RELEASE NOTES FOR MARI 1.6V1

Release Date

12 December 2012

Best Bits of 1.6v1

- Vector Paint and Vector Inspector tools give you the ability to create flow and normal maps to specify the direction of paint flow and vectors on a model, and to monitor changes easily with the inspector.
- Vector paint blending modes help create flow and normal maps with the basic Paint tool, as well as the Vector Paint tool.
- Vector shading modules assist in creating flow and normal maps by setting the vector field information, displaying flow visualization, and converting vector tangents to Screen or World Space.
- AMD graphics cards FirePro W7000, W8000, W9000, and Radeon HD 7850 and HD 7950 have been officially tested and added to the tested graphics cards list.
- Projection Cube and Projection Sphere shader modules allow you to project cube map or spherical texture files onto geometry for a faster workflow, while Masked Projection Cube and Masked Projection Sphere shader modules allow you to project a texture file onto geometry and mask out parts of the texture to allow for more detailed scene texturing.
- New options in the Hue filter and the Diffuse HSV shader module allow you to specify desaturation calculations based on HSV or HSL values.
- The brush cursor for the Paint tool can be changed to display an outline of the currently selected brush. Brush cursor opacity can also be adjusted.

System Requirements

Officially supported operating systems

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

Note *Some newer Linux distributions have changed their network device configuration handling and do not work with Mari without some configuration changes. Known affected distributions at this time include Fedora 16, Red Hat Enterprise Linux 6, and CentOS 6 on certain, notably Dell, hardware. Please see our FAQs for more information:*

http://www.thefoundry.co.uk/support/faqs/.

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 or AMD graphics card with at least 1GB of RAM and OpenGL 3.2 support (see Tested graphics cards below)

Virtual memory requirements

It is recommended that virtual memory be available for Mari to use, especially when handling large projects. The use of virtual memory improves stability, helping to prevent data loss on large projects.

Tested graphics cards

- NVIDIA GeForce GTX 480*
- NVIDIA GeForce GTX 580*
- NVIDIA GeForce GTX 680*
- 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*
- AMD FirePro W7000*
- AMD FirePro W8000*
- AMD FirePro W9000*
- AMD Radeon HD 7850*
- AMD Radeon HD 7950*

Please download and install the latest graphics driver for your card from the NVIDIA or AMD websites.

Note *Ensure that you are using 8.982.8.1 (AMD Catalyst 12.10) drivers or higher for AMD cards.*

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

***Please note that as of Mari 2.0v1 we will cease to officially test these cards. If we deem that the issue is specific to the card, the support provided would be limited.*

New Features

Vector Painting

The new **Vector Paint** tool now gives you the ability to apply vector brushing on your models to create flow and normal maps. **Vector Paint** can be found on the **Tools** toolbar next to the basic **Paint** tool. In all other aspects, including the **Vector Paint** toolbar, the settings are the same as they are for **Paint**.

For more information on how to use the **Vector Paint** tool, see the *Vector Brush* chapter in the *User Guide.*

- There is a file space option that remaps vectors for float formats. This effectively flips each vector in the Y direction and enables you to interpret inverted vectors easily when exporting the vector fields. The option is located in:
  - the **Channels** palette as **Vector (flipped Y)**, and
  - the **Image Manager** palette as **Vector_Y_Flip**.

Vector Paint blending modes

To accompany the new **Vector Paint** tool, there are five new paint blending modes. These new modes are:

- **Paint Flow Vectors**,
- **Nudge Flow Vectors**,
- **Paint Normal Vectors**,
- **Nudge Normal Vectors**, and
- **Scale Vectors**.

For more information on how the vector paint blending modes operate, see the *Vector Brush* and *Controlling the Way Mari Applies Paint to Your Model* chapters in the *User Guide*.

