Part 7 – Layout Options and Themes

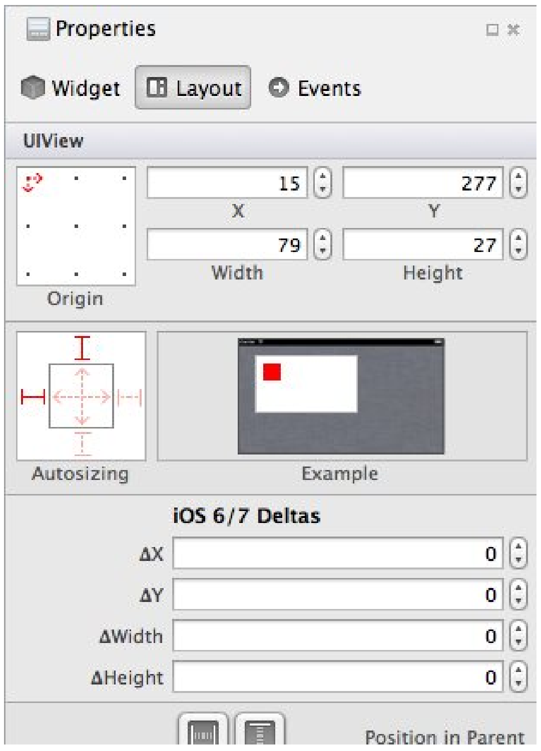
Layout Options

There are two different mechanisms for controlling the layout when a view is resized or rotated:

- **Autosizing** – The Autosizing inspector in the designer provides a way to set the `AutoresizingMask` properties. This will let a control be anchored to the edges of their container and/or fix their size. Autosizing works in all versions of iOS. This is described in more detail below
- **Autolayout** – A feature, introduced in iOS6 that allows fine-grained control over the relationships of the UI controls. It will allow control of the positions of elements relative to other elements on the design surface. This topic is covered in more detail in the Auto Layout with the Xamarin iOS Designer guide.

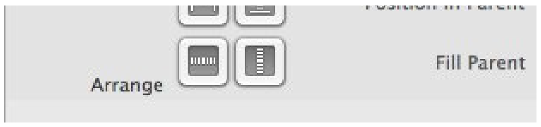
Autosizing

When a user resizes a window, such as when the device is rotated and the orientation changes, the system will automatically resize the Views inside that window according to their autosizing rules. These rules can be set in C# using the `AutoresizingMask` property of the `UIView` or in the Properties Pad of the iOS Designer, as illustrated below:

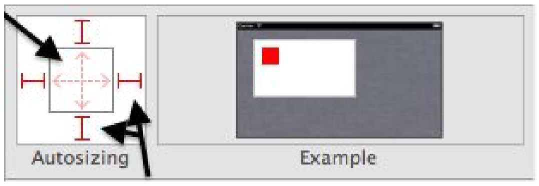


X: 15
Y: 277
Width: 79
Height: 27

iOS 6/7 Deltas
ΔX: 0
ΔY: 0
ΔWidth: 0
ΔHeight: 0



When a control is selected, this allows you to manually specify the location and dimensions of the control, as well as choosing Autosizing behavior. As illustrated in the screenshot below, we can use the springs and struts in the autosizing control to define the selected View's relationship to it's parent:

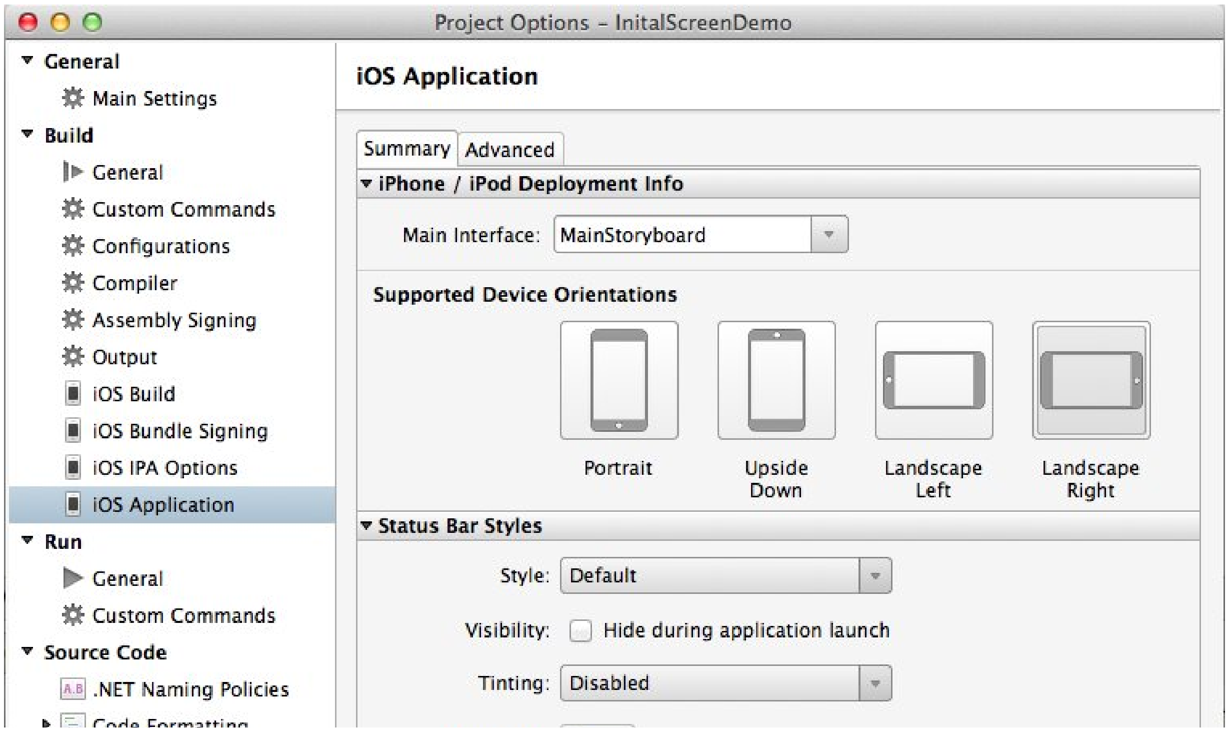


Adjusting a *spring* will cause the view to resize based on the width or height of its parent view. Adjusting a *strut* will make the view maintain a constant distance between itself and its parent view, on that particular edge.

These settings can also be set in code:

```
textfield1.Frame = new RectangleF(15, 277, 79, 27);
textfield1.AutoresizingMask = UIViewAutoresizing.FlexibleRightMargin |
UIViewAutoresizing.FlexibleBottomMargin;
```

To test the Autosizing settings, enable different Supported Device Orientations in the project's options:

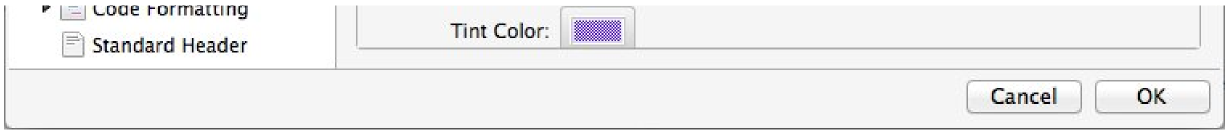


Main Interface: MainStoryboard

Style: Default

Visibility: Hide during application launch

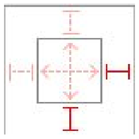
Tinting: Disabled



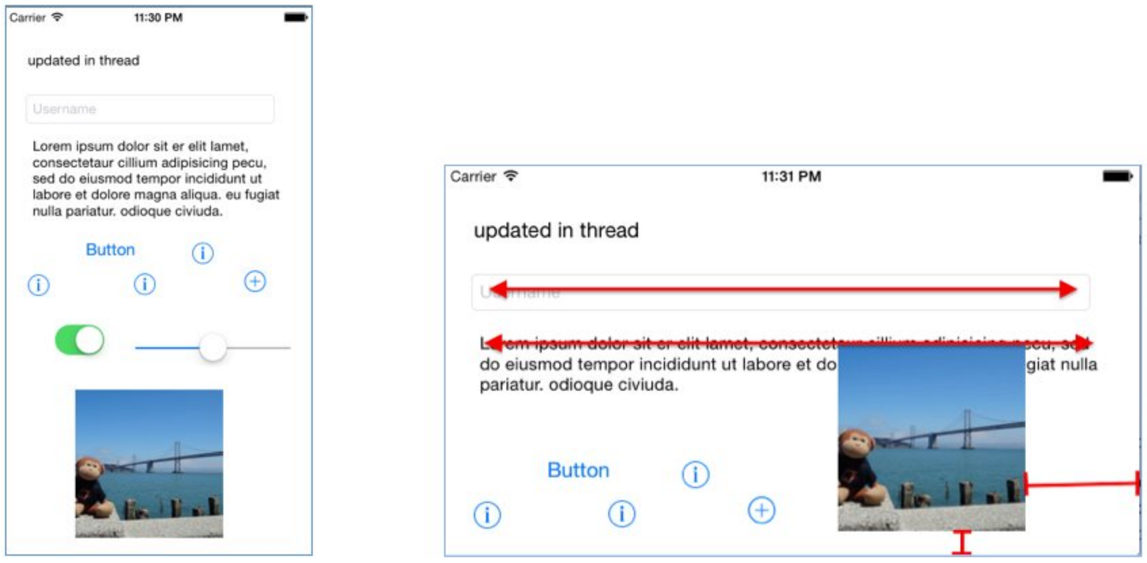
In the code behind we can use the following code, which causes the two text controls to resize horizontally:

```
textview1.AutoresizingMask = UIViewAutoresizing.FlexibleWidth;
textfield1.AutoresizingMask = UIViewAutoresizing.FlexibleWidth;
imageview1.AutoresizingMask = UIViewAutoresizing.FlexibleTopMargin |
UIViewAutoresizing.FlexibleLeftMargin;
```

