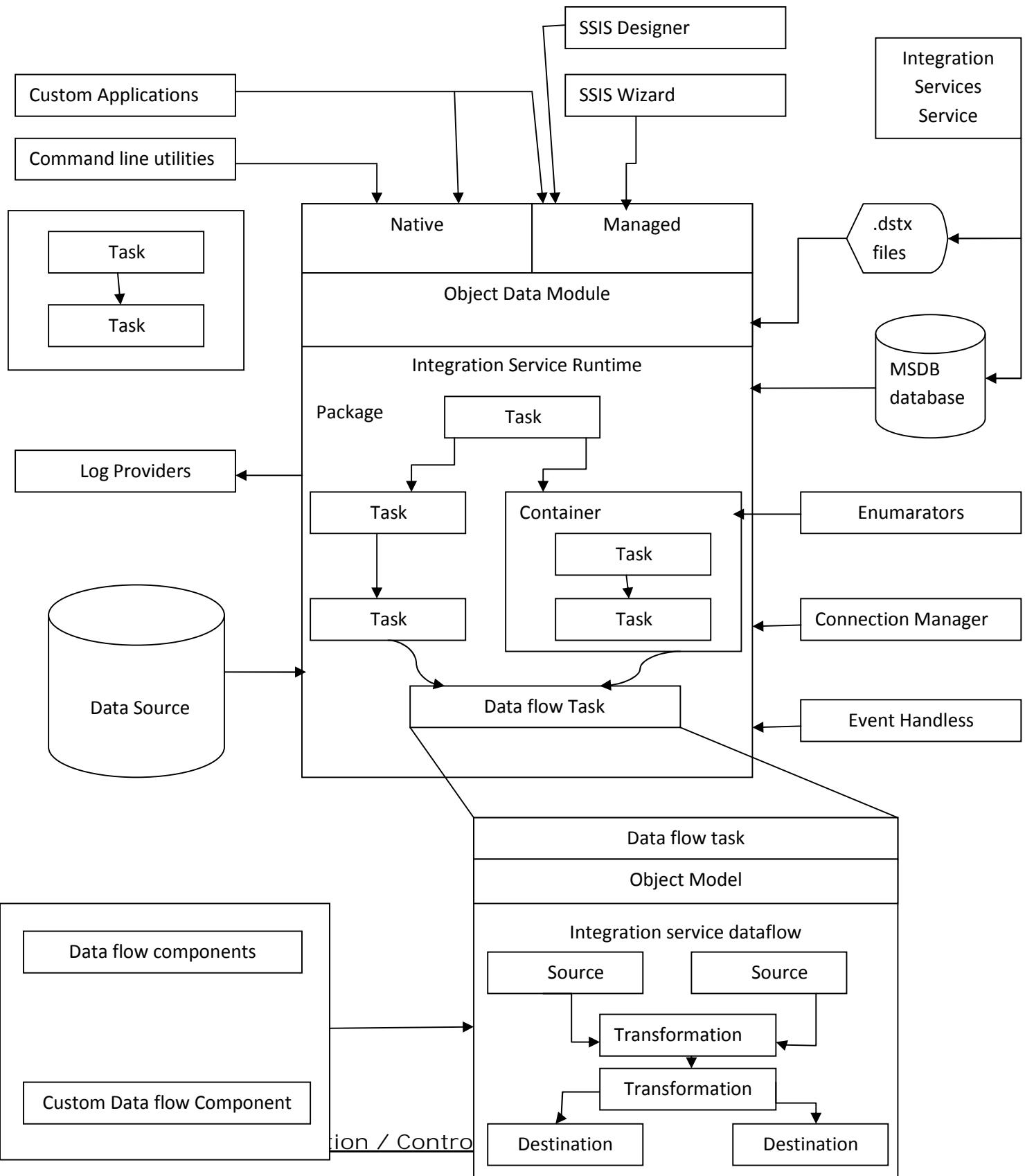


SSIS (SQL SERVER INTEGRATION SERVICE)

SSIS Architecture:



It's going to support pre-requirements and post operations of the ETL (Extraction, Transformation, and Loading) Process.

Data flow task / dataflow Engine:

It's going to support to implemented ETL task.

Note: It's going to read the data from the different kinds of databases and different kinds of files on the top of reading the data. We are applying the business logics through transformations and finally load the data into different kinds of destination.

SSIS WIZARD: its support read the data and loads the data. It's does not support any transformation.

SSIS Designers:

It is a combination of control flow and data flow engine and its read the data and transforms the data and finally load the data into the table.

Connection Manager:

It is used to generate the different kinds of connections using the Connection Manager.

Ex: Database Connection, file connections and SMTP Connections

Log Provider:

It's support to implement the login using different storage mechanisms.

Note: Basically logs will store the information from package execution starting to ending the package is based on the different events.

Package:

The combination of all tasks and other tasks related objects to satisfy the business requirements.

Working with SSIS Wizard:

This wizard helps you to create simple package and export data between the many popular data formats including databases sphere sheets and text files.

The wizard can also create the destination and table into which the database is inserted.

To move / copying database and their objects from one instance.

Using the SSIS Wizard loading the data from flat file to database.

1. Open DTS wizard using RUN Command
2. Type DTS Wizard and enter
3. Click→next→select data flat file source→browse the file click the columns buttons →row delimiter and column delimiter →next and Connect destination sql Server client "sql server name client Default server"
4. Select the database as destination.
5. In edit Mapping you can edit as per our requirements columns →Next→Next→Finish

Working with SSIS Designer:

Dataflow task:

It's support to read the data from different sources and its transformation as the business requirements finally loads the data into different destination.

Source Components:

Its support to read the data from the different source systems (database and files)

Types of source components:

1. Flat file source

It read the data from flat files based on the delimiter.

Types of delimiters:

Column delimiter(| tab,CF,CR,CF/CR)

Row delimiter(LF/CR)

Text Qualifier

Its support to remove the additional symbols / Characters from the main columns.

Data Conversion Transformation:

Data conversion transformation is used to convert the data from one data type to another data type and also add the new column to the dataset.

Step to configure data Conversion transformation:

Step : 1 Select Microsoft Business intelligence Development Studio and select the file menu→new→project→select the integration service project and change the project name as Batch1 then click "OK".

Step:2 Select the package.dtsx in the solution explorer and rename it as data conversion.dtsx.

Step: 3 in control flow drag and drop the data flow task and double click on it.

Step : 4 In Dataflow task drag and drop the flat file source and double click on flatfile→new→browse→Select the file and Select the Column name in the first data rows

Text qualifier none

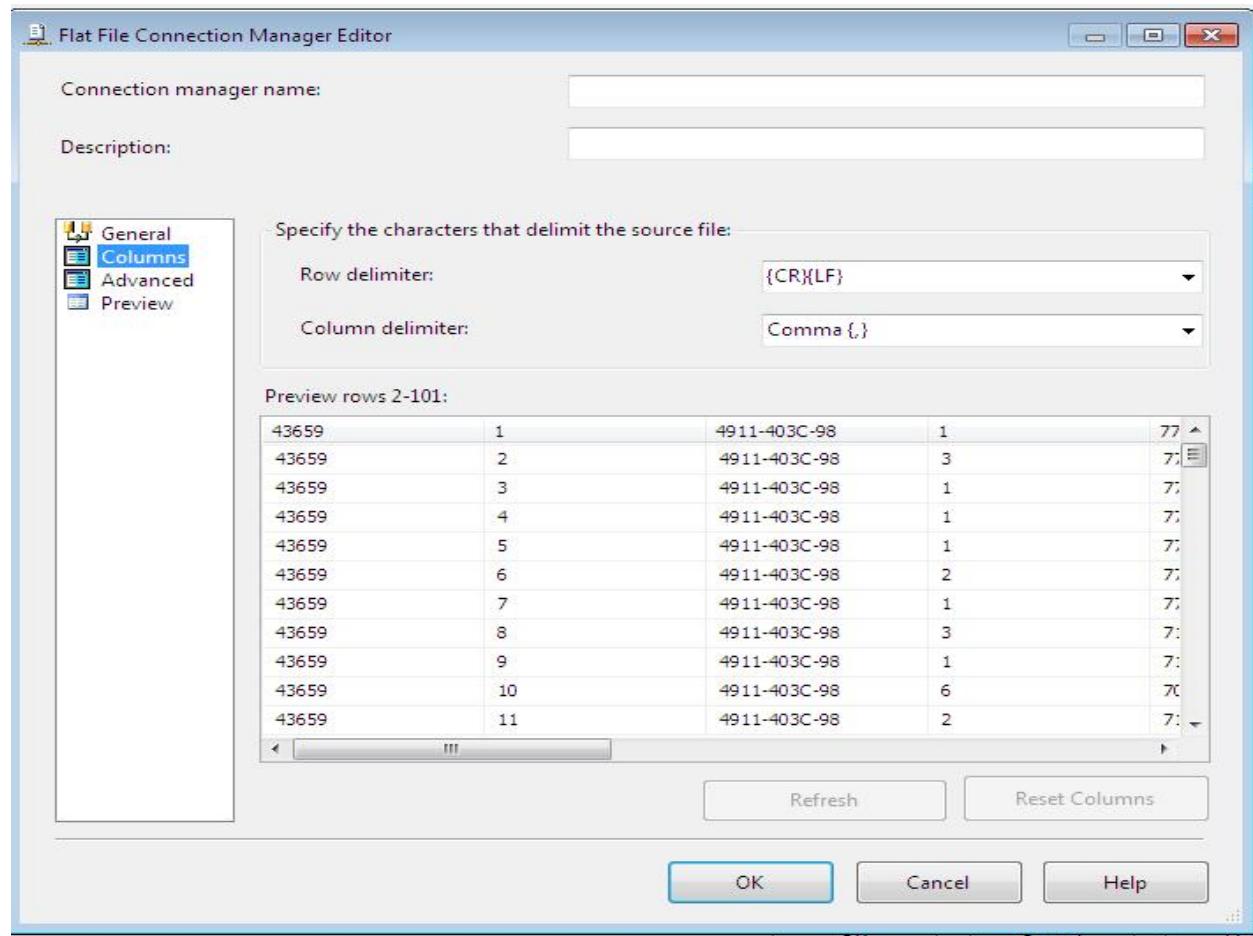
Header row delimiter CR/LF

Head rows to step : 0

And select the column tab

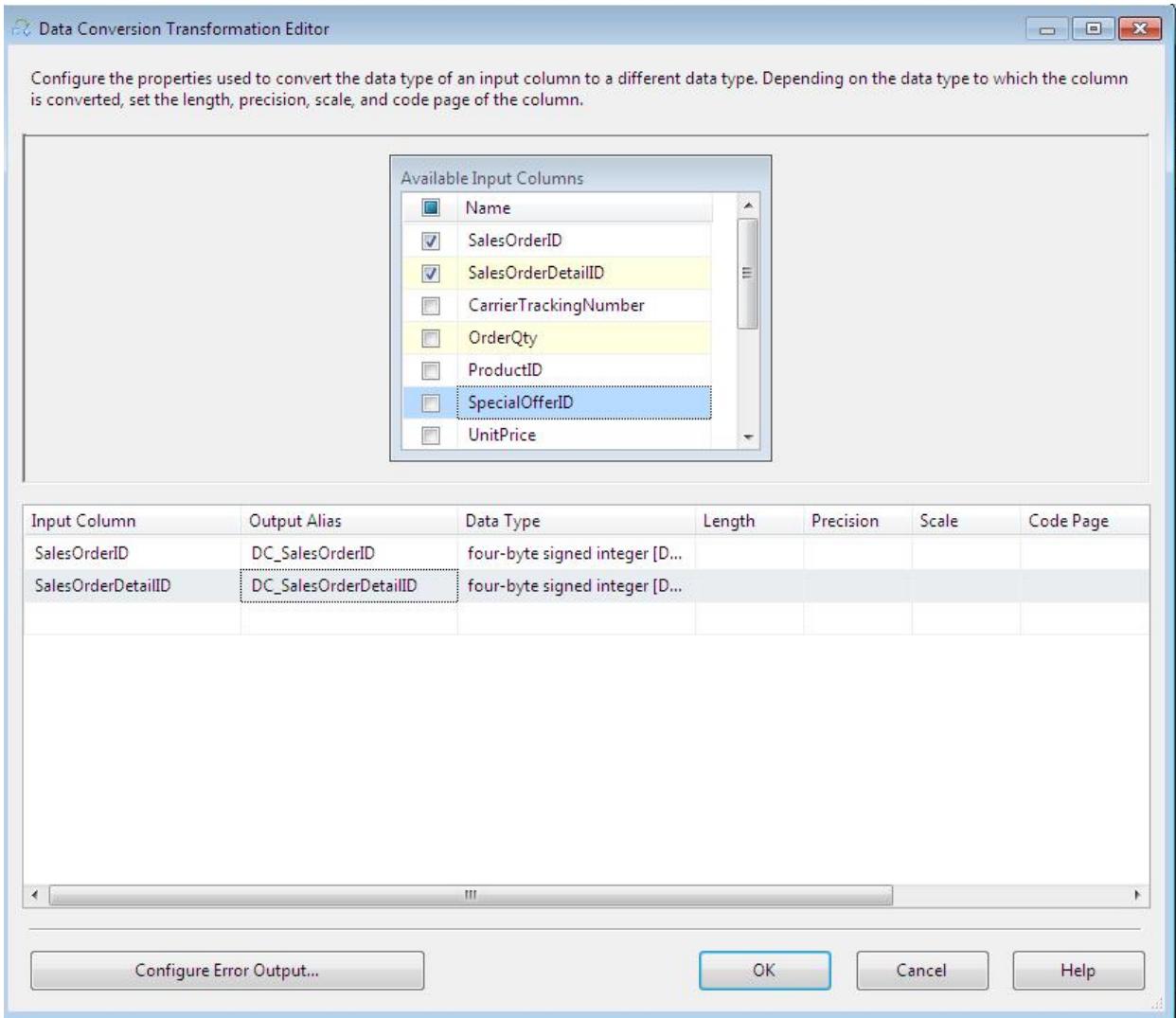
Row delimiter : CR/LF

Column delimiter: ,



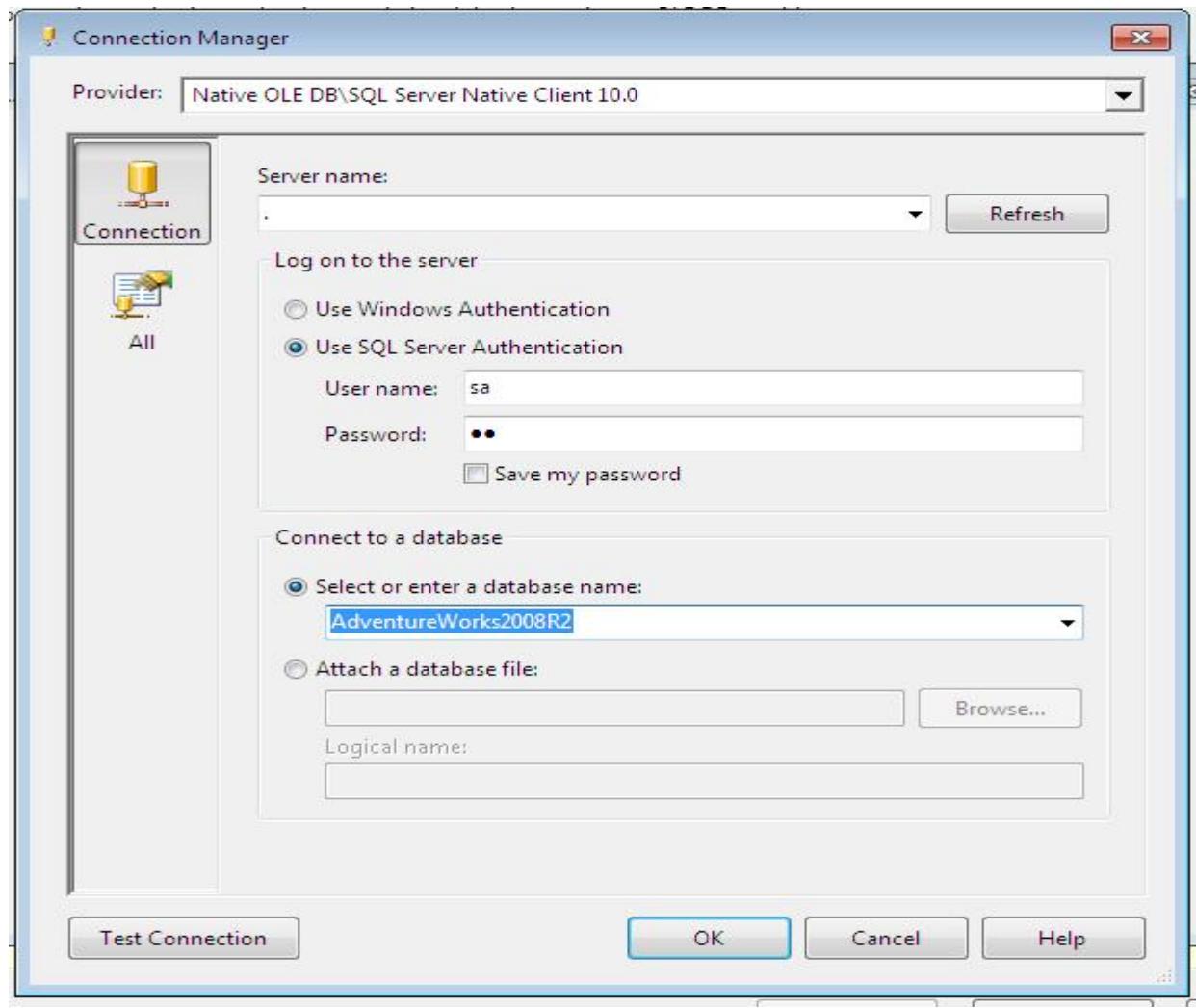
Step : 2 Drag and drop the Data conversion transformation and make a connection from the flat file source to data conversion transformation

Step : 3 double click on it check the titles and give the alias name and change the datatype of the columns and then click "OK".

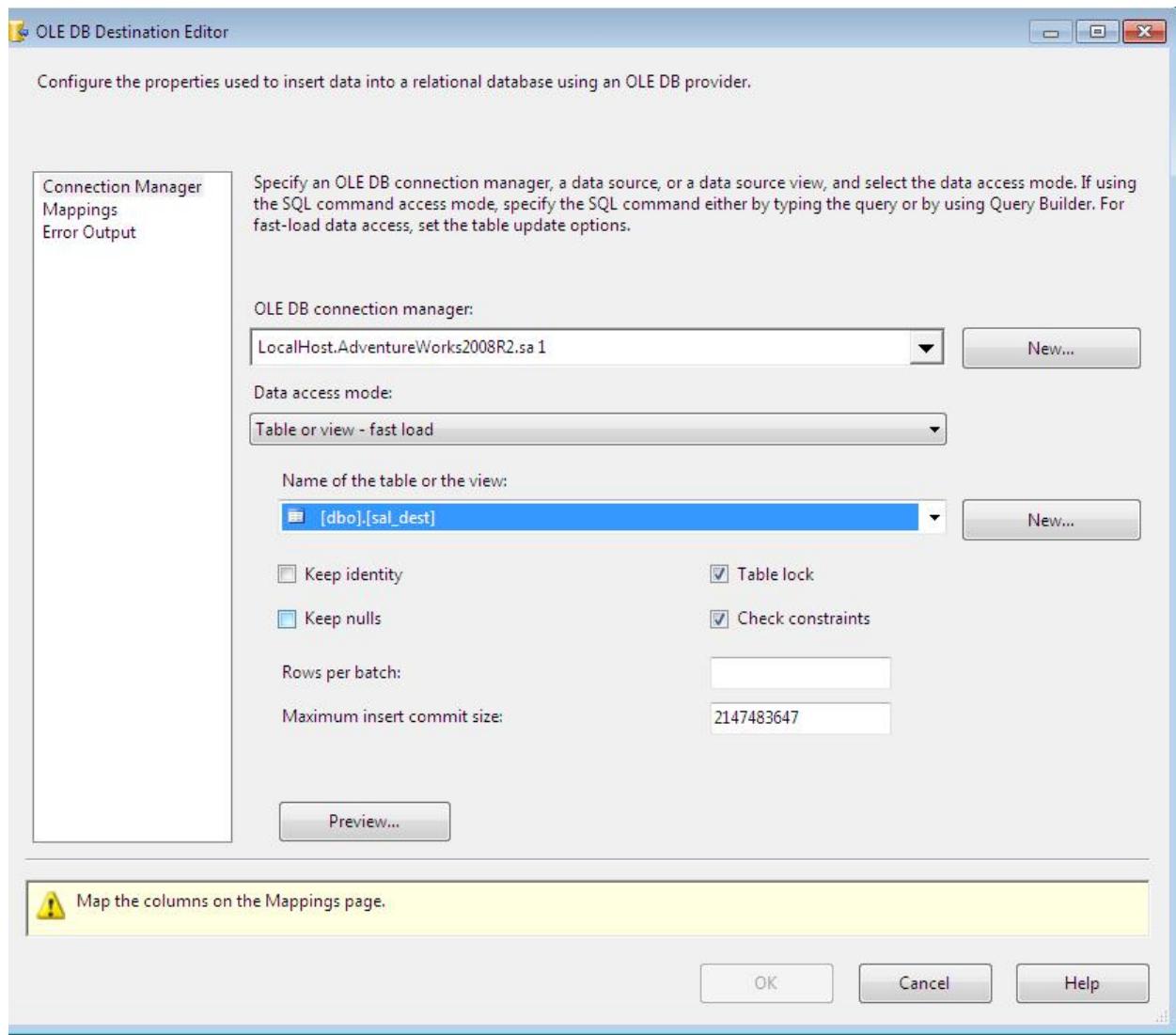


le

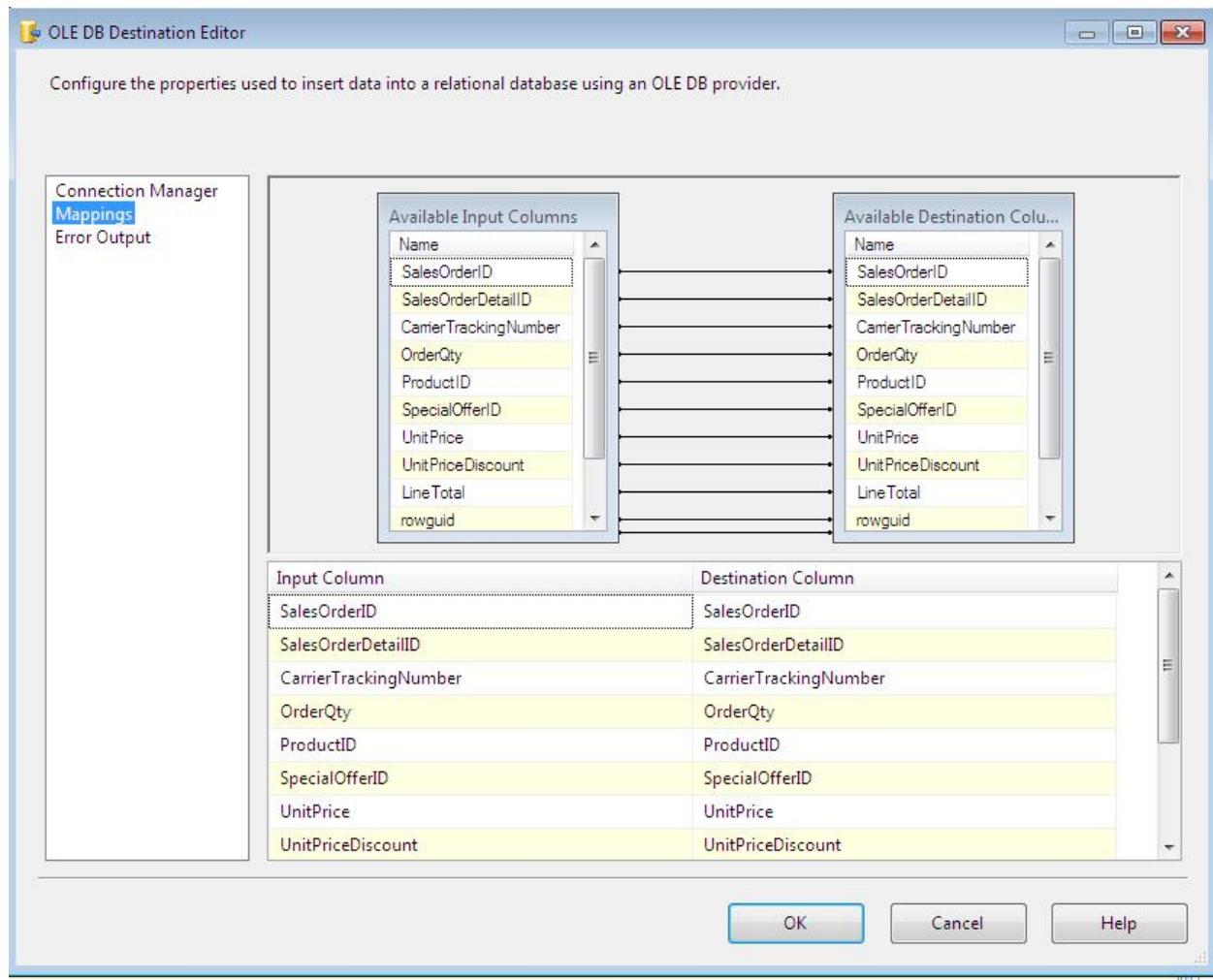
Step : 4 Drag and drop the OLEDB Destination from data flow destination section and make a connection from the data conversion from the OLEDB Destination and double click on it→new→new



Then click " Ok" and click " ok"

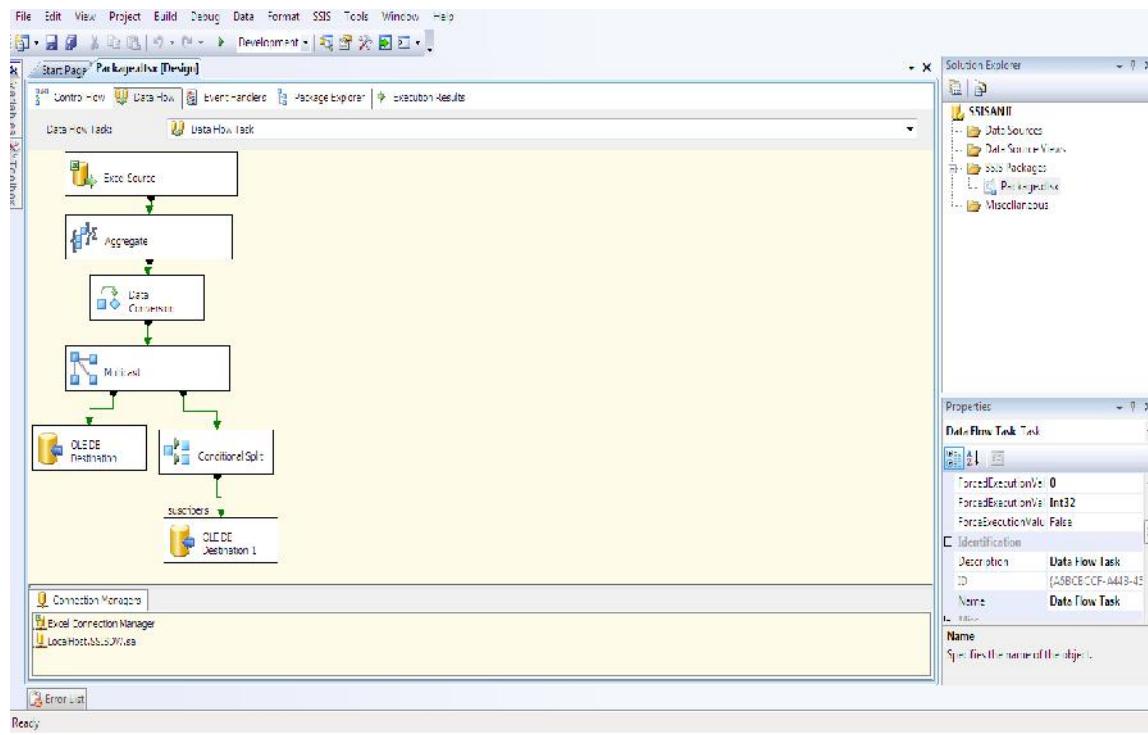


And select the table name and then click the Mapping tab



And then click "OK"

Project -1:



Step: 1 Create the two tables for the destination.

```
CREATE TABLE [dbo].[insurance_members] (
    [Mem_id] [int] NULL,
    [Mem_Name] [nvarchar](255) NULL,
    [Mem_city] [nvarchar](255) NULL,
    [Mem_address] [nvarchar](255) NULL,
    [sub_flag] [int] NULL
)
```

```
CREATE TABLE [dbo].[insurance_sub](
    [Mem_id] [int] NULL,
    [Mem_Name] [nvarchar](255) NULL,
    [Mem_city] [nvarchar](255) NULL,
    [Mem_address] [nvarchar](255) NULL,
    [sub_flag] [int] NULL
)
```

Step :2 Prepare the Excel file with the following column name

Mem_id	Mem_Name	Mem_city	Mem_address	sub_flag
1	surendra	Hyderabad	SR Nagar	1
2	suri	Hyderabad	SR Nagar	0
3	ramu	Hyderabad	SR Nagar	0
4	krishna	Hyderabad	SR Nagar	0
5	SriRam	Hyderabad	Madhapur	1
6	Sri	Hyderabad	Madhapur	0
7	siva	Hyderabad	Madhapur	0
8	ram	Hyderabad	Madhapur	0
9	ravi	Hyderabad	Madhapur	0
10	SaiRam	Bengalore	KR Puram	1
11	sai	Bengalore	KR Puram	0
12	sam	Bengalore	KR Puram	0
13	somu	Bengalore	KR Puram	0
14	sura	Bengalore	KR Puram	0
15	Anji	Chennai	Ashok Nagar	1
16	Rama	Chennai	Ashok Nagar	0
17	Lakshman	Chennai	Ashok Nagar	0
18	Bharath	Chennai	Ashok Nagar	0
19	Arjuna	Chennai	Ashok Nagar	1
20	bhema	Chennai	Ashok Nagar	0
1	surendra	Hyderabad	SR Nagar	1
2	suri	Hyderabad	SR Nagar	0
3	ramu	Hyderabad	SR Nagar	0
4	krishna	Hyderabad	SR Nagar	0

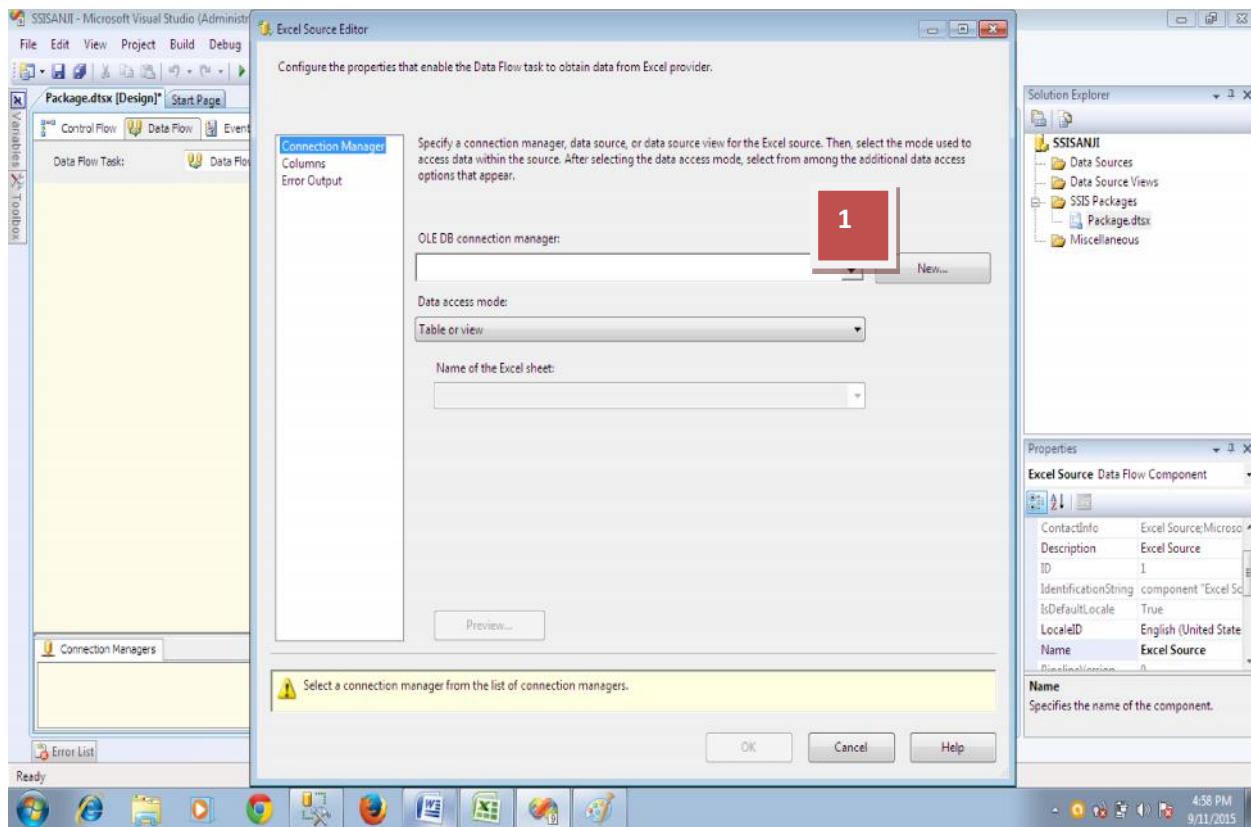
Sheet1 Sheet2 Sheet3

Step 3 : Drag and drop the Dataflow task in the contro flow tab.

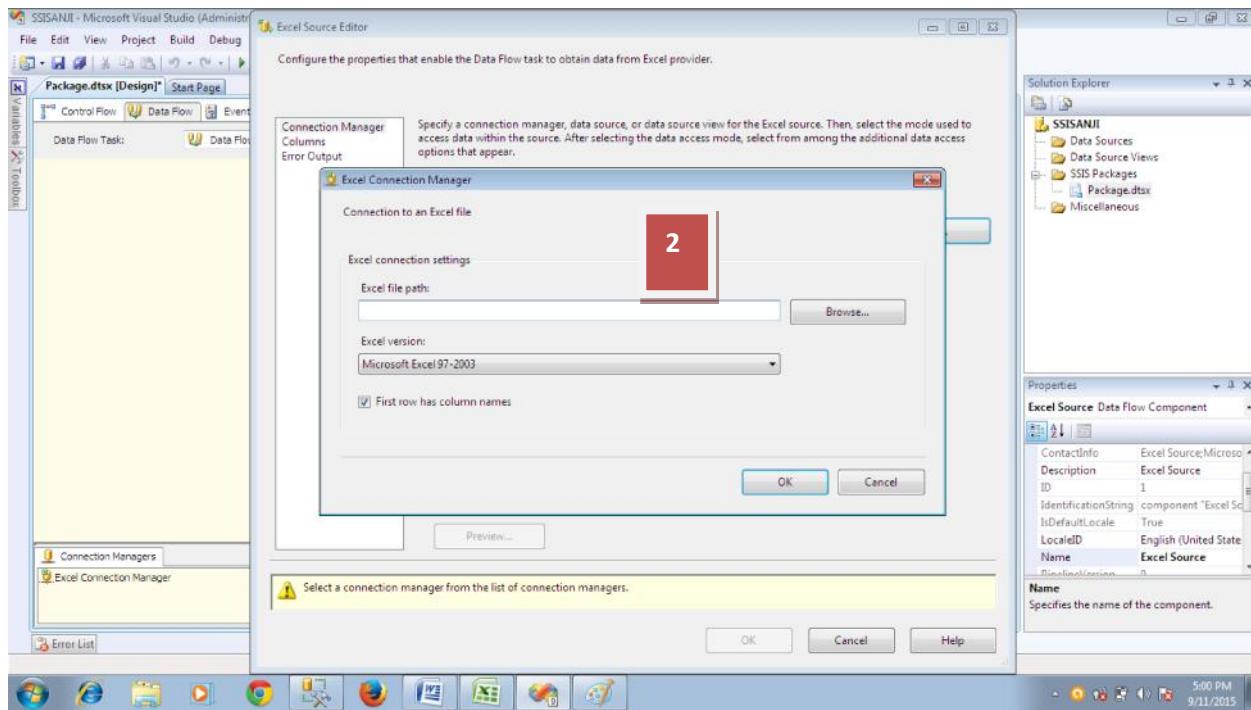
Step 4: Double click on Dataflow task or Right click on Dataflow task →Edit.

Step 5 : Drag and drop ‘Excel source’ and configure the excl source in the following steps.

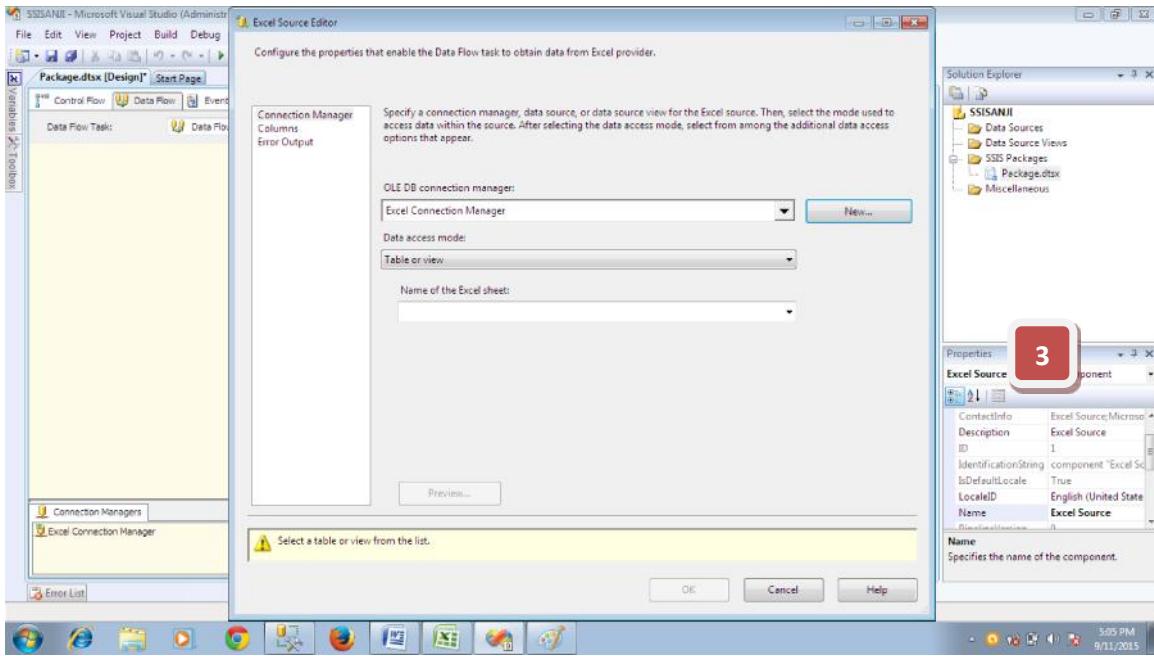
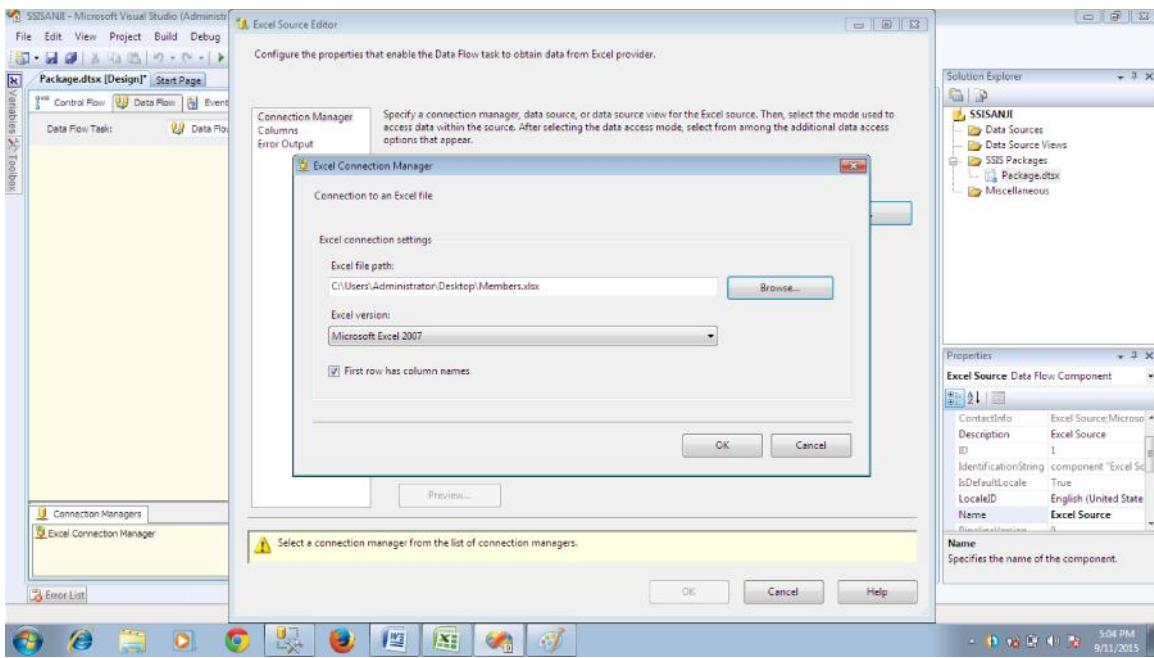
1. **Double click on ‘Excel source’, it will display the following window.**



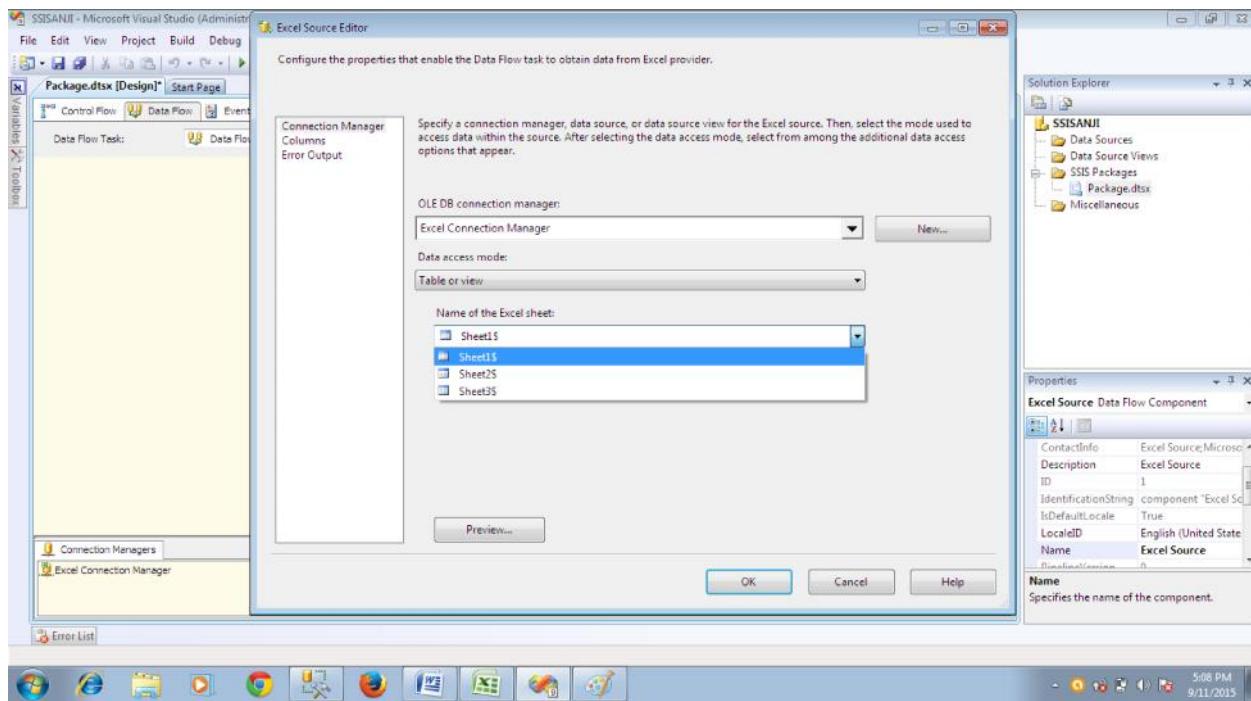
2. Click on new it will display the following window.



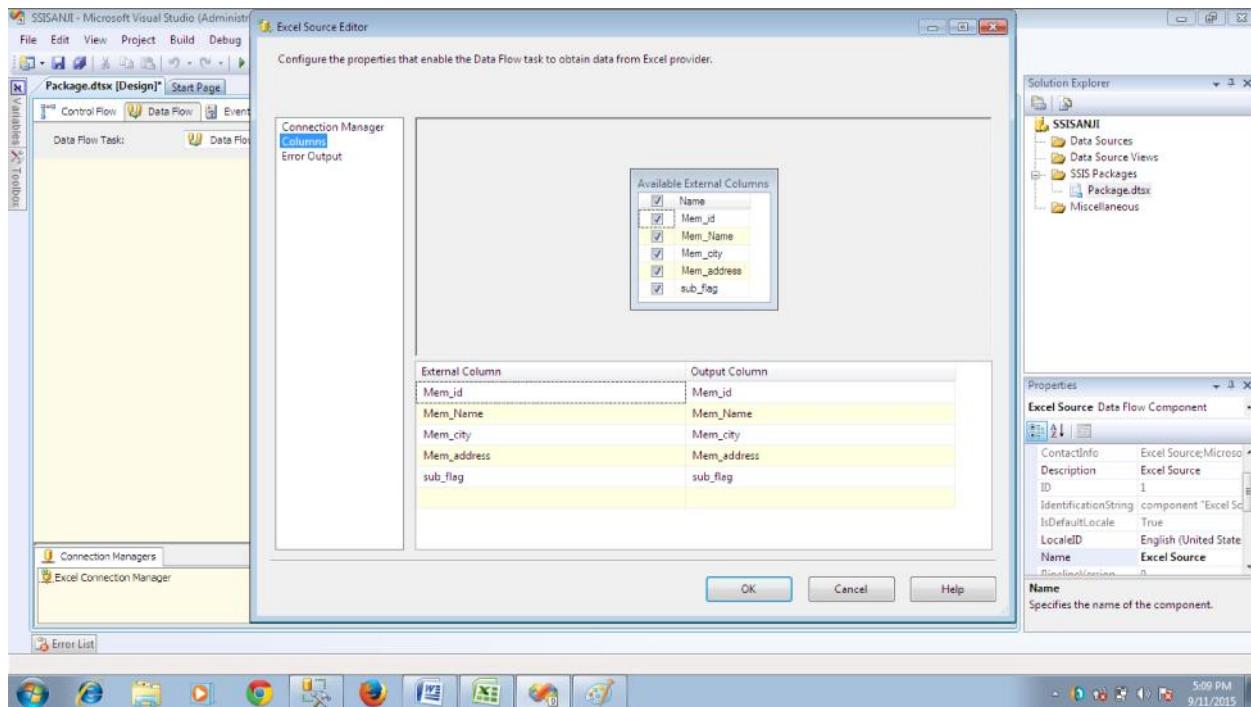
3. Click on browse and give the file path and then click 'ok'



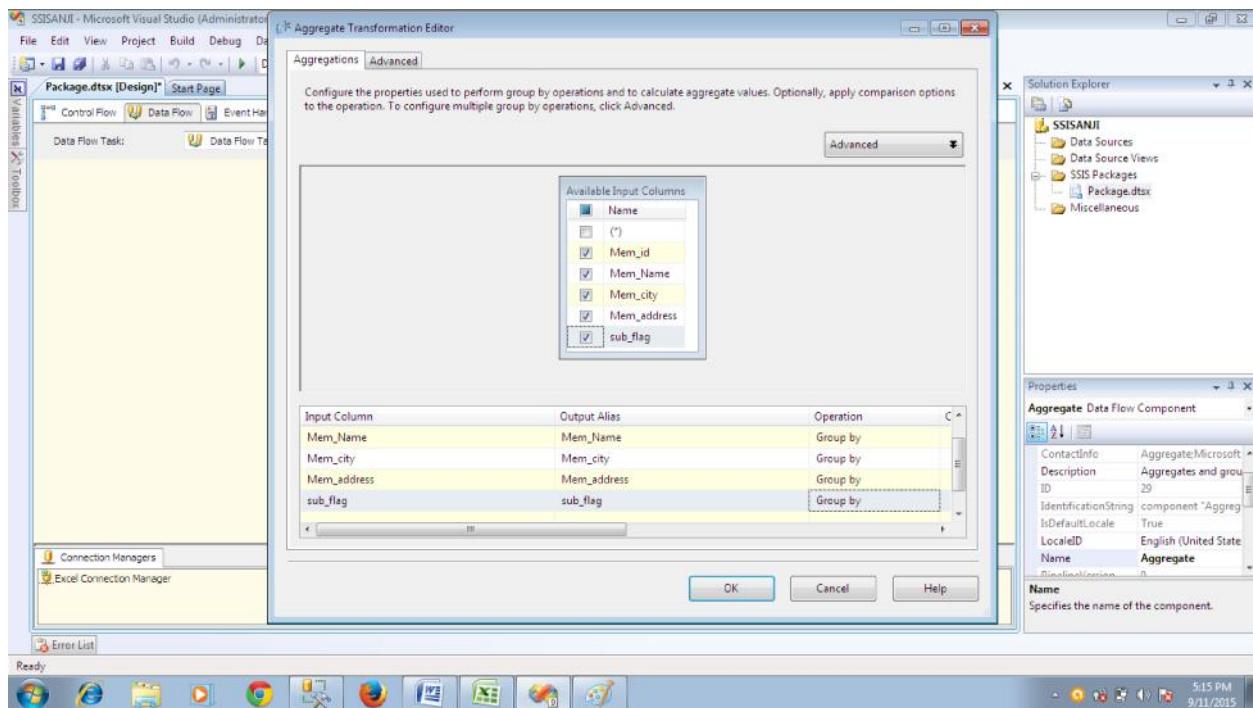
4. Select the name of the sheet is 'Sheet 1\$'



5. Click on column tab from the left panel and then click ok.

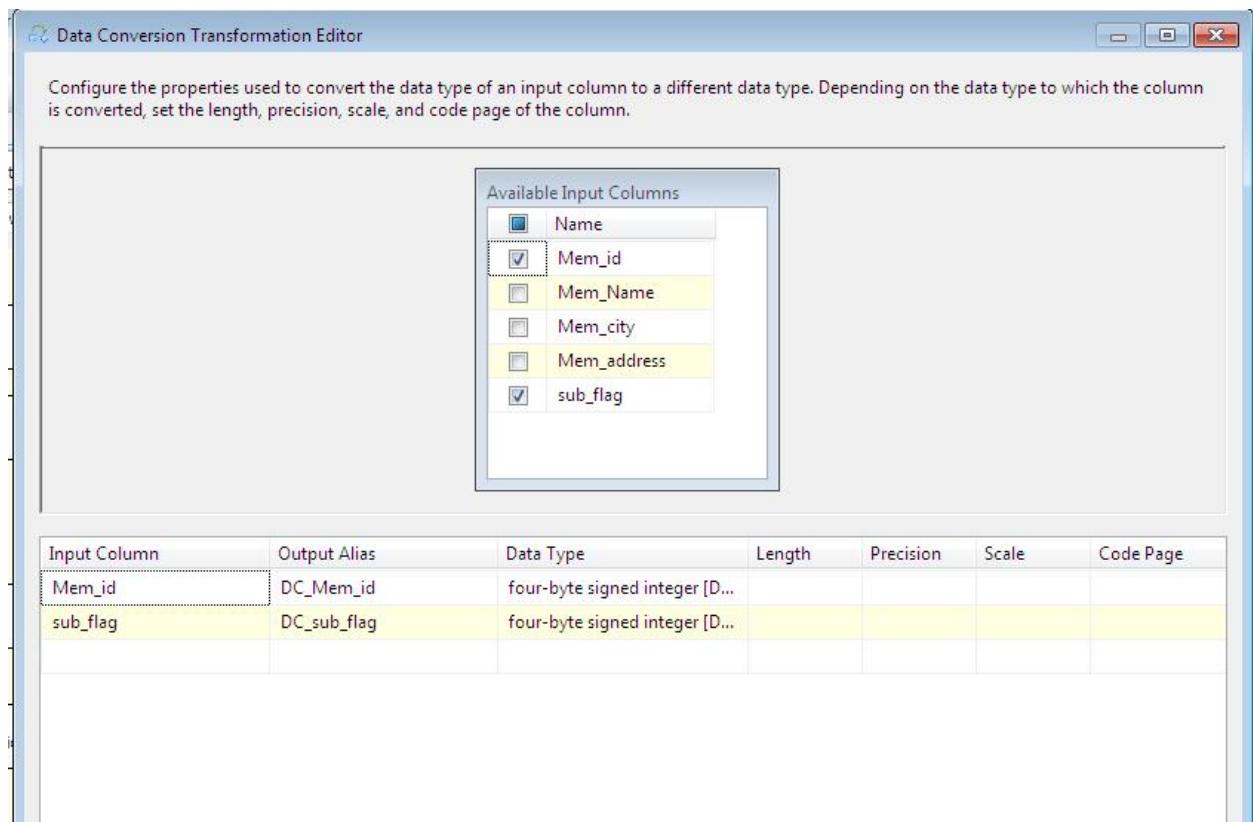


Step 6: Drag and drop the aggregation transformation and double click on the aggregation transformation and apply the group by of all columns and then click 'OK'.



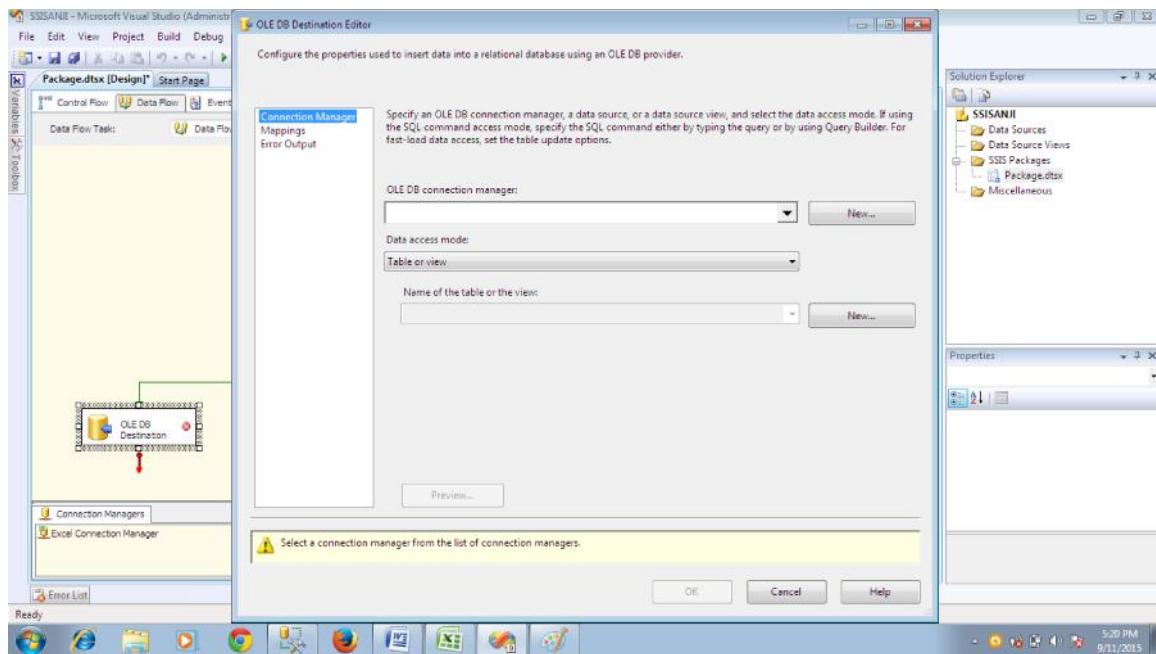
Select the all columns and apply the group by

Step 7 Drag and drop the ‘Data conversion transformation’ and double click on it.

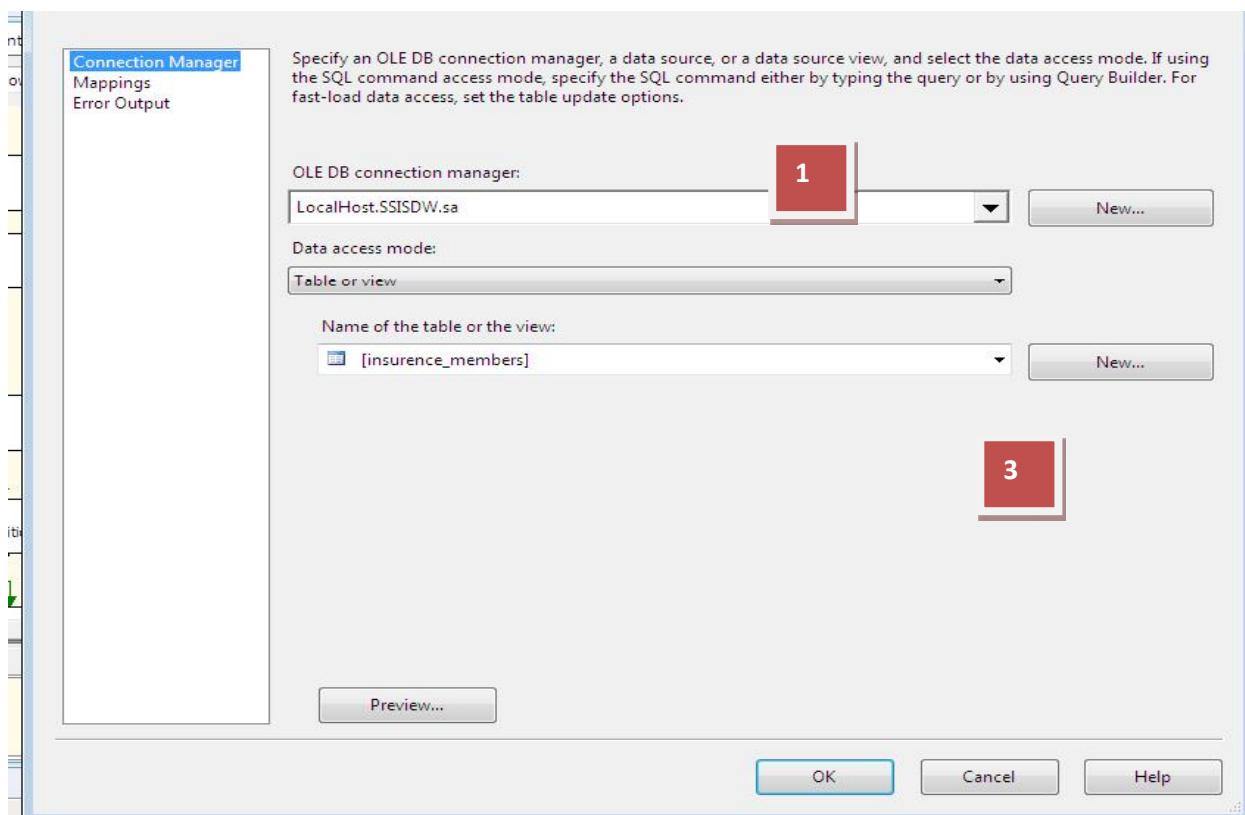


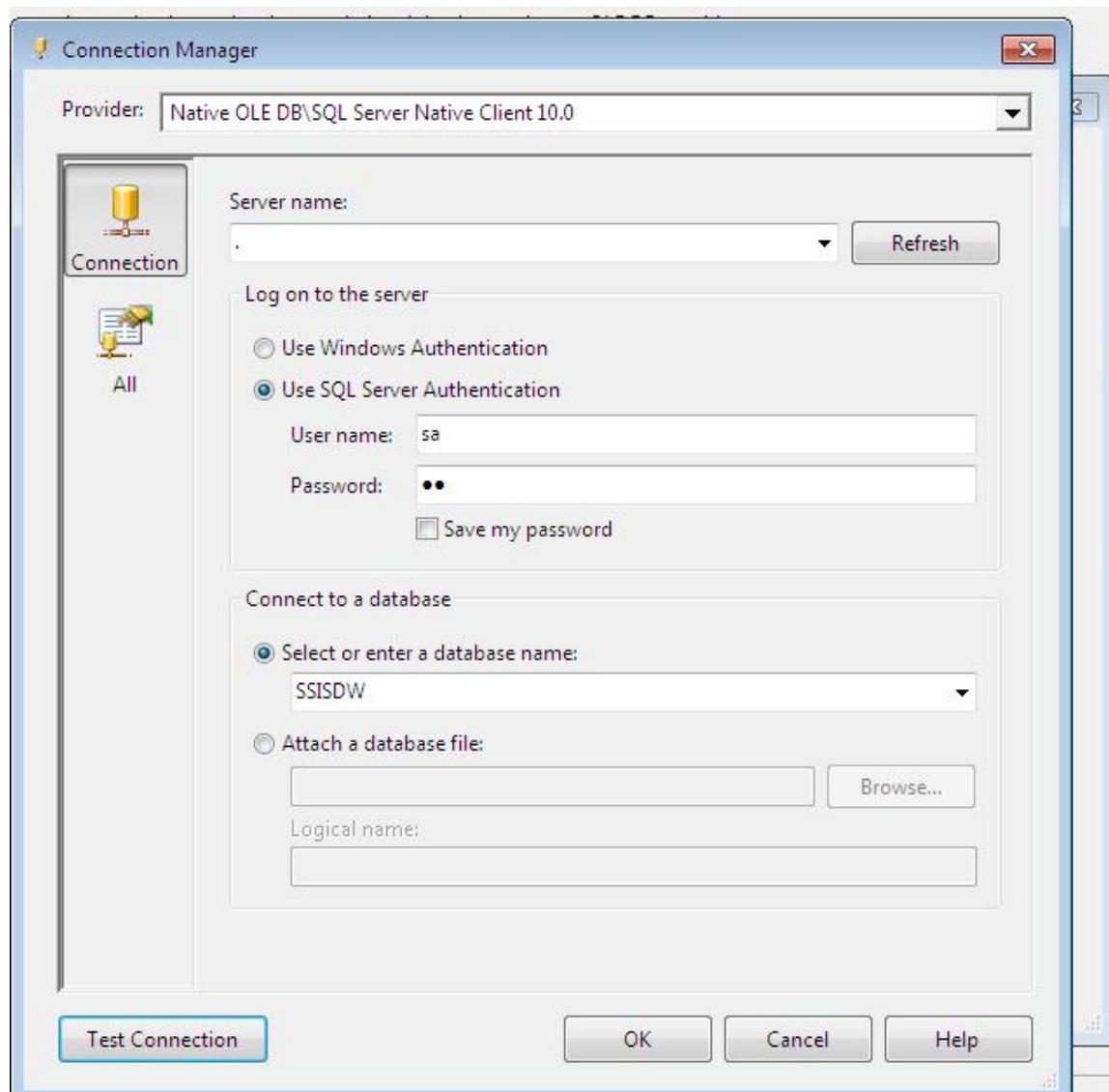
Step :8 Drag and drop the multicast transformation .There is no configurations.

Step : 9 drag and drop the ‘OLEDB Destination ‘ and double click on it.



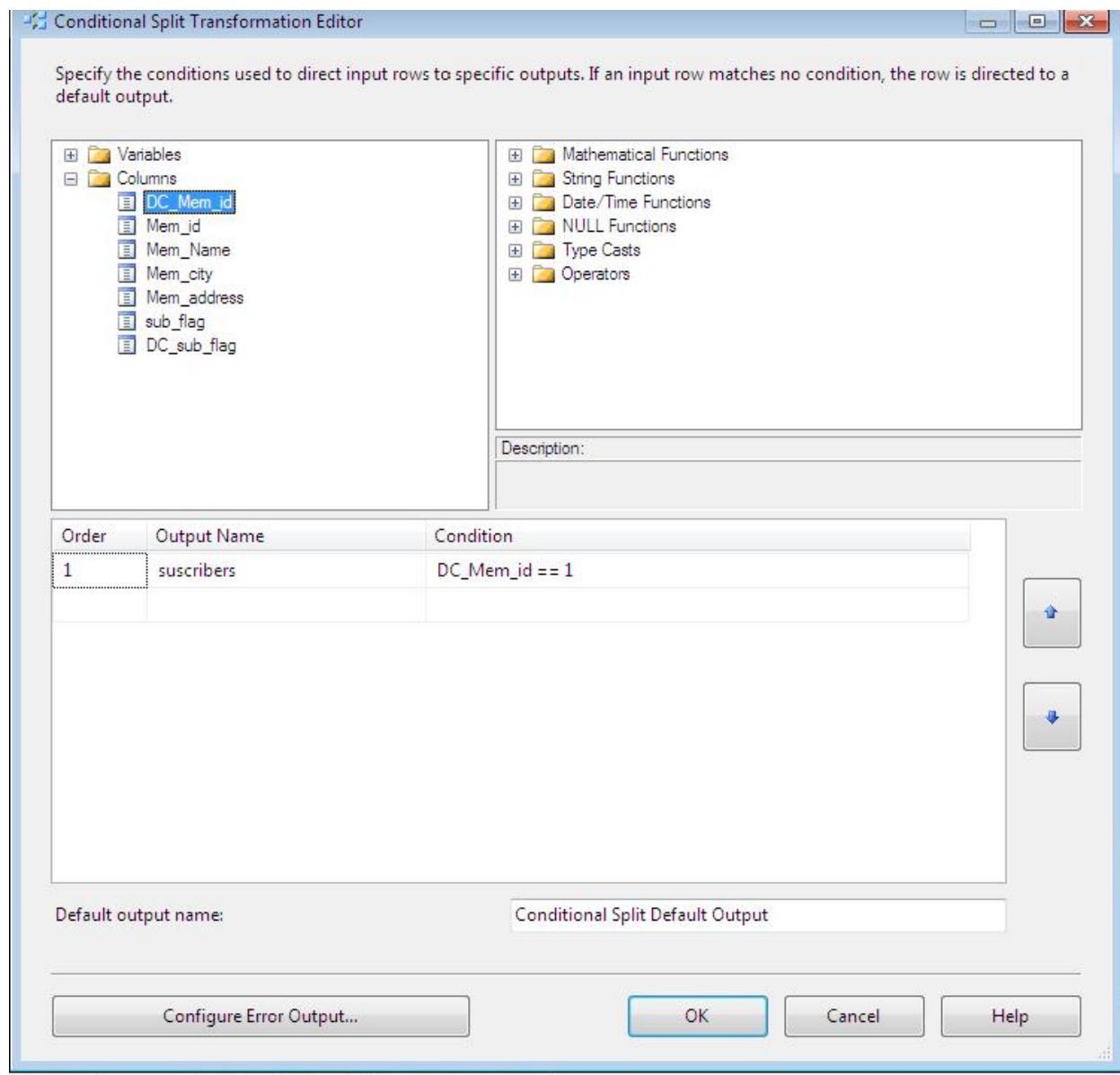
Step 10: drag and drop the Oledb destination and double click on it.





then click ok.

Step : 11 Drag and drop the 'Conditional split transformation. And double click on it.



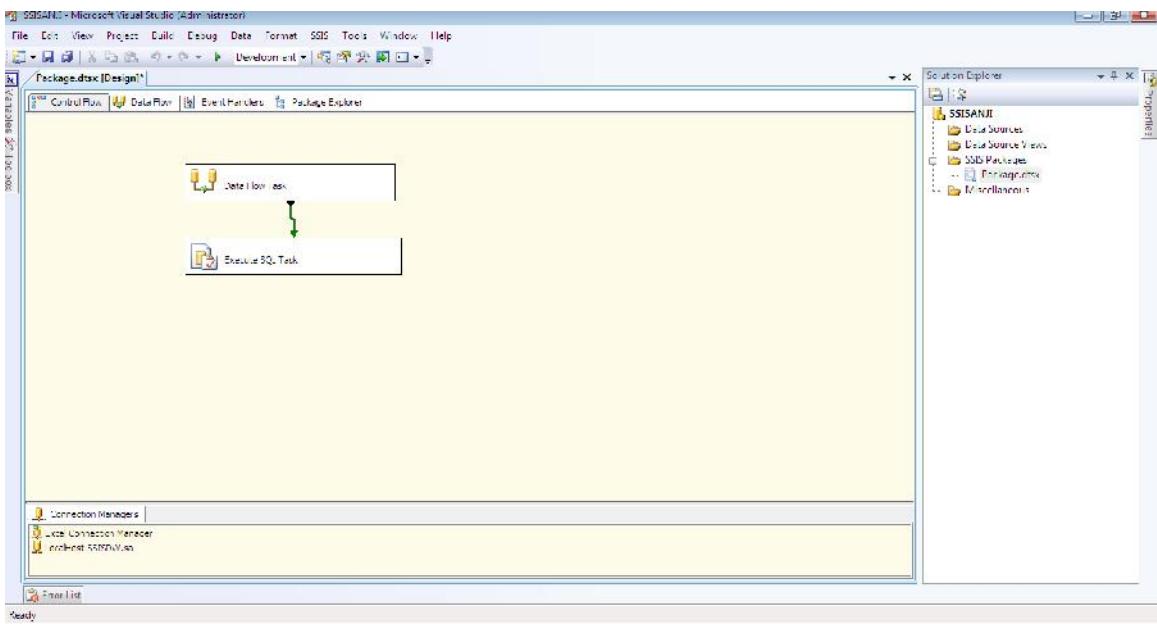
And then click 'ok'

Step: 12 Drag and drop the OLEDB Destination 2 and configure as same as OLEDB Designation

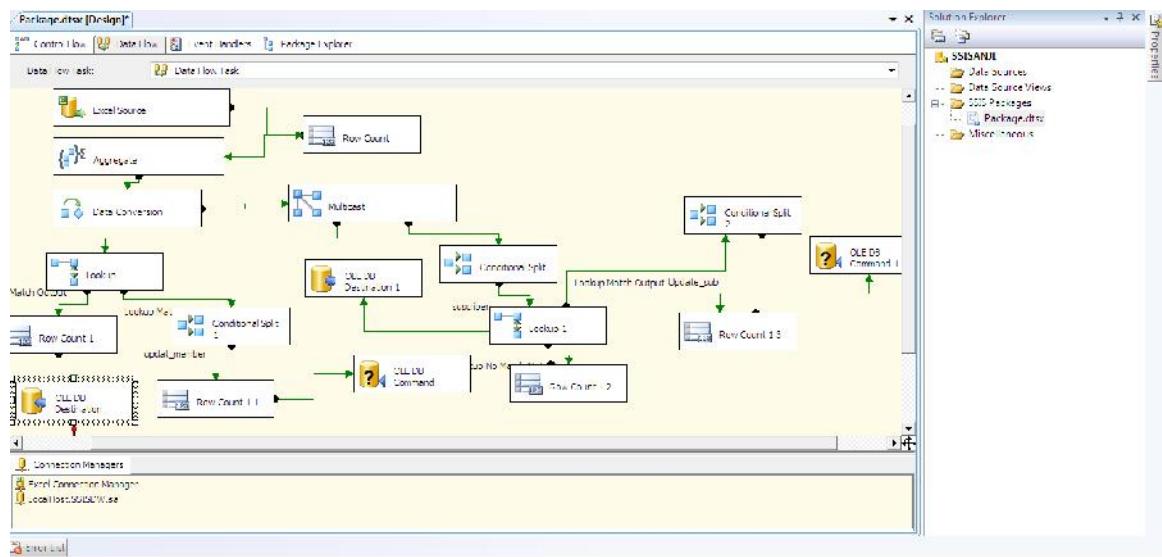
Step: 13 Right click on the package and run the package.

Project 2:

Control flow:



Data flow:



Step:1 Create the three destination table

```
Create table audit_insurence(id int identity(1,1),package_name varchar(20), sre_mem
```

```
int ,mem_insert int,mem_update int,
```

```
sub_mem_insert int, sub_mem_update int,package_exe_time datetime)
```

```
CREATE TABLE [dbo].[insurance_members](
```

```
    [Mem_id] [int] NULL,
    [Mem_Name] [nvarchar](255) NULL,
    [Mem_city] [nvarchar](255) NULL,
    [Mem_address] [nvarchar](255) NULL,
    [sub_flag] [int] NULL
)
```

```
CREATE TABLE [dbo].[insurance_sub](
```

```
    [Mem_id] [int] NULL,
    [Mem_Name] [nvarchar](255) NULL,
    [Mem_city] [nvarchar](255) NULL,
    [Mem_address] [nvarchar](255) NULL,
```

```
[sub_flag] [int] NULL  
)
```

Step :2 Prepare the Excel file with the following column name

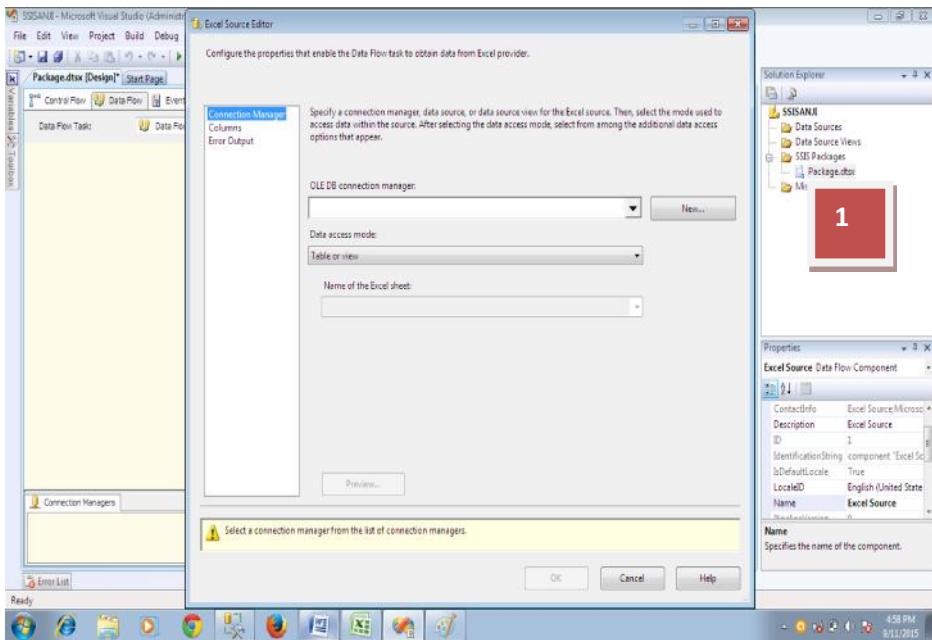
Mem_id	Mem_Name	Mem_city	Mem_address	sub_flag
1	surendra	Hyderabad	SR Nagar	1
2	suri	Hyderabad	SR Nagar	0
3	ramu	Hyderabad	SR Nagar	0
4	krishna	Hyderabad	SR Nagar	0
5	SriRam	Hyderabad	Madhapur	1
6	Sri	Hyderabad	Madhapur	0
7	siva	Hyderabad	Madhapur	0
8	ram	Hyderabad	Madhapur	0
9	ravi	Hyderabad	Madhapur	0
10	SaiRam	Bengalore	KR Puram	1
11	sai	Bengalore	KR Puram	0
12	sam	Bengalore	KR Puram	0
13	somu	Bengalore	KR Puram	0
14	sura	Bengalore	KR Puram	0
15	Anji	Chennai	Ashok Nagar	1
16	Rama	Chennai	Ashok Nagar	0
17	Lakshman	Chennai	Ashok Nagar	0
18	Bharath	Chennai	Ashok Nagar	0
19	Arjuna	Chennai	Ashok Nagar	1
20	bhema	Chennai	Ashok Nagar	0
1	surendra	Hyderabad	SR Nagar	1
2	suri	Hyderabad	SR Nagar	0
3	ramu	Hyderabad	SR Nagar	0
4	krishna	Hyderabad	SR Nagar	0

Step 3 : Drag and drop the Dataflow task in the control flow tab.

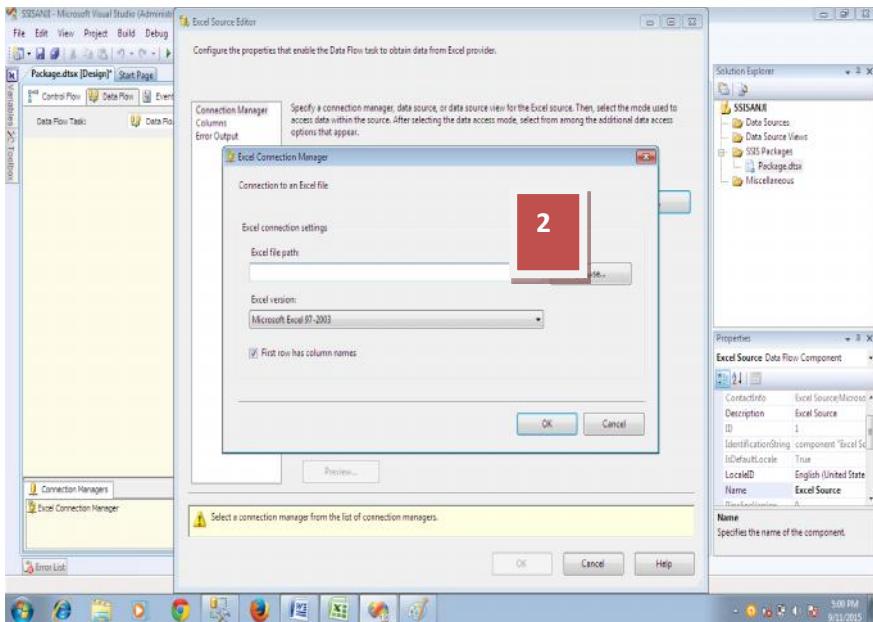
Step 4: Double click on Dataflow task or Right click on Dataflow task →Edit.

Step 5 : Drag and drop 'Excel source' and configure the excl source in the following steps.

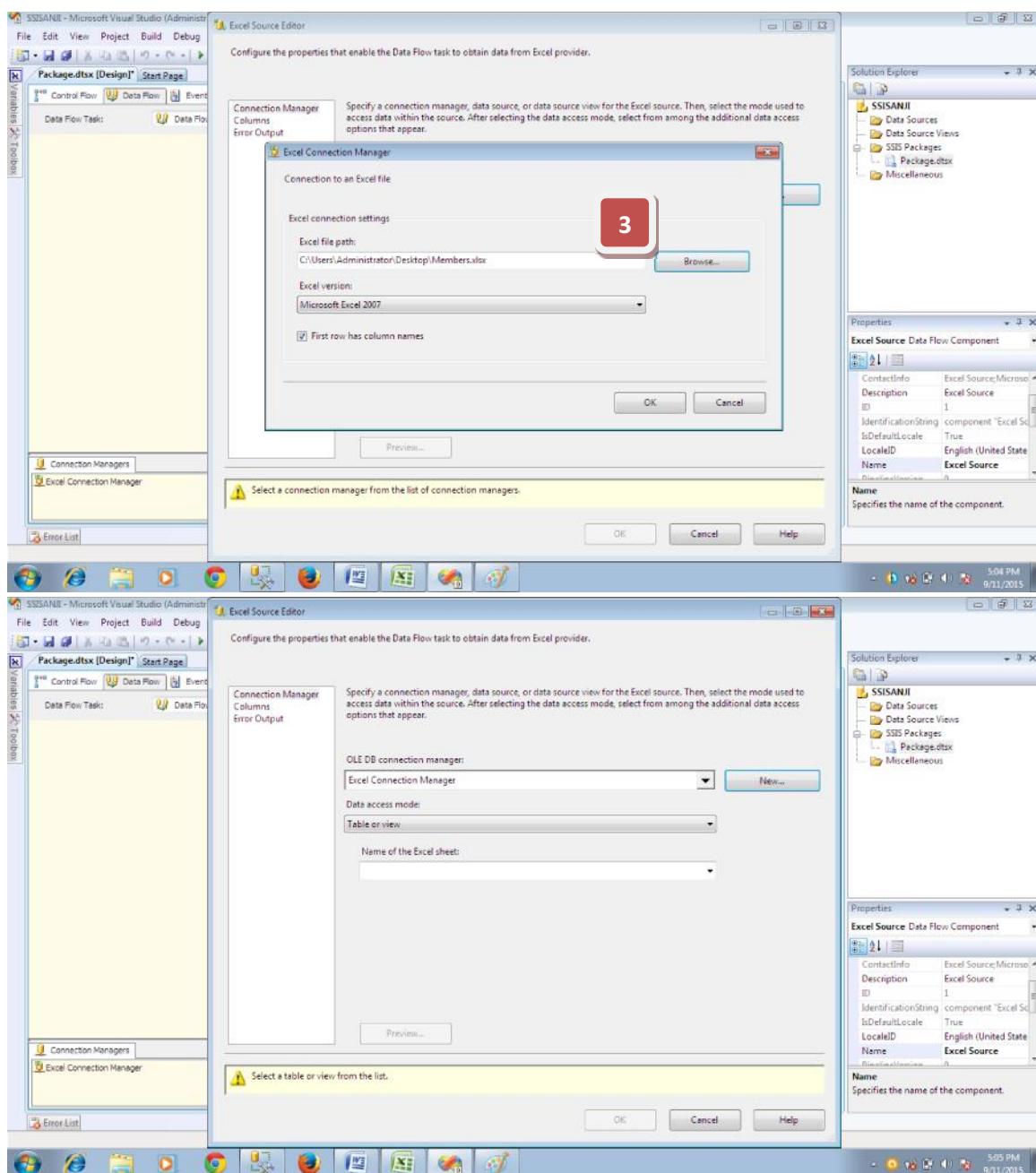
1. Double click on 'Excel source'; it will display the following window.



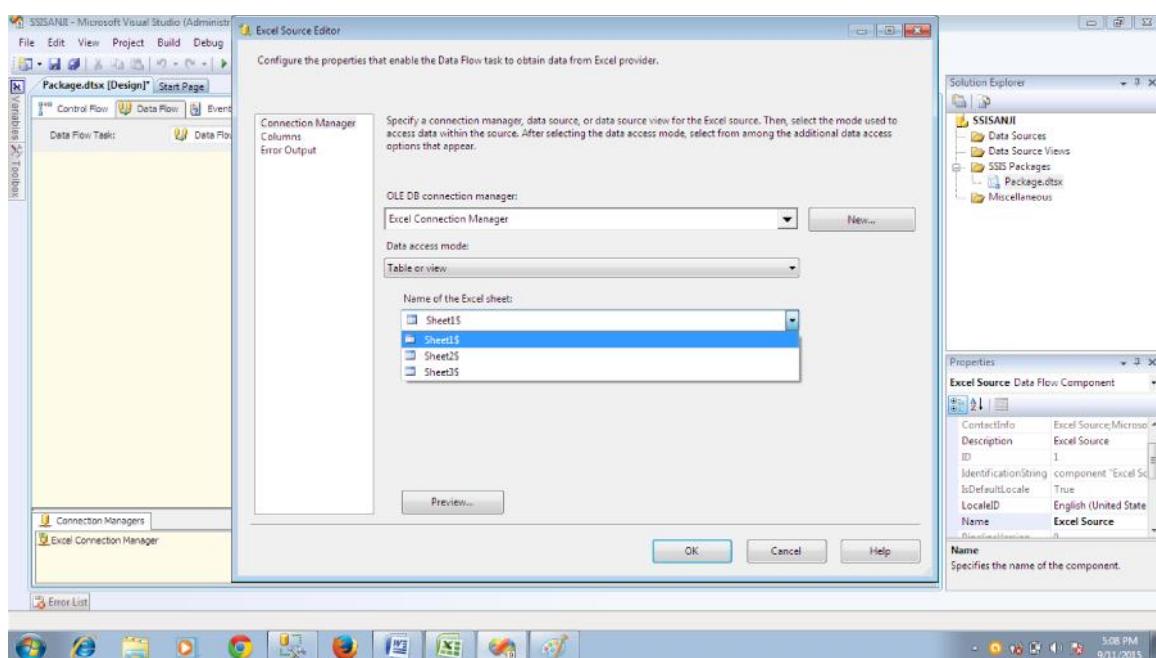
2. Click on new it will display the following window.



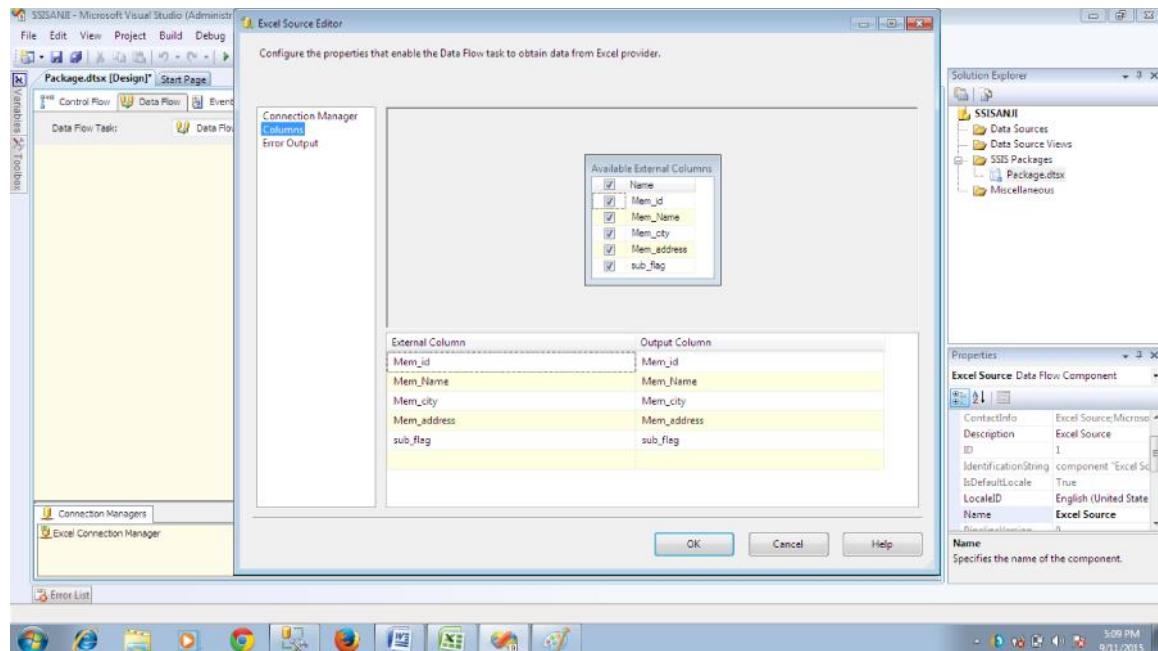
3. Click on browse and give the file path and then click 'ok'



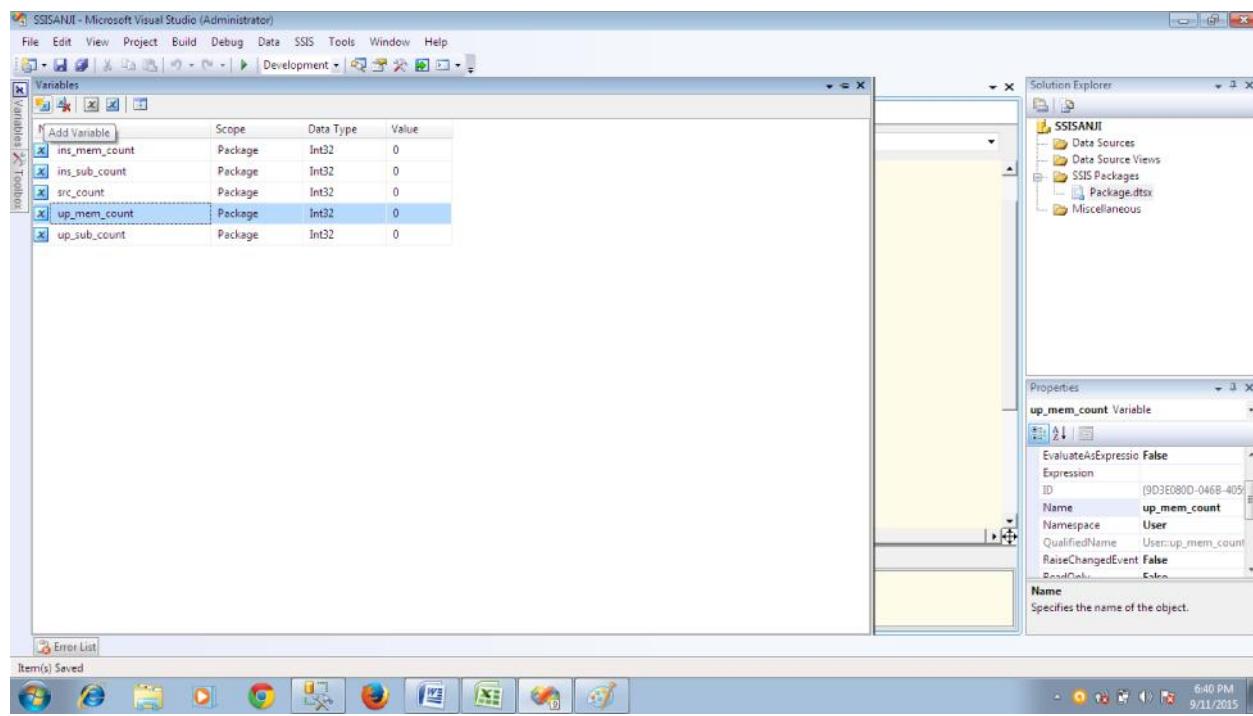
4. Select the name of the sheet is 'Sheet 1\$'



5. Click on column tab from the left panel and then click ok.

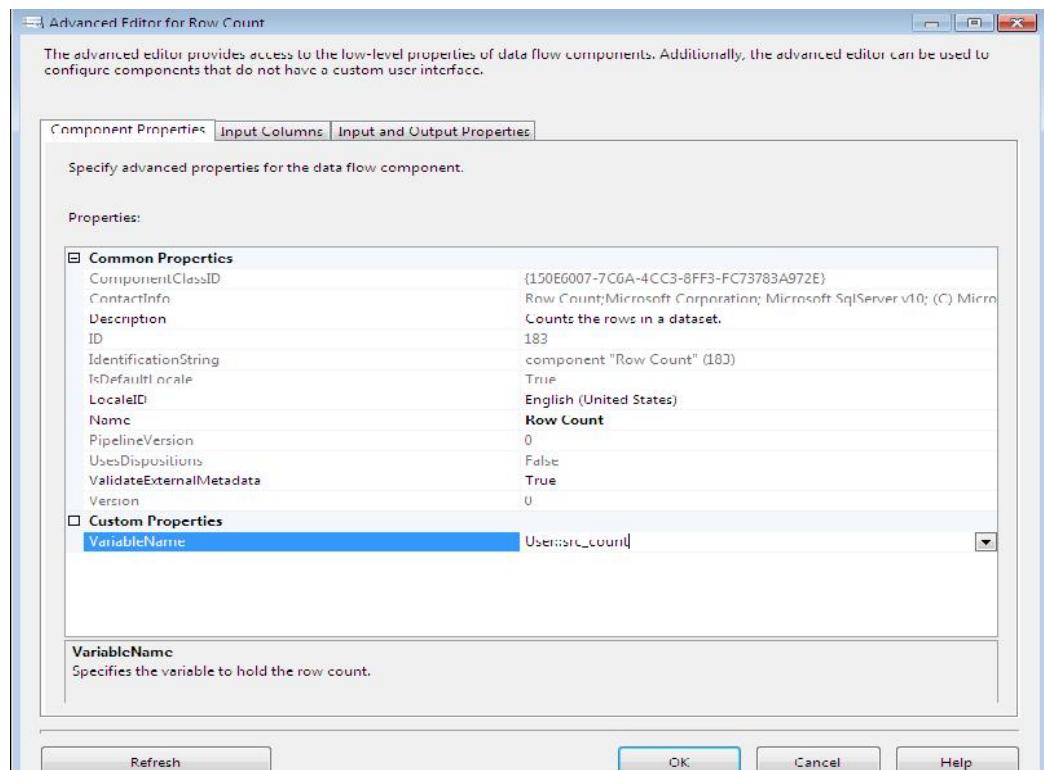


Step 6: Right click on the control flow →variables →Add variables.

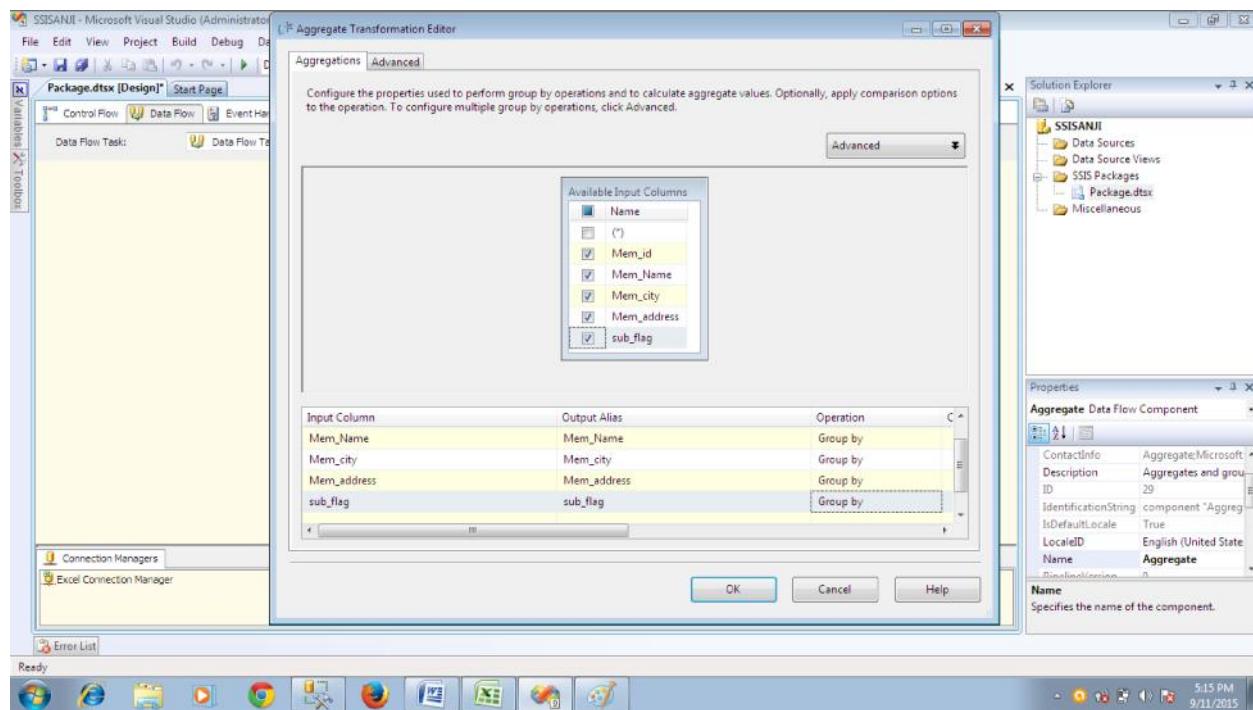


Step: 7 Drag and drop the row count transformation and double click on it.

