

.NET Add-Ins for ArcGIS for Desktop Jochen Manegold

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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

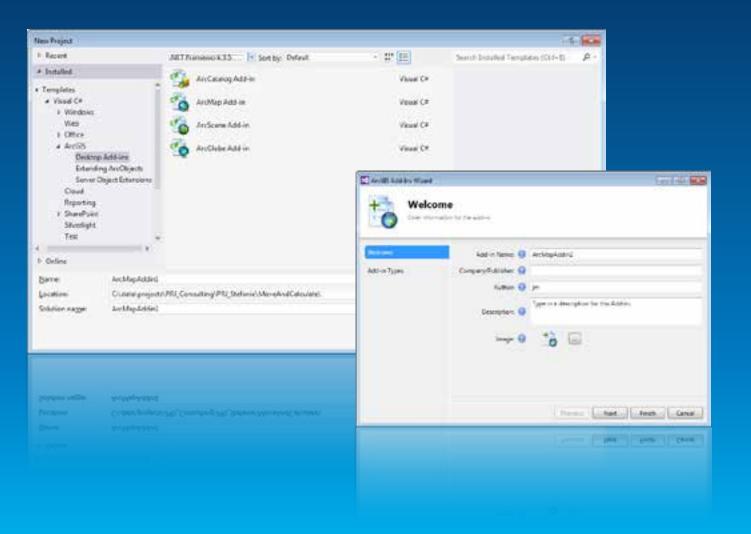
- Supported Development Environment
- ArcGIS for Desktop 10.2
- ArcObjects SDK 10.2
 - Templates
 - Samples
 - Developer Help



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

💽 ArcGIS Add-Ini Woard		lole .	
Available Add		nents n project and modify its properties	
Add-en Types Tres Combo Rox Multi-Item Comboción Taol Economico Economico Economico Economico Economico Economico	Category: 😡 On Demand: 😡	My fumer Add-In Centrals	
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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 desktop"="" version="10.2" xmlns="<u>http://schemas.esri.com/Desktop/AddIns</u>" xmlns:xsi="<u>ht</u></th></tr><tr><th><Name>DemoAddIn</Name></th></tr><tr><th><AddInID>{4b77e63d-6527-4774-a38e-eef4bbe7007a}</AddInID></th></tr><tr><th><Description>just for demo purposes</Description></th></tr><tr><th><Version>1.0</Version></th></tr><tr><th><Image>Images\ArcMapAddin2.png</Image></th></tr><tr><th><Author>Jochen Manegold</Author></th></tr><tr><th><Company>Esri Deutschland GmbH</Company></th></tr><tr><th><Date>22.10.2013</Date></th></tr><tr><th><Targets></th></tr><tr><th><Target name="></esri.configuration>
<addin language="CLR" library="ArcMapAddin2.dll" namespace="ArcMapAddin2"> <arcmap></arcmap></addin>
 <addin language="CLR" library="ArcMapAddin2.dll" namespace="ArcMapAddin2"> <arcmap></arcmap> </addin>

Anatomy – Declarative Aspects of the Components

• ID	<addin language="CLR" library="ArcMapAddin2.dll" namespace="ArcMapAddin2"></addin>	
 Caption 	<pre><button caption="Calculate Nearest Distances" category="NearestTools" class="CalculateNearest" id="Esri_Deutschland_GmbH_ArcMapAddin2_CalculateNearest" image="Images\CalculateNearest.png" message="Add-in command generated by Visual Studio project wizard." tip="Add-in command tooltip."></button></pre>	
 Class 	 <toolbars> <toolbar <="" caption="Nearest Tools" id="Esri_Deutschland_GmbH_ArcMapAddin2_Nearest_Tools" th=""><th></th></toolbar></toolbars>	
 Message 	<pre>showInitially="false"></pre>	
 Image 	 	
 Category 		
 Tooltips 		

