



**User Manual**

# **Saola Animate**

Version 3.0

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# Welcome to Saola Animate

## Have Fun Creating Interactive Web Content

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Saola Animate is the complete solution for creating HTML5 animation and interactive content for web, digital publishing, advertising, and more. The application's focus is twofold:

- Make animation design as efficient and enjoyable as possible.
- Enable users to produce the best possible animated content.

## About This Documentation

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This documentation is designed both as a course in using Saola Animate and as an ongoing reference while you are working with the application. You can skim it quickly for reference and refer to it for additional information whenever you need.

## Get Started - New Users

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- Study the **Overview** to familiarize yourself with the basics of the application.
- Visit the **User Community** or **email us** to get help and more information about the application.

# Chapter 1: Overview

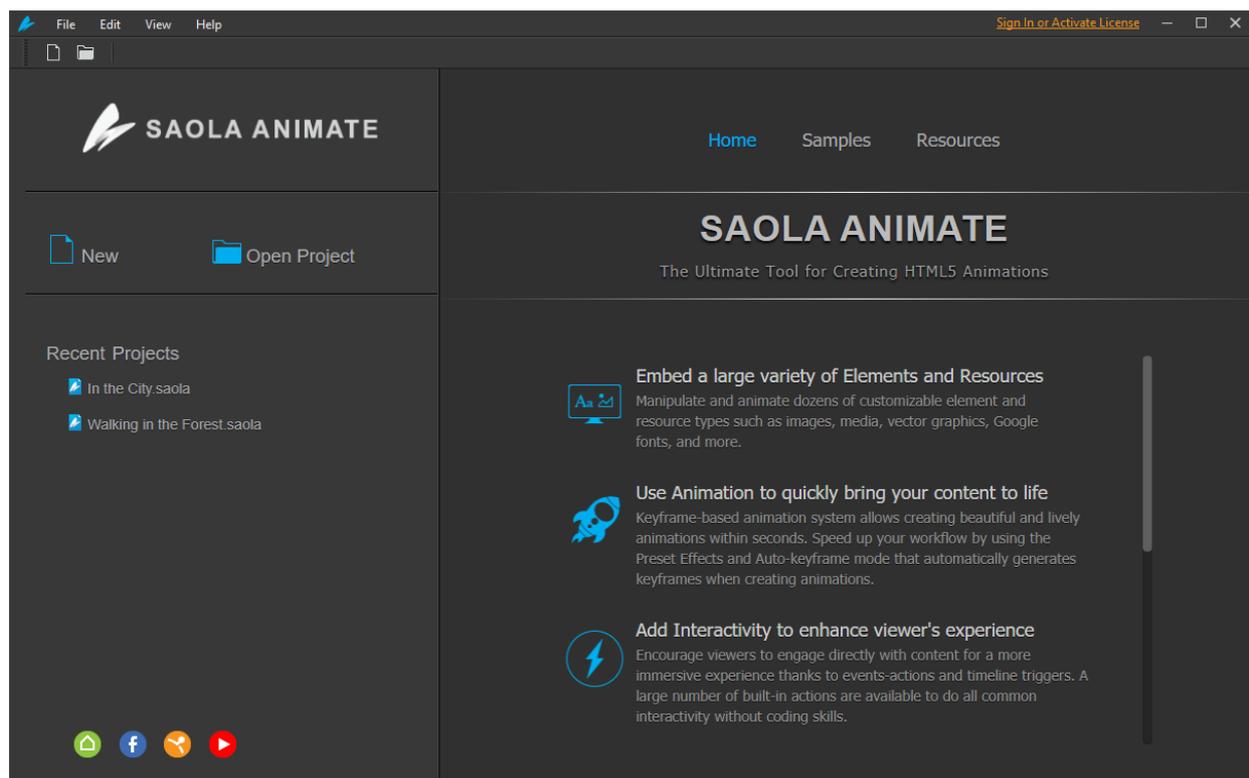
Saola Animate is an advanced application for designing and building HTML5 web content using an integrated visual. You can do almost everything in an intuitive editor with no coding skills required. Saola Animate enables you to create smooth animations and impressive visual effects using many types of elements and interactions.

Once you are done creating your content, export your final document with clean human-readable HTML5, CSS3, and JavaScript. The outputs have responsive layout that works well on any platform or device.

## User Interface

### Welcome Screen

The **Welcome Screen** is the first thing you see when launching Saola Animate. This screen is also displayed when no project opens. It allows quick access to a number of common tasks and links to many useful samples, demos, and other resources.



At the top of the **Welcome Screen**, you can see the main menu and the toolbar where you can:

- **Create a new project:** Open the **File** menu, select **New (CTRL+N)**. Or, click the **New** button  in the toolbar.
- **Open an existing project:** Click the **File** menu, select **Open Project (CTRL+O)**. Or, click the **Open Project** button  in the toolbar.

- **Customize the application settings:** Open the **Edit** menu, select **Preferences** to open the **Preferences** dialog.
- **Change the display language:** Click the **View** menu, select **Language**, choose the language that you want.
- **Get Help:** Open the **Help** menu to get information about the current version (**About**), open the documentation (**Help Contents**), access the Saola Animate forum (**Report a Problem/ Provide a Suggestion**), check for updates (**Check Updates...**), manage or deactivate the license (**Manage License Activation/ Deactivate License**).

On the left side of the **Welcome Screen**, there are two sections:

- The **Quick Start** section consists of two buttons to create new projects (**New** ) and open existing ones (**Open Project** )
- The **Recent Projects** section shows a list of projects you have recently been working with (if any). You can do the following:
  - Click a project in this section or right-click it > **Open** to open it.
  - Right-click a project > **Remove from List** to remove it from the list.
  - Right-click a project > **Show in Folder** to open its containing folder.

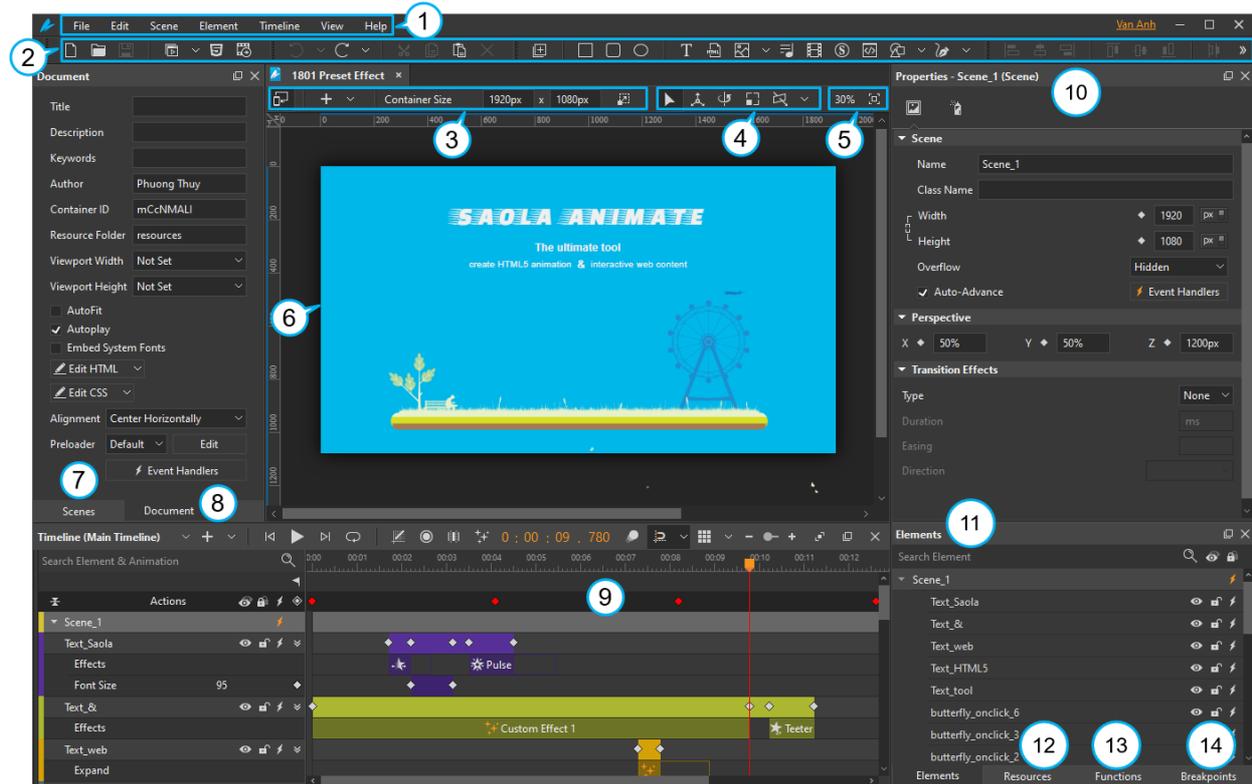
In the center of the **Welcome Screen**, there are three tabs:

- The **Home** tab introduces outstanding features which boost your creativity.
- The **Samples** tab shows a list of Saola Animate samples.
- The **Resources** tab provides links to **Saola Animate Homepage**, **User Community**, **YouTube Channel**, and **Online Demos**.

## Workspace

Saola Animate provides a customizable workspace with a large central area for editing content. The central area is surrounded by a main menu, dockable and fixed toolbars, and a set of panes. You can easily resize and toggle the panes. You can also group them in tabs or make them free-floating on the screen, even outside the application window.

See **Customizing Saola Animate** for more information.



1. The **Main Menu** is in the top left corner of the workspace. It consists of seven drop-down menus.
2. The **Dockable** toolbar, located below the main menu, contains many buttons that act as shortcuts to the most frequently used commands from the main menu.
3. The **Responsive** toolbar is above the horizontal ruler. It contains commands for creating and managing breakpoints and layouts in responsive documents.
4. The **3D Transformation** toolbar, next to the responsive toolbar, will come in handy when you need to adjust 3D transformation.
5. The **Zoom level and the Fit on Screen button** allow you to scale the Canvas as you wish.
6. The **Canvas** is the central area of the application window. It displays scene content and allows viewing, adding, modifying, and arranging elements.
7. The **Scenes** pane, located on the left side of the workspace, displays thumbnails of scenes in a project.
8. The **Document** pane, next to the **Scenes** pane, includes options to edit document properties.
9. The **Timeline** pane, on the bottom of the workspace, is where you devote most of your time to creating HTML5 animation.
10. The **Properties** pane, on the right side of the workspace, displays element properties and provides lists, text fields, and other controls to adjust and fine-tune element properties.
11. The **Elements** pane displays all elements included in a scene. It allows viewing, searching, reordering, changing the selection, locking, and toggling the element's visibility

state.

12. The **Resources** pane displays all resources in a project. It also holds any symbol you have created or imported, allowing you to edit them.
13. The **Functions** pane displays all JavaScript functions in a project. Here, you can create and manage functions to control various aspects of a document.
14. The **Breakpoints** pane displays breakpoints and layouts in responsive documents.

## System Requirements

For Saola Animate, the following considerations apply:

- **Operating systems:**
  - Windows 7 SP1 with Platform Update, Windows 8/8.1, Windows 10 (only 64-bit (x64) is supported)
  - macOS 10.13, macOS 10.14, macOS 10.15, macOS 11 (only 64-bit Intel CPU is supported)
- **Hardware Requirements:**
  - 2 GHz or faster processor with 64-bit support
  - 4 GB of RAM or better (>8 GB recommended)
- **Software Requirements:**
  - Windows:
    - Mozilla Firefox 60 or later
    - Google Chrome 65 or later
    - Internet Explorer 11
    - Microsoft Edge
  - macOS:
    - Safari 10 or later
    - Google Chrome 65 or later
  - iOS 10 or later:
    - Safari (latest)
  - Android 6 or later:
    - Chrome (latest)
- **Internet Connection:**
  - For perceptual license, internet connection is required to activate and deactivate the application.
  - For subscription license, internet connection is required when using the application.

# Common Editing Commands

You are probably familiar with common editing commands (cut, copy, paste, delete, undo, and redo) in Microsoft Office or other applications. In Saola Animate, these editing commands are also available to edit elements, scenes, keyframes, animation segments, etc. Find these commands in the dockable toolbar, or in the **Edit** menu, or in the context menu of selected items.



## Cut

The **Cut** command removes the selected items and store them to the Clipboard.

Toolbar shortcut: 

Default keyboard shortcut: **CTRL+X** (for Windows) or **⌘ X** (for macOS)

## Copy

The **Copy** command copies the selected items to the Clipboard. While the **Cut** command remove the selected items from a scene, the **Copy** command still leaves them in its original place.

Toolbar shortcut: 

Default keyboard shortcut: **CTRL+C** (for Windows) or **⌘ C** (for macOS)

## Paste

The **Paste** command inserts the content of the Clipboard at the current location. You can paste the Clipboard's content into any opening Saola Animate projects.

Toolbar shortcut: 

Default keyboard shortcut: **CTRL+V** (for Windows) or **⌘ V** (for macOS)

## Delete

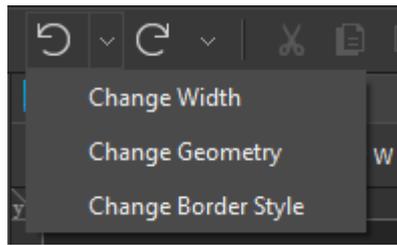
The **Delete** command deletes the currently selected items.

Toolbar shortcut: 

Default keyboard shortcut: **Delete** (for Windows) or **⌘ X** (for macOS).

## Undo

The **Undo** command reverts the last change made to the document. Press the **Undo** button or **CTRL+Z** repeatedly if you want to undo multiple actions. If you want to revert several actions at once, click the down arrow next to the button and select the action in the list that you want to undo.



shortcut: .

Default keyboard shortcut: **CTRL+Z** (for Windows) or **⌘ Y** (for macOS).

## Redo

The **Redo** command redoes the most recent action that you have already undone. If you want to redo several actions, click the down arrow next to the button and select the action in the list that you want to redo. Note that the **Redo** button is only available after you have undone an action.

Toolbar shortcut: .

Default keyboard shortcut: **CTRL+Y** (for Windows) or **⌘ Z** (for macOS).

# Chapter 2: Creating Projects

Creating a project is the first and most basic thing you need to do when working with Saola Animate.

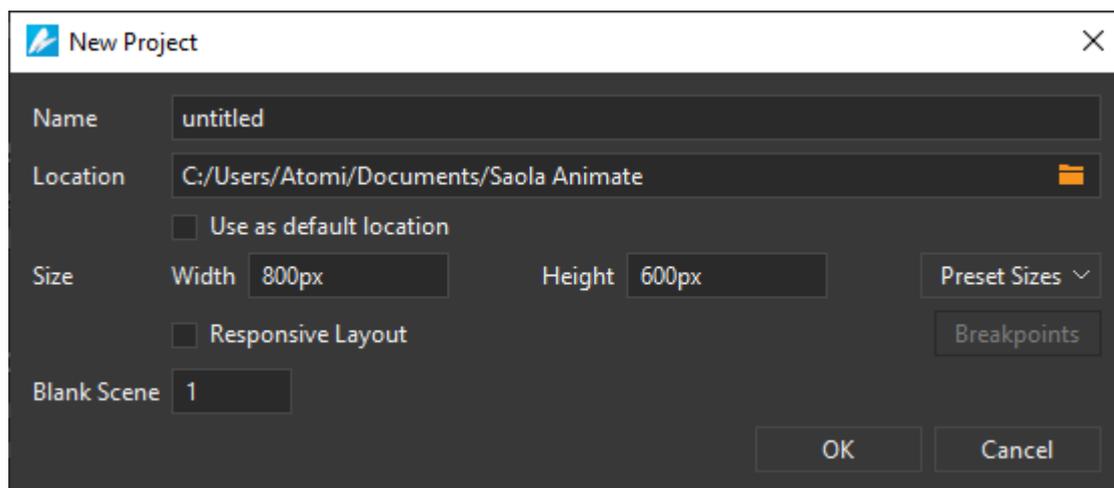
## Creating, Saving, and Opening Projects

Saola Animate stores a project in a folder whose name is based on the project title or project name. It also allows packaging project files into a package file (\*.saolapack) for faster and easier sharing.

### Creating Projects

On the **Welcome Screen**, click the **New** button or press **CTRL+N** to create a new project. Alternatively, click **New**  in the toolbar.

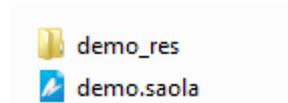
Fill in required information in the **New Project** dialog and click **OK** to submit.



- **Name:** Enter the name of your project.
- **Location:** Define the location where your project will be stored.
- **Use as default location:** Select this option to make a location to be default every time you create a new project.
- **Width, Height:** Enter manually the width and the height of the container in which the document is embedded. Alternatively, click **Preset Sizes** to choose one default size from the list. The container size is also editable afterward in the **Responsive** toolbar.
- **Responsive Layout:** Select this option to create a **responsive document** in which the scene size starts at 100% of the container and the viewport width is set to the device width. Disabling this option will create a non-responsive document. You can also change the settings to create a responsive document later.
- **Breakpoints:** Click this button to add and manage breakpoints. You can add and **manage breakpoints** later.
- **Blank Scene:** Enter number of blank scenes you would like to initially create. Later you

can insert new scenes at any time. The scene size, by default, is the size of the above-mentioned container.

After filling in all necessary information, click **OK** to create a new project. Note that once a project is successfully created, Saola Animate will automatically create a folder to store that project. This folder is named after the project title or project name. It will include of a folder and a manifest file as shown in the below image:



**demo\_res:** A folder contains all resource files (images, audio, videos, etc.) that will be inserted into project during editing.

**demo.saola:** A manifest file stores information and data of the project.

## Saving Projects

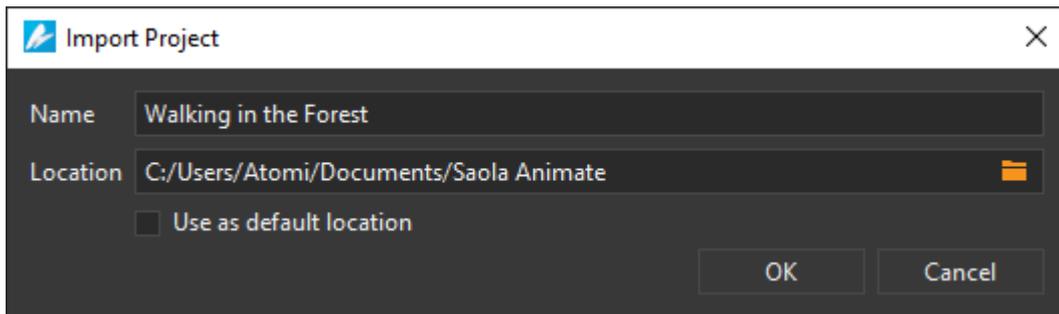
There are several ways to save a project:

- **Save a project normally:** Pressing **CTRL+S** or clicking **Save**  in the dockable toolbar.
- **Save a project with a different name:** Click **File > Save As > Other Project**. Fill in required information in the **Save As** dialog and click **OK**. This way will come in handy when you want to make a backup of a project.
- **Save a project as a package (\*.saolapack):** Click **File > Save As > Package**. Provide the file name for the package and click **Save**.

## Opening Projects

Do one of the following ways to open an existing project:

- On the **Welcome Screen**, click the **Open Project** button. Alternatively, if the project is listed in the **Recent Projects** section, just click to open it.
- In the open project window, click **Open Project**  in the dockable toolbar or click **File > Open Project** in the main menu.
- On the **Welcome Screen** or in the open project window, press **CTRL+O**
- Access the project folder and double-click the manifest file (\*.saola).
- You can also import a project from a package file. Click **Open Project** and select a package file (\*.saolapack). The **Import Project** dialog appears as follows. Fill in the project name and click **OK** to import.



## Working with Scenes

Scenes contain elements and timelines. They are helpful in separating content and controlling the flow of animations. A document can have one or multiple scenes which are managed in the **Scenes** pane. You can customize the initial number of blank scenes a project has when you **create a new project**.

### Managing Scenes

#### Inserting Scenes

Do one of the following to insert a new scene:

- Click **Blank Scene**  in the dockable toolbar.
- Click **Scene > Blank Scene** in the main menu.
- Right-click a scene and select **Blank Scene**.

The new scene will be inserted below the last selected scene from which its size and background property will be inherited.

#### Duplicating Scenes

Duplicate a scene to create a copy which copies all aspects of the current one. To duplicate a scene, right-click it and select **Duplicate Scene**, or click **Scenes > Duplicate Scene** in the main menu. The new scene will be inserted below the current one.

#### Copying Scenes

Scenes can be copied and pasted inside a current project or into another project. If you copy scenes across projects, all resources and user-defined functions used in the scenes will also be copied. To copy a scene, right-click it and select **Copy**, or press **CTRL+C**.

#### Removing Scenes

Select one or more scenes, right-click and select **Delete**, or press **DELETE** to delete them.

#### Displaying Scene Thumbnails

The **Scenes** pane displays thumbnails of scenes in two modes. Right-click the pane and select either of the modes:

- **Show in Column**: Scene thumbnails expand their size to fit into the available width.

- **Show in Grid:** Scene thumbnails are uniformly sized and displayed in grid.

## Editing Scene Properties

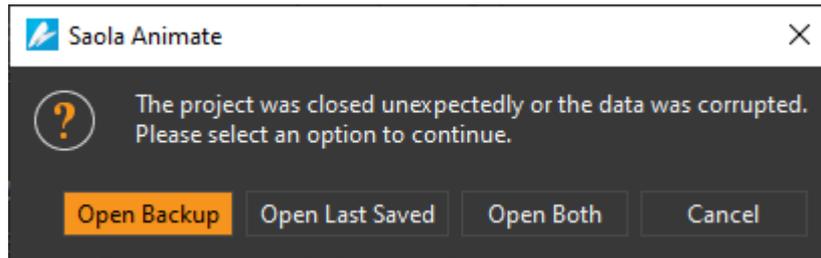
Edit scene properties in the **Scene** and **Transition Effects** sections of the **Properties** pane. You can edit properties of multiple scenes simultaneously except the name of scenes.

- **Name:** Enter the unique name of the scene.
- **Class Name:** Enter the class name of the scene.
- **Width, Height:** Set the exact width and height of the scene. The size can be a fixed value (in pixels) or relative to the container size (in percentages).
- **Overflow:** Specify how scene content should be displayed if it extends beyond the bounds of the scene.
  - **Visible:** The overflow isn't clipped; it renders outside the scene's box. This is default.
  - **Hidden:** The overflow is clipped; any content that extends beyond the box will be hidden.
  - **Scroll:** The overflow is clipped, but a scroll bar is added to view the rest of the content.
  - **Auto:** If the overflow is clipped, a scroll bar should be added to view the rest of the content.
- **Auto-Advance:** Select this option to move to the next scene automatically when the current scene ends. If you disable this feature, use **actions** to play scenes.
- **Transition Effects:** Movement from one scene to another.
  - **Type:** Select one type of the transition effect (**None**, **Fade**, or **Push**).
  - **Duration:** Set the duration of the transition in milliseconds.
  - **Easing:** Select one easing animation from the list.
  - **Direction:** Select one direction of the **Push** transition effect from the list (**From Left**, **From Top**, **From Right**, **From Bottom**).

## Project Backup and Recovery

The **Enable Auto-Backup** feature helps you to recover your work if Saola Animate closes unexpectedly and your work has not been saved. By default, Saola Animate automatically creates a backup for a project every five minutes. You can customize the interval or turn off this feature using the **General** tab of the **Preferences** dialog.

When you open a project after an accidental closure or crash, a dialog appears as follows:



- **Open Backup:** Open the backup version of the project. When editing, if you save your changes, this version will overwrite the last saved version.
- **Open Last Saved:** Open the last saved version of the project. The backup version will be deleted immediately.
- **Open Both:** Open both backup and last saved version to help you decide which version will be used. The backup version will be opened as a temporary project, meaning that it will be deleted if not saved.
- **Cancel:** Cancel the pending action.

## Chapter 3: Responsive Design

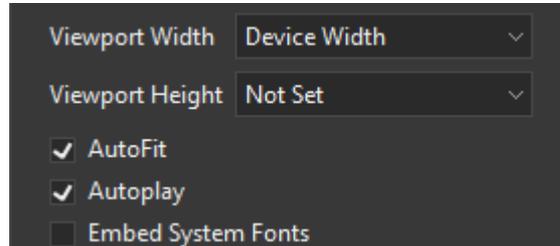
This chapter introduces some approaches that Saola Animate supports to make your document look good on any devices or screen sizes, from desktop monitors to mobile phones. You are not limited to just one method, but can combine any of them in one document to create your desired output content. Besides, these methods can be applied to the main document as well as any symbol document.

### Responsive Scaling

Responsive scaling means that the document is scaled automatically without changing its proportion to fit into the browser window. With responsive scaling, the document layout will be kept intact on all devices because the entire document will be scaled, not just some elements. This works like you're zooming in or out an image or video.

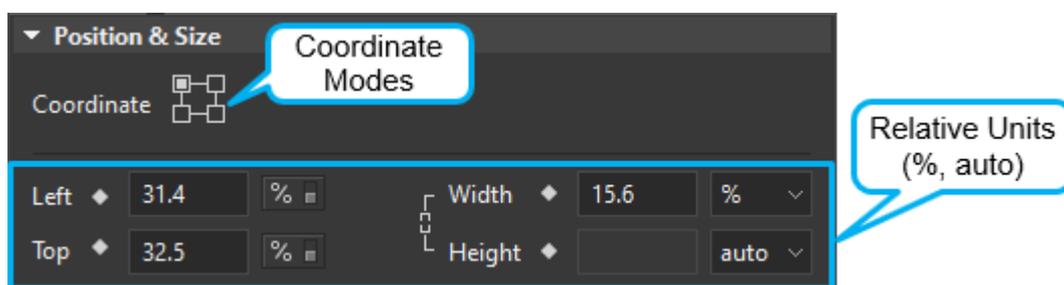
To make a document scale responsively:

1. Make sure the scene width and height are not set to 100%. 100%-size scenes cannot be scaled because they already fit into the browser window. Of course, if the document contains some 100%-size scenes, the responsive scaling still works well with the other scenes (which are not 100%-size).
2. In the **Document** pane, select the **AutoFit** check box.



### Flexible Layout

Flexible layout uses relative units (percentage, auto) and different types of positioning (top- left, top-right, bottom-left, or bottom-right) to adapt the document content to the browser window size.



### Relative Positioning and Sizing

Scenes don't have relative position but elements do. You can set the size of a scene (width and

height) in pixel or percentage. The position and size of elements can have absolute pixel unit (px) or relative percentage unit (%). Using percentage unit keeps the position and size of elements relative to their parents. For example, a top-level element whose width is 30% will resize to ensure that its width is always 30% of the scene width. A scene whose width is 100% will expand to take up the entire viewport width. As a result, to make the position and/or size of a top-level element respond to the viewport size changes, you must first set the scene size to % unit, then set the element position/size to % unit, too.

## Maintaining Aspect Ratio

Regarding the element size in responsive documents, you can maintain the aspect ratio of elements by setting either the width or height unit to percentages and the other unit to **auto**. For example, set the width unit of an image to percentages and the height unit to auto. That way, the height of the image will change proportionally with the width while the width responds to the viewport size changes.

## Pinning Element Position

Flexible layout allows pinning elements to the corners of the scene thanks to the coordinate modes. Elements can be set to relative to the top left, top right, bottom left, or bottom right corner of the scene, affecting how they adapt to the viewport size changes. When being positioned using percentage values, the relative distance from an element to the pinned corner of the scene will remain unchanged. For example, an element is positioned 30% away from both the top and the left edges of the scene will always keep its relative distance to these edges regardless of the viewport sizes.

The coordinate modes also affect how elements are resized. When you adjust the width or height of an element, it will shrink or grow to the opposing corner but not the pinned corner. For example, an element is positioned relatively to the bottom right corner of the scene. When being enlarged, its bottom right corner stays where it is while the rest of the element grows.

## Aligning Elements with Flexible Layout

Saola Animate lets you align elements with **Flexible Layout** option. Elements aligned with this option will keep the layout unchanged when the parent size changes. It's very useful for creating responsive documents.

Flexible Layout alignment can work well with not only relative-sized elements in the percentage unit, but also fixed-sized elements in the pixel unit.

To use flexible layout, you need to select both **Align to Parent** and **Flexible Layout** before applying alignment tools.

# Responsive Layout

## Overview

Responsive layout is a truly responsive design method which allows you to create multiple different layouts for a single document. Each layout in turn will support responsive scaling and flexible layout methods. When viewing in a browser, the HTML5 player will load the suitable layout depending on

the viewport size, and that layout will also be responsive to the viewport size if you've already made it scaled or flexible.

## Breakpoints and Layouts

When a responsive site reaches a certain viewport width or height, it calls new element properties and animations for that width/height. **Breakpoints** mark the transition to a new layout where the element properties and animations change. You can create both horizontal and vertical breakpoints.

A range is the space between two breakpoints. If a scene has only one set of either horizontal or vertical breakpoints, each horizontal/vertical range will be equal to a **layout**. If a scene has two sets of horizontal and vertical breakpoints, a pair of horizontal and vertical ranges will define a layout.

For example, adding only one horizontal breakpoint at 500px creates two horizontal layouts: one is from 0px to 500px and the other extends right from 500px. Meanwhile, adding one horizontal and one vertical breakpoint creates two horizontal and two vertical ranges that intersect with each other. The four grids where these ranges intersect are equal to four layouts.

When the output document is displayed in a browser, the HTML5 player will choose the layout based on the current device's viewport size. Take the 500px horizontal breakpoint above as an example. Your output document has two layouts: the small layout below 500px and the large layout above 500px. If the current viewport width is smaller than 500px, the player will choose the small layout, otherwise it will choose the large layout. As the viewport width changes and passes 500px, the player will alter the layout, calling the new element properties and animations which fit the new width range.

## Base Layout

Each scene has a base layout whose element properties and animations will be applied to all responsive layouts. In other words, element properties and animations in responsive layouts are inherited from the base layout. In a newly created responsive document, the base layout is activated by default so that you can work on it first. Once you get things done in the base layout, you create the same set of element properties and animations in all responsive layouts. Now switch to the responsive editing mode to customize responsive layouts, creating major or minor changes compared to the base layout.

## Setting the Viewport

Saola Animate allows you to set the viewport size for mobile browsers to give instructions on how the page should be rendered. For responsive projects, Saola Animate sets the viewport size to the size of the device by default to match the virtual viewport with the device dimensions. You shouldn't use this setting in non-responsive projects, unless you know exactly what you want.

For more details, see [Updating Document Properties](#).

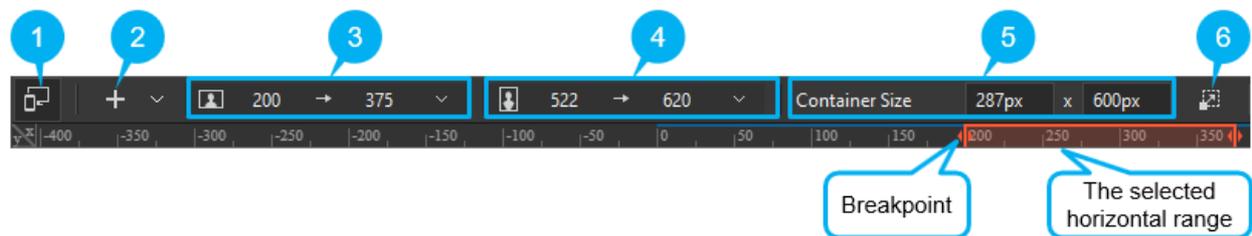
## Managing Breakpoints and Layouts

### Responsive Toolbar and Breakpoints Pane

Work with the **Responsive** toolbar and the **Breakpoints** pane to manage breakpoints and layouts

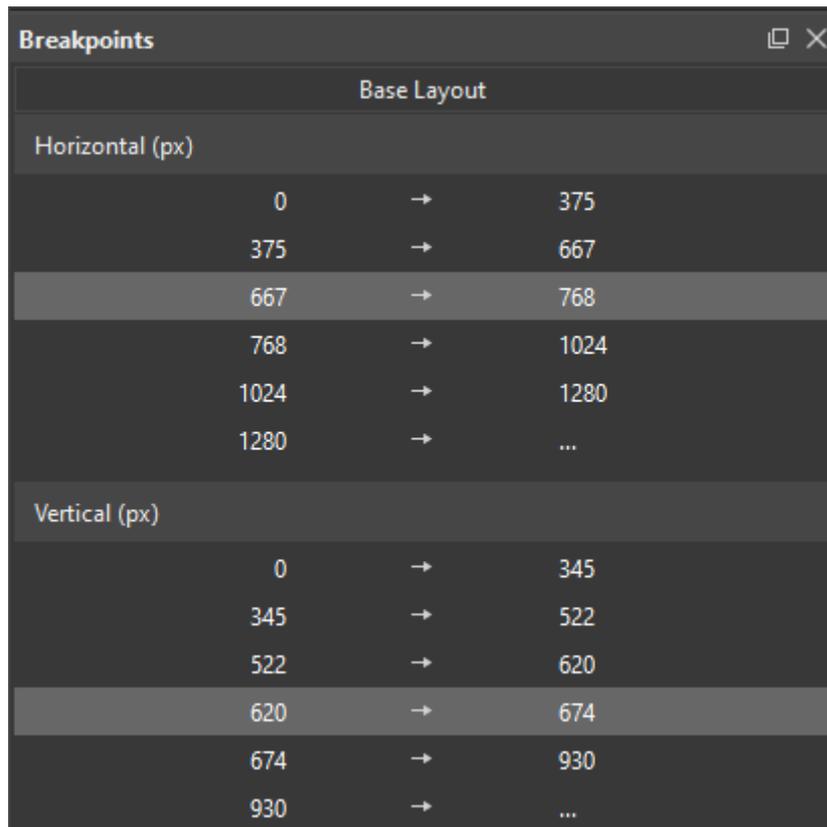
and navigate between layouts. If a scene has only one set of either horizontal or vertical breakpoints, each horizontal/ vertical range will be equal to a layout. If a scene has both horizontal and vertical breakpoints, a pair of horizontal and vertical ranges will define a layout.

The **Responsive** toolbar is located above the Canvas and below the Document tab.



- Click **Responsive** (1) to enter or exit the responsive editing mode.
- Click **Add Breakpoint** (2) > **Horizontal/Vertical** to add new horizontal/ vertical breakpoints.
- Click **Add Breakpoint** (2) > **Horizontal/Vertical Preset** to add the default horizontal/ vertical breakpoints.
- Change the horizontal breakpoint values (3) by scrolling the mouse wheel or entering a new value into the boxes. Alternatively, you can click the drop-down arrow to select one default horizontal range from the list. When a range is selected, it will be highlighted along the horizontal rulers. If you no longer want a range/layout, select it and click **Remove**.
- Change the vertical breakpoint values (4) by scrolling the mouse wheel or entering a new value into the boxes. Alternatively, you can click the drop-down arrow to select one default vertical range from the list. When a range is selected, it will be highlighted along the vertical rulers. If you no longer want a range/layout, select it and click **Remove**.
- Change the container size (5) by scrolling the mouse wheel or entering a new value into the width and height boxes.
- Click **Adjust Container Size** (6) then drag the Canvas to see how the scene will look like in different container sizes.

The **Breakpoints** pane displays breakpoints and ranges. Click a range to select it. You can click the **Base Layout** button to select the base layout.



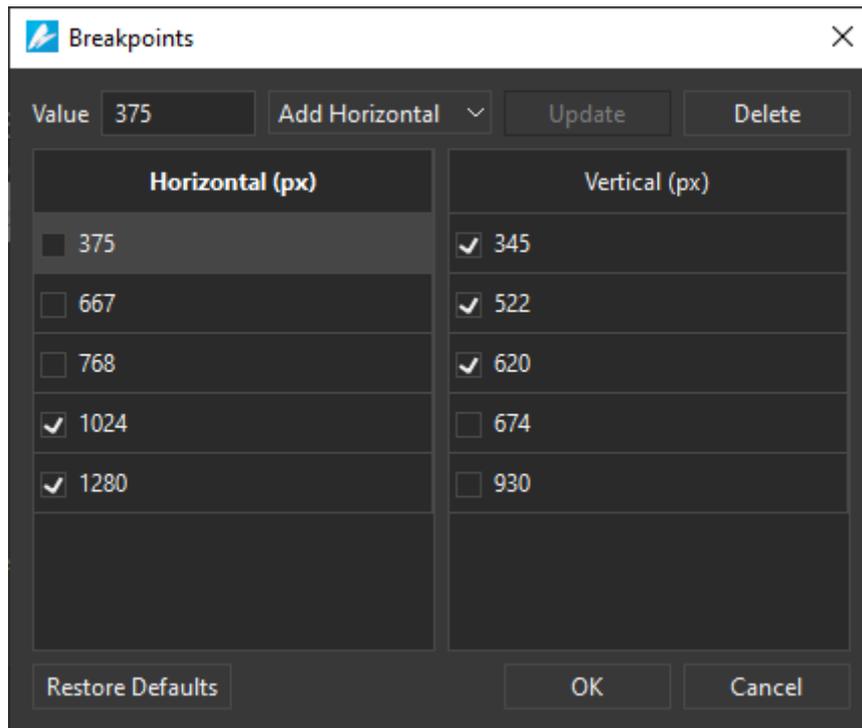
Base Layout			
Horizontal (px)			
0	→	375	
375	→	667	
667	→	768	
768	→	1024	
1024	→	1280	
1280	→	...	
Vertical (px)			
0	→	345	
345	→	522	
522	→	620	
620	→	674	
674	→	930	
930	→	...	

## Adding Breakpoints

You can add and manage breakpoints right from the start when you create a new responsive document, or later when you are editing the document.

### Adding Breakpoints When Creating New Projects

In the **New Project** dialog, select **Responsive Layout**, then click **Breakpoints** to open the **Breakpoints** dialog.

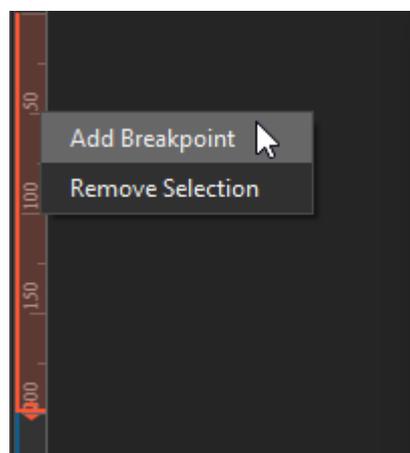


- **Add new breakpoints:** Enter a numeric value in the **Value** box. Then, click **Add Horizontal/Add Vertical** to add a new horizontal/ vertical breakpoint, respectively.
- **Adjust existing breakpoints:** Select an existing breakpoint. Enter a new value in the **Value** box and click **Update**.
- **Remove breakpoints:** Select an unwanted breakpoint and click **Delete**.
- **Exclude breakpoints:** Deselect the corresponding check box to not include an unwanted breakpoint in the document.

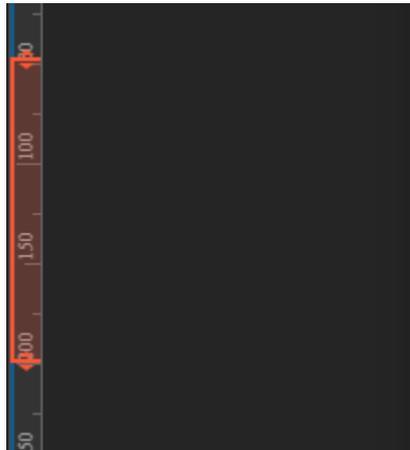
You can always go back to the original settings by clicking the **Restore Defaults** button at the bottom left corner.

### Adding Breakpoints on the Canvas Rulers

1. In the **Responsive** toolbar, click **Responsive** to turn on the responsive editing mode.
2. Right-click on either the horizontal or vertical ruler where you want to add a breakpoint.

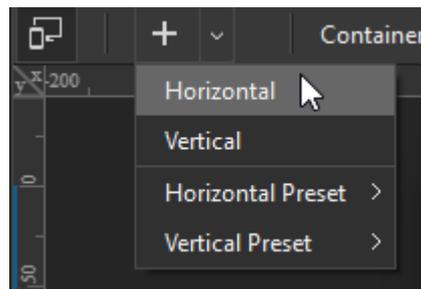


3. Select **Add Breakpoint** to add a new breakpoint. The range that extends right or bottom from the added breakpoint to the next breakpoint is automatically selected for editing.

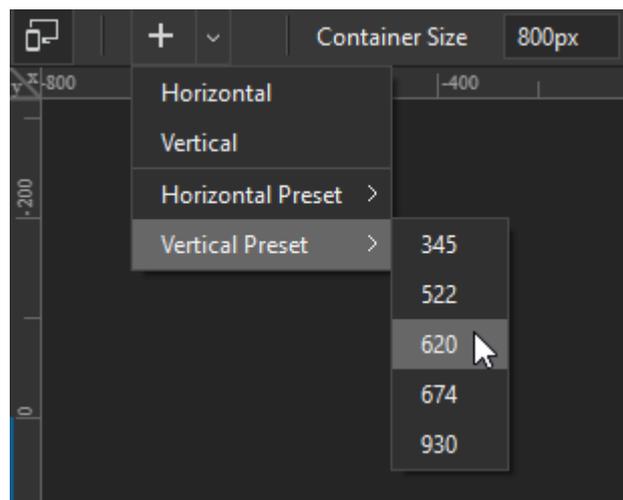


### Adding Breakpoints in the Responsive Toolbar

1. In the **Responsive** toolbar, click **Responsive** to turn on the responsive editing mode.
2. Click **Add Breakpoint** > **Horizontal** or **Vertical** to add a horizontal/ vertical breakpoint. The range that extends right or bottom from the added breakpoint to the next breakpoint is automatically selected for editing.



You can also select **Horizontal/Vertical Preset** to add a preset horizontal/ vertical breakpoint.



### Changing Breakpoints

You may want to change a breakpoint to adjust the corresponding layout. Make sure the responsive editing mode is enabled, then do either of the following:

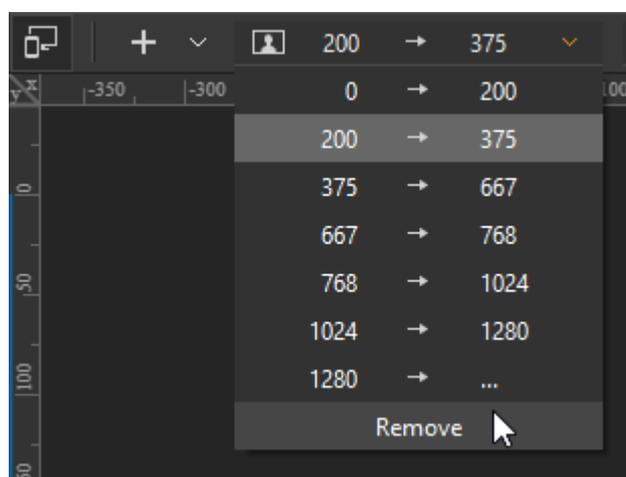
- Drag a breakpoint on the canvas rulers to a new location.
- In the **Responsive** toolbar, click the breakpoint value, then scroll the mouse wheel or enter a new value.



### Removing Breakpoints

To remove the unwanted breakpoint and its corresponding range, make sure the responsive editing mode is enabled, then do either of the following:

- Right-click a range on the canvas rulers > **Remove Selection**.
- Click the drop-down arrow next to the horizontal/ vertical value boxes in the **Responsive** toolbar > select **Remove**.



## Choosing a Layout to Edit

To switch between the base layout and the responsive editing mode:

- In the **Responsive** toolbar, click the **Responsive** button.
- In the **Breakpoints** pane, click the **Base Layout** button if you want to work in the base layout. Or, click the range/ layout you want to select it to edit.

To switch between different responsive layouts:

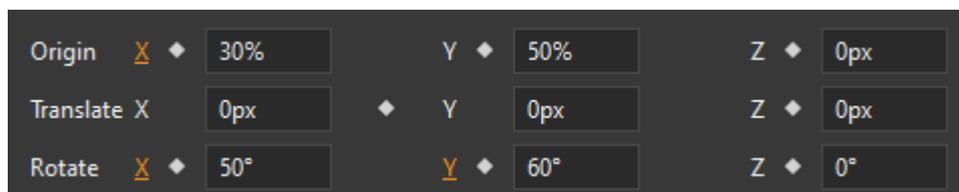
- In the **Breakpoints** pane, click the range/ layout you want.
- Click the range/ layout on the canvas rulers.
- In the **Responsive** toolbar, click the drop-down arrow next to the horizontal/ vertical value boxes, then choose the range/ layout you want from the list.

## Managing Property and Animation Overrides

### Creating Overrides

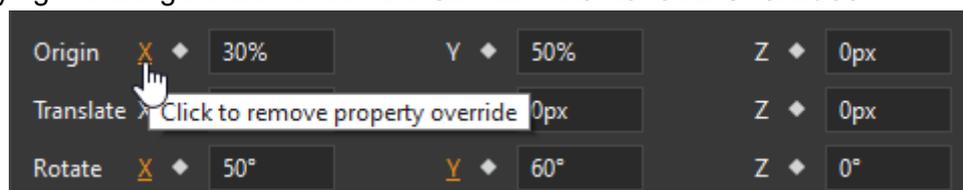
You can restyle element properties and animations in each responsive layout as you wish. In the responsive editing mode, when you make a change to a property or an animation, it overrides the default set in the base layout. Overridden properties or animations are no longer inherited from the base layout.

Overridden properties, animations, and the elements contain them are marked orange in the layout they appear. They are also marked in the base layout. This allows you to easily recognize overrides and remove them when needed.



### Removing Overrides

When you make a change in element properties and animations in responsive layouts, it overrides those in the base layout. You can remove overrides to bring back the default properties and animations in the base layout. Just click any highlighted properties, animations, or elements and select **Remove Property/Animation Override**. You can also remove all overrides from an element by right-clicking the element on the Canvas > **Remove All Overrides**.



- **In the responsive editing mode:** Removing overrides will revert the selected property/animation in that layout *only* to the default in the base layout.
- **In the base layout:** Removing overrides will revert the selected property/animation in

*all* layouts to the default in the base layout.

For example, a scene has a base layout and two responsive layouts (layout\_1 and layout\_2). The left position of an element is 200px in the base layout and is overridden in layout\_1 (changed to 50px) and layout\_2 (changed to 100px). If you remove override of the element's left property in layout\_1, it will go back to 100px, meaning it is inherited from the base layout. Layout\_2 won't be affected at all. If you remove override in the base layout, the element's left property will go back to 100px in both the layouts.

## Resizing the Viewport

Resizing the viewport while creating responsive content allows you to see how the output document will look with different container sizes. You can preview your responsive content in browser or right within the program.

In the responsive editing mode, do the following:

1. Click **Adjust Container Size**  in the **Responsive** toolbar. The light gray control handles appear on the edges and corners of the container.
2. Drag the control handle to change the container size.

You can also click anywhere on the canvas rulers to snap the container to that pixel size.

## Responsive Symbols

In responsive documents, **symbols** can respond to the container size changes. A responsive symbol has all breakpoints and layouts cloned from the parent symbol or the main document at the time it is created. After that, the breakpoints and layouts of the child and parent symbols no longer affect each other. Adding, changing, or moving breakpoints and layouts in the child symbol don't change those in the parent symbol, and vice versa. You can edit a responsive symbol as a normal responsive document. Just double-click the symbol element on the Canvas or the symbol in the **Resources** pane.

The size of the symbol element is the container size of the symbol embedded within it. For this reason, the symbol element size decides which layout will be used when the symbol runs in the output document. If the symbol element size is in the range of a layout, that layout will be selected. Thus, you can create a responsive symbol and reuse it in different responsive documents. Just resize the size of the symbol element to determine the layout in which the symbol will run.

# Chapter 4: Inserting and Editing Elements

## Elements

Elements are objects in scenes, namely DIVs, text, HTML widgets, images, audio, videos, symbols, and shapes. Saola Animate offers various ways to insert and edit elements.

### Element Overview

There are many types of elements that can be inserted into a scene. All element types have the same basic properties such as name, cursor, overflow, position, and transformation. Meanwhile, some specific element types have their unique properties. See **Using Properties Pane** for more details about element properties and how to animate them.

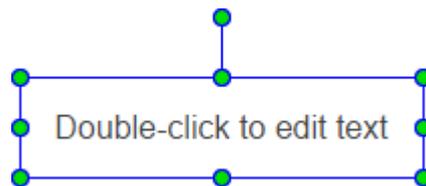
#### DIVs

DIV element is displayed as an HTML <div> element. They come in three predefined shapes, namely Rectangle, Rounded Rectangle, and Ellipse. These shapes are flexible and can be edited by adjusting the **corner** property.

Insert DIV elements by clicking **Rectangle Div** , **Rounded Rectangle Div** , and **Ellipse Div**  in the dockable toolbar.

#### Text

Text element displays text in a scene. Insert text elements by clicking **Text**  button in the dockable toolbar. Double-click the element to edit text inline.



Format or style text using the **Floating Text Format** toolbar or the **Properties** pane > **Text** section. You can change the font, size, color, styling, alignment, spacing, etc. For more styling control, edit the HTML for the text element.

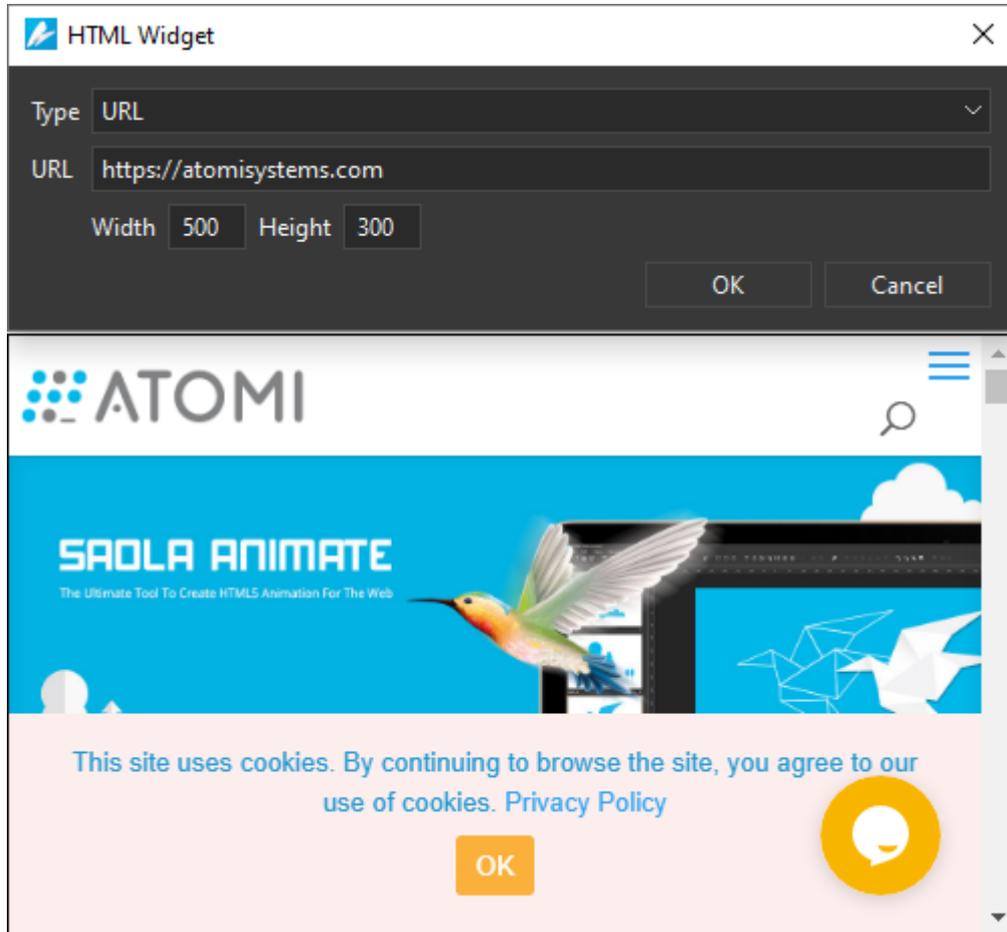
Saola Animate makes web safe fonts and system fonts available. When using system fonts, you can embed fonts in the HTML5 output using CSS3 Web Fonts Specification. Text will maintain appearance no matter the font installation on viewers' computer. Saola Animate also includes support for **adding Google fonts**. Added Google fonts will appear as font resources in the **Resources** pane.

#### HTML Widgets

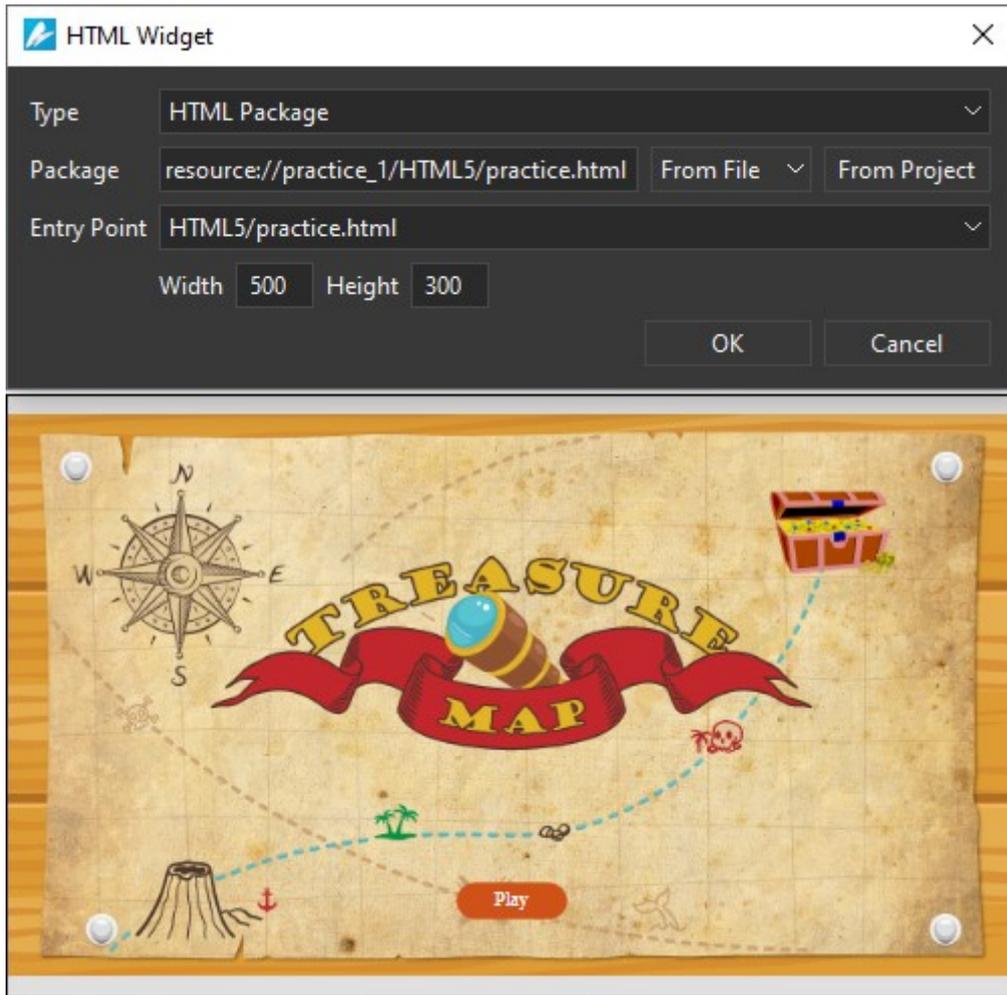
HTML widgets can be used to display a webpage, embed an HTML package, or embed a piece of code in a scene. To insert an HTML widget, click **HTML Widget**  in the dockable toolbar. Then,

the **HTML Widget** dialog appears.

