

Phoenix FD Force operator

This page provides information on the Phoenix FD Force operator for Particle Flow.

Overview

This Particle Flow operator affects the movement particles using the velocity from a Phoenix simulation.

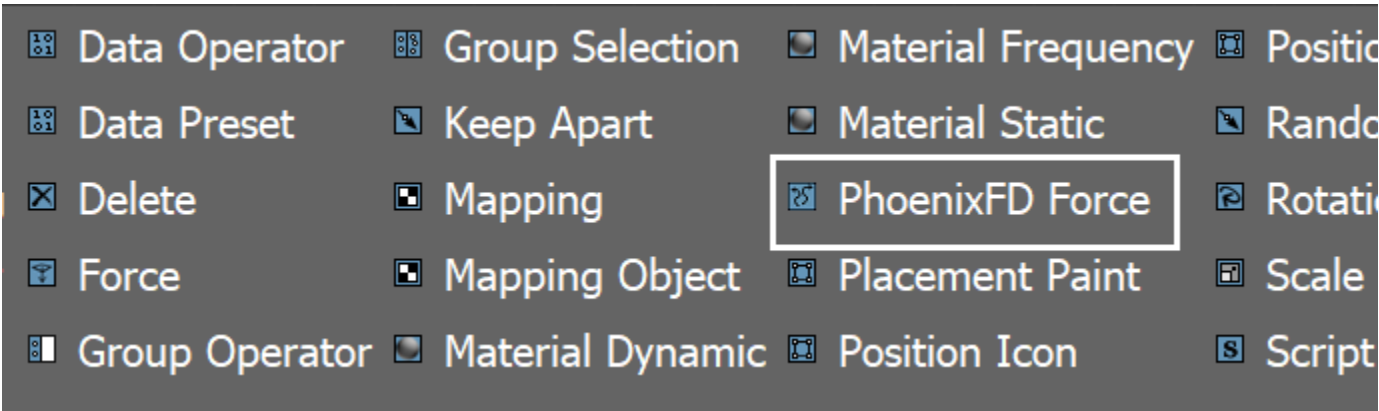
It requires the simulator's cache to contain the grid **Velocity** channel.

You can improve the viewport performance of this operator by increasing the **PFlow Cached Frame Count** option in the [Phoenix FD Global Preferences](#). However, this will increase the memory usage.

