如何使用Xamarin在Windows上绑定胖胖的iOS框架

1月 02， 2017 条形码 条形码 思科 IOS 霞珠 框架

在使用Xamarin开发Android项目时，我没有遇到任何麻烦。但是，使用 Xamarin 构建 iOS 应用时，这是完全不同的体验 - 它更复杂。在本文中，我将分享我使用Xamarin绑定DynamsoftBarcodeReader.framework的经验。

Dynamsoft Xamarin Barcode SDK 可在 NuGet 上使用

SDK： Xamarin.Dynamsoft.Barcode.iOS

示例：https://github.com/dynamsoft-dbr/xamarin

如果要从头开始构建 Xamarin 库，请继续阅读以下段落。

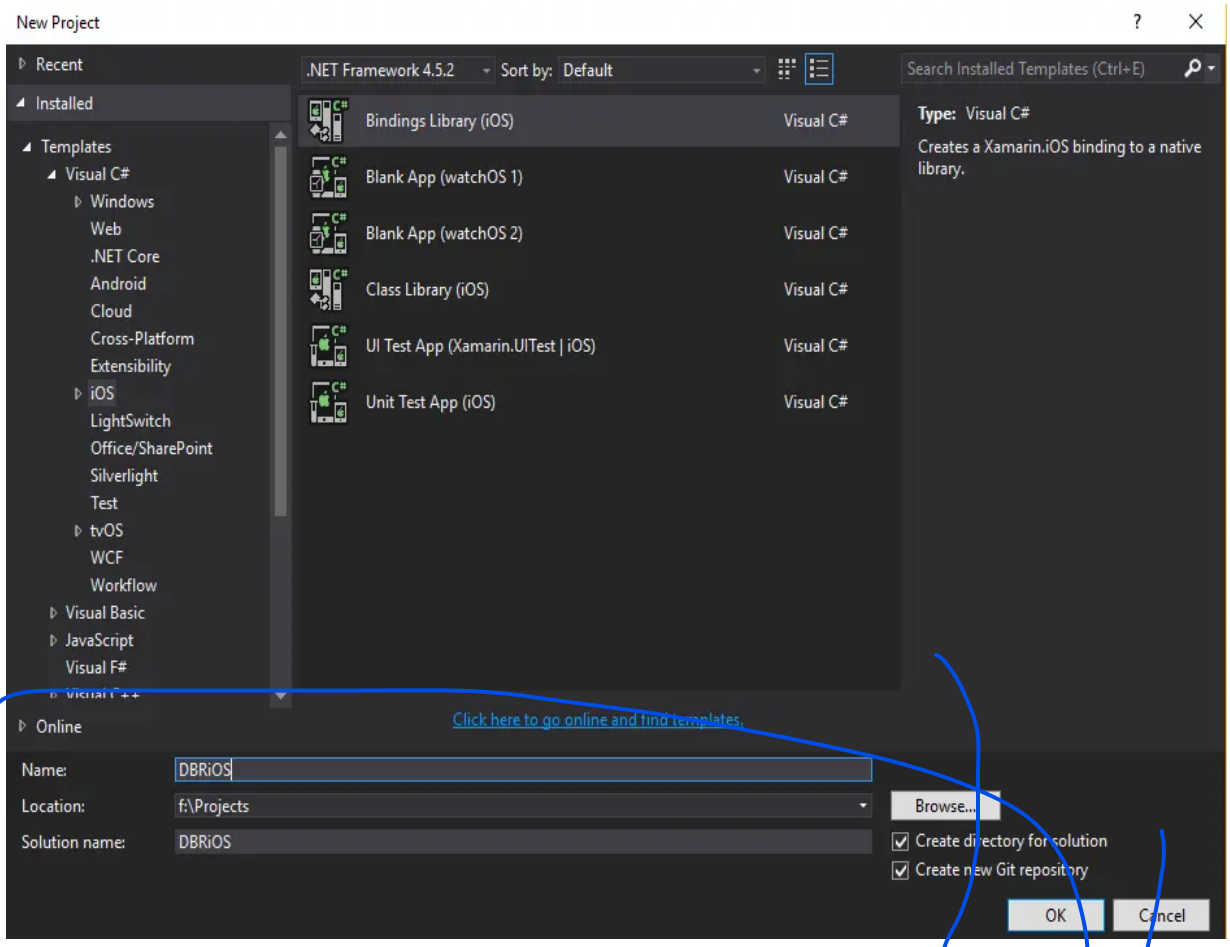
使用 Xamarin 绑定 iOS 框架

下载

DynamsoftBarcodeReader.framework是一个用于条形码检测的SDK。

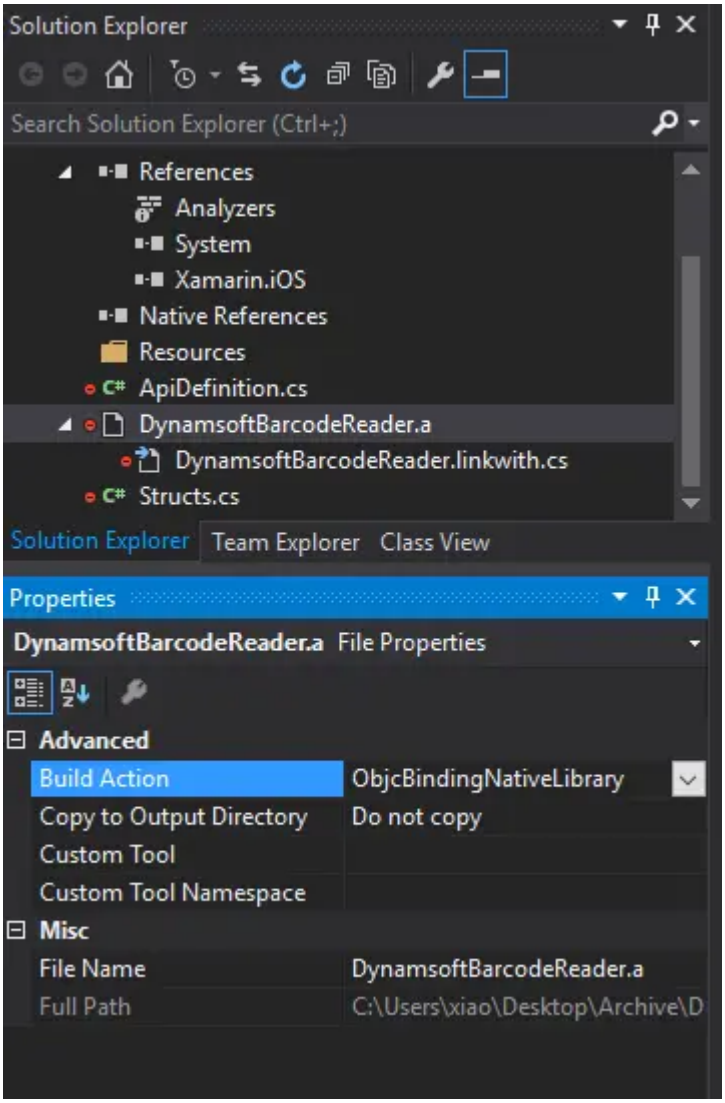
将依赖项与 Linkwith.cs 文件链接

在Visual Studio 2015中创建一个iOS绑定库项目：



将DynamsoftBarcodeReader.framework\DynamsoftBarcodeReader重命名为DynamsoftBarcodeReader.framework\DynamsoftBarcodeReader.a，然后将静态库拖到项目中。IDE 将自动生成相应的DynamsoftBarcodeReader.linkwith.cs文件：

;ljk'



DynamsoftBarcodeReader.framework 依赖于libc++.1.dylib。参考ObjCRuntime.LinkWithAttributeClass，DynamsoftBarcodeReader.linkwith.cs编写如下：

```
using System;
using ObjCRuntime;

[assembly: LinkWith ("DynamsoftBarcodeReader.a", LinkTarget.ArmV7 | LinkTarget
```