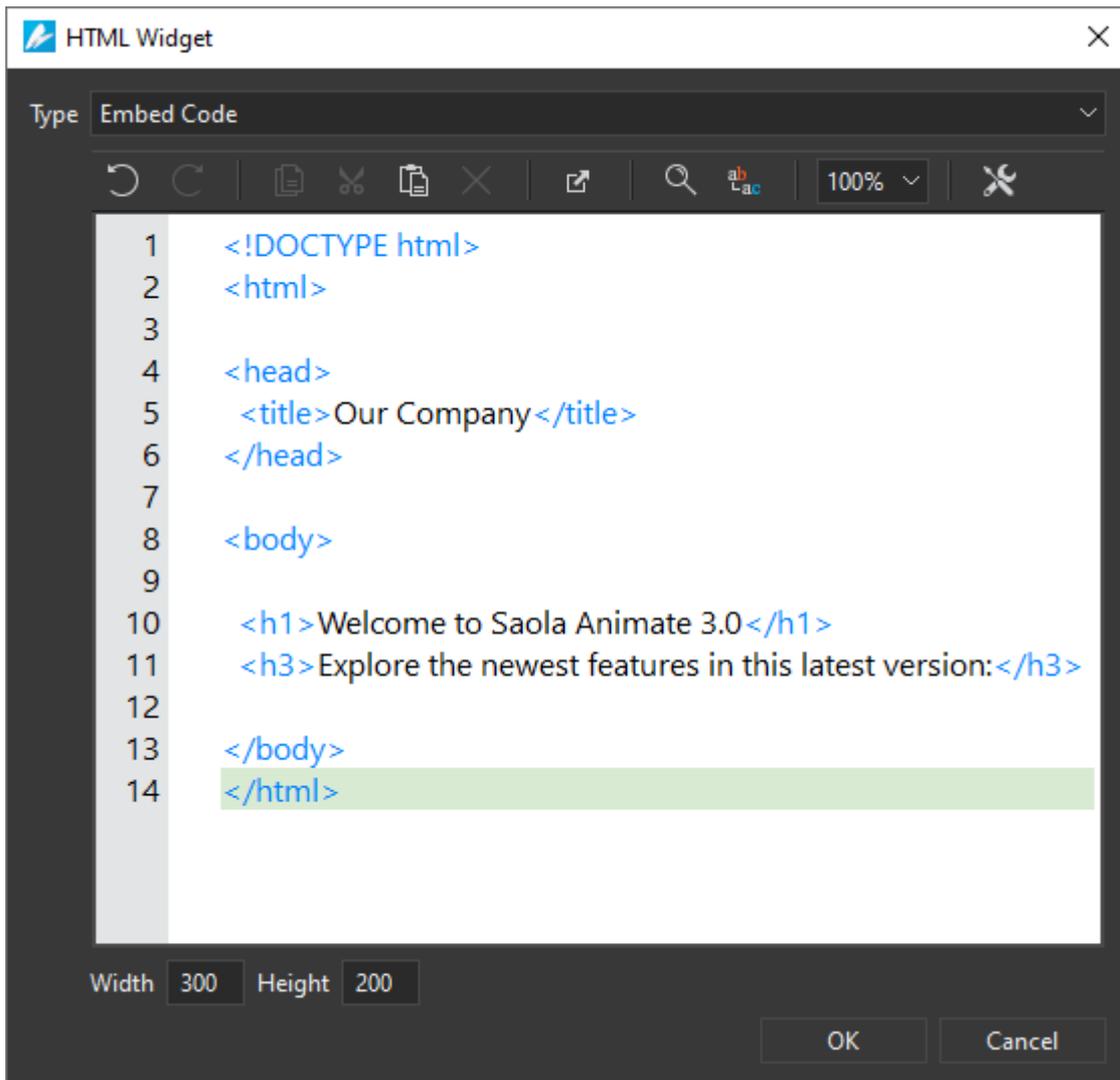
- **To display a webpage:** Select **URL** from the **Type** list and enter an URL in the **URL** box. You can enter specific value in the **Width** and **Height** combo box to change the size of the widget. You can also change the size later:



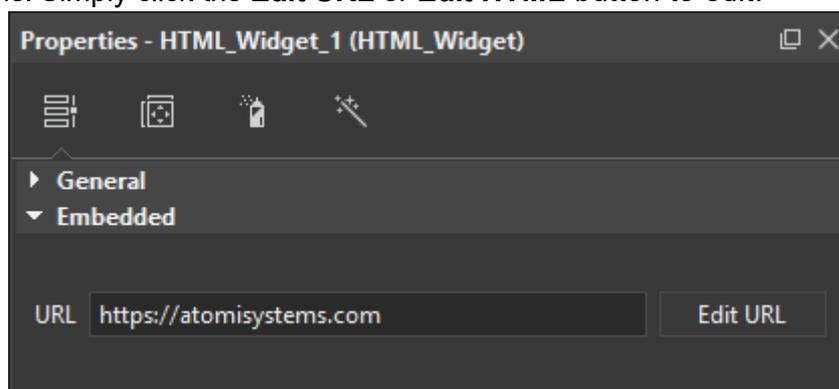
- **To embed an HTML Package:** Select **HTML Package** from the **Type** list. Import one package from your computer (**From File/ From Folder**) or from the current project (**From Project**). Then, select one from the **Entry Point** list. Enter specific value in the **Width** and **Height** combo box to change the size of the widget. You can also change the size later:



- **To embed code:** Select **Embed code** from the **Type** list and enter the code that you want to embed. You can also copy and paste the code into the box:



After inserting an HTML widget, you can edit it in the **Embedded** section in the **General** tab of the **Properties** pane. Simply click the **Edit URL** or **Edit HTML** button to edit:



Note that HTML is always given priority. So, if you specify both the HTML and the URL of a webpage, the widget will show the embedded HTML. In that case, clear the HTML to display the webpage.

## Images

Saola Animate supports six image formats, namely JPG, JPEG, PNG, GIF, BMP, and SVG.

There are many ways to import images:

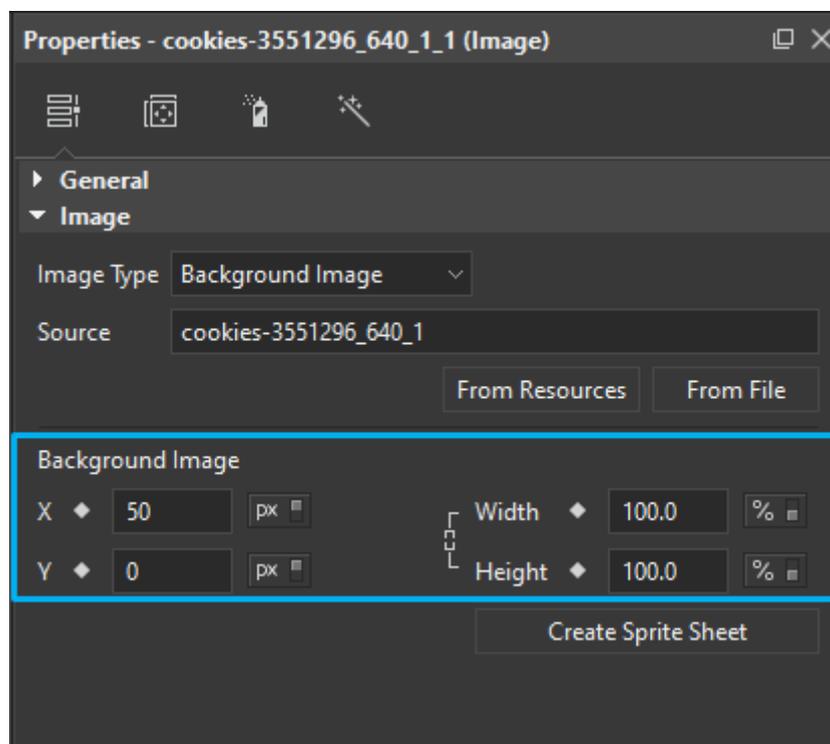
- Click the **Image** button  in the dockable toolbar.
- Drag images from your computer and drop them onto the Canvas.
- Drag images from many other applications, for example, Adobe Illustrator, and drop them onto the Canvas.
- Copy images from your computer and paste them into the Canvas.
- Copy images (**CTRL+C**) from many other applications and paste them into the Canvas.
- Import images into the **Resources** pane to add them to a scene later.

Besides, when you click on the down arrow button next to the **Image** icon, Saola Animate lets you import images by one of three options: **Background Image**, **Image <img>**, and **Inline SVG**. The following sections will explain the differences among those options:

## Background Image

The **Background Image** option specifies an image to be used as a background. Select this option when you want to:

- **Create sprite sheet animation.**
- Display a specific part of the image by changing its position (**X**, **Y**) and size (**Width**, **Height**) in the **Background Image** section of the **Properties** pane:

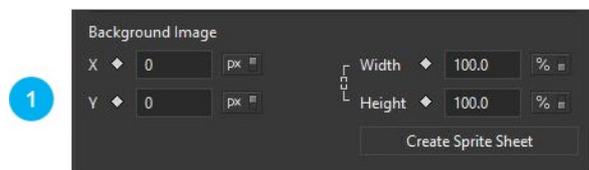


- Use a high-res image as a background but can crop its unnecessary parts in small screen devices by changing its position and size.

For example, let's take a look at the following image:



By default, the X and Y values of a background image are set in pixel while its width and height values are in percentage (1). When being resized, this image will be scaled without changing its original proportion (2).



Now, let's change the width and height values to pixel, then set the X and Y values in percentage (X=Y=50%) (3). When being resized, the image will be cropped to focus on the central part (4).

Note that when you import image using the **Image <img>** or **Inline SVG** options, the **Background Image** section is not available.

## Image <img>

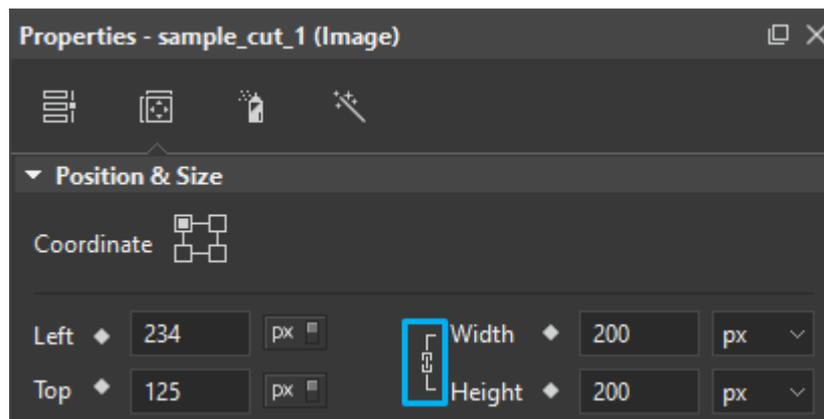
The **Image <img>** option is used to embed an image in an HTML page. This option helps to create a holding space for the referenced image. Using this option is the most straight-forward way of displaying a static image on a page. The **Image <img>** option should be used whenever an image is actually a part of the content (as opposed to using an image as part of a page's design).

## Inline SVG

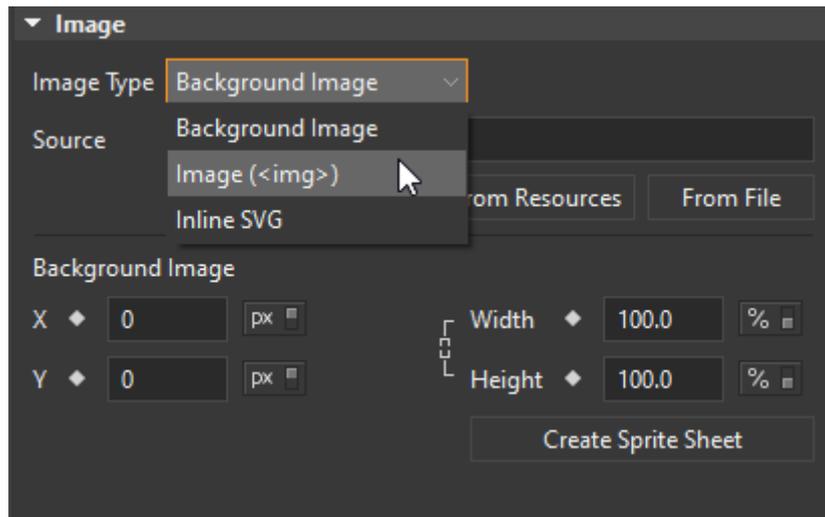
SVG stands for Scalable Vector Graphics, used to define graphics for a web. The **Inline SVG** option is only available for SVG images (.svg files). This option allows you to embed SVG images directly in an HTML page. Later, you can use JSS or Javascript to customize styles and properties of SVG elements in that image.

## Notes

- Image elements maintain their aspect ratio by default, which keeps them proportional while being resized. To change the ratio, clear the **Link width to height** check box (the chain icon):



- While editing images, chances are you want to revert them to their original size. Just right-click the images on the Canvas and select **Restore Original Size**. The option works at any time without affecting images' other properties except the size property.
- You can switch the current image type to another one. In the **Image** section, selecting another image type from the drop-down list:



- You can replace the image embedded within an image element while maintaining all existing animations. To do that, you just need to click **From Resource** or **From File** and select a new image. In doing so, make sure the new image has the same size as the original one. Otherwise, it may be resized or look messy.

## Audio and Videos

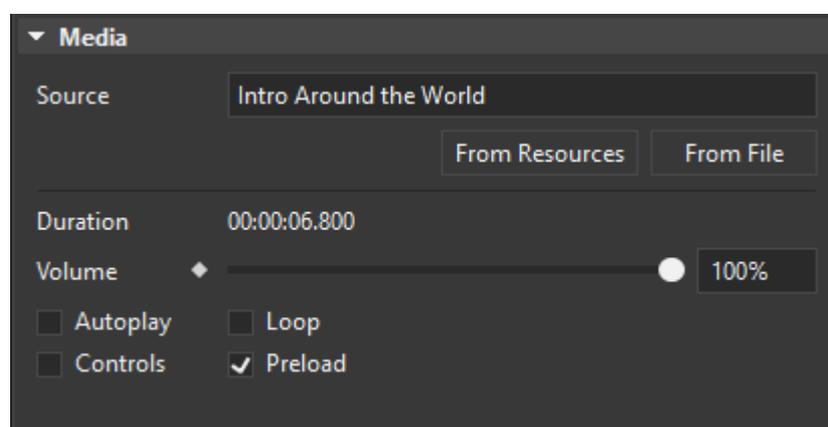
Saola Animate supports the HTML5 `<audio>` and `<video>` elements, enabling native audio and video playback within the browser. You can import the following audio and video formats:

- Audio:** MP3, WAV, M4A, AAC, OGA, OGG
- Video:** MP4, M4V, WEBM, OGV

The ways to import audio and videos are similar to those used to import images. You can click **Audio**  and **Video**  in the dockable toolbar, drag and drop files onto the Canvas, or paste them there. By default, video elements also preserve their proportion while being resized. After resizing videos, if you want to revert them to their original size, right-click the videos on the Canvas and select **Restore Original Size**.

## Controlling Playback

You can control audio/video playback using the following options:

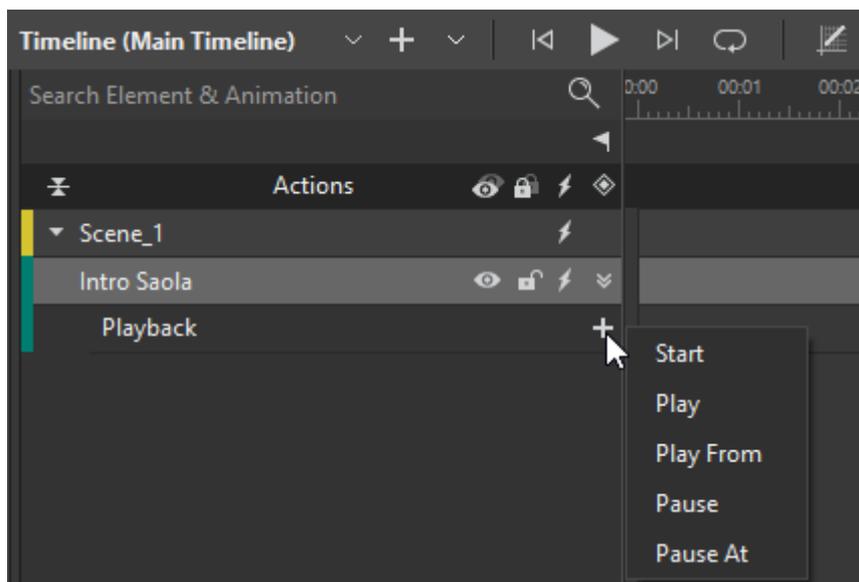


- Autoplay:** Select this option to allow the audio/video to play automatically at the beginning

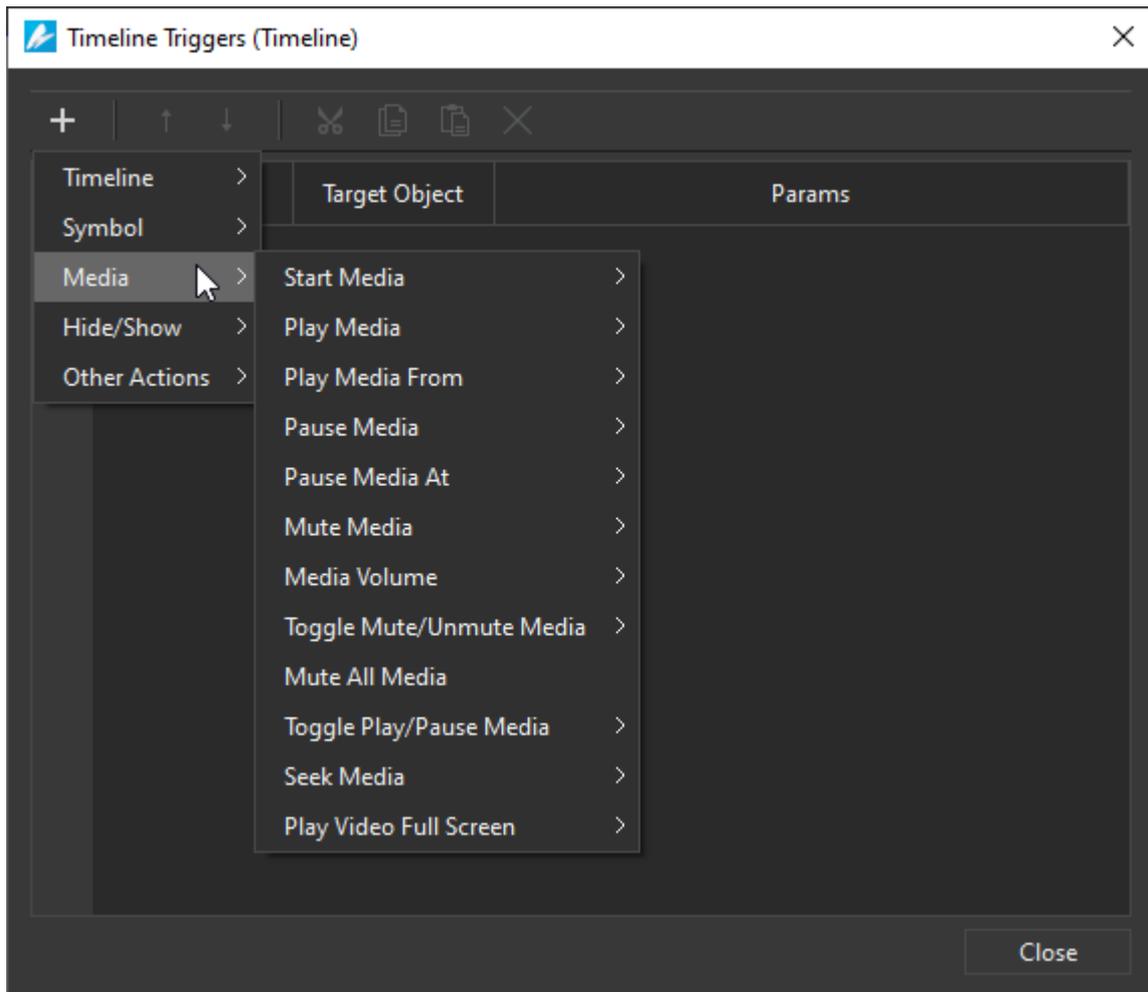
of the scene.

**Note:** Nowadays, many web browsers require user interactions (such as click or tap) to play audio. Therefore, you should add a Start button on the first scene to require users to click on it in case your project has:

- Audio/ video with the **Autoplay** option enabled.
- Audio/video with playback animation (see the **Playback** option below).
- Audio/video played by **timeline triggers** (see **Media actions** below).
- **Loop:** Select this option to make the audio/video replay automatically from the beginning after it finishes.
- **Controls:** Enable the default player controls.
- **Preload:** Preload audio/video before the document. This option is selected by default.
- **Playback:** You will see this option in the **Timeline** pane. Click the plus button (the **Add Playback** button) and you will see the following options:



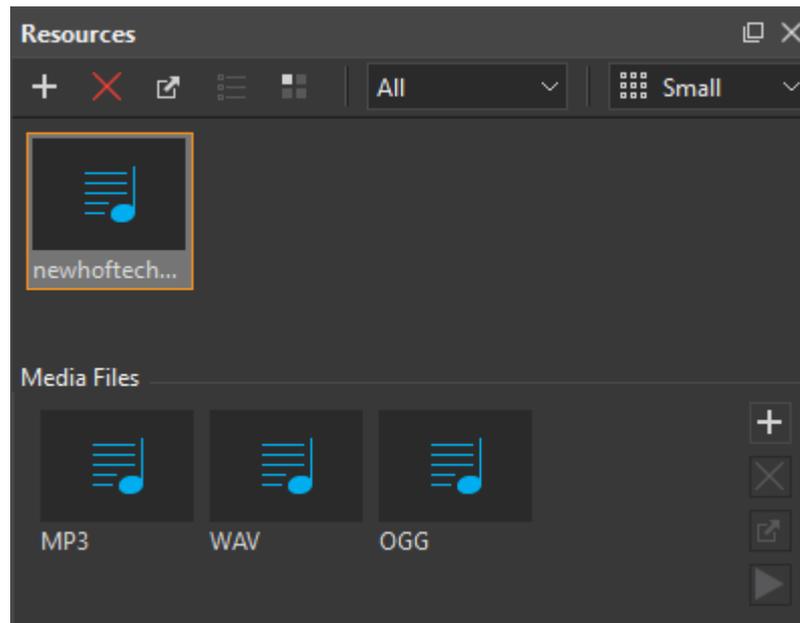
- **Start:** Play the audio/video from the beginning.
- **Play:** Resume the audio/video from the point where it has been paused.
- **Play From:** Resume the audio/video from a specific time.
- **Pause:** Pause the audio/video at the current time.
- **Pause At:** Jump to and pause at a specific time of the audio/video.
- **Media actions:** Use **actions** to control media playback through events:



## Resource Groups

HTML5 `<audio>` and `<video>` elements support multiple sources for one element. In other words, a single `<audio>` or `<video>` element contains more than one format, allowing a browser to pick the most compatible it supports. In Saola Animate, each audio/video comes with an audio/video group to which you can add other formats. When you run the HTML5 output in a browser, the browser will download and play the single most suitable format while ignoring the rest.

To add additional audio/video formats, first open the **Resources** pane. From here, select an audio/video and add formats to the resource group. That way, each audio/video resource has a resource group which contains the resource file and the fallback versions.



For modern browsers support HTML5 `<audio>` and `<video>` elements, including just MP3 for audio and MP4 for videos is enough. But for the broadest browser compatibility, you should provide MP3 and OGG files for each audio group and MP4 and WEBM for each video group.

For information about browser support for different audio formats, please read **Media formats for HTML audio and video** on MDN. You can also get the latest information about browser compatibility on [caniuse.com](http://caniuse.com).

## Symbols

Symbol element displays a symbol in a scene. In other words, it is a copy of the symbol located on the Canvas. Insert symbol elements by clicking **Symbol**  in the dockable toolbar.

The size of the symbol element is the container size of the embedded symbol. A single symbol can be displayed by more than one symbol element. When you modify a symbol, all related symbol elements update automatically. That way, you can share identical elements across scenes or at different positions in the same scene. On the contrary, applying effects to a symbol element updates that element only. So, a symbol element can be different from the embedded symbol and other elements using the same symbol.

For more details about symbols, see **Using Symbols**.

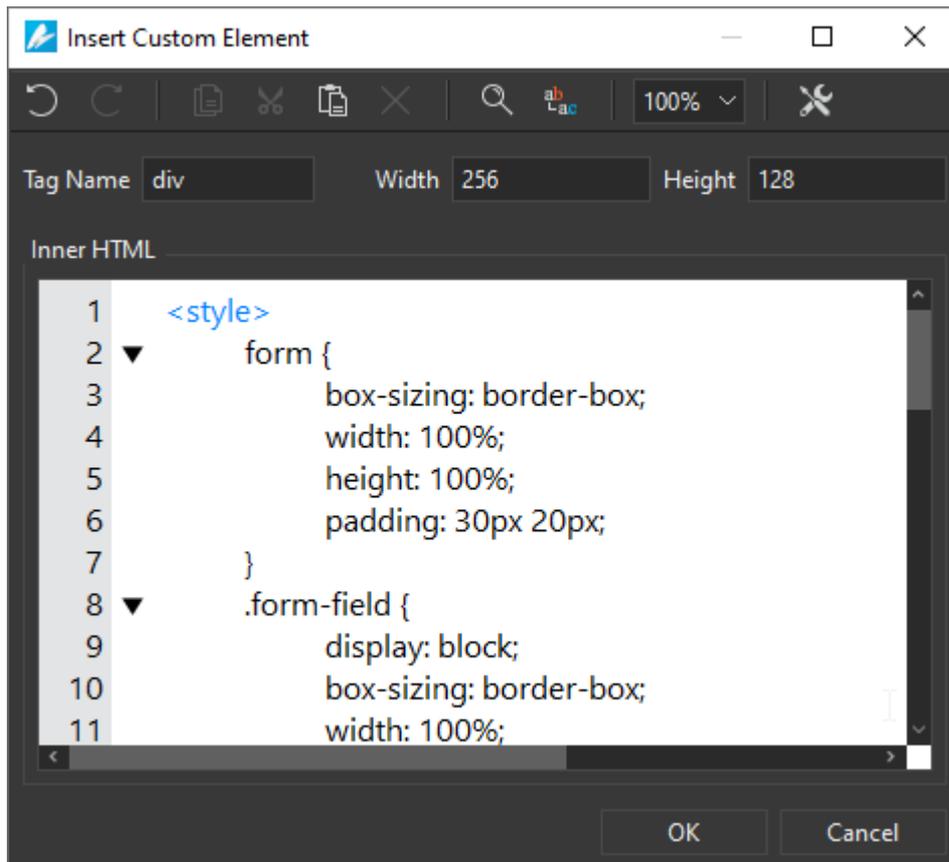
## Custom Elements

Custom elements come in handy when you want to create your own HTML tags.

You can insert a custom element by either of the following ways:

- In the dockable toolbar, click on the **Custom Element** button .
- Open the **Element** menu, select **Custom Element**.
- Right-click anywhere on the **Canvas** > **Element** > **Custom Element**.

After that, the **Insert Custom Element** dialog appears as below:



In the **Inner HTML** box, enter your own custom code. You can also copy and paste code into this box. Then click **OK** to finish.

For example, you can copy the following lines of code and paste them into the **Inner HTML** box to create a login form with text input and button's elements:

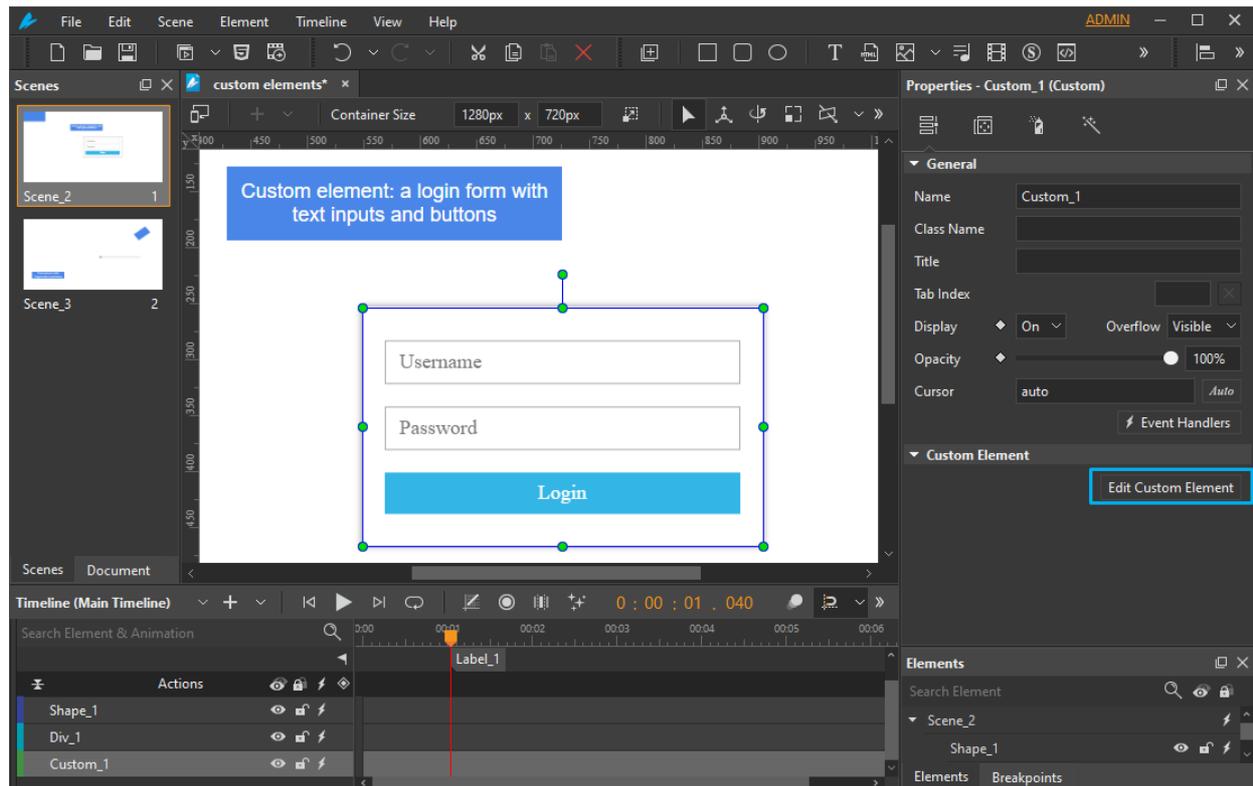
```

<style>
  form {
    box-sizing: border-box;
    width: 100%;
    height: 100%;
    padding: 30px 20px;
  }
  .form-field {
    display: block;
    box-sizing: border-box;
    width: 100%;
    margin: 0 0 20px;
    padding: 8px 12px;
    font-family: "Roboto";

```

```
        font-size: 18px;
        transition: 0.4s;
        outline: none;
    }
    .text-input {
        color: #444;
        border: 1px solid #aaa;
    }
    .text-input:focus {
        border-color: #33b5e5;
    }
    .button {
        cursor: pointer;
        color: white;
        background: #33b5e5;
        border: 0;
    }
    .button:hover {
        background: #178ab4;
    }
</style>
<form>
    <input type="text" placeholder="Username" class="text-input form-
field">
    <input type="password" placeholder="Password" class="text-input
form-field">
    <input type="button" value="Login" class="button form-field">
</form>
```

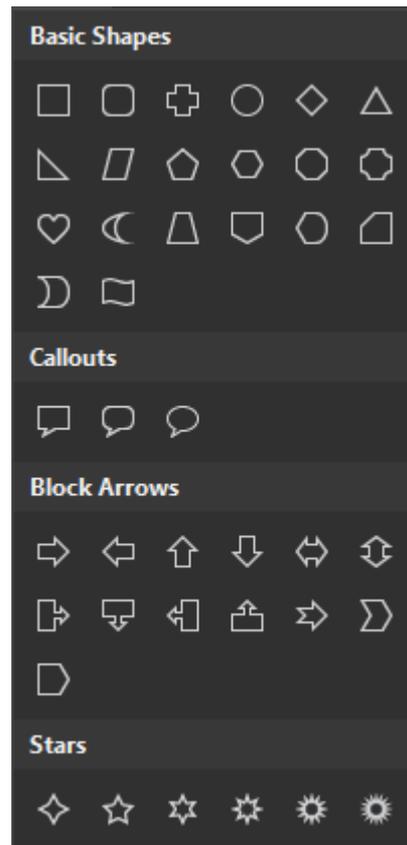
Here is what you get on the Canvas:



To edit a custom element, on the Canvas, double-click it to re-open the **Insert Custom Element** dialog. Alternatively, select the custom element > in the **Properties** pane > **General** tab > **Custom Element** > **Edit Custom Element**.

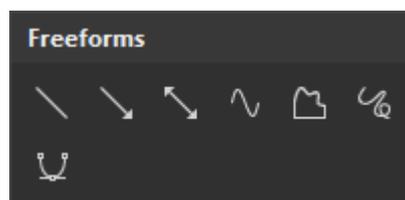
## Shapes

Shape elements are the same as DIVs except that they have border and background using SVG images. To insert a shape, click the **Insert Shape** button  in the dockable toolbar and choose the one that you like:



## Freeforms

Apart from predefined shapes, Saola Animate offers you seven freeform tools to draw custom shapes. In the dockable toolbar, click the **Insert Freeform** button  to see all the tools:



- **Line, Arrow, Double Arrow:** Draw simple straight, point to point lines (with or without arrows).
- **Curve:** Draw curved lines (open curves) or shapes (closed curves).
- **Shape:** Draw lines/ shapes that have both straight and freehand segments.
- **Scribble:** Draw lines/ shapes as if you were using a pencil on paper.
- **Line and Curve:** Draw lines/ shapes that have both straight and curved segments.

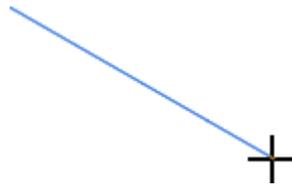
## Drawing Freeforms

### Drawing Lines, Arrows, and Double Arrows

In the dockable toolbar, click the **Insert Freeform** button . Then, select **Line** , **Arrow** , or **Double Arrow** . As soon as you select one of those tools, the cursor changes into a

cross hair.

Left-click on the Canvas to set the start point, without releasing the mouse button, move the mouse to draw a line. While moving the mouse, hold down **SHIFT** to constrain the line to 0, 30, 45, 60, 90, 120, 135, 150, and 180 degrees. Once you are satisfied, release the mouse button to set the end point.



## Drawing Curves

In the dockable toolbar, click the **Insert Freeform** button , select **Curve** . As soon as you select this tool, the cursor changes into a cross hair.

Click anywhere on the Canvas to set the start point. Move the mouse to a different position to form a line. Click the mouse button to curve the line. As you move the mouse, the curve changes correspondingly. Now move the mouse and click the mouse button again to add a new turn to the curve. Note that to draw a curve, no need to hold down the mouse button as when you draw a line.



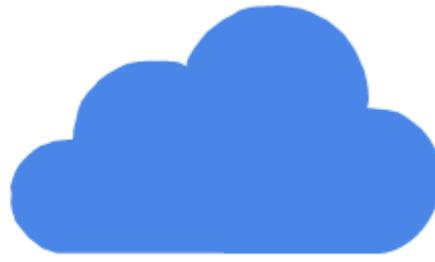
A curve can be either open or closed. If you want an open curve, double-click it or press **ESC** on your keyboard to set the end point. Otherwise, move the mouse near the start point and left-click to get a closed curve filled with a solid color.

## Drawing Freeform Shapes

The freeform shape tool allows you to draw both straight lines and freehand curves.

In the dockable toolbar, click the **Insert Freeform** button , select **Shape** . As soon as you select this tool, the cursor changes into a cross hair.

First, click anywhere on the Canvas to set the start point. To draw a straight line, release the mouse button and place the cursor elsewhere, then click. If you keep holding down the mouse button, you'll draw a freehand curve. When drawing, you can alternate between straight lines and freehand curves within the same line shape. Similar to drawing a curve, you can double-click or press **ESC** at any time to set the end point, making an open shape. Otherwise, move the mouse near the start point and left-click to get a closed shape filled with a solid color.

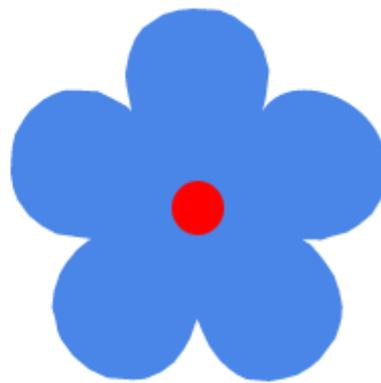
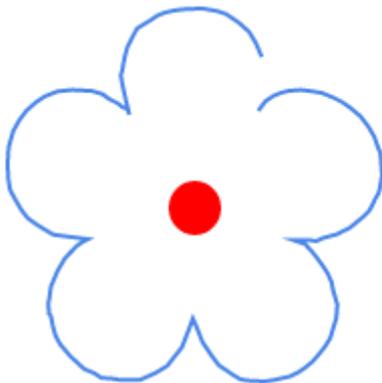


### Drawing Freeform Scribbles

The freeform scribble tool comes in handy when you want something to look like it was handwritten.

In the dockable toolbar, click the **Insert Freeform** button , select **Scribble** . As soon as you select this tool, the cursor changes into a cross hair.

The way using this tool is almost similar to the freeform shape tool except one essential difference. Once you start drawing with the freeform scribble tool, you have to keep holding down the mouse button until you finish. The point where you release the mouse button will be the end point of your drawing.

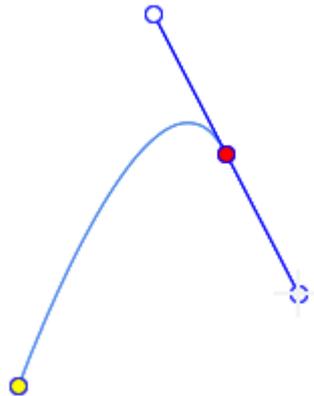


### Drawing Freeform Lines and Curves

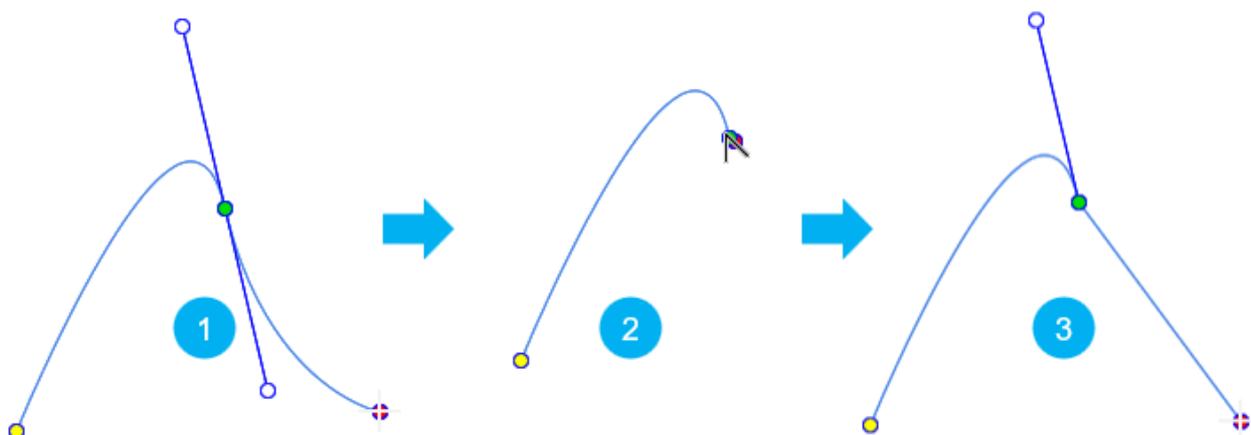
In the dockable toolbar, click the **Insert Freeform** button , select **Line and Curve** . As soon as you select this tool, the cursor changes into a cross hair.

First, click anywhere on the Canvas to set the start point. Then:

- To draw a straight line: Release the mouse button, move the mouse, place the cursor anywhere on the Canvas, then click.
- To make a curve: Release the mouse button, move the mouse, then click and drag the mouse. After that, you will see two blue handles with anchor point (the blue dot) and two control points (the white dots). Continue dragging the mouse to reshape the curved segment until you satisfy, then release the mouse button.



Note that if you want to cancel drawing a curved segment (1), just click on the recent curve's anchor point (2), and move mouse to another location to draw a line (3):



To draw a curve again, move mouse to anchor point, then click and drag.

To finish drawing, you can double-click or press **ESC** at any time to set the end point, making an open freeform. Alternatively, you can move the mouse near the start point and left-click to get a closed freeform filled with a solid color.

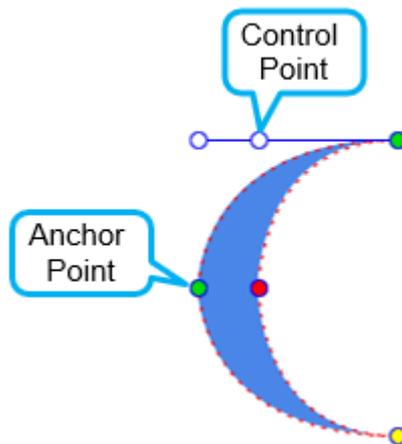
Note that in addition to drawing freeforms yourself, you can convert any shape to a freeform. To do that, you just need to select a shape, right click and choose **Edit Path**, then adjust its anchor points and control points.

### Editing Freeforms

To edit a freeform shape, right-click it and select **Edit Path** to enter the editing mode. In this mode, Saola Animate will provide you with some tools for editing such as: **Selection Tool** , **Add/ Remove Anchor** , **Anchor Point Tool** . Those tools are located at the left corner above the horizontal ruler. You will learn how to use them in the below sections.



In the editing mode, a freeform is outlined by a red dashed line. To edit it, you'll work with the anchor points and control points:



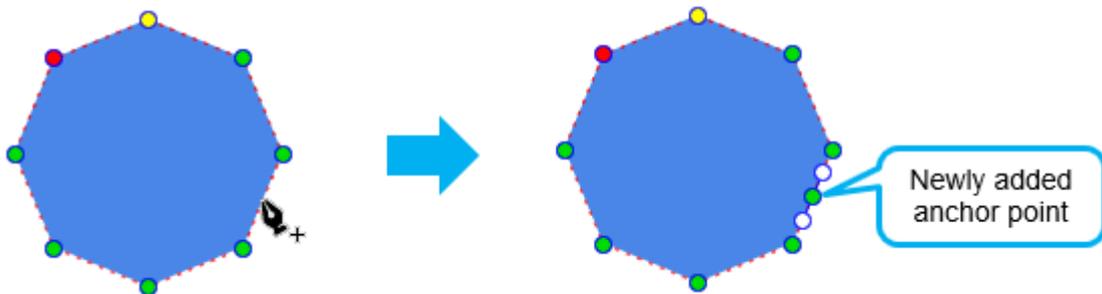
- **Anchor points:** Anchor points are green dots which indicate a curve or a corner.
- **Control points:** Control points are white dots that appear at the end of blue handles when you select an anchor point. Drag a control point to reshape the curved segment over the anchor point.

If the anchor point and the control point have the same position, clicking on that position will select the anchor point. If you want to select the control point, hold down **ALT** and click the mouse.

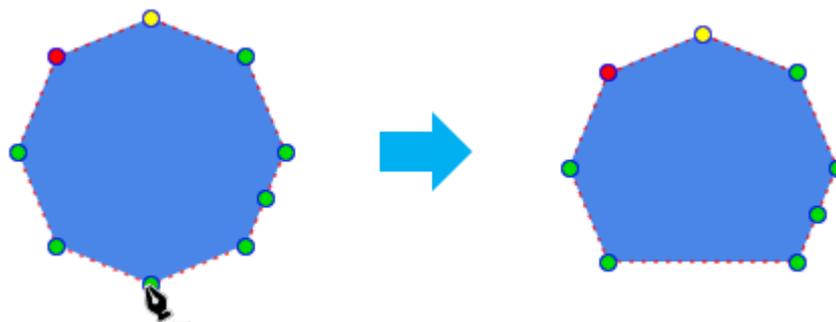
### Adding and Deleting Anchor Points Using Add/Remove Anchor Tool

Use the **Add/ Remove Anchor** tool to add or remove an anchor point:

- Add an anchor point: Click **Add/ Remove Anchor** , then click on any point in the red dashed line to add an anchor point:



- Delete an anchor point: Click **Add/ Remove Anchor** , then click on any anchor point to delete it. Alternatively, hold down **SHIFT** and click an anchor point to delete it. Note that deleting an anchor point will make the shape change accordingly:

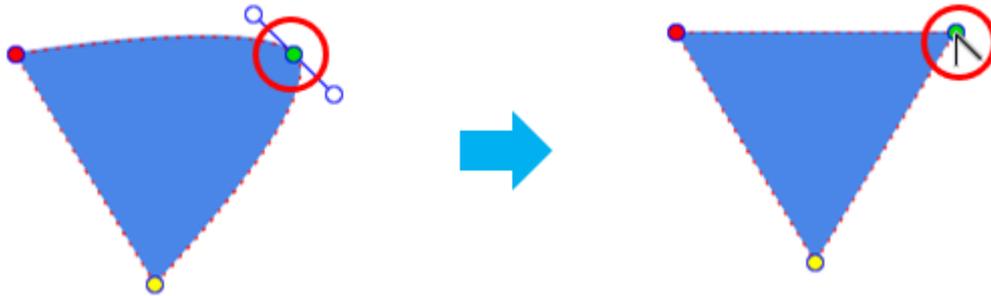


## Converting Anchor Points Using Anchor Point Tool

Use the **Anchor Point Tool** to change types of anchor points. Details are described as below:

- **Corner Point:**

A corner point is a point whose anchor point and two control points have the same position. Notice that each corner point is the intersection of two lines. However, not every intersection of two lines is a corner point.

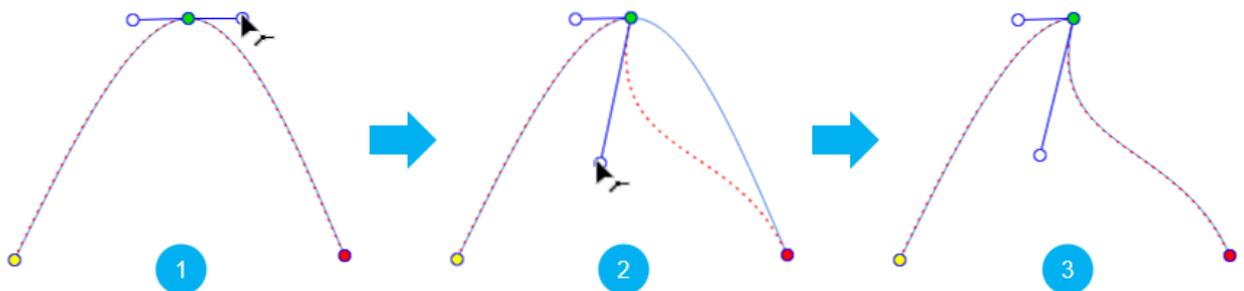


To convert to a corner point, click the down arrow next to **Anchor Point Tool**, select **Corner Point** , then do one of the following:

- Click an anchor point to make it a corner point.
- Drag an anchor point to create a corner point.

- **Free Point:**

When dragging a single control point, the remaining will move to maintain the angle between them. A free point tool allows you to drag the selected control point freely without moving the remaining. Therefore, this tool comes in handy when you want to create curves that have sharp corners:

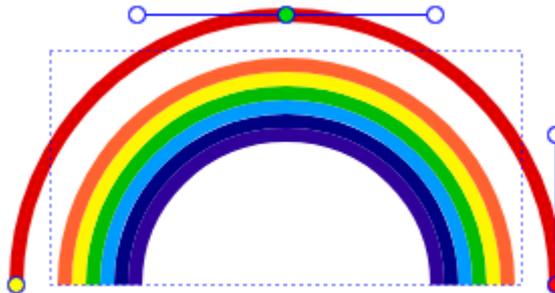


To turn on this tool, click the down arrow next to **Anchor Point Tool**, select **Free Point** . Then, select a control point (1) and drag it (2), the remaining control point will not be affected (3).

Alternatively, click the **Selection Tool** , keep **CTRL** or **ALT** while dragging to drag a control point freely.

- **Smooth Point:**

A smooth point is a point whose two control points always make a straight line, and their distance to the anchor point is equal. A curved segment connected by this point is smooth and symmetrical:



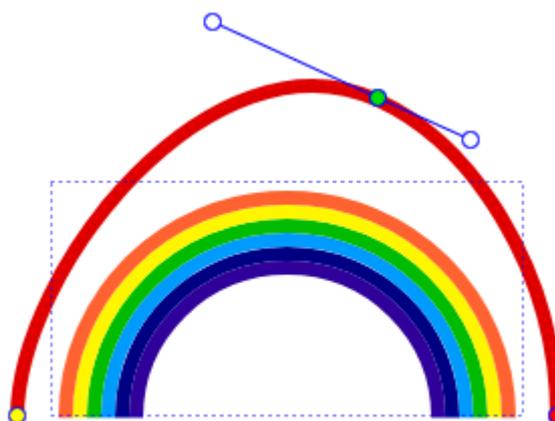
To convert to a smooth point, click the down arrow next to **Anchor Point Tool**, select **Smooth Point** , then do one of the following:

- Click on the anchor point to create a smooth point.
- Drag the anchor point to make a smooth point.
- Click and drag a control point so that the two control points make a straight line and their distance to the anchor point is equal.

Besides, if you select the **Selection Tool** , when dragging a control point, it can be snapped to a position to make a smooth point.

- **Straight Point:**

A straight point is nearly similar to a smooth point. That is, its two control points always make a straight line but their distance to the anchor point is not equal. A curved segment connected by this point is smooth but not symmetrical if two control points are asymmetric:



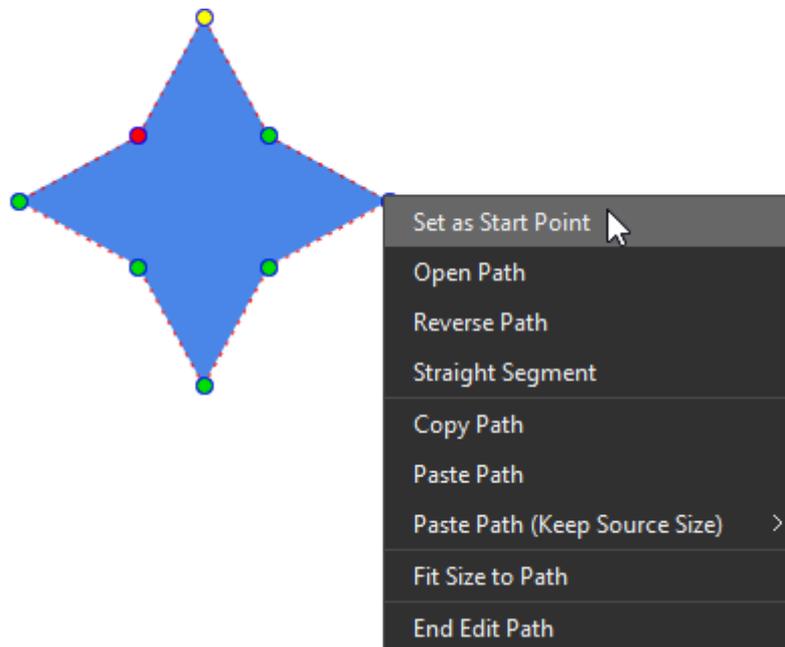
To turn on this tool, click the down arrow next to **Anchor Point Tool**, select **Straight Point** , then do one of the following:

- Click on the anchor point to create a straight point.
- Drag the anchor point to make a straight point.
- Click and drag a control point so that the two control points make a straight line.

Besides, if you select the **Selection Tool** , when dragging a control point, it can be snapped to a position to make a straight point.

### Set as a Start Point

When you create **line drawing animation** or **morph animation**, you may want to set an anchor point as a start point. To do that, right-click an anchor point, select **Set as Start Point**:



The start point is indicated by yellow color while the end point is in red.

### Opening and Closing Paths

- To open a closed path, right-click an anchor point, or right-click anywhere within the path and select **Open Path**.
- To close an open path, right-click it and select **Close Path**. A linear segment is added from the previous end point to the start point.

