# Slider Programming Topics for Cocoa

Cocoa > User Experience



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### Introduction to Sliders

A slider is a user interface element that displays a range of values and has an indicator, or knob, which indicates the current setting.

#### Organization of This Document

"About Sliders" (page 9) gives basic information on sliders.

"Using Slider Tick Marks" (page 11) describes how to set and control the appearance of the tick marks on a slider.

"Setting the Shape Of a Slider" (page 13) describes how to specify whether your slider is a horizontal bar, vertical bar, or circular dial.

Introduction to Sliders

#### **About Sliders**

A slider is a control that displays a range of values and has an indicator, or knob, which indicates the current setting. Optionally, it can have tick marks at regularly spaced intervals. A slider can be a bar or a dial. The user moves the knob along the slider's bar, or around the dial, to change the setting.

**Note:** Don't use an NSSlider object when an NSScroller would be better. A scroller represents the relative position of the visible portion of a view and lets the user choose which portion to view. A slider represents a range of values for something in the application and lets the user choose a setting.

A slider's behavior and appearance is controlled by the class NSS1iderCell. An NSS1iderCell object must be contained within a subclass of NSControl. If you need one slider, use an NSS1ider object that contains a single NSS1iderCell object. If you need a group of related sliders, use an NSMatrix object that contains several NSS1iderCell objects. Most NSS1iderCell methods have covers in NSS1ider, which simply call the NSS1iderCell equivalent. For more information, see the NSS1iderCell and NSS1ider class specifications.

**Note:** For a description of the relationship between controls (NSControl objects) and cells (NSCell objects), see the section on control-cell architecture in "The Core Application Architecture" of *Cocoa Fundamentals Guide*.

#### Setting a Slider's Values

To set the slider's minimum and maximum values, use setMinValue: and setMaxValue:. To read the slider's value, as represented by the knob's current position, use an NSControl "get" method, such as floatValue:. To set the slider's value, use an NSControl "set" method, such as setFloatValue:.

#### Displaying a Slider's Name and Values

You should use text fields to display the slider's name, minimum value, maximum value, and tick-mark value. Although you can set a title for a slider that's displayed automatically, it's displayed right in the slider's bar and is easily obscured by the knob. There is no way for a slider to display automatically its minimum, maximum, and tick-mark values.

**About Sliders** 

### **Using Slider Tick Marks**

To set the number of tick marks, use <code>setNumberOfTickMarks:</code>. The tick marks are evenly spaced between the minimum and maximum values. For example, if the minimum value is 0, the maximum value is 100, and the tick mark count is five, the tick marks are at 0, 25, 50, 75, and 100. The following figure shows a horizontal bar slider with five tick marks.

Figure 1 Horizontal bar slider with tick marks



The following figure shows a slider with no tick marks.

Figure 2 Horizontal bar slider with no tick marks



To set where the tick marks appear, use <code>setTickMarkPosition:</code>. For horizontal sliders, the possible arguments are shown below.

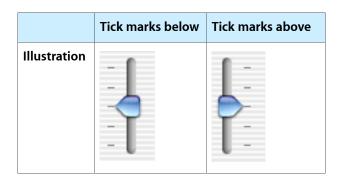
 Table 1
 Arguments to add tick marks to horizontal sliders

	Tick marks below	Tick marks above
Argument	NSTickMarkBelow	NSTickMarkAbove
Illustration		

For vertical sliders, the arguments are shown below.

 Table 2
 Arguments to add tick marks to vertical sliders

	Tick marks below	Tick marks above
Argument	NSTickMarkLeft	NSTickMarkRight



The default values are NSTickMarkBelow and NSTickMarkLeft. These arguments are used only with bar sliders; for circular sliders, the tickmarks are always outside the circle.

To restrict a slider's value to only the values at tick marks, use <code>setAllowsTickMarkValuesOnly:</code>. After a user moves the slider's knob, the knob jumps to the tick mark nearest the cursor. For example, if a slider is restricted to tick mark values only and has a minimum value of 0, a maximum value of 100, and a marker count of five, the allowable values are 0, 25, 50, 75, and 100. By default, a slider can have any value between its minimum and maximum.

To get the value of the tick mark that's closest to another value, use closestTickMarkValueToValue:. To get the value that corresponds to a specific tick mark, use tickMarkValueAtIndex:. To find the tick mark closest to a specific point, use indexOfTickMarkAtPoint:. Note that the lowest tick mark has an index of 0.

### Setting the Shape Of a Slider

Sliders come in three shapes: horizontal bar, vertical bar, and circular dial. To determine whether a slider is a bar or a dial, use <code>setSliderType:</code>. For a dial, set the slider type to <code>NSCircularSlider(that is, call [[slider cell] setSliderType: NSCircularSlider];)</code>. If you are using Interface Builder, you can drag a circular slider widget into your design window, or select the circular slider checkbox in the slider's info window.

The following figure shows circular dial sliders.

Figure 1 Circular Sliders



A bar-shaped slider automatically determines whether it's horizontal or vertical by the shape of its containing rectangle. If the slider is wider than it is tall, it's horizontal. Otherwise, it's vertical. Use the initWithFrame: method to initialize a slider, passing in an NSRect with the size and shape you want.

For a circular slider, you must pass an NSRect at least large enough to contain the control. For a regular circular slider, the NSRect must be at least 28 by 30 pixels. For a small circular slider, it must be at least 18 by 20 pixels. Add 4 pixels in each dimension if your slider has tick marks.

If you specify a larger NSRect, the slider will be centered in the rectangle. If you specify a smaller rectangle, the control will be clipped.

A vertical slider has its minimum on the bottom; a horizontal slider has its minimum on the left; a circular slider has its minimum at the top.

Setting the Shape Of a Slider

## **Document Revision History**

This table describes the changes to Slider Programming Topics for Cocoa.

Date	Notes
2006-10-03	Provided a cross-reference to the description of control-cell architecture.
2003-07-29	Added information about circular sliders.
2002-11-12	Revision history was added to existing topic.

**Document Revision History**