

11

Maintaining a Database

As you prepare your database for distribution, you will make your last design tweaks and confirm that it is optimized for speed and ease of use. And at this stage, security should be a main priority. It is important to protect a database from data loss and unauthorized access. In this chapter, you will customize Access 2016 settings and add easy-to-use command buttons to a form. You will create macros, explore database security features, set a database password, and then analyze, compact, and repair an Access database.

LEARNING OBJECTIVES

- ▶ Add command buttons to forms
- ▶ Manage database objects and create macros
- ▶ Backup, restore, analyze, compact, and repair a database
- ▶ Set database security using encryption and passwords

Project: Improving and Maintaining a Database

The prototype of the Winchester Web Design database is almost complete. After reviewing the database, the company's owner is pleased with the overall design. He now wants to add some command buttons and macros to improve navigation and to ensure that the database runs as efficiently as possible.

A major concern is the security of the database and the data it contains. The owner would like to institute both security protocols and a regular backup policy.

Using Command Buttons to Improve Navigation

In addition to adding labels, text boxes, images, and other controls to database forms, Access allows you to add command buttons that can be used for things such as record navigation and report operations. You can open a form, select the Button control from the Controls group on the Design tab, draw a button in the desired location on the form, and use the Command Button Wizard to add a custom button to find a record, go to the previous or next record, print a specific report, or even exit Access.

DEVELOP YOUR SKILLS: A11-D1

In this exercise, you will add command buttons to the Form Footer section of the Invoice Form to make navigation easier and to quickly view an invoice report.

1. Open **A11-D1-WinWebDesign** from your **Access Chapter 11** folder and save it as **A11-D1-WinWebDesignRevised**.
2. Enable content, if necessary.
3. **Close**  the **Winchester Web Design Navigation Form**.
4. Open the **Invoice Form** in **Design View**.
5. Click the **Form Footer** section bar and type **0.75"** for the Height property on the Property Sheet.

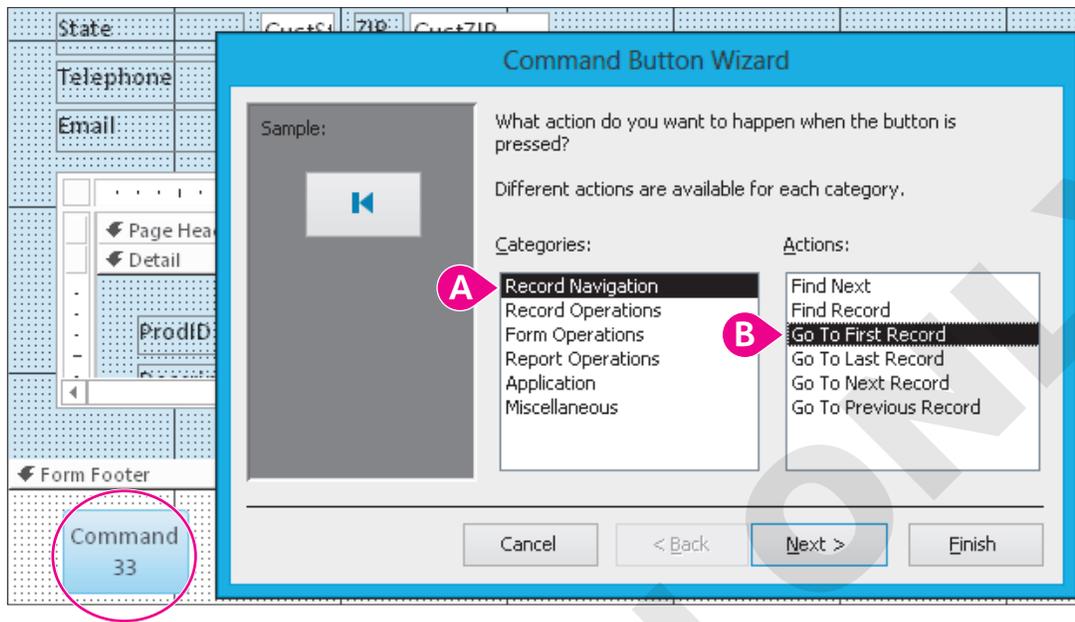
Tip!

Tap **F4** to toggle the Property Sheet open and closed.

6. Choose **Design**→**Controls**→**Button** .
7. Draw a button in the Form Footer under the left end of the subform.

*If the Command Button Wizard doesn't open, choose **Design**→**Controls**→**Use Control Wizards**.*

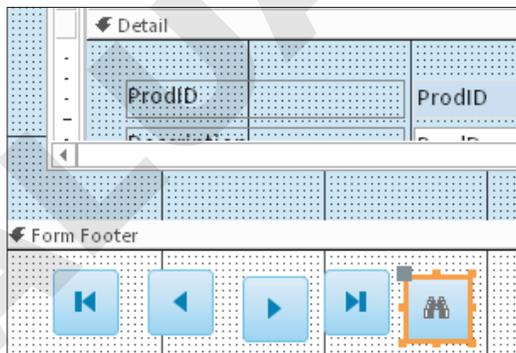
8. Follow these steps to add a command button:



- A** Choose the **Record Navigation** category.
- B** Choose the **Go to First Record** action.

Your command button may show a different number (than 33).

