Turbulence

This page provides information on the Turbulence component (PHXTurbulence).

Overview

This component adds turbulence that can be controlled. The turbulence generator is based on a fractal-like noise function, similar to the noise texture in 3ds Max.

By default, the Turbulence component functions as a divergence-free force (or force with circular lines) that adds velocity.

However, you can also enable the **Create Pressure** mode, which will cause it to behave in a manner similar to the Phoenix Source in **Volume Inject mode**.

Note that by default, the Turbulence affects all Simulators in the scene.

You can also exclude the Turbulence from interacting with specific Simulators, using the **Exclude List** in a Simulator's Scene Interaction rollout.
UI Path: ||Create panel|| > Helpers > PhoenixFD category > PHXTurbulence button
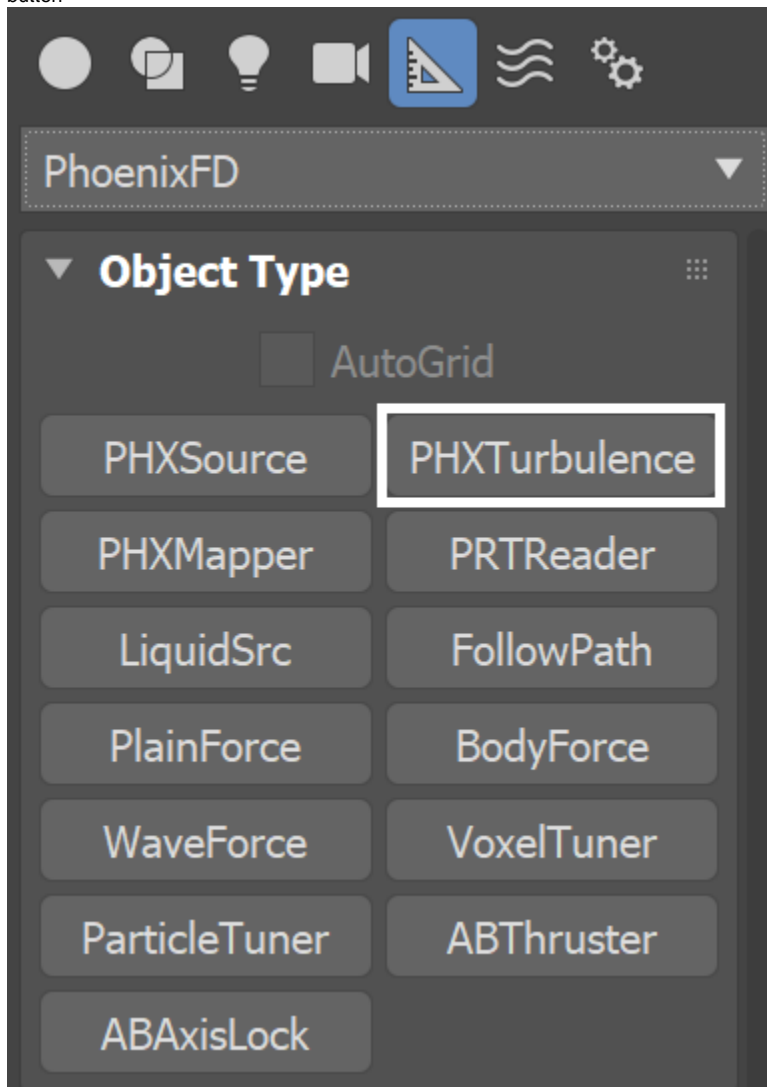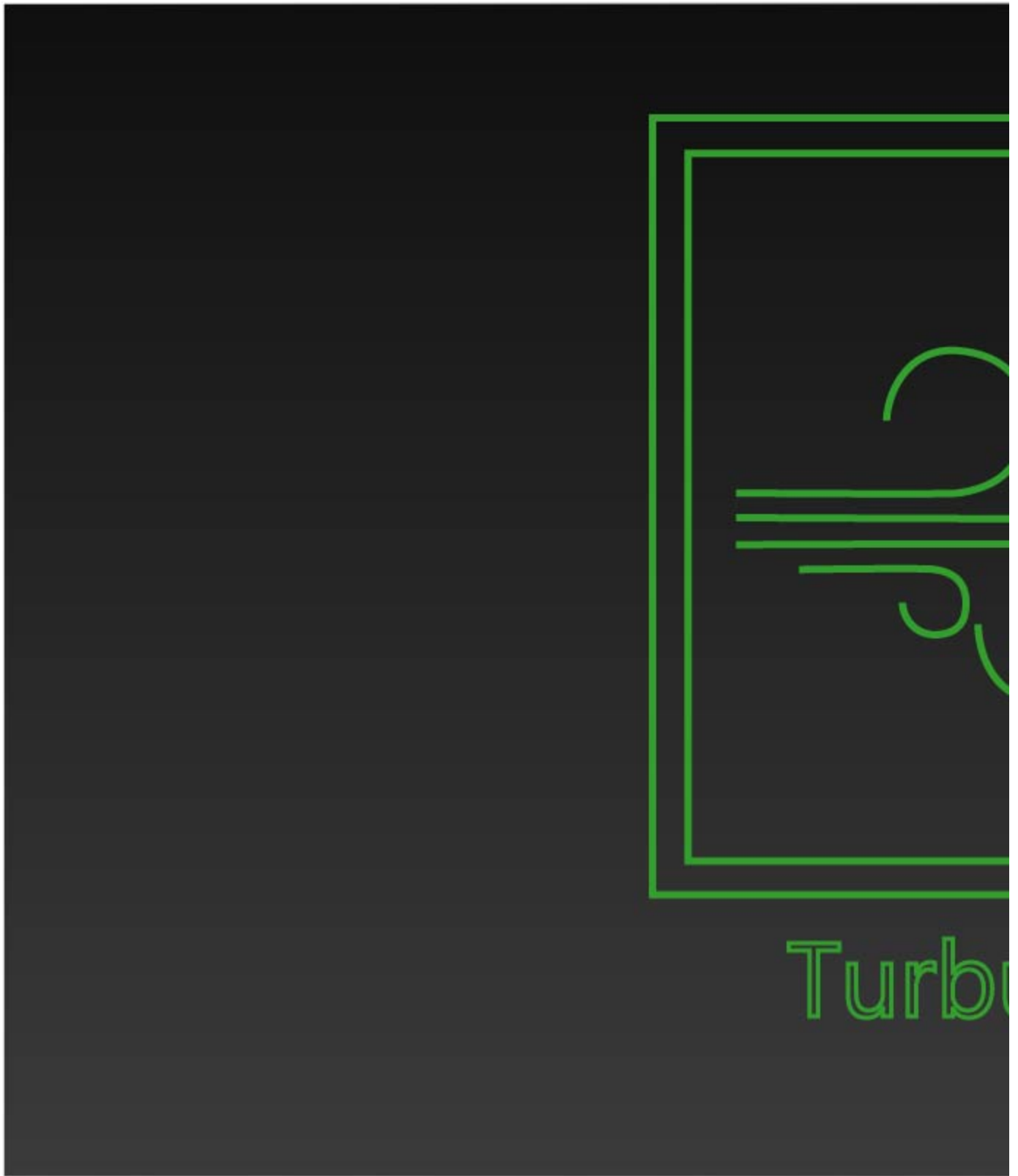
Parameters

