

# Creating Timeline Animations

You can create timelines and keyframe-based animations for linear interpolation through intermediate values at specified keyframes instead of immediately changing to the target value.

You can also bind the timeline to a property value of a component such as a slider and control the animation this way.

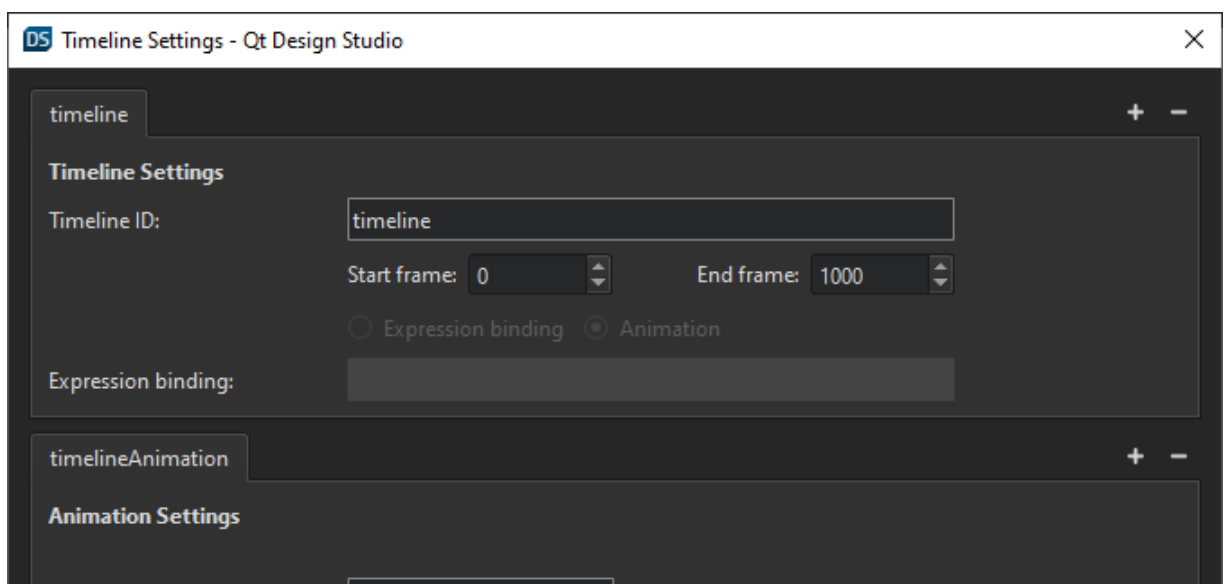
## Creating an Animation

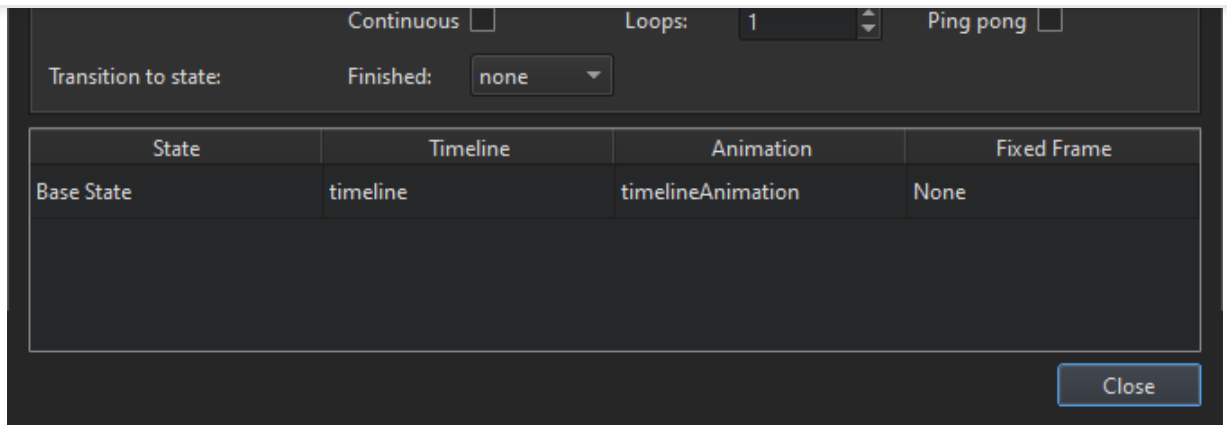
To create an animation, whether it's a keyframe animation or an animation bound to a property value, you first need to create a timeline.

