

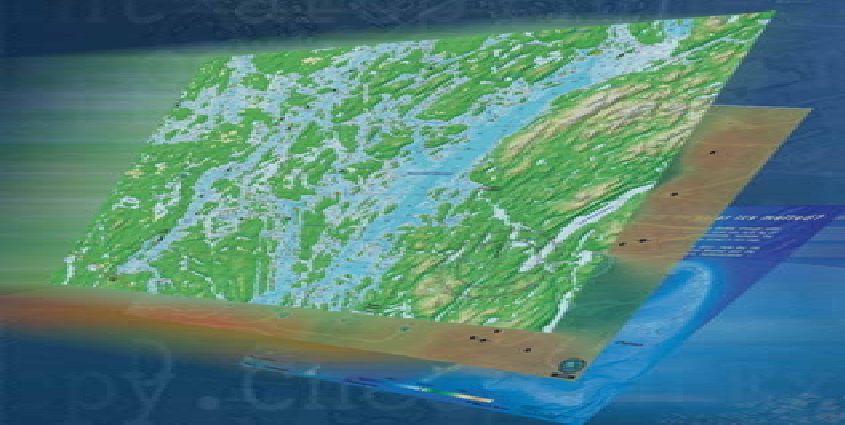
# ESRI Developer Summit

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## Deploying Desktop and Engine Applications in .NET

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# Agenda

- **Today we will cover**
  - **General Development Issues**
  - **General Deployment Issues**
  - **Demonstration**
    - **(Create a deployment package in Visual Studio)**

# Development and Deployment Cycle

**Development machine**



**Visual Studio**

**ArcGIS Engine / ArcGIS Desktop**

**Your custom application**



**Deployment machine**



**setup.exe / setup.msi**

**Your custom application**

# **General Development Issues**

# Development Prerequisites

## ArcGIS Engine Applications

- ArcGIS Engine Runtime
- ArcObjects SDK

## ArcGIS Desktop Applications

- ArcGIS Desktop
- ArcObjects SDK

## Focus

- ArcGIS Desktop (ArcInfo)
- ArcGIS Engine Runtime
- ArcObjects .NET SDK

# ArcObjects SDK ...

## ESRI's Visual Studio Integrated Development Environment Tools:

- ArcGIS Windows Forms Active X Controls
- Project and Item Templates
- ArcGIS Snippets (Snippet Finder and Snippet Editor)
- Add ArcGIS Reference Dialog
- License Initializer Dialog

## Developer resources

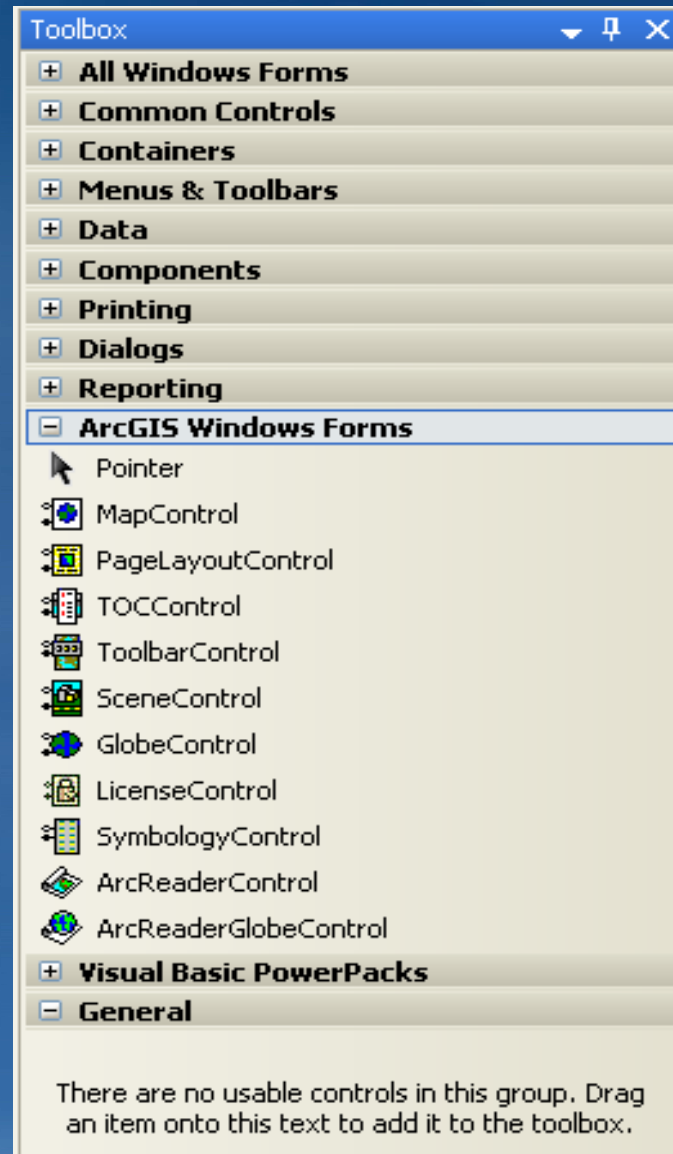
- HTML Help documentation
- Samples
- Object Model Diagrams

## Engine Developers

- Rights to redistribute the Engine Runtime setup



# ArcGIS Windows Forms Active X Controls

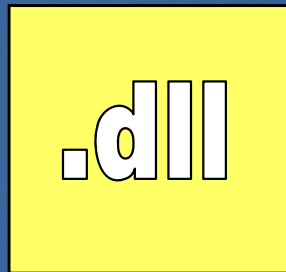


# Development Scenarios

- An executable (.exe)



- A dynamic link library (.dll)



- Hybrid: 1+ .exe(s) and 1+ .dll(s)





