
Welcome to MachStudio™ Pro version 1.4

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MachStudio Pro reinvents the visualization workflow by putting the power of real-time graphics processing at your fingertips and real-time rendering on your desktop. Features include a nonlinear animation timeline providing for multiple layers of animation channels, unlimited camera setups, intuitive lighting set-up for designing both simple and complex light rigs and an interactive materials editor.

MachStudio Pro lets you truly Work at the Speed of Thought!

For more information on MachStudio Pro, visit our website at www.studiogpu.com or email support@studiogpu.com

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Congratulations on installing MachStudio Pro!

Release Notes

The following are the new features and key fixes included in version 1.4 of MachStudio Pro:

New Features and Updates

- Percentage-Closer Soft Shadows (PCSS)
- Physical Cameras
- Export directly into a layered Photoshop file
- Materials ID renderer
- Vertex animation compression
- Depth Peeling to SSAO to resolve hidden surfaces.
- Support for 32-bit floating point TIFF
- Ramp texture generation for projected lights
- Off-axis stereoscopic rendering in a new drop-down within Stereo options of a perspective camera.
- Invisible object mask alpha channel black
- Drag and Drop MAB and GXB files from Windows Explorer into MSPro
- Added Sinc, Triangle, and Lanczos filters for capture anti-aliasing
- Multithreaded UI and renderer on different threads
- Support for Depth Peeled Transparency
- For very large scenes, when Package Scene zip reaches 2GB, new zip file are created until the archiving is complete
- Check box to top of Render Layer tree so all render layers can be toggled on/off at once
- Normal Maps are present in all shaders. Cartoon, Simple, and Phong support bump mapping too.
- Command line now allows scripts to pass in arguments accessible through sys.argv.
example: >MachStudio.exe /lastfile /script "MyScript.py -arg1 -arg2" /render
- New command line options: /capFormat, /capCompress, /capWidth, /capHeight are also functional.
- Auto increment spin controls

New Python Commands

Debug Log

`mach.debugLog(..)` - "Write a message to the debug log"

`mach.debugWarning(..)` - "Report a warning to the debug log"

`mach.debugError(..)` - "Report an error to the debug log"

Capture

`mach.render()` - "Render the current scene"

`mach.batchRender()` - "Perform a batch render with current batch data"

`mach.loadBatchFile(fileLocation)` - "Load batch data from a batch data file."

mach.saveBatchFile(fileLocation) - "Save batch data to a file."
mach.addToBatch(sceneLocation) - "Add a scene to the batch list"
mach.deleteFromBatch(sceneLocation) - "Remove a scene from the batch list"
mach.setSkipSceneWithErrors(True/False) - "Toggles the skip scene with errors flag for batch renders"

Render Layers

mach.addRenderLayer() - "Add a new Render Layer to the system"
mach.deleteRenderLayer(layerName) - "Delete a Render Layer by name"
mach.duplicateRenderLayer(layerName) - "Duplicate a Render Layer by name"
mach.renameRenderLayer(oldName, newName) - "Rename a Render Layer"
mach.getRenderLayers() - "Return a list of all render layers"
mach.setRenderLayerState(layerName, True/False) - "Activate or Deactivate a render layer"
mach.setRenderLayerObject(layerName, objectName, True/False) - "Activate or Deactivate an object for this render layer."
mach.setRenderLayerPref(layerName, propertyName, value) - "Set the render pref property of a render layer"
mach.getRenderLayerPref(layerName, propertyName) - "Get the value of a render pref property"
mach.getRenderLayerPrefProperties() - "Get the list of render pref properties"
mach.setRenderLayerOutput - "Set the render output property of a render layer"
mach.getRenderLayerOutput - "Get the render output property of a render layer"
mach.getRenderOutputOptions - "Get the list of Output Options for the render layers"
mach.getCaptureProperties - "Get a list of all capture properties"
mach.getCaptureValue - "Get the value of a specified capture property"
mach.setCaptureValue - "Set the value of a specified capture property"

Timeline Operations

mach.deleteMarkerAtFrame(frameNumber) - "Delete a marker by using frame index."
mach.addMarkerAtFrame(frameNumber, type, note) - "Add a marker at the given frame number with a type and note"
mach.addNoteAtFrame(frameNumber, Status, Note)
mach.DeleteNoteAtFrame(frameNumber)
mach.setCurrentFrame(frameNumber) - "Set current frame in timeline."
mach.getCurrentFrame() - "Return the current frame on the timeline."
mach.getMinimumFrame() - "Return the minimum frame value on the timeline."
mach.getMaximumFrame() - "Return the maximum frame value on the timeline."
mach.setFrameRange(minFrame, maxFrame) - "Set the frame range for the timeline."

Menu Commands

Menu -> Create -> Python Object -> Copy Object as Python Object
"Take the selected object and create a script to duplicate that object. Python Objects can be created in one scene and then loaded into another scene."

