headus UVLayout v2.11

User Guide   -   27 Nov 2018

uvlayout.com/doc/User_Guide

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About UVLayout

UVLayout is a stand-alone application for the creation and editing of UV coordinates for 3D polymeshes and subdivision surfaces. Used by professionals in the games and visual effects industries, by hobbyists of all ilks and by students, UVLayout's unique approach gives texture artists the tools they need to produce high quality low distortion UVs in significantly less time than they would by traditional methods.

Over the following pages the UVLayout GUI will be described, working from the top to the bottom of the main window. Use the menu to the left to move through the various chapters. If you want to jump right into using UVLayout, you should at least read the Quick Start chapter.

Note: Sections tagged with a **[Professional Version Only]** label describe features only available in the Professional version of UVLayout. Click on the **[Professional Version Only]** link to cycle through these sections.

The top row of the UVLayout main window (see image right) consists of three buttons:

Pin

> Click on the gray button to the left to pin/save the current window position and size; UVLayout will then open up like that until a new shape is set.

About UVLayout

> Click on About UVLayout to find the application version and build date, to check for updates, to view the User Guide, and to change some preferences. See below for details.

Max

> Click on the gray button to the right to maximize the open windows; this moves the main GUI to the top left, and expands the graphics window to fill the remainder if the screen. Click the maximize button again to restore the previous window positions.

When you click on the **About UVLayout** button a window (see image right) pops up, showing the version and build date of the UVLayout that you are currently running.

Check For Updates

    Click this button to check if there's a more recent version to the one you're currently running. This will open up a window in your default web browser, and if more recent versions are available, details about the new features and bug fixes will be displayed.

Run Licensing GUI

    Opens up the headus licensing application, which will tells you various information about your system and any licenses you have. If you have a temporary license, it will also tell you how much time is left.

Install Maya Plugin

    If a Maya installation is detected, then this button will be visible, allowing you to install the plugin component with a single click. See the Maya Plugin chapter for details.

Try Professional Version

    This button will restart UVLayout in Professional version trial mode, with everything but the Save buttons enabled. This gives you the opportunity to test out all the features of UVLayout described in this User Guide and as shown in the training videos. *You'll only see this button when running the Demo or Hobbyist versions of UVLayout.*

Try Hobbyist Version

    This button will restart UVLayout in Hobbyist version trial mode. This gives you the opportunity to try out the features provided in that version of UVLayout. *You'll only see this button when running the Demo version of UVLayout.*

View User Guide

    Click this button to view a PDF version of the User Guide in your default browser. Its loading a file included in the software installation, so you don't need to be connected to the internet to view it.

Hotkeys

    This opens up a window that shows a list of the most common hotkeys used in UVLayout.
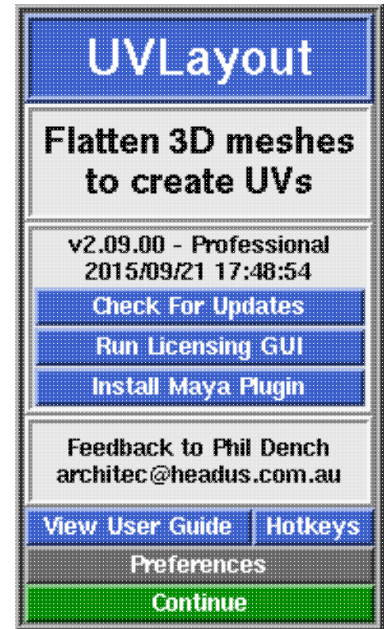
Preferences

Click on the **Preferences** button to open up the preferences panel. In there are a number of settings you can change that will be remembered next time you run UVLayout.

> Try CySlice Attach First
>> This setting only applies to UVLayout users with a combination of UVLayout and CySlice floating licenses. When turned on, UVLayout will check to see if a CySlice license is already allocated to that workstation; if it is, it'll attach to that license instead of looking further for a free UVLayout license.

> Home
>> This determines which directory is opened when the **Load** or **Save** buttons are first used. Under Windows it defaults to the user's home folder, and under Linux its undefined (i.e. "???"). When the Home directory is undefined, the Load/Save directory will be the same as where UVLayout was started from, so that's the Desktop if started from a Desktop icon, or the same as the shell window if started from a command line. To change the **Home** directory, click the right arrow, then browse and select the directory you want. To unset the **Home** directory, click the gray **Home** button.

>> **Note:** The **Home** directory is ignored if a file is drag'n'dropped onto the UVLayout Desktop icon. In that situation, the location of the dropped file is used for subsequent Load/Save operations.

> Map
>> When using the **T** hotkey, UVLayout cycles between error feedback, a checker pattern, and a mapped on texture map. You can change what this texture map is by clicking on the right arrow and browsing to the file you want to use.

> Trace Max Rez
>> When using the **Display** panel's **Trace** feature, the map you select is reduced to this size. If you have a modern graphics adapter with a large amount of texture memory, you can probably increase this value to get sharper looking background images.

> Free CPU Cores
>> For tools that can utilize multiple CPU cores, this preference tells UVLayout how many CPU cores you want left free for other work you might want to do. Set it to **0** and UVLayout will use all cores.

> Local Temp Files
>> When OBJ files are loaded or saved, temporary files are created as the geometry is converted from and to UVLayout's native format. By default these temp files are created in system temporary folders, but if you tick this option, they will be created in the same folder as the file being loaded or saved. If you're experiencing problems loading an OBJ, or saved OBJs are zero sized, turning this on may fix that.

Load Settings

Max Shells

> When an OBJ file is loaded in **Edit** mode, the number of UV shells is checked first; if there's more than this setting, the load is aborted and a message is displayed suggesting that the **Weld UVs** load option might be needed. If your mesh really does have more than the default of 2000 shells (e.g. individual leaves on a tree) then you can increase the shell limit here.
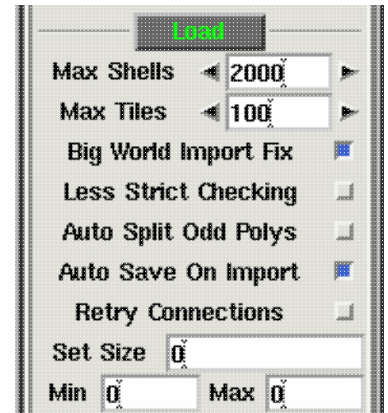
Max Tiles

> Also when an OBJ file is loaded, the overall bounding box of the UVs is checked, and if its larger than this value, an error is displayed. If the UVs of your mesh really do span over more than 100 tiles, then you can increase that limit here.

Big World Import Fix

> If you are importing objects that are part of a much larger world (e.g. a gargoyle on top of a cathedral), and experience things like collapsing shells while flattening, try turning this option on. It moves the objects to the origin on import, and moves them back out on export.

Less Strict Checking

> Be default UVLayout checks for problems in the geometry, such as non-manifold edges, and tries to fix them. If you tick this option, some of those problem areas will be ignored and left alone, though this may affect UVLayout's ability to flatten them correctly.

Auto Split Odd Polys

> Odd polys are ones that have collapsed UV coords; this is where two or more UV coordinates are welded together (imagine a quad in 3D space looking like a triangle in UV space). Selecting this option will split those odd polys away from the rest of the mesh and move them back into the Edit space, which then allows you to reflatten them to fix the problem.

Auto Save On Import

> Because the OBJ Import function is brand new, this option is on by default; it will save your current UVs before the additional mesh and UVs are loaded in.

Retry Connections

> If using floating licenses, the license server is checked each time a file is loaded. By default only one connection is attempted, but if you consistently get "cannot connect" type errors when loading a mesh, try turning this option on to retry the check if the first fails. This is only a work-around measure though; ideally you should investigate why the license server is so laggy (e.g. overloaded server or network connection?).

Set Size

When an object is loaded into UVLayout, the surface area is computed and an initial real-world to UV scaling is decided upon so that the flattened out object fills the UV square. When the UV shells are packed, this scaling is also adjusted. The aim of the scaling is to minimize wasted space in the UV maps, but the other effect is that the UVs for different sized objects will be at different scales.

If you want a fixed UV scaling across multiple objects, then enter a value into **Set Size**; this number is the size of the UV square in real-world dimensions. If you need a clue as to an appropriate value, load in the largest object you have, create its UVs as you normally would, then look up the current UV scaling under the **Move/Scale/Rotate** panel. If you then copy that value into the **Set Size** preference, all remaining objects you load will have UVs at the same scale as your largest object.

As a safety measure, if you have defined a **Set Size** value but an object being loaded is either less than 10 times smaller or greater than 10 times larger than that, the UV scale *isn't* set and a warning pops up. If you want to force the UV scaling for smaller objects, enter a value into the **Min** field. For example, if your **Set Size** is **100**, entering **1** into the **Min** field will force the UV scaling for objects up to 100 times smaller. Set the **Max** field to force the UV scaling of larger objects, but be careful here; if you raise it too high and load a huge object, UVLayout will slow right down as it tries to draw the hundreds of UV tiles you'll get when in the UV view.

Note: When changing any of the **Set Size** or **Min** or **Max** fields, make sure you type the **Enter** key to set and save the value.

Edit Settings

Undo Show

By default, Ctrl-Z Undo is enabled; the code is quite new and not extensively tested, so if you experience problems with it, click on the Undo button to turn it off. When Undo is enabled, the name of the previous action is displayed towards the top right of the graphics window, along with a small bar that indicates how full the Undo buffer is; to hide this information, click on the Show button to turn it off. The Undo buffer starts off at 100Mb, which means that UVLayout will use up to this amount of RAM when saving the undo restore information; if you are on a system with limited RAM, you may want to reduce this number, and conversely, increasing it on a larger system will give
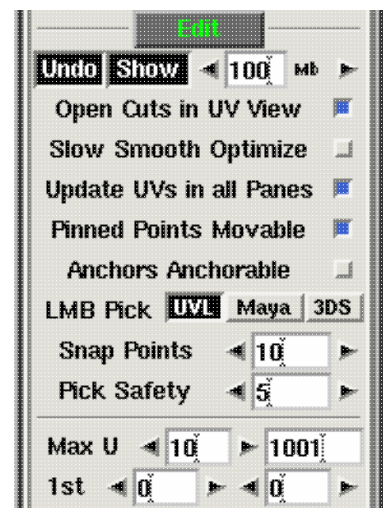
you more levels of undo.

Open Cuts in UV View

By default this is on, and it means that when you make **C** hotkey cuts in the UV view, the UVs pull apart slightly to create a gap. Turning this off means that the cuts will not open up.

Slow Smooth Optimize

By default this is on, and it means that when the **Optimize** is run, shells are redrawn at every flattening optimization step. This makes it look nice and smooth when its running, but the continuous redrawing does use a significant chunk of available CPU. By turning this off, the optimize will only redraw shells twice a second; even though it looks slower, the CPU is now spending more time flattening, and so it'll get to the optimal result quicker.

Update UVs in all Panes

When this is ticked, all display panes update when you make interactive changes to the UVs. If you are editing detailed meshes, this may slow down the response, so turning this off will improve that.

Pinned Points Movable

Select whether pinned points can be moved with Shift-MMB.

Anchors Anchorable

Selects whether anchor points will snap to other anchor points when being moved.

LMB Pick

Choose your preferred method for left mouse button picking of shells in the UV view. Either original UVLayout flavor, or Maya, or 3DS Max picking methods.

Snap Points

Sets the distance in pixels for UV point to point snapping.

Pick Safety

Sets the number of pixels from a vertex before an edge becomes selectable.

Max U

Where tile udims are displayed or used in any way, this preference selects how those tile numbers are calculated. The first setting is the maximum number of columns, and the default of **10** is the industry standard. The second setting is the number of the first unit tile, and **1001** again is the standard value, but can be changed if required.

1st

Where tile U and V values are displayed or used, this preference selects what numbers are given to the first unit tile. Typically this will be either **0,0** or **1,1**.

Save Settings

Set All UVs on Save
> Normally only flattened polys will be saved
> with UVs. Enabling this preference will
> force UVLayout to assign a planar projection
> to any unflattened polys when the mesh is
> saved out to OBJ files.

Full Name Quick Saves
> By default, the Tmp and E buttons and the
> auto save will create files called tmp#.uvl, edit##.uvl and auto#.uvl in the
> same folder as the loaded mesh. If you are editing multiple meshes in the
> same folder, you may want to tick this option; the quick save files will then
> start with the name of the original mesh.

Auto Update on Save
> Earlier versions of UVLayout would save out simplified OBJ files that just
> included the geometry and UVs of the loaded object, and a separate **Update**
> button was used to merge the edited UVs back into the original OBJ file if
> required. This process is now automatic, so all saved out OBJ files are direct
> copies of the original imported OBJ file with just the UV coords changed. If
> you want the original behavior, untick this option.

Auto Save
> Select the number of minutes between auto saves, and up to 5 files are
> created in a cycle (i.e. 1 to 5 and then back to 1). Set this to "0" to turn off the
> auto save feature.

DXF Export mm to in
> By default, UVLayout will export DXF patterns (flattened geometry) with all
> dimensions in inches, where the loaded mesh is assumed to be in millimeters.
> That is, the exported DXF patterns are 25.4 times smaller than the imported
> OBJ geometry. Untick this option to turn this scaling off and export the DXF
> patterns at the same scale as the imported OBJ geometry.

OBJ Export Grouped V
> By default, all vertex information is written into exported OBJs at the start of
> the file. If you tick this option, then the vertexes are grouped in with the
> faces; this resolves problems that might occur if the vertexes are grouped
> separately to the faces when importing into Maya.

OBJ Export Restore V
> By default, the vertexes of exported OBJ files may be very slightly offset
> from the original vertex positions. To fix this, turn on this option to preserve
> exactly the coordinate values from the original imported OBJ.

Mouse Settings

Mouse Buttons

> Sometimes UVLayout will get confused about the number of buttons your mouse has, particularly if you're on a laptop and are swapping between an external mouse in an inbuilt touch pad without completely rebooting. This may affect things like the Space-MMB or Ctrl-MMB actions to move shells and points around. You can use this setting to force UVLayout to treat the mouse as though it has the number of buttons you select. *Note: If you change this setting, you will need to reload your object for the change to come into effect.*
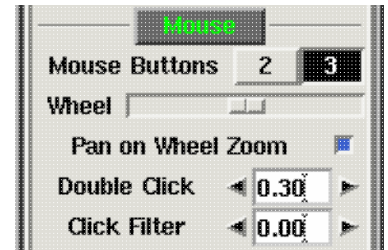
Wheel Slider

> Move the slider to the right to increase the power of a wheel mouse's zoom function. Move it to the left to decrease the power, and go all the way to the left to turn off the zoom function completely.

