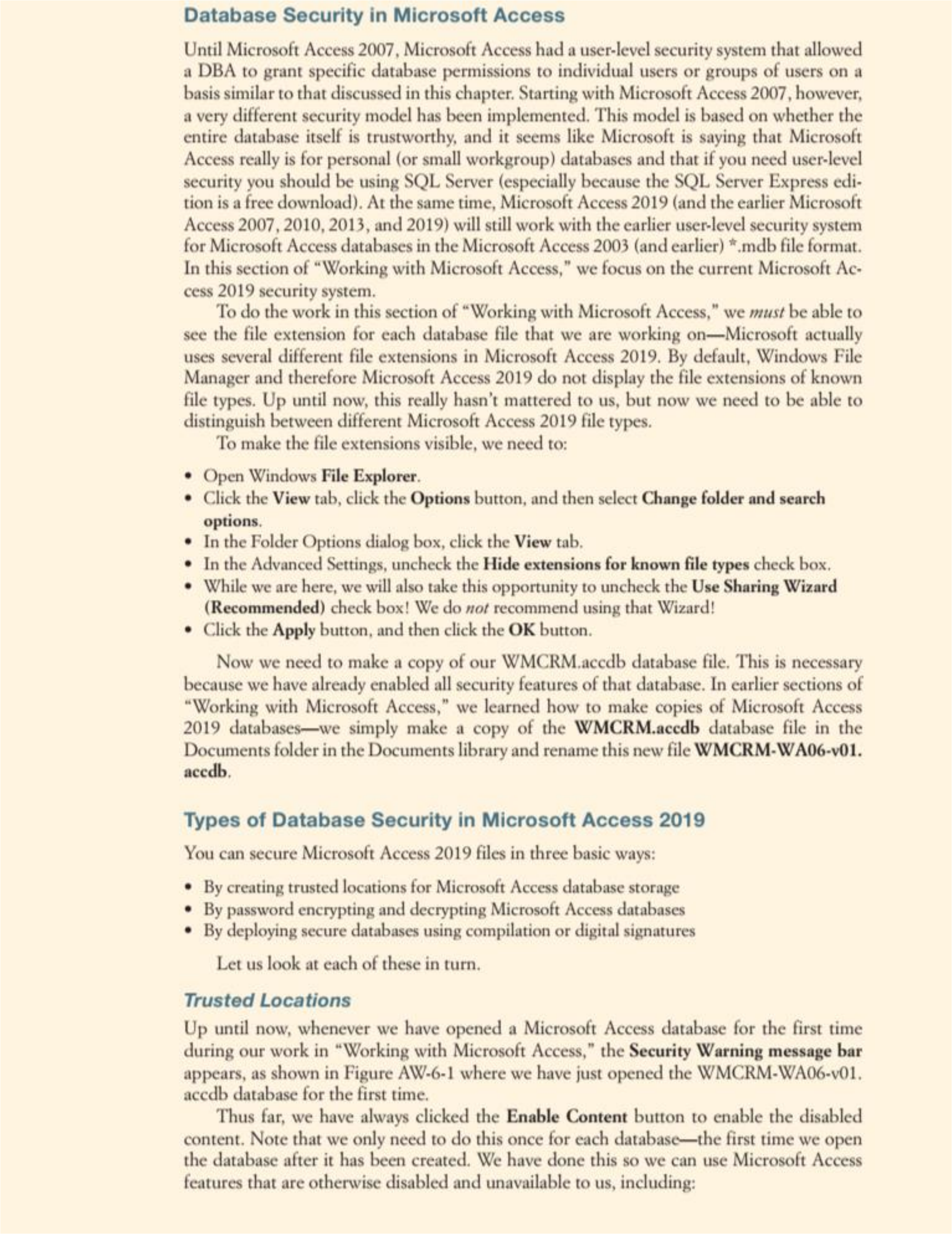


Database Security in Microsoft Access

Until Microsoft Access 2007, Microsoft Access had a user-level security system that allowed a DBA to grant specific database permissions to individual users or groups of users on a basis similar to that discussed in this chapter. Starting with Microsoft Access 2007, however, a very different security model has been implemented. This model is based on whether the entire database itself is trustworthy, and it seems like Microsoft is saying that Microsoft Access really is for personal (or small workgroup) databases and that if you need user-level security you should be using SQL Server (especially because the SQL Server Express edition is a free download). At the same time, Microsoft Access 2019 (and the earlier Microsoft Access 2007, 2010, 2013, and 2019) will still work with the earlier user-level security system for Microsoft Access databases in the Microsoft Access 2003 (and earlier) *.mdb file format. In this section of "Working with Microsoft Access," we focus on the current Microsoft Access 2019 security system.

To do the work in this section of "Working with Microsoft Access," we *must* be able to see the file extension for each database file that we are working on—Microsoft actually uses several different file extensions in Microsoft Access 2019. By default, Windows File Manager and therefore Microsoft Access 2019 do not display the file extensions of known file types. Up until now, this really hasn't mattered to us, but now we need to be able to distinguish between different Microsoft Access 2019 file types.

To make the file extensions visible, we need to:

- Open Windows **File Explorer**.
- Click the **View** tab, click the **Options** button, and then select **Change folder and search options**.
- In the Folder Options dialog box, click the **View** tab.
- In the Advanced Settings, uncheck the **Hide extensions for known file types** check box.
- While we are here, we will also take this opportunity to uncheck the **Use Sharing Wizard (Recommended)** check box! We do *not* recommend using that Wizard!
- Click the **Apply** button, and then click the **OK** button.

Now we need to make a copy of our WMCRM.accdb database file. This is necessary because we have already enabled all security features of that database. In earlier sections of "Working with Microsoft Access," we learned how to make copies of Microsoft Access 2019 databases—we simply make a copy of the **WMCRM.accdb** database file in the Documents folder in the Documents library and rename this new file **WMCRM-WA06-v01.accdb**.

Types of Database Security in Microsoft Access 2019

You can secure Microsoft Access 2019 files in three basic ways:

- By creating trusted locations for Microsoft Access database storage
- By password encrypting and decrypting Microsoft Access databases
- By deploying secure databases using compilation or digital signatures

Let us look at each of these in turn.

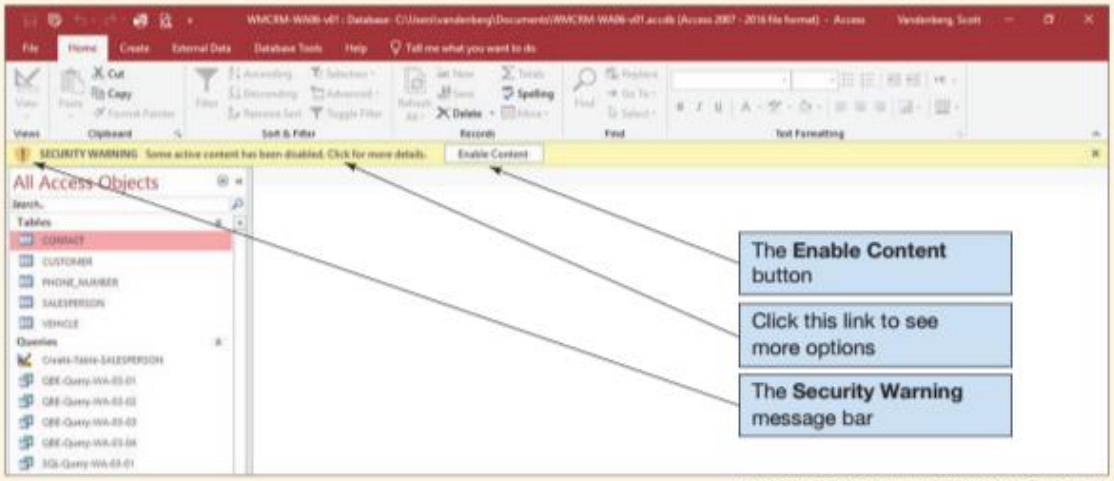
Trusted Locations

Up until now, whenever we have opened a Microsoft Access database for the first time during our work in "Working with Microsoft Access," the **Security Warning message bar** appears, as shown in Figure AW-6-1 where we have just opened the WMCRM-WA06-v01.accdb database for the first time.

Thus far, we have always clicked the **Enable Content** button to enable the disabled content. Note that we only need to do this once for each database—the first time we open the database after it has been created. We have done this so we can use Microsoft Access features that are otherwise disabled and unavailable to us, including:

FIGURE WA-6-1

The Security Warning Message Bar



SECURITY WARNING Some active content has been disabled. Click for more details.

The **Enable Content** button

Click this link to see more options

The **Security Warning** message bar

Access 2019, Windows 10, Microsoft Corporation.

- Microsoft Access database queries (either SQL or QBE) that add, update, or delete data
- Data definition language (DDL) (either SQL or QBE) actions that create or alter database objects, such as tables
- SQL commands being sent from a Microsoft Access application to a database server, such as Microsoft SQL Server, that supports the Open Database Connectivity (ODBC) standard
- ActiveX controls

We obviously need the first two features if we are going to build Microsoft Access 2019 databases. The third feature is important if we are using a Microsoft Access 2019 database as an application front end (containing the application forms, queries, and reports) for data stored in an SQL Server database. Finally, **ActiveX controls** are software code written to Microsoft's **ActiveX specification**, and they are often used as Web browser plug-ins. The risk here is that Microsoft Access 2019 databases can be targeted by code written in ActiveX-compliant programming languages that can manipulate the databases just as Microsoft Access itself would.

Although we can simply click the **Enable Content** button to activate these features, note that Microsoft Access 2019 also provides other options for dealing with this security problem. If we click the link labeled *Some active content has been disabled. Click for more details* shown in Figure WA-6-1, we are switched to the Info page in the Backstage view and specifically to the Security Warning section of that page, as shown in Figure WA-6-2.