Script Commands

mach.createIconCommand("Script Text", functionName, "icon_filename") - "Add a python script to the Scripts menu and define an icon to represent that script in the python toolbar."

Key Fixes

- Stereo output filenames have the frame number after the "_Left" and "_Right" tags
- Shadow Quality UI list added to Capture Preferences
- Color dialog remembers its last position
- Added render layer name to the render log
- Select full text after pressing Enter in text boxes
- Added all render passes to view menu
- New render layer Dirty Matte in place of render alpha flag
- Non-visible objects cast shadows to render preferences
- All sub-surface channels now mappable
- Added option in User Preferences called "duplicate objects keep name" which uses different naming methods when duplicating or creating objects.
- Added feature to batch rendering: option of skipping scene with rendering errors.
- Removed "Enable Invisible Objects Mask Black" from Viewport Render Prefs
- Added a better error message when failing to write image during capture.
- Fixed mach.setMaterialValue python command
- Renamed "Shadows Only" to "Shadow Mask" Fix Light Shafts looking weird in transparency Full mode
- Correct stereo camera offset units (fixes mismatch with Maya)
- Any errors from python scripts executed through the script menu or hotkey will now be reported in the python dialog
- Final image after a non-jittered + multi-sampled capture is now correctly down-sampled
- Ultra-high resolution stereo renders yield correct captures
- Video files are down-sampled just like still images
- Fix for holes in subdivision surfaces
- Fixed Camera pan bug
- First frame of stereo + velocity captures is now blank
- Added 4 different ramp interpolation methods: none, smooth, bump, spike
- Python script populateRenderLayers() can populate many unique render layers, see PopulateAllLayers.py for details
- Fixed proxy updating for material properties that are built-in
- Creates a mini-dump file whenever MSP crashes
- Overwriting drivers will pop an error message
- Added 2 new subsurface shaders and reverted the 2 original subsurface shaders
- Shadow color not multiplied with gel color
- Fixed issue where duplicated render layers wouldn't render correctly

- Fixed splash screen crash on long scene loads
- Fixed black lines in AO with blur on
- Fixed crash if the output path's drive is missing
- Change the light range behavior back: it doesn't cut off after it passes the light range
- Fixed for anti-aliased alpha edge problems (partial fix)
- Fixed for importing light sets and environments losing object bindings
- If the surface is lost, a dialog will pop up informing the user and the render position will be saved before MSP closes
- Better handling of unsupported tiff formats
- Render layer render prefs now populate the render categories that are important to the current render type
- Fixed pivot point issues
- Make camera near plane minimum 0.01, default 0.1, UI increment 0.1
- Make camera far plane UI increment 1.0
- Change the meaning of "Receives Shadows" to be more literal: projected lights will still affect the surface, but shadows will be enabled/disabled.
- Shader combo-box is now a file-picker
- Any non-MachStudio shaders get sent to .zip when export. This can be tested with a shader that is named differently than the current ones. A locate dialog will come up if a shader isn't found.
- Let transform gizmos and icons render in AO-Only, Normals, Depth, Illumination, and Shadow Mask renderers
- Fix bug with loading DDS textures in 64-bit
- Fixed crash when no render layers selected
- Added video memory reporting to the "~" tilde debug display
- Pasting Drivers across multiple objects implemented.
- Splash Screens floats over the parent and beneath other pop up windows.
- Stereo parameters are now keyable
- Multiple drivers won't move when one of them hits the maximum or minimum.
- Writing out alpha channel works when DOF/glow are selected.
- RenderProgressDialog changed to Modal.
- Fix bugs that duplicate objects keep name doesn't work with character object in scene
- Group material layers into compressible sections in Object properties dialog
- Render video files to render layer directories
- If "Use Render Layer Name as Directory" and "Use Render Layer Name in Filename" is not selected pop up a warning about the risk of overwriting output files.
- Updated capture option GUI for render layer re-organization.

- Render statistics dialog is now titled "Render Log"
- Updated libTIFF. 64 bit MSP will no longer pop up a warning when reading in TIFF files.
- Fixed transparency full crash (Bug)
- Fixed AO tint color bugs
- Changed flag on effect Begin() so that it does not save and restore state -> makes files with large number of fragments render faster.
- Fixed bug where wrong frame rate appeared in animation drivers when loading animations through the "create" menu
- Fixed bug where loading splash screen wouldn't disappear.
- Capture gets alpha values from pixels
- Capture can capture floating point buffers from supported formats
- Fixed bug with EXR writing RGBA channels with wrong names
- Fixed bug with EXR writing RGBA8 format incorrectly
- Fixed jitter with floating point buffers
- Fixed jitter with AO (depth pass)
- Jittered sampling defaults to true
- XML writer handles stacked elements more than one level deep
- Velocity maps: geometry isn't distorted anymore
- Velocity maps: velocity renders don't approach black with high sampling
- Velocity maps: jitter / AA works
- Render progress dialog does not block by the render window while rendering.
- Fix bug with tutorial link
- The maximum scene time changes according to the user preference when user create new scene.
- Fixed the bug with the out of bounds values being accepted with the numupdown control. Minimum value is inserted for a wrong input.
- Fixed bug that users can add multiple markers/notes at a single place
- Added a button to create new folder in the material browser.
- Edited the partial_open_button(:) to collapse everything else except the one selected.
- The title bar updates to 'untitled' when a new document is open.
- 'Add Driver' removed from Actions menu.
- Fixed Matte render mode with transparency.
- Fix bug that crashing when capturing after deleting a camera
- Fix bug that getting stuck at batching render mode
- Fix bug that crashing when deleting scene at batch rendering dialog
- Fixed tangent space calculations for all normals.

