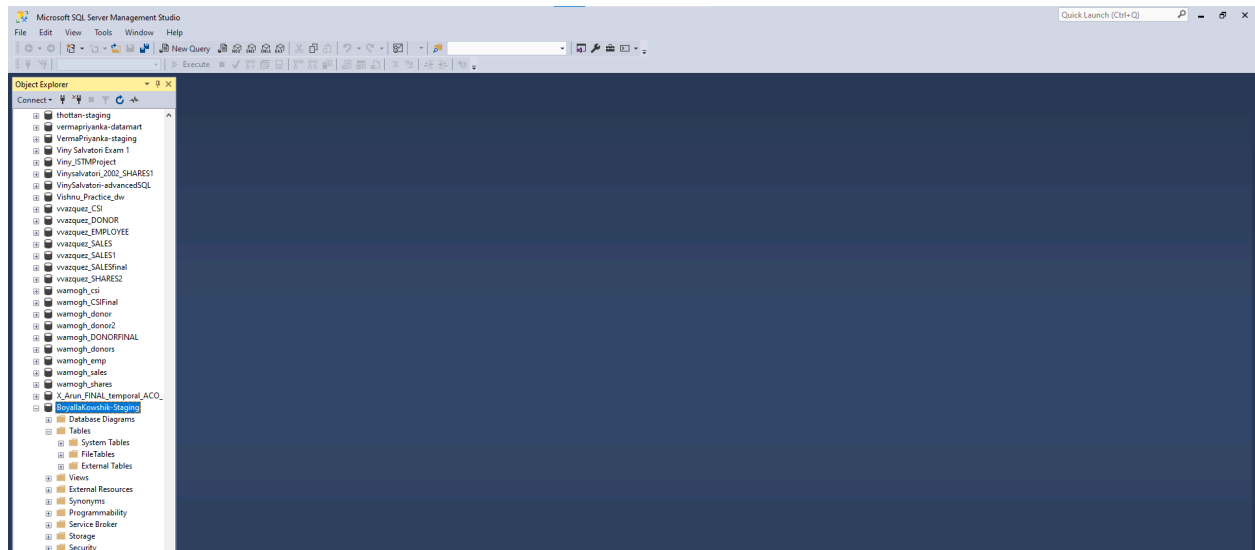


Name: Sri Sai Kowshik Reddy Boyalla
UIN: 734003625

1. Extraction Part

Creation of staging database:

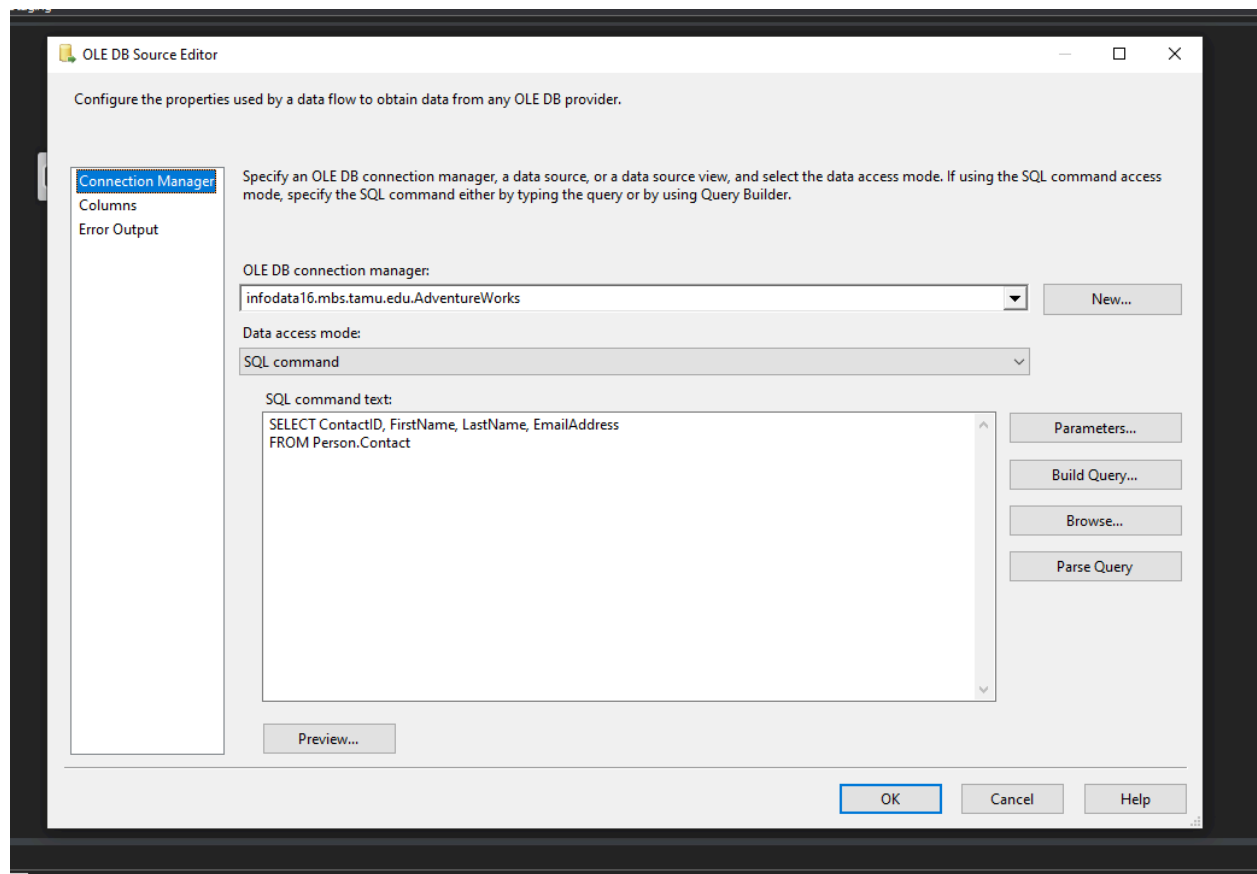


Creating Tables in staging:

cust_staging Table creation and Loading the data from AdventureWorks OLTP Source:

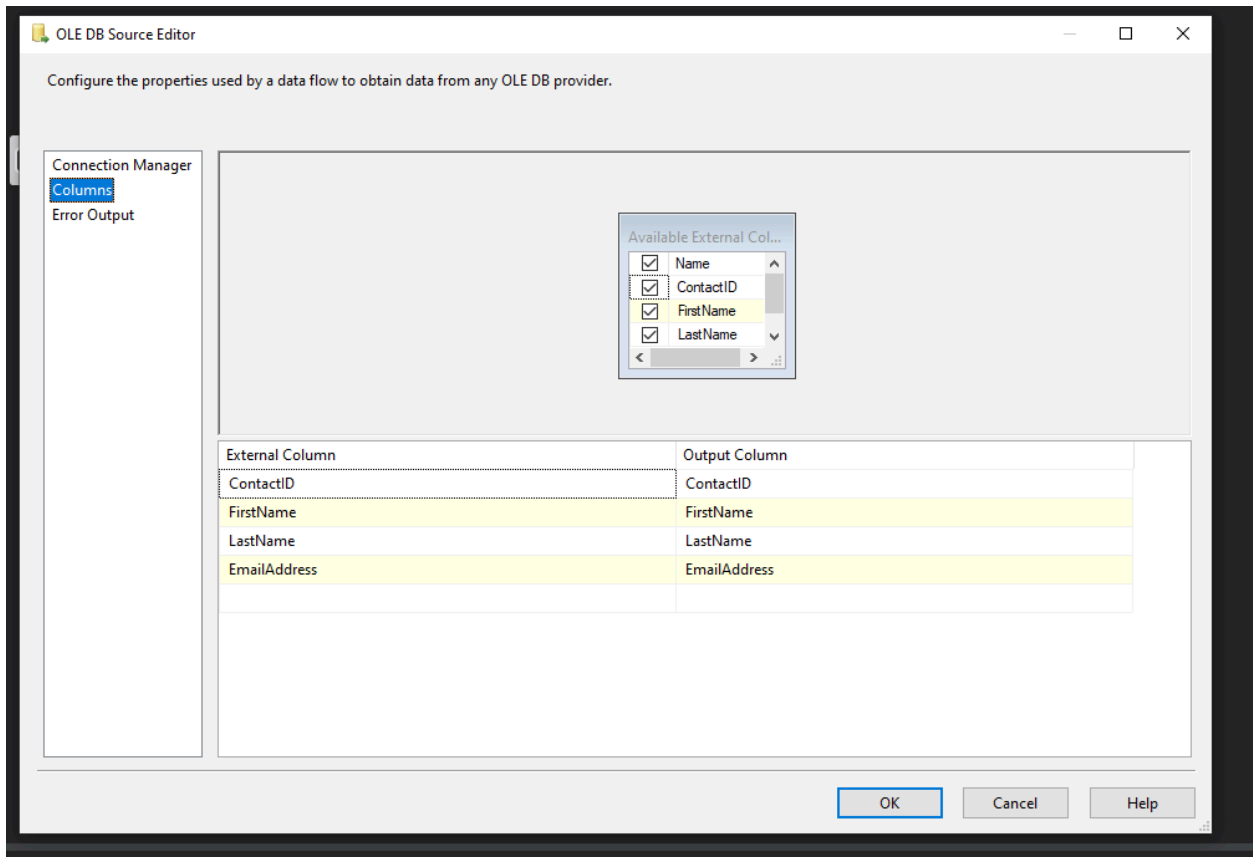
Configuring OLEDB Source:

In source, I made a connection to AdventureWorks OLTP database and wrote a query to fetch relevant columns from the Person.Contact Table of AdventureWorks.

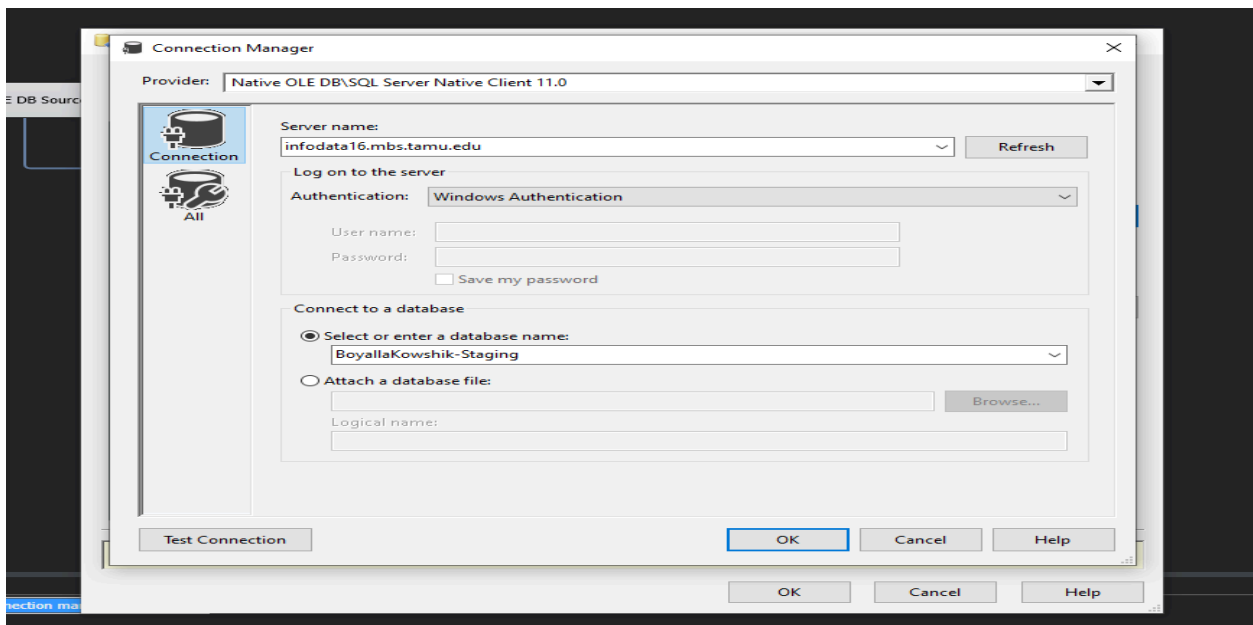


Query:

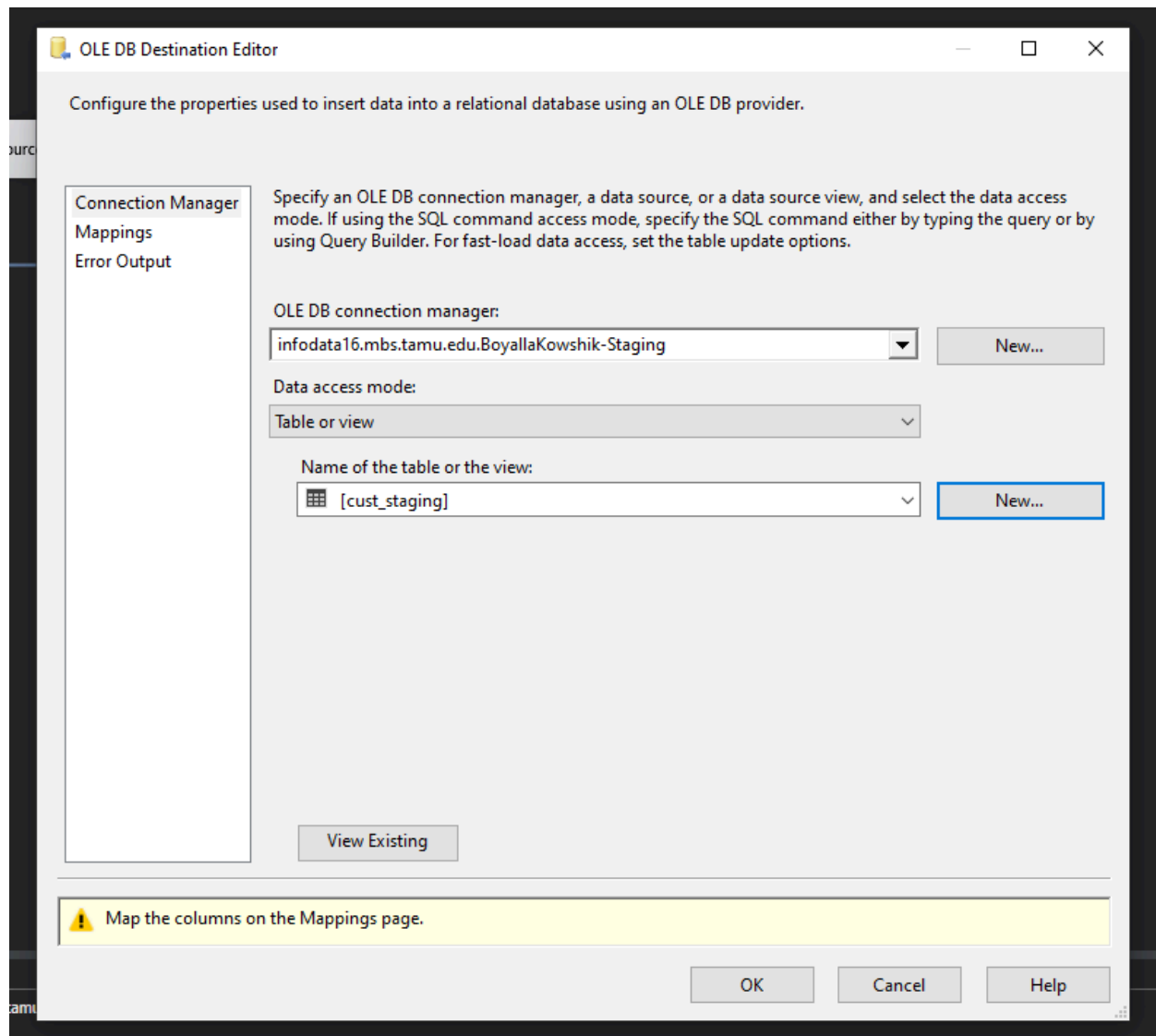
```
SELECT ContactID, FirstName, LastName, EmailAddress
FROM Person.Contact
```