9. Click **Next** and then click the **Picture** option, choose **Go To First**, and click **Next**.
10. Enter **cmdFirst** for the Meaningful Name and click **Finish**.
The command button shows the Go To First picture in the Form Footer section and is programmed to go to the first record when in Form View.
11. Repeat steps 6–10 to add, in the order listed, command buttons for **Back** (Go To Previous Record: **cmdBack**), **Next** (Go To Next Record: **cmdNext**), **Last** (Go To Last Record: **cmdLast**), and **Find** (Find Record: **cmdFind**).



12. Draw a button to the right of the Find button. When the Command Button Wizard opens, choose **Report Operations** and **Preview Report** and then click **Next**.
13. Select the **Invoice Details Report** as the Report to Preview and click **Next**.
14. Choose the **MS Access Report** picture, if necessary, and then click **Next**.

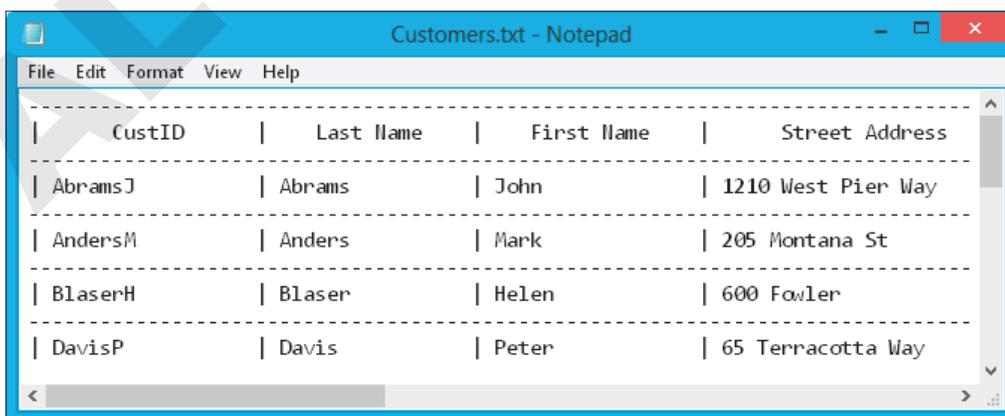
15. Enter the name **cmdPreviewInvoices** and click **Finish**.
16. Select the new buttons and choose **Arrange**→**Sizing & Ordering**→**Align**→**Top**.
17. With the buttons still selected, choose **Arrange**→**Size & Ordering**→**Size/Space**→**Equal Horizontal**.
18. Switch to **Form View** and test each button.
19. If necessary, close the **Invoice Details Report** and then save and close the **Invoice Form**.

Creating Macros to Improve Efficiency

A **macro** is an object that combines a series of steps into a single step so that a more detailed task can be automated. For example, if you regularly export your data to another database, instead of choosing External Data→Export→Text File and then entering the filename and selecting export options, you could create a macro to perform all the steps with one double-click of the mouse.



The ExportCustomers macro exports the Customers table to the default My Documents folder as a text file. If needed, a specific file path could be entered for the output file.



The exported text file

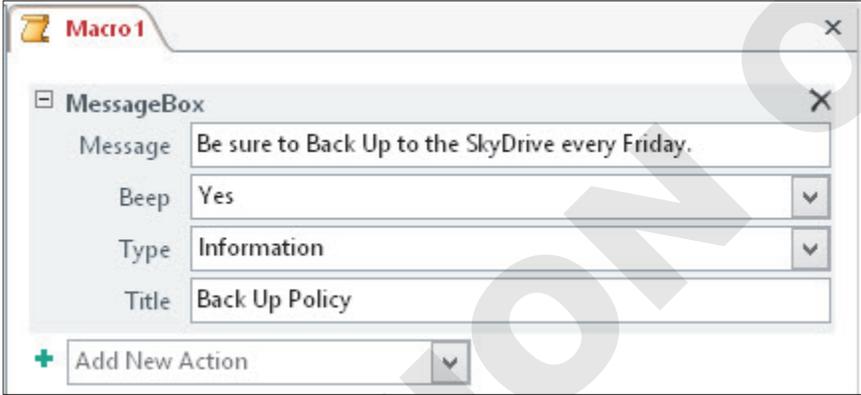
Creating a macro starts from the same Ribbon path used to create other database objects: the Create tab. The next step is to select the action desired from the Add New Action drop-down menu.

 Create→Macros & Code→Macro to create a macro

DEVELOP YOUR SKILLS: A11-D2

In this exercise, you will create a macro that will display a message box to provide basic directions on when and where to back up the Winchester Web Design database.

1. Choose **Create→Macros & Code→Macro** .
2. Choose **MessageBox** from the Add New Action drop-down menu.
3. Enter the following into the MessageBox text boxes:



The screenshot shows the 'Macro1' dialog box with the 'MessageBox' action selected. The configuration is as follows:

Message	Be sure to Back Up to the SkyDrive every Friday.
Beep	Yes
Type	Information
Title	Back Up Policy

At the bottom, there is an 'Add New Action' button with a plus sign and a dropdown arrow.

4. Save the macro as **Back Up Policy**.
5. Choose **Design→Tools→Run**  to test the macro.
6. Click **OK** to close the message box.
7. Close the **Back Up Policy** macro.

