Add-in Express™
for Microsoft® Office and Delphi VCL

DEVELOPER'S GUIDE

Add-in Express™
www.add-in-express.com

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Developer's Guide

Revised on 25-Nov-21

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Introduction

Add-in Express is a development tool designed to simplify and speed up the development of Office COM Add-ins, Run-Time Data servers (RTD servers), Smart Tags, and Excel Automation Add-ins in Delphi through the consistent use of the RAD paradigm. It provides a number of specialized components that allow the developer to walk through the interface-programming phase to the functional programming phase with a minimal loss of time.

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Why Add-in Express?

Microsoft supplied us with another term – Office Extensions. This term covers all the customization technologies provided for Office applications. The technologies are:

- COM Add-ins
- Smart Tags
- Excel RTD Servers
- Excel Automation Add-ins

Add-in Express allows you to overcome the basic problem when customizing Office applications – building your solutions into the Office application. Based on the True RAD paradigm, Add-in Express saves the time that you would have to spend on research, prototyping, and debugging numerous issues of any of the above-mentioned technologies in all versions and updates of all Office applications. The issues include safe loading / unloading, host application startup / shutdown, as well as user-interaction-related and deployment-related issues.

Add-in Express Products

Add-in Express offers a number of products for developers on its web site.

- Add-in Express for Microsoft Office and .NET

It allows creating version-neutral managed COM add-ins, smart tags, Excel Automation add-ins, XLL add-ins and RTD servers in Visual Studio. See http://www.add-in-express.com/add-in-net/.

- Add-in Express for Internet Explorer and .NET

It allows developing add-ons for IE in Visual Studio. Custom toolbars, sidebars and BHOs are on board. See http://www.add-in-express.com/programming-internet-explorer/.

- Security Manager for Microsoft Outlook

This is a product designed for Outlook solution developers. It allows controlling the Outlook e-mail security guard by turning it off and on in order to suppress unwanted Outlook security warnings. See http://www.add-in-express.com/outlook-security/.

System Requirements

*You **must** have Microsoft Office 2000 Sample Automation Server Wrapper Components installed.*

Supported Delphi Versions

- Delphi XE2 Architect, Ultimate, Enterprise and Professional with Update Pack 4 Hotfix 1
- Delphi XE3 Architect, Ultimate, Enterprise and Professional with Update Pack 1
- Delphi XE4 Architect, Ultimate, Enterprise and Professional with Update Pack 1
- Delphi XE5 Architect, Ultimate, Enterprise and Professional
- Delphi XE6 Architect, Ultimate, Enterprise and Professional
- Delphi XE7 Architect, Ultimate, Enterprise and Professional
- Delphi XE8 Architect, Ultimate, Enterprise and Professional
- Delphi 10 Seattle Architect, Ultimate, Enterprise, Professional
- Delphi 10.1 Berlin Architect, Ultimate, Enterprise, Professional
- Delphi 10.2 Tokyo Architect, Enterprise, Professional, Community
- Delphi 10.3 Rio Architect, Enterprise, Professional, Community
- Delphi 10.4 Sydney Architect, Enterprise, Professional, Community
- Delphi 11 Alexandria Architect, Enterprise, Professional, Community

Supported Office applications, versions and bitness

Office 2000-2007 applications are 32-bit. With Office 2010+, 32-bit or 64-bit versions are available. Supported are all of them. The bitness of your Office extension must be the same as the bitness of the host Office application.

COM Add-ins

- Microsoft Excel 2000 and higher
- Microsoft Outlook 2000 and higher
- Microsoft Word 2000 and higher
- Microsoft FrontPage 2000 and higher
- Microsoft PowerPoint 2000 and higher
- Microsoft Access 2000 and higher
- Microsoft Project 2000 and higher
- Microsoft MapPoint 2002 and higher
- Microsoft Visio 2002 and higher

- Microsoft Publisher 2003 and higher
- Microsoft InfoPath 2007 and higher

Real-Time Data Servers

- Microsoft Excel 2002 and higher

Smart Tags

- Microsoft Excel 2002 and higher
- Microsoft Word 2002 and higher
- Microsoft PowerPoint 2003 and higher

Smart tags are declared deprecated since Office 2010. *However, you can still use the related APIs in projects for Excel 2010+ and Word 2010+; see Changes in Word 2010 and Changes in Excel 2010.*

Excel Automation Add-ins

- Microsoft Excel 2002 and higher

Technical Support

Add-in Express is developed and supported by the Add-in Express Team, a branch of Add-in Express Ltd. You can get technical support using any of the following methods.

The Add-in Express web site at www.add-in-express.com provides a mine of information and software downloads for Add-in Express developers, including:

- The HOWTOs section that contains sample projects answering most common "how to" questions.
- Add-in Express technical blog contains most recent information as well as Video HOWTOs.
- Add-in Express Toys contains "open sourced" add-ins for popular Office applications.
- Built-in Controls Scanner utility, which is free.

For technical support through the Internet, e-mail us at support@add-in-express.com or use our forums.

If you are a subscriber of our Premium Support Service and need help immediately, you can request technical support via an instant messenger, e. g. Windows/MSN Messenger or Skype.

Installing and Activating

What follows below is a brief guide on installing and activating your copy of Add-in Express.

Activation Basics

The goal of product activation is to reduce a form of piracy known as casual copying, which is the sharing and installation of software that is not in compliance with the software's End-User License Agreement. Product activation helps ensure that each copy is installed on no more than the limited number of computers allowed by the product license.

During software activation, the activation wizard prompts you to enter a license key. The license key is a 30-character alphanumeric code shown in six groups of five characters each (for example, ADX4M-GBFTK-3UN78-MKF8G-T8GTY-NQS8R). Keep the license key in a safe location and do not share it with others.

For purposes of product activation only, a non-unique hardware identifier is created from general information that is included in the system components. At no time are files on the hard drive scanned, nor is personally identifiable information of any kind used to create the hardware identifier. Product activation is completely anonymous. To ensure your privacy, the hardware identifier is created by what is known as a "one-way hash". To produce a one-way hash, information is processed through an algorithm to create a new alphanumeric string. It is impossible to calculate the original information from the resulting string.

During activation, the wizard tries to connect to the activation server at www.add-in-express.com to get an activation code based on your license key and a hardware identifier. If the activation code is received, the installation continues, otherwise fails.

The activation process needs to be performed on each computer individually. Please refer to your End-User License Agreement for information about the number of computers you can install the software on.

Setup Package Contents

The Add-in Express setup program installs the following folders on your PC:

- *Packages* – design-time packages for supported Delphi versions
- *Docs* – Add-in Express documentation
- *Redistributables* – Add-in Express redistributable files
- *Sources* – Add-in Express source code
- *Sources \ DesignTime* – design-time source code.

Please note that the source code of Add-in Express is delivered or not depending on the product package you purchased. See Feature Matrix & Pricing for details.

Add-in Express setup program installs the following text files on your PC:

- *licence.txt* – the EULA
- *readme.txt* – short description of the product, support addresses and such
- *whatsnew.txt* – this file describes the latest information on the product features added and bugs fixed.

Solving Installation Problems

Make sure you are an administrator on the PC.

Set UAC to its default level.

In Control Panel | System | Advanced | Performance | Settings | Data Execution Prevention, set the "... for essential Windows programs and services only" flag.

Remove the following registry key if it exists:

```
HKEY_CURRENT_USER\Software\Add-in Express\{product identifier} {version}
{package}
```

Getting Started

In this chapter, we guide you through the following steps of developing Add-in Express projects:

- Create an Add-in Express project
- Add components to the Add-in Express designer
- Add some business logics
- Build, register, and debug the project
- Deploy your project to a target PC

Your First Microsoft Office COM Add-in

This chapter highlights creating COM Add-ins for Microsoft Office applications. The sample project described below implements a COM add-in for Excel, Word and PowerPoint. It is included in *Add-in Express for Office and VCL sample projects* available on the Downloads page.

Add-in Express provides a number of components targeting Outlook. See Your First Microsoft Outlook COM Add-in.

A Bit of Theory

COM add-ins have been around since Office 2000 when Microsoft allowed Office applications to extend their features with COM DLLs supporting the *IDTExtensibility2* interface (it is a COM interface, of course).

COM add-ins is the only way to add new or re-use built-in UI elements such as command bar controls and Ribbon controls. Say, a COM add-in can show a command bar or Ribbon button to process selected Outlook e-mails, Excel cells, or paragraphs in a Word document and perform some actions on the selected objects. A COM add-in supporting Outlook, Excel, Word or PowerPoint can show advanced task panes in Office 2000-2021/365. In a COM add-in targeting Outlook, you can add custom option pages to the *Tools* | *Options* and *Folder Properties* dialogs. A COM add-in also handles events and calls properties and methods provided by the object model of the host application. For instance, a COM add-in can modify an e-mail when it is being sent; it can cancel saving an Excel workbook or it can check if a Word document meets some conditions.

Per-user and per-machine COM add-ins

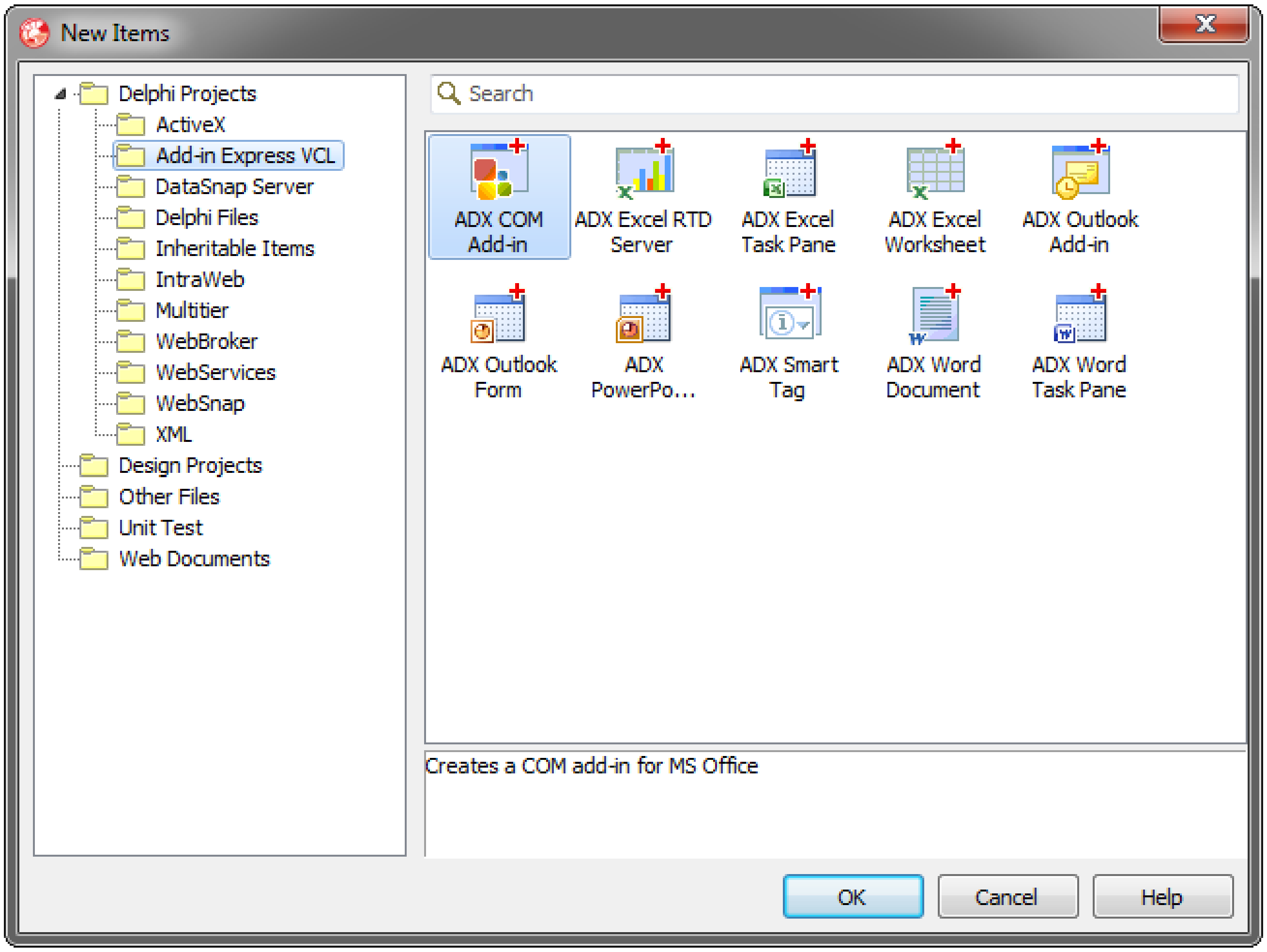
A COM add-in can be registered either for the current user (the user running the installer) or for all users on the machine. Add-in Express generates a per-user add-in project; your add-in is per-machine if the add-in module has *ADXAddinModule.RegisterForAllUsers = True*. Registering for all users means writing to *HKLM* and that means the user registering a per-machine add-in must have administrative permissions. Accordingly, *RegisterForAllUsers = Flase* means writing to *HKCU* (=for the current user). See Registry Entries.

A standard user may turn a per-user add-in off and on in the COM Add-ins Dialog. You use that dialog to check if your add-in is active.

Step #1 - Creating a COM Add-in Project

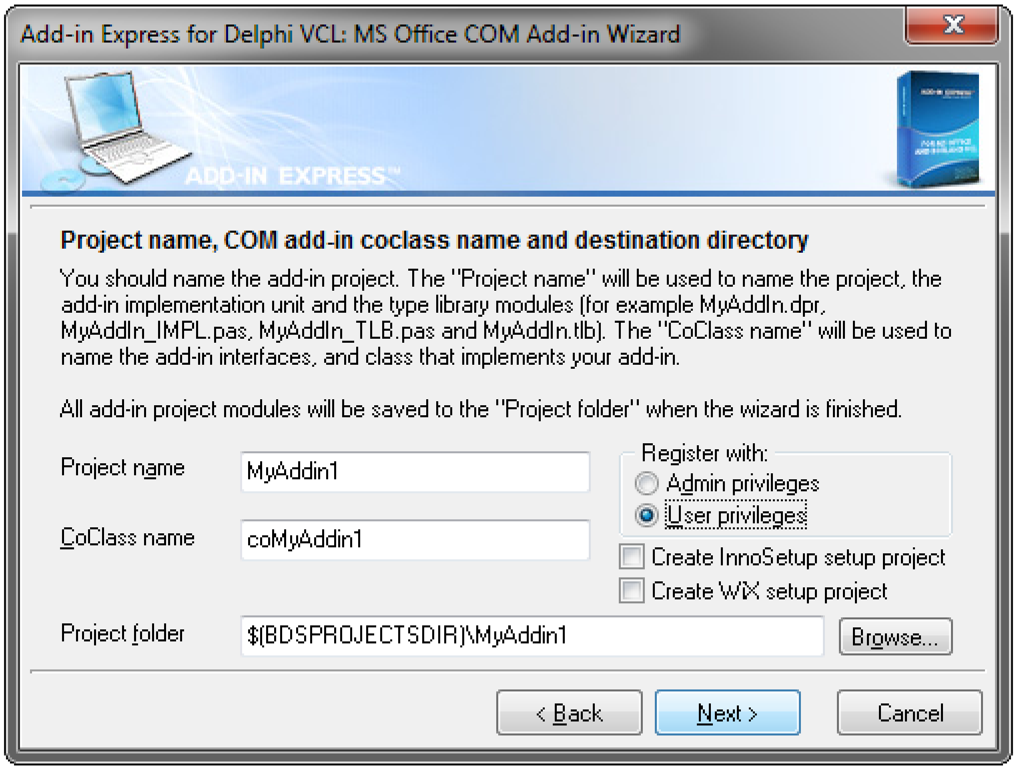
Run Delphi via the *Run as Administrator* command.

Add-in Express adds the COM Add-in project template to the *New Items* dialog.



Creates a COM add-in for MS Office

When you select the template and click *OK*, the *COM Add-in Wizard* starts. In the wizard windows, you choose the project options.


Add-in Express for Delphi VCL: MS Office COM Add-in Wizard

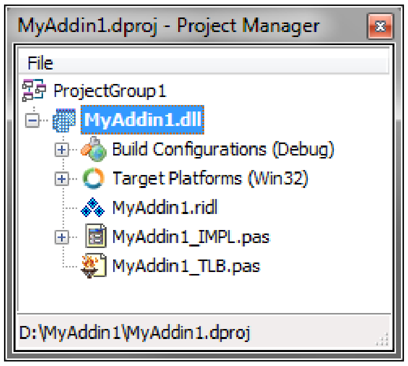
Project name, COM add-in coclass name and destination directory

You should name the add-in project. The "Project name" will be used to name the project, the add-in implementation unit and the type library modules (for example MyAddIn.dpr, MyAddIn_IMPL.pas, MyAddIn_TLB.pas and MyAddIn.tlb). The "CoClass name" will be used to name the add-in interfaces, and class that implements your add-in.

All add-in project modules will be saved to the "Project folder" when the wizard is finished.

Project name: MyAddin1
CoClass name: coMyAddin1
Register with: Admin privileges [✓ User privileges]
Create InnoSetup setup project: ☐
Create WiX setup project: ☐
Project folder: $(BDSPROJECTSDIR)\MyAddin1

The project wizard creates and opens the COM Add-in project in the IDE.


MyAddin1.dproj - Project Manager

The add-in project includes the following items:

- The project source files (*MyAddin1.**).
- The type library files (*MyAddin1_TLB.pas*, *MyAddin1.ridl*).
- The add-in module (*MyAddin1_IMPL.pas* and *MyAddin1_IMPL.dfm*) discussed below.

Step #2 - COM Add-in Module

The add-in module (*MyAddin1_IMPL.pas* and *MyAddin1_IMPL.dfm*) is the core component of the COM add-in project. It is a container for Add-in Express components. You specify the add-in properties in the module's properties, add the required components to the module's designer, and write the functional code of your add-in in this module.

The code for *MyAddin1_IMPL.pas* is as follows:

```
unit MyAddin1_IMPL;

interface

uses
```

```
  SysUtils, ComObj, ComServ, ActiveX, Variants, Office2000, adxAddIn,
  MyAddin1_TLB;

type
  TcoMyAddin1 = class(TadxAddin, IcoMyAddin1)
  end;

  TAddInModule = class(TadxCOMAddInModule)
    procedure adxCOMAddInModuleAddInInitialize(Sender: TObject);
    procedure adxCOMAddInModuleAddInFinalize(Sender: TObject);
  private
  protected
  public
  end;
var
  adxcoMyAddin1: TAddInModule;

implementation

{$R *.dfm}

procedure TAddInModule.adxCOMAddInModuleAddInInitialize(Sender: TObject);
begin
  adxcoMyAddin1 := Self;
end;

procedure TAddInModule.adxCOMAddInModuleAddInFinalize(Sender: TObject);
begin
  adxcoMyAddin1 := nil;
end;

initialization
  TadxFactory.Create(ComServer, TcoMyAddin1, CLASS_coMyAddin1,
  TAddInModule);
end.
```

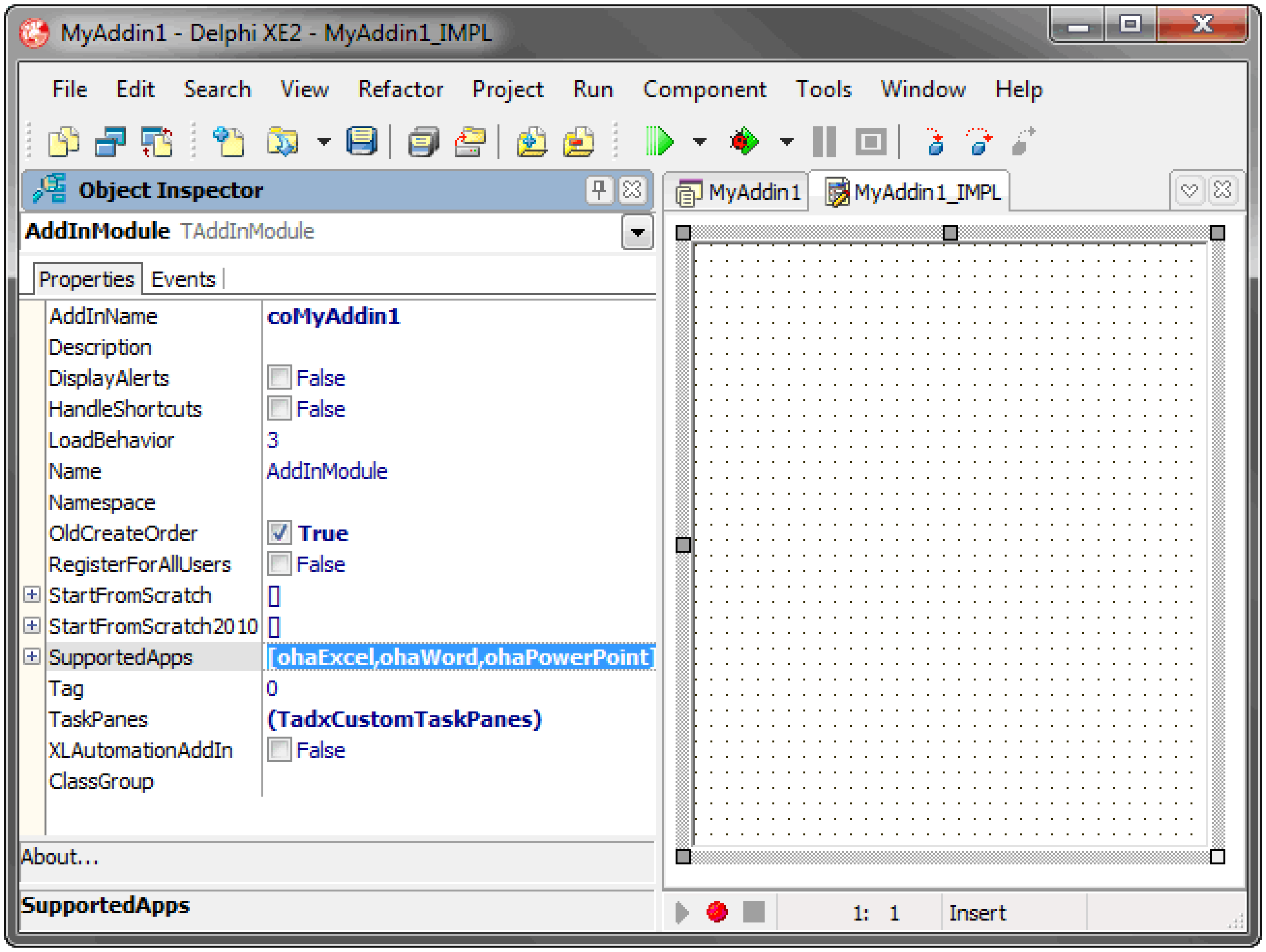
The add-in module contains two classes: the “interfaced” class (*TcoMyAddin1* in this case) and the add-in module class (*TAddInModule*). The “interfaced” class is a descendant of the *TadxAddIn* class that implements the *IDTExtensibility2* interface required by the COM Add-in architecture. Usually, you do not need to change anything in the *TadxAddIn* class.

The add-in module class implements the add-in functionality. It is an analogue of the Data Module, but unlike the Data Module, the add-in module allows you to set all properties of your add-in, handle its events, and create toolbars and controls.

Step #3 – COM Add-in Designer

The designer of the add-in module allows setting add-in properties and adding components to the module.

Click the module's designer surface, activate *Object Inspector*, choose the `SupportedApps` property and select Excel, Word, and PowerPoint.


MyAddin1 - Delphi XE2 - MyAddin1_IMPL
File Edit Search View Refactor Project Run Component Tools Window Help
Object Inspector
MyAddin1
MyAddin1_IMPL
Properties
Events
About...
1: 1
Insert

AddInModule TAddInModule

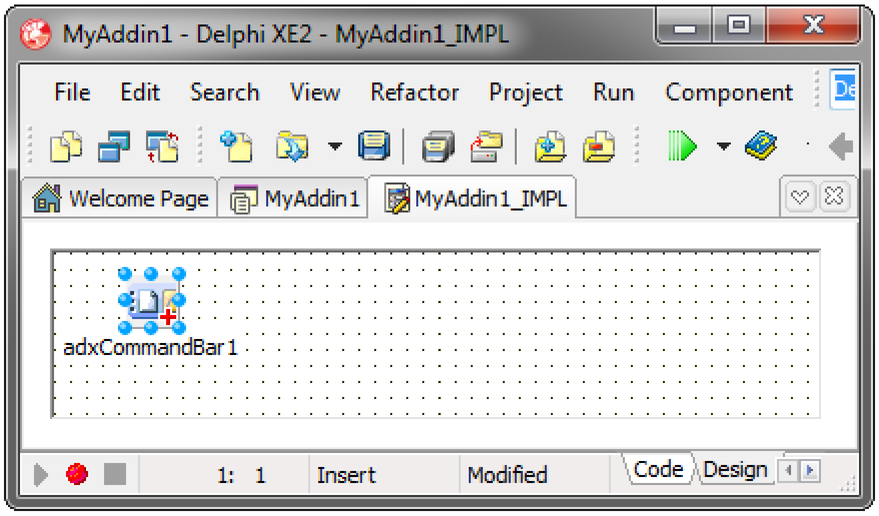
AddInName	coMyAddin1
Description	
DisplayAlerts	False
HandleShortcuts	False
LoadBehavior	3
Name	AddInModule
Namespace	
OldCreateOrder	True
RegisterForAllUsers	False
StartFromScratch	[]
StartFromScratch2010	[]
SupportedApps	[ohaExcel,ohaWord,ohaPowerPoint]
Tag	0
TaskPanes	(TadxCustomTaskPanes)
XLAutomationAddIn	False
ClassGroup	

SupportedApps

You find Add-in Express components in the *Tool Palette*. See also Add-in Express Components.

Step #4 – Adding a New Command Bar

To add a command bar to your add-in, find the `TadxCommandBar` component in the *Tool Palette* and drag-n-drop it onto the `TadxCOMAddinModule` designer (see also Command Bars: Toolbars, Menus, and Context Menus).

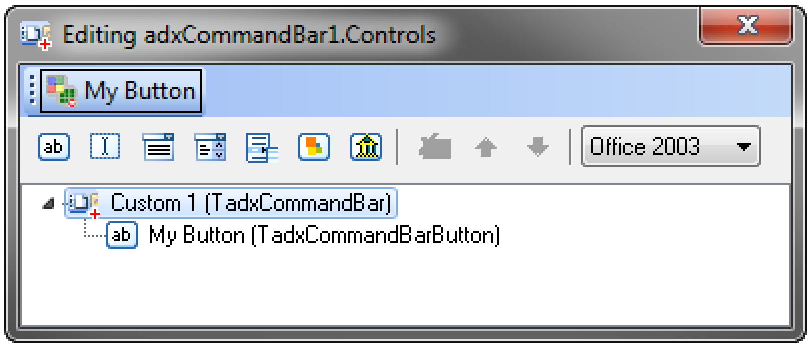


Select the command bar component, and, in the *Object Inspector*, specify the command bar name using the `CommandBarName` property. In addition, you select its position in the `Position` property.

To display a command bar in the Office Ribbon you must explicitly set the `UseForRibbon` *property of the command bar component to* `True`*. The controls added to such a command bar will be shown on the built-in Ribbon tab called* Add-ins.

Step #5 - Adding a New Command Bar Button

To add a new button to the command bar, in the *Object Inspector* you run the property editor of the `Controls` property for the appropriate command bar component. The property editor is a simple and easy designer of command bars and their controls.


Editing adxCommandBar1.Controls
My Button
Office 2003
Custom 1 (TadxCommandBar)
My Button (TadxCommandBarButton)

Specify the button's `Caption` property and set the `Style` property to `adxMsoButtonIconAndCaption` (default value = `adxMsoButtonAutomatic`). In the *Object Inspector*, you switch to the *Events* tab to add the `OnClick` event handler for the command bar button component.

Step #6 – Accessing Host Application Objects

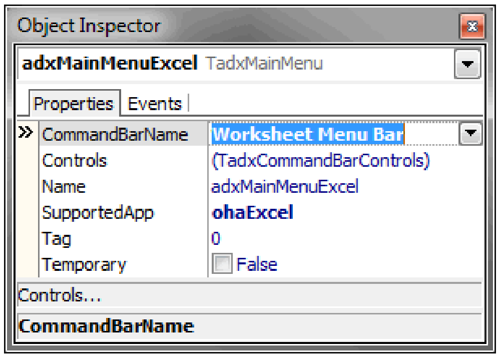
The add-in module supplies the *HostApplication* property that returns the *Application* object (of the *OleVariant* type) of the host application in which the add-in is running now. For your convenience Add-in Express provides the *<HostName>App* properties, say *ExcelApp* of the *TExcelApplication* type and *WordApp* of the *TWordApplication* type. Together with the *HostType* property, it allows writing the following code to the *OnClick* event of the newly added button.

```
procedure TAddInModule.DefaultAction(Sender: TObject);
begin
  ShowMessage(GetInfoString());
end;

function TAddInModule.GetInfoString(): string;
var
  er: ExcelRange;
  IWindow: IDispatch;
begin
  Result := 'No document window found!';
  try
    // Word raises an exception if there's no document open
    IWindow := HostApp.ActiveWindow;
  except
  end;
  try
    if IWindow <> nil then
      case HostType of
        ohaExcel:
          try
            er := (IWindow as Excel2000.Window).ActiveCell;
           //relative address
            Result := 'The current cell is: '
              +  er.AddressLocal[False, False, xlA1, EmptyParam, EmptyParam];
          finally
            er := nil;
          end;
        ohaWord:
          Result := 'The current selection contains '
            + IntToStr(
              (IWindow as Word2000.Window).Selection.Range.Words.Count)
            + ' words';
        ohaPowerPoint:
          Result := 'The current selection contains '
            + IntToStr(
              (IWindow as MSPpt2000.DocumentWindow).Selection.SlideRange.Count)
            + ' slides';
      else
        Result :=  'The ' + AddinName
          + ' COM Add-in doesn''t support the current host application!' ;
      end;
  except
  end;
  IWindow := nil;
end;
```

Step #7 - Customizing Main Menus

Add-in Express provides a component to customize main menus in Office applications (see Your First Microsoft Outlook COM Add-in for customizing Outlook main menus). Some applications from Office 2000-2003 have several main menus. Say, in these Excel versions, you find *Worksheet Menu Bar* and *Chart Menu Bar*. Naturally, in Excel 2007+, these menus are replaced with the Ribbon UI. Nevertheless, the main menus are still accessible programmatically and you may want to use this fact in your code.

In this sample, we are going to customize the *File* menu in Excel and Word version 2000-2003. You start with adding two main menu components (*TadxMainMenu*) and specifying correct host applications in their *SupportedApp* properties. Then, in the *CommandBarName* property, you specify the main menu.

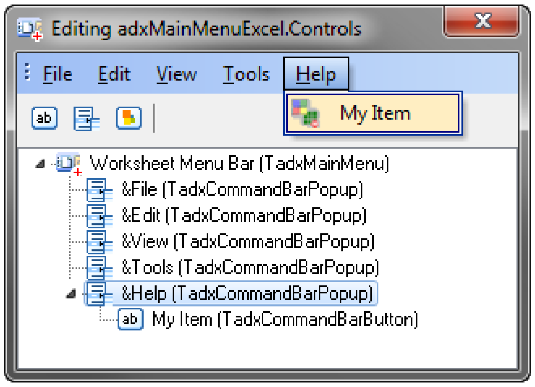

Object Inspector
adxMainMenuExcel TadxMainMenu
Properties | Events

CommandBarName	Worksheet Menu Bar
Controls	(TadxCommandBarControls)
Name	adxMainMenuExcel
SupportedApp	ohaExcel
Tag	0
Temporary	False

Controls...
CommandBarName

The screenshot shows how you set up the main menu component in order to customize the *Worksheet Menu Bar* main menu in Excel 2000-2003.

The *TadxMainMenu.Controls* property provides a designer that allows adding custom controls to a set of predefined popup controls that corresponds to built-in main menu items such as *File*, *Edit*, etc. Those popups demonstrate the main principle of referencing built-in command bar controls: if the *OfficeID* property of a CommandBar control component is other than *1*, you are referencing the corresponding built-in control. You can find the IDs of built-in command bar controls using the free Built-in Controls Scanner utility. Download it at http://www.add-in-express.com/downloads/controls-scanner.php.


Editing adxMainMenuExcel.Controls

```
Worksheet Menu Bar (TadxMainMenu)
  &File (TadxCommandBarPopup)
  &Edit (TadxCommandBarPopup)
  &View (TadxCommandBarPopup)
  &Tools (TadxCommandBarPopup)
  &Help (TadxCommandBarPopup)
    My Item (TadxCommandBarButton)
```

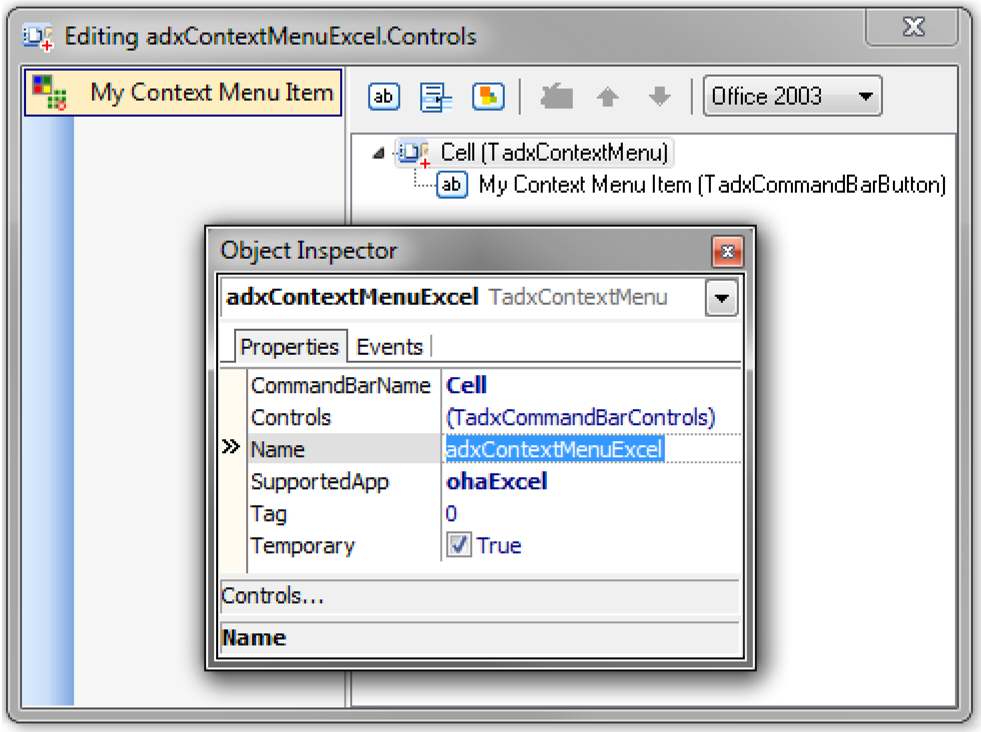
In the source code of the sample add-in described here, you can find how you can customize the Office Button menu in Office 2007 (see the component named adxRibbonOfficeMenu1). As to the Backstage View, also known as a **File tab** in Office 2010+, the sample projects provide the *adxBackstageView1* component that implements the customization shown in Figure 3 at Introduction to the Office 2010 Backstage View for Developers. Note that if you customize the Office Button menu only, Add-in Express maps your controls to the Backstage View. If, however, both Office Button menu and File tab are customized at the same time, Add-in Express ignores custom controls you add to the *Office Button* menu.

Step #8 – Customizing Context Menus

Add-in Express allows customizing CommandBar-based context menus in Office 2000+ with the `TadxContextMenu` component. Its use is similar to that of the `TadxMainMenu` component. To set up a `TadxContextMenu` to add a custom button to a context menu, you do the following:

- Add a context menu component to the add-in module
- In the component's properties choose the host application and the context menu to be customized,
- Use the editor of the `Controls` collection to populate the context menu with custom controls

The screenshot below demonstrates adding a custom item to the context menu *Cells* in Excel.


Editing adxContextMenuExcel.Controls
My Context Menu Item
Office 2003
Cell (TadxContextMenu)
My Context Menu Item (TadxCommandBarButton)
Object Inspector
adxContextMenuExcel TadxContextMenu
Properties
Events

CommandBarName	Cell
Controls	(TadxCommandBarControls)
Name	adxContextMenuExcel
SupportedApp	ohaExcel
Tag	0
Temporary	✓ True

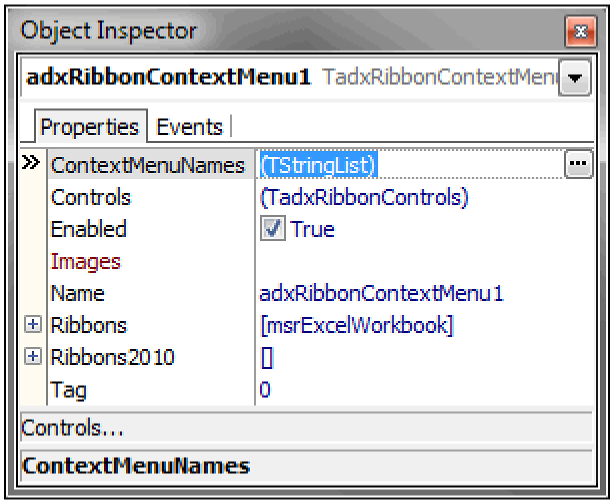
You may want to use the `OnBeforeAddControls` event provided by the component to modify the context menu depending on the current context. Say, custom controls in the context menu may reflect the content of an Excel cell, the current chapter of the Word document, etc.

There are several issues related to using command bar based context menus:

- Excel contains two different context menus named *Cell*. This fact breaks down the command bar development model because the only way to recognize two command bars is to compare their names. This isn't the only exception: see the Built-in Control Scanner to find a number of examples. In this case, the context menu component cannot distinguish context menus. Accordingly, it connects to the first context menu with the specified name.

- Command bar based context menu items cannot be positioned in the Ribbon-based context menus: a custom context menu item created with the *ADXContextMenu* component will always be shown below the built-in and custom context menu items in a Ribbon-based context menu of Office 2010+.

To add a custom item to a context menu in Office 2010+, you use the *TadxRibbonContextMenu* component. Unlike its commandbar-based counterpart (*TadxContextMenu*), this component allows adding the same custom controls to several context menus in the specified Ribbon. Say, the screenshots below show component settings required for adding a control to the *ExcelWorkbook* Ribbon. To specify the context menus to which the control will be added, you use the editor of the *ContexMenuNames* property of the component.



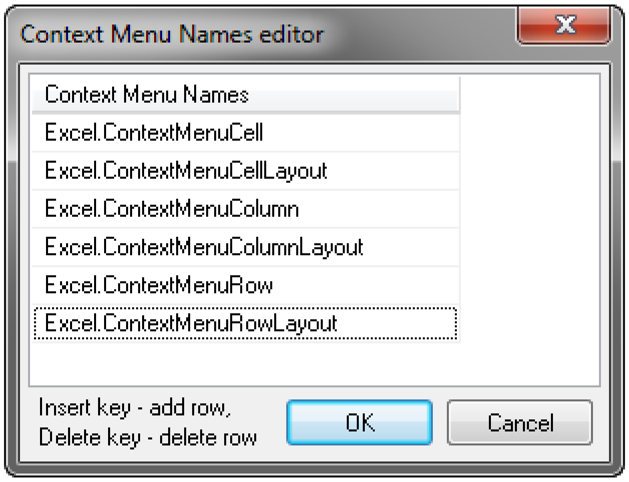
Object Inspector

adxRibbonContextMenu1 TadxRibbonContextMenu

Properties	Events
ContextMenuNames	(TStringList)
Controls	(TadxRibbonControls)
Enabled	✓ True
Images	
Name	adxRibbonContextMenu1
Ribbons	[msrExcelWorkbook]
Ribbons2010	[]
Tag	0

Controls...

ContextMenuNames



Context Menu Names editor

Context Menu Names
Excel.ContextMenuCell
Excel.ContextMenuCellLayout
Excel.ContextMenuColumn
Excel.ContextMenuColumnLayout
Excel.ContextMenuRow
Excel.ContextMenuRowLayout

Insert key - add row,
Delete key - delete row

See also Context Menu.

Step #9 - Handling Host Application Events

Add-in Express supplies several components that provide application-level events for the add-in module (see Host Application Events). To handle Excel events to the add-in, drop a *TadxExcelAppEvents* onto the module. Naturally, handling Word events requires using a *TadxWordAppEvents* while *TadxPowerPointAppEvents* provides PowerPoint application-level events.

