DAT226x

Creating a Master Data Solution with SQL Server Master Data Services

Lab 3-1 | Managing a Master Data Services Solution

Estimated time to complete this lab is 60 minutes

Overview

In this lab, you will manage a SQL Server 2017 Master Data Services solution that stores and manages geographic master data.

This will involve managing model versioning, creating subscription views, importing master data and extracting master data by using the subscription views in an Integration Services package.

Note: The three labs in this course are accumulative. You cannot complete this lab if you did not successfully complete **Lab 2-1**.

Connecting to the VM

Go to the next exercise if you are already connected to the lab VM.

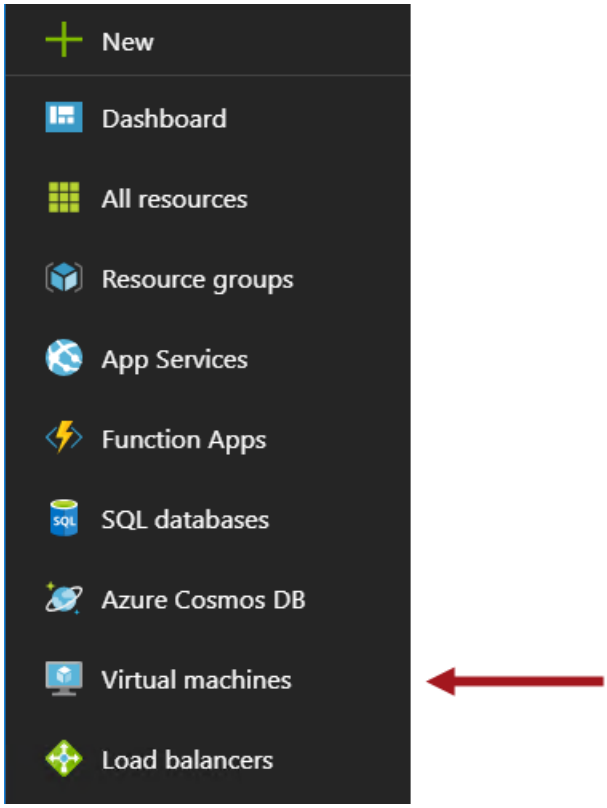
In this exercise, having signed in to the Azure Portal by using your Azure subscription, you will connect to the lab VM which you provisioned in **Lab 1-1**.

Connecting to the VM

In this task, you will sign in to the Azure Portal, and then connect to your lab VM.

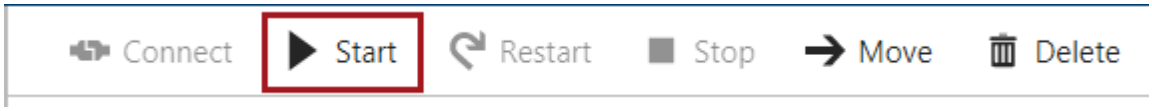
1. Sign in to the **Microsoft Azure Portal** by using your subscription.

2. In the left pane, select **Virtual Machines**.



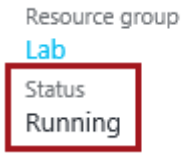
3. In the **Virtual Machines** blade, select the VM you provisioned in **Lab 0-1**.

4. In the VM blade, click **Start**.



5. Wait for the VM status to update to **Running**.

   It usually takes 1-2 minutes for the VM to start.



6. To connect to the VM, click **Connect**.

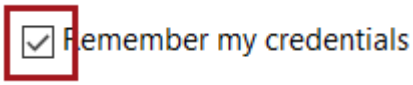
7. When prompted to open the Remote Desktop File, click **Open**.

8. If prompted to connect to the unknown publisher, click **Connect**.

   *You need to enter the VM administrator credentials. If the authentication window defaults to an existing account, you will need to select **More Choices**, and then select **Use a Different Account**.*

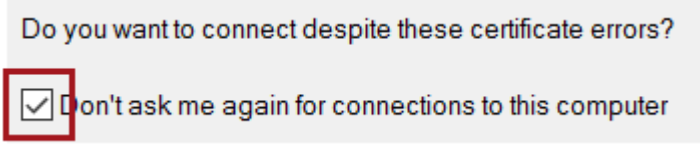
9. In the **Windows Security** window, enter the VM admin credentials used when provisioning the VM.

10. Check the **Remember My Credentials** checkbox.



11. Click **OK**.

12. In the **Remote Desktop Connection** dialog window, check the **Don't Ask Me Again for Connections to This Computer** checkbox.