生成 ApiDefinition.cs与 Objective Sharpie

ApiDefinition.cs是定义 API 协定的位置，这是描述如何将基础 Objective-C API 投影到 C# 中的文件。您可以手动定义库的所有 API，也可以使用Objective Sharpie自动生成定义，后者仅在 macOS 上运行。

以下是为DynamsoftBarcodeReader.framework生成ApiDeifinition.cs的命令：

```
sharpie -tlm-do-not-submit bind -framework ~/Desktop/DynamsoftBarcodeReader.fr
```

```
xiaos-MacBook-Pro:~ xiao$ sharpie -tlm-do-not-submit bind -framework ~/Desktop/DynamsoftBarcodeReader.framework -sdk iph
oneos10.2
Parsing 1 header files...
While building module 'DynamsoftBarcodeReader' imported from /private/var/folders/7x/v9vbnnt92ps782cydw_q1b8r0000gn/T/co
m.xamarin.ObjectiveSharpie/049aa0e0ce1749e48133bf85d3170a55.h:1:
In file included from <module-includes>:1:
In file included from /Users/xiao/Desktop/DynamsoftBarcodeReader.framework/Headers/DynamsoftBarcodeReader.h:20:
/Users/xiao/Desktop/DynamsoftBarcodeReader.framework/Headers/ReadResult.h:17:1: warning: no 'assign', 'retain', or
      'copy' attribute is specified - 'assign' is assumed [-Wobjc-property-no-attribute]
@property(nonatomic) NSArray *barcodes;
^
/Users/xiao/Desktop/DynamsoftBarcodeReader.framework/Headers/ReadResult.h:17:1: warning: default property attribute
      'assign' not appropriate for non-GC object [-Wobjc-property-no-attribute]

Binding...
  [write] ApiDefinitions.cs
```

您必须修改生成的文件，因为 Objective Sharpie 使用[Verify] 属性来注释 API。确认 API 后，您可以删除**[verify]**的行。这是我的：

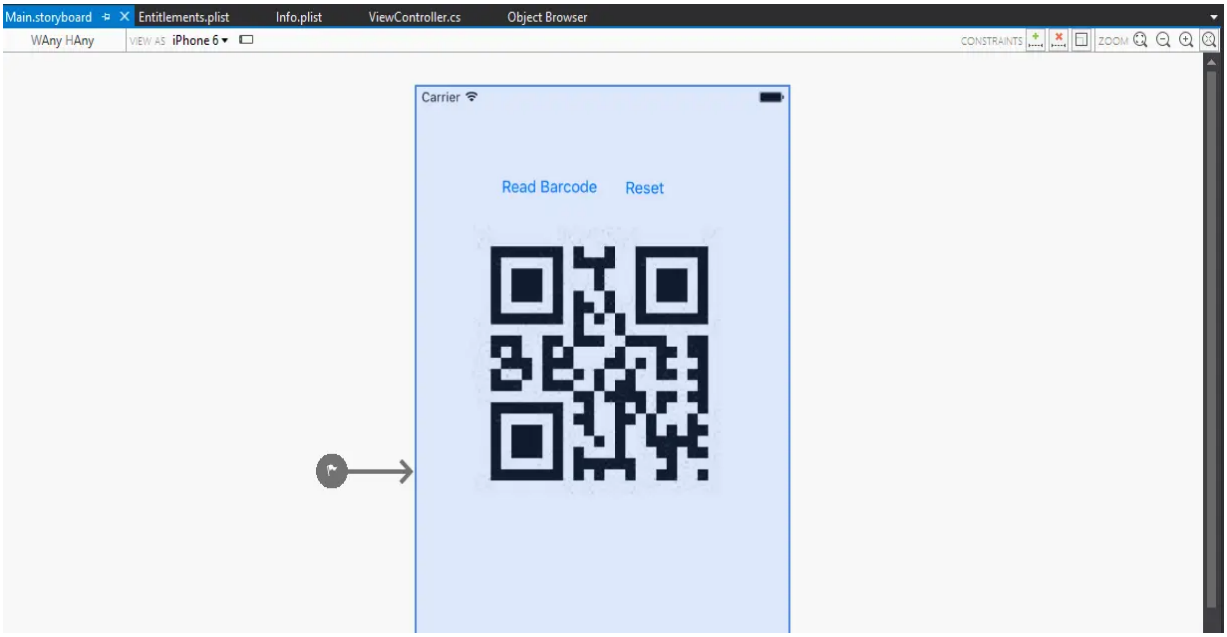
```
namespace DBRiOS {

        [Static]
        partial interface Constants
        {
                // extern double DynamsoftBarcodeReaderVersionNumber;
                [Field ("DynamsoftBarcodeReaderVersionNumber", "__Internal")]
                double DynamsoftBarcodeReaderVersionNumber { get; }

                // extern const unsigned char [] DynamsoftBarcodeReaderVersi
                [Field ("DynamsoftBarcodeReaderVersionString", "__Internal")]
                NSString DynamsoftBarcodeReaderVersionString { get; }
        }

        // @interface Barcode : NSObject
```

