Touchable

ControlDevelopment

KeyboardKey

Keyboard key is building block of Keyboard Control.



Properties

This Control does not have any configurable properties.

Scrollbar

The Scrollbar is used internally in List and ScrollView and shows up when the layout-size of those controls is smaller than its actual content. It can be used by custom scrollable controls.

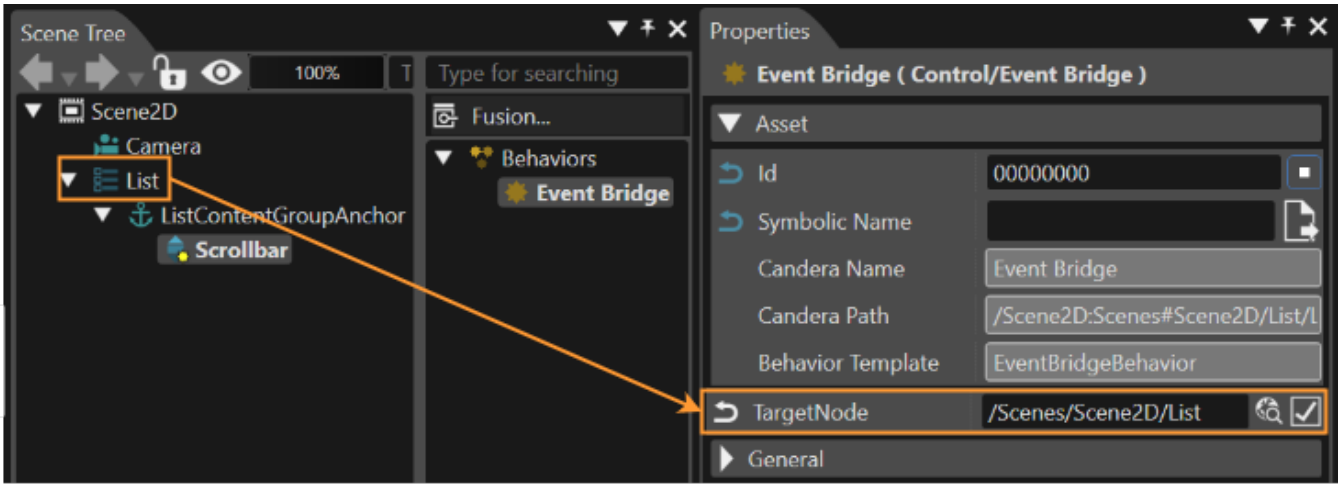
Properties

Property Name	Type	Description
Scroll Direction	Enum (Vertical, Horizontal)	The direction in which the Scrollbar scrolls.
Handle Minimum Size	Integer	The minimum height (for vertical scrollbar) or minimum width (for horizontal scrollbar) of the handle in pixels.
Scrollbar Visibility	Enum (Automatic, Collapsed, Visible)	Configure the visibility of the scrollbar. By default it is set to Automatic which will determine the visibility based on the actual content.
Min Movement To Scrolling	Integer	Minimum distance a touch gesture needs to move to start scrolling.

Blend Type	BlendType::Enum	Sets the blend option.

Functionality

The Scrollbar emits a ScrollableEvent which can be forwarded to a Behavior (f.e. List Behavior, Scroll View Behavior) via the Event Bridge Behavior.



Behavior Name	Type	predefined/userdefined	Description
Event Bridge	Control Behavior	predefined in List and ScrollView Control	Forwards the ScrollableEvent from the Scrollbar to a Behavior
List	Control ConstructionKit Behavior	predefined in List Control	Internally receives the ScrollableEvent from the Scrollbar.
Scroll View	Control ConstructionKit Behavior	predefined in ScrollView Control	Internally receives the ScrollableEvent from the Scrollbar.

PageIndicatorElement

A PageIndicatorElement is a Control that is part of the Page Indicator Control. The Page Indicator Control indicates the currently displayed page. PageIndicatorElement is intended to be used as component of Page Indicator and therefore is not focusable as individual element.

The Control offers the possibility to customize it’s appearance through 9 patch image and color properties.



Properties

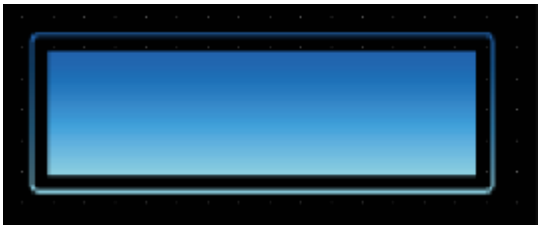
Property Name	Type	Description
Selected Indicator Image	Candera::Image2D	Image displayed when the control is in selected state.
Indicator Image	Candera::Image2D	Image displayed when the control is in base deselected state.
Selected Indicator Pressed Image	Candera::Image2D	Image displayed when the control is in selected state and pressed.
Indicator Pressed Image	Candera::Image2D	Image displayed when the control is in deselected state and pressed.
Hovered Color	Candera::Color	The color to blend with the current control image when the control is hovered.
Disabled Color	Candera::Color	The color to blend with the current control image when the control is disabled.

Button

The Button Control offers an easy way to define all different states of a button and an action that is performed when clicking it.

The visual appearance can be configured with three images depending on the button's state and a hovered color that can be defined including an alpha value.

Additionally the Button offers an Anchor to attach content. Therefore you can also set the padding of the Button and its content.



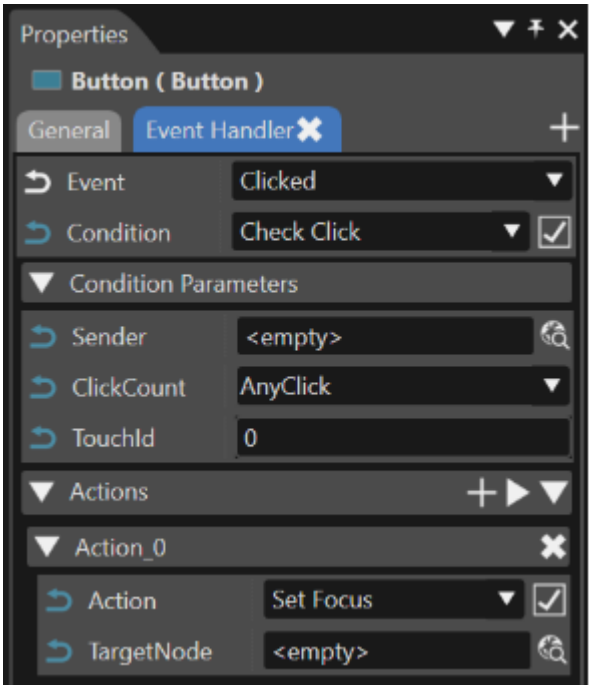
Properties

Property Name	Type	Description
Enabled	bool	If true, the control is enabled. Otherwise the visual representation of the control will be changed to the disabled colors. Also disable the focus to avoid receiving input.

Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Normal Image	9 Patch Image	The image which is used as Button Image for the color multiplication of other states like Hovered.
Pressed Image	9 Patch Image	The image which is used as Button Image if the pressed state applies.
Focused Image	9 Patch Image	Transparent image contained in the center (border) of the control which is activated if the control has the current focus. The control must be set as focusable. Note that the focused image will always be contained in the top layer of the control.
Hovered Color Property Reference	Enum (Self, Other)	Choose how the property gets set. Via own property or from another Behavior.
Hovered Color	Candera::Color	The color which is used as hovered color for blending with the Button Image. This property is only available if Hovered Color Property Reference is configured for "Self".
Hovered Color Property Provider	Candera::Behavior	Property Behavior which contains the color which has to be set on the effect. This property is only available if Hovered Color Property Reference is configured for "Other".
Disabled Color Property Reference	Enum (Self, Other)	Choose how the property gets set.Via own property or from another Behavior.
Disabled Color	Candera::Color	The color to set on the disabled Button. This property is only available if Disabled Color Property Reference is configured for "Self".
Disabled Color Property Provider	Candera::Behavior	Property Behavior which contains the color which has to be set on the effect. This property is only available if Disabled Color Property Reference is configured for "Other".
Padding	Candera::Margin	Padding of the Button. Used when a content is attached.
Blend Type	BlendType::Enum	Sets the blend option.

