# Overview

ActiveReports Professional Edition includes three components that allow you to provide custom reporting solutions to your end users. These reporting solutions can range from a built-in customized report designer to a complete reporting and information delivery server in Internet or intranet settings.

The components include:

- Runtime Designer Control
- WebCache Service and ISAPI DLL
- Property List Control

# Runtime Designer Control

# Introduction

The runtime designer control allows you to host the ActiveReports designer your application and provide end-user report editing capabilities. The control's methods and properties provides easy access to save and load report layouts, monitor and control the design environment and customize the look and feel to the needs of your end users.

## Persistence API

The designer control's Report property provides access to the layout elements of the report, its sections and controls. The persistence API allows you to save and load the report layout. It includes the following properties and methods.

**LoadFromObject** loads the report layout from an existing report object into the designer.

**SaveToObject**, apply the new layout to an existing report object.

**NewLayout** clears the current layout, including sections, controls and starts a new report layout. All property settings are returned to default values.

**IsDirty**, this property returns whether the report has been modified since the last save or load operation. It can be used to enable/disable a save button.

## User Interface Customization

API's for User Interface customization have the goal of providing hooks into the designer that will let developers attach their own custom menus, toolbars, field/database browsers, script editors, alert dialogs and property sheets.

### Toolbars and Menus

You can replace built-in menus and toolbars by first setting the ToolbarsVisible, ToolbarsAccessible properties on the designer control to hide the built-in UI.

All menu and toolbar commands are called actions. There are over 50 actions that are defined in the designer control.

If you are using a pull method to update your toolbar and menu states using idle-time processing, you can use the QueryStatus method to check if a certain action (such as Edit/Cut) is enabled/disabled, checked/unchecked.

In addition, the designer control fires StatusChange event when the status of the tools change allowing you to update the UI to reflect these changes.

ExecuteAction method provides the ability to perform most of the designer functions with a single call. Alternatively, actions that are not supported by ExecuteAction (ones that require a parameter such as color, style and font settings) can be executed by setting the control or section properties directly using the Report property.

### Designer Surface

The grid settings can be modified using the following properties

- GridX and GridY determine the number of grid points in each ruler unit.
- GridVisible determines whether the grid is visible of not.
- GridSnap specifies whether the controls should snap to the visible grid points.
- RulerUnits allows you to select ruler units from either US or metric units.

### Property Sheets

The runtime designer control allows you to replace the built-in property toolbox and provide your own selection editing UI. The SelChange event fires when the user changes the current selected object in the designer. You can retrieve a list of the selected object using the SelectedObjects collection.

ActiveReports Professional includes a property listbox ActiveX called "Data Dynamics Property ListBox" that can be used to create customized design environments based on your users needs.

### Script Editor

The built-in syntax-highlighting script editor is invoked using the ExecuteAction method and the action code ddActionViewCodeEditor. To replace it with your own editor, create your own toolbar/menu item and use the ActiveReport.Script, Section.Script properties to get/set the script. The scripting language is can be set using the ActiveReport.ScriptLanguage property.

## Controls Toolbox

The toolbox contains the controls that can be placed on a section. You can create your own toolbox toolbar and use the following properties and methods to interface with the designer:

ToolboxItem property: Setting the ToolboxItem property initiates the control-add mode using the ProgID set to the property. The user will use the rubber-band to select the area of the control and once the area is selected the designer will add the control specified by ProgID and end the add mode by setting ToolboxItem to an empty string.

ValidateChange Event: This event fires after any changes that are made to the report layout. It allows you to control what the use can or cannot do in the designer control. Within the event code your can cancel the layout change and revert it back to it's original state.

LayoutChanged Event: After the layout change (control addition, deletion is validated this event will fire with changeType=ddLCControlAdd to notify the application that a new control has been added.

## Alerts and Error Messages

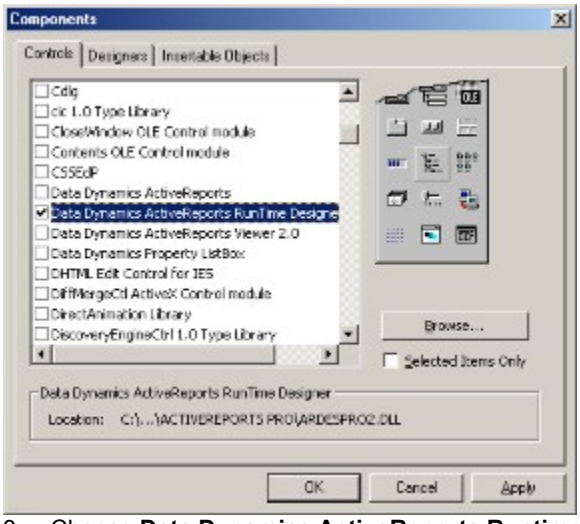
ActiveReports runtime designer allows you to intercept runtime errors and alert messages and present the user with custom notification UI. For each error or alert message ActiveReport Designer control fires an Error or Alert event with the message id and string and gives you the option to cancel the internal display when you handle the messages.

# Using Runtime Designer Control

# Adding Runtime Designer to Visual Basic

The end-user designer is an ActiveX control; the following steps describe how to include it in the Visual Basic IDE:

1. Start Visual Basic.
2. Choose Project > Components (Ctrl-T).



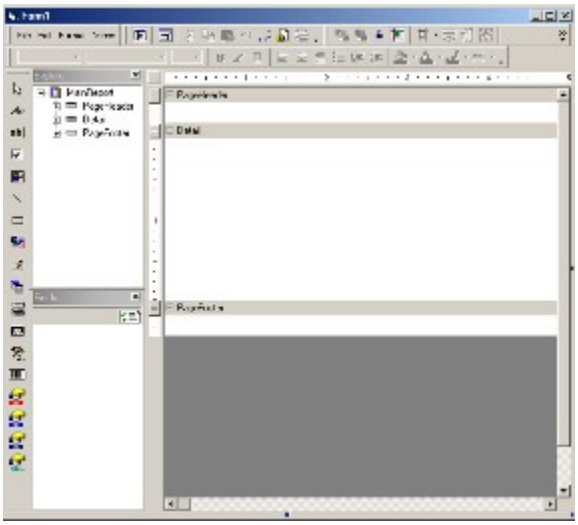

3. Choose **Data Dynamics ActiveReports Runtime Designer**.

***Note:*** *If the runtime designer entry does not appear in the list, make sure that ''Selected Items Only'' is not checked. If it still does not appear, make sure ARdespro2.dll is registered by running regsvr32 on ARdespro2.dll.*

4. Click OK to close the dialog box.
5. The runtime designer icon should appear in the toolbox.

# Adding Runtime Designer to your Project

1. Click on the runtime designer icon in the toolbox.
2. Place the control on the form (shown below) and size it accordingly.



The runtime designer's appearance is the same as the ActiveReports ActiveX designer but the end user will not have direct access to the reporting events in Visual Basic. Instead, the user will use VBScript or JScript to handle the reporting events as needed. The runtime designer includes a syntax-highlighting editor for both languages.

The following sample demonstrates adding the runtime designer to a Visual Basic project and using ActiveReport's viewer control to view reports designed at runtime.

1. Start a new Visual Basic standard EXE project.
2. Select the following components from Visual Basic's components list:

   **Data Dynamics ActiveReports Runtime Designer**

   **Data Dynamics ActiveReports Viewer 2.0**

   **Microsoft Tabbed Dialog Control**

3. Add the following references from Visual Basic's reference list:
   **Data Dynamics ActiveReports 2.0**

4. Select Form1 and set its properties as follows:

| | |
|---|---|
| Name | frmMain |
| Caption | Simple Designer Project |
| Height | 9465 |
| Width | 11295 |

5. Add a SSTab control to frmMain and set its properties as follows:

| | |
|---|---|
| Height | 9015 |
| Left | 0 |
| Tabs | 2 |
| Top | 0 |
| Width | 11175 |

6. Right-click on SSTab1 and select properties.
7. Set the TabCaption for Tab0 to Runtime Designer.
8. Set the TabCaption for Tab1 to Report Preview and select OK to close the tab control's property page.

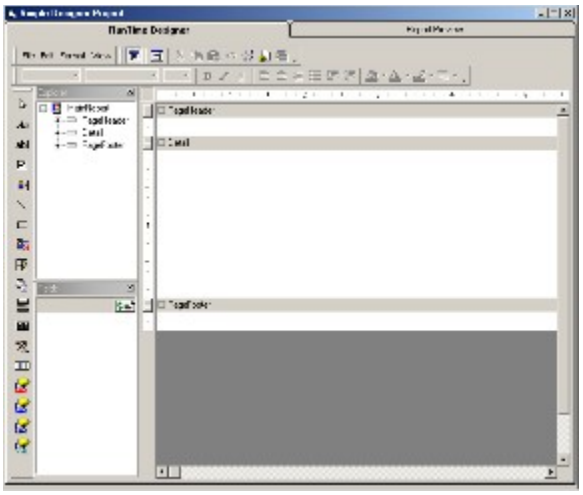
9. Add the runtime designer to Tab0 and set its properties as follow:

| | |
|---|---|
| Name | ard |
| Height | 8415 |
| Left | 120 |
| Top | 480 |
| Width | 10935 |

10. Add the viewer control to Tab1 and set its properties as follows:

| | |
|---|---|
| Name | arv |
| Height | 8535 |
| Left | 120 |
| Top | 360 |
| Width | 10935 |

11. frmMain should look like this:



12. Add the following code to the Form_Load event:

```
Dim rpt As DDActiveReports2.ActiveReport

Private Sub Form_Load()
  'Set active Tab to the designer
  SSTab1.Tab = 0
  Set rpt = New ActiveReport
  'Activate all the toolbars
  ard.ToolbarsVisible = ddTBToolBox + ddTBAlignment + ddTBExplorer + _
    ddTBFields + ddTBFormat + ddTBMenu + ddTBPropertyToolbox + ddTBStandard

  ard.ToolbarsAccessible = ddTBToolBox + ddTBAlignment + ddTBExplorer + _
  ddTBFields + ddTBFormat + ddTBMenu + ddTBPropertyToolbox + ddTBStandard
End Sub
```

**Note:** *When working with the designer, the toolbars cannot be customizing. The only available options are ToolbarsVisible and ToolbarsAccessible. If the project requires custom toolbars, a third party toolbar control will need to be substituted for the runtime designer's toolbars.*

13. Add the following code to the SSTab1_Click event:

```
Private Sub SSTab1_Click(PreviousTab As Integer)
Select Case PreviousTab
  Case Is = 0
    prepPreview
  Case Is = 1
    prepDesigner
End Select

End Sub
```

14. Add the following code to prepare the viewer control and designer when its tab is selected:

```
Private Sub prepPreview()
On Error GoTo errHndl
  'Must be used to writes the designer's layout
  'to the report so it can be previewed.
  ard.SaveToObject rpt
  rpt.Restart
  'Run the new report
  rpt.Run False
  'Add the report to the veiwer
  Set arv.ReportSource = rpt
  Exit Sub

errHndl:
  MsgBox "Error Previewing the Report: " & Err.Number & " " & Err.Description
End Sub

Private Sub prepDesigner()
On Error GoTo errHndl

  If Not arv.ReportSource Is Nothing Then
    arv.ReportSource.Cancel
    Set arv.ReportSource = Nothing
  End If

  Exit Sub
errHndl:
  MsgBox "Error in Design Preview: " & Err.Number & " " & Err.Description
End Sub
```

***Note:*** *SaveToObject must be used to save the changes made in the runtime designer to an ActiveReport report object. You should always use that object to run and preview the report, do NOT use the designer's Report property to run and preview the report.*

15. Save and run the project.

While the project is running, continue on to the next sample for a demonstration on using the designer at runtime.

Working with the Designer at Runtime

# Working with the Designer at Runtime

This sample demonstrates the fundamentals of using the runtime designer at runtime. The simple report created in this sample will be used to demonstrate more advanced features later on in the manual. At runtime the designer functions similarly to the ActiveX designer but does not allow access to the report events or code.

1. Start by running the sample project created above.
2. Place an ADO data control in the designer's detail section.
3. Connect to Nwind.mdb (see chapter 3 in the standard edition user's guide).

**Note:** *The samples in this manual use the NorthWind database included with Microsoft Visual Basic.*

4. Set the DataControl's source property to the following SQL statement:

```
SELECT * FROM customers order by country
```

5. Right-click on the designer and select insert to add a new GroupHeader/Footer.
6. Click on the new section "GroupHeader1" to select it.
7. Modify the section's properties as follows:

| | |
|---|---|
| **Name** | ghOrderGroup |
| **DataField** | Country |
| **Height** | 750 |

8. Click on the new section "GroupFooter1" to select it.
9. Modify the section's properties as follows:

| | |
|---|---|
| **Name** | gfOrderGroup |
| **Height** | 270 |

10. Add a Field control to the ghOrderGroup section and set its properties as follows:

| | |
|---|---|
| **Name** | txtGroupCountry |
| **DataField** | Country |
| **Height** | 360 |
| **Left** | 0 |
| **Top** | 0 |
| **Width** | 4230 |
| **Font.Size** | 12 |
| **Font.Bold** | True |

11. Place 4 labels in the ghOrderGroup section and set their properties as follows:

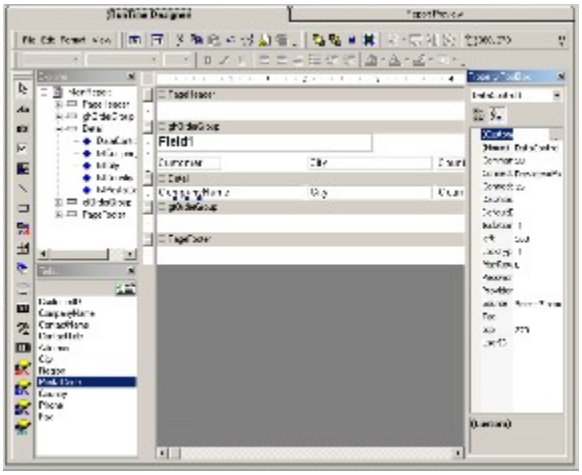
| | | | | |
|---|---|---|---|---|
| **Name** | lblCustomer | lblCity | lblCountry | lblPostalCode |
| **Caption** | Customer | City | Country | PostalCode |
| **Height** | 270 | 270 | 270 | 270 |
| **Left** | 0 | 2970 | 5490 | 7380 |
| **Top** | 450 | 450 | 450 | 450 |
| **Width** | 2880 | 2430 | 1800 | 1800 |

12. Click and drag the following fields from the fields list into the detail section: **CompanyName, City**, **Country** and **PostalCode**
13. Set the field's properties as follows:

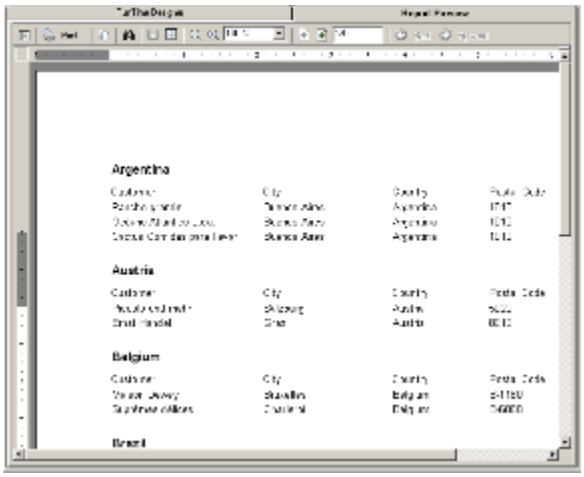
| | | | | |
|---|---|---|---|---|
| **Name** | txtCustomer | txtCity | txtCountry | txtPostalCode |
| **DataField** | CompanyName | City | Country | PostalCode |
| **Height** | 270 | 270 | 270 | 270 |
| **Left** | 0 | 2970 | 5490 | 7380 |
| **Top** | 0 | 0 | 0 | 0 |
| **Width** | 2880 | 2430 | 1800 | 1800 |
| **Alignment** | 0-Left | 0-Left | 0-Left | 1-Right |

14. Set the detail sections height to 285.

15. The designer should look like this:




16. Click on the Report Preview tab to run and show the report.




Switch back to the Runtime Designer tab and follow the next sample to see how the designer's layout can be saved.