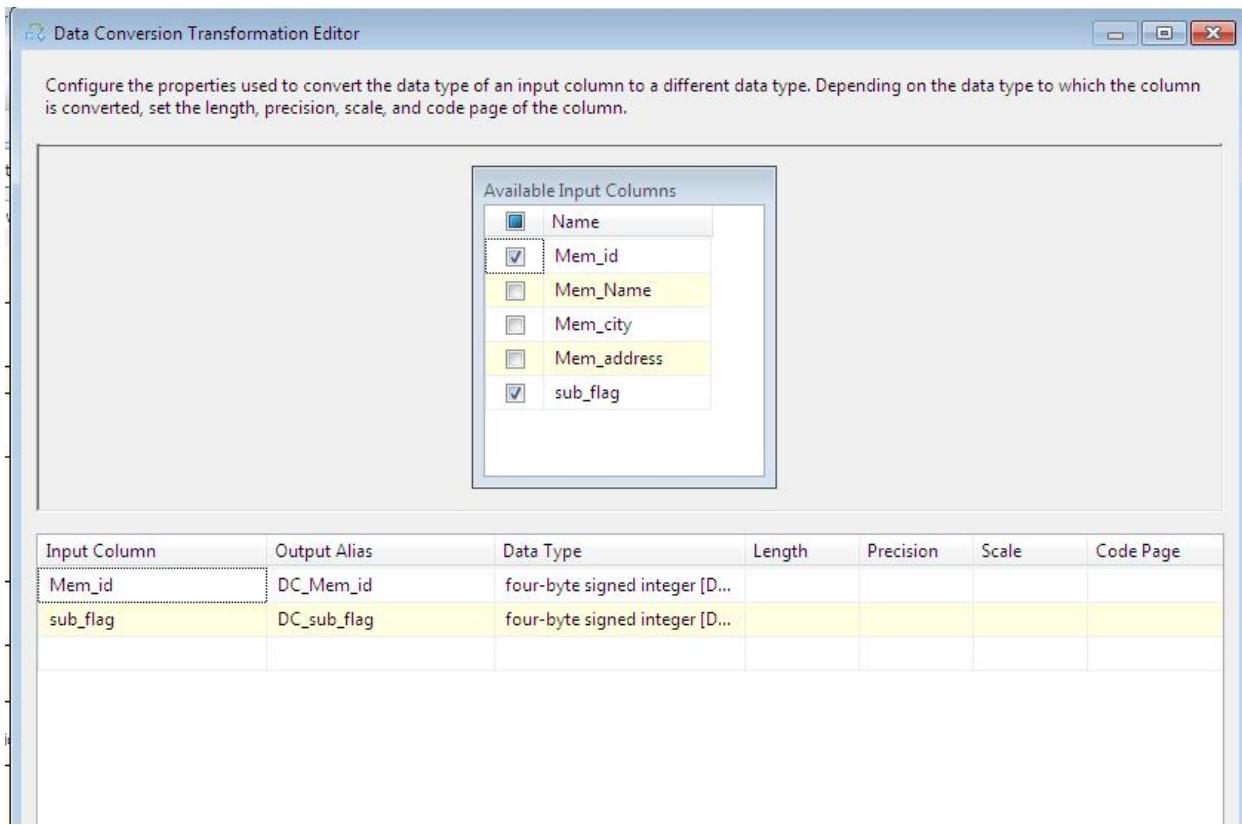
Component property →Custom property →VariableName:user::Src_count



Step 8 : Drag and drop the aggregation transformation and double click on the aggregation transformation and apply the group by of all columns and then click 'OK'.



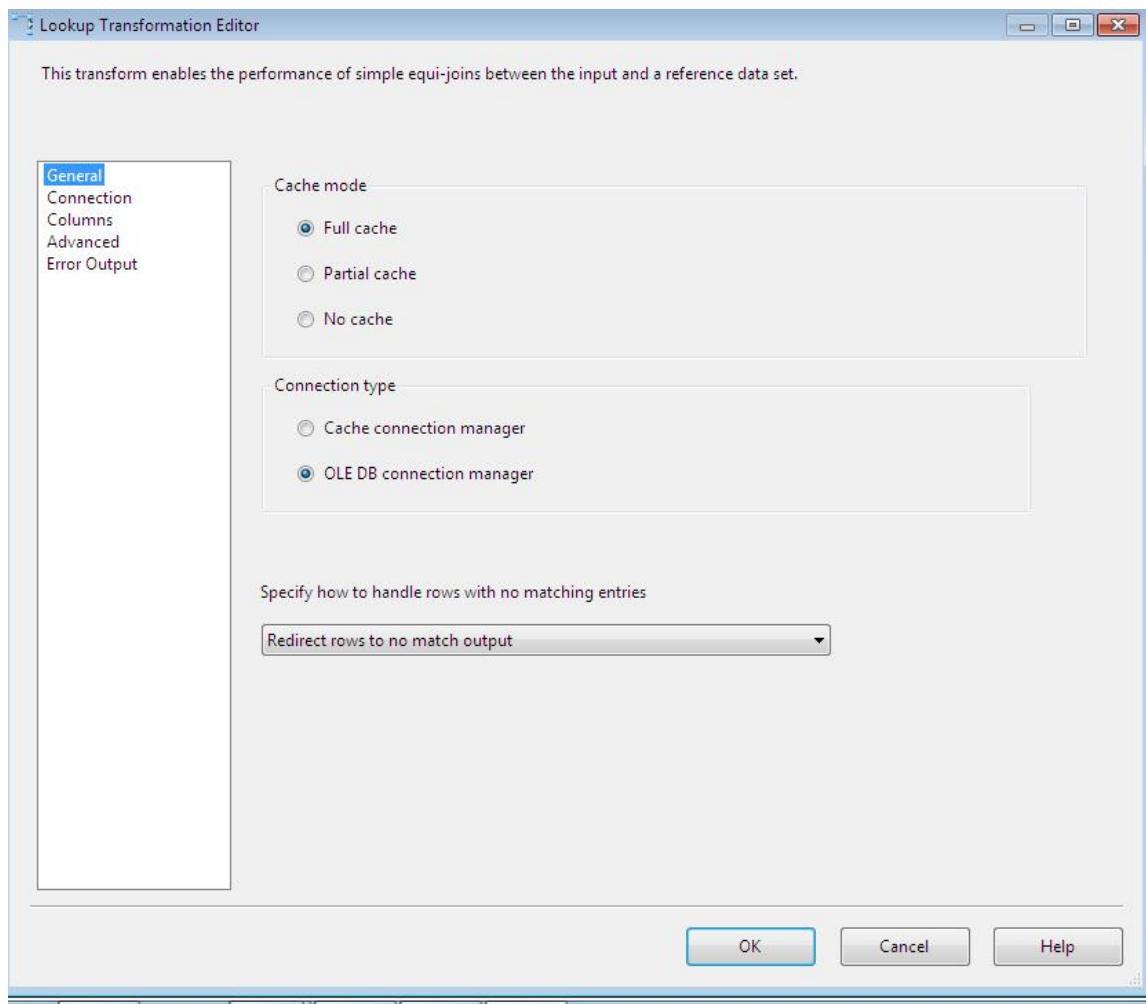
Step 9: Drag and drop the 'Data conversion transformation' and double click on it.



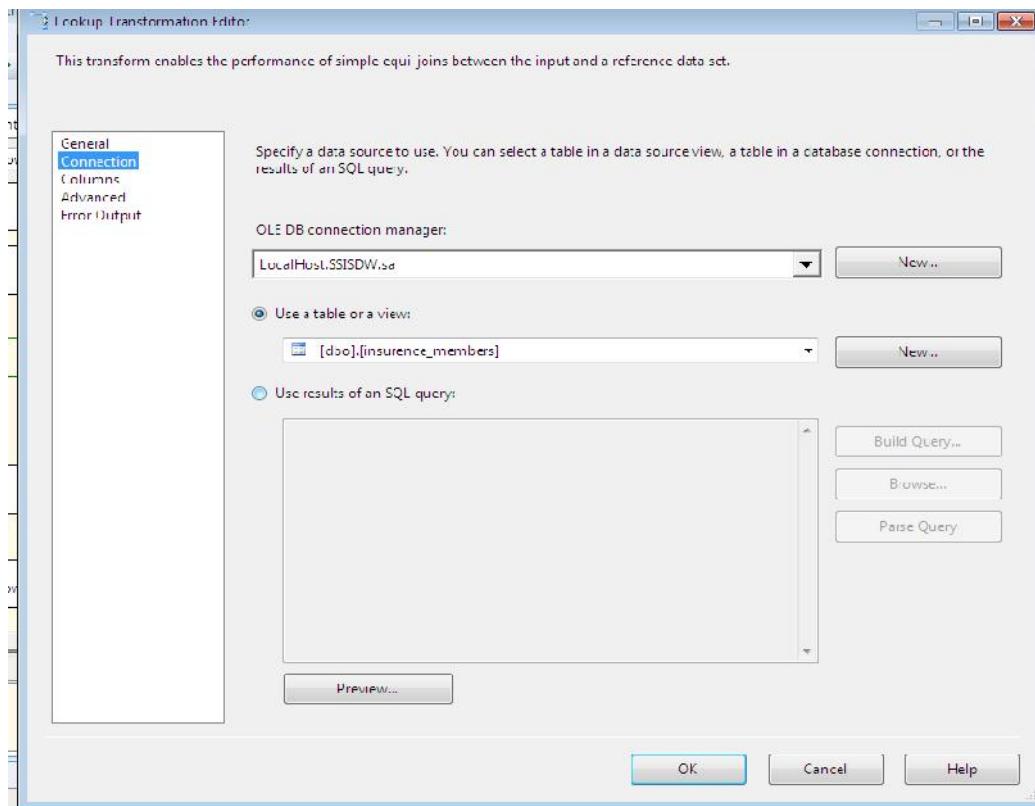
Step: 10 Drag and drop the multicast transformation .There is no configurations.

Step: 11 Drag and drop the lookup transformation and make a connection from source to lookup.

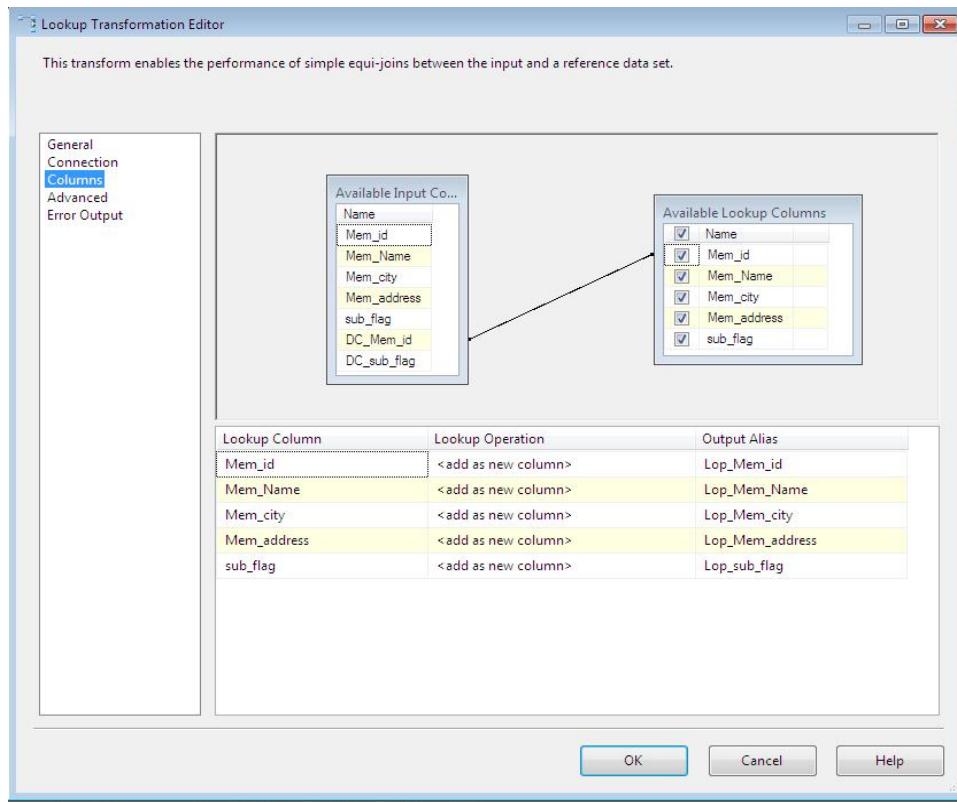
- I. Double click on the lookup to edit it.
- II. Provide the connection manager in the following way(in general tab)



III. Provide the connection manager and select the destination table as a lookup table.



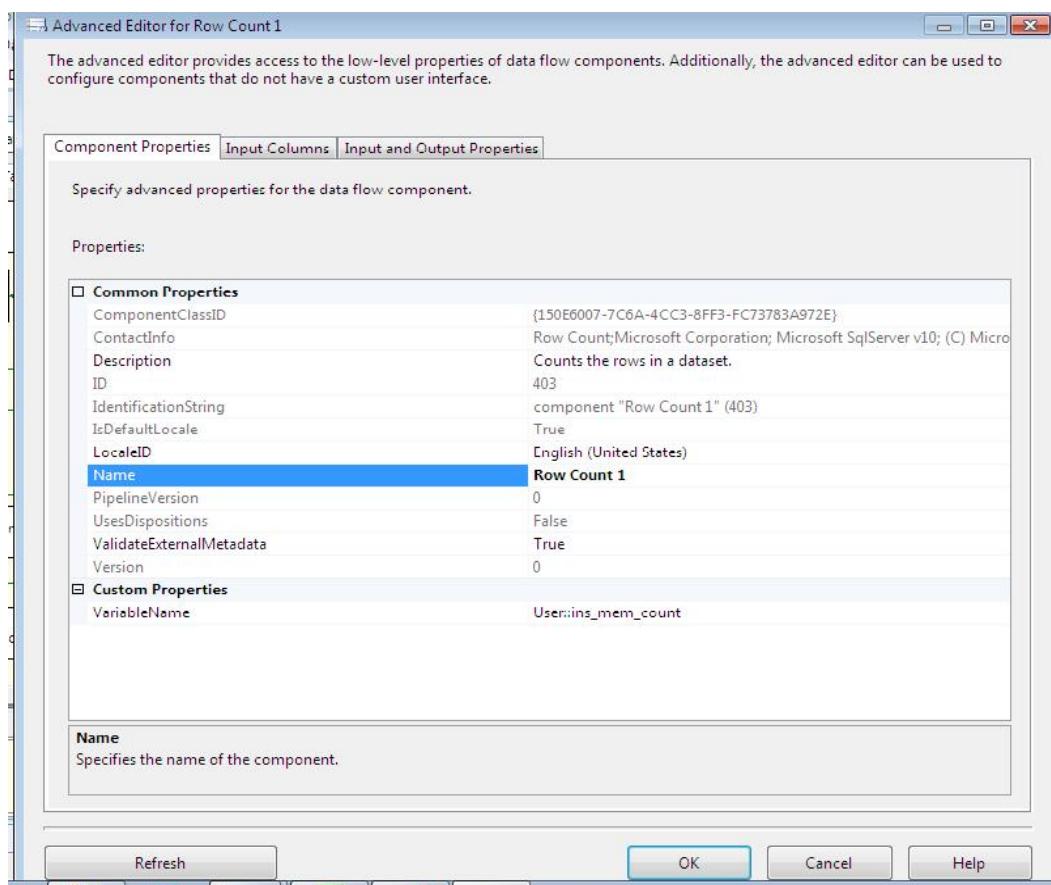
IV. Select the column tab and configure in the following way and then click "OK"



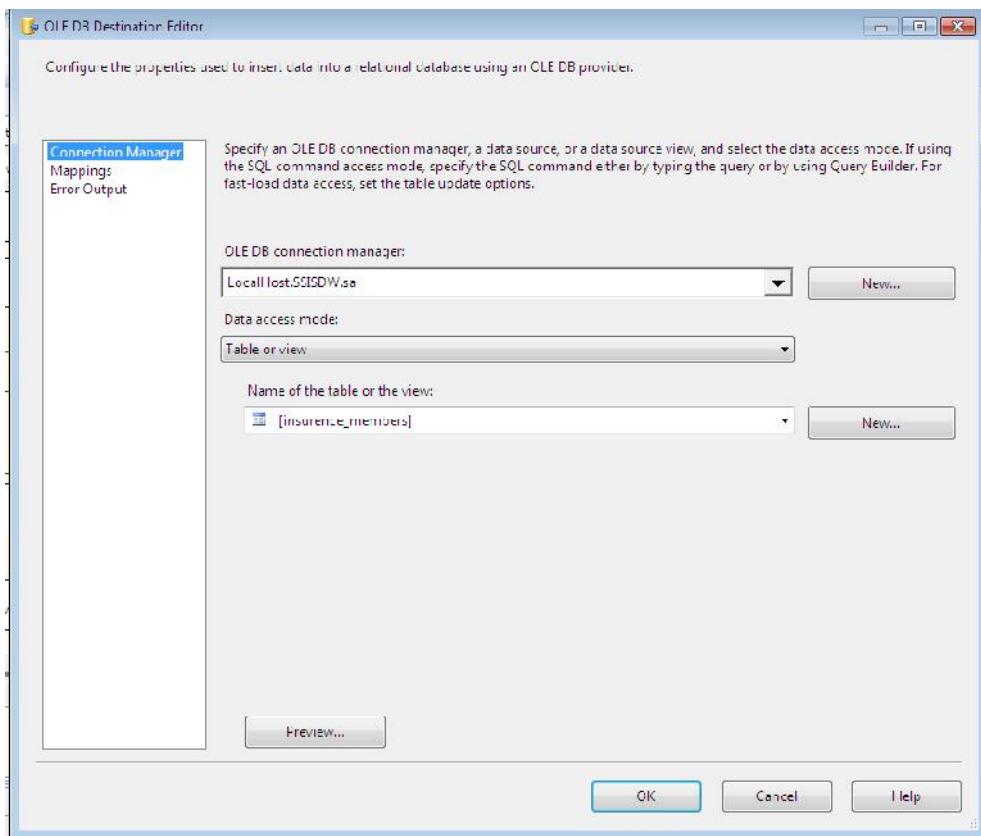
Step : 12 Drag and drop the row count transformation and double click on it.

Component property →Custom property →VariableName:user::inc_mem_count

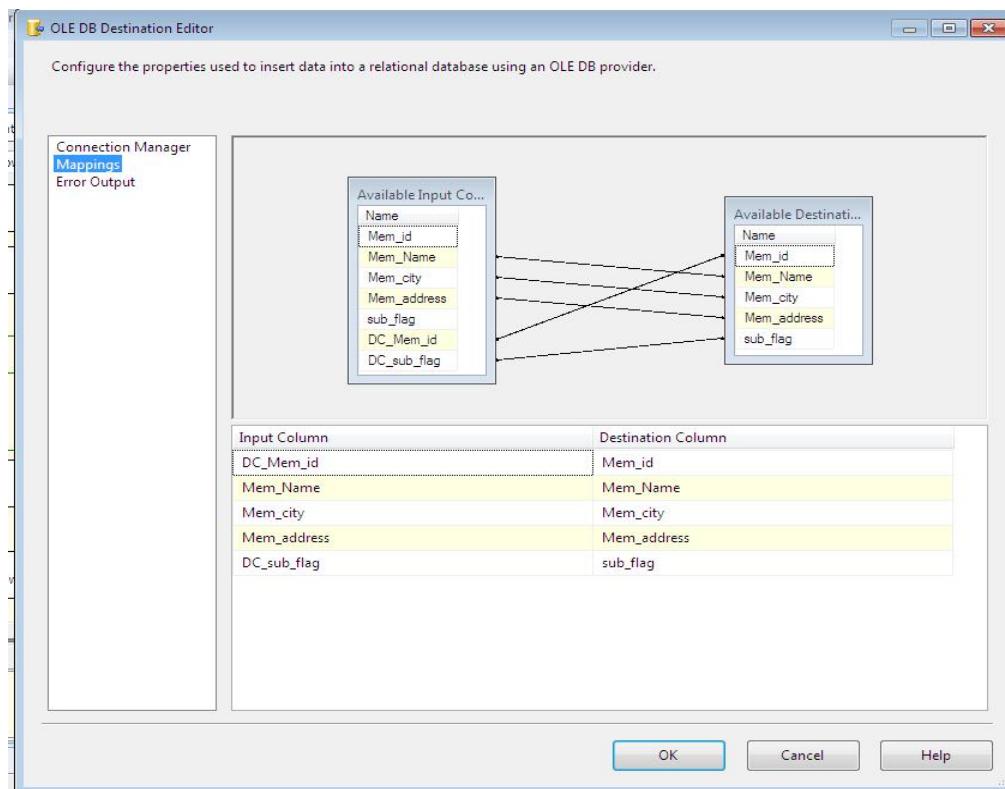
This variable is for count the number of members are inserted in the insurance_members table.



Step: 13 Drag and drop OLEDB Destination and double click on it.

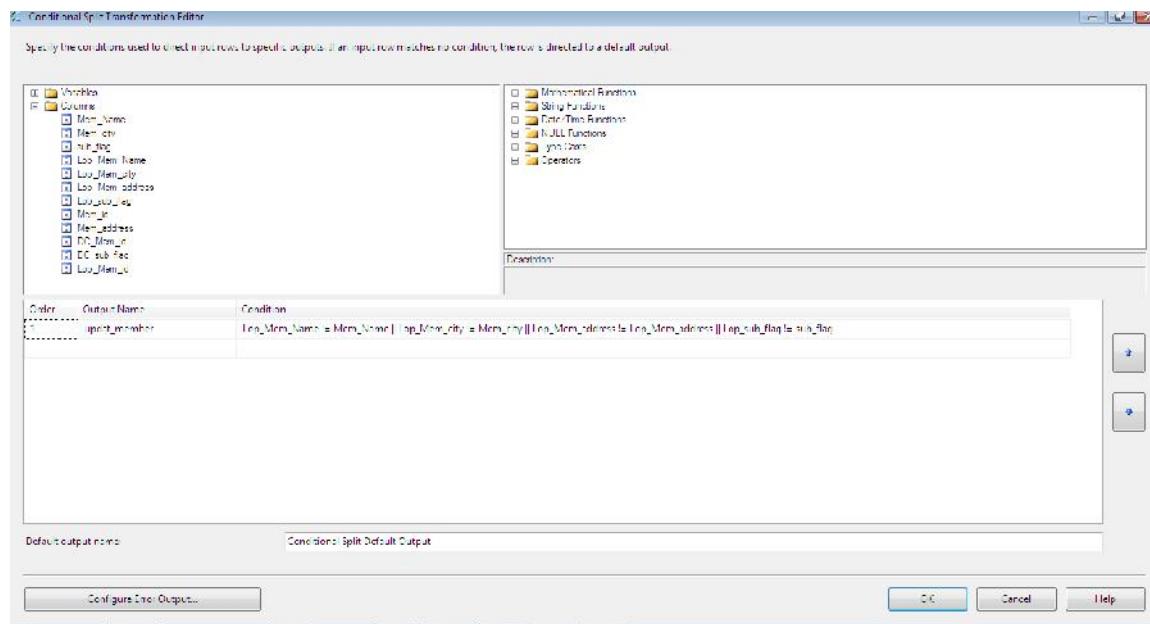


Click on the Mapping tab



And click "OK"

Step :14 Drag and drop the conditional split transformation and double click on it .



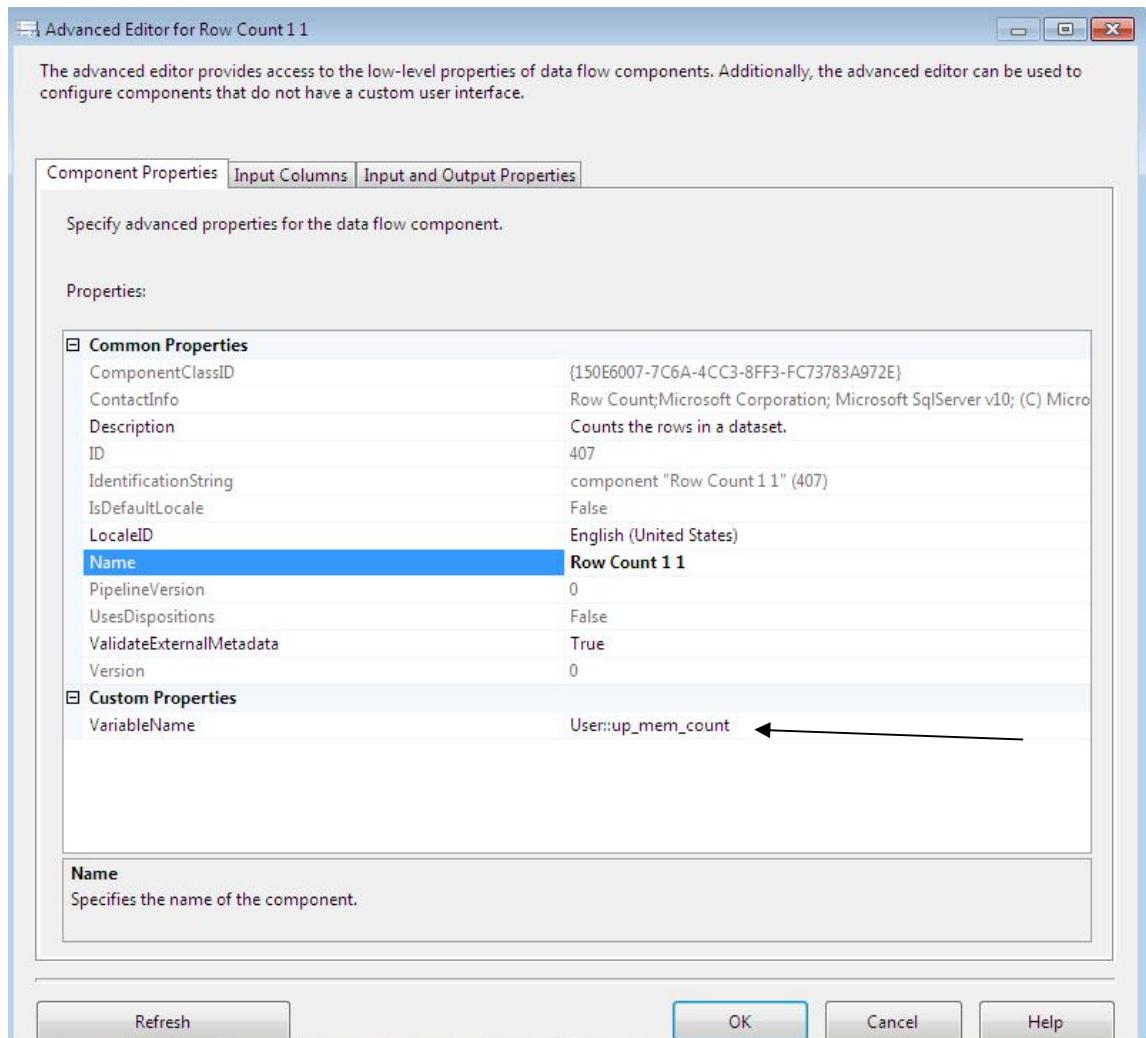
Condition write in the following way

**Lop_Mem_Name != Mem_Name || Lop_Mem_city != Mem_city || Lop_Mem_address != Lop_Mem_address ||
Lop_sub_flag != sub_flag**

Step: 15 Drag and drop the row count transformation and double click on it.

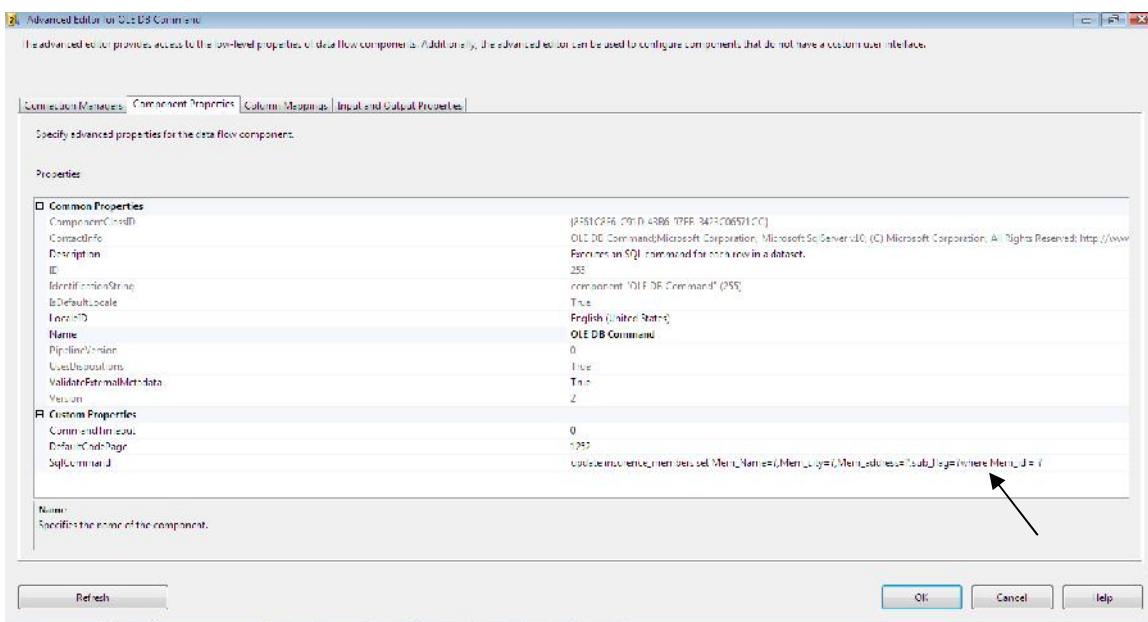
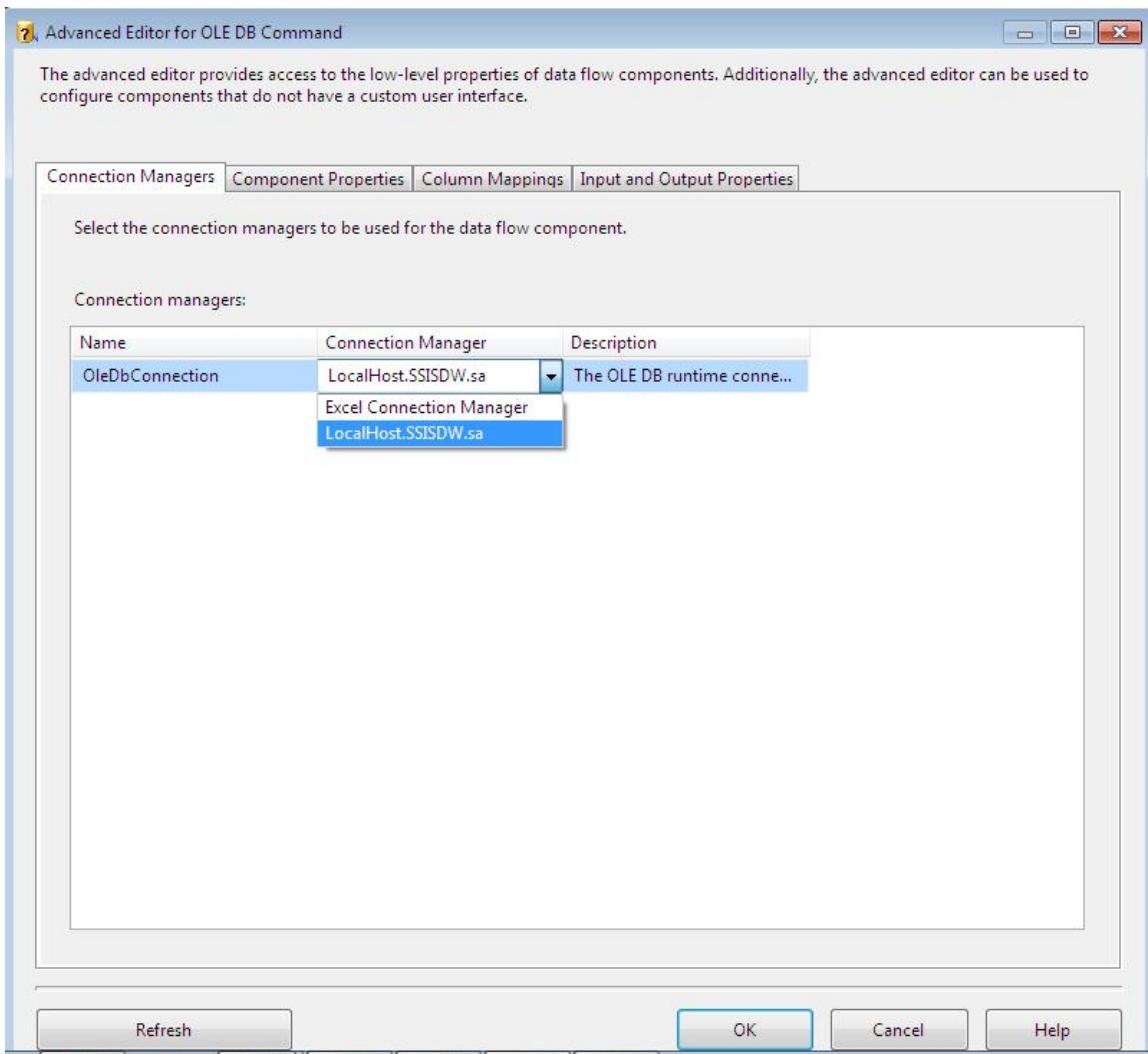
Component property → Custom property → VariableName:user::up_mem_count

This variable is for count the number of members are updated in the insurance_members table.



Step : 16 Drag and drop the oledb Command and configure in the following way

- I. Provide the connection manager to see in the following figure.

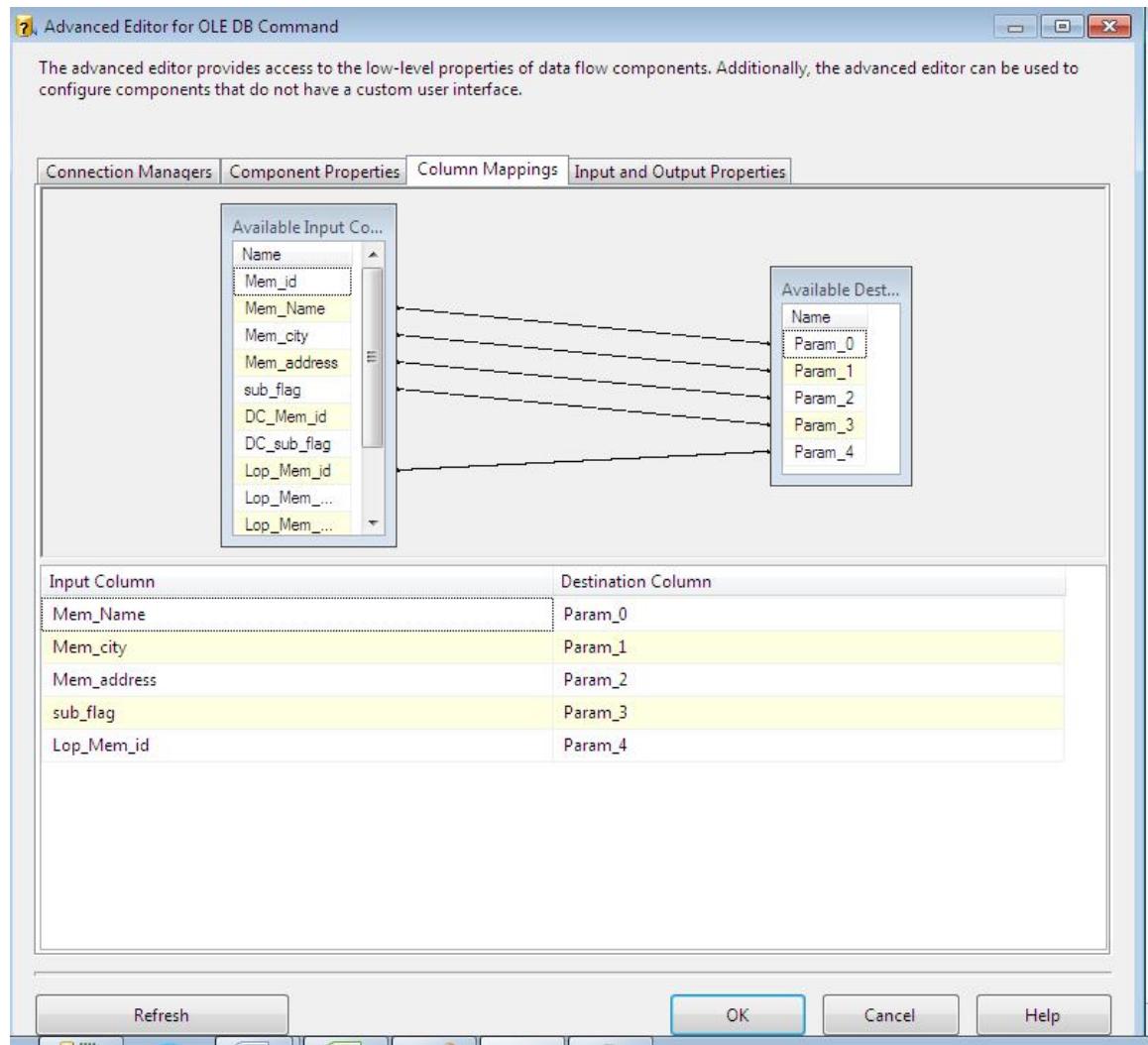


Update command:

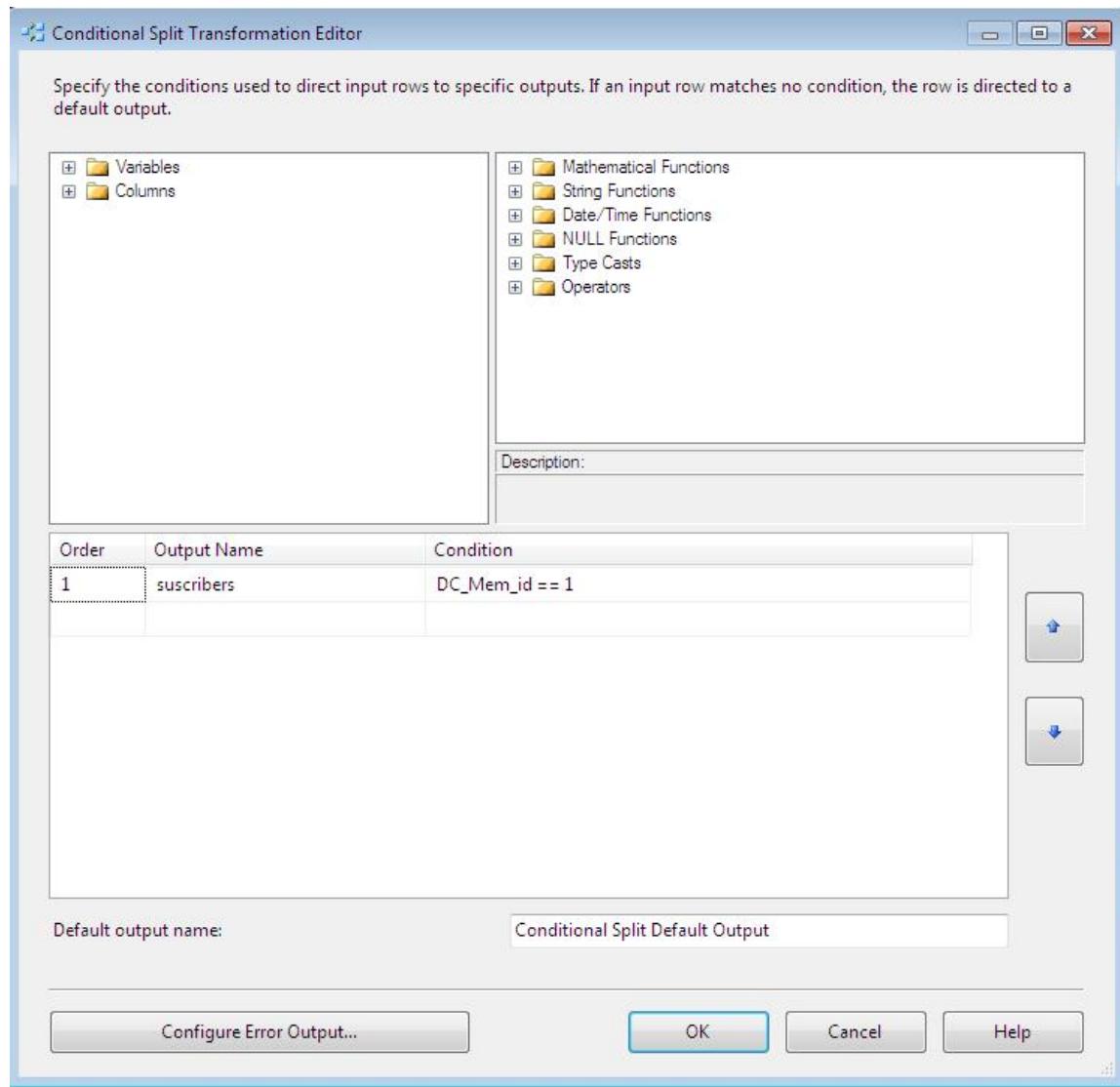
update insurance_members set Mem_Name=?,Mem_city=?,Mem_address=?,sub_flag=?

where Mem_id = ?

II. Click on the column Mapping tab and applying the column mapping



Step :17 Drag and drop the conditional split transformation and double click on it .

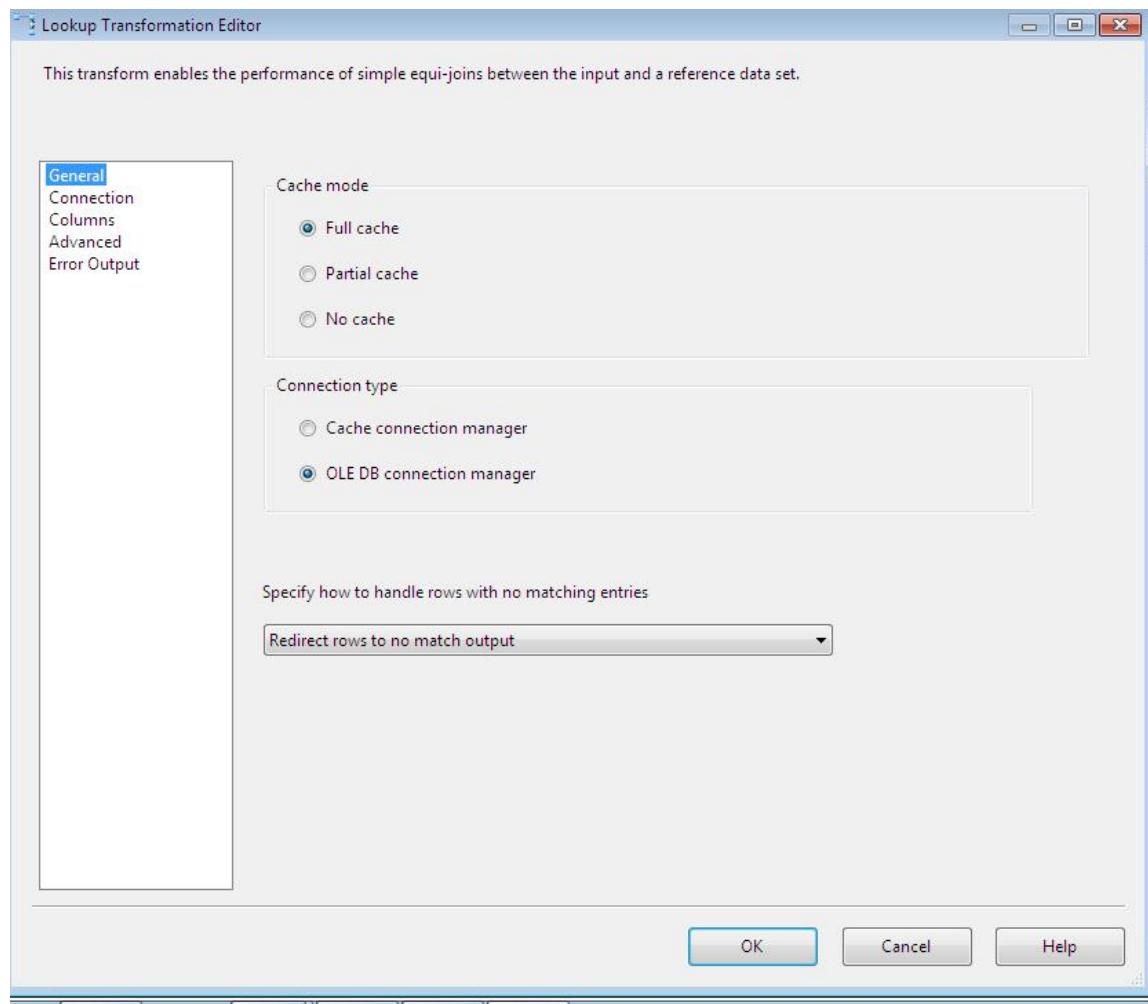


Condition write in the following way

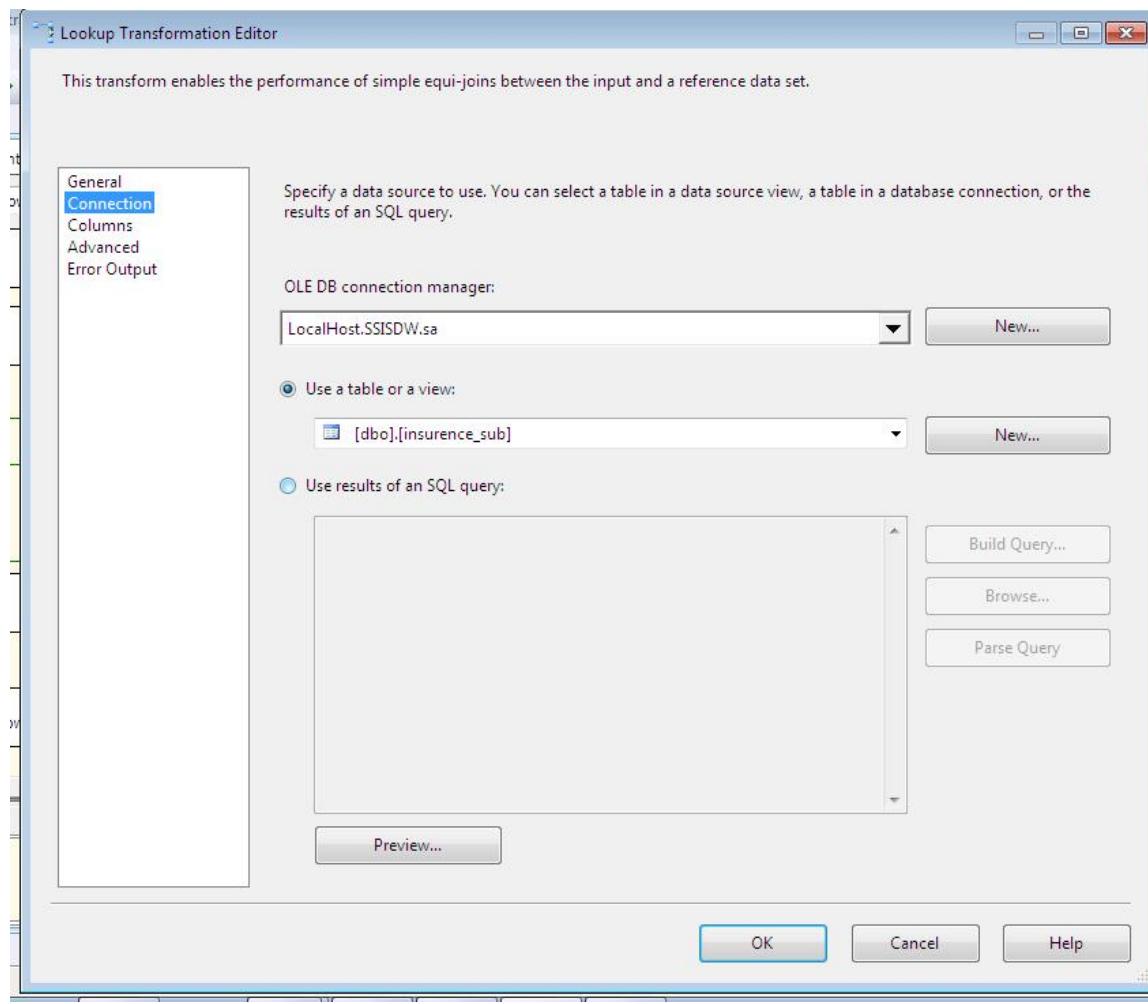
DC_Mem_id==1

Step: 18 Drag and drop the lookup transformation and make a connection from source to lookup.

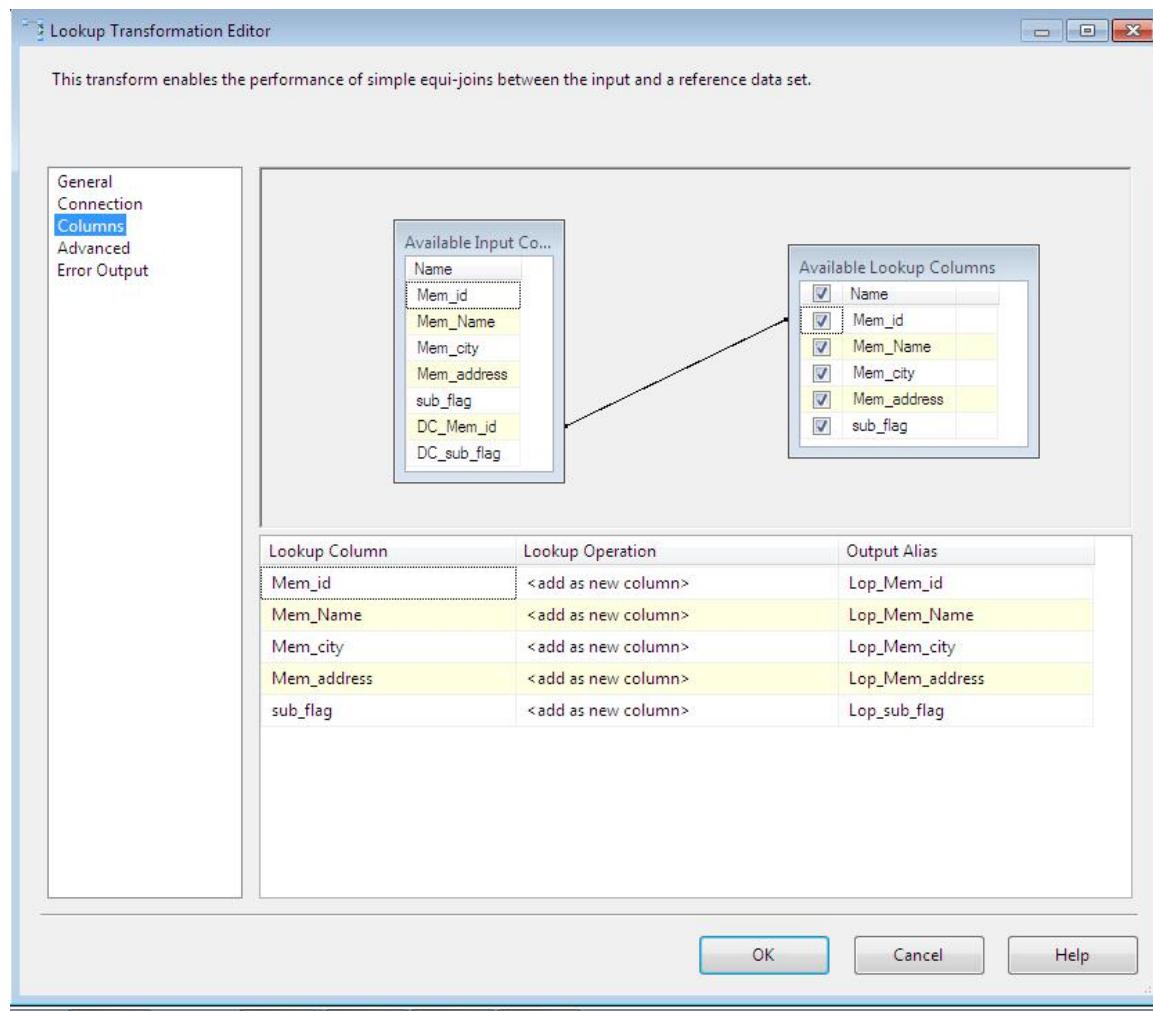
- I. Double click on the lookup to edit it.
- II. Provide the connection manager in the following way(in general tab)



III. Provide the connection manager and select the destination table as a lookup table.



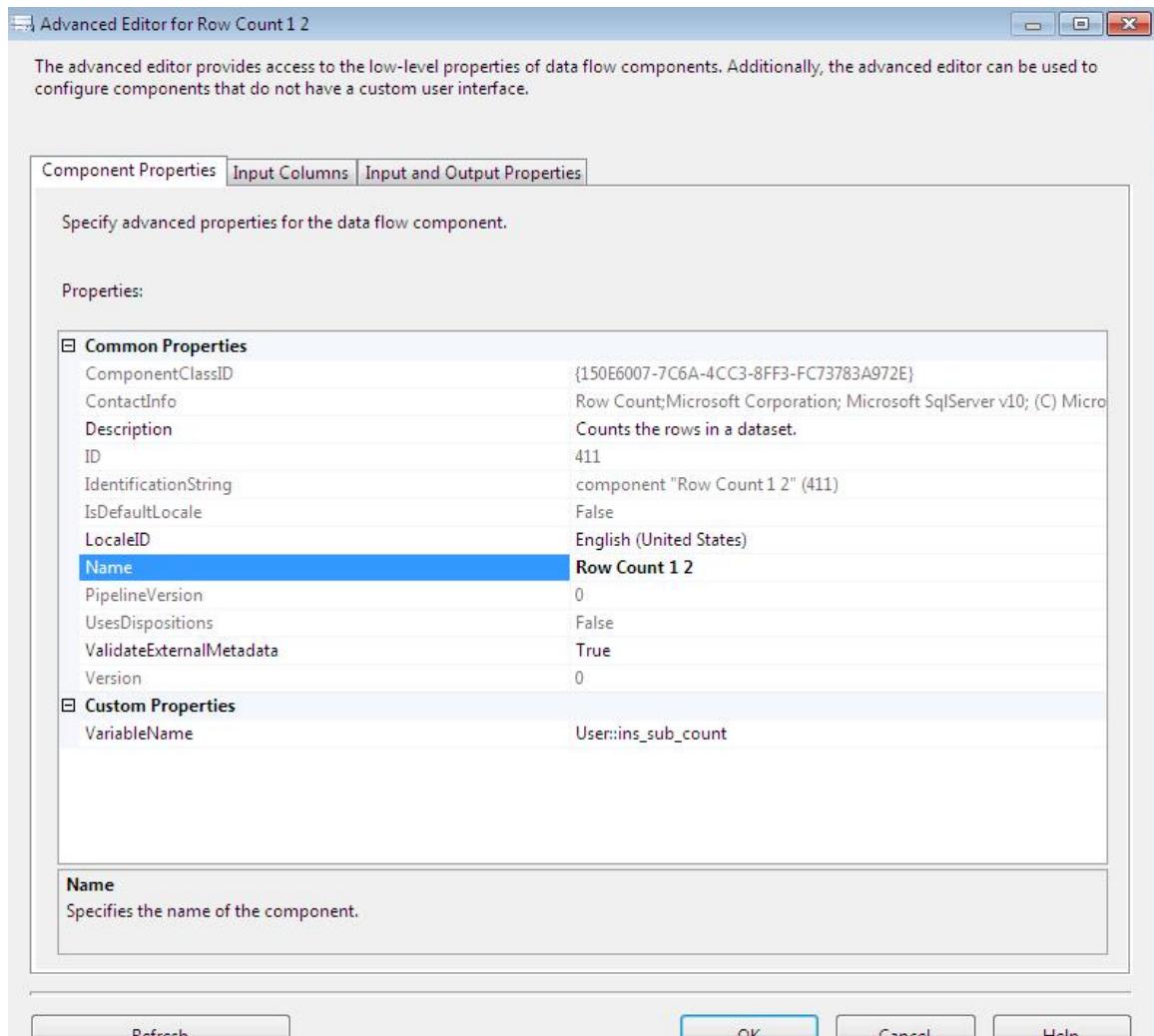
IV. Select the column tab and configure in the following way and then click “OK”



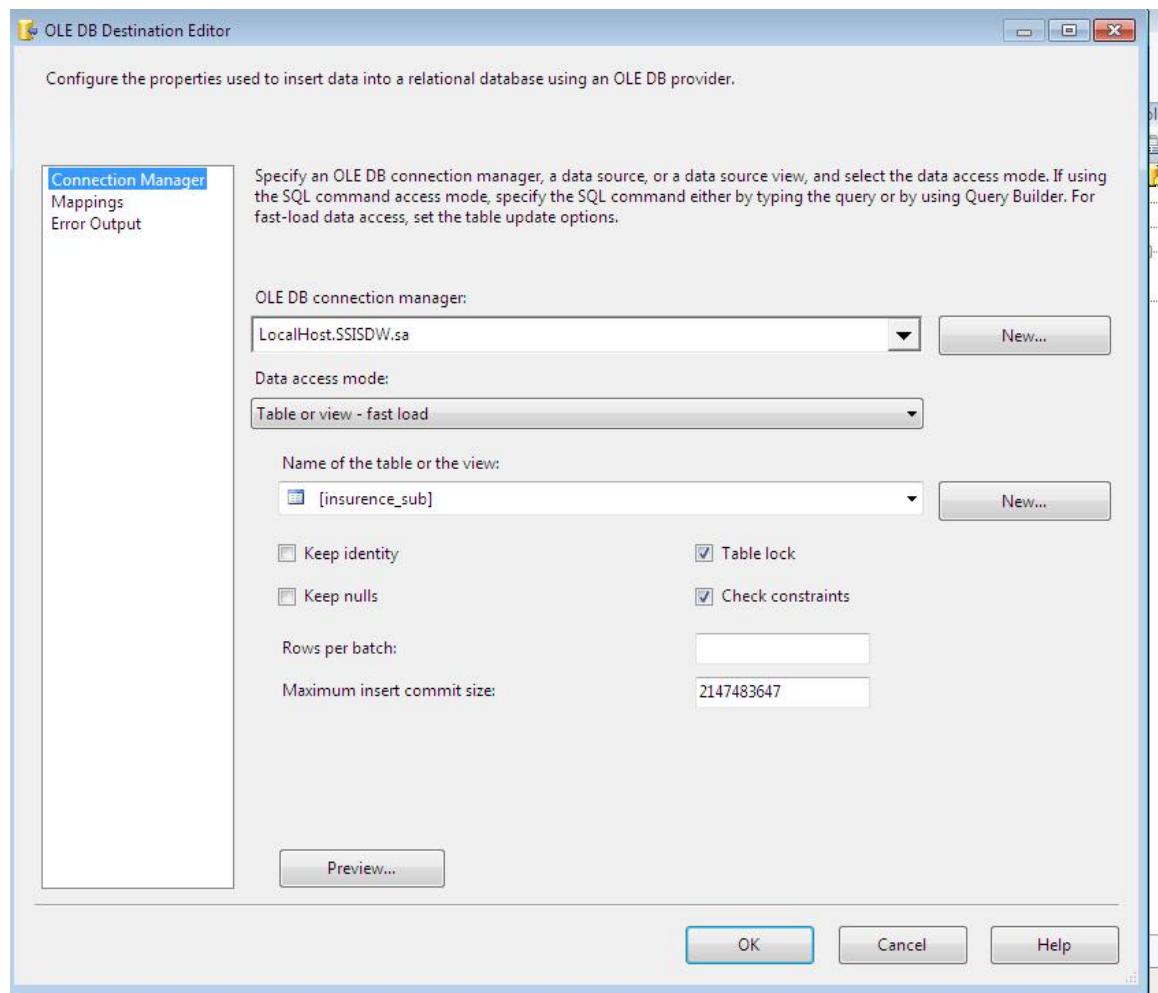
Step: 19 Drag and drop the row count transformation and double click on it.

Component property → Custom property → VariableName: User::ins_sub_count

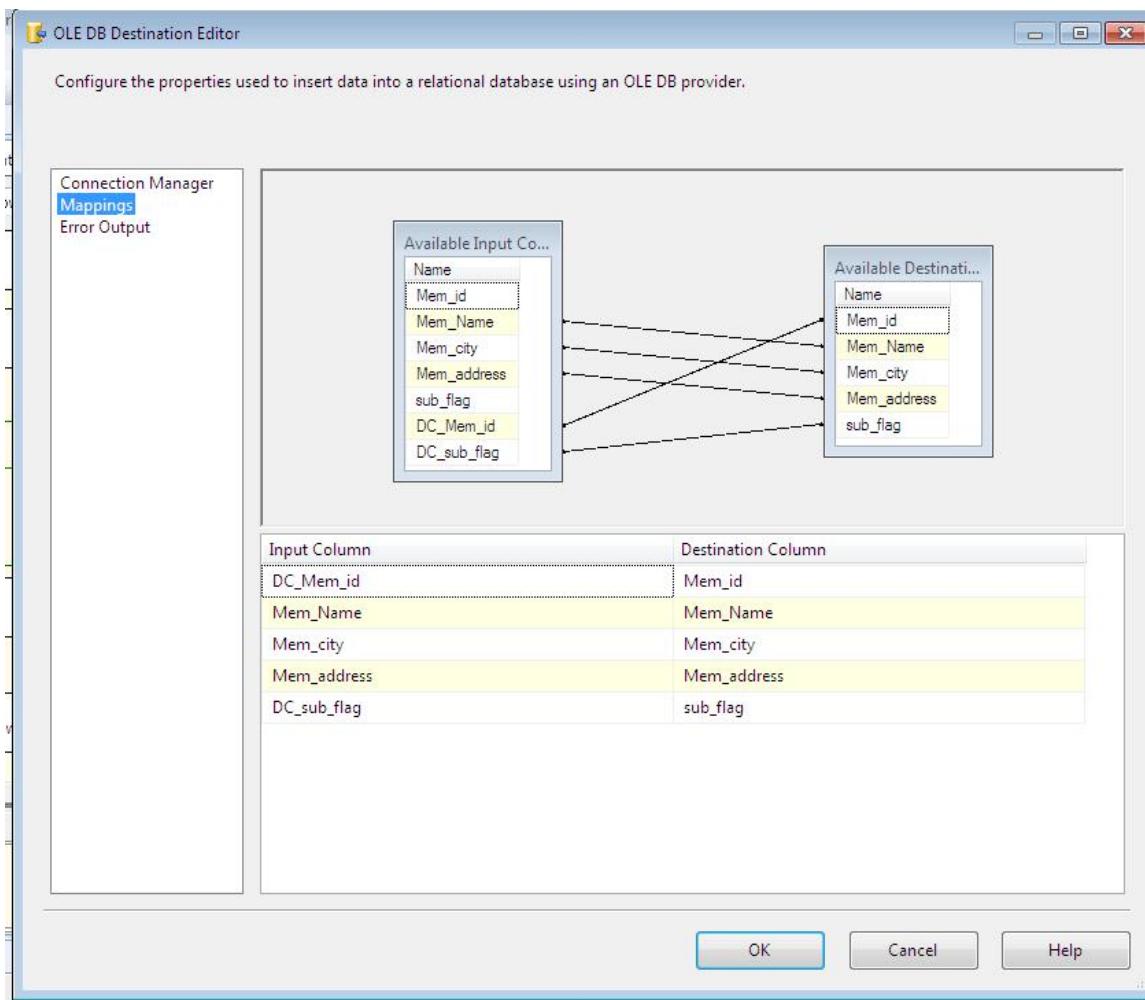
This variable is for count the numbers of members are inserted in the insurance_sub table.



Step: 20 Drag and drop OLEDB Destination and double click on it.

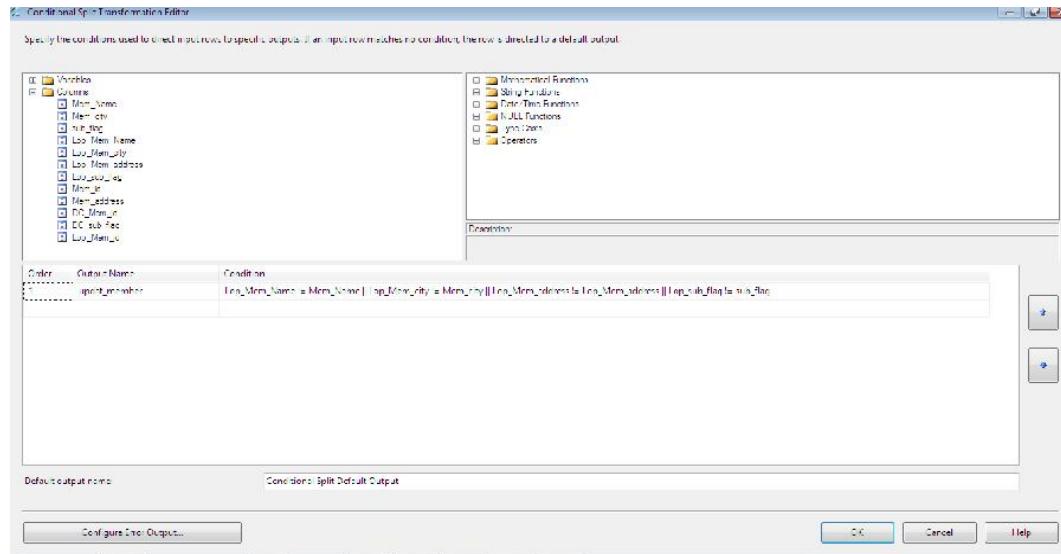


Click on the Mapping tab



And click “OK”

Step: 21 Drag and drop the conditional split transformation and double click on it .



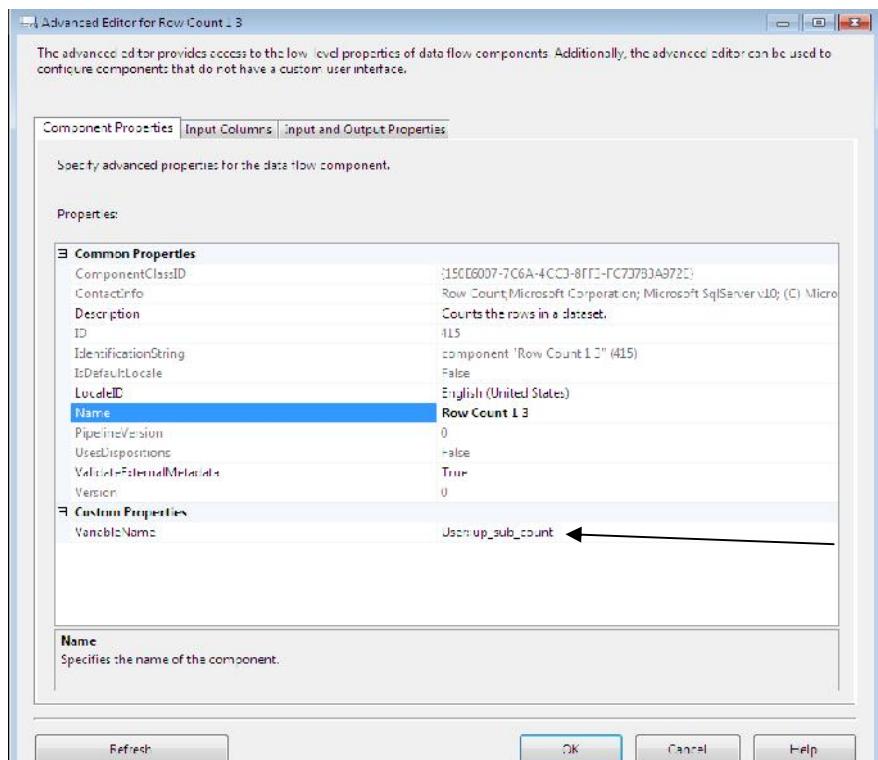
Condition write in the following way

**Lop_Mem_Name != Mem_Name || Lop_Mem_city != Mem_city || Lop_Mem_address != Mem_address ||
Lop_sub_flag != sub_flag**

Step: 22 Drag and drop the row count transformation and double click on it.

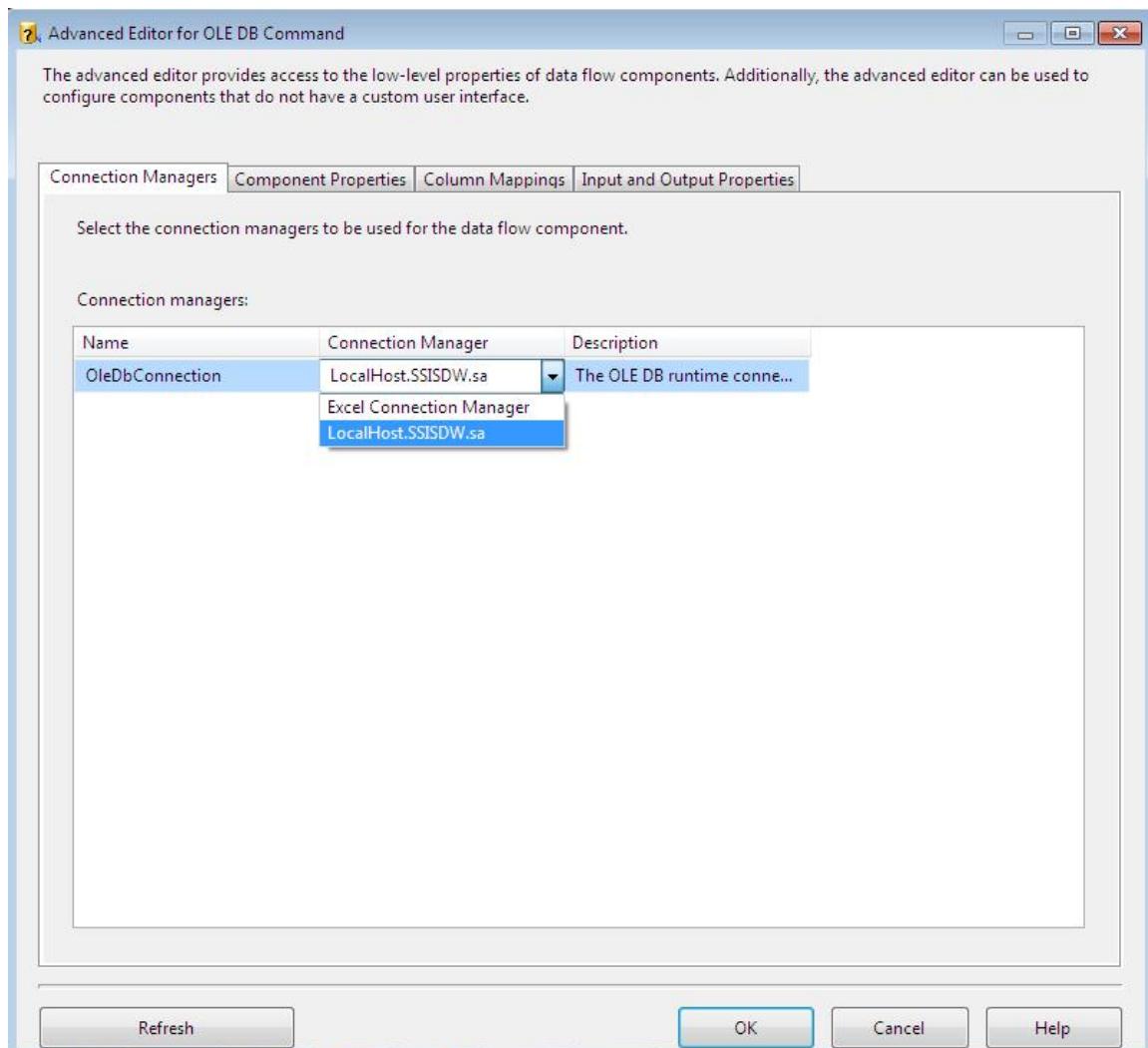
Component property →Custom property →VariableName:user::up_sub_count

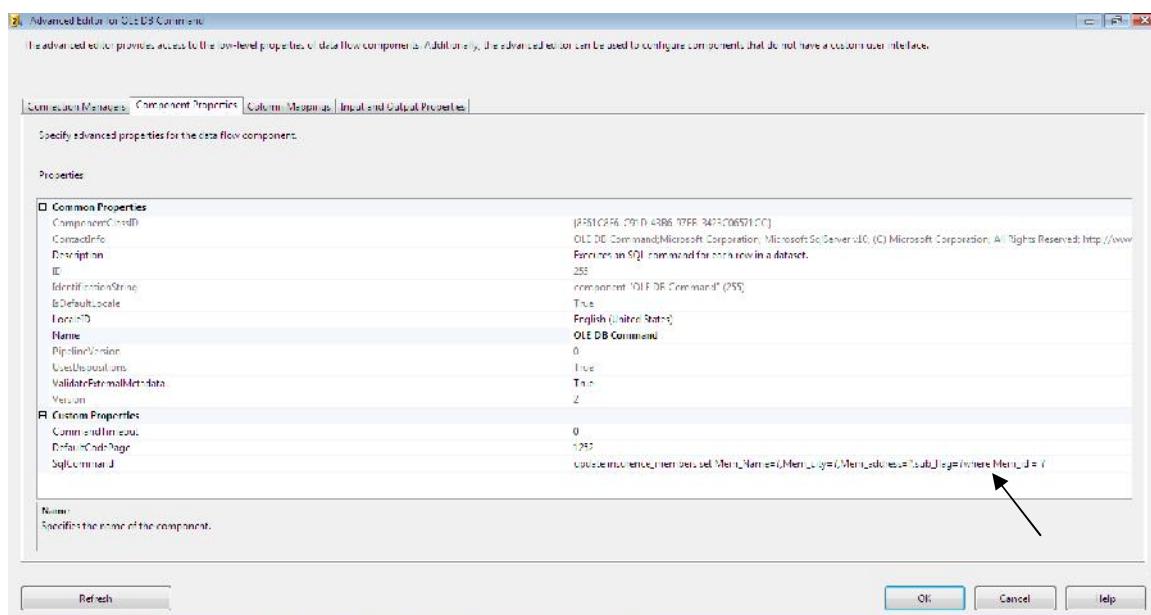
This variable is for count the number of members are updated in the insurance_sub table.



Step : 23 Drag and drop the oledb Command and configure in the following way

I. Provide the connection manager to see in the following figure.



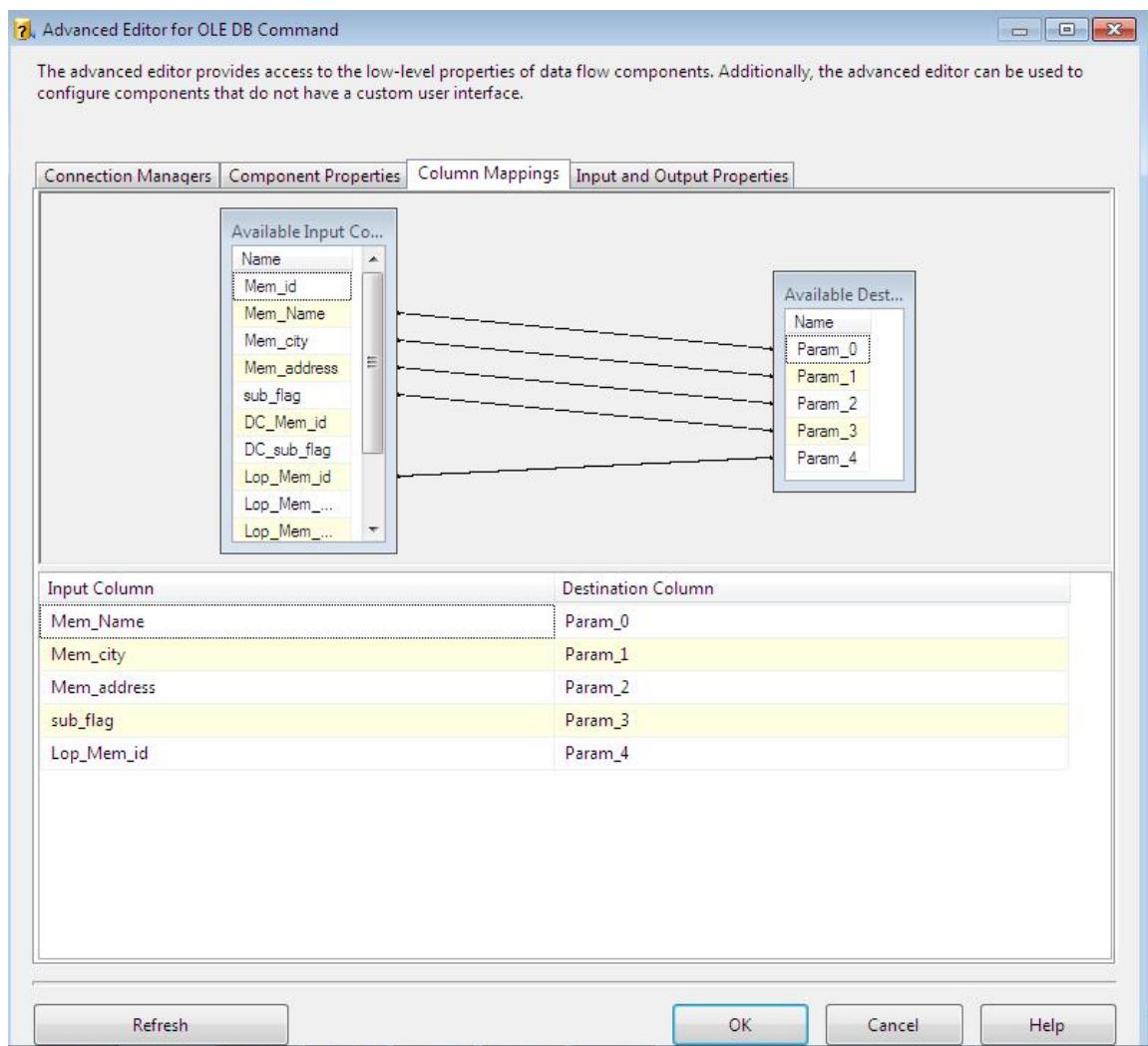


Update command:

`update insurence_sub set Mem_Name=?,Mem_city=?,Mem_address=?,sub_flag=?`

where Mem_id = ?

II. Click on the column Mapping tab and applying the column mapping



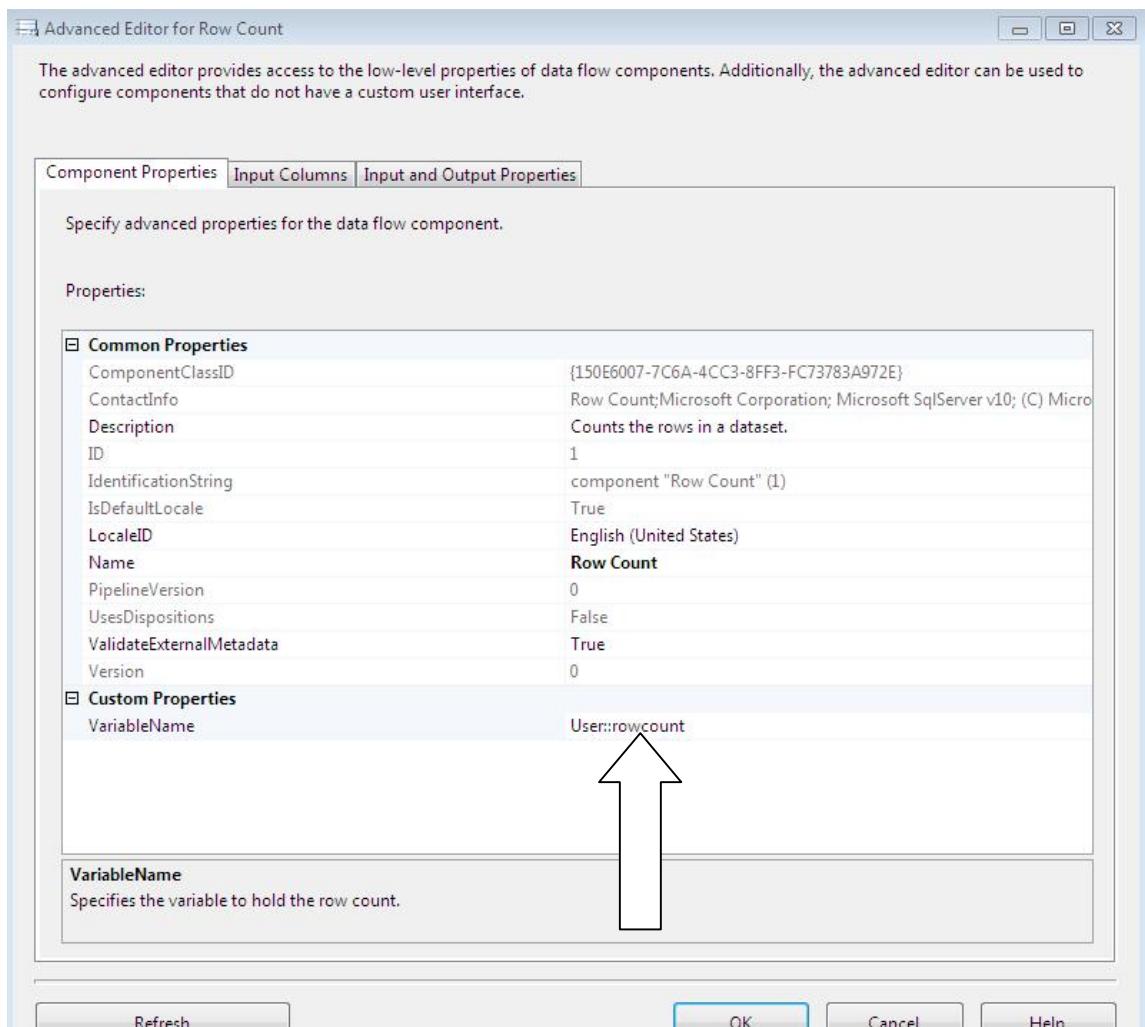
Step: 24 Right click on the package and run the package.

ROW COUNT TRANSFORMATION :

In the execution time we are going to capturing the row count into variables using the row count transformation.

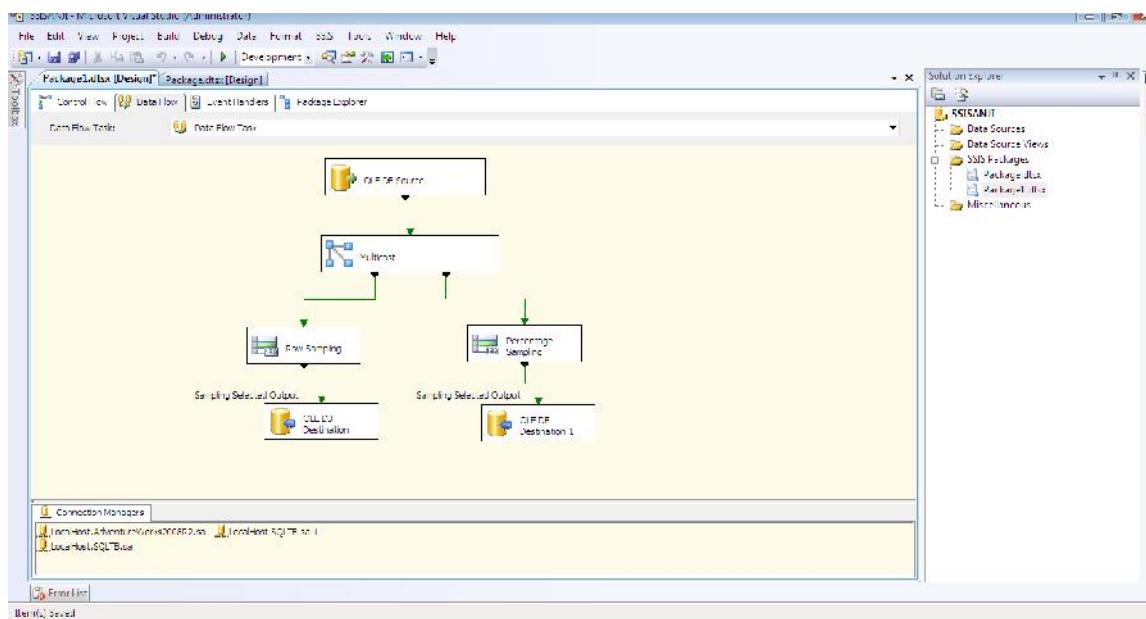
Configuration:

Double click on the row count transformation configure in the following way.



ROW SAMPLING AND PERCENTAGE SAMPLING:

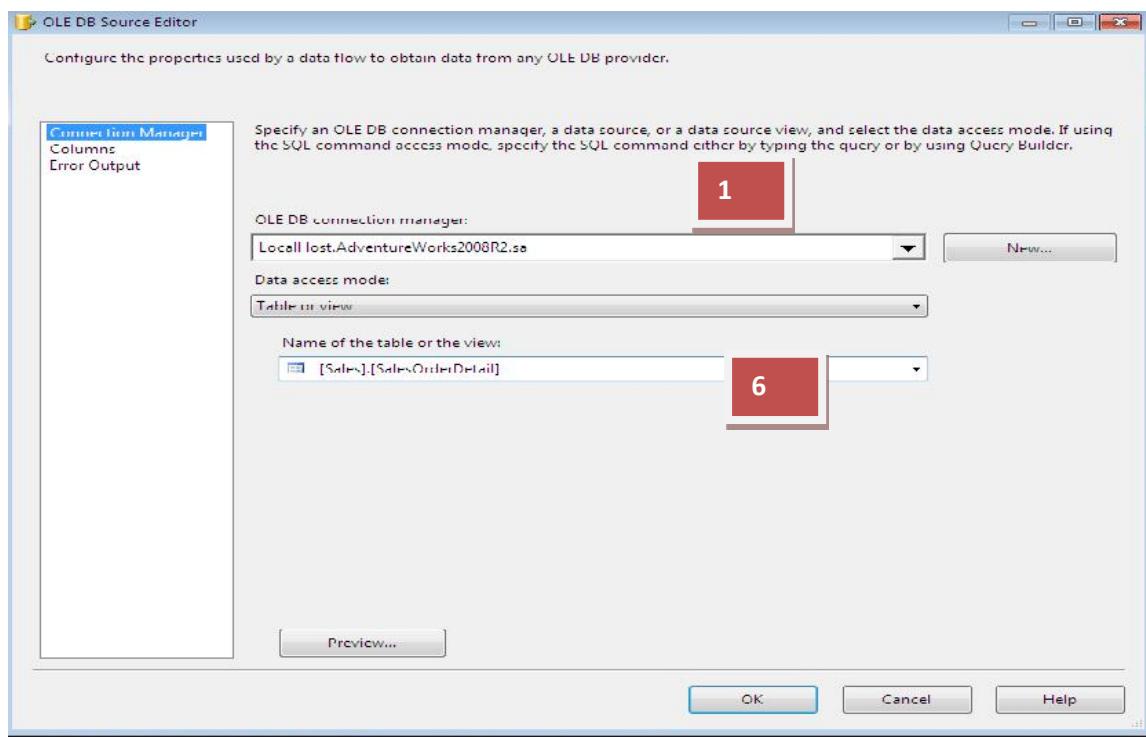
From the main result set we are going to create the sample data set based on the number of rows (or) percentage of rows using row sampling and percentage sampling transformation.



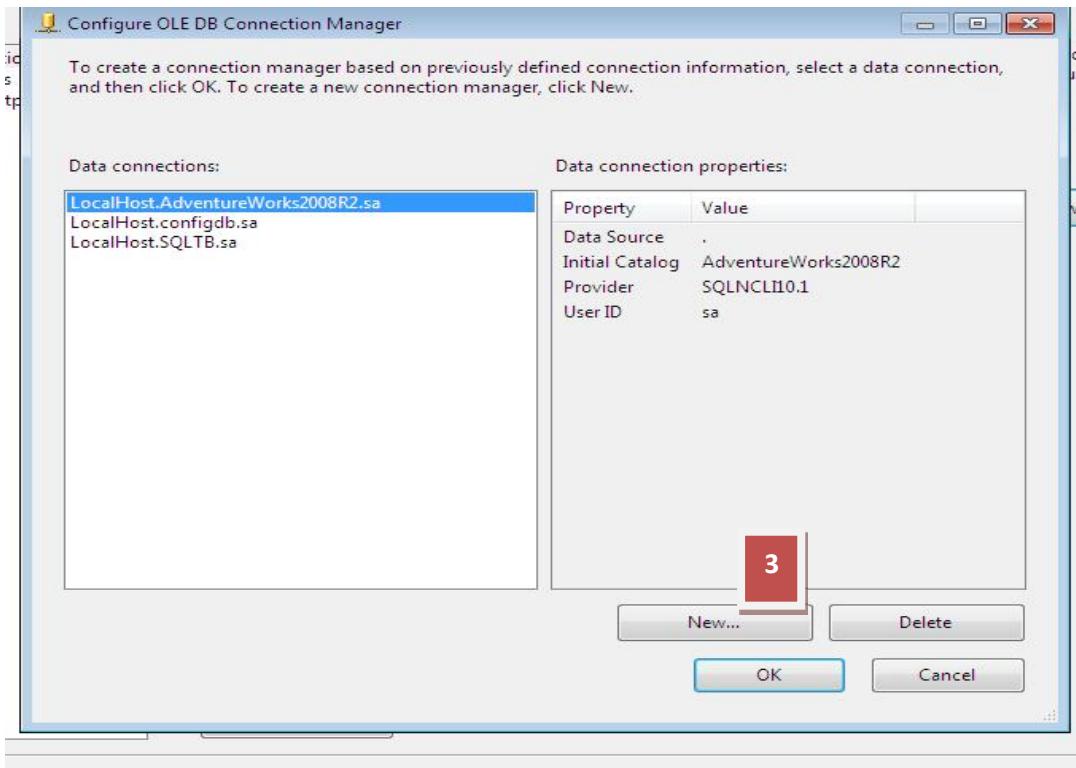
Step: 1 Drag and drop the Data flow task in the control flow task. Double click on the data flow task for editing.

Step: 2 Drag and drop the OLEDB Source and double click on it for editing.

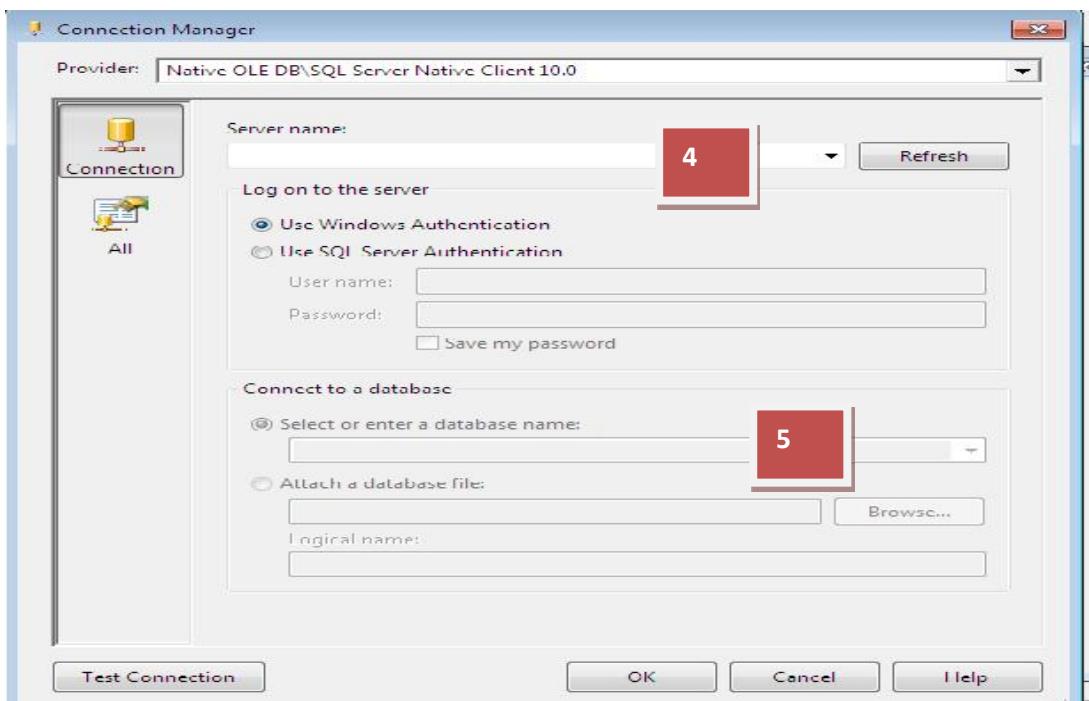
- I. Select the configuration Manager from the left menu and click the new button.



- II. Click the on the New button.

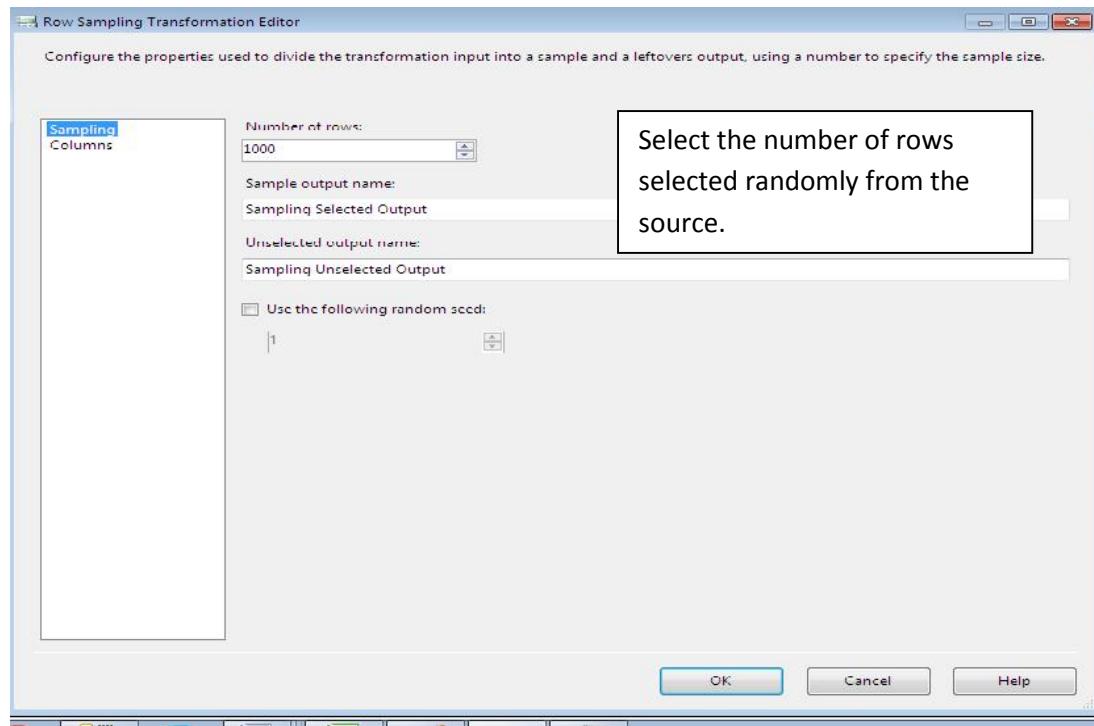


III. Select the serve name and database name. and then click the test connection and click "OK".

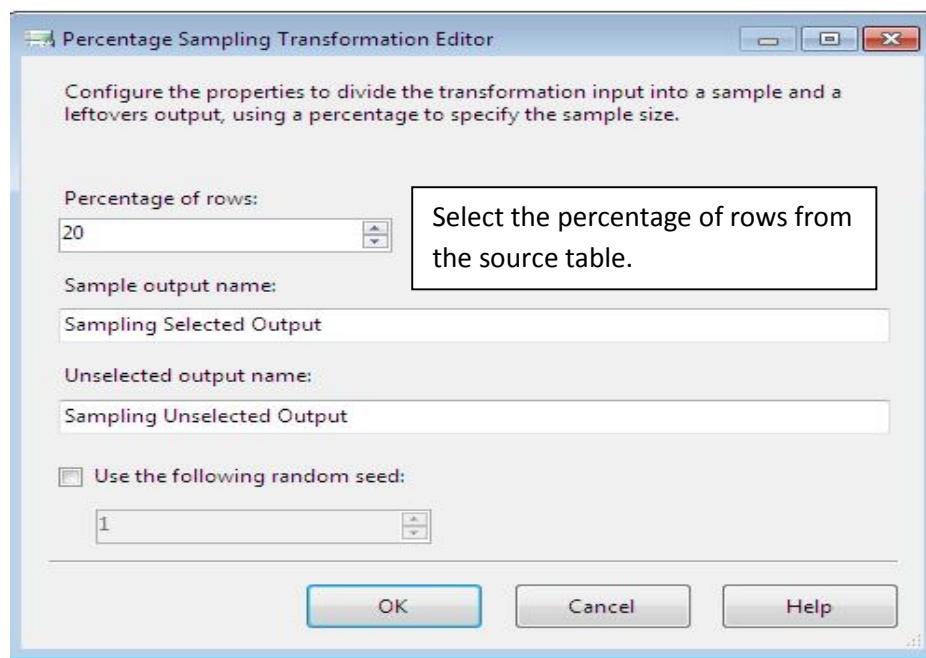


Step: 3 Drag and drop the Multicast transformation.

