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# autolayout

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#autolayout

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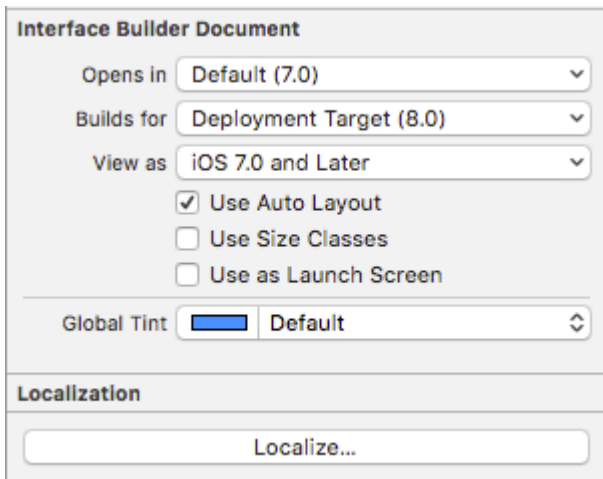
# 1:

Apple

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## Examples

storyboard o o o o o Xcode



## UIImageView

UIImageView100xyUIImageViewUIImageView o o o

```
UIImageView *imageView = [[UIImageView alloc] initWithFrame:CGRectMake(0, 0, 100.0, 100.0);
imageView.self.translatesAutoresizingMaskIntoConstraints = NO;

[imageView addConstraint:[NSLayoutConstraint constraintWithItem:imageView
attribute:NSLayoutAttributeWidth relatedBy:NSLayoutRelationEqual toItem:nil
attribute:NSLayoutAttributeNotAnAttribute multiplier:1.0 constant:100.0]];
[imageView addConstraint:[NSLayoutConstraint constraintWithItem:imageView
attribute:NSLayoutAttributeHeight relatedBy:NSLayoutRelationEqual toItem:nil
attribute:NSLayoutAttributeNotAnAttribute multiplier:1.0 constant:100.0]];
[Superview addConstraint:[NSLayoutConstraint constraintWithItem:imageView
attribute:NSLayoutAttributeCenterX relatedBy:NSLayoutRelationEqual toItem:Superview
attribute:NSLayoutAttributeCenterX multiplier:1.0 constant:0]];
[Superview addConstraint:[NSLayoutConstraint constraintWithItem:imageView
attribute:NSLayoutAttributeCenterX relatedBy:NSLayoutRelationEqual toItem:Superview
attribute:NSLayoutAttributeCenterX multiplier:1.0 constant:0]];
```

VFL o o

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- H:V: -
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@

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1. someViewsomeView

```
H:|[someView]|
```

2. someView10value

```
V:|-(10)-[someView(value)]
```

3. someView1someView2 - value1900 value2800

```
H:[someView1]-(value1@900, value2@800)-[someView2]
```

4. someView1someView2

```
V:[someView1(==someView2)]
```

---

Send

Cancel

This label has relatively long text, that should take two lines.

◦ ◦ ◦

```
- (void)addView {  
  
    // first lets define a container for our views  
    UIView *container = [UIView new];  
    // do not forget to disable autoresizing masks for autolayout views  
    container.translatesAutoresizingMaskIntoConstraints = NO;  
    container.backgroundColor = [UIColor grayColor];  
  
    // now to the subviews. this is mostly boilerplate code:  
    UITextField *textField = [UITextField new];  
    textField.translatesAutoresizingMaskIntoConstraints = NO;  
    textField.borderStyle = UITextBorderStyleRoundedRect;  
  
    UIButton *button1 = [UIButton buttonWithType:UIButtonTypeSystem];  
    button1.translatesAutoresizingMaskIntoConstraints = NO;  
    [button1 setTitle:@"Send" forState:UIControlStateNormal];  
  
    UIButton *button2 = [UIButton buttonWithType:UIButtonTypeSystem];  
    button2.translatesAutoresizingMaskIntoConstraints = NO;  
    [button2 setTitle:@"Cancel" forState:UIControlStateNormal];  
  
    UILabel *label = [UILabel new];
```

```

label.translatesAutoresizingMaskIntoConstraints = NO;
// this line tells the label to let the text overflow to the next line if needed
label.numberOfLines = 0;
label.text = @"This label has relatively long text, that should take two lines.";

// before adding any constraints the views should be present in the hierarchy
[container addSubview:textField];
[container addSubview:button1];
[container addSubview:button2];
[container addSubview:label];

// now lets define two helper dictionaries, one for metrics of our view:
NSDictionary *metrics = @{@"margin": @10, @"textFieldWidth": @160, @"buttonWidth": @44};
// and the other for view bindings using a handy macro, which effectively creates a
dictionary with variables of the same name:
NSDictionary *bindings = NSDictionaryOfVariableBindings(textField, button1, button2,
label);
// lets define a horizontal format for the first row of views in a variable:
NSString *horizontalFormat = @"H:|-(margin)-[textField(textFieldWidth)]-(margin)-
[button1(==button2)]-(margin)-[button2]-(margin)-|";
// this format defines margins of equal size between all views, fixed width for the
textField and sets both buttons to have equal widths
// lets add these constraints to our container:
[container addConstraints:[NSLayoutConstraint constraintsWithVisualFormat:horizontalFormat
options:0 metrics:metrics views:bindings]];
// now lets define horizontal constraints for the second row, where we have the label:
[container addConstraints:[NSLayoutConstraint constraintsWithVisualFormat:@"H:|-(margin)-
[label]-(margin)-|" options:0 metrics:metrics views:bindings]];
// another relatively long visual format string:
NSString *verticalFormat = @"V:|-(margin)-[textField]-(margin)-[label]-(margin)-|";
// this format string defines vertical constraints for textField and label, and should
also define the height of the container
// adding these constraints to the container view:
[container addConstraints:[NSLayoutConstraint constraintsWithVisualFormat:verticalFormat
options:0 metrics:metrics views:bindings]];
// what we have left are constraints for vertical positions of the buttons
// lets attach them to the top of the container with a margin:
[container addConstraints:[NSLayoutConstraint constraintsWithVisualFormat:@"V:|-(margin)-
[button1]" options:0 metrics:metrics views:bindings]];
[container addConstraints:[NSLayoutConstraint constraintsWithVisualFormat:@"V:|-(margin)-
[button2]" options:0 metrics:metrics views:bindings]];

// the container is all set up, adding it to the superview:
[self.view addSubview:container];

// now lets position our container in its superview
// you can not use dot notation in the bindings macro, so lets define a temp variable for
the superview:
UIView *superview = self.view;

// positioning a view in the center of its superview is not so straightforward
// we will use a trick from this answer: http://stackoverflow.com/a/14917695/934710
NSDictionary *containerBindings = NSDictionaryOfVariableBindings(superview, container);
// width constraint from horizontal format is not part of the trick, but is necessary to
constrain container width
[self.view addConstraints:[NSLayoutConstraint constraintsWithVisualFormat:@"H:[superview]-
(<=1)-[container(<=superview)]" options:NSLayoutFormatAlignAllCenterY metrics:nil
views:containerBindings]];
[self.view addConstraints:[NSLayoutConstraint constraintsWithVisualFormat:@"V:[superview]-
(<=1)-[container]" options:NSLayoutFormatAlignAllCenterX metrics:nil
views:containerBindings]];

```

}

<https://riptutorial.com/zh-TW/autolayout/topic/6858/>

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