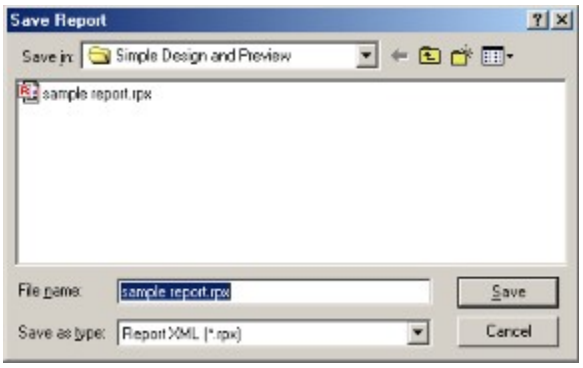
# Saving and Loading Report Layouts

Reports can be saved and loaded into the designer by a variety of different methods. The easiest method is to use the File menu on the designer to Save or Open RPX files (ActiveReport's standard XML formatted report files).

**Open/Save From File Menu**

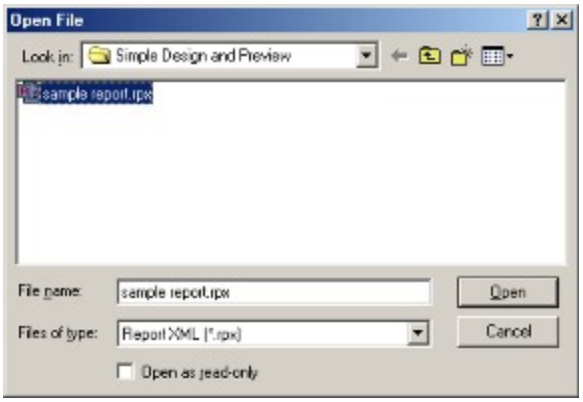
To save the report created in the previous sample:

1. Select the File menu.
2. Select the Save menu option.
3. Select the project's directory, set the File name to sample report.rpx and select save.




Stop the project and restart is so the designer will return to the default setting. To load the previously created report back into the designer:

1. Select the File menu.
2. Select the Open menu option.
3. Select the sample report.rpx file from the project's directory and select Open.




When the RPX file is loaded, the designer will display the previously created report.

**Open/Save Through Code**

A designer's layout can be saved and loaded through code by using the following methods:

**Saving:**

To save a designer layout in code use the designer's SaveToObject method to save the layout to a report object. Once the layout is saved to the report object, the report object's SaveLayout method can be used to save the layout to an RPX file, or byte array. Add the following code to the sample project to save the designer layout whenever the Report Preview tab is selected.

```
Private Sub prepPreview()
On Error GoTo errHndl
  'Writes the designer's layout
  'to the report so it can be previewed.
  ard.SaveToObject rpt
  'Saves the report object to the specified style
  rpt.SaveLayout App.Path & "\sample report.rpx", ddSOFile
  'Resets report
```

```
  rpt.Restart
  'Run the new report
  rpt.Run False
  'Add the report to the veiwer
  Set arv.ReportSource = rpt
  Exit Sub

errHndl:
  MsgBox "Error Previewing the Report: " & Err.Number & " " & Err.Description
End Sub
```

Save these changes.

**Loading:**

To load a designer layout in code use the report object's Load method to load a specified RPX file and the designer's LoadFromObject to read the layout into the designer. Add the following code to the project to load the report designer when the project starts, and whenever the Runtime Designer tab is selected.

```
Private Sub Form_Load()
  'Set active Tab to the designer
  SSTab1.Tab = 0
  Set rpt = New ActiveReport
  'Activate all the toolbars
  ard.ToolbarsVisible = ddTBToolBox + ddTBAlignment + ddTBExplorer + _
  ddTBFields + ddTBFormat + ddTBMenu + ddTBPropertyToolbox + ddTBStandard

  ard.ToolbarsAccessible = ddTBToolBox + ddTBAlignment + ddTBExplorer + _
  ddTBFields + ddTBFormat + ddTBMenu + ddTBPropertyToolbox + ddTBStandard
  'Load the saved RPX file into a report object
  rpt.LoadLayout App.Path & "\sample report.rpx"
  'Load the report object into the designer
  ard.LoadFromObject rpt
End Sub

Private Sub prepDesigner()
On Error GoTo errHndl

  If Not arv.ReportSource Is Nothing Then
  arv.ReportSource.Cancel
  Set arv.ReportSource = Nothing
  End If

  'Load the saved RPX file into a report object
  rpt.LoadLayout App.Path & "\sample report.rpx"
  'Load the report object into the designer
  ard.LoadFromObject rpt

  Exit Sub
errHndl:
  MsgBox "Error in Design Preview: " & Err.Number & " " & Err.Description
End Sub
```

Save these changes.

**Loading DSR (ActiveX Designer) Files**

The runtime designer can also load ActiveReport's ActiveX Designers included within the project. To demonstrate this capability:

1. Add an ActiveReport ActiveX Designer to the project and set its properties as follows.

**Name** rptSample

2. From the designer's File menu, open the previously saved sample report.rpx file. When the RPX file is opened the ActiveX designer will have the same report that was developed with the runtime designer.
3. Modify frmMain's Form_Load event to load rptSample instead by adding the following code:

```
Private Sub Form_Load()
    'Set active Tab to the designer
    SSTab1.Tab = 0
```

```
    Set rpt = New ActiveReport
    'Activate all the toolbars
    ard.ToolbarsVisible = ddTBToolBox + ddTBAlignment + ddTBExplorer + _
    ddTBFields + ddTBFormat + ddTBMenu + ddTBPropertyToolbox + ddTBStandard

    ard.ToolbarsAccessible = ddTBToolBox + ddTBAlignment + ddTBExplorer + _
    ddTBFields + ddTBFormat + ddTBMenu + ddTBPropertyToolbox + ddTBStandard

    'Load the ActiveX designer into the runtime designer
    ard.LoadFromObject rptSample

End Sub
```

Do not save these changes.

# Using the Designer Events

The runtime designer uses four main events to control the actions performed by the end user. These events are LayoutChanged, SelChange, StatusChange and ValidateChange.

**LayoutChanged**

LayoutChanged fires when the designer's layout is changed. The event can be used to monitor changes made to the report layout and update any dependent data such as SQL queries or custom user interfaces. The following list gives a description for the different layout changes.

| Setting | Description |
|---|---|
| ddLCControlMove | 0 – A control's position has changed. |
| ddLCControlSize | 1 – A control's size has changed. |
| ddLCControlDelete | 2 – A control has been deleted. |
| ddLCSectionSize | 3 – A section's size has changed. |
| ddLCSectionDelete | 4 – A section is deleted. |
| ddLCSectionMove | 5 – A section is moved. |
| ddLCReportSize | 6 – The report's size is changed. |
| ddLCControlAdd | 7 – A new control has been added to the report. |

**SelChange**

SelChange fires when an item in the designer is selected. The event can be used to identify the selected item by accessing the designer's SelectedObjects property.

**StatusChange**

StatusChange fires for each change in the status of the designer action. Designer actions represent the commands typically invoked from UI elements such as toolbars or menus. The following list gives a description for all of the actions:

| Setting | Description |
|---|---|
| ddActionFOpen | 1 - File: Open. |
| ddActionFSave | 2 - File: Save. |
| ddActionFPageSetup | 3 - File: Page Setup. |
| ddActionECut | 4 - Edit: Cut. |
| ddActionEPaste | 5 - Edit: Paste. |
| ddActionECopy | 6 - Edit: Copy. |
| ddActionEUndo | 7 - Edit: Undo. |
| ddActionEDelete | 8 - Edit: Delete. |
| ddActionEDeleteSection | 9 - Edit: Delete Section. |
| ddActionEInsertReportHF | 10 - Edit: Insert Report Header/Footer. |
| ddActionEInsertPageHF | 11 - Edit: Insert Page Header/Footer. |
| ddActionEInsertGroupHF | 12 - Edit: Insert Group Header/Footer. |
| ddActionEReorderGroups | 13 - Edit: Reorder Groups. |
| ddActionEInsertField | 14 - Edit: Insert Field. |
| ddActionViewExplorer | 15 - View: Report Explorer. |
| ddActionViewFieldsList | 16 - View: Fields List. |
| ddActionViewPropertyList | 17 - View: Property Listbox. |
| ddActionViewGrid | 18 - View: Grid. |
| ddActionViewSnapToGrid | 19 - View: Snap to grid. |
| ddActionViewFullScreen | 20 - View: Full screen. |
| ddActionViewCodeEditor | 21 - View: Script Code Editor. |
| ddActionFoAlignLefts | 22 - Format: Align Control Lefts. |
| ddActionFoAlignRights | 23 - Format: Align Control Rights. |
| ddActionFoAlignCenters | 24 - Format: Align Control Centers. |
| ddActionFoAlignTops | 25 - Format: Align Control Tops. |
| ddActionFoAlignMiddles | 26 - Format: Align Control Middles. |
| ddActionFoAlignBottoms | 27 - Format: Align Control Bottoms. |
| ddActionFoAlignToGrid | 28 - Format: Align to Controls Grid. |
| ddActionFoAlignCenterInSec | 29 - Format: Align: Center Control in Section. |
| ddActionFoSizeSameWidth | 30 - Format: Size controls to the same width. |

| | |
|---|---|
| ddActionFoSizeSameHeight | 31 - Format: Size controls to the same height. |
| ddActionFoSizeSameBoth | 32 - Format: Size controls to the same width and height. |
| ddActionFoVSpaceEqual | 33 - Format: Space controls even vertically. |
| ddActionFoVSpaceIncrease | 34 - Format: Increase vertical spacing. |
| ddActionFoVSpaceDecrease | 35 - Format: Decrease vertical spacing. |
| ddActionFoHSpaceEqual | 36 - Format: Space controls even horizontally. |
| ddActionFoHSpaceIncrease | 37 - Format: Increase horizontal spacing. |
| ddActionFoHSpaceDecrease | 38 - Format: Decrease horizontal spacing. |
| ddActionFoOrderBringToFront | 39 - Format: Bring control to the foreground. |
| ddActionFoOrderSendToBack | 40 - Format: Send control to the background. |
| ddActionFoLockControls | 41 - Format: Lock controls size and position. |
| ddActionFoStyle | 42 - Format: Style. |
| ddActionFoFontName | 43 - Format: Font name. |
| ddActionFoFontSize | 44 - Format: Font size. |
| ddActionFoFontBold | 45 - Format: bold. |
| ddActionFoFontItalic | 46 - Format: Italic. |
| ddActionFoTextAlignLeft | 47 - Format: Align text left. |
| ddActionFoTextAlignCenter | 48 - Format: Align text center. |
| ddActionFoTextAlignRight | 49 - Format: Align text Right. |
| ddActionFoForeColor | 50 - Format: Set foreground color. |
| ddActionFoBackColor | 51 - Format: Set background color. |
| ddActionFoLineStyle | 52 - Format: Set line style. |
| ddActionFoLineColor | 53 - Format: Set line color. |
| ddActionFoBorder | 54 - Format: Set border styles. |
| ddActionFoBullets | 55 - Format: Set bullet style. |
| ddActionFoIndent | 56 - Format: Indent text. |
| ddActionFoOutdent | 57 - Format: Outdent text. |
| ddActionFoUnderline | 58 - Underline. |

**Note:** *The ExecuteAction method can be used to execute most of the actions above. The items that cannot be executed with this method are items requiring parameters, such as color, font, size and style.*

**ValidateChange**

ValidateChange fires before an item is moved, sized or deleted. This event can be used to control the end user's actions. For instance, this event can be used to prevent the user from removing or moving an important control.

These events can be demonstrated by adding the following to the sample project.

