

## 3D

When editing a 3D scene, you view the scene in the **3D** view. You can change the projection of the view by switching between *perspective camera* and *orthographic camera* modes. When using the perspective camera mode, components that are far from the camera appear smaller than those nearby. In the orthographic camera mode, all components appear at the same scale irrespective of their distance from the camera. Both of them are free-form camera modes that you can use to orbit around the scene.

When you import 3D scenes from files that you exported from 3D graphics tools, you also import a **scene camera**, **light**, **model**, and **materials**. If your scene did not contain them, you can add the corresponding **Qt Quick 3D**

components from **Components** > **+** > **Qt Quick 3D** > **Qt Quick 3D**.

You can use the **toolbar buttons** to *transform* 3D components and manipulate the 3D scene. Transformation refers to moving, rotating, or scaling of a component. The *pivot* of the component is used as the origin for transformations. You can set a **local pivot offset** for a component in **Properties** to transform the component around a point other than its local origin. A line is drawn in the **3D** view from the pivot point to the center of the component to provide a visual connection between them. Especially when working with complex scenes, it may be useful to use the **showing and hiding** or the **locking** features in **Navigator** to avoid transforming components by mistake while editing your scene.

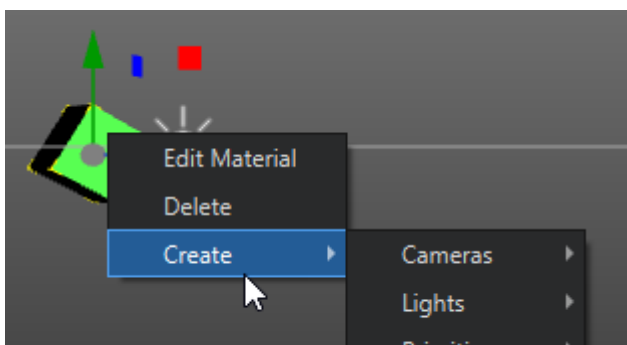
Toggle between local and global orientation to determine whether the gizmos affect only the local transformations of the component or whether they transform with respect to the global space.

Another helpful feature when editing 3D scenes is the *edit light*, which is a quick way to light the scene.

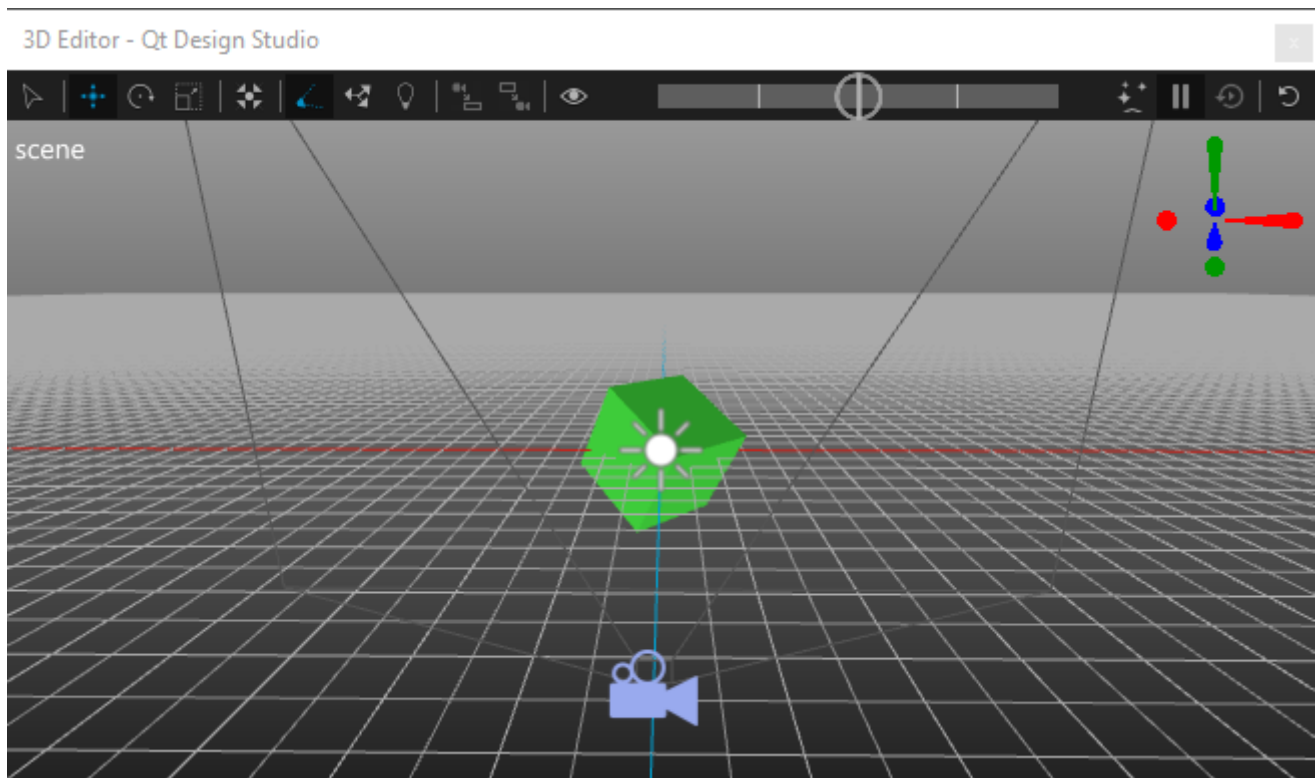
Additionally, you can toggle the visibility of the grid, selection boxes, icon gizmos, and camera frustums in the 3D scene.

