Table of content

M:\Allgemeines_MATRIX\Internet_Strategie\Mobile_Entwicklung\Xamarin\XLabs\How_to_Install_and_Setup_XLabs.docx

1 Prologue

As the installation and use of XLabs is not self-explaining and there is no clear documentation available, I have wrote this document (parallel to implement some functions from XLabs) in the hope, this may help some others like me ☺
Unfortunately, (at the time, I wrote this document) there are only small portions of information's available. On the XLabs-page there only are information's to the "old" Forms.Labs (new: **XLabs**) implementation available (what can be misleading additionally).
I think further, that much of the interested users are **not** hard-core-developers, that have maximum experience with Xamarin and can follow the "snipped-description's". I think that much of the developers simply want to enhance standard-XF with functions of XLabs and can be overwhelmed by the hurdles to install and use it, **what is very pity for the awesome work in this extension**.

As I don't use very much from XLabs, this is **not** a full description to XLabs, but you should be able to take the first hurdles (install and start) with it…

I work with VS (2013 - Update2) and my app is based on the template "Blank App (Xamarin.Forms **Shared**).
So… the documentation is optimal for **VS-developers** that works with a **shared-project** (if you use another project-type, you may have to implement it differently).

My actual environment (when I have wrote this document):
VS2013 Update 2 / Xamarin-Forms 1.4.1-Pre-1, XLabs 2.0.5546.3567

This document was written at March 17, 2015. So the information's may be old, if you read it ☺.

My native language is German I hope you understand this document nevertheless and… if you find some "English-bug's" (or others), you can keep it for free… ☺ ☺

Finally, I hope this document helps you and... thanks for reading it…

2 Introduction

XLabs is an add-on to Xamarin.Forms. The target is to enhance missing functions in Xamarin-Forms. XLabs is free and powered thru some community-members, which all works for free.

So... I first want to thanks here the XLabs-team for their awesome work!

In XLabs, there are some controls and some services included.

My personal intent to use XLabs, was:

- **The PopUp-Control:**
  - ➢ In my app, I have heavy search-pages in a ScrollView.
  - ➢ Some search-items have to be selected over ListViews (e.g. city/zip-code with more then 4'000 items)
  - ➢ As ListView's can't be served from a ScrollView in Android since a few XF-Versions ago (and - it seems - generally should not be used directly in a ScrollView), I had to find a way to change my whole logic to my search-pages).
  - ➢ As I don't want to call separate pages for every ListView, I have searched another solution and found it in the **PopUp-Control** of XLabs.
  - ➢ With the PopUp-Control, I was able to change my code, so that I now can use my ListViews from a ScrollView without problems.
  - ➢ As there is not description to the PopUp-Control is available yet on the XLabs-Page, I have posted another .pdf with a description, especially to the PopUp-Control.
  - ➢ You can find it here: https://forums.xamarin.com/discussion/33587/how-to-use-a-listview-in-a-scrollview-with-xlabs-popup-control

- **Some of the included services:**
  - ➢ Device (device information's, access to media-files and camera)
  - ➢ Maybe Geolocation-Service

Of course, you may have other preferences - you can check-out the available controls / services and the latest information's over the links below.

XLabs-Links:

- Wiki: https://github.com/XLabs/Xamarin-Forms-Labs/wiki
- GitHub: https://github.com/XLabs/Xamarin-Forms-Labs

Important notes:

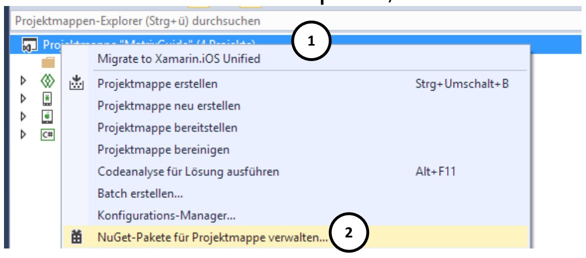
- This documentation is based on XLabs 2.x and XF 1.4.1 **with unified iOS**.
- If you don't have migrated to unified API, I suggest you to do it first.
- I you already have migrated to unified, I recommends you, to control the references of your iOS-Project (they should be on: **\lib\Xamarin.iOS10\** (not on \lib\MonoTouch10)
- I have lost full two days to sort the problems out…

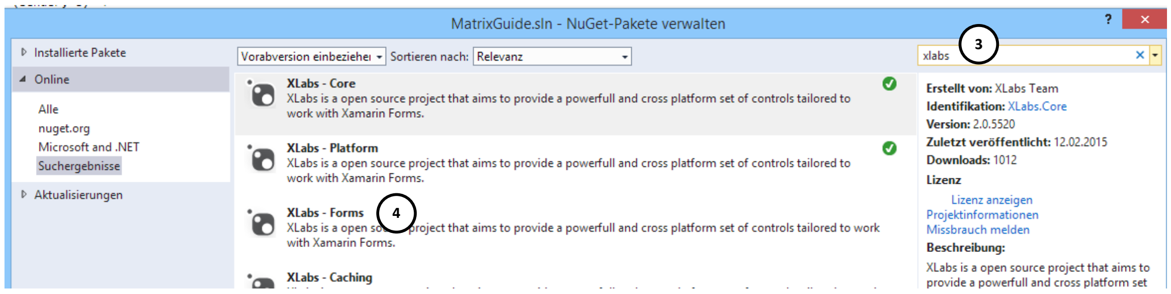
➢ ***See also chapter "Important notes".***

3 Add XLabs to project (VS2013 - Update 2)

3.1 Initial installation

My XF-project is based on the template “**Blank App (Xamarin.Forms Shared)**”.
Note: I was on XF 1.3.4-pre-x, when I have installed XLabs the first time.


Projektmappen-Explorer (Strg+ü) durchsuchen
1
Migrate to Xamarin.iOS Unified
Projektmappe erstellen
Strg+Umschalt+B
Projektmappe neu erstellen
Projektmappe bereitstellen
Projektmappe bereinigen
Codeanalyse für Lösung ausführen
Alt+F11
Batch erstellen...
Konfigurations-Manager...
NuGet-Pakete für Projektmappe verwalten...
2



XLabs - Core
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

XLabs - Platform
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

XLabs - Forms
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

XLabs - Caching

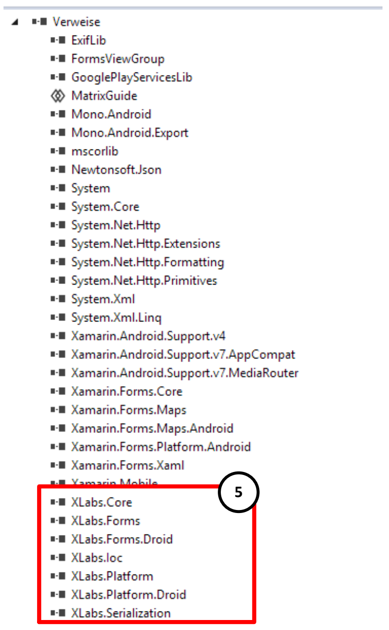
Erstellt von: XLabs Team
Identifikation: XLabs.Core
Version: 2.0.5520
Zuletzt veröffentlicht: 12.02.2015
Downloads: 1012
Lizenz
Lizenz anzeigen
Projektinformationen
Missbrauch melden
Beschreibung:
XLabs is a open source project that aims to provide a powerfull and cross platform set

- Select your root-project in the solution-manager **(1)** and call the NuGet-Manager **(2)**
- Type “XLabs” in the search-bar **(3)** and select **“Xlabs - Forms” (4)** to install
  - ➢ Note: All depending packages then are installed automatically.

Note: There were some problems with dependencies between Xamarin.Forms and XLabs (the dependency of XLabs had to target exactly the installed XF-Version for WP-projects).
This problem has been gone since XF-version 1.4 (as Xamarin has changed the WP-Implementation in XF)

- **So... if you have installed a XF-Version >= 1.4, your don’t should have problems ☺**
  - ➢ **Further possible problems (especially with iOS) see chapter “Important notes”**

- And also all references in all sub-projects (iOS, Android and WP) are added automatically **(5)**