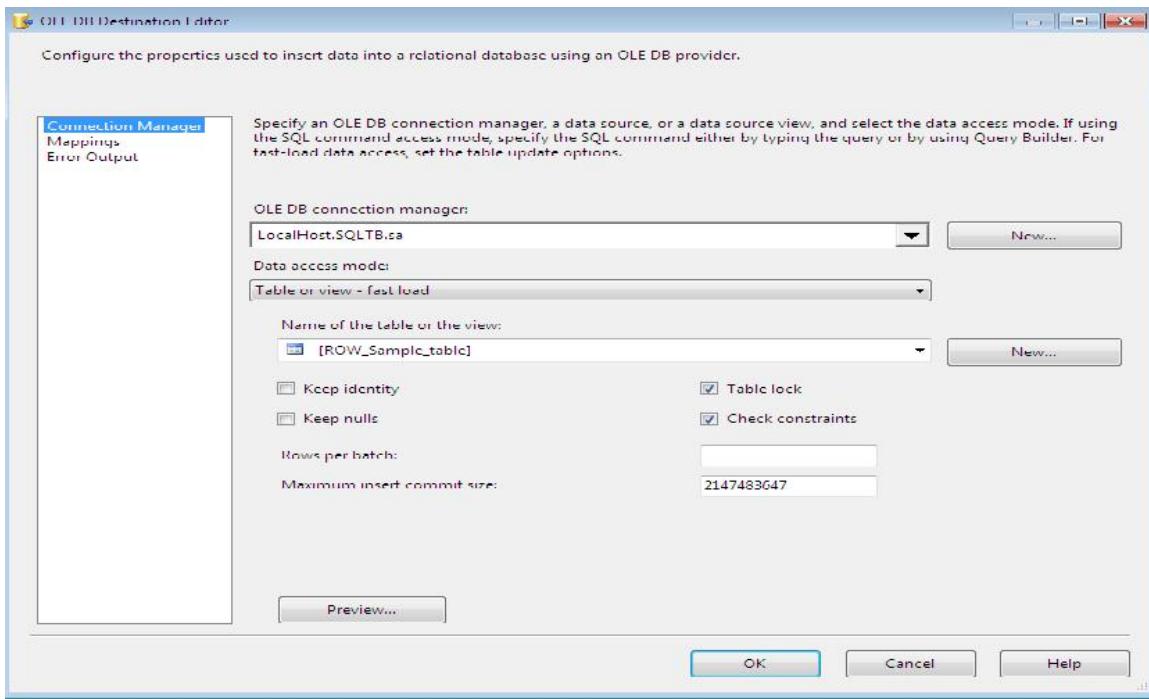
Step: 4 Drag and drop the row sampling transformation and configure in the following way.



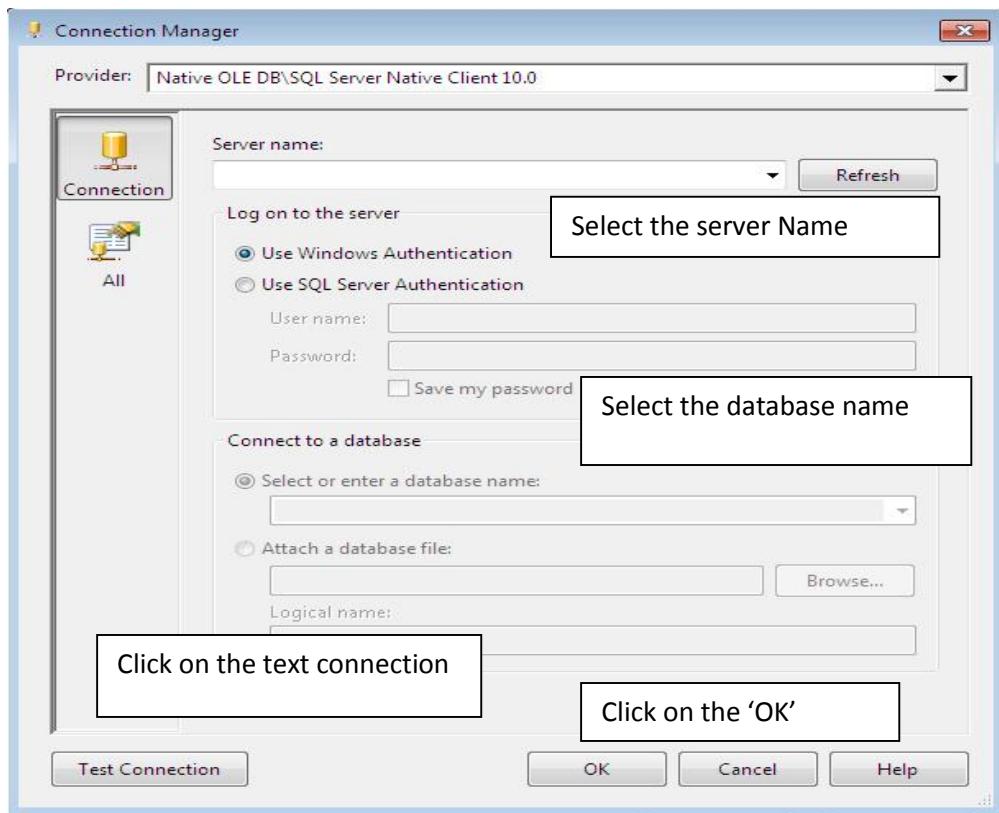
Step 5: Drag and drop the percentage sampling transformation and configure in the following way.



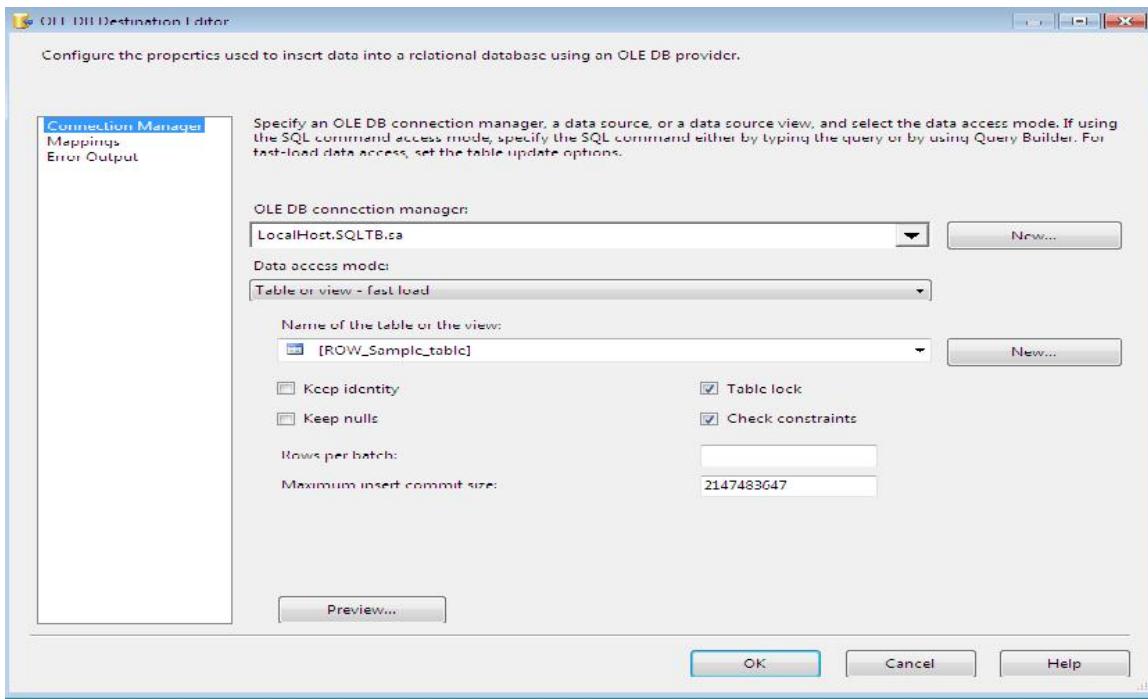
Step: 6 Drag and drop the OLEDB Destination and configure



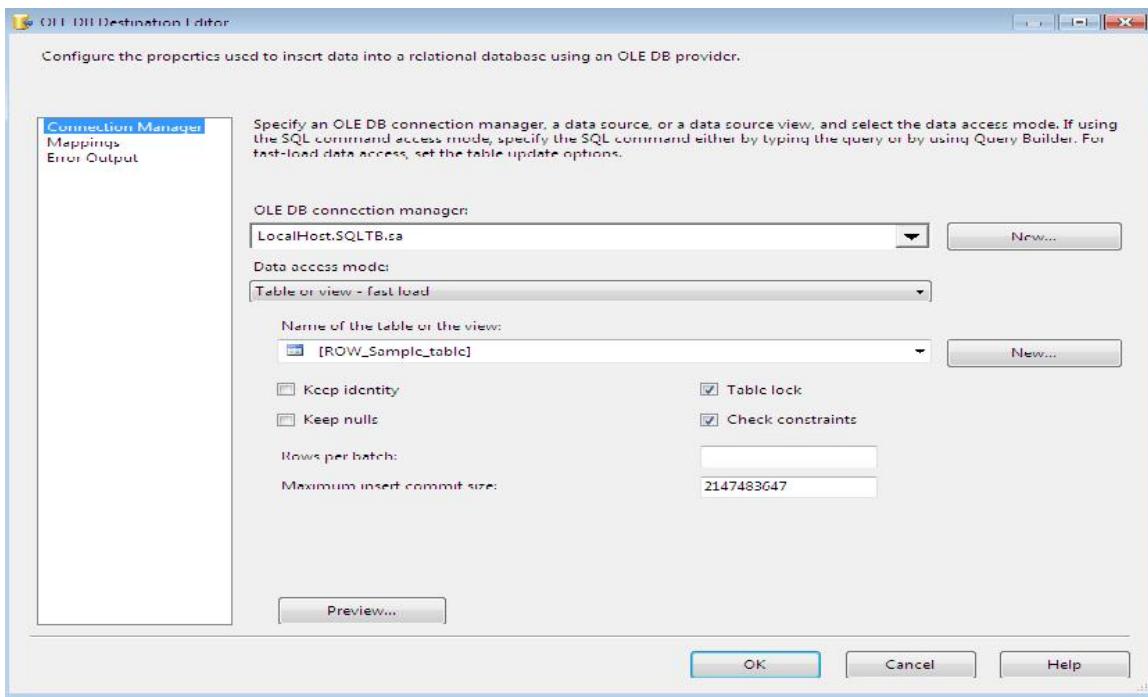
Click NEW→NEW→



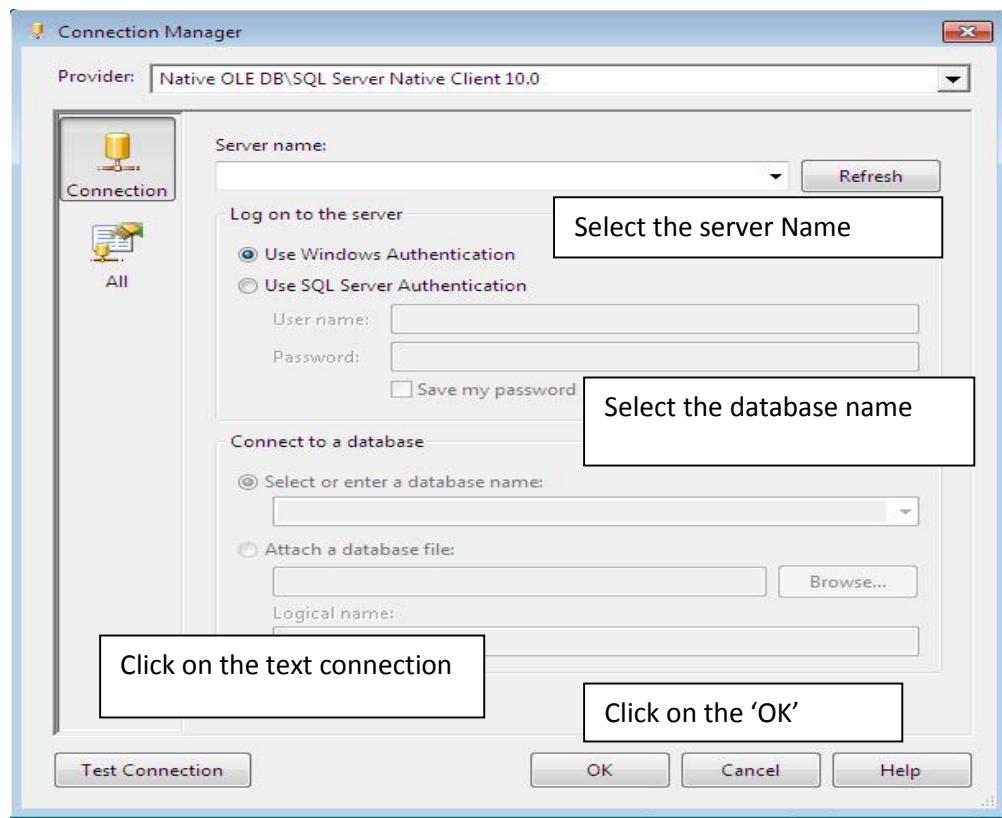
Select the destination table name as Row_Sample_table.



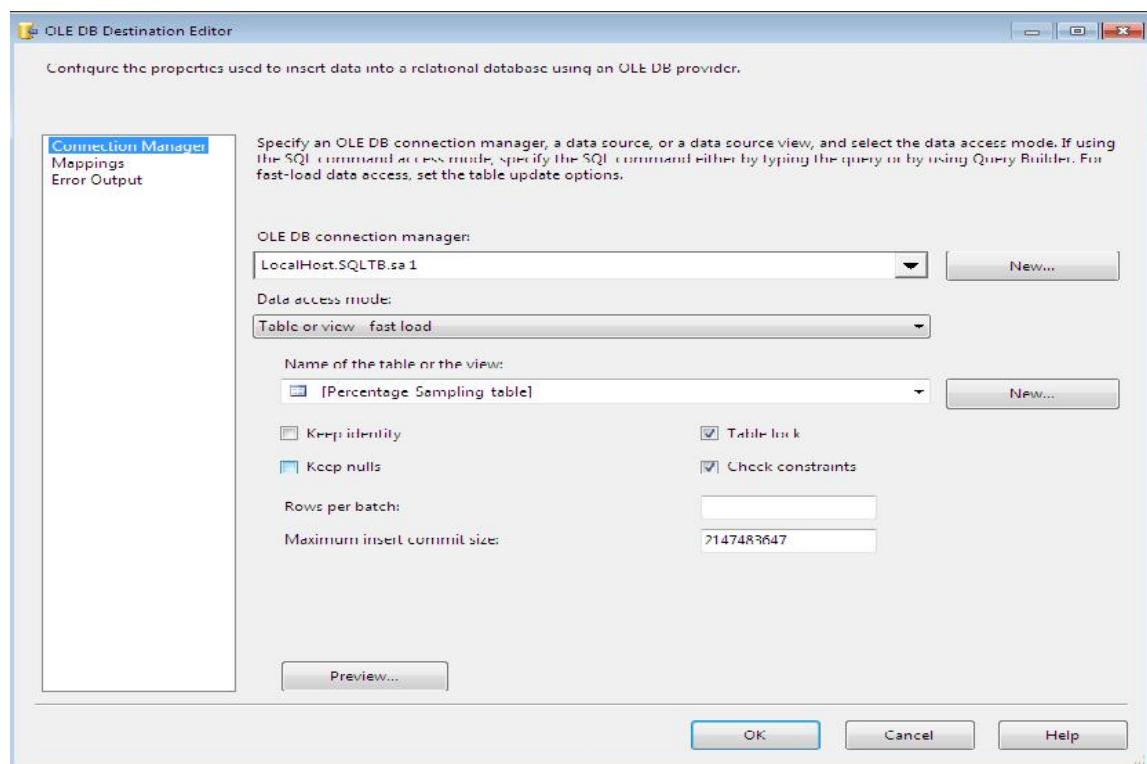
Step: 7 Drag and drop the OLEDB Destination and configure



Click NEW→NEW→



Select the destination table name as Percentage _Sampling_table.



```
CREATE TABLE [ROW_Sample_table] ( [SalesOrderID] int,
[SalesOrderDetailID] int,
[CarrierTrackingNumber] nvarchar(25),
[OrderQty] smallint,
[ProductID] int,
```

```

[SpecialOfferID] int,
[UnitPrice] money,
[UnitPriceDiscount] money,
[LineTotal] numeric(38,6),
[rowguid] uniqueidentifier,
[ModifiedDate] datetime
)

```

```

CREATE TABLE [Percentage_Sampling_table] (
[SalesOrderID] int,
[SalesOrderDetailID] int,
[CarrierTrackingNumber] nvarchar(25),
[OrderQty] smallint,
[ProductID] int,
[SpecialOfferID] int,
[UnitPrice] money,
[UnitPriceDiscount] money,
[LineTotal] numeric(38,6),
[rowguid] uniqueidentifier,
[ModifiedDate] datetime )

```

Step 8: Now Run the package

PIVOT AND UNPIVOT TRANSFORMATION:

Pivot Transformation:

Converting the normalized data into de-normalized format.

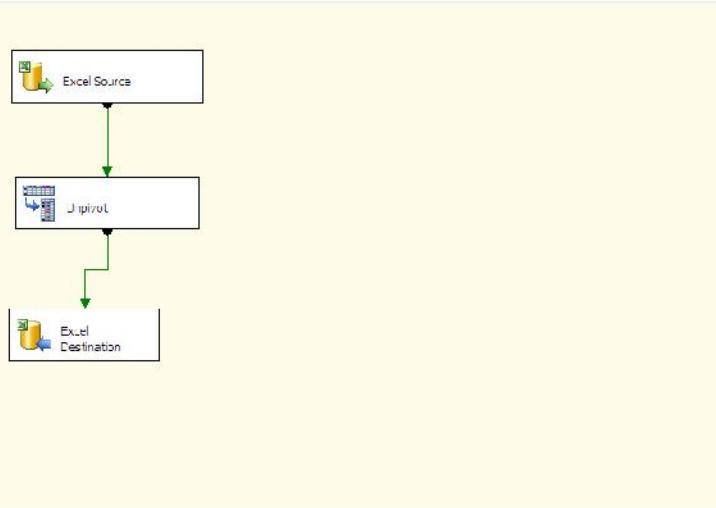
Unpivot Transformation:

A process of turning columns to rows.

Steps to configure unpivot

Year	Category	Jan	Feb	March	April
2008	Bikes	100	200	300	400

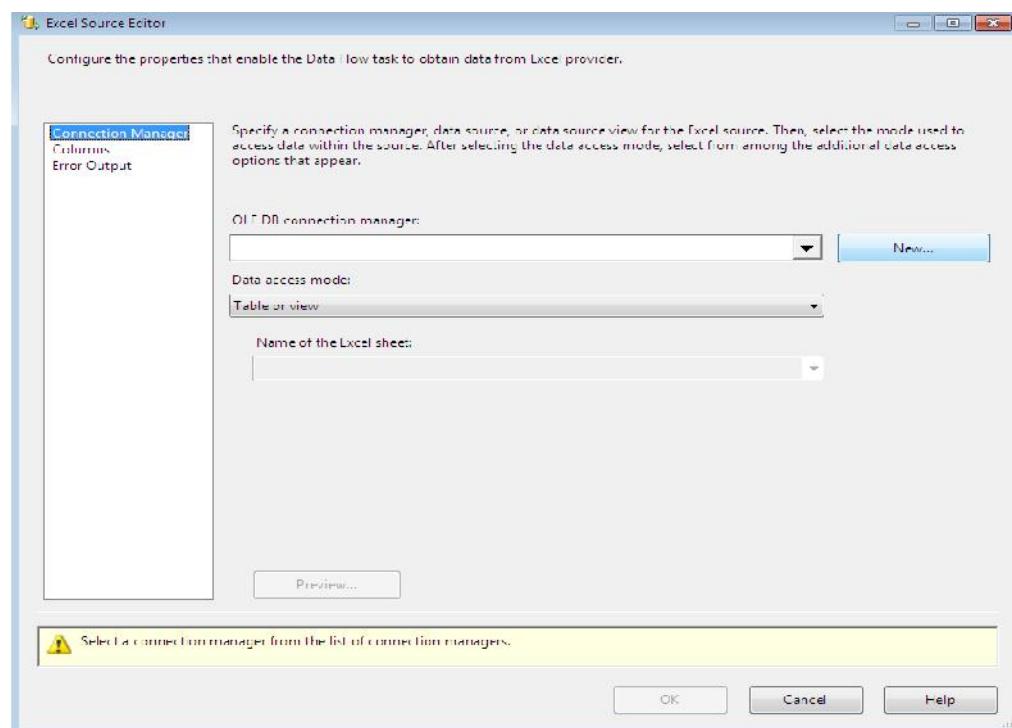
2008	Accessories	200	270	300	320
2009	Components	100	120	300	150
2009	Phones and components	400	800	400	300



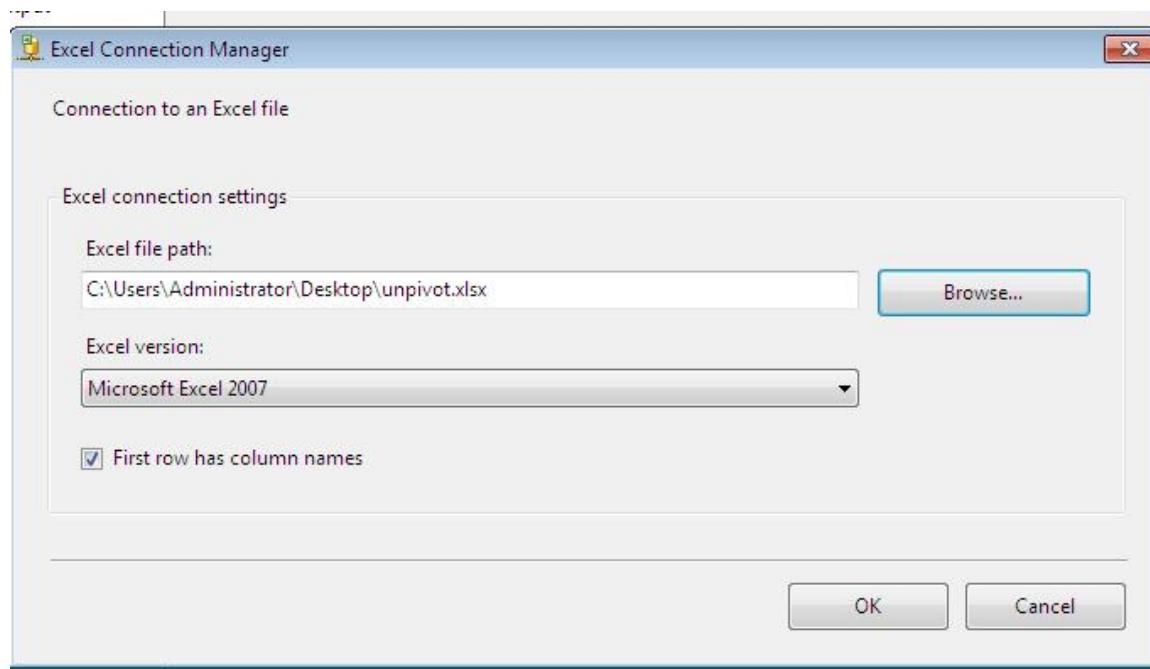
Step :1 Drag and drop the Data flow task and double click on it for editing.

Step :2 Drag and drop the excel source in the Dataflow tab and configure in the following way.

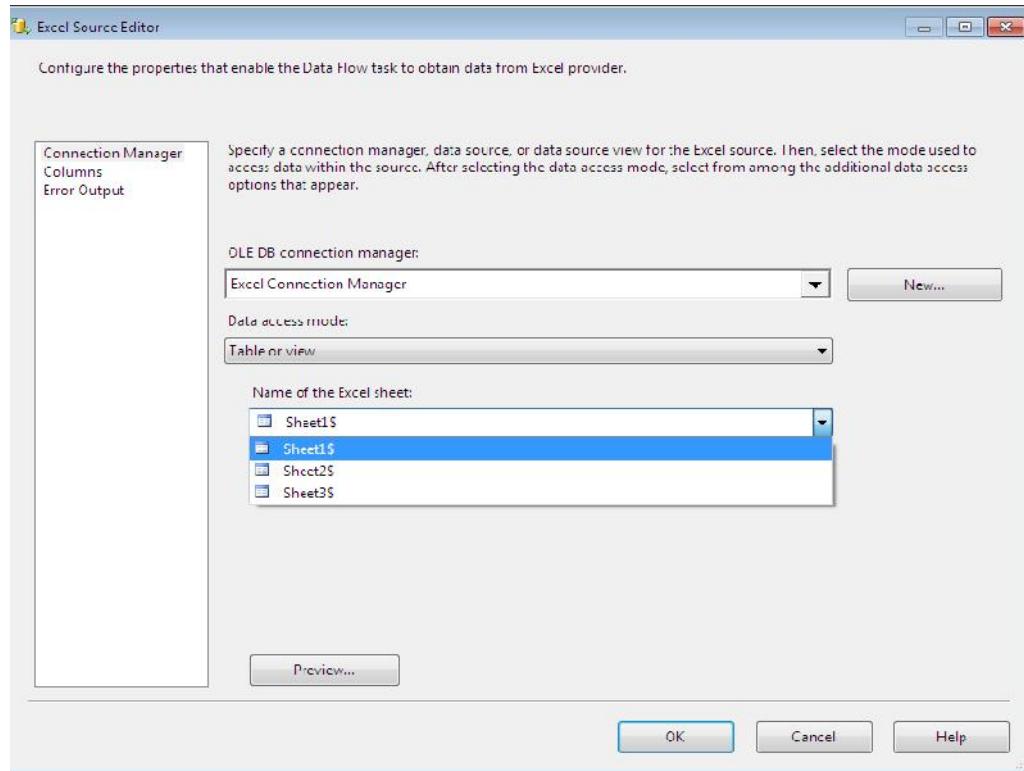
Click →New →click browse



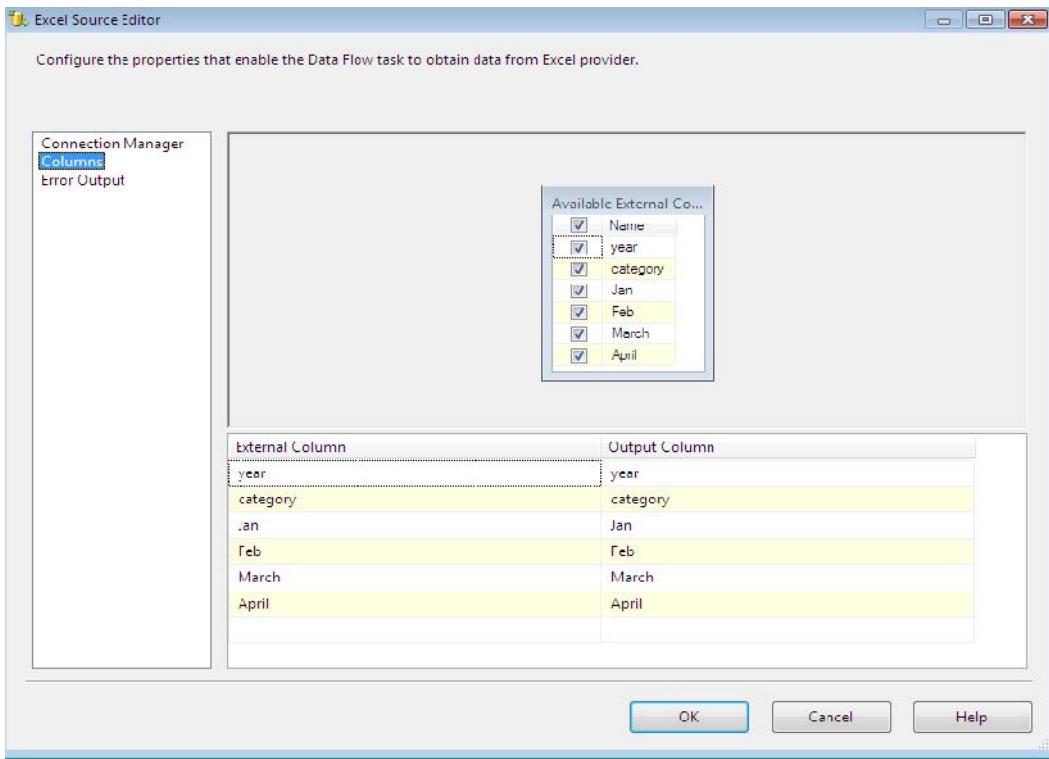
Select Unpivot.xls file and click open and then click "ok"



Select Sheet 1 from dropdown list



Select Column and click "ok"



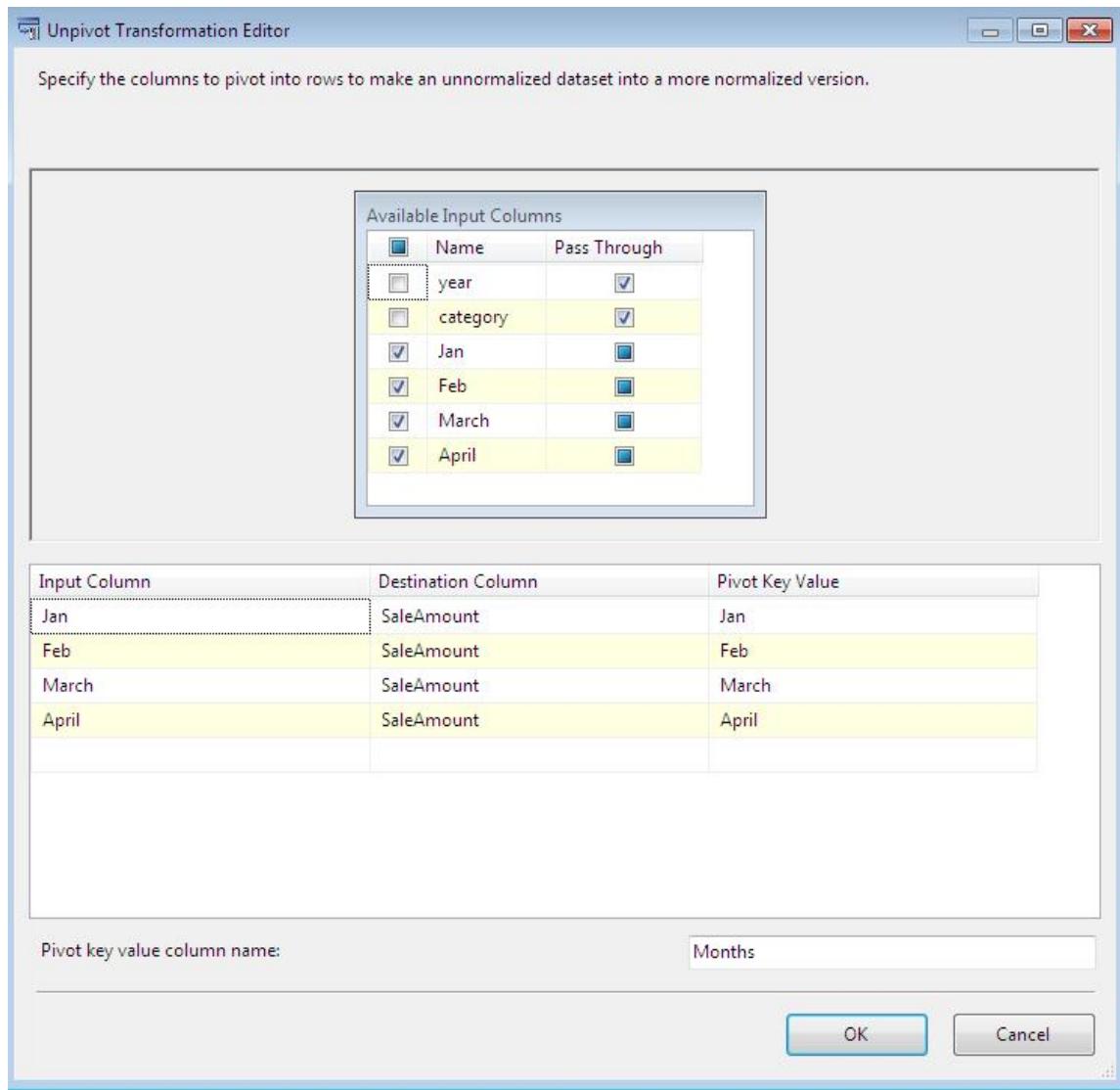
Step : 2 Drag and drop the unpivot transformation and make a connection from the excel source to unpivot.

Double click on unpivot transformation and configured in the following way.

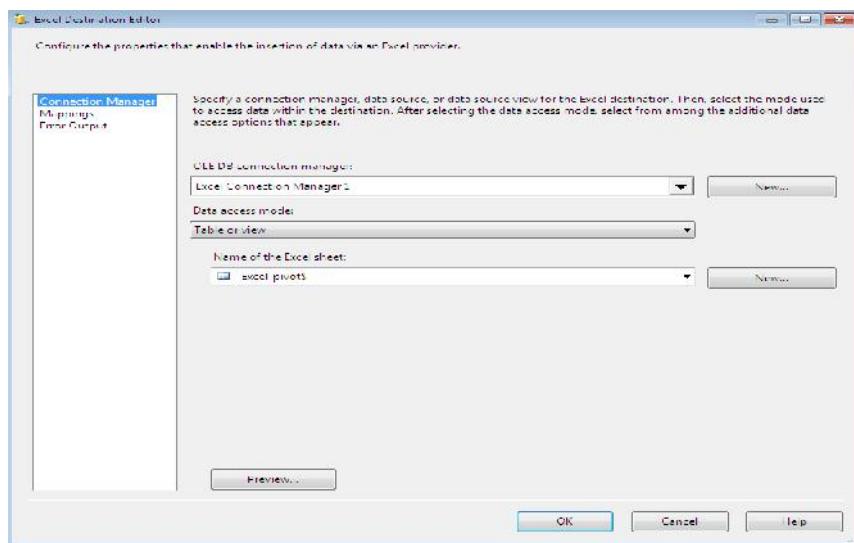
Select the below columns to unpivot them jan,feb,March,April.

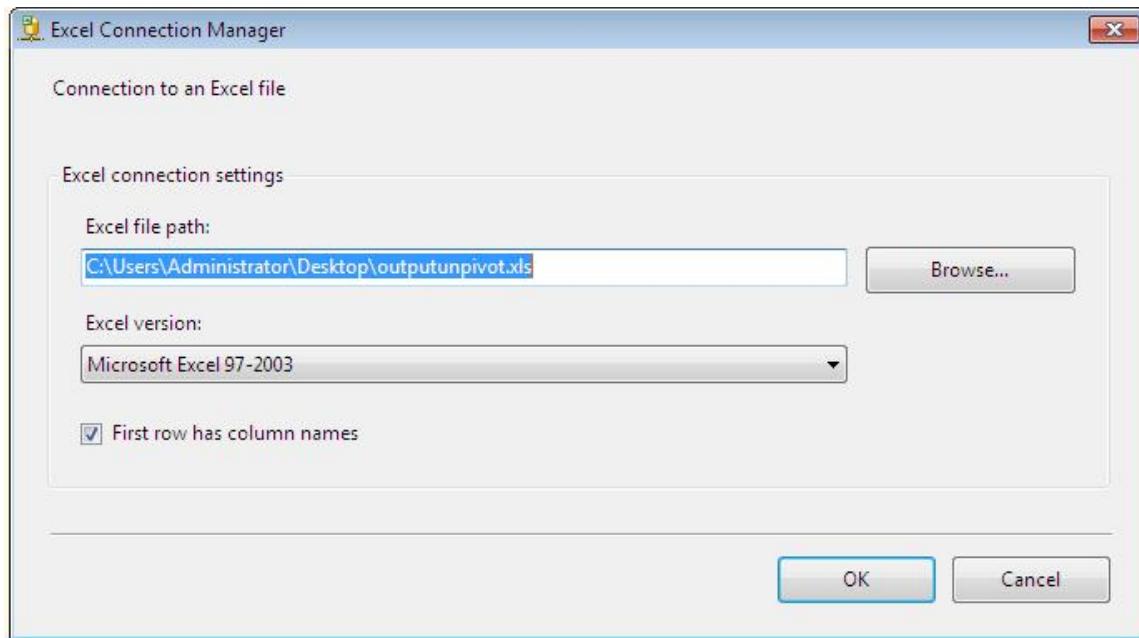
Rename the pivot key column name as "**Months**"

Specify the **Sale Amount** as derived on destination Column for all the selected pivot key values or input columns. And then click "**OK**"



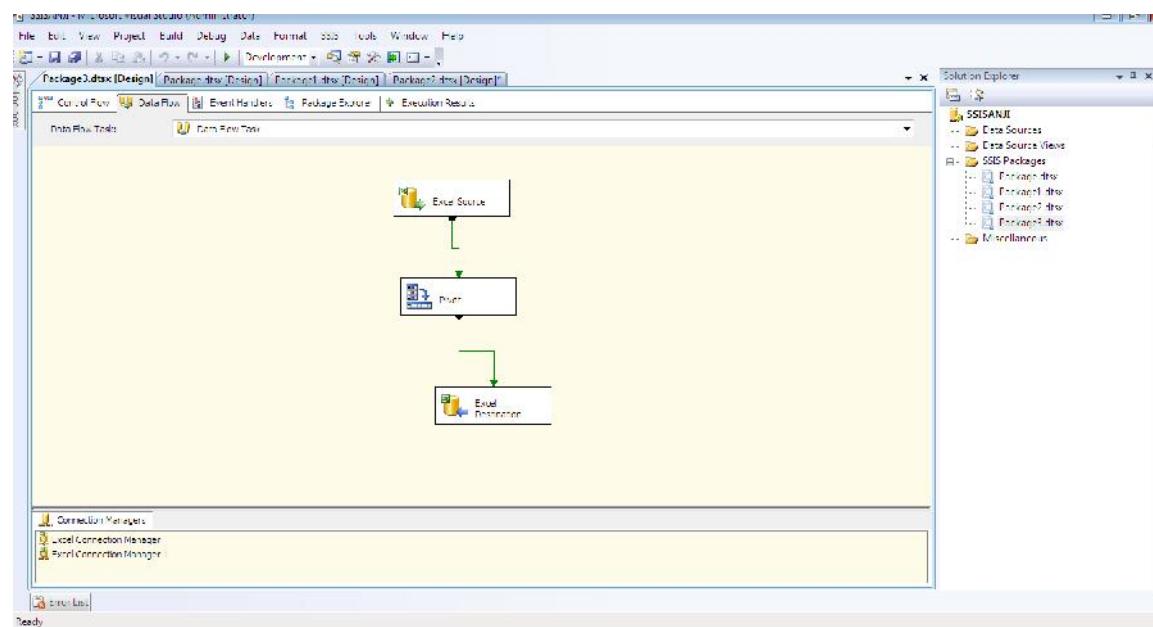
Step : 5 Drag and drop the Excel Destination and double click on excel destination to edit it , provide the excel connection manager and click new to table (Sheet) and rename it as pivot data. And click “OK”.





Then click “ok” and the column tab and click “OK”. Then execute the Package.

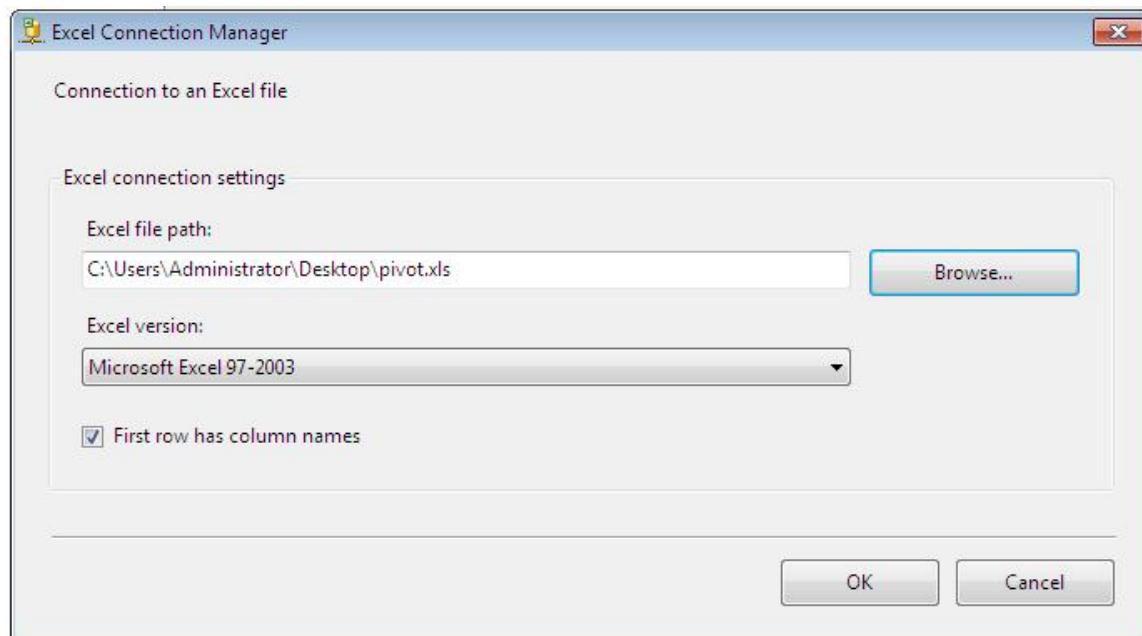
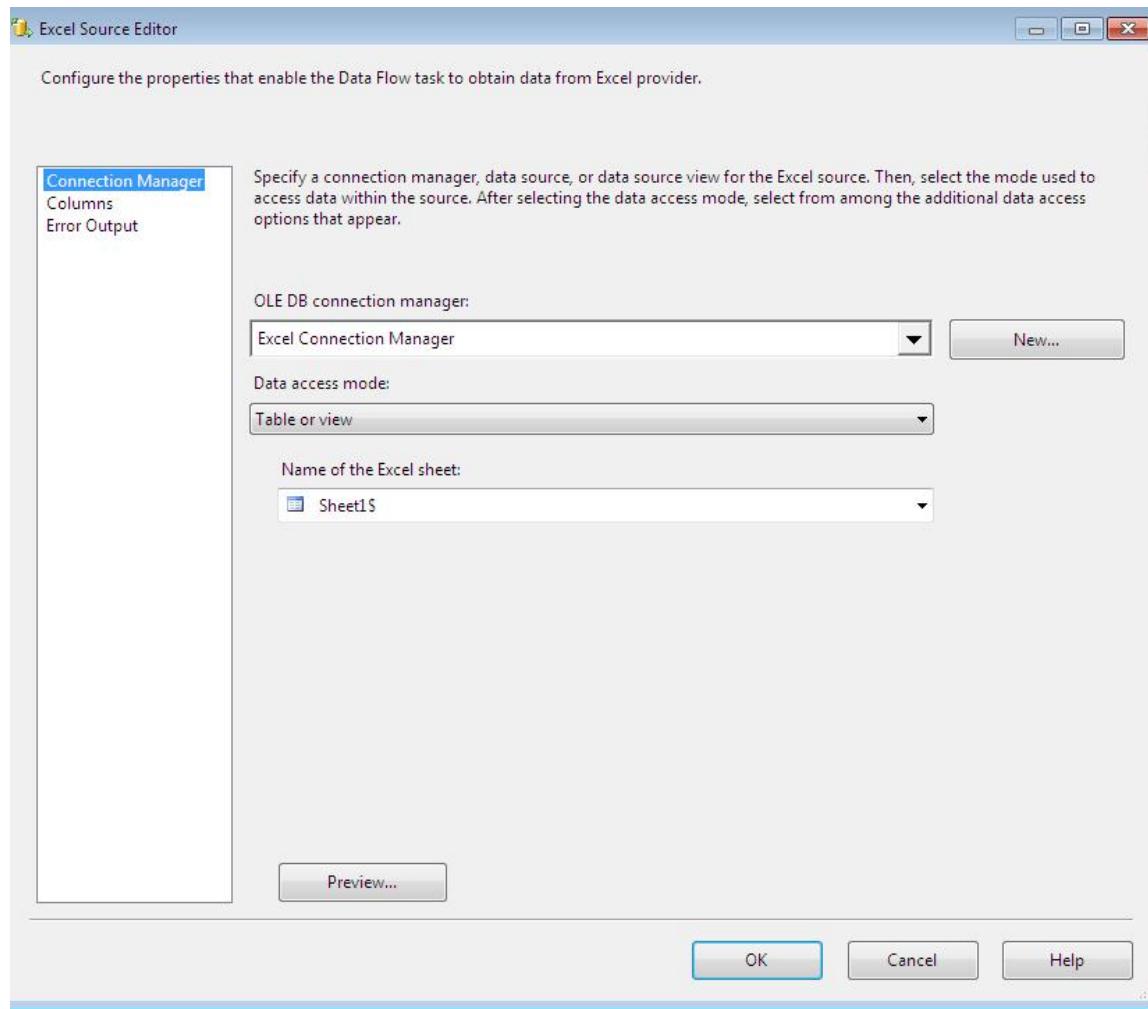
Pivot Transformation: A process of turning rows to columns is known as pivot.



Step: 1 in control flow Drag and drop the Dataflow task and double click on it.

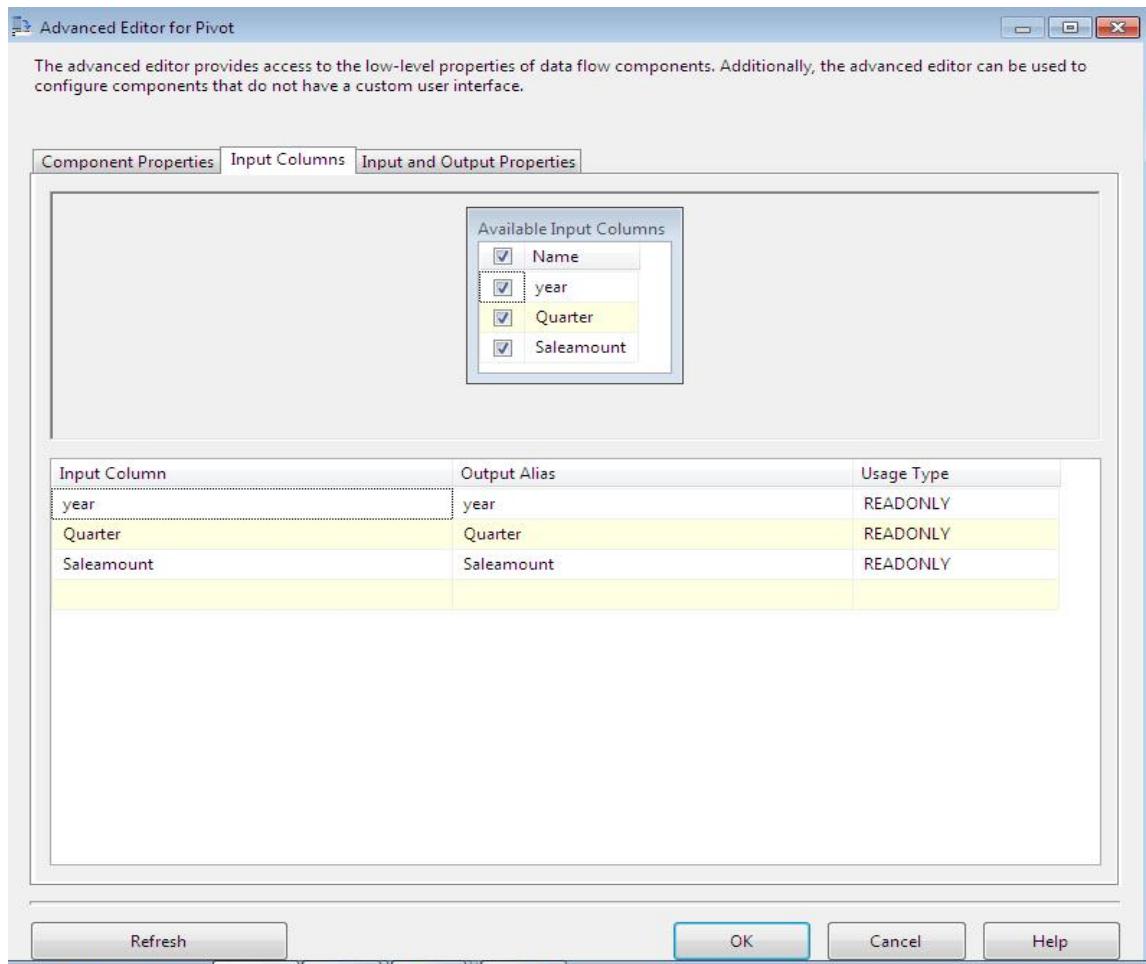
Step: 2 In dataflow Drag and drop the excel source and double click on Excel source and configure it.

Click **NEW→browse→select pivot.xls and click open and then click “OK”.**



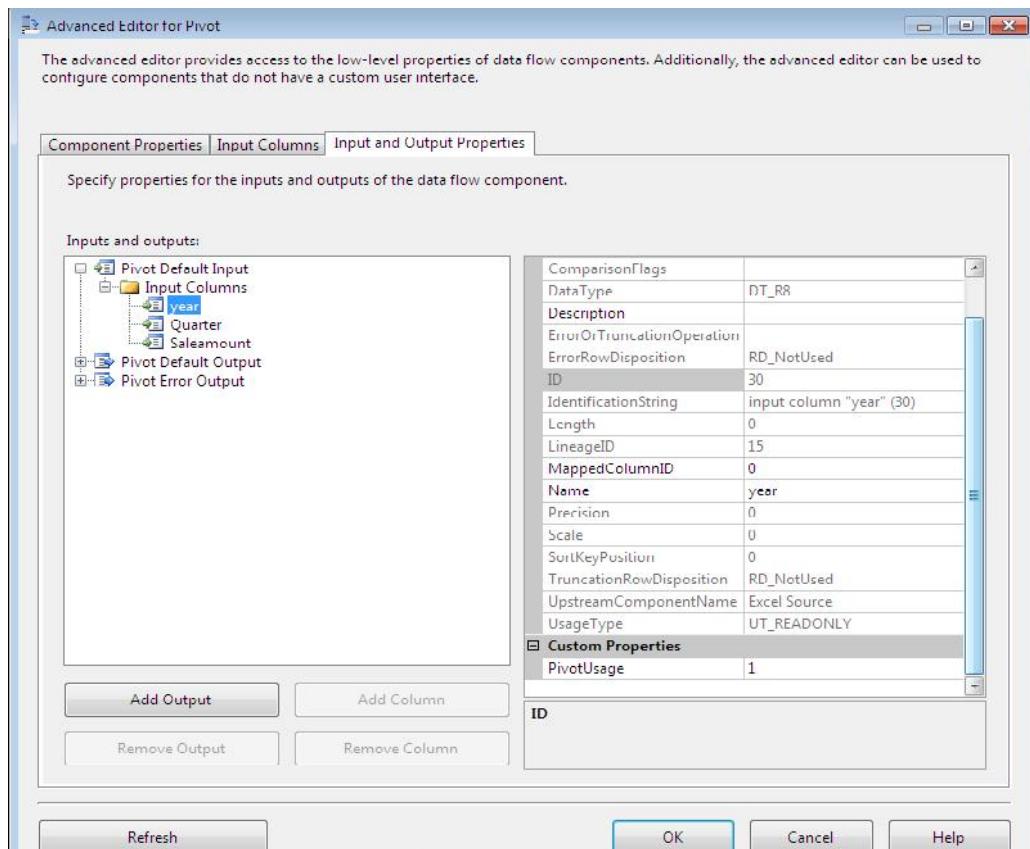
Step: 3 Drag and drop the Pivot transformation and make a connection from the excel source to pivot.

Double click on pivot and select input column tab and check all in put columns

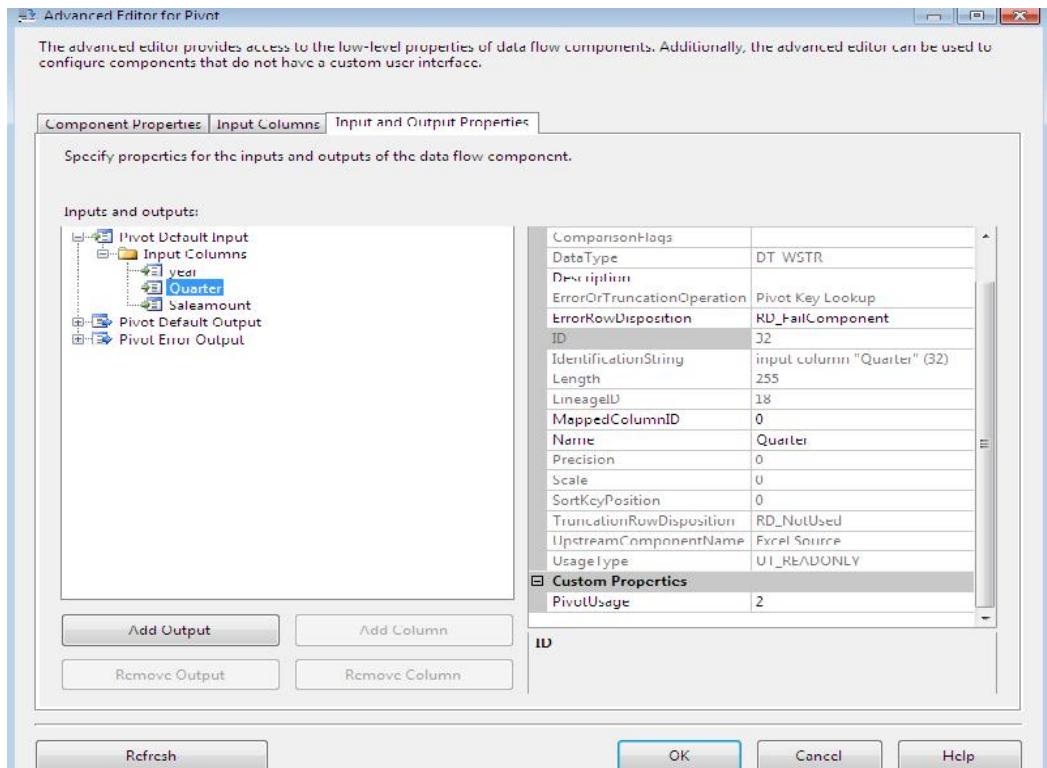


Select input and output properties tab and expand pivot default, expand input columns

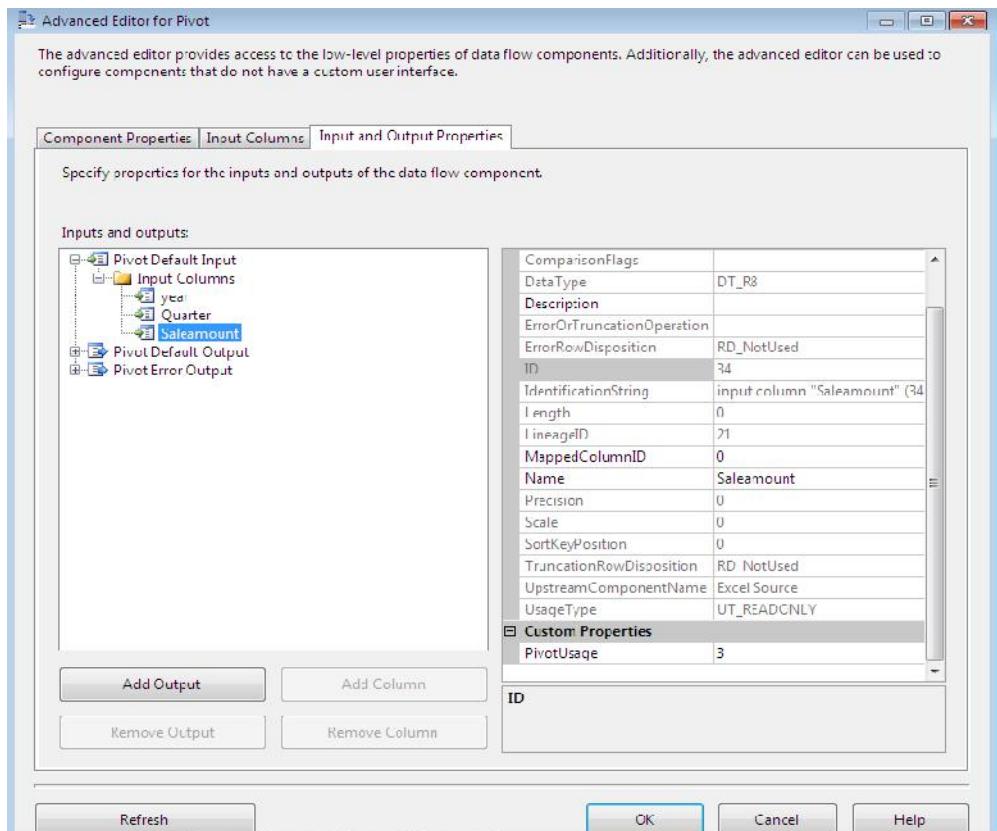
Select year and set pivot usage '1'.



Select Quarter input column and set pivot usage 2



Select Sales amount input column and set pivot usage 3



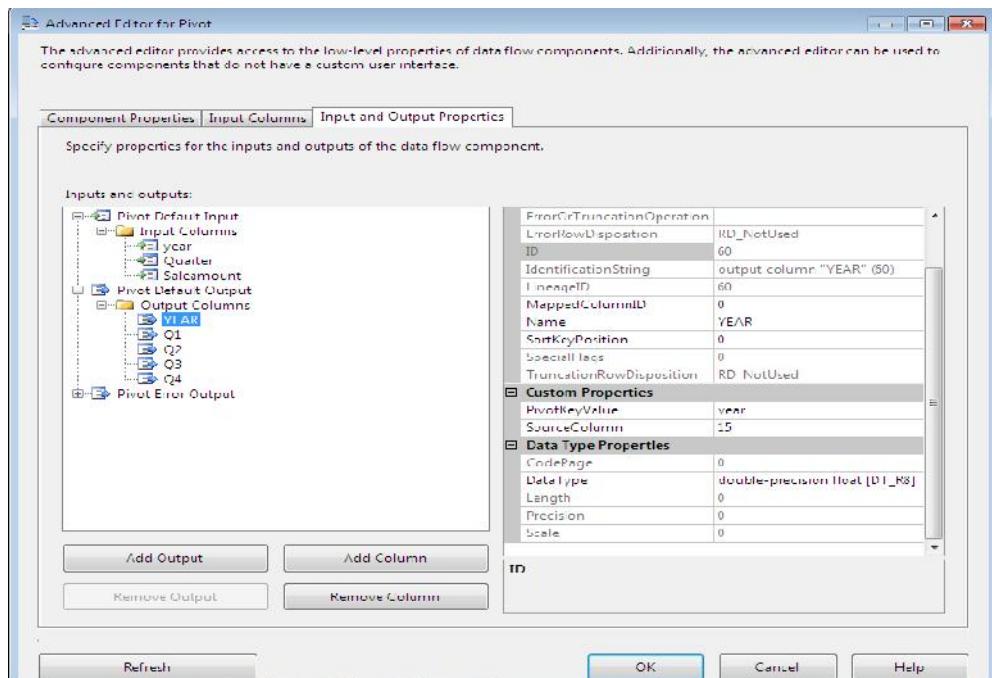
Step: 4 Expand pivot default output and create the following columns by clicking add columns button.

Year, Q1, Q2, Q3, Q4

Copy or note the Lineage id of the input column year and select the year output column and set

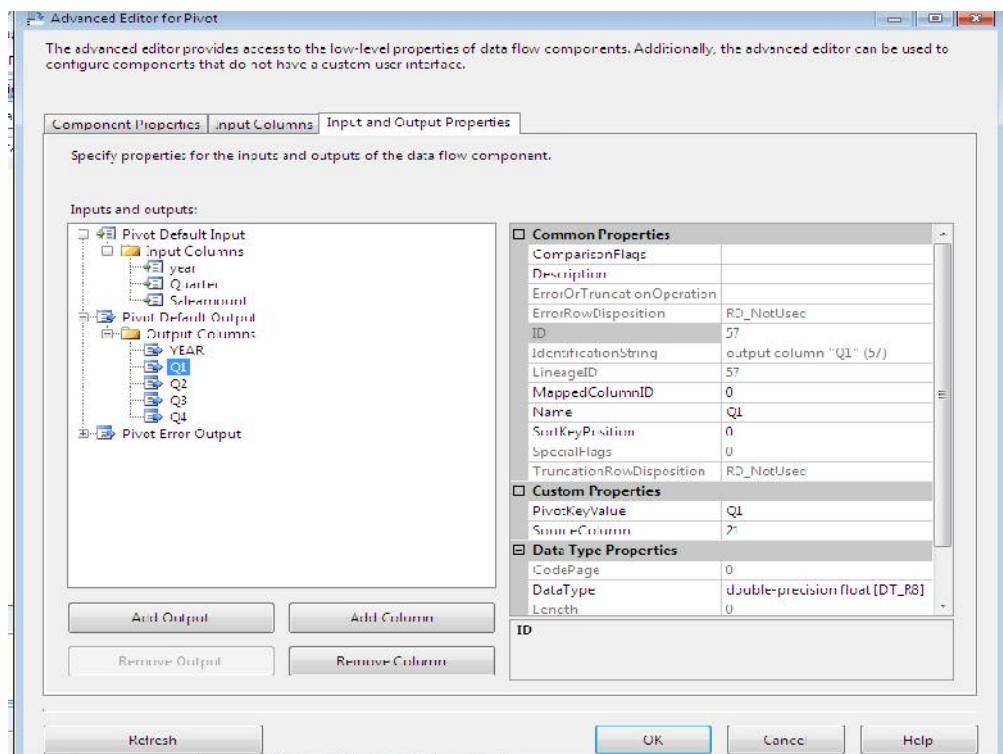
Pivot key value---Year

Source column ---21.(Lineage id of the year input).



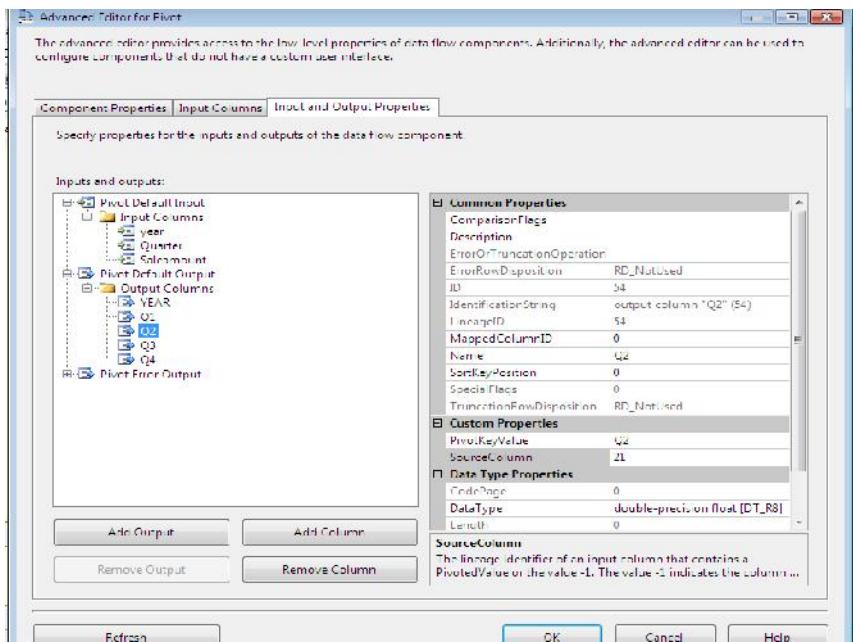
Select Q1 and set pivot key value→Q1

Source column→ 21(Lineage id of the sales amount input column)



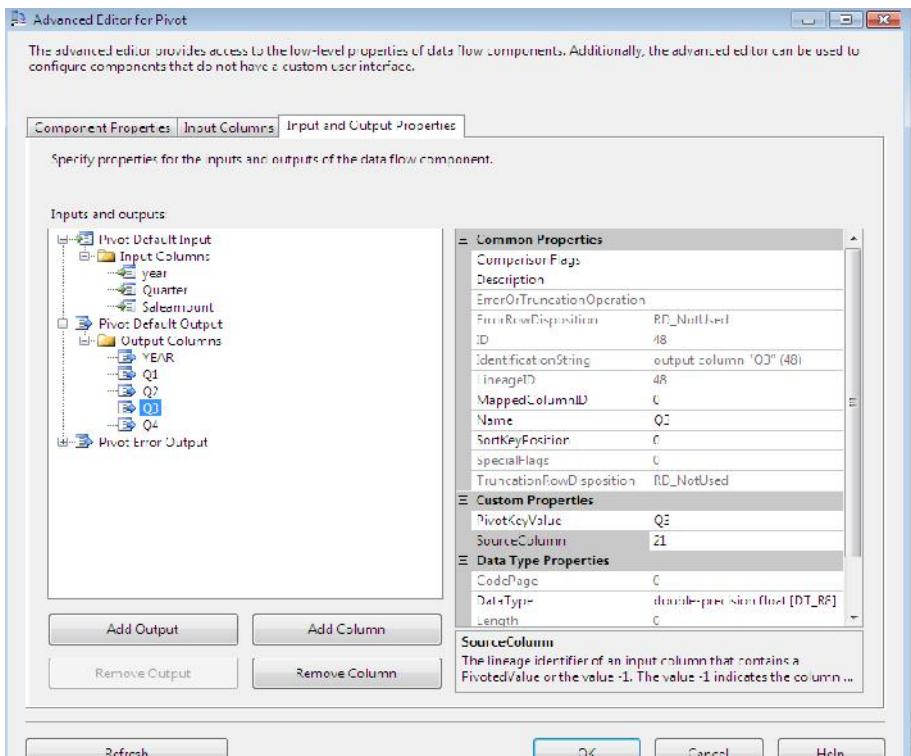
Select Q2 and set pivot key value→Q2

Source column→ 21(Lineage id of the sales amount input column)



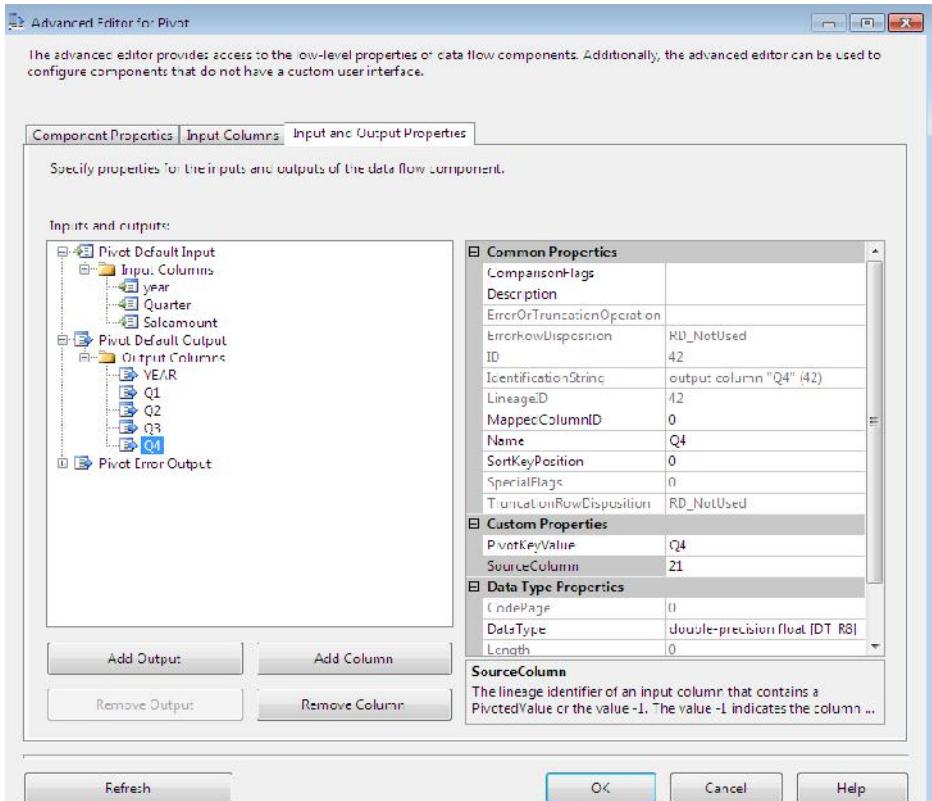
Select Q3 and set pivot key value→Q3

Source column→ 21(Lineage id of the sales amount input column)

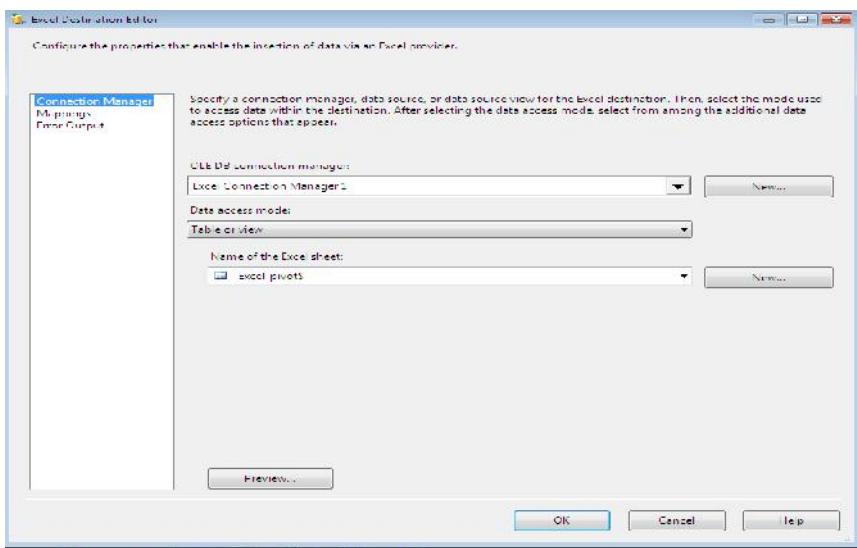


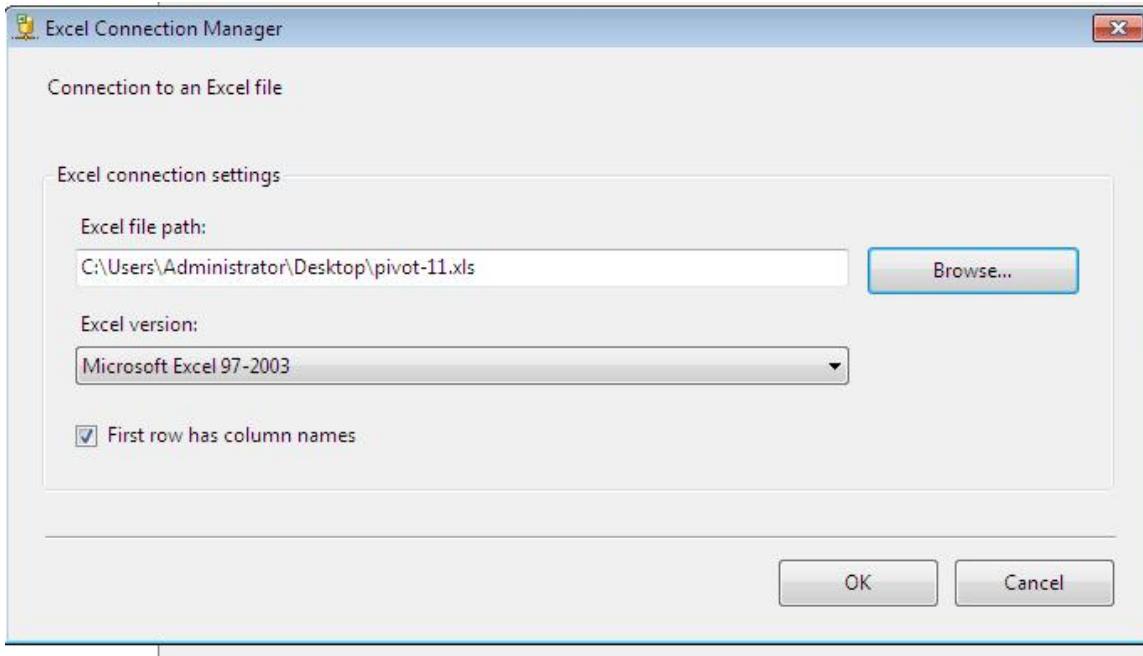
Select Q4 and set pivot key value→Q4

Source column→ 21(Lineage id of the sales amount input column)



Step : 5 Drag and drop the Excel Destination and double click on excel destination to edit it , provide the excel connection manager and click new to table (Sheet) and rename it as pivot data. And click “OK”.





Then click “ok” and the column tab and click “OK”. Then execute the Package.

Slowly Changing Dimensions:

SCD Type 1: Select this type when changed values should overwrite the existing values. This is type 1 changes.

SCD Type 2: Select this type when changes in column values are saved in new records. Previous values are saved in the records marked as outdated. This is type 2 changes.

SCD Type-1 configuration:

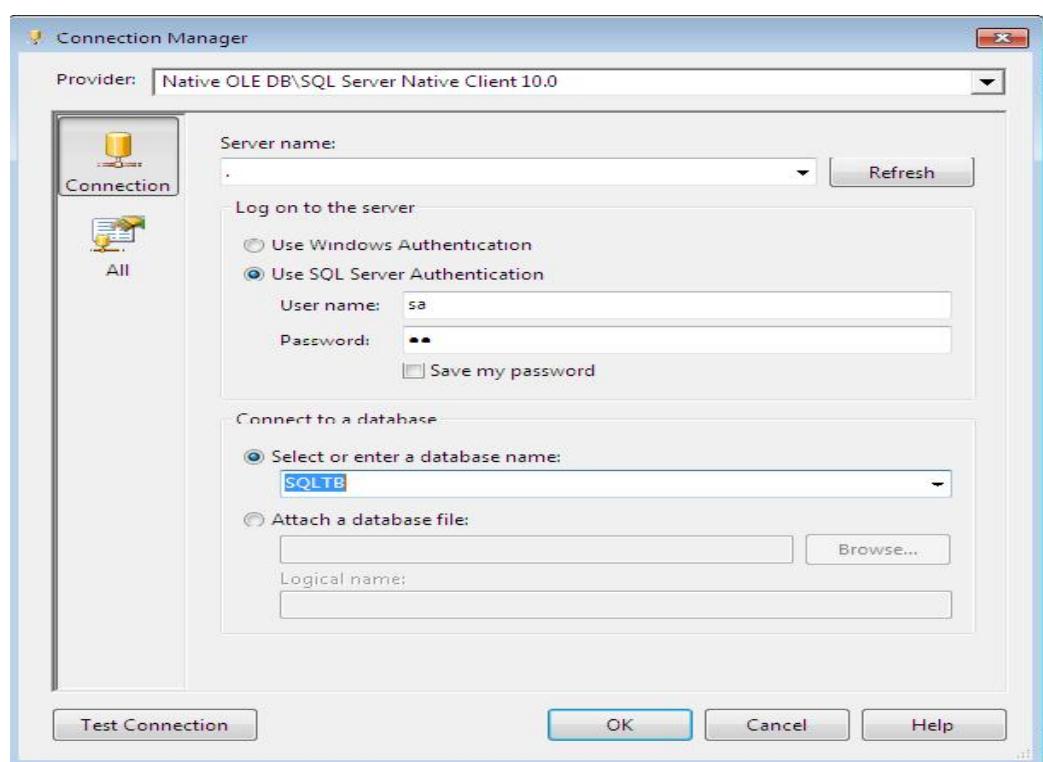
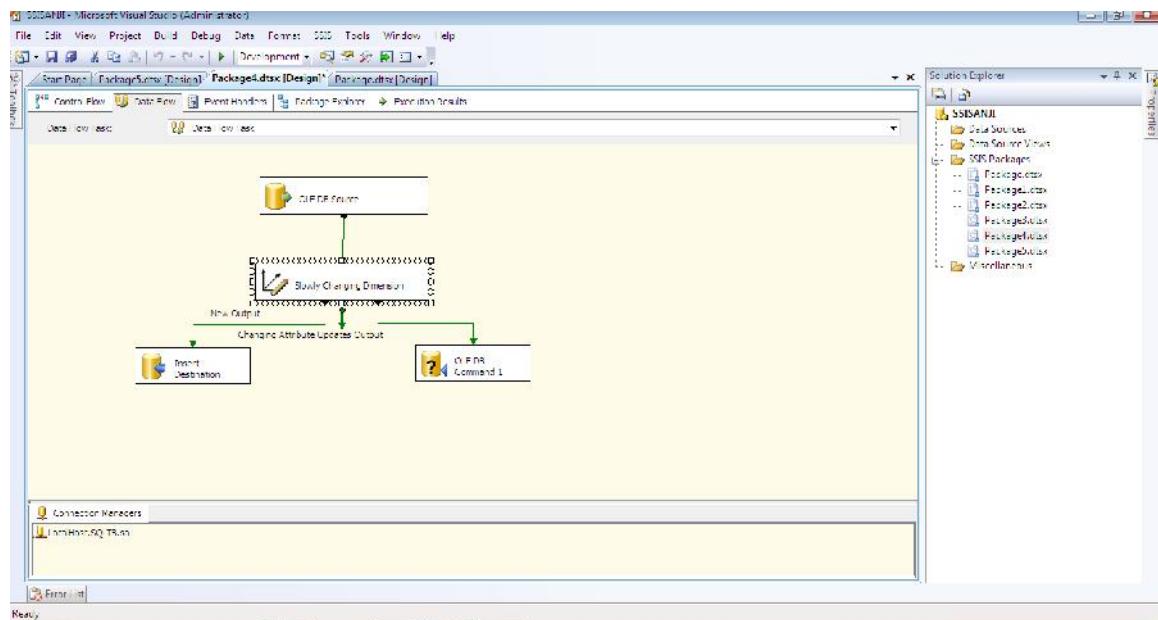
Create the Scdtype-1 for the destination table.

```
create table SCDTYPE(  
    empno int,  
    ename varchar(20),  
    salary money,  
    addres varchar(20))
```

Step 1: Drag and drop Dataflow task in control flow. Double click on dataflow task.

Step 2: Drag and drop the OLEDB Source and double click on it and configure it.

Click NEW→NEW→

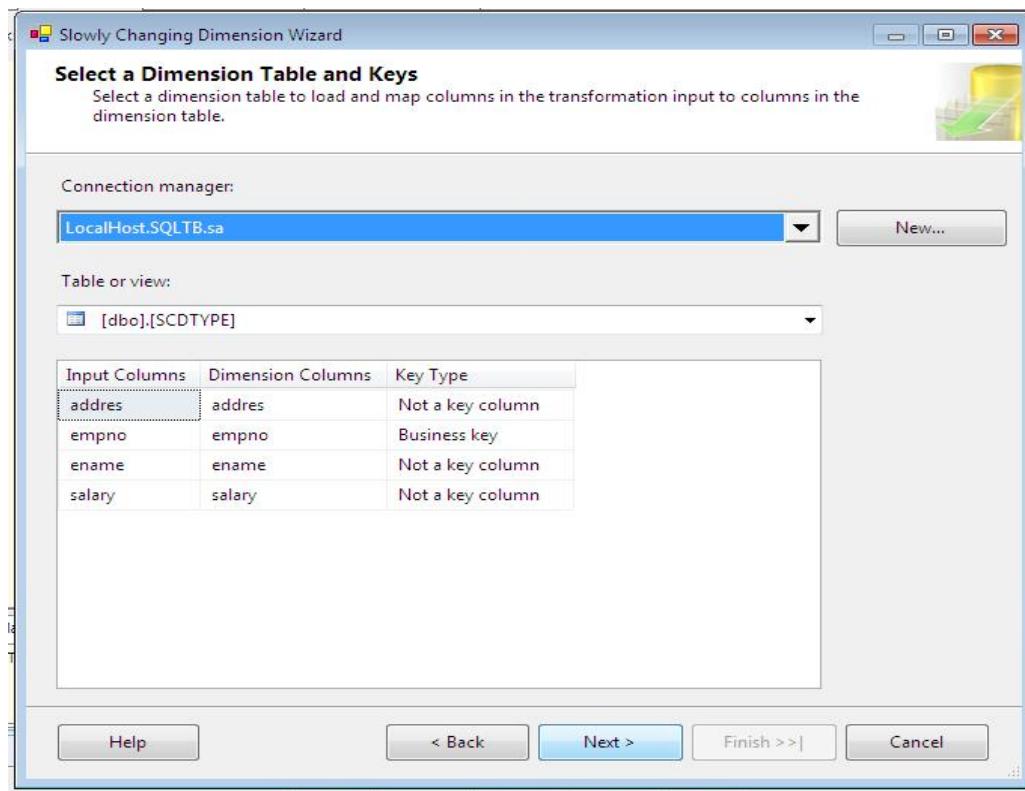


Then click "ok" → "OK" and select the column tab then click "OK".

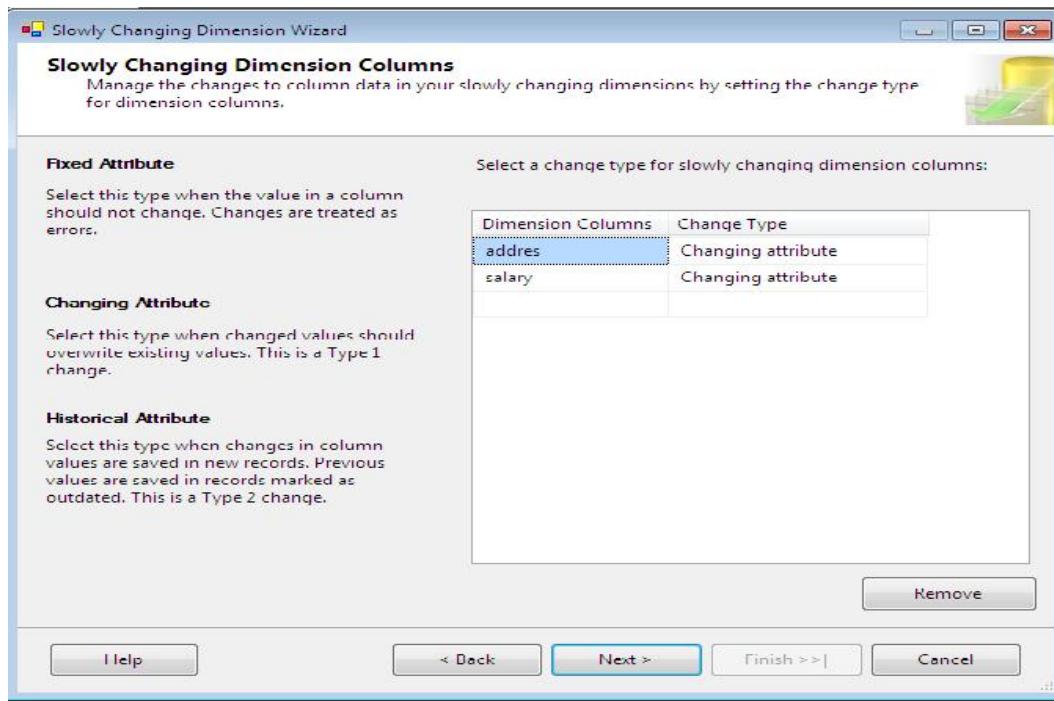
Step :2 Drag and drop the Slowly changing dimension. Double click on it



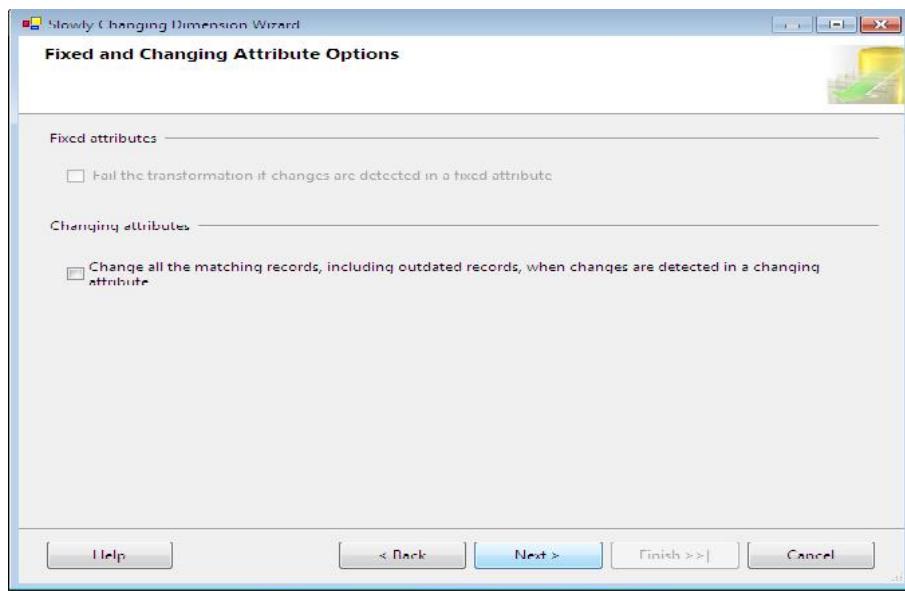
Click Next



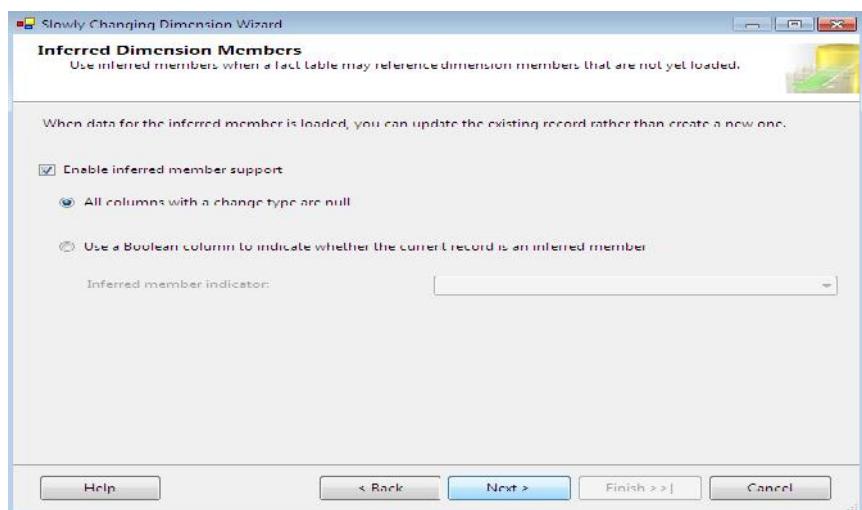
And select the empno as a business key and then click "Next"



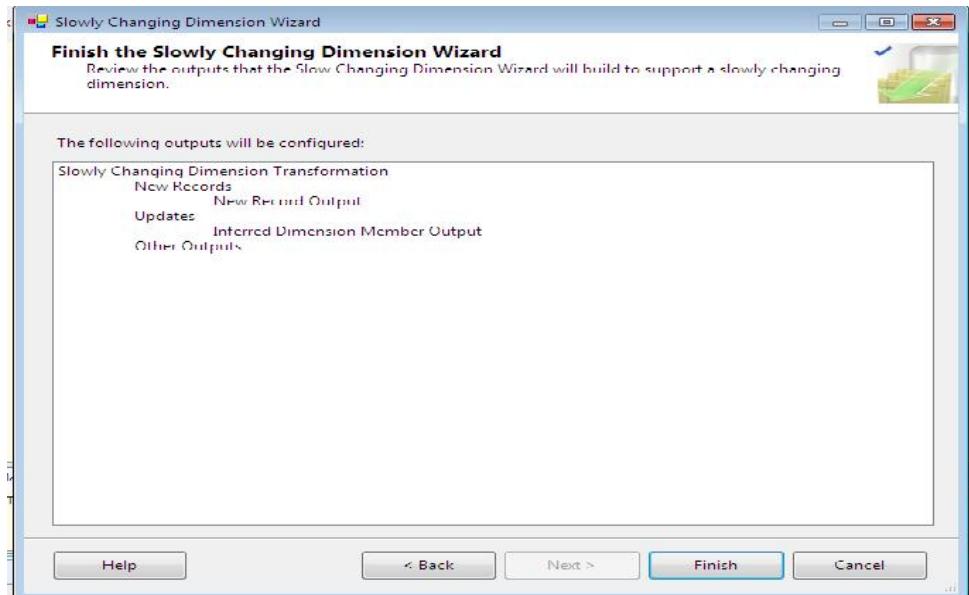
Select the address as changing attributes and salary as changing attribute. And then click "OK".



And then click "NEXT"



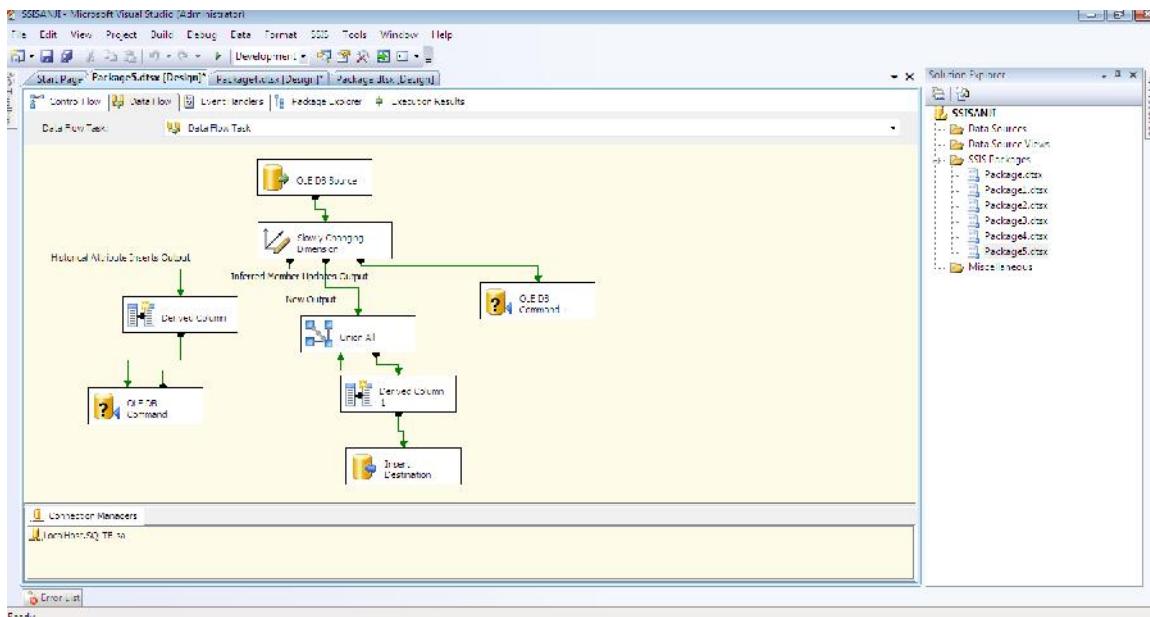
Then click “NEXT” and “FINISH”



Scd type 2 configuration:

Create the Scdtype-1 for the destination table.

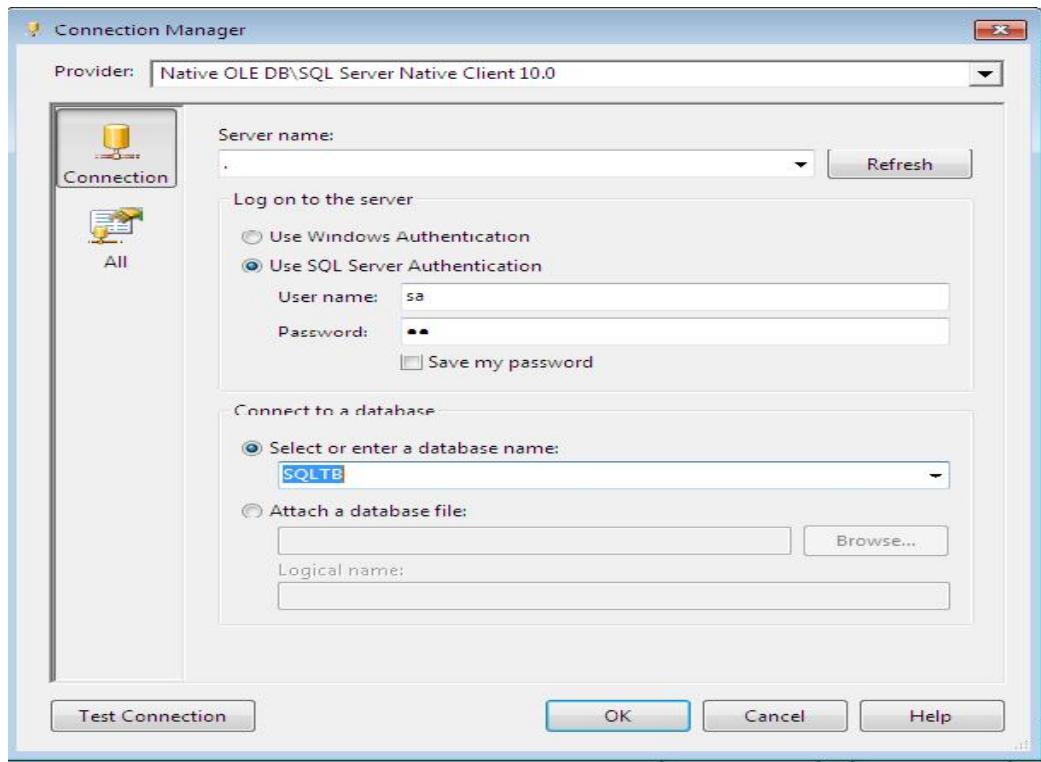
```
create table SCDTYPE2(emplno int,
ename varchar(20),
salary money,
address varchar(20),
ef_date datetime,exp_date datetime)
```



Step 1: Drag and drop Dataflow task in control flow. Double click on dataflow task.

Step 2: Drag and drop the OLEDB Source and double click on it and configure it.

Click NEW→NEW→

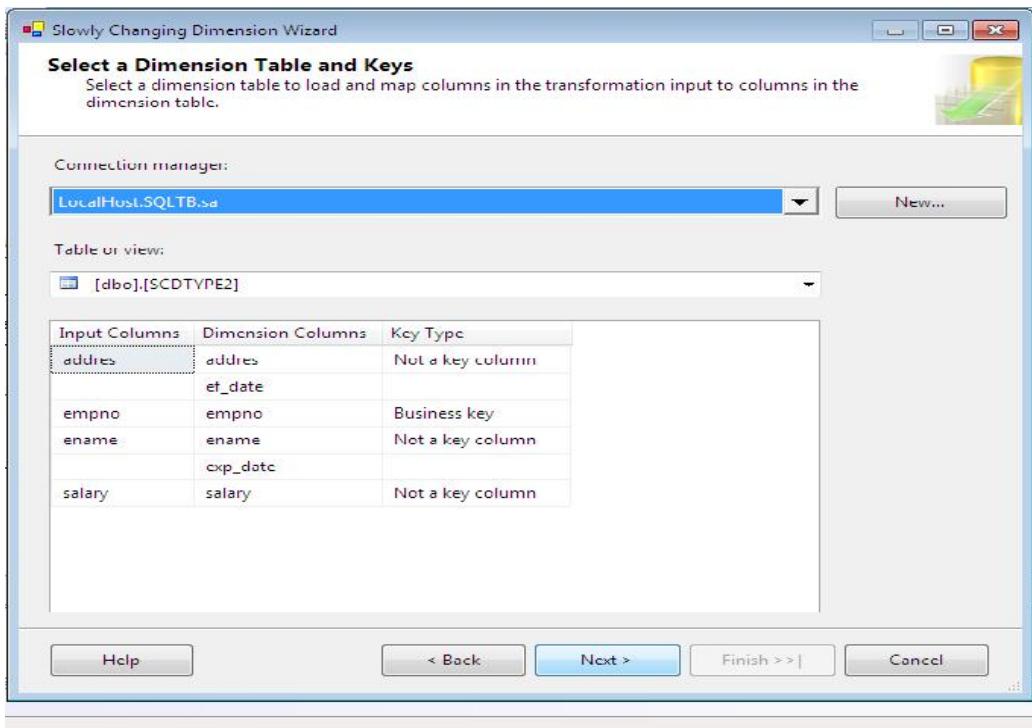


Then click "ok" → "OK" and select the column tab then click "OK".