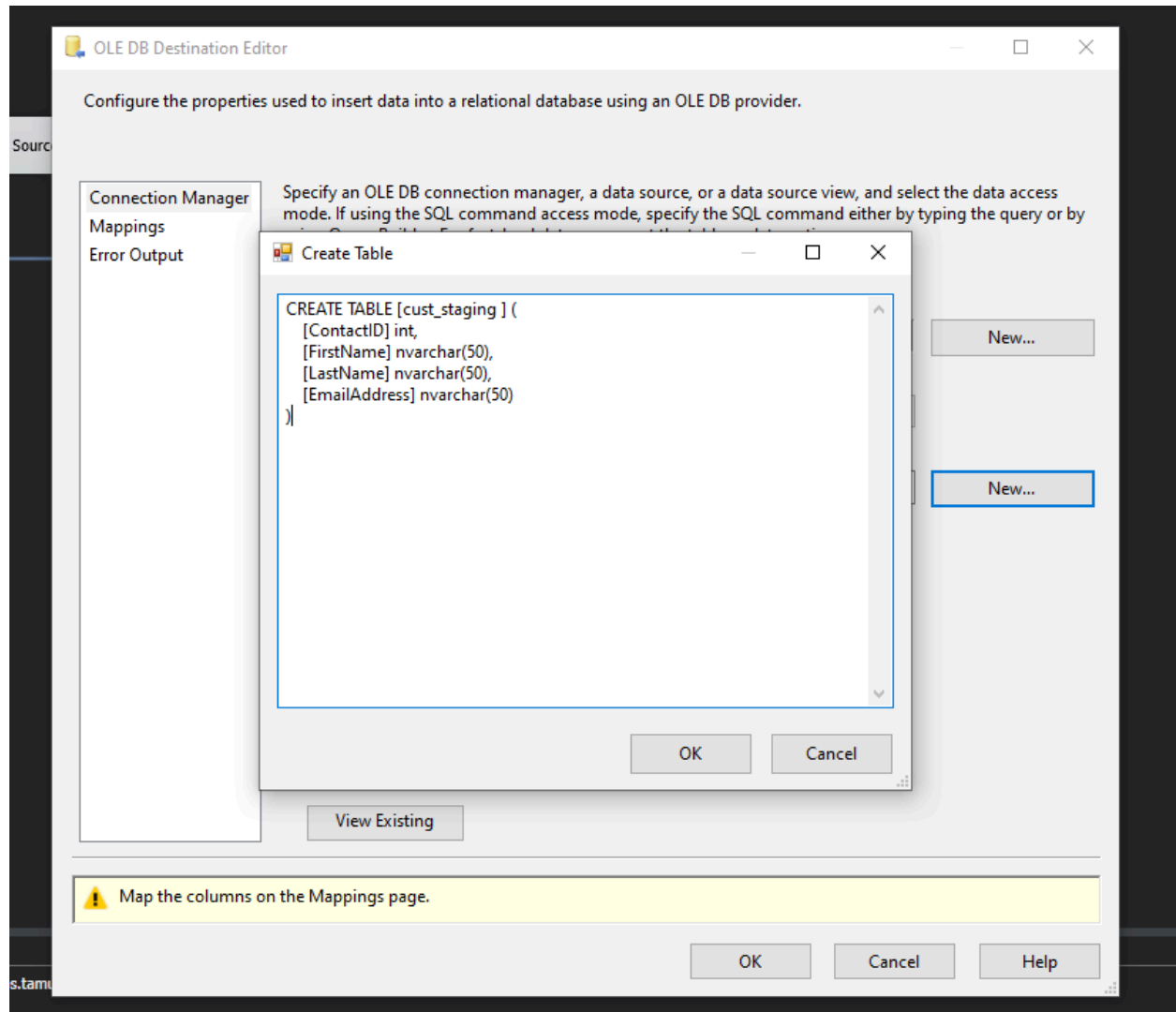


Configuring OLE DB Destination: Made a connection to KowshikBoyalla - staging DB in OLE DB destination



Creating a new table in staging:

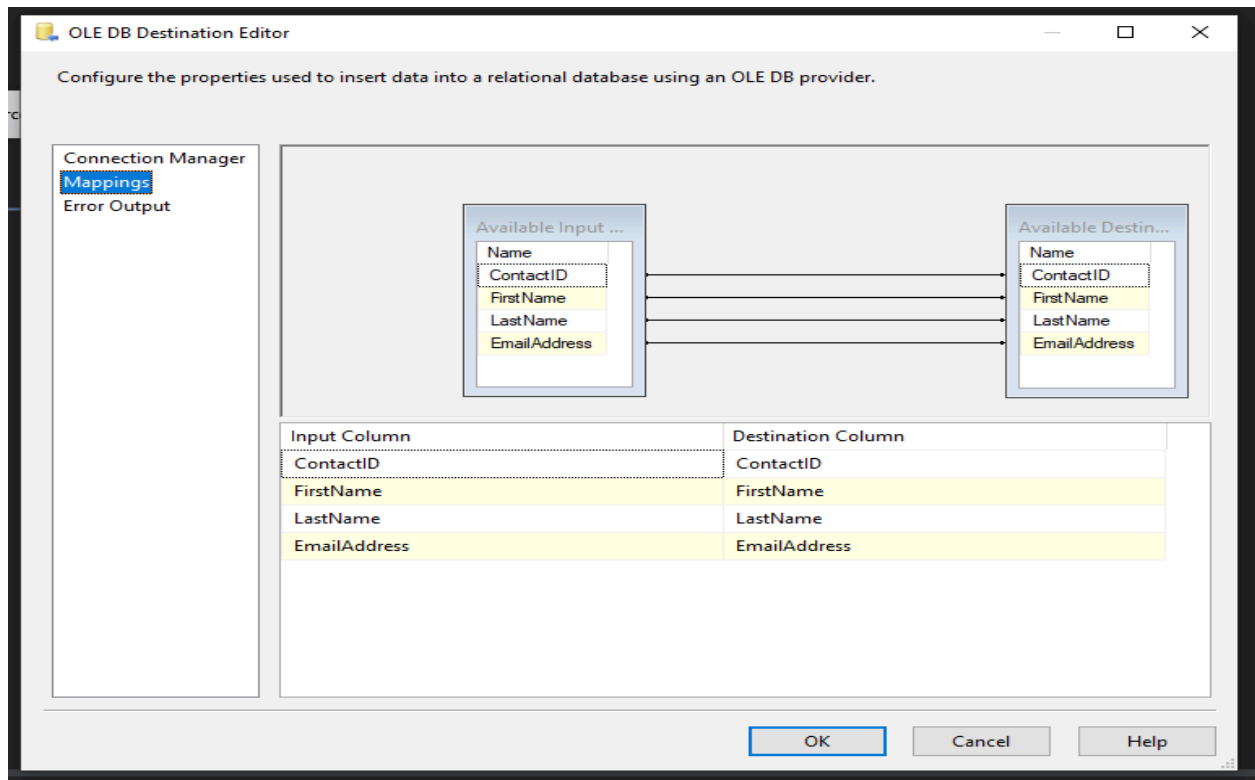




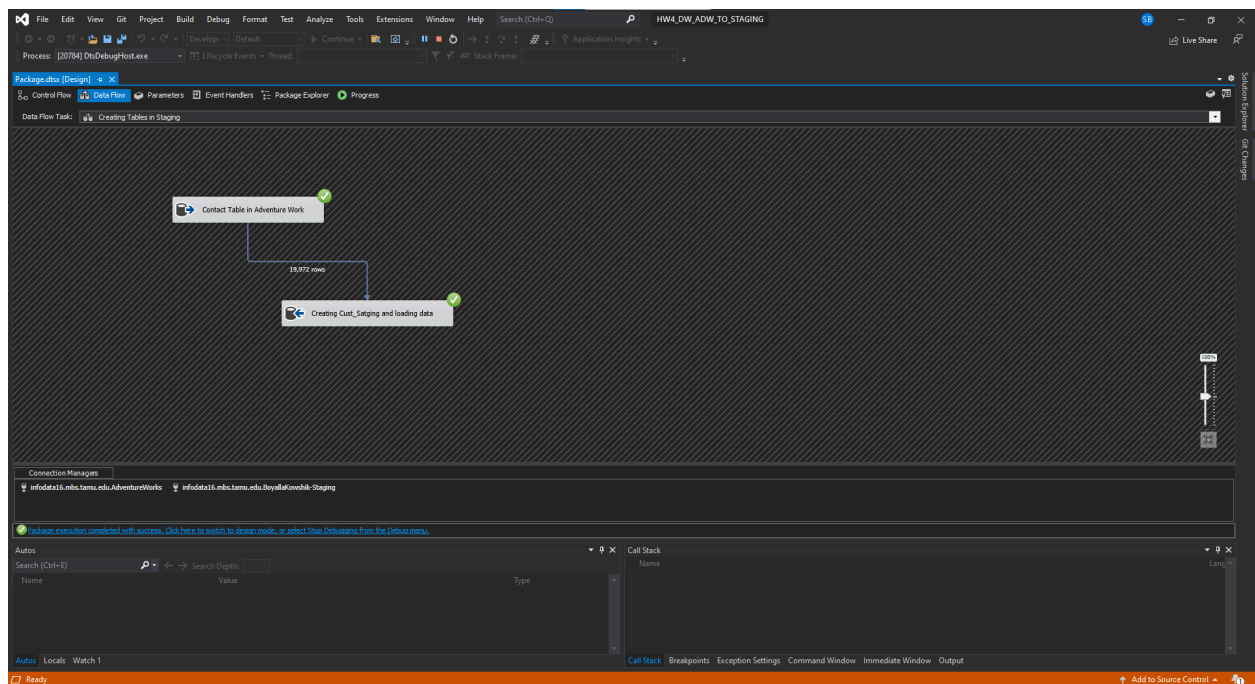
Query:

```
CREATE TABLE [cust_staging] (  
  [ContactID] int,  
  [FirstName] nvarchar(50),  
  [LastName] nvarchar(50),  
  [EmailAddress] nvarchar(50)  
)
```

Mapping:



Created **cust_staging** table in staging DB and loaded data into table from **Person.Contact** table of AdventureWorks OLTP database.



Validating Table creation in SSMS:

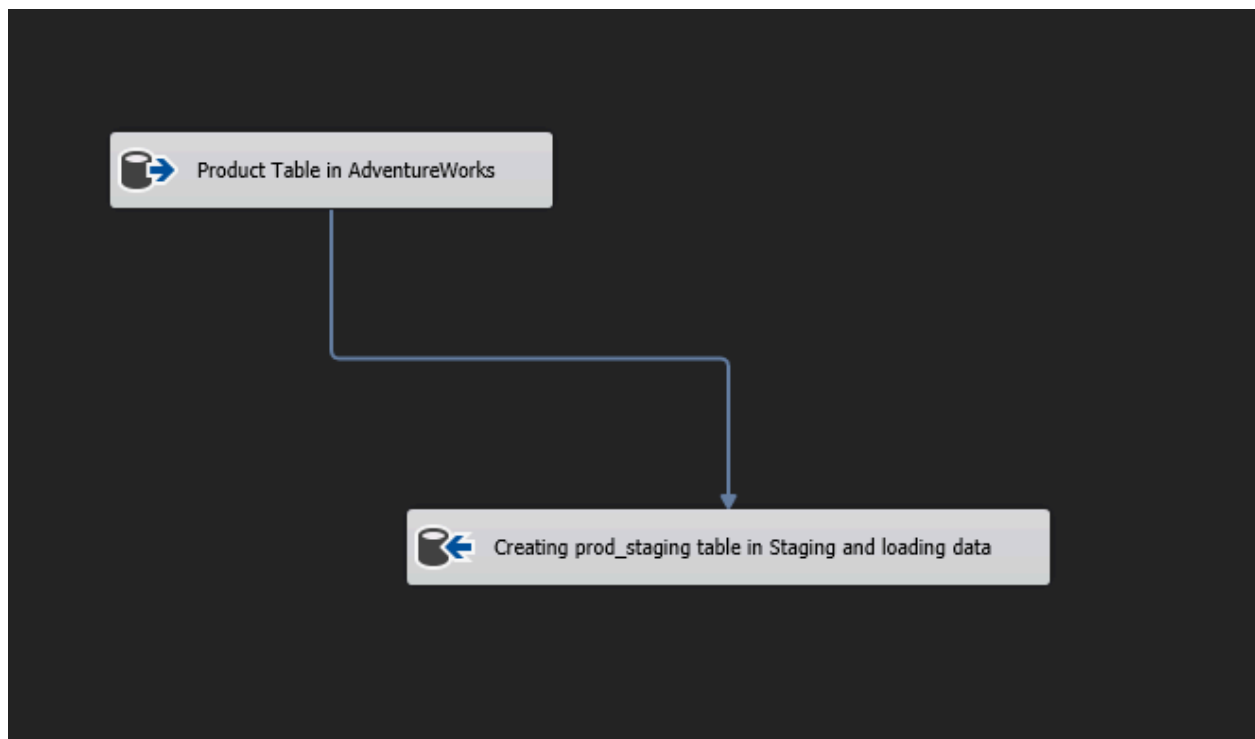
The screenshot shows the Microsoft SQL Server Enterprise Manager (SSMS) interface. The left pane displays the 'Object Explorer' with the 'AdventureWorks' database selected. The right pane shows a query window with the following SQL script:

```
/****** Script for SelectTopRows command from SSIS ******/
SELECT TOP (1000) ([ContactID]
,[FirstName]
,[LastName]
,[EmailAddress])
FROM [AdventureWorks-Staging].[dbo].[cust_staging]
```

The 'Results' pane at the bottom displays the following data:

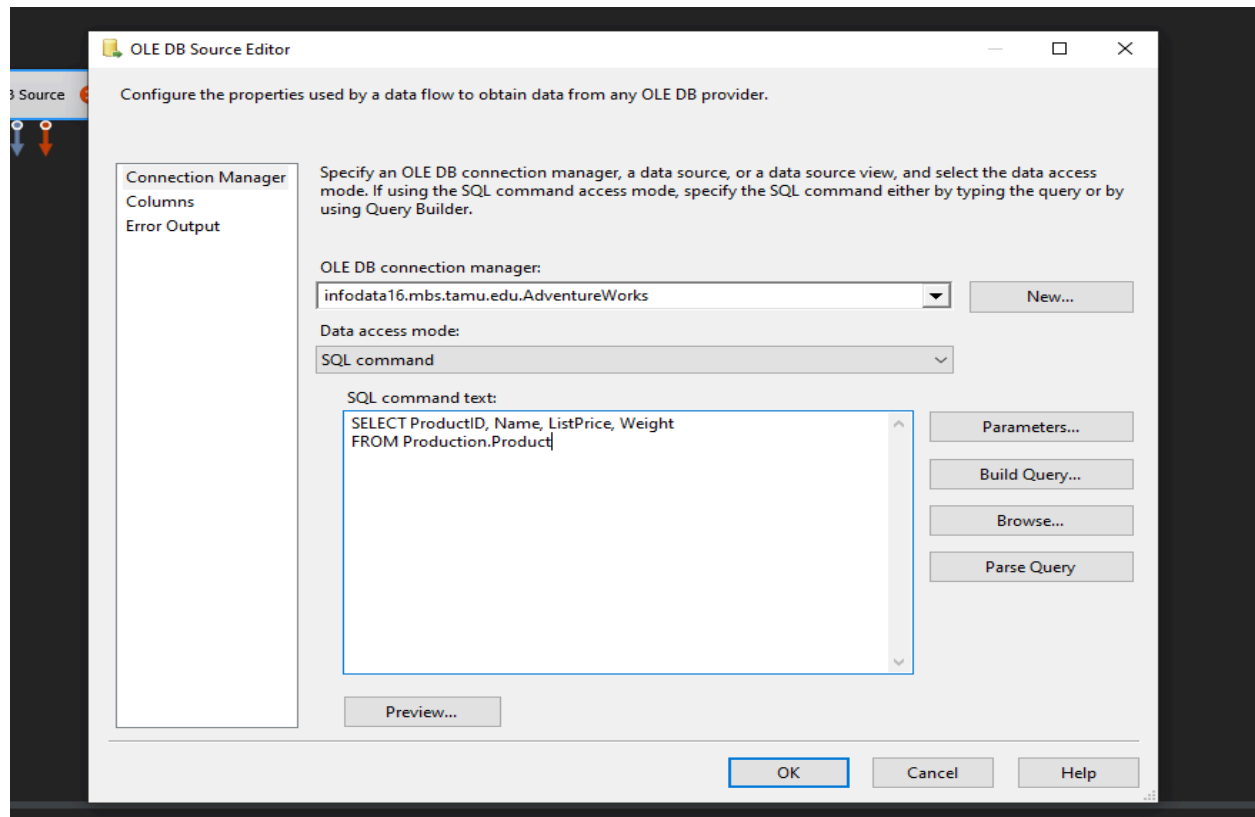
ContactID	FirstName	LastName	EmailAddress
1	Gustavo	Achong	gustavo@adventure-works.com
2	Catherine	Abel	catherine@adventure-works.com
3	Ken	Abercrombie	ken2@adventure-works.com
4	Humberto	Acevedo	humberto@adventure-works.com
5	Pilar	Achaman	pilar@adventure-works.com
6	Frances	Adams	frances@adventure-works.com
7	Margaret	Smith	margaret@adventure-works.com
8	Celia	Adams	celia@adventure-works.com
9	Jay	Adams	jay@adventure-works.com
10	Ronald	Adna	ronald@adventure-works.com
11	Samuel	Apcahill	samuel@adventure-works.com
12	James	Agular	james2@adventure-works.com
13	Robert	Albright	robert1@adventure-works.com
14	Francis	Fennor	francis@adventure-works.com
15	Ken	Alers	ken3@adventure-works.com
16	Lili	Alameda	lili@adventure-works.com
17	Amy	Alberts	amy1@adventure-works.com
18	Anna	Albright	anna@adventure-works.com
19	Milton	Abury	milton@adventure-works.com

Creating prod_staging table in staging and Loading the data from AdventureWorks OLTP Source:



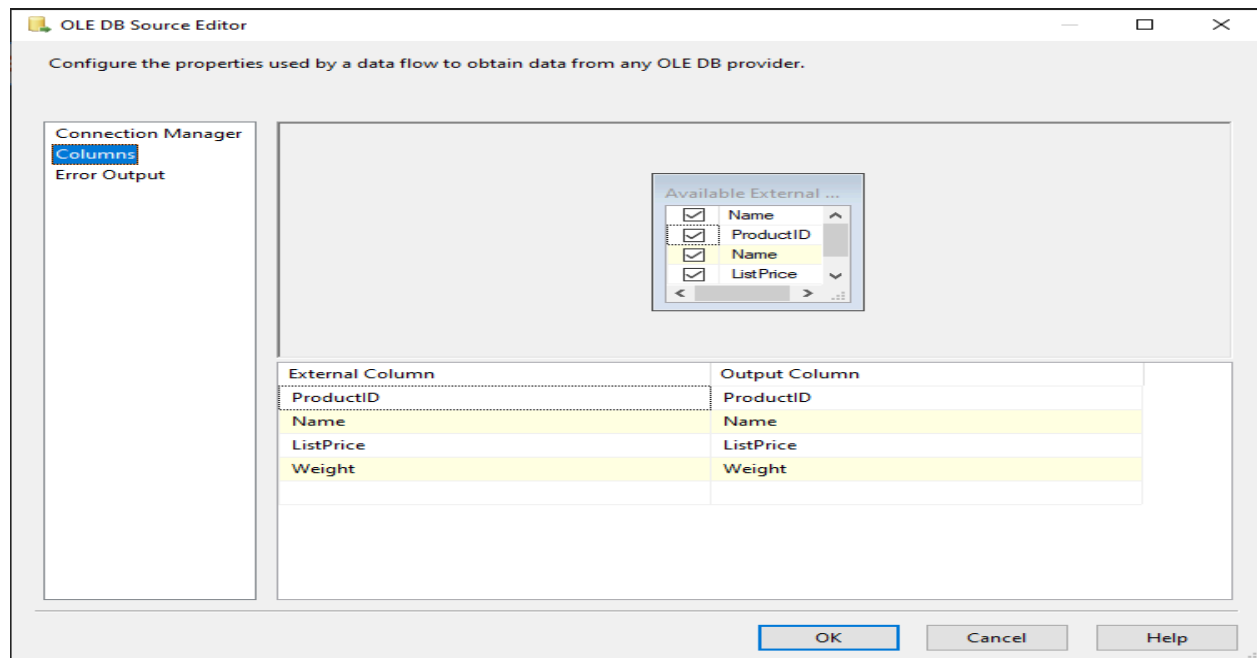
Created a new package and added a data flow task in SSIS. In that task, I added an OLE DB source and OLE DB destination.