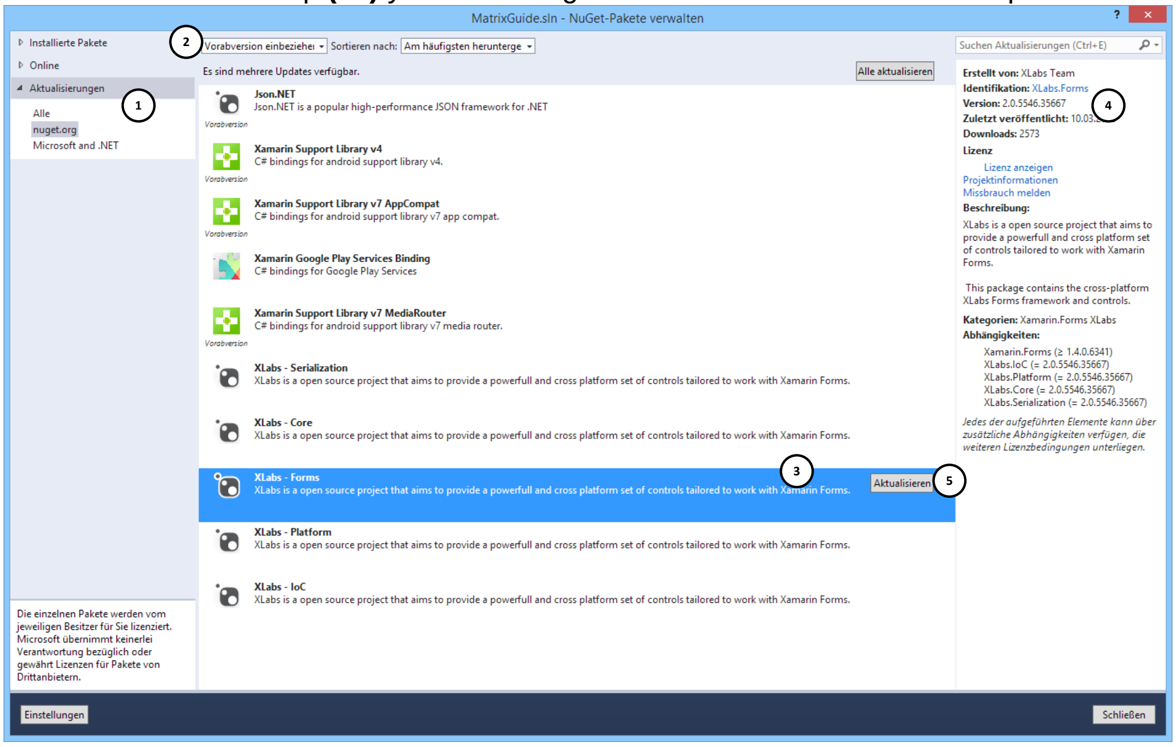

Verweise
ExifLib
FormsViewGroup
GooglePlayServicesLib
MatrixGuide
Mono.Android
Mono.Android.Export
mscorlib
Newtonsoft.Json
System
System.Core
System.Net.Http
System.Net.Http.Extensions
System.Net.Http.Formatting
System.Net.Http.Primitives
System.Xml
System.Xml.Linq
Xamarin.Android.Support.v4
Xamarin.Android.Support.v7.AppCompat
Xamarin.Android.Support.v7.MediaRouter
Xamarin.Forms.Core
Xamarin.Forms.Maps
Xamarin.Forms.Maps.Android
Xamarin.Forms.Platform.Android
Xamarin.Forms.Xaml
Xamarin.Mobile
XLabs.Core
XLabs.Forms
XLabs.Forms.Droid
XLabs.Ioc
XLabs.Platform
XLabs.Platform.Droid
XLabs.Serialization

- **Done… the XLabs-packages are now ready to use.**
- The XLabs-controls (like the PopUp) can now be used by simple add a using on the page:

```
using XLabs.Forms.Controls;
```

3.2 Installing updates automatically

- If you start the NuGet-Manager, you can click the Tab “Aktualisierungen” (“updates”) **(1)** and then can see **updates** to all **already** installed packages.
- In the ComboBox on top **(2)** you can change between stable-versions and alpha/beta-versions:


MatrixGuide.sln - NuGet-Pakete verwalten

Installierte Pakete
Online
Aktualisierungen
Alle
nuget.org
Microsoft and .NET

Vorabversion einbeziehen | Sortieren nach: Am häufigsten herunterge

Es sind mehrere Updates verfügbar. | Alle aktualisieren

Json.NET
Json.NET is a popular high-performance JSON framework for .NET
Vorabversion

Xamarin Support Library v4
C# bindings for android support library v4.
Vorabversion

Xamarin Support Library v7 AppCompat
C# bindings for android support library v7 app compat.
Vorabversion

Xamarin Google Play Services Binding
C# bindings for Google Play Services

Xamarin Support Library v7 MediaRouter
C# bindings for android support library v7 media router.
Vorabversion

XLabs - Serialization
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

XLabs - Core
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

XLabs - Forms
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms. | Aktualisieren

XLabs - Platform
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

XLabs - IoC
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

Suchen Aktualisierungen (Ctrl+E)

Erstellt von: XLabs Team
Identifikation: XLabs.Forms
Version: 2.0.5546.35667
Zuletzt veröffentlicht: 10.03.
Downloads: 2573
Lizenz
Lizenz anzeigen
Projektinformationen
Missbrauch melden
Beschreibung:
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

This package contains the cross-platform XLabs Forms framework and controls.
Kategorien: Xamarin.Forms XLabs
Abhängigkeiten:
Xamarin.Forms (≥ 1.4.0.6341)
XLabs.IoC (= 2.0.5546.35667)
XLabs.Platform (= 2.0.5546.35667)
XLabs.Core (= 2.0.5546.35667)
XLabs.Serialization (= 2.0.5546.35667)

Jedes der aufgeführten Elemente kann über zusätzliche Abhängigkeiten verfügen, die weiteren Lizenzbedingungen unterliegen.

Die einzelnen Pakete werden vom jeweiligen Besitzer für Sie lizenziert. Microsoft übernimmt keinerlei Verantwortung bezüglich oder gewährt Lizenzen für Pakete von Drittanbietern.

Einstellungen | Schließen

- In the example, you can see, that there is an update to XLabs available **(3).**
- If you select an Item **(3)**, you can see the version-information’s on the right side **(4)**
- To update the package, just click on “Aktualisieren” (Update)-Button **(5)**
- Note: If you select the XLabs - **Forms** package, **all** XLabs-Packages should be updated **automatically**, as there are dependencies set

- This is the fastest and easiest way to update…

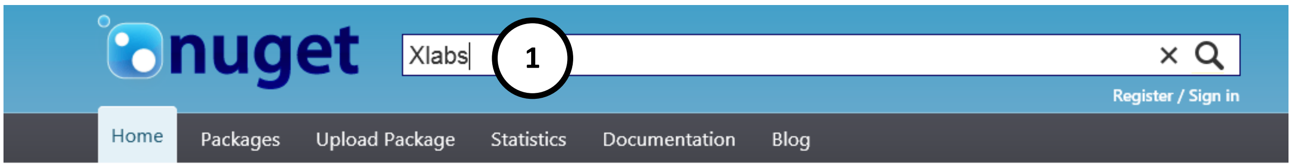
- But… maybe you have to install a specific-version, that is not showed under updates…?
- In this case, you have to install the package over the NuGet-Console (see next page)

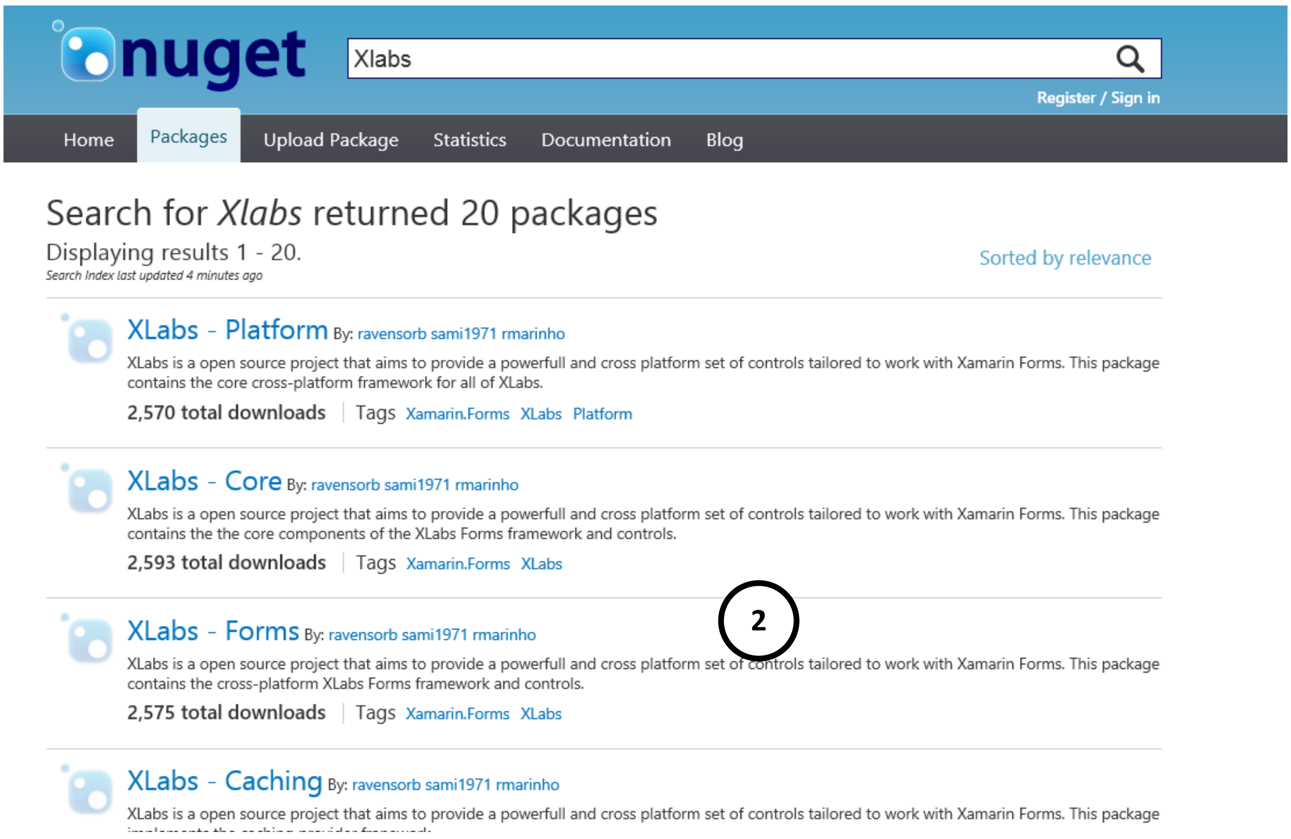
3.3 Installing specific versions over the NuGet-Console

Note: This short-description can be used for every NuGet-Package (not only XLabs), e.g also for Xamarin.Forms itself.