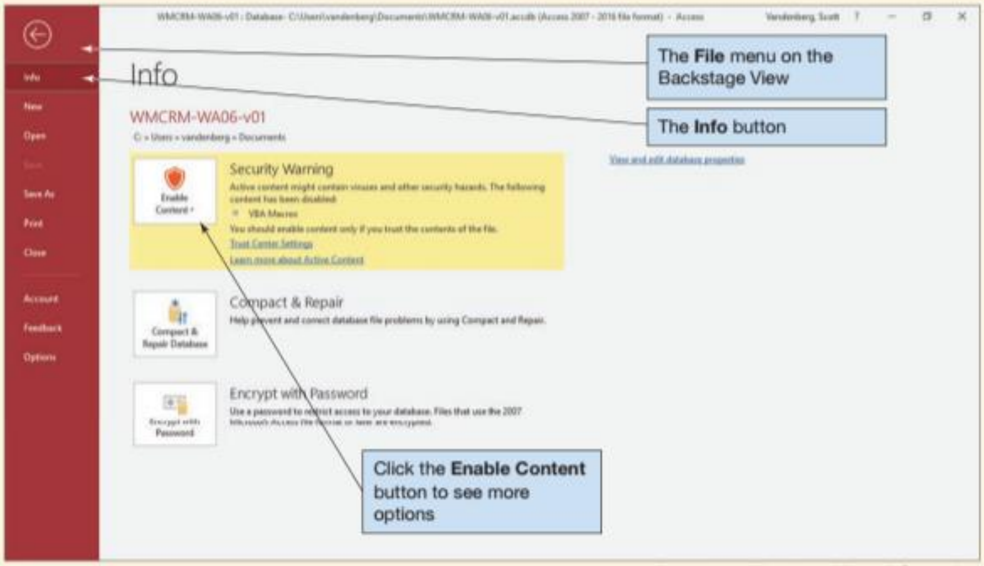
Clicking the **Enable Content** button displays two options, as shown in Figure WA-6-3—*Enable All Content* and *Advanced Options*. Clicking the **Enable All Content** button produces the same results as clicking the Enable Content button on the Security Warning toolbar, and all features of the database will always be available to us. Clicking the **Advanced Options** button displays the Microsoft Office Security Options dialog box, as shown in Figure WA-6-4.

The Microsoft Office Security Options dialog box provides the final two options. The first option is to allow Microsoft Access to continue to disable the possible security risks. Thus the *Help protect me from unknown content (recommended)* radio button is selected as the default. This option is the same as simply closing the Security Warning toolbar when it is first displayed. The second option is to enable the content in the database for *only* this

(*Continued*)

FIGURE WA-6-2

The Security Warning Section of the File | Info Page


WMCRM-WA06-v01 : Database- C:\Users\vandenberg\Documents\WMCRM-WA06-v01.accdb (Access 2007 - 2016 file format) - Access
Vandenberg, Scott
Info
New
Open
Save
Save As
Print
Close
Account
Feedback
Options
Info
WMCRM-WA06-v01
C: » Users » vandenberg » Documents
View and edit database properties
Enable Content
Compact & Repair Database
Encrypt with Password

Security Warning

Active content might contain viruses and other security hazards. The following content has been disabled:

- VBA Macros

You should enable content only if you trust the contents of the file.

Trust Center Settings

Learn more about Active Content

Compact & Repair

Help prevent and correct database file problems by using Compact and Repair.

Encrypt with Password

Use a password to restrict access to your database. Files that use the 2007 Microsoft Access file format or later are encrypted.

The **File** menu on the Backstage View

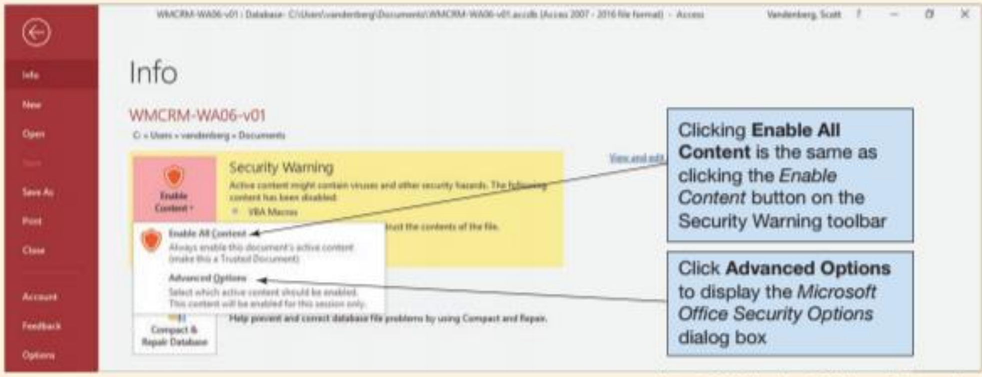
The **Info** button

Click the **Enable Content** button to see more options

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-3

The Enable Content Options


WMCRM-WA06-v01 : Database- C:\Users\vandenberg\Documents\WMCRM-WA06-v01.accdb (Access 2007 - 2016 file format) - Access
Vandenberg, Scott
Info
New
Open
Save
Save As
Print
Close
Account
Feedback
Options
Info
WMCRM-WA06-v01
C: » Users » vandenberg » Documents
View and edit
Enable Content
Enable All Content
Advanced Options
Compact & Repair Database

Security Warning

Active content might contain viruses and other security hazards. The following content has been disabled:

- VBA Macros

...trust the contents of the file.

Enable All Content: Always enable this document's active content (make this a Trusted Document)

Advanced Options: Select which active content should be enabled. This content will be enabled for this session only.

Help prevent and correct database file problems by using Compact and Repair.

Clicking **Enable All Content** is the same as clicking the *Enable Content* button on the Security Warning toolbar

Click **Advanced Options** to display the *Microsoft Office Security Options* dialog box

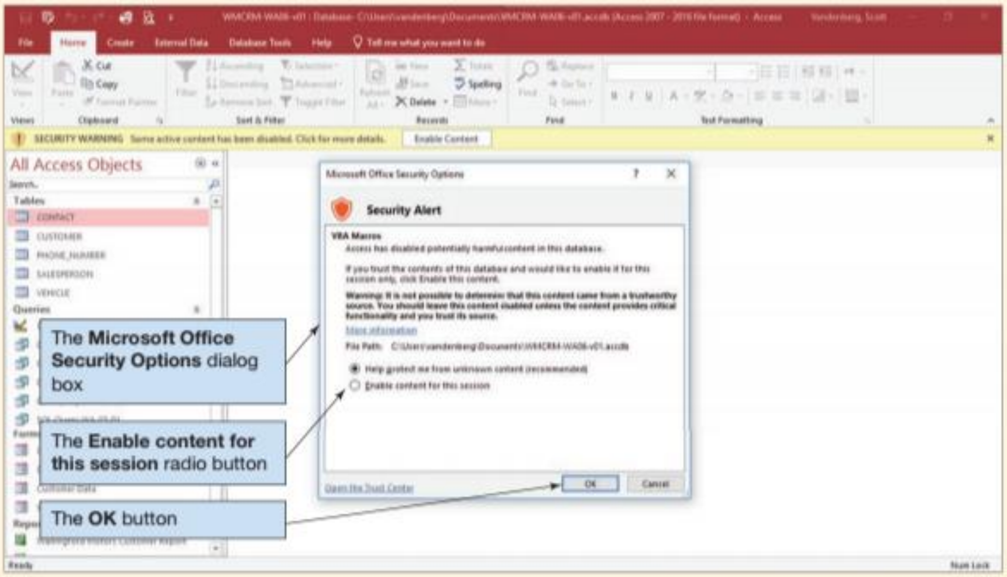
Access 2019, Windows 10, Microsoft Corporation.

use ("session") of the database by checking the *Enable content for this session* radio button. This is the first new choice we have really been given, and we will open the database using this option. Note that this means that the Security Warning message bar will be displayed again the next time this database file is opened!

However, we (nearly) always need these Microsoft Access features enabled. Is there a way to permanently enable them so that we do not have to deal with the Security Warning bar every time we open a new Microsoft Access database? Yes, there is.

FIGURE WA-6-4

The Microsoft Office Security Options Dialog Box



Microsoft Office Security Options

Security Alert

VBA Macros

Access has disabled potentially harmful content in this database.

If you trust the contents of this database and would like to enable it for this session only, click Enable this content.

Warning: It is not possible to determine that this content came from a trustworthy source. You should leave this content disabled unless the content provides critical functionality and you trust its source.

More information

File Path: C:\Users\vandenberg\Documents\WMCRM-WA06-v01.accdb

● Help protect me from unknown content (recommended)

○ Enable content for this session

The **Microsoft Office Security Options** dialog box

The **Enable content for this session** radio button

The **OK** button

Access 2019, Windows 10, Microsoft Corporation.

The word Microsoft uses to describe our situation is *trust*: Do we *trust the content* of our database? If so, we can create a **trusted location** in which to store our trusted databases. And databases we use from the trusted location are opened *without* the security warning but *with* all features enabled.

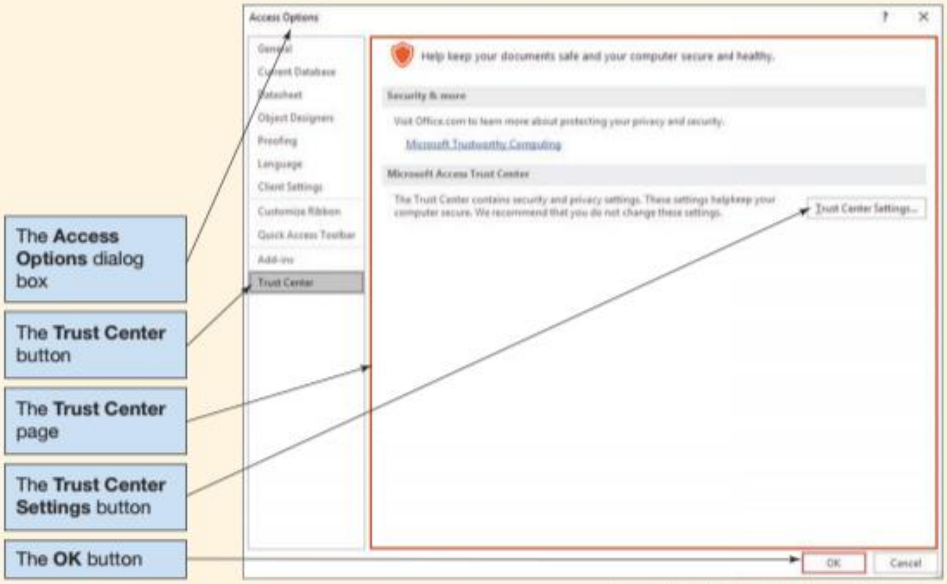
Creating a Trusted Location

1. Start Microsoft Access 2019.
2. Double-click the **WMCRM-WA06-v01.accdb** file in the Recent list, and then click the **Enable Content** button. If you are asked whether you want to make this database a trusted document, click the **No** button.
3. Click the **File** command tab to display the Backstage view.
4. Click the **Options** command on the Backstage view. The Access Options dialog box appears.
5. Click the **Trust Center** button to display the Trust Center page, as shown in Figure WA-6-5.
6. Click the **Trust Center Settings** button to display the Trust Center dialog box, as shown in Figure WA-6-6. Note that the *Message Bar Settings for all Office Applications* page is currently displayed and that the setting that enables the display of the Security Options message bar is currently selected.
7. Click the **Trusted Locations** button to display the Trusted Locations page, as shown in Figure WA-6-7. Note that the only currently trusted location is the folder that stores the Microsoft Access wizard databases. Also note that we have the ability to disable all trusted locations if we choose to do so.