### Creating a Timeline

To create a timeline to animate a UI component:

1. In the **Timeline** view, select the **+** (**Add Timeline**) button to specify settings for the timeline and running the animation in the **Timeline Settings** dialog.
2. On the **Timeline Settings** tab:
  - › In the **Timeline ID** field, enter an id that describes the timeline.
  - › In the **Start frame** field, set the first frame of the timeline. Negative values are allowed.
  - › In the **End frame** field, set the last frame of the timeline.





### 3. On the **Animation Settings** tab:

- › In the **Animation ID** field, enter an ID for the animation.
- › Optional. Select the **Running in Base State** check box to run the animation when the base state is applied. Clear the check box to run the animation when some other state is applied. For more information, see [Binding Animations to States](#).
- › In the **Start frame** field, set the first frame of the animation.
- › In the **End frame** field, set the last frame of the animation.
- › In the **Duration** field, set the length of the animation in milliseconds.
- › Optional. Select the **Continuous** check box to loop the animation indefinitely.
- › Optional. In the **Loops** field, set the number of times to run the animation. The default number of loops is one, which means that you must restart the animation to see it again.
- › Optional. Select the **Ping pong** check box to play the animation backwards back to the beginning when it reaches the end.
- › Optional. In the **Finished** field, select the state to transition to when the animation finishes.

### 4. Select **Close** to close the dialog and save the settings.

Now, with the settings set for the timeline and the animation, you set the keyframes for the properties to animate.