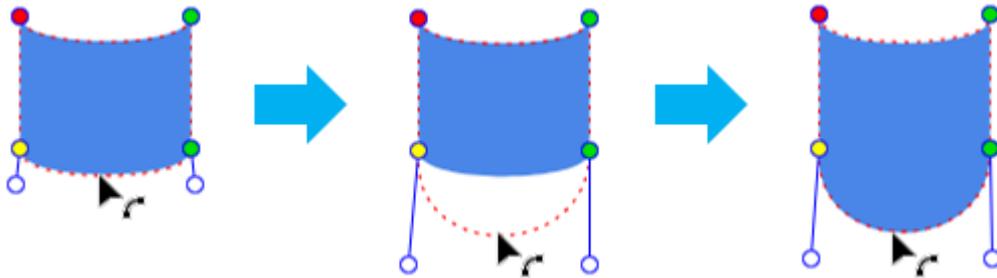
### Reversing a path

When you create **line drawing animation** or **morph animation**, you may want to reverse a path. To do that, right-click it, select **Reverse Path**:



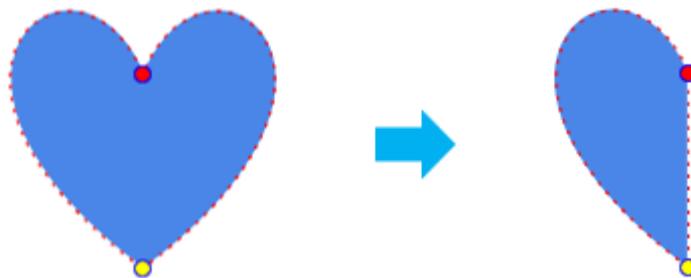
### Bending a Path

Click on any point in a path, move the mouse to bend a path:



### Making Straight Segments

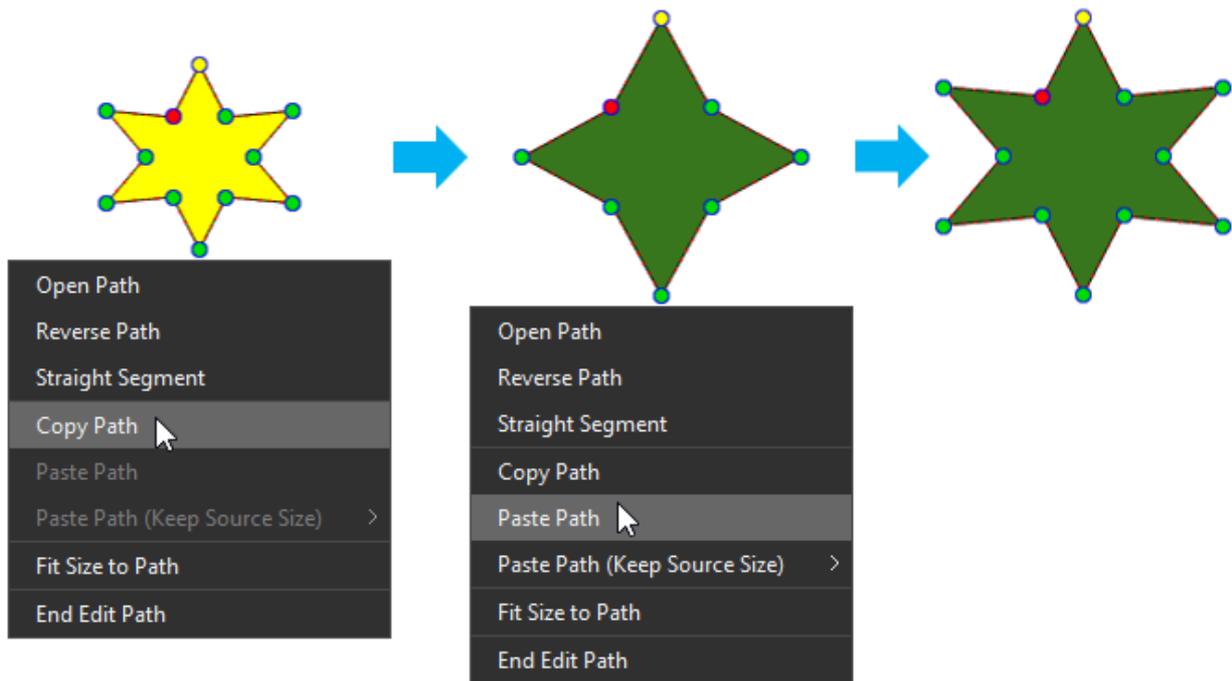
Right-click a curved segment and select **Straight Segment** to straighten it. The shape will change accordingly:



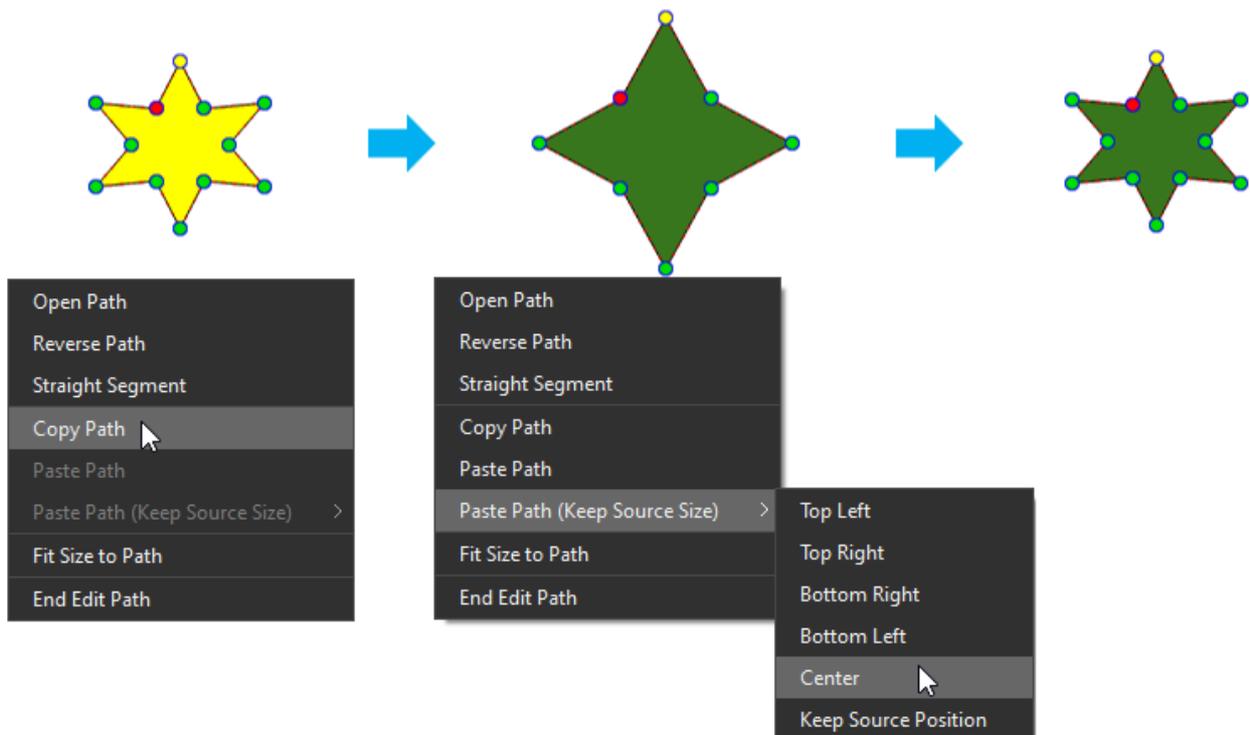
### Copy and Paste Paths

Saola Animate lets you copy paths of one shape and paste them into another (the target shape).

- To copy paths: Right-click a shape, select **Copy Path**.
- To paste paths: Right-click a shape, select:
  - **Paste Path**: Paste the copied path into the target shape's path. If two shapes have different path sizes, the pasted path will inherit the size from the target shape's path.

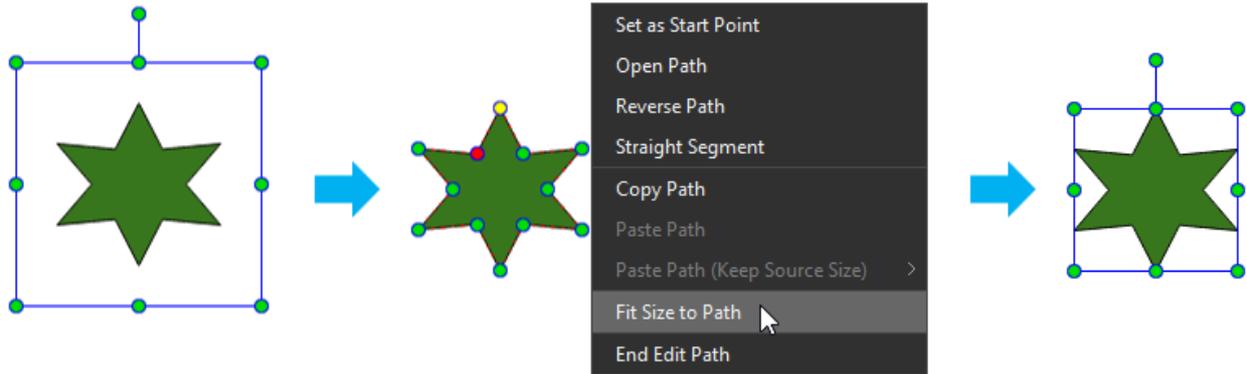


- **Paste Path (Keep Source Size):** Paste the copied path into the target shape's path but still keeping its original size. Besides, you can select its relative position compared to the target shape' path:



### Fitting Size to Path

Sometimes after editing points/ paths of a freeform shape, its blue rectangle doesn't fit the edited path. In this case, you can right-click the path, select **Fit Size to Path**:



Note that if you add **Shape Path** keyframe to create morph animation, this option will be disabled.

### Exiting the Edit Mode

Once you're done editing, press **ESC** on the keyboard or click the **End Edit Path**  to exit the editing mode. Alternatively, right-click a shape and select **End Edit Path**.

## Groups

Group elements are those containing other elements as children. You can create group elements by **grouping multiple elements** in a scene. By doing so, you can easily move and animate multiple elements as if they were a single one.

To create a group, select one or more elements and press **CTRL+G** or right-click and select **Group**.

## Inserting Elements

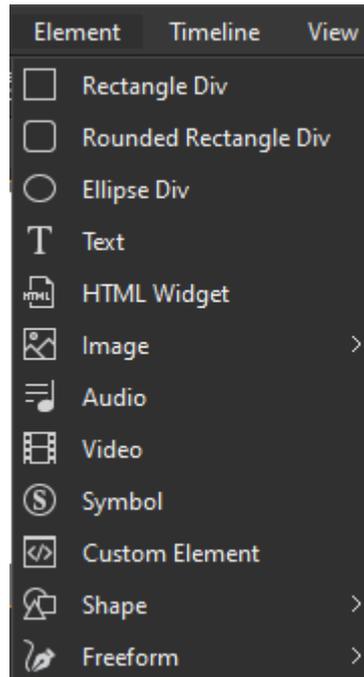
### Inserting Elements

You have more than one way to insert an element into a scene. You can insert multiple elements at the same time.

- Directly drag or copy images, audio, videos, or symbols from your computer onto the Canvas.
- Click the buttons corresponding to each element type in the dockable toolbar:



- Click the **Element** menu and select the element you want, or right-click the Canvas > **Element** > select the element you want:



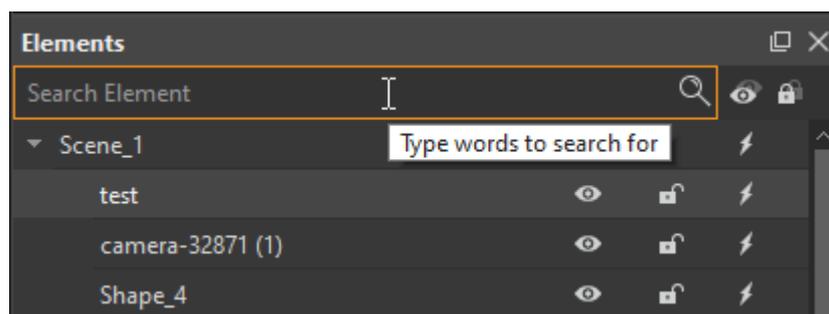
- Drag resources from the **Resources** pane onto the Canvas, or right-click and select **Add to Scene**.

**Note:**

- If you want to insert a DIV or shape, click the corresponding button in the dockable toolbar. Then, click and drag the mouse on the Canvas to define the position and size of the new element. The new element will be inserted when you release the mouse button.
- Text elements are inserted in the center of a scene with a placeholder text. Double-click the text element to enter text.
- For HTML widgets, specify required information in the **HTML Widget** dialog to insert them. For more details, see **HTML Widget**.
- After inserting an element, you may want to rename it. Double-click the element name in the **Timeline** or **Elements** pane to enter a new name. You can also click the **Properties** pane > **General** > **Name** and rename the element.

## Searching Elements

A scene may contain multiple elements. To find any element, animation, or group quickly, type its name in the search box in the **Timeline** or **Elements** pane:



## Copying Elements

You can copy multiple elements within a scene or across scenes and documents. Use shortcuts to quickly copy and paste elements. There are three options to paste elements:

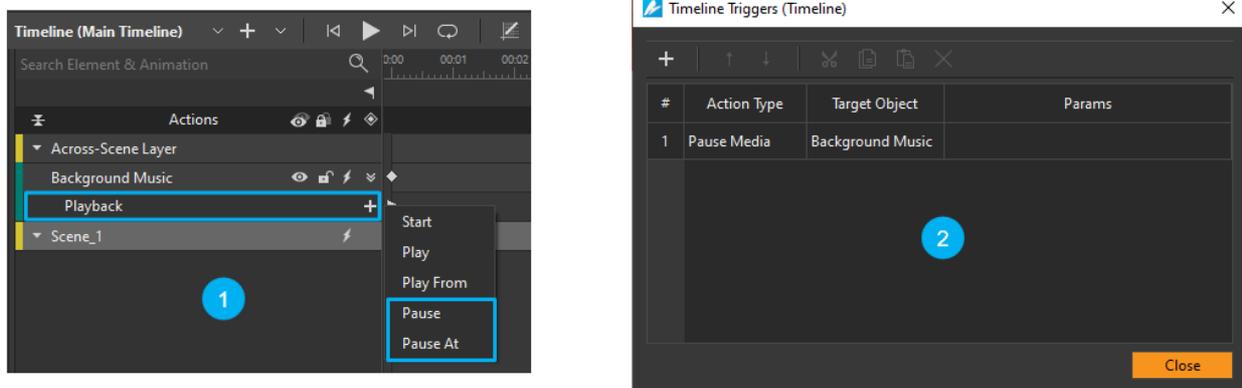
- **Paste:** Insert the copied elements without animations. New elements will be placed near the position of the original elements or in the center of the viewport (if the original elements are placed outside the viewport).
- **Paste Here:** Insert the copied elements at the position of the cursor.
- **Paste with Animation:** Insert the copied elements with their animations.

If elements are copied and pasted across documents, all of their resources and JavaScript functions will also be copied and pasted to the target document. For example, if an image element is copied from a document to another document, its image resource will also be copied.

## Showing Elements Across Scenes

You can show any element across scenes. To do that, right-click the element on the Canvas > **Show Across Scenes**. Then, it will appear on the top layer - the **Across-Scene Layer** in the **Timeline** pane. Later, in each scene, you can separately create different animations for that element. In case you want to show symbols or media (audio/ videos) across scenes, take note that its playback animation is not synchronized with the scene's timeline.

For example, when you make an audio play across all scenes in your project, the audio will continue playing without being affected by any trigger to pause the timeline. In this case, you can create playback animation (1) or add a trigger to pause media (2):



If you don't want the element to be shown across scenes anymore, right-click it > **Show in Current Scene**. By doing so, the element will be shown in the selected scene only.

## Removing Elements

Select one or more elements on the Canvas and press **DELETE** to remove them. Or right-click the element and choose **DELETE** from the context menu. You can also delete elements by selecting them in the **Elements** pane or the **Timeline** pane > press **DELETE**.

## Selecting Elements

Scene elements can be selected in many ways from many panes with the selection state synchronized among panes. Thus, if an element is selected on the Canvas, it'll also be selected in the **Timeline** and **Elements** panes.

## Selecting Elements on the Canvas

On the Canvas, do one of the following:

- Select a single element: Just click it.
- Select multiple elements: Use the rubber-band selector which appears when you click anywhere on the Canvas and drag the mouse. All elements that stay in or intersect with the selector will be selected.
- Select more elements: If you have already selected several elements and want to select more, hold down **CTRL** and click the additional elements. At the same time, if you want to cancel the selection of an already selected element, click it.
- Select child elements in **groups**: Select the group first, then click child elements to select them.

## Selecting Elements in the Timeline Pane

Click the element name to select it. Alternatively, click the element's **keyframes** or **animation segments**.

## Selecting Elements in the Elements Pane

Elements in the **Elements** pane are displayed in a tree view. Child elements are listed under and at the next indent level compared to their parent. You can click the triangle buttons to collapse or expand items. Click an element to select it.

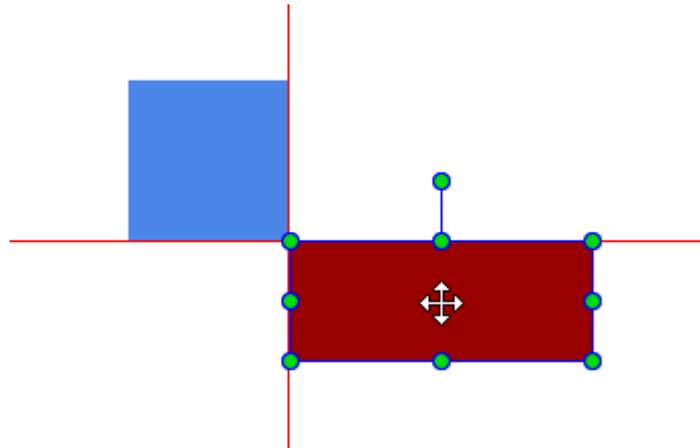
# Arranging Elements

## Aligning Elements

Saola Animate offers a variety of functions to align elements automatically and precisely.

### Aligning Elements Using Canvas Snapping

Canvas snapping snaps elements to the center or edges of the Canvas or other elements. This feature is indicated by red lines which appear when an element comes in the vicinity of the Canvas or another element.



Canvas snapping is turned on by default. To turn it off, click **View > Canvas Snapping**. You can temporarily disable this feature by holding down **CTRL** when moving or resizing elements.

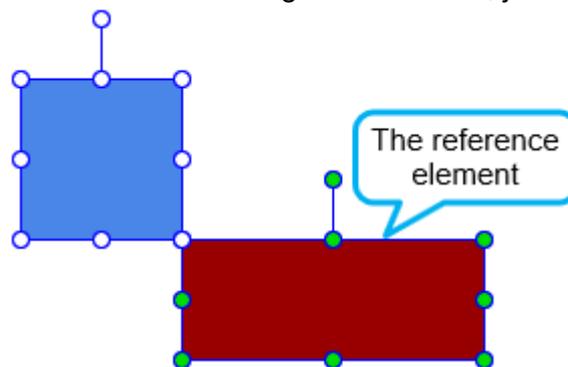
## Aligning Elements Using Alignment Tools

Saola Animate provides various tools to align and distribute selected elements with an anchor. The anchor can be the parent of selected elements, one of selected elements, or bounding rectangle of all selected elements.

**Align to Parent**  Align to Parent

- If the **Align to Parent** check box is checked, the anchor is the parent of selected elements. In case selected elements are top level ones, the parent is the scene.
- If the **Align to Parent** check box is unchecked, distribution and spacing tools will distribute and space elements evenly across the bounding rectangle of all selected elements. Meanwhile, alignment tools will align elements with one of selected elements—the reference element. The reference element has green handles rather than white handles like other selected ones.

To choose a different reference element among selected ones, just click on that element.



**Flexible Layout**  Flexible Layout

The **Flexible Layout** option allows you to create a percentage-based alignment that will keep the elements relatively aligned to each other and to the enclosing parent as the parent size changed.

This option is only applicable when the anchor is the parent element (i.e., the **Align to Parent** option is selected).

To use alignment tools, select one or more elements that have the same parent, then use one of the buttons on the dockable toolbar or click **Edit > Alignment** from the menu bar.

Command	Icon	Remark
<b>Align Left</b>		Align the left edges of the selected elements with the left edge of the anchor.
<b>Align Center</b>		Align the horizontal centers of the selected elements with the horizontal center of the anchor.
<b>Align Right</b>		Align the right edges of the selected elements with the right edge of the anchor.
<b>Align Top</b>		Align the top edges of the selected elements with the top edge of the anchor.
<b>Align Middle</b>		Align the vertical centers of the selected elements with the vertical center of the anchor.
<b>Align Bottom</b>		Align the bottom edges of the selected elements with the bottom edge of the anchor.
<b>Distribute Left Edge</b>		Distribute the left edges of the selected elements evenly within the anchor rectangle.
<b>Distribute Horizontal Center</b>		Distribute the horizontal centers of the selected elements evenly within the anchor rectangle.
<b>Distribute Right Edge</b>		Distribute the right edges of the selected elements evenly within the anchor rectangle.
<b>Distribute Top Edge</b>		Distribute the top edges of the selected elements evenly within the anchor rectangle.
<b>Distribute Vertical Center</b>		Distribute the vertical centers of the selected elements evenly within the anchor rectangle.
<b>Distribute Bottom Edge</b>		Distribute the bottom edges of the selected elements evenly within the anchor rectangle.
<b>Space Horizontally</b>		Distribute the selected elements so that the horizontal gaps between them are equal.
<b>Space Vertically</b>		Distribute the selected elements so that the vertical gaps between them are equal.

## Resizing Elements to Reference Element

Besides Alignment options, Saola Animate provides three Sizing options to quickly resize elements

to a reference element. Select at least two elements that have the same parent, then select one of the Sizing options in the dockable toolbar. Alternatively, in the main menu, click **Edit > Size**.

Command	Icon	Remark
<b>Make Same Width</b>		Match the width of all other elements with the width of the reference element.
<b>Make Same Height</b>		Match the height of all other elements with the height of the reference element.
<b>Make Same Size</b>		Match the width and height of all other elements with those of the reference element, respectively.

## Ordering Elements

### Ordering Elements Using Display Order Tools

When elements overlap, the z-order determines which one covers the other. You can reorder elements by using the **Display Order** tools in the dockable toolbar. Or, you can open the **Edit** menu, select **Display Order**. The tools let you set the z-order of elements even when they do not overlap each other. So, you can bring an element to the front or back to easily identify and work with it.

For example, there are five shapes in the following order. Four different display order tools will be used to change the z-order of the red shape.



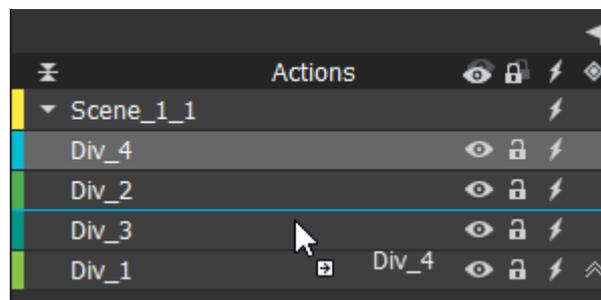
Command	Icon	Remark
<b>Bring to Front</b>		Place the selected element at the very top of the stack. 
<b>Bring Forward</b>		Send the selected element higher by one level in the stack. 

<p><b>Send to Back</b></p> 		<p>Place the selected element at the very bottom of the stack.</p> 
<p><b>Send Backward</b></p> 		<p>Send the selected element lower by one level in the stack.</p> 

## Ordering Elements by Drag-n-Drop

Using the **Display Order** tools in the **Edit** menu or the dockable toolbar to set the z-order of elements may be inconvenient. Saola Animate offers you another way to order elements quickly. That is dragging and dropping elements in **Timeline** or **Elements** pane.

To do that, go to these panes, select desired elements, then drag them to a new position. A blue line appears to indicate the new position of the selected elements when you drop them.



Please note that this method can be used to **change parents of elements**, i.e., move elements from their groups to another group.

## Grouping Elements

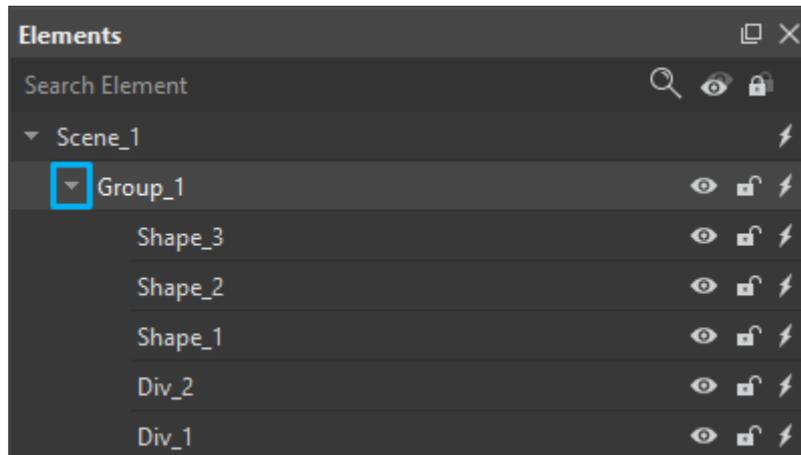
Grouping multiple elements as a single one lets you work faster and easier. For example, group several elements and they will stay together when being moved. Otherwise, you have to select all of the elements each time you want to change their position. Also, groups have properties like normal elements, meaning that you can animate their properties or add events and actions to them. You can group elements to animate them in the same way, instead of animating each with the same keyframes and properties.

### Grouping Elements

1. Select just one or more elements of the same parent.
2. Press **CTRL+G**. Alternatively, right-click and select **Group > Group**. The selected elements are grouped. A single box with sizing handles appears around the entire group.

All moving animations of selected elements will be converted to a new coordinate system of the new parent.

The newly created group appears in the **Timeline** and **Elements** panes with a default name. Double-click its name to rename it. In these panes, all child elements are listed under and at the next indent level compared to their group. Click the triangle buttons to collapse or expand the group.



After grouping elements, you can still edit child elements separately without breaking and affecting the group. On the Canvas, select the group first, then click the child element to start editing it. You can also click the child element name in the **Timeline** and **Elements** panes to select it.

## Ungrouping Elements

Sometimes, you no longer need a group and want to break it apart.

1. Select a group.
2. Press **CTRL+SHIFT+G**. Alternatively, right-click it and select **Group > Ungroup**. The group will be broken apart into separate child elements.

## Adding to Group

To add more elements to an existing group without nesting group:

1. Select the target group and some elements to add to that group.
2. Right-click and select **Group > Add to Group**.

The selected elements will become the children of the target group.

## Removing from Group

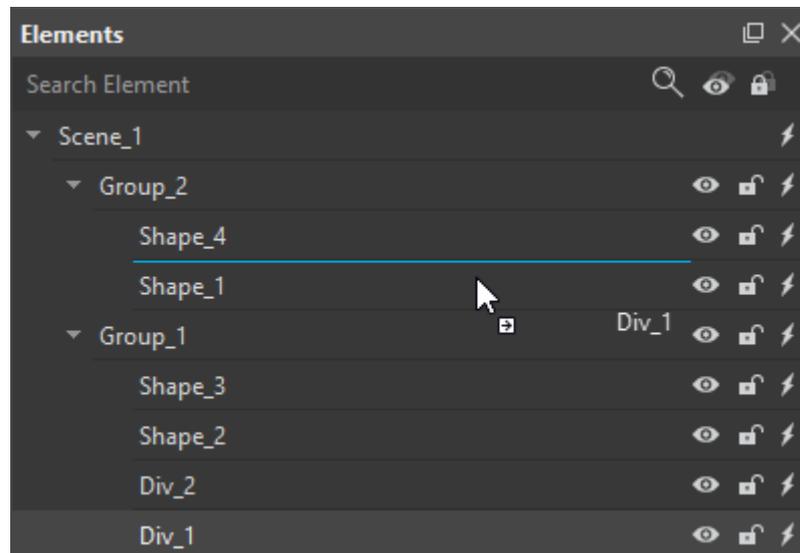
To remove one or more elements from a group:

1. Select elements that you want to remove.
2. Right-click and select **Group > Remove from Group**.

The selected elements will become children of the group's parent. If the group is a top-level element, the selected elements also become top-level elements.

## Changing Group by Drag-n-Drop

You are free to change the parent of elements by dragging and dropping them on **Timeline** or **Elements** pane. Just select your desired elements, drag them to a new position and drop them when you see a blue indicator appears.



## Laying out Group

A group boundary may not fit its children bounding rectangle, for example, after adding/ removing elements to / from a group. In that case, you can use the **Layout Group** function to adjust a group position and size to fit its children.

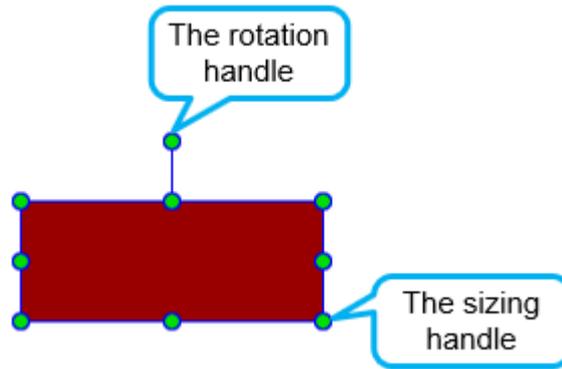
1. Select your desired groups.
2. Right-click and select **Group > Layout Group**.

## Editing Element Properties

Element properties are displayed on the Canvas, but not all of them could be directly edited from here. Instead, open the **Properties** pane to edit all properties of an element. You can select and edit multiple elements at the same time.

## Editing Properties on the Canvas

On the Canvas, you can reposition, resize, and rotate an element using the sizing and rotation handles which appear when you select an element.



## Editing Properties in the Properties Pane

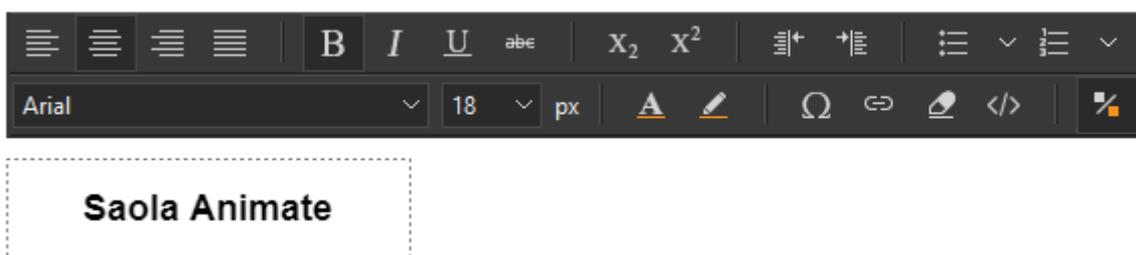
All element properties are listed in sections in the **Properties** pane. Each section shows a group of related properties. For example, the **Fill** section provides four background fill styles for elements.

Property values are shown in some UI control types, such as spin boxes, sliders, and text fields, depending on the property types. When multiple elements are selected, there are two cases:

- If a property is unique, such as name, the control showing the property will be disabled. It is enabled only when you select one element.
- If a property isn't unique, the control will be enabled, but it only displays a value when the property values of all selected elements are the same. For example, when you select two elements with different left values (in X, Y Motion relative to top and left), the left property shows no value. In that case, if you enter a value for the left property, you'll set the left value of both the elements.

## Adding Text to Elements

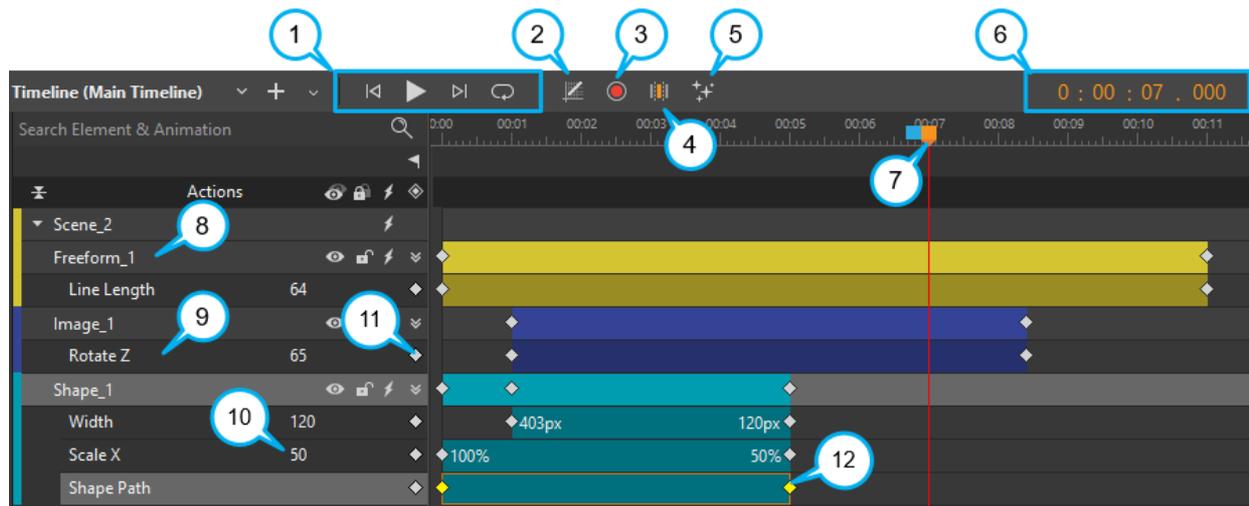
Text can be added to any text-based elements, namely text, DIVs, and shapes. Insert these elements into a scene, then double-click them to open the inline text editor and type text. To stop editing text, click anywhere outside or select **Stop Editing** from the context menu.



Saola Animate provides numerous options for customizing text. You can change the font, size, color, styling, alignment, spacing, etc., using the **Floating Text Format** toolbar or the **Properties** pane > **Text** section. You can also use fonts from your system or **Google fonts** to make your text stand out.

## Chapter 5: Creating Animations

Creating animations is the most important and creative task when working in Saola Animate. Animations are organized and controlled in the **Timeline** pane. Think of this pane as a container for animations and a ruler that measures time in animations.



1. **Playback controls** (left to right): **Go to Start**, **Play/Stop**, **Go to End**, **Loop Playback**. The playback controls allow you to **navigate in timeline** and **preview your animation** within the open project window.
2. **Easing button**: Customize the **easing method** which specifies the speed of the transition effect.
3. **Auto-Keyframe Mode button**: Toggle the **Auto-Keyframe Mode** to **create keyframes automatically**.
4. **Auto-Keyframe Range button**: Toggle the **Auto-Keyframe Range** to **create keyframes automatically in a specific range**.
5. **Preset Effects**: Insert **preset effects** to elements with entrance, emphasis and exit effects.
6. **Time control**: Display the current time or the current position of the Playhead (5). Click on it to make it editable to adjust the current time.
7. **Playhead**: The orange Playhead and its red marker line moves as a document plays to indicate the current time.
8. **Element name**: Elements on the Canvas are all displayed on the timeline.
9. **Property name**: Name of all properties that are animated.
10. **Property value**: Property value of properties at the Playhead position. Double-click it to make it editable, then you can change the property value.
11. **Add Keyframe button**: Add a new **keyframe** at the Playhead position.
12. **Animation segment**: An **animation segment** is composed of two keyframes defining its starting and ending values.

# Keyframes

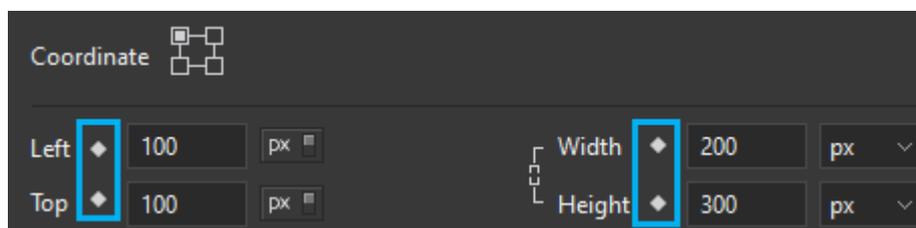
Keyframes specify the value of a property at a specific time. They are available throughout the **Properties** pane to set parameters of any property that can be changed over time. When animating with keyframes, you add at least two keyframes with different values of the same property. The animation is formed based on the property change from the start to the end.

## Adding Keyframes

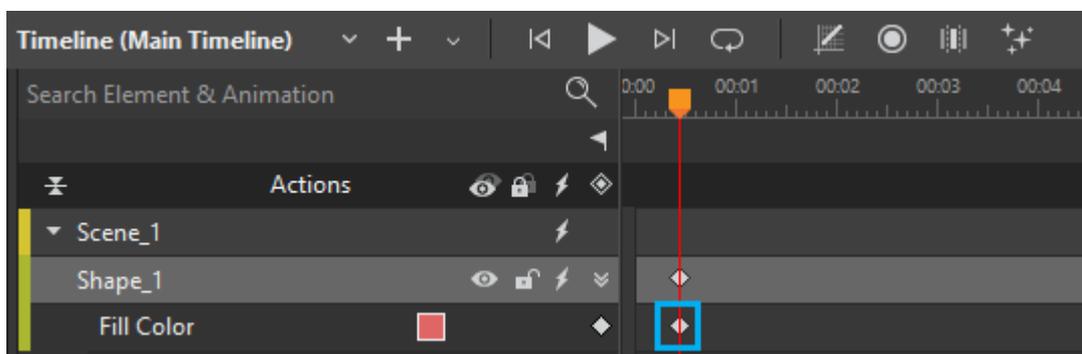
Keyframes can be added manually or automatically using several ways.

### Using the Properties Pane

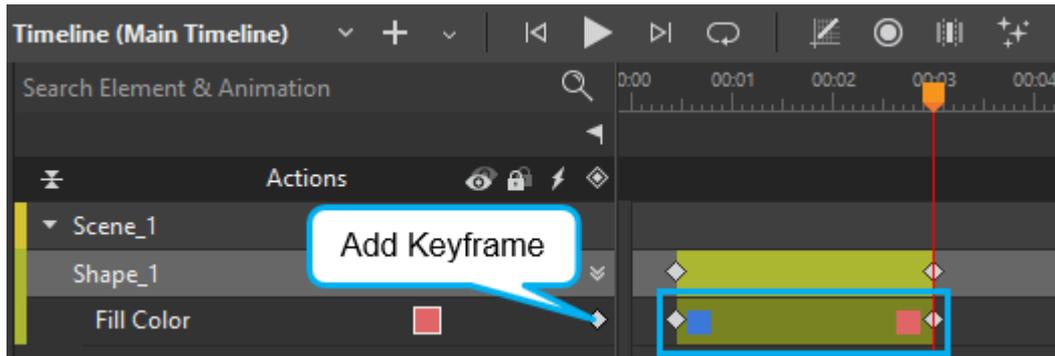
In the **Properties** pane, you can use small diamonds next to animatable properties to add keyframes. The keyframe will be visibly added at the Playhead position on the timeline.



To add the starting keyframe, first select an element. Then, position the Playhead to where you want the animation to begin, and click the keyframe diamond of a property. Now, set the property value of the starting keyframe. This will be the initial state of the element.



To add the ending keyframe, move the Playhead to where you want the animation to end. Add another keyframe for the same property and change the property value. A bar between the two keyframes appears, indicating that the property is animated.



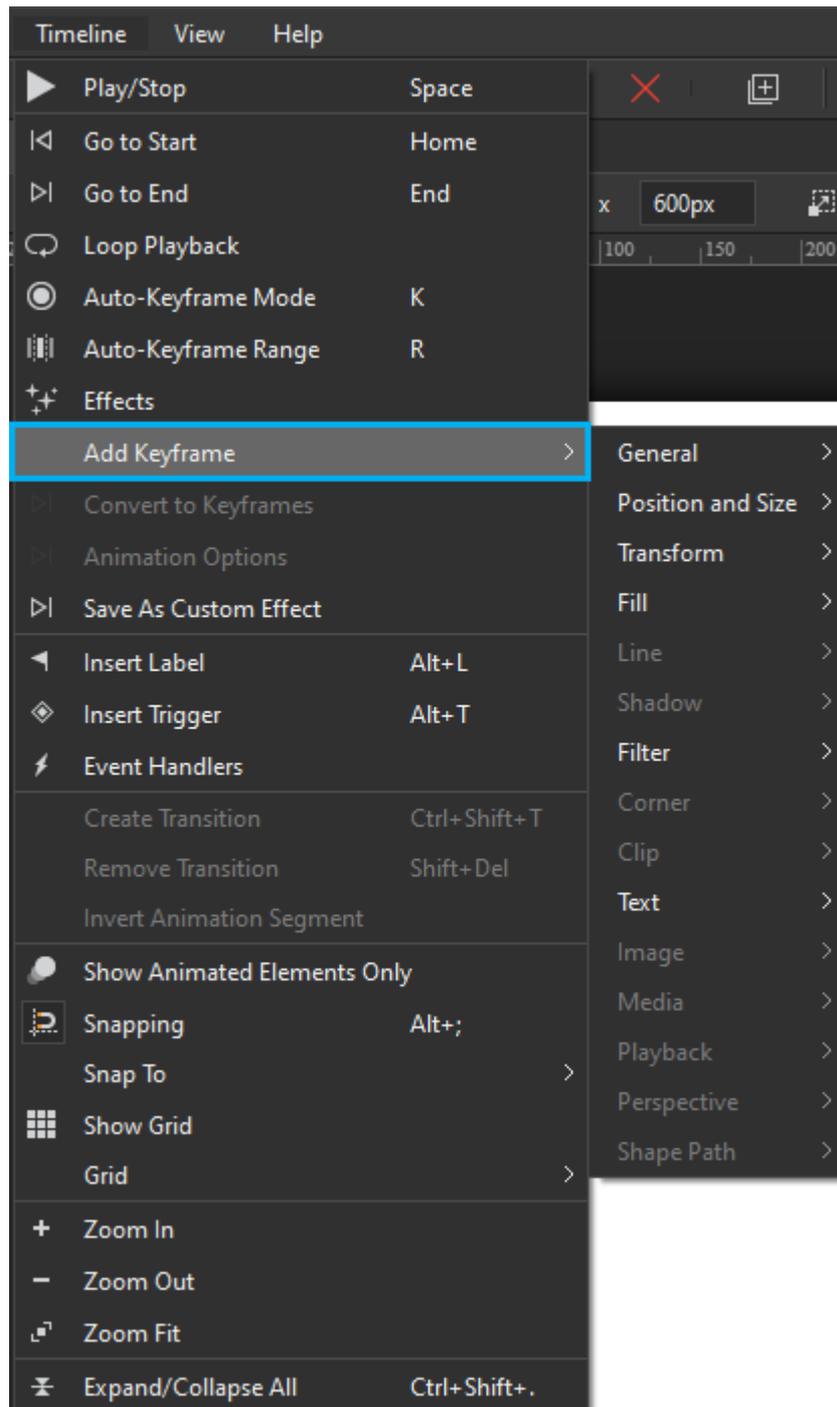
Keyframe diamonds also appear in the **Timeline** pane. Any properties with at least one keyframe will be listed in this pane, thus allowing you to add more keyframes by clicking the **Add Keyframe** button. The best practice is to use the keyframe diamonds in the **Properties** pane to add the starting keyframes, then use the diamonds in the **Timeline** pane for other keyframes of the same property.

### Using the Add Keyframe Menu

Another way to add keyframes is using the Add Keyframe menu which appears when you do either of the following:

- Select an element > **Timeline** menu > **Add Keyframe**.
- Right-click an element on the Canvas, in the **Timeline** or **Elements** pane > **Add Keyframe**.

When you point to the **Add Keyframe** option, a list of available keyframes appears, allowing you to select the keyframe you want.



## Creating Keyframes Automatically

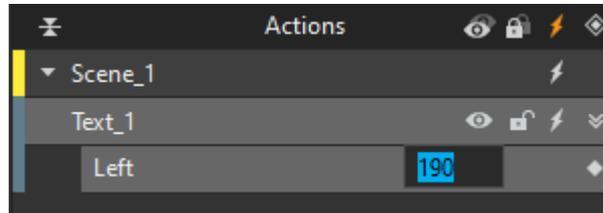
Auto-Keyframe Mode enables Saola Animate to generate keyframes automatically when you change the element properties. When being turned off, you have to add keyframes manually.

For more details, see **Auto-Keyframe Mode**.

## Adjusting Keyframe Values

To adjust a keyframe value, position the Playhead at the keyframe, then do one of the following:

- **In the Properties pane:** Adjust the property value using spin boxes, sliders, text fields, etc.
- **In the Timeline pane:** Double-click the value to make it editable and adjust it. To finish editing, press **ENTER** or click anywhere outside.



- **On the Canvas:** For some visual properties such as position, size, and rotation, you can change the value visually on the Canvas. For example, drag the rotation handle to adjust the rotate value.

**Note:** If you place the Playhead at an existing keyframe and change the property value, the change will be applied to that keyframe only. Meanwhile, if you place the Playhead at any other timestamp and change the property value, the change will be applied to all keyframes of the same property animation.

Consider the animation [Left, duration: 2.5s, value: 200px - 400px].

- **Place the Playhead at the starting/ending keyframe:** Place the Playhead at the ending keyframe and change the Left value from 400px to 500px. The element now moves 300px to the right instead of 200px as before. The ending point changes, leading to the change in the space the element moves.
- **Place the Playhead at any other timestamp:** Change the Left value to 500px. The element still moves 200px to the right as before, but it now moves from a different position to another different position. The space remains the same while the starting and ending points are shifted to the new positions.

## Moving, Copying, Pasting and Removing Keyframes

### Moving Keyframes

You can move, copy, and delete multiple keyframes. When being dragged to move, keyframes keep their relative distance to each other. If you drag a keyframe to another, the animation segment has the same starting and ending keyframes. So, its duration becomes zero and the animation is displayed as a special keyframe  on the timeline.

By default, the **timeline snapping** mode is turned on, allowing keyframes to snap to particular tick marks or other timeline items. See **Snapping in Timeline** for more details.

### Copying Keyframes

To copy keyframes, select them then do either of the following ways:

- Click the Copy command in the dockable toolbar.
- Right-click keyframes > select **Copy**.

- Press **CTRL C**.

## Pasting Keyframes

After copying keyframes, you can paste them by clicking the Paste command in the dockable toolbar, right-click the new position > **Paste**, or press **CTRL V**.

Remember to paste keyframes onto the timeline of the same or of other elements as long as the target elements share the same properties with the source ones. For example, you can copy and paste the Background Color keyframe between elements filled with solid color, not between an element filled with solid color and another element filled with gradient.

## Removing Keyframes

To remove keyframes, click to select them so that they become highlighted, then click the Delete command in the dockable toolbar or right-click them > **Delete**, or press **DELETE**. If you delete adjacent keyframes, the animation segments between those keyframes will also be removed.

## Auto-Keyframe Mode

Auto-Keyframe mode allows automatically recording keyframes when building animations. Simply enable the Auto-Keyframe mode, move the Playhead, and make an edit. Saola Animate itself will insert keyframes for any changed properties.

In the **Timeline** pane, click the **Auto-Keyframe Mode** button (1) or press the **K** key to turn the mode on and record any changes as keyframes.



When you edit an element property, the animation of the element for that property will be changed or remain the same depending on the following cases:

Case	Auto-Keyframe Mode On	Auto-Keyframe Mode Off
There's no keyframe of that property.	Two keyframes of that property will be created to make an animation. One keyframe is at the current time. The other is at 0, or at the ending time of the existing animation of the element if that ending time is smaller than the current time.	The element animation remains unchanged (just the element property changed).

<p>There's one or more keyframes of that property, but none of them is at the current time in Timeline.</p>	<p>A new keyframe of that property will be created at the current time.</p>	<p>All the keyframes of that property will be changed according to the changes of that property.</p>
<p>There's a keyframe of that property at the current time in Timeline.</p>	<p>The keyframe of that property at the current time will be updated to the current value of that property.</p>	

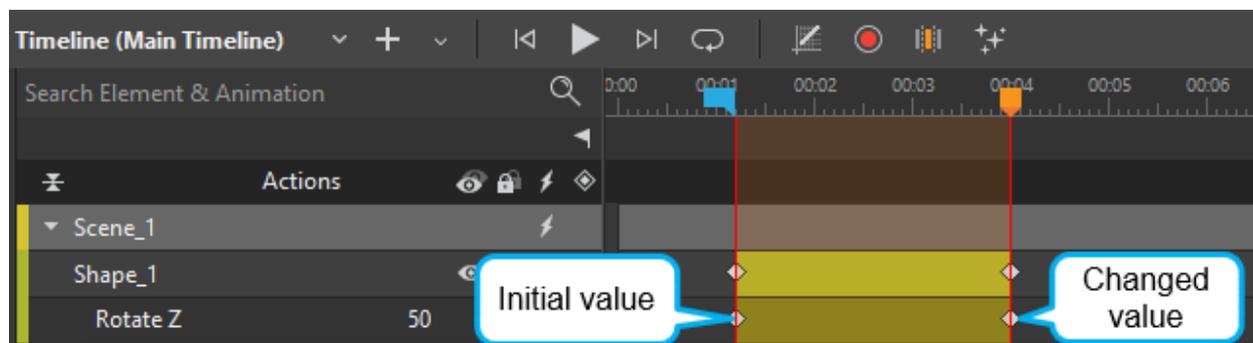
## Auto-Keyframe Range

Auto-Keyframe range tool allows automatically creating keyframes within a range for elements.

Notice the following steps to work with this tool:

1. In the **Timeline** pane, click the **Auto-Keyframe Range** button (2) or press the **R** key to turn the mode on.
2. Drag the blue marker to the left or right of the Playhead to define the range.
3. Make changes for any properties.

Then, one keyframe representing the changed value is inserted at the current time (Playhead position), another keyframe representing the initial value will be at the blue marker.



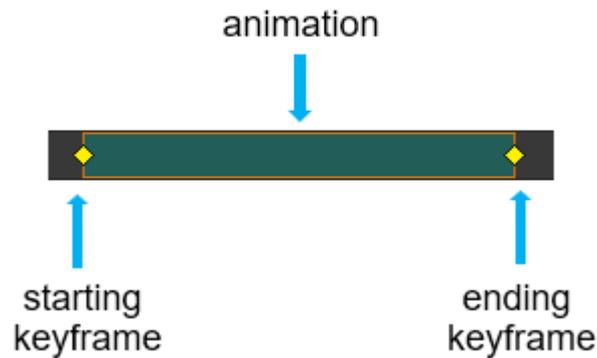
You are free to swap the starting and ending keyframe of the animation segment by right-clicking it > **Invert Animation Segment**.

If you want to use the Auto-Keyframe mode without selecting the range, you can click the **Auto-Keyframe Range** button (2) or press the **R** key again to turn it off.

## Animations

Animations are composed of two keyframes which define the starting and ending values of a property animation. An **animation segment** is a change between two keyframes - in other words, a segment defines the way certain property changes. Meanwhile, a **transition** allows an element to gradually change from one state to another over the course of time. Hence, if there is no transition in an animation segment, there will be an instant change in the property value when the

Playhead reaches the ending keyframe of the segment.



## Animation Segments

### Changing Timing and Duration

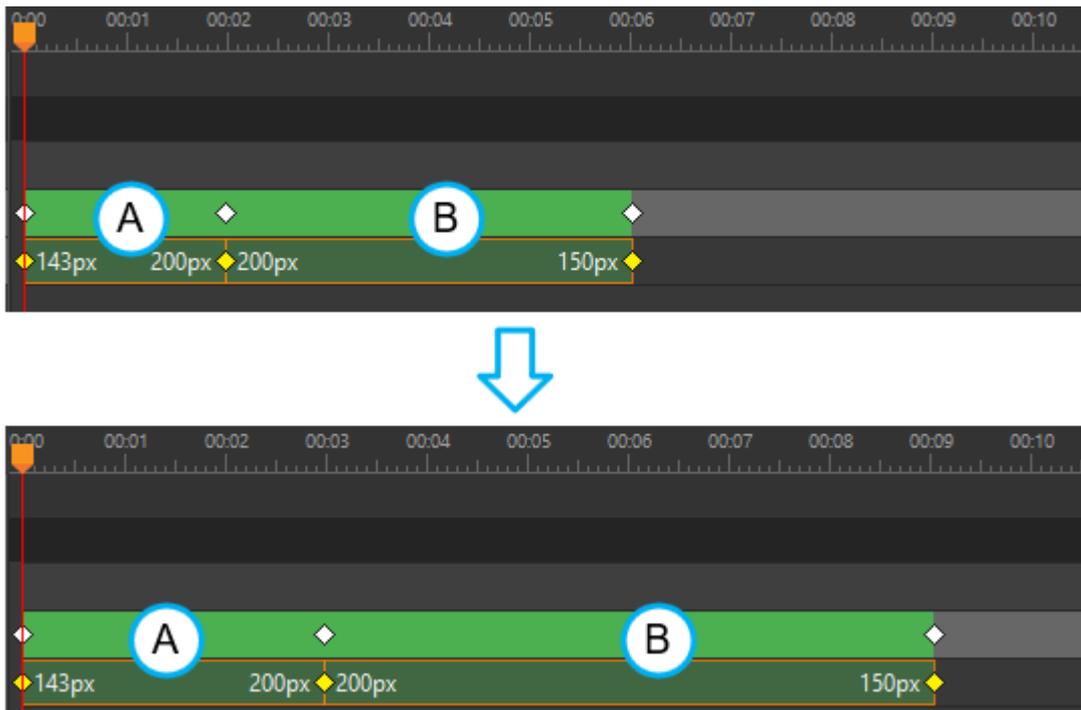
To change the timing of a segment, select the entire segment and drag it left or right. An orange border appears to indicate that that segment is selected.

To change the duration, select either the starting or ending keyframe and drag the keyframe. Longer segments make slower animations. If a segment has the same starting and ending keyframes, the duration is 0 and the animation is displayed as a special keyframe  on the timeline.

### Scaling Animations

In case you want to change the entire start time and duration of many animation segments, you can scale them. To perform this action, press **CTRL** while clicking to select multiple animation segments. Alternatively, you can use rubber-band selection to achieve that. Then, click the starting/ending keyframe then drag it along the Timeline.

For example, the A and B duration takes up 2 and 4 seconds, respectively. So, the length of B is double the length of A. After scaling the animation, both lengths are changed but the B duration still doubles as A's.



## Inverting Segments

With any animation segment selected, right-click and select **Invert Animation Segment** to replace the starting keyframe with the ending keyframe and vice versa. This swaps the starting and ending values of the property animation.

## Copying Segments

You can copy an animation segment and paste it onto the timeline of the same or other elements. That way, you copy both the starting and ending keyframes and the transition between them to the Clipboard.

1. Click a segment on the timeline. If you want to select multiple segments at the same time, hold down **CTRL** and click the segments.
2. Press **CTRL+C** or click **Copy** in the dockable toolbar to copy the segments to the Clipboard. You can also cut the segments from the element by pressing **CTRL+X** or clicking **Cut** in the dockable toolbar.
3. If you want to copy the segments to another element, select that element.
4. Move the Playhead to the position where you want the copied segments to start.
5. Press **CTRL+V** or click **Paste** in the dockable toolbar to paste the segments onto the timeline.

## Removing Segments

Select a segment and right-click > **Delete**, click **Delete** in the dockable toolbar or press **DELETE** to remove both the segment and its keyframes. If you select a keyframe and press **DELETE**, you will delete any segments composed of that keyframe.

## Transitions

Suppose that the left property of an element is animated with the starting keyframe [time: 1s, value: 50px] and the ending keyframe [time: 5s, value: 100px]. The transition between the two keyframes makes the element move smoothly from one position to another over five seconds.

Without the transition, the left value will always be 50px at greater than or equal to 1s until the current time is greater than or equal to 5s. At that point, the left value will immediately change to 100px, meaning that the element instantly jumps to a new position when the current time is equal to 5s. In other words, the left property stays unchanged until the ending keyframe is encountered.

### Creating Transitions

Right-click a segment and select **Create Transition** to make the element gradually change from one state to another over time.

### Removing Transitions

Right-click a segment and select **Remove Transition** to create an instant change in the property value.

### Customizing Easing Functions

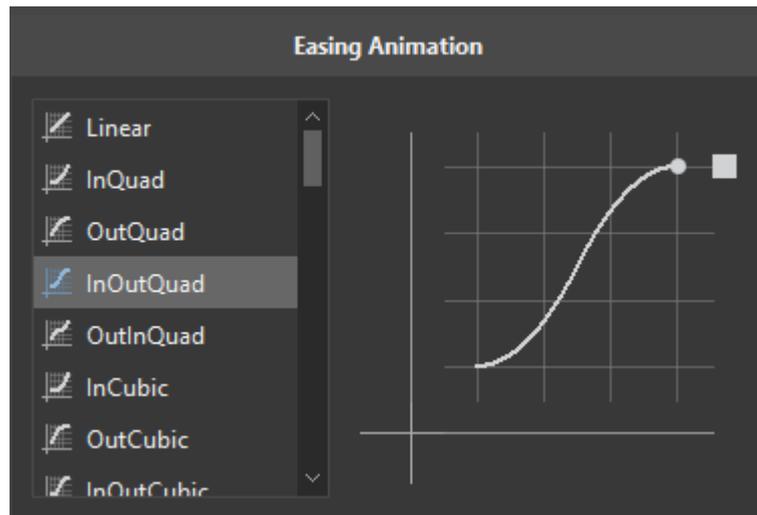
Control the speed of a transition with easing functions. For more details, see **Easing**.

## Easing

The motion in nature is rarely plain and linear from one point to another. In reality, when moving, things almost never move at an unchanging speed. Instead, they tend to accelerate or decelerate. For example, when a bus comes to a stop, it slows down before a full stop. When setting off again, it speeds up to a full speed. So, to mimic realistic dynamic movement, use easing functions to make transitions change speed over time.

By default, Saola Animate uses Linear easing to define a **transition** with the same speed, in other words, no acceleration from start to end. For more dynamic movement, Saola Animate offers up to 40 easing functions. To customize easing, in the **Timeline** pane, do the following:

1. Select one or more animation segments.
2. Click the **Easing**  button or right-click > **Easing...** from the context menu. Both open the **Easing Animation** dialog which lists all easing functions.
3. Select an easing from the dialog.