13. Click **Yes**.

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

Exercise 1: Managing Model Versioning

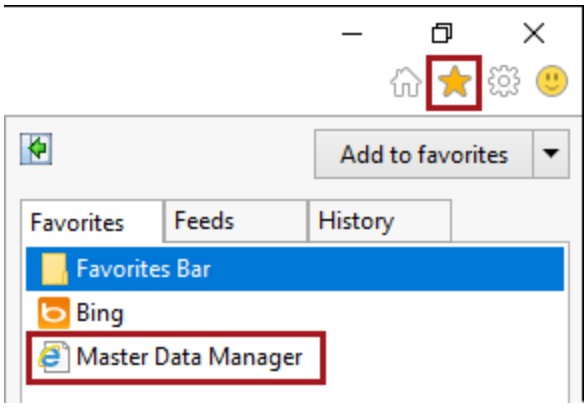
In this exercise, you will manage model versioning for the **AdventureWorksBI** model.

Managing Model Versioning

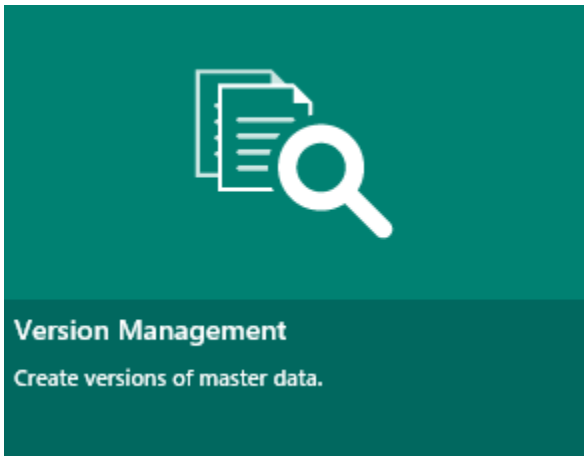
In this task, you will manage model versioning for the **AdventureWorksBI** model.

1. Open Internet Explorer.

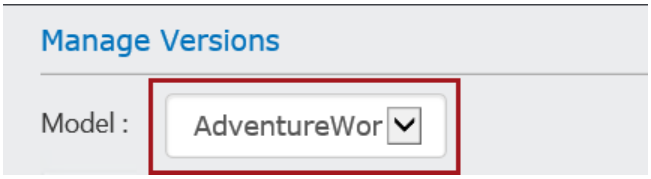
2. In Internet Explorer, open the **Master Data Manager** favorite.



3. On the web application home page, click the **Version Management** tile.



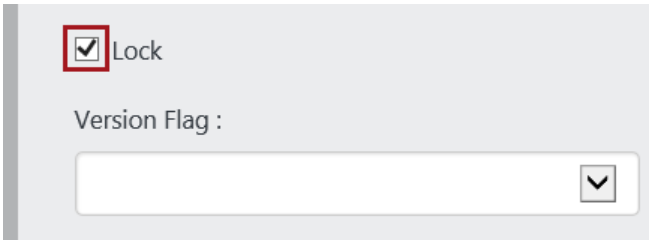
4. In the **Model** dropdown list, notice that the **AdventureWorksBI** model is selected.



5. Select **VERSION_1**.

6. Click **Edit**.

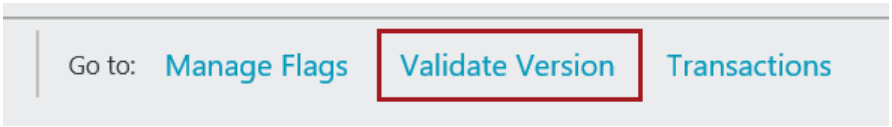
7. In the **Edit Version** pane (located at the right), to lock the version, check the **Lock** checkbox.



8. Click **Save**.

The version is now only available for modification by model administrators.

9. Click the **Validate Version** link.



10. In the **Version** dropdown list, select **VERSION_1**.

11. Review the validation summary, ensuring that all validations have succeeded.

    A version cannot be committed until all members have been validated.

Validation Summary
To validate all members, click the Validate button.

