

Advanced ArcObjects Component Development I

Three days

Overview

Learn how to use Visual Basic, COM, and ArcObjects to build custom components that extend the functionality of ArcGIS. This course reviews Component Object Model (COM) technology and advanced VB/COM programming techniques then focuses on how to implement interfaces to extend the ArcMap and ArcCatalog application framework. Participants learn how to create VB ActiveX® dynamic link libraries to support new custom commands, tools, menus, tab views, forms, windows, and application and geodatabase extensions. Stand-alone application development using ESRI controls and ArcGIS licensing and deployment details are also covered.

Audience

This course provides the essential background information and architectural concepts that all developers need to extend ArcGIS applications. The course is designed for proficient VB/VBA programmers who are familiar with COM, ArcGIS, and ArcGIS OMDs. All participants must successfully complete *Introduction to Programming ArcObjects with VBA* or have equivalent ArcGIS programming experience (three months minimum is recommended) before attending. This course is also mandatory for VC++ developers before taking *Advanced ArcObjects Component Development II (C++)* and *Advanced ArcObjects Component Development II (.NET)*.

Goals

- Learn advanced VB and COM programming concepts and ArcObjects problem solving techniques
- Illustrate how to extend the architecture of ArcMap and ArcCatalog and program with the ArcObjects ESRI MapControl and PageLayout
- Build ActiveX DLLs, OCXs, and custom mapping components
- Design custom COM commands, tools, menus, and forms
- Develop application and geodatabase extensions
- Lock application functionality, handle events, and hide code
- Debug and error handle components
- Learn the importance of component and category registration
- Implement component persistence

- Cover packaging and deployment

Topics covered

Fundamentals of COM and ArcObjects: COM components; Clients and servers; Classes; Interfaces; GUIDs; ArcObjects OMDs and Help system; Problem solving techniques

Implementing custom framework components: VB and COM; ActiveX components; VB ActiveX DLLs; Implementing interfaces; Developing custom commands and toolbars; Debugging; Error handling; Tips and tricks

Advanced custom component development: Extending Microsoft® Windows®; Views; Property pages; Component categories

Application extensions: Building and delivering extensions; Persisting data; Customization filters; Licensing

Extending the geodatabase: Editor extensions and events; Class extensions; Custom object inspectors

Stand-alone applications: VB EXE development; ArcObjects MapControl and PageLayout; Creating a map; Active View; Data; Display; Output

Component registration and deployment: Regsvr32.exe; Registry files; OLEView.exe; Component category management; Versioning and compatibility; Package and deployment with the VB Setup wizard

Prerequisites and recommendations

It is mandatory that participants complete *Introduction to Programming ArcObjects with VBA* or *Migrating from Avenue to VBA Workshop* before taking this course or have equivalent experience programming ArcObjects with VB or VBA. Familiarity with navigating the ArcObjects object model, interface programming, UML, COM technologies, ActiveX, object linking and embedding (OLE), and VC++ is also beneficial. This is not an introductory class.