Migrating Custom Desktop Solutions from 9.3 to 10

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Agenda

- Changes at ArcGIS 10
  - SDK Requirements
  - 64 Bit support
  - Publisher Policy Files
- Runtime Binding
- Changes to Component Registration
- New Customization Framework Options
  - Add-ins
  - Enhancements to Python
- VBA Developer Migration
- VB6 Developer Migration
Changes at ArcGIS 10
SDK Requirements

- Visual Studio 2008 sp 1
- Visual Studio 2010
- Visual Studio Express 2008
- .NET Framework - 3.5 sp 1
- Eclipse Galileo or Ganymede
- JDK 6 update 16
- ArcGIS changes
  - Single ArcObjects SDK for each language
  - Engine Runtime must be installed to develop with the controls
64 Bit Support

• ArcGIS Desktop and Engine are 32 bit applications
  - Run as 32 bit applications on a 64 Bit OS

• For standalone applications
  - Set platform to x86 in Visual Studio Configuration Manager
  - Default is “Any CPU”

• At Version 10 ArcGIS applications are Large Address Aware
  - On 64 Bit OS processes can take up to 4 gigabytes of RAM if available
No Publisher Policy Files at ArcGIS 10

• Policy files specify assembly redirection
  - Installed into the GAC
  - Included in previous versions of ArcGIS

• Desktop applications include an Application Configuration file
  - Redirects 9.3.x Assemblies to 10
  - There for migration assistance only
  - Recommended to recompile
Runtime Binding
Standalone Applications

Runtime Binding

- At ArcGIS 10 each product has its own runtime
  - Products have their own install locations
  - Service pack products separately
  - Uninstall service packs

- ArcObjects must be pointed to a runtime to work
  - Required for all standalone applications
  - Must bind before making any other ArcObjects calls
  - Preferably in your main method or in the application events

- Remember – Binding is not Licensing
  - Still have to check out a license after binding
Standalone Application

Runtime Binding - .NET

- Add reference to ESRI.ArcGIS.Version

- Use the RuntimeManager static class
  - Call ESRI.ArcGIS.RuntimeManager.Bind
    - Pass in product code of the target runtime
  - Also BindLicense method
    - Which binds and calls AoInitialize under the hood
Demo Runtime Binding
Migrating Custom Components
Component Registration

Understanding component registration

• Prior to 10, ArcGIS knew which customizations to load based on which categories a component was registered in

• Example Custom ArcMap Command
  - Implement ICommand
  - Register COM component
  - Register command in MxCommands Category
  - Upon startup ArcMap reads all components in the MxCommands category and loads appropriate commands
Component Registration at ArcGIS 9.x

Registry

My.dll

ArcMap.exe

MxCommands

Regsvr32 or Regasm

COM

ICommand
Component Registration

Understanding component registration at 10

- ArcGIS 10 no longer reads component categories form the registry

- Component Category information is read from configuration files (*.ecfg)
Component Registration at ArcGIS 10

- ECFG
- MxCommands
- ArcMap.exe
- My.dll
- Registry
- COM
- ICommand
- EsriRegasm
Component Registration

How to register custom components at 10

- Components are still COM based
  - Must register custom components
- Use ESRIRegAsm.exe to register category information
  - Creates your *.ecfg file
  - Places it into appropriate folder
    - Engine:
      %CommonProgramFiles%\ArcGIS\Engine10.0\Configuration\CATID
    - Desktop:
      %CommonProgramFiles%\ArcGIS\Desktop10.0\Configuration\CATID
Component Registration

How to deploy custom components

- To Deploy little change needs to be made
  - Option 1:
    - If you call RegSrv32.exe or RegAsm.exe
    - Call ESRIRegAsm.exe instead
      - ESRIRegAsm.exe <MyDll.dll> /p:<Product> /s
  - Option 2:
    - Register like you always did and with COM copy the ecfg to the appropriate location
    - Engine:
      %CommonProgramFiles%\ArcGIS\Engine10.0\Configuration\CATID
    - Desktop:
      %CommonProgramFiles%\ArcGIS\Desktop10.0\Configuration\CATID
Component Registration

