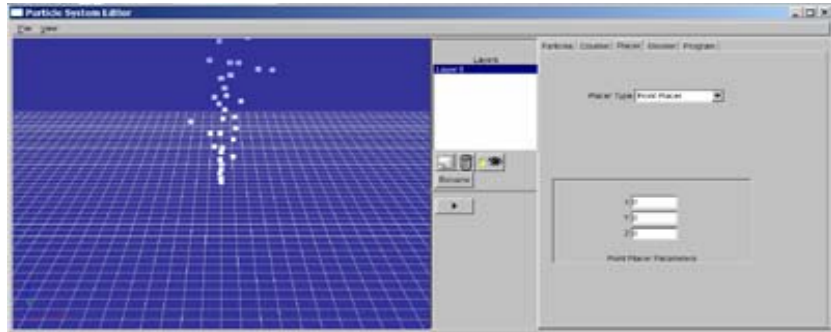


DELTA 3D Particle system



FILE

New	start new particle file
Open	open an existing Delta3d particle file
Open Previous	list of most recently worked on files
Import	imports an OSG particle system
Load Reference	loads an osg\ive object for reference
Save	save file
Save As	save file with specified name
Quit	exit program

VIEW

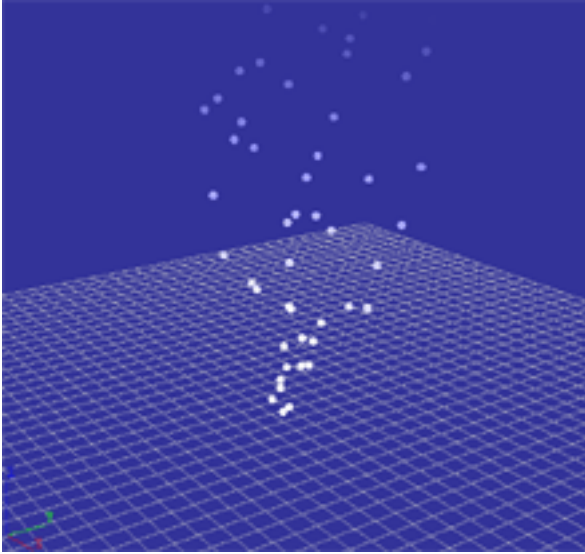
Turns off and on these viewing aids	
Compass	xyz red-green-blue arrow system
XYgrid	
YZgrid	
XZgrid	

IMPORTANT NOTE:

Numeric input boxes work as follows

Left mouse button held down acts as value slider

Right mouse button clicked in box allows for typed numeric input



WORK AREA

The work area defaults with a particle system at 0,0,0 and the XY grid showing.

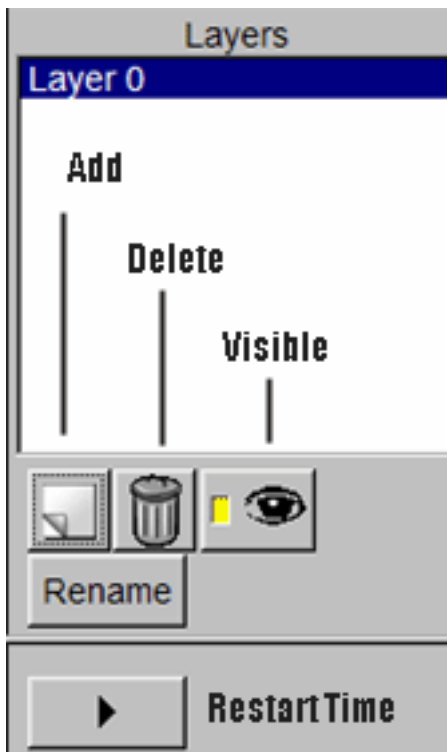
Controls: mouse cursor in work area.

Left Mouse Button - Rotate

Right Mouse Button - L-R track

U-D dolly

Middle Mouse Button - Zoom



LAYERS PANEL

The layering panel is designed to allow for the use of more than one system in an effect. An example would be a fire with smoke. One layer would handle the fire, and a second for the smoke. Yet it is still treated as one particle effect.

Each system must be placed into its own layer, with a default spray setup in layer 0.

To add a layer click on the icon that looks like a tear away paper pad.

To delete one first select the Layer desired by clicking on it in the box, then press the delete 'trash can' button to remove layer.