Functionality

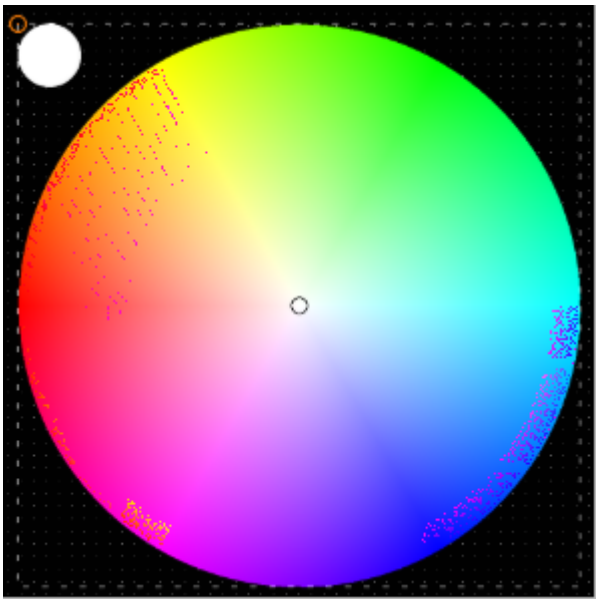
The functionality of the button can be edited in the Behaviors panel or in the EventHandler Tab (see chapter EventHandler Tab). An EventHandler that checks for Clicks will perform the user defined action.



Behavior Name	Type	predefined/userdefined	Description
EventHandler	Control Behavior	predefined	Checks a defined condition and invokes a defined action behavior if that condition is true.
CheckClick	Input Condition Behavior	predefined	Condition checks if the button has been clicked
Action	Action Behavior	userdefined	Userdefined action that will be performed when the button is clicked.

ColorPicker

The ColorPicker control lets you touch an image (such as a color map or color wheel) to select a color, and applies the selected color to a target node. Internally, it is composed of a Handle Control State, a PickColor behavior, Set Color, and a Property Provider, providing the entire process of picking a color from an image as a single control.



Set the source image for the color in the Image property, and set the node to which the color is applied in the Target Node property. When you click the ColorPicker while the Player is running, the color at the touched position is reflected on the target node.

Properties

Property Name	Type	Description
Image	Candera::MemoryManagement::SharedPointer< Candera::Image2D >	Specifies the image to set on the effect (for example, ColorWheelBmp). In the ColorPicker, the color is picked from the position touched on this image.
Target Node	Candera::AbstractNodePointer	Specifies the node to which the selected color is applied (for example, SolidColorNode). If not set, the node to which the behavior inside the ColorPicker is attached is modified.
Enabled	bool	Controls whether focus handling is enabled. If set to false, the control does not react to focus events, and you do not have to provide different visualizations for the individual focus states.
Mode Wheel	CgiStudioControl::BlendType	Specifies the blend mode applied to the bitmap of the color wheel. Setting the blend mode that matches the bitmap you use allows the system to calculate the correct transformations. Default: DefaultPremultiplied

Mode Current Display	CgiStudioControl::BlendType	Specifies the blend mode applied to the solid color node that previews the currently selected color. Setting the blend mode that matches the bitmap you use allows the system to calculate the correct transformations. Default: DefaultTransparentLayer

Available blend modes

The following values are available for Mode Wheel and Mode Current Display:

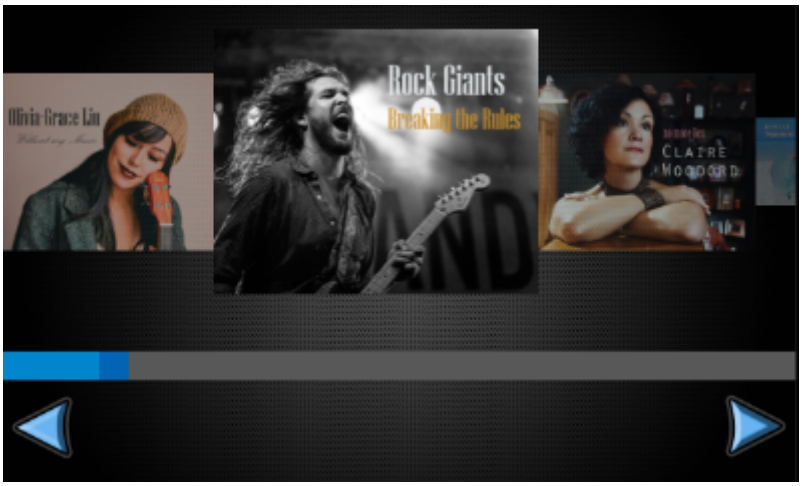
- Default
- DefaultPremultiplied
- DefaultTransparentLayer
- Add
- Multiply
- Screen
- Darken
- Lighten
- SourceAtop
- SourceIn
- SourceOut
- SourceOver
- DestinationAtop
- DestinationIn
- DestinationOut
- DestinationOver
- Off

CoverFlow

A CoverFlow is a proof-of-concept control that allows for horizontal swiping of child items. The items are scaled according to their location.

Child items are placed in provided anchor. It is possible to add padding by placing blank items at the beginning and at the end of the anchor content.

By default, the CoverFlow works horizontally.



Properties

Property Name	Type	Description
Value	Float/Variant	Current value (position) of the CoverFlow.
Minimum	Float/Variant	The minimum value of CoverFlow.
Maximum	Float/Variant	The maximum value of CoverFlow.
Zoom Minimum	Float/Variant	Zoom effect minimum value.
Zoom Maximum	Float/Variant	Zoom effect maximum value.
Zoom By Layout	bool	Wethere zoom accomplished by layout size.
Increase Swipe Direction	Enum (Left, Right, Up, Down)	The direction of the swipe to increase value
Decrease Swipe Direction	Enum (Left, Right, Up, Down)	The direction of the swipe to decrease value
Orientation	StackLayouter::Arrangement	Selects arrangement for cover flow. See Set Layout for more information.
Blend Type	BlendType::Enum	Sets the blend option.

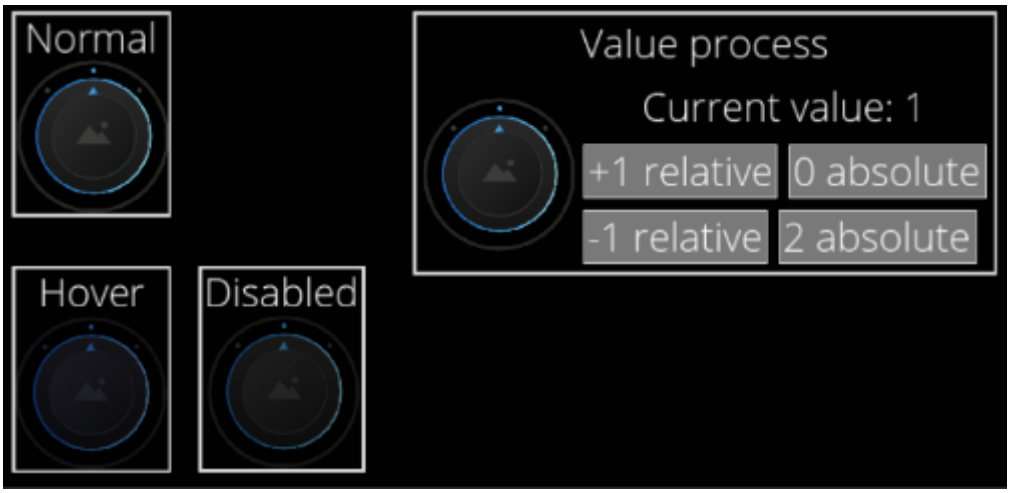
Dial

A dial is used to set a value within a specified range or to select between different options which are represented by the value of the dial. The control knob changes the value when the user touches and turns it. The degree of rotation corresponds to the desired value change. The dial snaps into its predefined positions defined by its step size.