Pan on Wheel Zoom

> When this option is ticked, the view will pan as well as zoom, shifting the view focus to the section of the model that the mouse cursor is aiming at. Most other 3D applications just zoom about the center of the window, so if you prefer that, untick this option.

Double Click

> Under OS X and Linux, this sets the double click speed, in seconds, for navigation actions in the file selection windows. If, for example, you are having problems double clicking a file to open it in the UVLayout Load window, then increase this setting. Under Windows you would need to use the standard Windows Mouse control panel to adjust the double click speed.

> This settings also controls the double tap speed for hotkey actions like the edge straightening **Double-S**. If you find you can't tap keys fast enough, increase this value. Adjusting the double tap speed works under OS X, Linux and Windows.

Click Filter

> In extremely rare cases (just one user report so far), either because of a mouse setting or faulty mouse, UVLayout gets two click events for every one physical button click. Increase the filter value here to ignore the second click.

GUI Settings

Restore GUI Panels

> If you turn this on, then panels opened up when you exit UVLayout are reopened the next time UVLayout is run.

File List Rows

> Sets the number of files/folders displayed in the file selection dialogs.

GUI Always on Top

> Turn this on to force the GUI windows to always stay on top of the 3D window if they're overlapping. *Linux and Mac OS X only.*

Keyboard Event Push

> By default, UVLayout will automatically push keyboard events between the GUI and graphics windows. This allows you to press a button in the GUI, then move the mouse pointer to the graphics window and use a keyboard hotkey without first having to select that window. You can turn that off with this preference, but there wouldn't be any reason to do this normally. *Windows only.*

Double Buffer Only

> To help speed up some actions, UVLayout will occasionally draw into the front display buffer. On some OS/hardware combinations though, drawing into the front buffer can cause problems. If you notice odd things happening in the display window, then turn this option on. *On Mac OS X systems, this is on by default, and shouldn't be turned off.*

OpenGL

> This sets the vertex mode for the OpenGL drawing. By default its on **Mixed**, which normally works fine. On some display hardware/driver combinations though, this can result in very poor drawing performance. If you experience that, try either **Double** or **Int**. If you click on the **OpenGL** button itself, that will launch an automatic calibration test that will determine the best OpenGL setting for your system.
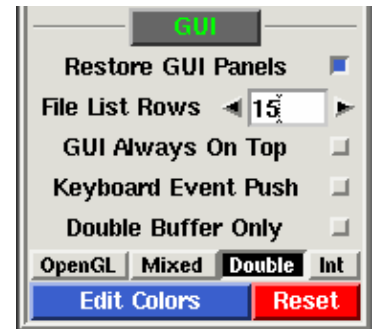
Edit Colors

> Click this button to pop up the color preferences panel. Click on any of the colored buttons to adjust the RGB sliders. Click the **Reset** button to return all colors to their default values.
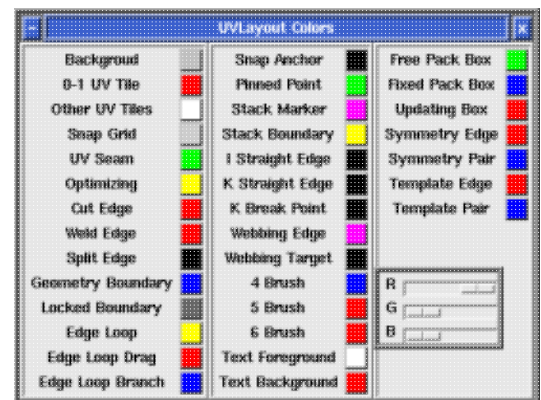
Load/Save

This section of the main UVLayout window contains all the buttons used to load and save files.

Load

The main way to load files into UVLayout is to drag'n'drop them onto the **headus UVLayout** desktop icon. Files in UVLayout's own UVL format can also be double clicked to open them up. And finally, if UVLayout is already running, you can use the **Load** button to load a new file.

When loading OBJ or PLY files, there's a few options to choose between:

SUBD / Poly

> If the mesh being loaded is the control cage for a subdivision surface, then make sure that SUBD is selected. The subdivided surface will the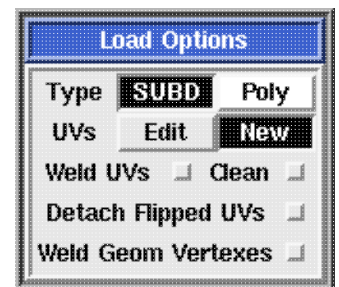n be used in the flattening calculations, rather than the control cage itself, producing more accurate results. If the mesh isn't a subdivision surface, then select Poly.

Edit / New

> If your mesh already has UVs and you want to reflatten them to reduce distortion, select Edit. Otherwise, select New to delete any existing UVs and start with a clean slate.

Weld UVs

> If the loaded mesh has seams (green edges) between adjacent polys, reload with this option ticked. It'll weld all co-incident UVs together, but could break the OBJ Update tool and point correspondences between morph targets.

Clean

> If the loaded mesh has non-manifold edges (i.e. an edge is shared by more than two faces) then ticking this option will fix the problem geometry as its loaded. The clean will also remove duplicate faces. A summary of the changes made will be displayed once the file has been loaded.

Detach Flipped UVs

> Tick this option if you want flipped polys in UV space to be detached into separate shells.

Weld Geom Vertexes

> If there are geometry seams (blue edges) between seemingly continuous surfaces, then reload with this ticked to weld those up. Currently this triangulates the mesh also, so its recommended you only do this if you really have to.

Import

Where **Load** will replace the existing mesh with the selected file, use **Import** to add another mesh into the current scene. This will allow you to copy or share UVs between the meshes, and also do things like pack shells across two or more meshes to share a single UV map.

After clicking **Import** and selecting the file, it will appear as a pink tinted mesh in the scene. You can temporarily move it around with **Space-MMB**, rotate with **Space-LMB**, and scale with **Space-RMB**.

Also a new row of buttons will appear in the main GUI window:

Cntr

> To quickly move the imported mesh into position over the existing mesh, you can click the **Cntr** button (i.e. Center) and then move it to the side with **Space-MMB**.

Size

> The scale of the imported mesh is quite important; it will affect whether already flattened shells in the imported mesh need to be scaled up or down to match the texture density of the existing mesh. If you click the **Size** button, the imported mesh will be resized so its surface area is the same as the surface area of the existing mesh. This is usually a safe option if you aren't sure what to do here.

Add

> When you are happy with the position and size of the imported mesh, click the **Add** button. The display window will close and re-open with the existing and imported meshes combined, and now you can copy UVs and pack shells etc.

Del

> If you change your mind about importing the selected file, click the **Del** button and the pink tinted mesh will be discarded.

> Currently only OBJ files can be imported. If you want to import a PLY or UVL file, you will need to load those separately first and save them as OBJ before importing. You can run more than one UVLayout at once, so there's no need to close the currently loaded mesh if you ever need to do this.

Save All

When saving your work, you have a choice between three file formats; UVL, PLY or OBJ:

UVL

> UVLayout's own format that saves the current edit state, including which faces have been detached, dropped or flattened, and which edges have been 'C' tagged. You should use the UVL format if you're part way through flattening a mesh, and want to restart at a latter time.

> UVL is the default format, so for example, if you type "fish" into the Path field, the ".uvl" extension gets added automatically and the scene is saved into "fish.uvl".

OBJ

Use the OBJ format to export or import UVs to and from other applications.

To save out an OBJ file, add ".obj" to the typed in filename.

PLY

PLY format files are more compact than OBJ files, but few applications know about them. They're included here mainly as a link between UVLayout and CySlice.

To save out a PLY file, add ".ply" to the typed in filename.

Save Marked

To save out just part of the loaded mesh, first mark those polys with the **G** hotkey, then click the **Save Marked** button.

If you have imported one or more additional files, and only want to save out one of the loaded files, then you can quickly mark polys from the **Groups: File** list. Just LMB click on the filename in the list and all its polys will be marked.

Currently only OBJ files can be saved out in the way.
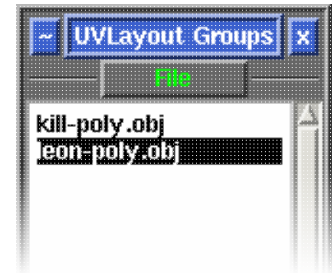
Tmp/E Buttons

The **Tmp 1** to **5** buttons can be used to quickly save the current scene into temporary files, named *temp1.uvl* to *temp5.uvl*, that can be loaded later on if something goes wrong.

The buttons are color coded:

Red	- most recent save, can't be overwritten
Orange	- other saves
Greeny Orange	- oldest save
Green	- not yet used

The **E** button also saves the current scene, but into files named *edit01.uvl*, *edit02.uvl* etc, always creating the next unused filename in the sequence.

You can also enable a regular auto save using the **Auto Save** setting under the **Preferences** panel.

To include the name of the original mesh into the quick save files, tick the **Full Name Quick Saves** preference.

Update - Older Versions

The Update button pops up a file selection window where you can select a previously loaded OBJ file that you want to update with the current UVs. The original file isn't overwritten though; a new file called **whatever-uvlayout.obj** is created, which is a copy of the original file with all the material/grouping information preserved and only the UVs changed.

Note: In the current release of UVLayout, this blending of the new UVs with the loaded OBJ file is automatic, so you only ever need to use the **Save** button. The **Update** button will be hidden away, and only appears when it might be needed, such as when you've loaded a UVL file that was saved out from an earlier version of UVLayout.

File Selection GUI

UVLayout's File Selection window is divided into four main areas; the directories list, the files list, the full path, and the action buttons (see diagram to the right). In the directories area, the sub-directories in the current directory are listed, along with "..", the current directory's parent. In the files area, the files in the current directory that match the filter are listed. In the path area the full path of the current directory, and selected file, is displayed. And finally, in the buttons area are the buttons you use to preview the selected file, to load/save the selected file, or abort from the load/save operation.
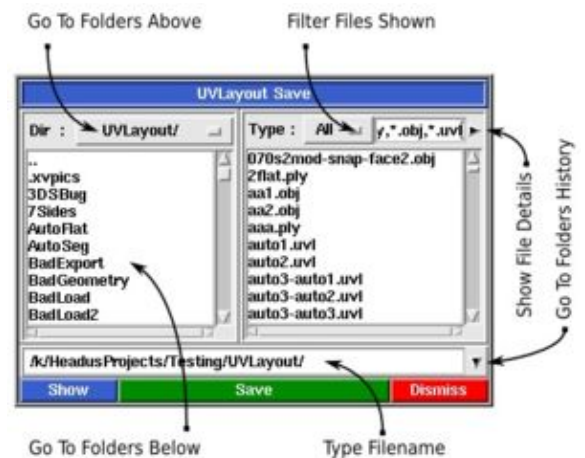
To change directory:

- Type the name in the File input field and hit <Enter>.
- Or double click on directory name to go down one level.
- Or double click on '..' (first entry in list) to go up one level.
- Or click on 'Dir:' option button to go up multiple levels.
- Or click the 'Dir:' button for standard directory selection (Windows only).
- Or click the history arrow for previously accessed directories.
- You can use '~' (tilde) for your home directory.
- You can use '.' by itself to go back to the original directory.

To access the Desktop (Windows Only) and other filesystems:

- Use the 'Dir:' option button to select '/'.
- Or type '/' in the File input field and hit <Enter>..

To change the files listed:

- Change the Filter input field and hit <Enter>. You can use '*', '?' and '[a-z]' wildcards.
- Or pick one of the listed file types from the 'Type:' option list.

To select a file:

- Type the name in the File input field, and hit <Enter>.
- Or single click on file name in the files list, then hit the green button.
- Or double click on file name in the files list.

The other buttons:

- Hit Show to preview the selected file (not always available).
- Or hit Dismiss to stop selecting files.

To get more information about the listed files, click on the black right arrow after the Filter input field. Click on the 'Filename', 'Size' or 'Modified' labels to sort the list by that value.

Display

Open up the **Display** panel to change how the loaded polymesh is displayed.

Persp/Ortho
> Switch between Perspective and Orthographic projection.

Up X/Y/Z/Free
> Select the "Up" axis for the loaded mesh. By default its Z-up, which is standard among CAD applications, but many popular animation programs use Y-up. So if you load your mesh and its lying on its side, try the Y-up or X-up options to get it up the right way. The **Free** option turns on free rotation; UVLayout won't try and keep the object upright, and so you can tumble the view beyond the normal camera lock points.

Light Slider
> Move the slider to move the light source from right to left. Click the gray **Light** button to cycle between four different levels of ambient lighting, from none to full and a couple of levels in between. The default is a small amount of ambient lighting.

X-Ray Slider
> Move the slider to the left to make the mesh more and more transparent. You can use this see, and pick, obscured edges that might be hard to access normally.

View UV/Ed/3D
> Switch between UV edit, 3D edit and 3D textured views. Use the ? hotkey to find out what other hotkeys are available in each mode.

Color Error / 4/5 / Local
> Switch between "flattening error" and 4/5 keys or Local "rescale" coloring of polys when in the UV view.

Trace
> Click the Trace button to load an image in the background when editing UVs. Use the first slider to fade the background in and out, and the second slider to change the transparency of the flattened geometry. The loaded image will also display mapped onto the mesh in the 3D view as one of the **T** hotkey texture cycles. Click Trace a second time to turn the background image off.

> Alternatively, if want to show the standard checker patterns in the UV editing background, also click the Trace button but then click the red **Dismiss** button in the file selection window. This will turn that feature on, and the sliders can be used to adjust the transparencies. Click Trace again to turn the checker pattern background off.