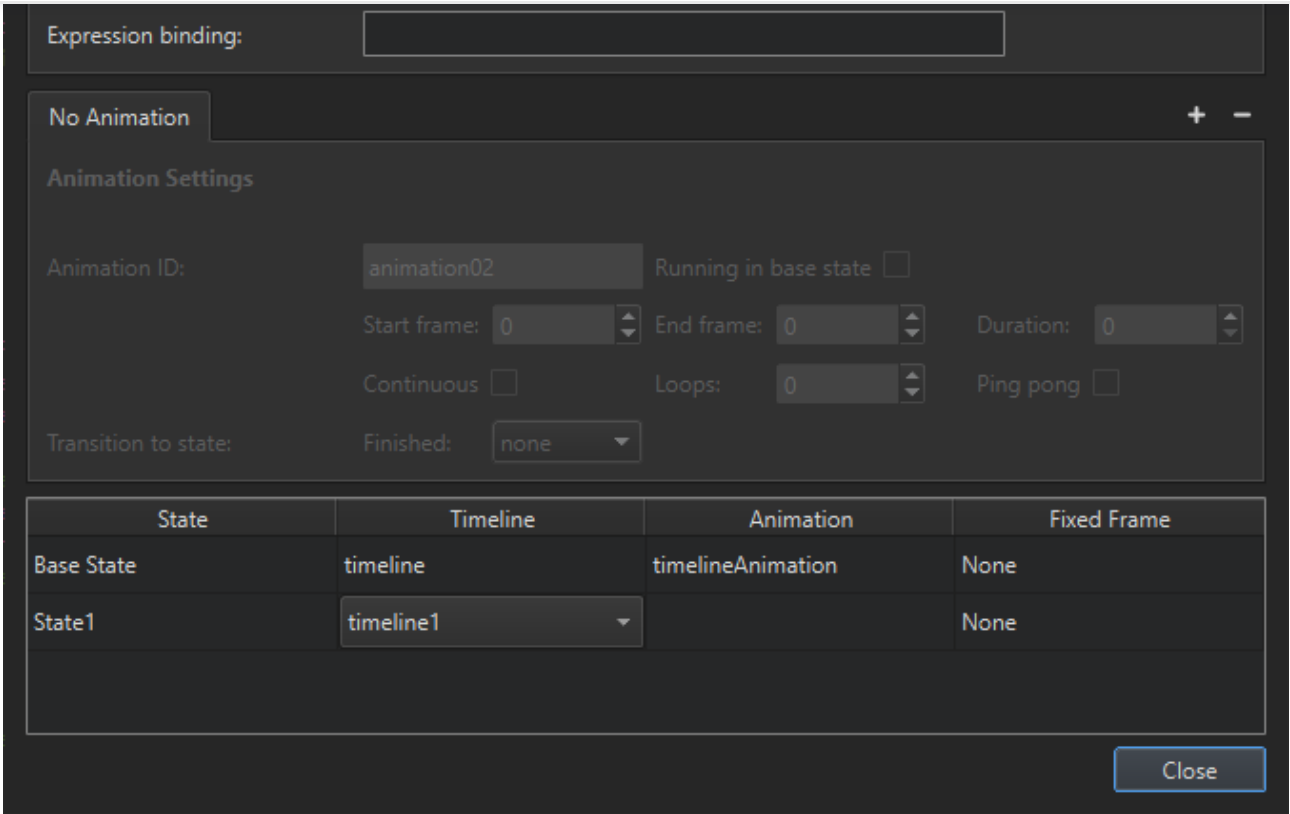
## Creating Additional Timelines

You can create more than one timeline. The purpose of several timelines is to use different timelines in different states.

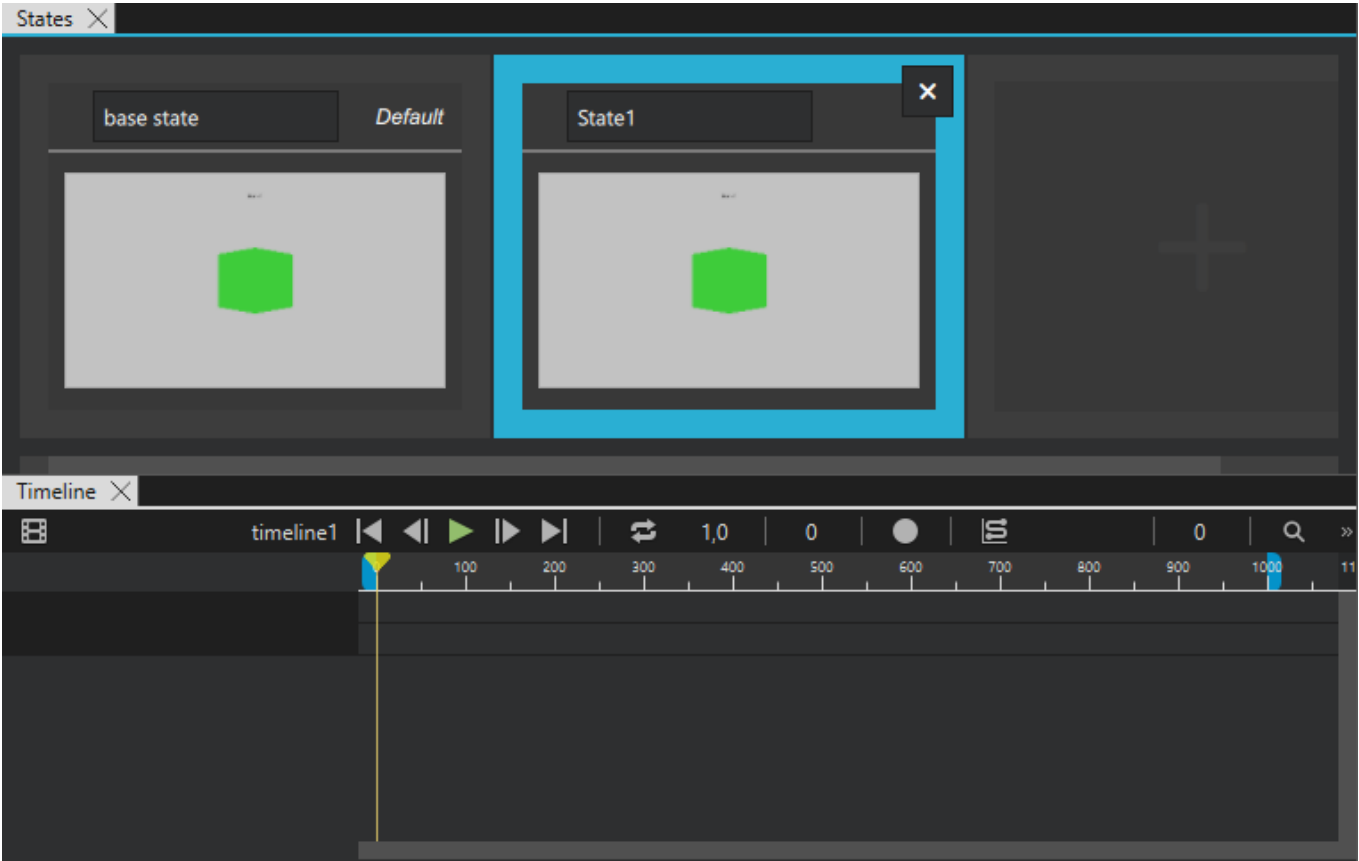
To create a timeline for a second state:

1. In **Timeline**, open the **Timeline Settings** dialog.
2. Next to the **Timeline Settings** tab, select **+**. This creates another timeline.
3. In the table below the **Animation Settings** tab, set the Timeline for the state where you want to use it.





To set the keyframe values for the timeline you created, first select the state in **States** and the timeline is available in **Timelines**.




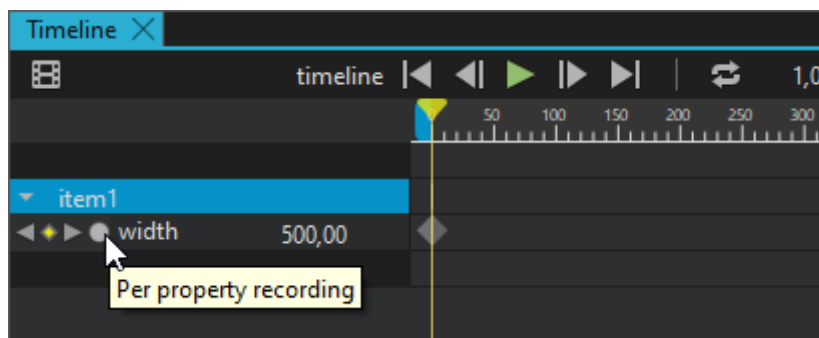
### Setting Keyframe Values

When you create a timeline, Qt Design Studio creates one animation for the timeline. You can create as many

To animate components in the **Timeline** view, you set keyframe values for the property to animate. Qt Design Studio automatically adds keyframes between two keyframes and sets their values evenly to create, for example, movement or transformation.

To set keyframe values for a component property:

1. In the **Navigator** view, select the component to animate.
2. In the **Properties** view, select  (**Actions**) > **Insert Keyframe** for the property that you want to animate.
3. In the **Timeline** view, select the **Per Property Recording** button to start recording property changes.



4. Ensure that the playhead is in frame 0 and enter the value of the property in the field next to the property name on the timeline. Press **Enter** to save the value.
5. Move the playhead to another frame on the timeline and specify the value at that frame. For more information, see [Navigating in Timeline](#).
6. When you have specified as many values as you need, select **Per Property Recording** again to stop recording.

## Binding a Timeline to a Property


When you bind a timeline to a component property, the animation's current frame is controlled by the value of the property.

In this example, you bind the timeline to a slider component.

