

Access 2007

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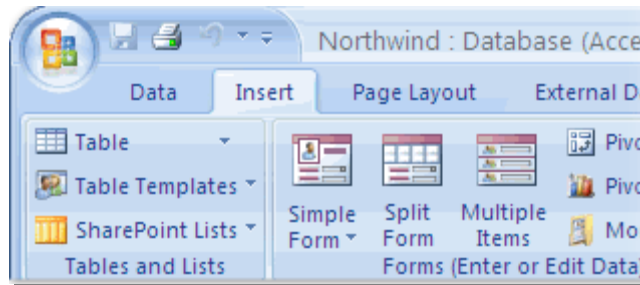
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What is New in Access 2007

If you are familiar with previous versions of Access, there are a large number of new features and a completely new interface in Access 2007.

New Interface Design



Commands are now organized using a new action tab scheme. Under each tab are the commands relevant to the action described on the tab. This command set is referred to as the 'ribbon.' Finally, Access 2007 features contextual tabs showing data that is relevant only to the current object you are working on.

Office Menu



In the upper left-hand corner is the Office Menu, denoted by the Microsoft Office logo. It is very similar to the 'File' menu in previous version of Access or other programs.

File management commands are listed on the left-hand side of the menu, and any recently opened database files are listed on the right. You can also modify options of Access itself by clicking the Access Options button, or close the program by clicking the Exit Access button.

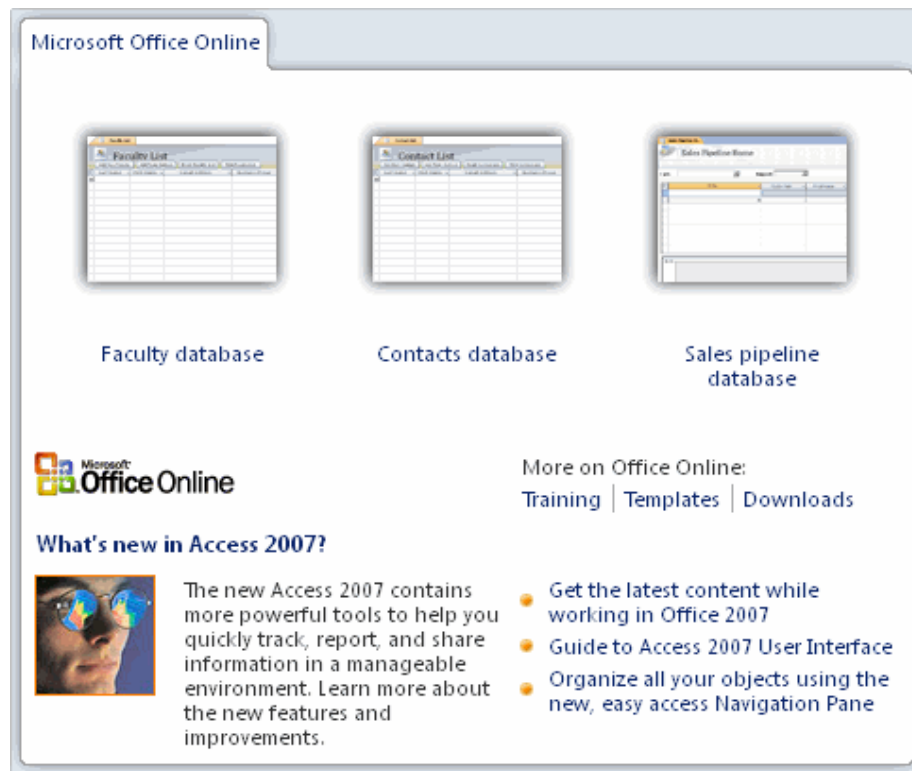
Quick Access Toolbar



To the immediate right of the Office Menu is the Quick Access Toolbar. This toolbar contains quick links to common tasks, such as the Save, Print, and Undo (listed left-to-right in the diagram). You can also customize the Quick Access toolbar to include whatever icons you like. We will explore the Quick Access toolbar in the next section of this manual.

Microsoft Office Online

The centre of the Access window is a special page that extracts content from Microsoft Office Online (a service provided over the Internet). Microsoft Office Online provides quick links to different templates, training material, and other downloads. It also provides links directly to Office Online where you can read about updates to Office 2007 as they become available.



Status bar

Ready Num Lock Finally, at the very bottom of the Access window is the status bar. This bar will give information about the status of Access, if any particular lock keys are enabled on your keyboard, which view is currently active, and more.


Object Tabs

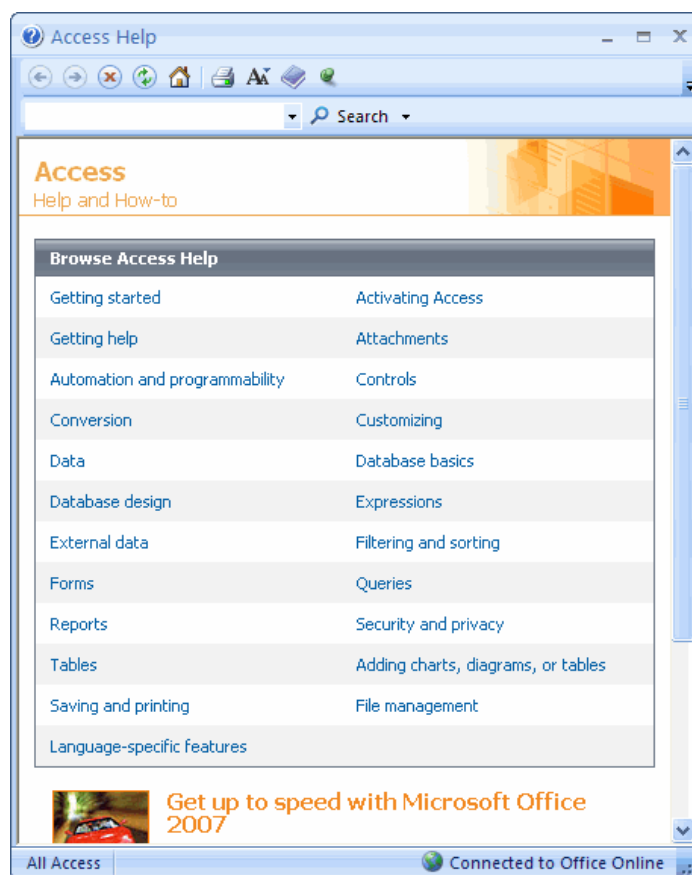
In previous versions of Access, any open database object was opened in its own window and designed to 'float' inside the Access Screen. When several database objects were open at once, it was difficult to navigate through all of the windows easily. Access 2007 has solved that problem by using tabs:



Simply click any of the tabs visible on the top to show the database object. Opening many database objects will create left and right facing arrows (◀ and ▶); click on the arrow to scroll that direction through the open database objects. If you want to close an object you are no longer using, click the Close button (✕) located beside the tabs.

Help Button

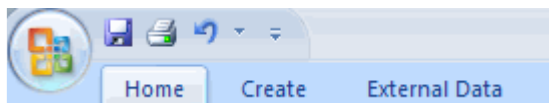
 The Help button, located directly under the title bar, launches the Access help screen:



Click a topic to view help about that particular subject.

Using the Quick Access Toolbar

In the previous lesson, we introduced the new layout changes to Access 2007. In this section, we will learn a little bit more about each part of the new interface and how it works. This lesson will focus on features and customization options available with the Quick Access toolbar, located in the upper left-hand corner of the screen:



About the Default Buttons

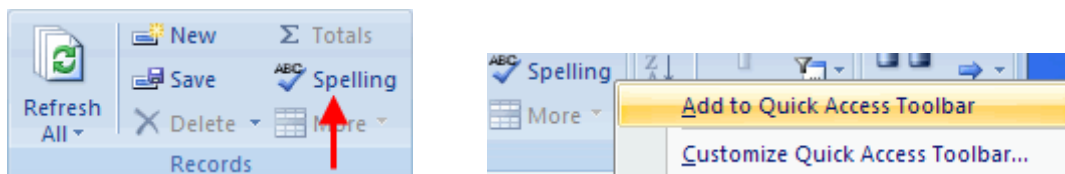
Access features three default commands in the Quick Access toolbar:



Adding Buttons

As you become more familiar with Access you might find it handy to have another command quickly available for use. Access allows you to add the command to the Quick Access toolbar.

To add this command to the Quick Access toolbar, simply **right-click** the Spelling command and click **Add to Quick Access Toolbar**:

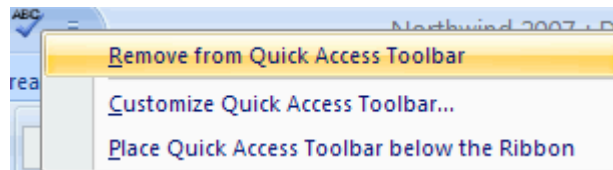


The command (denoted by the small 'ABC' icon) will be placed in the Quick Access toolbar:



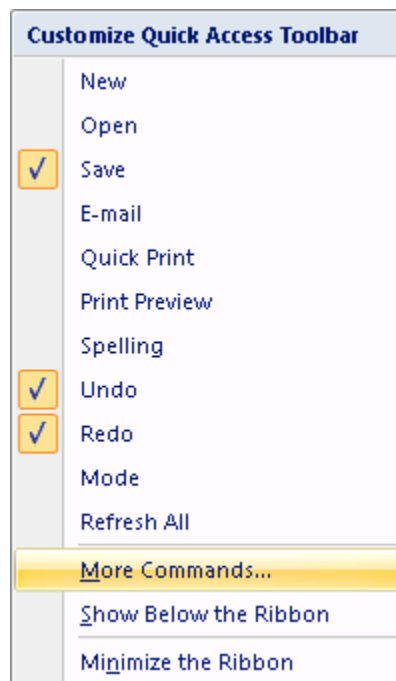
Removing Buttons

If you no longer use a certain command or your Quick Access toolbar is getting a bit too filled with icons, you can remove them easily at any time. Simply right-click on any icon you no longer use and click Remove from Quick Access Toolbar:



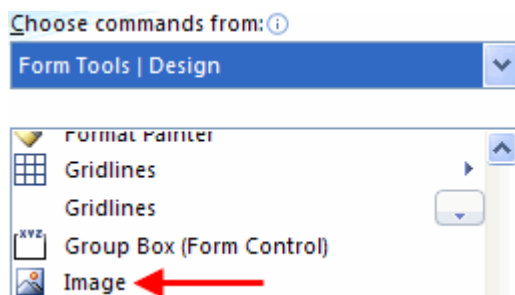
Customizing the Toolbar

As you gain familiarity with Access (and other Office 2007 programs) you have the ability to customize how the Quick Access toolbar looks all at once versus having to add icons one by one. To do this, click the small pull-down arrow (▼) located on the far right of the Quick Access toolbar and click More Commands:

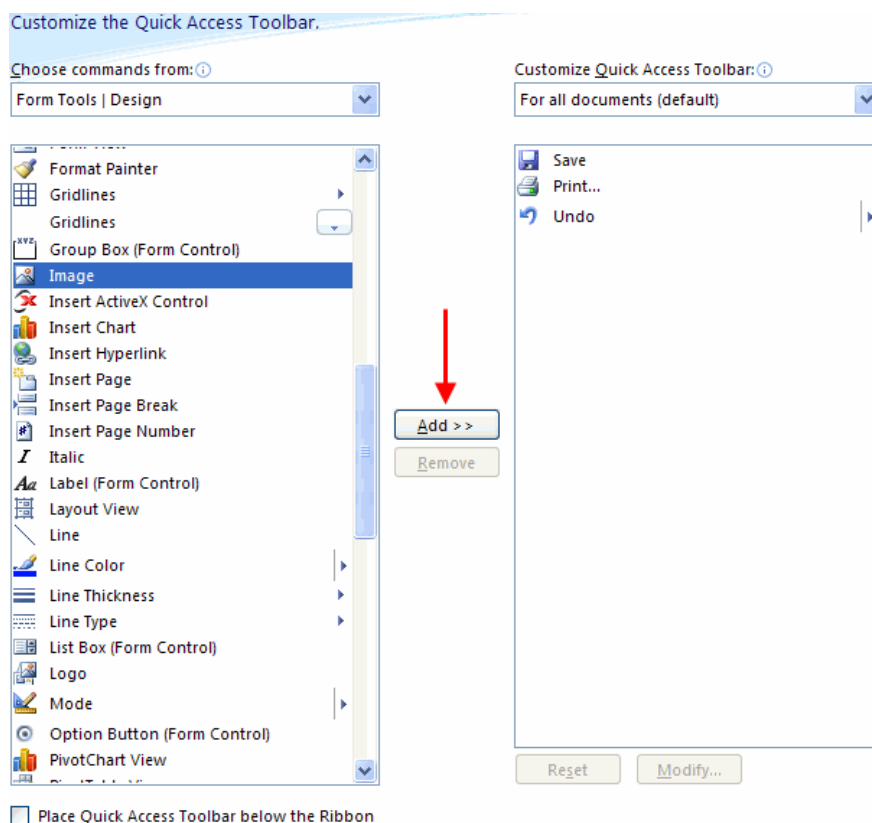


(Note that you can click any command listed here to add that command to the toolbar. The commands that are already checked are those on the toolbar; simply click them to remove them.)

Pick a listing from a particular category in order to see the commands it contains. For example, imagine you are going to make heavy use of pictures and diagrams in a database form. To do this, you will need to import each picture one at a time. Therefore, you may find it easier to add the Insert Image icon to the Quick Access toolbar so it is always accessible. Select the Form Tools - Design option and then scroll down the list of options until you find Image:

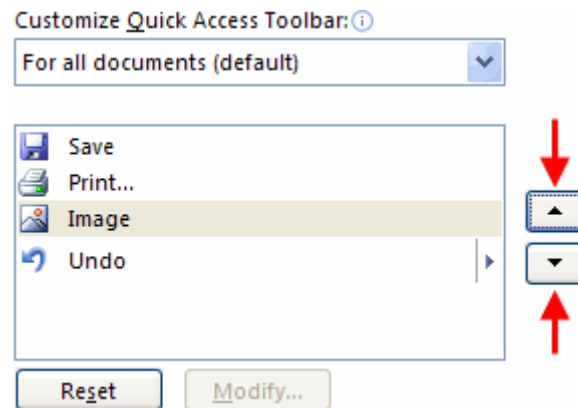


Click the Image icon to highlight it and then click the Add >> button located in the middle of the window:



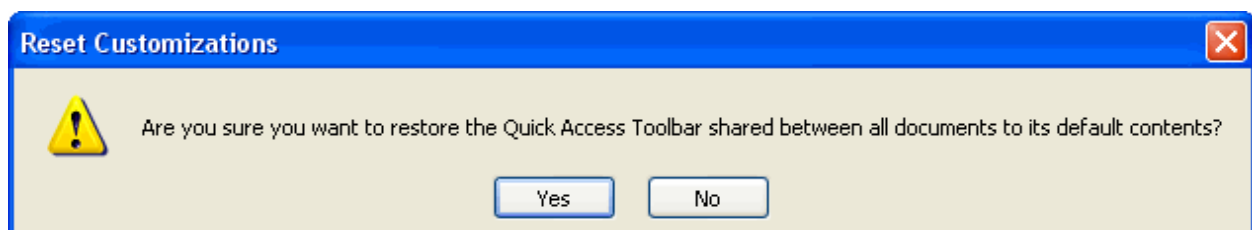
This will add the Image tool to the Quick Access toolbar list on the right-hand side of the window. By default, the command is inserted at the bottom of the list (under the Undo command).

You can change the order of any icons in the list by selecting an item in the Quick Access toolbar list and then clicking the up and down buttons on the right side of the list. Simply click an item in the list you would like to move up or down and then click the corresponding directional button:



Items listed top to bottom will be displayed from left to right in the Quick Access Toolbar. To remove an icon from the list, select the icon and click the Remove button in the middle of the window.

If at any point you want to return the Quick Access toolbar back to its original configuration, click the Reset button:



This will remove all icons except for the original three (Save, Print, and Undo).

Basics of Ribbons

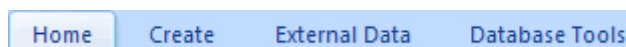
One of the biggest changes in Access 2007 is the removal of menus. Instead of having a list of menu commands to choose from (including a number of options that are grayed out and not accessible), Access 2007 features a more intuitive control system of tabs. Each tab contains a certain group of commands relevant only to the tab. The commands are listed in the ribbon.

There are 4 default ribbons:

- The Home Ribbon
- The Create Ribbon
- The External Data Ribbon
- The Database Tools Ribbon

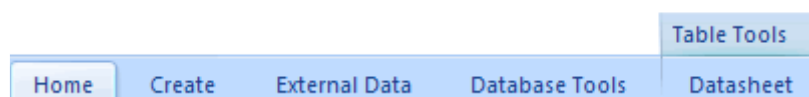
About Ribbons

There are two main types of ribbons: general (or command) and contextual. The general ribbons (and corresponding tabs) are always visible when you are viewing a database file in Access:



The command tabs listed here include many of the most common commands you will perform in Access. The Home ribbon contains the majority of the most common tasks including the ability to switch views, formatting, and filtering of data. If you want to make a new database object, click the Create tab and select the object you want to make. The External Data command tab gives you all the flexibility to import and export data to and from your database, computer, and network. The Database Tools tab gives you the ability to manage the data in your database, create macros, and view relationships.

Contextual tabs appear only when a certain type of database object is selected (or brought into context). For example, if you are looking at a table in datasheet view, a contextual tab will appear showing you the commands you can perform on the table while only in datasheet view:



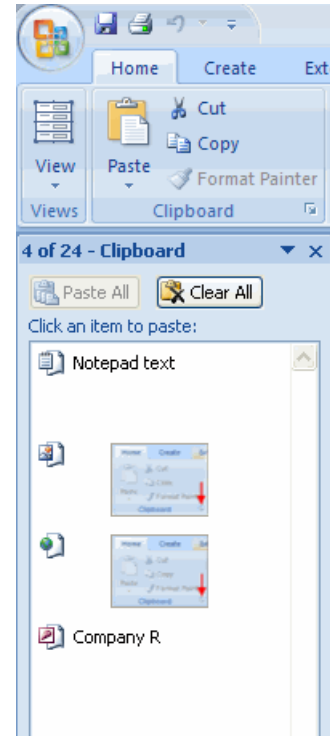
When using a command in the ribbon, simply click it with your mouse. The command will be performed, or the appropriate tool or dialogue box will appear to help you perform the task. If you are unsure what a certain command does, point to it, but do not click it.

Opening Dialogue Boxes from the Ribbon

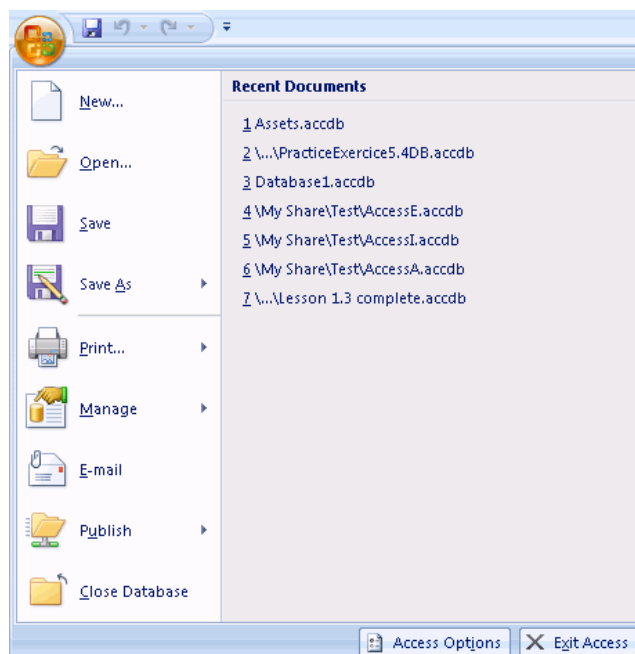
Occasionally you will see a small arrow icon beside the name of a ribbon command category:



Clicking this little icon opens a new dialogue box containing more advanced functionality than is provided by the ribbon alone. In the example above, clicking the Clipboard button opens the Clipboard pane on the left side of the Access window.



About the Office Menu



The Office Menu should be pretty familiar to you now. We have learned that you can open and close files, modify the Access program options, and close Access; all by using the Office Menu. If you have used Access in the past, the Office Menu is very similar in functionality to the File menu in previous versions.

SECTION 1: PivotTables and PivotCharts

In this section you will learn how to:

- Create a PivotTable and a PivotChart
- Learn the concepts behind PivotTables and PivotCharts
- Create a PivotTable and PivotChart based on the same object
- Pivot data in order to show a different view of the data
- Change the type of graph used for a PivotChart

Creating a PivotTable

Databases can very quickly grow to be very large in size. Though reports can show you one view of how data relates to each other, once a report is made you will have to design a whole new report to look at the data in a different way. Microsoft Access 2007 makes use of PivotTables to provide different views of your data on the fly. In this lesson we will discuss the PivotTable, and move onto the PivotChart later in this section.

About PivotTables

PivotTables are a way of displaying the data contained in a table or query. The real advantage of PivotTables over something like a report is that you can create different views of your data by clicking and dragging the fields (or 'pivoting' them) in the table to display the data in a different way.

Consider the Order Details table in the Northwind sample database:

Order Details							
ID	Order ID	Product	Quantity	Unit Price	Status ID	Purchase Order ID	Inventory ID
27	30	Northwind Traders Beer	100	\$14.00	Invoiced	96	83
28	30	Northwind Traders Dried Plums	30	\$3.50	Invoiced		63
29	31	Northwind Traders Dried Pears	10	\$30.00	Invoiced		64
30	31	Northwind Traders Dried Apples	10	\$53.00	Invoiced		65
31	31	Northwind Traders Dried Plums	10	\$3.50	Invoiced		66
32	32	Northwind Traders Chai	15	\$18.00	Invoiced		67
33	32	Northwind Traders Coffee	20	\$46.00	Invoiced		68
34	33	Northwind Traders Chocolate Biscuits Mix	30	\$9.20	Invoiced	97	81

By hiding and resizing columns, we can see all of the columns containing data pertinent to our situation.

However, the Order Details table will likely end up being quite long. Every product in every order is listed in this table! If we want to better compare what data is contained in this table, you might experiment with different filters.

However, this too is limiting compared to the features of a PivotTable. What PivotTables allow us to do is to turn the above table into this:

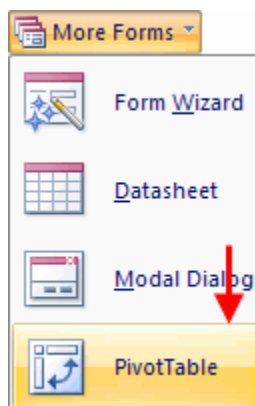
Order Details		Order Details1							
Drop Filter Fields Here									
		Quantity ▾							
		3	5	10	15	17	20	25	30
		+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
Unit Price ▾		Product ID ▾	Product ID ▾	Product ID ▾	Product ID ▾	Product ID ▾	Product ID ▾	Product ID ▾	Product ID ▾
\$2.99	+ -							81	
\$3.50	+ -			80	80		80		80
\$7.00	+ -								
\$9.20	+ -			19			19	19	19
\$9.65	+ -			41					41
\$10.00	+ -						21		
							74		
\$12.75	+ -			48					
				48					

This table shows how many of each item in each price bracket has been sold based on the information in the Order Details table. For example, consider the third column, labeled '10.' It contains the Product IDs of all products that have been sold 10 units at a time. Each row indicates the price of the associated Product IDs.

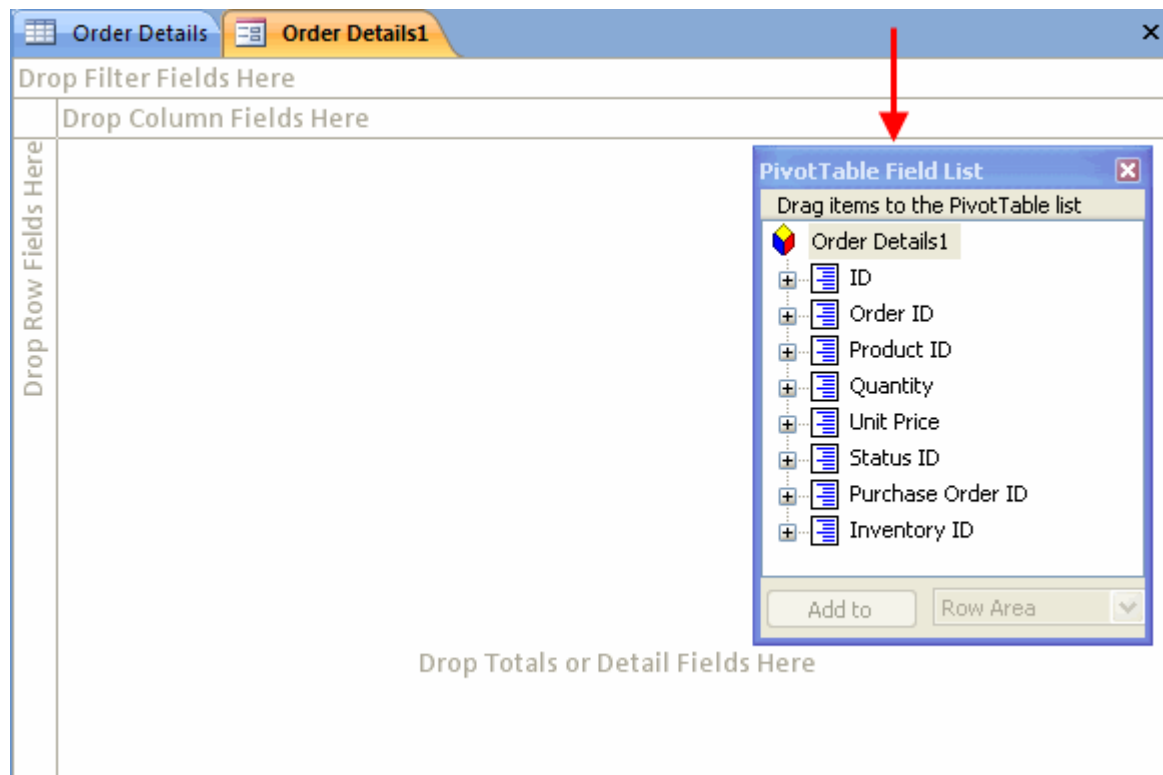
In addition to quickly showing you large amounts of data, PivotTables can be used to observe trends in the product you sell. As shown in the PivotTable, many customers buy products in multiples of 10. It may be cheaper for you to order your product from your supplier in perhaps multiples of 100 instead of some arbitrary middle value. We will explore more of the use of PivotTables as we progress.

Creating a PivotTable

To create a PivotTable like the one shown above, first select the table or query you want to base the PivotTable upon. In the Create ribbon, click the PivotTable command in the More Forms pull-down menu of the Forms section:

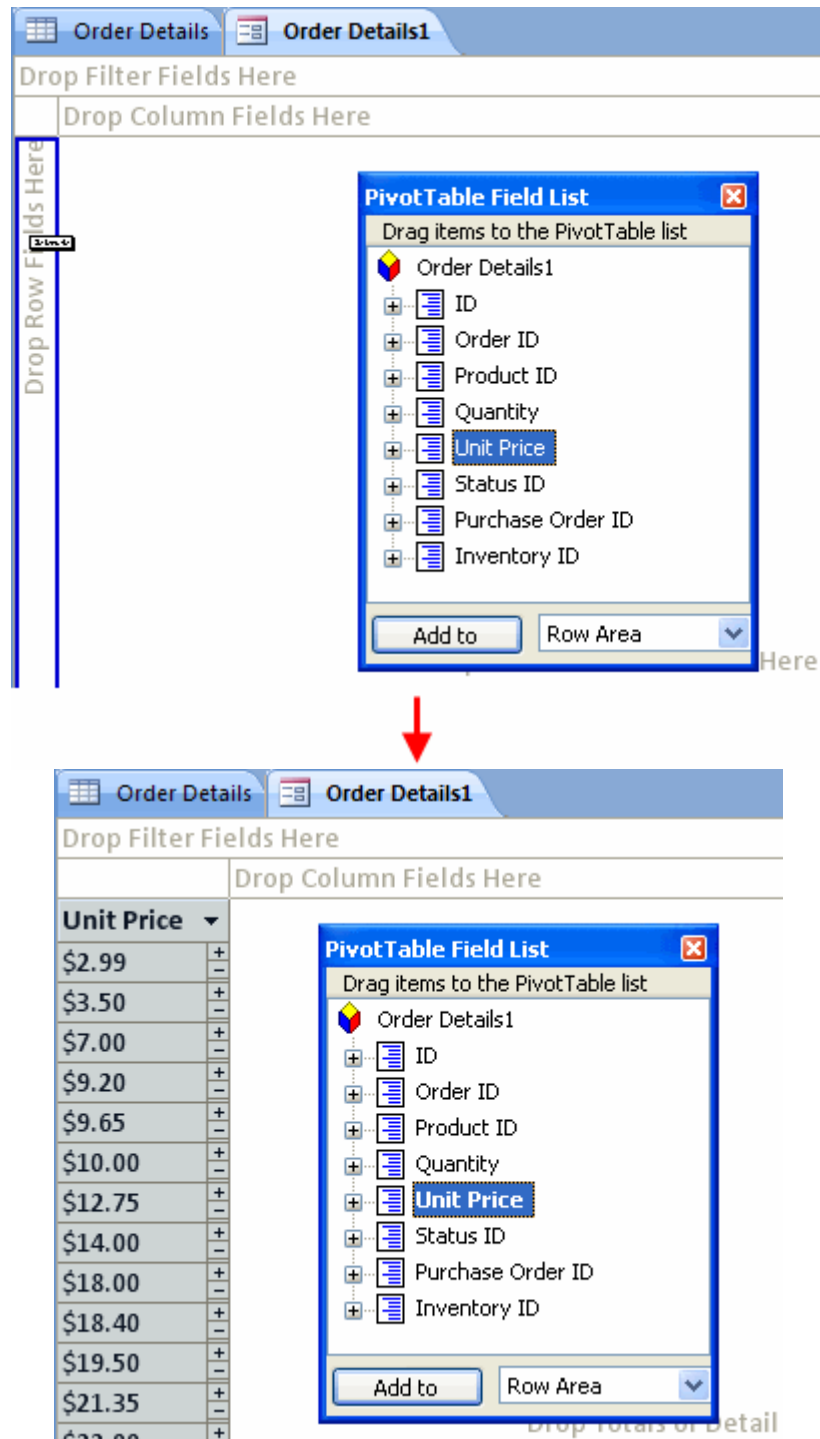


You will see the PivotTable canvas as well as a field list displaying the fields from the table or query:



To complete the PivotTable with data, click and drag the fields from the Field List to the different sections of the canvas. Let's recreate the PivotTable seen earlier in this lesson.

Click and drag the Unit Price field from Field List to the leftmost part of the canvas, marked Drop Row Fields Here:



Click and drag the Quantity field to the Drop Column Fields Here section, and the Product ID field to the Drop Totals or Details Here section (the middle of the canvas):

The screenshot shows a PivotTable titled 'Order Details' and a 'PivotTable Field List' task pane. The PivotTable has 'Unit Price' in the Row Area and 'Quantity' in the Column Area. The Field List shows 'Product ID' selected and 'Add to' set to 'Row Area'.

Drop Filter Fields Here		Quantity			
		3	5	10	15
		+ -	+ -	+ -	+ -
Unit Price	Product ID	Product ID	Product ID	Product ID	Product ID
\$2.99					
\$3.50				80	80
\$7.00					
\$9.20				19	
\$9.65				41	
\$10.00					
\$12.75				48	
				48	
\$14.00					
\$18.00					1
\$18.40					
\$19.50					
\$21.35					
\$22.00				4	

PivotTable Field List

Drag items to the PivotTable list

- Order Details1
 - ID
 - Order ID
 - Product ID**
 - Quantity
 - Unit Price
 - Status ID
 - Purchase Order ID
 - Inventory ID

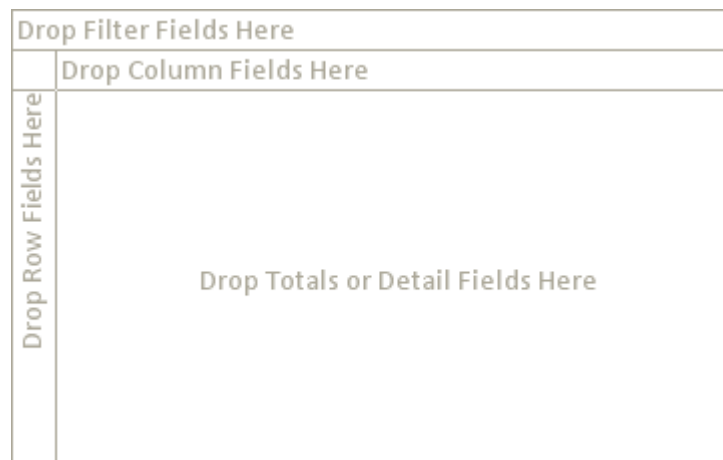
Add to: Row Area

That's all that is needed create a basic PivotTable. You need to have two comparison fields on the horizontal and vertical axes and some quantifiable field in the middle (one that has meaning when compared to the fields on the horizontal and vertical axis).

If during the construction of the PivotTable you placed a field in a spot you didn't intent do, simply click and drag the field name off of the canvas. This will remove the field from the PivotTable. Should your PivotTable become very large with many fields, you can still add additional fields by highlighting the field you want to use in the Field List, selecting an area in the combo box at the bottom of the Field List, and then clicking Add to.

More about PivotTable Fields

PivotTables provide a lot of functionality and can tell you a great deal of information. Let's explore how we can make a PivotTable work for us by exploring some of the extra functionality. Consider a blank PivotTable canvas:



It contains four major components: a place for row and column fields, a place for filtering fields (like an overall table filter), and a place to put a field or fields to be compared.


Each PivotTable area can contain more than one field. This will allow a user to further categorize results as they are displayed in the Pivot Table. For example, consider adding the Order ID field to the Row fields section. Click and drag the Order ID field to the left of the existing Unit Price field; you will see a thick blue line indicating where the new field will be placed:

Drop Filter Fields Here	
	Quantity ▾
	3 5
	+ - + -
Unit Price ▾	Product ID ▾
\$2.99	
\$3.50	
\$7.00	
\$9.20	
\$9.65	
\$10.00	

Now all of the data in the PivotTable has been categorized by one more degree. The details of every order are now shown in a tabular view that is easier to read than reading from records of a table.

Home		Order Details1		
Drop Filter Fields Here				
		Quantity ▾		
		3	5	10
		+ -	+ -	+ -
Order ID ▾	Unit Price ▾	Product ID ▾	Product ID ▾	Product ID ▾
☐ 30	\$3.50	+		
	\$14.00	+		
	Total	+		
☐ 31	\$3.50	+		80
	\$30.00	+		7
	\$53.00	+		51
	Total	+		
☐ 32	\$18.00	+		
	\$46.00	+		
	Total	+		

The detail shown by a PivotTable can be increased even more by adding a filtering field. For example, consider adding the Status ID field to the top of the PivotTable:

Home		Order Details1			
Status ID ▾					
All					
		Quantity ▾			
		3		5	10
		+ -		+ -	+ -
Order ID ▾	Unit Price ▾	Product ID ▾	Product ID ▾	Product ID ▾	
☐ 30	\$3.50	+			
		-			
	\$14.00	+			
		-			
	Total	+			
		-			
☐ 31	\$3.50	+			80
		-			
	\$30.00	+			7
		-			
	\$53.00	+			51
		-			
	Total	+			
		-			

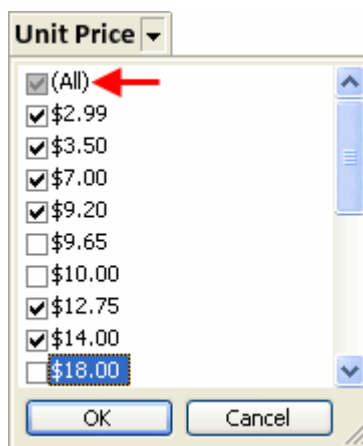
The Status ID field contains two values. One indicates which inventory has been invoiced (that is, already sold through the system) and the other value shows how much of which product has been allocated for an order but not yet released to the customer.

Completing your PivotTable

To round out the data that will be presented in the PivotTable, you have the ability to apply filters, hide certain column or rows of data, apply totals and grand totals, and more, to create a finished look. In the final section of this lesson, we will explore how to perform these tasks.

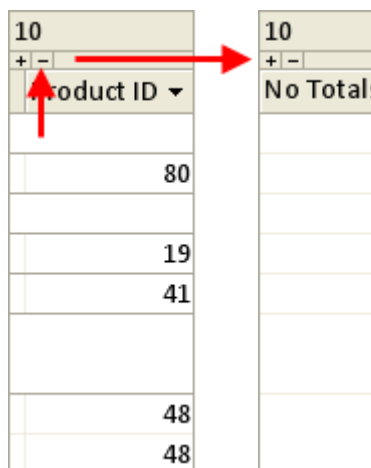
Filter by Selection

Every field that is included in a PivotTable has the ability to be filtered based on the table values of that field. Click any of the check boxes to remove that particular value from consideration in the PivotTable. You can also click the All check box to select every check box in the list:



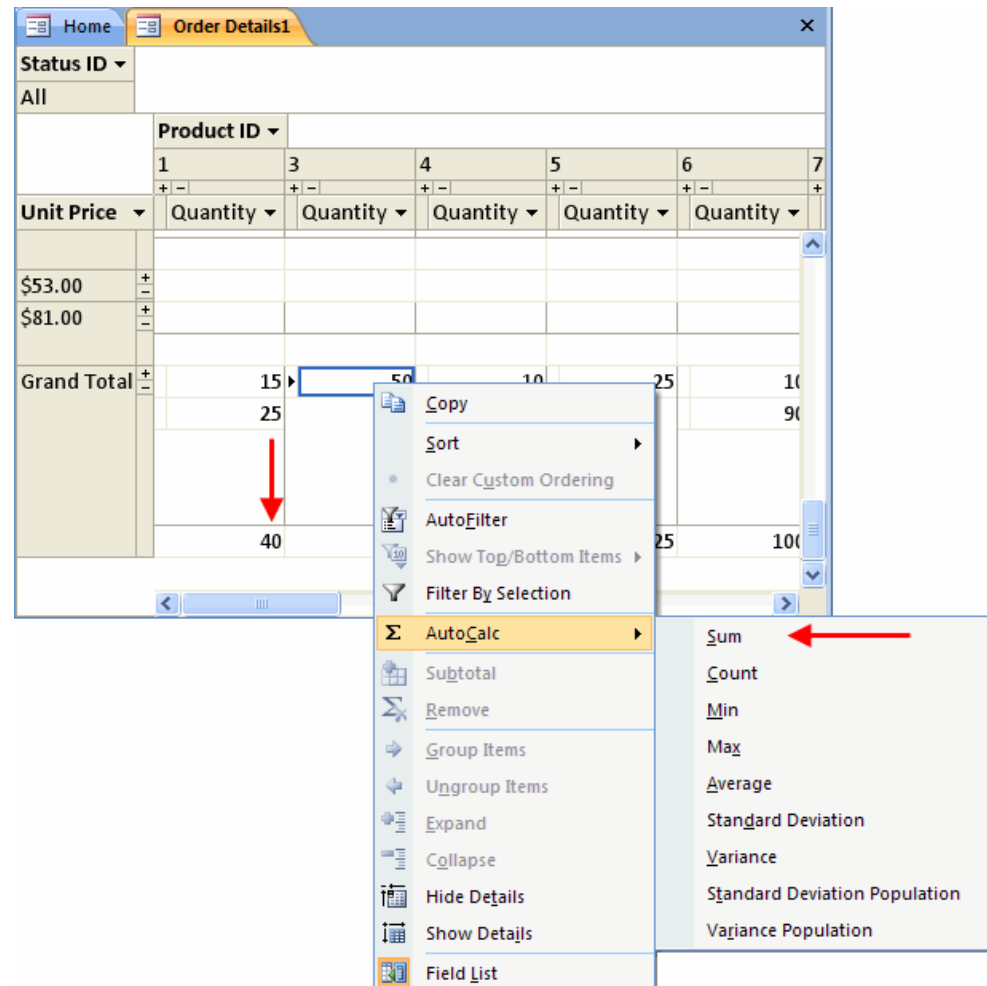
Hide/Show Specific Rows/Columns

Click the small + or – sign at the header of each row or column to show or hide all values associated with that particular row or column of data.



Subtotals and Filters

If the data in the totals (middle) section of the PivotTable is numeric, you can apply any number of mathematical operations to it using the AutoCalc feature:



More Use of Right-Click

AutoCalc values can be applied by right-clicking on a cell in the PivotTable or field name. You have the ability to show the top or bottom items in a table, apply a subtotal, group and ungroup fields, and display more detail about a particular item in your PivotTable.

We will explore more of the use of PivotTables later in this section, including the feature that gives a PivotTable its name.

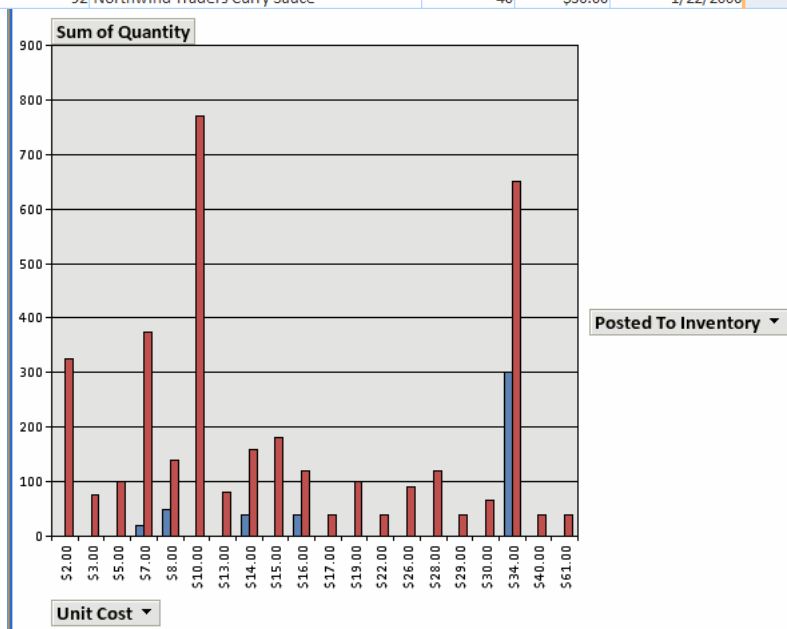
Creating a PivotChart

We learned in the previous lesson that a PivotTable can effectively communicate a lot about the data in table. We will now learn about a close relative of the PivotTable: the PivotChart. In its simplest terms, a PivotChart displays in graph form what a PivotTable shows in tabular form. Therefore, PivotCharts let you view information about the data in a table very quickly.

About PivotCharts

A PivotChart is a graphical way of representing the data in a table or query. Consider the Purchase Orders table from the Northwind sample database:

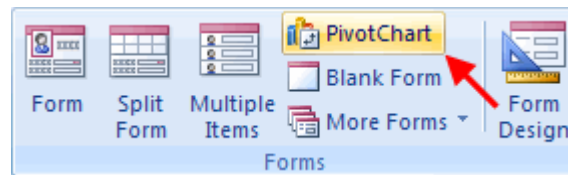
Purchase Order Details								
ID	Purchase Order ID	Product	Quantity	Unit Cost	Date Received	Posted To Inventory	Inventory	
238	90	Northwind Traders Chai	40	\$14.00	1/22/2006	✓		59
239	91	Northwind Traders Syrup	100	\$8.00	1/22/2006	✓		54
240	91	Northwind Traders Cajun Seasoning	40	\$16.00	1/22/2006	✓		55
241	91	Northwind Traders Olive Oil	40	\$16.00	1/22/2006	✓		56
242	92	Northwind Traders Boysenberry Spread	100	\$19.00	1/22/2006	✓		40
243	92	Northwind Traders Dried Pears	40	\$22.00	1/22/2006	✓		41
244	92	Northwind Traders Curry Sauce	40	\$30.00	1/22/2006	✓		42



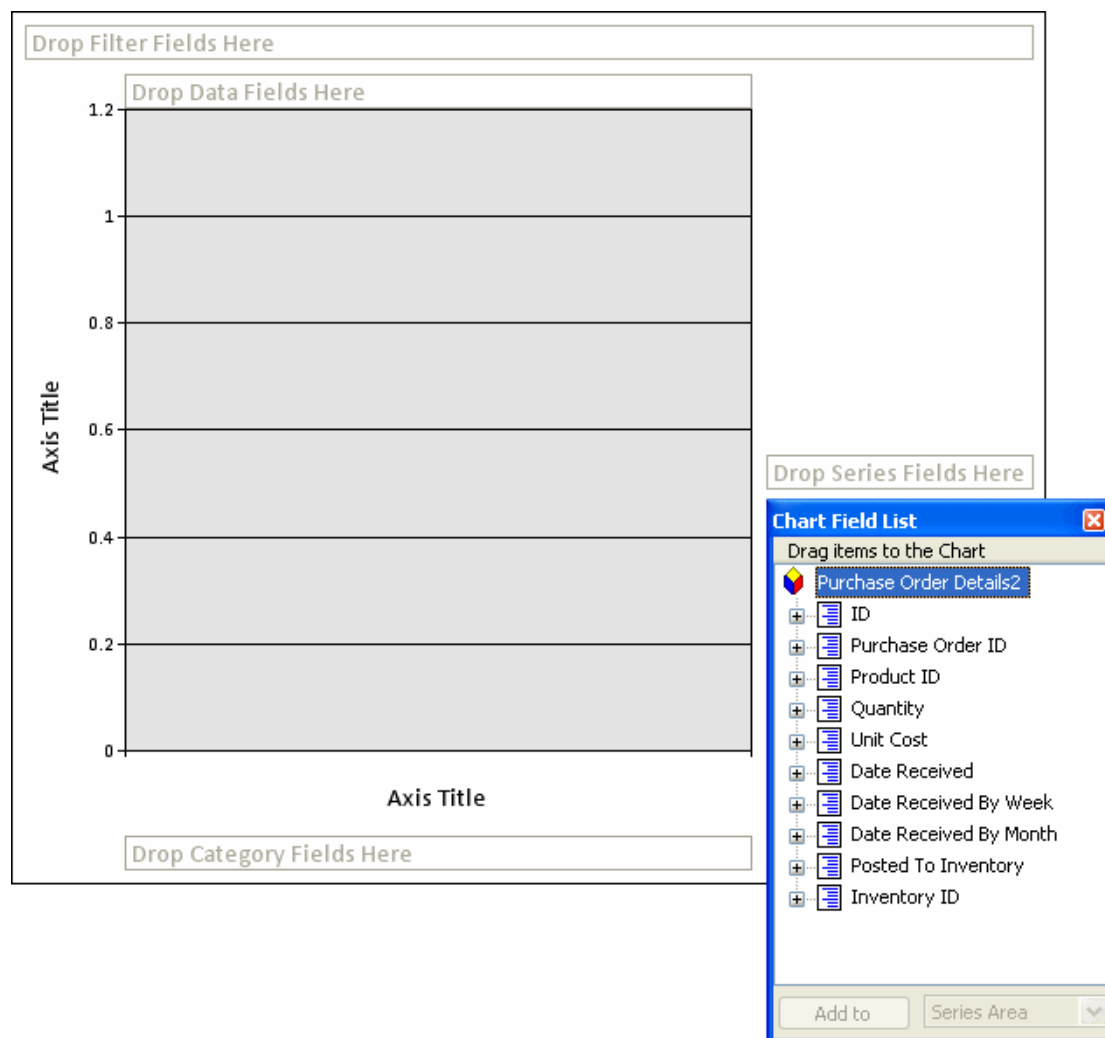
Now consider we wanted to see how many of each product has been purchased and the price category the product falls into. We also want to know if the received product has been posted to the inventory yet. The following PivotChart will be able to tell us that information:

Creating a PivotChart

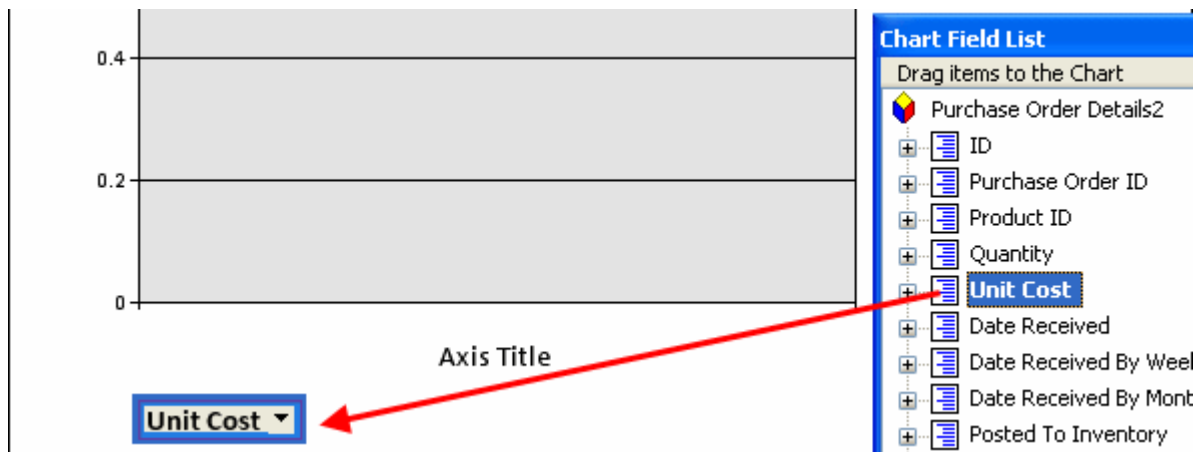
Creating a PivotChart is just as easy as creating a PivotTable. First, select which table or query you would like to use to create the PivotChart in the Navigation Pane. Then simply click the PivotChart command in the Create ribbon:



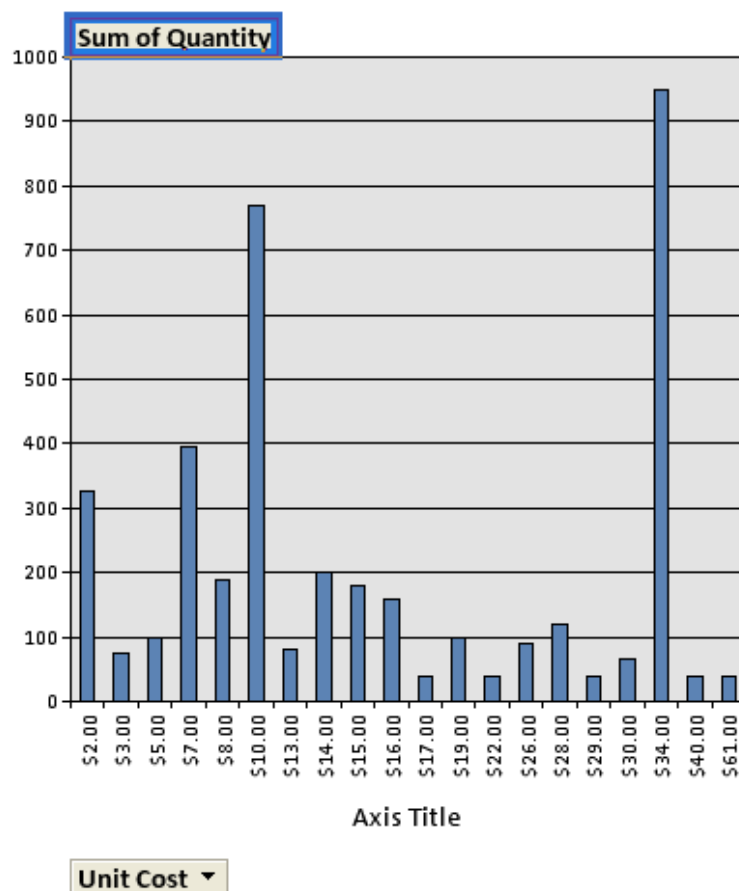
The PivotChart canvas will appear as well as the list of fields in the current table or query:



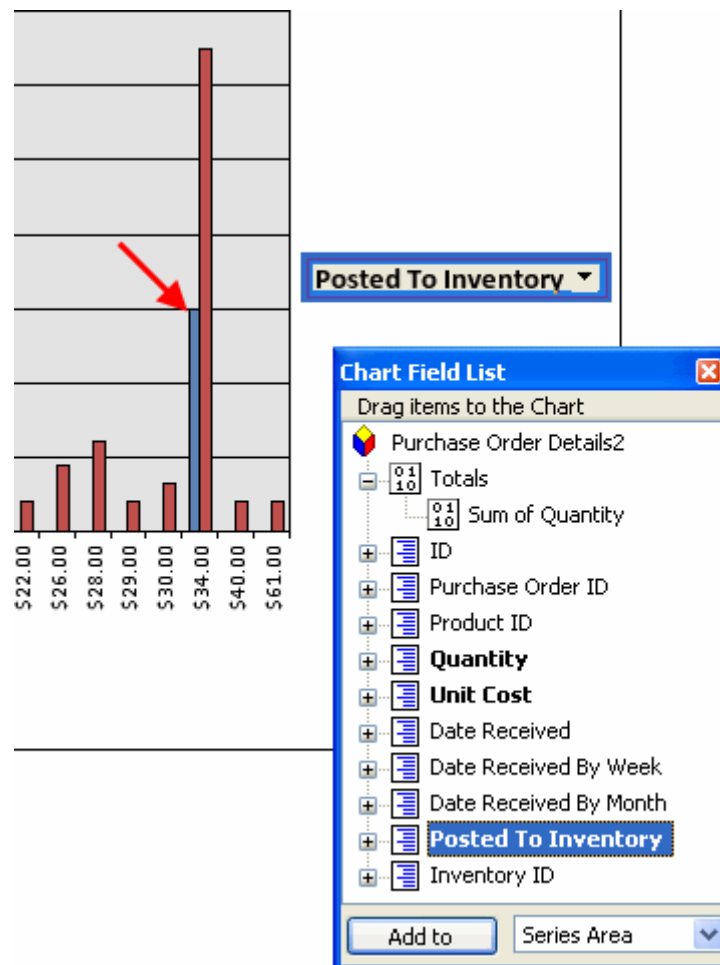
Click and drag the fields you wish to use in your PivotChart to the appropriate places on the canvas. To create a chart like the above example, click and drag the Unit Cost field to the Drop Category Fields Here section at the bottom of the canvas:



Next, move the Quantity field to the center of the canvas. This will create a sum of the quantities in the table based on each price group:



Finally, move the Posted to Inventory field to the Series section of the canvas:

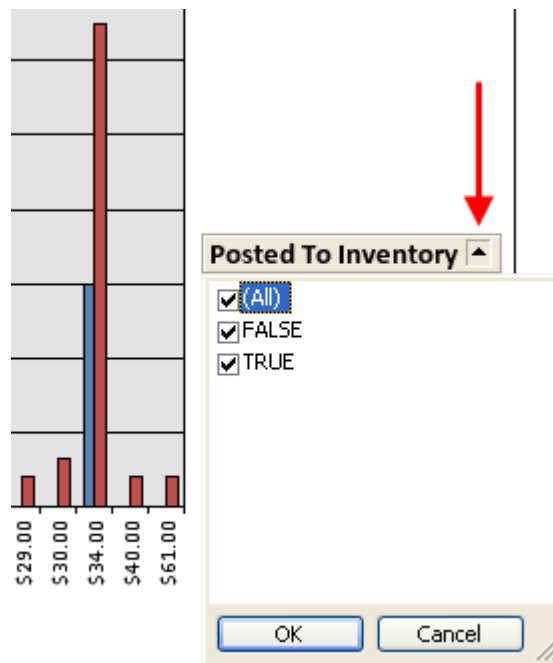


With the addition of more than one possible item in the series section, notice how the bars of the graph changed color. The blue bar in the diagram above indicates how much of the inventory for this particularly priced item has not yet been posted to the inventory.