1. Select the following components from Visual Basic's components list:

   **Microsoft Windows Common Controls 6.0**

   **Microsoft Common Dialog Control 6.0**

2. Add a status bar to the bottom of frmMain and change its name to sb.
3. Add a second panel to the status bar and set its AutoSize property to 1-sbrSpring.
4. Add a common dialog control to frmMain and set its name to cmDLG.
5. Add the following main menu item to Visual Basic's menu editor:

   **Caption** &File

   **Name** mFile

6. Add the following submenu item to the File menu:

   **Caption** &Exit

   **Name** mExit

7. Add the following second main menu item to the menu editor:

   **Caption** &Edit

   **Name** mEdit

8. Add the following submenu item to the Edit menu:

   **Caption** &Font

   **Name** mFont

9. Modify the projects code to handle the added menu items:

```
Private Sub mExit_Click()
  Unload Me
End Sub

Private Sub mFont_Click()
  'Show the font dialog box
  cmDLG.Flags = cdlCFBoth
  cmDLG.ShowFont

  'Updated the selected item(s) with the new font specs
  For x = 0 To ard.SelectedObjects.Count - 1
    ard.SelectedObjects(x).Font.Name = cmDLG.FontName
    ard.SelectedObjects(x).Font.Size = cmDLG.FontSize
    ard.SelectedObjects(x).Font.Underline = cmDLG.FontUnderline
    ard.SelectedObjects(x).Font.Italic = cmDLG.FontItalic
  Next x
End Sub
```

10. Modify the prepPreview and prepDeisgner subs to handle the menu items:

```
Private Sub prepPreview()
On Error GoTo errHndl
  'Writes the designer's layout
  'to the report so it can be previewed.
  ard.SaveToObject rpt
  'Saves the report object to the specified style
  rpt.Save App.Path & "\sample report.rpx", ddSOFile
  'Resets report
  rpt.Restart
  'Run the new report
  rpt.Run False
  'Add the report to the veiwer
  Set arv.ReportSource = rpt

  'Disable menu items in preview mode
  mFile.Enabled = False
  mEdit.Enabled = False

  Exit Sub

errHndl:
  MsgBox "Error Previewing the Report: " & Err.Number & " " & Err.Description
End Sub


Private Sub prepDesigner()
On Error GoTo errHndl

  If Not arv.ReportSource Is Nothing Then
    arv.ReportSource.Cancel
    Set arv.ReportSource = Nothing
  End If

  'Load the saved RPX file into a report object
  rpt.Load App.Path & "\sample report.rpx"
  'Load the report object into the designer
  ard.LoadFromObject rpt

  'Enable the menu items in design mode
  mFile.Enabled = True
  mEdit.Enabled = True

  Exit Sub
errHndl:
  MsgBox "Error in Design Preview: " & Err.Number & " " & Err.Description
```

```
End Sub
```

11. Add the following code to the project to handle each of the above events:

```
Private Sub ard_LayoutChanged(ByVal changedObject As Object, ByVal changeType As
DDActiveReportsDesignerCtl.LayoutChangeTypes)
Dim cnv As DDActiveReports2.Canvas
Dim w As Long, h As Long
Dim sLCaption As String

'The following code checks to see if a lable has been added
'If a label is added, it will prompt the user for a caption
'And set the lable's width and height to fit the caption

'Check if a label as been added
If TypeOf changedObject Is DDActiveReports2.Label And changeType = ddLCControlAdd Then
  'Get a caption for the label
  sLCaption = InputBox("Enter a Caption for the Label", "Enter Caption")

  'If no caption is given, use the added object's name
  If sLCaption = "" Then sLCaption = changedObject.Name

  'Set the added label's caption to the given caption
  changedObject.Caption = sLCaption

  'Use the canvas object to get a width and height for the caption
  Set cnv = New DDActiveReports2.Canvas

  'makes sure the canvas is measures with the same font size
  cnv.Font = changedObject.Font
  cnv.MeasureText sLCaption, w, h

  'Change the added controls width and height
  changedObject.Width = w
  changedObject.Height = h

  'unload the canvas
  Set cnv = Nothing
End If

End Sub

Private Sub ard_SelChange()
Dim sControl As String
'Following code displays the selected label or field's name,
'Top, left, height and width
  If ard.SelectedObjects.Count = 1 Then
    If TypeOf ard.SelectedObjects(X) Is DDActiveReports2.Field Or _
      TypeOf ard.SelectedObjects(X) Is DDActiveReports2.Label Then
      sControl = ard.SelectedObjects(X).Name
      sControl = sControl & " Top:" & ard.SelectedObjects(X).Top
      sControl = sControl & " Left:" & ard.SelectedObjects(X).Left
      sControl = sControl & " " & ard.SelectedObjects(X).Height & _
        " twips X "
      sControl = sControl & ard.SelectedObjects(X).Width & " twips"
    End If
  Else
    sControl = ""
  End If
  sb.Panels(2).Text = sControl
End Sub

Private Sub ard_StatusChange(ByVal action As DDActiveReportsDesignerCtl.DesignerActionTypes)
  Select Case action
  Case ddActionFoFontName
    'Enable/Disable the font menu option
    mFont.Enabled = ard.QueryStatus(ddActionFoFontName)
  End Select
End Sub

Private Sub ard_ValidateChange(ByVal changedObject As Object, ByVal changeType As
DDActiveReportsDesignerCtl.LayoutChangeTypes, Cancel As Boolean)
```

```
'The following code prevents the end user from deleting the
'Data control
  If TypeName(changedObject) = "DataControl" Then
    If changeType = ddLCControlDelete Then
      MsgBox "You are not allowed to delete the report's data control", _
         vbCritical, "Cannot Remove Control"
      Cancel = True
    End If
  End If
End Sub
```

12. Save and run the project.

# Using Scripting

When working with RPX files, all necessary report code must be included with the RPX file in the form of a script because any Visual Basic code used to create the report in not saved into the RPX file. Also, the end user will need to use an ActiveScripting language to make any type of programmatic changes to a report.

**Note:** *For a more detailed explanation of scripting examine chapter 14 in the standard edition user's guide.*

ActiveReports provides two different methods to help make scripting easier and more versatile with Visual Basic. The report object's AddCode method allows code to be added, in the form of a string, at runtime and the AddNamedItem method adds functions and subs contained inside the Visual Basic code to the scripting name space. Continuing with the designer sample we will use both methods to demonstrate how each item is setup. Because RPX files are not secure files, it is highly suggested that all sensitive information be left out of the RPX file. Since the project is currently using a data control, with the connection string specified, the connection sting will be visible in the RPX file. It is highly recommended to use AddNamedItem to allow the Visual Basic project to retrieve the Recordset and pass this to the DataControl. The following demonstrates how to convert the sample project to take advantage of the AddNamedItem method.

**Using AddNamedItem**

1. Add a class module to the project and set its name to clsFunctions.

**Note:** *When working with AddNameItem, the subs and functions must be wrapped within a class.*

2. In Visual Basic's references list, select the newest Microsoft ActiveX Data Objects Library.
3. Add the following function to clsFunctions:

```
Public Function getRSet() As ADODB.Recordset
Dim rs As ADODB.Recordset
Dim cn As ADODB.Connection
Dim cnnString As String
On Error GoTo errHndl

Set cn = New ADODB.Connection
Set rs = New ADODB.Recordset

'Connect to DB and get recordset
cnnString = "Provider=Microsoft.Jet.OLEDB.4.0;Data Source=C:\Program Files\Microsoft Visual
Studio\VB98\NWIND.MDB;Persist Security Info=False"
cn.Open cnnString
rs.Open "Select * from customers order by country", cn
Set getRSet = rs

Set rs = Nothing
Set cn = Nothing

Exit Function

errHndl:
  MsgBox "Unable to get recordset: " & Err.Number & ": " & Err.Description
  Set rs = Nothing
  Set cn = Nothing
End Function
```

4. Make the following modifications to the prepViewer sub to make the report object and script aware of the added class:

```
Private Sub prepPreview()
On Error GoTo errHndl
  'Writes the designer's layout
  'to the report so it can be previewed.
  ard.SaveToObject rpt
  'Saves the report object to the specified style
  rpt.Save App.Path & "\sample report.rpx", ddSOFile
  'Resets report

  'Activeate the Script debugger and refresh the script
  rpt.ScriptDebuggerEnabled = True
```

```
  rpt.ResetScripts

  ' Use AddNamedItem to add the function to the scripting name space
  rpt.AddNamedItem "vbCode", New clsFunctions

  rpt.Restart
  'Run the new report
  rpt.Run False
  'Add the report to the veiwer
  Set arv.ReportSource = rpt

  'Disable menu items in preview mode
  mFile.Enabled = False
  mEdit.Enabled = False

  Exit Sub

errHndl:
  MsgBox "Error Previewing the Report: " & Err.Number & " " & Err.Description
End Sub
```

5. Save and run the project.
6. Select DataControl1 on the designer and clear out the ConnectionString and Source string.
7. Select the Script icon and add the following code to the ActiveReport Document OnDataInitialize sub:

```
Sub OnDataInitialize
  set rpt.datacontrol1.recordset = vbcode.getrset
End Sub
```

8. Select the Report Preview tab to use the new function.

**Using AddCode**

1. Add the following code to clsFunctions:

```
Public Function IIf(Expression, TruePart, FalsePart)
  IIf = VBA.IIf(Expression, TruePart, FalsePart)
End Function

Public Function Format(Expression, sFormat)
  Format = VBA.Format(Expression, sFormat)
End Function
```

2. Add the following code to frmMain:

```
Private Function HelperCode() As String
Dim sCode As String
  sCode = ""
  sCode = sCode & _
    "Public Function IIf(expr, exprTrue, exprFalse)" & vbCrLf & _
    "If expr Then IIf = exprTrue Else IIf = exprFalse" & vbCrLf & _
    "End Function"

  sCode = sCode & _
    "Public Function Format(expr, fmt)" & vbCrLf & _
    "Format = vbCode.Format(expr, fmt)" & vbCrLf & _
    "End Function"
End Function
```

3. Add the following code to prepPreview to use the AddCode method:

```
Private Sub prepPreview()
On Error GoTo errHndl
  'Writes the designer's layout
  'to the report so it can be previewed.
  ard.SaveToObject rpt
  'Saves the report object to the specified style
  rpt.Save App.Path & "\sample report.rpx", ddSOFile
  'Resets report

  'Activeate the Script debugger and refresh the script
  rpt.ScriptDebuggerEnabled = True
```

```
  rpt.ResetScripts

  ' Add IIf helper code
  rpt.AddCode HelperCode()

  ' Use AddNamedItem to add the function to the scripting name space
  rpt.AddNamedItem "vbCode", New clsFunctions

  rpt.Restart
  'Run the new report
  rpt.Run False
  'Add the report to the veiwer
  Set arv.ReportSource = rpt

  'Disable menu items in preview mode
  mFile.Enabled = False
  mEdit.Enabled = False

  Exit Sub

errHndl:
  MsgBox "Error Previewing the Report: " & Err.Number & " " & Err.Description
End Sub
```

4. Save and run the project.

**Note:** *The samples contained in this section are designed to demonstrate the fundamental for using the end user designer. More advanced samples can be found in the sample directory and in Data Dynamics' online knowledgebase at http://www.datadynamics.com/kb.*

# Custom Toolbars and Menus

The runtime designer toolbars and menus cannot be customized during development. You can control the visibility and accessibility of individual toolbars using ToolbarsVisible and ToolbarsAccessible properties. You cannot remove any of the tools from the toolbars.

If you need to present your end users with a different user interface elements you should disable and hide all the toolbars by setting ToolbarsVisible and ToolbarsAccessible to 0 and create your own toolbars and menus.

StatusChange event and ExecuteAction and QueryStatus methods provide complete control over the current state of available UI options. In addition, you can customize the alerts and error messages by handling the Alert event.

In addition, you can create your own custom or localized object context menus in the ContextMenuOpen event.

The "Diamond Reports" sample included in your samples directory provides a comprehensive example for creating custom toolbars and menus.

# Included Sample Projects

The ActiveReports Pro installation includes a few specialized sample projects to demonstrate the different techniques and capabilities available with the professional edition of ActiveReports.

The code behind the sample projects demonstrates many techniques available with the professional edition. Use these samples along with the following tutorial to help you understand the use of the various ActiveReports Professional components.

Following is a listing of these sample projects and the features they demonstrate:

| # | Name | Description |
|---|---|---|
| 1 | Diamond Reports | An advanced project demonstrating the full possibilities of the runtime designer. Includes custom toolbars and menus that implement the functionality of the built-in counterparts. |
| 2 | Property List | Demonstrates using the property list box. |
| 3 | Simple Designer | Demonstrates using the runtime designer, property list box and preview form. |

# Deployment and Distribution

You need to include the following files on all clients when distributing the ActiveReports pro.

| File Name | Description |
|---|---|
| Arpro2.DLL | The Reporting Engine. |
| ARVIEW2.ocx | Only if you are using our ActiveX Viewer. |
| ARdespro2.dll | Only if you are using the end-user designer. |
| PDFExpt.DLL | PDF Export Filter (when using PDF exporting). |
| RTFExpt.DLL | RTF Export Filter (when using RTF exporting). |
| ExclExpt.DLL | Excel Export Filter (when using Excel exporting). |
| TextExpt.DLL | Text Export Filter (when using Text exporting). |
| HTMLExpt.DLL | HTML Export Filter (when using HTML exporting). |
| TiffExpt.dll | Tiff Export Filter (when using Tiff exporting). |
| WebCache.dll | Only if you are using the WebCache service. |

## Web Server Distribution

To serve reports to clients in a web environment, your web server should have arview2.cab if the project uses the ActiveReports Viewer Control and arpro2.cab if the project uses the end user designer control. You should also copy and register any export DLLs as needed.

# WebCache Service and ISAPI DLL

# Introduction

The WebCache service and ISAPI DLL are used to manage report output on web servers running Microsoft® Internet Information Servers. The caching service is a COM component that runs as service on the web server and caches the report's output. The ISAPI DLL receives requests for cache items, retrieves the items from the caching service and delivers them to the client browsers.

# Installation

The setup program will automatically install WebCache.dll and WebCacheService.exe to your machine. The service defaults will be set to use the system account and automatic startup.

# Deployment

To deploy the WebCacheService, you can add the WebCacheService.exe file to your setup project as a service or manually register the service using:

```
WebCacheService.exe -RegServer –Service
```

To uninstall, stop the service using the Control Panel / Administrative Tools / Services tool and then use

```
WebCacheService.exe -UnregServer
```

*Note: If you are using Wise InstallMaster, don't use the service installation feature, instead add the following commands to your install script:*

```
Execute Program  %OCXPATH%\WebCacheService.exe -RegisterServer -Service
Add "Execute path: %OCXPATH%\WebCacheService.exe –UnregServer" to INSTALL.LOG
```

To configure the number of threads that the WebCacheService creates on startup set the Start Parameters /Threads=NumberOfThreads on the general property page of the service (Control Panel / Services).

# Using the WebCache Service

The WebCache service can be utilized using either of the following methods

1. CacheContent method allows you to cache any type of content including report output (RDF files) and export filters byte array output. The CacheContent method specifies the content type and the ISAPI filter would serve the cached items with the content and header specified in this method.
2. Excel and PDF Export Filters expose an ExportWebCache method that allows a direct export into the WebCache service objects and returns the proper cache item ids to redirect the client browser.