Back Up Policy is now listed in the Navigation pane under the Macros group heading.

Using Macros to Display Adaptable Reports

Now that you have created a simple macro to display a reminder message, you can add a command button to a form that will run a macro to display a report.

DEVELOP YOUR SKILLS: A11-D3

In this exercise, you will create a macro button that will be placed on the Employees Form to display a report of all the sales for the specific employee selected.

1. Choose **Create→Macros & Code→Macro** .
2. Choose **OpenReport** from the Add New Action drop-down menu.

3. Click the **Report Name** menu ▼ and choose **Invoice Details Report**.

4. Enter the following into the OpenReport text boxes:

As you start to enter in the Where Condition text box, Access will suggest field names from a drop-down menu, allowing you to quickly and more accurately select from the list.

5. Save the macro as **Invoice Details Report by Employee**.

6. Display the **Employees Form** in **Design View**.

7. Choose **Design**→**Controls**→**Button**  and draw a button in the top-right corner of the Details section of the Employees Form.

The Command Button Wizard starts.

8. Choose the **Miscellaneous** category and then choose the **Run Macro** action.

9. Click **Next** and then choose **Invoice Details Report by Employee**.

10. Click **Next**, accept the default macro picture, and click **Next** again.

11. Name the button **cmdRptByEmployees** and click **Finish**.

12. Switch to **Form View** and navigate to **Mike Waters** (EmpID MJW).

13. Click the new **Run Macro** button to display all records in which the EmpID is **MJW**.

14. Close the report and form, saving the changes to the form.

Managing Database Objects

Protecting databases and the quality of data they contain is vital to the reliability and performance of any database. At the same time, learning efficient ways to manage database objects helps to save a great deal of time as you build a database.

General Cleanup and Maintenance

The general cleanup and maintenance of a database can be accomplished in a number of ways. You can delete unneeded or duplicate database objects, rename database objects, and create new objects from existing objects.

Saving Database Objects As New Objects

You can use an existing file as a template for creating new files that may be similar in nature and format. For example, suppose you need to send each of your customers a letter that contains basically the same information. You can create the first letter, use the Save As command to save the original as a new file, and then edit the copy instead of having to retype all the information again.

Creating New Objects from Existing Objects

Often, databases contain separate objects that are similar in structure and in the data they hold. For example, the Employees table in the Winchester Web Design database contains fields similar to those found in the Customers table. When you build a database that contains similar objects, you can copy the original object, save it using a new name, and then modify the new object to fit its specific needs. Access provides two basic processes for copying objects:

- ▶ The Save Object As command opens the Save As dialog box and identifies the name of the object being copied along with an object type.
- ▶ Right-click the object you want to copy and choose Copy. Then, right-click the object area in the Navigation pane and choose Paste.

Renaming Database Objects

There are times when you create a table, query, form, or report and save it with the first name that comes to mind. Then, after working with the object for a while, you might want a better name. To rename a database object, right-click the object and choose the Rename option. Access will automatically rename all the relationships and record sources that use the renamed object. For instance, if you update the Invoices table to Orders, the record source for the queries, forms, and reports that are based on the table will be updated to reflect the new name.

Deleting Database Objects

During the development of a database there are times when it is wise to create a temporary table, query, form, or report for testing purposes. Once the database is completed, you should remove these objects so they don't clutter the Navigation pane or confuse users. To delete unwanted database objects, either right-click an object and choose the Delete option from the pop-up menu or select the table, query, form, or report and simply tap the **Delete** key.

DEVELOP YOUR SKILLS: A11-D4

In this exercise, you will copy a report, rename a report, and delete a report. Then, you will save a table in the Winchester Web Design database as a new table and edit the field names for the new table.

1. Right-click the **Products Report** in the Navigation pane and choose **Copy**.
2. Right-click again and choose **Paste**, keep *Copy Of Products Report* as the Report Name, and click **OK**.
3. Right-click *Copy Of Products Report*, choose **Rename** from the menu, type **Delete This Report Later**, and then tap **[Enter]**.
4. Select the **Delete This Report Later** report in the Navigation pane.
5. Tap **[Delete]** and click **Yes** to confirm the deletion.
6. Open the **Employees** table.
7. Choose **File**→**Save As**→**Save Object As**→**Save As**.
8. Type **Business Contacts** in the **Save 'Employees' To** text box and click **OK**.
9. Switch to **Design View**.
10. Select and edit the **Business Contacts** field names, replacing each *Emp* prefix with a **Bus** prefix (so *EmpID* is *BusID*, and *EmpLastName* is *BusLastName*, and so on.).
11. Right-click the **HireDate** field, choose **Delete Rows**, and click **Yes** to confirm the decision.
12. Delete the **WebCert** field and then save the changes to the **Business Contacts** table.
13. Switch to **Datasheet View** to confirm your changes and then close the **Business Contacts** table.

Backing Up a Database

All databases should be safeguarded to protect their data. Most organizations have a scheduled procedure to back up all files on their network, including the databases.

When you back up a database using the built-in Access tools, Access automatically places the date of the backup in the filename so you can easily identify and retrieve each backup file. You choose the drive and folder in which you want to save the backup. To restore the database, simply open the backup.