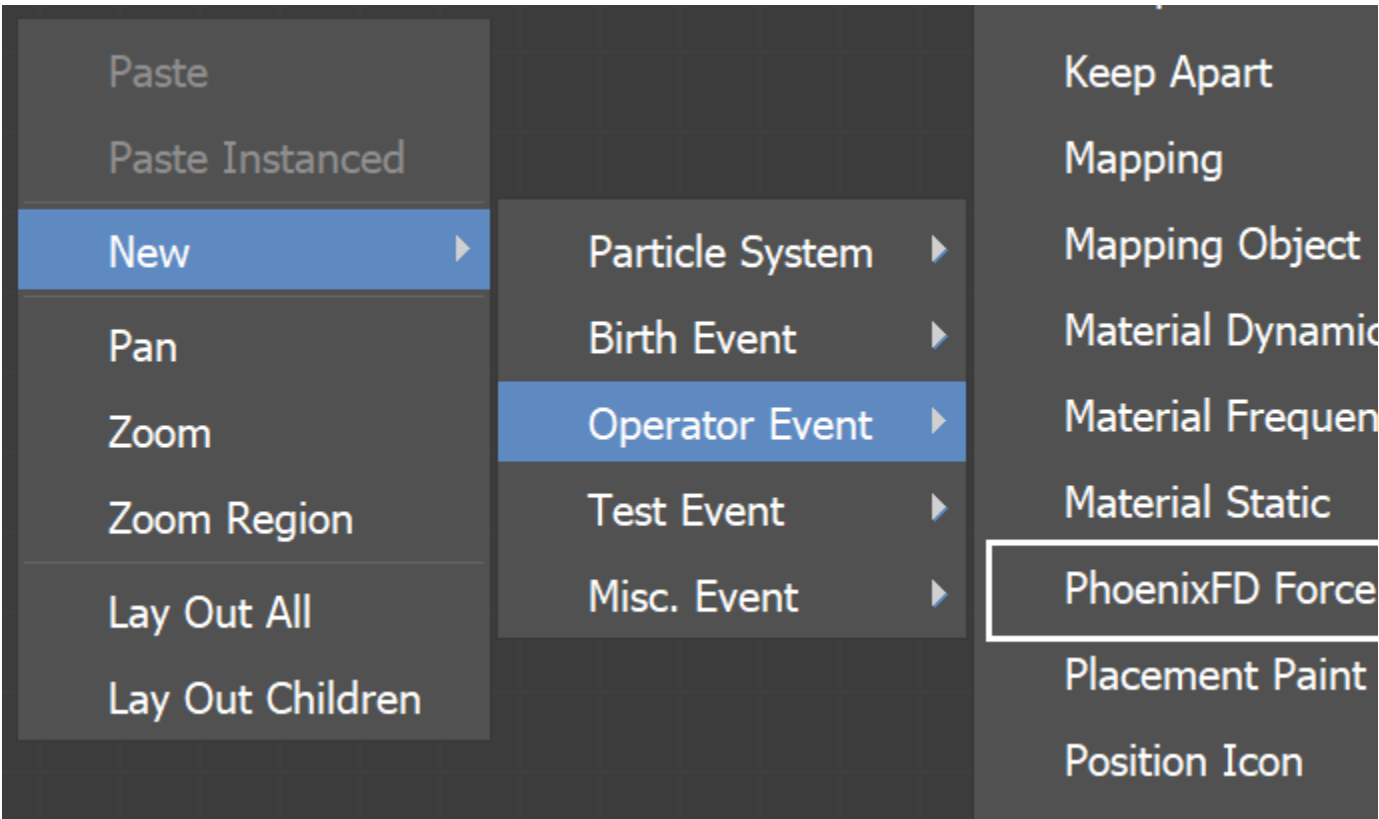
When doing Liquid simulations, Phoenix populates the grid **Velocity** channel only for cells / voxels inside the liquid volume - empty (air) voxels contain no velocity information. To generate velocity information for the empty voxels, enable **Simulate Air Effects** under the Dynamics rollout of the simulator and re-run the simulation.

UI Path

||Particle View window|| > **Depot > PhoenixFD Force**



||Particle View window|| > **Event Display quad (right-click) menu > New > Operator Event > PhoenixFD Force**



Parameters

Phoenix Simulator | *node* – Which Simulator to read the Grid Velocity from.

Influence | *influence* – Determines how strong the fluid holds the particles. A value of 100% means that the particle will follow the fluid exactly. A value of less than 100% causes the particle's speed to only approach the fluid's speed. For example, a value of 10% means that at every integration step the velocity of the particle will overcome 10% of the difference between its velocity and fluid's velocity.

Ignore Time Scale | *ignore_time_scale* – When enabled, the **Play speed** parameter of the Simulator is not taken into consideration.

Affect Orientation | *rotate* – When enabled, the particle is rotated in correspondence to the fluid's motion.

Delete Particle Outside | *delout* – When enabled, particles which exit the Simulator's grid will be deleted. Note that the grid size of the loaded cache by the simulator will be used for this check and if there is no loaded cache, no particles will be deleted.

Time Source | *timesrc* – Same as the **Offset Influence Sync By** parameter of the 3ds Max **Force** operator. It describes how to calculate the time argument passed in animatable parameters (in our case only the influence is affected). For example, if you set **Time Source** to **Particle Age** and you animate the Influence from 100.0 at frame 0, to 0.0 at frame 10, this means that newborn particles will initially be affected by the Phoenix Force with 100% **Influence**, and over 10 frames since the birth of the particle the **Influence** would decline until the fluid stops affecting the particle completely. This way no matter how early or late in the simulation a particle is born, the **Influence** would affect it depending on the time of its birth and not depending on the current timeline frame.