Status	Member Count
Waiting to be validated	0
Validation failed	0
Validation succeeded	[redacted]
Waiting for revalidation	0
Waiting for dependent member revalidation	0

Lab-based Knowledge Check

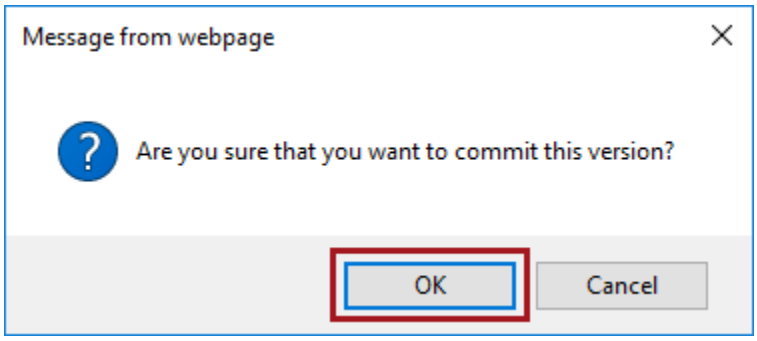
Lab 3-1 ► Count of Succeeded Validations

What is the member count for succeeded validations?

You may need data from this step to answer a Lab-based Knowledge Check associated with this module.

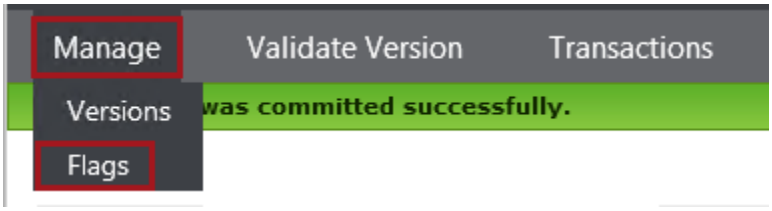
12. To commit the version, click **Commit**.

13. When prompted to commit the version, click **OK**.



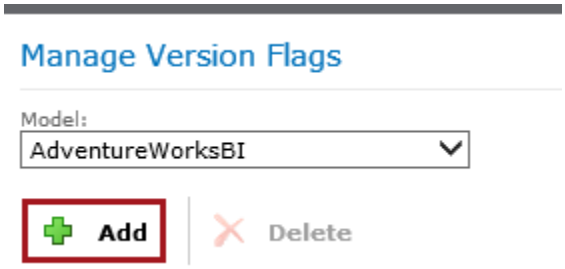
14. Wait until the version is committed.

15. On the page menus, however over **Manage**, and then select **Flags**.



16. In the **Model** dropdown list, select **AdventureWorksBI**.

17. To add a new version flag, click **Add**.



18. Configure the following properties.

Property	Value
Name	Current
Description	Current data not for subscribers
Committed Versions Only	False

19. Click **Save**.

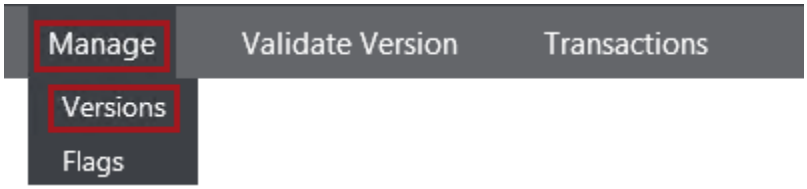
20. Create a second version flag, based on the following properties.

Property	Value
Name	Historic
Description	Historic data for subscribers
Committed Versions Only	True

21. Verify that two version flags have been created.

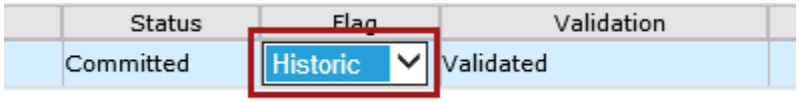
Name	Description	
Current	Current data not for subscribers	False
Historic	Historic data for subscribers	True

22. On the page menus, however over **Manage**, and then select **Versions**.



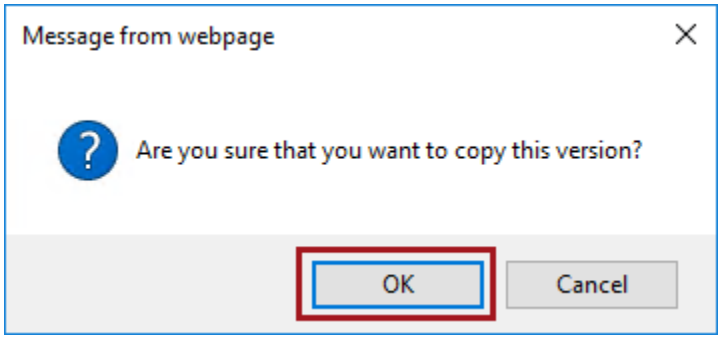
23. In the grid, double-click the **Flag** cell.

