.NET Add-Ins for ArcGIS for Desktop

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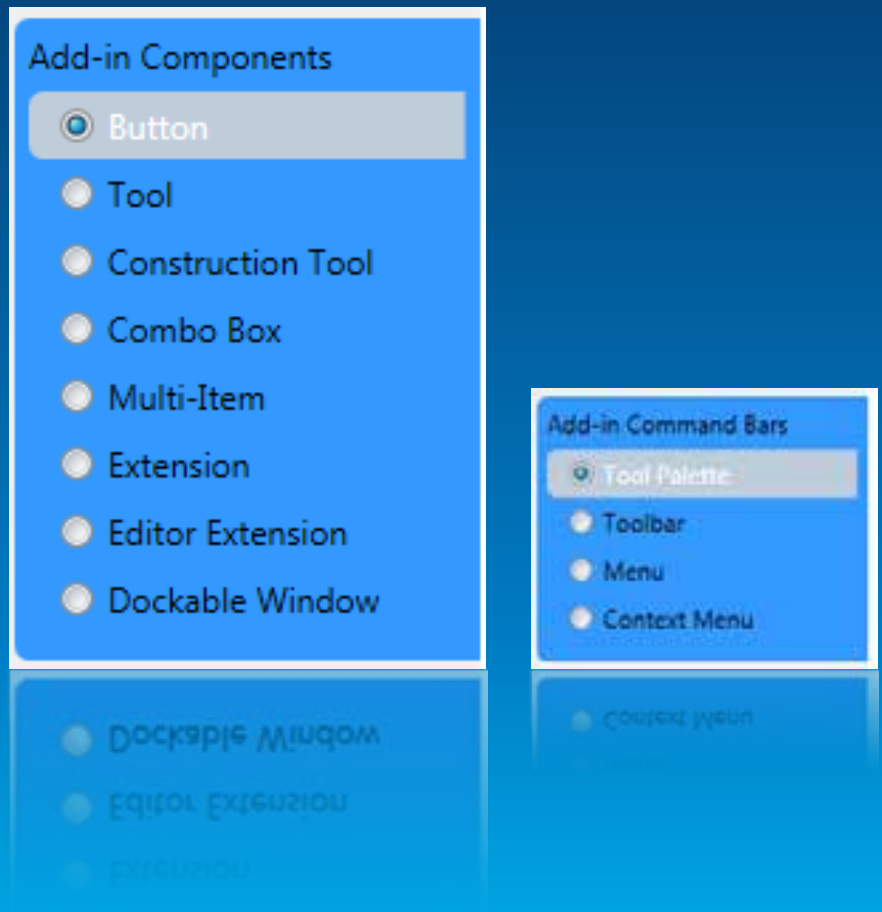
ArcGIS Desktop Add-Ins

A framework for a better way to customize and extent ArcGIS Desktop applications

- Easy to build
- Easy to share
- More secure
- C#, VB.NET, Java and Python

Add-In Types supported at ArcGIS 10.2

- Components
- Command Containers



Add-In Versioning Policy

Backward compatibility within major versions

- 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

System Setup for Development of an Add-In

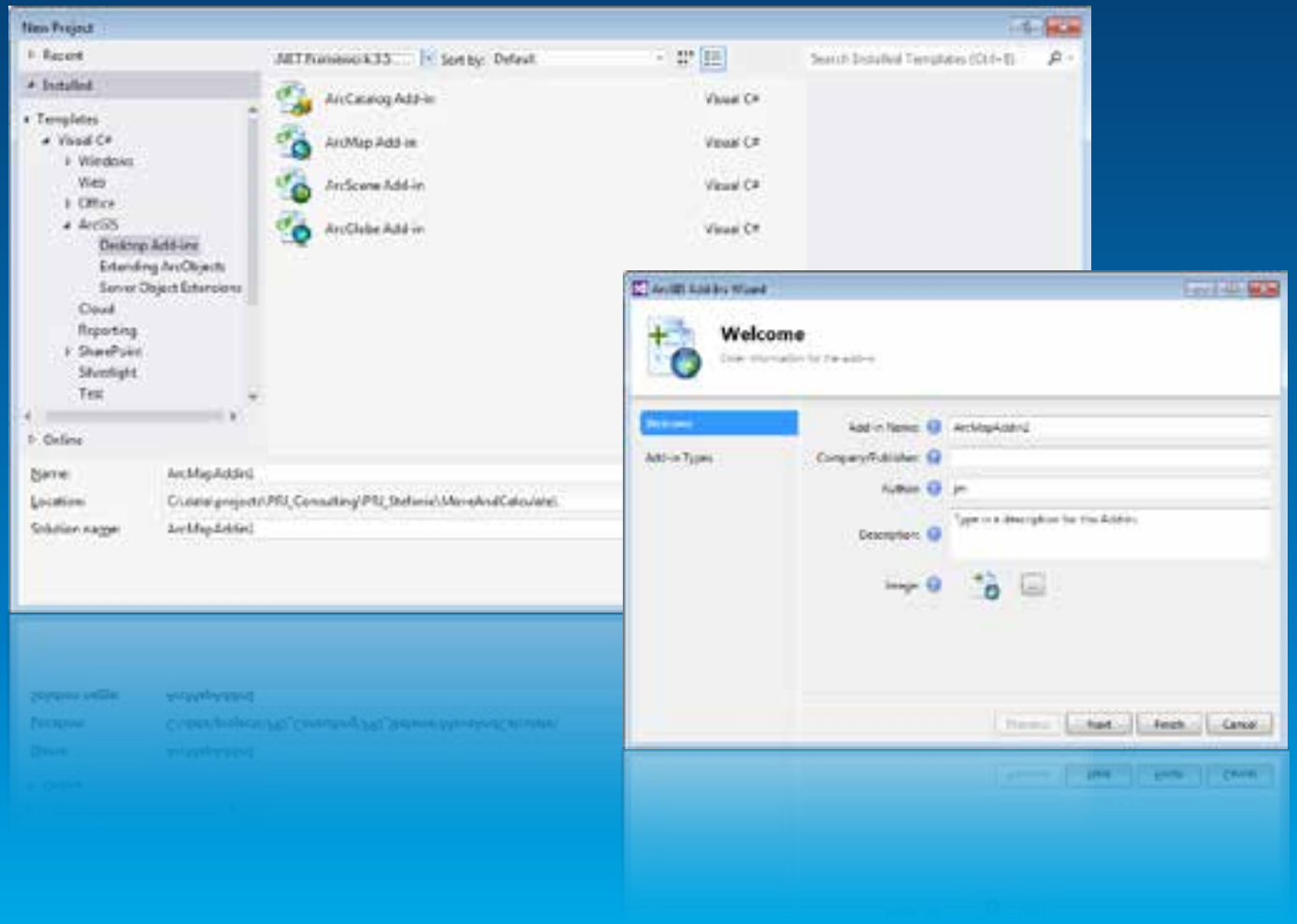
- .NET Framework
- Supported Development Environment
- ArcGIS for Desktop 10.2
- ArcObjects SDK 10.2
  - Templates
  - Samples
  - Developer Help

