID 58508 - You can now group and ungroup layers using the **Ctrl/Cmd+G** and **Ctrl/Cmd+U** shortcuts or the right-click context menu in the **Layers** palette.
- BUG ID 84381 - You can now key values directly into a field, press the arrow keys to increment and decrement values, use the middle-mouse button, or click and drag on the value.
- BUG ID 95802 - Resizing channels while exporting images caused Mari to display a confusing dialog. Mari now displays a new dialog that provides more resizing options. You can resize locked layers, shared layers, and channels linked through shared layers, or stop further resizing.
- BUG ID 170651 - You can now drag-and-drop a color swatch to fill the selected object, patches or faces.
- BUG ID 170795 - Using the **Marquee Select** tool, you can now fill the selected paint buffer area with the current foreground color using the **Fill** option from the **Tools Properties** toolbar, or by dragging-and-dropping the foreground or background color swatches.
- BUG ID 170852 - The **Tool Properties** toolbar of the **Marquee Select** tool has been edited to make it more user-friendly.
- BUG ID 170898 - All fill options from the **Patches > Fill** menu and the **Ptex > Fill Faces** menu have been moved to the **Selection** menu and to the canvas' right-click context menu.
- BUG ID 173487 - For easier and faster access, the **Towbrush's Tool Properties** toolbar now includes all the properties available in the **Tool Properties** palette.
- BUG ID 173496 - The **Pick Environment** dialog has been redesigned to make more efficient use of UI space.
- BUG ID 173502 - The **Quick Channel** menu is now located at the top of the **Channels** palette for clarity.
- BUG ID 173508 - The splitter sizes of the **Adjustment Stack** and **Mask Stack** windows now automatically adjust based on the layer stack contents.

- BUG ID 173764 - Mari now contains navigational controls for Modo and 3dsMax.
- BUG ID 174631 - The **Subdivision Level** option in the **Objects** palette was enabled while no selected object had been subdivided.
The **Subdivision Level** option is now disabled by default. A **Subdivide** button has been added to the **Objects** palette in the Subdivision section. This subdivides the object and displays a subdivision progress bar.
- BUG ID 240129 - The **Node Properties** palette has been redesigned for clarity.
- BUG ID 252412 - The buttons in Mari's palettes are now positioned uniformly.
- BUG ID 253215 - The Tools' tooltips now display the tools' shortcuts as well.
- BUG ID 262815 - In the **Projects** tab, the **Copy** option in the right-click context menu is now named **Duplicate** for clarity.
- BUG ID 268552 - Node caching is now being deprecated and will be removed in a future release to introduce a new mechanism for caching portions of your project.
- BUG ID 272527 - There is now a visual representation of the paint buffer's **Zoom** level.
- BUG ID 284163 - In the **Mari Preferences > GPU** tab, the **Parallel Shader Compilation** option was misleading and was confused for the **Shader Compilation Mode**. The **Parallel Shader Compilation** option has now been removed.
- BUG ID 307986 - In the **Layers** palette, a submenu has been added for the layer and painting blend mode options.
- BUG ID 308124 - The Radius shortcuts - and = have been swapped with the Opacity shortcuts [and] in line with Photoshop.

Bug Fixes

- BUG ID 9740 - The **Towbrush** tool did not retain settings.
- BUG ID 116781 - Switching layers through the Mask or Paint icons, did not refresh the blending options.
- BUG ID 173739 - Physically based rendering wasn't enabled by default when creating a new project and required a lot of extra steps to set up.
- BUG ID 174299 - Selecting an option in the **Navigation** toolbar didn't highlight the selected menu item.
- BUG ID 250371 - Channels and shaders imported in Mari from session scripts were not given unique names.
- BUG ID 252398 - The **Sorted by** option in the **Selection Groups** palette was unnecessary and has been removed for clarity.
- BUG ID 252630 - Windows 10 only: The columns in the **Import Archive** dialog couldn't be resized.
- BUG ID 268467 - In the **Channels** menu, the menu item to unlock a channel was incorrectly capitalized and labelled as **UnLock**.

- BUG ID 271909 - The documentation incorrectly mentioned that the **Clone Stamp** tool could be tiled.
- BUG ID 272090 - In the **Node Graph** tab, searching for a backdrop node didn't focus on the located node, instead it focused on the Node Graph in its entirety.
- BUG ID 274651 - Using session scripts to export custom layers caused Mari to crash.
- BUG ID 275385 - Baking to a Bake Point node took longer than baking to a Paint node.
- BUG ID 276164 - The Emissive parameter of a shader was not set to **0** by default, causing all the channels to white out your mesh when you created a default channel.
The default color for the Emissive channel of the BRDF channel presets is now black.
- BUG ID 278059 - Mari was unable to read a **.psd** file with a single locked layer into the **Image Manager**.
- BUG ID 278515 - Custom and temporary palettes were unnecessarily added to the **Palettes** toolbar.
- BUG ID 278646 - In the Node Graph, there were no colorspace options available when importing to a Paint Node.
- BUG ID 279431 - Some widgets were stealing keyboard focus from currently active edit boxes.
- BUG ID 279661 - The **Marquee Select** tool's **Lift** option with a subsequent bake disregarded the paint buffer's zoom level.
- BUG ID 284659 - Mari couldn't export channels with empty UDIMs.
- BUG ID 305643 - Some combinations of gizmos caused Mari to crash.
- BUG ID 308230 - Dragging a secondary output from any node, while simultaneously pressing **Tab** to create a node and then dragging the same output again caused Mari to crash.
- BUG ID 312521 - The Grade node and layer clamped negative values when the Gamma parameter was set to 1.0.