Configuring source: Connected to AdventureWorks OLTP database and created a select query to select required columns.



Query:

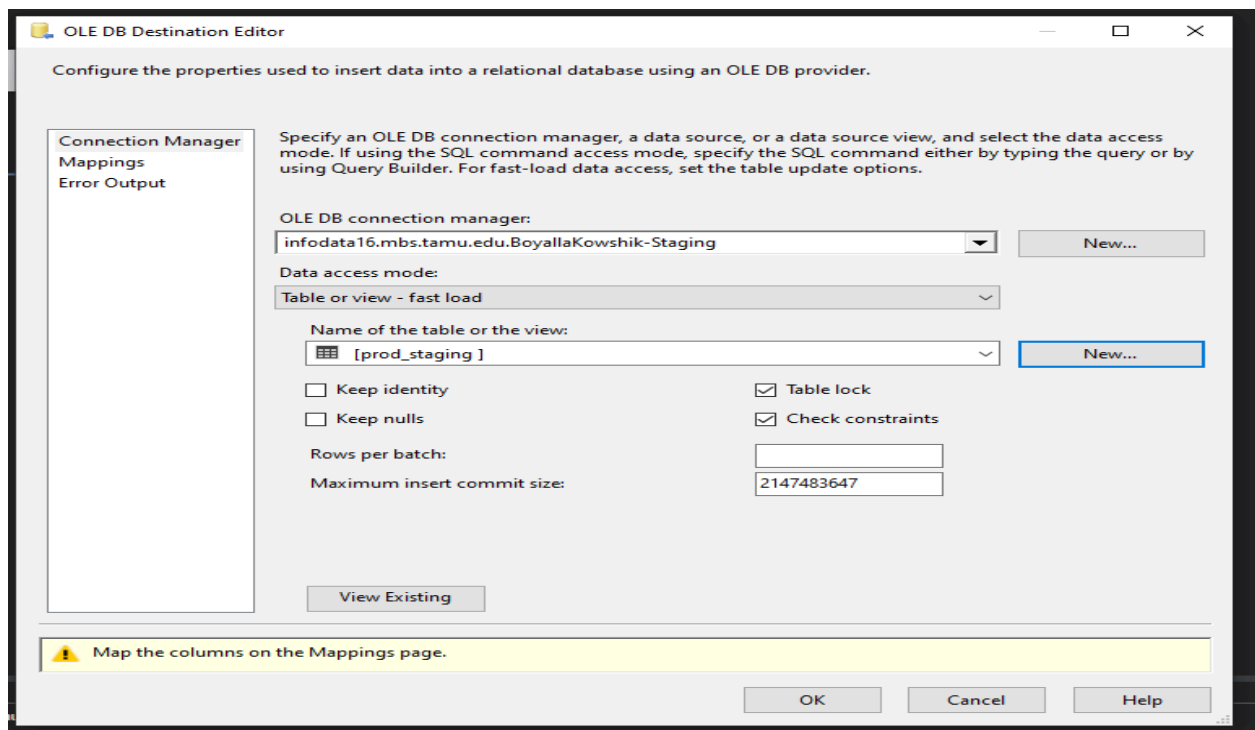
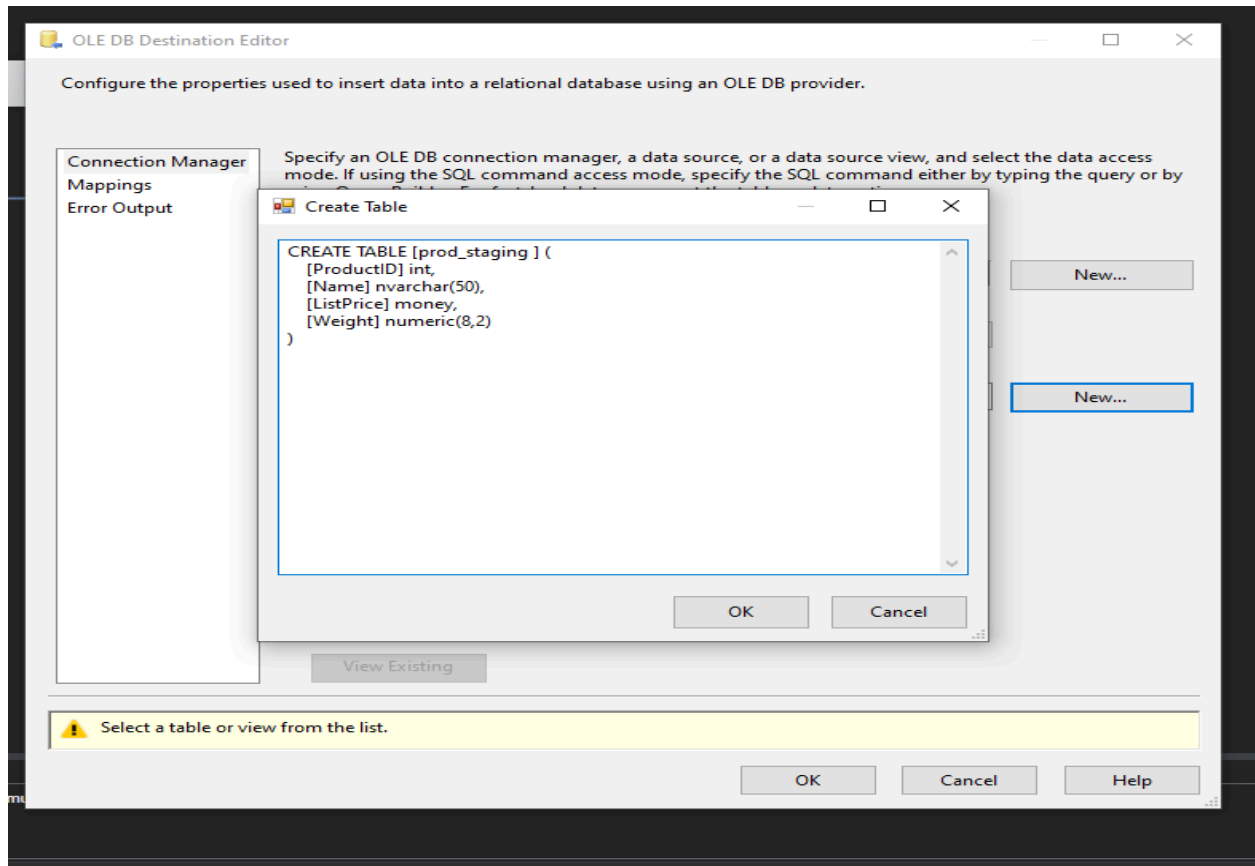
```
SELECT ProductID, Name, ListPrice, Weight
FROM Production.Product
```

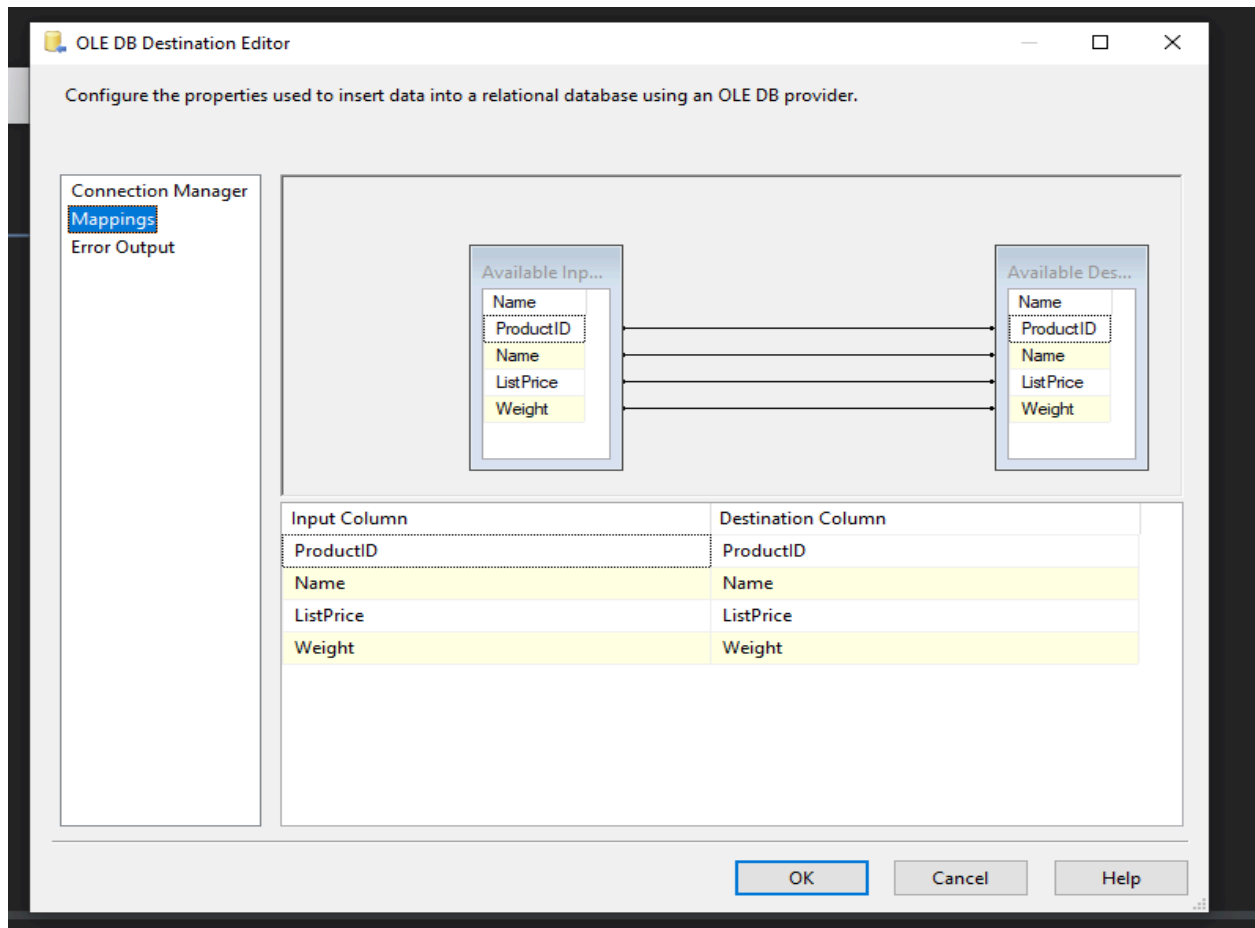
Configuring OLEDB Destination: Made a connection to KowshikBoyalla - staging DB and wrote a new SQL Command to create prod_staging table.

Query:

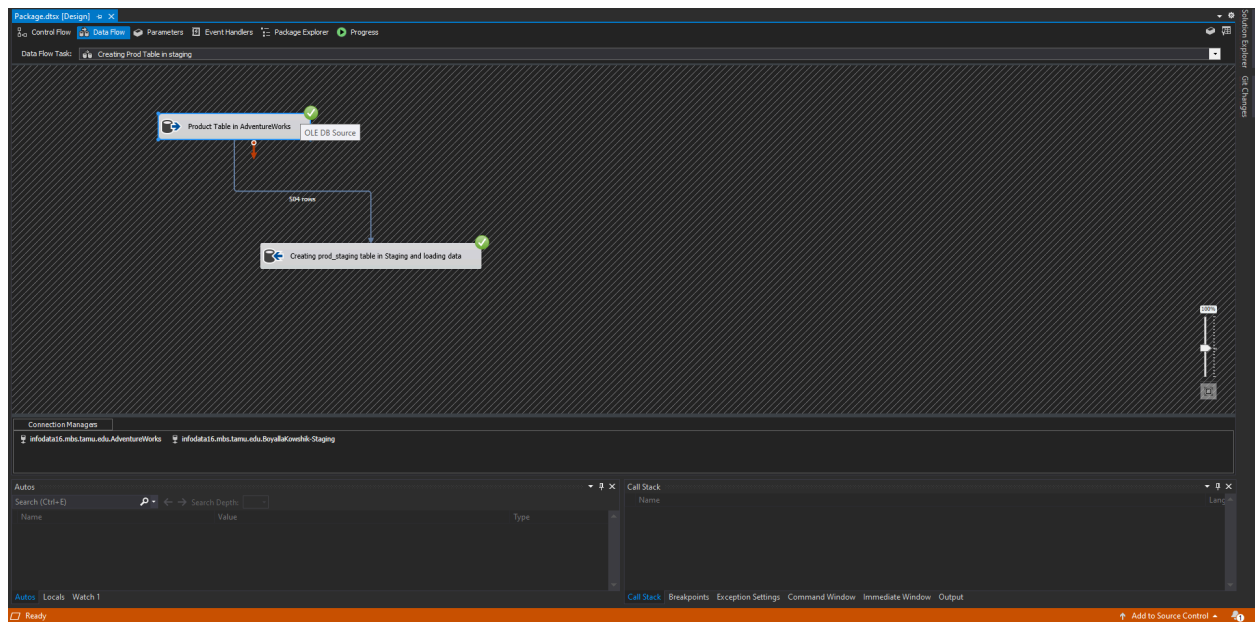
```
CREATE TABLE [prod_staging] (  
    [ProductID] int,  
    [Name] nvarchar(50),  
    [ListPrice] money,  
    [Weight] numeric(8,2)  
)
```



Mapping:



Created table and loaded data into prod_staging table in staging db:



Validating Table in SSMS:

The screenshot shows the Microsoft SQL Server Enterprise Manager (SSMS) interface. The left pane displays the 'Object Explorer' with the 'BoyallaKowshik-Staging' database selected. The right pane shows a SQL query window with the following query:

```
***** Script for SelectTopRows command from SSMS *****  
SELECT TOP (1000) [ProductID]  
               , [Name]  
               , [ListPrice]  
               , [Weight]  
FROM [BoyallaKowshik-Staging].[dbo].[prod_staging ]
```

The 'Results' pane at the bottom shows the output of the query, displaying 19 rows of data with columns: ProductID, Name, ListPrice, and Weight. The status bar at the bottom indicates 'Query executed successfully'.

