.NET Add-ins for ArcGIS for Desktop

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ArcGIS Desktop Add-Ins

A better way to customize and extend ArcGIS Desktop applications.

- Easier to build
- Easy to share
- More secure
- C#, VB.NET, Java, and Python
Add-In Types supported at ArcGIS 10.1

- Buttons
- Tools
- Combo Boxes
- Multi-Items
- Menus
- Context Menus
- Toolbars
- Tool Palettes

- Dockable Windows
- Application Extensions
- Editor Extensions
- Editor Construction Tools
- SOE (Server)
Add-In Versioning Policy

Backward compatibility within a major version

- ArcGIS 10.2 can consume 10.1 and 10.0 Add-Ins
- ArcGIS 10.1 can consume 10.0 Add-Ins
- ArcGIS 10.0 can only consume 10.0 Add-Ins
Supported Development Environments

- Visual Studio 2010
- Visual Studio 2012 (New at 10.2)
- Visual Basic 2010 Express Edition
- Visual C# 2010 Express Edition
- .NET 3.5, .NET 4.0
Add-In File Anatomy

Assemblies/JARs/PYDs

XML Metadata

Resources

AddIn File
(zipped folder)

*.esriAddIn
Anatomy - Declarative Aspects

<DockableWindows>
  <DockableWindow id="ESRI_Example_DockableWindow"
                   class="ExampleDockableWindowClass"
                   caption="Example Dockable Window">
    <InitialPlacement
      height="300" width="300"
      state="pinned" position="right"
      neighbor="esriArcMapUI.TOCDockableWindow" />
  </DockableWindow>
</DockableWindows>
Anatomy – Resources & Localization
Anatomy - Programmatic Aspect

- Add-In Behavior coded using
  - Visual Studio / Eclipse wizards and templates
  - Base classes for each Add-In type
  - Full ArcObjects API + programming environment (.NET/Java)

```csharp
public class SimpleButton : Button
{
    protected override void OnClick()
    {
        MessageBox.Show("Hello World");
    }
}
```
Entry Points for Customization

- Add-In Wizard creates static classes depending on your type of customization.

```csharp
public class SimpleButton : Button
{
    protected override void OnClick()
    {
        ArcMap.Application.Caption = "Hello";
        ArcMap.Document.ActiveView.Refresh();
    }
}
```
Anatomy - Classic (managed) COM Button comparison

```csharp
namespace ArcMapClassLibrary1
{
    /// <summary>
    /// Summary description for Command1.
    /// </summary>
    [Guid("dfab35ef-96f7-456b-9162-42d36f7a9e57")]
    [ClassInterface(ClassInterfaceType.None)]
    [ProgId("ArcMapClassLibrary1.Command1")]
    public sealed class Command1 : BaseCommand
    {
        #region COM Registration Function(s)
        [ComRegisterFunction()]
        [ComVisible(false)]
        static void RegisterFunction(Type registerType)
        {
            // Required for ArcGIS Component Category Registrar support
            ArcGISCategoryRegistrar(registerType);

            // TODO: Add any COM registration code here
        }

        [ComUnregisterFunction()]
        [ComVisible(false)]
        static void UnregisterFunction(Type registerType)
        {
            // Required for ArcGIS Component Category Registrar support
            ArcGISCategoryUnregistration(registerType);

            // TODO: Add any COM unregistration code here
        }
        #endregion

        #region ArcGIS Component Category Registrar generated code
        /// <summary>
        /// Required method for ArcGIS Component Category registration -
        /// Do not modify the contents of this method with the code editor.
        /// </summary>
        private static void ArcGISCategoryRegistration(Type registerType)
        {
            // ArcGISCategoryRegistration(registerType);
        }
        #endregion
    }
}
```
Authoring an Add-in
Add-In File Discovery & Sharing

• Add-In files are automatically discovered in well known local folders and incorporated into the Desktop applications at runtime.

• Folders are per user and per ArcGIS version
  %UserProfile%\My Documents\ArcGIS\AddIns\Desktop10.1
Add-In File Discovery & Sharing

- Administered network shares
- Simplifies Updates
Managing Add-Ins - Installation Utility

- Double-click “Install”
- Customize - Add From File
- XCOPY
Managing Add-Ins – Add-In Manager Dialog

- Shows detailed information on all installed Add-Ins
- Mine vs. Shared
- Deleting Add-Ins
Managing Add-Ins – Sharing & Security

- Custom search folders
- Security Settings
Managing Add-Ins - Additional Security Settings

- Admin Controls
  - Esri Only
  - Load from administrator folders only
  - Admin security level lock
Digitally Signing Add-Ins

• **Trust**
  - Source Traceability
  - Tampering

• **ESRISignAddin Utility**
Managing Add-ins
Questions?
Understanding our world.