With the above components, you can handle any application-level events of the host application. Say, you may want to disable a button when a window deactivates and enable it when a window activates. The code processing the PowerPoint version of the *WindowActivate* and *WindowDeactivate* events is as follows:

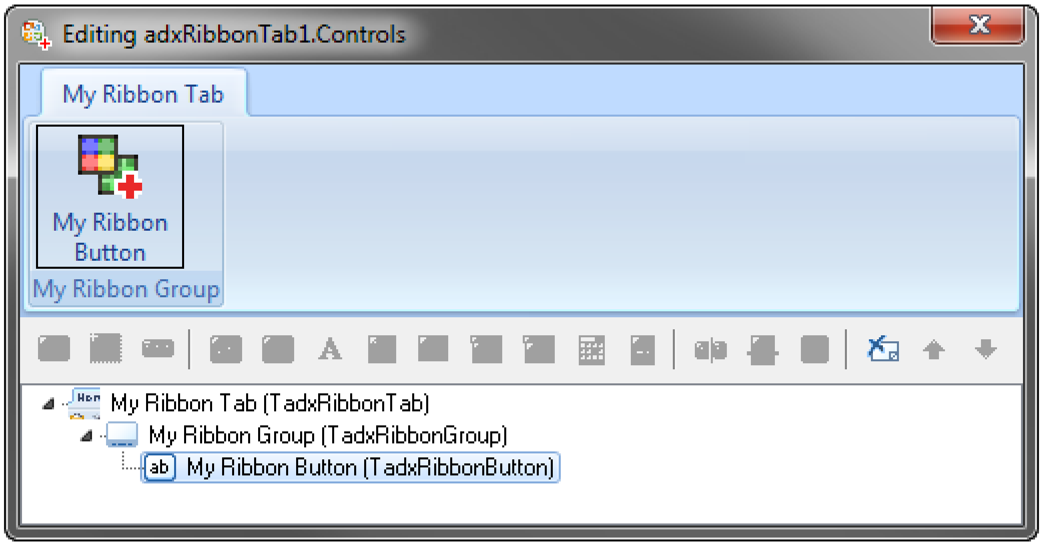
```
procedure TAddInModule.adxPowerPointAppEvents1WindowActivate(
  ASender: TObject; const Pres: _Presentation; const Wn: DocumentWindow);
begin
```

```
  adxCommandBar1.Controls[0].Enabled := true;
end;

procedure TAddInModule.adxPowerPointAppEvents1WindowDeactivate(
  ASender: TObject; const Pres: _Presentation; const Wn: DocumentWindow);
begin
  adxCommandBar1.Controls[0].Enabled := false;
end;
```

It is possible to create a set of event handlers and connect it to any given Excel worksheet. You can do this by adding a `TExcelWorksheet` *(Tool Palette, the Servers tab) onto the add-in module.*

Step #10 – Customizing the Office Ribbon User Interface

To add a new tab to the Ribbon UI of the host application(s) of your add-in, you add the *`TadxRibbonTab`* component to the module.



My Ribbon Tab (TadxRibbonTab)
My Ribbon Group (TadxRibbonGroup)
My Ribbon Button (TadxRibbonButton)

In the *Object Inspector*, run the editor for the *`Controls`* collection of the Ribbon tab component. In the editor, use the toolbar buttons or context menu to add or delete Add-in Express components that form the Ribbon interface of your add-in. First, you add a Ribbon tab and change its caption to *My Ribbon Tab*. Then, you select the tab component, add a Ribbon group, and change its caption to *My Ribbon Group*. Next, you select the group, and add a button. Set the button caption to *My Ribbon Button*. Use the *`Glyph`* property to set the icon for the button.

Now write the following code in the *`OnClick`* event handler of the newly added Ribbon button (the code below refers to the code added in Step #6 – Accessing Host Application Objects):

```
procedure TAddInModule.adxRibbonTab1Controls0Controls0Controls0Click(
  Sender: TObject; const RibbonControl: IRibbonControl);
begin
  DefaultAction(nil);
end;
```

The *TadxRibbonTab.Controls* editor performs the XML-schema validation automatically, so from time to time you will run into the situation when you cannot add a control to some Ribbon level. It is a restriction of the Ribbon XML-schema. See also Office Ribbon Components.

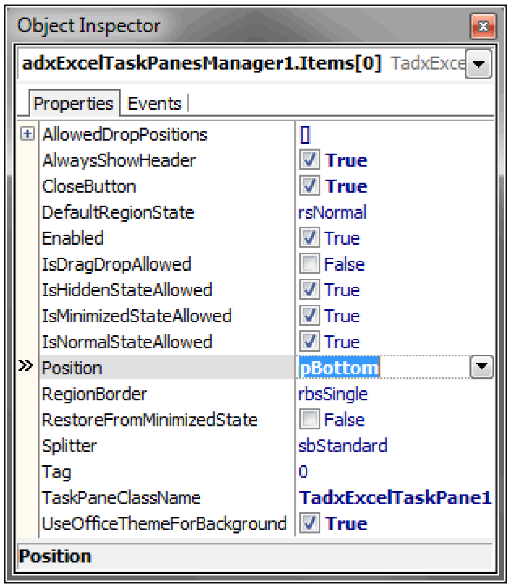
Step #11 -Advanced Task Panes in Excel 2000+

Creating a new Excel task pane includes the following steps:

- Add an Excel Task Panes Manager (*TadxExcelTaskPanesManager*) to your add-in module.
- Add an Add-in Express Excel Task Pane (*TadxExcelTaskPane*) to your project via the *New Items* dialog.
- In the visual designer available for the *Controls* collection of the manager, add an item to the collection, bind the pane to the item and specify its properties as shown in the screenshot.

Below is the description of the settings:

- *AlwaysShowHeader* - specifies that the pane header will be shown even if the pane is the only one in the current region.
- *CloseButton* - specifies if the Close button is shown in the pane header. Obviously, there isn't much sense in setting this property to *true* when the header is not shown.
- *Position* - specifies the region in which an instance of the pane will be shown. Excel panes are allowed in four regions docked to the four sides of the main Excel window: *pRight*, *pBottom*, *pLeft*, and *pTop*. The fifth region is *pUnknown*.
- *TaskPaneClassName* – specifies the class name of the Excel task pane.


Object Inspector

adxExcelTaskPanesManager1.Items[0] TadxExce

Properties | Events

AllowedDropPositions	[]
AlwaysShowHeader	✓ True
CloseButton	✓ True
DefaultRegionState	rsNormal
Enabled	✓ True
IsDragDropAllowed	False
IsHiddenStateAllowed	✓ True
IsMinimizedStateAllowed	✓ True
IsNormalStateAllowed	✓ True
Position	pBottom
RegionBorder	rbsSingle
RestoreFromMinimizedState	False
Splitter	sbStandard
Tag	0
TaskPaneClassName	TadxExcelTaskPane1
UseOfficeThemeForBackground	✓ True

Position

Now drop a label onto the pane and create an event handler for the *OnADXBeforeTaskPaneShow* event:

```
procedure TadxExcelTaskPane1.adxExcelTaskPaneADXBeforeTaskPaneShow(
  ASender: TObject; Args: TadxBeforeTaskPaneShowEventArgs);
begin
  Label1.Caption := (AddinModule as TAddInModule).GetInfoString();
```

```
end;
```

See also Advanced Outlook Regions and Advanced Office Task Panes and Excel Task Panes.

Step #12 -Advanced Task Panes in PowerPoint 2000+

- Add a PowerPoint Task Panes Manager (*TadxPowerPointTaskPanesManager*) to your add-in module.
- Add an Add-in Express PowerPoint Task Pane (*TadxPowerPointTaskPane*) to your project using the *New Items* dialog.
- In the visual designer available for the *Controls* collection of the manager, add an item to the collection, bind the pane to the item and specify the appropriate value in the *Position*.

Now add a label onto the form, and update the label in the *OnADXBeforeTaskPaneShow* event handler of the form:

```
procedure TadxPowerPointTaskPane1.adxPowerPointTaskPaneADXBeforeTaskPaneShow(
  ASender: TObject; Args: TadxBeforeTaskPaneShowEventArgs);
begin
  Label1.Caption := (AddinModule as TAddInModule).GetInfoString();
end;
```

See also Advanced Outlook Regions and Advanced Office Task Panes.

Step #13 -Advanced Task Panes in Word 2000+

- Add a Word Task Panes Manager (*TadxWordTaskPanesManager*) to your add-in module.
- Add an Add-in Express Word Task Pane (*TadxWordTaskPane*) to your project using the *New Items* dialog.
- In the visual designer available for the *Controls* collection of the manager, add an item to the collection, bind the pane to the item and specify an appropriate value in the *Position*.

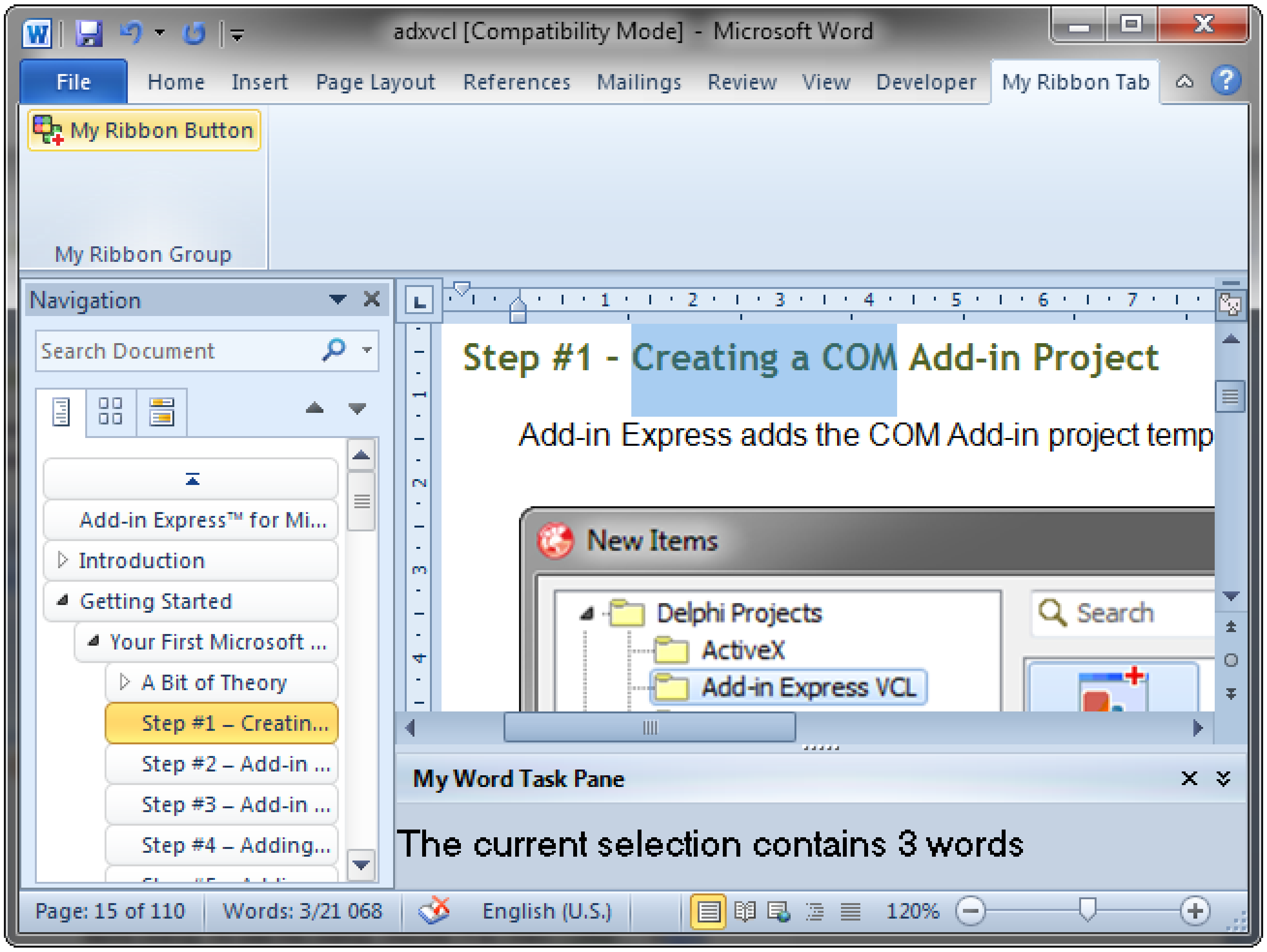
When the item's properties are set, you add a label onto the form, and write the code that updates it in the *OnADXBeforeTaskPaneShow* event handler of your form:

```
procedure TadxWordTaskPane1.adxWordTaskPaneADXBeforeTaskPaneShow(
  ASender: TObject; Args: TadxBeforeTaskPaneShowEventArgs);
begin
  Label1.Caption := (AddinModule as TAddInModule).GetInfoString();
end;
```

See also Advanced Outlook Regions and Advanced Office Task Panes.

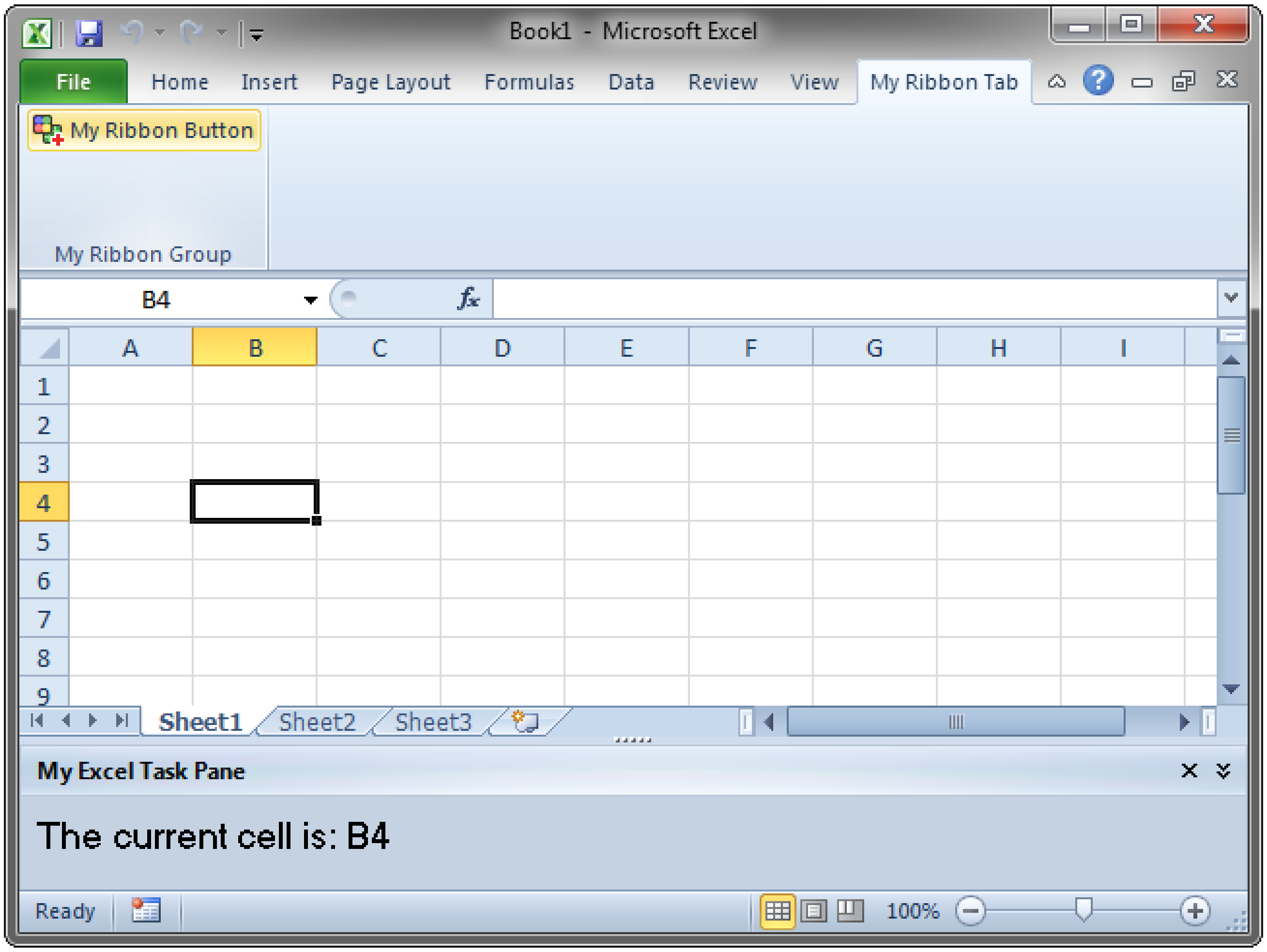
Step #14 - Running the COM Add-in

Choose *Register ActiveX Server* in menu *Run*, restart the host application(s) you selected, find your toolbar and click the button. You can also find your add-in in the COM Add-ins Dialog.

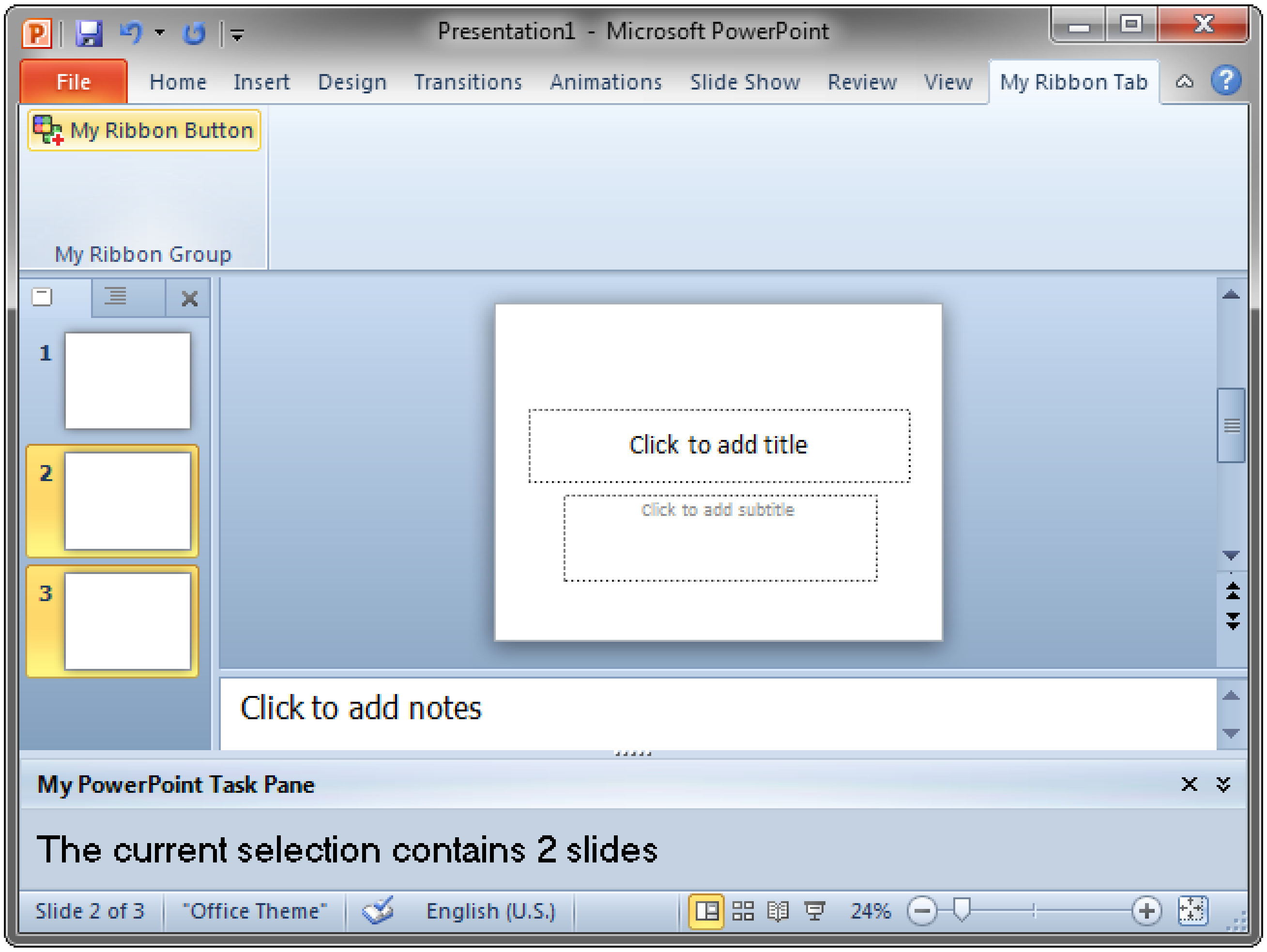


Add-in Express adds the COM Add-in project temp

The current selection contains 3 words



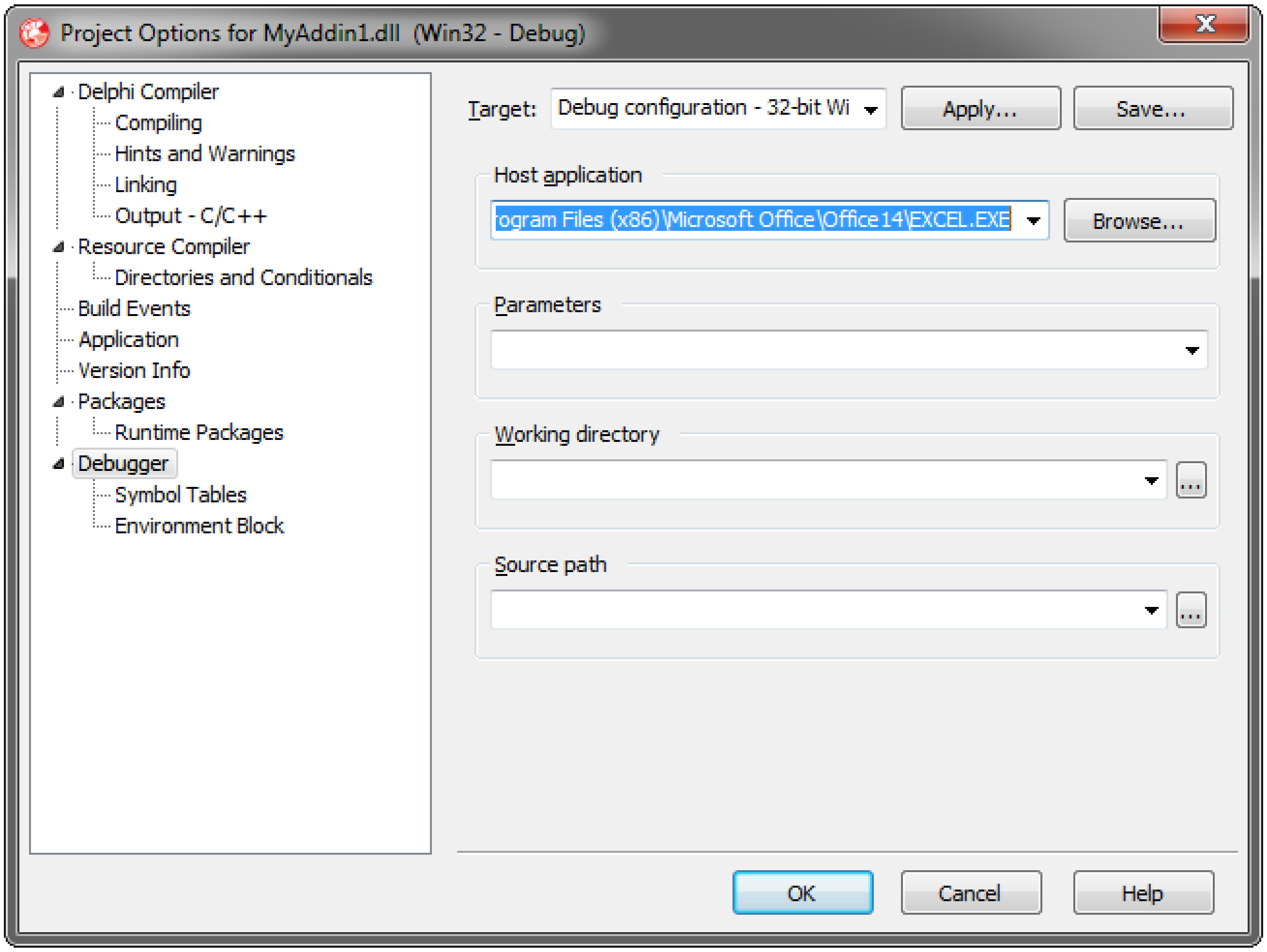
The current cell is: B4



The current selection contains 2 slides

Step #15 - Debugging the COM Add-in

To debug your add-in, just indicate the add-in host application in the *Host Application* field in the *Project Options* window.



Project Options for MyAddin1.dll (Win32 - Debug)

Target: Debug configuration - 32-bit Wi

Host application: rogram Files (x86)\Microsoft Office\Office14\EXCEL.EXE

Parameters:

Working directory:

Source path:

To debug your add-in in a 64-bit Office application, register the add-in DLL using regsvr32; run it from an elevated 64-bit Command Prompt. In addition, you must explicitly specify to run the 64-bit application in the dialog window shown above.

Step #16 - Deploying the COM Add-in

Make sure your setup project registers the add-in DLL. Say, in Inno Setup projects you use the *regserver* command. See also:

- Registering with User Privileges
- Additional Files

Your First Microsoft Outlook COM Add-in

Add-in Express provides the Outlook-specific add-in module and two Outlook-specific command bar components: `TadxOlExplorerCommandBar` and `TadxOlInspectorCommandBar`. The former adds a command bar to the Outlook Explorer window and solves many problems with custom Outlook command bars. The latter adds a command bar to the Outlook Inspector window. Both command bar components have the `FolderName`, `FolderNames` and `ItemTypes` properties that add context-sensitivity to Outlook command bars. The `olExplorerItemTypes`, `olInspectorItemTypes`, and `olItemTypeAction` properties add context-sensitivity to Outlook command bar controls.

Additionally, the Add-in Express Outlook Add-in wizard allows creating property pages which will be shown in the *Options* (see menu *Tools* | *Options*) and folder *Properties* dialogs.

The sample project described below implements a COM add-in for Outlook. It is included in *Add-in Express for Office and VCL sample projects* available on the Downloads page.

A Bit of Theory

COM add-ins have been around since Office 2000 when Microsoft allowed Office applications to extend their features with COM DLLs supporting the `IDTExtensibility2` interface (it is a COM interface, of course).

COM add-ins is the only way to add new or re-use built-in UI elements such as command bar controls and Ribbon controls. Say, a COM add-in can show a command bar or Ribbon button to process selected Outlook e-mails, Excel cells, or paragraphs in a Word document and perform some actions on the selected objects. A COM add-in supporting Outlook, Excel, Word or PowerPoint can show advanced task panes in Office 2000-2021/365. In a COM add-in targeting Outlook, you can add custom option pages to the *Tools* | *Options* and *Folder Properties* dialogs. A COM add-in also handles events and calls properties and methods provided by the object model of the host application. For instance, a COM add-in can modify an e-mail when it is being sent; it can cancel saving an Excel workbook or it can check if a Word document meets some conditions.

Per-user and per-machine COM add-ins

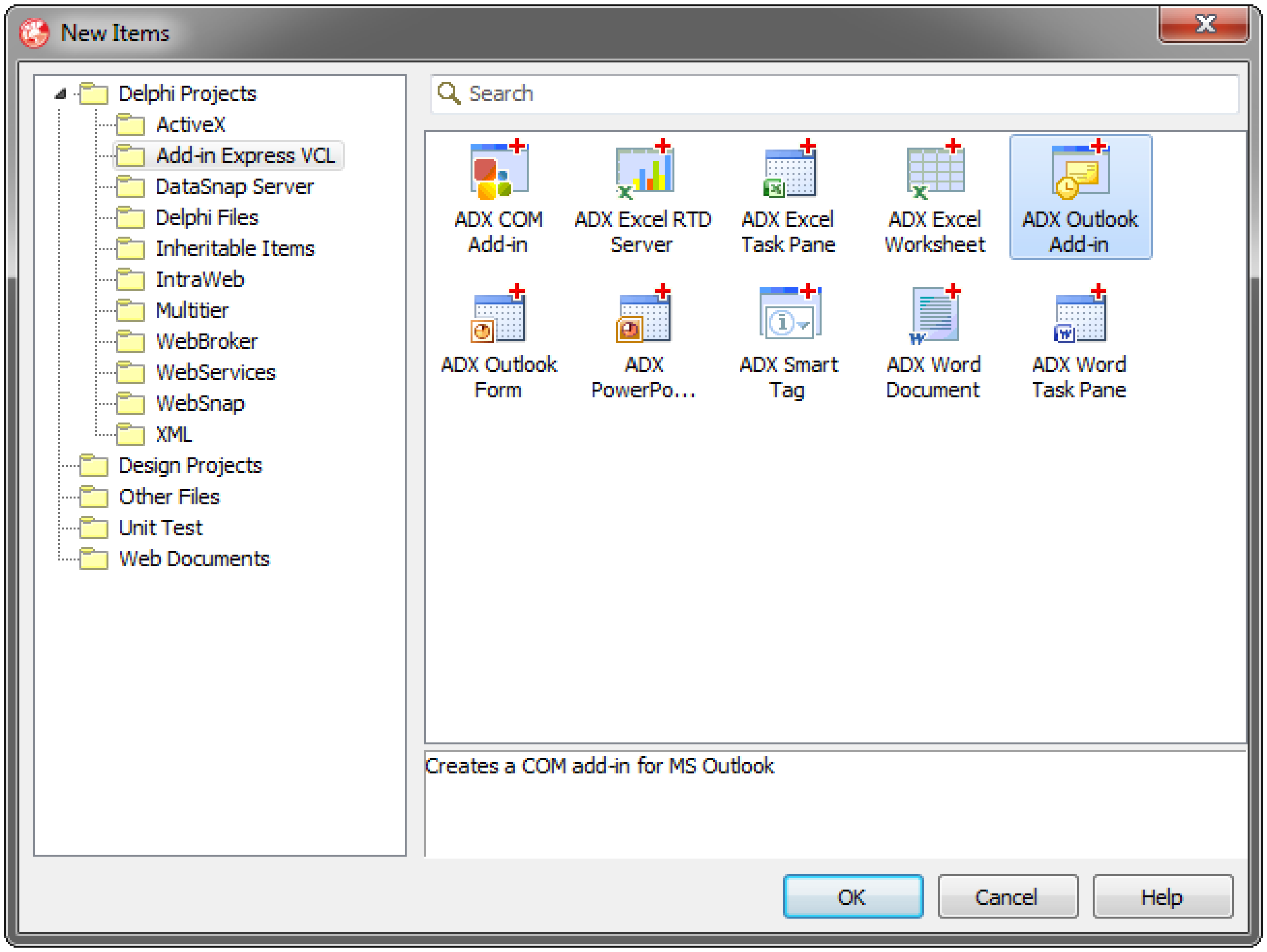
A COM add-in can be registered either for the current user (the user running the installer) or for all users on the machine. Add-in Express generates a per-user add-in project; your add-in is per-machine if the add-in module has `ADXAddinModule.RegisterForAllUsers = True`. Registering for all users means writing to HKLM and that means the user registering a per-machine add-in must have administrative permissions. Accordingly, `RegisterForAllUsers = Flase` means writing to HKCU (=for the current user). See Registry Entries.

A standard user may turn a per-user add-in off and on in the COM Add-ins Dialog. You use that dialog to check if your add-in is active.

Step #1 – Creating an Outlook COM Add-in Project

Run Delphi via the *Run as Administrator* command.

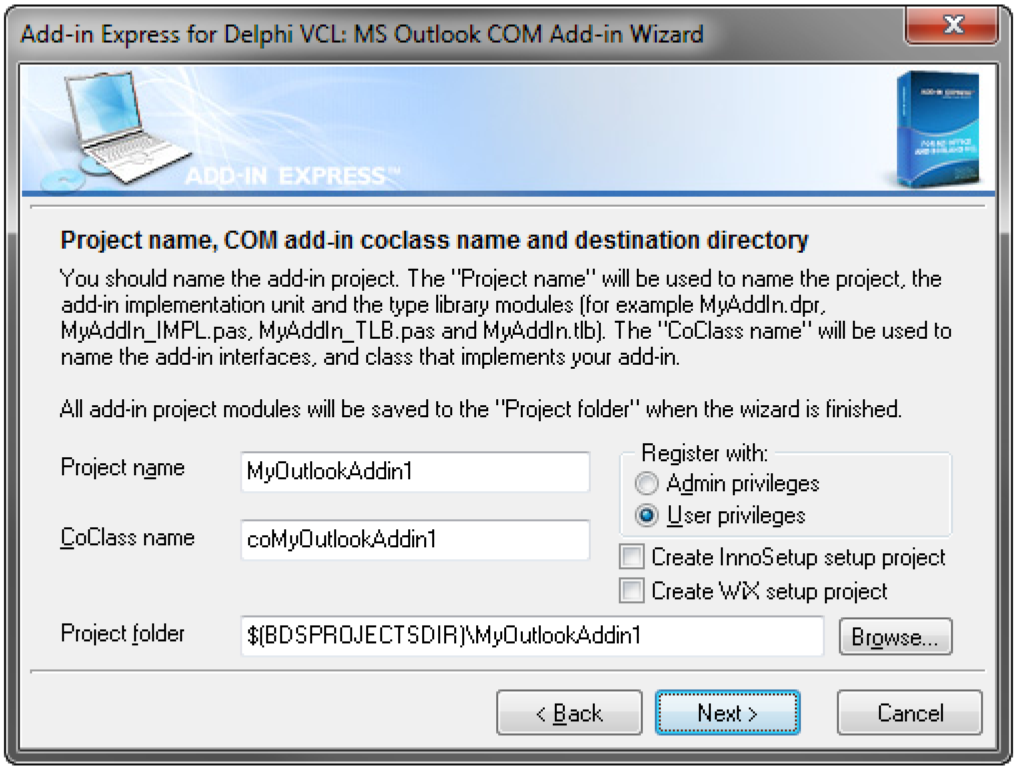
You use the Outlook Add-in project template available in the *New Items* dialog:



Creates a COM add-in for MS Outlook

When you select the template and click *OK*, the project wizard starts.

In the wizard windows, you choose the project options, define task panes and option pages for your add-in.


Add-in Express for Delphi VCL: MS Outlook COM Add-in Wizard

Project name, COM add-in coclass name and destination directory

You should name the add-in project. The "Project name" will be used to name the project, the add-in implementation unit and the type library modules (for example MyAddIn.dpr, MyAddIn_IMPL.pas, MyAddIn_TLB.pas and MyAddIn.tlb). The "CoClass name" will be used to name the add-in interfaces, and class that implements your add-in.

All add-in project modules will be saved to the "Project folder" when the wizard is finished.

Project name: MyOutlookAddin1

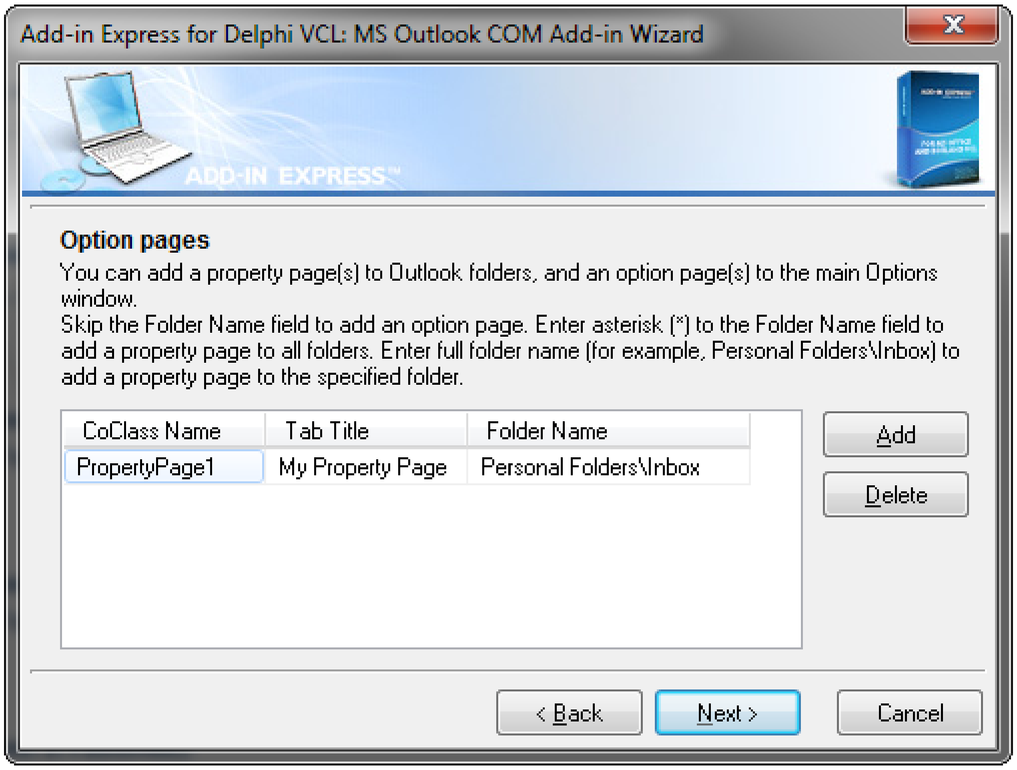
CoClass name: coMyOutlookAddin1

Register with: Admin privileges [✓ User privileges]

Create InnoSetup setup project

Create WiX setup project

Project folder: $(BDSPROJECTSDIR)\MyOutlookAddin1


Add-in Express for Delphi VCL: MS Outlook COM Add-in Wizard

Option pages

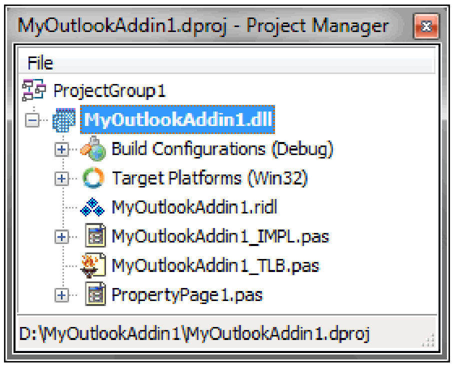
You can add a property page(s) to Outlook folders, and an option page(s) to the main Options window.
Skip the Folder Name field to add an option page. Enter asterisk (*) to the Folder Name field to add a property page to all folders. Enter full folder name (for example, Personal Folders\Inbox) to add a property page to the specified folder.

CoClass Name	Tab Title	Folder Name
PropertyPage1	My Property Page	Personal Folders\Inbox

The wizard creates and opens a new COM Add-in project in the IDE.

The add-in project includes the following items:

- The project source files (*MyOutlookAddin1.**).
- The type library files (*MyOutlookAddin1_TLB.pas*, *MyOutlookAddin1.ridl*).
- The Outlook add-in module (*MyOutlookAddin1_IMPL.pas* and *MyOutlookAddin1_IMPL.dfm*) discussed in the following step.
- The Outlook Property Page (*PropertPage1.pas* and *PropertPage1.dfm*) discussed in Step #12 – Adding Property Pages to the Folder Properties Dialogs;


MyOutlookAddin1.dproj - Project Manager

File

```
ProjectGroup1
  MyOutlookAddin1.dll
    Build Configurations (Debug)
    Target Platforms (Win32)
    MyOutlookAddin1.ridl
    MyOutlookAddin1_IMPL.pas
    MyOutlookAddin1_TLB.pas
    PropertyPage1.pas
```

D:\MyOutlookAddin1\MyOutlookAddin1.dproj

Step #2 - COM Add-in Module

The add-in module (*MyOutlookAddin1_IMPL.pas* and *MyOutlookAddin1_IMPL.dfm*) is the core part of the COM add-in project (see COM Add-ins Dialog). It is a container for Add-in Express components. You specify the add-in properties in the module's properties, add the required components to the module's designer, and write the functional code of your add-in in this module.

The code for *MyAddin1_IMPL.pas* is as follows:

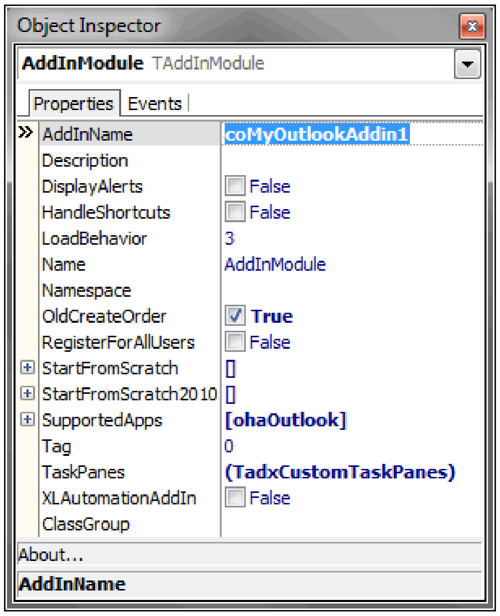
```
unit MyOutlookAddin1_IMPL;

interface

uses
  SysUtils, ComObj, ComServ, ActiveX, Variants, Office2000, adxAddIn,
MyOutlookAddin1_TLB, Outlook2000;

type
  TcoMyOutlookAddin1 = class(TadxAddin, IcoMyOutlookAddin1)
  end;

  TAddInModule = class(TadxCOMAddInModule)
    procedure adxCOMAddInModuleAddInInitialize(Sender: TObject);
    procedure adxCOMAddInModuleAddInFinalize(Sender: TObject);
  private
  protected
    procedure NameSpaceOptionsPagesAdd(ASender: TObject;
      const Pages: PropertyPages; const Folder: MAPIFolder); override;
  public
  end;

var
```

```
  adxcoMyOutlookAddin1: TAddInModule;

implementation

{$R *.dfm}

procedure TAddInModule.adxCOMAddInModuleAddInInitialize(Sender: TObject);
begin
  adxcoMyOutlookAddin1 := Self;
end;

procedure TAddInModule.adxCOMAddInModuleAddInFinalize(Sender: TObject);
begin
  adxcoMyOutlookAddin1 := nil;
end;

procedure TAddInModule.NameSpaceOptionsPagesAdd(ASender: TObject;
  const Pages: PropertyPages; const Folder: MAPIFolder);

  function GetFullFolderName(const AFolder: MAPIFolder): string;
  var
    IDisp: IDispatch;
    Folder: MAPIFolder;
  begin
    Result := '';
    Folder := AFolder;
    while Assigned(Folder) do begin
      Result := '\' + Folder.Name + Result;
      try
        IDisp := Folder.Parent;
        if Assigned(IDisp) then
          IDisp.QueryInterface(IID_MAPIFolder, Folder);
      except
        Break;
      end;
    end;
    IDisp := nil;
    Folder := nil;
    if Result <> '' then Delete(Result, 1, 1);
  end;

begin
  if GetFullFolderName(Folder) = 'Personal Folders\Inbox' then
    Pages.Add('MyOutlookAddin1.PropertyPage1', 'My Property Page');
end;

initialization
```

```
  TadxFactory.Create(ComServer, TcoMyOutlookAddin1, CLASS_coMyOutlookAddin1,
TAddInModule);

end.
```

The add-in module contains two classes: the “interfaced” class (*TcoMyOutlookAddin1* in this case) and the add-in module class (*TAddInModule*). The “interfaced” class is a descendant of the *TadxAddIn* class that implements the *IDTExtensibility2* interface required by the COM Add-in architecture. Usually you don't need to change anything in the *TadxAddIn* class.