We can also adjust the controls using the Designer. Selecting the struts as exhibited below will cause the image to stay right-aligned without being clipped off the bottom of the view:



These screenshots show how the controls resize or reposition themselves when the screen is rotated:


Carrier
11:30 PM
updated in thread
Username
Lorem ipsum dolor sit er elit lamet, consectetaur cillium adipisicing pecu, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. eu fugiat nulla pariatur. odioque civiuda.
Button
Carrier
11:31 PM
updated in thread
Username
Lorem ipsum dolor sit er elit lamet, consectetaur cillium adipisicing pecu, sed do eiusmod tempor incididunt ut labore et do giat nulla pariatur. odioque civiuda.
Button

Notice that the text view and text field both stretch to keep the same left and right margins, due to the `FlexibleWidth` setting. The image has the top and left margin flexible, which means it preserves the bottom and right margins – keeping the image in view when the screen is rotated. Complex layouts typically require a combination of these settings on every visible control to keep the user-interface consistent and to prevent controls from overlapping when the view's bounds change (due to rotation or other resizing event).

Custom Themes and UIAppearance

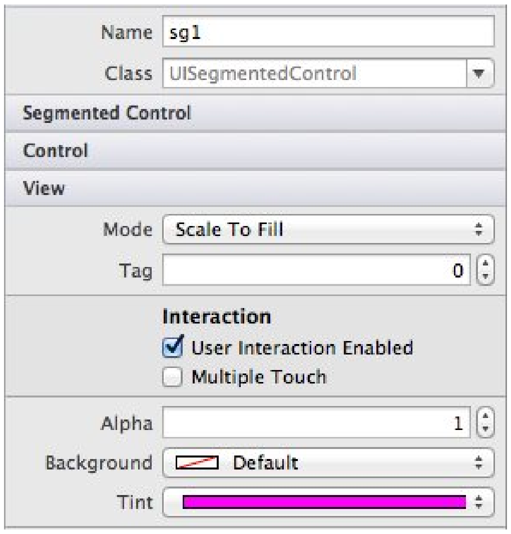
iOS allows many visual attributes of the user interface controls to be "themed" using the *UIAppearance* APIs to force all instances of a particular control to have the same appearance. This is exposed as an Appearance property on many user interface control classes, not on individual instances of the control. Setting a display property on the static `Appearance` property affects all controls of that type in your application.

To better understand the concept, consider an example.

To change a specific `UISegmentedControl` to have a Magenta tint, we would reference the specific control on our screen like this in `ViewDidLoad`:

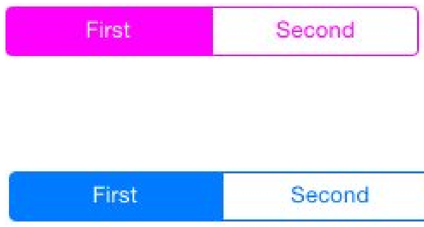
```
sg1.TintColor = UIColor.Magenta;
```

Alternatively, set the value in the Properties pad of the Designer:



Name: sg1
Class: UISegmentedControl
Segmented Control
Control
View
Mode: Scale To Fill
Tag: 0
Interaction
✓ User Interaction Enabled
☐ Multiple Touch
Alpha: 1
Background: Default
Tint: 🟪

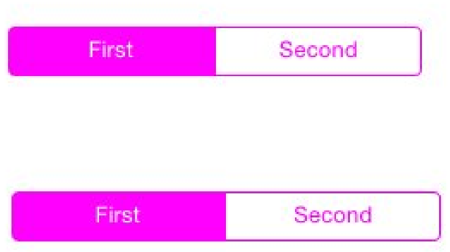
The image below illustrates that this sets the tint on only the control named 'sg1'.



To set many controls in this way would be completely inefficent, so we can instead set the static `Appearance` property on the class itself. This is shown in the code below:

```
UISegmentedControl.Appearance.TintColor = UIColor.Magenta;
```

The Image below now illustrates both segmented controls with the appearance set to Magenta:



`Appearance` properties should be set early in the application lifecycle, such as in the AppDelegate's `FinishedLaunching` event, or in a ViewController before the affected controls are displayed.

Refer to the Introduction to the Appearance API for more detailed information.