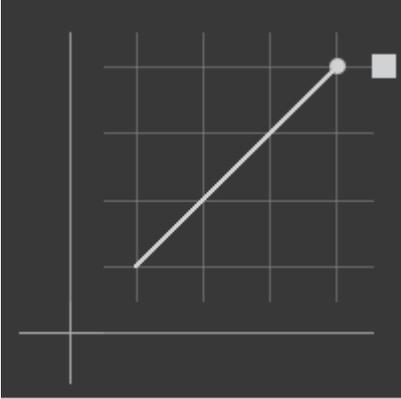
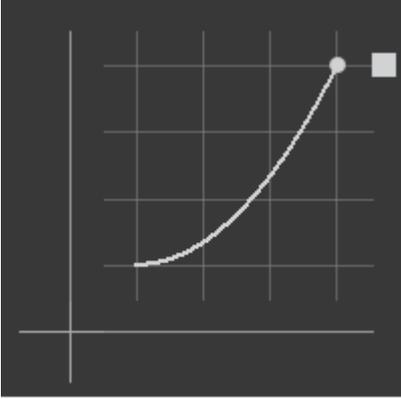
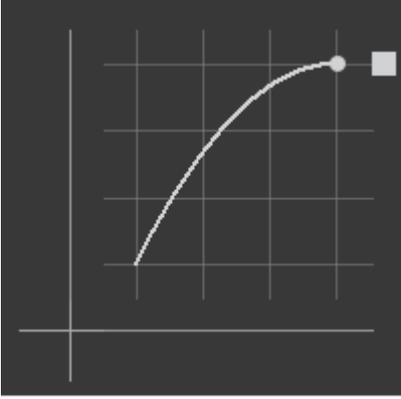


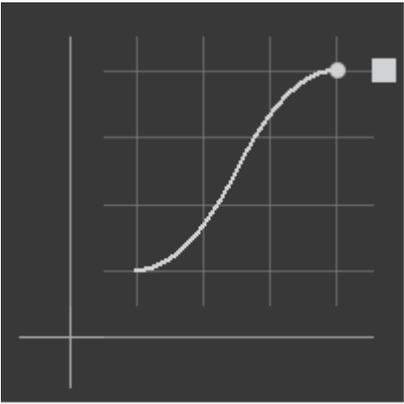
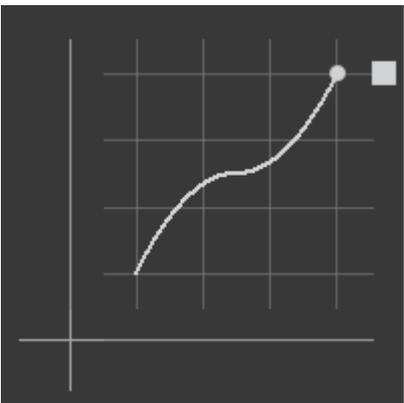
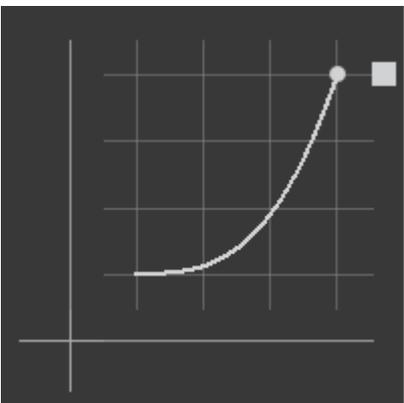
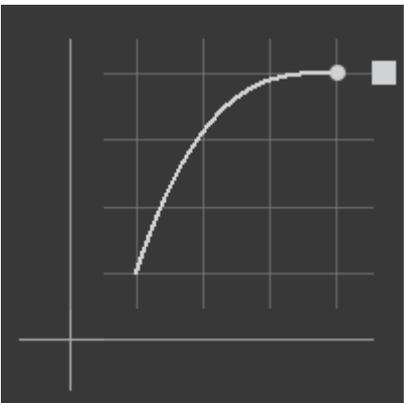
Easing functions in Saola Animate come in ten types:

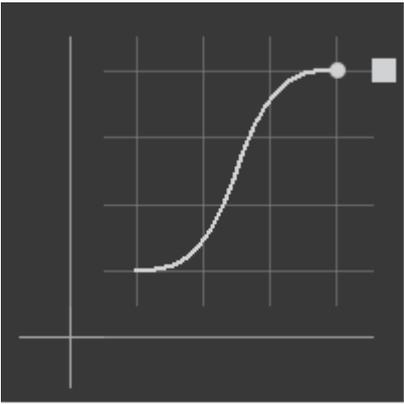
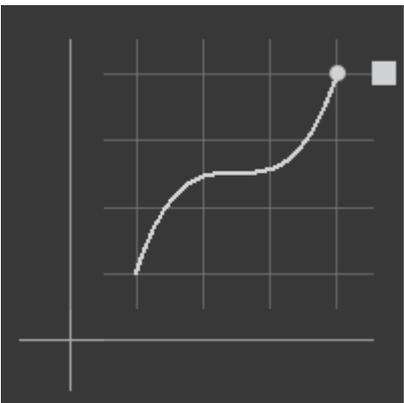
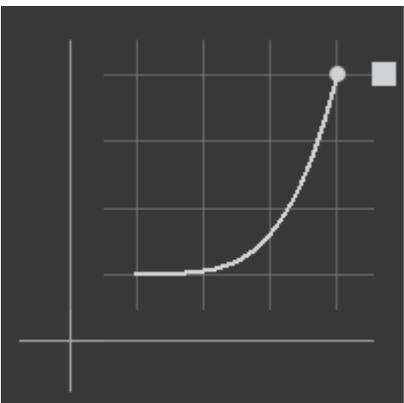
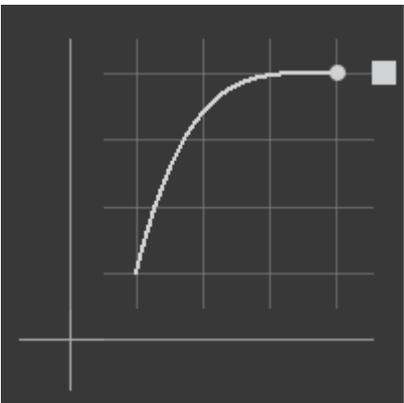
1. **Quad**: Display a quadratic transition.
2. **Cubic**: Display a cubicular transition.
3. **Quart**: Display a quartetic transition.
4. **Quint**: Display a quintic transition.
5. **Sine**: Display a sinusoidal transition.
6. **Expo**: Display an exponential transition.
7. **Circ**: Display a circular transition.
8. **Elastic**: Display an elastic transition that looks like a spring swinging back and forth until coming to rest.
9. **Back**: Display a cubicular transition with backward motion, overshoot, and settle.
10. **Bounce**: Display a parabolic bounce, simulating the motion of an object bouncing.

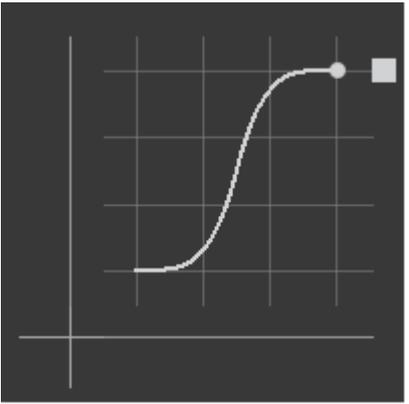
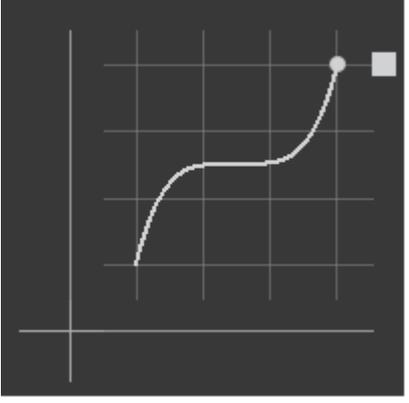
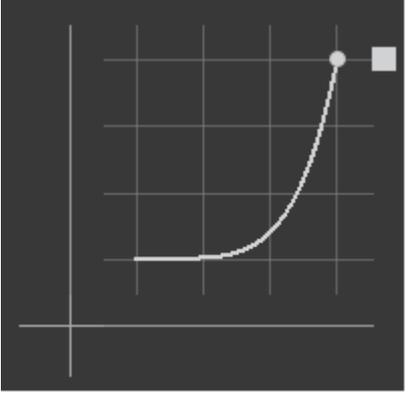
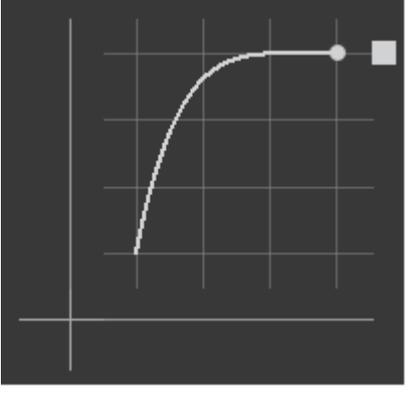
Each type has four values:

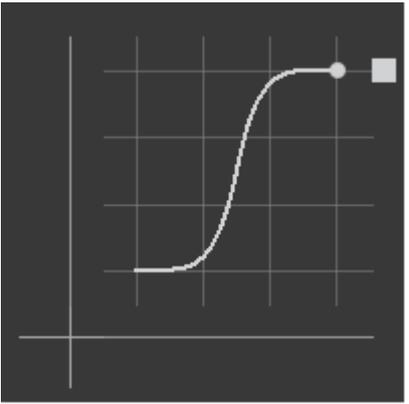
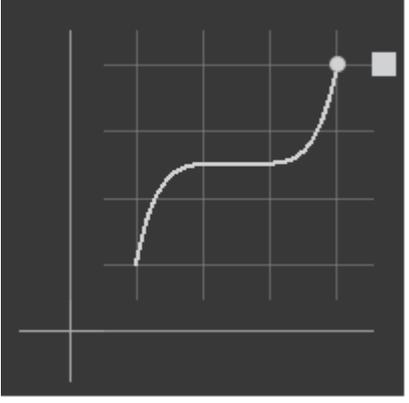
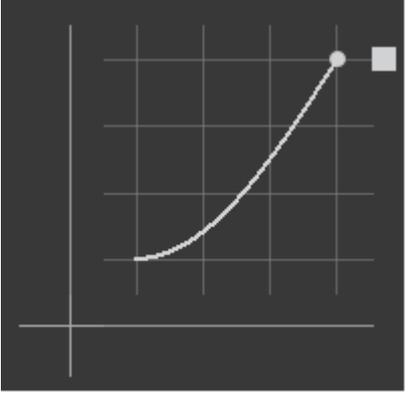
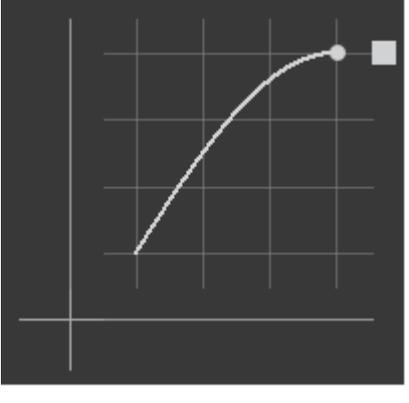
1. **Ease in**: Speed up from zero speed, then finish at full speed.
2. **Ease out**: Start at full speed, then slow down to zero speed.
3. **Ease in-out**: Start slowly, fastest in the middle, then finish slowly. In other words, the transition speeds up until halfway, then slows down.
4. **Ease out-in**: Start and end fast, but slow in the middle. In other words, the transition slows down until halfway, then speeds up.

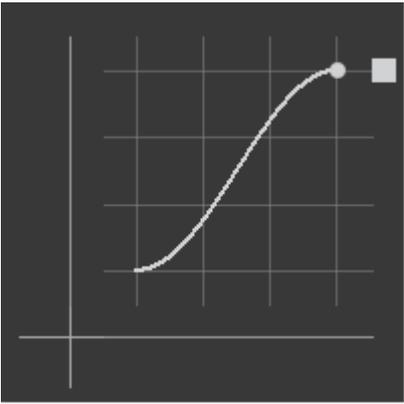
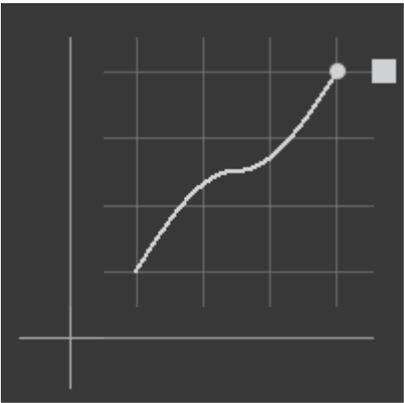
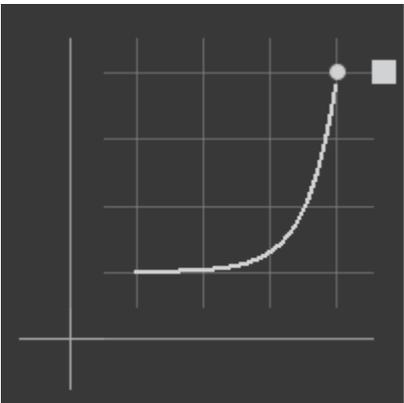
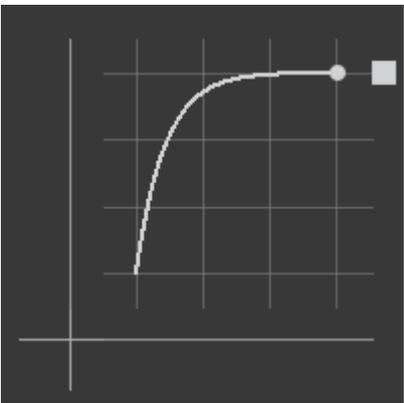
Constant	Illustration	Remark
Linear		Easing curve for a linear( $t$ ) function: velocity is constant.
InQuad		Easing curve for a quadratic ( $t^2$ ) function: accelerating from zero velocity.
OutQuad		Easing curve for a quadratic ( $t^2$ ) function: decelerating to zero velocity.

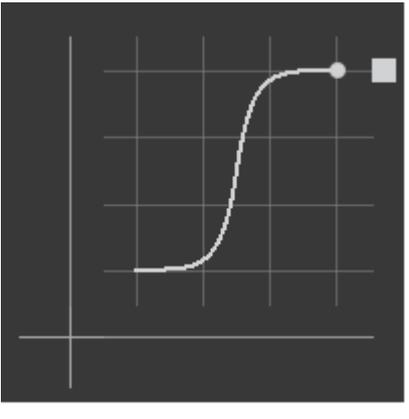
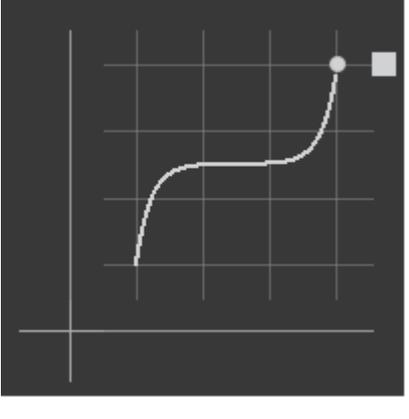
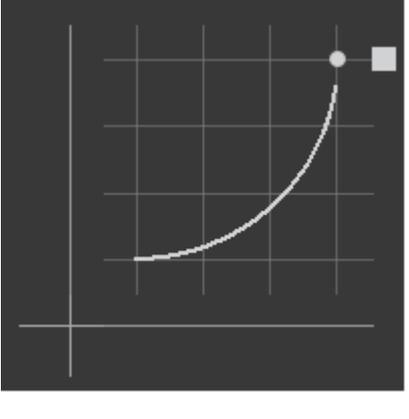
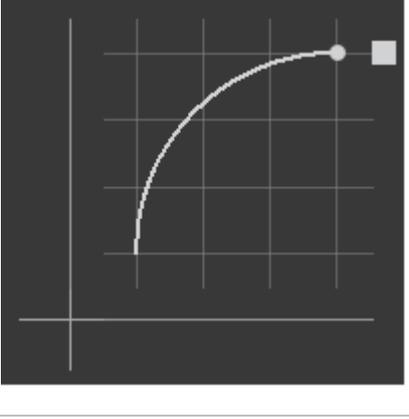
<p>InOutQuad</p>		<p>Easing curve for a quadratic (<math>t^2</math>) function: acceleration until halfway, and then deceleration.</p>
<p>OutInQuad</p>		<p>Easing curve for a quadratic (<math>t^2</math>) function: deceleration until halfway, and then acceleration.</p>
<p>InCubic</p>		<p>Easing curve for a cubic (<math>t^3</math>) function: accelerating from zero velocity.</p>
<p>OutCubic</p>		<p>Easing curve for a cubic (<math>t^3</math>) function: decelerating to zero velocity.</p>

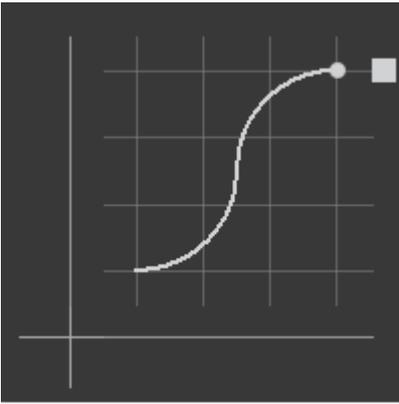
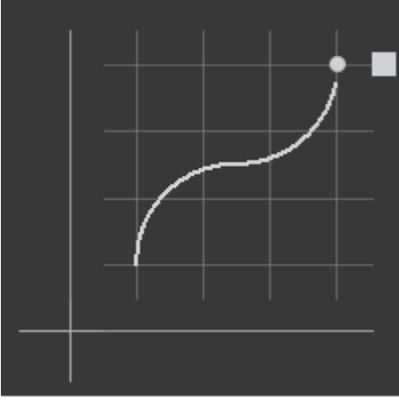
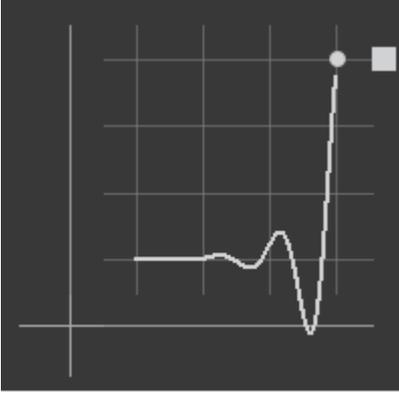
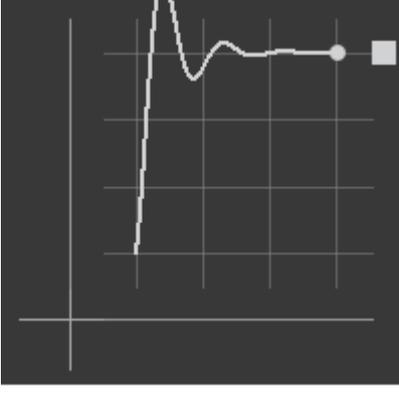
<p>InOutCubic</p>		<p>Easing curve for a cubic (<math>t^3</math>) function: acceleration until halfway, and then deceleration.</p>
<p>OutInCubic</p>		<p>Easing curve for a cubic (<math>t^3</math>) function: deceleration until halfway, then acceleration.</p>
<p>InQuart</p>		<p>Easing curve for a quartic (<math>t^4</math>) function: accelerating from zero velocity.</p>
<p>OutQuart</p>		<p>Easing curve for a quartic (<math>t^4</math>) function: decelerating to zero velocity.</p>

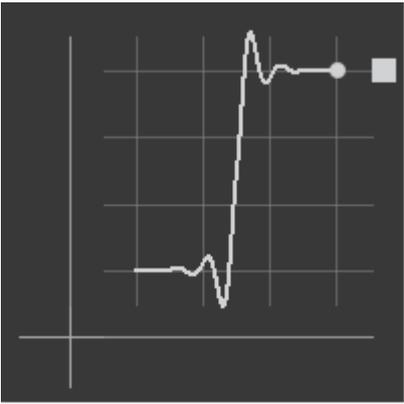
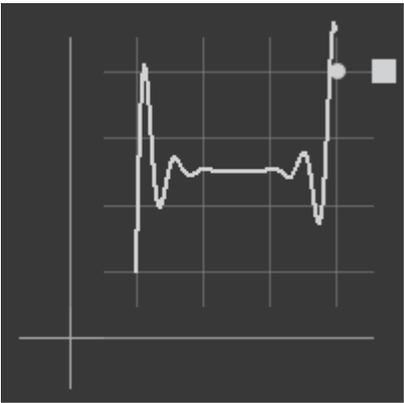
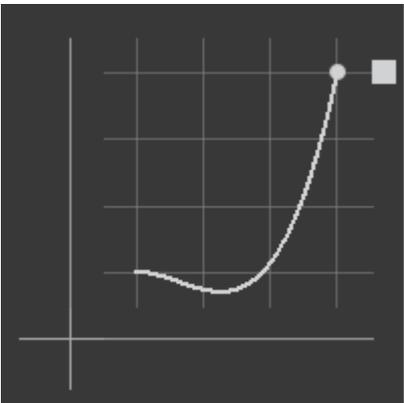
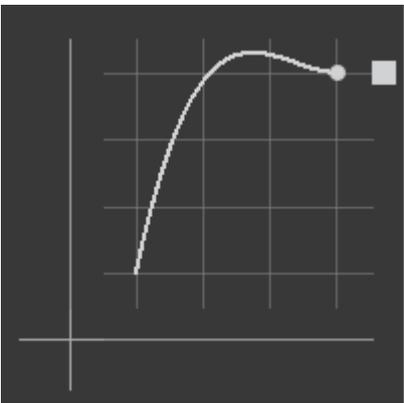
<p>InOutQuart</p>		<p>Easing curve for a quartic (<math>t^4</math>) function: acceleration until halfway, and then deceleration.</p>
<p>OutInQuart</p>		<p>Easing curve for a quartic (<math>t^4</math>) function: deceleration until halfway, and then acceleration.</p>
<p>InQuint</p>		<p>Easing curve for a quintic (<math>t^5</math>) easing in: accelerating from zero velocity.</p>
<p>OutQuint</p>		<p>Easing curve for a quintic (<math>t^5</math>) function: decelerating to zero velocity.</p>

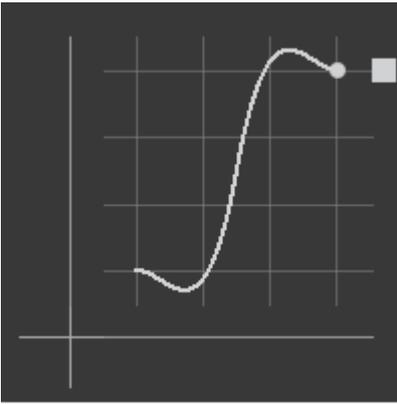
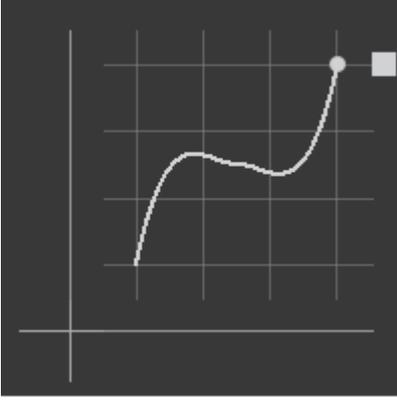
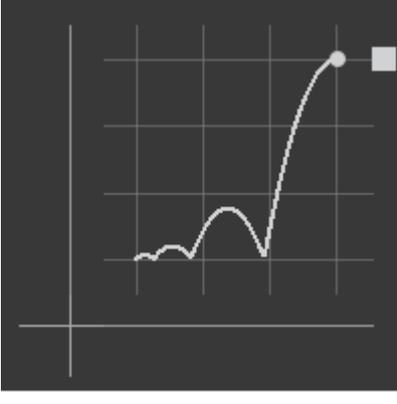
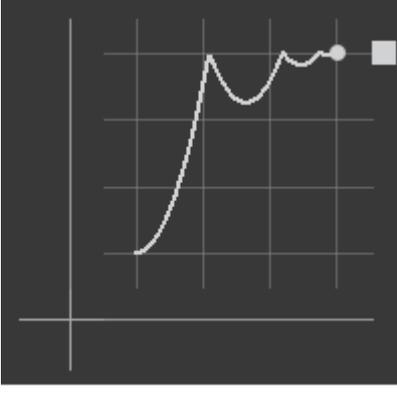
<p>InOutQuint</p>		<p>Easing curve for a quintic (<math>t^5</math>) function: acceleration until halfway, and then deceleration.</p>
<p>OutInQuint</p>		<p>Easing curve for a quintic (<math>t^5</math>) function: deceleration until halfway, and then acceleration</p>
<p>InSine</p>		<p>Easing curve for a sinusoidal (<math>\sin(t)</math>) function: accelerating from zero velocity.</p>
<p>OutSine</p>		<p>Easing curve for a sinusoidal (<math>\sin(t)</math>) function: decelerating from zero velocity.</p>

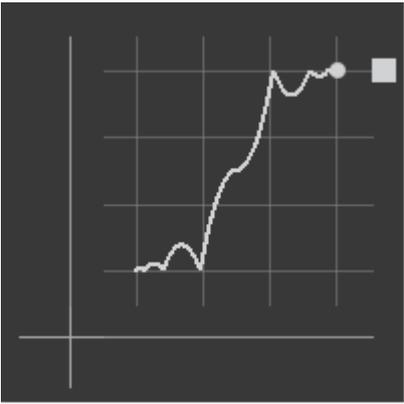
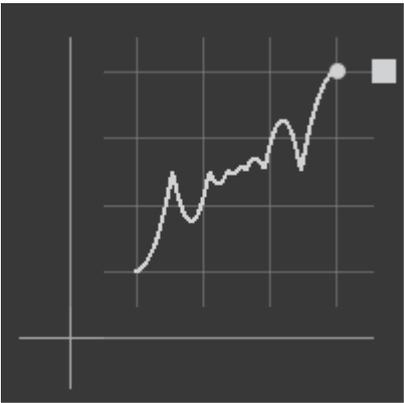
<p>InOutSine</p>		<p>Easing curve for a sinusoidal (sin(t)) function: acceleration until halfway, and then deceleration.</p>
<p>OutInSine</p>		<p>Easing curve for a sinusoidal (sin(t)) function: deceleration until halfway, and then acceleration.</p>
<p>InExpo</p>		<p>Easing curve for an exponential (2^t) function: accelerating from zero velocity.</p>
<p>OutExpo</p>		<p>Easing curve for an exponential (2^t) function: decelerating from zero velocity.</p>

<p>InOutExpo</p>	 <p>The graph shows a white S-shaped curve on a dark background with a grid. The curve starts at a low value on the left, rises steeply in the middle, and levels off towards the right. A white dot is at the end of the curve, and a grey square is to its right.</p>	<p>Easing curve for an exponential (<math>2^t</math>) function: acceleration until halfway, and then deceleration.</p>
<p>OutInExpo</p>	 <p>The graph shows a white curve on a dark background with a grid. The curve starts at a low value on the left, levels off in the middle, and then rises steeply towards the right. A white dot is at the end of the curve, and a grey square is to its right.</p>	<p>Easing curve for an exponential (<math>2^t</math>) function: deceleration until halfway, and then acceleration.</p>
<p>InCirc</p>	 <p>The graph shows a white curve on a dark background with a grid. The curve starts at a low value on the left and curves upwards, becoming steeper as it approaches the right. A white dot is at the end of the curve, and a grey square is to its right.</p>	<p>Easing curve for a circular (<math>\sqrt{1-t^2}</math>) function: accelerating from zero velocity.</p>
<p>OutCirc</p>	 <p>The graph shows a white curve on a dark background with a grid. The curve starts at a low value on the left and curves upwards, becoming flatter as it approaches the right. A white dot is at the end of the curve, and a grey square is to its right.</p>	<p>Easing curve for a circular (<math>\sqrt{1-t^2}</math>) function: decelerating from zero velocity.</p>

<p>InOutCirc</p>	 <p>The graph shows a smooth, S-shaped curve on a grid. The curve starts at the origin (0,0), rises with increasing slope until it reaches the halfway point, and then its slope decreases as it approaches the final value at (1,1). A white dot marks the end point at (1,1), and a grey square is positioned to its right.</p>	<p>Easing curve for a circular (<math>\sqrt{1-t^2}</math>) function: acceleration until halfway, and then deceleration.</p>
<p>OutInCirc</p>	 <p>The graph shows a smooth, S-shaped curve on a grid. The curve starts at the origin (0,0) with a steep slope, then its slope decreases until it reaches the halfway point, and finally its slope increases as it approaches the final value at (1,1). A white dot marks the end point at (1,1), and a grey square is positioned to its right.</p>	<p>Easing curve for a circular (<math>\sqrt{1-t^2}</math>) function: deceleration until halfway, and then acceleration.</p>
<p>InElastic</p>	 <p>The graph shows an elastic easing curve on a grid. The curve starts at the origin (0,0) and exhibits an exponentially decaying sine wave pattern as it moves towards the final value at (1,1). It starts with a small negative peak, followed by a larger positive peak, and then smaller oscillations that dampen out as it reaches the end point. A white dot marks the end point at (1,1), and a grey square is positioned to its right.</p>	<p>Easing curve for an elastic (exponentially decaying sine wave) function: accelerating from zero velocity. The peak amplitude can be set with the amplitude parameter, and the period of decay by the period parameter.</p>
<p>OutElastic</p>	 <p>The graph shows an elastic easing curve on a grid. The curve starts at the origin (0,0) and exhibits an exponentially decaying sine wave pattern as it moves towards the final value at (1,1). It starts with a large positive peak, followed by a smaller negative peak, and then smaller oscillations that dampen out as it reaches the end point. A white dot marks the end point at (1,1), and a grey square is positioned to its right.</p>	<p>Easing curve for an elastic (exponentially decaying sine wave) function: decelerating from zero velocity. The peak amplitude can be set with the amplitude parameter, and the period of decay by the period parameter.</p>

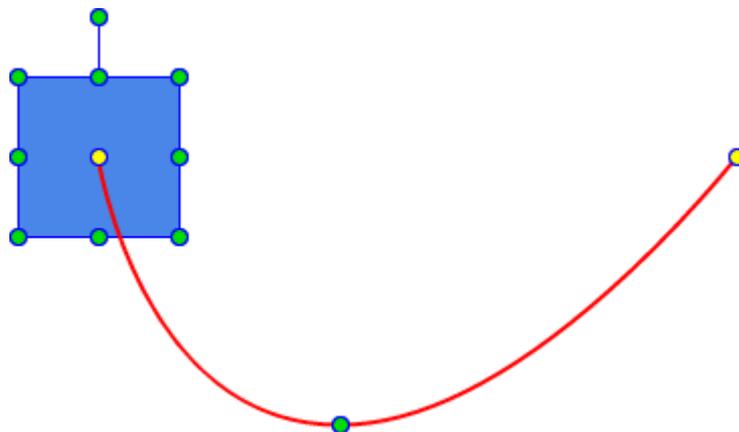
<p>InOutElastic</p>		<p>Easing curve for an elastic (exponentially decaying sine wave) function: acceleration until halfway, and then deceleration.</p>
<p>OutInElastic</p>		<p>Easing curve for an elastic (exponentially decaying sine wave) function: deceleration until halfway, and then acceleration.</p>
<p>InBack</p>		<p>Easing curve for a back (overshooting cubic function: <math>(s+1) * t^3 - s * t^2</math>) easing in: accelerating from zero velocity.</p>
<p>OutBack</p>		<p>Easing curve for a back (overshooting cubic function: <math>(s+1) * t^3 - s * t^2</math>) easing out: decelerating to zero velocity.</p>

<p>InOutBack</p>	 <p>The graph shows a white curve on a black grid. The curve starts at a low point, dips slightly below the horizontal axis, then rises steeply to overshoot the target point (marked with a grey square) before settling at it.</p>	<p>Easing curve for a back (overshooting cubic function: <math>(s+1) * t^3 - s * t^2</math>) easing in/out: acceleration until halfway, and then deceleration.</p>
<p>OutInBack</p>	 <p>The graph shows a white curve on a black grid. The curve starts at a low point, rises to a peak, dips slightly below the horizontal axis, and then rises steeply to overshoot the target point (marked with a grey square) before settling at it.</p>	<p>Easing curve for a back (overshooting cubic easing: <math>(s+1) * t^3 - s * t^2</math>) easing out/in: deceleration until halfway, and then acceleration.</p>
<p>InBounce</p>	 <p>The graph shows a white curve on a black grid. The curve starts at a low point, bounces up and down several times with decreasing amplitude, and then rises steeply to overshoot the target point (marked with a grey square) before settling at it.</p>	<p>Easing curve for a bounce (exponentially decaying parabolic bounce) function: accelerating from zero velocity.</p>
<p>OutBounce</p>	 <p>The graph shows a white curve on a black grid. The curve starts at a low point, rises steeply to overshoot the target point (marked with a grey square), bounces up and down several times with decreasing amplitude, and then settles at the target point.</p>	<p>Easing curve for a bounce (exponentially decaying parabolic bounce) function: decelerating from zero velocity.</p>

<p>InOutBounce</p>		<p>Easing curve for a bounce (exponentially decaying parabolic bounce) function: decelerating from zero velocity.</p>
<p>OutInBounce</p>		<p>Easing curve for a bounce (exponentially decaying parabolic bounce) function easing out/in: deceleration until halfway, and then acceleration.</p>

## Motion Paths

A motion path is a curved animation between two or more points. Motion paths allow animating objects along complex curves to mimic real-life motion that cannot be achieved with linear motion.

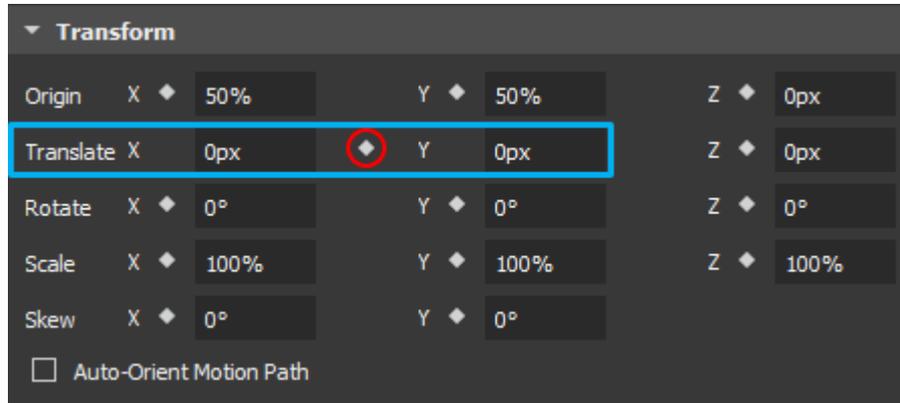


## Creating Motion Paths

Motion path can be created manually or automatically using several ways.

## Create Basic Motion Paths

To create a motion path, first create a basic path between two location **keyframes**. A location keyframe is a special keyframe of two properties: translate x and translate y.



1. Select an element.
2. In **Timeline**, place the Playhead at the time you want the animation to start.
3. In the **Properties** pane > **Position & Size** tab > **Transform** section, click **Add Location Keyframe** icon to insert the first location keyframe.
4. In **Timeline**, drag the Playhead to the time you want the animation to end.
5. Add the ending location keyframe.
6. On the Canvas, drag the element to a new position. This creates a red line indicating the path of the motion. The location property value changes, thus animating the element along a motion path.

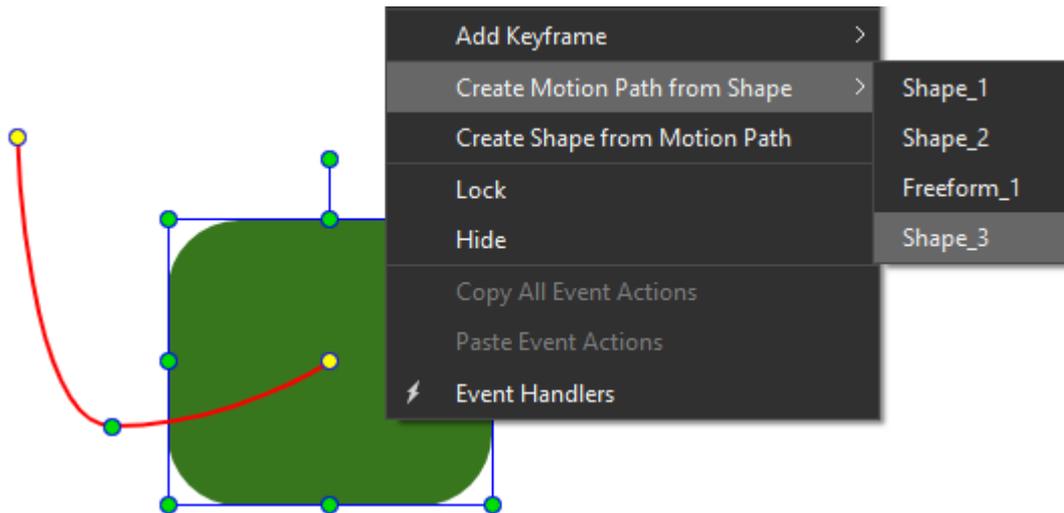
Repeat step 4, 5, and 6 many times to create a motion path between many points.

With these above steps, you've done creating a straight motion path between points. After that, you can edit the motion path by adding and modifying its anchor points.

**Note:** Apart from creating motion paths manually, you can also use Auto-Keyframe Mode or Auto-Keyframe Range to get the same results.

## Create Motion Path from Shape

Saola Animate allows you to create a motion path from any available shape and freeform. To do that, right-click a shape on the Canvas > select **Create Motion Path from Shape**. Then select one element from the list.

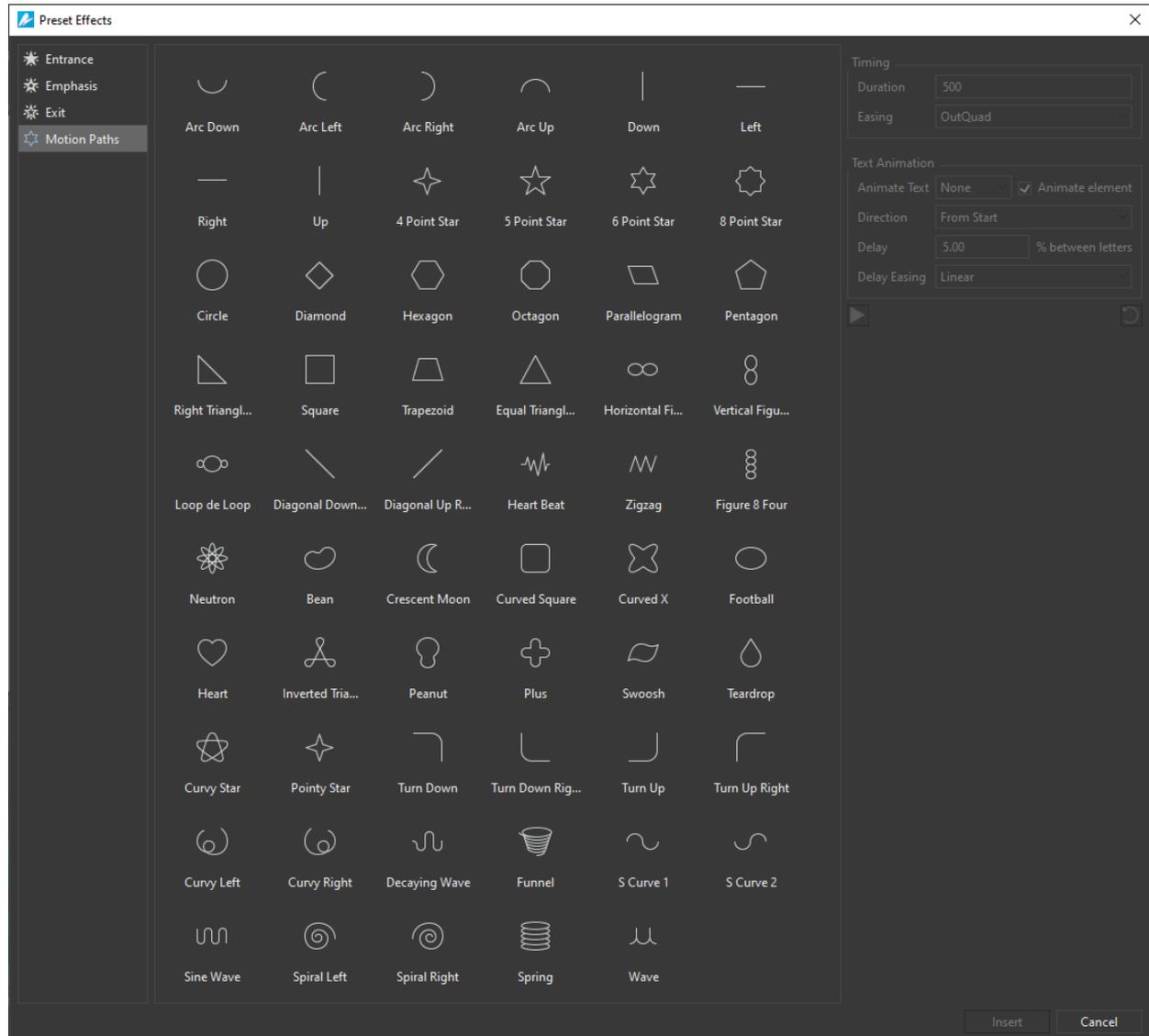


**Note:** It is possible to create shape from a motion path. Just right-click a motion path > **Create Shape from Motion Path**. Then a freeform will be created similar to the motion path of the original shape.

### Create Motion Path using Preset Motion Path Effects

Saola Animate offers 59 preset motion path effects which allows applying directly to any elements. To apply preset motion path effects, follow the steps below:

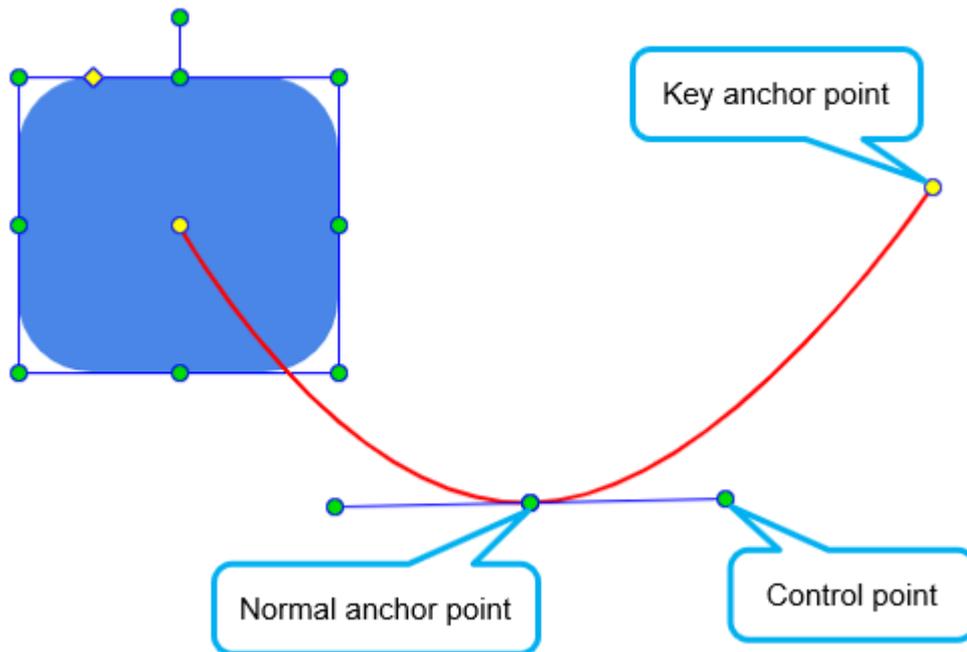
1. Select an element.
2. Do any of the following:
  - Click the **Timeline** menu > **Effects** > **Motion Paths** category.
  - Click the **Effects** button  in the **Timeline** pane > **Motion Paths** category.
3. Double-click an available effect in the dialog, or select an effect then click **Insert** to apply it to an element.



## Editing Motion Paths

Edit a straight path to make an element travel in a curve. Editing a motion path is actually working with its anchor points. Anchor points are circle points on a motion path that define the path. There are two types of anchor points:

- **Key anchor points:** Yellow points that have associated Location keyframes on the timeline.
- **Normal anchor points:** Green points with no associated keyframes on the timeline. They define the path an element moves between two key anchor points.



Each anchor point except the first/last key anchor one has two blue handles with a control point at their ends. The first and last key anchor points have a control point at the same position with the anchor by default so it doesn't appear. In case you want to adjust the curve at the first/last key anchor point, you can hold down **ALT** key, click and drag it, the control point will be dragged.

## Creating Anchor Points

- **Key anchor points:** Add a Location keyframe to a motion path segment at a desired point of time. Location keyframes split a path into two. You can also delete a Location keyframe between two paths to create a contiguous path.
- **Normal anchor points:** Hover over a motion path until the mouse pointer turns into a pointing hand. Then, click and drag the path as desired.

**Note:** When the Playhead is on a Location keyframe, the element is on a corresponding key anchor point. Drag the element to change the shape of the path. If the Playhead isn't on a Location keyframe, dragging the element is equal to dragging the entire path. The shape of the path remains the same.

## Adjusting Control Points

With any anchor point selected, its control points appear to help adjust the path between two anchor points. Drag the control points to modify the path.

When dragging a single control point, the remaining control point will move to keep the angle between them unchanged. If you want to change the selected point only, hold down **ALT** and drag the point.

**Note:** If a control point and an anchor point have the same position, when you click the point, the anchor point will be selected. If you want to select the control point, hold down **ALT** and click the

mouse button.

## Removing Anchor Points

To remove an anchor point, click it while holding down **SHIFT**. If you are removing a key anchor point, one of the following cases happens:

The key anchor point is the first/last point of the path AND there is no anchor point between this point and the next/previous key anchor point: The associated Location keyframe will be deleted.

The key anchor point is the first/last point of the path AND there is an anchor point between this point and the next/previous key anchor point: The next/previous anchor point will become the first/last key anchor point of the motion path.

The key anchor point is not the first/last point of the path: The associated Location keyframe will be deleted.

**Note:** If you click an anchor point and press **DELETE** without holding down **SHIFT**, you will delete the element together with the entire motion path.

## Rotating Motion Paths

Hold down **ALT**, then click and drag the path. The path will be rotated around the element's transformation-origin point.

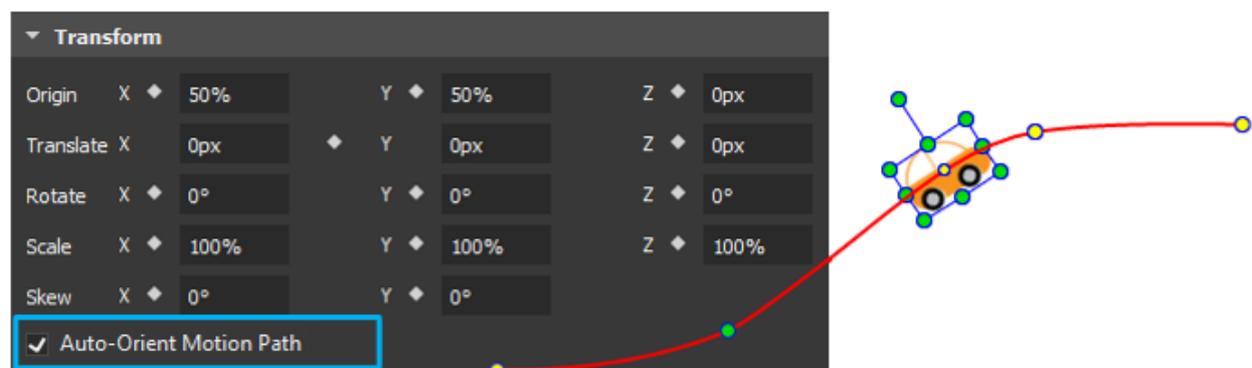
## Moving Motion Paths

You can move the path without changing the relative movement of an element. Hold down **CTRL**, then click and drag the path to move the path.

## Orienting Elements to Paths

Imagine you want to animate a car to drive up a slope. As the slope is not a straight line, you need to use a motion path to move the car. However, even with a motion path, the car's movement is still unnatural because the nose of the car doesn't orient along the direction which it is heading.

To solve this problem, use the **auto-orient** property to orient elements in relation to the direction of the motion path. The Auto-Orient Motion Path check box is enabled only if the element already has a motion path.



**Note:** If the right edge is not the “front” of an image, you may need to rotate the element so that the correct edge is on the right side. For example, if the car is moving to the left direction with auto-orient on, it will flip vertically. You need to rotate the image by 180 degrees to avoid flipping.

## Morph Animations

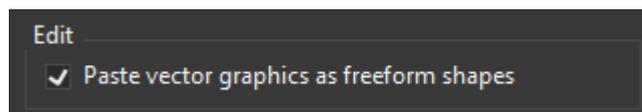
Morph animation allows animating from one shape's form to another through a seamless transition. It is applicable to freeforms. In additions, it is possible to copy SVG paths from other vector graphic editors and paste them into the app as freeforms for further editing.

### Creating Morph Animations

To create a morph animation, firstly, you have to insert a shape or freeform (including SVG paths converted to freeform) into the Canvas. Perform one of the following:

- Click the **Insert Shape** button  > select built-in shapes from the list to insert one or more shapes into a scene.
- Click the **Insert Freeform** button  > select a tool to draw, except from the **Line**, **Arrow**, **Double Arrow** tools. Line and arrows don't have morph animation.
- Drag/ copy (**CTRL+C**) SVG paths from your computer or other applications (such as Adobe Illustrator) and drop/ paste them directly into the Canvas.

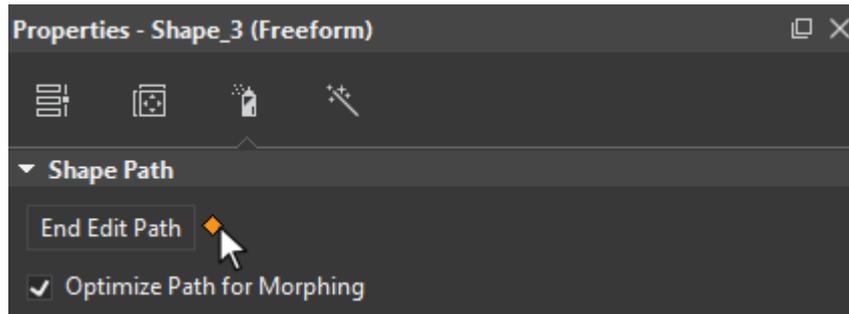
**Note:** By default, the **Paste vector graphics as freeform shapes** check box is selected to help you insert SVG paths as freeforms. You can see this checkbox by clicking the **Edit** menu > **Preferences** > **General** tab > **Edit** section:



If this checkbox is deselected, SVG paths are inserted normal images, therefore, cannot be used to create morph animation.

Next, you can consider doing one of these two ways below to create morph animation:

- **The first way:**
  1. Place the Playhead at desired timestamp.
  2. Turn on the **Auto Keyframe Mode** or **Auto Keyframe Range** button. Alternatively, press **K** or **R** on the keyboard.
  3. Right-click the element on the Canvas > **Edit Path**. Then, make an adjustment to any anchor point and control point of that element.
  4. Right-click the element on the Canvas > **End Edit Path** to finish editing.
- **The second way:**
  1. Click the **Edit Path** button in the **Properties** pane to enable its editing mode (**Properties** pane > **Styles** tab > **Shape Path** section > **Edit Path**).
  2. Click the **Add Shape Path Keyframe** diamond to add the starting keyframe.



3. Drag the Playhead to the timestamp you want the animation to end. Click the **Add Shape Path Keyframe** diamond to add the ending keyframe.

Then, customize the freeform the way you want.

4. Click **End Edit Path** to finish adjustment. (**Properties** pane > **Styles** tab > **Shape Path** section > **End Edit Path**).

See **Editing Freeforms** for more information.

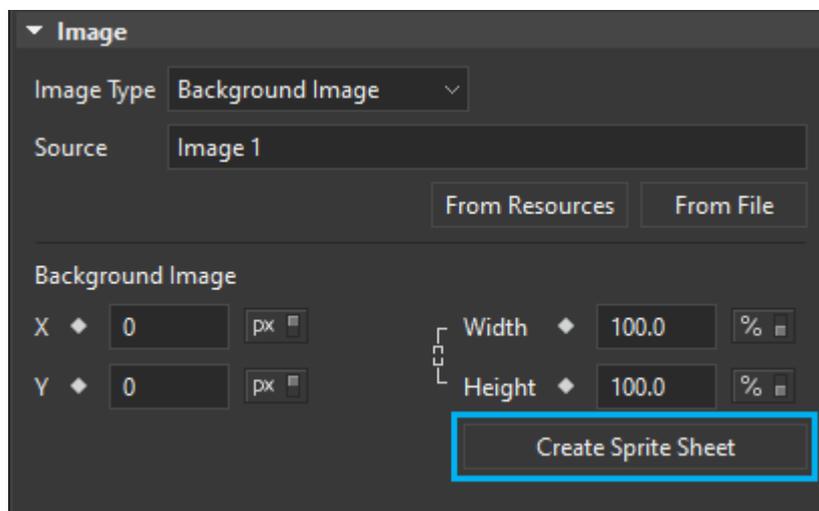
**Note:** The **Optimize Path for Morphing** option is available for Shape Path animation.

- If this check box is selected, it adjusts the paths automatically to animate from one freeform to another.
- If this check box is deselected, the anchor points of the original freeform will be mapped directly to that of the last edited freeform. This is useful when adjusting points manually. Notice that the original/last edited freeform should have the same number of anchor points, and the start point remains at the same position and direction.

## Sprite Sheet Animations

A sprite sheet consists of multiple frames (also sprites) in one image. Using sprite sheets, you can create sprite sheet animation representing one or several animation sequences while only loading a single file. Sprite sheet animation changes which frame/sprite is rendered in quick succession to give the illusion of movement.

1. Select an image element.
2. Open the **Properties** pane > **Image** section > **Create Sprite Sheet**.

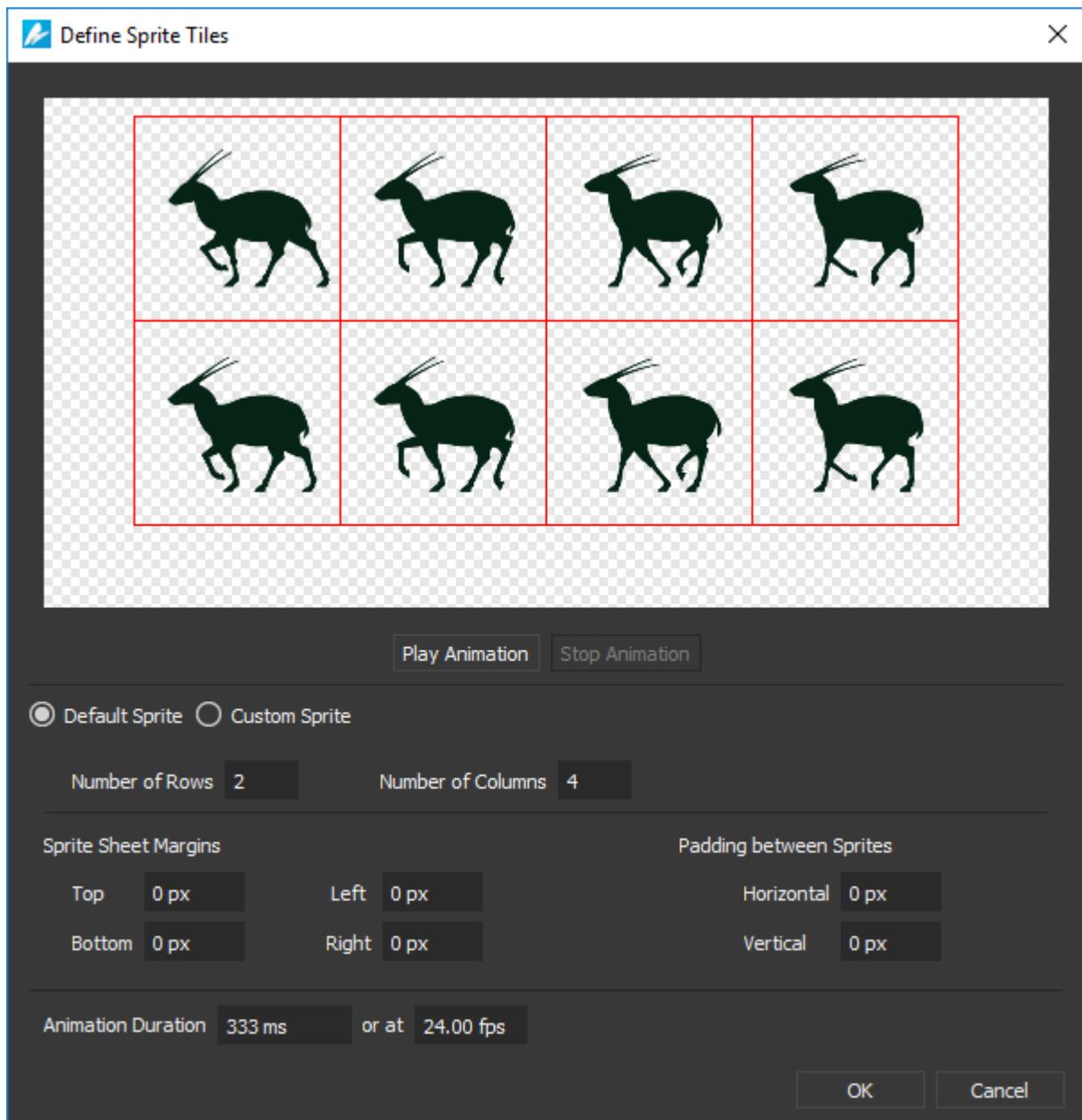


The **Define Sprite Tiles** dialog appears, providing two modes to define frames/sprites:

- **Default Sprite** generates frames automatically, which is suitable when a sprite sheet has uniform sized frames.
- **Custom Sprite** generates frames manually, which is suitable when a sprite sheet has non-uniform sized frames.