Supported Development Environments

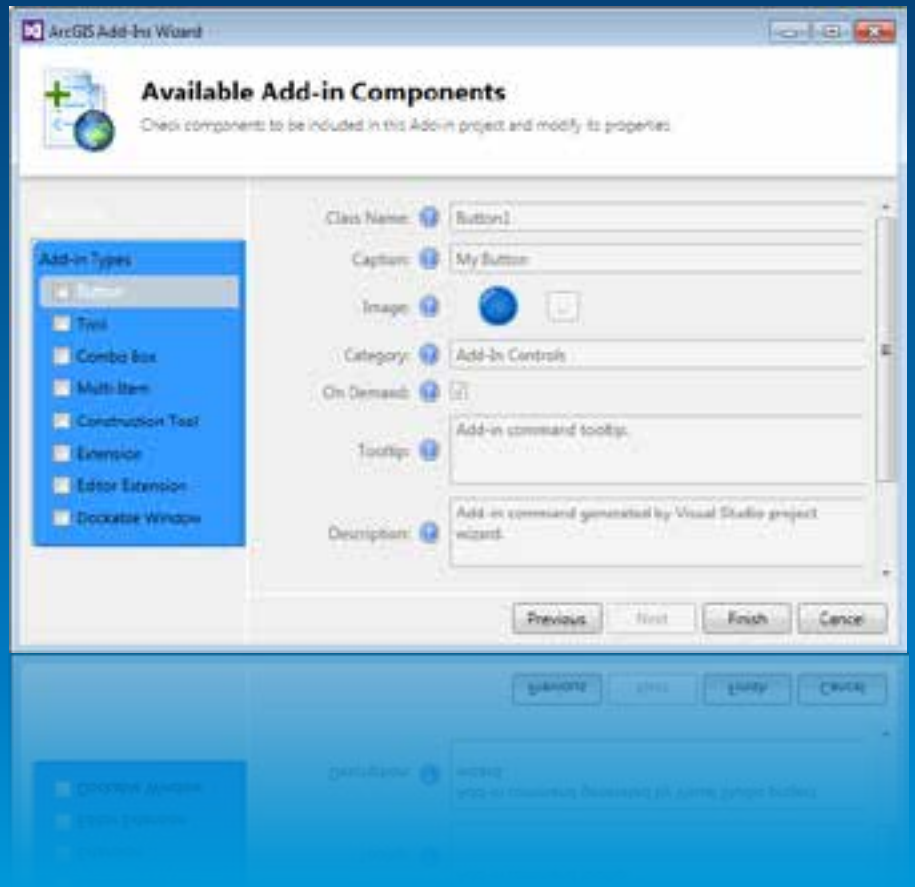
- Microsoft Visual Studio 2010 (C#, VB.NET) Professional, Premium, Ultimate Edition
- Microsoft Visual Studio 2010 Visual Basic Express
- Microsoft Visual Studio 2010 Visual C# Express
- Microsoft Visual Studio 2012 (C#, VB.NET) Professional, Premium, Ultimate Edition

- .NET 3.5, .NET 4.0, .NET 4.5

Project Templates



Add-In Wizard



Add-In File Anatomy

- Config XML
- Resources
- Assemblies

Anatomy – Declarative Aspects of the Add-In

- Name
- ID
- Description
- Version
- Author
- Company
- Date
- Target
- Assembly

```
<ESRI.Configuration xmlns="http://schemas.esri.com/Desktop/AddIns" xmlns:xsi="ht
  <Name>DemoAddIn</Name>
  <AddInID>{4b77e63d-6527-4774-a38e-eef4bbe7007a}</AddInID>
  <Description>just for demo purposes</Description>
  <Version>1.0</Version>
  <Image>Images\ArcMapAddin2.png</Image>
  <Author>Jochen Manegold</Author>
  <Company>Esri Deutschland GmbH</Company>
  <Date>22.10.2013</Date>
  <Targets>
    <Target name="Desktop" version="10.2" />
  </Targets>
  <AddIn language="CLR" library="ArcMapAddin2.dll" namespace="ArcMapAddin2">
    <ArcMap />
  </AddIn>
</ESRI.Configuration>
```