There is a context menu in the **3D** view. To open it, right-click in the **3D** view. From the context menu you can:

- > Create cameras, lights, and models.
- > Open **Material Editor** and edit materials.
- > Delete components





To refresh the contents of the **3D** view, press **P** or select the  (**Reset View**) button.



The following video illustrates navigating in the **3D** view and using the toolbar:

## Controlling the 3D View Camera

To switch to perspective camera mode, select  (**Toggle Perspective/Orthographic Edit Camera**). To switch to orthographic camera mode, select . You can also Toggle the camera mode by using the keyboard shortcut **T**.

You can navigate the scene by panning, rotating, and zooming the 3D view camera:

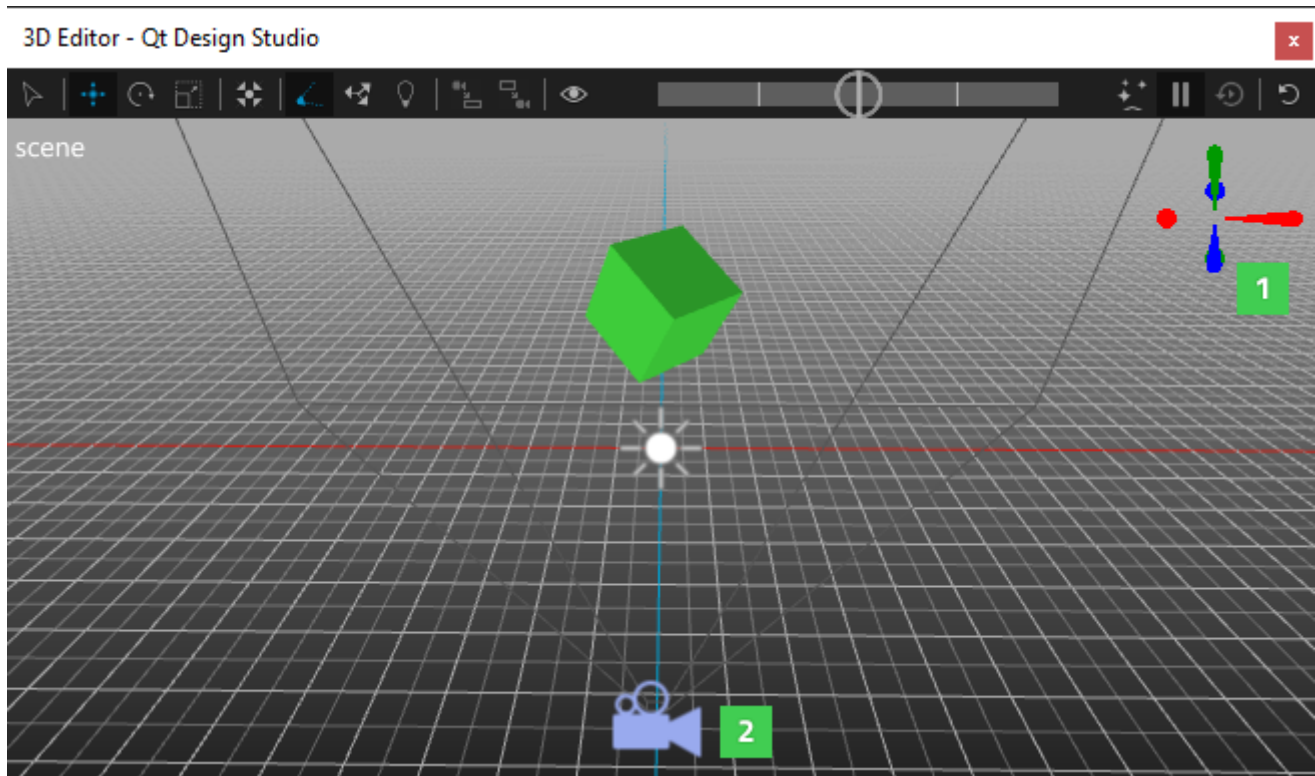
- To pan, press **Alt** (or **Option** on macOS) and use the middle mouse button to click and drag anywhere in the rendered view to slide the view around.