The below figure shows an example using a 3-step rotation, with a Minimum Rotation of -45 degrees, Maximum Rotation of +45 degrees, and Step Size of 45 degrees. In this example, BackgroundImages 0 is displayed corresponding to Current Value = 0. Similarly, Current Value = 1 displays BackgroundImages 1 and Current Value = 2 displays BackgroundImages 2.

For a 5-step rotation with a Minimum Rotation of -90 degrees, Maximum Rotation of +90 degrees, and Step Size of 45 degrees, you will need to set 5 BackgroundImages.

The rotary knob supports events. If it receives an event of value change (ValueChangeEvent), the knob will be set accordingly. When the control is focused it is possible to control it using the keyboard (up/down arrow).



Properties

Property Name	Type	Description
Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Current Value	FeatStd::Int32	Current value for the dial.
Step Size	FeatStd::Float	Step size in degrees.
Minimum Rotation	FeatStd::Float	Minimum rotation of the dial.
Maximum Rotation	FeatStd::Float	Maximum rotation of the dial.
Knob Image	Candera::Image2D	The image to set on the effect.
BackgroundImages	Candera::Image2D	A list of images which should be available for selection.
Focus Image	Candera::Image2D	The image to set on the effect.
Disabled Color	Candera::Color	The color which can be used from other Behaviors.
Hovered Color	Candera::Color	The color which can be used from other Behaviors.

Increment Key Code	Candera::KeyboardKeyCode::Enum	Check the KeyCode of the pressed key (can also be modifier).
Decrement Key Code	Candera::KeyboardKeyCode::Enum	Check the KeyCode of the pressed key (can also be modifier).
Blend Type	BlendType::Enum	The blend type that will be set on the affected node.

Drawer

The Drawer Control provides a retractable area controlled via events. It offers an Anchor, where any kind of nodes can be attached to.

If the Drawer receives a Drawer Event, the Control will open or close itself. The "Change Drawer State" action allows to send these events and also provide the functionality to toggle the state of the Drawer Control.

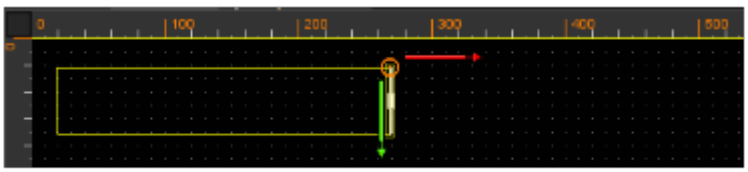
When the "Drag Enabled" Property is set to true, then the Drawer can also be opened/closed by dragging the Knob.

All nodes that are attached to the Anchor will be displayed in the same way as they would be displayed when attached to an Overlay Layouter.

The image below shows a Drawer Control with "Appear Direction" left in initial state and in closed state. When the drawer gets closed, it slides to the left and gets hidden like closing a desk drawer.



Drawer in initial (opened) state



The same Drawer in closed state

> Nine-Patch-Images are not supported by Drawer Image properties (Knob Pressed Image, Knob Normal Image).

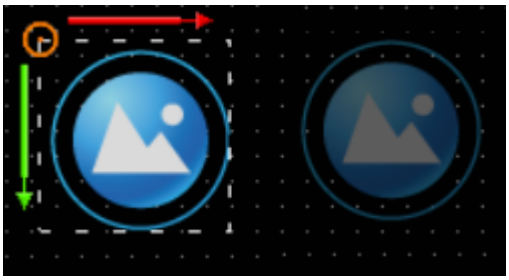
Properties

Property Name	**Type**	**Description**

Open	bool	If true, the control is shown in it's opened state. Otherwise the visual representation of the control will be it's closed state.
Appear Direction	Enum (Left, Right, Top, Bottom)	Specifies the direction from which the content will appear.
Knob Pressed Image	Candera::Image2D	Specifies the look of the dragable Knob when it is pressed. Note: Should have the same or a bigger size than the Normal Image.
Knob Normal Image	Candera::Image2D	Specifies the look of the dragable Knob when it is not pressed. Note: Should have the same or a smaller size than the Pressed Image.
Drag Enabled	bool	If true, then the dragable Knob is active and visible.
Blend Type	BlendType::Enum	Sets the blend option.

IconButton

IconButton has similar functionality as the standard button, but in addition an icon (image) (defined via multiple properties per control state) is placed on top of the button.



Properties

Property Name	Type	Description
Identifier	String	Identifier which is used when emitting an Event (e.g. Click Event).
Enabled	bool	If set to false, it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Normal Image	9 patch image	The Image which is used if the normal state applies.

Pressed Image	9 patch image	The Image which is used if the pressed state applies.
Focused Image	9 patch image	Image which is transparent in the center (border). It gets activated if the control has the current focus. Therefore be sure that the Button is focusable.
Hovered Color	Candera::Color	The color which is used as hovered color for blending with the Button Image.
Disabled Color	Candera::Color	The color which is used for blending with the disabled Button Image.
Padding	Candera::Margin	Padding of the button. Used when a content is attached.
Icon Horizontal Alignment	Enum (Left, Center, Right)	The horizontal alignment of the icon.
Icon Vertical Alignment	Enum (Top, Center, Bottom)	The vertical alignment of the icon.
Icon Normal Image	Candera::Image2D	The image which is used as Icon on the button if not pressed or hovered.
Icon Pressed Image	Candera::Image2D	The image which is used as Icon on the button if the pressed state applies.
Icon Focused Image	Candera::Image2D	The image to set on the effect.
Icon Hovered Color	Candera::Color	The color which is used as hovered color for blending with the button Icon image.
Icon Disabled Color	Candera::Color	The color which is used for blending with the disabled button Icon Image.
Blend Type	BlendType::Enum	Sets the blend option.

InputField

The InputField contains an editable text. If the Control has the keyboard focus it can be modified by receiving “Key Events”. This events can e.g. be sent from a “Virtual Key Behavior”. Additionally the InputField contains a caret which can be shifted by “Key Events” (KeyCode: Key_LeftArrow or Key_RightArrow). Furthermore the InputField sends “Enter Exit" Events in case of losing the focus. This events can be checked by an Event Handler with the “Check Enter Or Exit Behavior” e.g. to activate a virtual keyboard. As other Controls it contains a value (string) which can be forwarded. Therefore just use the “Forward Value” Behavior and set another Control as Target Node.

> The default text and the placeholder text have got additional properties for customizingthem visually.

Properties

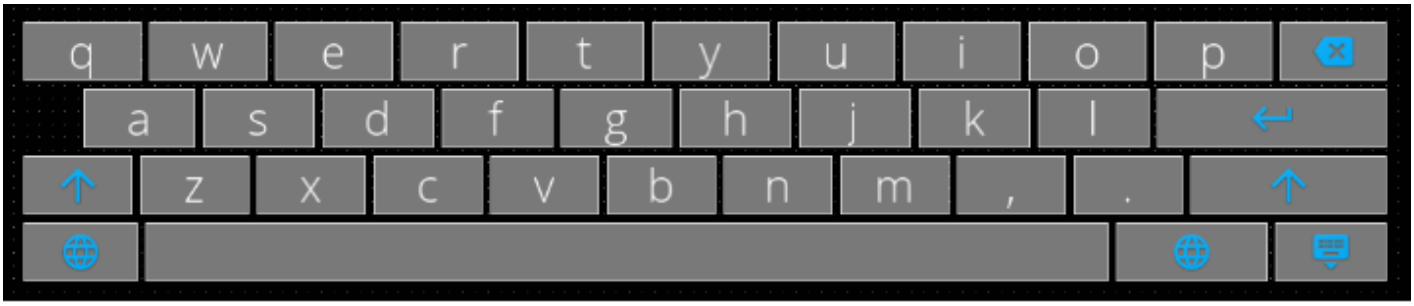
Property Name	Type	Description
Enabled	bool	If true, the control is enabled. Otherwise the visual representation of the control will be changed to the disabled colors. Also disable the focus to avoid receiving input.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused and will not receive any inputs.
DefaultText	String	Text which will be set as default text.
Text Color	Candera::Color	The color set on the text.
Text Style	Text Style	The Style that will be set to the Text Node.
Text Disabled Color	Candera::Color	The color to set on the text if the control is disabled.
Placeholder Text	String	The Text that will be set to the Text Node.
Placeholder Text Color	Candera::Color	The color of the placeholder text.
Placeholder Text Style	Text Style	The Style that will be used.
Placeholder Disabled Color	Candera::Color	The color to set on the effect of the Text.
Caret Image	Candera::Image2D	The image to set as caret.
Off Time Ms	Integer	Milliseconds before switching the blinking caret to On state.
On Time Ms	Integer	Milliseconds before switching the blinking caret to Off state.
Background Image	Candera::Image2D	The image to set as Background.
BG Disabled Color	Candera::Color	The color to set on the BG if the control is disabled.
Focused Image	Candera::Image2D	The image to set as FocusBorder.

