



# modo 302

modo 302 was released in April, 2008 as a free, downloadable upgrade for registered modo 301 users.

The update is available for both Mac and PC.

## new features in modo 302

- feature > Implemented Physical Sky and Physical Sun rendering options. Sun position is based on its time and place channel values (sun position defaults to Luxology world headquarters). A custom luminal function allows sunlight to use solar intensity and color from Physical Sky model when sun position is enabled. The size of solar disc (when viewing the sun itself) is adjustable. Sky haze can be set. A “north” channel is provided to change orientation of physical world in relation to physical sun.
- feature > modo is now location aware. Locate your model’s locations in latitude-longitude and modo will use this plus your timezone/day/time of day for automatic calculations of sun position.
- feature > A new modo File I/O SDK is available to facilitate reading and writing of data to/from modo. Source code samples for loaders and savers are provided for developers.
- feature > modo can now be run in a “headless” mode
- feature > Added new Trackview animation editor to modo. Allows cut/copy/paste operations on keys and is ideal for making high level adjustment to keys such as “ripple edits”. Trackview can be switched between a mode which displays animated channels on selected items to a Dope Track mode where the current selected channels are grouped and sorted into a hierarchy for editing.
- feature > Added a “bloom” post-processing feature to the modo renderer.
- feature > Added new Select Close Loop command. Lets you select two polys that define the direction of the loop and the command will automatically select the rest of the polys in the loop plus all polys on one side of the loop.
- feature > Added new ‘selection border’ action center. Works nicely in combination with the new Select Close Loop command. Places the action center (for say a rotation) aligned with the border edges of a selection set.
- feature > Added new camera navigation method which allows world space moves on XZ or Y plane. This is useful for arch viz navigation and is bound to Alt-Shift MMB and Alt-Shift-RMB for XZ and Y respectively.
- feature > A new Flex tool leverages the new selection border action center and selection based falloff and provides the ability to “pose” meshes with transforms.

## new features in modo 302, continued

- feature > Added support for targeting items with cameras and lights. Focus distance for the camera can be specified and a roll percentage can be set for both cameras and lights.
- feature > Vertex map deformers are introduced. This simplifies the creation of subtle organic animation.
- feature > Added a shader item channel to control the color saturation of the indirect illumination. It can be left at 100% for physical accuracy or reduced for VRay-like results.
- feature > New Edge Split tool allows coincident edges to become “unglued” from one another, Makes it easy to, for example, rotate the lid of a once closed box up from the others.

## improvements in modo 302

- improvement > Added spline interpolation for sculpting strokes.
- improvement > Changed Smooth brush to use a Bezier interpolation. Added in/out slope parameters, and augmented the shape presets including bulge, fat, sharp and very sharp.
- improvement > Added rotation and scale handles to Edge Extend tool. This will be appreciated by those used to a 3ds max workflow.
- improvement > Re-parenting speed is now faster on complex models.
- improvement > Large scene editing has been sped up in certain cases (such as item delete).
- improvement > When Layered PSD files are imported, the texture channels are now based on the name of the layer in the PSD file.
- improvement > Gradients can now be animated.
- improvement > Curves (such as Bezier or simple splines) now support morph maps.
- improvement > Reduced both memory consumption and render time in scenes with off-screen displaced geometry.
- improvement > Selection falloff is supported. Steps can be controlled by RMB (right mouse button)
- improvement > Added “Freeze Deformation” option to freeze command so you can now freeze a deformed mesh such as those that come from an MDD file.
- improvement > Added “slave” switch to force modo into slave mode without having to click a button in the UI. Useful for people with watchdog programs or scripts that re-launch modo automatically. You can also leverage this to make a slave mode icon that you can double-click. Operates identically to clicking the slave mode option in the license dialog, with modo quitting once slave mode is exited, thus making it suitable for unlicensed machines.