First, you should have a look, which versions are available and how to install them.
Therefore you load the NuGet-Portal:

- Link: https://www.nuget.org/





Search for *Xlabs* returned 20 packages
Displaying results 1 - 20.
Search Index last updated 4 minutes ago

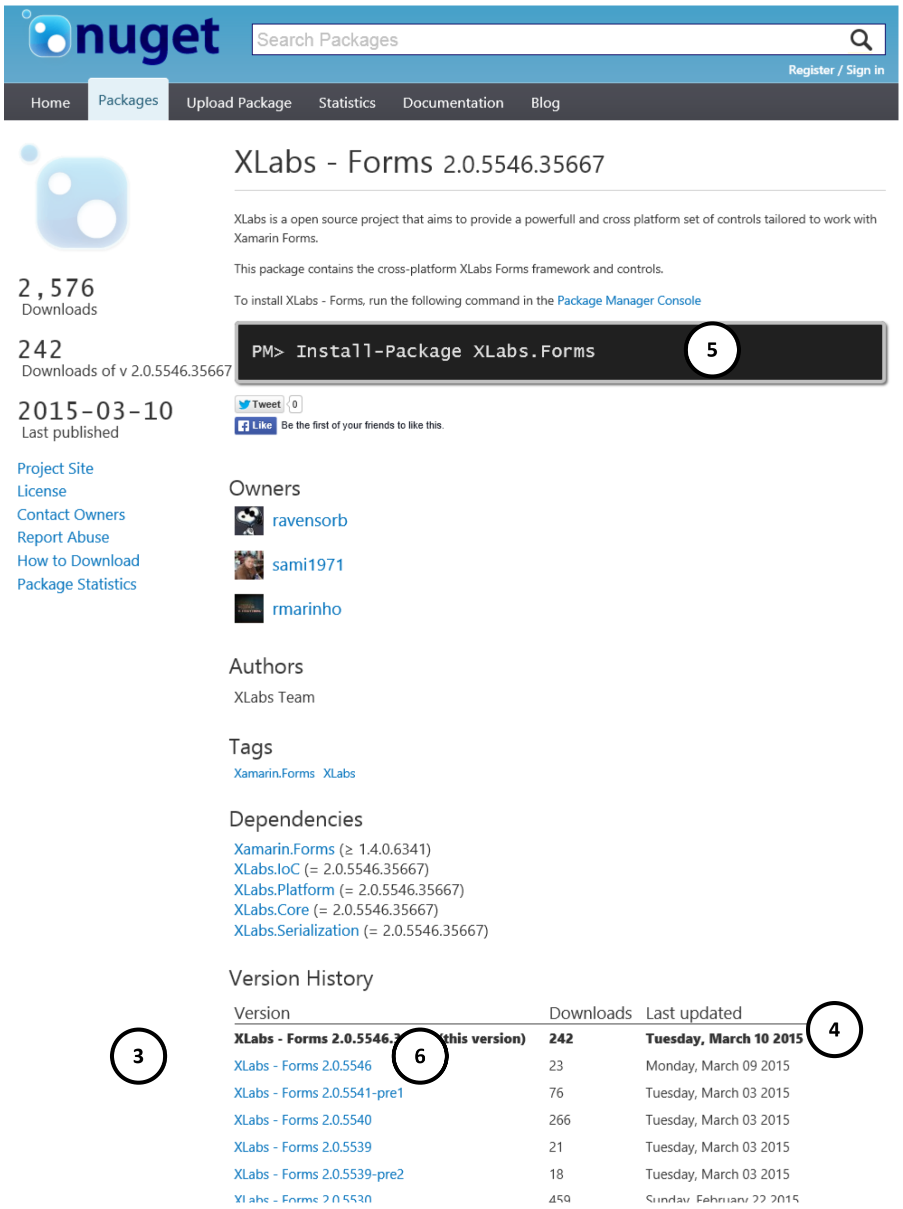
XLabs - Platform By: ravensorb sami1971 rmarinho
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms. This package contains the core cross-platform framework for all of XLabs.
2,570 total downloads | Tags Xamarin.Forms XLabs Platform

XLabs - Core By: ravensorb sami1971 rmarinho
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms. This package contains the the core components of the XLabs Forms framework and controls.
2,593 total downloads | Tags Xamarin.Forms XLabs

XLabs - Forms By: ravensorb sami1971 rmarinho
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms. This package contains the cross-platform XLabs Forms framework and controls.
2,575 total downloads | Tags Xamarin.Forms XLabs

XLabs - Caching By: ravensorb sami1971 rmarinho
XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms. This package

- Type in the name of the package, you want to install **(1)**
- In the result, click on a package (in the example, the XLabs - Forms - package **(2)** was selected)



XLabs - Forms 2.0.5546.35667

XLabs is a open source project that aims to provide a powerfull and cross platform set of controls tailored to work with Xamarin Forms.

This package contains the cross-platform XLabs Forms framework and controls.

To install XLabs - Forms, run the following command in the Package Manager Console

```
PM> Install-Package XLabs.Forms
```

Tweet 0
Like Be the first of your friends to like this.

2,576
Downloads

242
Downloads of v 2.0.5546.35667

2015-03-10
Last published

Project Site
License
Contact Owners
Report Abuse
How to Download
Package Statistics

Owners
ravensorb
sami1971
rmarinho

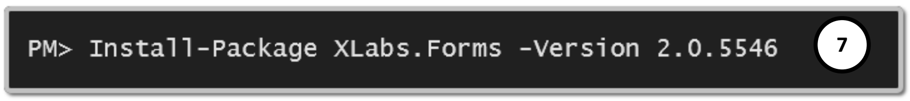
Authors
XLabs Team

Tags
Xamarin.Forms XLabs

Dependencies
Xamarin.Forms (≥ 1.4.0.6341)
XLabs.IoC (= 2.0.5546.35667)
XLabs.Platform (= 2.0.5546.35667)
XLabs.Core (= 2.0.5546.35667)
XLabs.Serialization (= 2.0.5546.35667)

Version History

Version	Downloads	Last updated
XLabs - Forms 2.0.5546.3 (this version)	**242**	**Tuesday, March 10 2015**
XLabs - Forms 2.0.5546	23	Monday, March 09 2015
XLabs - Forms 2.0.5541-pre1	76	Tuesday, March 03 2015
XLabs - Forms 2.0.5540	266	Tuesday, March 03 2015
XLabs - Forms 2.0.5539	21	Tuesday, March 03 2015
XLabs - Forms 2.0.5539-pre2	18	Tuesday, March 03 2015
XLabs - Forms 2.0.5530	459	Sunday, February 22 2015



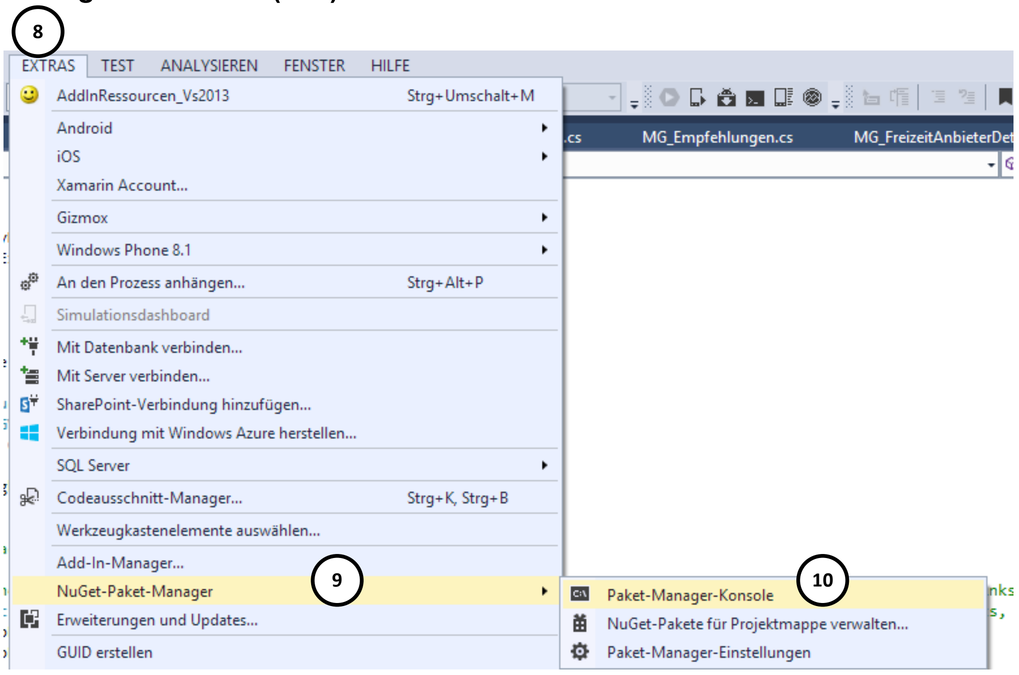
```
PM> Install-Package XLabs.Forms -Version 2.0.5546
```