现在，您可以构建**DBRiOS.dll**。

构建简单的 iOS 条形码阅读器应用

在 Visual Studio 2015 中创建 iOS**单视图应用程序**，并将 DBRiOS.dll添加到引用。

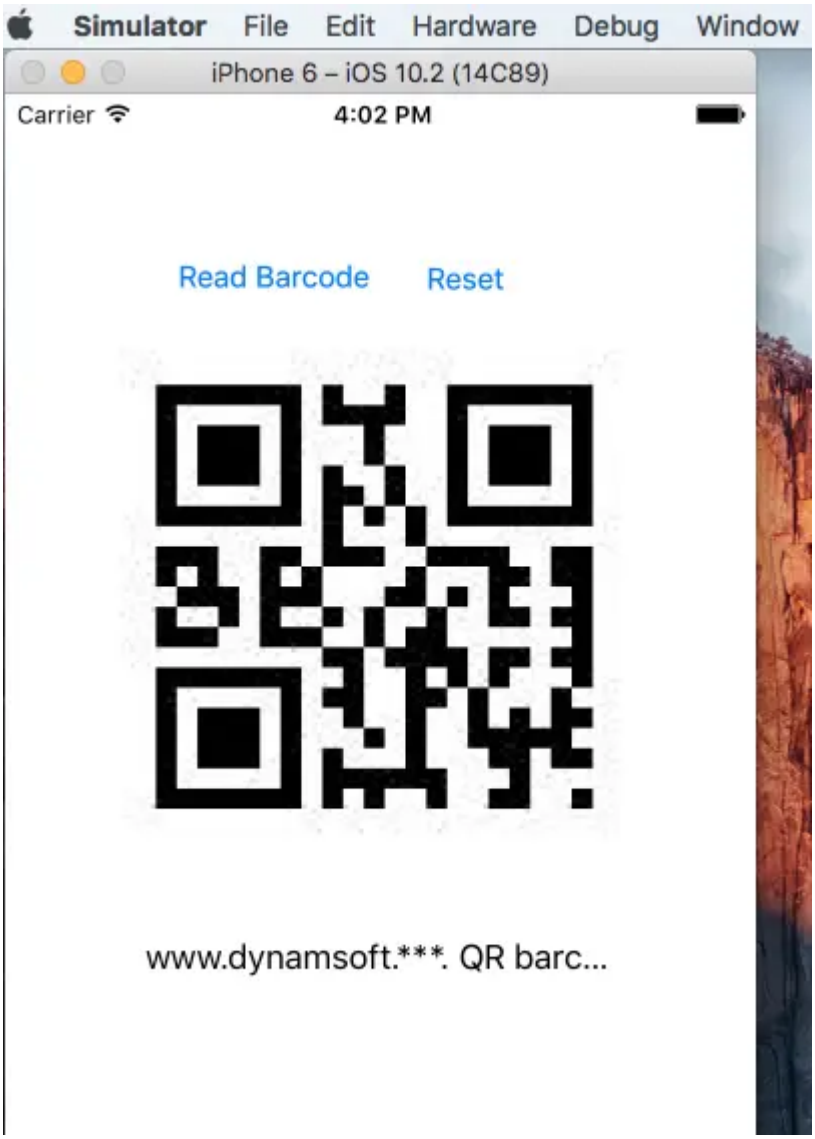
Add **Button**、 **Lable**和**UIImageView** to **Main.storyboard**。



