

# ORBIT BEHAVIOR

View online: <https://www.construct.net/en/make-games/manuals/construct-3/behavior-reference/orbit>

The **Orbit behavior** moves an object in a circle or ellipse around a point. The object's initial position is used as the point to orbit around.

## Scripting

When using JavaScript or TypeScript coding, the features of this behavior can be accessed via the [IOrbitBehaviorInstance script interface](#).

## Orbit properties

### Speed

The speed to orbit at, in degrees per second. Positive is clockwise and negative is anticlockwise.

### Acceleration

The rate of change to the orbit speed, in degrees per second per second. Positive will accelerate in a clockwise direction and negative will accelerate in an anticlockwise direction.

### Primary radius

The distance of the orbit from its center point, in pixels. For a circular orbit, ensure the primary and secondary radii are the same. For elliptical orbits, the primary radius is the one in the direction of the offset angle.

### Secondary radius

The perpendicular distance of the orbit from its center point, in pixels. For a circular orbit, ensure the primary and secondary radii are the same. For elliptical orbits, the secondary radius is the one perpendicular to the offset angle.

### Offset angle

For elliptical orbits, the rotation of the ellipse in degrees. For circular orbits, this does not affect the orbit path (since rotating a circle has no effect), but it changes the initial angle the orbit starts from.

### Match rotation

If enabled, sets the object's angle to match the direction of travel in the orbit. If disabled the behavior only changes the object's position without affecting the angle.

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### Enabled

Whether the behavior is initially enabled or disabled. If disabled, it can be enabled at runtime using the *Set enabled* action.

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### Preview Paid plans only

Enable to run a preview of the behavior directly in the Layout View.

## Orbit conditions

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### Is enabled

Test if the behavior is currently enabled.

## Orbit actions

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### Pin

### Unpin

Set another object as the location to orbit around, following the object if it moves. The *Unpin* action will stop following the object.

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### Set acceleration

### Set enabled

### Set match rotation

### Set offset angle

### Set radius

### Set speed

Set the corresponding behavior properties. See *Orbit properties* above.

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### Set rotation

Set the current orbit position by its angle from the center point in degrees.

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### Set target

Set the center point of the orbit in layout co-ordinates.

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### Reset total rotation

Sets the counters for the `TotalRotation` and `AbsoluteTotalRotation` to 0

## Orbit expressions

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### Acceleration

### OffsetAngle

### PrimaryRadius

### SecondaryRadius

### Speed

Return the corresponding behavior properties. See *Orbit properties* above.

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### DistanceToTarget

Return the distance from the object to the center point of the orbit, in pixels.

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### Rotation

Return the current position of the orbit as its rotation relative to the center point in degrees.

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### TargetX

### TargetY

Return the current center point of the orbit in layout co-ordinates.

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### TotalRotation

Return the total rotation of the instance in degrees. This value does not wrap at 360 degrees. If the instance is rotating counter-clockwise then the value will decrease over time. This counter can be cleared using the *Reset total rotation* action.

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### TotalAbsoluteRotation

Return the total rotation of the instance in degrees, ignoring rotation direction. This expression is very similar to the *TotalRotation* expression, but rotation deltas are converted to absolute values. This means the counter will always increase even if the instance is rotating counter-clockwise. This counter can be cleared using the *Reset total rotation* action.