# Developers Reference

- ActiveReports Runtime Designer
- WebCache Service Objects
- Property List Objects

# ActiveReports Runtime Designer

# ARDesigner

| Name | Type | Description |
|---|---|---|
| GridSnap | Property | Determines whether the controls should be snapped to the grid points. |
| GridVisible | Property | Determines whether the drawing grid should be visible. |
| GridX | Property | Determines how coarse the designer grid should be. |
| GridY | Property | Determines how coarse the designer grid should be. |
| IsDirty | Property | Returns whether report has been modified since last layout was loaded or initialized. |
| Locked | Property | Specifies whether the controls are locked in place. |
| Report | Property | Returns a reference to the designer's report object. |
| RulerUnits | Property | Sets or returns ruler units (Inches, Centimeters). |
| SelectedObjects | Property | Returns collection of selected objects. |
| ToolbarsAccessible | Property | Bit flags for each toolbar to determine whether a toolbars is accessible by the end user. |
| ToolbarsVisible | Property | Bit flags for each toolbar to determine whether a toolbar is visible. |
| ToolboxItem | Property | Sets or returns PROGID of active toolbox item. |
| ExecuteAction | Method | Executes a specified designer command.<br>`object.`**`ExecuteAction`**`(action As DesignerActionTypes)` |
| LoadFromObject | Method | Reads the layout from a report object into designer control.<br>`object.`**`LoadFromObject`**`(Report As IActiveReport)` |
| NewLayout | Method | Discards the current report layout and creates a new blank layout.<br>*`object`*`.NewLayout()` |
| QueryStatus | Method | Queries the designer for the status of one or more commands.<br>`object.`**`QueryStatus`**`(action As DesignerActionTypes)` |
| SaveToObject | Method | Write the layout from the designer to a report object.<br>`object.`**`SaveToObject`**`(Report As IActiveReport)` |
| Alert | Event | Fires when an alert requesting user intervention is about to be displayed. |
| ContextMenuOpen | Event | Fires before a context menu is opened. |
| Error | Event | Fires when an error occurs in the designer component. |
| LayoutChanged | Event | Fires when the report layout is changed. |
| SelChange | Event | Fires when selection changes. |
| StatusChange | Event | Fires for each change in the status of the designer actions. |
| ValidateChange | Event | Fires before an item is moved, sized or deleted. |

# GridSnap

Determines whether the controls should be snapped to the grid points.

**Syntax**
*object*.**GridSnap** [= *value*]
The GridSnap property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | Default - The controls are snapped to the grid points. |
| **False** | The controls can be sized and positioned freely. |

**Data Type**
Boolean

**Remarks**
Default value = True

# GridVisible

Determines whether the drawing grid should be visible.

**Syntax**
*object*.**GridVisible** [= *value*]
The GridVisible property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | Shows the grid in the designer. |
| **False** | Hides the grid in the designer. |

**Data Type**
Boolean

**Remarks**
Default value = True

# GridX

Determines how coarse the designer grid should be.

**Syntax**
*object*.**GridX** [= *value*]
The GridX property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | An Integer value that represents the number of horizontal grid points per ruler unit. |

**Data Type**
Integer

**Remarks**
Default value = 16

# GridY

Determines how coarse the designer grid should be.

**Syntax**
*object*.**GridY** [= *value*]
The GridY property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | An Integer value that represents the number of vertical grid points per ruler unit. |

**Data Type**
Integer

**Remarks**
Default value = 16

# IsDirty

Returns whether report has been modified since last layout was loaded or initialized.

**Syntax**

*object*.**IsDirty** [= *value*]

The IsDirty property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A Boolean value. |

**Settings**

The settings for *value* are

| Setting | Description |
|---|---|
| **True** | The report layout has been modified. |
| **False** | The report layout has not been modified. |

**Data Type**

Boolean

**Example**

```
Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As Integer)
    If ARDesigner1.IsDirty Then
        ' Ask if report should be saved
        Dim iSave As Integer
        iSave = MsgBox("Save changes to the report?", _
            vbYesNoCancel, "Save")
        Select Case iSave
        Case vbYes
            ' Save the Report
            FileSave
            Cancel = 0
        Case vbNo
            ' Continue without saving
            Cancel = 0
        Case vbCancel
            ' Cancel Unload
            Cancel = 1
        End Select
    End If
End Sub
```

# Locked

Specifies whether the controls are locked in place.

**Syntax**
*object*.**Locked** [= *value*]
The Locked property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | The controls cannot be moved or sized. |
| **False** | The controls can be moved or sized. |

**Data Type**
Boolean

**Example**
```
' If the controls are locked mark the menu item as checked
mnuLocked.Checked = ARDesigner1.Locked
```

**Remarks**
Default value = False

# Report

Returns a reference to the designer's report object.

**Syntax**
*object*.**Report** [= *value*]
The Report property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | An ActiveReport reference. |

**Data Type**
IActiveReport

**Example**
```
' Add a data control to the designer using the Report object
    Dim ctl As DataControl
    With ARDesigner.Report.Sections("Detail").Controls
        Set ctl = .Add("DDActiveReports2.DataControl")
        ctl.Name = "dc"
        ctl.Top = 0: ctl.Left = 0
        ctl.Tag = ""
    End With
```

**Remarks**
This report object is used to gain access to the layout and controls properties. Do not use it to run the report and preview it. Use a separate ActiveReport variable and save the layout to it using the SaveToObject method.

# RulerUnits

Sets or returns ruler units (Inches, Centimeters).

**Syntax**
*object*.**RulerUnits** [= *value*]
The RulerUnits property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A valid ddRulerUnits setting. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **ddRulerUS** | 0 - Inches. |
| **ddRulerMetric** | 1 - Centimeters. |

**Data Type**
ddRulerUnits

**Remarks**
Default value = 0 - US Setting.

# SelectedObjects

Returns collection of selected objects.

**Syntax**
*Set value = object*.**SelectedObjects**
The SelectedObjects property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A Selection object. |

**Data Type**
Selection

Example

```
Private Sub ARDEsigner1_SelChange()
    Dim lSel As Long
    Dim arrSel()
    ' plist is a custom PropertyList control
    plist.Clear

    ' When selection changes, add selected objects to the custom
    ' property list
    If ARDesigner1.SelectedObjects.Count > 0 Then
        ReDim arrSel(ARDesigner1.SelectedObjects.Count - 1)
        For lSel = 0 To ARDesigner1.SelectedObjects.Count - 1
            Set arrSel(lSel) = ARDesigner1.SelectedObjects(lSel)
        Next
        plist.SelectObjects arrSel
    End If
End Sub
```

# ToolbarsAccessible

Bit flags for each toolbar to determine whether a toolbars is accessible by the end user. One additional flag for the context menus or a property to enable or disable the context menus.

**Syntax**

*object*.ToolbarsAccessible [= *value*]

The ToolbarsAccessible property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A ToolbarIdentifiers setting. |

**Settings**

The settings for *value* are

| Setting | Description |
|---|---|
| **ddTBMenu** | 1 - Main menu toolbar. |
| **ddTBToolBox** | 2 - Controls toolbox. |
| **ddTBStandard** | 4 - Standard toolbar. |
| **ddTBAlignment** | 8 - Alignment toolbar. |
| **ddTBFormat** | 16 - Format toolbar. |
| **ddTBExplorer** | 32 - Report explorer toolbar. |
| **ddTBFields** | 64 - Fields list toolbar. |
| **ddTBPropertyToolbox** | 128 - Property toolbox. |

**Data Type**

ToolbarIdentifiers

**Example**

```
Private Sub Form_Load()
    ' Disable and hide the built in toolbars
    ARDesigner1.ToolbarsAccessible = 0
    ARDesigner1.ToolbarsVisible = 0
End Sub
```

**Remarks**

The customization option for the toolbars is available only when all toolbars are accessible.  If any of the toolbars is not accessible the built-in customization will be disabled.

# ToolbarsVisible

Bit flags for each toolbar to determine whether a toolbar is visible. The end user can show/hide the toolbars from the toolbar's context menu.

**Syntax**

*object*.**ToolbarsVisible** [= *value*]

The ToolbarsVisible property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A ToolbarIdentifiers setting. |

**Settings**

The settings for *value* are

| Setting | Description |
|---|---|
| **ddTBMenu** | 1 - Main menu toolbar. |
| **ddTBToolBox** | 2 - Controls toolbox. |
| **ddTBStandard** | 4 - Standard toolbar. |
| **ddTBAlignment** | 8 - Alignment toolbar. |
| **ddTBFormat** | 16 - Format toolbar. |
| **ddTBExplorer** | 32 - Report explorer toolbar. |
| **ddTBFields** | 64 - Fields list toolbar. |
| **ddTBPropertyToolbox** | 128 - Property toolbox. |

**Data Type**

ToolbarIdentifiers

**Example**

```
Private Sub Form_Load()
    ' Disable and hide the built in toolbars
    ARDesigner1.ToolbarsAccessible = 0
    ARDesigner1.ToolbarsVisible = 0
End Sub
```

# ToolboxItem

Sets or returns PROGID of active toolbox item. Set to empty to end control mode.

**Syntax**

*object*.**ToolBoxItem** [= *value*]

The ToolboxItem property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object |
| value | A String value. |

**Data Type**

String

**Example**

```
Private Sub tbToolbox_ButtonClick(ByVal Button As MSComctlLib.Button)
    Select Case Button.key
    Case "tbxSelect": ARDesigner1.ToolBoxItem = ""
    Case "tbxLabel": ARDesigner1.ToolBoxItem = "DDActiveReports2.Label"
    Case "tbxField": ARDesigner1.ToolBoxItem = "DDActiveReports2.Field"
    Case "tbxCheckbox": ARDesigner1.ToolBoxItem = "DDActiveReports2.Checkbox"
    Case "tbxImage": ARDesigner1.ToolBoxItem = "DDActiveReports2.Image"
    Case "tbxLine": ARDesigner1.ToolBoxItem = "DDActiveReports2.Line"
    Case "tbxShape": ARDesigner1.ToolBoxItem = "DDActiveReports2.Shape"
    Case "tbxRichedit": ARDesigner1.ToolBoxItem = "DDActiveReports2.RichEdit"
    Case "tbxFrame": ARDesigner1.ToolBoxItem = "DDActiveReports2.Frame"
    Case "tbxSubreport": ARDesigner1.ToolBoxItem = "DDActiveReports2.Subreport"
    Case "tbxPageBreak": ARDesigner1.ToolBoxItem = "DDActiveReports2.PageBreak"
    Case "tbxOLE": ARDesigner1.ToolBoxItem = "DDActiveReports2.OLE"
    Case "tbxBarcode": ARDesigner1.ToolBoxItem = "DDActiveReports2.Barcode"
    End Select
End Sub
```

**Remarks**

This property is used to implement a custom toolbox toolbar.

# ExecuteAction

Executes a specified designer command. You can use this method when implementing a custom toolbar or menu, this method will perform the report actions in response to the toolbar or menu items.

**Syntax**

```
object.ExecuteAction(action As DesignerActionTypes)
```

The ExecuteAction method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type ARDesigner. |
| action | DesignerActionTypes - A valid action setting. |

**Settings**

The settings for *action* are

| Setting | Description |
|---|---|
| **ddActionFOpen** | 1 - File: Open. |
| **ddActionFSave** | 2 - File: Save. |
| **ddActionFPageSetup** | 3 - File: Page Setup. |
| **ddActionECut** | 4 - Edit: Cut. |
| **ddActionEPaste** | 5 - Edit: Paste. |
| **ddActionECopy** | 6 - Edit: Copy. |
| **ddActionEUndo** | 7 - Edit: Undo. |
| **ddActionEDelete** | 8 - Edit: Delete. |
| **ddActionEDeleteSection** | 9 - Edit: Delete Section. |
| **ddActionEInsertReportHF** | 10 - Edit: Insert Report Header/Footer. |
| **ddActionEInsertPageHF** | 11 - Edit: Insert Page Header/Footer. |
| **ddActionEInsertGroupHF** | 12 - Edit: Insert Group Header/Footer. |
| **ddActionEReorderGroups** | 13 - Edit: Reorder Groups. |
| **ddActionEInsertField** | 14 - Edit: Insert Field. |
| **ddActionViewExplorer** | 15 - View: Report Explorer. |
| **ddActionViewFieldsList** | 16 - View: Fields List. |
| **ddActionViewPropertyList** | 17 - View: Property Listbox. |
| **ddActionViewGrid** | 18 - View: Grid. |
| **ddActionViewSnapToGrid** | 19 - View: Snap to grid. |
| **ddActionViewFullScreen** | 20 - View: Full screen. |
| **ddActionViewCodeEditor** | 21 - View: Script Code Editor. |
| **ddActionFoAlignLefts** | 22 - Format: Align Control Lefts. |
| **ddActionFoAlignRights** | 23 - Format: Align Control Rights. |
| **ddActionFoAlignCenters** | 24 - Format: Align Control Centers. |
| **ddActionFoAlignTops** | 25 - Format: Align Control Tops. |
| **ddActionFoAlignMiddles** | 26 - Format: Align Control Middles. |
| **ddActionFoAlignBottoms** | 27 - Format: Align Control Bottoms. |
| **ddActionFoAlignToGrid** | 28 - Format: Align to Controls Grid. |
| **ddActionFoAlignCenterInSec** | 29 - Format: Align : Center Control in Section. |
| **ddActionFoSizeSameWidth** | 30 - Format: Size controls to the same width. |
| **ddActionFoSizeSameHeight** | 31 - Format: Size controls to the same height. |
| **ddActionFoSizeSameBoth** | 32 - Format: Size controls to the same width and height. |
| **ddActionFoVSpaceEqual** | 33 - Format: Space controls even vertically. |
| **ddActionFoVSpaceIncrease** | 34 - Format: Increase vertical spacing. |
| **ddActionFoVSpaceDecrease** | 35 - Format: Decrease vertical spacing. |
| **ddActionFoHSpaceEqual** | 36 - Format: Space controls even horizontally. |
| **ddActionFoHSpaceIncrease** | 37 - Format: Increase horizontal spacing. |
| **ddActionFoHSpaceDecrease** | 38 - Format: Decrease horizontal spacing. |
| **ddActionFoOrderBringToFront** | 39 - Format: Bring control to the foreground. |
| **ddActionFoOrderSendToBack** | 40 - Format: Send control to the background. |
| **ddActionFoLockControls** | 41 - Format: Lock controls size and position. |
| **ddActionFoFontBold** | 45 - Format: bold. |
| **ddActionFoFontItalic** | 46 - Format: Italic. |
| **ddActionFoTextAlignLeft** | 47 - Format: Align text left. |
| **ddActionFoTextAlignCenter** | 48 - Format: Align text center. |

| | |
|---|---|
| **ddActionFoTextAlignRight** | 49 - Format: Align text Right. |
| **ddActionFoBorder** | 54 - Format: Set border styles. |
| **ddActionFoBullets** | 55 - Format: Set bullet style. |
| **ddActionFoIndent** | 56 - Format: Indent text. |
| **ddActionFoOutdent** | 57 - Format: Outdent text. |
| **ddActionFoUnderline** | 58 - Format: Underline. |

**Note:** *Only the DesignerActionTypes contained in the above list can be used with ExcuteAction. Calling any of the others will result in an error.*

---

**Example**

```
' Edit > Cut menu item Private Sub miECut_Click()
  ARDesigner1.ExecuteAction ddActionECut
End Sub
```

**Remarks**

Font and color actions are not supported in the ExecuteAction method. In order to set font and color properties you should directly access the selected object and set those properties.

