Course API Comparison
Chapter C6:
A Silverlight 3 Browser Application written in Xaml and C#

For an introduction into Microsoft Silverlight see: **Silverlight**
Comparison of XBAP with Silverlight: **XBAP and Silverlight**

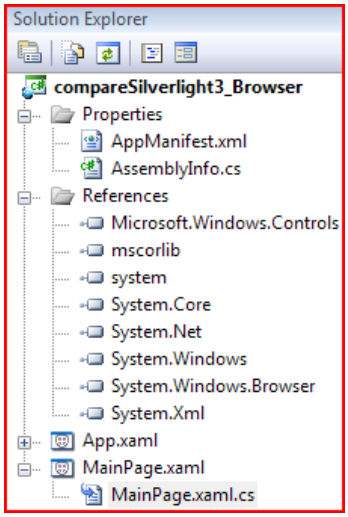
Microsoft Silverlight 3 is a lightweight subsets of WPF aimed to compete with Adobe Flex 3 for RIAs.
Advantages: own SDK, integration in DotNet, all DotNet-languages, seamless with server programming.
Disadvantages: fewer graphical components, smaller developer community, fewer browser plug ins.

Preliminaries

Install 1) **Visual Web Developer 2008 Express Edition with Service Pack 1 English**
and 2) **Silverlight 3 Tools for Visual Studio 2008 SP1**
and 3) **Silverlight 3 Toolkit July 2009 Installer**.

Guidance for **Visual Web Developer 2008 Express** and **Silverlight 3 Beta**:

1) Main menu after start of VWD Express: `Tools → Options... →`
check lower left checkbox: `Show all Settings →`
`→ Projects and Solutions → Projects location: → C:\temp`.
`→ Text Editor` (double click) `→ All Languages` (double click) `→ Tabs →`
`Indenting: None → Tab size: 2 → Insert spaces`.
`→ Text Editor` (double click) `→ C#` (double click) `→ Formatting →`
uncheck all three check boxes `→ OK`.
`→ Text Editor` (double click) `→ XAML` (double click) `→ Tabs →`
`Indenting: None → Tab size: 1, Indent size: 1 →`
`Insert spaces`.
`→ Text Editor` (double click) `→ XAML` (double click) `→ Formatting →`
uncheck all `Auto-Formatting Events → OK`.



2) Main menu after start of VWD 2008 Express: `File → New Project... →`
`Project types: Visual C#` (double click) `→ Silverlight →`
`Templates: Silverlight Application`
`Name: compareSilverlight3_Browser → Location: C:\temp\API →`
`Create directory for solution:` switch off `→ OK`.
An `Add Silverlight Application`-Window appears.
Uncheck the checkbox "`Host the Silverlight application in a new Web site`" `→ OK`.

3) In the `Solution Explorer` window right click branch `References →`
`Add Reference... →` Tab `Browse →`
Now you have to look where `Silverlight Toolkit` installed
`Microsoft.Windows.Controls.dll` and select it. `→`
Quit with `OK` and check whether `Microsoft.Windows.Controls`
arrived as sub-branch of `References`.

The `Solution Explorer` - window appears as shown on the right.

MainPage.xaml

Replace the default code of `MainPage.xaml` by the following lines:

```
<UserControl x:Class="compareSilverlight3_Browser.MainPage"
  xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:Toolkit="clr-namespace:Microsoft.Windows.Controls;assembly=Microsoft.Windows.Controls">
  <Toolkit:Viewbox x:Name="viewbox">
```

```
    <Border BorderBrush="Black" BorderThickness="2">
      <StackPanel Orientation="Horizontal" Margin="2">
        <Button Content="Talk!" Click="button1Click" HorizontalAlignment="Left"/>
        <TextBox Margin="2,0,2,0" MinWidth="300" TextAlignment="Center"/>
        <Button Content="Clear" Click="button2Click" HorizontalAlignment="Right"/>
      </StackPanel>
    </Border>
  </Toolkit:Viewbox>
</UserControl>
```

Caution: **The `Viewbox` from the Toolkit has a bug**.
It doesn't transfer the name `x:Name="textBox"` into the second part of the namespaces in `Page.xaml.cs`.
See: **http://mohammadabtahi.wordpress.com.**
For example, if you have xaml like this:
`<Toolkit:Viewbox x:Name="viewbox">`
`  <TextBox x:Name="textBox"> //Bug: textBox remains unknown in Page.xaml.cs`
`</Toolkit:Viewbox>`,
you can't reference the `TextBox` via variable `textBox` in `Page.xaml.cs`.
This is because `x:Name` is implemented by `InitializeComponent` with code like this:
`this.textBox = ((System.Windows.Controls.Button)(this.FindName("textBox")))`,
and `FindName` doesn't work across namespaces, so `textBox` will always be `null`.

