BUILDING A NAVIGATION PANEL AS AN ABL USER CONTROL

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This document accompanies one of a series of video presentations on using Visual Designer in OpenEdge Architect, and support for GUI for .NET in OpenEdge 10.2. In this session I create an **ABL User Control**, a container for other related controls, make it into a Navigation panel and add it to a form. As always in creating a new class, I open the **File** menu and select **New**. Then I select **ABL User Control**.

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I name it **NavPanel**. The wizard shows you the key difference between a **User Control** and an **Inherited Control**. An inherited control inherits and extends a single other control class, typically one of the Microsoft or Infragistics control classes. So it becomes an instance of that control. By contrast, a User Control inherits the built-in class **Progress.Windows.UserControl**, which is itself a visual container. The idea is that you drop one or more controls onto the User Control container and then they act as a unit.

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I describe this one as a navigation panel for browsing data, and click **Finish**. What you get in design mode is an empty container.

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I grab some Microsoft .NET controls to drop onto it. The first is the **GroupBox**, to act as a visual container for the navigation buttons.

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I set the Name property to **groupBoxNavPanel**, which remember is the name of the variable for the control instance in the generated code. Then I set the **Text** property to Navigation to give a visible name to the box. And I'll make an initial attempt at resizing the container and the GroupBox.

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Next I get some Buttons for the navigation panel from the Microsoft Controls. The first one is the First button. The **Text** property for a control is normally its visible Label. And to make it look a bit more interesting, I'll reset the **Font** property to make it larger and bold, and move the button up into the corner.

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I can speed up the rest of the process by copying and pasting this button to create the other three. Here's the completed panel with all four buttons:

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Take a look at the code that got generated for me, by right-clicking and selecting **View Source** or pressing **F9**. Up at the top is the **USING** statement that tells the compiler where to find the **UserControl** class. Then the **INHERITS** phrase on the class definition tells the compiler that **NavPanel.cls** inherits the user control container class. And then you see the variable definitions for the GroupBox and all the buttons. Giving the controls reasonable names helps to make the generated code more readable.

```
USING Progress.Lang.*.

USING Progress.Windows.UserControl.

CLASS NavPanel INHERITS UserControl:

DEFINE PRIVATE VARIABLE buttonPrev AS System.Windows.Forms.Button NO-UNDO.

DEFINE PRIVATE VARIABLE buttonNext AS System.Windows.Forms.Button NO-UNDO.

DEFINE PRIVATE VARIABLE buttonLast AS System.Windows.Forms.Button NO-UNDO.

DEFINE PRIVATE VARIABLE buttonFirst AS System.Windows.Forms.Button NO-UNDO.

DEFINE PRIVATE VARIABLE components AS System.ComponentModel.IContainer NO-UNDO.

DEFINE PRIVATE VARIABLE groupBoxNavPanel AS System.Windows.Forms.GroupBox

NO-UNDO.
```

Looking down further in the code, you can see the **NEW** statements that create instances of each of the controls and place the references into the variables for them.

In the next section of code in **InitializeComponent** you can see some interesting aspects of the way the objects are grouped. Notice that the **GroupBox** isn't just a rectangle around the buttons. The buttons are actually added to the **Controls** collection for the GroupBox, which becomes their immediate parent. Notice also that properties such as the GroupBox's **Location** and **Size** are actually objects from the **System.Drawing** class. The **Point** object defines the location of the corner of the control, and the **Size** defines its dimensions.

```
/* */
/* groupBoxNavPanel */
/* groupBoxNavPanel:Controls:Add(THIS-OBJECT:buttonLast).
THIS-OBJECT:groupBoxNavPanel:Controls:Add(THIS-OBJECT:buttonNext).
THIS-OBJECT:groupBoxNavPanel:Controls:Add(THIS-OBJECT:buttonPrev).
THIS-OBJECT:groupBoxNavPanel:Controls:Add(THIS-OBJECT:buttonFirst).
THIS-OBJECT:groupBoxNavPanel:Location = NEW System.Drawing.Point(4, 4).
THIS-OBJECT:groupBoxNavPanel:Name = "groupBoxNavPanel".
THIS-OBJECT:groupBoxNavPanel:Size = NEW System.Drawing.Size(328, 49).
THIS-OBJECT:groupBoxNavPanel:TabIndex = 0.
THIS-OBJECT:groupBoxNavPanel:TabStop = FALSE.
THIS-OBJECT:groupBoxNavPanel:TabStop = FALSE.
```