## improvements in modo 302, continued

- improvement > Added both a combine mode and also a new key drawing style option to the time slider viewport options menu. Combine mode is “on” by default and the key drawing style is initially set to ‘ticks’ for the time slider channel rows.
- improvement > It is now easier to select polygons by clicking on their faces in wireframe mode.
- improvement > The sculpt shader image quality is improved and thus works well on smaller polycount meshes.
- improvement > Standard Film backs are provided and can be extended by modo users.
- improvement > Added an option in viewport options menu to automatically track selection type. When active, the Dope Sheet will change mode based on the most recent item/channel selection type.
- improvement > You can now select a locator via a marquee selection operation over a locator’s spines as well as its center.
- improvement > Added Pivot & Center selection options to the viewport context menu.
- improvement > Loading of large DXF files is faster.
- improvement > FBX file loading is improved.
- improvement > Enabled the selection of vertex and edge which is connected to both face and subd polygons.
- improvement > Added user names and associated functions for render buffers. Render output names assigned by you are now saved in PSD files.
- improvement > Added an animation preference to set whether or not to keep key timings when the scene frame rate is changed, this defaults to On.
- improvement > Added world snap option to Slice and Spikey tools.
- improvement > Enabled selection of discontinuous UV vertices or edges with SHIFT-LMB
- improvement > Loading scenes with large numbers of items is now over 2X faster in test cases.
- improvement > The symmetry tool now has a surface topology mode (Use Topology option). This mode fixes the symmetry starting from known symmetrical vertices and then heals neighboring vertices step by step.
- improvement > Edge beveling is improved on keyhole geometry.
- improvement > Radial sweep now creates UV’s without you having to select an empty UV map first.
- improvement > Added a new browse button for MDD filename and also added an MDD preload option in the MDD properties.
- improvement > Optimized the performance of Smooth brush, and added a new ‘bulge’ preset. Improved the brush stroke preview quality.

## improvements in modo 302, continued

- improvement > Added Time Zone to accuracy preferences, including GMT variants.
- improvement > Increased bump amplitude in the OpenGL shader to more closely approximate the final render.
- improvement > Changed image map pixel blending option into a 3 way choice: nearest, bilinear, bicubic. Newly created displacement textures now use bicubic interpolation.
- improvement > Added new render outputs that show the incoming direct, indirect, and total illumination. Multiplying these by the diffuse coefficient output yields the direct, indirect, and total diffuse shading.
- improvement > Added new render outputs that show the specular and mirror reflection coefficients.
- improvement > Added an option to specify a constant alpha value for a shader item for creating “holdout” objects. Useful for integrating modo renderings into a compositing system.
- improvement > Changed fps preference to an integer value with hints in the user interface for standard rates. Added an additional preference for a custom rate and also a checkmark next to the current frame rate.
- improvement > Image resampling is now multi-threaded.
- improvement > Added a White Level control which specifies the radiance or luminance corresponding to white (a pixel value of 1.0). It’s an alternate method of displaying or editing a render output item’s exposure multiplier channel.
- improvement > Added create keys (for animated channels) input mapping, assigned to middle mouse button (MMB).
- improvement > Added edit selected keys input mapping, assigned to RMB.
- improvement > Added a ‘normalize’ channel to envMaterial, used to toggle normalization of physical sky luminance based on sun luminance.
- improvement > Vertex (weightmap) deformers can now be parented.
- improvement > Updated the item effector tool to support multiple selected locators. This allows tools such as the Clone tool, which use the item effector, to support multiple selected items when cloning.
- improvement > Curve extrude has been improved to now work with edges.
- improvement > Vertex map deletion now presents a warning dialog before deleting the map.
- improvement > The Viewport option called Orbit Selected now works with non mesh items.
- improvement > Changed Edge Extend to relocate the haul position to the vertex position on mouse down for improved geometry snapping.
- improvement > It is now easier to select discontinuous UV vertices or edges with Shift-LMB.

## improvements in modo 302, continued

- improvement > Added new edge.join command to weld edges.
- improvement > Reversed direction of vertical panning in LightWave camera navigation to be consistent with the convention that modo uses.
- improvement > Item renaming is now disabled on click if the item is selected and auto visibility is on.
- improvement > Added UV symmetry command to modo tool bar.
- improvement > Network rendering can now take advantage of Walkthrough Mode, and this will generally speed up network rendering when the master is faster than the slaves. When rendering over a network the master now writes its irradiance cache to a file in the assets directory, and slaves read the file when starting a new frame.
- improvement > Changed the default state of Vertex Merge option of mirror tool to be True.
- improvement > UV projection tool will now work with Auto Activate.
- improvement > Changed the # of the clone setting so that when Replace Original is deactivated the Clone value of 1 results in a single clone rather than requiring the user to increase the value to two.
- improvement > The Bend tool has been improved so that it pays attention to the orientation of the bounding box.
- improvement > Duplicating shaders in the Shader Tree now has consistent behavior with that of item duplication.
- improvement > Action Centers now correctly preserve the initial Auto Action center position in the case of off-handle clicks in other orthographic views.
- improvement > Mirror Instance is now in the drop-down menu like Array, Radial Array, Clone, etc.
- improvement > Texture MIP mapping is now multi-thread aware using the maximum number of threads available as set in the global rendering preference.
- improvement > Ortho and perspective tabs can now be linked so that they now share center, scale and rotation. Changed the default viewport options to linked perspective.
- improvement > modo no longer spends time to update displacement values when a displacement layer is disabled, resulting in faster OpenGL response.
- improvement > Constrain to Background remains active and is no longer cleared by a toolpipe clear (e.g. tap Spacebar).
- improvement > The vertex hit distance has been given slightly more priority compared to edges and polygons to make it easier to select/grab vertices when using the Element Move tool.
- improvement > Removed a noticeable delay that could occur when setting a texture map's effect to displacement.
- improvement > Improved response (e.g. speed) when using the Range slider.

