

User Interaction Methods

You can create instances of preset basic components to add interaction methods to UIs, such as performing actions by using a pointing device or the keyboard, or flicking the visible area of the screen horizontally or vertically. They are available in **Components** > **Default Components** > **Basic**.

In addition, you can create instances of preset **UI Controls** to inform users about the progress of the application or to gather input from users.

The following basic components are available for user interaction:

- > [Mouse Area](#)
- > [Focus Scope](#)
- > [Flickable](#)
- > [Summary of Basic Interaction Methods](#)

You can specify values for the properties of component instances in the **Properties** view.

Mouse Area

Signals and handlers are used to deliver mouse interactions. Specifically, you can use a **Mouse Area** component to define JavaScript callbacks (also called signal handlers), which accept mouse events within a defined area.

A mouse area receives events within a defined area. One quick way to define this area is to **anchor** the mouse area to its parent's area. If the parent is a **Rectangle** (or any component that is derived from an **Item**), the mouse area will fill the area defined by the parent's dimensions. Alternatively, you can define an area smaller or larger than the parent. Several controls, such as **buttons**, contain a mouse area.

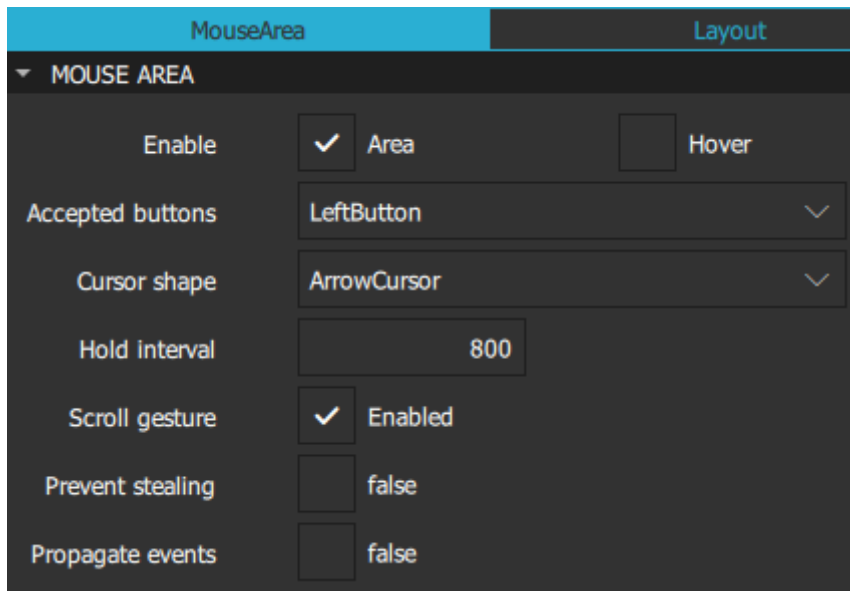
A mouse area emits **signals** in response to different mouse events:

- > `canceled()`
- > `clicked()`
- > `doubleClicked()`
- > `entered()`
- > `exited()`
- > `positionChanged()`
- > `pressAndHold()`
- > `pressed()`
- > `released()`

Mouse Area Properties

A **Mouse Area** is an invisible component that is typically used in conjunction with a visible component in order to provide mouse handling for that component. By effectively acting as a proxy, the logic for mouse handling can be contained within a **Mouse Area** component.

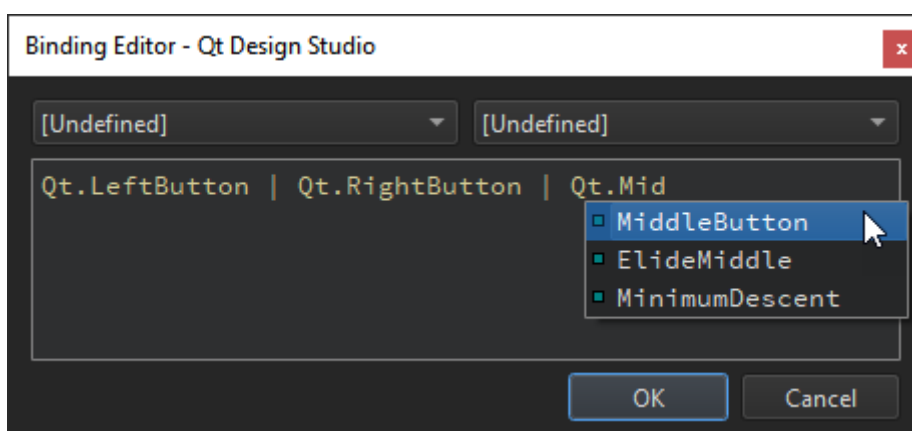
Select the **Enable** check box to enable mouse handling for the proxied component. When disabled, the mouse area becomes transparent to mouse events.



