

Particles refer to the engine elements that are used to create visual effects or small physical objects that can move, hit surfaces, emit light, react to collisions etc. The Particle Editor lets users view the existing particle entities or create a new one from scratch. By using specific components and features, users can design unique and powerful visual effects such as smoke, weather effects and/or explosions.

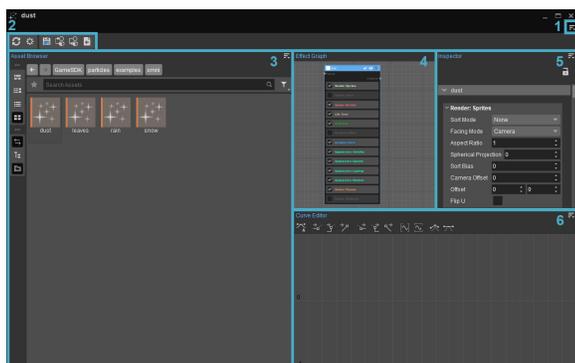
The particle effect features and the parent - child particle dependencies can be modified in this editor. It is especially useful when users want to create second generation particles that are spawned out of the first generation particles. It also allows the user to utilize GPU particles and makes it easier to switch from CPU particles to GPU particles. This feature ensures that the particles have a much greater level of physical interaction and that more particles can be displayed on the screen at a time.

The Particle Editor can be found under **Tools Particle Editor**.

You can create a default particle effect through the Asset Browser. To do so, open the Asset Browser, browse to the folder where you want to create the particle, **right-click** on an empty space in the folder and choose **New Particle** from the context menu.

For more information about the particle effect creation workflow, please refer to the [Creating a Particle Effect](#) page.

By default, the Particle Editor layout consists of the following panels:



- 1. The Menu
 - File
 - Edit
 - Toolbars
 - Window
 - Help
- 2. Toolbar
- 3. Asset Browser
- 4. Effect Graph
 - Context Menu
- 5. Inspector
 - Effect Options
 - Properties
- 6. Curve Editor
 - Curve Editor Toolbar
- Effect Tree
 - 1. Component Tree
 - 2. Features Tree

1. The Menu

The Menu can be accessed via the  icon on the top-right corner of the Particle Editor. When clicked, it reveals the following options:

File

| Option | Description |
|----------------------------------|---|
| New | Brings up the Create Particles panel where a particle effect can be named and saved in a defined folder. |
| Open | Allows users to choose an existing particle asset to modify or use in the current level. Particle effect options can also be accessed by double clicking a particle asset on the Asset Browser . |
| Close | Closes the current particle asset. |
| Save | Saves the current particle asset. |
| Save As | Saves the current particle asset under a different name and/or directory. |
| Recent Files | Shows a list of particle assets that were opened recently. |
| Reload | Reloads the particle effect. |
| Show Effect Options | Displays the Effect Options on the Inspector panel instead of Properties. See Effect Options for a more detailed explanation. |
| Load from Selected Entity | Loads an effect from an entity selected in the Viewport. |

| | |
|---------------------------------|--|
| Apply to Selected Entity | Applies an effect to an entity selected in the Viewport. |
| Import... | Imports an existing Pfx1 effect from the Particle Editor Tab in the Database View tool directly into the Particle Editor System. For more information about the Pfx1 effects, please refer to Particles Tab (Legacy Particle Editor) . |

Edit

| Option | Description |
|---------------|------------------------------------|
| Undo | Undoes the last action. |
| Redo | Redoes a previously undone action. |
| Copy | Copy a node. |
| Paste | Paste a node. |
| Delete | Delete a node. |

Toolbars

| Option | Description | | | | |
|--------------------------------|--|--------------------------------|--|----------------------------|--|
| Customize... | Opens the toolbar customization window allowing users to customize existing toolbars, and /or create new toolbars within the Particle Editor. | | | | |
| Lock Toolbars | When disabled, the positions of toolbars and spacers within the Particle Editor can be changed by drag and drop. | | | | |
| Spacers | <p>The following options allow users to use spacers in positioning their toolbars.</p> <table border="1"> <tr> <td>Insert Expanding Spacer</td> <td>Adds an expanding spacer to the toolbar layout; an expanding spacer pushes all elements situated at its ends to the edge of a panel.</td> </tr> <tr> <td>Insert Fixed Spacer</td> <td>Adds a fixed spacer, which has a fixed size of one icon.</td> </tr> </table> <p>The Spacers menu options are only available when Toolbars Lock Toolbars is disabled.</p> | Insert Expanding Spacer | Adds an expanding spacer to the toolbar layout; an expanding spacer pushes all elements situated at its ends to the edge of a panel. | Insert Fixed Spacer | Adds a fixed spacer, which has a fixed size of one icon. |
| Insert Expanding Spacer | Adds an expanding spacer to the toolbar layout; an expanding spacer pushes all elements situated at its ends to the edge of a panel. | | | | |
| Insert Fixed Spacer | Adds a fixed spacer, which has a fixed size of one icon. | | | | |
| Toolbars | <p>Lists all default and custom toolbars created for the Particle Editor, allowing you to select which toolbar you'd like to hide or display.</p> <p>The default Particle Editor toolbars are as follows:</p> <ul style="list-style-type: none"> • Effect - Toggles the  part of the toolbar on and off. • Library - Toggles the  part of the toolbar on and off | | | | |

