# Phoenix FD TP Force operator

This page provides information on the Thinking Particles Phoenix FD Force operator.

Overview

This Thinking Particles operator affects the movement of particles using the velocity from a Phoenix simulation. It allows you to give your particles an interesting motion pattern to add more variety to your scenes. It requires the simulator's cache to contain the grid **Velocity** channel.

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

||Thinking Particles Properties window|| > **Dynamic Set** > Operators > Phoenix FD > **Phoeni xFD TP Force**
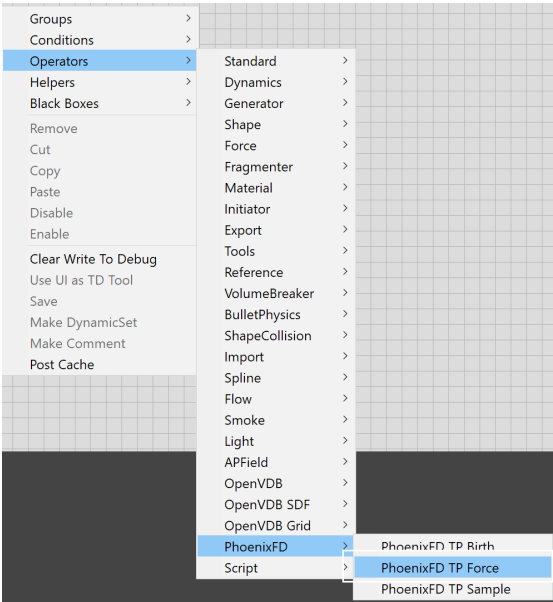
Inputs

Time [time] – Time at which the TP Force operator should evaluate.

On [bool] – True if the TP Force operator should be enabled.

Particle [particle] – **[Required]** The Particles to be affected by the TP Force operator.

Influence [scalar] – Overrides the value set in the TP Operator's UI.

Seed [integer] – Overrides the value set in the TP Operator's UI.
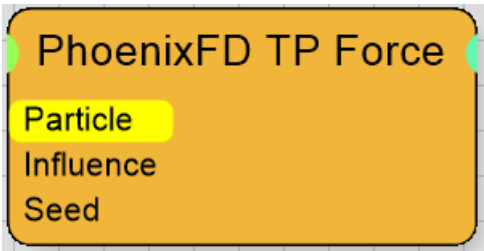
Parameters

Phoenix Simulator | *node* – Determines which simulator will be used to read the velocity.

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.

Infl. Variation | *influence variation* – Allows you to vary the Influence of the simulation over the particles, on a per-particle basis. High variation will cause some particles to be heavily affected by the Phoenix simulation while others receive none or close to none of their velocity from the fluid.

Seed | *seed* – An initial value for the random numbers generator.

Ignore Time Scale | *ignore_play_speed* – 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 | *delete_outside* – 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.