ProductID	Name	ListPrice	Weight
1	Adjustable Race	0.00	NULL
2	Bearing Ball	0.00	NULL
3	BB Ball Bearing	0.00	NULL
4	Headset Ball Bearings	0.00	NULL
5	Blade	0.00	NULL
6	LL Crankarm	0.00	NULL
7	HL Crankarm	0.00	NULL
8	HL Crankarm	0.00	NULL
9	Chaining Bolts	0.00	NULL
10	Chaining Nut	0.00	NULL
11	Chaining	0.00	NULL
12	Crown Race	0.00	NULL
13	Chain Stays	0.00	NULL
14	Derail 1	0.00	NULL
15	Derail 2	0.00	NULL
16	Down Tube	0.00	NULL
17	Mountain End Caps	0.00	NULL
18	Road End Caps	0.00	NULL
19	Touring End Caps	0.00	NULL

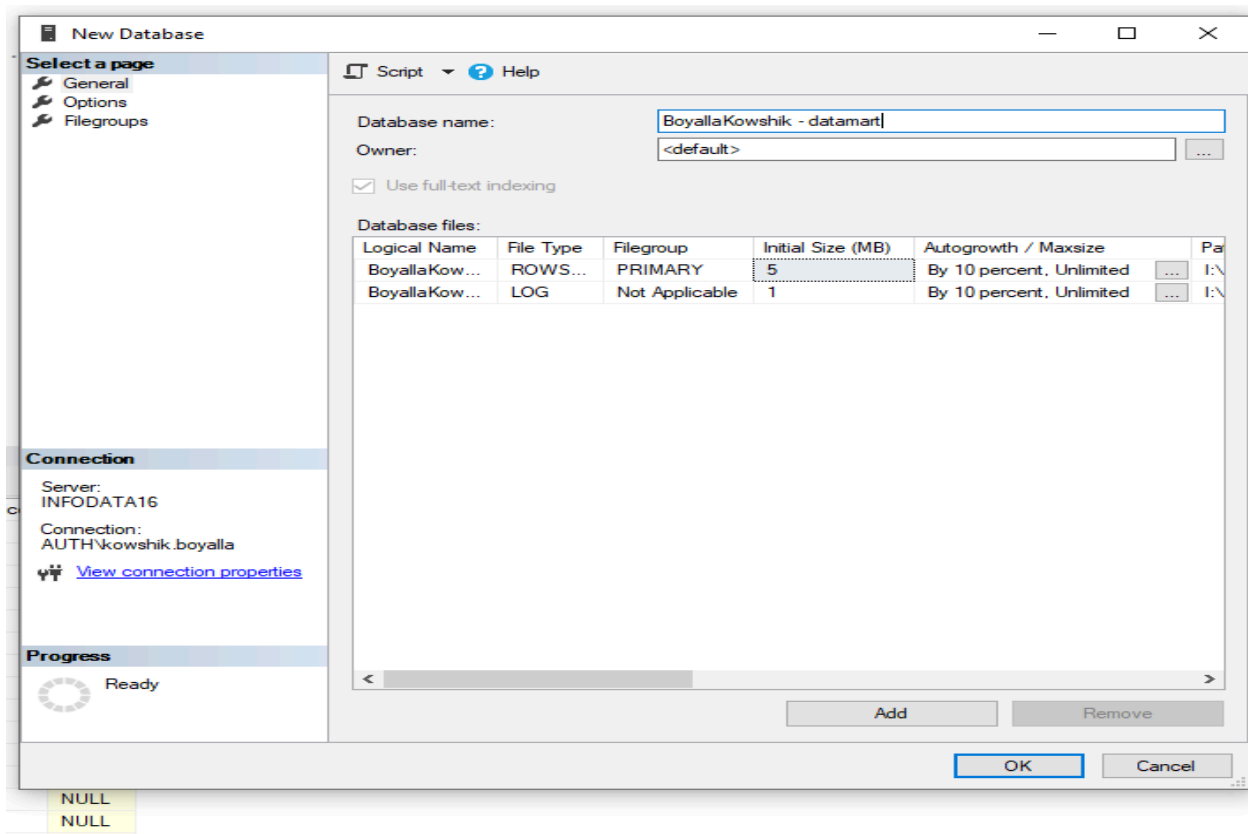
Staging:

The screenshot shows the 'Object Explorer' in SSMS for the 'BoyallaKowshik-Staging' database. The tree structure is as follows:

- BoyallaKowshik-Staging
 - Database Diagrams
 - Tables
 - System Tables
 - FileTables
 - External Tables
 - dbo.cust_staging
 - dbo.prod_staging
 - Views
 - External Resources
 - Synonyms
 - Programmability
 - Service Broker
 - Storage
 - Security

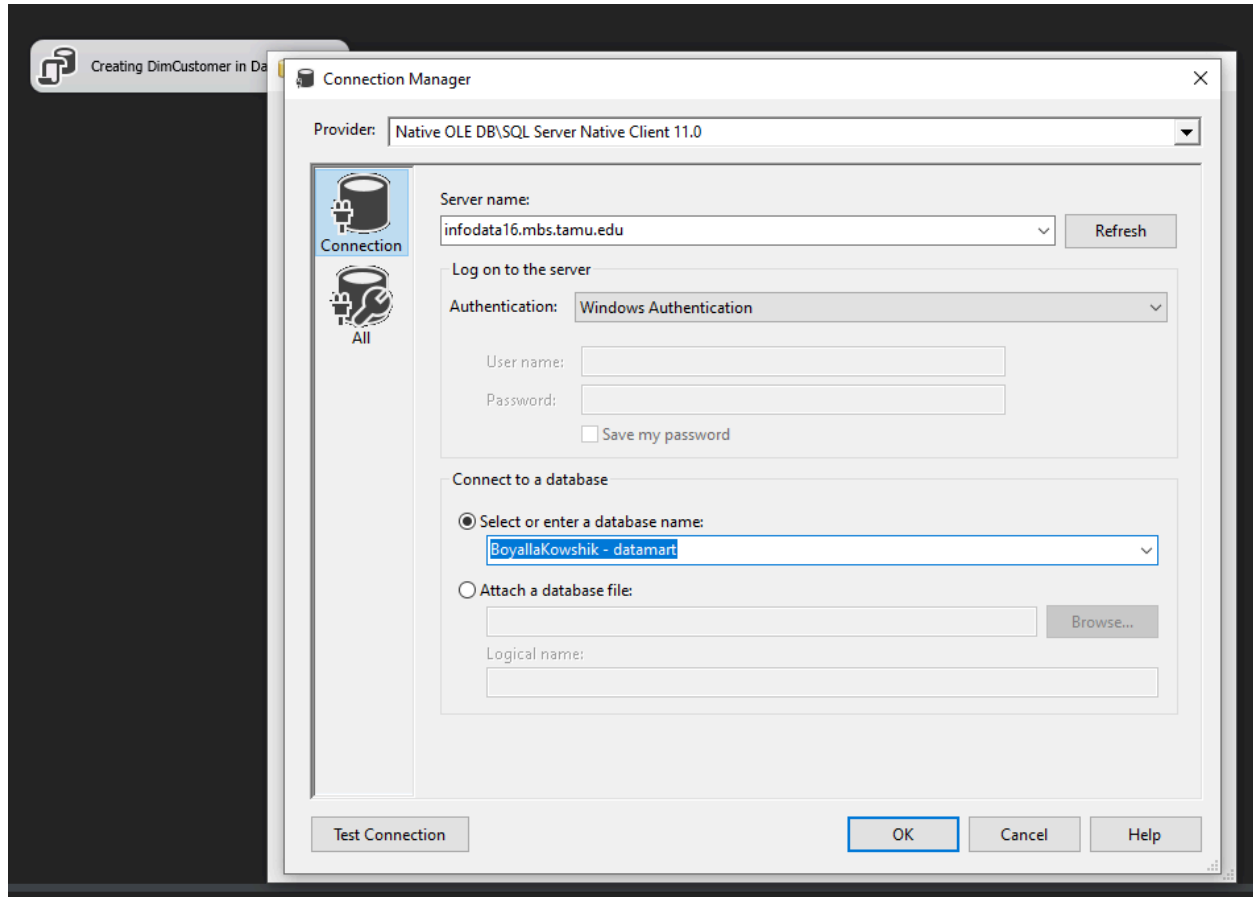
3. Loading data from staging to dimension tables of data mart:

Creating Data Mart:



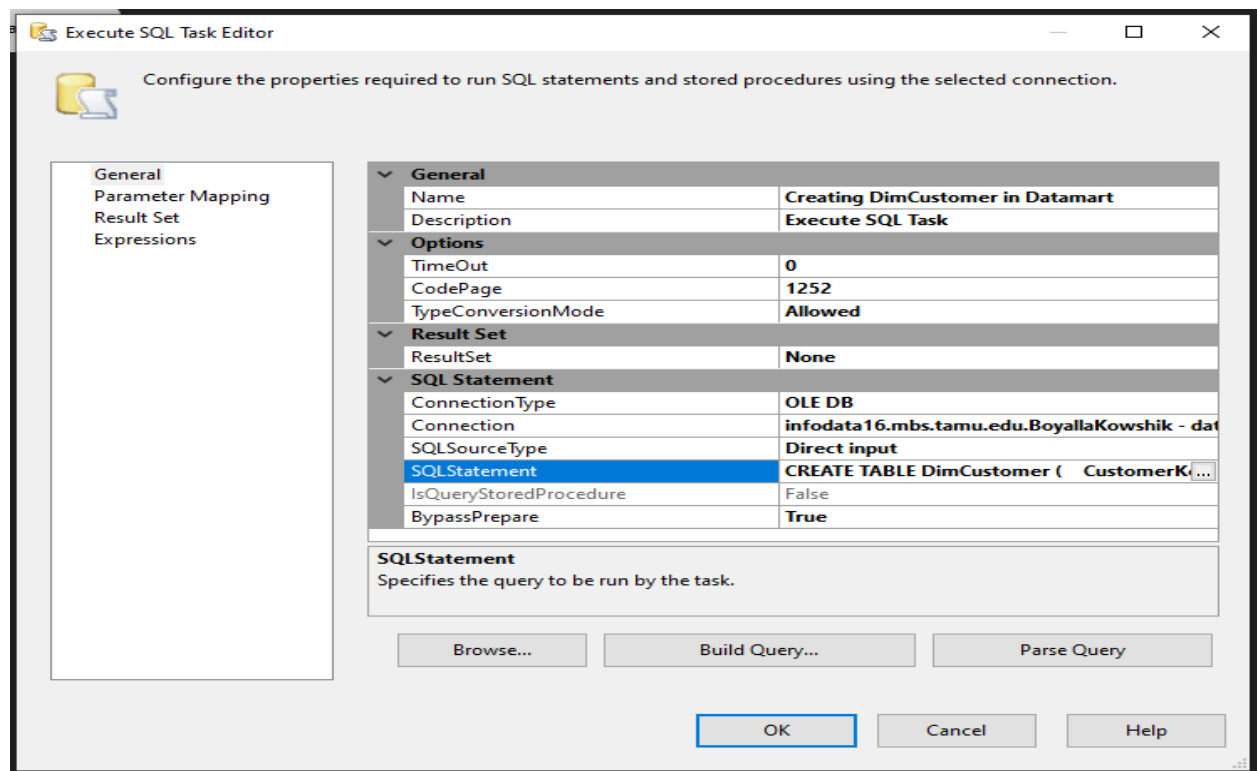
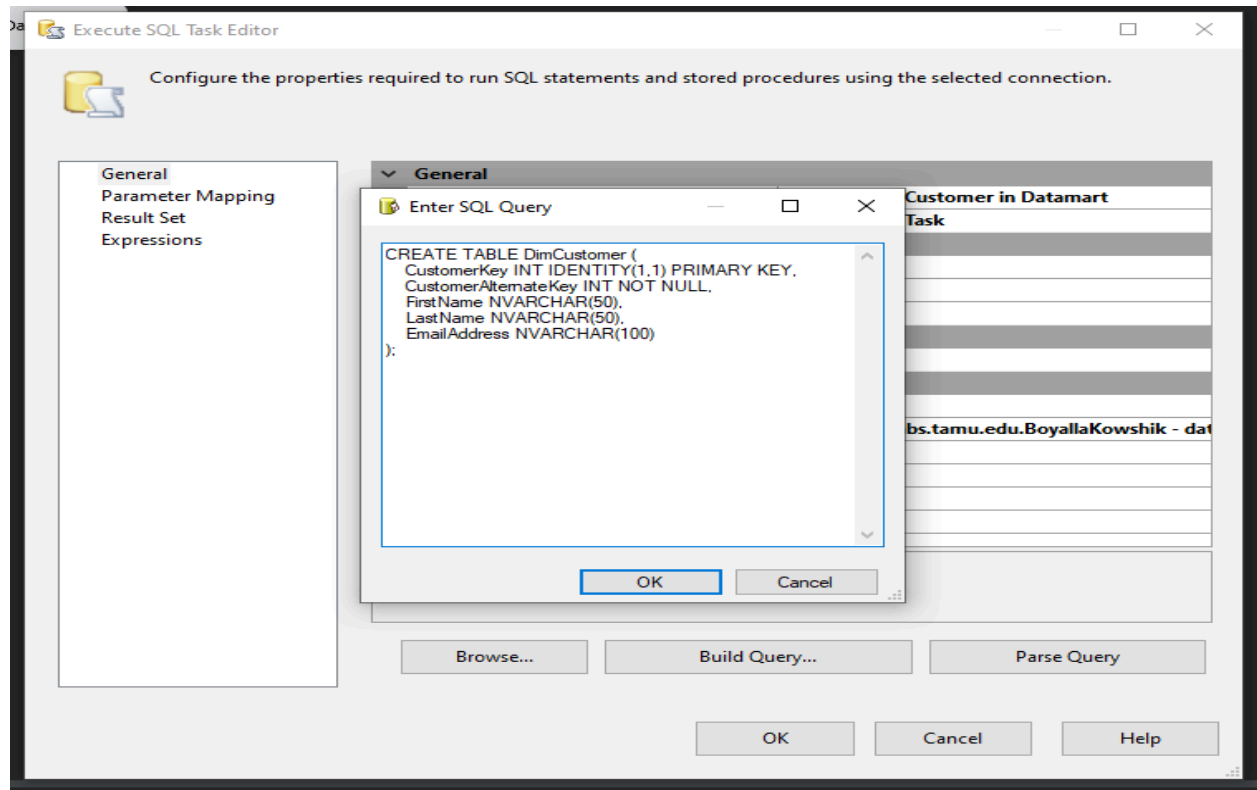
Opened SSIS and created a new package. In that package added 2 new Execute SQL tasks to create **DimCustomer** and **DimProduct** dimension tables in data mart.

Making a connection to data mart



Create table command: DimCustomer

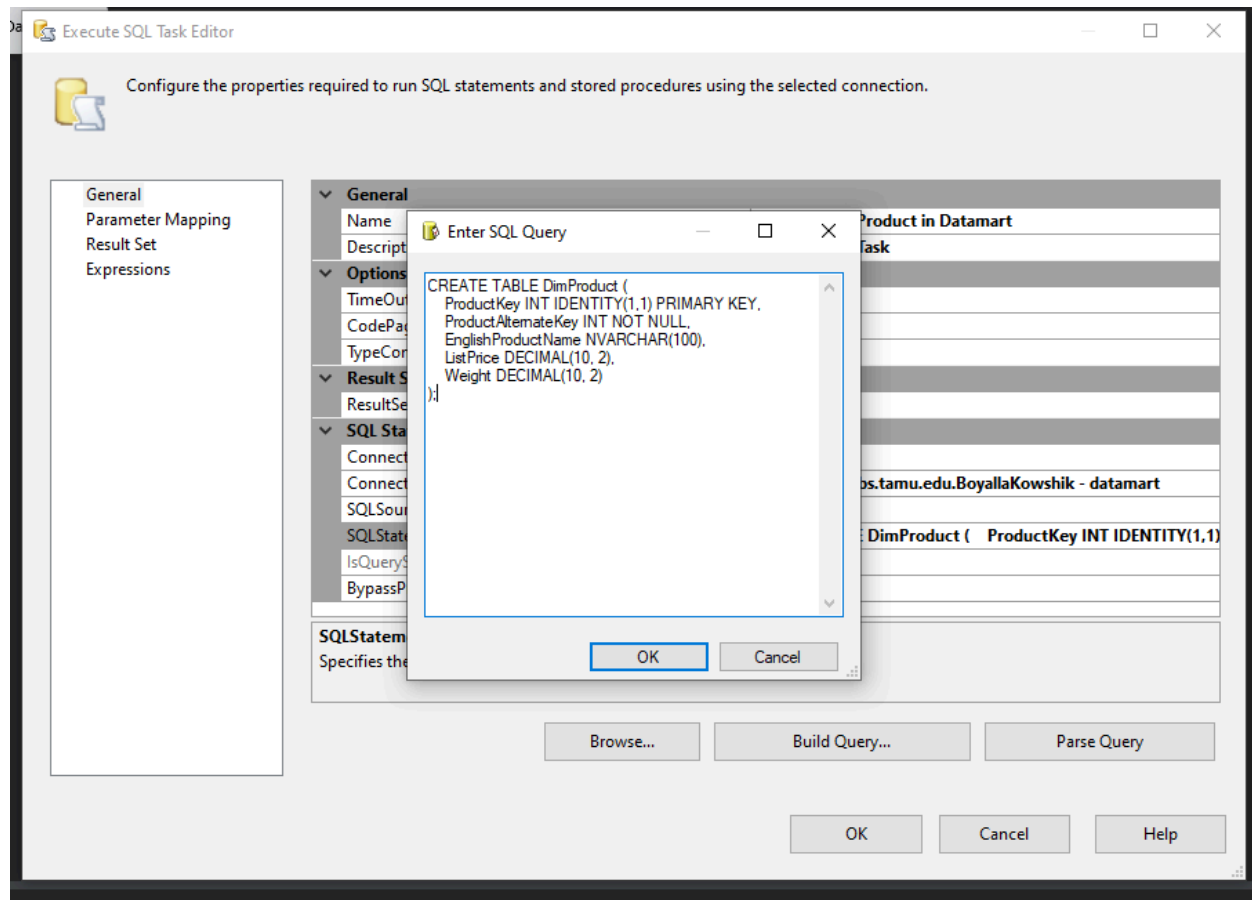
```
CREATE TABLE DimCustomer (  
    CustomerKey INT IDENTITY(1,1) PRIMARY KEY,  
    CustomerAlternateKey INT NOT NULL,  
    FirstName NVARCHAR(50),  
    LastName NVARCHAR(50),  
    EmailAddress NVARCHAR(100)  
);
```



Using Execute SQL component to create DimProduct table in datamart:

Create Command:

```
CREATE TABLE DimProduct (  
    ProductKey INT IDENTITY(1,1) PRIMARY KEY,  
    ProductAlternateKey INT NOT NULL,  
    EnglishProductName NVARCHAR(100),  
    ListPrice DECIMAL(10, 2),  
    Weight DECIMAL(10, 2)  
);
```



Execute SQL Task Editor

Configure the properties required to run SQL statements and stored procedures using the selected connection.