## Default Sprite

To use the **Default Sprite** mode, ensure that the frames in the sprite sheet are of equal dimensions and the padding between them is uniform.



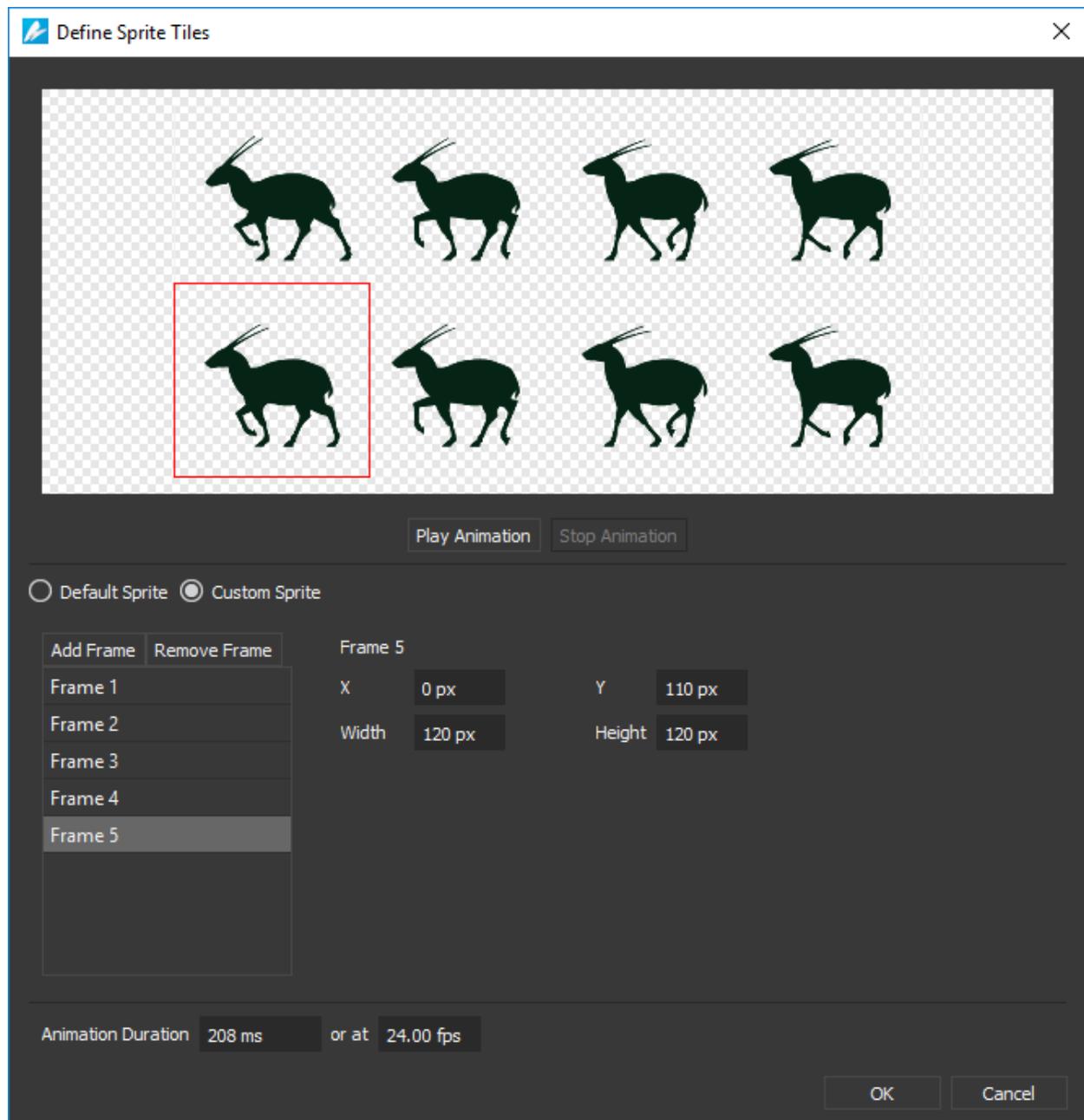
The dialog allows you to define both rows and columns for your sprite sheet animation.

1. Specify the **Number of Rows** and **Number of Columns**. Then, in the preview window,

- each frame is outlined by a red rectangle.
- 2. Specify the trimming options, namely **Sprite Sheet Margins** and **Padding between Sprites**.
- 3. Specify the **Animation Duration** in milliseconds or at FPS.
- 4. Click **Play Animation** to preview animation in the preview window. Then, click **Stop Animation** to pause the preview.
- 5. Click **OK** to create frames.

## Custom Sprite

If the images in the sprite sheet are of different sizes, use the **Custom Sprite** mode to manually define frames.



Click **Add Frame** to add a frame. Immediately, a red frame rectangle appears in the preview window.

1. To define the frame size, either drag and resize the frame rectangle in the preview window or specify the frame's position (**X, Y**) and size (**Width, Height**) in text boxes.
2. Specify the **Animation Duration** in milliseconds or at FPS.
3. Click **Remove Frame** to remove a selected frame.
4. Click **Play Animation** to preview animation in the preview window. Then, click **Stop Animation** to pause the preview.
5. Click **OK** to create frames.

## Preset Effects and Text Animation

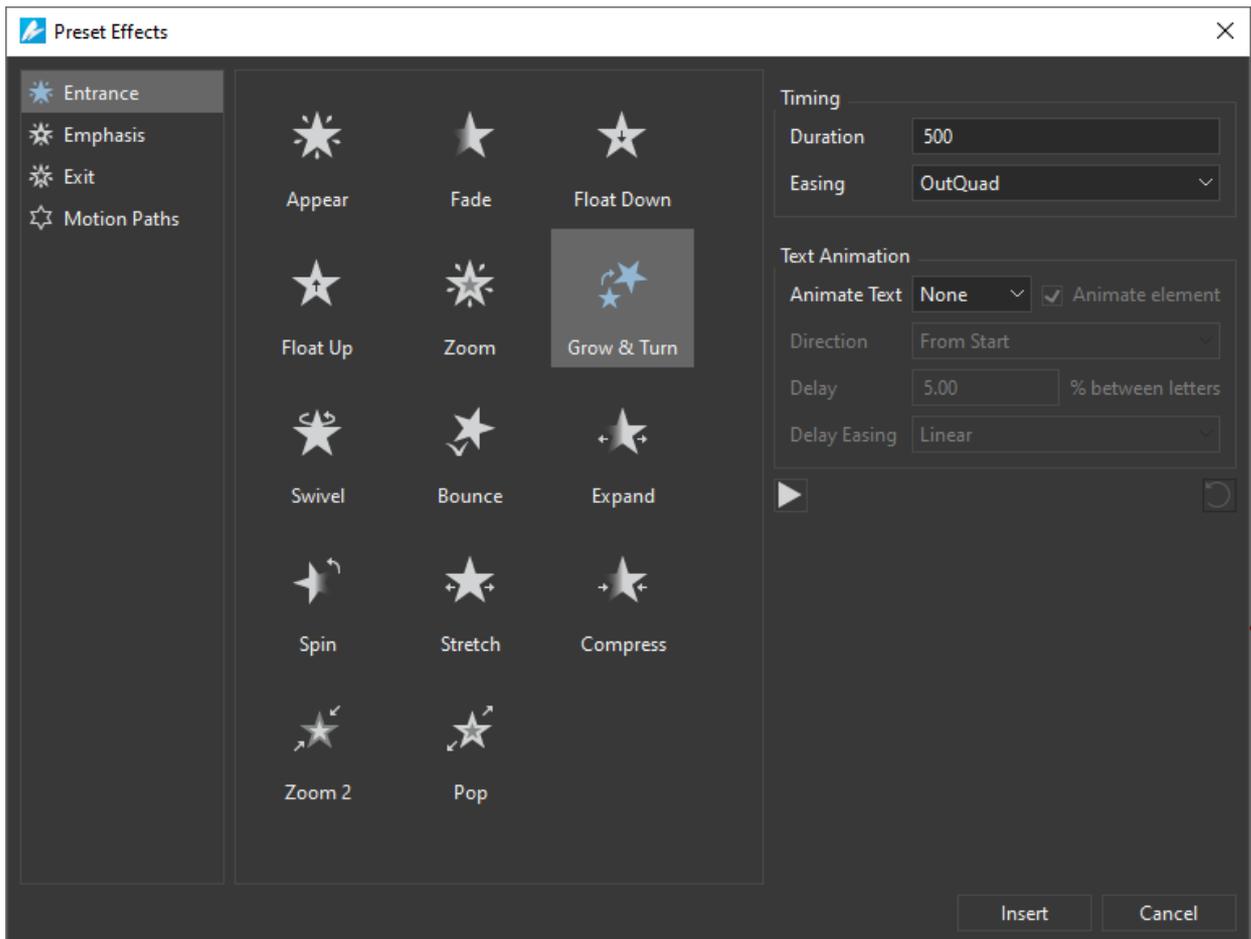
**Preset Effects** allows users to apply one or multiple effects to an element. Besides, you can also convert preset effects to keyframes or save keyframe animations as a custom preset effect to reuse later. With **Text Animation**, these features help create eye-catching content.

### Insert Preset Effects to Elements

To add a preset effect to an element, follow the steps below:

1. Select an element on the Canvas, do either of the following:
  - Click the **Timeline** menu > **Effects**.
  - Click the **Effects** button  in the **Timeline** pane.

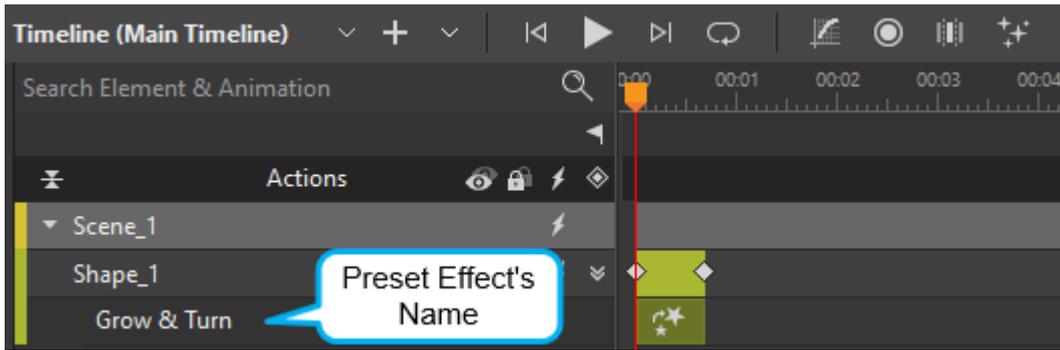
Then, the **Preset Effects** dialog appears:



2. Select one out of four effect types: **Entrance**, **Emphasis**, **Exit**, or **Motion Path**.
3. Adjust **Timing** and **Text Animation** of the element in the right side of the dialog. You can change it now or later. Learn more in the next part.
4. Click the **Preview Effect** button  at the bottom right corner of the dialog to see how the animation works. Otherwise, click **Restore Defaults**  if you are not satisfied with the changes.
5. Double-click an effect, or click **Insert** to apply it to an element.

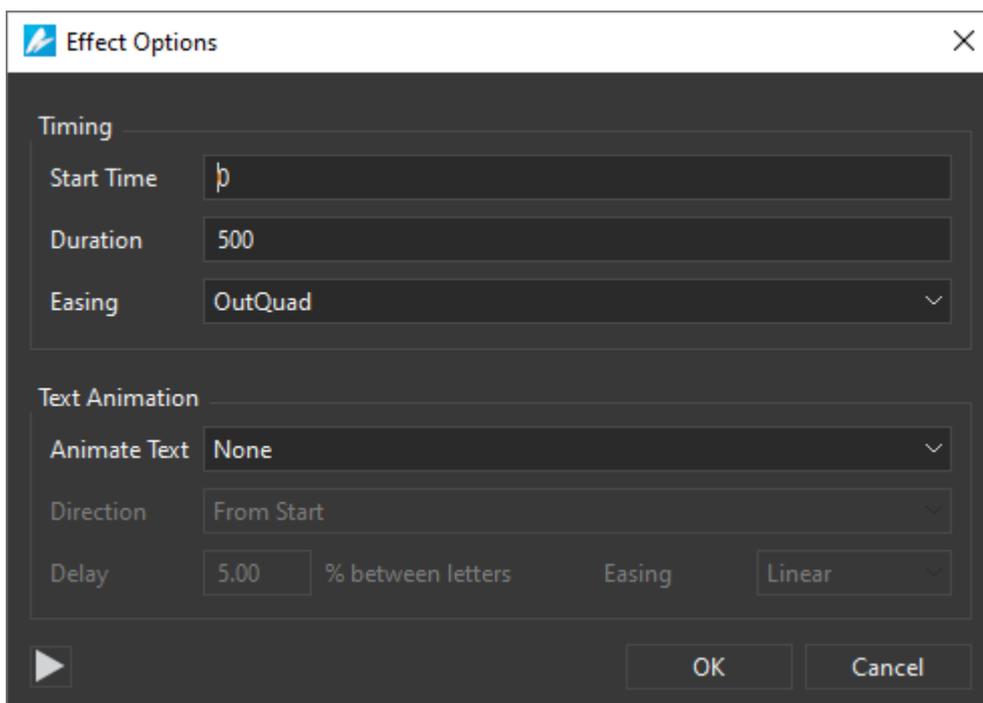
## Customize the Preset Effect Timing

After inserting, a preset effect will be displayed in the **Timeline** pane with its name and the default duration. Its duration is indicated by two keyframes (except from the **Appear** and **Disappear** effects):



You can change its timing by performing any of the following:

- Click to select the preset effect segment and drag it along the Timeline to change its start time. Select the start or ending keyframe then drag it to change the duration.
- Right-click the preset effect segment > **Effect Options**. Alternatively, double-click the segment in the **Timeline** pane. This opens the **Effect Options** dialog allowing you to change some specific value:



- **Start Time:** Specify the start time of the animation.
- **Duration:** Set the duration of the animation.
- **Easing:** Select one type from the list to set easing functions. See **Easing** for more information.

Refer to **Set Animation for Text** to get detailed information about setting Text Animation section.

After customizing, click **OK** to save the changes and close the dialog.

### Copy and Paste a Preset Effect

To copy a preset effect, select it in the **Timeline** pane, do either of the following:

- Click the **Copy** command in the dockable toolbar.
- Right-click it > **Copy**.
- Press **CTRL+C**.

To paste a preset effect, select an element in the **Timeline** pane and place the Playhead at the timestamp you want to start the effect, perform any of the following:

- Click the **Paste** command in the dockable toolbar.
- Right-click it > **Paste**.
- Press **CTRL+V**.

## Remove an Inserted Preset Effect

To remove a preset effect, select it in the **Timeline** pane, do one of the following:

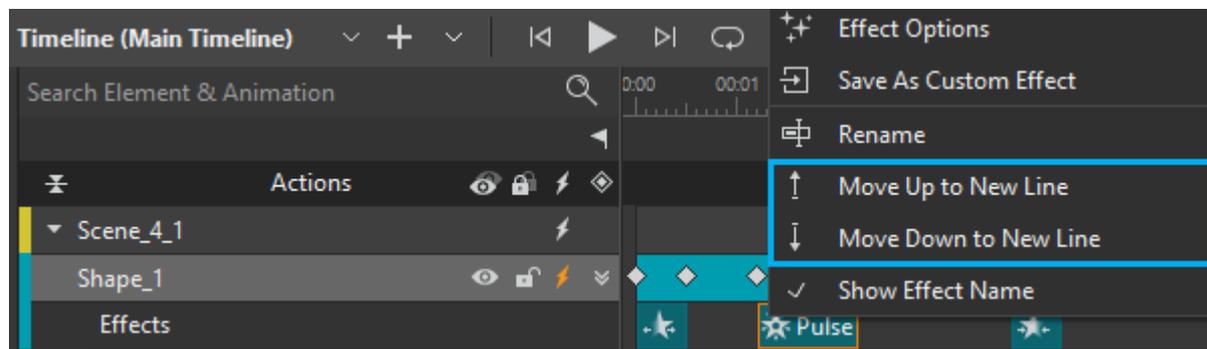
- Click **Delete** in the dockable toolbar.
- Right-click > **Delete**.
- Press **DELETE**.

## Rename or Show an Effect Name

To rename an inserted effect, right-click its segment > **Rename**.

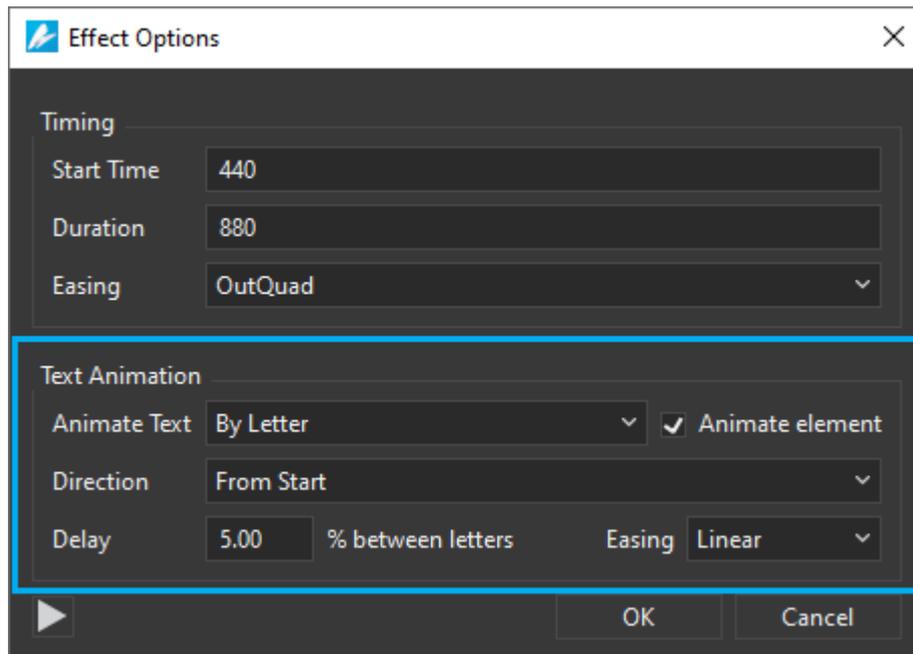
You can show or hide the effect name by right-clicking it > **Show Effect Name**. By default, this option is selected with a check mark symbol in the beginning.

**Note:** If you insert multiple effects for an element, they will display in the same line. To make any of them show up in a different line, right-click it > **Move Up to New Line** or **Move Down to New Line**.



## Set Animation for Text

To set animation for text, pay attention to the **Text Animation** section of the **Effect Options** dialog:



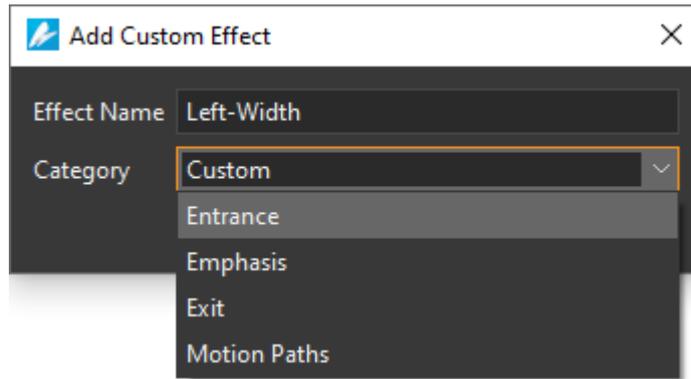
- **Animate Text:** Allows animate text **By Letter** or **By Word**. By default, the **None** option is selected, which means no text animation is applied to the element.
- **Animate element:** Allows animate text with or without the element containing the text.
- **Direction:** Select the direction of the text animation. Saola Animate provides you several directions to choose from:
  - **From Start:** Animate the text from the first letter/word to the last one.
  - **From End:** Animate the text from the last letter/word to the first one.
  - **From Center:** Animate the text from the middle letter/word.
  - **To Center:** Animate the text from the first and last letter/word to the center.
  - **From Position:** Animate the text from a specific position. Users can enter a value in the next percentage box to define the position.
  - **To Position:** Animate the text from the first/last position to a specific one. Users can enter a value in the next percentage box to define the specific position.
  - **Random:** Animate the text randomly.
- **Delay:** Set the delay between letters or words in text.
- **Easing:** Select easing functions for text delay. See **Easing** for more information.

You can click the **Preview Effect** button to see how your text animates before applying changes.

## Save Keyframe Animations as a Custom Effect

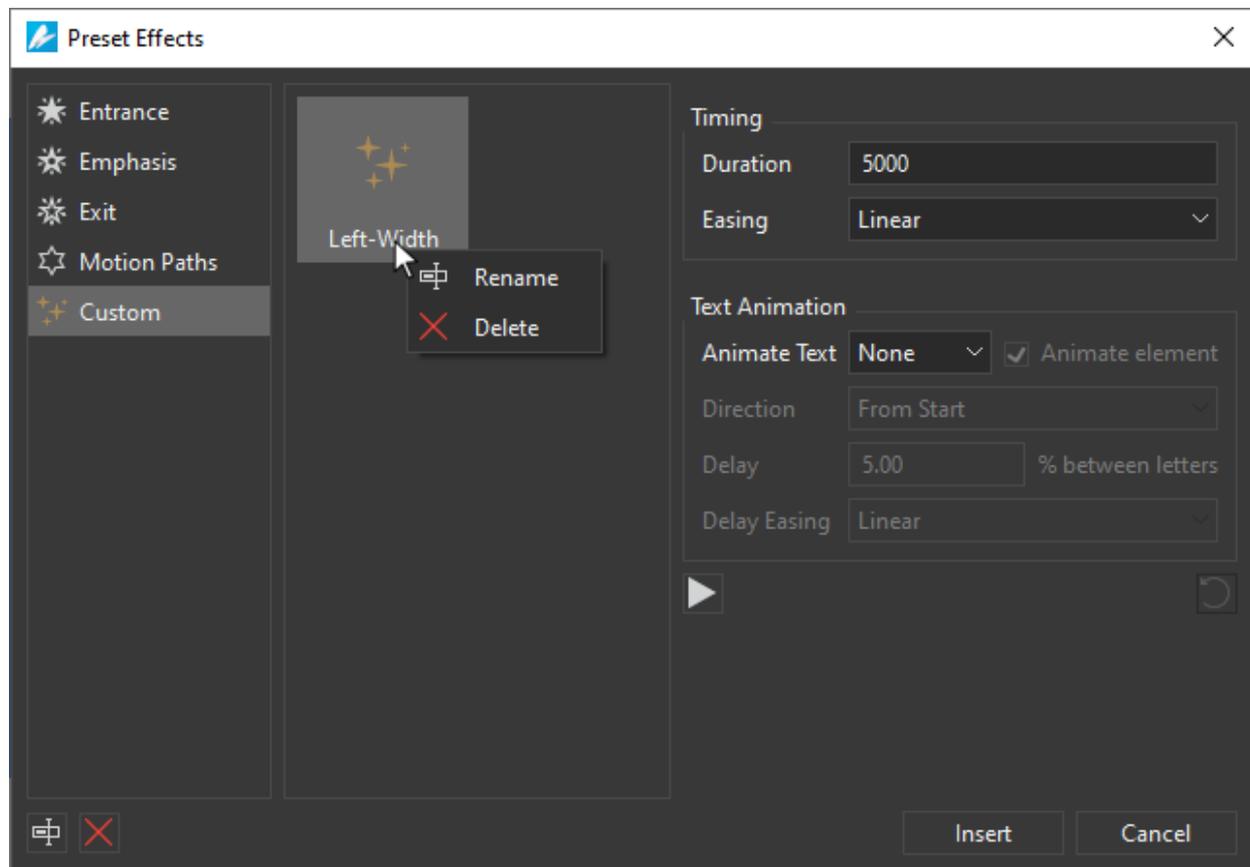
To save animations as a custom effect, do as follows:

1. Select the animation segment and right-click it > **Save As Custom Effect** to open the **Add Custom Effect** dialog:



2. Enter the effect name, and select one default category, or type a different category name to create a new one.
3. Click **OK** to finish.

After that, you can see your newly added custom category appears in the **Preset Effects** dialog:



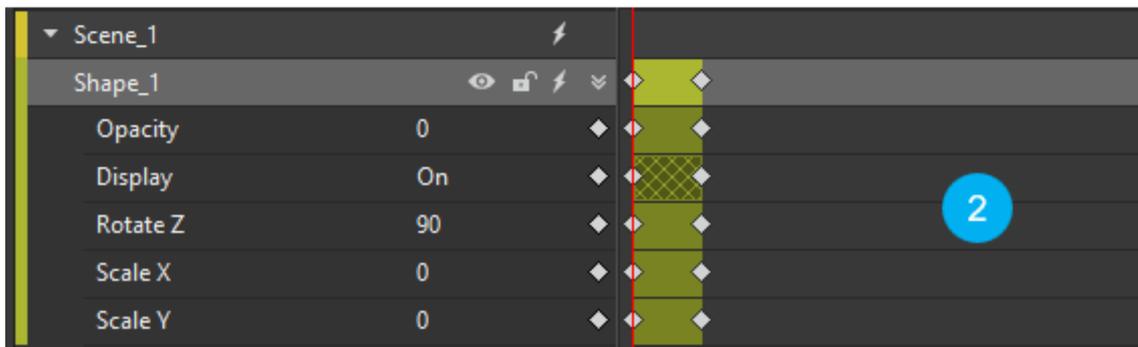
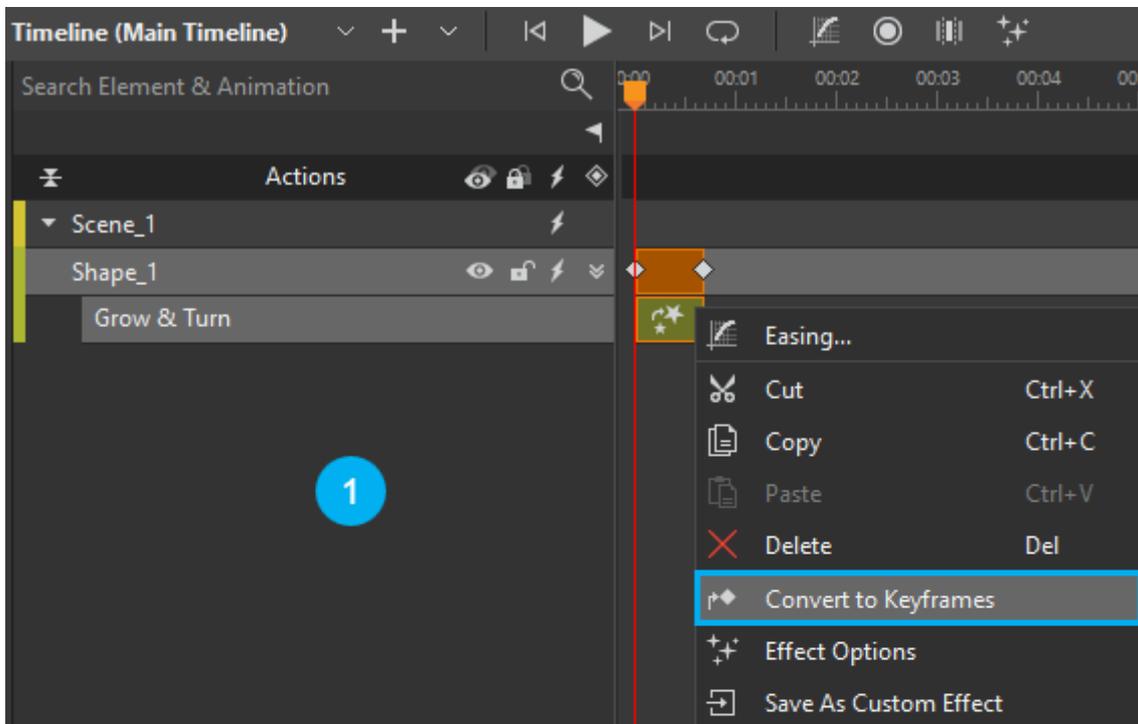
Here, you can rename or remove your custom effect:

- Rename a custom effect: Right-click it > **Rename**; or click the **Rename**  button at the bottom left corner of the dialog.
- Delete a custom effect: Right-click it > **Delete**; or select the **Delete**  button at the bottom left corner of the dialog.

**Note:** To remove a custom category, you have to remove all the custom effects in that category.

## Convert Preset Effects to Keyframe Animations

You can convert preset effects to **keyframe animations** to customize the effects as you want. To do that, right-click the preset effect in the **Timeline** pane > **Convert to Keyframes** (1).



As can be seen, all the property animations used in this preset effect are converted to keyframes (2).

**Note:** Text Animations cannot be converted to keyframes. After converting, the animations for text will be removed.

# Chapter 6: Adding Interactivity

Interactivity is a great way to gain and keep audience's attention and interest as it gives them interactive control over their experience. Saola Animate provides great support for creating rich, interactive HTML5 content. You can use **events, actions, and triggers** to add interactivity to your project. Besides, you can extend the capability of the software with scripting. Saola Animate offers **JavaScript APIs** and a powerful built-in code editor to let you quickly create and edit JavaScript functions. External **script resources** such as JavaScript, CSS, and HTML5 are also available.

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## Events, Actions and Triggers

**Events** are occurrences that determine when to trigger an action. For example, the Mouse Up event occurs when users release a mouse button over an element. Events can be caused by user interactions such as a mouse click. Or, they can occur based on some conditions within the tool such as when the timeline pauses.

Saola Animate provides **events** for five item types:

1. **Element events:** Mouse and touch events on elements.
2. **Scene events:** Scene-specific events, keyboard events, and all element events.
3. **Document events:** Document-specific events and scene events.
4. **Timeline events:** Timeline-specific events related to timeline playback.
5. **Preloader events:** Preloader-specific events related to the loading progress.

Events trigger actions. That is, actions perform a function that responds when an event occurs. Saola Animate offers many different built-in **actions**:

- **Timeline, Symbol, Media actions:** Control the playback of timelines, symbols, audio, and videos.
- **Visibility actions:** Show and hide elements, and toggle their visibility state.
- **Other actions:** Jump to a scene in the document, load a URL, change text of an element, and invoke a JavaScript function.

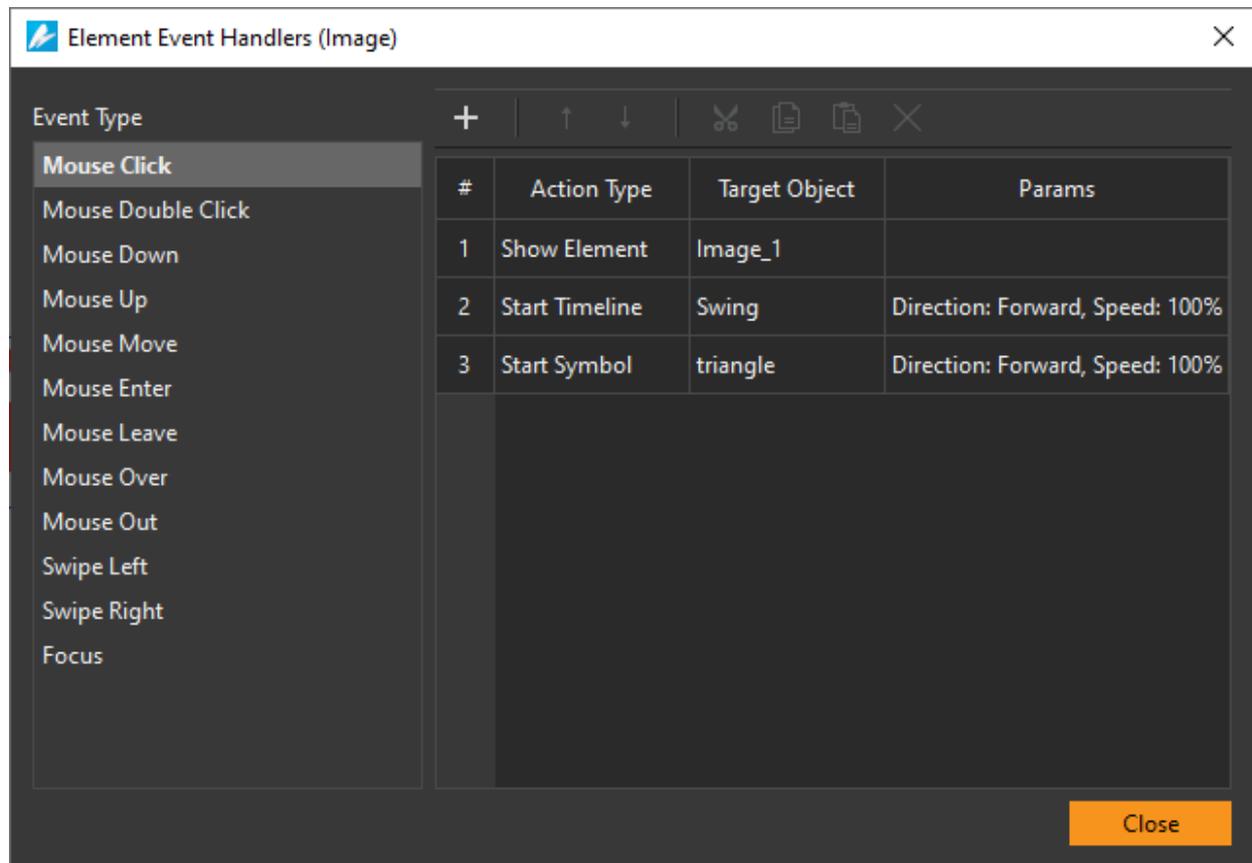
**Triggers** are actions placed on the timeline and executed without user control. You can insert many triggers on the timeline. Each trigger can hold different actions.

## Adding Events - Actions

Add events and actions using the **Event Handlers** dialog. You can open this dialog by clicking the **Event Handlers**  buttons in the **Timeline**, **Properties**, **Document**, or **Elements** panes. You can also find the buttons in the context menu when you right-click an element on the Canvas.

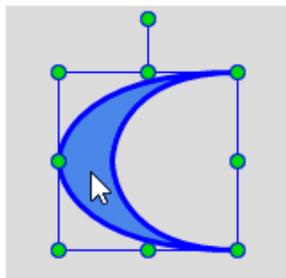
In the **Event Handlers** dialog, the left side shows a list of available events that vary depending on the target, namely element, scene, document, timeline, and preloader. The right side is for actions that have type, target object (if any), and parameters (if any) and are arranged in order in a table.

You can double-click a table cell to edit the item. The dialog also has a toolbar on the top containing buttons for adding, ordering, copying, and removing actions.

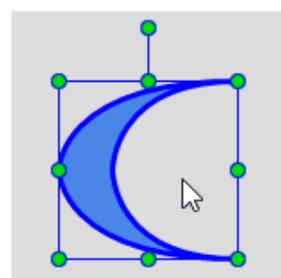


#### Note:

- Unpainted or non-filled interiors of elements do not receive mouse events, although the elements have closed borders. For example, a mouse click event is only taken into account when you click on the blue area of the moon shape element as shown in the image below. Otherwise, if you click on any non-filled areas of the element, no mouse event will be triggered.



Mouse events take into account when you click painted areas of elements.



Mouse events do not take into account when you click unpainted areas of elements.

- If you want to add events for a transparent element, you have to make the element transparent by using **Solid Fill** and setting **the Opacity level** of the **Fill Color** to 0.

## Adding Actions

1. Choose an event to trigger the action.
2. Click **Add Action** to select the action and target object (if any).
3. Double-click the Params cell to edit the parameters. An action can have no or several parameters such as playback direction and URL.

In the **Timeline** pane, an element with actions has a highlighted **Event Handlers**  button. So, it's easy to figure out which element holds interactivity.

## Editing Actions

Double-click the Target Object and Params cells to change the target object and parameters (if any).

## Replacing Actions

Double-click the Action Type cell to open the Action list. Then, select a new action to replace the existing one. Edit the new action's target object and parameters if needed.

## Ordering Actions

The order of actions matters. Actions that are stated earlier are triggered before those stated later. You can reorder actions after adding them by clicking **Move Up**  and **Move Down**  in the toolbar.

## Copying Actions

You can copy actions and paste them to the same or to another event. Just select the actions and use shortcuts or buttons in the toolbar to copy and paste them.

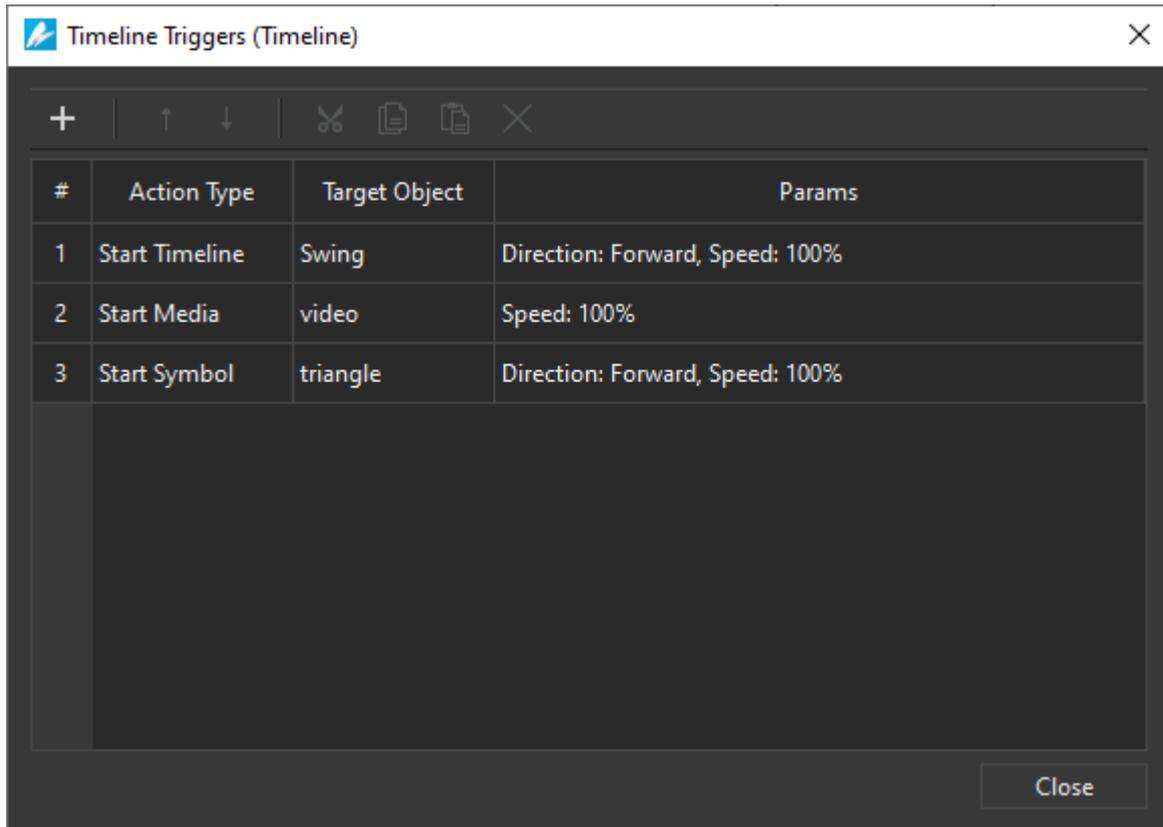
You can also copy all events and actions bound an element to another. On the Canvas or in the **Timeline** pane, right-click an element > **Copy All Event Actions**. Then, select another element, right-click it > **Paste Event Actions**.

## Removing Actions

Select an action and press **DELETE** to remove the action. Alternatively, click **Remove Action** in the toolbar.

## Inserting Timeline Triggers

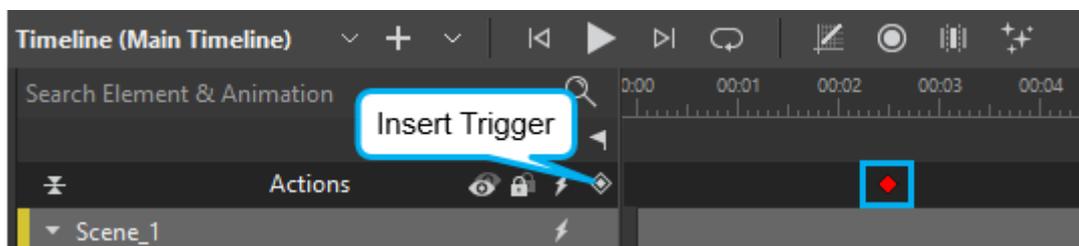
Timeline triggers fire automatically on the timeline, without user control. Manage timeline triggers in the **Timeline Triggers** dialog which looks similar to the **Event Handlers** one except that it doesn't have the Event Type column.



## Inserting Triggers

1. Position the Playhead at the point you want to add a trigger.
2. Press **ALT+T** or click the **Insert Trigger**  button to open the **Timeline Triggers** dialog.
3. Click **Add Action** in the toolbar to add an action. Do the same steps as when you add actions in the **Event Handlers** dialog.

Click **Close** to apply changes and close the dialog. In the **Timeline** pane, the trigger is inserted at the Playhead position. It appears as a red diamond on the Actions bar.



## Editing Triggers

Double-click a trigger to open the **Timeline Triggers** dialog. Then, edit the actions as desired.

## Moving Triggers

In the **Timeline** pane, click and drag a trigger to a new position.

## Copying Triggers

Click a trigger on the Actions bar. When selected, it turns yellow. Then, use shortcuts to copy (**CTRL+C**) and paste (**CTRL+V**) the trigger to the new Playhead position. You can also use commands in the main tool bar right-click and select **Copy** to get the same result.

## Cutting Triggers

Select a trigger you want to cut then right-click it and select **Cut**. Alternatively, you can press **CTRL+X** or using Cut command on the dockable toolbar.

## Removing Triggers

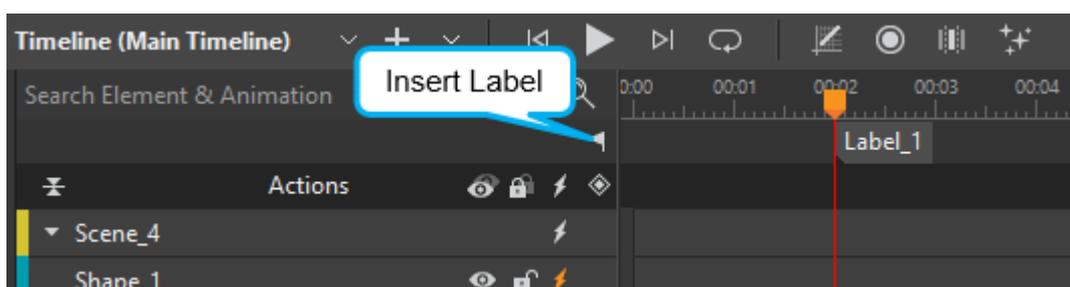
Select a trigger and click **Delete** in the dockable toolbar or press **DELETE** to remove it. Besides, you can right-click and select **Delete** from the context menu. If you delete all actions bound to a trigger, the trigger is also deleted.

## Inserting Timeline Labels

Timeline labels mark important points on the timeline. They serve as bookmarks to which you can refer later. Labels appear below the timeline ruler and right above the Actions bar, giving you the benefit of both a word and number. Give a label a descriptive name and they prove highly useful for triggers and actions. For example, you want to add a trigger that seeks a time. Instead of jumping to somewhere like 0:00:12.357, add a “jump” label and seek it.

## Inserting Labels

1. Drag the Playhead to a special point on the timeline that you want to mark.
2. Press **ALT+L** or click the **Insert Label**  button (the flag icon). A label appears at the Playhead position with its default name such as Label\_1.



Rename a label right at that time or afterward. If you created a label and later want to rename it, double-click it and enter a new name. Note that if you change the label's name, you have to go

back to any triggers or actions using that label and update its name.

## Moving Labels

Click and drag a label to a new spot. This comes in handy when you use labels to create actions. For example, you use a “jump” label in a trigger that seeks a time. When you’re fine-tuning the animation, odds are you’re constantly adjusting the timing to find a good time to “jump”. Without a label, you’d have to manually update the time value repeatedly. But using a label, you only need to move it to a new spot and preview your changes.

## Copying Labels

Select a label and press **CTRL+C** to copy, then press **CTRL+V** to insert the copied labels into the current Playhead position. Alternatively, use the options in the label context menu.

## Removing Labels

Select a label and press **DELETE** to remove it. Or, right-click and select **Delete** from the context menu.

# Chapter 7: Using Symbols

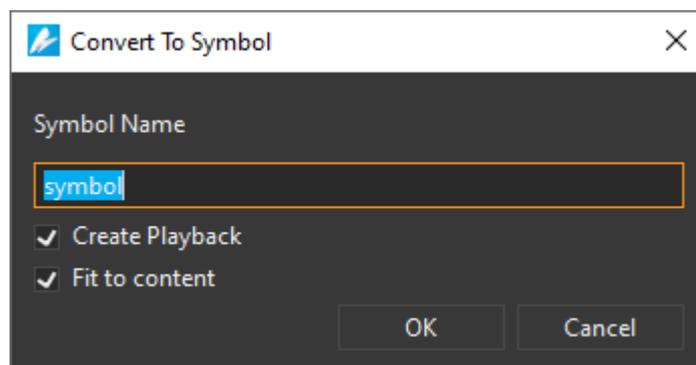
Symbols are reusable resources with independent timelines and interactive capabilities. Symbols enable you to easily reuse elements, scenes, timelines, and animations. For example, you can create a piece of animation, convert it to a symbol, and then reuse it in many larger animations.

Regarding symbols, you need to distinguish between symbols and symbol elements. Symbols are resources in the **Resources** pane of a document. Create symbols by converting elements on the Canvas. Meanwhile, symbol elements are the elements in which symbols are embedded. They are the copies of symbols located on the Canvas. Many symbol elements can use the same symbol.

## Converting Elements to Symbols

Create animation symbols by converting one or multiple elements on the Canvas.

1. Select one or multiple elements of the same parent.
2. Right-click the selected elements > click **Convert to Symbol**.
3. In the **Convert to Symbol** dialog, type a unique name for the new symbol.



4. The **Create Playback** check box is selected by default to create playback animation for the new symbol. If you don't want to create symbol playback at this time, clear the check box. Later, use **actions** to control symbol playback.
5. The **Fit to content** check box selected by default helps to fit the symbol element to the content, according to its size and position. If this box is deselected, the symbol element will take up its scene's size. In this case, the size of the symbol element is set to be relative to the scene size and starts at 100% of the scene size. When changing the size of the symbol element in the main document, the size of the symbol in editing mode also changed. If you want the size of the symbol element to be absolute, change the size unit to pixels (px).

In a responsive project, if we add a symbol element (which hasn't been inherited from the base layout) into a responsive layout, this option will be disabled.

6. Click **OK** to convert selected elements into a symbol.

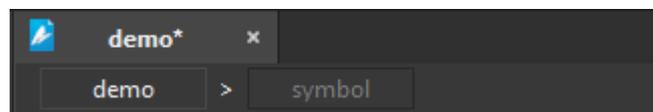
Saola Animate adds the new symbol to the **Resources** pane. The selection on the Canvas becomes a symbol element of that symbol.

Saola Animate also lets you create responsive symbols which have layouts and can respond to the container size changes. See **Responsive Symbols** for more details.

## Editing Symbols

Double-click a symbol element on the Canvas to enter the symbol editing mode where you can edit the embedded symbol. Alternatively, double-click a symbol in the **Resources** pane.

The editor then displays the content of the symbol which resembles a normal Saola Animate document with scenes and timelines. You can work with elements, animations, and interactivity as you do with a normal document. At the top of the Canvas, there is a stack of buttons displaying the symbol hierarchy. These buttons not only show which symbols you are editing but also help navigate the hierarchy. In the figure below, **demo** is the main document. The **symbol** contains symbol that you are working on.



To navigate the symbol hierarchy, do one of the following:

- Click the symbol/document name in the hierarchy to navigate to a desired symbol or the main document. For example, click the demo button to close the symbol and return to the main document.
- Double-click outside the content of the symbol on the Canvas to navigate to the closest parent symbol. For example, double-click outside the content of the symbol\_1 to jump up to jump up to the main document.

Editing a symbol updates all related symbol elements in a document, which helps maintain consistency and save a lot of time. That's why symbols are useful for sharing identical elements across scenes or at different positions in the same scene. Meanwhile, you can edit each symbol element of the same symbol differently. Editing a symbol element updates that element only.

## Exporting and Importing Symbols

You can export symbols for reusing and sharing between Saola Animate documents.

### Exporting Symbols

The **Resources** pane manages all resources of a document, including symbols. From here you can export a symbol to file (\*.saolasym).

1. Select the symbol you want to export.
2. Click **Export** in the toolbar, or right-click > **Export** .
3. Provide the file name for the exported symbol.

### Importing Symbols

When importing a symbol into a document, you also import all resources used in this symbol into the target document. These resources become resources of the document, not those of the

symbol. Do one of the following to import a symbol:

- Drag and drop a symbol onto the Canvas.
- Copy and paste a symbol from your computer.
- Click **Symbol**  in the dockable toolbar and select a symbol from your computer.
- Import a symbol into the **Resources** pane and then add the symbol to a scene.

# Chapter 8: Using Fonts

This chapter provides information about selecting fonts and using Google fonts.

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## Choosing Fonts

Saola Animate provides three sets of fonts as follows:

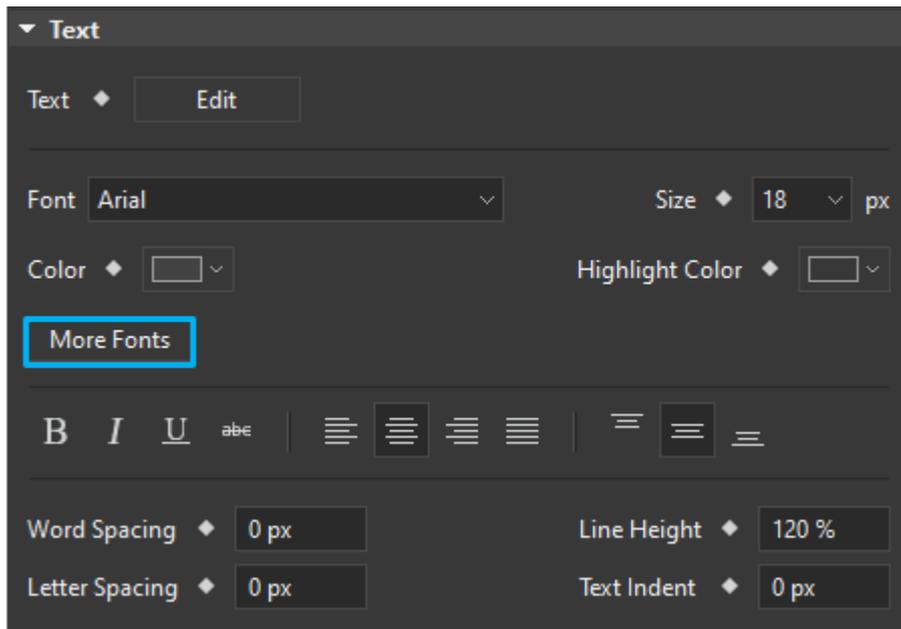
- **Web safe fonts:** Fonts are most likely to be available in a wide range of browsers and different computer systems. These fonts will show consistently across almost all browsers.
- **System fonts:** Fonts are already installed on your computer. You can use these fonts in your document and choose to export them with the project (**Document** pane > **Embed System Fonts**). That way, your text maintains consistent appearance despite the computer that plays the output.
- **Google fonts:** Free open-source web fonts from Google Fonts. Using Google fonts brings great advantages:
  - **Open-Source license:** They are freely accessible to everyone to use, redistribute, and customize.
  - **Cross-site caching:** Downloaded fonts are cached in the browser and reused by any other webpages using them, making the web faster.
  - **Cross-platform rendering:** They are supported in all major browsers and a wide range of mobile devices.

## Adding Google Fonts

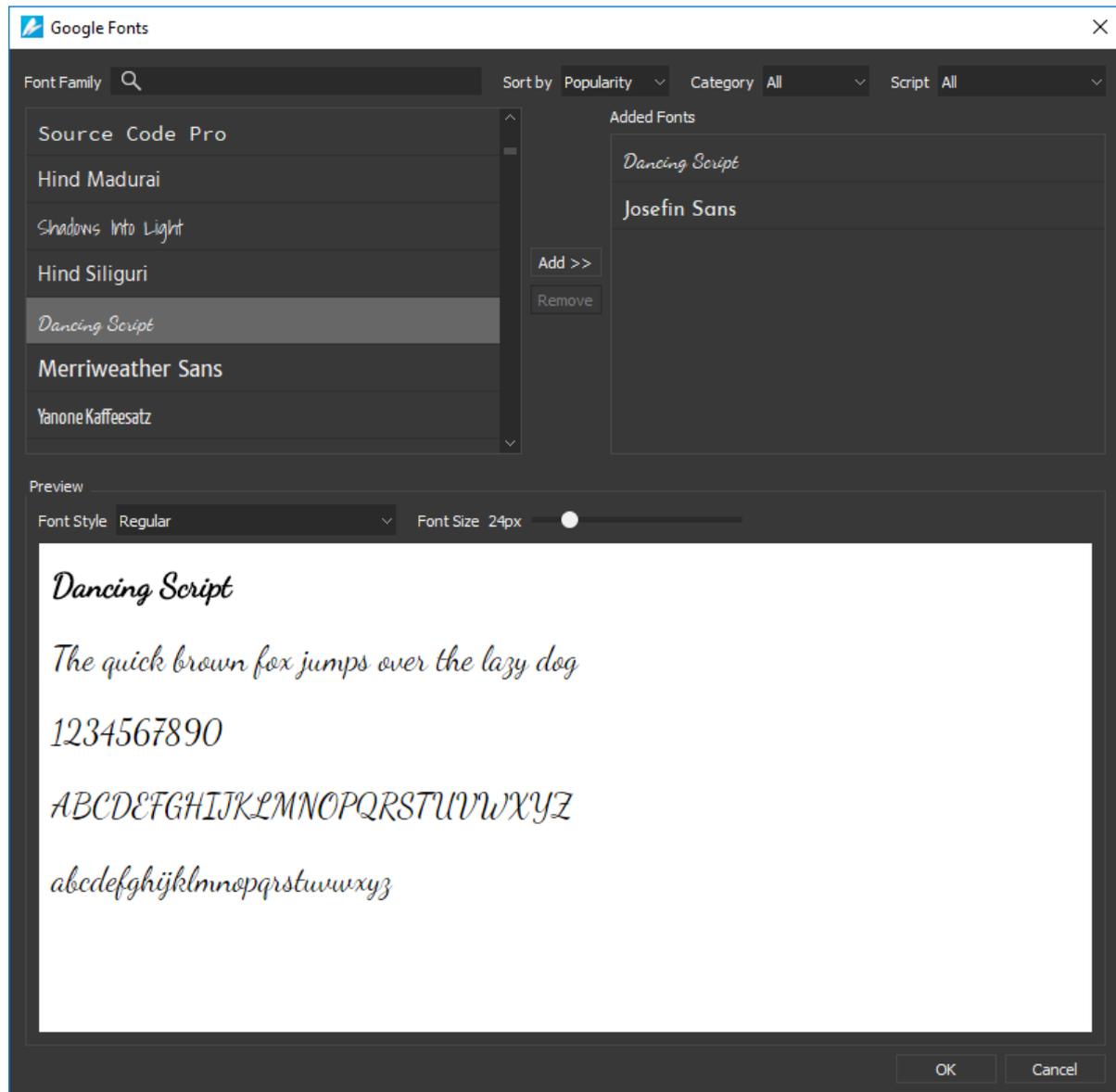
Add fonts from Google Fonts using the following steps:

1. Click the **Font** combo box in the **Floating Text Format** toolbar or in the **Text** section of **Properties** pane > **Google Fonts** > **Add fonts...**

Alternatively, access the **Properties** pane > **Text** section, click **More Fonts**.