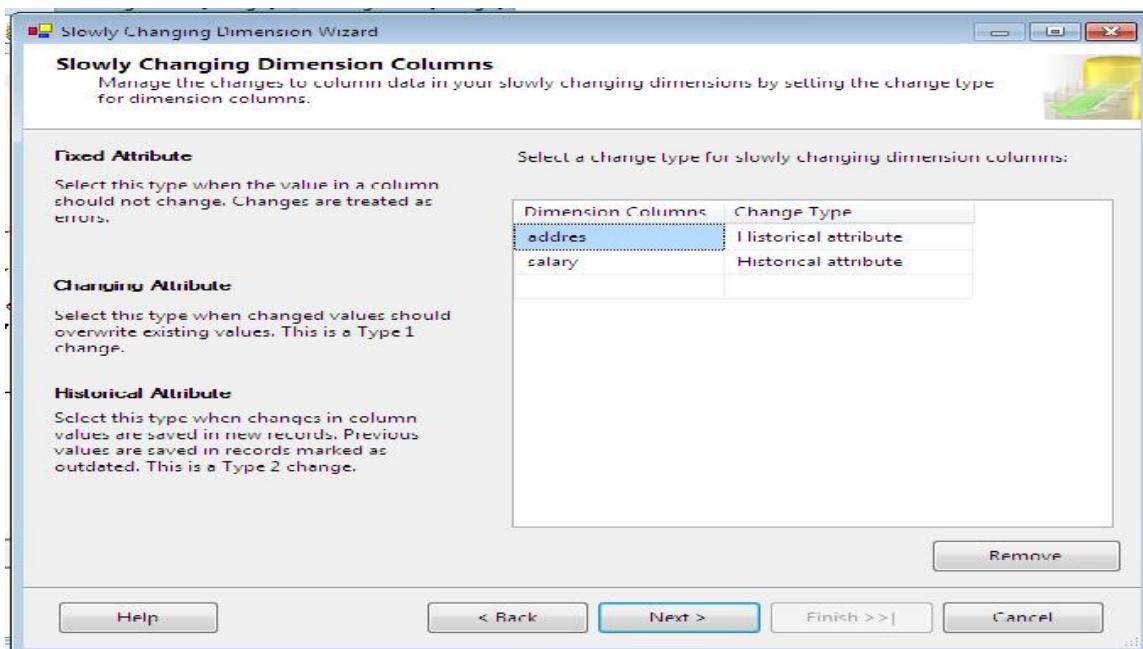
Step: 2 Drag and drop the Slowly changing dimension. Double click on it



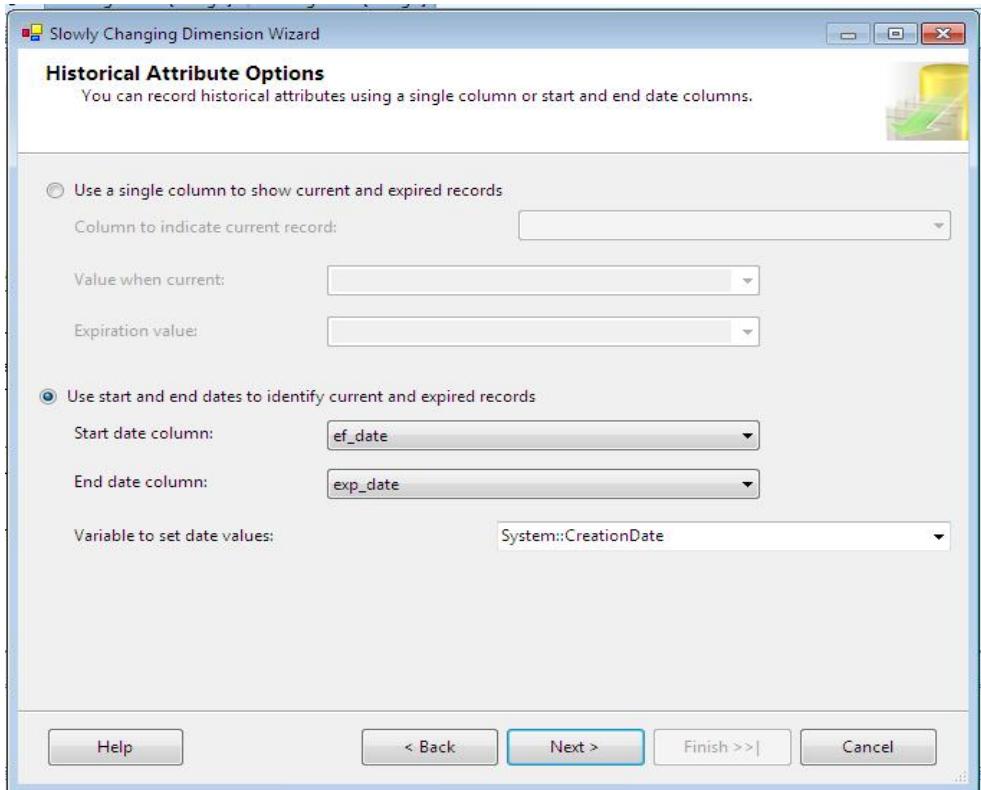
Click Next



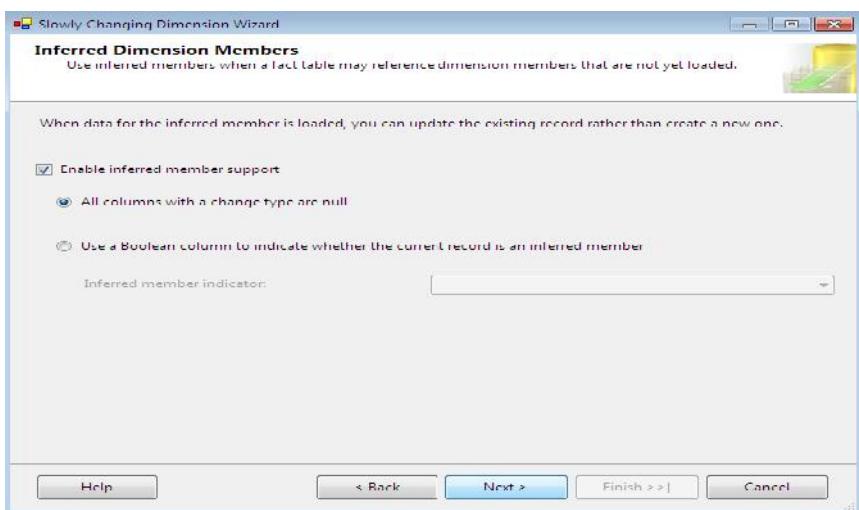
And select the empno as a business key and then click "Next"



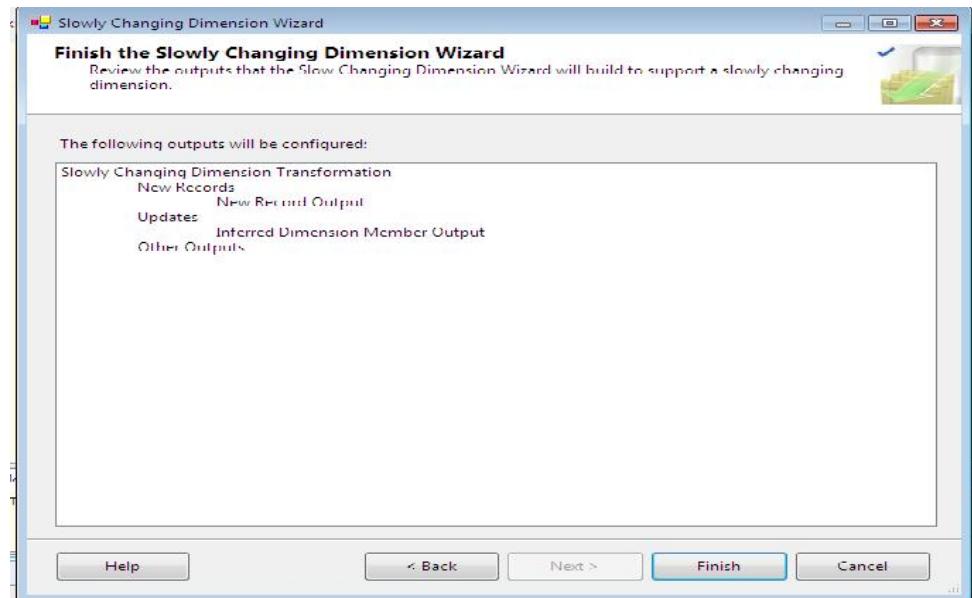
Select the ef_date and exp_date and assign the variable set date values is container star time.



And then click "NEXT"

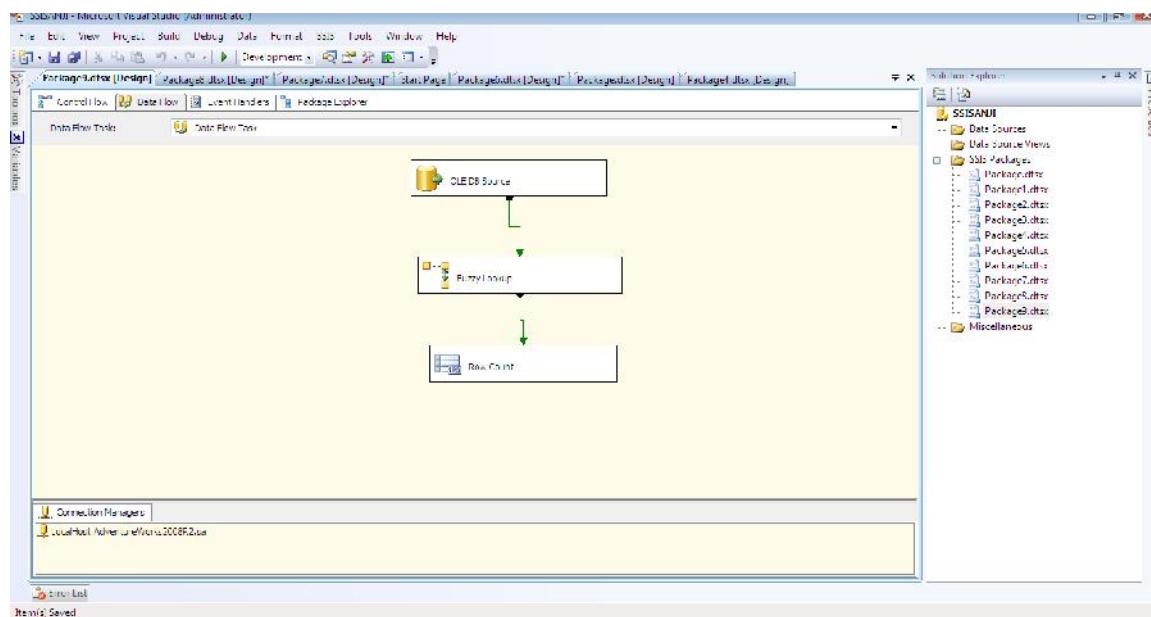


Then click "NEXT" and "FINISH"



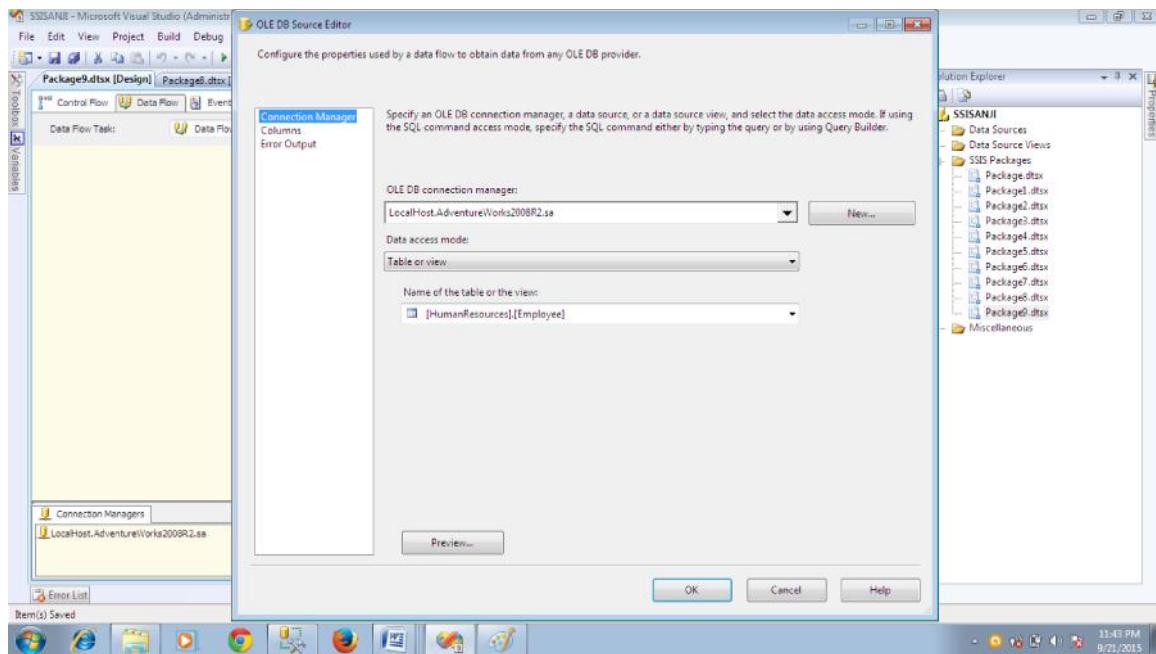
FUZZY LOOKUP TRANSFORMATION:

It's going to act as a lookup transformation only but it does not lookup into exact match. It's going to lookup appropriate matching (Mainly used for string comparison). Based on the threshold values



Step : 1 Drag and drop the dataflow task in control flow and double click on it.

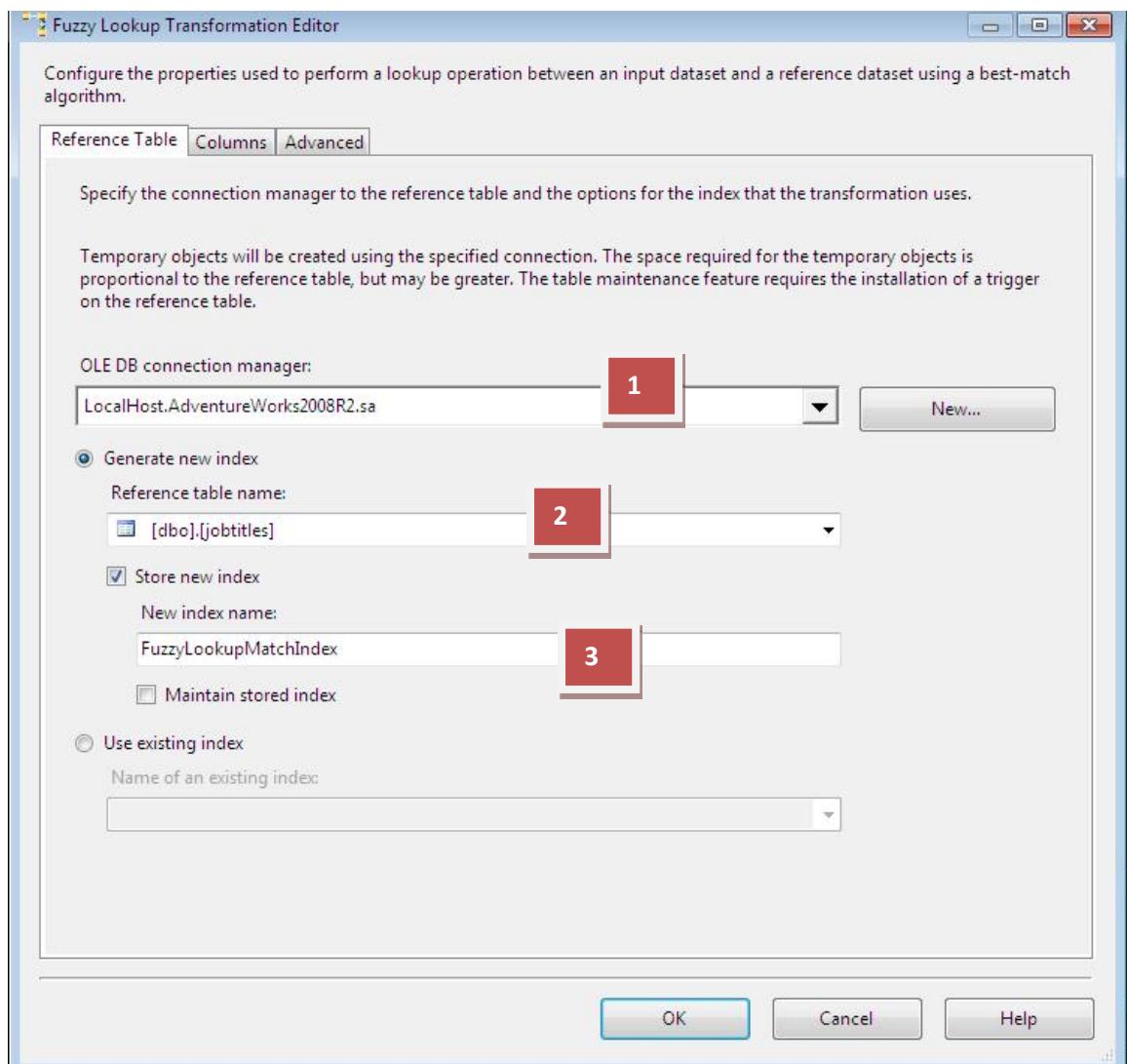
Step 2: Drag and drop the OLEDB SOURCE in the dataflow task and double click for editing. And select the source table as the Employee table.



Step 3 : create the table in SSMS which contains the distinct job title from the employee table

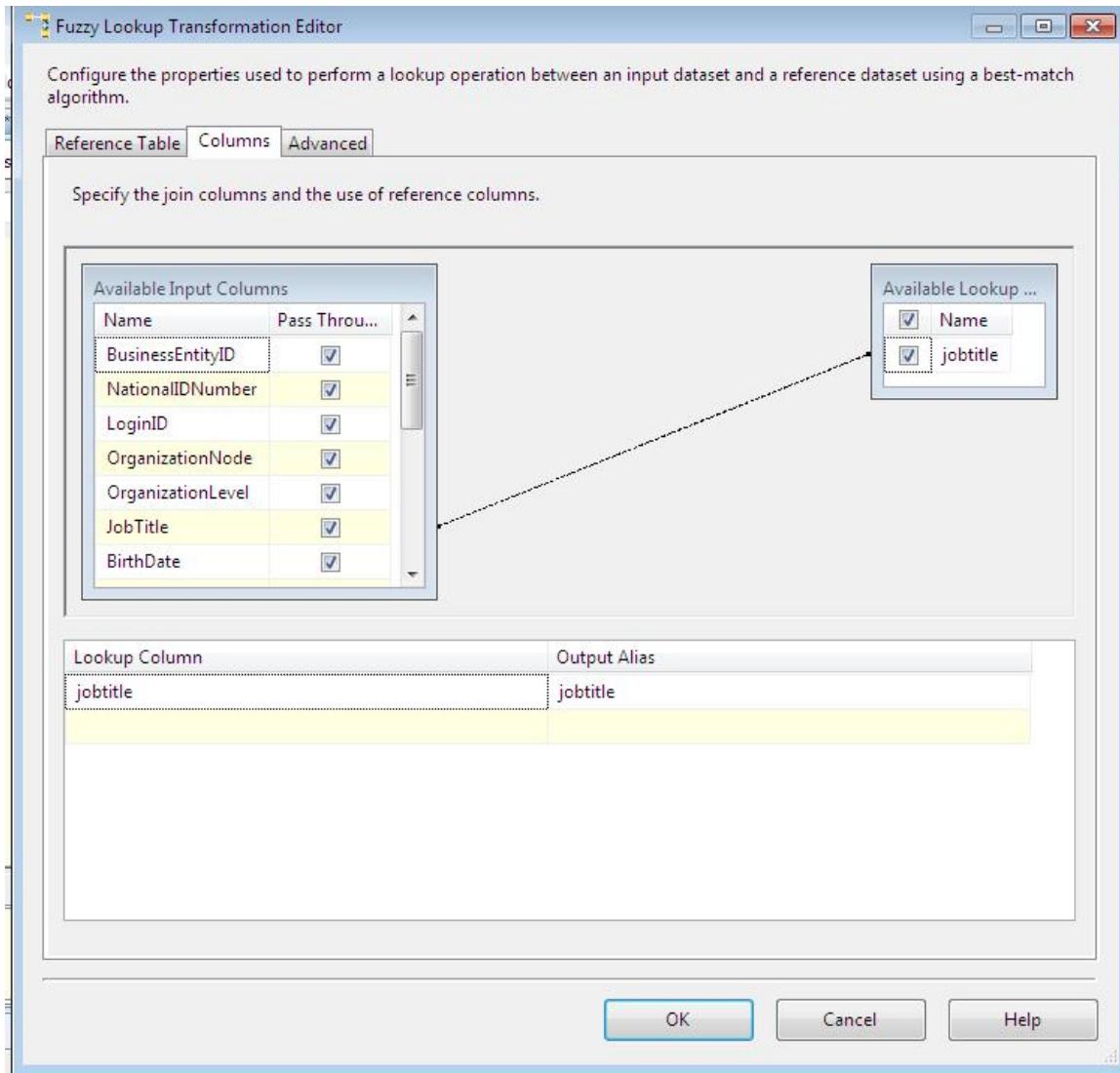
```
select distinct(jobtitle) into jobtitles from [HumanResources].[Employee]
```

Step: 4 Drag and drop the Fuzzy look up transformation and double click on it for configuring the in the following way.

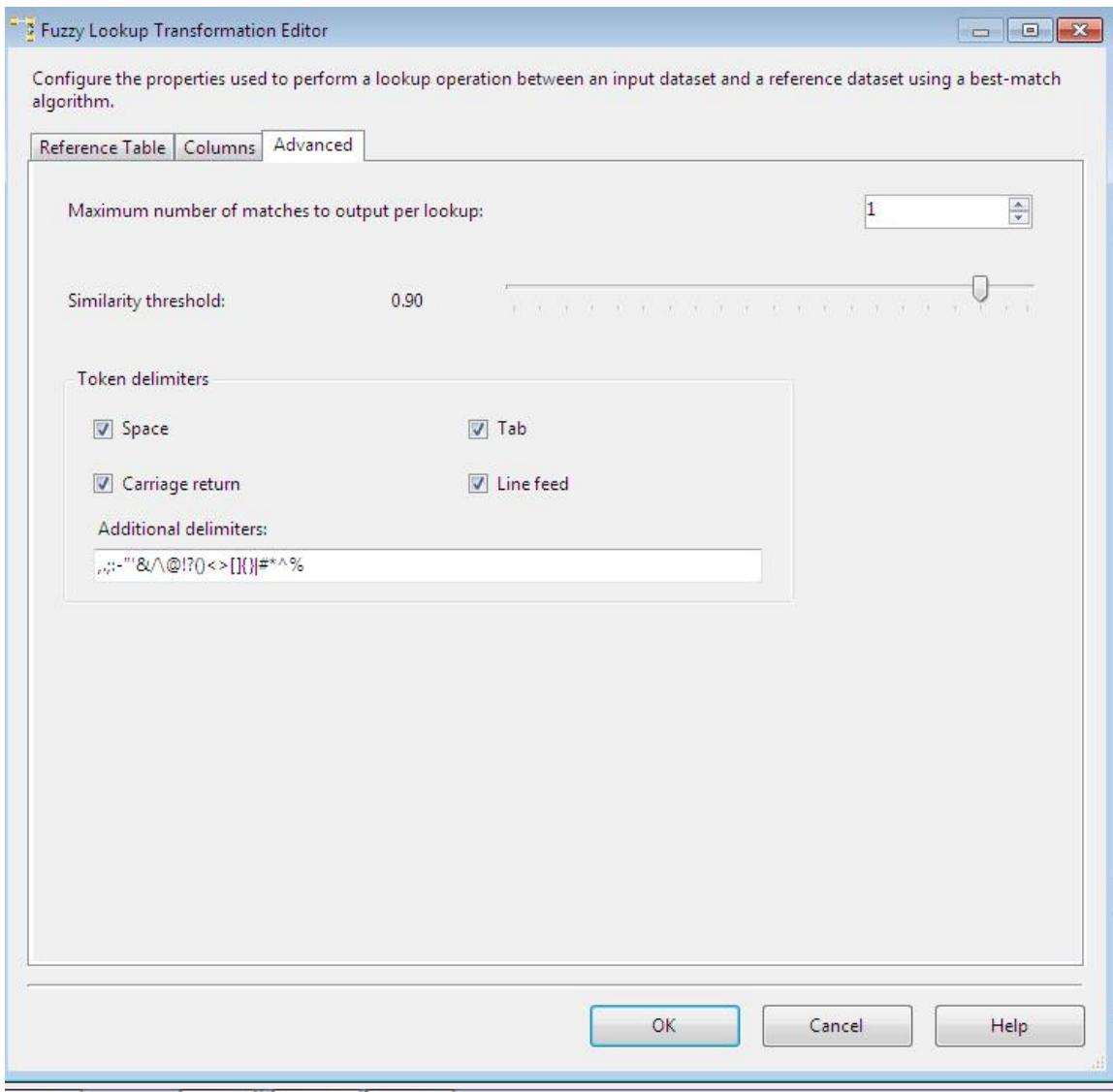


1. Select the Reference table database connection,
2. Select the reference table “**Jobtitle**”.
3. Select the “**Store new index**”.

Step : 5 click the column tab and select the comparasion column in the following way.



And then click the advance tab and set the threshold value and then click “ok”.



Then click ok.

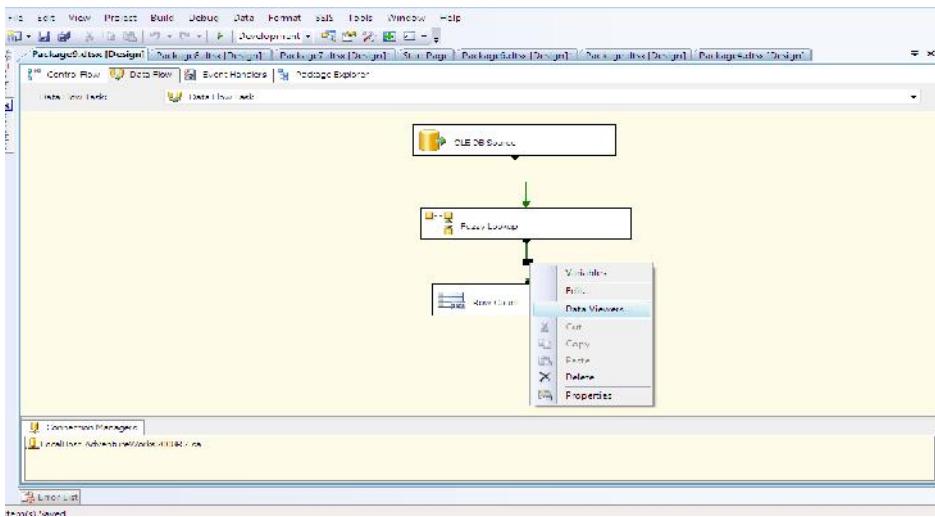
Step : 7 Drag and drop the row count transformation and enable the date viewers.

Data viewers: data views are used to debug the package and also user or developers can monitors the data which is flowing from source to other stages.

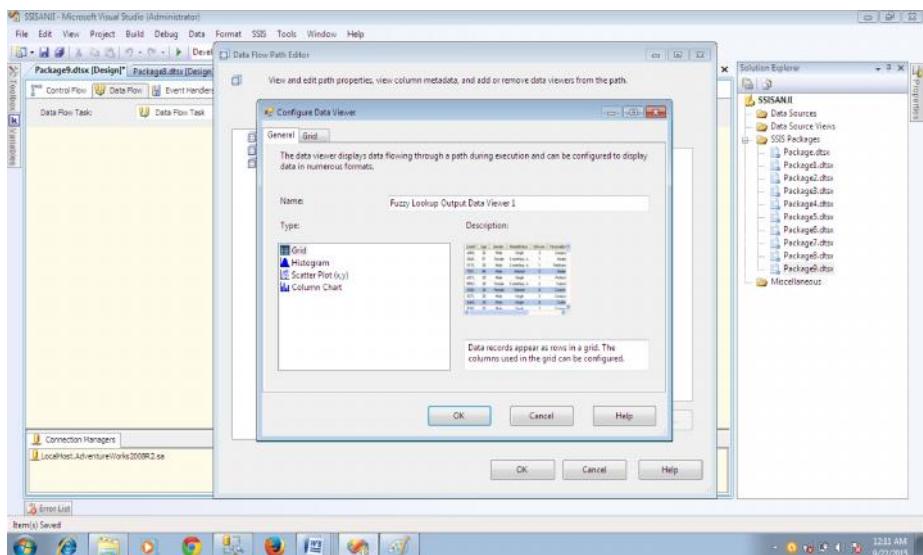
In ssis data viewers are categorized into 4 parts.

1. **GRID:** select the grid and also select grid tab , and select the columns to be displayed in the grid format.
2. **Histogram:** select the histogram type and click histogram tab. Select the column which you want to model with the histogram.
3. **Scatter Plot(x,y):**Select scatter plot type and also click scatter plot(x,y) tab and then select a column for the x-axis and a column for y-axis.
4. **Column chart:** Select column chart type and click column and chart tab.

Step : 6 Right click on the arrow marks and select the **Data viewers** and click on it.



Select the grid view and then click “OK”



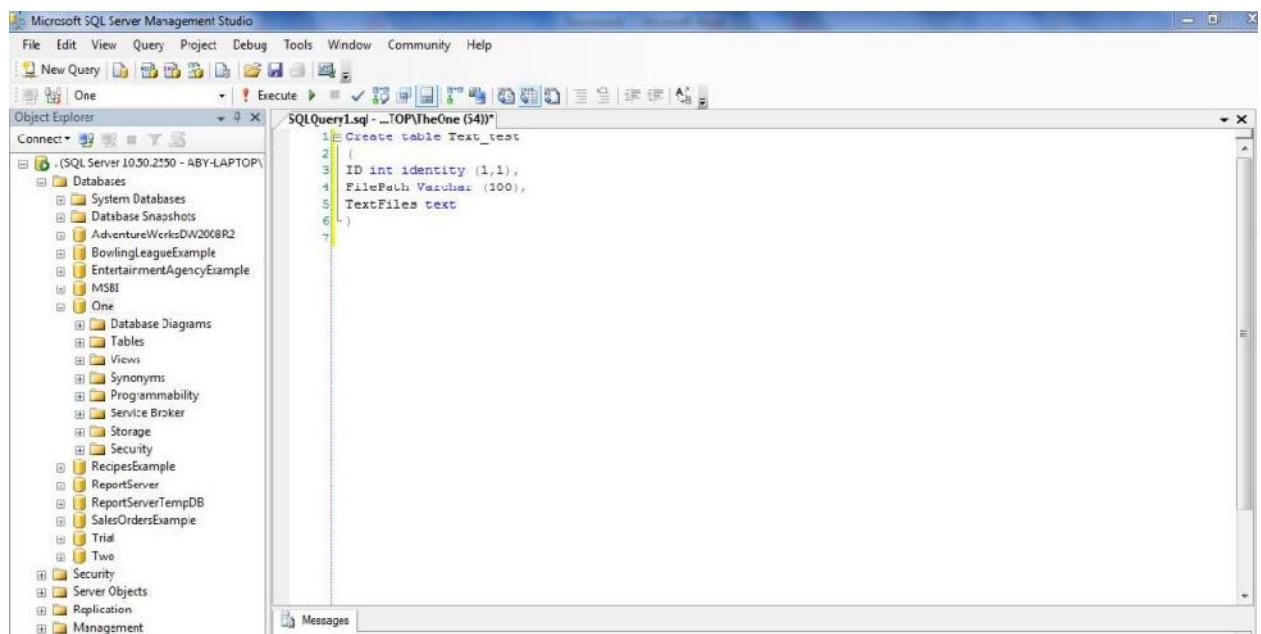
Now execute the package.

Fuzzy Lookup Output Data Viewer 1 at Fuzzy Lookup.Fuzzy Lookup Output																	
	Cr.	C.	JobTitle	BirthDate	MaritalStatus	Gen.	HireDate	Sal...	V...	S...	C...	rowg_id	Modified...	jobtitle	_Salary	_Confidence	_Similarity_jobTitle
..	0	0	Chief...	3/2/1963	S	M	2/15/2...	True	S...	6...	T	f0125...	2008-0...	ChiefExecutive...	1	1	1
..	0..	1	Vice Pres...	9/1/1965	S	F	3/3/2002	True	1...	2...	T	45ef...	2008-0...	Vice President...	1	1	1
..	0..	2	Engin...	12/15/...	M	M	12/12/...	True	2...	2...	T	5bbcf...	2008-0...	Engineering Ma...	1	1	1
..	0..	3	Serio...	1/23/...	S	M	1/5/2002	False	4...	8...	T	59747...	2008-0...	Senior Tool Des...	1	1	1
..	0..	3	Desig...	10/25/...	M	F	2/6/2002	True	5...	2...	T	ed34...	2008-0...	Design Engineer	1	1	1
..	0..	3	Desig...	4/11/...	M	M	2/24/...	True	6...	2...	T	e39c5...	2008-0...	Design Engineer	1	1	1
..	0..	3	Rese...	3/27/...	M	M	5/12/2...	True	6...	5...	T	4f46d...	2008-0...	Research and ...	1	1	1
..	0..	4	Rese...	7/6/1980	S	F	1/30/2...	True	6...	5...	T	51112...	2008-0...	Research and ...	1	1	1
..	0..	4	Rese...	2/21/...	M	F	2/17/2...	True	6...	5...	T	50bEc...	2008-0...	Research and ...	1	1	1
..	0..	4	Rese...	1/1/1979	M	M	6/4/2003	True	1...	6...	T	eaa43...	2008-0...	Research and ...	1	1	1
..	0..	3	Serio...	2/18/...	S	M	1/5/2005	False	7...	2...	T	f98c7...	2008-0...	Senior Tool Des...	1	1	1
..	0..	4	Tool ...	8/29/...	M	M	1/1/2...	False	9...	2...	T	1d955...	2008-0...	Tool Designer	1	1	1
..	0..	4	Tool ...	6/29/...	M	F	1/23/...	False	8...	2...	T	55459...	2008-0...	Tool Designer	1	1	1
..	0..	3	Serio...	7/17/...	S	M	1/30/2...	True	3...	2...	T	46256...	2008-0...	Senior Design E...	1	1	1
..	0..	3	Desig...	6/3/1955	M	F	2/18/2...	True	4...	2...	T	542fd...	2008-0...	Design Engineer	1	1	1
..	0..	1	Mark...	4/19/...	S	M	1/20/2...	True	4...	4...	T	e8722...	2008-0...	Marketing Man...	1	1	1
..	0..	2	Mark...	6/3/1981	S	M	2/26/2...	False	4...	4...	T	1b450...	2008-0...	Marketing Assis...	1	1	1
..	0..	2	Mark...	4/6/1972	S	M	3/10/2...	False	4...	4...	T	64730...	2008-0...	Marketing Speci...	1	1	1
..	0..	2	Mark...	3/1/1972	S	F	3/17/2...	False	4...	4...	T	1fd4...	2008-0...	Marketing Assis...	1	1	1
..	0..	2	Mark...	4/17/...	M	F	2/7/2005	False	4...	4...	T	43cca...	2008-0...	Marketing Assis...	1	1	1

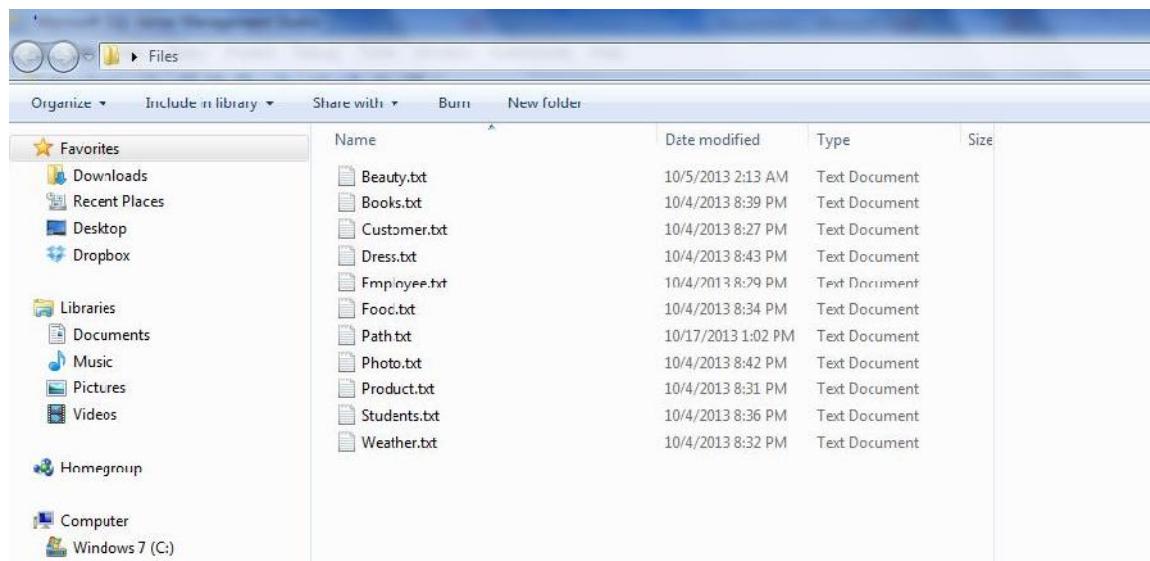
Import Column transformation:

The Import Column transformation reads data from files and adds the data to columns in a data flow. Using this transformation, a package can add text and images stored in separate files to a data flow.

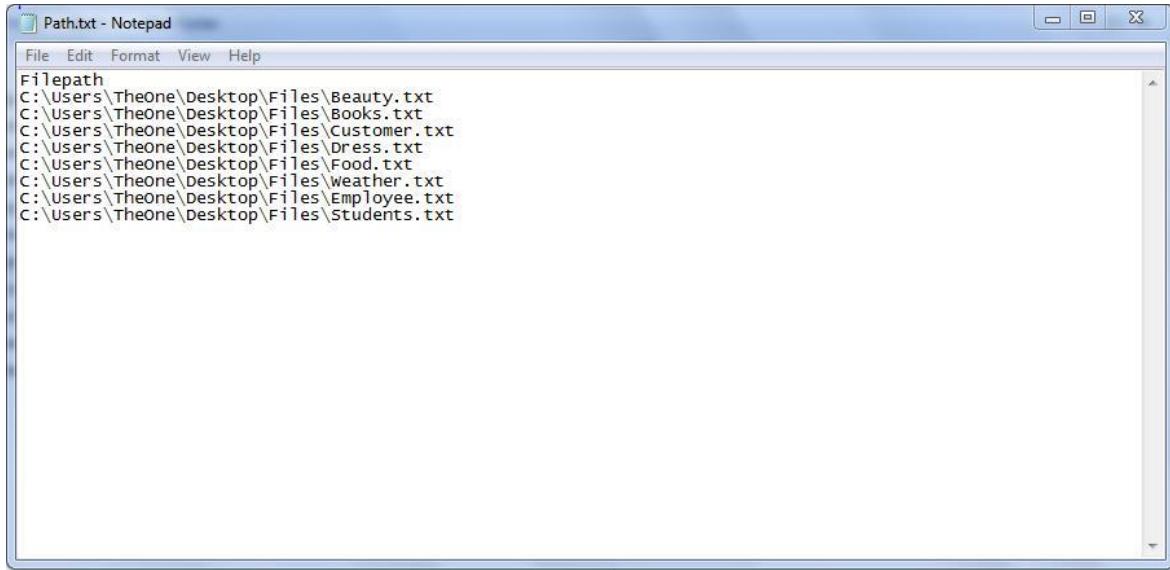
Step 1: For the importing a text file into a database, we must have a table that hold the text file value and the path of the files. Let's create a table named as **Text_test**.



Step: 2 Here I am having some text file and file called path, where it has all the files path.

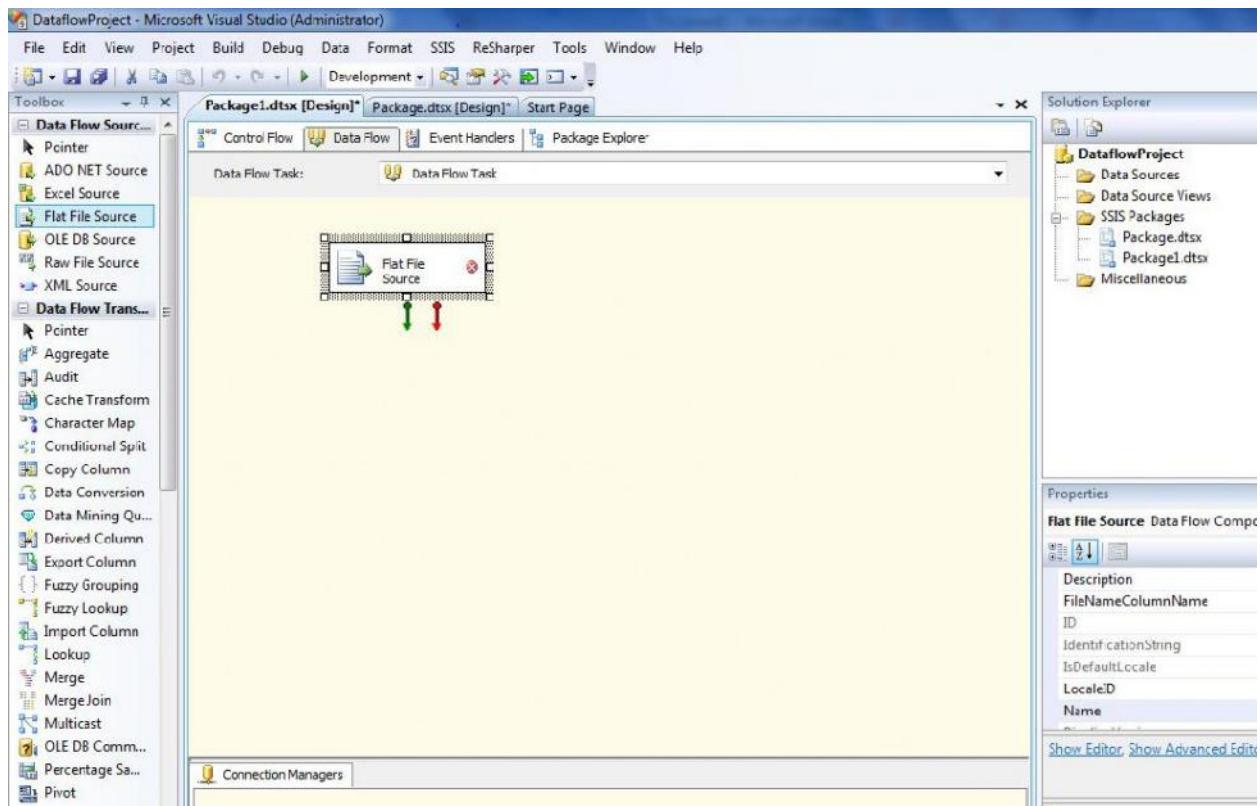


File paths

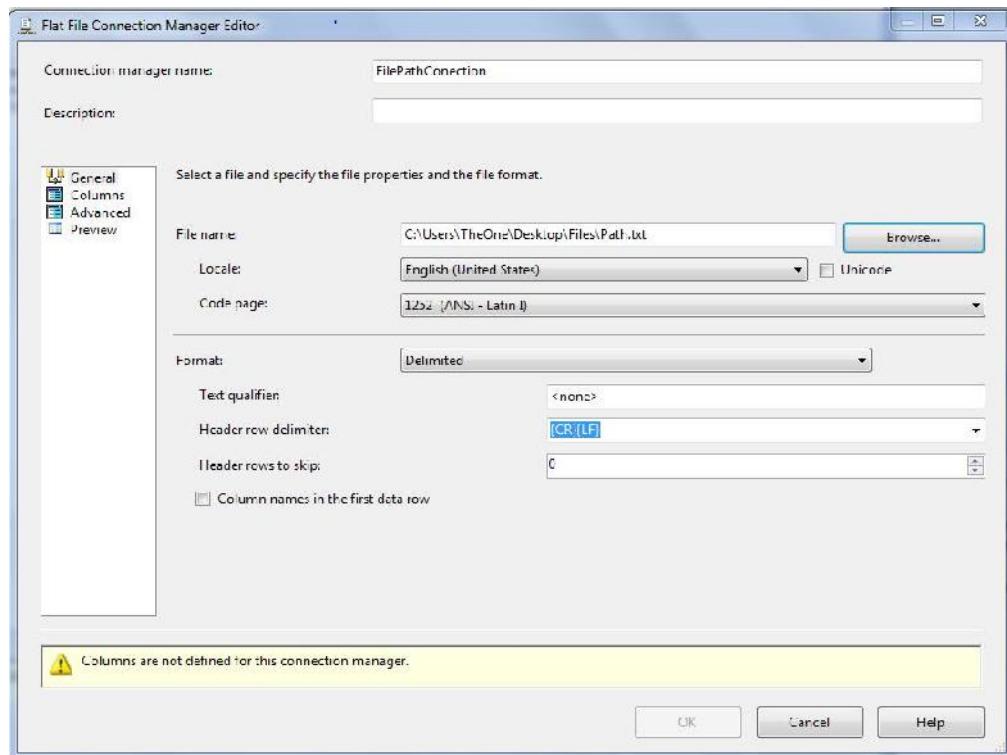


```
Path.txt - Notepad
File Edit Format View Help
Filepath
C:\Users\TheOne\Desktop\Files\Beauty.txt
C:\Users\TheOne\Desktop\Files\Books.txt
C:\Users\TheOne\Desktop\Files\Customer.txt
C:\Users\TheOne\Desktop\Files\Dress.txt
C:\Users\TheOne\Desktop\Files\Food.txt
C:\Users\TheOne\Desktop\Files\Weather.txt
C:\Users\TheOne\Desktop\Files\Employee.txt
C:\Users\TheOne\Desktop\Files\Students.txt
```

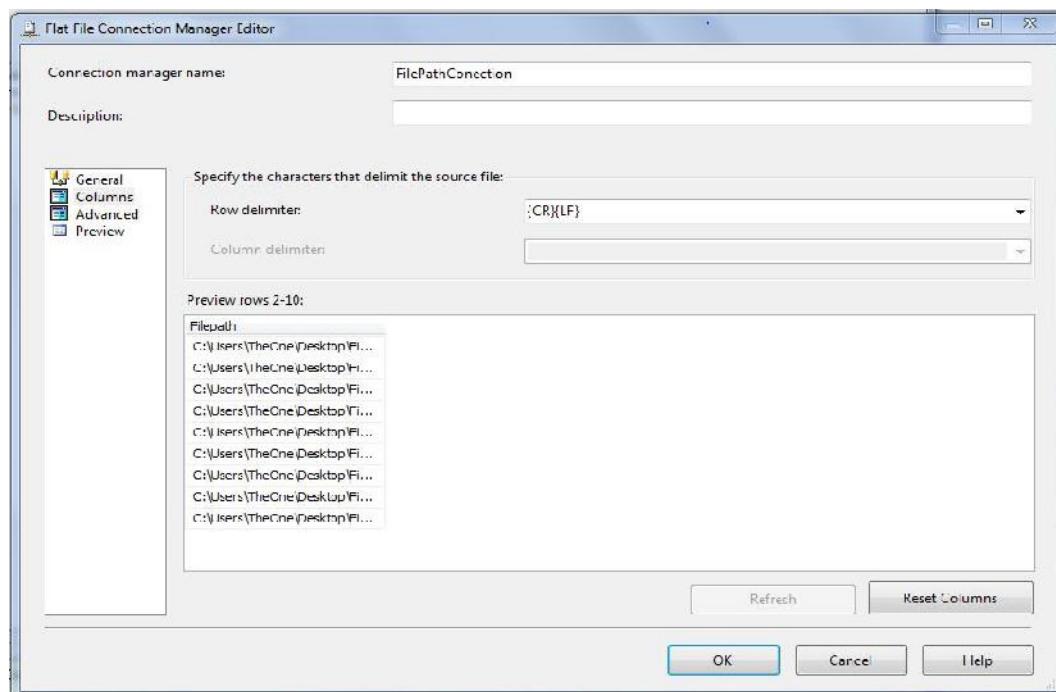
Step : 3 Let start the BIDS and select a data flow task . Click on the data flow task and then drag a Flat file source .



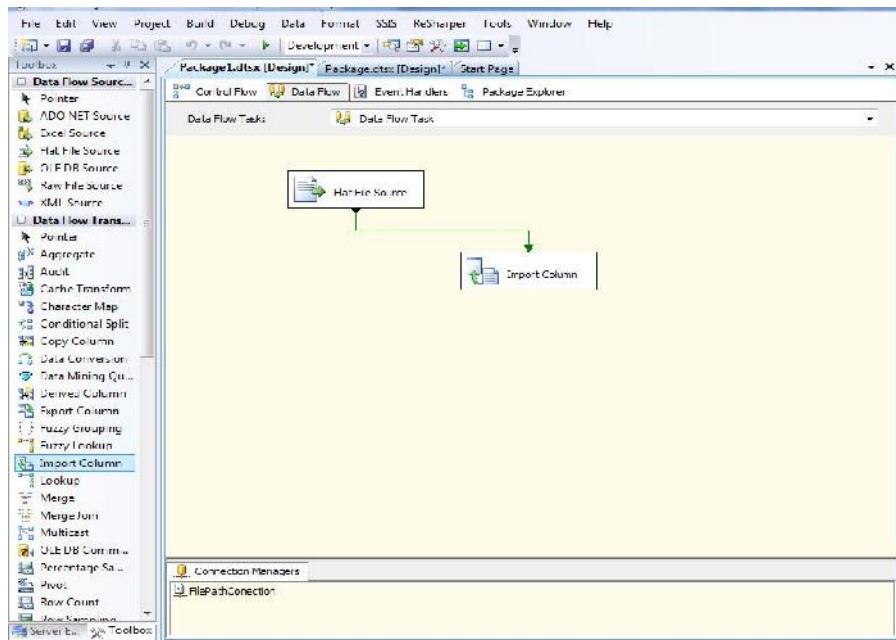
Step : 4 Now configure the Flat file source and connect to the file that has all the files path as I connected to path.txt which have all the files path.



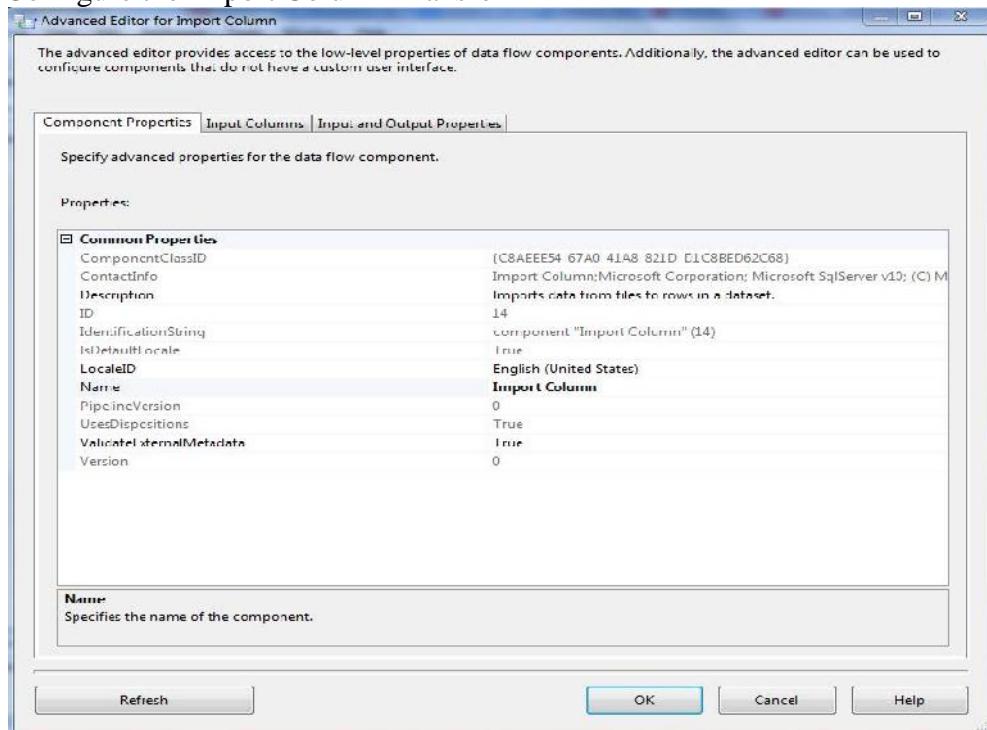
You can see the data present in the file in Column tab.



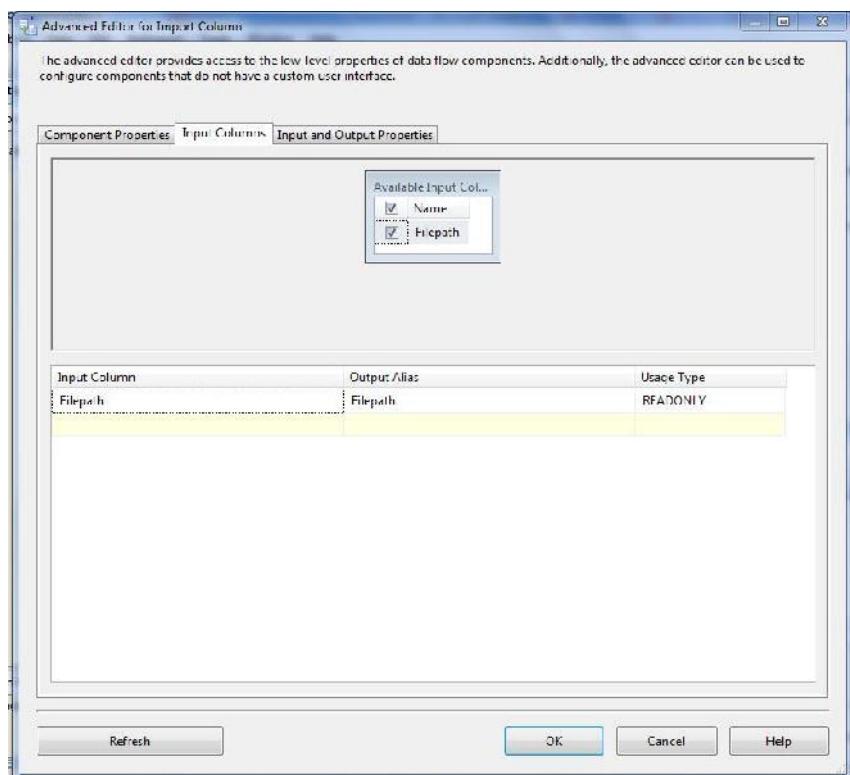
Step : 5 Now take the Import Column and connect it to the Flat file source.



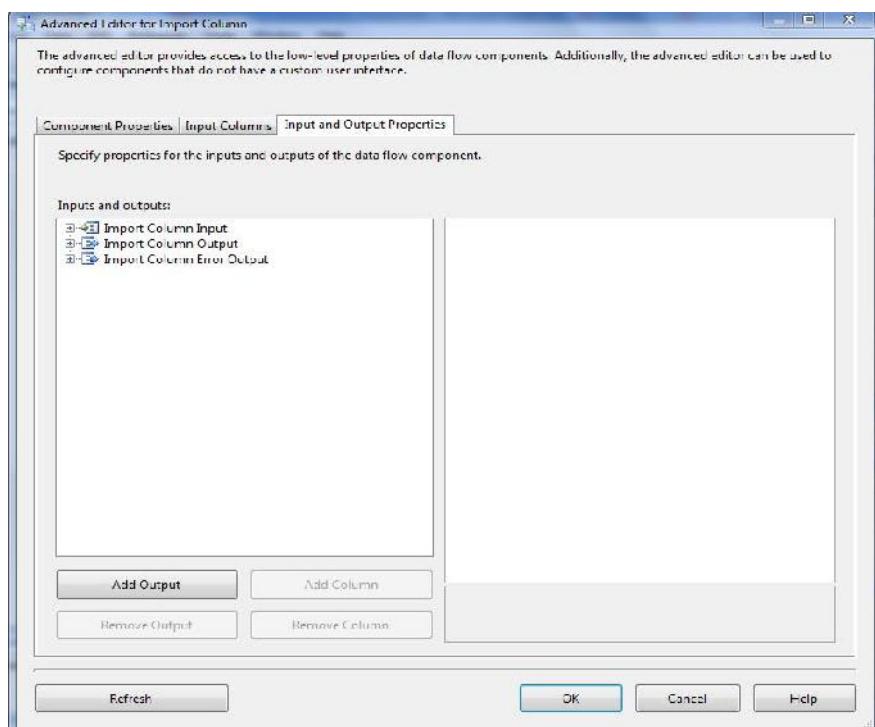
Configure the Import Column Transform



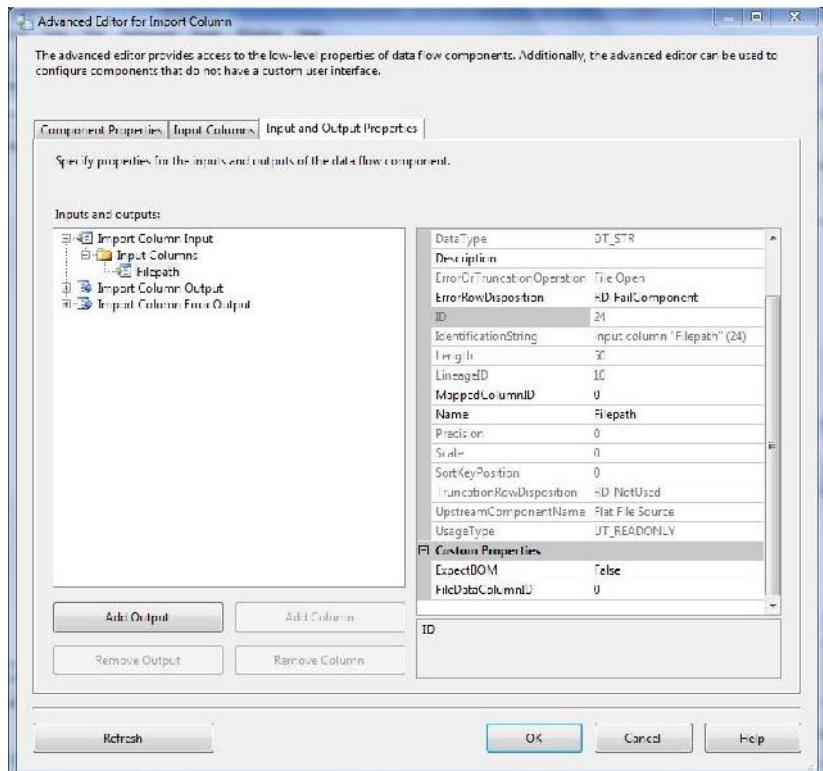
Step : 6 In the first page I mean Component Properties Tab you don't need to do anything ,select Input Column tab where you will see source available columns check the filepath column.



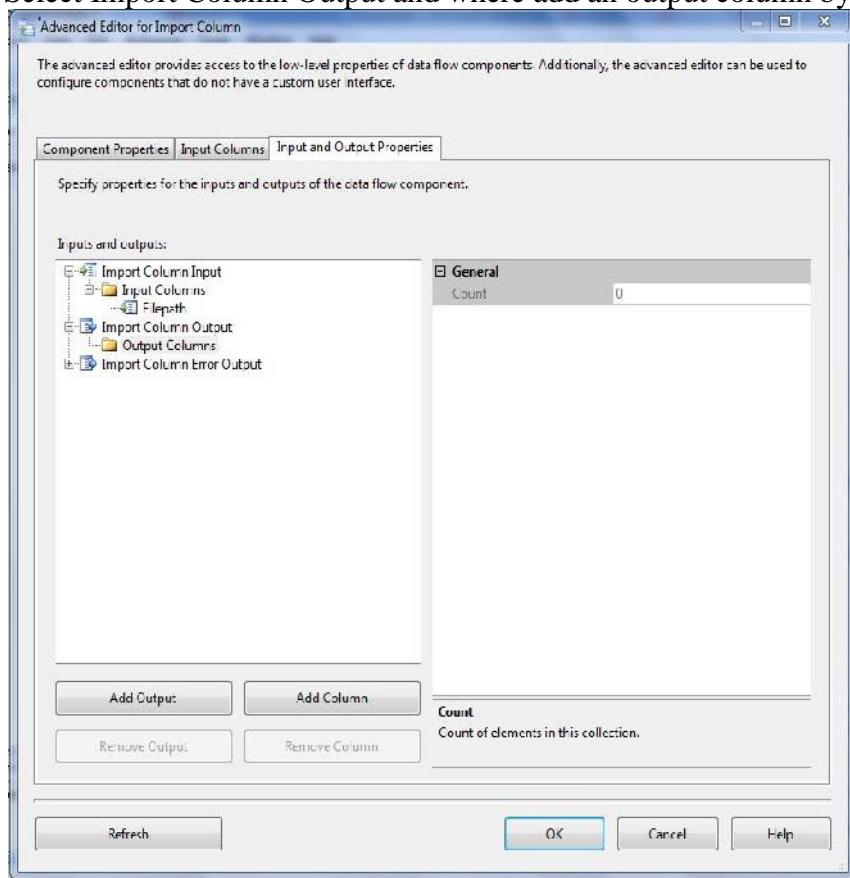
Now select Input and Output Properties Tab where you will see these three option.



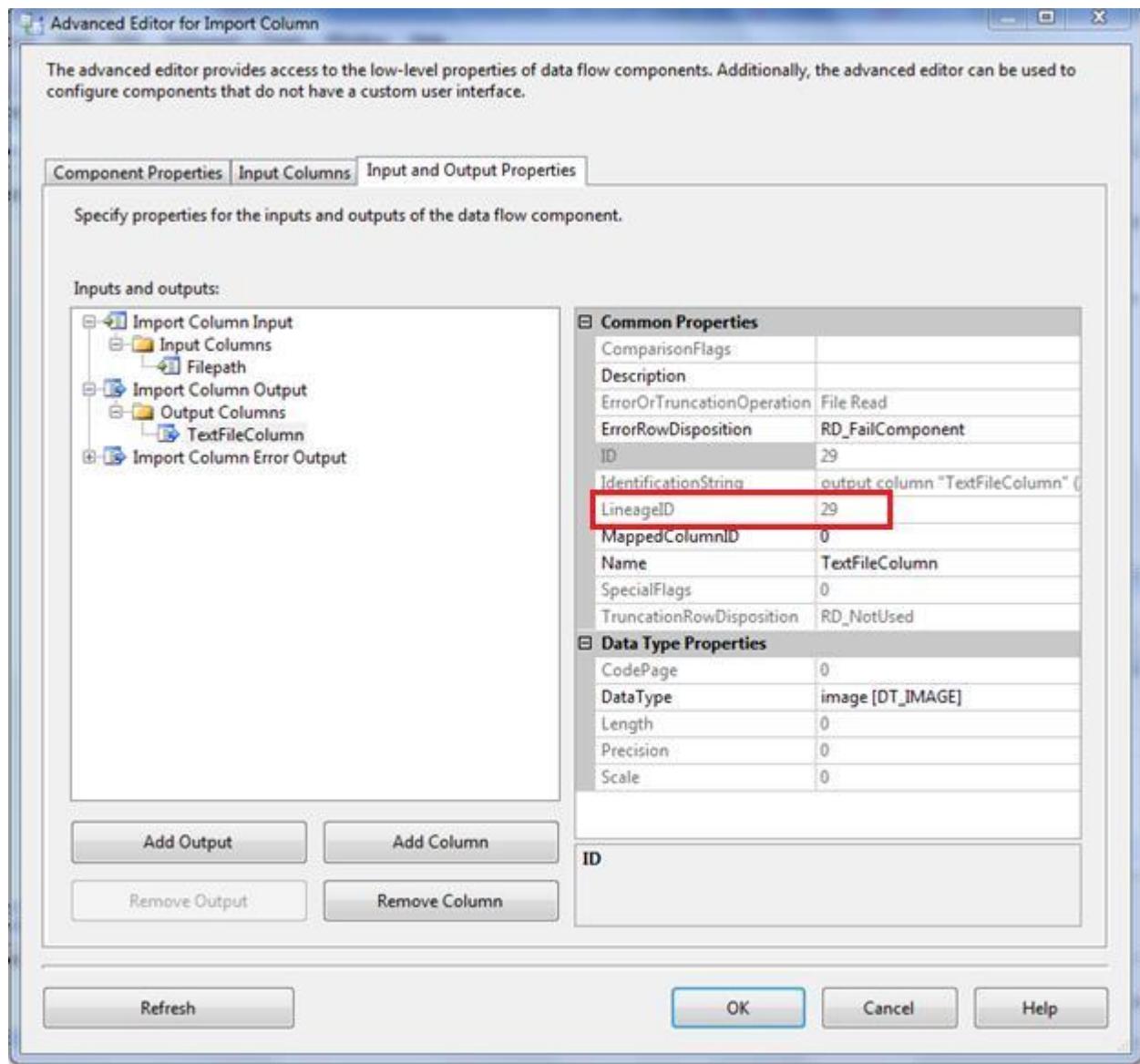
Import Column Input is already set to the selected source columns input.



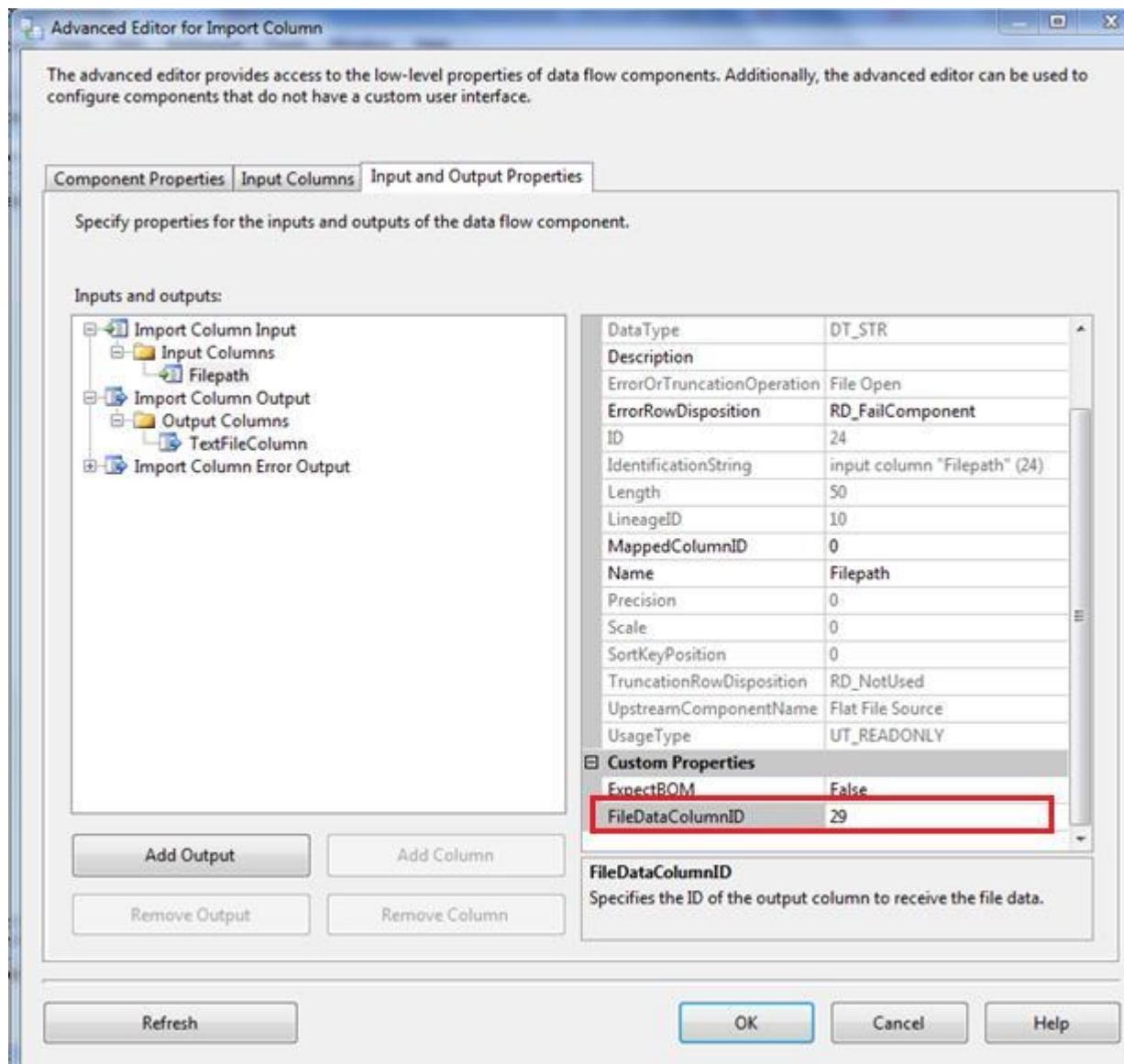
Select Import Column Output and where add an output column by clicking Add Column.



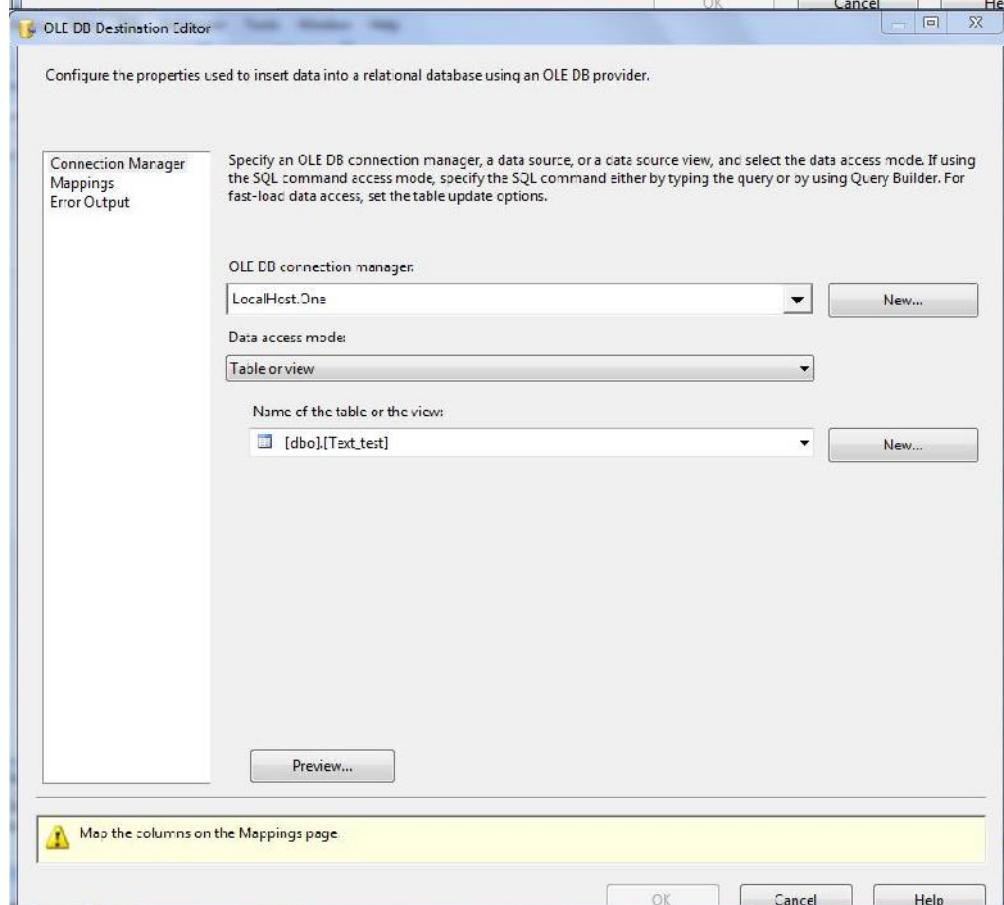
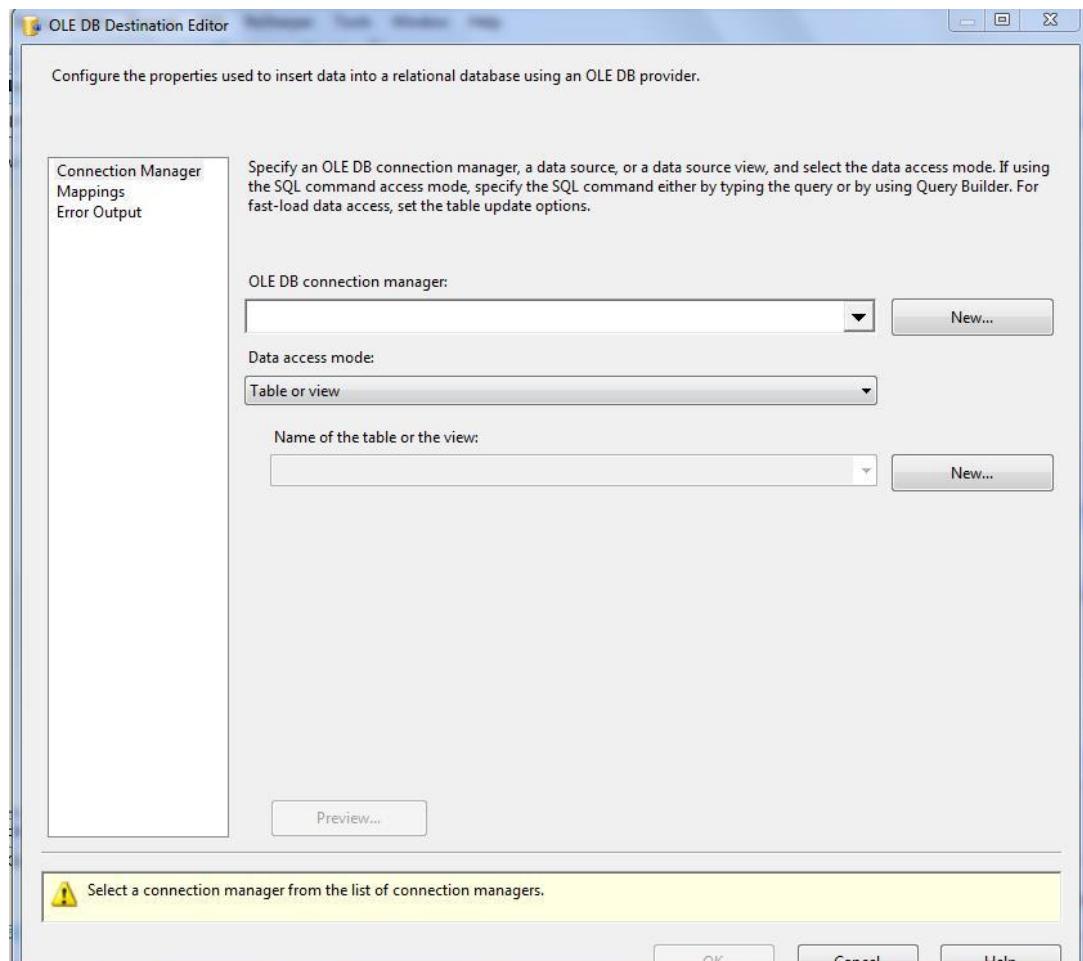
I created an output column with the name of TextFileColumn.



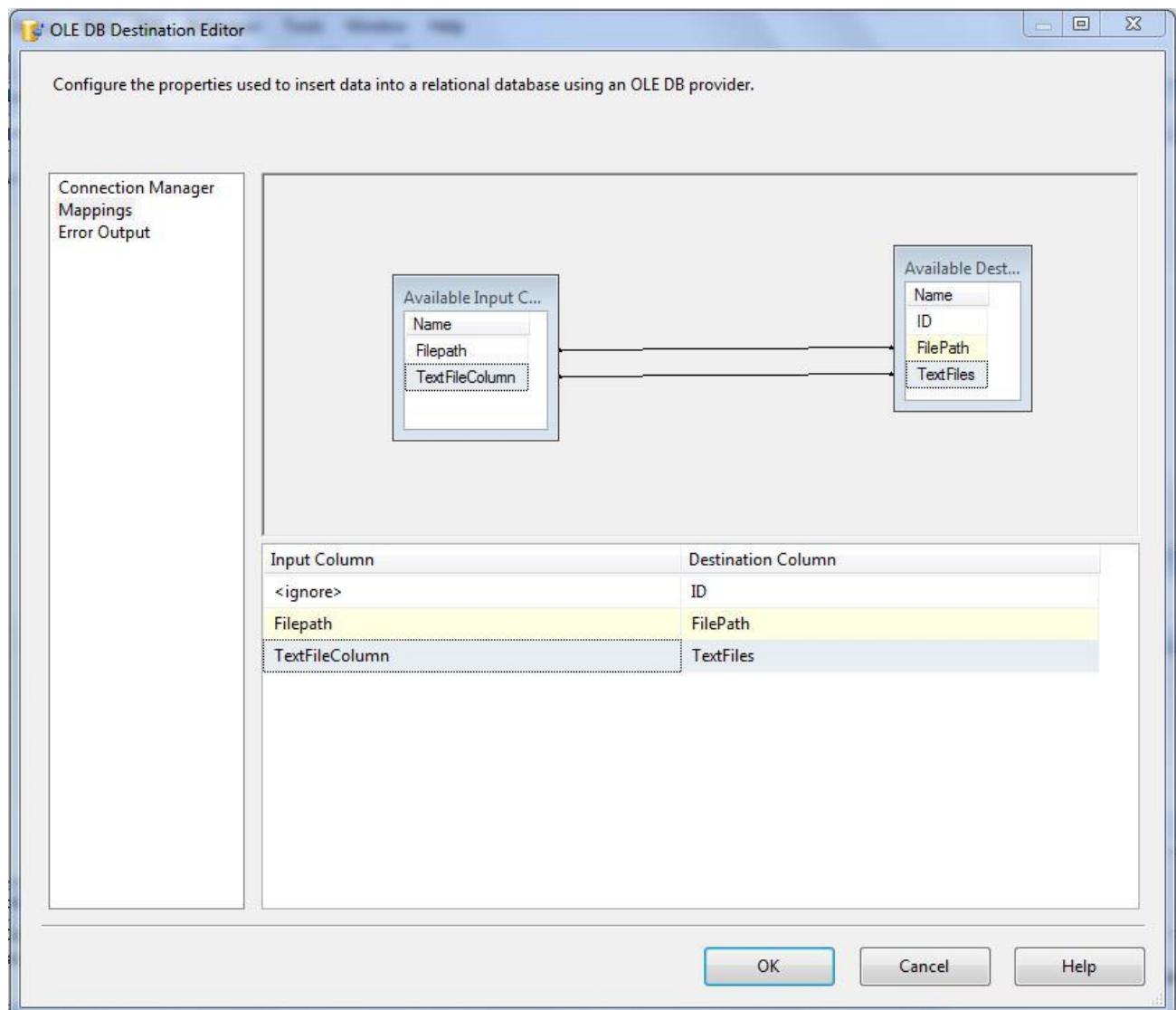
We have to do one important step here we have to put this LineageID 29 highlighted in above screenshot. Into the Import column Input's Filepath. Now press ok .



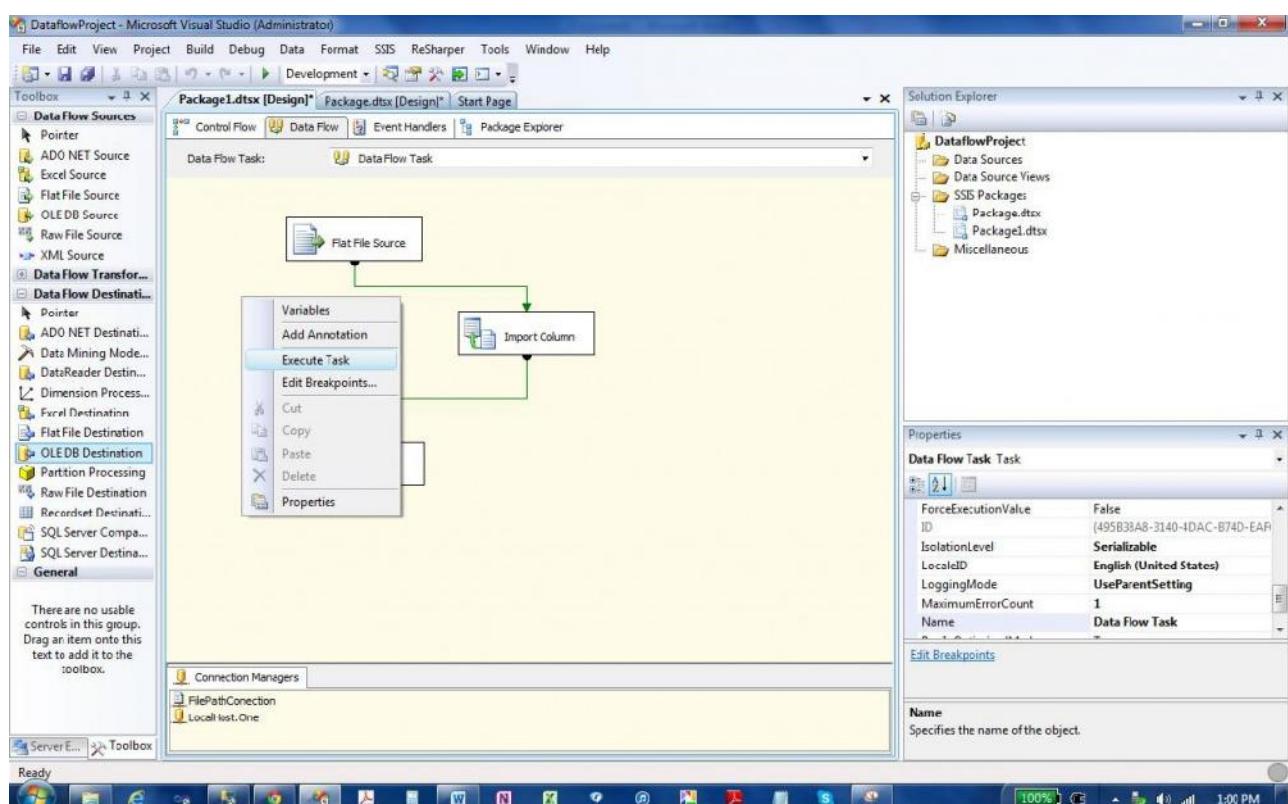
Step : 8 Now let's configure the OLE DB destination and set the connection to the database where you created a table called Text_test.

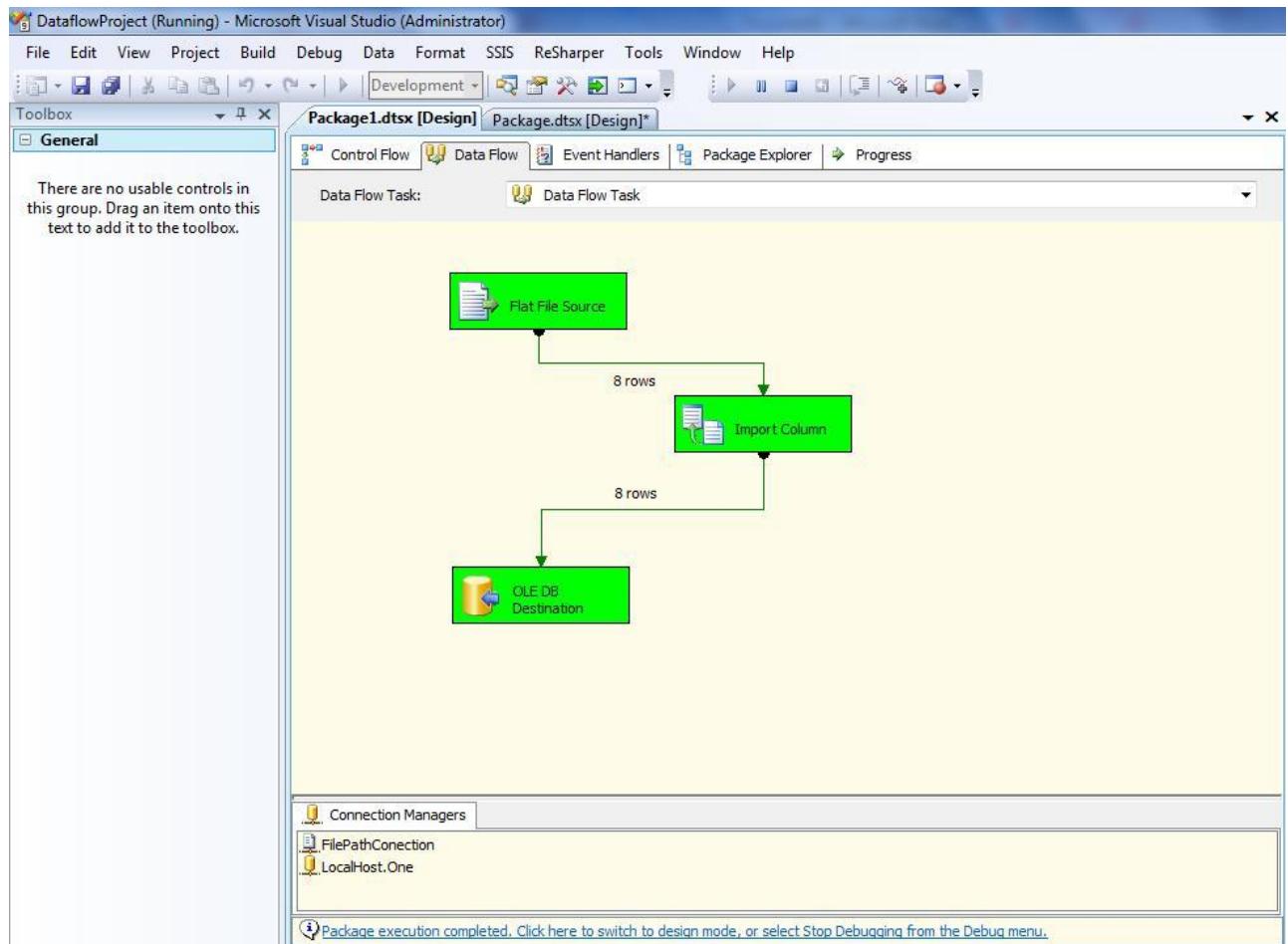


Now mapping tab map the import Column output to the table Text_test Column and press “OK”.



Now execute the task.



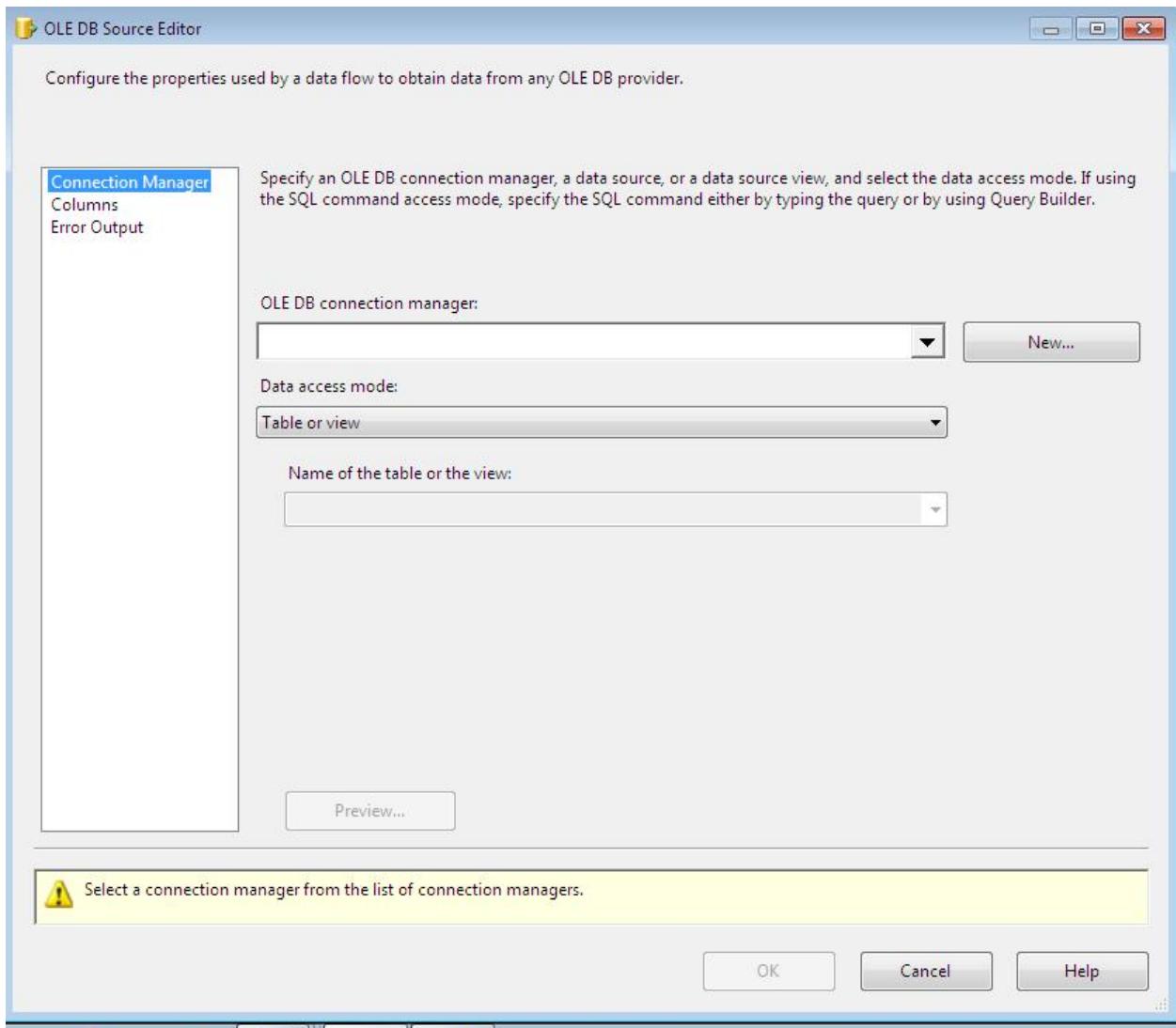


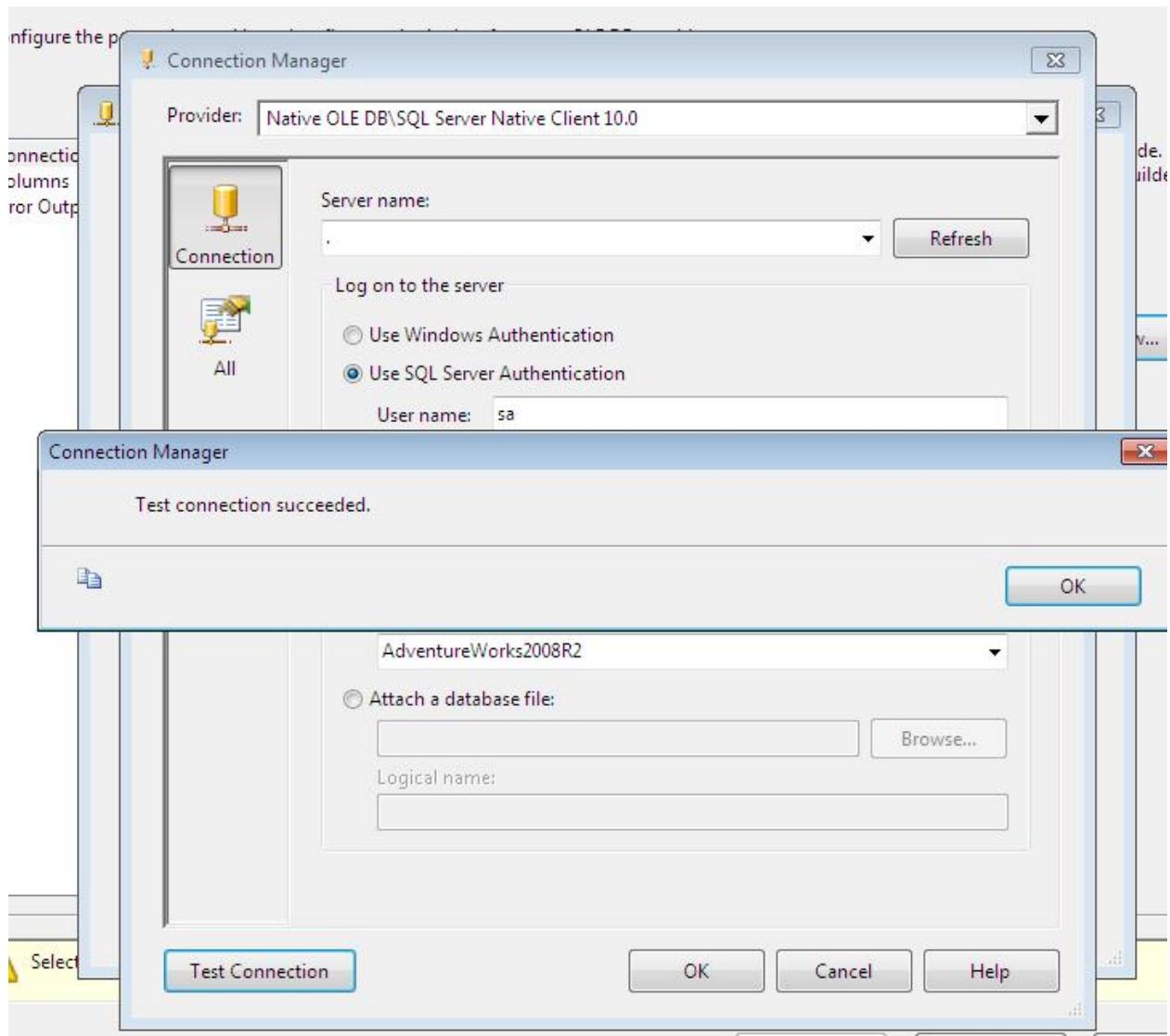
EXPORT COLUMN TRANSFORMATION

Step 1: Drag and drop Dataflow task in control flow. Double click on dataflow task.