## improvements in modo 302, continued

- improvement > Changed instance clone to use the last mesh selected if nothing is currently selected.
- improvement > Added the Gradient Editor to the Layouts -> Palettes menu.
- improvement > Image reloading now works on entire image selection set, not just one image.
- improvement > You can now dismiss an inline edit field with tab or shift-tab. ESC works more reliably now as well.
- improvement > The selection rollover for element action center and element falloff work as component pre-highlight in item modes. Previously, the element action center worked in item mode -- setting the center and axis based on the mesh element under the mouse -- but gave no visual feedback.
- improvement > Changed Boolean command so that the command checks whether the meshes have closed (solid mesh) or not before the operation.
- improvement > Fixed element falloff tool to draw the radius ring in the world space when the mouse cursor is on a mesh item.
- improvement > Added a Displacement Ratio control to the render item's properties form. Also added dependencies for the Alpha Value and Bloom Threshold controls.
- improvement > The viewport fit command now considers a deformed mesh (from MDD or Morph deformer).
- improvement > modo will now apply locator xform items (e.g. position, rotation, size) from saved material presets.
- improvement > The Vertex Map List viewport no longer has hard-coded context menus. It is now a form with input remapping support.
- improvement > Edge selection is improved by better internal handling of boundary edges.
- improvement > Tooltips are now suppressed to keep them from opening when edit fields are active, as this could be distracting and sometimes stole input focus.
- improvement > Pivots are now visible with Group items.
- improvement > Enabled fourth and fifth button support on Windows.
- improvement > inline renaming in the Shader Tree now works on camera and light items.
- improvement > Fixed sculpt tearing condition that could occur when using an interpolated stroke on a displacement map.
- improvement > modo no longer automatically shows groups in expanded form in the Item list when items are parented inside (example: Instance Hierarchy).
- improvement > Improved the speed of texture updates during animation playback.
- improvement > Removed a limitation where layered PSD files would not persist through a scene save-load

## improvements in modo 302, continued

sequence. Layered PSD files can now be loaded and used as texture layers and their state is persistent in the LXO file.

- improvement > The sculpt tool now respects current Edge selection.
- improvement > Upon loading, material presets are now added above the current shader selection (instead of at the bottom of the Shader Tree).
- improvement > Bake From Object now renders black with zero alpha in voids (areas that are present in the low poly object but missing from the high poly object).
- improvement > Object Baking no longer applies UV border expansion to the alpha channel, making it easier to get the exact profile of high polygon count geometry for say, a clipmap used in a game engine.
- improvement > Changed the process of loop and ring selection to ignore hidden edges. Hidden geometry is no longer considered during these selection processes.
- improvement > Slice tool, Pen Slice and Drill all now support text polygons.
- improvement > Slave rendering jobs are now assigned from the end of the master's bucket list. Also, slaves with exactly 4 cores will now get 8 jobs instead of just 4.
- improvement > Partial texture updates can be handled in Render Preview without a new rendering being initiated from scratch.
- improvement > Sculpt mesh update is faster when ending an interpolated stroke outside of geometry.
- improvement > Currently selected polygons are now taken into account when you are doing standard projection painting.
- improvement > Improved the selection sensitivity of the center node in Solid Sketch.
- improvement > Removed an annoying pause that sometimes occurred when mesh sculpting with symmetry On.
- improvement > Added support for units with ?+n and ?-n. Lets you, for example, assign a hot key to set end angle on Radial Sweep.
- improvement > Improved the ability to extrude edges on text polygons.
- improvement > Auto Action Center now returns the center of the bounding box instead of the averaged position.
- improvement > Added support for 'Gimble' rotation to the 'Y' transform tool
- improvement > Added option to save to HPGL (for printing).
- improvement > Updated modo Exploration to include the "modo in Focus" video album
- improvement > Added "Always Raycast" option to the edge slice tool to help in using the tool in wireframe mode on back faces (in which case you would want this checked off).