DEVELOP YOUR SKILLS: A11-D5

In this exercise, you will back up your Winchester Web Design database.

1. Close any open objects in the Winchester Web Design database.
2. Choose **File**→**Save As**→**Save Database As**→**Back Up Database** and then click the **Save As** button.

Access opens the Save As dialog box and adds the current date to the end of the filename.

3. Save the file in your **Access Chapter 11** folder.

Access saves the backup file to the desired location; however, the database file in use is still the original Winchester Web Design database.

4. Close the database, navigate to your **Access Chapter 11** folder, and open the backup database.

A backup is only as current as the time the backup was created. It's important to have a policy that schedules and mandates a daily or weekly backup.

5. Close the backup database and reopen **A11-D1-WinWebDesignRevised**.
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Analyzing and Documenting Databases

Each time you change the design or content of a database, the chance that the database will become corrupted increases. Access contains several tools that help you protect, document, analyze, and even repair databases. The main tools found in the Analyze group on the Database Tools tab are:

- ▶ **Performance Analyzer:** Analyzes the performance of a database to locate and identify potential trouble spots that affect how the database functions.
- ▶ **Database Documenter:** Documents objects in the database so that you can track changes to the design and relationships in the database; builds an Object Definition document that provides a detailed description of each database object.

Reviewing and Analyzing Performance

When you run the Performance Analyzer, Access reviews each selected object in the database, looks at all the relationships that exist, and identifies any problems that might affect database performance. Access often makes recommendations for improvements to optimize the efficiency of the database. In some cases, Access identifies tables in which no primary key is set. In other cases, Access will suggest a more efficient data type or that you use fewer controls on a form.

However, some changes recommended by the Performance Analyzer may not be necessary. For example, Access frequently recommends that phone numbers be formatted using the Number data type. Not only is this unnecessary, it may even cause problems for extensions that are commonly preceded by an X, such as X209. As you review the recommended changes, you will begin to identify those requiring your attention and those you can ignore.

Two options for analyzing database performance are available. The Analyze Performance tool enables you to choose those objects that you want to analyze. The Analyze Table tool analyzes a table using the Table Analyzer Wizard.

Documenting a Database

As you plan a new database you must analyze the needs of the business and the requirements of the database. In the process, you create a list of fields required and then organize and group those fields into the tables that will provide the data for forms, queries, and reports. The list identifies and defines each field and the tables and objects in which the fields are used within the database. When the database is finished, you may choose to document the database so that it can be efficiently updated and maintained in the future.

Documentation provides insight into the structure of the entire database as well as the structure of each object within the database. Maintaining a database can be very time-consuming. Without proper documentation to identify potential impacts of changing field properties, object structures, and so forth, you can potentially corrupt one database object that, in turn, wreaks havoc in the entire database. Each time you change the structure of any database object, remove an object from, or add an object to the database, you should run the Database Documenter to provide up-to-date documentation about the database. Such information will prove invaluable to database administration.

DEVELOP YOUR SKILLS: A11-D6

In this exercise, you will analyze and document your Winchester Web Design database.

1. Choose **Database Tools**→**Analyze**→**Analyze Performance** .
The Performance Analyzer opens.
2. Click the **Tables** tab and click **Select All** to check all the tables listed.
3. Click **OK** and view the suggestions under Analysis Notes.
The data types have been set properly, so you can ignore the suggested ideas.
4. Click **Close**.
5. Choose **Database Tools**→**Analyze**→**Database Documenter** .
The Documenter opens.
6. Click the **Tables** tab, check the **InvoiceDetails**, **Invoices**, and **Products** tables, and then click **OK**.
Access produces a report that is about a dozen pages long documenting the tables, fields, and relationships of the selected tables.
7. Scroll through the report and examine the documentation provided.
8. Close Print Preview and then choose **Data**→**Excel**  to export the report to an Excel spreadsheet.
9. Check the **Open the Destination File After the Export Operation is Complete** box, if necessary.
10. Click **Browse**, navigate to your **Access Chapter 11** folder, type **A11-D6-Objects** as the file-name, click **Save**, and then click **OK**.
11. Browse through the Excel spreadsheet and close it when finished.
12. Close the **Export – Excel Spreadsheet Wizard**, without saving the export steps, and then close the Print Preview.

Compacting and Repairing a Database

When you delete a record in Access, it is not really deleted—it is marked for deletion. The process of marking a record as deleted is quicker than completely deleting and reordering or rewriting all the records in a table. A similar process is used when you shorten the contents of a record—the space that was used for the longer data is not released.

As you work with databases, they can also become sluggish and the data stored in the databases can become **fragmented**—that is, parts of your database file become separated by incidental data that has been added to the disk you are using. For example: If you saved a ten megabyte database file to your hard drive and saved an Excel spreadsheet to the same hard drive shortly afterwards, it would be written next to the ten megabyte database file. Then, if a large group of new records were added to the database file, they would have to be stored after the Excel file and not after the original database file, because the adjacent space is now occupied by the spreadsheet. As you add more records and save other files, both your files and storage drive become fragmented and less efficient.

Consequently, over time databases can become bulky and inefficient. This issue can be resolved by **compacting**—or compressing—your database to remove wasted and unused space left from deleted and edited records.

