

An “ArcGIS Viewer” for WPF

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Goals:

- Write extensions instead of reinventing each app
- Support “skins” or XAML layouts
- Easy deployment
- Check for updates when connected to the network
- Reuse XAML and code in Silverlight

Inspiration: ArcGIS Viewer for Silverlight!

Application Structure:

\FieldApp

FieldApp.exe

FieldApp.Extensibility.dll

FieldAppUpdater.exe

\Config

MyConfig.xml

...

\Extensions

MyAddin.dll

...

\Dependencies

MyDependency.dll

...

\Layouts

MyLayout.xaml

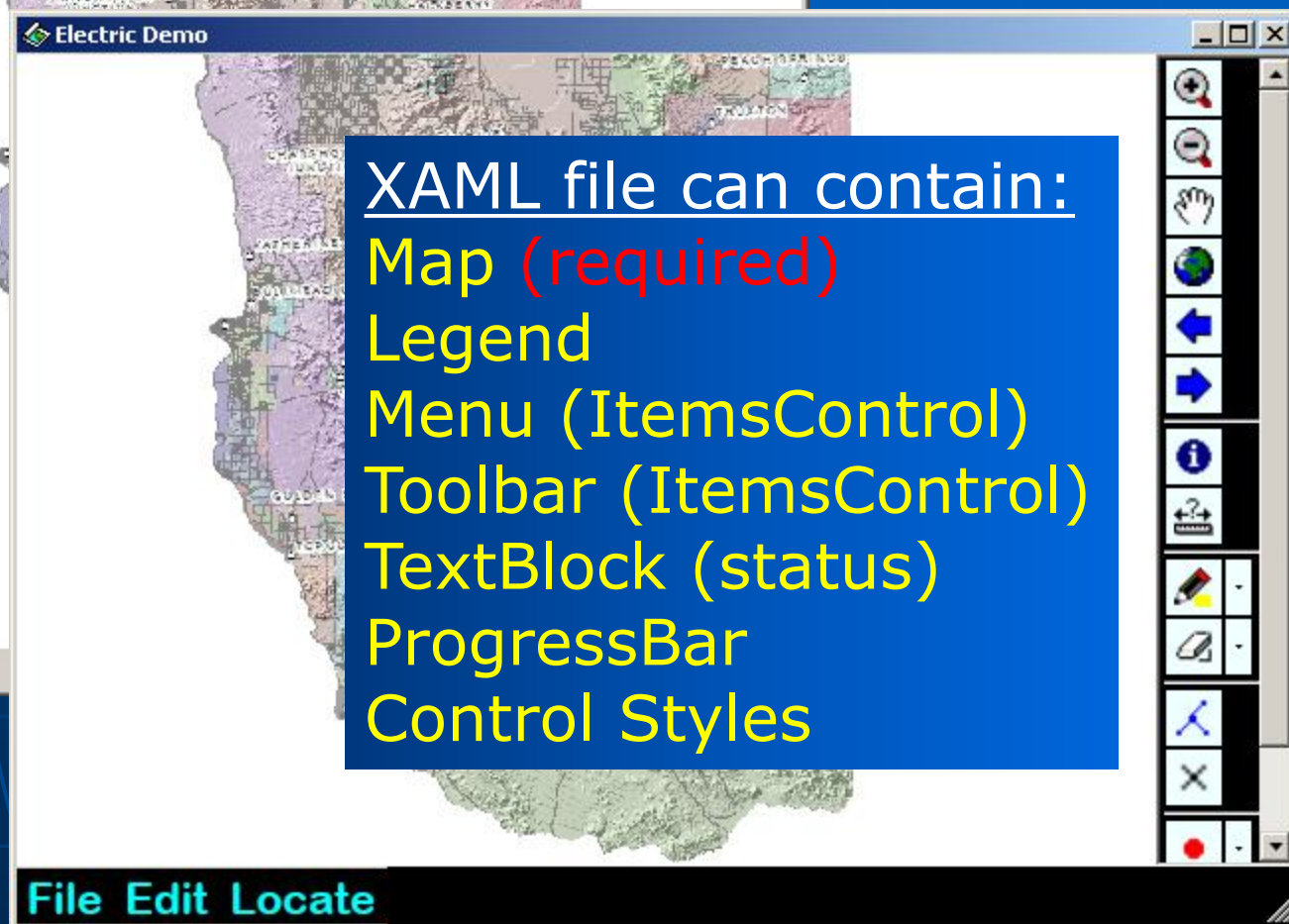
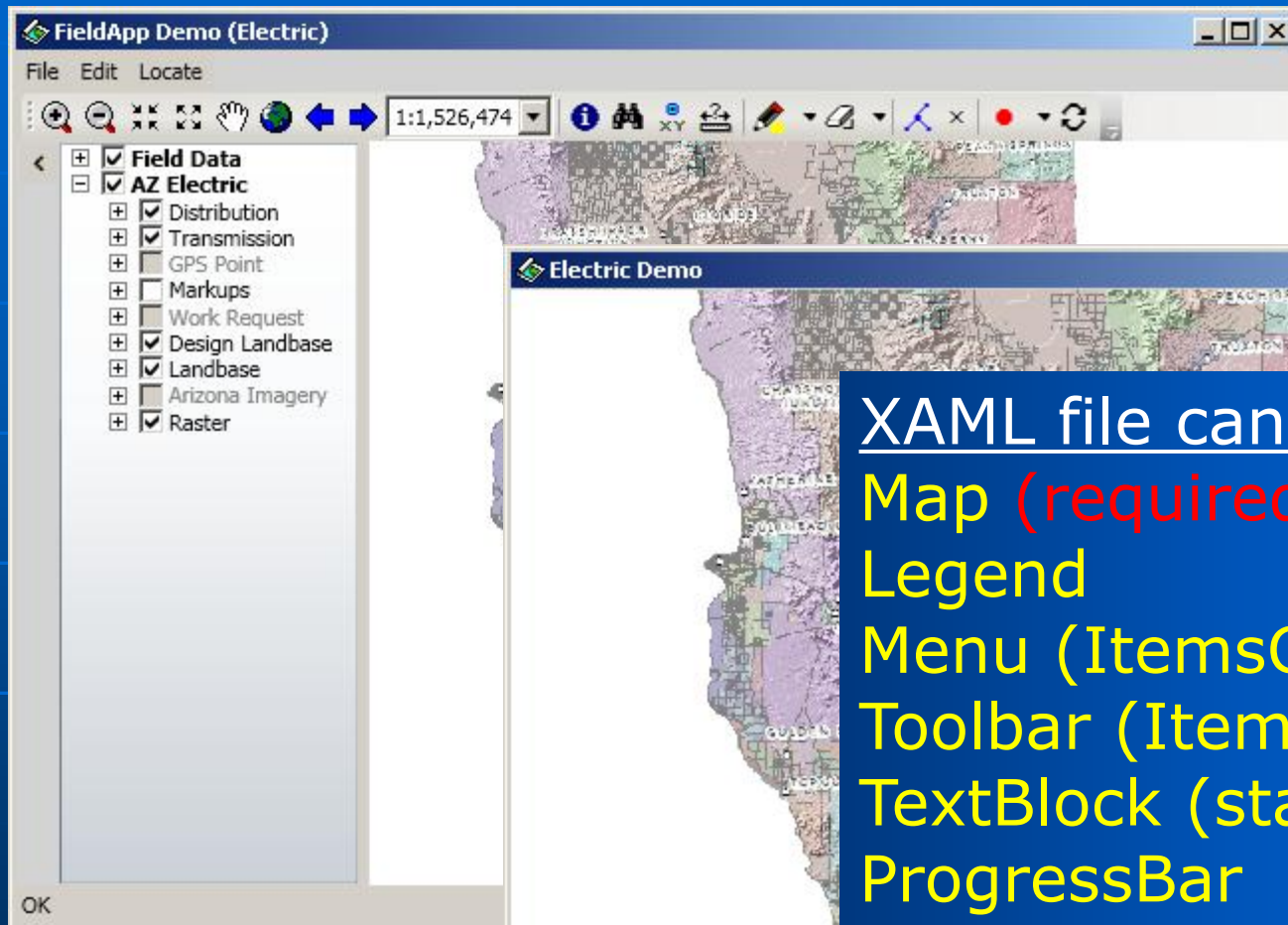
...