As with a PivotTable, you can easily remove any fields you don't want or put in the wrong spot. Simply click and drag the field name off of the canvas or back into the PivotChart Field List.

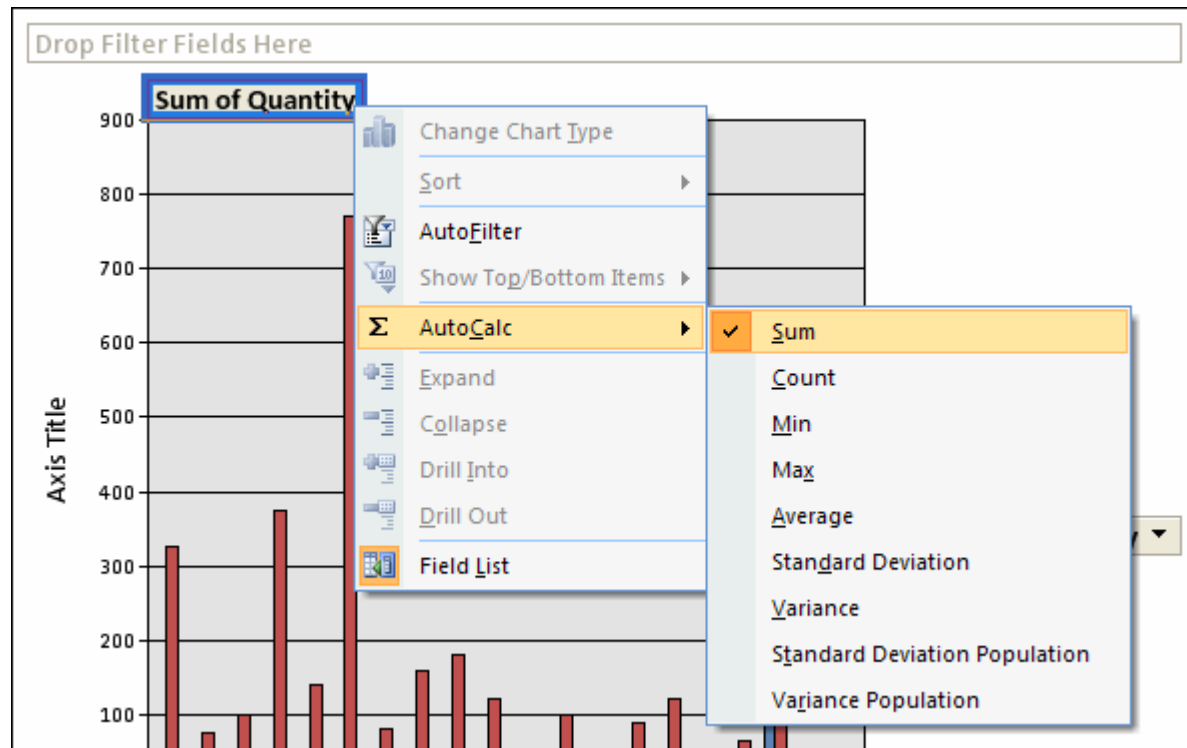
More about PivotChart Fields

PivotChart fields have some of the same functionality as those in a PivotTable. Click any of the fields to reveal a pull-down menu that contains a listing of all values that fields carried in the source table:



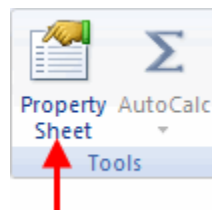
The right mouse button also plays a part in how certain details about your PivotChart can be displayed.

For example, you can choose a number of other mathematical operations on the main data source of the PivotChart:

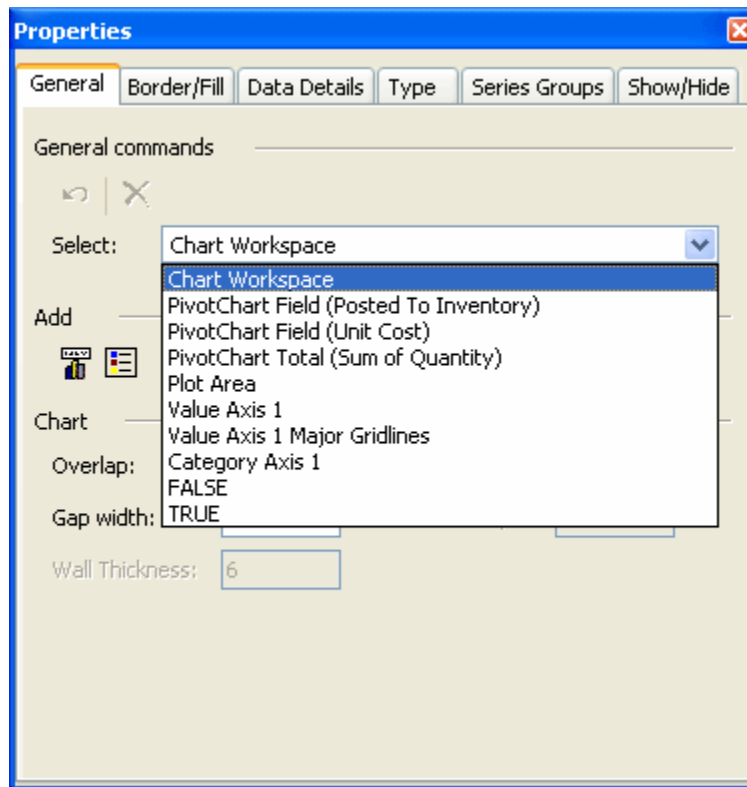


Completing Your PivotChart

Because of their graphical nature, PivotCharts have many formatting options available for use. Click the Property Sheet command to view the properties of the selected object:



In the General tab of the Property Sheet you can switch between each of the objects currently on the canvas:



Here you can rename the axis of the PivotChart, change the chart type, and format the chart to look the way you like. We will explore more of these features in detail in the next lesson.

Using PivotTables and PivotCharts

We now know how PivotTables and PivotCharts are useful in displaying a lot of information in a hurry. In this lesson we will learn more about the nature of PivotTables and PivotCharts and how to make data really stand out.

Using a PivotTable

The biggest feature of PivotTables, and indeed where they get their name, is in the ability to move or pivot the various data without having to create a whole new table of a different layout. Consider the following PivotTable based on the Purchase Order Details table from the Northwind sample database:

Posted To Inventory ▼											
All											
		Quantity ▼									
		10		20		25		30		40	
		+	-	+	-	+	-	+	-	+	-
Product ID ▼		Unit Cost ▼		Unit Cost ▼		Unit Cost ▼		Unit Cost ▼		Unit Cost ▼	
1	+									\$14.00	
	-									\$14.00	
3	+										
	-										
4	+									\$16.00	
	-									\$16.00	
5	+									\$16.00	
	-									\$16.00	
6	+										
	-										
7	+									\$22.00	
	-									\$22.00	
8	+					\$30.00				\$30.00	
	-									\$30.00	
14	+									\$17.00	
	-									\$17.00	
17	+									\$29.00	
	-									\$29.00	
19	+	\$7.00		\$7.00		\$7.00		\$7.00			
	-			\$7.00							

It displays the cost of each product and the quantity of each product that has been purchased in the system. The easiest method of using a PivotTable is to switch the horizontal and vertical fields. The same data will be displayed, but sometimes the data may become easier to read. The table above is quite wide; we can make it taller and avoid a lot of sideways scrolling.

To pivot fields in a PivotTable, click and drag one of the field titles (like Quantity or Product ID) and drag it to another section of the table. It does not matter which field you drag first.

Let's visualize this by moving the Product ID field title to the right of the Quantity field title:

Posted To Inventory ▾			
All			
	Quantity ▾		
	10	20	25
	+ -	+ -	+ -
Product ID ▾	Unit Cost ▾	Unit Cost ▾	Unit Cost ▾
1			
3			
4			

Notice the small icon beside your mouse pointer as you drag a field title. In the above example, the small icon indicates that the selected field title (Product ID) is about to be moved to the column section of the PivotTable. Once the field title has been moved, you will see it displayed beside the Quantity title:

Posted To Inventory ▾						
All						
	Quantity ▾	Product ID ▾				
	10	20				
	19	Total	19	21	74	Total
	+ -	+ -	+ -	+ -	+ -	+ -
	Unit Cost ▾	No Totals	Unit Cost ▾	Unit Cost ▾	Unit Cost ▾	No Totals
	\$7.00		\$7.00	\$8.00	\$8.00	
			\$7.00			

The above diagram is indeed a PivotTable that displays exactly the same data as before, but all of the data is in the same row and makes it difficult to read.

Now click and drag the Quantity field title to the left side of the canvas:

Posted To Inventory ▾					
All					
Product ID ▾					
		3	4	5	6
		+ -	+ -	+ -	+ -
Quantity ▾		Cost ▾	Unit Cost ▾	Unit Cost ▾	Unit Cost ▾
10	+ -				
20	+ -				
25	+ -				
30	+ -				
40	+ -	\$14.00		\$16.00	\$16.00
		\$14.00		\$16.00	
50	+ -		\$8.00		
60	+ -				

You can add as many fields as you like to one section of a PivotTable in order to display the information in a way that it suited to your needs. However, things can get crowded quickly if you add too many fields that are not necessarily related. For example, we can add the Purchase Order ID to the totals (center) area of the PivotTable:

Posted To Inventory ▾					
All					
Product ID ▾					
3			4		
+ -			+ -		
Quantity ▾		Purchase Order ID ▾	Unit Cost ▾	Purchase Order ID ▾	Unit Cost ▾
10	+ -				
20	+ -				
25	+ -				
30	+ -				
40	+ -			91	\$16.00
				91	\$16.00
50	+ -	91	\$8.00		
60	+ -				
75	+ -				
80	+ -				
100	+ -	91	\$8.00		

As you can see, this might be useful information for your situation; however, it is impractical to read.

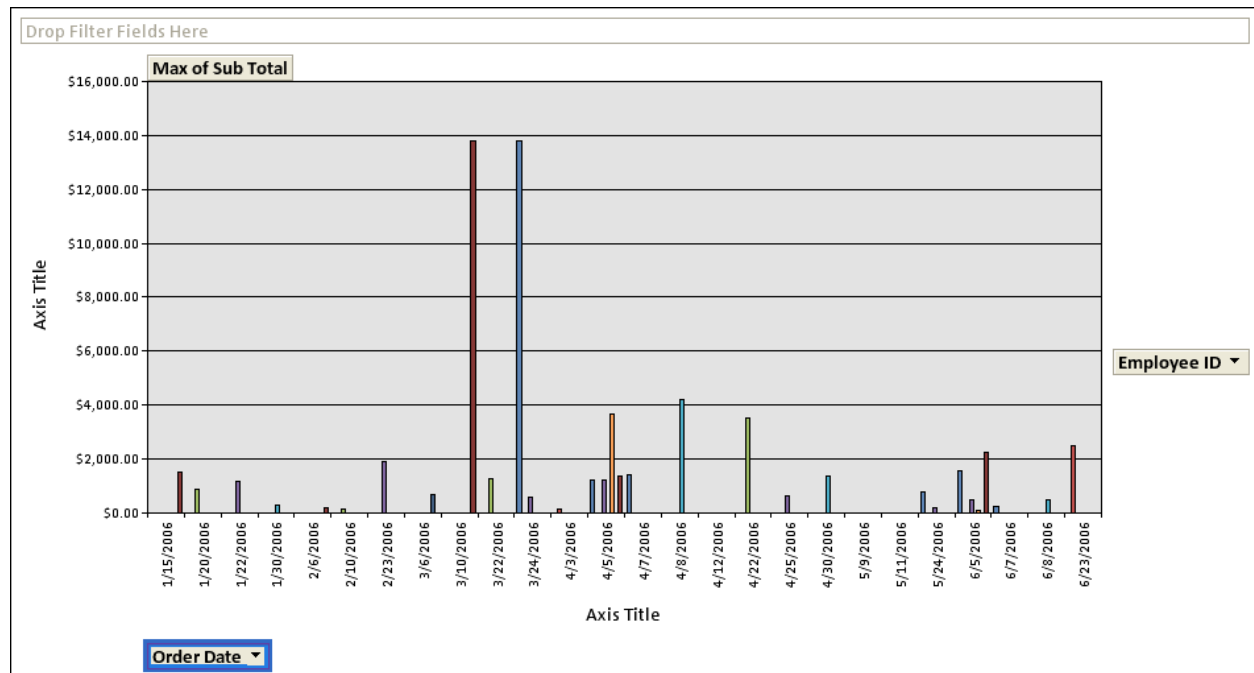
The addition of this field has made the table very wide and you will need to scroll sideways to view all data. Pivoting the Purchase Order ID to the row heading section makes the table a bit easier to view:

Posted To Inventory ▼											
All											
		Product ID ▼									
		3		4		5		6			
		+ -		+ -		+ -		+ -			
Purchase Order ID ▼	Quantity ▼	Unit Cost ▼		Unit Cost ▼		Unit Cost ▼		Unit Cost ▼			
☐ 90	40										
	60										
	100										
	125										
	Total										
☐ 91	40			\$16.00		\$16.00					
				\$16.00							
	50	\$8.00									
	80										
	100	\$8.00									
	Total										

PivotTables do not modify the source data in any way so you are free to move any fields and apply any filters you like to the PivotTable. The leftmost field in any section of a PivotTable is the primary grouping. Subsequent fields added on the right will add more levels of grouping.

Using a PivotChart

Like PivotTables, PivotCharts get their name from being able to insert and pivot any of the fields on the canvas. Consider the following chart showing the best sale each employee had for each date a sale was logged:



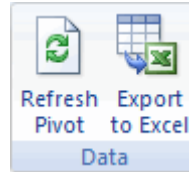
Though the scale is a bit small, we can see that the two highest sales of any employee happened on the 10th and 24th of March, 2006. However, as Northwind Traders sells more and more in the years ahead, this chart will get wider and wider.

Depending on the particular piece of data you want to emphasize, you can adjust the fields in this chart to better reflect the data. If it is necessary for you to keep a particular set of fields in order to display the data you need, you also have the ability to change the type of chart that can be displayed. We will explore different chart types and options later in this lesson.

Editing a PivotTable or a PivotChart

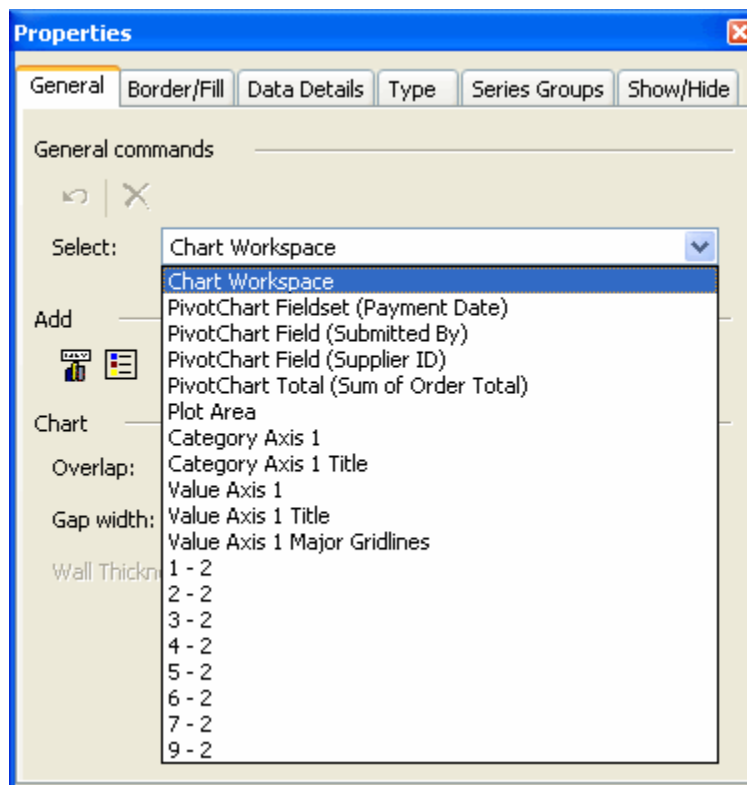
There are a number of different ways to edit how the data is displayed in a PivotTable or PivotChart. Though you cannot modify the source data through a PivotTable, you can refresh the main data that was used to create the PivotTable. This command is useful if you have any linked data, such as to a SharePoint server or an external database file.

You can find this command in the PivotTable - Design ribbon:

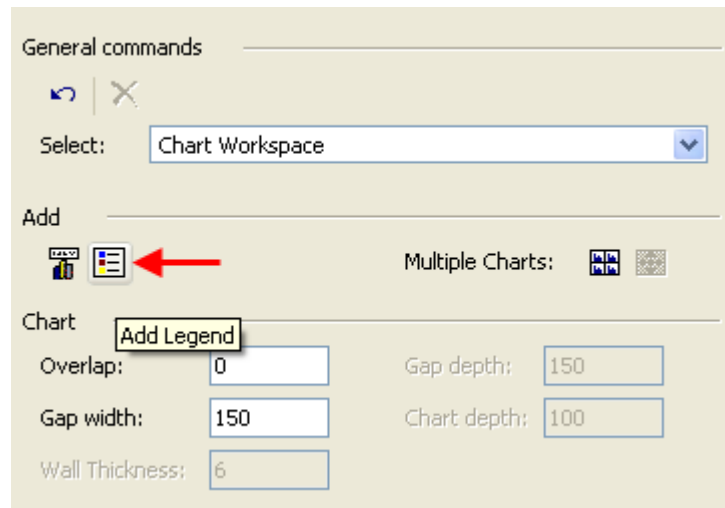


Notice that you also have the ability to export a PivotTable to an Excel file. The structure of a PivotTable is very similar to that of an Excel spreadsheet. (In fact, PivotTables and PivotCharts are features included with Microsoft Excel.) This is convenient for users who do not have Access installed on their machine but who are used to working with Excel files.

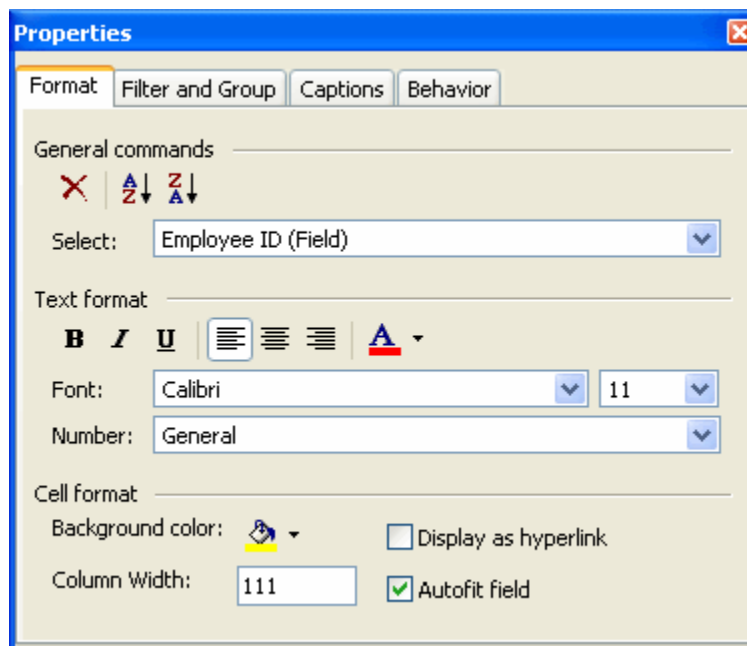
When working with a PivotChart, it is almost always necessary to have some sort of legend. To display the legend in a PivotChart, click the Property Sheet command and select the Chart Workspace from the Format or General tab:



Click the Add Legend button to display the meaning of the bars in your PivotChart:



When working with a PivotTable, you have the ability to modify the look of the table just as you do many other objects in Access. Click inside any cell of the PivotTable or any column/row heading and then click the Property Sheet command in the PivotTable - Design ribbon:



We will explore the usage of the editing commands in the next section of this lesson.

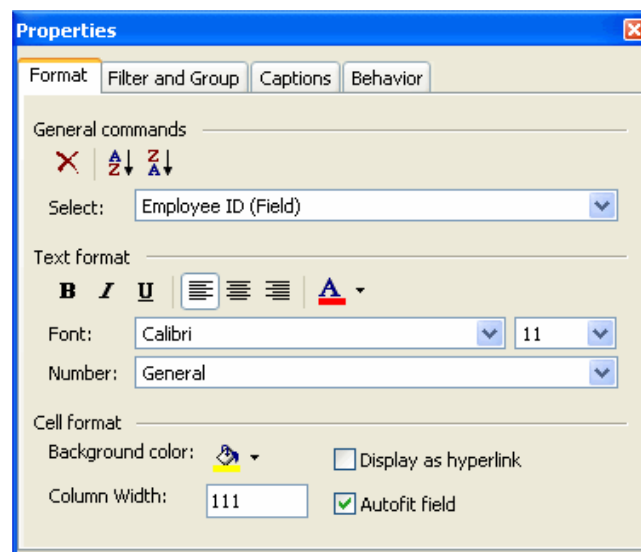
Common PivotTable and PivotChart Editing Commands

When editing PivotTables and PivotCharts, the bulk of the editing you can perform (except the actual pivoting) can be performed by using the Property Sheet command.

When dealing with a PivotTable, the following formatting options are available:

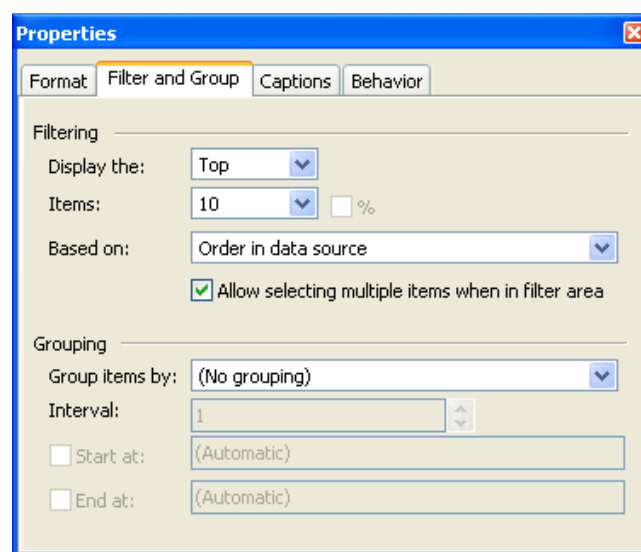
Format Tab

Select which object on the canvas you want to modify and adjust the look and feel:



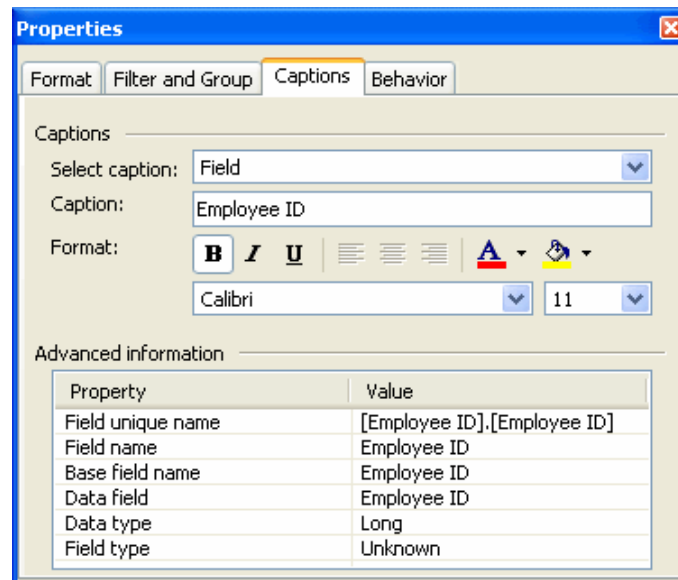
Filter and Group

This tab lets you apply various filters such as the top 10 items or group the data in the table based on a certain interval.



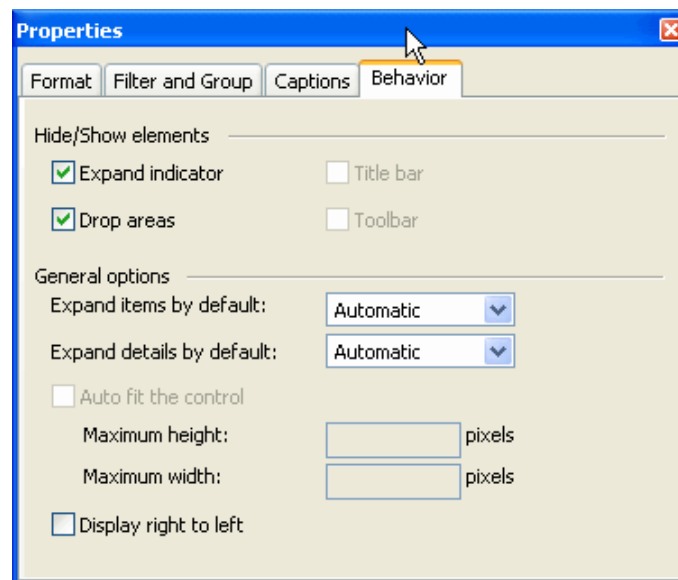
Captions Tab

The commands in this tab expand on the commands available in the Format tab. These commands deal with the caption and look and feel of a specific group of headers.



Behavior

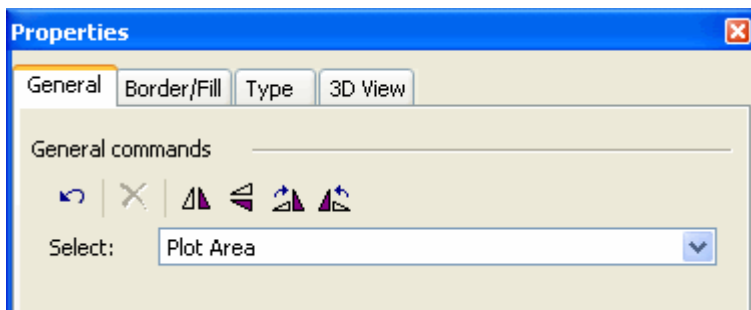
The Behavior tab will only appear if you modify any of the Filtering commands in the Filter and Group tab. The commands in the Behavior tab will affect how the table will automatically adjust itself as the data in the table is modified by the addition of filters or search criteria.



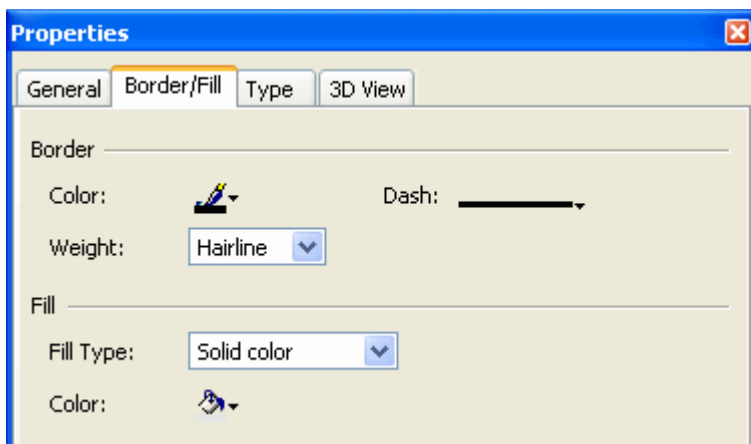
When dealing with the chart portion of a PivotChart, the editing options are similar:

General Tab

Change display options to control how the PivotChart will look.

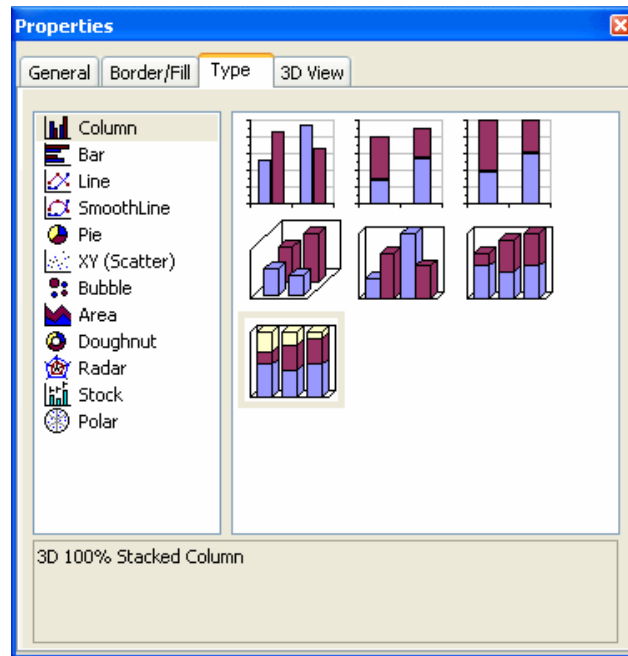
**Border/Fill Tab**

This tab allows you to adjust the look and feel of the areas that define the chart data.



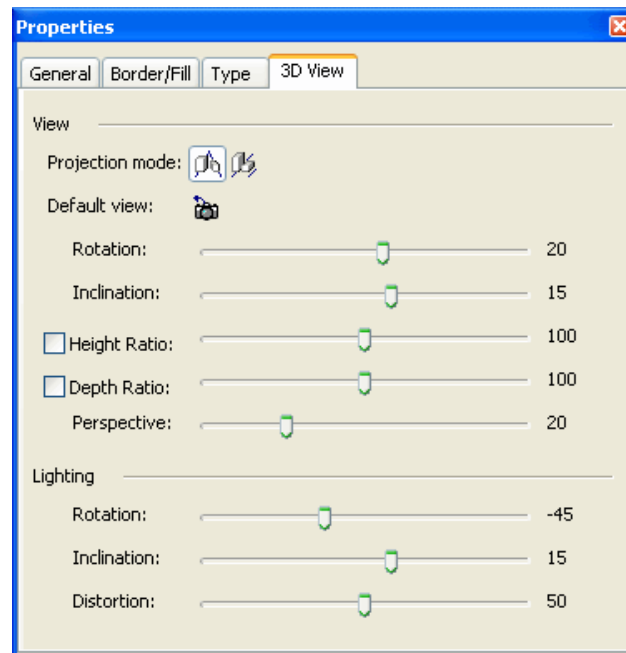
Type Tab

This tab lets you choose which type of graph you want to use to display the data. As you select different categories and the types of charts, you will see the chart become updated in real time.



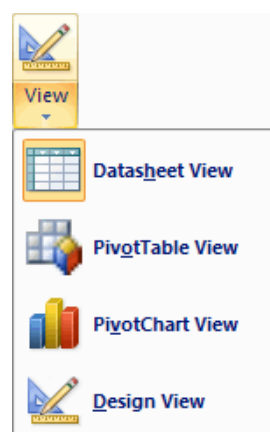
3D View Tab

This tab will appear if the current chart you are viewing has three dimensional elements contained in the design. Adjust the camera angle and lighting with this tab.



Creating a PivotTable and PivotChart from the Same Object

By now you should be comfortable with the use and purpose of PivotTables and PivotCharts. We have explored how to create them and how to pivot the fields in the table to get the view that works the best. However, we have only explored separate creation of a PivotTable or a PivotChart. Access 2007 lets you create a PivotTable and a PivotChart together based upon the same object. If you click the View pull-down arrow in the Home or datasheet ribbon, you will see the options to create a PivotTable and PivotChart:



If you click the View menu and select the PivotTable view, you will see the same information displayed in PivotTable form:

Purchase Summary				
Purchase Order ID ▾				
All				
		Supplier ID ▾		
		1	2	3
		+ -	+ -	+ -
Submitted By ▾		Sum of Order Total	Sum of Order Total	Sum of Order Total
1	+ -	\$10,200.00	\$420.00	
2	+ -	\$6,270.00	\$14,020.00	\$4,800.00
3	+ -	\$18,700.00		
4	+ -		\$2,325.00	
5	+ -	\$1,000.00		
6	+ -	\$3,000.00		
7	+ -		\$210.00	
9	+ -		\$1,000.00	
Grand Total	+ -	\$39,170.00	\$17,975.00	\$4,800.00

As shown in the above diagram, the totals created in the PivotChart are reflected in the PivotTable. Also, any changes made to the PivotTable will therefore be reflected in the PivotChart. Be careful when constructing a PivotTable and PivotChart together in the same object. The data reflected in a PivotChart may be difficult to read in a PivotTable. If this should happen, all you need to do is create a separate PivotChart based on the same object.

SECTION 2: Creating Advanced Forms

In this section you will learn how to:

- Create and use a Switchboard
- Create a subform
- Use a subform to expand information in a main form
- Limit users from modifying data in a form
- Create and modify command buttons and check boxes
- Create customized error messages
- Send a form via e-mail
- Store and organize replies from an e-mail form
- Import contacts from Microsoft Outlook
- Import and export data to and from a SharePoint server

Lesson 2.1: Switchboards

In the telephone days of old, you contacted an operator who sat in front of a board of knobs and switches. You told the operator who you wanted to call, and they would make the connections to reach your destination. Using modern Internet terms, switchboards are like a 'home page' where you start working with the database as a user rather than a designer.

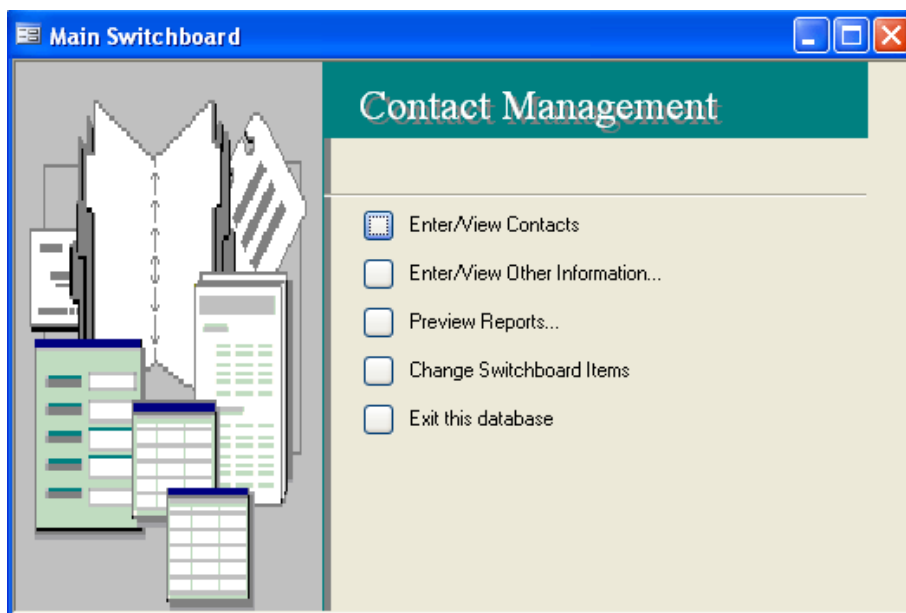
If you have used Access in the past, you may have been familiar with the use of switchboards, particularly with earlier iterations of the Northwind sample database.

A switchboard is a special type of form that is used to control end-user operations of a database such as running a report with a single click. However, Access 2007 does not include as much switchboard functionality as in previous versions. The use of switchboards has not been entirely replaced; now database designers can make use of the Navigation Pane and other features to create a more customizable (yet easier to build) interface for users to interact with. This was done as an effort to avoid having less experienced database users struggle through creating custom Visual Basic for Applications (VBA) code in order to take full advantage of a switchboard.

In this lesson we will explore a more streamlined switchboard interface and learn how to make use of the new features of Access 2007 to navigate through the workings of a database.

Using a Switchboard vs. Using the Navigation Pane and Ribbon

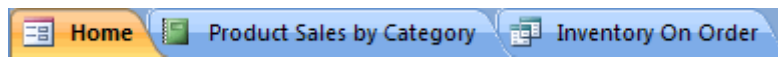
The actual use of switchboards is easy – just point to the command you want to use and click it, as demonstrated with a switchboard from Access 2003:



Older versions of Access made use of a database window. This was a free-floating window inside Access that contained a listing of all objects in the database as well as the commands to create new objects. Access 2007 has done away with the Database window and instead uses a combination of the Navigation Pane and the Ribbon. This was done for a couple of reasons:

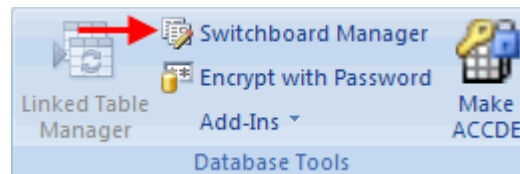
- The Navigation Pane is always visible on the left side of the screen (by default). The old Database window was at the mercy of however many other objects you had opened in your database and would often get buried. With the Navigation Pane, you have a quick listing of all database objects. You can also create custom categories and groups that you can use to display whichever objects you like inside.
- The Ribbon holds all of the database command in an easy to use, categorized view. The addition of contextual tabs, that is special groups of commands that appear only when viewing a certain object a certain way, makes finding the right command you need easier than the menu system of old. Only the commands you can use are the commands you see on the screen.
- In addition to the removal of the database window, Access 2007 features tabbed navigation of the different objects that are opened to view in your database:

- You can easily cycle through the tabs as they become active at the top of the Access window. The pile of floating windows has been eliminated. (Many modern Web browsing programs also make use of this tab structure.)

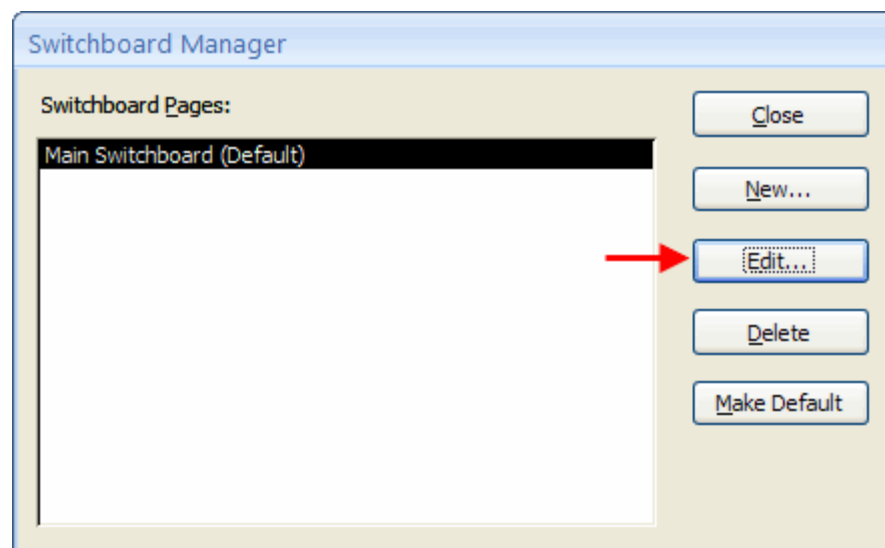


Using the Switchboard Manager

The Switchboard Manager is located in the Database Tools section of the Database Tools ribbon:

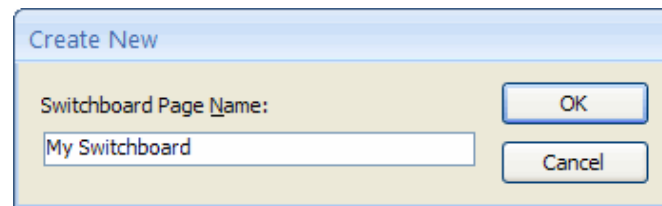


The Switchboard Manager contains a standard switchboard that you can choose to make the default for your database. Tools are also included to create your own switchboard by the use of the Edit command:

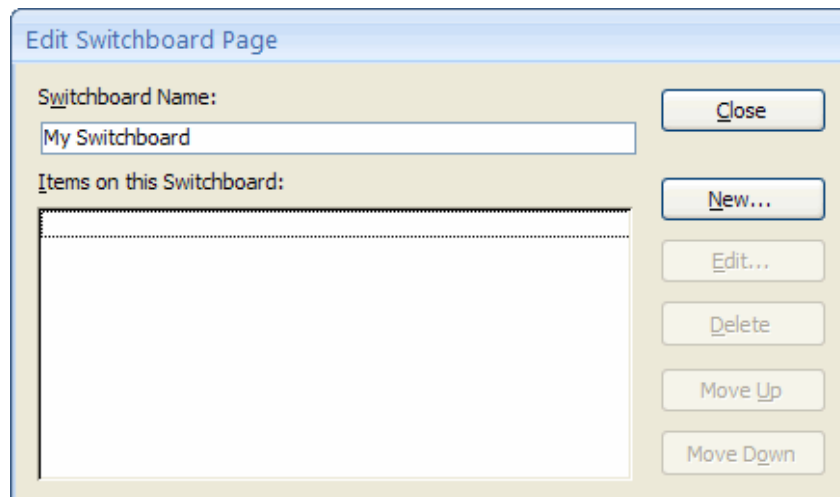


Creating a Switchboard

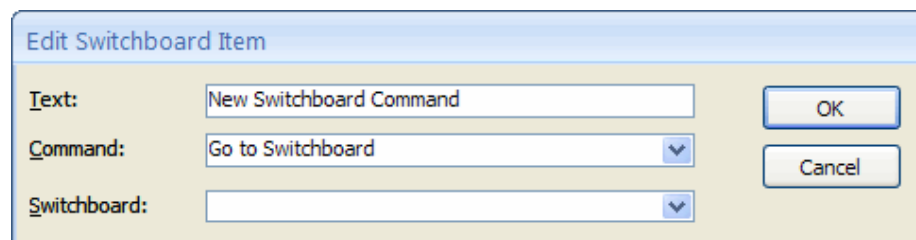
Click the New button in the Switchboard Manager to create a new switchboard. You will first be prompted to enter a name:



The name of the new switchboard will be listed in the Switchboard Manager, so select the new switchboard from the list and click Edit. The Edit Switchboard Dialogue box will appear:



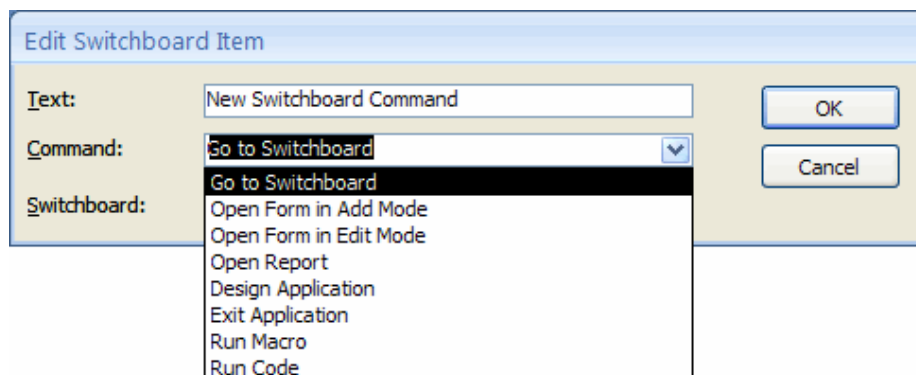
As this is a new switchboard, there are no items already in place. Click the New button:



This dialogue lets you adjust all of the necessary elements to a switchboard in order to make it a functioning unit. We will learn about each of these commands in the next section.

Editing a Switchboard

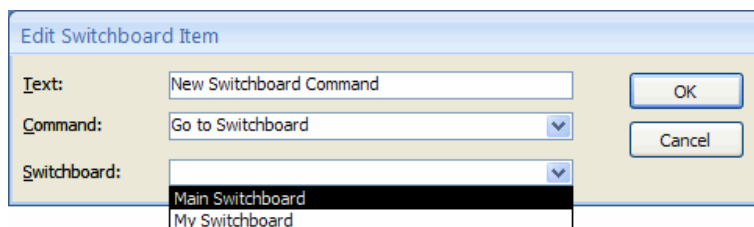
By using the Edit command in the Switchboard Manager you can create a wide variety of simple point-and-click functionality for use in your switchboard. The commands available for a switchboard can be found in the pull-down Command menu:



Let's take a look at each command.

Go to Switchboard

You can move between one switchboard and another. Select this command and then select the target switchboard in the Switchboard combo box:



Open Form in Add Mode

This command will open a target form in Layout view with no records currently displayed. This allows you to add new records to the form.

Open Form in Edit Mode

This command will open a target form also in Layout view, only this time you can see all of the data in the form at once. This allows you to edit the records already displayed in the form.

Open Report

This command will open a specified report in Report view.

Design Application

This command will open the switchboard manager quickly and easily to let someone work on the switchboard(s) in your database.

Exit Application

Clicking this command in the switchboard will close the current database file and return to the Getting Started page of Access 2007.

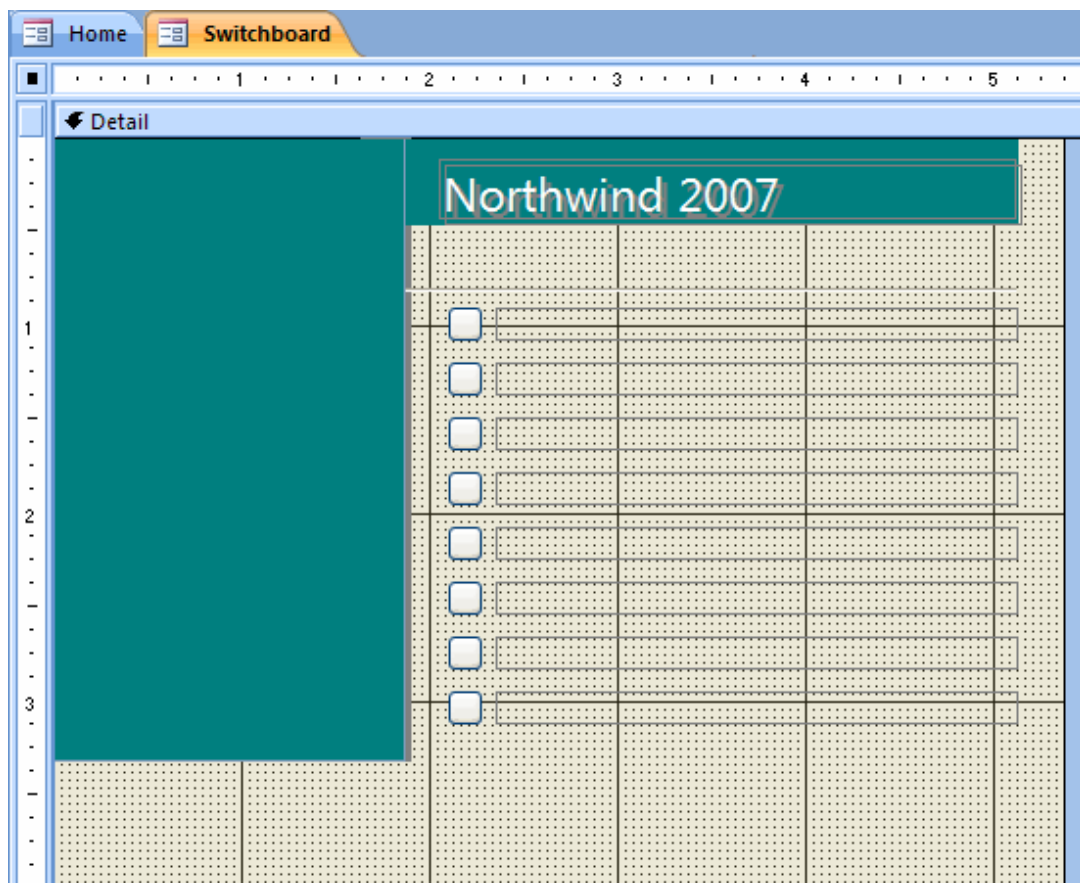
Run Macro

This command will launch the specified macro that was created for use in this database.

Run Code

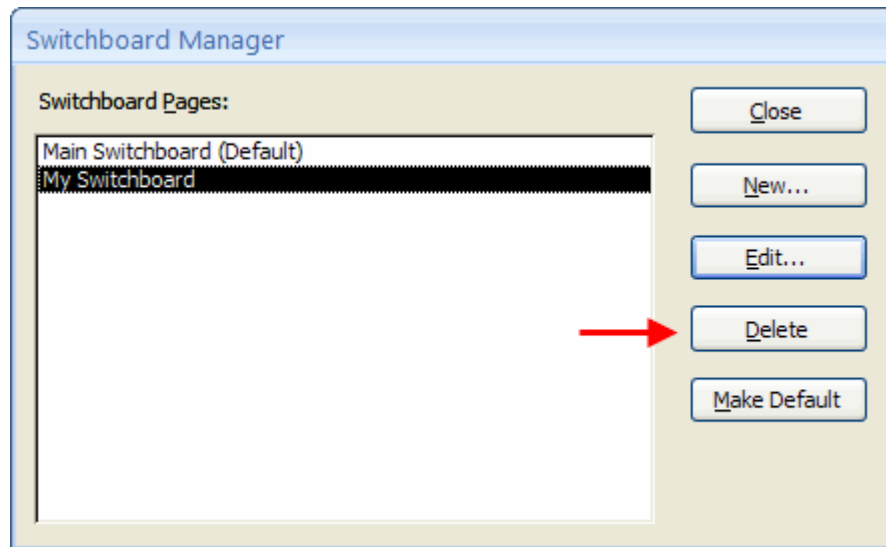
Like the Run Macro command, this command lets you execute a specific function or block of VBA code you have designed and included in the database file.

Once you have added the commands you wish to use in your switchboard, switch to Design view and modify the switchboard layout, look, and feel as you would if you were creating a form or report:



Deleting a Switchboard

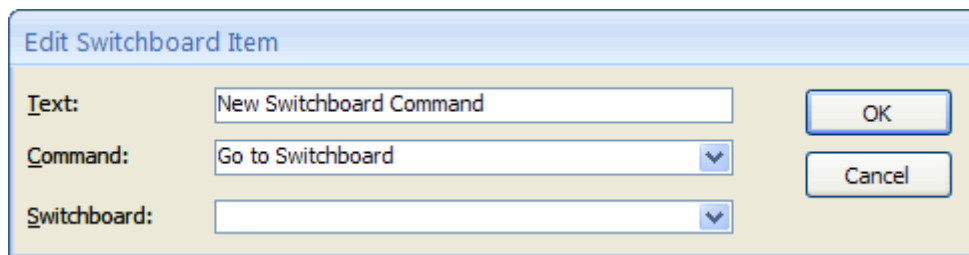
To delete a switchboard that you no longer use, simply open the Switchboard manager, select the switchboard to delete, and click the Delete button:



Be careful when deleting a switchboard; the operation cannot be undone. Use the Save As command on the switchboard form in the Navigation Pane to create a backup copy you may wish to save with the database regardless. The only condition when deleting a switchboard is that the one marked as default cannot be deleted.

Lesson 2.2: Modal Dialogue Boxes

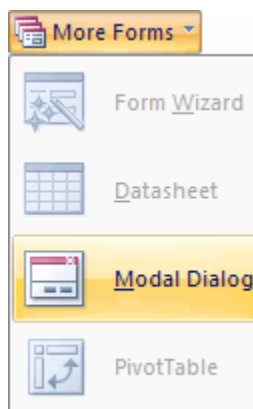
Every graphical operating system today features a type of dialogue box that contains a Yes/No or OK/Cancel set of buttons. These pop-up windows are a special kind of dialogue box that must be dealt with before a user can do anything else. We have encountered lots of these types of dialogue boxes along the way, such as the Edit Switchboard Item dialogue box:



There are options that are available to change in this dialogue box to modify the property of some external object; in this case, a switchboard. However, while this window is open, all other commands in Access are disabled until this dialogue box is dealt with. Such windows are called modal dialogue boxes.

Creating a Modal Dialogue Box

To create a modal dialogue box, click the More Forms command in the Forms section of the Create ribbon. Then, select Modal Dialogue:



A new blank modal dialogue box (which is a special type of form) will open in Design view.

You can see the OK and Cancel buttons pre-built in the lower right-hand corner:

The screenshot shows a Microsoft Access form titled 'Form1'. The form has a blue header bar with the title 'Form1' and a small icon. Below the header is a horizontal ruler with markings from 1 to 6. The main area of the form is a grid with 6 columns and 5 rows. The grid is divided into 30 cells. The first column contains a vertical list of numbers 1 through 5. The last two columns of the grid contain 'OK' and 'Cancel' buttons respectively. The grid is currently empty, with no data entered.

Now you can add any type of control to the dialogue box as you would if you were creating a form or report.