(*Continued*)

FIGURE WA-6-5

The Access Options Trust Center Page



Help keep your documents safe and your computer secure and healthy.

Security & more

Visit Office.com to learn more about protecting your privacy and security.

Microsoft Trustworthy Computing

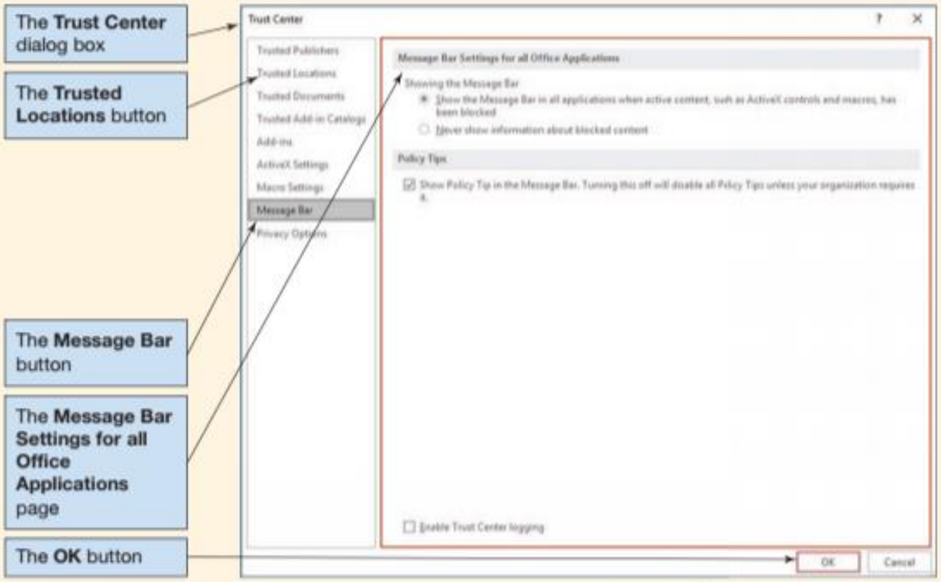
Microsoft Access Trust Center

The Trust Center contains security and privacy settings. These settings helpkeep your computer secure. We recommend that you do not change these settings.

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-6

The Trust Center Dialog Box



Message Bar Settings for all Office Applications

Showing the Message Bar

● Show the Message Bar in all applications when active content, such as ActiveX controls and macros, has been blocked

○ Never show information about blocked content

Policy Tips

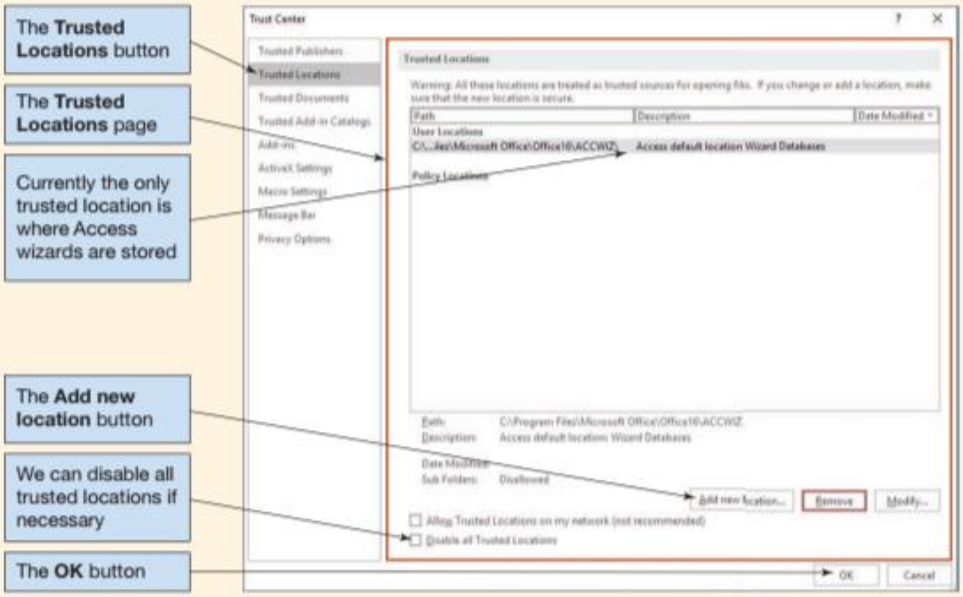
☑ Show Policy Tip in the Message Bar. Turning this off will disable all Policy Tips unless your organization requires it.

□ Enable Trust Center logging

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-7

The Trusted Locations Page



Warning: All these locations are treated as trusted sources for opening files. If you change or add a location, make sure that the new location is secure.

Path	Description	Date Modified
C:\...iles\Microsoft Office\Office16\ACCWIZ\	Access default location Wizard Databases	

Path: C:\Program Files\Microsoft Office\Office16\ACCWIZ\
Description: Access default location: Wizard Databases
Date Modified:
Sub Folders: Disallowed

☐ Allow Trusted Locations on my network (not recommended)
☐ Disable all Trusted Locations

The **Trusted Locations** button

The **Trusted Locations** page

Currently the only trusted location is where Access wizards are stored

The **Add new location** button

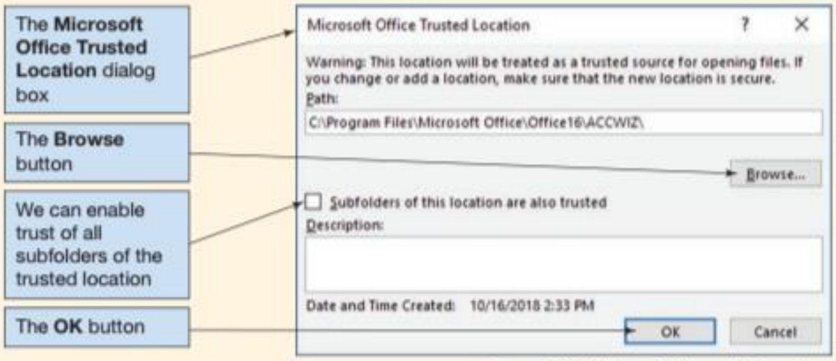
We can disable all trusted locations if necessary

The **OK** button

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-8

The Microsoft Office Trusted Location Dialog Box



Warning: This location will be treated as a trusted source for opening files. If you change or add a location, make sure that the new location is secure.

Path:
C:\Program Files\Microsoft Office\Office16\ACCWIZ\

☐ Subfolders of this location are also trusted

Description:

Date and Time Created: 10/16/2018 2:33 PM

The **Microsoft Office Trusted Location** dialog box

The **Browse** button

We can enable trust of all subfolders of the trusted location

The **OK** button

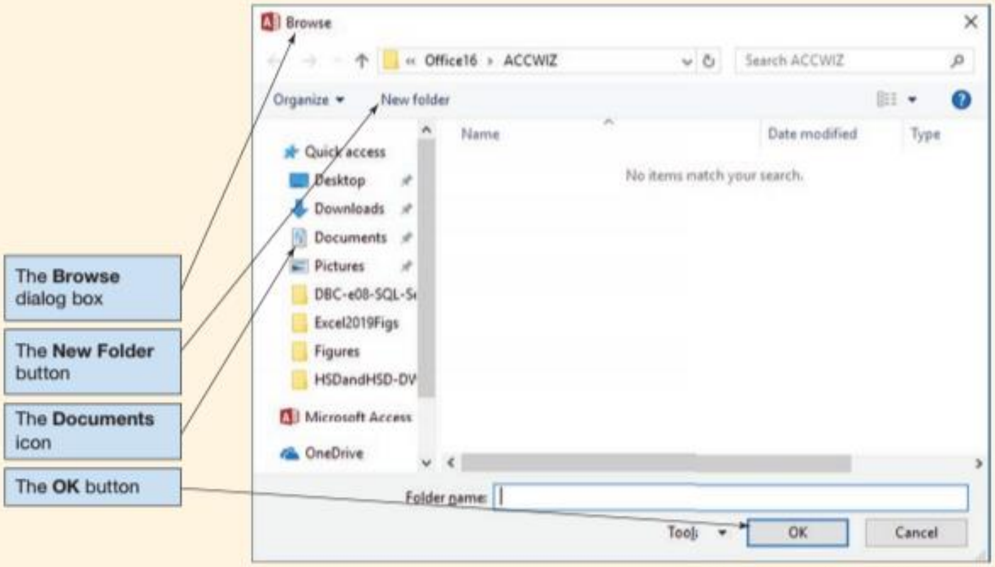
Access 2019, Windows 10, Microsoft Corporation.

8. Click the **Add new location** button to display the Microsoft Office Trusted Location dialog box, as shown in Figure WA-6-8.
9. Click the **Browse** button. The Browse dialog box appears, as shown in Figure WA-6-9. Note that your browse window may open by default to a different location than shown in Figure WA-6-9.

(*Continued*)

FIGURE WA-6-9

The Browse Dialog Box



Access 2019, Windows 10, Microsoft Corporation.

