Microsoft

DAT243x

Securing SQL Server

Lab 04 | Using Encryption

Estimated time to complete this lab is 30 minutes

Overview

In this lab, you are preparing to install SQL Server 2016 for the IT department in Adventure Works Cycles. Before installing, you want to find out if the server hardware provisioned for the instance is ready.

The labs in this course are accumulative. You cannot complete the following labs if this lab has not been successfully completed.

What You'll Need

To complete this lab, you will need the following:

- High-speed and reliable internet connectivity (for remote connections to the VM)
- A second monitor is recommended (for the Remote Desktop connection)
- A Microsoft account (such as one used for outlook.com, Hotmail, or other Microsoft services)
- A Microsoft Azure subscription
- To have completed the previous labs in this course.

Exercise 1: Encrypt a Column with Always Encrypted

In this exercise, you will encrypt a column and view the encrypted data.

Start the virtual machine

In this task, you will start the virtual machine for the lab.

1. If the virtual machine that you created in Lab 00 is not already running, open the Azure Portal, sign in, select the virtual machine, and click **Start**.
2. When the virtual machine has started, click **Connect**.
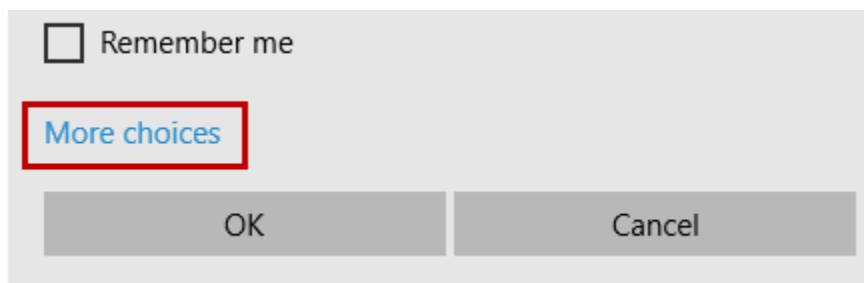

3. Click **Save**.

4. When prompted by the web browser to open the Remote Desktop File, click **Open**.
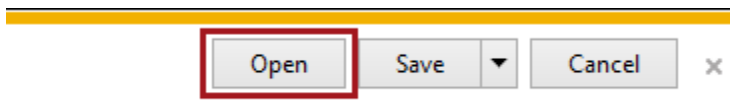
5. If prompted to connect to the unknown publisher, click **Connect**.

*To enter your credentials, you may need to select **More Choices**, and then select **Use a Different Account**.*

6. In the **Windows Security** window, enter the password you created for your VM, select **Remember me** and click **OK**.

7. If you have a second monitor, maximize the Remote Desktop window inside a single monitor.

Encrypt a Column

1. In SQL Server Management Studio, expand the **Databases** node, expand the **AdventureWorks2012** node, and expand the **Tables** node.

2. Right-click **Person.Address**, and click **Encrypt Columns**.

3. In the **Always Encrypted** dialog box, on the Introduction page, click **Next**.

4. On the Column Selection page, under **Person.Address**, select the **City** and **PostalCode** columns. Change the value of the **Encryption Type** box to **Deterministic**, and then click **Next**.

5. On the Master Key Configuration page, click **Next**.

6. On the Run Settings page, select **Proceed to finish now** and click **Next**.

7. On the Summary page, click **Finish**. When the encryption process has finished, click **Close**.

View Always Encrypted Data

1. In Object Explorer, under the **AdventureWorks.Tables** node, right-click **Person.Address**, and then click **Select top 1000 rows**.

Lab Check – *You will need these answers for the module quiz – write them down!*

Lab 04 ► Exploring the Lab Solution

Can you read the values of the encrypted data in Management Studio? _____

2. In Object Explorer, click **Connect** and click **Database Engine**.

3. Click **Options**.

4. Select the **Additional Connection Parameters** tab.

5. In the **Enter additional connection string parameters** box, type **Column Encryption Setting = Enabled** and click **Connect**.

6. Run the query from Step 1 again.

Lab Check – *You will need these answers for the module quiz – write them down!*

Lab 04 ► Exploring the Lab Solution

Can you read the values of the encrypted data in Management Studio? _____
What is the PostalCode for the AddressID of 1? _____

You have now completed the lab.

