Creating Custom Tool Buttons for **ArcPad**

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This tutorial will teach you how to create a custom toolbar for ArcPad using ArcPad Studio, the development environment that is included with ArcPad Application Builder. This toolbar incorporates three custom buttons and three built-in ArcPad buttons taken from other ArcPad toolbars. A basic understanding of ArcPad is assumed.

Download the archive file, ap_studio.zip, from the *ArcUser Online* Web site at www.esri.com/arcuser. This archive file contains several files: toolbar_tutorial.apm; the landmark shapefile; bit maps for custom buttons; and tutorial.vbs, a VBScript that contains the scripts that are referenced by the custom tools.

ArcPad applets (or .apa files) are mini-applications created in ArcPad Studio and stored in ArcPad XML format. Applets can contain toolbars, forms, and system object event handlers; work in more than one ArcPad map; and eliminate the need to alter ArcPad's configuration. Unlike Java applets, ArcPad applets are modules that run inside the ArcPad application and are stored in the Applets folder in the ArcPad installation directory. They are loaded automatically by ArcPad. This exercise creates an applet for delivering the custom toolbar.
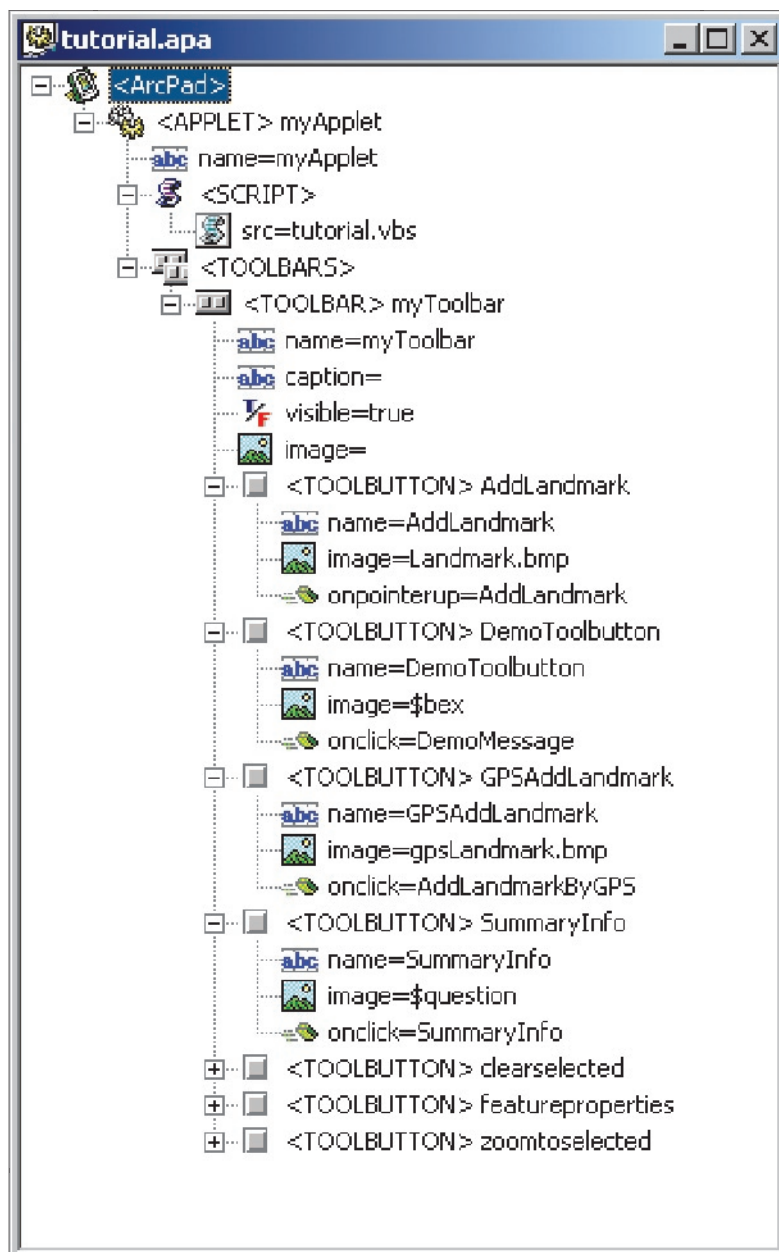
Getting Started

All ArcPad customization files—configuration files, applets, and extensions—are stored in ArcPad XML format. ArcPad XML is based on the XML 1.0 specification and is UTF-8 encoded. It uses the same syntax as ArcXML wherever possible, especially for symbology. All customization files are displayed in ArcPad XML in tree view. Custom toolbars can contain built-in ArcPad tools and custom tools. Toolbars and tool buttons can be created by using the Toolbar dialog box or by working directly in tree view. This exercise creates the toolbar and tool buttons in tree view.

