



MARI
GETTING STARTED GUIDE
VERSION 2.0v1

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1 PREFACE

Mari is a creative texture-painting tool that can handle extremely complex or texture heavy projects. It was developed at Weta Digital and has been used on films such as *The Adventures of Tintin: The Secret of the Unicorn*, *District 9*, *The Day the Earth Stood Still*, *The Lovely Bones* and *Avatar*.

The name Mari comes from the Swahili 'Maridadi', meaning 'beautiful' and carrying connotations of 'usefulness'.

About This Guide

This guide provides you with the basic information you need to start painting with Mari.

The first part of the manual, [Installation and Licensing](#) describes how to install, license, and launch Mari.

The rest of the manual consists of a few short chapters describing Mari's basic functionality and five [tutorials](#) which teach you the basics of creating a Mari project and painting textures. The tutorials provide a series of comprehensive walk-throughs, complete with geometries and associated textures. As you follow the steps in these tutorials, you'll gain a good feel for Mari's user interface and workflow. This, in turn, provides a good working knowledge for creating more complex production projects.

For more detailed information on Mari and its functions, see the accompanying *Mari User Guide* and *Mari Reference Guide*.

Contact Customer Support

Should questions arise that this manual fails to address, you can contact Customer Support directly via e-mail at support@thefoundry.co.uk or via telephone to our London office on +44 (0)20 7968 6828 or to our Los Angeles office on (310) 399 4555 during office hours.

2 INSTALLATION AND LICENSING

Steps for Running Mari

To run Mari, follow these steps:

1. Check the [System Requirements](#)
2. [Install Mari](#)
3. [Launch Mari](#)
4. [License Mari](#)

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)



NOTE: Some newer Linux distributions have changed their network device configuration handling and won't 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/#question_97

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 the system running Mari has plenty of virtual memory available 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 (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.

Install Mari

Mari 2.0 is available to download from our web site at www.thefoundry.co.uk/mari. The downloads are in a compressed format (.run or .exe).

On Linux

1. Download the **.run** installation file from our web site at www.thefoundry.co.uk/mari.
2. Extract Mari from the **.run** archive with the following terminal command, replacing [version number] with the current version:

```
sudo ./Mari[version number]-linux-x86-release-64.run
```

The installer displays the End User Licensing Agreement (EULA) and prompts you to accept it.

3. If you agree with the EULA, enter **y** and press **Return** to accept the EULA. (If you don't agree with the EULA and press **n** instead, the installation is canceled.)

By default, Mari is installed in an appropriately named folder in the current working directory.

4. That's it! Proceed to [Launch Mari](#).



NOTE: If you leave out **sudo** from the terminal command, you need to ensure that you have sufficient permissions to install Mari under your current working directory or selected target directory.

After the Mari application files have been installed, the installer also runs a post-installation script that creates the following directory:

/usr/local/foundry/RLM

If you don't have sufficient permissions on the **/usr/local** folder for this directory to be created, the post-installation script prompts you for your sudo password as necessary.



TIP: You can also use the following options after the terminal command when installing Mari:

- **--info**

This lets you see what the default installation directory is.

- **-- target MyMariDirectory**

This lets you specify a different directory to install Mari to (in this case, MyMariDirectory).

- **--accept-eula**

This lets you automate the installation so that you are not prompted to accept the EULA. Note that if you use this option, you agree to the terms of the EULA. To see the EULA, please refer to Appendix D in the Mari User Guide.

- **-- help**

This lets you see additional help and installer options.

Here's an example of the syntax using the **--accept-eula** option:

```
sudo ./Mari[version number]-linux-x86-release-64.run --accept-eula
```

On Windows

1. Download the **.exe** installation file from our web site at www.the-foundry.co.uk/mari.
2. Double-click on the installation file to start the installation. Follow the on-screen instructions. By default, Mari is installed to drive letter:\Program Files\Mari [version number].
3. That's it! Proceed to [Launch Mari](#).

Installing Mari from the command line

To install Mari from the command line, do the following:

1. Download the correct **.exe** installation file from our web site at www.thefoundry.co.uk.
2. To open a command prompt window, select **Start > All Programs > Accessories > Command Prompt**.
3. Use the **cd** (change directory) command to move to the directory where you saved the installation file. For example, if you saved the installation file in **C:\Temp**, use the following command and press **Return**:

```
cd \Temp
```

4. To install Mari, do one of the following:

- To install Mari and display the installation dialog, type the name of the install file without the file extension and press **Return**:

```
Mari2.0v1-win-x86-release-64
```

- To install Mari to a specified directory and display the installation dialog, use the **/dir** install option:

```
Mari2.0v1-win-x86-release-64 /dir="E:\Mari"
```

- To install Mari silently so that the installer does not prompt you for anything but displays a progress bar, enter **/silent** after the installation command:

```
Mari2.0v1-win-x86-release-64 /silent
```

- To install Mari silently so that nothing is displayed, enter **/verysilent** after the installation command:

```
Mari2.0v1-win-x86-release-64 /verysilent
```

- You can also use a combination of install options:

```
Mari2.0v1-win-x86-release-64 /silent /dir="E:\Mari"
```



NOTE: By running a silent install of Mari, you agree to the terms of the EULA. To see this agreement, please refer to Appendix D: End User Licensing Agreement in the Mari User Guide or run the installer in standard non-silent mode.

Launch Mari

On Linux

1. Open a terminal.
2. Navigate to the directory you installed Mari to.
3. Enter **./mari**.

4. If you haven't installed a license for Mari, you need to [License Mari](#). Once you've done so, click **Launch** in the **Mari Licensing** dialog.
*Mari checks for [Tested graphics cards](#), and if an untested graphics card configuration is detected, a dialog displays warning you about it. Depending on the configuration detected, you have the option to **Quit** or **Continue** and, in the case of configurations with known issues, also **Ignore Permanently**. Note that if you ignore the warning and run Mari anyway, you may experience instability or performance issues. If a tested graphics card configuration is detected, Mari runs as normal.*
5. If you are launching Mari for the first time, you are prompted to choose a directory for its cache files. In the **Please Pick Cache Directory** dialog, navigate to the directory you want to use and click **Choose**.
Note that the cache directory should be:
 - empty
 - local to the machine (not a network mount)
 - as fast as possible
 - a location that's not temporary (to avoid the data disappearing)
 - a directory that the user has read and write permissions to.*The Mari graphical interface displays.*

Project cache locations are directories that Mari uses to store project data files. These directories must be persistent; not in temporary locations. If more than one cache location is specified, Mari spreads each project's data files across all locations. Once a project has been created for a given set of cache locations, that set must not be changed. In order to move a project between different sets of caches, archive the project.



WARNING: Don't add, remove, or amend cache locations once they have been set unless they are empty. Once projects have been created for a given set of cache locations, that set must not be changed or project corruption will occur.



NOTE: If the MARI_CACHE environment variable has been set, its value is used to determine the location of the cache files. In this case, Mari does not prompt you to choose the cache directory. For more information on environment variables that Mari understands, please refer to the Mari User Guide.



TIP: You can also launch Mari in verbose mode by using the following command:

```
./mari --verbose
```

This way, Mari provides a running log of each action that it performs. You can see this log in a terminal window.

On Windows

1. Click **Start > All Programs > The Foundry > Mari 2.0v1 > Mari 2.0v1**.
2. If you haven't installed a license for Mari, you need to [License Mari](#). Once you've done so, click **Launch** in the **Mari Licensing** dialog.
*Mari checks for [Tested graphics cards](#), and if an untested graphics card configuration is detected, a dialog displays warning you about it. Depending on the configuration detected, you have the option to **Quit** or **Continue** and, in the case of configurations with known issues, also **Ignore Permanently**. Note that if you ignore the warning and run Mari anyway, you may experience instability or performance issues. If a tested graphics card configuration is detected, Mari runs as normal.*
3. If you are launching Mari for the first time, you are prompted to choose a directory for its cache files. In the **Please Pick Cache Directory** dialog, navigate to the directory you want to use and click **Choose**.

Note that the cache directory should be:

- empty
- local to the machine (not a network mount)
- as fast as possible
- a location that's not temporary (to avoid the data disappearing)
- a directory that the user has read and write permissions to.

The Mari graphical interface displays.

Project cache locations are directories that Mari uses to store project data files. These directories must be persistent; not in temporary locations. If more than one cache location is specified, Mari spreads each project's data files across all locations. Once a project has been created for a given set of cache locations, that set must not be changed. In order to move a project between different sets of caches, archive the project.



WARNING: Do not add, remove, or amend cache locations once they have been set unless they are empty. Once projects have been created for a given set of cache locations, that set must not be changed or project corruption will occur.



NOTE: If the `MARI_CACHE` environment variable has been set, its value is used to determine the location of the cache files. In this case, Mari does not prompt you to choose the cache directory. For more information on environment variables that Mari understands, please refer to the Mari User Guide.



TIP: You can also launch Mari in verbose mode by selecting **Start > All Programs > Mari 2.0v1 > Mari 2.0v1 (Verbose Output)**. This way, Mari provides a running log of each action that it performs. You can see this log in a command line window.

License Mari

About Licenses

If you simply want to try out Mari, you can obtain a trial license, which allows you to run Mari for free for 15 days. See [Install the License](#) on page 15.

To use Mari after this trial period, you need either a valid **activation key** or a **floating license** and server running the Foundry Licensing Tools (FLT):

- **Activation Keys** — These can be used to easily install and activate **node locked** (also known as **uncounted**) licenses. Node locked licenses allow you to use Mari on a single machine. This license does not work on a different machine and if you need it to, you'll have to transfer your license. Node locked licenses do not require additional licensing software to be installed. See [Licensing Mari on a Single Machine](#) for more information.
- **Floating Licenses** — Also known as **counted** licenses, enable applications to work on any networked client machine. The floating license should be put on the server and is locked to a unique number on that server. Floating licenses on a server require additional software to be installed. This software manages those licenses on the server, giving licenses out to client stations that want them. The software you need to manage these licenses is called the Foundry License Tools (FLT) which can be freely downloaded from our web site. Floating licenses often declare a port number on the server line and a port number on the vendor line. See [Licensing Mari over a Network](#) for more information.

The instructions below run through both licensing methods and you can find a more detailed description in the Foundry Licensing Tools User Guide

available on our website:

<http://www.thefoundry.co.uk/support/licensing/tools/>

Licensing Mari on a Single Machine

Obtain an Activation Key

You can purchase activation keys over the Internet by clicking **Purchase License** in the Mari licensing dialog that displays when you launch Mari without a license, or by contacting The Foundry Sales Department at sales@thefoundry.co.uk.

Install the License

You are prompted to enter your activation key when you start Mari without a license. Mari skips this step if you've already activated the application.

Select an activation option from the **Mari Licensing** dialog:

- **Purchase License** — Click to open a web browser directly to The Foundry website to purchase an activation key.
- **Activate Key or Use Server** — Click to enter a previously obtained activation key. When you enter the activation key, Mari automatically obtains a license from the web and installs it on your machine. You're good to go.
- **Obtain Trial License** — Click to automatically install a trial license valid for 15 days. Whenever you then launch Mari, the **Mari Licensing** dialog displays how many days remain before your trial license expires. Note that you can only obtain a trial license for a major Mari release once on

each machine (for example, if you had a trial license for Mari 1.1v1, you can't get another one for Mari 1.1v2 on the same machine).



NOTE: If you access the Internet through a proxy server and Mari cannot connect to the activation server, you may get an error dialog prompting you to either:

- Click **Use Proxy** to enter the proxy server name, port number, username, and password. This enables Mari to connect to the activation server and obtain a license. Mari then installs the license automatically.
- Click on the web link in the dialog and use the System ID (also known as hostid) provided to manually activate and install a license. For more information on how to install a license manually, see the Foundry Licensing Tools (FLT) User Guide available on our website at <http://www.thefoundry.co.uk/support/licensing/>



TIP: If you later want to check the current status of your license (for example, to see if it's a node locked license or a floating license), select **Tools > License** in Mari to display the **Mari Licensing** dialog.

Licensing Mari over a Network

Obtain Floating Licenses

Alternatively, you can purchase a floating license key from our website. To generate a license key, we need to know your System ID. The System ID (sometimes called Host ID or rlmhostid) returns a unique number for your computer. We lock our license keys to the System ID. See [Install Floating Licenses](#).

To display your system ID:

On Windows

1. Do one of the following:
 - Download the Foundry License Installer for Mari (FLU) utility from <http://www.thefoundry.co.uk/support/licensing/tools/> and run it. Your System ID is displayed.
 - Download the Foundry Licensing Tools (FLT) free of charge from our web site and run C:\Program Files (x86)\The Foundry\LicensingTools7.0\FoundryLicenseUtility.exe.

2. Once you have provided us with your System ID number and a license key has been generated for you, you will receive the license key in an e-mail or Internet download. The license key is contained in a text file called `foundry.lic`. For information on what to do with the `foundry.lic` file, see [Install Floating Licenses](#) below.

On Linux

1. Download the Foundry Licensing Tools (FLT) free of charge from <http://www.thefoundry.co.uk/support/licensing/tools/> and run the following command in a terminal shell:
`/usr/local/foundry/LicensingTools7.0/FoundryLicenseUtility`
2. Once you have provided us with your System ID number and a license key has been generated for you, you will receive the license key in an e-mail or Internet download. The license key is contained in a text file called `foundry.lic`. For information on what to do with the `foundry.lic` file, see [Install Floating Licenses](#) below.

Just so you know what a System ID number looks like, here's an example:
000ea641d7a1.

Install Floating Licenses

If you requested a floating license from The Foundry, you will receive your license key (`foundry_float.lic`) in an e-mail or Internet download. You should also receive the Foundry License Utility (FLU) application to help you install the license key. The FLU is also available to download from www.thefoundry.co.uk/licensing. The instructions below tell you what to do with these.

1. Make sure you have saved both the license key (`foundry.lic`) and the Foundry License Utility application in the same directory.
2. Run the Foundry License Utility application. The license key should automatically display in the FLU window if the FLU and `foundry_float.lic` are in the same directory. If they are not, you can either copy and paste the contents of the license key or drag and drop the file into the FLU window.
3. Click **Install**.

This checks the license file and, provided that the license is valid, installs it into the correct directory.

In order for the floating license to work, you need to install the Foundry Licensing Tools (FLT) on the license server machine. For more information on how to install floating licenses, refer to the FLT user guide, which you can download from our web site:

<http://www.thefoundry.co.uk/support/licensing/tools/>.

4. Once your license server is up and running, launch Mari (if it isn't already running).
5. Click **Activate Key or Use Server** and enter the server address in the field provided. The format for the server name is <port>@<servername>, for example, 30001@red.



NOTE: You must perform steps 4 and 5 on each client machine that requires a Mari license from the server.



TIP: If you later need to display the **Mari Licensing** dialog again, you can select **Tools > License** in Mari.



TIP: If you need assistance with any of these steps, e-mail support@thefoundry.co.uk.

Further Reading

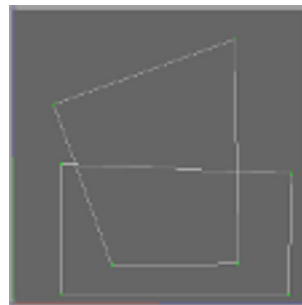
For more information on licensing Mari, displaying the System ID number, setting up a floating license server, adding new license keys and managing license usage across a network, you should read the Foundry Licensing Tools User Guide available on our web site.

3 MARI MODEL REQUIREMENTS

Model Requirements

Mari requires your model files to be configured in a particular way.

Please bear in mind that Mari allows you to import and paint models with **Overlapping UVs**, like the one shown below. However, if you paint on regions in the 3D views (orthographic or perspective), which also overlap in 2D UV view, then you may encounter painting artifacts, as Mari is forced to choose which of the conflicting overlapping paint strokes to bake down. To avoid this, you should only apply paint to one of the overlapped regions at a time in the 3D views.



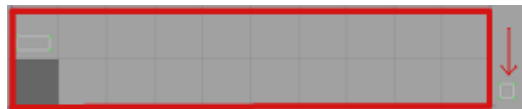
For example, if you paint a face where the left and right halves have been mirrored with overlapping UVs, then you should aim to only paint on one half of the face to avoid paint clashes.



NOTE: Paint clashing due to overlapping UVs cannot occur in the UV view, so you can always paint your model in that view if you find that your model is particularly tricky to paint in 3D views.

Models to paint in Mari *should not* have:

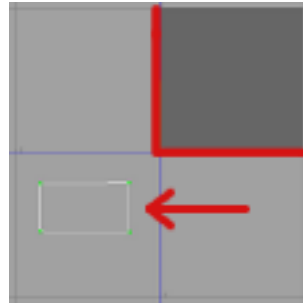
- **UVs that go over 10 on the U axis** — these are ignored.



- **Stacked UVs** — these cannot be individually selected in UV view. If you do have stacked UVs and want to select an individual UV, you need to select it in either Ortho or Perspective view first, and then switch back to UV view.

Models to paint in Mari *cannot* have:

- **Negative UVs** — painting on these is not possible.

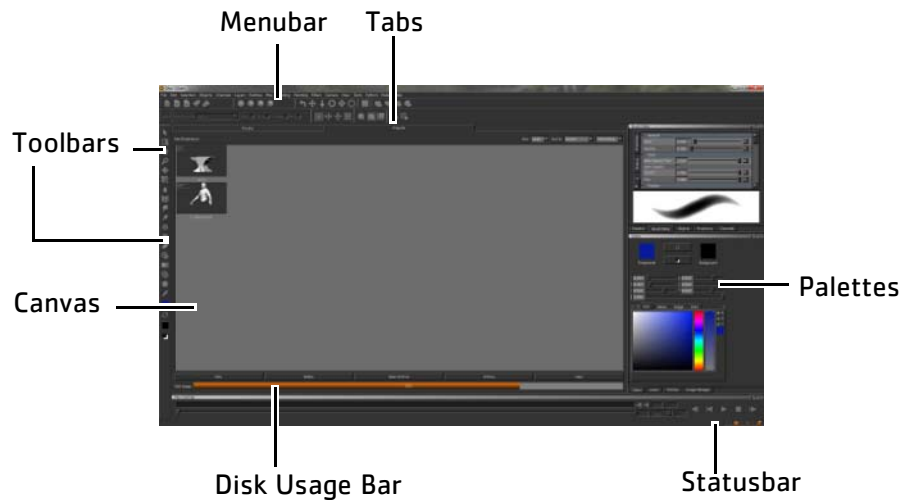


For Ptex modelling, please see the [Ptex Modelling Requirements in Mari](#) in the User Guide for more information.