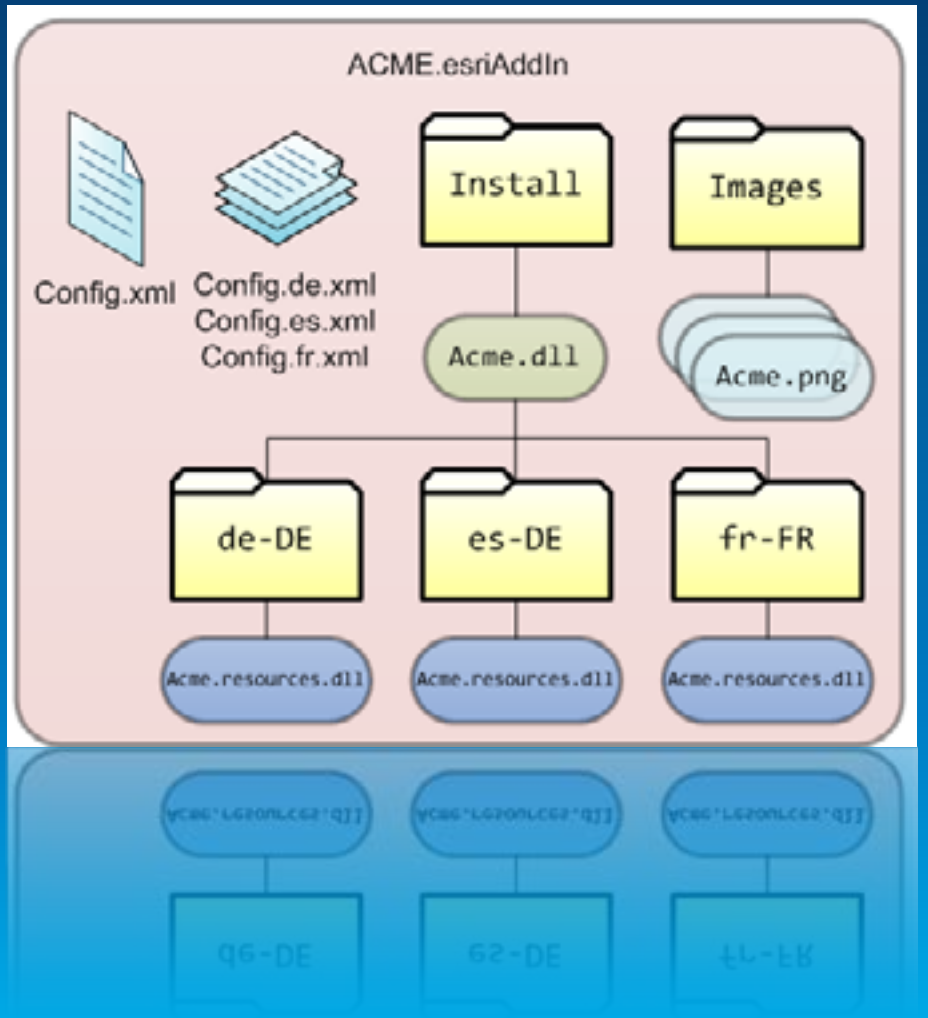
Anatomy – Declarative Aspects of the Components

- ID
- Caption
- Class
- Message
- Image
- Category
- Tooltips
- Help
- Docking State and Position

```
<AddIn language="CLR" library="ArcMapAddin2.dll" namespace="ArcMapAddin2">
  <ArcMap>
    <Commands>
      <Button id="Esri_Deutschland_GmbH_ArcMapAddin2_CalculateNearest" class="CalculateNearest"
              message="Add-in command generated by Visual Studio project wizard."
              caption="Calculate Nearest Distances" tip="Add-in command tooltip."
              category="NearestTools" image="Images\CalculateNearest.png" />
    </Commands>
    <Toolbars>
      <Toolbar id="Esri_Deutschland_GmbH_ArcMapAddin2_Nearest_Tools" caption="Nearest Tools"
               showInitially="false">
        <Items>
          <Button refID="Esri_Deutschland_GmbH_ArcMapAddin2_CalculateNearest" />
        </Items>
      </Toolbar>
    </Toolbars>
  </ArcMap>
</AddIn>
```