**Note:** It is not possible to pan using Magic Mouse.

- To zoom, use the mouse wheel or press **Alt** and right-click anywhere in the rendered view to zoom the view in or out as you drag up or down.



To zoom and focus the 3D view camera on a selected component, select  (**Fit Selected**) or press **F**.

The world axis helper (1) shows the direction of the world axes in the view. To point the camera at the currently selected component in the direction of an axis, click the axis. Clicking the dot at the end of the axis will point the camera at the opposite direction of the axis. If no component is selected, the camera is pointed at the world origin. This does not affect the camera zoom level.



You can use scene cameras (2) to view the **View3D** component from a specific angle in the **2D** view while editing scenes. Different types of cameras are available in **Components > Qt Quick 3D > Qt Quick 3D**. For more information about using cameras in the scene, the available camera types, and their properties, see [Cameras](#).

## Using Global and Local Orientation

To switch between local and global orientation, select  or  (**Toggle Local/Global Orientation**) or press **Y**.

In global orientation mode, transformation of a selected component is presented with respect to the global space. For example, while the move tool is selected, selecting a cube will show its move gizmo aligned with the axes of global space. Dragging on the red arrow of the gizmo moves the component in the global x direction.



In local orientation mode, the position of a selected component is shown according to local axes specific to the selected component. For example, selecting a rotated cube will show its axes rotated, and not aligned with the axes of global space. Dragging on the red arrow of the gizmo moves the component in the local x direction in relation to the component.

## Using Edit Light

For more information about the available scene light types and their properties, see [Lights](#).

## Selecting Components

To move, rotate, or scale components in the scene, you need to select them first. The selection mode buttons determine how components are selected when you click them in the **3D** view:

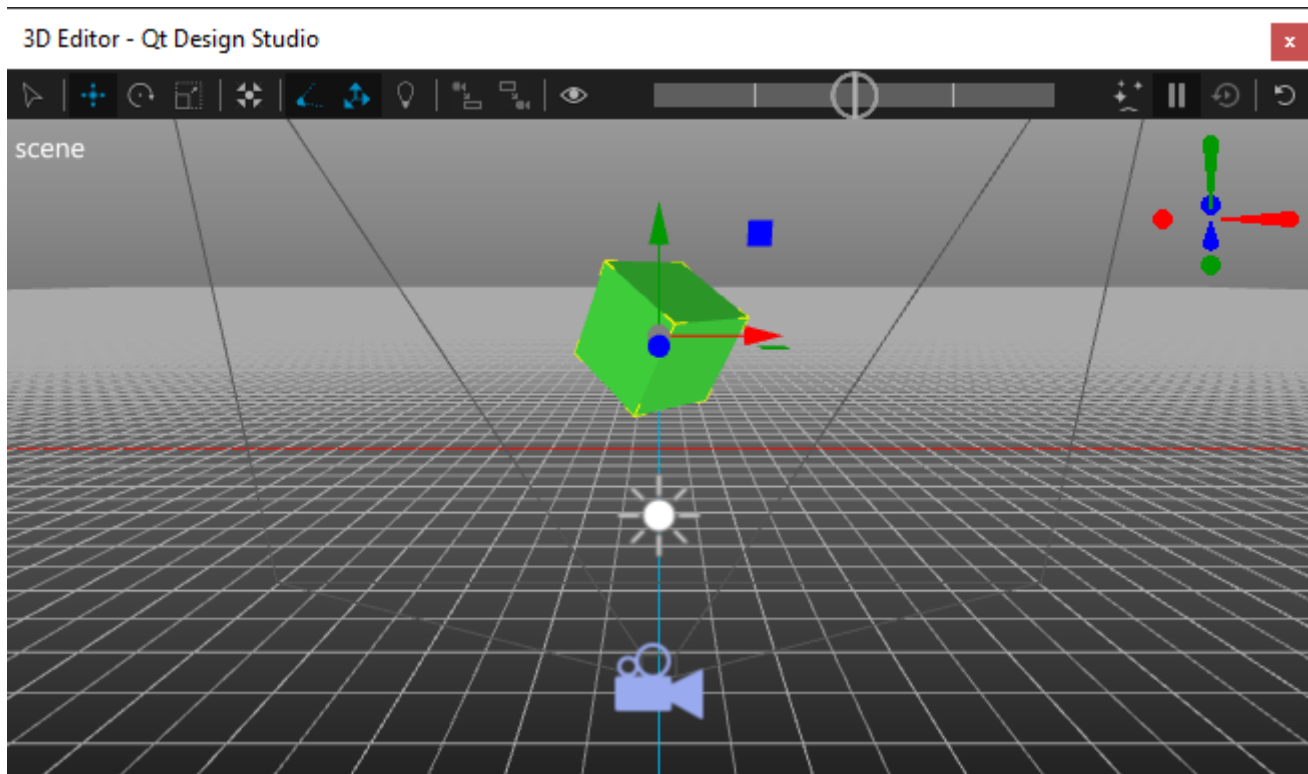
- In the  (**Single Selection**) mode, a single component is selected.
- In the  (**Group Selection**) mode, the top level parent of the component is selected. This enables you to move, rotate, or scale a group of components.

To toggle the selection mode, press **Q**.

To multiselect, hold **Ctrl** and click the components you wish to select.

After selecting a component, you can apply the usual [keyboard shortcuts](#) applicable to your operating system, for example, **Ctrl+C** and **Ctrl+V** on Windows to copy-paste components.