4 THE MARI WORKSPACE

What It Looks Like

Here is an illustration of the Mari workspace that displays when you first open the program.




Workspace	
Menubar	To select Mari commands (many of which are also available using shortcut keys and/or icons).
Toolbars	To click icons for common Mari functions or settings.
Canvas	Where you view and paint your geometry.
Tabs	To switch between views.
Palettes	Controls for viewing and changing different aspects of what's on the canvas.
Disk Usage Bar	Displays how much of your cache disk has been filled.
Statusbar	Information about the project generally, progress of long operations (such as baking), and icons.

5 MANAGING PROJECTS

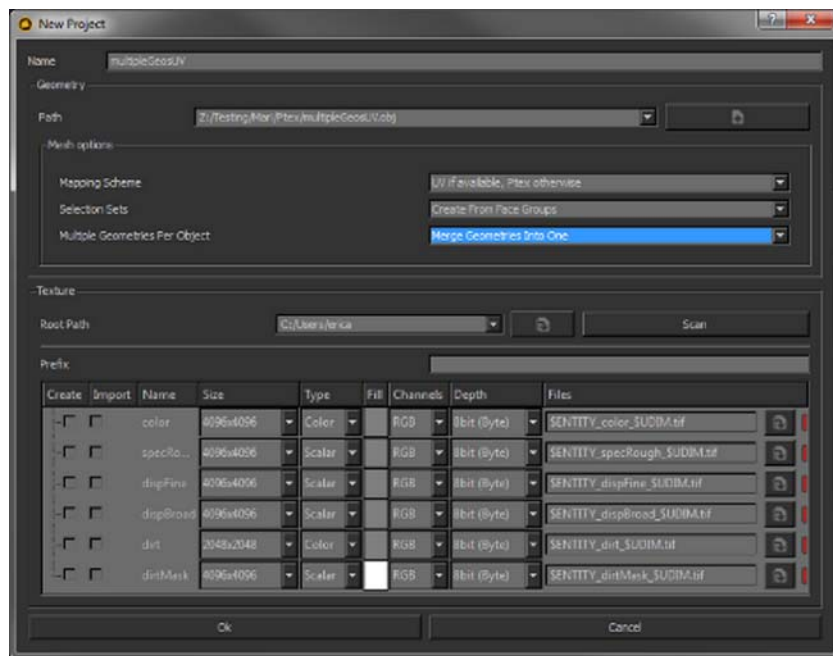
A Mari project stores your work on geometries, and any associated textures. Mari's Project tab holds all the projects you are working on.


Creating a New Project

1. Do one of the following:

Select from menubar	or click on toolbar	or click on the Project tab	or type shortcut key
File > New		New	Ctrl+N

The New Project dialog box displays.



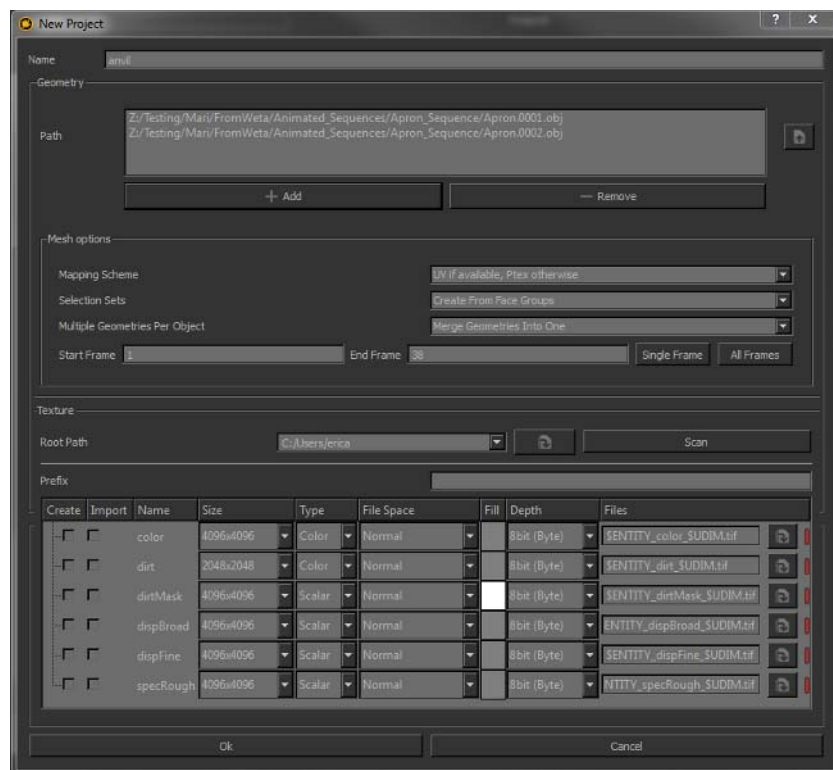
2. Set the project's **Name** (for you to identify it only — this is not a filename).
3. Select the geometry file for the project in the **Path** field. The drop-down lists the last 10 files selected, or you can click  to browse to a file.

Various mesh options display in the dialog directly under **Path**, depending on whether you open an **.obj** or **.ptx** file.

- **.obj** files: you can select options for the **Mapping Scheme**, **Selection Sets**, and **Multiple Geometries Per Object**.
- **.ptx** files: you can choose whether the mesh data in the file represents a single new Object or, when there are multiple input files, if the mesh data in each file represents a separate geometry in a single new Object.

For more information on the **Mesh Options**, please see [Create a New Project](#) in the Ptex chapter of the User Guide.

4. If you are loading an animated sequence, **Mesh Options** displays with the additional options **Start Frame**, **End Frame**, **Single Frame**, and **All Frames**. These provide the frame range to view either user-defined start and end frames, a single frame, or every frame.



5. To create a project from multiple files, browse to a folder and select multiple files from the directory, before clicking **Open**.

The selected files are all shown in the **Path** field. These files are stored in the history as a single project under the assigned name.

- In the **Texture** section, click to select which of the channels in the list to create. You can select a different **Category** from the list – the set of channels updates with channels for your selected category.

Click boxes under **Create** and **Import** to set the options. You can right-click to get a dropdown menu allowing you to easily create or import all the channels.



TIP: Click **Scan** to make Mari scan the project's root path for any existing textures. If any textures exist for your channels, Mari shows a green dot next to the channel. You can select to import these textures.

As with the project name, the channel **Name** is for you to identify it only — when you export you can select a different name.

For the **Type**, choose **Color** for anything color-dependent (and Mari applies the viewer LUT automatically), or **Scalar** for a mask or displacement.

If you select a different Depth or resolution, file sizes can vary dramatically (for example, a 2K RGB "Byte" texture file is 2MB — whereas a 4K "Float" is 172MB).

- Click **OK**.

*Mari checks the model for any errors that might prevent it from processing; for example, touch border edges. A "Mesh Sanity Check" dialog displays any warnings or errors. (**Errors** cancel opening the model, but you can continue with **warnings**.)*



NOTE: For information on model requirements in Mari, refer to [Mari Model Requirements](#) on page 19.

- Click to **Continue**.

Mari renders your selection and displays it on the canvas.



TIP: Depending on the size and complexity of textures, it can take several minutes the first time you load them into a Mari project. Once saved, however, the project should open quickly in future.

Opening Existing Projects

- Click on the **Projects** tab.

This shows all the projects you have on your computer.

2. Double-click on the project to open.



NOTE: On project load, Mari looks for metadata that is over 250MB and discards anything that is over this size. This is intended to strip corrupt and problematic data, and also affects metadata added via the Python API.

Using the Command Line

You can also open Mari and a specific, existing project, as well as archives using the command line. From the **Run** dialog on your computer, use a command in the format of:

```
./mari /tmp/testproject.mra
```

By specifying the project name, UUID, folder path, or project.mri path, you open Mari and the designated project.

The command line can also be used to run scripts that contain a Python call to open a project. From the **Run** dialog on your computer, use a command in the format of:

```
./mari example_script.py
```

The **example_script** should contain the Python call to open a project.

Saving Your Project

Do one of the following:

Select from menubar	or click on toolbar	or type shortcut key
File > Save		Ctrl+S



TIP: Save your project often!

- Note that while your textures remain cached locally, saving does not export them, so export often too!
- If you don't need to save (no changes since the last save), the toolbar icon is gray.

6 CONFIGURING YOUR WORKSPACE

The Mari workspace is completely configurable. As detailed on the pages that follow, you can customize how palettes display, your own personalized sets of brushes and colors, and shortcut keys.


Palettes

Mari uses a number of palettes — windows that you can move around your workspace, with specific information and tools for working on your project. For example, the **Channels** palette shows all the channels in the project, and has controls for editing the channels.

To open palettes:

Select from menubar	<i>or</i> right-click on the menubar or toolbar and select
View > Palettes > <palette name>	<palette name>

To move, size and arrange palettes:

To...	Do this...
Undock and move a palette	Grab and drag it by its title bar to anywhere on your screen. (Or click  to undock, and then drag by its title bar).
Dock a palette to the window	Move it to one of the edges of the Mari window. <i>A dotted line displays along the edge where it can dock.</i>
Dock a palette to another palette	Move it over another undocked palette. <i>A dotted line displays where it can dock.</i>
Size a docked palette	Grab and drag the dotted bar along the bottom or side.
Size a floating palette	Drag an edge or corner.
Stack palettes	Drag and drop them directly on top of one another. Tabs appear for selecting which of the stacked palettes to display.

Shelves

The **Shelf** palette lets you store customized “shelves” of brushes, colors, and images. You can also share them with others.



Mari has the following kinds of shelves:

- The **Menu** shelf stores seven items available from the F9 on-screen menu. These items must be numbered from 1-7 to appear.
- The **Personal** shelf stores items you select and configure for all projects.
- The **Basic Brushes** shelf stores a set of predefined basic brushes.
- The **Hard Surface Brushes** shelf stores a set of predefined hard surface brushes.
- The **Organic Brushes** shelf stores a set of predefined organic brushes.
- Customized shelves you create store items you select and configure for all projects.

Customizing Shelves To add an item (brush, color, or image) to a shelf, drag it onto the shelf.

7 CHANNELS

Channels hold layers stacks, filled with paint layers, procedurals, and adjustments in your project. For example, a project might have channels for diffuse color, displacement, or specular, but each of those channels contain individual layers for paint, masks, and filters.

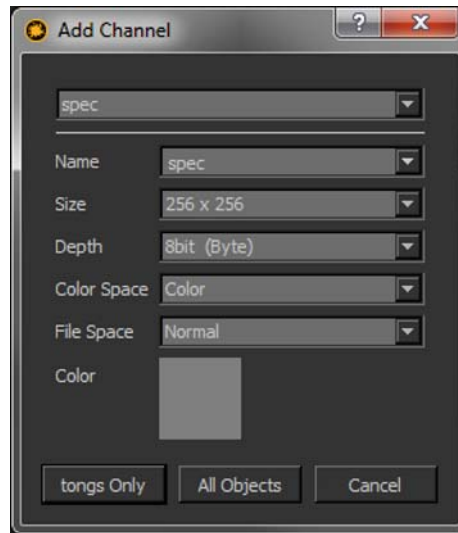
Channels can then be used in shader inputs so you can adjust the amount of diffuse or specular, among other things.

Adding a Channel to a Project

1. Do one of the following:

Select from the Channels menu	<i>or</i> from the Channels palette, click	<i>or</i> right-click on the Channels palette and select
Add Channel		Add Channel

*The **Add Channel** dialog box displays, allowing you to set the options for the new channel.*



2. Select a name, size, depth, color and file space, and base color for the channel (as with a new project), and click **Ok**.

*The new channel displays in the **Channels** palette.*



NOTE: If you are working with a Ptex project, the patch **Size** option appears grayed out, as the **.ptx** format doesn't work with patches.



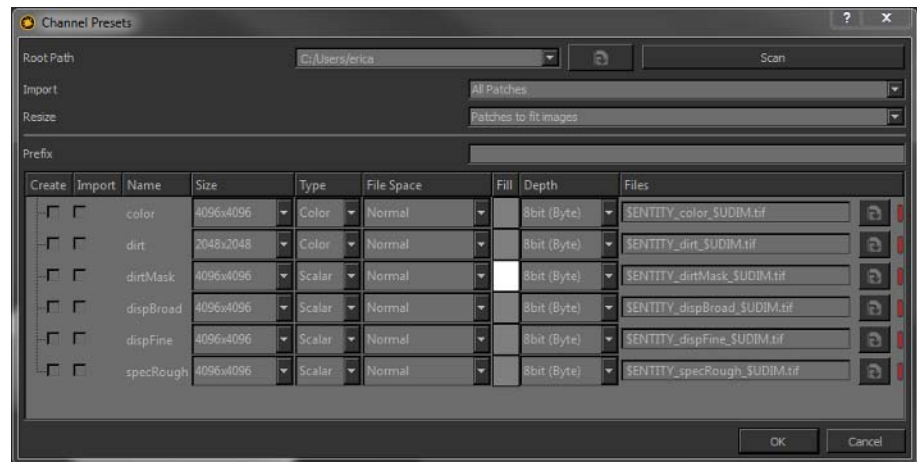
TIP: If there are multiple objects in your project, there is no **Ok** button in the **Add Channel** dialog. Instead, you need to choose whether you want to add the channel to only the current object or **All Objects**.

Adding a Set of Channels

1. Do one of the following:

Select from the Channels menu	<i>or</i> right-click on the Channels palette and select
Channel Presets	Channel Presets

*The **Channel Presets** dialog box displays.*



2. Select the **Import** and **Resize** options for the channels you're creating.
*The list of channels at the bottom of the dialog box allows you to set whether you want to create the preset channels from scratch or from an imported file. Set the channel options as you would in the **Add Channel** dialog.*
3. If you have existing textures to import into the new channels, set the **Root Path** and make sure that the **Files** for each channel show the correct texture files.

4. Click **OK** to create and import the new channels.



TIP: To toggle quickly between the last two selected channels (while in the painting canvas), press **T**.

For other options, such as locking or resizing a channel, right-click in the **Channels** palette or click on the **Channels** menu.


8 LAYERS

Layers are the source of your paint textures in a project. Layers are created as part of a layer stack, which is in turn held within a specific channel. Each channel has a different layer stack that contains a new set of layers. You can create paint layers, layer masks, adjustments, procedurals, and layer groups within the **Layers** palette.


Painting layers or adding adjustments and procedurals to a layer stack behaves in a top-down manner, so that layers that appear at the top of the stack take precedence over layers further down. In this way, if layers have overlapping paint areas, only the overlapping paint in the top-most layer is visible.

Add a Layer to a Layer Stack

1. Do one of the following:


Select from the Layers menu	or from the Layers palette, click	or right-click on any layer in the Layers palette and select
Add New Layer		Add New Layer

*A new layer appears in the **Layers** palette, above any other layers in the layer stack.*


2. The paintable icon  appears orange when the layer is selected and the paintable component is active.

Add a Mask to a Layer

1. Do one of the following:

Select from the Layers menu	or from the Layers palette, click	or right-click on any layer in the Layers palette and select
Layer Mask > Add Mask > Reveal All or From Alpha		Layer Mask > Add Mask > Reveal All or From Alpha

*A layer mask is added to the selected layer in the **Layers** palette.*

- The mask icon  appears orange when the layer is selected and the mask component is active.




TIP: To switch back and forth between components on a layer, simply click on the component icons.

Add an Adjustment to a Layer Stack

- Do one of the following:

Select from the Layers menu	<i>or</i> from the Layers palette, click	<i>or</i> right-click on any layer in the Layers palette and select
Add Adjustment Layer > any adjustment from the drop-down menu		Add Adjustment Layer > any adjustment from the dropdown menu

*An adjustment layer appears in the **Layers** palette, above any other layers in the layer stack.*


- The adjustment icon  appears orange when the layer is selected and the adjustment component is active.

Add a Procedural to a Layer Stack

- Do one of the following:


Select from the Layers menu	<i>or</i> from the Layers palette, click	<i>or</i> right-click on any layer in the Layers palette and select
Add Procedural Layer > any procedural from the drop-down menu or sub-menus.		Add Procedural Layer > any procedural from the dropdown menu

*A procedural layer appears in the **Layers** palette, above any other layers in the layer stack.*

- The procedural icon  appears orange when the layer is selected and the procedural component is active.


Group Layers

1. Do one of the following:

Select from the Layers menu	<i>or</i> from the Layers palette, click	<i>or</i> right-click on any layer in the Layers palette and select
Add Empty Layer Group or Group Layers		Add Empty Layer Group or Group Layer

*If you chose to add an empty layer group, this group is added as a new layer in the **Layers** palette, above any other layers in the layer stack.*

If you chose to group existing layers together in the layer stack, you must have one or more layers selected. This group is created at the point of the top-most selected layer.

2. To add new layers to an empty layer group, simply drag existing layers into the group.
Alternatively, once you've added a layer to the group, select any layer within it and **Add New Layer**.
3. All layers within a group maintain any component icons associated with them. The group parent layer has a folder icon  to distinguish it as the group layer.