Anatomy – Resources and Localisation

- Config.xml
- Resources



Anatomy – Programmatic Aspect

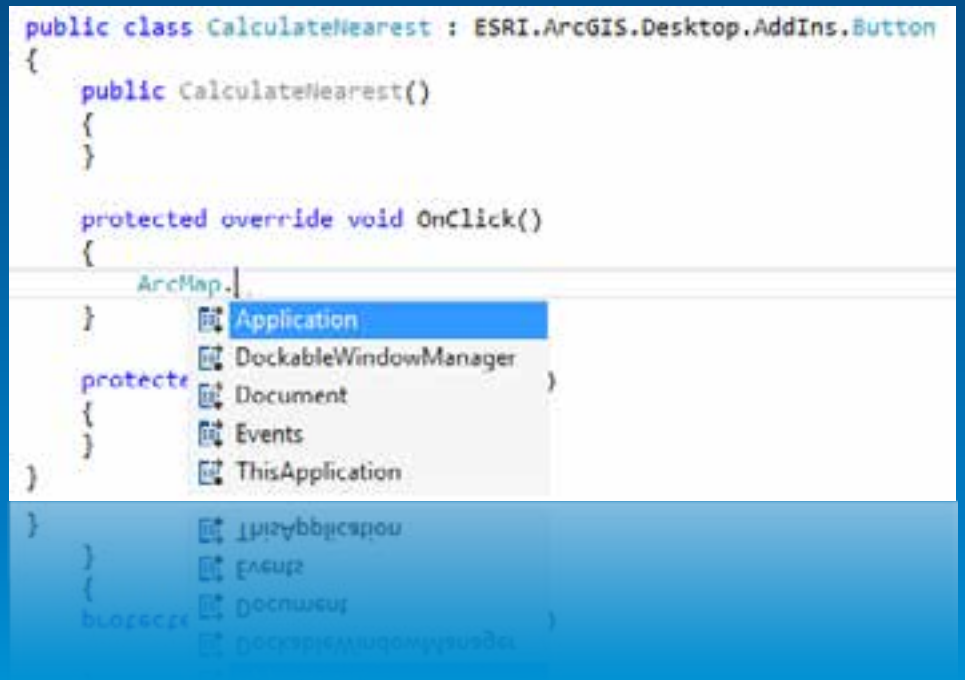
- Add-In Behavior coded using
  - Wizard and Templates in Visual Studio/Eclipse
  - Base Classes for each Add-In Type
  - ArcObjects API

```
namespace ArcMapAddin2
{
    public class CalculateNearest : ESRI.ArcGIS.Desktop.AddIns.Button
    {
        public CalculateNearest()
        {
        }

        }
```

Implementation – Entry Points

- Static Classes - depends on Type and Target
  - ArcMap
  - ThisAddIn
  - IDs



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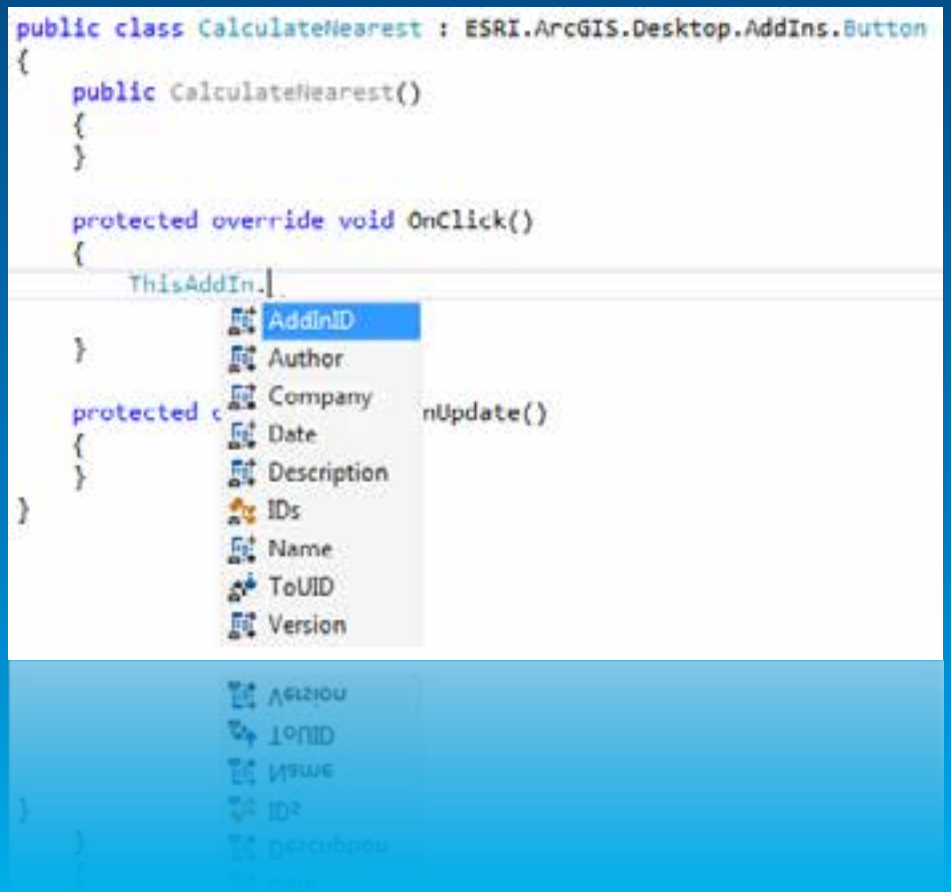


Implementation – Entry Points

- Static Classes - depends on Type and Target
  - ArcMap
  - ThisAddIn
  - IDs

```
public class CalculateNearest : ESRI.ArcGIS.Desktop.AddIns.Button
{
    public CalculateNearest()
    {
    }

    protected override void OnClick()
    {
        string id = ThisAddIn.IDs.CalculateNearest;

    }

    protected override void OnUpdate()
    {
    }
}
```

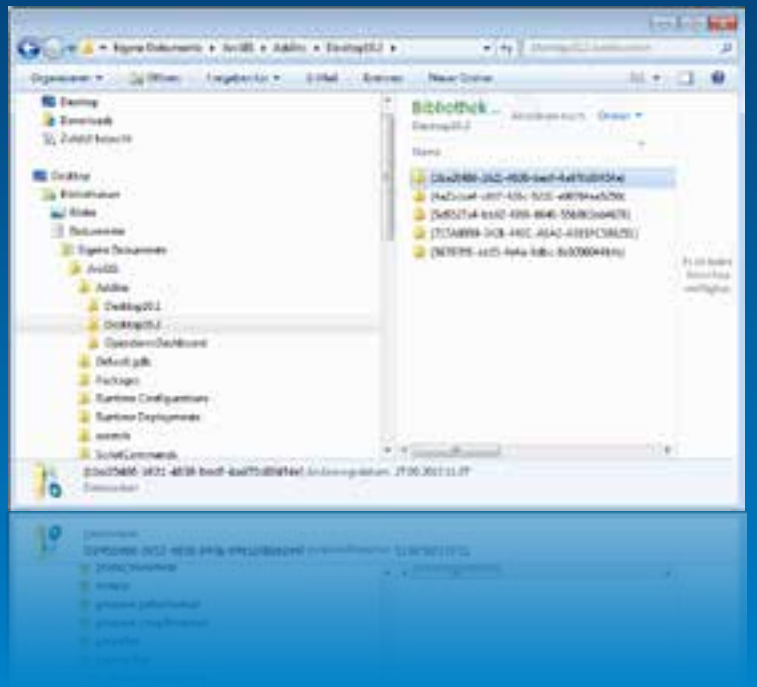
```
<Button id="Esri_Deutschland_GmbH_ArcMapAddin2_CalculateNearest" class="CalculateNearest"
        message="Add-in command generated by Visual Studio project wizard."
        caption="Calculate Nearest Distances" tip="Add-in command tooltip."
        category="NearestTools" image="Images\CalculateNearest.png" />
```

