

5.00.00

Official release

Date – 26 May, 2022

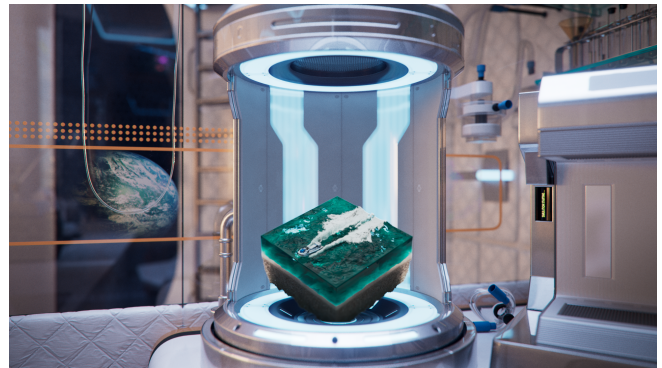
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More control over Active Bodies

Create procedural animations for active bodies with a directable **Thrust** **r Force**.

Restrict active bodies to move or rotate along a selected horizontal or vertical axis using the **Axis Lock**.

Extra control over how active bodies interact with your scene — choose whether they should emit, attract, and retain fluids, and much more.



New and enhanced presets

Create realistic effects quickly and easily with new and enhanced presets.



Realistic Foam Patterns

Create more realistic foam, faster. Easily add variety to the size and look of your **patterns**.



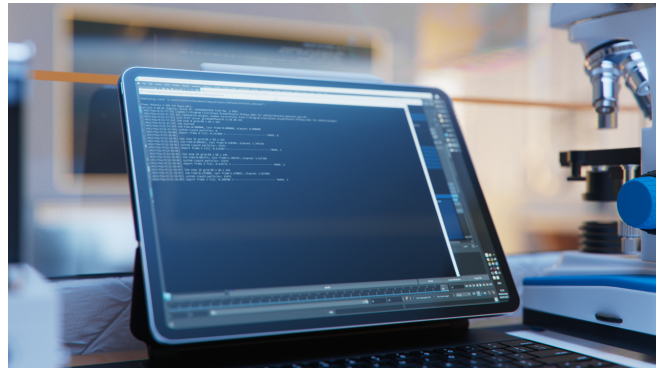
Voxel Shader

Shade fire and smoke simulations, and meshes in a single simulator using the [Voxel Shader](#) — giving you more time to be creative.



Standalone Simulations

Speed up your simulations with the initial implementation of the [Phoenix Standalone Simulator](#) and easily debug your scenes through the Phoenix simscene Node Editor.



Combined changelog since Phoenix 4.41:

- | | | |
|------------|--------------------------|---|
| NEW | FLIP SOLVER | New 'Size Variation' and 'Stringy' options for the Foam Pattern shapes, allowing for more diverse and interesting patterns |
| NEW | FLIP SOLVER | Multithreaded the routine where moving obstacles push the FLIP particles |
| NEW | FIRE/SMOKE SOLVER | 'Burn Smoke RGB' color option for coloring the smoke created by fuel burning |
| NEW | ACTIVE BODIES | Pick Active Bodies as emitters in Sources, as attractors in Body Force, in 'Distance To' fields in Tuner Expressions, as Birth Volumes and Render Cutters |
| NEW | ACTIVE BODIES | New Thruster node for the Active Bodies, allowing you to propel an active body in a certain direction, which can also be attached to the body so it changes direction as the body rotates |
| NEW | ACTIVE BODIES | New Axis Constraint node for the Active Bodies, allowing you to block the movement of the active body in a certain direction, or to also stop the active body from rotating around a certain axis |
| NEW | ACTIVE BODIES | New option in the Active Body Solver to use the Simulator's jammed walls as obstacles for Active Bodies |
| NEW | ACTIVE BODIES | Added an 'Affect by Foam' option to the Active Body Solver that controls how strongly the Foam pushes the Active Bodies - by default it is off |
| NEW | VOXEL SHADER | New separate Voxel Shader node, allowing shading of both fire/smoke and meshes from the loaded data of the same Simulator without having to duplicate the Simulator |
| NEW | PARTICLE SHADER | Option to flatten particles near the Liquid Simulator's borders in Ocean Mesh mode, like the vertices of the ocean do |
| NEW | PARTICLE SHADER | 'Color From RGB Channel' option allowing for coloring the rendered particles based on Phoenix's RGB channel much faster and without the need to plug a Particle Texture in the Color Map slot |