9 SHADERS

Shaders control how Mari displays the model on the canvas. Mari’s default shaders show the paint in either the **Current Channel**, **Current Layer and Below**, **Current Layer**, or **Current Paint Target**.

You can also create your own custom shaders by combining diffuse and specular shader types then setting up channels in the shader component inputs to specify how they appear in the shader. For example, if I use a Lambertian/Beckman shader, I can still specify channels for components such as emissive.

So you can build a shader that takes the details from multiple channels in your project to render the canvas on-screen.



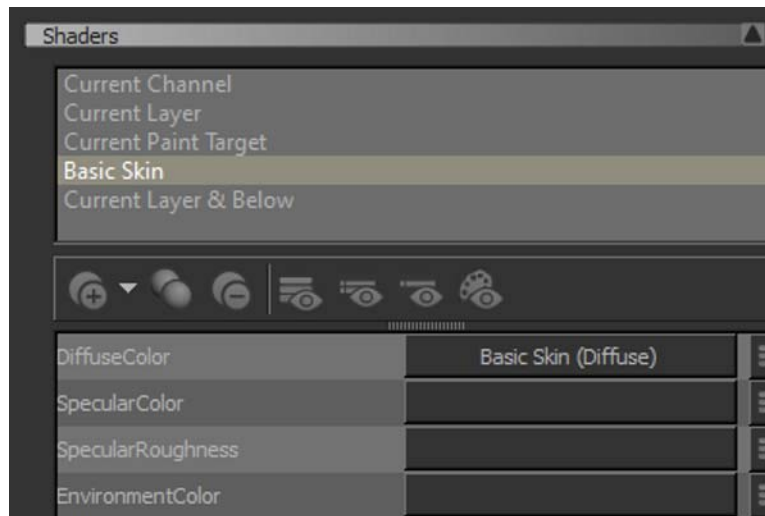
TIP: Shaders don’t affect the contents of the channels. For example, if you have a shader with channels set in both the diffuse and specular color inputs, the model on-screen displays the effects of both channels. However, the channels are still separate and contain different data.

Create a Shader

1. Do one of the following:

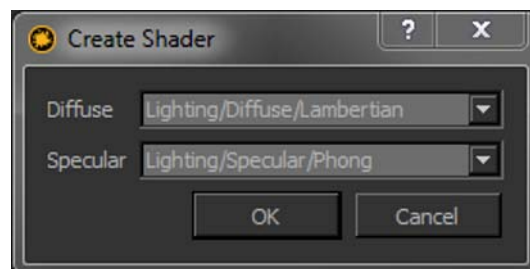
Select from the Shading menu	<i>or</i> from the Shaders palette, click	<i>or</i> right-click on the Shaders palette and select
Add New Shader > any shader from the dropdown menu		any shader from the dropdown menu

The new shader displays in the list, with shader components shown at the bottom of the palette.




2. Instead of choosing shader types from the menu (**Phong** or **Blinn**, for example) you can specify the diffuse and specular by selecting **Choose Diffuse and Specular** from the menu.

*The **Create Shader** dialog appears.*

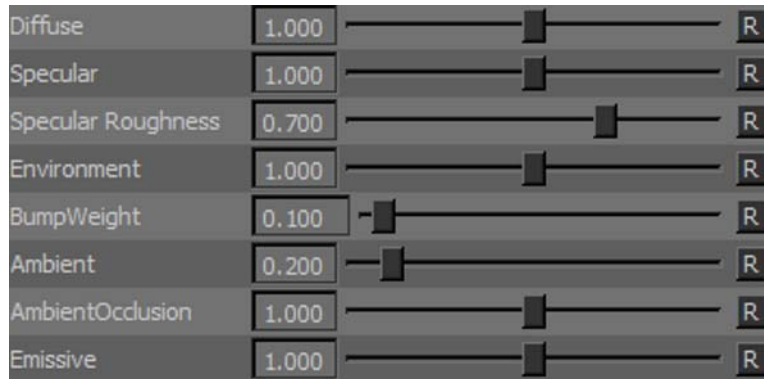


Select your **Diffuse** and **Specular** shader options and click **OK**.

3. All shaders are created with the **Current Channel** in the **Diffuse Color** shader component. You can change this, and set the other components by clicking on the dropdown menu next to the component name and selecting the channel.
4. If you haven't yet created a channel to use in a specific shader component, click the add channel icon  next to the shader component.

*The **Add Channel** dialog box appears. Select the options for your channel from the dialog and click **Ok**.*

5. Once you've set a channel to the shader component, adjust the value or level of the component, using the sliders.



You can add as many shaders as you need and compare them or switch back to the default shaders at any time.



TIP: If you build a shader that takes data from multiple channels, it can be hard to remember which channel you're currently editing. In this case, you can switch back to one of the default shaders, which just shows the contents of the current channel, layer and below, layer, or paint target.

10 CHANGING THE VIEW

As described below, Mari includes features for 3D navigation to view your model from various angles and perspectives, change the lighting on the mesh, and change the resolution of textures.

3D Navigation

You can move the view by holding down **Alt**.

To...	hold down Alt and
Zoom in and out	Ctrl -click and drag OR Right -click and drag
Pan left and right	Shift -click and drag OR Middle -click and drag
Rotate the model	Left -click and drag
To...	
Spin the camera	Ctrl+R + left -click and drag



TIP: By default, Mari uses momentum when you are moving the view. When you let go of the mouse button, the model slowly coasts to a stop. You can turn this behavior off so that the model only moves when you are holding the mouse button down.

To do so, change the settings in the preferences by unchecking **Momentum Enabled** via **Edit > Preferences > Navigation**.

The navigation toolbar also provides the ability to control panning, zooming, rolling, and orbiting, with various settings for each. You can easily access the toolbar, shown below, at any time using the following buttons:



- Reset navigation settings to default.
- Enable panning to move the model on the screen.
- Enable zooming to zoom in or out on the model.
- Enable rolling to turn on the momentum system.
- Enable orbiting mimics the orbiting system in Maya and allows you to move the camera around the model.

- Disable rotational snapping gives options to turn on and change the angle at which the camera view snaps to (45 degrees or 90 degrees).

You can also use the keys **1-6** to switch between preset views (left, right, top, bottom, front, and back).




In the UV view, you can also rotate or reset the model for easier viewing and painting. Press **1** to reset the model back to its default position. Press **2, 3, and 4** to rotate the model counter-clockwise in 90-degree increments from the default position.

Press **Home** to cycle between hiding all palettes, hiding docked palettes and showing hidden palettes.

Use the tabs at the top of the canvas to switch between:







- **UV** - a grid view showing the UV patches.
- **Ortho/UV** - a split screen showing the UV patches and the orthographic view.
- **Perspective** - a perspective camera view, or
- **Ortho** - an orthographic camera view.




TIP: You can also use the , , and  toolbar buttons or the **F10, F11, and F12** keyboard shortcuts to activate a particular view on any tab.




Lighting

You can change the lighting on the main mesh by clicking on the toolbar:

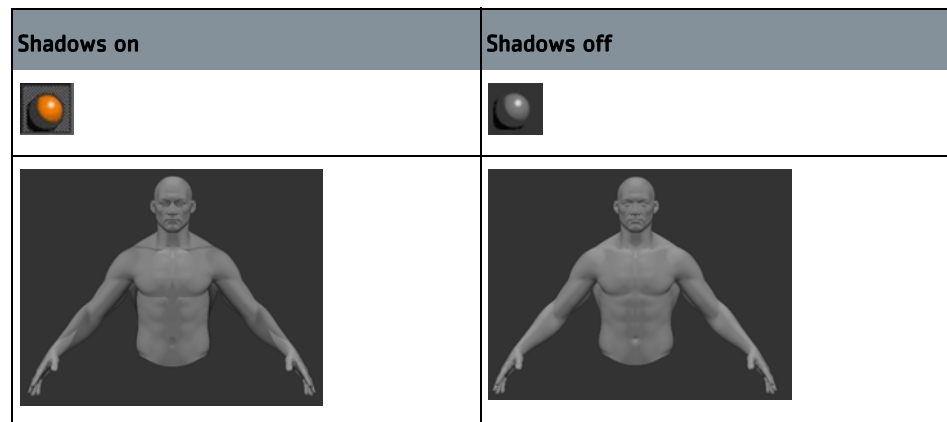
Flat	Basic	Full
		
		

Mari has four custom lights, which appear on the drawing canvas .

You can set the light details in the **Lights** palette. Mari uses these in the **Basic** and **Full** lighting modes:

- To turn a light on or off, click on the  icon in the list, or use the **General > On** checkbox.
- To change a light, click on it in the **Lights** list, and then set the color and strength.
- Select whether the light is fixed to the **Scene** or **Camera**.
- To move a light around, select the **Pan Object** tool , then click and drag the light around on the canvas.
- To move a light to the camera position, click on the  icon on the **Lights** palette, or right-click on the light and select **Move to Camera Position**.

You can toggle the shadows on and off in the **Lighting** toolbar:



This simply toggles the display of shadows on the canvas, but does not disable shadow processing.

- You can control **Shadow Rendering** through the option on the **Lights** palette.
- Toggle shadows by clicking on the **Shadows** icon in the **Lighting** toolbar or the **Shading** menu.
- If you want to enable shadow processing, you need to enable the **Depth Projections** checkbox under **Preferences > Data | Graphics Card**. By default, this preference is disabled.

11 PAINTING



















Painting in Mari is similar to other standard paint programs. Paint using the various tools, then bake it onto your model. Most tools work on unbaked paint, but one or two also work directly on the baked paint on the surface.




TIP: Each tool has a set of keys that control how it works. By default, the option keys for the current tool are shown on-screen at the top of the canvas.

To select a tool:

Choose from your shelves or the **Tools** toolbar:

Paint tools			
 Select	 Marquee select	 Transform paint buffer	 Zoom paint buffer
 Pan object	 Vector Inspector	 Blur	 Warp
 Slerp	 Pinup	 Paint	 Vector Paint
 Erase	 Paint through	 Paint gradient	 Clonestamp
 Towbrush	 Color picker/ Pixel analyzer		

Painting a Constant Color

1. Click  to select the **Paint** tool.
2. Click and drag to paint on the model.

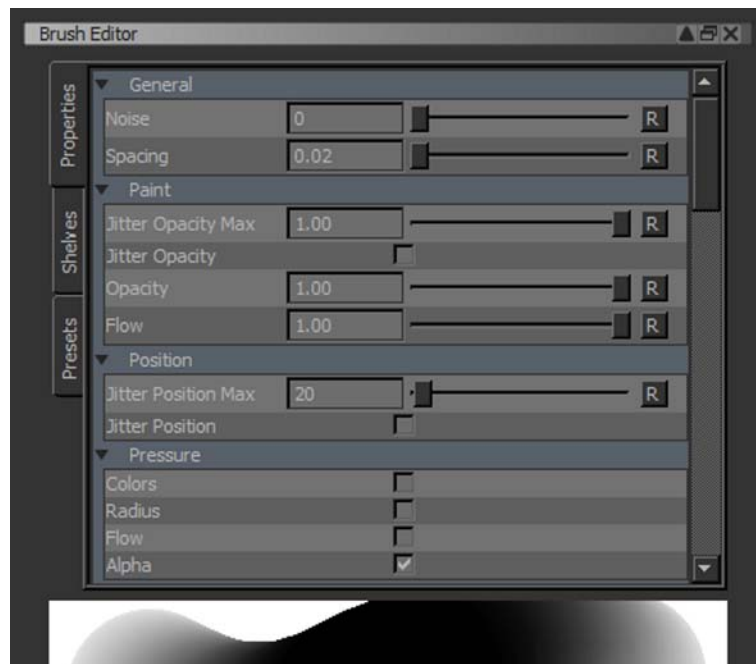


TIP: You can paint a straight line by:

- *clicking one end point, moving the cursor, pressing **Shift** and clicking the second end point.*
- *pressing **Shift** and holding down the mouse button while moving horizontally or vertically.*

Customizing Your Brush

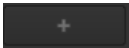
1. Open the **Brush Editor** palette.
*The **Brush Editor** displays.*




TIP: Resize the brush editor palette to minimize scrolling. There are many options for customizing your brush, including setting values for **Paint**, **Pressure**, **Radius**, **Rotation**, **Bitmaps** to use, **Geometry** and **Noise**. You can test the brush in the scratch pad at the bottom of the palette.


2. You can select a brush to modify from those available in your **Shelves**.


"Painting Through" an Image

- When you have finished editing a brush, click  to add it to the selected shelf.

- Open the **Image Manager** palette.
- To load an image, click , navigate to and select the image file, and click **Open**.

A thumbnail of the image displays, along with information about the selected image.

- In the **Tools** toolbar, click  (the **Paint Through** tool).
- Drag and drop the image from the **Image Manager** to the canvas.
- Adjust the image size and position:


To...	Do this...
Resize	Grab and drag its edges or corners, or press Ctrl+Shift then click and drag.
Move	Grab the "handle" in the center of the image (or press Shift and click anywhere on the image), and drag.
Rotate	Click and drag outside the image, or press Ctrl and drag inside the image. Press Shift when dragging outside the image to rotate in increments.
Crop	Double-click the image in the Image Manager , drag the area you want to crop, and click  .
Change the opacity	In the Tool Properties palette, select Texture > Preview , and change the Preview Alpha (enter a number or drag the slider). Pre-multiply alpha if your image has transparency.
Reset the image	In the Tool Properties palette, select Texture > Transform > Reset .

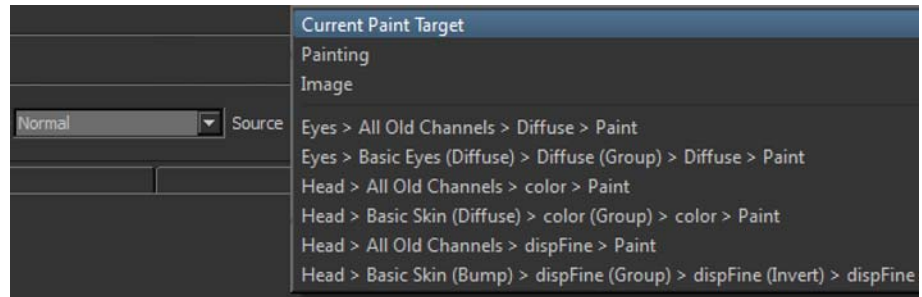
- Paint!



TIP: You can quickly switch between the **Paint** and **Paint Through** tools by pressing **P** and **U**. To hide the image, hold the **?** key, to paint the whole image onto the model in one step, press the **'** (apostrophe) key. Toggle repeat image to paint past the edge of the floating image and have the paint continue, by pressing the **;** (semicolon) key.

Clone Stamping

1. Click  to select the clone stamping tool.
2. Use the **Source** menu on the toolbar to select where to take the clone source from. You can choose from the current paint target, an image, or any of the paint layers in the project.



3. If you're using an image as your clone source, hold down the **Ctrl** key over the image and click to select the clone source point.




TIP: When cloning from a paint layer, you can clone directly from the surface. In this mode, the tool clones the paint from the paint layer surface straight up into the paint buffer directly above that point. This lets you copy the model's surface into the paint buffer so you can edit it and then re-bake.

To use this mode, hold down **Ctrl+Meta** (or **Windows** key) when you click to set the origin point.

4. Paint to clone your selection on the model.

Moving and Warping Paint

To move paint on the model before baking:




1. Click  to select the transform tool.
2. Left-click anywhere on the paint buffer and drag to move the painting around on the model.
3. **Ctrl**+left-click and drag to rotate the painting, or left-click and drag outside the paint buffer.

4. **Ctrl+Shift**+left-click and drag to resize the painting, or grab the corners of the paint buffer and drag.



TIP: The paint buffer is visible on-screen as a white box, but it may be larger than the view window and not visible. It becomes obvious if you move or resize the painting. To reset the paint buffer to its default values click the **Reset** button in the **Painting** palette under **Paint Buffer** > **Transform**.


To warp paint before baking:

Using this tool...	You can...
 Warp	Shift -click and drag to create a warp grid. Click and drag the points around to warp the paint. To increase or decrease the grid resolution, press the up or down arrow keys.
 Slerp	Use the Slerp Mode menu on the toolbar to set the mode (from Pull , Grow , Shrink , or Rotate). Click and drag to apply your effect. Erase distortion by selecting the Erase mode.
 Pinup	Shift -click to set "pins". Then click and drag to move the pins. You can use pins to protect parts of the paint that you don't want affected by the distortion.

Baking Paint onto the Model

To bake paint onto your model:


1. Make sure all patches you want to bake are selected.
2. Do one of the following:

Type shortcut key	or click on statusbar icon
B	



TIP: Whenever you change your view of the model, it bakes automatically. You can change this setting in the **Projection** palette if required.

Blurring Baked Paint

1. Click  to select the blur tool.

2. Left-click and drag to blur paint baked on the surface.



TIP: As with the paint tools, you can edit the blur brush tip. When you have finished blurring the paint, you need to bake.