Demo

Authoring an Add-In

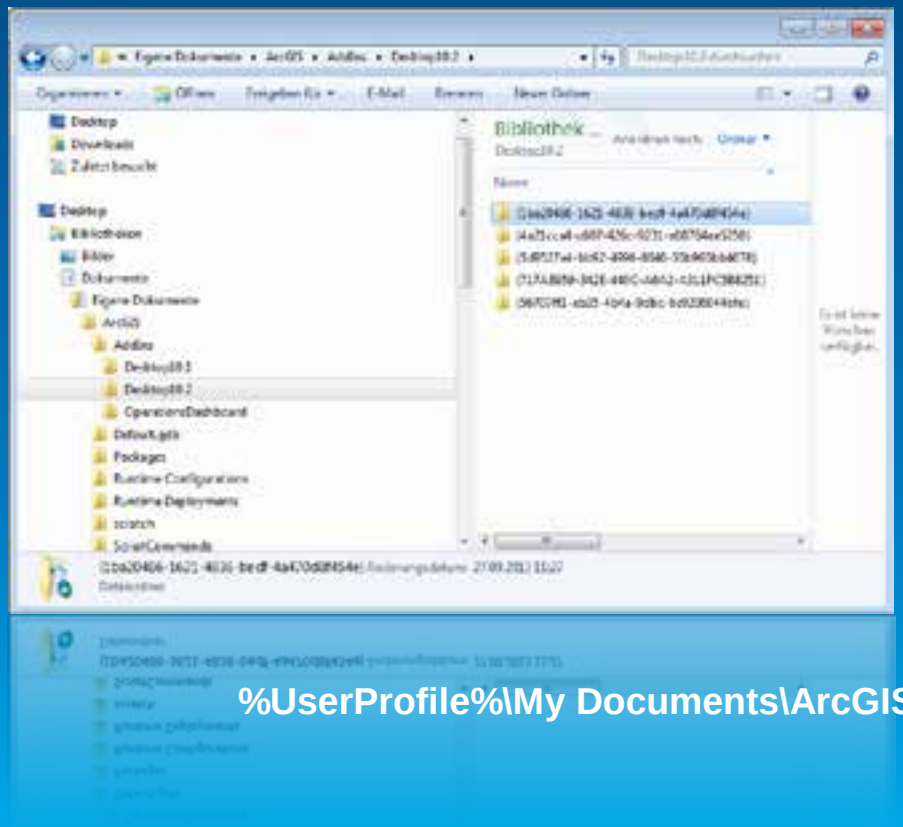
Deployment – Well Known Folders

- Add-In files are automatically descovered in well-known Folders and incorporated into the Desktop applications on runtime



Deployment – Local Folder

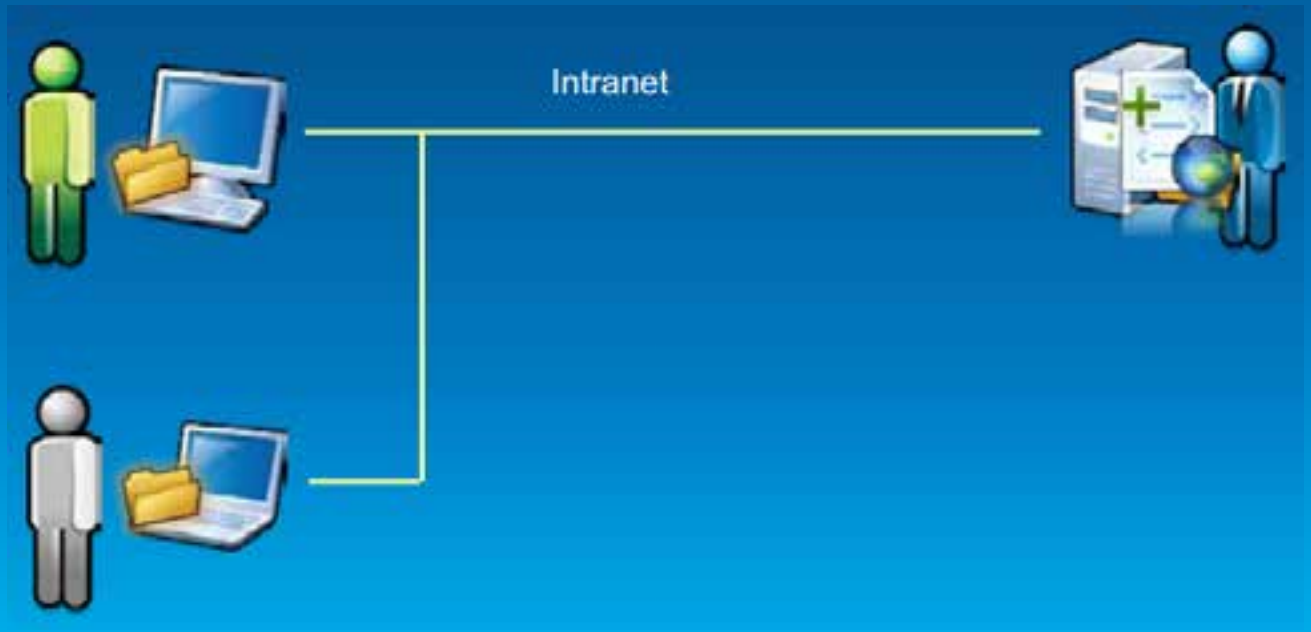
- Local Folders are per user and per ArcGIS version



