

# Phoenix FD TP Sample operator

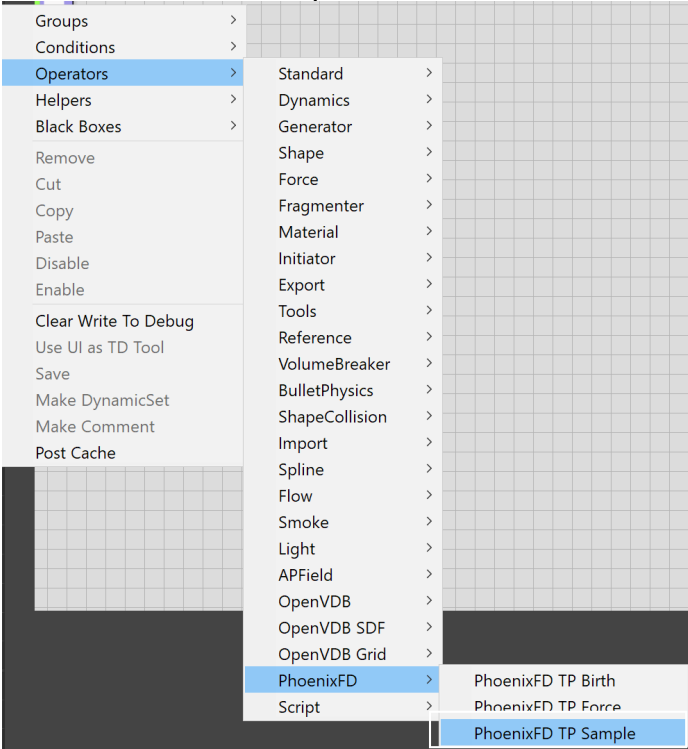
This page provides information on the Thinking Particles Phoenix FD Sample operator.

## Overview

The Phoenix FD Sample operator allows you to extract **Grid Channel** data from the Phoenix Simulator. For example, the Speed channel can be sampled and transferred to a vertex color map for a mesh instance.

### UI Path

||Thinking Particles Properties window|| > **Dynamic Set** > Operators > Phoenix FD > **PhoenixFD TP Sample**

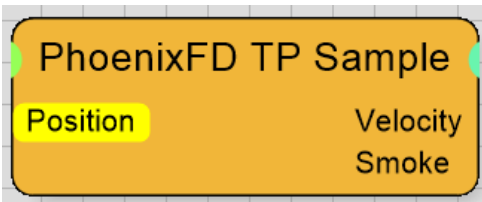


## Inputs

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

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

**Position** [ position ]– **[ Required ]** World space position at which the Phoenix Simulation will be sampled.



## Outputs

To successfully sample a Phoenix Simulation's Grid channel, the respective channel export should be enabled under the Output rollout of the Phoenix Simulator.

If the channel is not present, the TP Sample operator will return a value of 0.

You can find more information about the ranges of the grid channels in the [Grid Channel Ranges](#) page.

**Velocity** [ vector ] – Returns the Velocity vector at the sampled **Position**.

**Smoke** [ scalar ] – Returns the value of the Smoke channel at the sampled **Position**.

**Temperature** [ scalar ] – Returns the value of the Temperature channel at the sampled **Position**.

**Fuel** [ scalar ] – Returns the value of the Fuel channel at the sampled **Position**.

**Color** [ vector ] – Returns the RGB channel value at the sampled **Position**.

**Viscosity** [ scalar ] – Returns the Viscosity channel value at the sampled **Position**.

**Speed** [ scalar ] – Returns the Speed channel value at the sampled **Position** - the Speed represents the magnitude of the Velocity.

## Parameters

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**Phoenix Simulator** | *node* – Determines which simulator will be used.

