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# 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 it's own runtime
  - Products have their own install locations
  - Service pack products separately
  - Uninstall service packs

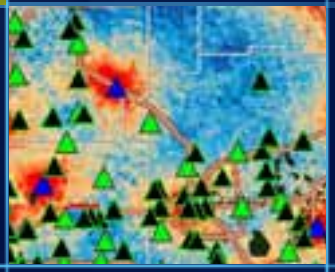
- ArcObjects must be pointed to a runtime to work
  - Required for all standalone applications
  - Must bind before making any other ArcObjects calls
  - Preferably in your main method or in the application events
- Remember – Binding is not Licensing
  - Still have to check out a license after binding

# 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

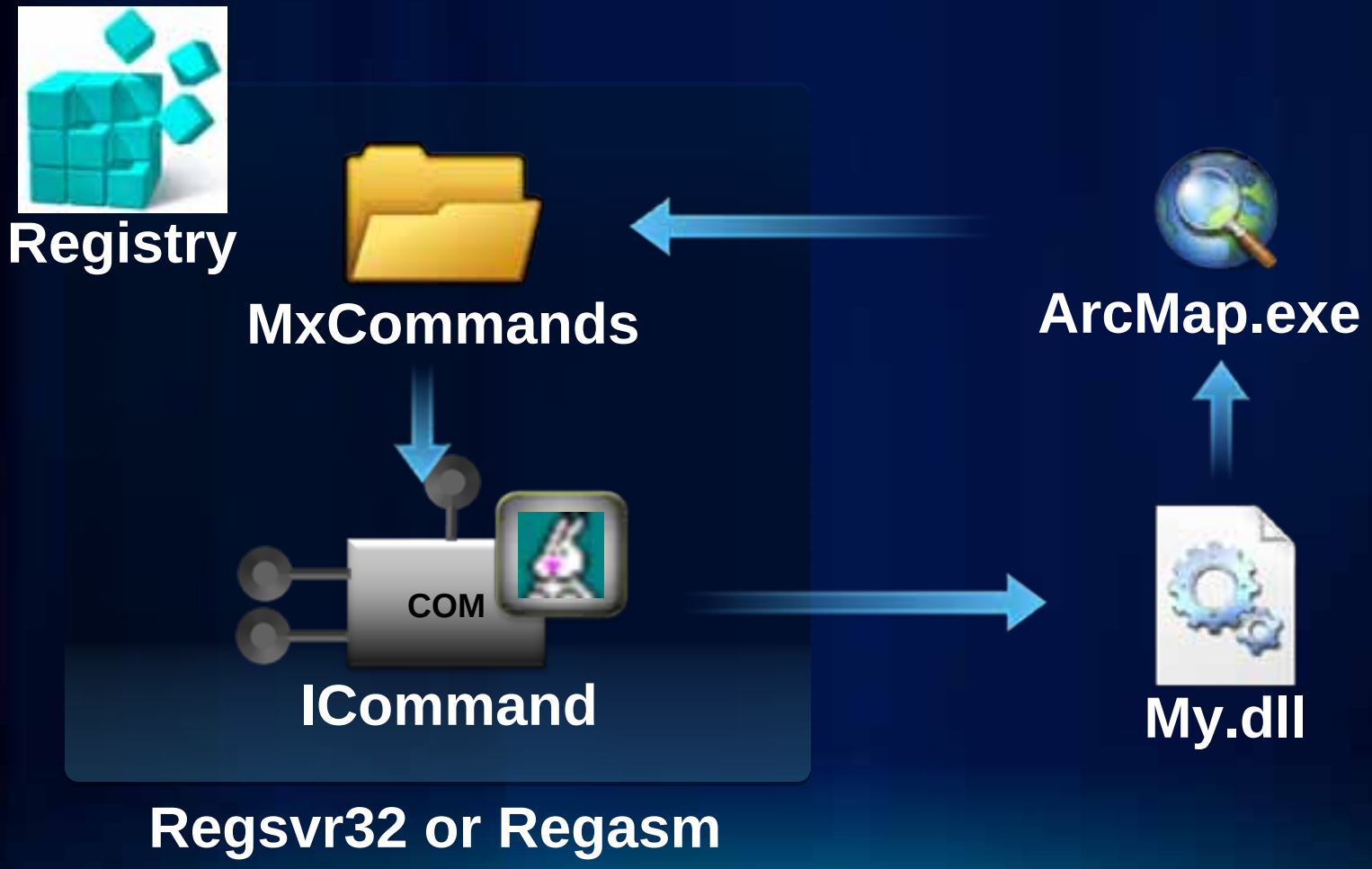
# Component Registration

## 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

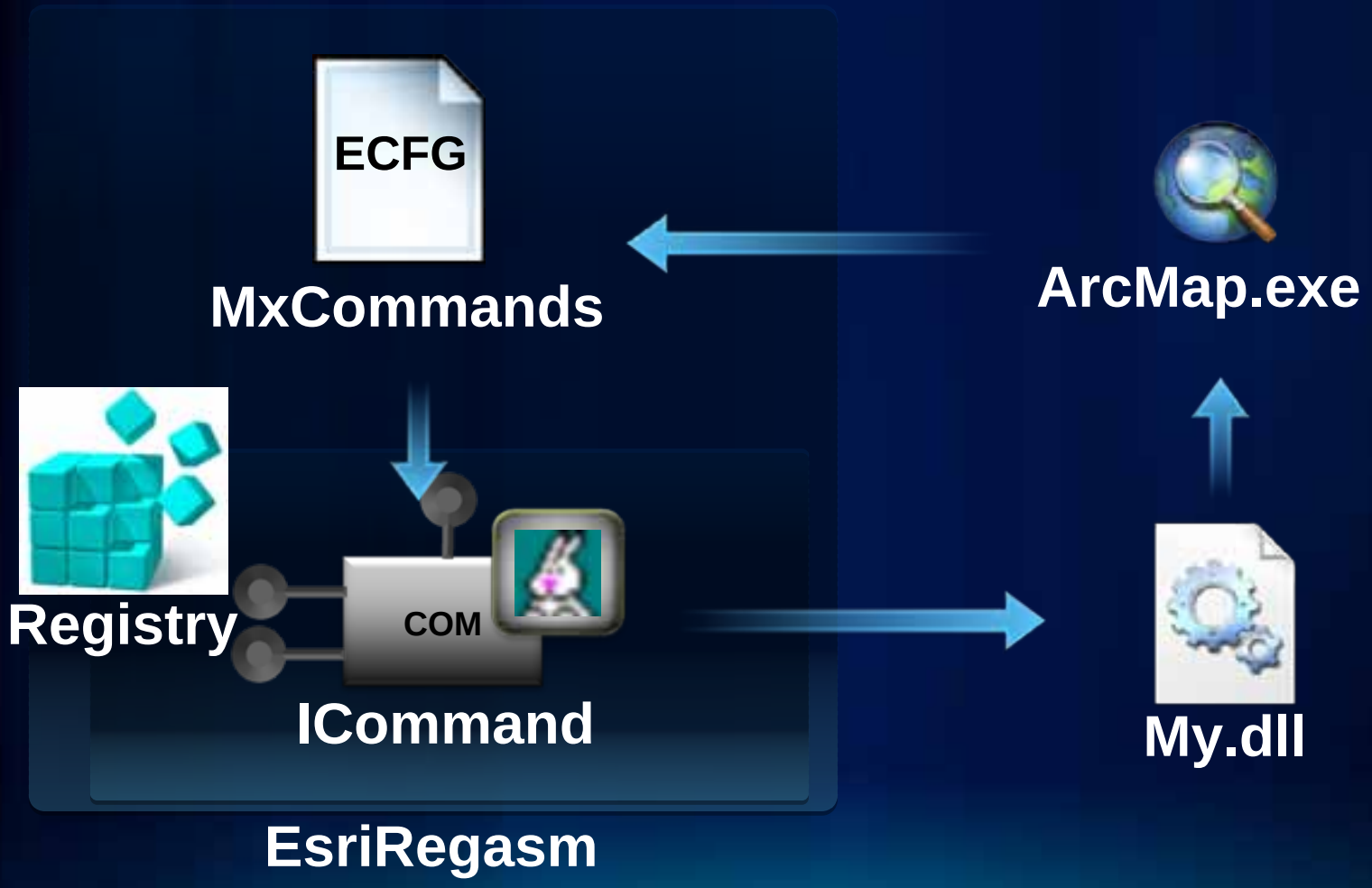