24. In the dropdown list, select the **Historic** flag.



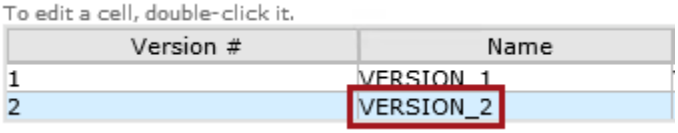
25. To create a new version, click **Copy**.

26. When prompted to create a copy of the version, click **OK**.

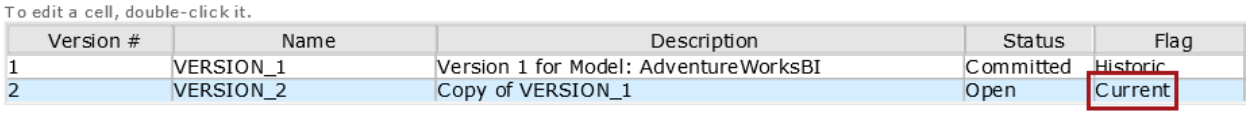


27. When the new version has been added to the grid, for the new version (on the second line), double-click the **Name** cell.

28. Replace the text with **VERSION_2**, and then press **Enter**.



29. Set the version flag for the new version to **Current**.


To edit a cell, double-click it.

Version #	Name	Description	Status	Flag
1	VERSION_1	Version 1 for Model: AdventureWorksBI	Committed	Historic
2	VERSION_2	Copy of VERSION_1	Open	Current

*The **VERSION_2** model is now available for ongoing master data management. The **VERSION_1** model is ready for subscribers to retrieve an historic snapshot of master data.*

30. Return to the Master Data Manager home page.

31. To the right of the **Version** dropdown list, notice that the version is committed and flagged as **Historic**.

32. In the **Version** dropdown list, select **VERSION_2**.

33. Notice that this version is open and flagged as **Current**.

Lab-based Knowledge Check

Lab 3-1 ► Committing a Model Version

Which validation status must be set before committing a version?

*In the next exercise, you will create subscription views to retrieve master data only from the **Historic** flagged version.*

Exercise 2: Creating Subscription Views

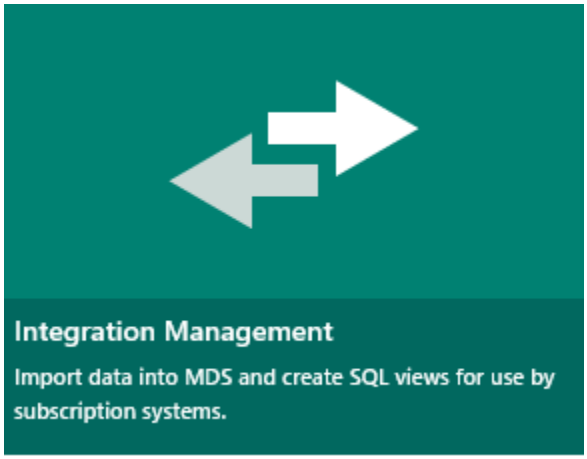
In this exercise, you will create four subscription views to enable the export of the master data. These views will be used in the next exercise by an Integration Services package.

When creating the subscription views in this exercise it is very important that you name them as instructed. The final exercise in this lab includes a pre-built solution that references the views by name.

Creating Subscription Views

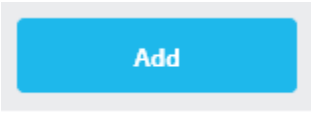
In this task, you will create subscription views for the geographic entities.

1. On the Master Data Manager home page, click the **Integration Management** tile.



2. On the menu, select **Create Views**.

3. To create a subscription view, click **Add**.



4. In the **Create Subscription View** pane (located at the right), configure the following properties.

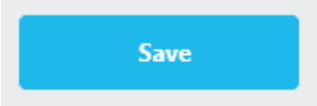
Property	Value
Name	Geography
Version Option	Version Flag
Version Flag	Historic
Data Source	Derived Hierarchy
Derived Hierarchy	Geography
Format	Derived levels
Level	3

Lab-based Knowledge Check

Lab 3-1 ► Selecting a Derived Hierarchy Data Source

When selecting a derived hierarchy data source, which two options are available in the **Format** dropdown list?

5. Click **Save**.



6. Create a second subscription view, based on the following.

Property	Value
Name	Geography_CountryRegion
Version Option	Version Flag
Version Flag	Historic
Data Source	Entity
Entity	CountryRegion
Format	Leaf members

7. Create two additional subscription views, repeating the configuration pattern used to create the previous subscription view.

   Use the values in the following table to set the name of the subscription view, and to select the entity.