NEW	PRT I/O	PRT cache import straight into the Simulator and the Standalone Preview, without the need for the PRT Reader node. This also allows retiming of PRT sequences
NEW	STANDALONE SIMULATOR	New "phoenixfd.exe" command-line executable that simulates .simscene files exported from 3ds Max, similar to V-Ray Standalone. It simulates up to 40% faster than inside 3ds Max or Maya. Currently it only supports Simulator and Source nodes, as well as Phoenix node properties. Still to be added are: Foam/Splash options, support for animated options and animated geometries, resimulation, textures
NEW	STANDALONE SIMULATOR	Phoenix FD menu option to Export, Simulate and simultaneously launch the Standalone Preview application to observe the simulation result
NEW	STANDALONE SIMULATOR	Added a Phoenix Node Viewer application for exploring the node graph of .simscene files. Dragging and dropping would also display .vrscene files
NEW	STANDALONE PREVIEW	Mesh Preview, including wireframe mode, customizable via the command line
NEW	STANDALONE PREVIEW	Viscosity Voxel Preview
NEW	GPU PREVIEW	Smoke Opacity modulated or replaced by textures will show in the viewport GPU Preview
NEW	CACHE CONVERTER	Reduce or increase grid resolution with the cache_converter tool
NEW	TOOLBAR	Simulation Restore button in the Phoenix toolbar
NEW	PRESETS	New 'Jet Engine' and 'Stormy Sea' quick setup toolbar presets
NEW	PRESETS	New 'Ice Cubes' and 'Speedboat' quick setup toolbar presets
NEW	PHOENIX	Support for 3ds Max 2023
NEW	PHOENIX	Windows 11 support for NUMA machines. Windows Vista is no longer supported after this change and the minimum supported version is Windows 7
NEW	USER INTERFACE	Added tooltips for many of the Simulator's rollout. More to come
IMPROVED	FIRE/SMOKE SOLVER	Sped up fire/smoke simulations with up to 20%
IMPROVED	FIRE/SMOKE SOLVER	Multi-threaded the Adaptive Grid of fire/smoke simulations when Preallocation is On
IMPROVED	FIRE/SMOKE SOLVER	Allowed the use of \$(same_as_output) as Resimulation Output Path
IMPROVED	FIRE/SMOKE SOLVER	Repeatedly increase the resolution using resimulation that overwrites the same cache sequence
IMPROVED	FLIP SOLVER	FLIP resimulation now writes caches to new "_resim" files instead of overwriting the old ones
IMPROVED	FLIP SOLVER	Sped up and improved thread balance of liquid simulations with moving obstacles
IMPROVED	FLIP SOLVER	Improved 'B2B Interaction' and 'Splash Liquid-Like' that don't shoot particles away and can now be used even with Ocean setups
IMPROVED	FLIP SOLVER	Allowed values below 1 for the 'Mist Amount' option and excluded it from affecting how fast Splash particles are deleted
IMPROVED	FLIP SOLVER	Ocean Simulations with Adaptive Grid can now expand upwards without the ocean level changing
IMPROVED	SIMULATION	Sped up simulations with enabled Motion Inertia that don't actually move
IMPROVED	SIMULATION	Allowed rendering with V-Ray GPU while the CPU simulation is running in both IPR and production modes. With V-Ray CPU, the simulation is paused during rendering
IMPROVED	ACTIVE BODIES	New model for calculating buoyancy of Active Bodies, allowing better interaction with the Wave Force in large scale ocean vessel setups
IMPROVED	ACTIVE BODIES	'Collider Type' option in the Node Properties, allowing choice between fast or precise collision options
IMPROVED	VOLUME SHADER	Reduced the required V-Ray GPU memory when rendering fire/smoke volumes