12 EXPORTING AND IMPORTING

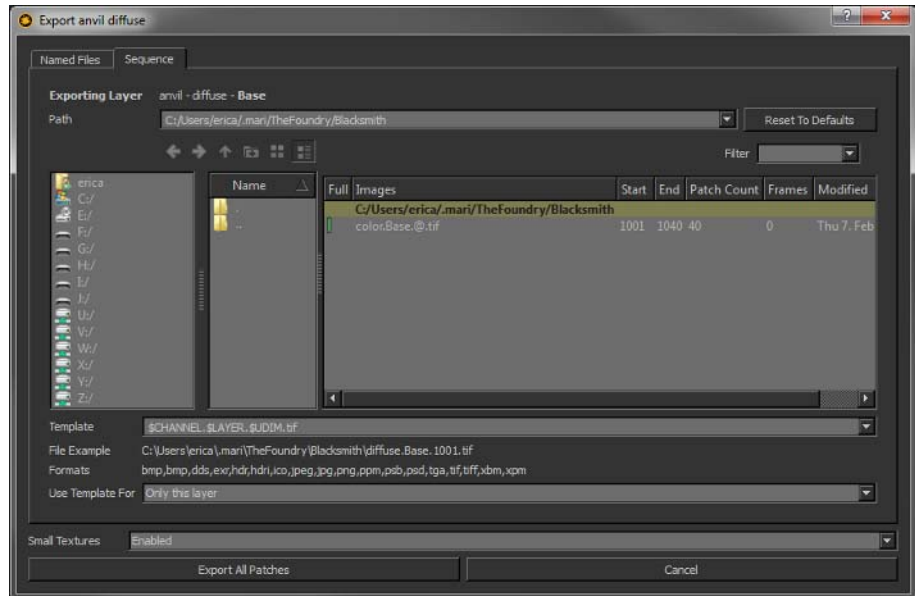
You can export and import both channels and layers in your project, both in 'flat' formats, such as TIF, and in layered formats, such as PSD or PSB. This is especially useful when exporting multiple layers or channels that you don't want to take up a lot of space, or when you want to use the final output of a channel in another application.

Exporting Channels

To export the current channel, select a single channel to export and do one of the following:

Select from the Channels menu	<i>or</i> right-click on the Channels palette and select
Export > Export Current Channel	Export > Export Current Channel
Export > Export Current Channel Flattened	Export > Export Current Channel Flattened

The *Export* dialog box displays.



To export all channels in your project, do one of the following:

Select from the Channels menu	<i>or</i> right-click in Channels palette and select
Export > Export All Channels	Export > Export All Channels
Export > Export All Channels Flattened	Export > Export All Channels Flattened

The **Export** dialog box displays.

To export everything in your project, including all layers, channels, and patches, do one of the following:

Select from the Channels menu	<i>or</i> right-click in Channels palette and select
Export > Export Everything	Export > Export Everything
Export > Export Everything Flattened	Export > Export Everything Flattened

The **Export All** dialog box displays.



NOTE: All of the methods for exporting textures shown above follow the same instructions once they reach the **Export** dialog:

1. On the **Sequence** tab, enter the **Path** where you want to store the export, or use the browse panes (the navigation panes below) to browse to it.
2. If you are looking for a specific folder or file, you can use the **Filter** field to specify a name or file format to search for.
3. For the **Template**, either use the default filename template or edit it as required.
4. Click **Export All Patches** (to export all patches in the current channel) to export with the settings you've chosen.



NOTE: If **Small Textures** is enabled, Mari exports any patches that you haven't painted yet, or have painted as a single color, as 8x8-pixel textures. When you start to paint on a particular patch, Mari exports it as the correct size.



NOTE: The steps above assume you are exporting a sequence of patches with the udim number (1001, 1002, etc.) in the file names. For more information on how UDIM numbers are allocated to patches, please see the section on Using UDIM Values in the Working with Patches chapter of the *Mari User Guide*.



NOTE: If you'd rather assign individual files to each patch, you can do so on the **Named Files** tab of the **Export Channel** dialog. Click the buttons on the right to open a file browser and pick a file for each patch. Then, click **Export All Patches** to export the files. Note that by default the **Named Files** tab doesn't display if you have more than 20 patches in your object. To change this number, you can use the **Patch Cutoff** preference or set the `MARI_NAMEDFILEIMPORT_SEQUENCELIMIT` environment variable to a new value.



TIP: Make sure you check the path and name carefully, especially if you have been swapping between assets — Mari defaults to the last place you've exported. Don't risk overwriting your textures!

Exporting Layers

To export selected layers, select any layers you want to export and do one of the following:

Select from the Layers menu	or right-click on the Layers palette and select
Export > Export Selected Layers	Export > Export Selected Layers
Export > Export Selected Layers Flattened	Export > Export Selected Layers Flattened

*The **Export** dialog box displays.*

To export all layers in the channel, do one of the following:

Select from the Layers menu	or right-click in Layers palette and select
Export > Export All Layer	Export > Export All Layers
Export > Export All Layers Flattened	Export > Export All Layers Flattened

*The **Export All** dialog box displays.*



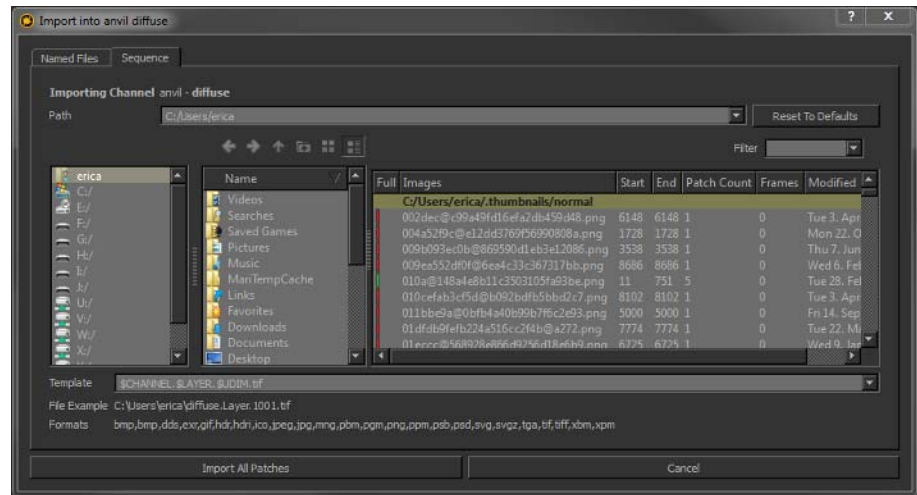
NOTE: All of the methods for exporting layers shown above follow the same instructions as for exporting channels once they reach the **Export** dialog. These instructions begin on step 1 on [page 47](#).

Importing Channels

To import into your current channel’s layer stack, do one of the following:

Select from the Channels menu	<i>or</i> right-click in Channels palette and select
Import > Import into Layer Stack	Import > Import into Layer Stack

The *Import* dialog box displays.



1. Enter the **Path** to the files to import, or use the browse panes (the two left-hand navigation panes) to browse to them.
2. If you are looking for a specific folder or file, you can use the **Filter** field to specify a name or file format to search for.
3. For the **Template**, either use the default filename template or edit it as required.
4. To import all patches from their matching files, click **Import All Patches**. This imports files with the settings you’ve chosen.



NOTE: The steps above assume you are importing a sequence of patches with the udim number (1001, 1002, etc.) in the file names. For more information on how UDIM numbers are allocated to patches, please see the section on Using UDIM Values in the Working with Patches chapter of the User Guide.



NOTE: If you'd rather assign individual files to each patch, you can do so on the **Named Files** tab of the **Import Channel** dialog. Click the buttons on the right to open a file browser and pick a file for each patch. Then, click **Import All Patches** to import the files. Note that by default the **Named Files** tab doesn't display if you have more than 20 patches in your object. To change this number, you can use the **Patch Cutoff** preference or set the `MARI_NAMEDFILEIMPORT_SEQUENCELIMIT` environment variable to a new value.

To import into a new channel, do one of the following:

Select from the Channels menu	<i>or</i> right-click in Channels palette and select
Import > Import into New Channel	Import > Import into New Channel

*The **Add Channel** dialog box displays.*

1. Follow the instructions for setting up a new channel in [Adding a Channel to a Project](#) on page 28, and when you've finished, click **Ok**.

*The **Import** dialog box displays.*

2. Enter the **Path** for the files to import, or use the browse panes (the two left-hand navigation panes) to browse to them.



NOTE: The steps above assume you are importing a sequence of patches with the udim number (1001, 1002, etc.) in the file names. For more information on how UDIM numbers are allocated to patches, please see the section on Using UDIM Values in the Working with Patches chapter of the User Guide.



NOTE: If you'd rather assign individual files to each patch, you can do so on the **Named Files** tab of the **Import Channel** dialog. Click the buttons on the right to open a file browser and pick a file for each patch. Then, click **Import All Patches** to import the files. Note that by default the **Named Files** tab doesn't display if you have more than 20 patches in your object. To change this number, you can use the **Patch Cutoff** preference or set the `MARI_NAMEDFILEIMPORT_SEQUENCELIMIT` environment variable to a new value.

Importing Layers

To import into the current layer, do one of the following:

Select from the Layers menu	or right-click in Layers palette and select
Import > Import into Layer	Import > Import into Layer

*The **Import** dialog box displays.*

To import as a layer in the current layer stack, do one of the following:

Select from the Layers menu	or right-click in Layers palette and select
Import > Import into Layer Stack	Import into Layer Stack

*The **Import** dialog box displays.*

1. Enter the **Path** for the files to import, or use the browse panes (the two left-hand navigation panes) to browse to them.
2. If you are looking for a specific folder or file, you can use the **Filter** field to specify a name or file format to search for.
3. For the **Template**, either use the default filename template or edit it as required.
4. Click **Import All Patches** (to import all patches from the file) to import with the settings you've chosen



NOTE: The steps above assume you are importing a sequence of patches with the udim number (1001, 1002, etc.) in the file names. For more information on how UDIM numbers are allocated to patches, please see the section on Using UDIM Values in the Working with Patches chapter of the User Guide.



NOTE: If you'd rather assign individual files to each patch, you can do so on the **Named Files** tab of the **Import Channel** dialog. Click the buttons on the right to open a file browser and pick a file for each patch. Then, click **Import All Patches** to import the files. Note that by default the **Named Files** tab doesn't display if you have more than 20 patches in your object. To change this number, you can use the **Patch Cutoff** preference or set the MARI_NAMEDFILEIMPORT_SEQUENCELIMIT environment variable to a new value.

13 ABOUT THE TUTORIALS

The tutorials included in this manual are:

- [Tutorial 1: Setting up a Mari Project](#)
- [Tutorial 2: Setting the View and Lighting](#)
- [Tutorial 3: Painting!](#)
- [Tutorial 4: Painting Through and Clone Stamping](#)
- [Tutorial 5: Exporting and Importing](#)


The tutorials are self-paced but designed to take roughly 10 to 45 minutes each. You might find yourself breezing through one while spending a lot of time on another to soak up details you're not quite sure about.

Download Sample Files

Sample files are provided for use with all of the tutorials. You can download these files from our web site at www.thefoundry.co.uk/mari and try Mari out on them. From the Mari product page, click on the **Demo Assets** link.

Tutorial Format

Mari tutorials include steps, which are the specific instructions for you to perform. Steps are organized into major actions. For example, all the steps involved in loading the geometry when creating a project are grouped on a page with the title "Load geometry". The individual steps are numbered, and describe what you should do and what happens in Mari. For example:

1. Next, to bring in the geometry, click  .

*The **Pick Mesh** dialog box displays.*

Note that the response to each step (what happens when you do it) is in *italics*, and the name of any dialog box or UI item that displays as part of that response is **bold**.

TUTORIAL 1: SETTING UP A MARI PROJECT

About this lesson

What This Lesson Teaches You

This lesson teaches you what Mari projects are, and how to create them.

What You Should Know Before Starting This Lesson

This lesson assumes:

- a basic knowledge of computers and graphics applications
- that you have read the *Mari Getting Started Guide* up to this point
- that you know how to start Mari (see [Launch Mari](#)).

Resources You Need to Complete This Lesson

To complete this lesson, you need access to a computer that can run Mari, and the following sample file:

- `blacksmith_body.obj`

How Long Should It Take?

Plan on spending about 20 minutes to complete this lesson.

About Mari Projects

A Mari project holds your work on geometries and associated textures. Once you've created a Mari project, you can work on it, save and close — and then re-open it to continue working on the same textures later.

Projects also hold other items, such as projectors, shaders, and so on. Mari saves some settings at the project level. For instance, each project has:

- a project **shelf**, to hold brushes, colors, and images for you to use specifically in that project, and
- contents of the various palettes — **Image Manager**, **Brush Editor**, and so on.

When you first create a project, you can specify its parameters, including:

- the details (such as resolution and color depth) of the initial channel in the project.
- the range of animation frames to import.

Steps for Creating Mari Projects

To create a Mari project, follow these steps:


1. [Open a New Project](#)
2. [Specify Project Options](#)
3. [Load Geometry](#)
4. [Save Your Project](#)

Open a New Project

1. Start Mari (see [Launch Mari](#)).

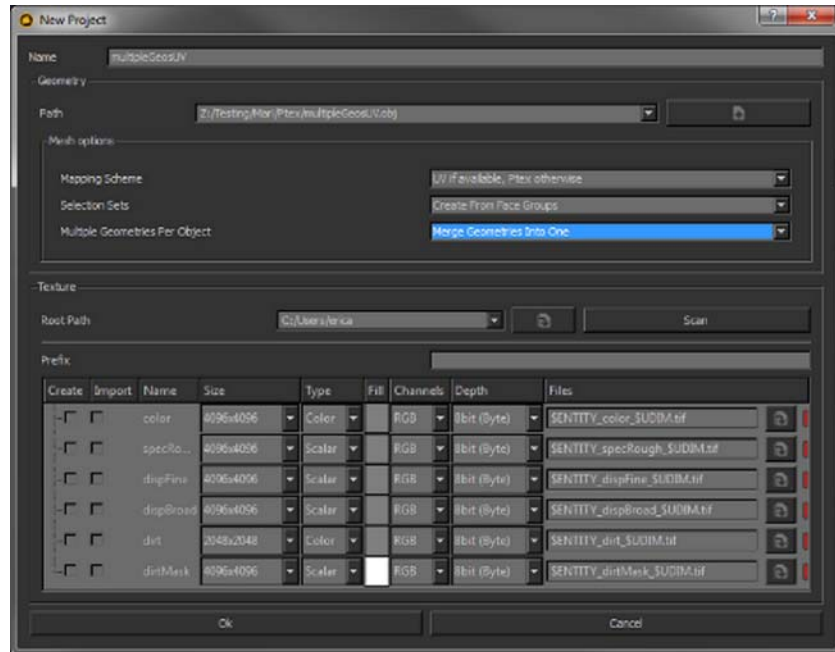
The Mari workspace displays, showing the **Projects** tab. This holds all the projects you have been working on.

2. As with most commands in Mari, you can select the **New Project** option a few different ways:

- from the **File** menu, select **New**,
- click  on the toolbar,
- click the **New** button,
- right-click in the **Projects** tab and select **New** from the dropdown menu, or
- press the **Ctrl+N** shortcut key.

Pick any one of the options above.

*The **New Project** dialog box displays.*



*The **New Project** dialog box has three parts:*

- **Name** — a name for your project.
- **Geometry** — the model you'll be painting on.
- **Texture** — parameters for the textures you'll be creating.

Next we'll specify the name and texture options, and then select the geometry.



NOTE: For more information on what kind of models Mari expects, see [Mari Model Requirements](#). This model displays with no errors. Mari loads the geometry and displays it in your workspace.

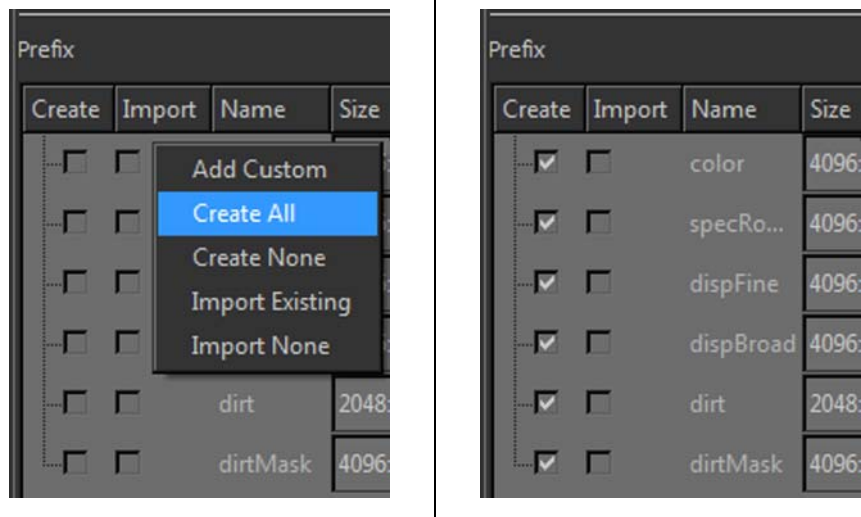


TIP: For more on the different options in the **New Project** dialog box — and other dialog boxes illustrated in this tutorial, see the Mari Reference Guide.


Specify Project Options

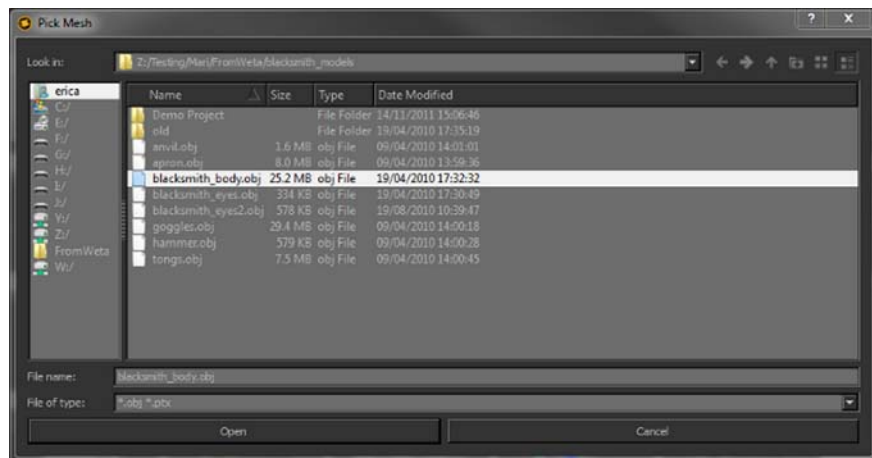
1. For the project **Name**, type **1-Blacksmith**.

- For the Texture options, right-click on the list of channels and select **Create All**.



Load Geometry

- Next, to bring in the Geometry, click .
The Pick Mesh dialog box displays.