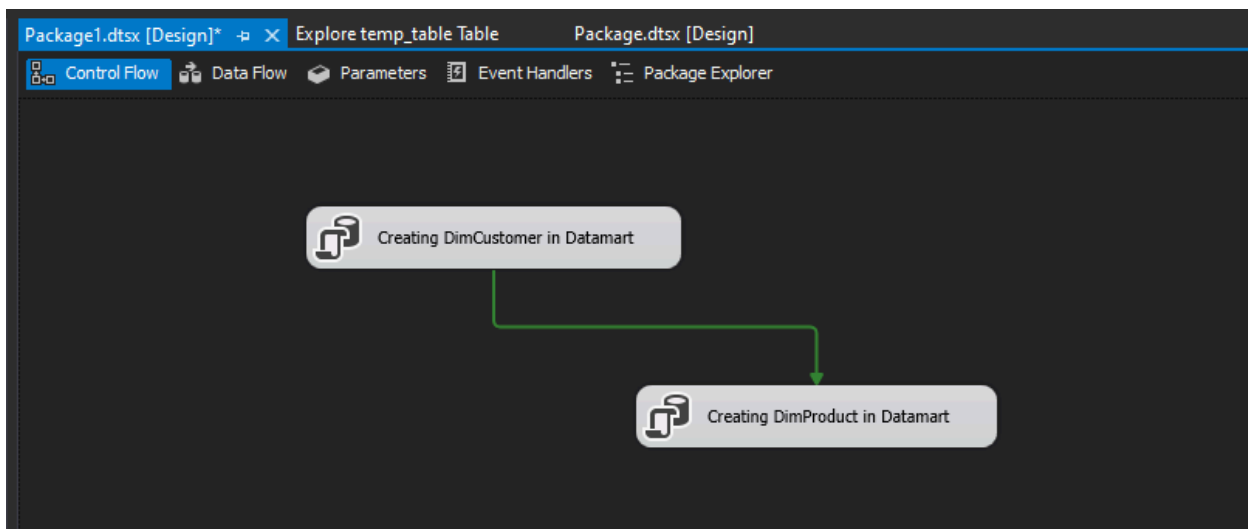
General
Parameter Mapping
Result Set
Expressions

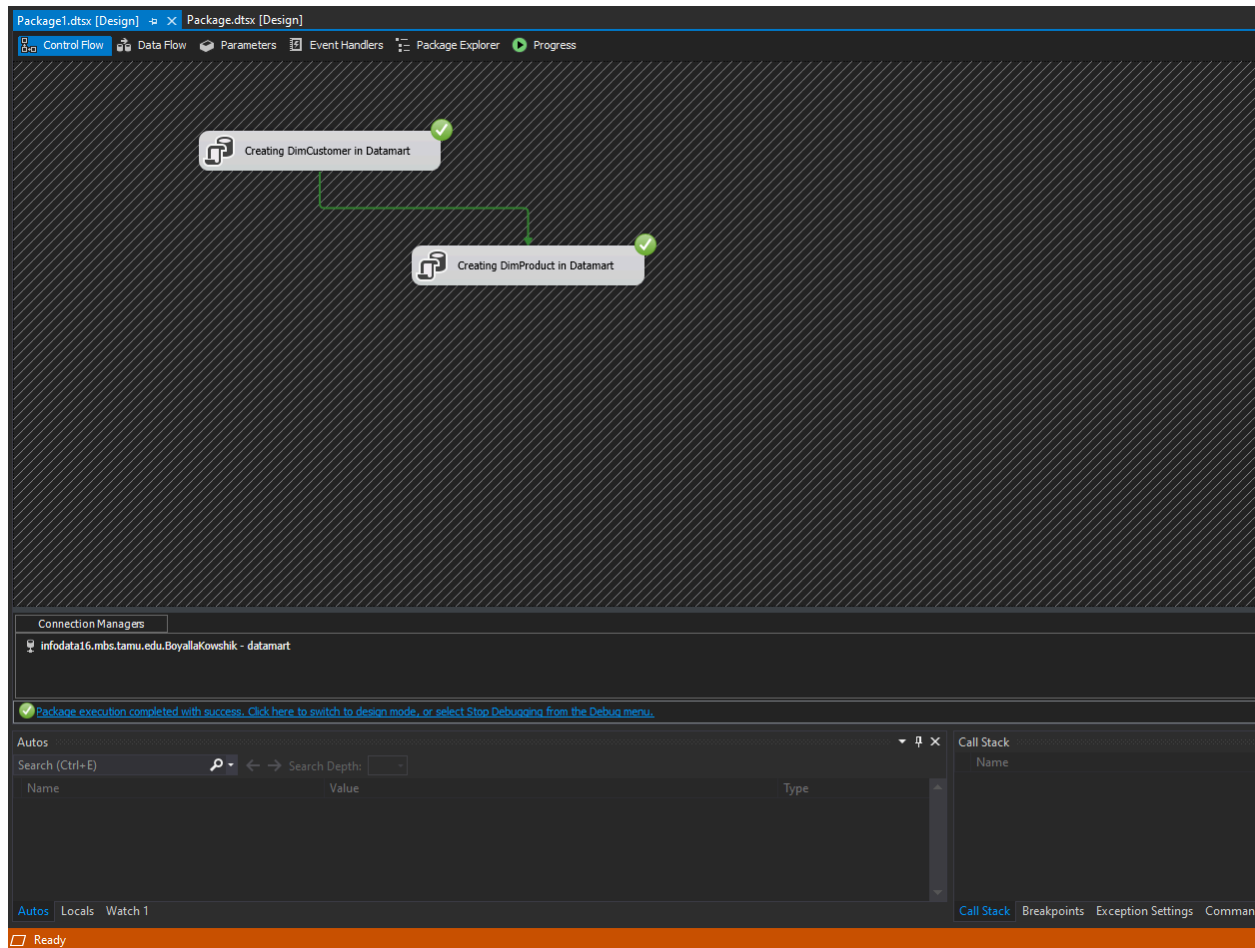
General	
Name	Creating DimProduct in Datamart
Description	Execute SQL Task
Options	
TimeOut	0
CodePage	1252
TypeConversionMode	Allowed
Result Set	
ResultSet	None
SQL Statement	
ConnectionType	OLE DB
Connection	infodata16.mbs.tamu.edu.BoyallaKowshik - datamart
SQLSourceType	Direct input
SQLStatement	CREATE TABLE DimProduct (ProductKey INT IDENTITY(1...
IsQueryStoredProcedure	False
BypassPrepare	True

SQLStatement
Specifies the query to be run by the task.

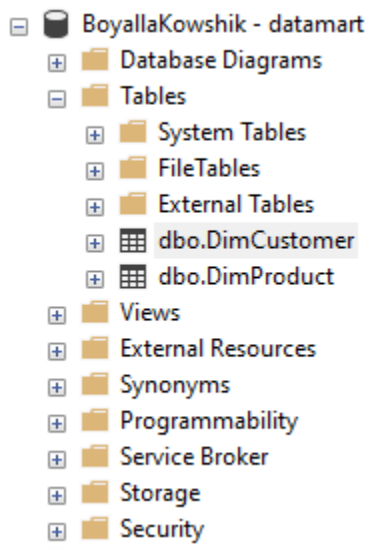
Browse... Build Query... Parse Query

OK Cancel Help





Validating in SSMS:



SQLQuery1.sql - infodata16.mbc.tamu.edu.BoyallaKowshik - datamart (AUTH\kowschik.boyal... - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

Object Explorer

- Connect
- amulya-stagingDB
- Arum-Final-Temporal_ACO_Census_MPP_QP
- Arum-Temporal_ACO_MUP_webMD
- Arum-ACO-Database KEEP
- Arum-datamartDB_KEEP_USE
- Arum-EDW_KEEP
- Arum-example328_KEEP
- Arum-example637_KEEP
- Arum-Final-ACO-WebMD
- Arum-info637_KEEP
- Arum-Rajiv_paper-1
- Arum-research_KEEP
- Arum-stagingDB_KEEP
- Arum-temp_KEEP
- Arumtest_KEEP
- bezawada-datamart
- bezawada-staging
- BoyallaKowshik - datamart
 - Database Diagrams
 - Tables
 - System Tables
 - FileTables
 - External Tables
 - dbo.DimCustomer
 - dbo.DimProduct
 - Views
 - External Resources
 - Synonyms
 - Programmability
 - Service Broker
 - Storage
 - Security
- BoyallaKowshik-Staging
- bohang
- carleegyong14_CS
- carleegyong14_DONOR
- carleegyong14_EMP
- carleegyong14_Project
- carleegyong14_SALES
- carleegyong14_SHARES
- chakradevavishnavi-datamart
- chakradevavishnavi-staging
- cmaker-EMP
- cmaker_AdvancedQueries
- cmaker_DONOR1
- cmaker-donor_old

SQLQuery1.sql - inf..shik.boyal... (80) -

```
/****** Script for SelectTopRows command from SSIS ******/
SELECT TOP (1000) [CustomerKey]
,[CustomerAlternateKey]
,[FirstName]
,[LastName]
,[EmailAddress]
FROM [BoyallaKowshik - datamart].[dbo].[DimCustomer]
```

100 %

Results Messages

CustomerKey	CustomerAlternateKey	FirstName	LastName	EmailAddress
-------------	----------------------	-----------	----------	--------------

Query executed successfully. infodata16.mbc.tamu.edu (13... AUTH\kowschik.boyal... (60) BoyallaKowshik - datamart 00:00:00 0 rows

SQLQuery2.sql - infodata16.mbc.tamu.edu.BoyallaKowshik - datamart (AUTH\kowschik.boyal... - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

Object Explorer

- Connect
- amulya-stagingDB
- Arum-Final-Temporal_ACO_Census_MPP_QP
- Arum-Temporal_ACO_MUP_webMD
- Arum-ACO-Database KEEP
- Arum-datamartDB_KEEP_USE
- Arum-EDW_KEEP
- Arum-example328_KEEP
- Arum-example637_KEEP
- Arum-Final-ACO-WebMD
- Arum-info637_KEEP
- Arum-Rajiv_paper-1
- Arum-research_KEEP
- Arum-stagingDB_KEEP
- Arum-temp_KEEP
- Arumtest_KEEP
- bezawada-datamart
- bezawada-staging
- BoyallaKowshik - datamart
 - Database Diagrams
 - Tables
 - System Tables
 - FileTables
 - External Tables
 - dbo.DimCustomer
 - dbo.DimProduct
 - Views
 - External Resources
 - Synonyms
 - Programmability
 - Service Broker
 - Storage
 - Security
- BoyallaKowshik-Staging
- bohang
- carleegyong14_CS
- carleegyong14_DONOR
- carleegyong14_EMP
- carleegyong14_Project
- carleegyong14_SALES
- carleegyong14_SHARES
- chakradevavishnavi-datamart
- chakradevavishnavi-staging
- cmaker-EMP
- cmaker_AdvancedQueries
- cmaker_DONOR1
- cmaker-donor_old

SQLQuery2.sql - inf..shik.boyal... (64) -

```
/****** Script for SelectTopRows command from SSIS ******/
SELECT TOP (1000) [ProductKey]
,[ProductAlternateKey]
,[EnglishProductName]
,[ListPrice]
,[Weight]
FROM [BoyallaKowshik - datamart].[dbo].[DimProduct]
```

100 %

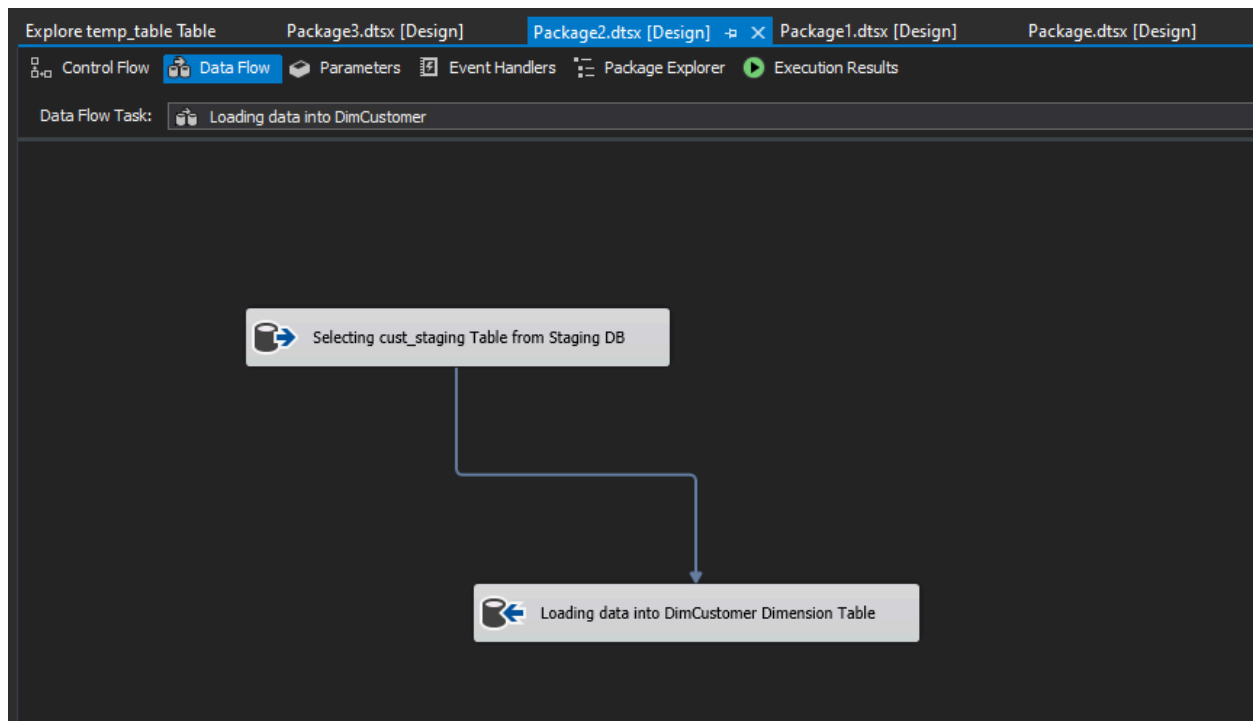
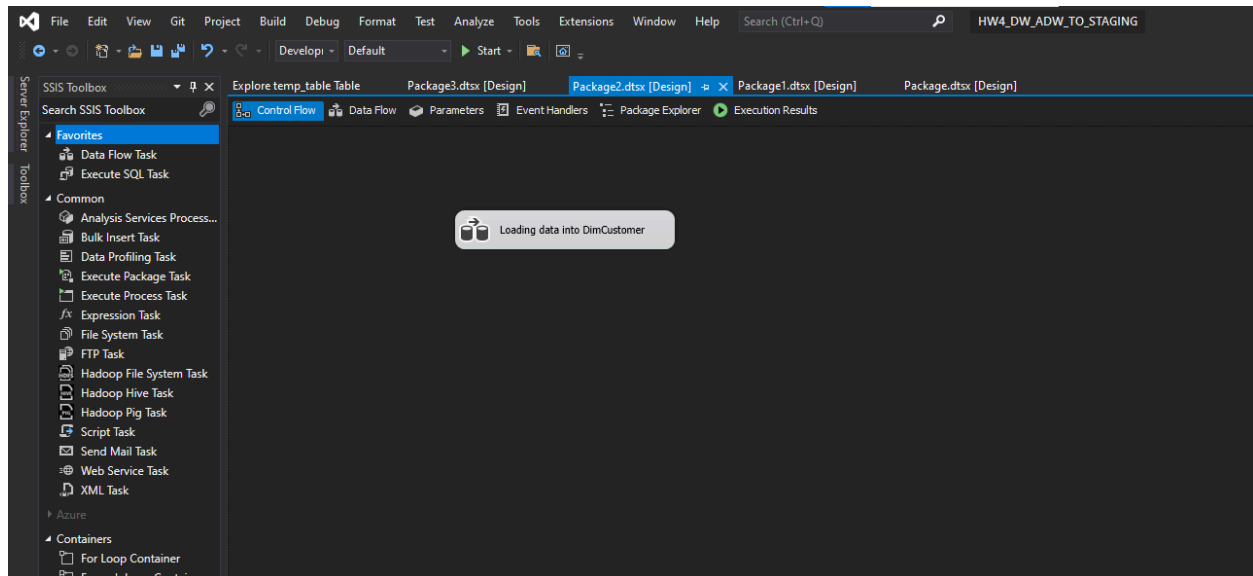
Results Messages

