Developers Road Map to ArcGIS Desktop and ArcGIS Engine

Core ArcObjects Desktop Team
Agenda

- Dev Summit
- ArcGIS Developer Opportunities
- Desktop 9.3 SDK
- Engine 9.3 SDK
- Explorer
- The Road Beyond 9.3
Dev Summit Highlights

- Allan Cooper Keynote – Wednesday morning
- Meet the Teams – Tuesday & Wednesday
- Demo Theater – Tuesday & Wednesday
- Tech Sessions
- Dinner on Tuesday night
- SIGs on Tuesday and Wednesday evening
- Closing Session

We want your feedback
ArcGIS Desktop
Developer Perspective

- Desktops
  - ArcReader
  - ArcView
    - Extensions
  - ArcEditor
    - Extensions
  - ArcInfo
    - Extensions

- Desktop Dev Kit - APIs
  - .NET
  - COM
VBA Customization of ArcGIS Desktop

- Easy to create custom tools, toolbars
- Easy to share via documents (.mxd) or document templates (.mxt)
- No installation necessary

But...

- Can’t protect code effectively
- Can’t create libraries (.dll)
- Can’t create executables (.exe)
Extending ArcGIS Desktop

• ArcObjects development with Visual Studio
  – Custom Extensions / Commands / Tools
• Compile into DLLs and deliver as extensions
• Plug-in to existing Desktop Framework
• Desktop SDKs provide everything needed
  – Wizards, helper tools, utilities, doc, diagrams, samples
Desktop Development Sessions

• Extending the ArcGIS Desktop Applications
  – Wednesday 10:30am and 2:45pm

• Developing Desktop Applications with the Geoprocessing Framework
  – Wednesday 10:30am
Supported Programming Languages / IDEs

• 9.2 Desktop SDKs
  – VBA
  – Visual Basic 6
  – Visual C++ (VS 2005)
  – Visual Studio 2005 (VB.NET and C#)

• 9.3
  – Updating VBA to version 6.5
  – Add support for Visual Studio 2008
  – Last release with support for Visual Basic 6
ArcGIS Desktop and Engine SDKs at 9.3?

- **Language-specific resources that help developers**
  - Customize and extend the ArcGIS Desktop application suite
  - Build custom desktop GIS applications

- **Resources include:**
  - API Reference Help
  - "How to", conceptual, & best practices help topics
  - Samples
  - Code snippets
  - Tools & utilities
.NET Engine & Desktop SDKs

• Goal - Raise the visibility & usability of available resources
  – Visual Studio Snippet Finder tool
  – API Help cross-references
  – Improved linking between SDKs and to the web-site
ArcGIS Snippet Finder

- Integrated tool within Visual Studio
- Keyword Search of ArcGIS code snippets
- Insert snippet based on your preferences
  - Fully qualified
  - Using statements
  - Comments
API Help cross-refs

#1 user request – “Better API Help”

• Developers go directly to API Help pages (F1) & do not see/find samples, snippets, how to, & conceptual material that may be available

Solution:

• Create linkages between the API Help pages and the other stuff that illustrates usage of that type.
What’s New in ArcGIS Desktop 9.3

**Improvements:**

- Bookmarks
- Joins and Relates are Layer Properties
- Layer files registered with Windows, publishable via web
- New HTML Popup with Field, URL or XSL custom options
- New Create Time Layer Animation dialog
- Multiple Viewer windows for multiple data frames
- Table / Attribute flexibility, identify dialog agreement with relates
- Scatterplot matrix data exploration
- Graphic Improvements, conversion
- Geoprocessing Feedback
- KML Support
- Printing and Export (PDF embeds attributes)
- Maplex placement enhancements
- Publisher ink export/ ArcMap import
- And more…
ArcGIS 9.3 Editing Productivity

- New sketching shortcuts
  - Snap ->, ABS/Delta XY, Direction
- New edit tool shortcuts
  - Pan to, Identify
- Split & Fillet feedback
- DD Unit hinting
- Clip with any feature
- Suspend stream mode
- Z-value interpolation
Demo - Editing

ARCGIS DESKTOP 9.3
ArcGIS Engine

- Custom standalone application development
- Developer Kits
- Cross Platform Runtime
- Runtime Extensions
  - Geodatabase Update
  - 3D Analyst
  - Spatial Analyst
  - Network Analyst
  - Tracking Analyst
  - Schematics
  - Maplex
  - Data Interoperability
ArcGIS Engine Developer Kit

- **9.2 SDKs**
  - Visual Basic 6
  - Visual C++ (VS 2005)
  - Visual Studio 2005 (VB.NET and C#)
  - Java Eclipse
  - Cross Platform C++

