

App Starters (v2.4.x)

Xamarin Forms Shopping Cart

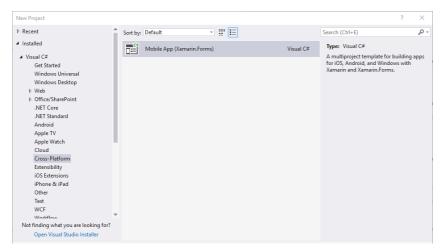
Getting Started

To start developing Xamarin application first you need to install Visual Studio or Xamarin Studio and make sure to include all necessary Xamarin components. For this example, we will use Visual Studio. On this <u>link</u> you can read step by step how to download and install Visual Studio for Xamarin applications.

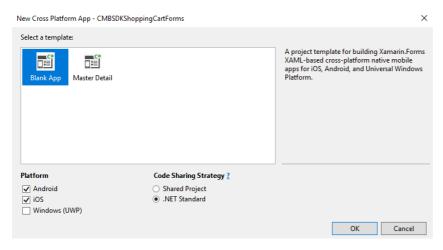
In this section we have basic explanation how this demo project is developed. If you need more detailed explanation and more information about the objects and methods please check this \underline{link}

Once you finish with installation open Visual Studio and follow these steps:

- 1. Go to File -> New -> Project.
- 2. Create Mobile App (Xamarin.Forms).



3. Select Blank App template for Android and iOS platform and .NET Standard code sharing strategy.



This solution contains three projects:

1.Portable Class Libraries (PCL) Project



A Portable Class Library (PCL) is a special type of project that can be used across disparate CLI platforms such as Xamarin.iOS and Xamarin.Android, as well as WPF, Universal Windows Platform, and Xbox. The library can only utilize a subset of the complete .NET framework, limited by the platforms being targeted.

2. Android Platform-Specific Application Project

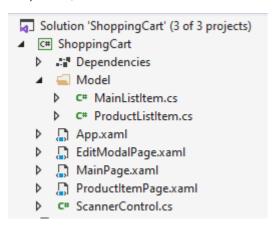
Android platform-specific project must reference the assemblies required to bind Xamarin. Android platform SDK, as well as the Core, shared code project.

3. iOS Platform-Specific Application Project

iOS platform-specific project must reference the assemblies required to bind Xamarin.iOS platform SDK, as well as the Core, shared code project.

Portable Class Libraries (PCL) Project

In the portable project we have **MainPage** where all main lists are presented, **ProductItemPage** where are shown all products for a specific list, **EditModalPage** is a custom popup to edit list/product name, **MainListItem** and **ProductListItem** models that present list items for lists/products, and **ScannerControl** custom View control.



ScannerControl is a class that inherits from Xamarin. Forms. View control and we add some additional custom properties and event handlers. Later we will implement <u>custom renderer</u> for this class in platform-specific projects.

Here we are using ScannerControl in ProductItemPage to add new or edit an existing items.

```
→ ContentPage
          <?xml version="1.0" encoding="utf-8" ?>
         □<ContentPage xmlns="http://xamarin.com/schemas/2014/forms'
                       xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
                       xmlns:local="clr-namespace:ShoppingCart"
     5
                       x:Class="ShoppingCart.ProductItemPage">
     6
              <ContentPage.Content>
                  <Grid x:Name="mainGrid" HorizontalOptions="FillAndExpand" VerticalOptions="FillAndExpand
     8
                      <Grid.RowDefinitions>
                          <RowDefinition Height="1*" />
     9
                          <RowDefinition Height="2*" />
    10
                          <RowDefinition Height="Auto" />
    11
    12
                      </Grid.RowDefinitions>
    13
                      <Grid x:Name="gridCamera">
                          <Label Text="Press barcode to start scanning" HorizontalOptions="CenterAndExpand</pre>
    14
                          <Label x:Name="lblStatus" Text=" Disconnected " TextColor="White" FontSize="11"</pre>
    15
                          <Label x:Name="lblSdkVersion" Text="N/A" FontSize="11" VerticalOptions="End" Hor</pre>
    16
                          <Image x:Name="resultImage" Aspect="AspectFit" HorizontalOptions="Fill" Vertical</pre>
    17
                          18
    19
    20
                      <ListView Grid.Row="1" x:Name="lstProductsList" HorizontalOptions="FillAndExpand" Ve</pre>
    21
                          <ListView.ItemTemplate>
    22
                              <DataTemplate>
    23
                                  <ViewCell>
    24
                                      <Grid HorizontalOptions="FillAndExpand" VerticalOptions="CenterAndEx</pre>
    25
                                          <Grid.ColumnDefinitions>
                                              <ColumnDefinition Width="Auto" />
    26
                                              <ColumnDefinition Width="*" />
```