To ensure optimal performance, Access enables you to *compact* and *repair* databases as often as you want. Sometimes Access recognizes a problem when a database is opened and attempts to repair the file before you work with it. Even if there is no file corruption, the normal maintenance tasks of adding, deleting, and editing records, creating and running queries, and so forth, may reduce database performance. As a result, you may want to compact and repair the database manually on a regular basis, or set an option to automatically compact the database whenever you close Access.

DEVELOP YOUR SKILLS: A11-D7

In this exercise, you will compact and repair your Winchester Web Design database.

1. Close any open database objects.
2. Choose **Database Tools**→**Tools**→**Compact and Repair Database** .

Access compacts and repairs the file. Because the database is relatively small, the compact and repair process takes only a moment. For larger databases, the process will take longer.

3. Close **A11-D1-WinWebDesignRevised** and exit Access.

Setting Database Security

Imagine that your doctor stores all your medical records in a large database that could be accessed by hospitals, clinics, and medical insurance companies who want to know more about the medications you take, conditions you might have, and doctor's visits. Databases, by nature, often hold confidential information. As a result, security is *imperative*. Companies that maintain large database files often restrict access to databases at the login or server level. Splitting a database can protect the data contained in databases, and Access offers tools that enable you to secure a database by assigning a password.

Opening a Database Exclusively

Most large business databases are designed to provide access to multiple users at the same time. As a result, the default setting for a database is as a shared file. Before you can set security for a database, you must first ensure that no one else is currently using the database. You do this by opening the file exclusively so that Access locks the database and prevents others from accessing it at that time.

Opening Database Commands

The Open dialog box contains numerous commands for opening databases after a file has been selected. The following table identifies and describes when you should use each command on the Open drop-down menu.

COMMANDS FOR OPENING DATABASES

Command	Description
Open	Provides full and typical access to the database, its objects and menus, so you can create and edit.
Open Read Only	Opens the database so that you can view and print data but does not allow design changes. However, you can save the database as a new file and edit the new file.
Open Exclusive	Opens the database and locks it to prevent other users in a shared environment from accessing the database.
Open Exclusive Read-Only	Opens the database and locks it so other users cannot access it and prevents edits to data and database objects.

DEVELOP YOUR SKILLS: A11-D8

In this exercise, you will open the *Winchester Web Design* database exclusively.

1. If necessary, start Access; close **A11-D1-WinWebDesignRevised** if it is open.
2. Choose **File**→**Open**, navigate to your **Access Chapter 11** folder, and click **A11-D1-WinWebDesignRevised** but *do not* open the database.
3. Click the **Open menu** ▼ and choose **Open Exclusive**, enabling content if necessary.

Encrypting a Database Using a Password

Regardless of whether a backup routine is in place, valuable time can be lost reconstructing data if unauthorized users damage the database. Database passwords are intended to protect the database just as the passwords you use to access bank accounts or email accounts protect your financial and personal information.

Limits of Passwords

Database passwords provide limited security for databases by preventing unauthorized users from opening the database. You can set a password for any database you have on your personal computer, just as systems administrators set a password for shared databases on a network.

Tip!

Access passwords are case sensitive, or capable of distinguishing between characters typed in uppercase and characters typed in lowercase.

Strong Passwords

Access passwords can use a combination of upper- and lowercase characters, symbols, and numbers. Access allows you to use any combination of characters in passwords *except* “ \ [] : | < → + = ; , . ? and *”. Strong passwords are at least eight characters long and contain at least one of each of the character types listed above. Passwords cannot start with a space.

Weak Password: webdesign

Strong Password: Hard2Cr@ck

Setting Up Databases for Assigning Passwords

To assign a database password, the database must initially be closed. The default access setting for databases that appear on a network is as a shared database, accessible to anyone who has access to its file location. To set a password, you must open the database *exclusively* using the Open Exclusive command in the Open dialog box. This ensures that no one else is currently using the database and that, once you open it, other users are prohibited from opening it until you close it. If the file is not opened exclusively, you will get a warning message.

Note!

The *Encrypt with Password* command on the File menu is a toggle command. When a database has a password, the command button shows *Decrypt Database*.

DEVELOP YOUR SKILLS: A11-D9

In this exercise, you will set a database password to protect the database.

Your *Winchester Web Design* database should be open in exclusive mode.

1. Choose **File**→**Info**→**Encrypt with Password**.
2. Type **labyrinth** in the Password text box and type **labyrinth** again in the Verify text box, then click **OK**.
3. Click **OK** to acknowledge that row level locking will be ignored.
4. Close **A11-D1-WinWebDesignRevised** and then open it again.

Warning!

If you forget your password, you will not be able to open your database.

5. In the Password Required dialog box, type **labyrinth** in the Enter Database Password text box and then click **OK**.

You must open the database exclusively again if you want to change or remove the password.

6. Close **A11-D1-WinWebDesignRevised** and exit Access.

Self-Assessment



Check your knowledge of this chapter's key concepts and skills using the Self-Assessment on the Student Resource Center.