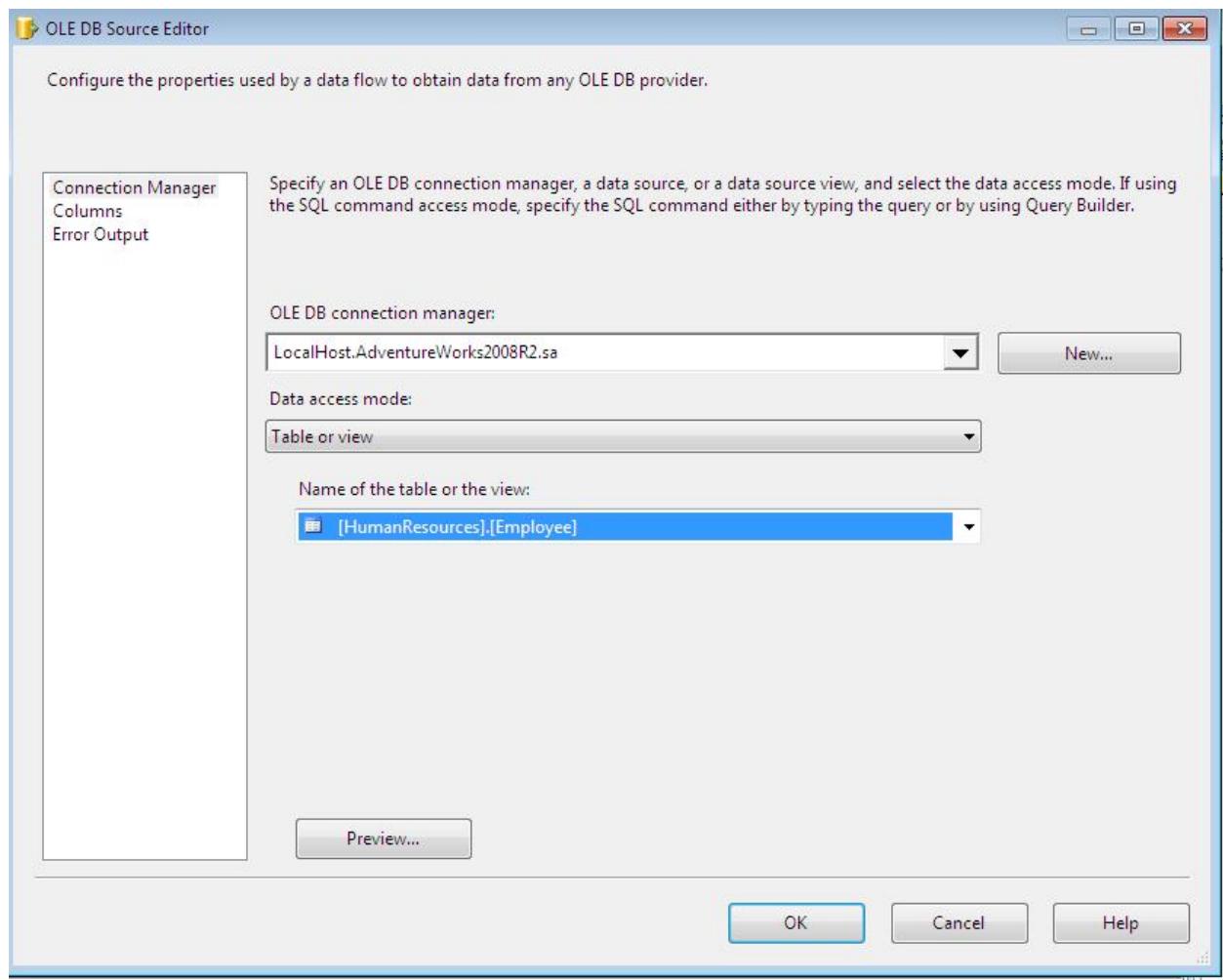
Step 2: Drag and drop the OLEDB Source and double click on it and configure it.

Click NEW→NEW→

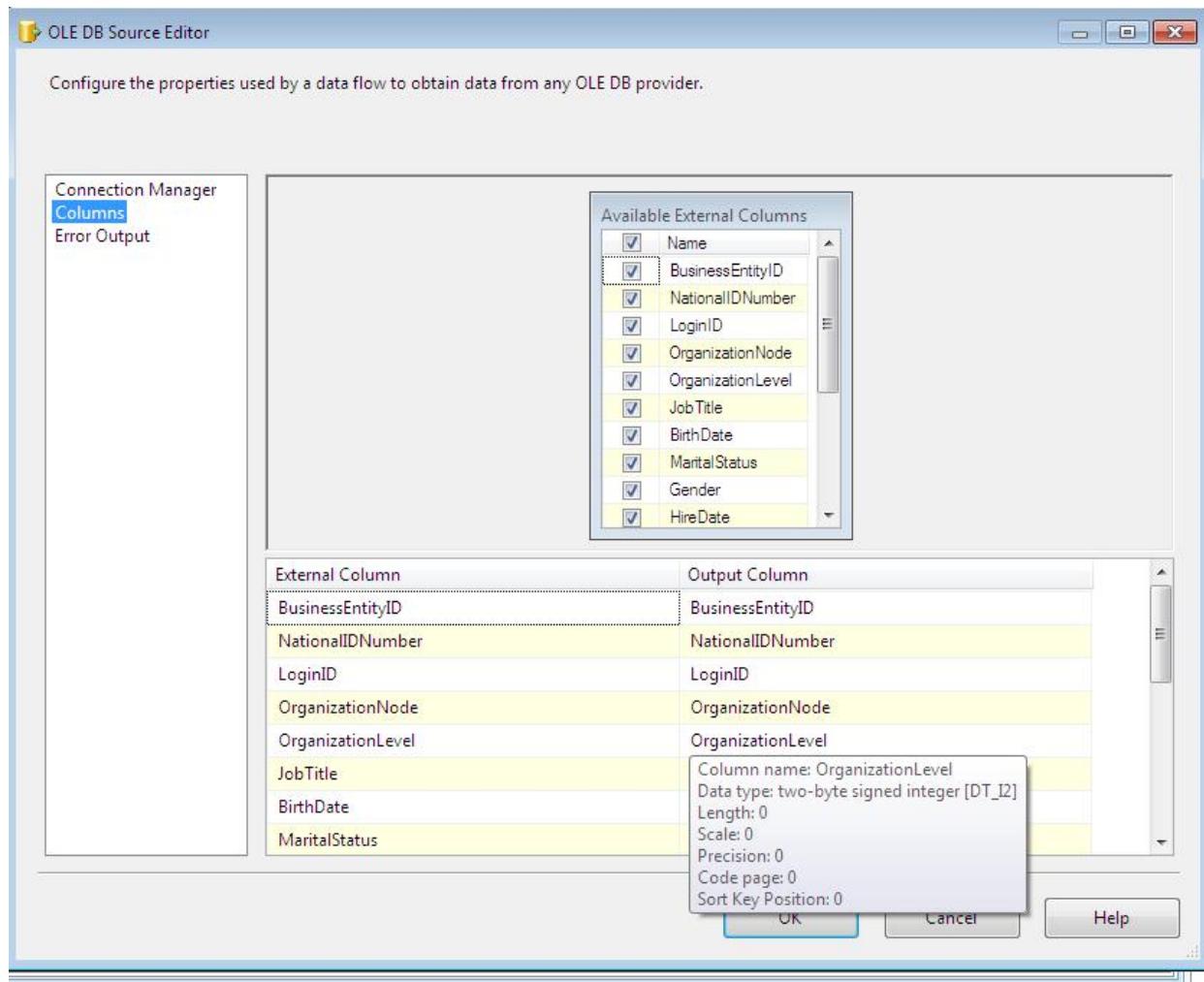




Then click "OK", "OK", "OK". And then select the table

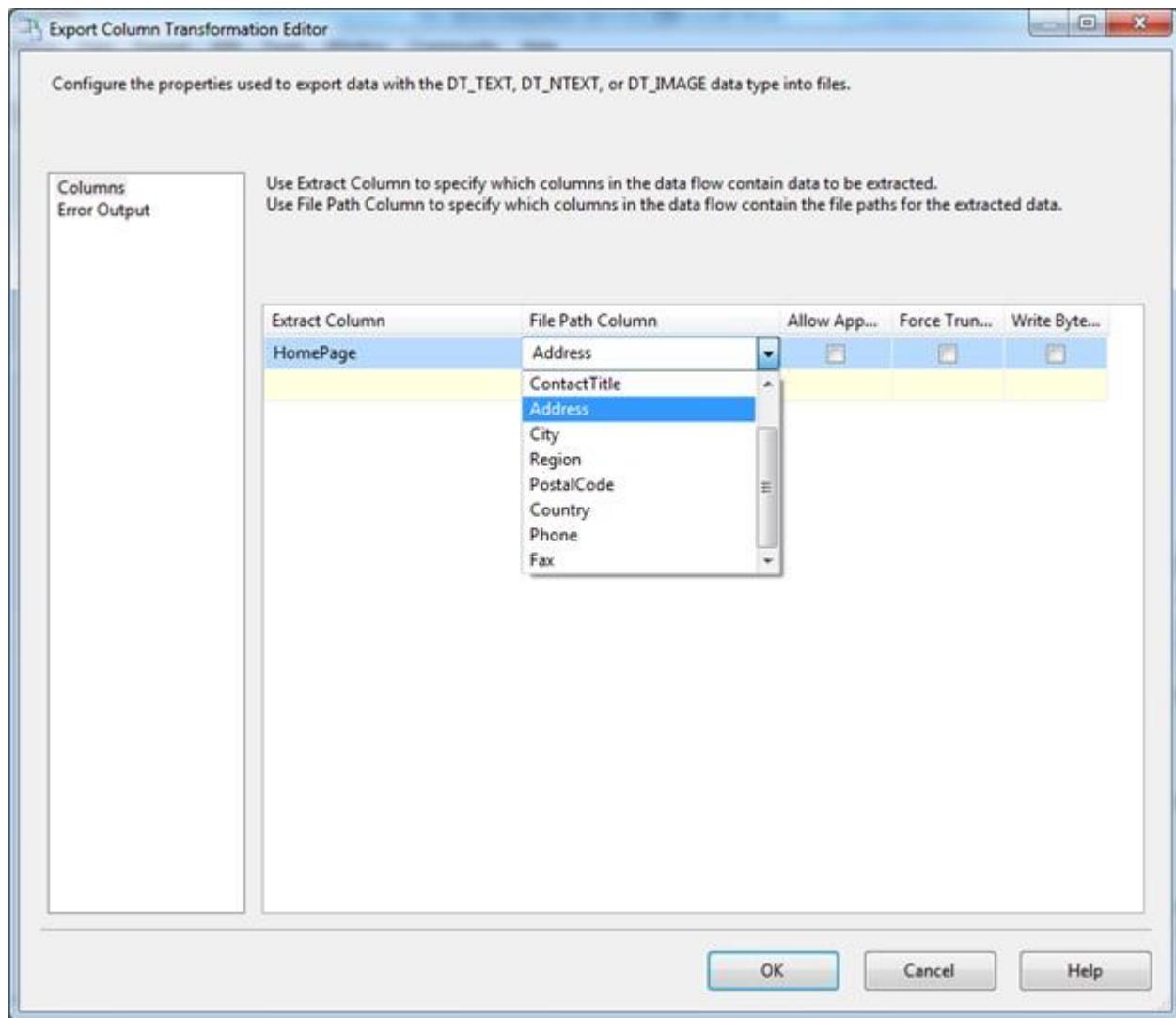


Then click the columns tab for the left panel and then click "OK"



Step : 3 Drag and drop the export column transformation and double click for editing.

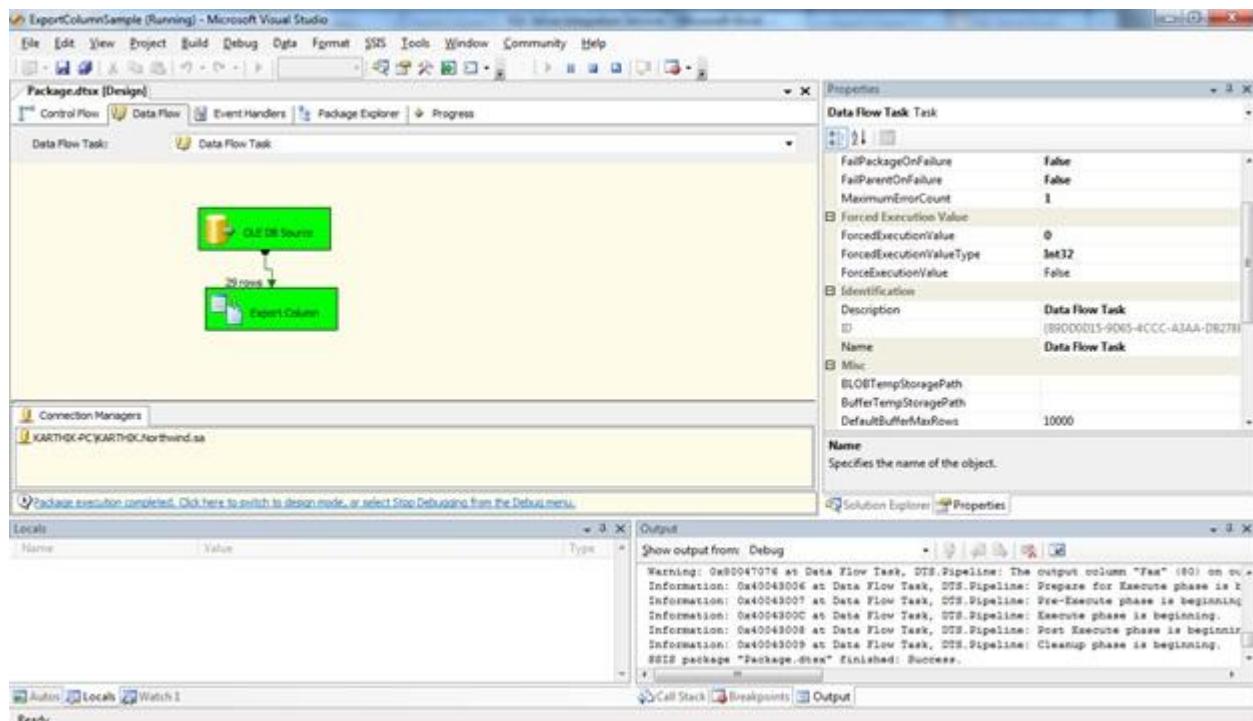
Now we need to configure the Export Column task, to configure double-click on the control; that will open the window as shown in the below screen.



Here we have option to select the column where the path to be places as. You can also find checkboxes at the right side.

- Allow Append Will create a new file and add the data to the end of an existing file
- Force Truncate Will overwrite the file if it already exists.

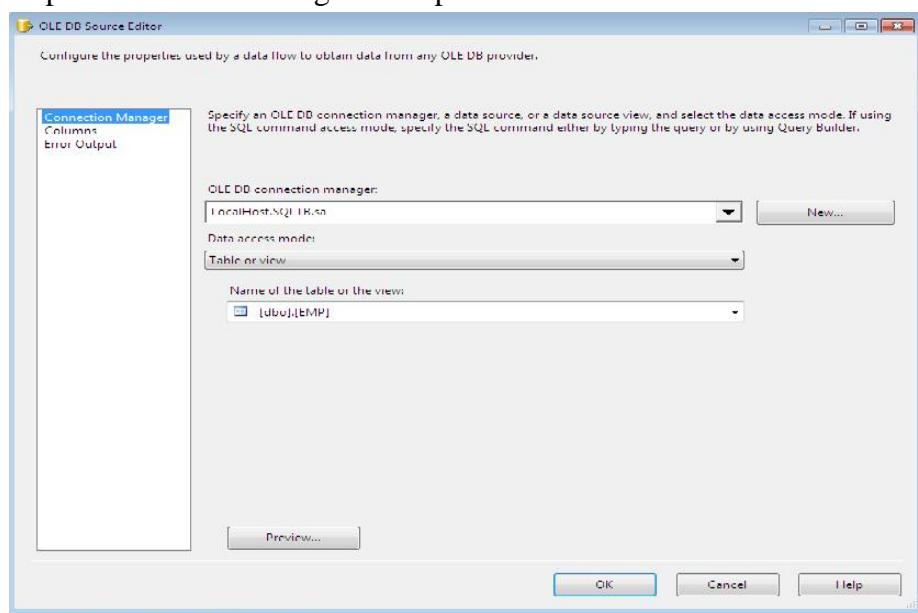
Now once the package creating is completed, press F5 to start the build and the execution of the package. Once the package is executed you can find the screen as shown in the below image



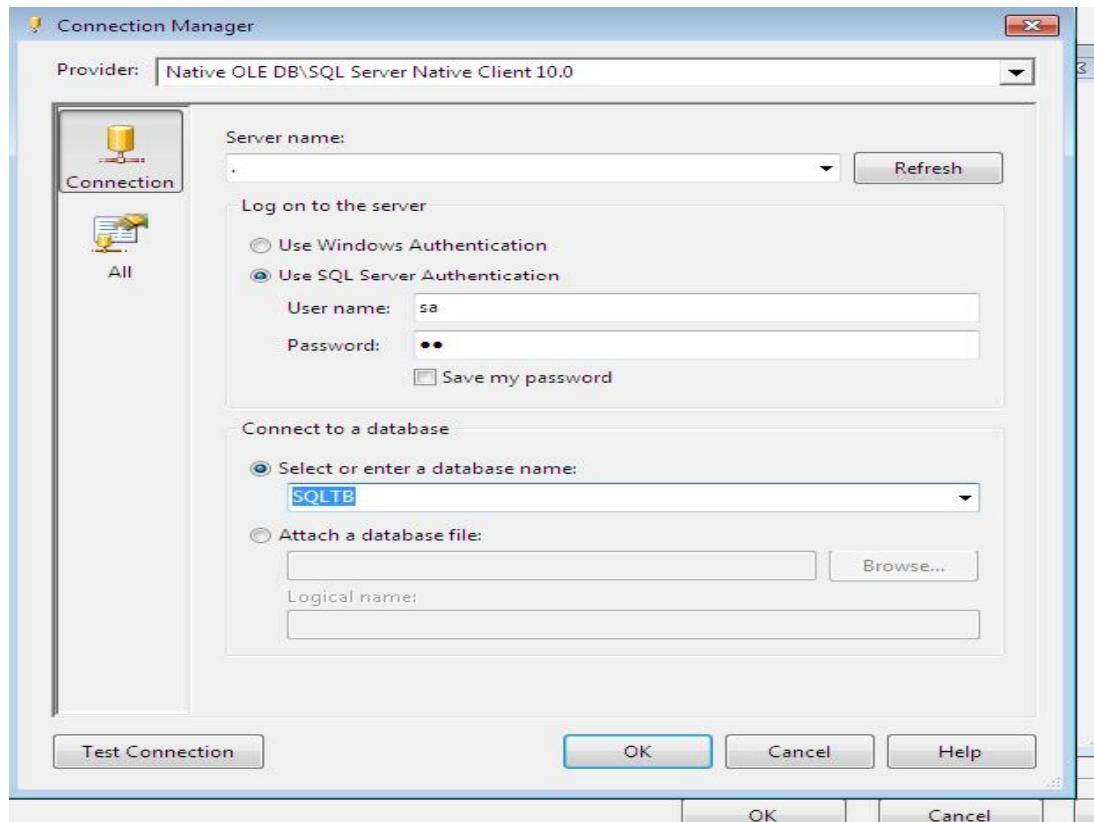
Merge Transformation:

The Merge transformation combines two sorted dataset into a single output based on the values in their key columns. This transformation requires that the inputs or sources are sorted and then merged columns must have the same data type.

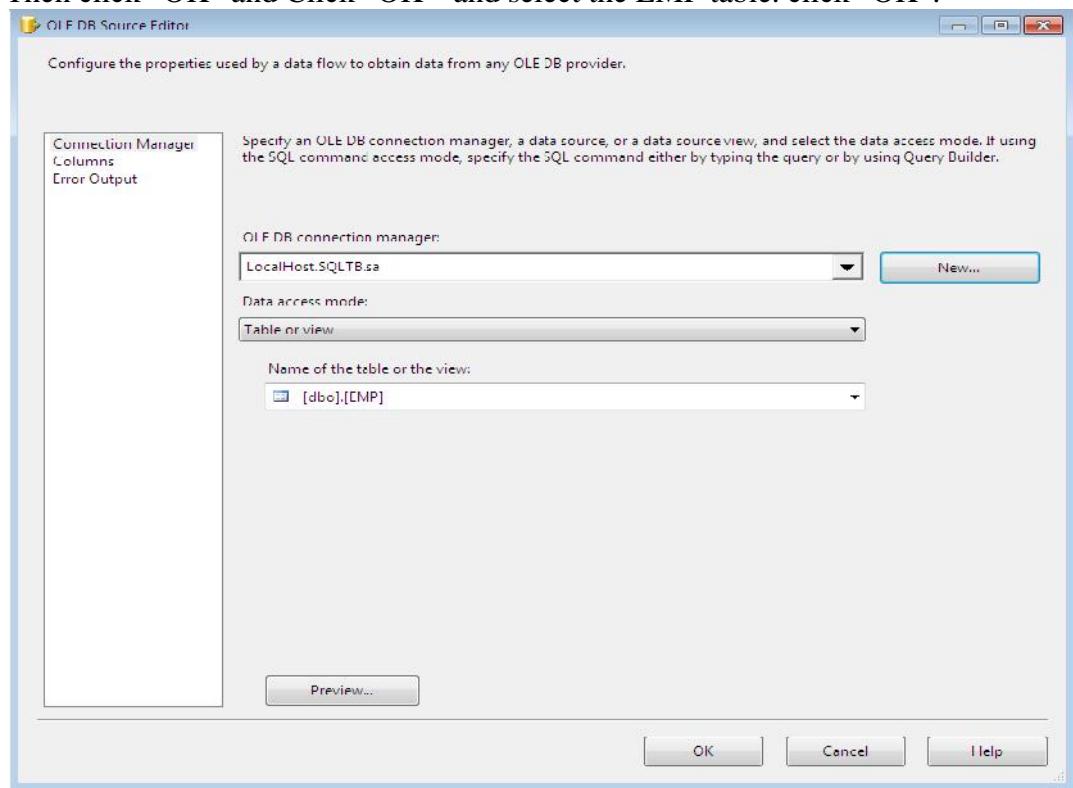
Step: 1 In control flow drag and drop the Data flow task and rename it as Dataflow task merge.
 Step : 2 In data flow drag and drop the OLEDB source1. And double click on it and configure it



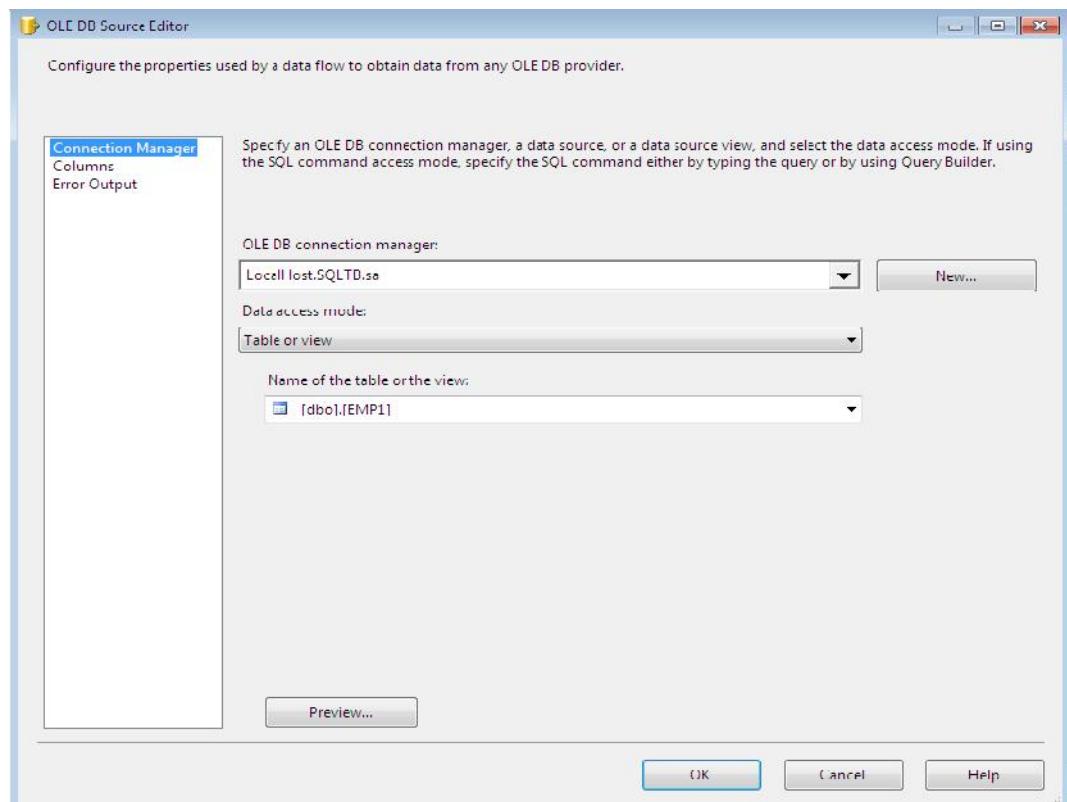
Click Next→Next→ and give the connection



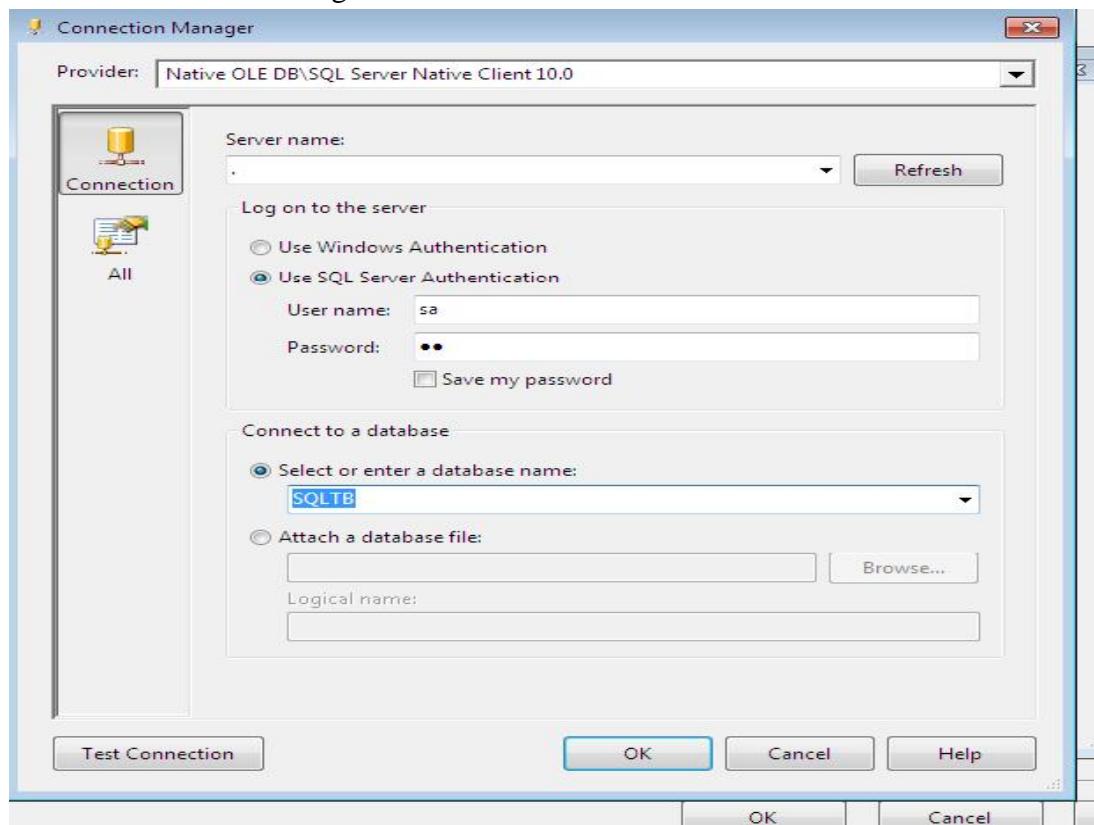
Then click “OK” and Click “OK” and select the EMP table. click “OK”.



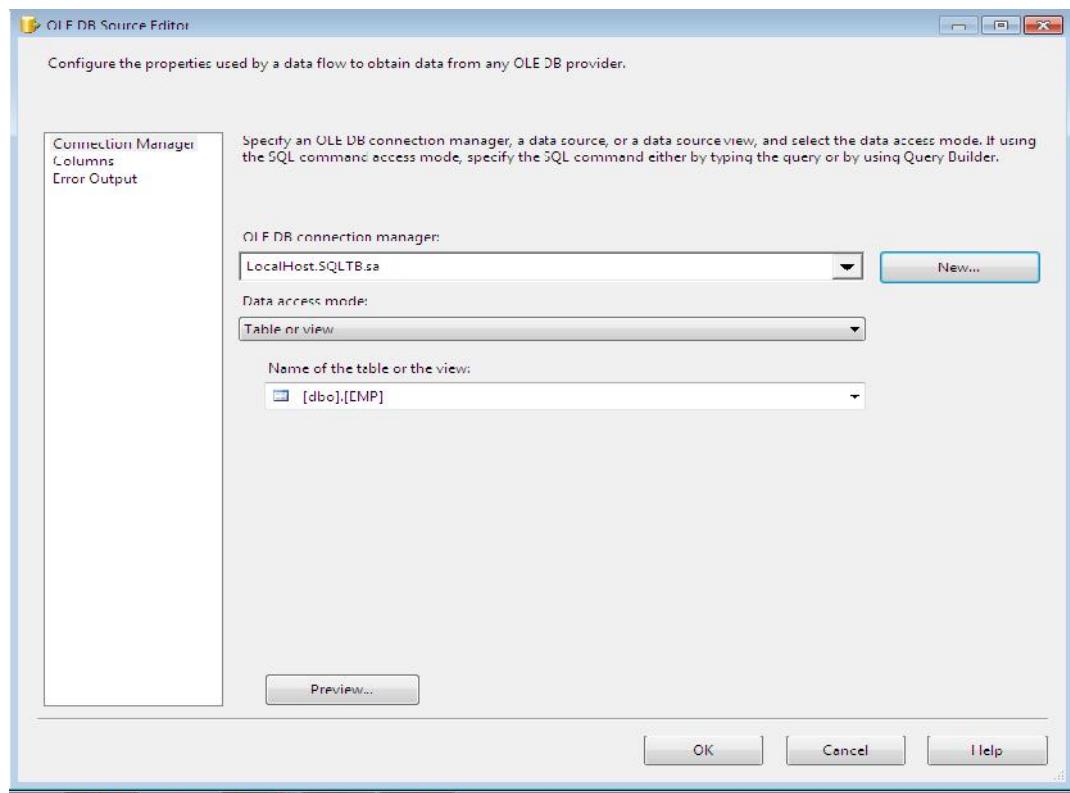
Step : 3 In data flow drag and drop the OLEDB source2. And double click on it and configure it



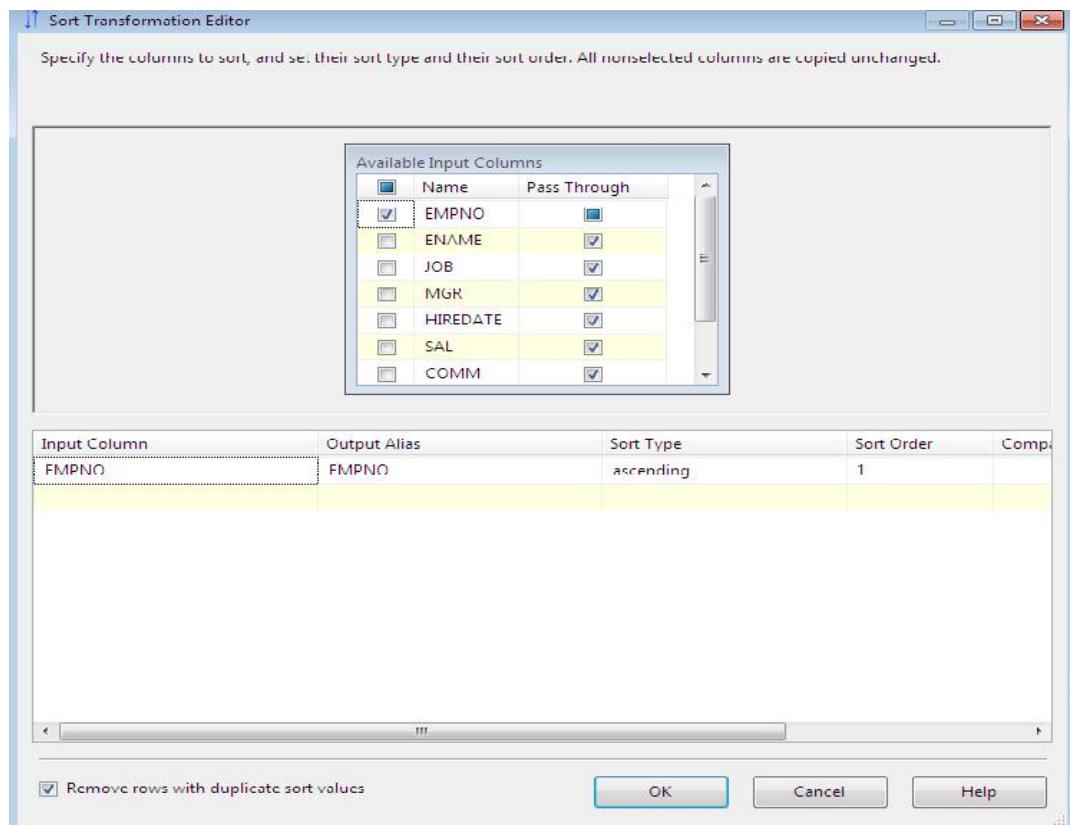
Click Next→Next→ and give the connection



Then click “OK” and Click “OK” and select the EMP table. click “OK”.

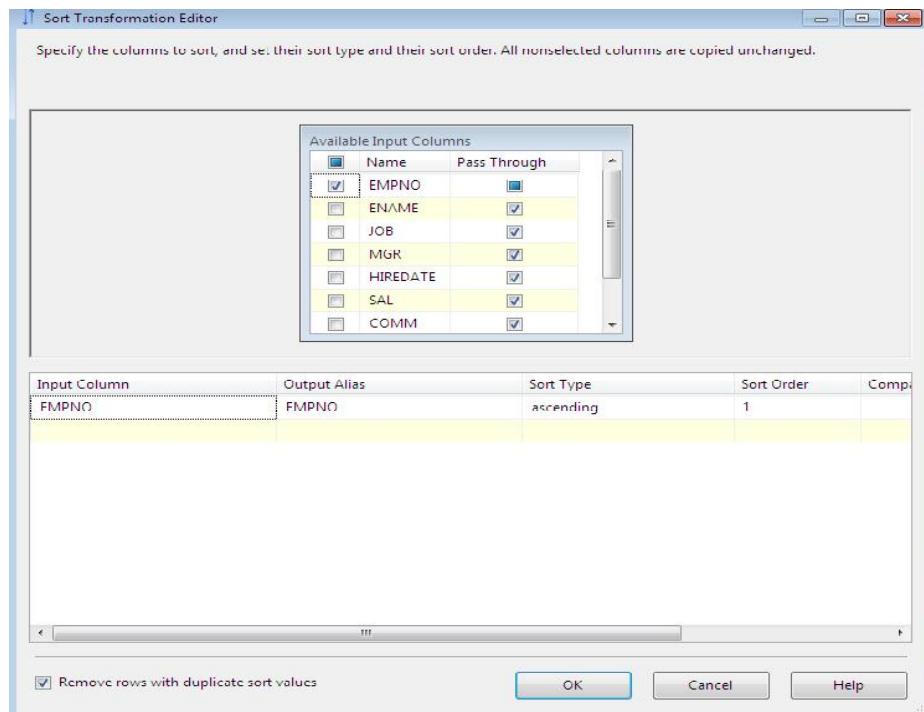


Step: 3 Drag and drop the Sort transformation and configure in the following way.



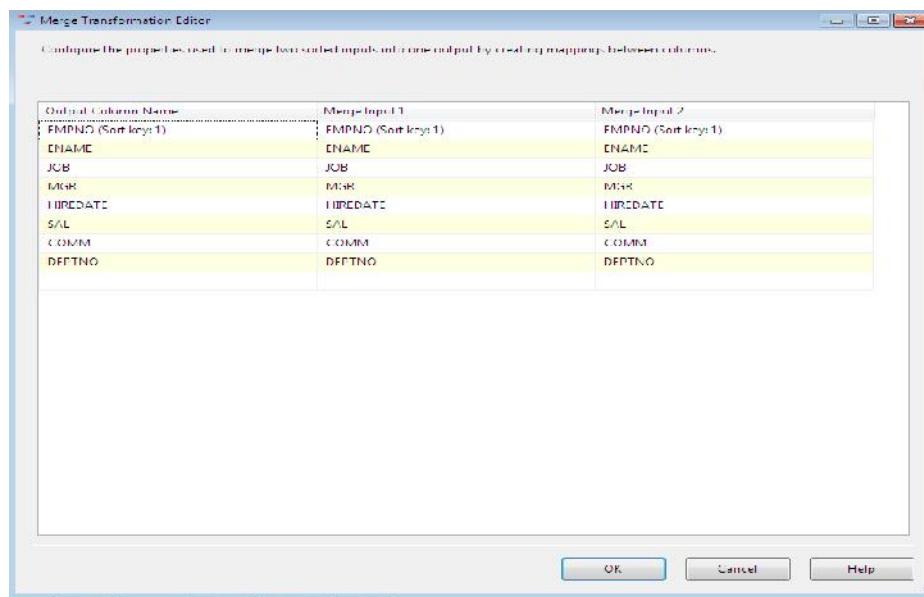
Select the “remove rows with duplicate sort values” and arrange the values.

Step: 4 Drag and drop the Sort transformation and configure in the following way.

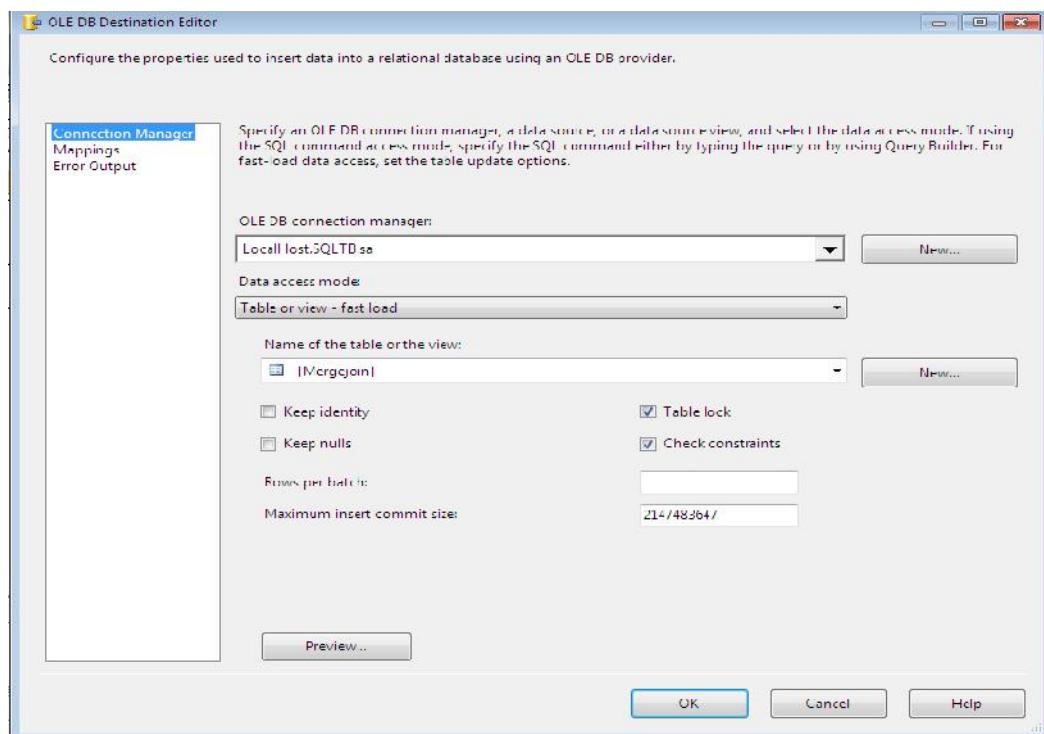


Select the “remove rows with duplicate sort values” and arrange the values.

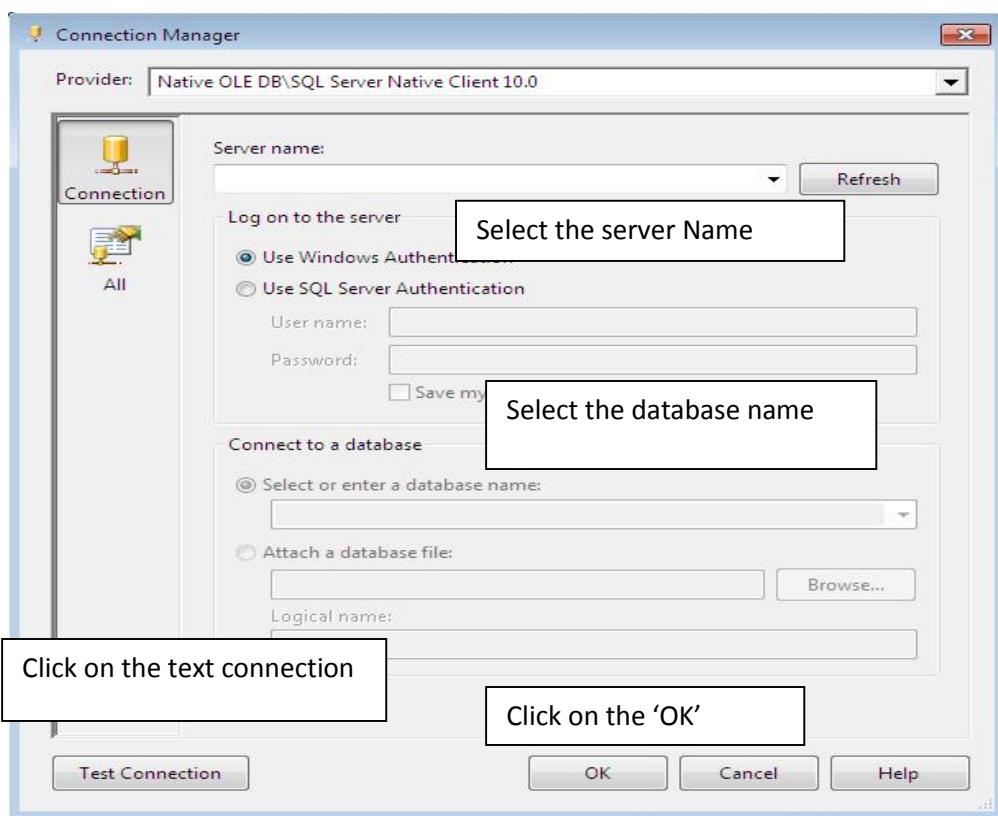
Step : 6 Drag and drop the “Merge Transformation” and configure it.



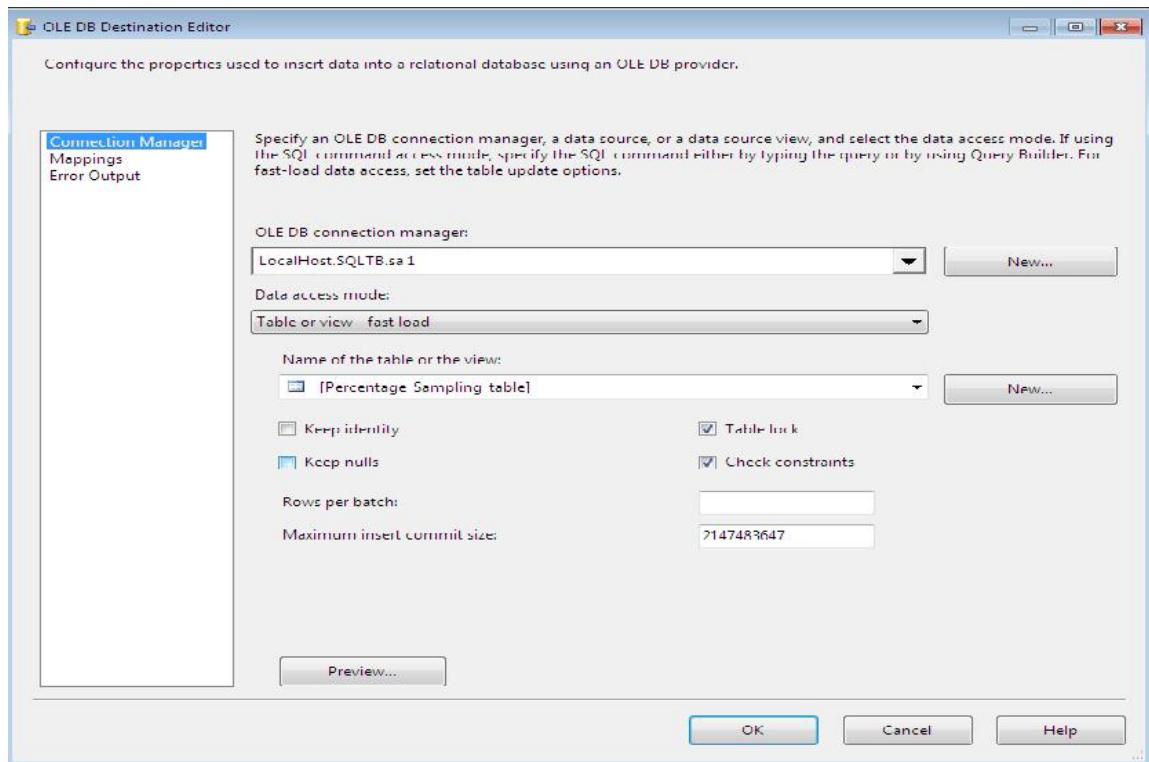
Step: 7 Drag and drop the OLEDB Destination and configure



Click NEW→NEW→



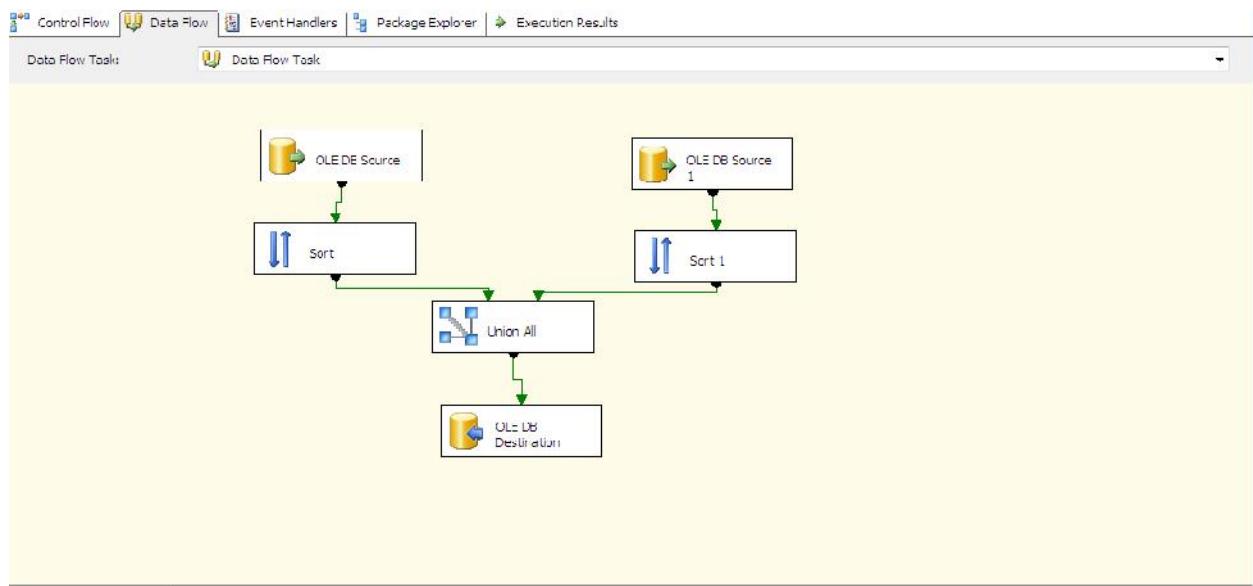
Select the destination table name as Mergejoin table.



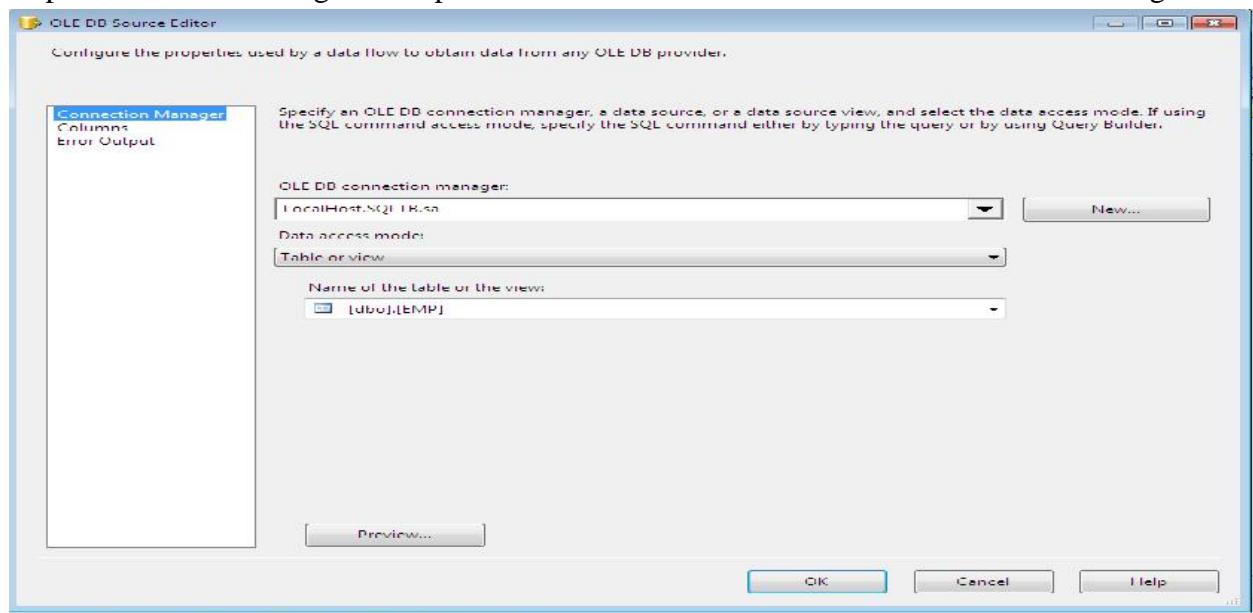
UNION ALL TRANSFORMATION:

It combines multiple inputs into a single output. It differs from the merge and merge join transformation because union all does not require sorted input. However the first input is the reference input that all subsequent input must match the following criteria.

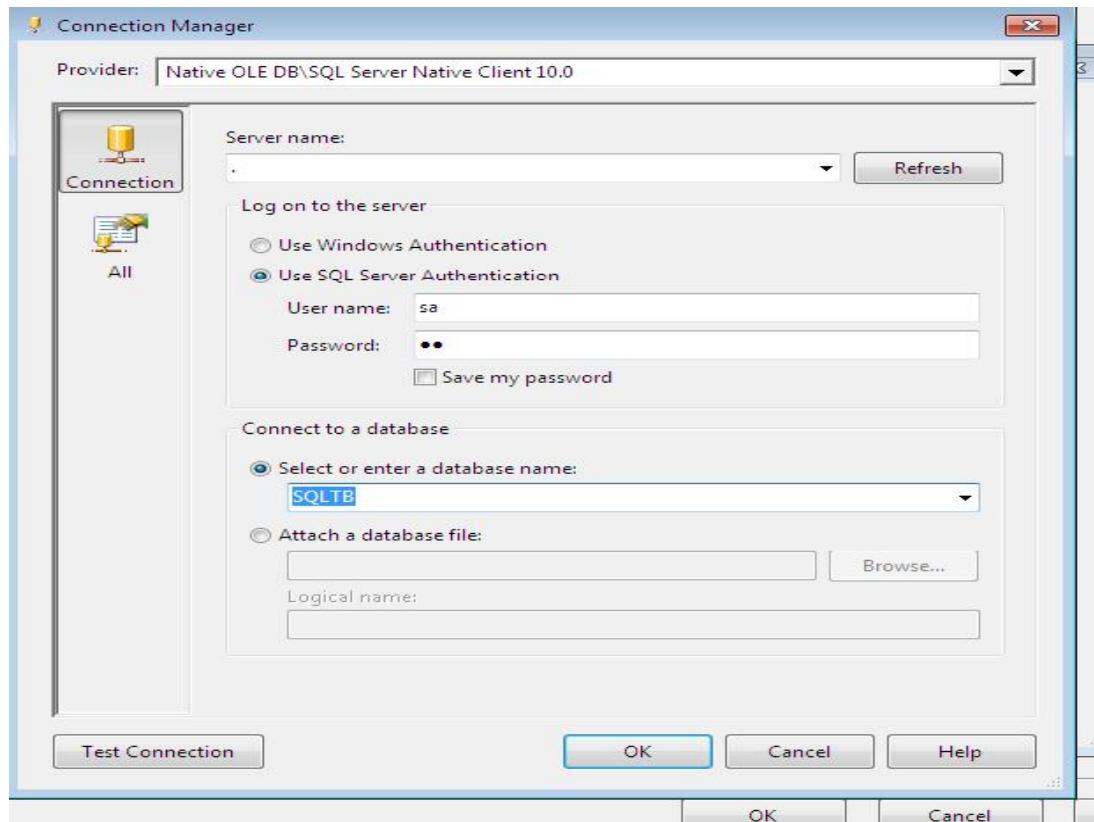
1. No. Of columns
2. Data type
3. Length
4. Precision



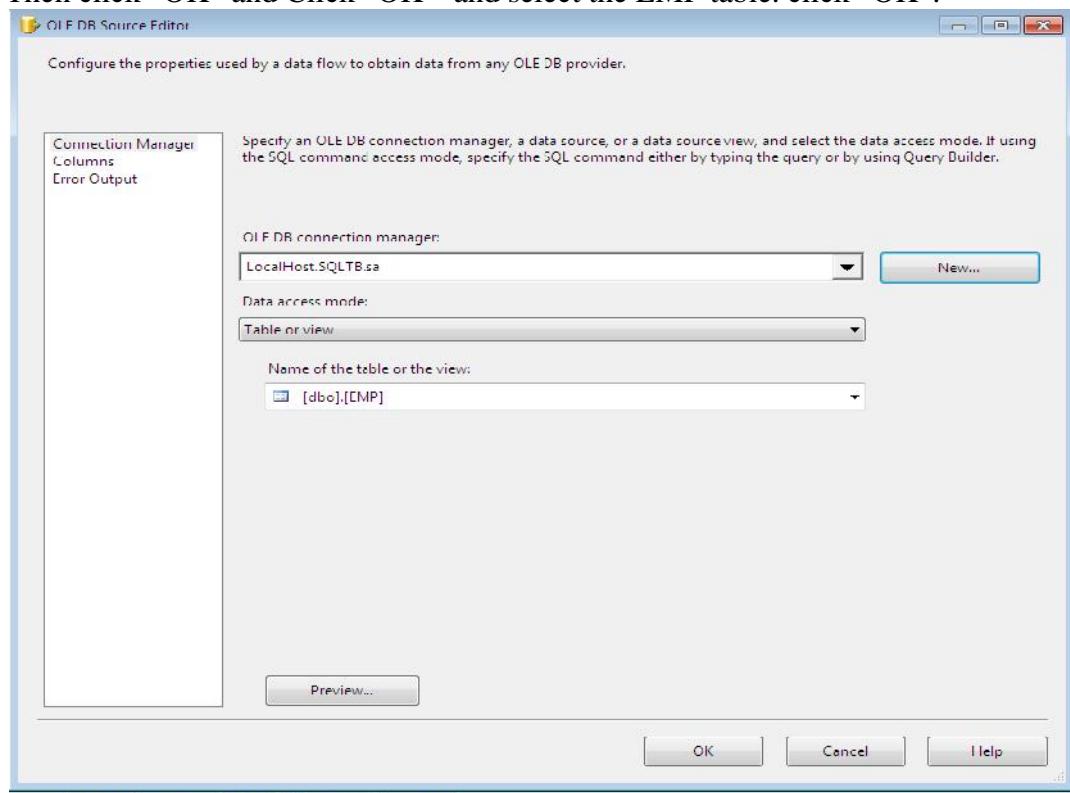
Step: 1 In control flow drag and drop the Data flow task and rename it as Dataflow task merge.
 Step : 2 In data flow drag and drop the OLEDB source1. And double click on it and configure it



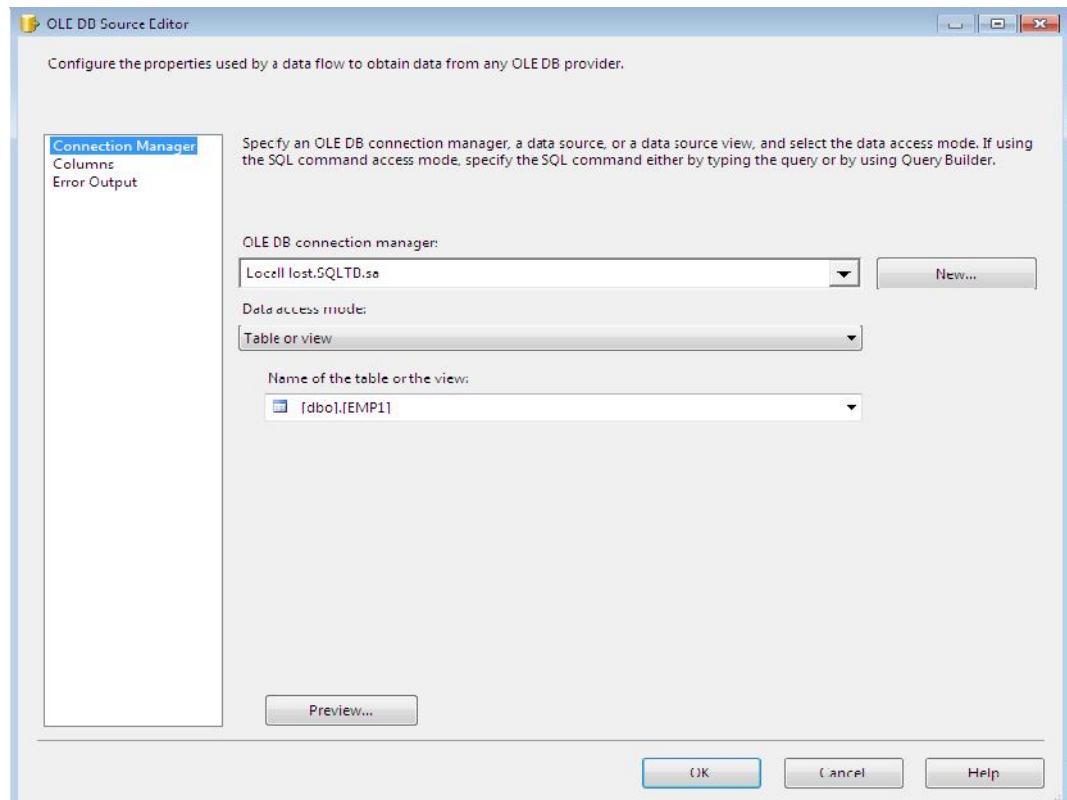
Click Next→Next→ and give the connection



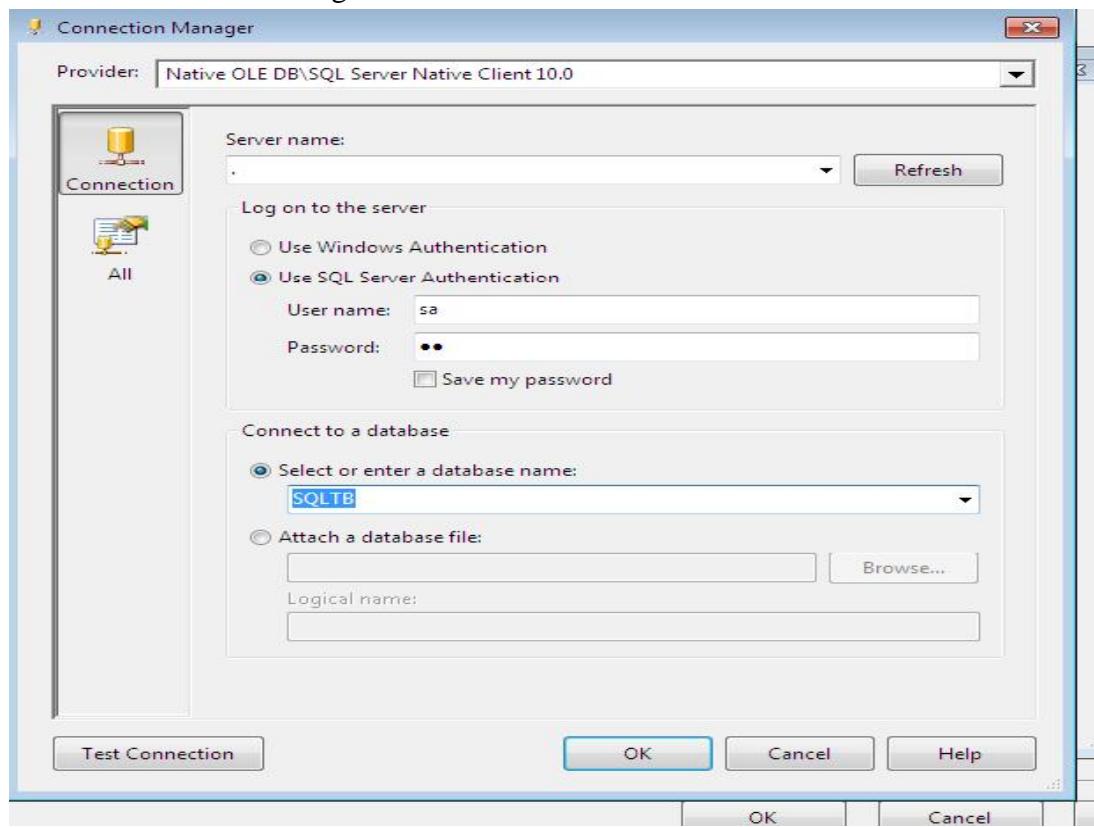
Then click “OK” and Click “OK” and select the EMP table. click “OK”.



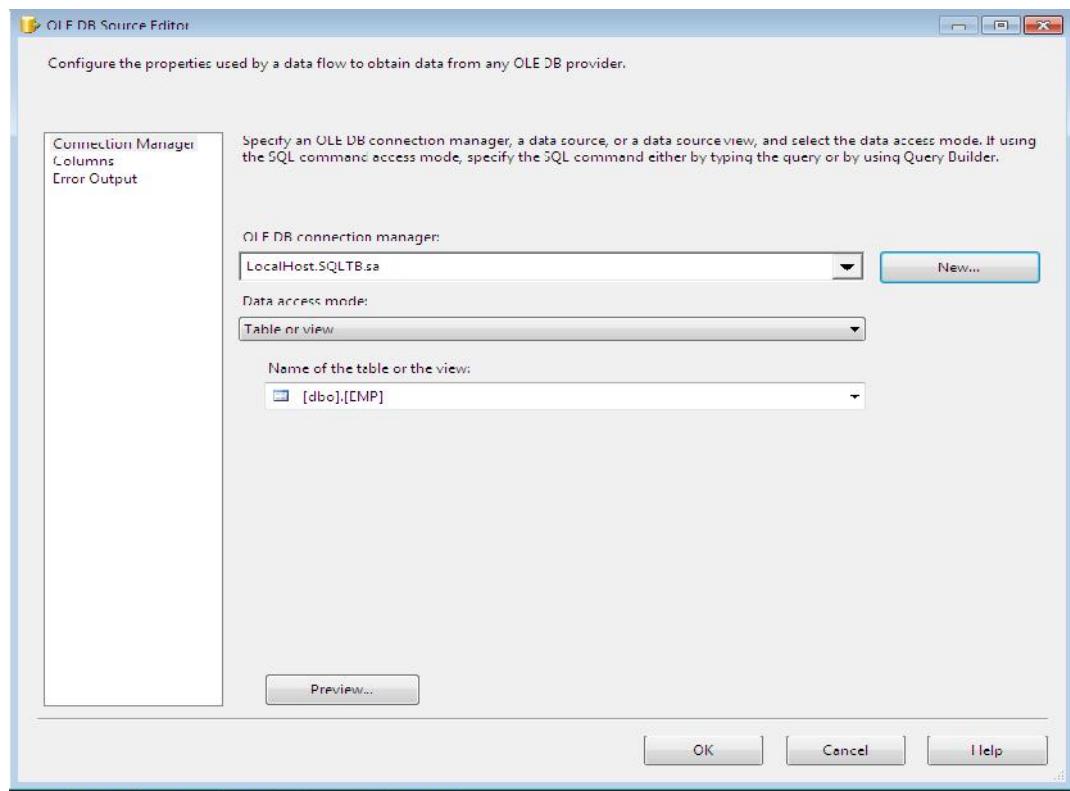
Step : 3 In data flow drag and drop the OLEDB source2. And double click on it and configure it



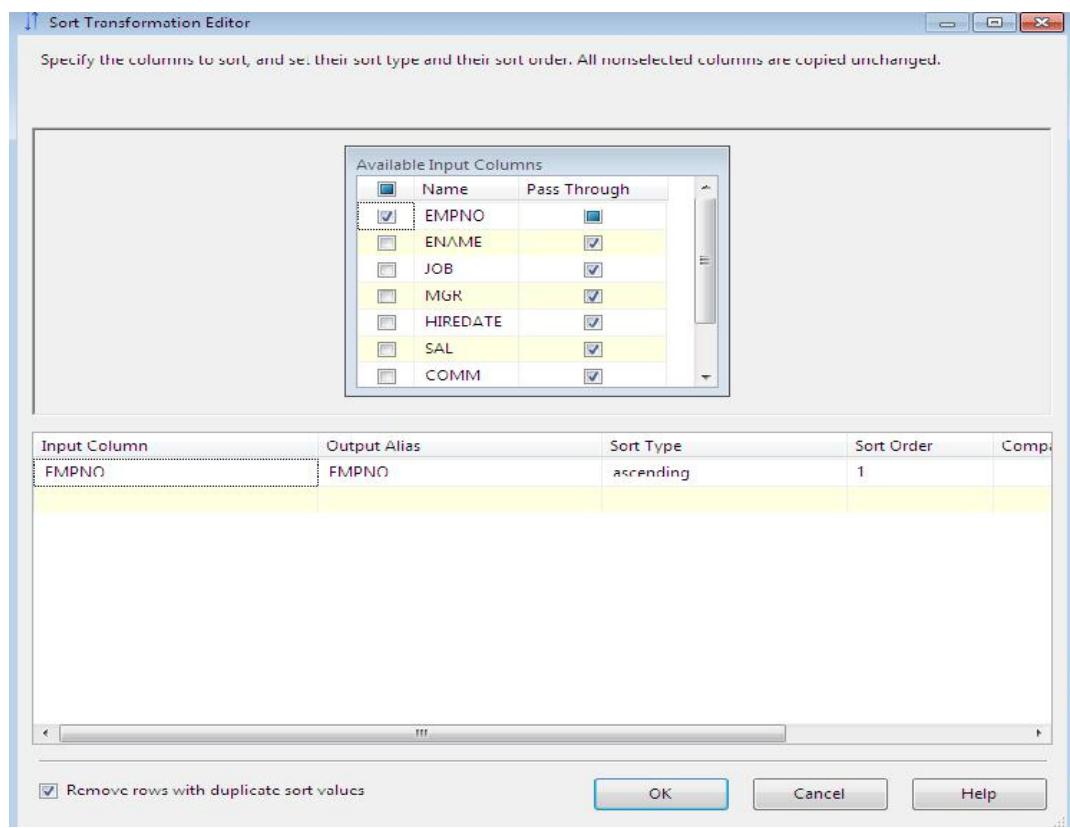
Click Next→Next→ and give the connection



Then click “OK” and Click “OK” and select the EMP table. click “OK”.

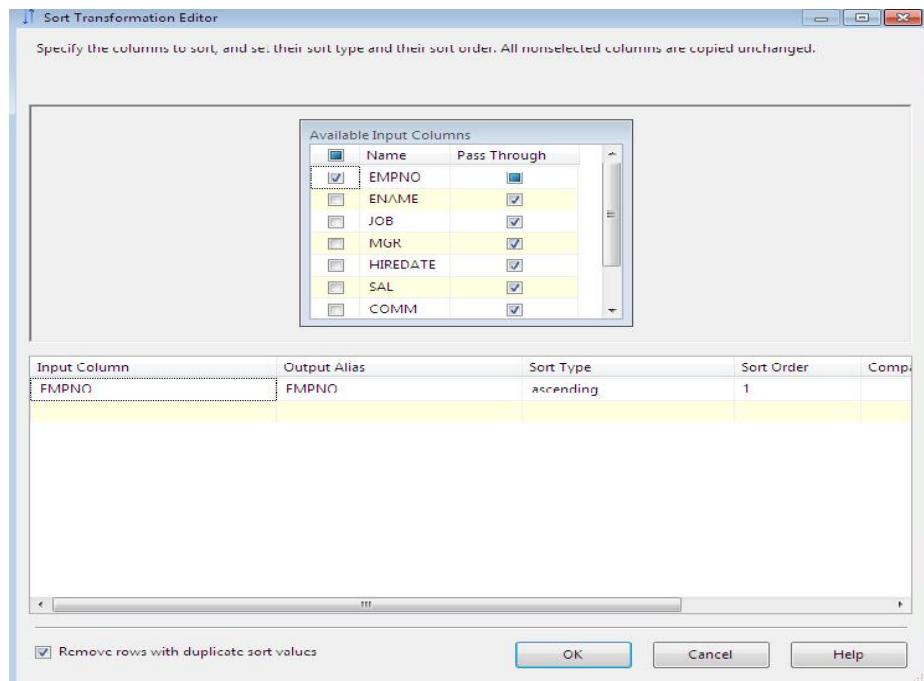


Step: 3 Drag and drop the Sort transformation and configure in the following way.



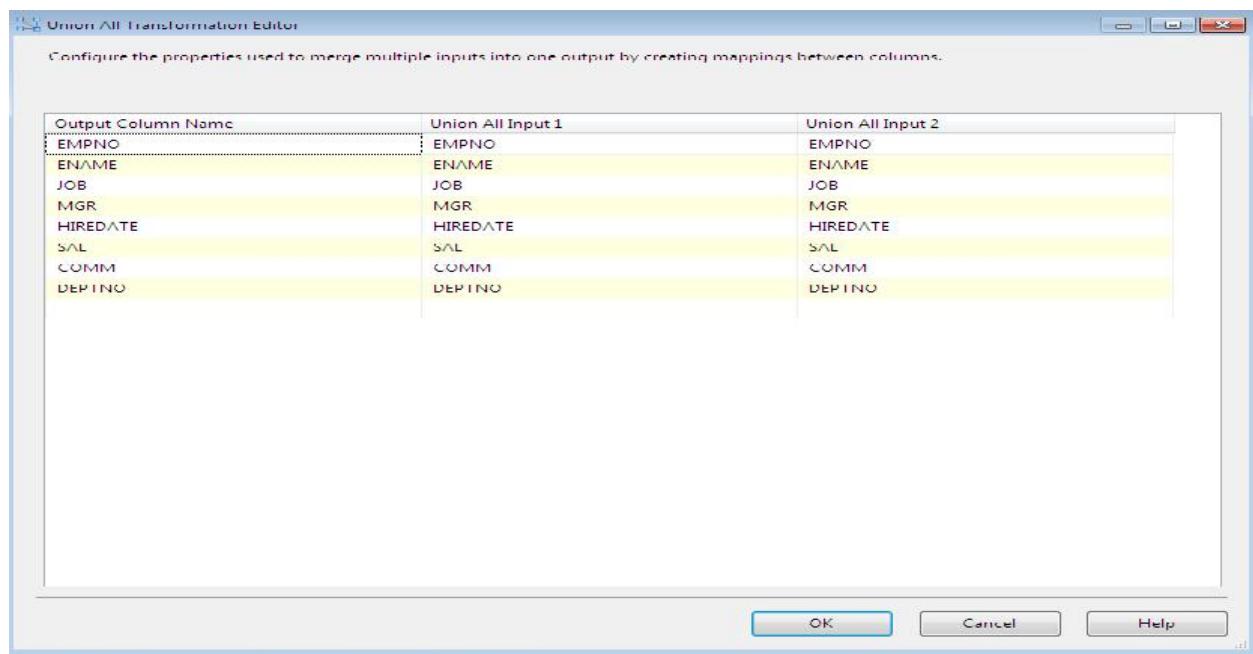
Select the “remove rows with duplicate sort values” and arrange the values.

Step: 4 Drag and drop the Sort transformation and configure in the following way.

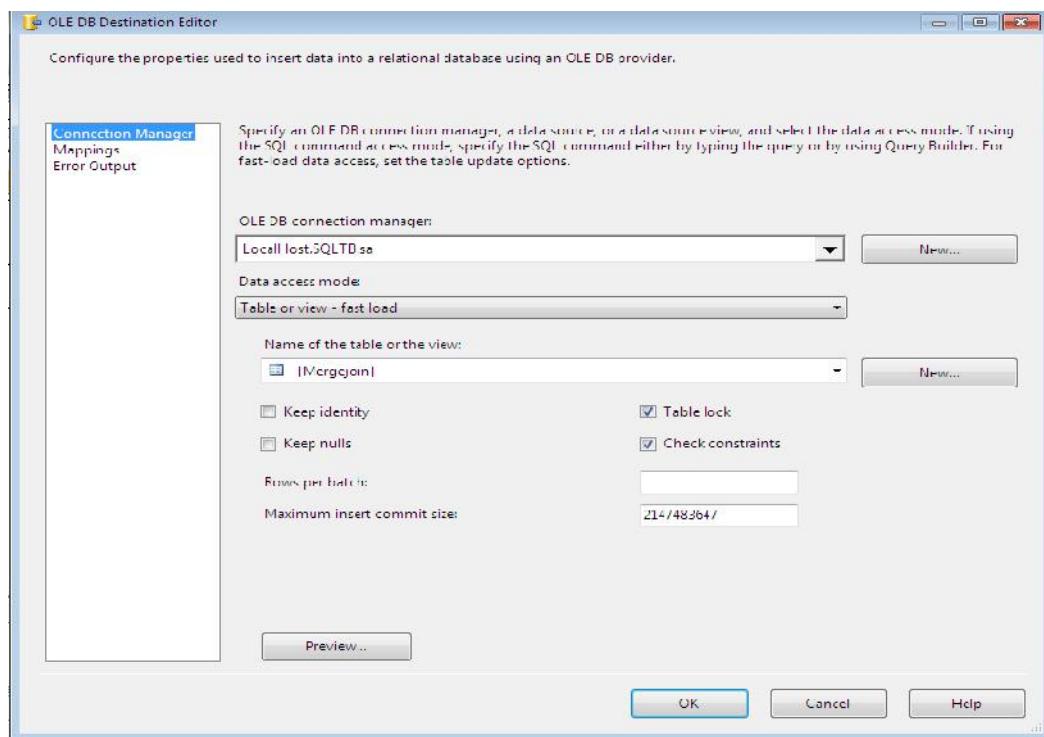


Select the “remove rows with duplicate sort values” and arrange the values.

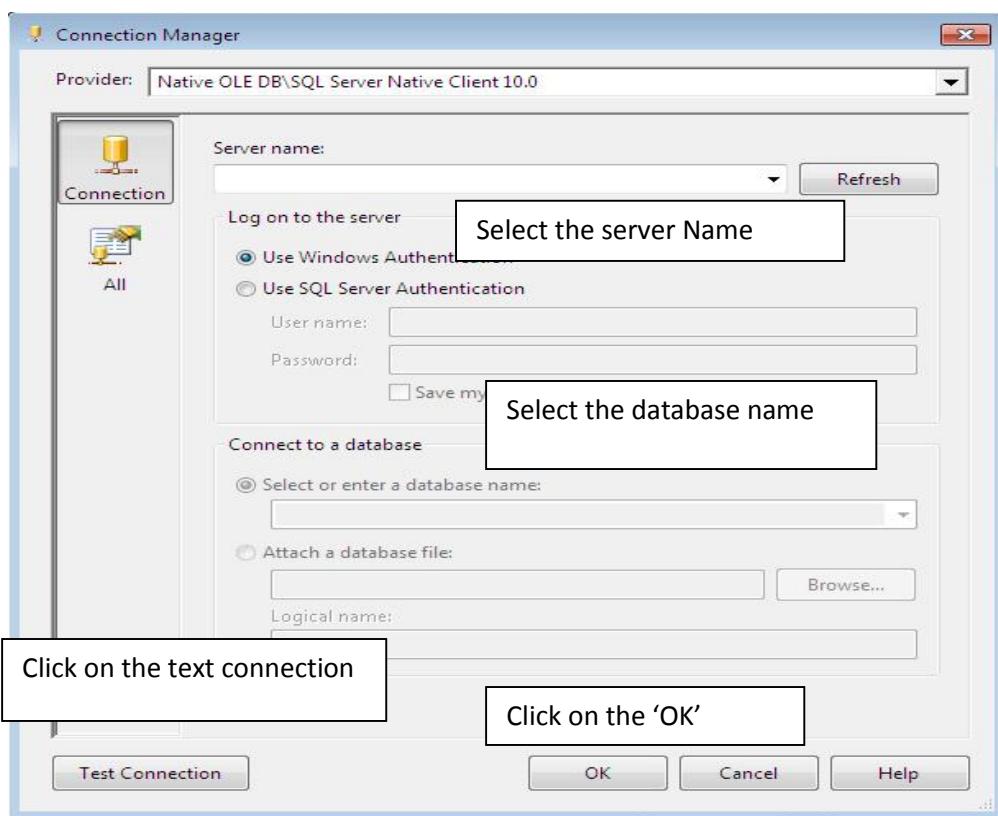
Step: 6 Drag and drop the “Union Transformation” and configure it.



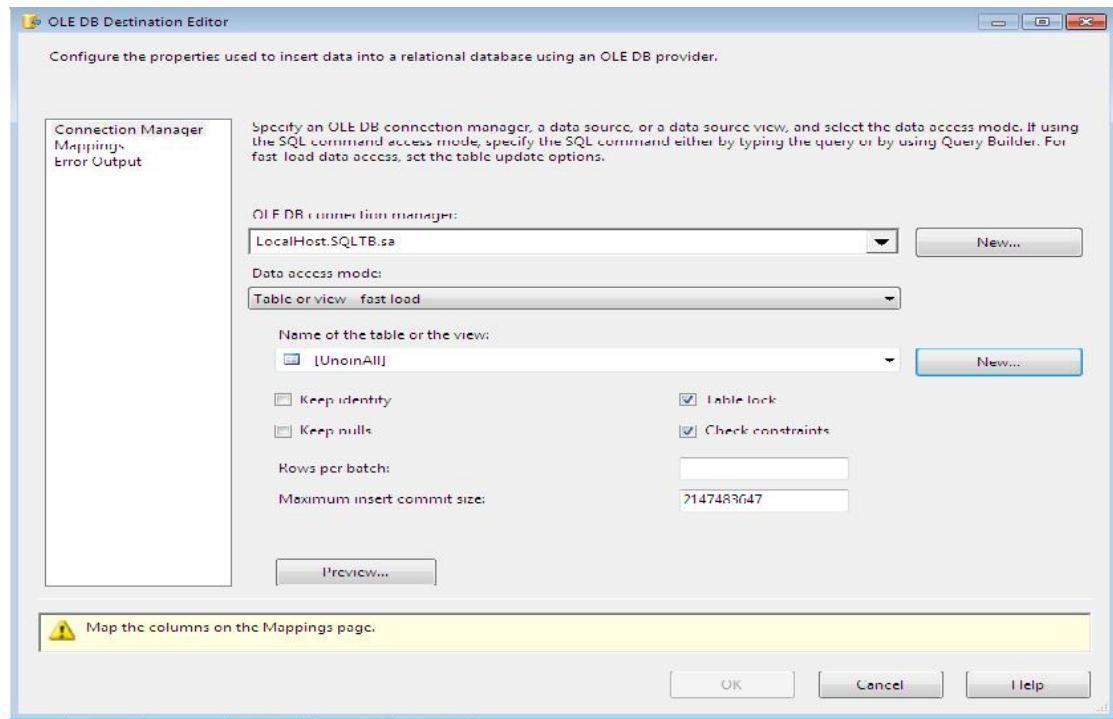
Step: 7 Drag and drop the OLEDB Destination and configure



Click NEW→NEW→

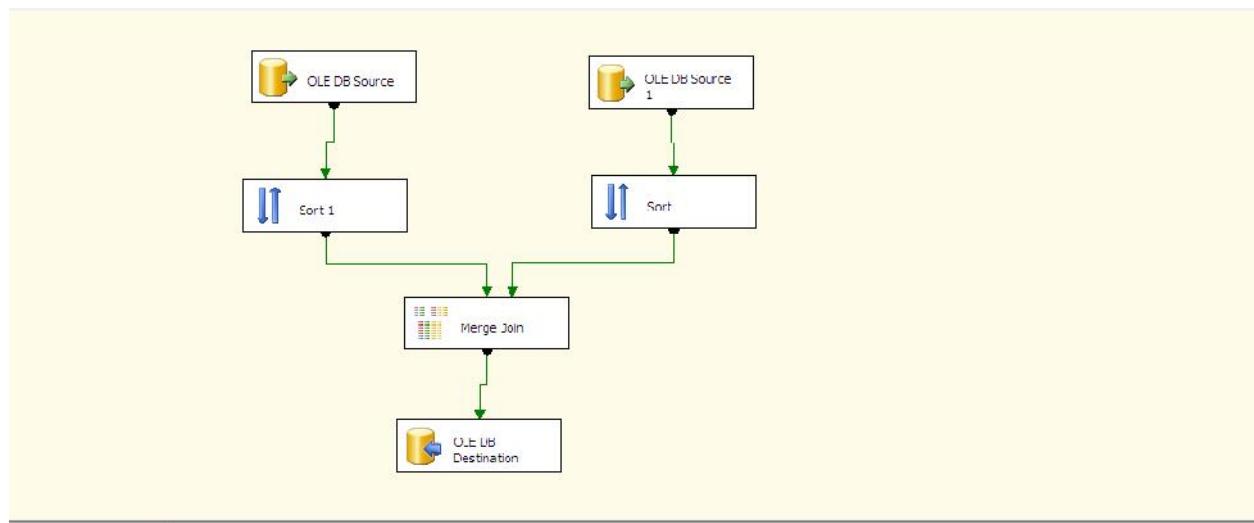


Select the destination table name as Union all table.

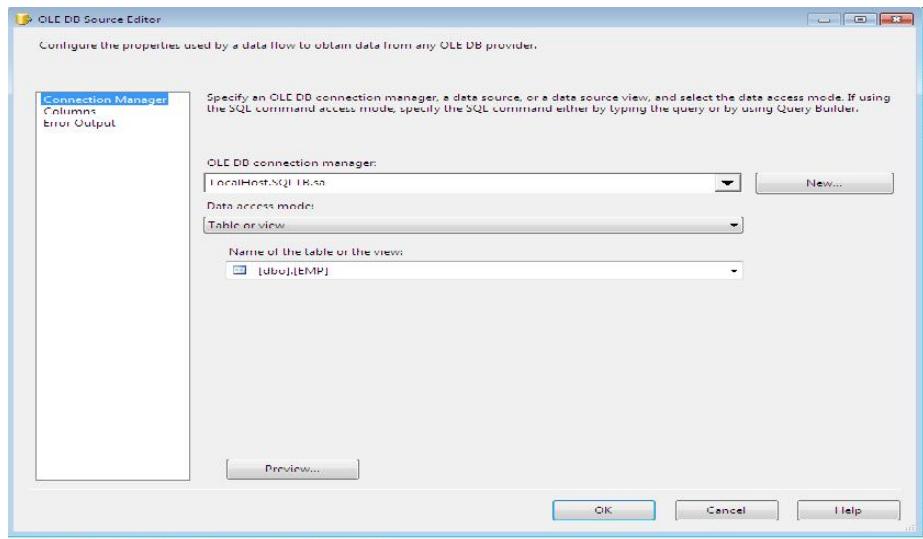


MERGE JOIN TRANSFORMATION:

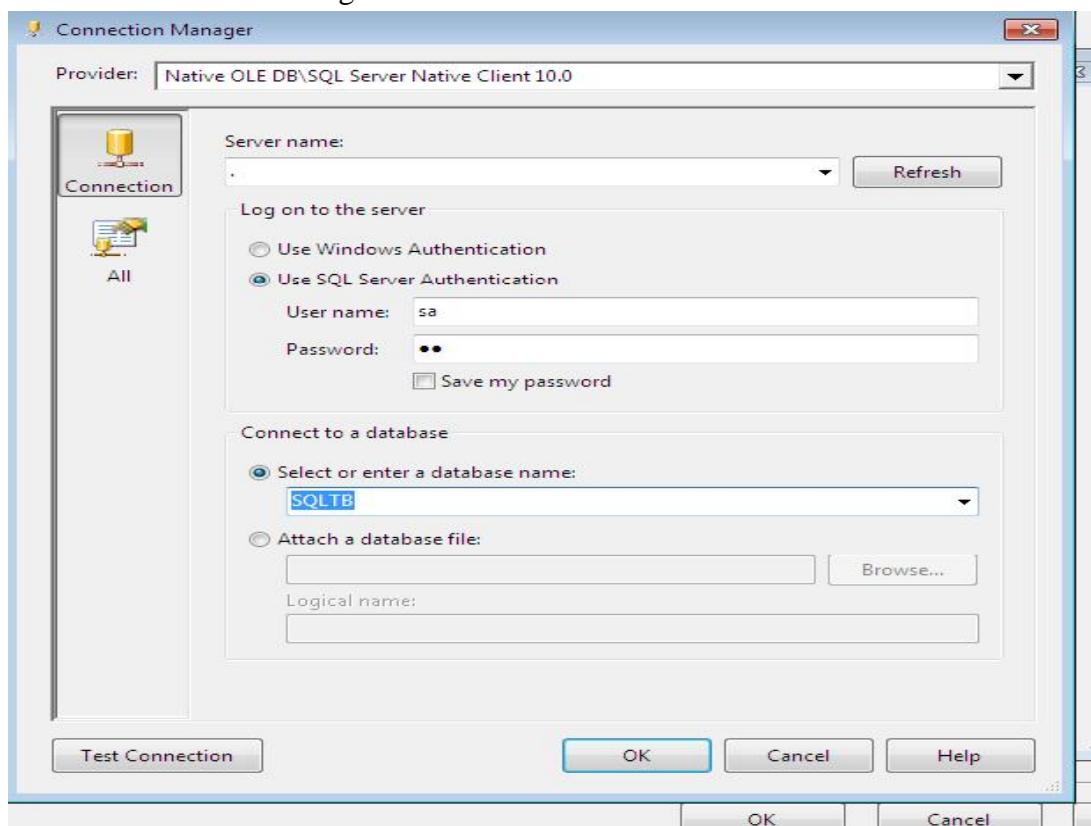
The merge join transformation combines two sorted datasets into a single output using inner join, left outer and full outer join.



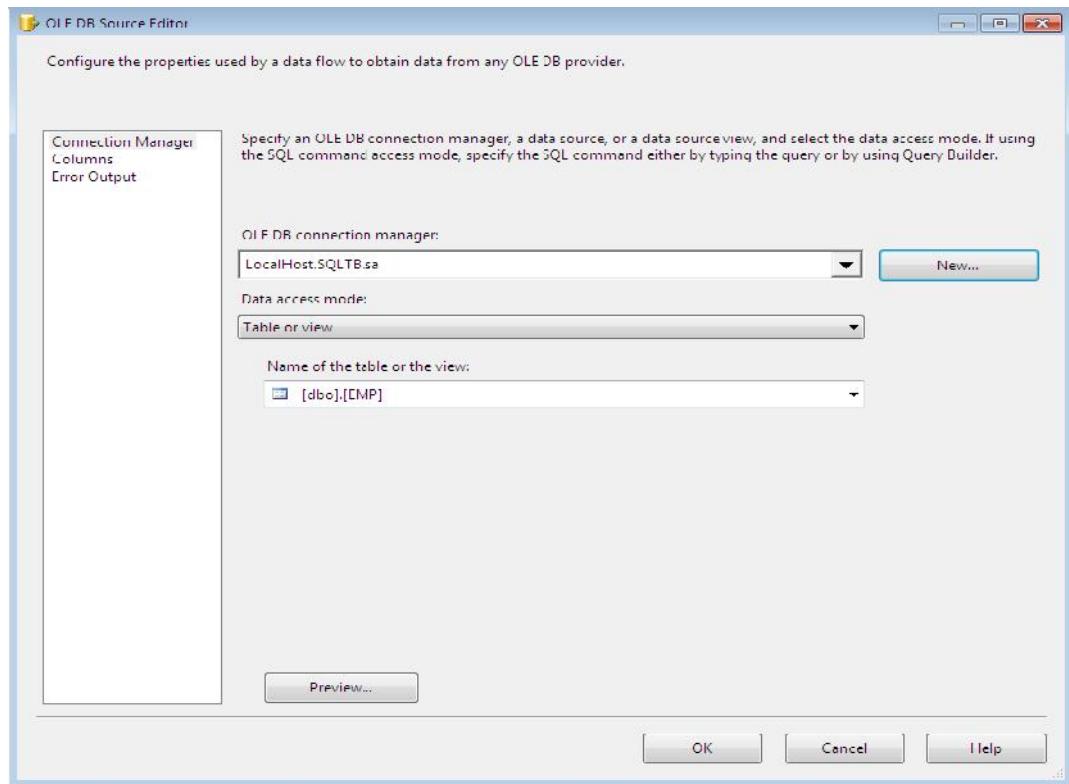
Step: 1 In control flow drag and drop the Data flow task and rename it as Dataflow task merge.
 Step : 2 In data flow drag and drop the OLEDB source1. And double click on it and configure it (Source 1 table as EMP).



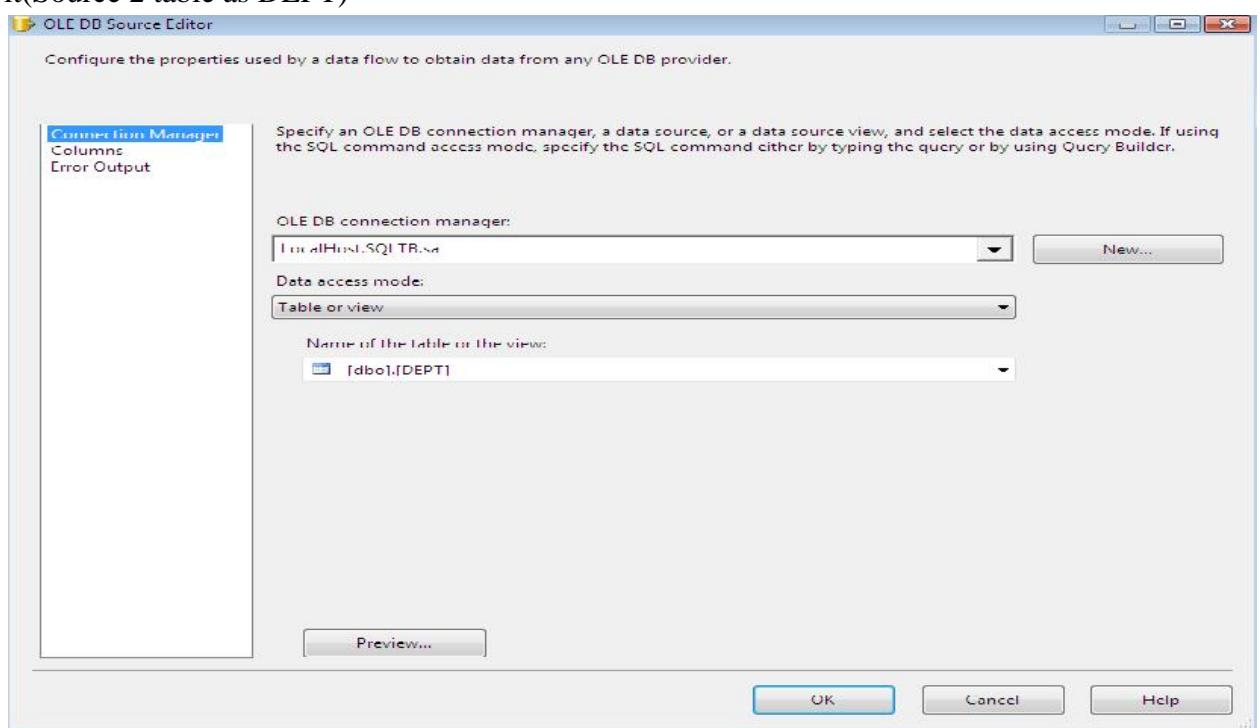
Click Next→Next→ and give the connection



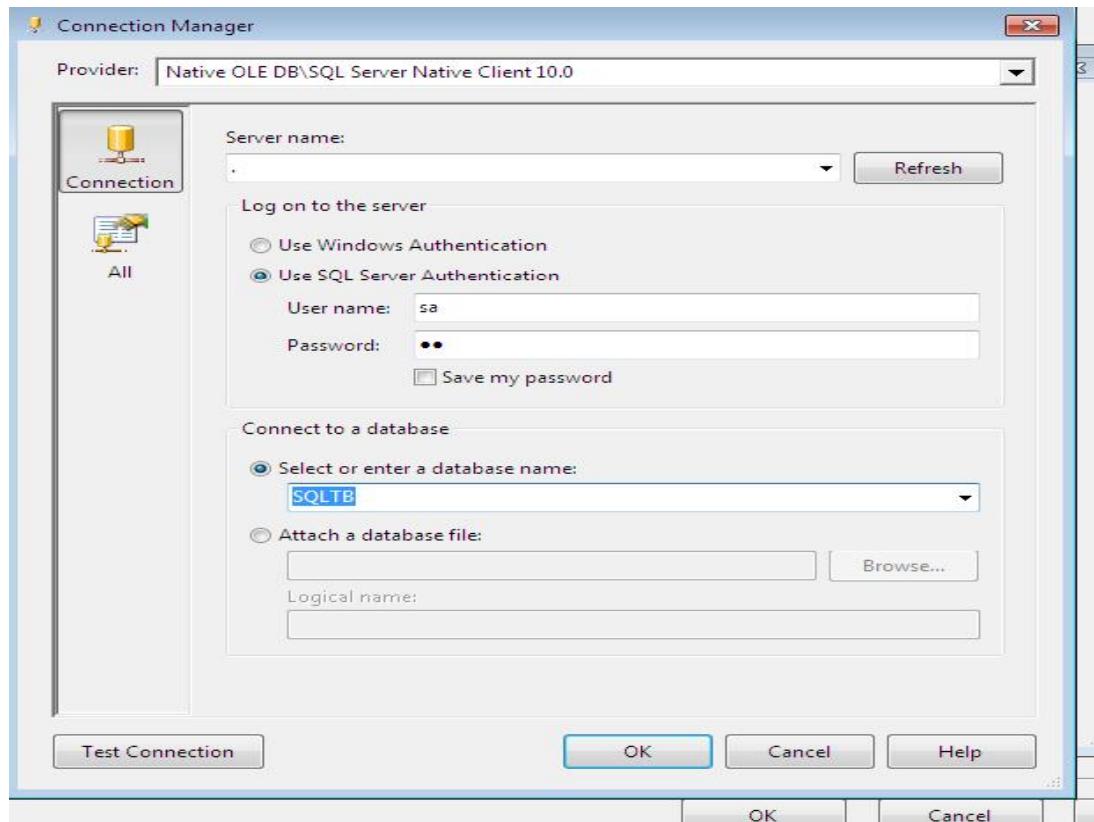
Then click “OK” and Click “OK” and select the EMP table. click “OK”.