IMPROVED	VOLUME SHADER	Probabilistic shading now has an effect only with V-Ray
IMPROVED	VOLUME SHADER	Sped up render start with thousands of vrsce simulator copies
IMPROVED	PARTICLE SHADER	Fall back to Bubble mode when rendering with V-Ray GPU in Point mode
IMPROVED	MESHER	Mesh surface from the Viscosity channel, allowing to change the mesh volume when simulating melting or solidifying of liquids
IMPROVED	ANIMATION	Sped up 2x frame blending with Time Bend controls
IMPROVED	CACHE I/O	Updated OpenVDB from version 5 to version 8.1
IMPROVED	CACHE I/O	Sparsify VDBs exported by the Phoenix simulation or the Cache Converter so now they are generally smaller
IMPROVED	CACHE I/O	Recognize by default Velocity(x), Velocity(y) and Velocity(z) channels from VDBs from thinkingParticles
IMPROVED	CACHE I/O	Show the sizes on storage of the different data chunks in AUR files in the Standalone Preview and Cache Converter
IMPROVED	STANDALONE PREVIEW	The Phoenix installer now associates the Phoenix Previewer as default program for opening AUR, VDB, F3D and PRT files
IMPROVED	STANDALONE PREVIEW	Drag & drop AUR, VDB, F3D and PRT caches in the Phoenix Previewer
IMPROVED	STANDALONE PREVIEW	'Auto Load Latest' option that monitors the storage for newly appearing sequence files
IMPROVED	STANDALONE PREVIEW	Right click menu over the loaded cache directory for copying the full path or just the file name
IMPROVED	LOGGING	'Log Verbosity' option in the Phoenix Preferences that has these levels: Debug, Info, Important, Warnings and Errors. Low res simulations can be 10% faster in 'Important' compared to 'Debug'
IMPROVED	PRESETS	Faster and better looking Fire quick setup toolbar preset
IMPROVED	PRESETS	Increased the brightness of the Cold Smoke quick setup toolbar preset
IMPROVED	PRESETS	Increased the height and tweaked the colors of the Candle quick setup toolbar preset
IMPROVED	PRESETS	Use just one Particle Shader for all emitters in the Ink in Water quick setup toolbar preset, and shade using the new 'Color From Particle RGB Channel' option
IMPROVED	PRESETS	Improved the simulation and rendering of the Ocean toolbar quick setup preset and made it more like the Ship example scene
IMPROVED	PARTICLE TEXTURE	Allowed selecting channels that are not available in the entire cache sequence in the Color From Particle Channel box
IMPROVED	PLAIN FORCE	Affect Temperature, Smoke and Fuel separately by turning off the new 'Affect All Fire/Smoke Channels' option
IMPROVED	USER INTERFACE	Texture slot for Surface channel by Texture in the Liquid Simulator
IMPROVED	USER INTERFACE	Renamed the 'Droplet Breakup' option to 'Droplet Formation' in order to be more clear what the option does
IMPROVED	USER INTERFACE	Renamed the 'B2B Interaction' option to 'Foam Volume' in order to be more clear what the option does
IMPROVED	USER INTERFACE	Show a warning saying that Foam on Hit Resimulation requires Splashes to be resimulated
IMPROVED	ABC I/O	Warning in the log file when rendering a mesh with Alembic compatibility enabled from the Export rollout
REMOVED	PHOENIX	Dropped support for 3ds Max 2016 and 2017
REMOVED	USER INTERFACE	Hid the 'Backtrace (Classic)' Advection Method from the user interface. It is still accessible as \$.advtype=0 via MaxScript