# GetSectionFromPoint

Returns the section name at a specified point and converts the point coordinates to section relative coordinates. Returns empty when the specified point is not within a section area.

**Syntax**

```
[sectionName = ]object.GetSectionFromPoint(x As Single, y As Single)
```

The GetSectionFromPoint method syntax has the following parts

| Part | Description |
|---|---|
| object | A valid ARDesigner object. |
| x, y | Single - Specifies the point coordinates of which to retrieve the section name. The values are converted to section relative coordinates on return from the method. |
| sectionName | String - Returns the section name that is at the specified point coordinates. |

**Return**

String

**Example**

```
Private deltax As Single, deltay As Single
' This code implements a label Drag Drop on the designer control.
' It adds a new control at the dropped location.
Private Sub ard_DragDrop(Source As Control, X As Single, Y As Single)
Dim sSec As String
Dim secTarget As Object
Dim ctl As Object

  X = X - deltax
  Y = Y - deltay

  sSec = ard.GetSectionFromPoint(X, Y)
  If sSec <> "" Then
    Set secTarget = ard.Report.Sections(sSec)
    Set ctl = secTarget.Controls.Add("DDActiveReports2.Label")
    ctl.Left = X
    ctl.Top = Y
    ctl.Width = lblDrag.Width
    ctl.Height = lblDrag.Height
    ctl.BackStyle = 1
    ctl.BackColor = &HC0C0FF
    If (ctl.Left + ctl.Width) > ard.Report.PrintWidth Then
      ard.Report.PrintWidth = ctl.Left + ctl.Width
    End If
    If (ctl.Top + ctl.Height) > secTarget.Height Then
      secTarget.Height = ctl.Top + ctl.Height
    End If
  End If
End Sub

Private Sub ard_DragOver(Source As Control, X As Single, Y As Single, State As Integer)
Dim sSec As String
X = X - deltax
Y = Y - deltay

sSec = ard.GetSectionFromPoint(X, Y)
lstState.AddItem sSec & " : " & Str$(X) & "," & Str$(Y)
End Sub
```

**Remarks**

This method is used when adding controls into specific sections using drag and drop events.

# LoadFromObject

Reads the layout from a report object into designer control.

**Syntax**

```
object.LoadFromObject(Report As IActiveReport)
```

The LoadFromObject method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type ARDesigner. |
| Report | IActiveReport |

**Example**

```
' Load a report layout file into an activereport instance
' then load it into the designer control.
' Alternatively, you can use the Load method of the deisgner's Report property
Dim rpt As ActiveReport
Set rpt = New ActiveReport
rpt.Load App.Path & "\test.rpx"
ARDesigner1.LoadFromObject(rpt)
```

# NewLayout

Discards the current report layout and creates a new blank layout.

**Syntax**

*object*.**NewLayout**()

The NewLayout method syntax has the following parts

| Part | Description |
| --- | --- |
| object | An expression evaluating to an object of type ARDesigner. |

**Example**

```
' File > New, Menu Item
Private Sub miFNew_Click()
  ARDesigner1.NewLayout
End Sub
```

# QueryStatus

Queries the object for the status of one or more commands.

**Syntax**

```
object.QueryStatus(action As DesignerActionTypes)
```

The QueryStatus method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type ARDesigner. |
| action | DesignerActionTypes |

**Settings**

The settings for *action* are

**Return**

DesignerActionStatus

| Setting | Description |
|---|---|
| ddActionFOpen | 1 - File: Open. |
| ddActionFSave | 2 - File: Save. |
| ddActionFPageSetup | 3 - File: Page Setup. |
| ddActionECut | 4 - Edit: Cut. |
| ddActionEPaste | 5 - Edit: Paste. |
| ddActionECopy | 6 - Edit: Copy. |
| ddActionEUndo | 7 - Edit: Undo. |
| ddActionEDelete | 8 - Edit: Delete. |
| ddActionEDeleteSection | 9 - Edit: Delete Section. |
| ddActionEInsertReportHF | 10 - Edit: Insert Report Header/Footer. |
| ddActionEInsertPageHF | 11 - Edit: Insert Page Header/Footer. |
| ddActionEInsertGroupHF | 12 - Edit: Insert Group Header/Footer. |
| ddActionEReorderGroups | 13 - Edit: Reorder Groups. |
| ddActionEInsertField | 14 - Edit: Insert Field. |
| ddActionViewExplorer | 15 - View: Report Explorer. |
| ddActionViewFieldsList | 16 - View: Fields List. |
| ddActionViewPropertyList | 17 - View: Property Listbox. |
| ddActionViewGrid | 18 - View: Grid. |
| ddActionViewSnapToGrid | 19 - View: Snap to grid. |
| ddActionViewFullScreen | 20 - View: Full screen. |
| ddActionViewCodeEditor | 21 - View: Script Code Editor. |
| ddActionFoAlignLefts | 22 - Format: Align Control Lefts. |
| ddActionFoAlignRights | 23 - Format: Align Control Rights. |
| ddActionFoAlignCenters | 24 - Format: Align Control Centers. |
| ddActionFoAlignTops | 25 - Format: Align Control Tops. |
| ddActionFoAlignMiddles | 26 - Format: Align Control Middles. |
| ddActionFoAlignBottoms | 27 - Format: Align Control Bottoms. |
| ddActionFoAlignToGrid | 28 - Format: Align to Controls Grid. |
| ddActionFoAlignCenterInSec | 29 - Format: Align : Center Control in Section. |
| ddActionFoSizeSameWidth | 30 - Format: Size controls to the same width. |
| ddActionFoSizeSameHeight | 31 - Format: Size controls to the same height. |
| ddActionFoSizeSameBoth | 32 - Format: Size controls to the same width and height. |
| ddActionFoVSpaceEqual | 33 - Format: Space controls even vertically. |
| ddActionFoVSpaceIncrease | 34 - Format: Increase vertical spacing. |
| ddActionFoVSpaceDecrease | 35 - Format: Decrease vertical spacing. |
| ddActionFoHSpaceEqual | 36 - Format: Space controls even horizontally. |
| ddActionFoHSpaceIncrease | 37 - Format: Increase horizontal spacing. |
| ddActionFoHSpaceDecrease | 38 - Format: Decrease horizontal spacing. |
| ddActionFoOrderBringToFront | 39 - Format: Bring control to the foreground. |
| ddActionFoOrderSendToBack | 40 - Format: Send control to the background. |
| ddActionFoLockControls | 41 - Format: Lock controls size and position. |
| ddActionFoStyle | 42 - Format: Style. |
| ddActionFoFontName | 43 - Format: Font name. |

| | |
|---|---|
| ddActionFoFontSize | 44 - Format: Font size. |
| ddActionFoFontBold | 45 - Format: bold. |
| ddActionFoFontItalic | 46 - Format: Italic. |
| ddActionFoTextAlignLeft | 47 - Format: Align text left. |
| ddActionFoTextAlignCenter | 48 - Format: Align text center. |
| ddActionFoTextAlignRight | 49 - Format: Align text Right. |
| ddActionFoForeColor | 50 - Format: Set foreground color. |
| ddActionFoBackColor | 51 - Format: Set background color. |
| ddActionFoLineStyle | 52 - Format: Set line style. |
| ddActionFoLineColor | 53 - Format: Set line color. |
| ddActionFoBorder | 54 - Format: Set border styles. |
| ddActionFoBullets | 55 - Format: Set bullet style. |
| ddActionFoIndent | 56 - Format: Indent text. |
| ddActionFoOutdent | 57 - Format: Outdent text. |
| ddActionFoUnderline | 58 - Format: Underline. |

**Example**

```
' Update edit menu items on status change.
Private Sub ARDesigner1_StatusChange(ByVal action As
DDActiveReportsDesignerCtl.DesignerActionTypes)
  Select Case action
  Case ddActionECopy
    miECopy.Enabled = ((ARDesigner1.QueryStatus(ddActionECopy) And ddStatEnabled) =
ddStatEnabled)
    miECopy.Checked = ((ARDesigner1.QueryStatus(ddActionECopy) And ddStatChecked) =
ddStatChecked)
  ' Case ....
  End Select
End Sub
```

# SaveToObject

Write the layout from the designer to a report object.

**Syntax**

```
object.SaveToObject(Report As IActiveReport)
```

The SaveToObject method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type ARDesigner. |
| Report | IActiveReport |

**Example**

```
' module variable
Dim rpt As DDActiveReports2.ActiveReport

Private Sub PreviewReport()
  On Error GoTo ehPreviewReport
  ard.SaveToObject rpt
  rpt.Restart
  rpt.Run False
  Set arv.ReportSource = rpt
  Exit Sub

ehPreviewReport:
  MsgBox Str(Err.Number) & " - " & Err.Description, vbOKOnly, "Error: PreviewReport"
End Sub
```

**Remarks**

You must use the SaveToObject to save the report designer to an ActiveReport instance before running the report.

# Alert

Fires when before an alert message box that requires user intervention is displayed. You can use this event to replace the built-in message boxes with your own.

**Syntax**

```
Sub object_Alert(id As Integer, prompt As String, buttons As Long, result)
```

The Alert event syntax has the following parts

| Part | Description |
|---|---|
| id | Integer - Specifies the alert message id. |
| prompt | String - Specifies the message string to be displayed. |
| buttons | Long - Specifies the number and style of buttons to be displayed. |
| result | Long - used to set the return value of the event when the alert is handled by the event. |

**Settings**

The id parameter has the following settings

| | |
|---|---|
| ddARAlertControlNotRegistered | 1 - Report contains a control that is not registered on the client machine. |
| ddARAlertDataSource | 2 - Data source returned error when updating property sheet. |
| ddARAlertDAOSettings | 3 - DAO data control settings are incorrect. |
| ddARAlertDAO | 4 - DAO returned error when opening the connection or recordset. |
| ddARAlertFieldList | 5 - A database error occurred when attempting to refresh the field list window. |
| ddARAlertInvalidSectionForDataControl | 6 - A data control cannot be added to a non-detail section. |
| ddARAlertDataControlAlreadyExists | 7 - User tried to drop more than one data control into the detail section. |
| ddARAlertControlCreateFailed | 8 - The ActiveX control can't be hosted in ActiveReports |
| ddARAlertAB2DLLMissing | 9 - AB2DLL.DLL toolbars library is missing. |
| ddARAlertCantUndoDelete | 10 - The edit/delete operation can't be undone |
| ddARAlertDeleteFailed | 11 - The edit/delete operation failed. |
| ddARAlertEditCutFailed | 12 - The edit/cut operation failed. |
| ddARAlertEditCopyFailed | 13 - The edit/copy operation failed. |
| ddARAlertDuplicateStyleName | 14 - User tried to create a style that already exists. |
| ddAlertCantDeleteStyle | 15 - User tried to delete the normal style. |
| ddAlertRTF | 16 - RTF control alert. |
| ddARAlertRTFDeleteField | 17 - Confirm deleting an RTF merge field. |
| ddARAlertCantDeleteDetailSection | 18 - Detail section cannot be deleted. |
| ddARAlertDeleteSectionPrompt | 19 - Confirm deleting a section. |
| ddARAlertSaveLayoutFailed | 20 - Unable to save the report layout. |

**Example**

```
Private Sub ard_Alert(ByVal id As Integer, ByVal prompt As String, ByVal buttons As Long, result
As Variant)
    If id = ddARAlertControlNotRegistered Then
        MsgBox "Report contains an unregistered control." & _"
        "Contact 999-999-9999 with the following information " & _
        vbCrlf & Str(id) & " - " & prompt
        result = 0
    End If
End Sub
```

# ContextMenuOpen

Fires before a context menu is opened.

**Syntax**

```
object_ContextMenuOpen(sourceObject As Object,
  menuType As ContextMenuTypes,
  Cancel As Boolean)
```

The ContextMenuOpen event syntax has the following parts

| Part | Description |
|---|---|
| sourceObject | Object - A reference to the object that is opening the menu. |
| menuType | ContextMenuTypes - Specifies the type of menu that will be opened for this sourceObject. |
| Cancel | Boolean - determines whether the default menu handler should be cancelled. This parameter should be set to True to disable or replace built in context menus. |

**Settings**

The settings for *menuType* are

| Setting | Description |
|---|---|
| **ddCMSection** | 0 - Section context menu. |
| **ddCMControl** | 1 - Control context menu. |
| **ddCMReport** | 2 - Report object context menu. |
| **ddCMRTFEditMode** | 3 - RichEdit context menu. |

**Example**

```
' Example implementation of the ContextMenuOpen event
' The mnuReport, mnuControl, mnuSection and mnuRichEdit
' are menu items created using VB's Menu editor
' You can use the sourceObject properties to enable/disable
' your custom menu options
Private Sub ARDesigner1_ContextMenuOpen(ByVal sourceObject As Object, ByVal menuType As
DDActiveReportsDesignerCtl.ContextMenuTypes, Cancel As Boolean)
  Select Case menuType
  Case ddCMControl
    PopupMenu mnuControl
  Case ddCMReport
    PopupMenu mnuReport
  Case ddCMSection
    PopupMenu mnuSection
  Case ddCMRichedit
    PopupMenu mnuRichEdit
  End Select
  Cancel = True
End Sub
```

# Error

Fires when an error occurs in the designer component. This event allows you to create your own error handler and display localized error message boxes.