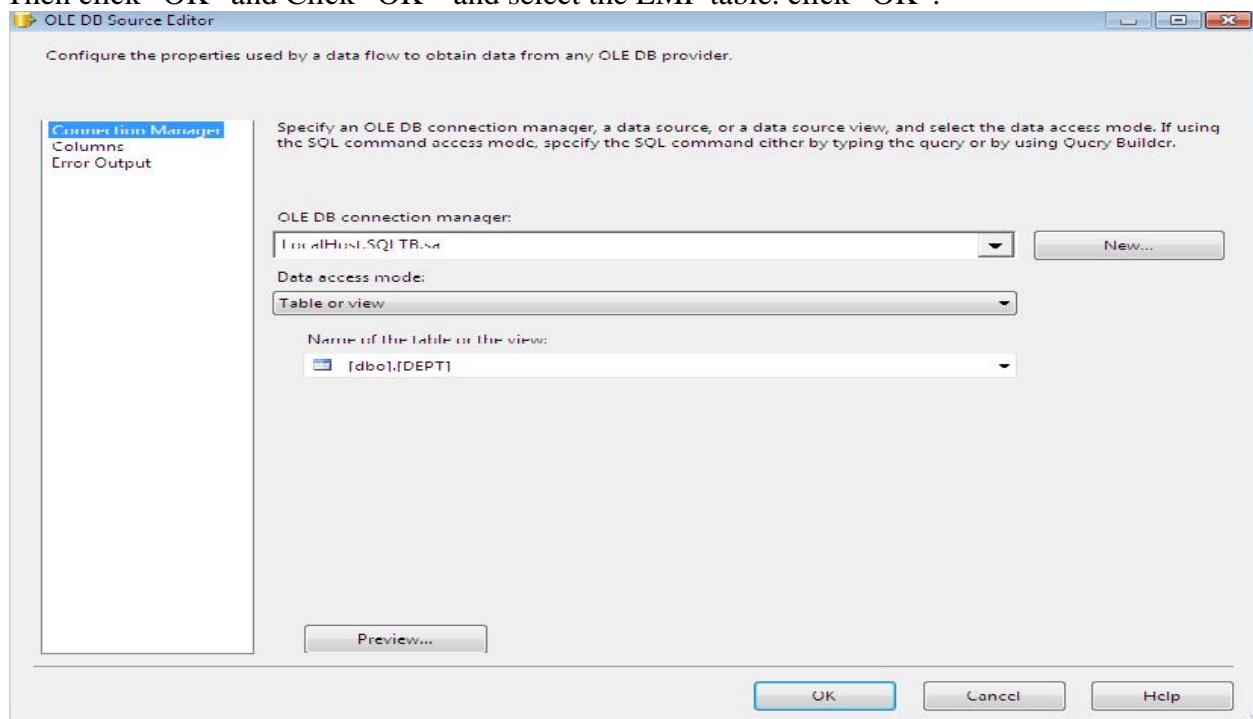
Step : 3 In data flow drag and drop the OLEDB source2. And double click on it and configure it(Source 2 table as DEPT)



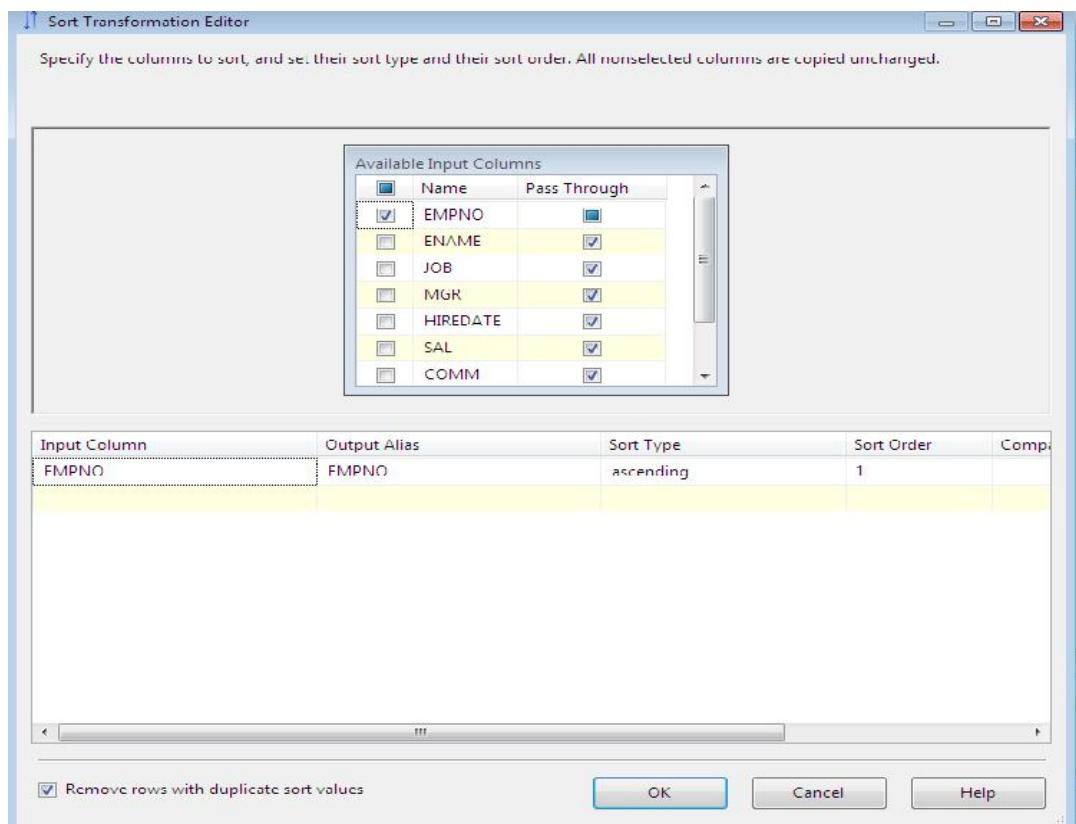
Click Next→Next→ and give the connection



Then click “OK” and Click “OK” and select the EMP table. click “OK”.

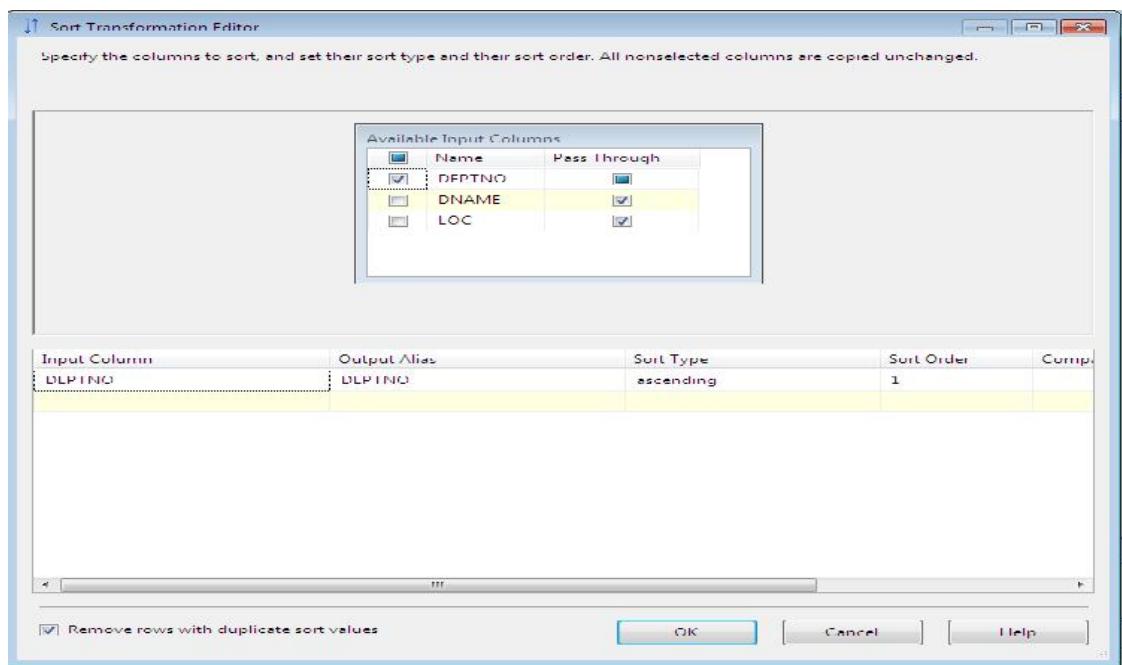


Step: 3 Drag and drop the Sort transformation and configure in the following way.



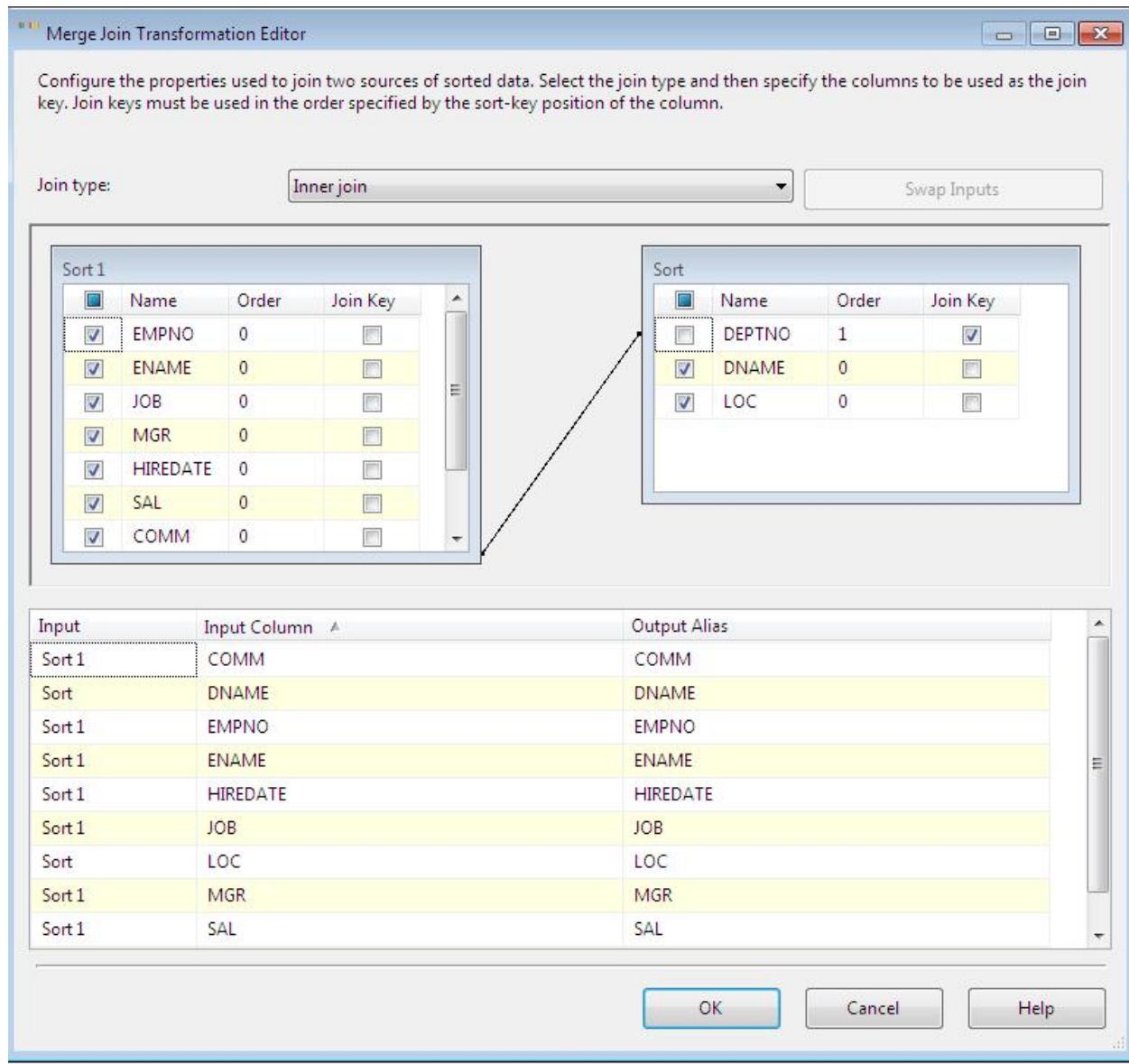
Select the “remove rows with duplicate sort values” and arrange the values.

Step: 4 Drag and drop the Sort transformation and configure in the following way.

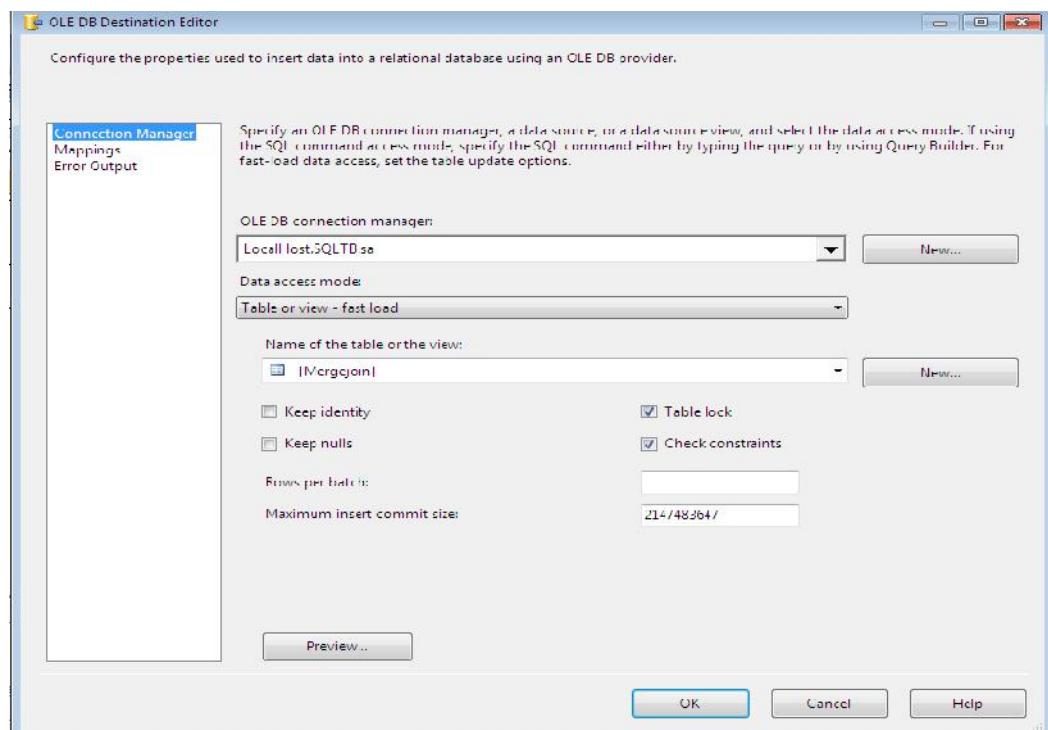


Select the “remove rows with duplicate sort values” and arrange the values.

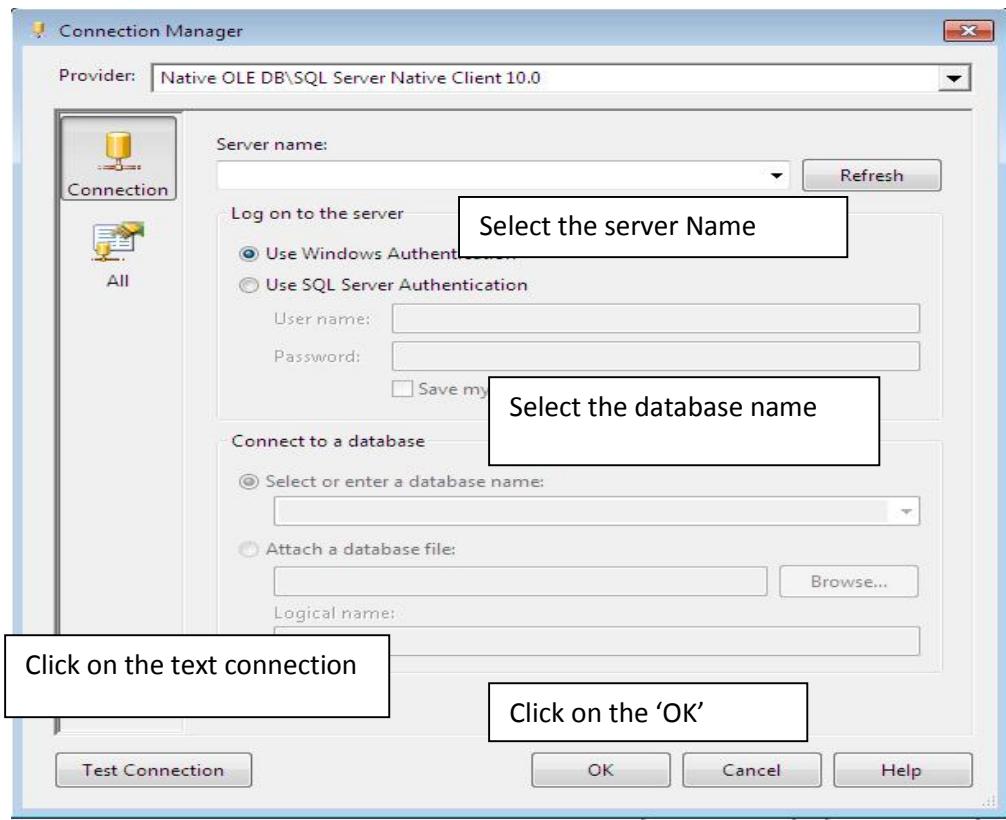
Step : 6 Drag and drop the “Merge Join Transformation” and configure it.



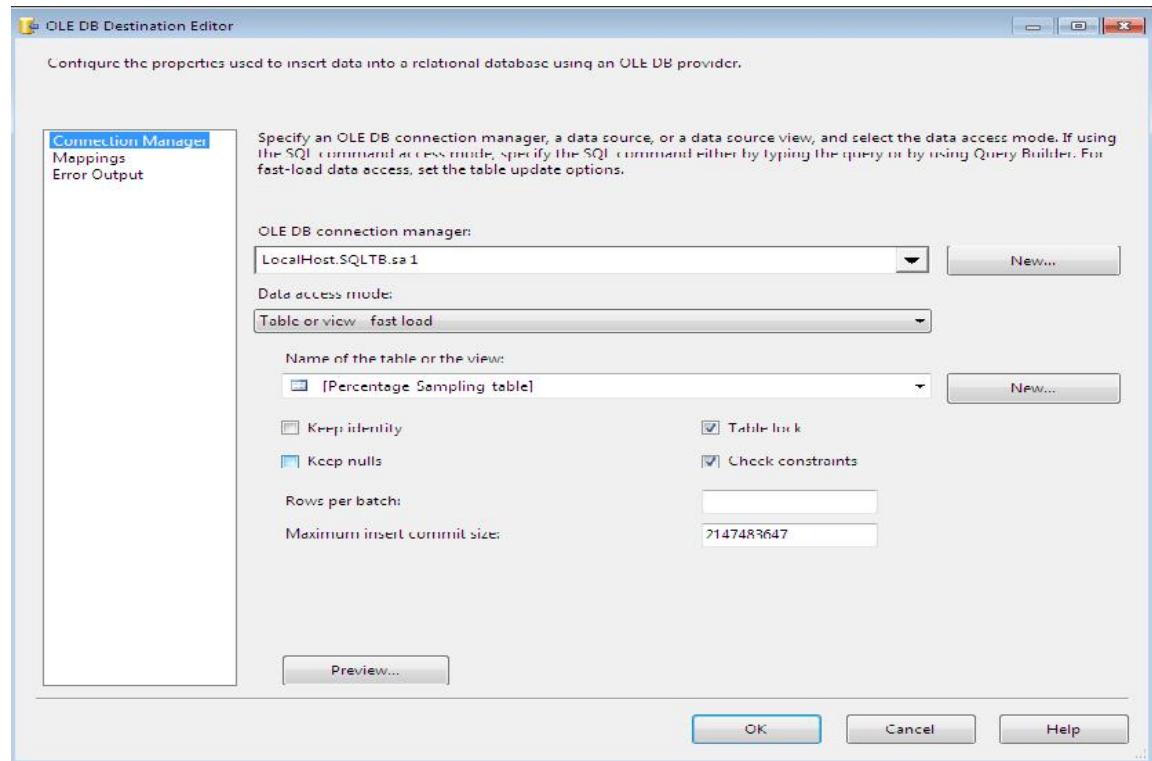
Step: 7 Drag and drop the OLEDB Destination and configure



Click NEW→NEW→



Select the destination table name as Mergejoin table.



WORKING WITH EXECUTIVE SQL TASK:

Executive SQL task is going to execute all kinds of SQL and T-SQL statements in the package run time.

Some time it does not required any input parameter and it does not return any result.

EX: Create object, Delete Object, Truncate Object etc...

Working with input parameter:

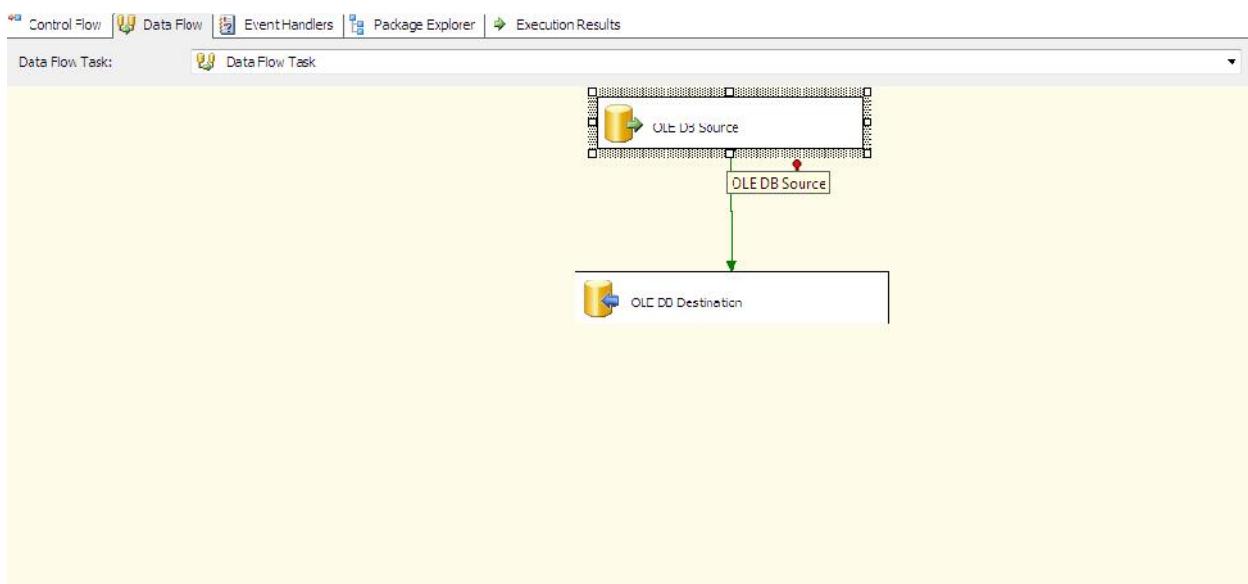
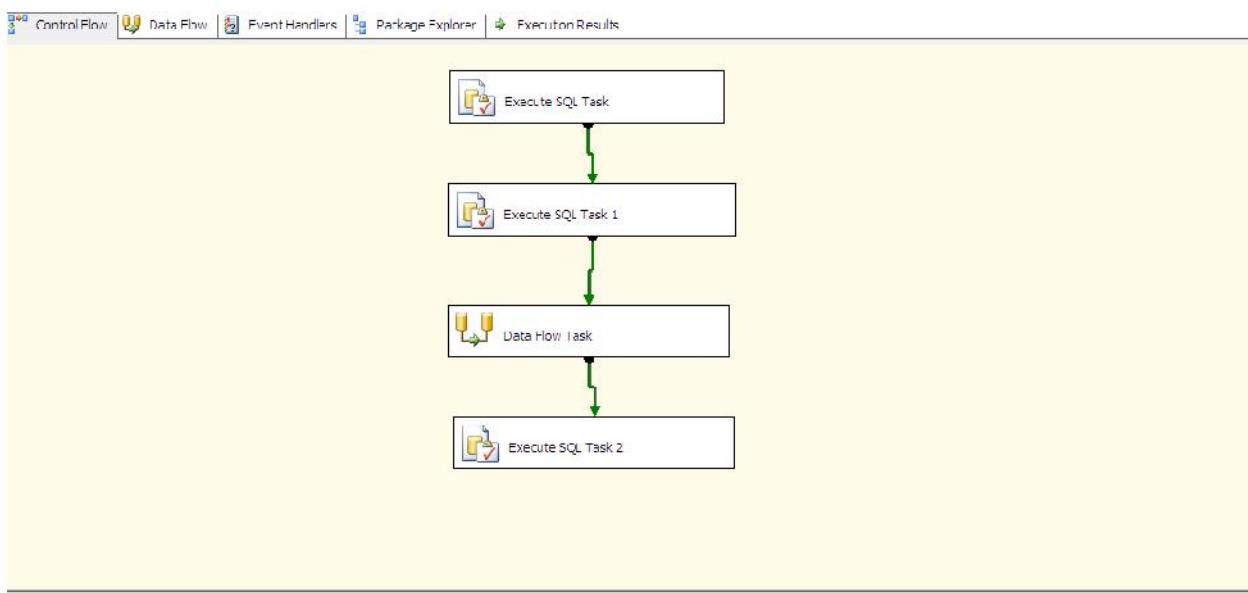
Insert, update, delete, and stored procedure

Returning the result set

From the result set we are going to return the result set

1. Single row result set
2. Full row result set

INCREMENTAL LOAD:



Step 1: Create Audit table with the following structure.

```

create table Audit(runid int identity(1,1),
package varchar(50),
preexec_time datetime,
curexec_time datetime)

```

Step: 2 insert the record in the audit table

```
insert into Audit(package,preexec_time) values('Package12','1900-01-01')
```

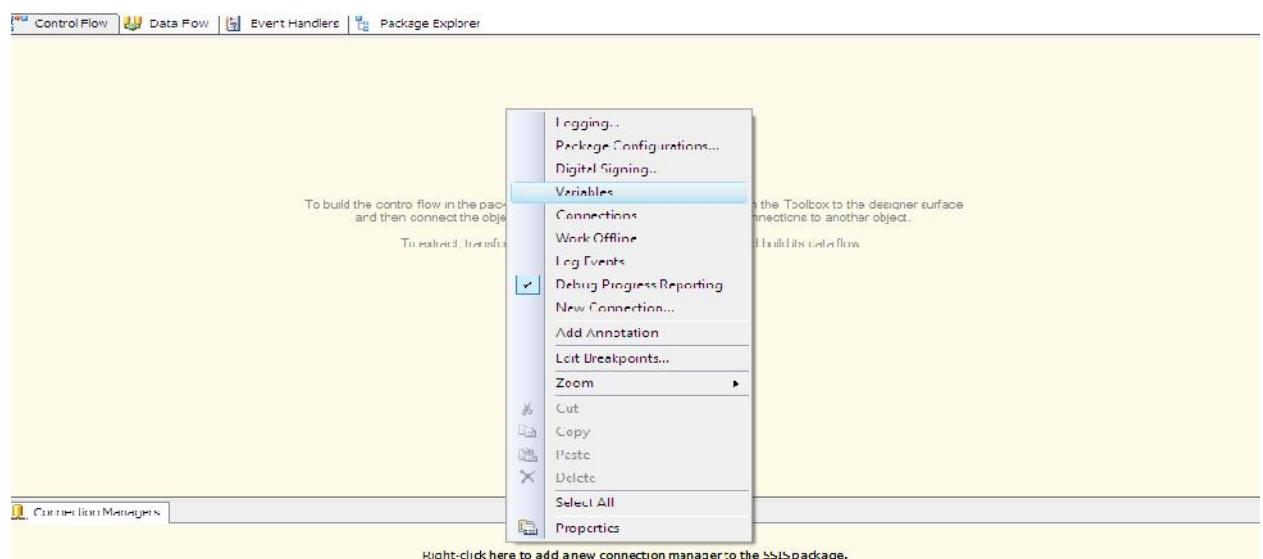
Step: 3 Create the destination table which contains the same structure of the source table.

```

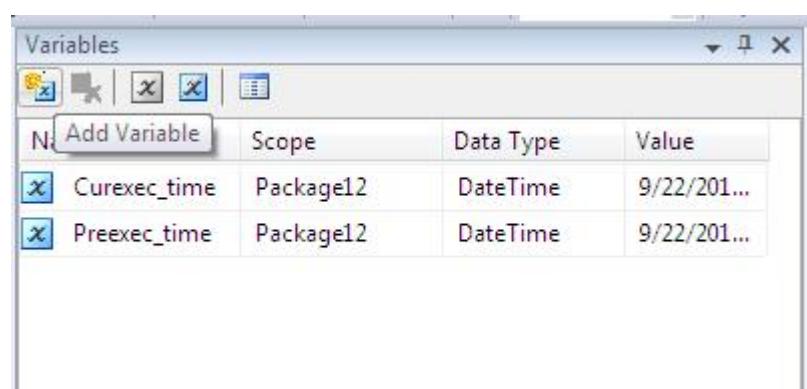
CREATE TABLE [SalesOrderDetail](
    [SalesOrderID] [int] NOT NULL,
    [SalesOrderDetailID] [int] NOT NULL,
    [CarrierTrackingNumber] [nvarchar](25) NULL,
    [OrderQty] [smallint] NOT NULL,
    [ProductID] [int] NOT NULL,
    [SpecialOfferID] [int] NOT NULL,
    [UnitPrice] [money] NOT NULL,
    [UnitPriceDiscount] [money] NOT NULL,
    [LineTotal] [money],
    [rowguid] [uniqueidentifier] ROWGUIDCOL NOT NULL,
    [ModifiedDate] [datetime] NOT NULL,
)

```

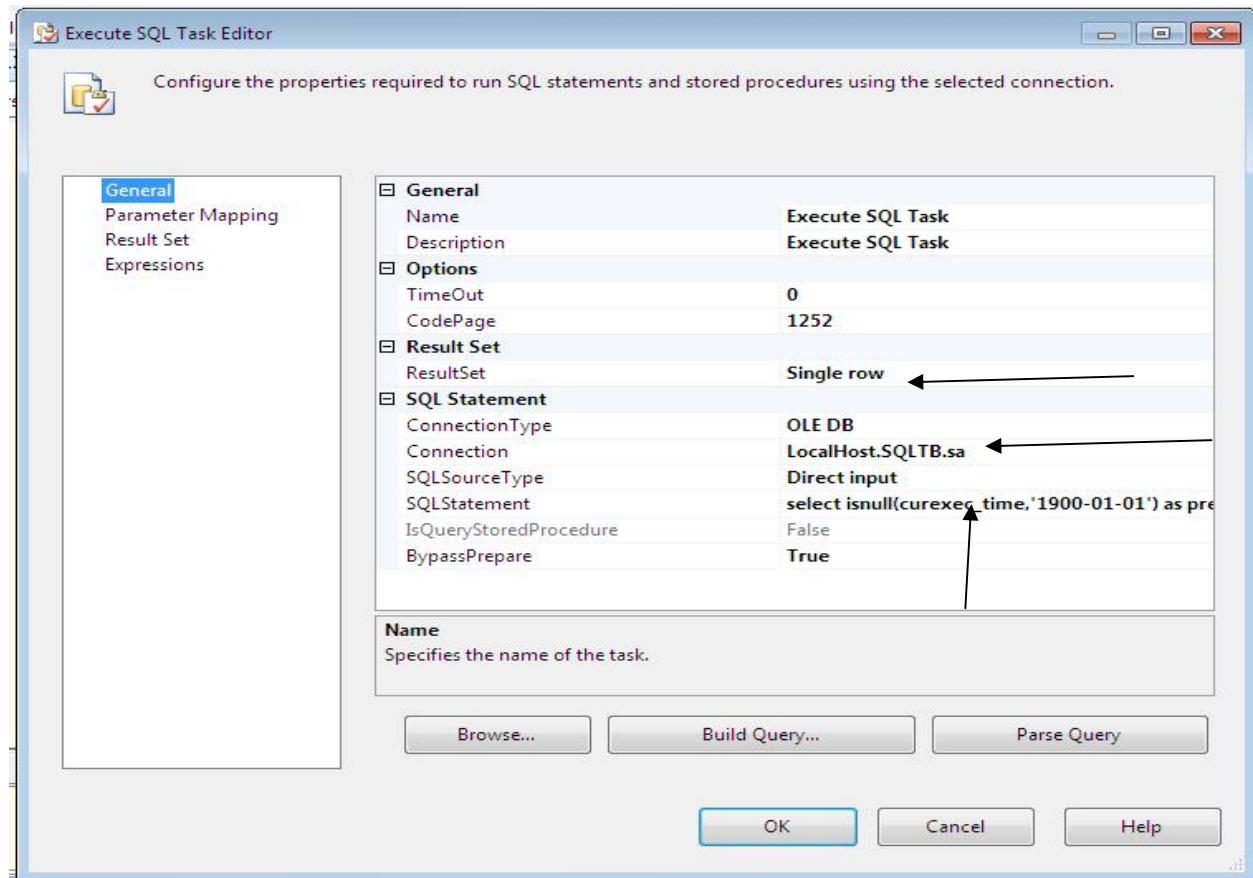
Step : 4 Create the two package level variables.(Right click on control flow → Variables , click on the variable In the following way.



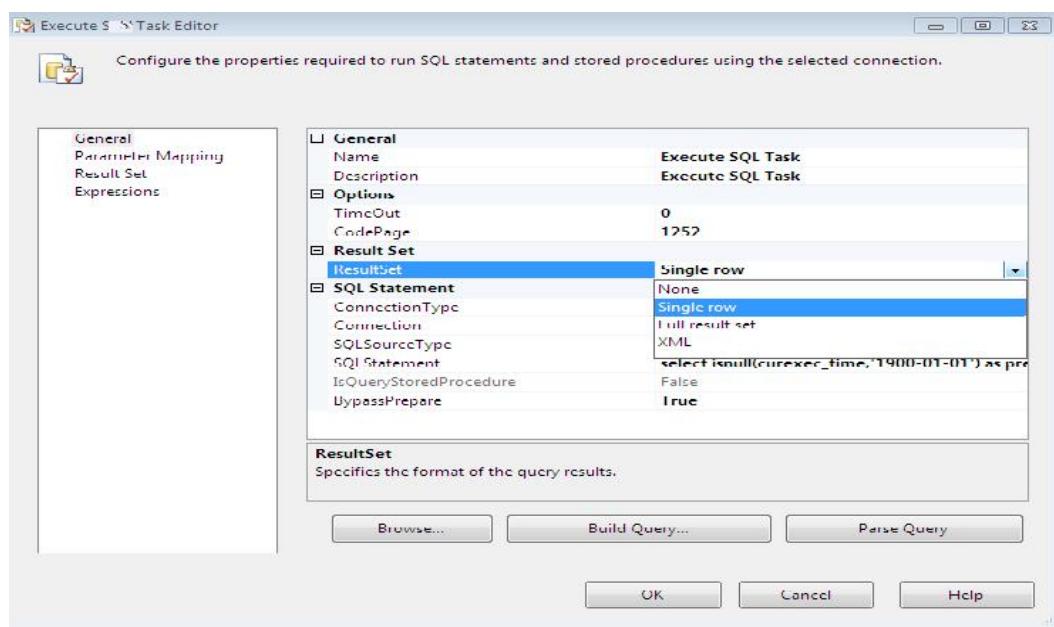
Create the variable clicking the add parameter button



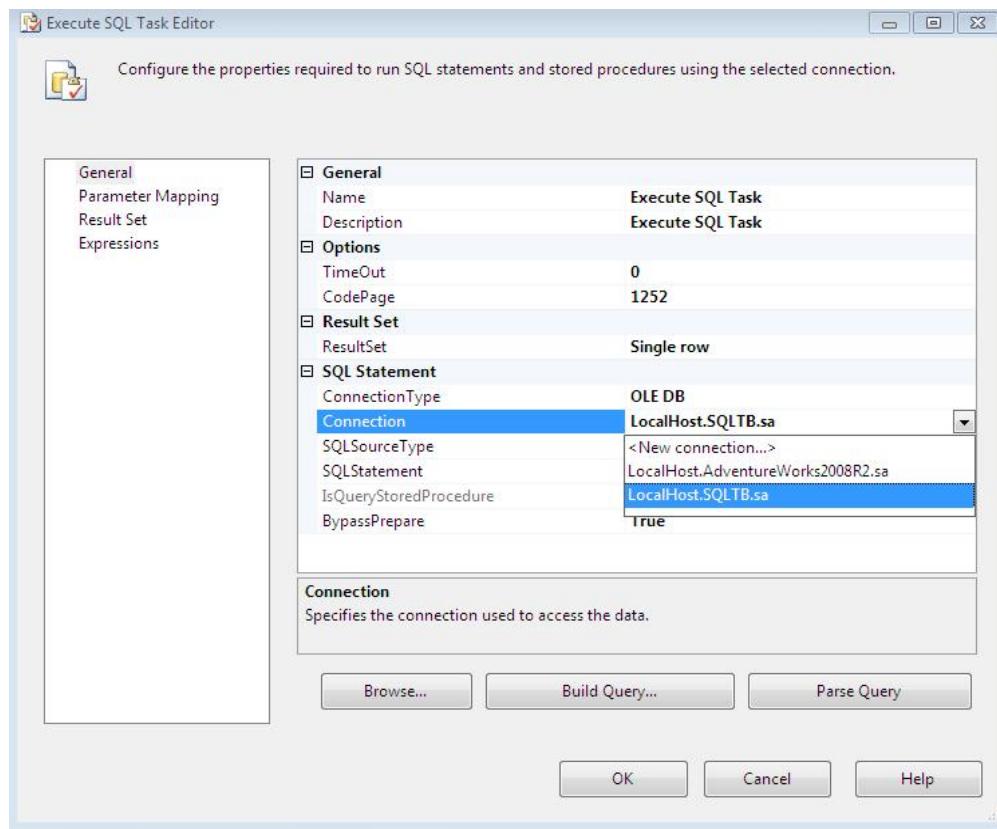
Step: 5 In control flow Drag and drop the executive SQL task and double click on the executive SQL Task for configuration.



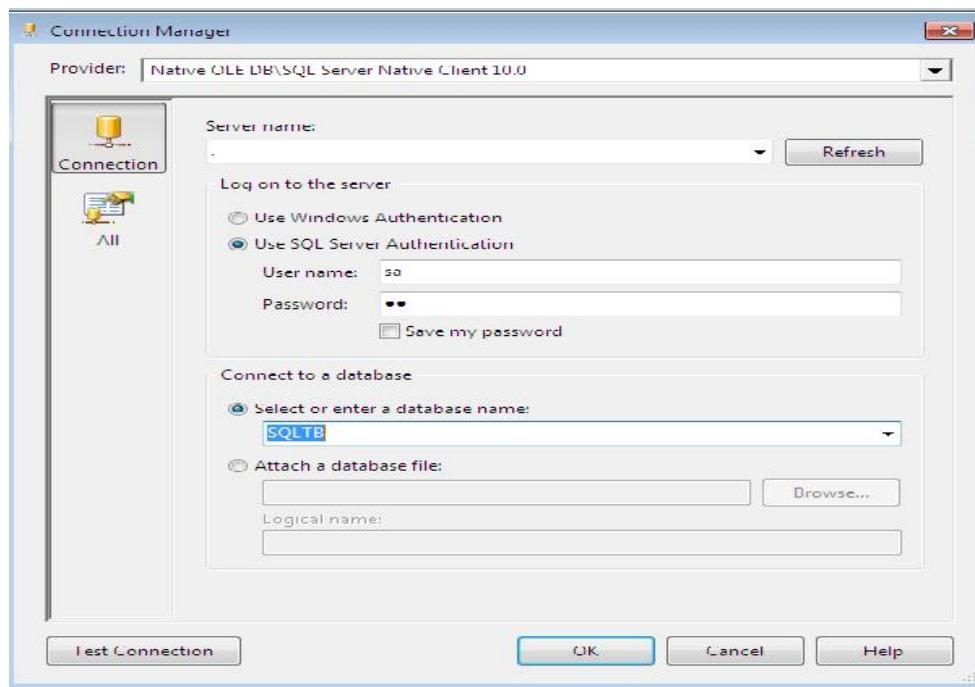
Result Set: In result set select the “Single row”



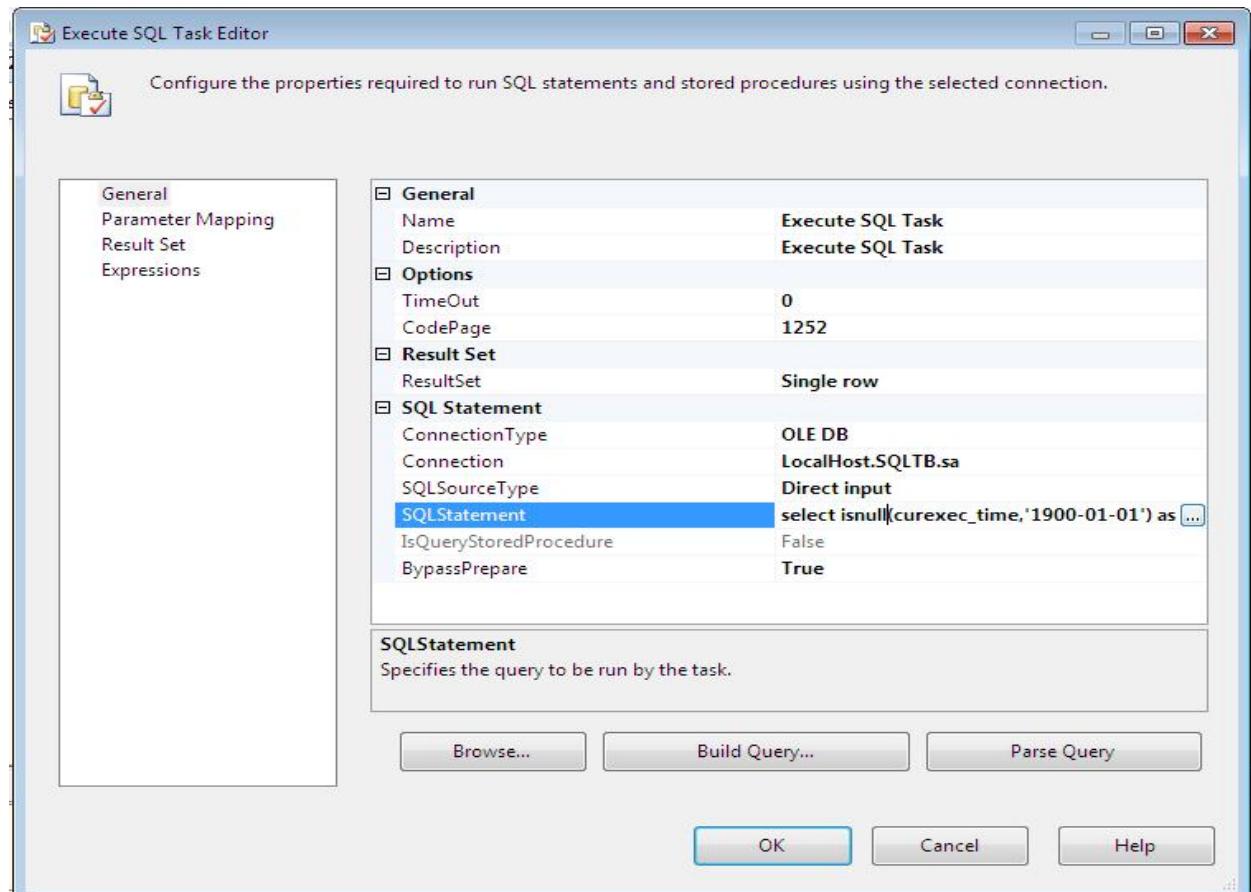
Connection:



Click → New Connection → New →



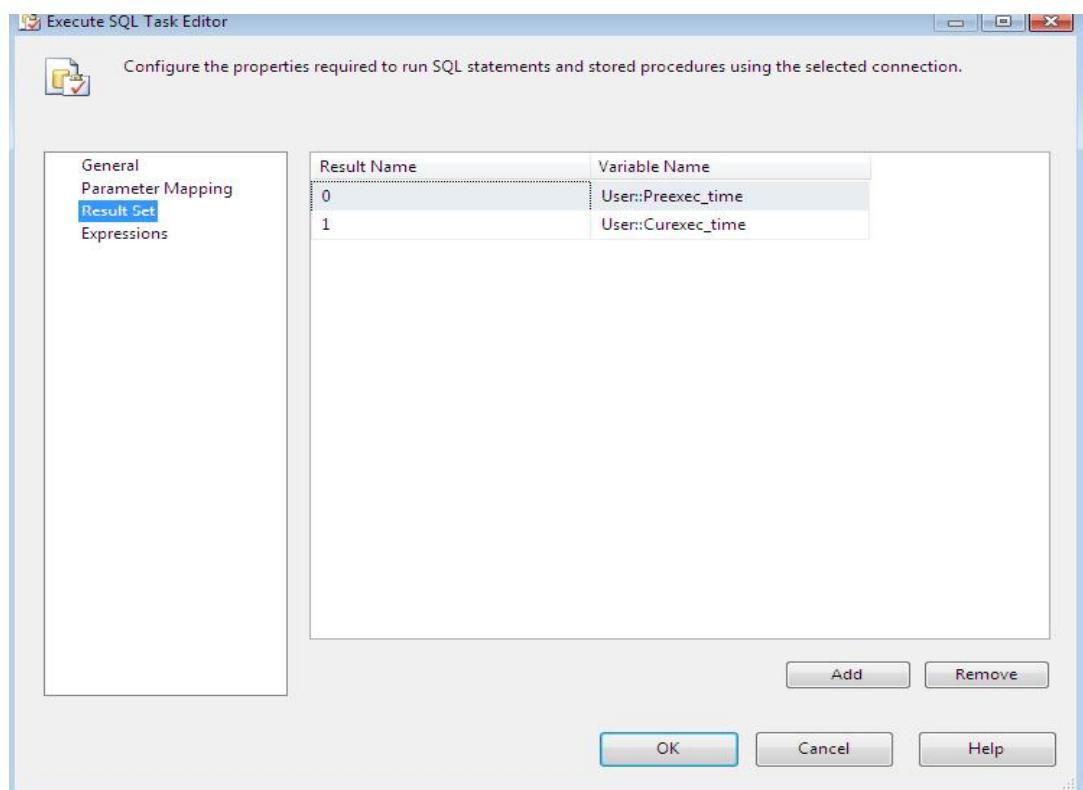
SQL statement:



```
select isnull(cureexec_time,'1900-01-01') as preexec_time,getdate() as cureexec_time  
from Audit where runid=(select max(runid) from audit where package='Package12')
```

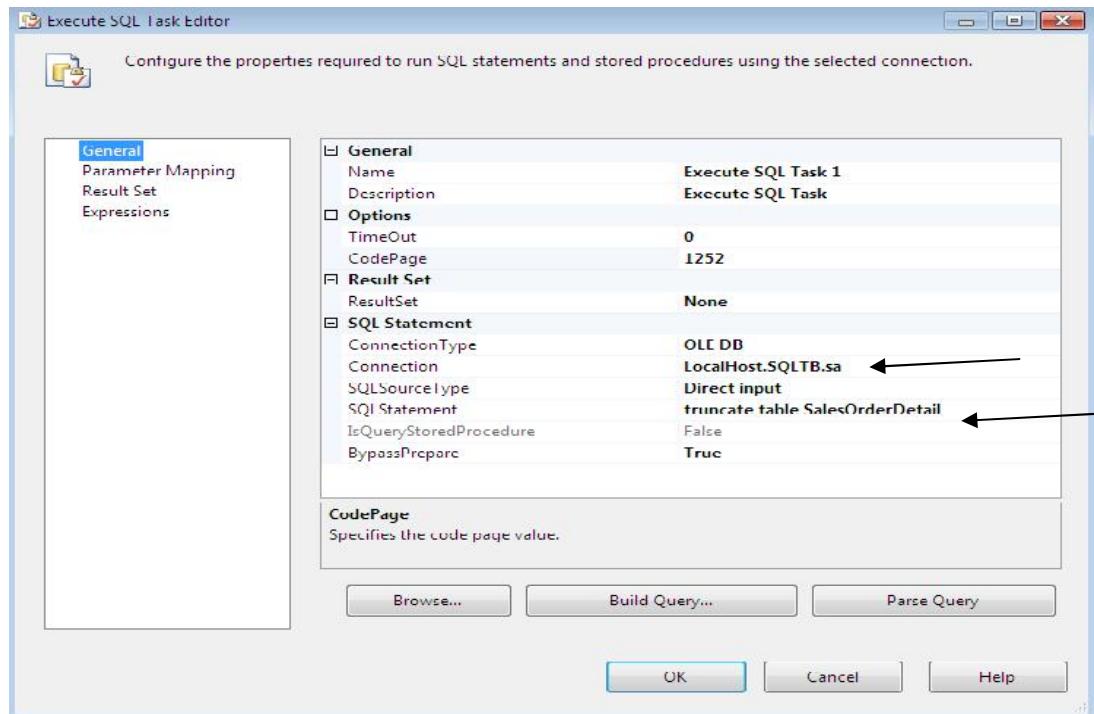
Select the **Result Set** tab from the left panel.

2 time Click **Add** button and assign the variables values.

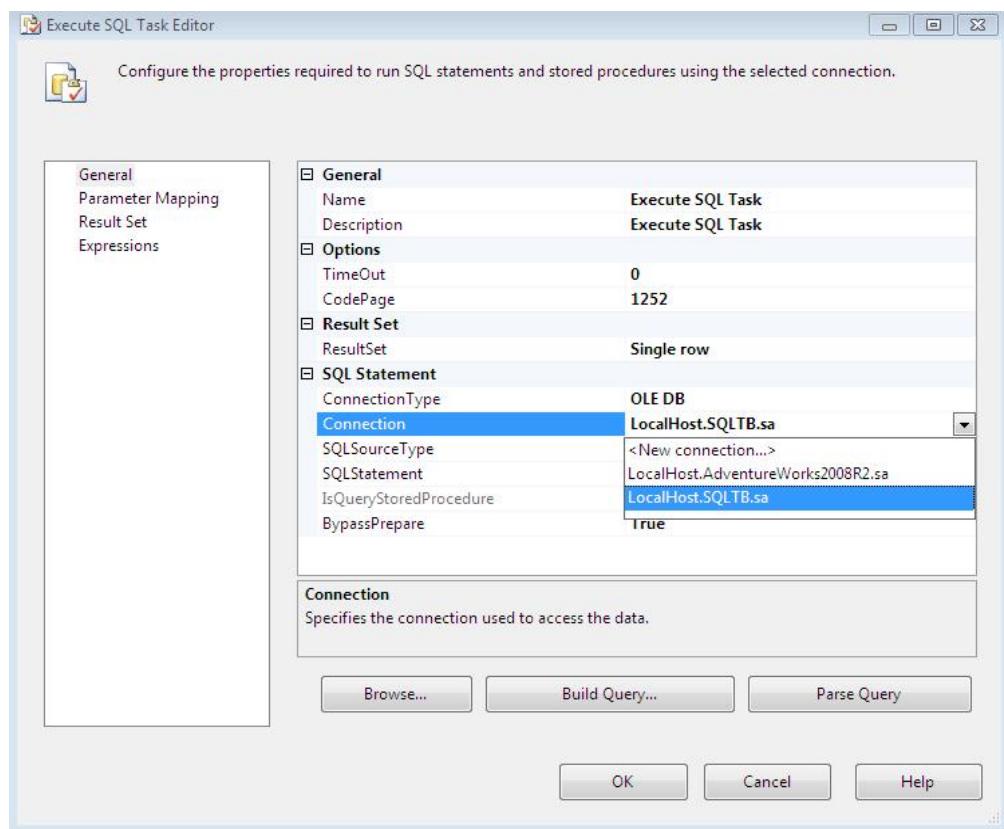


Step: 6 in control flow Drag and drop the executive SQL task and double click on the executive SQL Task for configuration.

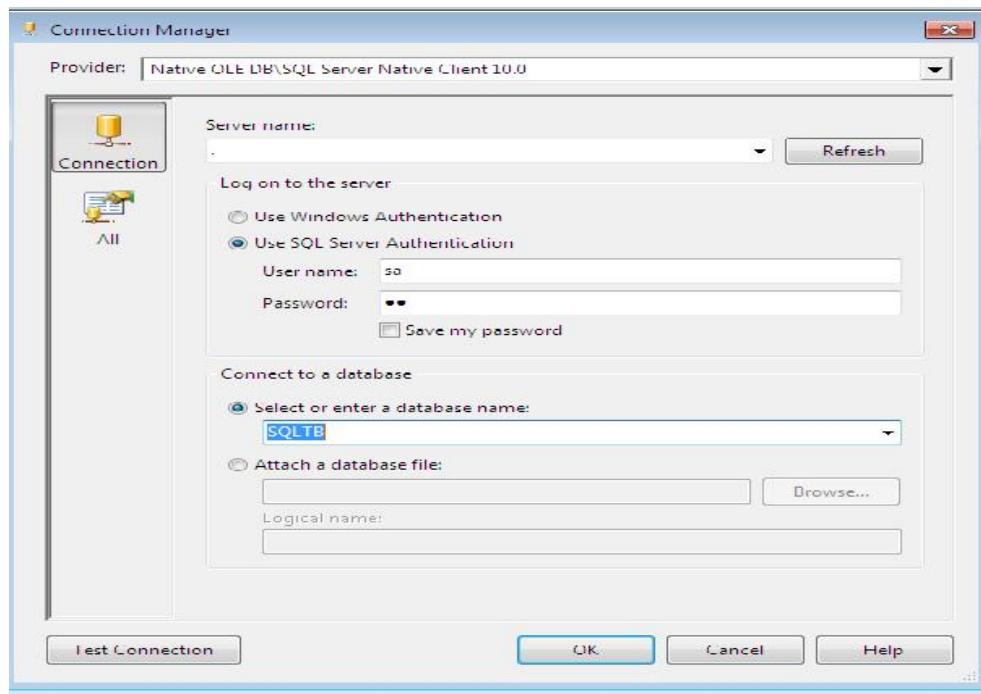
This task is used for truncate the Destination table in the following way.



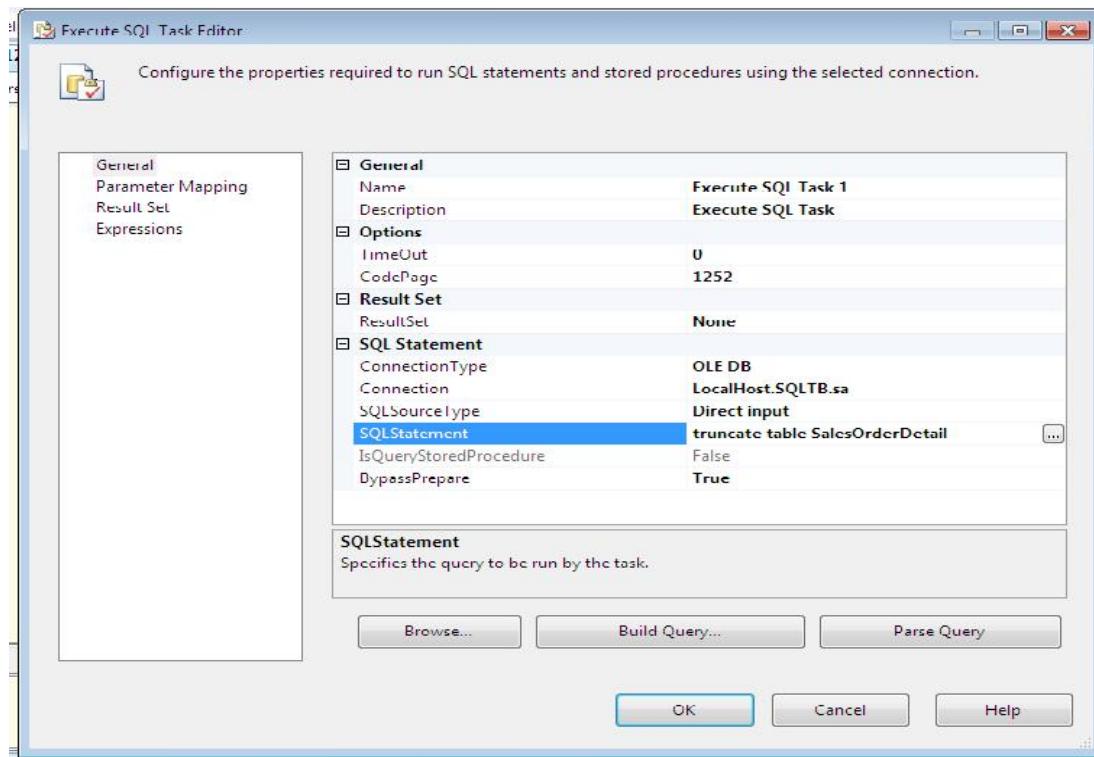
Connection:



Click → New Connection → New →



SQL statement:

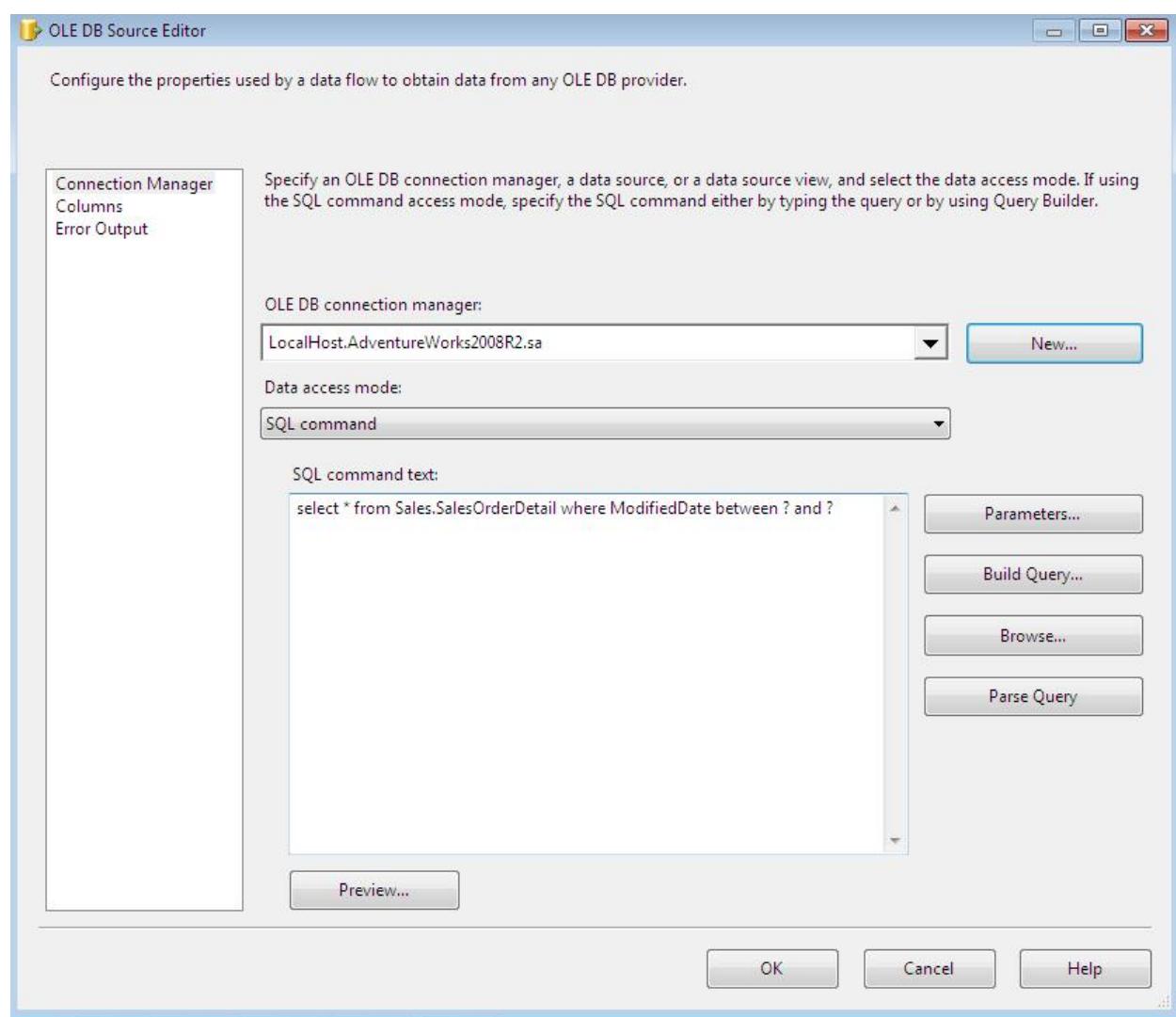
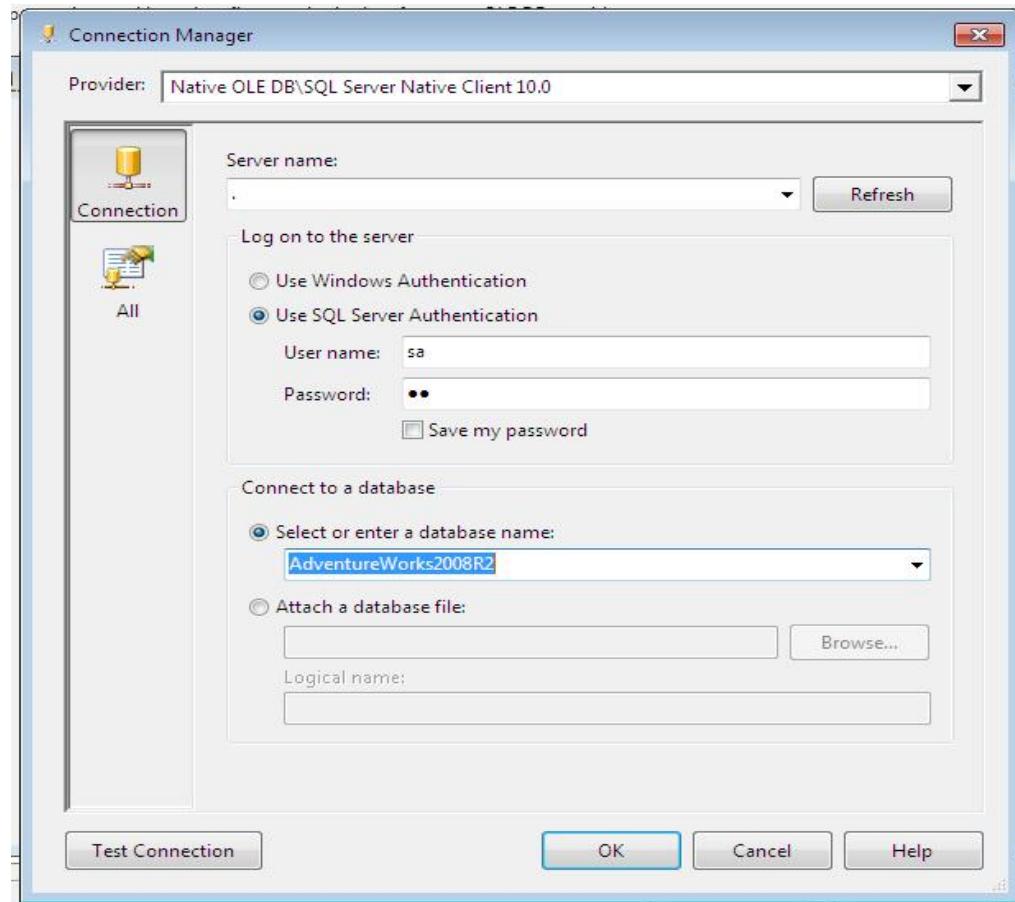


truncate table SalesOrderDetail

Step: 7 in control flow drag and drop the Dataflow task and double click on it and configure it.

Step 8: Drag and drop the OLEDB Source and double click on it.

Click New→New→



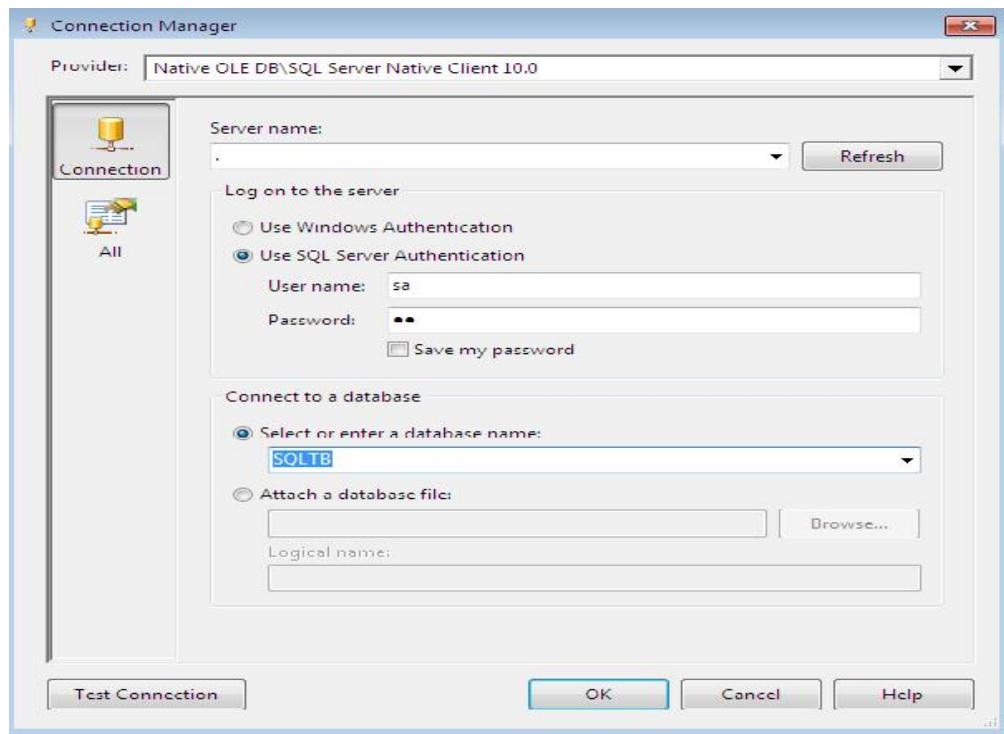
Select the **SQL command** option in the **Data access mode**.

Write the following query in the **SQL Command text** then select column and click “**OK**”.

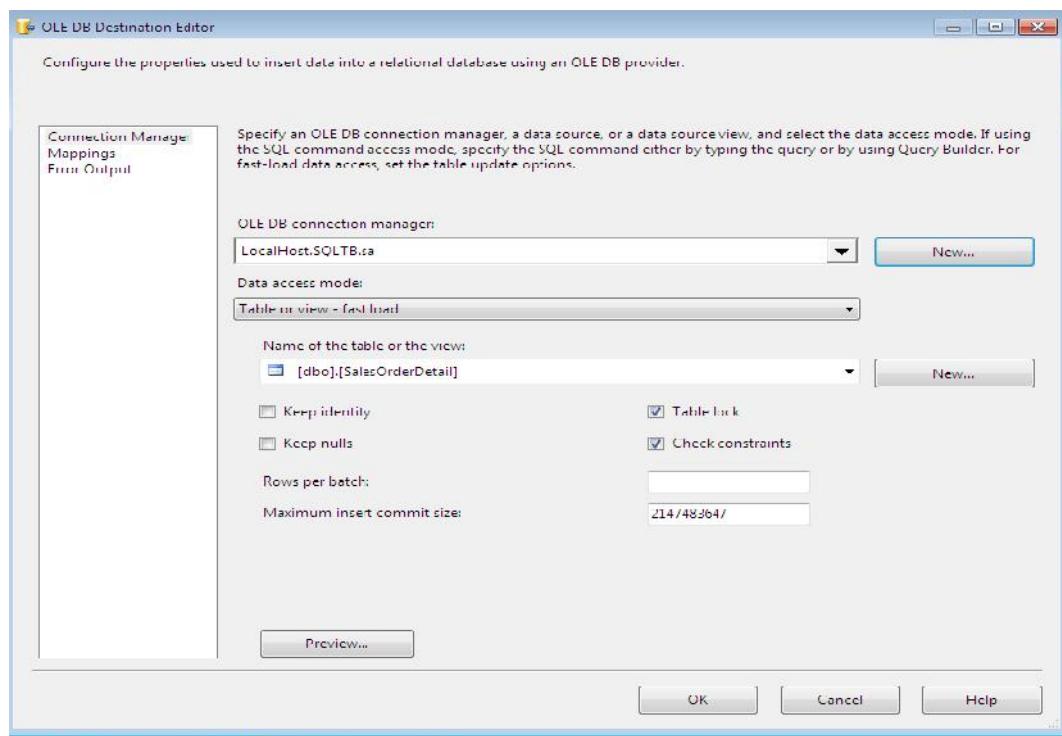
select * from Sales.SalesOrderDetail where ModifiedDate between ? and ?

Step : 9 Drag and drop the OLEDB Destination and configure it.

Click New→New→

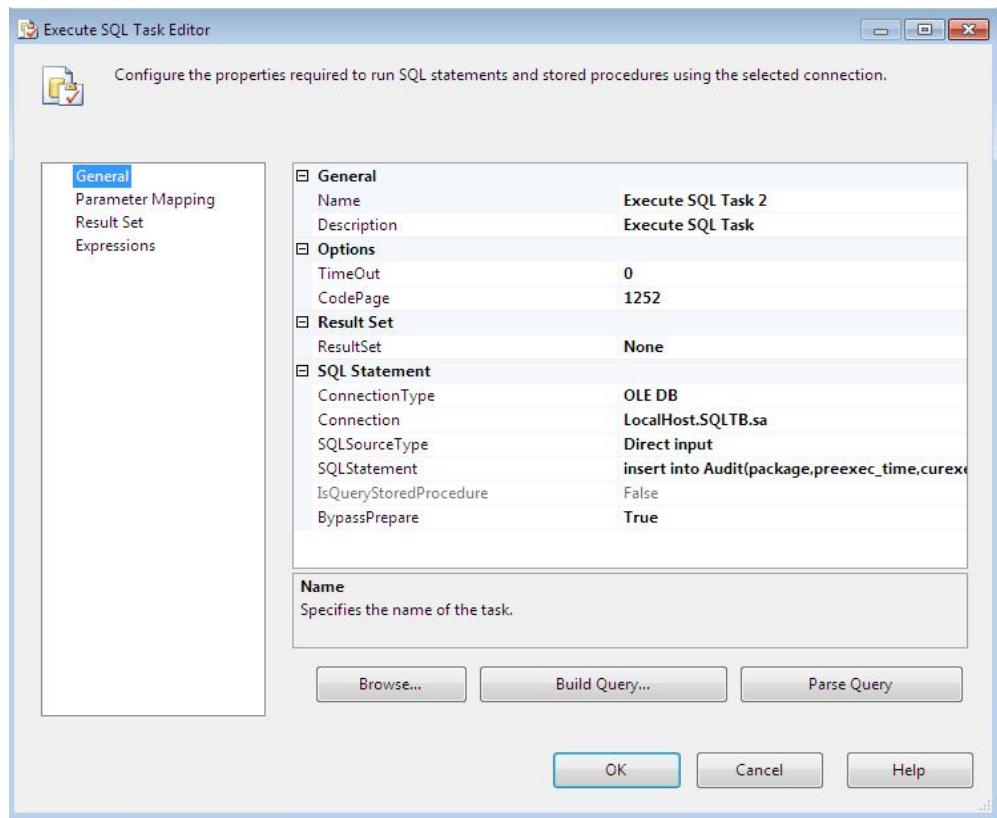


And then select the destination table.

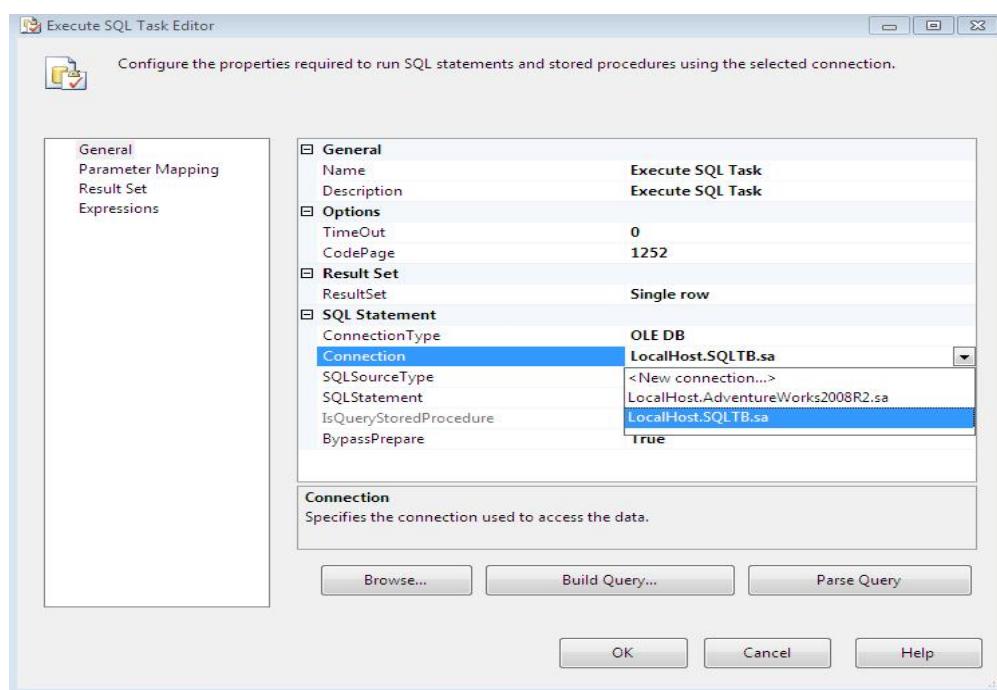


Then click Mapping tab and then “**OK**”.

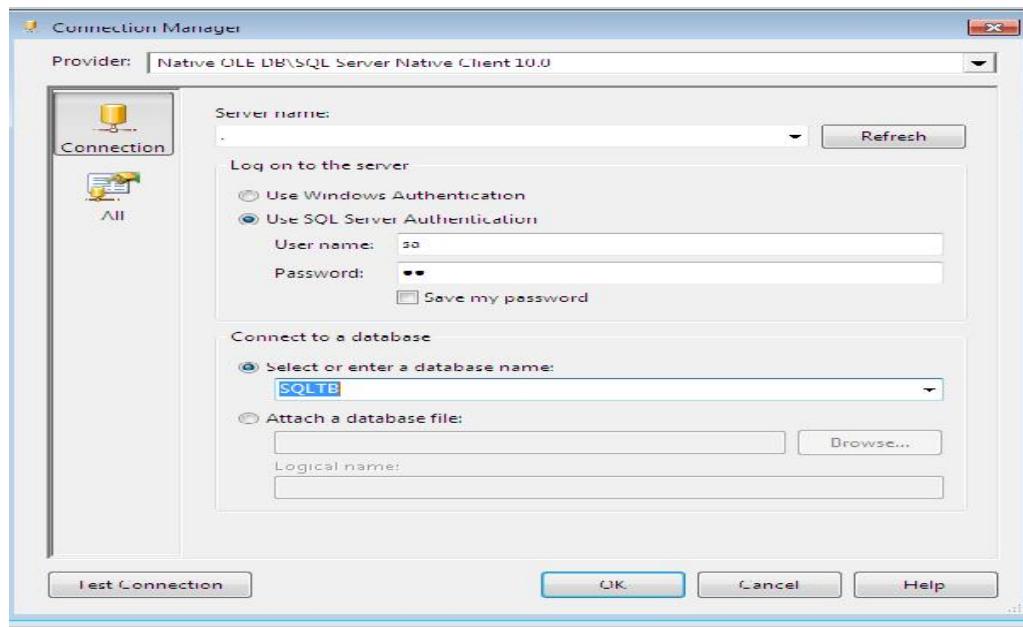
Step 10: Drag and drop the executive SQL task. And double click on it.



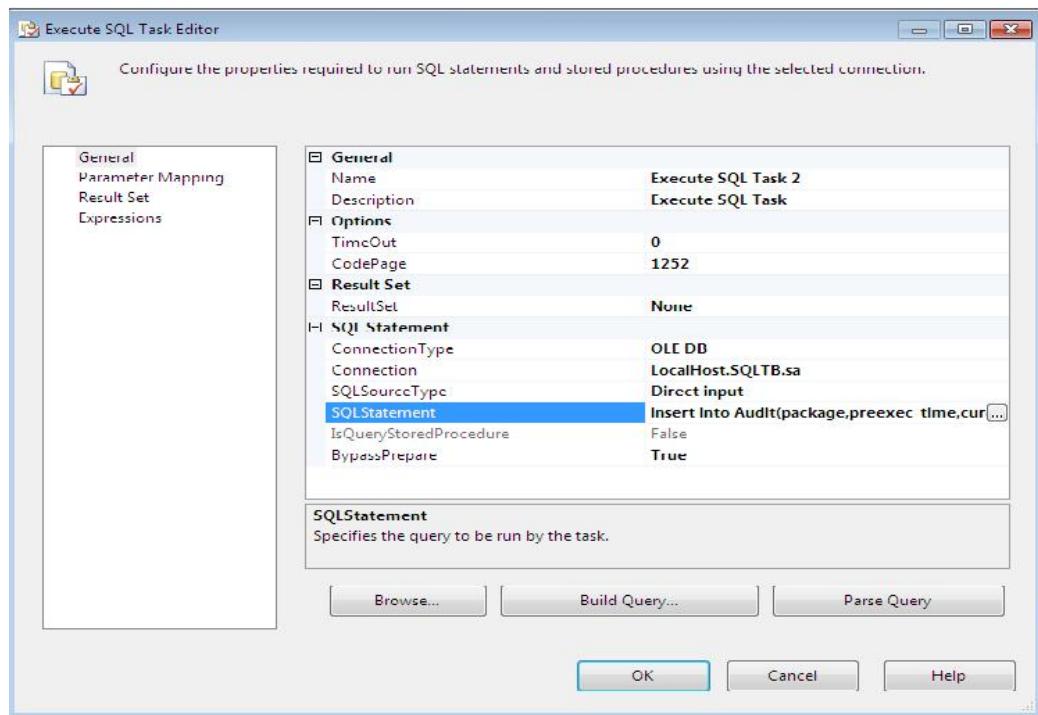
Connection:



Click → New Connection → New →



SQL statement:



insert into Audit(package,preeexec_time,cureexec_time) values(?, ?, ?).

Then execute the package.

WORKING WITH FULL RESULT SET:

For each loop container:

Its support to implement the looping mechanism based on the enumerators.

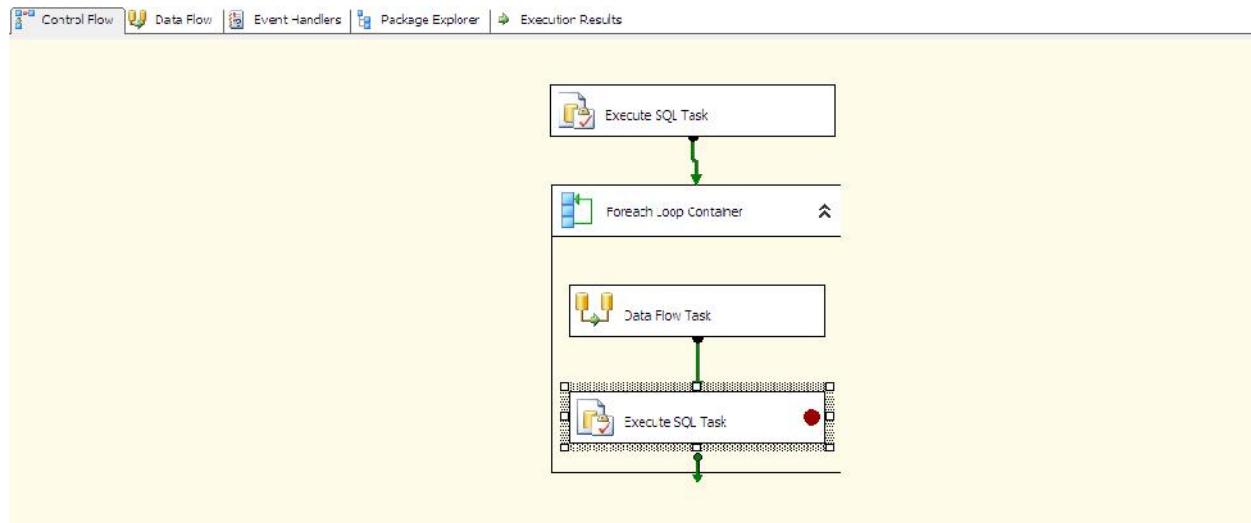
Types of enumerators

ADO enumerator:

It's going to deal with the objects data type and pass values to the variables that variables we are using inside the tasks.

Break points:

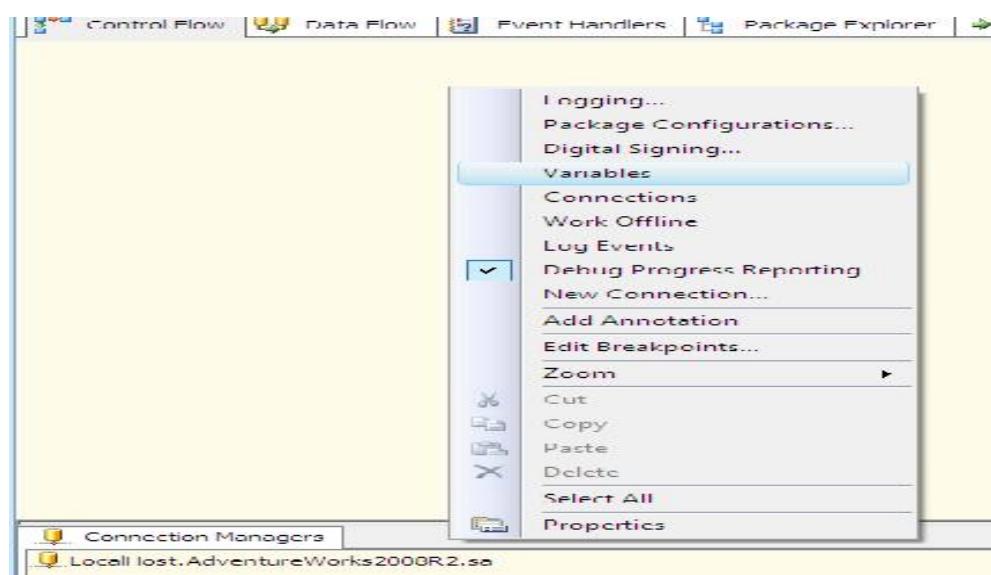
It's going to support implement the debugging mechanism in development time.



Step: 1 creating the table with the table name count_table

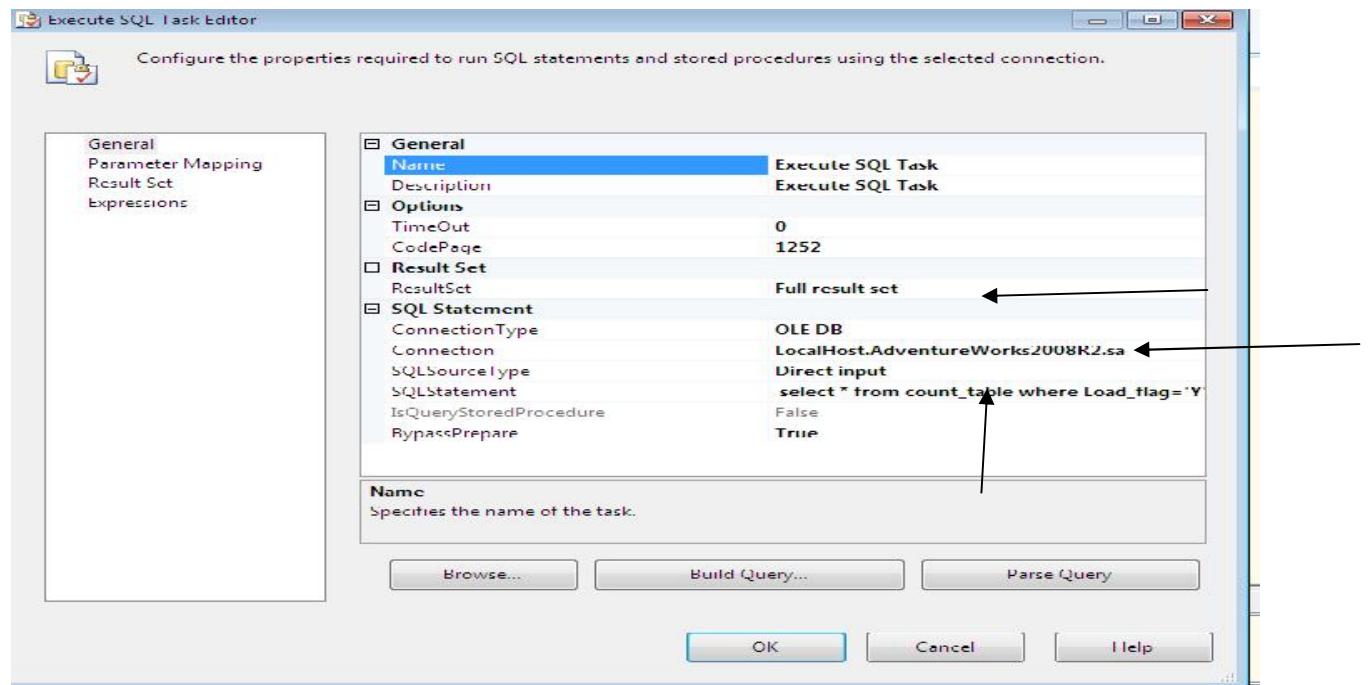
```
select MIN(ModifiedDate) as str_date,  
MAX(ModifiedDate) as end_date,  
'Y' as Load_flag into count_table  
from Sales.SalesOrderDetail  
group by YEAR(ModifiedDate)  
order by str_date
```

Step: 2 Create the 3 variable.(Right click on the control flow and select the **variables** and click the **Add parameter** and then gives the name , scope and data type.).

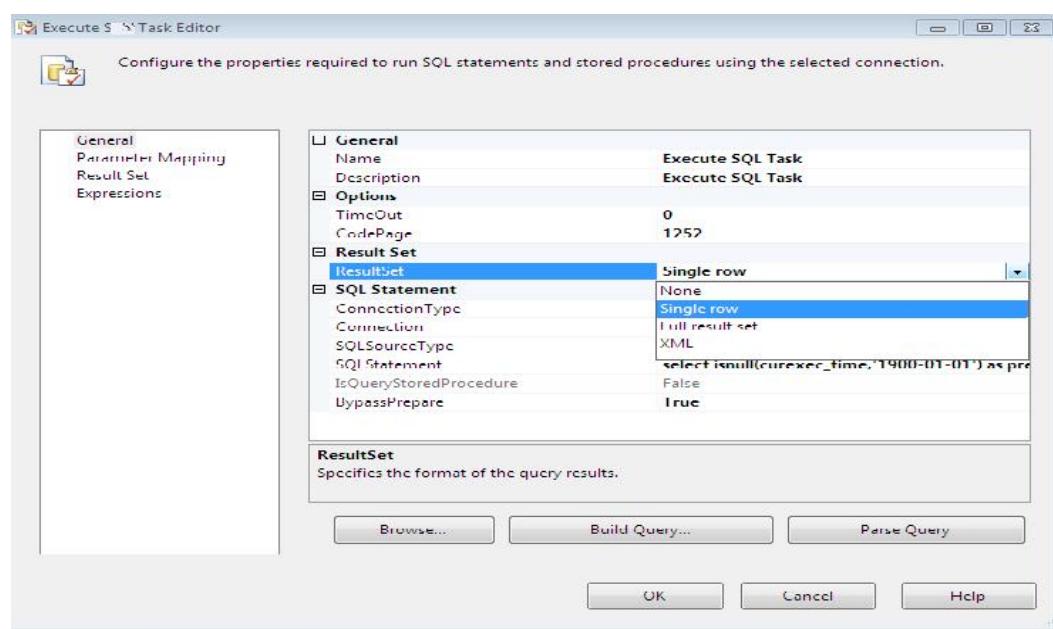


	Scope	Data Type	Value
Add Variable			
end_date	Package13	DateTime	9/22/201...
resultset	Package13	Object	System....
str_date	Package13	DateTime	9/22/201...

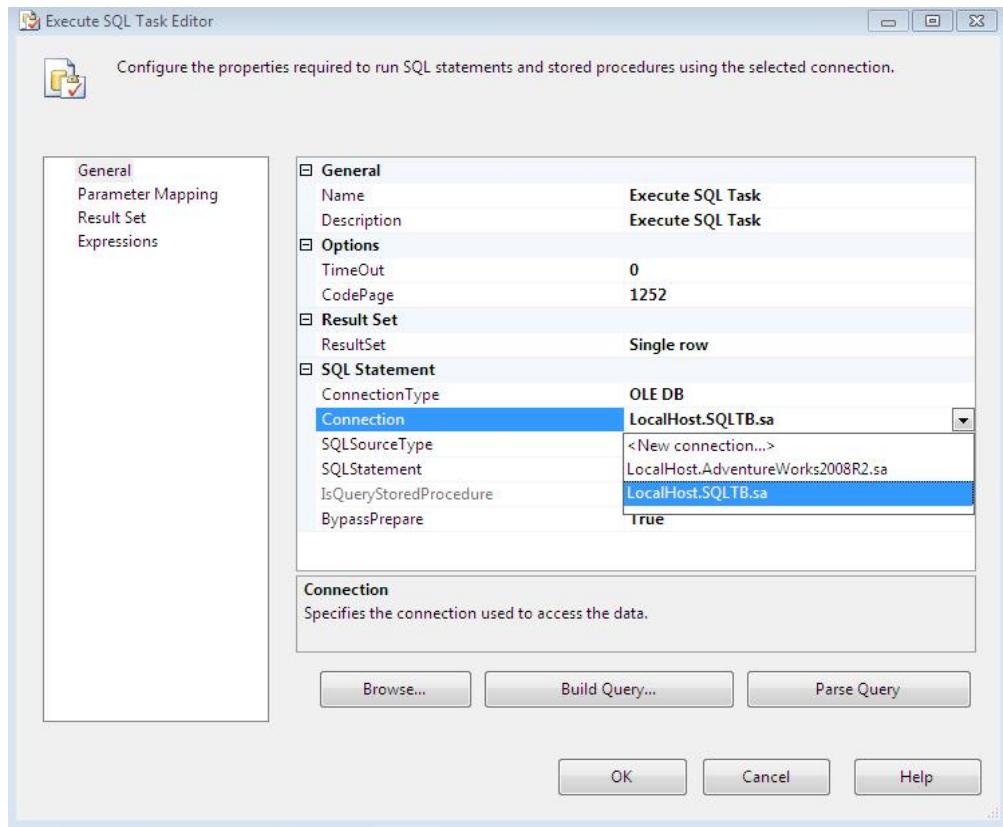
Step: 3 In control flow Drag and drop the executive SQL task and double click on the executive SQL Task for configuration.



