

Add Custom Commands and Tools to ArcGIS

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As part of the evolution of ESRI products, users tell ESRI what additional functionality they want in the next release of the software. In the past, clients could purchase ESRI object code and develop specific functionality, but this was not an affordable option for everyone. With the adoption of object-oriented architecture, users are now able to use any COM-compliant programming language to modify ESRI software.

However, before writing any code, determine if the functionality you need has not already been developed. ArcGIS Desktop, through its applications ArcMap and ArcCatalog, provides a handful of very useful general functions accessible through the graphic user interface.

A good place to start is by using the Customize dialog box to access existing tools and commands that are not available with the default interface and by using samples that supply extensions, tasks, views, and renderer folders. Additional resources can be found within the Developers Help system for the ArcGIS Desktop software developer kit, the ESRI Developer Network Web site (end.esri.com), and the documentation that comes with ArcGIS.

The Customize Dialog Box

ArcMap and ArcCatalog can be customized without writing a single line of code. Create, add, move, and remove toolbars and commands, and even add tools that others have created using the Customize dialog box. To activate the Customize dialog box, choose Tools > Customize on the standard menu. The Customize dialog box has Toolbars, Commands, and Options tabs. The Toolbars and Commands tabs are used to modify the user interface, while the Options tab provides control over basic customization settings.

Toolbars

With the Toolbars tab of the Customize dialog box, existing toolbars can be turned off and on, renamed, or deleted. Any changes can be undone by resetting an individual toolbar to its original state by choosing Reset in the Customize dialog box.

Also, use the Toolbars tab to create brand new toolbars. When creating a new toolbar, the system will prompt for the new toolbar's

name and create a small gray box on the user interface. Add commands to the new toolbar using the Commands tab of the Customize dialog box.

Commands

The Commands tab on the Customize dialog box contains all existing ArcMap or ArcCatalog commands. Select a particular command and drag it from the Customize dialog box onto a toolbar as a button or onto a menu as a menu choice. Set a location for saving these customizations—either save customizations in the current map document (.mxd), or in the Normal template (.mxt). Choosing the current .mxd makes the customizations available only for that particular document. Saving customizations to the Normal template makes the customizations available every time a new document is created.

Options

The Options tab on the Customize dialog box controls basic properties of the customization development environment.

All ArcMap or ArcCatalog commands, organized by category, are available through the Commands tab. By highlighting a category on the left side of the dialog box, all commands in that category are listed on the right side of the dialog box. Some familiar command categories include Selection, Pan/Zoom, and File.

Many of these commands are not included with the default ArcGIS interface. Add a command to the interface by selecting it in the dialog box and dragging it to a toolbar as a button or a menu as a menu choice. Note that controls that require user interaction will not work as menu choices, and some commands, such as layer properties, only work as context menu choices. To find out a list of the commands available with ArcGIS Desktop, choose ArcGIS Desktop Help > Customizing from the main menu.

Adding Custom Commands by Adding from a File

Custom commands are functions created with any COM-compliant programming language that can be distributed as an ActiveX DLL or

Executable file (.exe). Add custom commands developed for ArcMap or ArcCatalog using the following procedure:

1. Choose Tools > Customize from the standard toolbar.
2. In the Customize dialog box on the Commands tab, click Add From File.
3. Navigate to the file containing the custom command, click the desired file, and click Open. The Added Objects dialog box appears. It reports the new objects that have been registered with ArcMap or ArcCatalog. Click OK.
4. Click the Toolbars tab. Click the Commands tab. Click the custom commands category in the Categories list.

Click and drag the command from the Commands list and drop it on the target toolbar. Click Close. Using Add From File causes the system to automatically register the component DLL. Note that this method cannot be used for DLLs created with Visual Studio .NET.

About Adding Custom Commands Using Samples

Install the samples folder during the software installation process by selecting the Complete option. This option will install the Developers Help Kit and all samples. Some of the sample custom commands can be accessed via Add From File as mentioned above, while others require the Components Categories application.

Adding Samples as a Component Category

After compiling the sample and creating a new DLL using the sample source code project file, register the DLL using Regsvr32.

1. From the Taskbar, choose Start > Run.
2. In the Run dialog box, type "regsvr32 <your file path name>" (for example, type "regsvr32 D:\Samples\ApplicationFramework\SampleExtension\SampleExtension.dll").
3. Click OK.

After the DLL has been registered, use the Component Category Manager utility to add the sample DLL to the appropriate component category. There are several ways to launch the Component Category Manager. One way is to navigate to the directory where ArcGIS was

For more samples, browse the contents of the Developing_with_ArcObjects/Desktop_Development_Guide.pdf

installed and run Categories.exe (for example, C:\Program Files\ArcGIS\bin\categories.exe). Another method is to click Start > All Programs > ArcGIS > Developer Tools > Component Category Manager.

Once the sample is added to the appropriate component category, ArcGIS will be automatically notified of the new objects. If the object is not recognized, shut down the computer and restart it and reopen ArcGIS.

1. In the Component Category Manager, double-click the category where the sample will be registered. Click Add Object.
2. In the Find Add-in dialog box, navigate to the component file, select it, and click Open.
3. In the Add Object dialog box, check the sample to add to this component category and click OK.
4. The Component Category Manager now lists the sample in the component. Click OK.

For More Information

Get more information about creating and

implementing custom commands by browsing the sample code embedded within the contents of the Developing_with_ArcObjects/Desktop_Development_Guide.pdf, part of the documentation that comes with ArcGIS.

Select a particular command and drag it from the Commands tab in the Customize dialog box to a toolbar as a button or onto a menu as a menu choice.

The Customize dialog box has three tabs—Toolbars, Commands, and Options. The Options tab sets the development environment.

Use the Component Category Manager utility to add the sample DLL to the appropriate component category.