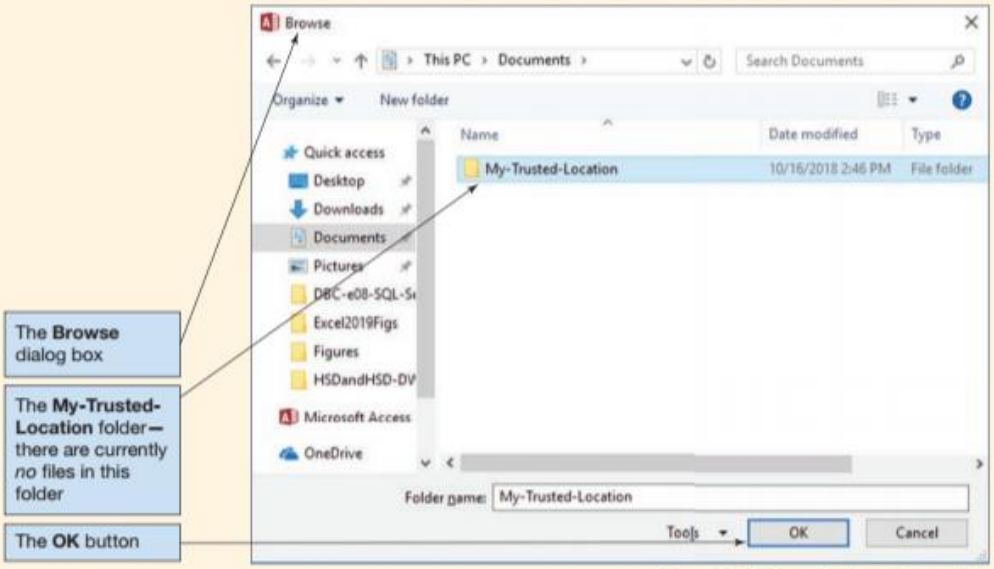
10. Click the **Documents** icon to select the Documents library.
11. Click the **New Folder** button to create a new folder named New Folder in edit mode.
12. Rename the new folder as **My-Trusted-Location**. When you have finished typing in the folder name *My-Trusted-Location*, press the **Enter** key. The My-Trusted-Location folder now appears, as shown in Figure WA-6-10.
13. Click the **OK** button on the Browse dialog box. The Microsoft Office Trusted Location dialog box appears, with the new trusted location in the Path text box.
14. Click the **OK** button on the Microsoft Office Trusted Location dialog box. The Trust Center dialog box appears, with the new path added to the User Locations section of the Trusted Locations list.
15. Click the **OK** button on the Trust Center dialog box to return to the Trust Center page of the Access Options dialog box.
16. Click the **OK** button on the Trust Center page of the Access Options dialog box to close it.
17. Close Microsoft Access.

Earlier in this section of "Working with Microsoft Access" we created a copy of the WMCRM.accdb database file as the new file WMCRM-WA06-v01.accdb. We used this file in our discussion of the Security Warning message bar and its associated options. At this point, we will still see the Security Warning message bar whenever we open the WMCRM-WA06-v01.accdb database file in its current location in the Documents library.

Now we make a copy of the **WMCRM-WA06-v01.accdb** file in the Document library and rename it as **WMCRM-WA06-v02.accdb**. After making the WMCRM-WA06-v02.accdb file, we move it to the My-Trusted-Location folder. Now we can try opening the WMCRM-WA06-v02.accdb file from a Microsoft Access 2019 trusted location.

FIGURE WA-6-10

The My-Trusted-Location Folder



Folder name: My-Trusted-Location

The **Browse** dialog box

The **My-Trusted-Location** folder—there are currently *no* files in this folder

The **OK** button

Access 2019, Windows 10, Microsoft Corporation.

Opening a Microsoft Access Database from a Trusted Location

1. Start Microsoft Access.
2. Click the **Open Other Files** command in the Recent list.
3. Click the **Browse** command tab to display the Microsoft Access Open dialog box.
4. Browse to the **WMCRM-WA06-v02.accdb** file in the My-Trusted-Location folder, as shown in Figure WA-6-11.
5. Click the file name to highlight it, and then click the **Open** button.
6. The Microsoft Access 2019 application window appears, with the WMCRM-WA06-v02 database open in it. Note that the Security Warning bar does *not* appear when the database is opened.
7. Close Microsoft Access 2019 and the WMCRM-WA06-v02 database.

Database Encryption with Passwords

Next, let us look at database encryption. In this case, Microsoft Access will encrypt the database, which will convert it into a secure, unreadable file format. To be able to use the encrypted database, a Microsoft Access user must enter a password to prove that he or she has the right to use the database. After the password is entered, Microsoft Access will decrypt the database and allow the user to work with it.

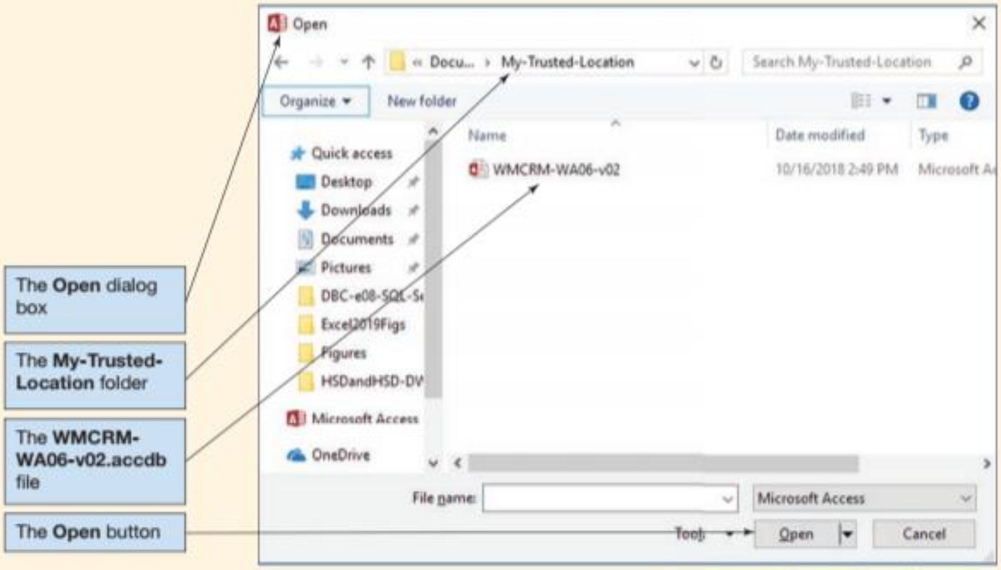
Each password should be a **strong password**—a password that includes lowercase letters, uppercase letters, numbers, and special characters (symbols) and that is at least 15 characters in length. Be sure to remember or record your password in a safe place—lost or forgotten passwords cannot be recovered!

For this example, we want to use a new copy of the **WMCRM.accdb** database file so that our encryption actions apply only to that file. Specifically, make a copy of

(Continued)

FIGURE WA-6-11

The WMCRM-WA06-v02 File in the Open Dialog Box



Access 2019, Windows 10, Microsoft Corporation.

WMCRM-WA06-v02.accdb in the My-Trusted-Location folder and name this new file **WMCRM-WA06-v03.accdb**.

To encrypt a Microsoft Access database file, the file must be opened in **Exclusive mode**. This gives us exclusive use of the database and prevents any other users who have rights to use the database from opening it or using it. We start by opening WMCRM-WA06-v03.accdb for our exclusive use.

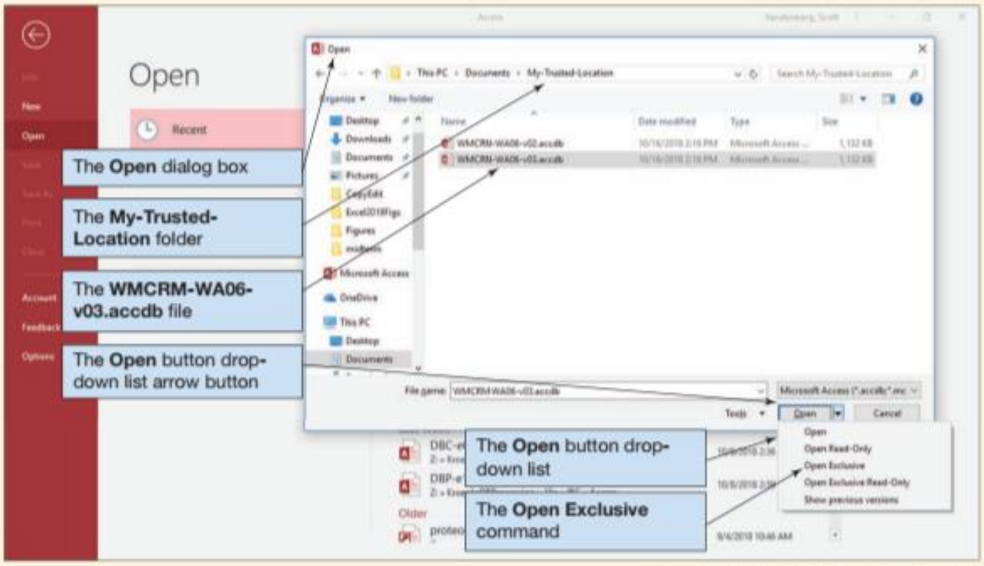
Opening a Microsoft Access Database in Exclusive Mode

1. Start Microsoft Access 2019.
2. Click the **Open Other Files** command in the Recent list.
3. Click the **Browse** command tab to display the Microsoft Access Open dialog box.
4. Browse to the **WMCRM-WA06-v03.accdb** file in the My-Trusted-Location folder. Click the file object *once* to select it, but *not* twice, which would open the file in Microsoft Access.
5. Click the **Open** button drop-down list arrow, as shown in Figure WA-6-12. The Open button drop-down list appears.
6. Click the **Open Exclusive** button in the Open button drop-down list to open the WMCRM-WA06-v03 database in Microsoft Access 2019.
   - **NOTE:** The Security Warning bar does *not* appear when the database is opened because you are opening it from a trusted location.
   - **NOTE:** The Open button mode options shown in Figure WA-6-12 are always available when you open a Microsoft Access database. Normally, you use just Open mode because you want complete read and write permission in the database. Open Read-Only mode prevents the user from making changes to the database. Exclusive mode, as you have seen, stops other users from using the database while you are using it. Exclusive Read-Only mode, as the name implies, combines Exclusive and Read-Only modes.

Now that the database is open in Exclusive mode, we can encrypt the database and set the database password.