- Now, NuGet shows you all available **version's** to the package **(3)**

- **In the box on top, you can see the command (5), that has to be used to install the selected package (4) in the NuGet-Console (see next page)**

- If you change the selection to another version **(6),** also the **command is changed automatically (7)**

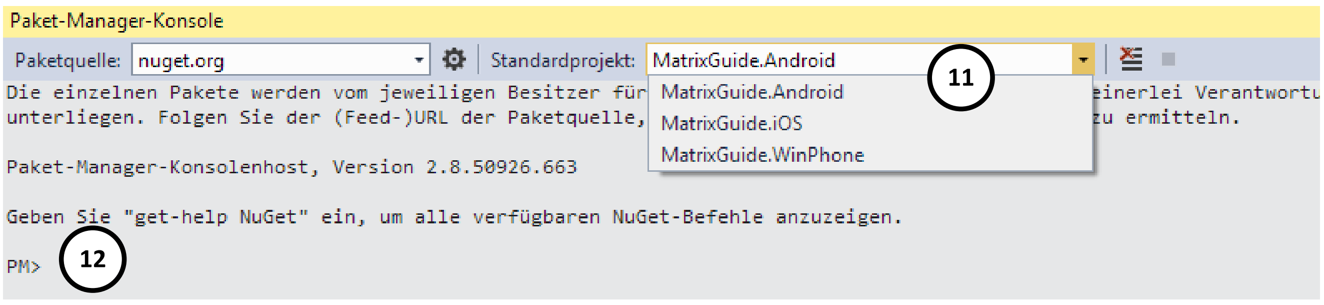
- To install the package, call **"Extras (Tools)" (8)** - **"NuGet-Paket-Manager" (8)** - **"Paket-Manager-Konsole" (10)** from the VS-Menu:


8
EXTRAS
TEST
ANALYSIEREN
FENSTER
HILFE
AddInRessourcen_Vs2013 Strg+Umschalt+M
Android
iOS
Xamarin Account...
Gizmox
Windows Phone 8.1
An den Prozess anhängen... Strg+Alt+P
Simulationsdashboard
Mit Datenbank verbinden...
Mit Server verbinden...
SharePoint-Verbindung hinzufügen...
Verbindung mit Windows Azure herstellen...
SQL Server
Codeausschnitt-Manager... Strg+K, Strg+B
Werkzeugkastenelemente auswählen...
Add-In-Manager...
NuGet-Paket-Manager
9
Erweiterungen und Updates...
GUID erstellen
Paket-Manager-Konsole
10
NuGet-Pakete für Projektmappe verwalten...
Paket-Manager-Einstellungen
MG_Empfehlungen.cs
MG_FreizeitAnbieterDet

Then, the Paket-Manager-Console ist loaded:

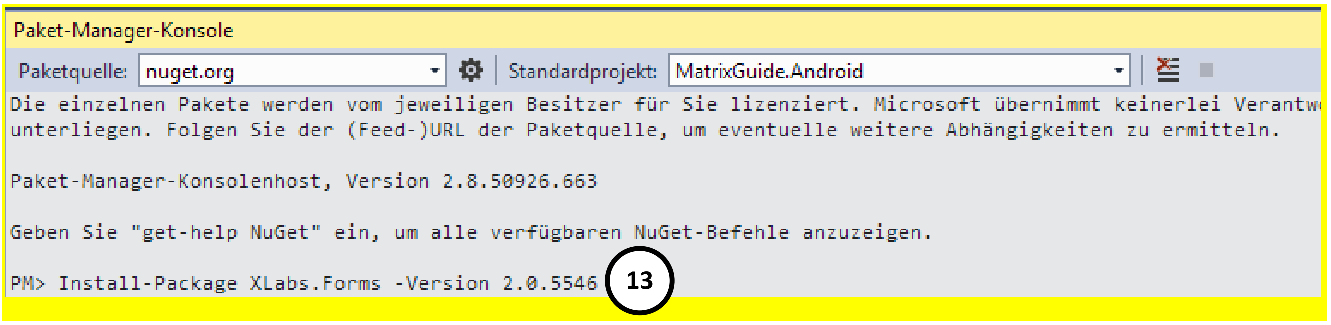
Notes:

- You have to select the target-project in the ComboBox **(11)**
- You have to install the package for every project (in the example for the .Android, the .iOS and the .WinPhone-project)



```
Die einzelnen Pakete werden vom jeweiligen Besitzer für
unterliegen. Folgen Sie der (Feed-)URL der Paketquelle,
einerlei Verantwortu
zu ermitteln.

Paket-Manager-Konsolenhost, Version 2.8.50926.663

Geben Sie "get-help NuGet" ein, um alle verfügbaren NuGet-Befehle anzuzeigen.

PM>
```

- Now just paste the command from NuGet (see **(5)** / **(7)**) to the command prompt **(12)**



```
Die einzelnen Pakete werden vom jeweiligen Besitzer für Sie lizenziert. Microsoft übernimmt keinerlei Verantw
unterliegen. Folgen Sie der (Feed-)URL der Paketquelle, um eventuelle weitere Abhängigkeiten zu ermitteln.

Paket-Manager-Konsolenhost, Version 2.8.50926.663

Geben Sie "get-help NuGet" ein, um alle verfügbaren NuGet-Befehle anzuzeigen.

PM> Install-Package XLabs.Forms -Version 2.0.5546
```

- …and finally press **Enter (13)**
- … done ☺

4 Using XLabs

4.1 Using a control

If you only want to use some XLabs-Controls (no services):
Just enhance your page (where the control should be used) with the using:

```
using XLabs.Forms.Controls;
```

And start to implement it (e.g.):

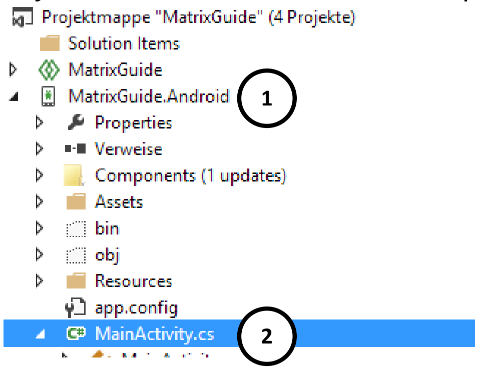
```
var oExLabel = new ExtendedLabel();
oExLabel.IsDropShadow = true;
oExLabel....
```

4.2 Register a Service

As soon as you want to use a **service**, you have to **register** it first for **every platform**.
As I use the "device-service" the following description is related to the device-service - further, I have added the GeoLocation-Service.
You should be able to add further services in the same way without problems.

4.2.1 Android

In your solution, select the Android-project **(1)** and open **MainActivity.cs (2)**


Projektmappe "MatrixGuide" (4 Projekte)
Solution Items
MatrixGuide
MatrixGuide.Android 1
Properties
Verweise
Components (1 updates)
Assets
bin
obj
Resources
app.config
MainActivity.cs 2

4.2.1.1 My MainActivity.cs <u>before</u> adding XLabs

```
using System;
using Android.App;
using Android.Content;
using Android.Runtime;
using Android.Views;
using Android.Widget;
using Android.OS;
using Xamarin.Forms.Platform.Android;
using Android.Content.PM;

namespace MatrixGuide.Droid
{
    [Activity(Label = "MatrixGuide", ConfigurationChanges = ConfigChanges.Orientation |
ConfigChanges.ScreenSize)]
    public class MainActivity :
    global::Xamarin.Forms.Platform.Android.FormsApplicationActivity
    {
        protected override void OnCreate(Bundle bundle)
        {
            base.OnCreate(bundle);
            Xamarin.Forms.Forms.Init(this, bundle);
            Xamarin.FormsMaps.Init(this, bundle);
            LoadApplication(new App());
        }
    }
}
```

4.2.1.2 Code to add

To register a service, you first have to add a SimpleContainer (included in Xabs).
Then you have to register the services, you want to use.