The add-in module class implements the add-in functionality. It is an analogue of the Data Module, but unlike the Data Module, the add-in module allows you to set all properties of your add-in, handle its events, and create toolbars and controls.


Object Inspector

AddInModule TAddInModule

Properties | Events

AddInName	coMyOutlookAddin1
Description	
DisplayAlerts	False
HandleShortcuts	False
LoadBehavior	3
Name	AddInModule
Namespace	
OldCreateOrder	✓ True
RegisterForAllUsers	False
StartFromScratch	[]
StartFromScratch2010	[]
SupportedApps	[ohaOutlook]
Tag	0
TaskPanes	(TadxCustomTaskPanes)
XLAutomationAddIn	False
ClassGroup	

About...

AddInName

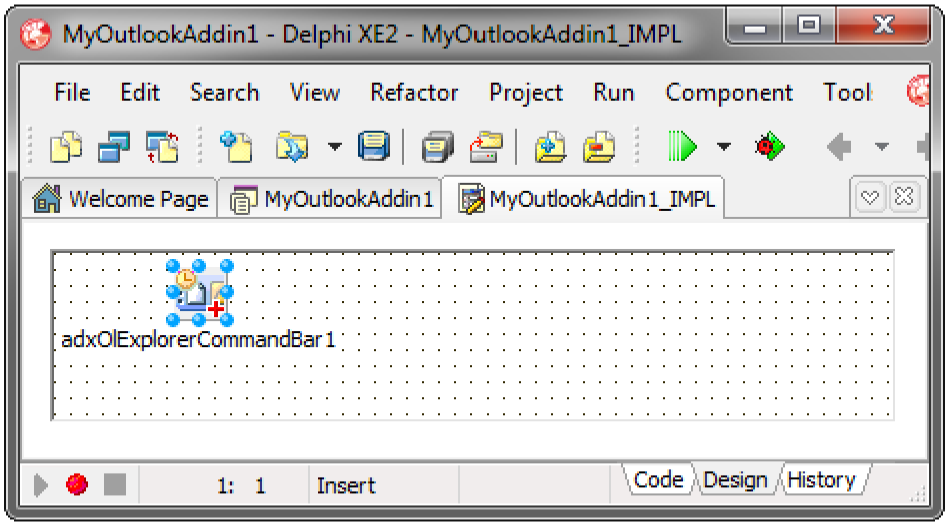
Step #3 – COM Add-in Designer

First off, you can drop a component from the Tool Palette onto the designer of the Outlook add-in module.

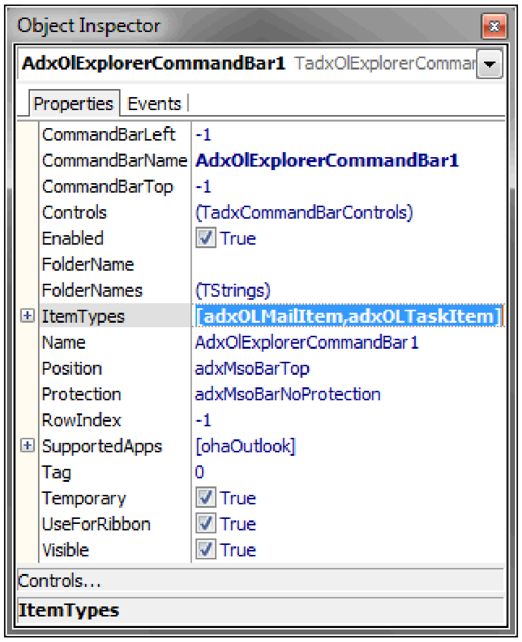
Also, the module designer allows setting add-in properties. The most important are the name of your add-in (*AddInName*) and how it loads into the host application (*LoadBehavior*). The typical value of the *LoadBehavior* property is *3*, which means *Loaded & Connected*.

Step #4 – Adding a New Explorer Command Bar

To add a command bar to the Outlook Explorer window, use the `TadxOlExplorerCommandBar` component from the *Add-in Express* group in the *Tool Palette*.


MyOutlookAddin1 - Delphi XE2 - MyOutlookAddin1_IMPL
File Edit Search View Refactor Project Run Component Tool
Welcome Page
MyOutlookAddin1
MyOutlookAddin1_IMPL
adxOlExplorerCommandBar1
1: 1
Insert
Code
Design
History

Select the Outlook Explorer Command Bar component, and in the Object Inspector window, specify the command bar name using the `CommandBarName` property and choose its position (see the `Position` property). Outlook-specific versions of the CommandBar component provide context-sensitive properties, such as `FolderName`, `FolderNames`, and `ItemTypes` (see Outlook Command Bar Visibility Rules).



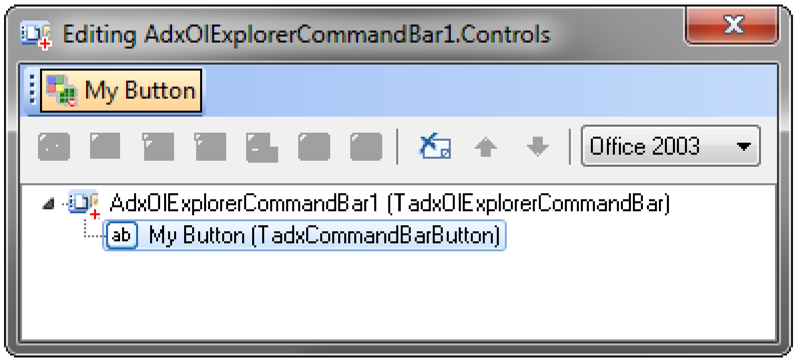
CommandBarLeft	-1
CommandBarName	AdxOlExplorerCommandBar1
CommandBarTop	-1
Controls	(TadxCommandBarControls)
Enabled	✓ True
FolderName	
FolderNames	(TStrings)
⊞ ItemTypes	[adxOLMailItem,adxOLTaskItem]
Name	AdxOlExplorerCommandBar1
Position	adxMsoBarTop
Protection	adxMsoBarNoProtection
RowIndex	-1
⊞ SupportedApps	[ohaOutlook]
Tag	0
Temporary	✓ True
UseForRibbon	✓ True
Visible	✓ True

Controls...
ItemTypes

In the screenshot, you see the properties of the Outlook Explorer command bar component that will create the command bar named *AdxOlExplorerCommandBar1*. The command bar will be shown for every Outlook folder (`FolderName = ''`), the default item types of which are Mail or Task. See also Command Bars: Toolbars, Menus, and Context Menus.

Step #5 – Adding a New Command Bar Button

You run the property editor for the `Controls` property in the *Object Inspector*. The editor allows adding command bar controls in an intuitive way.


Editing AdxOlExplorerCommandBar1.Controls
My Button
Office 2003
AdxOlExplorerCommandBar1 (TadxOlExplorerCommandBar)
My Button (TadxCommandBarButton)

Add a button to the toolbar, specify the `Caption` and set `Style` to `adxMsoButtonIconAndCaption`. To handle the `Click` event, in the *Object Inspector* window, switch to *Events* and add a `Click` event handler.

Step #6 – Accessing Outlook Objects

Add-in Express provides the `OutlookApp` property of the `TOutlookApplication` type for Outlook add-ins. This allows you to write the following code to the `Click` event of the newly added button.

```
procedure TAddInModule.DefaultActionInExplorer(
  Sender: TObject);
var
  IExplorer: _Explorer;
begin
  IExplorer := OutlookApp.ActiveExplorer;
  if Assigned(IExplorer) then
    begin
      ShowMessage('The subject is:' + CRLF + GetSubject(IExplorer));
      IExplorer := nil;
    end;
end;

function TAddInModule.GetSubject(
  const ExplorerOrInspector: IDispatch): string;
var
  IExplorer: _Explorer;
  ISelection: Selection;
  IInspector: _Inspector;
begin
  Result := '';
```

```
    if (ExplorerOrInspector <> nil) then
    begin
      ExplorerOrInspector.QueryInterface(IID__Explorer, IExplorer);
      if Assigned(IExplorer) then
        try
          try
            ISelection := IExplorer.Selection;
          except
            ISelection := nil;
            //skip an exception generated by Outlook when some folders are selected
          end;
          if Assigned(ISelection) then
            try
              if ISelection.Count > 0 then
                Result :=  OleVariant(ISelection.Item(1)).Subject;
            finally
              ISelection := nil;
            end;
        finally
          IExplorer := nil;
        end
      else
      begin
        ExplorerOrInspector.QueryInterface(IID__Inspector, IInspector);
        if Assigned(IInspector) then
        try
          Result := OleVariant(IInspector.CurrentItem).Subject;
        finally
          IInspector := nil;
        end;
      end;
    end;
  end;
```

The code of the `GetSubject` method emphasizes the following:

- Outlook fires an exception when you try to obtain the `Selection` object in some situations.
- There may be no items in the `Selection` object.

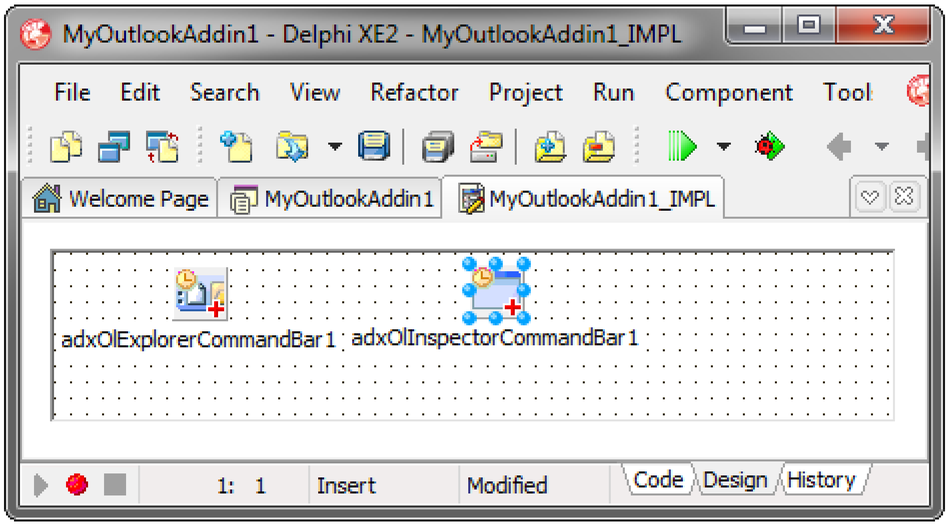
Step #7 - Handling Outlook Events

Add-in Express provides several components that make host's events available for the add-in module (see Host Application Events). To add Outlook events to the add-in, find the `TadxOutlookAppEvents` component in the Tool Palette and drag-n-drop it onto the module. You can use the component to get access to the events of all Outlook versions. If both `TAddInModule` and `TadxOutlookAppEvents` provide the same event, you should use the event provided by `TAddInModule`. For instance, both `TAddInModule` and `TadxOutlookAppEvents` provide the `BeforeFolderSwitch` event. According to the rule, we choose the event provided by the add-in module and write the following code:

```
procedure TAddInModule.adxCOMAddInModuleOLExplorerBeforeFolderSwitch (
  ASender: TObject; const NewFolder: IDispatch; var Cancel: WordBool);
begin
  if (NewFolder <> nil) then
    ShowMessage('You are switching to the '
      + (NewFolder as MAPIFolder).Name + ' folder');
end;
```

Step #8 - Adding a New Inspector Command Bar

To add a command bar to Outlook Inspector windows, use the `TadxOlInspectorCommandBar` component from the Add-in Express group in the Tool Palette.


MyOutlookAddin1 - Delphi XE2 - MyOutlookAddin1_IMPL
File Edit Search View Refactor Project Run Component Tool
Welcome Page
MyOutlookAddin1
MyOutlookAddin1_IMPL
adxOlExplorerCommandBar1
adxOlInspectorCommandBar1
1: 1
Insert
Modified
Code
Design
History

The Inspector command bar component provides the same properties as the Explorer command bar component. We use the default settings of the component in this sample. You should populate an Inspector command bar with controls the way it's described in Step #5 – Adding a New Command Bar Button. Add a button to the command bar and display the subject of the currently open item using the following code that handles the `Click` event of the button:

```
procedure TAddInModule.DefaultActionInInspector(
  Sender: TObject);
var
  IInspector: _Inspector;
begin
  IInspector := OutlookApp.ActiveInspector;
```

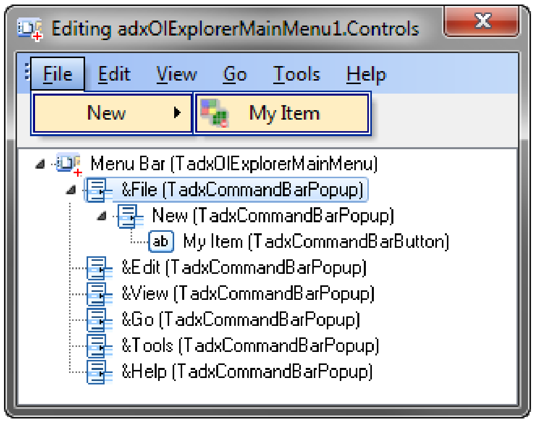
```
    if Assigned(IInspector) then
      begin
        ShowMessage('The subject is:' + CRLF + GetSubject(IInspector));
        IInspector := nil;
      end;
  end;
```

To display an Inspector command bar in the Ribbon UI you must explicitly set the `UseForRibbon` *property of the command bar component to* `True`.

See also Command Bars: Toolbars, Menus, and Context Menus and Outlook Command Bar Visibility Rules.

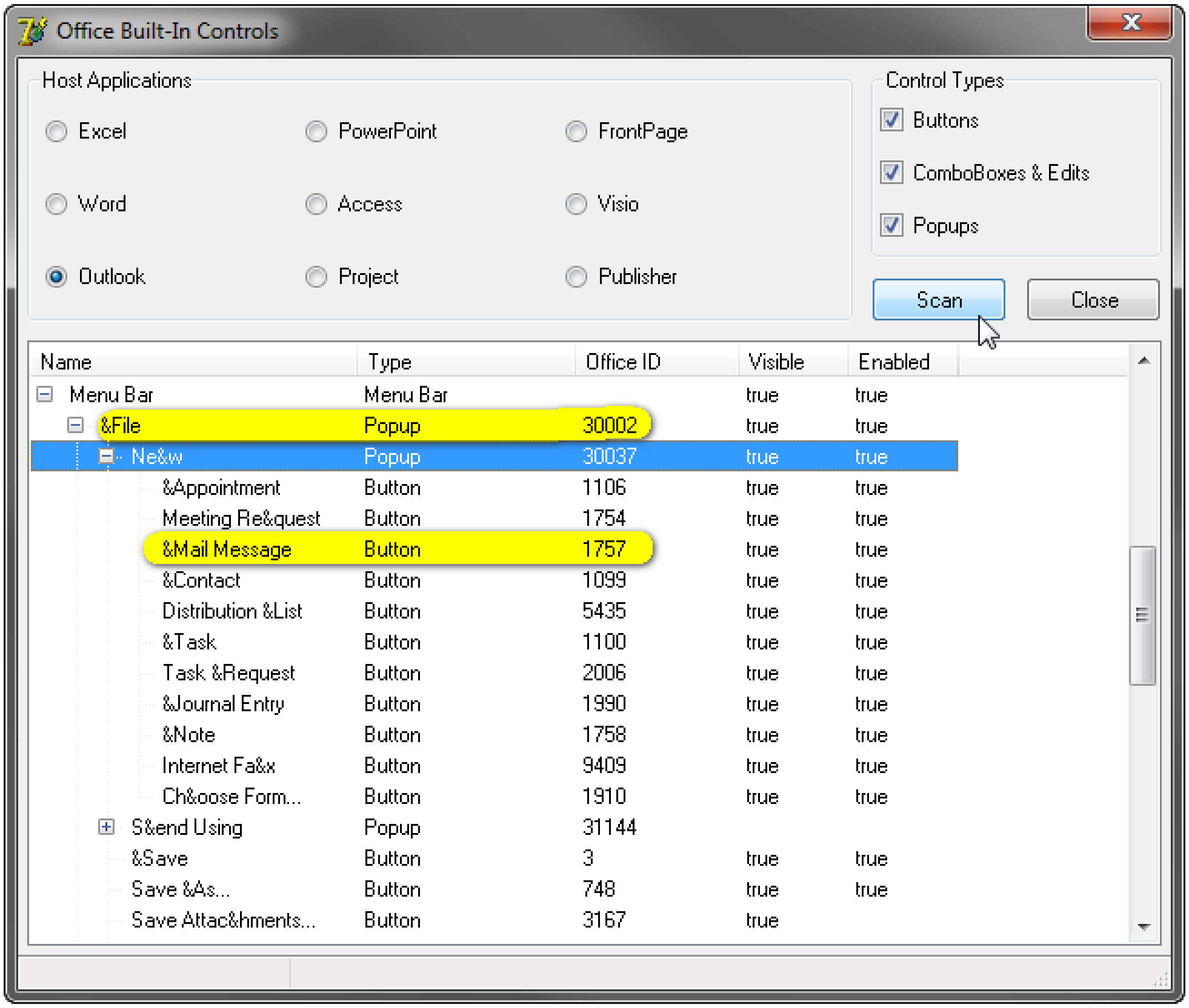
Step #9 – Customizing Main Menus in Outlook

Outlook 2000-2003 provides two main menu types. They are available for two main types of Outlook windows: Explorer and Inspector. Accordingly, Add-in Express provides two main menu components: Explorer Main Menu component and Inspector Main Menu component (note the Ribbon UI replaces the main menu of Inspector windows in Outlook 2007 and all main menus in Outlook 2010+). You add either of them using the context menu of the add-in module. Then you use the visual designer provided for the *`Controls`* property of the component. For instance, to add a custom control to the popup shown by the *File* | *New* item in all Outlook Explorer windows, you do the following:


Editing adxOlExplorerMainMenu1.Controls
File
Edit
View
Go
Tools
Help
New
My Item
Menu Bar (TadxOlExplorerMainMenu)
&File (TadxCommandBarPopup)
New (TadxCommandBarPopup)
My Item (TadxCommandBarButton)
&Edit (TadxCommandBarPopup)
&View (TadxCommandBarPopup)
&Go (TadxCommandBarPopup)
&Tools (TadxCommandBarPopup)
&Help (TadxCommandBarPopup)

- Use our free Built-in Control Scanner to get the IDs and names of built-in command bars and controls in Outlook

  The screenshot below shows the result of scanning. You will need the Office IDs from the screenshot below to bind Add-in Express controls to them:



Host Applications: Excel ( ) PowerPoint ( ) FrontPage ( ) Word ( ) Access ( ) Visio ( ) [✓ Outlook] Project ( ) Publisher ( )

Control Types: ✓ Buttons, ✓ ComboBoxes & Edits, ✓ Popups

Name	Type	Office ID	Visible	Enabled
Menu Bar	Menu Bar		true	true
&File	Popup	30002	true	true
Ne&w	Popup	30037	true	true
&Appointment	Button	1106	true	true
Meeting Re&quest	Button	1754	true	true
&Mail Message	Button	1757	true	true
&Contact	Button	1099	true	true
Distribution &List	Button	5435	true	true
&Task	Button	1100	true	true
Task &Request	Button	2006	true	true
&Journal Entry	Button	1990	true	true
&Note	Button	1758	true	true
Internet Fa&x	Button	9409	true	true
Ch&oose Form...	Button	1910	true	true
S&end Using	Popup	31144		
&Save	Button	3	true	true
Save &As...	Button	748	true	true
Save Attac&hments...	Button	3167	true	

- Add a popup control to the menu and set its `OfficeId` property to `30002`
- Add a popup control to the popup control above and set its `OfficeId` to `30037`
- Add a button to the popup above and specify its properties.

In the sample add-in described in this chapter, the `BeforeId` property of the *My Item* button is set to `1757`, which is the ID of the *Mail Message* item. In this way, we position our item before *Mail Message*. See also Using Built-in Command Bar Controls.

Step #10 - Customizing Context Menus in Outlook

Add-in Express allows customizing Outlook context menus via the *Context Menu* component. You use the context menu of the add-in module to add such a component onto the module. Then you choose Outlook in the *SupportedApp* property of the component. Then, in the `CommanBarName` property, you choose the context menu you want to customize. Finally, you add custom controls in the visual designer supplied for the `Controls` property.

The sample add-in described in this chapter adds a custom item to the *Folder Context Menu* command bar that represents the context menu shown when you right-click a folder in the folder tree.

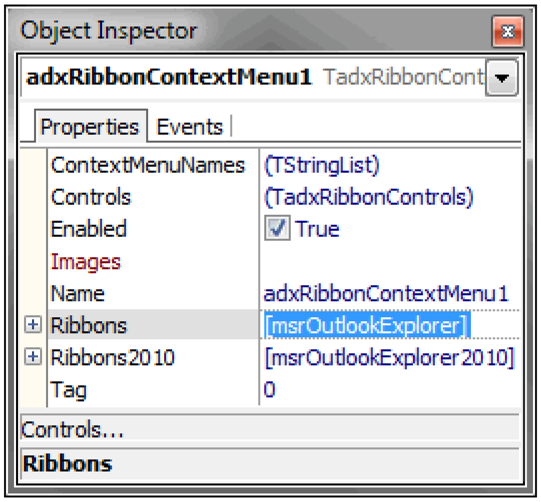
Outlook 2000 context menus are not customizable.

Outlook 2002-2007 context menus can be customized only using `TadxContextMenu`.

Outlook 2010 context menus are customizable using `TadxContextMenu` *(with some limitations) and* `TadxRibbonContextMenu`.

Outlook 2013+ context menus are customizable only using `TadxRibbonContextMenu` *(see below).*

Also, you can customize many Ribbon-based context menus in Outlook 2010+. Find the `TadxRibbonContextMenu` component on the Tool Palette and drop it on the add-in module. The component allows specifying Ribbons that supply context menu names for the `ContextMenuNames` property. You use the `ContextMenuNames` property editor to choose the context menu(s) that will display your custom controls specified in the `Controls` property.


Object Inspector

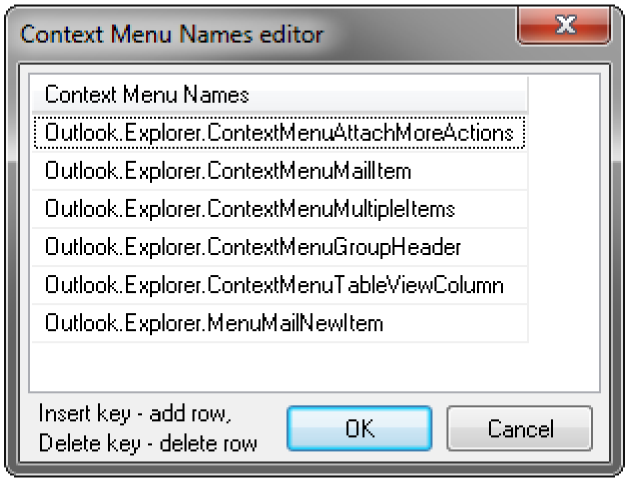
adxRibbonContextMenu1 TadxRibbonCont

Properties | Events

ContextMenuNames	(TStringList)
Controls	(TadxRibbonControls)
Enabled	✓ True
Images	
Name	adxRibbonContextMenu1
Ribbons	[msrOutlookExplorer]
Ribbons2010	[msrOutlookExplorer2010]
Tag	0

Controls...

Ribbons


Context Menu Names editor

Context Menu Names
Outlook.Explorer.ContextMenuAttachMoreActions
Outlook.Explorer.ContextMenuMailItem
Outlook.Explorer.ContextMenuMultipleItems
Outlook.Explorer.ContextMenuGroupHeader
Outlook.Explorer.ContextMenuTableViewColumn
Outlook.Explorer.MenuMailNewItem

Insert key - add row,
Delete key - delete row

Step #11 – Handling Events of Outlook Items Object

The Outlook2000 unit contains the `TItems` component (of the `TOleServer` type). This component provides the following events: `OnItemAdd`, `OnItemChange`, and `OnItemRemove`. To process these events, you add the following to the add-in module:

```
TAddInModule = class(TadxCOMAddInModule)
```

```
  private
      ...
    procedure ItemsAdd(ASender: TObject; const Item: IDispatch);
    function GetIsFolderTracked: boolean;
    procedure SetIsFolderTracked(const Value: boolean);
      ...
  public
      ...
    Items: TItems;
    property IsFolderTracked: boolean read GetIsFolderTracked write
SetIsFolderTracked;
      ...
  end;
...
procedure TAddInModule.adxCOMAddInModuleAddInStartupComplete(Sender: TObject);
begin
  IsFolderTracked := true;
end;

procedure TAddInModule.adxCOMAddInModuleAddInBeginShutdown(Sender: TObject);
begin
  IsFolderTracked := false;
end;

procedure TAddInModule.SetIsFolderTracked(const Value: boolean);
begin
  if Assigned(ItemsEvents) then begin
    if not Value then begin
      ItemsEvents.Disconnect;
      ItemsEvents.Free;
      ItemsEvents := nil;
    end;
  end
  else if Value then begin
    ItemsEvents := TItems.Create(Self);
    ItemsEvents.OnItemAdd := ItemsAdd;
    ItemsEvents.ConnectTo(
      Self.OutlookApp.GetNamespace('MAPI').
            GetDefaultFolder(olFolderInbox).Items);
  end;
end;

function TAddInModule.GetIsFolderTracked: boolean;
begin
  if Assigned(ItemsEvents) then
    Result := Assigned(ItemsEvents.DefaultInterface)
  else
```

```
    Result := false;
end;

procedure TAddInModule.ItemsAdd(ASender: TObject; const Item: IDispatch);
var
  S: WideString;
begin
  S := '';
  try
    S := OleVariant(Item).Subject;
  except
  end;
  if (S <> '') then
    ShowMessage('The item with subject "' + S
      + '" has been added to the Inbox folder');
end;
```

Step #12 - Adding Property Pages to the Folder Properties Dialogs

Outlook allows you to add custom option pages to the Options dialog box (the Tools | Options menu) and / or to the Properties dialog box of any folder. To automate this task, the Add-in Express wizard provides you with the Option Pages window (see Step #1 – Creating an Outlook COM Add-in Project).

By default, a property page contains two controls only: a label and an edit box. The edit box gives you an example of how to handle events of the controls on the property page.

```
procedure TPropertyPage1.Edit1Change(Sender: TObject);
begin
  GetPropertyPageSite;
  // TODO - put your code here
  UpdatePropertyPageSite;
end;
```

You add the *TCheckBox* component to the Property page, handle its *OnClick* event following the code template above, and connect or disconnect the *TItems* component in the *Apply* method. You initialize the check box in the *Initialize* method of the property page:

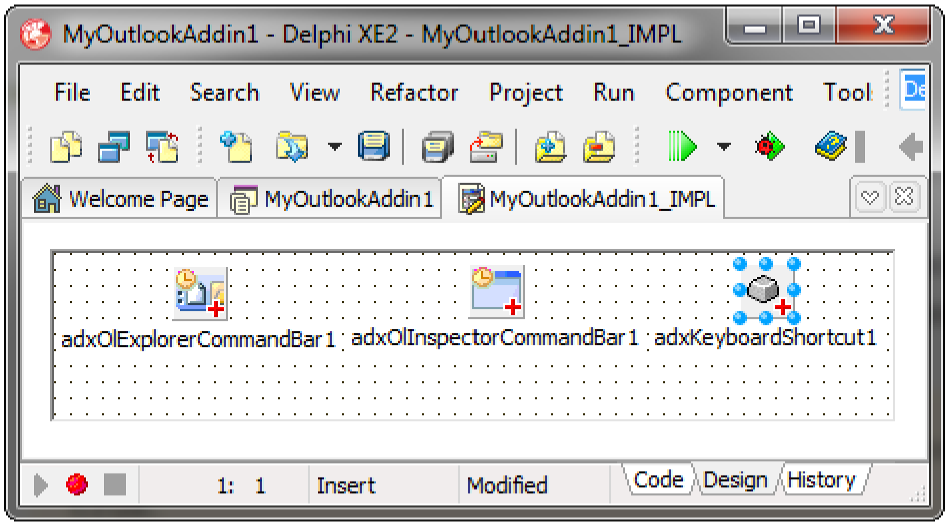
```
function TcoPropertyPage1.Apply: HResult;
begin
  adxcoMyOutlookAddin1.IsFolderTracked  := CheckBox1.State = cbChecked;
  FDirty := False;
  Result := S_OK;
end;
```

```
procedure TPropertyPage1.Initialize;
begin
  ...
  if (adxcoMyOutlookAddin1.IsFolderTracked) then
  begin
   if (CheckBox1.State <> cbChecked) then
    CheckBox1.State := cbChecked;
  end
  else
    if (CheckBox1.State <> cbUnchecked) then
     CheckBox1.State := cbUnchecked;
end;
```

See also Outlook Property Page.

Step #13 - Intercepting Keyboard Shortcuts

To intercept a keyboard shortcut, you add a *`TadxKeyboardShortcut`* component to the add-in module. In the Object Inspector window you select (or enter) the desired shortcut in the *`ShortcutText`* property. We chose the shortcut for the Send button in the Standard command bar of the mail Inspector. It is *`Ctrl+Enter`*.


MyOutlookAddin1 - Delphi XE2 - MyOutlookAddin1_IMPL
File Edit Search View Refactor Project Run Component Tool
Welcome Page
MyOutlookAddin1
MyOutlookAddin1_IMPL
adxOlExplorerCommandBar1
adxOlInspectorCommandBar1
adxKeyboardShortcut1
1: 1
Insert
Modified
Code
Design
History

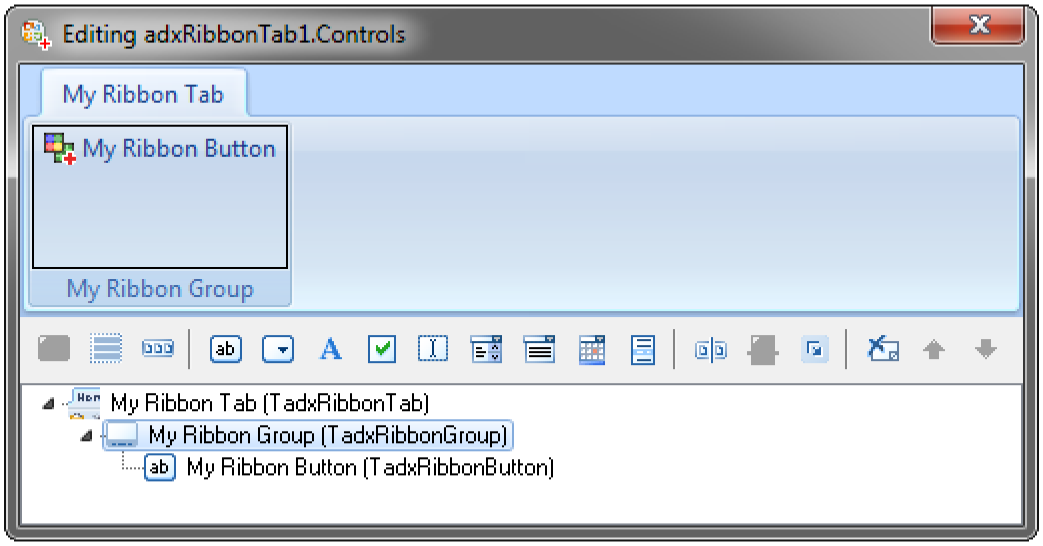
To use keyboard shortcuts, set the `HandleShortcuts` *property of the add-in module to* `true`.

```
procedure TAddInModule.adxKeyboardShortcut1Action(Sender: TObject);
begin
  ShowMessage('You`ve pressed ' +
    TadxKeyboardShortcut(Sender).ShortcutText);
```

```
end;
```

Step #14 – Customizing the Outlook Ribbon User Interface

To add a new tab to the Ribbon, you add the `TadxRibbonTab` component to the module. Then, in the Object Inspector window, run the editor for the `Controls` collection of the Ribbon tab component. In the editor, use the toolbar buttons or context menu to add or delete Add-in Express components that form the Ribbon interface of your add-in. First, you add a Ribbon tab and change its caption to *My Ribbon Tab*. Then, you select the tab component, add a Ribbon group, and change its caption to *My Ribbon Group*. Next, you select the group, and add a button. Set the button caption to *My Ribbon Button*. Use the `Glyph` property to set the icon for the button.



My Ribbon Tab (TadxRibbonTab)
My Ribbon Group (TadxRibbonGroup)
My Ribbon Button (TadxRibbonButton)

Now add the event handler to the `Click` event of the button and write the following code:

```
procedure TAddInModule.adxRibbonTab1Controls0Controls0Controls0Click(Sender:
TObject; const RibbonControl: IRibbonControl);
var
  IExplorer: _Explorer;
  Window: IDispatch;
begin
    Window := OutlookApp.ActiveWindow;
    if Window <> nil then begin
      Window.QueryInterface(IID__Explorer, IExplorer);
      if Assigned(IExplorer) then
        DefaultActionInExplorer(nil)
      else
        DefaultActionInInspector(nil);
    end;
end;
```

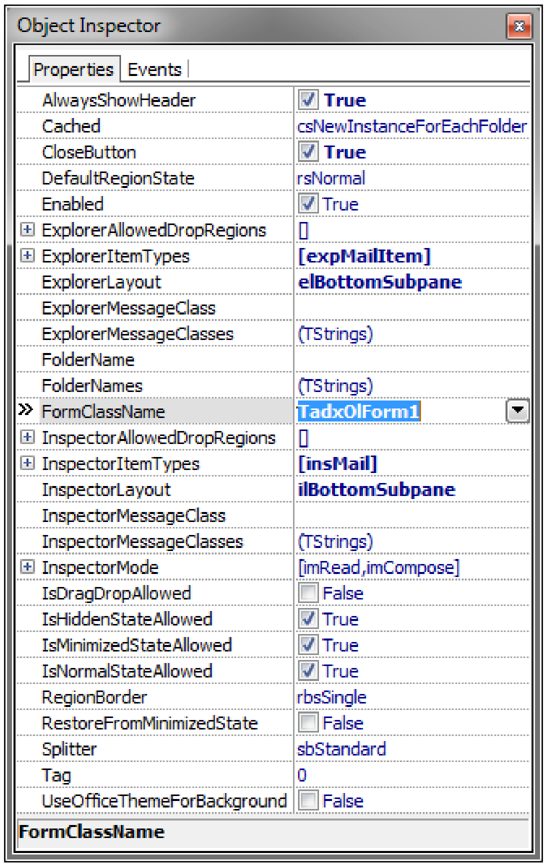
Remember, the `TadxRibbonTab.Controls` editor performs the XML-schema validation automatically, so from time to time you will run into the situation when you cannot add a control to some Ribbon level. It is a restriction of the Ribbon XML-schema.

Unlike other Ribbon-based applications, Outlook has numerous ribbons. Use the Ribbons property of your `TadxRibbonTab` components to specify the ribbons you customize with your tabs. See also Office Ribbon Components.

Step #15 -Advanced Task Panes in Outlook 2000+

As described in Advanced Outlook Regions and Advanced Office Task Panes, you add an *Outlook Forms Manager* component (`TadxOlFormsManager`) to your add-in module and an *Add-in Express Outlook Form* to your project using the *New Items* dialog. Then you add an item to the Items collection of the manager and specify the following properties:

- `ExplorerItemTypes = expMailItem` – your form will be shown for all mail folders.
- `ExplorerLayout = elBottomSubpane` – an instance of the form will be shown below the list of mails in Outlook Explorer windows.
- `InspectorItemTypes = insMail` – your task pane will be shown whenever you open an e-mail.
- `InspectorLayout = ilBottomSubpane` – an instance of the form will be shown to the right of the message body.
- `AlwaysShowHeader = True` – the header containing the icon (a 16x16 *.ico*) and the caption of your form (see the `Icon` and `Caption` properties of your form) will be shown for your form even if it is a single form in the given region.
- `CloseButton = True` – the header will contain the Close button; a click on it generates the `OnADXBeforeCloseButtonClick` event of the form.
- `FormClassName =TadxOlForm1` – the class name of the form whose instances will be shown in the regions specified by the `ExplorerLayout` and/or `InspectorLayout` properties.


Object Inspector

Properties | Events

AlwaysShowHeader	✓ **True**
Cached	csNewInstanceForEachFolder
CloseButton	✓ **True**
DefaultRegionState	rsNormal
Enabled	✓ True
⊞ ExplorerAllowedDropRegions	[]
⊞ ExplorerItemTypes	**[expMailItem]**
ExplorerLayout	**elBottomSubpane**
ExplorerMessageClass	
ExplorerMessageClasses	(TStrings)
FolderName	
FolderNames	(TStrings)
FormClassName	TadxOlForm1
⊞ InspectorAllowedDropRegions	[]
⊞ InspectorItemTypes	**[insMail]**
InspectorLayout	**ilBottomSubpane**
InspectorMessageClass	
InspectorMessageClasses	(TStrings)
⊞ InspectorMode	[imRead,imCompose]
IsDragDropAllowed	☐ False
IsHiddenStateAllowed	✓ True
IsMinimizedStateAllowed	✓ True
IsNormalStateAllowed	✓ True
RegionBorder	rbsSingle
RestoreFromMinimizedState	☐ False
Splitter	sbStandard
Tag	0
UseOfficeThemeForBackground	☐ False

FormClassName

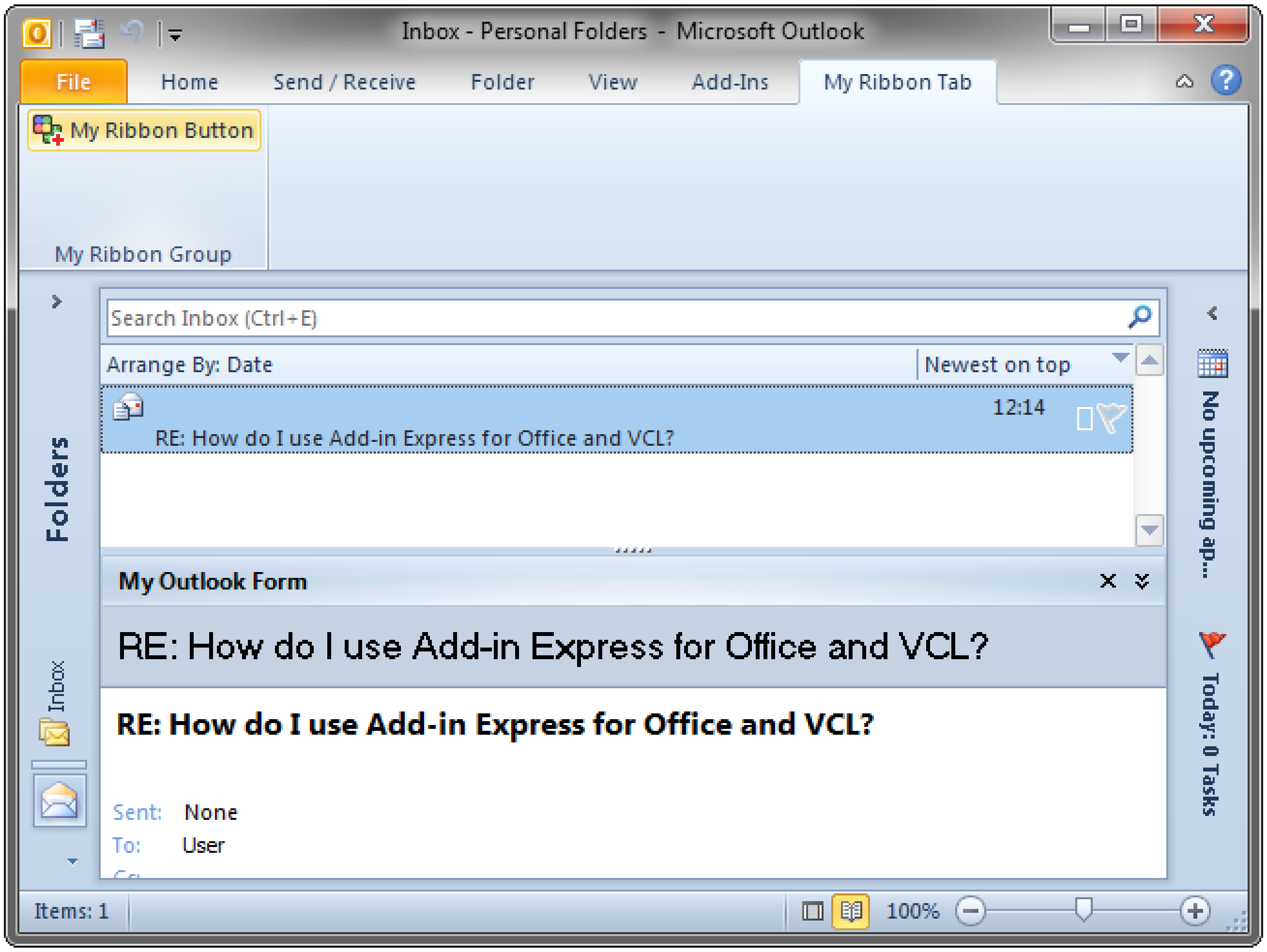
On the form, you add a label and handle, say, the `OnADXSelectionChange` event of the form:

```
procedure TadxOlForm1.adxOlFormADXSelectionChange(Sender: TObject);
begin
  RefreshMe();
end;

procedure TadxOlForm1.RefreshMe;
var
  module: TAddinModule;
begin
  module := (self.AddinModule as TAddinModule);
  if (self.InspectorObj <> nil) then
    Label1.Caption := module.GetSubject(self.InspectorObj)
  else if (self.ExplorerObj <> nil) then
    Label1.Caption := module.GetSubject(self.ExplorerObj);
end;
```

The *GetSubject* method above retrieves the subject of the e-mail currently open in the Outlook Inspector window or the one selected in the current Explorer window.