[Professional Version Only]

Smooth SUBD UVs
> When turned off, UVs are linearly subdivided when SUBD surfaces are displayed in smooth shading mode. When turned on, UVs are smoothly subdivided; this is equivalent to Renderman's Smooth UVs
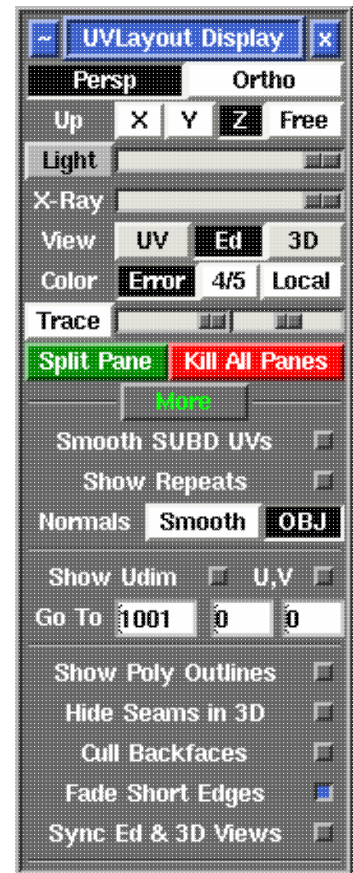
option (hard boundary, smooth interior). This toggle only applies to the display of textures, and doesn't affect the flattening in any way.

Show Repeats

Ticking this will draw ghost copies of the visible shells into surrounding tiles. It will also change the behavior of the Render tool, outputting just the single 0 to 1 tile, but wrapping the graphics around for shells that extend beyond that tile. And finally the tile coverage feedback operates in the same way, showing the stats for just the 0 to 1 tile, but accounting for shells that wrap around.

Normals Smooth/OBJ

When shading the mesh with the **T** hotkey texturing, use average smooth normals, or normals imported from the OBJ file (if any are defined).

Show Udim / U,V

Ticking either of these will display the tile numbers in the UV view.

Go To

Type a Udim value or U and V value here, followed by the **Enter** key, and the view will zoom to that tile.

These last settings are effectively Display preferences, as they are remembered between UVLayout sessions.

Show Poly Outlines

Shows the polygon outlines when the mesh is drawn in the **T** hotkey textured 3D views.

Hide Seams in 3D

Hides the green UV seam lines when the mesh is drawn in the 3D view.

Cull Backfaces

Hides backfacing polys from the 3D views. For example, if you are editing a scene that consists of geometry inside a closed room, ticking this option will allow you to see the internal geometry easily (i.e. the front walls will be hidden).

Fade Short Edges

Fade out then hide the wire lines for very short edges. Especially useful when editing dense meshes, as it allows you to see more clearly the color feedback shading on polygons.

Sync Ed & 3D Views

If you move the camera in an Ed or 3D view, then all other cameras to these spaces will move as well.

Panes

When you first start UVLayout, you only see one view at a time of the loaded object in the display window. You can quickly switch between the **UV**, **Ed** and **3D** views with the **1**, **2** and **3** hotkeys, but if you prefer to see multiple views at one, you can create multiple panes inside that one window.

Split Pane

> This splits the current pane into two. If you only have the single view window up, it'll create two equal sized panes within that space. Initially the newly split panes have the exact same view, but you can use the **1**, **2** or **3** hotkey at any time to change a pane's view mode. The view mode of each pane is shown in the title bar.

Kill All Panes

> You can kill individual panes by clicking on the **X** at the top right of the pane frame, but if you want to get rid of them all at once, click this button. It will take you back to the default single view window.
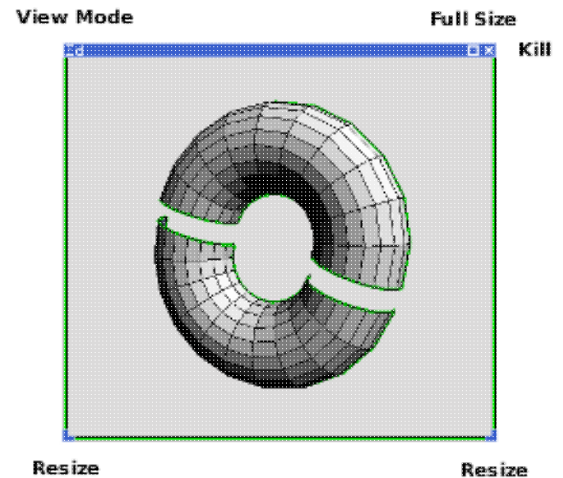
Moving and Resizing

> To move a pane within the window, **LMB** click'n'drag any part of the pane frame or title bar. To resize a pane, **LMB** click'n'drag either of the bottom left or right corners. To make a pane temporarily full size, click the square icon towards the top right of the pane frame.

Saving Panes

> If you have an arrangement of panes that you would like to use every time you run UVLayout, click the grey "pin" button to the left of the main GUI window **About UVLayout** button. This will save the pane positions and view modes, any they will be restored whenever you load a new object into UVLayout.

Hotkeys

Open up the **Hotkeys** panel to access some button alternatives for the main keyboard hotkeys.

You can use these initially if you are unfamiliar with the keyboard hotkeys, or if you simply prefer to use the mouse for everything. Not every action is covered by these hotkey buttons though, so as you become more familiar with UVLayout, you will want to study the full list of keyboard hotkeys below.

The top row of buttons are simple clicks to set the view to UV, Ed or 3D space, adjust the brush size, or Undo (shown as Z, but is really Ctrl-Z).

The remaining buttons are toggled on and off. When enabled, you can then use the right mouse button to apply the selected key at the mouse pointer location. If an action calls for the double-tap of a hotkey (e.g. select edge loop with Double-C) then double-click the right mouse button to do the same thing.

Disable the button to turn off the mouse hotkey action, and then the right mouse button can again be used to zoom the view. To zoom the view while a hotkey button is enabled, use the mouse wheel, or click and drag the left and middle mouse buttons.

To manipulate shells or UV vertexes, you can either manually select the appropriate combination of **Space**, **Ctrl** and **Shift** buttons, or use the buttons under the **Hints** section to set them up for you.

To temporarily disable the selected mouse hotkey actions, stow the **Hotkeys** panel. Open it back up and the previously selected mouse hotkey actions will be re-instated.
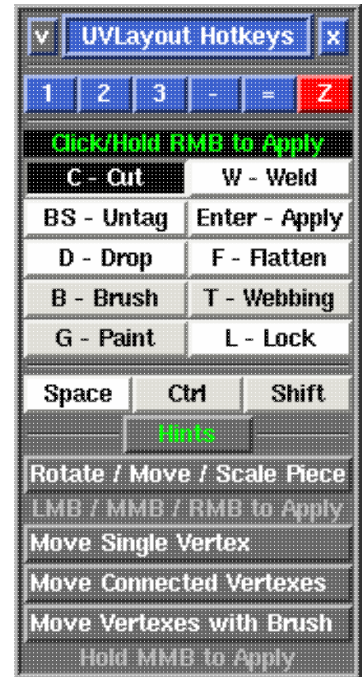
Below is the full list of hotkeys that can be used in UVLayout's graphics window. Its split into four different sections, the first being hotkeys common to all viewing modes, followed by the hotkeys specific to each of the **UV**, **Ed** and **3D** viewing modes.

First off, here's some short-hands used in the lists below:

LMB	- Click the left mouse button.
MMB	- Click the middle/wheel mouse button.
RMB	- Click the right mouse button.
Ctrl	- Hold down the **Ctrl** key while typing the listed key. The **Command** key can also be used under Mac OS X.
Shift	- Hold down the **Shift** key while typing the listed key.
Space	- Hold down the **Space** key while typing the listed key.
Double	- Double tap the listed key.
***	- Indicates a hotkey that will switch to rectangle selection, to apply the action to multiple shells, if the mouse pointer isn't currently over a shell.

Note: The hotkeys are case-sensitive. This means that if you accidentally turn Caps Lock on, then most functions will not work correctly. Because of this, a warning message will appear in the 3D window whenever

you have Caps Lock on.

Common Keys

```
LMB             : rotate view
Arrow Keys      : rotate by 30 degrees
MMB             : pan
RMB             : zoom
LMB+MMB         : zoom
Wheel Roll      : zoom

Ctrl-Z          : undo

O               : toggle ortho/perspective projection

Pad5/Home/.     : focus view onto polys under mouse pointer
End/,           : focus view onto shell under mouse pointer

G               : mark paint polys
Double-G        : mark fill polys  (Ctrl-G also)
Shift-G         : unmark paint
Double-Shift-G  : unmark fill      (Ctrl-Shift-G also)

H               : hide polys menu

>               : auto save to UVL file
```

G Menu

Whenever you type the G key, a menu of extra options appears towards the bottom of the graphics window.

```
LMB       : Click'n'drag the LMB to stretch a box over polys you want to mark.
RMB       : Click'n'drag the RMB to stretch a box over polys you want to unmark.
F         : Mark polys facing the camera within a 100 degree arc
Shift-F   : Mark polys facing the camera within a 180 degree arc
H         : Hide all marked polys.
P         : Pin the vertexes of all marked polys.
Shift-P   : Unpin the vertexes of all marked polys.
S         : Unmark marked polys, and visa versa.
U         : Unmark all marked polys.
-/=       : Shrink and grow marked region.
Home      : Focus view on marked polys.
Enter     : Make the G menu go away.
```

H Menu

Whenever you type the H key, a menu of extra options appears towards the bottom of the graphics window.

```
LMB        : Click'n'drag the LMB to stretch a box over polys you want to hide.
RMB        : Click'n'drag the RMB to stretch a box; all polys outside are hidden.
1          : Hide all flattened polys.
G          : Hide all marked polys.
H          : Hide other shells.
P          : Hide all unpicked shells.
S          : Hide all visible polys, and unhide all hidden polys.
U          : Make all polys visible.
Enter      : Make the H menu go away.
```

UV View

```
U/1            : toggle/set UV edit view

F              : hold down to flatten shell ***
Space-F        : start continuous flatten
Space          : stop continuous flatten
Shift-F        : bloat then reflatten ***
Shift-B        : scale up then reflatten
Shift-J        : randomize UVs

B              : flatten brush
-/=            : change brush size

C/W            : cut/weld seam
Shift-C        : cut tag an entire edge loop
Double-C       : tag edge loops on distorted geometry
Shift-W        : toggle weld edges
Double-W       : same as Shift-W
Backspace      : unselect weld edges
M/Shift-M      : magnet snap weld edges, or snap a shell onto its mirror

Enter          : attach/detach shells
Shift-D        : undrop shell back to Ed space ***
D              : place shell underneath other shells
L              : toggle shell lock ***

T              : tag webbing edges
Shift-T        : toggle webbing edges
Double-T       : same as Shift-T
Backspace      : unselect webbing edges

P              : toggle pin
Double-P       : pin between two already pinned boundary points
Shift-P        : as above if pointer over a boundary point, or show pin box menu
Ctrl-P         : unpin all points in shell

L/R Arrow      : flip shell in U
U/D Arrow      : flip shell in V
Shift-Arrow    : flip all shells with same flip state as shell under pointer
```

```
Ctrl-Shift-Arr : select all shells with same flip state as shell under pointer

LMB             : click to pick/unpick single shell
                : click'n'drag to pick multiple shells
                : click in empty space to unpick all shells

Backquote       : (above Tab) Toggles tile selection mode

Space-LMB       : rotate picked shells or marked polys
Space-MMB       : move picked shells or marked polys
Space-RMB       : scale picked shells or marked polys
Space-LMB+MMB   : as above
Tab             : hold down for finer control

Ctrl-MMB        : move single point
Ctrl-Shift-MMB  : move connected points
Shift-MMB       : move points in circle

_/+             : change UV box size (i.e. Shift -/=)
L/R Arrow       : aim pointer at empty space to move UV box in U direction
U/D Arrow       : aim pointer at empty space to move UV box in V direction
Tab             : hold down for finer control

A               : toggle horizontal/vertical snap anchor
Shift-A         : turn off all anchors in shell

Ctrl-L/R Arrow : aim pointer at edge to rotate shell so edge is horizontal
Ctrl-U/D Arrow : aim pointer at edge to rotate shell so edge is vertical

I               : tag straight edge - axis aligned
Shift-I         : tag an entire edge loop
Backspace       : untag edge
Ctrl-I          : on tagged edge - remove all 'I' tagged edges from shell
                  on untagged edge - 'I' tag all similarly oriented edges

K               : tag straight edge - unaligned
K               : toggle kink point
Shift-K         : tag an entire edge loop
Backspace       : untag edge
Ctrl-K          : on tagged edge - remove all 'K' tagged edges and points from shell
                  on untagged edge - 'K' tag all similarly oriented edges

R               : if topology allows, snap quads to an axis aligned grid.
                  otherwise, snaps boundary to an axis aligned rectangle ***
Shift-R         : as above, but the internal UVs are also aligned ***

When mouse pointer is aimed at shell boundary points:

  S             : toggle stack marker
  Double-S      : straighten between two stack markers
  Shift-S       : as above

When mouse pointer is aimed at shell interior polys:

  S             : copy UVs from light to dark mirror polys ***
  Shift-S       : swap light and dark mirror polys

When Brush Local Scale selected:
```

```
   4          : scale polys up
   5          : scale polys down
  4+5         : reset local scaling

When Brush Pin selected:

   4          : push UVs out and pin
   5          : pull UVs in and pin
   6          : smooth UVs and pin
  4+5         : unpin

Keys below are no longer supported:

  R           : relax brush
  Shift-R     : very relax brush
  X           : totally relax brush
```

Ed View

```
E/2          : toggle/set 3D edit view

C/W          : cut/weld seam
Shift-C/W    : cut/weld extended
Backspace    : unselect cut edges

Enter        : detach or split shell
D            : drop shell into UV space ***
Shift-D      : reattach shell ***

Shift-S      : split shell, or tag symmetry plane

R            : mark revolved polys suited to rectangular flattening
Shift-R      : mark adjoined quads suited to grid flattening
```

3D View

```
3            : toggle/set 3D texture view

C/W          : cut/weld seam
Shift-W      : toggle weld edges
Backspace    : unselect weld edges

T            : cycle through textures
-/=          : scale texture

Shift-LMB    : click to pick/unpick single shell
             : click'n'drag to pick multiple shells
             : click in empty space to unpick all shells

Shift-MMB    : move Trace texture over surface. Must have both
                a 3D view and a UV view open using split panes.
```

```
S              : toggle smooth shading for SUBD surfaces
```

Edit

Open up the **Edit** panel to find a number of general editing tools and settings.

Symmetry Find Off/On

       If parts of your mesh have mirrored topology, you can use the Symmetry tool to speed up cut'n'weld operations. Click on the **Find** button, then LMB click on any edge that sits on the mirror line (i.e. the line that divides the two symmetrical halves), then tap the space bar to continue; if all goes well, the left half of the mesh will be shaded darker than the right, indicating that symmetry editing is now active; the slider that appears can be used to adjust the level of darkening. Yellow shading is applied to non-symmetrical polys.