Usings:

```
using XLabs.Ioc; // For the XLabs simple container
using XLabs.Platform.Services.Geolocation; // For the GeoLocation-Service
using XLabs.Platform.Device; // For the Device-Service
```

Code:

```
var container = new SimpleContainer(); // Create a SimpleCOntainer
container.Register<IGeolocator, Geolocator>(); // Register the Geolocator
container.Register<IDevice> (t => AndroidDevice.CurrentDevice); // Register the Device
Resolver.SetResolver(container.GetResolver()); // Resolve it
```

Maybe you want / have to full-qualify the objects, Example for Geolocator:

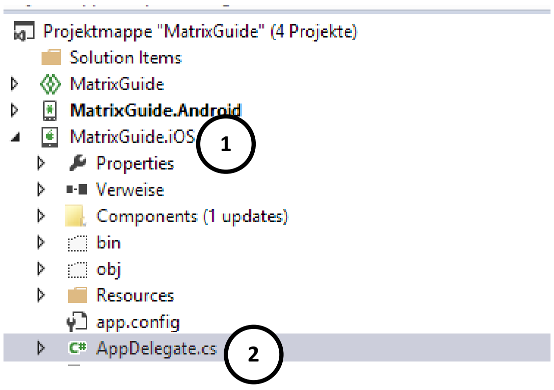
```
container.Register<IGeolocator, global::XLabs.Platform.Services.Geolocation.Geolocator>();
```

4.2.1.3 My MainActivtiy.cs after adding XLabs

```
using System;

using Android.App;
using Android.Content;
using Android.Runtime;
using Android.Views;
using Android.Widget;
using Android.OS;
using Xamarin.Forms.Platform.Android;
using Android.Content.PM;
// New Xlabs
using XLabs.Ioc;  // Using for SimpleContainer
using XLabs.Platform.Services.Geolocation;  // Using for Geolocation
using XLabs.Platform.Device; // Using for Display
// End new Xlabs

namespace MatrixGuide.Droid
{
    [Activity(Label = "MatrixGuide", ConfigurationChanges = ConfigChanges.Orientation |
ConfigChanges.ScreenSize)]
    public class MainActivity :
    global::Xamarin.Forms.Platform.Android.FormsApplicationActivity
    {
        protected override void OnCreate(Bundle bundle)
        {
            base.OnCreate(bundle);
// New Xlabs
            var container = new SimpleContainer();
            container.Register<IDevice> (t => AndroidDevice.CurrentDevice);
            container.Register<IGeolocator, Geolocator>();
            Resolver.SetResolver(container.GetResolver()); // Resolving the services
// End new Xlabs

            Xamarin.Forms.Forms.Init(this, bundle);
            Xamarin.FormsMaps.Init(this, bundle);
            LoadApplication(new App());
        }
    }
}
```

4.2.2 iOS

In your solution, select the iOS-project **(1)** and open **AppDelegate.cs (2)**


Projektmappe "MatrixGuide" (4 Projekte)
Solution Items
MatrixGuide
MatrixGuide.Android
MatrixGuide.iOS
Properties
Verweise
Components (1 updates)
bin
obj
Resources
app.config
AppDelegate.cs

4.2.2.1 My AppDelegate.cs before adding XLabs

```
using System;
using System.Collections.Generic;
using System.Linq;

using Foundation;
using UIKit;

using Xamarin.Forms;

namespace MatrixGuide.iOS
{
    [Foundation.Register("AppDelegate")]
    public partial class AppDelegate :
    global::Xamarin.Forms.Platform.iOS.FormsApplicationDelegate     {
        // class-level declarations
        UIWindow window;
        //
        public override bool FinishedLaunching(UIApplication app, NSDictionary options)
        {
            Forms.Init();
            Xamarin.FormsMaps.Init();
            LoadApplication(new App());
            return base.FinishedLaunching(app, options);
        }
    }
}
```

4.2.2.2 Code to add

To register a service, you first have to add a SimpleContainer (included in Xabs)
Then you have to register the services, you want to use

Usings:

```
using XLabs.Ioc;  // Using for SimpleContainer
using XLabs.Platform.Services.Geolocation;  // Using for Geolocation
using XLabs.Platform.Device; // Using for Device
```

Code:

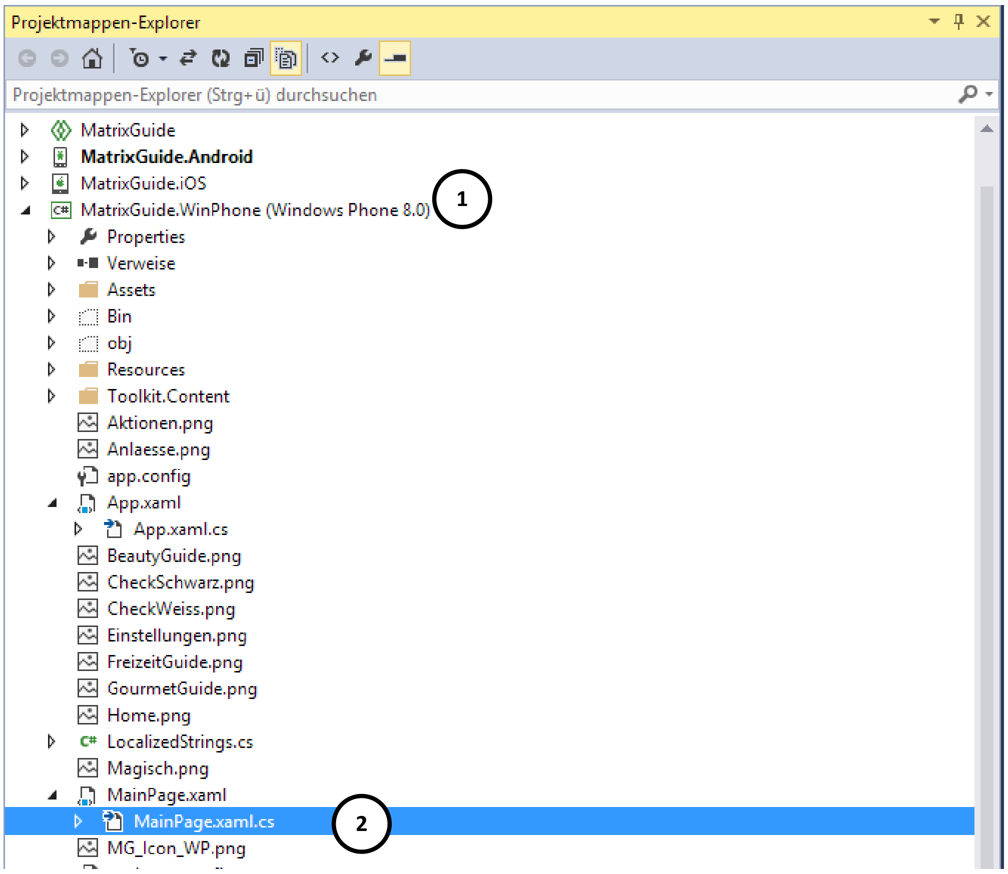
```
var container = new XLabs.Ioc.SimpleContainer(); // Create SimpleCOntainer
container.Register<IDevice>(t => AppleDevice.CurrentDevice); // Register Device
container.Register<IGeolocator, Geolocator>(); // Register Geolocator
Resolver.SetResolver(container.GetResolver()); // Resolving the services
```

4.2.3 My AppDelegate.cs after adding XLabs

```
using System;
using System.Collections.Generic;
using System.Linq;

using Foundation;
using UIKit;

using Xamarin.Forms;

// New Xlabs
using XLabs.Ioc;  // Using for SimpleContainer
using XLabs.Platform.Services.Geolocation;  // Using for Geolocation
using XLabs.Platform.Device; // Using for Device
// End new Xlabs

namespace MatrixGuide.iOS
{
    [Foundation.Register("AppDelegate")]
    public partial class AppDelegate :
    global::Xamarin.Forms.Platform.iOS.FormsApplicationDelegate
    {
        UIWindow window;
        public override bool FinishedLaunching(UIApplication app, NSDictionary options)
        {

// New Xlabs
            var container = new XLabs.Ioc.SimpleContainer();
            container.Register<IDevice>(t => AppleDevice.CurrentDevice);
            container.Register<IGeolocator, Geolocator>();
            Resolver.SetResolver(container.GetResolver());
// End new Xlabs

            Forms.Init();
            Xamarin.FormsMaps.Init();
            LoadApplication(new App());
            return base.FinishedLaunching(app, options);
        }
    }
}
```

4.2.4 Windows-Phone

In your solution, select the Windows-Phone-project **(1)** and open **MainPage.xaml.cs (2)**


Projektmappen-Explorer
Projektmappen-Explorer (Strg+ü) durchsuchen

```
MatrixGuide
MatrixGuide.Android
MatrixGuide.iOS
MatrixGuide.WinPhone (Windows Phone 8.0)   1
    Properties
    Verweise
    Assets
    Bin
    obj
    Resources
    Toolkit.Content
    Aktionen.png
    Anlaesse.png
    app.config
    App.xaml
        App.xaml.cs
    BeautyGuide.png
    CheckSchwarz.png
    CheckWeiss.png
    Einstellungen.png
    FreizeitGuide.png
    GourmetGuide.png
    Home.png
    LocalizedStrings.cs
    Magisch.png
    MainPage.xaml
        MainPage.xaml.cs   2
    MG_Icon_WP.png
```