打开ViewController.cs以添加以下代码：

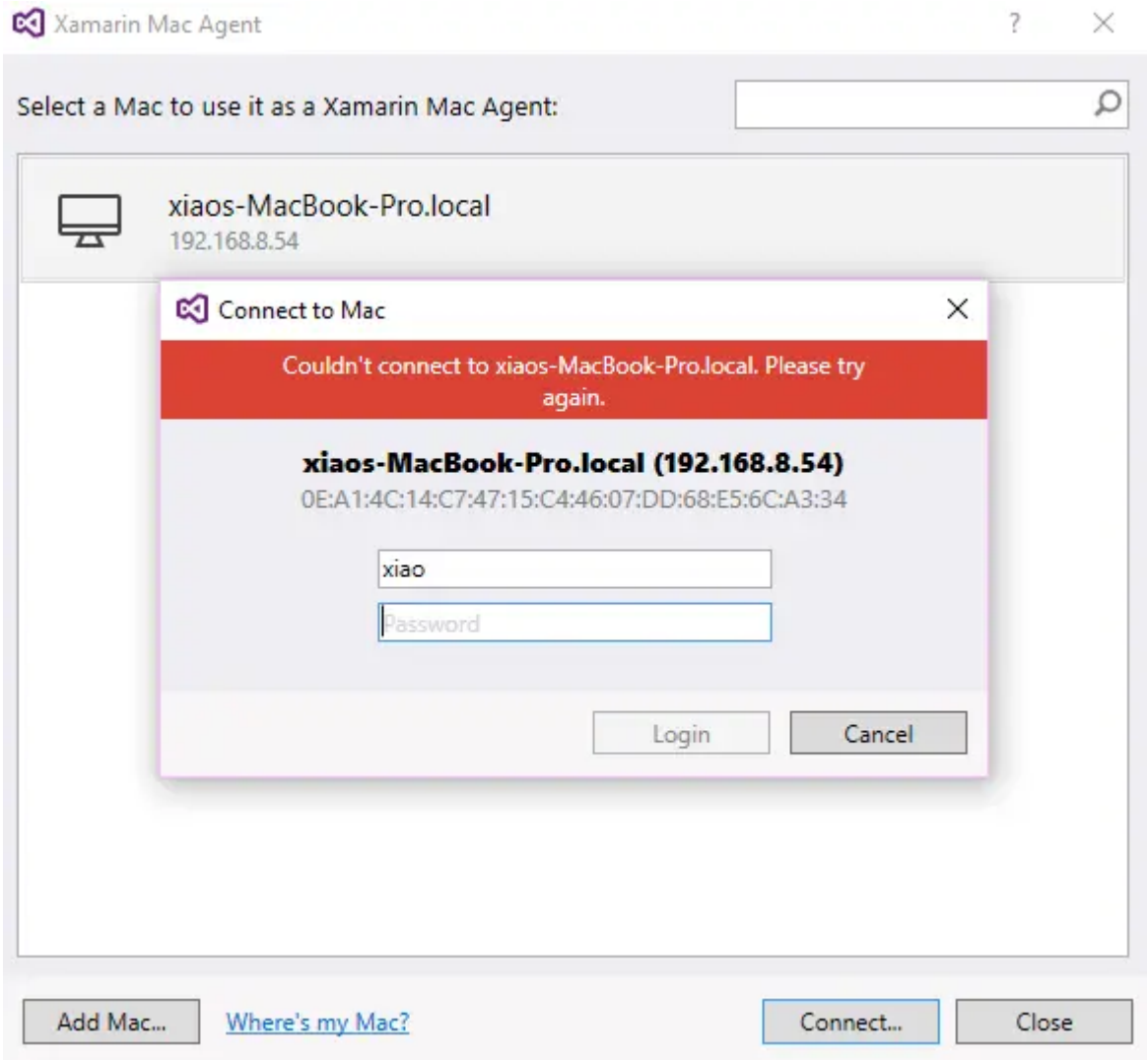
```
using System;

using UIKit;
using DBRiOS;

namespace BarcodeDemo
{
    public partial class ViewController : UIViewController
    {
        public ViewController(IntPtr handle) : base(handle)
        {
        }

        public override void ViewDidLoad()
        {
            base.ViewDidLoad();
```