# **General Deployment Issues**

# What is Deployment

- **Process which makes your application available for use.**
- **Things to consider**
  - **Application resources**
  - **Application pre-requisites**
  - **Application system requirements**

# What are the different deployment options?

- XCOPY and manual registration
- Batch files (.bat)
- Setup.msi and/or Setup.exe
  - Microsoft Windows Installer SDK
  - InstallShield
  - WiX Toolset
  - Wise for Windows Installer
  - **Microsoft Visual Studio**

# Setup.exe Vs Setup.msi

- .exe - executables
- msi - Microsoft Windows Installer technology uses a package file (.msi) and a client-side installer service (Msiexec.exe). This service runs and enables your operating system to manage the installation. It uses the information contained within the package file (.msi) to install the software.
- .exe(s) can call multiple .msi's (frequently called a bootstrapper)
- An .msi cannot call another .msi (it breaks the ability to use Add/Remove Programs)

# Basic Deployment Scenarios

- End user has ArcGIS Desktop
  - Most likely .dll(s)
  - .exe(s) are possible but not common
- End user has ArcGIS Engine Runtime
  - Most likely an .exe
  - Possibly additional .dll(s) to enhance the .exe
- End user has both
  - Will have both .dll(s) and exe(s)

# Deploying an application

## Manual Deployment

- Copy the .dll onto the deployment machine
- Use ESRIRegAsm.exe to register the .dll

**[CommonFilesFolder]\ArcGIS\bin\ESRIRegAsm.exe "YourDLL.dll" /p desktop /v 10.0**

**[ms-help://ESRI.EDNv10.0/ArcObjects\\_NET/ed1e3c99-4956-4113-b877-df327ac94db0.htm](ms-help://ESRI.EDNv10.0/ArcObjects_NET/ed1e3c99-4956-4113-b877-df327ac94db0.htm)**



# Deploying an application

## Setup Deployment

- Add an installer class to the VS class library project that uses `System.Runtime.InteropServices.RegistrationServices`
- Create a Setup Project in VS to consume the .dll and installer class to create a setup.exe

[ms-help://ESRI.EDNv10.0/ArcObjects\\_NET/45c9bbdb-6a91-4edf-8d4e-195486281a2f.htm](ms-help://ESRI.EDNv10.0/ArcObjects_NET/45c9bbdb-6a91-4edf-8d4e-195486281a2f.htm)

## **Additionally for ArcGIS Engine Application Deployment**

- **Engine Runtime installed on the target m/c**
  - **As discussed in previous slides.**
- **Engine Runtime not installed on the target m/c**
  - **Your application setup installs the ArcGIS Engine Runtime and your custom application.**
  - **User authorizes the ArcGIS Engine Runtime manually.**

# Engine Runtime install options

Engine Runtime can be installed silently using msiexec commands

- **Basic UI Install**
  - **msiexec.exe /i <setup location>\Setup.msi /qb**
- **No UI Install**
  - **msiexec.exe /i <setup location>\Setup.msi /qn**
- **InstallDir Parameter**
  - **msiexec.exe /i <setup location>\Setup.msi /qn InstallDir=c:\test**

# Including Service Packs

- In case an applications requires ArcGIS Engine Runtime Service Pack
  - Include Service pack file (msp) on CD
  - Launch within a batch file

REM Set variables

SET MSI\_PATH=<CDROM>\ArcEngine\Setup.msi

SET MSP\_PATH=<CDROM>\ArcGISEngine931sp1.msp

REM Launch MSI Silently - NO UI

msiexec.exe /i "%MSI\_PATH%" /qn

msiexec.exe /p "%MSP\_PATH%" /qn

# Testing Tips

- **Supported platforms**
  - **Compare with ArcGIS supported platforms**
- **Various configurations**
  - **Bare bones Operating System**
  - **Operating System with common softwares like Office and Visual Studio**
- **Test Install**
  - **Launch conditions (Dependencies)**
  - **Compare the Installed files against source image**
  - **Test shortcuts**
- **Test Uninstall**
  - **Test dll un-registration clean up**

# Resources

- Platform SDK Documentation
  - [http://msdn.microsoft.com/en-us/library/aa370834\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/aa370834(VS.85).aspx)
- ESRI Resource Center website
  - <http://resources.esri.com>
- Software Deployment websites
  - <http://www.installsite.org/>
  - <http://msdn.microsoft.com/newsgroups/default.aspx?dg=microsoft.public.platform.msdk.msi&lang=en&cr=US>



# **Demonstration**

**Create a deployment package in Visual Studio**

# Authoring a Setup Program

- **Create the setup template**
- **Add the solution files to the template.**
- **Launch Conditions**
- **Prerequisites**

# The Setup Template

- **Create the Setup IMAGE**
- **Create the Setup Template**
  - **Product Information**
    - **(Name, Version, ProductCode, Default Install location etc..)**
  - **Registry Keys**
  - **Features (optional)**

# Add Solution files

- Add files
- Register DLL's
- Add shortcuts

# Launch Conditions

- Components required for the setup to run – such as .NET Framework, Engine Runtime, etc.
- Registry key's to check if Microsoft .NET Framework V3.5 SP1 is installed.

[HKLM\Software\Microsoft\NET Framework Setup\NDP\v3.5  
“SP”

- Registry key to check if Engine Runtime is installed.

[HKLM\Software\ESR\Engine10.0]  
“InstallDir”  
“RealVersion”  
“.NET\_Support”

# Prerequisites

## Check for Pre-Requisites

- Installed Product, Features and Service Packs
- Registry keys
  - Engine Registry keys

[HKLM\Software\ESR\Engine10.0]

“RealVersion”

“SP”

- Your setup.exe would install Engine Runtime if not found.  
(your Setup.msi would not run without it.)



# Demonstration