4.2.5 My MainPage.xaml.cs before adding XLabs

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Net;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Navigation;
using Microsoft.Phone.Controls;
using Microsoft.Phone.Shell;

using Xamarin.Forms;

namespace MatrixGuide.WinPhone
{
public partial class MainPage : global::Xamarin.Forms.Platform.WinPhone.FormsApplicationPage
{
        public MainPage()
        {
            InitializeComponent();
            SupportedOrientations = SupportedPageOrientation.PortraitOrLandscape;
            global::Xamarin.Forms.Forms.Init();
            Xamarin.FormsMaps.Init();
            LoadApplication(new MatrixGuide.App());
        }
    }
}
```

4.2.6 Code to add

Using's:

```
using XLabs.Ioc;  // Using for SimpleContainer
using XLabs.Platform.Services.Geolocation;  // Using for Geolocation
using XLabs.Platform.Device; // Using for Device
```

Code:

```
var container = new SimpleContainer();// Create SimpleContainer
container.Register<IDevice>(t => WindowsPhoneDevice.CurrentDevice); // Register Device
container.Register<IGeolocator, Geolocator>(); // Register Geolocator
Resolver.SetResolver(container.GetResolver()); // Resolving the services
```

4.2.7 My MainPage.xaml.cs after adding XLabs

```
using System.Collections.Generic;
using System.Linq;
using System.Net;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Navigation;
using Microsoft.Phone.Controls;
using Microsoft.Phone.Shell;

using Xamarin.Forms;

// New Xlabs
using XLabs.Ioc;
using XLabs.Platform.Services.Geolocation;
using XLabs.Platform.Device;
// End new Xlabs

namespace MatrixGuide.WinPhone
{
    public partial class MainPage :
global::Xamarin.Forms.Platform.WinPhone.FormsApplicationPage
    {
        public MainPage()
        {
            InitializeComponent();
            SupportedOrientations = SupportedPageOrientation.PortraitOrLandscape;
// New Xlabs
            var container = new SimpleContainer();
            container.Register<IDevice>(t => WindowsPhoneDevice.CurrentDevice);
            container.Register<IGeolocator, Geolocator>();
            Resolver.SetResolver(container.GetResolver());
// End new Xlabs

            global::Xamarin.Forms.Forms.Init();
            Xamarin.FormsMaps.Init();
            LoadApplication(new MatrixGuide.App());
        }
    }
}
```

4.3 Using the services (example to geolocation- and device-service)

Especially behind the device-service, there is a **huge functionality with various "sub-services"**.
In the following, I have documented, the functionality (by inspect the objects). The example-values were queried with an Android-tablet SM-T900, connected via WLAN.
Note: I suggest you, to encapsulate the code in a try catch and check the objects for Null, when you implement it. By my tests, I further have noted some problems (crash) with the debugger (not on device). But.. this seems to be a problem with the Xamarin-VS-extensions.

➢ ***Please read also the chapter "Important notes"***

4.3.1 Usings

Usings:

```
using XLabs.Platform.Device;
using XLabs.Platform;
using XLabs.Ioc;
using XLabs.Platform.Services.Geolocation;
```

4.3.2 Geolocation Service

```
var oGeolocator = Resolver.Resolve<IGeolocator>(); // Resolve the Geolocator over the resolver
//oGeolocator.DesiredAccuracy property that gets or sets the Accuracy
//oGeolocator.GetPositionAsync() method to get the current position
//oGeolocator.IsGeolocationAvailable property: geolocation implemented on device?
//oGeolocator.IsGeolocationEnabled propery: geolocation enabled?
//oGeolocator.IsListening property: Listening is actived?
//oGeolocator.PositionChanged event
//oGeolocator.PositionError event
//oGeolocator.StartListening() Method that starts the Listening
//oGeolocator.StopListening Method that stops the Listening
//oGeolocator.SupportsHeading property
```

4.3.3 Device-Service

```
var device = Resolver.Resolve<IDevice>(); // Resolve the device over the resolver
var oDisplay = device.Display; // create display-interface
//
var iBreite = oDisplay.Width; // Returns EG: 2560
var iHoehe = oDisplay.Height; // Returns EG: 1600
var iXdpi = oDisplay.Xdpi; // Returns EG: 248.182998657227
var iYdpi = oDisplay.Ydpi; // Returns EG: 247.804000854492
//
var HW = device.HardwareVersion; // Returns EG: "universal5420"
var FirmWareVersion = device.FirmwareVersion; // Returns EG: "4.4.2"
var Manufacturer = device.Manufacturer; // Returns EG: "samsung"
var ID = device.Id; // Returns EG: "5205ce9c4b88215b"
var DeviceOrientation = device.Orientation; // Returns EG: XLabs.Enums.Orientation.Portrait
var Memory = device.TotalMemory; // Returns EG: 2910535680
var DeviceName = device.Name; // Returns EG: "SM-T900"
var cTimeZone = device.TimeZone; // Returns EG: "Europe/Zurich"
var cLanguageCode = device.LanguageCode; // Returns EG: "de"

//Further methods to Device
//device.HeightRequestInInches() // method, that convert inches to RunTimePixel for Height
//device.WidthRequestInInches() //  method, that convert inches to RunTimePixel for Width
//device.IsInLandscape() // method that returns, if the device is in Landscape-mode
//device.IsInPortrait() // method that returns, if the device is in Portrait-mode

//
var oNetwork = device.Network; // Create Interface to Network-functions
var xx = oNetwork.InternetConnectionStatus();// Returns EG:
XLabs.Platform.Services.NetworkStatus.ReachableViaWiFiNetwork

TimeSpan TSTimeOut = new TimeSpan(1000);
var NetworkAvailable = oNetwork.IsReachable("172.2.13.33", TSTimeOut); // Returns EG: Id = 53,
Status = Running
//Further properties / methods / events:
//oNetwork.IsReachableByWifi()
//oNetwork.ReachabilityChanged event

var oBlueTooth = device.BluetoothHub; // Create Interface to BluetoothHub
//Further properties / methods / events:
//oBlueTooth.Enabled property
//oBlueTooth.GetPairedDevices()
//oBlueTooth.GetType()
//oBlueTooth.OpenSettings()

var oMicroPhone = device.Microphone; // Create Interface to Microphone
//Further properties / methods / events:
//oMicroPhone.BitsPerSample property
//oMicroPhone.SampleRate property
//oMicroPhone.SupportedSampleRates property
//oMicroPhone.ChannelCount property
//oMicroPhone.OnBroadcast event
//oMicroPhone.Start() method to start recording
//oMicroPhone.Stop()method to stop recording

var oAccelometer = device.Accelerometer; // Create Interface to Accelerometer
//Further properties / methods / events:
//oAccelometer.Interval property
//oAccelometer.LatestReading property
//oAccelometer.ReadingAvailable event
```

```
var oBattery = device.Battery; // Create Interface to Battery
//Further properties / methods / events:
//oBattery.Charging property
//oBattery.Level property
//oBattery.OnChargerStatusChanged event
//oBattery.OnLevelChange event

var oFileManager = device.FileManager; // Create Interface to FileManager
//Further properties / methods / events:
//oFileManager.CreateDirectory() method
//oFileManager.DirectoryExists() method
//oFileManager.FileExists() method
//oFileManager.GetLastWriteTime() method
//oFileManager.OpenFile() method

var oGyroscope = device.Gyroscope;
//Further properties / methods / events:
//oGyroscope.Interval property
//oGyroscope.LatestReading property
//oGyroscope.ReadingAvailable event

var oMediaPicker = device.MediaPicker;
//Further properties / methods / events:
//oMediaPicker.IsCameraAvailable property
//oMediaPicker.IsPhotosSupported property
//oMediaPicker.OnError event Gets or sets the error
//oMediaPicker.OnMediaSelected event
//oMediaPicker.SelectPhotoAsync() // method, that select an image from library
//oMediaPicker.SelectVideoAsync() // method, that select a video from library
//oMediaPicker.TakePhotoAsync()  // method, that takes a Photo
//oMediaPicker.TakeVideoAsync()  // method, that takes a Video

