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## Framework

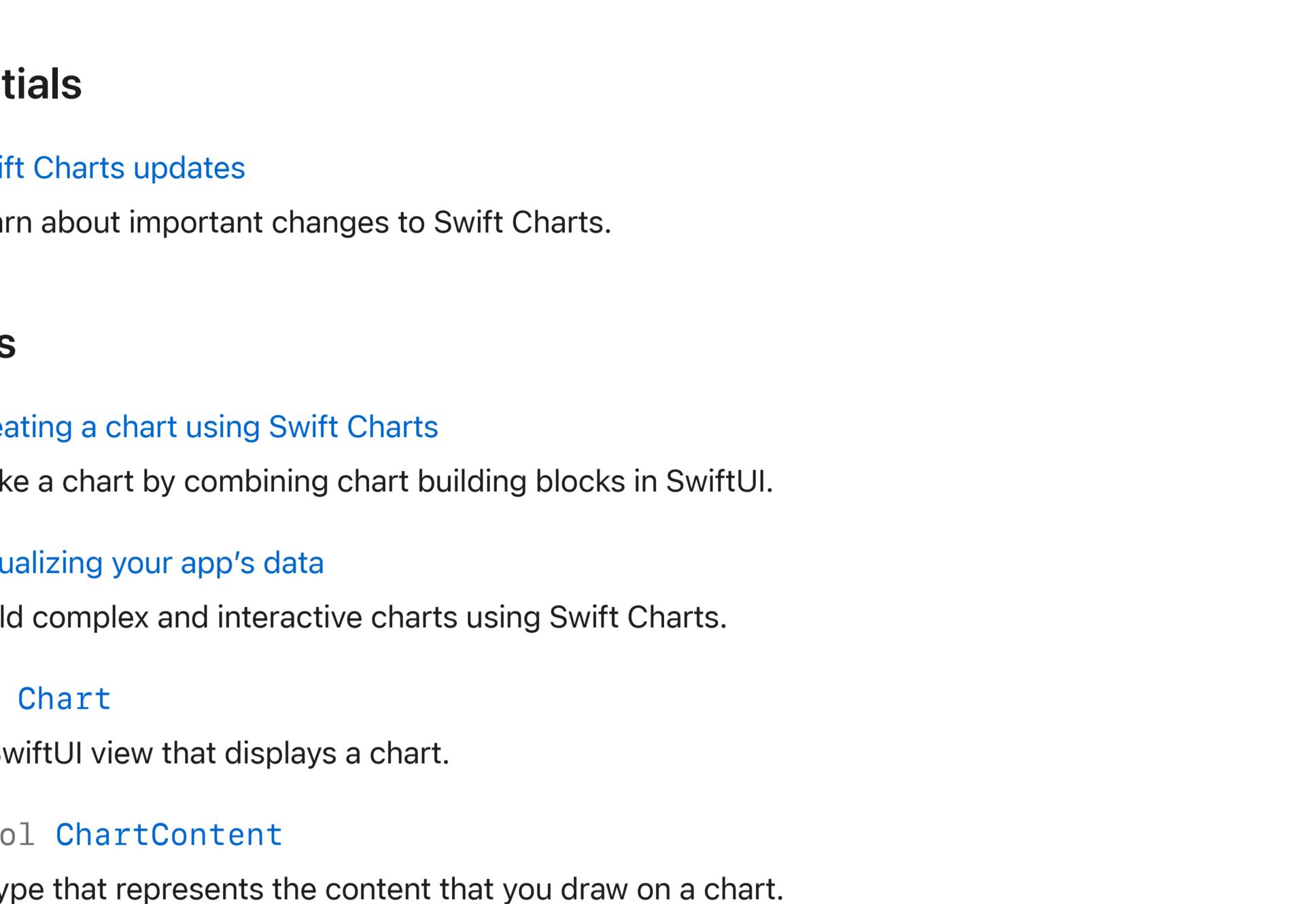
## Swift Charts

Construct and customize charts on every Apple platform.

iOS 16.0+ | iPadOS 16.0+ | Mac Catalyst 16.0+ | macOS 13.0+ | tvOS 16.0+ | visionOS 1.0+ | watchOS 9.0+

## Overview

Swift Charts is a powerful and concise SwiftUI framework you can use to transform your data into informative visualizations. With Swift Charts, you can build effective and customizable charts with minimal code. This framework provides marks, scales, axes, and legends as building blocks that you can combine to develop a broad range of data-driven charts.



There are many ways you can use Swift Charts to communicate patterns or trends in your data. You can create a variety of charts including line charts, bar charts, and scatter plots as shown above. When you create a chart using this framework, it automatically generates scales and axes that fit your data.

Swift Charts supports localization and accessibility features. You can also override default behavior to customize your charts by using chart modifiers. For example, you can create a dynamic experience by adding animations to your charts.