FIGURE WA-6-12

The Open Exclusive Button


Open
Recent
The **Open** dialog box
The **My-Trusted-Location** folder
The **WMCRM-WA06-v03.accdb** file
The **Open** button drop-down list arrow button
The **Open** button drop-down list
The **Open Exclusive** command
This PC › Documents › My-Trusted-Location
WMCRM-WA06-v02.accdb
WMCRM-WA06-v03.accdb
Open
Open Read-Only
Open Exclusive
Open Exclusive Read-Only
Show previous versions
Cancel

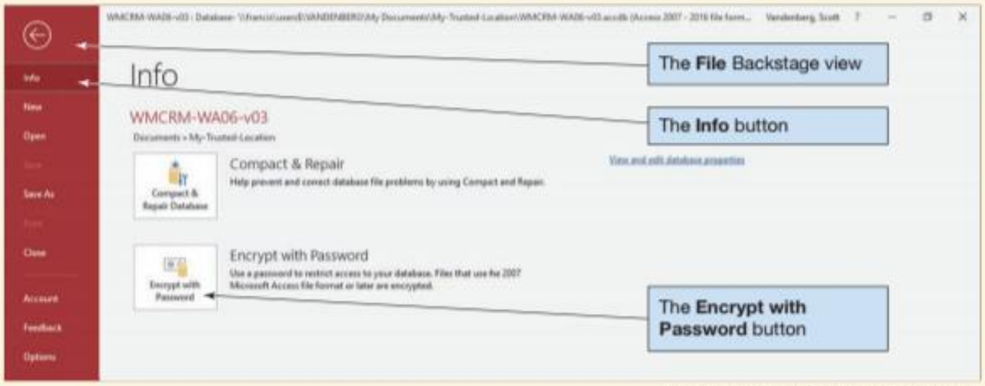
Access 2019, Windows 10, Microsoft Corporation.

Encrypting a Microsoft Access Database

1. Click the **File** command tab to display the Backstage view.
2. The Info page should be displayed. If it is not, click the **Info** button to display the Info page, as shown in Figure WA-6-13.
3. In the Encrypt with Password section of the Info page, click the **Encrypt with Password** button. The **Set Database Password** dialog box appears, as shown in Figure WA-6-14.

FIGURE WA-6-13

The File | Info Page


Info
WMCRM-WA06-v03
Documents » My-Trusted-Location
Compact & Repair
Help prevent and correct database file problems by using Compact and Repair.
Compact & Repair Database
Encrypt with Password
Use a password to restrict access to your database. Files that use the 2007 Microsoft Access file format or later are encrypted.
Encrypt with Password
View and edit database properties
The **File** Backstage view
The **Info** button
The **Encrypt with Password** button

Access 2019, Windows 10, Microsoft Corporation.

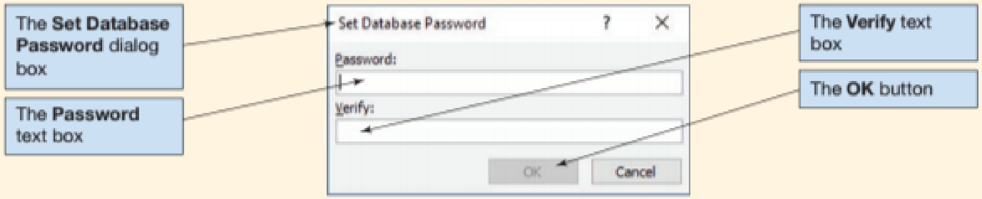
(Continued)

4. In the **Password** text box of the Set Database Password dialog box, type in the password **WA06+password**.
5. In the **Verify** text box of the Set Database Password dialog box, again type in the password **WA06+password**.
6. Click the **OK** button of the Set Database Password dialog box to set the database password and encrypt the database file.
7. Microsoft Access displays the warning dialog box shown in Figure WA-6-15 regarding the effect of encrypting on row-level locking. Click the **OK** button to clear the warning.
8. You can check that the encryption action has been accomplished by clicking the **File** command tab and the **Info** button. After the database is encrypted, the Encrypt with Password button changes to a Decrypt Database button, as shown in Figure WA-6-16.
   - **NOTE:** As the Decrypt Database button name implies, if we wanted to change the database file back to its original unencrypted form we can do so using that button.
9. Click the **Close** button to close the WMCRM-WA06-v03 database while leaving Microsoft Access 2019 open.

Now we can open the newly encrypted WMCRM-WA06-v03.accdb database file.

FIGURE WA-6-14

The Set Database Password Dialog Box



The **Set Database Password** dialog box

The **Password** text box

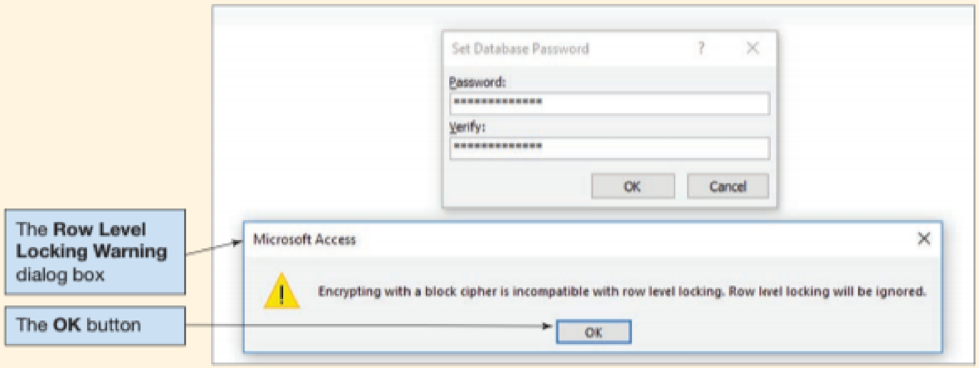
The **Verify** text box

The **OK** button

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-15

The Row Level Locking Warning Dialog Box



Encrypting with a block cipher is incompatible with row level locking. Row level locking will be ignored.

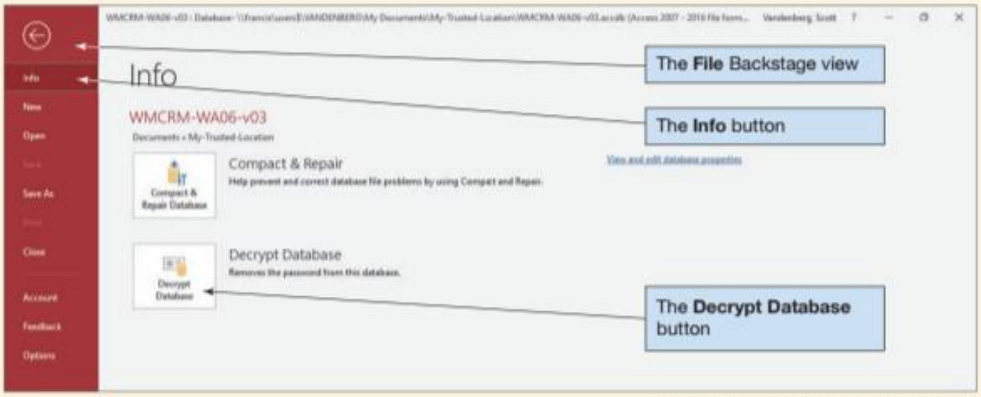
The **Row Level Locking Warning** dialog box

The **OK** button

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-16

The Decrypt Database Button


Info
New
Open
Save
Save As
Print
Close
Account
Feedback
Options
Info
WMCRM-WA06-v03
Documents » My-Trusted-Location
Compact & Repair
Compact & Repair Database
Help prevent and correct database file problems by using Compact and Repair.
View and edit database properties
Decrypt Database
Decrypt Database
Removes the password from this database.
The **File** Backstage view
The **Info** button
The **Decrypt Database** button

Access 2019, Windows 10, Microsoft Corporation.

Opening an Encrypted Microsoft Access Database

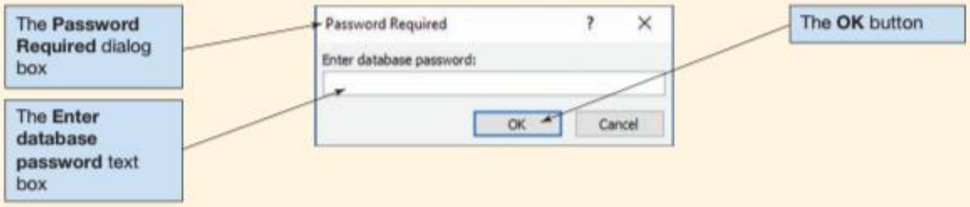
1. Microsoft Access should still be open. If it is not, start Microsoft Access.
2. Click the **File** command tab to display the Backstage view, and then click the **Open** command.
3. Double-click the **WMCRM-WA06-v03.accdb** file name in the quick access list of recent databases. As shown in Figure WA-6-17, the **Password Required** dialog box appears.
4. In the **Enter database password** text box, type in the password **WA06+password**, and then click the **OK** button. The Microsoft Access 2019 application window appears, with the WMCRM-WA06-v03 database open in it.
   - **NOTE:** The Security Warning bar does *not* appear when the database is opened because you are opening it from a trusted location.
5. Close the WMCRM-WA06-v03 database and exit Microsoft Access 2019.

Deploying Secure Databases

Microsoft has included some tools in Microsoft Access 2019 to help us distribute secured copies of Microsoft Access databases to users. One approach is to remove insecure source code from an Access database using compilation. The other approach allows recipients of a deployed database to ensure the database came from the proper source. Let us look at how to use each of these techniques in turn.

FIGURE WA-6-17

The Password Required Dialog Box


The **Password Required** dialog box
The **Enter database password** text box
Password Required
?
×
Enter database password:
OK
Cancel
The **OK** button

Access 2019, Windows 10, Microsoft Corporation.

(Continued)

Compiling Microsoft Visual Basic for Applications (VBA) Code

Microsoft **Visual Basic for Applications (VBA)** is included in Microsoft Access. VBA is a version of the Microsoft Visual Basic programming language that is intended to help users add specific programmed actions to Microsoft Access applications. How to use VBA is beyond the scope of this section of "Working with Microsoft Access," but we need to know how to secure VBA code if it is included in a Microsoft Access database.

Microsoft Access 2019 includes a **Make ACCDE command** to compile and hide VBA code so that although the VBA programming still functions correctly, the user can no longer see or modify the VBA code. When we use this tool, Microsoft Access creates a version of the database file with an ***.accde file extension**.