By default, **Mouse Area** components only report mouse clicks and not changes to the position of the mouse cursor. Select the **Hover** check box to ensure that the appropriate handlers are used and the values of other properties are updated as necessary even when no mouse buttons are pressed.

Even though **Mouse Area** is an invisible component, it has a **Visible** property. Deselect the **Visible** check box in the **Visibility** section to make the mouse area transparent to mouse events.

In the **Accepted buttons** field, select the mouse button that the mouse area reacts to. Select **AllButtons** to have the mouse area react to all mouse buttons. You can add support for several buttons in the **Code** view or **Binding Editor** by combining the values with the OR operator (`|`). For more information about the available values, see the developer documentation for [acceptedButtons](#).



In the **Cursor shape** field, select the cursor shape for this mouse area. On platforms that do not display a mouse cursor, this value may have no effect.

In the **Hold interval** field, specify a value to override the elapsed time in milliseconds before the `pressAndHold()` signal is emitted. If you do not explicitly set the value or it is reset, it follows the globally set application style hint. Set this value if you need particular intervals for particular **Mouse Area** instances.

comes from an actual mouse with a wheel, while scroll gesture events will pass through to any other component that will handle them. For example, the user might perform a flick gesture while the cursor is over a component containing a **Mouse Area** instance, intending to interact with a **Flickable** component which is underneath. Setting this property to `false` will allow the **PinchArea** component to handle the mouse wheel or the pinch gesture, while the **Flickable** handles the flick gesture.

Information about the mouse position and button clicks are provided via signals for which event handler properties are defined. If a mouse area overlaps with the area of other instances of the **Mouse Area** components, you can propagate `clicked()`, `doubleClicked()`, and `pressAndHold()` events to these other components by selecting the **Propagate events** check box. Each event is propagated to the next enabled **Mouse Area** beneath it in the stacking order, propagating down this visual hierarchy until a **Mouse Area** accepts the event.

Advanced Mouse Area Properties

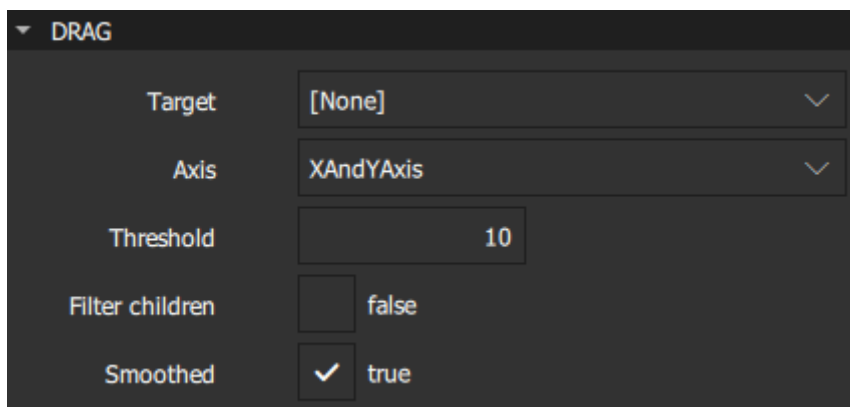
You can place a **Mouse Area** instance within a component that filters child mouse events, such as **Flickable**. However, the mouse events might get stolen from the **Mouse Area** if a gesture, such as a flick, is recognized by the parent component.

Select the **Prevent stealing** check box to stop mouse events from being stolen from the **Mouse Area** instance. This value will take no effect until the next `press()` event if it is set once a component has started stealing events.

For more information, see the developer documentation for the **Mouse Area** component.

Drag Properties

You can specify properties for dragging components in the **Drag** section. Select the component to drag in the **Target** field. Keep in mind that anchored components cannot be dragged.



In the **Axis** field, specify whether dragging can be done horizontally, vertically, or both.

In the **Threshold** field, set the threshold in pixels of when the drag operation should start. By default, this value is bound to a platform dependent value.

Select the **Filter children** check box to enable dragging to override descendant **Mouse Area** instances. This enables a parent **Mouse Area** instance to handle drags, for example, while the descendant areas handle clicks.

Select the **Smoothed** check box to move the target component only after the drag operation has started. If this check box is not selected, the target component is moved straight to the current mouse position.

Focus Scope

When a key is pressed or released, a key event is generated and delivered to the focused component. If no component has active focus, the key event is ignored. If the component with active focus accepts the key event,

A component has focus when the **Focus** property in the **Advanced** section is set to `true`. However, for reusable or imported components, this is not sufficient, and you should use a **Focus Scope** component.