## bugfixes in modo 302

- bugfix > Previously, if you selected a nozzle brush and had speed control the size, it would stutter and you will never obtain a consistent stroke size. This is corrected.
- bugfix > Curve tool previously allowed the creation of a “closed” curve with just 2 points. This is fixed.
- bugfix > Fixed a timeout situation where PC slaves could lockup unexpectedly.
- bugfix > Fixed a case where a camera viewport was changing to a perspective view if you closed the scene.
- bugfix > Falloffs are now working with item level transforms
- bugfix > Fixed a crash bug that could occur when saving a specular color texture.
- bugfix > Eliminated a condition where if you were viewing objects within a scene that are referenced imports from another scene, the fit to view function did not work.
- bugfix > Mesh Paint density now correctly accounts for falloff.
- bugfix > Fixed a condition where if image ink was used with a soft border, the right edge and bottom edge would not be affected.
- bugfix > Revised the way modo stores recorded macros in memory. This fixes possible crashes or other corruptions when nesting command blocks.
- bugfix > Corrected a case where modo rendering slaves were attempting to load irradiance files from the wrong directory.
- bugfix > Fixed a sculpt update error which could happen when using the Stamp brush and interpolated strokes together.
- bugfix > Fixed a bug in object-to-object baking of render outputs in which the shading was using the UV coordinates from the low poly object instead of the UVs from the high poly object.
- bugfix > Fixed a crash bug that could occur with the Edge Slice tool.
- bugfix > Materials are no longer removing previous bump/displacement shaders for OpenGL evaluation. This was causing rendering issues with vector displacements using blend modes, as the material was replacing the displacement rather than adding to the effect.
- bugfix > The Freeze command now correctly uses the deformed mesh when the deformation is enabled on the tool viewport.
- bugfix > Fixed a bug that could result in artifacts while painting in symmetry mode using the Procedural brush.
- bugfix > Fixed issues with Stamp painting tools when they were used in the UV view.
- bugfix > Edge Bevel now functions correctly when used in symmetry mode. Resolved an Edge Bevel crash bug that could occur in certain conditions.
- bugfix > Fixed a crash bug in UV view when using Local action center when some polygons were

## bugfixes in modo 302, continued

unmapped.

- bugfix > When painting, the text paint tool will now better handle areas where edges are crossed.
- bugfix > Fixed a bug where the Text tool was failing if there was no mesh item present in the scene.
- bugfix > Faces of text polygons now point in the correct “up” direction when created on the Y-axis.
- bugfix > Fixed a bug that could crash modo for cases where UV textures had no vmap for the mesh item.
- bugfix > Indexed image formats are now correctly displayed in clip list (for example 8 bit TGA files).
- bugfix > Fixed material selection mode support in transform tool.
- bugfix > Fixed a bug where falloffs were not working with grouped polygons. patcharea after dropping the tool, would crash.
- bugfix > Fixed the direction of displayed axis handles in the Item Clone Tool when there is an item level transform applied.
- bugfix > modo no longer appears to “hang” when the Path falloff is used.
- bugfix > Lasso falloff now works reliably when tools remain active.
- bugfix > UV editing works as expected now when trying to move polygons with Tear Off enabled Off.
- bugfix > Fixed a bug that was breaking symmetry when the user disabled symmetry after using the Soft Drag tool.
- bugfix > The Cube Primitive Round Edge amount was not updating automatically. This has been rectified.
- bugfix > Attempting to change the network shared directory on a Slave could crash modo. Now the slave window’s Set Shared Directory button aborts any rendering in progress and then opens the directory picker.
- bugfix > Animation playback of scenes that used Morph data on a mesh with UV maps could crash modo.
- bugfix > Fixed problem where duplicated items did not always have the same transform as the original.
- bugfix > Fixed a hang/crash bug when using a doubleclick operation to select all keys on a channel, then deleting them followed by undo or simply adjusting their time/value.
- bugfix > Eliminated a crash condition when creating a Preview while the render item was not at the root.
- bugfix > Fixed a form duplication error that resulted when you moved a form from one group into another and closed and then re-opened modo.
- bugfix > Fixed a problem where unselected geometry that shared a UV border was still being modified.
- bugfix > Fixed a situation where switching to a different layout was causing image ink to disappear and lose interactivity. Fine tuned image ink stamp mode to work with a tablet and also to only affect visible polygons.