- **9.3 SDKs**
  - Add Visual Studio 2008
  - Last release for Visual Basic 6 SDK
Typical ArcGIS Engine Applications Genres

- **Standalone**
- **Non-visual**
- **Embedded applications**
Standalone ArcGIS Engine Applications

- The most common deployment
- **Mapping and Visualization**
  - 9.2 functionality very capable
  - 9.3 adds to these capabilities
- **GIS Analysis**
  - Geoprocessing provides a solid framework
  - 9.3 enhancements will help engine developers create better performing applications
Expanding ArcGIS Engine Applications

- Editing Applications
  - Specifically field based editing solutions
- Real Time Monitoring
- 9.3 development targeted these application types
ArcGIS Engine Editing

• Engine editing framework added at 9.2
  – Before 9.2 developers worked at the Geodatabase level
  – Extensibility of editing framework limited at 9.2

• 9.3 Enhancements
  – Extensible framework
  – SQL Server Express Support

```java
public void OnFinishSketch()
{
   //check sketch for errors
   ....
}

public void OnCurrentLayerChanged()
{
   PerformSketchToolEnabledChecks();
}
```
Extensible Editing Framework

• Engineer Editor exposed
  – Start / Stop Edit Sessions
  – Editable Layers
  – Control of Edit Operations
  – Editing Events
• Custom Edit Tasks
• Custom attribute editors
• Custom snapping environment and agents
• More Editing tools and context commands included
Java Engine SDK

- Eclipse Plug-in for Debugging
- Support JDK 6
- Lots of new content
  - 145 topics/samples @ 9.2,
  - 430 at 9.3 Beta with more to come
  - Fill key javadoc gaps identified user feedback
- MXDEditor tool
• Free, easy-to-use, lightweight, and embeddable version of SQL Server 2005
• Included with ArcGIS Desktop at 9.2
• ArcGIS Engine will include a copy at 9.3
• Allows developers to build and deploy rich editing applications

• ArcGIS Engine + GDB Update Extension + SQL Server Express = Extremely Powerful GIS Editing Platform
Dynamic Display

• Near Real Time Monitoring applications utilize many components, and require Dynamic Display Functionality

• Dynamic Display introduced at 9.2
  – The display of information with frequent refresh rates to clearly convey geographic information.
  – Rapidly updates without interruption
  – Smooth panning, zooming, rotation, navigation, and display of dynamic graphics
  – Allows for the display performance required of near real-time applications
Dynamic Display - Cache Enhancements

- Multi-threaded cache management
- Reused during dynamic sessions
- Reused between dynamic sessions
- Generate before use
- Invalidating areas
- Direct read for raster and Map Server layers
- Text Improvements
- Selections
- SDK
Dynamic Display - Text improvements

- Allow text box
- Better support for right to left languages
- Generic support of drawing text around a marker
- Better control of distance between text
- Draw compound markers to the screen
- Line pattern continuation
Dynamic Display – Other Improvements

• Selection
• Continuous zoom
• SDK Enhanced with more samples and technical documents
Dynamic Display

ENGINE 9.3 DEMO
ArcGIS Desktop / ArcGIS Engine: Platform Changes

• Desktop / Engine
  – New Platforms:
    • Operating Systems: Windows Vista SP1
    • Development Environment: Visual Studio 2008
  – Last Release for:
    • Operating Systems: Windows 2000
    • Development Tools: Visual Basic 6
What is ArcGIS Explorer?

- A client for ArcGIS Server
- Free to deploy, lightweight, easy to use 3D desktop application
- Easy way to deliver access to GIS content and capabilities, integrate, and utilize GIS services, geographic content, and other web services.
- Independent release cycle, the latest build can install alongside any existing ESRI software.
ArcGIS Explorer Tasks

- A task based architecture
  - Default Tasks (e.g. Get Directions)
  - Geoprocessing Tasks (e.g. Viewshed Analysis)
  - Custom Tasks

- Custom Tasks are the only extension point for AGX

- Compact Microsoft .NET API & comprehensive SDK

- Free to download SDK & Free to deploy

- Leverage the multi threaded application framework
Demo

ARCGIS EXPLORER
Further down the road...
ArcGIS Explorer for Developers

- Developer Kit (SDK) for creating custom applications based on the Explorer Map Control

- **Goals**: The developer experience must be:
  - Intuitive - Common scenarios should be easy to code
  - Concise - Aim is for < 200 objects
  - True .NET experience

- Easy to deploy / Version independent

- First rate SDK
Thanks!

- Please remember to complete conference survey and session feedback

- Feel free to contact me with other questions or feedback
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