

ESRI Developer Summit

March 22–25, 2010
Palm Springs, CA

Working with the ArcGIS API for Microsoft Silverlight/WPF

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Agenda

- Introductions
- Overview
- General Enhancements overview
- Deep Dive
 - The improved Feature Layer
 - Editing Capabilities
 - Improved Binding Support
 - Time
- If we have time....



Microsoft
Silverlight



Microsoft
.NET

Windows
Presentation
Foundation

ArcGIS API for Silverlight/WPF V2
OVERVIEW

What is the ArcGIS API for Microsoft Silverlight/WPF?

- **Powerful Web and Desktop Mapping API**
- **Designed for the Silverlight and WPF Platforms**
- **Utilize ArcGIS Server, Bing Maps services**
- **Silverlight provides cross browser support**
- **WPF supports native 64 bit (x64) platforms**
- **Integrates with Microsoft development environments**



Libraries



- **ESRI.ArcGIS.Client.dll**
 - Map, ArcGIS Service Layers, Graphics, Geometry, Symbols
- **ESRI.ArcGIS.Client.Bing.dll**
 - Adds support for using Bing layers and services
- **ESRI.ArcGIS.Client.Behaviors.dll**
 - Element defined interactivity with a Map and its contents
- **ESRI.ArcGIS.Client.Toolkit.dll**
 - Common set of controls for map interaction
 - CodePlex URL: <http://esrisilverlight.codeplex.com>

General enhancements at V2

ENHANCEMENTS

GraphicsLayer Enhancements

- **New Actions enable you to manage selected features**
 - **SpatialSelectAction**
 - **ClearSelectAction**
- **Selected Graphics and SelectCount**
 - **Return information on the selected graphic features**
 - **Each Graphic feature maintains a Selected property**

FeatureLayer Enhancements

- **Query mode**
 - Technique for retrieving features from a service
 - Snapshot, On Demand, Selection Only
- **Editing**
 - Feature Layer is editable when it represents an editable layer in a Feature Service.
 - New “Editing” widgets available in the ToolKit
- **Selections**
 - Represent a subset of features
 - Can add/remove from selection set

Time Awareness



- Information about the changing state of data over time
- Supported by ArcGIS Server Map, Feature, and Image services
- Map has a time extent
 - Instance or span
 - Defines content rendered in time aware layers
- Components:
 - TimeExtent property and class
 - TimeSlider control

New GeometryServiceTask Operations

- **New operations:**
 - Autocomplete, Convex Hull, Cut, Densify, Difference, Distance, Generalize, Intersect, Offset, Reshape, Trim/Extend and Union.
- Lengths operation supports define output units and geodesic distances.
- Areas and Lengths operation supports output length and area units and geodesic calculations.

Other Enhancements

- **New solvers introduced with Network Analyst Service**
 - Closest Facility
 - Service Area
- **WKT support added**
- **New Widgets for Editing, Time, Feature Data Editing**
 - In Toolkit
- **Silverlight 4 and Visual Studio 10**

FeatureLayer (Rex Hansen)

DEEP DIVE

Editing (Morten Nielsen)

DEEP DIVE

Feature Editing

New helper class: `ESRI.ArcGIS.Client.Editor`

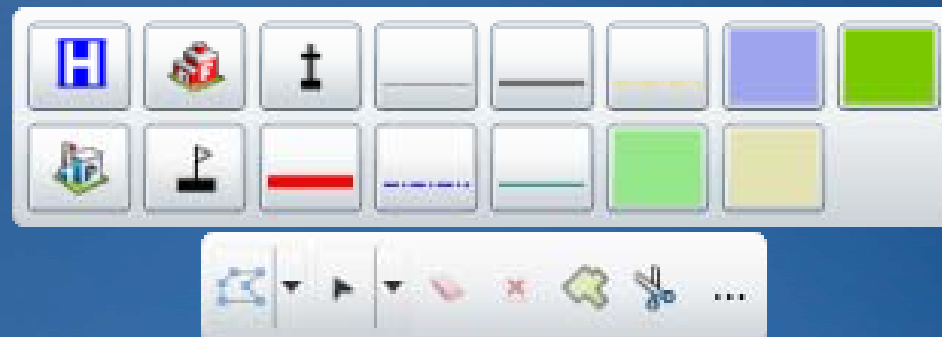
Manages drawing, editing, selection, undo, save etc.

TemplatePicker for choosing a feature template:

`ESRI.ArcGIS.Client.Toolkit.TemplatePicker`

Out of the box editor widget toolbar:

`ESRI.ArcGIS.Client.Toolkit.EditorWidget`



EditorWidget

DEMO

Feature Editing

Editor Class features:

- **11 available commands: Add, CancelActive, ClearSelection, Cut, DeleteSelected, EditVertices, Move, Reshape, Save, Select and Union.**
- **Some commands requires a geometry service.**
- **Save only works with FeatureLayers.**
- **Uses the ICommand interface for executing commands.**

Feature Editing

System.Windows.Input.ICommand interface:

```
public interface ICommand
{
    bool CanExecute(object parameter);
    void Execute(object parameter);
    event EventHandler CanExecuteChanged;
}
```

Supported by ButtonBase and HyperLink controls. Simple implementation for custom controls.

Feature Editing

Example:

```
<StackPanel DataContext="{StaticResource editor1}">
```

```
    <Button Command="{Binding Select}"  
           CommandParameter="Add"  
           Content="Add" />
```

```
    <Button Command="{Binding ClearSelection}"  
           Content="Clear" />
```

```
</StackPanel>
```

Creating a Redline Tool using the Editor class

DEMO

Silverlight 4 = MUCH simpler binding

Silverlight 3

```
<TextBlock Text="{Binding Attributes, Converter=  
    {StaticResource MyDictionaryConverter},  
    ConverterParameter=StateName}" />
```

Silverlight 4

```
<TextBlock Text="{Binding Attributes[StateName]}" />
```

Simple attribute editor (Silverlight 4 + ArcGIS API v2.0)

```
<TextBox Text="{Binding Attributes[StateName],  
    Mode=TwoWay}" />
```

Time (Rex Hansen)

DEEP DIVE

Sample Gallery

DEMO

More Silverlight/WPF sessions!

- **Working with the ArcGIS API for Microsoft Silverlight/WPF**
 - **Wed 2:45pm** **Primrose B (PSCC)**
- **Patterns and Best Practices for Building Applications with the ArcGIS API for Microsoft Silverlight/WPF**
 - **Thu 8:30am** **Primrose B (PSCC)**
- **Working with the ArcGIS API for Microsoft Silverlight/WPF**
 - **Thu 1:30pm** **Catalina/Madera (Renaissance Hotel)**

Questions ?

Please fill out the session surveys

Links and resources:

- Resource Center: <http://esriurl.com/sl>
- SDK Samples: <http://esriurl.com/slsdk>
- API Reference: <http://esriurl.com/slref>
- Silverlight/WPF Blog: <http://esriurl.com/slblog>

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