If you are not immediately continuing with the next lab, you should complete the **Finishing Up** *exercise to shut down and stop the VM.*
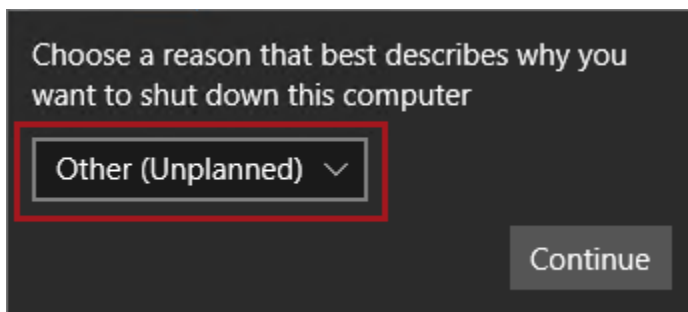
Finishing Up

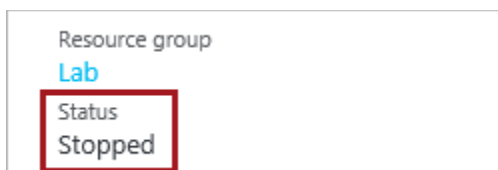In this exercise, you will shut down and stop the VM.

1. Close all open applications.

2. Press the **Windows** key, and then in the **Start** page, located at the bottom-left, click the **Power** button, and then select **Shut Down**.
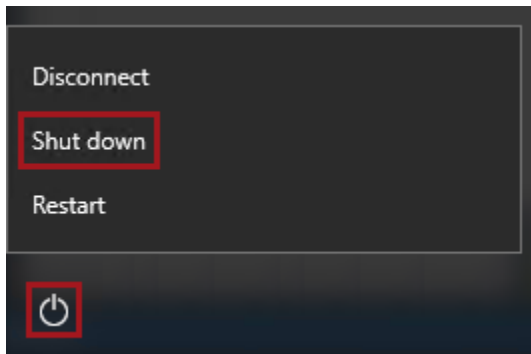
3. When prompted to choose a reason, to accept the default.

4. Click **Continue**.

5. In the **Azure Portal** Web browser page, wait until the status of the VM updates to **Stopped**.
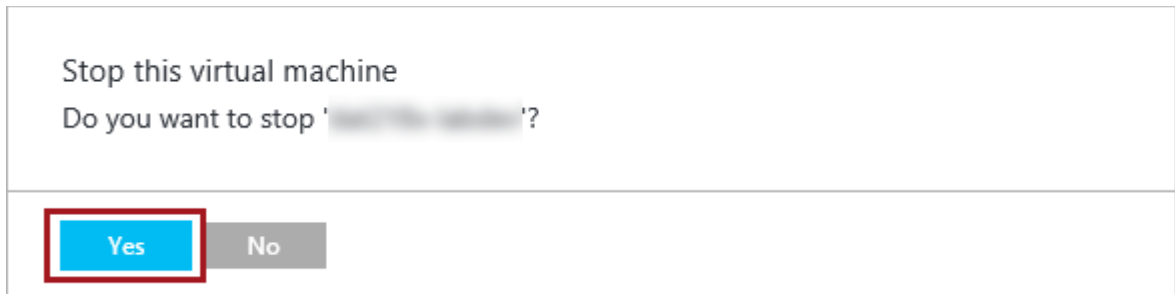

In this state, however, the VM is still billable.

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6. Optionally, to deallocate the VM, click **Stop**.

    Deallocation will take some minutes to complete, and also extends the time required to restart the VM. Consider deallocating the VM if you want to reduce costs, or if you choose to complete the next lab after an extended period.
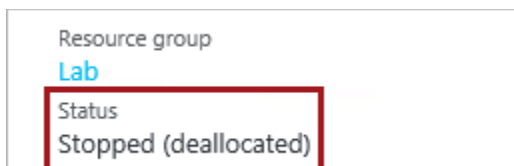

7. When prompted to stop the VM, click **Yes**.

    The deallocation can take several minutes to complete.

8. Verify that the VM status updates to **Stopped (Deallocated)**.

    In this state, the VM is now not billable—except for a relatively smaller storage cost.

    Note that a deallocated VM will likely acquire a different IP address the next time it is started.

9. Sign out of the **Azure Portal**.