# Component Registration

## 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



# 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

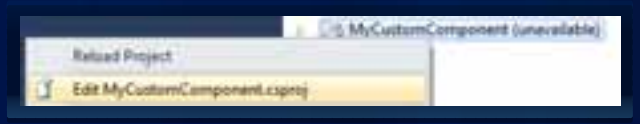
    - Desktop:

%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)"

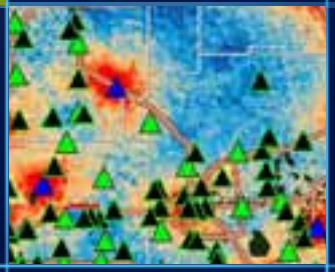
# Migration Workflow Overview

# 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

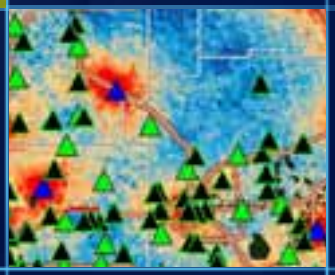
- Types of Add-in customizations
  - Button and tools
  - Combo Boxes
  - Menus, Context menus, Multi-items
  - Toolbars and Tool palettes
  - Dockable windows
  - Extensions
  - Editor Extension

# 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

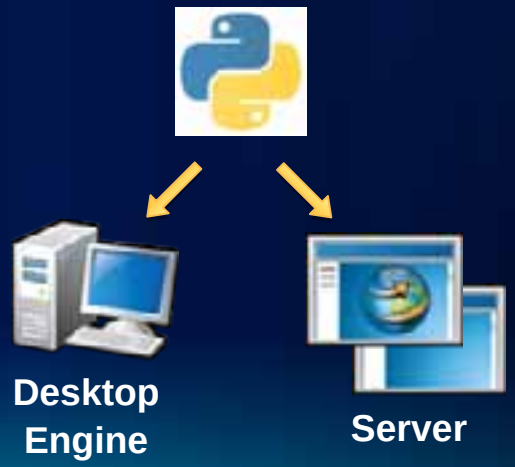