在设备或模拟器上构建并运行 iOS 条形码阅读器。



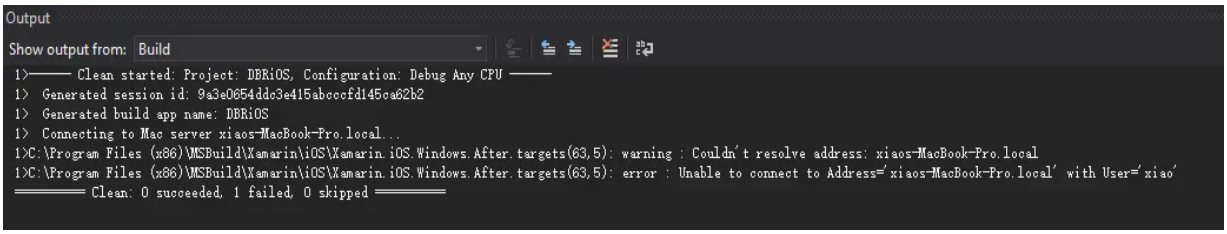
故障 排除

无法连接 Xamarin Mac Agent



If you suffered from the above error, check whether you have installed all required software on macOS. You can use Xamarin Installer to download **xamarin.ios**, **xamarin.mac**, **Xamarin Studio**, and **MonoFramework**. You have to ensure that matching Xamarin.iOS versions are installed on your macOS and Windows.