ProductKey	ProductAlternateKey	EnglishProductName	ListPrice	Weight
------------	---------------------	--------------------	-----------	--------

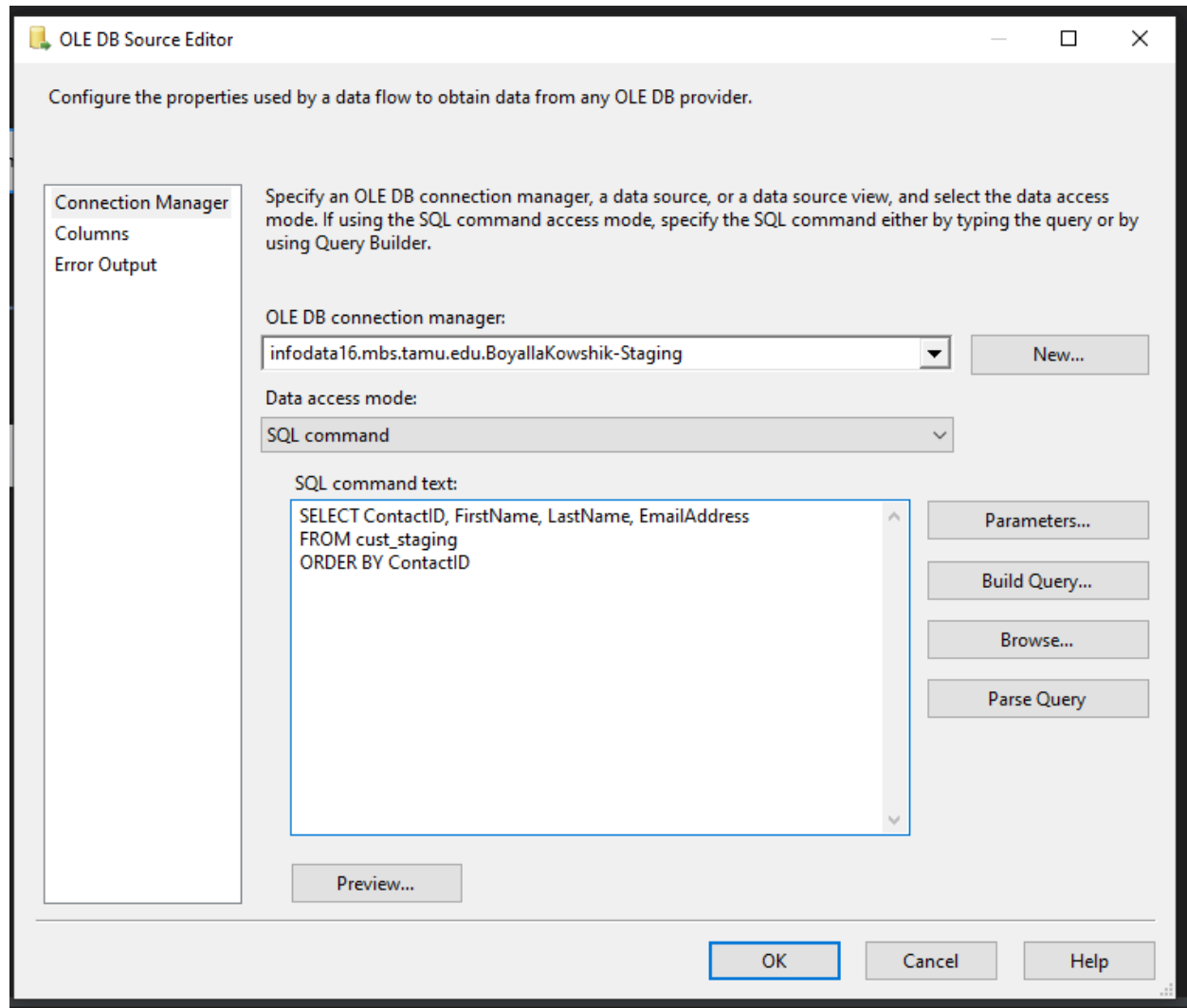
Query executed successfully. infodata16.mbc.tamu.edu (13... AUTH\kowschik.boyal... (64) BoyallaKowshik - datamart 00:00:00 0 rows

Loading data into Dimension Tables:

1. **Loading into DimCustomer:** Opened SSIS, added a new Data flow task. Inside the dataflow task added OLE DB Source and OLE DB Destination.



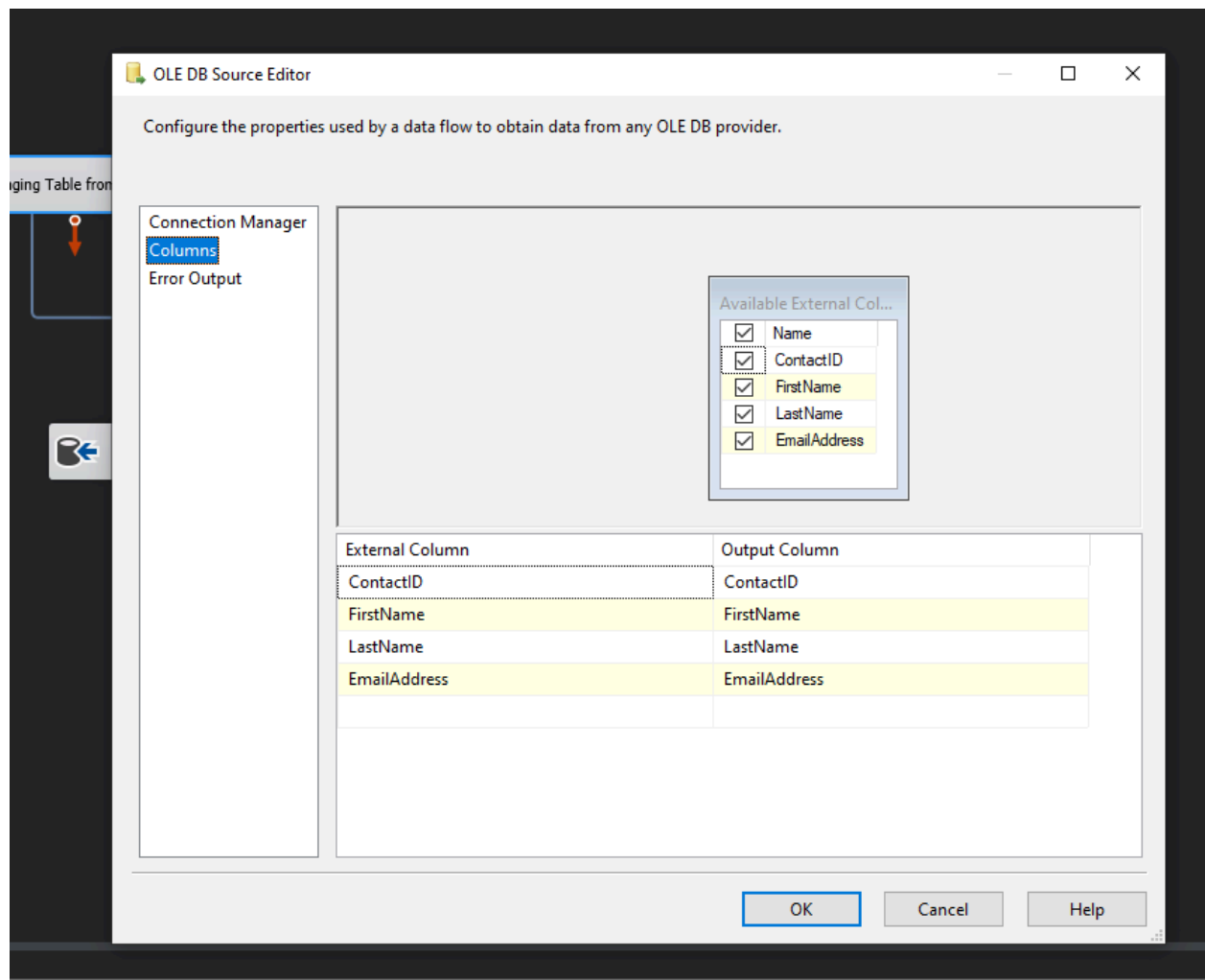
Configuring Source: Selected BoyallaKowshik-staging db in source and then wrote a SELECT query to select records of cust_staging table of stagingDB. I have used this query to fetch records **ordered by Contact ID** which improves the Organization of DimCustomer table after loading the data.



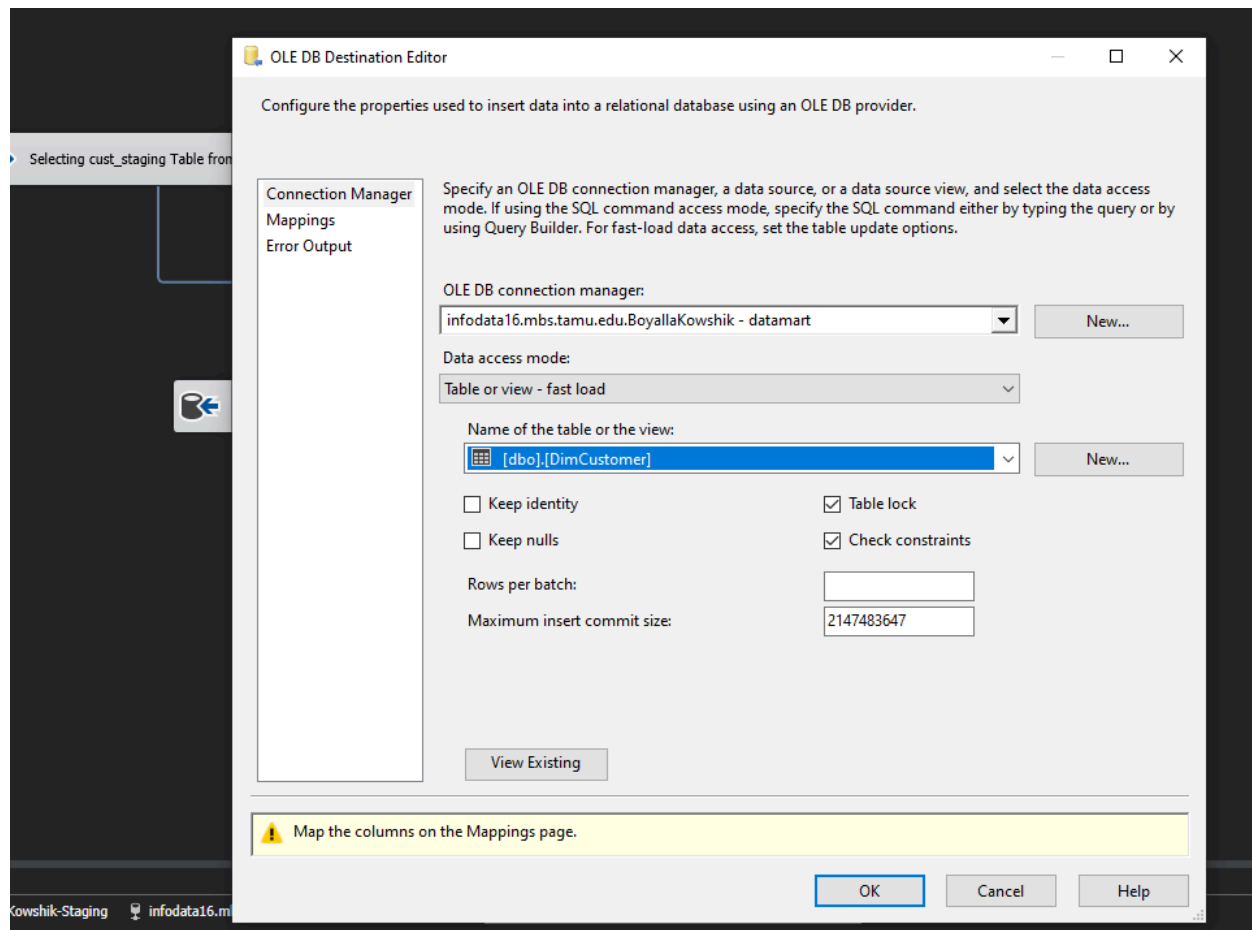
Query:

```
SELECT ContactID, FirstName, LastName, EmailAddress
FROM cust_staging
ORDER BY ContactID
```

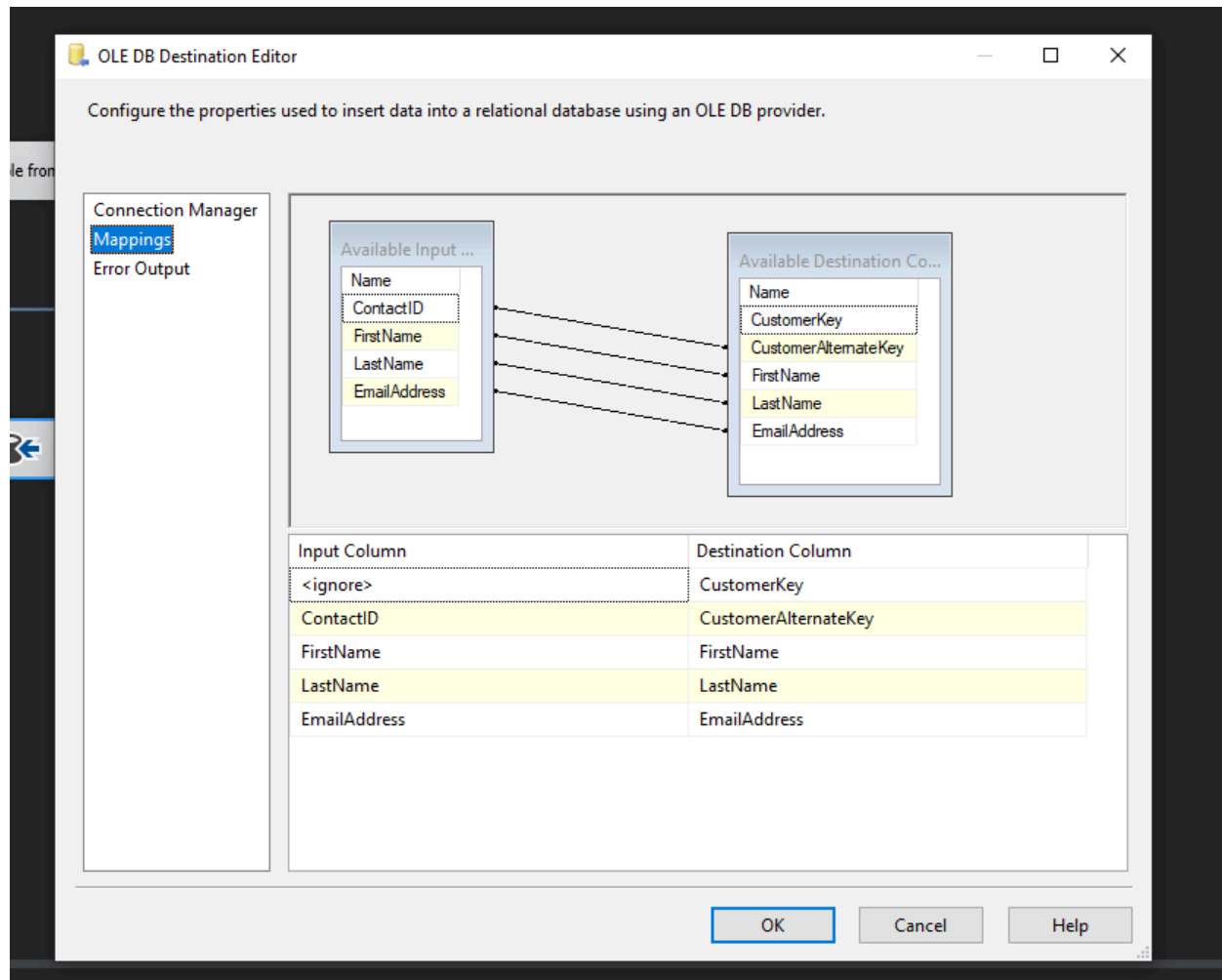
Columns Selected:



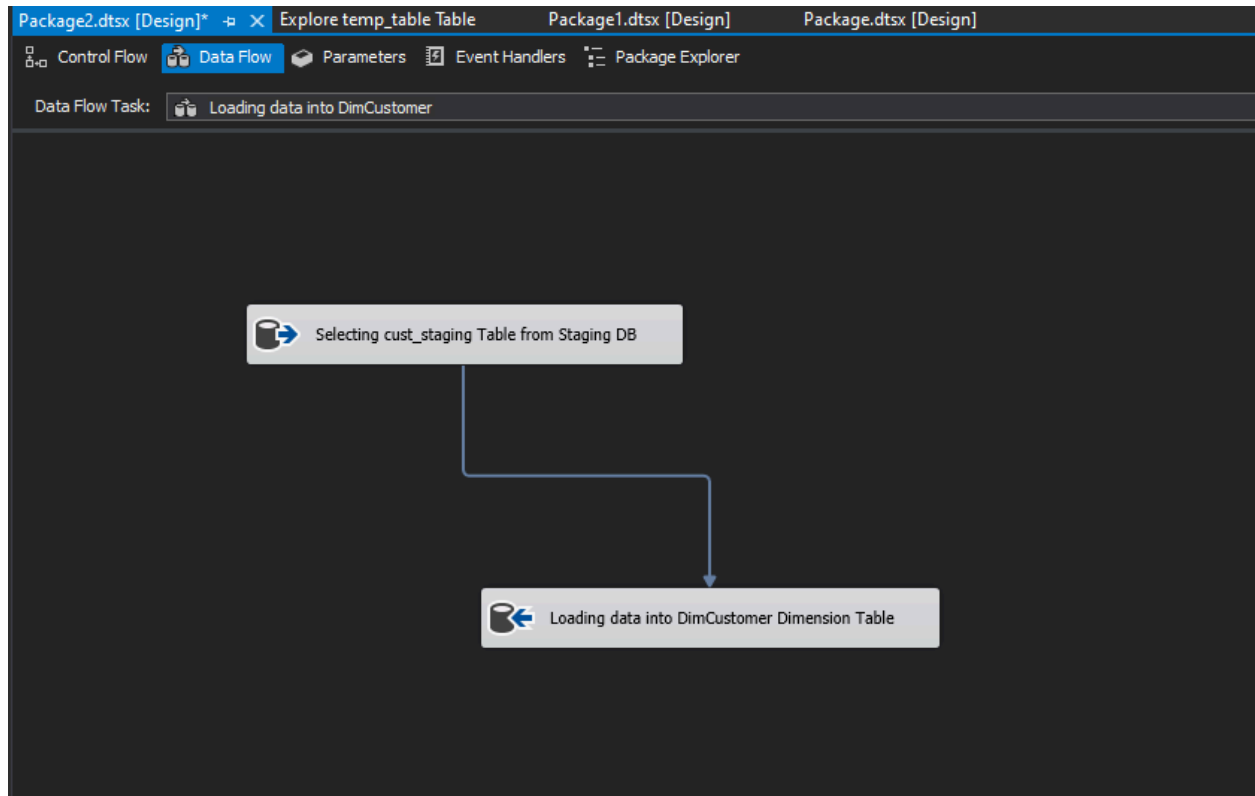
Configuring OLE DB Destination: Made a connection to KowshikBoyalla - datamart and selected DimCustomer Dimension Table.