Step #16 – Running the COM Add-in

Choose *Register ActiveX Server* in menu *Run*, then restart Outlook and find your option page(s), command bars, and controls. Note that your add-in is also listed in the COM Add-ins Dialog.

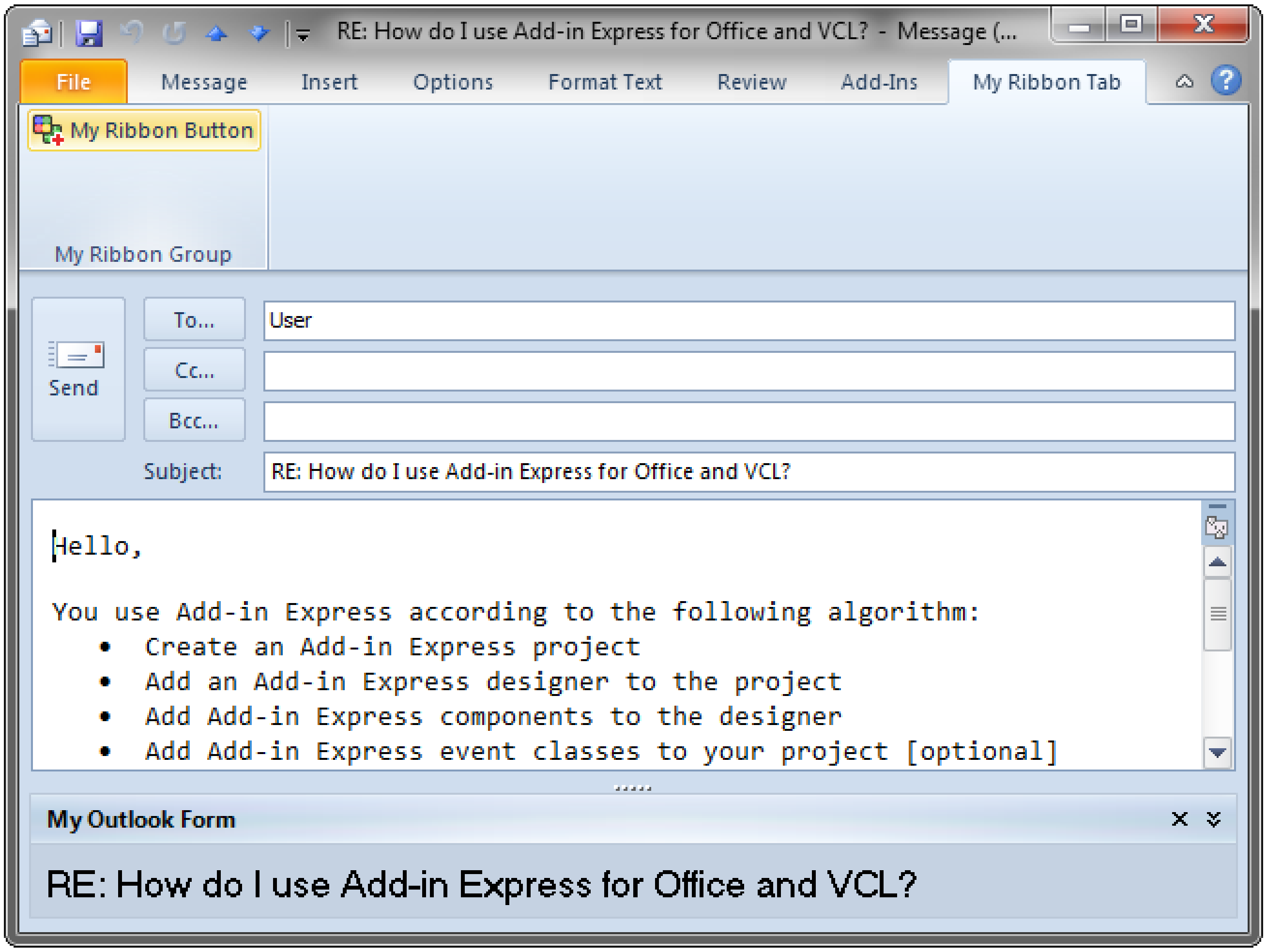


RE: How do I use Add-in Express for Office and VCL?

RE: How do I use Add-in Express for Office and VCL?

RE: How do I use Add-in Express for Office and VCL?

Sent: None
To: User



To...: User

Subject: RE: How do I use Add-in Express for Office and VCL?

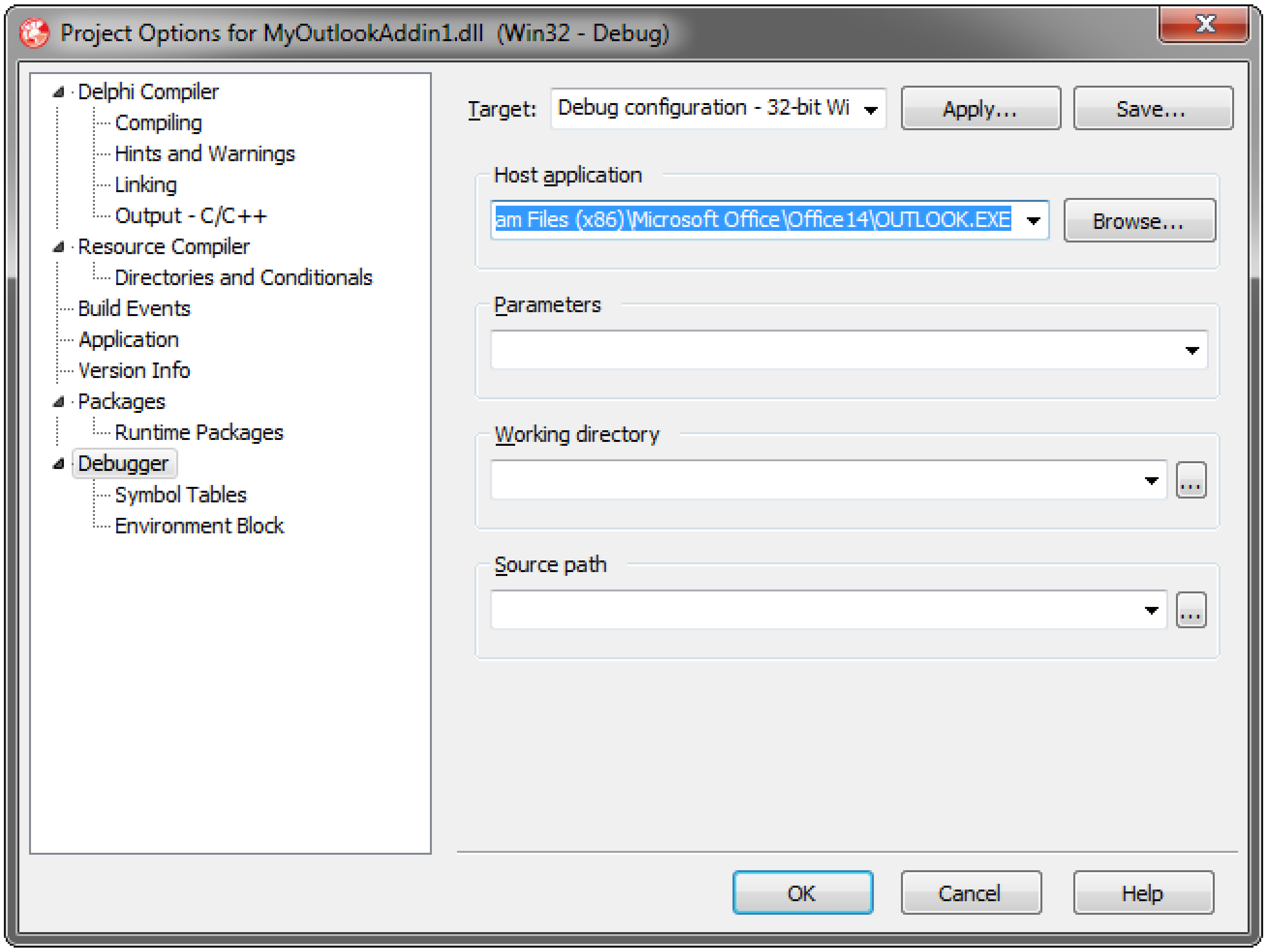
```
Hello,

You use Add-in Express according to the following algorithm:
    •  Create an Add-in Express project
    •  Add an Add-in Express designer to the project
    •  Add Add-in Express components to the designer
    •  Add Add-in Express event classes to your project [optional]
```

My Outlook Form

RE: How do I use Add-in Express for Office and VCL?

Step #17 - Debugging the COM Add-in

To debug your add-in, indicate the add-in's host application in the *Host Application* field in the *Project Options* window.



Target: Debug configuration - 32-bit Wi

Host application: am Files (x86)\Microsoft Office\Office14\OUTLOOK.EXE

Parameters:

Working directory:

Source path:

To debug your add-in in a 64-bit Outlook, register the add-in DLL using regsvr32; run it from an elevated 64-bit Command Prompt. In addition, you must explicitly specify to run the 64-bit Outlook in the dialog window shown above.

Step #18 - Deploying the COM Add-in

Make sure your setup project registers the add-in DLL. For example, in Inno Setup projects you use the *regserver* command. See also:

- Registering with User Privileges
- Additional Files

Your First Excel RTD Server

The sample project described below implements an RTD server. It is included in *Add-in Express for Office and VCL sample projects* available on the Downloads page.

A Bit of Theory

The RTD Server technology (introduced in Excel 2002) is used to provide the end user with a flow of changing data such as stock quotes, currency exchange rates etc. If an RTD server is mentioned in a formula (placed on an Excel worksheet), Excel loads the RTD server and waits for new data from it. When data arrive, Excel seeks for a proper moment and updates the formula with new data.

RTD Server terminology:

- An RTD server is a Component Object Model (COM) Automation server that implements the `IRtdServer` COM interface. Excel uses the RTD server to communicate with a real-time data source on one or more topics.
- A real-time data source is any source of data that you can access programmatically.
- A topic is a string (or a set of strings) that uniquely identifies a data source or a piece of data that resides in a real-time data source. The RTD server passes the topic to the real-time data source and receives the value of the topic from the real-time data source; the RTD server then passes the value of the topic to Excel for displaying. For example, the RTD server passes the topic "New Topic" to the real-time data source, and the RTD server receives the topic's value of "72.12" from the real-time data source. The RTD server then passes the topic's value to Excel for display.

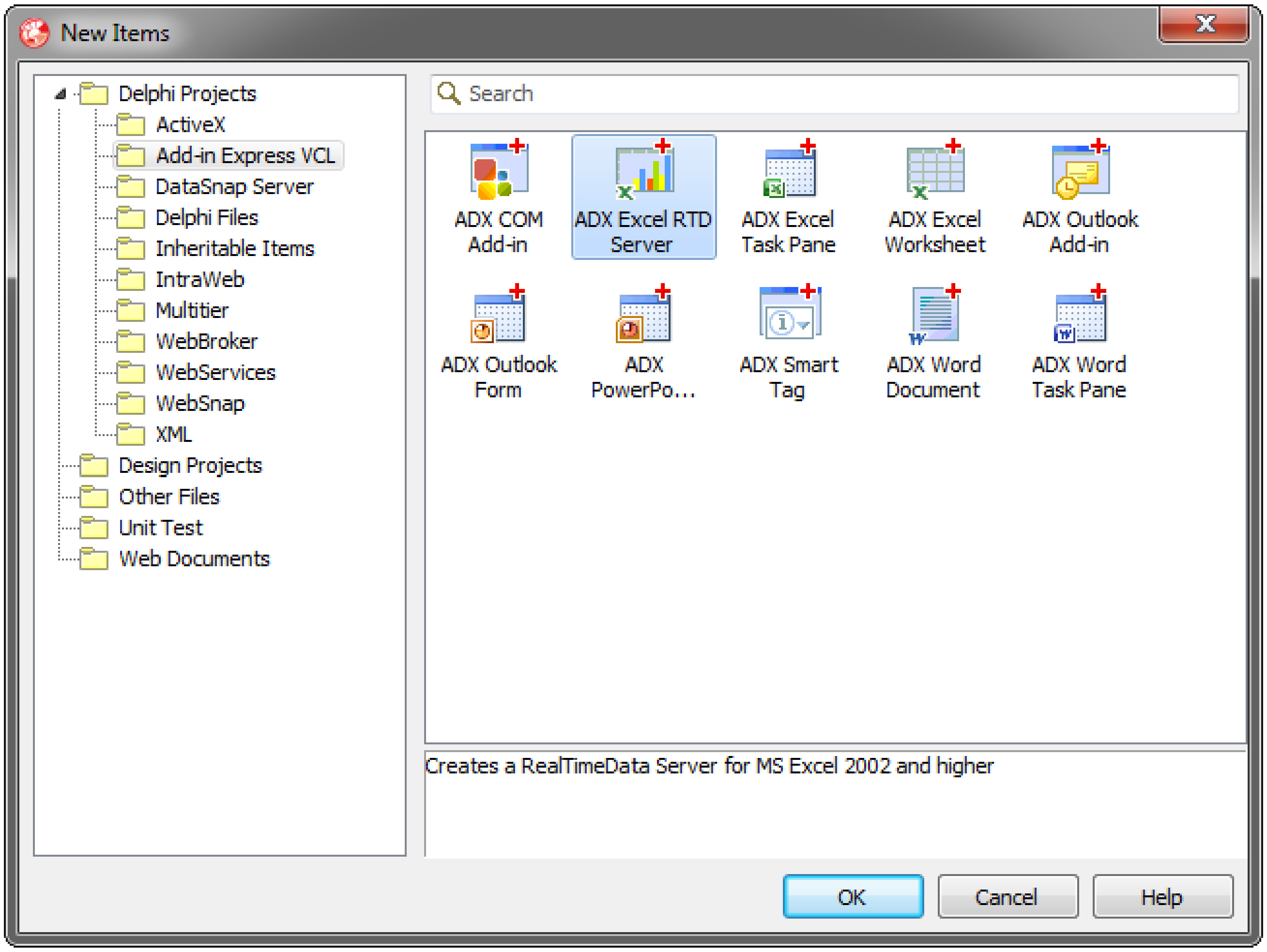
Per-user and Per-machine RTD Servers

An RTD Server can be registered either for the current user (the user running the installer) or for all users on the machine. That's why the corresponding module type, `ADXRTDServerModule`, provides the `RegisterForAllUsers` property. Registering for all users means writing to HKLM and that means the user registering a per-machine RTD server must have administrative permissions. Accordingly, `RegisterForAllUsers = Flase` means writing to HKCU (=for the current user).

Step #1 – Creating a New RTD Server Project

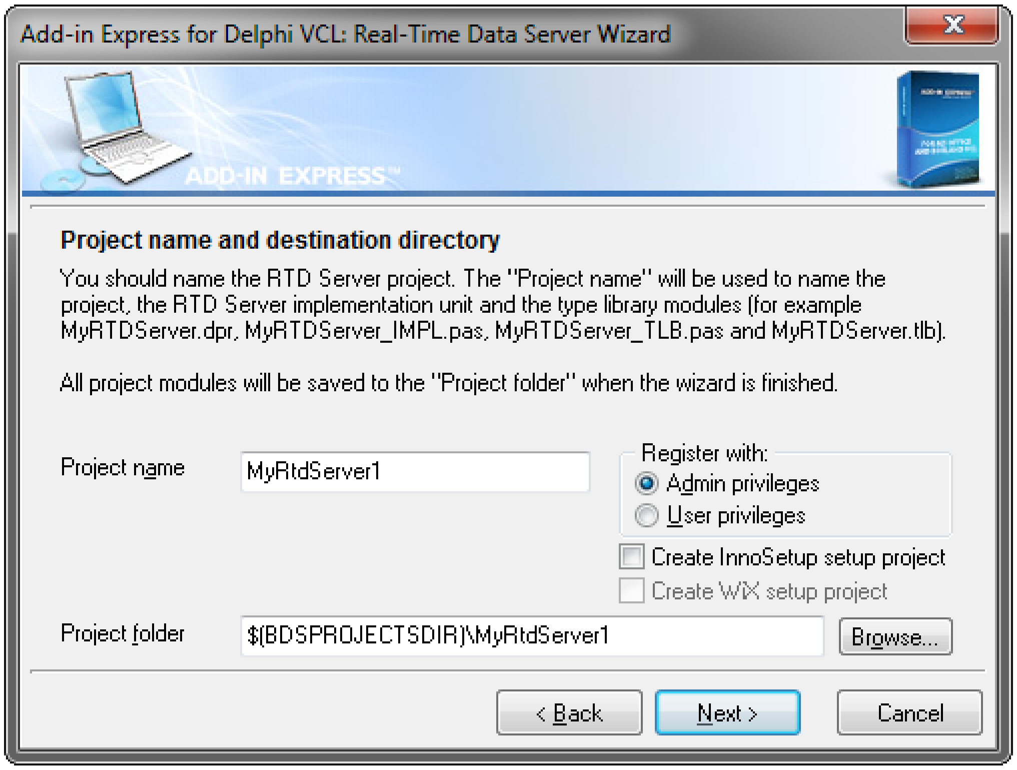
Run Delphi via the *Run as Administrator* command.

Add-in Express adds the RTD Server project template to the *New Items* dialog.



Creates a RealTimeData Server for MS Excel 2002 and higher

When you select the template and click *OK*, the RTD Server project wizard starts. You choose the project options in the wizard windows.


Add-in Express for Delphi VCL: Real-Time Data Server Wizard

Project name and destination directory

You should name the RTD Server project. The "Project name" will be used to name the project, the RTD Server implementation unit and the type library modules (for example MyRTDServer.dpr, MyRTDServer_IMPL.pas, MyRTDServer_TLB.pas and MyRTDServer.tlb).

All project modules will be saved to the "Project folder" when the wizard is finished.

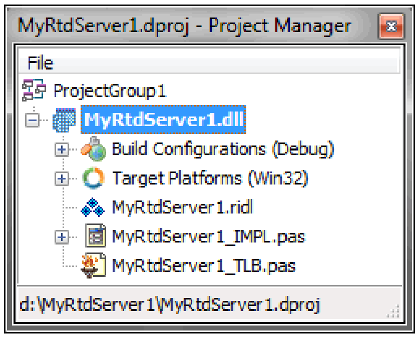
Project name: MyRtdServer1

Register with: [✓ Admin privileges] User privileges

☐ Create InnoSetup setup project

☐ Create WiX setup project

Project folder: $(BDSPROJECTSDIR)\MyRtdServer1


MyRtdServer1.dproj - Project Manager

```
ProjectGroup1
  MyRtdServer1.dll
    Build Configurations (Debug)
    Target Platforms (Win32)
    MyRtdServer1.ridl
    MyRtdServer1_IMPL.pas
    MyRtdServer1_TLB.pas
d:\MyRtdServer1\MyRtdServer1.dproj
```

The project wizard creates and opens the RTD server project in the IDE.

The RTD server project includes the following items:

- The project source files (*MyRtdServer1.**);
- The type library files (*MyRtdServer1_TLB.pas, MyRtdServer1.ridl*);
- The RTD server module (*MyRtdServer1_IMPL.pas* and *MyRtdServer1_IMPL.dfm*) discussed below.

Step #2 – RTD Server Module

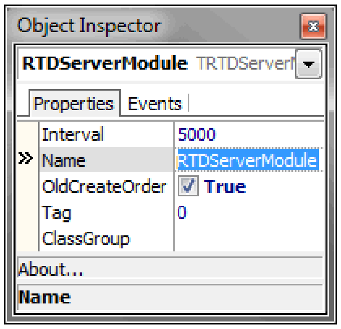
The RTD server module (*MyRtdServer1_IMPL.pas* and *MyRtdServer1_IMPL.dfm*) is the core part of the RTD server project. The module is the container for `TadxRTDTopic` components.

The code of *MyRtdServer1_IMPL.pas* is as follows:

```
unit MyRtdServer1_IMPL;

interface

uses
  SysUtils, Classes, ComServ, MyRtdServer1_TLB, adxRTDServ;
```

```
type
  TcoMyRtdServer1 = class(TadxRTDServer, IcoMyRtdServer1);

  TRTDServerModule = class(TadxXLRTDServerModule)
  private
  protected
  public
  end;

implementation

{$R *.dfm}

initialization
  TadxRTDFactory.Create(ComServer, TcoMyRtdServer1, CLASS_coMyRtdServer1,
TRTDServerModule);

end.
```

Step #3 - RTD Server Designer


Object Inspector

RTDServerModule TRTDServerM

Properties | Events

Interval	5000
Name	RTDServerModule
OldCreateOrder	✓ True
Tag	0
ClassGroup	

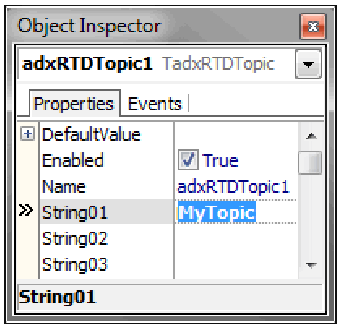
About...

Name

The module designer allows setting RTD server properties and adding components to the module. You set the properties of your RTD server module in the *Object Inspector*.

The only Add-in Express component available for the module is *TadxRTDTopic* (see RTD Topic).

Step #4 - Adding and Handling a New Topic


Object Inspector

adxRTDTopic1 TadxRTDTopic

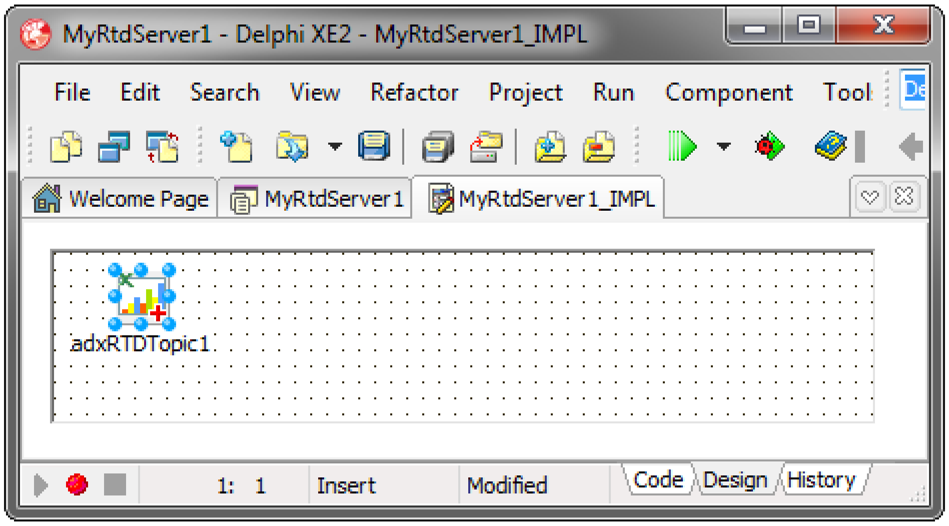
Properties | Events

⊞ DefaultValue	
Enabled	✓ True
Name	adxRTDTopic1
String01	MyTopic
String02	
String03	

String01

To add a new topic to your RTD server, find the *TadxRTDTopic* component in the *Tool Palette* and drag-n-drop it onto the RTD server module (see RTD Topic).

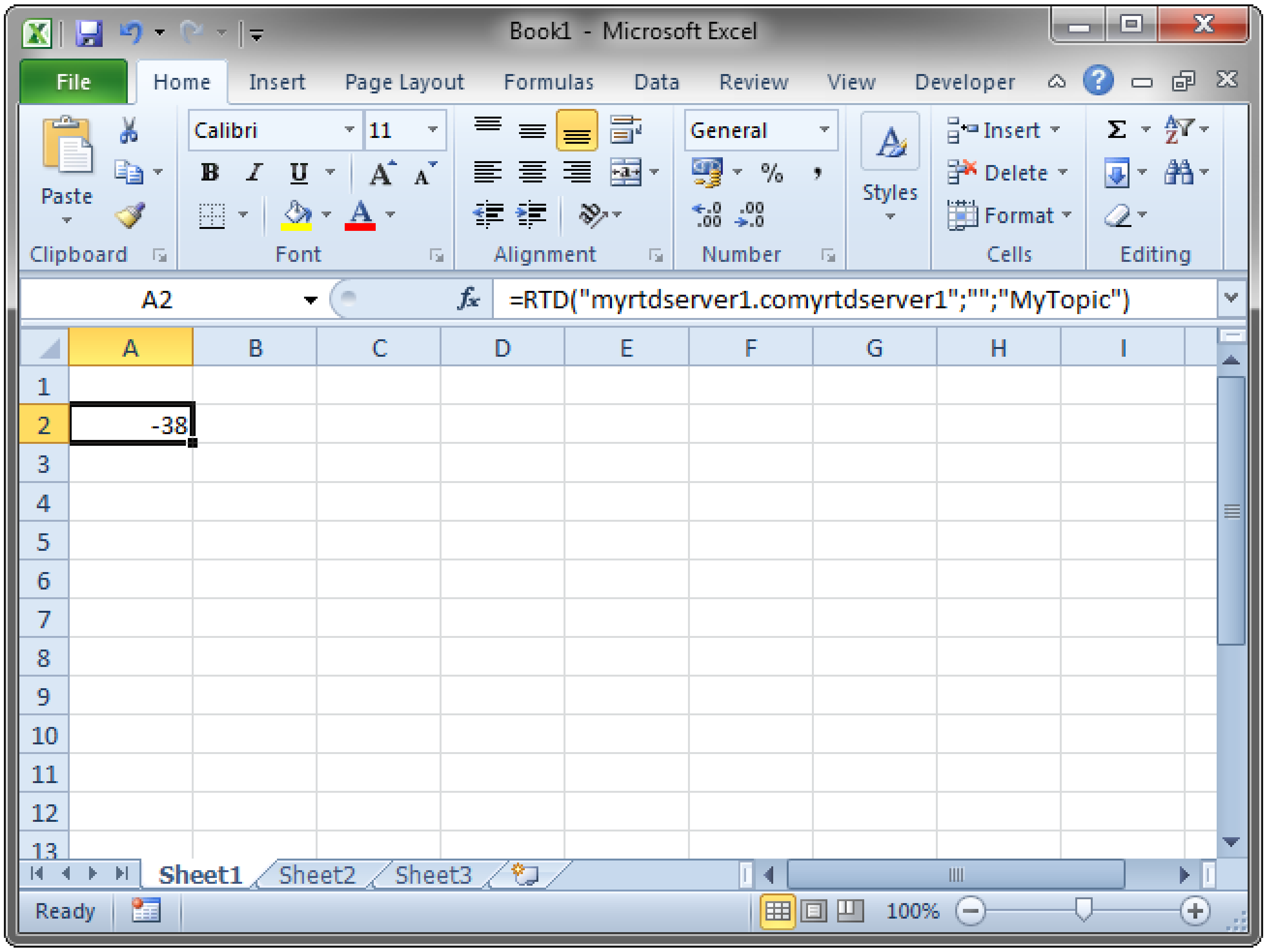
Select the newly added component and, in the *Object Inspector*, specify the topic using the *String##* properties. Write your code to handle the *RefreshData* event of the RTD Topic component:



```
function TRTDServerModule.adxRTDTopic1RefreshData(Sender: TObject): OleVariant;
begin
  Result := RandomRange(-100, 100);
end;
```

Step #5 - Running the RTD Server

Choose the *Register ActiveX Server* item in the *Run* menu, restart Excel, and enter the *RTD* function to a cell.

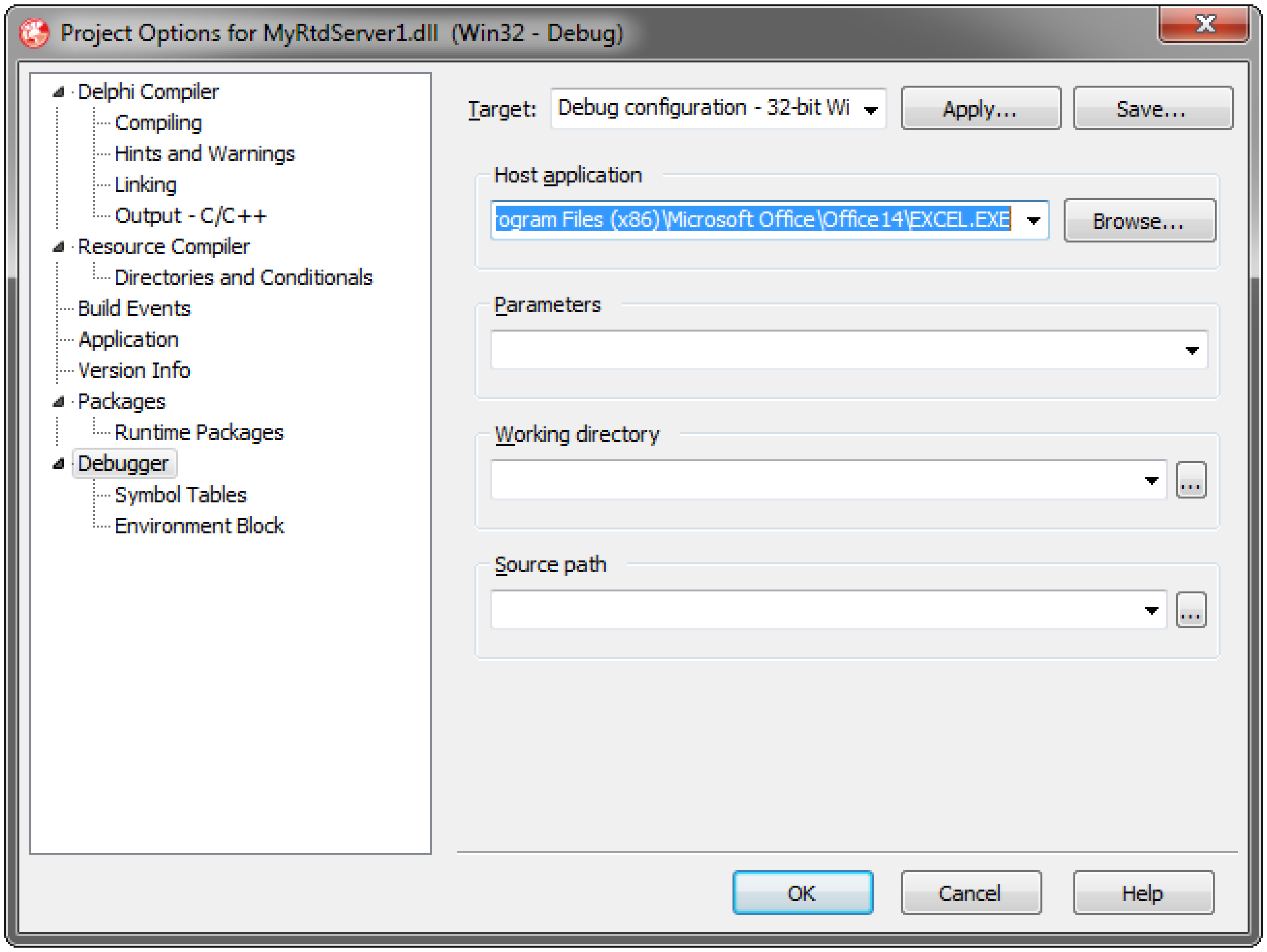


A2 =RTD("myrtdserver1.comyrtdserver1";"";"MyTopic")

-38

Step #6 - Debugging the RTD Server

To debug your RTD server, just indicate Excel as the *Host Application* in the *Project Options* window.



Project Options for MyRtdServer1.dll (Win32 - Debug)

Target: Debug configuration - 32-bit Wi

Host application: rogram Files (x86)\Microsoft Office\Office14\EXCEL.EXE

Parameters:

Working directory:

Source path:

To debug your RTD server in a 64-bit Excel, register the DLL using regsvr32; run it from an elevated 64-bit Command Prompt. In addition, you must explicitly specify to run the 64-bit Excel in the dialog window shown above.

Step #7 - Deploying the RTD Server

Make sure your setup project registers the RTD server DLL (or EXE). Say, in Inno Setup projects you use the *regserver* command. If you use the *Register with User Privileges* option, please read the following:

- Registering with User Privileges

Your First Smart Tag

The sample project described below implements a smart tag. It is included in *Add-in Express for Office and VCL sample projects* available on the Downloads page.

A Bit of Theory

Smart Tags were introduced in Word 2002 and Excel 2002. Then they added PowerPoint 2003 to the list of smart tag host applications.

Since Office 2010 Microsoft declared smart tags **deprecated**. Although you can still use the related APIs in projects for Excel, Word, and PowerPoint 2010-2021/365, these applications do not automatically recognize terms, and recognized terms are no longer underlined. Users must trigger recognition and view custom actions associated with text by right-clicking the text and clicking the *Additional Actions* on the context menu. Please see Changes in Word 2010 and Changes in Excel 2010.

Below is what was said about the Smart Tag technology in earlier days:

This technology provides Office users with more interactivity for the content of their Office documents. A smart tag is an element of text in an Office document having custom actions associated with it. Smart tags allow recognizing such text using either a dictionary-based or a custom-processing approach. An example of such text might be an e-mail address you type into a Word document or an Excel workbook. When smart tag recognizes the e-mail address, it allows the user to choose one of the actions associated with the text. For e-mail addresses, possible actions are to look up additional contact information or send a new e-mail message to that contact.

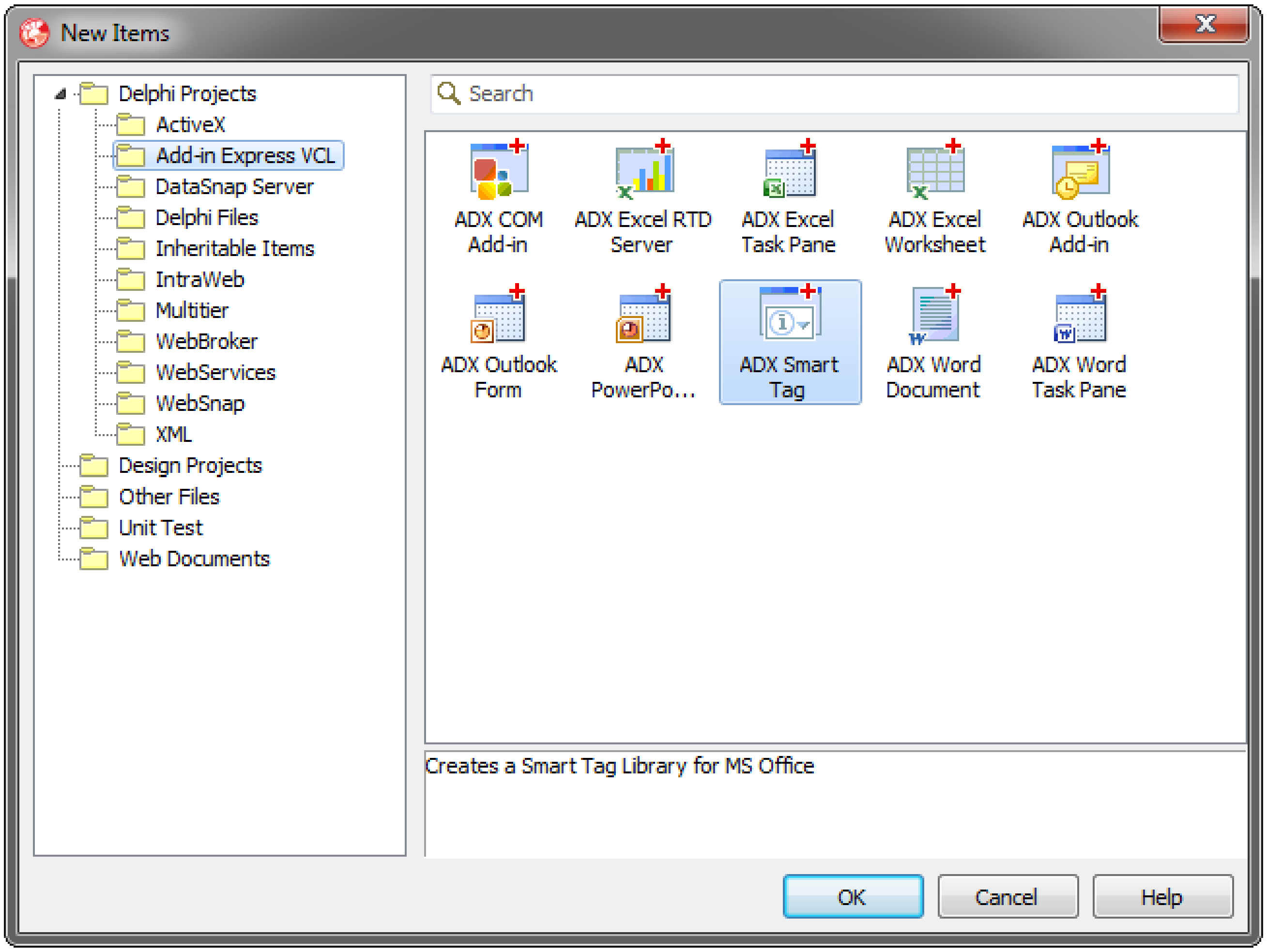
Per-user Smart Tags

A smart tag is a per-user thing that requires registering in HKCU. In other words, a smart tag cannot be registered for all users on the machine. Instead, it must be registered for every user separately.

Step #1 - Creating a New Smart Tag Library Project

Start Delphi via the *Run as Administrator* command.

Add-in Express adds the Smart Tag project template to the *New Items* dialog:



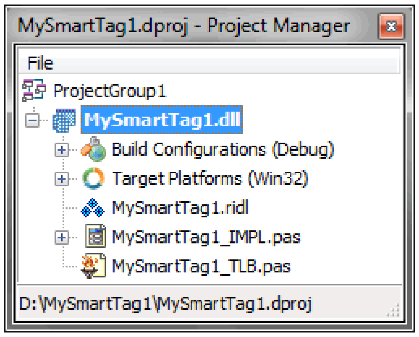
Creates a Smart Tag Library for MS Office

When you select the template and click *OK*, the Smart Tag project wizard starts. In the wizard windows, you choose the project options.

The project wizard creates and opens the Smart Tag project in the IDE.

The smart tag project includes the following items:

- The project source files (*MySmartTag1.**).
- The type library files (*MySmartTag1.ridl* and *MySmartTag1_TLB.pas*).
- The smart tag module (*MySmartTag1_IMPL.pas* and *MySmartTag1_IMPL.dfm*) discussed in the following step.



Step #2 - Smart Tag Module

The smart tag module (*MySmartTag1_IMPL.pas* and *MySmartTag1_IMPL.dfm*) is the core part of the smart tag project. The smart tag module is a container for `TadxSmartTag` components.

The code for `MySmartTag1_IMPL.pas` is as follows:

```
unit MySmartTag1_IMPL;

interface

uses
  SysUtils, ComObj, ComServ, ActiveX, Variants, adxSmartTag, adxSmartTagTLB,
MySmartTag1_TLB;

type
  TcoMySmartTag1Recognizer = class(TadxRecognizerObject,
IcoMySmartTag1Recognizer)
  protected
  end;

  TcoMySmartTag1Action = class(TadxActionObject, IcoMySmartTag1Action)
  protected
  end;

  TSmartTagModule = class(TadxSmartTagModule)
  private
  protected
  public
  end;

implementation

{$R *.dfm}

initialization
  TadxRecognizerFactory.Create(ComServer, TcoMySmartTag1Recognizer,
    CLASS_coMySmartTag1Recognizer, TSmartTagModule);

  TadxActionFactory.Create(ComServer, TcoMySmartTag1Action,
    CLASS_coMySmartTag1Action, TSmartTagModule);

end.
```

The smart tag module contains three classes:

- The “interfaced” classes (*TcoMySmartTag1Recognizer* and *TMySmartTag1Action*);
- The smart tag module class (*TSmartTagModule*).