**Syntax**

```
object_Error((Number As Integer, Description As String, Scode As Long, Source As String, HelpFile As String, HelpContext As Long, CancelDisplay As Boolean))
```

The Error event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type ARDesigner. |
| Number | Integer - Error number |
| Description | String - Error description. |
| Scode | Long - Result code. |
| Source | String - Source of the error if applicable. |
| HelpFile | String - Help file |
| HelpContext | Long - Error context id, in the help file. |
| CancelDisplay | Boolean - Set CancelDisplay = True to cancel the built in error dialog and replace it with your own. |

**Example**

```
Private Sub ARDesigner1_Error(ByVal Number As Integer, Description As String, _
  ByVal Scode As Long, ByVal Source As String, ByVal HelpFile As String, _
  ByVal HelpContext As Long, CancelDisplay As Boolean)
  App.LogEvent Format(Now, "mm/dd/yyyy Hh:Nn") & Str(Number) & " - " & Description
  CancelDisplay = True
End Sub
```

# LayoutChanged

Fires when the layout is changed. You can use this event to monitor changes to the report layout and update any dependent data such as SQL queries or custom user interfaces (report explorers, group sections dialog, etc..)

**Syntax**

```
object_LayoutChanged(changedObject As Object, changeType As LayoutChangeTypes)
```

The LayoutChanged event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type ARDesigner. |
| changedObject | Object - a reference to the control or object that caused the layout change. |
| changeType | LayoutChangeTypes - specifies the type of change. |

**Settings**

The settings for *changeType* are

| Setting | Description |
|---|---|
| **ddLCControlMove** | 0 - A control's position has changed. |
| **ddLCControlSize** | 1 - A control's size has changed. |
| **ddLCControlDelete** | 2 - A control is deleted. |
| **ddLCSectionSize** | 3 - A section's size has changed. |
| **ddLCSectionDelete** | 4 - A section is deleted. |
| **ddLCSectionMove** | 5 - A section is moved. |
| **ddLCReportSize** | 6 - The report's size is changed. |
| **ddLCControlAdd** | 7 - A new control is added to the report. |

**Example**

```
Private Sub ARDesigner1_LayoutChanged(changedObject As Object, _
  changeType As LayoutChangeTypes)
    ' If a group section was added or removed then display a grouping dialog
    If changeType = ddLCSectionAdd Then
        If changedObject.Type = ddSTGroupHeader Then
            frmGroups.Show
        End If
    End If
End Sub
```

# SelChange

Fires when selection changes. You can use the SelectedObjects property to inspect the current selection.

**Syntax**

```
object_SelChange()
```

**Example**

```
' SelChange event handler
Private Sub ARDesigner1_SelChange()
    If ARDesigner1.SelectedObjects.Count = 1 Then
        StatusBar1.Panels(1).Text = ARDesigner1.SelectedObjects(0).Name
    Else
        StatusBar1.Panels(1).Text = ""
    End If
End Sub
```

**Remarks**

This event can be used to update UI elements such as a property toolbox or status bar in your custom report designer

# StatusChange

This event fires for each change in the status of the designer actions. Designer actions represent the commands that are typically invoked from UI elements such as a toolbar or a menu. You can use the QueryStatus method to check the status of the changed action and update your custom UI elements.

**Syntax**
*object*_**StatusChange**(*action As DesignerActionTypes*)

The StatusChange event syntax has the following parts

| Part | Description |
|---|---|
| action | DesignerActionTypes - Specifies the action that caused the change as one of the actions listed below. |

**Settings**
The settings for *action* are

| Setting | Description |
|---|---|
| **ddActionFOpen** | 1 - File: Open. |
| **ddActionFSave** | 2 - File: Save. |
| **ddActionFPageSetup** | 3 - File: Page Setup. |
| **ddActionECut** | 4 - Edit: Cut. |
| **ddActionEPaste** | 5 - Edit: Paste. |
| **ddActionECopy** | 6 - Edit: Copy. |
| **ddActionEUndo** | 7 - Edit: Undo. |
| **ddActionEDelete** | 8 - Edit: Delete. |
| **ddActionEDeleteSection** | 9 - Edit: Delete Section. |
| **ddActionEInsertReportHF** | 10 - Edit: Insert Report Header/Footer. |
| **ddActionEInsertPageHF** | 11 - Edit: Insert Page Header/Footer. |
| **ddActionEInsertGroupHF** | 12 - Edit: Insert Group Header/Footer. |
| **ddActionEReorderGroups** | 13 - Edit: Reorder Groups. |
| **ddActionEInsertField** | 14 - Edit: Insert Field. |
| **ddActionViewExplorer** | 15 - View: Report Explorer. |
| **ddActionViewFieldsList** | 16 - View: Fields List. |
| **ddActionViewPropertyList** | 17 - View: Property Listbox. |
| **ddActionViewGrid** | 18 - View: Grid. |
| **ddActionViewSnapToGrid** | 19 - View: Snap to grid. |
| **ddActionViewFullScreen** | 20 - View: Full screen. |
| **ddActionViewCodeEditor** | 21 - View: Script Code Editor. |
| **ddActionFoAlignLefts** | 22 - Format: Align Control Lefts. |
| **ddActionFoAlignRights** | 23 - Format: Align Control Rights. |
| **ddActionFoAlignCenters** | 24 - Format: Align Control Centers. |
| **ddActionFoAlignTops** | 25 - Format: Align Control Tops. |
| **ddActionFoAlignMiddles** | 26 - Format: Align Control Middles. |
| **ddActionFoAlignBottoms** | 27 - Format: Align Control Bottoms. |
| **ddActionFoAlignToGrid** | 28 - Format: Align to Controls Grid. |
| **ddActionFoAlignCenterInSec** | 29 - Format: Align : Center Control in Section. |
| **ddActionFoSizeSameWidth** | 30 - Format: Size controls to the same width. |
| **ddActionFoSizeSameHeight** | 31 - Format: Size controls to the same height. |
| **ddActionFoSizeSameBoth** | 32 - Format: Size controls to the same width and height. |
| **ddActionFoVSpaceEqual** | 33 - Format: Space controls even vertically. |
| **ddActionFoVSpaceIncrease** | 34 - Format: Increase vertical spacing. |
| **ddActionFoVSpaceDecrease** | 35 - Format: Decrease vertical spacing. |
| **ddActionFoHSpaceEqual** | 36 - Format: Space controls even horizontally. |
| **ddActionFoHSpaceIncrease** | 37 - Format: Increase horizontal spacing. |
| **ddActionFoHSpaceDecrease** | 38 - Format: Decrease horizontal spacing. |
| **ddActionFoOrderBringToFront** | 39 - Format: Bring control to the foreground. |
| **ddActionFoOrderSendToBack** | 40 - Format: Send control to the background. |
| **ddActionFoLockControls** | 41 - Format: Lock controls size and position. |
| **ddActionFoStyle** | 42 - Format: Style. |
| **ddActionFoFontName** | 43 - Format: Font name. |
| **ddActionFoFontSize** | 44 - Format: Font size. |

| | |
|---|---|
| **ddActionFoFontBold** | 45 - Format: bold. |
| **ddActionFoFontItalic** | 46 - Format: Italic. |
| **ddActionFoTextAlignLeft** | 47 - Format: Align text left. |
| **ddActionFoTextAlignCenter** | 48 - Format: Align text center. |
| **ddActionFoTextAlignRight** | 49 - Format: Align text Right. |
| **ddActionFoForeColor** | 50 - Format: Set foreground color. |
| **ddActionFoBackColor** | 51 - Format: Set background color. |
| **ddActionFoLineStyle** | 52 - Format: Set line style. |
| **ddActionFoLineColor** | 53 - Format: Set line color. |
| **ddActionFoBorder** | 54 - Format: Set border styles. |
| **ddActionFoBullets** | 55 - Format: Set bullet style. |
| **ddActionFoIndent** | 56 - Format: Indent text. |
| **ddActionFoOutdent** | 57 - Format: Outdent text. |
| **ddActionFoUnderline** | 58 - Format: Underline |

**Example**

```
' Update edit menu items on status change.
Private Sub ARDesigner1_StatusChange(ByVal action As
DDActiveReportsDesignerCtl.DesignerActionTypes)
    Select Case action
    Case ddActionECopy
        miECopy.Enabled = ((ARDesigner1.QueryStatus(ddActionECopy) And _
            ddStatEnabled) = ddStatEnabled)
        miECopy.Checked = ((ARDesigner1.QueryStatus(ddActionECopy) And _
            ddStatChecked) = ddStatChecked)
    End Select
End Sub
```

# ValidateChange

This event is fired before an item is moved, sized or deleted. You can use this event to control the end user's actions. For example, you can prevent the user from deleting the report's data control or moving a predefined set of controls that are part of a standard report template.

**Syntax**

```
object_ValidateChange(control As Object, changeType As LayoutChangeTypes, Cancel As Boolean)
```

**Parameters**

The ValidateChange event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type ARDesigner. |
| control | Object |
| changeType | LayoutChangeTypes |
| Cancel | Boolean |

**Settings**

The settings for *changeType* are

| Setting | Description |
|---|---|
| **ddLCControlMove** | 0 - A control's position has changed. |
| **ddLCControlSize** | 1 - A control's size has changed. |
| **ddLCControlDelete** | 2 - A control is deleted. |
| **ddLCSectionSize** | 3 - A section's size has changed. |
| **ddLCSectionDelete** | 4 - A section is deleted. |
| **ddLCSectionMove** | 5 - A section is moved. |
| **ddLCReportSize** | 6 - The report's size is changed. |
| **ddLCControlAdd** | 7 - A new control is added to the report. |

**Example**

```
Private Sub ARDesigner1_ValidateChange(ByVal control As Object, _
    ByVal changeType As DDActiveReportsDesignerCtl.LayoutChangeTypes, _
    Cancel As Boolean)
    If changeType = ddLCControlDelete Then
        If control.Name = "DataControl1" Then
            MsgBox "You cannot delete the reports data source."
            Cancel = True
        End If
    End If
End Sub
```

# Selection

| Name | Type | Description |
|---|---|---|
| Count | Method | Returns the number of selection objects in the collection.<br>object.**Count** |
| Item | Method | Returns the object at the selected index.<br>object.**Item**(index) |

# Count

Returns the number of selected objects in the collection.

### Syntax

*object*.**Count**()

### Example

```
' SelChange event handler
Private Sub ARDesigner1_SelChange()
  If ARDesigner1.SelectedObjects.Count = 1 Then
    StatusBar1.Panels(1).Text = ARDesigner1.SelectedObjects(0).Name
  Else
    StatusBar1.Panels(1).Text = ""
  End If
End Sub
```

# Item

Returns the selection item at the specified index.

**Syntax**

```
object.Item((index As Long))
```

The Item method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type Selection. |
| index | Long |

**Example**

```
' SelChange event handler
Private Sub ARDesigner1_SelChange()
  If ARDesigner1.SelectedObjects.Count = 1 Then
    StatusBar1.Panels(1).Text = ARDesigner1.SelectedObjects.Item(0).Name
  Else
    StatusBar1.Panels(1).Text = ""
  End If
End Sub
```

# WebCache Service Objects

- WebCache
- WebCacheItem
- WebCacheWorkerThread
- WebCacheWorkerThreads

# WebCache

| Name | Type | Description |
|---|---|---|
| CacheContent | Method | Adds an item to the WebCache collection. |
| CacheItem | Method | Adds an item to the WebCache collection. |
| IsCached | Method | Determines whether a specific item is cached. |
| Item | Method | Returns the cached item at the specified index. |
| Remove | Method | Removes the cached item at the specified index. |
| RemoveAll | Method | Removes all cached items from the service. |
| Count | Property | Returns the number of cached item in the service. |

# CacheContent

Adds an item to the WebCache collection.

***Note**: CacheContent is the most commonly used method to add items to the WebCache collection.*

*The CacheItem Method should only be used when additional header information other than content type needs to be written into the header of the cached item.*

---

**Syntax**

```
object.CacheContent(ContentType As String, Data As Variant)
```

The CacheContent method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **WebCache**. |
| ContentType | String |
| Data | Variant |

**Example 1**

```
'The following example performs the following
'
'1)Loads an ActiveReport from a presaved XML file
'2)Runs the report
'3)Exports the report to a byte array in PDF format
'4)Adds the byte array to ActiveReports WebCache so
'that it may be streamed directly to the browser
'
'The example code is placed in a user defined function.
'A typical scenario would be for this function to be placed
'in a COM object and called from an ASP page.
'You could then do an ASP response.redirect to the
'url where the pdf export was cached.
Public Function ExportReport() as long

Dim rpt As ActiveReport
Dim aWebCache As WebCache
Dim pdfExpt As ActiveReportsPDFExport.ARExportPDF
Dim PDFByteArray  As Variant

Set rpt = New ActiveReport
Set aWebCache = New WebCache
set pdfExpt = New ActiveReportsPDFExport.ARExportPDF

rpt.Load "c:\testing.rpx"

rpt.run

Call pdfExpt.ExportStream(rpt.Pages, PDFByteArray)

lWebCacheID = aWebCache.CacheContent("Application/PDF", PDFByteArray)

ExportReport = lWebCacheID 'lWebCacheID can now be used to access the cached pdf file
'
'i.e.
'ASP Code calling the above function
'
' dim vWebCacheID
' vWebCacheID = arptserver.ExportReport()
' Response.Redirect "mywebsite/webcache.dll?" & vWebCacheID & "?"
End Function
```

# CacheItem

Adds an item to the WebCache collection.