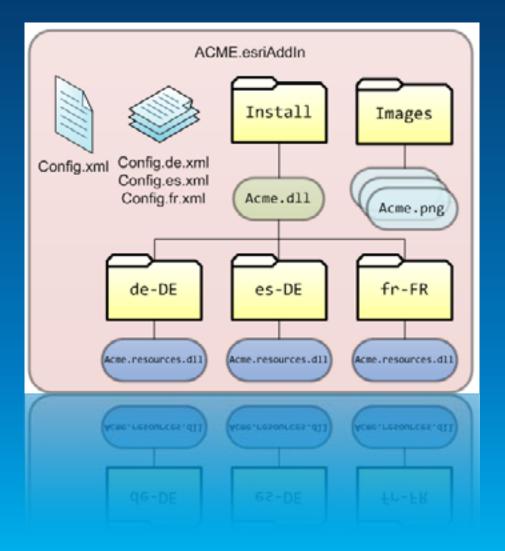
Help

Docking State and Position

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



Implementation – Entry Points

Static Classes - depends on Type and Target

- ArcMap
- ThisAddIn
- IDs

pul {	<pre>public 0 { } protecte {</pre>	alculateNearest() d override void OnClick(ArcGIS.Desktop.AddIns.Button
	Arch }	Application DockableWindowManager	
)	protecte { }	Document Events ThisApplication	<u>}</u>
}	protects }	Er DockableWindowManager Er Document Er Events Er ThisApplication	

Implementation – Entry Points

Static Classes - depends on Type and Target

- ArcMap
- ThisAddIn
- IDs

put {	public CalculateNearest public CalculateNearest { } protected override void { ThisAddIn.	
}	Image: Addining Image	nUpdate()
}) 또 Description 않 IDs 덠 Name 와 ToUID 덠 Version	

Implementation – Entry Points

Static Classes - depends on Type and Target

- ArcMap
- ThisAddIn

- IDs

1.00	lic class CalculateNearest : ESRI.ArcGIS.Desktop.AddIns.Button
{	<pre>public CalculateNearest()</pre>
	\$
	<pre>protected override void OnClick() {</pre>
	<pre>string id = ThisAddIn.[IDs.CalculateNearest;</pre>
	3
1	<pre>protected override void OnUpdate() { }</pre>
}	
}	
	in2_CalculateNearest" class="CalculateNearest"

