

COMMON EXPRESSIONS

View online: <https://www.construct.net/en/make-games/manuals/construct-3/plugin-reference/common-features/common-expressions>

The following **expressions** are common to several plugins.

Angle

Angle

The object's current angle, in degrees. 0 degrees is facing right and angles increment clockwise.

Appearance

ColorValue

A number representing the color property of the instance. This can be used with the *Set color* action to set an object's color to match another object.

Opacity

The object's current opacity (semitransparency), from 0 (transparent) to 100 (opaque).

Hierarchy

These expressions are available for plugins that support the *scene graph* feature, allowing objects to be connected together so they move, rotate and scale as if they were one large object.

ChildCount

Return the number of children currently attached to this object (with the *Add child* action) in the hierarchy. This is 0 if the object has no children.

AllChildCount

Return the number of children currently attached to this object (with the *Add child* action) in the hierarchy, including all descendants. This is 0 if the object has no children

ParentUID

The unique ID (UID) of this object's parent in the hierarchy. If this object has no parent, it returns -1.

Misc

AsJSON

Save the object state to a string of data in JSON format, and return it. This can be downloaded or otherwise stored, and later the state of the object restored using the *Set from JSON* action.

Count

The number of **instances** of the **object type**.

PickedCount

The number of instances meeting the event's conditions. For example, if the event has the condition "Mouse is over Sprite", *Sprite.PickedCount* will return the number of Sprite instances that the mouse is over.

ObjectTypeName

The name of the object type for the given object. For example *Sprite.ObjectTypeName* will return "Sprite". When used as a family expression, this returns the name of the actual object type, never the name of the family itself.

IID

Return the instance's index ID (IID). See **instances**.

UID

Return the instance's unique ID (UID). See **instances**.

Tags

Get all the current instance tags as a space-string.

TagsCount

Get the number of tags an instance has.

TagAt

Get the tag at a zero-based index.

Size & Position

BBoxLeft

BBoxRight**BBoxTop****BBoxBottom**

Return the layout co-ordinates of the object's axis-aligned bounding box. This is the smallest unrotated box that completely encloses the object, taking in to account any rotation or stretching.

BBoxMidX**BBoxMidY**

Return the layout co-ordinates of the mid-point of the object's axis-aligned bounding box. This is not necessarily the same position as the object origin, such as if the origin is not exactly in the middle.

Width**Height**

Return the size of the object in pixels.

ImagePointX(nameOrNumber)**ImagePointY(nameOrNumber)****ImagePointZ(nameOrNumber)**

Return the position of one of the object's image points from its currently displaying animation frame in layout co-ordinates. Either the image point's name or its number can be passed. Note that when using a number, 0 refers to the origin, so the first image point is number 1.

X**Y**

Return the object's position in the layout, in pixels. The origin (0,0) is at the top-left of the layout and the Y axis increments downwards.

Time**dt**

Return delta-time according to the object's own timescale. See [Delta-time and framerate independence](#) for more information.

Z Order**LayerName**

LayerName

The name of the layer the instance is currently on.

LayerNumber

The zero-based index of the layer the instance is currently on.

ZElevation

Return the current elevation on the Z axis for the instance relative to its layer. This is not affected by the layer's Z elevation.

TotalZElevation

Return the instance's Z elevation added to the layer's Z elevation, providing the total Z elevation the instance appears at.

ZIndex

Get the zero-based index of the Z order of this instance within its current layer. 0 is the bottom instance, increasing up to the top instance.

Template

TemplateName

The name of the template used to create this instance. Returns an empty string if no template was used.