Subscription View Name	Entity
Geography_StateProvince	StateProvince
Geography_City	City

8. Verify that the following four subscription views have been added, and that each subscription view is for the correct data source.

Status	Name	Model	Version	Version Flag	Derived Hierarchy	Entity
✓	Geography	AdventureWorksBI		Historic	Geography	
✓	Geography_CountryRegion	AdventureWorksBI		Historic		CountryRegion
✓	Geography_StateProvince	AdventureWorksBI		Historic		StateProvince
✓	Geography_City	AdventureWorksBI		Historic		City

Reviewing the Subscription Views

In this task, you will review the subscription views created in the MDS repository database.

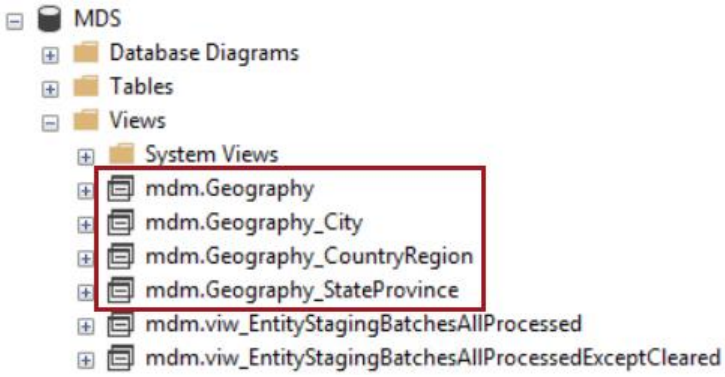
1. Open SQL Server Management Studio (SSMS).

2. In the **Connect to Server** window, in the **Server Type** dropdown list, ensure that **Database Engine** is selected.

3. Click **Connect**.

4. In **Object Explorer** (located at the left), expand **Databases | MDS | Views**.

5. Notice the four subscription views at the top of the view list.



6. Right-click the **mdm.Geography** view, and then select **Select Top 1000 Rows**.

7. Review the query result.

8. Expand **mdm.Geography_City | Columns**.

9. Review the available columns in the view, consisting of version columns, the attributes, user and time stamps, and validation status.

   The view represents a simplified way to access the master data in an entity (or hierarchy). These views will be used in the next exercise to extract the master data and load it into the data warehouse dimension table.

10. Retrieve all rows from the **mdm.Geography_City** view, and review the query result.

    In the next exercise, an Integration Services package will extract the master data by using these views.

Lab-based Knowledge Check

Lab 3-1 ► Count of Geography_City Rows

How many **mdm.Geography_City** rows were retrieved?

You may need data from this step to answer a Lab-based Knowledge Check associated with this module.

Lab-based Knowledge Check

Lab 3-1 ► ValidationStatus Column Value

For all rows, what is the value found in the **ValidationStatus** column?

You may need data from this step to answer a Lab-based Knowledge Check associated with this module.

11. Leave SSMS open.

Integrating Master Data

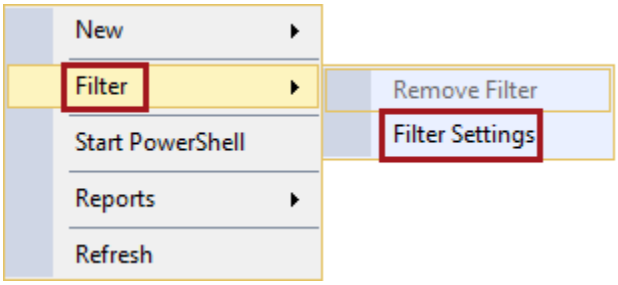
In this exercise, you will integrate master data first by importing new geographic data, and then by extracting master data to load a data warehouse dimension table.

Importing Master Data

In this task, you will execute a series of SQL batches to import New Zealand master data.