In code behind first we need to initialize, connect and configure scannerControl in order to start scanning process

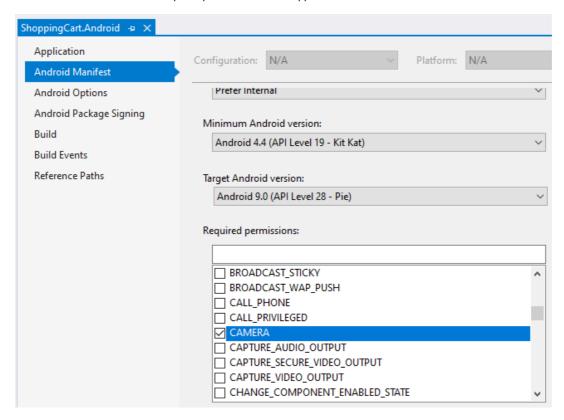
With scannerControl.StartScanning() we start the scanning process



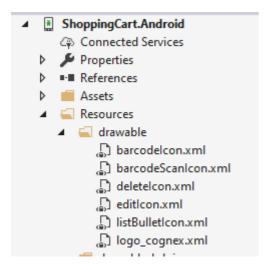
Android Platform-Specific Project

In this project we will set all settings that we need for android platform (min android version, target android version, app name, package name ...), require permissions that we need, add resources for android platform, create custom renderers for android platform, etc...

First we will check Camera as required permission for this application.

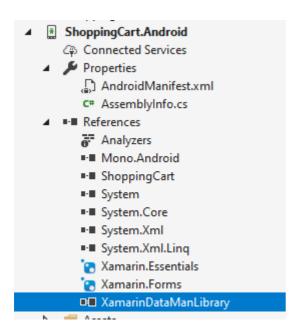


Next will add resources(that we use in portable project) in drawable folder.



Now we need to reference XamarinDataManLibrary.dll in order to use the cmbSDK.

COGNEX



At the time when this document is written, there is a bug for Xamarin Forms with navigation bar icon on the android platform, that's why in this project we have a small modification on **Toolbar.axml** and there is a custom renderer for Navigation Page(**CustomNavigationRenderer**).

Here we will create custom renderer for ScannerControl (PCL custom control) for Android platform. You don't need to edit this class. Use the same one in your project

```
[assembly: Xamarin.Forms.ExportRenderer(typeof(ShoppingCart.ScannerControl), typeof(ShoppingCart.Droid.ScannerControl))]
namespace ShoppingCart.Droid
    public class ScannerControl : ViewRenderer<ShoppingCart.ScannerControl, RelativeLayout>, IOnConnectionCompletedListener
        IReaderDeviceListener, IOnSymbologyListener
        private RelativeLayout rlMainContainer;
        private ReaderDevice readerDevice;
        private bool availabilityListenerStarted = false;
        private static Bitmap svgBitmap;
        public ScannerControl(Context context) : base(context)
        protected override void OnElementChanged(ElementChangedEventArgs<ShoppingCart.ScannerControl> e)
            base.OnElementChanged(e);
            if (e.OldElement != null || Element == null)
                return:
            rlMainContainer = new RelativeLayout(Context)
                LayoutParameters = new RelativeLayout.LayoutParams(RelativeLayout.LayoutParams.MatchParent, RelativeLayout.
            };
```

iOS Platform-Specific Project

In this project, we will set all settings that we need for the ios platform (deployment target, app name, bundle identifier ..), require permissions that we need, add assets, create custom renderers for the ios platform, etc...