Adding Controls

Access 2007 features a wide range of commands that can be used in a modal dialogue box, as well as forms and reports. You will find these commands on the Form Tools – Design ribbon. Many of the commands you can use are very similar to ones used in most graphical operating systems like Microsoft Windows. Let's review what each type of control does:



Logo



The logo command prompts you for an image file to use in the Form Header section of the Form. It will always be present at the beginning of the page.

Title

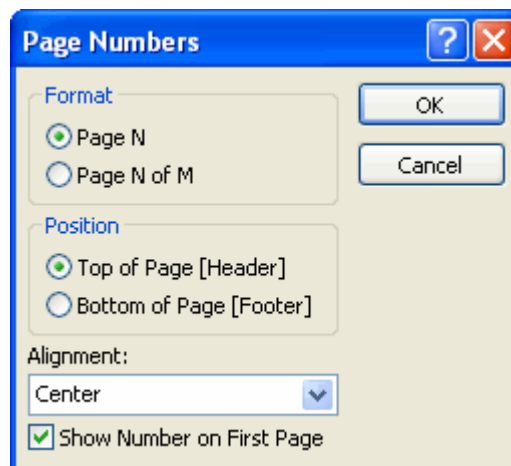


This command adds a title to the Form Header section.

Page Numbers



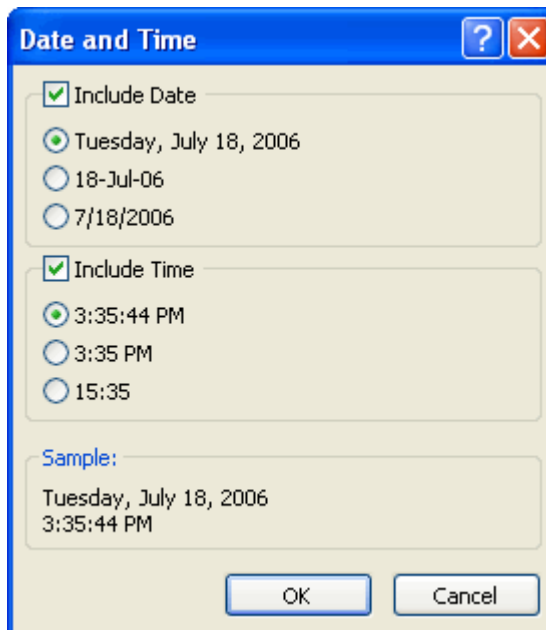
Click this command to show the Page Numbers dialogue box. Select the options and position you want to use for your form.



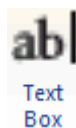
Date and Time



This command shows the Date and Time dialogue box. It allows you to select the formatting options you want for your form:



Text Box



Click this command and then click and drag an area on the canvas to add the text box. A text box can hold any type of data except graphical.

Label



Nearly every control has an associated label, one that tells you what the command is called. Click and drag an area in the canvas.

Button



A button is used to perform some sort of action, like the OK and Cancel buttons of a dialogue box. Click and drag the size of button you want.

Combo Box



You should be very familiar with the function of combo boxes by now. Use combo boxes to have the user pick an option out of a list of options by clicking the pull-down arrow.

List Box
























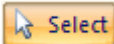


A box that works similar to a combo box, but it can be expanded to show all of its contents. A user simply picks the option out of the list they want to use.

Subform/ Subreport



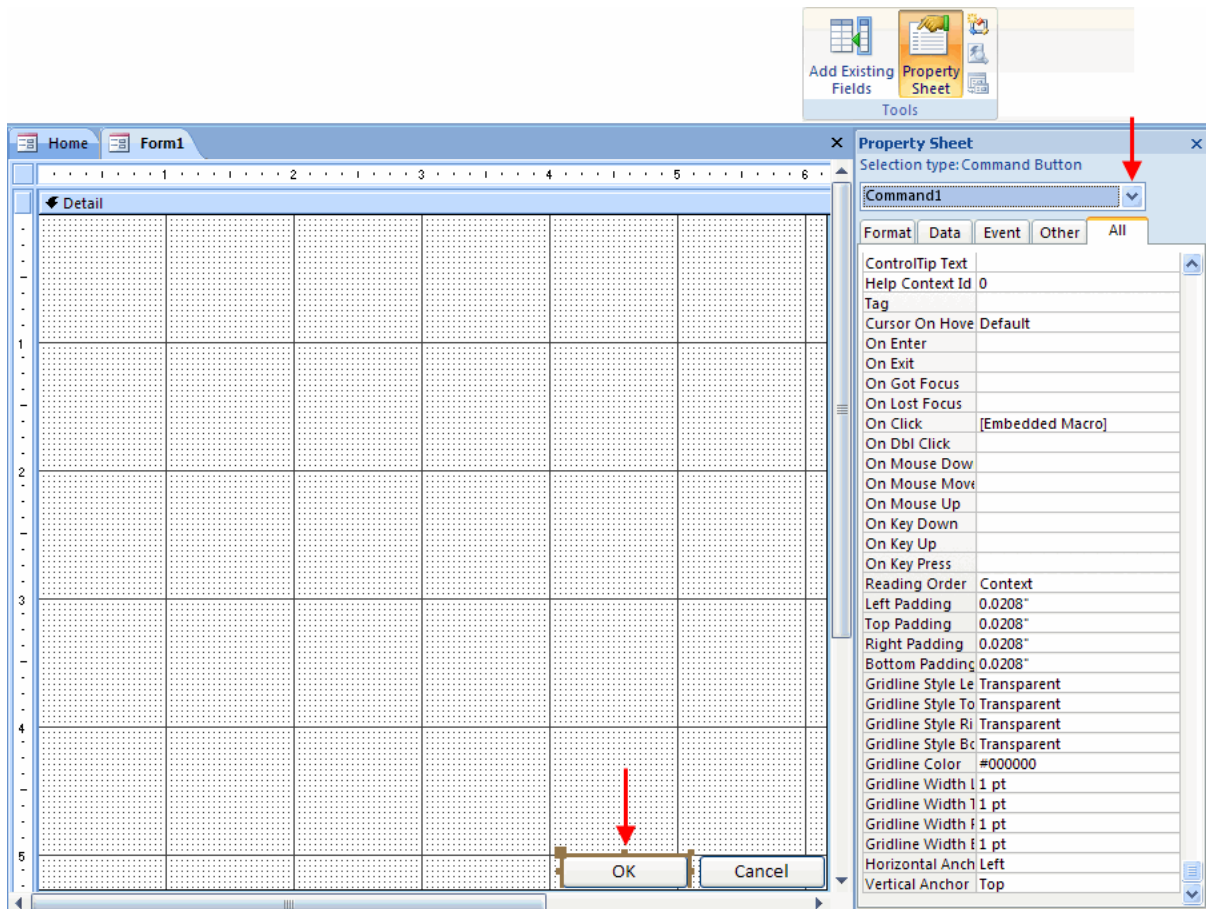
Lets you create a form inside a form or a report inside a report.

Line		Click and drag to draw a line in the form. Useful for dividing up the form components into groups so they are easier to read.
Rectangle		Draw rectangles in the form to help provide a visual group of related components.
Bound Object Frame		Allows you to enter and control various expressions and low-level operations that can be performed on the database.
Option Group		Click and drag a box around a group of controls to group them together. Useful when using radio buttons; users can select one option out of the group to perform a certain action.
Check Box		When checked, the condition bound to the checkbox is true or active. When unchecked, the condition is false or inactive
Option (Radio) Button		Used to select a certain option, and almost always in groups of two or more.
Toggle Buttons		A toggle button's command stays in effect when clicked and will remain so until it is clicked again.
Tab Control		Lets you create a series of tabs in your form, each with its own options. Useful if you have a large numbers of controls in a frame that can be categorized.
Insert Page		Use this command to insert a page into a certain section of a form.
Insert Chart		Click and drag an area in the form to open the Chart Wizard. This Wizard will analyze the data contained in a query or report and display data for you in a graphical way.
Unbound Object Frame		Allows you to create a special window inside a frame that you can use to view some other document while looking at your form. For example, you could have a small window containing a PDF document or a PowerPoint presentation.
Image		Allows you to place a picture in your form.

Page Break		Used to create a cut-off point when printing a document. Even though you may be able to see everything on your screen, a new page will always print off when a page break is encountered.
Hyperlink		This command will create a link to another file, Web page, or resource external to your database.
Attachment		Use this command to view non-alphanumeric data contained in your database.
Line Thickness		Choose the thickness of the line you have currently selected or are about to make.
Line Type		Choose a line pattern.
Line Color		Choose a line color.
Special Effect		You can apply a special effect to a button or other control to make it look like it is 3-D, flat, or sunken into the form.
Set Control Defaults		Use this command to revert a control's properties back to the default setting.
Select All		Use this command to select all controls contained in a form.
Select		This command lets you select a control so you can move it around the canvas.
Use Control Wizards		Toggle this command to have Access automatically start a Wizard to help with the creation of different commands in a form.
ActiveX Controls		ActiveX controls are special types of controls that are used to enhance the functionality of a form. They can be used as small toolbars or applications that execute from inside a form.

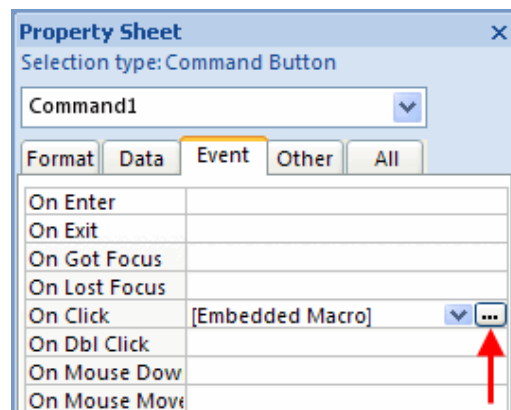
Setting Properties

A modal dialogue box contains many of the same properties of forms and reports. Click the Property Sheet command to view the properties:

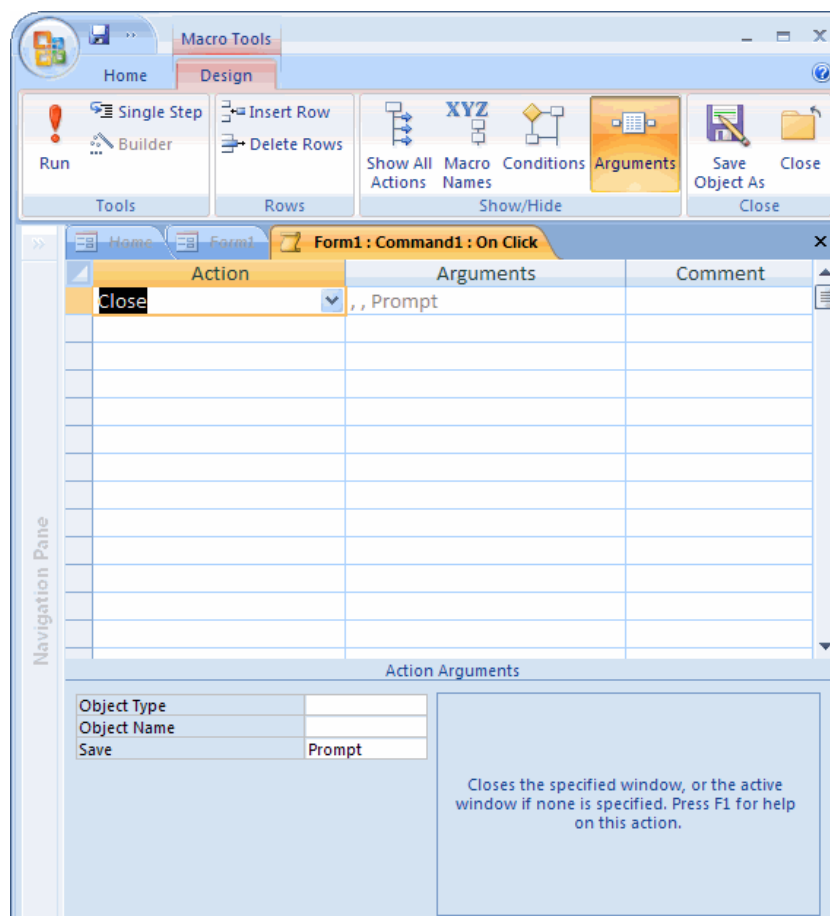


Use the combo box in the Property Sheet pane to select which object you will be modifying. Use the tabs at the top of the Property Sheet to cycle through the categories of properties available for any particular object.

The functionality of the modal dialogue box really comes from the command buttons at the bottom of the box. The properties listed in the Event tab dictate what actions will be performed based on how the command is interacted with:



Click the Expression Builder icon to open a special version of macro design tools:



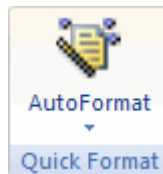
Choose the VBA command(s) you wish to use from the Action combo box. Any Arguments that need to be entered in order for the command to work properly can be entered into the Arguments column. Also, if a team of people are going to be working on the dialogue box and you wish to share information about how the command will work, enter them into the Comment column.

The commands listed in the ribbon relate to which commands, macros, and conditions will be used in this dialogue box. Test your background macro at any time by clicking the Run command in the upper left-hand corner of the screen.

Formatting your Dialogue Box

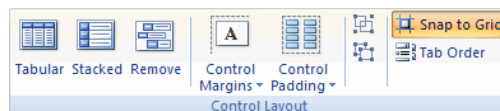
One of the contextual tabs that appears when a form is being worked on is the Arrange tab. This ribbon includes the necessary commands to modify the layout and position of the controls features in the modal dialogue.

Quick Format



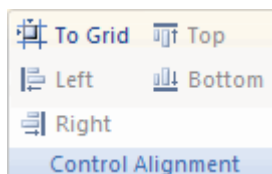
The AutoFormat command is used to quickly apply a particular design scheme to your entire form. AutoFormat features twenty-five different pre-made formatting options to use.

Control Layout



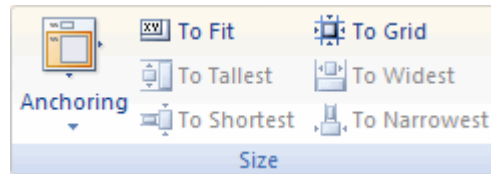
This section of the Layout ribbon allows you to modify the position of the controls in your form. You can move controls in a group or individually.

Control Alignment



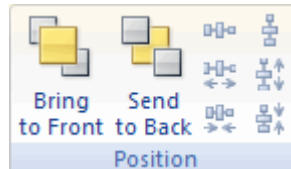
The commands in this section are used to align a group of controls to the overlaying design grid or to the position of a particular control in the form.

Size



If you have difficulty aligning controls by hand or want to align controls quickly yet neatly, use the commands in the Size section of the Layout ribbon.

Position



Access 2007 gives the flexibility to arrange the order and position of different controls in your form.

Show/Hide



These commands let you show or hide different features of Design view itself such as the gridlines and rulers.

Lesson 2.3: Using Subforms

The purpose of a form is to enter and display data in a database one record at a time. Access 2007 takes the use of forms further with the addition of a split form (a form that contains a datasheet view of the source table as data is being entered) and a subform (which is a 'form inside a form' that increases the usability of a form).

A subform allows you to further visualize a One-to-Many relationship. For example, if you were creating a form based on the Products table in the Northwind sample database, you can create a subform based on the Order Details table. The subform can display data based on the current data in the main form. That is, you can list how many times a particular product (the 'one' side) has been ordered (the 'many' side) by making use of a subform. We will discuss the usage of subforms in this lesson.

Creating a Subform

The Northwind sample database makes use of subforms to better display information to the user. Consider the Home form which opens after a user logs into the database:



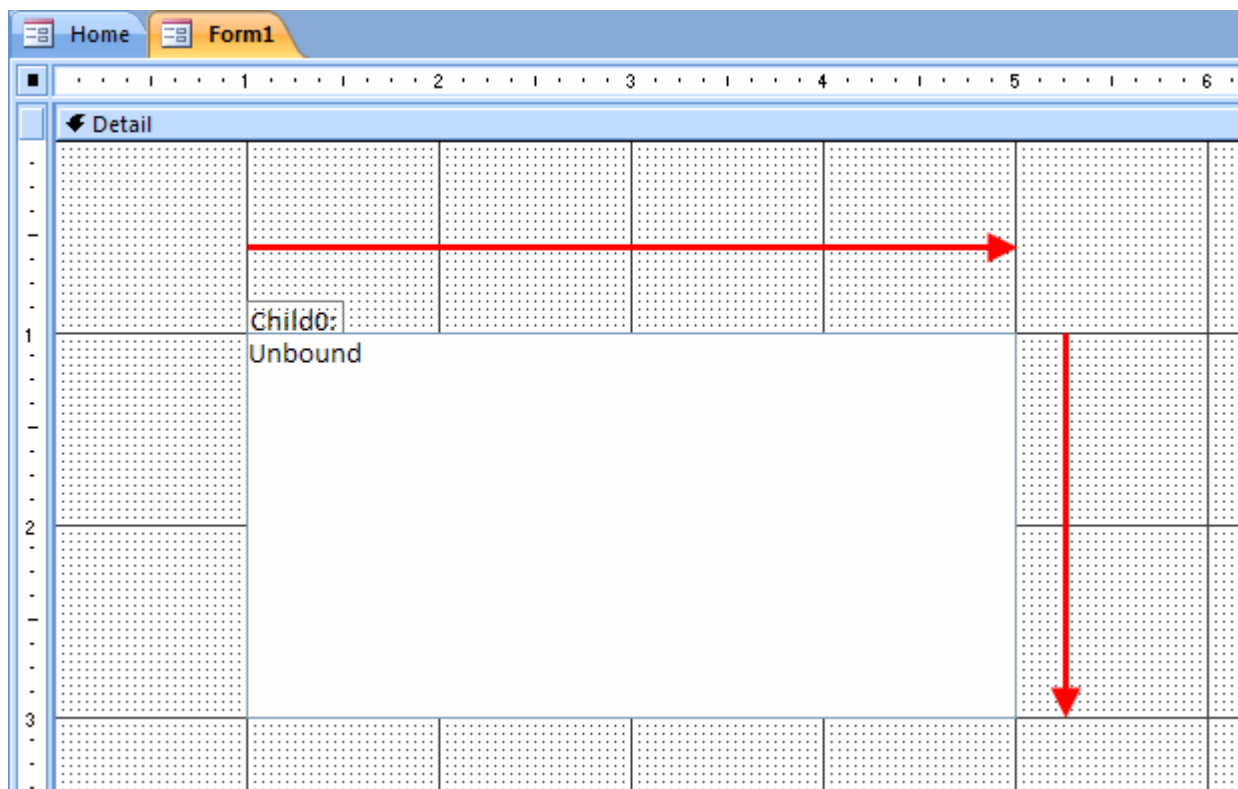
Product	In Stock	Reorder
Northwind Traders Boysenberry S	0	25
Northwind Traders Dried Pears	0	10
Northwind Traders Curry Sauce	0	10
Northwind Traders Fruit Cocktail	0	10
Northwind Traders Marmalade	0	10
Northwind Traders Scones	0	5
Northwind Traders Beer	0	15
Northwind Traders Crab Meat	0	30
Northwind Traders Clam Chowder	0	10

The subform above is a listing of products that have a stock level less than the level indicated in the Reorder column. This subform is displayed inside a special type of 'picture frame' that contains the subform.

To create a subform, open a form in which you would like to put the subform. Click the Subform/Subreport command in the Controls section of the Form Tools - Design ribbon:

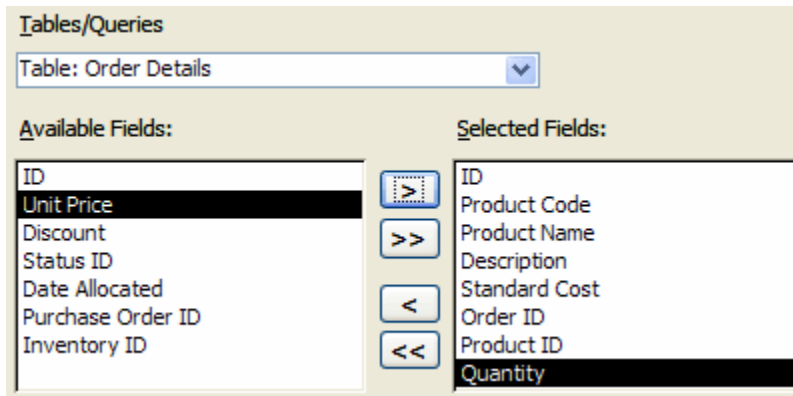


Click and drag an area inside your form that will contain the subform:

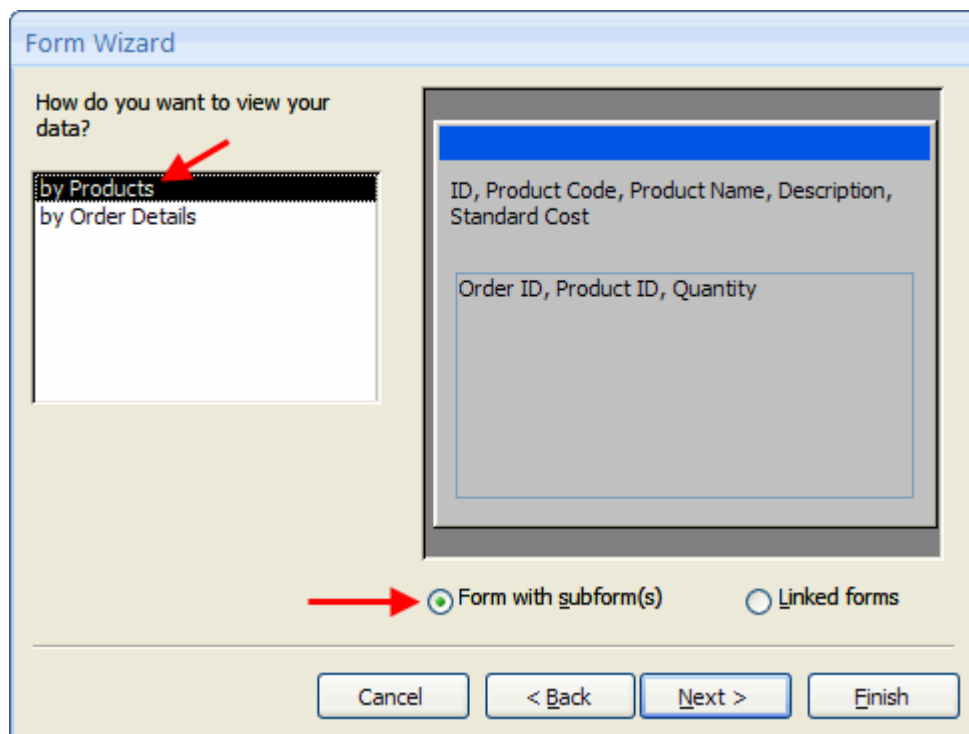


Make a guess as to how large your subform will need to be, but remember that you can always click and drag (as well as move) the subform area in Design view or Layout view to suit your needs.

The Form Wizard lets you create a form and subform at the same time. In order to do this and still display data that makes sense, keep in mind the One-to-Many relationship you wish to show, such as the Products and Order Details tables. (Keep in mind that you must establish the relationships between the data if your subform is designed to add the fields from each table you wish to display in your form/subform combination.)



In the next step of the Wizard, select which table or query will be the main form; like the Products table. Make sure the Form with subform(s) radio button is selected:



In the remaining steps of the Wizard, you can choose how the subform will display the data, what sort of AutoFormat you would like to apply, and then name the form and subform:

The screenshot shows the Microsoft Access 2007 interface. At the top, there are two tabs: 'Form1' and 'Products'. The 'Products' tab is active. The main form displays the following fields:

Field Name	Value
ID	1
Product Code	NWTB-1
Product Name	Northwind Traders Chai
Description	
Standard Cost	\$14.18

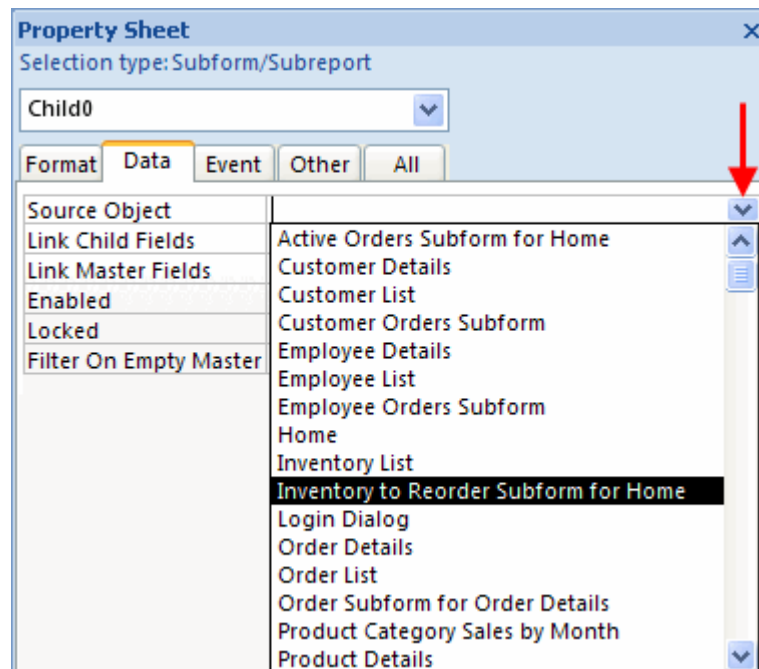
Below these fields is a subform titled 'Order Details'. The subform displays a table with the following data:

Order ID	Product
32	Northwind Traders Chai
44	Northwind Traders Chai
*	Northwind Traders Chai

At the bottom of the form, there is a status bar that reads: 'Record: 1 of 2'. To the right of the status bar, there are buttons for 'No Filter' and 'Search'.

Modifying a Subform

Once you have defined the subform area, or created a subform via the Wizard, click the Property Sheet command to view the properties of the subform. If you are creating a subform from scratch, one of the first properties you should modify is what data source the subform will be based upon. Click the Data tab and then the Source Object combo box to see the available objects for use in the subform:



If we wish to recreate part of the Home form from the Northwind sample database, select the Inventory to Reorder Subform for Home form from the list.

Switch to either Layout view or Form view to see the subform:

Child0:

Product	In Stock	Reorder
Northwind Traders Boysenberry S	0	25
Northwind Traders Dried Pears	0	10
Northwind Traders Curry Sauce	0	10
Northwind Traders Fruit Cocktail	0	10
Northwind Traders Marmalade	0	10
Northwind Traders Scones	0	5
Northwind Traders Beer	0	15
Northwind Traders Crab Meat	0	30

The tabs contained in the Property Sheet list the commands available for use with the subform object:

Format This tab contains commands relating to how the subform will be displayed. Commands include when the subform will be displayed, what margins are around the subform, the border width and color scheme, etc.

Data This tab specifies which form/table/query will be used to create the subform, allows you to link fields that are common between the Child (subform) and Master (main form) forms, and lets you lock a subform so its contents cannot be modified.

Event The Event tab allows you to create a subroutine using macros or VBA code that will execute when the subform opens, closes, or both.

Other This tab lets you create a name for the subform, insert text to display in the status bar, and control the tab order of the objects in the subform.

Working with a Subform

The majority of subforms you create will be on the 'many' end of a One-to-Many relationship. There is the odd time where, for example, you may want to list the shippers in a subform as part of the employee listing form, but such instances will be rare.

Subforms should be developed with a specific purpose in mind. In this lesson we explored the example of creating a Products form with an Order Details subform. Though the Form Wizard will help with the simple form creation, most of the advanced options to modify with a form will be taken care of in Design view. In the example of the Northwind sample database, the Inventory to Reorder subform for Home in design view is simply the following:

The properties of the subform have been modified such that the data contained in this form is displayed in Datasheet view instead of the view as above. The Product Name field has been turned into a hyperlink so that if a particular product name is clicked, the Product Details form will appear showing the details of that particular product:

Inventory to Reorder

Product	In Stock	Reorder
Northwind Traders Boysenberry S	0	25
Northwind Traders Dried Pears	0	10
Northwind Traders Curry Sauce	0	10

Product Details: Northwind Traders Dried Pears

Go to Product: Save and New

Product Details | Order/Purchase History

Product ID	7	Standard Cost	\$23.63
Name	Northwind Traders Dried Pears	List Price	\$30.00
Product Code	NWTFN-7	Reorder Level	10
Category	Dried Fruit & Nuts	Target Level	40
Supplier	Supplier B	Default Reorder Quantity	10
Quantity Per Unit	12 - 1 lb pkgs.	Discontinued	<input type="checkbox"/>

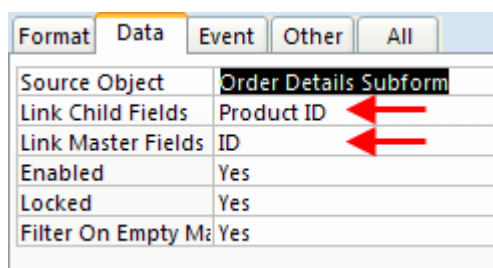
A subform contains all the functionality of a regular form; the term 'subform' is just a way to describe the fact that there is one form inside another.

Synchronizing Subform Data with a Main Form

We mentioned before in this lesson that a subform/main form relationship makes the most sense if the subform data is somehow in a One-to-Many relationship with data in the main form. The example we used was to have a Products main form and an Order Details subform. One product has the ability to be ordered more than once; therefore the subform data will contain the ordering history of a particular product.

This example presents an opportunity to synchronize the subform data with the main form. Perhaps you want to add a new product to the database by using a form. The Products main form will likely contain all of the fields associated with the Products table, or at least enough fields to uniquely define a product like Product ID, Description, Price, etc. Once the new product has been entered into the database, any new orders containing that product will be automatically 'related' to the Product record that will be displayed in the form.

A link between a main form and subform can be created by using the property sheet. Simply assign the Linked Child and Master fields using the Data tab:



Property	Value
Source Object	Order Details Subform
Link Child Fields	Product ID
Link Master Fields	ID
Enabled	Yes
Locked	Yes
Filter On Empty M:	Yes

Other background code associated with more complex synchronization of subforms and main forms is beyond the scope of this manual but can be found in the Developer help file.

Displaying a Subform within a Main Form

You now know that everything in Access has some set of properties that can be modified. Subforms are no different. Subforms are usually created to cater to a specific purpose, yet you can still modify how the subform data will look by using the Format tab in the Property Sheet:

The screenshot shows the 'Property Sheet' window for a subform named 'Order Details Subform2'. The 'Format' tab is selected, displaying a list of properties and their values.

Property Sheet	
Selection type: Subform/Subreport	
Order Details Subform2	
Visible	Yes
Display When	Always
Can Grow	Yes
Can Shrink	No
Left	2.0417"
Top	2.1667"
Width	4.0653"
Height	2.5417"
Special Effect	Flat
Border Style	Solid
Border Width	Hairline
Border Color	#46A6BD
Left Padding	0.0208"
Top Padding	0.0208"
Right Padding	0.0208"
Bottom Padding	0.0208"
Gridline Style Left	Transparent
Gridline Style Top	Transparent
Gridline Style Right	Transparent
Gridline Style Bottom	Transparent
Gridline Color	#000000
Gridline Width Left	1 pt
Gridline Width Top	1 pt
Gridline Width Right	1 pt
Gridline Width Bottom	1 pt
Horizontal Anchor	Left
Vertical Anchor	Top

A subform is treated like a single control in the main form, therefore adjusting these settings is just like adjusting the settings of a combo box or command button. You can adjust the size, margins, grid formatting commands, and look of the subform component by using these settings.

Lesson 2.4: Advanced Form Tasks

At this point, you should be comfortable with the use of the Form Wizard and how to use Design view to create the forms you want to use. In this lesson you will learn how to implement more of the advanced functionality of forms.

Limiting User Access to a Form

The majority of forms you will create will be used to both display and enter data. However, there may come a time that you only want to display the information and not allow any modification of the underlying data. Access allows you to do so for both forms and subforms by modifying the properties.

You can modify how a user will be able to use a form using the Data Properties tab:

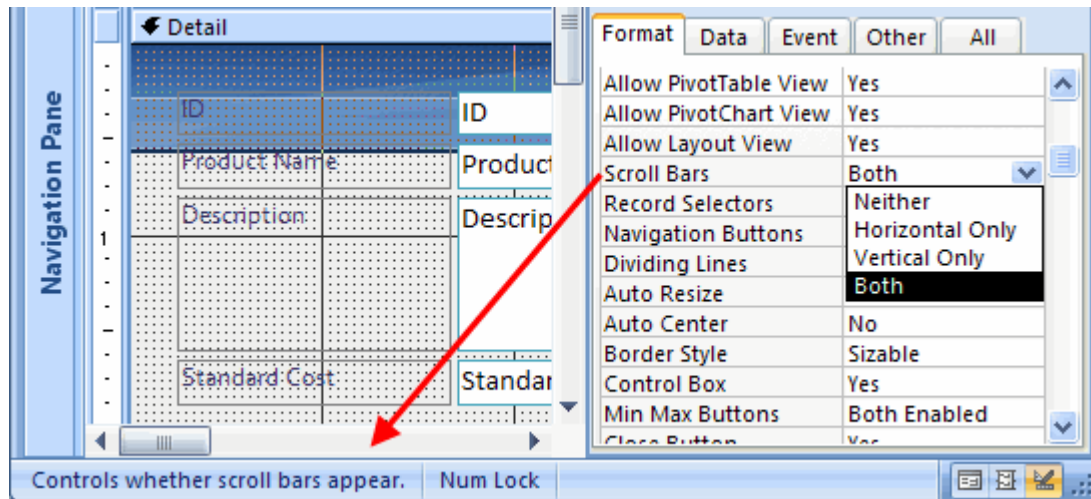
The screenshot shows the 'Property Sheet' window for a form. The 'Selection type' is set to 'Form'. The 'Data' tab is selected. The following table represents the properties shown in the sheet:

Property	Value
Record Source	Customers Extended
Filter	
Filter On Load	No
Order By	
Order By On Load	Yes
Allow Filters	Yes
Allow Edits	Yes
Allow Deletions	Yes
Allow Additions	Yes
Data Entry	No
Recordset Type	Dynaset
Record Locks	No Locks
Fetch Defaults	Yes

A red bracket and arrow point to the 'Allow Edits' property, which is currently set to 'Yes'.

Use these properties to lock the usability of the form. In some instances, you may want to remove more of the features that make a subform 'look like' a form and therefore discourage people from trying to modify any data contained in the form. These options include shutting off the Scroll Bars, Record Selectors, and Navigation Buttons (all found in the Format tab of the form Property Sheet).

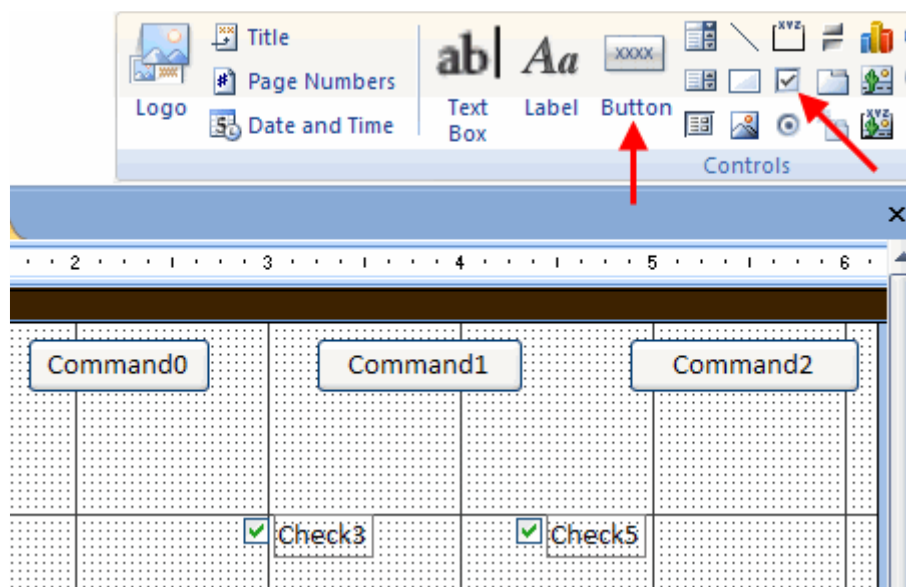
As you modify different properties of a form (or any database object) you can see a brief description of the command in the Status bar at the bottom of the Access window:



The design of every form will be different for each situation. Developer users of Access have the ability to create menus using macros and VBA code in order to suit the needs of their particular application.

Creating Check Boxes and Command Buttons

Check boxes and command buttons can turn a simple form into a usable worksheet that will execute operations on your database. To create these commands, open a form in Design view, click the Check Box or Command Button command, and then drag an area on the canvas to place the command:



If we were to switch to Form view, these commands will do nothing. The real usage of these commands is defined by using the Property Sheet. In the case of check boxes, the properties available to modify are categorized as follows:

- Format** This tab contains commands listing how the checkbox will be displayed. Commands include when the checkbox will be displayed, the dimensions of the check box, what margins are around the check box, the border width and color scheme, etc.
- Data** This tab specifies the control source for this command, if the check box is by default checked or blank, any validation rules for the check box, as well as if it will be locked. Check boxes can even be displayed three ways: checked, unchecked, or null (where the check box option will not be considered in database operations.) Check boxes are very useful when dealing with Boolean data, such as a particular field being marked as active or discontinued.
- Event** The Event tab allows you to create a subroutine using macros or VBA code that will execute at any point of interaction with the check box (when it is clicked, if it has gained focus, if the mouse is hovered above the box, etc.).

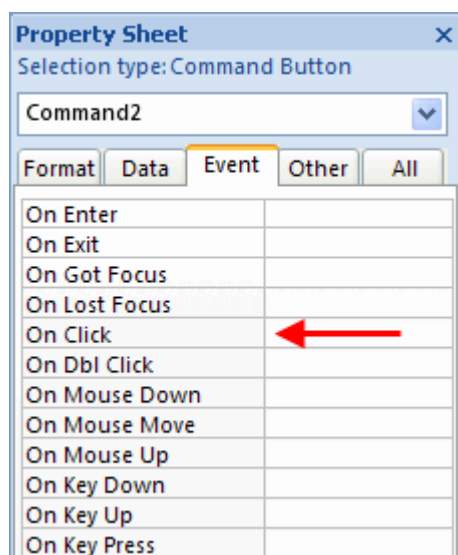
Other This tab lets you create a name for the check box, insert text to display in the status bar, create a pop-up tip describing the purpose of the check box, and control the tab order of the check box.

When dealing with command buttons, you can modify the following properties:

Format This tab contains commands relating to how the button will be displayed. Commands include when the button will be displayed, what margins are around the button, the border width and color scheme, etc.

Data This tab specifies if the button will be enabled or disabled in this form.

Event The Event tab allows you to create a subroutine using macros or VBA code that will execute depending how the button is interacted with. The majority of the functionality you will use with command buttons will be added to the On Click command:



We will discuss event procedures in the next section of this lesson.

Other This tab lets you create a name for the button, insert text to display in the status bar, and control the tab order of the button.

Creating Event Procedures

When creating form components that can be interacted with, such as check boxes or command buttons, you will use the Microsoft Visual Basic editor (included with Access 2007) to create commands and actions using Visual Basic for Applications (VBA). Consider the Inventory List form in the Northwind sample database:

Product	On Hand	On Hold	Available	On Order	Back Order	Current Level	Reorder Level	Target Level	Qty To Reorder	Restock Product
Northwind Traders Chai	25	25	0	40	0	40	10	40	0	Purchase
Northwind Traders Syrup	50	0	50	50	0	100	25	100	0	Purchase
Northwind Traders Cajun Seasoning	0	0	0	40	0	40	10	40	0	Purchase
Northwind Traders Olive Oil	15	0	15	0	0	15	10	40	25	Purchase
Northwind Traders Boysenberry Spread	0	0	0	0	0	0	25	100	100	Purchase
Northwind Traders Dried Pears	0	0	0	0	0	0	10	40	40	Purchase
Northwind Traders Curry Sauce	0	0	0	0	0	0	10	40	40	Purchase
Northwind Traders Walnuts	40	0	40	0	0	40	10	40	0	Purchase

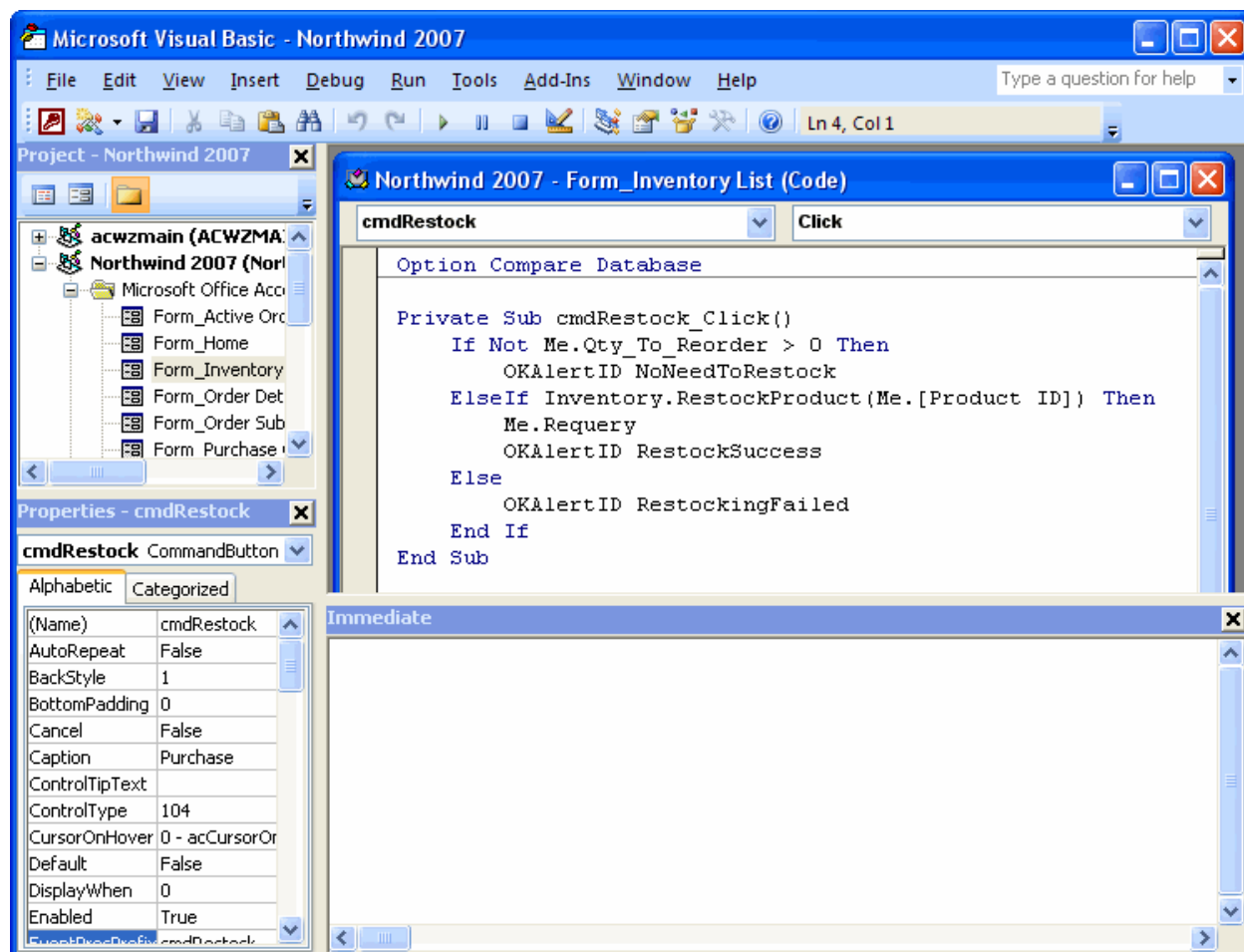
This form features a command button that will purchase inventory for the database. If we examine the properties of this command button, we see that the On Click command has an Event Procedure created in VBA associated with it:

Property Sheet
Selection type: Command Button
cmdRestock


Format Data Event Other All

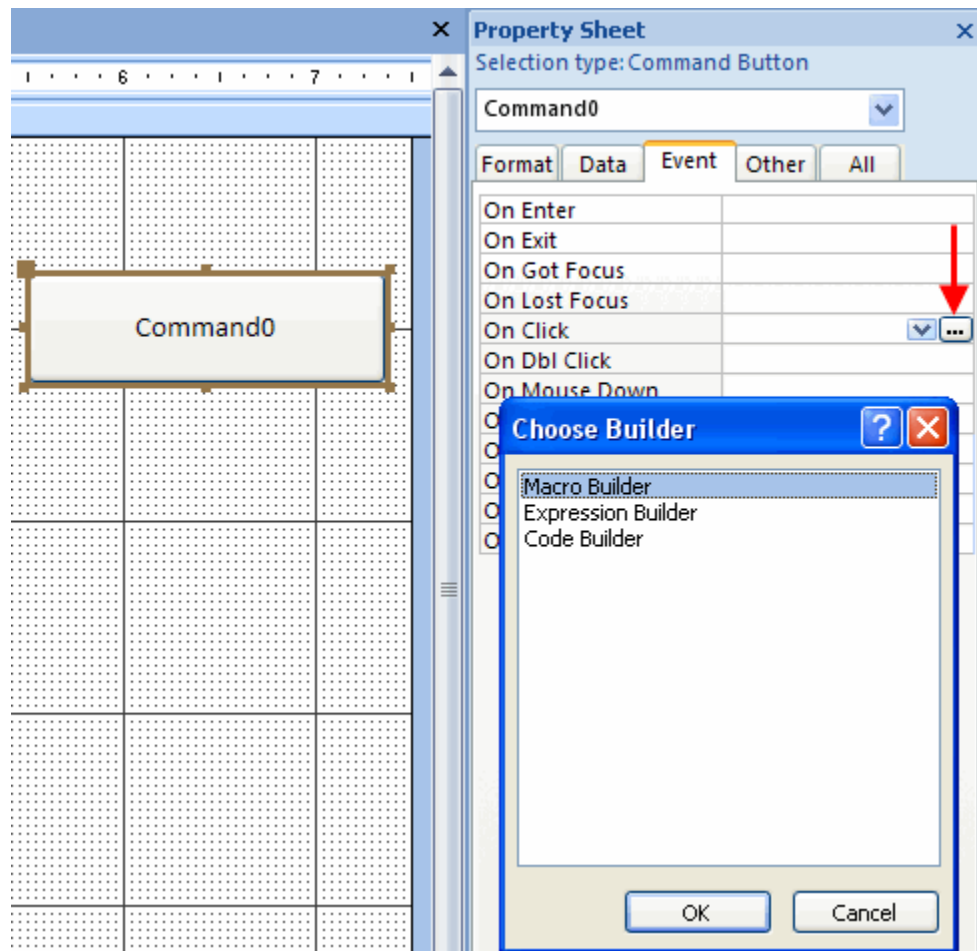
On Enter	
On Exit	
On Got Focus	
On Lost Focus	
On Click	[Event Procedure]
On Dbl Click	
On Mouse Down	
On Mouse Move	
On Mouse Up	
On Key Down	
On Key Up	
On Key Press	

Click the  icon to view the VBA code associated with this command:



The creation and use of VBA code goes largely beyond the scope of this manual. Microsoft's Visual Basic editor and the Microsoft Developer's Web Site contain lots of information regarding the syntax and structure of this programming language. There are also a number of books and manuals written for Visual Basic.

However, not every command that makes use of Event Procedures needs to be created in VBA. If you are creating a control from scratch and click the  beside the appropriate Event command, you will be presented with a list of options relating to how you can create the functionality for this control.

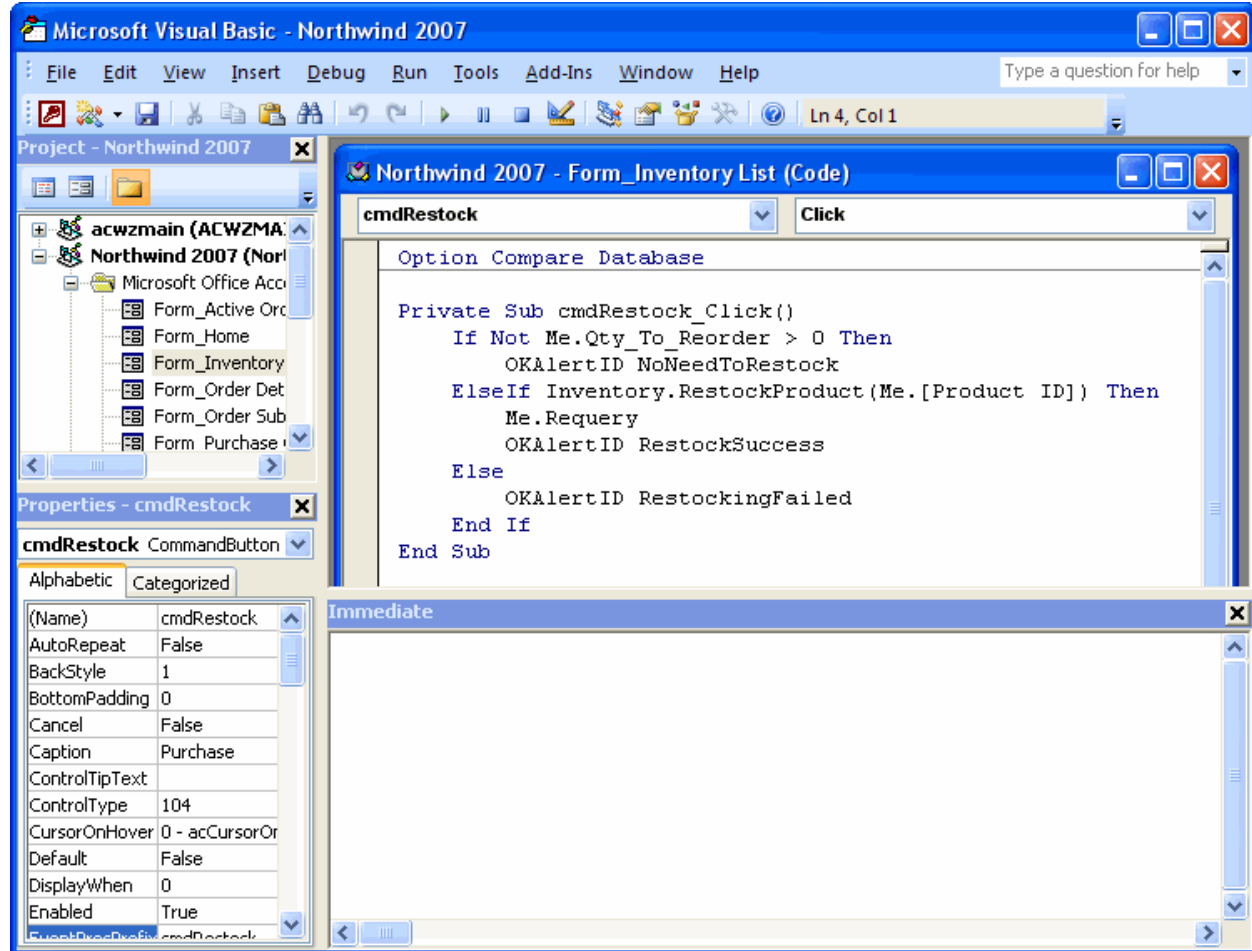


You can choose to use the Macro Builder to perform an action, Expression Builder to perform a calculation and return a result, or Code (VBA) Builder to create a fully customized control. The list of builders available will vary depending on the control that is to be modified. Consult the Access Developer's help file or Office Online to learn more about the construction, function, and syntax of each builder.

Customizing Error Messages

If you will be developing background code for use in an Access database, you will find that being able to effectively handle errors in your code will save a world of headache when producing a final product. Though it is not the intent of this manual to describe the details of VBA programming, we will discuss the concepts behind using the Code Builder to catch and deal with errors.

Consider the code for the Inventory form in the Northwind sample database:



The above code in the Form_Inventory List window is designed to deal with known outcomes. If the inventory does not need to be refilled, a window will appear to the user saying that the required amount of inventory is already in the system. If the inventory was successfully filled, the user is notified and if there was some problem, the user will also be notified. However, a message stating that the operation failed gives no indication as to what went wrong.

When designing code for the database, and you believe you may encounter errors that are not directly the fault of the code, inserting the following code block will help locate the problem:

```

Function MayCauseAnError()
    ' Enable the error handler.
    On Error GoTo Error_MayCauseAnError
    . ' Include code here that may generate an error.
    .
    .

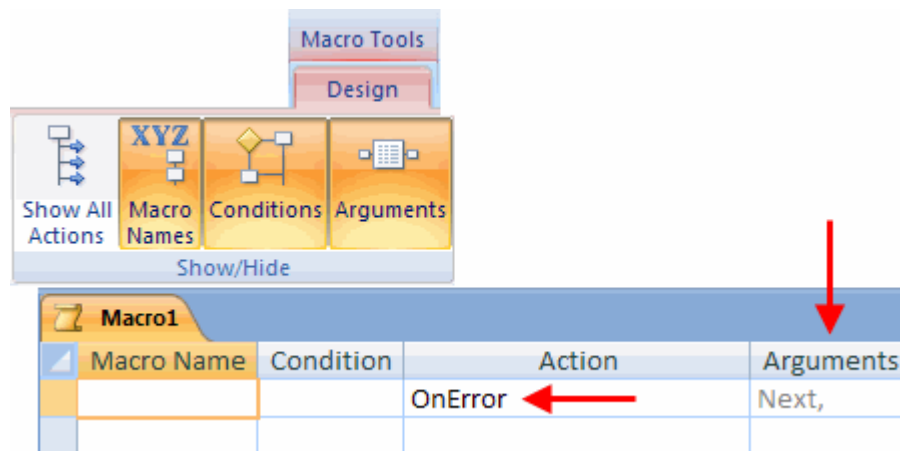
```

Visual Basic has the ability to tell you exactly what the error is and display it on the screen by use of the Err object. The Err object can hold details about one error at a time. Insert the code:

```
MsgBox Err.Message .
```

This will display in a simple dialogue box what the actual error is.