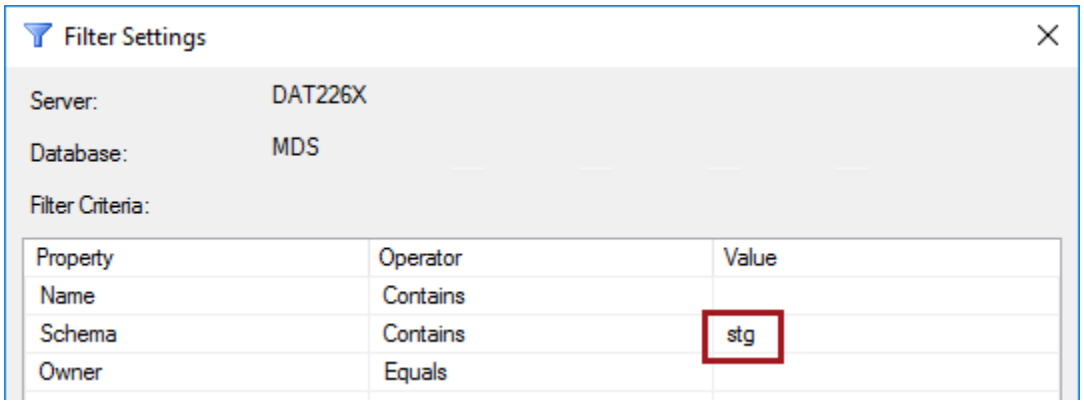
1. In SSMS, in **Object Explorer**, in the **MDS** database, expand the **Tables** folder.

2. Right-click the **Tables** folder, and then select **Filter | Filter Settings**.

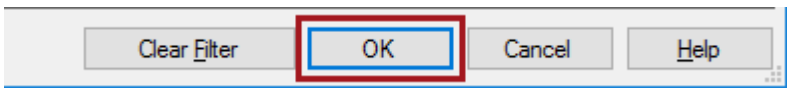


3. In the **Filter Settings** window, in the **Value** box for the **Schema** property, enter **stg**.

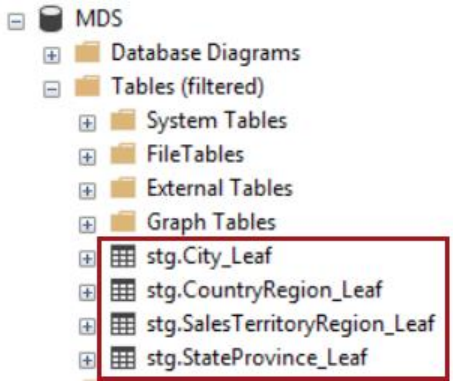
   stg *is an abbreviation of staging.*



4. Click **OK**.



5. Notice the four staging tables, one for each of the entities created in **Lab 2-1**.



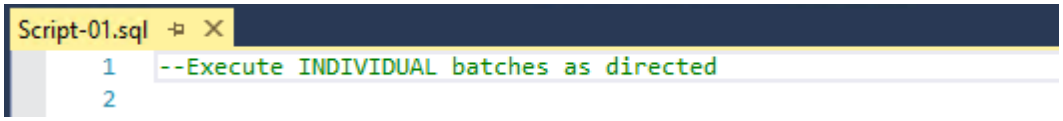
You will now load data into three of these staging tables.

6. To open a script file, on the **File** menu, select **Open | File**.

7. In the **Open File** window, navigate to the **F:\Labs\Lab3-1\Assets** folder.

8. Select **Script-01.sql**, and then click **Open**.

9. In the script file, take note of the first line.



It is very important that you execute the script in the manner intended. Some scripts can be executed in their entirety. Other scripts include multiple batches of statements; therefore, you should select the statements, and then execute only that selection.

*To execute a subset of a script, select the text you intend to execute, and then click **Execute** (or press **F5**).*

10. To use the MDS repository database, select lines 4-5 (comments can also be selected).

11. To execute the selected lines, on the toolbar, click **Execute**.

12. To import members into the model, continue to work through the entire script, executing each batch (which completes with the GO keyword).

13. To close SSMS, on the **File** menu, select **Exit**.

14. If prompted to save the solution file, click **No**.

15. Switch to Master Data Manager, and review (edit) the **Geography** derived hierarchy.

    *Tip: Go to System Administration, manage the derived hierarchies, and edit the **Geography** derived hierarchy.*

16. Verify that the New Zealand members are available in the hierarchy.

Extracting Master Data

In this task, you will open, review and then execute an Integration Services package designed to load the **DimGeography** dimension table.

1. Open SSDT.

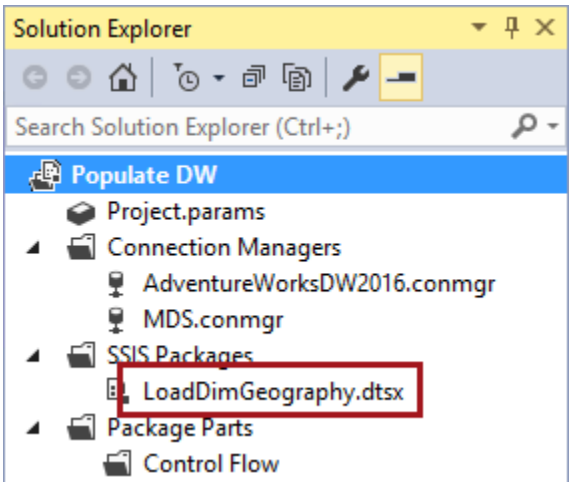
2. On the **File** menu, select **Open | Project/Solution**.