Vector Inspector tool

The **Vector Inspector** tool is also new to the **Tools** toolbar and activates directional markers that allow you to see the vectors painted on the model. On the **Vector Inspector** toolbar, you have access to buttons that easily enable or disable the inspector and modify directional marker properties. When the tool is active, the directional markers are always visible.

For more information on the **Vector Inspector** tool, see the *Vector Brush* chapter in the *User Guide*, as well as the *Toolbars* chapter in the *Reference Guide.*

Vector shader modules

Three new shader modules have been added to support vector brush work. These modules are:

- **Diffuse Tangent to Screen**,
- **Diffuse Tangent to World**, and
- **Vector Data**.

The **Diffuse Tangent to Screen** and **Diffuse Tangent to World** modules convert the vectors from diffuse RGB in tangent space to diffuse RGB in screen or world space. The **Vector Data** module sets the vector field to be used by the **Vector Inspector**.

For more information on the new shaders, see the *Vector Brush* and *Shaders* chapters in the *User Guide*.

- Default vector shaders for tangent space and world space can be added by clicking the **Setup Vector Brush** icon on the **Vector Painting** toolbar or by navigating to **Python** > **Examples** > **Setup Vector Brush**.

  This script creates two shaders, **Default Vector (Tangent Space)** and **Default Vector (World Space)**, in the **Shaders** palette, changes the tool to **Vector Paint**, and changes the blending mode to **Paint Flow Vectors**. The shader modules created as part of these default shaders include:

  - **Vector Data**
  - **Suppress Blue (RGB Component Filter)**, and
  - **Diffuse Tangent to World** (for the world space default shader).

Flow visualization

The **Flow** and **Masked Flow** shader modules allow you to select the vector data channel and an image to apply to the model. Adjusting the **Time Offset** and **Speed** allows you to view how the vectors on your model flow over a period of time.
This shader is for viewing only and does not bake the image down to the model.

For more information on the **Flow** shader, see the *Vector Brush* and *Shaders* chapters in the *User Guide*.

Projection and masked projection shaders

Four new shader modules have been added for projection shaders. These shaders are:

- **Projection Cube**,
- **Projection Sphere**,
- **Masked Projection Cube**, and
- **Masked Projection Sphere**.

These allow you to project textures onto scene geometry using a cubic or spherical image file. Using multiple projection shaders enables you to get the best possible projection from the different camera locations in a scene. Using multiple camera locations allows you to account for occlusion and perspective when projecting textures onto the geometry. Additionally, the masked projection shaders allow you to mask out parts of the projection, where multiple projection shaders overlap, to prevent paint artifacts.

For more information on projection shaders, see the *Shaders* chapter in the *User Guide*.

Emissive shaders

Two new shaders, **Emissive** and **Masked Emissive**, have been added. These shaders simulate surfaces that emit light or glow and can be set to a specific channel.

AMD support

AMD graphics cards FirePro W7000, W8000, and W9000, and Radeon HD 7850 and HD 7950 have been added to the list of tested cards, when used with driver version 8.982.8.1 or greater.

Feature Enhancements

Channel and Image File Space

You can now convert the channel and image file space to **Vector** space before exporting. This changes the file space during the import or export process from the 0 to 1 range, which Mari primarily uses in paint channels, to a vector-friendly range of -1 to +1. This control can be set by selecting the channel or image in the **Channels** palette or **Image Manager** palette, respectively, and choosing **Vector** or **Normal** from the **File Space** dropdown.

For more information on how to use the vector file space, see the *Vector Brush* chapter in the *User Guide*.