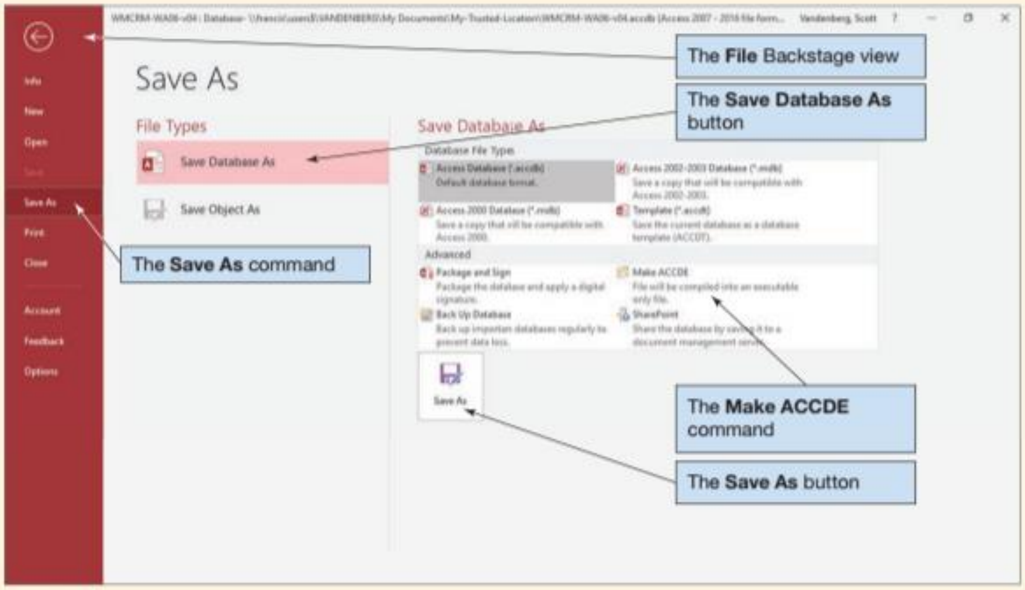
In the next set of steps, we will use another copy of the **WMCRM.accdb** database file so that our actions apply only to that file. Specifically, make a copy of **WMCRM-WA06-v02.accdb** in the My-Trusted-Location folder and name this new file **WMCRM-WA06-v04.accdb**. We start by opening the WMCRM-WA06-v04.accdb database file.

*Creating a Microsoft Access *.accde Database*

1. Open Microsoft Access.
2. Click the **Open Other Files** command in the Recent list.
3. Click the **Browse** command tab to display the Microsoft Access Open dialog box.
4. Browse to the **WMCRM-WA06-v04.accdb** file in the My-Trusted-Location folder. Double-click the file object to open it.
   - **NOTE:** The Security Warning bar does *not* appear when the database is opened because you are opening it from a trusted location.
5. Click the **File** command tab to display the Backstage view.
6. Click the **Save As** button to display the Save As page, as shown in Figure WA-6-18.

FIGURE WA-6-18

The File | Save As Page – Make ACCDE Command

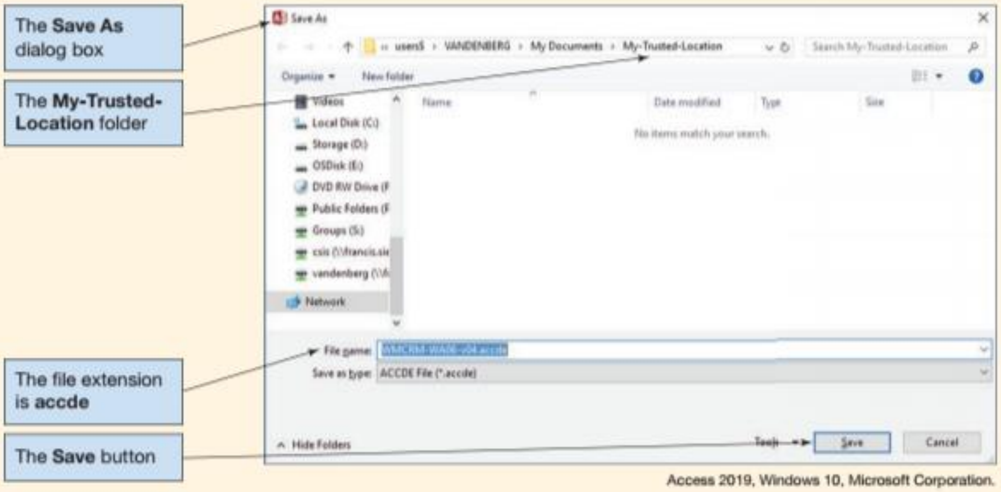


WMCRM-WA06-v04 : Database- \\hsescl\users\VANDENBERG\My Documents\My-Trusted-Location\WMCRM-WA06-v04.accdb (Access 2007 - 2016 file form... Vandenberg, Scott ?
Info
New
Open
Save
Save As
Print
Close
Account
Feedback
Options
Save As
File Types
Save Database As
Save Object As
Save Database As
Database File Types
Access Database (*.accdb)
Default database format.
Access 2002-2003 Database (*.mdb)
Save a copy that will be compatible with Access 2002-2003.
Access 2000 Database (*.mdb)
Save a copy that will be compatible with Access 2000.
Template (*.accdt)
Save the current database as a database template (ACCDT).
Advanced
Package and Sign
Package the database and apply a digital signature.
Make ACCDE
File will be compiled into an executable only file.
Back Up Database
Back up important databases regularly to prevent data loss.
SharePoint
Share the database by saving it to a document management server.
Save As
The **File** Backstage view
The **Save Database As** button
The **Save As** command
The **Make ACCDE** command
The **Save As** button

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-19

The Save As Dialog Box



« users5 › VANDENBERG › My Documents › My-Trusted-Location

Search My-Trusted-Location

File name: WMCRM-WA06-v04.accde

Save as type: ACCDE File (*.accde)

Access 2019, Windows 10, Microsoft Corporation.

7. Click the **Make ACCDE** button in the Advanced group in the Save Database As section, and then click the **Save As** button. The Save As dialog box appears, as shown in Figure WA-6-19.
8. Click the **Save** button in the Save As dialog box. The WMCRM-WA06-v04.accde file is created.
   - **NOTE:** The displayed database name does *not* change. The only sign that this action has been completed is that the WMCRM-WA06-v04.accde object will now be displayed in the list of Microsoft Access files in the Open dialog box (and other file system tools, such as Windows Explorer) and the file icon contains a lock.
9. Close the WMCRM-WA06-v04 database and exit Microsoft Access.

To see the new database, we open it as we would any other Microsoft Access database.

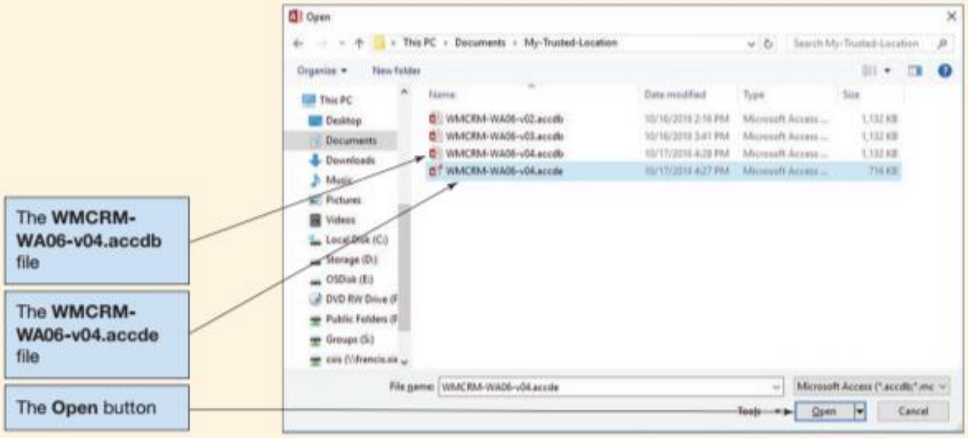
*Opening a Microsoft Access *.accde Database*

1. Start Microsoft Access.
2. Click the **Open Other Files** command in the Recent list.
3. Click the **Browse** command to display the Microsoft Access Open dialog box.
4. Browse to the **WMCRM-WA06-v04.accde** file in the My-Trusted-Location folder, as shown in Figure WA-6-20.
5. Click the **Open** button. The Microsoft Access 2019 application window appears, with the WMCRM-WA06-v04.accde database open in it.
   - **NOTE:** The Security Warning bar does *not* appear when the database is opened because you are opening it from a trusted location.
   - **NOTE:** Although any previously existing VBA modules have been compiled and all editable source code for them has been removed, the functionality of this code is still in the database. Further note that VBA itself is still functional in the database—it has *not* been disabled.
6. Close the WMCRM-WA06-v04 database and exit Microsoft Access.

(*Continued*)

FIGURE WA-6-20

The WMCRM-WA06-v04.accde File



Name	Date modified	Type	Size
WMCRM-WA06-v02.accdb	10/16/2018 2:16 PM	Microsoft Access ...	1,132 KB
WMCRM-WA06-v03.accdb	10/16/2018 3:41 PM	Microsoft Access ...	1,132 KB
WMCRM-WA06-v04.accdb	10/17/2018 4:28 PM	Microsoft Access ...	1,132 KB
WMCRM-WA06-v04.accde	10/17/2018 4:27 PM	Microsoft Access ...	716 KB

File name: WMCRM-WA06-v04.accde

Microsoft Access (*.accdb;*.mc

Access 2019, Windows 10, Microsoft Corporation.

Creating a Signed Package in Microsoft Access

A **digital signature scheme** is a type of **public-key cryptography** (also known as **asymmetric cryptography**), which uses two encryption keys (a **private key** and a **public key**) to encode documents and files to protect them. Although fascinating and important topics in their own right, cryptography in general and public-key cryptography in particular are beyond the scope of this section of "Working with Microsoft Access."[1] For our purposes, a **digital signature** is a means of guaranteeing another user of a database that the database is, indeed, from us and that it is safe to use.

To use a digital signature, of course, we must have one, so the first thing we have to do is to create one. This is not done in Microsoft Access but rather with the **SELFCERT.exe utility** provided with Microsoft Office 2019. For the 32-bit version of Microsoft Office 2019, the file is located in the *c:/Program Files (x86)/Microsoft Office/root/Office16* folder. For the 64-bit version of Microsoft Office 2019, the file is located in the *c:/Program Files/Microsoft Office/root/Office16* folder.