%UserProfile%\My Documents\ArcGIS\AddIns\Desktop10.2

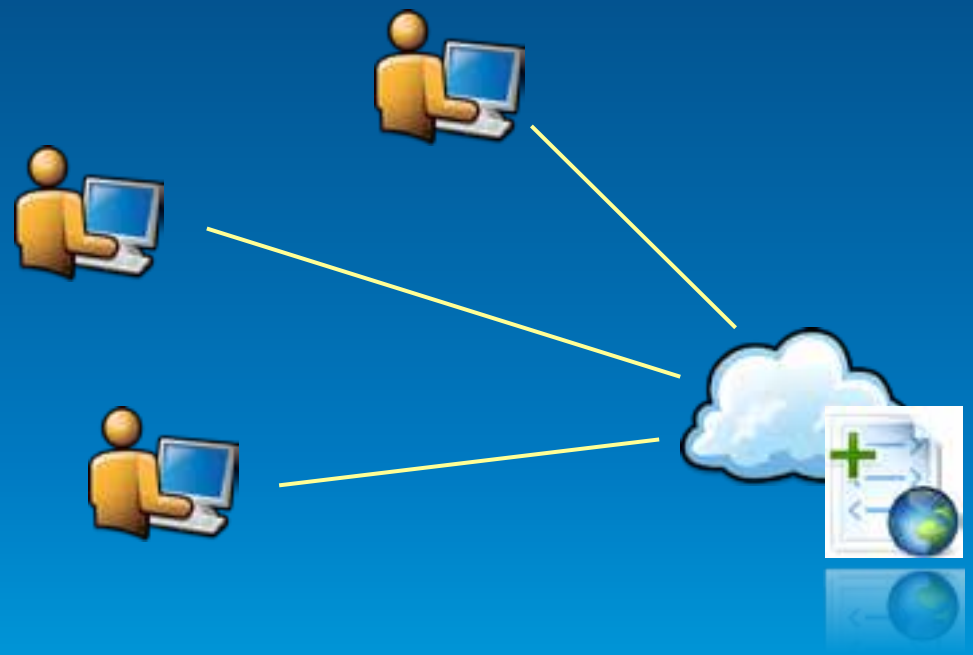
Deployment – Network Share

- Administered network shares
- Shared Folders with read access to the users
- Simplifies updates