When a tool has a toolbar, whether this is a default one or a custom one, the options above are also available when right-clicking in the toolbar area (only when a toolbar is already displayed).

Window

| Option | Description |
|--------|-------------|
|--------|-------------|

| | |
|---------------------|---|
| Panels | <p>Displays the panels that have been previously closed or not yet opened on the Particle Editor.</p> <p>The following panels can be found in the Particle Editor:</p> <ul style="list-style-type: none"> • Asset Browser • Curve Editor • Effect Graph • Effect Tree • Inspector |
| Reset layout | Resets the layout. This option is a quick way to go back to the default Particle Editor view. |

Help

Opens the documentation page for this tool.

2. Toolbar

When the Particle Editor is opened for the first time, the default Toolbar below is displayed:



| Button | Description |
|------------------------------------|--|
| Save | Saves an effect. |
| Load from Selected Entity | Loads an effect from a selected entity. |
| Apply to Selected Entity | Applies an effect to a selected entity. |
| Import Selected Pfx1 Effect | Imports an existing Pfx1 effect from the Particle Editor tab on the DataBase View tool directly into the Particle Editor System. |
| Reload Effect | Resets the currently open effect components to their original state. |
| Show Effect Options | Opens the Effect Options. See Effect Options below for a more detailed explanation. |

3. Asset Browser

Tool-specific Asset Browser panels let users view and edit the assets within the tool that is currently being used. Unlike the stand-alone Asset Browser tool, the assets that are displayed on this panel are pre-filtered by default; meaning it only displays the assets that are relative to the tool itself.

Menu options and their functionalities on both the stand-alone and the tool-specific Asset Browsers are the same and they can be used to achieve the same goal. For more information about the Asset Browser Menu options, please refer to the [Asset Browser](#) page.

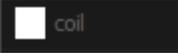
When the Sync Selection  button in the toolbar is active, selecting a different asset in a tool-specific Asset Browser will instantly open it. This button makes it very easy to cycle through different assets and edit them on the fly.

4. Effect Graph

The Effect Graph is the default editing panel on which users can modify existing particle effects or create a new one from scratch; it is a node based panel where users can view and edit components, their parent-child relationships and the particle effect features.

If a tree-based layout is preferred, the Effect Tree panel can be used to edit and create particle effects instead. For more information, see the [Effect Tree](#) section on this page.

| Button | Name | Description |
|--------|------|-------------|
|--------|------|-------------|

| | | |
|---|---------------------------|---|
|  | Name | By double clicking, users can edit the component's name. |
|  | Enable /Disable | Enables or disables the component. Disabled components are not processed by CRYENGINE, but are still stored in the memory. This option is often used during production to experiment with different techniques. |
|  | Visible /Invisible | Makes the component either visible or invisible. Particles in an invisible component are hidden, but are still simulated. Best used on parent components that are not supposed to be visible, but need to be visible while editing. For more information about parent-child relationships, please refer to SecondGen . |
|  | Solo | Makes every component in the effect invisible except for this one. Useful to isolate a single component from others. |

Users can navigate around the Effect Graph panel by holding and dragging the **RMB** on an empty space.



Each feature that is available on a component can be moved around by dragging & dropping.

Context Menu

The Effect Graph panel also allows you to pick components from the Context Menu. It includes preset components that can be used to create new particle effects or to modify the existing ones to achieve more complicated and sophisticated results.

In order to access the Context Menu, right click on a blank section on the Effect Graph panel.

| Component | Description |
|-----------------------|--|
| advanced | Contains specific effect presets like fire, explosions, rain, etc. Motion, timing and other features that may be needed to create an effect are already included in these presets. Most of these effects should work fine; however, users may also need to add a texture and tweak the lighting properties in order to get the desired outcome. |
| default (menu) | Contains the bare minimum setup presets like audio, sprites, GPU sprites, ribbon, etc. These presets have no motion or timing elements and are not effect specific. |
| default (node) | Default node is a sort of starting node which can be used to create more complicated effects and it can also be found under Advanced dropdown menu. This node includes most of the features that users might need. |

5. Inspector

The Inspector panel allows users to review the feature properties and attribute options. It can either display all the feature properties of a component, or the properties of a selected feature or attribute. In other words, if a component is selected, all the available features and their properties will be shown on the Inspector panel; however, if a single feature is selected, only the properties of that specific feature will be displayed instead.



