New Features in RealFlow 2014

Hybrido Viscosity

A viscosity model for RealFlow's Hybrido has been requested by many users and now our large-scale solver comes with a state-of-the-art implementation of this feature. The HyViscosity solver supports static and time-variable viscosity, and – with the help of RealFlow's Graphs system – even space-variable viscosity. The latter method is used to create zones of variable viscosity to achieve melting effects.

With viscosity you will be able to simulate everything from water to heavy, highly viscous tar or sticky mud. An additional density parameter will help you to make complete material definitions. Of course, we have prepared some test projects in RealFlow's “Demo scenes” folder for you to play with and explore this existing new feature.

If you want to read more about the HyViscosity solver, please follow this link.

Hybrido Improvements

In RealFlow 2014 you will find an improved collision detection for interactions between Hybrido fluids and objects. The interplay is much more accurate and yields better results. We have also succeeded in removing some limitations, for example the possibility of filling glass- or vase-like objects with particles from outside these objects.

Another enhancement concerns Hybrido's secondary elements, mainly splashes. You will need less test cycles to get satisfying results, HySPH simulations are easier to control, and have a more fluid-like behaviour.

Finally, simulations with the domain's sparse mode have been accelerated by at least 1.5 times.

HySPH Bubbles Emitter

With this new emitter it is possible to create rising bubbles from objects interacting with a Hybrido fluid. Bubbles add more realism to your simulations. They occur when an object is diving into a fluid, interacts with its surface (e.g. with propellors), or is moved under water. The bubbles will rise and move to the surface. There, they can turn into foam and float on the surface, or they will be destroyed.

Read more about this new emitter here.

New HySPH Fluid Type

All splash-based secondary emitters provide a new fluid type: this new option is called “Liquid – Hybrido”. When this type is enabled the particles are no longer governed by the HySPH solver, but our HyFLIP method. The result is a significantly improved behaviour, a more fluid-like appearance, and decreased simulation times due to the HyFLIP solver's larger time steps.

Want to know more? Please click here.

GUI

Experienced users will certainly notice a few eye-catching differences in comparison to RealFlow 2013: tabs with access to RealFlow's nodes and commands, and completely overhauled, stylish icons.

The tabs are called “RealFlow Shelves” and with them you will be able to customize RealFlow's layout to suit your needs, create groups of commands, scripts, plugins, or graphs – even network drives can be hooked to the layout. External resources will now act as if they are built-in commands.

A comprehensive, but easy-to-use, tool which provides functions to manage the shelves and their contents. You will also find a shortcut manager, where you can define your own key combinations for RealFlow's commands and nodes. It also possible to define multiple shortcuts for one and the same command. The shelves are freely configurable and you can change their order with drag-and-drop actions.

The elements of RealFlow's “Shelves” are

- Shelves Manager
- Commands Manager
- Shortcut Manager

Daemons

The new version of RealFlow provides a completely revised “Sheeter” daemon. With thin fluid layers in particular, you will see huge improvements. The hole-filling process is easier to control, creates more particles, and there are additional options to create tendrils. Finally, you will get much better, and more accurate, results with fluids colliding with objects.

We have added a new daemon, called “Ocean Force”. This daemon is a conversion of the “surface_force_field” graph from RealFlow's demo scenes. The purpose of this graph was to translate the motion of an ocean statistical spectrum into a force field to displace a Hybrido fluid surface. The result was an ocean with turbulent surface waves. The graph's functionality is now packed into a daemon with a user-friendly interface. RealFlow's “Ocean Force” daemon does not only affect Hybrido fluids, but also particle-based SPH fluids, as well as rigid and soft bodies.

Now, it is also possible to visualize a daemon's force field. With this feature you have better control over a daemon's behaviour and the way forces are distributed in space and where they finally act.

Find out more about the "Sheeter" and "Ocean Force" daemons.

Bounded Meshing and Extensions

The first improvement is related to the “Hybrido Mesh” engine. Now you have the possibility of creating large ocean surfaces with just a few clicks. The new “Boundaries” panel provides several parameters and options to extend the core fluid mesh and add an arbitrary number of tiles. You will also find settings to blend the Hybrido core fluid mesh with the additional tiles to get a smooth transition.

Here you can read more about the new “Boundaries" features.

Another improvement concerns both the “Particle Mesh” and “Hybrido Mesh” engines: it is possible to mesh within a certain region. This option comes in very handy when you have to deal with very large meshes consisting of several millions of polygons. You do not have to (re)create the entire mesh anymore if you only want to see changes in a specific area or region.

Interactive Meshing

All options and features are now applied automatically. This means that you do not have to rebuild a mesh manually when you change a parameter. The result will be displayed in the viewport and you have immediate feedback. Since these live changes are temporary, it is still necessary to build a mesh in order to apply the settings to the mesh's geometry and save them. Only then it is possible to create the entire mesh sequence with the new values.

Please read this chapter for more information and the workflow.

Alternative Export Paths

In previous versions of RealFlow all cache data was written to the project's directory. With very large simulations the problem sometimes was that the target drive ran out of space. In such a situation, RealFlow continued to simulate, but did not write any more files and wasted lots of energy. This is a thing of the past, because with RealFlow 2014 you can define alternative paths where the simulation data will be stored when a drive is full. A small manager helps you to determine which drives, network locations or folders should be used for that purpose.

Here you will find useful information about this feature.

Maxwell 3

RealFlow's implementation of the Maxwell Render engine has also experienced a review and now you have access to the latest version of Next Limit's physical renderer. Improvements do not only affect voxelization and render time, but also the possibility of saving different channels as separate files. These channels are: Alpha masks, motion vectors, and normals.

Please bear in mind that volumetrics are currently not supported.

New License Manager

The days of RealFlow's old License Manager are over and now there is one centralised tool for managing all Next Limit product licenses – the RLM application. Licenses for RealFlow GUI and Node versions are stored under one interface. There is no more need to install your licenses with cumbersome command lines tools. The RLM is launched on startup as a permanent application with a comprehensive web interface. The licensing process itself is just a matter of a few drag-and-drop actions and finished within a minute for floating licenses.

We now also offer node-locked and floating licenses.

Please visit this page for detailed information.