Set Value On Enter	bool	If true, the value will be set when the Enter key is pressed.
Set Value On Each Change	bool	If true, the value will be set on each input.
Max Text Length	Integer	Maximum count of characters.
Just Digits	bool	If true, the InputField will receive just digits.
Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.
Keyboard Node	Node	Keyboard node.
Keyboard Layout Name	String	Layout name.

Keyboard

The Keyboard Control emulates physical computer keyboard that enables a user to enter characters into an InputField Control. The Keyboard Control is highly customizable via Configuration Script described below.

To use the Control one needs to connect an InputField with a keyboard via KeyboardAction with Action Open. When the InputField send the event, the Keyboard appears and sends pressed characters to the InputField that activates it.



Properties

Property Name	**Type**	**Description**

Configuration Script	String	Keyboard layout configuration script - key definitions (strings, KeyboardCodes or KeyboardActions) separated by spaces and newlines; may have parameters in parentheses and width specifiers in square brackets. See documentation and examples for reference. See Keyboard Behavior for more information.
State Machine Node	Node	Node containing State Machine Behavior, that will be sent a ValueChanged event with layout name, when layout switching occurs. In turn, State Machine may send SetConfiguration KeyboardAction to the Keyboard, to set new Keyboard layout configuration string. If left empty, layout changes will trigger ValueChanged on Keyboard node itself - in this case layout configuration string may be updated using Value change conditions attached to Keyboard node.
Navigate Up Key Code	Candera::KeyboardKeyCode::Enum	Key used for navigating up
Navigate Down Key Code	Candera::KeyboardKeyCode::Enum	Key used for navigating down
Navigate Next Key Code	Candera::KeyboardKeyCode::Enum	Key used for navigating right
Navigate Previous Key Code	Candera::KeyboardKeyCode::Enum	Key used for navigating left
Navigate Start On Down Key	bool	Enter navigation mode when pressing down key for the first time
Navigate End On Up Key	bool	Exit navigation mode when pressing up key on the first row
Navigate Start Key Code	Candera::KeyboardKeyCode::Enum	Key used for entering navigation mode
Navigate End Key Code	Candera::KeyboardKeyCode::Enum	Key used for exiting navigation mode
Navigate Close Key Code	Candera::KeyboardKeyCode::Enum	Key used for closing keyboard
Navigate Invoke Key Code	Candera::KeyboardKeyCode::Enum	Key used for invoking key action
Blend Type	BlendType::Enum	The blend type that will be set.

MenuItem

A MenuItem is a basic building block of MenuScreens. It can represent for example an application or a deeper level in a menu hierarchy. It consists of an icon for graphical representation and a label for textual description.

A proper usage is to place or create it inside a MenuScreen control because of internal events that communicate with it. Those events handle runtime repositioning an instance of MenuItem or deleting it from a MenuScreen.



Properties

Property Name	Type	Description
Enabled	bool	If true, then item is visible
Focus Image On Selection	9-patch image	The border image is set while the MenuItem is selected
Focus Image On Dragging	9-patch image	The border image is set while the MenuItem is in edit mode
Delete Button Normal Image	9-patch image	The image will be shown in top-right of the Control in edit mode to enable deletion of the instance of MenuItem
Delete Button Pressed Image	9-patch image	The image will be set while Delete Button is pressed
Delete Button Hovered Color	Candera::Color	The color will be blend with Delete Button images while a user has his cursor over the Delete Button
Focusable	bool	If true then focus node will be visible
Image	9-patch image	A bitmap that is the icon of the Control
Label	String	A text that will be set to the Text Node.
Label Color	Candera::Color	A color of the Icon Label.
Label Style	Text Style	A font style of the Text.

Label Trimming	Enum (None, Ellipsis, Custom Text)	Trimming defines the behavior to employ when content overflows the content area
Blend Type	BlendType::Enum	The blend type that will be set.

Menu Screen

The Menu Screen Control represents a menu in the form of a grid of icons (instances of the Menu Item Control).

It has configurable number of rows and columns as well as default and maximum number of screens. A user can swipe between neighboring screens. The Control handles user input and forwards proper information to children MenuItem nodes. The children nodes may be removed and reordered at run time.



Properties

Property Name	Type	Description
ActiveScreenIndex	FeatStd::UInt32	Index (starting at 0) of the current visible screen.
NumberOfScreens	FeatStd::UInt32	Default number of screens (can be changed in runtime)
Rows	FeatStd::UInt32	Number of rows of a grid in a single screen
Columns	FeatStd::UInt32	Number of columns of a grid in a single screen

Items	Binding Source	Binding to a list containing icons and labels that should be accessible in the MenuScreen
Swap Item Animation Easing Function	EasingFunctions::Enum	Interpolation method for animations of swapping items
Swap Item Animation Length	FeatStd::Float	Length of the swapping animation
Change Screen Animation Easing Function	EasingFunctions::Enum	Interpolation method for animations of changing screens
Change Screen Animation Length	FeatStd::Float	Length of the changing animation
Key Code To Move Selection Left	Candera::KeyboardKeyCode::Enum	Key that changes focus from an item to its left neighbor
Key Code To Move Selection Right	Candera::KeyboardKeyCode::Enum	Key that changes focus from an item to its right neighbor
Key Code To Move Selection Up	Candera::KeyboardKeyCode::Enum	Key that changes focus from an item to its top neighbor
Key Code To Move Selection Down	Candera::KeyboardKeyCode::Enum	Key that changes focus from an item to its bottom neighbor
Focusable	bool	Enables grabbing focus by the Control
Screen Change Timeout	FeatStd::Float	Time of dragging a Menu Item outside the Control to fire Change Screen
Background Image	Candera::Image2D	Background image of screens
Focus Border Image	Candera::Image2D	Image of the border rendered when the Control grabs focus
Limit Of Screens	FeatStd::UInt32	Maximum number of screens that may be handled by the Control in runtime
Page Indicator Node	Node	Page indicator that helps in navigation between screens of the Control
Blend Type	BlendType::Enum	The blend type that will be set.

PageIndicator

A Page Indicator is a control that indicates currently visible page of set and provides method to switch to another page directly by click or if focused in a stepping manner using rotary action input.

The control interacts with MenuScreens through exchange of ValueChange and ChangeValue events. The cooperating control is set in *Target Node* property.

The action keys will move the focus in/out of the control and when in then will switch pages until first or last page is reached. Continued action will pass the focus out of the control.

By default the control supports up to 8 pages, support for more pages requires manual addition of additional PageIndicatorElements in the control.