Clicking the  button on the Inspector panel locks the currently displayed feature parameters and makes sure that the Inspector panel content doesn't change even when another feature is selected.

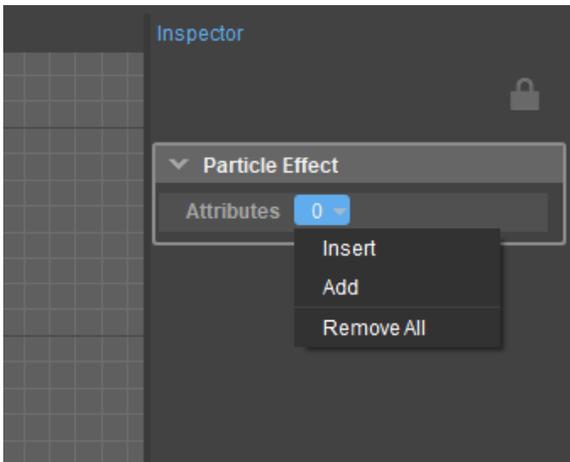
Effect Options



Effect options can be displayed by clicking on the  button on the toolbar. It can be used to add different attributes to the effect.

Each effect can have many different attributes that control its certain aspects.

New attributes can be added to the effect by clicking the button next to the **Attributes** field:



The attributes can be removed by clicking on **Remove All**. Keep in mind that this option removes all the attributes at once. To remove attributes individually, simply right click on the arrow icon near the attribute and choose **Remove**.



Effects can have any number of custom attributes. Each attribute can have the following properties:

| Property | Description |
|-------------------------------------|---|
| Type (1) | Specifies the type of attribute to be used: <ul style="list-style-type: none"> • Boolean - Can be either true or false. • Integer - A whole number that can be either positive or negative. • Float - A floating point value data type. • Color - Allows adding a color value to the attribute. |
| Default Value (2) | Sets a default value; the value is based on the selected type. |
| Name (3) | Specifies a custom name to be used by the effect's modifiers. Names are case sensitive, please make sure to type the names correctly. |
| Minimum Value, Maximum Value | After enabling Minimum and/or Maximum Value options, user can set the parameters to the desired value at which the attribute gets clamped. |

Different Types can be converted into each other. For example, if a modifier expects an attribute of float type, but a color is assigned to it, then the attribute is first converted into a float based value on color brightness. If a modifier is expecting a color attribute, but a boolean attribute is assigned, then the attribute turns either black or white.

For more information about how to use attributes in an effect, please see [Modifiers](#).

Properties

When a feature is selected, its properties can be modified on the Inspector panel. This allows users to create various effects for the particles they use.

For a detailed information about individual feature properties, please refer to [Particle Effect Features](#).

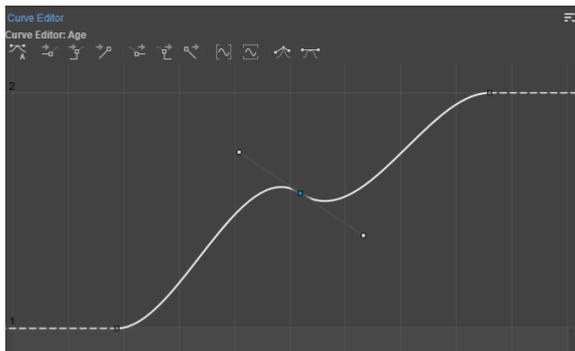
6. Curve Editor

The Curve Editor can be used to tweak certain properties much in the same way that users can in the [Environment Editor](#). It shows the progression of the values for the selected feature over the course of a specific time and how gradually they change. It is especially useful when time-based periodic changes are envisioned for a particle effect.

In order to edit the particle effect features on the Curve Editor panel, [Color Modifiers](#) or a feature with the [Curve](#) or the Double Curve modifier should be selected.

For more information about Curve and Double Curve modifiers, see the [Modifiers](#) page.

For more information about Features that support modifiers, refer to [Particle Effect Features](#).