This opens the **Google Fonts** dialog which lists all the available Google fonts.



You can search for specific fonts or filter fonts by font properties.

- **Search:** Search the font by family names.
- **Sort by:** Sort the fonts based on popularity, alphabetical, date added, or trending.
- **Category:** Filter fonts by typefaces, namely **Serif**, **San serif**, **Display**, **Handwriting**, and **Monospace**.
- **Script:** Filter fonts by writing systems such as **Arabic**, **Bengali**, **Greek**, **Khmer**, etc.

When you select a font, it will be applied for the text in **Preview** pane. In this pane, you can change font style, font size, and text for preview purpose.

2. To add fonts to the document, select the fonts and click the **Add** button. The selected fonts now appear in the **Added Fonts** pane. You can select any added font to apply to the currently selected text or element, if any.

3. Click **OK** to apply changes and close the dialog.

Google fonts added to your document will appear in the **Font** combo box. They also become font resources in the **Resources** pane.

**Note:** Adding Google fonts requires a network connection.

## Removing Google Fonts

To remove a Google font, do the following:

1. Open the **Google Fonts** dialog.
2. Select the fonts you no longer need in the **Added Fonts** pane.
3. Click the **Remove** button to remove them from the selection list.
4. Click **OK** to apply changes and close the dialog. The fonts no longer appear in the **Font** combo box nor the **Resources** pane.

Besides, you can open the **Resources** pane, select the Google font you don't want and press **DELETE** or click **Delete**  in the toolbar.

# Chapter 9: Using 3D Transformation

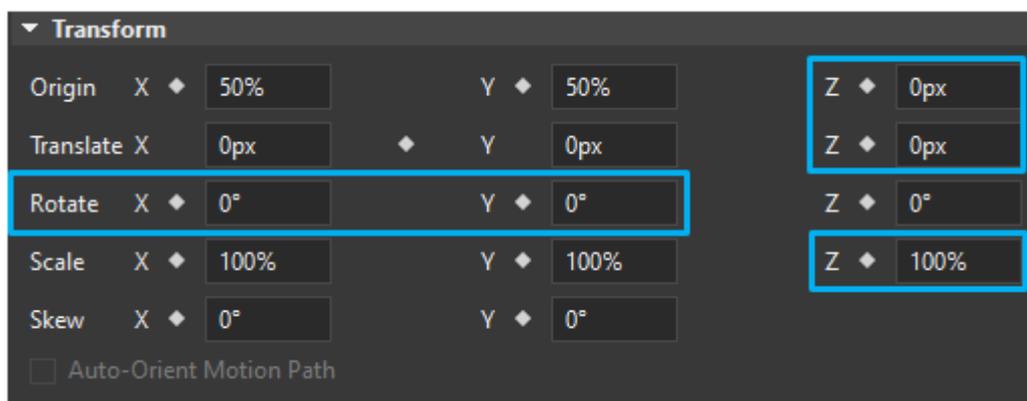
If you want to make your animation look more realistic to meet your lively imagination, 3D transformation should be a useful feature.

Please be noted that 3D transformation is great for making your animation more interesting, but don't expect that it can help you to build a complex 3D world.

## 3D Transformation Properties

Elements in Saola Animate are two-dimensional elements. Thanks to 3D transformation properties, they can be transformed in three dimensions: the horizontal x-axis, the vertical y-axis, and the depth z-axis. These transform properties make the elements can live in the 3D space, though they're still flat.

All the properties to create 3D transformation will be found in the **Properties** pane > **Position & Size** > **Transform** section of an element.

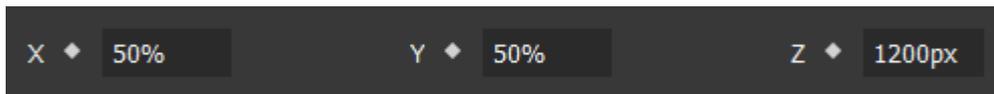


Property	Remark	Animatable
<b>Origin Z</b>	Set the z coordinate of the origin point around which the element is transformed. A value of zero (0) means that the transform origin is located in the element plane.	Yes
<b>Translate Z</b>	Move the element along the z-axis. A positive value moves the element toward the viewer, while a negative value moves it away. This property makes the element plane parallel with its original plane.	Yes
<b>Rotate X, Y</b>	Rotate the element around the x, y-axis. These properties make the element has a depth in the original coordinate (i.e points in the element may have different z values), though it is still flat in the new coordinate.	Yes

<b>Scale Z</b>	Scale the element along the z-axis. Please be noted that it just scales the distance (along the z-axis) to the origin, it doesn't help converting a square into a cube, the element is still flat.	Yes
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One more property that helps the 3D transformation become realistic is the perspective property. This property defines the viewing point at which the viewer sees the 3D space.

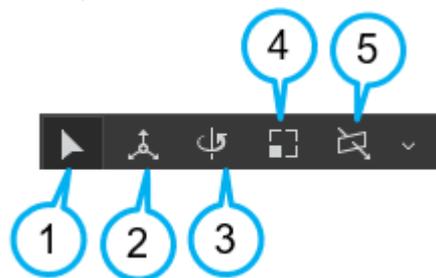
In Saola Animate, perspective property can be adjusted by **Perspective Section** in Scene properties pane.



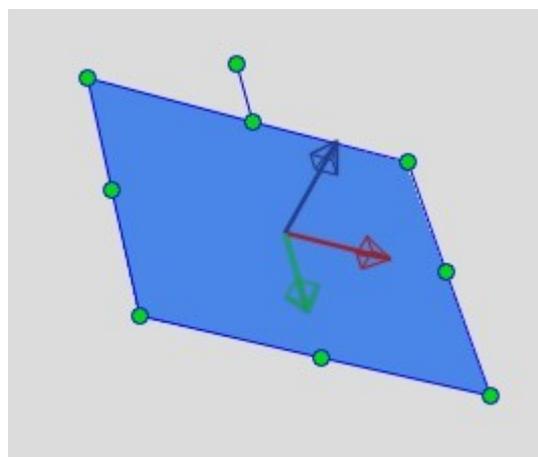
X, Y values are position of the viewing point in the scene plane, relative to the scene width, height respectively. Z value is the distance from the viewer to the scene.

### 3D Transformation Tools

In addition to adjusting 3D transform properties by using **Properties** pane, you can also use 3D transformation tools which are very useful.



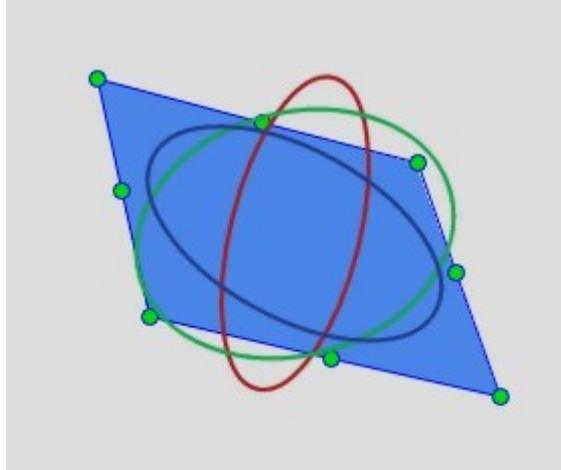
1. **Select Tool:** To select and edit elements normally. This tool is also used to deselect other 3D transformation tools.
2. **Translate Tool:** To adjust translation of the selected elements on Canvas along three axes.



When this tool is enabled, there are three arrows rendered on the focus element. They're the red, green and blue arrows, which represent for the x, y, z-axis in the element local

coordinate, respectively. Drag these arrows to move the selected elements along the corresponding directions.

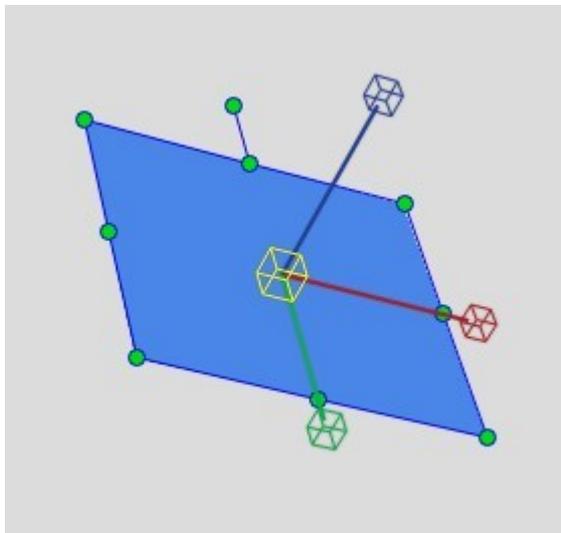
3. **Rotate Tool:** To rotate the selected elements on Canvas around three axes.



When this tool is enabled, there are three ellipses rendered on the focus element. They're the red, green and blue ellipses, which allow rotating the selected element around the local x, y, z-axis respectively when dragging them.

Besides, if you hover your mouse out of these ellipses, but still inside the focused element, the mouse cursor will change to the crosshair icon . It indicates that you can drag to rotate the selected elements freely.

4. **Scale Tool:** To scale the selected elements on Canvas along three axes.

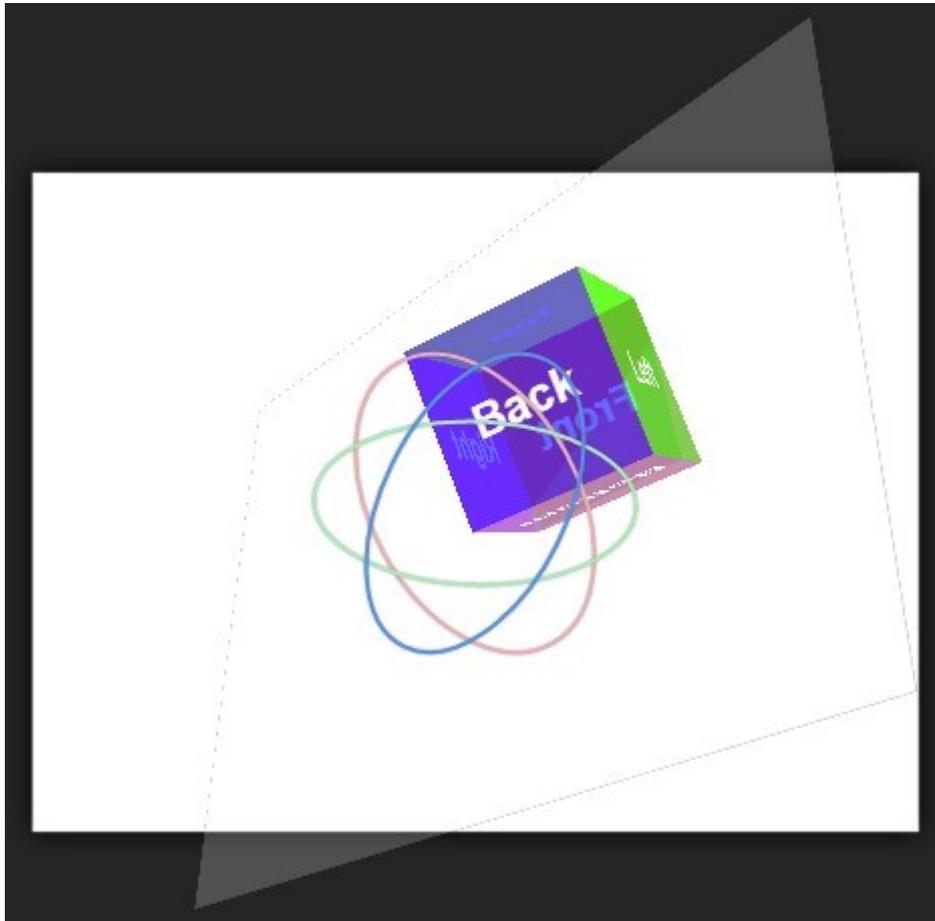


When this tool is enabled, there are three arrows (ended by cubes) rendered on the focus element. They're the red, green and blue arrows, which represent for the x, y, z-axis in the element local coordinate, respectively. Drag these arrows to scale the selected elements along the corresponding directions.

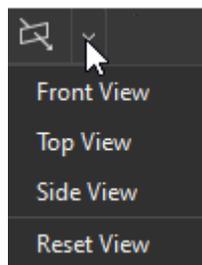
In case you want to scale along all axes uniformly, just drag the yellow cube at the transform origin of the focused element.

5. **Rotate View Tool:** By default, your viewing position is in front of the canvas and the canvas is coincided with your screen. This may cause some discomforts when editing

3D transformation. Rotate View Tool can help you resolve it by changing the view. Please note that it just changes the view for editing elements in 3D space more intuitive, it doesn't affect the output.



This tool can be used the same way as the Rotate tool. Saola Animate also provides some presets to adjust the view. Click the arrow next to Rotate View Tool icon to show the menu below.

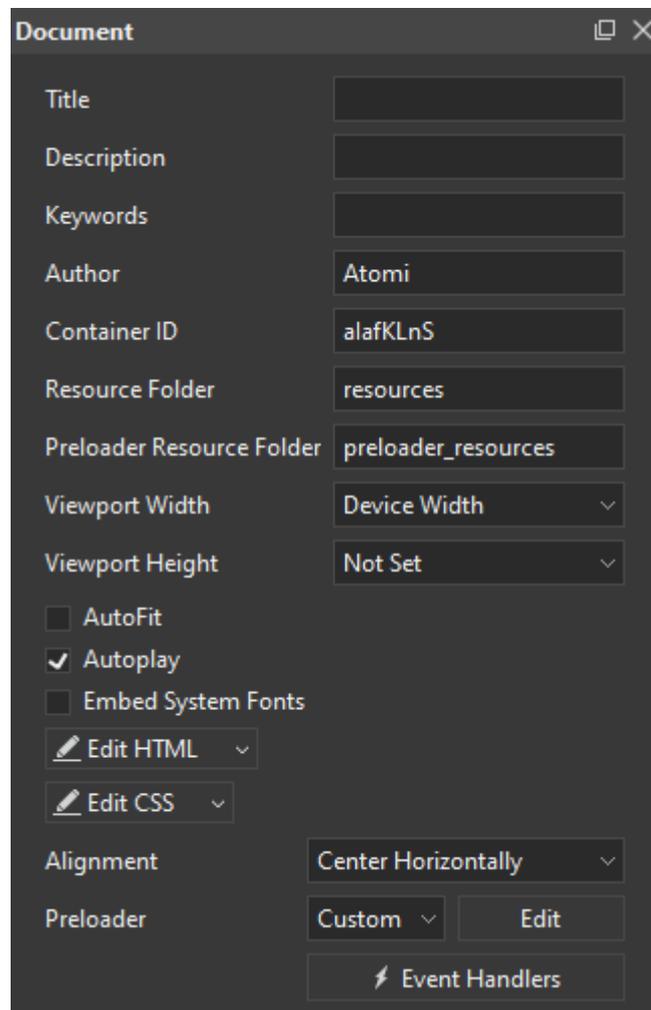


# Chapter 10: Previewing and Exporting Projects

After editing a project, it's time to preview and export it to HTML5 or video formats. This chapter covers the techniques for editing document properties, previewing, and exporting your project.

## Updating Document Properties

Edit document properties in the **Document** pane to set up global parameters of a project and export options.



- **Title:** Export the content to the <title> tag to define the title of the HTML document, shown in the browser title bar or on the page tab. The <title> tag also provide a title for the page when it is added to favorites and displays a title for the page in search- engine results.
- **Description, Keywords, Author:** Define the value of the <meta> tag to specify the description, keywords, and author of the HTML document. Metadata will not be displayed

on the page but will be machine-parsable.

- **Container ID:** Define a unique identifier of the HTML tag in which the HTML5 output is embedded. The ID can contain only alphanumeric characters (A-Z, a-z, 0-9), underscore (\_), and hyphen (-), and must start with an alphabetic character for CSS selector to work without escaping.
- **Resource Folder:** Define the folder path which contains the resources of the HTML5 output. This path is relative to the path of the HTML5 output. Make sure the path doesn't contain any of the following character: \ : \* ? " < > | and uses / as a directory separator.
- **Preloader Resource Folder:** Define the folder path which contains the resources of the custom preloader of the HTML5 output. This option is only available when you use **custom preloader**.
- **Viewport Width/Height:** Define the value of the viewport <meta> tag to control layout on mobile browsers. Select a value from the combo box or enter an integer value for the viewport width/height in pixels. **Device Width/Height** sets the width/height of the output to follow the screen width/height of the device. Choosing **Not Set** excludes any viewport <meta> tag from the document content.
- **AutoFit:** Automatically scale the document without changing the proportion to fit it into the container. This option is also applied to symbol documents.
- **Autoplay:** Automatically play the document when a browser opens, otherwise the document must be called to start using **actions**.
- **Embed System Fonts:** Embed any used system fonts in the HTML5 output using CSS3 Web Fonts Specification. Text will maintain appearance no matter the font installation on end users' computer.
- **Edit HTML:** Open the **HTML Output** editor where you can edit the HTML of the document. Be careful when editing tags wrapped within {\$} as these tags will be replaced by program-generated contents. After editing, if you want to go back to the original content, click **Restore Defaults** (the drop-down arrow).
- **Edit CSS:** Open the **CSS Output** editor where you can edit the CSS of the output. After editing, if you want to go back to the original content, click **Restore Defaults** (the drop-down arrow).
- **Alignment:** Decide how the document should be displayed in the browser window. By default, the document is centered horizontally within the browser. This option is also applied to symbol documents.
- **Preloader:** Use either a default or a custom **preloader** as a visual indicator that is displayed when the document is loading.
- **Event Handlers:** Add interactivity to control the behavior of the document.

## Previewing Scenes and Projects in Browser

Previewing during and after the editing process allows you to see how your project will look and

behave to the end user. You can also review your work and notice the changes that are required. That way, you can be sure of the final output. Two preview modes are available: **preview scene** and **preview project**.

Previewing scene lets you view a single scene's animation and interactivity. In this mode, you cannot perform any actions navigating to other scenes. Meanwhile, previewing project lets you preview the whole project so that you can review all scenes' animation and interactivity, from the first to the last scene.

To preview the current scene in a browser, do one of the following:

- Press **CTRL+F5**.
- Click the drop-down arrow next to the **Preview** button in the dockable toolbar > **Preview Current Scene in Browser** .
- Click **File > Preview Current Scene in Browser** in the main menu.

To preview the whole project, do one of the following:

- Press **F5**.
- Click the drop-down arrow next to the **Preview** button in the dockable toolbar > **Preview Project in Browser** .
- Click **File > Preview Project in Browser** in the main menu.

**Note:** A project will be previewed in only one tab in browser. When you preview the same project in a browser, Saola Animate will close the former tab and open a new tab.

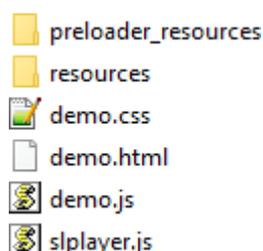
You can also preview your work using the Canvas. Click **Play/Stop** in the **Timeline** pane to play the current scene. Also, drag the Playhead along the timeline to get the same result. Remember that this only plays scene's animation, no interactivity involved.

## Exporting Projects to HTML5

Saola Animate exports documents to HTML5. To export, do one of the following:

- Press **CTRL+ALT+E**.
- Click **Export to HTML5**  in the dockable toolbar.
- Click **File > Export to HTML5** in the main menu.

Once the project is exported to HTML5, it will be stored in a folder with structure as follows. The files are named based on the project title or project name.



- **preloader\_resources**: Optional folder which contains all resources inserted into the

custom preloader. If the custom preloader doesn't use any external resources such as images, audio, or videos, this folder will not appear.

- **resources**: Folder which contains all resources inserted into the project.
- **demo.css**: Document-specific data which defines the CSS style of the document.
- **demo.html**: HTML document. Open this file to play the project in a browser.
- **demo.js**: Document-specific data which defines all scenes, timelines, elements, and animations of the document.
- **slplayer.js**: The main Saola Animate HTML5 player.

## Exporting Projects to Video

Saola Animate also allows you to export your projects to video formats. The duration of the exported video is the total duration of scene transitions and main timeline duration of all scenes in a project. In which, duration of a main timeline is defined at the greatest ending time of triggers, labels, animations and effects within that timeline.

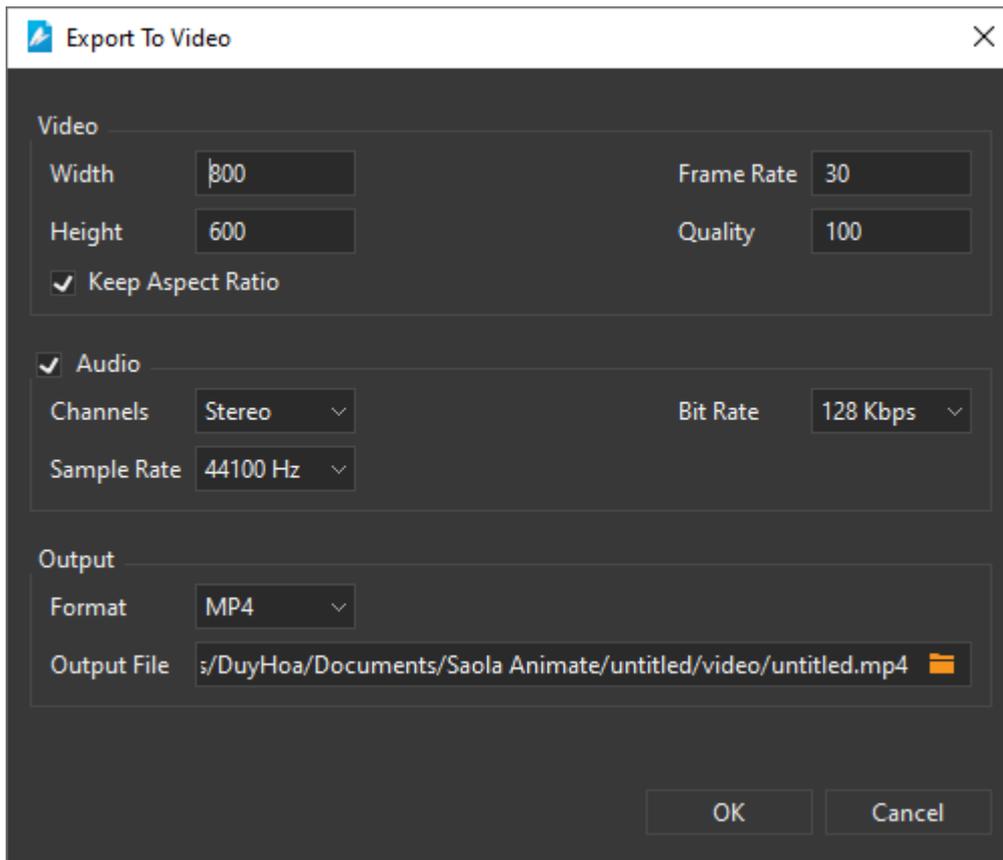
### Note:

- If the main timeline doesn't have any animations but you still want the scene to be shown for some time in the video, you can add a **label** to that main timeline. You can also use label to make a scene last longer.
- Actions occurred by user interactions (e.g. a mouse click) will not work in exported videos. However, actions without user control that are fired by **timeline triggers** do. For example, an **interactive timeline** triggered to start in the main timeline will work in the exported video.

To export a project to video, do one of the following:

- Click **Export to Video**  in the dockable toolbar.
- Click **File > Export to Video** in the main menu.

The following dialog will appear, allowing you to specify the exporting options:



Option	Description
<b>Video</b>	
<b>Width</b>	The width of the exported video.
<b>Height</b>	The height of the exported video.
<b>Keep Aspect Ratio</b>	Selected by default. Clear this check box if you want the height/width to not be automatically calculated upon aspect ratio when changing the width/height respectively.
<b>Frame Rate</b>	Set between 1 and 60 fps (frames per second). A higher frame rate may increase the video size.
<b>Quality</b>	Select in the range [1,100]. The higher number, the better quality and larger file size. Higher value, better video quality, and larger file size.
<b>Audio</b>	
<b>Audio</b>	Selected by default. Clear this check box if you want to remove audio from the output.
<b>Channels</b>	Select either <b>Stereo</b> or <b>Mono</b> .

<b>Sample Rate</b>	The sample rate determines the fidelity or the quality standard of the audio. Select from 11025, 22050, 44100, and 48000 Hz. The higher the fidelity, the better the audio quality.
<b>Bit Rate</b>	Applicable to MP4 format. Select from <b>64, 96, 128, 192, 256</b> , and <b>320</b> Kbps. The higher the bit rate you select, the better the audio quality is.
<b>Quality</b>	Applicable to WEBM format. Select in the range [1,100]. Higher value, better audio quality, and larger file size.
<b>Output</b>	
<b>Format</b>	Select from <b>MP4, WEBM</b> , and <b>MKV</b> formats.
<b>Output File</b>	Specify the file path and name of the exported video.

# Chapter 11: Using Canvas

The Canvas is the central area of the application window. It has horizontal and vertical rulers and a scene editor. It enables you to view scenes, add elements to scenes, modify, and arrange elements. The Canvas is also where you can **preview your work** during the editing process.

Use rulers and canvas snapping to position elements on the Canvas. Zoom in and out to change the view of the Canvas when you work. While editing, if you encounter any problems with the Canvas, such as lagging or elements not showing, right-click the Canvas and select **Reload Canvas** to refresh the Canvas.

---

## Rulers

The horizontal and vertical rulers appear along the top and left edge of the Canvas help position elements precisely. To show or hide the rulers, click **View > Rulers** in the main menu.

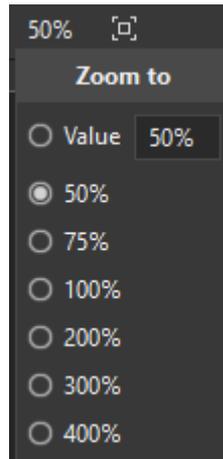


## Zooming Canvas In and Out

Zoom the Canvas to view the entire scene or a particular area of it. The minimum value for zooming out is 10% while the maximum value for zooming in is 400%.

There are several ways you can use to zoom the Canvas:

- Hold down **CTRL** and scroll the mouse wheel up to zoom in and scroll the mouse wheel down to zoom out. Alternatively, press **CTRL+(=)** to zoom in and **CTRL+(-)** to zoom out.
- Click the Zoom percentage level at the upper right corner of the application window to open the Zoom drop-down list and choose the zoom level you want.

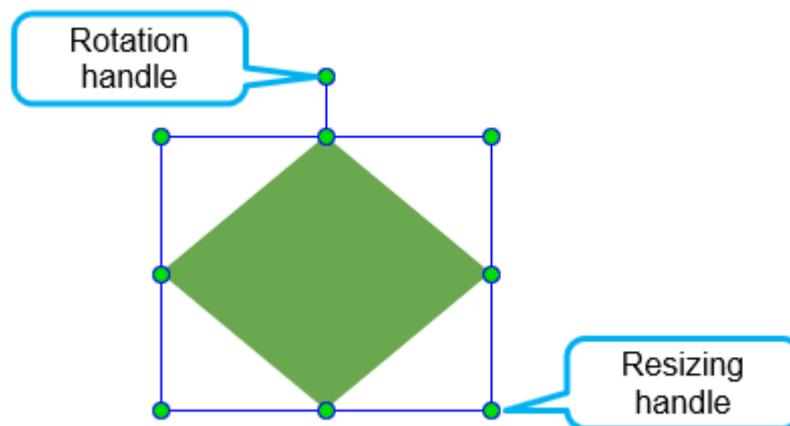


- To scale the Canvas so that it fits into the viewport size, press **CTRL+0** or click the **Fit on Screen**  button. The Canvas will zoom in or out automatically to ensure that all scene contents appear in the viewport window

If you zoom in the Canvas too much, it will show horizontal and vertical scroll bars. Just scroll the mouse wheel to scroll the Canvas vertically. Hold down **SHIFT** and scroll the mouse wheel to scroll the Canvas horizontally.

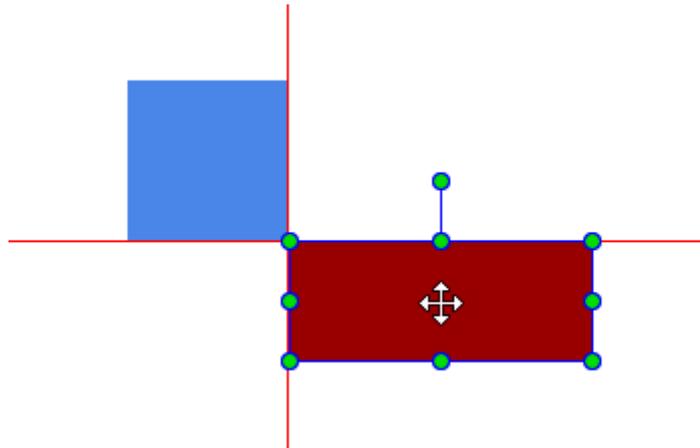
## Edit Elements on Canvas

On the Canvas, you can reposition, resize, and rotate an element using the resizing and rotation handles which appear when you select an element.



## Snapping on Canvas

When you move or resize elements on the Canvas, elements can be snapped to the center or edge of the Canvas or other elements thanks to canvas snapping. Canvas snapping is indicated by red lines which appear when an element comes in the vicinity of the Canvas or another element.



Canvas snapping is enabled by default. To disable this feature, click **View > Canvas Snapping**. You can temporarily disable this feature by holding down **CTRL** when moving or resizing elements.

# Chapter 12: Using Timeline Pane

Timelines contain animations, as represented in a time-based view. Scenes can have more than one timeline to create complex animations and interactivity. Each scene has a main timeline which automatically starts when the scene loads while other additional timelines are called to play by actions. Timelines can be made to play, pause, seek, or change playback speed and direction to create rich and interactive animations.

For more details about commands and shortcuts in the **Timeline** pane, see **Timeline Menu**.

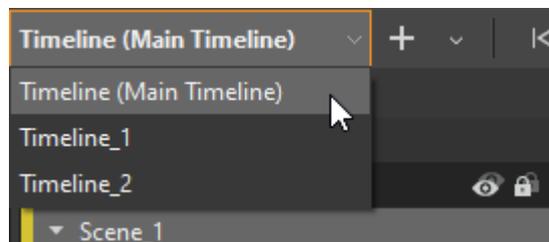
## Managing Multiple Timelines

A scene may have multiple timelines, including the main timeline and additional ones. The main timeline starts off automatically when a scene loads. Meanwhile, additional timelines, which also contain animations, don't. Instead, you must use **actions and triggers** to control their playback, such as start, pause, and continue them.

Multiple timelines come into play when you create rich and interactive HTML5 animation. This feature lets you make different animations on different timelines using the same set of elements.

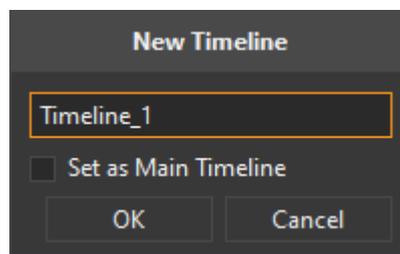
## Creating Timelines

The top left of the **Timeline** pane places a set of buttons for managing multiple timelines.



To add a new timeline to a scene, do the following:

1. Click **New Timeline**  to open the **New Timeline** dialog.



2. Enter a unique name for the new timeline.
3. Select **Set as Main Timeline** if you want the new timeline to act as the main timeline, making it start once the scene loads.
4. Click **OK** to finish.

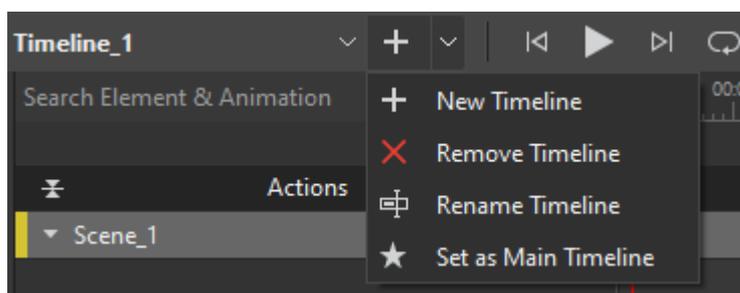
Newly created timelines are directly selected for editing. You can click the **Timeline Selector**

to switch between multiple timelines of a scene.

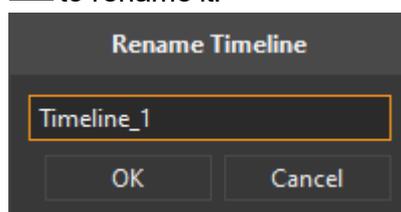
## Managing Timelines

After creating a new timeline, you can manage this timeline such as rename, set as main timeline or remove that timeline easily. Simply select a timeline from the **Timeline Selector**.

Then, click the drop-down arrow next to the **New Timeline**  button.



- Click **Rename Timeline**  to rename it.



- Click **Set as Main Timeline**  to make that timeline the main timeline of a scene.
- Click **Remove Timeline**  to delete the active timeline. This button becomes available only when a scene has more than one timeline.

## Navigating in Timeline

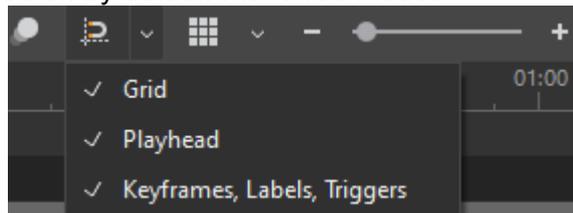
Saola Animate offers many controls to navigate the timeline by moving the Playhead. Do one or more of the following:

- Drag the Playhead to the desired location.
- Click the timeline ruler at the time where you want to move the Playhead. That way, the Playhead will immediately jump to that location.
- Change the time value in the time control (also called the current time indicator). Double-click on time value to make it editable, then scroll the mouse wheel or enter a new value.
- Use shortcuts or the Playback buttons. Press **SPACE BAR** or click **Play/Stop** or to start or stop animation in real time. Press **HOME** or click **Go to Start** to jump to the start of the timeline. And press **END** or click **Go to End** to jump to the end of the animation. Also, click **Loop Playback** to play the animation in a loop.

## Snapping in Timeline

Dragging the Playhead along the timeline, you may notice some snapping actions. For example, the Playhead jumps to a keyframe, a trigger, or a particular tick mark on the timeline ruler. Timeline snapping lets you move the Playhead and timeline items such as keyframes, labels, and triggers as you wish. It helps you easily line up keyframes and animation segments on the timeline.

Timeline snapping is turned on by default with three modes:



- **Snap to Grid:** The Playhead and timeline items snap to the grid lines. Grid lines give precise measurements of the timeline by displaying subtle vertical lines at regular intervals. They only appear when you click the **Show Grid** button.
- **Snap to Playhead:** Timeline items snap to the Playhead.
- **Snap to Keyframes, Labels, Triggers:** The Playhead and timeline items snap to the position of timeline items.

**Note:** When you enable timeline snapping without any modes, the Playhead and timeline items will only snap to special tick marks on the timeline ruler. These tick marks appear depending on the zoom level of the timeline.

## Zooming Timeline In and Out

As your animation can be fairly long, you may not be able to see all animation segments on the timeline. In that case, use the Timeline Zoom controls to zoom the timeline in and out to get better view of the animation.

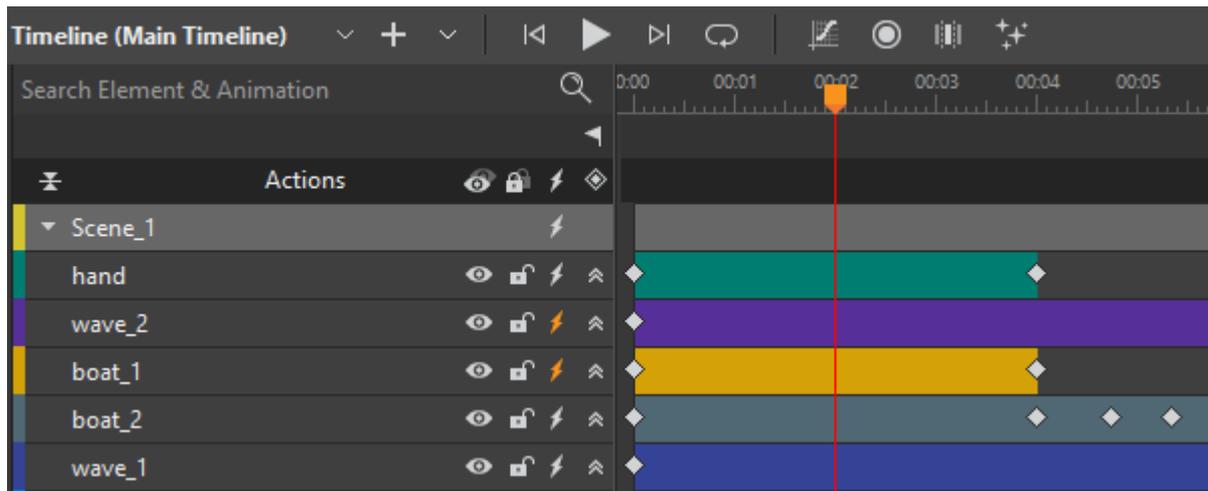


- **Zoom slider:** Drag the slider to the right, toward the + button to zoom in. Or, click the + button multiple times to zoom in to the level you want. Conversely, drag the slider to the left or click the – button to zoom out.
- **Zoom to Fit** : Click to fit the existing animation to the timeline view.

Additionally, you can use the mouse wheel to zoom the timeline. Place the cursor on the timeline, then hold down **CTRL** while scrolling the mouse wheel to zoom in or out.

## Managing Timeline View

The **Timeline** pane lists a scene together with its elements and all animated properties. To the left of each element name, there's a small color bar which labels each element and its animation segments with a specific color. That way, Saola Animate helps you quickly identify which animations belong to an element.



## Showing and Hiding Element Properties

If you're creating a complex scene with many groups, elements and animations, the list of elements and properties can go on forever.

To hide all animated properties of an element, click the double arrow button  at the end of the element lane.

To collapse/expand all children of a group, you can click the triangle button  on the left of the group name.

If you want to expand or collapse all elements and their animations at once, click the **Expand/Collapse Lanes**  button on the Actions bar.

## Filtering Elements

A scene may have a background image that stays unchanged over time and you don't want to clutter up the timeline with those static elements. To filter out elements with no animations, click the **Show Animated Elements Only**  button. This filter doesn't affect what you see on the Canvas, it only affects what you see on the timeline.

## Searching, Showing, Hiding and Locking Elements

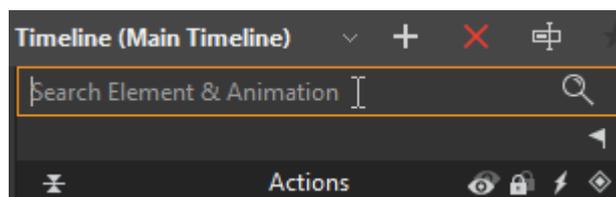
It's often hard to work with a lot of elements and complex animations. You may not select an element on the Canvas because it's behind others. To find a way out, you need look for that element on the timeline by scrolling the mouse wheel. You may also likely select the wrong element by accident because elements are placed so closely.

To solve these problems, Saola Animate provides three different controls: Searching, Visibility, and Locking. These controls are available in the **Timeline** and **Elements** panes.

## Searching Elements and Animations

A timeline may contain a lot of elements and animations. To easily navigate to any of them in the **Timeline** pane, you can search any element, animation, or group name by entering its names in the

search box , which is located above the **Actions** bar.



## Showing and Hiding Elements

The Visibility decides whether to display elements in a scene while editing. This control is best used to help you hide some elements on the Canvas so that you can focus on the target elements. Bear in mind that this is only an interface feature helping you work with many elements. It does not affect the output.

In the **Timeline** or **Elements** pane, notice the **Show/Hide** button next to the element names. An open eye  means that an element is visible, whereas an eye with a slash  indicates that it is invisible.

To show/hide all elements in a scene at once, click the **Show/Hide All**  button on the Actions bar.

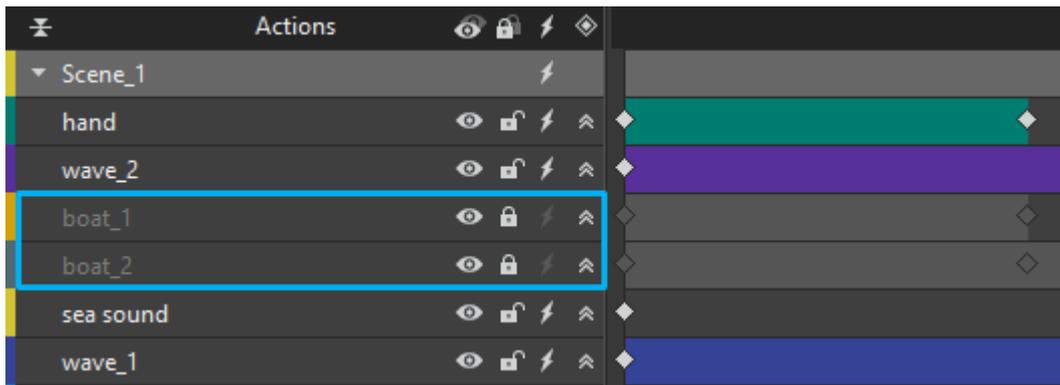
### Note:

- When you hide a group, its child elements are also invisible.
- When an element is hidden on the Canvas, it can still be selected and edited from other panes.
- To control the visibility in the output, animate the opacity or display property. This is useful when you want an element to fade in or out a scene. Or, you want an element to appear later in the animation and then make it disappear. Animate the opacity from 0% to 100% to fade an element in, and from 100% to 0% to fade it out. Meanwhile, for the display property, choose *off* to make an element invisible and *on* to make it suddenly appear in a scene.

## Locking and Unlocking Elements

Moving an element by mistake is a bad experience. To avoid that, you can lock elements in their location. That way, elements cannot be selected, moved, or edited, but they still remain visible with the Visibility state on.

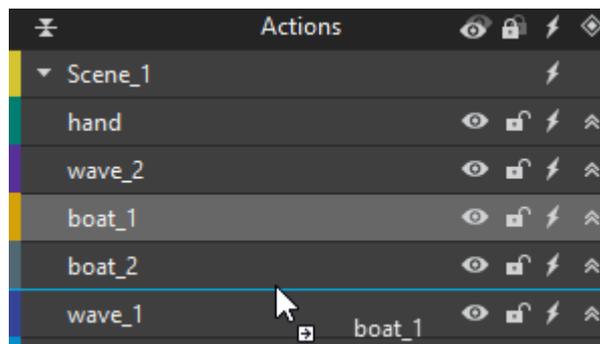
To lock an element, click the **Lock/Unlock** button next to the **Show/Hide** button. By default, elements are in the “unlock” state which is indicated by an open lock . At that time, you’re free to select them and make an edit. When you lock elements in place, the button turns into a closed lock  and the element names and animations get dim.



To lock/unlock all elements in a scene at once, click the **Lock/Unlock All**  button on the **Actions** bar.

## Arranging Elements by Drag-n-Drop

You can drag and drop elements in **Timeline** (and **Elements** pane) to **change their orders** or **their parents**.

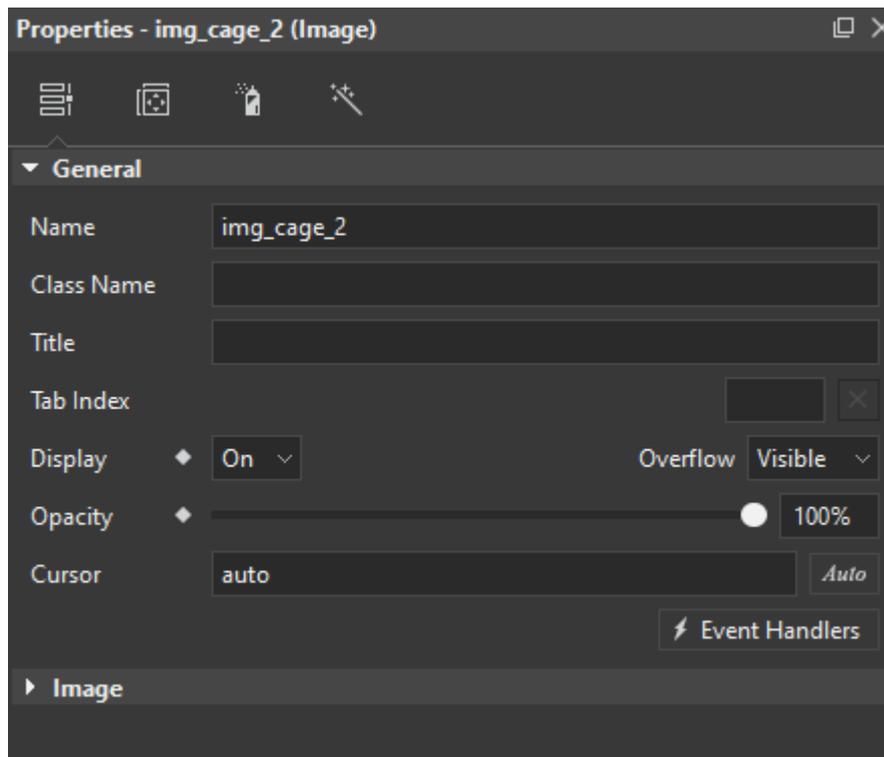


## Deleting Elements

To delete an element in the Timeline pane, you can right-click an element lane > **Delete** or press the **DELETE** key on your keyboard. You can also perform these controls in the **Elements** pane.

# Chapter 13: Using Properties Pane

The **Properties** pane is where you can view and change all common properties of selected elements or scenes. It has many tabs, including General, Position & Size, Styles, Effects and Scene tab. Each tab may contain some sections, each section shows a group of related properties with editable text fields, lists, and other controls to adjust properties. You can click each section's title bar to collapse or expand a section.



The **Properties** pane constantly updates itself depending on the selected element type. A number of properties are consistent and appear despite what type of elements you select. In contrast, other properties are specific to a certain type of elements. For example, the **Media** section is only available for audio and video elements.

Please note that you can select multiple elements or scenes to change their properties at once.

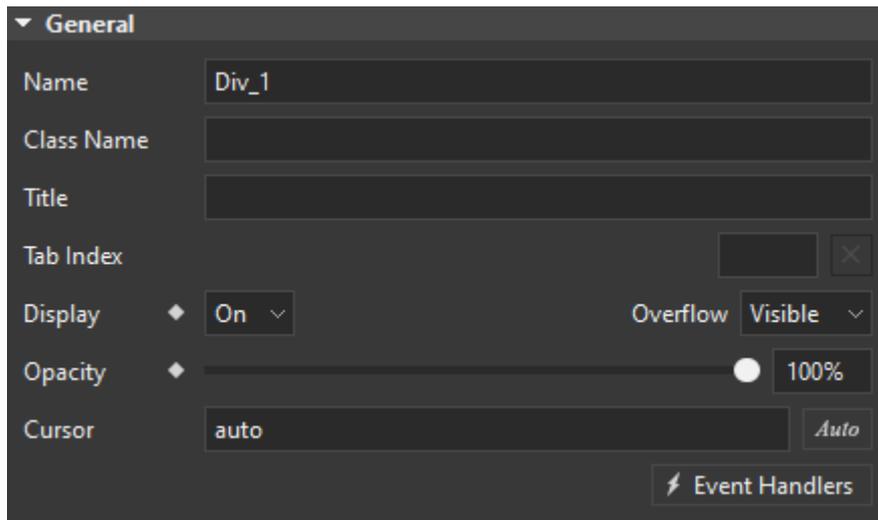
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## General Tab

The **General**  tab contains **General** section and specific sections for each type of elements such as **Image**, **Media**, **Text**, **Embedded** sections.

### General Section

The **General** section displays information about elements and several properties.

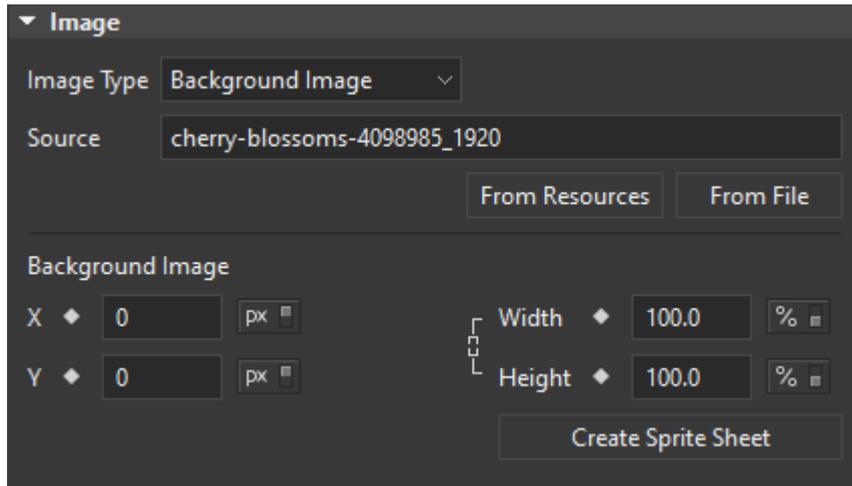


Property	Remark	Animatable
<b>Name</b>	Name of the element. This property can be changed but has to be unique.	No
<b>Class Name</b>	Class name of the element. This property can be used by CSS and JavaScript to perform certain tasks for elements with the specified class name.	No
<b>Title</b>	Title of the element, shown when you hover the mouse over the element in a browser.	No
<b>Tab Index</b>	Indicate if the element can be focused using the <b>TAB</b> key. Possible values: <ul style="list-style-type: none"> <li>• <b>Empty</b>: The element is not focusable.</li> <li>• <b>-1</b>: The element is focusable by mouse/touch but not be reachable using sequential keyboard navigation.</li> <li>• <b>0</b>: The element should be focusable in sequential keyboard navigation, but its order is defined by the document's source order.</li> <li>• <b>1</b>: The element should be focusable in sequential keyboard navigation, with its order defined by the value of the number.</li> </ul>	No
<b>Display</b>	Set the visibility state of the element. In animation, use the display property to hide or show an element instantly. <ul style="list-style-type: none"> <li>• <b>On</b>: The element appears on the scene or in the output.</li> </ul>	Yes

	<ul style="list-style-type: none"> <li>• <b>Off:</b> The element doesn't appear on the scene or in the output.</li> </ul>	
<b>Overflow</b>	<p>Determine how the content of the element is displayed if it overflows the element's bounds, and whether a scroll bar should appear.</p> <ul style="list-style-type: none"> <li>• <b>Visible:</b> The overflow isn't clipped; it renders outside the element's box. This is default.</li> <li>• <b>Hidden:</b> The overflow is clipped; any content that extends beyond the box will be hidden.</li> <li>• <b>Scroll:</b> The overflow is clipped, but a scroll bar is added to view the rest of the content.</li> <li>• <b>Auto:</b> If the overflow is clipped, a scroll bar should be added to view the rest of the content.</li> </ul>	No
<b>Opacity</b>	<p>Set the opacity (also transparency) of the element in the range [0, 100%]. Lower values make the element more transparent. The opacity property is often used to create fade-in and face-out effects.</p> <p>To change the opacity, drag the opacity slider left or right.</p>	Yes
<b>Cursor</b>	<p>Set which mouse cursor is displayed when the mouse pointer is over an element. The default value is <i>auto</i>.</p> 	No

## Image Section

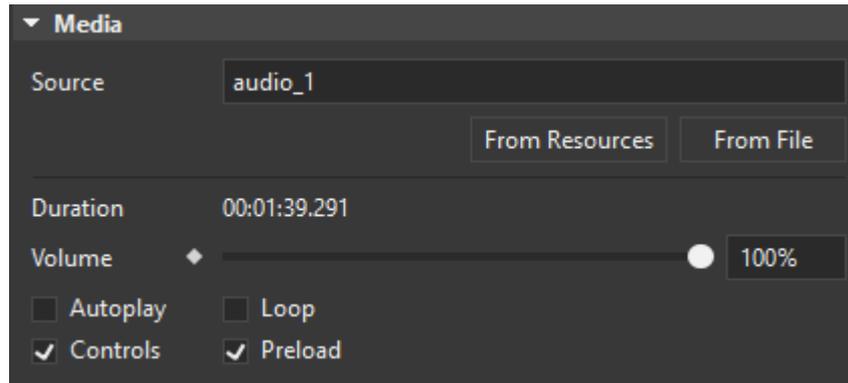
The **Image** section is available for **image elements** only to display image-specific properties.



Property	Remark	Animatable
<b>Image Type</b>	Type of the image. Switch among three image types: <b>Background Image</b> , <b>Image (&lt;img&gt;)</b> , and <b>Inline SVG</b> .	No
<b>File Name</b>	Name of the image embedded within the image element.	No
<b>From Resources</b>	Select another image from the <b>Resources</b> pane to replace with the current image.	No
<b>From File</b>	Select another image from your computer to replace with the current image.	No
<b>Background Image X, Y</b>	Applicable to <b>Background Image</b> type. Set the exact position of the background image.	Yes
<b>Background Image Width, Height</b>	Applicable to <b>Background Image</b> type. Set the size of the background image.	Yes
<b>Create Sprite Sheet</b>	Applicable to <b>Background Image</b> type. Create <b>Sprite Sheet Animation</b> .	No

## Media Section

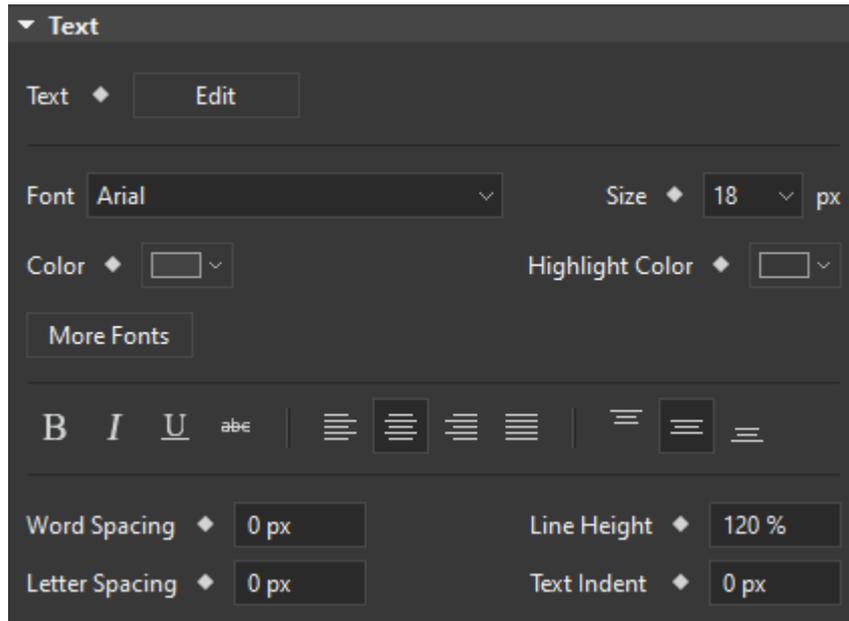
The **Media** section displays information about the audio/video and enables you to define some media options. This section is used for **audio and videos** only.