If you are building extra database functionality based on a macro, you can deal with errors by using the OnError action in Macro Design view:



Select the OnError function from the Action pull-down list and then enter the arguments for the function. This may include a new value for the macro to use or an error message that you will type to the screen displaying possible causes for the error.

Lesson 2.5: Exporting Your Form

Microsoft Access allows you to create a form that you can send to someone else via e-mail. Using Microsoft Outlook 2007 in cooperation with Access 2007, you can collect data from all over the world and store it in one place.

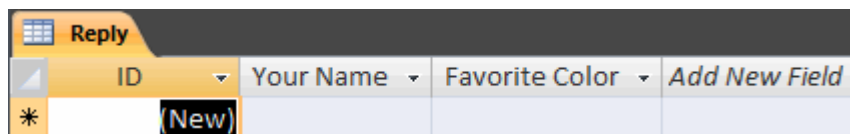
Sending a Form via E-Mail

In order to send a data form for someone else to use, you need to have a few bases covered.

- In addition to Access 2007, you must also have Outlook 2007 installed and configured with your e-mail account.
- You can only send form information to people who have an HTML-enabled e-mail client; that is a program that is capable of receiving HTML and plain text messages.

Next, you have the option of storing replies in an existing database on your computer or creating a new database which will hold only reply information. (Later you can transfer information from one database to another.) And lastly, you don't actually need a form – all you need is a table to store information, and a wizard will create a form for you.

Consider a basic database with a single table:



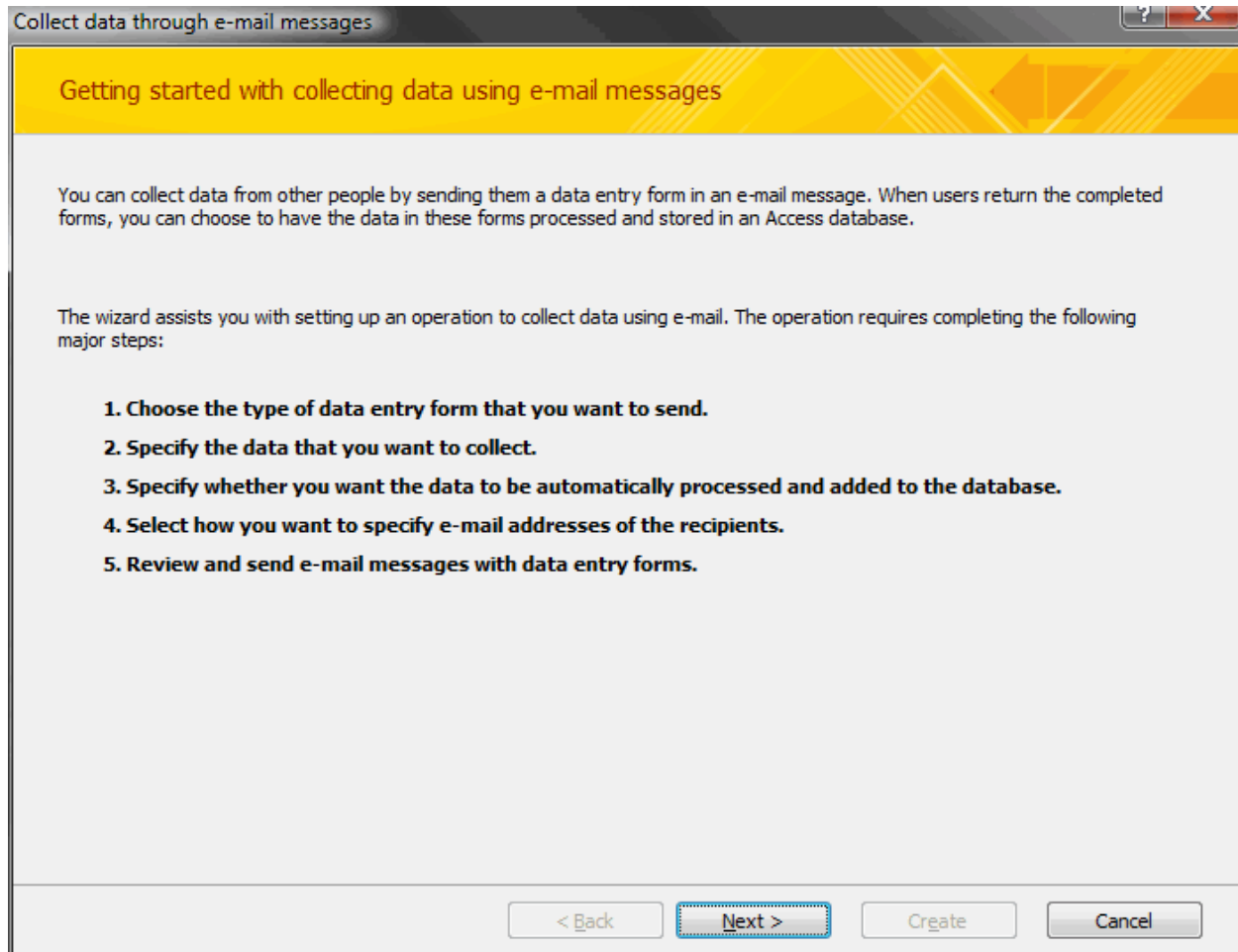
ID	Your Name	Favorite Color	Add New Field
*	[New]		

Highlight the table in the Navigation Pane and then click the External Data ribbon. In the Collect Data section of the ribbon, click Create E-mail:



A wizard will now walk you through the steps of creating form to gather information. (In fact, this wizard is similar to the form wizard.)


Click Next to advance past the first screen:




Next, select the type of form to use, either HTML or Microsoft Office InfoPath. For this example, we will use an HTML form:

Choose the type of data entry form that you want to send to users.

Select one of the following types of forms:

☒  **HTML form**
This option creates an HTML e-mail message. Any recipient who uses an e-mail application that supports HTML, such as Microsoft Office Outlook, can read and reply to this message.

☐  **Microsoft Office InfoPath form**
This option creates a Microsoft Office InfoPath form. To read and reply to this e-mail message, your recipients need both Microsoft Office Outlook 2007 (Beta) and Microsoft Office InfoPath 2007 (Beta) installed on their computers.

< Back Next > Create Cancel

Click Next to select your type of form. Now choose the fields from the Reply table to use in the e-mail form. At the bottom of the page, enter some text to display in front of the field in the e-mail message:

Specify the data that you want to collect.

Choose the fields that you want to include in your form.
Table: Reply

Fields in table

Fields to include in e-mail message

Your Name
Favorite Color

>
>>
<
<<

Note: Fields marked with * are required fields.

Field Properties

Label to display in front of the field in the e-mail message.
What is your Favorite Color?

☐ Read-only

< Back Next > Create Cancel

Click Next. Here, you can specify how you would like the replies to be handled. Any incoming replies will be stored in a special folder in Outlook 2007. However, you can have Outlook transfer the data automatically from the reply straight into the database.

Click this checkbox to enable this feature:

Specify how you want to process the replies.

The replies will be stored in the following folder in your Microsoft Office Outlook mailbox:
[Access Data Collection Replies](#)

To have the replies automatically processed when they arrive in your mailbox and the data added to your database, select the following option.

☒ **Automatically process replies and add data to Reply.**

[Set properties to control the automatic processing of replies.](#)


< Back Next > Create Cancel


Click Next. You now have the option enter the addresses that will receive the form manually, or use an existing list of addresses.

If your e-mail is part of a market study or company poll, you may already have a database with e-mail addresses inside and can use that list of you like:

Choose the recipients of your e-mail message.

Select how you want to specify the e-mail addresses of the recipients.

☒  **Enter the e-mail addresses in Microsoft Office Outlook.**
Type each recipient's e-mail address in the Microsoft Office Outlook message that appears at the end of this wizard. You may also use your Outlook address book to select the recipients.

☐  **Use the e-mail addresses stored in a field in the database.**
If the recipients' e-mail addresses are stored in the database, you can use the field that contains the addresses.

< Back Next > Create Cancel

Click Next. You can now add a subject and message to the e-mail, or use the default message:

Customize the e-mail message

Review the subject and introduction of the e-mail message and make necessary changes.

Subject

Add Reply Table Form

Introduction

Fill out the form included in this message and send it back to me.

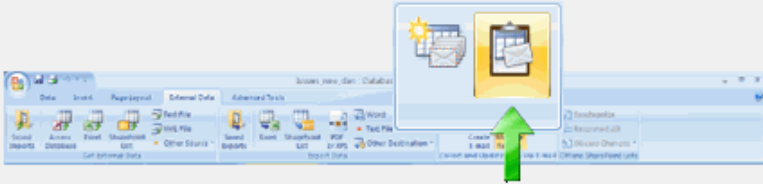
< Back Next > Create Cancel

Click Next. You are now ready to create the e-mail message. Click the Create button:


Create the e-mail message

You are now ready to create the e-mail message. When you click Create, the wizard displays the e-mail message. Review the message, and then click Send to send it to your recipients.

To see the e-mail status, click the External Data tab in Microsoft Office Access 2007 (Beta) and then click Manage Replies.



To process replies and import the data into your database, start Microsoft Office Outlook 2007 (Beta). If you have enabled automatic processing of replies, data will be imported into your database when you start Outlook.



Note: You currently have the database open in an exclusive locked state. Until this exclusive lock is released, automatic processing of e-mail messages will fail.

< Back Next > Create Cancel

You will be shown the e-mail message in Outlook 2007. Enter your recipient's addresses, and then click Send:

Managing Replies

If your database has been configured to enter information automatically into the database, you do not need to manage any replies. However, if you want to control who has access and what is being entered, send the e-mail message without checking the box to automatically enter information:

To have the replies automatically processed when they arrive in your mailbox and the data added to your database, select the following option.

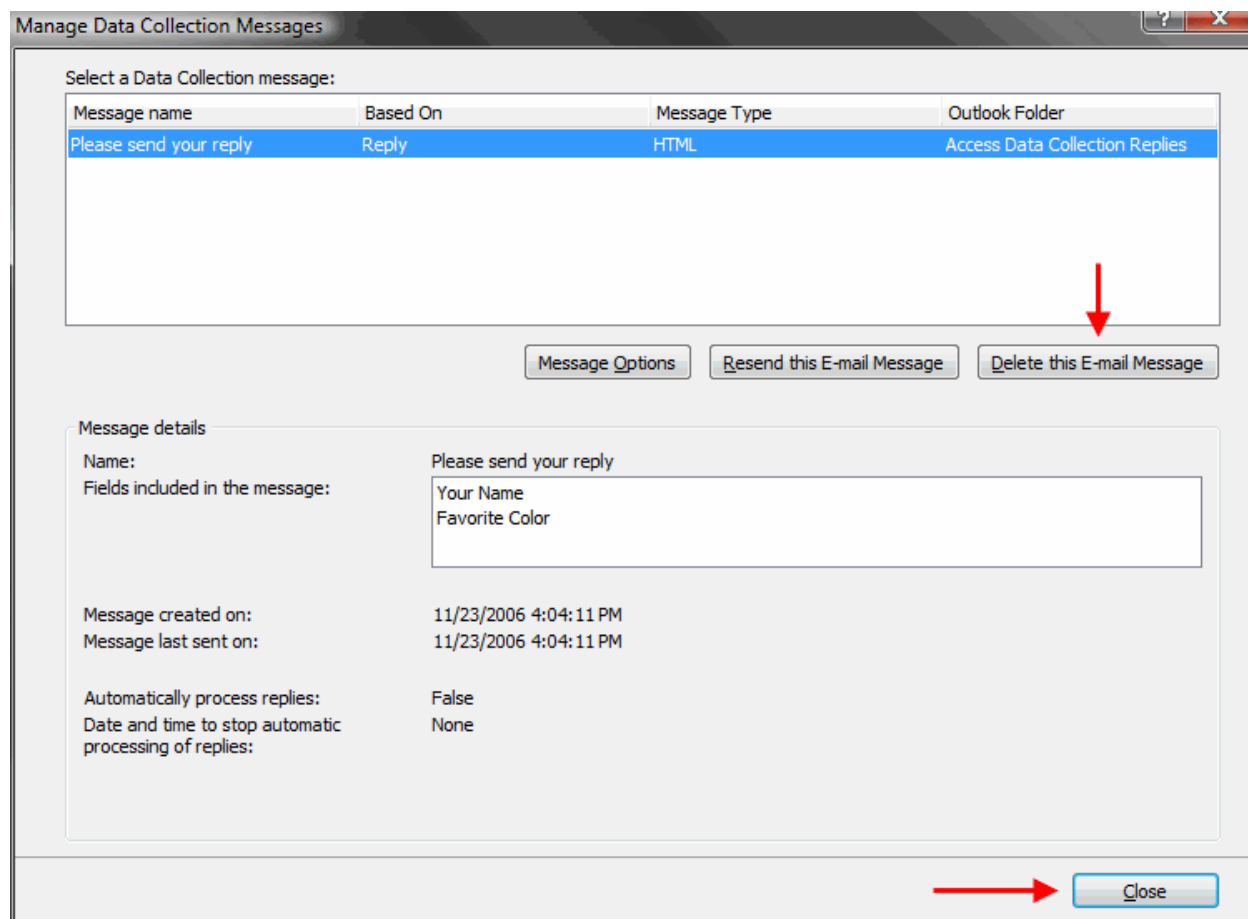
☐ **Automatically process replies and add data to Reply.**

You then have the same option to either enter e-mail addresses manually or use a list and then customize the subject and message for your e-mail.

To see the results of the e-mail you have sent, open the database file in non-exclusive mode, click the External Data ribbon and then click the Manage Replies command:

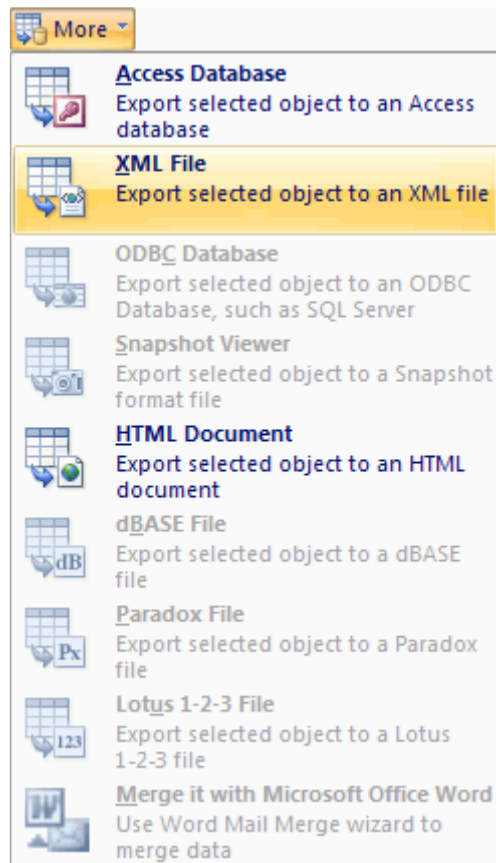


Any received messages to your form will appear in the Manage Data Collection Messages window. If you want to remove a certain response, then click the Delete this E-mail Message button. This means that the message and data will be erased, and nothing will be entered in the database. Otherwise, click the Close button and any messages will have their data inserted into the database:

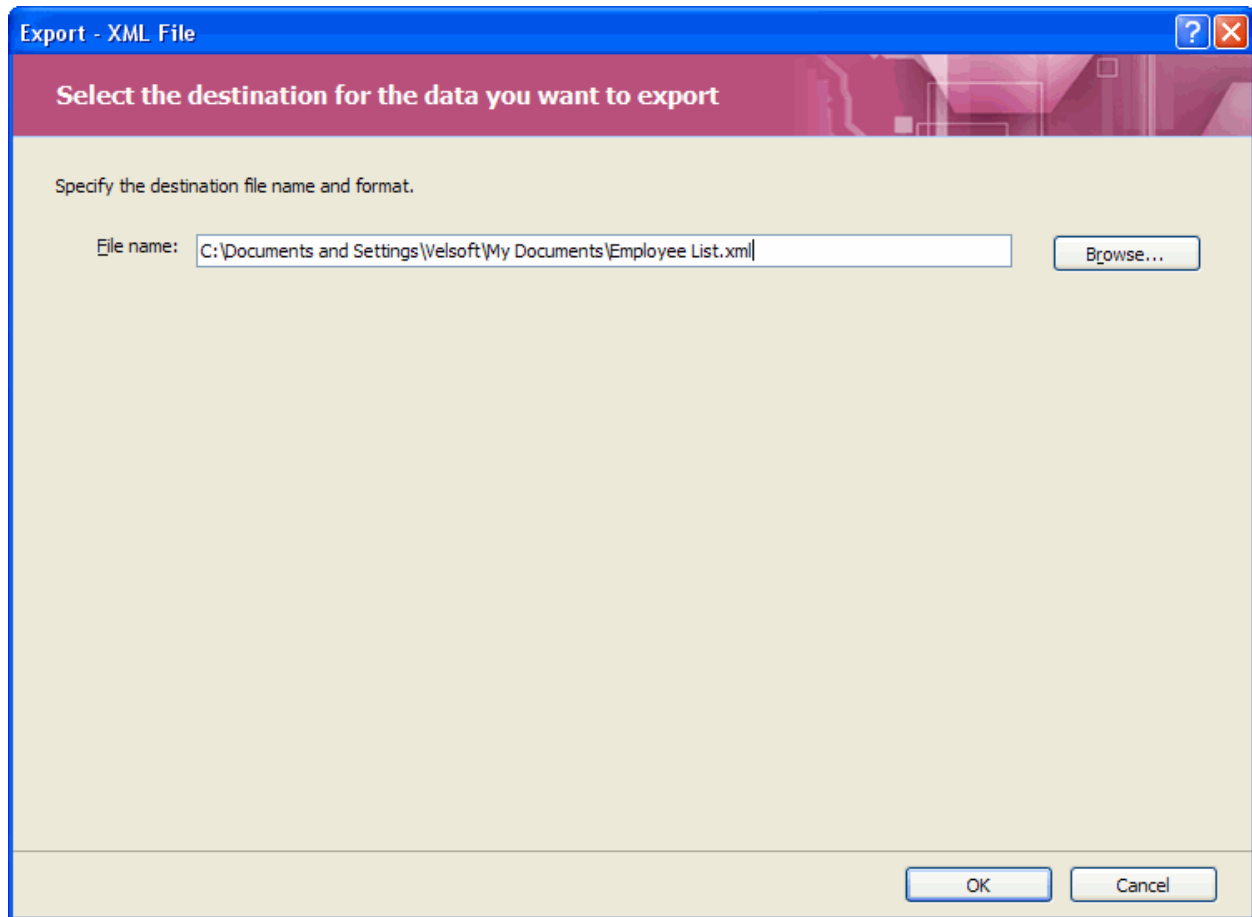


Exporting your Form to XML

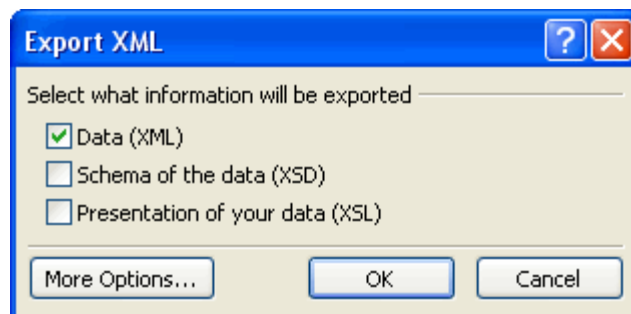
You can export a form to Extensible Markup Language (XML) by using the External Data ribbon. Highlight the form you want to export in the Navigation Pane (it is not necessary to open the form in Form view) and click XML File from the More command:



Choose a location in which to save the exported file:

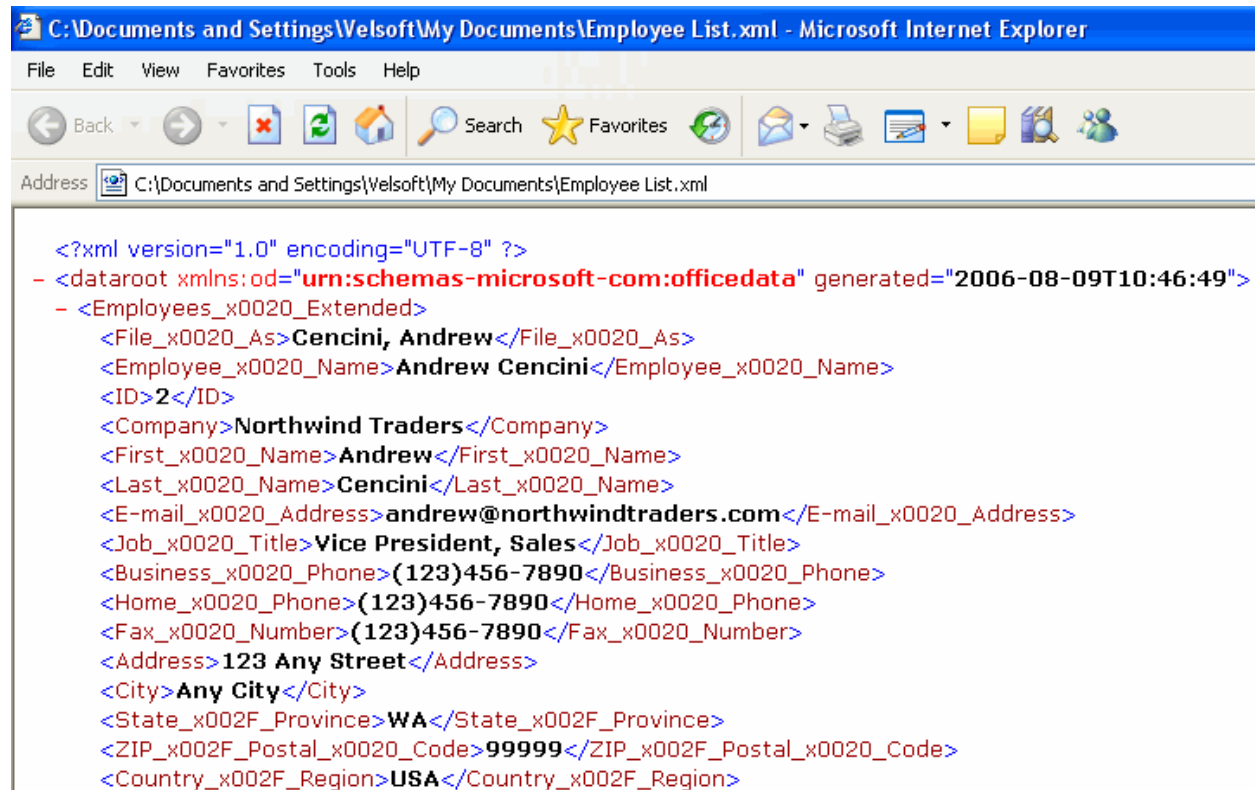


Choose the save options you want to apply to the XML file in the Export XML dialogue box:



Click OK to save the XML file. Access will prompt you to save the export operation if you like.

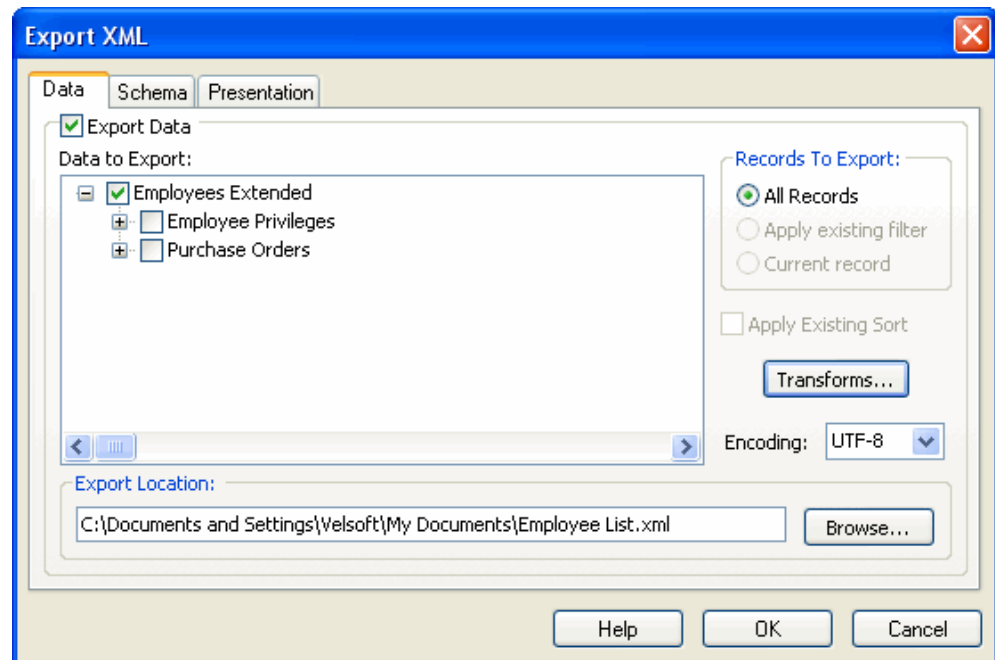
The raw data file can be viewed using Microsoft Internet Explorer:



Clicking the More Options button in the Export XML dialogue box will expand in detail how you want a particular file to be saved.

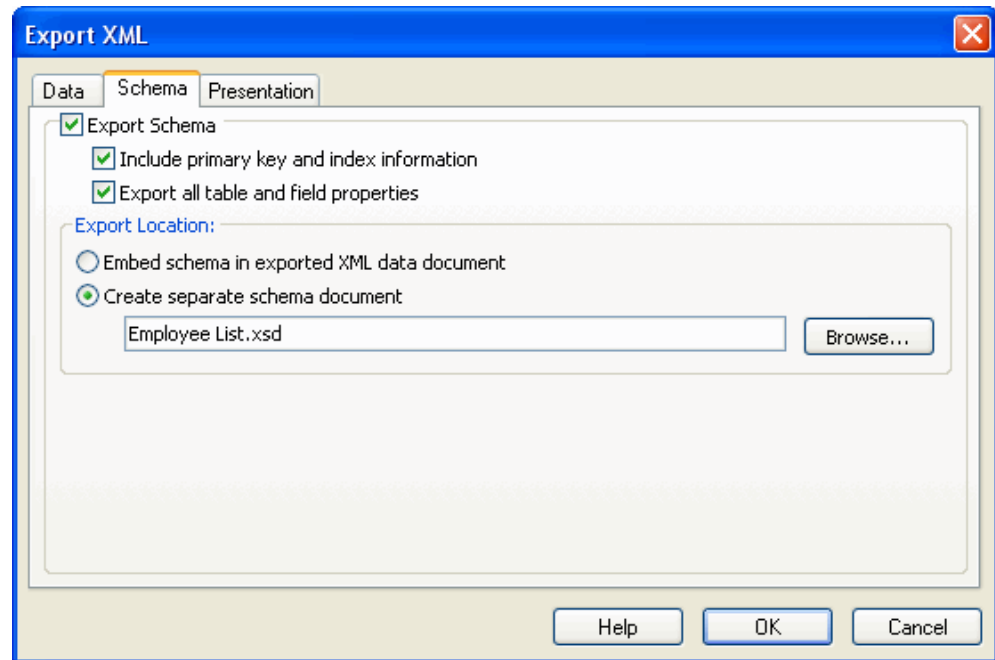
Data

Exporting only the data (like above) can be expanded to include dependant database objects. Depending on your application, you can also change the encoding that the XML file will use.

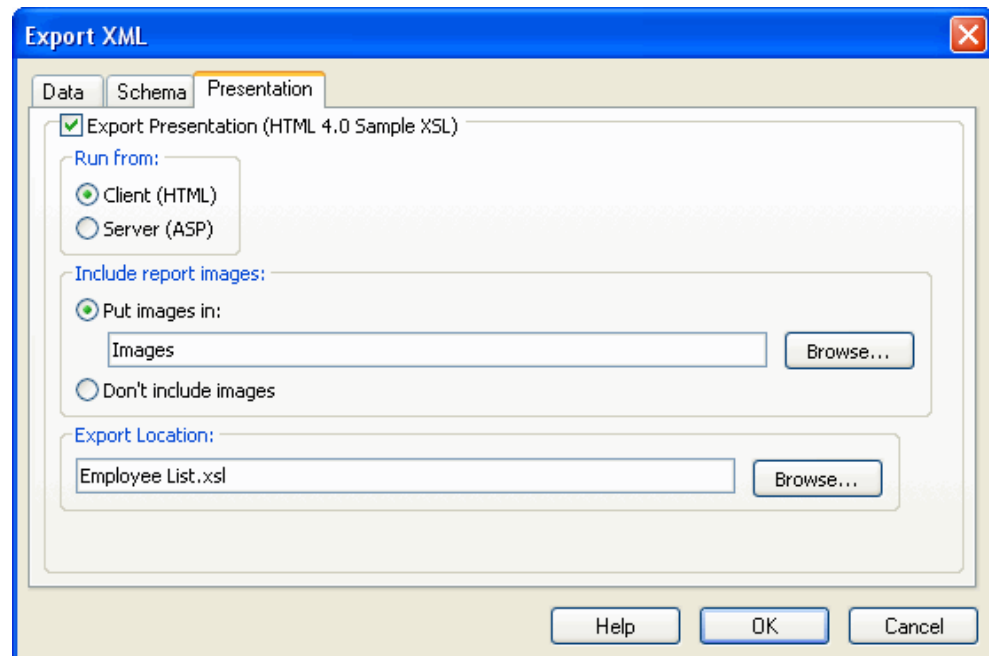


Schema

The Schema tab expands the XML file in much more detail by including details regarding how the data is saved in the form created by Access. You can choose to include the schema information in the XML file or create a separate XSD file to hold the information.



Presentation The Presentation tab allows you to essentially export a full version of the form in a package similar in design to a Web page. You can export the file for use on a local machine (HTML) or on a Microsoft-based server (ASP). Any pictures or logos in the form will be included in a separate folder if you wish.



Lesson 2.6: Using Outlook and SharePoint with Access


If you have used any of the previous Microsoft Office packages you are no doubt familiar with Microsoft Outlook. Outlook is an e-mail client as well as a contact and personal scheduling software. Access and Outlook share some similarities: both have the ability to store and manage information involving contacts and scheduling, and therefore they have been designed to be able to share that information between them. In this lesson we will cover some advanced topics relating to the use of Outlook 2007 and Access 2007.

Creating an RSS Feed for Outlook

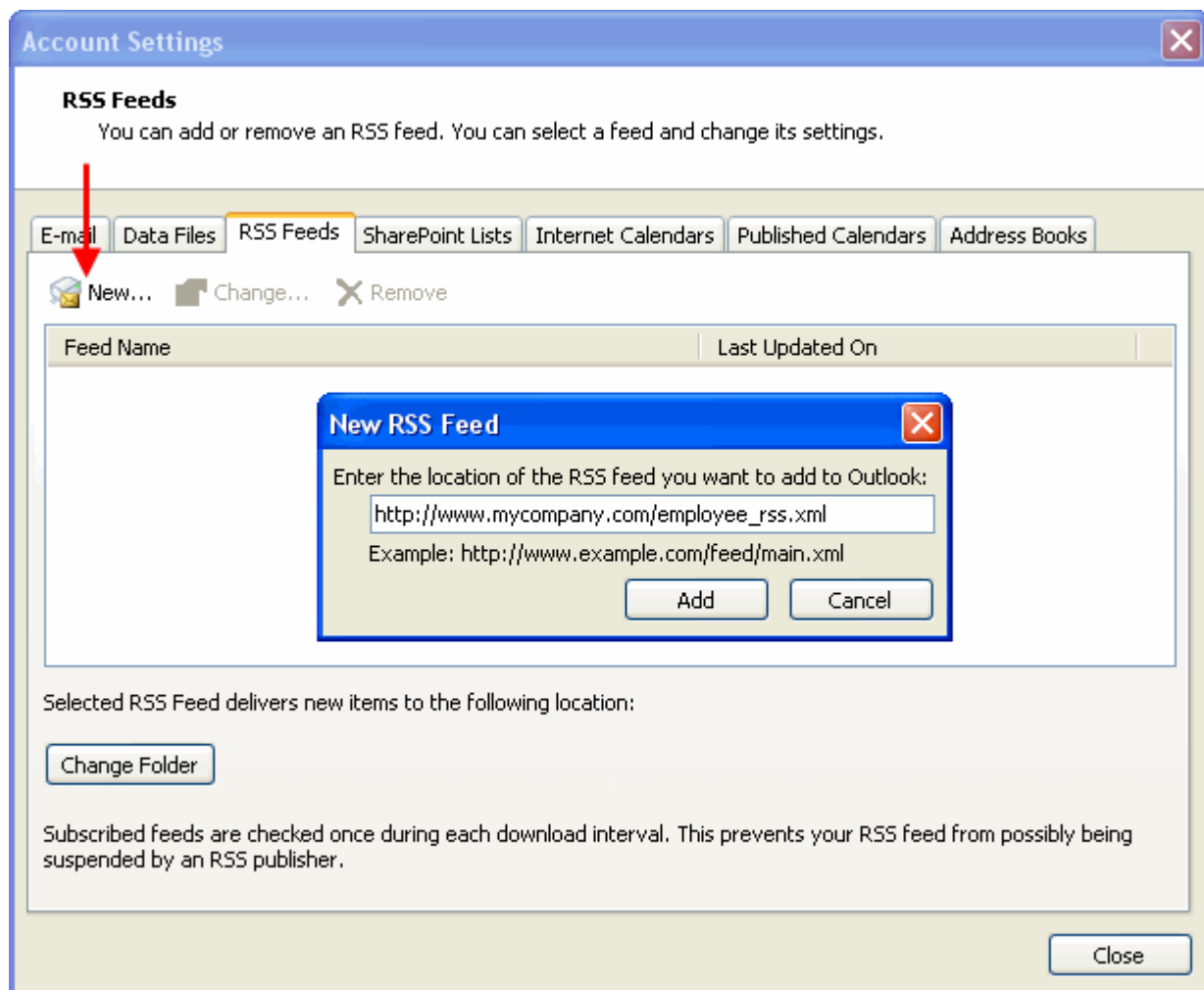
RSS stands for Really Simple Syndication. An RSS feed is essentially a special type of news or information file that can be shared to multiple users. RSS feeds are published in a form of XML (Extensible Markup Language) that can be viewed on multiple platforms and programs.

RSS is different than e-mail and more convenient than visiting several Web pages because an RSS feed can be created out of the content from several sources. When the feed is delivered, it contains several hyperlinks that branch out to different locations that each contain the source information. Click on the links you want to read in order to visit them.

RSS feeds are usually free, and are becoming widely available. An advantage of subscribing to an RSS feed instead of signing up for an e-mail mailing list is you do not need to provide your name or e-mail address. Whoever produced the RSS feed has no way of contacting you except by sending a notification via the feed. Viewing an RSS feed requires the same level of caution on your part just as if you were viewing a page on the Internet. Be very cautious of attachments included in an RSS feed and make sure to have an anti-virus program installed on your computer.

To add a feed, you will first need to find some! Websites that publish RSS feeds usually have , **RSS**, or **XML** displayed somewhere on the page. (Some Web browsers, such as Microsoft Internet Explorer 7, have the ability to subscribe to RSS feeds by clicking on these icons.) Once you have determined the URL of the RSS feed, open Outlook 2007 and click Tools → Account Settings. Click the RSS Feeds tab.

The New command opens a dialogue box to enter the URL:

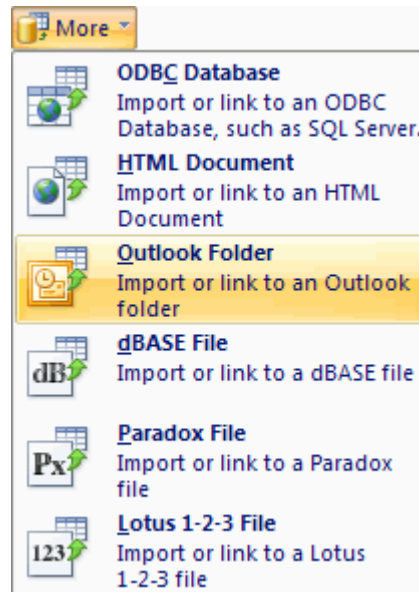


Once Outlook has the proper URL, it will automatically download the newest content for that RSS feed. Whenever Outlook has connection to the Internet, it will periodically check the source URL for any updated information.

Importing Contacts from Outlook

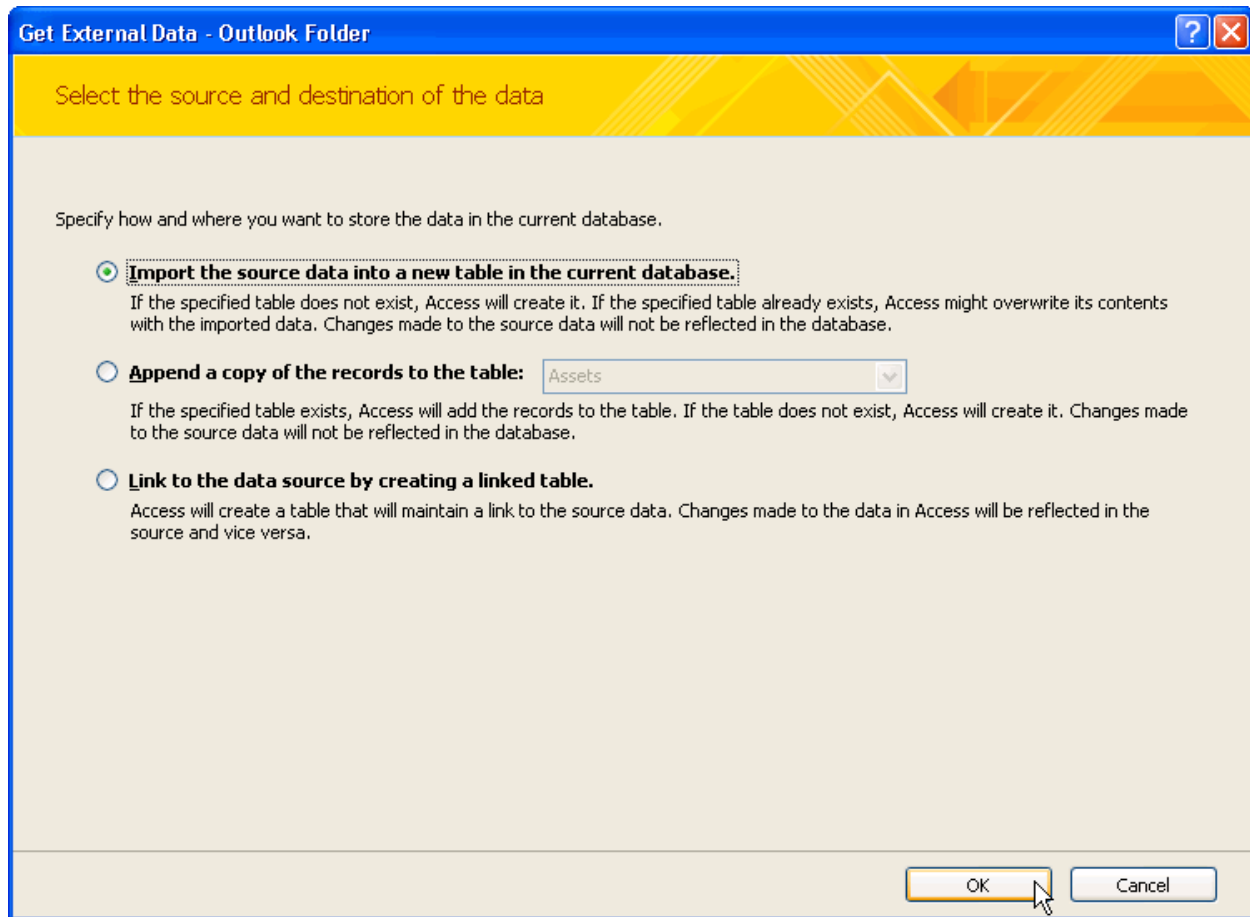
If you use Microsoft Outlook as an e-mail client program, you no doubt have accumulated a large number of e-mail addresses and contact information. Access allows you to import this data using the External Data ribbon.

Click the Outlook Folder option in the More pull-down menu of the Import section:

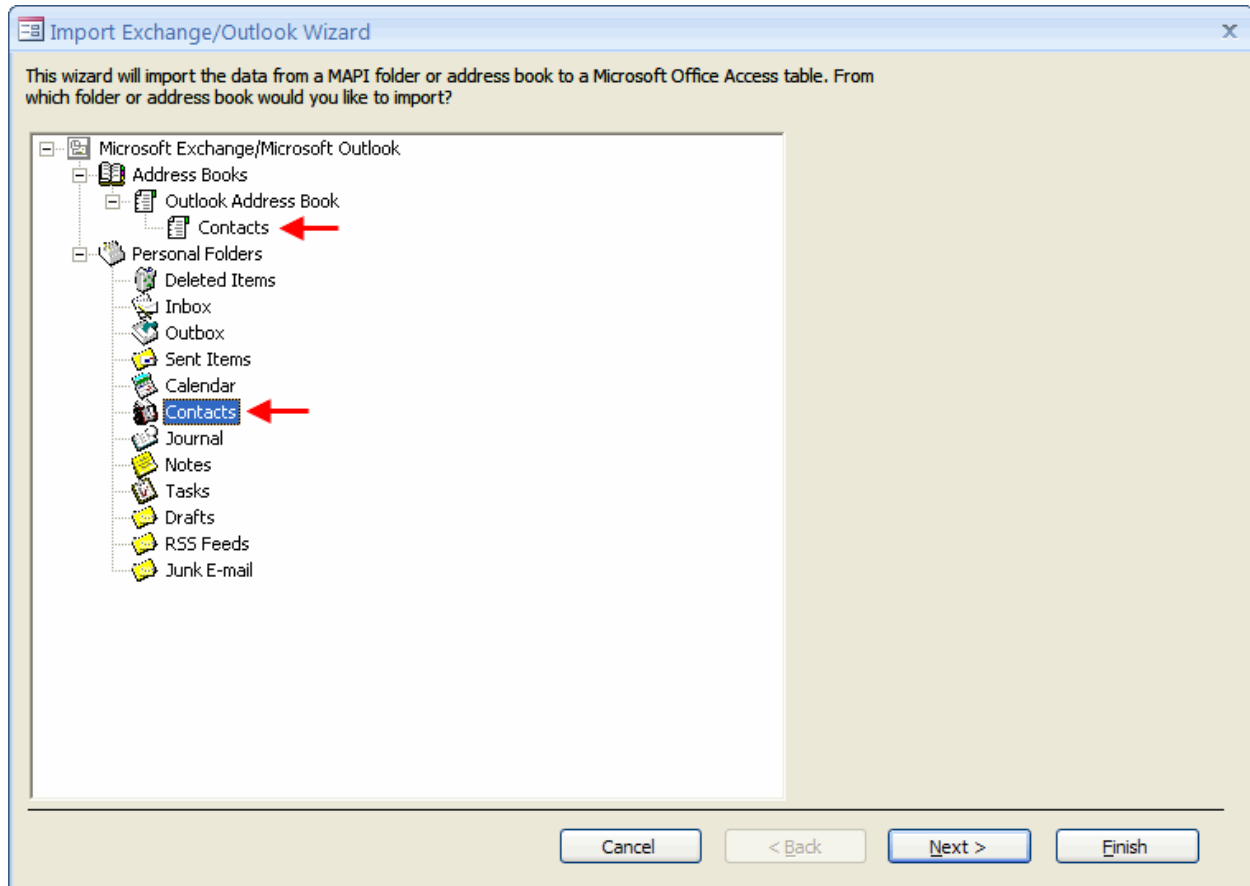


Access will prompt you to select how the source data will be used in the database, whether it is imported to a new table, added to the records of an existing table, or the data will simply be linked with a special connection between Outlook and Access.

Make your selections and click OK:



The Import Exchange/Outlook Wizard will appear and ask to browse to the folder that contains the contact information. This may be in either of the highlighted locations, depending on how you store your contacts using Microsoft Outlook.



The next step in the Wizard will ask you to confirm the data and data types of the information you will be importing. You can make these changes in the Field Options area of the Wizard. Underneath the Field Options area is a summary of the data as it appears in the Contacts folder. Note the thin upright columns (marked with the arrows):

You can specify information about each of the fields you are importing. Select fields in the area below. You can then modify field information in the 'Field Options' area.

Field Options

Field Name: Data Type:

Indexed: ☐ Do not import field (Skip)

	First	Last	Company	Title	Address	City	State	Zip/Postal Code	Country/Region
1	Alice	Alton	Northwind Traders		123 Any Street	Anytown	USA	12345	United States of America
2	Bob	Robertson	Northwind Traders		123 Any Street	Anytown	USA	12345	United States of America
3	Carl	Carlson	Northwind Traders		123 Any Street	Anytown	USA	12345	United States of America

Buttons: Cancel, < Back, Next >, Finish

These columns are fields in the source data that do not contain any information. If you click inside the column, the data (or lack thereof) will become highlighted (like the First column). You can check the “Do not import field (Skip)” check box to skip over the highlighted field. Doing so will reduce the amount of unused space in your database file.

In the next step, you can choose to let Access add a primary key to the new information. You can choose to use an existing field, such as the Last Name or Phone field, as a primary key (although there is risk of duplication):

Microsoft Access recommends that you define a primary key for your new table. A primary key is used to uniquely identify each record in your table. It allows you to retrieve data more quickly.

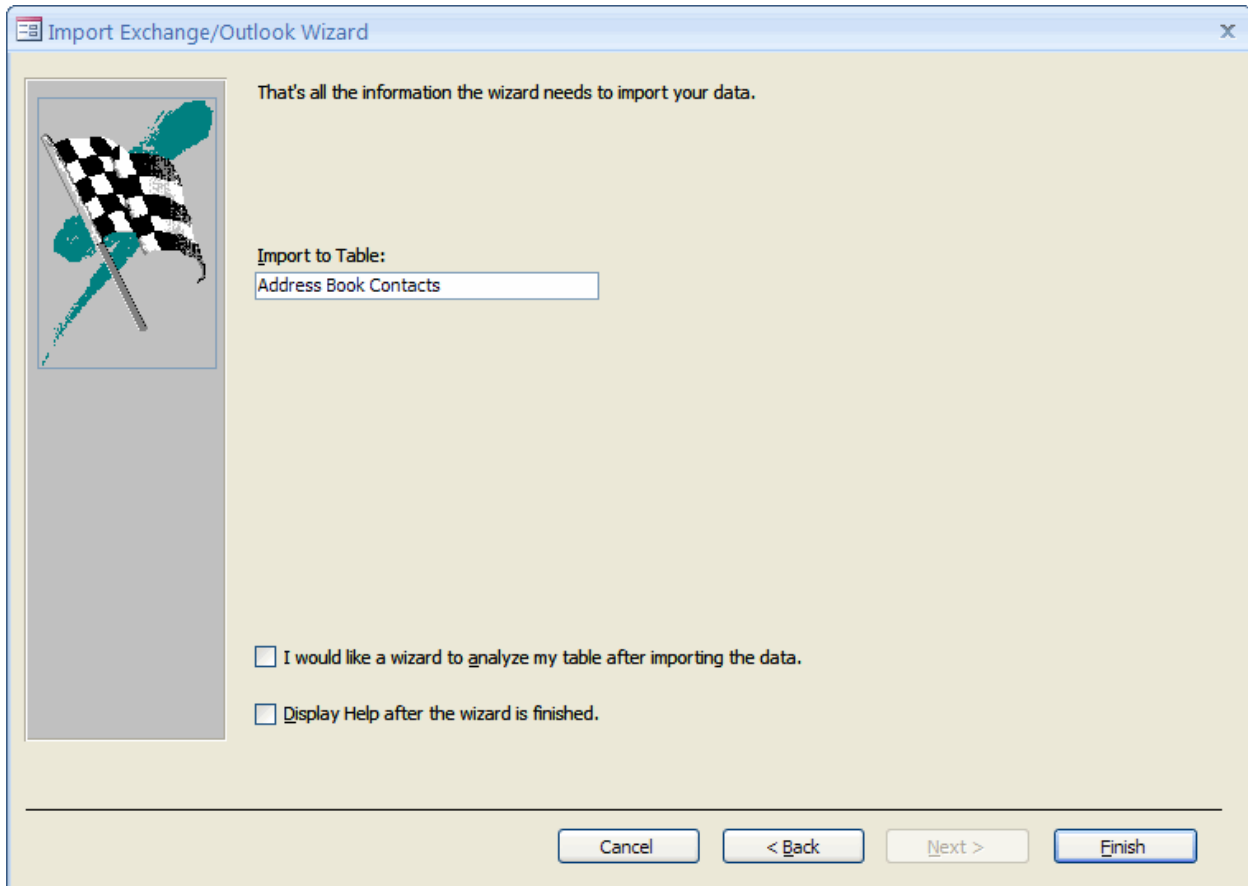
☒ Let Access add primary key.
 ☐ Choose my own primary key.

☐ No primary key.

ID	First	Last	Company	City	Address	State	Zip/Postal Code	Country/Region
1	Alice	Alton	Northwind Traders	Anytown	123 Any Street	USA	12345	United States
2	Bob	Robertson	Northwind Traders	Anytown	123 Any Street	USA	12345	United States
3	Carl	Carlson	Northwind Traders	Anytown	123 Any Street	USA	12345	United States

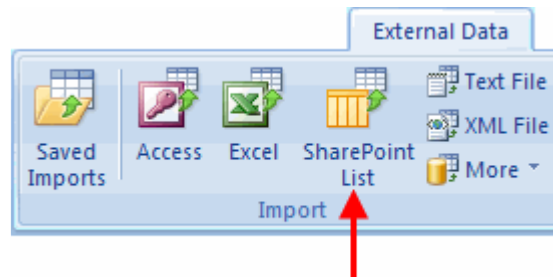
The final step of the Wizard lets you name the table that has been imported. There is also an option to run the Table Analyzer Wizard. Click Finish to confirm the name. Access gives you the option to save the import steps for future use.

You are now ready to begin using the imported contacts as you would any other table in your database:



Importing Contacts from a SharePoint Server

Importing contact data from a SharePoint server is similar to importing from Outlook. Click the SharePoint List command in the External Data ribbon:



You will be presented with the option of either importing all of the data from the SharePoint server or linking to the data. If you import the data, you will have a working copy that you can use when not connected to your company network. If you link the data, you will only be able to access it while online; however you will always be working with the most up-to-date version: (In this example we will link to the data instead of importing it, as shown in the diagram below.)

Get External Data - SharePoint Site

Select the source and destination of the data

Specify a SharePoint site:

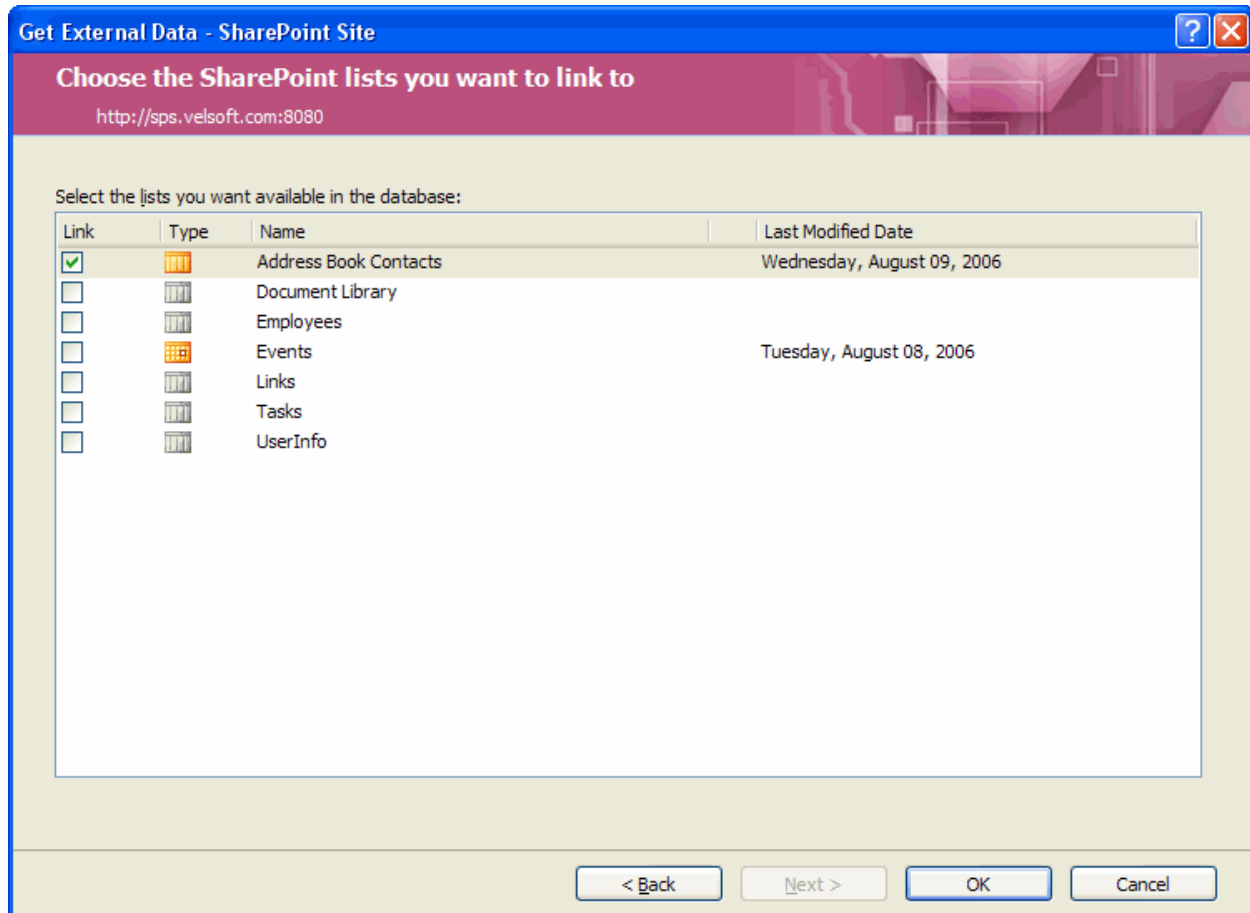
Specify how and where you want to store the data in the current database.