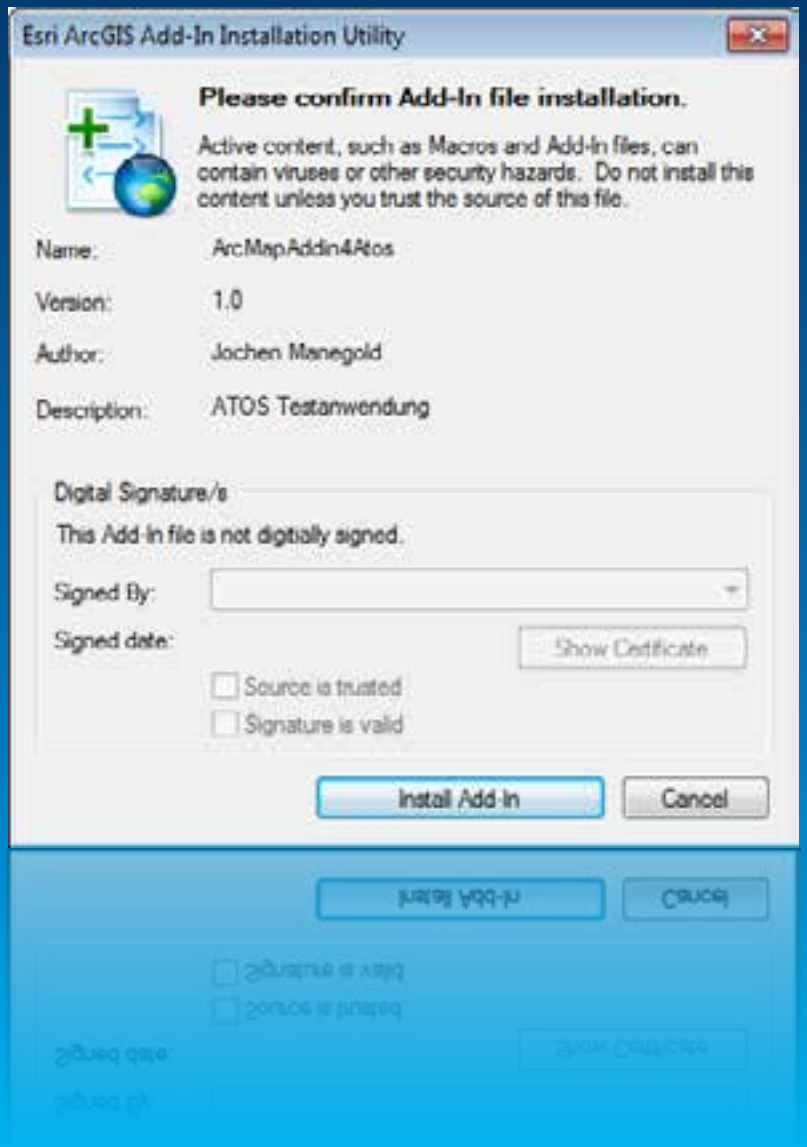
Deployment – ArcGIS Online

- Private Account or Organisational Subscription
- Download



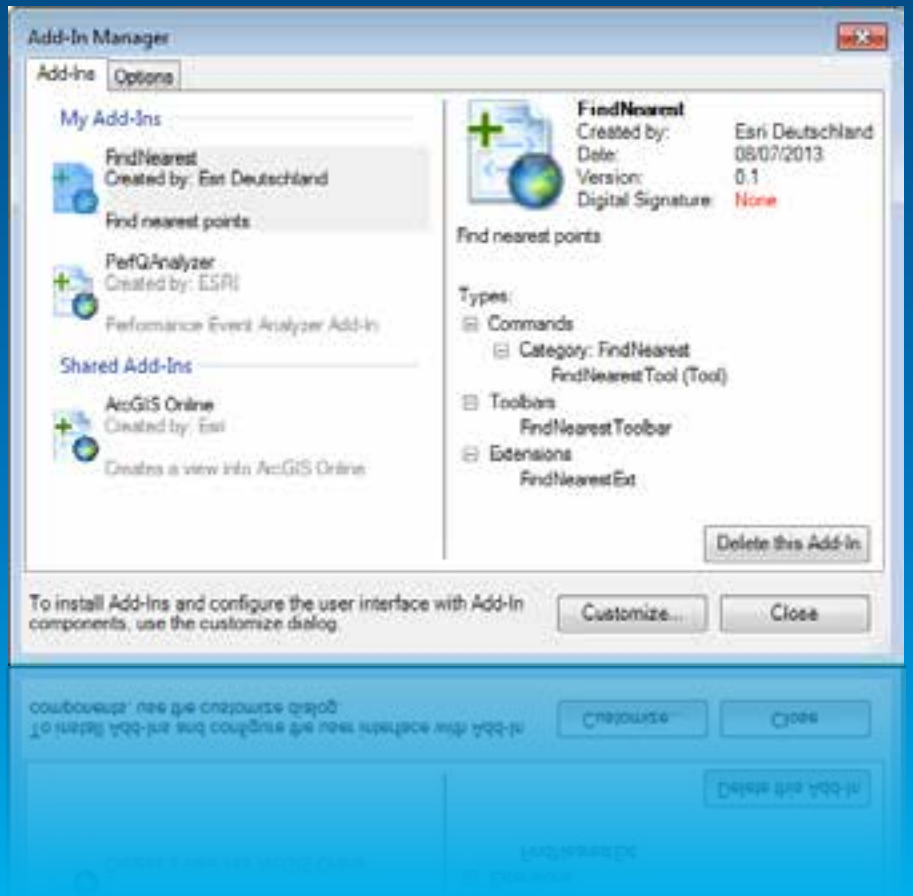
Deployment – Add-In Installation Utility

- Double-click “Install”
- Customize „Add from file“
- COPY or XCOPY



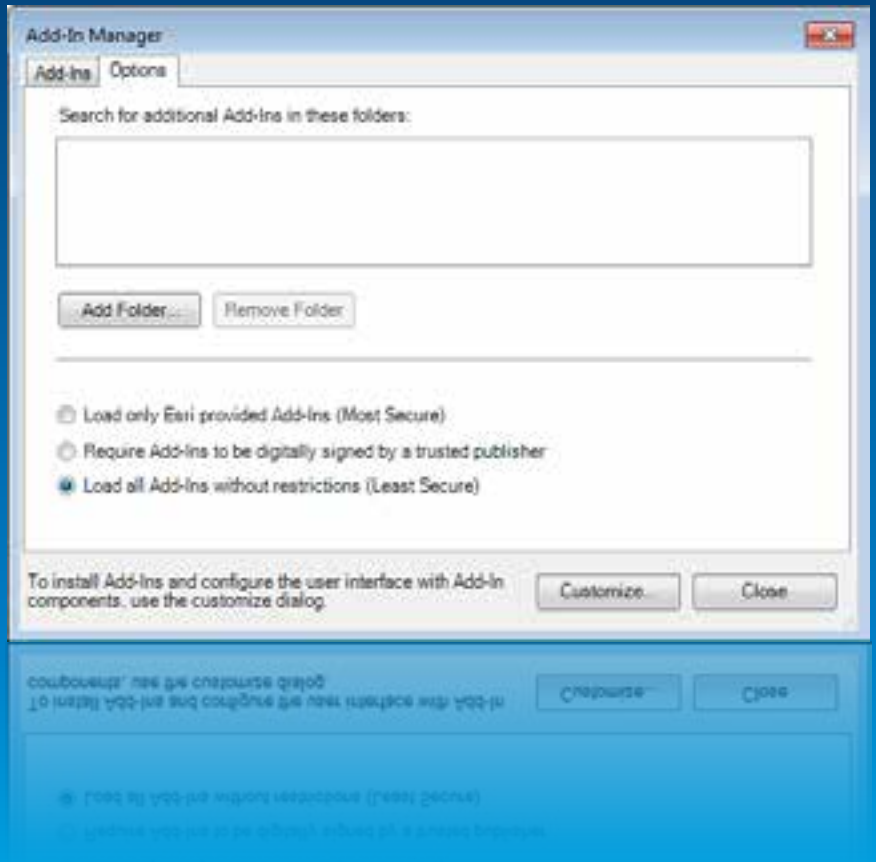
Deployment – Add-In Manager Dialog

- Shows detailed information on all installed Add-Ins
- Mine vs. Shared
- Deleting Add-Ins