Properties

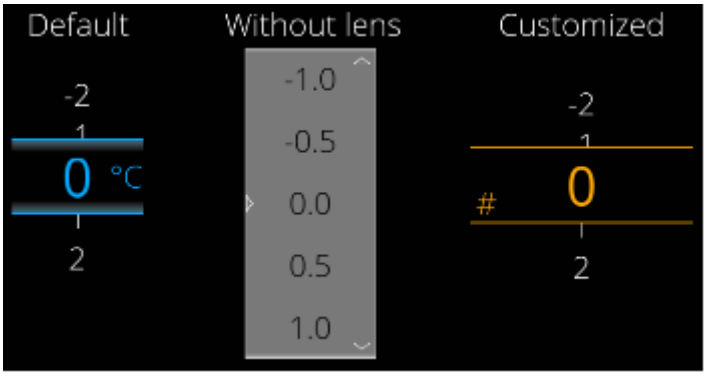
Property Name	Type	Description
Target Node	Node	A node to exchanging events.
Active Page Index	FeatStd::UInt32	Index of currently visible page. Must be in range from 0 to `Number Of Pages - 1` .
Number Of Pages	FeatStd::UInt32	Number of available pages.
Decrement Key Code	Candera::KeyboardKeyCode::Enum	The Key Code triggering decrement of the value.
Increment Key Code	Candera::KeyboardKeyCode::Enum	The Key Code triggering increment of the value.
Blend Type	BlendType::Enum	Sets the blend option.

Roll

The Control represents a vertical list of numeric values from a specified range with a specified step. Current value of the Control is visible in the middle of the control and can be zoomed like using lens. Changing the current value can be animated and can be done using touch/pointer or configurable keys of a keyboard. One can edit the current value of the Control by entering it with a keyboard.

To use the Control simply put it in a scene and configure all desirable properties. A roll can *forward value* as well as receive a *send value as event*.

> The range is implemented in a way that it starts at Minimum Value, increases by (positive) StepSize but no further than Maximum Value. This conforms to the way range stepping is usually implemented, and gives configuration flexibility.



Properties

Property Name	Type	Description
Focusable	bool	If true, the control is focusable. Otherwise the control cannot be focused.
Value	Float	The value which will be changed using the roll
Min	Float	The minimum value which can be reached. This value is always smaller or equal to the MaxValue.
Max	Float	The maximum value which can be reached. This value is always bigger or equal to MinValue
Step	Float	The increment/decrement of the value.
LensVisible	bool	Is lens group visible? Enables highlighting of the current value, default zooming and bordering it.
Use Cyclic Roll	bool	Is roll cyclic? If true the MinValue of the Control can be reached after the MaxValue of the Control and vice versa
Allow Dragging Past Limit	bool	Allow temporary over-dragging (dragging to blank values before first and after last entry). If true there is visible animation of the Control being „out of range“ while moving below minimum and above maximum value.
Value Style	Candera::TextRendering::Style	Sets the text style for the values outside the Lens.

Value Color	Candera::Color	Specifies color of values in the vertical list outside the Lens
Lens Style	Candera::TextRendering::Style	Sets the text style for the values inside the Lens.
Unit Text	String	Text used in lens (it means: when the lens is used at all) to present a unit of the value
Unit Style	Candera::TextRendering::Styler	Sets the text style for the Unit Text.
Unit Margin	Candera::Margin	Specifies margin of the UnitText
Unit Color	Candera::Color	Specifies color of the UnitText
Decoration Image	Candera::Image2D	Specifies a border image of the Lens
Text Input Color	Candera::Color	Specifies color of the text entered in the InputField while editing the current value of the Control
Text Edit Background	Candera::Image2D	The background image used for the Input Field when entering Text Edit mode.
Max Text Length	Unsigned Int 16	Specifies maximum count of characters that may be entered while editing the current value of the Control
Decrement Key Code	Candera::KeyboardKeyCode::Enum	Key used to decrement the current value of the Control
Increment Key Code	Candera::KeyboardKeyCode::Enum	Key used to increment the current value of the Control
Edit Key Code	Candera::KeyboardKeyCode::Enum	Key used to enter edit mode (show InputField) of the current value of the Control
Blend Type	BlendType::Enum	Sets the blend option.
Keyboard Node	Node	Specifies which Keyboard control should be used when entering edit mode.
Keyboard Layout Name	String	Layout name.

SpinBox

A spin box or spin button is a control that enables users to increase or decrease the number value by a specific increment (often by 1, 5 or 10) via clicking an up or down arrow button.

The action key/s will move the focus in/out of the control and informs via event about the confirmed value.



Properties

Property Name	Type	Description
Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Value	Variant	The value to be formatted
Step Size	Variant	Increment/Decrement step value.
Minimum Value	Variant	Minimum value
Maximum Value	Variant	Maximum value
Text Format	String	The format string which includes one format specifier (beginning with %). See C printf() function.
Text Alignment	Enum (Left, Centered, Right, Automatic)	The horizontal text alignment, using the culture text direction, is used to define how text will be horizontally aligned within its layout area.
Text Color	Candera::Color	Text color.
Disabled Text Color	Candera::Color	Disabled text color.
Text Style	Candera::TextRendering::Style	The Style that will be used.
Spinbox Color Hovered	Candera::Color	The color for hovered SpinBox.
Spinbox Color Disabled	Candera::Color	The color for disabled SpinBox overlay.
Background Image	Candera::Image2D	The image to set on the effect.
Arrow Up Normal Image	Candera::Image2D	The increment button image.

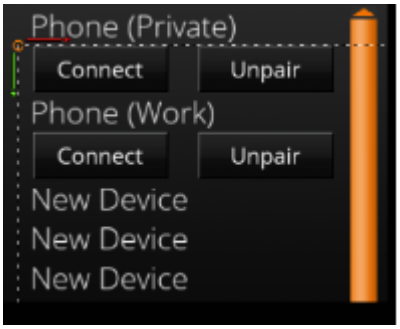
Arrow Up Pressed Image	Candera::Image2D	The increment button pressed image.
Arrow Down Normal Image	Candera::Image2D	The decrement button image.
Arrow Down Pressed Image	Candera::Image2D	The decrement button pressed image.
Increment Key Code	Candera::KeyboardKeyCode::Enum	KeyCode of the key used to increase value.
Decrement Key Code	Candera::KeyboardKeyCode::Enum	KeyCode of the key used to decrease value.
Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.

Sub-List

You can create a submenu in your solution by configuring this control as a child node of a List control.

With this control, you can easily invoke a submenu that can be expanded or collapsed. Key navigation is also built-in.

For detailed usage, please refer to “Getting Started > Sample Solutions > GettingStartedControls Solution > GettingStartedControls Part 3”.



Properties

Property Name	**Type**	**Description**
Enabled	bool	If set to false the List will not react to Focus events. It also sets the Visibility of the list.
Visible	bool	If true, the List is being rendered.
Parent List Node	Candera::AbstractNodePointer	The node with a ListBehavior that acts as a parent to this SubListBehavior.
Handle Keyboard Events	bool	Makes the behavior handle KeyboardFocusNavigation events internally.

Scroll Direction	ScrollDirection::Enum (Vertical, Horizontal)	The direction in which the SubListBehavior scrolls.
Animation Duration	UInt32	Duration of the scrolling animation.
Deceleration Factor	Float	Loss of flick animation speed over time.
Max Speed Per Flick	Float	Maximum amount of speed each flick motion adds to the flick animation.
Min Speed Per Flick	Float	Minimum speed required to count a touch gesture as a flick and start or continue the flick animation.
Min Movement To Scrolling	UInt32	Minimum distance a touch gesture needs to move to start a scrolling animation.
Max Touch Sample Age	UInt32	Maximum age in milliseconds of touch movement speed counted towards generating flick animation speed.
Items	Items	The items property is used for binding of dynamic items. It can only be set via databinding. Only one visible list control should be bound to a fragment list in the model. Otherwise the list fragments in the model are not able to provide data for both list controls. Use a separate list model that is filled with the same data if such a use case is required.
Blend Type	BlendType::Enum	The blend type that will be set.

TextButton

The TextButton Control offers an easy way to define all different states of a button and an action that is performed when clicking it.

As for the simple Button Control the visual appearance of the TextButton can also be configured with three images depending on the button's state and a hovered color that can be defined including an alpha value.