       Cut, weld, detach, attached, drop and undrop actions from then on will be mirrored across to the other half. When packing, symmetrical shells will be arranged to the left and right sides of tiles and boxes. Click on the **Off** button if you want to turn the mirroring off.

       If parts of your mesh are symmetrical but detached (e.g. a pair of shoes), first LMB click on any edge in one shell, then MMB click on the mirrored edge in the other shell, then tap the space bar to continue.
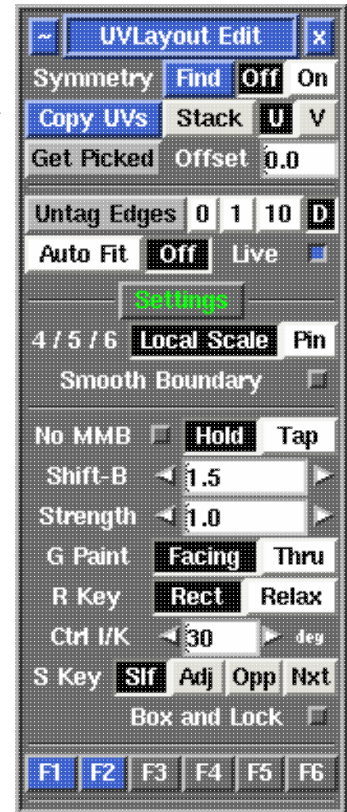
[Professional Version Only]

Copy UVs Stack/U/V

       To copy UVs between parts of your mesh, first click the **Copy UVs** button, then LMB select an edge in the source shell (i.e. the shell you want to copy UVs from); you can select this edge in either the UV or 3D views. This "source" edge will be highlighted in red.

       Next LMB select edges, in the same relative position, for the target shells; by selecting multiple edges, you can copy to more than one shell at a time. If you accidentally select the wrong edge, LMB click on it again to unselect it. All "target" edges are highlighted in blue.

       To quickly select edges on all matching shells, tap the **=** hotkey. Use the **-** hotkey to select edges on *similar* shells, that is, those with the same topology but not exactly the same size or shape, or use the **+** hotkey to select edges on *all* matching topology objects, regardless of size. When using the quick select mode, unaffected shells are temporarily hidden so you can easily see those that have been matched. At this point you can change the selected edges if you like, or use the **H** hotkey menu to hide matched shells that you don't want to copy to. **Note:** *The quick select mode only works when in the 3D view, and on separated objects.*

       Tap the space bar when you have selected all the edges, and the UVs will be copied across if the selected shells match. To match, shells must have the same topology (i.e. the same number and arrangement of polygons).

Before copying, select **Stack** if the you want the target shells stacked on top of the source shell, or **U** or **V** if you want them arranged alongside. Stacked shells are locked and boxed, but they can be unlocked with the **L** hotkey menu after copying.

Get Picked / Offset

For U or V arranged copies, you have the option here to set a fixed offset value. For example, if you make this **1**, then copied shells will be placed in the same location in adjacent tiles. You can also select one or more shells in the UV view, then click the **Get Picked** button, and the size of the bounding box of those shells will be copied into the offset field. Leave the offset on **0.0** and UVLayout will calculate the offset automatically so shells are arranged with a small gap between them.

Untag Edges 0/1/10/D

Select the look-ahead range for cut'n'weld tagging of edge loops. Click on the **Untag Edges** button to untag all red or yellow highlighted edges.

The **D** option turns on cutting **drag** mode, where you tag the first edge, then keep the **C** hotkey held down while you use the mouse pointer to draw out the edge loop selection. Whenever the selection reaches a fork, that edge turns blue, and the current position of the mouse pointer will determine in which direction the edge loop selection continues. Release the **C** hotkey when you are happy with the edge loop selection.

Auto Fit/Off

When **Auto Fit** is on, all current UVs are re-normalized (scaled to fit in the 0 to 1 range) every time a UV shell is moved or modified. When **Off**, they aren't, so you can move shells beyond this range and out onto other tiles. Use the + and _ keys to scale the UV unit box up and down.

Live

When **Live** editing is turned on, each shell's flattening is automatically optimized as cuts and welds are made. With a slow system or particularly complex shell, this may slow down your editing workflow, but you can abort the flattening calculation by aiming the mouse pointer at empty space and then tap either the **C** or **W** hotkeys.

4/5/6 Local Scale / Pin

When **Local Scale** is selected, the 4/5 hotkeys paint a local scaling into the polys under the brush; this has the effect of moving the UVs in that area in or out during any further flattening, while preserving the shape of the polys as much as possible.

When **Pin** is selected, the 4/5 hotkeys simply move the UVs in or out directly, disregarding any shape constraints and most likely reducing the quality of the UVs in that area. The UVs are pinned so that any subsequent flattening of that shell doesn't affect the new UV positions. Also when in this **Pin** mode, the 6 hotkey can be used to smooth UVs.

Smooth Boundary

When smoothing with the 6 hotkey, this option selects whether shell boundaries are modified.

No MMB

Normally to move UV points around, you hold down **Ctrl** or **Shift** and click'n'drag the **MMB**. If you are doing lots of manual tweaking of UVs, the **MMB** click'n'drag can be a strain on your mouse hand, so you have the option in that situation to go into **No MMB** mode; tick this option, and you can move UVs simply with the **Ctrl** or **Shift** keys. If you have **Hold** selected, you have to hold down the **Ctrl** or **Shift** keys while moving the UVs. Select **Tap**, and you tap the keys to start moving the UV points, and tap again to release the points.

Shift-B

This sets how much a shell is scaled up by when using the **Shift-B** hotkey.

Strength

Sets the strength of the flattening optimization. Normally you want to leave this at **1** for maximum strength/speed, but some people like to slow things down by reducing the strength, and then they can see whats happening and have the opportunity to abort the optimization before it goes too far.

G Paint

When using the **G** hotkey to paint select polys, this option determines whether only polys **Facing** the camera are selected, or if the selection goes all the way **Thru** the mesh (i.e. also selecting polys on the other side, facing away from the camera).

R Key

This sets what action the **R** hotkey performs; **Rect** for the newer "Rectangles and Pipes" tool, or **Relax** for the old UV relaxing tool, which was long ago replaced with the **4/5** hotkeys.

Ctrl I/K

Sets the angle threshold for the tagging of similarly oriented edges. Reduce this angle to select fewer edges.

S Key

When Symmetry Editing is turned on, the **S** hotkey is used to copy UVs from one shell to its mirrored half. This option sets where the mirrored shell is placed:

> **Slf** : for "self", the mirrored shell is flipped over and place right underneath the first shell. If **Box and Lock** is ticked, then both shells with be boxed and locked, keeping them together if shells are later packed. *This option is only available in the Professional version of UVLayout.*
> **Adj** : for "adjacent", the mirrored shell is placed next to the first shell.
> **Opp** : for "opposite", the mirrored shell is placed on the opposite side of the current tile.
> **Nxt** : for "next", the mirrored shell is placed on the opposite side of the next tile.

Function Keys

The **F1** to **F6** function keys can be mapped to buttons in the GUI. Click on one of the **Fn** buttons in the GUI, then click on the button in the GUI you want it mapped to. You can then use that function key on the keyboard to perform the mapped action. Buttons that have been previously mapped are colored blue; unmapped buttons are grey. To remove a mapping, double click that **Fn** button. To show a reminder of what a mapped button does, hover the mouse pointer over it.

Optimize

Open up the **Optimize** panel to find tools for finalizing the flattening of only partially flattened shells.

Lock All/Clear/Swap

> Change the locked status of all flattened shells. Locked shells can't be accidentally flattened, cut, welded or edited in any other way; they can only be moved, rotated and scaled. Use the **L** hotkey to toggle individual shells, or to box select a group of shells.

Run For

> Click on **Run For** to continuously flatten picked shells until they don't change any more, or until the timer runs out. If no shells are picked, all unlocked shells are optimized. You can increase the **mins** value to give it more minutes on complex meshes.

Map Rez

> Change the **Map Rez** setting so that UVLayout knows the pixel resolution of the map that you will be using with these UVs, and it'll use that to work out when to stop flattening a shell; if the change is less than a pixel, there's no need to optimize further. You can cheat here though, so if you want a less accurate but faster optimize, reduce the **Map Rez** setting.

[Professional Version Only]

Calc Subdivision Targets

> When a mesh is loaded as a SUBD surface, UVLayout moves the cage control points down onto the subdivision limit surface, and its this "knots surface" that you see and edit; under most circumstances this is enough to produce distortion free UVs for SUBD surfaces. There are certain shapes however where this approach doesn't work so well, and so **Calc Subdivision Targets** can then be used to compute a more accurate approximation of the subdivision surface; it can take a few minutes, so is not applied by default when SUBD surfaces are loaded. Pick the shells you want to apply this too, click the **Calc Subdivision Targets** button and wait for it to finish processing, then re-optimize. If no shells are picked, all unlocked shells are processed.

Overlap

> Click the **Overlap** button to search for overlapping UVs. You might run the overlap check after an optimize, and possibly a repack, to confirm that all shells have flattened out completely. A window will pop up telling you how many overlaps have been found, and you can cycle between these with the blue left and right arrow buttons. Alternatively, when the overlaps are turned **On**, you can use the keypad left and right arrows key to move between them. Each overlapping area is highlighted with a yellow filled red outline, but you can turn this off with the **Off** button.
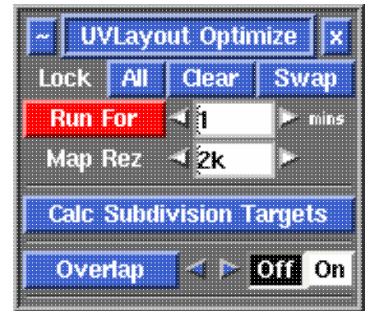
Pack

Open up the **Pack** panel to find tools for the tight packing of UV shells to minimize empty texture space. Currently shells are only moved around in this process, so you may need to rotate some by hand for optimum packing.

New Box

> This creates a new packing box around any picked shells. Shells can be place in or taken out of an existing box simply by dragging them with the usual Space-MMB combination. Use the **Del** hotkey to delete a box; moving all of the shells outside of a box will also delete it. Click on **Delete All** to delete all boxes.

> Use the **[** or **]** hotkeys to repack the box under the mouse pointer. If no box is under the mouse pointer, then all shells and boxes will be packed into the 0-to-1 texture square.

> A box (and its contents) can be moved around using the Space-MMB combination on one of its corner handles. It can be reshaped using Ctrl-MMB on one of these handles; this will also repack that box. Use the **** hotkey to rotate a box by 90 degrees.

> Select boxes by clicking on one of their corner handles, and they can then be moved or scaled with the usual Space MMB/RMB combinations. Selected boxes can also be transformed from the Move/Scale/Rotate panel buttons.

> By default, boxes are **free**, meaning they will be moved around as required during the packing process. You can **fix** a box's position with the **{** or **}** hotkey; this will turn it from green to blue. Other shells and boxes will then be packed around that box, but it wont be moved itself. Use the same hotkey if you want to toggle it back to **free** moving.

Box and Lock Overlapping

> If you have overlapping shells that you want to keep together during packing, then click this button and they will all be boxed and locked. Be default all visible shells will be checked, but if you LMB select any first, then only those selected shells will be processed.

Quality Fast/Mid/Best

> You will get tighter packing with **Best** selected, but **Fast** isn't too bad either, and its a lot faster. **Mid** is part way between these two.

Map Rez

> Specify here the resolution of the texture map you expect to use with the UVs. This in combination with the **Bleed** value determines the apparent size of the gap left between the shells after packing.

[Professional Version Only]

Rotate

> Tick this and shells will be rotated by the selected degree increments to see if that gives better packing. It just randomly tries different combinations, so use the arrows to set the amount of time you
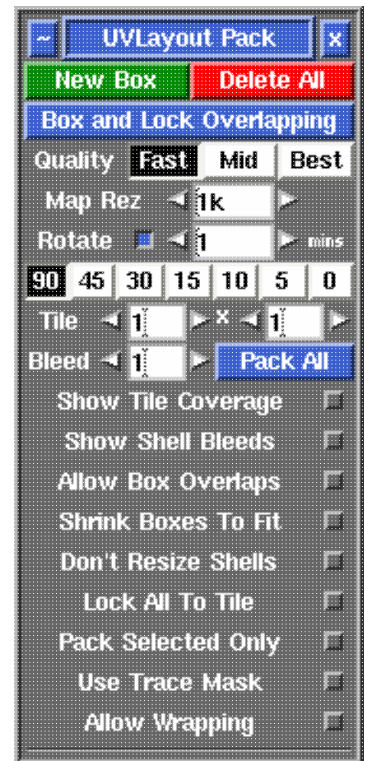
want to let it run for. Use the **|** hotkey to lock or unlock the orientation of individual or select shells or boxes. Shells or boxes locked in this way won't be rotated, but can still be moved around during the packing.

As you reduce the degree increments (e.g. from 90 to 45) then the number of possible shell position and rotation combinations grows exponentially, so it will take a lot longer to find the best packing solutions. This tool will utilize multiple CPU cores though, so the more of those you have, the greater the chance that better packing solutions will be found in the allotted time.

Be careful though about running this for extended periods on systems with poor cooling, such as laptops. Consider running it for double the amount of time, but use the **Free CPU Cores** preference to halve the number of CPU cores utilized.

The special case of **0** degree increments actually does no rotation, but still randomly shuffles the order that shells are packed. Normally shells are packed from largest to smallest, but sometimes randomly selecting shells using this **0** degree rotation mode can find better packing solutions.

Regardless of if you have auto save turned on or not, if run for more than a minute, the packing rotation tool will make an auto save of each next best packing solution. This means you can set it off before going to lunch say, then be confident that in the event of a software crash or power failure, you will be able to load the last best solution.

[Hobbyist Version Only]

Rotate

As above, but the rotations are limited to 90 degree increments.

Tile

If you want your shells and boxes packed across multiple tiles, specify the dimensions of that tile grid here. Try not to make the grid arbitrarily large (e.g. 100 x 1) if smaller values will do, as this will reduce the precision/tightness of the packing.

Bleed

The **Bleed** value controls the pixel size of the gap left between shells after packing.