## Enhanced at ArcGIS 10

- 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

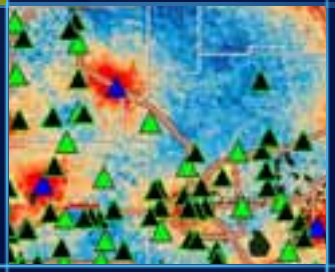
# Python

## 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

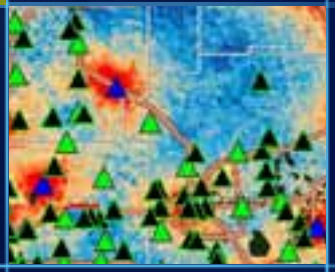
- Why migrate to Python?
  - Simpler API
    - Perfect for Automation of Mapping and GIS Analysis
  - Functionality will increase over time
  - Python can be leveraged from any development environment
- Why might Python not be an option?
  - Not an ArcObjects replacement
    - Review ArcPy and make sure 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

ArcMap.exe

ICommand

My.dll

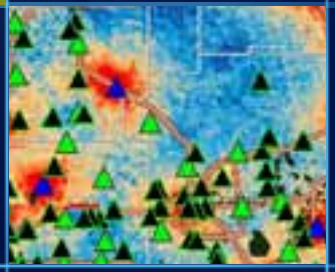
EsriRegasm and Regsrv32

# 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

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