1. Verify that ArcPad, ArcPad Application Builder, and the sample data that comes with ArcPad are installed locally on the computer that will be used for this exercise.
2. After downloading the sample data archive from the *ArcUser Online* Web site, create a directory called aps_tutorial. Unzip the archive into this folder.
3. Start ArcPad Studio by choosing Start > Programs or using a desktop shortcut.
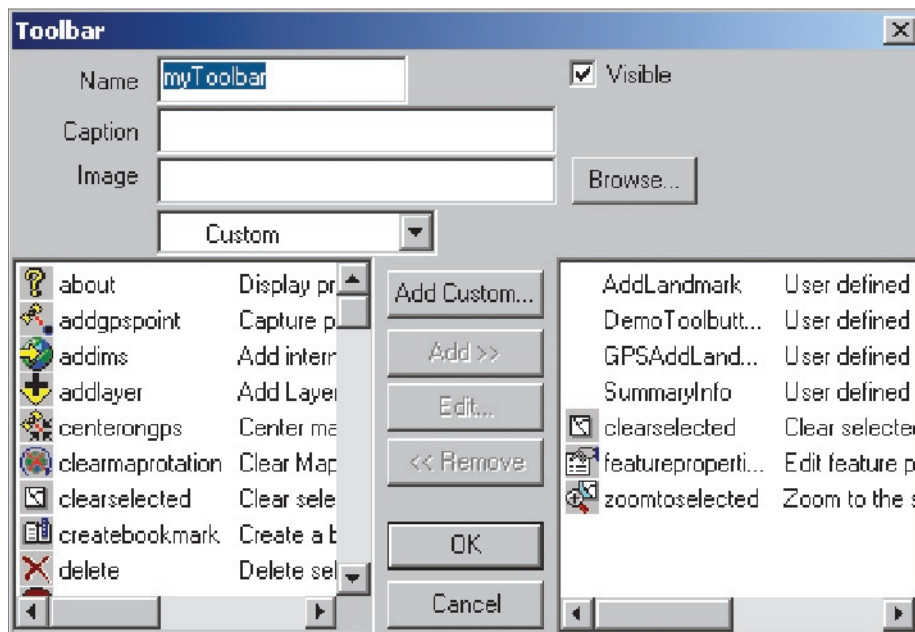4. Choose File > New > Applet. An

Use the Attribute dialog box to add name, image, and event attributes to the elements in the applet.

After adding all the custom tool buttons, their attributes, and the built-in ArcPad tools to myToolbar, the tutorial.apa should resemble this illustration.

Use the Toolbar dialog box to add built-in ArcPad tools to the custom toolbar.

<APPLET> element appears under the root <ArcPad> root element.

5. Rename it MyApplet by right-clicking on the <APPLET> element and choosing Add Attribute from the context menu. In the Attribute dialog box, type name in the Name field and myApplet in the Value field.

6. Choose File > Save As and name this applet file tutorial.apa. Save it in <your directory>\aps_tutorial.

Reference the VBScript

1. Right-click on the myApplet <APPLET> element and choose Add Element.

2. Name the new element SCRIPT.

3. Right-click on the new SCRIPT element and choose Add Attribute. Type src in the Name field and tutorial.vbs in the Value field.

Add Toolbars

The <TOOLBARS> element will contain the custom toolbar.

1. Right-click on myApplets and choose Add Element. Name this element TOOLBARS.

2. Add the custom toolbar by right-clicking on the <TOOLBARS> element and choose Add Element. Name this new element TOOLBAR.

3. Right-click on the <TOOLBAR> element and choose Add Attribute. Type name in the Name field and myToolbar in the Value field.