Adding registration to existing projects

- Adding the EsriRegAsm.exe step to your own .NET projects
  - Unload and edit project
  - Add the custom build step
  - This registers your component on build and unregisters on clean

- C++ developers add custom Post-Build Event
  - "$(CommonProgramFiles)\ArcGIS\bin\esriregasm.exe" /p:Desktop "$(TargetPath)"
Migration Workflow Overview
Migration

Tips migration workflow

- ArcObjects SDK includes the Code Migration Analyzer
  - Provides warnings in the error list window to help with migrating applications to 10
- Update debug start action to new ArcGIS executable locations
- Fix any changes to Assemblies
- Add new component registration step
- Standalone applications add the Binding code
Migrating Custom Components
New Customization Framework Options
New Customization Framework

Add-ins

• No COM registration required!
• Can use Java or .NET
• Create Add-in through an Eclipse or Visual Studio Wizard
  - Config.esriAddinsx xml file and a class
  - New items can be created through wizard or through XML
• Compile Add-in
  - Creates an *.esriaddin file
  - XCopy deployable
  - Installation is as simple as double clicking on the Add-in
New Customization Framework

Add-ins

- Types of Add-in customizations
  - Button and tools
  - Combo Boxes
  - Menus, Context menus, Multi-items
  - Toolbars and Tool palettes
  - Dockable windows
  - Extensions
  - Editor Extension
New Customization Framework

Add-ins

- Add-ins are installed on a per user basis
- No Administrative permissions required
  - Can be digitally signed
  - Installation can be controlled by systems administrator
    - Block all Add-ins, block unsigned Add-ins, specify an administrator folder, only allow Esri Add-ins
- Add-in can be placed on a network share and referenced through Add-in Manager
  - All updates will automatically be picked up next time ArcGIS Desktop is loaded
Demo Add-ins
Python

Enhanced at ArcGIS 10

• ArcPy site-package
  - Automation of GIS mapping functionality
    - Printing and Exporting
    - Manipulate Map Document and Layer Files
    - Automate Map Book creation
  - Automation of GIS analysis
    - Geoprocessing
    - Python API for Spatial Analyst
    - Python API for GeoStatistical Analyst
Python

Enhanced at ArcGIS 10

- Can be leveraged throughout ArcGIS
  - Same scripts can run on
    - Desktop
    - Engine
    - Server
    - Windows / Linux
Demo Python
VBA Migration
VBA Migration

Status for 10.1

• Free VBA Compatibility Setup
  - Request license
  - No Support and no SDK
  - Available to allow existing solution to still work doing migration

• Esri urges your to migrate VBA application to a supported development environment

• Where should a VBA developer go?
VBA Migration

Python

• Why migrate to Python?
  - Simpler API
    - Perfect for Automation of Mapping and GIS Analysis
    - Functionality will increase over time
    - Python can be leveraged from any development environment

• Why might Python not be an option?
  - Not an ArcObjects replacement
    - Review ArcPy and make sure it does what you need
  - Need to completely rewrite your code
    - Business logic will need to be changed significantly
VBA Migration

Add-ins

• Why migrate to Add-ins?
  - A lot of code can be copied and pasted in a VB.net application
  - Types of customizations are the same or similar
  - Simple deployment model
Migrating VBA to Add-ins
VB6 Migration
VB6 Migration

Current Status

• As of ArcGIS 10 VB6 is no longer supported
  - We don’t ship a VB6 SDK
  - We don’t install the VB6 runtime

• What does this mean for VB6 Components?
  - Migrate to a supported language
  - ArcObjects SDK contains many resource to help with the migration process
    - Case studies
    - Samples
    - Tips
Component Registration at ArcGIS 10

- Registry
- MxCommands
- COM
- ICommand

EsriRegasm and Regsrv32

ArcMap.exe

My.dll
VB6 Migration

Migration Strategy

- For large VB6 solutions
  - Migrate components bit by bit

- VB6 components are not blocked by the ArcGIS system
  - Components can be registered to help in the migration process KB 37639
    - Test components thoroughly
    - Replace with supported components as they become available
Registering Components for Migration
Questions?

- Please don’t forget to fill out the surveys.
- [www.esri.com/sessionevals](http://www.esri.com/sessionevals)