Reinforce Your Skills

REINFORCE YOUR SKILLS A11-R1

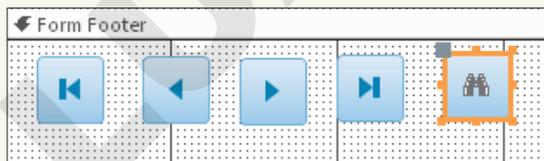
Add Command Buttons, Create a Macro, and Manage Objects

In this exercise, you will wrap up some of the final tasks associated with the Kids for Change database. You will add command buttons to the Activities Form, create macros to increase efficiency, and do some cleanup tasks by copying, renaming, and deleting objects.

1. Start Access, open **A11-R1-K4C** from your **Access Chapter 11** folder, close any open objects, and then save the file as **A11-R1-K4CRevised**.

Add Command Buttons to a Form

2. Enable content then close the **K4C Navigation Form**, if necessary.
3. Open the **Activities Form** in **Design View** and open the **Property Sheet**, if necessary.
4. Click the **Form Footer** section bar. Type **0.75"** for the Height on the Property Sheet.
5. Choose **Design**→**Controls**→**Button**  and draw a button in the Form Footer under the Telephone label.
The Command Button Wizard opens.
6. Under *Record Navigation*, choose the **Go To First Record** action. Click **Next**.
The wizard displays a sample button picture for each action.
7. Click the **Picture** option, choose **Go To First**, and click **Next**.
8. Enter **cmdFirst** for the Meaningful Name and click **Finish**.
The command button shows the Go to First image in the Form Footer section and is programmed to go to the first record when in Form View.
9. Add, in the order listed, command buttons for **Previous** (Go To Previous Record: **cmdPrevious**), **Next** (Go To Next Record: **cmdNext**), **Last** (Go To Last Record: **cmdLast**), and **Find** (Find Record: **cmdFind**).



The command buttons should appear in the order shown.

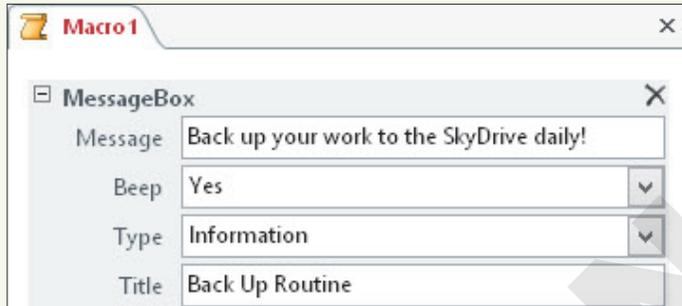
10. Draw a button to the right of the Find button. When the Command Button Wizard opens, choose **Report Operations** and **Preview Report**. Click **Next**.
11. Select the **Activity Costs Report** as the Report to Preview and click **Next**.
12. Choose the **Preview** picture on the next screen, if necessary, and click **Next**.
13. Enter the name **cmdPreviewCosts** and click **Finish**.
14. Select the new command buttons and choose **Arrange**→**Sizing & Ordering**→**Align Top**.

All of the command buttons are aligned to the top.

15. With all the buttons selected, choose **Arrange**→**Size & Ordering**→**Size/Space**→**Equal Horizontal**.
16. Switch to **Form View** and test each of the new buttons.
17. Close the **Activity Costs Report**; save and close the **Activities Form**.

Create a New Macro

18. Choose **Create**→**Macros & Code**→**Macro**  to create a macro that displays a reminder message.
19. Choose **MessageBox** from the Add New Action drop-down menu.
20. Enter the following:



21. Save the macro as **Back Up Routine**.
22. Choose **Tools**→**Run** .
The Back Up Routine Information message box opens.
23. Click **OK** to close the message box. Close the **Back Up Routine** macro.
Back Up Routine is now listed under Macros in the Navigation pane.

Create a Macro to Display Adaptable Reports

24. Choose **Create**→**Macros & Code**→**Macro** .
25. Choose **OpenReport** from the Add New Action menu.
26. Choose **Volunteers Report** from the Report Name menu.
27. Choose **Report** for the view type.
28. Type **[ActID]=[Forms]![Activity Staffing]![ActID]** for the Where Condition.
29. Save the macro as **Available Volunteers** and close it.
30. Display the **Activity Staffing** form in **Design View**.
31. Choose **Design**→**Controls**→**Button**  and draw the new button to the right of the Day and Meet Time controls.
32. Choose the **Miscellaneous** category and the **Run Macro** action.
33. Click **Next** then choose **Available Volunteers**.
34. Click **Next**, accept the default macro picture, and click **Next** again.
35. Name the button **VolunteersMacro** and click **Finish**.
36. Switch to **Form View**.

37. Click the new **VolunteersMacro** button.

The macro button displays the Volunteers Report record for the activity on the form.

To display the Volunteers Report for another activity, close the report, navigate to the desired activity, and click the macro command button.

38. Close the **Volunteers Report**; save and close the **Activity Staffing** form.

Rename, Delete, and Save Object As a New Object

39. Right-click **Venues Report** in the Navigation pane and choose **Copy**.
40. Right-click again and choose **Paste**. Type **Delete This Report** as the report name and click **OK**.
41. Select **Delete This Report** in the Navigation pane.
42. Tap **Delete**; click **Yes** to confirm the deletion.
43. Open the **PaidStaff** table.
44. Choose **File**→**Save As**→**Save Object As**→**Save As**.
45. Type **Professional Contacts** in the Save 'PaidStaff' To text box and click **OK**.
46. Display the new **Professional Contacts** table in **Design View**.
47. Edit the field names in the **Professional Contacts** table, replacing each *Staff* prefix with a **Prof** prefix (so that StaffID is ProfID, etc.).
48. Right-click the **Parent** field and choose **Delete Rows**; confirm the deletion.
49. Delete the **Masters, ActID**, and **HrlySal** fields. Click **Yes** to permanently delete the fields and to delete the ActID indexes.
50. Rename *Email Address* as **ProfEmail**.
51. Save and close the **Professional Contacts** table, close the database, and exit Access.