Property	Remark	Animatable
<b>Source</b>	Name of the audio/video. This property cannot be changed.	No
<b>From Resources</b>	Select another audio/video from the <b>Resources</b> pane to replace with the current one.	No
<b>From File</b>	Select another audio/video from your computer to replace with the current one.	No
<b>Duration</b>	Duration of the audio/video in milliseconds. This property cannot be changed.	No
<b>Volume</b>	Set the volume of the audio/video in the range [0, 100%].	Yes
<b>Autoplay</b>	Allow the audio/video to automatically play on the timeline and desktop browsers.	No
<b>Loop</b>	Make the audio/video replay automatically from the beginning after it finishes.	No
<b>Controls</b>	Display the default player controls for the audio/video.	No
<b>Preload</b>	Preload the audio/video before the document loads.	No

## Text Section

The **Text** section allows you to set and animate many text properties such as text size, color, and line height. This section is available for all text-based elements, namely **Text**, **DIVs**, and **Shapes**.

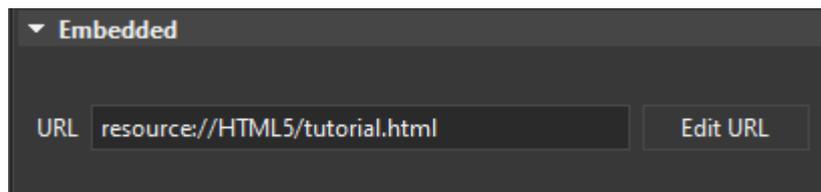


Property	Remark	Animatable
<b>Text</b>	Make a text jump into another text instantly in the same text-based element.	Yes
<b>Edit</b>	Enable the text editing mode in the text-based element.	No
<b>Font</b>	Set the font family of text.	No
<b>Size</b>	Set the font size of text in pixels.	Yes
<b>Color</b>	Set the color of text.	Yes
<b>Highlight Color</b>	Set the highlight color of text.	Yes
<b>More Fonts</b>	Get more Google Fonts	No
<b>Bold</b>	Make the text bold.	No
<b>Italic</b>	Make the text italic.	No
<b>Underline</b>	Underline the text.	No
<b>Strikethrough</b>	Strike the text through.	No
<b>Horizontal Alignment</b>	Align text horizontally. Possible values: <b>Left</b> , <b>Center</b> , <b>Right</b> , and <b>Justify</b> .	No

<b>Vertical Alignment</b>	Align text vertically. Possible values: <b>Top</b> , <b>Middle</b> , and <b>Bottom</b> .	No
<b>Subscript/Superscript</b>	Format the text as subscript/superscript.	No
<b>Word Spacing</b>	Set the space between words in pixels.	Yes
<b>Letter Spacing</b>	Set the space between letters in pixels.	Yes
<b>Line Height</b>	Set the space between lines in percentages, relative to font size value.	Yes
<b>Text Indent</b>	Set the indent of each text block in pixels (paragraph).	Yes

## Embedded Section

The **Embedded** section display information about the embedded HTML. It is used for **HTML widgets** only.



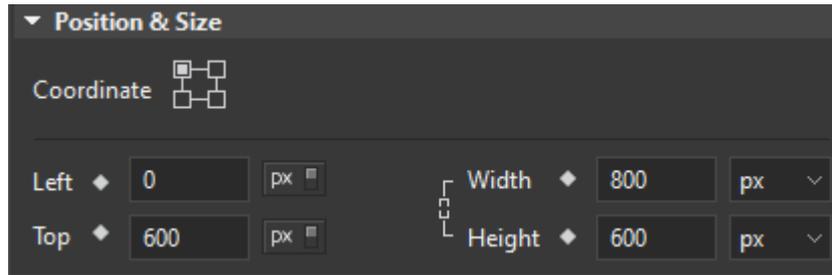
Property	Remark	Animatable
<b>URL</b>	Address of the webpage or HTML package resource displayed within the HTML widget.	No
<b>Edit URL</b>	Applicable to <b>URL</b> and <b>HTML Package</b> types. Change the content embedded within the HTML widget.	No
<b>Edit HTML</b>	Applicable to <b>Embed Code</b> type. Change the embedded code within the HTML widget.	No

## Position & Size Tab

The **Position & Size**  tab is where you can change geometry and transform properties of selected elements.

### Position & Size Section

The **Position & Size** section controls the position and size of element.



Property	Remark	Animatable
Coordinate	<p>Element position can be one of the following four coordinates:</p> <ul style="list-style-type: none"> <li> Relative to top and left (default).</li> <li> Relative to top and right.</li> <li> Relative to bottom and right.</li> <li> Relative to bottom and left.</li> </ul> <p>Depending on the position mode, the horizontal position can be Left or Right, the vertical position can be Top or Bottom</p> <ul style="list-style-type: none"> <li><b>Left/Right:</b> Set the distance from the left/right edge of the element to the left/right edge of its parent element. If the element doesn't belong to any group, its parent is the scene. The left/right supports both pixel (px) unit and percentage (%) unit. If the unit is percentage, the distance is relative to the width of the parent element.</li> <li><b>Top/Bottom:</b> Set the distance from the top/bottom edge of the element to the top/bottom edge of its parent element. If the element doesn't belong to any group, its parent is the scene. The top/bottom supports both pixel (px) unit and percentage (%) unit. If the unit is percentage, the distance is relative to the height of the parent element.</li> </ul>	Yes
Width, Height	<ul style="list-style-type: none"> <li><b>Width:</b> Set the width of the element in pixel (px), percentage (%) or auto unit. If the unit is percentage, the width is relative to the width of the parent element. Auto unit can be used by width or height (not both) to keep the aspect ratio when viewing the output in browsers.</li> </ul>	Yes

	<ul style="list-style-type: none"> <li>• <b>Height:</b> Set the height of the element in pixel (px), percentage (%) or auto unit. If the unit is percentage, the height is relative to the height of the parent element. Auto unit can be used by width or height (not both) to keep the aspect ratio when viewing the output in browsers.</li> <li>• <b>Link width to height</b> : Maintain the aspect ratio while editing in the editor.</li> </ul> <p>In the <b>responsive</b> output, maintain the aspect ratio by setting either the width or height unit to percentages (%) and the other unit to <b>auto</b>. For example, set the width unit to % and the height unit to auto. That way, the element height will change proportionally with the width while the width responds to window or viewport size changes.</p>	
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## Transform Section

The **Transform** section allows you to translate, scale, skew, and rotate elements in **three-dimensional space**.



Property	Remark	Animatable
<b>Origin X, Y, Z</b>	Set the origin point around which the element is transformed.	Yes
<b>Translate X, Y, Z</b>	Translate the element to a different position relative to the origin. If the element has a <b>motion path</b> , Translate X and Translate Y are also coordinate of the current point in the path.  Please note that Translate X / Y cannot animate separately but in combination in motion path animation.	Yes

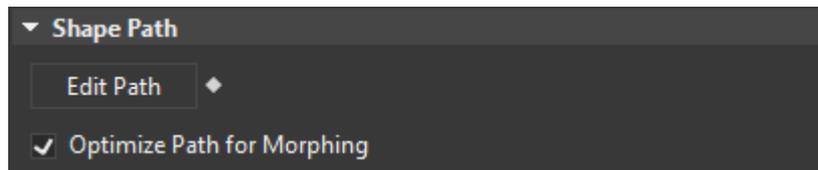
<b>Rotate X, Y, Z</b>	Rotate the element around the corresponding axis. Negative angles make the element rotate counter-clockwise. Rotation is applied to the element in ZYX order, i.e. the element will rotate around the z-axis first, then the y-axis, and finally the x-axis.	Yes
<b>Scale X, Y, Z</b>	Scale the element along the corresponding axis. Please note that a negative Scale X or Scale Y will mirror the element horizontally or vertically, respectively.	Yes
<b>Skew X, Y</b>	Skew the element horizontally or vertically in the range [-60, 60°].	Yes
<b>Auto-Orient Motion Path</b>	Enable/disable motion path auto orientation.	No

## Styles Tab

The **Styles**  tab allows you to customize shape path for morph animation, border and fill of the element.

### Shape Path Section

The **Shape Path** section allows editing path, adding path keyframes, and changing option for path animation. This section is applicable to **Shape** and **Freeform** elements only.

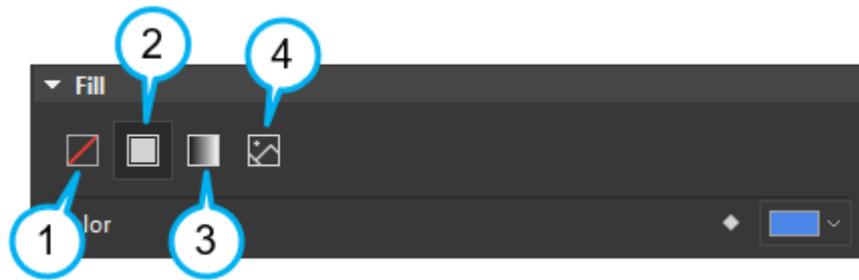


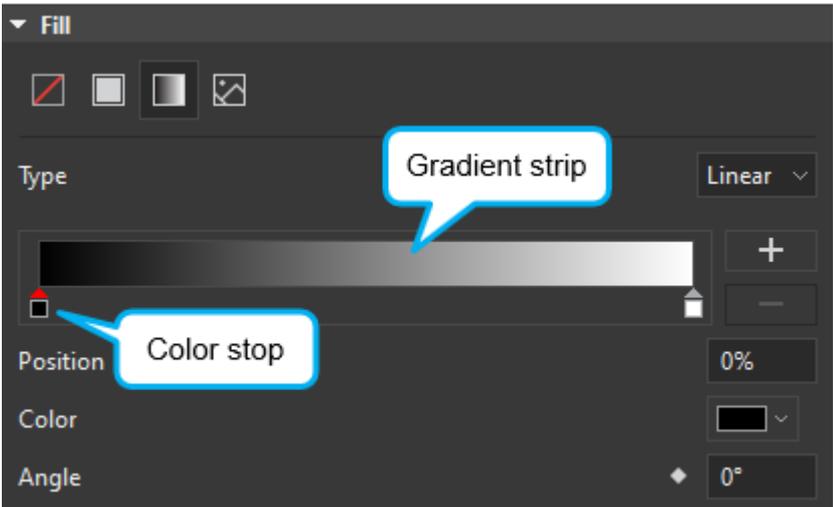
Property	Remark	Animatable
<b>Edit Path</b>	Enable the path editing mode of a <b>Shape</b> or a <b>Freeform</b> element.	Yes
<b>Optimize Path for Morphing</b>	Set option for morph animation. This check box is selected by default, which helps adjust anchor points between shapes automatically for the best shape morphing.  If you clear this check box, you need to manually control over anchor points so as to the number of anchor points in each shape should be equal.	No

### Fill Section

The **Fill** section sets the background fill style of elements. Four possible values: No Fill (1),

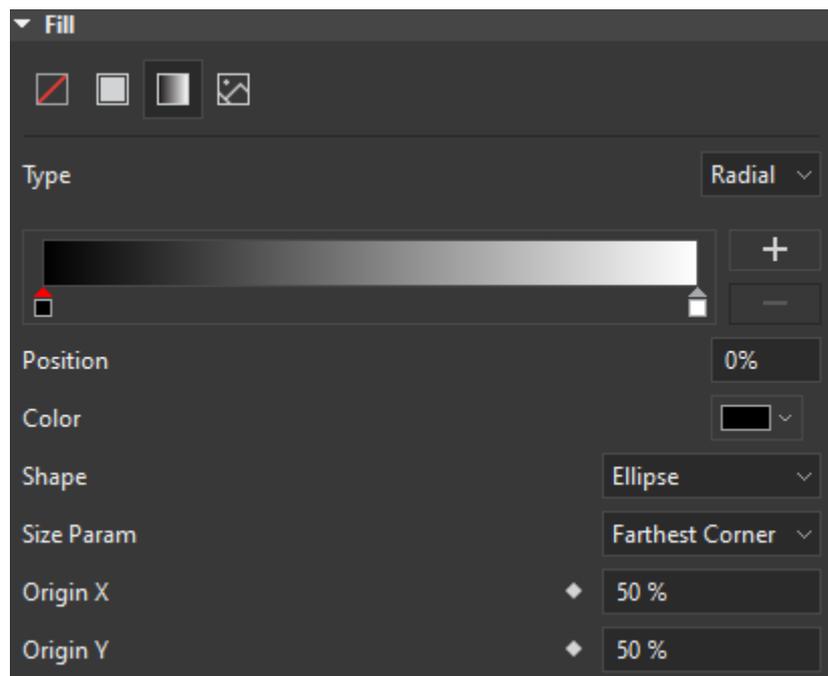
Solid Fill (2), Gradient Fill (3), and Image Fill (4).



Value	Remark
<b>No Fill</b>	Fill the element with a transparent background (alpha = 0).
<b>Solid Fill</b>	Fill the background with a solid color. <b>Solid Fill</b> uses the RGBA color picker. The default alpha (A) is 255. The color is animatable.
<b>Gradient Fill</b>	<p>Fill the background with a gradient where two or more colors (with or without alpha transparency) gradually fade into other.</p> <div style="text-align: center; margin: 10px 0;">  </div> <p>Select either of the two gradient types from the <b>Type</b> combo box:</p> <ul style="list-style-type: none"> <li>• <b>Linear gradient</b> creates a straight progression between two or more colors. A linear gradient can go horizontally (left, right), vertically (up, down), or diagonally.</li> <li>• <b>Radial gradient</b> creates a circular progression between two or more colors. It radiates from its center, either in an ellipse or in a circle.</li> </ul> <p><b>a. Linear Gradient</b></p> <div style="margin-top: 10px;">  </div>

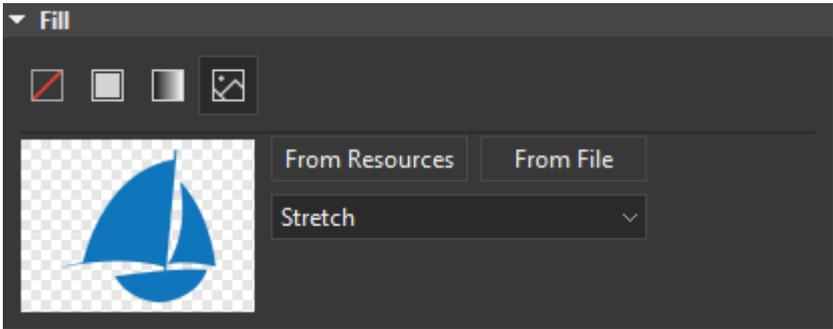
- **Gradient strip:** Show a “live” sample of the gradient. Use it to make changes to the gradient in a visual manner.
- **Color stop:** Each color stop on the strip is a distinct color. The selected color stop has a red triangle at the top. To add a color stop, click on the strip or click **Add** (the plus icon). In contrast, click **Remove** (the minus icon) to remove a selected color stop.
- **Position:** Specify the position of the selected color stop, where you want a color to “start”. To change a color stop’s position, drag it along the strip or enter a new number in the **Position** text box.
- **Color:** Use the color picker to define a color for the selected color stop (with or without transparency).
- **Angle:** Set the angle of direction for the gradient line. By default, a linear gradient runs vertically from bottom to top with an angle of 0 degree. As the degree increases, the gradient direction rotates clockwise. Negative angles make the gradient run in the counter-clockwise direction.

#### b. Radial Gradient



- The **Gradient strip**, **Color stop**, **Position**, and **Color** of radial gradients are much the same as those of linear gradients.
- **Shape:** Define the shape of the gradient. The value can be either ellipse or circle, of which ellipse is the default.
- **Size Param:** Define the size of the ending shape (the shape where the last color ends). Four possible values:
  - **Farthest Corner:** The gradient ends at the corner that is

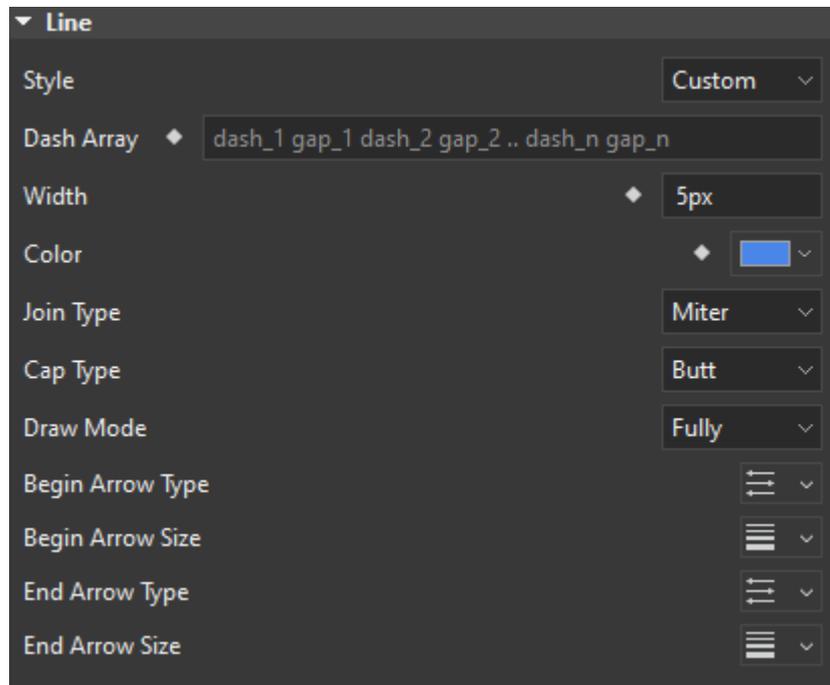
	<p>farthest from the shape’s center. This is the default value.</p> <ul style="list-style-type: none"> <li>○ <b>Closest Corner:</b> The opposite of Farthest corner, where the gradient ends at the corner that is closest to the shape’s center.</li> <li>○ <b>Farthest Side:</b> The gradient ends at the side farthest from the shape’s center.</li> <li>○ <b>Closest Side:</b> The opposite of Farthest side, where the gradient ends at the side closest to the shape’s center.</li> </ul> <ul style="list-style-type: none"> <li>● <b>Origin X, Y:</b> Adjust the location of the center point. For example, Origin X, Y [value: 50%, 50%] sets the gradient in the center (default). Meanwhile, Origin X, Y [value: 0%, 0%] sets the gradient to start at the top left. Animate these properties to create animation where the center point moves from this position to that position.</li> </ul> <p><b>Note:</b> Saola Animate is compatible with: Chrome 4+, Firefox 3.5+, IE 9+, Edge, Safari 3.1+, and Opera 11.5+. But for CSS gradient fill, newer versions are required: Chrome 10+, Firefox 3.6+, IE 10+, Safari 5.1+, and Opera 12.1+.</p>
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<p><b>Image Fill</b></p>	<p>Fill the background with an image. Images can be chosen from the <b>Resources</b> pane or from your computer. Five possible fill options:</p>  <ul style="list-style-type: none"> <li>● <b>Stretch:</b> Extend the image to all edges of the container by distorting or shrinking it. Stretch may only work for some abstract images, not the “figurative” ones. This is the default.</li> <li>● <b>Center:</b> Center the image inside the container. If the image is smaller than the container, you’ll see a transparent area around the edges. Otherwise, you’ll see the very center of the image, with the rest outside of view. Choose this for images with the center focus.</li> <li>● <b>Fit:</b> Scale the image as large as possible without cropping or stretching so that the whole image is shown. The empty portion of the container is made transparent.</li> <li>● <b>Tile:</b> Repeat the same image throughout the background, making multiple tiles of the image. It is meant for small images or patterns.</li> <li>● <b>Fill:</b> Scale the image as large as possible without stretching it. If</li> </ul>
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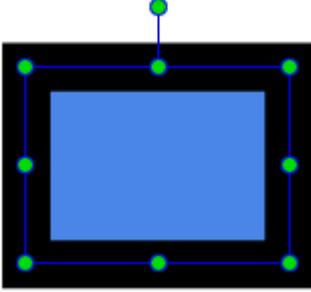
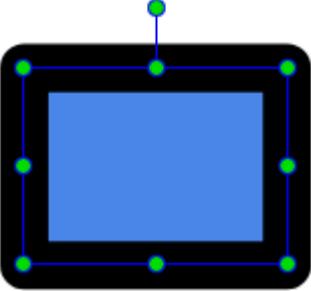
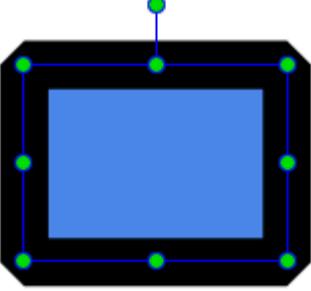
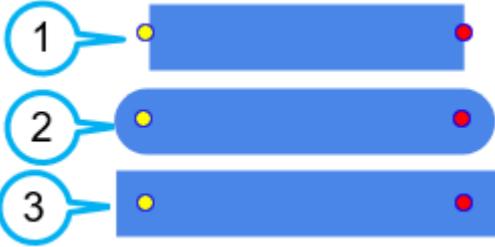
the proportion of the image differs from the container, the image is cropped so that it covers the entire container.

## Line Section

The **Line** section defines the line style of elements.



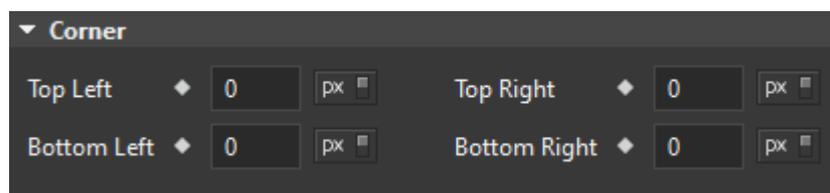
Property	Remark	Animatable
<b>Style</b>	Set the line style of the element. Five possible values: <ul style="list-style-type: none"> <li>• <b>None</b>: No line border is applied.</li> <li>• <b>Solid</b>: The line borders are created by solid lines.</li> <li>• <b>Dotted</b>: The line borders are created by dot lines.</li> <li>• <b>Dashed</b>: The line borders are created by dash lines.</li> <li>• <b>Custom</b>: The line borders are created by custom dash array. Applicable to <b>Shape</b> and <b>Freeform</b> elements only.</li> </ul>	No
<b>Dash Array</b>	Applicable to the <b>Custom</b> style. A string of dash pattern in which dash and gap are separated by a space.	Yes
<b>Width</b>	Set the width of the line in pixels (px).	Yes
<b>Color</b>	Set the color of the line.	Yes

<p><b>Join Type</b></p>	<p>Applicable to <b>Shape</b> and <b>Freeform</b> elements only. The type of the join where two lines intersect with each other.</p> <ul style="list-style-type: none"> <li>• <b>Miter</b>: The corners where two-lines connects are squared off. It is selected by default.</li> </ul>  <ul style="list-style-type: none"> <li>• <b>Round</b>: The corners where two-lines connects are rounded.</li> </ul>  <ul style="list-style-type: none"> <li>• <b>Bevel</b>: The corners where two-lines connects are cut off at a 45-degree angle.</li> </ul> 	<p>No</p>
<p><b>Cap Type</b></p>	<p>Only applicable to an open line of the <b>Shape</b> and <b>Freeform</b> elements, where you can see the end(s) of a line.</p>  <ul style="list-style-type: none"> <li>• <b>Butt</b> (1): A flat edge is applied to each end of the</li> </ul>	<p>No</p>

	<p>line at the end point(s). It is selected by default.</p> <ul style="list-style-type: none"> <li>• <b>Round (2):</b> A rounded end cap is added to each end of the line.</li> <li>• <b>Square (3):</b> A square end cap is added to each end of the line.</li> </ul>	
<b>Draw Mode</b>	<p>Three possible line drawing modes:</p> <ul style="list-style-type: none"> <li>• <b>Fully:</b> Line is fully drawn with no animation at all.</li> <li>• <b>Partly:</b> This option allows animating line drawing using the <b>Line Length</b> keyframes. The value of the keyframes can be negative or greater than 100%.</li> <li>• <b>Dash:</b> Applicable to the <b>Dotted, Dashed,</b> and <b>Custom</b> styles. This option allows animating dotted or dashed line using the <b>Dash Offset</b> keyframes which set the offset from the start point in px. The value of the keyframes can be negative.</li> </ul>	Yes
<b>Begin Arrow Type</b>	Set the type of the begin arrow.	No
<b>Begin Arrow Size</b>	Set the size of the begin arrow.	No
<b>End Arrow Type</b>	Set the type of the end arrow.	No
<b>End Arrow Size</b>	Set the size of the end arrow.	No

## Corner Section

The **Corner** section is used for **DIVs** only to define the shape of the DIV border.



Property	Remark	Animatable
<b>Top Left</b>	Set the radius of the top-left rounded corner.	Yes
<b>Top Right</b>	Set the radius of the top-right rounded corner.	Yes
<b>Bottom Left</b>	Set the radius of the bottom-left rounded corner.	Yes

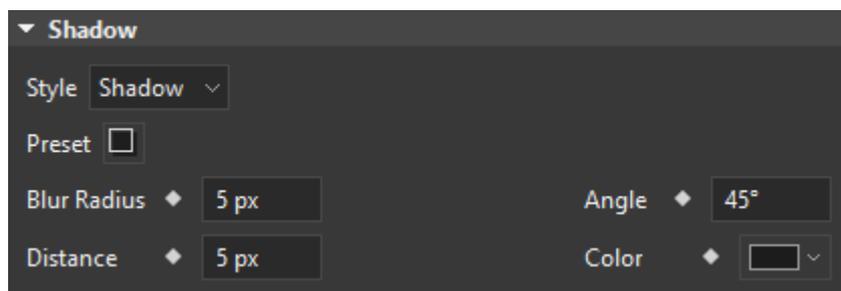
<b>Bottom Right</b>	Set the radius of the bottom-right rounded corner.	Yes
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## Effects Tab

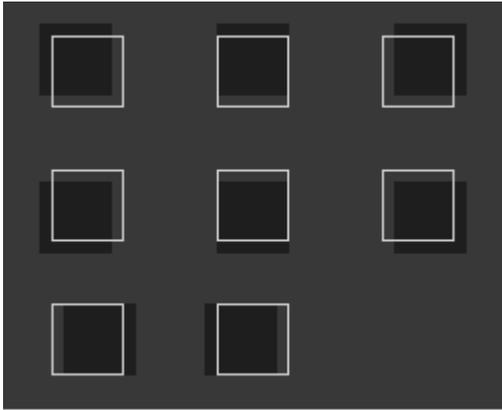
The **Effects**  tab contains sections for editing element's shadow, filter and clip effects. Some types of elements don't have this tab, such as audio elements.

### Shadow Section

This section allows you to set the shadow effect of the element. Let's select **Shadow** or **None** from **Style** combo box to set or clear the shadow, respectively.



When the **Shadow** style is enabled, you can change the following properties to customize the shadow:

Property	Remark	Animatable
<b>Preset</b>	Provide 8 presets with different angles to quickly change the shadow. 	No
<b>Blur Radius</b>	Set the shadow blurry. The higher the value, the more blurred the shadow.	Yes
<b>Angle</b>	Angle between the shadow and the element. It's measured clockwise, with x-axis as the reference.	Yes

<b>Distance</b>	Distance between the shadow and the element.	Yes
<b>Color</b>	Color of the shadow.	Yes

## Filter Section

The **Filter** section is used to apply graphical effects like blur or color shift to an element. In Saola Animate, filter effects are commonly used to adjust the rendering of images.



Property	Remark	Animatable
<b>Preset</b>	Provide 9 presets to quickly apply the filter effect. 	No
<b>Invert</b>	Invert the sample in the input element. A value of 100% is completely inverted. A value 0% leaves the input unchanged.	Yes

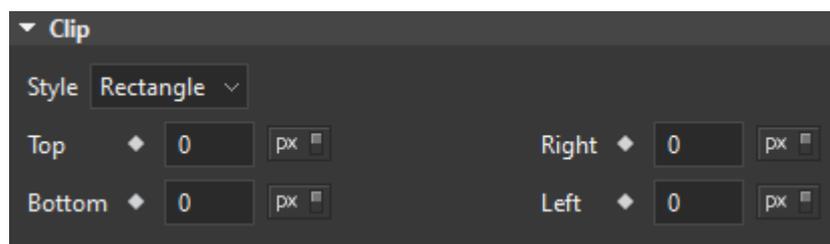
<b>Hue</b>	Apply a hue rotation on the element. Unit is degree. Hue rotation is number of degrees around the color circle that the input samples will be adjusted. A value of 0 degree leaves the input unchanged.	Yes
<b>Contrast</b>	Adjust the contrast of the input. By default, contrast value of an element is 100%. 0% is minimum value and the element is completely gray at this.	Yes
<b>Brightness</b>	Brightness is used to make the element more or less bright. Default value is 100%.	Yes
<b>Saturate</b>	Saturate the input element. Unit is percentage and 100% is the default value.	Yes
<b>Sepia</b>	Convert the input element to sepia, giving it a warmer appearance. The value of amount defines the proportion of the conversation. A value of 100% is completely sepia. By default, sepia value is 0%.	Yes
<b>Grayscale</b>	Adjust grayscale of the input element. Default value is 0% and the value of 100% makes the input is completely gray.	Yes
<b>Blur</b>	Apply the Gaussian blur to the input element. The blur value shows how many pixels on the screen blend to each other, larger value will make the input more blur. A value of 0px is the default.	Yes

**Note:** Filter effects for an element do not work in Canvas if the element, or a lower z-order element has been 3D transformed. Please preview in browsers, or export to HTML5 to see how filter effects are applied in this case.

## Clip Section

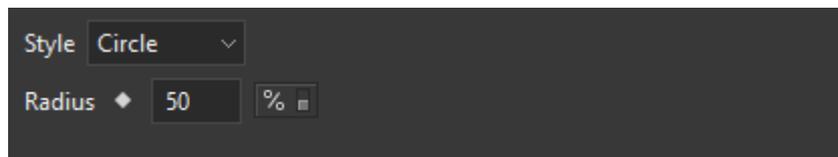
If you want to specify a specific region of an element to display, this section can help you to do that. Just select the clipping shape in **Style** combo box and adjust related properties as desired. Parts of the element that are inside the clipping shape are shown, while those outside are hidden.

### Rectangle Clipping



Property	Remark	Animatable
<b>Top</b>	Distance from the top edge of the element to the top edge of the clipping rectangle.	Yes
<b>Right</b>	Distance from the right edge of the element to the right edge of the clipping rectangle.	Yes
<b>Bottom</b>	Distance from the bottom edge of the element to the bottom edge of the clipping rectangle.	Yes
<b>Left</b>	Distance from the left edge of the element to the left edge of the clipping rectangle.	Yes

### Circle Clipping



Property	Remark	Animatable
<b>Radius</b>	Radius of the clipping circle.	Yes

### Oval Clipping



Property	Remark	Animatable
<b>X Radius</b>	Radius of the clipping ellipse along x-axis.	Yes
<b>Y Radius</b>	Radius of the clipping ellipse along y-axis.	Yes

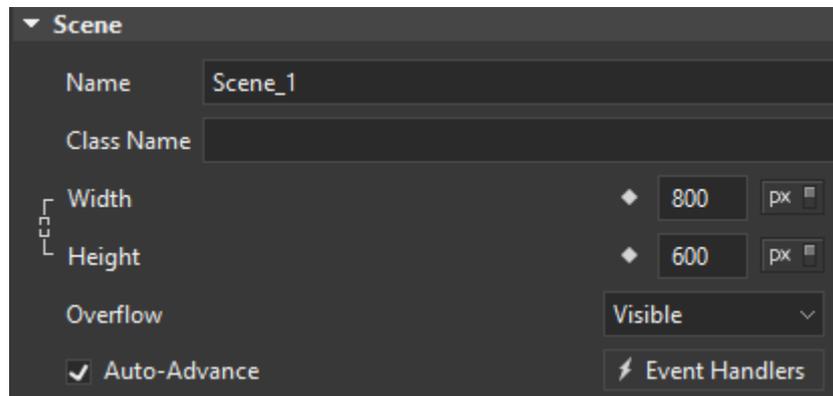
**Note:** Circle and Oval clipping are not supported by Microsoft Internet Explorer and Microsoft Edge Legacy browsers.

## Scene Tab

The **Scene**  tab contains specific sections for the scene, including **Scene**, **Perspective**, and **Transition Effects** sections.

## Scene Section

The **Scene** section displays properties related to **scenes**.

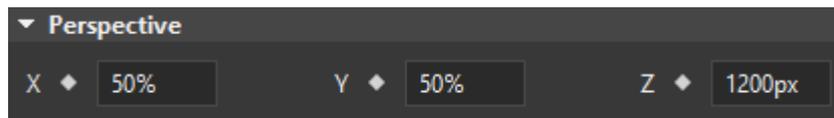


Property	Remark	Animatable
<b>Name</b>	Name of the scene. This property can be changed but has to be unique.	No
<b>Class Name</b>	Class name of the scene. This property can be used by CSS and JavaScript to perform certain tasks for scenes with the specified class name.	No
<b>Width, Height</b>	Set the exact width and height of the scene. The size can be a fixed value (in pixels) or relative to the container size (in percentages).  To maintain the aspect ratio while editing, select the <b>Link width to height</b> check box (the chain icon).	Yes
<b>Overflow</b>	Determine how the content of the scene is displayed if it overflows the scene's box, and whether a scroll bar should appear. <ul style="list-style-type: none"> <li>• <b>Visible:</b> The overflow isn't clipped; it renders outside the scene's box. This is default.</li> <li>• <b>Hidden:</b> The overflow is clipped; any content that extends beyond the box will be hidden.</li> <li>• <b>Scroll:</b> The overflow is clipped, but a scroll bar is added to view the rest of the content.</li> <li>• <b>Auto:</b> If the overflow is clipped, a scroll bar should be added to view the rest of the content.</li> </ul>	No

<b>Auto-Advance</b>	Jump to the next scene automatically when the current scene ends. If you disable this feature, use <b>actions</b> to jumps to another scene.	No
<b>Event Handlers</b>	Open the <b>Scene Event Handlers</b> dialog to control scene events and actions.	No

## Perspective Section

This section is used to change the perspective for **3D transformation**.



Property	Remark	Animatable
<b>X, Y, Z</b>	Set the viewing position at which the viewer sees the 3D space.	Yes

## Transition Effects Section

The **Transition Effects** section displays properties related to scene transition effects. It helps define transition effects between **scenes**.

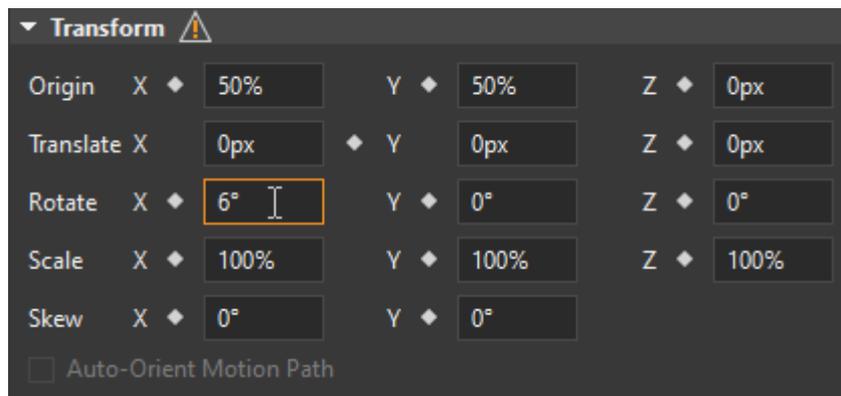


Property	Remark	Animatable
<b>Type</b>	Type of the transition effect. Possible values: <ul style="list-style-type: none"> <li>• <b>None</b> (default type, meaning no effect)</li> <li>• <b>Fade</b></li> <li>• <b>Push</b></li> </ul>	No
<b>Duration</b>	Duration of the transition in milliseconds.	No
<b>Easing</b>	The timing function that updates the transition by time.	No

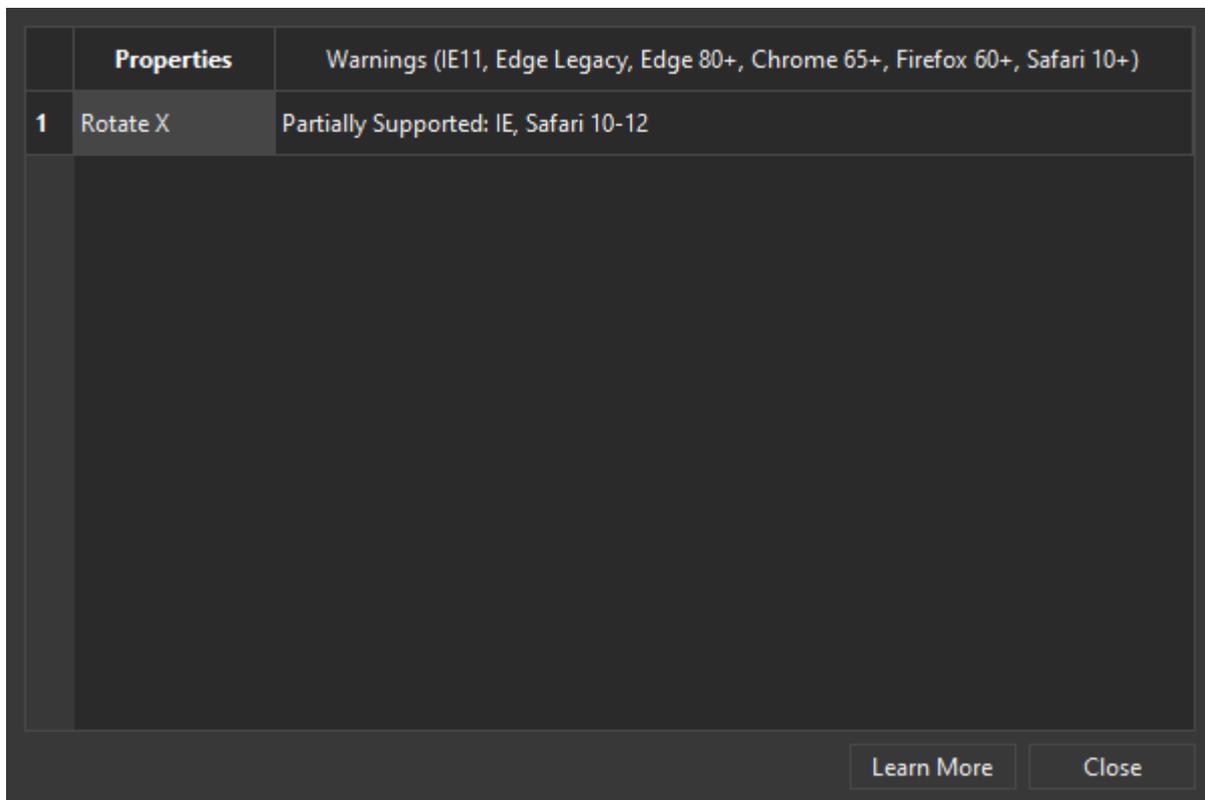
<b>Direction</b>	Direction of the Push transition effect. Possible values: From Left, From Top, From Right, From Bottom	No
------------------	--	----

## Browser Compatibility Warnings

Some features such as 3D transformation don't work on old browsers, so Saola Animate provides a warning system to notify about that. When you use a property, which is not supported or just supported partially on some browsers, a warning icon  will appear next to the title of the section containing that property.



To view which properties don't work well in which browsers, click on that warning  icon to show the **Browser Compatibility Warnings** window.



In the **Browser Compatibility Warnings** window, you can select a property and click **Learn More** button for detailed information about the warning.

**Note:** Saola Animate only shows warning for quite new versions of common browsers, including Microsoft IE11, Microsoft Edge Legacy, Microsoft Edge 80 or later, Google Chrome 65 or later, Mozilla Firefox 60 or later, Apple Safari 10 or later.

# Chapter 14: Using Resources Pane

The **Resources** pane lists all resources added to a project and provides many controls for managing resources. To show the pane, click **View > Resources**. Saola Animate supports the following resource types and extensions:

- **Image:** Image files (\*.png, \*.jpg, \*.jpeg, \*.bmp, \*.gif, \*.svg)
- **Audio:** Audio files (\*.mp3, \*.wav, \*.m4a, \*.aac, \*.ogg, \*.oga)
- **Video:** Video files (\*.mp4, \*.m4v, \*.webm, \*.ogv)
- **JavaScript:** JavaScript files (\*.js)
- **CSS:** Style sheet files (\*.css)
- **HTML:** HTML files (\*.html)
- **Symbol:** Saola Animate symbols (\*.saolasym)
- **Font:** **Google fonts** added to a project

The **Resources** pane offers control for filtering resource types. Just click the **Resource Type** combo box and select a type you want to see. You can also click the **View Style** combo box to change the view style. Select one of the following views:

- **List:** Each resource appears as a small icon with a label to the right.
- **Small:** Each resource appears as a small icon with a label below it. This is the default view style.
- **Medium:** Each resource appears as a medium icon with a label below it.

---

## Managing Resources

### Importing Resources

Simply drag files to the **Resources** pane to import them. Alternatively, in the **Resources** pane, click **Import**  **> From File** and choose the files you want from your computer.

For JavaScript and CSS resources, you can directly import files from URL by clicking **Import > From URL** and specify the URL.

After importing resources, you can:

- **Rename resources:** Select a resource and press **F2** on your keyboard, or right-click it and select **Rename**.
- **Preview resources:** You can preview images, audio, and videos. Double-click an image/audio/video or right-click it and select **Preview**. The **Preview** window appears, allowing you to preview the file.
- **Add resources to scene:** Drag multiple resources directly on to the Canvas or right-click them and select **Add to Scene**.

**Note:** Besides the supported resource types and extensions, Saola Animate lets you import any other file types into your project. These "misc" resources will be exported with the project and stored in the HTML output's resource folder.

## Removing Resources

You can delete any resources that aren't in use, meaning that you have to remove all scene elements using a resource before you can delete it from the **Resources** pane. To figure out which resources that aren't actively used, click **Select Unused Resources** . Then, press **DELETE** to remove the resources you don't want. You can also click **Delete**  in the toolbar or in the context menu to get the same result.

## Exporting Resources

You can export one or multiple resources at the same time by clicking **Export** . If you're going to export a single resource, provide the file name for the file before exporting. Otherwise, if you want to export multiple resources, specify the folder path to save the files.

## Editing Symbol Resources

The **Resources** pane holds any symbols you create and import into a project. Double-click a symbol to edit it as a normal project.

## Script Resources

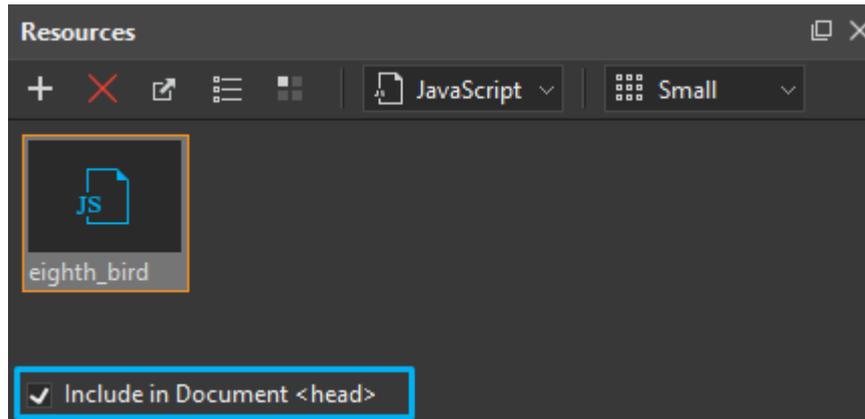
### Editing Script Resources

Script resources include JavaScript, CSS, and HTML files. Double-click a script resource to edit it in the script editor. This editor is similar to the **JavaScript Function** editor except that:

- It allows editing multiple script resources at once. Click **Open from Resources**  in the toolbar and choose other resources.
- You can discard all changes and return to the original files at any time by clicking **Restore to Original Files** at the bottom left corner of the editor. Alternatively, right click a script resource and select **Update from Original Files**.

### Including JavaScript and CSS in Document <head>

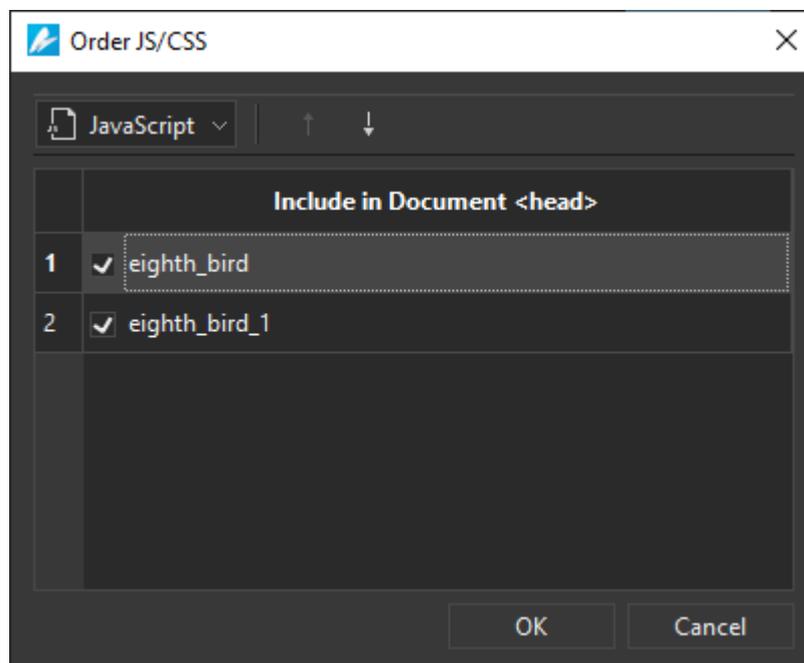
By default, JavaScript and CSS files added to a project are included in the document <head>. To disable this behavior, select the JavaScript or CSS file you don't want to be included in the document header and clear the **Include in Document <head>** check box.



## Ordering JavaScript and CSS

The order in which the JavaScript or CSS files are stated matters in many cases. One script may contain dependencies on another script, so you have to make sure the dependent script is called after the other one. Meanwhile, the order of the CSS files determines which ones take precedence. CSS rules that are defined earlier have lower precedence than those defined later, meaning that styles declared later win.

To order JavaScript and CSS resources, click **Order JS/CSS**  to open the corresponding dialog. Then, choose the resource type and click the **Move Up**  or **Move Down**  button to reorder the files. You can also specify whether to include a specific file in the document <head> by selecting the check box next to the file's label.

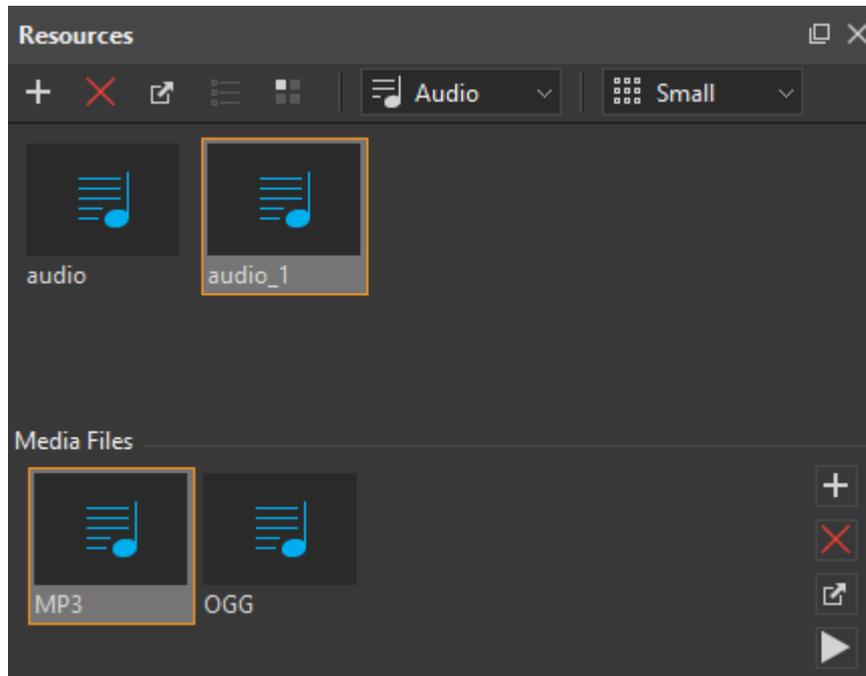


## Resource Groups for Audio and Videos

Adding audio and videos automatically creates an audio and video group to which additional formats can be added. That way, you provide a single audio/video with multiple sources for cross-

browser compatibility. A browser can select the most compatible format it supports from a resource group, ignoring the other formats.

In the **Resources** pane, whenever you select an audio or video resource, the **Media Files** widget appears. Using buttons on the right sidebar or in the context menu of the selected format, you can manage multiple sources in a resource group.



## Adding Media File into Group

Click **Add media file into group**  to add additional formats to a group. If the format has already existed, you will be asked if you want to overwrite it.

## Removing Media File from Group

Select a format and press **DELETE** or click **Remove media file from group**  to remove it from a group. If a group contains only one format, you cannot remove it.

## Exporting Selected Media File

Select a format and click **Export selected media file**  to export it to file. Provide the file name for the file before exporting.

## Previewing Selected Media File

Double-click a format to preview it in the **Preview** window. Alternatively, click **Preview selected media file**  in the toolbar or in the context menu.

# Chapter 15: JavaScript

Saola Animate exports content to documents using a combination of HTML5, CSS3, and JavaScript. Users can register a JavaScript function with an event in the **Event Handlers** dialog. There are two main types of functions:

- **Normal functions:** Normal JavaScript functions that can be called in other functions. You can modify the parameters of this function type.
- **Event handler functions:** Functions that are registered with events and have fixed parameters. Event handlers are separated into four types:
  - Element event handlers
  - Scene event handlers
  - Timeline event handlers
  - Document event handlers

---

## Creating Functions

Create a new function in the **Functions** pane. If you don't see this pane, click **View > Functions**.

1. Click **New Function**  and select the function type you want. The **JavaScript Function** editor appears, allowing you to write the script.
2. Write the script.
3. Click **OK** to apply changes and close the dialog. The function is created and listed in the pane.

Another way to create a new function is from the **Event Handlers** and **Timeline Triggers** dialogs. Do the following:

1. Add the Run JavaScript action.
2. Double-click the Params cell > **Add Function**.

## Removing Functions

Select one or more functions and press **DELETE** to remove them. Alternatively, click **Delete**  in the toolbar.

## Renaming Functions

Right-click a function and select **Rename**. Type a new name and press **ENTER** or any elsewhere outside to submit changes. Note that function names must not start with a number.

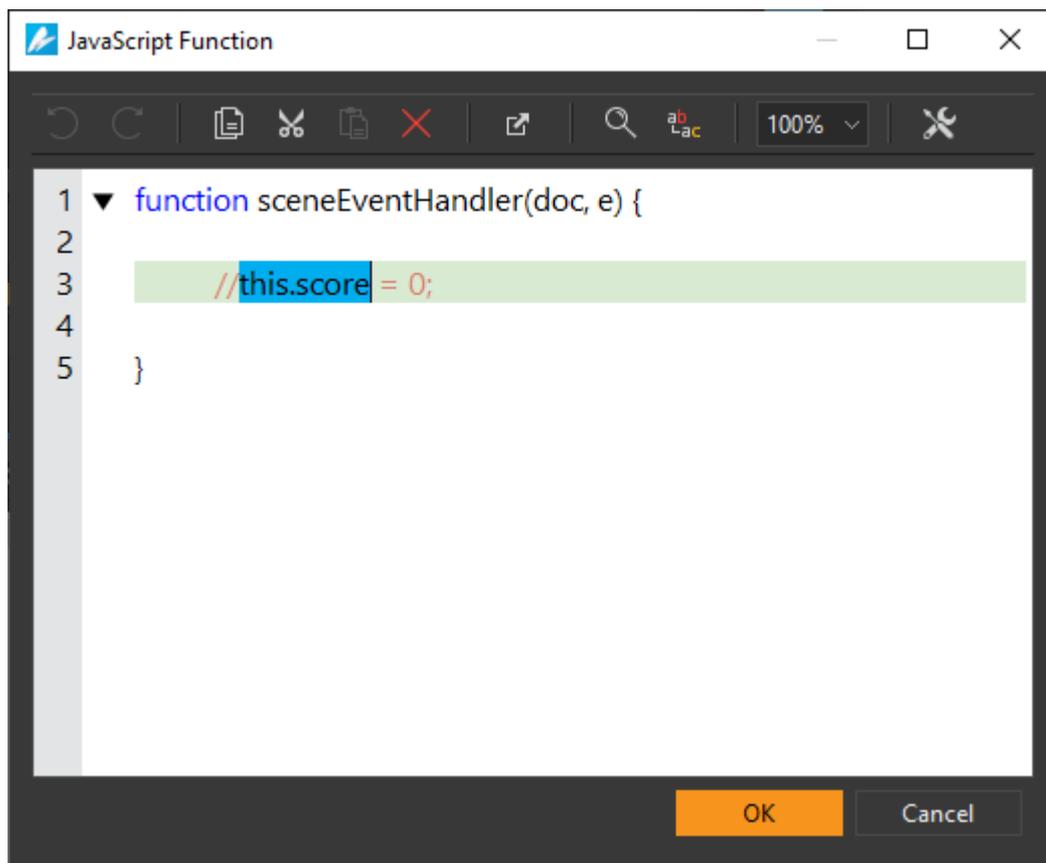
## Exporting Functions to JavaScript Files

Select one or more functions > **Export to File**  in the toolbar. Then, name the exported file.

## Editing Functions

Double-click a function to edit it in the **JavaScript Function** editor. For normal functions, you can edit their names, contents, and parameters. For event handler functions registered with events, you can only edit their names and contents because their parameters are set to fixed.

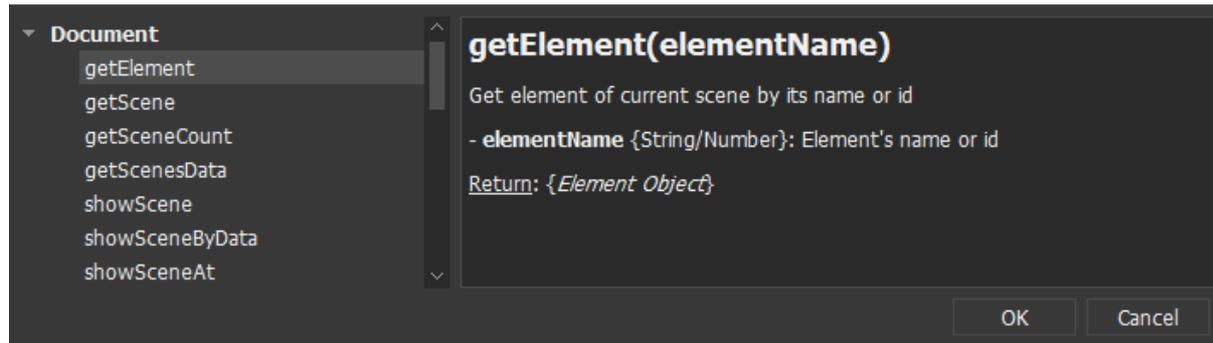
The editor comes with several features that support and speed up the coding process, such as code suggestion, code folding, and line number. Toggle these features by clicking **Options**  in the toolbar. For more details about the script editor, see **Code Editor Tab** and **Shortcuts for Script Editor**.



Code suggestion is a remarkable feature which predicts the rest of a word or sentence while you are typing. Press the **TAB** key to accept a suggestion, or the **DOWN ARROW** key to select and accept one of the several suggestions. To manually show suggestion, press **CTRL+SPACE** when editing. You can also insert APIs from the **JavaScript API Browser**.