Deployment – Sharing and Security Options

- Custom search folders
- Security Options

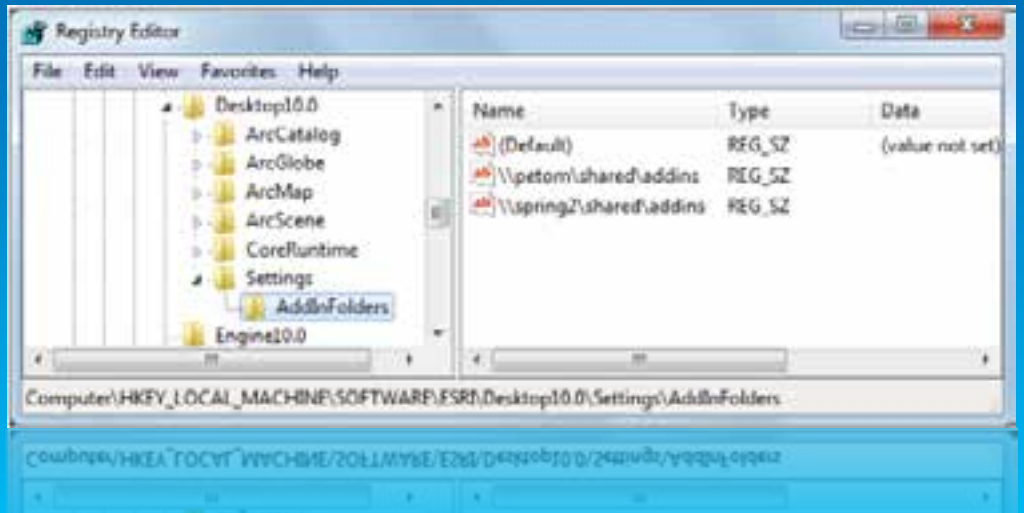


Deployment – Sharing and Security Options

- Administrator Settings
  - HKEY_LOCAL_MACHINE\SOFTWARE\ESRI\Desktop10.0\Settings
  - BlockAddIns (REG_DWORD)

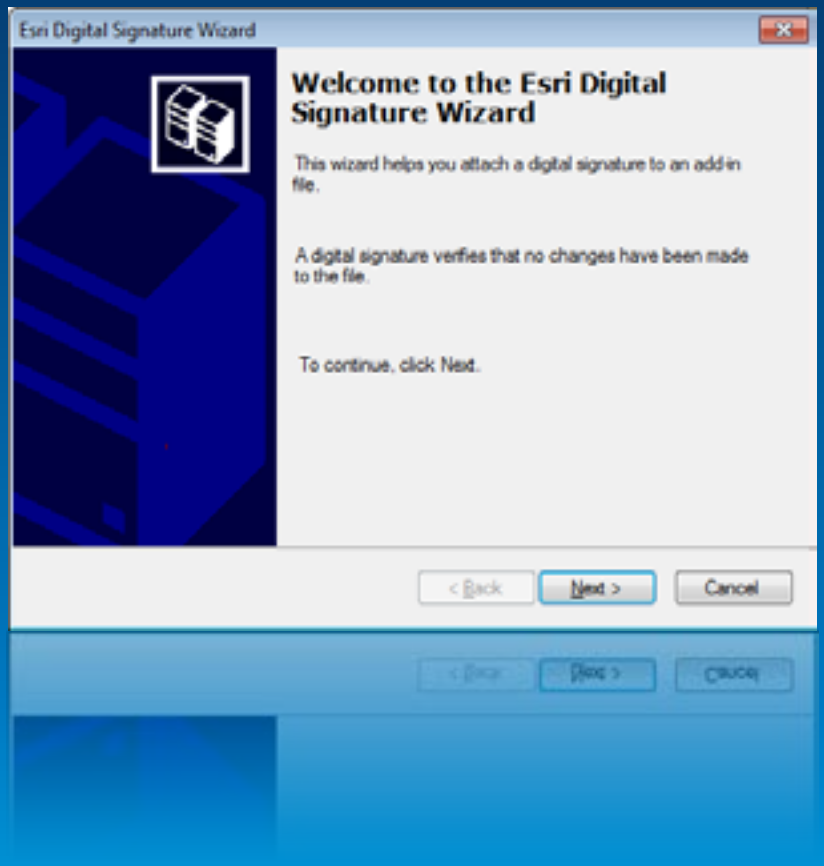
- 0—Load all add-ins regardless of whether or not they have digital signatures.
- 1—Only load and use add-ins that are digitally signed by a trusted certificate authority.
- 2—Only load and use add-ins that have been published by Esri.
- 3—Only load add-ins from the administrator folders (described below) and all add-ins published by Esri.
- 4—Do not load or execute any add-ins in this application.

  - AddInFolders



Deployment - Digitally Signing Add-Ins

- Trust
  - Source Traceability
  - Tampering
- ESRISignAddin Utility



C:\Program Files (x86)\Common Files\ArcGIS\bin

Demo

Managing Add-Ins

Documentation

- ArcObjects Help for .NET (VS2010/VS2012)
  - Building add-ins for ArcGIS for Desktop
- ArcGIS Resource Center
  - http://resources.arcgis.com/en/help/arcobjects-net/conceptualhelp/

Questions ?