☐ **Import the source data into a new table in the current database.**
If the specified object does not exist, Access will create it. If the specified object already exists, Access will append a number to the name of the imported object. Changes made to source objects (including data in tables) will not be reflected in the current database.

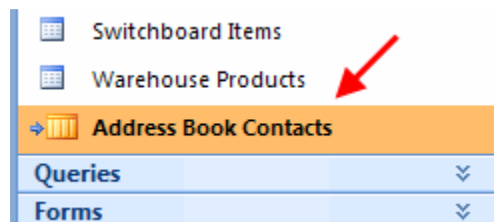
☒ **Link to the data source by creating a linked table.**
Access will create a table that will maintain a link to the source data. Changes made to the data in Access will be reflected in the source and vice versa.

< Back Next > OK Cancel

Select which list contained in the SharePoint server contains the data you want to use. Check as many sources that apply to you:



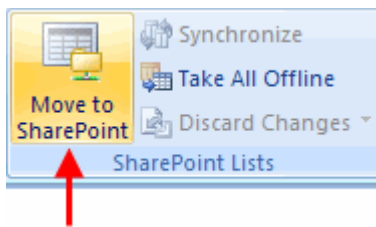
Click OK to establish the link. After a moment the connection will be established and you will be able to access the linked object through the Navigation Pane:



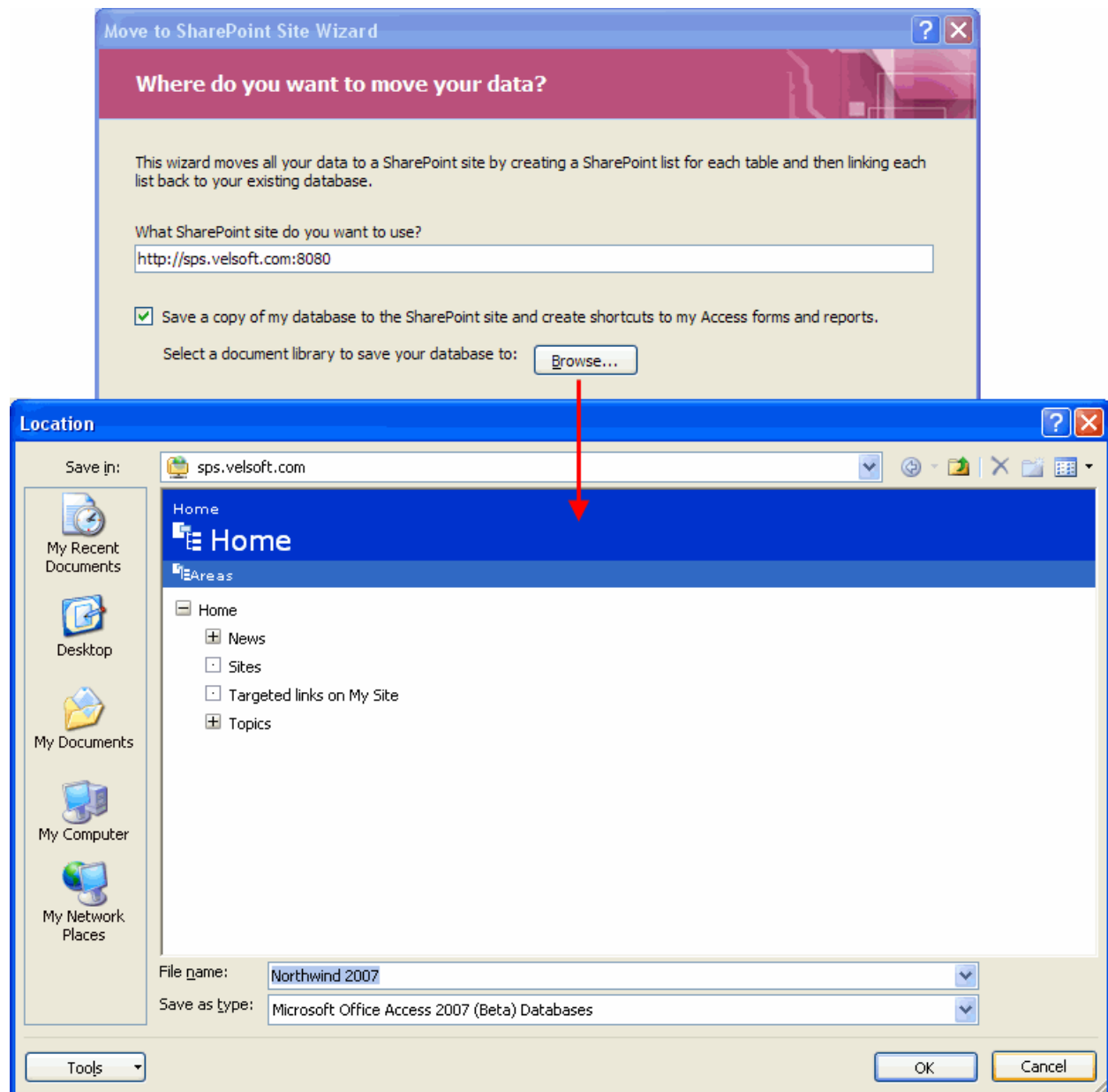
Moving your Database to a SharePoint Server

Depending on your situation, you may wish to move some or all parts of your database file to a SharePoint server. In fact, all database components except forms and reports can be moved to a SharePoint server. Form and report objects will instead be linked to the database file on your computer.

Click the Move to SharePoint command in the SharePoint Lists section of the External Data ribbon:

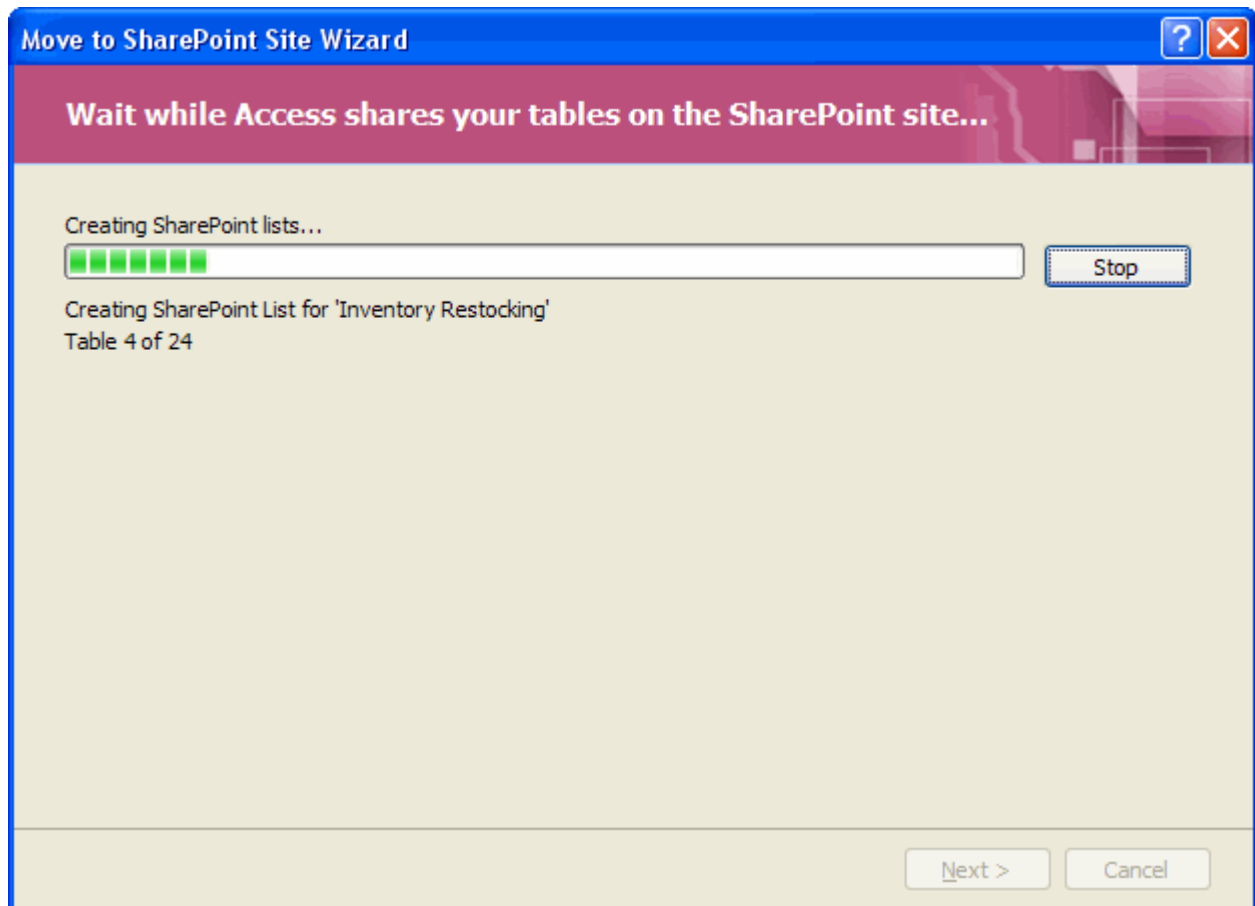


Access will prompt you to specify the URL of the SharePoint server. You can click the Browse button to specify a particular location on the server:



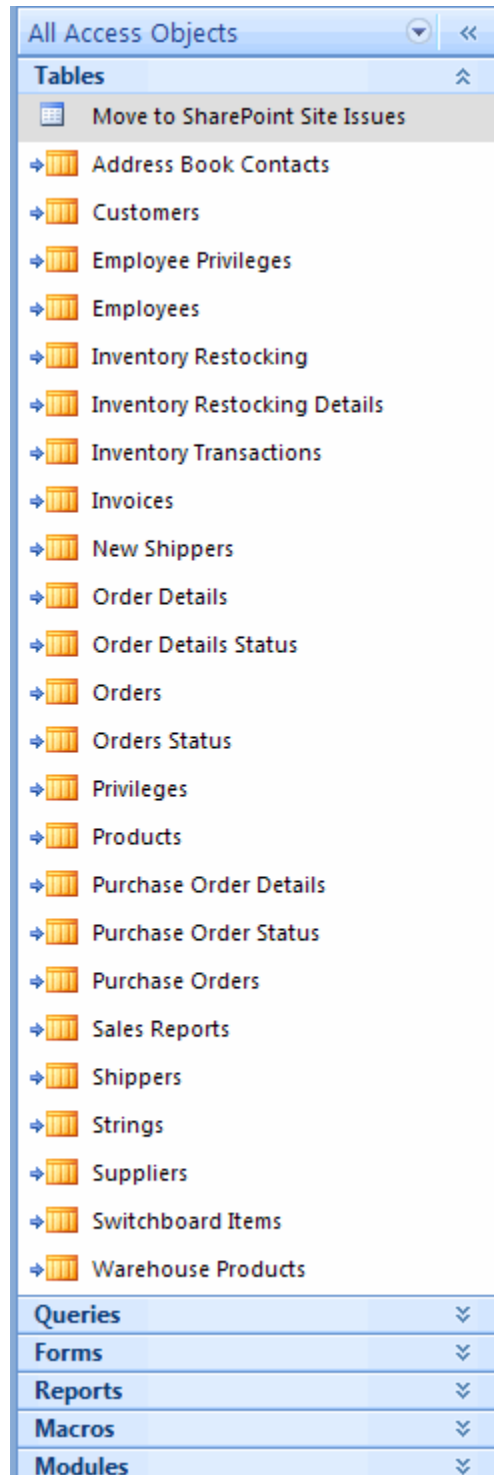
Click Next to begin the transfer of data.

You will see a progress bar showing which object is currently being moved and how much of the file is left to go:



Once the operation has been completed, Access will display a dialogue box indicating the operation is complete, as well as state if there were any complications while the database file was being moved. Access creates a backup file of the database for you once the file has been moved, named filename_Backup that is stored in the same folder as the original file.

The Navigation Pane now lists all of the linked files in the Navigation Pane:



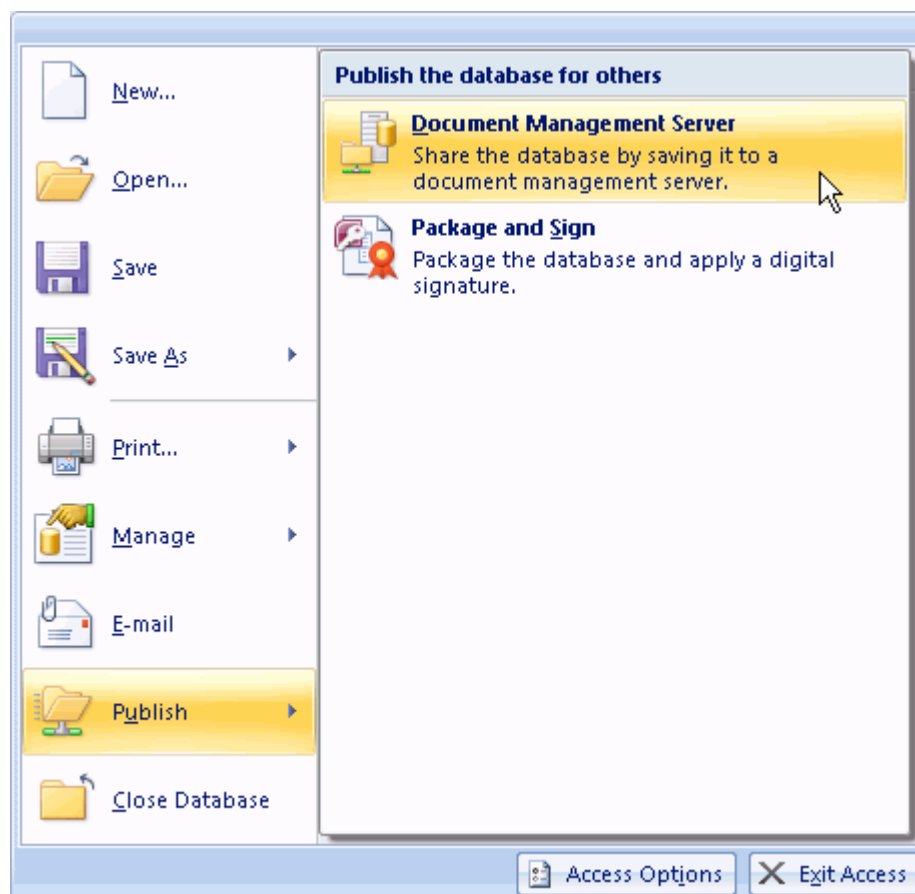
Once the database file has been moved, this enables members of your organization to modify and update the data directly on the SharePoint server. Each time you open the

database file from now on you will need to have an Internet connection established in order to perform actions on the database.

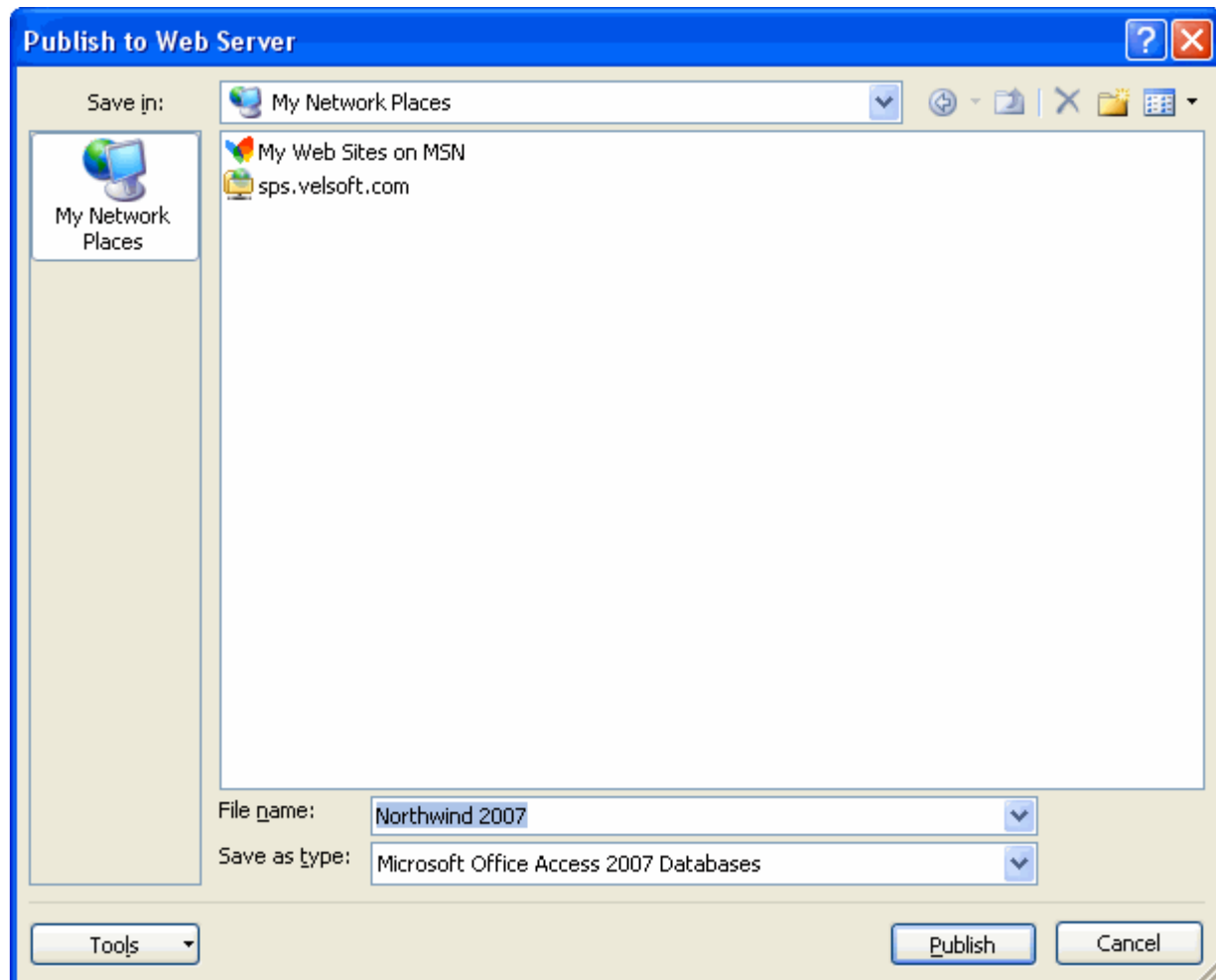
Publishing to a Web Server

There may come a time where you will need to place an entire database file on some external server that is not a SharePoint server. You may want to do this because not every coworker or client may have full access to all of the programs that you do. For example, the SharePoint server must be accessed via Microsoft Internet Explorer in order to fully use the site. Other Web browsers such as Mozilla Firefox and Netscape Navigator do not have access to all of the features unique to Microsoft Internet Explorer.

Access lets you publish your database easily via the Office Menu. Open the database you wish to publish and click Office Menu → Publish → Document Management Server:



Next, choose a location as listed in My Network Places or on the Internet. Access will package the database file and transfer it to the desired location:



Section 2: Review Questions

1. A subform is best used to display _____ of a One-to-Many relationship.
 - A. The 'one' side
 - B. The 'many' side
 - C. Either side will work
 - D. Neither side
2. Which object can a subform not be based upon?
 - A. Table
 - B. Query
 - C. Form
 - D. Report
3. What visual feature cannot be disabled when editing the properties of a form?
 - A. Close button
 - B. Scroll bar
 - C. Record selector
 - D. Navigation buttons
4. What is the maximum number of states a check box can be in?
 - A. 0
 - B. 1
 - C. 2
 - D. 3
5. Which builder can be used in the Event tab when dealing with a command button or check box?
 - A. Macro Builder
 - B. Code Builder
 - C. Expression Builder
 - D. All of the above
6. When exporting an XML file, you can choose to save:
 - A. The data in an XML file
 - B. The data presentation in an XSL file
 - C. The data schema in an XSD file
 - D. All of the above

- 7. RSS feeds are published with a _____ file extension**
- A. .accdb
 - B. .html
 - C. .xml
 - D. .http
- 8. Which statement is true when a database file is shared on a SharePoint server?**
- A. All SharePoint users link to the raw data stored on your computer
 - B. Every part of the file is uploaded except for forms and reports
 - C. Every part of the file is uploaded.
 - D. All of the above
- 9. Opening a database in exclusive mode means:**
- A. The file will only be compatible with Access 2007
 - B. The file will only be opened for you
 - C. The file will only be opened for someone you specify (other than you)
 - D. The file is read-only for anyone
- 10. Which is the best answer for this statement? In order to e-mail a form to someone else, you must:**
- A. Make a new database
 - B. Make a new form in the existing database
 - C. Make sure they have an HTML-enabled e-mail client
 - D. Properly configure Outlook Express or Windows Mail

SECTION 3: Using Macros in Access

In this section you will learn how to:

- Create a macro with the macro builder
- Manage macro security
- Embed a macro in a control
- Assign a macro to run when a key combination is pressed
- Open and recognize the parts of the Visual Basic editor
- Add some basic code to a Visual Basic program
- Create and use parts of a Macro Group

Lesson 3.1: Macro Basics

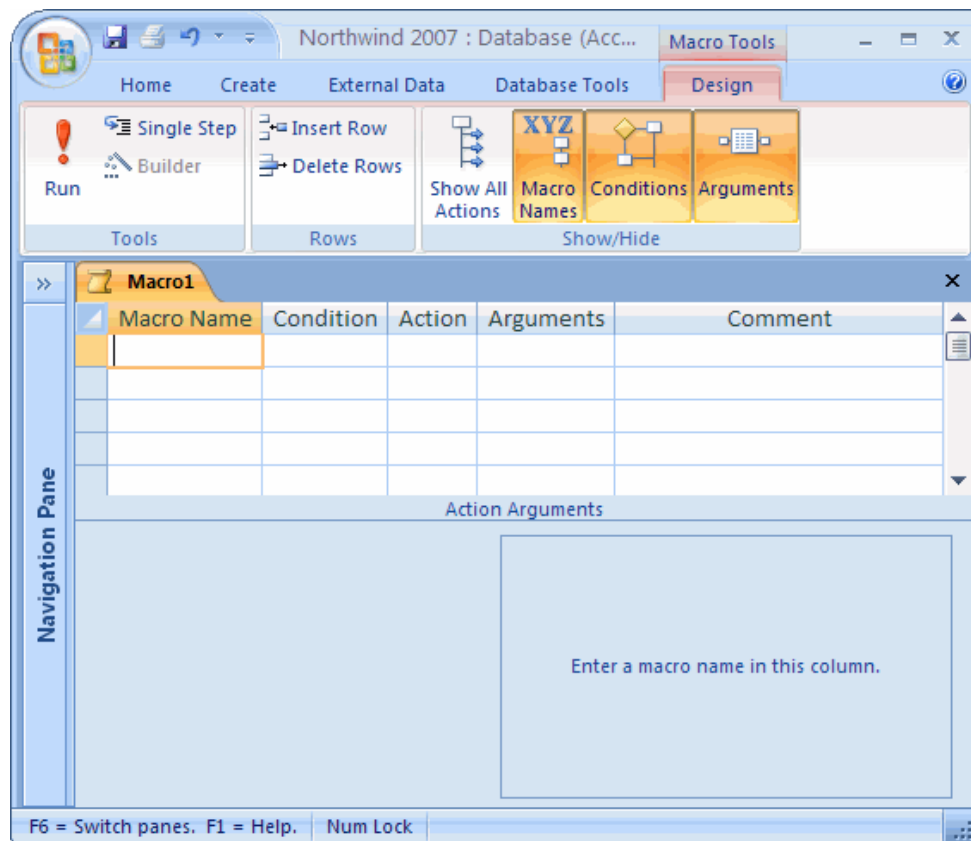
In this section we will discuss macros and how they work in Access 2007. A macro is essentially a set of instructions that are compiled together to perform a task. Once the macro is built, it can be performed multiple times, saving you time while doing that particular repetitive task. Instead of going through the steps over and over by hand, a macro will perform the actions for you.

Creating Macros

To create a macro, click the Create command tab. Click the pull-down arrow under the Macro command and click Macro:



This will open the Macro Builder:



The Macro Builder allows you to assign a name to the macro component, pick an action to perform from a combo box, set the conditions that must be met in order for the macro to run, add any arguments that have to be provided to the macro, and add a comment to describe the macro's use to other users.

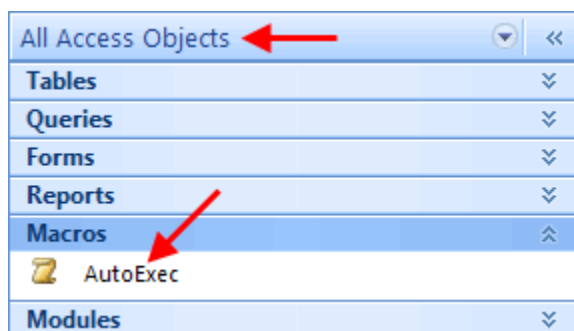
Each cell in the Macro Name column actually describes a singular macro. The Macro Builder actually creates a macro group, which is simply a collection of one or more individual macro commands. We will explore macro groups later in this lesson.

Playing Macros

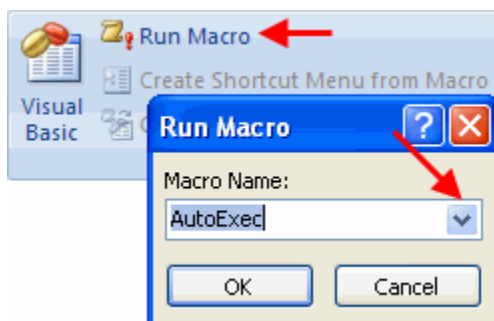
Once you have completed a macro in the Macro Builder, click the Run command in the Macro Tools - Design ribbon:



The macro will execute. Macros can also be run directly from the Navigation Pane. Simply expand the Macro Section of the Objects view of the navigation pane and double-click the macro you want to use:



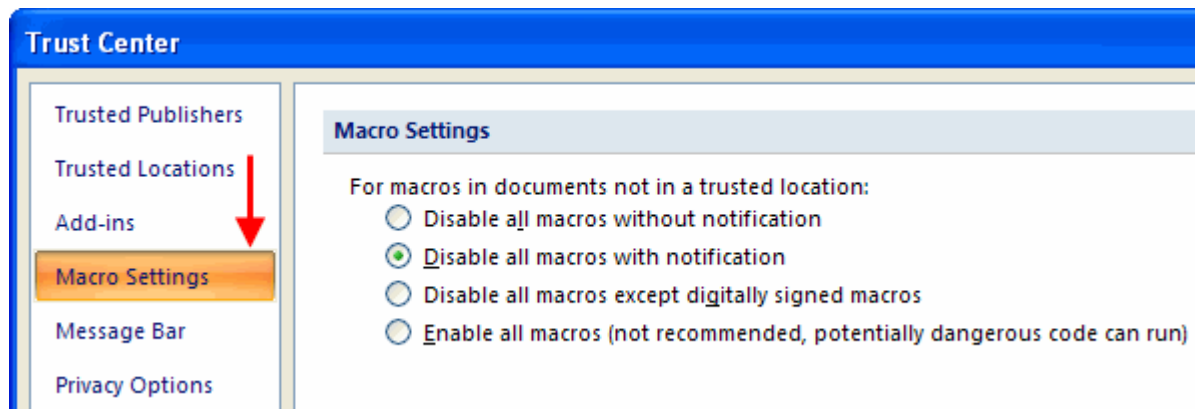
You can also click the Run macro command in the Macro section of the Database Tools ribbon. Choose the macro you want to run from the combo box and click OK:



Macros can also be run by clicking a button in a form to which a macro has been attached. A macro can also be set to run as soon as a database file is opened in Access, such as the AutoExec macro of the Northwind sample database. We will explore how to perform these actions later in this manual.

Macro Security

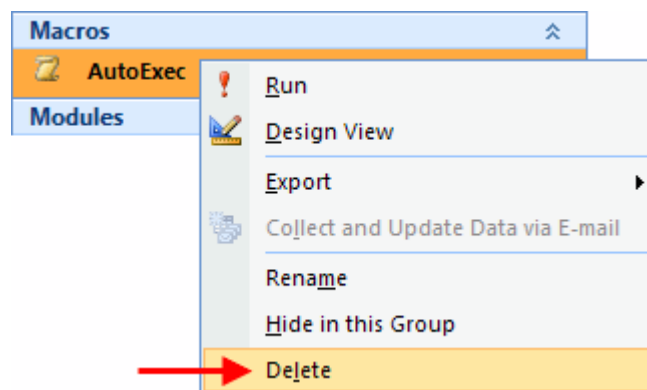
Macros are essentially small programs that run on a database file. Macros are primarily built using the Macro Builder; however macros can be turned in VBA code and as such are vulnerable to security issues from malicious users. The Microsoft Office 2007 Trust Center contains a section just for macro security:



Choose the Security setting that works best for you from this pane of the Trust Center.

Deleting Macros

To remove a macro from your database, expand the Macros section of the Navigation Pane and right-click the name of the macro you want to remove. Then, click Delete:



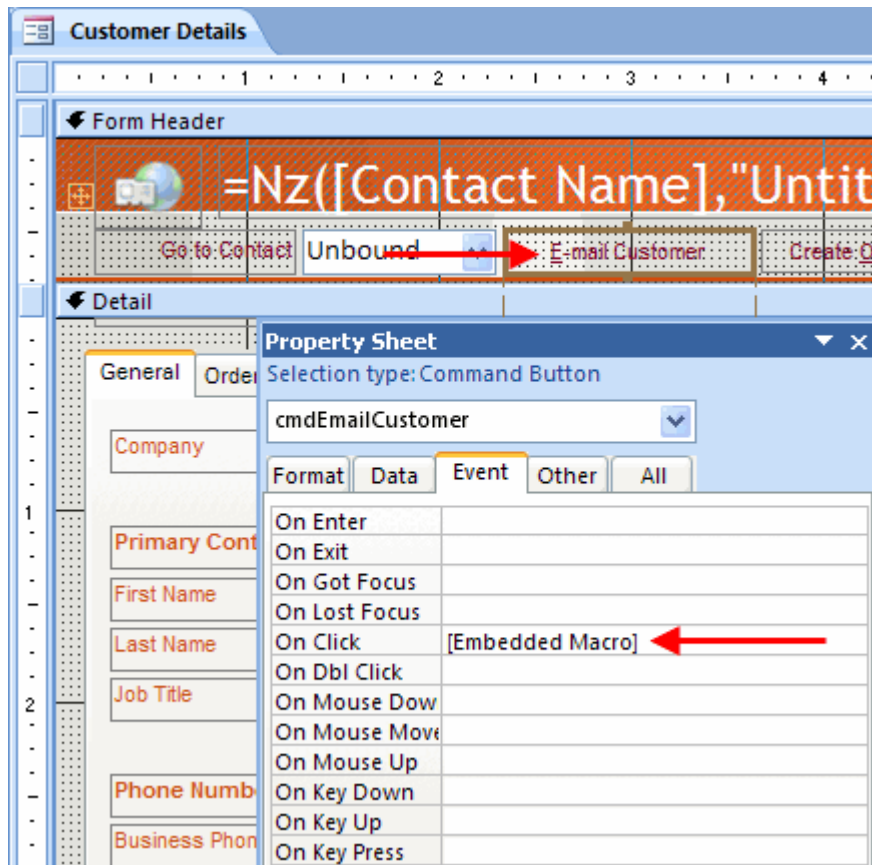
Lesson 3.2: Other Macro Tasks

In this lesson we will discuss how macros will work with your database objects.

Embedding a Macro


Embedded macros are stored in the event properties of a form, report, or control. They are not displayed in the Macro section of the Navigation pane, unlike the other macros which are stand-alone and accessible at any time.

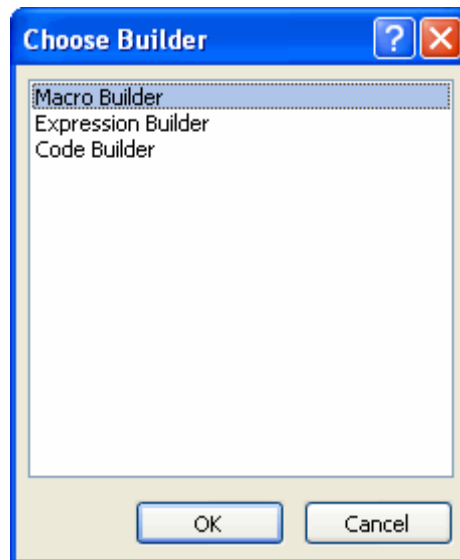
To embed a macro, open the form or report that will contain the embedded macro in Design view. Select the control that will have the embedded macro and open the properties of the control. Embedded macros are added to the Event tab of the object properties. Consider the Customer Details form in the Northwind sample database:



It already contains an embedded macro in the E-mail Customer control. This was created by clicking inside the On Click text box and selecting [Event Procedure]:



This command opens the Visual Basic editor. Clicking the  icon will display a list of builders:



Select which Builder you would like to use. Macro Builder has the same effect as clicking the Macro command in the Create ribbon, the Expression Builder is designed to create mathematic expressions, and the Code Builder will open the Visual Basic Editor.

Assigning a Macro to a Keystroke

The main purpose of a macro is to save time by automating a sequence of commands you perform often. Access can help speed up macros even more by making them active with only a simple key combination. Consider the following Macro Group:

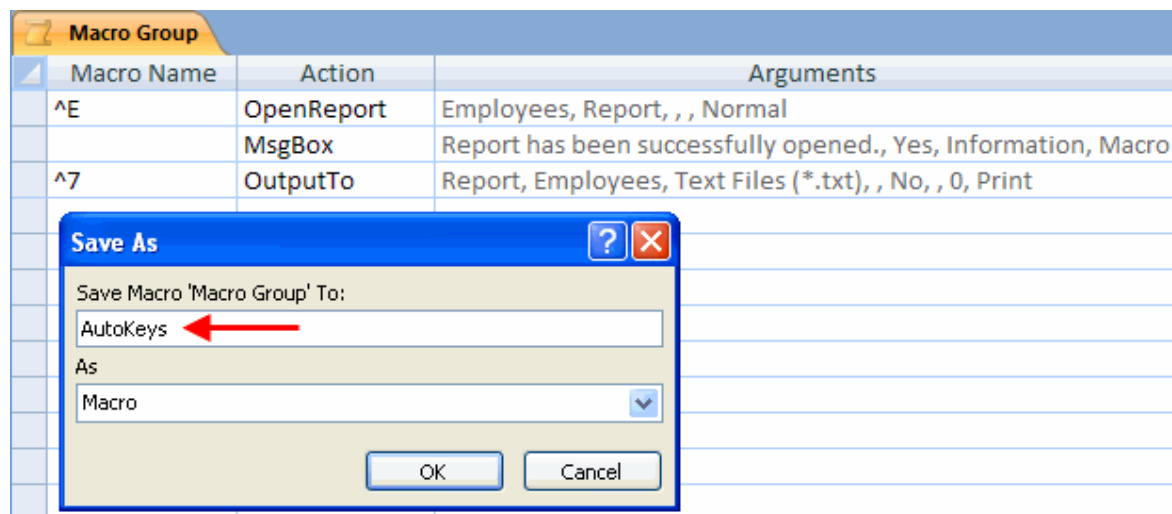
Macro Group		
Macro Name	Action	Arguments
Open Report	OpenReport	Employees, Report, , Normal
	MsgBox	Report has been successfully opened., Yes, Information, Macro
Output Report	OutputTo	Report, Employees, Text Files (*.txt), , No, , 0, Print

Instead of clicking the Run Macro command in the Database Tools ribbon, you can instead assign the macros here to different keystrokes. First, change the Macro Names of each macro to comply with the following syntax:

Macro Name	Key Combination
^E or ^1	CTRL+E or CTRL+1
{F1}	F1
^{F1}	CTRL+F1
+{F1}	SHIFT+F1
{INSERT}	INS
^{INSERT}	CTRL+INS
+{INSERT}	SHIFT+INS
{DELETE} or {DEL}	DEL

In the case of a macro group, every macro in the group must have its Macro Name changed to a key combination. This is because the entire macro object is saved under a special name. Once you have entered the key combination you want to use, click Office Menu → Save As.

When the Save As dialogue box appears, enter AutoKeys as the name of the Macro:

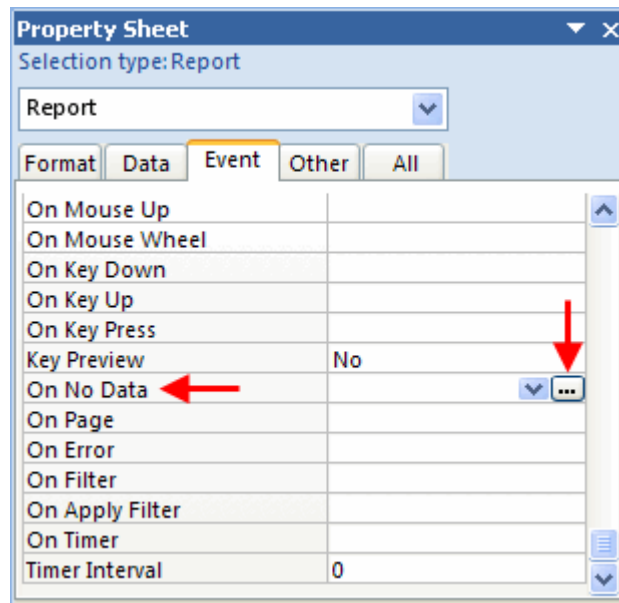



If a Macro Name was left in the group that did not follow the proper syntax, Access will not allow you to save the macro under the AutoKeys name. In the sample above, whenever the key combination Ctrl + E is pressed, a report and message box will open. If Ctrl + 7 is pressed, the report will be outputted to a text file.

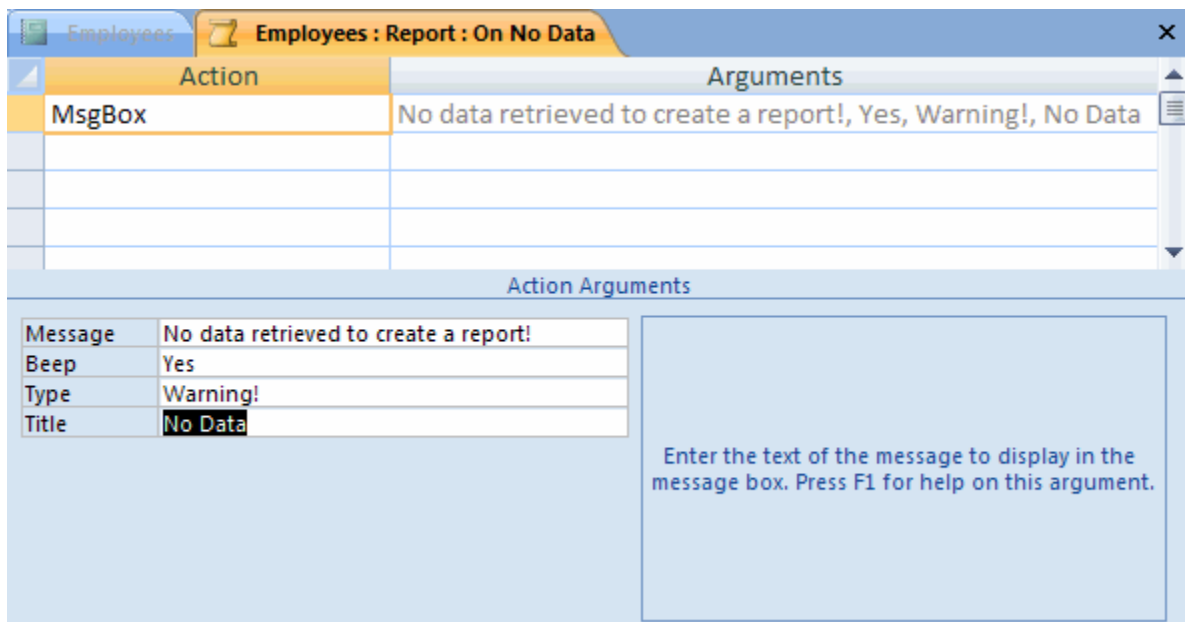
Assigning a Macro to an Event

We have briefly seen how to assign a macro to a keystroke or control interaction. Access also allows you to assign a macro to something you do not directly interact with: an internal event. For example, you may run a macro that creates a report. However, if the report contains no data, you might want to show a message box stating there was no data to generate a report with.

Therefore, you can use the On No Data event to perform some action if no data can be used to create a report:



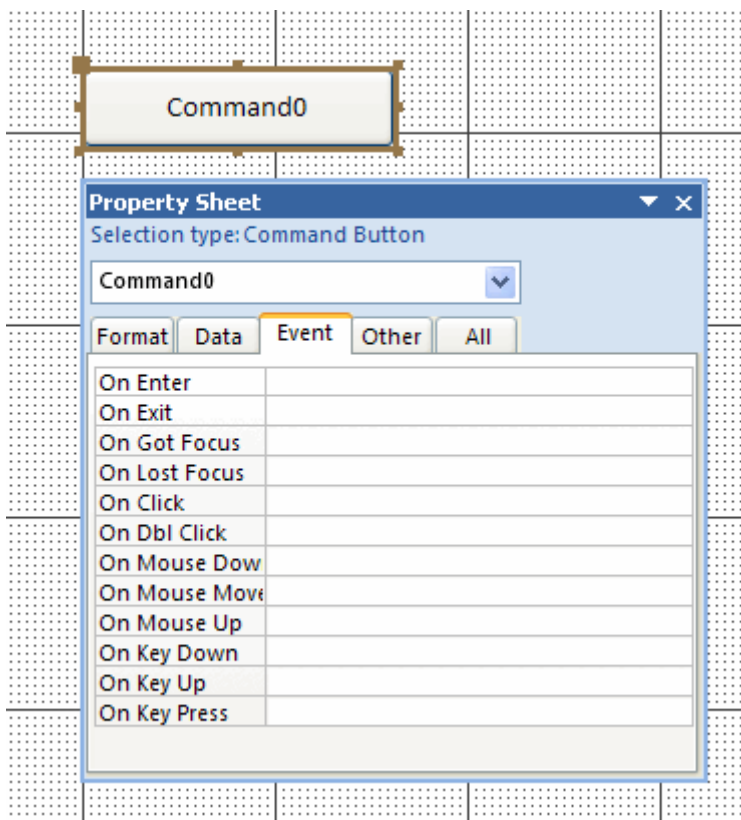
Click the  icon and choose Macro Builder from the list of available builders. When the Macro Builder appears, enter the following:




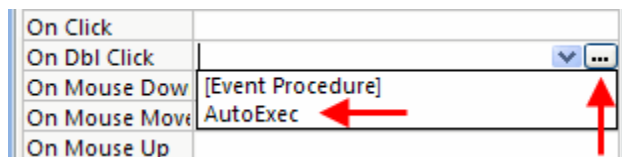
Assigning a Macro to a Control

In a form or report, you can assign a macro to perform some action, just like an embedded control. Access also allows you to use a macro by clicking a command button, allowing for easy point and click usage of a database's features.

To add a macro to a control, first place the type of control you want to use on the canvas. Then, open the Event tab in the properties of the control:



Click inside any of the events listed here. As you can see, every way that you can interact with a control has been covered here. You will have the option to use a macro that already exists by itself in the database by selecting it from the drop down list, or you can choose to use the Macro Builder by clicking the  icon:

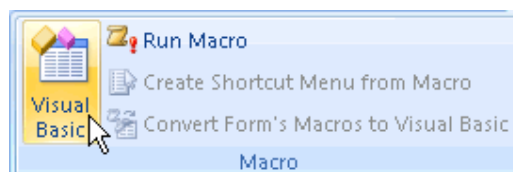


Lesson 3.3: Visual Basic and Macros

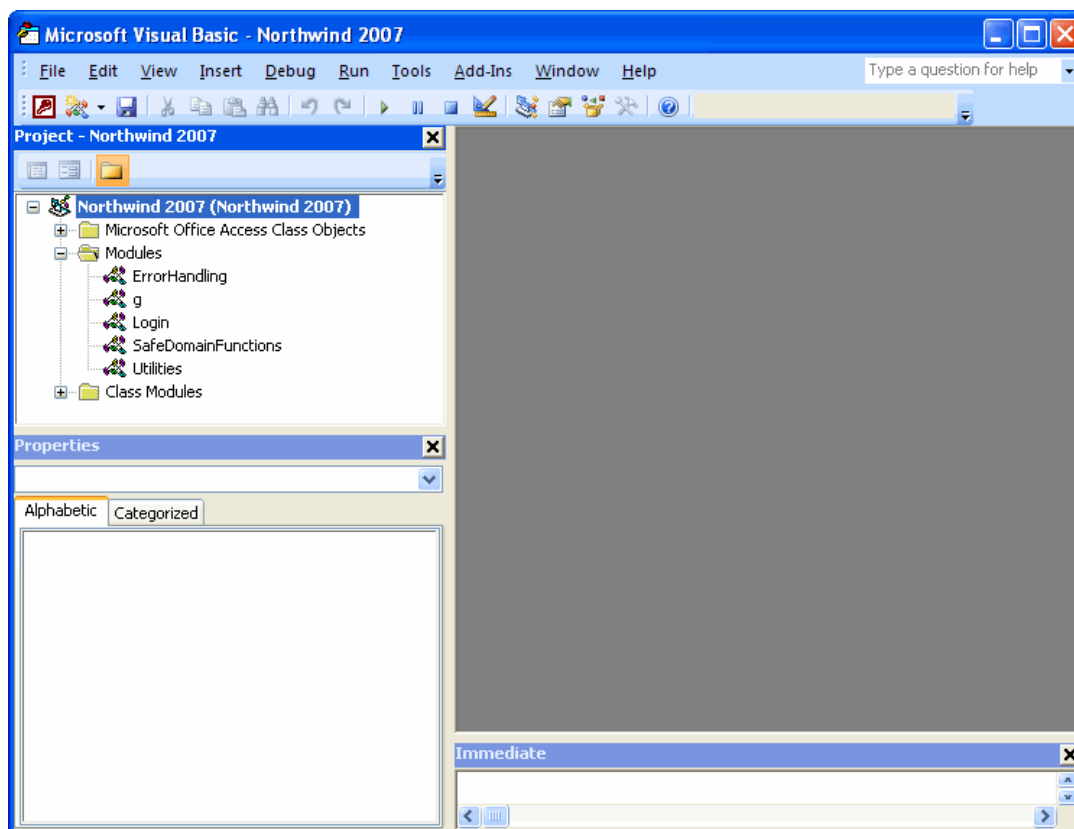
The Macro Builder is an easy interface method of creating a macro for use on your database. In this lesson we will examine the background function that makes much of Access actually work – VBA code. Though it is not the intention of this manual to tell you all about VBA, we will introduce the most commonly used things: comments, variables, user input, and the If-Then-Else statement.

Opening the Visual Basic Editor

To open the VBA editor, click the Visual Basic command in the Macro section of the Database Tools ribbon:



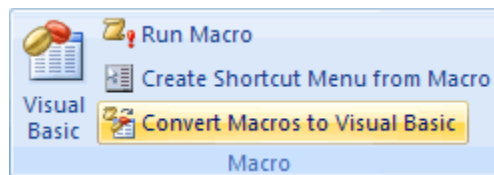
The Microsoft Visual Basic editor will open.



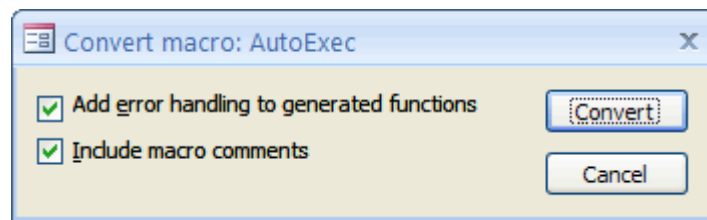
In the Project pane, there is a listing of all objects associated with your particular database. Click the (+) signs to expand the objects in a certain category. Underneath is the Properties pane in which you can modify properties of the object you are currently working on. At the bottom is the Immediate pane, which is like a console output screen. Debugging info and other related information is displayed here. The large gray area is where code windows will be placed.

Adding Code to your Macro

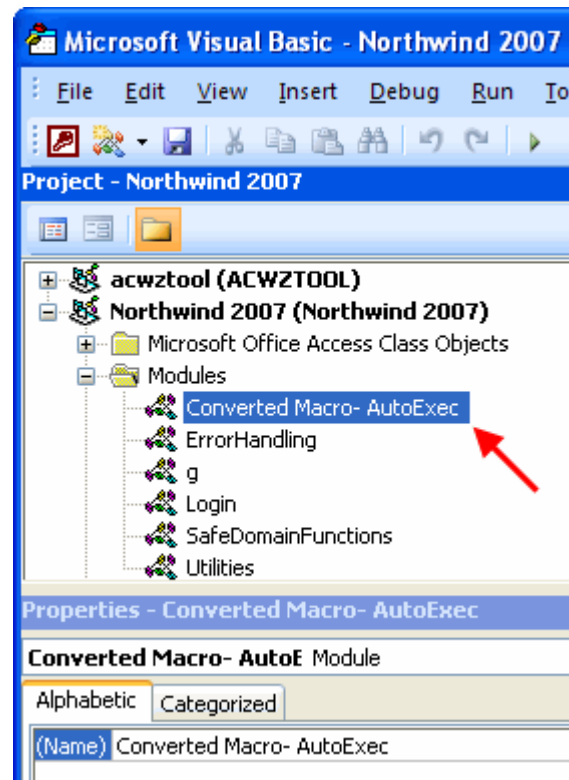
Before adding code to a macro, it is worthwhile showing how to first turn a macro into code! Select any stand-alone macro in the Navigation pane, such as the AutoExec macro in the Northwind sample database. Click Convert Macros to Visual Basic in the Macros section of the Database Tools ribbon:



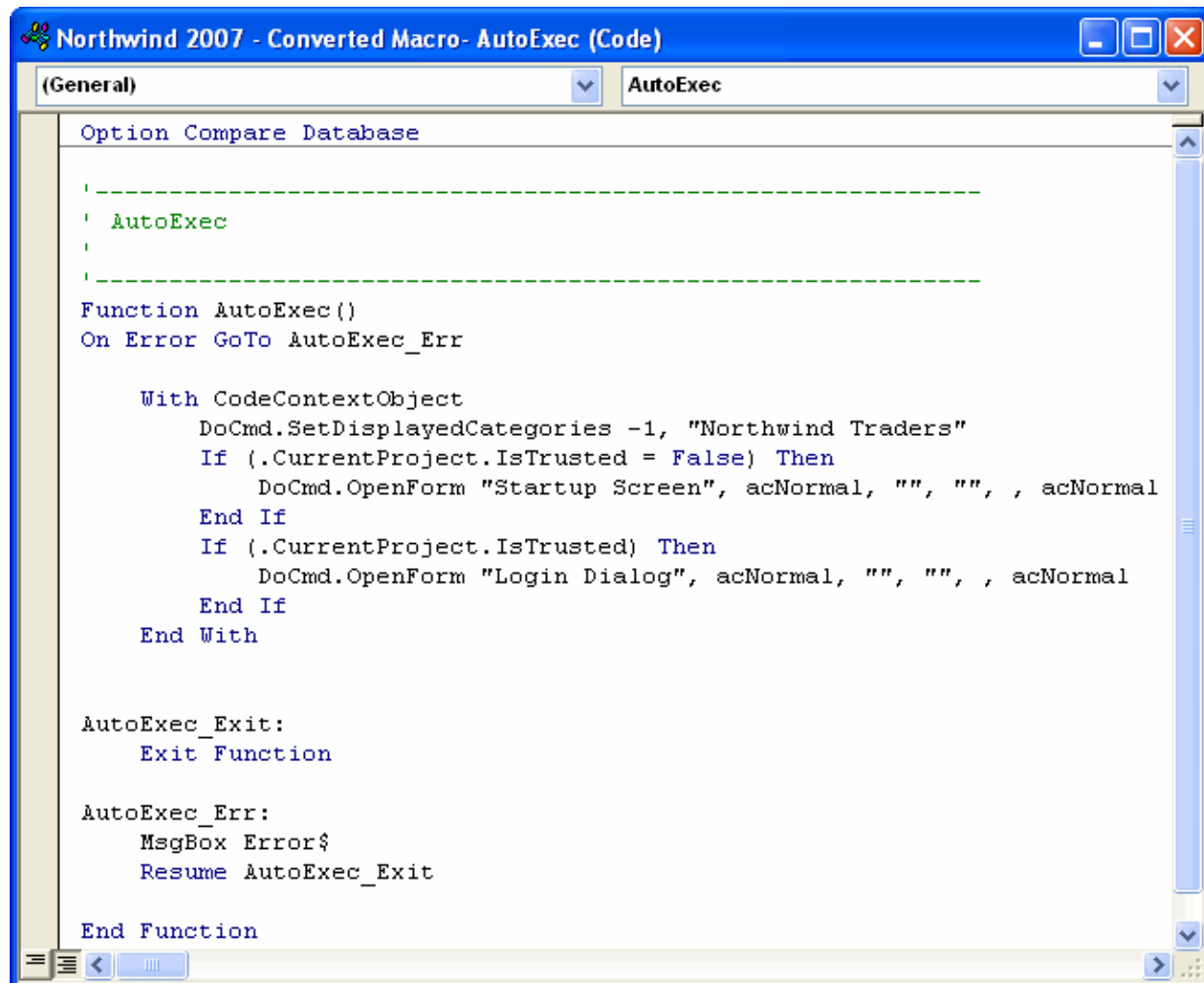
You will be asked to confirm the addition of error handling and comments to the converted macros:



Click Convert to open the VB editor:



The converted macro will be listed in the Modules section of database objects. Double-click this listing to view the code:



To add any code to the above, simply click the insertion point and type. Just remember that VBA does not have an explicit end of line character such as a semicolon. Instead, VBA simply leaves the rest of a line of text blank, and will move on to the next line.

Adding Comments to VBA Code

If you notice the green text in the top of the previous example, you will see that every line begins with an apostrophe. To the compiling engine that actually turns the code into actions on the computer, it will ignore any characters after a single apostrophe until it reaches the end of line character and moves to the next line. Such 'ignored code' is called a comment.