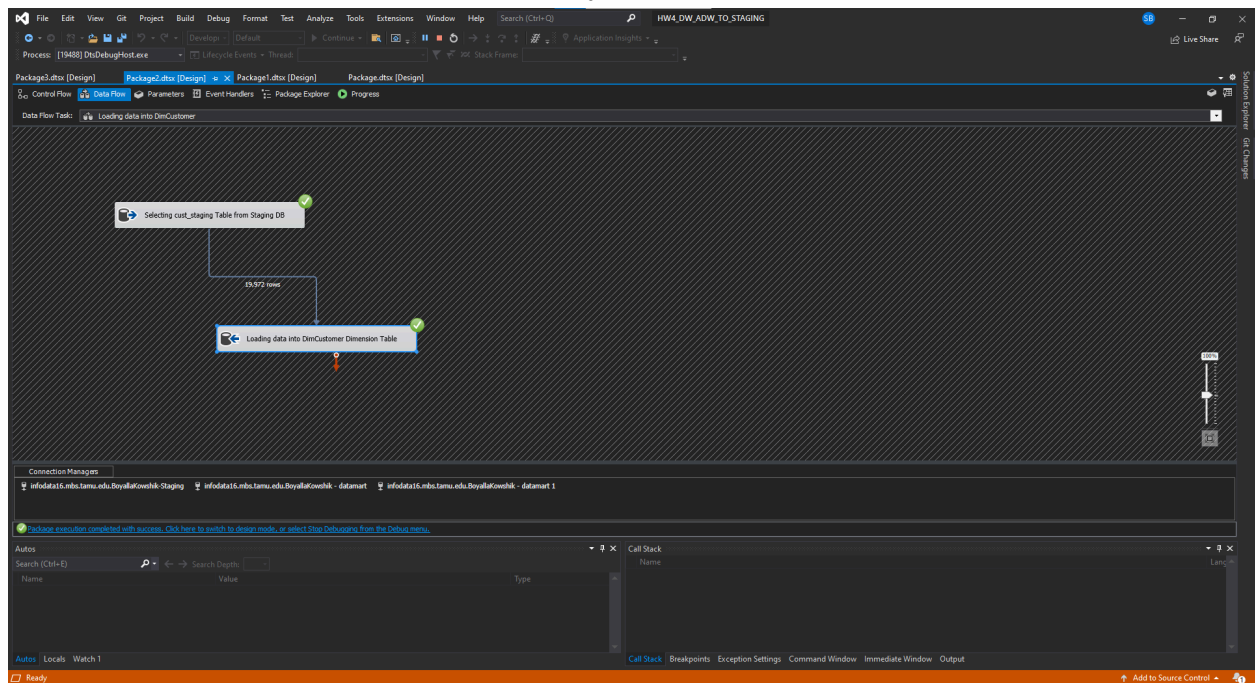
Mapping:



Haven't selected anything for CustomerKey as it is a surrogate key (Auto Increment).



Loaded data into dimension table successfully:



Validating DimCustomer in SSMS:

SQLQuery1.sql - infodata16.mbs.tamu.edu.Boyalakowshik - datamart (AUTH\kowschik.boyalakowshik (58)) - Microsoft SQL Server Management Studio

Object Explorer

Connect

SQLQuery1.sql - infodata16.mbs.tamu.edu.Boyalakowshik (58)

```
/*===== Script for SelectTopRows command from SSIS =====*/
SELECT TOP (3000) [CustomerKey]
,[CustomerAlternateKey]
,[FirstName]
,[LastName]
,[EmailAddress]
FROM [Boyalakowshik - datamart].[dbo].[DimCustomer]
```

100 %

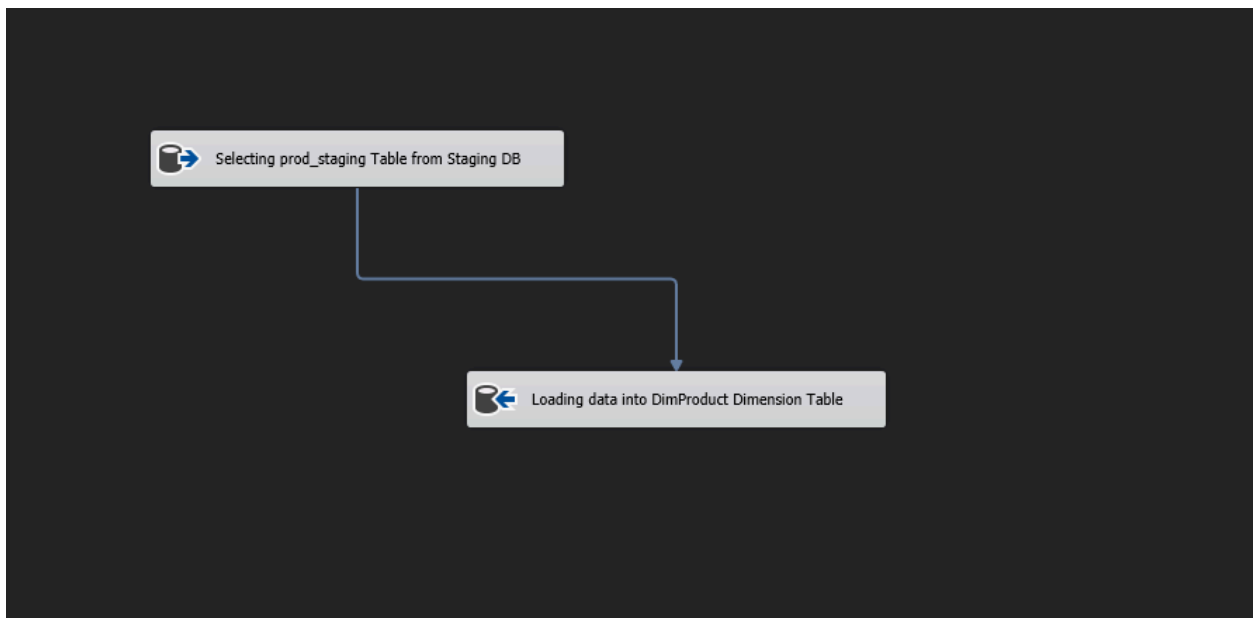
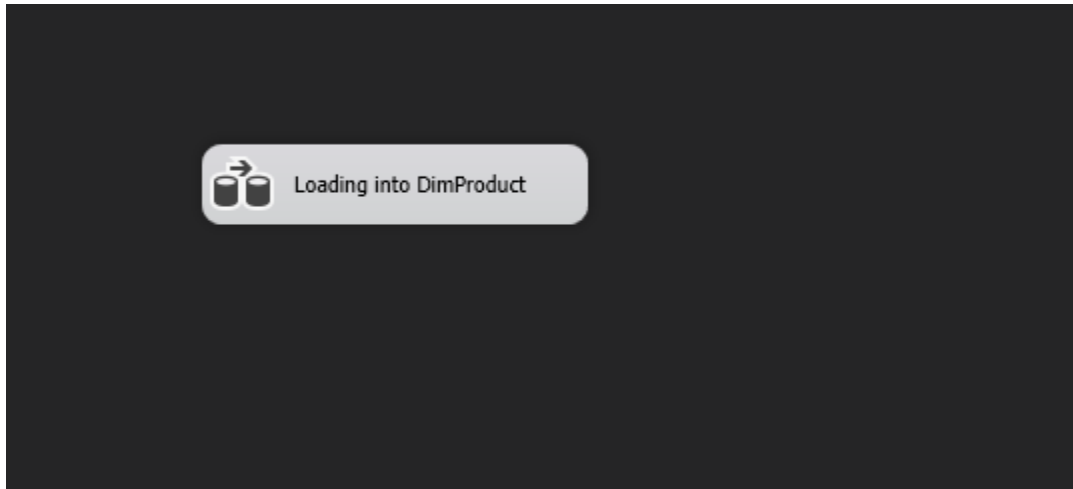
CustomerKey	CustomerAlternateKey	FirstName	LastName	EmailAddress
1	1	Gustavo	Achong	gustavo@adventure-works.com
2	2	Catherine	Abel	catherine@adventure-works.com
3	3	Kim	Abercrombie	kim2@adventure-works.com
4	4	Humberto	Acavedo	humberto@adventure-works.com
5	5	Pilar	Ackerman	pilar1@adventure-works.com
6	6	Frances	Adams	frances@adventure-works.com
7	7	Margaret	Smith	margaret@adventure-works.com
8	8	Carla	Adams	carla@adventure-works.com
9	9	Jay	Adams	jay1@adventure-works.com
10	10	Ronald	Adria	ronald@adventure-works.com
11	11	Samuel	Agosil	samuel@adventure-works.com
12	12	James	Aguilar	james2@adventure-works.com
13	13	Robert	Atkins	robert1@adventure-works.com
14	14	François	Tenier	francois1@adventure-works.com
15	15	Kim	Akers	kim3@adventure-works.com
16	16	Lili	Alameda	lil@adventure-works.com
17	17	Any	Alberts	any1@adventure-works.com
18	18	Anna	Albright	anna@adventure-works.com
19	19	Milton	Albury	milton@adventure-works.com
20	20	Paul	Alcorn	pau42@adventure-works.com
21	21	Gregory	Alderson	gregory@adventure-works.com
22	22	J. Philip	Alexander	jphip@adventure-works.com
23	23	Michelle	Alexander	michelle@adventure-works.com
24	24	Sean	Jacobson	sean2@adventure-works.com
25	25	Phyllis	Allen	phyllis@adventure-works.com
26	26	Marvin	Allen	marvin@adventure-works.com
27	27	Michael	Allen	michael1@adventure-works.com
28	28	Cecil	Alson	cecil@adventure-works.com
29	29	Oscar	Alvarado	oscar@adventure-works.com

Query executed successfully.

infodata16.mbs.tamu.edu (13... AUTH\kowschik.boyalakowshik - datamart 00:00:00 1,000 rows

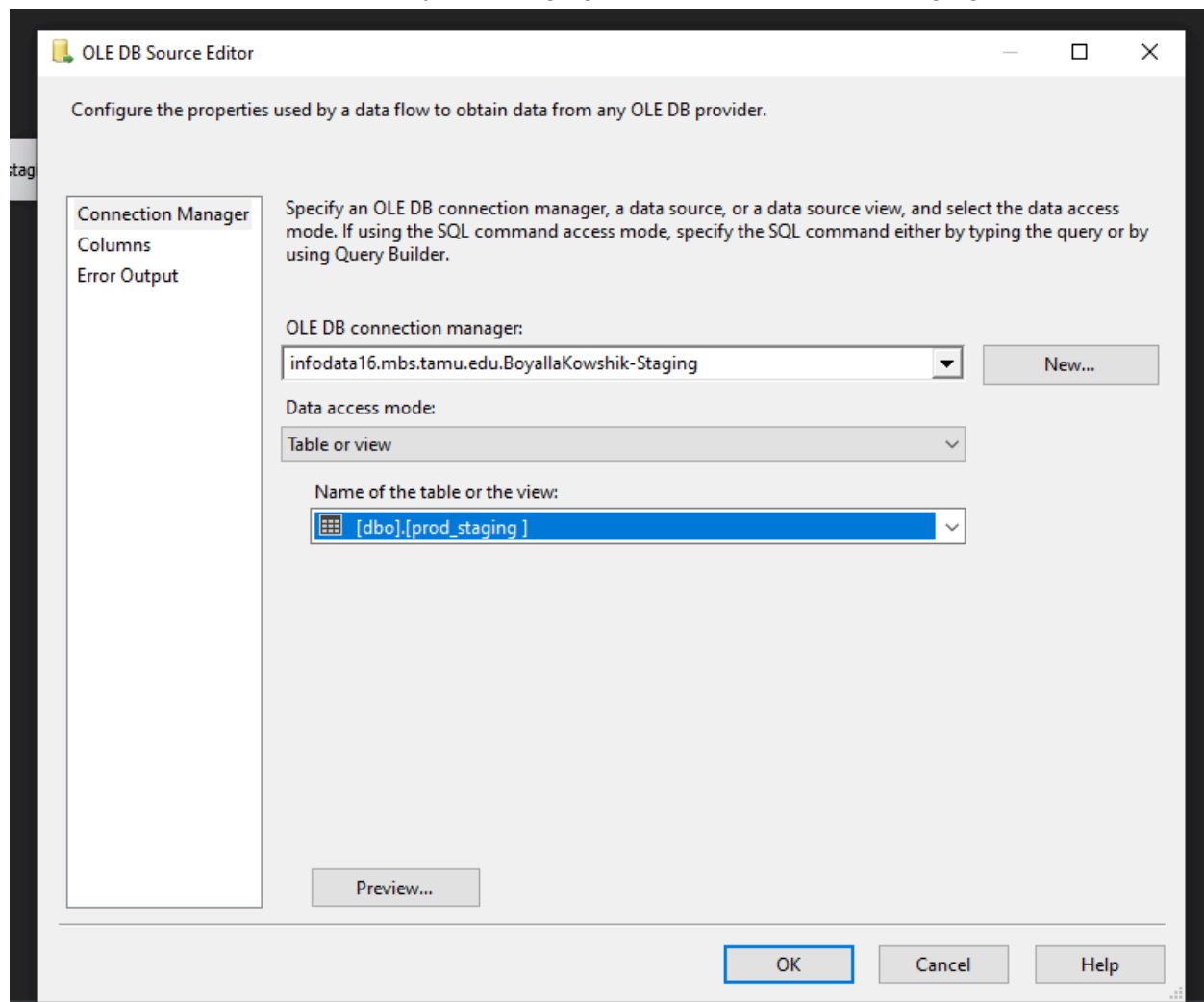
2. Loading into DimProduct Dimension table

Opened SSIS and created a new Data Flow task. Selected OLE DB Source and OLEDB Destination.