Creating a Digital Signature

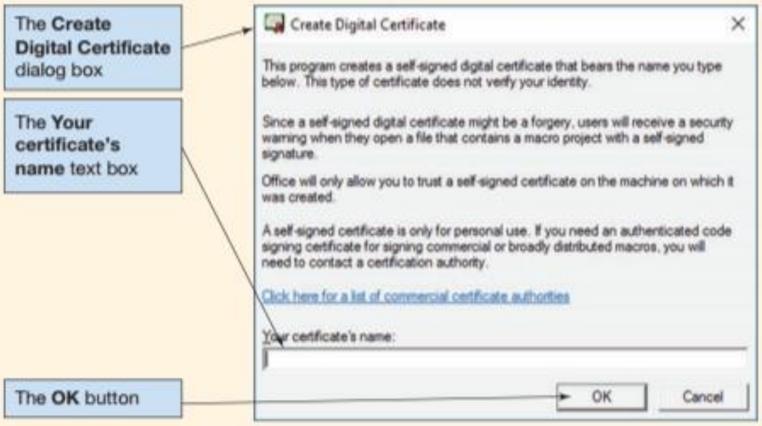
1. Open Microsoft File Explorer, and locate **SELFCERT.exe**. Double-click the SELFCERT.exe icon to open the Create Digital Certificate dialog box, as shown in Figure WA-6-21.
2. In the **Your certificate's name** text box, type the text **Digital-Certificate-WA06-01,** and then click the **OK** button. The certificate is created, and the SelfCert Success dialog box appears, as shown in Figure WA-6-22.
3. Click the **OK** button in the SelfCert Success dialog box.

Now that we have a digital certificate, we can use it to package and sign our database.

[1] For more information, see the following Wikipedia articles: **Public-Key Cryptography, Digital Signature,** and **Public Key Certificate.**

FIGURE WA-6-21

The Create Digital Certificate Dialog Box


The **Create Digital Certificate** dialog box
The **Your certificate's name** text box
The **OK** button
OK
Cancel

Create Digital Certificate

This program creates a self-signed digital certificate that bears the name you type below. This type of certificate does not verify your identity.

Since a self-signed digital certificate might be a forgery, users will receive a security warning when they open a file that contains a macro project with a self-signed signature.

Office will only allow you to trust a self-signed certificate on the machine on which it was created.

A self-signed certificate is only for personal use. If you need an authenticated code signing certificate for signing commercial or broadly distributed macros, you will need to contact a certification authority.

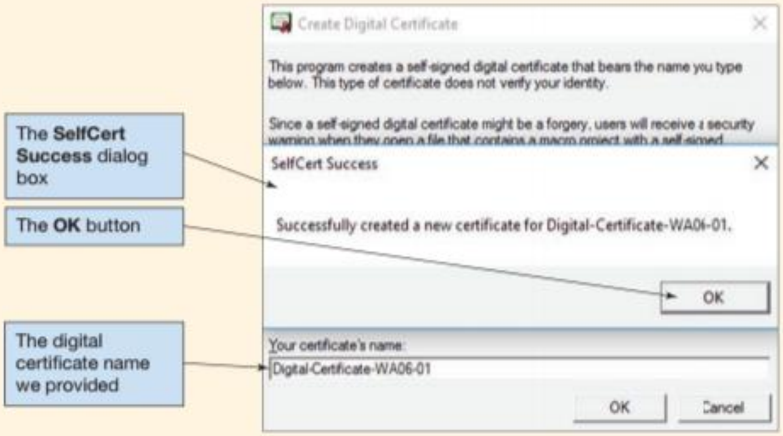
Click here for a list of commercial certificate authorities

Your certificate's name:

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-22

The SelfCert Success Dialog Box


The **SelfCert Success** dialog box
The **OK** button
The digital certificate name we provided
OK
OK
Cancel

Create Digital Certificate

This program creates a self-signed digital certificate that bears the name you type below. This type of certificate does not verify your identity.

Since a self-signed digital certificate might be a forgery, users will receive a security warning when they open a file that contains a macro project with a self-signed

SelfCert Success

Successfully created a new certificate for Digital-Certificate-WA06-01.

Your certificate's name: Digital-Certificate-WA06-01

Access 2019, Windows 10, Microsoft Corporation.

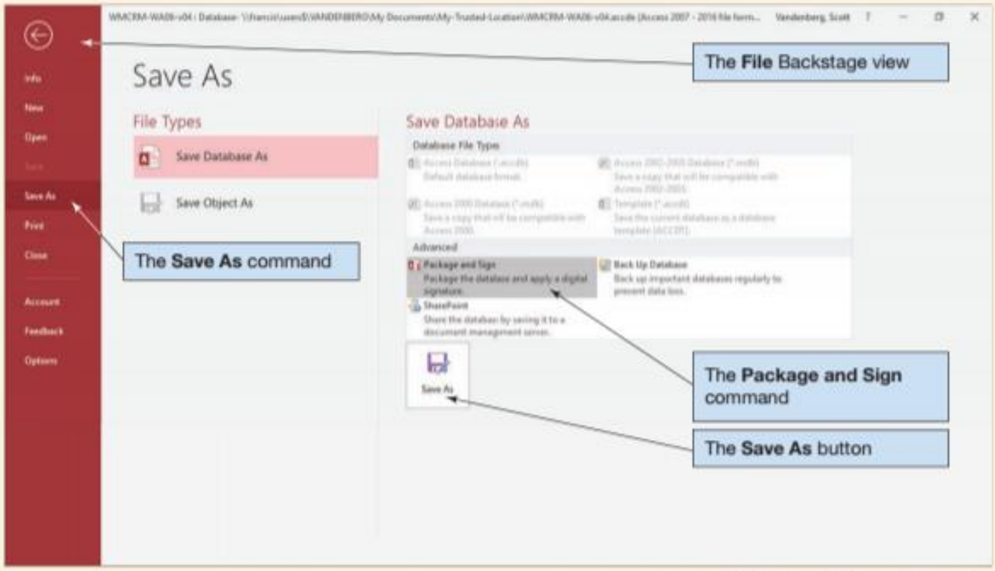
Creating a Microsoft Access Signed Package

1. Start Microsoft Access.
2. Open the **WMCRM-WA06-v04.accde** database file from the Recent list.
   - **NOTE:** The Security Warning bar does *not* appear when the database is opened because you are opening it from a trusted location.
3. Click the **File** command tab to display the Backstage view.
4. Click the **Save As** command to display the Save As page, as shown in Figure WA-6-23.

(*Continued*)

FIGURE WA-6-23

The File | Save As Page – Package and Sign Command

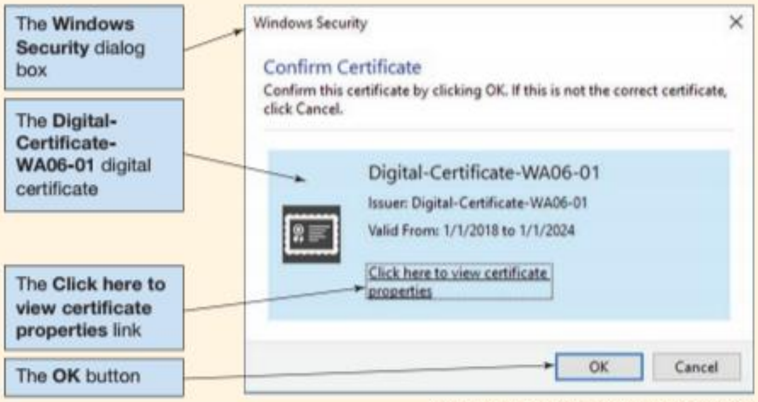

Info
New
Open
Save
Save As
Print
Close
Account
Feedback
Options
Save As
File Types
Save Database As
Save Object As
Save Database As
Database File Types
Access Database (*.accdb)
Default database format.
Access 2002-2003 Database (*.mdb)
Save a copy that will be compatible with Access 2002-2003.
Access 2000 Database (*.mdb)
Save a copy that will be compatible with Access 2000.
Template (*.accdt)
Save the current database as a database template (ACCDT).
Advanced
Package and Sign
Package the database and apply a digital signature.
Back Up Database
Back up important databases regularly to prevent data loss.
SharePoint
Share the database by saving it to a document management server.
Save As
The File Backstage view
The Save As command
The Package and Sign command
The Save As button

Access 2019, Windows 10, Microsoft Corporation.

5. Click the **Package and Sign** button to select the Package and Sign option, and then click the **Save As** button. The Windows Security Confirm Certificate dialog box appears, as shown in Figure WA-6-24. If you have other certificates, you will get a "Select a Certificate" dialog box instead, in which case you may need to click a "More choices" link in order to select the proper certificate to use.
6. Select the certificate you want to use. However, to verify this, click the **Click here to view certificate properties** link. The Certificate Details dialog box appears, as shown in Figure WA-6-25, and our certificate name is clearly visible in the dialog box.

FIGURE WA-6-24

The Windows Security Dialog Box


Windows Security

Confirm Certificate

Confirm this certificate by clicking OK. If this is not the correct certificate, click Cancel.

Digital-Certificate-WA06-01

Issuer: Digital-Certificate-WA06-01

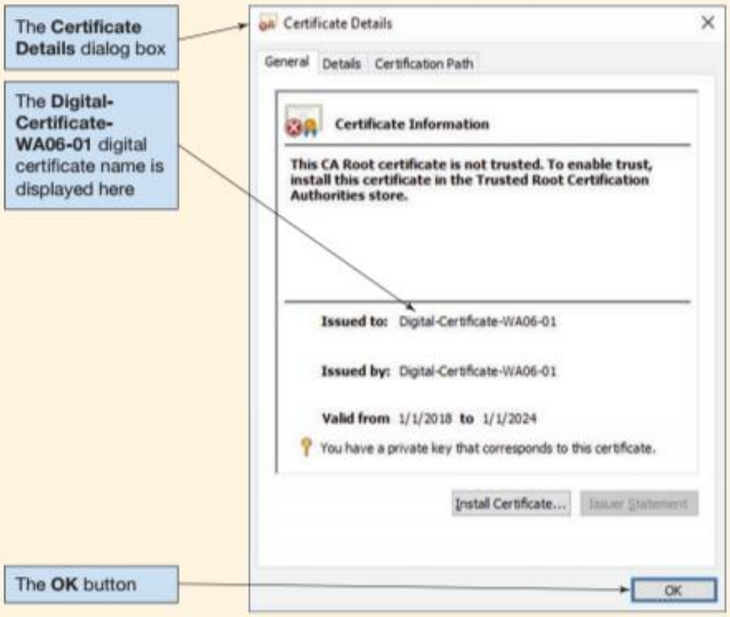
Valid From: 1/1/2018 to 1/1/2024

Click here to view certificate properties
OK
Cancel
The Windows Security dialog box
The Digital-Certificate-WA06-01 digital certificate
The Click here to view certificate properties link
The OK button

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-25

The Certificate Details Dialog Box



The **Certificate Details** dialog box

The **Digital-Certificate-WA06-01** digital certificate name is displayed here

The **OK** button

This CA Root certificate is not trusted. To enable trust, install this certificate in the Trusted Root Certification Authorities store.