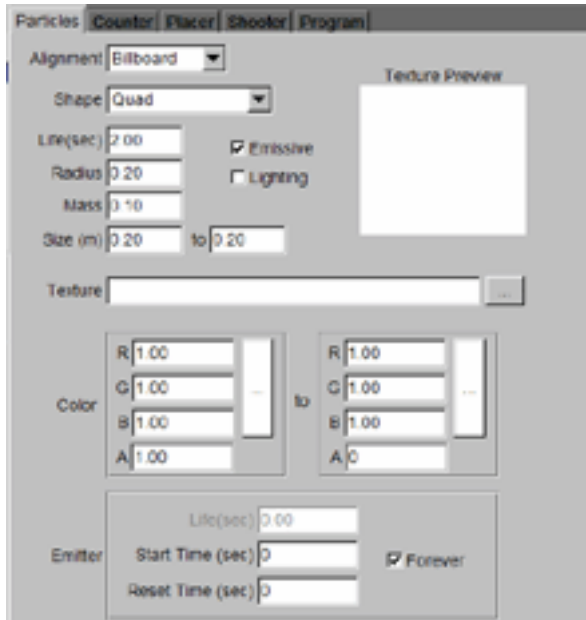
Visibility is used to turn off and on the layers effect in the work area. As before click on the layer you wish to turn off or on

and click the visible 'eye' icon.

If you'd prefer to call your layer by another name use the 'rename' button with layer selected. This is helpful to do with multi-layer effects so that you can identify different components quickly, instead of trying to remember what effect is in what layer.

The 'Restart Time' button replays the effect from the start values.

PARTICLE TABS



1: PARTICLES

Particles:

Alignment-

Billboard: plane turns to always face camera.

Fixed: maintains initial alignment.

Shape- Shape of particle emitted.
Point, Quad, Quad Tri Strip,
Hexagon, Line.

Quad/Tri used with bitmaps.

Life- Particle's life span based in seconds.

Radius- increases particle radius

Mass- increases particle mass

Important note: Radius and Mass are related in that their effect is only shown if dynamic properties are being used that would affect a particle differently based on its Radius and/or Mass (See 5. Program).

Size- minimum and maximum size of initial particles based on meters.

Lighting Boxes

Emissive Box- a self illuminated particle or a bright white particle.

Lighting Box- uses current scene lights.

Leaving both boxes unchecked shows a textured particle with colors of the bitmap used.

Texture- allows for selection and assignment of a bitmap texture
(formats available: bmp, dds, gif, jpg, pic, png, rgb, tga, tiff)

Important Note: The particle system can handle 32, 24, and 8-bit textures, however some other non-delta OSG applications and renders may specifically require all textures to be at a certain bit-depth. You may wish to start at 32bit, and test if depth changes affect your application.

Color

1st RGBA sets color and alpha level at beginning of particle.

2nd RGBA sets color and alpha level at end of particles life span.

Numbers can be entered by typing in number 0-1, or pressing button brings up color wheel selector.

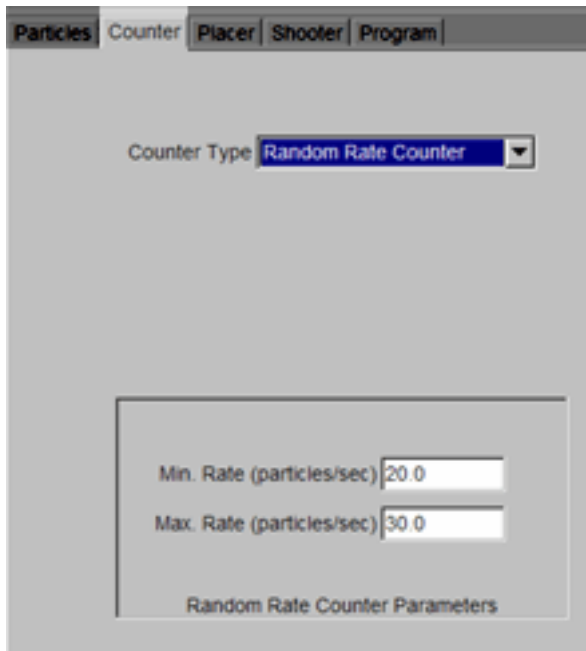
Emitter

If 'Forever' checked continuous stream of particles are emitted. If off-

Life (sec)-

Start Time (sec)-

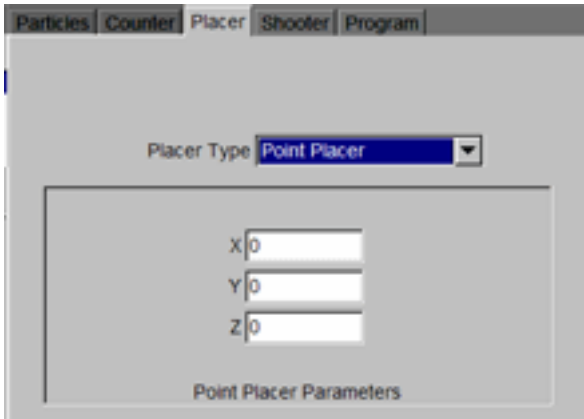
Reset Time (sec)-



2: COUNTER

Counter Type - currently only one type Random Counter type.