***Note:*** *CacheContent is the most commonly used method to add items to the WebCache collection.*

*The CacheItem Method should only be used when additional header information other than content type needs to be written into the header of the cached item.*

---

**Syntax**

`object.`**`CacheItem`**`(Header As String, Data As Variant)`

The CacheItem method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **WebCache**. |
| Header | String - A valid header string to send to the browser client. |
| Data | Variant - cache content. |

**Example**

```
'============================================================
'The following example performs the following
'
'1)Loads an ActiveReport from a presaved XML file
'2)Runs the report
'3)Exports the report to a byte array in PDF format
'4)Adds the byte array to ActiveReports WebCache so
'that it may be streamed directly to the browser
'
'The example code is placed in a user defined function.
'A typical scenario would be for this function to be placed
'in a COM object and called from an ASP page.
'You could then do an ASP response.redirect to the
'url where the pdf export was cached.
'============================================================
Public Function ExportReport() as long
Dim rpt           As ActiveReport
Dim aWebCache     As WebCache
Dim pdfExpt       As ActiveReportsPDFExport.ARExportPDF
Dim PDFByteArray  As Variant

Set rpt = New ActiveReport
Set aWebCache = New WebCache
Set pdfExpt = New ActiveReportsPDFExport.ARExportPDF

rpt.Load "c:\testing.rpx"

rpt.run

Call pdfExpt.ExportStream(rpt.Pages, PDFByteArray)

lWebCacheID = aWebCache.CacheItem("Content-type: Application/PDF", PDFByteArray)

ExportReport = lWebCacheID 'lWebCacheID can now be used to access the cached pdf file
'
'i.e.
'ASP Code calling the above function
'
' dim vWebCacheID
' vWebCacheID = arptserver.ExportReport()
' Response.Redirect "mywebsite/webcache.dll?" & vWebCacheID & "?"
End Function
```

# IsCached

Returns a Boolean value telling the developer if a specific item is still cached or not

**Syntax**

```
object.IsCached(Id As String)
```

The IsCached method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **WebCache**. |
| Id | String |

**Example**

```
' Checking to see if a webcache id is still cached
Dim blnIsCached    As Boolean
Dim aWebCache      As WebCache

Set aWebCache = New WebCache
blnIsCached=aWebCache.IsCached("1")
```

# Item

Allows random access to individual nodes within the WebCache collection

**Syntax**

```
object.Item((Index As Variant))
```

The Item method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **WebCache**. |
| Index | Variant |

**Example**

```
'================================================================
'The example code demonstrates how to loop
'through all of the items in the
'webcache collection and
'print out each items timeout value
'
'Please Note that I am not using For EACH in the example.
'The _NewEnum property of the webcache collection
'is not supported at this time so you cannot use For Each.
'================================================================

Dim x As Integer
For x = 0 To aWebCache.Count - 1
   Debug.Print "awebcache.item(" & x & ").timeout = " & aWebCache.Item(x).TimeOut
Next
```

# Remove

Removes an element from the WebCache collection using the index of the cached item.

**Syntax**

```
object.Remove(Index As Variant)
```

The Remove method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **WebCache**. |
| Index | Variant |

**Example**

```
'In this example aWebCache represents a declared instance of the webcache class
'containing cached items

'removes the first cached item in the webcache collection

aWebCache.remove(0)
```

# RemoveAll

Removes all cached items from the WebCache Collection

**Syntax**

*object*.**RemoveAll**()

The RemoveAll method syntax has the following parts

| Part | Description |
| --- | --- |
| object | An expression evaluating to an object of type WebCache. |

**Example**

```
'In this example aWebCache represents a declared instance of the webcache class
'containing cached items

'removes all cached item in the webcache collection

aWebCache.removeall
```

# Count

Returns the current number of Cached Items in the WebCache Collection - Read Only

**Syntax**

```
[value=]object.Count
```

The Count property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCache object |
| value | A Integer value. |

**Data Type**

Integer

**Example**

```
'In this example aWebCache represents a declared instance of the webcache class
'containing cached items
dim icount as integer
icount= aWebCache.count
```

# WebCacheItem

| Name | Type | Description |
|---|---|---|
| Data | Property | Returns the data of the cached item. |
| Header | Property | Returns the header of the cached item. |
| Id | Property | Returns the cached items Id that is used by the ISAPI filter. |
| Persistence | Property | Determines when the cached item will be destroyed. |
| Timeout | Property | Determines the time in minutes that a cached item will remain in the cache. |

# Data

Returns the data of the cached item - Read Only

**Syntax**

```
[value =]object.Data
```

The Data property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheItem object |
| value | A Variant value. |

**Data Type**

Variant

**Example**

```
'This example demonstrates how to use the
'Data property of the WebCachItem class.
'In the example "aWebCache" is a pre-existing
'variable dimensioned as webcache and it
'has been populated with a webcacheitem

Dim aWebCacheItem As New WebCacheItem
Set aWebCacheItem = aWebCache.Item(0)
debug.print aWebCacheItem.data
```

# Header

Returns the header of the cached item Read Only

**Syntax**

```
[value =]object.Header
```

The Header property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheItem object |
| value | A String value. |

**Data Type**

String

**Example**

```
'This example demonstrates how to use the
'header property of the WebCachItem class.
'In the example "aWebCache" is a pre-existing
'variable dimensioned as webcache and it
'has been populated with a webcacheitem

Dim aWebCacheItem As New WebCacheItem
Set aWebCacheItem = aWebCache.Item(0)

debug.print aWebCacheItem.header
```

# Id

Returns the cached items Id that is used by the ISAPI filter - Read Only

**Syntax**

```
[value =]object.Id
```

The Id property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheItem object |
| value | A String value. |

**Data Type**

String

**Example**

```
'This example demonstrates how to use the
'Id property of the WebCachItem class.
'In the example "aWebCache" is a pre-existing
'variable dimensioned as webcache and it
'has been populated with a webcacheitem

Dim aWebCacheItem As New WebCacheItem
Set aWebCacheItem = aWebCache.Item(0)

debug.print aWebCacheItem.Id
```

# Persistence

Determines when the cached item will be destroyed - Read/Write

**Syntax**
*object*.**Persistence** [= *value*]
The Persistence property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheItem object |
| value | A PersistenceTypes value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **ddPermanent** | 1 - Cached item will stay alive forever. The item has to be destroyed using an explicit WebCache.Remove call. |
| **ddTimeout** | 2 - Cached item will remain in the cache for a time period specified by the end user via the WebCacheItem's Timeout property. A possible usage scenario is setting the Timeout property to the SessionTimeout value under IIS. |
| **ddAccessedOnce** | 3 - Cached item is destroyed immediately after the client accesses the data one time |

**Data Type**
PersistenceTypes

**Example**
```
'This example demonstrates how to use the
'Persistence property of the WebCachItem class.
'In the example "aWebCache" is a pre-existing
'variable dimensioned as webcache and it
'has been populated with a webcacheitem

Dim aWebCacheItem As New WebCacheItem
Set aWebCacheItem = aWebCache.Item(0)

aWebCacheItem.Persistence = 2
```

**Remarks**
Default value = ddAccessedOnce

# TimeOut

Determines the time in minutes that a cached item will remain in the cache - Read/Write.

***Note:*** *The Timeout property is only used if the persistence property of the WebCacheItem is set to 2 - ddTimeout*

**Syntax**

*object*.**TimeOut** [= *value*]

The TimeOut property syntax has the following parts

| **Part** | **Description** |
|---|---|
| object | A valid WebCacheItem object |
| value | A Long value. |

**Data Type**

Long

**Example**

```
'This example demonstrates how to use the
'Timeout property of the WebCachItem class.
'In the example "aWebCache" is a pre-existing
'variable dimensioned as webcache and it
'has been populated with a webcacheitem

Dim aWebCacheItem As New WebCacheItem
Set aWebCacheItem = aWebCache.Item(0)

aWebCacheItem.Timeout = 2
```

**Remarks**

Default value = 0

# WebCacheWorkerThread

| Name | Type | Description |
| --- | --- | --- |
| AveragePerRequest | Property | Returns the average number of milliseconds per request. |
| NumberOfRequest | Property | Returns the number of requests that the thread has serviced. |
| ThreadId | Property | Returns the id of the WebCacheWorkerThread. |
| TotalTimeServicingRequest | Property | Returns the total time used servicing a request in milliseconds. |

# AveragePerRequest

Returns the average number of milliseconds per request - Read Only

**Syntax**

```
[value=] object.AveragePerRequest
```

The AveragePerRequest property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheWorkerThread object |
| value | An Integer value. |

**Data Type**

Integer

**Example**

```
'=====================================================
'This example prints out several properties
'for all of the workerthreads in the workerthreads
'collection. The sample adds the following properties to a
'standard vb listView control called lstThreads.
'ThreadId,AveragePerRequest,and NumberofRequest.
'=====================================================

Dim aItem       As ListItem
Dim aThread     As WebCacheWorkerThread
Dim aThreads    As New WebCacheWorkerThreads
Dim nSize       As Integer
Dim nIndex      As Integer

nSize = aThreads.Count

For nIndex = 0 To nSize - 1
    Set aThread = aThreads.Item(nIndex)
    Set aItem = lstThreads.ListItems.Add(, , CStr(aThread.ThreadID))
    aItem.SubItems(1) = CStr(aThread.AveragePerRequest)
    aItem.SubItems(2) = CStr(aThread.NumberOfRequest)
Next nIndex
```

# NumberOfRequest

Returns the number of requests that the thread has serviced - Read Only

**Syntax**

```
[value=] object.NumberOfRequest
```

The NumberOfRequest property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheWorkerThread object |
| value | A Long value. |

**Data Type**

Long

**Example**

```
'=====================================================
'This example prints out several properties
'for all of the workerthreads in the workerthreads
'collection. The sample adds the following properties to a
'standard vb listView control called lstThreads.
'ThreadId,AveragePerRequest,and NumberofRequest.
'=====================================================

Dim aItem       As ListItem
Dim aThread     As WebCacheWorkerThread
Dim aThreads    As New WebCacheWorkerThreads
Dim nSize       As Integer
Dim nIndex      As Integer

nSize = aThreads.Count

For nIndex = 0 To nSize - 1
  Set aThread = aThreads.Item(nIndex)
  Set aItem = lstThreads.ListItems.Add(, , CStr(aThread.ThreadID))
  aItem.SubItems(1) = CStr(aThread.AveragePerRequest)
  aItem.SubItems(2) = CStr(aThread.NumberOfRequest)
Next nIndex
```

# ThreadId

Returns the id of the WebCacheWorkerThread - Read Only

**Syntax**

```
[value=] object.ThreadId
```

The ThreadId property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheWorkerThread object |
| value | An Integer value. |

**Data Type**

Integer

**Example**

```
'=======================================================
'This example prints out several properties
'for all of the workerthreads in the workerthreads
'collection. The sample adds the following properties to a
'standard vb listView control called lstThreads.
'ThreadId,AveragePerRequest,and NumberofRequest.
'=======================================================

Dim aItem       As ListItem
Dim aThread     As WebCacheWorkerThread
Dim aThreads    As New WebCacheWorkerThreads
Dim nSize       As Integer
Dim nIndex      As Integer

nSize = aThreads.Count

For nIndex = 0 To nSize - 1
  Set aThread = aThreads.Item(nIndex)
  Set aItem = lstThreads.ListItems.Add(, , CStr(aThread.ThreadID))
  aItem.SubItems(1) = CStr(aThread.AveragePerRequest)
  aItem.SubItems(2) = CStr(aThread.NumberOfRequest)
Next nIndex
```

# TotalTimeServicingRequest

Returns the total time used servicing a request in milliseconds. The time waiting for a request is not included. Read Only

**Syntax**

```
[value=] object.TotalTimeServicingRequest
```

The TotalTimeServicingRequest property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid WebCacheWorkerThread object |
| value | A Long value. |

**Data Type**

Long

**Example**

```
Dim numThreads As New WebCacheWorkerThreads
Dim aThread As New WebCacheWorkerThread

Set aThread = numThreads.Item(0)

Debug.Print aThread.ThreadID
Debug.Print aThread.TotalTimeServicingRequest
```

# WebCacheWorkerThreads

| Name | Type | Description |
| --- | --- | --- |
| Item | Method | Returns the Thread object at the specified index. |
| Count | Property | Returns the number of WebCacheWorkerThreads in the collection. |

# Item

Allows random access to individual nodes within the WebCacheWorkerThreads collection

**Syntax**

```
object.Item((Index As Variant))
```

The Item method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type WebCacheWorkerThreads. |
| Index | Variant |

**Example**

```
Dim numThreads As New WebCacheWorkerThreads
Dim aThread as New WebCacheWorkerThread

Set aThread = numThreads.Item(0)

Debug.Print aThread.Id
```

# Count

Returns the current number of WebCacheWorkerThreads

**Syntax**

```
[value=] object.count
```

The Count property syntax has the following parts

| Part | Description |
| --- | --- |
| object | A valid WebCacheWorkerThreads object |
| value | A Integer value. |

**Data Type**

Integer

**Example**

```
Dim numThreads As WebCacheWorkerThreads
Set numThreads = New WebCacheWorkerThreads

Debug.Print "workerthread count = " & numThreads.Count
```

# Property List Objects

- PropList Control Object
- PropNode Object
- PropNodes Collection

# PropList

| Name | Type | Description |
|---|---|---|
| AllowColumnResize | Property | Specifies whether the user is allowed to resize the property list columns. |
| Backcolor | Property | Specifies the background color of the property list control. |
| BorderStyle | Property | Specifies the border style of the control. |
| Categorized | Property | Sets/returns if property list nodes are categorized or alphabetical. |
| Enabled | Property | Determines whether the property list control is enabled or disabled. |
| Font | Property | Specifies the font used to render text in the property list control. |
| ForeColor | Property | Specifies the foreground color of the property list. |
| hWnd | Property | Returns the property list window handle. |
| Properties | Property | Returns property nodes collection. |
| ShowDescription | Property | Sets/returns if property description pane is visible. |
| ShowObjectCombobox | Property | Sets/returns if object combobox is visible. |
| ShowReadOnlyProp | Property | Sets/returns weather readonly properties are shown. |
| ShowToolbar | Property | Sets/returns if toolbar is visible. |
| Sorted | Property | Determines whether the properties are sorted alphabetically in the list. |
| Clear | Method | Removes all nodes from the property list. |
| Refresh | Method | Updates the propertylistbox with new values. |
| SelectObjects | Method | Sets the current selection. object can be a single COM object or an array of COM objects |
| Error | Event | Fires when an internal error occurs in the property list control. |
| FetchData | Event | Fires when enum combobox dropdown is pressed. |
| FetchDataDescription | Event | Fires when combobox is updating its text or listbox. |
| ObjectChanged | Event | Fired when user selected a new object from the object combobox |
| PropertyChanged | Event | Fires when property value has been changed |
| PropertyValidate | Event | Fired before a value is stored in the property node when user makes a change to the value |

# AllowColumnResize

Specifies whether the user is allowed to resize the property list columns.

**Syntax**
*object*.**AllowColumnResize** [= *value*]
The AllowColumnResize property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | Allows user to resize the property list columns. |
| **False** | Does not allow the user to size the columns. |

**Data Type**
Boolean

**Remarks**
Default value = True

# BackColor

Specifies the background color of the property list control.

**Syntax**
*object*.**BackColor** [= *value*]
The BackColor property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object |
| value | A valid color value. |

**Data Type**
OLE_COLOR

**Remarks**
Default value = vbWindowBackColor

# BorderStyle

Specifies the border style of the control.