MainPage.xaml.cs

Because of the bug in the `Viewbox` from the Toolkit we have to declare a new `TextBox` and link it manually in 3 steps to the `TextBox` that already has been defined in `MainPage.xaml`.
Replace the default code of `MainPage.xaml.cs` by the following lines:

```
using System;
using System.Windows;
using System.Windows.Controls;
namespace compareSilverlight3_Browser
{ public partial class MainPage : UserControl
  { TextBox textBox;                        //because of Viewbox bug
    public MainPage()
    { InitializeComponent();
      Border     b = (Border)viewbox.Child;  //because of Viewbox bug
      StackPanel s = (StackPanel)b.Child;    //because of Viewbox bug
      textBox      = (TextBox)s.Children[1]; //because of Viewbox bug
    }
    private void button1Click( object sender, RoutedEventArgs e )
    { textBox.Text = "Silverlight Browser Application in XAML + C#. Resize!";
    }
    private void button2Click( object sender, RoutedEventArgs e )
    { textBox.Text = "";
    }
  }
}
```

Click `Debug → Start Without Debugging Ctrl F5`.
Click the `Talk!`-button and resize the browser.

Switch the compiler to produce a release-mode XAP-file via the main menu after start of VWD 2008 Express: `Build → Configuration Manager... → Active solution configuration: Release → Close`. Click `Debug → Start Without Debugging Ctrl F5`.
Your `C:\temp\API\compareSilverlight3_Browser\bin\Release`-directory will contain a XAP-file `compareSilverlight3_Browser.xap` that can be incorporated into any HTML-page by:
1) Store it in the same directory as the housing HTML-page.
2) Call it at any line from inside the `<body></body>` tags of the HTML-page by inserting the following HTML-code:

```
<div id="silverlightControlHost" Align="Center">
 <object data="data:application/x-silverlight," type="application/x-silverlight-2"
  width="100%" height="100">
  <param name="source" value="compareSilverlight3_Browser.xap">
  <param name="minRuntimeVersion" value="3.0.40307.0" >
  <param name="autoUpgrade" value="true" >
  <a href="http://go.microsoft.com/fwlink/?LinkID=124807" style="text-decoration: none;">
   <img src="http://go.microsoft.com/fwlink/?LinkId=108181"
        alt="Get Microsoft Silverlight" style="border-style: none"></a>
 </object>
</div>
```

The current HTML-page has these lines here:

Out of Browser OOB

It is possible to detach `compareSilverlight3_Browser.xap` from its embedding `TestPage.html` and to create a stand-alone program that can be started in its own window. This mechanism works with all platforms and all browsers running the Silverlight 3 plug-in.

1. Main menu after start of VWD 2008 Express: `Project → compareSilverlight3_Browser Properties... →` Check the checkbox: `Enable running application out of the browser`. Click `Debug. → Start Without Debugging Ctrl F5. →` Your browser will display `C:/temp/compareSilverlight3_Browser/Bin/Release/TestPage.html` just showing `compareSilverlight3_Browser.xap` as before.

2. **Right**-click the browser content. A context menu will appear showing a line: `Install compareSilverlight3_Browser... onto this computer...`. Click it. → An `Install application`-window appears. → Uncheck the checkbox `Start menu` and check the checkbox `Desktop → OK`.

3. Our program now starts a window: `compareSilverlight3_Browser... - localhost` and at the same time a persistent new icon named: `compareSilverlight3_Browser...` will appear on your desktop. From now our application behaves on any platform as any normal application.

4. You can de-install everything and remove the icon from your desktop by a Right-click onto the content of a running `compareSilverlight3_Browser... - localhost`. A context menu will appear. Click the line: `Remove this application... → Are you sure you want to permanently remove this application ? → Yes`.

For more information how to make better "Out of Browser Silverlight Applications" see: **Tim Heuer's video**.