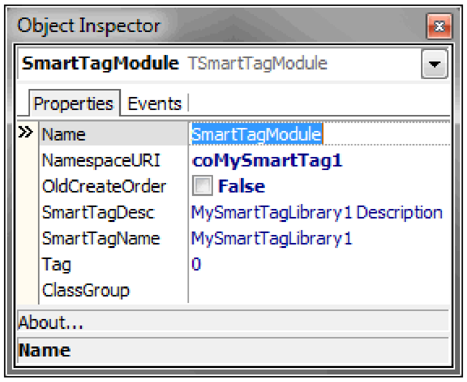
The “interfaced” classes are descendants of the *TadxRecognizerObject* class and the *TadxActionObject* class that implement the smart tag specific interfaces required by the smart tag architecture:

`ISmartTagRecognizer`, `ISmartTagRecognizer2`, `ISmartTagAction` and `ISmartTagAction2`. Usually you don't need to change anything in these classes.

In the smart tag module class, we write the functionality to be implemented by the smart tag. The smart tag module is an analogue of the Data Module, but unlike the Data Module, the smart tag module allows you to set all properties of your smart tags.

Step #3 - Smart Tag Designer

In the *Project Manager*, select the smart tag module, activate the *Object Inspector*, specify your smart tag name in the `SmartTagName` property (this name appears in the *Smart Tags* tab on the host application *AutoCorrect Options* dialog box), and enter the description of the smart tag through the `SmartTagDesc` property. These properties depend on Office localization.



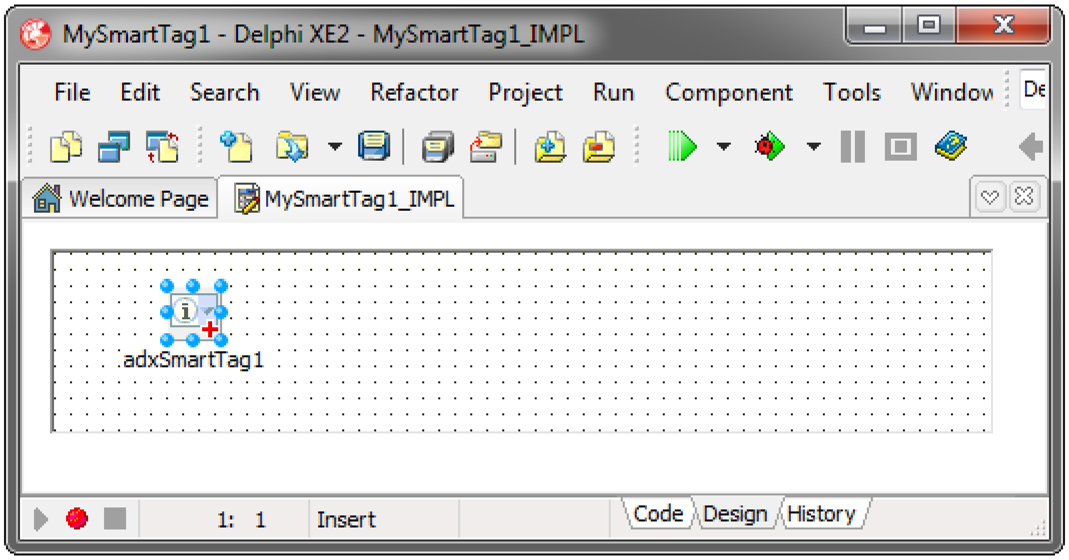
Name	SmartTagModule
NamespaceURI	coMySmartTag1
OldCreateOrder	False
SmartTagDesc	MySmartTagLibrary1 Description
SmartTagName	MySmartTagLibrary1
Tag	0
ClassGroup	

Name

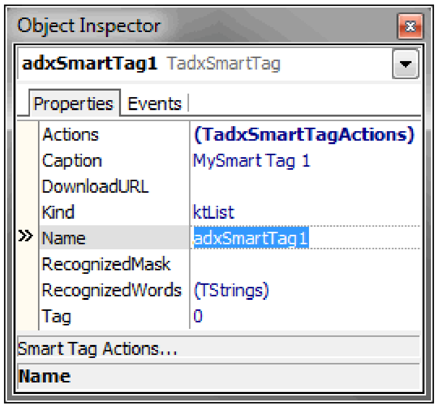
The designer of the Smart Tag module allows setting smart tag library properties and adding `TadxSmartTag` components to the module.

Step #4 - Adding a New Smart Tag

To add a new Smart Tag to your library, find the `TadxSmartTag` component in the *Tool Palette* and drag-n-drop it onto the *Smart Tag Module*.

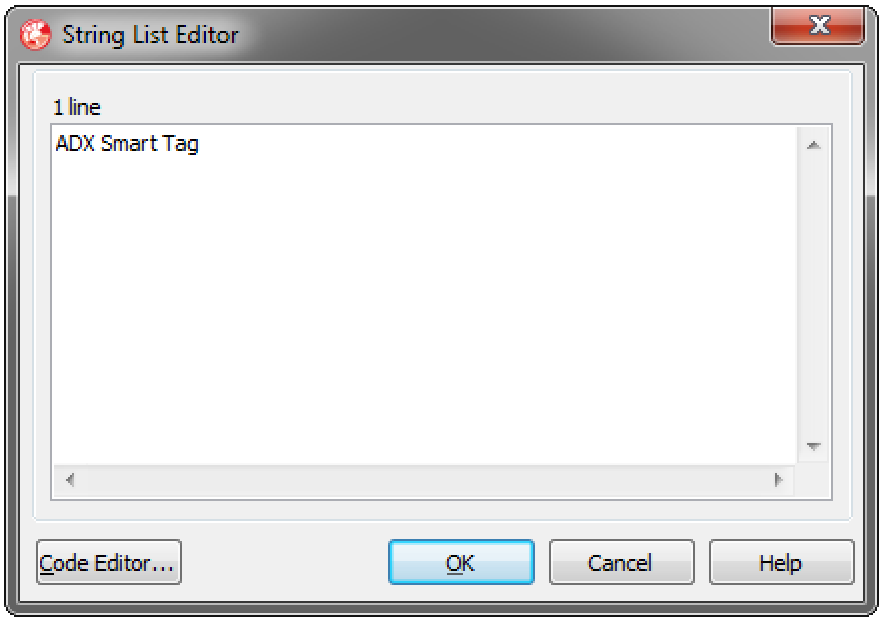


In the *Object Inspector* window, specify the caption for the added smart tag. The value of the `Caption` property will become a caption of the smart tag context menu. Also, specify the phrase(s) recognizable by the smart tag in the `RecognizedWords` string collection.



Actions	(TadxSmartTagActions)
Caption	MySmart Tag 1
DownloadURL	
Kind	ktList
Name	adxSmartTag1
RecognizedMask	
RecognizedWords	(TStrings)
Tag	0

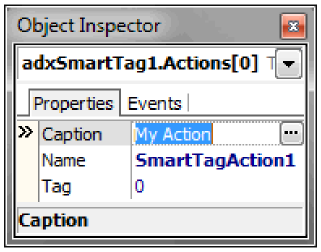
Say, in this sample, the words are the following:



ADX Smart Tag

Step #5 – Adding and Handling Smart Tag Actions

To add a new smart tag action, right-click the smart tag component, select *Smart Tag Actions* on the pop-up menu, and, in the *Editing* window, click the *Add New* button. Select the action in the *Editing* window and fill in the `Caption` property the Object Inspector. The value of the `Caption` property will be shown on an item of the smart tag context menu (pop-up).



Caption	My Action
Name	SmartTagAction1
Tag	0

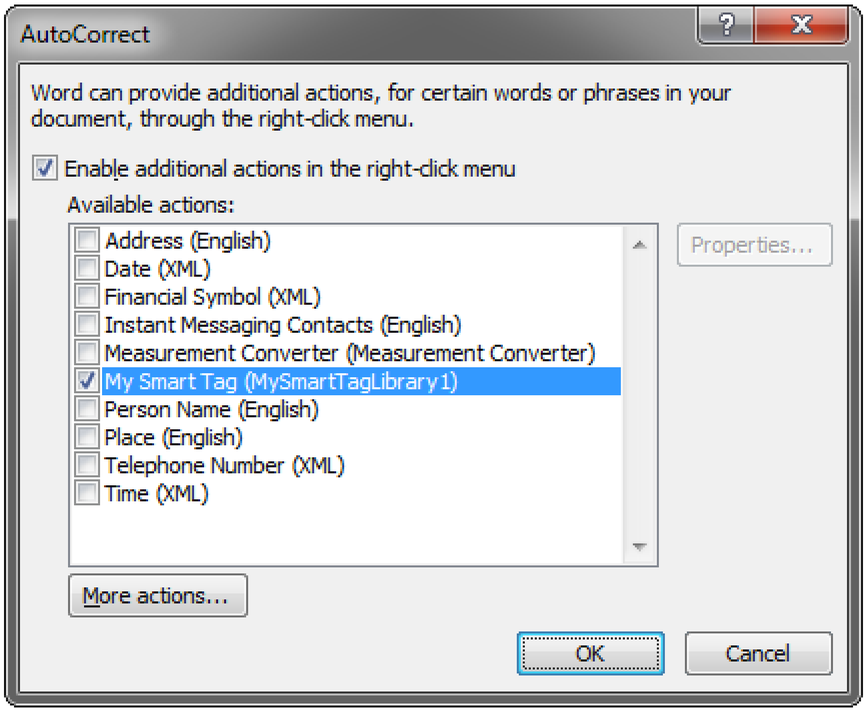
To handle clicking on this menu item, select the *Events* tab of the *Object Inspector*, double click the `OnClick` event, and enter code:

```
procedure TSmartTagModule.adxSmartTag1Actions0Click(Sender: TObject;
  const AppName: WideString; const Target: IDispatch; const Text,
  Xml: WideString; LocaleID: Integer);
begin
  ShowMessage('Recognized text is ' + Text);
end;
```

Step #6 - Running Your Smart Tag

Choose *Register ActiveX Server* in menu *Run*, restart Word or Excel, enter the words recognizable by your smart tag into a document, and see if the smart tag works.

- In Office 2003-2003, choose the *Tools* | *AutoCorrect* menu item and find your smart tag on the *Smart Tags* tab.
- In Office 2007, the path to this dialog is as follows: *Office button* | *Word Options* | *Add-ins* | *"Manage" Smart Tags* | *Go*.
- In Office 2010+, see *File tab* | *Options* | *Add-ins* | *"Manage" Actions* | *Go*.



Word can provide additional actions, for certain words or phrases in your document, through the right-click menu.

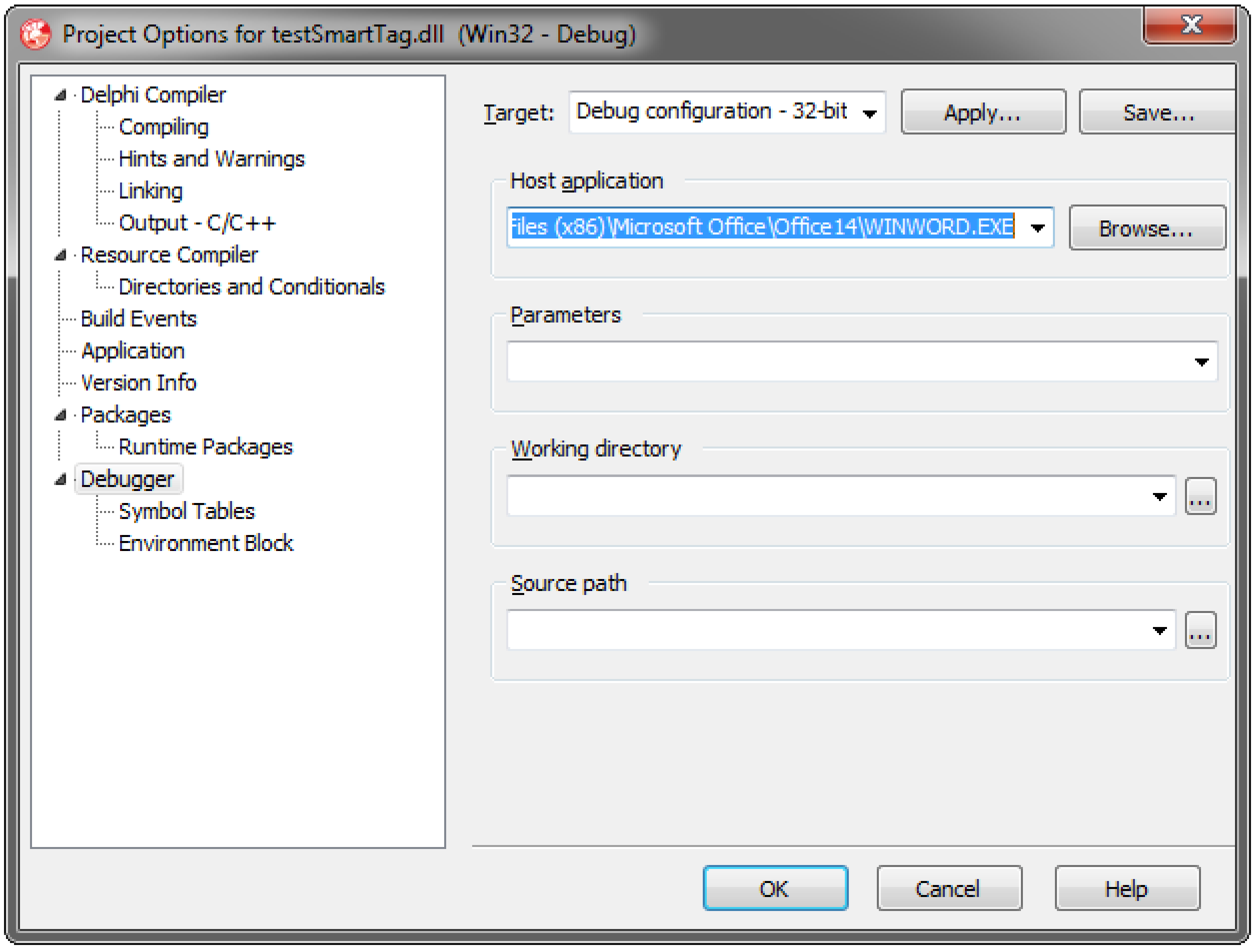
[✓] Enable additional actions in the right-click menu

Available actions:

- [ ] Address (English)
- [ ] Date (XML)
- [ ] Financial Symbol (XML)
- [ ] Instant Messaging Contacts (English)
- [ ] Measurement Converter (Measurement Converter)
- [✓] My Smart Tag (MySmartTagLibrary1)
- [ ] Person Name (English)
- [ ] Place (English)
- [ ] Telephone Number (XML)
- [ ] Time (XML)

Step #7 - Debugging the Smart Tag

To debug your Smart Tag, just indicate a required application as the *Host Application* in the *Project Options*.



Target: Debug configuration - 32-bit

Host application: Files (x86)\Microsoft Office\Office14\WINWORD.EXE

Step #8 - Deploying the Smart Tag

Make sure your setup project registers the smart tag DLL. Say, in Inno Setup projects you use the *regserver* command. If you use the *Register with User Privileges* option, please read the following:

- Registering with User Privileges

Your First Excel Automation Add-in

The sample project described below implements an Excel Automation add-in smart tag. It is included in *Add-in Express for Office and VCL sample projects* available on the Downloads page.

The fact is that Excel Automation Add-ins do not differ from COM Add-ins except for the registry entries. That's why Add-in Express bases Excel Automation Add-in projects on COM Add-in projects.

A Bit of Theory

Excel 2002 brought in Automation Add-ins – a technology that allows writing user-defined functions for use in Excel formulas. Add-in Express provides you with a specialized module, COM Excel Add-in Module, that cuts down this task to just writing one or more user-defined functions. A typical function accepts one or more Excel ranges and/or other parameters. Excel shows the resulting value of the function in the cell where the user calls it.

Add-in Express allows developing Excel Automation add-ins using the add-in module that has the *XLAutomationAddin* Boolean property. Set the property to *true*, add a method to the add-in module's type library, and write the method's code.

Excel user-defined functions (UDFs) are used to build custom functions in Excel for the end user to use them in formulas. This definition underlines the main restriction of an UDF: it should return a result that can be used in a formula – not an object of any given type but a number, a string, or an error value (Booleans and dates are essentially numbers). When used in an array formula, the UDF should return a properly dimensioned array of values of the types above. Excel shows the value returned by the function in the cell where the user calls the function.

There are two Excel UDF types: Excel Automation add-in and Excel XLL add-in. Add-in Express allows creating only an Excel Automation add-in.

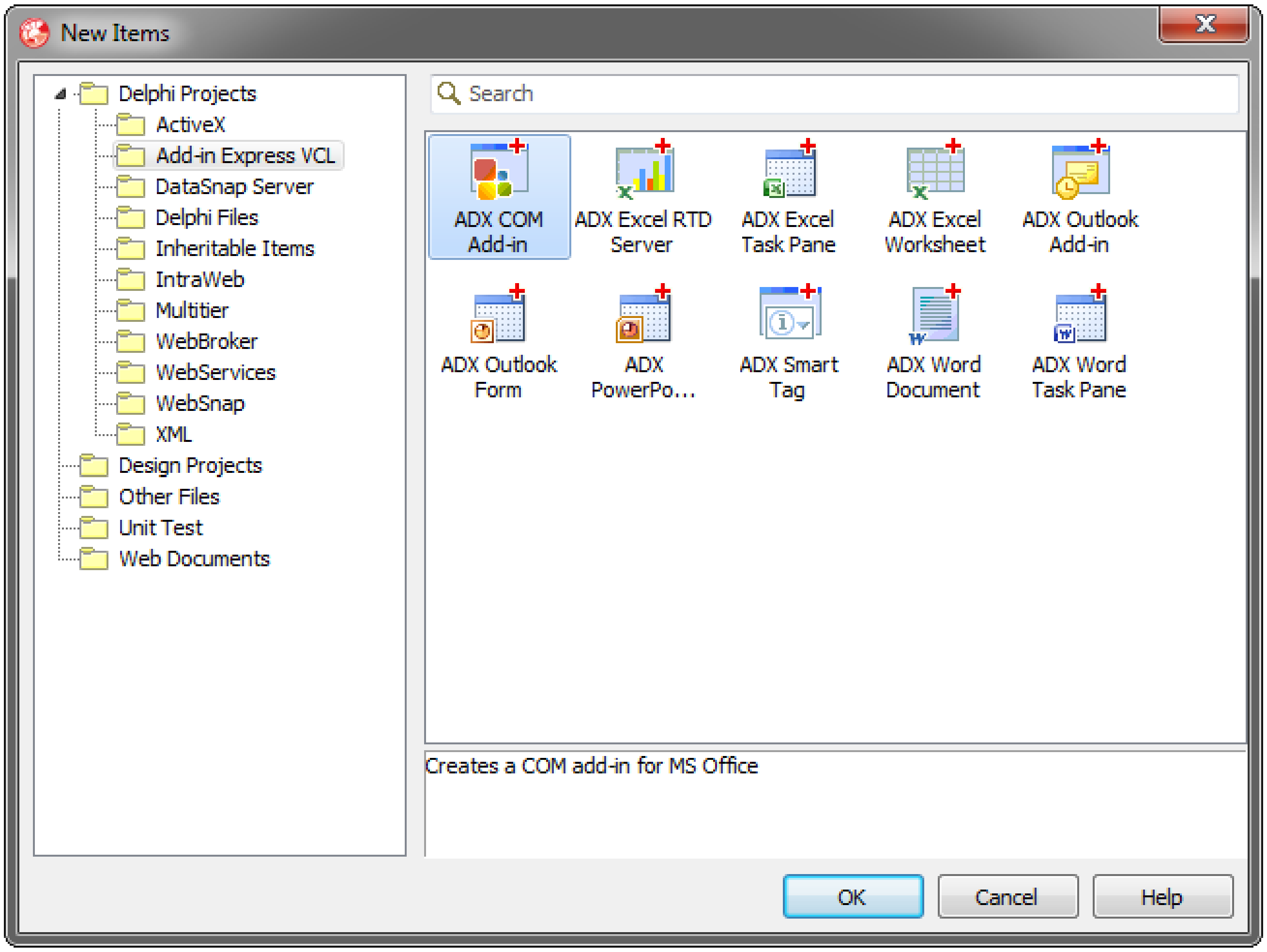
Per-user Excel UDFs

An Excel UDF is a per-user thing that requires registering in HKCU. In other words, a UDF cannot be registered for all users on the machine. Instead, it must be registered for every user separately. See also Registry Entries.

Step #1 - Creating a New COM Add-in Project

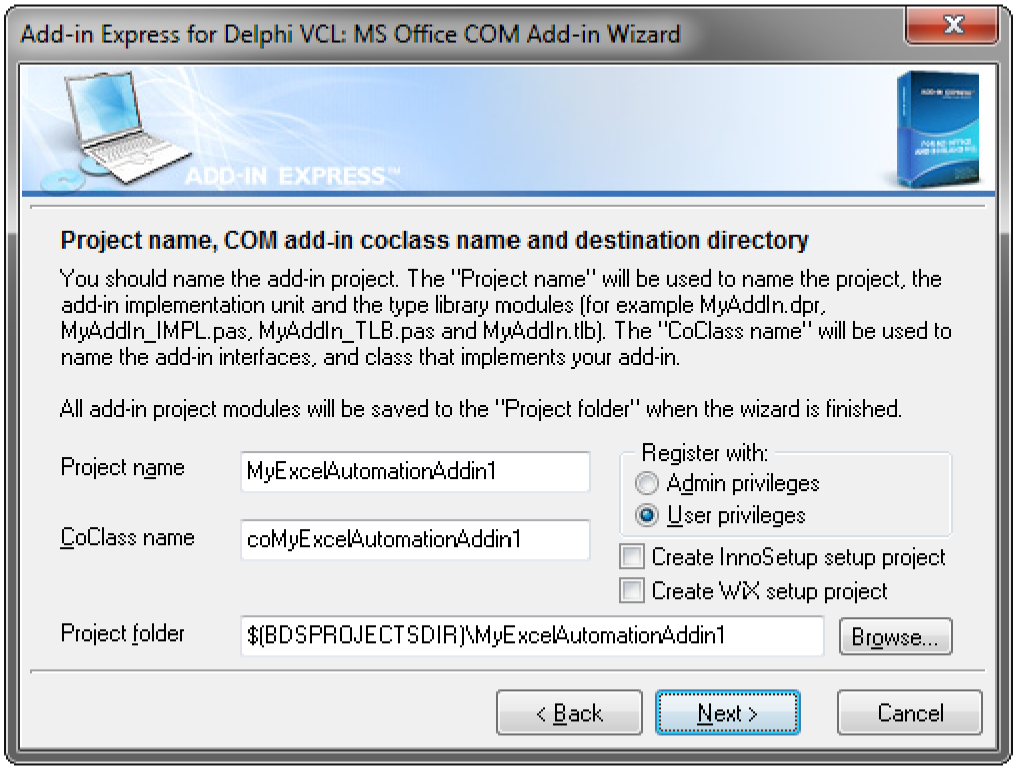
Start Delphi via the *Run as Administrator* command.

Add-in Express adds the COM Add-in project template to the *New Items* dialog:



Creates a COM add-in for MS Office

When you select the template and click *OK*, the COM Add-in wizard starts. You choose the necessary project options in the wizard windows.


Add-in Express for Delphi VCL: MS Office COM Add-in Wizard

Project name, COM add-in coclass name and destination directory

You should name the add-in project. The "Project name" will be used to name the project, the add-in implementation unit and the type library modules (for example MyAddIn.dpr, MyAddIn_IMPL.pas, MyAddIn_TLB.pas and MyAddIn.tlb). The "CoClass name" will be used to name the add-in interfaces, and class that implements your add-in.

All add-in project modules will be saved to the "Project folder" when the wizard is finished.

Project name: MyExcelAutomationAddin1

CoClass name: coMyExcelAutomationAddin1

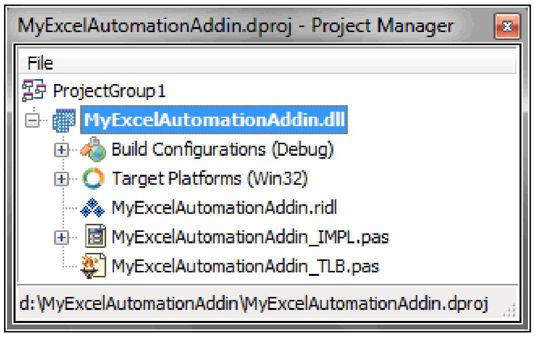
Register with: ( ) Admin privileges [✓ User privileges]

☐ Create InnoSetup setup project

☐ Create WiX setup project

Project folder: $(BDSPROJECTSDIR)\MyExcelAutomationAddin1

The project wizard creates and opens the COM Add-in project in the IDE.


MyExcelAutomationAddin.dproj - Project Manager

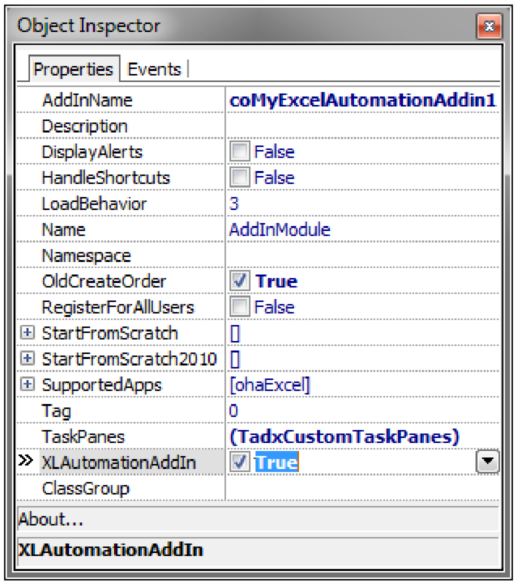
```
File
ProjectGroup1
  MyExcelAutomationAddin.dll
    Build Configurations (Debug)
    Target Platforms (Win32)
    MyExcelAutomationAddin.ridl
    MyExcelAutomationAddin_IMPL.pas
    MyExcelAutomationAddin_TLB.pas
d:\MyExcelAutomationAddin\MyExcelAutomationAddin.dproj
```

The add-in project includes the following items:

- The project source files (*MyExcelAutomationAdd-in1.**).
- The type library files (*MyExcelAutomationAddin1.ridl* and *MyExcelAutomationAddin1_TLB.pas*).
- The add-in module (*MyExcelAutomationAddin1_IMPL.pas* and *MyExcelAutomationAddin1_IMPL.dfm*) discussed in [Your First Microsoft Office COM Add-in](#).

Step #2 - Creating an Excel Automation Add-in

Before you start adding Excel user-defined functions to the COM Add-in, you set the `XLAutomationAddin` property of the add-in module to `true`.


Object Inspector

Properties | Events

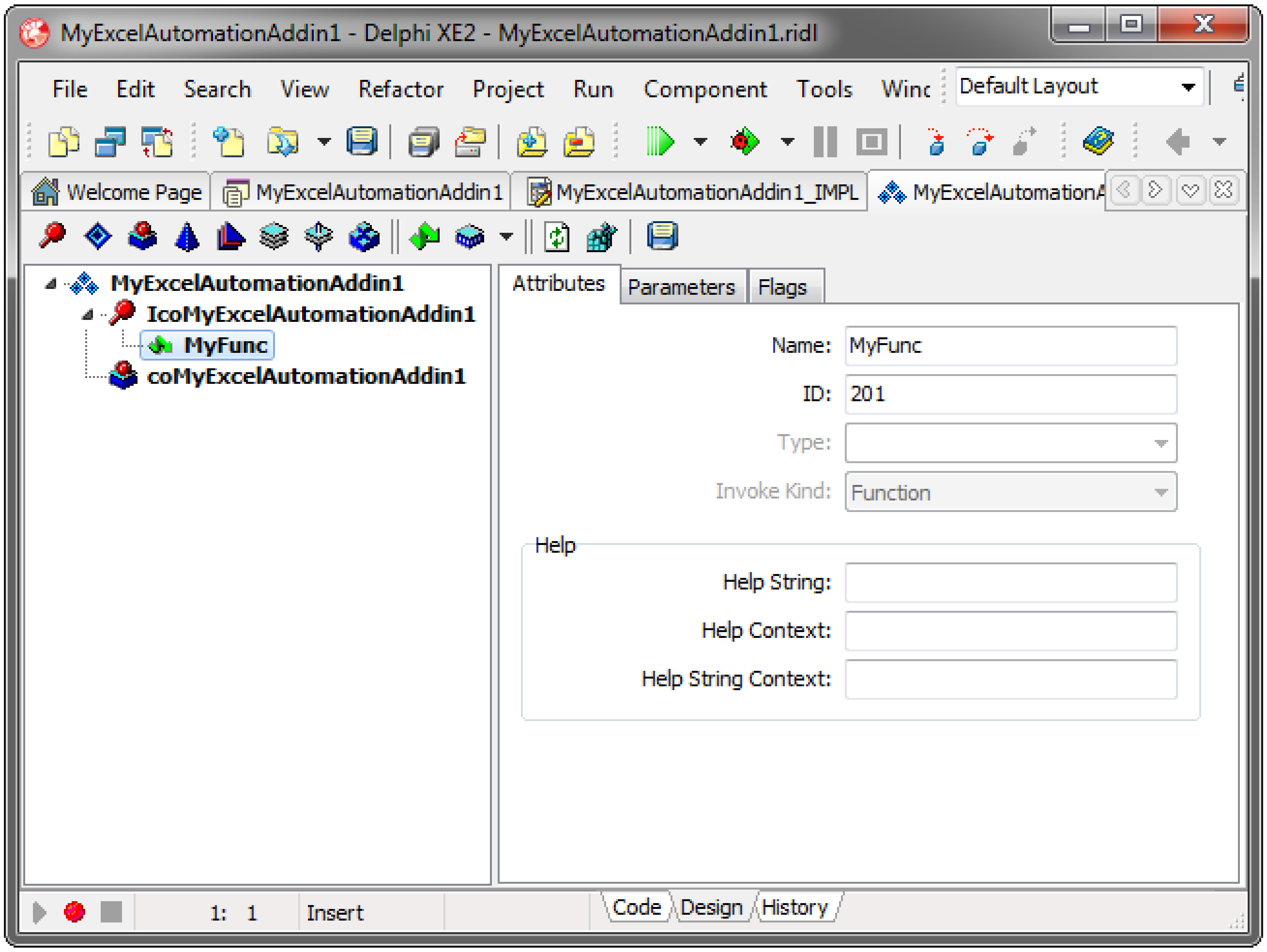
AddInName	coMyExcelAutomationAddin1
Description	
DisplayAlerts	False
HandleShortcuts	False
LoadBehavior	3
Name	AddInModule
Namespace	
OldCreateOrder	✓ True
RegisterForAllUsers	False
StartFromScratch	[]
StartFromScratch2010	[]
SupportedApps	[ohaExcel]
Tag	0
TaskPanes	(TadxCustomTaskPanes)
XLAutomationAddIn	✓ True
ClassGroup	

About...

XLAutomationAddIn

Step #3- Creating User-Defined Functions

Open the project type library (menu *View* | *Type Library*). Add a new method to the type library and define its parameters.


MyExcelAutomationAddin1 - Delphi XE2 - MyExcelAutomationAddin1.ridl

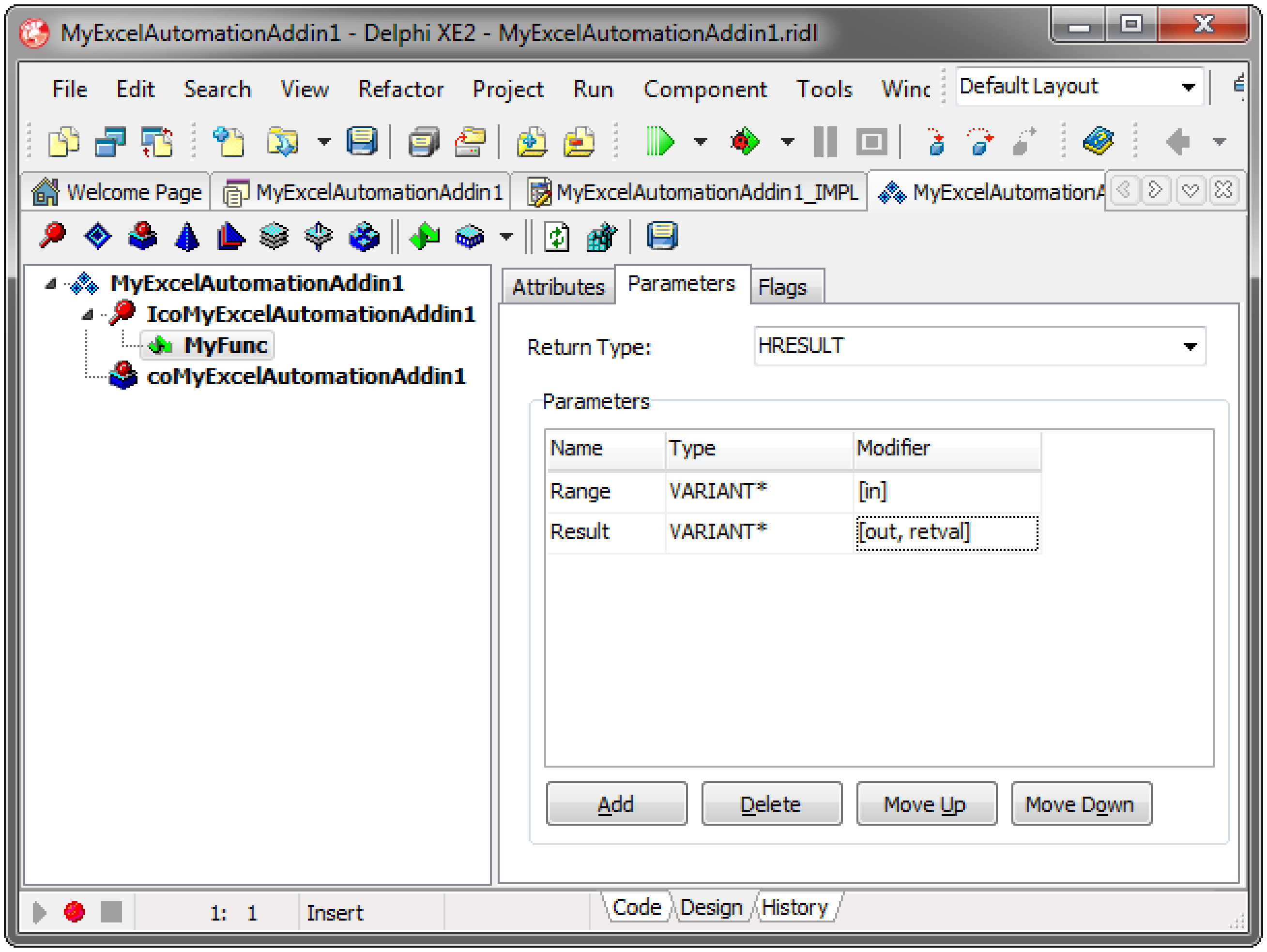
- MyExcelAutomationAddin1
  - IcoMyExcelAutomationAddin1
    - MyFunc
  - coMyExcelAutomationAddin1

Attributes | Parameters | Flags

Name:	MyFunc
ID:	201
Type:	
Invoke Kind:	Function

Help

Help String:	
Help Context:	
Help String Context:	


MyExcelAutomationAddin1 - Delphi XE2 - MyExcelAutomationAddin1.ridl
File Edit Search View Refactor Project Run Component Tools Winc
Default Layout
Welcome Page
MyExcelAutomationAddin1
MyExcelAutomationAddin1_IMPL
MyExcelAutomationA
MyExcelAutomationAddin1
IcoMyExcelAutomationAddin1
MyFunc
coMyExcelAutomationAddin1
Attributes
Parameters
Flags
Add
Delete
Move Up
Move Down
1: 1
Insert
Code
Design
History

Return Type: HRESULT

Parameters

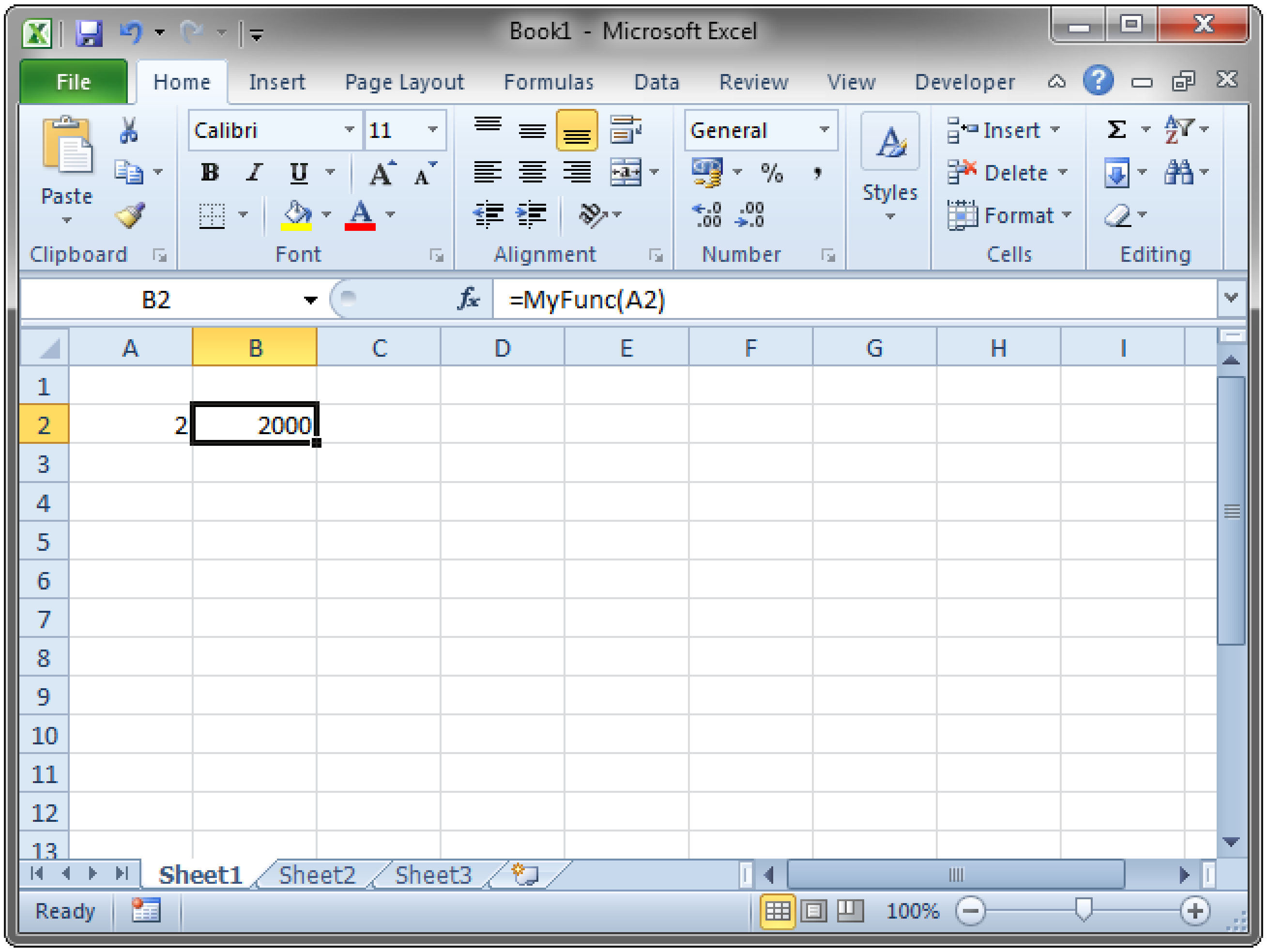
Name	Type	Modifier
Range	VARIANT*	[in]
Result	VARIANT*	[out, retval]

Click the *Refresh* button and write your code to the `TcoMyExcelAutomationAddin1.MyFunc` function:

```
function TcoMyExcelAutomationAddin1.MyFunc(var Range: OleVariant): OleVariant;
begin
  Result := 0;
  case VarType(Range) of
    varSmallint, varInteger, varSingle,
    varDouble, varCurrency, varShortInt, varByte,
    varWord, varLongWord, varInt64: Result := Range * 1000;
  else
    try
      Result := Range.Cells[1, 1].Value * 1000;
    except
      Result := CVErr(xlErrValue);
    end;
  end;
end;
```

Step #4 - Running the Excel Automation Add-in

Choose *Register ActiveX Server* in menu *Run*, restart Excel, and check if your add-in works.