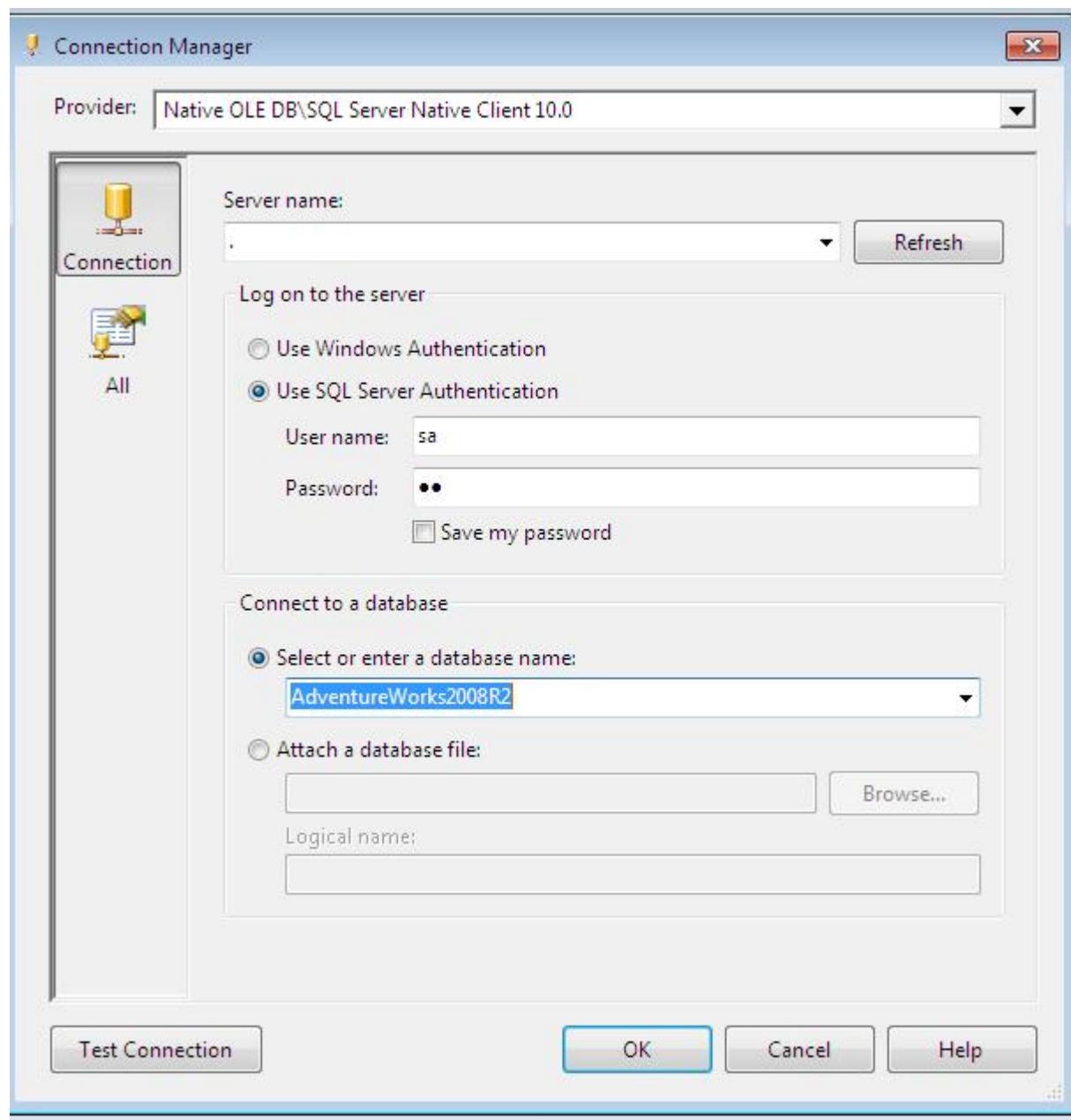
Result Set: In result set select the “Full result set“



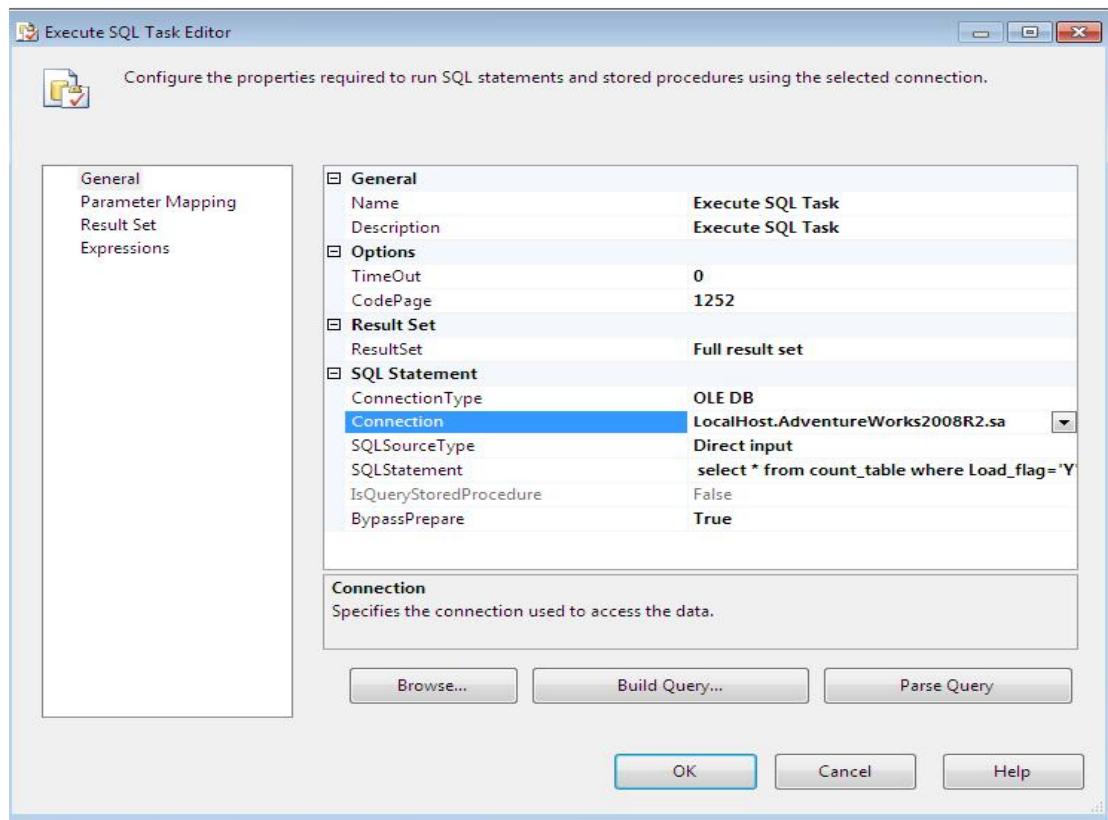
Connection:



Click → New Connection → New →



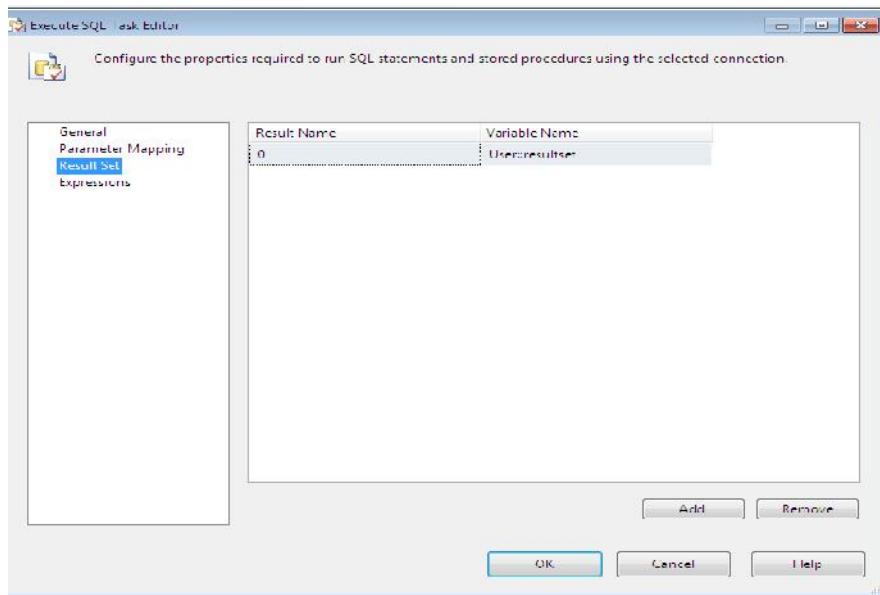
SQL statement:



select * from count_table where Load_flag='Y'

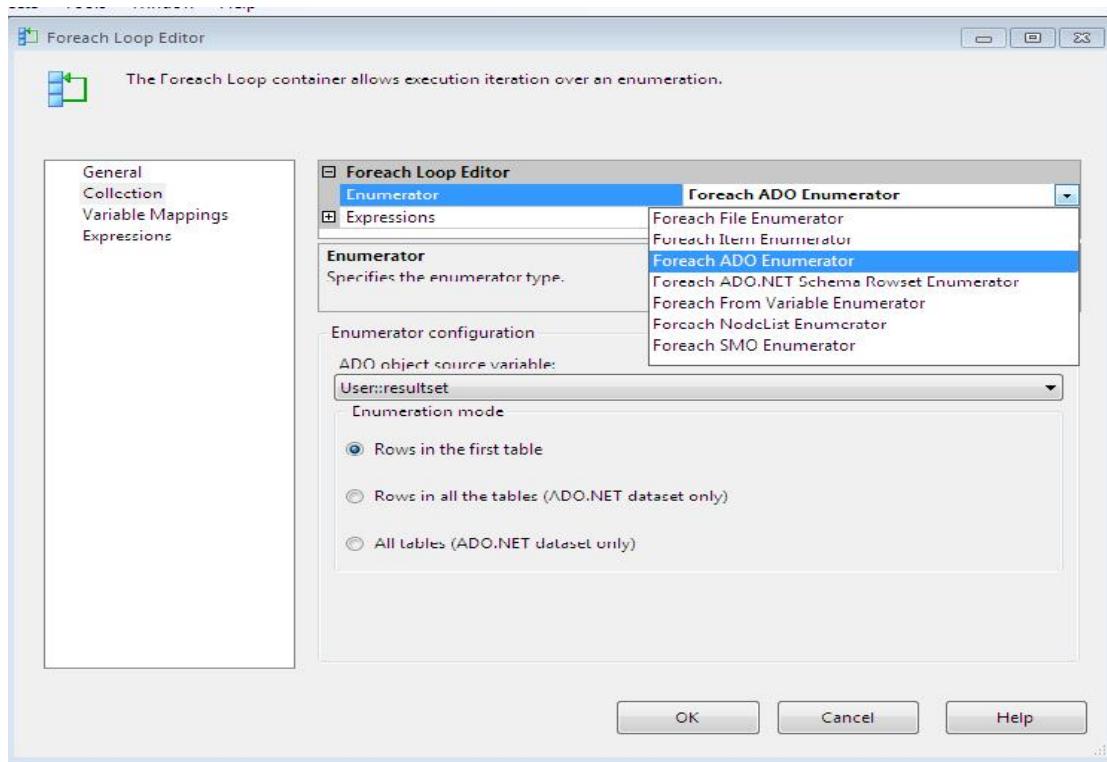
Select the **Result Set tab** from the left panel.

2 time Click **Add** button and assign the variables values.

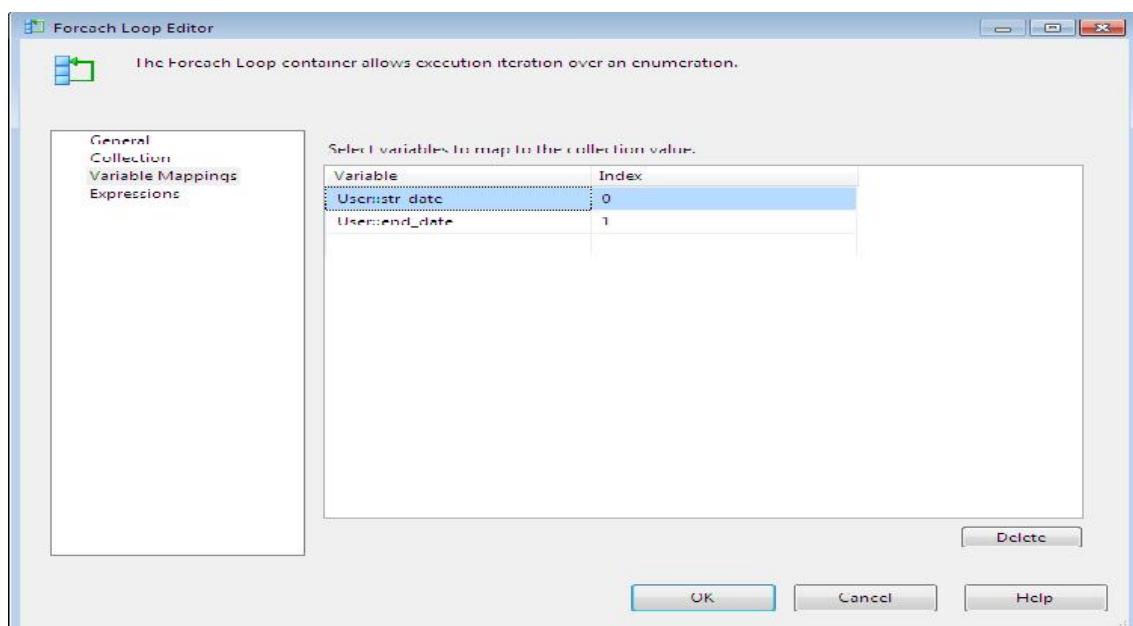


Step: 4 Drag and drop the for each loop container and double click on it.

1. Select the collection tab from the left panel and specify the enumerator type as **Foreach ADO Enumerator**.
2. Select the **ADO object source variable** as **user::resultset**
3. Select **Rows in the first table** as **Enumeration mode**.



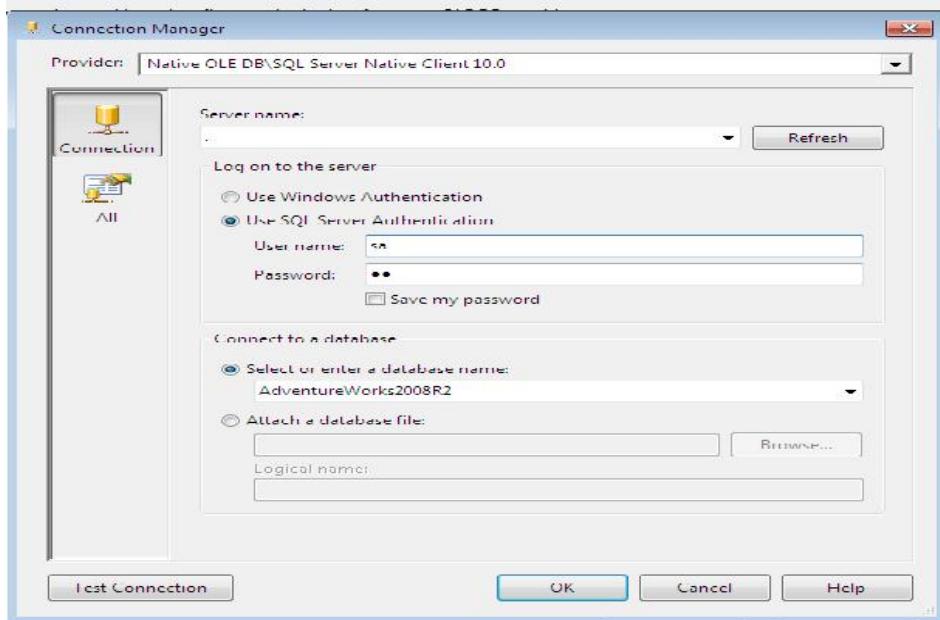
4. Select **Variable Mappings** tab from the left panel set the variables.



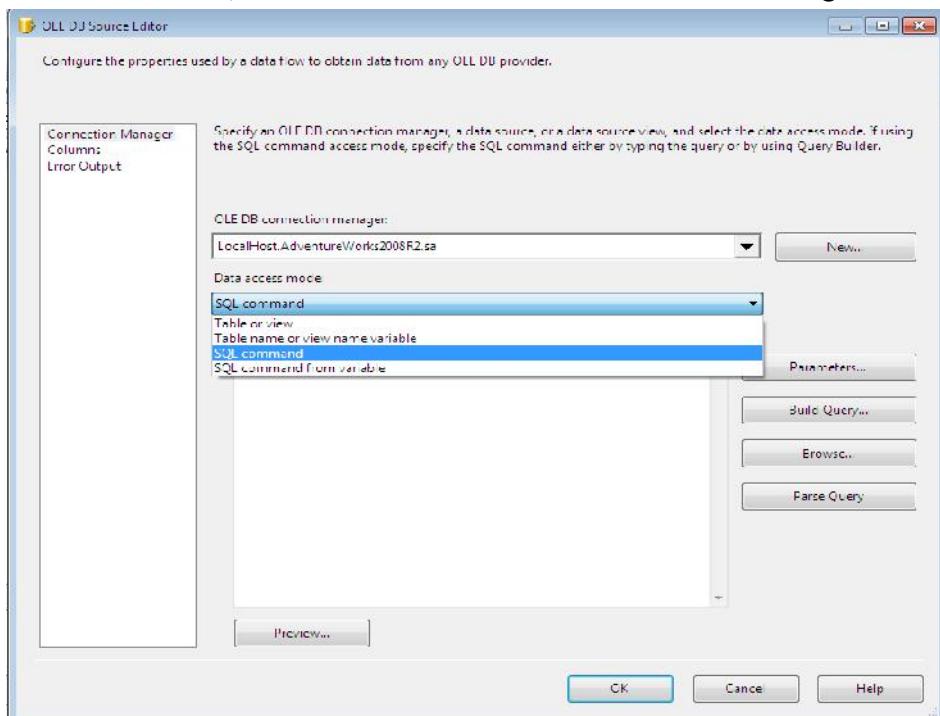
5. Then click “OK”.

Step: 5 Drag and drop the data flow task and double click for configuring.

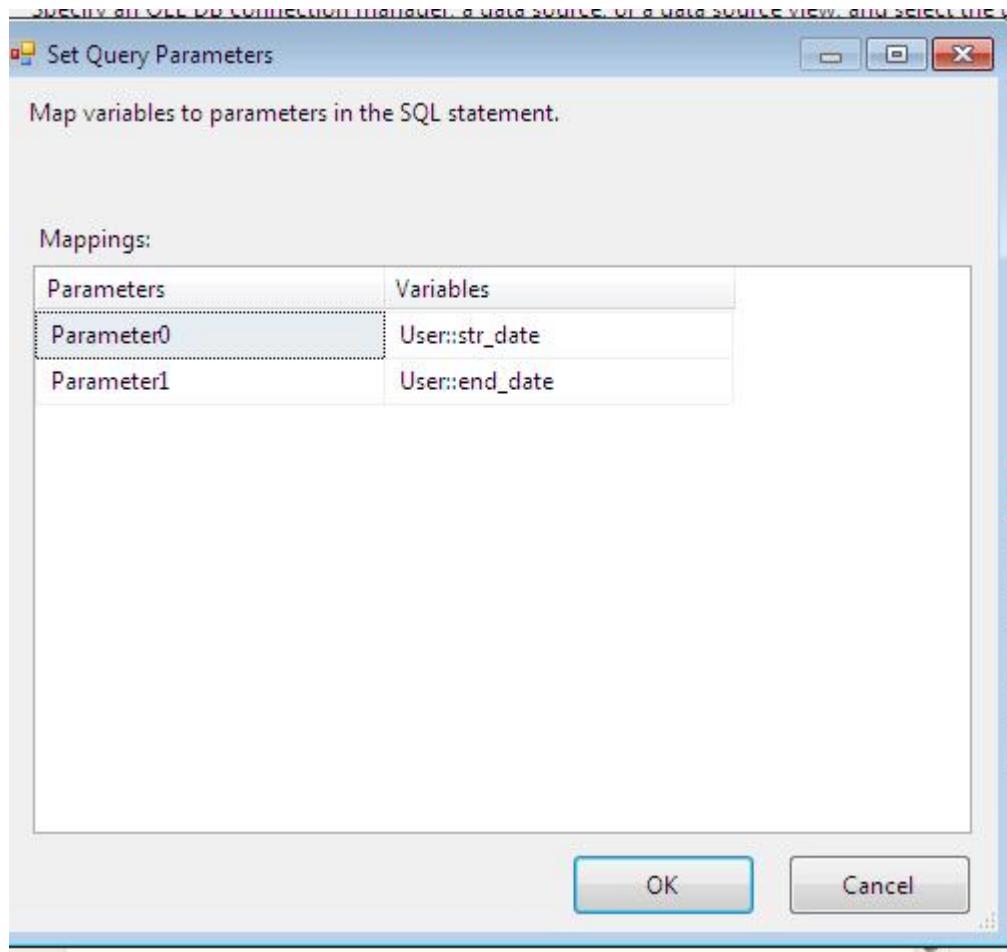
1. Drag and drop the OLEDB Source and configure in the following way.
Click NEW → NEW →



2. Then click “OK”, “OK” and select the **Data access mode** as **SQL Command**



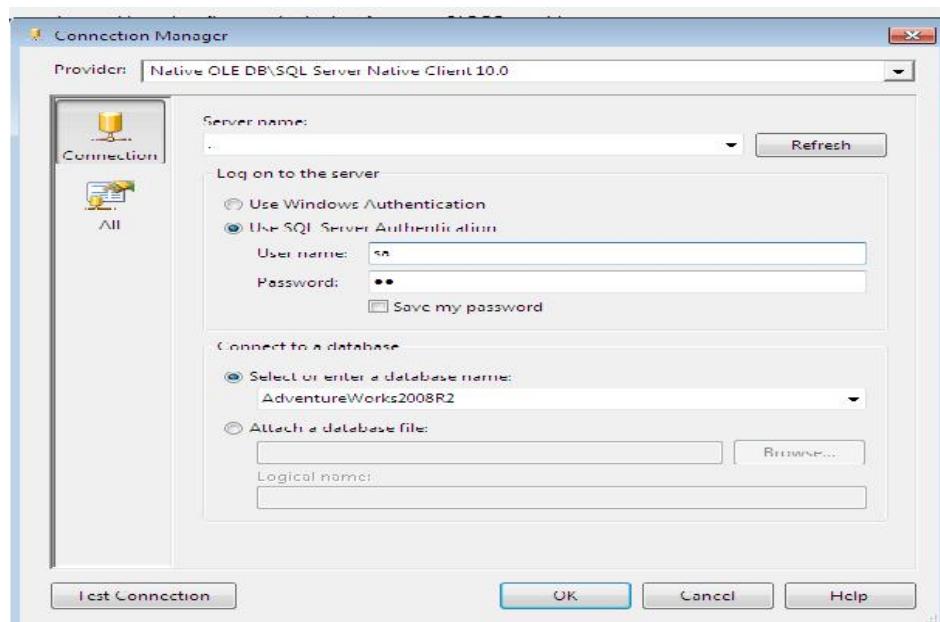
3. Write the following query in the SQL Command Text
select * from Sales.SalesOrderDetail where ModifiedDate between ? and ?
4. Click on the Parameters and set the parameters in the following way.



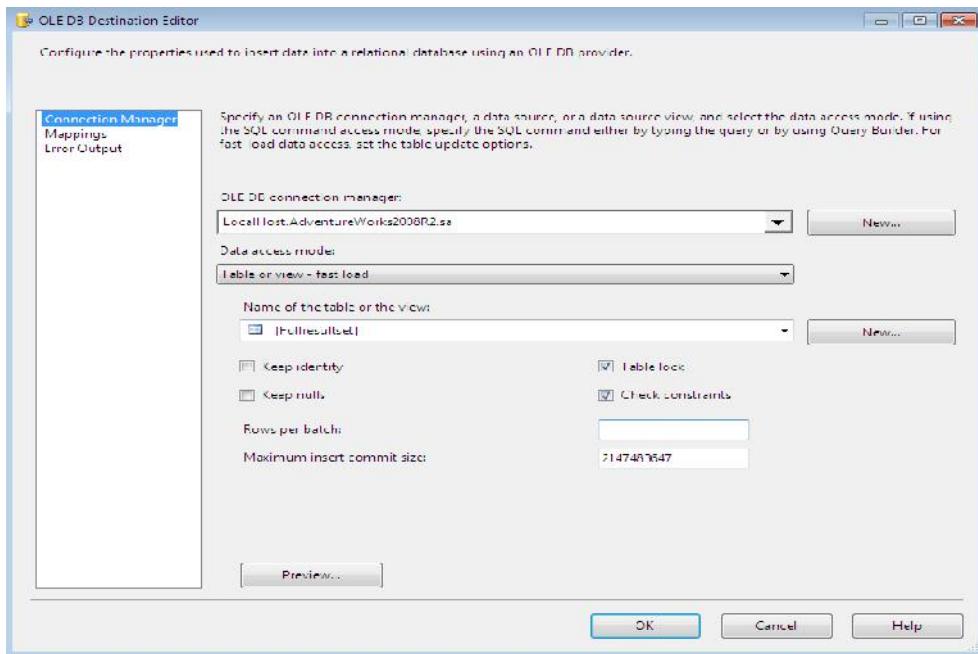
And then click “OK” and select the column tab from the left panel and select “OK”.

Step: 6 Drag and drop the data flow task and double click for configuring.

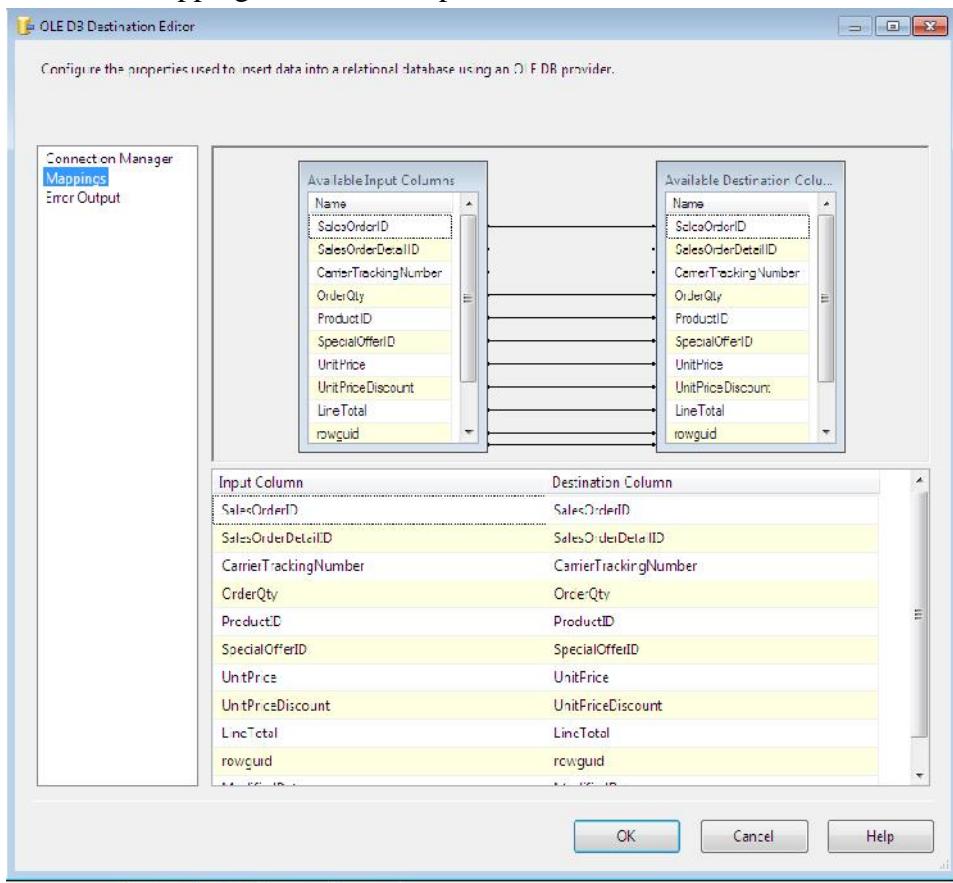
1. Drag and drop the OLEDB Source and configure in the following way.
Click NEW → NEW →



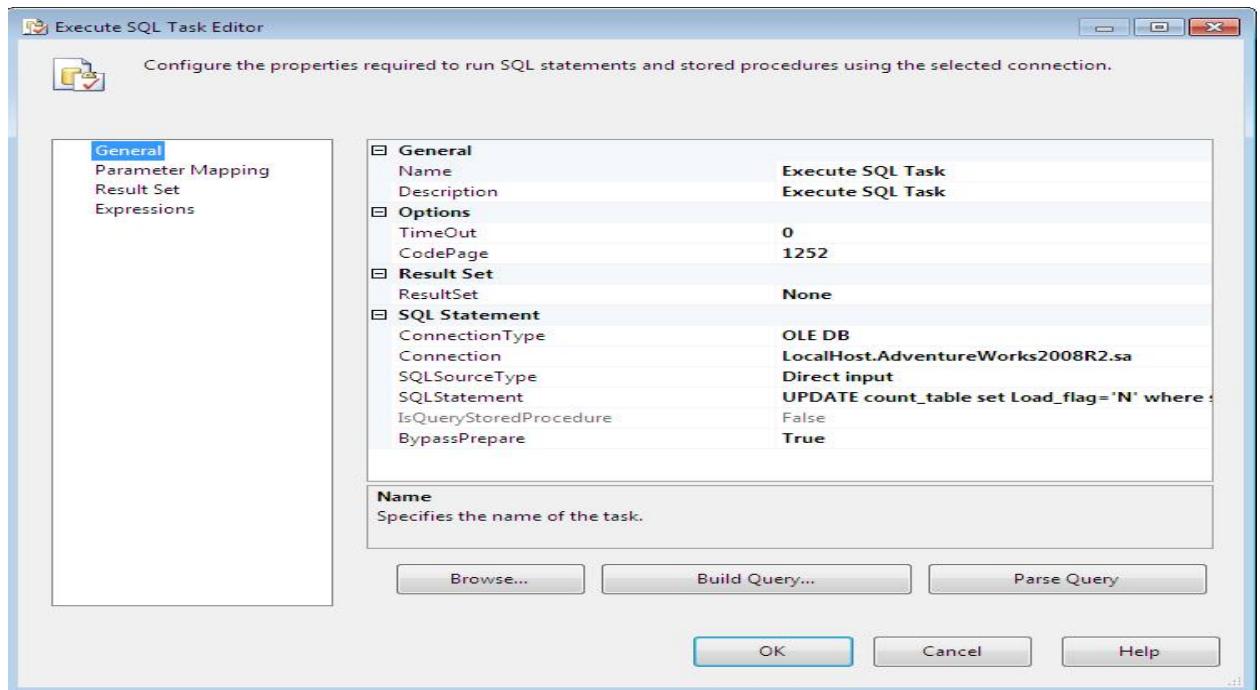
2. Select the table name as Fullresultset table .



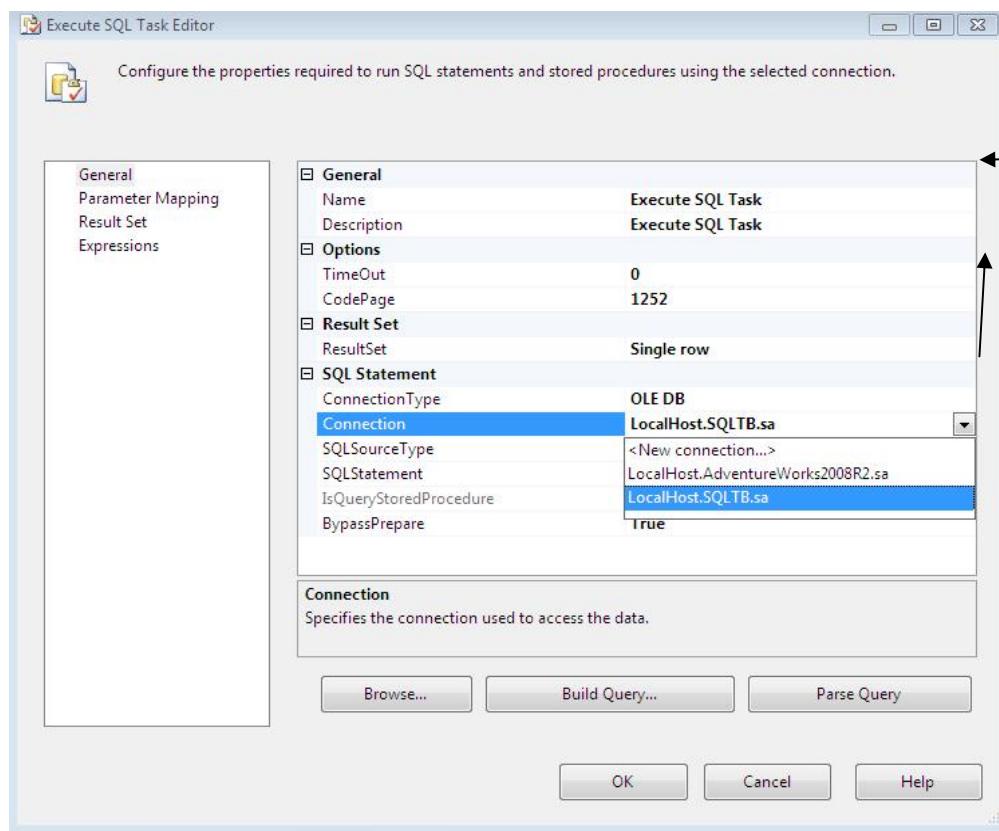
3. Select the Mappings from the left panel and then click “OK”.



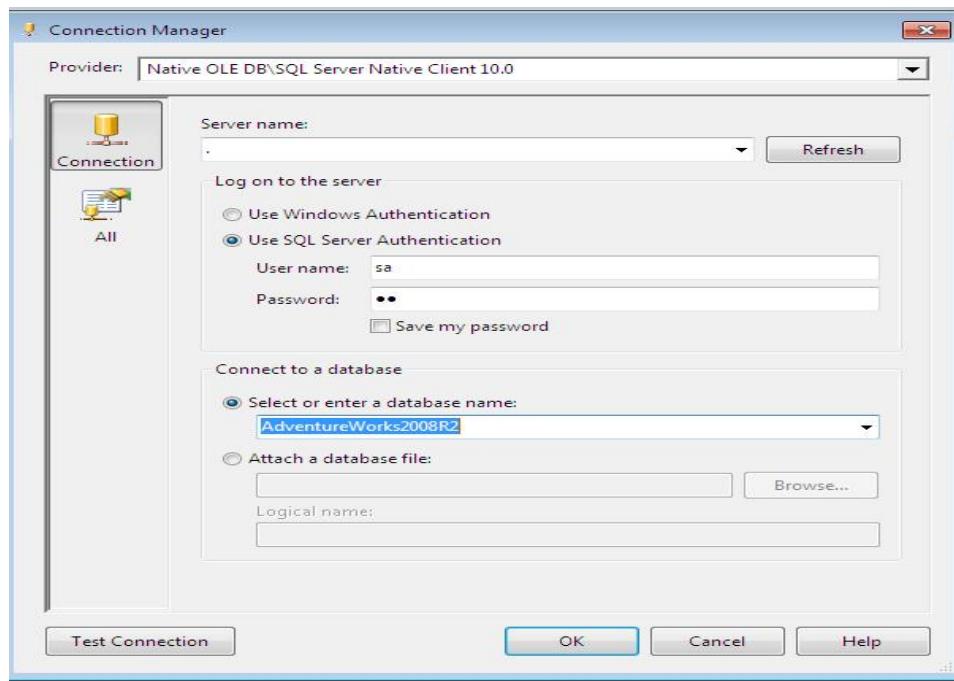
Step :7 Drag and drop the execute SQL task and configure in the following way.



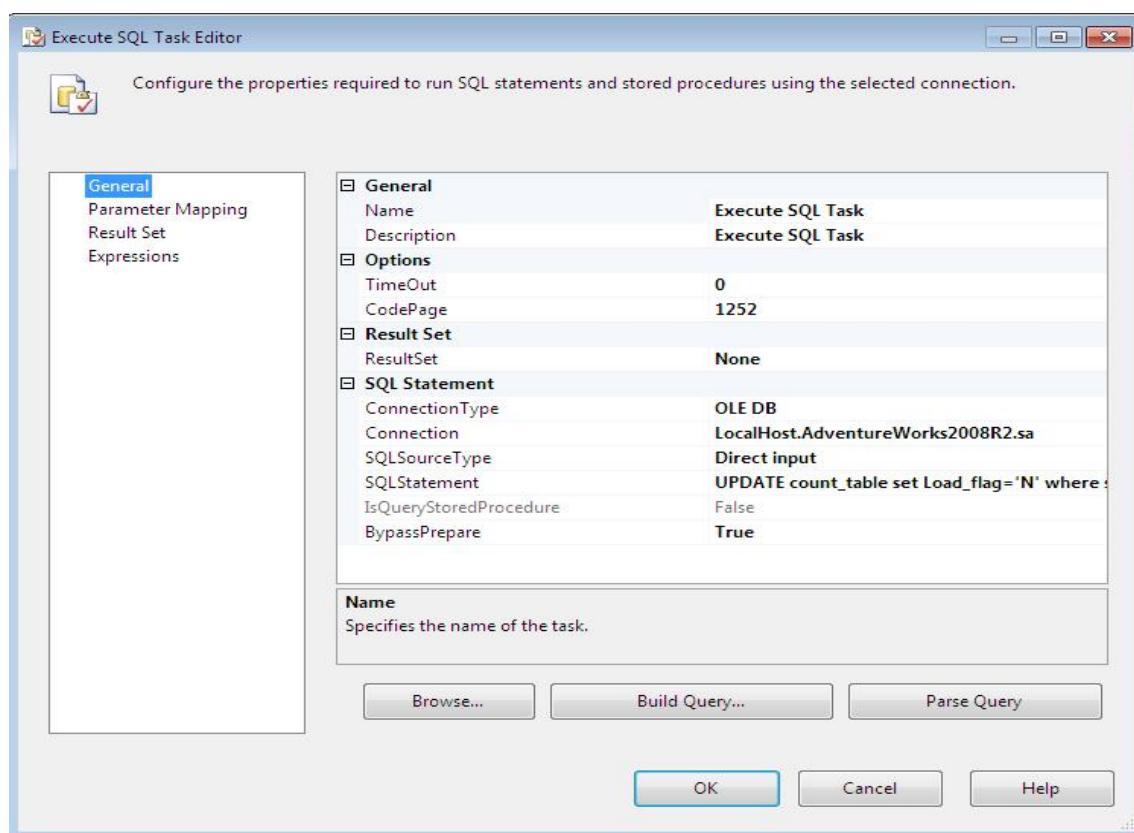
Connection:



Click→New Connection→New→

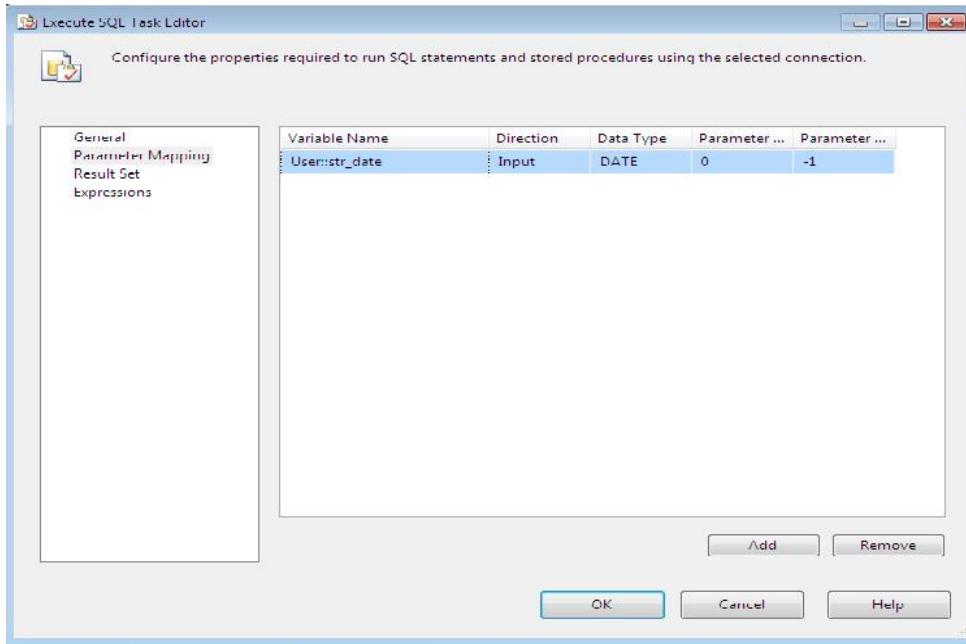


SQL statement:



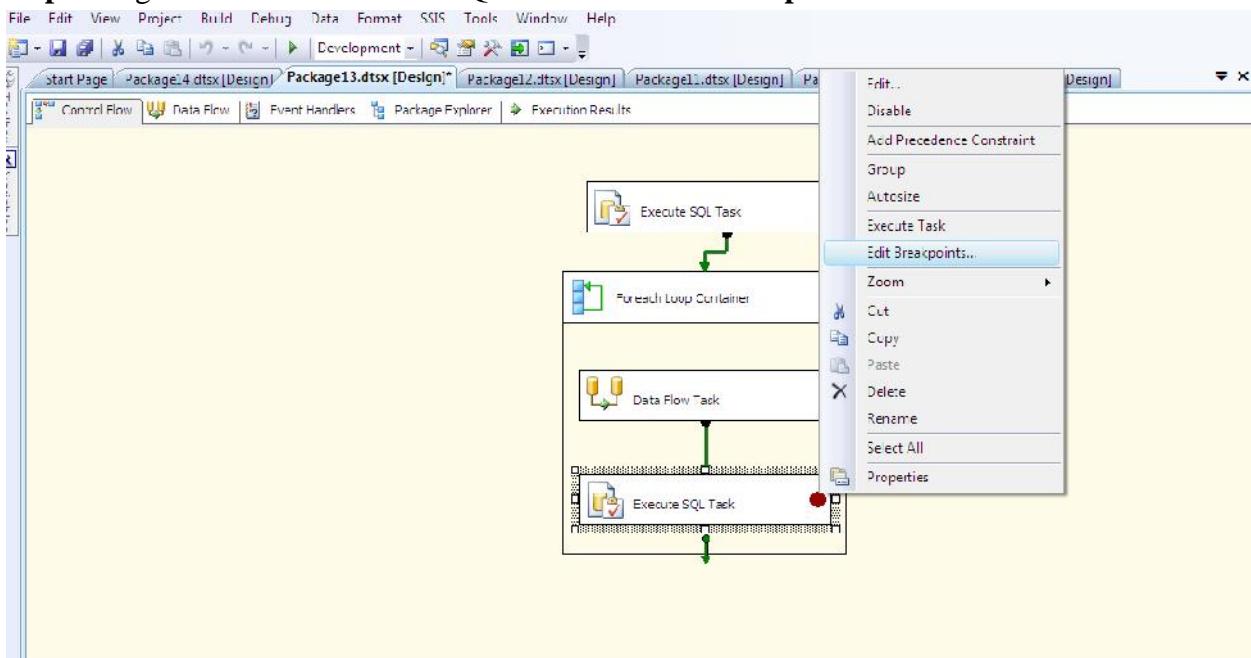
UPDATE count_table set Load_flag='N' where str_date=?

Select the **parameter Mapping** tab from the left panel.

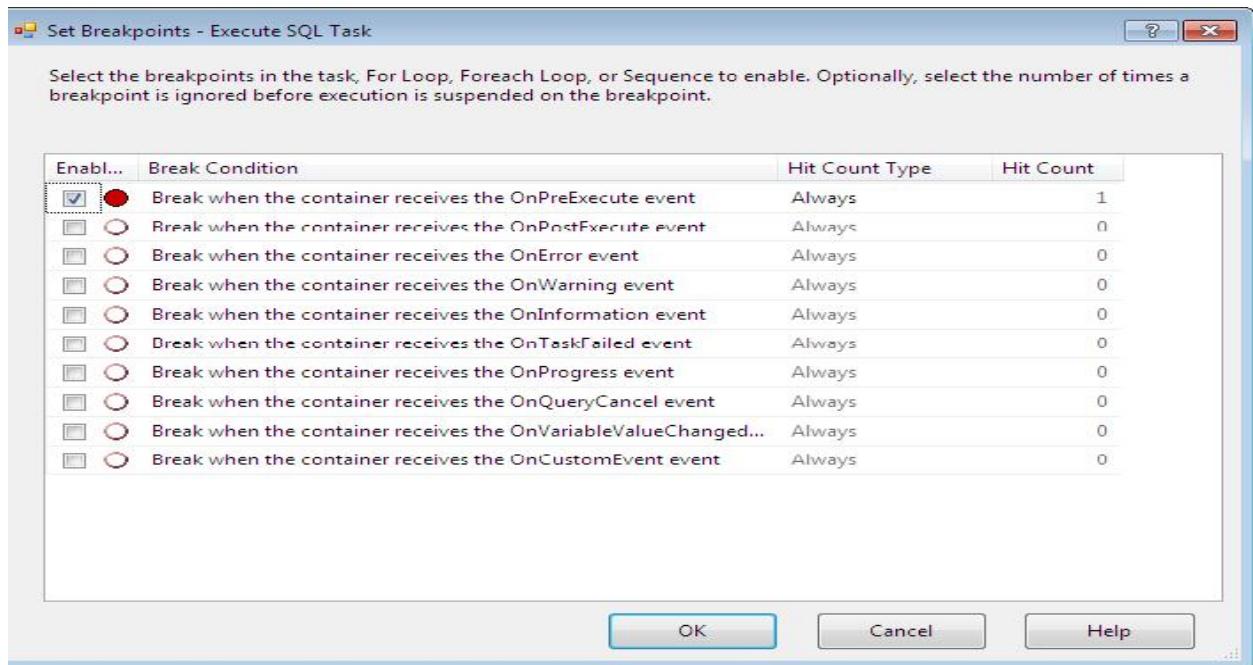


Then click “OK”

Step: 8 Right click on the execute SQL task and **Edit break points**.



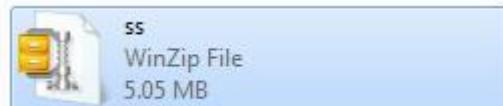
And set the break points in the following way.



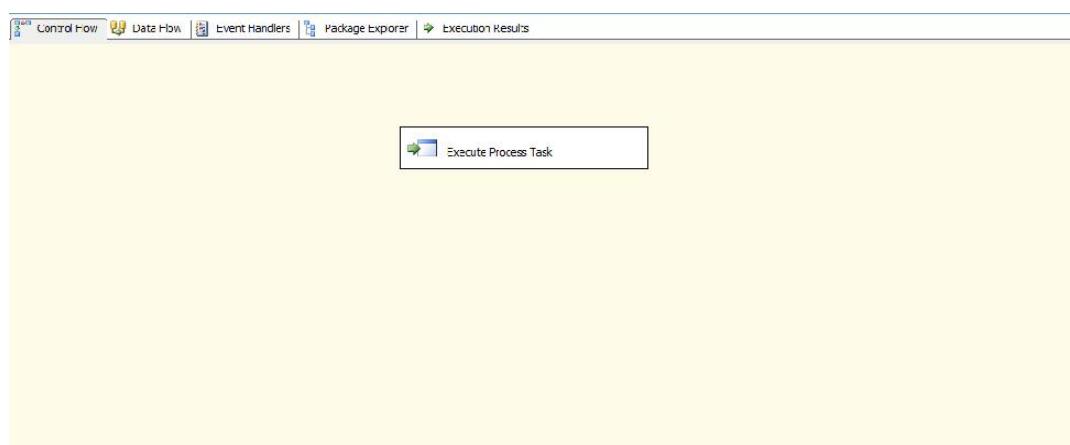
Then execute the package.

EXECUTIVE PROCESS TASK:

Step 1 Create the zip folder. This folder contains the number of files.

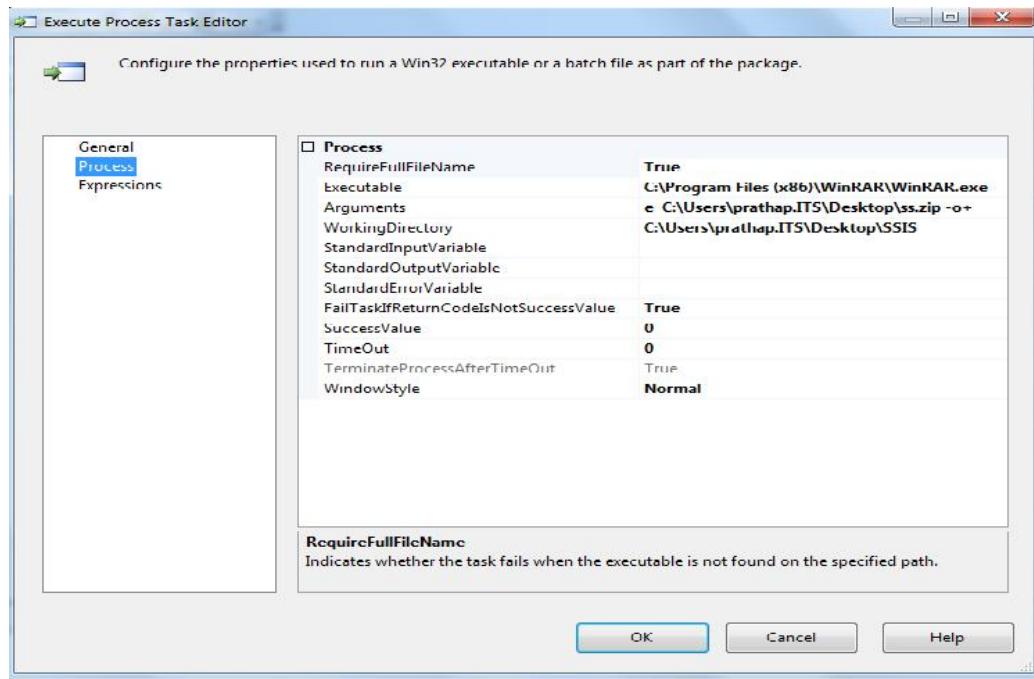


Step 2: In the control flow Drag and drop the Execute Process Task Configure in the following way.



Configuration:

1. Select the Process tab from the left panel.

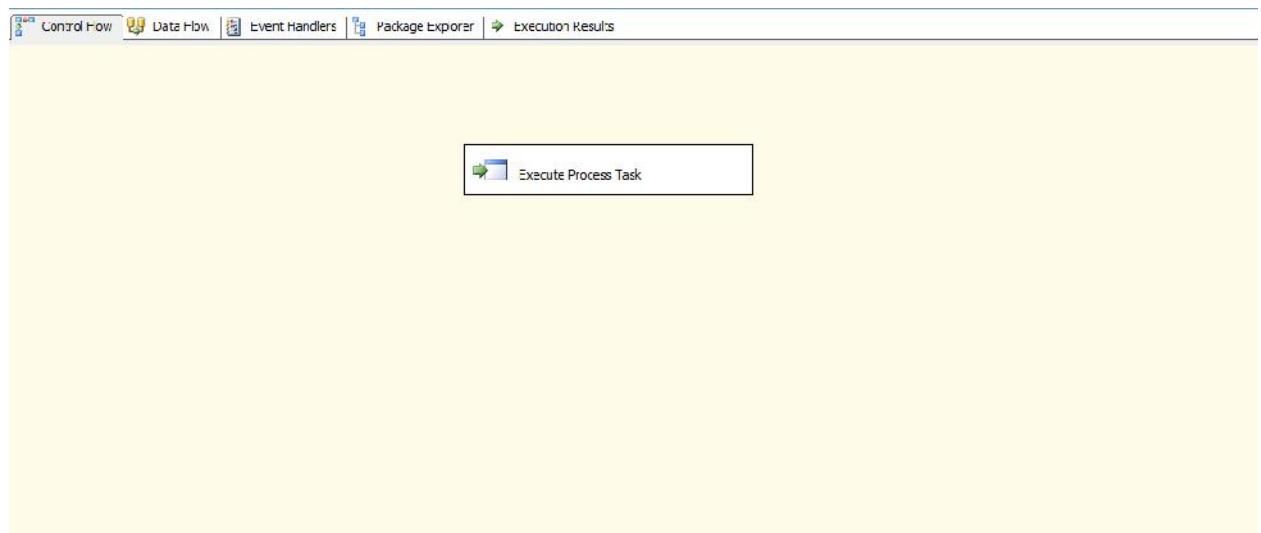


- Executable:** This is the path of the application you are going to use. This specific example has used Winrar.
- Arguments:** In this you need to supply the arguments to extract the zipped files. In the particular example e stands for Extract files to current directory. Then the full path name of the zipped file. -o+ is a parameter to say overwrite files if they exist.
- Working Directory:** This is the current directory for the process. In the given example ss.zip will be extracted to the directory given in the Working Directory attribute.

Zipping the folder:

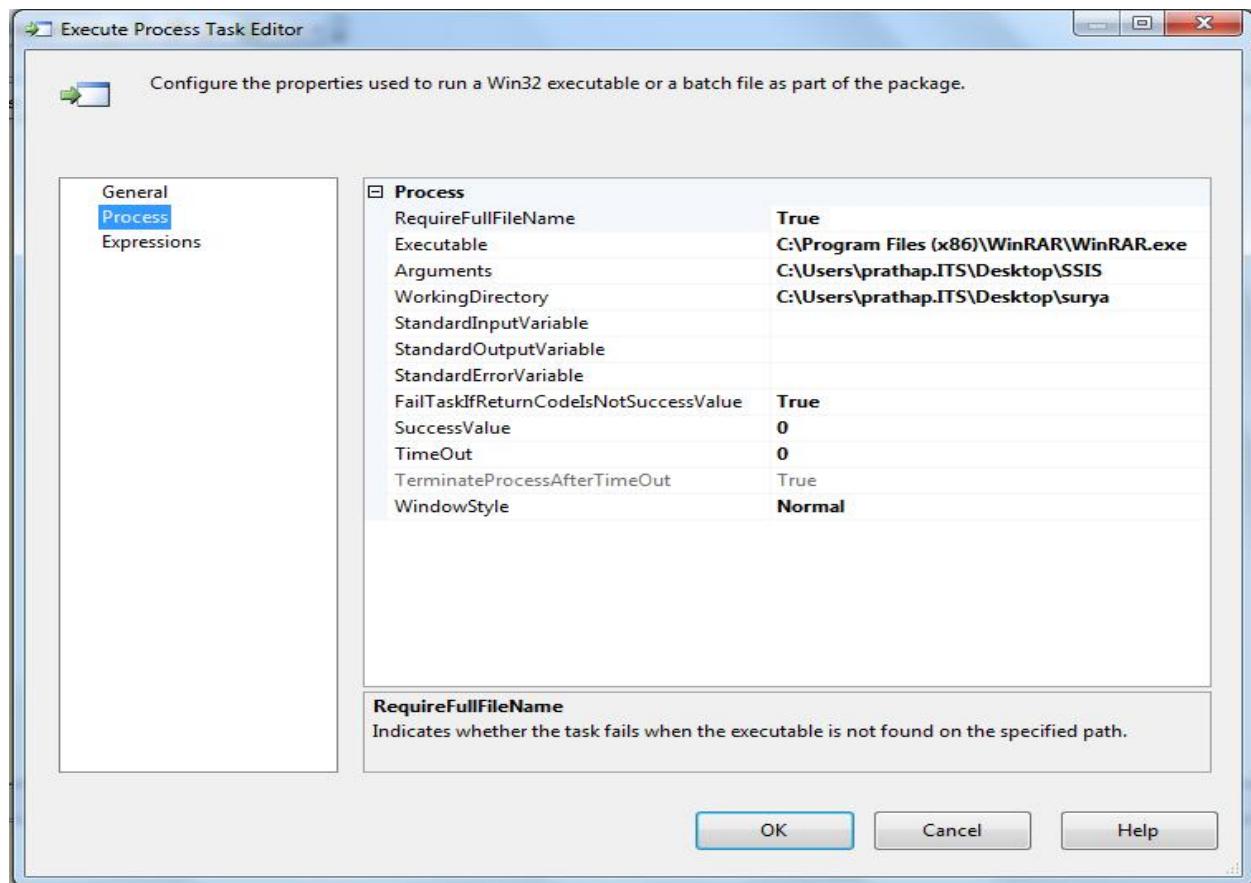
Step : 1 Create the folder.

Step 2: In the control flow Drag and drop the Execute Process Task Configure in the following way.



Configuration:

- Select the Process tab from the left panel.



Executable: C:\Program Files (x86)\WinRAR\WinRAR.exe

Arguments: C:\Users\prathap.ITS\Desktop\SSIS

Working Directory: C:\Users\prathap.ITS\Desktop\surya

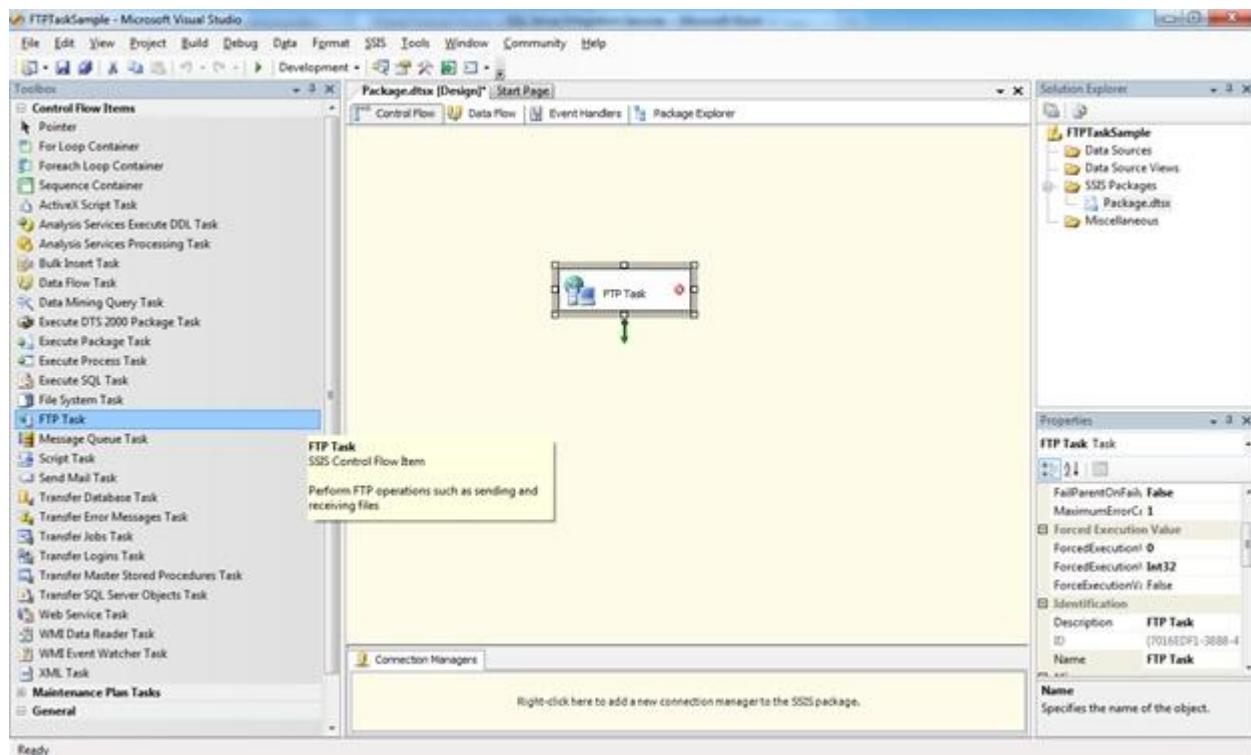
FTP TASK

In this article we are going to see how to use a FTP task in a SSIS package to Send a file. To follow my series of articles on SSIS packages refer to my profile for the links.

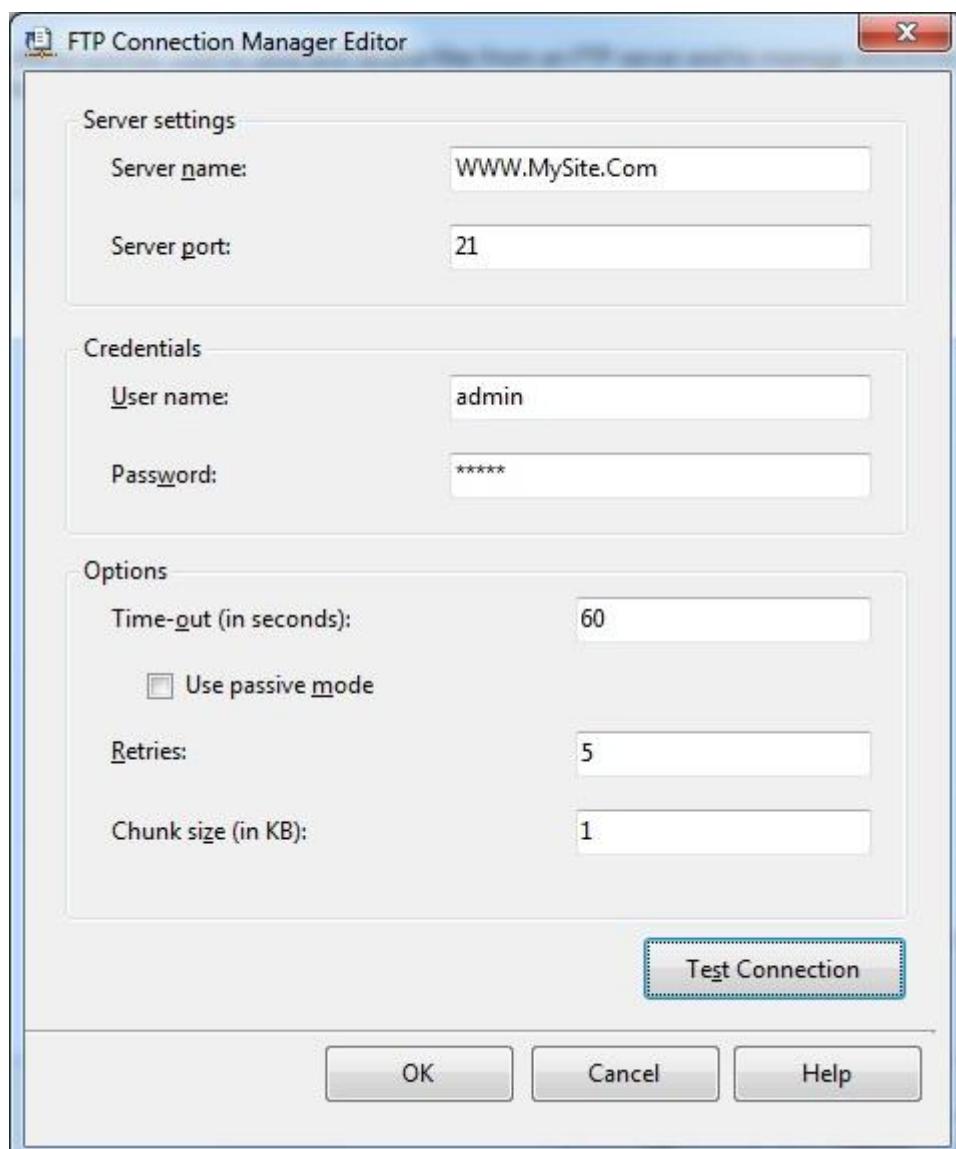
Steps:

In this article we are going to see how to use a FTP task container in packaging. A FTP task is mainly used to do a file transfer using FTP. SSIS provides the in-built task container to do a FTP of a file. Let's jump start to see the how to use the task in real time. Here I'm going to show a small example of how to configure a FTP task and Send a file to the remote host.

Follow steps 1 to 3 on my first article to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see how to use FTP task container. Drag and drop the FTP task as shown in the screen below.

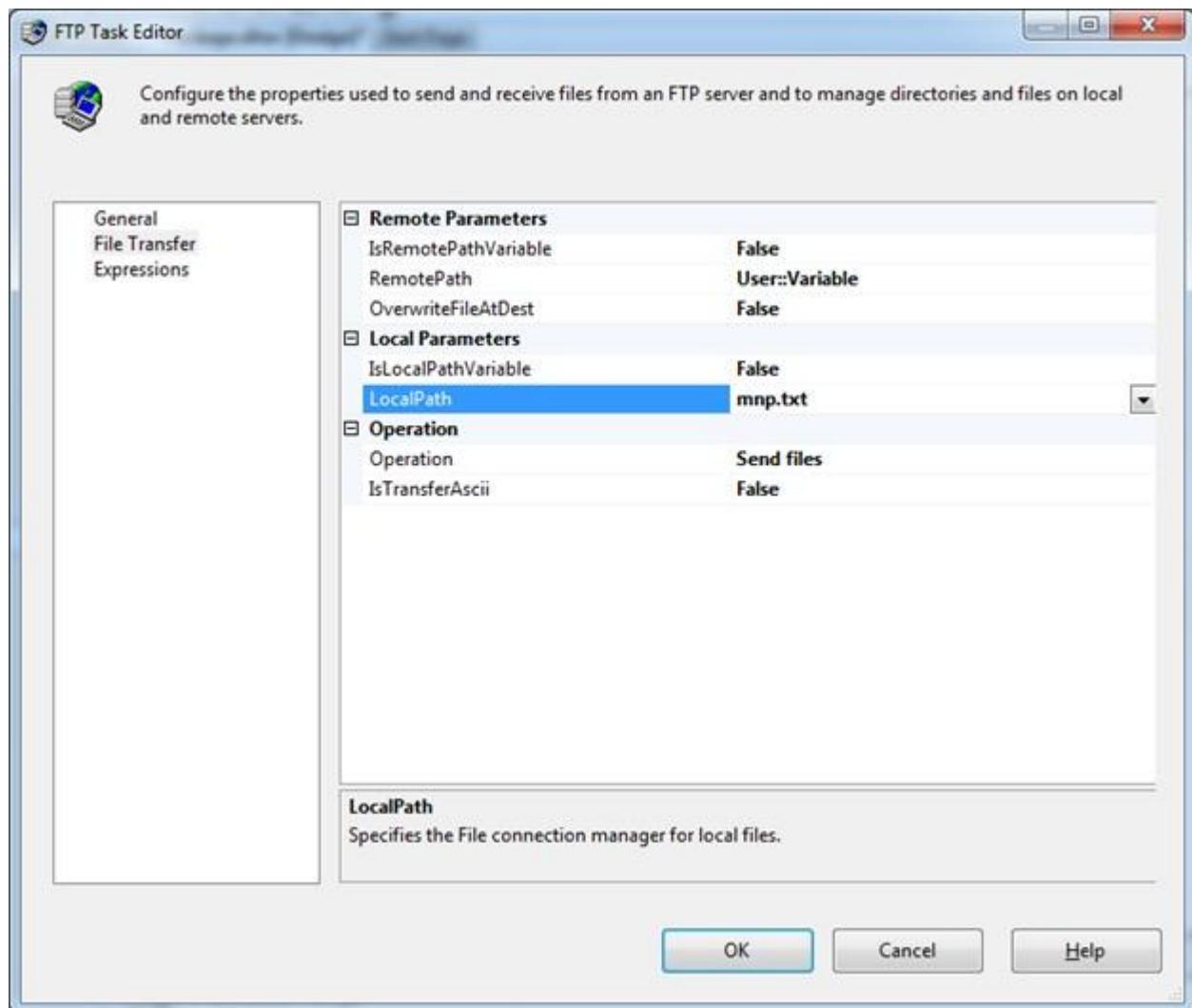


Now double-click on the task to open the property window and set the properties as shown in the screen below.



The above image is for setting the FTP Connection; the end user needs to provide the correct connection settings and click on the Test Connection to confirm if the connection is valid.

Now in the file transfer tab we need to set the property since in our example we are going to send the file to FTP we need to set as below. Here input variable is used to get the path where we need to get the file.



Here the operation section we need to select Send Files in order to send files to a destination FTP. And in the Remote parameters section we need to specify the FTP site location using a variable and in the local parameter section we need to select the local file location to send a file to the remote location.

Once you have given valid credentials by running directly the package will do the necessary steps of sending the files from FTP to the local folder.

Deployment process:

Where we are going to storing our packages is nothing but a deployment 2008 and below version only. We are having package deployment mode. In the package deployment mode. We are going to store our package into file system and SQL server.

Note: In the 2012 project mode deployment was introduced. It will store the whole project into one snap short. This will be stored in the database engine itself. Integration service catalog folder under SSISDB.

Build process: It's going to create build of code. (Package with manifesto file.)

Manifesto file: Its support to deploy the yours .dtsx file respective folder or database.

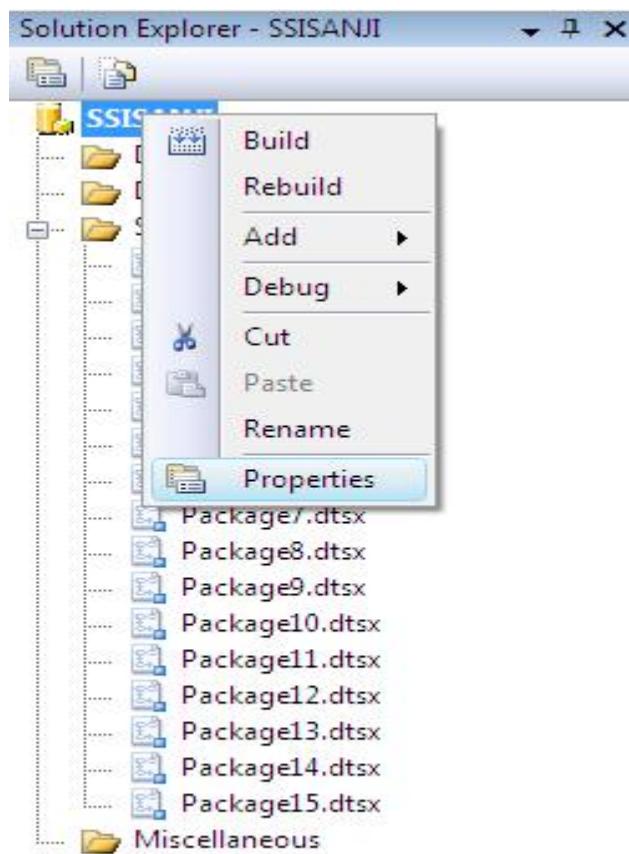
Build process step by step implementation

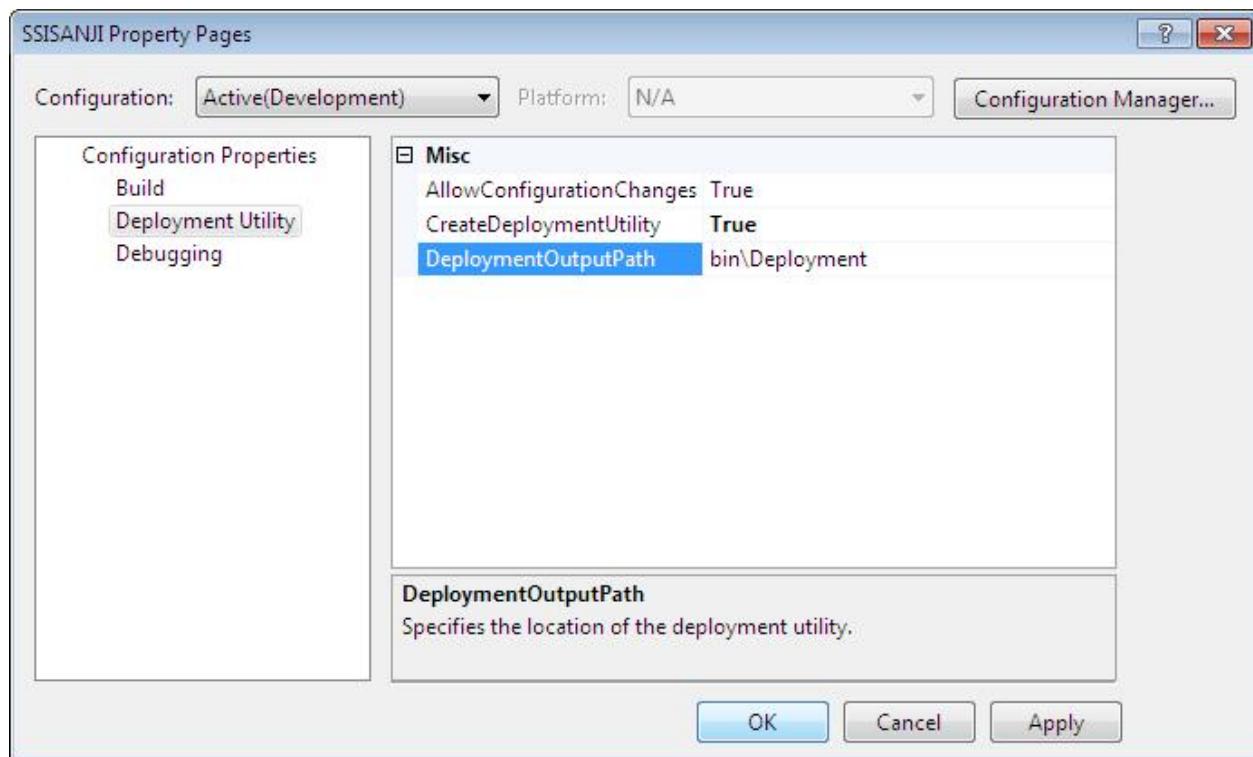
Step: 1 Right click on the project → Properties → Deployment utility → Allow configuration change: True

Create deployment utility: True

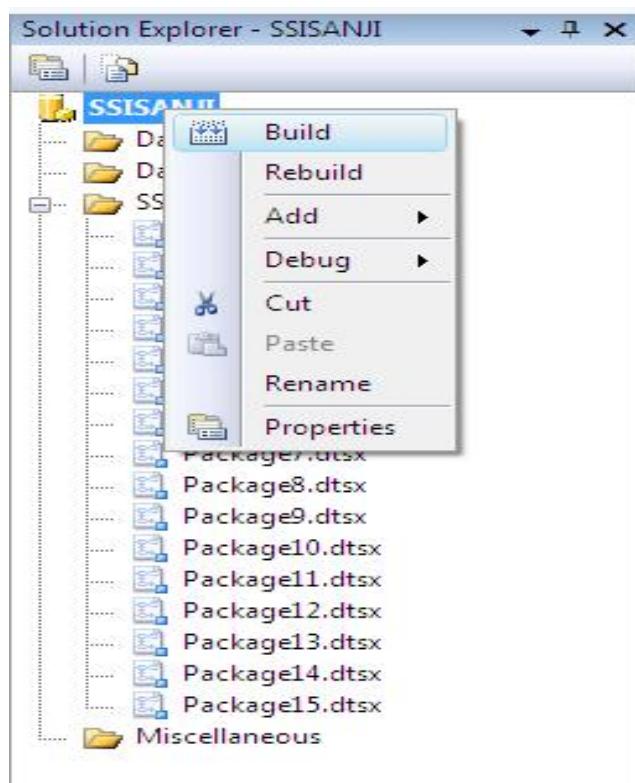
Deployment output path: bin\Deployment.

Then click “OK”.



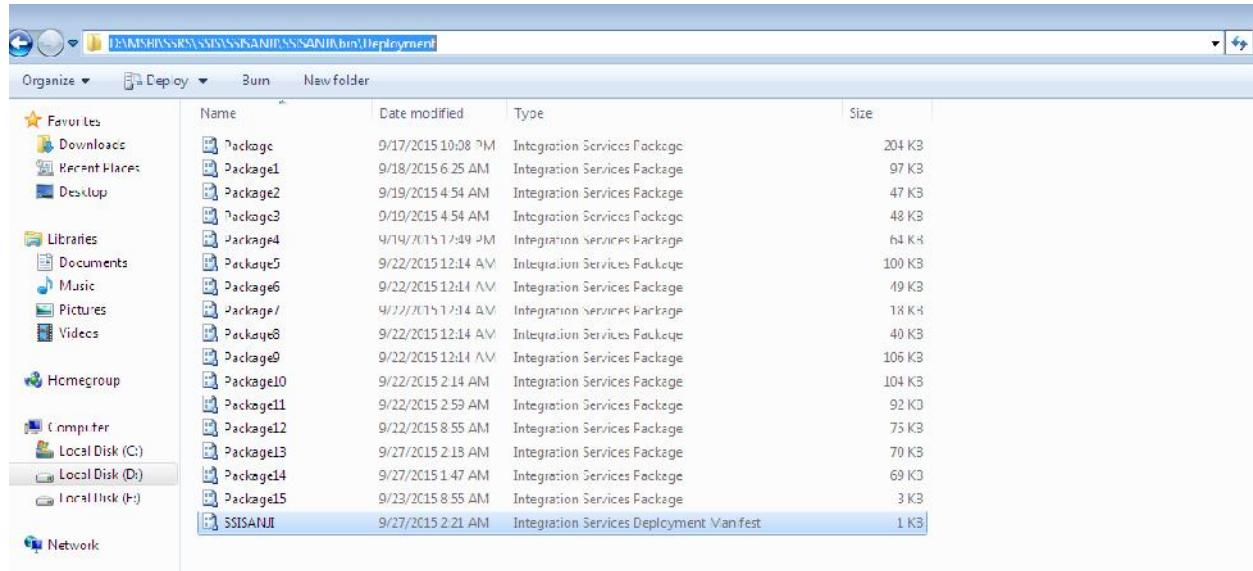


Right click on the project and deploy the project.

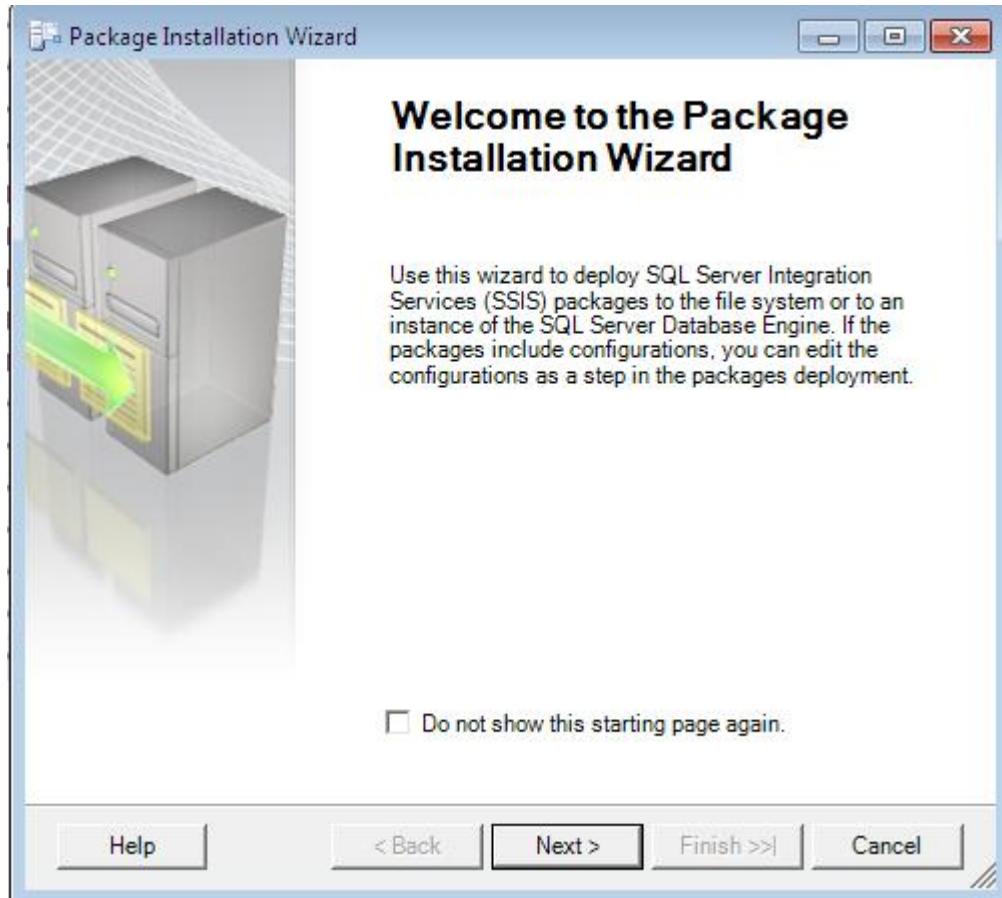


Deployment process step by step implementation

Step : 1 Go to the build folder double click on the manifesto file.

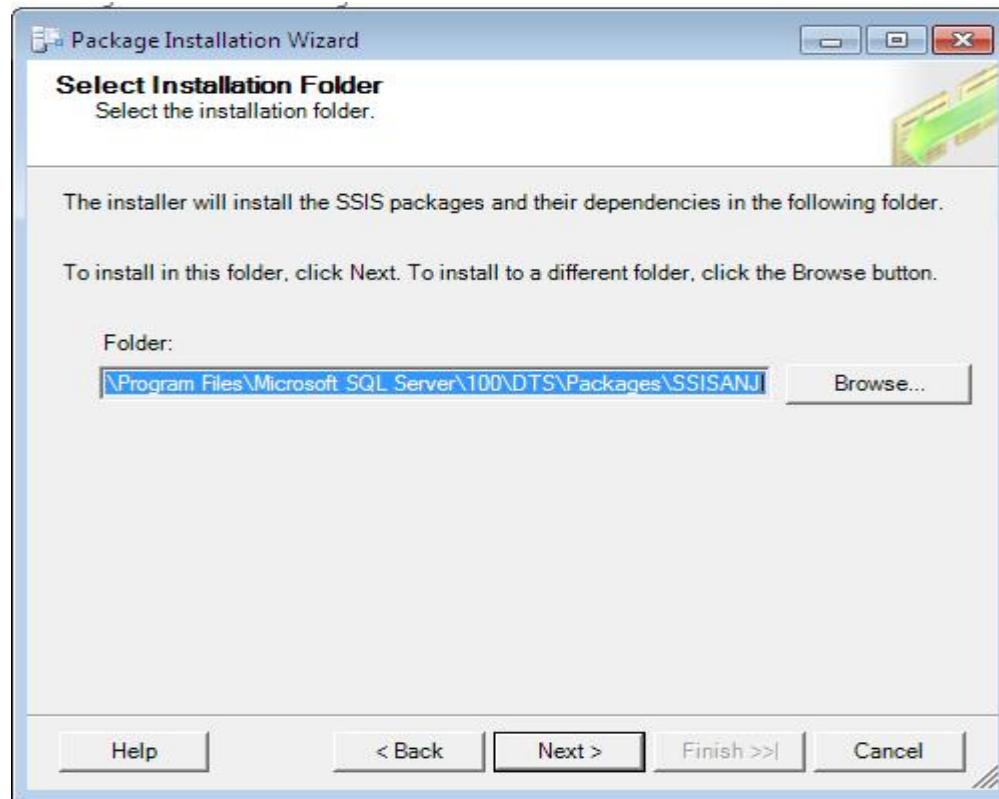


Step : 2 It will open the installation wizard click on the next choose where you want to deploy and

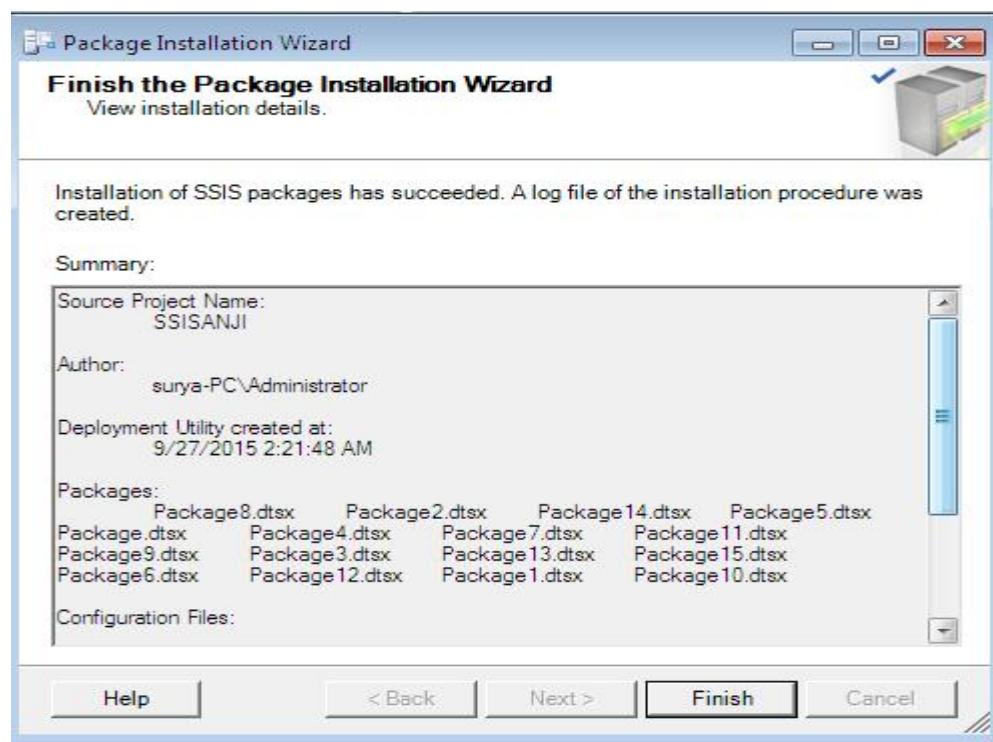


click on Next

Step: 3 and select the folder path where we want to deploy..



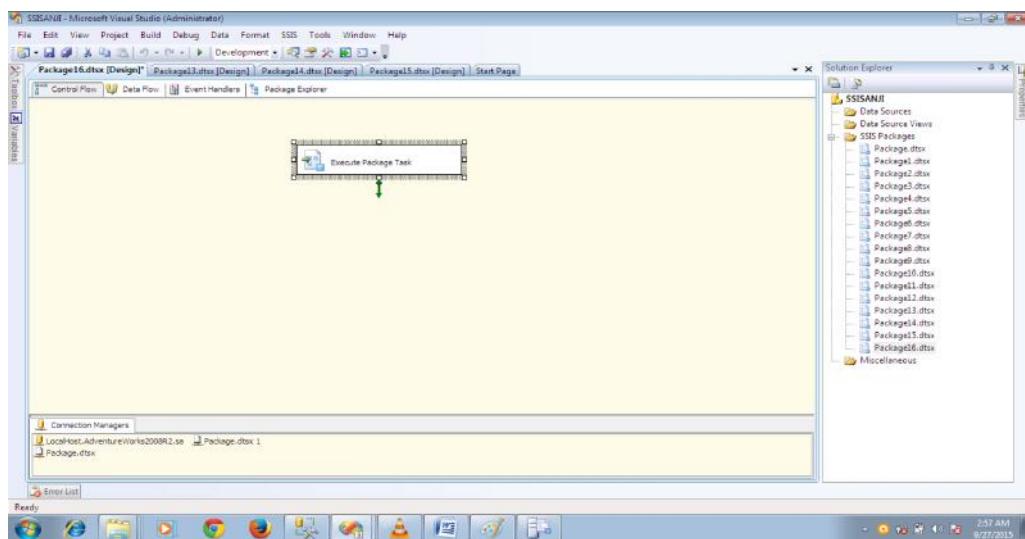
Step : 4 and click on the next deploy



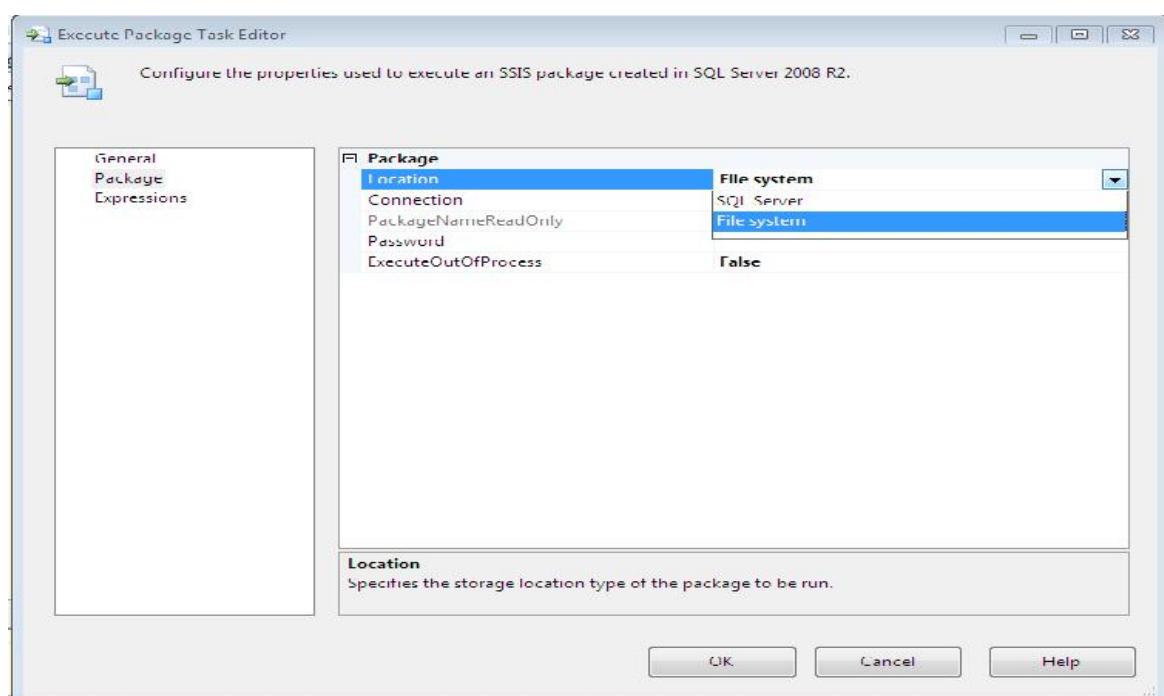
Execute Package Task:

In the parent package level we are going to calling the child package using the executive package task.

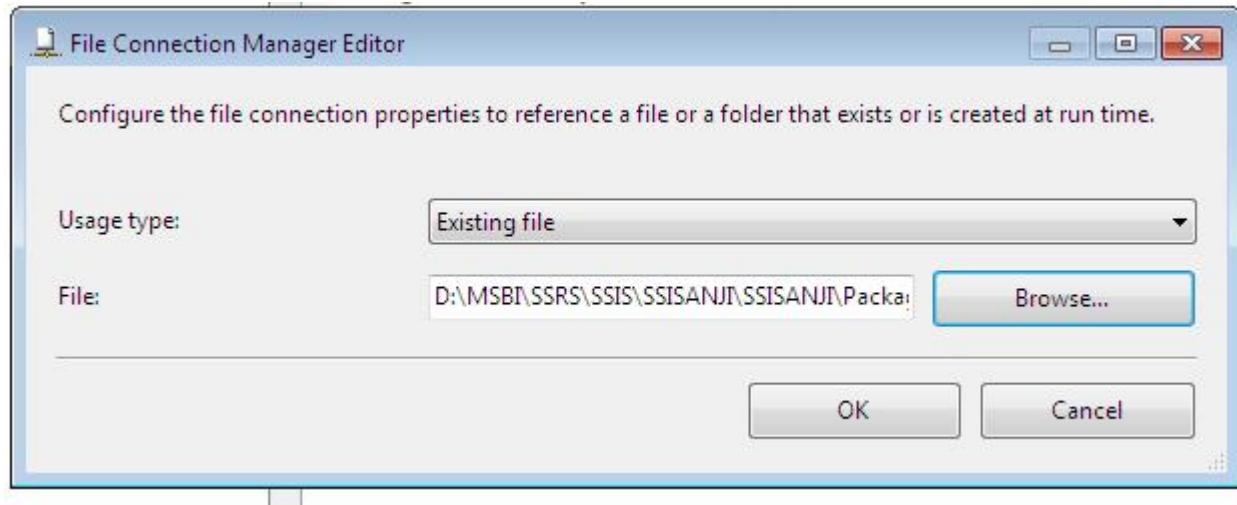
Configuration:



Step: 1 Drag and drop the Executive the package task. And double click on it. And select the Package.



Step: 2 Click on the “Connection” and select the “New connection and click on the browse and select the existing package and then click “OK”. and then click “OK”.



Step: 3 Executive the package.

Precedence Constraints:

Apply the rules or conditions on the top of conditions between the two tasks.

Types of the precedence Constraints

Success: The previous task success then it will move to the next task.

Failure: The previous task is fail then it will move to the next task.

Completion: It may success / failure it will move to the next task.

Indication of precedence Constraints:

Success: Green

Failure: Red

Completion: Blue

Precedence with expression:

Select Evaluation expression

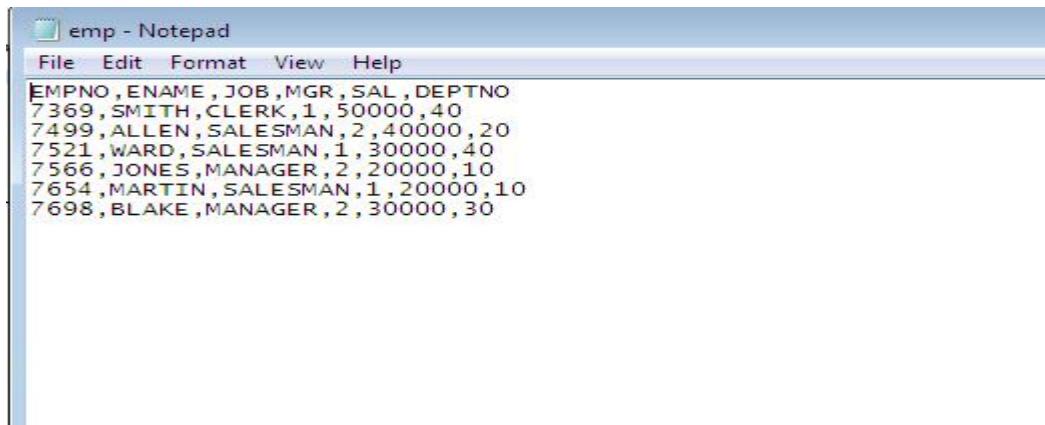
1. Constraint
2. Expression
3. Expression and constraints
4. Expression or constraints

Script Task:

Using the .net VB Script or C# script we are implementing the customized task to satisfy the business requirement.

Step 1 crate the one flat file and one excel file with the same column names.

Flat file

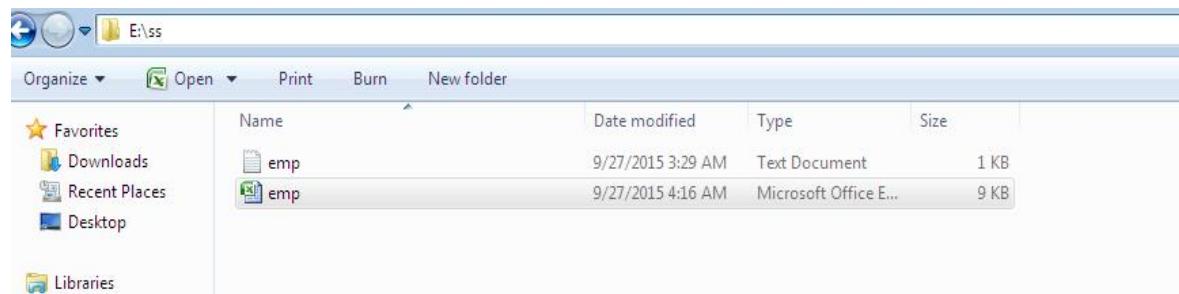


```
emp - Notepad
File Edit Format View Help
EMPNO,ENAME,JOB,MGR,SAL,DEPTNO
7369,SMITH,CLERK,1,50000,40
7499,ALLEN,SALESMAN,2,40000,20
7521,WARD,SALESMAN,1,30000,40
7566,JONES,MANAGER,2,20000,10
7654,MARTIN,SALESMAN,1,20000,10
7698,BLAKE,MANAGER,2,30000,30
```

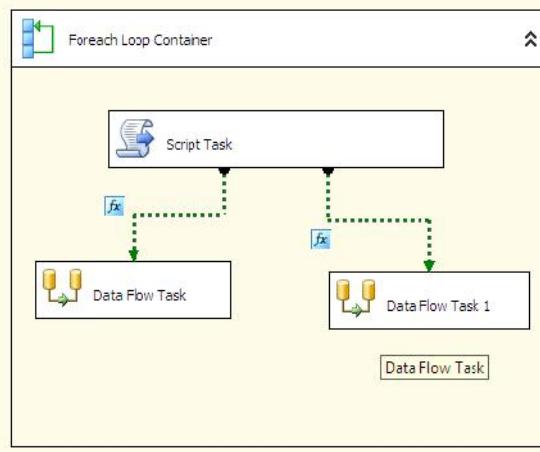
Excel file

1	EMPNO	ENAME	JOB	MGR	Salary	dept
2	101	suri	SE	null	100000	10
3	102	surendra	SSE	1	90000	20
4	103	sbabu	JSE	2	80000	30
5	104	suribabu	ASE	1	70000	20
6	105	surendra	GM	2	60000	30
7	106	babus	AGM	1	50000	20
8	107	babusuri	SE	1	40000	20
9						

These two file are stored into the on folder “E:\\ss”.

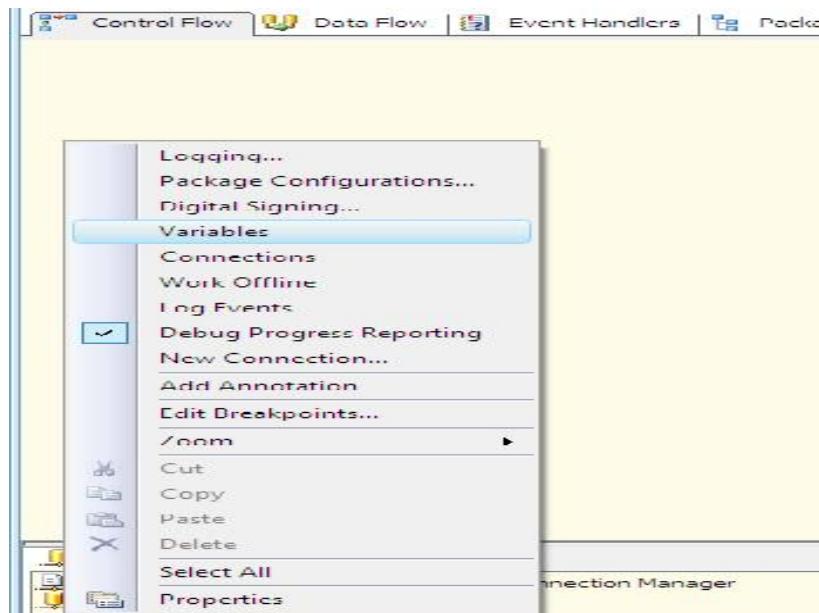


Control flow:



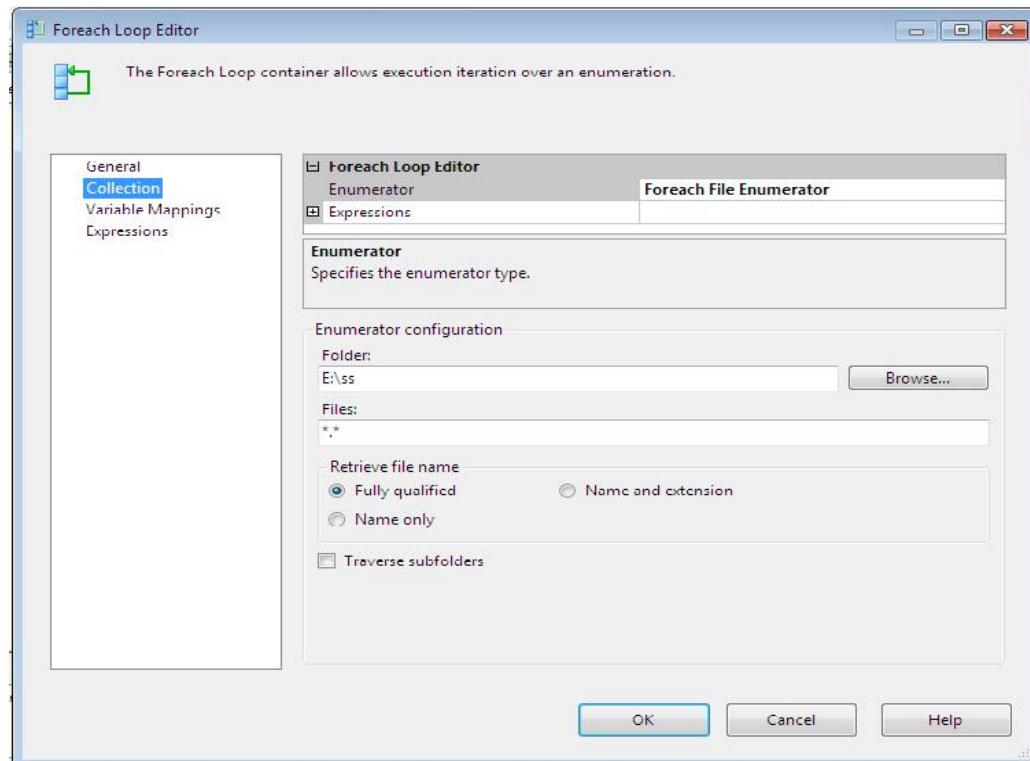
Step 2: Create the package level variables two variables.