FIXED	FLIP SOLVER	Initial Liquid Fill produced wetmap over submerged Solid geometry even when there were no liquid particles nearby
FIXED	FLIP SOLVER	Wetmap didn't fully cover objects submerged in liquid created by a Volume Brush Source
FIXED	FLIP SOLVER	Volume Inject Liquid Sources created more particles in voxels partially overlapped by the emitter or by Solid obstacles
FIXED	FLIP SOLVER	Foam Birth Amount differed from Maya. Now it's in particles per cubic centimeter
FIXED	FLIP SOLVER	The Viscosity Diffusion effect changed drastically between 1 and 0.999
FIXED	FLIP SOLVER	Non-Solid liquid emitters in Surface Force mode with disabled Motion Velocity contributed negative velocity
FIXED	FIRE/SMOKE SOLVER	Adaptive Grid crashed when a fire/smoke simulation expanded over 2.1 billion voxels
FIXED	FIRE/SMOKE SOLVER	Rare crash when resimulating with Adaptive Grid with Preallocation
FIXED	SOURCES	Changing the grid resolution affected Volume Inject discharge of liquids (scenes saved with older Phoenix versions might simulate differently after this fix)
FIXED	SOURCES	Volume Brush created liquid, foam and splash particles with a gap around submerged objects, compared to Initial Liquid Fill
FIXED	SOURCES	Discharge modifiers in Object space were not correct when the emitter was another Simulator
FIXED	SOURCES	Clear Inside did not work when using non-Solid geometries instanced over particles
FIXED	ACTIVE BODIES	Liquid resimulation broke Active Bodies simulation
FIXED	ACTIVE BODIES	Active Body simulation with many bodies was very slow with Macro Recorder enabled
FIXED	ACTIVE BODIES	Active Bodies may freeze in scenes with large meter scale
FIXED	ACTIVE BODIES	Restoring a simulation with Active Bodies caused them to jump to the scene origin for a frame
FIXED	ACTIVE BODIES	Sometimes a feedback loop accelerated Active Bodies through the liquid
FIXED	SCENE BODY INTERACTION	Some Out of memory situations when interacting with scene geometries or particles were not handled and lead to a crash
FIXED	SCENE BODY INTERACTION	Geometries with scale of 0% created huge velocities in the simulation
FIXED	VOLUME SHADER	No motion blur from translation with more than 10 Simulators in Volumetric mode
FIXED	VOLUME SHADER	Noise with Fire simulation and reflective material with glossy below 1
FIXED	PARTICLE SHADER	Render artifacts using Probabilistic Shading when mixing two Particle Shaders in Bubbles/Splashes/Cellular mode
FIXED	PARTICLE SHADER	Crash when rendering Particle Shader using Ray-traced Scattering mode and Probabilistic Shading turned on
FIXED	PARTICLE SHADER	Probabilistic volumetrics rendered particles in Point mode incorrectly when combined with Smoke
FIXED	PARTICLE SHADER	Particle Shader with motion blur does not render with Dali Renderer, since Phoenix 4.40
FIXED	PARTICLE SHADER	thinkingParticles' Post Cache option did not affect rendering particles
FIXED	PARTICLE SHADER	Render slowdown on machines with many cores in Bubble/Cellular/Splashes mode between V-Ray Next and V-Ray 5
FIXED	PARTICLE SHADER	Count Multiplier slowed down significantly after Phoenix 4.10
FIXED	PARTICLE SHADER	Count Multiplier above 1 created particles even between distant chunks of particles
FIXED	MESHER	Memory leak when rendering in Mesh mode with V-Ray Standalone
FIXED	OCEAN MESHER	Crash when rendering more than 10 merged Ocean Simulators, since Phoenix 4.40