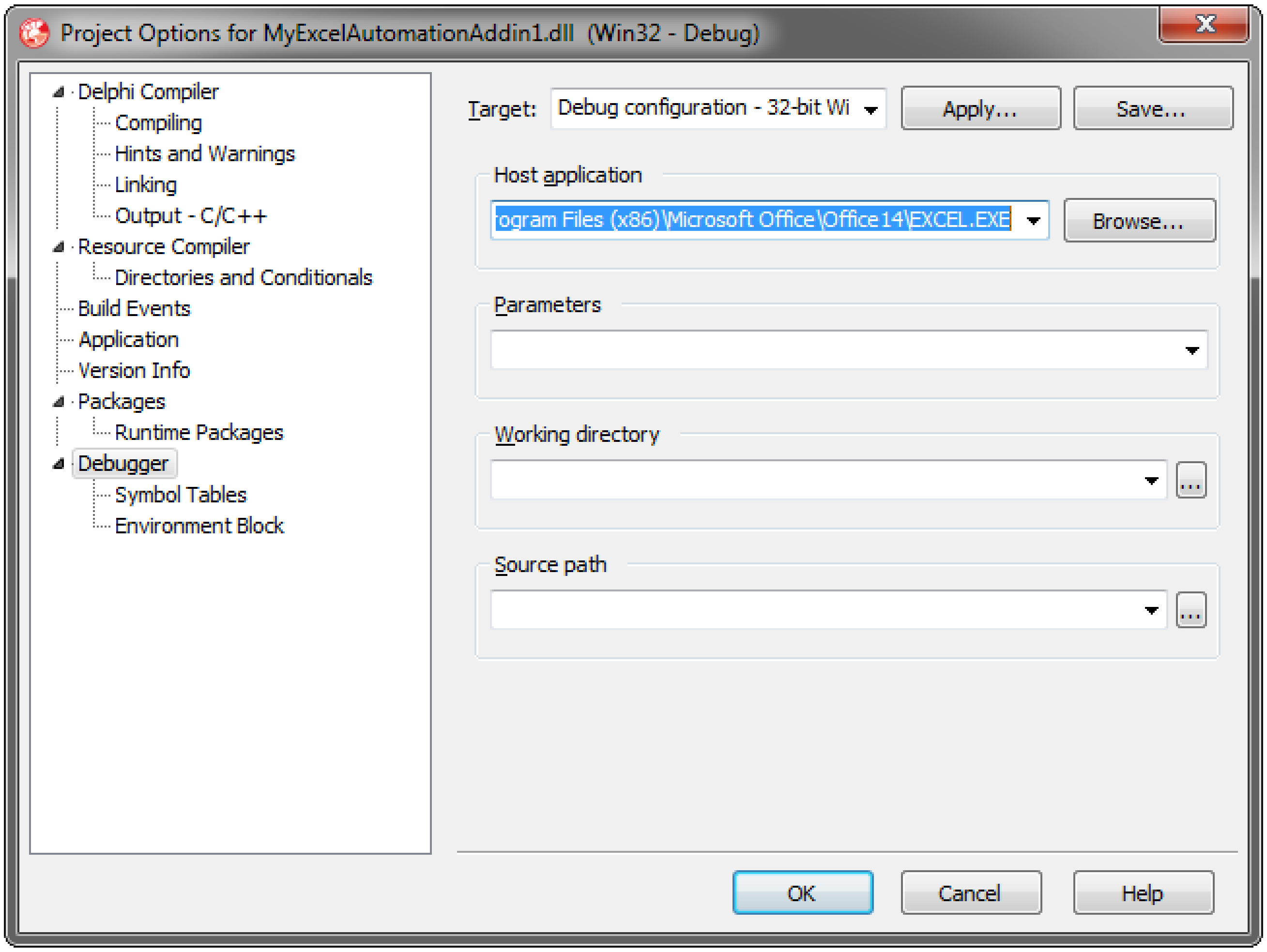


B2 =MyFunc(A2)

	A	B
1		
2	2	2000

Step #5 - Debugging the Excel Automation Add-in

To debug your add-in, just indicate the add-in host application as the *Host Application* in *Project Options*.


Project Options for MyExcelAutomationAddin1.dll (Win32 - Debug)

Target: Debug configuration - 32-bit Wi

Host application: rogram Files (x86)\Microsoft Office\Office14\EXCEL.EXE

To debug your add-in in a 64-bit Excel, register the add-in DLL using regsvr32; run it from an elevated 64-bit Command Prompt. In addition, you must explicitly specify to run the 64-bit Excel in the dialog window shown above.

Step #6 - Deploying the Excel Automation Add-in

Make sure your setup project registers the add-in DLL. Say, in Inno Setup projects you use the *regserver* command. See also:

- Registering with User Privileges
- Additional Files

Add-in Express Components

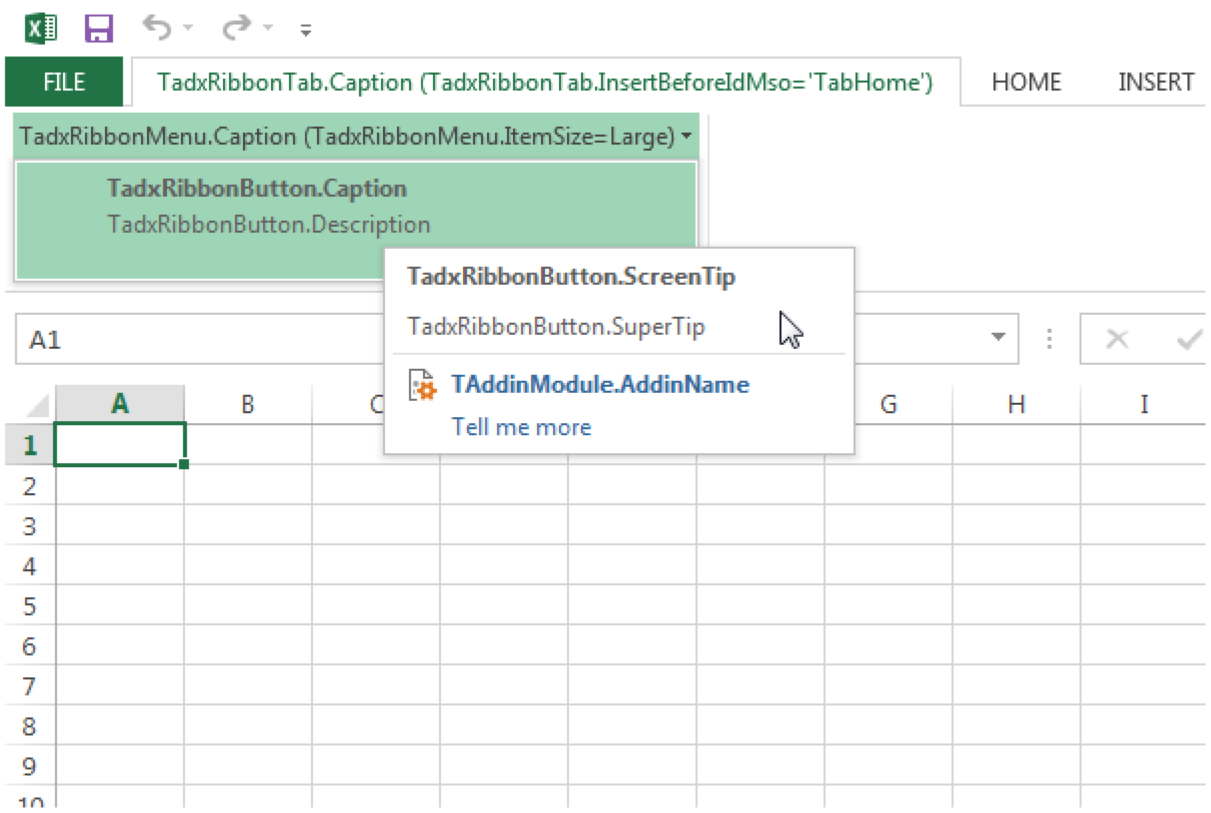
You can find all the Add-in Express components below in the *Add-in Express* category on the Tool Palette:

- `TadxCommandBar` – a command bar (see Command Bars: Toolbars, Menus, and Context Menus).
- `TadxOlExplorerCommandBar` – an Outlook Explorer command bar (see Command Bars: Toolbars, Menus, and Context Menus).
- `TadxOlInspectorCommandBar` – an Outlook Inspector command bar (see Command Bars: Toolbars, Menus, and Context Menus).
- `TadxMainMenu` – a main menu in any Office application (see Command Bars: Toolbars, Menus, and Context Menus).
- `TadxOlExplorerMainMenu` – a main menu in Outlook Explorer (see Command Bars: Toolbars, Menus, and Context Menus).
- `TadxOlInspectorMainMenu` – a main menu in Outlook Inspector (see Command Bars: Toolbars, Menus, and Context Menus).
- `TadxContextMenu` – a context menu in any Office application (see Command Bars: Toolbars, Menus, and Context Menus).
- `TadxBuiltInControl` – allows intercepting the action of a built-in control of the host application(s) (see Built-in Control Connector).
- `TadxOlBarShortcutManager` – allows adding Outlook Bar shortcuts and shortcut groups (see Outlook Bar Shortcut Manager).
- `TadxKeyboardShortcut` – allows intercepting application-level keyboard shortcuts (see Keyboard Shortcut).
- `TadxRTDTopic` – represents a topic supported by your RTD server (see RTD Topic).
- `TadxSmartTag` – represents a Smart Tag.
- `Tadx<application name>AppEvents` – allows connecting to application-level events in the corresponding Office applications (see Host Application Events).
- `TadxRibbonTab` – a Ribbon tab (see Office Ribbon Components).
- `TadxRibbonQAT` – the Ribbon Quick Access Toolbar (see Office Ribbon Components).
- `TadxRibbonOfficeMenu` – the Ribbon Office Menu (see Office Ribbon Components).
- `TadxRibbonCommand` – allows intercepting built-in Ribbon commands (see Office Ribbon Components).

- `TadxOLSolutionModule` – allows adding a solution module to the Outlook 2010+ UI (see Programming the Outlook 2010 Solutions Module).
- `TadxRibbonContextMenu` – allows customizing context menus available in the Ribbon UI of Office 2010+ (see Context Menu).
- `TadxBackstageView` – allows customizing the File Tab in the Ribbon UI of Office 2010+.
- `TadxOlFormsManager` – allows embedding custom VCL forms into Outlook windows (see Advanced Outlook Regions and Advanced Office Task Panes).
- `TadxExcelTaskPanesManager` – allows embedding custom VCL forms into the main Excel window (see Advanced Outlook Regions and Advanced Office Task Panes).
- `TadxWordTaskPanesManager` – allows embedding custom VCL forms into the Word windows (see Advanced Outlook Regions and Advanced Office Task Panes).
- `TadxPowerPointTaskPanesManager` – allows embedding custom VCL forms into the main PowerPoint window (see Advanced Outlook Regions and Advanced Office Task Panes).

Office Ribbon Components

Starting from version 2007 Office provides the Ribbon user interface. Microsoft states that the interface makes it easier and quicker for users to achieve the desired results. The developers extend this interface by using the XML markup that the COM add-in should return to the host through the appropriate interface.


FILE
TadxRibbonTab.Caption (TadxRibbonTab.InsertBeforeIdMso='TabHome')
HOME
INSERT
TadxRibbonMenu.Caption (TadxRibbonMenu.ItemSize=Large)
TadxRibbonButton.Caption
TadxRibbonButton.Description
TadxRibbonButton.ScreenTip
TadxRibbonButton.SuperTip
TAddinModule.AddinName
Tell me more
A1
A
B
C
G
H
I
1
2
3
4
5
6
7
8
9

Add-in Express provides some 50 Ribbon-related components to give you the full power of the Ribbon UI customization features. You start with *TadxRibbonTab*, *TadxBackstageView* in Office 2010+ or *TadxRibbonOfficeMenu* in Office 2007 and *TadxRibbonQAT* (Quick Access Toolbar) that undertake the task of creating the markup. You add controls to a tab or menu using a convenient tree-view-like editor that allows you to see all the items of a tab or menu at a glance. To access the controls in your code you use the *FindRibbonControl* function of the add-in module. Please note, Microsoft requires developers to use the *StartFromScratch* parameter (see the *StartFromScratch* property of the add-in module) when customizing the Quick Access Toolbar.

In Office 2010, Microsoft abandoned the *Office Button* (introduced in Office 2007) in favor of the *File Tab* (also known as Backstage View). When the add-in is being loaded in Office 2010+, *TadxRibbonOfficeMenu* maps your controls to the *File* tab **unless** you have a *TadxBackStageView* component in your add-in; in this case, all controls you add to *TadxRibbonOfficeMenu* are ignored.

To use command bars in add-ins targeting Ribbon-enabled Office versions, you must explicitly set the *UseForRibbon* property of the appropriate command bar components to *True*. In this case, your toolbars are added to the built-in ribbon tab called Add-ins.

You use the *Ribbon Command* (*TadxRibbonCommand*) component to override the default action of a built-in Ribbon control. Note that Microsoft allows intercepting only buttons, toggle buttons and check boxes; see the *ActionTarget* property of the component. You specify the built-in Ribbon control to be intercepted in the *IdMso* property of the component; see Referring to Built-in Ribbon Controls.

Ribbon UI features introduced in Office 2010 are covered by the *TadxBackStageView* and *TadxRibbonContextMenu* components discussed in Main Menu and Context Menu.

How Ribbon Controls Are Created

When your add-in is being loaded by the host application supporting the Ribbon UI, the very first event received by the add-in is the *OnRibbonBeforeCreate* event of the add-in module (in a pre-Ribbon Office application, the very first event is *OnAddinInitialize*). This is the only event in which you can add/remove/modify the Ribbon components onto/from/on the add-in module.

Then Add-in Express generates the XML markup reflecting the settings of the Ribbon components and raises the *OnRibbonBeforeLoad* event. In that event, you can modify the generated markup, say, by adding XML tags generating extra Ribbon controls.

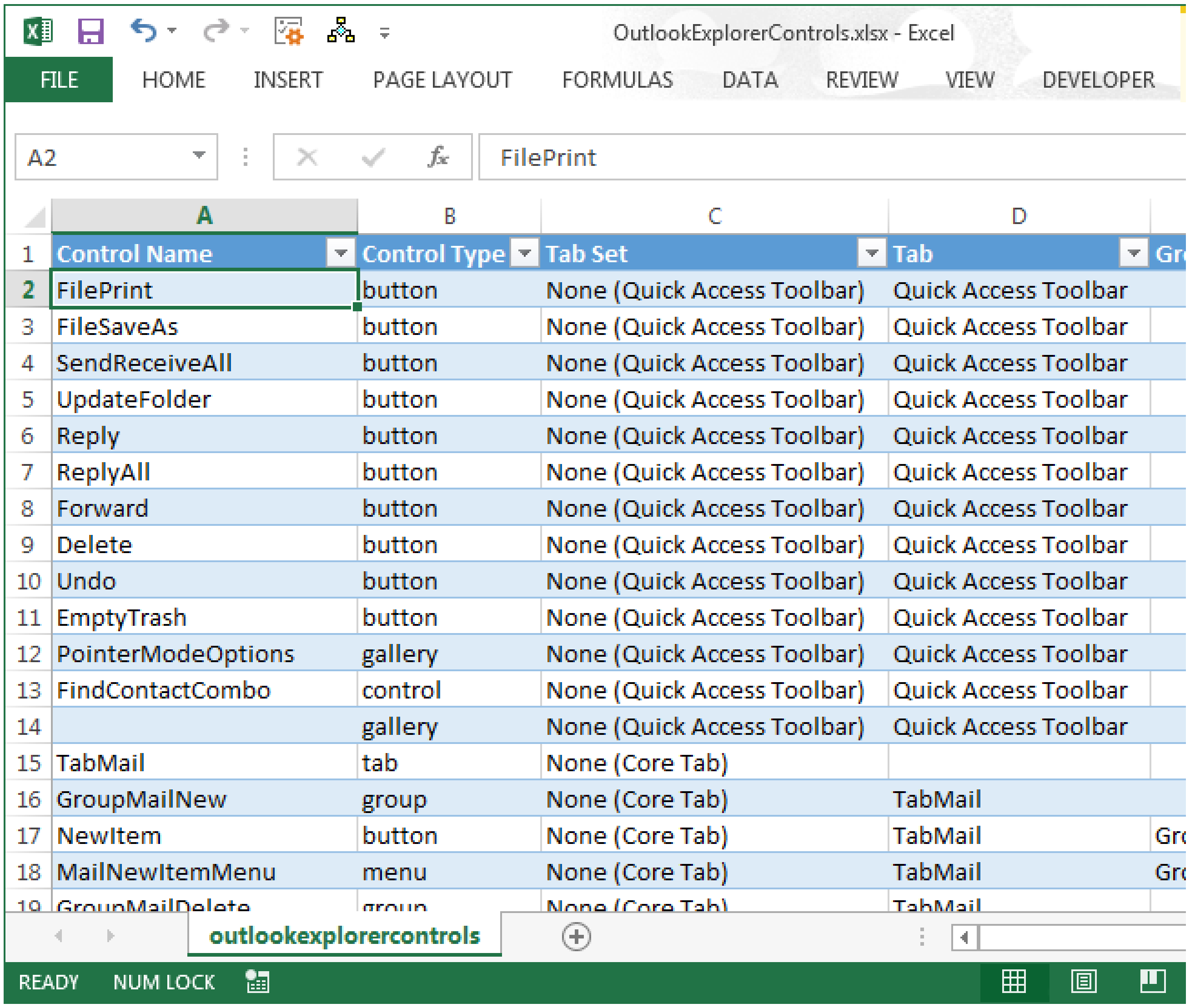
Finally, the markup is passed to Office and the add-in module fires the *OnRibbonLoaded* event. In the event parameters, you get an object of the *IRibbonUI* type that allows invalidating a Ribbon control; you call the corresponding methods when you need the Ribbon to re-draw the control. Also, in Office 2010+, *IRibbonUI* allows activating a Ribbon tab.

The Ribbon designers perform the XML-schema validation automatically, so from time to time you may run into the situation when you cannot add a control to some level due to a restriction of the Ribbon XML-schema.

Still, we recommend turning on the Ribbon XML validation mechanism through the UI of the host application of your add-in; you need to look for a checkbox named *"Show add-in user interface errors"*, see here.

Referring to Built-in Ribbon Controls

All built-in Ribbon controls are identified by their IDs. While the ID of a command bar control is an integer, the ID of a built-in Ribbon control is a string. IDs of built-in Ribbon controls can be downloaded from GitHub, see here. The IDs are in Excel files: the *Control Name* column of each contains the IDs of **almost** all built-in Ribbon controls for the corresponding Ribbon; see the screenshot below.


OutlookExplorerControls.xlsx - Excel
FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER
A2
FilePrint
outlookexplorercontrols
READY NUM LOCK

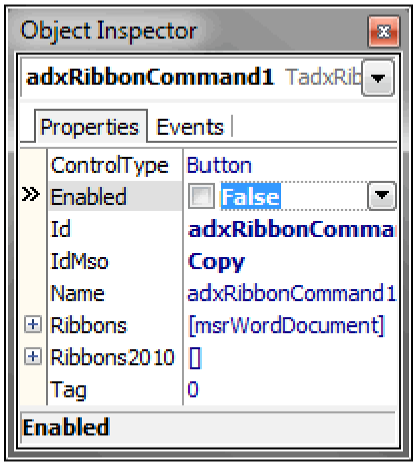
	Control Name	Control Type	Tab Set	Tab
2	FilePrint	button	None (Quick Access Toolbar)	Quick Access Toolbar
3	FileSaveAs	button	None (Quick Access Toolbar)	Quick Access Toolbar
4	SendReceiveAll	button	None (Quick Access Toolbar)	Quick Access Toolbar
5	UpdateFolder	button	None (Quick Access Toolbar)	Quick Access Toolbar
6	Reply	button	None (Quick Access Toolbar)	Quick Access Toolbar
7	ReplyAll	button	None (Quick Access Toolbar)	Quick Access Toolbar
8	Forward	button	None (Quick Access Toolbar)	Quick Access Toolbar
9	Delete	button	None (Quick Access Toolbar)	Quick Access Toolbar
10	Undo	button	None (Quick Access Toolbar)	Quick Access Toolbar
11	EmptyTrash	button	None (Quick Access Toolbar)	Quick Access Toolbar
12	PointerModeOptions	gallery	None (Quick Access Toolbar)	Quick Access Toolbar
13	FindContactCombo	control	None (Quick Access Toolbar)	Quick Access Toolbar
14		gallery	None (Quick Access Toolbar)	Quick Access Toolbar
15	TabMail	tab	None (Core Tab)	
16	GroupMailNew	group	None (Core Tab)	TabMail
17	NewItem	button	None (Core Tab)	TabMail
18	MailNewItemMenu	menu	None (Core Tab)	TabMail
19	GroupMailDelete	group	None (Core Tab)	TabMail

Add-in Express Ribbon components provide the `IdMso` property; if you leave it empty the component will create a custom Ribbon control. To refer to a built-in Ribbon control, you set the `IdMso` property of the component to the ID of the built-in Ribbon control. For instance, you can add a custom Ribbon group to a built-in tab. To do this, you add a Ribbon tab component onto the add-in module and set its `IdMso` to the ID of the required built-in Ribbon tab. Then you add your custom group to the tab and populate it with controls. Note that the Ribbon does not allow adding a custom control to a built-in Ribbon group.

Intercepting Built-in Ribbon Controls

You use the *Ribbon Command* (`TadxRibbonCommand`) component to override the default action of a built-in Ribbon control. Note that the Ribbon allows intercepting only buttons, toggle buttons and check boxes; see the `ActionTarget` property of the component. You specify the ID of a built-in Ribbon control to be intercepted in the `IdMso` property of the component. To get such an ID, see Referring to Built-in Ribbon Controls.

Another use of the component is demonstrated by the screenshot below; this is how you disable the *Copy* command in Word 2007+:



ControlType	Button
Enabled	False
Id	adxRibbonComma
IdMso	Copy
Name	adxRibbonCommand1
Ribbons	[msrWordDocument]
Ribbons2010	[]
Tag	0

Enabled

Positioning Ribbon Controls

Every Ribbon component provides the `InsertBeforeId`, `InsertBeforeIdMso` and `InsertAfterId`, `InsertAfterIdMso` properties. You use the `InsertBeforeId` and `InsertAfterId` properties to position the control among other controls created by your add-in, just specify the `Id` of the corresponding Ribbon components in any of these properties. The `InsertBeforeIdMso` and `InsertAfterIdMso` properties allow positioning the control among built-in Ribbon controls (see also Referring to Built-in Ribbon Controls).

Creating Ribbon Controls at Run-time

You cannot create Ribbon controls at run-time because Ribbon is a static thing from birth; but see How Ribbon Controls Are Created The only control providing any dynamism is *Dynamic Menu*; if the `TadxRibbonMenu.Dynamic` property is set to `True` at design time, the component will generate the `OnCreate` event allowing creating menu items at run-time. For other control types, you can only imitate that dynamism by setting the `Visible` property of a Ribbon control.

Updating Ribbon Controls at Run-Time

Add-in Express Ribbon components implement two schemas of refreshing Ribbon controls.

The simple schema allows you to change a property of the Ribbon component and the component will supply it to the Ribbon whenever hat property is requested. This mechanism is an ideal when you need to display static or almost static things such as a button caption that doesn't change or changes across all windows showing the button, say in Outlook inspectors or Word documents. This works because Add-in Express supplies the same property value whenever the Ribbon invokes a corresponding callback function.

You use the advanced schema when you need to show different captions of a Ribbon button in different Inspector windows or Word document. To achieve this, you need to intercept the *PropertyChanging* event, which all Ribbon components provide. That event occurs when the Ribbon expects that you can supply a new value for a property of the Ribbon control. The event allows you to learn the current context, see Determining a Ribbon Control's Context. It also allows you to get the property being changed and its current value. Finally, you can change that value as required.

Determining a Ribbon Control's Context

The developer retrieves an *IDispatch* that represents the context is in these ways:

- In action events such as *Click* and *Change*, you use the *IRibbonControl* parameter to retrieve *IRibbonControl.Context*.
- In the *PropertyChanging* event (see Updating Ribbon Controls at Run-Time), the context is supplied in the *Context* parameter.

For a Ribbon control shown on a Ribbon tab, the context represents the window in which the Ribbon control is shown: *Excel.Window*, *Word.Window*, *PowerPoint.DocumentWindow*, *Outlook.Inspector*, *Outlook.Explorer*, etc. For a Ribbon control shown in a Ribbon context menu the context object may not be a window e. g. *Outlook.Selection*, *Outlook.AttachmentSelection*, etc. When debugging the add-in we recommend that you find the actual type name behind the context object by using *IDispatch.GetTypeInfo()* and then *ITypeInfo.GetDocumentation()*.

Sharing Ribbon Controls across Multiple Add-ins

First off, you assign the same string value to the *TAddinModule.Namespace* property of every add-in that will share your Ribbon controls. Add-in Express reacts to this by adding two *xmlns* attributes to the *customUI* tag in the resulting xml markup:

- *xmlns:default="%ProgId, say TAddinModule.COMAddInClassFactory.ProgID%",*
- *xmlns:shared="%the value of the TAddinModule.Namespace property%".*

Originally, all Ribbon controls are located in the default namespace (*id="%Ribbon control's id%"* or *idQ="default:%Ribbon control's id%"*) and you have a full control over them via the callbacks provided by Add-in Express. When you specify the *Namespace* property, Add-in Express changes the markup to use *idQ's* instead of *id's*.

Then, in all add-ins that should share a Ribbon control, you set the *Shared* property to *True* for the control with the same Id (you can change the Id's to match), For the Ribbon control whose *Shared* property is *True*, Add-in Express changes its *idQ* to use the shared namespace (*idQ="shared:%Ribbon control's id%"*) instead of the default one. Also, for such Ribbon controls, Add-in Express cuts out all callbacks and replaces them with "static" versions of the attributes. Say, *getVisible="GetVisible_CallBack"* will be replaced with *visible="%value%"*.

The shareable Ribbon controls are the following Ribbon container controls:

- Ribbon Tab - *TadxRibbonTab*
- Ribbon Box - *TadxRibbonBox*
- Ribbon Group - *TadxRibbonGroup*
- Ribbon Button Group - *TadxRibbonButtonGroup*

When referring to a shared Ribbon control in the *BeforeId* and *AfterId* properties of another Ribbon control, you use the shared controls' *idQ*: *%namespace abbreviation% + ':' + %control id%*. The abbreviations of these namespaces are available in the *adxDefaultNS* and *adxSharedNS* constants (`'default'` and `'shared'` string values). The resulting XML markup may look like this:

```
<customUI xmlns="http://schemas.microsoft.com/office/2006/01/customui"
          xmlns:default="MyOutlookAddin1.coMyOutlookAddin1"
          xmlns:shared="MyNameSpace" [callbacks omitted]>
 <ribbon>
  <tabs>
   <tab idQ=" shared:adxRibbonTab1" visible="true" label="My Tab">
    <group idQ="default:adxRibbonGroup1" [callbacks omitted]>
     <button idQ="default:adxRibbonButton1" [callbacks omitted]/>
    </group>
   </tab>
  </tabs>
 </ribbon>
</customUI>
```

In the XML-code above, the add-in creates a shared tab with a private group containing a button.

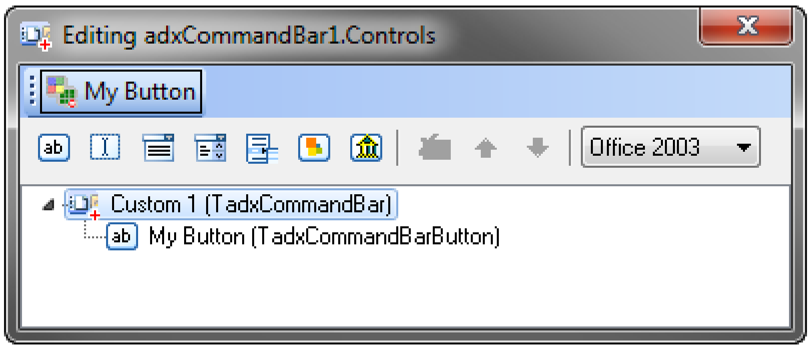
Custom Task Panes in Office 2007+

To allow further customization of its applications, Office 2007 provides custom task panes. Add-in Express supports Office 2007 custom task panes by providing the appropriate window in the project wizard and equipping the add-in module with the `TaskPanes` property. Use the Add-in Express COM Add-in project wizard to add a task pane(s) to your project. Add your reaction to the `OnTaskPaneXXX` event series of the add-in module and the `OnDockPositionStateChange` and `OnVisibleStateChange` events of the task pane. See also Adding an Office Custom Task Pane to an Existing Add-in Express Project.

Add-in Express provides a technology to show custom panes in Outlook, Excel, Word and PowerPoint of all Office versions, from 2000 to 2021/365. See Advanced Outlook Regions and Advanced Office Task Panes for details.

Command Bars: Toolbars, Menus, and Context Menus

Microsoft Office 2000-2003 supplied us with a common term for Office toolbars, menus, and context menus. This term is "command bar". Add-in Express provides toolbar, menu, and context menu components that allow tuning up targeted command bars at design time. Every such component provides a visual designer available in the `Controls` property of the component.



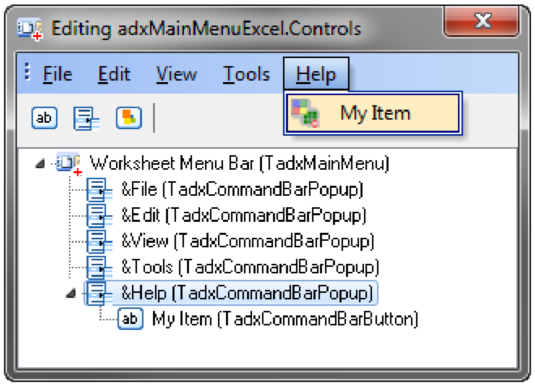
Custom 1 (TadxCommandBar)
My Button (TadxCommandBarButton)

For instance, the screenshot above shows a visual designer for the toolbar component that creates a custom toolbar with a button. Note that this screenshot was taken when creating a sample project described in Your First Microsoft Office COM Add-in.

To create toolbars, menus, and context menus in Outlook, you need to use Outlook-specific versions of command bar components.

Toolbar

To add a toolbar to your add-in, find `TadxCommandBar` (`TadxOlExplorerCommandBar`, `TadxOlInspectorCommandBar`) in the *Tool Palette* and drop it onto the add-in module. Its most important property is `CommandBarName`. If its value is not equal to the name of any built-in command bar of the host


Editing adxMainMenuExcel.Controls
File Edit View Tools Help
My Item
Worksheet Menu Bar (TadxMainMenu)
&File (TadxCommandBarPopup)
&Edit (TadxCommandBarPopup)
&View (TadxCommandBarPopup)
&Tools (TadxCommandBarPopup)
&Help (TadxCommandBarPopup)
My Item (TadxCommandBarButton)

application, then you are creating a new command bar. If its value is equal to any built-in command bar of the host application, then you are connecting to a built-in command bar. To find out the built-in command bar names, use our free Built-in Controls Scanner utility.

To position your toolbar, use the `Position` property that allows docking your toolbar to the top, right, bottom, or left edges of the host application window. You can also leave your toolbar floating. For a fine positioning you can use the `CommandBarLeft`, `CommandBarTop`, and `RowIndex` properties. To show a toolbar in the Ribbon UI, set the `UseForRibbon` property of the corresponding command bar component to `true`.

To speed up add-in loading when connecting to an existing command bar, set the `Temporary` property to `False`. To make the host application remove the command bar when the host application quits, set the `Temporary` property to `true`. See also Temporary or not?

Main Menu

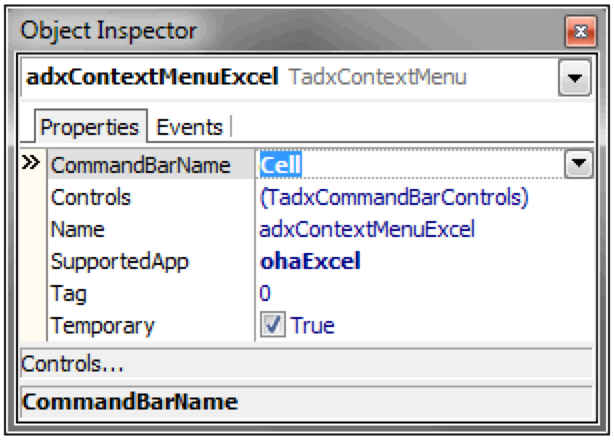
By using the *Add Main Menu* command of the add-in module, you add a `TadxMainMenu`, which is intended for customizing main menu in an Office application that you specify in the `SupportedApp` property.

Like the toolbar component, it provides a visual designer for the `Controls` property. To add a custom top-level menu item, just add a popup control to the command bar. Then you can populate it with other controls. Note, however, that for all menu components, the controls can be buttons and pop-ups only. To add a custom button to a built-in top-level menu item, you specify the ID of the top-level menu item in the `OfficeId` property of the button control. For instance, the ID of the *File* menu item in all Office applications is `30002`. See more details about IDs of command bar controls in Using Built-in Command Bar Controls and Step #7 - Customizing Main Menus in Your First Microsoft Office COM Add-in. See also Command Bar Controls, Built-in Control Connector.

In main applications of Office 2007, they replaced the command system with the Ribbon UI. So, instead of adding custom items to the main menu, you need to add them to a custom or built-in Ribbon tab. Also, you can add custom items to the menu of the *Office Button*. In Office 2010+, they added the Ribbon UI to all Office applications and abandoned the Office button in favor of the *File Tab*, also known as Backstage View. Add-in Express provides components allowing customizing both the *File* Tab and the *Ribbon Office* menu, see Step #7 - Customizing Main Menus in Your First Microsoft Office COM Add-in. Note, if you customize the *Office Button* menu only, Add-in Express maps your controls to the Backstage View. If, however, both *Office Button* menu and *File* tab are customized at the same time, Add-in Express ignores custom controls you add to the Office Button menu.

Context Menu

The *TadxContextMenu* component allows you to add a custom command bar control to any context menu available in all Office applications **except for Outlook 2000 and Outlook 2013+**. The component allows connecting to a single context menu of a single host application. Like for the Main Menu component, you must specify the *SupportedApp* property. To connect the Context Menu component to a context menu, simply choose the name of the context menu in the *CommandBarName* combo.


Object Inspector

adxContextMenuExcel TadxContextMenu

Properties	Events
CommandBarName	Cell
Controls	(TadxCommandBarControls)
Name	adxContextMenuExcel
SupportedApp	ohaExcel
Tag	0
Temporary	✓ True

Controls...

CommandBarName

Note that context menu names for this combo were taken from Office 2007, the last Office version that introduced new commandbar-based context menus. Therefore, it is possible that the targeted context menu is not available in a pre-2007 Office version.

In Office 2010 and higher, you can customize both commandbar-based and Ribbon-based context menus. Note that in Outlook 2013+ you are only allowed to customize Ribbon-based context menus.

See also Step #8 – Customizing Context Menus in Your First Microsoft Office COM Add-in and Step #10 – Customizing Context Menus in Outlook in Your First Microsoft Outlook COM Add-in.

Outlook Toolbars and Main Menus

While the look-and-feel of all Office toolbars is the same, Outlook toolbars differ from toolbars of other Office applications because Outlook has toolbars in Outlook Explorer and Outlook Inspector windows that work in quite different ways. Accordingly, Add-in Express includes Outlook-specific command bar components that work correctly in multiple Explorer and Inspector windows scenarios: *TadxOlExplorerCommandBar* and *TadxOlInspectorCommandBar*. In the same way, Add-in Express provides Outlook-specific versions of the Main Menu component: *TadxOlExplorerMainMenu* and *TadxOlInspectorMainMenu*.

All of the components above provide the *FolderName*, *FolderNames*, and *ItemTypes* properties that add context-sensitive features to the command bar. For instance, you can choose your toolbar to show up for e-mails only. To achieve this just specify a correct value in the *ItemTypes* property editor.

Connecting to Existing Command Bars

In Office, all command bars are identified by their names. Keeping it in mind, you can add a custom or built-in control to any existing command bar. The only thing you need to know is the command bar name. Use our free Built-in Controls Scanner to get the names of all command bars and controls existing in any Office application. Then you can specify any of the command bar names in the `CommandBarName` property of the appropriate command bar component.

Command Bar Controls

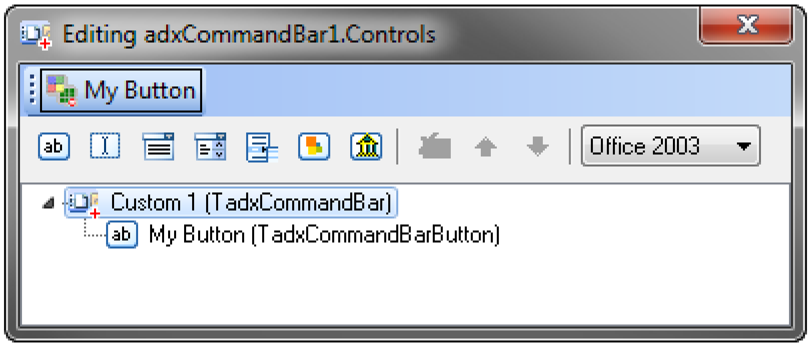
The Office Object Model (OOM) includes the following command bar controls: `CommandBarButton`, `CommandBarComboBox`, and `CommandBarPopup`. Using the correct property settings of the `CommandBarComboBox` component, you can extend the list with edits and dropdowns.

What follows below is a list of controls available for Add-in Express command bars:

- `TadxCommandBarButton`
- `TadxCommandBarComboBox`
- `TadxCommandBarEdit`
- `TadxCommandBarPopup`
- `TadxCommandBarDropDownList`
- `TadxCommandBarControl` (you use this item to add built-in controls to your command bars)
- `TadxCommandBarAdvancedControl` (reserved for future use).

Please note that due to the nature of command bars (remember, a 'command bar' stands for toolbar, menu, and context menu), [context] menu items can be buttons, combo boxes, and pop-ups only.

Command bar components provide the `Controls` property. Clicking it in the Object Inspector window in Delphi invokes the appropriate visual designer. On the picture below, you can see the visual designer to populate a toolbar with custom controls.


Editing adxCommandBar1.Controls
My Button
Office 2003
Custom 1 (TadxCommandBar)
My Button (TadxCommandBarButton)

Using the designer, you can populate your command bars with controls and set up their properties at the design time. At run-time, you use the `Controls` collection of your command bar. Every control (built-in and custom) added to this collection will be added to the corresponding toolbar at your add-in startup.

Command Bar Control Properties and Events

The main property of any command bar control (they descend from `TadxCommandBarControl`) is the `OfficeId` property. To add a built-in control to your toolbar, specify its ID in the `OfficeId` property of a corresponding command bar control component. To find out the ID of every built-in control in any Office application, use our free Built-in Controls Scanner utility. To add a custom control onto the toolbar, leave `OfficeId` unchanged.

To add a separator before any given control, set its `BeginGroup` property to `true`.

Set up the control's appearance using a large number of its properties, such as `Enabled` and `Visible`, `Style` and `State`, `Caption` and `ToolTipText`, `DropDownLines` and `DropDownWidth`, etc. You also control the size (`Height`, `Width`) and location (`Before`, `AfterId`, and `BeforeId`) properties. To provide your command bar buttons with a default list of icons, drop an `ImageList` component onto the add-in module and specify the `ImageList` in the `Images` property of the module. Do not forget to set the button's `Style` property to either `adxMsoButtonIconAndCaption` or `adxMsoButtonIcon`.

Use the `OlExplorerItemTypes`, `OlInspectorItemTypes`, and `OlItemTypesAction` properties to add context-sensitivity to controls on Outlook-specific command bars. The `OlItemTypesAction` property defines an action that Add-in Express will perform with the control when the current item's type coincides with that specified by you.

To handle user actions, use the `Click` event for buttons and the `Change` event for edit, combo box, and drop down list controls. Also use the `DisableStandardAction` property available for built-in buttons added to your command bar. To intercept events of any built-in control, see Built-in Control Connector.

Command Bar Control Types

The Office Object Model contains the following control types available for **toolbars**: button, combo box, and pop-up. Using the correct property settings of the combo box component, you can extend the list with edits and dropdowns.

Please note that due to the nature of command bars, **menu and context menu items** can only be buttons and pop-ups (item File in any main menu is a sample of a popup).

Using Built-in Command Bar Controls

Add-in Express connects to a built-in control using the ID that you supply in the `OfficeID` property. That is, if you specify the ID of a control not equal to `1,` Add-in Express adds it to your toolbar. Using this approach, you can override the standard behavior of a built-in button on a given toolbar:

- Add a new toolbar component to the module
- Specify the toolbar name in the `CommandBarName` property
- Add a `TadxCommandBarButton` to the command bar
- Specify the ID of the built-in button in the `TadxCommandBarButton.OfficeId` property
- Set `DisableStandardAction` to `true`
- Now you can handle the `Click` event of the button

You can find the IDs using the free Built-in Controls Scanner utility. Download it at http://www.add-in-express.com/downloads/controls-scanner.php.

Built-in Control Connector

Built-in controls of an Office application have predefined IDs. You can find the IDs using the free Built-in Controls Scanner utility.

The Built-in Control Connector component allows overriding the standard action of any built-in control without adding it onto any command bar.

Add `TadxBuiltInControl` onto `TadxCOMAddinModule`. Set its `Id` property to the command bar control ID. To connect the component to the command bar control, leave its `CommandBar` property empty. To connect the component to the control on a given toolbar, specify the toolbar in the `CommandBar` property. To override the default action of the control, use the `Action` event. The component traces the context and when any change happens, it reconnects to the currently active instance of the command bar control with the given Id, taking this task away from you.

Connecting to built-in Ribbon controls is described in Office Ribbon Components

Keyboard Shortcut

Every Office application provides built-in keyboard combinations that allow shortening the access path for commands, features, and options of the application. Add-in Express allows adding custom keyboard combinations and processing both custom and built-in ones.