Additionally the TextButton offers a predefined TextNode which can be modified via the Text and the Text Style properties.

The action that is performed when pressing the TextButton can easily be defined in the EventHandler Tab. The functionality of the TextButton is similar to the Button. An example configuration of the Event Handler is given in the Button section.



Properties

Property Name	Type	Description
Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Text	String	The Text that will be set to the Text Node.
Text Style	Candera::TextRendering::Style	The Style that will be used.
Normal Image	Candera::Image2D	The image which is used as Button Image for the color multiplication of other states like Hovered.
Pressed Image	Candera::Image2D	The image which is used as Button Image if the pressed state applies.
Focused Image	Candera::Image2D	Image which is transparent in the center (border). It is used for the control with the current focus (only one of the HMI)
Hovered Color	Candera::Color	The color which is used as hovered color for blending with the Button Image.
Disabled Color	Candera::Color	The color to set on the disabled Button.
Text Color	Candera::Color	The color of the text.
Disabled Text Color	Candera::Color	The color to set on the effect of the Text.
Blend Type	BlendType::Enum	The blend type that will be set.

CheckBox

The CheckBox Control can easily be configured with a text, images for a normal and a pressed state as well as for a selected and a selected pressed state. Additionally a focused image can be defined. The action that is performed when the value changed can easily be defined in the EventHandler Tab.



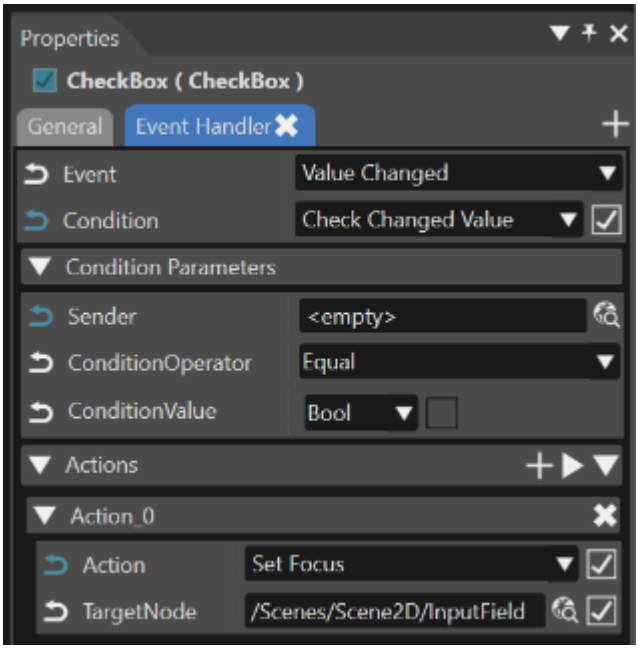
Properties

Property Name	Type	Description
Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Value	bool/Variant	Selected or not (true/false).
Text	String	Text of the CheckBox.
Text Style	Candera::TextRendering::Style	The Style that will be set to the Text Node.
Normal Image	Candera::Image2D	The image which is used as CheckBox Image if the normal state applies.
Pressed Image	Candera::Image2D	The image which is used as CheckBox Image if the not selected CheckBox is pressed.
Selected Image	Candera::Image2D	The image which is used as CheckBox Image if the selected state applies.
Selected Pressed Image	Candera::Image2D	The image which is used as CheckBox Image if the selected CheckBox is pressed.
Focused Image	Candera::Image2D	Image which is transparent in the middle (border). Used for the control with the current KeyboardFocus (only one of the HMI) Frames the entire control (including text)
Hovered Color	Candera::Color	The color which is used as highlighted color for blending with the Selected/Normal image.
Disabled Color	Candera::Color	The color to set on the effect.
Blend Type	BlendType::Enum	The blend type that will be set.

Functionality

The functionality of the CheckBox can be edited in the Behaviors panel or in the EventHandler Tab (see also chapter EventHandler Tab). An EventHandler that checks for the Value Changed Event

will perform the user defined action.



Behavior Name	Type	predefined/ userdefined	Description
EventHandler	Control Behavior	predefined	Checks a defined condition and invokes a defined action behavior if that condition is true.
Check changed Value	Control Condition Behavior	userdefined	Condition checks the changed value of the CheckBox.
Action	Action Behavior	userdefined	Userdefined action that will be performed when the checkbox is clicked.

ToggleButton

The ToggleButton Control offers an easy way to define all different states of a toggle button and an action that is performed when clicking it.

It is typically used for activating and deactivating a persisting functionality.

As for the simple Button Control the visual appearance of the ToggleButton can also be configured with four images depending on the button's state and a hovered color that can be defined including an alpha value.

Additionally the ToggleButton offers two predefined TextNode that can be modified via the First Text and the Second Text properties.

The action that is performed when pressing the ToggleButton can easily be defined in the EventHandler Tab. The functionality of the ToggleButton is similar to the Button (when reacting on mouse clicks) or to the CheckBox (when reacting on a value change). Corresponding sample configuration of the Event Handler are given in the Button section and in the CheckBox section.



Properties

Property Name	Type	Description
Enabled	bool	If set to false it will not react on focus events an
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Value	bool/Variant	Toggled or not (true/false).
First Text	String	The Text that will be set with the first toggle image.
Second Text	String	The Text that will be set with the second toggle image.
First Image	Candera::Image2D	The image which is used as ToggleButton Image if the first state applies.
First Pressed Image	Candera::Image2D	The image which is used as ToggleButton Image if the first toggle image is pressed.
Second Image	Candera::Image2D	The image which is used as ToggleButton Image if the second toggle state applies.
Second Pressed Image	Candera::Image2D	The image which is used as ToggleButton Image if the second toggle image is pressed.
Focused Image	Candera::Image2D	Image which is transparent in the middle (border). Used for the control with the current KeyboardFocus (only one of the HMI) Frames the entire control (including text)
Hovered Color	Candera::Color	The color which is used as highlighted color for blending with the first and second toggle image.

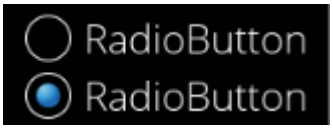
Disabled Color	Candera::Color	The color which is used as disabled color for blending with the first and second toggle image.
Click Count	ClickCount::Enum (AnyClick, SingleClick, DoubleClick, TripleClick)	If the value ClickConditionBehavior receives matches the Click Count set, it will return a positive response.
Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.

RadioButton

The RadioButton Control can easily be configured with a text, images for a normal and a pressed state as well as for a selected and a selected pressed state. Additionally a focused image can be defined. The action that is performed when the value changed can easily be defined in the EventHandler Tab.

The functionality of the RadioButton is similar to the CheckBox (when reacting on a value change).

A corresponding sample configuration of the Event Handler is given in the CheckBox section.



Properties

Property Name	Type	Description
Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Text	String	Text of the RadioButton.
TextStyle	Candera::TextRendering::Style	The Style that will be set to the Text Node.
Normal Image	Candera::Image2D	The image which is used as RadioButton Image if the normal state applies.
Pressed Image	Candera::Image2D	The image which is used as RadioButton Image if the not selected RadioButton is pressed.

Selected Image	Candera::Image2D	The image which is used as RadioButton Image if the selected state applies.
Selected Pressed Image	Candera::Image2D	The image which is used as RadioButton Image if the selected RadioButton is pressed.
Focused Image	Candera::Image2D	Image which is transparent in the middle (border). Used for the control with the current KeyboardFocus (only one of the HMI). Frames the entire control (including text)
Hovered Color	Candera::Color	The color which is used as highlighted color for blending with the Selected/Normal image.
Disabled Color	Candera::Color	The color to set on the effect.
Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.
Selected	bool/Variant	Specifies the type and the value to pass onto Process Value Behavior.