2. Navigate to your tutorial folder, click to highlight **blacksmith_body.obj**, and click **Open**.



NOTE: When you load geometry, **Mesh Options** appear for the model you've entered in the **Path** field. For this tutorial, leave the mesh options as they are, but for more information on the **Mesh Options** refer to the New Project Dialog chapter in the *Mari Reference Guide* and the Ptex chapter in the *Mari User Guide*.

3. Click **Ok**.


Mari conducts a quick “sanity check” on the model to make sure there are no obvious problems. If there are any problems, it displays **warnings** or **errors**. If there are warnings, you can continue. If there are errors, you must stop and fix them.



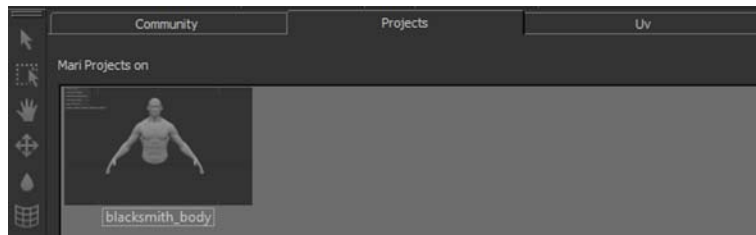
TIP: Depending on the size and complexity of a model, it can take several minutes the first time you load it into a Mari project. Once saved, however, the project should open quickly in future.

Save Your Project

Save your project — again you can do this a few ways:

- from the **File** menu, select **Save**,
- click  on the toolbar, or
- press the shortcut key **Ctrl+S**.

Mari saves the project into its cache directory. Now, if you click on the **Projects** tab at the top of the screen, you see your new project in the list.



Where Do You Go from Here?

At this point, you should have a basic idea of what a Mari project is and how to create one. You learned how to:

- Name the project.
- Set texture options.
- Load geometry.
- Save the project.

Next, you'll use this project to practice some basics about setting the camera and lighting on the geometry in your project, before you begin to paint on it. When you're ready, proceed to [Tutorial 2: Setting the View and Lighting](#).

TUTORIAL 2: SETTING THE VIEW AND LIGHTING

About This Lesson

What This Lesson Teaches You

This lesson teaches you how to open a Mari project, and then set the view and lighting on your geometry (before painting on it).

Setting the **view** includes:

- rotating
- zooming in or out
- panning
- viewing from six basic directions
- displaying a split view showing a 3D view plus UV patches

Setting the **lighting** includes:

- picking “flat”, “basic”, or “full” lighting,
- choosing whether to toggle shadows on or off,
- moving lights around and adjusting their properties.

What You Should Know Before Starting This Lesson

This lesson assumes:

- a basic knowledge of computers and graphics applications
- that you have read the *Mari Getting Started Guide* up to this point
- that you know how to start Mari (see [Launch Mari](#))
- that you have completed [Tutorial 1: Setting up a Mari Project](#).

Resources You Need to Complete This Lesson

To complete this lesson, you need access to a computer that can run Mari, and the following sample file:

- **1-Blacksmith** — the Mari project file you created in Tutorial 1

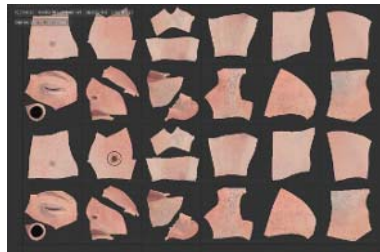
How Long Should It Take?

Plan on spending about 25 minutes to complete this lesson.

About Mari View and Lighting

The **view** in Mari is a view on the object you are painting. By default, Mari has four types of view:

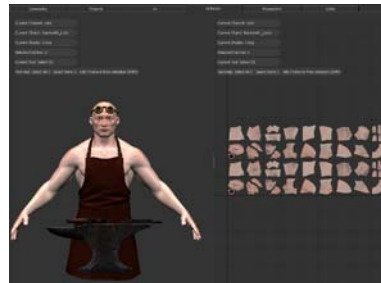
- **UV** — this gives you a “flat” view of the patches in the model.
- **Perspective** — this show the model as a whole in 3D space, through a perspective camera.
- **Ortho** — this shows the model as a whole in 3D space, through an orthographic camera.
- **Ortho/UV** — this is a split screen, showing both the UV patches and the orthographic view.



UV View






Ortho View



Ortho/UV View

You can move each view separately.



TIP: You can also use the , , and  toolbar buttons or the **F10**, **F11**, and **F12** keyboard shortcuts to activate a particular view on any tab.

Within the views, you can:

- **Spin** or **rotate** the model (3D views only). Spinning turns the model on one axis, while rotating lets you turn the model in all three axes. Think of spinning as like turning the model on a turntable, while rotate is turning it around in midair.
- **Pan** to move the view across the model.

- **Zoom** in or out.
- **Focus** on a selected patch.

You separately configure the **lighting** on the object, by choosing pre- set settings for “flat”, “basic”, or “full”, or specifying fine details such as shading parameters and separate lighting for each of the four configurable lights.

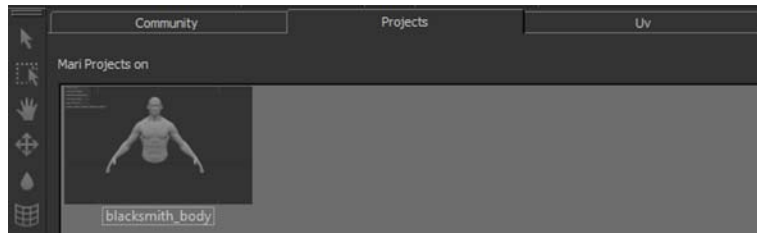
Steps for Setting the Camera and Lighting

To set the camera and lighting, follow these steps:

1. [Open Your Project](#)
2. [Adjust the View](#)
3. [Adjust the Lighting](#)

Open Your Project

1. Start Mari (see [Launch Mari](#)).
The Mari workspace displays.
2. On the **Projects** tab, double-click on your **1-Blacksmith** project to open it.



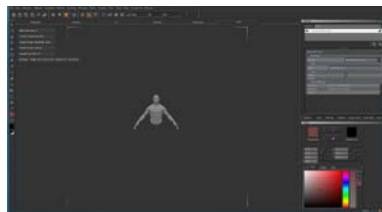
*Your project opens and switches to the **Ortho** view.*



Adjust the View

To adjust the view on your project, you can zoom, pan, rotate, choose one of six pre-set views, display your model and patches in a split screen, or use perspective and orthographic views.

1. To **zoom out** and **in**, hold down the **Alt** key, right-click and drag the cursor to the left and right.



2. To **pan**, hold down the **Alt** key and middle-click (or hold **Alt** and **Shift** and left-click and drag).

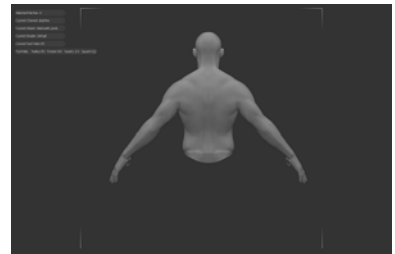


3. To **rotate**, hold down the **Alt** key and left-click and drag.

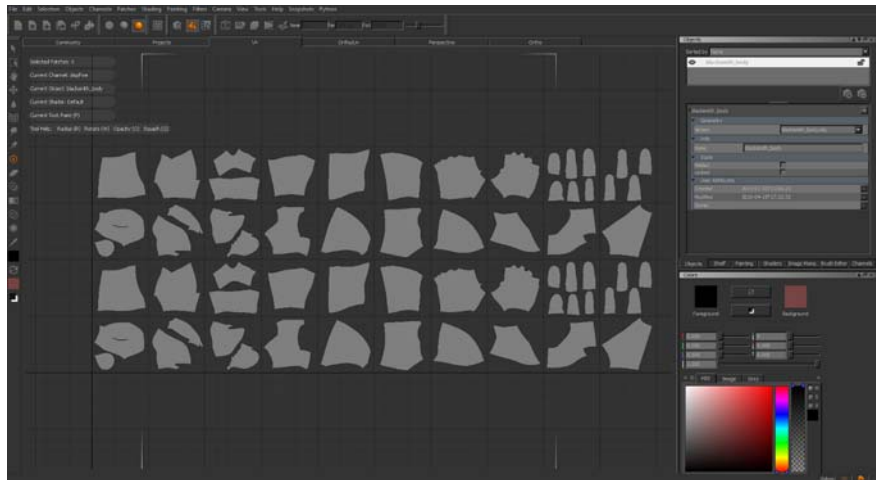


TIP: You can also “spin” around a fixed point by pressing **Ctrl+R**, left-clicking, and dragging. When you rotate or spin, the pivot point is located in the center of the current view.

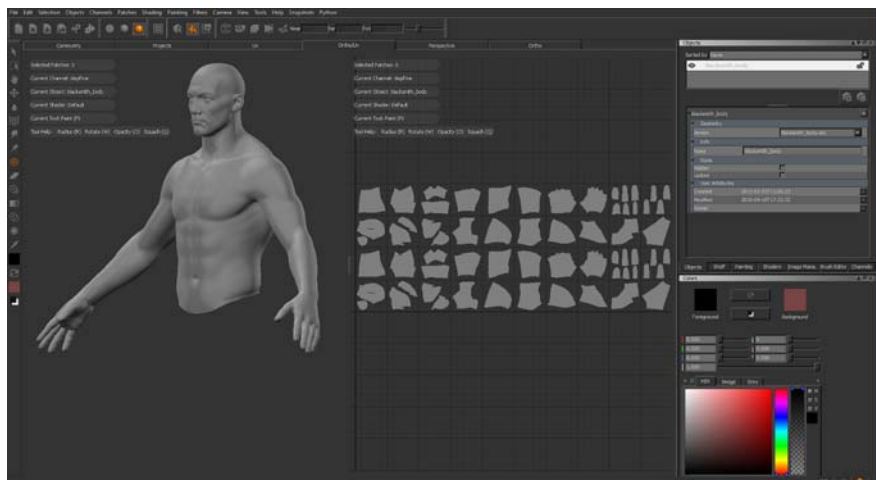
4. To view from six basic preset angles (camera “left”, “right”, “top”, “bottom”, “front”, and “rear”), press **1, 2, 3, 4, 5, or 6**, or select the angle from the **Camera** menu.



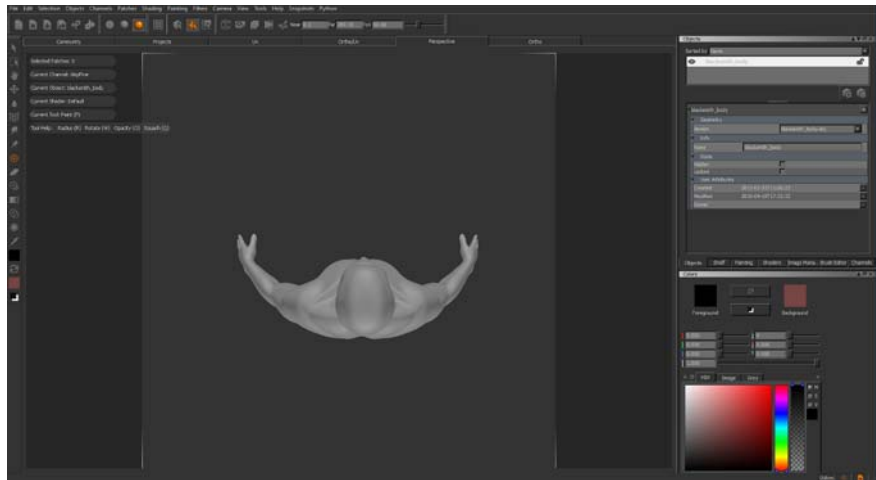
5. To see a flat view of the UV patches on the model, click the **UV** tab.



To see a split screen showing both the Ortho and UV views, click the **Ortho/UV** tab.

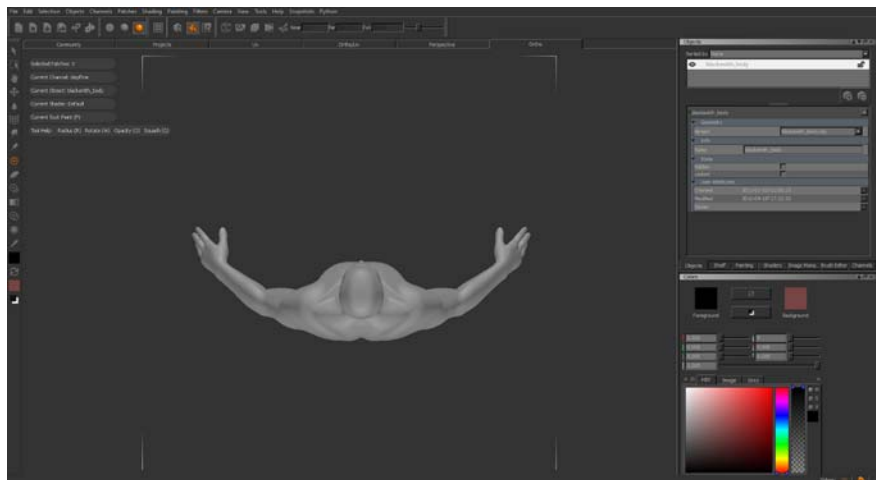


6. To see a perspective view of your model, click the **Perspective** tab (or press **F11**).



In the **Perspective** view, you can alter your model's appearance in the viewer by entering **Near**, **Far**, and **FoV** values in the **Canvas** toolbar. See chapter 2 in the *Mari User Guide: Set the perspective camera details* for more information.

7. To see an orthographic view of your model, click the **Ortho** tab (or press **F10**). This is the default view mode, that is, the view you see when you start Mari.



NOTE: The model is in the same position in steps 7 and 8; only the view mode has changed. Notice that the model's arms appear closer to the body due to the application of perspective.

8. To switch the view to display all selected patches, press **A**.

If you don't have any patches selected, the view focuses on the model as a whole (changing to show the whole model).

TIP: If you find that the view starts cutting through the front clipping plane, try pressing **A**.

9. To center the view at a particular place, move the cursor there and press **F**.

At the current size and angle, the view changes to center on the selected point.

TIP: You can paint in any of the views.




Moving the view bakes the current paint if **Bake Behavior** is set to **AutoBakeAndClear**. You can set this on the **Projection** palette, under **Projection** (if you can't see the **Projection** palette, select **View > Palettes > Projection** to display it).

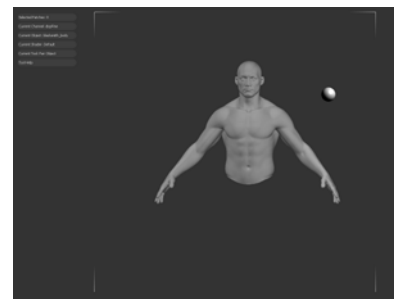
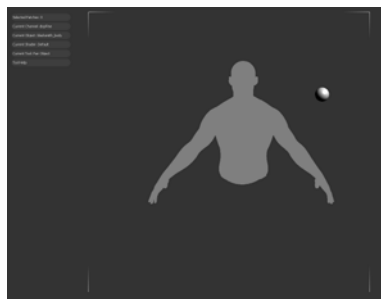


EXPERIMENT: Play around with zooming, panning, and rotating the camera. Try changing between **Ortho** and **Perspective** modes. Notice that objects closer to the camera distort far more than objects further away?


Adjust the Lighting

Mari comes with three lighting presets: flat, basic, or full. In basic and full modes, you can move the lights around the model.


1. To change the lighting:
 - from the **Shading** menu, select **Flat**, **Basic**, or **Full**, or
 - click , , or  on the toolbar.

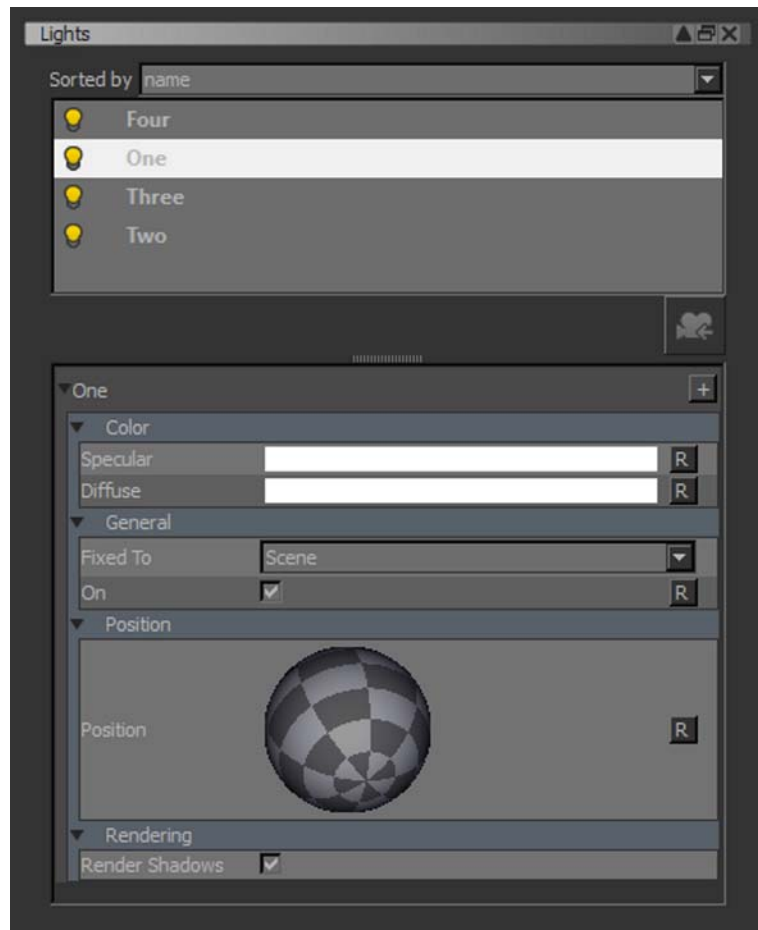




2. Notice the four lights in the viewport (you may need to select the **Pan Object** tool  to see them).

By default, the lights appear as gray spheres .