<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" />

category="NearestTools" image="Images\CalculateNearest.png" /

Demo

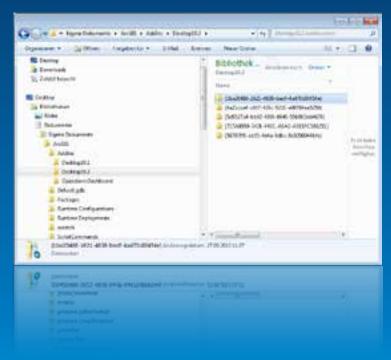
Authoring an Add-In



.NET Add-Ins for ArcGIS for Desktop

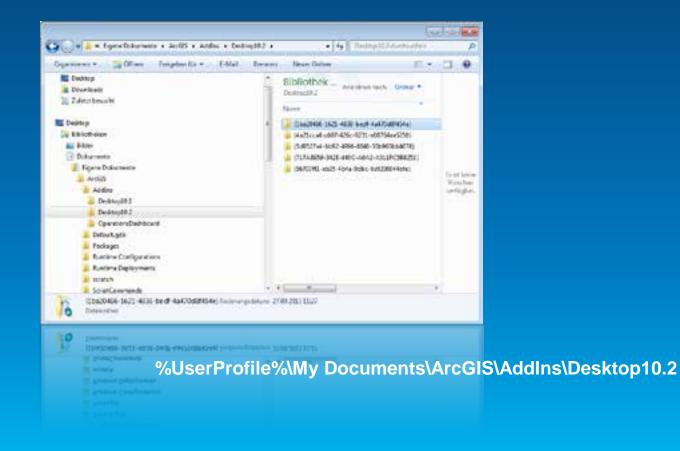
Deployment – Well Known Folders

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



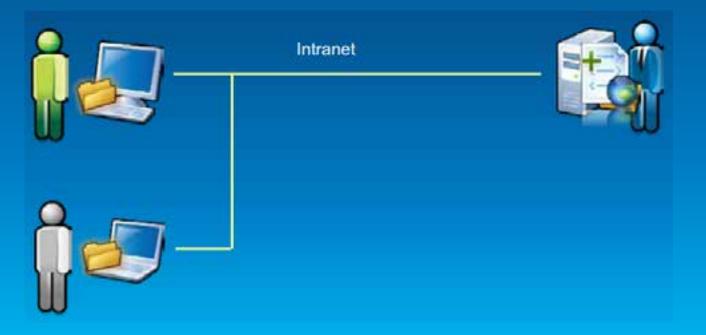
Deployment – Local Folder

Local Folders are per user and per ArcGIS version



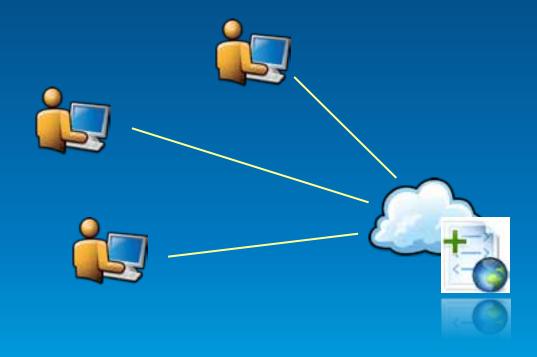
Deployment – Network Share

- 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

Esri ArcGIS Add-In Installation Utility

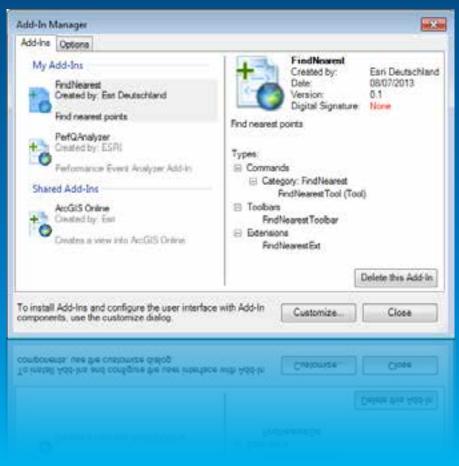
1	Please confirm Add-In file installation.		
10	Active content, such as Macros and Add-In files, can contain viruses or other security hazards. Do not install this content unless you trust the source of this file.		
Name:	ArcMapAddin4Atos		
Version:	1.0		
Author:	Jochen Manegold		
Description:	ATOS Testanwendung		
Digital Signati	ure/s		
	e is not digitally signed.		
Signed By:	-		
Signed date:			
Syneu une:	Show Detificate		
	Source is trusted		
	- Signature is Yang		
	Install Add-In Cancel		
	Install Add-In Cancel		

*

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

Add-In Manager -	-
Add-Ins Options	
Search for additional Add-Ine in these folders:	
1	
Add Folder	
Load only Earl provided Add-Ins (Most Secure)	
Require Add-Ins to be digitally signed by a trusted publisher	
Load all Add-Ins without restrictions (Least Secure)	
To install Add-Ins and configure the user interface with Add-In	-
components, use the customize dialog.	Close
To install Add-Ins and configure the user interface with Add-In Customize	Close

Deployment – Sharing and Security Options

Administrator Settings

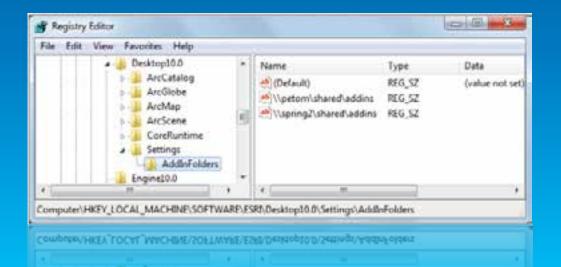
- HKEY_LOCAL_MACHINE\SOFTWARE\ESRI\Desktop10.0\Settings

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.
- 4—Do not load or execute any add-ins in this application.

3-Only load add-ins from the administrator folders (described below) and all add-ins published by Esn.

- AddInFolders



.NET Add-Ins for ArcGIS for Desktop

Deployment - Digitally Signing Add-Ins

Trust

- Source Traceability
- Tampering
- ESRISignAddin Utility

sri Digital Signature Wizard			
	Welcome to the Esri Digital Signature Wizard		
-0	This wizard helps you attach a digital signature to an add-in file.		
	A digital signature verifies that no changes have been made to the file.		
	To continue, click Next.		
	< Back Next > Cancel		
	< (www.carcel.ca		

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/arcobjectsnet/conceptualhelp/

Questions?