- You can now choose to use **Original [HSV]** or **Photoshop [HSL]** to calculate desaturation in the **Hue** filter and the **Diffuse HSV** shader module.
- The font size for the Python console can now be changed by going to **Preferences** > **Scripts** > **Console** | **Font Size**. Associated shortcuts of **Ctrl** + **+** and **Ctrl** + **-** increase or decrease the font size.
- The brush cursor that is displayed in all the paint tools, such as **Paint**, **Paint Through**, **Vector Paint**, and **Clone Stamp**, as well as the **Eraser** tool, now display the outline of the brush shape instead of the standard circle and cross hairs design of previous Mari versions. To change the brush cursor design back to the previous Mari standard, navigate to **Preferences** > **Painting** > **Cursor** | **Shape.**

  The brush cursor opacity level can also be adjusted. This does not affect the paint opacity of the brush, only how opaque the brush cursor shape is when painting. To adjust the brush cursor opacity, navigate to **Preferences** > **Painting** > **Cursor** | **Opacity**.

Bug Fixes

- BUG ID 29441 - Mari occasionally performed an unnecessary bake with no paint in the paint buffer when exporting a channel.
- BUG ID 29563 - When the **Background Exporter** preference was set, under **Preferences** > **Data** > **Channels** | **Exporter**, Ptex didn't run in the background. This resulted in Mari locking up when a large Ptex export took place.
- BUG ID 29718 - When orbiting an object or importing an **.fbx** camera, shadows became clipped. This resulted in occasional flickering or changes in resolution.
- BUG ID 29802 - The Python knobs in Nuke's script settings disappeared when using the Nuke<>Mari bridge.
- BUG ID 30068 - New projects trying to use **.obj** files with more than four digits in the name did not show Ptex options.
- BUG ID 30078 - It was possible to load projects with more patches than the texture size should have allowed. This resulted in problems with the virtual texturing system.
- BUG ID 30139 - The right-click menu was incorrectly enabled while other processes, such as baking or project saving, were in progress.
- BUG ID 30298 - The OCIO configuration path, shown in the **Preferences**, did not update when the OCIO environment variable path was changed.
- BUG ID 30340 - Selecting and unselecting module checkboxes sometimes affected other modules of the same name.
- BUG ID 30358 - The **Brightness** filter preset didn't save the most recently used value input for **contrast**.

- BUG ID 30546 – Mari did not interpret single-channel images correctly for the **.tif** file format.
- BUG ID 30668 – Wacom: Tapping the pen on the Wacom tablet during the baking process resulted in a corrupted result.
- BUG ID 30868 – The virtual texturing system occasionally flickered or oscillated between bias levels.
- BUG ID 30895 – Windows: When running Mari from a network location, the PDF viewing options (such as **Help** > **User Guide**) did not work correctly.
- BUG ID 31916 – Mari would not save projects if they contained metadata names that could not be used as XML attribute names, such as numbers.
- BUG ID 31993 – Importing a texture file with an incorrect file extension into a channel caused Mari to crash.

  Support for JPEGs in **.tif** files has been removed to prevent OpenImageIO 0.9 from crashing.
- BUG ID 32352 – Channels with hyphens in the name caused errors when exporting **.ma** files to Maya.

Known Issues & Workarounds

- 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 Tested graphics cards, 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.
- 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 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 only partially refreshes 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 14985 - There may be a slight pause after importing textures when creating new projects as Mari saves the project.
- BUG ID 15491 - Python: PythonQt 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: PythonQt sometimes crashes when adding temporary objects to layouts, or compound widgets such as QTreeWidget. 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 17618 - Ptex does 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 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 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 resolution is low, and you're working on a complex model with displacement. Possible work-arounds 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 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 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 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 31000 - AMD graphics cards only: Sending a patch to the **Image Manager** using **UV Mask to Image Manager** creates an empty image file.
- BUG ID 33078 - AMD graphics cards only: Selecting **Patches** > **Bleed Patch Edges** replaces the entire patch with a single color.

Developer Notes

These are the changes relevant to developers.

New Features

There are no new features relevant to developers.

Feature Enhancements

- Added the new functions Channel.fileSpace() and Channel.setFileSpace().

Bug Fixes

- BUG ID 21286 - Images exported from the **Image Manager** were re-imported upside-down.