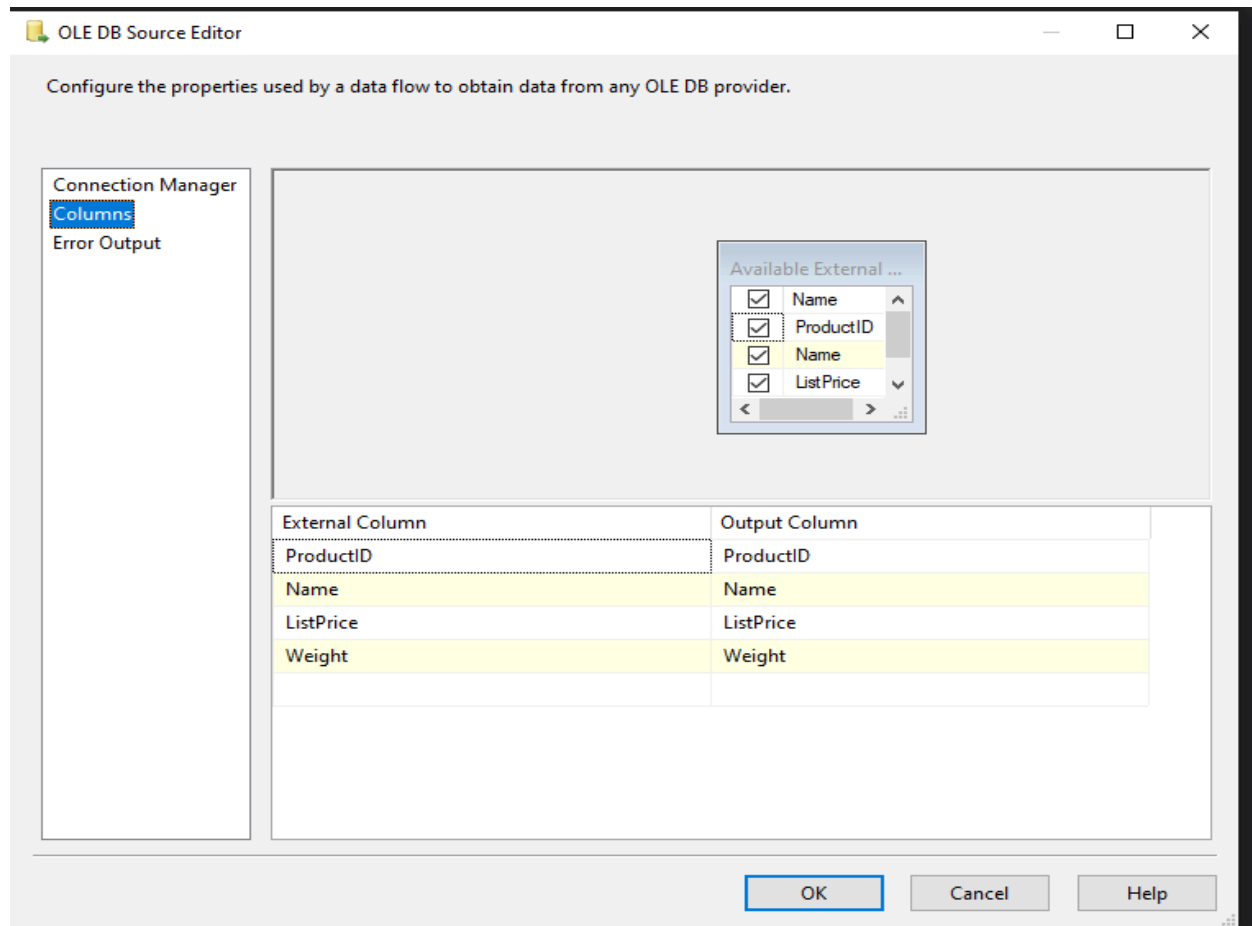


Configuring OLEDB Source:

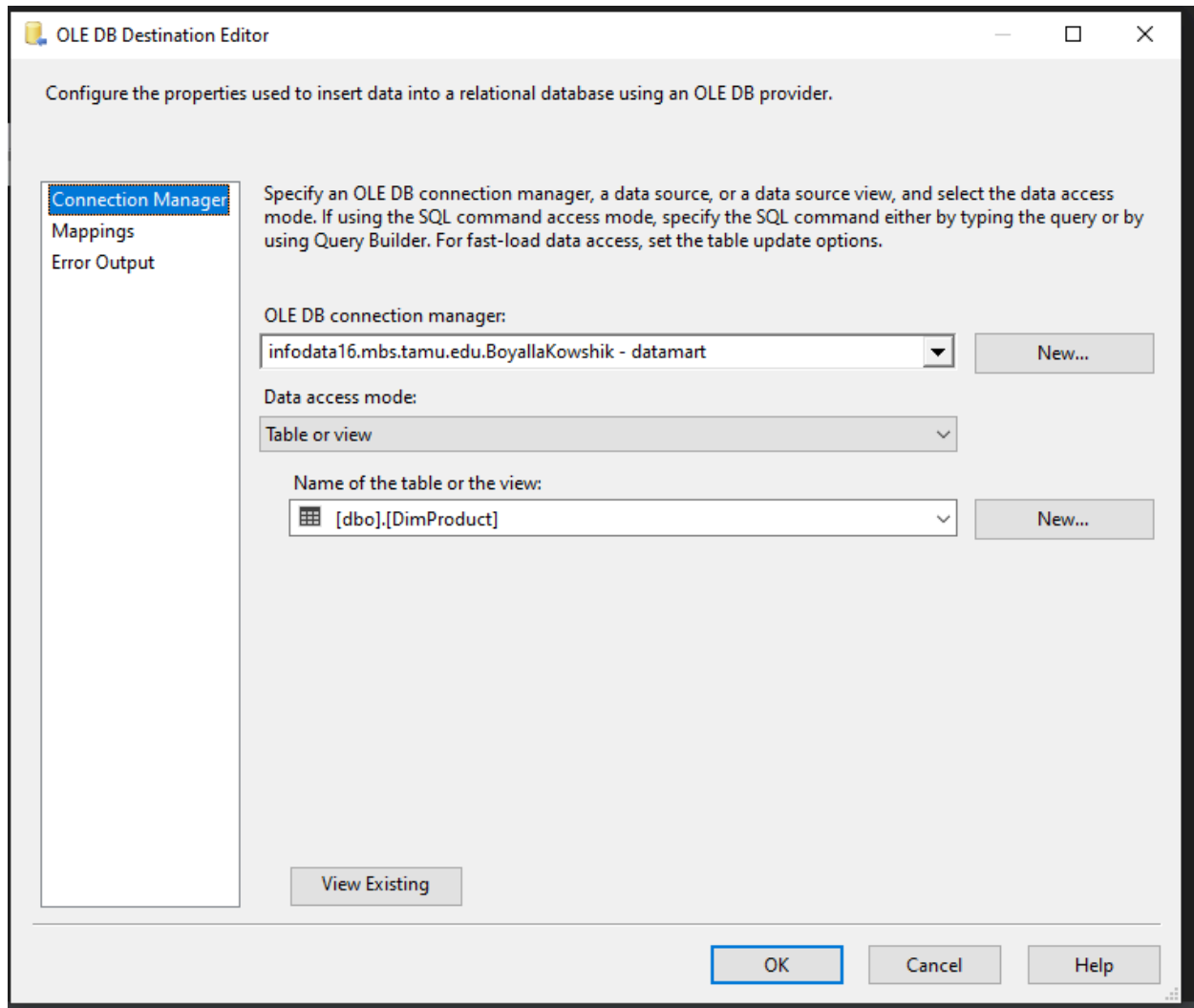
Made a connection to KowshikBoyalla - staging DB and selected prod_staging table.



Columns:



Configuring OLE DB Destination: Made a connection to KowshikBoyalla - datamart and selected **DimProduct** Dimension Table.



The image shows the 'OLE DB Destination Editor' dialog box. It has a title bar with a yellow icon and the text 'OLE DB Destination Editor'. Below the title bar is a subtitle: 'Configure the properties used to insert data into a relational database using an OLE DB provider.' On the left is a sidebar with three items: 'Connection Manager' (highlighted with a blue border), 'Mappings', and 'Error Output'. The main area contains instructions: 'Specify an OLE DB connection manager, a data source, or a data source view, and select the data access mode. If using the SQL command access mode, specify the SQL command either by typing the query or by using Query Builder. For fast-load data access, set the table update options.' Below this are three sections: 1. 'OLE DB connection manager:' with a dropdown menu showing 'infodata16.mbs.tamu.edu.BoyallaKowshik - datamart' and a 'New...' button. 2. 'Data access mode:' with a dropdown menu showing 'Table or view'. 3. 'Name of the table or the view:' with a dropdown menu showing '[dbo].[DimProduct]' and a 'New...' button. At the bottom left of the main area is a 'View Existing' button. At the bottom right are three buttons: 'OK' (highlighted with a blue border), 'Cancel', and 'Help'.

OLE DB Destination Editor

Configure the properties used to insert data into a relational database using an OLE DB provider.

Connection Manager
Mappings
Error Output

Specify an OLE DB connection manager, a data source, or a data source view, and select the data access mode. If using the SQL command access mode, specify the SQL command either by typing the query or by using Query Builder. For fast-load data access, set the table update options.

OLE DB connection manager:
infodata16.mbs.tamu.edu.BoyallaKowshik - datamart New...

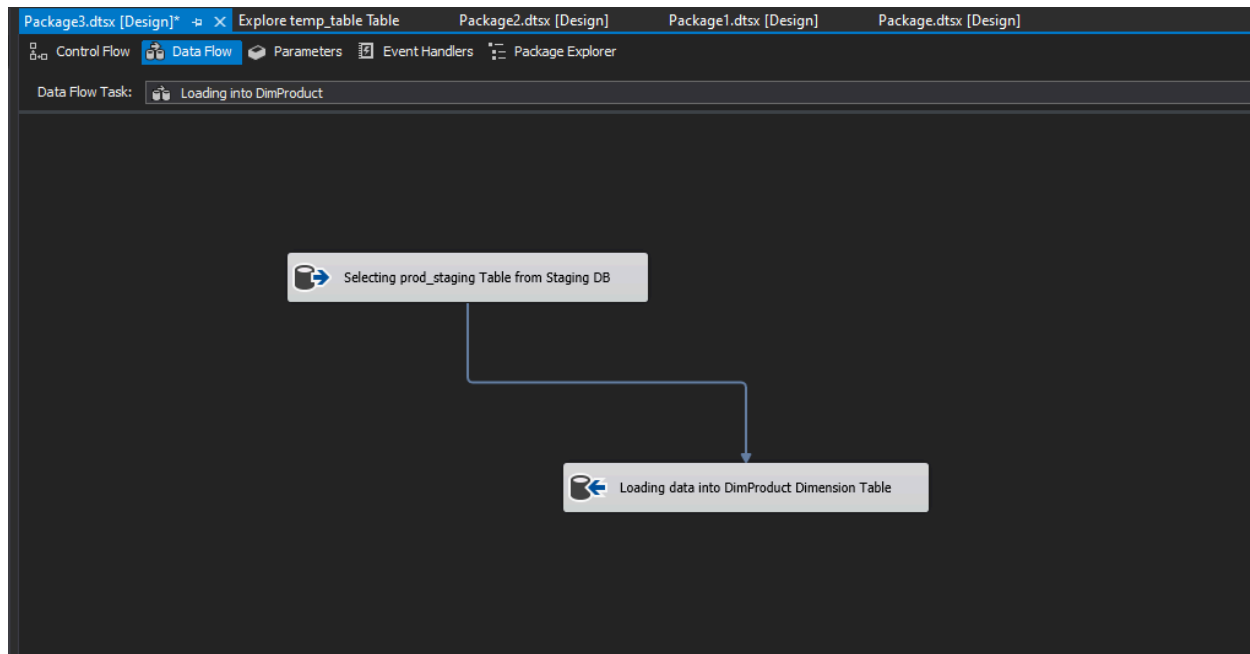
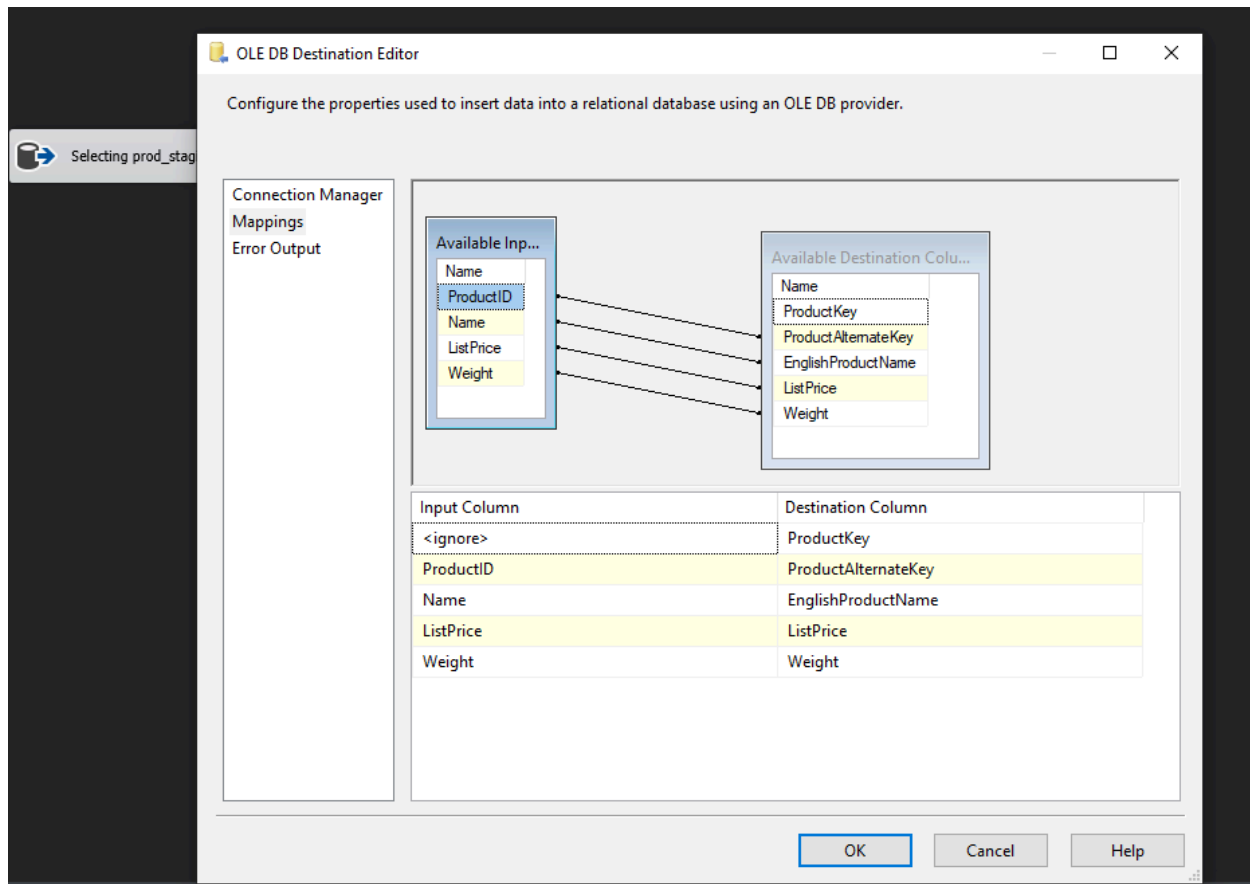
Data access mode:
Table or view

Name of the table or the view:
[dbo].[DimProduct] New...

View Existing

OK Cancel Help

Mapping:



Successfully loaded data into DimProduct Dimension Table:

The screenshot shows the SQL Server Data Tools (SSDT) interface. The main window displays a Data Flow Task named 'Loading into DimProduct Dimension Table'. The task is connected to a source component 'Selecting prod_staging Table from Staging DB'. The task is marked as successful with a green checkmark. The bottom status bar indicates 'Package execution completed with success. Click here to switch to design mode, or select Show Debugging from the Debug menu.'

Connection Managers:

- infodata16.mbs.tamu.edu.BoyallaKowshik - staging
- infodata16.mbs.tamu.edu.BoyallaKowshik - datamart

Autos:

Search (Ctrl+E)

Name Value Type

Call Stack

Call Stack Breakpoints Exception Settings Command Window Immediate Window Output

Ready

Validating DimProduct in SSMS:

The screenshot shows the Microsoft SQL Server Enterprise Manager (SSMS) interface. The main window displays a query result for the DimProduct table. The query is a SELECT TOP 1000 statement. The results show columns: ProductKey, ProductAlternateKey, EnglishProductName, ListPrice, and Weight. The status bar indicates 'Query executed successfully' and '504 rows'.

SQL Query Log - inf.mshik.boyalla (58)

```
***** Script for SelectTopRows command from SSIS *****  
SELECT TOP (1000) [ProductKey]  
,[ProductAlternateKey]  
,[EnglishProductName]  
,[ListPrice]  
,[Weight]  
FROM [BoyallaKowshik - datamart].[dbo].[DimProduct]
```

Results

ProductKey	ProductAlternateKey	EnglishProductName	ListPrice	Weight
1	1	Adjustable Race	0.00	NULL
2	2	Bearing Ball	0.00	NULL
3	3	Ball Bearing	0.00	NULL
4	4	Headset Ball Bearings	0.00	NULL
5	5	Blade	0.00	NULL
6	6	LL Crankarm	0.00	NULL
7	7	ML Crankarm	0.00	NULL
8	8	HL Crankarm	0.00	NULL
9	9	Chaining Rols	0.00	NULL
10	10	Chaining Nut	0.00	NULL
11	11	Chaining	0.00	NULL
12	12	Crown Race	0.00	NULL
13	13	Chain Stays	0.00	NULL
14	14	Decal 1	0.00	NULL
15	15	Decal 2	0.00	NULL
16	16	Down Tube	0.00	NULL
17	17	Mountain End Caps	0.00	NULL
18	18	Road End Caps	0.00	NULL
19	19	Touring End Caps	0.00	NULL
20	20	Fork End	0.00	NULL
21	21	Frontend	0.00	NULL
22	22	Flat Washer 1	0.00	NULL
23	23	Flat Washer 6	0.00	NULL
24	24	Flat Washer 2	0.00	NULL
25	25	Flat Washer 4	0.00	NULL

Query executed successfully.

infodata16.mbs.tamu.edu (13... AUTH:kowshik.boyalla (58) BoyallaKowshik - datamart 00:00:00 504 rows