REINFORCE YOUR SKILLS A11-R2

Perform Database Maintenance and Set a Password

In this exercise, you will perform some maintenance procedures on the Kids for Change database. You will also add a password to protect the data from unauthorized users.

1. Start Access, open **A11-R2-K4C** from your **Access Chapter 11** folder, close any open objects, and then save the file as **A11-R2-K4CRevised**.

Back Up a Database

2. Enable content and close the **K4C Navigation Form**.
3. Choose **File**→**Save As**→**Save Database As**→ **Back Up Database**.
4. Click the **Save As** button.
5. Navigate to your **Access Chapter 11** folder and click **Save**.
6. Return to your **Access Chapter 11** folder and open the backup database to confirm that you can access it. Close the backup database.

Analyze and Document a Database

7. Choose **Database Tools**→**Analyze**→**Analyze Performance** .
8. Click the **Tables** tab and click **Select All** to check all the tables listed.
9. Click **OK** and view the Analysis Results.
Because the data types have already been set properly, you can ignore the suggested ideas.
10. Click **Close**.
11. Choose **Database Tools**→**Analyze**→**Database Documenter** .
12. Click the **Tables** tab, check the **Activities** and **PaidStaff** tables, and click **OK**.
The report documents the tables, fields, and relationships of the selected tables.
13. Choose **Data**→**More**→**Word**  to export the report to a Word RTF.
14. Browse to your **Access Chapter 11** folder, type **A11-R2-Tables.rtf** as the filename, check the **Open the Destination File After the Export Operation is Complete** box, and click **OK**.
Access creates and opens the Word document.
15. Page through the Word document. Then close it and exit Word.
16. Close the **Export – RTF File** dialog box without saving the export steps and then close Print Preview.

Compact and Repair a Database

17. Close any open database objects.
18. Choose **File**→**Info**→**Compact & Repair Database** .
Access has compacted and repaired the file. The K4C Navigation Form might open, depending on your system.
19. Close **A11-R2-K4CRevised** and exit Access.

Open a Database for Exclusive Use

20. Start Access and choose **Open Other Files**, navigate to your **Access Chapter 11** folder, and click **A11-R2-K4CRevised**—but *do not* open it.
21. Click the **Open menu** ▼ and choose **Open Exclusive**.
22. Enable content, if necessary when the database opens.
No one else will be able to use the database until you exit Access.

Set a Database Password

Because you opened the database exclusively, you can set a password to open the database.

23. Choose **File**→**Info**→**Encrypt with Password**.
24. Type **labyrinth** as the password. Verify the password by typing it again and then click **OK**.
25. Click **OK** to acknowledge the message about row-level locking.
26. Close **A11-R2-K4CRevised** and then open it again.
Access displays the Password Required dialog box.
27. Type **labyrinth** in the text box and click **OK**.
28. Close the database and exit Access.

Apply Your Skills

APPLY YOUR SKILLS A11-A1

Add Command Buttons, Create a Macro, and Manage Objects

You have to perform maintenance on the Universal Corporate Events database. In this exercise, you will add command buttons to the Wage and Salary Form and create macros to increase efficiency. You will also clean up some of the database objects to ensure that the database runs smoothly.

1. Start Access, open **A11-A1-UCE** from your **Access Chapter 11** folder, close any open objects, and then save the file as **A11-A1-UCERevised**.

Add Command Buttons to a Form

2. Enable content and close the **UCE Navigation Form**, if necessary.
3. Open the **Wage and Salary Form** in **Design View**.
4. Click the **Form Footer** section bar and type **0.75"** for the Height property on the Property Sheet.
5. Draw a button in the Form Footer under the Detail section labels.
6. In the Record Navigation category, choose **Go To First Record** and click **Next**.
7. Click the **Picture** option, choose **Go To First**, and click **Next**.
8. Enter **cmdFirst** for the Meaningful Name and click **Finish**.
The command button is programmed to go to the first record when in Form View.
9. Add, in the order listed, command buttons for Go To Previous Record: **cmdPrevious**, Go To Next Record: **cmdNext**, Go To Last Record: **cmdLast**, and Find Record: **cmdFind**.
10. Draw a button to the right of the Find button. In the Command Button Wizard, choose **Report Operations** and **Preview Report** and click **Next**.
11. Select the **Wage and Salary Report** as the Report to Preview, and click **Next**.
12. Choose the **Preview** picture, if necessary, and click **Next**.
13. Enter the name **cmdPreviewReport** and click **Finish**.
14. Select all new command buttons and choose **Arrange→Sizing & Ordering→Align→Top**. Then choose **Arrange→Size & Ordering→Size/Space→Equal Horizontal**.
15. Switch to **Form View** and test the buttons.
16. Close the **Wage and Salary Report**.
17. Save and close the **Wage and Salary Form**.