Configuration File:

```
<?xml version="1.0" encoding="utf-8" ?>
<Application
  xmlns:NavAddin="clr-namespace:NavAddin;assembly=NavAddin"
>
  <TitleText>Electric Demo</TitleText>
  <Layout>TabletTestLayout</Layout>
  <Map Extent="375600, 1164800, 949200, 1661700">
    <MapPackage Path="C:\apps\FieldEdit\packages\AZ Electric.mpk" ID="AZ Electric" Legend="True" CollapseLevel="1"
    FeatureService="False"/>
  </Map>
  <Extensions>
    <Extension Path="NavAddin" />
  </Extensions>
  <Behaviors>
    <Behavior Class="NavAddin:NavBehavior" />
  </Behaviors>
  <MenuItems>
    <MenuItem Class="NavAddin:FileMenuItem">
      <MenuItem.Items>
        <MenuItem Class="NavAddin:ExportMapMenuItem" />
        <Separator />
        <MenuItem Class="NavAddin:ExitMenuItem" />
      </MenuItem.Items>
    </MenuItem>
  </MenuItems>
  <ToolBarItems>
    <Tool Class="NavAddin:ZoomInTool" />
    <Tool Class="NavAddin:ZoomOutTool" />
    <Tool Class="NavAddin:PanTool" />
    <Button Class="NavAddin:ZoomFullButton" />
    <Button Class="NavAddin:ZoomPrevButton" />
    <Button Class="NavAddin:ZoomNextButton" />
  </ToolBarItems>
</Application>
```

- Extension namespaces
- Title text
- XAML layout file
- Map contents
- Extensions
- Behaviors (plus configuration data)
- Menu items
- Toolbar items

Layout:



Map (optional):

```
<!-- A map item can be TilePackage, MapPackage, or GraphicLayer.  
      A map extent and/or minimum resolution may be specified.  
      The map entry can be empty or omitted if the map is set up via an extension.  
-->  
<!--<Map Extent="-13000000, 3605000, -11917000, 4542000" MinimumResolution="0.01">-->  
<Map Extent="375600, 1164800, 949200, 1661700">  
  <!--<TilePackage Path="C:\apps\FieldEdit\packages\Test.tpk" ID="Test Basemap" Legend="True" CollapseLevel="0" />-->  
  <MapPackage Path="C:\apps\FieldEdit\packages\AZ Electric.mpk" ID="AZ Electric" Legend="True" CollapseLevel="1" FeatureService="False"  
  <MapPackage Path="C:\apps\FieldEdit\packages\FieldDataElectric.mpk" ID="Field Data" Legend="True" CollapseLevel="0" FeatureService="T  
  <GraphicLayer ID ="TraceResultsLayer" Legend="False"/>  
  <GraphicLayer ID ="ResultsLayer" Legend="False"/>  
</Map>
```

Map Attributes:

Extent, MinimumResolution

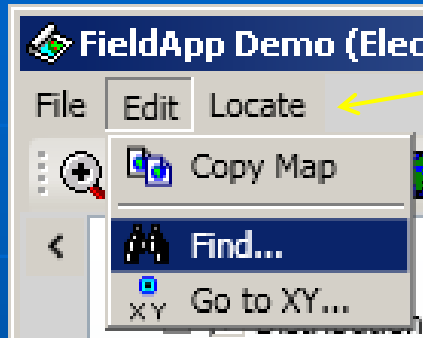
Layer Types:

TilePackage, MapPackage, GraphicLayer

Layer Attributes:

Path, ID, Legend, CollapseLevel, FeatureService

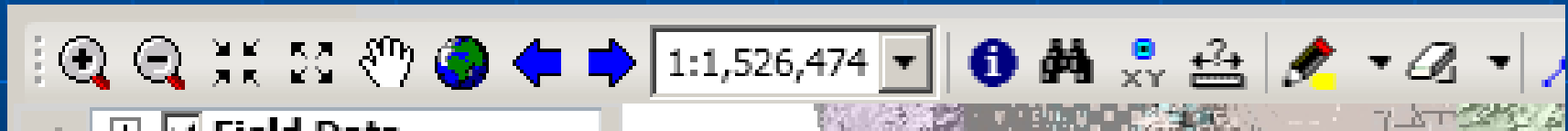
Menu and Toolbar Items:



MenuItem

MenuItems
can contain other
MenuItems

Separator



Tool

Button

ComboBox

SplitButton

Behaviors:

```
<!-- Behaviors are instantiated next in the initialization process.
      Optionally, a behavior may have configuration data associated with it.
-->
<Behaviors>
  <Behavior Class="NavAddin:NavBehavior" />
  <Behavior Class="QueryAddin:QueryBehavior" />
  <Behavior Class="EditAddin:EditBehavior">
    <Behavior.ConfigData>
      <EditLog Path="C:/apps/FieldEdit/Data/EditLogElectric.xml" />
      <LocalFeatureLayer ID="Field Data" />
      <RemoteFeatureService URL="http://tuswdesri03/arcgis/rest/services/UES/Field_TELD/FeatureServer" />
      <EditLayers>
        <EditLayer Name="RedPoint" />
        <EditLayer Name="RedLine" />
        <EditLayer Name="RedPoly" />
      </EditLayers>
    </Behavior.ConfigData>
  </Behavior>
  <Behavior Class="ElectricAddin:TraceBehavior" />
</Behaviors>
```

Configuration data
can be a string
or a block of XML

```
public interface IBehavior
{
    void OnAttached();
}
public interface IConfigurable
{
    void LoadConfiguration(string sConfigData);
}
```


FieldApp.Extensibility Namespace:

Application Objects:

MapApplication : IStatus

ParentWindow : IParentWindow, IDialogWindow

PickListDialog

Control Interfaces to Implement:

IMapMenuItem

IMapButton

IMapTool

IMapSplitButton

IMapComboBox

Behavior Interfaces to Implement:

IBehavior

IConfigurable (optional)

User Control Interfaces to Implement:

IContent (optional)

IExpandableContent (optional)

Deployment and Updates:

- Copy-and-paste FieldApp folder from master update location:

```
\\servername\FieldAppUpdates  
    \FieldApp  
    \Config  
    \Extensions  
        \Dependencies  
    \Layouts
```

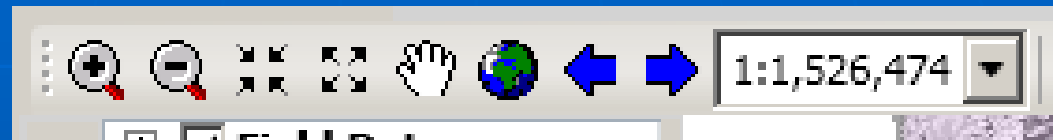
- Merge Registry shortcut containing update location
- Execute FieldApp.exe, select configuration from update location, and accept creation of desktop shortcut (or simply copy a preconfigured shortcut)
- FieldApp automatically checks for updates when connected to the network

Demo Addins:

(included in developer sample)

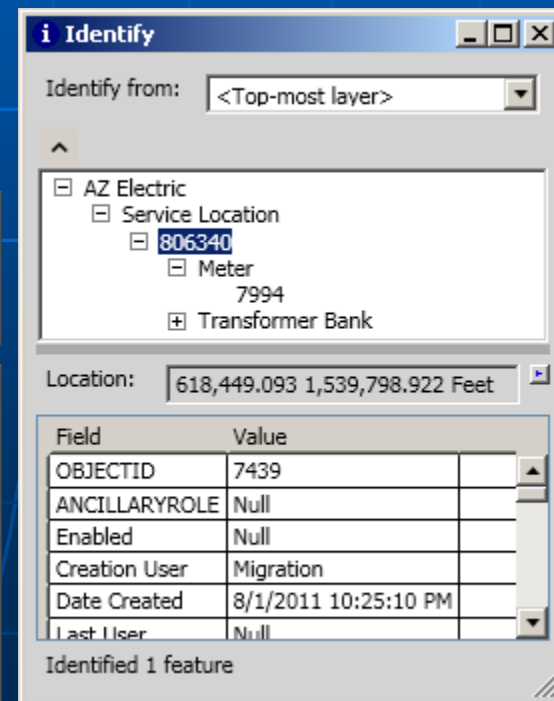
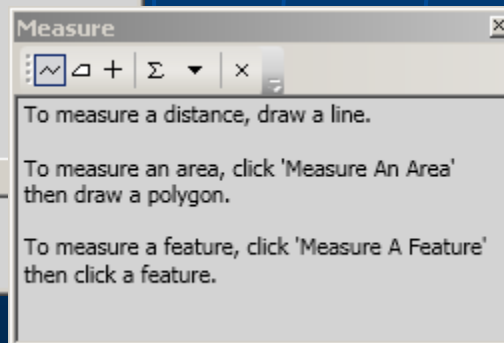
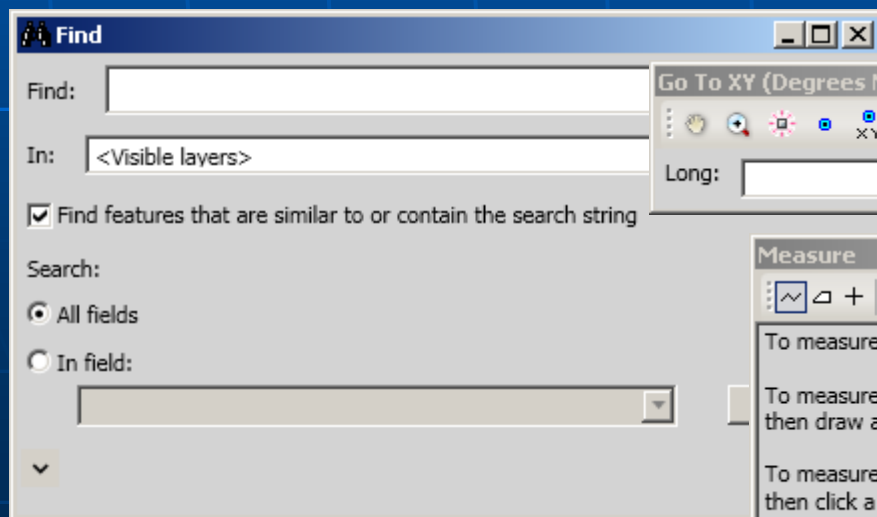
NavAddin:

ArcMap-style map navigation



QueryAddin:

ArcMap-style query tools

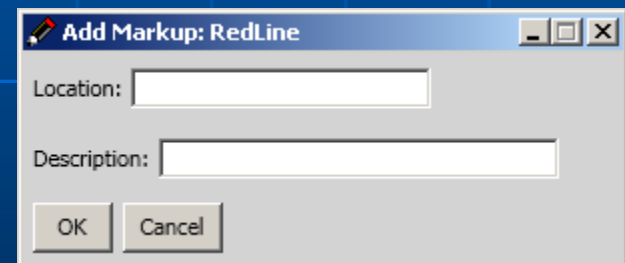
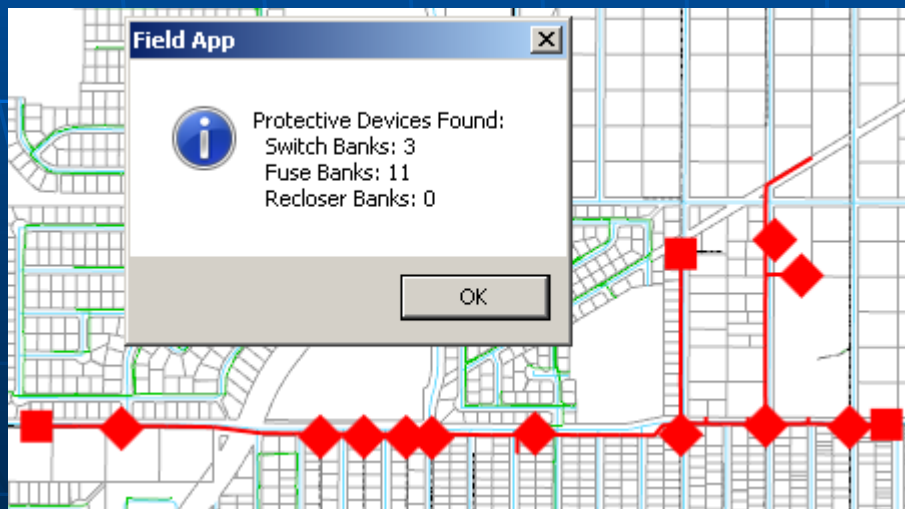


EditAddin:

Support for disconnected editing and synchronization with a remote feature service

ElectricAddin:

Examples of network tracing and field editing



Lesson Learned:

Develop functionality in Silverlight to port to WPF, rather than the other way around!

Future Directions:

- Runtime for .NET
- GeodatabaseTask

Download:

- This presentation and sample code may be downloaded at:

<http://www.pierssen.com/arccgis10/runtime.htm>

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