The buttons work the same way, plus there's a Font object assigned to the Font property for each one.

```
/* */
/* buttonFirst */
THIS-OBJECT:buttonFirst:Font = NEW System.Drawing.Font
("Microsoft Sans Serif", 12, System.Drawing.FontStyle:Bold,
        System.Drawing.GraphicsUnit:Point, System.Convert:ToByte(0)).
THIS-OBJECT:buttonFirst:Location = NEW System.Drawing.Point(6, 19).
THIS-OBJECT:buttonFirst:Name = "buttonFirst".
THIS-OBJECT:buttonFirst:Size = NEW System.Drawing.Size(75, 23).
THIS-OBJECT:buttonFirst:TabIndex = 0.
THIS-OBJECT:buttonFirst:Text = "First".
```

After I save and compile what I have so far, I need to add my new User Control to my own controls group. I have already created **CustomControls** as a controls group. (This was shown in the presentation on creating a data-bound TreeView as an Inherited Control.) If I right-click on its header, I can select **Add Controls**.

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Then I select the ABL Controls tab to see a list of available controls built in ABL, including both Inherited Controls and User Controls. I select the **NavPanel** control, and click OK, and it's added to my **CustomControls** group so I can use it in the forms that I build.

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Next I need to try out my new control. I open a form with a Customer grid and binding source (built in the presentations on **Creating a form and a ProBindingSource**) so that I can drop the User Control onto it to try it out. I resize and rearrange the form to make room for the navigation panel...



I find it now in my CustomControls. I select the NavPanel like any other control, and drag it onto the Customer form.

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The list of properties in the Properties View is interesting for what you don't see. Because the User Control is a container, it hides the specifics of everything it contains; you see only the properties of the container. This is very different from an Inherited Control, where all of the inherited public properties are visible to the control user, who can set any of them when the control is dropped onto a form. By contrast, if you want to expose any properties of the controls in a User Control, you have to do so explicitly by defining properties in the class.

To illustrate this, I add a property **ButtonLabelText** to the NavPanel class in the editor. I make it a public property so it shows up on the property list. It's a true/false value that lets the user determine whether the button labels should show the text labels I defined – First, Last, and so forth – or symbols for the navigation operations. Remember that a setter for a property takes the value being assigned as an input parameter. This one then determines which set of labels to assign to the buttons' Text, and then sets the property itself to the input value.

```
DEFINE PUBLIC PROPERTY ButtonLabelText AS LOGICAL NO-UNDO INIT TRUE
    GET.
    SET (plLabelText AS LOGICAL) :
        IF plLabelText NE ButtonLabelText THEN
        DO:
             IF plLabelText = TRUE THEN
                  ASSIGN buttonFirst:TEXT = "First"
                         buttonPrev:TEXT = "Prev"
buttonNext:TEXT = "Next"
                         buttonLast:TEXT = "Last".
            ELSE ASSIGN buttonFirst:TEXT = "<<"
                         buttonPrev:TEXT = "<"</pre>
                          buttonNext:TEXT = ">"
                         buttonLast:TEXT = ">>".
            ButtonLabelText = plLabelText.
        END.
      END SET.
```

Back in design mode for the Customer Form, I can look through the NavPanel properties again, and here is my new **ButtonLabeltext** property. I can try out the code in the property's definition by setting it to False.

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When I save the form, it's re-run in design mode, and I see the symbols on the button labels. I can re-run the form, and here's my Customer form with the alternative button labels.



This is another illustration of how you must define properties for a User Control in order to provide access to any of its contents, which gives you complete authority over what users can change when they use the container in a larger form.

I can click on the buttons, but of course nothing happens. I need event handlers for the buttons, and that is the subject of the session on navigation panel events.

In this presentation I showed you how to create a new ABL User Control, drop other controls onto it, add it to your own controls group, define properties for it, and use it as part of a larger form. This is all part of creating reusable units of user interface and behavior that you can use to provide a consistent look and feel throughout your application.