CircularSlider

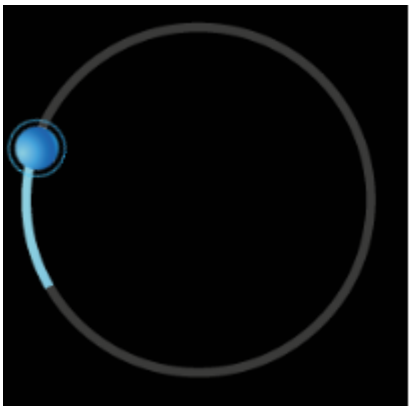
Circular slider is a control that allows user to set the value using circular slide movement or directly indicate value on slider's bar.

In default version the slider is a full circle, but using properties user easily can operate on e.g. quarter of the circle. In case of circular slider user can set the start angle and the end angle and map that to output value which is also customizable.

User can use the circular slider's value as an input for another control using "Forward Value Behavior".

Change of the value is indicated by slider's bar and thumb position. Thumb is optional (please check UseThumb property)

> Circular slider can be connected with all controls that support "changeValueEvent". For example: progress bar, gauge, text value.



Properties

Property Name	Type	Description
Value	Variant	Value of the slider
Minimum Value	Variant	Minimum value of the slider
Maximum Value	Variant	Maximum value of the slider
Step Size	Variant	Step size for value increment/decrement by keyboard
Minimum Angle	Float	Minimum rotation of the slider.
Maximum Angle	Float	Maximum rotation of the slider.
Increment Key Code	Candera::KeyboardKeyCode::Enum	Increment value KeyCode
Decrement Key Code	Candera::KeyboardKeyCode::Enum	Decrement value KeyCode
Background Image	Candera::Image2D	Background image
Active Image	Candera::Image2D	Image showing current value, will be masked, must have GlBitmapColorMaskBlend
Thumb Image	Candera::Image2D	Thumb image
Thumb Image Pressed	Candera::Image2D	Thumb image during touch
Thumb Hover Color	Candera::Color	Hover color blend for thumb image
Focus Image	Candera::Image2D	Focus node image
Disabled Color	Candera::Color	Disabled color blend for control

Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Use Thumb	bool	Should thumb node be visible?
Active Image Hover Color	Candera::Color	Hover color blend for active image.
Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.

> Using "Pivot hint" images' property it is possible to create customized slider control similar to customized gauge control. Please check the Advanced Cluster Solution part 1-4.

Slider

The Slider provides a value which changes corresponding to the position of the knob. This knob can be dragged. Additionally the value can be set directly or by an event (e.g. by using the Send Value as Event Behavior). Furthermore the Slider offers to define the visual representation of different states (f.e. Pressed, Hovered).



Properties

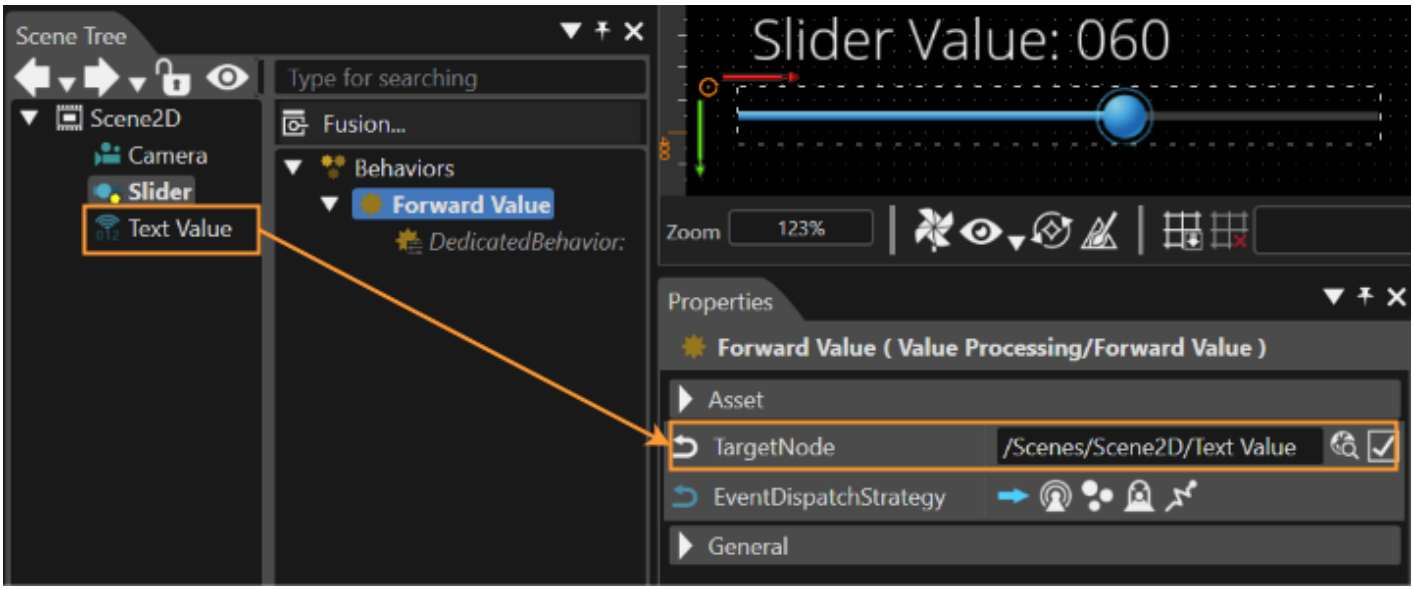
Property Name	**Type**	**Description**
Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focused.
Value	Variant	The bindable value of the slider
Minimum	bool/Variant	Minimum Range
Maximum	bool/Variant	Maximum Range
Knob Normal Image	Candera::Image2D	The image of the knob in normal state.

Knob Pressed Image	Candera::Image2D	The image of the knob in pressed state.
Knob Center Margin	Candera::Margin	Knob Center Margin, used for positioning the Knob around the Slider value. Should not exceed the contorl boundary to avoid clipping issues of standalone Slider.
Track Image	Candera::Image2D	The image of the slider track.
Track Fill Image	Candera::Image2D	The image to set on the effect.
Track Margin	Candera::Margin	Track Margin, can be used to provide space to display Knob around the track, so it fits within Control boundary and Focus Rectangle.
Fill Color	Candera::Color	Color that gets blended with the fill color
Focused Image	Candera::Image2D	Image which is transparent in the center (border). It is used for the control with the current focus
Hovered Color	Candera::Color	The color which is used as hovered color for blending with the Track Image.
Disabled Color	Candera::Color	The color which can be used from other Behaviors.
Use Center	bool	If true, the center value defined for the knob bitmap is used to align the knob to the value position, otherwise the calculated center.
Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.

> Slider control does not support external clipping set by ClippingSetterTraverser. The Knob may be incorrectly clipped when placed inside a control that recursively imposes clipping on its children (e.g. List).

Functionality

The functionality of the slider can be extended by the Forward Value Behavior. Therefore attach the behavior to the Slider which offers you to set a Target Node. The Behavior will then forward the changed value to the defined control. (Control needs a Value Behavior where "Accept Value Behavior" is enabled.)



Behavior Name	Type	predefined/ userdefined	Description
Forward Value Behavior	Value Processing	userdefined	Forwards a received value. Associated controls with a value property receive the value.
Value Behavior	Value Processing	predefined	Control which has to receive the value has to have a Value Behavior where "Accept Value Behavior" is enabled.

ScrollView

Similar to the List the ScrollView offers an Anchor where any node (also Controls) can be attached to.



The size of the ScrollView can be set using the Layout of the Control. If the size of the attached nodes is bigger than the layout size of the ScrollView, Scrollbars will appear. In difference to the List the ScrollView doesn't layout the attached nodes. So Controls and other nodes can be placed at any position. (Also the hierarchy doesn't matter which means that an additional Layouter or GroupBox can be added.)

Properties

Property Name	Type	Description
Vertical Scrollbar Visibility	ScrollbarVisibility::Enum (Automatic, Collapsed, Visible)	Configure the visibility of the scrollbar. By default it is set to Automatic which will determine the visibility based on the actual content.
Horizontal Scrollbar Visibility	ScrollbarVisibility::Enum (Automatic, Collapsed, Visible)	Configure the visibility of the scrollbar. By default it is set to Automatic which will determine the visibility based on the actual content.
Blend Type	BlendType::Enum	The blend type that will be set.