Couldn't resolve address

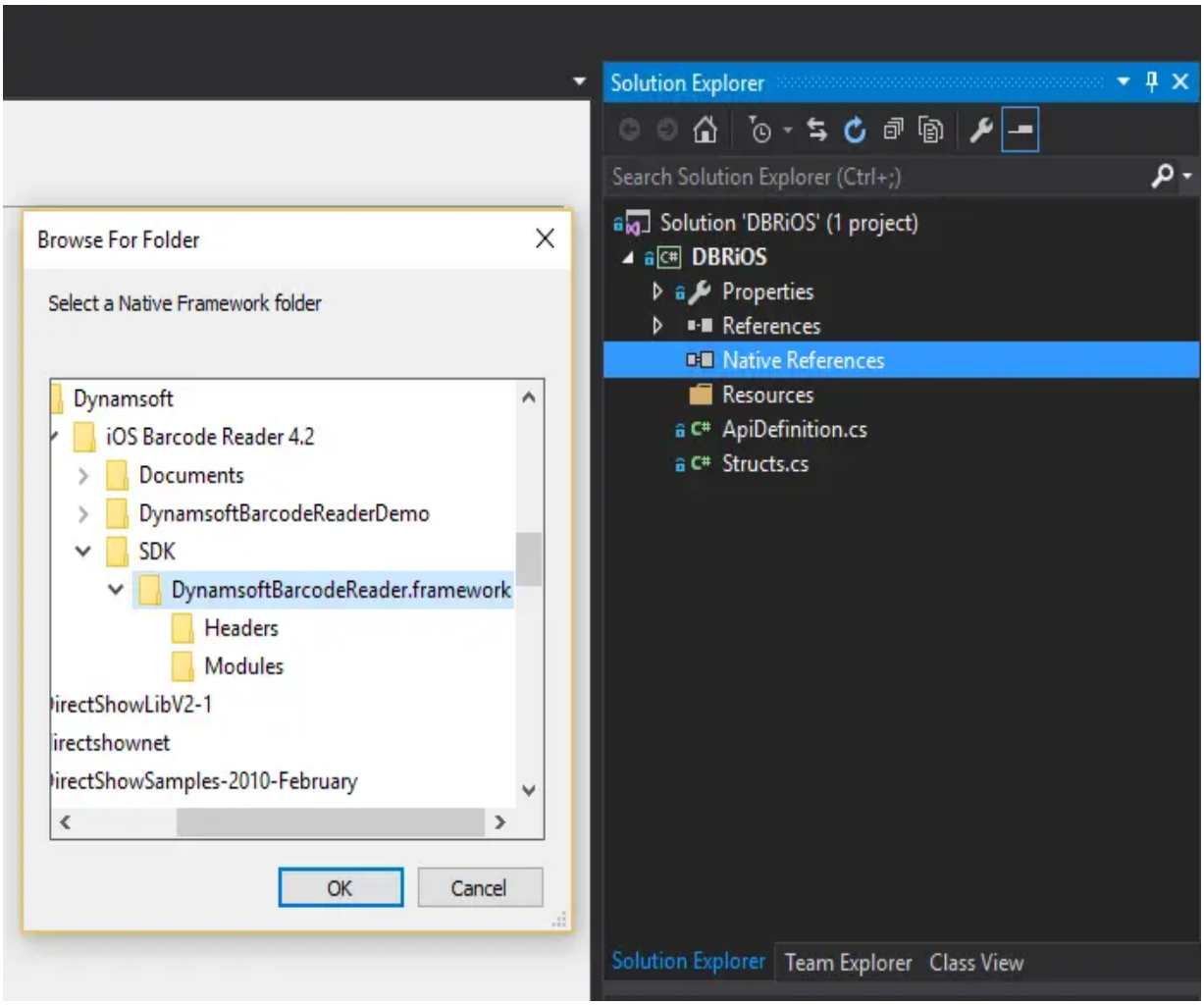


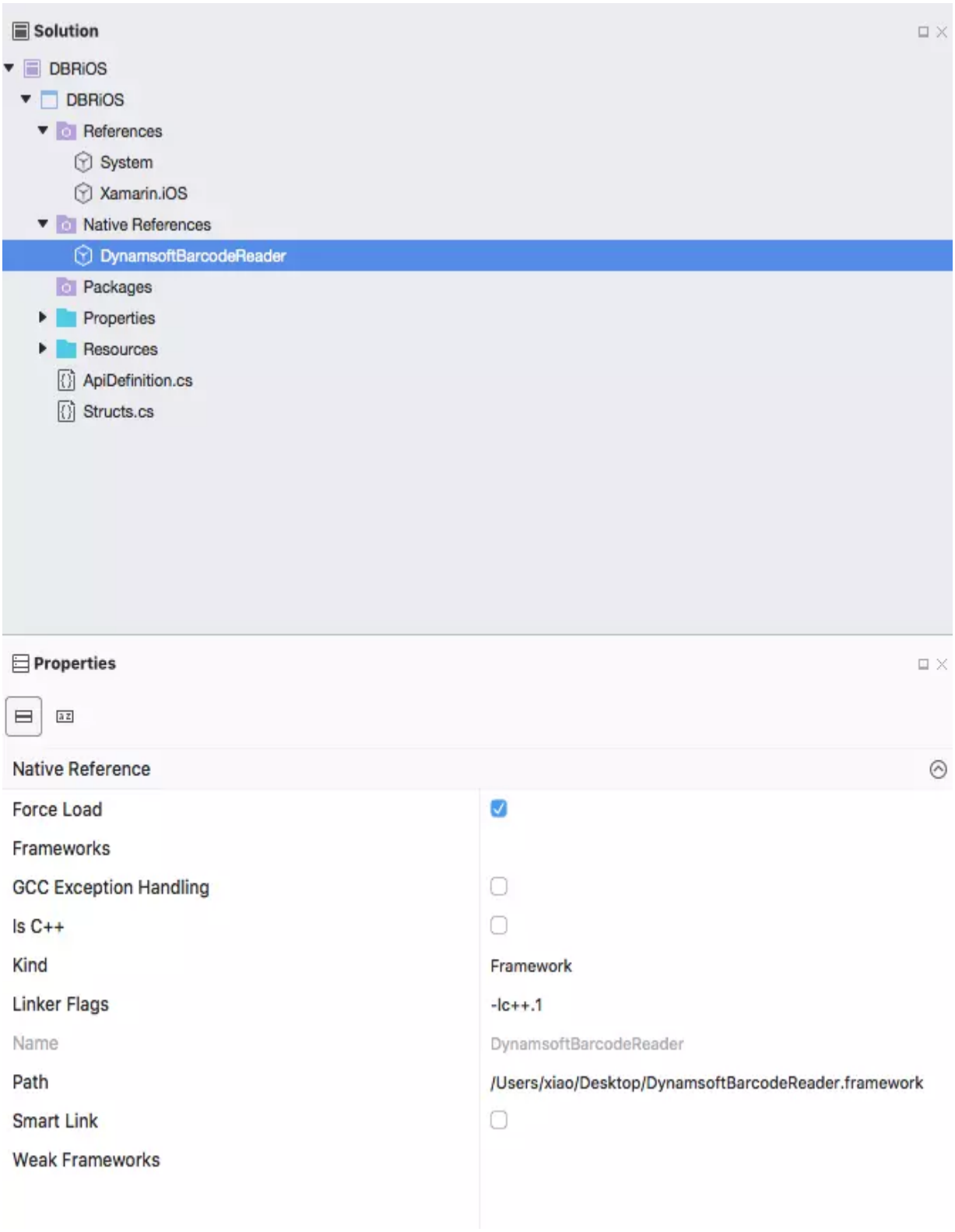
This issue is weird. Sometimes, it will succeed after rebuilding the project. Sometimes it doesn't work at all no matter how many times you rebuild the project. If so, you probably have to re-launch Visual Studio to solve the issue.

For more information, you can read the article Connecting to Mac.

Add Native Framework Reference

Have you ever tried to add native framework reference directly? I built the same project with **Windows Visual Studio** and **Mac Visual Studio**, the result was different. Only the DBRiOS.dll built from Mac Visual Studio could work.





However, this way does not work perfectly. There is no '**LinkTarget**' property. DynamsoftBarcodeReader.framework is a fat framework supporting **armv7**, **i386**, **x86_64**, and **arm64**.

```
xiaos-MacBook-Pro:~ xiao$ file ~/Desktop/DynamsoftBarcodeReader.framework/DynamsoftBarcodeReader
/Users/xiao/Desktop/DynamsoftBarcodeReader.framework/DynamsoftBarcodeReader: Mach-O universal binary with 4 architecture
s
/Users/xiao/Desktop/DynamsoftBarcodeReader.framework/DynamsoftBarcodeReader (for architecture armv7):   current ar archi
ve random library
/Users/xiao/Desktop/DynamsoftBarcodeReader.framework/DynamsoftBarcodeReader (for architecture i386):    current ar archi
ve random library
/Users/xiao/Desktop/DynamsoftBarcodeReader.framework/DynamsoftBarcodeReader (for architecture x86_64):  current ar archi
ve random library
/Users/xiao/Desktop/DynamsoftBarcodeReader.framework/DynamsoftBarcodeReader (for architecture arm64):   current ar archi
ve random library
```

When building the bindings library with the framework, not all architecture slices were linked. I found the size of the generated DBRiOS.dll is much smaller than the original framework. And I can only build iOS app for the device, not the simulator.

Source Code

https://github.com/yushulx/xamarin-bind-ios-framework