3. To move a light around, select the **Pan Object** tool  (if you didn't already). Click on a light and drag it around the viewport.
As you move the light, you can see the effect on the model.
4. You can also make fine adjustments to lighting using the **Lights** palette. If it's already open, click the **Lights** tab to give it focus; or if it's closed, right-click in the toolbar area on top of the Mari workspace and select **Lights** to open it.



*The **Lights** palette displays details of four lights, which you can enable or disable, and customize by adjusting their **Color** and **Fixed To** information — for details, see Chapter 2, “Customizing the view” in the *Mari User Guide*.*

5. Lighting can be relative to the **Scene** or a **Camera**:
 - **Scene** (default) — the light is fixed to the model, for example if a light is set at the model's back, it always points at the model's back, no matter how you move the view.
 - **Camera** — the light is fixed to a camera view, for example you can have a light always shining from above the camera, allowing you to move the model around and cast light on different areas.
6. A single light can be moved to the position of the current camera by right-clicking the light and selecting **Move to Camera Position** or clicking on the **Move to Camera Position** icon when the desired light is selected.
7. To choose whether to **Render Shadows** for an individual light, select the checkbox.

Shadows render and display immediately for the selected light.

8. Shadows can be enabled or disabled in the display by toggling the **Shadows**  icon in the **Lighting** toolbar or the **Shading** menu.



NOTE: Mari saves custom lighting with the project. If you need the same lights in another project, you need to set them up separately.

Where Do You Go from Here?

At this point, you should have a basic idea of the different options for adjusting the view and lighting on your model. You learned how to:

- zoom, pan, and rotate
- choose one of six preset angles
- toggle split view
- change to flat, basic, or full lighting
- move and configure lights.

Now that you know how to create a project, load geometry, and adjust the position of the view and lighting, you can (finally) begin to paint! When you're ready, proceed to [Tutorial 3: Painting!](#)

TUTORIAL 3: PAINTING!

About This Lesson

What This Lesson Teaches You

This lesson teaches you the basic steps to painting on a model in Mari. This includes:

- selecting a brush
- selecting a color
- painting with that brush and color

What You Should Know Before Starting This Lesson

This lesson assumes:

- a basic knowledge of computers and graphics applications
- that you have read the *Mari Getting Started Guide* up to this point
- that you know how to start Mari (see [Launch Mari](#))
- that you have completed [Tutorial 1: Setting up a Mari Project](#) and [Tutorial 2: Setting the View and Lighting](#).

Resources You Need to Complete This Lesson

To complete this lesson, you need access to a computer that can run Mari, and the following sample file:

- **1-Blacksmith** — the Mari project file you created in Tutorial 1 and configured in Tutorial 2

How Long Should It Take?

Plan on spending about 25 minutes to complete this lesson.

About Painting in Mari

Painting in Mari is similar to painting in other standard paint programs — you can choose and configure both brushes and colors, and then use them to paint an object. In Mari, you configure brushes through the **Brush Editor** and colors through the **Color Palette**. You also have the option of saving colors and brushes to your **Shelf** for easy access. The Mari **Shelf** comes with lots of presets, as well as any items you have created or customized for yourself (and saved there).

After you paint (also as with other programs), in Mari you need to **bake** the paint buffer into the object. Mari includes various ways of baking onto selected patches, including an **Autobake** option that bakes by default every time you move the camera.

Steps for Painting in Mari

To paint in Mari, follow these steps:

1. [Open Your Project](#)
2. [Open the Colors and Shelf Palettes](#)
3. [Select a Color](#)
4. [Select a Brush](#)
5. [Paint!](#)
6. [Bake Your Painting](#)

Open Your Project

1. Start Mari (see [Launch Mari](#)).
The Mari workspace displays.
2. On the **Projects** tab, double-click on your **1-Blacksmith** project to open it.
*Your project opens and switches to the **Ortho** view.*

Open the Colors and Shelf Palettes

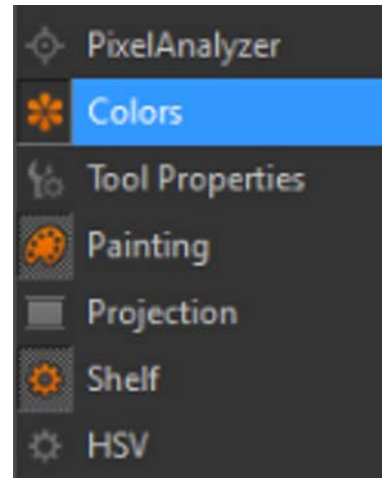
Basic painting on your model involves selecting a brush, selecting a color, and using them to paint. In the steps below, you'll select a color from the **Colors** palette and a brush from your **Shelf**. To begin, let's open and arrange those palettes.



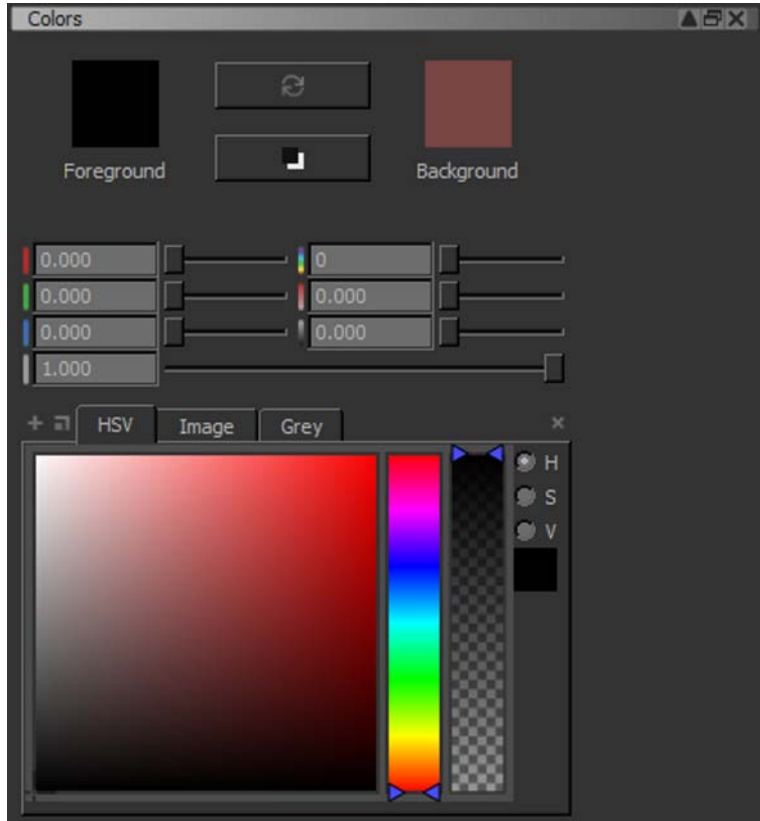
TIP: By default, the **Colors** and **Shelf** palettes are already open when you start Mari (but follow the instructions below to see how to open and close palettes).

1. To open the **Colors** palette:

- from the **View** menu, select **Palettes > Colors**, or
- right-click in the toolbar area and select **Colors** from the dropdown menu.

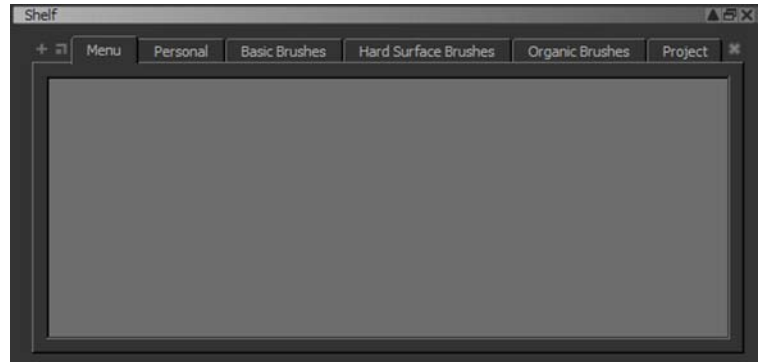


The **Colors** palette displays.



- To open the **Shelf** palette:
 - from the **View** menu, select **Palettes > Shelf**, or
 - right-click in the toolbar area and select **Shelf** from the dropdown menu.

*The **Shelf** palette displays.*



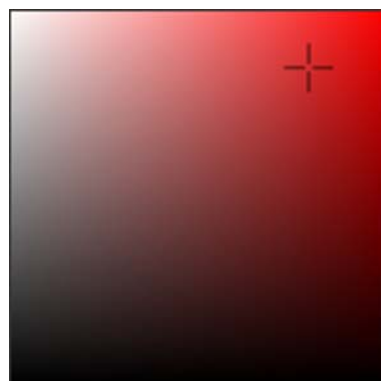
The shelf can hold your customized sets of colors and brushes — but when you first start Mari, the shelf is empty.



EXPERIMENT: The Mari Reference Guide outlines the different options for arranging palettes. Take a few minutes to experiment with docking, undocking, sizing, moving, collapsing, and stacking palettes (including the **Colors** palette and **Shelf**). Over time, you'll find a configuration that works best for you. And when you exit Mari, it remembers that configuration for the next time you re-start the program.

Select a Color

- You can select a color from the **Colors** palette a few different ways:
 - click in the color field

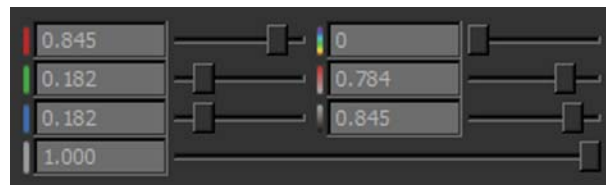


- click to select the **H**, **S**, or **V** next to the vertical sliders (to the right of the color field), then click and drag the sliders up or down to select color and alpha



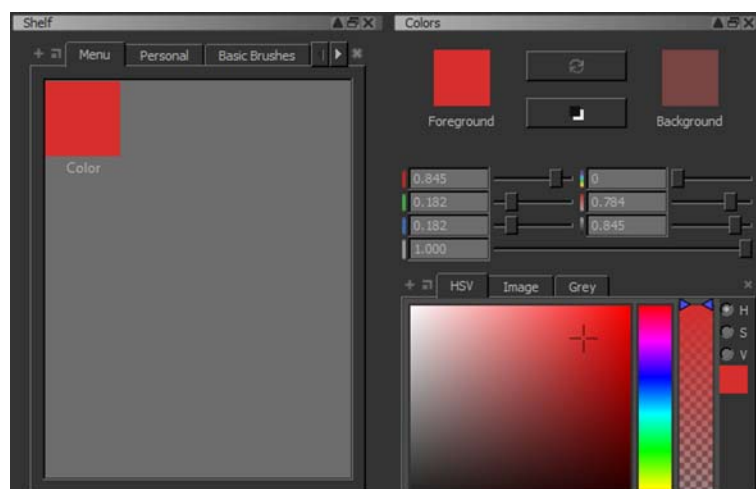
- drag the horizontal sliders left or right, or type specific values in the boxes, to specify:

RGB() or HSV() , and Alpha()



*The selected color displays in the **Foreground** swatch (and in the swatch to the right of the vertical sliders).*

2. When the color you want is selected in the **Colors** palette, drag the swatch to the **Shelf**.



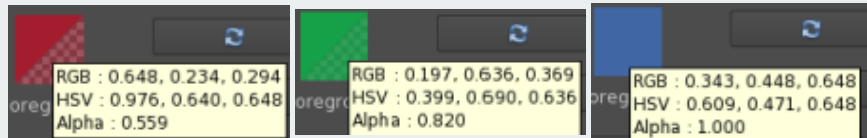
You don't have to drag the color to the shelf to use it, but it's useful for storing colors you use regularly.



EXPERIMENT: Play around with all the different options for selecting colors. See if you can get these:



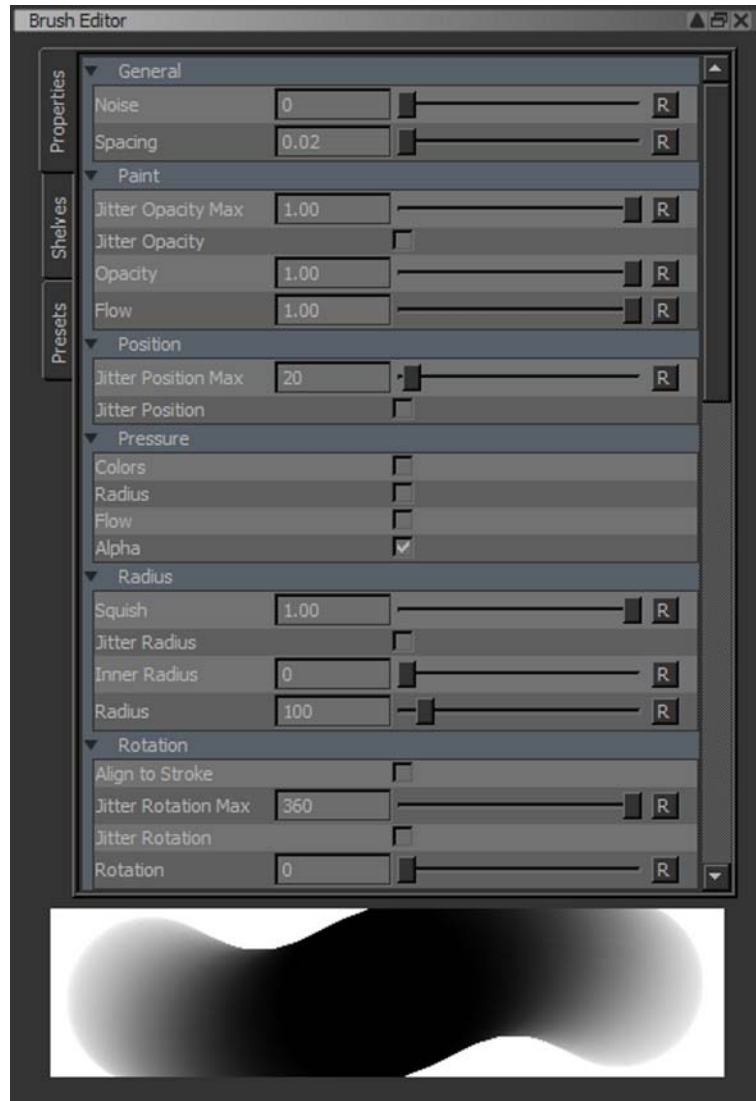
TIP: If you hover the mouse over a swatch, it displays RGB, HSV, and Alpha values:



Select a Brush

1. To select a brush, open the **Brush Editor** palette:
 - from the **View** menu, select **Palettes > Brush Editor**, or
 - right-click in the toolbar area and select **Brush Editor** from the drop-down menu.

*The **Brush Editor** palette displays.*

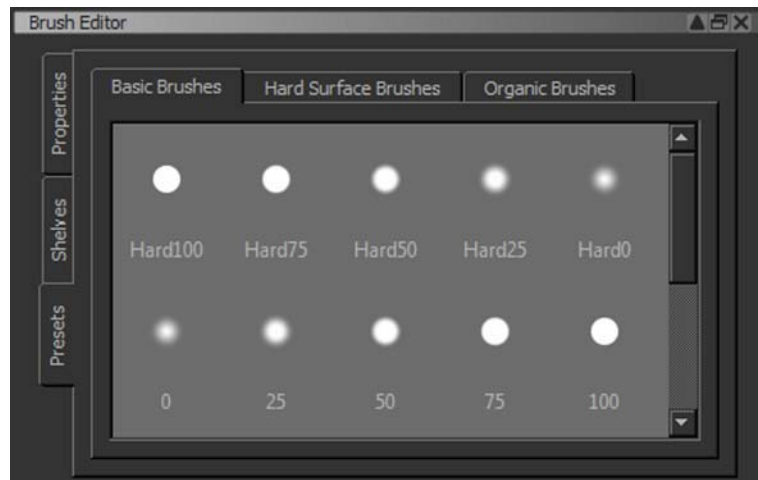


*The **Brush Editor** has three tabs:*

- **Properties** — configurable properties of the selected brush (see the *Mari Reference Guide* for details).
- **Shelves** — the same shelves that display in your **Shelf** palette.
- **Presets** — an array of predefined brushes that come with *Mari*.

2. Click the **Presets** tab.

Three tabs display along the top for different sets of predefined brushes.



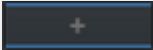
3. Click a brush to select it.



TIP: At the bottom of the **Brush Editor** is a scratch area for you to test out the selected brush. You can press **N** to swap back to the last brush tip you used. This lets you quickly swap back and forth between two brush tips.




TIP: You can also customize brushes from the **Brush Editor**, and save them to the **Shelf**. This is covered in the Mari User Guide, but basically involves:


- selecting a preset brush from the **Presets** tab
- custom-configuring that brush by selecting options on the **Properties** tab
- saving it by clicking the  button on the **Shelves** tab.

Paint!

1. When you have selected a color and a brush (from the **Colors** palette, **Brush Editor**, and/or **Shelf**), you can use them to paint on the model. First select the paint tool:

- click  on the toolbar, or
- press **P**.

Bake Your Painting

1. As with other paint programs, what you paint stays in a paint buffer until you “bake” it onto the model. To bake in Mari, make sure all patches with unbaked painting are selected, and then:
 - from the **Painting** menu, select **Bake**, or
 - click  on the status bar, or
 - press **B**.



TIP: The **Projection** palette also includes a **Bake Behavior** option, which by default (**AutoBakeAndClear**), automatically bakes every time you adjust the view.

2. When you exit Mari, **do not save** the project. (We'll start the next lesson with the unpainted blacksmith you imported in Tutorial 1.)

Where Do You Go from Here?