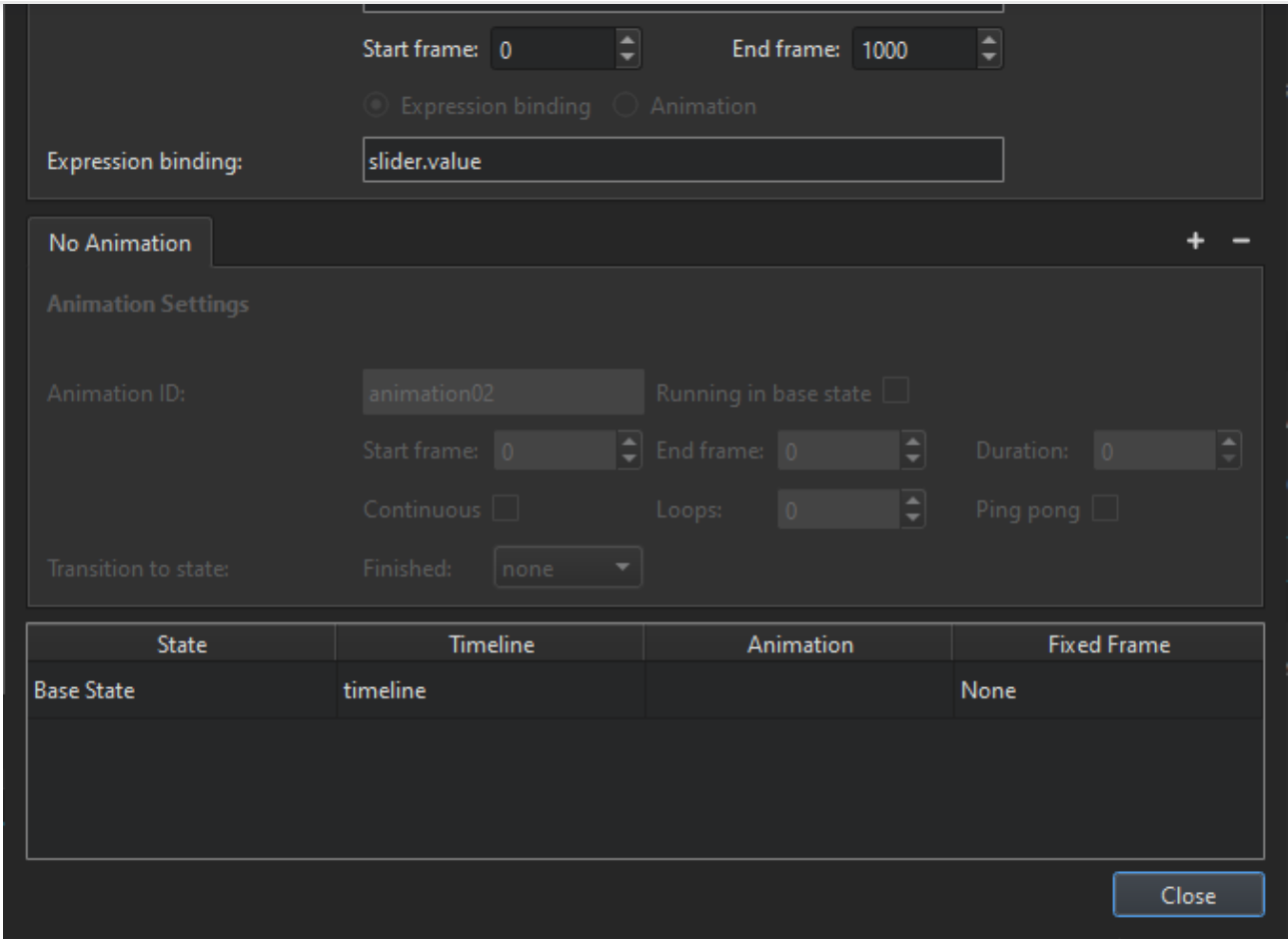
With a timeline created and keyframe values set:

1. From **Components**, drag a slider to the **2D** or **Navigator** view.
2. In **Navigator**, select *slider* and in **Properties**, set:
  - > **To** to 1000.

**Note:** The **From** and **To** values of the slider should match the **Start Frame** and **End Frame** values of the timeline if you want to control the complete animation with the slider.

3. In the **Timeline Settings** dialog, select  next to the **Animation Settings** tab to delete the animation. If you have several animations, delete all.
4. In **Expression binding**, enter `slider.value`.