- New displacement parameters are now saved.
- SSAO overscan parameter saved.
- Pop up a dialog when missing a texture during scene export.
- Fixed several more Blend modes to support Premul Alpha (watch for darker renders, this indicates old blending).
- Improved camera panning based on pick depth
- Expanded slider ranges when a value is typed outside of the current range
- Fixed a stereo camera bug that caused shadows to creep.
- Separated GlobalWireframe calls from DirectX.
- Fixed conflicting property names in CarShader.fx
- Restructured Tessellator to use implementations. Currently only ATITessellationDX9 implementation supported.
- Added new render view menu items and key bindings.
- Fix for render window sizes larger than screen resolution (aspect ratio is maintained, but size is reduced).
- If a user doesn't have a User Python directory, one will be created for them.
- MSP will exit gracefully if video card does not support shader model 3 or has less than 512mb of memory
- Report video memory usage based on internal counts of allocated resources (instead of relying on dx9 to report it)
- Fix for SSAO border (uses an overscan to render outside the frame), size is configurable.
- Changed all shaders with alpha to pre-multiplied.
- Outline supports Anti-Aliasing
- Added MinWidth and MaxWidth to outline to specify variable line widths for inlines.
- Added Specular Power to Cartoon Shader.
- Playback no longer starts after the first 24 frames
- Updates cURL to version 7.19.5
- Updated to Python 2.6.2

Install Directories

The User Data Path and User Documents Path are different on the various operating systems. The data paths may also be different depending on the user install.

Below are the MachStudio Pro directories

User Projects = User Data Path + "\Projects"
User Configs = User Data Path + "\Configs"
Error Log = User Data Path + "MachStudio.log"

User Python = User Documents Path + "\Python"
User BackUps = User Documents Path + "\BackUps"
User Footage = User Documents Path + "\Footage"
Dump File = User Documents Path + "CrashDump.dmp"

Materials Lib = User Documents Path (or Shared Documents Path) + "\Stock"
Tutorials = User Documents Path (or Shared Documents Path) + "\Tutorials"

MachStudio Pro = User Install Path + "\MachStudio Pro"
Exporters = User Install Path + "\MachStudio Pro\Exporters"

Windows 7

Install Path = c:\Program Files\StudioGPU\MachStudio Pro
User Data path (current user) = /Users/USER_NAME/AppData/Local/StudioGPU/MachStudio Pro
User Documents path (current user) = /Users/USER_NAME/Documents
Shared Documents path (all users) = /Users/Public/Public Documents

Windows 7-64

Install Path = c:\Program Files (x86)\StudioGPU\MachStudio Pro
User Data path (current user) = /Users/USER_NAME/AppData/Local/StudioGPU/MachStudio Pro
User Documents path (current user) = /Users/USER_NAME/Documents
Shared Documents path (all users) = /Users/Public/Public Documents

Vista

Install Path = c:\Program Files\StudioGPU\MachStudio Pro
User Data path (current user) = /Users/USER_NAME/AppData/Local/StudioGPU/MachStudio Pro
User Documents path (current user) = /Users/USER_NAME/Documents
Shared Documents path (all users) = /Users/Public/Public Documents

Vista-64

Install Path = c:\Program Files (x86)\StudioGPU\MachStudio Pro
User Data path (current user) = /Users/USER_NAME/AppData/Local/StudioGPU/MachStudio Pro
User Documents path (current user) = /Users/USER_NAME/Documents
Shared Documents path (all users) = /Users/Public/Public Documents

XP

Install Path = c:\Program Files\StudioGPU\MachStudio Pro

User Data path (current user) = Documents and Settings/USER_NAME/Local
Settings/Application Data/StudioGPU/MachStudio Pro

User Documents path (current user) = Documents and Settings/USER_NAME/My Documents

Shared Documents path (all users) = Documents and Settings/All Users/Shared Documents

XP-64

Install Path = c:\Program Files\StudioGPU\MachStudio Pro

?User Data path (current user) = Documents and Settings/USER_NAME/Local
Settings/Application Data/StudioGPU/MachStudio Pro

User Documents path (current user) = Documents and Settings/USER_NAME/My Documents

Shared Documents path (all users) = Documents and Settings/All Users/Shared Documents