This lesson covered the most basic options for painting in Mari:

- selecting a color in various ways, and dragging it to the **Shelf**
- selecting a brush from the **Brush Editor**
- painting on the model and baking.

The next tutorial, [Tutorial 4: Painting Through and Clone Stamping](#), covers two main options for using images to create textures in Mari.

TUTORIAL 4: PAINTING THROUGH AND CLONE STAMPING

About This Lesson

What This Lesson Teaches You

This lesson introduces using images to create textures in Mari. This includes:

- “painting through” an image onto your model
- “clone stamping” part of an image onto your model

What You Should Know Before Starting This Lesson

This lesson assumes:

- a basic knowledge of computers and graphics applications
- that you have read the Mari *Getting Started Guide* up to this point
- that you know how to start Mari (see [Launch Mari](#))
- that you have completed [Tutorial 1: Setting up a Mari Project](#), [Tutorial 2: Setting the View and Lighting](#), and [Tutorial 3: Painting!](#)

Resources You Need to Complete This Lesson

To complete this lesson, you need access to a computer that can run Mari, and the following sample files:



- **1-Blacksmith** — the Mari project file you created in Tutorial 1 and used in Tutorial 2 and Tutorial 3
- **Tattoo.png** — an image of a tattoo, in your Mari tutorial directory

How Long Should It Take?

Plan on spending about 25 minutes to complete this lesson.

About Painting from Images in Mari

Like with other paint programs, Mari lets you superimpose image files onto the surface of an object. To manage image files, Mari includes the **Image Manager** palette. To paint with images you've loaded into the **Image Manager** palette, Mari has two main tools: **Paint through** and **Clone stamp**:

- The **Paint through** tool () lets you position an image *over* an object, and then as you paint, copy from the image directly onto what's under the brush.
- The **Clone stamp** tool () lets you position an image *alongside* an object, with a source point on the image relative to where the brush is on the object. Then as you paint, the source point on the image moves in sync with the brush on the object, and Mari copies from the image onto the corresponding spot under the brush on the object.

You can also clone stamp from painting already on an object, in the paint buffer, or in another channel.

Steps for Painting Through and Clone Stamping

To paint through and clone stamp in Mari, follow these steps:

1. [Open Your Project](#)
2. [Load an Image](#)
3. [Paint Through](#)
4. [Clone Stamp](#)

Open Your Project

1. Start Mari (see [Launch Mari](#)).
The Mari workspace displays.
2. On the **Projects** tab, double-click on your **1-Blacksmith** project to open it.
*Your project opens and switches to the **Ortho** view.*

Load an Image

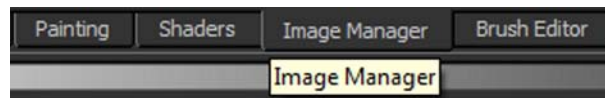
For both painting through and clone stamping, we'll use an image of a tattoo that looks like this:



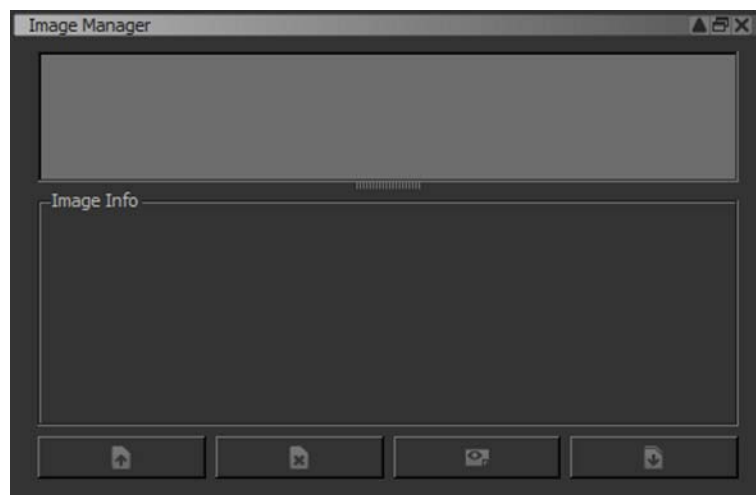
We'll start by loading that image in Mari's **Image Manager** palette.


1. To open the **Image Manager**:

- click the **Image Manager** tab if it is already open but hidden (as in the default Mari layout),

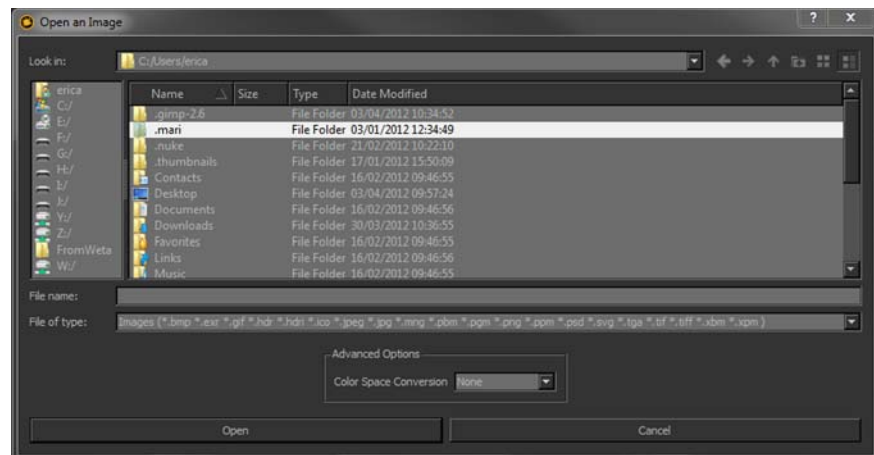


- from the **View** menu, select **Palettes > Image Manager**, or
- right-click in the toolbar area and select **Image Manager** from the dropdown menu. The **Image Manager** palette displays.



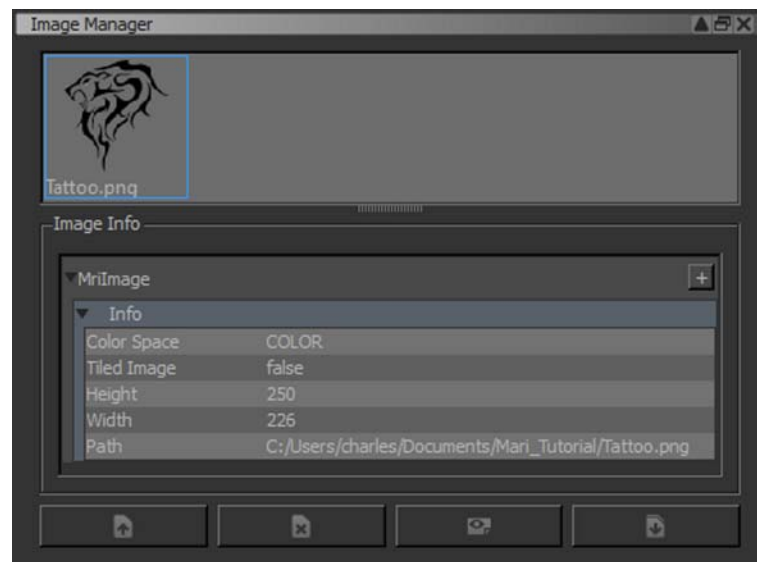
- To load an image, click .

*The **Open an Image** dialog box displays.*



- Navigate to your tutorial folder, and select **Tattoo.png**.

*The **tattoo.png** image displays in the **Image Manager**.*



Paint Through

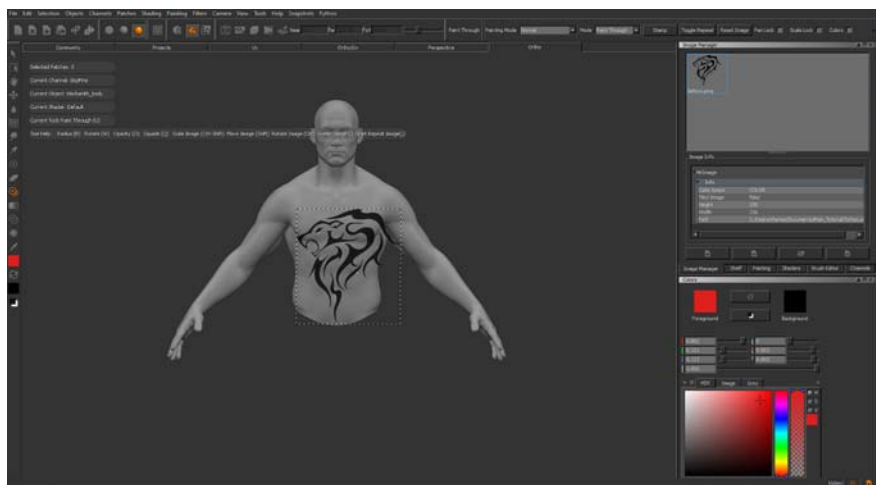
Painting through an image basically involves:

- selecting the **Paint Through** tool,
- dragging an image onto the canvas, and
- painting.

1. Select the **Paint Through** tool by:

- clicking  on the toolbar, or
- pressing **U**.

2. Drag the image from the **Image Manager** and drop it onto the model.



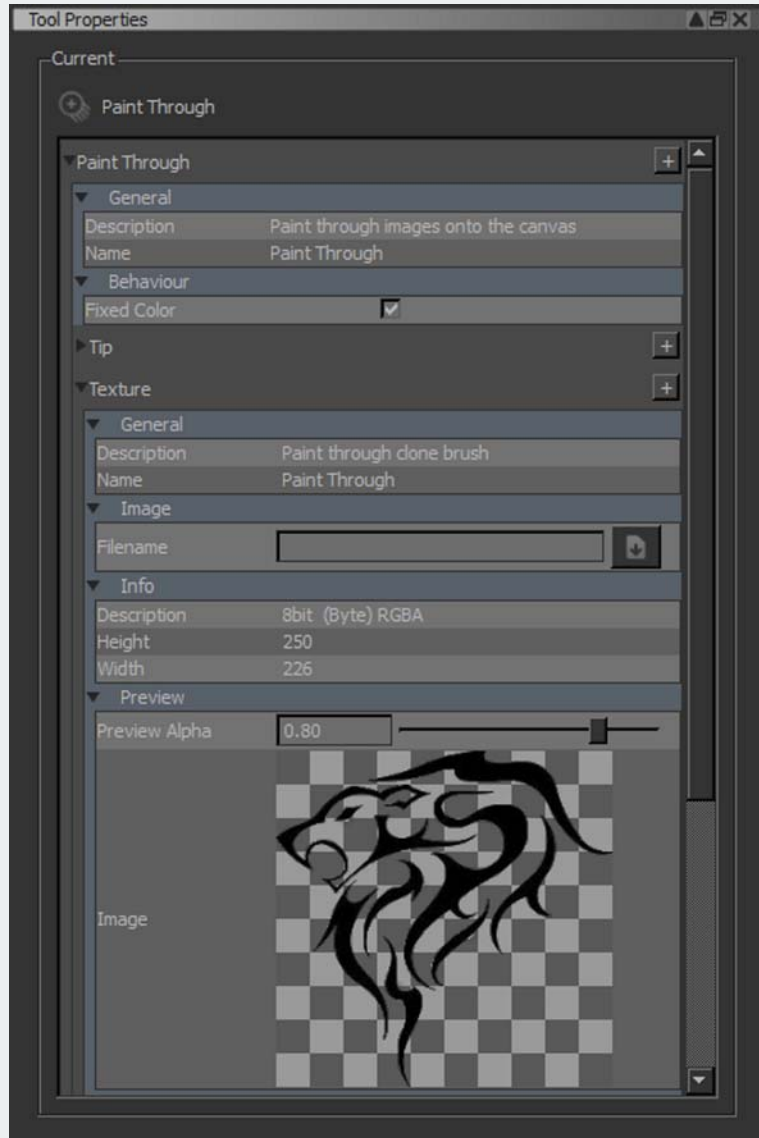
3. Move and resize the image:

- To resize the image, hold down **Ctrl+Shift**, click and drag.
- To move the image around the canvas, hold down **Shift**, click and drag.

- To rotate the image, hold down **Ctrl**, click and drag.



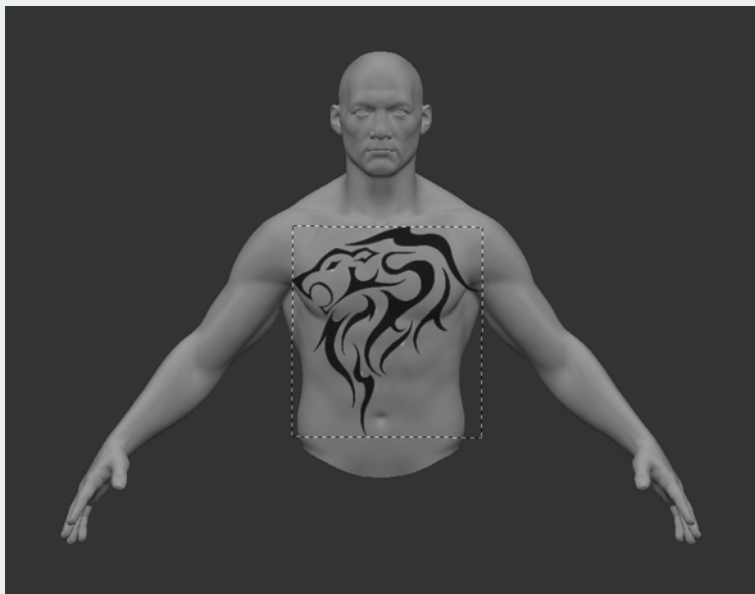
TIP: The **Tool Properties** palette includes many options for manipulating paint-through images.



You can also double-click the image in the **Image Manager**, and crop a smaller portion to use for painting through and clone stamping.



EXPERIMENT: Try sizing, moving and rotating the image. See if you can get it to look like this:




4. Paint through the image onto the model (hold down the left mouse button and move, as you do in any standard paint program).
5. When you're done painting through, press **P** to go to the **Painting** tool to see just the painted-on object.




TIP: To hide the overlying image, press the ? (question mark) key. To paint the whole image onto the model in one step, press the ' (apostrophe) key. To repeat the source image (so you can paint past the edges and have the source image repeat), press the ; (semicolon) key.

Clone Stamp

Clone stamping is like painting through, but the image does not have to sit directly on top of the model.

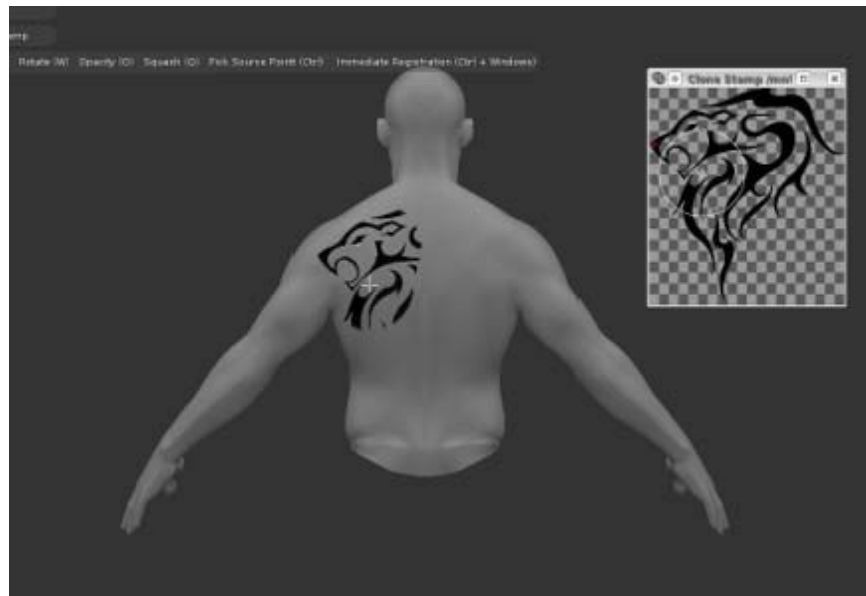
1. First, clear the painted-through textures:
 - from the **Painting** menu, select **Clear Painting**, or
 - click  on the toolbar.

This removes any un-baked painting on the model. In this case, the model re-displays as imported.

2. Select the **Clone Stamp** tool: click  on the toolbar.
3. Drag the image from the **Image Manager** and drop it onto the canvas.
The image displays in a separate window.
4. Re-size and position the image window alongside your model. To scale the image within the window, hold down **Alt**, right-click and drag. To pan the image, hold down **Alt**, left-click and drag.

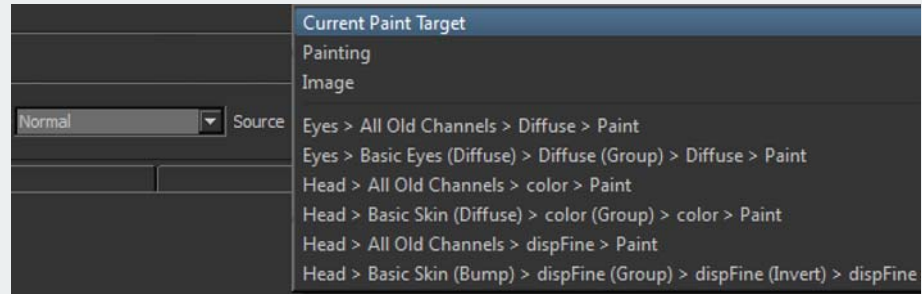


5. To select the source point for cloning on the image, press **Ctrl** and click. *Once you start painting, a magenta + displays the source point on the image.*
6. Once you've selected the source, you can paint. The cursor moves on the image in sync with the cursor on the model as it clone stamps from the image onto the model.





TIP: You can also clone stamp from existing textures — painted on the surface of the object, in the paint buffer, or painted in another channel. To select a clone source, use the **Source** menu in the **Project** toolbar and select from the origins available.



EXPERIMENT: Change the view (as covered in [Tutorial 2: Setting the View and Lighting](#)), and try both painting through and clone stamping the image onto another side of the object. Do you like one method of using images to paint more than the other?