List

The List offers an Anchor where any nodes (also Controls) can be attached to. The list then automatically layouts these child nodes.

When setting the layout size of the List, a Scrollbar will appear as soon as the layout size is smaller than the list of items. Whether the Scrollbar appears sideward or at the bottom depends on the Scroll Direction Property.

> Be sure that the list items are child nodes (just first level) of the anchor. So no additional Layouter or GroupBox is possible.



Properties

Property Name	Type	Description
Handle Keyboard Events	bool	Makes the behavior react to KeyboardFocusNavigation events.
Scroll Direction	Enum (Vertical, Horizontal)	The direction in which the List scrolls.
Animation Duration	UInt32	Duration of the scrolling animation.

Deceleration Factor	Float	Loss of flick animation speed over time.
Max Speed Per Flick	Float	Maximum amount of speed each flick motion adds to the flick animation.
Min Speed Per Flick	Float	Minimum speed required to count a touch gesture as a flick and start or continue the flick animation.
Min Movement to Scrolling	UInt32	Minimum distance a touch gesture needs to move to start a scrolling animation.
Max Touch Sample Age	UInt32	Maximum age in miliseconds of touch movement speed counted towards generating flick animation speed.
Scrollbar Handle Minimum Size	UInt32	The minimum height (for vertical scrollbar) or minimum width (for horizontal scrollbar) of the handle in pixels.
Scrollbar Visibility	ScrollbarVisibility::Enum (Automatic, Collapsed, Visible)	Configure the visibility of the scrollbar. By default it is set to Automatic which will determine the visibility based on the actual content.
Scrollbar Min Movement to Scrolling	UInt32	Minimum distance a touch gesture needs to move to start scrolling.
Items	ItemsType	The items property is used for binding of dynamic items. It can only be set via databinding. Only one visible list control should be bound to a fragment list in the model. Otherwise the list fragments in the model are not able to provide data for both list controls. Use a separate list model that is filled with the same data if such a use case is required.
Blend Type	BlendType::Enum	The blend type that will be set.

> For a more advanced application and extended functionality of the list control, please also see the List Control - Snapping Mechanism.

MultiStateButton

The MultiStateButton Control offers an easy way to define all different states of a button. Additionally the MultiStateButton provides a value for the number of different representations (images). Each click increases this value (value cycles when reaching the maximum). Corresponding to this value the current image of the Button will be chosen out of an array of

images.

Similar to the TextButton also the MultistateButton offers a TextNode which can be modified via the Text and the Text Style properties.

The functionality of the MultiStateButton can be edited in the Behaviors panel or in the EventHandler Tab (see also chapter EventHandler Tab). An EventHandler that checks for the Value Changed Event will perform the user defined action corresponding to the current value.

This functionality is similar to the CheckBox (when reacting on a value change). A corresponding sample configuration of the Event Handler is given in the CheckBox section.

Properties

Property Name	Type	Description
Enabled	bool	If set to false it will not react on focus events and does not have to support different visualizations for the different states.
Focusable	bool	If true, the control is focusable. Otherwise the control can not be focued.
Current State	Variant	Current state of the MultiStateButton (starts with 0).
Maximum State	bool/Variant	Maximum value of MultiStateButton (starts with 0).
Text	String	Text of the Button.
Text Style	Candera::TextRendering::Style	The Style that will be set to the Text Node.
StateImages	list of Candera::Image2D	A list of images which should be available for selection.
Focused Image	Candera::Image2D	Image which is transparent in the middle (border). Used for the control with the current focus. Frames the entire control (including text)
Pressed Color	Candera::Color	The color which get multiplied to the current Button image to represent the Pressed State.
Hovered Color	Candera::Color	The color which get multiplied to the current Button image to represent the Hover State.
Disabled Color	Candera::Color	The color to set on the disabled Control.

Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.

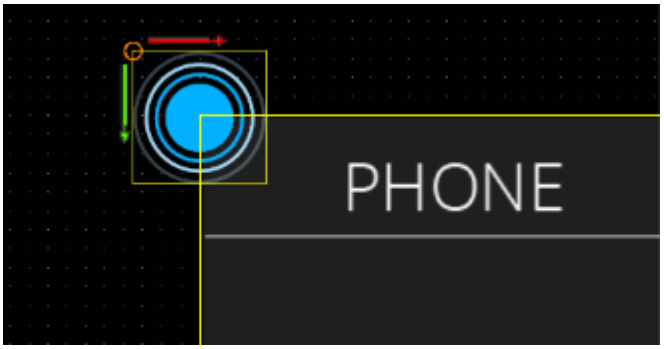
TouchIndication

The TouchIndication indicates the location of touch events. The indicator appears offset from the touch location by its distance to the origin point in the scene. Furthermore on and off animations can be set for animating the TouchIndication.

Also an area can be defined where the TouchIndication is allowed to take place.



> The Indicators offset to the touch position is set by the offset to the origin point of the scene (0,0). So if the TouchIndication should be centered at the touch position be sure to position the TouchIndication as shown in the image beneath.



Properties

Property Name	Type	Description
Touchable Id	String	Can be packaged into an event or message to identify its sender.
On Animation	Animation	Optional animation played on placing a touch (touch Down). Note: This controls modifies its own Position to indicate the touch location. Please avoid animating its position.

Off Animation	Animation	Optional animation played on releasing the touch (touch Up). The indicator will be hidden after the animation stops (its rendering will be disabled). Note: This controls modifies its own Position to indicate touch location. Please avoid animating its position.
Hide Indicator On Move	bool	Hide the touch indicator when a move is detected, otherwise the indicator will stay visible during movement until the finger is lifted from the screen.
Touch Area Node	Node	Limits to the Touch Area Node's bounding rectangle - the area the Touch Indication Behavior indicates touch on.
Camera	Camera Node	The camera used to render the touch indicator. Will be used to correctly match touch position with object position in case the camera has a position offset.
Image	Candera::Image2D	The image BitmapActionBehavior will set on RenderNode.
Blend Type	BlendType::Enum	The blend type that will be set on the affected nodes.

TouchIndication3D

Indicates the location of touch events in a 3D scene.

The minimum configuration required for TouchIndication3D includes setting its camera property. Optional on and off animations can be set for animating the TouchIndication.

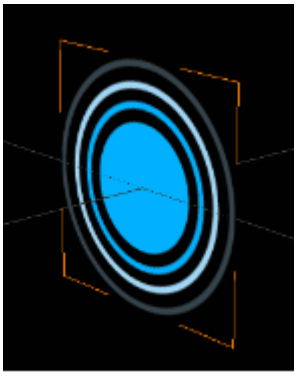
Properties

Property Name	Type	Description
On Animation	Animation	Optional animation played on placing a touch (touch Down). Note: This controls modifies its own Position to indicate the touch location. Please avoid animating its position.
Touchable Id	String	Can be packaged into an event or message to identify its sender.
Off Animation	Animation	Optional animation played when the indicator is hidden.

Hide Indicator On Move	bool	Hide the touch indicator when a move is detected, otherwise the indicator will stay visible during movement until the finger is lifted from the screen.
Camera	Camera Node	TouchIndication3D modifies its own position to place itself in front of this camera so to appear under the touch location on the screen. Disclamer: The minimum configuration required for TouchIndication3D includes setting its camera property.
Touch Area Node	Node	The node whose area the Touch Indication Behavior should indicate touch events on.
Distance From Camera	Float	How far from the camera should the touch indication node be rendered.
Blend Type	BlendType::Enum	The blend type that will be set.

TouchIndication3DMarker

The TouchIndication3D uses the TouchIndication3DMarker as TouchIndication3DAnchor. The TouchIndication3DMarker's function is to visually mark the location of a detected touch.



Properties

Property Name	Type	Description
Blend Type	BlendType::Enum	The blend type that will be set.

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