Add Custom Tool Buttons

These tools will display a message, add a new landmark feature by clicking on the map, add a new landmark feature using GPS, and provide information about the layers in the current map. The process for creating each button is the same. Add a tool button element to myToolbar and give it three attributes—name, image, and event. ArcPad tool buttons have four kinds of events—onclick, onpointerdown, onpointermove, and onpointerup. The onpointerup and onclick event attributes will be used to call subroutines in tutorial.vbs.

1. Expand the <TOOLBARS> element. Right-click on the <TOOLBAR>myToolbar element and choose Add Element. Name the new element TOOLBUTTON.

2. Reexpand the <TOOLBARS> and <TOOLBAR> elements to see the new <TOOLBUTTON> element.

3. Right-click on the <TOOLBUTTON> element and choose Add Attribute. In the Name field, type name and type AddLandmark in the Value field.

4. Right-click on the <TOOLBUTTON> element and choose Add Attribute. Type image in the Name field and Landmark.bmp in the Value field.

5. Right-click on the <TOOLBUTTON> element and choose Add Attribute. Type onpointerup in the Name field and AddLandmark in the Value field.

6. Save the applet again.

Repeat this same process to add the other three custom tool buttons. Use the attribute values listed in Figure 1. The image values $bex and $question are referencing bit map icons that are built into ArcPad Studio.

Borrow Built-In ArcPad Tools

Because the attributes for built-in ArcPad are already defined, they can be quickly added using the Toolbar dialog box.
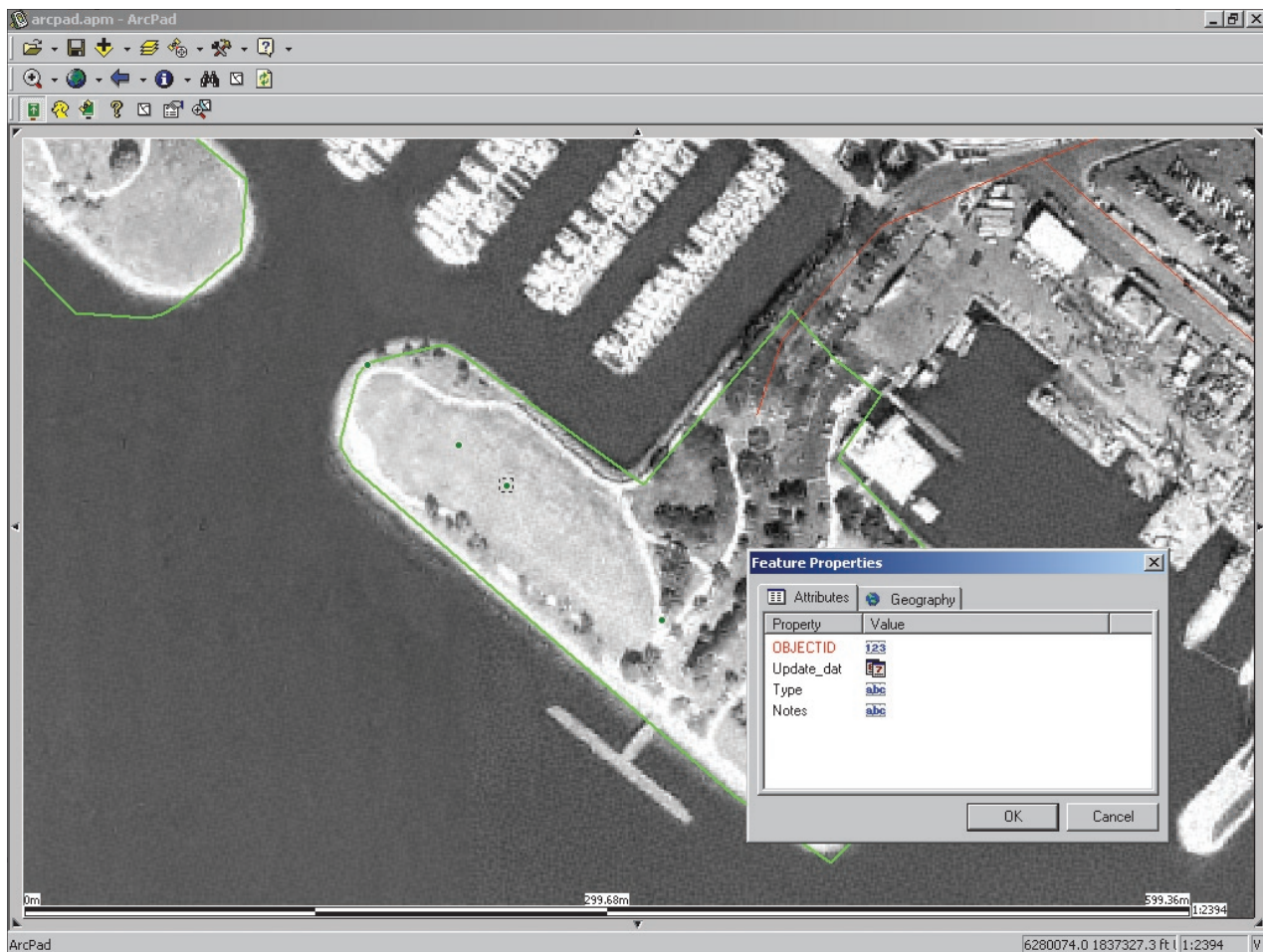
ELEMENT NAME	TOOLBUTTON	TOOLBUTTON	TOOLBUTTON
NAME ATTRIBUTE	DemoToolbutton	GPSAddLandmark	SummaryInfo
IMAGE ATTRIBUTE	$bex	gpsLandmark.bmp	$question
EVENT ATTRIBUTE	onclick	onclick	onclick