Add the component onto `TadxCOMAddinModule`, choose the keyboard shortcut you need in the `ShortcutText` property, set the `HandleShortCuts` property of the Add-in Express module to true and process the `Action` event of the `KeyboardShortcut` component.

Outlook Bar Shortcut Manager

Outlook provides us with the Outlook Bar (Navigation Pane in Outlook 2003). The Outlook Bar displays Shortcut groups consisting of Shortcuts that you can target at a Microsoft Outlook folder, a file-system folder, or a file-system path or URL. You use the Outlook Bar Shortcut Manager to customize the Outlook Bar with your shortcuts and groups.

This component is available for *TadxCOMAddinModule*. Use the *Groups* collection of the component to create a new shortcut group. Use the *Shortcuts* collection of a short group to create a new shortcut. To connect to an existing shortcut or shortcut group, set the *Caption* properties of the corresponding *TadxOlBarShortcut* and/or *TadxOlBarGroup* components equal to the caption of the existing shortcut or shortcut group. Please note that there is no other way to identify the group or shortcut.

That is why your shortcuts and shortcut groups must be named uniquely for Add-in Express to remove only the specified ones (and not those having the same names) when the add-in is uninstalled. That is why you have to do this yourself. Depending on the type of its value, the *Target* property of the *TadxOlBarShortcut* component allows you to specify different shortcut types. If the type is *MAPIFolder*, the shortcut represents a Microsoft Outlook folder. If the type is a *String*, the shortcut represents a file-system path or a URL.

Outlook Property Page

Outlook allows extending its Options dialog with custom pages. You see this dialog when you choose Tools | Options menu. In addition, Outlook allows adding such page to the Folder Properties dialog. You see this dialog when you choose the Properties item in the folder context menu. The Outlook Add-in project wizard allows creating such pages.

The *FolderName*, *FolderNames*, and *ItemTypes* properties of the Outlook folder pages work in the same way as those of Outlook-specific command bars.

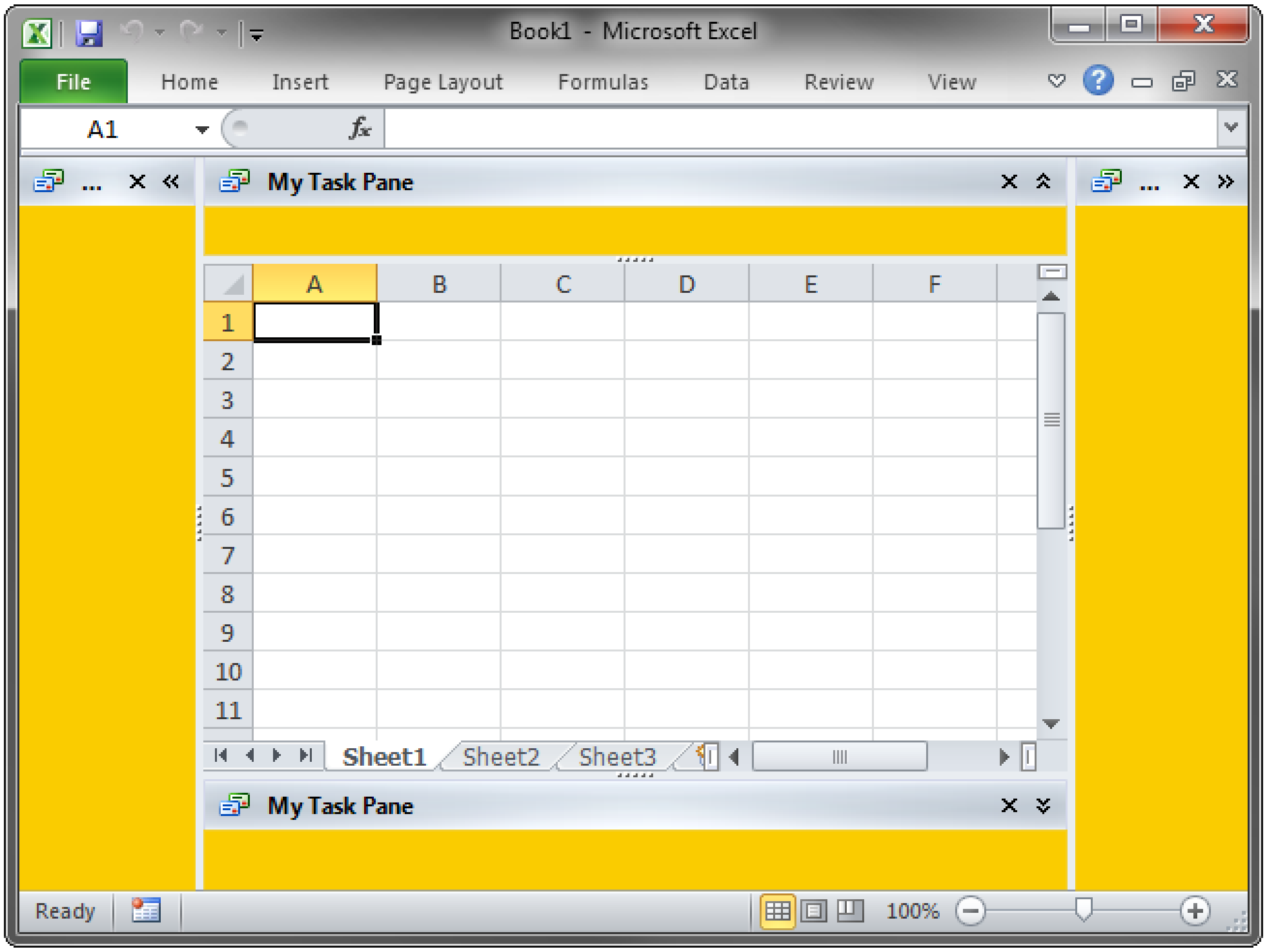
Specify reactions required by your business logics in the *Apply* event handler. In the page controls' event handlers, use the *UpdatePropertyPageSite* method to mark the page as *Dirty*.

Advanced Outlook Regions and Advanced Office Task Panes

Add-in Express allows COM add-ins to show Advanced Form and View Regions in Outlook and Advanced Task Panes in Excel, Word, and PowerPoint; versions 2000-2021/365 are supported.

Introducing Advanced Task Panes in Word, Excel and PowerPoint

In Add-in Express terms, an advanced Office task pane is a sub-pane, or a dock, of the main Excel, Word or PowerPoint window that may host native Delphi forms. The screenshot below shows a sample task pane embedded into all available Excel docks.


Book1 - Microsoft Excel
File
Home
Insert
Page Layout
Formulas
Data
Review
View
A1
My Task Pane
My Task Pane
Sheet1
Sheet2
Sheet3
Ready
100%

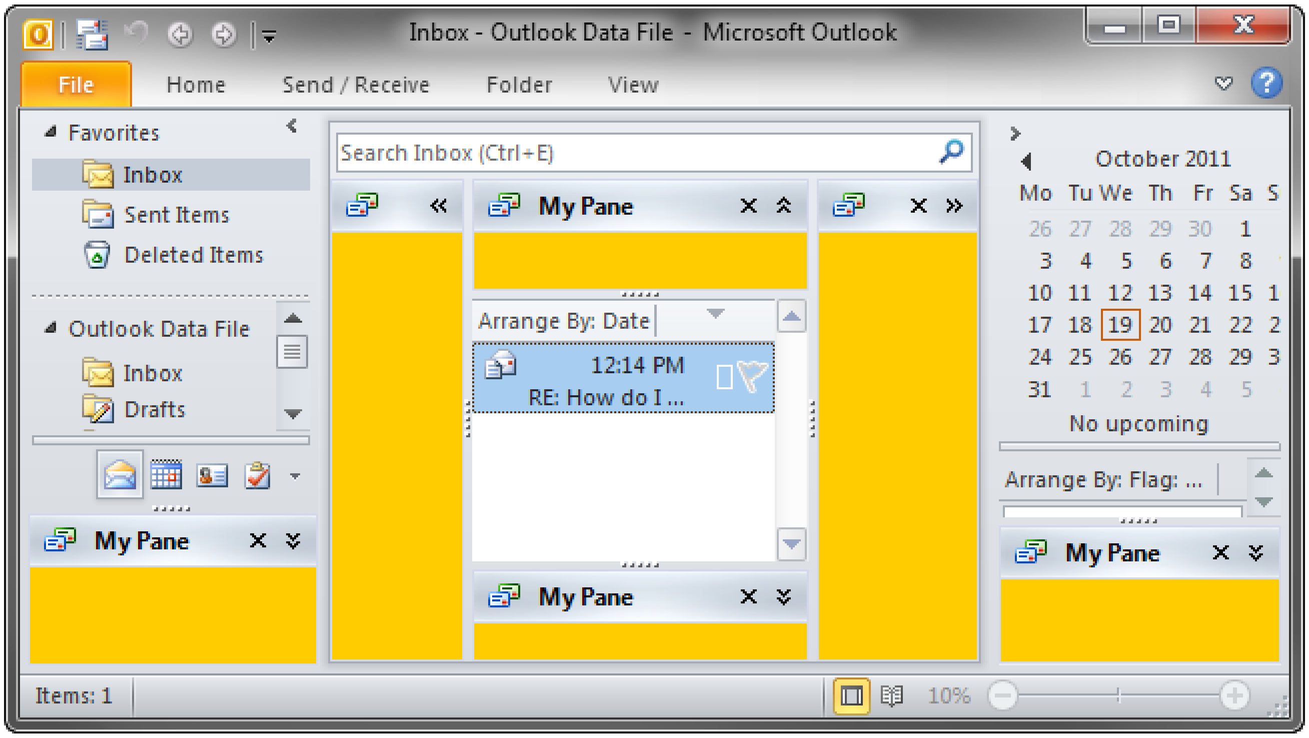
Introducing Advanced Outlook Form and View Regions

In Add-in Express terms, an advanced Outlook region is a sub-pane, or a dock, of Outlook windows that hosts native Delphi forms. There are two types of advanced regions – Outlook view regions (sub-panes on the Outlook Explorer window) and Outlook form regions (sub-panes of the Outlook Inspector window).

Outlook view regions are specified in the `ExplorerLayout` property of the item (= `TadxOlFormsCollectionItem`). Outlook form regions are specified in the `InspectorLayout` property of the item. That is, one `TadxOlFormsCollectionItem` can show your form in a view and form region. Note that you must also specify the item's `ExplorerItemTypes` and/or `InspectorItemTypes` properties; otherwise, the form (an instance of `TadxOlForm`) will never be shown.

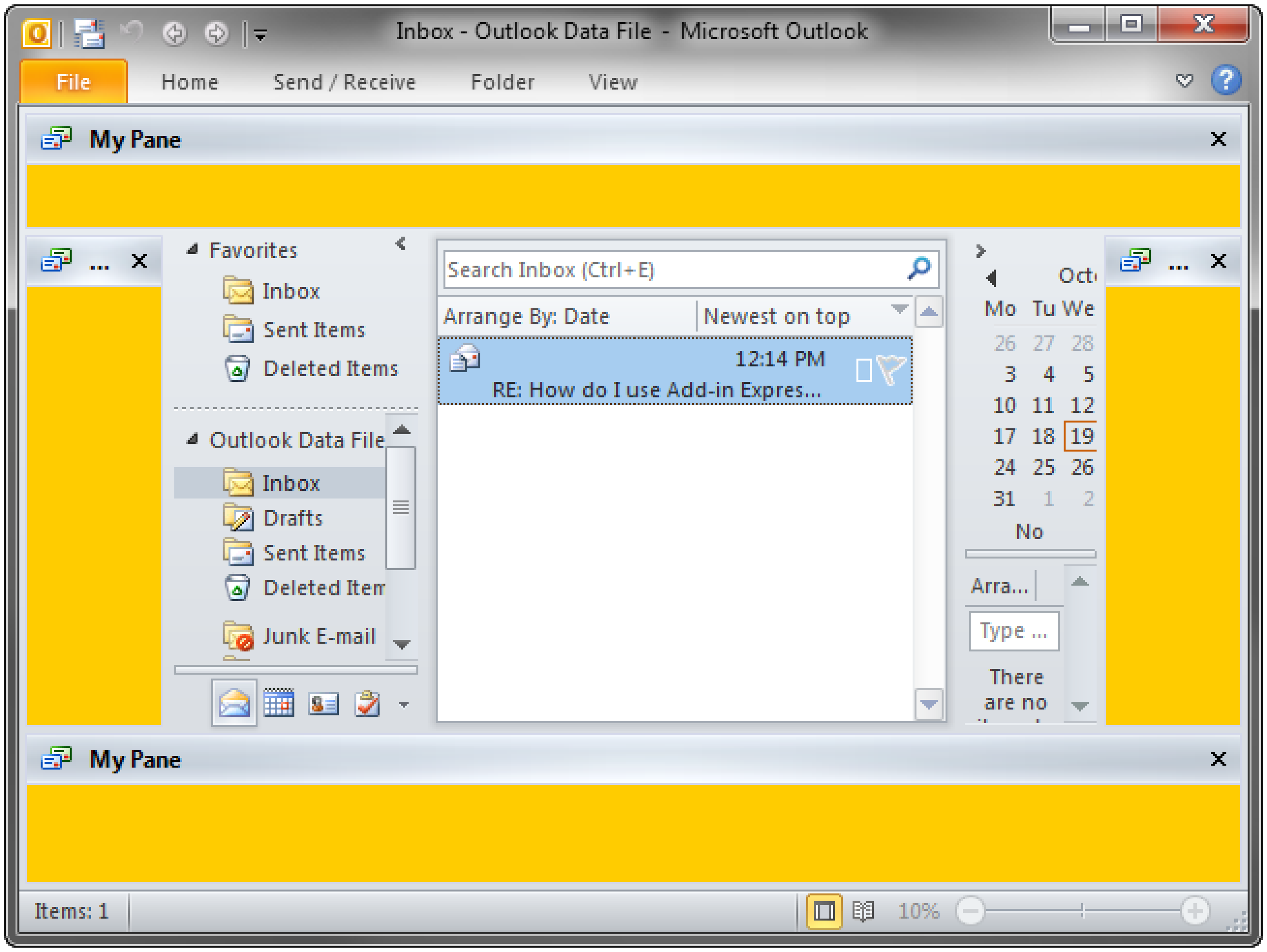
Here is the list of **Outlook view regions**:

- Four regions around the list of mails, tasks, contacts etc. The region names are `LeftSubpane`, `TopSubpane`, `RightSubpane`, `BottomSubpane` (see the screenshot below). **A restriction**: these regions are not available for Calendar folders in Outlook 2010 and above.
- One region below the Navigation Pane – `BottomNavigationPane` (see the screenshot below)
- One region below the To-Do Bar – `BottomTodoBar` (see the screenshot below)
- One region below the Outlook Bar (Outlook 2000 and 2002 only) – `BottomOutlookBar`. **A restriction**: this region is not available in Outlook 2013 and above.

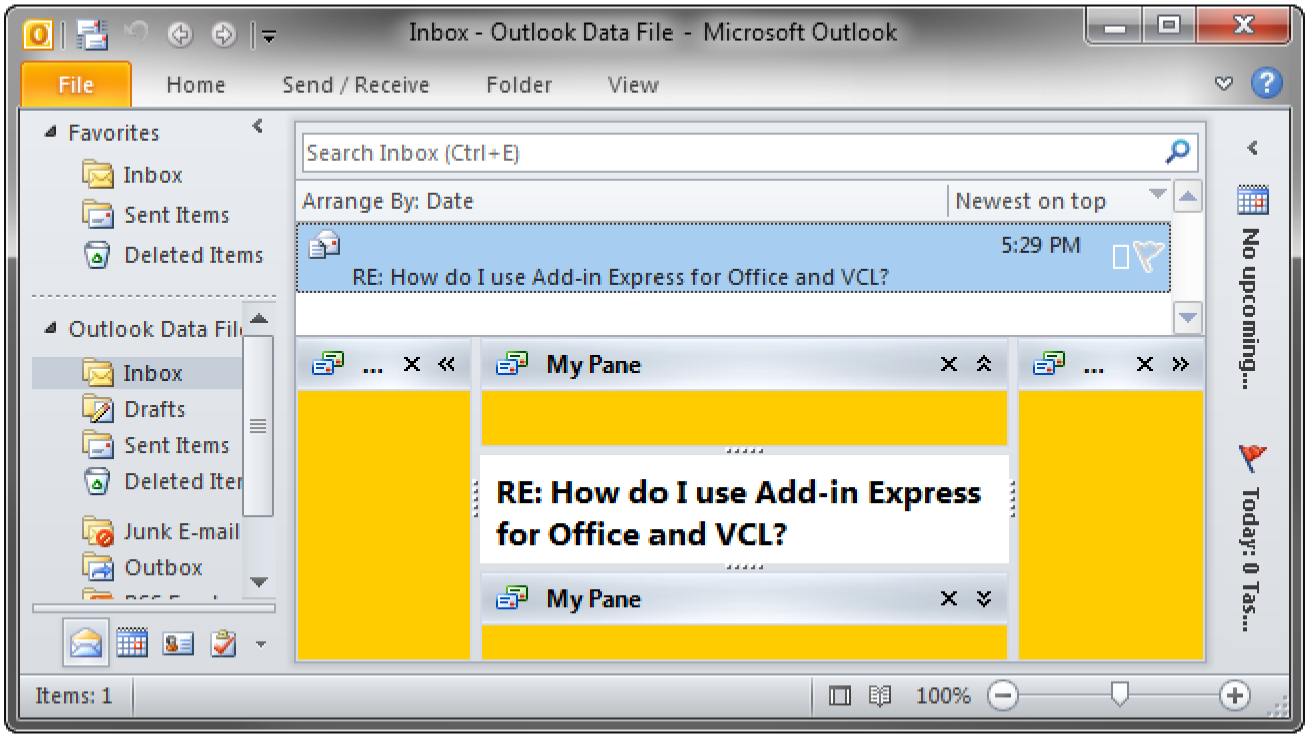


- Four regions around the Explorer window (Outlook 2007 and above) – `DockLeft`, `DockTop`, `DockRight`, `DockBottom` (see the screenshot below). The **restrictions** for these regions are:

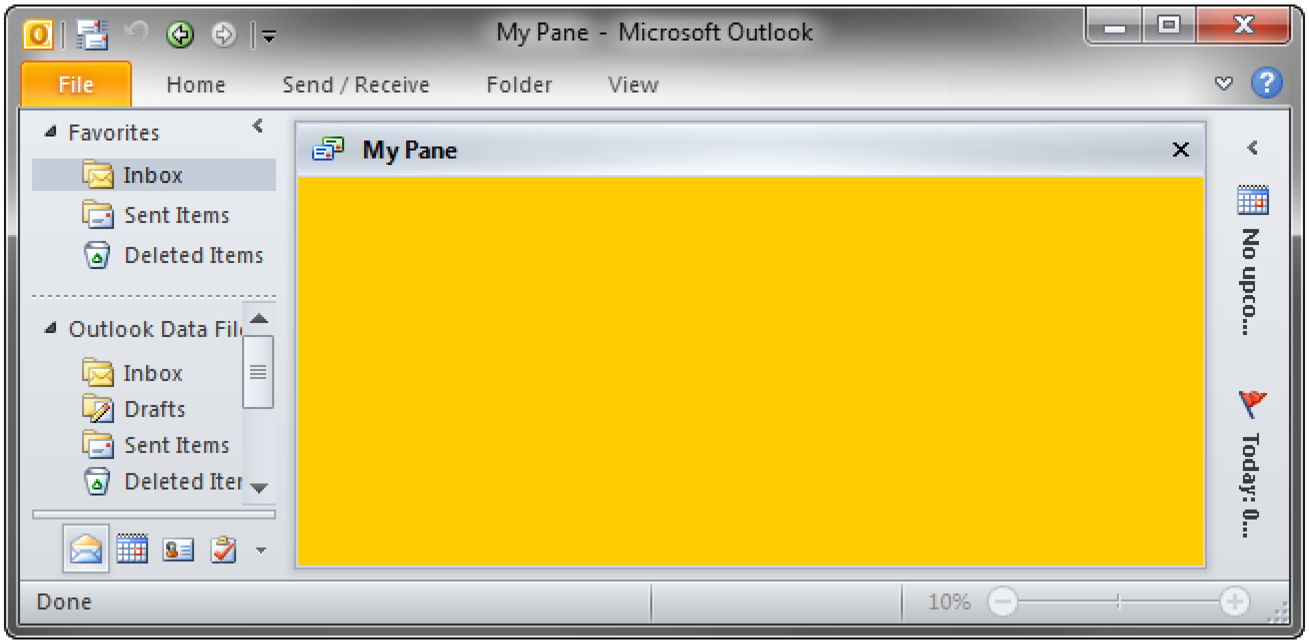
1. Docked regions are not available for pre-2007 versions of Outlook
2. *Hidden* state is not supported in docked layouts
3. Docked panes have limitations on the minimum height or width



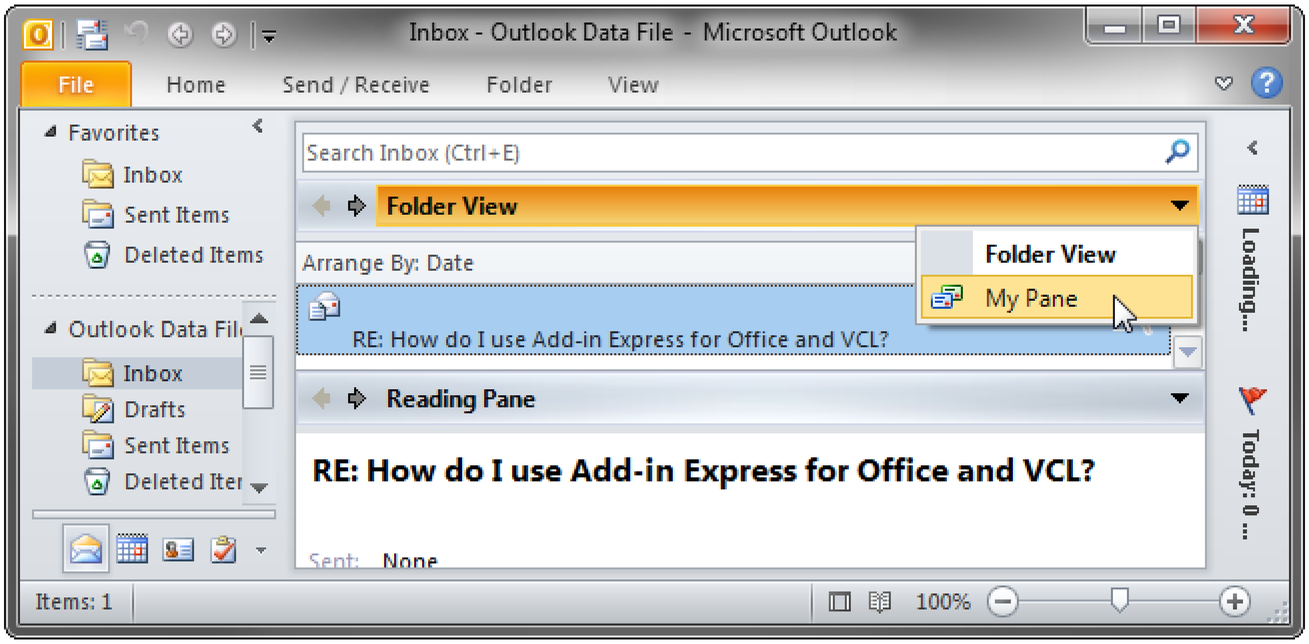
- Four regions around the Reading Pane – *LeftReadingPane*, *TopReadingPane*, *RightReadingPane*, *BottomReadingPane* (see the screenshot below).

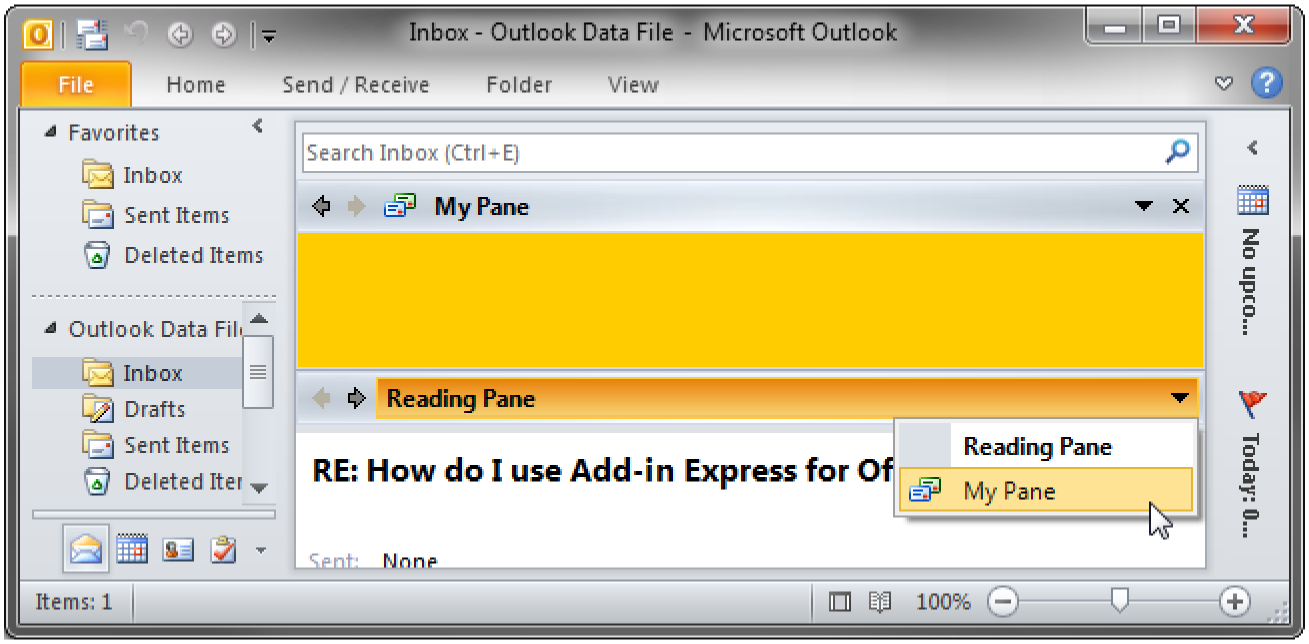


- The *WebViewPane* region (see the screenshot below). Note that it uses Outlook properties in order to replace the items grid with your form (see also WebViewPane).



- The `FolderView` region (see two screenshots below). Unlike WebViewPane, it allows the user to switch between the original Outlook view and your form. **A restriction**: this region is not available for Calendar folders in Outlook 2010 and above.

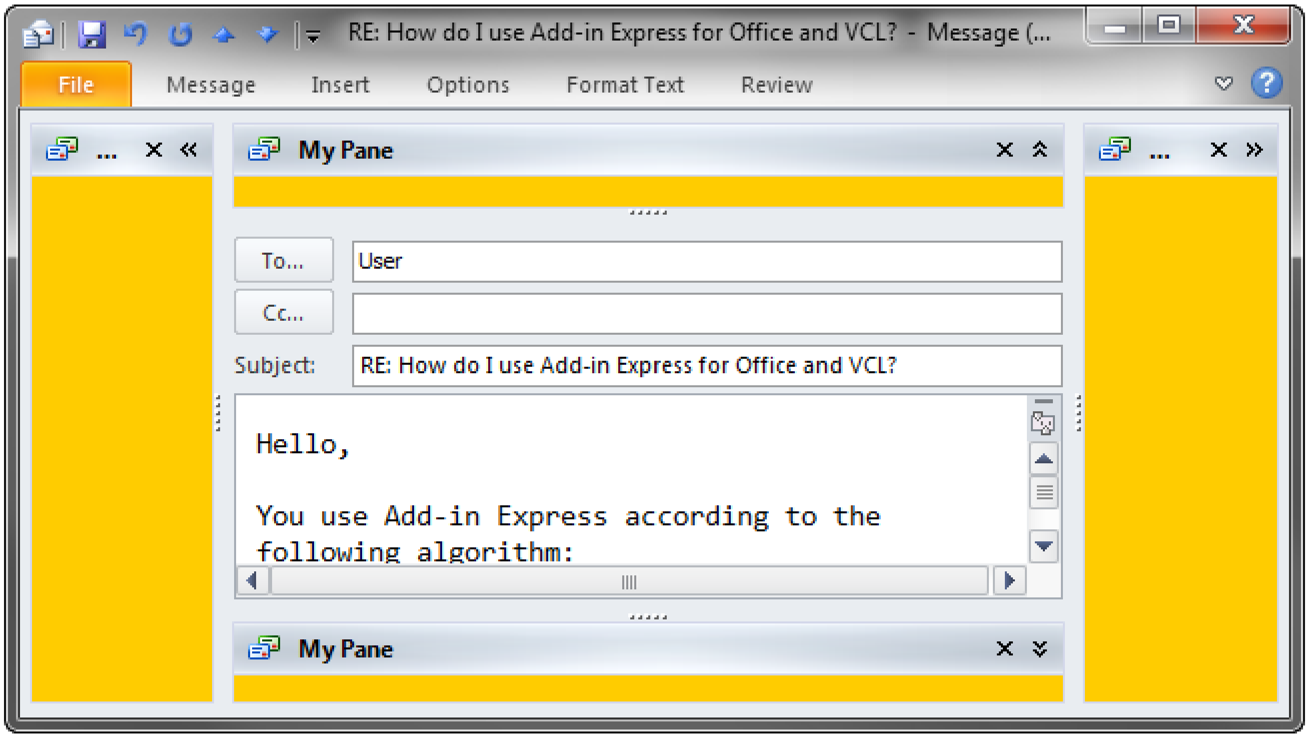




- The `ReadingPane` region (see two screenshots above).

And here is the list of **Outlook form regions**:

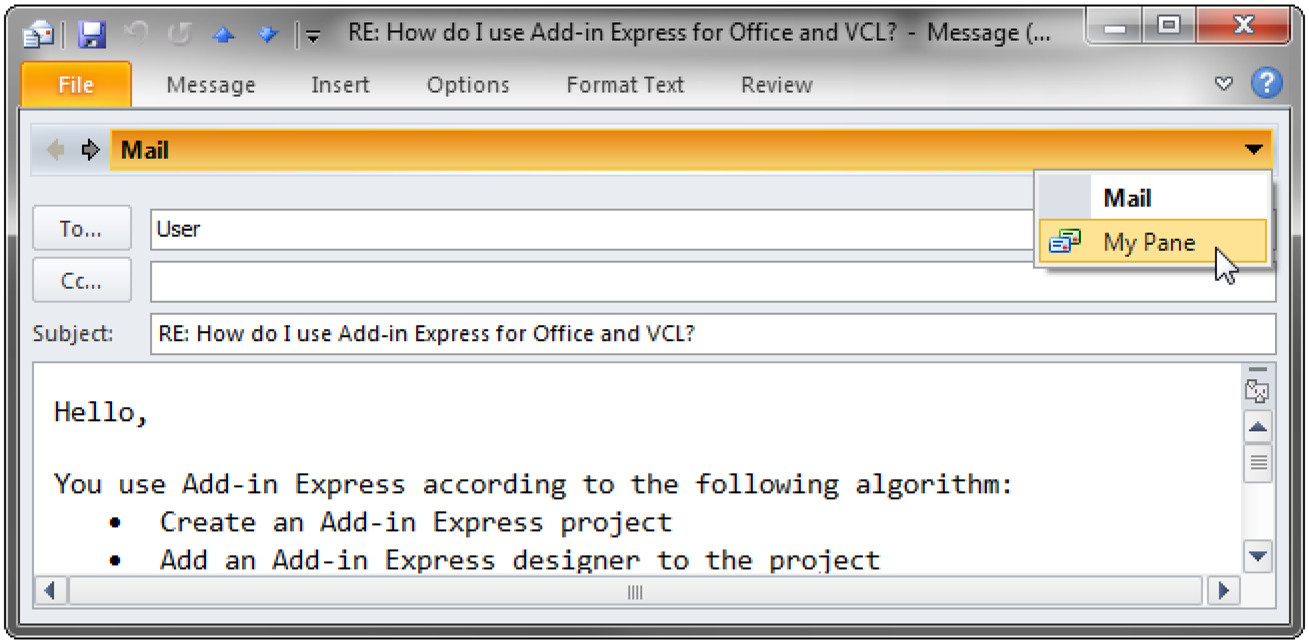
- Four regions around the body of an e-mail, task, contact, etc. The region names are *`LeftSubpane`*, *`TopSubpane`*, *`RightSubpane`*, *`BottomSubpane`* (see the screenshot below).


RE: How do I use Add-in Express for Office and VCL? - Message (...
File
Message
Insert
Options
Format Text
Review
My Pane
To...
User
Cc...
Subject:
RE: How do I use Add-in Express for Office and VCL?
My Pane

Hello,

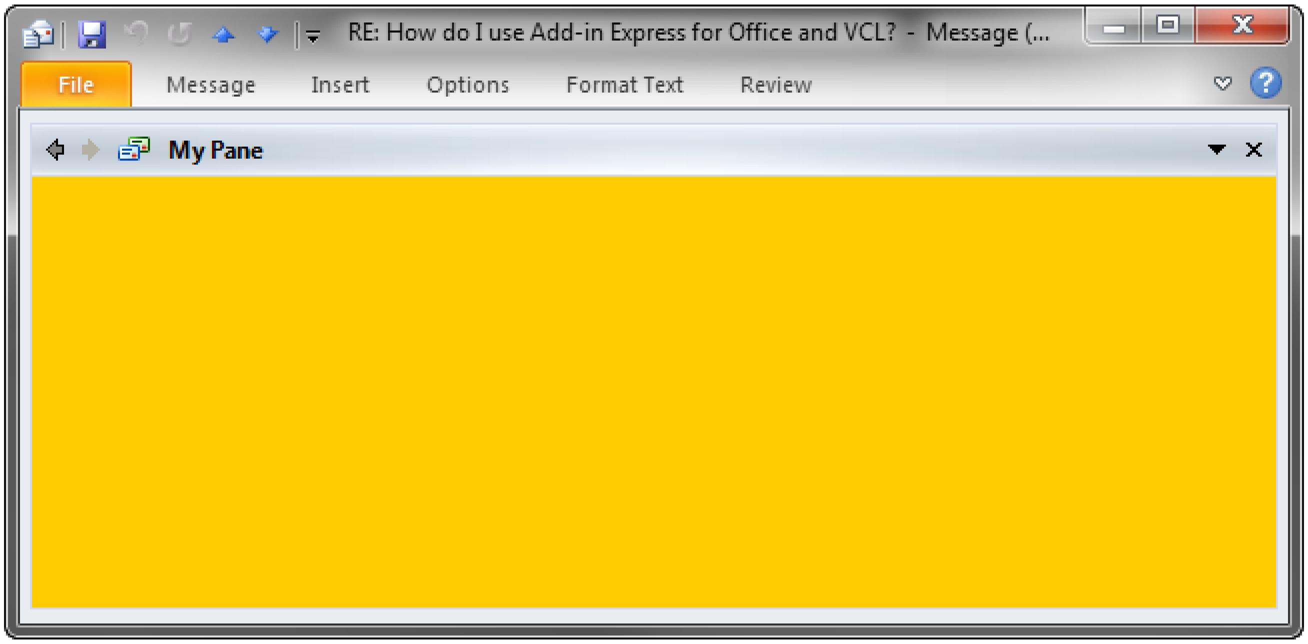
You use Add-in Express according to the following algorithm:

- The *`InspectorRegion`* region (see two screenshots below) allows switching between your form and the Outlook inspector pane.

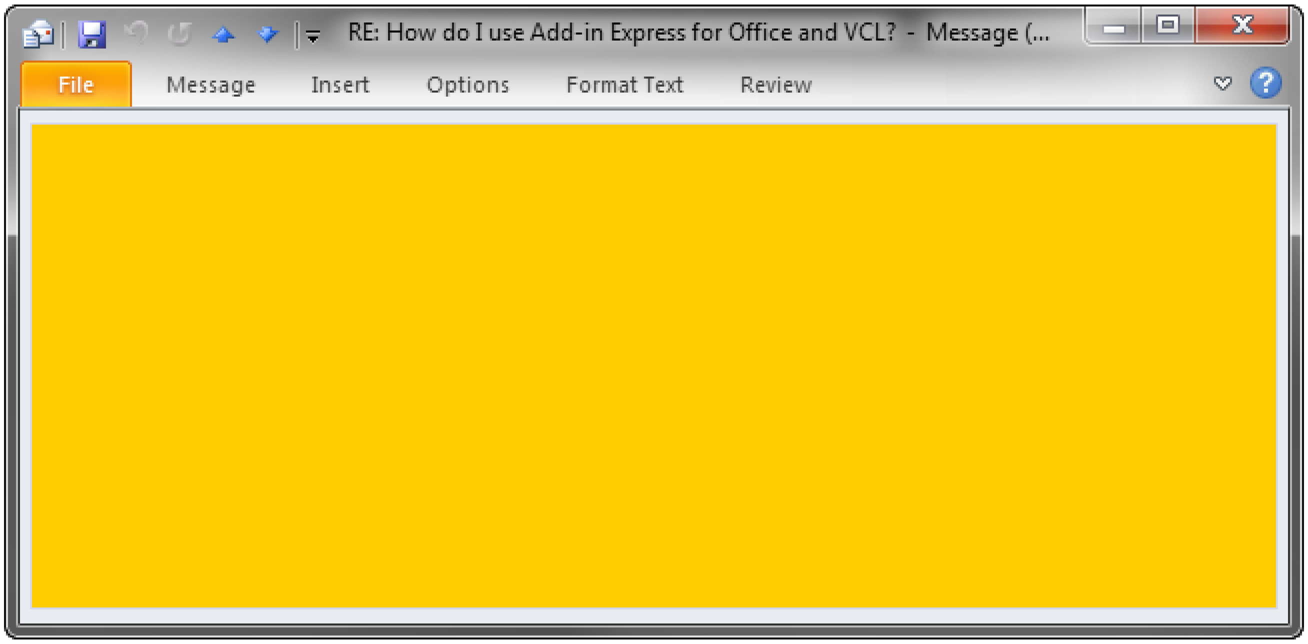

RE: How do I use Add-in Express for Office and VCL? - Message (...
File
Message
Insert
Options
Format Text
Review
Mail
Mail
My Pane
To...
User
Cc...
Subject:
RE: How do I use Add-in Express for Office and VCL?

Hello,

You use Add-in Express according to the following algorithm:
- Create an Add-in Express project
- Add an Add-in Express designer to the project


RE: How do I use Add-in Express for Office and VCL? - Message (...
File
Message
Insert
Options
Format Text
Review
My Pane

- The *CompleteReplacement* inspector region shown in the screenshot below is similar to the *InspectorRegion* with two significant differences: a) it doesn't show the header and in this way, it doesn't allow switching between your form and the Outlook inspector pane and b) it is activated automatically.


RE: How do I use Add-in Express for Office and VCL? - Message (...
File
Message
Insert
Options
Format Text
Review

Hello, World!

The process of adding custom panes to a particular application is described in the respective parts of the following samples:

- Outlook – in Your First Microsoft Outlook COM Add-in see Step #15 –Advanced Task Panes in Outlook 2000.
- Excel, PowerPoint, Word – in Your First Microsoft Office COM Add-in, see Step #11 –Advanced Task Panes in Excel 2000+.

The UI Mechanics

An Absolute Must-Know

Here are the three main points you should know:

- There are application-specific `<Manager>` components; every `<Manager>` component provides a collection; each `<Item>` from the collection binds a `<Form>` (an application-specific descendant of `TForm`) to the visualization and context (Outlook-only) settings.
- You **never** create an instance of a `<Form>` in the way you create an instance of `TForm`; instead, the `<Manager>` creates instances of the `<Form>` for you either automatically or at your request.
- The `Visible` property of a `<Form>` instance is `true` when the instance is embedded into a window region (as specified by the visualization settings) regardless of the actual visibility of the instance; the `Active` property of the `<Form>` instance is true when the instance is shown on top of all other instances in the same region.

Anywhere in this section, a term in angle brackets, such as <Manager> or <Form> above, specifies a component, class, or class member, the actual name of which is application-dependent. Every such term is covered in the corresponding chapter of this manual.

Region States and UI-Related Properties and Events

As mentioned in An Absolute Must-Know, the `<Manager>` creates instances of the `<Form>`.

To prevent an instance from being created you cancel one of the events listed below:

Table 1. Events that occur before a form instance is created.

Application	<Manager> type	Event
Excel	*TadxExcelTaskPanesManager*	*OnADXBeforeTaskPaneInstanceCreate*

Outlook	*TadxOlFormsManager*	*OnADXBeforeFormInstanceCreate* *OnADXBeforeFormInstanceCreateEx*
PowerPoint	*TadxPowerPointTaskPanesManager*	*OnADXBeforeTaskPaneInstanceCreate*
Word	*TadxWordTaskPanesManager*	*OnADXBeforeTaskPaneInstanceCreate*

An instance of the *<Form>* (further on it is referenced as form) is considered visible if it is embedded into a region. The form may be actually invisible either due to the region state (see below) or because other forms in the same region hide it. Anyway, in this case *<Form>.Visible* returns *true*.