## JavaScript APIs

Saola Animate publishes many methods and properties of common element types. Show these methods in the **JavaScript Function** editor by clicking **Options**  > **Show API** in the toolbar. These methods are listed with in-app documentation in the pane below the editing area and can be inserted into the editing area quickly by double-clicking.



## Document

### **getElement(elementName)**

Get the element of the current scene by name.

Params:

-elementName: String. Element's name.

Return: Element object.

### **getScene()**

Get the current scene of the document.

Return: Scene object.

### **getSceneCount()**

Get the number of the scenes.

Return: Number.

### **showScene(sceneName)**

Show the scene by name.

Params:

-sceneName: String. Scene's name.

Return: Boolean. True if the scene was found, false otherwise.

### **showSceneAt(index)**

Show the scene at the given index.

Params:

-index: Number. The index of the scene, the first scene has 0 index.

Return: Boolean. True if the scene was found, false otherwise.

### **showNextScene()**

Show the next scene from the current scene.

Return: Boolean. True if the next scene exists, false otherwise.

### **showPreviousScene()**

Show the previous scene from the current scene.

Return: Boolean. True if the previous exists, false otherwise.

**getDuration()**

Get the total duration (in milliseconds) of all Main Timelines of all scenes and scene transitions.

Return: Number. Duration in milliseconds.

**setSpeed(speed)**

Set the playback speed of the document.

Params:

-speed: Number. The playback speed of the document must be a positive value (e.g. 0.5, 1). Normal speed: 1. Return: undefined.

**getSpeed()**

Get the playback speed of the document.

Return: Number.

**setPlayBackward(backward)**

Set the playback direction.

Params:

-backwards: Boolean. Set the playback to backward if undefined or true, forward if false. Return: undefined.

**isPlayBackward()**

Check if the playback direction is backward.

Return: Boolean. True if play backward, false if forward.

**play()**

Play the mainstream (Main Timeline or scene transition).

Return: undefined.

**pause()**

Pause the mainstream (Main Timeline or scene transition).

Return: undefined.

**isPlaying()**

Check if the mainstream is playing or paused.

Return: Boolean. True if the mainstream is playing, false if paused.

**getTimeline(timelineName)**

Get the timeline of the current scene by name. If timelineName is undefined, the timeline is the Main Timeline.

Params:

-**timelineName**: String. Timeline's name.  
Return: Timeline object.

## Timeline

### **getDoc()**

Get the current document.  
Return: Document object.

### **getTimestamp()**

Get the current timestamp (in milliseconds), relative to the beginning of the timeline.  
Return: Number.

### **getDuration()**

Get the duration (in milliseconds) of the timeline. Do not take media and symbols into account.  
Return: Number.

### **play(timestamp, speed, backward)**

Play the timeline at the given timestamp with speed and playback direction.

Params:

- **timestamp**: Number/String. Timeline's timestamp or label. Play from the current position if not specified.
- **speed**: Number. Playback speed. Playback speed. Keep the current speed if this speed is undefined or invalid ( $\leq 0$ ).
- **backward**: Playback direction. Keep the current direction if undefined, play backward if true, forward if false.

Return: undefined.

### **pause(timestamp)**

Pause the timeline at the given timestamp

Params:

- **timestamp**: Number/String. Timeline's timestamp or label. Pause at the current position if not specified.

Return: undefined.

### **isPlaying()**

Check if the mainstream is playing or paused.

Return: Boolean. True if the mainstream is playing, false if paused.

### **seek(timestamp)**

Seek timeline to timestamp. Params:

- **timestamp**: Number/String. Timeline's timestamp or label.

Return: undefined.

**setSpeed(speed)**

Set the playback speed.

Params:

- speed: Number. Must be positive value, e.g. 0.5, 1, 2,...

Return: undefined.

**getSpeed()**

Get the playback speed.

Return: Number.

**setPlayBackward(backward)**

Set the playback direction.

Params:

- backward: Boolean. Play backward if undefined or true, forward if false.

Return: undefined.

**isPlayBackward()**

Check if the playback direction is backward.

Return: Boolean. True if play backward, false if forward.

## Element

**getScene()**

Get the scene. Return:

Scene object.

**getDoc()**

Get the current document.

Return: Document object.

**show(show)**

Show/Hide the element.

Params:

- show: Boolean. Show if true or undefined, hide if false.

Return: undefined.

**isVisible()**

Get the visibility state.

Return: Boolean.

**setCursor(cursor)**

Set the cursor for the element, following CSS cursor.

Params:

- cursor: String. Follow **CSS Cursor**.

Return: undefined.

### **setPosition(left, top)**

Set the position of the element.

Params:

- left, top: Number/String. Value of left/top.

Return: undefined. The left/top can be number (e.g. 50) or string (e.g. '50px', '50%'). If the left/top is number, the unit is pixel.

### **setLeft(left)**

Params:

- left: Number/String. Value of left.

Return: undefined. The left can be number (e.g. 50) or string (e.g. '50px', '50%'). If the left is number, the unit is pixel.

### **setTop(top)**

Params:

- top: Number/String. Value of right.

Return: undefined. The top can be number (e.g. 50) or string (e.g. '50px', '50%'). If the top is number, the unit is pixel.

### **setRight(right)**

Params:

- right: Number/String. Value of right.

Return: undefined. The right can be number (e.g. 50) or string (e.g. '50px', '50%'). If the right is number, the unit is pixel.

### **setBottom(bottom)**

Params:

- bottom: Number/String. Value of bottom.

Return: undefined. The bottom can be number (e.g. 50) or string (e.g. '50px', '50%'). If the bottom is number, the unit is pixel.

### **setSize(width, height)**

Params:

- width, height: Number/String. Width/Height of the element.

Return: undefined. The width/height can be number (e.g. 50) or string (e.g. '50px', '50%'). If the width/height is number, the unit is pixel.

### **setWidth(width)**

Params:

- width: Number/String. Width of the element.

Return: undefined. The width can be number (e.g. 50) or string

(e.g. '50px', '50%'). If width is number, the unit is pixel.

**setHeight(height)**

Params:

- height: Number/String. Height of the element.

Return: undefined. The height can be number (e.g. 50) or string (e.g. '50px', '50%'). If the height is number, the unit is pixel.

**setBorderStyle(border)**

Set the border style of the element.

Params:

- border: CSS border style value. Possible values: 'none', 'solid', 'dotted', 'dashed'.

Return: undefined

**setBorderWidth(width)**

Set the border width of the element.

Params:

- width: Number/String. The width can be number (e.g. 10) or string (e.g. '10px', '10%'). If the width is number, the unit is pixel.

Return: undefined.

**setBorderColor(color)**

Set the border color of the element.

Params:

- color: String. Name of the color, following CSS color, e.g. 'red', 'rgb(255, 0, 0)'.

Return: undefined.

**fillSolid(color)**

Fill the background with a solid color.

Params:

- color: String. Name of the color, following CSS color, e.g. 'red', 'rgb(255, 0, 0)'.

Return: undefined.

**fillNone()**

Set the fill style to nofill.

Return: undefined.

**setTitle(title)**

Set the tittle (tooltip) for the element.

Params:

- title: String. Title of the element.

Return: undefined.

**setText(htmlText)**

Set html text. Do not call this method for elements that can't have text, e.g. image, audio, video, symbol.

Params:

- htmlText: String. Text in html format.

Return: undefined.

## Event

**preventDefault()**

Prevent default actions of the event.

Return: undefined.

**stopPropagation()**

Stop event propagation.

Return: undefined.

**stopImmediatePropagation()**

Stop event propagation immediately.

Return: undefined.

## Preloader

**getProgress()**

Get the current loading progress, from 0 - 1.

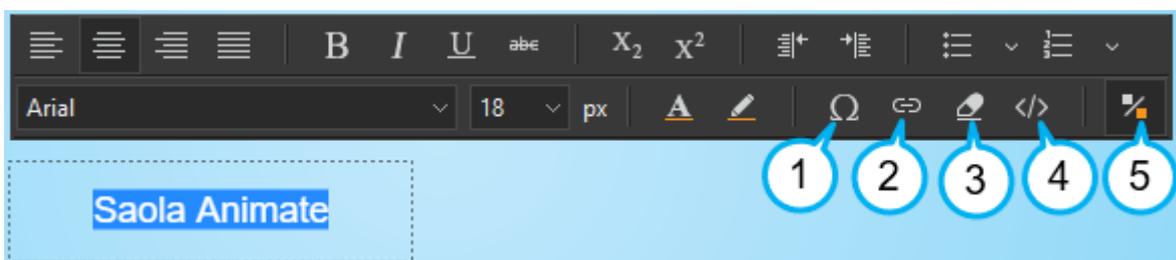
Return: Number.

## Chapter 16: Using Text Editor

Saola Animate provides numerous tools for editing rich text. It allows changing text font, size, color, styling, spacing, etc. Find these text editing tools in two widgets: The **Floating Text Format** toolbar and the **Properties** pane.

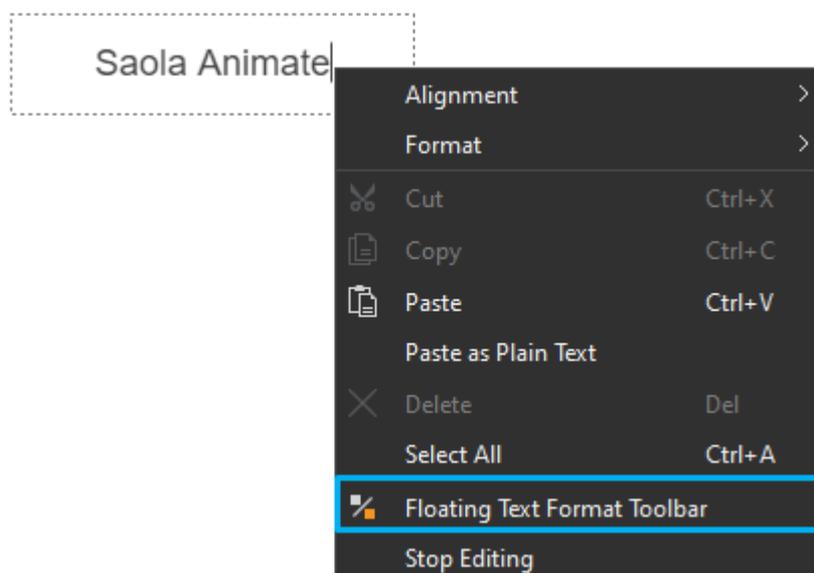
Text can be added to any text-based elements, namely text, DIVs, and shapes. Insert these elements into a scene, then double-click them to open the inline text editor and type text.

To format text, use keyboard shortcuts or commands in the **Floating Text Format** toolbar. You can also set the default text style of elements in the **Properties** pane > **Text** section.



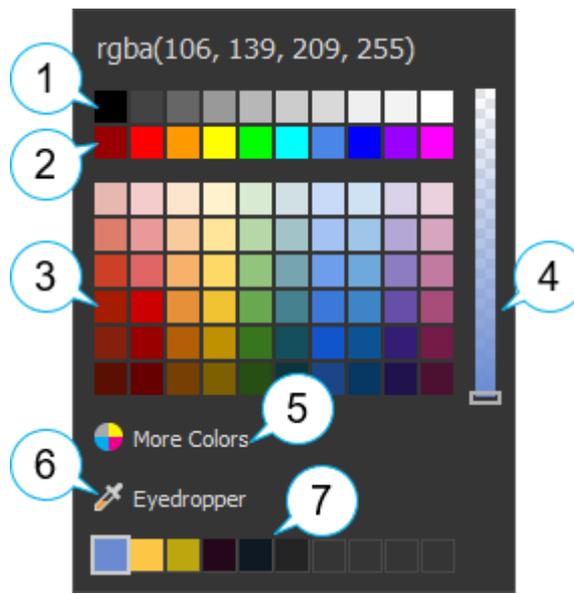
There are some commands and options you need to mind:

1. **Insert Special Character:** Insert a special character.
2. **Insert Link:** Insert a hyperlink into text by specifying both the URL and the anchor text.
3. **Remove Format:** Return the selected text to its default formatting.
4. **Edit HTML:** Edit the HTML of the text directly with valid HTML tags and styles.
5. **Floating Text Format Toolbar:** Hide the **Floating Text Format** toolbar. To show it again, right-click the inline text editor > **Floating Text Format Toolbar**.



# Chapter 17: Using Color Picker

Saola Animate uses RGBA colors. The color picker lets you select a color visually to change the color of the border, the fill, text, etc. Open the color picker by clicking the **Color** button which can be found in many places such as the **Properties** pane and the **Floating Text Format** toolbar.



1. **Grayscale:** Colors ranging from black to white.
2. **Standard colors:** A list of 10 standard colors.
3. **Color shades and tints:** Colors created by adding black and white to standard colors.
4. **Opacity slider:** Adjust the opacity or transparency of a color in the range of 0 to 255. 0 opacity means completely transparent.
5. **More Colors:** Choose a custom color from the Select Color dialog.
6. **Eyedropper:** Pick a color from within the application window.
7. **Recently used colors:** Colors selected by users (by using **More Colors** and **Eyedropper** options).

# Chapter 18: Event - Action References

Events are occurrences that determine when to trigger an action. When an event is detected, actions fire as a response. Events and actions are controlled in the **Event Handlers** dialog. Open this dialog by clicking the **Event Handlers**  buttons which appear as a lightning bolt in many panes.

## Events

Event Name	Remark
<b>Element Events</b>	
Mouse Click	Occur when users click an element.
Mouse Double Click	Occur when users double-click an element.
Mouse Down	Occur when users press the mouse button over an element.
Mouse Up	Occur when users release the mouse button over an element.
Mouse Move	Occur when the mouse pointer is moving while it is over an element.
Mouse Enter	Occur when the mouse pointer moves onto an element.
Mouse Leave	Occur when the mouse pointer moves out of an element.
Mouse Over	Occur when the mouse pointer moves onto an element, or onto one of its children.
Mouse Out	Occur when users move the mouse pointer out of an element, or out of one of its children.
Swipe Left	Occur when users swipe over an element from right to left.
Swipe Right	Occur when users swipe over an element in from left to right.
Focus	Occur when an element gets focused.
<b>Scene Events</b>	

Scene Activate	Occur when a scene starts displaying.
Scene Deactivate	Occur right before a scene ends.
Key Down	Occur when users press a keyboard key.
Key Up	Occur when users release a keyboard key.
Scroll	Occur when users scroll a scene. The scroll bar appears when the scene content exceeds the window's borders.
Orientation Change	Occur when users rotate a mobile device vertically or horizontally.
Window Resize	Occur when a browser window is resized.
Element Events	Scene has all element events (Mouse Click, Mouse Over, Mouse Leave, etc.)
<b>Document Events</b>	
Create	Occur right after a document has been created but hasn't displayed any content yet. Users can bind actions to this event to customize the player or change the document's data.
Ready	Occur after the Document Create event, when a document is ready to play but hasn't displayed any content yet, except a preloader (if any).
Destroy	Occur when a document is being removed from page.
Script Error	Occur when errors arise from the functions used in the Run JavaScript action.
<b>Timeline Events</b>	
Update	Occur when the timeline updates itself constantly when the Playhead reaches every tick mark on the timeline.
Play	Occur when the playback of the timeline changes from pause to play.

Pause	Occur when the playback of the timeline changes from play to pause.
Complete	Occur when the timeline plays until the end and stops.
Speed Change	Occur when the playback speed of the timeline changes.
Reverse	Occur when the playback direction of the timeline changes (forward and backward).
Seek	Occur when users seek a specific time in the timeline, causing an instant jump to a new time.
<b>Preloader Events</b>	
Start	Occur when the preloader starts.
Progress	Occur when the preloader is in progress, from start to end.
Complete	Occur when the preloader loads all resources completely.
Item Start	Occur when the preloader starts loading one resource.
Item Complete	Occur when the preloader finishes loading one resource or a load error happens.

## Actions

Action Name	Target Object	Parameter	Remark
<b>Timeline Actions</b>			
Start Timeline	Timeline	Direction (Forward, Backward), Speed (%)	Start the playback of the target timeline.
Play Timeline	Timeline	Direction (Forward, Backward), Speed (%)	Resume the playback of the target timeline.

Play Timeline From	Timeline	Direction (Forward, Backward), Time or Timeline Label, Speed (%)	Resume the playback of the target timeline from a specific time or label.
Pause Timeline	Timeline		Pause the playback of the target timeline.
Pause Timeline At	Timeline	Time or Timeline Label	Jump to and pause at a specific time or label in the target timeline.
Toggle Play/Pause Timeline	Timeline		Toggle the playback of the target timeline.
Seek Timeline	Timeline	Time or Timeline Label	Jump to a specific time or label in the target timeline without affecting whether or not the timeline is playing or paused.
<b>Symbol Actions</b>			
Start Symbol	Symbol	Direction (Forward, Backward), Speed (%)	Start the playback of the target symbol.
Play Symbol	Symbol	Direction (Forward, Backward), Speed (%)	Resume the playback of the target symbol.
Play Symbol From	Symbol	Direction (Forward, Backward), Time or Timeline Label, Speed (%)	Resume the playback of the target symbol from a specific time or label.
Pause Symbol	Symbol		Pause the playback of the symbol timeline.
Pause Symbol At	Symbol	Time or Timeline Label	Jump to and pause at a specific time or label on the timeline of the target symbol.

Toggle Play/Pause Symbol	Symbol		Toggle the playback of the target symbol.
Seek Symbol	Symbol	Time or Timeline Label	Jump to a specific time or label on the timeline of the target symbol without affecting whether or not the timeline is playing or paused.
<b>Media Actions</b>			
Start Media	Audio, Video	Speed (%)	Start the playback of the target audio or video.
Play Media	Audio, Video	Speed (%)	Resume the playback of the target audio or video.
Play Media From	Audio, Video	Time, Speed (%)	Resume the playback of the target audio or video from a specific time.
Pause Media	Audio, Video		Pause the playback of the target audio or video.
Pause Media At	Audio, Video	Time	Jump to and pause at a specific time of the target audio or video.
Mute Media	Audio, Video		Mute the target audio or video.
Media Volume	Audio, Video	Volume (%)	Change the volume of the target audio or video.
Toggle Mute/Unmute Media	Audio, Video		Toggle the mute state of the target audio or video.
Mute All Media	None		Mute all audio and video element in a scene.
Toggle Play/Pause Media	Audio, Video		Toggle the playback of the target audio or video.

Seek Media	Audio, Video	Time	Jump to a specific time of the target audio or video without affecting whether or not it is playing or paused.
Play Video Full Screen	Video		Play the target video in full screen.
<b>Visibility Actions</b>			
Hide Element	All Element Types		Hide the target element.
Show Element	All Element Types		Show the target element.
Toggle Hide/Show Element	All Element Types		Toggle the visibility state of the target element.
<b>Other Actions</b>			
Jump To Scene	Scene	Transition Type, Duration (ms), Easing, Direction	Change to the target scene.
Go To URL	None	URL, New Window (True, False)	Open a webpage in a browser.
Change Text	Div, Text, Shape	Text	Change the text that appears in the target element.
Run JavaScript	None	Function (see <b>JavaScript</b> )	Invoke a JavaScript function.

# Chapter 19: Customizing Preloader

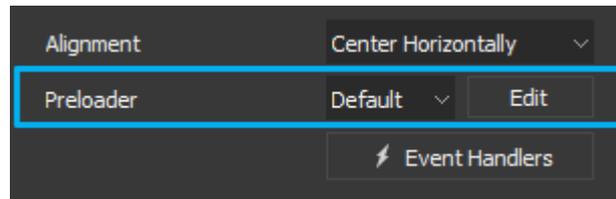
If your project is complex and graphics-intensive, it may take a few seconds to download. It is when you need to use a preloader to indicate that the content is being loaded.

By default, Saola Animate documents preload all images before showing a scene. To show the loading progress, they display a loading indicator that contains a spinner and a percentage sign.



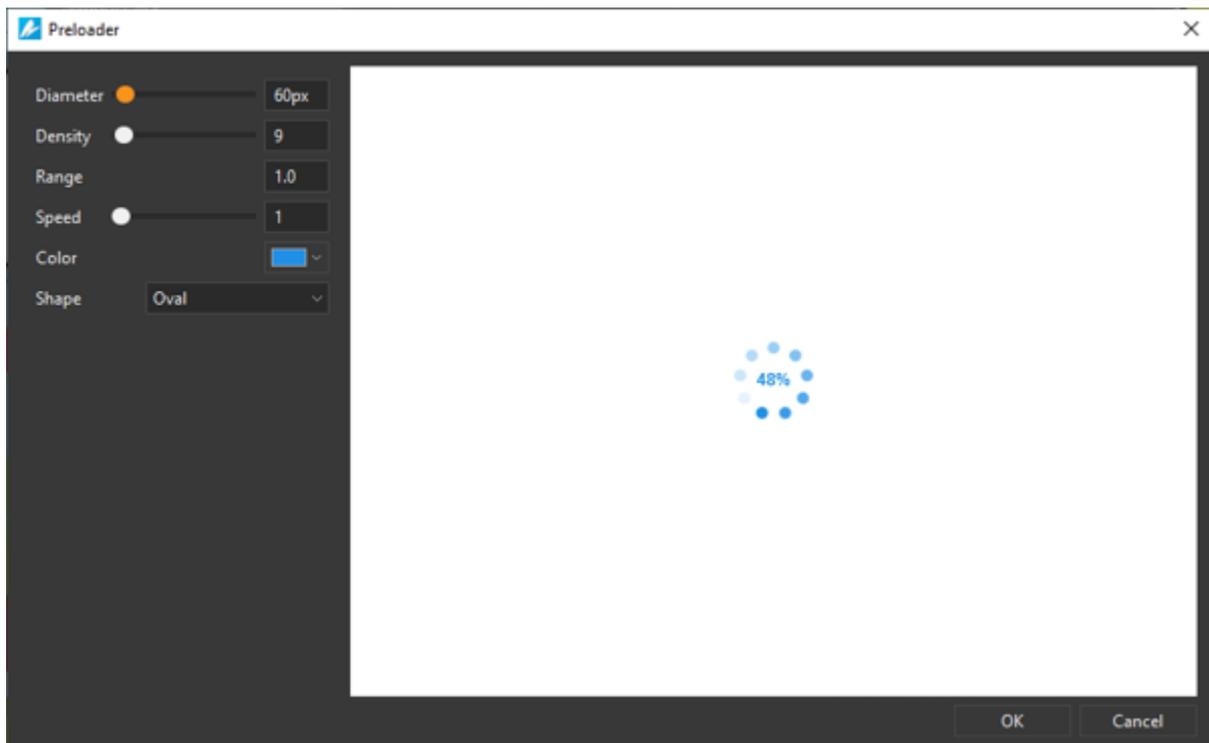
You can customize this loading indicator or create your own loading screen. Do the following:

1. Open the **Document** pane. If you don't see this pane, click **View > Document**.
2. Saola Animate offers two preloader types: **Default** and **Custom**. Select either of the two and click **Edit** to modify as you like.



## Default Preloader

When you choose Default preloader, the **Preloader** window appears, allowing you to customize the loading indicator. All changes you make are immediately reflected in the preview window.



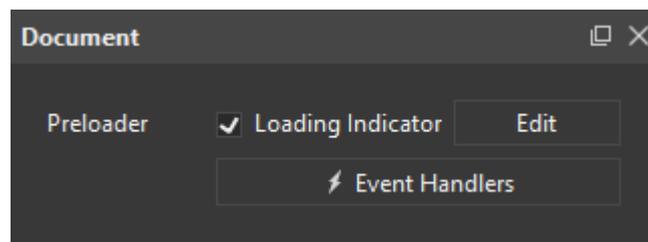
The loading indicator has six editable properties. To adjust their values, you can drag the handle on the slider, scroll the mouse wheel, or enter a new value.

- **Diameter:** Set the diameter of the loading indicator.
- **Density:** Set the number of shapes drawn on the loading indicator.
- **Range:** Set the amount of the modified shapes in percentages. Specifically, it sets what range of the shapes should be scaled and/or faded. The shapes that are out of this range will be scaled and/or faded with a minimum amount only. If the range is 0.1, every shape out of the range will be scaled and/or faded to 10% of the original values. The visually acceptable range value should be between 0.4 and 1.5. The default value is 1.0.
- **Speed:** Set the speed of the loading indicator animation. This value tells the loading indicator how many shapes to skip by each tick.
- **Color:** Set the color of the loading indicator in RGB.
- **Shape:** Set the type of the loading indicator shapes, namely oval, spiral, square, rectangle, and rounded rectangle.

## Custom Preloader

When you choose Custom preloader, Saola Animate opens a preloader document where you can create a loading screen of your own. A custom preloader is a document, so you can create animation as normal. You can also use **preloader events** to add interactivity. The custom preloader document will close if you close the main document or if you switch from Custom to Default preloader.

The loading indicator appears by default, but you can clear the **Loading Indicator** check box to turn it off. Of course, you can modify it as normal.



# Chapter 20: Menus, Toolbars and Shortcuts

In Saola Animate, the main menu contains a set of seven drop-down menus. These menus enable you to interact with the content of the application in many different ways. For example, the **File** menu provides commands for creating a new project, opening an existing one, saving, previewing, and exporting project to HTML5.

This chapter lists all menus, toolbar buttons, and default shortcuts in Saola Animate. Note that you can **customize all shortcuts** for your preferences.

## File Menu

The **File** menu controls major events such as creating a new project, opening an existing project, and previewing scene and project in a browser.

Command	Icon	Default Shortcut	Remark
New		CTRL+N	Create a new project.
Open Project		CTRL+O	Open an existing project.
Recent Projects			List of recently opened projects.
Save		CTRL+S	Save the current project.
Save As > Other Project			Save the project under a new name.
Save As > Package		CTRL+SHIFT+P	Save the project to package.
Close		CTRL+F4	Close the current project.
Preview Current Scene in Browser		CTRL+ALT+S	Preview the current scene in a default browser.
Preview Project in Browser		CTRL+ALT+P	Preview the current project in a default browser.
Export to HTML5		CTRL+ALT+E	Export the current project to HTML5.
Export to Video			Export the current project to video.
Exit			Close the application.

## Edit Menu

The **Edit** menu lets you arrange elements on the Canvas. From here, you can also create new

symbols.

Command	Icon	Default Shortcut	Remark
<b>Undo</b>		CTRL+Z	Revert the last actions. If you want to revert many actions at once, click the down arrow next to the button and select the action in the list that you want to undo.
<b>Redo</b>		CTRL+Y	Revert the last “undone” actions. If you want to redo several actions, click the down arrow next to the button and select the action in the list that you want to redo.
<b>Cut</b>		CTRL+X	Remove the selected objects and place them on the Clipboard.
<b>Copy</b>		CTRL+C	Copy the selected objects onto the Clipboard.
<b>Paste</b>		CTRL+V	Paste the contents of the Clipboard at the current location.
<b>Paste Here</b>			Paste the copied elements at the position of the cursor.
<b>Paste with Animation</b>			Paste the copied elements with their existing animations.
<b>Delete</b>		DELETE	Delete the selected objects.
<b>Select All</b>		CTRL+A	Select all objects.
<b>Group</b>		CTRL+G	Group the selected elements together to create a new group element.
<b>Ungroup</b>		CTRL+SHIFT+G	Ungroup a group.
<b>Add to Group</b>			Add more elements to an existing group without nesting group.
<b>Remove from Group</b>			Remove some elements out of a group without ungrouping entire that group.
<b>Layout Group</b>			Adjust a group position and size to fit its children.
<b>Convert to Symbol</b>			Convert the selected elements to a symbol.

<b>Size &gt; Make Same Width</b>			Match the width of all other elements with the width of the reference element.
<b>Size &gt; Make Same Height</b>			Match the height of all other elements with the height of the reference element.
<b>Size &gt; Make Same Size</b>			Match the width and height of all other elements with those of the reference element, respectively.
<b>Alignment &gt; Align Left</b>		SHIFT+L	Align the left side of all other elements with the left of the reference element.
<b>Alignment &gt; Align Right</b>		SHIFT+R	Align the right side of all other elements with the right of the reference element.
<b>Alignment &gt; Align Top</b>		SHIFT+T	Align the top of all other elements with the top of the reference element.
<b>Alignment &gt; Align Bottom</b>		SHIFT+B	Align the bottom of all other elements with the bottom of the reference element.
<b>Alignment &gt; Align Center</b>		SHIFT+E	Align the center of all other elements with the vertical center of the reference element.
<b>Alignment &gt; Align Middle</b>		SHIFT+M	Align the center of all other elements with the horizontal center of the reference element.
<b>Alignment &gt; Distribute Left Edge</b>			Distribute the left edges of the selected elements evenly within the reference element.
<b>Alignment &gt; Distribute Horizontal Center</b>			Distribute the horizontal centers of the selected elements evenly within the reference element.
<b>Alignment &gt; Distribute Right Edge</b>			Distribute the right edges of the selected elements evenly within the reference element.
<b>Alignment &gt; Distribute Top Edge</b>			Distribute the top edges of the selected elements evenly within the reference element.

<b>Alignment &gt; Distribute Vertical Center</b>			Distribute the vertical centers of the selected elements evenly within the reference element.
<b>Alignment &gt; Distribute Bottom Edge</b>			Distribute the bottom edges of the selected elements evenly within the reference element.
<b>Alignment &gt; Space Horizontally</b>			Distribute the selected elements so that the horizontal gaps between them are equal.
<b>Alignment &gt; Space Vertically</b>			Distribute the selected elements so that the vertical gaps between them are equal.
<b>Display Order &gt; Bring to Front</b>			Place the selected element at the very top of the stack.
<b>Display Order &gt; Bring Forward</b>			Send the selected element higher by one level in the stack.
<b>Display Order &gt; Send to Back</b>			Place the selected element at the very bottom of the stack.
<b>Display Order &gt; Send Backward</b>			Send the selected element lower by one level in the stack.
<b>Preferences</b>			View and edit the global settings.

## Scene Menu

The **Scene** menu helps you manage scenes.

Command	Icon	Default Shortcut	Remark
<b>Blank Scene</b>			Insert a blank scene.
<b>Duplicate Scene</b>			Duplicate the selected scene to a new scene.

## Element Menu

The **Element** menu lets you insert all types of elements into a project.

Command	Icon	Default Shortcut	Remark
Rectangle Div			Insert a rectangle div.
Rounded Rectangle Div			Insert a rounded rectangle div.
Ellipse Div			Insert an ellipse div.
Text			Insert a text.
HTML Widget			Insert an HTML widget.
Image			Insert an image.
Audio			Insert an audio.
Video			Insert a video.
Symbol			Insert a symbol.
Custom Element			Insert a custom element.
Shape			Insert a shape. Click the down arrow to choose the shape you want.
Freeform			Insert a freeform.

## Timeline Menu

The **Timeline** menu lets you control timelines and animations.

Command	Icon	Default Shortcut	Remark
Play/Stop		SPACE	Switch the control to play or stop the selected action on the timeline, starting from the current position of the Playhead.
Go to Start		HOME	Restore the Playhead to the beginning of the timeline.
Go to End		END	Bring the Playhead to the end of the animation on the timeline.

<b>Loop Playback</b>			The animation will be played endlessly (in a loop). When the Playhead reaches the end of the animation, it will return to the beginning and continue playing.
<b>Auto-Keyframe Mode</b>		K	Automatically generate keyframes when creating animations.
<b>Auto-Keyframe Range</b>		R	Automatically generate keyframe ranges when creating animations.
<b>Effects</b>			Insert preset effect for the element.
<b>Add Keyframe</b>			Create a property keyframe for the selected element.
<b>Convert to Keyframe</b>			Convert animations to keyframe.
<b>Effect Options</b>			Adjust effect options
<b>Save As Custom Effect</b>			Save an effect as a custom effect for later usage.
<b>Move Up to New Line</b>			Move one or more preset effects from one line up to a new line.
<b>Move Down to New Line</b>			Move one or more preset effects from one line down to a new line.
<b>Rename</b>			Rename an element segment.
<b>Show Effect Name</b>			Show effect name in the Timeline pane.
<b>Insert Label</b>		ALT+L	Insert a label at the Playhead position.
<b>Insert Trigger</b>		ALT+T	Insert a trigger at the Playhead position.
<b>Event Handlers</b>			Open the Timeline Event Handlers.
<b>Create Transition</b>		CTRL+SHIFT+T	Create transitions for an animation segments that don't have transitions.
<b>Remove Transition</b>		SHIFT+DEL	Remove transitions from animation segments.
<b>Invert Animation Segment</b>			Swap the starting and ending keyframes of an animation segment.
<b>Show Animated Elements Only</b>			Hide elements which don't have property animations.

<b>Snapping</b>		ALT+;	<p>Snap the Playhead, keyframes, labels, and triggers to each other or to particular tick marks on the timeline.</p> <p>Snapping helps easily line up keyframes and animation segments on the timeline.</p> <p>Three snapping modes available: Grid, Playhead, and Keyframes, Labels, Triggers.</p>
<b>Snap To &gt; Grid</b>			The Playhead and timeline items snap to the grid lines which only appear when you click the <b>Show Grid</b> button.
<b>Snap To &gt; Playhead</b>			The keyframes, labels, triggers snap to the Playhead.
<b>Snap To &gt; Keyframes, Labels, Triggers</b>			The Playhead and timeline items snap to the position of timeline items.
<b>Show Grid</b>			Show grid lines on the timeline. Grid lines give precise measurements of the timeline by displaying subtle vertical lines at regular intervals.
<b>Grid</b>			Use the Grid submenu to set the time increments, such as half-second, quarter second, and 24 fps.
<b>Zoom In</b>		=	Expand the time scale to see more details.
<b>Zoom Out</b>		-	Reduce the time scale of the timeline.
<b>Zoom to Fit</b>		\	Fit the existing animation to the timeline view.
<b>Expand/Collapse All</b>		CTRL+SHIFT+.	Expand or collapse all animated properties of elements.

## View Menu

The **View** menu gives you access to customize the workspace.

Command	Icon	Default Shortcut	Remark
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<b>Language</b>			Choose the language of the user interface.
<b>Rulers</b>			Show/hide the rulers on the Canvas.
<b>Canvas Snapping</b>			Turn canvas snapping on/off.
<b>Zoom &gt; Zoom Level</b>			Set the zoom level of the Canvas.
<b>Zoom &gt; Fit on Screen</b>			Set the scene content to fit into the viewport size.
<b>Toolbars &gt; File</b>			Show/hide the <b>File</b> toolbar.
<b>Toolbars &gt; Edit</b>			Show/hide the <b>Edit</b> toolbar.
<b>Toolbars &gt; Insert</b>			Show/hide the <b>Insert</b> toolbar.
<b>Toolbars &gt; Modify</b>			Show/hide the <b>Modify</b> toolbar.
<b>Properties</b>			Show/hide the <b>Properties</b> pane.
<b>Scenes</b>			Show/hide the <b>Scenes</b> pane.
<b>Document</b>			Show/hide the <b>Document</b> pane.
<b>Timeline</b>			Show/hide the <b>Timeline</b> pane.
<b>Elements</b>			Show/hide the <b>Elements</b> pane.
<b>Resources</b>			Show/hide the <b>Resources</b> pane.
<b>Functions</b>			Show/hide the <b>Functions</b> pane.
<b>Breakpoints</b>			Show/hide the <b>Breakpoints</b> pane.

## Help Menu

The **Help** menu provides information about the current version, the documentation, user community and helps check for updates.

Command	Icon	Default Shortcut	Remark
<b>About</b>			Provide information about the current version.
<b>Help Contents</b>		F1	Launch the <b>Help</b> file.
<b>Report a Problem</b>			Open <b>Support Questions</b> category on <b>Atomi Community</b> .
<b>Provide a Suggestion</b>			Open <b>Feature Requests</b> category on <b>Atomi Community</b> .

<b>Check Updates...</b>			By default, Saola Animate periodically checks for updates when it starts.  Disable this feature by clicking <b>Edit &gt; Preferences &gt; General &gt; Automatic Updates</b> .
<b>Deactivate license</b>			Deactivate your license.
<b>Manage Licenses Activation</b>			Open <b>Saola Animate License Activation Management</b> webpage for you to manage your license activation.

## Dockable Toolbar

Located below the **Main Menu**, the **Dockable Toolbar** provides users with buttons that act as shortcuts to the most frequently used commands from the **Main Menu**. Users can use this toolbar to quickly and easily modify the project.

## Floating Text Format Toolbar

The **Floating Text Format** toolbar appears when you edit text inline. It provides necessary commands for formatting text.

Command	Icon	Default Shortcut	Remark
<b>Font Name</b>			Change the font of the selected text.
<b>Add fonts</b>			Add Google fonts to a document.
<b>Font Size</b>			Change the size of the selected text.
<b>Align Left</b>		CTRL+L	Align the selected text left.
<b>Center</b>		CTRL+E	Center the selected text.
<b>Align Right</b>		CTRL+R	Align the selected text right.
<b>Justify</b>		CTRL+J	Justify the selected text.
<b>Bold</b>		CTRL+B	Make the selected text bold.
<b>Italic</b>		CTRL+I	Make the selected text italic.
<b>Underline</b>		CTRL+U	Underline the selected text.
<b>Strikethrough</b>			Strike the selected text through.
<b>Subscript</b>		CTRL+=	Format the selected text as subscript.

<b>Superscript</b>		CTRL+SHIFT+=	Format the selected text as superscript.
<b>Decrease Indent</b>			Move the selected text closer to the margin.
<b>Increase Indent</b>			Move the selected text father away from the margin.
<b>Bullets</b>			Create a bulleted list.
<b>Numbering</b>			Create a numbered list.
<b>Text Color</b>			Change the text color of the selected text.
<b>Highlight Color</b>			Highlight the selected text.
<b>Insert Special Character</b>			Insert a special character into the text.
<b>Insert Link</b>			Insert a hyperlink into text.
<b>Remove Format</b>			Return the selected text to its default formatting.
<b>Edit HTML</b>			Edit the HTML of the text.
<b>Floating Text Format Toolbar</b>			Show/hide the <b>Floating Text Format</b> toolbar when editing text.

## Shortcuts for Script Editor

Command	Icon	Default Shortcut	Remark
<b>Undo</b>		CTRL+Z	Revert the last actions.
<b>Redo</b>		CTRL+Y	Revert the last “undone” actions.
<b>Copy</b>		CTRL+C	Copy the selected items onto the Clipboard.
<b>Cut</b>		CTRL+X	Remove the selected items and place them on the Clipboard.
<b>Paste</b>		CTRL+V	Paste the contents of the Clipboard at the current location.
<b>Delete</b>		DELETE	Delete the selected items.
<b>Export to File</b>			Export the current function to file.

<b>Search</b>		CTRL+F	Display the Find search box where you can find specific text.
<b>Replace</b>		CTRL+H	Display the Find search box where you can replace specific text.
<b>Zoom In/Out</b>		CTRL+Mouse Wheel Up/Down	Expand/reduce the text size.
<b>Options</b>			Show/hide editor features and access the <b>Preferences</b> dialog > <b>Code Editor tab</b> .

# Chapter 21: Customizing Saola Animate

You can customize many aspects of Saola Animate to suit your particular needs.

## Changing Language

By default, the display language is set to English (United States). If you prefer another language, click **View > Language** and select another language. The change will apply the next time you open the application.

Another way to customize the display language is using the **Preferences** dialog. Do the following steps:

1. Click **Edit > Preferences** to open the **Preferences** dialog.
2. In the **General** tab, select the appropriate language in the **Language** drop-down list.
3. Click **Apply** to submit changes.

## Customizing User Interface

### Showing and Hiding Panes and Toolbars

Click the **View** menu and do one of the following:

- Show or hide four toolbars on the dockable toolbar, namely **File**, **Edit**, **Insert**, and **Modify**. In the **View** menu > **Toolbars**.
- Show or hide many panes, such as **Properties**, **Scenes**, **Document** and **Timeline**.

Alternatively, right-click the dockable toolbar to toggle toolbars and panes. Active items have a check mark next to their labels. Also, you can click the **Close** button at the top-right corner of a pane to close it.

Saola Animate saves the project settings when you close a project. The next time you open the application, the settings of the last saved project will automatically apply to the new one.

### Changing Pane Location

Drag panes except the **Timeline** pane from their current location by dragging their title bar.

Alternatively, click the **Float**  button at the top right corner of a pane to undock it. After undocking a pane, you have three available options:

- Make the pane free-floating anywhere on the screen, even outside the application window.
- Dock the pane in a highlighted drop zone. Just drag and bring it to the edge of the window and release the mouse button over a drop zone. The pane will be docked into place.

- Add the pane to a tabbed group which contains several panes sharing the same drop zone. To change the pane order in a group, drag the pane left or right by its tab. To remove the pane from a group and make it free-floating, drag it outside the group by its title bar or its **Float** button.

## Changing Pane Size

Changing pane size is useful when you want to make the Canvas larger or want to view more of the information that appears in a pane.

- To resize a docked pane, move the pointer over the left or right edge of the pane (for vertical panes) or over the top edge of the pane (for horizontal panes). When the pointer turns into a resize pointer, drag the boundary to resize the pane to the dimensions you want.
- To resize a floating pane, hover over any edge or corner of the pane until the pointer turns into a resize pointer. Then, drag the boundary until the pane is the width/height you want.

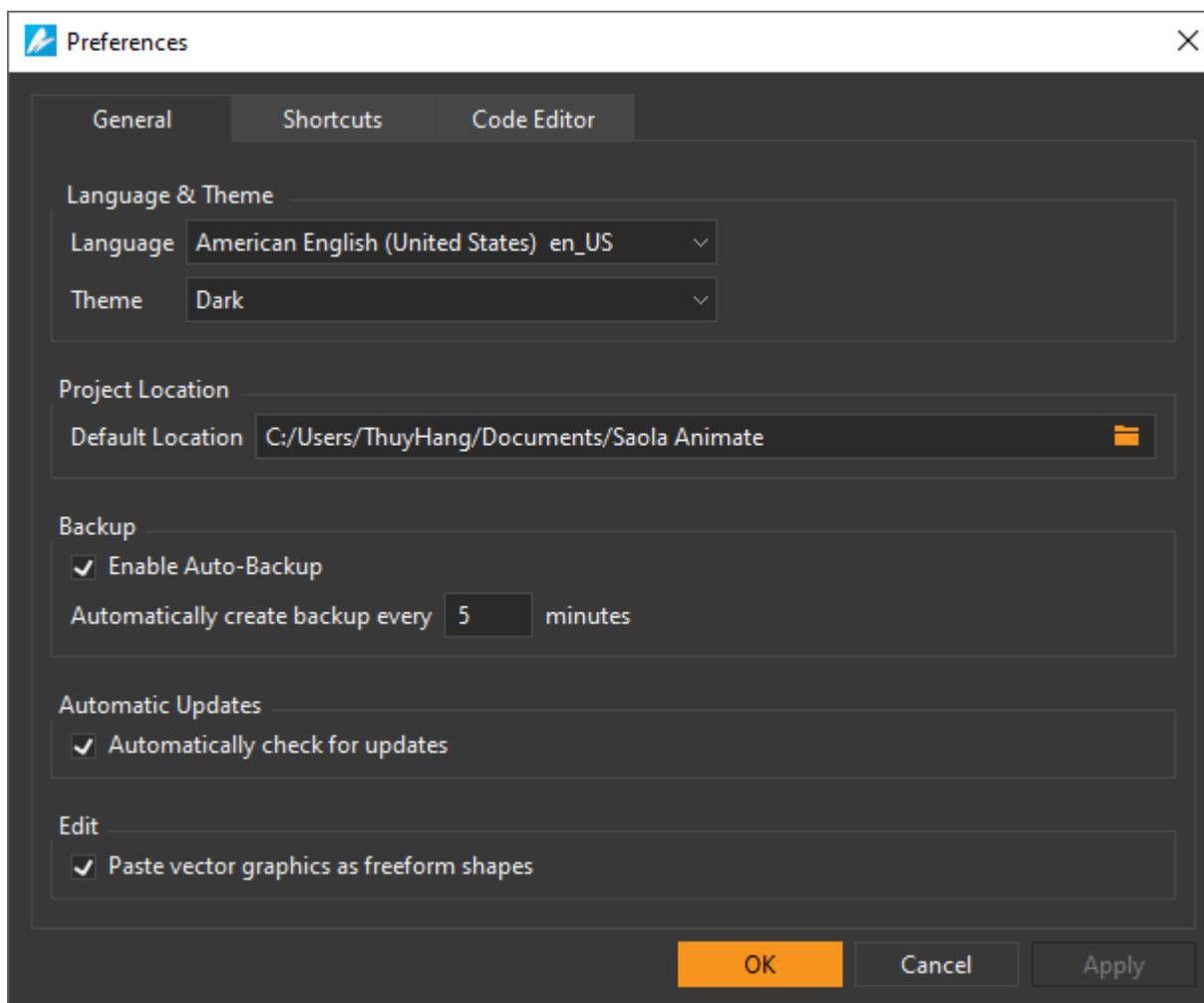
## Customizing Preferences

Use the **Preferences** dialog to set how you want Saola Animate to operate. To open the dialog, select **Edit > Preferences** in the main menu. The dialog has three tabs, each tab serves a different category.

Tab	Category
General	General options applicable to the entire application.
Shortcuts	Shortcuts used for various operations.
Code Editor	Options to customize the JavaScript Function editor.

### General Tab

The **General** tab is the first tab in the **Preferences** dialog where you can set a few preferences for how Saola Animate works.



## Language & Theme

By default, the display language is set to English (United States). If you want to use another language, select a new one from the **Language** drop-down list. The language change will be applied the next time the application starts. You can also change the language by clicking **View > Language** and choose your desired language from the list.

Regarding theme, Saola Animate currently offers the Dark theme only. Other theme options will be available in the next versions.

## Project Location

By default, all new projects are stored in the Documents folder. You are allowed to change the default project location by entering a new location in the **Default Location** text box. You can navigate to a location using the **Browse**  button.

Be aware that no matter the default location, you can always store your project in a different place. See **Creating Projects** for more details.

## Backup

**Auto-Backup** allows you to recover your work if Saola Animate crashes and you haven't saved. By default, Auto-Backup is made available and set to automatically save a backup of your work every five minutes. You can adjust this interval by entering a new interval (in minutes) in the text box.

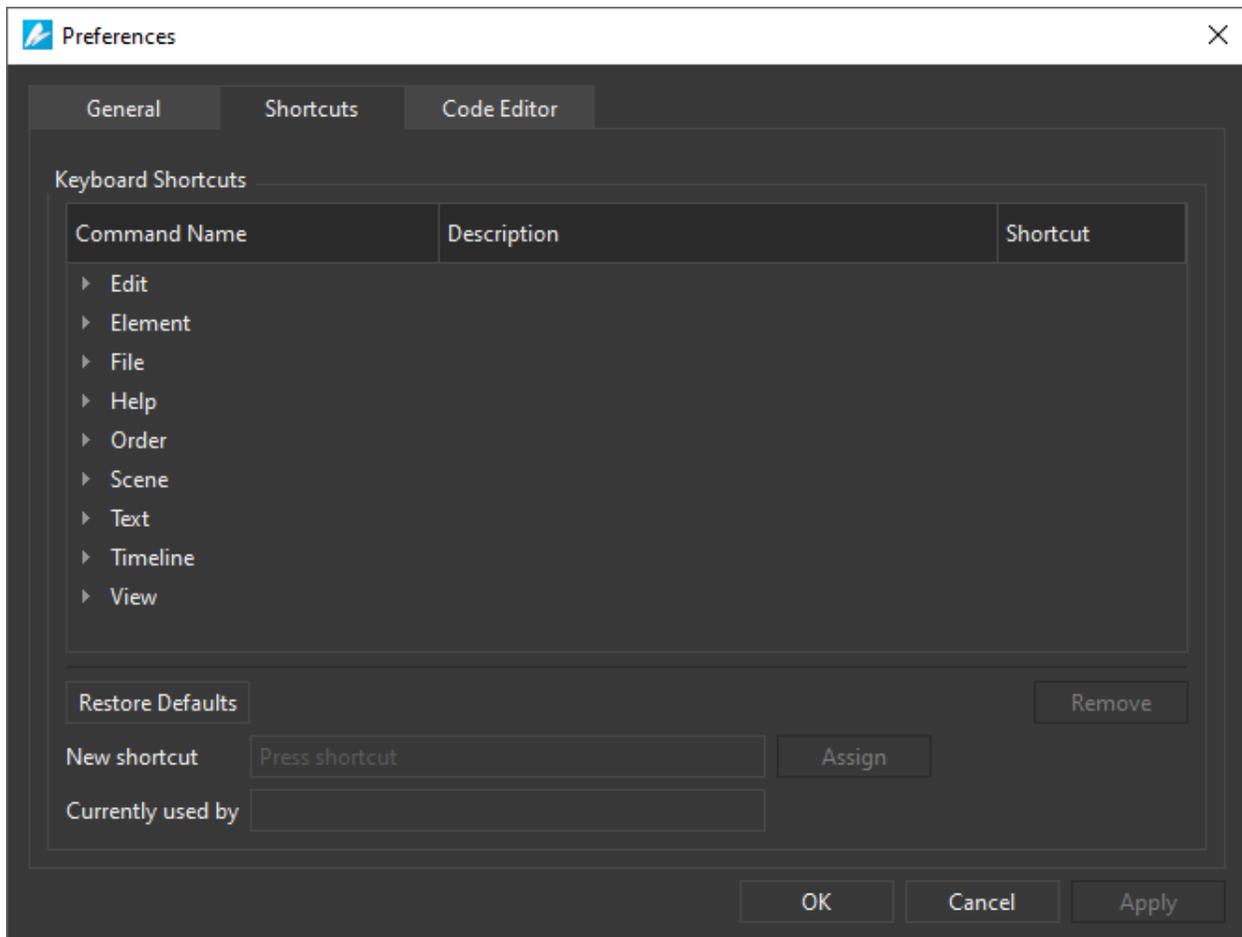
## Automatic Updates

Saola Animate periodically checks for updates when it starts. This is selected by default.

## Shortcuts Tab

The **Shortcuts** tab shows all keyboard shortcuts in Saola Animate. You can assign shortcuts to commands or remove any shortcuts you don't want.

All major commands are grouped functionally in a hierarchical tree. The tree consists of nodes, each of which contains a group of related commands. Show the commands by clicking the triangle on the left of each node. The **Shortcut** column shows all keyboard shortcuts that are currently assigned to a command or item.



## Assigning Shortcuts

1. Select a command or item that you want to assign a shortcut.
2. Click inside the **New shortcut** text box and press the combination of keys you want to assign.
3. Notice the **Currently used by** text box to see if the combination of keys is already assigned to a command or item. If it is in use, press a different combination.
4. Click the **Assign** button to assign the new shortcut.
5. Click **Apply** to submit changes.

For example, select the **Copy** command in the tree view, then press **CTRL+A** in the **New shortcut** text box. The combination is automatically captured and displayed. You are informed that it is currently assigned to the **Select All** command.

Now you have two options: Either try another shortcut (and repeat the cycle), or press the **Assign** button to reassign the **CTRL+A** shortcut to the **Copy** command. If you choose the second option, this shortcut will no longer be assigned to the **Select All** command.

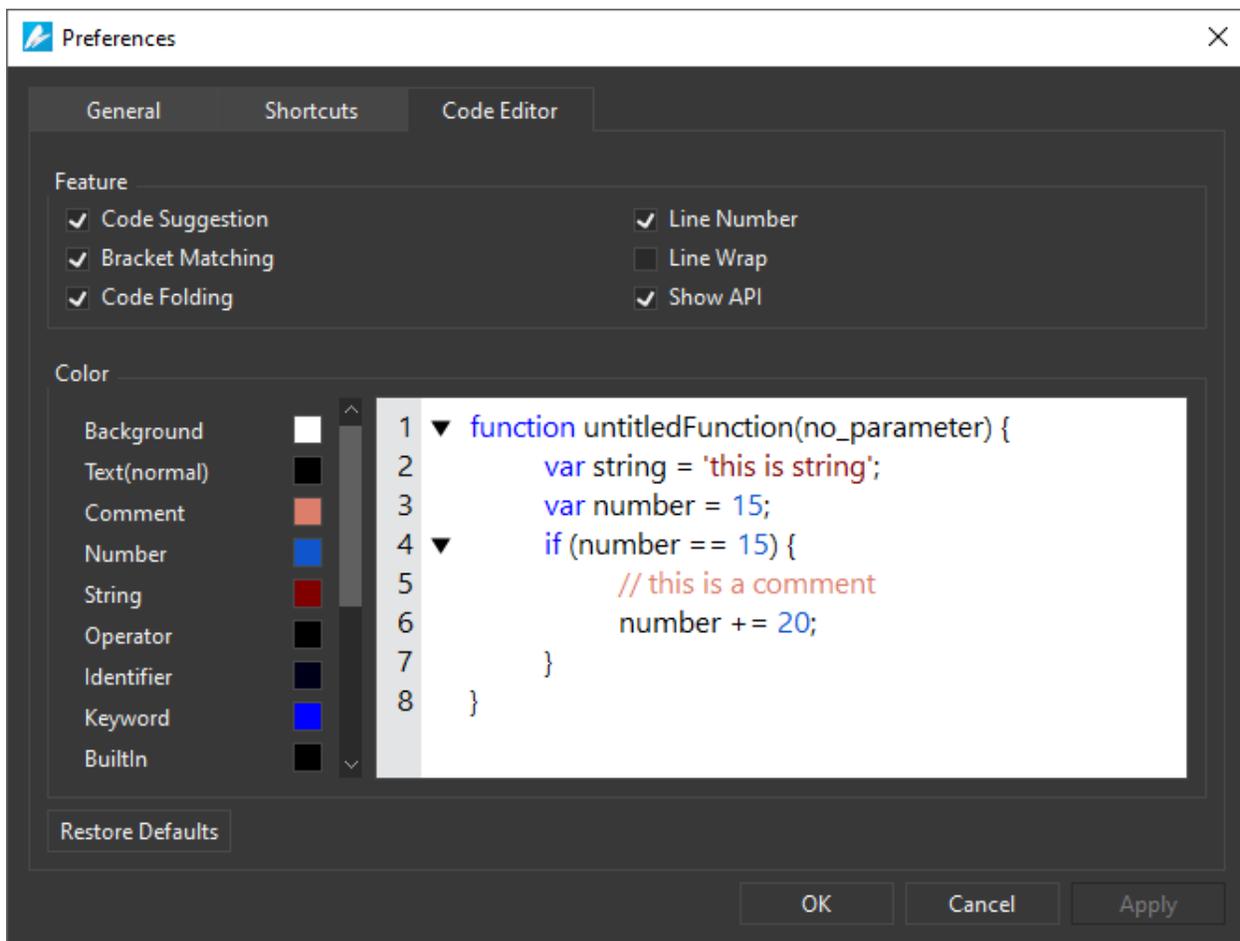
## Removing Shortcuts

1. Select a command or item that you want to remove its shortcut.
2. Click the **Remove** button.
3. Click **Apply** to submit changes.

You can go back to the original settings at any time by clicking **Restore Defaults**.

## Code Editor Tab

Saola Animate offers a **feature-rich editor** for script writing and editing. Switch to the **Code Editor** tab to customize coding preferences. If your experiments go haywire, you can always restore to the defaults by clicking **Restore Defaults**.



## General Settings

- **Code Suggestion:** Provide suggestions when you type into the editing area.
- **Bracket Matching:** Highlight matching sets of brackets.
- **Code Folding:** Allow collapsing or folding the display of a block of code.
- **Line Number:** Display line numbers along the side of the code.
- **Line Wrap:** Wrap the code so that each line fits in the viewable window.
- **Show API:** Show a list of APIs in the pane below the editing area.

## Syntax Highlighting

Customize syntax highlighting preferences by clicking the color rectangle next to each element and changing the color. All changes are immediately reflected in the preview editor on the right.