Comments are used by programmers to tell others what is happening in the code. Comments have no bearing on the actual code and can be inserted anywhere, as long as the line begins with a single apostrophe.

```
AutoExec_Err:
    'This will inform the user of any error encountered when
    'executing the AutoExec macro.
    MsgBox Error$
    Resume AutoExec_Exit
```

If working in a development team, comments are one of the most under-used and under-appreciated parts of programming. So often are good programs not thought well of because they were not well documented. If you ever end up programming in VBA, make sure you take the extra few minutes to document a block of code. If you ever need to revisit a piece of code months later or share your work with someone else, you will be glad you added the comments so everyone is on the same page!

Declaring Variables

Variables are an integral part of any programming language. They will hold a value or reference that will be used throughout various parts of your program. Variables are declared at the beginning of a block of code or function and take the form:

```
Dim [Variable Name] as [Variable Type]

Dim MyName as String
Dim MyAge as Integer
MyName = "Bob"
MyAge = 35
```

Strings must always have double quotes around the value that is being declared.

Prompting for User Input

Getting input from a user is easy to do. The first step is to determine what data type the user would enter. If they are going to enter their name, the data type of their response will be a String, which can be any alphanumeric character. The String will first need to be declared. If they are going to enter a whole number, an Integer value will be fine.

The easiest method of getting user input is to use the InputBox function. It follows the form:

```
variable = Input Box("Enter input:", "Title", "Default input")
```

Once input has been given to the program, it can be used anywhere within the scope of the particular block of code you are using.

Using If-Then-Else Statements

The If-Then-Else statement is a staple of nearly every programming language and is used extensively. You have made literally millions of these types of decisions in your lifetime no doubt! It determines if a particular statement evaluates to TRUE. If so, it will execute one block of code. Otherwise (the statement being false) some other block of code will execute.

Here's a non-Access example. If it is raining outside, you will take an umbrella with you. If it is not raining, you won't take an umbrella. Translated into VBA code structure:

```
If (it is raining) Then
    I will take an umbrella
Else
    I will not take an umbrella
```

As you will learn in the last section of this manual, SQL queries can be nested; that is you can have a query inside another query. The same is true of If-Then-Else statements:

```
If (it is raining) Then
    I will take an umbrella
Else If(it is sunny)
    I will take a hat
Else
    I will not take a hat
I will not take an umbrella
```

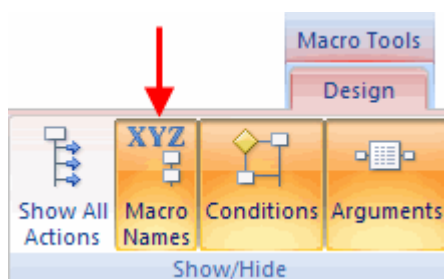
This statement covers all bases. If it is raining, you will take an umbrella, end of story. All other code will be ignored. However if it is not raining, but sunny, you will take a hat (and thusly no umbrella). If it is not raining but also not sunny, then you will not need a hat or umbrella.

Lesson 3.4: Macro Groups

As you continue to use macros, you may find that you often use several in a row. Access allows you to group separate macros together so that they can run in sequence, saving you from running each of them separately. This group of commands is called a macro group. And even though several macros may be strung together in a group, you can still run the individual pieces of macro one at a time if you wish.

Creating a Macro Group

To create a macro group, start a new macro by clicking the Macro command in the Create ribbon. When the Macro Builder appears, make sure the Macro Names command is active:



Create your macro as you normally would, by adding Actions, Conditions, and Arguments. Each piece of a macro (each line) is technically a macro by itself, while the Macro Builder in front of you is technically a macro group. If you take the next step and add a name to the line in the Macro Name column (not the same as saving the macro with a name!), Access will treat that line and all lines underneath it as a single macro.

This concept is best shown by example. The following commands in the Macro Builder open a report, show a message box stating a report has been opened, and then outputs the report to a text file (where the user is prompted to choose a save location):

Macro Name	Action	Arguments
	OpenReport	Employees, Report, , , Normal
	MsgBox	Report has been successfully opened., Yes, Information, Macro
	OutputTo	Report, Employees, Text Files (*.txt), , No, , 0, Print

Action Arguments	
Object Type	Report
Object Name	Employees
Output Format	Text Files (*.txt)
Output File	
Auto Start	No
Template File	
Encoding	
Output Quality	Print

Outputs the data in the specified database object to Microsoft Office Excel (.xls), rich-text (.rtf), MS-DOS Text (.txt), HTML (.htm), Snapshot (.snp), PDF (.pdf) and XPS (.xps) format. Press F1 for help on this action.

As stated above, each of the three commands is a macro in itself. Let's now make two macro groups to distinguish one set of commands from another. Add a name in the OpenReport line, as well as a name to the OutputTo line:

Macro Name	Action	Arguments
Employees Report	OpenReport	Employees, Report, , , Normal
	MsgBox	Report has been successfully opened., Yes, Information, Macro
Output Report	OutputTo	Report, Employees, Text Files (*.txt), , No, , 0, Print

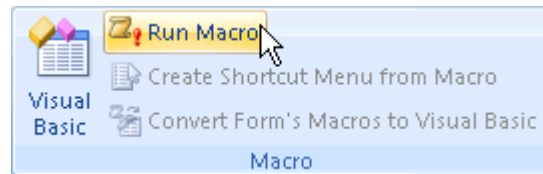
Action Arguments	
Object Type	Report
Object Name	Employees
Output Format	Text Files (*.txt)
Output File	
Auto Start	No
Template File	
Encoding	
Output Quality	Print

Enter a macro name in this column.

There are now two macro groups, one named Employees Report and another named Output Report. The MsgBox macro is part of the Employees Report macro group because it follows the OpenReport command and does itself not have a Macro Name.

Running a Macro Group

You can run a macro group by using the Database Tools ribbon. Click the Run Macro command:



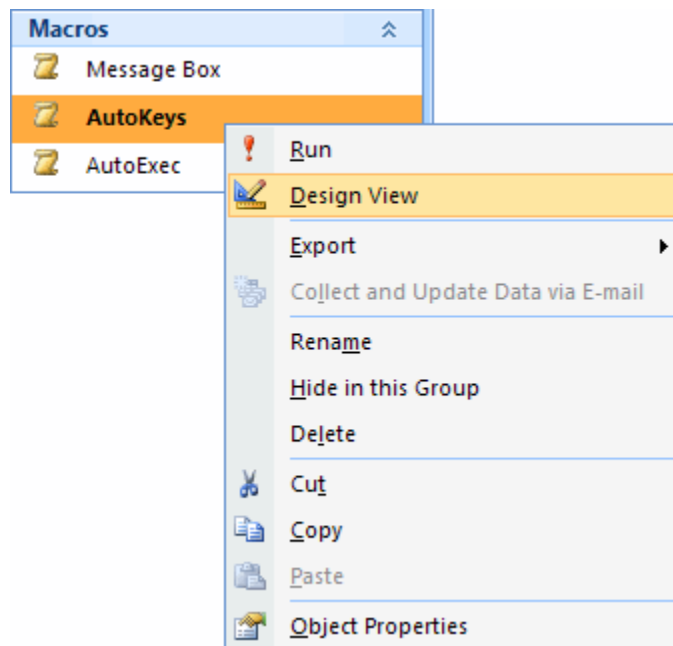
The Run Macro dialogue box will appear. Click the combo box and select which macro group you would like to run:



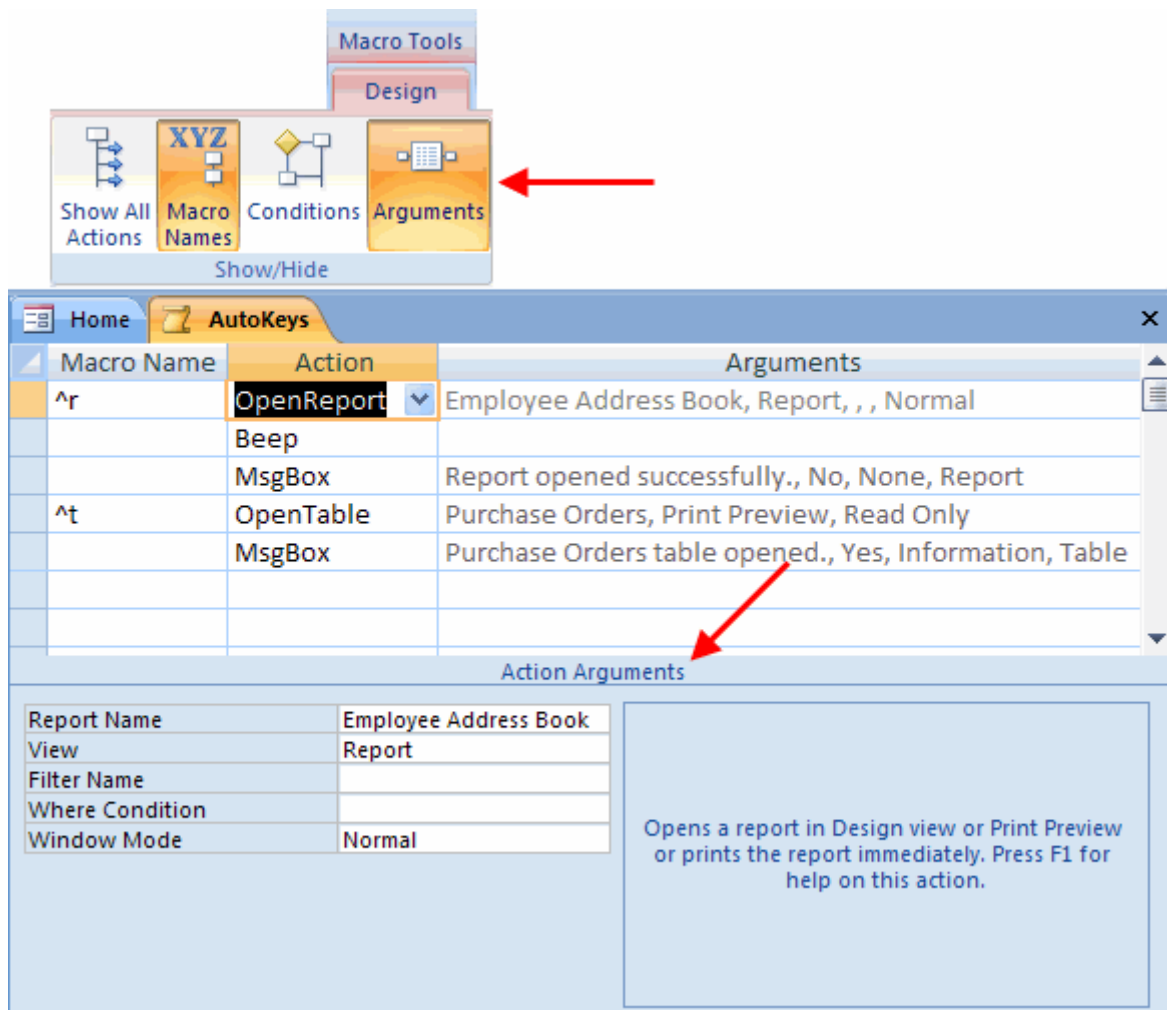
Each individual macro in a macro group is described as `MainMacro.MacroGroupName`; click the macro group you would like to run and then click OK. The macro group and all of its components will execute.

Editing a Macro Group

To edit the different commands of a macro group, simply open the macro in Design view. You can do this by right-clicking on a macro in the Navigation Pane and selecting Design view:



All of the options to edit are contained in the Action Arguments section at the bottom of design view, regardless if the Arguments command is active:



Modify the options in this section to change the actions of a piece of a macro.

Section 3: Review Questions

1. **What is the easiest way to avoid macro security warnings?**
 - A. Open the database in exclusive read-only mode
 - B. Open the database from a SharePoint server
 - C. Open the database from a Trusted Location
 - D. None of the above
2. **What is the benefit of a macro and the Macro Builder?**
 - A. Saves time
 - B. Increases productivity by grouping related commands together
 - C. No previous programming experience needed
 - D. All of the above
3. **How can a user initiate a macro?**
 - A. Double-clicking a name in the Navigation Pane
 - B. Using the Run Macro command
 - C. Adding a keystroke combination
 - D. All of the above
4. **You have three macros together in a macro group. You want to assign a keystroke to one. What must be done in order to do this?**
 - A. Any macro names must be changed to different keystroke combinations
 - B. The macro must be named AutoKeys
 - C. You must ensure the key combinations are not already in use.
 - D. All of the above
5. **What builder does not exist?**
 - A. VBA Builder
 - B. Expression Builder
 - C. Macro Builder
 - D. Code Builder
6. **Which statement is false regarding comments in VBA code?**
 - A. Each comment must begin with an apostrophe
 - B. Each comment can contain whatever information you like
 - C. Each comment must end with an apostrophe
 - D. Comments can be inserted wherever you like.

- 7. Which statement does not follow proper syntax?**
- A. `dim my_age as String`
 - B. `Dim my_age as String;`
 - C. `Dim my_age as "String"`
 - D. All of the above are incorrect
- 8. Which statement is true about macro groups?**
- A. Macro groups can only be run as a group
 - B. Macro groups cannot contain the OpenReport command
 - C. Macro groups can have each macro piece run individually
 - D. All of the above are true
- 9. How many individual macro pieces can fit into a group?**
- A. 10
 - B. 8
 - C. 64
 - D. As many as you like
- 10. When assigning a macro to an event on a control, what does clicking the [EventProcedure] option in the drop down menu do?**
- A. Starts the Visual Basic editor
 - B. Starts the Macro Builder
 - C. Allows you to customize the event in the Navigation Pane
 - D. Nothing, it is just a placeholder.

SECTION 4: Access and Windows

In this section you will learn how to:

- Recover from a computer error
- Make Access start when your computer starts
- Check for problems with and updates for your installation of Access
- Download and use the Access viewer
- Understand the basic terms of SQL
- Recognize the parts of an SQL statement
- Make your own SQL statements

Lesson 4.1: Access and Windows

The Microsoft Office packages were primarily designed to run in the Microsoft Windows operating system. Further iterations of the Office package have been ported for use in other operating systems, such as the Macintosh operating systems. Because the Office package is designed to run in a particular environment, it is also capable of using some features of the operating system (as well as being limited by some of the operating system's shortfalls!). In this lesson we will explore the operation of Access 2007 as a whole.

Recovering Access

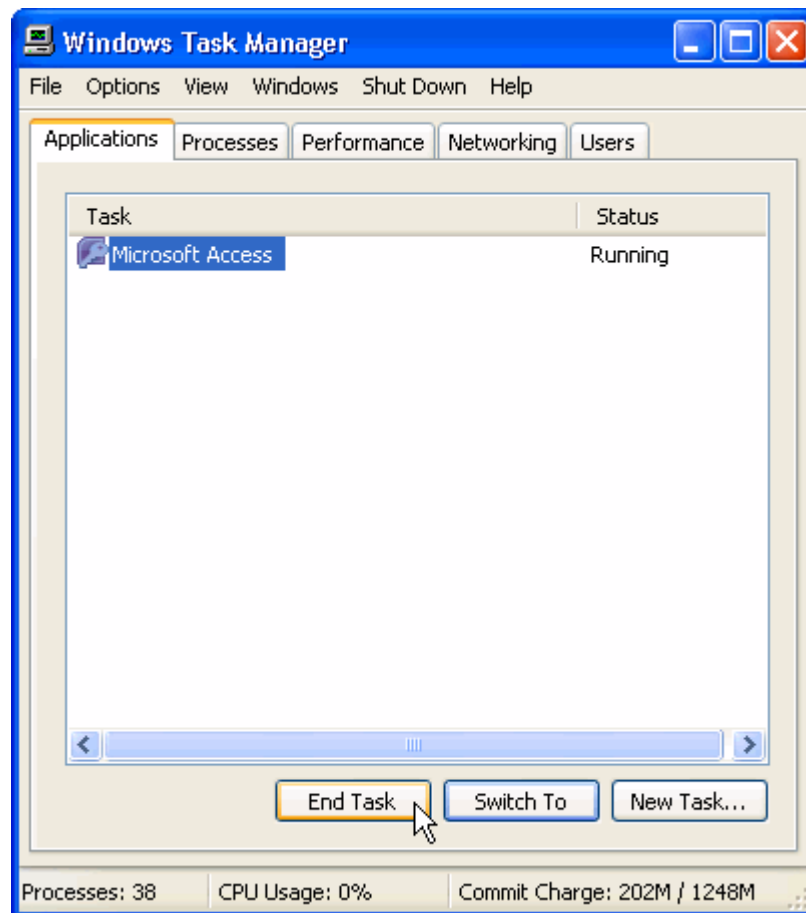
Despite the best efforts of network administrators, programmers, and home users, there will inevitably come the time where something will go wrong. Viruses, spyware, power outages, and equipment failures can cause havoc if you are unprepared. However, you do have some tools available to use if you get stuck while using Access.

Much of the data manipulation done in Access is saved automatically as soon as a particular operation has completed. For example, when you add data to a table, it is saved in the table as soon as the cursor moves to another field.

The other manual operations that can be performed in Access, such as the development of macros, forms and reports, must be saved by the user. However, Access does have a general AutoSave feature that is used every 10 minutes to save any work that has been done.

Should Access itself seem unresponsive, there might be a number of causes. If your computer is experiencing heavy network traffic or processor load, some operations regarding Access are placed in a priority queue. With the speed and capability of today's computers, this delay will likely be minor. Nonetheless, the best first option is to wait for a few moments. If you see no activity, try opening another program on your computer. If the other program does not start, then your computer is likely stuck in a processing loop somewhere.

Pressing Ctrl + Alt + Delete in the Windows 2000/XP environment will open the Task Manager. Check the Applications tab. Should you see (Not Responding) beside Access or some other program, highlight the program in the list and click End Task. If you don't see any unresponsive programs, it may be a background process. Click the Processes tab. Scroll up and down through the list of processes. Should you see one program with a 99% CPU usage, that process is likely stuck. Highlight the process and click End Task.



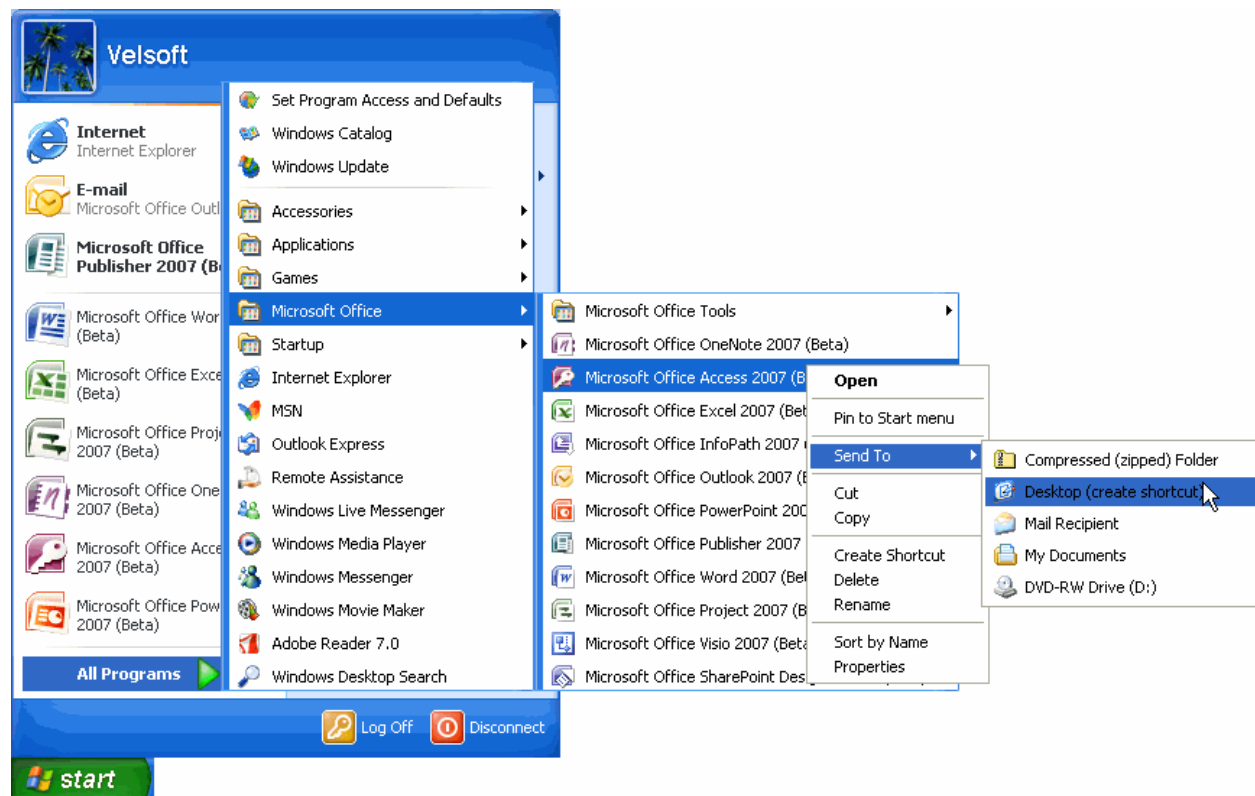
If you manage to close Access without having to restart your computer, Access will have saved a backup file in the same folder as the original working file. The backup file will be named filename_Backup.

If worst comes to worst and you cannot shut down Windows or end a process, you must physically power off or restart your computer.

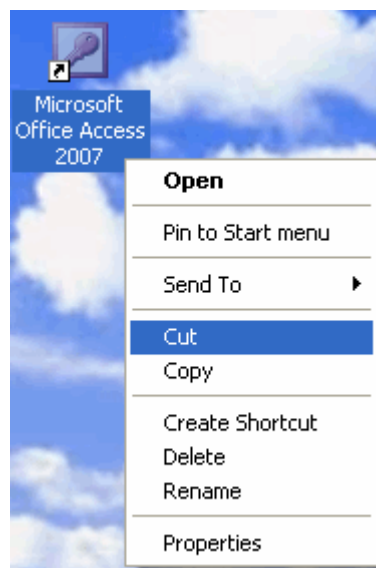
Starting Access on Windows Boot

Microsoft Windows contains a special folder in which you can add a program shortcut to have that program start every time Windows starts. Your computer may already have certain programs that start when you computer starts, such as antivirus and instant messaging software.

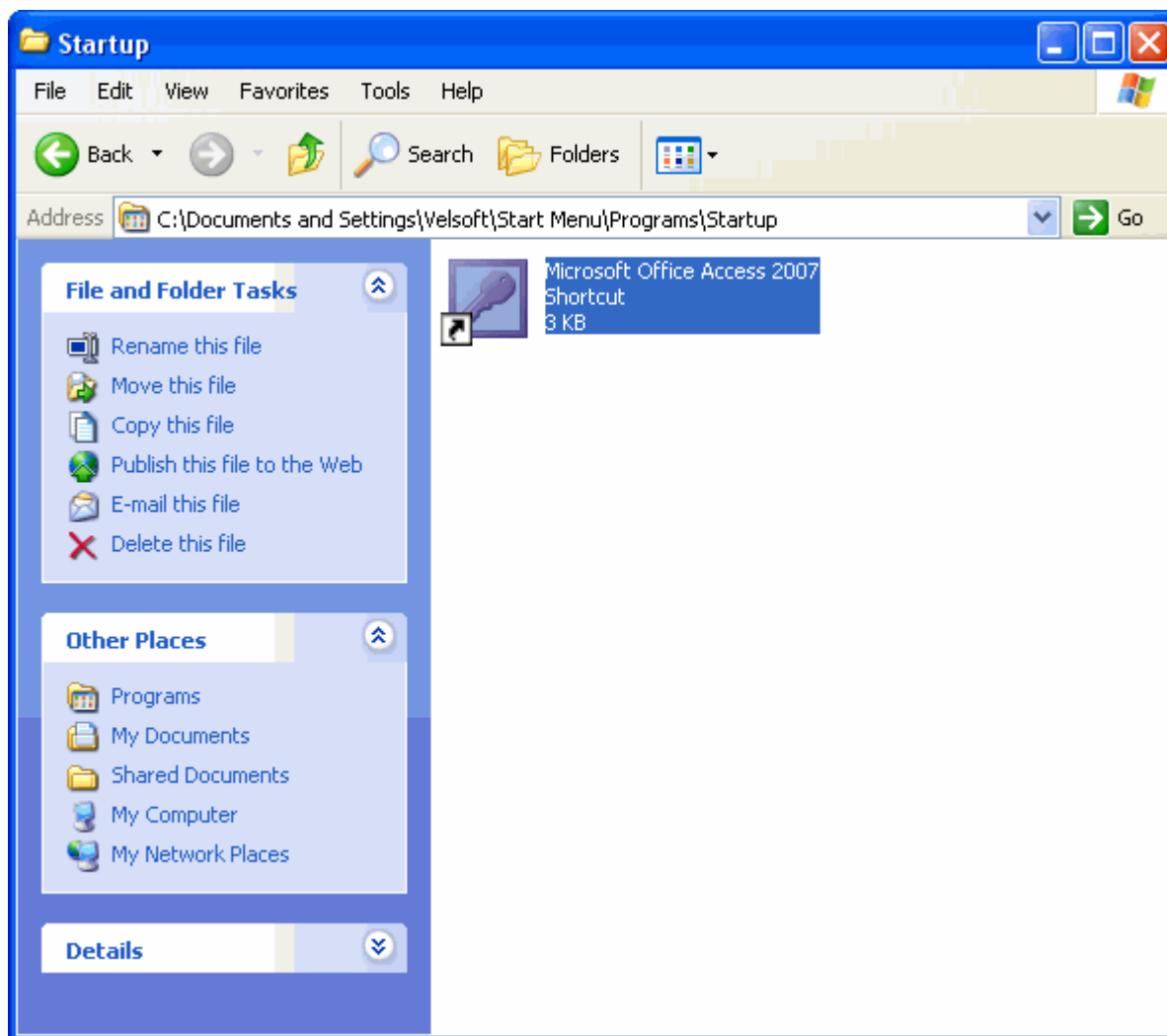
To have Access 2007 start when your computer starts, follow these steps. Locate the icon you use to start Microsoft Access 2007 normally, such as in the Start Menu. Right click on the icon, point to Send To, and then click Desktop:



Once the icon has been created, or if you already have an icon on your desktop, right-click the icon and select Cut:



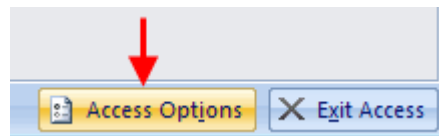
Browse to the following folder on your computer: C:\Documents and Settings\<Your User Name>\Start Menu\Programs\Startup. Paste the icon into the folder:



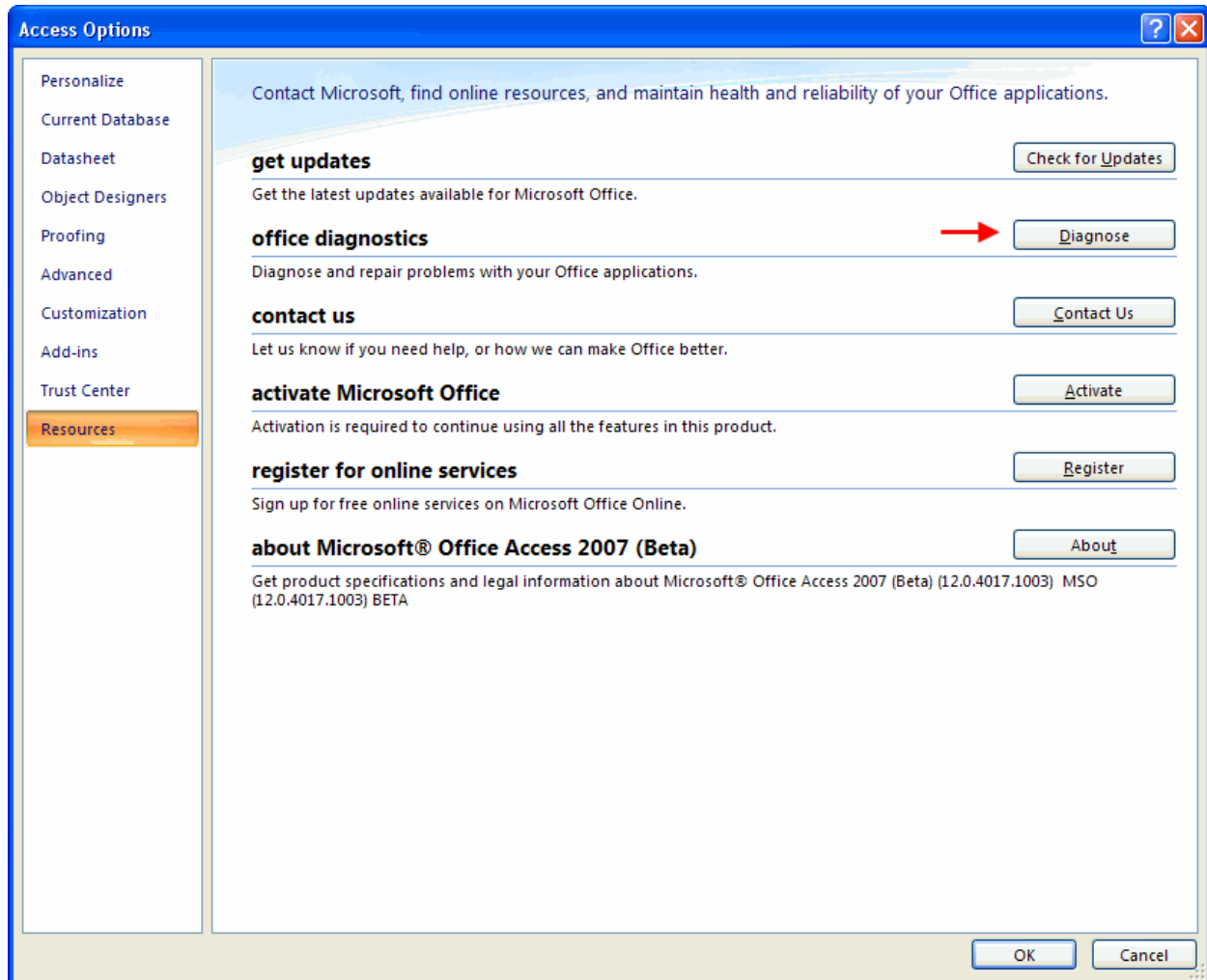
Every time your computer starts, Access will start as well. You can do this for any program on your computer. But be careful – adding too many programs will significantly lengthen the time needed to boot your computer. Plus, if you want to use your computer for a presentation or something other than the programs in the Startup folder, you must first wait for all of the programs to open before you can close them and free up system resources.

Using Office Diagnostics

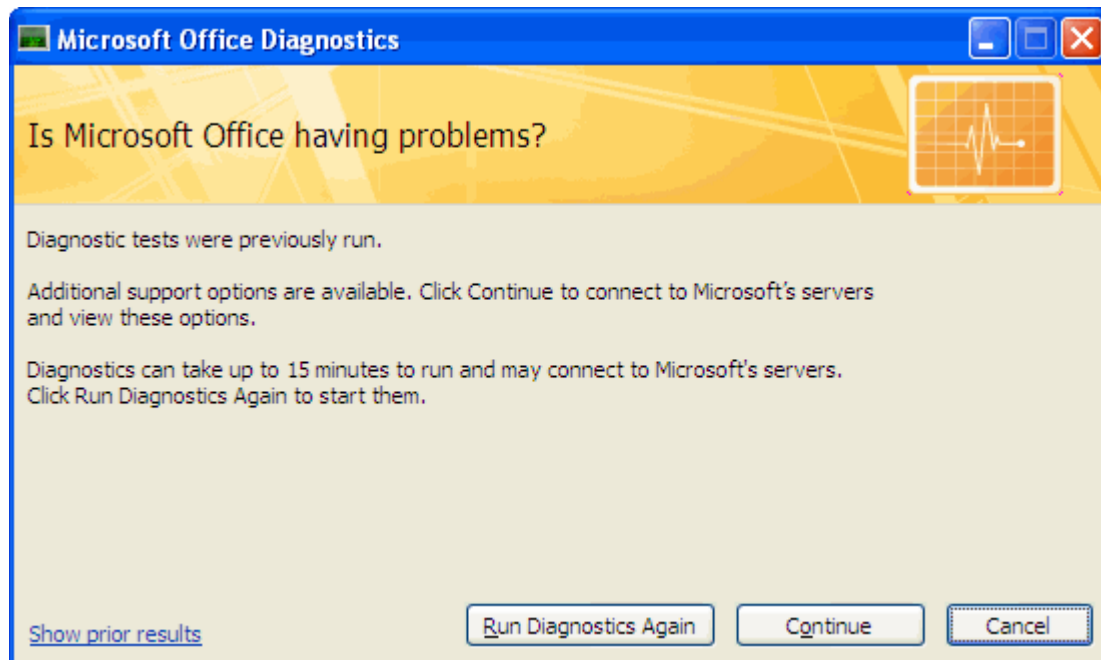
If you continually have problems while using Access, it is possible that the installation of Office on your computer has somehow become corrupted or damaged in some way. Office 2007 has the ability to diagnose and partially repair itself. Open any program in the Office Package and click the Options button at the bottom of the Office Menu:



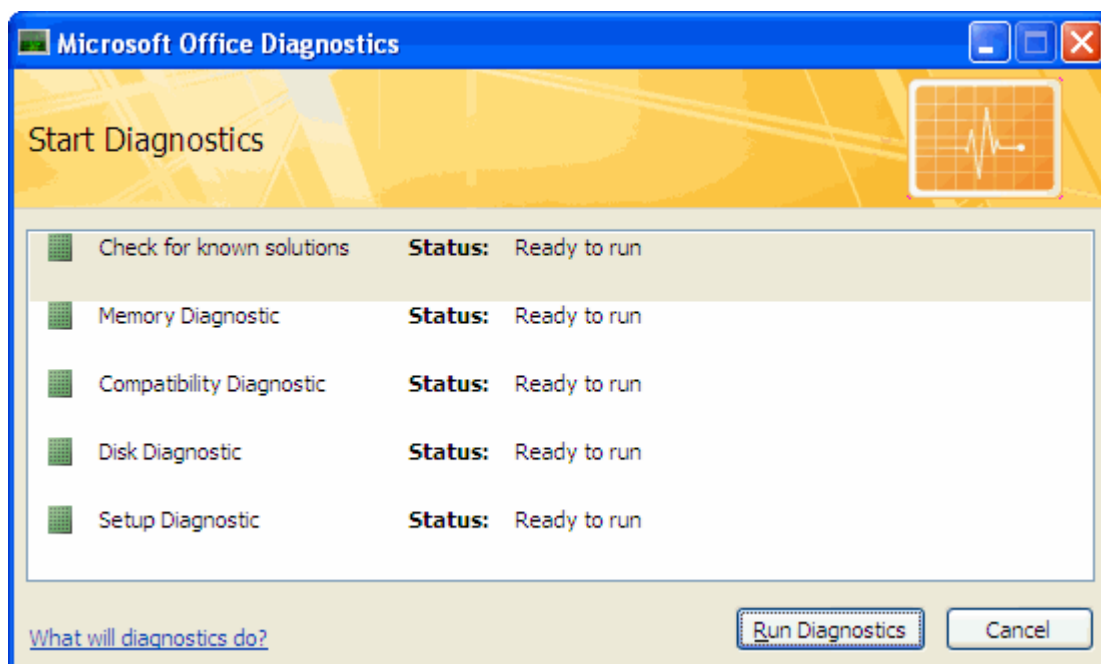
Click the Resource tab and then click the Diagnose button:



The Office Diagnostics Wizard will appear:

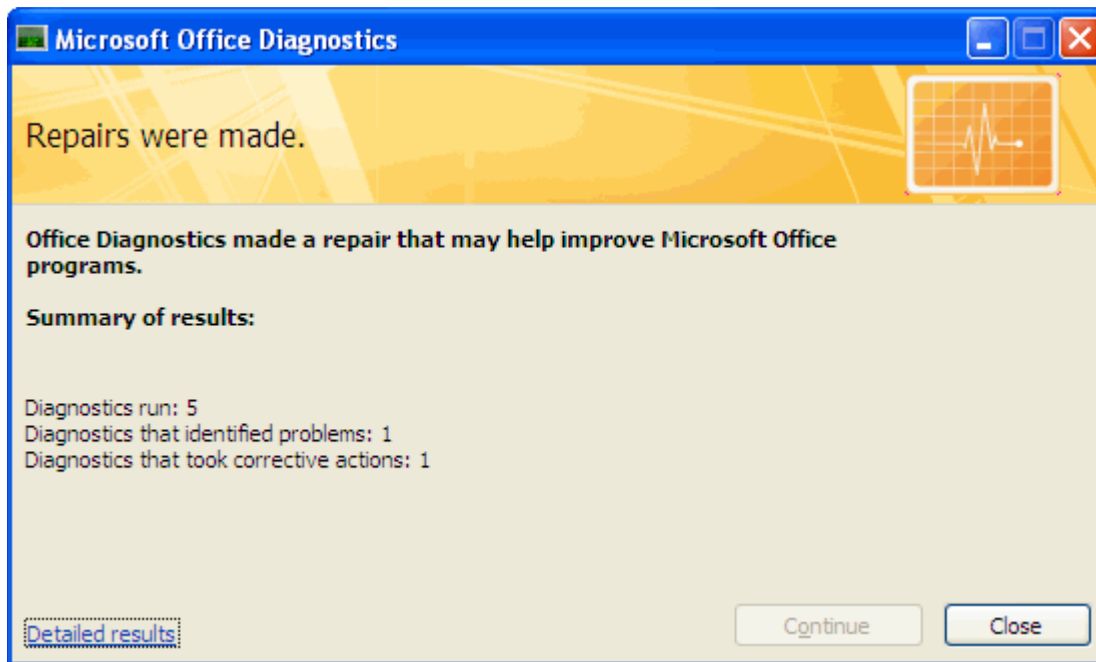


Click Continue to begin the diagnostics scan. All of the components of Office that are to be scanned will be listed in the next step:



The automated program will perform a number of tests. It will check your hard disk for errors that can cause program corruption, it will check to make sure a

security/operational issue has not yet been addressed and download the appropriate fix, and scans any error logs generated by Access after recovering from a crash. You will need a connection to the Internet in order to complete all diagnostic tests. If the diagnostics check cannot find a solution, you may need to reinstall the Office 2007 package on your computer.



Checking for Updates

Back in the Resource section of the program options is a button to update Office 2007:



Your computer will connect to the Internet and determine if there are any program updates available based on your current installation of Microsoft Office. Updates will be downloaded and installed to your computer. It's a good idea to make sure not to have any other applications open when your computer is applying the new updates. Once the updates have been installed, you will likely need to restart the Office program you were using in order to have the updates take full effect.

Lesson 4.2: Using the Access Viewer

Not everyone will have Access installed on their own computer. In order to be able to view content generated by certain Office products such as Access, Excel, and PowerPoint, Microsoft makes viewing program available for use free of charge.

What is the Access Viewer?

The Access Viewer is a stand-alone program that will be able to view a snapshot of a report that was generated in Access. This will let anyone who does not have Access installed on their computer to look at the details of a report.

Downloading the Viewer

The Access viewer is available for free from the Microsoft Office Online website. Use your Web browser and visit:

<http://www.microsoft.com/downloads/details.aspx?FamilyId=B73DF33F-6D74-423D-8274-8B7E6313EDFB&displaylang=en>

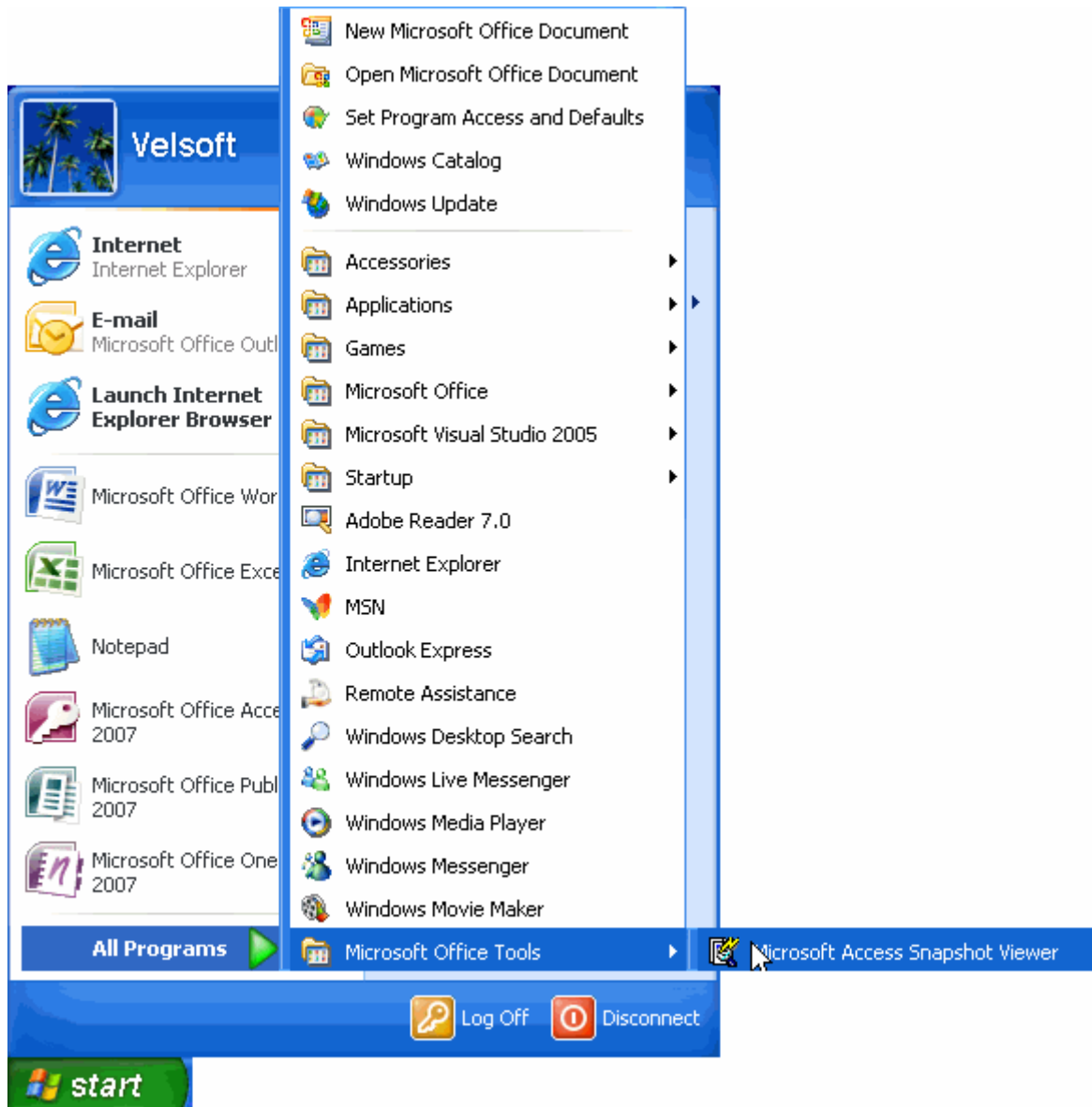
Follow the download instructions on the Web page. The download is approximately 2 megabytes in size:



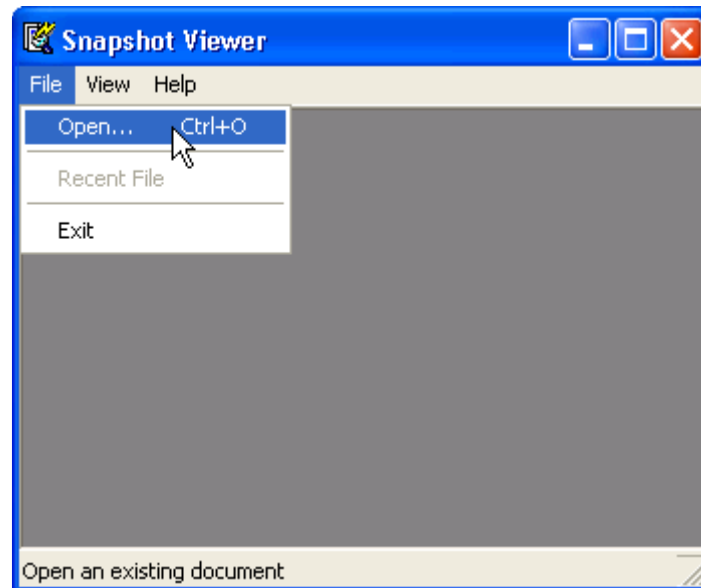
When the file has been downloaded, double-click the file to run it. The setup for this program is very easy; just follow the instructions on the screen to install the application.

Using the Viewer

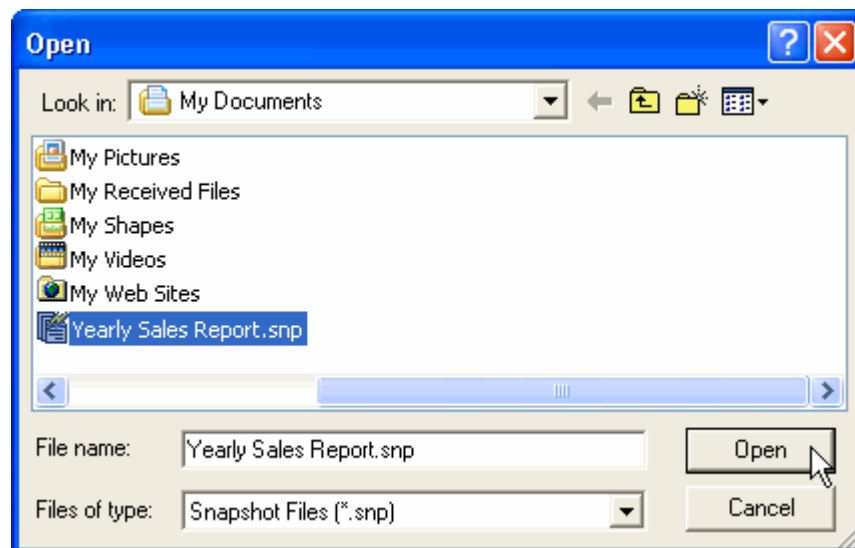
Open the viewer by clicking Start → All Programs → Microsoft Office Tools → Microsoft Access Snapshot Viewer:



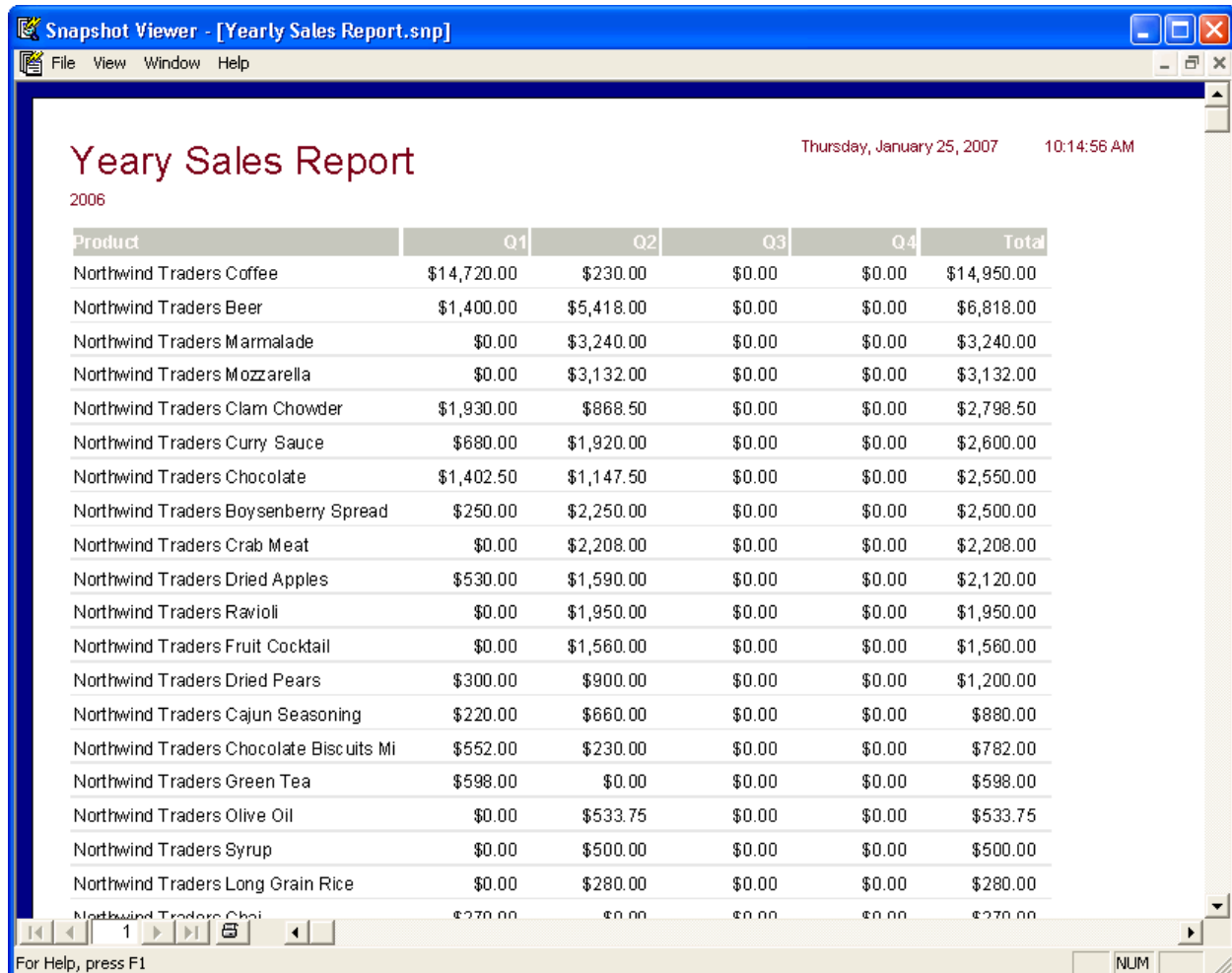
When the viewer opens, click File → Open:



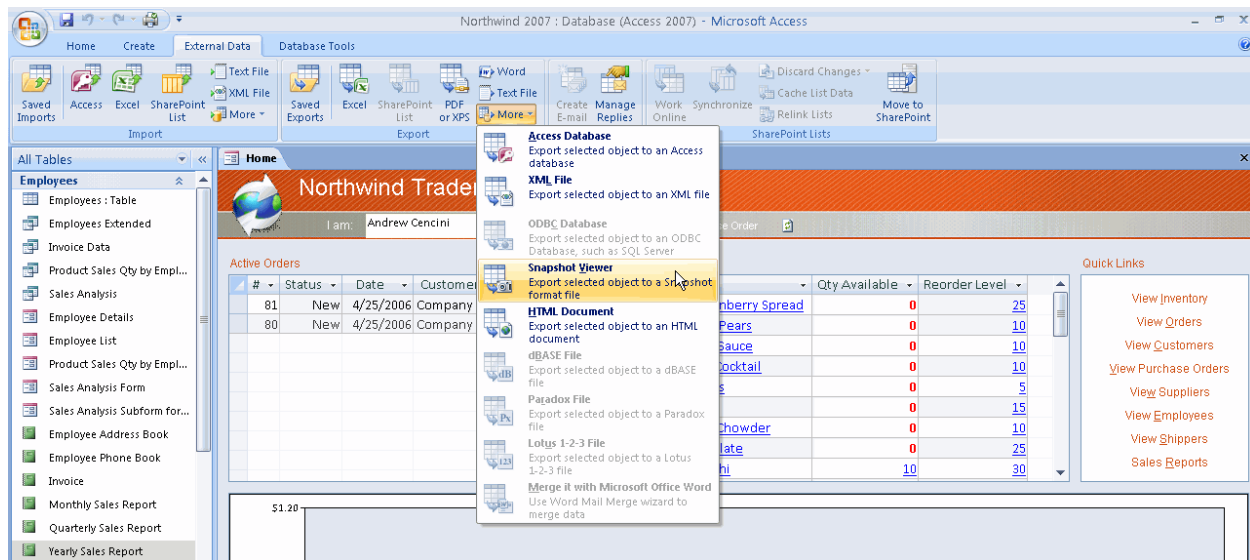
The viewer uses Snapshot files which are created from reports.



The viewer gives you the ability to scroll through the pages of a report, e-mail the report, zoom in or out, and print using the commands at the bottom of the window.



If using Access 2007 to create snapshots, open the database file, highlight a report in the Navigation Pane, click the External Data ribbon, click the More command, and then select Snapshot Viewer:



Lesson 4.3: An Introduction to SQL

The final chapter in our advanced exploration of Access deals with Structured Query Language; or SQL for short. SQL is a fundamental component of Access that, until now, has remained in the background of our examination. In this lesson we will talk about what SQL is, how knowing the basics helps put databases better into perspective, and how you can create simple queries right away.

What is SQL?

SQL (Structured Query Language) is essentially the language used by most database management programs to retrieve information from a database. Even if you have never dealt with computer code before, basic SQL is relatively easy to pick up. The syntax, or language rules, is easy to pick up because an SQL statement is very similar to a sentence in English.

If you are interested in reading more about SQL for Microsoft Access, be careful – there are many different types of SQL. Though the core components of the different languages are basically the same, there are a lot of finer points contained with each SQL version.

Parts of an SQL Statement

Structured Query Language lives true to its name: it is a defined set of language rules, including punctuation, used to create a query to ask a database a question. Let's take a quick look at a simple SQL query.

```
SELECT Customer.Country FROM Customers WHERE Customer.TotalSales >= 10000;
```

The keywords are in capital letters. The entries in the form Something.SomethingElse describe a particular table field. Customers.Country means the Country field from the Customers table. The logical operator >= means greater than or equal to. Therefore, the above query reads "Show all the distinct country names from the customers table that have bought more than \$10,000 worth of our product."