3. In the **Open Project** window, navigate to the **F:\Labs\Lab3-1\Project\AdventureWorksBI** folder, select the **AdventureWorksBI.sln** file, and then click **Open**.

   If Visual Studio crashes, close Visual Studio and then re-open the solution.

4. When prompted for the encryption password, enter **Pass@word1**, and then click **OK**.

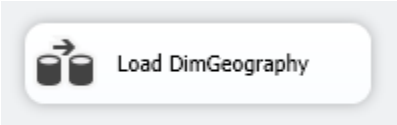
5. In **Solution Explorer** (located at the right), review the project items, and notice that the project contains the **LoadDimGeography** package.



6. Right-click the **LoadDimGeography** package, and then select **Open**.

7. Review the comments in the control flow design.

8. Right-click the **Load DimGeography** Data Flow task, and then select **Edit**.

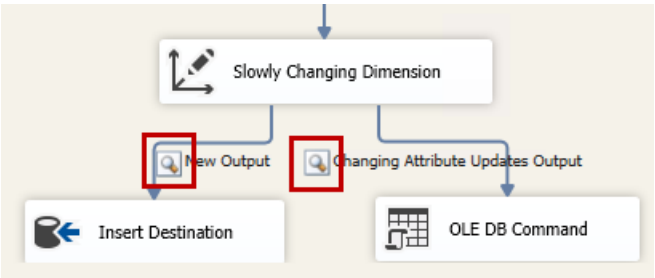


*If you notice any error icons, it is likely that the subscriptions views were not created, or named correctly. In this case, return to the previous exercise and address any differences. Then close and re-open the **LoadDimGeography** package.*

9. Review the comments related to each data flow component.

   You can also open the components to fully understand the package design—but do not modify any properties.

10. Notice that there are two data viewers to assist reviewing the data changes detected by the Slowly Changing Dimension transformation.



Executing the Package

In this task, you will execute the **LoadDimGeography** package.

1. To execute the package, in **Solution Explorer**, right-click the **LoadDimGeography** package, and then select **Execute Package**.

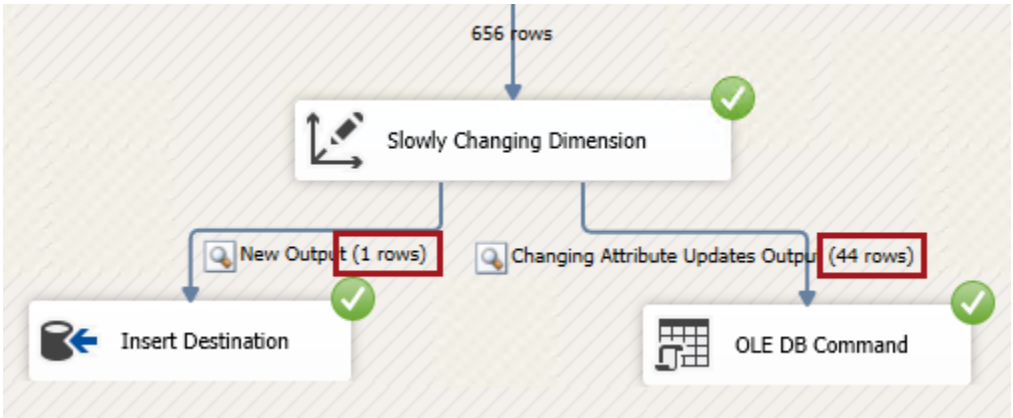
2. Review the data in the two data viewer windows that open.