## bugfixes in modo 302, continued

- bugfix > Fixed a problem where symmetry could easily break when not using paint select.
- bugfix > Corrected a displacement update bug that was occurring when changing material displacement amount. This could result in increased displacement effect in the OpenGL viewports.
- bugfix > Fixed a problem where Curve Extrude was still using hidden geometry to extrude.
- bugfix > Fixed a problem where modo did not realize that it was missing an image sequence when a scene was opened.
- bugfix > Fixed a bug of edge.join command when a pair of edges shared one identical vertex.
- bugfix > Fixed crash bugs on texture generation and hit testing for 2 point polygons. Encountered when loading scenes that contained UV mapped materials as well as 2-point polygons (as are often created for Solid Sketch nodes or skeletal/bones representations from imported data).
- bugfix > Fixed a problem where if you had a displacement texture and you moved a bump layer below it, the displacement was affected.
- bugfix > Resolved a user interface bug where the tool properties form wasn't switching to UV mode until you clicked on some part of the form.
- bugfix > Corrected the result from using a flatten layer operation with two vector displacement maps in the Shader Tree.
- bugfix > Corrected the result from using Image Invert on sculpted data.
- bugfix > Fixed orientation of the drawing compass on ortho views with Z-up and X-up.
- bugfix > Fixed a user interface bug on Windows systems where it was taking two clicks to get rid of items that started with an inline edit.
- bugfix > Fixed a bug where using the sculpt-tools on an object placed in a layer could cause another piece of geometry placed in one of the following layers to not be visible.
- bugfix > modo could become instable after you hid geometry on complex objects and modo attempted to display a UV view.
- bugfix > Nozzle brush resizing was not being displayed correctly when sizing was set to pen pressure
- bugfix > Fixed saving of tabbed viewports on a Quit operation.
- bugfix > If an entry in the form editor was dragged out of the window (without letting go of the mouse button), modo would previously crash as soon as it was dragged back into the form editor window.
- bugfix > Fixed a situation where if a surface had a displacement layer, updates to another texture layer could cause an update of the displacement on top of the existing displacement.
- bugfix > Fixed a crash that occurred when a reflection shader inside a group material was the top shader in the Shader Tree.

## bugfixes in modo 302, continued

- bugfix > Fixed a crash that came from sculpting on a mesh with no vmap entries for the current vmap selection. The original reported case was using a “background” mesh with a morph vmap active when the active mesh had no morph maps at all.
- bugfix > Fixed a scene loading bug in which the user was prompted to locate the format of an image file if they had chosen “No” when asked about locating the image file itself.
- bugfix > Using grid snap with Auto Action center will now let you accurately snap to the grid.
- bugfix > Fixed issues related to cloned objects getting bad pivots and transforms in certain cases
- bugfix > Fixed linear generator to draw the handles correctly. If you rotate the viewport with the clone tool active, the handles now stay put.
- bugfix > Fixed a condition where slaves that were unable to render were still being assigned buckets, resulting in the master having to clean this up at the end and more functional slaves not being assigned the buckets to render.
- bugfix > Sequenced clips are now handled correctly during drag & drop operations in the Shader Tree.
- bugfix > While still not officially supported, we removed a limitation that was preventing modo from starting up in the Microsoft Vista operating system
- bugfix > Fixed a problem where deletion of UV maps was not multi item aware.
- bugfix > Layer masks now update the Shader Tree correctly.
- bugfix > Fixed a bug where selection of textured items in a reference scene were not showing the textures in OpenGL or final rendering.
- bugfix > Corrected name of color picker viewport which was displayed as “Indexed RGB 24” .
- bugfix > When recording a macro, ‘Store in config’ now properly saves.
- bugfix > Fixed an intermittent bug where textures would not always reload correctly.
- bugfix > Edits to a displacement image are now no longer retained if you close the image and don’t save.
- bugfix > The center of the Bevel tool now shifts correctly with the selected geometry.
- bugfix > OpenGL view will now correctly update instance materials.
- bugfix > Fixed a bug where if you added an alpha render output in the Shader Tree it would render separately with F9 but fail to display in the Preview render window.
- bugfix > Fixed translation bug with ‘Local’ axis for items in a hierarchy where one or more parent items were being scaled.
- bugfix > The Tack tool now works properly on transformed items.
- bugfix > Freezing an item-scaled mesh now stores the morphs properly.