Where Do You Go from Here?

This lesson covered the two main options for painting images onto a model:

- dragging an image and positioning it on top of an object, then **Painting through** the image onto the surface of the object
- dragging an image and positioning it on the canvas next to an object, then **Clone stamping** from a part of the image to the surface of the object.

The next tutorial, [Tutorial 5: Exporting and Importing](#), covers procedures for saving and re-importing your work.

TUTORIAL 5: EXPORTING AND IMPORTING

About This Lesson

What This Lesson Teaches You

This lesson explains how you can **export** channels or layers you've painted in Mari as a set of image files, then re-**import** them into your project. This familiarizes you with just a few of the methods for exporting and importing.

What You Should Know Before Starting This Lesson

This lesson assumes:

- a basic knowledge of computers and graphics applications
- that you have read the *Mari Getting Started Guide* up to this point
- that you know how to start Mari (see [Launch Mari](#))
- that you have completed tutorials 1 through 4 – so you know the basics of creating a Mari project, setting up the camera and lighting, and painting textures.

Resources You Need to Complete This Lesson

To complete this lesson, you need access to a computer that can run Mari, and the following sample files:

- **1-Blacksmith** - the Mari project file you created in tutorial 1 and used in tutorial 2, tutorial 3, and tutorial 4.

How Long Should It Take?

Plan on spending about 25 minutes to complete this lesson.

About Mari Exports

Mari includes the facility to **export** the painting in a project to a series of image files. You might use this, for example, to modify part of your work in an external program, and then re-**import** those modifications into the project. Mari lets you select formats and naming conventions for the export. Each export contains the painting baked in a selected channel, one image file per patch. When you import a series of previously exported files, Mari lets you know whether it's a complete set.

Steps for Exporting and Importing

To export and import Mari painting, follow these steps:

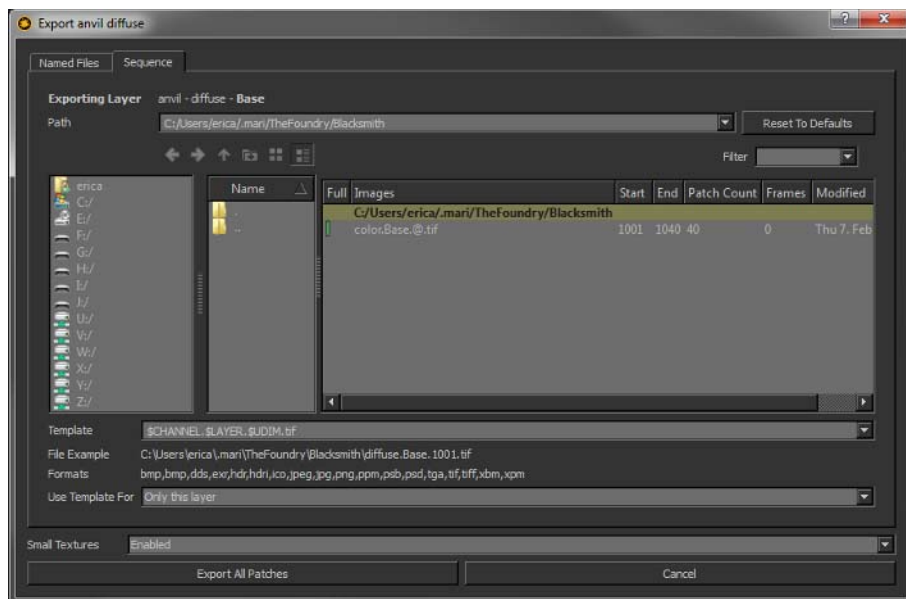
1. [Open Your Project](#)
2. [Export a Channel](#)
3. [Export a Layer](#)
4. [Import a Channel](#)
5. [Import a Layer](#)

Open Your Project

1. Start Mari (see [Launch Mari](#)).
The Mari workspace displays.
2. On the **Projects** tab, double-click on your **1-Blacksmith** project to open it.
*Your project opens and switches to the **Ortho** view.*

Export a Channel

1. To export the current channel, **Diffuse**, from the **Channels** menu, select **Export > Export Current Channel**.
*This exports the currently selected channel, **Diffuse**. To export any channel, right-click the channel you want to export in the **Channels** palette, and select **Export > Export Current Channel** from the dropdown menu.*
*The **Export** dialog box displays.*



2. If necessary, use the two left-hand navigation boxes to navigate to the folder you want to export to.
3. In the **Template** field, Mari names each image file in the export, one per layer and per patch, based on this template. The default is **\$CHANNEL.\$LAYER.\$UDIM.tif**.



Notice the **File Example** below it, which displays what a filename looks like with that template. In the illustration, it's: **diffuse.Base.1001.tif**. So each filename includes the following (with examples from the illustration):

- **\$CHANNEL** - the name of the channel you're exporting layers from: **Diffuse**.
- **\$LAYER** - the name of the layers you're exporting: **Base**.
- **\$UDIM** - an incremental number identifying each patch in those layers: **1001** (followed by **1002**, **1003**, and so on).
- **tif** - the extension for the selected file format. You can set the format for the exported files by changing this extension. Mari supports standard image formats (such as **.tif**, **.exr**, **.png**, **.jpg**, **.tga**, and **.dds**).



NOTE: For more information on UDIM number, please refer to the *Working with Patches* chapter in the *Mari User Guide*.



TIP: The formats available to export depend on the color depth of the channel. Channels with color set to Half-Float or Float can only be exported to **.exr**, **.psd**, and **.psb** format. On Windows, channels with color set to Half-Float or Float also can be exported to **.dds** format.

4. Set the **Use Template For** field to determine if the template above is used for **Only this layer** (to only use the template for the layer displayed at the top of the dialog) or **Everything** (to apply the template to all layers in the stack).
5. Click **Export All Patches**.
This exports all patches. You may be notified that the selected directory does not exist, and prompted about whether you want to create the directory.



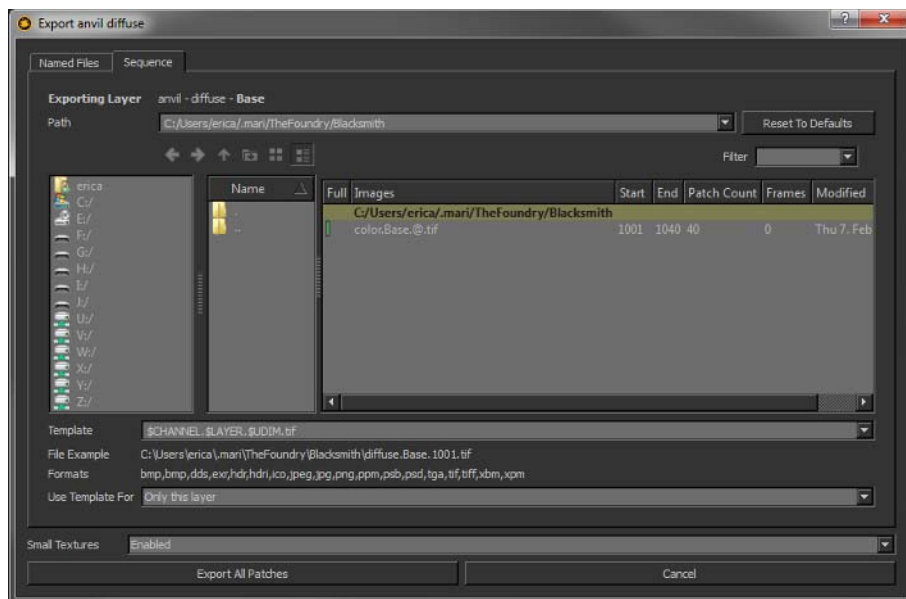
NOTE: If **Small Textures** is enabled, Mari exports any patches that you haven't painted yet, or have painted as a single color, as 8x8-pixel textures. When you start to paint on a particular patch, Mari exports it as the correct size.



TIP: For a complete explanation of export fields, see the *Mari Reference Guide* and the Exporting and Importing Textures chapter in the *Mari User Guide*.

Export a Layer

1. To export selected layers, from the **Layers** menu, select **Export > Export Selected Layers**.
*This exports any selected layers in the layer stack (in this case, **Base**). The **Export** dialog box displays.*



2. If necessary, use the two left-hand navigation boxes to navigate to your tutorial folder.
3. In the **Template** field, Mari names each image file in the export, one per channel, layer and patch, based on this template. The default is **\$CHANNEL.\$LAYER.\$UDIM.tif**.



Notice the **File Example** below it, which displays what a filename looks like with that template. In the illustration, it's: **diffuse.Base.1001.tif**. So each filename includes the following (with examples from the illustration):

- **\$CHANNEL** - the name of the channel you're exporting layers from: **Diffuse**.
- **\$LAYER** - the name of the layers you're exporting: **Base**.
- **\$UDIM** - an incremental number identifying each patch in those layers: **1001** (followed by **1002**, **1003**, and so on).
- **tif** - the extension for the selected file format. You can set the format for the exported files by changing this extension. Mari supports standard image formats (such as **.tif**, **.exr**, **.png**, **.jpg**, **.tga**, and **.dds**).



TIP: The formats available to export depend on the color depth of the channel. Channels with color set to Half-Float or Float can only be exported to **.exr**, **.psd**, and **.psb** format. On Windows, channels with color set to Half-Float or Float also can be exported to **.dds** format.

4. Set the **Use Template For** field to determine if the template above is used for **Only this layer** or **Everything**. If **Only this layer** is selected when attempting to export, Mari asks you for each individual layer whether you want to use the template. Setting the files to **Everything** can save time if you want all your selected layers to use the template.
5. Click **Export All Patches**.

This exports all patches.



NOTE: If **Small Textures** is enabled, Mari exports any patches that you haven't painted yet, or have painted as a single color, as 8x8-pixel textures. When you start to paint on a particular patch, Mari exports it as the correct size.

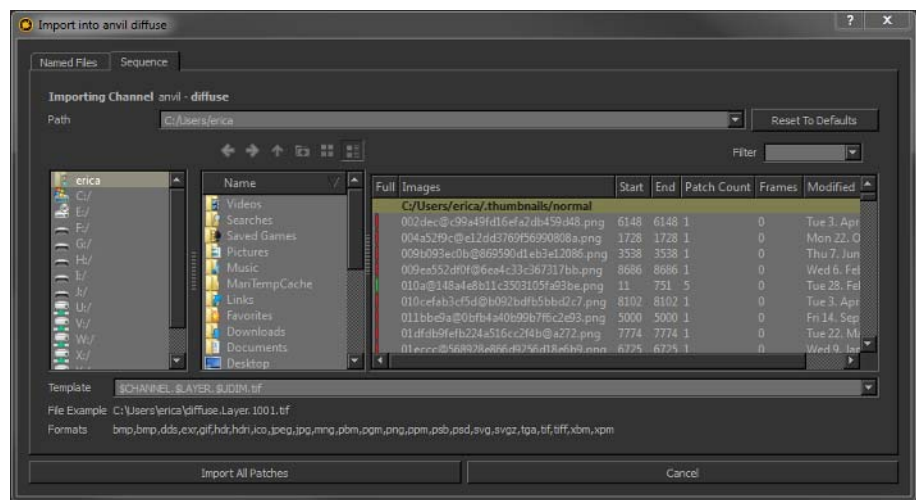


TIP: For a complete explanation of export fields, see the *Mari Reference Guide* and the Exporting and Importing Textures chapter in the *Mari User Guide*.

Import a Channel

- To import a channel (for example if you've tweaked some exported image files in another application and now want them back in your texture):
 - from the **Channels** menu, select **Import > Import into Layer Stack** for the currently selected channel, or
 - right-click on the channel where you want to import the textures (in this case, **Color**) in the **Channels** palette, and select **Import > Import into Layer Stack** from the dropdown menu.

*The **Import** dialog box displays.*



- Select the path for the imported images, by either:
 - typing it in the **Path** field at the top of the dialog,
 - clicking on it in your directory bookmarks (to the left), or
 - browsing to it in the middle panes.

If you are using the middle panes to browse to the directory, you can use the buttons above the view to navigate back, forward, up one directory level, create a new directory, or switch between icon-only and full-details directory views.
- Select the texture set to import.

Mari shows all the texture sets available under the selected directory, arranged by subdirectory.

For each texture set, the **Import** dialog box includes:

- Full** - shows a green bar if the selected image sequence has a full set of images for the current model, a yellow bar if the selected image sequence has a partial set of images for the current model, or a red bar if the selected image sequence has no images for the current model.

- **Images** - the name of each image to import, with the UDIM number represented as @ (in this case, **diffuse.@.tif**) and frame number (if present) represented as #.
 - **Start** and **End** - the first and last UDIM numbers in the image set (in this case, **1001** to **1055**).
 - **Patch Count** - the number of images in the set (in this case, **50**).
4. In the **Template** field, Mari names each image file in the import, one per layer and patch, based on this template. The default is **\$CHANNEL.\$LAYER.\$UDIM.tif**.



NOTE: Notice the **File Example** below the **Template** field, which displays what a filename looks like with that template. In the illustration, it's: **diffuse.Base.@.tif**

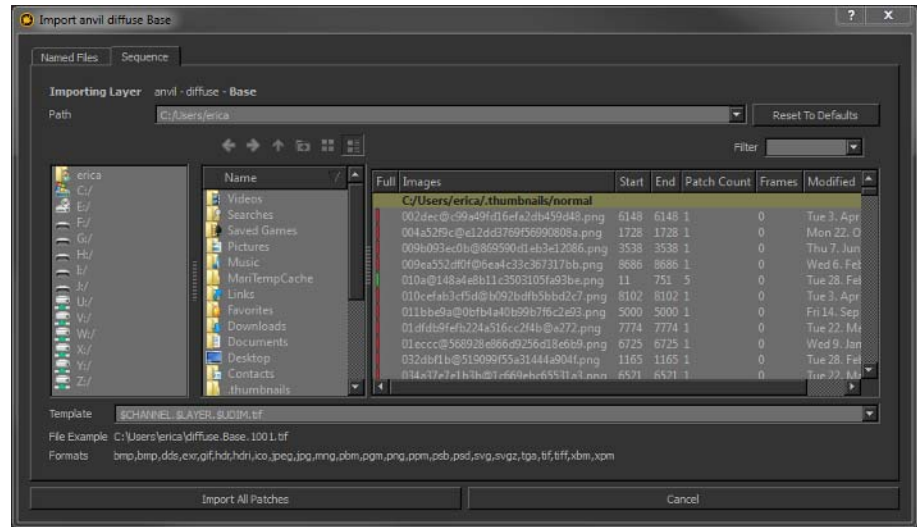
So each filename includes the following (with examples from the illustration):

- **\$CHANNEL** - the name of the channel you're importing: **Diffuse**.
- **\$LAYER** - the name of the layers you're importing: **Base**.
- **\$UDIM** - an incremental number identifying each patch in those layers: **1001** (followed by **1002**, **1003**, and so on).
- **tif** - the extension for the selected file format. You can set the format for the exported files by changing this extension. Mari supports standard image formats (such as **.tif**, **.exr**, **.png**, **.jpg**, **.tga**, and **.dds**).

5. Click the **Import All Patches** to import the files into your project.
Mari imports the textures from the selected files.

Import a Layer

1. To import textures into a layer, from the **Layers** menu, select **Import > Import into Layer**.
*This imports all selected textures into the current, selected layer (in this case, **Base**). The **Import** dialog box displays.*



2. Select the path for the imported images, by either:

- typing it in the **Path** field at the top of the dialog,
- clicking on it in your directory bookmarks (to the left), or
- browsing to it in the middle panes.

If you are using the middle panes to browse to the directory, you can use the buttons above the view to navigate back, forward, up one directory level, create a new directory, or switch between icon-only and full-details directory views.

3. Select the texture set to import.

Mari shows all the texture sets available under the selected directory, arranged by subdirectory.

For each texture set, the **Import** dialog box includes:

- **Full** - shows a green bar if the selected image sequence has a full set of images for the current model, a yellow bar if the selected image sequence has a partial set of images for the current model, or a red bar if the selected image sequence has no images for the current model.
- **Images** - the name of each image to import, with the UDIM number represented as @ (in this case, **diffuse.@.tif**) and frame number (if present) represented as #.
- **Start** and **End** - the first and last UDIM numbers in the image set (in this case, **1001** to **1055**).
- **Patch Count** - the number of images in the set (in this case, **50**).

- In the **Template** field, Mari names each image file in the import, one per channel, layer and patch, based on this template. The default is **\$CHANNEL.\$LAYER.\$UDIM.tif**.



NOTE: Notice the **File Example** below the **Template** field, which displays what a filename looks like with that template. In the illustration, it's: **diffuse.Base.@.tif**

So each filename includes the following (with examples from the illustration):

- **\$CHANNEL** - the name of the channel you're importing: **Diffuse**.
- **\$LAYER** - the name of the layers you're importing: **Base**.
- **\$UDIM** - an incremental number identifying each patch in those layers: **1001** (followed by **1002**, **1003**, and so on).
- **tif** - the extension for the selected file format. You can set the format for the exported files by changing this extension. Mari supports standard image formats (such as **.tif**, **.exr**, **.png**, **.jpg**, **.tga**, and **.dds**).

- Click **Import All Patches**.

This imports all patches.



TIP: For a complete explanation of export fields, see the *Mari Reference Guide* and *Exporting and Importing Textures* chapter in *Mari User Guide*.

Where Do You Go from Here?

This lesson showed you how to:

- **export** a current channel or selected layer in a Mari project to a series of image files.
- **import** textures into a channel's layer stack or into a selected layer, for example after having manipulated the exported textures in another program.

Congratulations! You have now completed all modules in the Mari Tutorials. To better familiarize yourself with the features you are particularly interested in or to get answers to specific problems that arise during painting, please refer to the accompanying Mari User Guide and Mari Reference Guide.