   *The window titled **New Output Data Viewer** displays any new cities added. Recall that the city of **Perth** was added. Note that the New Zealand cities are not loaded because they were imported into model version **VERSION_2**.*

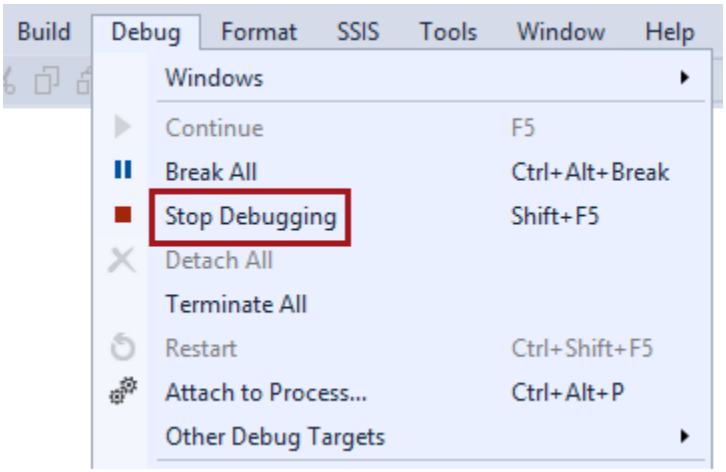
   *The window titled **Changing Attribute Updates Output Data Viewer** displays 44 rows representing the changes made to the **Melbourne** and **San Francisco** IP addresses, and all 42 **Washington** cities which have had their sales territory region changed to **Northwest**.*

3. To close the data view windows, click the **X** button located at the top-right corner.

4. In the data flow of the **LoadDimGeography** package, review the statistics that describe that 656 rows were passed into the Slowly Changing Dimension transformation, and the rows passed out to the two output components.



5. To return to design mode, on the **Debug** menu, select **Stop Debugging**.



You have now completed the lab.

*When you are ready, you should complete the **Finishing Up** exercise to delete the VM.*

Be sure to answer all Lab-based Knowledge Check questions before deleting the VM.

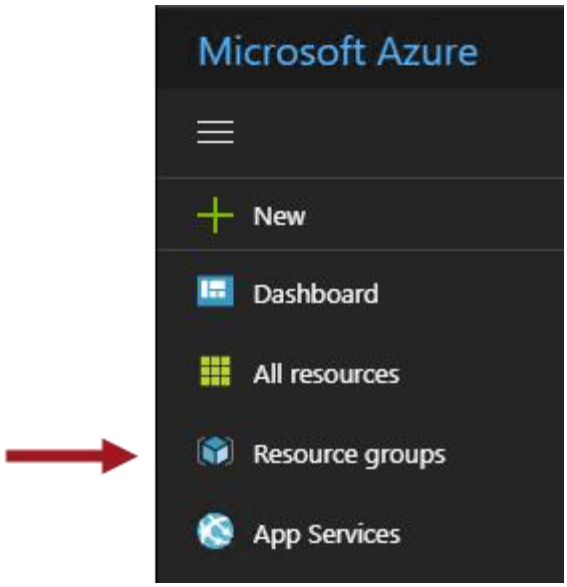
Finishing Up

In this exercise, you will delete the **Lab** resource group, which will delete the VM.

> **Knowledge Base Check**
> **Before You Move On**
>
> Before deleting the resource group, it is recommended that you open your Knowledge Check portion of the course within EdX and answer any outstanding end-of-module questions for modules 1-3.

1. Close the remote desktop window.

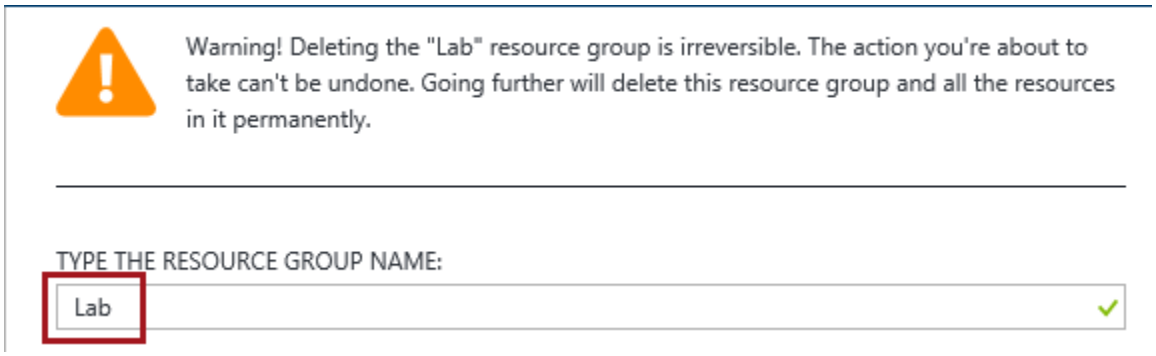
2. In the **Azure Portal** browser page, select **Resource Groups**.



3. In the **Resource Groups** blade, select the **Lab** resource group.

4. In the **Lab** blade, click **Delete Resource Group**.

5. When prompted to delete the resource group, in the **Type the Resource Group Name** box, enter **Lab**.



6. Click **Delete**.

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