Create Pressure | *injmode* – Switches between pressure and force mode. While force mode simply adds velocity, pressure mode works in a similar way to the Source in Volume Inject mode, adding pressure to the areas displayed in red in the preview. This way the option will generally affect the appearance and behavior of the turbulent effect. Note that if **Create Pressure** is on, the Turbulence helper will not take into account the fluid density and will uniformly affect all voxels. However, if it's Not in Pressure mode, it will act more strongly on the dense voxels and more mildly on the ones where the channels in the **Affect** list have lower values.

Strength | *mult* – General amplitude multiplier.

Size | *size* – General scale multiplier.

Fractal Depth | *depth* – The number of the additional stages (the real number is this parameter + 1).

Last Stage Scale | *lss* – The scale of the last stage. The scale of the first stage is 1. The intermediate stages are between 1 and this parameter.

Last Stage Amp. | *lsa* – The amplitude of the last stage. The amplitude of the first stage is 1. The intermediate stages are between 1 and this parameter.

Random Seed | *seed* – Initial value for the random generator.

Rate of Change | *speed* – The noise change speed.

Decay | *decay* – How the multiplier decreases with the distance.

> **None** – No decay.
> **Inverse Distance** – Decreases with the inverse distance.
> **Inverse Square** – Decreases with the inverse square of the distance.
> **Sphere** – No decay in a sphere with radius 1 (in scene units with radius equal to the size) and no action outside the sphere.

Affect | *affect* – Lists the grid channels or particle systems the Turbulence affects, separated by commas.

- Valid strings for **Affect** are: *liquid, splash, splashes, foam, air, mist, wetmap, temperature, smoke, fuel, rgb, velocity, viscosity*.
- The names are not case sensitive and spaces are ignored.
- If **Create Pressure** is enabled, the **Affect** list will be ignored as the entire simulation volume will be affected by the pressure force.

PhoenixTurb

- Create Pressure
- Strength: 200.0
- Size: 100.0
- Fractal Depth: 3
- Last Stage Scale: 0.1
- Last Stage Amp.: 0.5
- Random Seed: 0
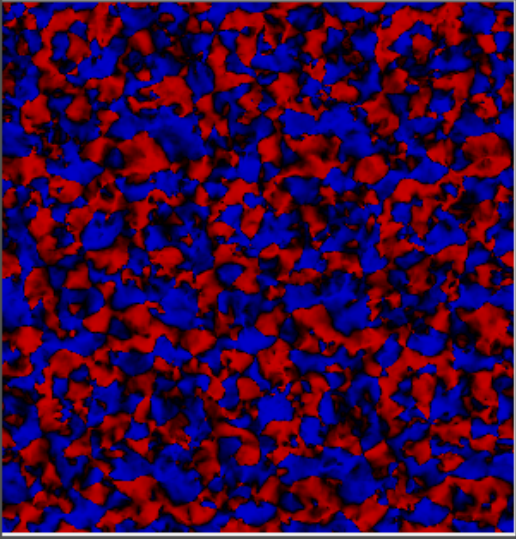- Rate of Change: 1.0
- Decay: None
- Affect: Velocity,Smoke,Tempe

Preview

- Show Streamlines

Preview

Show Streamlines | *partpreview* – Affects the preview. When enabled, visualizes the trajectories of several particles.

Preview

☑ Show Streamlines