## Binding Animations to States

You can bind animations to states, this means that the animation will run when you enter the state.

To bind an animation to a state:

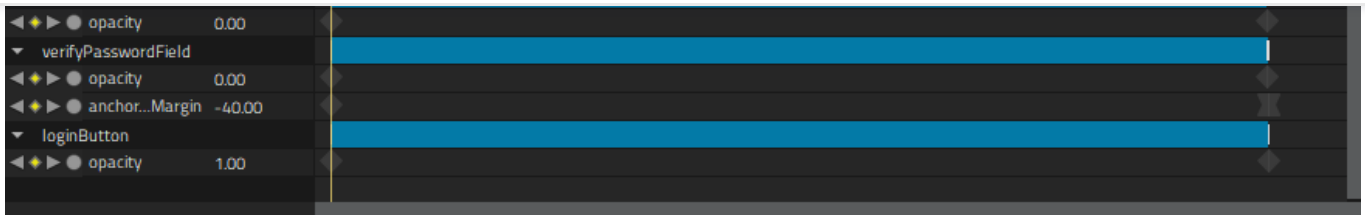
1. In the table at the bottom of the **Timeline Settings** dialog lists:
  - Double-click the value in the **Timeline** field and select the timeline with the animation you want to bind to the state.
  - Double-click the value in the **Animation** field and select the animation you want to bind to the state.

State	Timeline	Animation	Fixed Frame
Base State	timeline	timelineAnimation2	None
State1	timeline		None
State2			None
State3	timeline		None

To bind a state to a certain keyframe in an animation without running the animation, set the keyframe in the **Fixed Frame** field.

## Managing Keyframes





## Editing Keyframes

To remove all the changes you recorded for a property, right-click the property name on the timeline and select **Remove Property**.

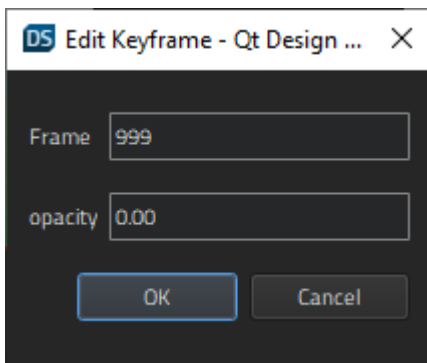
To add keyframes to the keyframe track of a component at the current position of the playhead, right-click the component name on the timeline and select **Add Keyframes at Current Frame**.

Keyframes are marked on the timeline by using **markers** of different colors and shapes, depending on whether they are active or inactive or whether you have applied **easing curves** to them.

## Editing Keyframe Values

To fine-tune the value of a keyframe, double-click a keyframe marker or right-click it and select **Edit Keyframe** in the context menu.

The **Edit Keyframe** dialog displays the name of the property you are animating and its current value at the frame specified in the **Frame** field. You can change both the keyframe and its value.



## Copying Keyframes

You can copy the keyframes from the keyframe track for a component and paste them to the keyframe track of another component.

To copy all keyframes from one track to another one:


1. Right-click the component ID and select **Copy All Keyframes** in the context menu.
2. Right-click the other component ID, and select **Paste Keyframes** in the context menu.

## Deleting Keyframes

To delete a keyframe, right-click it and select **Delete Keyframe** in the context menu.

To delete all keyframes from the selected component, right-click the component name in **Timeline** and select **Delete All Keyframes** in the context menu.

To preview your animation, do one of the following in the **Timeline** view:

- › Drag the playhead along the timeline.
- › Select  button or press **Space**.

To preview the whole UI, select the  (**Show Live Preview**) button on the canvas toolbar or press **Alt+P**.

## Animating Rotation

To animate components that rotate around a central point, you can use the **Item** component as a parent for the rotating component. Then create a timeline for the Item, and set the rotation property for the start and end keyframes.

## Animating Shapes

You can use the **Qt Quick Studio Components** to animate the following shapes:

- › **Arc**
- › **Border**
- › **Pie**
- › **Rectangle**
- › **Triangle**

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