Or, as far as the database is concerned, "Select this from that table where this condition is true." Queries can be designed to retrieve several pieces of data instead of just one (like Customer.Country, Customer.Name, Customer.Whatever) and wildcard characters like the asterisk (*) can be used to represent anything in a query. For example, the query

```
SELECT * FROM Customer;
```

This query essentially has the ability to copy the entire Customers table because this query retrieves every piece of information in the Customer table.

SQL Keywords

There are almost 300 reserved keywords and 140 non-reserved keywords, give or take, depending on what SQL version you are using. We don't have the space to describe all of them here, but we will cover some of the main ones. In fact, you likely already know the definitions of most of the keywords already!

CREATE The CREATE keyword is used to create a table in SQL. The following statement creates a new table named employees:

```
CREATE TABLE Employees (Employee_ID VARCHAR(3),  
Employee_Name VARCHAR(30),  
Salary DECIMAL(7,2));
```

The table is named Employees. It has three fields: Employee_ID, Employee_Name, and Salary. The first two fields are defined as a VARCHAR data type, or 'variable character.' This means the fields can contain alphanumeric data. The Salary field is defined as a decimal number, with seven figures and two decimal places. Each employee can earn up to \$9,999,999.99 (which should be enough!)

DELETE The DELETE keyword is used to delete data in a table. The following statement deletes data in a table named Employees:

```
DELETE TABLE Employees  
WHERE [search criteria];
```

The search criteria are optional. If no search criteria are entered, then all data in the table will be deleted. The DELETE command does not actually remove the table definition; the DROP command (below) will erase the table contents and structure completely from the database.

DROP The DROP keyword is used to delete a table from the database. The following statement deletes the Employees table:

```
DROP TABLE Employees;
```

The DROP command can be extended with the use of the keywords RESTRICTED and CASCADE. If you recall how referential integrity works in a database, these keywords will allow or not allow a table to be deleted in case other database objects depend on the object to be dropped.

The RESTRICTED keyword will now allow the DROP operation to proceed if there are dependant objects. The CASCADE keyword will remove the selected table and all dependant objects. For obvious reasons, the CASCADE operation should be used with extreme caution!

INSERT The INSERT command is used to add data to a table in the database. The following statement will add a new employee record to the Employees table:

```
INSERT INTO Employees VALUES('G32', 'John Smith', 45339.40);
```

The first two arguments in the VALUES section of the statement are in single quotations because they may contain letters, numbers or symbols. This is because both values are of the data type VARCHAR. The final argument adds the salary within the defined limits of the data type DECIMAL (seven digits before the decimal, two digits after)

SELECT The SELECT command is used to retrieve information from a database. The following statement will select all data from the Employees table:

```
SELECT * FROM Employees;
```

All data contained in the Employees table will be returned to the user for review. SELECT statements are usually much more specific. The following statement will select the Employee_ID and Employee_Name from the Employees table based on certain criteria:

```
SELECT Employee_ID, Employee_Name  
FROM Employees  
WHERE Salary <30000;
```

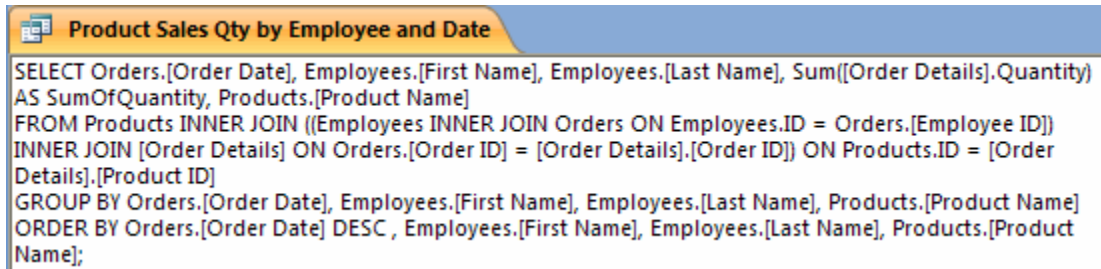
The Employee_ID and Employee_Name of each employee that makes less than \$30,000.00 will be returned to the user.

UPDATE The UPDATE command is used to update information in a database. The following statement will update all rows of the Employees table based on a criteria:

```
UPDATE Employees  
SET Salary = Salary * 1.05  
WHERE Position = 'Manager';
```

If you notice, all of the commands described here are handled by means of the Query Wizard and the syntax is handled by query Design view. It is important to note that it is

not necessary to have the queries separated on different lines; this merely makes the query easier to read. Consider the following query in the Northwind sample database:



```
SELECT Orders.[Order Date], Employees.[First Name], Employees.[Last Name], Sum([Order Details].Quantity)
AS SumOfQuantity, Products.[Product Name]
FROM Products INNER JOIN ((Employees INNER JOIN Orders ON Employees.ID = Orders.[Employee ID])
INNER JOIN [Order Details] ON Orders.[Order ID] = [Order Details].[Order ID]) ON Products.ID = [Order
Details].[Product ID]
GROUP BY Orders.[Order Date], Employees.[First Name], Employees.[Last Name], Products.[Product Name]
ORDER BY Orders.[Order Date] DESC , Employees.[First Name], Employees.[Last Name], Products.[Product
Name];
```

You will notice that the quantified fields are enclosed in square brackets. This is because Access 2007 has the ability to have spaces in a field name. The brackets allow the SQL engine to interpret the words 'Order' and 'Date' together as one entity. Otherwise the word Date would be considered as a keyword which does not exist in the SQL library, causing an error. The important thing to remember is that all commas are inserted properly, all parentheses are closed, and there is a semicolon at the end of every statement to complete it. As you become more comfortable with using SQL, you will be able to modify the queries that Access generates by itself.

Adding Where Clauses

SELECT statements can include multiple search criteria. When searching using multiple search criteria, you can use several logical operators like AND and OR, or quantifiers like BETWEEN:

```
SELECT * FROM Employees
WHERE Hire_Date = '01-May-06'
AND Salary >= 40000
AND ... ;

SELECT * FROM Employees
WHERE Salary = 30000 OR Salary = 35000;

SELECT * FROM Employees
WHERE Hire_Date BETWEEN '01-May-06' AND '01-June-06';
```

When searching based on multiple tables, each field you enter must be quantified; that is you must tell the SQL engine which table to look in:

```
SELECT Employees.Employee_ID, Order_Details.Employee_ID,
       Order_Details.Order_Total
FROM Employees, Order_Details
WHERE Employees.Employee_ID = Order_Details.Employee_ID;
```

Section 4: Review Questions

1. What sort of programs should you install on your computer to help protect your data?

- A. Bonsai Buddies
- B. File Sharing programs
- C. Antispyware and Antivirus
- D. All of the above

2. When using the Windows 2000/XP operating system, what utility will appear when you press Ctrl + Alt + Delete?

- A. Active Process Manager
- B. Task Manager
- C. Microsoft Configuration Utility
- D. Internet Explorer

3. Where should you add an icon to make a program start when your computer starts?

- A. The hard drive root directory (C:\)
- B. The desktop
- C. The Windows program folder
- D. The Startup folder

4. SQL stands for...

- A. Structured Query Language
- B. Simple Query Language
- C. Structured Query Line
- D. Scheduled Query Language

5. What is wrong with this query?

```
SELECT Customer.Country  
FROM Customers  
WHERE Customer.TotalSales >= 10000
```

- A. The Customer table is not quantified
- B. The query is all on one line, it should be on several lines
- C. There is no decimal point in the TotalSales WHERE clause
- D. There is no semicolon

- 6. Which statement is false about the DELETE command?**
- A. A DELETE command will erase all records in a table
 - B. A DELETE command will erase the entire table
 - C. A DELETE command can selectively select records if a WHERE clause is included
 - D. A DELETE command is different from the DROP command
- 7. What file extension is used by the Snapshot Viewer program?**
- A. .jpg
 - B. .snp
 - C. .accdb
 - D. .pfd
- 8. What object type is visible in the Snapshot Viewer program?**
- A. Queries
 - B. Tables
 - C. Macros
 - D. Reports
- 9. Which operation, if any, cannot be performed in the Snapshot Viewer program?**
- A. Print
 - B. Move to previous page (<)
 - C. Move to last page (>|)
 - D. All of the above are valid operations
- 10. Which file format may result in viewing problems for the Snapshot Viewer program?**
- A. Access 97
 - B. Access 2007
 - C. Access 2000
 - D. Access XP

SECTION 5: Using Hyperlinks and Customising Access

In this section you will learn how to:

- Create and use hyperlink fields
- Customise Access

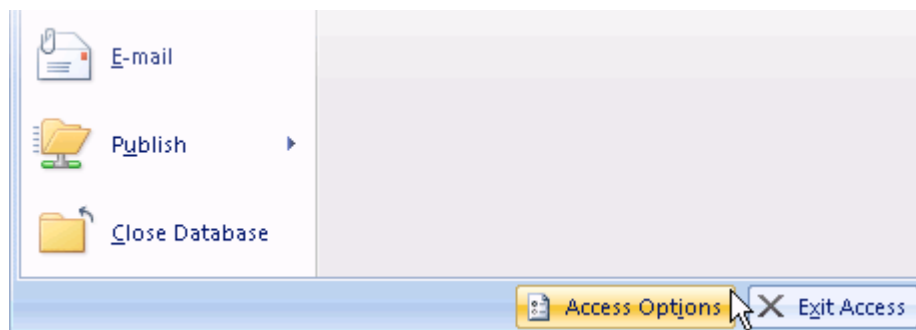
Lesson 5.2: COM Add-Ins

What is a COM Add-In?

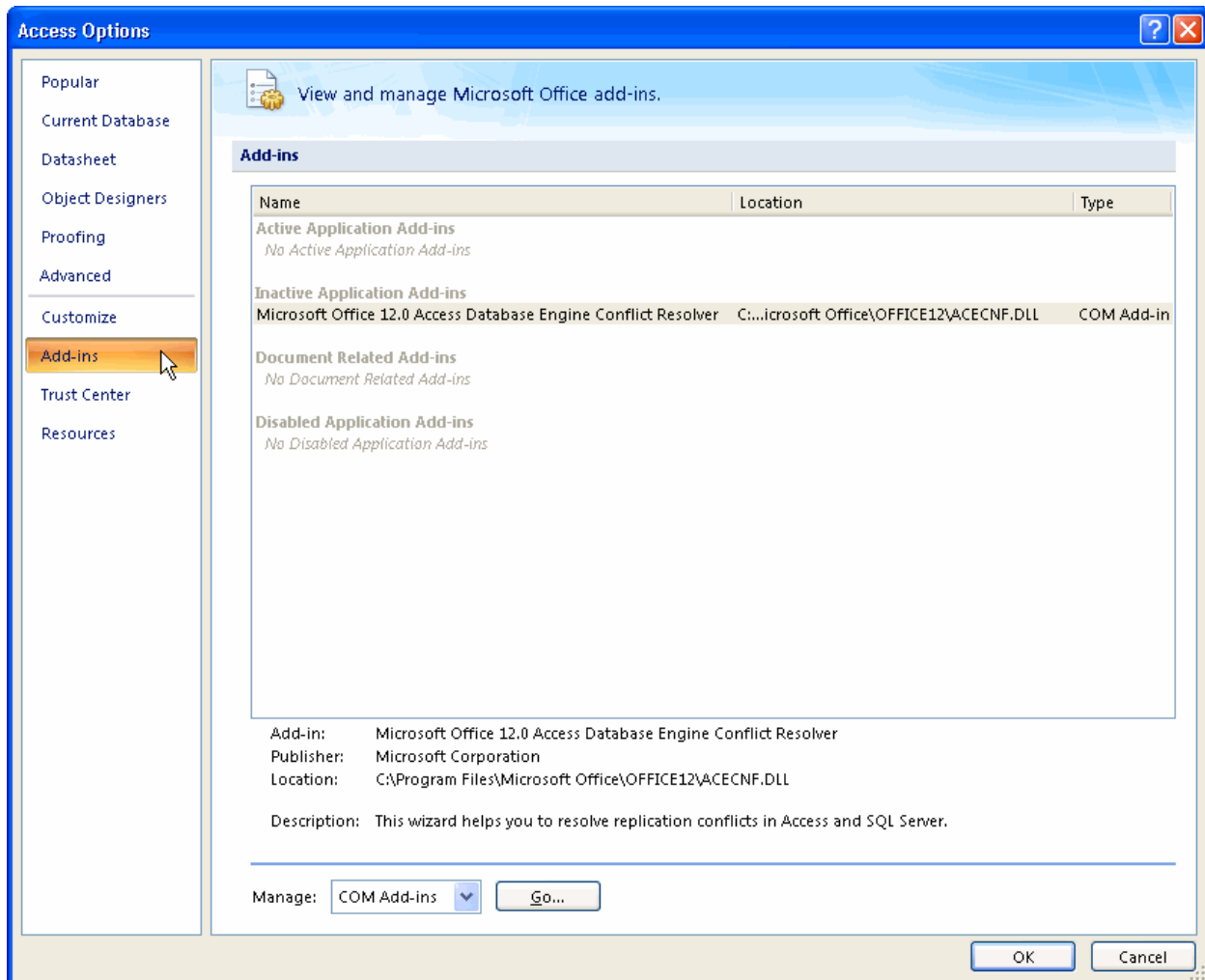
A COM Add-In (which stands for command add-in) is a supplemental program or piece of program code that provides extra functionality to Access. Add-ins are added modularly to Access in order to provide extra functionality to your databases. Add-ins are most commonly a DLL (Dynamic Link Library) or EXE (executable) file.

Using the Add-Ins Tab

To view which add-ins are currently installed on your computer, click the Office Menu → Access Options:



Click the Add-Ins option on the left side of the Access Options window:



You will see a listing of the different types of add-ins:

Active Application Add-Ins

This section lists the add-in applications that are installed and currently running in the Access environment.

Inactive Application Add-Ins

This is a listing of the add-in applications that are installed but not currently running.

Document Related Add-Ins

This section lists any template add-ins that are being used by the currently opened database file.

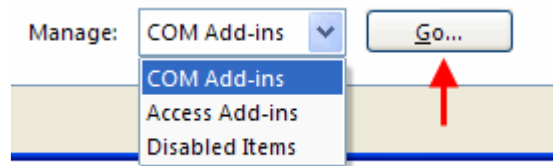
Disabled Application Add-Ins

This section lists any add-in files that were automatically disabled because they are causing Access or other Office 2007 components to crash.

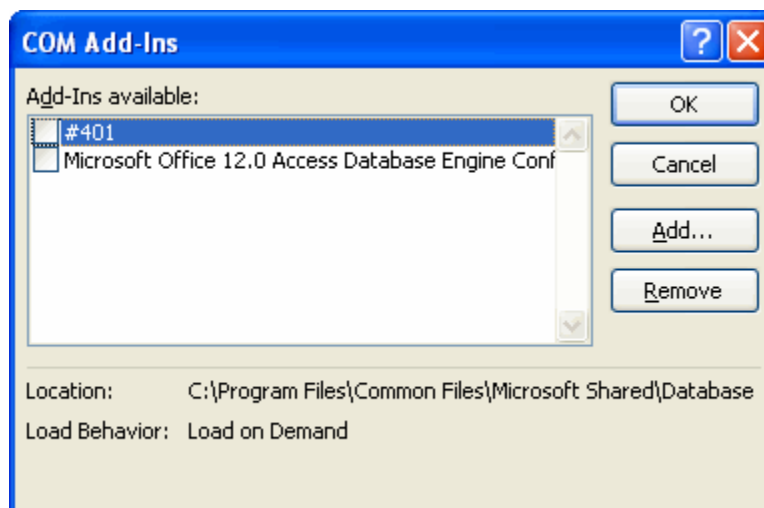
Click any of the listed add-ins to view the name, who published the add-in, the saved location of the DLL or EXE file, and a short (optional) description about what the add-in is for.

Opening the Add-In Manager

At the bottom of the Add-In section of the Access Options window is a link to open different add-in managers. Choose the manager you wish to open from the combo box and then click Go:



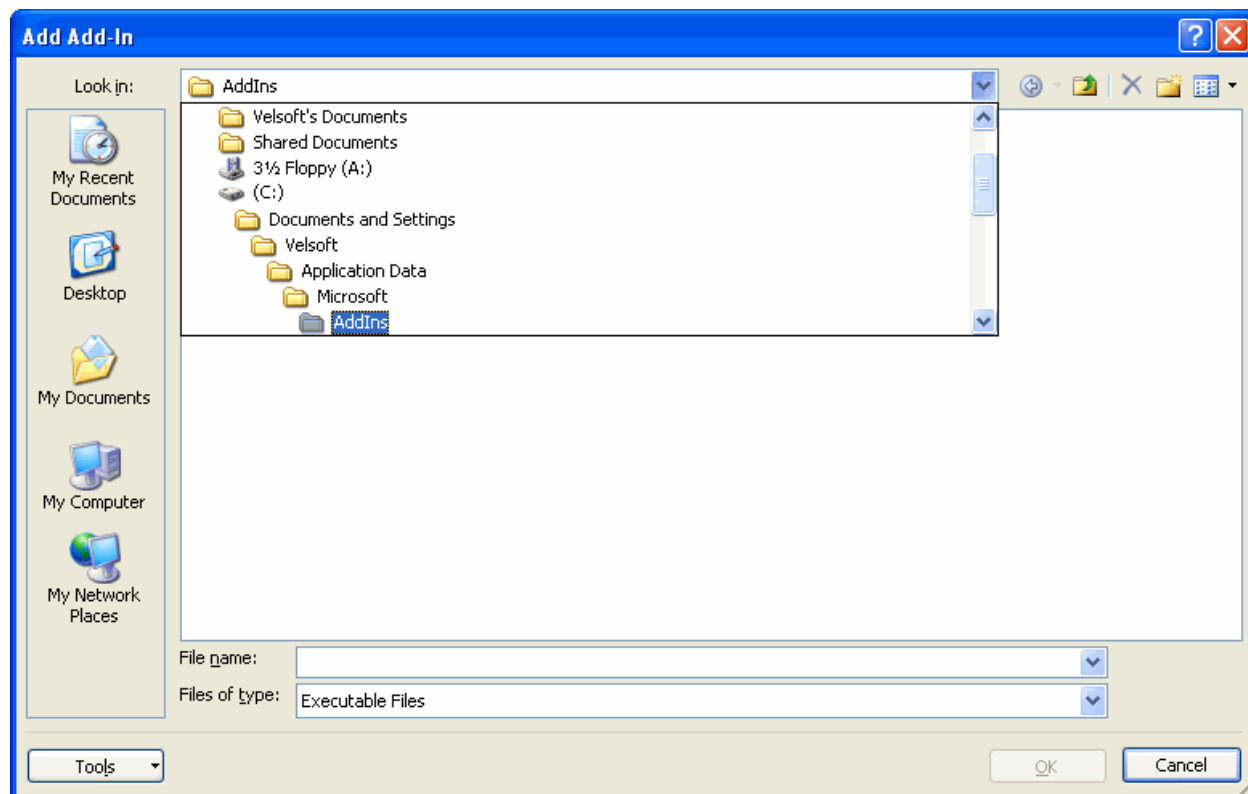
The manager dialogue box will appear:



Highlight the add-in you want to remove by clicking the check box beside the name. You can add or remove various add-ins by using this dialogue box.

Loading Add-Ins

To load and add-in, click the Add button in the Add-In Manager. When the Add Add-In dialogue box appears, browse to the location on your computer or network that contains the add-in and click OK:



After you click OK Access will read the file and categorize it in the appropriate place. Should the file contain inconsistencies or some other error, Access will alert you to the problem and offer solutions as to what to do next.

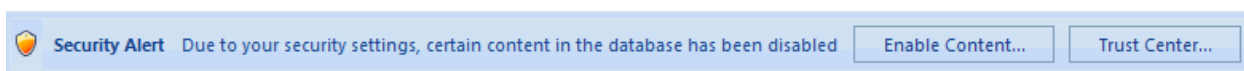
Using the Trust Center

Just like a macro, VBA code, or ActiveX control, an add-in is a customizable piece of information. As such, add-ins are vulnerable to hackers and malicious users. The majority of add-ins you will use in a small to medium business environment will be included with Access. However if your situation requires a specialized piece of code to perform an action, Microsoft Access 2007 requires the following criteria to be met:

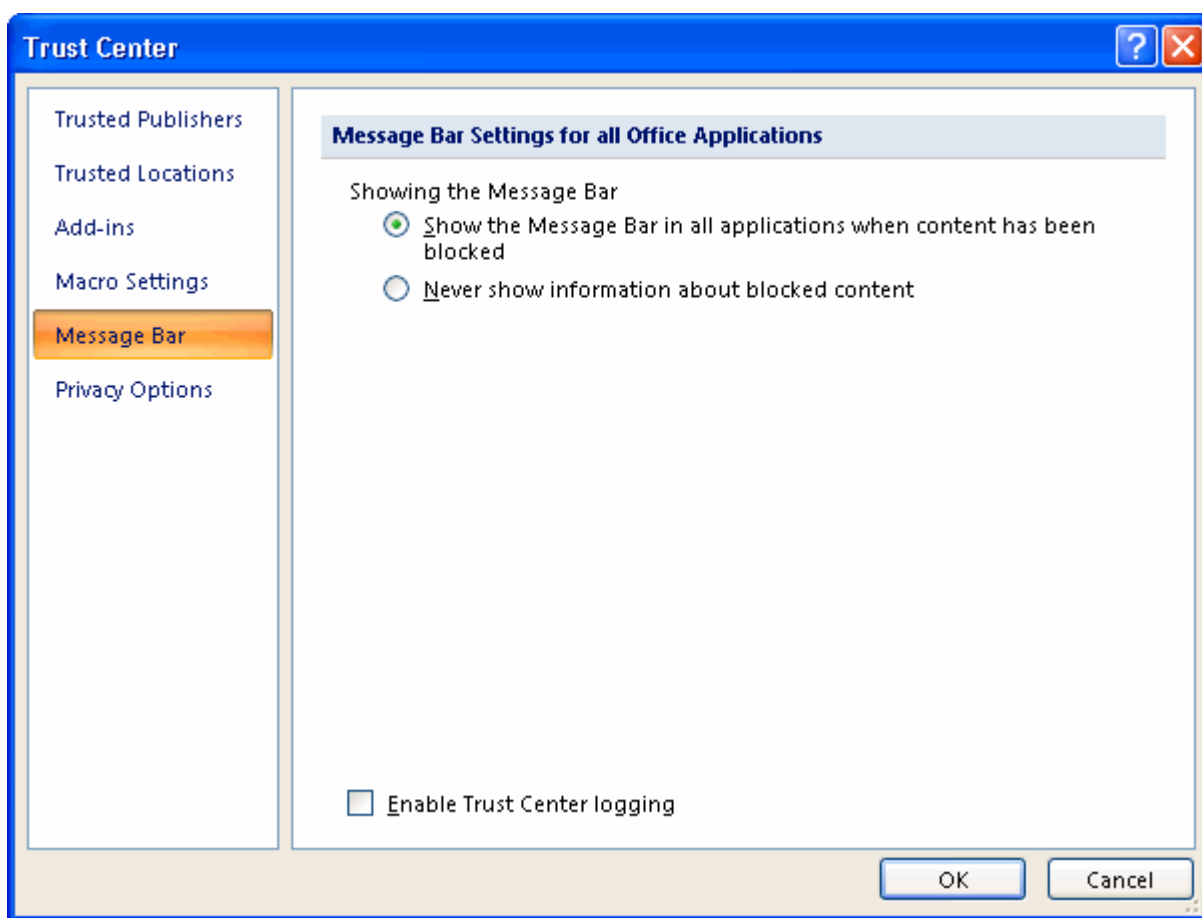
- The add-in has been digitally signed by the developer, showing that the original content has not been modified.
- The digital signature is continuous and valid and has not been altered since the signature was considered valid.

- The digital signature is current (not past its expiry date).
- The digital signature was issued by a reputable commercial certificate authority (CA).
- The developer is a trusted publisher and any of their content is trusted by your computer.

Knowing which add-ins are safe and which are not is partially up to you. When dealing with digital signatures and security certificates, you should only accept content from your IT department and database management team. However, should the content you receive become damaged or corrupted by an outside user, the Trust Center built into Office 2007 will help protect you. Any content that is unrecognized or possibly dangerous will not be opened by Access right away. Instead, you will see a security alert at the top of your screen:



If you click the Trust Center button, the Trust Center dialogue box will appear:



The Trust Center allows you to modify various aspects of Access' security.

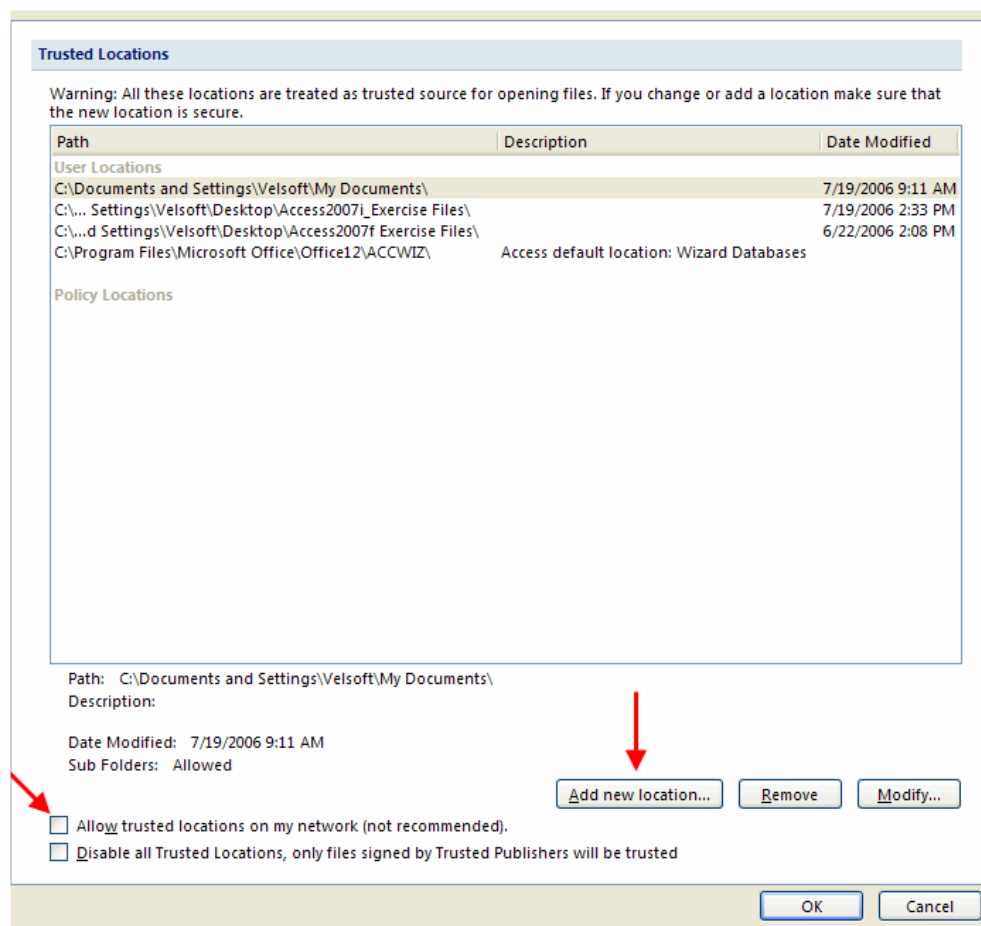
Click any of the links on the left-hand side of the options window to change the options:

Trusted Publishers

Specify a trusted publisher (developer) in this pane. Any content from these publishers will be assumed as safe and will be opened.

Trusted Locations

Any folder paths listed here are considered safe by Access. Use the Add new location button at the bottom of the screen to browse and specify a certain location that will be considered safe. You can also specify a network folder to trust. Be careful to make sure you know that the location will indeed be safe!



Add-Ins

The Add-Ins tab lets you specify how strict the security measures will be concerning the use of Add-Ins. You can specify if an add-in must be digitally signed by a trusted publisher, if unsigned add-ins will remain disabled, or if all add-ins will be disabled. Doing so provides the safest usage, but may limit the functionality of certain database components.

Add-ins

- ☒ **Require Application Add-ins to be signed by Trusted Publisher**
- ☐ **Disable notification for unsigned add-ins (code will remain disabled)**
- ☐ **Disable all Application Add-ins (may impair functionality)**

Macro Settings

Macros can also be limited if they are not in documents in a trusted location. You can disable all macros with or without notification, disable all macros except those that are digitally signed, or choose to enable all macros if you are certain of the publisher and the macro contents.

Macro Settings

For macros in documents not in a trusted location:

- ☐ **Disable all macros without notification**
- ☒ **Disable all macros with notification**
- ☐ **Disable all macros except digitally signed macros**
- ☐ **Enable all macros (not recommended, potentially dangerous code can run)**

Message Bar

The message bar is designed to show you information regarding blocked content if you open a database file. Choose to enable or disable the message bar with this option.

Message Bar Settings for all Office Applications

Showing the Message Bar

- ☒ **Show the Message Bar in all applications when content has been blocked**
- ☐ **Never show information about blocked content**

You can also specify if you would like a log file kept about the actions and procedures performed by the Trust Center. Click the check box at the bottom of the Message Bar pane.

Privacy Options

These options allow you to specify how Microsoft Office will access the Internet for additional resources.

Privacy Options

- ☒ **Search Microsoft Office Online for Help content when I'm connected to the Internet** ⓘ
- ☐ **Update featured links from Microsoft Office Online** ⓘ
- ☐ **Download a file periodically that helps determine system problems** ⓘ
- ☐ **Sign up for the Customer Experience Improvement Program** ⓘ

[Read our privacy statement](#)

Lesson 5.3: Digital Signatures

Digital signatures are commonplace in today's computing world. Just as your signature legally binds you to a contract by identifying you as you, digital signatures are assigned to a file identifying the publisher as who they claim to be.

What is a Digital Signature?

A digital signature works by attaching itself to a file. The sender encrypts a file with a special mathematical operation; such an operation can be thought of 'locking' the file with their private key (a special number sequence that encrypts the data). The intended recipient of the message will have the necessary tools to 'unlock' the file by use of a public key, a key that has already been shared by the sender and the recipient. The public key and private key are not however the same thing, as a public key can only be used to 'lock' a document. Therefore, a public recipient cannot encrypt some other file with the public key and then claim they are someone else.

If the document arrived at its intended destination, the public key will unlock the file with no errors. However, if a file is received, unlocked, and the content is somehow corrupt, this means that the data inside was at some point compromised.

Obtaining a Digital Signature

A digital signature may contain your name, e-mail address, phone number, or any other combination of personal information that identifies yourself.

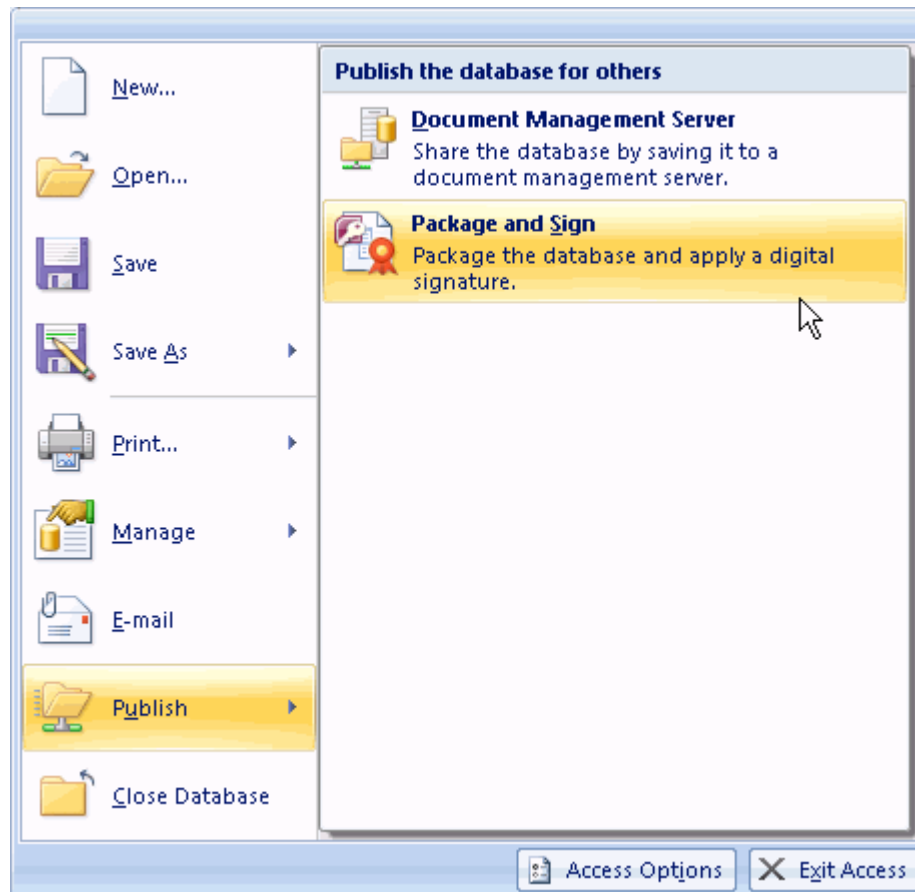
There are a number of security companies that can work with you or your organization to develop a unique digital signature. Microsoft does not provide specific digital signatures but there are a number of companies that provide free signatures for personal use. Use an Internet search engine to locate a free certificate service.

Attaching Your Signature to a Database

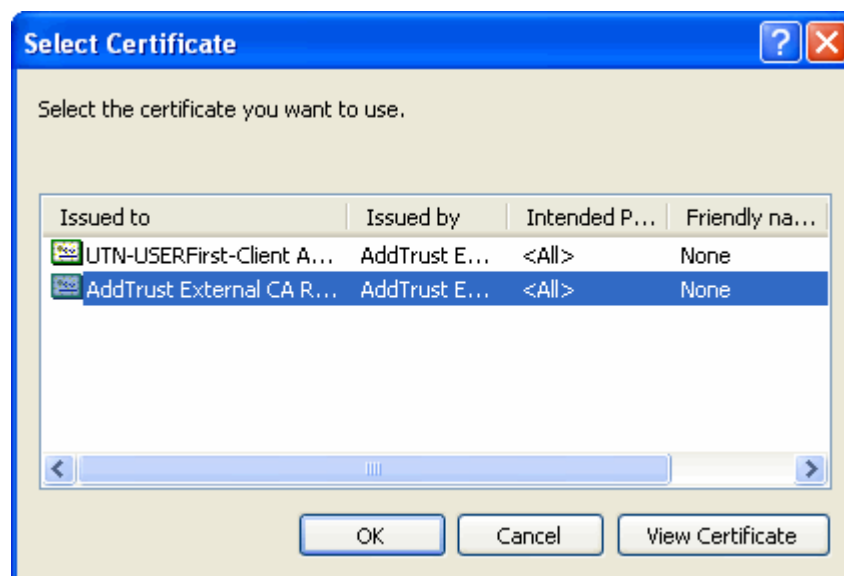
Access 2007 allows you to package a single database file and sign it with a digital signature. Remember to keep these things in mind before packaging a file:

Trust in Each Other	Packaging a database and sending it to another user is a contract of trust between you and the recipient. A correct digital signature ensures that the data contained inside is safe and has not been tampered with.
Older Versions of Access	Though Access 2007 supports older file formats, the Package and Sign command only applies to Access 2007 file types. Access 2007 can use the sign and distribute function on older Access file types, see the help file for more information.
One at a Time	Only a single database file can be packed at once.
Everything is Protected	All objects in the database file are digitally signed. Access 2007 also compresses the database file for faster downloading.
SharePoint Functionality	If you are using Windows SharePoint Server 3.0 or higher, you can extract databases from the SharePoint Site instead of having to download them first.

When you are ready to distribute a file, open the file you wish to package and sign. Click Office Menu → Publish → Package and Sign:

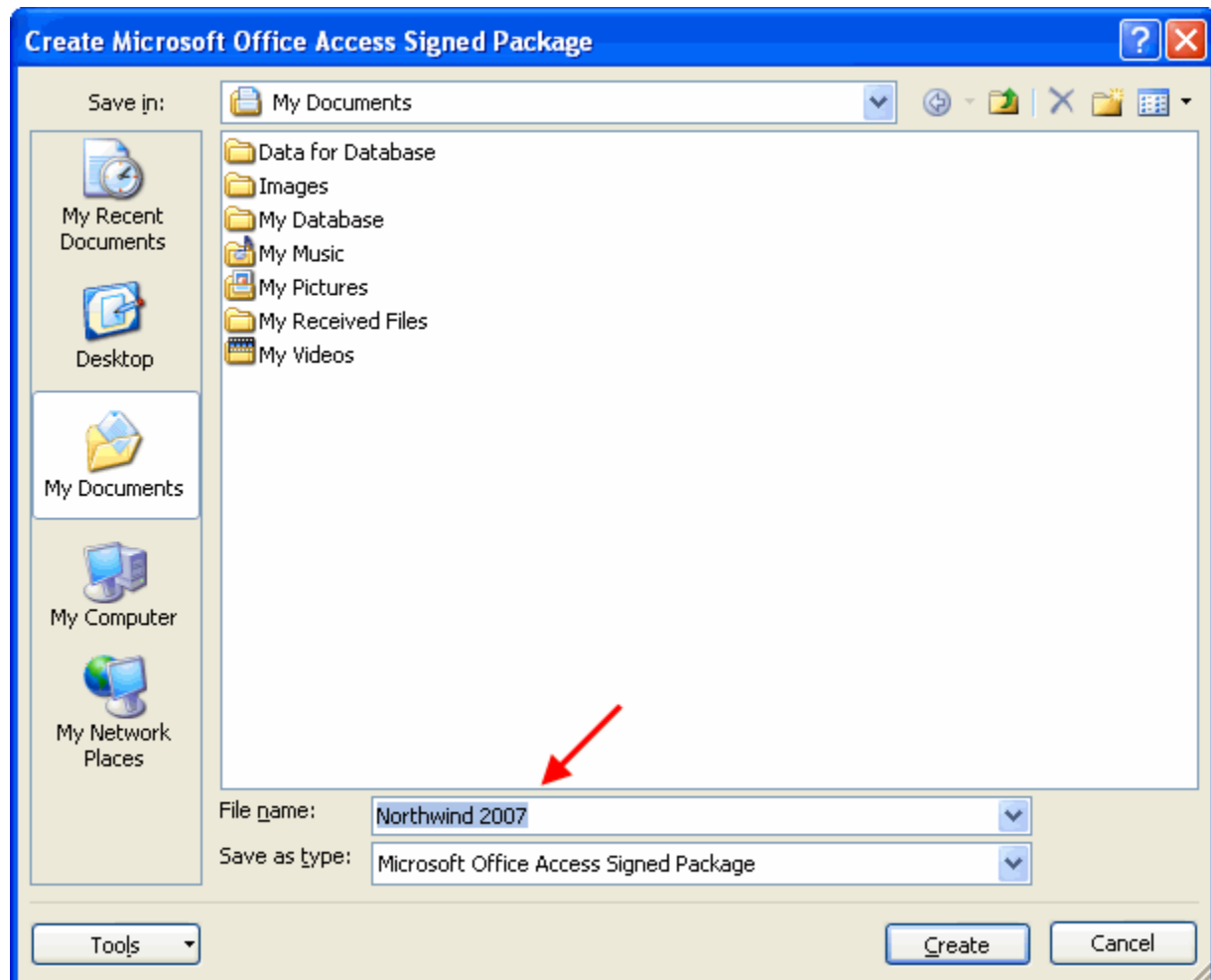


Access will prompt you to select which security certificate you will use to send the file:



Choose a certificate to use and click OK.

When the Create Microsoft Office Access Signed Package pops up, give the file a name, and then click Create.



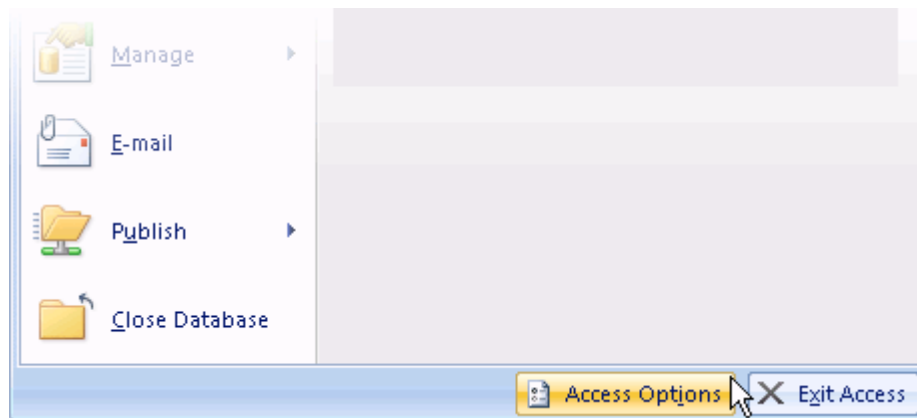
Access will save the file in the specified folder. Open your default e-mail client, such as Microsoft Outlook, and attach the file to a message to your intended recipients.

Lesson 5.4: Customizing Access

For most small and medium applications, the default features installed with Access 2007 will be sufficient. However, if your situation requires it, Access can be modified to suit every facet of your needs. In this lesson, we will explore the customization options Access has to offer.

Opening the Options Dialogue

Click Office Menu → Access Options to view the options:

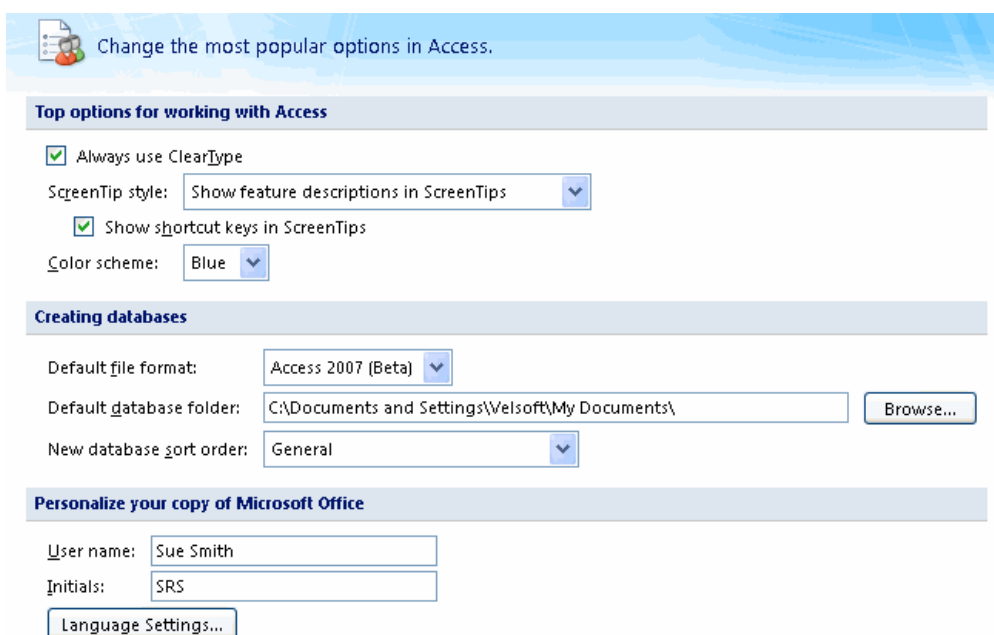


Overview of the Options Dialogue

In order to make the most of the options Access allows you to modify, you should open a database file first. This will enable all of the options in Access 2007.

Popular

This pane will allow you modify some of the more basic options. Choose to show or hide ScreenTips (information that appears when the mouse is hovered above a command) and choose the color scheme. Change which type of file output type will be used and the default folder, such as My Documents. You can also change your user name and language.



Change the most popular options in Access.

Top options for working with Access

☒ Always use ClearType

ScreenTip style: Show feature descriptions in ScreenTips

☒ Show shortcut keys in ScreenTips

Color scheme: Blue

Creating databases

Default file format: Access 2007 (Beta)

Default database folder: C:\Documents and Settings\Velsoft\My Documents\ Browse...

New database sort order: General

Personalize your copy of Microsoft Office

User name: Sue Smith

Initials: SRS

Language Settings...

Current Database


The options listed here are relevant to the current database you currently have opened. You can adjust the look and functionality of how you can navigate through the opened file, modify toolbar and ribbon options, use the AutoCorrect feature, and modify how different filters work in Access.


Datasheet


The options in this pane adjust how datasheets are displayed, the color schemes used in the cells, the font, and the effects applied directly to the datasheet.


Customize the way datasheets look in Access.

Default colors

Font color: 

Background color: 

Alternate background color: 

Gridlines color: 

Gridlines and cell effects

Default gridlines showing

- ☒ Horizontal
- ☒ Vertical

Default cell effect

- ☒ Flat
- ☐ Raised
- ☐ Sunken

Default column width:

Default font

Font:

Object Designers

Use the options contained in this pane to modify how the objects in Access are created and used. Modify the default data type when creating a table, the SQL style for query design, how a form will appear when opened, and numerous error checking options.

Proofing

These options deal with AutoCorrection and the error checking Access uses when dealing with input from a user.

The screenshot shows the 'Proofing' options dialog box in Microsoft Office Access 2007. It is divided into two main sections: 'AutoCorrect options' and 'When correcting spelling in Office programs'. The 'AutoCorrect options' section includes a text label 'Specify how Access corrects text as you type' and a button labeled 'AutoCorrect Options...'. The 'When correcting spelling in Office programs' section contains a list of six checkboxes: 'Ignore words in UPPERCASE' (checked), 'Ignore words that contain numbers' (checked), 'Ignore Internet and file addresses' (checked), 'Flag repeated words' (checked), 'Enforce accented uppercase in French' (unchecked), and 'Suggest from main dictionary only' (unchecked). Below these checkboxes is a button labeled 'Custom Dictionaries...'. At the bottom, there is a label 'French modes:' followed by a dropdown menu currently set to 'Traditional and new spellings'.

AutoCorrect options

Specify how Access corrects text as you type [AutoCorrect Options...](#)

When correcting spelling in Office programs

- ☒ Ignore words in UPPERCASE
- ☒ Ignore words that contain numbers
- ☒ Ignore Internet and file addresses
- ☒ Flag repeated words
- ☐ Enforce accented uppercase in French
- ☐ Suggest from main dictionary only

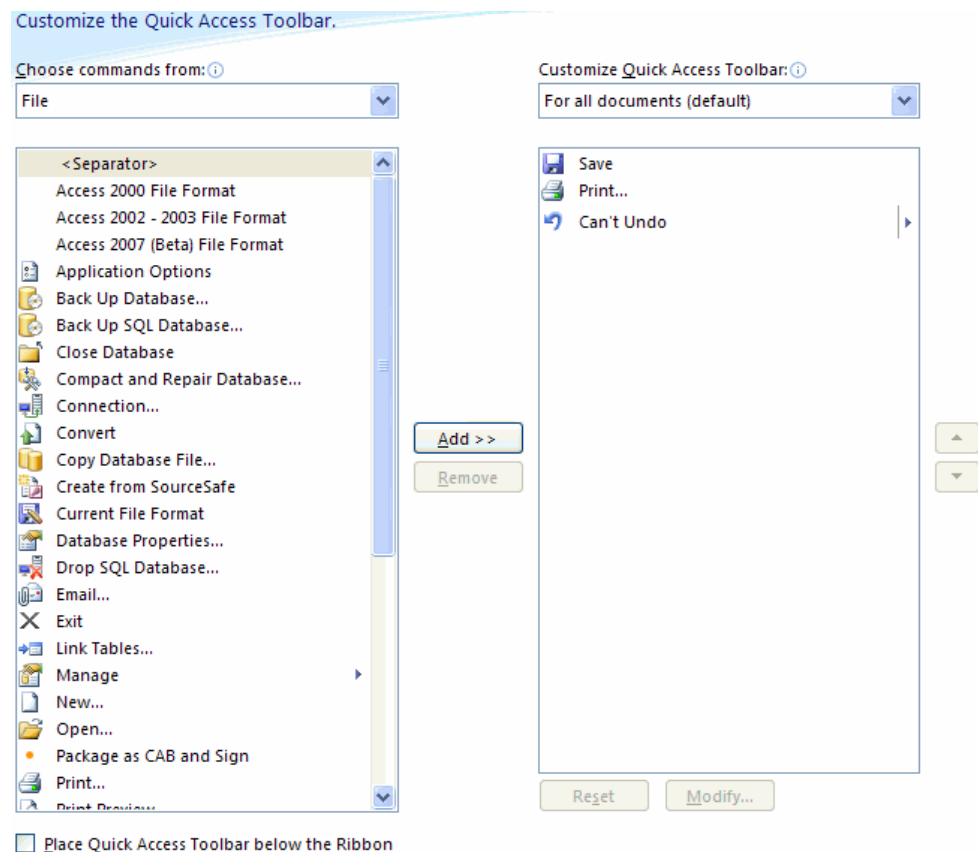
[C](#)ustom Dictionaries...

French modes: Traditional and new spellings ▼

Advanced

The bulk of Access' customization lies in this pane. Modify options dealing with editing and keyboard commands, the display options Access uses, the print margins, general options regarding LCD monitors and year formatting, as well as a number of advanced options regarding database intercommunication.

Customization This pane is used to customize the commands visible in the Quick Access toolbar.



Add-Ins This pane lets you view and modify the add-ins available for use. (See Lesson 1.1.)

Trust Center The Trust Center is a central place to view security information. Click the Trust Center Settings button to open the options available to modify. (See Lesson 1.1.)

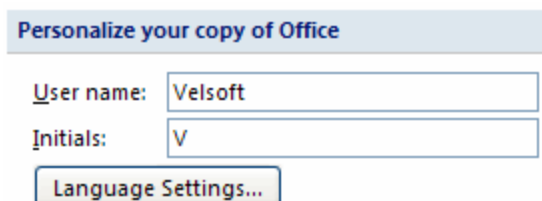
Resources

The final pane allows you to update Office 2007, diagnose problems with the Office package, contact Microsoft regarding Office 2007, activate and register your copy of Office 2007, as well as view legal information about Access 2007.



Changing User Information

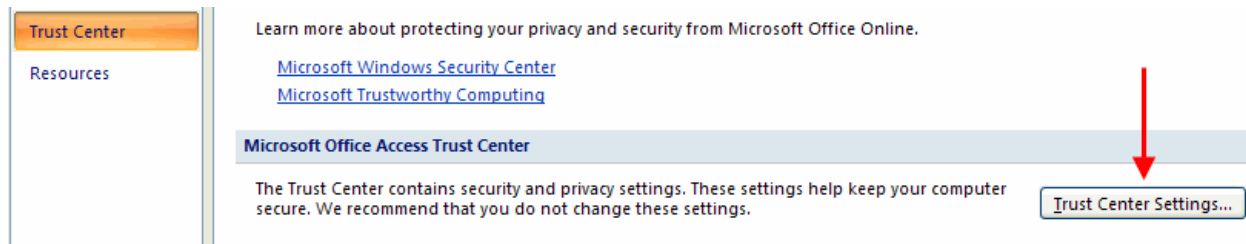
If you want to change your name, initials, and language preference, click the Popular tab to see the options available for you to modify:



Make the changes you want and click OK at the bottom of the Access Options window.

Setting Security Options

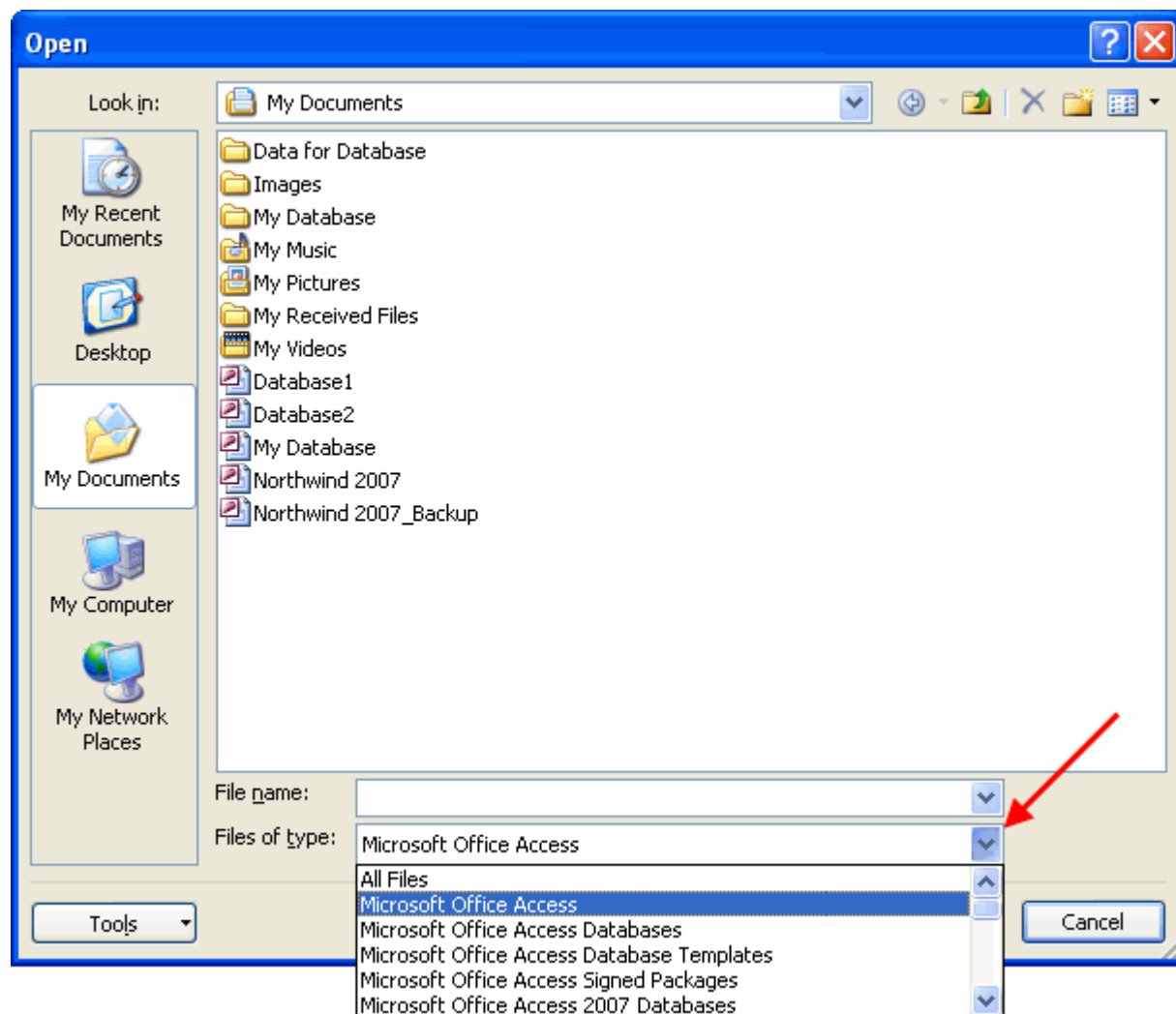
All security options available in Access are available through the Trust Center. Click the Trust Center tab and then click the Trust Center Settings button to modify the options available to you:



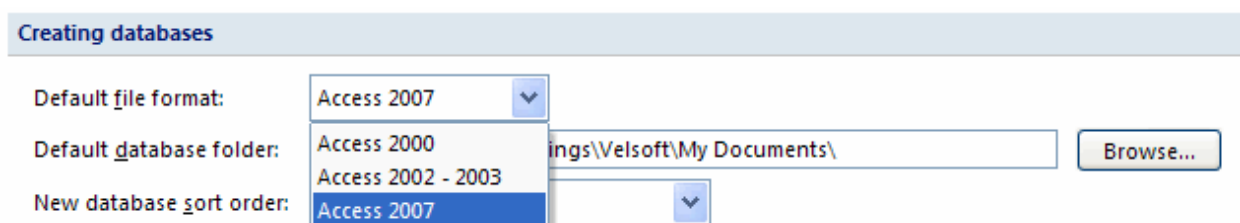
For details about the Trust Center, consult Lesson 1.1 and the Access help file.