## Topics

## Essentials

Swift Charts updates

Learn about important changes to Swift Charts.

## Charts

Creating a chart using Swift Charts

Make a chart by combining chart building blocks in SwiftUI.

{} Visualizing your app's data

Build complex and interactive charts using Swift Charts.

struct Chart

A SwiftUI view that displays a chart.

protocol ChartContent

A type that represents the content that you draw on a chart.

struct ChartContentBuilder

A result builder that you use to compose the contents of a chart.

struct Plot

A mechanism for grouping chart contents into a single entity.

## 3D charts

struct Chart3D

A SwiftUI view that displays interactive 3D charts and visualizations.

protocol Chart3DContent

A type that represents the three-dimensional content that you draw on a chart.

struct Chart3DContentBuilder

A result builder that you use to compose the three-dimensional contents of a chart.

struct SurfacePlot

Chart content that represents a mathematical function of two variables using a 3D surface.

## Marks

struct AreaMark

Chart content that represents data using the area of one or more regions.

struct LineMark

Chart content that represents data using a sequence of connected line segments.

struct PointMark

Chart content that represents data using points.

struct RectangleMark

Chart content that represents data using rectangles.

struct RuleMark

Chart content that represents data using a single horizontal or vertical rule.

struct BarMark

Chart content that represents data using bars.

struct SectorMark

A sector of a pie or donut chart, which shows how individual categories make up a meaningful total.

## Vectorized plots

{} Creating a data visualization dashboard with Swift Charts

Visualize an entire data collection efficiently by instantiating a single vectorized plot in Swift Charts.

struct AreaPlot

Chart content that represents a function or a collection of data using the area of one or more regions.

struct LinePlot

Chart content that represents a function or a collection of data using a sequence of connected line segments.

struct PointPlot

Chart content that represents a collection of data using points.

struct RectanglePlot

Chart content that represents a collection of data using rectangles.

struct RulePlot

Chart content that represents a collection of data using a single horizontal or vertical rule.

struct BarPlot

Chart content that represents a collection of data using bars.

struct SectorPlot

Chart content that represents a collection of data using a sector of a pie or donut chart, which shows how individual categories make up a meaningful total.

protocol VectorizedChartContent

A generic type that represents content conveyed via a chart.

## Mark configuration

struct MarkStackingMethod

The ways in which you can stack marks in a chart.

struct MarkDimension

An individual dimension representing a mark's width or height.

struct InterpolationMethod

The ways in which line or area marks interpolate their data.

struct BasicChartSymbolShape

A basic chart symbol shape.

protocol ChartSymbolShape

A type that can act as a shape for the marks that you add to a chart.

struct AnyChartSymbolShape

A type-erased plotting shape.

## Labeled data

struct PlottableValue

Labeled data that you plot in a chart using marks.

protocol Plottable

A type that can serve as data to plot in a chart.

## Scales

protocol ScaleRange

A type that you can use to configure the range of a chart.

protocol PositionScaleRange

A type that configures the x-axis and y-axis values.

struct PlotDimensionScaleRange

A range that represents the plot area's width or height.

protocol ScaleDomain

A type that you can use to configure the domain of a chart.

struct AutomaticScaleDomain

A domain that the chart infers from its data.

struct ScaleType

The ways you can scale the domain or range of a plot.

## Axes

protocol CustomizingAxes in Swift Charts

Improve the clarity of your chart by configuring the appearance of its axes.

struct ChartAxisContent

A view that represents a chart's axis.

protocol AxisContent

A type that represents the elements you use to build a chart's axes.

struct AxisMarks

A group of visual marks that a chart draws to indicate the composition of a chart's axes.

struct AnyAxisContent

A type-erased element of a chart's axis.

struct AxisContentBuilder

A result builder that constructs axis content.

struct AxisLabel

A label that describes the value for an axis mark.

struct AxisValue

A value for an axis mark.

struct AnyAxisMark

A type-erased axis mark.

struct AxisMarkBuilder

A result builder that constructs axis marks and overrides default marks.

## Annotations

struct AnnotationContext

Information about an item that you add an annotation to.

struct AnnotationPosition

The position of an annotation.

struct AnnotationOverflowResolution

The resolution of an annotation's overflow.

## Data bins

struct NumberBins

A collection of bins for a chart that plots data against numbers.

struct DateBins

A collection of bins for a chart that plots data against dates.

struct ChartBinRange

The range of a bin that a chart represents.

## Chart management

struct ChartPlotContent

A view that represents a chart's plot area.

struct ChartProxy

A proxy that you use to access the scales and plot area of a chart.

## Scrolling

protocol ChartScrollTargetBehavior

A type that configures the scroll behavior of charts.

struct ChartScrollTargetBehaviorContext

Contextual information that you can use to determine how to adjust how charts scroll.

## Structures

struct Chart3DRenderingStyle

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