

Optimizing Performance for SQL Based Applications

Lab 4 – Optimizing Performance for Hybrid Environments

Overview

Data security is extremely important today, but we want to minimize the impact on performance from securing our data. In this lab you will enable Always Encrypted to ensure that data is encrypted in the cloud and in transit to and from the cloud and is only decrypted on the client.

Before starting this lab, you should view **Module 4 – Optimizing Performance for Hybrid Environments** in the course *Optimizing Performance for SQL Based Applications*. Then, if you have not already done so, follow the instructions in the **Getting Started** document for this course to set up the lab environment.

What You'll Need

To complete the labs, you will need the following:

- A SQL Server instance with the AdventureWorksLT sample database. Review the Getting Started document for information about how to provision this.
- The lab files for this course

Challenge 1: Implement End-to-End Encryption

In this exercise, you will implement Always Encrypted encryption.

Prepare the Lab Environment

1. Start Microsoft SQL Server Management Studio and connect to your database instance.
2. Download and open **Lab 04 - Setup.sql** from the **Setup** folder.
3. Execute the script in **Lab 04 - Setup.sql**.

Implement Always Encrypted Encryption

1. In Management Studio, expand **Databases** and right-click **AdventureWorksLT**.
2. Point to **Tasks** and click **Encrypt Columns**.
3. Read the introduction message and click **Next**.
4. Drag the separator between the **Name** and **State** columns until you can read the table names.
5. Expand **SalesLT.Territory**.
6. Select every column.
7. For each column, in **Encryption Type** column, select **Deterministic**.
8. Hover over the warning for **CountryRegionCode** and note that the data type will be changed.
9. Select **Apply one key to all checked columns** and select the option that ends with **(New)**.
10. Click **Next**.
11. Ensure that **Windows certificate store** is selected. This will ensure that the certificate is stored locally and the encrypted data is stored separately in the cloud.
12. Click **Next**.
13. Read the messages, ensure that **Proceed to finish now** is selected, and click **Next**.
14. Verify your choices and click **Finish**. Note that this might take some time.
15. When the operation has completed, click **Close**.