Introduction to Programming ArcObjects with VBA

Three days

Overview

ArcObjects components are the building blocks of the ArcGIS family of products, and the ArcObjects libraries provide a rich set of functionality that developers can use to build powerful GIS applications. This course introduces the ArcObjects libraries to Visual Basic for Applications (VBA) programmers and teaches how to develop custom applications and solutions that extend core ArcGIS functionality. You work with VBA development tools and the Customize dialog box and learn how to use the various available help resources. In course exercises, you work with the ArcObjects VBA developer resources to create applications and tools that perform specific GIS tasks including map navigation, feature selection and rendering, spatial operations, data projection, data management, editing, geoprocessing, and map creation.

Audience

This course is designed for experienced VBA developers and experienced ArcGIS users who are new to programming ArcObjects.

Prerequisites and recommendations

Students should have completed ArcGIS Desktop II: Tools and Functionality or Learning ArcGIS Desktop or have equivalent knowledge. Intermediate programming experience in Visual Basic or VBA is also required. Those with no Visual Basic or VBA programming experience should take Learning Visual Basic for Applications for New ArcGIS Developers or Introduction to Visual Basic 6 before taking this class.

Goals

- Customize the ArcGIS graphical user interface.
- Describe the architecture of the core ArcObjects libraries.
- Illustrate the most effective ways to use the components of the software development kit (SDK) and developer tools to implement custom functionality.
- Use ArcObjects to develop GIS functionality using VBA.
- Write reusable code for automating tasks in ArcGIS.

Topics covered

Programming with COM: Coclasses, class libraries, COM, query interface, creating objects.

Object model diagrams: Object model diagrams, types of classes, inheritance.

The ArcGIS application framework: Customize dialog box, Visual Basic Editor.

Working with maps and layers: Active data frame, layer properties.

Accessing data with ArcObjects: Accessing existing data using ArcObjects.

Displaying data: Feature and raster data rendering.

Working with queries and selections: Cursors and feature cursors, selection sets.

Geometry and spatial analysis: Spatial analysis, spatial reference, calculating area.

Data creation and editing: Creating new data, editing using cursors.

Geoprocessing: Running geoprocessing tools, setting environments.

Working with layouts: Making maps, adding elements, exporting and printing.

ArcObjects beyond VBA: Extending applications, ArcGIS Engine, ArcGIS Server.