Within each focus scope, one object may have focus enabled. If more than one component have it enabled, the last component to enable it will have the focus and the others are unset, similarly to when there are no focus scopes.

When a focus scope receives active focus, the contained component with focus set (if any) also gets the active focus. If this component is also a focus scope, both the focus scope and the sub-focused component will have active focus.

The **Focus Scope** component is not a visual component and therefore the properties of its children need to be exposed to the parent component of the focus scope. **Layouts** and **positioners** will use these visual and styling properties to create the layout.

For more information, see [Keyboard Focus in Qt Quick](#).

Flickable

Flickable places its children on a surface that can be dragged and flicked, causing the view onto the child components to scroll. This behavior forms the basis of components that are designed to show large numbers of child components, such as **List View** and **Grid View**. For more information, see [List and Grid Views](#).

In traditional user interfaces, views can be scrolled using standard controls, such as scroll bars and arrow buttons. In some situations, it is also possible to drag the view directly by pressing and holding a mouse button while moving the cursor. In touch-based user interfaces, this dragging action is often complemented with a flicking action, where scrolling continues after the user has stopped touching the view.

The contents of a **Flickable** component are not automatically clipped. If the component is not used as a full-screen component, consider selecting the **Clip** check box in the **Visibility** section.

Flickable	Layout
▼ FLICKABLE	
Interactive	<input checked="" type="checkbox"/> true
Flick direction	AutoFlickDirection
Behavior	DragAndOvershootBounds
Movement	FollowBoundsBehavior
Max. velocity	2500
Deceleration	1500
Press delay	0
Pixel aligned	<input type="checkbox"/> false
Synchronous drag	<input type="checkbox"/> false

Users can interact with a flickable component if the **Interactive** check box is set to `true`. Set it to `false` to temporarily disable flicking. This enables special interaction with the component's children. For example, you might want to freeze a flickable map while scrolling through a pop-up that is a child of the **Flickable** component.

The **Flick direction** field determines whether the view can be flicked horizontally or vertically. Select

height of flickable greater than end of the flickable.

Specify the maximum velocity for flicking the view in pixels per second in the **Max. velocity** field. Specify the rate at which a flick will decelerate in the **Deceleration** field.

The value of the **Movement** field determines whether the flickable will give a feeling that the edges of the view are soft, rather than a hard physical boundary. Select **StopAtBounds** for custom edge effects where the contents do not follow drags or flicks beyond the bounds of the flickable. Select **FollowBoundsBehavior** to have the contents follow drags or flicks beyond the bounds of the flickable depending on the value of the **Behavior** field.

In the **Press delay** field, specify the time in milliseconds to delay delivering a press to children of a flickable. This can be useful when reacting to a press before a flicking action has undesirable effects. If the flickable is dragged or flicked before the delay times out, the press event will not be delivered. If the button is released within the timeout, both the press and release will be delivered.

Note: For nested flickables with press delay set, the press delay of outer flickables is overridden by the innermost flickable. If the drag exceeds the platform drag threshold, the press event will be delivered regardless of this property.

The **Pixel aligned** check box sets the unit of alignment set in the **Content X** and **Y** fields to pixels (**true**) or subpixels (**false**). Set it to **true** to optimize for still content or moving content with high contrast edges, such as one-pixel-wide lines, text, or vector graphics. Set it to **false** when optimizing for animation quality.

If **Synchronous drag** is set to **true**, then when the mouse or touchpoint moves far enough to begin dragging the content, the content will jump, so that the content pixel which was under the cursor or touchpoint when pressed remains under that point. The default is **false**, which provides a smoother experience (no jump) at the cost of losing some of the drag distance at the beginning.

Flickable Geometry

The **Content size** field specifies the dimensions of the surface controlled by a flickable. Typically, set the values of the **W** and **H** fields to the combined size of the components placed in the flickable. You can set additional margins around the content in the **Left margin**, **Right margin**, **Top margin**, and **Bottom margin** fields.

FLICKABLE GEOMETRY

Content size	0	W	0	H
Content	0	X	0	Y
Origin	0	X	0	Y
Left margin	0			
Right margin	0			
Top margin	0			
Bottom margin	0			

The **Origin** field specifies the origin of the content. It refers to the top-left position of the content regardless of layout direction. Usually, the **X** and **Y** values are set to 0. However, a **List View** and **Grid View** may have an arbitrary origin due to delegate size variation, or component insertion or removal outside the visible region.

developer documentation. They are available in **Components > Default Components > Basic**. The *MCU* column indicates which components are supported on MCUs.

Icon	Name	MCU	Purpose
	Flickable	✓	Enables flicking components horizontally or vertically.
	Focus Scope		Assists in keyboard focus handling when building reusable components.
	Mouse Area	✓	Enables simple mouse handling.

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