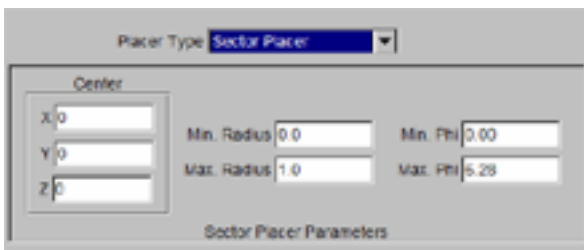
Allows for two values to be set below in the Min/Max boxes for particles emitted per second.



3: PLACER

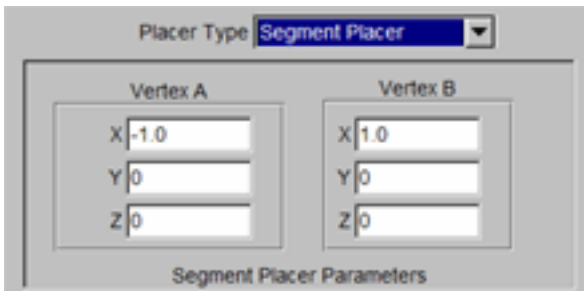
Placer type, this might also be considered the type of emitter.

Point Placer- particles emanates from a single point with a default of 0,0,0; off setting of point allowed using X,Y,Z input.

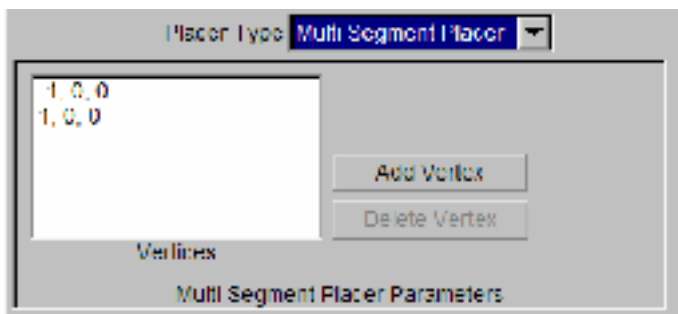


Sector Placer-basically a circular or ring emitter. Min/Max radiuses are used to set inner and outer dimension of the ring, up to 10 grid units.

Min/Max Phi values are radians of arc 0 to 6.28 (equal to 360 degrees). Allowing for users to set only a segment/radian of the ring to be admitting particles. This radian is set along the XY plain with 0 aligned to the positive X axis, with number increase causing the radian/arc to increase in a counter clockwise circular manor. X,Y,Z offset allowed.



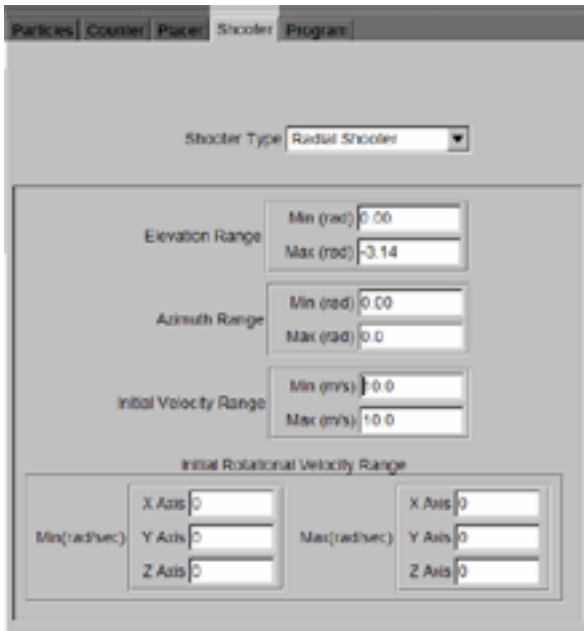
Segment Placer- uses two sets of XYZ co-ordinates to form a line/segment along which particles are emitted.



Multi Segment Placer- allows for the adding of multiple XYZ co-ordinates to create a longer multi segmented emitter. Defaults with one segment, you click add to increase number of segment vertex point. Delete

to remove a vertex point, with XYZ numbers needing to be input by user.

See Radians further explained in helpful tips section.