Create Macros

18. To add a macro for a backup reminder, choose **Create→Macros & Code→Macro** .
19. Choose **MessageBox** from the Add New Action drop-down menu.
20. Use **Back up work to the OneDrive on Friday** as the message, choose **Information** for the type, and use **Back Up Policy** for the title.

21. Save the macro as **Back Up Policy** and then run it.
22. Click **OK** to close the information box then close the **Back Up Policy** macro.
23. Choose **Create**→**Macros & Code**→**Macro** .
You will create a macro that opens the Event Revenue Report for the Event ID shown on the form.
24. Choose **OpenReport** for the Add New Action.
25. Choose **Event Revenue Report** for the Report Name and **Report** for the View.
26. Type this text for the Where Condition: **[Forms]![Event Costs]![EventID]=[Event Revenue]![EventID]**
27. Save the macro as **Event Revenue by Name** and then close it.
28. Display the **Event Costs** form in **Design View**.
29. Draw a new button under the Cost Details label.
30. Choose the **Miscellaneous** category and then choose the **Run Macro** action.
31. Click **Next** and choose your new **Event Revenue by Name** macro.
32. Click **Next**, accept the default macro picture, and click **Next** again.
33. Name the button **cmdEventRevenue** and click **Finish**.
34. Switch to **Form View** and navigate to the first record with an Event ID of **BUSMTG**.
35. Click the new **Run Macro** button and enter **BUSMTG** in the pop-up box.
The revenue report for this event is displayed. You can display the report for other Event IDs by navigating to the event, running the macro, and entering the Event ID in the pop-up box.
36. Close the **Event Revenue Report**; save and close the **Event Costs** form.

Rename, Delete, and Save an Object as a New Object

37. Right-click the **Personnel Report** in the Navigation pane and choose **Copy**.
38. Right-click **Personnel Report** again, choose **Paste**, and then click **OK**.
39. Right-click **Copy Of Personnel Report**, choose **Rename**, and change the name to **Delete This Report**.
40. Make sure *Delete This Report* is selected and then tap  and click **Yes** to confirm the deletion.
41. Open the **Menus** table.
42. Choose **File**→**Save As**→**Save Object As** and click the **Save As** button.
43. Type **Products** in the Save 'Menus' To text box and click **OK**.
44. Display the new **Products** table in **Design View**.
45. In the **Products** table, change *MenuCode* to **ProdCode**, *MenuPlan* to **ProdPlan**, change *ChgPP* to **Cost**, and *CostPP* to **Price**.
46. Save and close the new **Products** table.
47. Close the database and exit Access, choosing **Yes** to empty the Clipboard.

APPLY YOUR SKILLS A11-A2

Perform Database Maintenance and Set a Password

The UCE database requires regular tune-ups to run smoothly. In this exercise, you will perform some maintenance procedures to reduce wasted space, defragment objects, and improve efficiency. You will also add a password to protect data from unauthorized users.

1. Start Access, open **A11-A2-UCERevised** from your **Access Chapter 11** folder, close any open objects, and then save the file as **A11-A2-UCERevised**.

Back Up a Database

2. Enable content and close the **UCE Navigation Form**.
3. Choose **File**→**Save As**→**Save Database As**→**Back Up Database**  →**Save As**.

The current date is added to the end of the database filename.

4. Save the file in your **Access Chapter 11** folder.
5. Open the backup database to confirm that you can access it and then close the backup database.

Analyze, Document, Compact, and Repair a Database

6. Choose **Database Tools**→**Analyze**→**Analyze Performance** .
 7. Click the **Tables** tab and click **Select All** to check all the tables listed.
 8. Click **OK** to view the information presented and then click **Close**.
 9. Choose **Database Tools**→**Analyze**→**Database Documenter** .
- The Documenter opens.*
10. Click the **Tables** tab, check the **Menus** and **Schedules** tables, and click **OK**.
Access generates a report for the tables, fields, and relationships of the selected tables.
 11. Page through the report and examine the documentation provided.
 12. Choose **Data**→**More**→**Word**  to export the documentation to Word.
 13. Browse to your **Access Chapter 11** folder, use **A11-A2-MenuSched.rtf** as the filename, and click **Save**.
 14. Check the **Open the Destination File After the Export Operation is Complete** box and click **OK**.
 15. Exit Word. Close the **Export – RTF File** dialog box without saving the export steps and close **Print Preview**. Close any open database objects.
 16. Choose **Database Tools**→**Tools**→**Compact and Repair Database** .
 17. Close the database.

Open a Database for Exclusive Use and Set a Database Password

18. Navigate to your **Access Chapter 11** folder and click **A11-A2-UCERevised**—but *do not* open it.
19. Click the **Open menu** ▼ and choose **Open Exclusive**.

20. Enable content, if necessary.
21. To set a password for the database, choose **File**→**Info**→**Encrypt with Password**.
22. Type **labyrinth** as the password, verify the password, and click **OK**.
23. Click **OK** to acknowledge the encrypting message.
24. Close and reopen **A11-A2-UCERevised**, entering the password when prompted.
25. Close the database and exit Access.

EVALUATION ONLY