Pack All

Clicking on **Pack All** will repack the contents of all boxes, then packs everything into the 0-to-1 texture square or tile grid. You might do this if you have changed the **Bleed** setting and want to apply that across all shells and boxes.

Show Tile Coverage

Tick this to show, after packing, a percentage covered value at the top of each tile. The higher this number the better, indicating less empty wasted space.

Show Shell Bleeds

Tick this to see a visual indicator of the pixel bleed region around each shell. If you want to manually position shells, this is a good way ensure there's enough gap left between them.

Allow Box Overlaps

Sometimes space will be left inside a box after packing. Ticking this option will allow other boxes or shells to use this empty space during global packing operations.

Pack   29

Shrink Boxes To Fit

        Tick this to shrink wrap boxes around the contents after packing.

Don't Resize Shells

        By default, UVLayout will uniformly enlarge or shrink all the UV shells to minimize the amount of empty space left after packing. Tick this if you don't want the shells resized.

Lock All To Tile

        Shells wont be moved outside of their current tile during packing. Ticking this option affects all shells, or you can use the **#** hotkey to apply the locking selectively to shells and boxes.

Pack Selected Only

        Only shells selected with the LMB will be packed.

Use Trace Mask

        This option allows you to load a black and white Display Trace image as a mask for packing shells into the UV square. Shells will be packed into the white areas, and black areas will be left empty.

Allow Wrapping

        This option packs everything into the 0 to 1 tile but will allow shells to extend over the boundary of the tile if they wrap around into space on the opposite side. To check the results, tick the **Show Repeats** option under the **Display** tab.

Hotkeys

```
[ or ]       : pack shells in box, or if no box is picked, packs all shells
{ or }       : toggle box fixed/free status
\            : rotate box 90 degrees, or if no box is picked, rotates shells
Ctrl-\       : rotate shell, not surrounding box
Del          : delete box
|            : toggle orientation lock for shell, selected shells or box
Pad 1/3/7/9  : toggle corner preference for shell, selected shells or box
#            : toggle tile lock for shell, selected shells or box
```

Pack Mask

Here's one example of the use of the <u>Pack</u> masking tool.

The image on the left is a black and white mask that's loaded into UVLayout as a Display Trace image. The image on the right shows the results after packing.
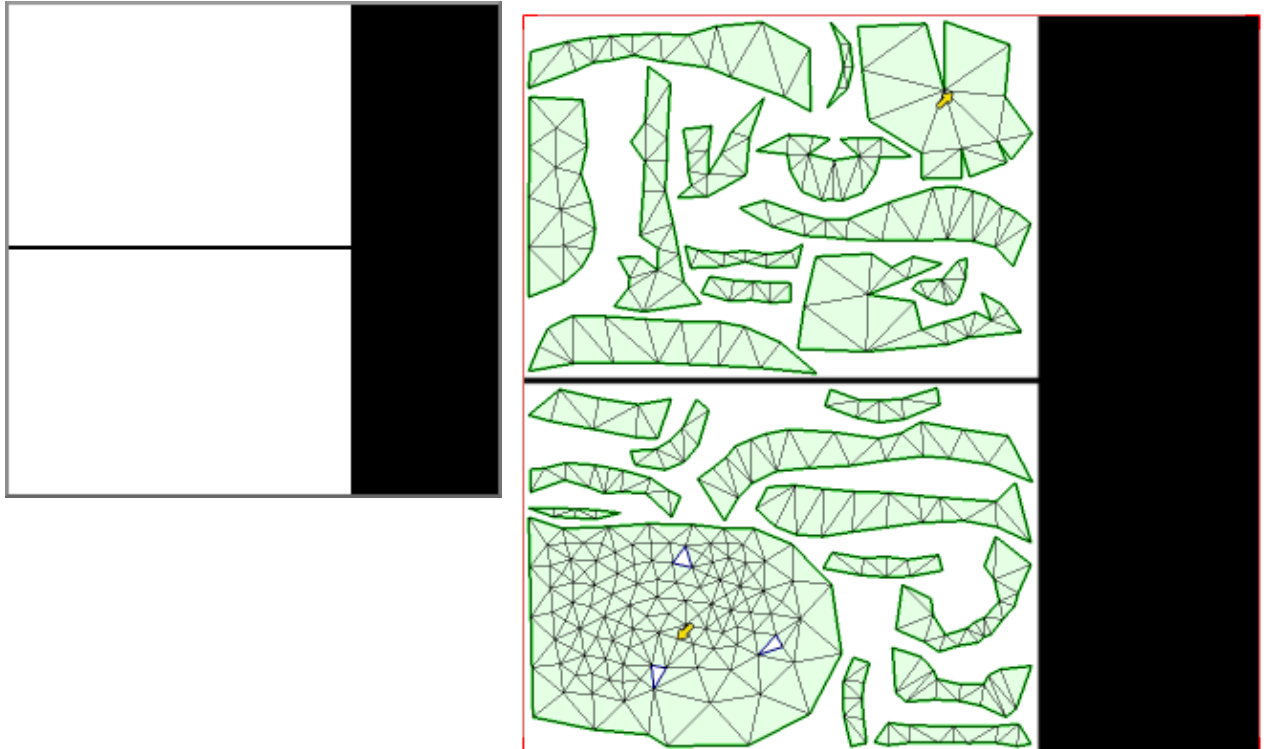
This is a pattern that was rendered out and printed out onto a large format printer with a specified maximum print width and length, as indicated by the white area. The black line was placed into the mask half way up so the final print could be folded in half for shipping.

Pack Wrap

Here's one example of the use of the Pack wrapping option.

The image on the left is shows the results of standard packing into the 0 to 1 tile. The image on the right shows these same shells, packed with the wrapping turned on and one third less wasted space.
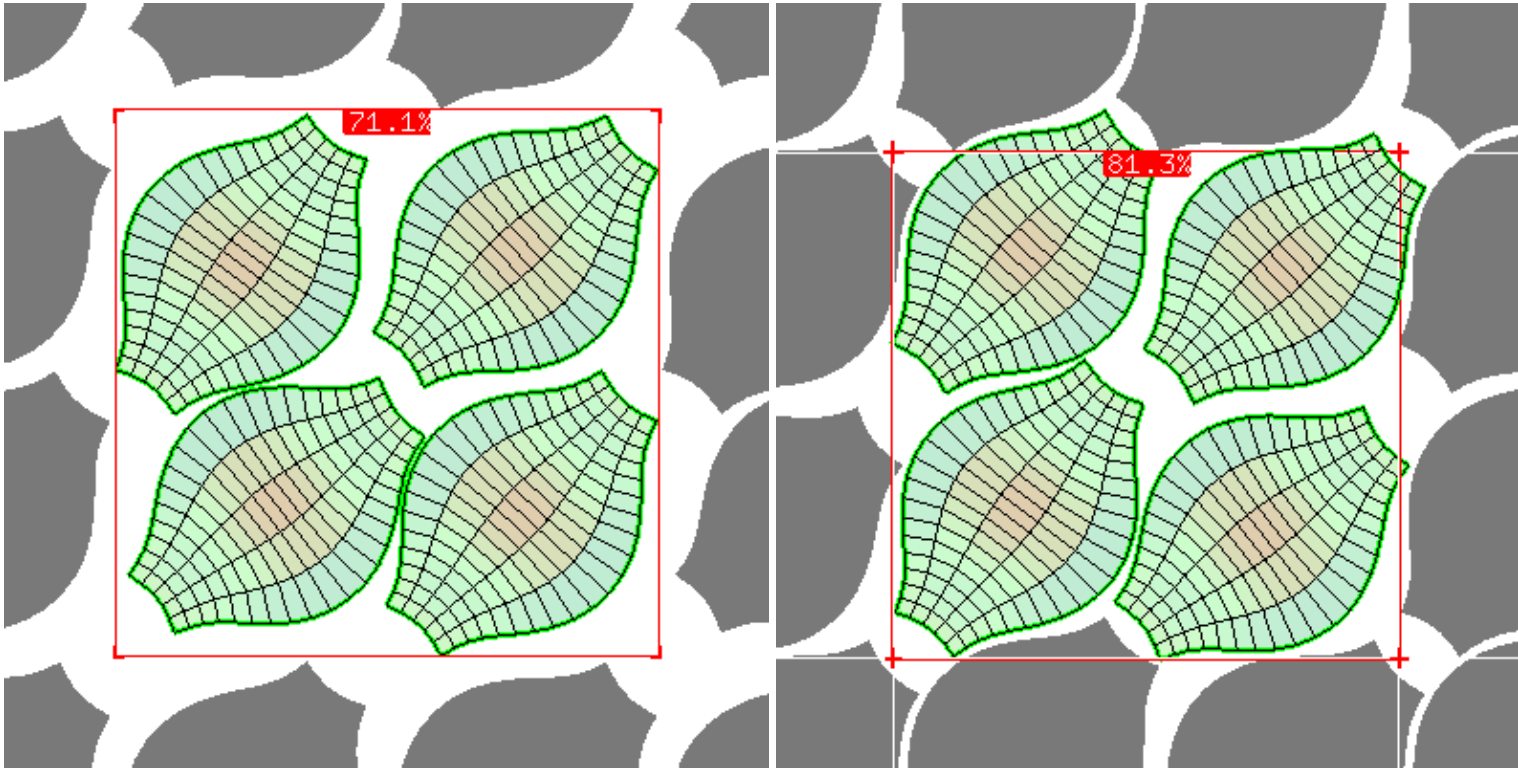
This "trick" only works for single tile packing, and the rest of your pipeline (e.g. 3d paintbox, renderer) will also need to support the repeating/wrapping of textures.

Snap/Stack/Sort

Open up the **Snap / Stack / Sort** panel to snap shells to the grid, to stack similarly shaped shells over the top of or alongside each other, or to sort shells by various criteria. The stacking tool can also be used to make a single shell symmetrical.
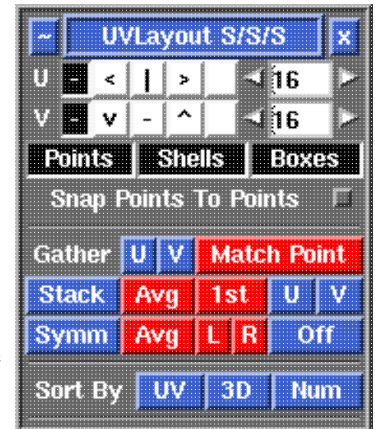
Snap

U & V Snapping

Turn on one of the **U** snapping modes to enable horizontal snapping to the grid when Space-MMB moving shells in UV space. The first mode will snap the left side of the shell bounding box to the grid. The second mode will snap the center of the shell to the grid. The third mode snaps the right side of the shell to the grid, and the final mode will snap the shell relative to its current position. Turn on one of the **V** snapping modes to do the same for vertical snapping. Click on the arrows, or type a number in and hit Enter, to change the number of grid lines. Individual points and packing box corner handles, when moved with Ctrl-MMB, will also snap to the grid when they get close.

Points / Shells / Boxes

Click on these boxes to turn off and on the snapping of UV points, shells and packing boxes.

Snap Points to Points

Tick this option to also enable the snapping of UV points to other UV points, independently of the current grid snapping settings.

Stack

The stacking tools can be used in two ways:

Multiple Shells

Move an anchor shell away from other shells, then aim the mouse pointer at empty space and use the **S** hotkey to bring up the Stack menu, then LMB select that shell. You can then click **Gather U** or **V** to gather together picked shells that match the boundary of that selected shell. If no shells are picked, visible and unlocked shells will be gathered. Use the **S** hotkey to tag one point on the anchor shell, then click **Match Point** to copy that point location onto the gathered shells. You can then click on **Stack** to pile all the gathered shells on top of each other. The location of the tag point is used as an orientation reference, so it should be in the same spot on each of the shells (e.g. top left corner).

When you are happy with the alignment, click on **Avg** if you want to average all the boundary shapes together, or **1st** to copy the shape of the first shell's boundary over to the other shells.

Once the boundaries have been reshaped, use the **U** or **V** buttons to arrange the shells in each of those directions, or you can leave them where they are to share texture space. The boundaries are pinned, so these shells can now be reflattened/optimized without worrying about the matching boundary shapes

changing.

As a final step, click on **Off** to unset all the **S** tagged points.

Single Shells

Use the **S** hotkey to tag one boundary point at the center-line of the shell you want to make symmetric, then click on **Symm** to rotate the shell so the center axis is vertical. Once you are happy with the alignment, click on **Avg** to average together the boundary points of the left and right halves, or use **L** or **R** to copy that side over to the other side. You can then use the **V** button if that shell needs to be symmetrical in the V direction (i.e. across the horizontal axis).

Note: This single shell stacking tool only makes the boundary shape symmetrical. If you want internal UVs to be perfectly mirrored, use the newer <u>Symmetry Find</u> tool.

Sort

Select shells to sort them by the following criteria. If no shells are selected, then all visible unlocked shells are sorted.

UV

Sort by the UV area of each shell, from largest to smallest.

3D

Sort by the area of each shell in 3D space, from largest to smallest.

Num

Sort by the number of polygons in each shell, form max to min.

Move/Scale/Rotate

Open up the **Move / Scale / Rotate** panel if you want to apply a global numeric translate, scale or rotate to one or more shells.

Set the values you want to apply, then click on **Move**, **Scale** or **Rotate** to transform all picked shells. If you want to apply the transforms to one or more boxes and their contents, pick the boxes by LMB clicking on one corner. If no shells are picked, all unlocked flattened shells are modified.

If you want to quickly move shells around by tile units, click the **N**, **E**, **S**, **W** or diagonal buttons to move them in that direction.

The **Pivot** options are **Origin** (rotate/scale around the world origin u=0, v=0), or **Shell** (rotate/scale about each shell's center point), or **Tile** (rotate/scale about the center of the tile that each shell is currently in).

Use the **Invert** button to invert all values so you can quickly transform shells back to where they were, and the **Reset** button resets the field values back to their defaults.