4: SHOOTER

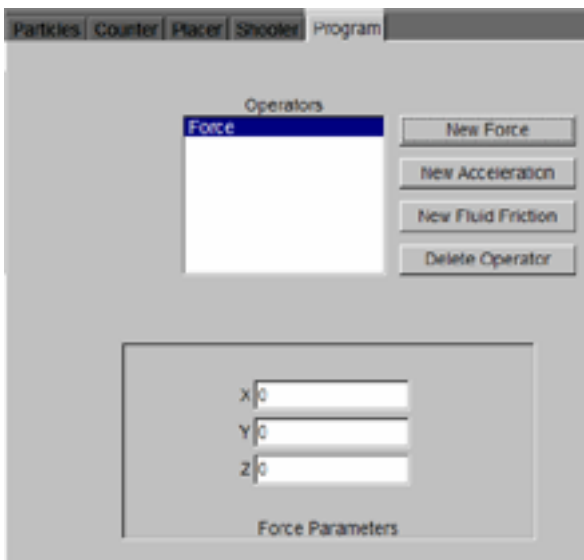
Currently one type- Radial Shooter

Elevation Range- again in radians along the YZ plain, with 0 being straight up and 3.14 or -3.14 being straight down. Plus or minus deciding if it is a positive or negative directional arc along the Y.

Azimuth Range- radians type the same as with Min/Max Phi, with positive and negative arcs on the XY plain.

Initial Velocity Range - Min/Max range in meters per second of particles.

Initial Rotational Velocity – Min/Max rotational spin of particles in radians around specified axis.



5: PROGRAM

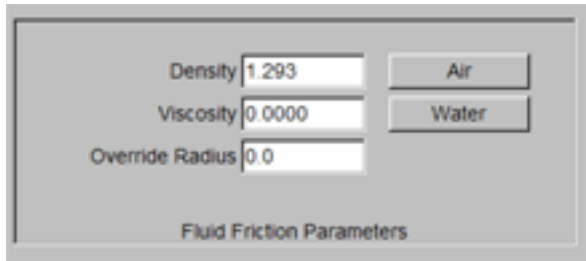
Dynamic forces

New Force:

As if and outside force, such as wind, was striking the particle stream. The use of positive and negative values, correspond to positive or negative direction of axis (XYZ) modified.

New Acceleration:

Affects the speed of particles along an axis. Range is -10 to 10, with negative numbers slowing down particles and positive accelerating them along the axis (X,Y,Z). Similar to New Force, but acting as if the force was coming from within the particle stream, instead of externally.



New Fluid Friction:

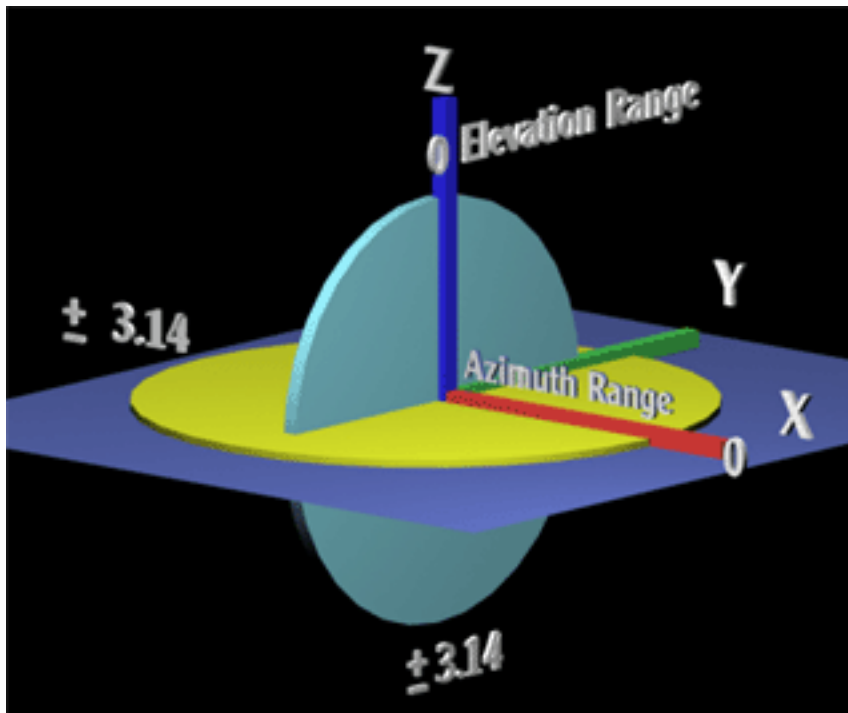
Density is thickness of surround atmosphere. Viscosity is the friction value.

Air and water buttons are preset values for their respective mediums.

Explanation: you should think of Density and Viscosity working in combination. Its like a frictional material in the surround air, where viscosity is how much friction the material has, and density is how much of the material is in the surrounding air.

Override Radius: Influences effects radius, but hard to control.

Helpful Tips =====



Radian - a measure equal to the angle subtended at the center of a circle by an arc equal in length to the radius of the circle, approximately $57^{\circ}17'44.6''$