## Moving Components

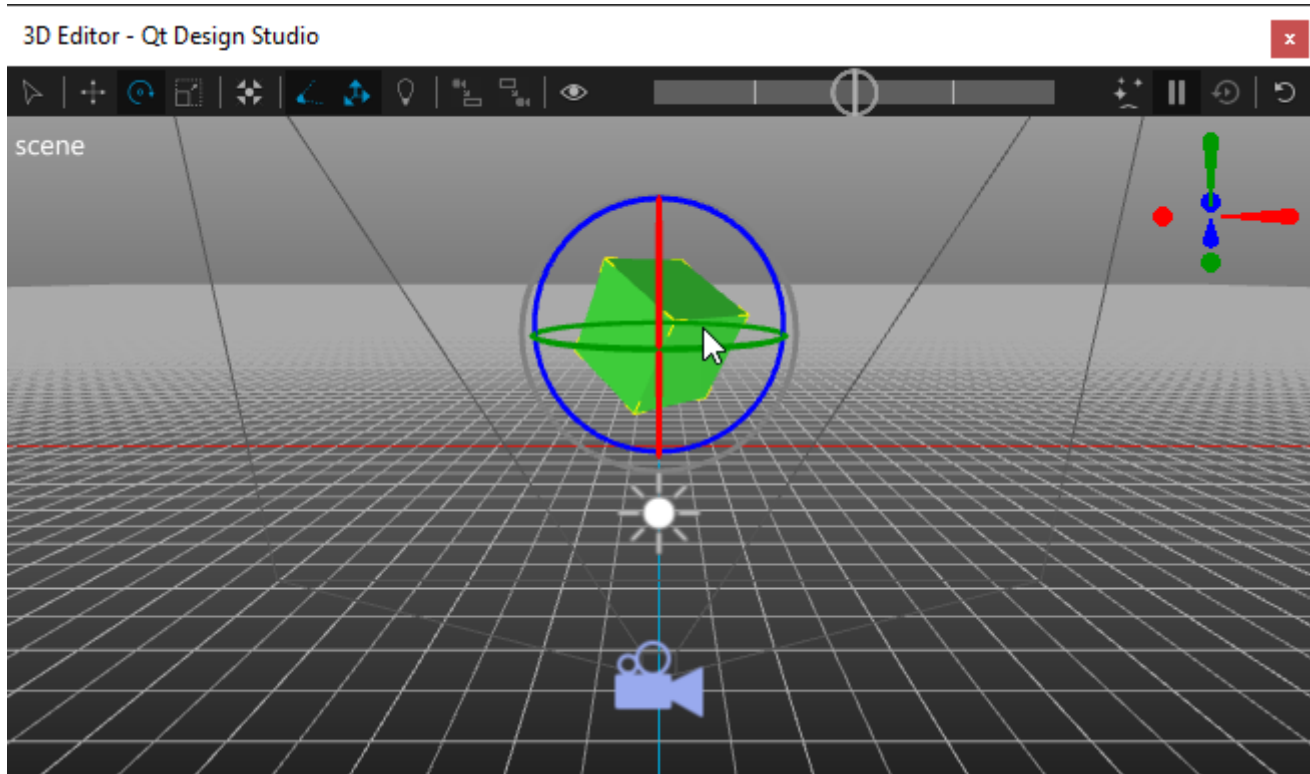



You can move components in relation to their coordinate system, along the x, y, or z axis or on the top, bottom, left, and right clip planes of the the **3D** view.

To move components, select  or press **W**:

- To move components along the axes of the move gizmo, click the axis, and drag the component along the axis.
- To move components on a plane, click the plane handle and drag the component on the plane.

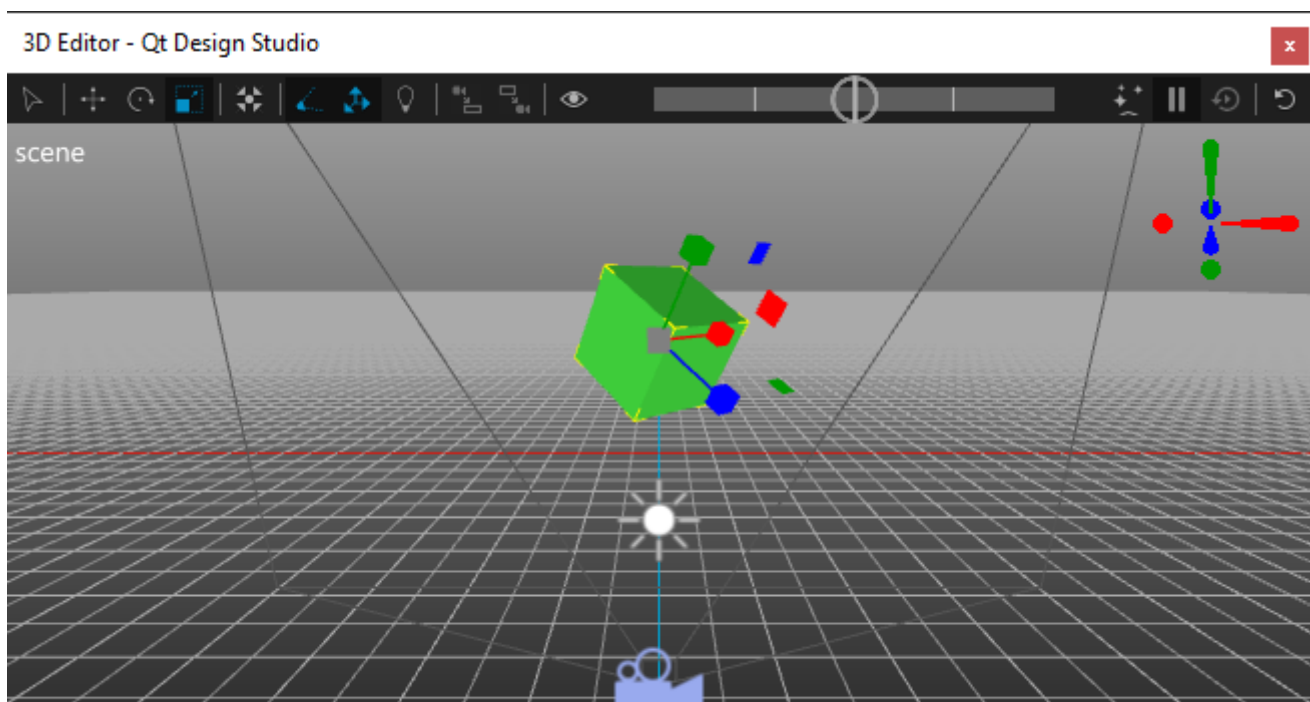
## Rotating Components




To rotate components, select  or press **E**:

- › To rotate a component around its rotation gizmo, click the axis ring and drag in the direction you want to rotate the component in.
- › To freely rotate the component, click and drag the inner center circle of the gizmo.

## Scaling Components




You can use the scale handles to adjust the local x, y, or z scale of a component. You can adjust the scale across one, two, or three axes, depending on the handle.

To scale components, select  or press **R**:

- › To adjust the scale across one axis, click and drag the scale handle attached to the axis.
- › To adjust the scale across a plane, click the plane handle and drag the component on the plane.
- › To uniformly scale a component across all axes, click and drag the gray handle at the center of the component.


## Aligning Views and Cameras

To align a camera to the **3D** view:

1. Select a camera in the **3D** or **Navigator** view.
2. In the **3D** view, select .


This moves and rotates the camera so that the camera shows the same view as the current view in the **3D** view.

To align the the **3D** view to a camera:

1. Select a camera in the **3D** view or **Navigator**.
2. In the **3D** view, select .


This copies the position as well as x and y rotation values from the camera and applies them to the **3D** view.

## Toggling Visibility

To toggle the visibility of objects in the **3D** view, select  in the toolbar. This opens a menu with the following options:

Show Grid	Toggles the visibility of the helper grid.
Show Selection Boxes	Toggles the visibility of selection boxes for selected 3D objects.
Show Icon Gizmos	Toggles the visibility of icon gizmos for object such as cameras, lights, and particle systems.
Always Show Camera Frustums	Toggles between always showing the camera frustum and showing it only for cameras selected in the <b>3D</b> view.
Always Show Particle Emitters and Attractors	Toggle between always showing the particle emitter and attractor visualizations and only showing them when the emitter or attractor is selected in the <b>3D</b> view.

## Changing Colors


To change the **3D** view background or grid color, select  in the toolbar. This opens a menu with the following options:



Use Scene Environment Color	Sets the 3D view to use the scene environment color as background color.
Reset Colors	Resets the background and grid colors to the default colors.

## Particle Editor

The particle editor tools help you preview your particle systems in the **3D** view. You can select one particle system to preview at a time.















To preview a particle system in the **3D** view:

1. Select a particle system in the **Navigator** or **3D** view.
2. In the **3D** view, select  to activate particle animation. Now you can see the particle animation in the **3D** view.

You can pause the particle animation by selecting . When the animation is paused, you can use  to manually seek forward or backward in the particle animation.

## Summary of the 3D View Toolbar Buttons

The **3D** view toolbar contains the following buttons:

Button	Tooltip	Keyboard Shortcut	Read More
	Toggle Group/Single Selection Mode	Q	<a href="#">Selecting Components</a>
	Activate the Move Tool	W	<a href="#">Moving Components</a>
	Activate Rotate Tool	E	<a href="#">Rotating Components</a>
	Activate Scale Tool	R	<a href="#">Scaling Components</a>
	Fit Selected Object to View	F	<a href="#">Controlling the 3D View Camera</a>
	Toggle Perspective/Orthographic Edit Camera	T	<a href="#">Controlling the 3D View Camera</a>
	Toggle Global/Local Orientation	Y	<a href="#">Using Global and Local Orientation</a>
	Toggle Edit Light On/Off	U	<a href="#">Using Edit Light</a>
	Align Selected Cameras to View		<a href="#">Aligning Views and Cameras</a>
	Align View to Selected Camera		<a href="#">Aligning Views and Cameras</a>
	Visibility Toggles		<a href="#">Toggling Visibility</a>
	Background Color Actions		<a href="#">Changing Colors</a>
	Seek Particle System Time		<a href="#">Particle Editor</a>
	Toggle Particle Animation	V	<a href="#">Particle Editor</a>



	Reset View	P	
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