Figure 1: Values for the other three custom buttons

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Use the custom tool buttons to display a message box or add landmark features either interactively or (if you are in San Diego and have a receiver) by using GPS. The SummaryInfo button (shown here) obtains information about map layers.

1. Double-click on the <TOOLBAR> element. A dialog box for adding commands to the toolbar will pop up. Scroll through the list of commands in the left pane of the dialog box and click on clearselected. Click on the Add button to add it to the custom commands already listed in the right pane.

2. Repeat this process for the featureproperties and zoomtoselected commands.

3. Save the applet now.

Write Scripts for the Custom Commands

Several of the subroutines needed for the custom buttons are already listed in tutorial.vbs, but two more need to be added from the script.txt file that was included with the archive downloaded from *ArcUser Online*.

1. Open script.txt in WordPad, select all the text, and copy it to the system clipboard. Close WordPad.

2. In ArcPad Studio, choose File > Open and set the file filter to All Files. Open tutorial.vbs from the aps_tutorial folder. Scroll to the very end of the script,

and paste the code from script.txt (Control + V). With the addition of this code, tutorial.vbs now contains all the subroutines referenced by the custom tool buttons.

3. Click the Compile button to compile the script. If compilation succeeds, the computer will beep. Check for omitted text if the script won't compile.

4. Save tutorial.vbs and tutorial.apa again.

Try Out the Customizations in ArcPad

Before starting ArcPad, copy the files it will need to access for the customizations.

1. Copy toolbar_tutorial.apm from aps_tutorial folder to <root directory>: \Program Files\ArcPad\Samples\San Diego (or wherever the ArcPad sample data was installed). Copy all of the landmarks.* files to the same folder.

2. Start ArcPad and open toolbar_ tutorial.apm. The customizations are not visible but don't worry. There are two ways to call them up—altering the Path setting or copying the customization files. To change the path, click on the pulldown menu under the tools button

(i.e., the arrow to the right of the hammer-and-wrench icon) and choose Options. Scroll to the right until the Paths tab is active. In the Applets File Path window, type or browse to the aps_tutorial folder.

3. Alternately, copy the .bmp, .apa, and .vbs files to <root directory>:\Program Files\ArcPad\Applets.

4. Using either method requires closing ArcPad and restarting it because ArcPad only loads applets when it is initialized.

After restarting ArcPad, the custom toolbar should appear. Click on the Bex button to invoke the message box. Use the other buttons to obtain information about map layers or add landmark features either interactively or by using GPS (if you are in San Diego and have a receiver).

Additional Information

For more information on using ArcPad Studio to customize ArcPad, take the ESRI Virtual Campus (campus.esri.com) workshop *Customizing ArcPad*. Public domain templates for ArcPad have been developed for various applications and are available at no charge from www.esri.com/software/arcpad/arcpad_ templates.html.