Issued to: Digital-Certificate-WA06-01

Issued by: Digital-Certificate-WA06-01

Valid from 1/1/2018 **to** 1/1/2024

You have a private key that corresponds to this certificate.

Access 2019, Windows 10, Microsoft Corporation.

7. Click the **OK** button in the Certificate Details dialog box to close the dialog box.
8. Click the **OK** button in the Microsoft Security Confirm Certificate dialog box to close the dialog box. The Create Microsoft Access Signed Package dialog box appears, as shown in Figure WA-6-26.
9. Click the **Create** button to create the signed package as the file **WMCRM-WA06-v04.accdc**. Note the use of the *.accdc file extension.
10. Close the **WMCRM-WA06-v04** database and Microsoft Access 2019.

We now have a signed package, which uses the ***.accdc file extension**, ready to distribute to other users. To simulate this, in the My Documents folder of the Documents library, create a new folder named **My-Distributed-Databases,** and then copy the WMCRM-WA06-v04.accdc file into it. Now we can open the signed package from this location.

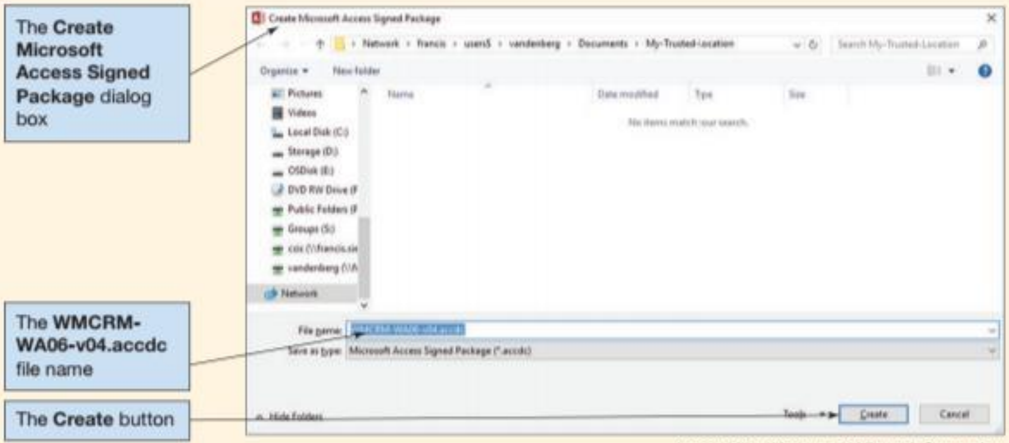
*Opening a Microsoft Access *.accdc Database*

1. Start Microsoft Access.
2. Browse to the **WMCRM-WA06-v04.accdc** file in the My-Distributed-Databases folder, as shown in Figure WA-6-27. Note that you must change file type to see any of the *.accdc files.
3. Click the **WMCRM-WA06-v04.accdc** file to select it, and then click the **Open** button. The Microsoft Access Security Notice dialog box appears, as shown in Figure WA-6-28.
4. Click the **Open** button. The **Extract Database To** dialog box appears. This dialog box is essentially the same as a Save As dialog box, so browse to the My-Distributed-Databases folder, and then click the **OK** button.

(*Continued*)

FIGURE WA-6-26

The Create Microsoft Access Signed Package Dialog Box



The **Create Microsoft Access Signed Package** dialog box

The **WMCRM-WA06-v04.accdc** file name

The **Create** button

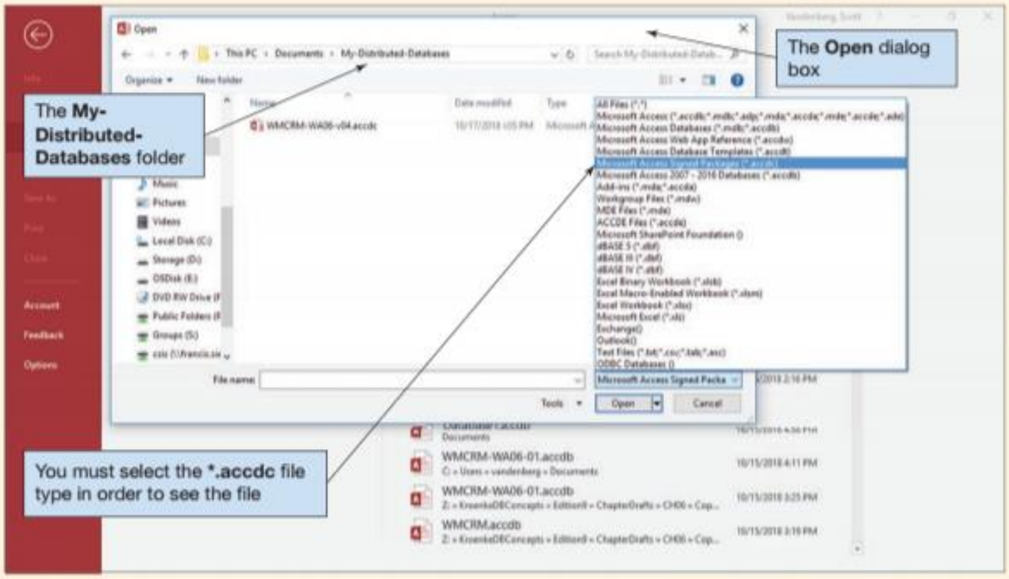
File name: WMCRM-WA06-v04.accdc

Save as type: Microsoft Access Signed Package (*.accdc)

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-27

The WMCRM-WA06-v04.accdc File



The **Open** dialog box

The **My-Distributed-Databases** folder

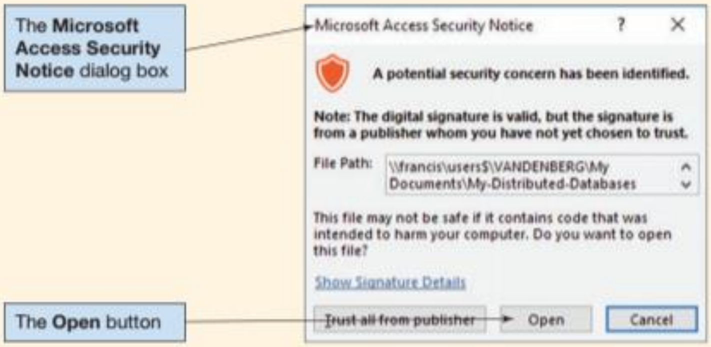
You must select the ***.accdc** file type in order to see the file

Open
This PC › Documents › My-Distributed-Databases
Search My-Distributed-Datab...
Organize ▾
New folder
Name
Date modified
Type
WMCRM-WA06-v04.accdc
10/17/2018 4:05 PM
Music
Pictures
Videos
Local Disk (C:)
Storage (D:)
OSDisk (E:)
DVD RW Drive (F
Public Folders (F
Groups (S:)
csis (\\francis.si
All Files (*.*)
Microsoft Access (*.accdb;*.mdb;*.adp;*.mda;*.accda;*.mde;*.accde;*.ade)
Microsoft Access Databases (*.mdb;*.accdb)
Microsoft Access Web App Reference (*.accdw)
Microsoft Access Database Templates (*.accdt)
Microsoft Access Signed Packages (*.accdc)
Microsoft Access 2007 - 2016 Databases (*.accdb)
Add-ins (*.mda;*.accda)
Workgroup Files (*.mdw)
MDE Files (*.mde)
ACCDE Files (*.accde)
Microsoft SharePoint Foundation ()
dBASE 5 (*.dbf)
dBASE III (*.dbf)
dBASE IV (*.dbf)
Excel Binary Workbook (*.xlsb)
Excel Macro-Enabled Workbook (*.xlsm)
Excel Workbook (*.xlsx)
Microsoft Excel (*.xls)
Exchange()
Outlook()
Text Files (*.txt;*.csv;*.tab;*.asc)
ODBC Databases ()
File name:
Microsoft Access Signed Packa
Tools ▾
Open
Cancel
Account
Feedback
Options
WMCRM-WA06-01.accdb
C: » Users » vandenberg » Documents
10/15/2018 4:11 PM
WMCRM-WA06-01.accdb
Z: » KroenkeDBConcepts » Edition9 » ChapterDrafts » CH06 » Cop...
10/15/2018 3:25 PM
WMCRM.accdb
Z: » KroenkeDBConcepts » Edition9 » ChapterDrafts » CH06 » Cop...
10/15/2018 3:19 PM

Access 2019, Windows 10, Microsoft Corporation.

FIGURE WA-6-28

The Microsoft Access Security Notice Dialog Box



The **Microsoft Access Security Notice** dialog box

The **Open** button

Microsoft Access Security Notice

A potential security concern has been identified.

Note: The digital signature is valid, but the signature is from a publisher whom you have not yet chosen to trust.

File Path: \\francis\users$\VANDENBERG\My Documents\My-Distributed-Databases

This file may not be safe if it contains code that was intended to harm your computer. Do you want to open this file?

Access 2019, Windows 10, Microsoft Corporation.

5. Another **Microsoft Access Security Notice** dialog box similar to the one shown in Figure WA-6-28 may appear. If it does, then click the **Open** button.
6. The **WMCRM-WA06-v04.accde** database is opened in Microsoft Access.
   - **NOTE:** The Security Warning bar does *not* appear when the database is opened because you have chosen to trust the source of the database as documented in the digital certificate rather than open it from a trusted location.
7. Close the WMCRM-WA06-v04 database and Microsoft Access 2019.

Using Windows Explorer, look at the contents of the This PC\Documents\My-Distributed-Databases folder. Notice that the WMCRM-WA06-v04.accde file has been extracted from the WMCRM-WA06-v04.accdc package and is now available for use. This is the database file that the user will open when he or she uses the database. Also note that when users open the database, they will see the Microsoft Access Security Notice dialog box just discussed.

This completes our discussion of how Microsoft Access 2019 handles database security for Microsoft Access 2019 *.accdb files. Note that Microsoft Access 2019 can also open and work with older Microsoft Access 2003 *.mdb database files, which have a built-in user-level database security system that is very different from the Microsoft Access 2019 database security we have discussed. If you need to work with one of these older *.mdb files, consult the Microsoft Access documentation.