The three green buttons to the bottom left represent the left, middle and right mouse buttons. By default these are all on, indicating that you can rotate (left), translate (middle) and scale (right) shells by holding down the **Space** key. Click on any one of the green buttons to turn that function off. For example, if you don't want to accidentally scale any shells, click the third button so it turns gray.
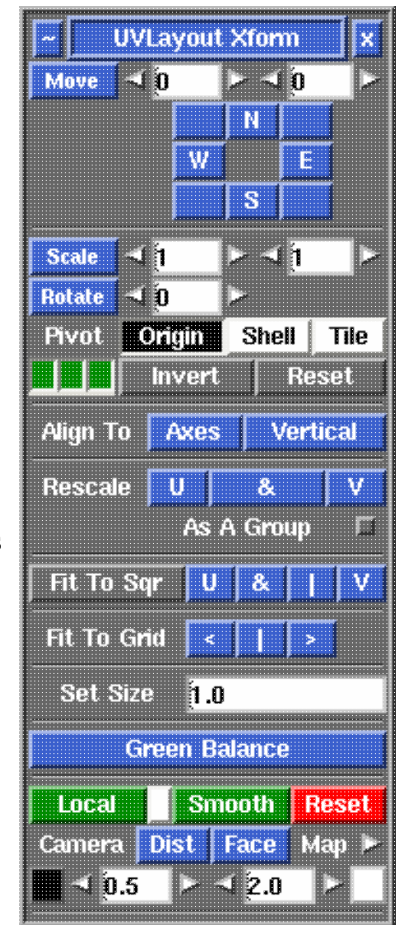
Align To Axes/Vertical

       Rotate selected shells so that, on average, their polygons are aligned with the U and V axes, or vertically within the 3D space.

Rescale U & V

       Use these buttons if you want to rescale shells so that their size in UV matches that in 3D. For example, if you load an OBJ with existing UVs and some shells are red and others are blue, clicking on the **&** button will rescale each of them up or down until they are closer to green in shading. Click on the **U** or **V** buttons if you only want to scale in that direction. As with the other transform buttons above, the rescale will only affect picked shells, or all unlocked shells if none are picked.

       As A Group

             Tick this option and all selected shells are scaled by the same amount, and around the center of the group bounding box. This keeps them the same relative size and in the same relative position to each other.

Fit To Sqr

       Use these buttons if you want to rescale shells or boxes so that they fill the UV square. Clicking on **U** will rescale the picked shells or boxes equally in the U and V directions, but so their widths fit the square. Clicking on **V** will also rescale equally, but so their heights fit the square. Clicking on | will rescale equally so that the picked shells or boxes fit completely within the square. And finally, clicking on **&** will rescale *unequally* so that both the widths and heights fit the square. By default

everything will crowd into the 0 to 1 UV square, but if you enable the Pack tool's "Lock All To Tile" option, then each rescaled shell or box stays in its current tile.

Clicking the **Fit To Sqr** button itself launches a combined Pack and Fit over all of the UV tiles. Unlike the buttons just described, which fit individual shells to the UV square, this one operates on all of the shells in each tile as a group.

Fit To Grid

Use these buttons if you want to rescale shells so their bounding boxes are aligned perfectly with the current snapping grid. Clicking on **<** will always make shells smaller to make them fit to the grid. Clicking on **>** will always make shells larger to fit. Clicking on **|** will resize shells to the closest grid line (i.e. they can be scaled up or down).

Set Size

When an object is loaded into UVLayout, the surface area is computed and an initial real-world to UV scaling is decided upon so that the flattened out object fills the UV square. When the UV shells are packed, this scaling is also adjusted. The current UV scaling is shown in the **Set Size** field, and it is the size of the UV square in real-world dimensions. You can edit this value to set the current size of the UV square if you wish; remember to type **Enter** to make any value changes active.

Green Balance

If one or more of your shells are red or blue tinted for whatever reason, click this and *all* shells are adjusted so that the average of the *selected* shells is green (i.e. at the "correct" scale). If no shells are selected, then the scale of all visible shells is used to determine the average value.

[Professional Version Only]

Local Scaling

Normally UV shells in UVLayout are resized so that the texture scale is even across the entire surface; this is what the **Rescale** buttons above do. This means that when the checker texture is applied, all squares appear as close to the same size as possible.

Sometimes however you may want to assign increased or reduced scales to specific parts. Some examples would be increased scale of UVs in a creature's face and hands to get greater detail there, but reduced scale for the inside of the mouth where very little detail is required.

In previous versions of UVLayout it was possible to do this to a degree by simply scaling shells up and down, but they were rescaled back to their original size if any further flattening/optimizing was performed. It was also quite difficult to get a smooth transition between mixed scales within a single shell.

You you can now create and edit these mixed scale UVs using the following buttons.

Local

When one or more shells are picked, all are locally scaled together so that, on average, they are closer to green; in this situation, individual shells may still show some red or blue shift, and these will be rescaled when optimized. When no shells are picked, all unlocked shells are individually processed and there will be no remaining red or blue shifts.

To use this tool, first use **Scale** above or Space-RMB to resize a shell (it will shift to red/blue as you scale it down/up), next Pick that shell with the LMB, then click on **Local** and it will shift back to green without changing size. If you then go to the 3D view and turn on the checker texture, you'll see that the squares in that part of the surface are a different size. If you re-flatten/optimize that shell, it won't change its size.

At any time you can see what local scaling has been applied by toggling the small white button to the right of **Local**. Blue shading indicates that those polys are scaled up, which will give you more detail in that area; red shading is scaled down, giving you less detail.

Smooth

Shells with mixed scale UVs can be welded together and re-flattened, but at the junction between the two the UVs may be more distorted than usual because of the sudden change in scale. To fix this, click on the **Smooth** button; the local scaling will be averaged out across the junction, creating a more gentle transition after the shell is re-flattened.

Reset

To remove any local scaling from picked shells, use **Reset**.

Dist

Click this button and the polys of all LMB selected shells will be locally scaled according to their distance from the camera. Polys furthest away are scaled by the Black value, and the closest ones get the White scaling value. If no shells are selected, then the polys of all visible shells are scaled. Shells will need to be re-scaled or optimized for the local scaling to take effect.

Face

Click this and polys will be locally scaled according to how they face the camera. Polys facing away are scaled by the Black value, and those facing towards the camera get the White scaling value. Again, re-scale or optimize to apply the local scaling effect.

Map

Click the arrow to select an image file, and then the grayscale values of the image are applied as local scale values to all visible flattened polys. The position of each poly in UV space is mapped onto that position in the image to work out how its to be scaled. The Black number value (0.5 by default) is the local scaling value for black pixels, and the White number (2.0 by default) is the value applied for white pixels. Re-scale or optimize to apply the local scaling effect.
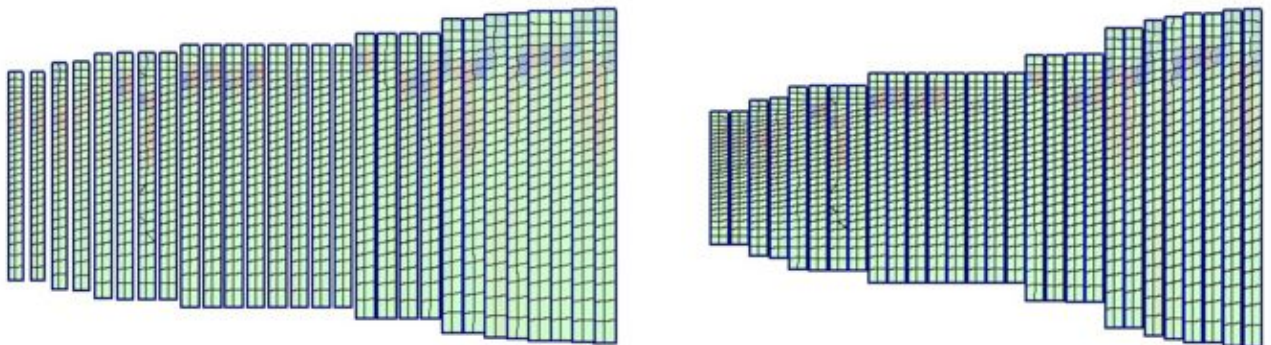
Rescale

Here's one example of the use of the <u>Rescale</u> tool.

The top row of images shows some hair modeled as ribbons, and a layout created using the Stack tool. You can see that some ribbons are red and some blue because they are different lengths in 3D but have been forced into the same length in UV when stacked.
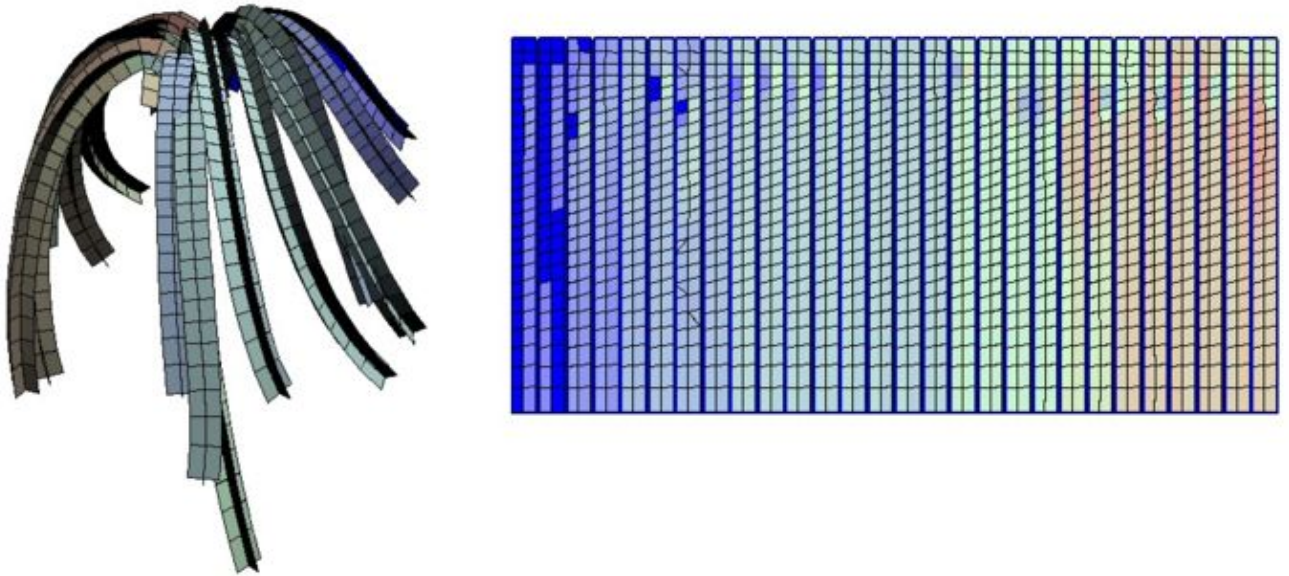

If this distortion is a problem, it can be fixed with the Rescale tool. If you click on the **&** button, each ribbon will be scaled in both the U and V directions, which in this example causes the longer ribbons to get fatter and overlap (see left image). If however you click on the **V** button, each ribbon will only get longer or shorter, preserving their horizontal spacing (see right image).

Fit To Square

Here's an example of the use of the Fit To Sqr tool. The first image shows a number of shells placed into 3 separate UV tiles.
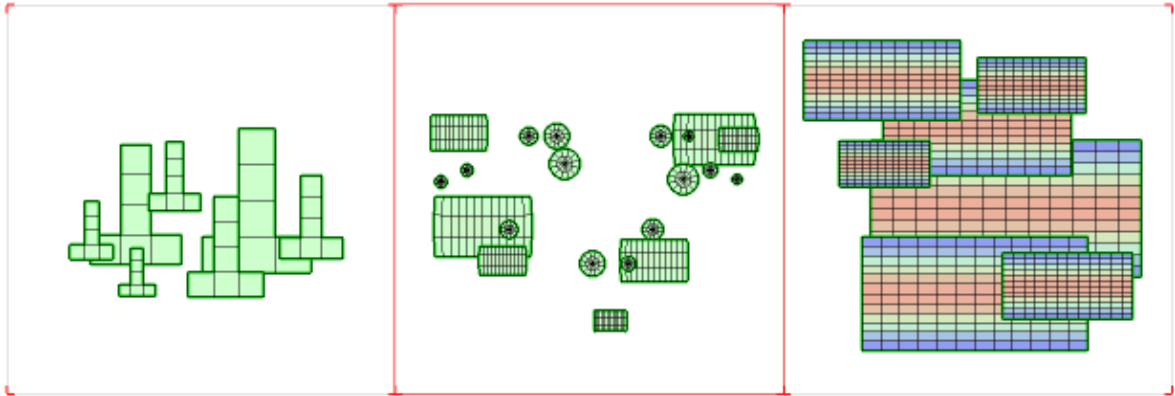
After clicking the **Fit To Sqr** button, each tile is processed in turn, and the shells within are packed and rescaled to fit as tightly as possible within the square.
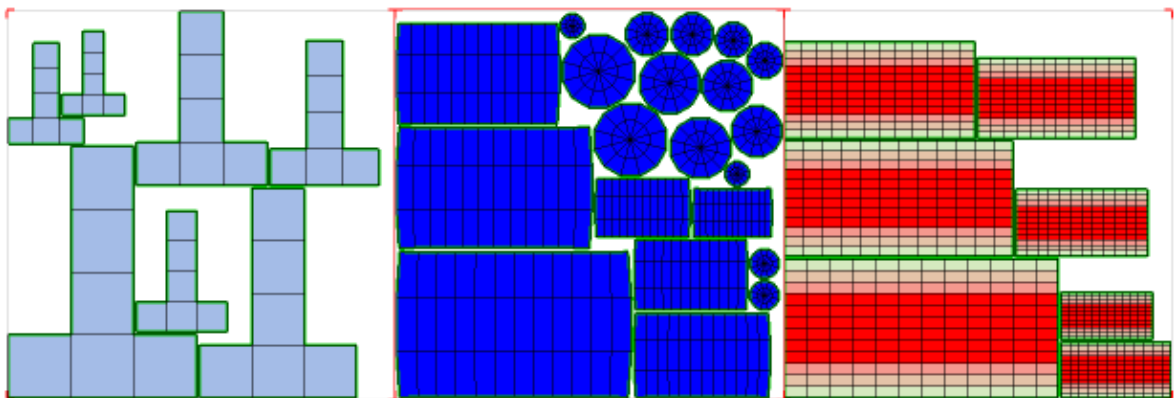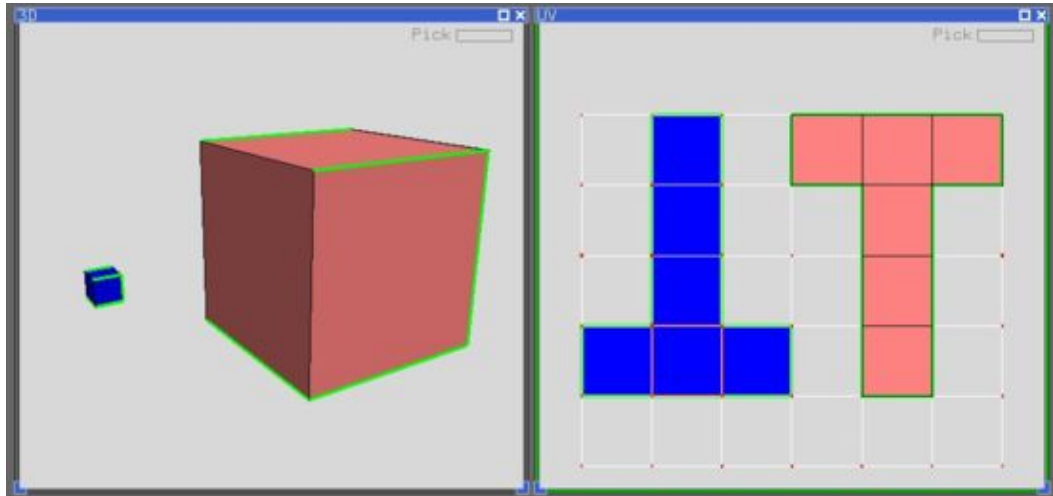