FIXED	OCEAN MESHER	Artifacts in the mesh normals over liquid features which render in front of the horizon line, in Ocean or Cap Mesh mode with Horizon Roughness
FIXED	OCEAN MESHER	Line artifacts or loss of detail with Cap Mesh mode and Ocean Mesh mode and low angled camera
FIXED	OCEAN MESHER	Stepping artifacts in Ocean Mesh mode smoothed with Use Liquid Particles when the liquid level was much different than the ocean level
FIXED	OCEAN MESHER	Ocean Mesh rendered differently when the V-Ray Frame Buffer was turned off
FIXED	V-RAY IPR	All types of Phoenix previews were drawn on top of and occluded V-Ray's Viewport IPR
FIXED	V-RAY IPR	Changing the frame during V-Ray IPR CPU distorted the Phoenix mesh when it had modifiers
FIXED	PRT I/O	The PRT Reader's transform did not update between renders if 'Attach to Node Transform' was turned on/off or the node was moved
FIXED	PROPERTY LISTER	Crash when typing in the Clear Channels field of the Property Lister
FIXED	PROPERTY LISTER	The Property Lister crashed when Macro Recorder was enabled
FIXED	ANIMATION	Re-timed particles using Time Bend Controls lost their ID channel
FIXED	ANIMATION	Re-timing particles without IDs caused them to disappear in blended frames
FIXED	ANIMATION	Grid previews disappeared when switching to "Velocity" Grid Blend mode after changing the Input Play Speed to <1 while the Grid Blend mode was a different one
FIXED	ANIMATION	Grid simulation with high velocity using Adaptive Grid and Precise Tracing Grid Blend mode appeared chopped apart
FIXED	PREVIEW	The voxel preview in 3ds Max 2022, update 1, was multiplied by the object color
FIXED	STANDALONE PREVIEW	Cache File Content time did not show leading zeroes before hours and minutes
FIXED	STANDALONE PREVIEW	The vertical scroll in the Log and the Cache File Content windows did not work if the text had too many lines
FIXED	STANDALONE PREVIEW	Rare crash when opening the Particle Preview rollout of the Phoenix Previewer
FIXED	STANDALONE PREVIEW	Saving an image sequence in the Standalone previewer in CLI mode was saving only the first frame
FIXED	STANDALONE PREVIEW	Zooming in very close on large cache files locked the camera
FIXED	CACHE I/O	Particles created by the simulation sometimes had invalid or repeating IDs
FIXED	CACHE I/O	The grid velocity from the vector "vel" channel of imported VDB caches was not the correct scale
FIXED	CACHE I/O	Grid RGB channel broke when the grid size was above 1 billion voxels
FIXED	CACHE I/O	AUR caches containing Particle Velocity increased in size, since Phoenix 4.40
FIXED	CACHE I/O	Smoothed Velocity channel of VDB caches incorrectly had very large or very small scale
FIXED	PARTICLE TEXTURE	Dependency loop Error when trying to assign a Particle Texture reading data from the same Simulator that it was applied to
FIXED	PARTICLE TEXTURE	Hang with Particle Texture applied over a Simulator, using 'Render-time Only' turned off and reading tyFlow particles
FIXED	3DS MAX INTEGRATION	Hiding all Phoenix nodes translated the instances when the Simulator was plugged in the Particles list of a V-Ray Instancer
FIXED	3DS MAX INTEGRATION	Increase/Decrease Grid Resolution buttons scaled the Simulator size after merging a scene in 3ds Max 2022
FIXED	PRESETS	The Waterfall toolbar Quick Setup preset changed since Phoenix 4.30
FIXED	PRESETS	The Ink in Water Quick Setup preset created much less drag particles than in Maya

FIXED	PRESETS	The animated noise movement was slower with large scale and faster with low scale Clouds quick setup toolbar preset
FIXED	PRESETS	Loading a Particle Shader preset or a Simulator render preset in disconnected the Render Cutter geometry
FIXED	USER INTERFACE	Surface Channel of the Liquid Simulator always got reset to Liquid when rendering started
FIXED	VRSCENES	Rendering animation to vrscene or on the Cloud during simulation rendered only the first cache from the sequence
FIXED	VRSCENES	Particles rendered as Bubbles inside of a liquid mesh rendered darker when exported from 3ds Max to VRScene or rendered on the Chaos Cloud
FIXED	VRSCENES	Phoenix mesh with modifiers rendered incorrectly in animation with V-Ray CPU and GPU Standalone
FIXED	VRSCENES	Buckets in the Shadow, Raw Shadow, GI, Raw GI, Light Select and Lighting render elements of a Simulator with Volume Light Cache in the V-Ray Standalone
FIXED	THINKINGPARTICLES	Particle Shader rendering thinkingParticles produced different results every time
FIXED	INSTALLATION	openvdbio_phx.dll and field3dio_phx.dll were not added to V-Ray Standalone plugins folder by the Phoenix installer
FIXED	LOGGING	Simulations which started under 10 million voxels but later expanded, stopped writing to the Phoenix log file, since Phoenix 4.40