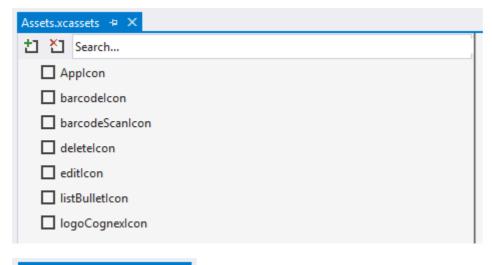


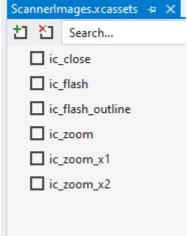
Open Info.plist file with some text editor and add the following lines:

<key>NSCameraUsageDescription</key>
<string>Camera used for scanning</string>

NSCameraUsageDescription key is for camera permission.

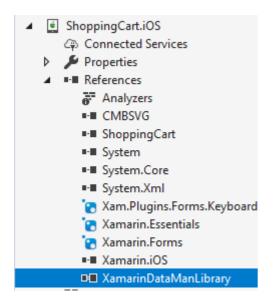
Next will add new icons in the Assets catalog and will create one more asset catalog named ScannerImages and add icons in that catalog





Now we need to reference XamarinDataManLibrary.dll in order to use the cmbSDK.

COGNEX



ScannerControl class is custom renderer for ScannerControl(PCL custom control) for iOS platform.

Licensing the SDK

If you plan to use the **cmbSDK** to do mobile scanning with a smartphone or a tablet (without the MX mobile terminal), the SDK requires the installation of a license key. Without a license key, the SDK will still operate, although scanned results will be blurred (the SDK will randomly replace characters in the scan result with an asterisk character).

Contact your Cognex Sales Representative for information on how to obtain a license key including trial licenses which can be used for 30 days to evaluate the SDK.

After obtaining your license key there are two ways to add your license key to an application.



For Android Platform open your manifest file and add this meta tag inside the application tag

```
<meta-data android:name="MX_MOBILE_LICENSE" android:value="YOUR_MX_MOBILE_LICENSE" />
```

or you can register your SDK directly from code when you create camera scanner

```
// Create a scanner device
        private void CreateScannerDevice()
            // Create a camera scanner
           //
            // NOTE: SDK requires a license key. Refer to
                     the SDK's documentation on obtaining a license key as well as the methods for
            //
            //
                     passing the key to the SDK (in this example, we're relying on an entry in
                     plist.info and androidmanifest.xml--also sdk key can be passed
            //
                     as a parameter in this (GetPhoneCameraDevice) constructor).
            scanner Control. Get Phone Camera Device (Scanner Camera Mode. No Aimer, Scanner Preview Option. Defaults, false, "SDK\_KEY") \\
            // Connect to device
            scannerControl.Connect():
       }
```

For iOS Platform open Info.plist file and add this key

```
<key>MX_MOBILE_LICENSE</key>
<string>Your license key</string>
```

or you can register your SDK directly from code when you create camera scanner

```
// Create a scanner device
                                 private void CreateScannerDevice()
                                                   // Create a camera scanner
                                                  //
                                                  // NOTE: SDK requires a license key. Refer to
                                                                                         the SDK's documentation on obtaining a license key as well as the methods for
                                                   //
                                                   //
                                                                                          passing the key to the SDK (in this example, we're relying on an entry in
                                                   //
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                                                   scanner Control. Get Phone Camera Device (Scanner Camera Mode. No Aimer, Scanner Preview Option. Defaults, false, "SDK\_KEY") and the properties of the control of the properties of the proper
                                                   // Connect to device
                                                   scannerControl.Connect();
                                 }
```