Because the packing tool is used to fit the shells into the square, you can enable the **Rotate** option in the **Pack** panel to further reduce the wasted space.
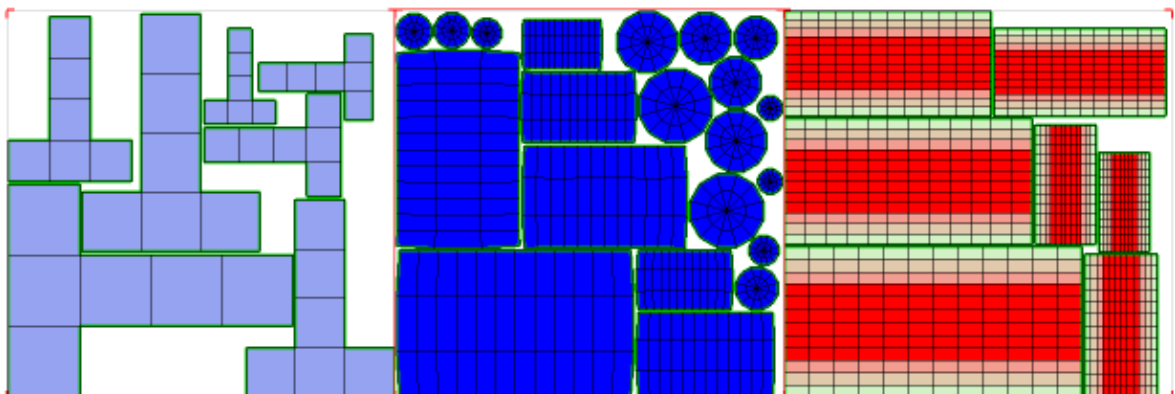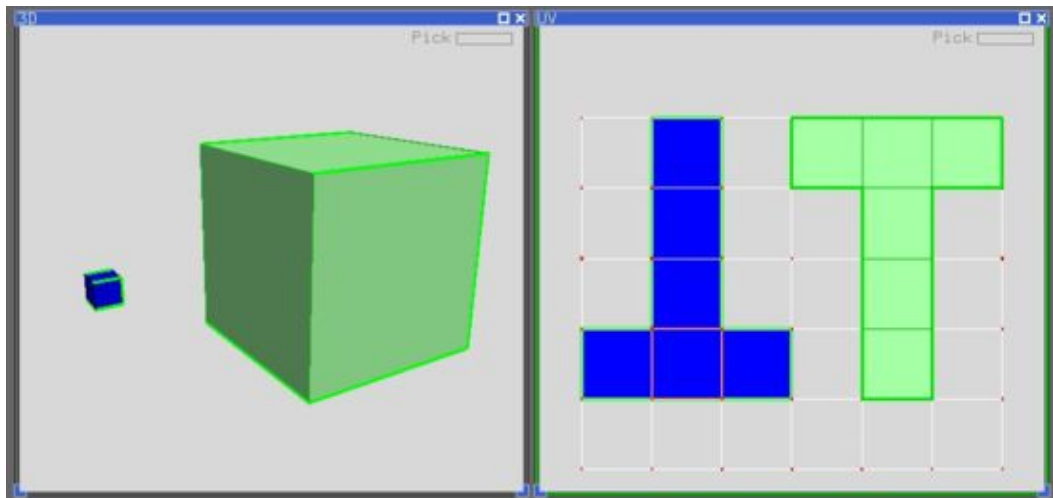
Green Balance

Here's one example of the use of the <u>Green Balance</u> tool.


The top image shows a couple of cubes loaded into UVLayout with their default UVs as assigned by the modeler. Regardless of the size of the cube, they were both given the same amount of UV space, and so UVLayout is tinting the smaller cube blue to indicate it has too much UV space (i.e. the applied texture will appear compressed), and the larger cube is tinted red to show too little UV space (i.e. the applied texture will appear stretched).
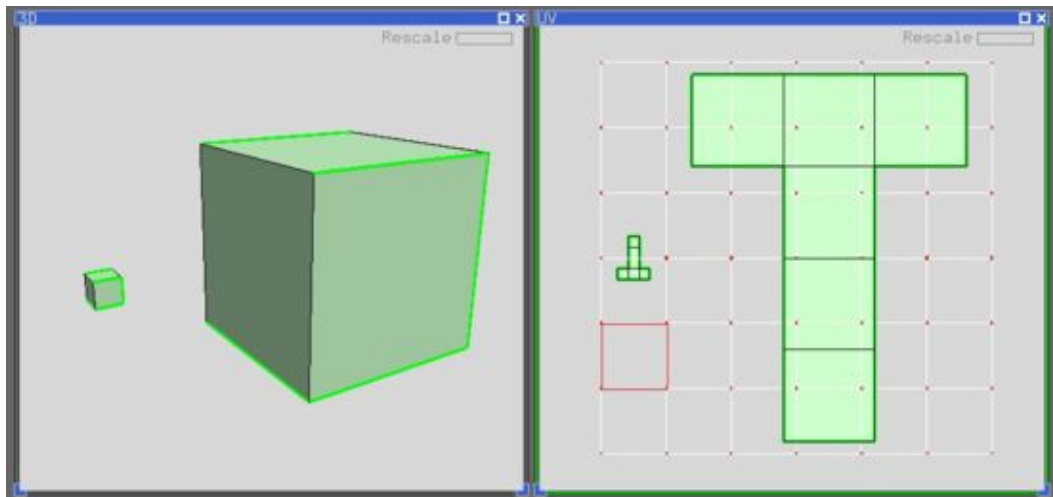
The shells sizes can be adjusted by clicking the Rescale **&** button (see above), which will make the red shell larger, and the blue shell smaller, but what if we were already happy with the size of one shell and just wanted to adjust the other?

Select the shell you want to make green (i.e. perfect scale) and click the **Green Balance** button (see above).
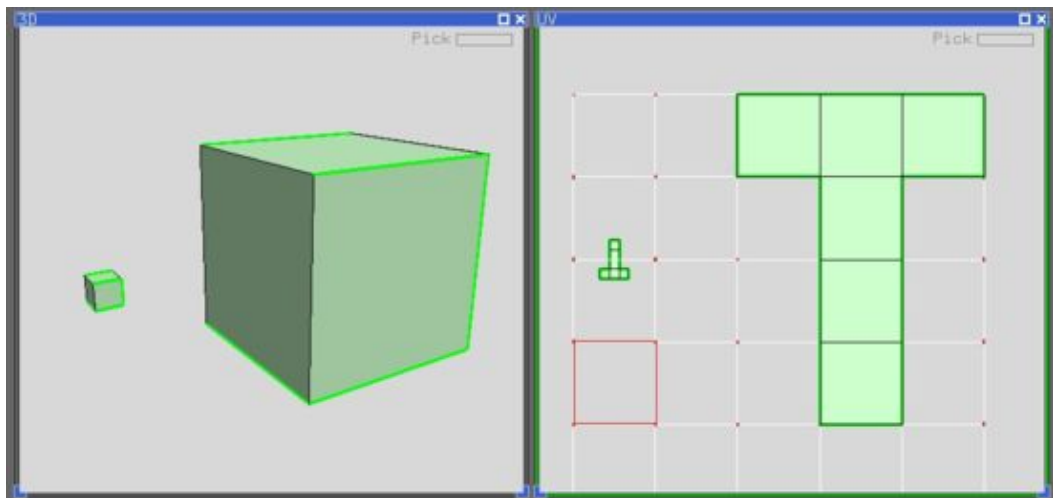
Then unselect that shell and click the Rescale **&** button, and it will stay the same size, but the smaller cube will shrink more to adjust to the correct scale.

Render

Open up the **Render** panel if you want to save out the current UV layout to a
tiff image file. This file could then be used as a template for texture painting.

AA Lines

>   Tick this to smooth out the jaggies in the saved image, though this
>   slows down the creation of the file quite a bit.

Fill Polys

>   Tick this to include the flattened color coding in the image.

Alpha

>   Add an alpha channel to the output image, where all lines are solid, the
>   background is clear, and filled polys use the gray-scale equivalent of
>   their currently displayed color.

Grid

>   Enter a value here to draw a grid behind the flattened geometry. This can be useful to register a
>   printed or projected pattern to a measurement in the real world.

Outline

>   Switch this to **On** to get a slightly thicker line around the shell boundaries, or to **Only** to show only
>   the shell boundary edges.

Smooth SUBD UVs

>   Ticking this option will render out the UVs according to Renderman's UV smoothing rules. **Note:**
>   This currently only works for quads, and displays lines only (i.e. the quads aren't filled).

Dashed Valley Folds

>   If you are using the flattened geometry as a pattern for folding real shapes, then ticking this option
>   will indicate the valley folders with a dashed line.

Crop Output

>   Tick this and the rendered images for each tile are cropped to the visible polygons, with the specified
>   pixel border added. Alternatively, if you set the border to a value of "a", then the tile is cropped to a
>   portrait A sized paper aspect ratio.

Save

>   Click on **Save** to save the current UV layout into a tiff file with the specified base name; the default is
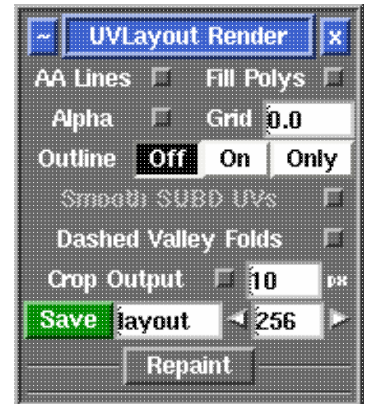>   *layout.tif*.

Name field

>   Change this if you want a different base name to the tiff file created.

Resolution field

>   Set the pixel resolution for the tiff file here.

Once created, the image is displayed; you can then use **File|Save** or **Ctrl-S** to save it to a different location if
you wish, using a ".tif" or ".jpg" filename extension to select the format of the saved image.

Render   42

[Professional Version Only]

Repaint

The Repaint tool allows you to load an old mesh and texture map into UVLayout where you can then modify the UVs (e.g. repack, optimize, modify seams) and then repaint the old map according to the new UVs. To use, the modified mesh with new UVs should be loaded into the 3D window.

Mesh

> Select the file (OBJ or UVL) with the **original** UVs.

Map

> Select the **original** texture map file.

Show Tile Names

> Tick this if you want to check that you have the tiled map naming parameters set properly before repainting. The decoded name for each tile will be previewed in the UV view of the graphics window.

Snap Shells To Pixels

> Tick this if you want to move the current shells so they're locked to the pixel locations; this is needed for lossless copying of shells that have been translated or rotated by 90 degree steps only. You should save your mesh out after running the repaint, because the UVs will have been modified slightly if you have ticked this option.

Trace After Repaint

> The newly repainted texture map is mapped onto the loaded mesh, just as if you'd used the Display Trace tool.

Renormalize

> If the map being repainted is a texture space normal map, tick this and the normals will be adjusted for shells that have been rotated. The **nV** option selects nVIDIA style normal maps, and use **ATI** for maps with an inverted G channel. Its safe to leave **Renormalize** on for standard color maps because UVLayout will only adjust the color values if it detects that a normal map is being processed.

Edge Bleed

> After repainting, shell boundaries are bled out the set number of pixels. This helps make the UV seams less visible when the repainted map is used as a texture.

Repaint Map

> Set the output resolution, then click this to create the repainted map.

Repainting Multiple Maps

If your mesh has multiple texture maps, such as color, specular and normal, then you can get UVLayout to process them in one go. Instead of selecting a texture map in the **Map** selector, you can load a **CSV** extension text file that has the names of the maps, one per line. For example ...

```
fish-color.tif
fish-spec.tif
fish-norm.tif
```

By default UVLayout will create new files for each of the repainted maps with "-repaint" added to the original filename. If you would like a different output name, or to overwrite the original file, add that to the CSV file with a comma between the original and the new names ...

```
fish-color.tif,new-color.tif    <- different output name
fish-spec.tif,fish-spec.tif     <- overwrite original
fish-norm.tif                   <- keep default output name
```

If these multiple maps are different resolutions, and you want the repainted maps to keep the same resolutions, then change the output resolution field to the equals character (i.e. **=**). You can also enter in a resolution multiplier (e.g. ***2**) or divider (e.g. **/4**), and then the resolutions of the output maps are adjusted accordingly.

Repainting Multiple Tiles

If your original UVs are spread across multiple UV tiles, with corresponding maps, then you can also repaint these to the new UVs. Instead of selecting one of the texture map tiles in **Map**, you need to copy and rename any one of the map files so that the U and V indexes or tile number is replaced with the following special tags:

```
#,##,###,####  <-  tile number
U,UU,UUU,UUUU  <-  tile U index
V,VV,VVV,VVVV  <-  tile V index
```

For example, if you're using a U/V convention and you maps are named like this ...

```
fish-color-00,00.exr
fish-color-01,00.exr
fish-color-01,01.exr
```

... then you should copy one of those files and rename it like this ...

```
fish-color-UU,VV.exr
```

... then that file is selected for the **Map** value. UVLayout will then replace the **UU** and **VV** tags with their actual values when trying to find the texture map files for polygons in those tiles.