var oPhoneServices = device.PhoneService;
//oPhoneServices.CanSendSMS property
//oPhoneServices.CellularProvider property
//oPhoneServices.DialNumber() method
//oPhoneServices.ICC property gets the ISO-Country-code
//oPhoneServices.IsCellularDataEnabled property
//oPhoneServices.IsCellularDataRoamingEnabled property
//oPhoneServices.IsNetworkAvailable property
//oPhoneServices.MCC property: Gets the Mobile country-code
//oPhoneServices.MNC property: gets the mobile network-code
//oPhoneServices.SendSMS() method to send a SMS
```

4.4 Important notes

4.4.1 Possible hurdles

By my implementation, I had some permission-problems with Android and with WP (see next chapter) and **huge problems** with the **iOS**-project (that have cost me full two days):

First, I had a problem, that my project was not updated properly to the new iOS-unified API by the Xamarin-"migration-tool":
"Self-explaining" error-message (translated from German to English):
"Lambda Expression cannot be translated to system.type as it is no delegate-type"

Then I had problems with the add-in Xamarin.Mobile (that I use for Geolocation)

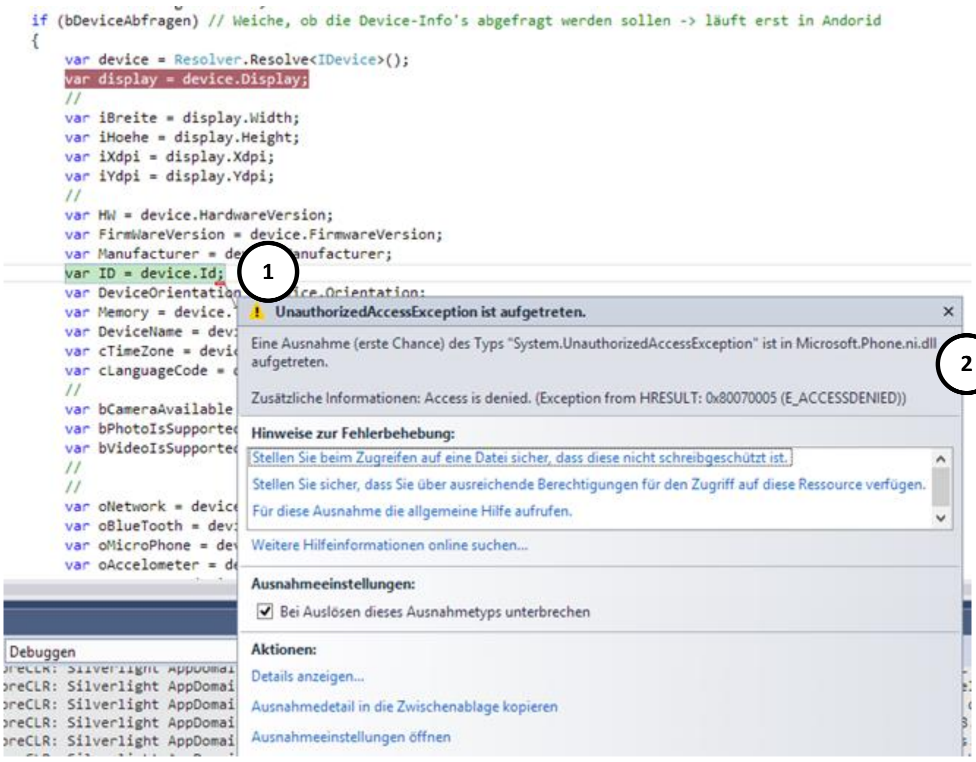
Error-message:
Cannot include both 'monotouch.dll' and 'Xamarin.iOS.dll' in the same Xamarin.iOS project - 'Xamarin.iOS.dll' is referenced explicitly, while 'monotouch.dll' is referenced by 'Xamarin.Mobile, Version=0.7.1.0, Culture=neutral, PublicKeyToken=null'.

The problem is, that you have to use Xamarin.Mobile 0.7.**5**, what is **not** available via NuGet.

If you also have such problems, you can have a look at my posting in the forum here
http://forums.xamarin.com/discussion/35928/information-problems-update-xf-to-unified-appledevice-xamarin-mobile-xlabs#latest

4.4.2 Windows Phone

Depending on what services you use, you have to enhance the rights for your Application.
When I have implemented / tested the device-service in my WP-Project, I had e.g. the following crash:



```
if (bDeviceAbfragen) // Weiche, ob die Device-Info's abgefragt werden sollen -> läuft erst in Andorid
{
    var device = Resolver.Resolve<IDevice>();
    var display = device.Display;
    //
    var iBreite = display.Width;
    var iHoehe = display.Height;
    var iXdpi = display.Xdpi;
    var iYdpi = display.Ydpi;
    //
    var HW = device.HardwareVersion;
    var FirmWareVersion = device.FirmwareVersion;
    var Manufacturer = de     anufacturer;
    var ID = device.Id;
    var DeviceOrientation     ice.Orientation;
    var Memory = device.
    var DeviceName = dev
    var cTimeZone = devic
    var cLanguageCode = d
    //
    var bCameraAvailable
    var bPhotoIsSupporte
    var bVideoIsSupporte
    //
    //
    var oNetwork = device
    var oBlueTooth = dev
    var oMicroPhone = dev
    var oAccelometer = de
```