Curve Editor Toolbar



Curve Editor Toolbar lets users modify the curves and give them certain properties. It consists of the following options:

| Button | Name | Description |
|--------|---------------------------------------|---|
| 1 | Set in and out tangent to auto | Sets the tangents for the selected key(s) (the squares in the graph) to auto. |
| 2 | Set in tangent to zero | Sets the in tangent for the selected key(s) (the squares in the graph) to zero. |
| 3 | Set in tangent to step | Sets the in tangent for the selected key(s) (the squares in the graph) to step. |
| 4 | Set in tangent to linear | Sets the in tangent for the selected key(s) (the squares in the graph) to linear. |
| 5 | Set out tangent to zero | Sets the out tangent for the selected key(s) (the squares in the graph) to zero. |
| 6 | Set out tangent to step | Sets the out tangent for the selected key(s) (the squares in the graph) to step. |
| 7 | Set out tangent to linear | Sets the out tangent for the selected key(s) (the squares in the graph) to linear. |
| 8 | Fit curves horizontally | Fits the graph into the graph window horizontally. |
| 9 | Fit curves vertically | Fits the graph into the graph window vertically. |
| 10 | Break tangents | Sets the tangents for the selected key(s) (the squares in the graph) to auto. |
| 11 | Unify tangents | Sets the tangents for the selected key(s) (the squares in the graph) to auto. |

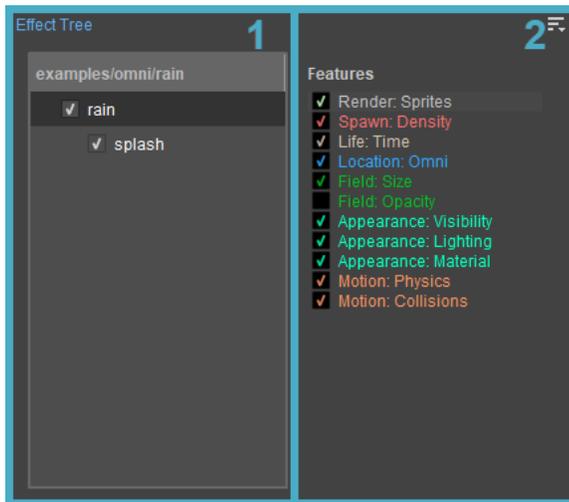
Curves in the Particle Editor are not affected by the size of the handles (derivative weight). This is for performance reasons since these curves are to be evaluated for every particle every frame.

Holding the **Shift** key will let users move the keys horizontally or vertically on a straight line.

Effect Tree

The Effect Tree panel can be used to inspect the particle effect components, features and the parent-child relationships on a tree-based layout. It also allows users to navigate through the particle effect features, and modify their parameters.

The Effect Tree is not a part of the default layout of the Particle Editor. To access the Effect Tree panel, go to **Window Panels Effect Tree**.



The Effect Tree panel has two different sub-panels: the Component Tree (1) and the Features Tree (2):

1. Component Tree

The Component Tree displays all the available components on a simpler, tree-based list.

The following options may appear when **right-clicking** on a component or an empty space on the list:

| Option | Description |
|----------------------------|--|
| Add Component | Adds new components to the Component Tree. In order to add components, right click on an empty space on the Component Tree and choose Add Component . For more information about preset components, please see the Context Menu section. |
| Add Child Component | Adds a new child component to the selected parent component. To add a child component, right click on any tree item and choose Add Child Component . For more information about preset components, please see the Context Menu section. |
| Remove | Removes a component from the list. To remove a component, simply right click on it and choose Remove . If a <u>p</u> arent component is removed from the list, its child will be removed as well. |
| Visible | Makes components visible or invisible. Right click on a component and choose Visible to use this function. <u>P</u> articles in an invisible component are hidden, but still simulated. |
| Solo Visible | Makes only the chosen component visible. <u>P</u> articles in an invisible component are hidden, but still simulated. |

Components can be enabled or disabled by **left-clicking** on the checkbox next to the name field of any component.

To rename components, **double-click** on the name field of the component.

To move and re-parent components, select a component and drag it on a new parent.

To separate a child from a parent component, drag and drop the child on an empty field below or above another component. When moving a component, a line will appear to indicate on which level the selected component will end up when it is released.

2. Features Tree

The Features Tree displays all the available particle effect features on a simpler, tree-based list.

To display and edit a component's feature(s), select the component on the Component Tree to fill the Features Tree with all the available features in the selected component. Choosing one afterwards will fill the Inspector panel with its parameters.

When a feature or an empty space in the Features Tree **right-clicked**, the following options appear on the context menu.

| Option | Description |
|---------------|---|
| Append | When an empty space is right-clicked , this option appears. It can be used to assign new features to the selected component. |
| Insert | When a feature is right-clicked , this option appears. It adds a new feature above the currently selected feature. |
| Remove | When a feature is right-clicked , this option appears. It removes the selected feature(s). |

Features can be enabled or disabled by clicking on the checkbox next to the name field.



The list hierarchy of the features can be reorganized by dragging and dropping it to the desired position.