

# REALFLOW 5

## NEW COMPONENTS

- **RealFlow RenderKit version 2** - a set of software tools to render simulation data.
- **License Manager:** a software application to handle licenses.
- **RealFlow Job Manager:** a software application to control simulation jobs.

## NEW FEATURES

- **Liquids**
  - Hybrid fluid technology
    - Large-scale
    - Coupling particle-based and grid-based liquids
    - Splash
    - Foam
      - Particle-based
      - Texture-based
    - Mist
    - Statistical spectrum displacement
  - Grid-based liquids
  - Multi-threaded
- **Particle emitters**
  - Container
    - Empty container to move particles around
- **Bodies**
  - Caronte Body Dynamics solver
  - Rigid bodies
    - Collision primitives: box, sphere, convex hull and mesh
    - State-of-the-art stacking
    - Multi-threaded
  - Soft bodies
    - Free form deformation based
    - Efficient for high polygon count meshes
    - Permanent deformation
    - Multi-threaded
  - Joints
    - Automatic creation and break
    - Ability to connect rigid-rigid, rigid-soft and soft-soft bodies
    - Permanent deformation
- **Fluid surfaces (RealWave)**
  - Statistical spectrum wave for the generation of realistic oceans
  - RWC wave
  - Gerstner wave
  - SDK built wave
  - Interaction wave
  - Option to export as a displacement texture
- **MultiBody nodes**
  - For efficient handling of scenes with many objects
- **Meshes**
  - RFRK mesh (RealFlow RenderKit)
    - Multi-threaded
    - Tension and relaxation filters
    - Camera and Objects Clipping
    - Optimize curvature and camera-based
    - Particle attributes transferred to the mesh
    - Built-in Glsl and custom shaders
  - Grid mesh
    - User is now able to create meshes by mixing a grid-based and a particle-based fluid
    - Texture, Y-planar projection, UV particle and Fluid average velocity
    - Tension and relaxation filters
    - Optimized curvature and camera-based
    - Built-in Glsl and custom shaders
- **CrowdFlow plugin**
  - Flocks
  - Swarms
  - "Follow-the-leader"
- **Morph plugin**
  - Improves on the built-in Magic daemon
- **Filter daemon**
  - Transfer particles from one emitter to another based on particles' attributes
- **Sheeter daemon**
  - Auto-fill areas with low resolution to create thin sheets of fluid
- **External forces**
  - SDK built forces
- **C++ SDK**
  - Commands
  - Batch
  - Simulation Events
  - Forces
  - Particle solvers
  - Waves
  - Job managers
- **GUI**
  - UI dark and light color scheme options
  - Commands tool bars
  - Change predefined layouts by using keyboard shortcuts

- **Computation distributed over a network**
  - IDOC (Independent Domain of Computation) nodes
  - Send jobs by using an open plug-in architecture
  - Job manager built-in panel to browse the job status
  - Browse the job status using a standard internet browser
- **On-line help system**
  - Global search
  - Parameter context help
  - Node context help
- **Scene import/export as XML format**
- **Preview**
  - One-click generation of a preview video/sequence of files.
- **Movie player**
  - tga, bmp, jpg and png sequences
  - Write out avi files
  - Real time play
- **Global scale for forces**
- **Snap tools**
- **Align tools**
- **Import MXS (Maxwell) format**
- **Predefined or user defined OpenGL shaders**

## IMPROVED FEATURES

- **Liquids**
  - Particle-based liquids
    - Memory management vastly improved. Significant improvement in simulation speed - up to 20 times faster. Better multi-threading support
    - Playback enhanced - new "proxy" format
    - Visualization details now provided for easier navigation of scenes
- **Fluid surfaces (RealWave)**
  - Multiple wave parameters can be animated
  - Object splash
    - More control on the amount of emitted particles
    - Stability when using "Liquid" particles
- **External forces**
  - All external forces are now multi-threaded
  - Magic - more control on how particles approach and leave target object. Texture can now be added
- **Python editor**
  - Auto-complete
  - Improved highlight color syntax
  - Connected to the online help system
- **Python SDK**
  - Version 2.6.2
  - New classes and functions
- **Interaction parameters can be texture-mapped**
- **Curve and expressions editor**
  - Copy/paste control points
  - Multi-curve editing
  - Save/load curves to/from crv and xml formats
- **Export central**
  - Delete resource folder
  - Open resource folder
  - Resource options

## REALFLOW RENDERKIT: NEW FEATURES

- **RFRK\_Mesher**
  - Import/export meshes
  - Relax/tension filters
  - Optimization
  - Clipping
  - Memory and threads control
- **RFRK\_Partlicer**
  - Geometry rendered on demand
  - Animation curves to control particle's size according to magnitudes
- **RFRK\_Cloud:** a tool for rendering volumetric data.
  - Uses BIN and MTC RealFlow standard file formats for particles and mist
  - Anisotropy and light controls
- **RFRK\_Displacement:** a tool for rendering full 3D displacement maps

## REALFLOW RENDERKIT: IMPROVEMENTS

- **RFRK\_Mesher**
  - Core/Splash filter per sequence
  - Radius per sequence
  - All particle magnitudes available for rendering transferred to the mesh
  - Smoothing
  - Multi-threaded
- **RFRK\_Partlicer**
  - Animation curves to control particle's size according to the camera distance
  - More control over shape of multipoint clouds
- **Now available for mental ray, RenderMan and Maxwell Render. Coming soon for Mantra.**



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