**Syntax**
*object*.**BorderStyle** [= *value*]
The BorderStyle property syntax has the following parts

| **Part** | **Description** |
|---|---|
| object | A valid PropList object |
| value | A ddPLBorderStyle setting. |

**Settings**
The settings for *value* are

| **Setting** | **Description** |
|---|---|
| **ddPLNone** | 0 - No border. |
| **ddPLSunken** | 1 - Sunken border. |

**Data Type**
ddPLBorderStyle

**Remarks**
Default value = ddPLSunken

# Categorized

Sets/returns if property list nodes are categorized or alphabetical.

**Syntax**
*object*.**Categorized** [= *value*]
The Categorized property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | Property list nodes are categorized in a treeview. |
| **False** | Property list nodes are listed alphabetically. |

**Data Type**
Boolean

**Remarks**
Default value = True

# Enabled

Determines whether the property list control is enabled or disabled.

**Syntax**
*object*.**Enabled** [= *value*]

The Enabled property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | Property list control is enabled. |
| **False** | Property list control is disabled. |

**Data Type**
Boolean

**Remarks**
Default value = True

# Font

Specifies the font used to render text in the property list control.

**Syntax**
`object.`**`Font`** `[= value]`
The Font property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object |
| value | A valid Font object. |

**Data Type**
Font

# ForeColor

Specifies the foreground color of the property list.

**Syntax**
*object*.**ForeColor** [= *value*]
The ForeColor property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object. |
| value | A valid OLE_COLOR value. |

**Data Type**
OLE_COLOR

**Remarks**
Default value = vbWindowText

# hWnd

Returns the property list window handle.

**Syntax**
value = object.**hWnd**

The hWnd property syntax has the following parts

| Part | Description |
| --- | --- |
| object | A valid PropList object. |
| value | Returns the property list window handle. |

Data Type

OLE_HANDLE

# Properties

Returns property nodes collection.

**Syntax**
Set value = object.Properties

The Properties property syntax has the following parts

| Part | Description |
| --- | --- |
| object | A valid PropList object |
| value | A valid PropNodes collection. |

**Data Type**
IPropNodes

# ShowDescription

Sets/returns if property description pane is visible.

**Syntax**
*object*.**ShowDescription** [= *value*]
The ShowDescription property syntax has the following parts

| **Part** | **Description** |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| **Setting** | **Description** |
|---|---|
| **True** | Description pane is visible. |
| **False** | Description pane is not visible. |

**Data Type**
Boolean

**Remarks**
Default value = True

# ShowObjectCombobox

Sets/returns if object combobox is visible.

**Syntax**
*object*.ShowObjectCombobox [= *value*]
The ShowObjectCombobox property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | Displays the objects combobox. |
| **False** | Hides the objects combobox. |

**Data Type**
Boolean

**Remarks**
Default value = True

# ShowReadOnlyProp

Sets/returns weather readonly properties are shown.

**Syntax**
*object*.**ShowReadOnlyProp** [= *value*]
The ShowReadOnlyProp property syntax has the following parts

| **Part** | **Description** |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| **Setting** | **Description** |
|---|---|
| **True** | Displays the readonly properties. |
| **False** | Hides the readonly properties. |

**Data Type**
Boolean

**Remarks**
Default value = True

# ShowToolbar

Sets/returns if toolbar is visible.

**Syntax**
*object*.**ShowToolbar** [= *value*]
The ShowToolbar property syntax has the following parts

| **Part** | **Description** |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| **Setting** | **Description** |
|---|---|
| **True** | Displays the toolbar. |
| **False** | Hides the toolbar. |

**Data Type**
Boolean

**Remarks**
Default value = True

# Sorted

Determines whether the properties are sorted alphabetically in the list.

**Syntax**
*object*.**Sorted** [= *value*]
The Sorted property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropList object |
| value | A Boolean value. |

**Settings**
The settings for *value* are

| Setting | Description |
|---|---|
| **True** | Properties are sorted alphabetically.. |
| **False** | Properties are listed in the order they were added. |

**Data Type**
Boolean

**Remarks**
Default value = True

# AddObject

Adds an object reference to the property listbox and updated the combobox list

**Syntax**

```
object_AddObject(newObject As Object)
```

The AddObject method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| newObject | Object |

**Example**

```
' Add an object to the property list
plist.AddObject Text1
plist.AddObject Text2
```

# Clear

Removes all nodes from the property list.

**Syntax**
*object*_**Clear**()
The Clear method syntax has the following parts

| Part | Description |
| --- | --- |
| object | An expression evaluating to an object of type **PropList**. |

# Refresh

Updates the propertylistbox with new values.

**Syntax**
*object*_**Refresh**()
The Refresh method syntax has the following parts

| Part | Description |
| --- | --- |
| object | An expression evaluating to an object of type PropList. |

# SelectObjects

Sets the current selection. object can be a single COM object or an array of COM objects

**Syntax**

```
object_SelectObjects(selObject As Variant)
```

The SelectObjects method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| selObject | Variant - a single object or an array of objects. |

**Example**

```
' Select a single object to the property list
plist.SelectObjects Text1

' Select multiple objects (property list would
' aggregate common properties).
plist.SelectObjects Array(Text1, Text2, Text3)
```

# ButtonClick

Fires when a button on ddPLButton property is clicked

**Syntax**

```
object_ButtonClick(property As IPropNode)
```

The ButtonClick event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| property | IPropNode |

**Example**

```
' Handle the border property with a custom dialog
Private Sub PropertyList1_ButtonClick(property as IPropNode)
    If property.Name = "Border" Then
        frmBorders.Show vbModal
    End If
End Sub
```

# Error

Fires when an internal error occurs in the property list control.

**Syntax**

```
object_Error((Number As Integer, Description As ReturnString, Scode As Long,
    Source As String, HelpFile As String, HelpContext As Long,
    CancelDisplay As ReturnBool))
```

The Error event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| Number | Integer - Error number. |
| Description | ReturnString - Brief description of the error. |
| Scode | Long - Result code. |
| Source | String - Error source. |
| HelpFile | String - Help file. |
| HelpContext | Long - Help context id. |
| CancelDisplay | ReturnBool - Boolean variable, used to suspend the built-in error message box. |

**Example**

```
' Handle PropertyList errors
Private Sub PropertyList1_Error(Number As Integer, Description As ReturnString,
    SCode As Long, Source As String,
    HelpFile As String, HelpContext As Long,
    CancelDisplay As Boolean)

    ' Display the error number and description to a form's status bar instead
    ' of an error message box
    statusbar1.Panels(1).Text = "Error: " & Str(Number) & " - " & Description
    CancelDisplay = True
End Sub
```

# FetchData

Fires when enum combobox dropdown is pressed. You can change the items in the combobox by using node.ClearEnums and node.AddEnum methods

**Syntax**

```
object_FetchData((property As IPropNode))
```

The FetchData event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| property | IPropNode |

**Example**

```
Private Sub pl_FetchData(ByVal property As DDPropertyListCtl.IPropNode)
    Select Case property.Name
    Case "State"
        property.ClearEnums
        property.AddEnum "AL", "Alabama"
        property.AddEnum "CA", "California"
        property.AddEnum "OH", "Ohio"
        property.AddEnum "NC", "North Carolina"
    End Select
End Sub
```

# FetchDataDescription

Fires when comobox is updating its text or listbox. You can use this event to provide alternate description string for each enum value.

**Syntax**

```
object_FetchDataDescription((property As IPropNode, Value As Variant, Description As Variant))
```

The FetchDataDescription event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| property | PropNode |
| Value | Variant |
| Description | Variant |

**Example**

```
' This example modifies the descriptions of all boolean properties to German
Private Sub PropList1_FetchDataDescription(ByVal property As DDPropertyListCtl.IPropNode, _
    ByVal Value As Variant, Description As Variant)
  If property.Type = ddPLBoolean Then
    If (Value = True) Then
      Description = "Ja"
    Else
      Description = "Nein"
    End If
  End If
End Sub
```

# ObjectChanged

Fired when user selected a new object from the object combobox

Syntax

```
object_ObjectChanged((newObject As Object))
```

The ObjectChanged event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| newObject | Object - a reference to the new selected object. |

# PropertyChanged

Fires when property value has been changed

**Syntax**

```
object_PropertyChanged((property As IPropNode))
```

The PropertyChanged event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| property | PropNode - a reference to the changed property nodes. |

# PropertyValidate

Fired before a value is stored in the property node when user makes a change to the value. Used to validate an entry

**Syntax**

```
object_PropertyValidate((property As IPropNode, newValue As Variant, Cancel As Boolean))
```

The PropertyValidate event syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type **PropList**. |
| property | PropNode - a reference to the current property. |
| newValue | Variant - new property value. |
| Cancel | Boolean - by ref parameter, allows you to cancel the change. |

# PropNode

| Name | Type | Description |
|---|---|---|
| AddEnum | Method | Adds a new enumeration value to the property |
| ClearEnums | Method | Clear all enumeration values for property |
| Category | Property | Sets/returns optional property category name. |
| Children | Property | Returns child property collection. |
| Description | Property | Sets/returns description for property. |
| Name | Property | Sets/returns property name. |
| Type | Property | Sets/returns UI type for property. |
| Value | Property | Sets/returns value of property |

# AddEnum

Adds a new enumeration value to the property

**Syntax**

```
object.AddEnum(Value As Variant, Description As Variant)
```

The AddEnum method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type PropNode. |
| Value | Variant - value of the enum. |
| Description | Variant - description of the enum. |

**Example**

```
Private Sub pl_FetchData(ByVal property As DDPropertyListCtl.IPropNode)
    Select Case property.Name
    Case "State"
        property.ClearEnums
        property.AddEnum "AL", "Alabama"
        property.AddEnum "CA", "California"
        property.AddEnum "OH", "Ohio"
        property.AddEnum "NC", "North Carolina"
    End Select
End Sub
```

# ClearEnums

Clear all enumeration values for property

**Syntax**

```
object.ClearEnums()
```

The ClearEnums method syntax has the following parts

| Part | Description |
| --- | --- |
| object | An expression evaluating to an object of type PropNode. |

**Example**

```
Private Sub pl_FetchData(ByVal property As DDPropertyListCtl.IPropNode)
    Select Case property.Name
    Case "State"
        property.ClearEnums
        property.AddEnum "AL", "Alabama"
        property.AddEnum "CA", "California"
        property.AddEnum "OH", "Ohio"
        property.AddEnum "NC", "North Carolina"
    End Select
End Sub
```

# Category

Sets/returns optional property category name.

**Syntax**
*object*.**Category** [= *value*]
The Category property syntax has the following parts

| Part | Description |
| --- | --- |
| object | A valid PropNode object |
| value | A String value. |

**Data Type**
String

# Children

Returns child property collection.

**Syntax**
*object*.**Children** [= *value*]
The Children property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropNode object |
| value | A PropNodes Collection. |

**Data Type**
IPropNodes

Example

```
' Create a complex property Address with child nodes.
    Set nod = New PropNode
    nod.Category = "Address"
    nod.Name = "Telephone"
    nod.Type = ddPLLabel
    Set subNod = New PropNode
    subNod.Category = "Address"
    subNod.Name = "Home"
    subNod.Type = ddPLString
    nod.Children.Add subNod
    Set subNod = New PropNode
    subNod.Category = "Address"
    subNod.Name = "Business"
    subNod.Type = ddPLString
    nod.Children.Add subNod
    pl.Properties.Add nod
```

# Description

Sets/returns description for property.

**Syntax**
*object*.**Description** [= *value*]
The Description property syntax has the following parts

| Part | Description |
| --- | --- |
| object | A valid PropNode object |
| value | A String value. |

**Data Type**
String

# Name

Sets/returns property name.

**Syntax**
```
object.Name [= value]
```

**Values**
The Name property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropNode object |
| value | A String value. |

**Data Type**
String

# Type

Sets/returns UI type for property.

**Syntax**

```
object.Type [= value]
```

The Type property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropNode object |
| value | A ddPLNodeType setting. |

**Settings**

The settings for *value* are

| Setting | Description |
|---|---|
| **ddPLString** | 0 -A string property. |
| **ddPLLabel** | 1 - A static label. |
| **ddPLEnum** | 2 - An enumerated property editor. |
| **ddPLBoolean** | 3 - A Boolean property editor. |
| **ddPLColor** | 4 - A color property editor. |
| **ddPLStringCombo** | 5 - A string editor with a combobox. |
| **ddPLPicture** | 6 - A picture property editor. |
| **ddPLFont** | 7 - A font property editor. |
| **ddPLButton** | 16 - Adds a custom button to the property editor, can be combined with any of the other types. |

**Data Type**

ddPLNodeType

# Value

Sets/returns value of property. Call the refresh method to update the property listbox with the new value

**Syntax**
*object*.**Value** [= *value*]

**Values**
The Value property syntax has the following parts

| Part | Description |
|---|---|
| object | A valid PropNode object |
| value | A Variant value. |

**Data Type**
Variant

# PropNodes

| Name | Type | Description |
|---|---|---|
| Add | Method | Adds the specified node object to the collection. |
| Count | Method | Returns the number of property nodes in the collection. |
| Item | Method | Returns the property node object at the specified index. |
| Remove | Method | Removes a node from the collection at the specified index |

# Add

Adds the specified node object to the collection.

**Syntax**

```
object.Add(property As PropNode)
```

The Add method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type PropNodes. |
| property | PropNode object to be added. |

**Example**

```
    Set nod = New PropNode
    nod.Category = "Address"
    nod.Name = "State"
    nod.Type = ddPLEnum
    pl.Properties.Add nod
```

# Count

Returns the number of property nodes in the collection.

**Syntax**
*object*.**Count**()
The Count method syntax has the following parts

| Part | Description |
| --- | --- |
| object | An expression evaluating to an object of type PropNodes. |

# Item

Returns the property node object at the specified index.

**Syntax**

```
object.Item(Index As Variant)
```

The Item method syntax has the following parts

| Part | Description |
| --- | --- |
| object | An expression evaluating to an object of type PropNodes. |
| Index | Variant |

# Remove

Removes a node from the collection at the specified index.

**Syntax**

```
object.Remove(Index As Variant)
```

The Remove method syntax has the following parts

| Part | Description |
|---|---|
| object | An expression evaluating to an object of type PropNodes. |
| Index | Variant - Index of the node to be removed from the collection. |