If you're using tile sequence numbering ...

```
fish-color-1001.exr
fish-color-1002.exr
fish-color-1012.exr
```

... then you should copy one of those files and rename it like this ...

```
fish-color-####.exr
```

... and selected that file for the **Map** value. UVLayout will then replace the **####** with the tile number. By

default, UVLayout will examine the UVs in the original mesh to determine the maximum U index, but many people use "10". If that's you too, make sure you change the **Max U** value to "10" before repainting.

Pattern

Open up the **Pattern** panel if you want to save the current UV layout into a **DXF** or **EPS** file. These files could then be used to cut out a pattern on flat material for the manufacture of the original 3D shape.

Save DXF

> Click to create a DXF file; a file selection windows pops up, where you can set the file's name and its location. The scale of the exported polylines matches those of the imported mesh, and so any manufactured shape should be accurately sized. Tick **Outline** if you only want the shell boundary outlines to be saved out.
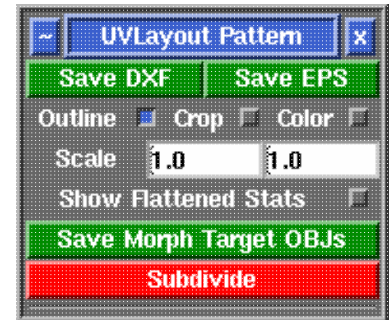
Save EPS

> Click to create an EPS file; a file selection windows pops up, where you can set the file's name and its location. Again, tick **Outline** if you only want the shell boundaries. By default, the UV square is included in the EPS file; if you tick **Crop**, it is removed and the bounding box of the saved out lines is set to that of the visible shells instead. Tick **Color** and the boundary will remain black, but valley folds will be blue and ridges red.

Scale

> Edit these values to adjust the X and Y coordinates exported to both DXF and EPS files.

Show Flattened Stats

> If ticked, shows the real world dimensions of each flattened shell and the UV red square.

Save Morph Target OBJs

> Use this button to save the current mesh into two OBJ files; the first will be the 3D geometry, and the second file is the flattened geometry at the same scale. These two meshes can be morphed between to animate the flattening process.

Subdivide

> Used to split each polygon in the mesh into a number of smaller quads; this may be required on some meshes to get a more accurate flattened shape.

Groups

If one or more files have been imported, then the **File** group will appear and the filenames will be listed. You can select any file from the list and just those polys will be marked.

If the loaded OBJ files contain any polygon, material or smoothing groups, then these will be listed in alphabetical order under the **Groups** panel. One of more groups can then be selected in the list, and the polys that belong to those groups are marked.

Box and Pack by Group

       If the polys of the selected groups have been flattened already, then this button will place all the shells into boxes, a separate one for each group, and then packs them all automatically.

       ⚠️ Because this tool uses packing boxes, its only available in the Professional version of UVLayout.

Detach

       All marked polys are detached, exactly as if you had moved the mouse pointer over them and typed the **Enter** hotkey.

Select

       If the marked polys have been flattened already, then the **Select** button will select those shells. This would allow you then for example to move all those shells off to one side for other processing.

Box

       Again, if the marked polys have been flattened already, then the **Box** button will gather all of those shells together into a Pack box.

       ⚠️ Because this tool uses packing boxes, its only available in the Professional version of UVLayout.

Various methods can be used to select groups in the list:

LMB

       Selects just that group, deselecting all others. Click'n'drag to select multiple groups.

Ctrl-LMB

       Toggles that group, leaving all others as they are. Click'n'drag to toggle multiple groups.

Shift-LMB

       Selects all groups between this and the previous selection.

Collapsing a group list (i.e. clicking on **Polygon**, **Material** or **Smoothing**) will deselect all the groups in that list.

Editing

These buttons can be used to edit the group lists and members.

New

> If no group name is selected, this opens up a text entry field where you can type in the name for a new group. Type the **Enter** key to save the name. Any **G** key marked polygons, or LMB selected shells, will be moved into this new group.
> If a group is selected, this opens up a text entry field where you can edit the group name. Type the **Enter** key to save any changes.

Add

> This adds all **G** key marked polygons, or LMB selected shells, to a group in the list. Click the button first, then click on the group name. If those polygons were already in one or more groups, they will stay as members of those groups.

Move

> This moves all **G** key marked polygons, or LMB selected shells, to a group in the list. Click the button first, then click on the group. If those polygons were already in one or more groups, they will be removed as members from those other groups.

Del

> If no group name is selected, this deletes all empty groups from the list.
> If a group is selected, this removes that group name from the list.

Layers

[Professional Version Only]

Open up the **Layers** panel to organize shells into different layers (maximum of 5). Shells in the upper layers will appear over shells in the lower layers where they overlap. Layer assignments are saved into and restored from UVL files, but will be lost when the mesh is exported to an OBJ file.
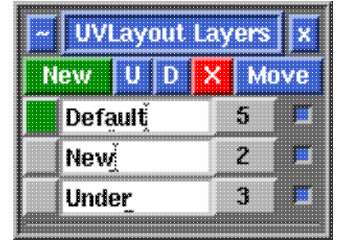
New

>Create a new layer at the bottom of the list. If any shells are picked, they will be moved into the new layer.

U

>Move the active layer up the list.

D

>Move the active layer down the list.

X

>Delete the active layer. Any shells in that layer will be moved into the top layer.

Move

>Move all picked shells into active layer.

Each layer has four widgets:

Active

>Click the gray button to make that the active (green) layer. Collapsing or killing the **Layers** panel will make all layers/shells active.

>Shells *not* in the active layer are tinted gray and behave as if they are locked. They can't be re-flattened, packed, cut, welded or edited in any other way. They can be moved, scaled and rotated with the Space-LMB/MMB/RMB actions, but stay put when the Move/Scale/Rotate tools are used.

Name

>Set the name of the layer.

Pick

>Click the gray button to pick all shells in that layer. Click again to unpick the shells. This button also displays the number of shells in that layer.

Hide

>Untick the toggle box to hide all shells in that layer.

Reshape

[Professional Version Only]

The **Reshape** tool is a specialized variation of the standard UV Copy tool; its chief application is in the sharing of UVs between morph target pairs.

Import Shape

> Loads the source mesh into the same window as the already open target mesh. Its not the UVs that are copied from the imported source mesh, but its shape, and so the already loaded target mesh should have UVs already. The imported source mesh can be moved and rotated with the Space-MMB and Space-LMB hotkey actions.

Delete

> Deletes the imported source mesh.

Transfer Shape

> To transfer the shape of the source mesh over to the target mesh, first LMB select an edge on the target mesh, then MMB select an edge in the same relative position on the source mesh. When you have selected both edges, tap the space bar and the shape will be copied across. **Note:** Both meshes must have the same topology (i.e. the same number and arrangement of polygons) for this to work.

50 / 50

> Also transfers the shape, but creates a 50/50 blend between the source and target meshes. This can be used to develop UVs that minimize distortion across both shapes.

Segment

[**Professional Version Only**]

The **Segment** tool is used to speed up the flattening of "hard" surface
geometry, that is, non-organic shapes like buildings, furniture and other props.

Segment Marked Polys

> Click this to detach and drop all marked polys. Each separate object is
> segmented into a number of shells depending on each poly's surface
> normal. Polys that are facing in a similar direction are kept together,
> but when the angle between them is too sharp, they're split apart.
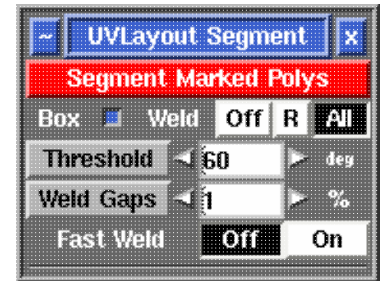
Box

> Dropped shells are boxed. This makes it easier to move them around as a group.

Weld

> When set to **Off**, no re-welding of shells is performed. When set to **R**, shells that form parts
> of revolved shapes (e.g. pipes, wheels, bolts, balls) are welded back together. When set to **All**, all
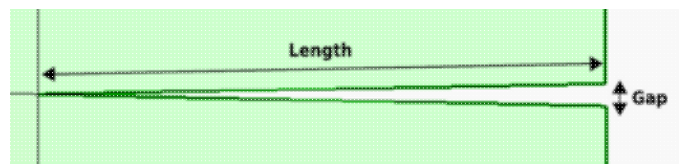> remaining shells are welded so long as no overlaps are created.

Threshold

> This angle determines at which point adjoining polys are split apart. Increasing this angle will result
> in less fragmentation (i.e. fewer shells), but there will be more distortion in the resulting UVs and
> extra cuts or darts may need to be added. Reducing this angle will increase the fragmentation, and so
> more time will need to be spent welding shells back together.
>
> The grey **Threshold** button gives you the option to manually segment some or all of your model.
> Mark one or more faces with the **G** hotkey, then click the button and adjacent polys facing the same
> way, within the threshold, will be filled in.

Weld Gaps

> During the final welding phase, UVLayout
> checks for any narrow V shaped seams in
> the UVs, and these are also stitched up.
> Normally "narrow" means than the gap
> between the end points is less than **1%** of
> the length of that edge, but you can increase
> that with this setting. A larger percentage will mean that wider gaps will also be stitched up.
>
> If you are unsure, leave it on 1% for the normal segment processing, then check the final results for
> any V shaped gaps. If you find some, LMB select those shells, increase the percentage, then click the
> gray **Weld Gaps** button to stitch them up.

Fast Weld

> Normally to weld shells you first tag edges with the **W** hotkey, then use **M** to bring the shells
> together, then tap **Enter**. When **Fast Weld** is turned on, you simply **LMB** click an edge then tap
> **Enter** to weld the two shells.
>
> To help you determine if the selected edge is one you really want to weld, a curve is drawn to the
> matching edge, and a wire-frame preview of the matching shell is drawn in where it'll be welded. If

you want to swap which shell gets moved, use the **S** hotkey. Red curves indicate that the edges can be welded, a blue curve means you can't weld them (i.e. you can't weld a shell to itself), and no curve means no matching shell can be found (i.e. the adjacent poly hasn't been flattened yet).

After the selected edge has been welded, you can use the **W** hotkey to automatically weld any narrow V shaped gaps that remain. The **Weld Gaps** percentage applies here too, so if you make that larger, wider gaps will be welded.

Another effect of **Fast Weld** mode is that cut edges *aren't* opened up when you use the **C** hotkey. This is the same as having the **Open Cuts in UV View** preference temporarily turned off, and it allows you to cut and weld pieces together without needing to re-optimize the flattening afterward.

Quick Start

1. Drag'n'drop an OBJ file onto the "headus UVLayout" desktop icon, choose your options, then click on **Load**.
2. Use the **C** and **W** keys to draw out the boundary of a UV shell.
3. Move the mouse pointer over that shell and use **Enter** to detach it from the rest of the mesh. You can then use the Space-MMB combination to click and drag it further away from the main mesh.
4. Draw out more boundaries on the main or detached meshes, using **Enter** to split up the various pieces.
5. Use the **D** key to drop each detached mesh down into UV space. Once all detached meshes are moved over into UV space, the original uncut mesh will be displayed in the 3D window.
6. Switch to UV mode, move the mouse pointer over a UV shell and hold down the **F** key to flatten it out. You could also use **Shift-F**, which does an initial "bloat" that helps with more complex shapes.
7. Once all your shells have been roughly flattened, use the **Optimize: Run For** button to fully flatten everything.
8. If you get a collapsed UV (one or more red faces on a shell boundary), then you may need to zoom in and move those UVs by hand with the Ctrl-MMB combination. Sometimes its good to use the **P** key to pin moved UVs, then flatten the shell again so that the layout of surrounding areas take into account the new UV location.
9. Use Space-MMB to move the various UV shells apart so they don't overlap.
10. Switch to 3D mode and use the **T** key to cycle between the different textures to see how the UVs are working on the original 3D mesh.
11. Save the mesh out as an OBJ file. You can then load it into other applications for further processing as needed.
12. If you then edit the UVs further in another application, you may want to import the mesh back into the UVLayout tool for some final flattening. Simply Load with Edit selected, switch to UV mode, and hold down the **F** over the modified UV shells, or use **Optimize: Run For** to re-flatten everything.

UVLayout as a Plugin

UVLayout can be run as a plugin to any application that knows how to talk to it. Its still the same GUI and hotkeys as the stand-alone UVLayout, but file IO is handled through special interface plugins that run inside the application, saving you from having to load and save OBJ files by hand.
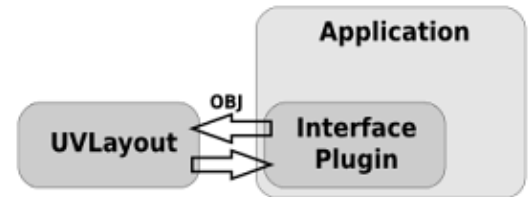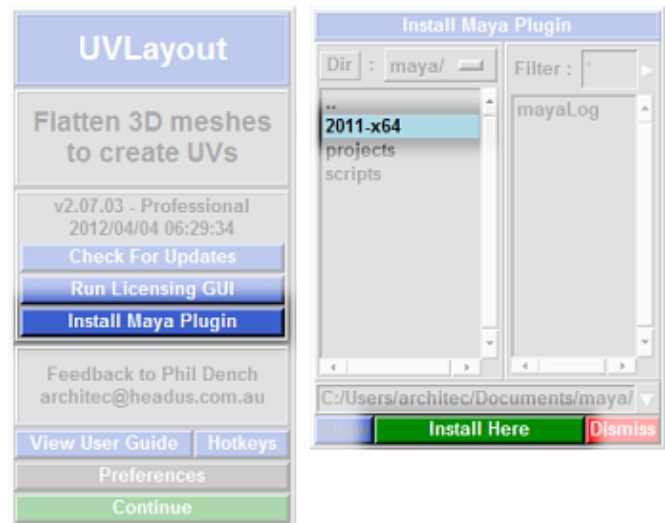
For further information, see the UVLayout Plugins forum.

Maya Plugin

The Maya interface plugin is included with all current releases of UVLayout. If a Maya installation is detected, an **Install Maya Plugin** button will be shown in the **About UVLayout** window.

Click this button and a file selection window will appear, where you need to select which installation of Maya you want the plugin files installed into. Next, click the **Install Here** button and the plugin files are copied into their appropriate folders. You can then exit from UVLayout, start Maya, and you should see a UVLayout shelf. Further details on running UVLayout with Maya can be found on the UVLayout Plugins forum.

Notes