```
Debuggen
oreCLR: Silverlight AppDomai
oreCLR: Silverlight AppDomai
oreCLR: Silverlight AppDomai
oreCLR: Silverlight AppDomai
```

UnauthorizedAccessException ist aufgetreten.

Eine Ausnahme (erste Chance) des Typs "System.UnauthorizedAccessException" ist in Microsoft.Phone.ni.dll aufgetreten.

Zusätzliche Informationen: Access is denied. (Exception from HRESULT: 0x80070005 (E_ACCESSDENIED))

Hinweise zur Fehlerbehebung:

Stellen Sie beim Zugreifen auf eine Datei sicher, dass diese nicht schreibgeschützt ist.
Stellen Sie sicher, dass Sie über ausreichende Berechtigungen für den Zugriff auf diese Ressource verfügen.
Für diese Ausnahme die allgemeine Hilfe aufrufen.

Weitere Hilfeinformationen online suchen...

Ausnahmeeinstellungen:

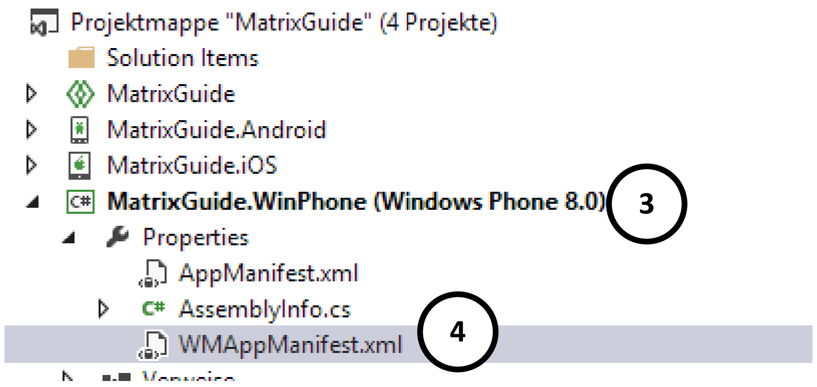
☑ Bei Auslösen dieses Ausnahmetyps unterbrechen

Aktionen:

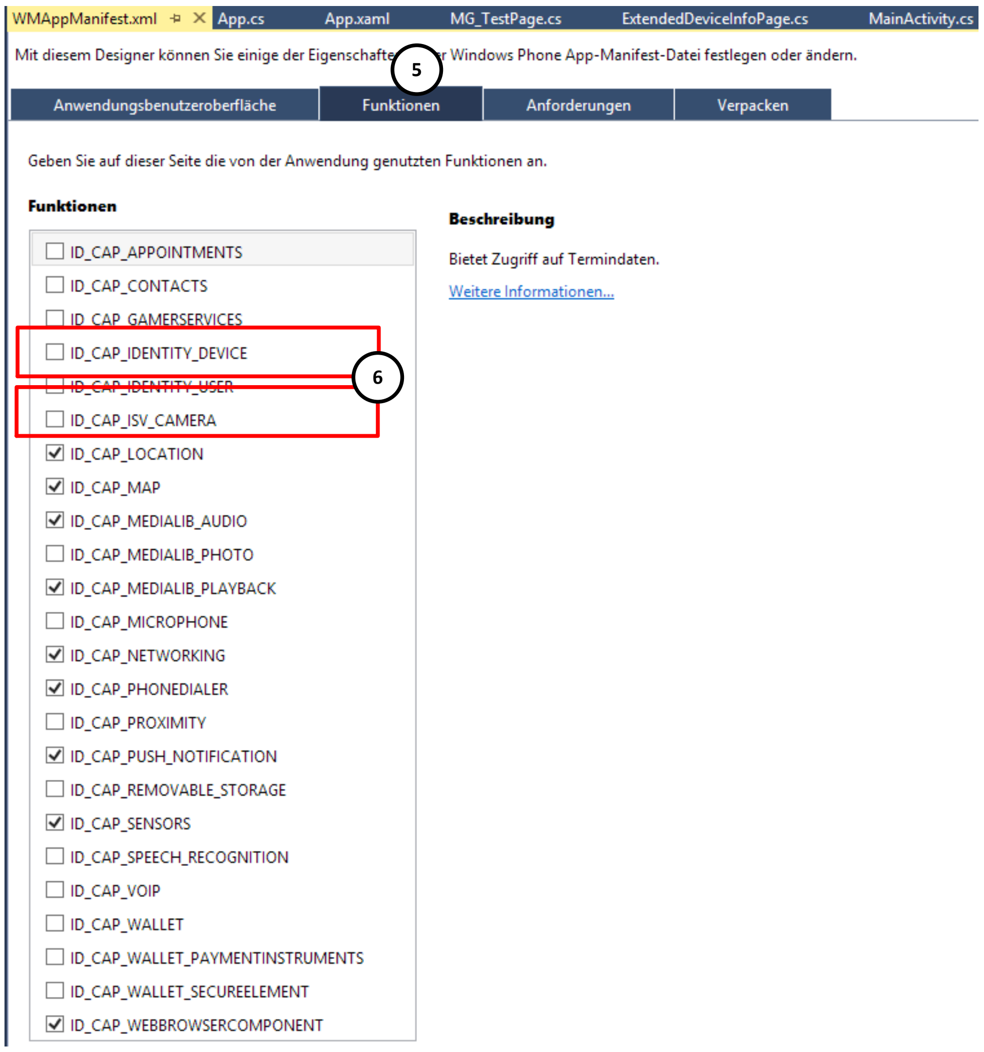
Details anzeigen...
Ausnahmedetail in die Zwischenablage kopieren
Ausnahmeeinstellungen öffnen

- The app has crashed, by trying to get the device.id **(1)** (and further by trying accessing the device-Capabilities (like `device.MediaPicker.IsCameraAvailable`)
- In WP, there is fortunately a meaningful message showed in debugger **(2)**, so I have seen, that I had to set additional permissions.

For WP, select your Windows Phone project **(3)** and open the File **“WMAppManifest.xml” (4):**



Projektmappe "MatrixGuide" (4 Projekte)
Solution Items
MatrixGuide
MatrixGuide.Android
MatrixGuide.iOS
MatrixGuide.WinPhone (Windows Phone 8.0)
Properties
AppManifest.xml
AssemblyInfo.cs
WMAppManifest.xml



WMAppManifest.xml App.cs App.xaml MG_TestPage.cs ExtendedDeviceInfoPage.cs MainActivity.cs

Mit diesem Designer können Sie einige der Eigenschaften der Windows Phone App-Manifest-Datei festlegen oder ändern.

Anwendungsbenutzeroberfläche | Funktionen | Anforderungen | Verpacken

Geben Sie auf dieser Seite die von der Anwendung genutzten Funktionen an.

Funktionen

- [ ] ID_CAP_APPOINTMENTS
- [ ] ID_CAP_CONTACTS
- [ ] ID_CAP_GAMERSERVICES
- [ ] ID_CAP_IDENTITY_DEVICE
- [ ] ID_CAP_IDENTITY_USER
- [ ] ID_CAP_ISV_CAMERA
- [x] ID_CAP_LOCATION
- [x] ID_CAP_MAP
- [x] ID_CAP_MEDIALIB_AUDIO
- [ ] ID_CAP_MEDIALIB_PHOTO
- [x] ID_CAP_MEDIALIB_PLAYBACK
- [ ] ID_CAP_MICROPHONE
- [x] ID_CAP_NETWORKING
- [x] ID_CAP_PHONEDIALER
- [ ] ID_CAP_PROXIMITY
- [x] ID_CAP_PUSH_NOTIFICATION
- [ ] ID_CAP_REMOVABLE_STORAGE
- [x] ID_CAP_SENSORS
- [ ] ID_CAP_SPEECH_RECOGNITION
- [ ] ID_CAP_VOIP
- [ ] ID_CAP_WALLET
- [ ] ID_CAP_WALLET_PAYMENTINSTRUMENTS
- [ ] ID_CAP_WALLET_SECUREELEMENT
- [x] ID_CAP_WEBBROWSERCOMPONENT

Beschreibung

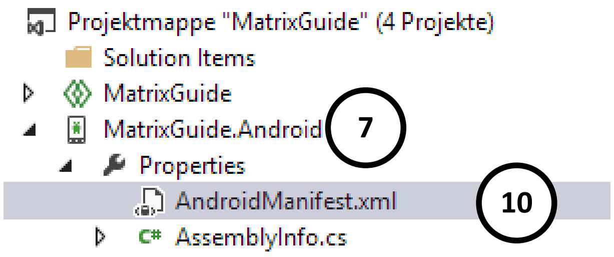
Bietet Zugriff auf Termindaten.

Weitere Informationen...

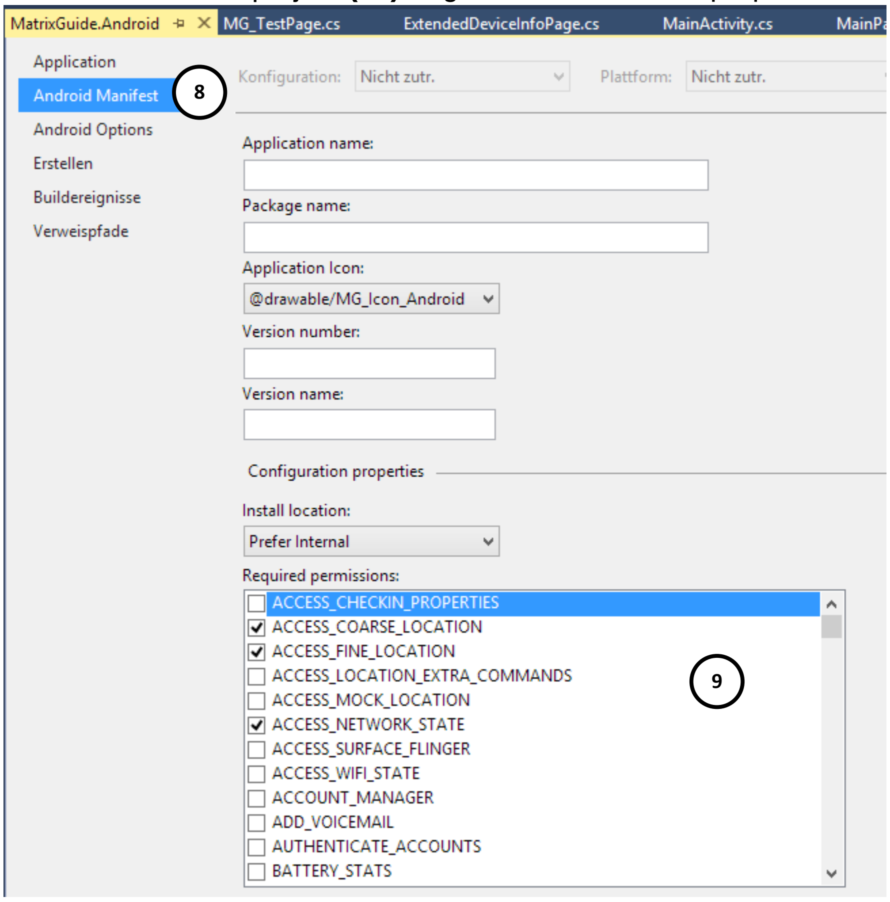
Select the tab **“Functions” (5)** and set the needed permissions **(6)**

4.4.3 Android

To add permissions to Android:



- Select the Android-project **(7)** - right-click and select “properties”:



Konfiguration: Nicht zutr. Plattform: Nicht zutr.

Application name:

Package name:

Application Icon: @drawable/MG_Icon_Android

Version number:

Version name:

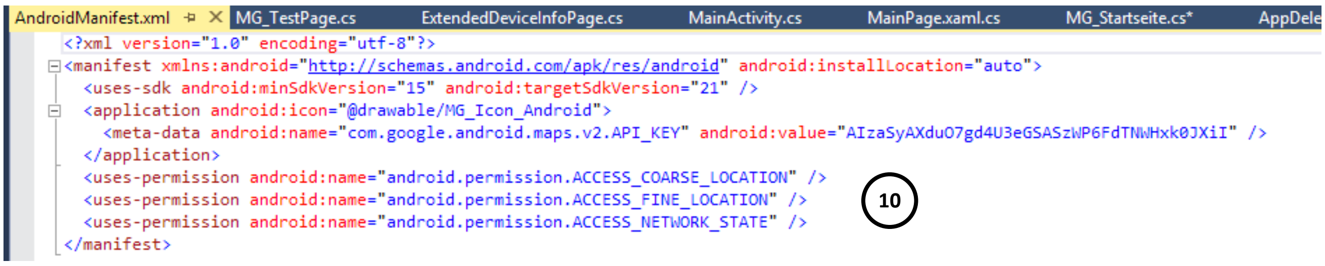
Configuration properties

Install location: Prefer Internal

Required permissions:

- [ ] ACCESS_CHECKIN_PROPERTIES
- [x] ACCESS_COARSE_LOCATION
- [x] ACCESS_FINE_LOCATION
- [ ] ACCESS_LOCATION_EXTRA_COMMANDS
- [ ] ACCESS_MOCK_LOCATION
- [x] ACCESS_NETWORK_STATE
- [ ] ACCESS_SURFACE_FLINGER
- [ ] ACCESS_WIFI_STATE
- [ ] ACCOUNT_MANAGER
- [ ] ADD_VOICEMAIL
- [ ] AUTHENTICATE_ACCOUNTS
- [ ] BATTERY_STATS

- Select Tab “Android Manifest” **(8)** and **set the needed permissions (9)**



```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android" android:installLocation="auto">
  <uses-sdk android:minSdkVersion="15" android:targetSdkVersion="21" />
  <application android:icon="@drawable/MG_Icon_Android">
    <meta-data android:name="com.google.android.maps.v2.API_KEY" android:value="AIzaSyAXduO7gd4U3eGSASzWP6FdTNWHxk0JXiI" />
  </application>
  <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />
  <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
  <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
</manifest>
```

- The settings then are stored in the file **“AndroidManifest.xml” (10)**