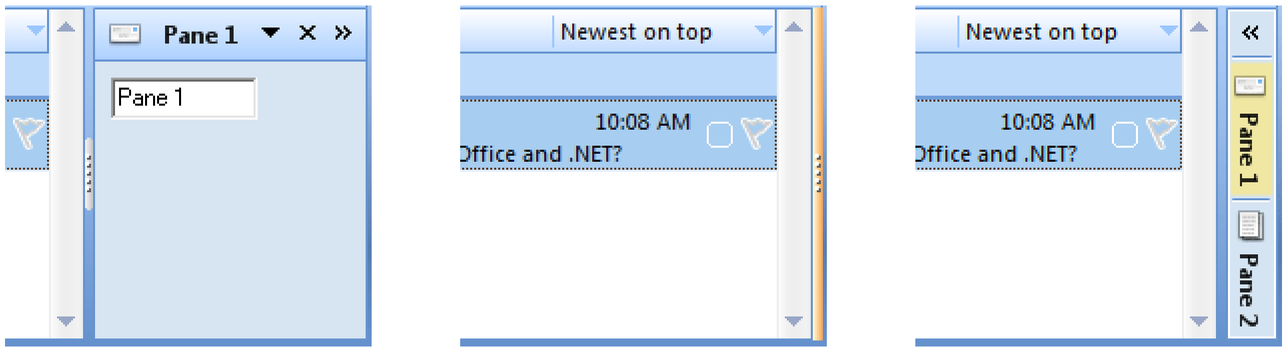
To prevent embedding the form into a region, you can set *<Form>.Visible* to false in these events.

Table 2. Events that occur before a form instance is embedded into a sub-pane.

Application	<Form> type	Event
Excel	*TadxExcelTaskPane*	*OnADXBeforeTaskPaneShow*
Outlook	*TadxOlForm*	*OnADXBeforeFormShow*
PowerPoint	*TadxPowerPointTaskPane*	*OnADXBeforeTaskPaneShow*
Word	*TadxWordTaskPane*	*OnADXBeforeTaskPaneShow*

When the form is shown in a region, the *OnActivate* event occurs and <*Form>.Active* becomes *true*. When the user moves the focus onto the form, the *<Form>* generates the *OnADXEnter* event. When the form loses focus, the *OnADXLeave* event occurs. When the form becomes actually invisible, it generates the *OnDeactivate* event. When the corresponding *<Manager>* removes the form from its region, *<Form>.Visible* becomes *false* and the form generates the *OnADXAfterFormHide* event in Outlook, *OnADXAfterTaskPaneHide* event in Excel, Word, and PowerPoint.

In accordance to the value that you specify for the *<Item>.DefaultRegionState* property, the form may be initially shown in any of the following region states: *Normal*, *Hidden* (collapsed to a 5px wide strip), *Minimized* (reduced to the size of the form caption).



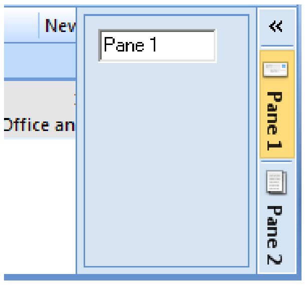
Note however that *DefaultRegionState* will work only when you show the form in a particular sub-pane for the very first time and no other forms have been shown in that sub-pane before. You can reproduce this situation on your PC by choosing *Reset Regions* in the context menu of the manager component.

You can change the state of your form at run-time using the `<Form>.RegionState` property. When showing your Outlook form in some sub-panes, you may need to show the native Outlook view or form that your form overlays; use the `TadxOlForm.ActivateStandardPane()` method

When the region is in the hidden state, the user can click on the splitter and the region will get back to the normal state.

When the region is in the normal state, the user can choose any of the options below:

- change the region size by moving the splitter; this raises size-related events of the form
- hide the form by clicking on the "dotted" mini-button or by double-clicking anywhere on the splitter; this fires the `OnDeactivate` event of the `<Form>`; this option isn't available for the end user if you set `TadxOlFormsCollectionItem.IsHiddenStateAllowed = False`
- close the form by clicking on the *Close* button in the form header; this fires the `OnADXCloseButtonClick` event of the `<Form>.` The event is cancellable, see The Close Button and the Header; if the event isn't cancelled, the `OnDeactivate` event occurs, then the pane is being removed from the region (`<Form>.Visible = false`) and finally, the `<OnADXAfterFormHide>` event of the `<Form>` occurs
- show another form by clicking the header and choosing an appropriate item in the popup menu; this fires the `OnDeactivate` event on the first form and the `OnActivate` event on the second form
- transfer the region to the minimized state by clicking the arrow in the right corner of the form header; this fires the `OnDeactivate` event of the form.



When the region is in the minimized state, the user can choose either of the two options below:

- return the region to the normal state by clicking the arrow at the top of the slim profile of the form region; this raises the `OnActivate` event of the form and changes the `Active` property of the form to `true`
- expand the form itself by clicking on the form's button; this opens the form so that it overlaps a part of the Outlook window near the form region; this also raises the `OnActivate` event of the form and sets the `Active` property of the form to `true`.
- drag an Outlook item, Excel chart, file, selected text, etc. onto the form button; this fires the `OnADXDragOverMinimized` event of the form; the event allows you to check the object being dragged and to decide if the form should be restored.

The Close Button and the Header

The *Close* button is shown if the `CloseButton` property of the `<Item>` is `true`. The header is always displayed when there are two or more forms in the same region. When there is just one form in a region, the header is shown only if the `AlwaysShowHeader` property of the `<Item>` is `true`. Clicking on the *Close* button in the form header fires the `OnADXCloseButtonClick` event of the `<Form>`, the event is cancellable:

```
procedure TadxOlForm1.adxOlFormADXCloseButtonClick(Sender: TObject;
  Args: TadxOlCloseButtonClickEventArgs);
begin
  //Args.CloseForm := false;
end;
```

Accessing a Form Instance

Add-in Express forms (panes) are based on the windowing of the corresponding Office application – Excel, Word, Outlook, and PowerPoint. At run time, Add-in Express intercepts the messages the application sends to its windows and reacts to the messages so that your form is shown, hidden, resized, etc. along with the application's windows.

In Excel 2000-2010 and PowerPoint 2000-2007, a single instance of the `<Form>` is always created for a given `<Item>` because these applications show documents in a single main window. Word is an application that shows multiple windows, and in this situation, the Word Task Panes Manager creates one instance of the task pane for every document window opened in Word.

Outlook is a specific host application. It shows several instances of two window types simultaneously. In addition, the user can navigate through the folder tree and select, create and read several Outlook item types. Accordingly, an `ADXOlFormsCollectionItem` can generate and show several instances of `ADXOlForm` at the same time. Find more details on managing custom panes in Outlook in Advanced Outlook Regions.

To access the form, which is currently active in Excel or PowerPoint, you use the `TaskPaneInstance` property of the `<Item>`; in Word, the property name is `CurrentTaskPaneInstance`; in Outlook, it is the `GetCurrentForm` method. To access all instances of the `<Form>` in Word, you use the `TaskPaneInstances` property of `ADXWordTaskPanesCollectionItem`; in Outlook, you use the `FormInstances` method of `ADXOlFormsCollectionItem` (find more details in Form Region Instancing).

It is essential that Add-in Express panes are built on the windowing of the host application, not on the events of the application's object model. This means that getting an instance of an Add-in Express pane in a certain event may result in getting `nil` if the call is issued before the pane is shown or after it is hidden. For instance, it is often the case with `WindowActivate/WindowDeactivate` in Excel, Word, and PowerPoint. Below is a list of events where Add-in Express panes may be inaccessible:

Table 3. Events in which Add-in Express panes may be inaccessible

Excel	*WindowActivate, WindowDeactivate, WorkbookActivate, WorkbookDeactivate, NewWorkbook, WorkbookOpen, WorkbookBeforeClose*

Outlook	*NewInspector, Inspector.Activate, Inspector.Close, Inspector.Deactivate, NewExplorer, Explorer.Activate, Explorer.Close, Explorer.Deactivate*
PowerPoint	*WindowActivate, WindowDeactivate, NewPresentation, AfterNewPresentation, PresentationOpen, AfterPresentationOpen, PresentationBeforeClose, PresentationClose*
Word	*WindowActivate, WindowDeactivate, NewDocument, DocumentOpen, DocumentChange, DocumentBeforeClose*

So, you may encounter a problem if your add-in retrieves a pane instance in an event above. To bypass this problem, we suggest modifying the code of the add-in so that it gets notified about a pane instance being shown or hidden (instead of getting the pane instance by handling the events above).

Use the *ADXBeforeTaskPaneShow* event of the task pane class (Excel, Word, and PowerPoint) and the *TadxOlForm.ADXBeforeFormShow* (Outlook) event to be notified about the specified pane instance being shown. When the form becomes hidden you'll get *TadxOlForm.ADXAfterFormHide* (Outlook) and the *ADXAfterTaskPaneHide* event of the task pane class (Excel, Word, and PowerPoint).

Controlling Form Visibility

To prevent a form from being displayed in the host application's window, you can set *<Form>.Visible* to *false* in the events listed in Table 2. Events that occur before a form instance is embedded into a sub-pane.

By setting the *Enabled* property of an *<Item>* to *false*, you delete all form instances created for that *<Item>*. To hide any given form (i.e., to remove it from the region), call its *Hide* method.

You can check that a form is not available in the UI (say, you cancelled the *<OnBeforInstanceCreate>* or *<OnBeforeFormShow>* events or the user closed it) by checking the *Visible* property of the form:

```
function TAddInModule.DoesPaneExistInTheUI(): Boolean;
var
  Pane: TadxWordTaskPane1;
begin
  Pane :=
    adxWordTaskPanesManager1.Items[0].CurrentTaskPaneInstance
    as TadxWordTaskPane1;
  if Pane <> nil then
    Result := Pane.Visible
  else
    Result := false;
end;
```

If the form is not available in the UI, you can show such a form in one step:

- for Outlook, you call the *ApplyTo* method of the *<Item>*; the method accepts the parameter, which is either *Outlook2000._Explorer* or *Outlook2000._Inspector*;
- for Excel, Word, and PowerPoint, you call the *ShowTaskPane* method of the *<Item>*

The methods above also transfer the region showing the form to the normal state.

If the *Active* property of your form is *false*, that is if your form is hidden by other forms in the region, then you can call the *Activate* method of the *<Form>* to show the *form* on top of all other forms in that region. Note that if the region is in either minimized or hidden state, calling *Activate* will also transfer it to the normal state.

Note that your form does not restore its *Active* state in subsequent sessions of the host application in regions showing several forms. In other words, if several add-ins show several forms in the same region and the current session ends with a given form on top of all other forms in that region, the subsequent start of the host application may show some other form as active. This is because events are given to add-ins in an unpredictable order. When dealing with several forms of a given add-in, they are created in the order determined by their locations in the *<Items>* collection of the *<Manager>*.

In Outlook, due to context-sensitivity features provided by the *<Item>*, an instance of your form will be created whenever the current context matches that specified by the corresponding *<Item>*.

Resizing the Forms

There are two values of the *Splitter* property of the *<Item>*. The default one is *sbStandard*. This value shows the splitter allowing the user to change the form size as required. The form size is stored in the registry so that the size is restored whenever the user starts the host application.

You can only resize your form programmatically, if you set the *Splitter* property to *sbNone*. Of course, no splitter will be shown in this case. Changing the *Splitter* property programmatically does not affect a form currently loaded into its region (that is, having *Visible = true*). Instead, it will be applied to any newly shown form.

If the form is shown in a given region for the first time and no forms were ever shown in this region, the form will be shown using the appropriate dimensions that you set at design time. On subsequent host application sessions, the form will be shown using the dimensions set by the user.

Coloring up the Form

By default, the background color of the form is set automatically to match the current Office 2007+ color scheme. To use the background color of your own in these Office versions (as well as in Office 2003), you need to set *<Item>.UseOfficeThemeForBackground := true*.

Tuning the Settings at Run-Time

To add/remove an `<Item>` to/from the collection and to customize the properties of an `<Item>` at add-in start-up, you use the `<Initialize>` event of the `<Manager>`; the event's name is `OnInitialize` for Outlook and `OnADXInitalize` for Excel, Word and PowerPoint.

Changing the `Enable`, `Cached` (Outlook only), `<FormClassName>` properties at run-time deletes all form instances created by the `<Item>`.

Changing the `InspectorItemTypes`, `ExplorerItemTypes`, `ExplorerMessageClasses`, `ExplorerMessageClass`, `InspectorMessageClasses`, `InspectorMessageClass`, `FolderNames`, `FolderName` properties of the `ADXOlFormsCollectionItem` deletes all non-visible form instances.

Changing the `<Position>` property of the `<Item>` changes the position for all visible form instances.

Changing the `Splitter` and `Tag` properties of the `<Item>` does not do anything for the currently visible form instances. You will see the change of the splitter when the `<Manager>` shows a new instance of the `<Form>`.

What Window the Pane is Shown for

To get an object corresponding to the host application's window that the form is shown for, use the following members:

Table 4. Accessing the host application's window object from Add-in Express forms

Excel	`TadxExcelTaskPane.WindowObj` – returns `Excel.Window`
Outlook	`TadxOlForm.InspectorObj` – returns `Outlook.Inspector`, `TadxOlForm.ExplorerObj` – returns `Outlook.Explorer`; these properties may also return `null` (`Nothing` in VB.NET)
PowerPoint	`TadxPowerPointTaskPane.WindowObj` – returns `PowerPoint.DocumentWindow`
Word	`TadxWordTaskPane.WindowObj` – returns `Word.Window`

Excel Task Panes

Please see The UI Mechanics above for the detailed description of how Add-in Express panes work. Below you see the list containing some generic terms mentioned in An Absolute Must-Know and their Excel-specific equivalents:

- `<Manager>` - `TadxExcelTaskPanesManager`, the Excel Task Panes Manager
- `<Item>` - `TadxExcelTaskPanesCollectionItem`
- `<Form>` - `TadxExcelTaskPane`

Application-specific features

`TadxExcelTaskPane` provides useful events that are unavailable in the Excel object model: `OnADXBeforeCellEdit` and `OnADXAfterCellEdit`.

Keyboard and Focus

`TadxExcelTaskPane` provides the `OnADXKeyFilter` event. It deals with the feature of Excel that captures the focus if a key combination handled by Excel is pressed. By default, Add-in Express panes do not pass key combinations to Excel. Thus, you can be sure that the focus will not leave the pane unexpectedly.

Just to understand this Excel feature, imagine that you need to let the user press `Ctrl+S` and get the workbook saved while your pane is focused. In such a scenario, you have two ways out:

- You process the key combination in the code of the pane and use the Excel object model to save the workbook.
- Or you send this key combination to Excel using the `OnADXKeyFilter` event.

Besides the obvious difference between the two ways above, the former leaves the focus on your pane while the latter effectively moves it to Excel because of the focus-capturing feature just mentioned.

The algorithm of key processing is as follows. Whenever a single key is pressed, it is sent to the pane. When a key combination is pressed, `TadxExcelTaskPane` determines if the combination is a shortcut to the pane. If it is, the keystroke is sent to the pane. If it is not, `OnADXKeyFilter` is fired and the key combination is passed to the event handler. Then the event handler specifies whether to send the key press to Excel or to the pane. The latter is the default behavior. Note that sending the key combination to Excel will result in moving the focus off the pane. The above implies that the `OnADXKeyFilter` event never fires for shortcuts on the pane's controls.

In addition, `OnADXKeyFilter` is never fired for hot keys (Alt + an alphanumeric symbol). If `TadxExcelTaskPane` determines that the pane cannot process the hot key, it sends the hot key to Excel, which activates its main menu. After the user has navigated through the menu by pressing arrow buttons, Esc, and other hot keys, opened and closed Excel dialogs, `TadxExcelTaskPane` will get focus again.

Wait a Little and Focus Again

The pane provides a simple infrastructure that allows implementing the Wait a Little schema - see the `ADXPostMessage` method and the `OnADXPostMessageReceived` event.

Currently we know at least one situation when this trick is required. Imagine that you show a pane and you need to set the focus on a control on the pane. It is not a problem to do this in, say the `OnActivate` event. Nevertheless, it is useless because Excel, continuing its initialization, moves the focus off the pane. With the above-mentioned method and event you can make your pane look like it never loses focus: in the `OnActivate` event handler, you call the *ADXPostMessage* method and, in the *OnADXPostMessageReceived* event, you set the focus on the control.

Advanced Outlook Regions

Please see The UI Mechanics above for the detailed description of how Add-in Express panes work. Below you see the list containing some generic terms mentioned in An Absolute Must-Know and their Outlook-specific equivalents:

- *<Manager>* - *TadxOlFormsManager*, the Outlook Forms Manager
- *<Item>* - *TadxOlFormsCollectionItem*
- *<Form>* - *TadxOlForm*

Context-Sensitivity of Your Outlook Form

Whenever the Outlook Forms Manager detects a context change in Outlook, it searches the *TadxOlFormsCollection* collection for enabled items that match the current context and if any match is found, it shows or creates the corresponding instances.

TadxOlFormsCollectionItem provides a number of properties that allow specifying the context settings for your form. Say, you can specify **item types** for which your form will be shown. Note that in case of explorer, the item types that you specify are compared with the default item type of the current folder. In addition, you can specify **the names of the folders** for which your form will be shown in the *FolderName* and *FolderNames* properties. These properties also work for Inspector windows – in this case, the parent folder of the Outlook item is checked. An example of the folder path is "\\Personal Folders\Inbox".

A special value in *FolderName* is an empty string (*''*), which means "all folders". You can also specify **message class (es)** for which your form will be shown. Note that all context-sensitivity properties of *TadxOlFormsCollectionItem* are processed using the **OR** Boolean operation.

In advanced scenarios, you can also use the *OnADXBeforeFormInstanceCreate* event of *TadxOlFormsCollectionItem* and the *ADXBeforeFormShow* event of *TadxOlForm* in order to prevent your form from being shown (see also Accessing a Form Instance). In addition, you can use events provided by *TadxOlForm* in order to check the current context. Say, you can use the *OnADXBeforeFolderSwitch* or *OnADXSelectionChange* events of *TadxOlForm*.

Caching Forms

By default, whenever Add-in Express needs to show a form, it creates a new instance of that form. You can change this behavior by choosing an appropriate value of the *TadxOlFormsCollectionItem.Cached* property. The values of this property are:

- *csNewInstanceForEachFolder* – it shows the same form instance whenever the user navigates to the same Outlook folder.
- *csOneInstanceForAllFolders* – it shows the same form instance for all Outlook folders.
- *csNone* – no form caching is used.

Caching works within the same Explorer window: when the user opens another Explorer window, Add-in Express creates another set of cached forms. Forms shown in Inspector windows cannot be cached.

Is It Inspector or Explorer?

Check the *InspectorObj* and *ExplorerObj* properties of *TadxOlForm*. These properties return COM objects that will be released when your form is removed from its region. This may occur several times in the lifetime of a given form instance because Add-in Express may remove your form from a given region and then embed the form to the same region in order to comply with Outlook windowing.

WebViewPane

When this value (see Introducing Advanced Outlook Form and View Regions) is chosen in the *ExplorerLayout* property of *TadxOlFormsCollectionItem*, Add-in Express uses the *WebViewUrl* and *WebViewOn* properties of *Outlook.MAPIFolder* (also *Outlook.Folder* in Outlook 2007) in order to show your form as a home page for a given folder(s).

Unfortunately, due to a bug in Outlook 2002, Add-in Express has to scan all folders in Outlook in order to set and restore the *WebViewUrl* and *WebViewOn* properties. The first consequence is a delay at startup if the current profile contains thousands of folders. A simple way to prevent the delay is to disable the corresponding item(s) of the Items collection of the Forms Manager at design time and enable it in the *AddinStartupComplete* event of the add-in module. Because *PublicFolders* usually contains many folders, Add-in Express does not allow using *WebViewPane* for *PublicFolders* and all folders below it. *Outbox* and *Sync Issues* and all folders below them are not supported as well when using *WebViewPane*.

Because of the need to scan Outlook folders, *WebViewPane* produces another delay when the user works in the Cached Exchange Mode (see the properties of the Exchange account in Outlook) and the Internet connection is slow or broken. To bypass this problem, Add-in Express allows reading *EntryIDs* of those folders from the registry. Naturally, you are supposed to write appropriate values to the registry at add-in start-up. Here is the code:

```
procedure TAddInModule.SaveDefaultFoldersEntryIDToRegistry(
  PublicFoldersEntryID, PublicFoldersAllPublicFoldersEntryID,
  FolderSyncIssuesEntryID: string);
var
  Reg: TRegistry;
begin
```

```
    Reg := TRegistry.Create;
    try
      if Reg.OpenKey(self.RegistryKey
        + '\' + ADXXOL + '\'
        + 'FoldersForExcludingFromUseWebViewPaneLayout', true) then begin
        if (PublicFoldersEntryID <> EmptyStr) then begin
          Reg.WriteString('PublicFolders', PublicFoldersEntryID);
        end;
        if (PublicFoldersAllPublicFoldersEntryID <> EmptyStr) then begin
          Reg.WriteString('PublicFoldersAllPublicFolders',
            PublicFoldersAllPublicFoldersEntryID);
        end;
        if (FolderSyncIssuesEntryID <> EmptyStr) then begin
          Reg.WriteString('FolderSyncIssues', FolderSyncIssuesEntryID);
        end;
      end;
    finally
      Reg.CloseKey;
      Reg.Free;
    end;
  end;
```

Form Region Instancing

The user may open multiple Explorer and Inspector windows. That is, the Outlook Forms Manager will create multiple instances of your form region class now and then. How to retrieve the form instance shown in a particular Outlook window? How to get all form instances?

TadxOlFormsCollectionItem.GetForm()

This method returns an instance of your form region in the **specified** Outlook window.

TadxOlFormsCollectionItem.GetCurrentForm()

This method returns an instance of your form region in the **active** Outlook window.

Consider the following scenarios:

- Calling *`GetCurrentForm()`* in the *`Click`* event of a Ribbon button is safe because the event can occur in the active Outlook window only; accordingly, *`GetCurrentForm()`* returns the form instance embedded into the Inspector (Explorer) window in which the button is clicked.
- *`GetCurrentForm()`* will never find e.g. an Inspector form region if an Explorer window is active;

- Some add-in or antivirus may cause the *ExplorerSelectionChange* event to fire in an inactive Explorer window; that is, using *GetCurrentForm()* in an Explorer-related event may produce a wrong result. To avoid this, use *GetForm()* or make sure that *GetCurrentForm()* is called in the active window.

TadxOlFormsCollectionItem.FormInstances[index]

This method allows enumerating all instances of your form region created for the specified *TadxOlFormCollectionItem*. Use the *FormInstanceCount* property to get the total number of form instances created for this *TadxOlFormCollectionItem*.

From a Form Instance to the Outlook Object Model

The Outlook Forms Manager creates an instance of your form when the Outlook context matches the settings of the corresponding *TadxOlFormsCollectionItem*.

After creating the form instance, the manager sets a number of properties providing entry points to the Outlook object model; note that these properties are not set when the form region's constructor is running. The properties are listed below.

TadxOlForm.ExplorerObj	If the form is embedded (*TadxOlForm.Visible=true*) into an Outlook Explorer window, returns a reference to the corresponding Outlook2000.Explorer object. Otherwise, returns *nil*.
TadxOlForm.InspectorObj	If the form is embedded (*TadxOlForm.Visible=true*) into an Outlook Inspector window, returns a reference to the corresponding Outlook2000.Inspector object. Otherwise, returns *nil*.
TadxOlForm.FolderObj	If the form is embedded into an Outlook Explorer window (*TadxOlForm.ExplorerObj* is not *nil*), returns a reference to an *Outlook2000.MAPIFolder* object representing the current folder in the Explorer window. If the form is embedded into an Outlook Inspector window (*TadxOlForm.InspectorObj* is not *nil*), returns a reference to an *Outlook2000.MAPIFolder* object representing the parent folder of the Outlook item which is shown in the Inspector window.
TadxOlForm.FolderItemsObj	If the form is embedded into an Outlook Explorer window (*TadxOlForm.ExplorerObj* is not *nil*), returns a reference to an *Outlook2000.Items* object representing the collection of items of the current folder in the Explorer window. If the form is embedded into an Outlook inspector window (*TadxOlForm.InspectorObj* is not *nil*), returns a reference to an *Outlook2000.Items* object representing the collection of items in the

	parent folder of the Outlook item which is shown in the Inspector window.
`TadxOlForm.OutlookAppObj`	Returns a reference to an `Outlook2000.Application` object representing the Outlook application into which the add-in is loaded.

Smart Tag

The `Kind` property of the `TadxSmartTag` component allows you to choose from two text recognition strategies: using a list of words in the `RecognizedWords` string collection, or implementing a custom recognition process based on the `Recognize` event of the component. Use the `ActionNeeded` event to change the `Actions` collection according to the current context. The component raises the `PropertyPage` event when the user clicks the `Property` button in the Smart Tags tab (*Tools* | *AutoCorrect Options* menu) for your smart tag.

RTD Topic

Use the `String##` properties to identify the topic of your RTD server. To handle RTD server startup situations nicely, specify the default value for the topic and using the `UseStoredValue` property, specify if the RTD function in Excel returns the default value (`UseStoredValue` := `false`) or doesn't change the displayed value (`UseStoredValue` := `true`). The RTD Topic component provides you with the `Connect`, `Disconnect`, and `RefreshData` events. The last one occurs (for enabled topics only) whenever Excel calls the RTD function.

Host Application Events

Add-in Express provides event components for all Office applications on the Tool Palette: Just add appropriate Add-in Express event components to the module, and use their event handlers to respond to the host application events. However, we recommend you to make use of the events provided by the add-in module before you start using event components.

MSForms Controls

Add-in Express provides MS Forms control components on the Tool Palette. These components are to be used on the `TadxExcelSheetModule` and `TadxWordDocumentModule`. Add an the appropriate MS Forms Control Connector to the module. Use the `ControlName` property of the connector to specify the underlying control on the Excel worksheet or Word document. Respond to the events provided by the control connector.

Tips and Notes

Terminology

In this document, on our site, and in all our texts we use the terminology suggested by Microsoft for all toolbars, their controls, and for all interfaces of the Office Type Library. For example:

- Command bar is a toolbar, a menu bar, or a context menu.
- Command bar control is one of the following: a button, an edit box, a combo box, or a pop-up.
- Pop-up can stand for a pop-up menu, a pop-up button on a command bar or a submenu on a menu bar.

Add-in Express uses interfaces from the Office Type Library. We do not describe them here. Please refer to the VBA help and to the application type libraries.

Getting Help on COM Objects, Properties and Methods

To get assistance with host applications' objects, their properties, and methods as well as help info, use the Object Browser. Go to the VBA environment (in the host application, choose menu *Tools* | *Macro* | *Visual Basic Editor* or just press *{Alt+F11}*), press *{F2}*, select the host application in the topmost combo and/or specify a search string in the search combo. Select a class /property /method and press *{F1}* to get the help topic that relates to the object.

COM Add-ins Dialog

In Office 2010+ you click *File Tab* | *Options* and, on the *Add-ins* tab, choose *COM Add-ins* in the *Manage* dropdown and click *Go*.

In Word, Excel, PowerPoint and Access 2007 you click the *Office Menu* button, then click *{Office application} options* and choose the *Add-ins* tab. Now choose *COM Add-ins* in the *Manage* dropdown and click *Go*.

In all other Office applications, you need to add the *COM Add-ins* command to a toolbar or menu of your choice. To do so, follow the steps below:

- Open the host application (Outlook, Excel, Word, etc.)
- On the *Tools* menu, click *Customize*.
- Click the *Commands* tab.
- In the *Categories* list, click the *Tools* category.

- In the *Commands* list, click *COM Add-Ins* and drag it to a toolbar or menu of your choice.

In Office 2000-2003, the COM Add-ins dialog shows only add-ins registered in HKCU. In Office 2007+, HKLM-registered add-ins are shown too. See also Registry Entries.

How to Get Access to the Add-in Host Applications

In the add-in module, Add-in Express wizards generate the *<HostName>App* properties. They return the *Application* object (of the *OleVariant* type) of the host application in which the add-in is currently running. To identify the host application, you can also use the *HostType* property of the module.

Registry Entries

COM Add-ins registry entries are located in the following registry branches:

```
{HKCU or HKLM}\Software\Microsoft\Office\<host>\AddIns\<your add-in's ProgID>
HKEY_CLASSES_ROOT\CLSID\<Add-in Express Project GUID>
```

See also How to find if Office 64-bit is installed on the target machine.

ControlTag vs. Tag Property

Add-in Express identifies all its controls (command bar controls) by the *ControlTag* property (the *Tag* property of the *CommandBarControl* interface). The value of this property is generated automatically and you do not need to change it. For your own needs, use the *Tag* property instead.

Pop-ups

According to the Microsoft terminology, the term “pop-up” can be used for several controls: pop-up menu, pop-up button, and submenu. With Add-in Express, you can create your own pop-up as an element of your controls command bar collection and add any control to it via the Controls property.

However, pop-ups have an annoying feature: if an edit box or a combo box is added to a pop-up, their events are fired very oddly. Please don’t regard this bug as that of Add-in Express.

Edits and Combo Boxes and the Change Event

The *Change* event occurs only when the value is changed and the focus is moved off the combobox. This is by design.

Built-in Controls and Command Bars

You can connect an Add-in Express command bar component to any built-in command bar. For example, you can add your own controls to the "Standard" command bar or remove some controls from it. To do this just add a new command bar component to the add-in module and specify the name of the built-in command bar you need via the `CommandBarName` property.

In addition, you can add any built-in controls to your own command bars. To do this just add an `ADXCommandBarControl` instance to the `ADXCommandBar.Controls` collection and specify the ID of the built-in control you need via the `Id` property.

CommandBar.SupportedApps

Use this property to specify if the command bar is to appear in some or all host applications supported by the add-in.

Outlook Command Bar Visibility Rules

You can use the `FolderName`, `FolderNames` and `ItemTypes` properties to bind your toolbars to certain Outlook folders. Your toolbar is shown for a folder:

- If its full name (includes the folder path) is found in the `FolderName` or `FolderNames` properties.
- Or, if the folder type is found in the `ItemTypes` property.

Removing Custom Command Bars and Controls

Add-in Express removes custom command bars and controls when the add-in is uninstalled. However, this does not apply to Outlook and Access add-ins. You should set the `Temporary` property of custom command bars (and controls) to true to notify the host application that it can remove them itself. If you need to remove a toolbar or button yourself, use the Tools | Customize dialog.

My Add-in Is Always Disconnected

If your add-in fires exceptions at the startup, the host application can block the add-in and move it to the Disabled Items list. To find the list, go to "Help" in the host application and then click "About". At the bottom of the About dialog, there is the Disabled Items button. Check it to see if the add-in is listed there (if so, select it and click the enable button).

Update Speed for an RTD Server

Microsoft limits the minimal interval between updates to 2 seconds. There is a way to change this minimum value but Microsoft doesn't recommend doing this.

Sequence of Events When an Office Custom Task Pane Shows up

- *AddinModule.OnTaskPaneBeforeCreate*
- *AddinModule.OnTaskPaneAfterCreate*
- *AddinModule.OnTaskPaneBeforeShow*
- *TaskPane.OnVisibleStateChange*
- *AddinModule.OnTaskPaneAfterShow*

Adding an Office Custom Task Pane to an Existing Add-in Express Project

- Add an instance of *ActiveForm* to the project (File | New | Other | ActiveX | Active Form)
- Change its *AxBorderStyle* property to *afbNone*.
- Add the following declaration to the private section of the *ActiveForm*

```
procedure WMMouseActivate(var Message: TWMMouseActivate); message
WM_MOUSEACTIVATE;
```

- Change the method code to the following:

```
var
  FocusedWindow: HWND;
  CursorPos: TPoint;
begin
  inherited;
  FocusedWindow := Windows.GetFocus;
  if not SearchForHWND(Self, FocusedWindow) then begin
    Windows.GetCursorPos(CursorPos);
    FocusedWindow := WindowFromPoint(CursorPos);
    Windows.SetFocus(FocusedWindow);
    Message.Result := MA_ACTIVATE;
  end;
```

- Add the following function used by the *WMMouseActivate* method (place it before the method):

```
function SearchForHWND(const AControl: TWinControl; Focused: HWND): boolean;
var
  i: Integer;
begin
  Result := (AControl.Handle = Focused);
  if not Result then
    for i := 0 to AControl.ControlCount - 1 do
```

```
        if AControl.Controls[i] is TWinControl then begin
          if TWinControl(AControl.Controls[i]).Handle = Focused then begin
            Result := True;
            Break;
          end
          else
            if TWinControl(AControl.Controls[i]).ControlCount > 0 then begin
              Result := SearchForHWND(TWinControl(AControl.Controls[i]), Focused);
              if Result then Break;
            end;
        end;
end;
```

- Add and override the `ActiveForm` destructor using the following code:

```
destructor TMyTaskPane.Destroy;
var
  ParkingHandle: HWND;
begin
  ParkingHandle := FindWindowEx(0, 0, 'DAXParkingWindow', nil);
  if ParkingHandle <> 0 then
    SendMessage(ParkingHandle, WM_CLOSE, 0, 0);
  inherited Destroy;
end;
```

- Now you add an item to the `TaskPanes` collection of `TAddinModule` and set its `ControlProgID` property to the `ProgID` of the `ActiveForm` – just select it from the dropdown list.
- Remember about the `Title` property – the host application generates an exception if this property is left empty.
- Clear the Target File Extension field in the project properties (Project | Options | Application).

Temporary or not?

According to the help reference for the Office object model contained within Office.DLL (see Getting Help on COM Objects, Properties and Methods), temporary command bars and controls are removed by the host application when it is closed.

Normally, the developer has the following alternative: if command bars and controls are temporary, they are recreated whenever the add-in starts; if they are non-temporary, the installer removes those command bars and controls from the host. Looking from another angle, you will see that the real alternative is the time required for start-up against the time required for uninstalling the add-in (the host must be run to remove command bars).

Outlook and Word are two exceptions. It is strongly recommended that you use temporary command bars and controls in Outlook add-ins. If they are non-temporary, Add-in Express must run Outlook to remove them. Now imagine password-protected PST and multiple-profile scenarios.

In Word add-ins, we strongly advise making **both** command bars and controls non-temporary. Word removes temporary command bars. However, it does not remove temporary command bar controls, at least not all of them. When the add-in starts for the second time, Add-in Express finds such controls and just connects to them. In this way, it processes the user-moved-or-deleted-the-control scenario. Accordingly, the controls are missing in the UI.

Note that main and context menus are command bars. That is, in Word add-ins, custom controls added to these components must have `Temporary = False` as well. If you set `Temporary` to true for such controls, they will not be removed when you uninstall your add-in. That happens because Word has another peculiarity: it saves temporary controls when they are added to a built-in command bar. And all context menus are built-in command bars. To remove such controls, you will have to write some code or use a simple way: set *`Temporary`* to false for all controls, register the add-in on the affected PC, run Word. At this moment, the add-in finds this control and traces it from this moment on. Accordingly, when you unregister the add-in, the control is removed in a standard way.

Registering with User Privileges

When you use this option of the project wizard, all COM objects are registered in *HKCU/Software/Classes* instead of *HKLM/Software/Classes*. This allows registering COM objects with non-admin privileges.

To support this option, Add-in Express modifies the code of the *<project name>.dpr* file and creates a special *<project name>.ini*. When you deploy the project created with this option, you should place the *<project name>.ini* and *<project name>.dll* files in the same location.

Restrictions:

- This works on Windows 2000+ only.
- The *`TAddinModule.RegisterForAllUsers`* property is ignored if you use the Register with User Privileges option.
- RTD servers in EXE cannot be registered for the current user, so this option will be ignored if selected.

When modifying existing projects, you should do the following:

- Add the following code to the *<project name>.dpr* file:

```
...
uses
...
ComObj, Windows, adxAddIn,
...
```

```
type
  TDummyComServer = class(TObject)
  private
    procedure FactoryRegister(Factory: TComObjectFactory);
    procedure FactoryUnRegister(Factory: TComObjectFactory);
  end;

procedure TDummyComServer.FactoryRegister(Factory: TComObjectFactory);
begin
  UpdateFactory(Factory, True);
end;

procedure TDummyComServer.FactoryUnRegister(Factory: TComObjectFactory);
begin
  UpdateFactory(Factory, False);
end;

function DllRegisterServer: HResult;
begin
  Result := E_FAIL;
  try
    if CheckConfigSection() then begin
      RegisterToHKCU := True;
      with TDummyComServer.Create do
        try
          ComClassManager.ForEachFactory(ComServer, FactoryRegister);
        finally
          Free;
        end;
      Result := S_OK;
    end;
  except
  end;
  if Result <> S_OK then Result := ComServ.DllRegisterServer();
end;

function DllUnregisterServer: HResult;
begin
  Result := E_FAIL;
  try
    if CheckConfigSection() then begin
      RegisterToHKCU := True;
      with TDummyComServer.Create do
        try
          ComClassManager.ForEachFactory(ComServer, FactoryUnRegister);
        finally
```

```
          Free;
        end;
      Result := S_OK;
    end;
  except
  end;
  if Result <> S_OK then Result := ComServ.DllUnregisterServer();
end;

exports
...
```

- Create the *<project name>.ini* file in the project directory and modify its contents as follows:

```
[Config]
Privileges=User
```

Additional Files

GDIPLUS.DLL. This is the Microsoft Windows GDI+ library providing two-dimensional vector graphics, imaging, typography, etc. GDI+ improves on the Windows Graphics Device Interface (GDI) by adding new features and by optimizing existing features. It is required as a redistributable for COM Add-ins based on Add-in Express for VCL that run on the following operating systems: Microsoft Windows NT 4.0 SP6, Windows 2000, Windows 98, and Windows Millennium Edition (Windows Me). GDIPLUS.DLL must be located in the folder where your COM add-in is registered.

IntResource.dll (IntResource64.dll). You can find this file in the *Redistributables* folder. This DLL ensures compatibility between various Add-in Express based add-ins. If not available in the add-in folder, Add-in Express unpacks it to the Temporary Files folder and loads into the host application.

How to find if Office 64-bit is installed on the target machine

Remember that the 64-bit version of Office can be installed on Windows 64-bit only.

If Outlook **is** installed, then the value below exists in this registry key:

```
Outlook 2010-2021/365:
Registry view: both 32-bit and 64-bit
Key: HKLM\SOFTWARE\[WOW6432Node\]Microsoft\Office\{14, 15 or 16}.0\Outlook
Value name: Bitness
That value can be "x64" or "x86"; "x64" means Outlook 64-bit is installed.
```

If Outlook **is not** installed, you can check the following values in the following 64-bit registry key:

```
Excel, Word, PowerPoint 2010-2021/365:
Registry view: 64-bit
Key: HKLM\SOFTWARE\[WOW6432Node\]Microsoft\Office\{14, 15 or
16}.0\{application}\InstallRoot
Value name: Path
If that value exists, then the corresponding 64-bit application is installed.
```

Excel Workbooks

Sometimes you need to automate a given Excel workbook (template). You can do it with *TadxExcelSheetModule* that represents one worksheet of the workbook. For the module to recognize the workbook, you need to fill the following properties: *Document*, *Worksheet*, *PropertyID*, and *PropertyValue*. When you fill the *PropertyID* and *PropertyValue* properties, the design-time code of the module creates the property in the workbook and specifies its value.

A typical scenario of the module usage includes creating the workbook and designing it with MS Forms controls. Accordingly, in the IDE, you set up the *PropertyID* and *PropertyValue* properties, add Add-in Express MSForms control components to the module and bind them to the MS Forms controls on the worksheet. The module provides a full set of events available for the Excel Workbook class.

For the Add-in Express components available for the module see the following chapters: Command Bars: Toolbars, Menus, and Context Menus, Command Bar Controls, Built-in Control Connector, MSForms Controls, and Host Application Events.

Word Documents

To automate a given Word document, you use the *TadxWordDocumentModule*. For the module to recognize the document, you need to fill the following properties: *Document*, *PropertyID*, and *PropertyValue*. When you fill the *PropertyID* and *PropertyValue* properties, the design-time code of the module creates the property in the document and specifies its value.

A typical scenario of the module usage includes creating a document and designing it with MS Forms controls. Accordingly, in the IDE, you set up *PropertyID* and *PropertyValue* properties, add Add-in Express MSForms control components to the module and bind them to the MS Forms controls on the document. The module provides a full set of events available for the Word Document class.

For the Add-in Express components available for the module see the following chapters: Command Bars: Toolbars, Menus, and Context Menus, Command Bar Controls, Built-in Control Connector, MSForms Controls, and Host Application Events. The module provides a full set of events available for a Word document.

Don't use any Office object models in the OnCreate and OnDestroy events

Although the add-in module provides the *OnCreate* and *OnDestroy* events, using them is not recommended. The reason is simple: an instance of the module is created when you register/unregister the add-in. And there is no guarantee that the host application of your add-in will be loaded at that time.

OneNote Add-ins

Unlike COM add-ins for any other Office application, COM add-ins for OneNote are out-of-process. There are two ramifications of this fact.

- To debug such an add-in you will have to attach to the add-in’s process. A widespread approach is to let the add-in show a dialog window before the code to be debugged is executed, attach the debugger to the process while the dialog window is still shown, and close the window close to let the code execute.
- The *TadxKeyboardShortcut* component and the *OnKeyDown* event of the add-in module do not work in a OneNote add-in.

Final Note

If your questions are not answered here, please see the HOWTOs section on www.add-in-express.com. We are adding sample projects to these pages. A number of sample projects are zipped and published at http://www.add-in-express.com/downloads/adxvcl.php.