

Overview

Render Entities available in CRYENGINE give designers quick ways of introducing various effects and visuals.

- [Overview](#)
- [Cloud](#)
- [Flash](#)
- [Fog](#)
- [FogVolume](#)
- [Lightning](#)
- [ViewDist](#)
- [VolumeObject](#)

Cloud

The cloud entity allows you to place clouds in the level. The cloud definition files (.xml) are built with the [cloud tool](#). Unlike with skyboxes, 3D clouds can be moved and players can fly through them.

See [Setting Up Weather Effects](#) for more information.

Property	Description
CloudFile	Defines which cloud object should be displayed.
Scale	Deprecated
AutoMove	Defines if the cloud should move or not using the speed property (cloud can also be moved with the Trackview Editor).
FadeDistance	The distance in meters when the cloud should fade in when moving from one side of the Space Loop Box to the other.
SpaceLoopBox	Defines the box in which the cloud moves from one end to the other (looping).
Speed	Specifies the speed in X, Y, Z direction.

Flash

The entity flashes the users screen making it white for a few seconds. Very bright explosions can be simulated with the Flash Entity. Trigger strikes through [flow graph](#).

Property	Description
SkyHighlightAtten	Specifies attenuation amount on the sky highlighting.
SkyHighlightColor	Specifies in which color the skybox will be lit by the lightning effect.
SkyHighlightMultiplier	Specifies how bright the skybox will be lit by the lightning effect.
Sound	Specifies a sound to play when triggered.
FadeInTime	Sets up the amount of time (in sec.) how long it takes to fade in the effect.
FadeOutTime	Sets up the amount of time (in sec.) how long it takes to fade out the effect.
FadeDuration	Sets up the amount of time (in sec.) fade in and out takes the effect.

Fog

See [Fog](#) for more information.

FogVolume

See [Fog](#) for more information.

Lightning

Lightning entities simulate Thunder/Lightning effects, with lightning strikes, large scale lights and thunder sounds which can be delayed.

Property	Description
Active	Activate/Deactivate the lightning entity.
Distance	Specifies how far away from point where the entity was placed that the lighting effect should happen.
DistanceVariation	Adds a random value to the distance, for example 20 means +-20% if the Distance is set to 100.
RelativeToPlayer	Sets the effect relative to the player so always with the same distance from the players current position.
Effects	
LightIntensity	Specifies how bright the light should be.
LightRadius	Within this radius objects will be lit.
ParticleEffect	Specifies the lightning bolt effect.
ParticleScale	Specifies the scale of the lightning bolt effect.
ParticleScaleVariation	Varies the scale of the lightning bolt effect.
SkyHighlightAtten	Attenuate the SkyHighlight effect.
SkyHighlightColor	Specifies which color the skybox will be lit by the lightning effect.
SkyHighlightMultiplier	Specifies how bright the skybox will be lit by the lightning effect.
SkyHighlightVerticalOffset	Offsets the SkyHighlightColor effect vertically. '50' will raise the effect 50m above the entity position.
Sound	Sets up a sound effect that should be played when each lightning strike occurs. This would typically be a thunder sound.
Timing	
Delay	Frequency of the lightning strikes, measured in seconds.
DelayVariation	Varies the frequency of the lightning strikes.
LightningDuration	Defines how long the visual effect of the lightning strike should last, in seconds. If set to '5' there will be 5 seconds of lightning, then 5 seconds of no lightning. Does not effect PFX, only the light.
ThunderDelay	Delay time, in seconds, for the thunder sound to reach the player. This is the sound that is defined just above the Timing section.
ThunderDelayVariation	Varies the delay time for the ThunderDelay sound.

ViewDist

The ViewDist entity limits how far the player can see. Using the ViewDistance entity can significantly increase the frame rate in specific areas.

This entity can be used in two ways, by linking it to an [area shape](#) or triggered through [flow graph](#).

Property	Description
FadeTime	Specifies the amount of time it takes to fade from the current level ViewDistance settings to the MaxViewDist setting in the entity.
MaxViewDist	Sets up the rendering View Distance in meters.

VolumeObject

Volume objects in CRYENGINE offer the possibility to render volumetric effects of density fields (clouds, smoke, etc) in a realistic way. A volume description is converted into a 3D density field (texture) at load time. This density field is then used to calculate self shadowing, surface extraction, and shading at runtime. Currently the density field cannot be dynamically changed. Unlike 3D clouds volume objects are rendered in a single pass (no imposters needed). The pixel shader computes the final shading result by tracing the density field and density and shadow information at each sample point. Samples are blended using the "Under Operator". Additionally, back lighting and soft intersections with opaque scene geometry is supported.



Volume objects in CryENGINE.

Unlike the Cloud Object, the Volume Object renders 3D Volume objects with correct shading (shadows on the darker parts). The benefit of using a Volume Object is that it can be used to place realistic clouds in the level or for building irregular fog areas with varying heights.

Sandbox Usage

Follow these steps to place volume objects in a new level.

- On the **RollupBar**, select the **Objects** tab and click on the **Entity** button.
- Select the **Render** folder and drag a **VolumeObject** entity inside the level.
- The VolumeObject requires the [VolumeObject shader](#) in order to render. A basic example material can be found in `materials/clouds/volumeobject.mtl` or you can create one with your own settings.

The Entity Properties section provides several options (for the most part these are equivalent to the entity properties for 3D clouds).

Property	Description
VolumeObjectFile	Specifies the .xml file containing the description of the volume object. It is compatible with the description file for 3D clouds. The description will be used to voxelize a 3D volume that will be used for rendering.
AutoMove	Defines if the cloud should move or not using the speed property (cloud can also be moved with the Trackview Editor).
FadeDistance	The distance in meters when the cloud should fade in when moving from one side of the Space Loop Box to the other.
SpaceLoopBox	Defines the box in which the cloud moves from one end to the other (looping).
Speed	Specifies the speed in X, Y, Z direction.

Tips



- To save texture memory and shader cost the resolution of the 3d volume texture is fixed and limited (64x64x64). Therefore you should make sure your volume description doesn't contain too many high frequency details. They would otherwise get lost during voxelization and/or rendering (aliasing)!
- To improve speed on lower spec configs less samples are taken when computing ray tracing results -> higher chance of aliasing.
- To save texture space reuse a given volume description file as much as possible and rotate volume objects when placing them into the scene to create the illusion of variation. Volume descriptions (and their associated textures are shared) so instances only need individual textures to bake shadow information.