Making Access Work Backwards





Access 2007 has the ability to use files created in previous versions of Access. Click Office Menu → Open to browse for older Access file versions on your computer. Click the Files of type combo box to try different file formats once the Open dialogue box is open:



If you often make databases in Access 2007 for use in older versions of Access, use the Popular tab in the Access Options window. Modify the file format in the Creating Databases section:



Section 5: Review Questions

1. **What type of file extension do COM Add-Ins usually take?**
 - A. HTML
 - B. EXE
 - C. DLL
 - D. Both B and C
2. **Which of the following things must be true in order for a COM Add-In or Macro to be executed in the Access environment?**
 - A. The Add-In has been digitally signed
 - B. The digital signature is not past its due date
 - C. The developer is listed as a trusted publisher
 - D. All of the above
3. **What is a trusted location when using Access?**
 - A. The Office Online Web site
 - B. A location deemed safe by you on your computer
 - C. The Northwind sample database
 - D. None of the above
4. **How many database files can be digitally signed at once?**
 - A. 1
 - B. 2
 - C. 3
5. **When looking at a table in datasheet view, which icon means a Smart Tag has been applied to a field?**
 - A. 
 - B. 
 - C. 
 - D. 
6. **Which of the following is not a Smart Tag included with Access 2007?**
 - A. Telephone Number
 - B. Date
 - C. Address
 - D. Person Name

SECTION 6: Managing Access

In this section you will learn how to:

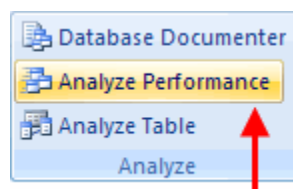
- Work with database utilities to optimise resources
- Use database utilities to secure data
- Encrypt and decrypt databases

Lesson 6.1: Managing Your Database

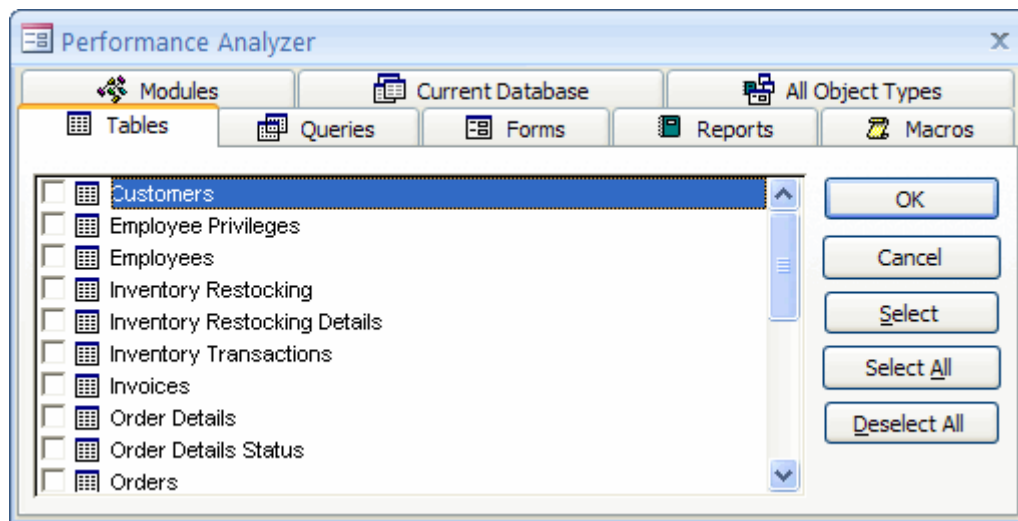
From time to time, every database will require a bit of housecleaning. Access 2007 provides a number of tools to make it easy to analyze and optimize your data. In this section we will explore the techniques and methods to manage your database.

Analyzing Performance

Access 2007 includes a performance analyzer command in the Database Tools ribbon. To use this command, first open the database file you wish to analyze:

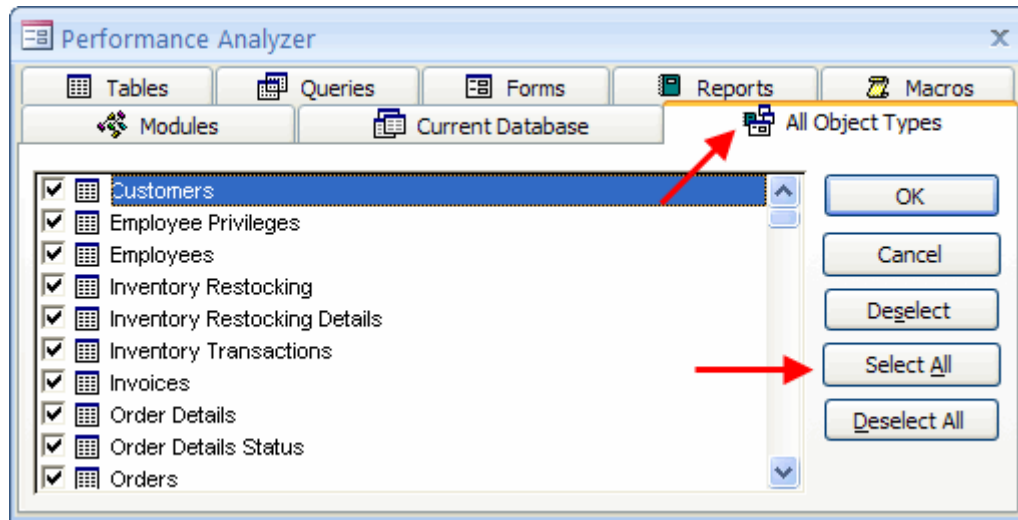


The Performance Analyzer dialogue box will appear:

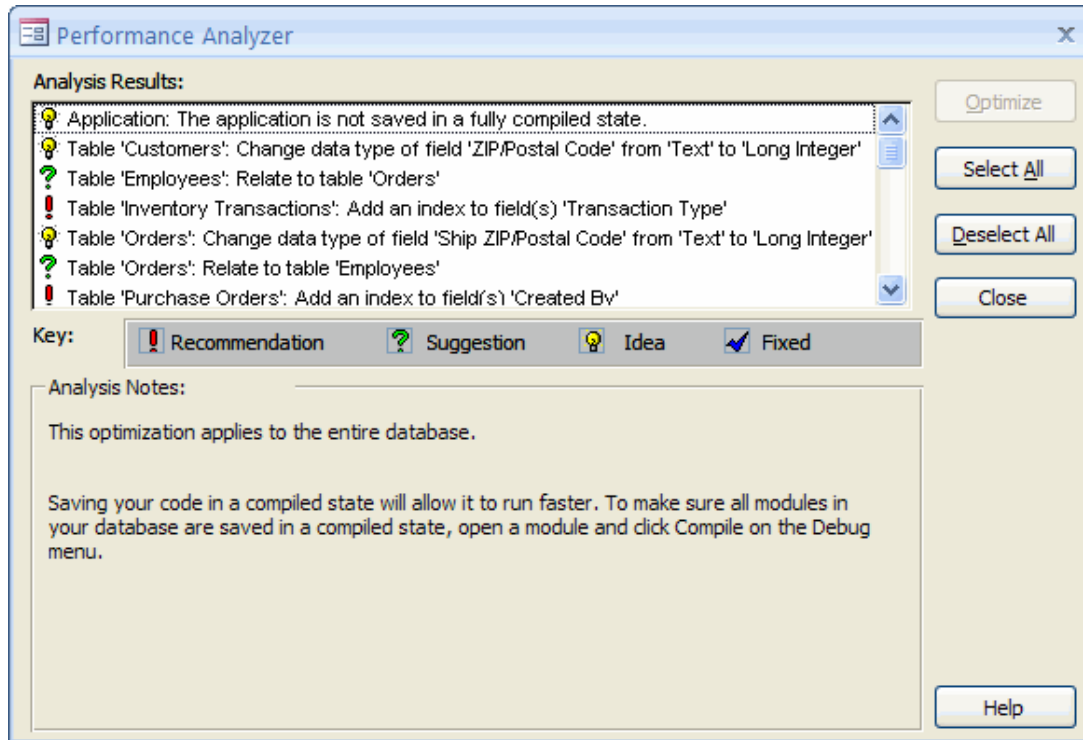


All of the available database objects are listed by category. The Current Database tab allows you to analyze the relationships that exist in the database, as well as any associated VBA (Visual Basic for Applications) code.

Should you wish to examine your entire database, click the All Object Types tab, and then click Select All:



Click OK to begin the analysis process. (Keep in mind this may take several minutes depending on the speed of your computer and the complexity of your database.) When the Performance Analyzer has completed, you will be shown the suggestions and recommendations to help make your database work as efficiently as possible:



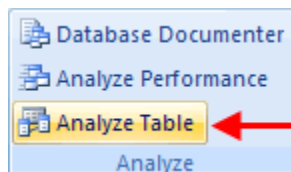
Scroll up and down through the list of results and click each one for more information about the result. You can choose to optimize individual items, or click the Select All button and then click Optimize to take care of every issue.

Analyzing Tables

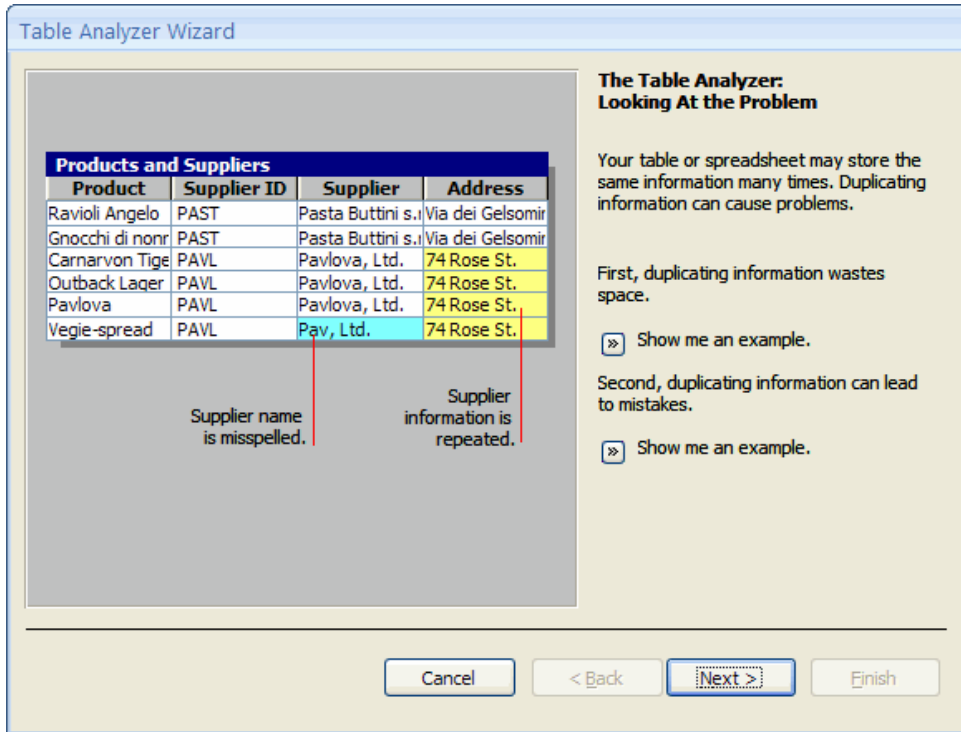
Although the Performance Analyzer is good at taking care of many broad issues, Access 2007 features an independent table analyzer. The main goal of the Table Analyzer Wizard is to eliminate as much duplicate data as possible. This functionality will help you find the best design of table to suit your needs. Consider the following database that contains a single table named Supplies. This table been designed to meet the requirements of Second Normal Form (2NF):

Supplies			
Supply ID	Cleaning Supply	Supplier Name	Supplier Address
1	Broom	Acme Cleaning	123 Acme Way
2	Dust Pan	Acme Cleaning	123 Acme Way
3	Mop	Acme Cleaning	123 Acme Way
4	Rag	Shiney and Tidy	44 Clean St.
5	Sponge	Shiney and Tidy	44 Clean St.
* (New)			

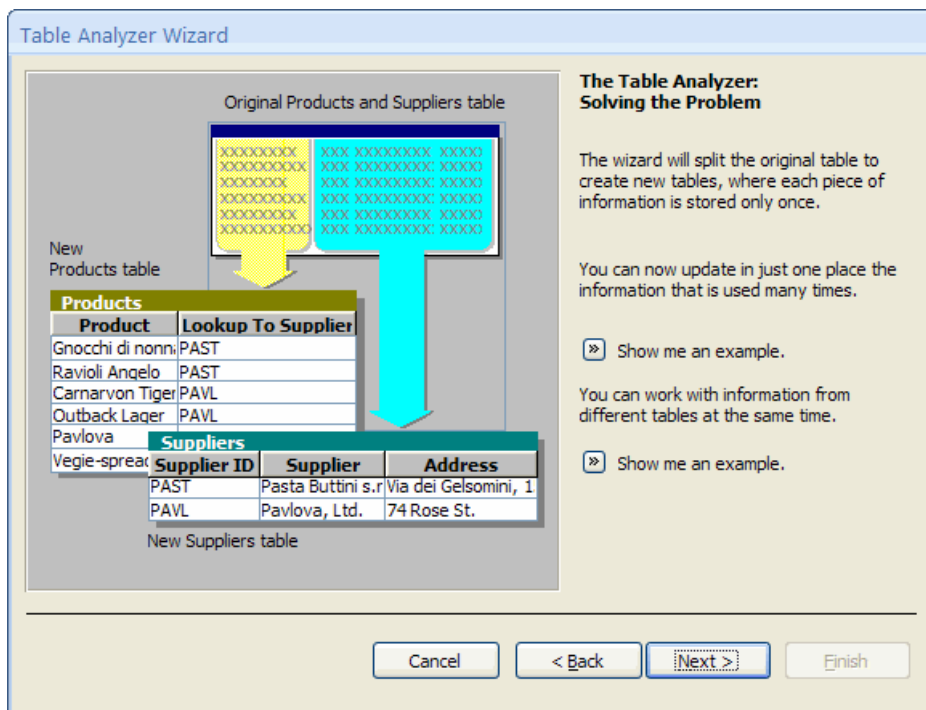
We can see that the Supplier Name and Address are repeated for each supply made by the same company. This is not the best design because the table contains repetitive data. Click the Analyze Table command in the Analyze section of the Database Tools ribbon:



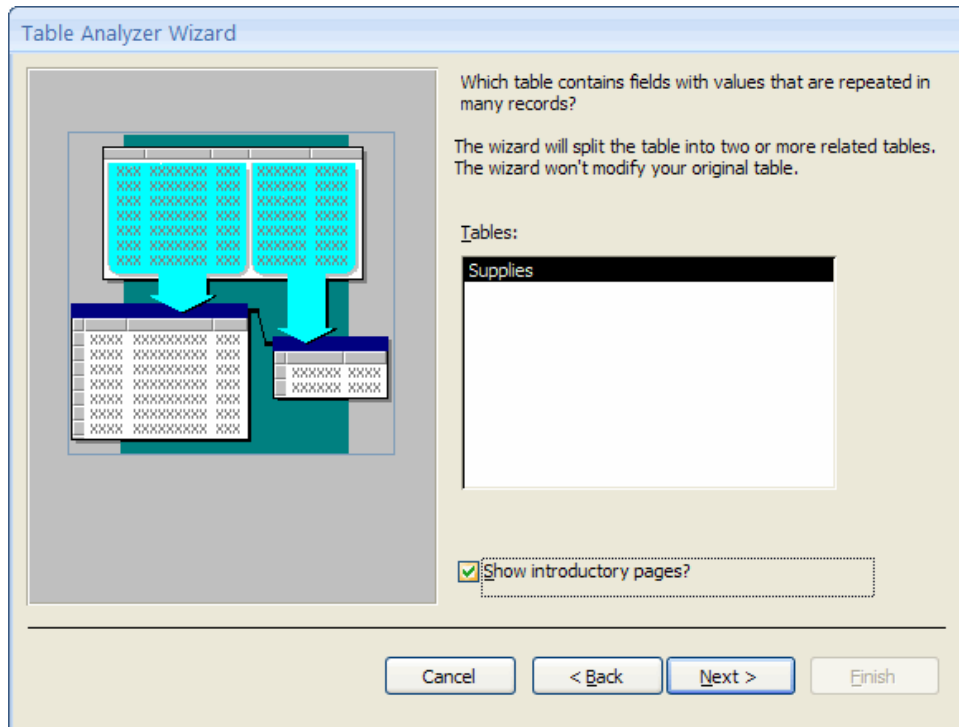
This will launch the Table Analyzer Wizard:



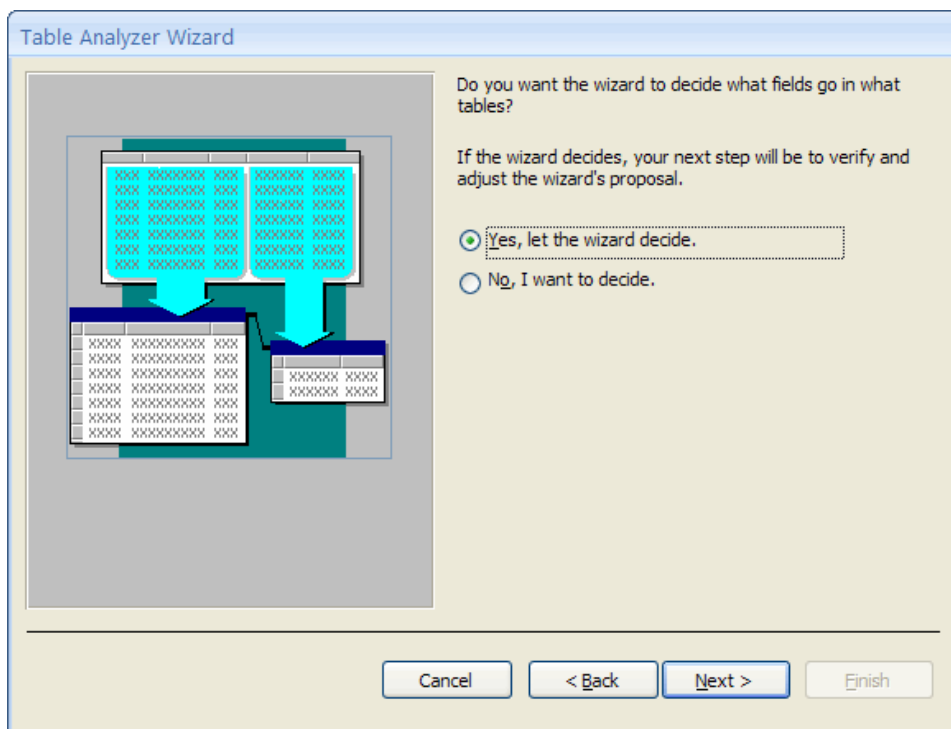
The first two pages of the Wizard go through some of the common errors associated with databases and how it can fix them.



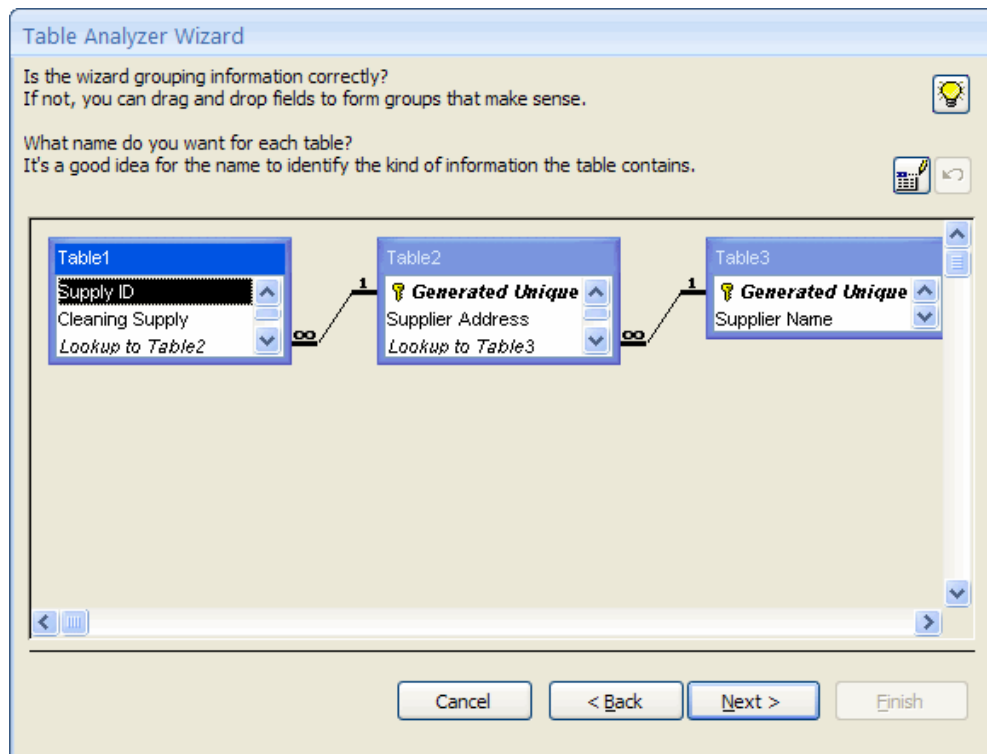
The next page of the Wizard asks you to choose which table in your database contains possible duplicate values. Choose the table to analyze and click Next:



In the next step, you can choose to let the wizard make your choices.




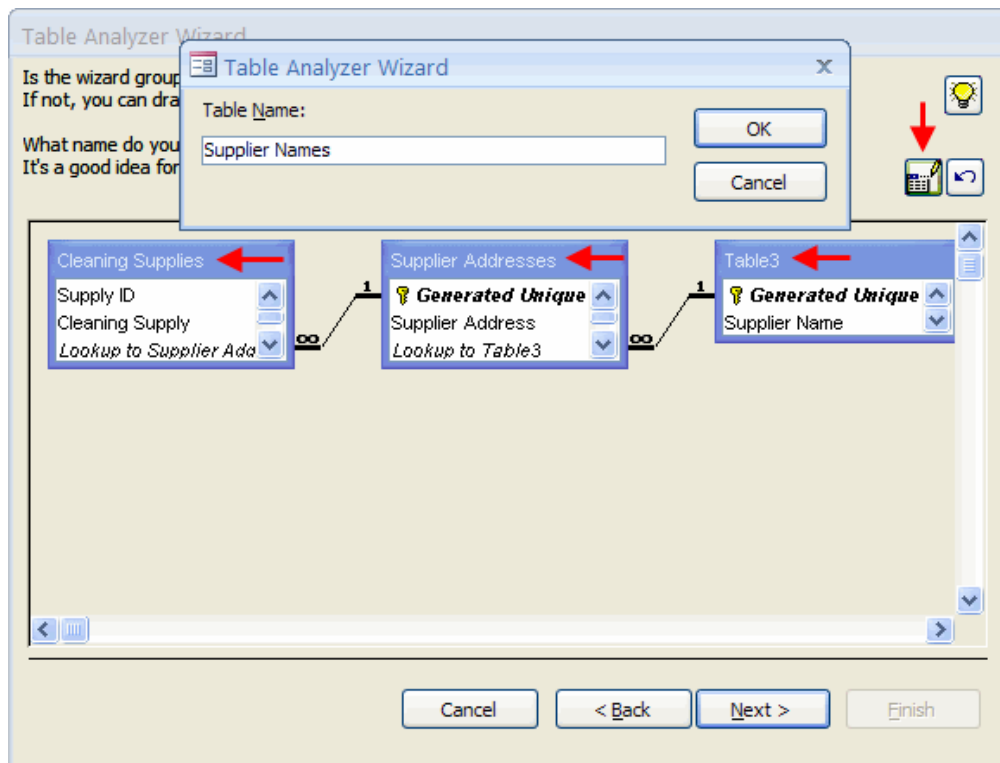
The Wizard will analyze what it feels will be the best way to divide the Supplies table:



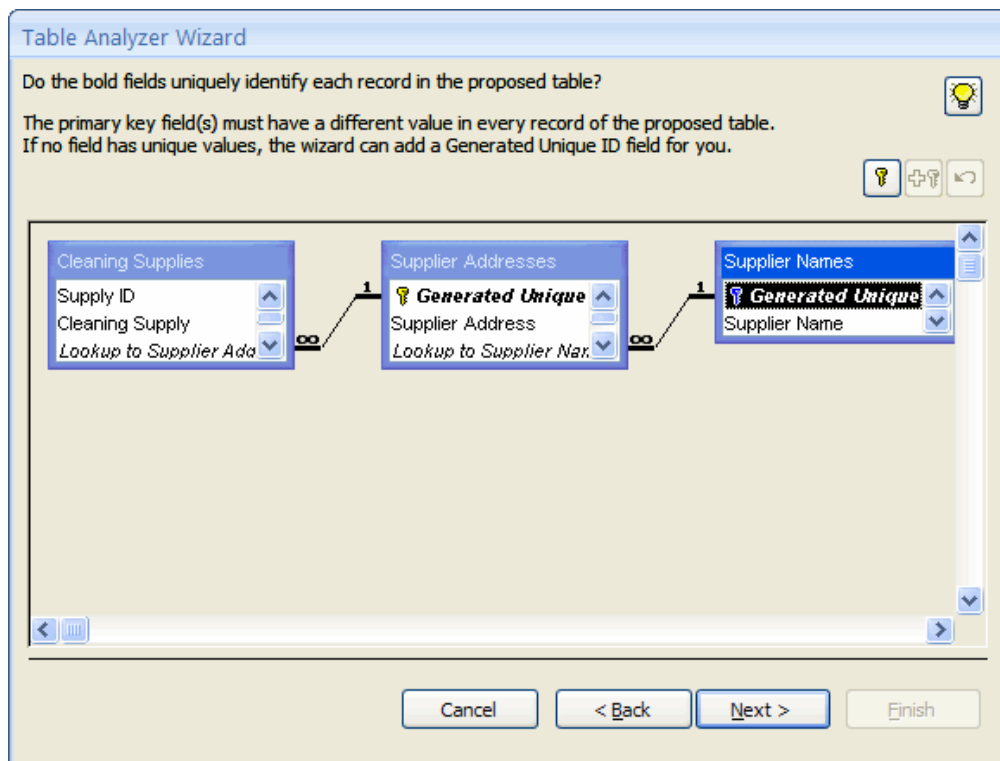
By examining this layout, we can see that the Wizard has successfully divided the table to meet 3NF. Each cleaning supply has an ID and a name, as well as a lookup field that references the next table.

The next table contains a unique primary key, the address field, and a lookup field to the final table. The final table contains a unique primary key and the Supplier name. It may seem like an extra step to include the third table; however the Wizard thought it possible that a number of companies might reside at the same address (such as many companies working from the same office building). Therefore, each address was given priority over the company name.

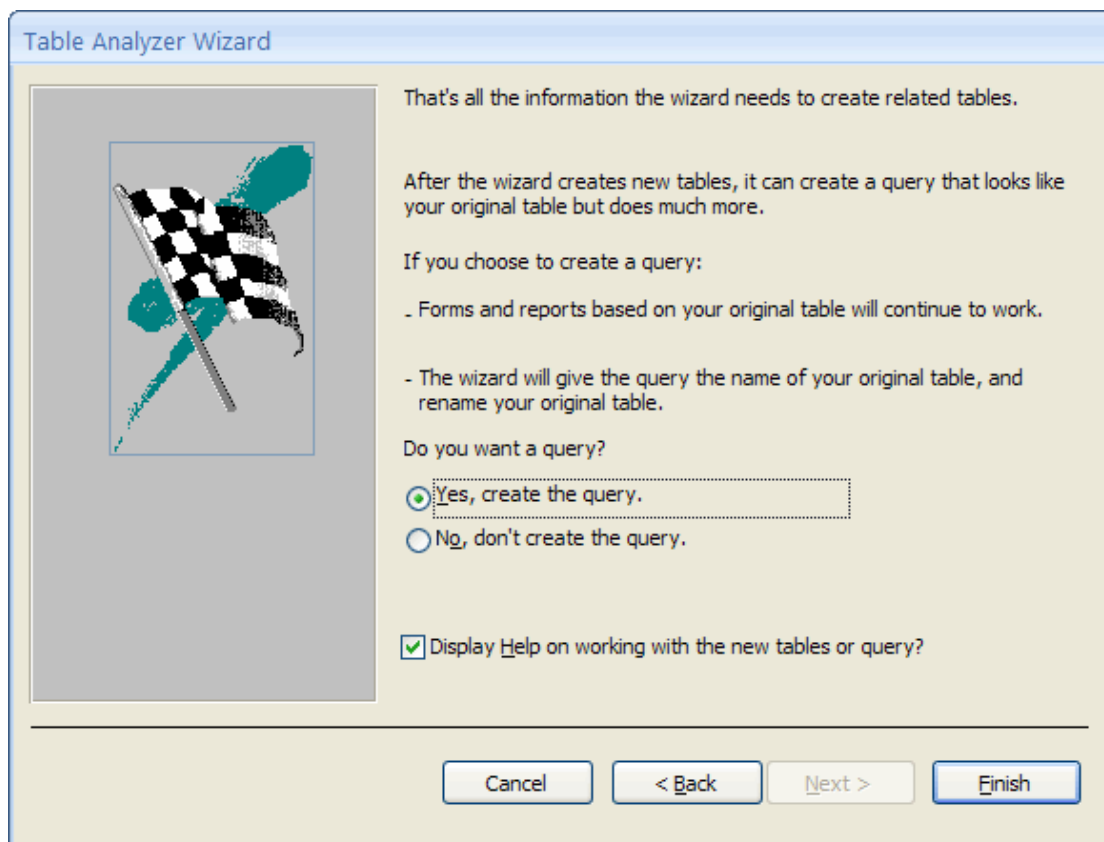
Click the title bar of a table and then click the Rename Table icon () to give it a new name:



The next step allows you to further customize how Access will use the primary keys generated by this Wizard:



The final step of the Wizard can create a query for you that will select all of the fields from all of the newly created tables.



It will also re-name the 'old' (analyzed) table as tablename_OLD:

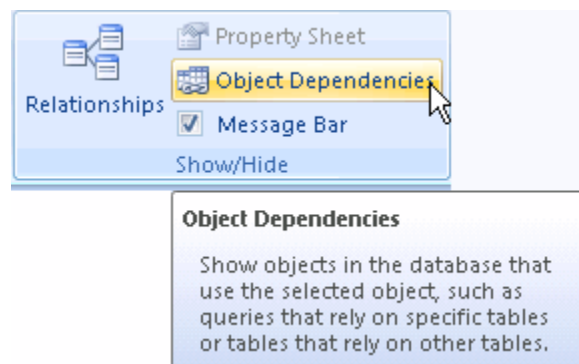
All Tables			
Supplies_OLD			
Supplies_OLD : Table			
Cleaning Supplies			
Cleaning Supplies : Table			
Supplies			
Supplier Addresses			
Supplier Addresses : Table			
Supplies			
Supplier Names			
Supplier Names : Table			
Supplies			

Supplies			
Supply ID	Cleaning Supply	Lookup to Supplier Names	Supplier Name
1	Broom	Acme Cleaning	Acme Cleaning
2	Dust Pan	Acme Cleaning	Acme Cleaning
3	Mop	Acme Cleaning	Acme Cleaning
4	Rag	Shiney and Tidy	Shiney and Tidy
5	Sponge	Shiney and Tidy	Shiney and Tidy
*	(New)		

Viewing Object Dependencies

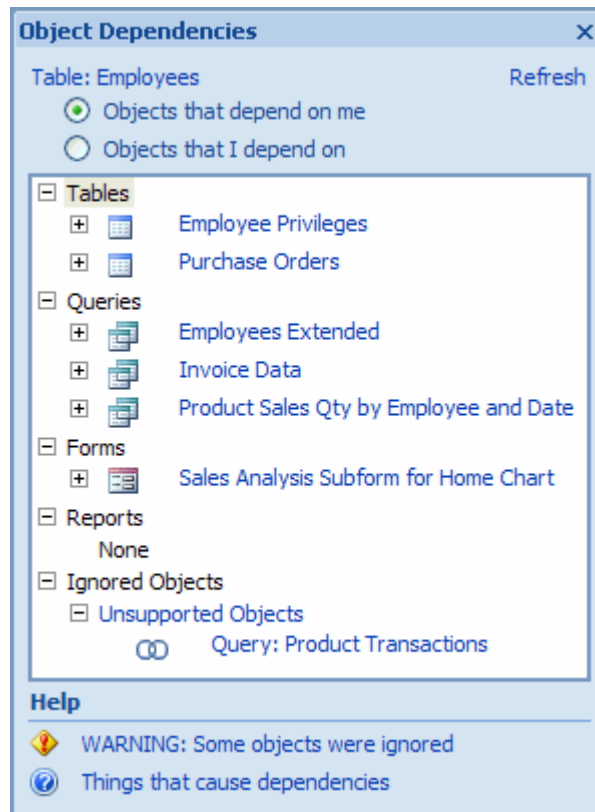
When you build relationships in a database, Relationship view allows you to see a visual representation about how the data in the various tables relates to each other. If your database has reached a larger size and are having difficulty remembering what tables relate to what, you can view the dependent objects of one individual object.

To view the dependent objects of a particular object, like the Employees table, highlight the Employees table in the Navigation Pane. Click the Object Dependencies check box in the Show/Hide section of the Database Tools ribbon:



Depending on the complexity of your database, it may take a few moments to analyze the structure of your database and extract the relationships.

When completed, you will see a listing on the right-hand side of the Access window that lists the dependent objects of the Employees table:

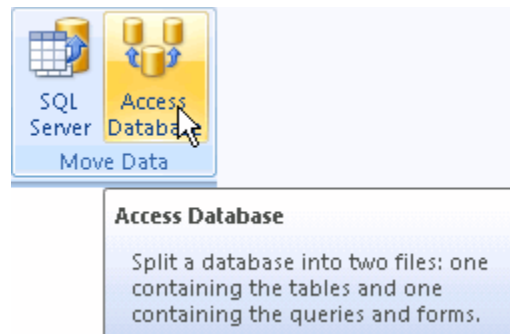


Each object in turn has other objects depend on it are shown by clicking the small (+) sign beside the objects listed. You can track the hierarchy of every object that you analyze in the database. Similarly, you can view the objects that the Employees table is dependent upon by clicking the “Objects that I depend on” radio button at the top of the Object Dependencies pane.

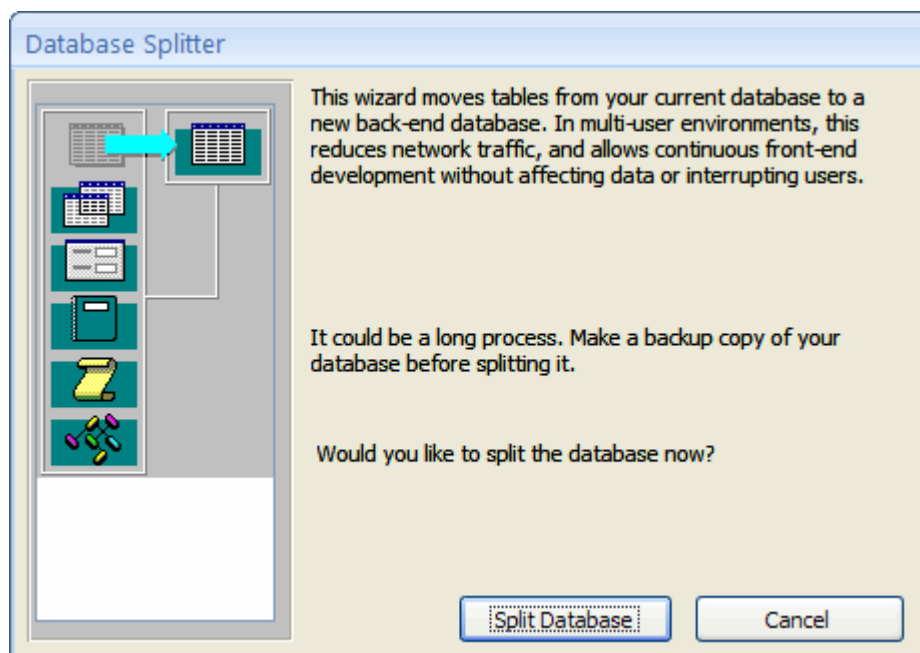
Splitting a Database

There may come the time when it is worthwhile to split a database. If your database file is becoming too large to handle at once or if you want to split it for logistical purposes, Access 2007 includes an option to split a database into two portions: one containing the tables and the other containing queries and forms.

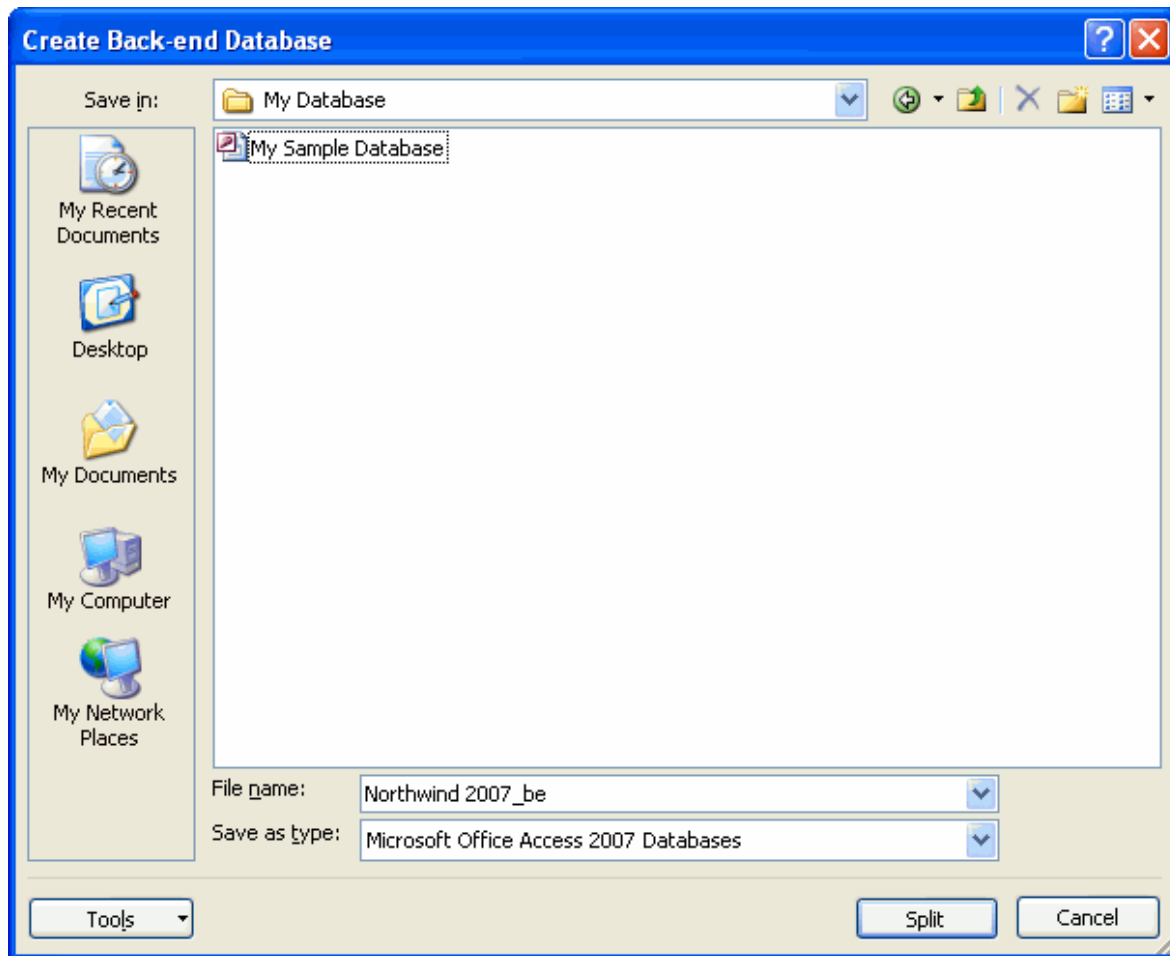
First, click the Access Database command in the Database Tools ribbon:



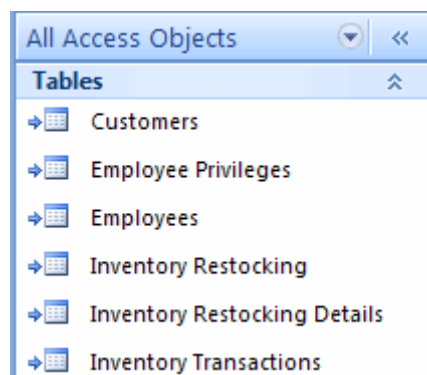
Before splitting your database, it is recommended you create a backup copy first. You must also close all open database objects. Click the Split Database command to start the database splitter:



Access will first prompt you to create the back-end database (which contains the tables). Give the file a name and click Split:



After a few moments, the database will remove the tables from the source file and save them in the back-end database. All of the tables, if viewed in the objects section of the database, are shown as linked to the back-end database:



Database Replication

Although Access 2007 does not take direct advantage of database replication, the role of replication and its place in the world of databases is worth mentioning. Like the name suggests, a database is copied and stored somewhere else.

It is important to understand that replication is not creating a backup. A backup is merely a snapshot in time, and something that will (hopefully) be made and never used. With replication, a database is indeed copied and placed in one or more other locations, only the copies play an active role in how the database works.

Consider a database with one 'master' copy and two 'slave' replicated copies. Any work done to the database is done on the master copy. New tables, updates, deletions, and other maintenance work are done first on the master, and then done again on each subsequent replication. However, when it comes to a query, the replicated copies each kick in part of the query results together with the main query. The result is a more complex yet much faster way of querying a database. The big advantage of database replication is that should the master suffer a complete shutdown, there is at least one identical backup copy ready to be restored once the problem with the master location has been fixed.

Section 6: Review Questions

1. **When analyzing a database using the Performance Analyzer, which types of objects do you have access to?**
 - A. All objects
 - B. Queries, Forms, and Reports
 - C. Macros and VBA code
 - D. Tables only
2. **Which of the following statements best describes what the Object Dependencies view will show you?**
 - A. All objects created because of one object
 - B. All objects that rely on information in that object
 - C. All the objects that one object depends on
 - D. Both B and C
3. **Splitting a database will:**
 - A. Place all tables in one file, and all other objects in another file
 - B. Cuts the file size down the middle and creates two halves
 - C. Places all table data on a SharePoint server
 - D. Places all macros and VBA code in a Trusted Location
4. **What are the different file formats that Access can use to save a file?**
 - A. Access 2007 only
 - B. Access 2002, 2003, 2007
 - C. Access 2004 and 2007
 - D. All versions since Access 2000

SECTION 7: Security Fundamentals

In this section you will learn how to:

- Use a password to secure the

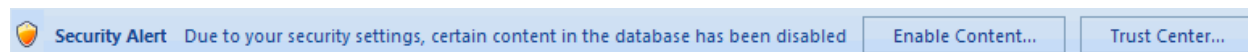
The Trust Center

The terms computer security, identity theft, and privacy are being used more and more all the time. There are a few bad apples out there that like to create viruses and spyware for the purpose of disrupting day-to-day business. The Microsoft Windows family of operating systems, as well as a number of third-party developers, work hard every day to keep your private and sensitive data safe. So to does the Office 2007 suite.

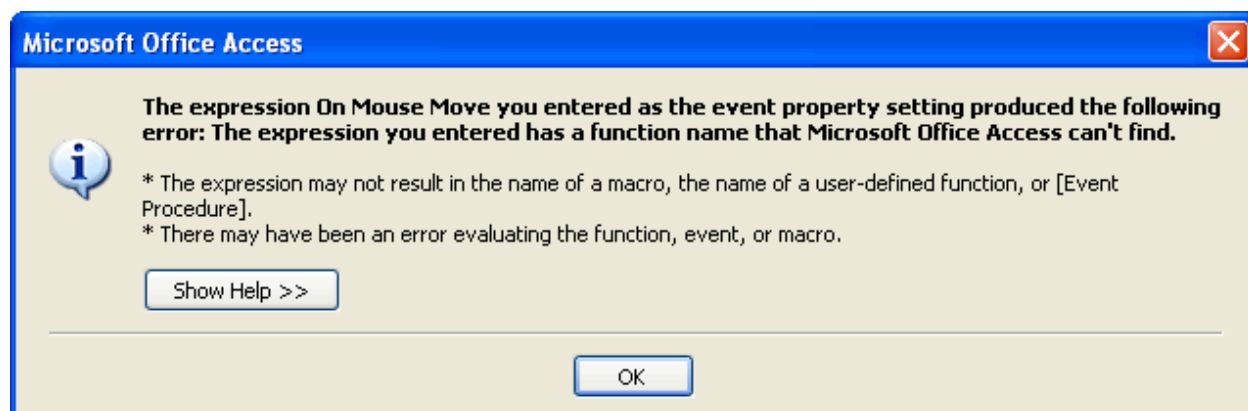
In this lesson we will explore some of the measures taken by Access 2007 to keep your computer and yourself from being a victim of an attack or being disrupted while you work.

Warnings You May See when Opening a Database

If you recall the last Step-By-Step exercise, we encountered a warning stating that Access has prevented a file from being opened because of the security settings that have been enabled on your computer:



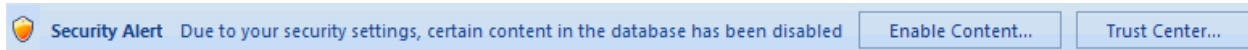
You might also run into other warnings that state Access cannot perform a certain action because a non-standard operation was encountered or some part of the database file seems to be missing. It is possible that the following warning might appear not because a problem was detected, but because a certain section of the database might not be fully constructed:



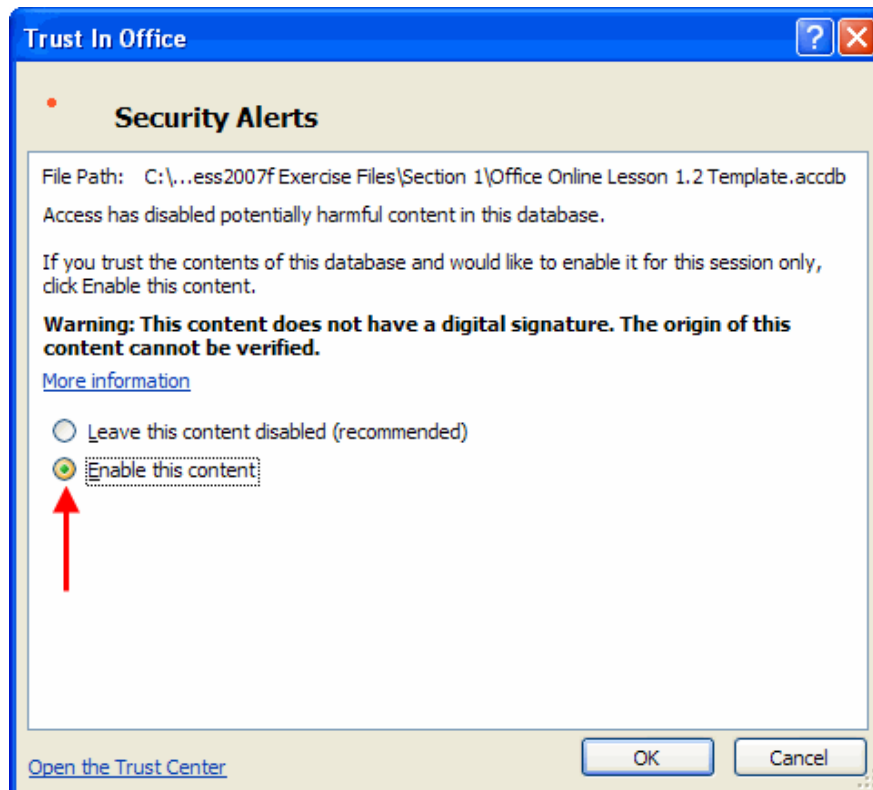
Don't panic! These warnings are designed to protect you, not scare you. Should you encounter messages like the ones above, think why it may have occurred. If you received the file from someone else, tell them you have encountered a problem before opening the file. If you are unsure about the file, contact your organization's IT department for help; they may be able to diagnose your problem and provide a solution. It may even be that your security settings are a bit too high for this application (which is not always a bad thing). We will discuss what to do in situations like this in this lesson.

Enabling Content

If you are sure the file you are opening is safe, or you trust the person it came from, simply click the Enable Content button in the bar that appears under the ribbon:



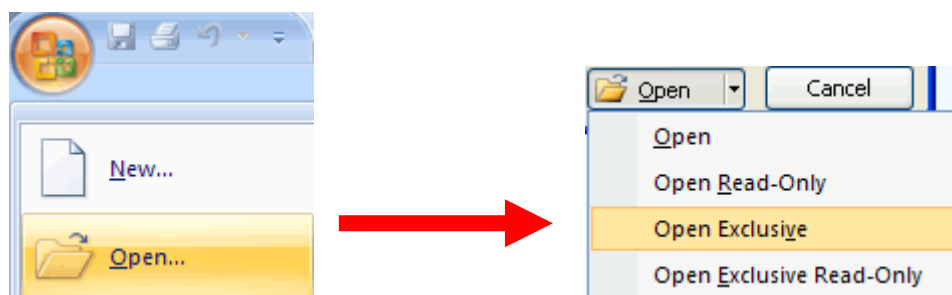
Doing so will show the Trust In Office dialogue box:



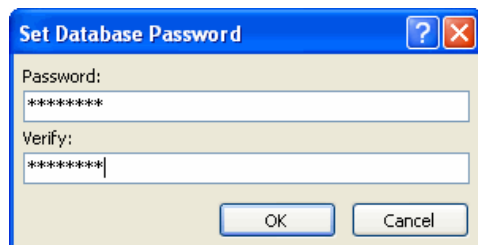
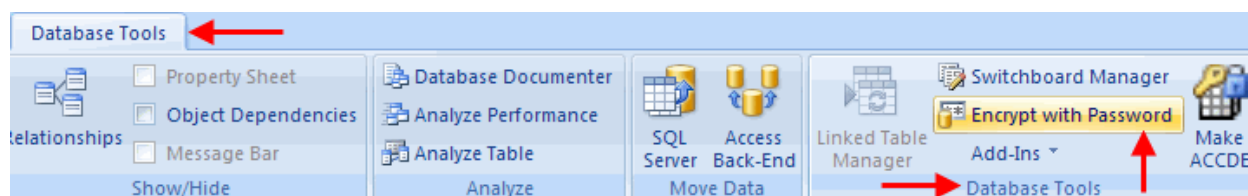
In the picture above, Access gave you a warning because it could not identify who made the file. This does not necessarily mean that it came from an untrustworthy source; perhaps whoever made the file did not bother to apply a digital signature (described in the next section) or security certificate. If you are sure the content is safe, simply click the Enable this content radio button and then click OK. The file will then open normally.

Assigning a Password to your Database

To set a password, a file must first be opened for exclusive use. To do so, close any open databases and then click Office Menu → Open. Browse to the database file you wish to open. Instead of clicking Open, click the small pull-down arrow attached to the Open button and click Open Exclusive:

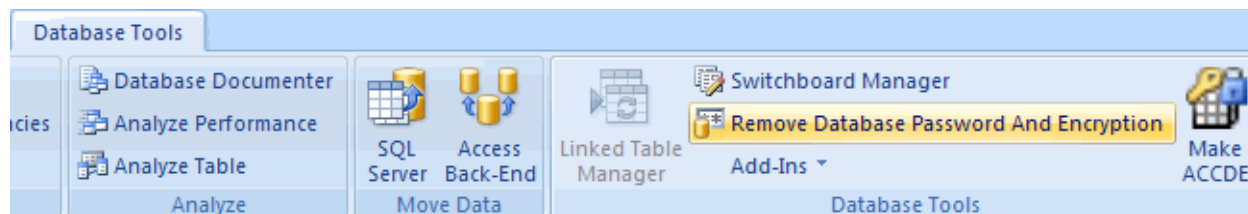


Then, open the database file you wish to protect. Click the Database Tools tab, and then click Encrypt with Password in the Database Tools section of the ribbon:



When the Set Database Password dialogue box appears, type the password you want to use in the Password field, then type it again in the Verify field:

Should you need to remove the password, click the Database tools tab again and click Remove Database Password and Encryption:



Then, enter the password a final time to confirm the removal of the password.

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