Right click on the control flow → variables

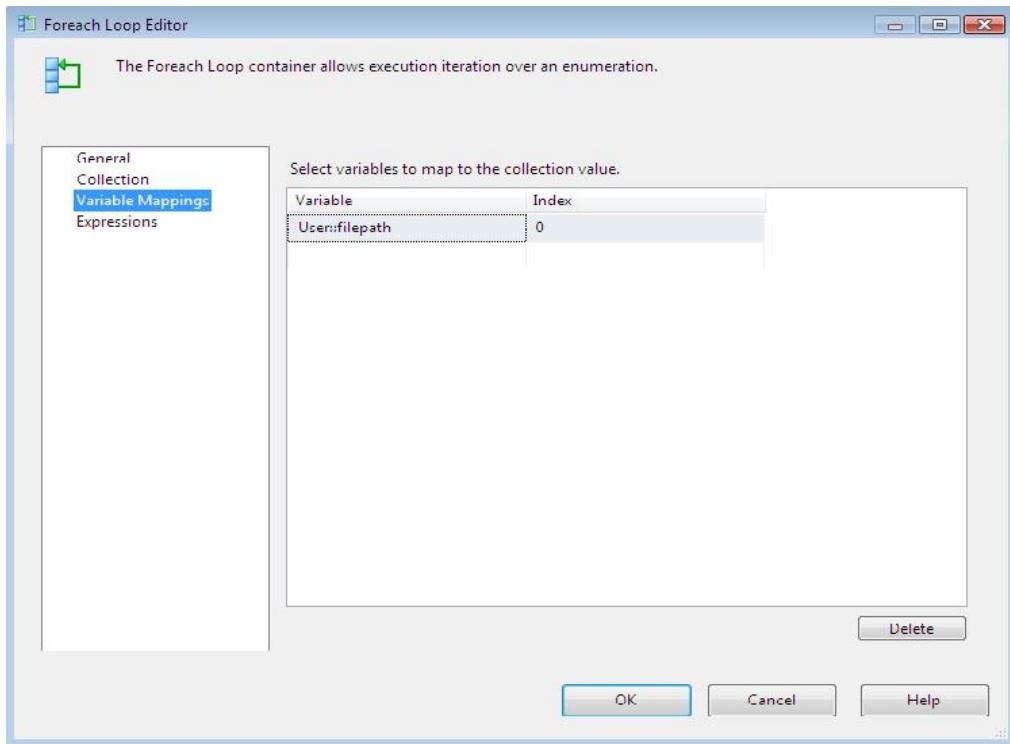


Click on the add variable button and create the two variables with the name **extn** and **filepath**

Step: 3 Drag and drop the foreach loop container in the control flow and double click on it and select the **Collection** tab and select the folder path.



Select the **variable Mapping** tab from the left panel, and select the variable **User::Filepath** and then click “OK”

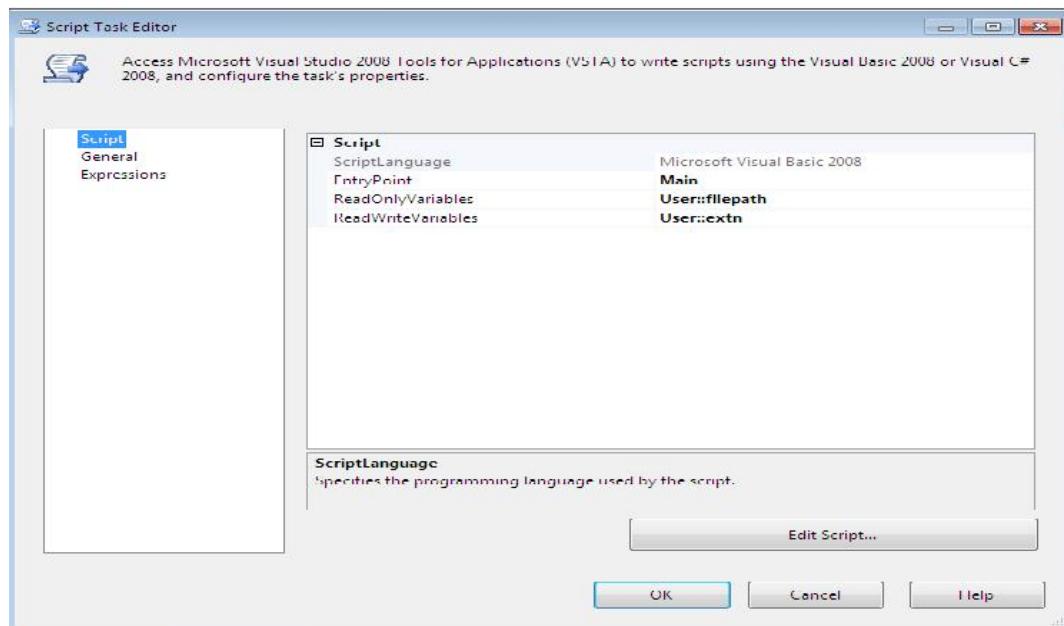


Step: 5 Drag and drop **Script task**. Right click on script task and select **edit** option and select the script tab

Scripting language: Microsoft Visual Basic 2008

ReadOnlyVariable: User::Filepath

ReadWriteVariable : User::extn.



Then click on the **Edit Script** and write the following code

```
Dts.Variables("extn").Value = Right(Dts.Variables("filepath").Value, 3)
```

And build the project. And then click “OK”.

```
Public Sub Main()
    '
    ' Add your code here
    '
    Dts.TaskResult = ScriptResults.Success
    Dts.Variables("extn").Value = Right(Dts.Variables("filepath").Value, 3)

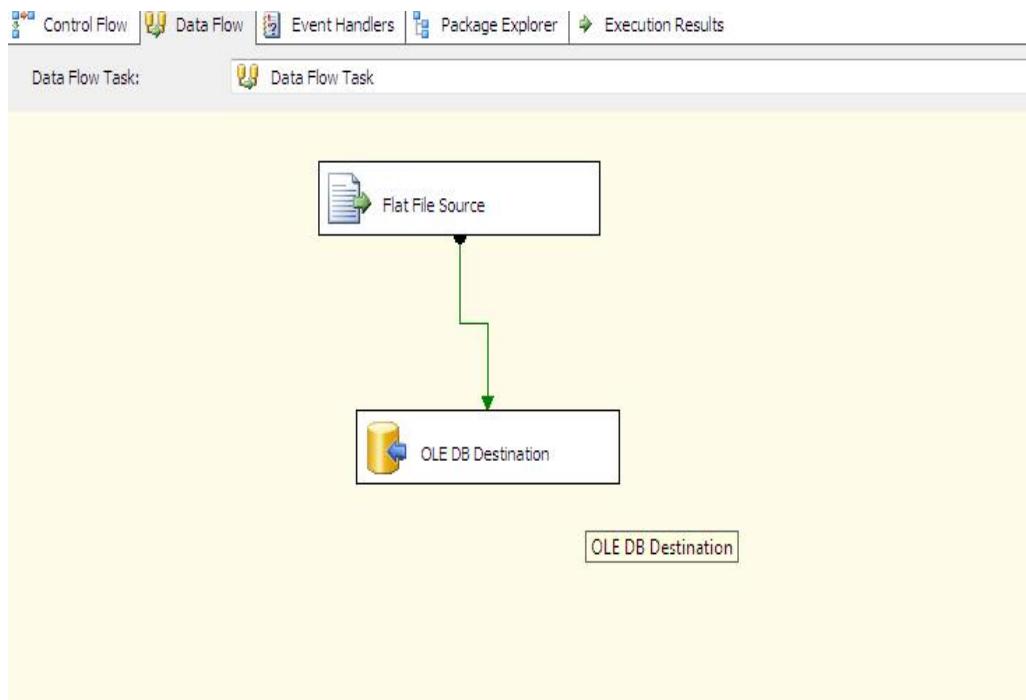
End Sub

End Class
```

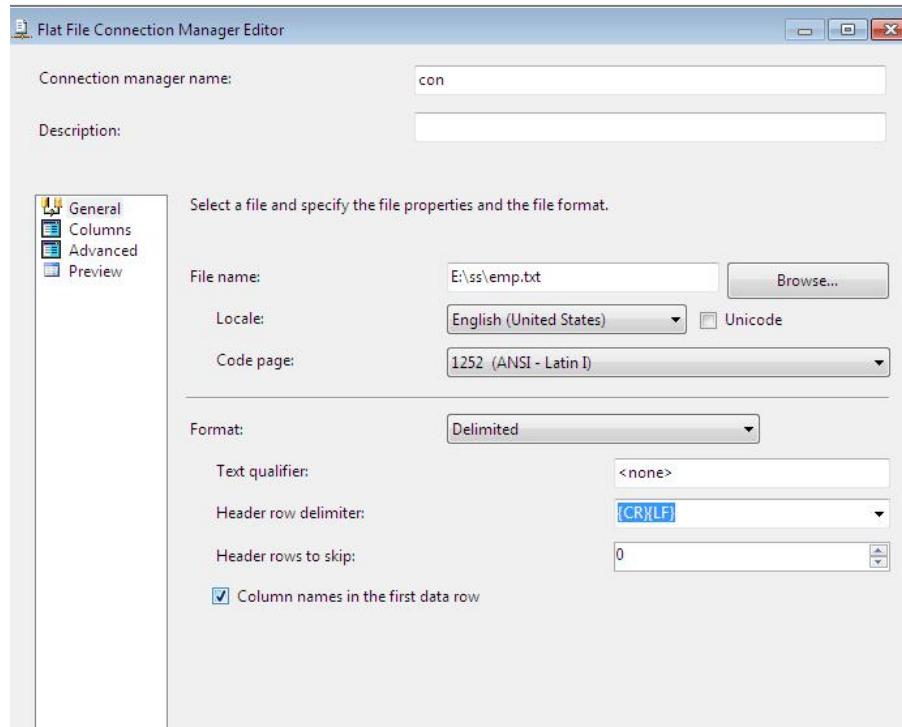
Step: 6 create the destination table with the following structure.

```
CREATE TABLE [dbo].[EMP_TEXT] (
    [EMPNO] [int] NULL,
    [ENAME] [varchar](50) NULL,
    [JOB] [varchar](50) NULL,
    [MGR] [int] NULL,
    [SAL] [int] NULL,
    [DEPTNO] [int] NULL
)
```

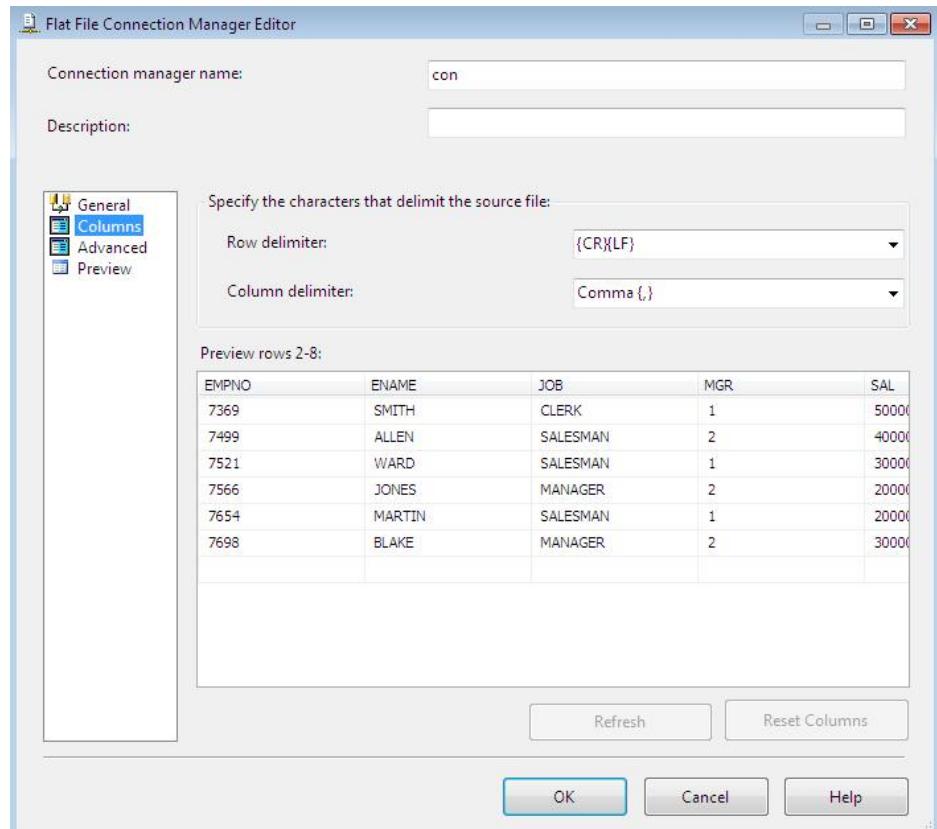
Step: 7 Drag and drop the Dataflow task and connect the from the script task and double click on the dataflow task and edit it.



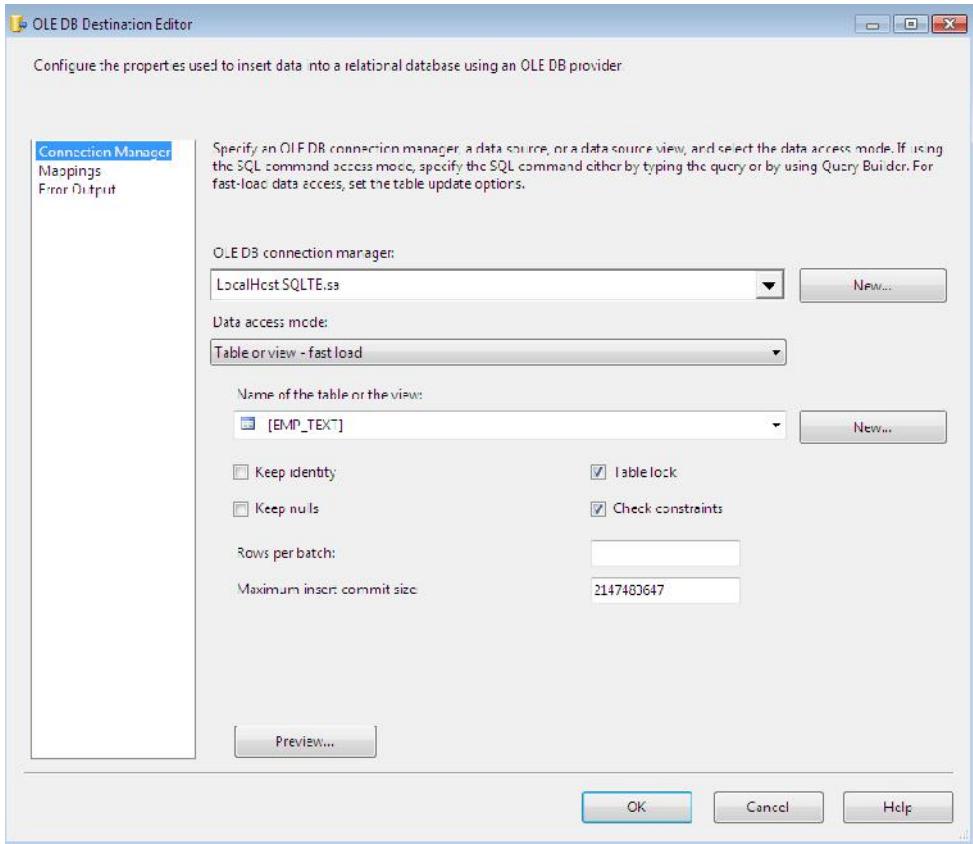
1. In dataflow task drag and drop the flat file source and connect with the flat file.



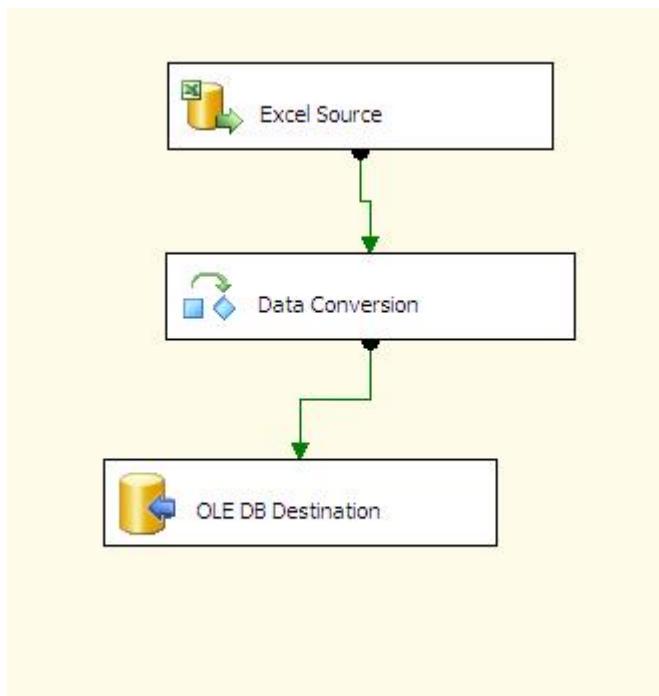
2. Select the column tabs from the left panel and then click “OK”.



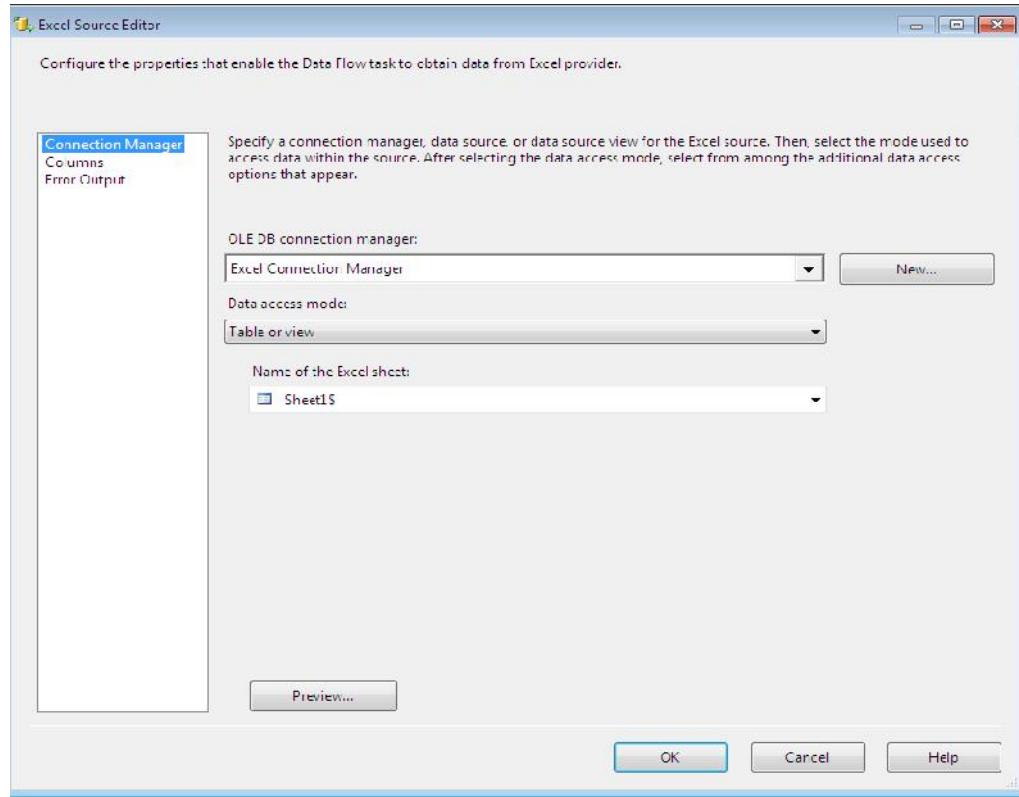
3. Drag and drop the OLEDB destination and configure it and select the destination table as **EMP_TEXT**.



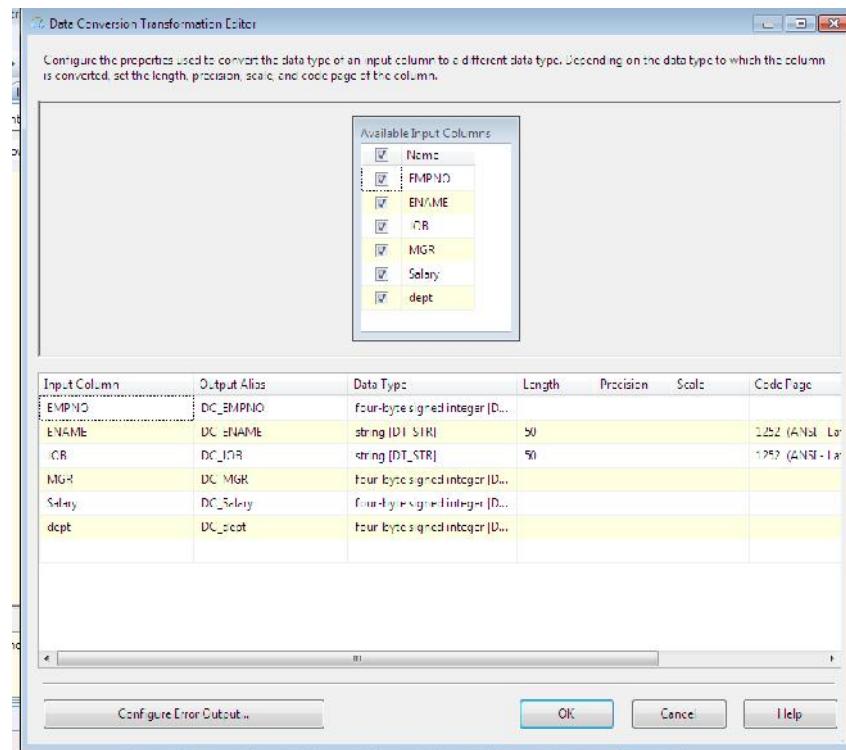
Step: 8 drag and drop the dataflow task in the control flow and double click on it.



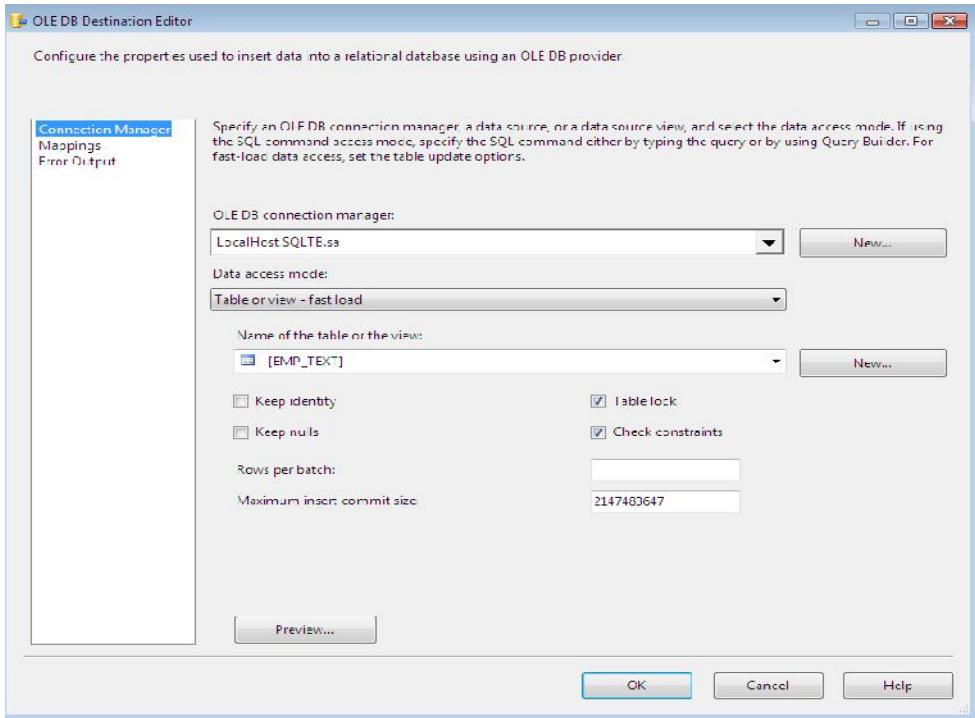
1. Drag and drop the Excel source transformation and select the excel file as source file.



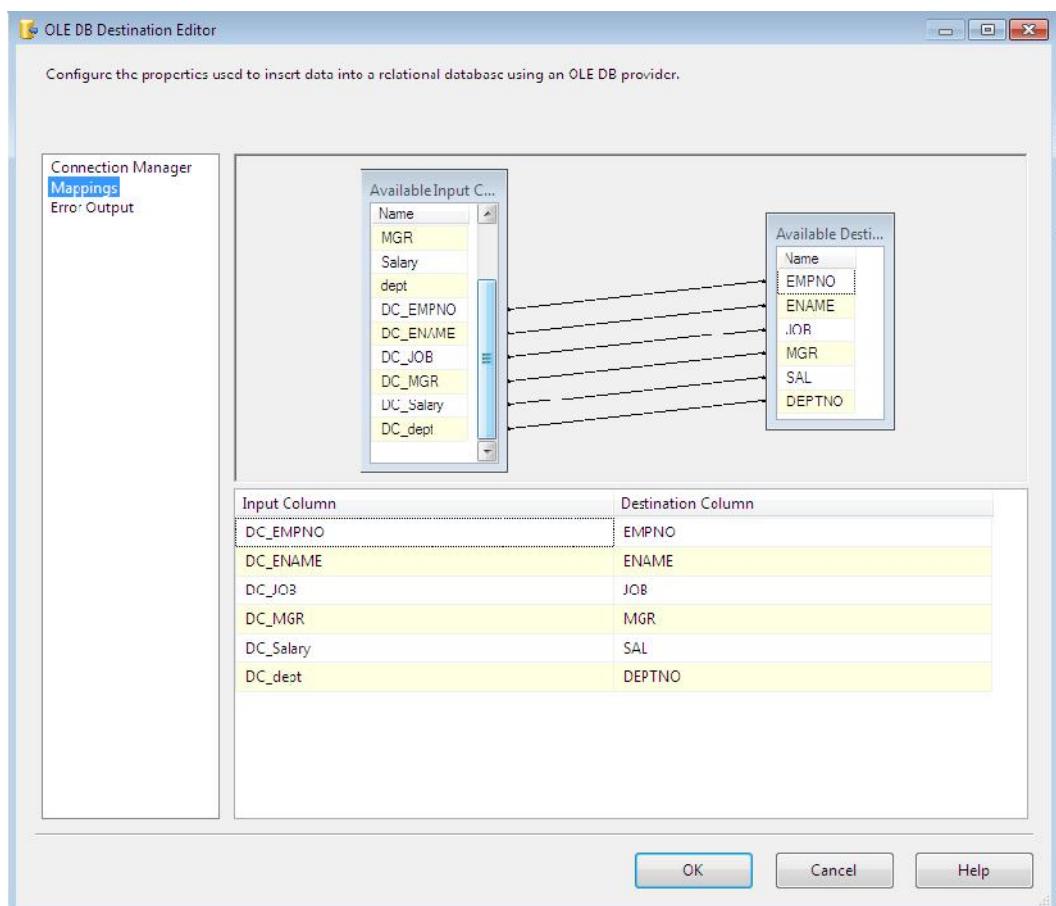
2. Drag and drop the Data conversion transformation and double click on it and select the all columns and giving the type conversion in the following way.



3. Drag and drop the OLEDB destination and configure it and select the destination table as EMP_TEXT .

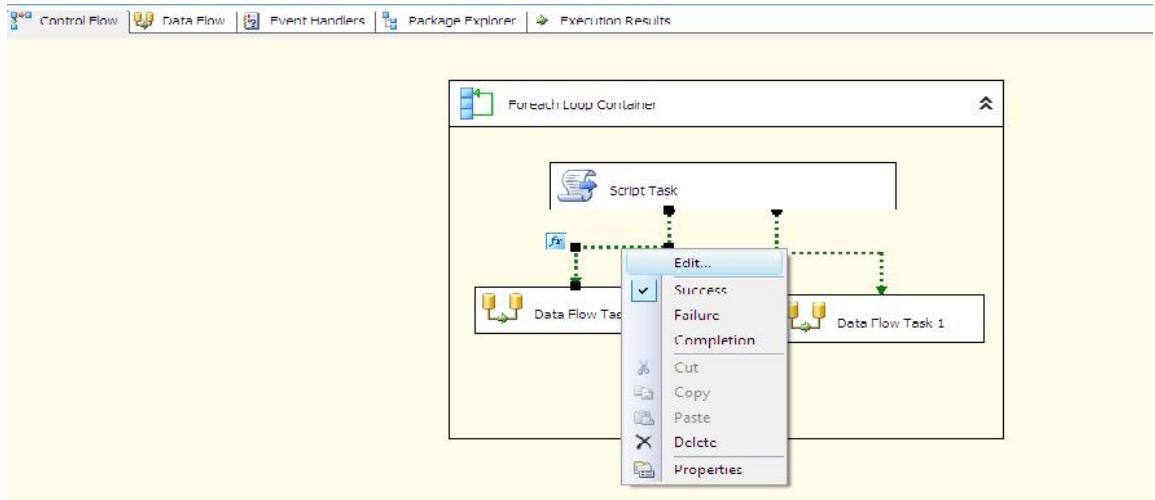


And mapping the data conversion columns and destination columns.



And then click “OK”.

Step: 9 Go to control flow and select the precedence constraints.



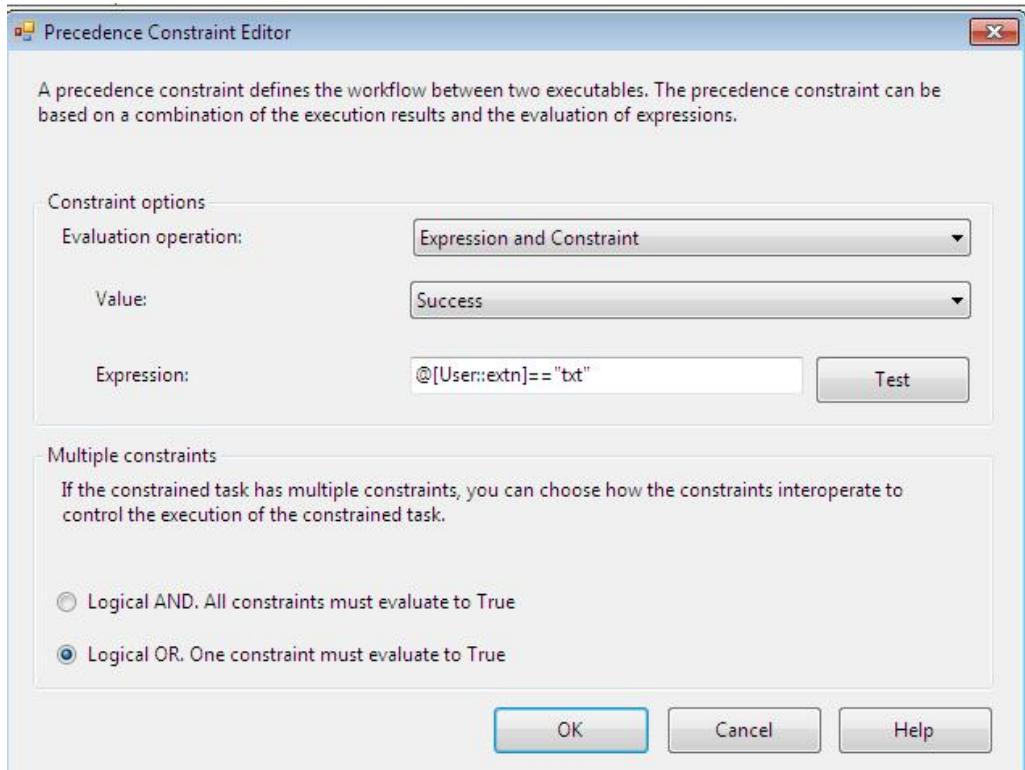
1. Click on Edit→

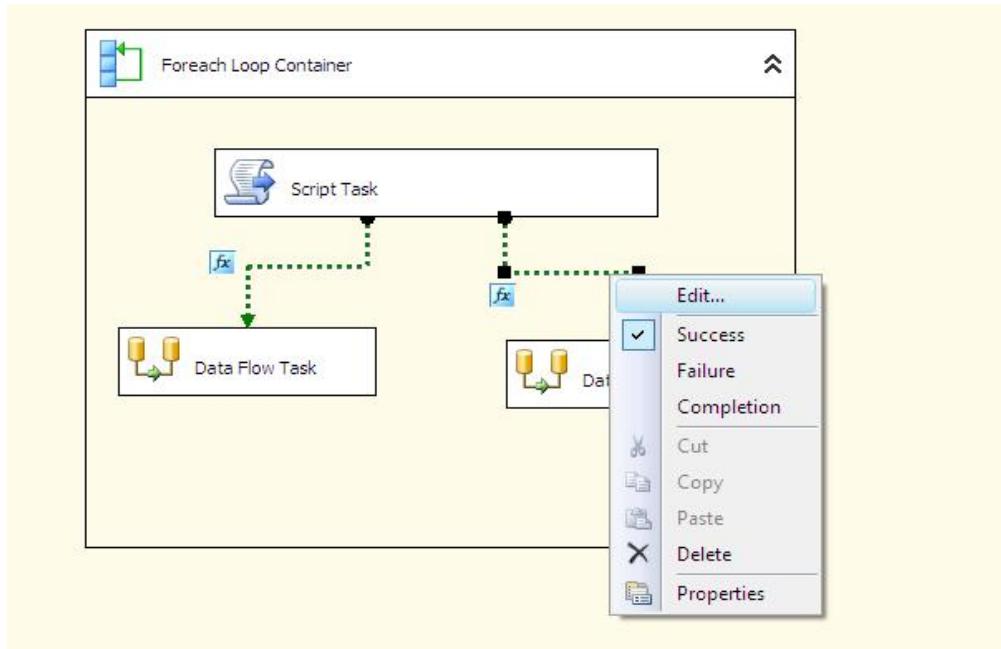
Evaluation Operation :Expression and Constraint

Value: Success

Expression : @@[user::extn]==”txt”

And select Logical OR one constraints must evaluate to true





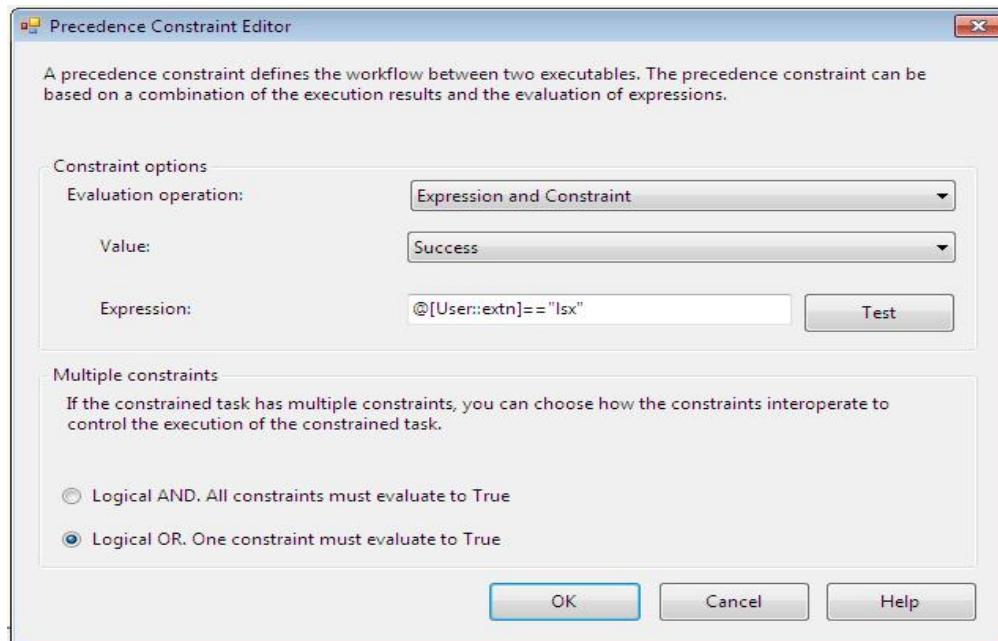
2. Click on Edit→

Evaluation Operation :Expression and Constraint

Value: Success

Expression : @@[user::extn]==”lsx”

And select Logical OR one constraints must evaluate to true



Then execute the project.

Expression Task:

It was introduced 2012 onwards it's evaluate expression values at runtime.

Step: 1 creating the two variables.

Step: 2 Drag and drop the Expression task and double click on it. Edit on the Expression task.

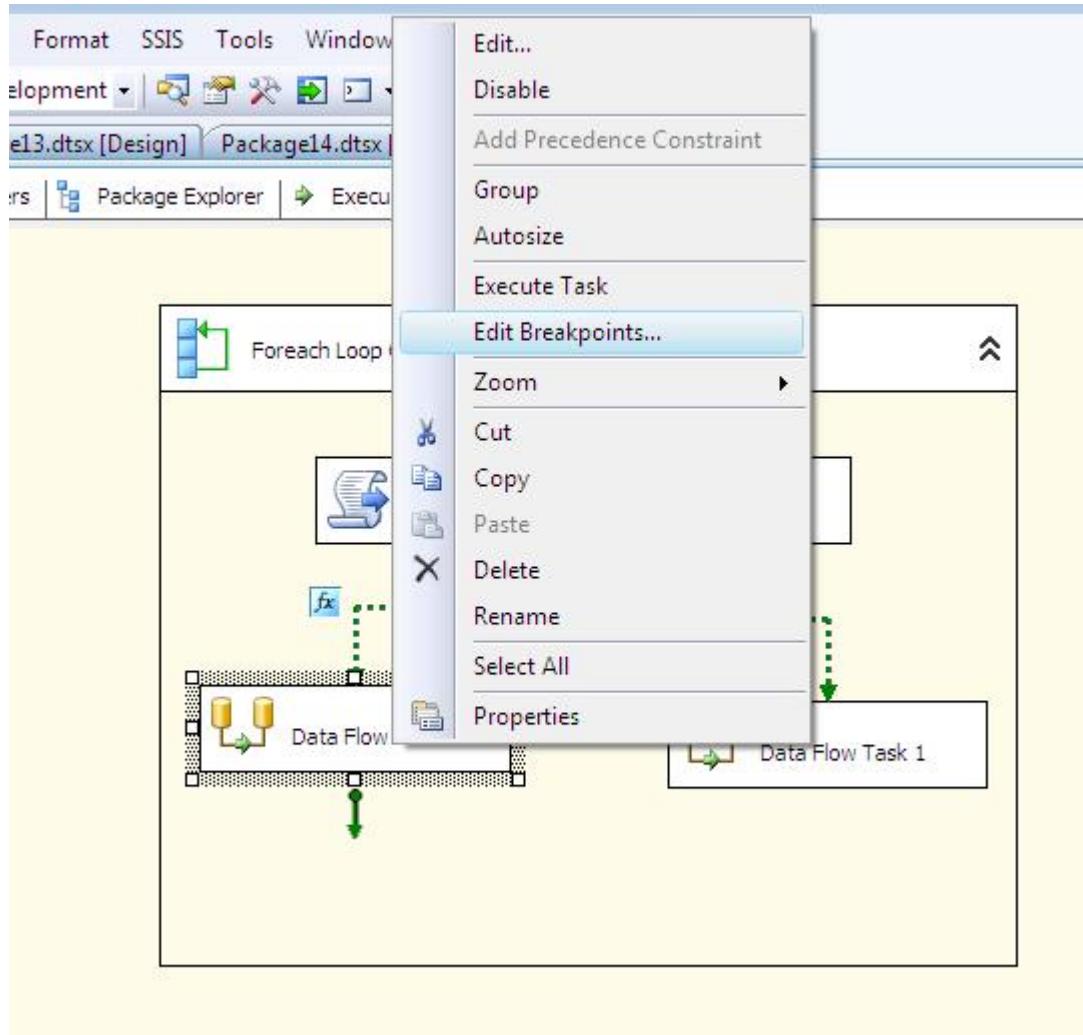
`@[user::extn]==Right(@[user::filepath],3)`

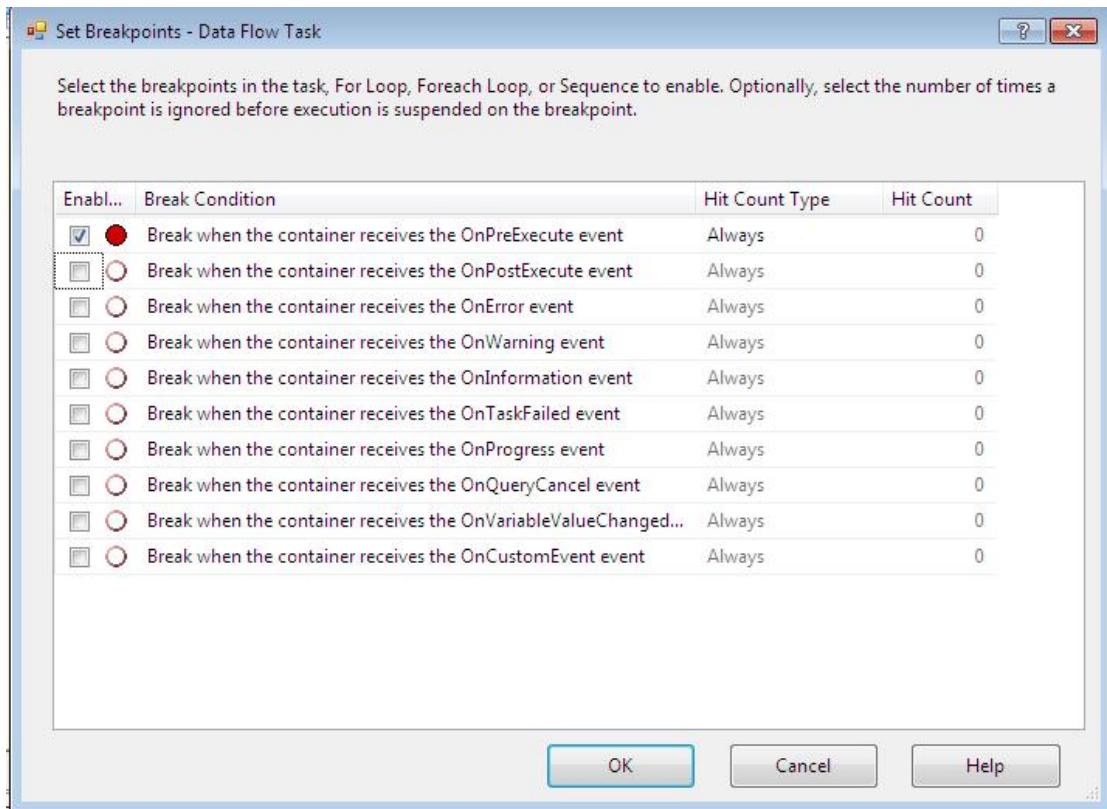
Then click “OK”.

Debugging mechanism implementation control flow Section level:

Enabling the break points in the task level using the edit break points.

Right click on the any task click on the Edit break points.





Events of the break points:

Break when the container receives the OnpreExecution Events

Break when the container receives the OnPostExecution Events

Break when the container receives the OnError event.

Break when the container receives the OnWarning event

Break when the container receives the OnInformation event

Break when the container receives the OntaskFailed event

Break when the container receives the OnProgress events

Break when the container receives the OnQueryCancel events

Break when the container receives the OnVariablevalueChanged events

Break when the container receives the OncustomEvent event.

Debugging mechanism implemented in the Data flow level:

Using the data viewers we are implementing the debugging mechanism implementing.

Configurations:

After deployment we don't want change the code. We need to change the configurations values with respect to system. Whenever the package running times the configurations (Connection string, Variables etc...) will be read from Configuration System.

Different kinds of Configurations:

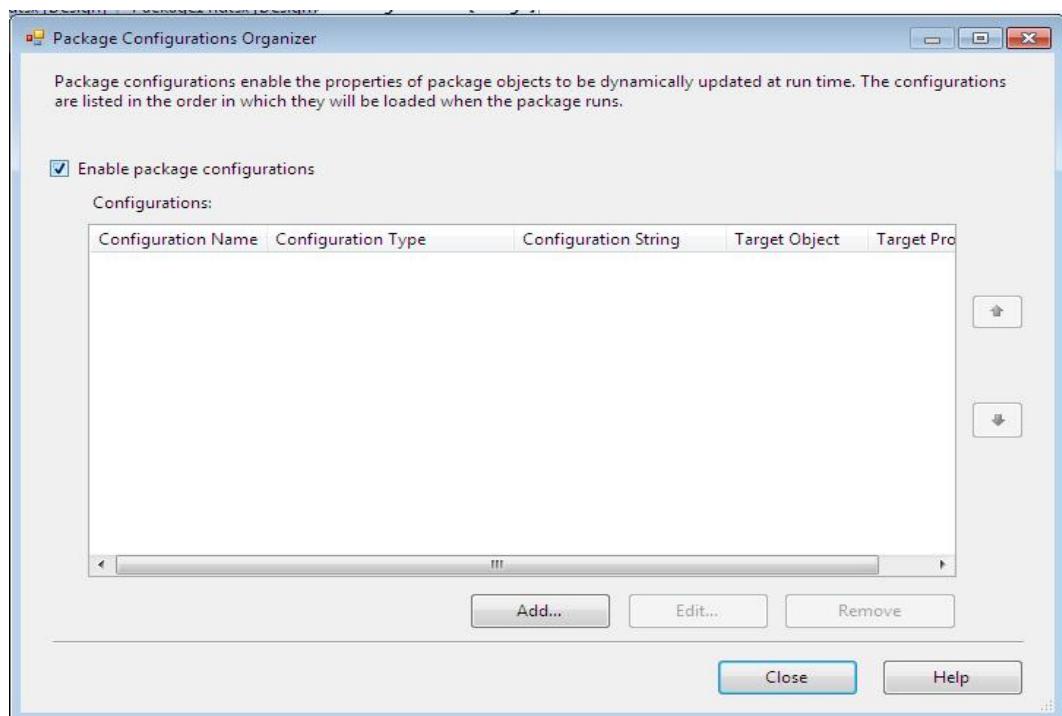
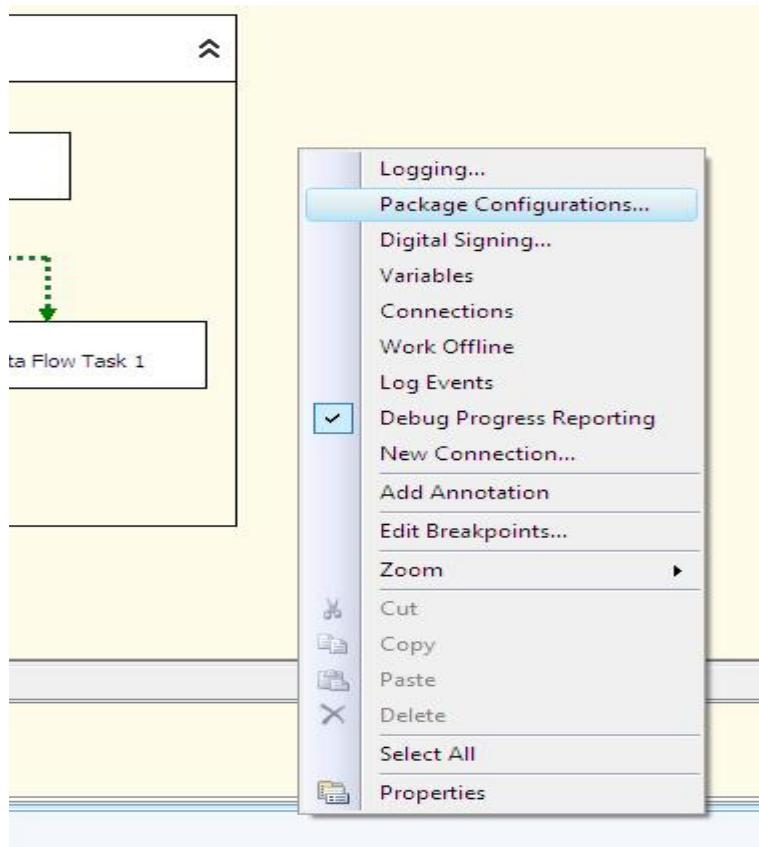
XML Configuration:

All configured values will be stored in the XML file deployment time we are going to deploy code with XML configuration files as well.

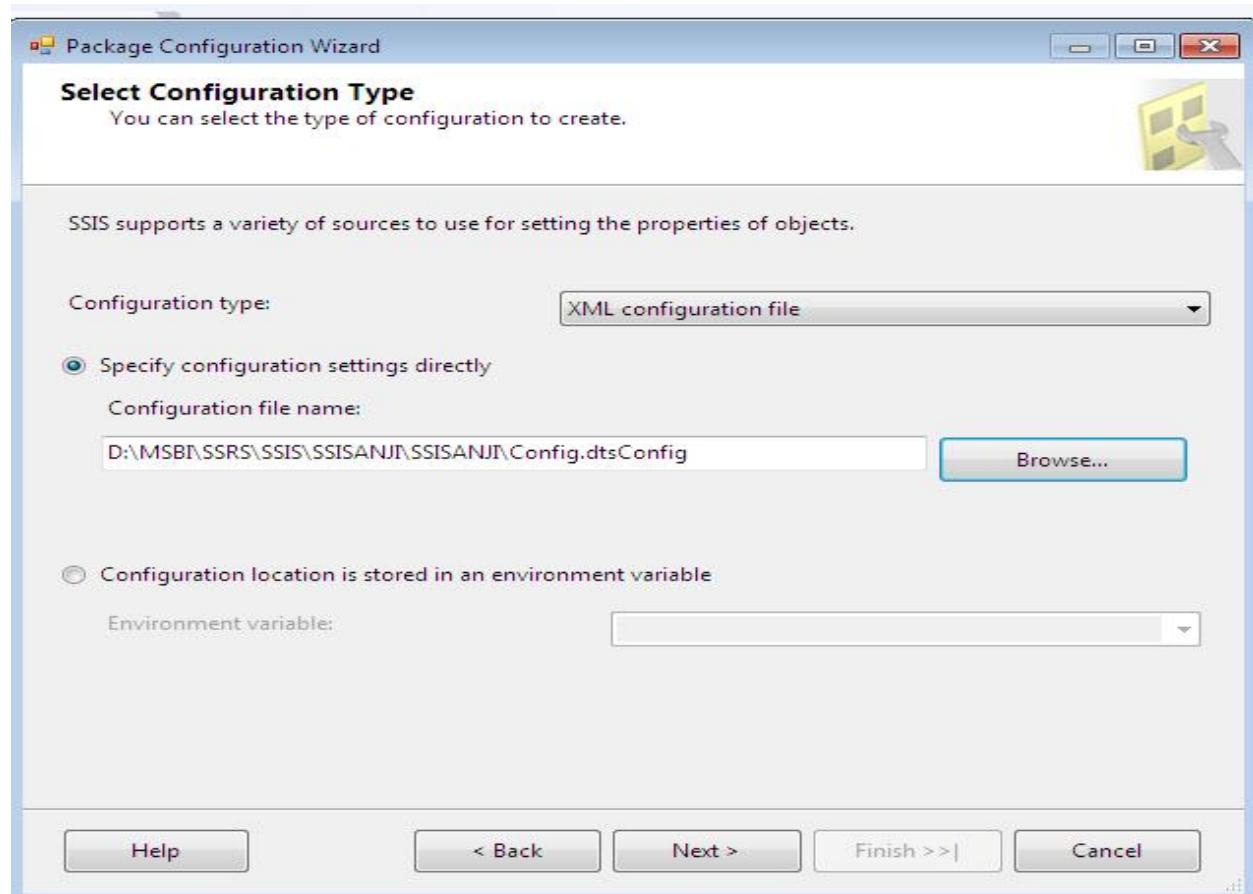
Step by step process

Step: 1 Right click on the Control flow section (or) Select SSIS menu → package Configuration

→Enabling package Configuration



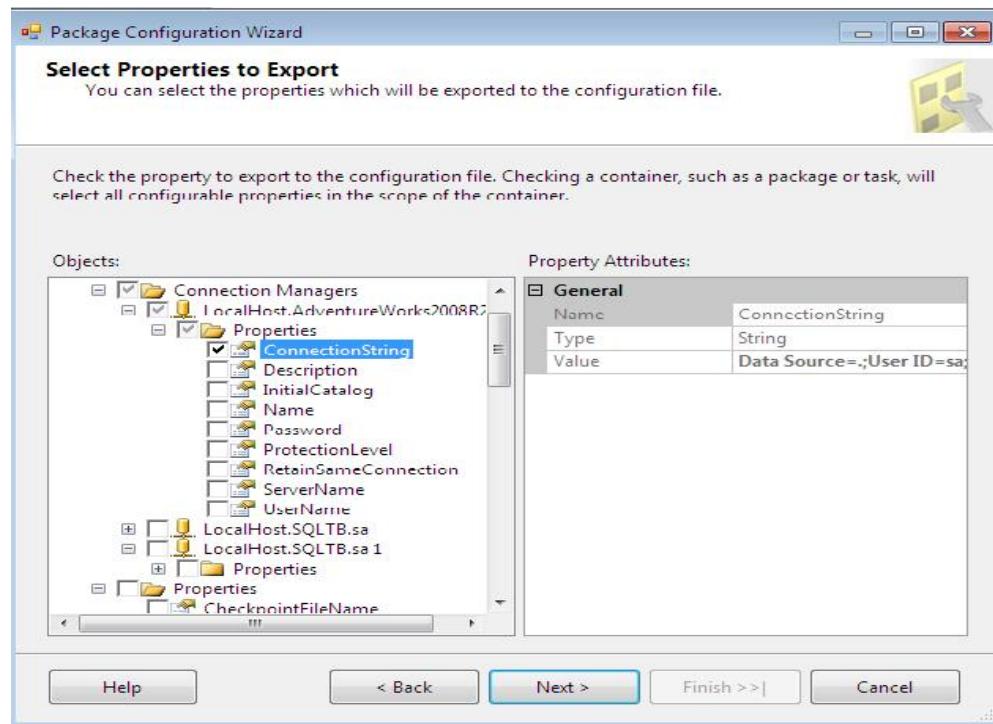
Click on the Add and select the Configuration file storing location and then click **Next**

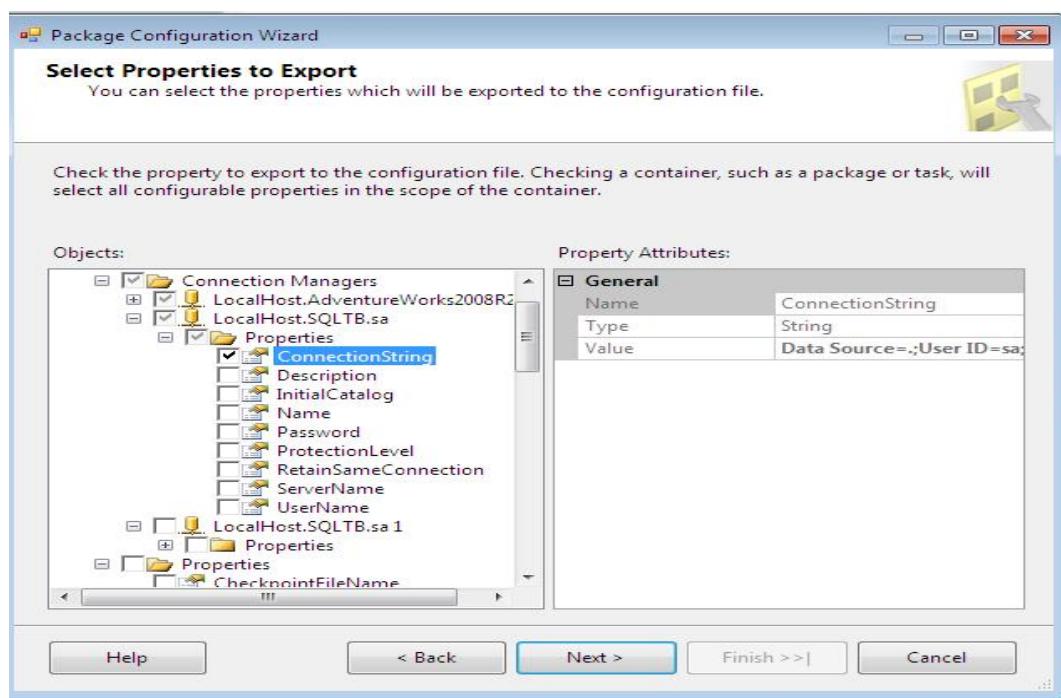
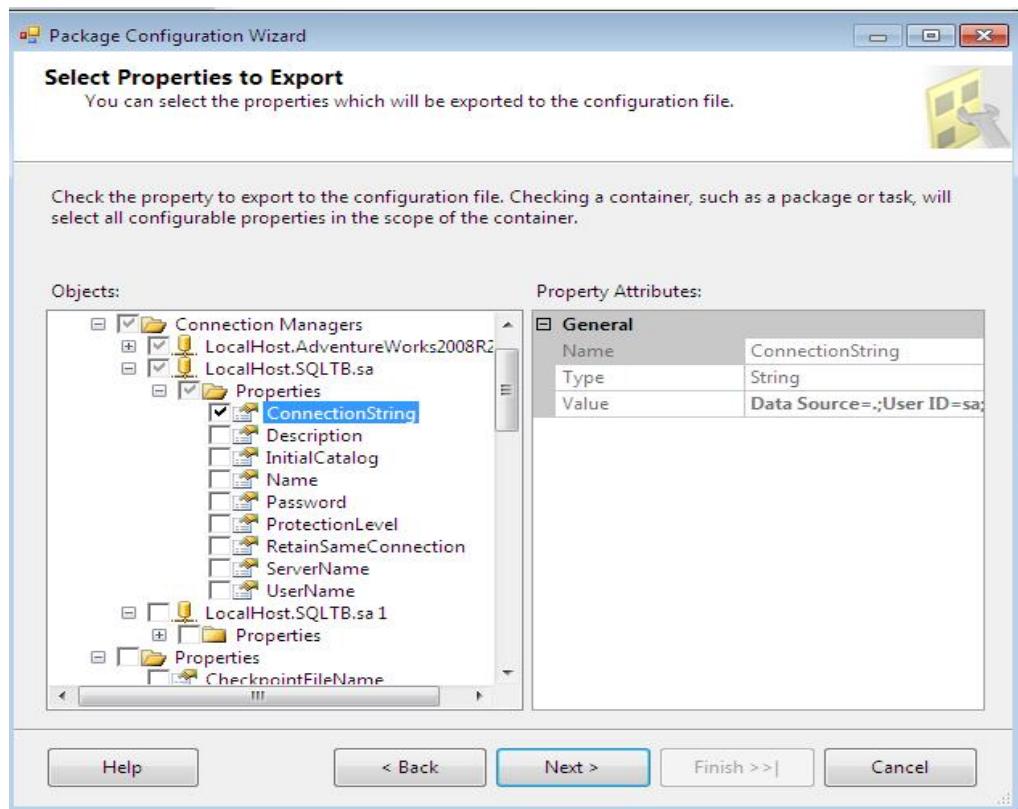


Configuration type: XML Configuration

Browse the file path

Step 2: Which property we want change after the deployment that properties you need to change.





Click on Next→finish.

After deployment of the package configuration don't touch your code only changes your configured values.

<Configuredvalues>

Data Source ="ANILKUMAR-PC; initial catalog=anil;provider=SQLNLIT0.1;integrated security=SSPI;Application Name=SSIS-package-{6D6D0292-F5F7-}

</Configuredvalues>

```
<Configuredvalues>
```

```
Data Source ="ANILKUMAR-PC; initial catalog=anil;provider=SQLNLIT0.1;integrated security=SSPI;Application Name=SSIS-package-{6D6D0292-F5F7-}
```

```
</Configuredvalues>
```

Parent package Variable Configuration:

To pass the parent package values to the child package using the parent package variable configuration.

Step: 1 Create table tab1(v1 varchar(10),v2 varchar(10))

Step:2 Create the two variable in the package1.

1. Right click on the Control flow and select the variable and click on it, and click the **add variable**.

Name	Scope	Data Type	Value
Variable	Package17	String	0
Variable1	Package17	String	0

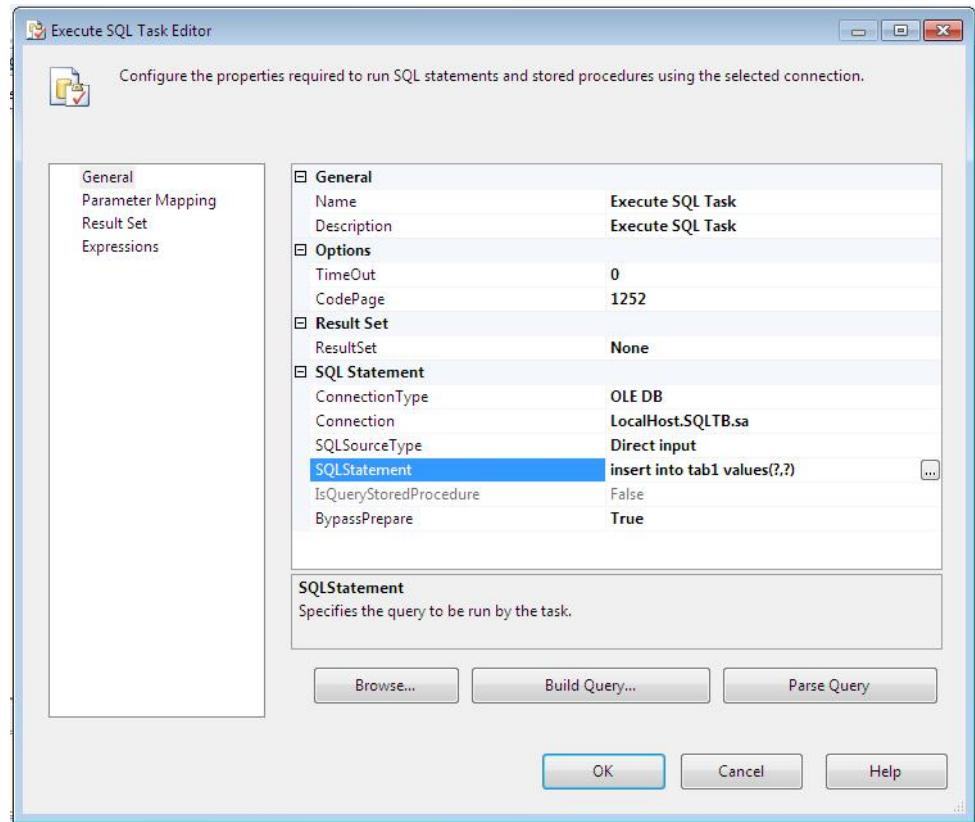
Step:3 Create the two variable in the package1.

1. Right click on the Control flow and select the variable and click on it, and click the **add variable**.

Name	Scope	Data Type	Value
Variable	Package17	String	0
Variable1	Package17	String	0

Step 3: Pacckage 2

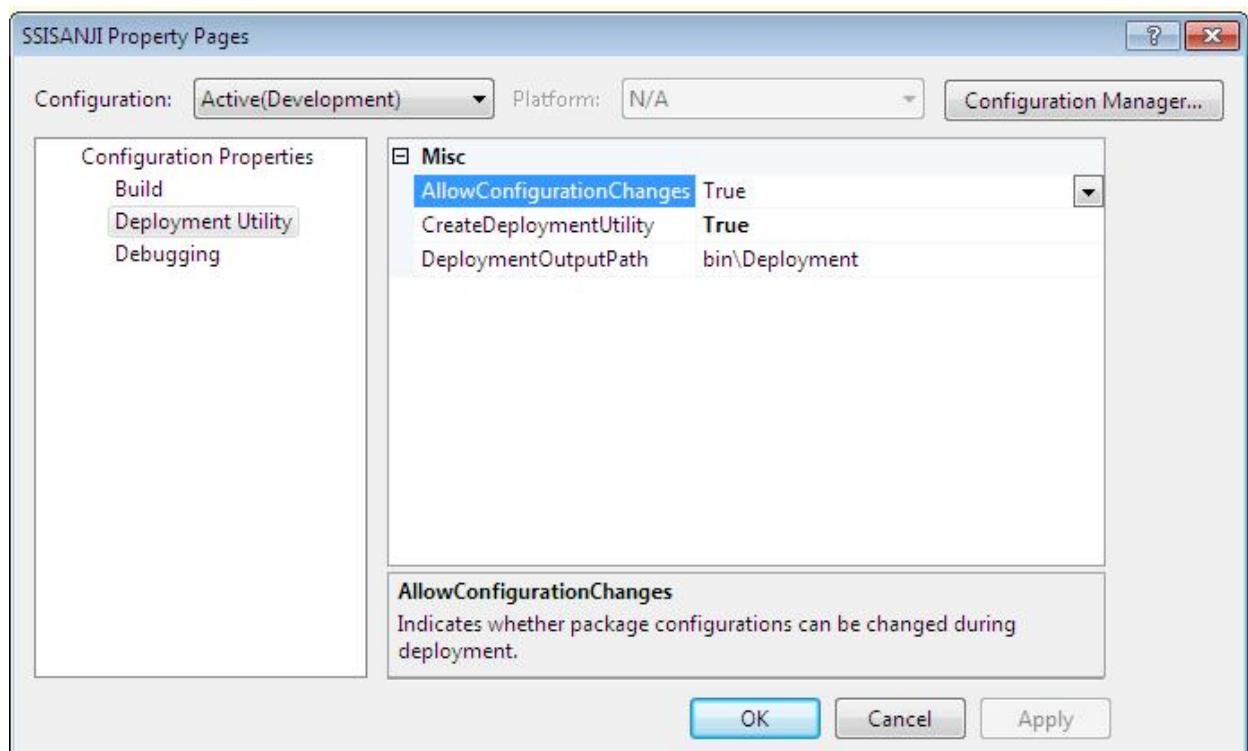
Drag and drop the Execute SQL task. And double click on it.



Step :4 Build the package

Right click on the package and select the properties and set the following items.

Create Deployment utility :True.



Right click → Build.

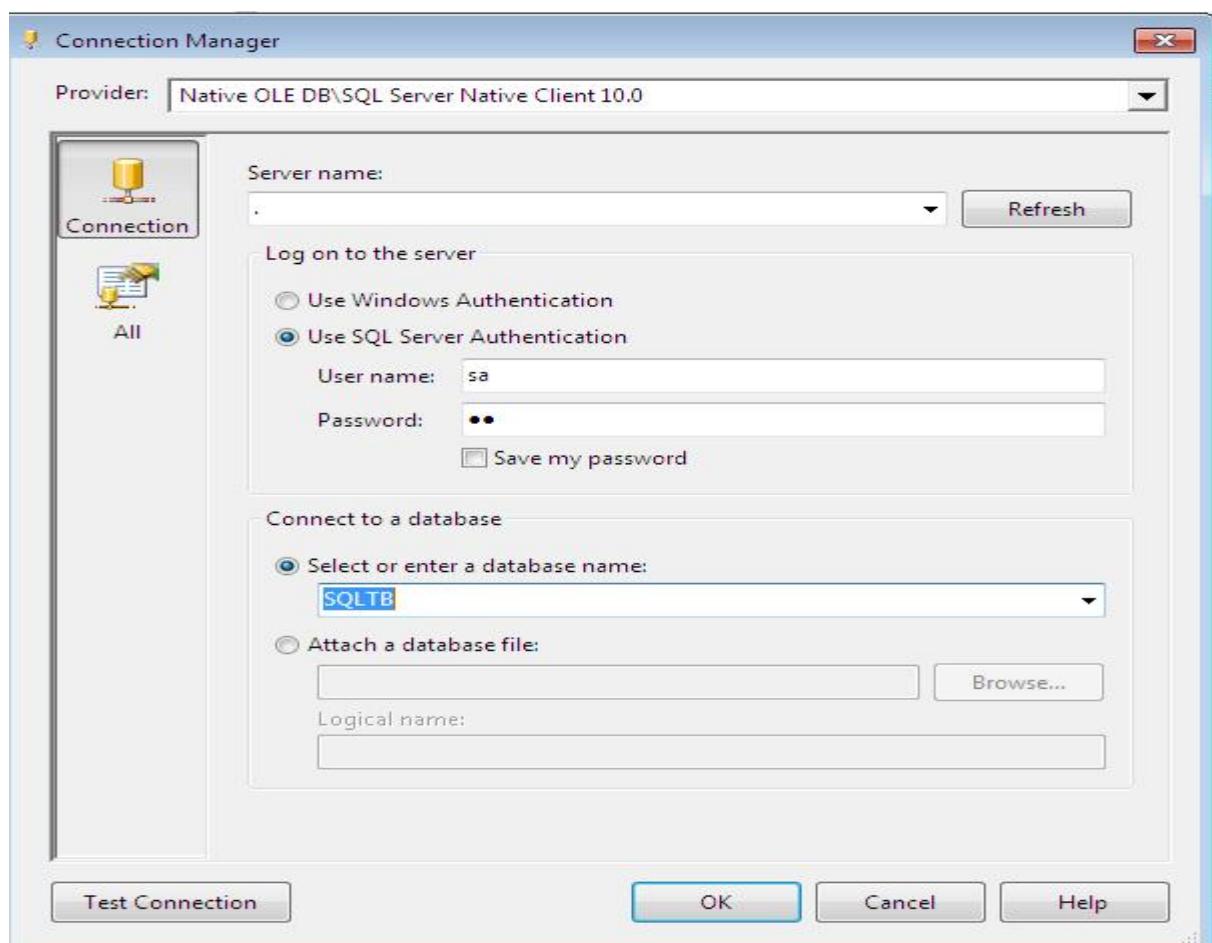
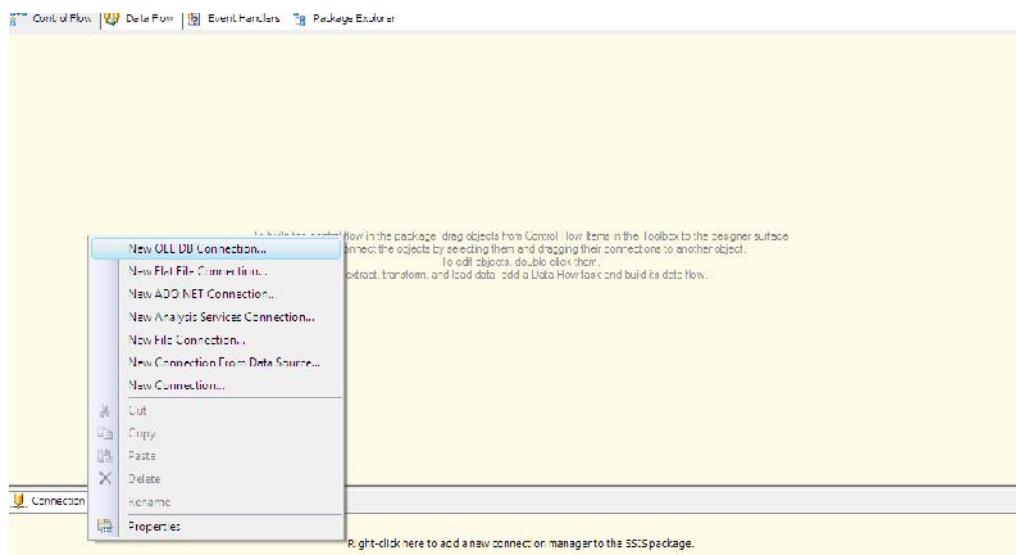
Right click on the control flow → package Configuration

Then deploy the project.

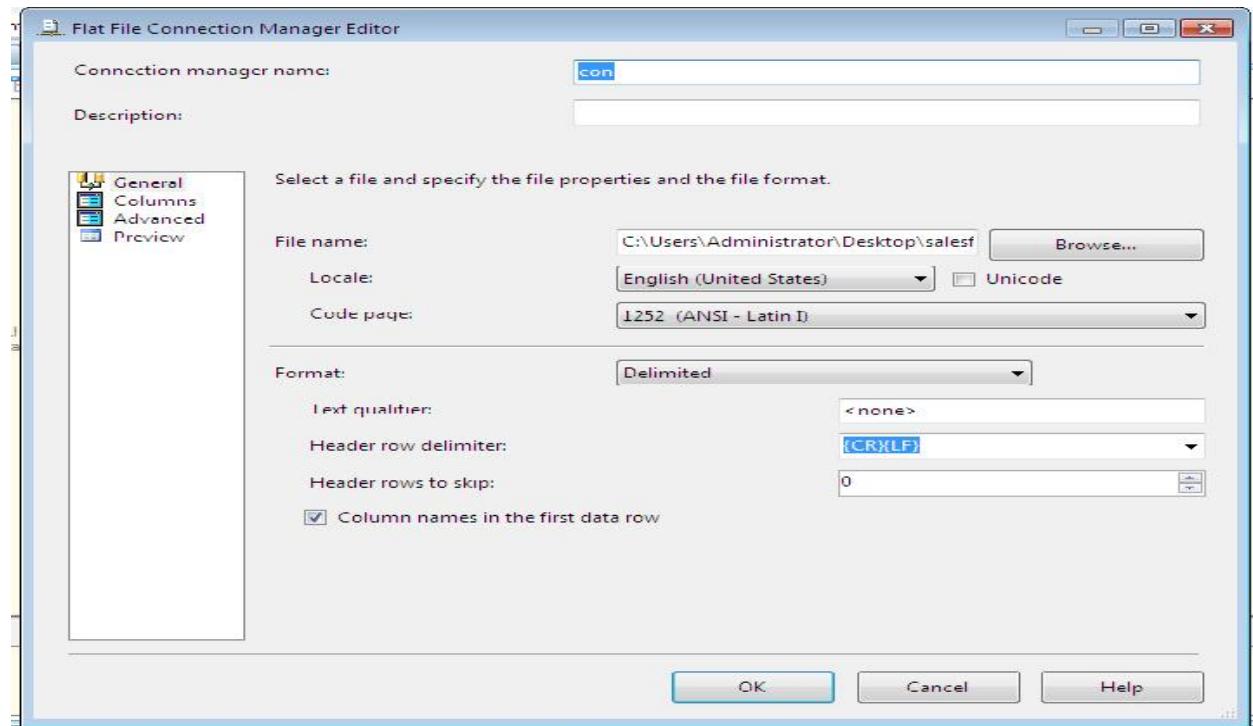
Environmental Variable with SQL Server Configuration:

Step: 1 Create the **ConfigDB** database in the sql server.

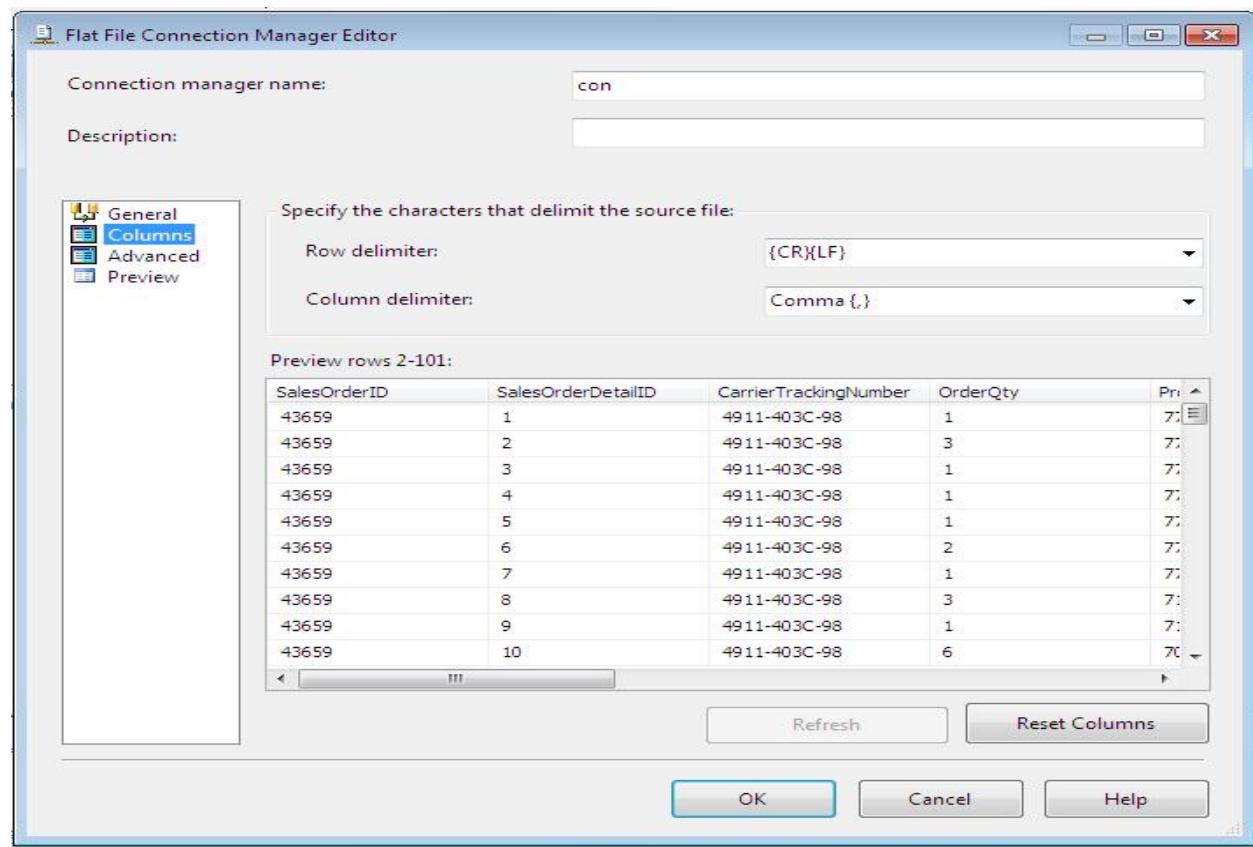
Step:2 Click on the connection Manager→OLEDB Connection



Step: 3 Click on the Connection Manager → New Flat file Connection



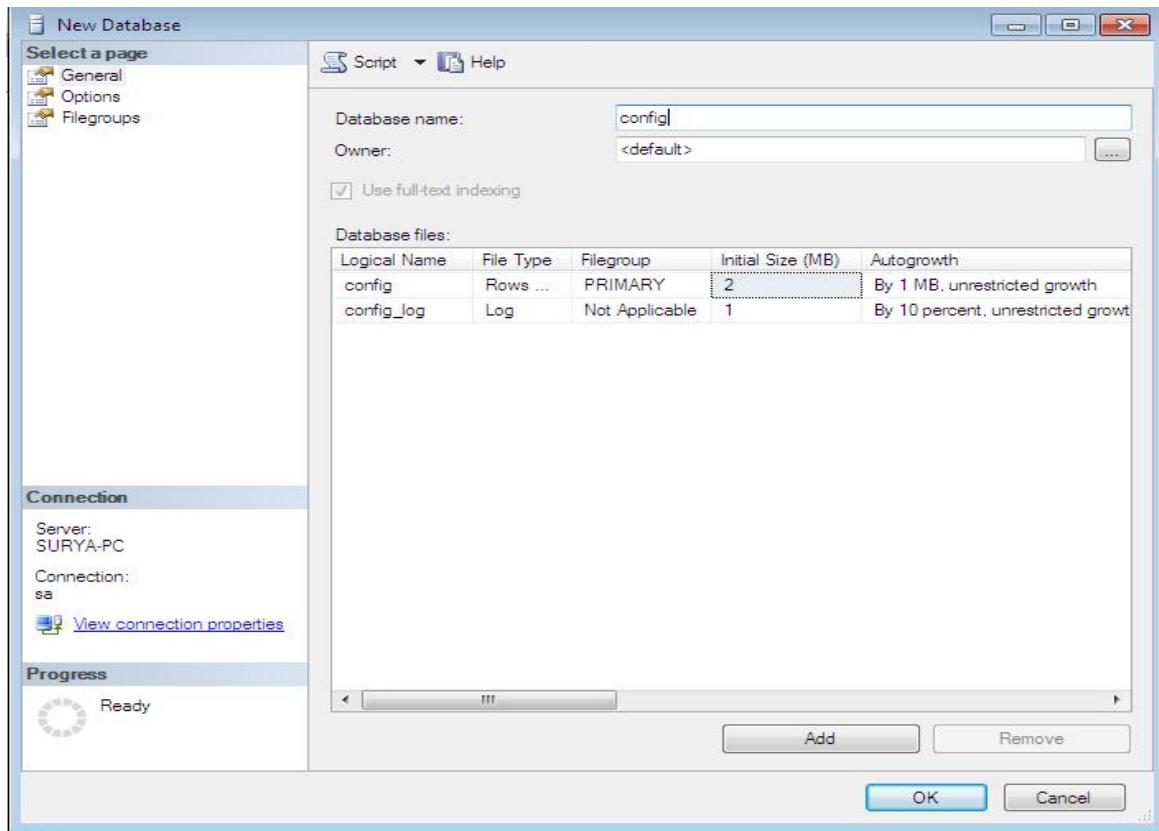
Select the column tab and click “OK”



Environment variable with SQL server Configuration:

Step 1: Create configdb database in the sql server

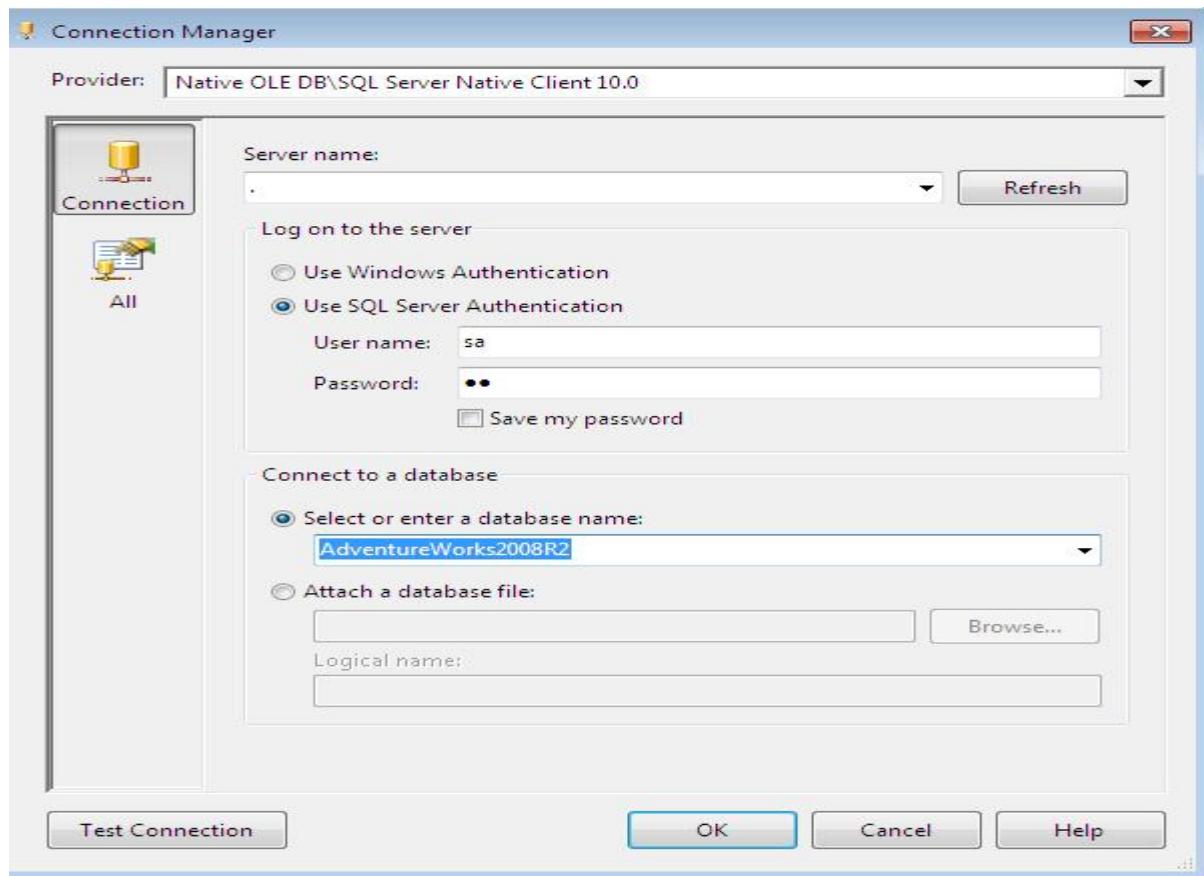
Right click on the Database → New database →



Step: 2 Click on the connection manager → OLEDB Connection

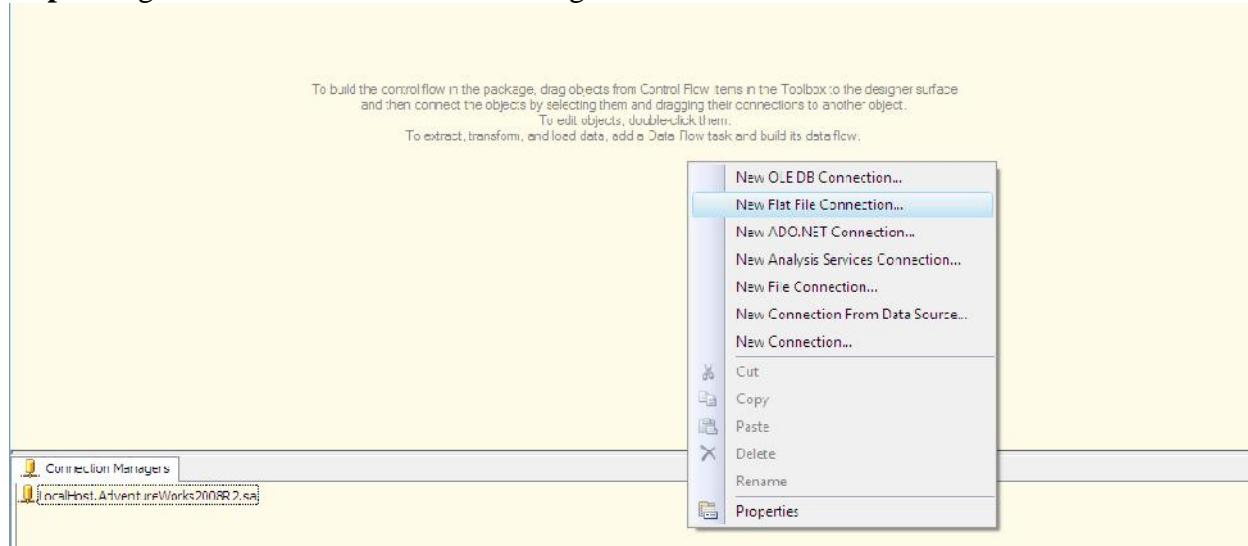


Goto connection → New →

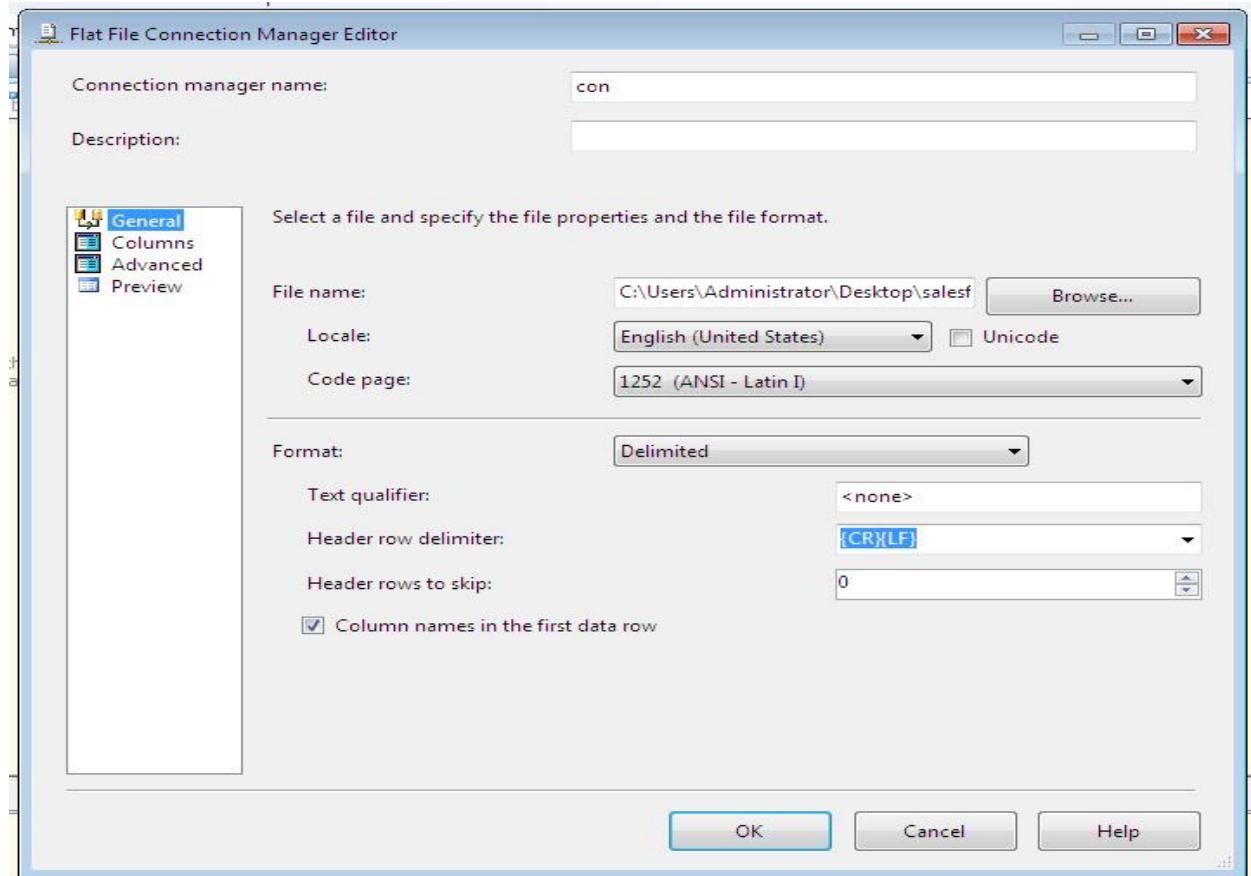


And then click ok → ok

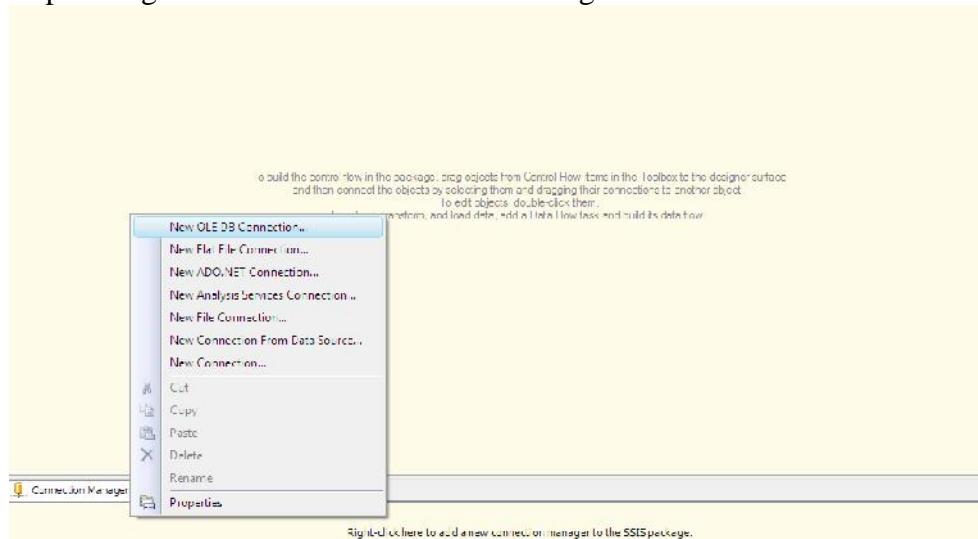
Step: 3 Right click on the Connection manager → new flat file connection



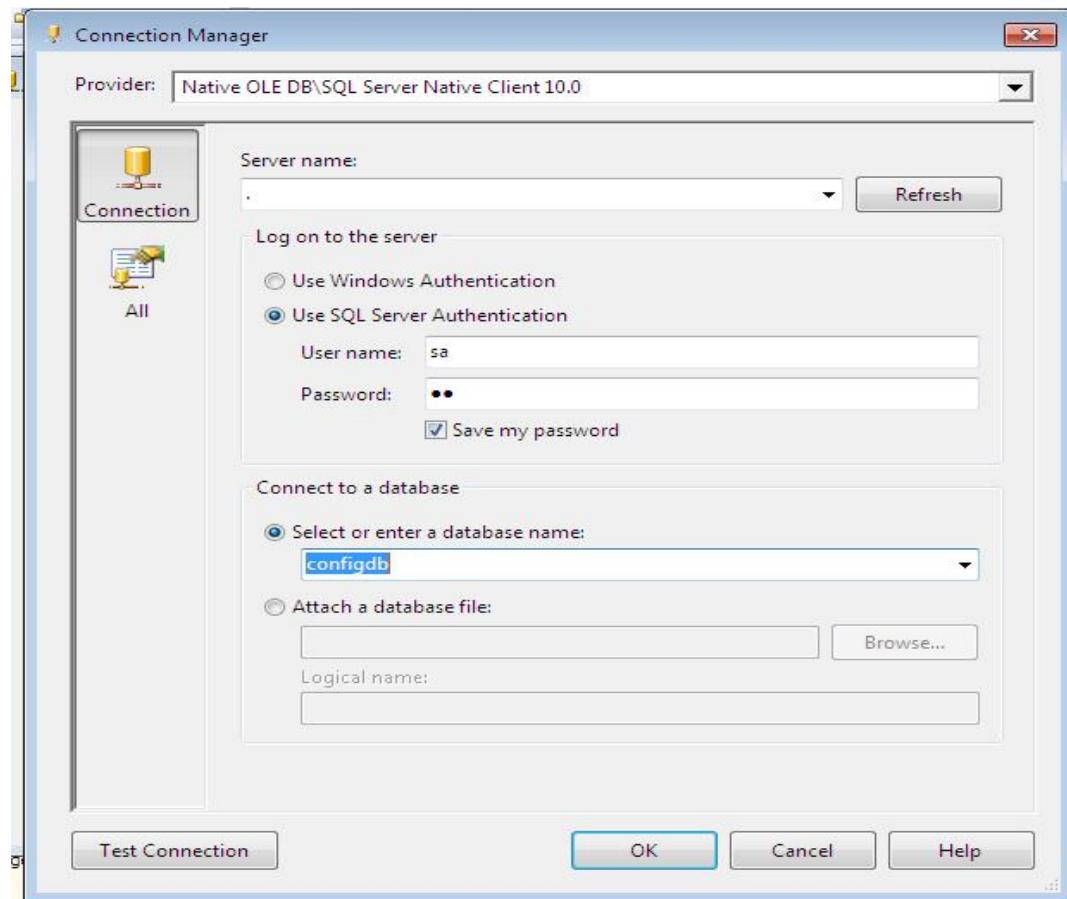
Click on **browse** → and select the flat file



Step : 4 Right Click on the Connection manager → New OLEDB Connection

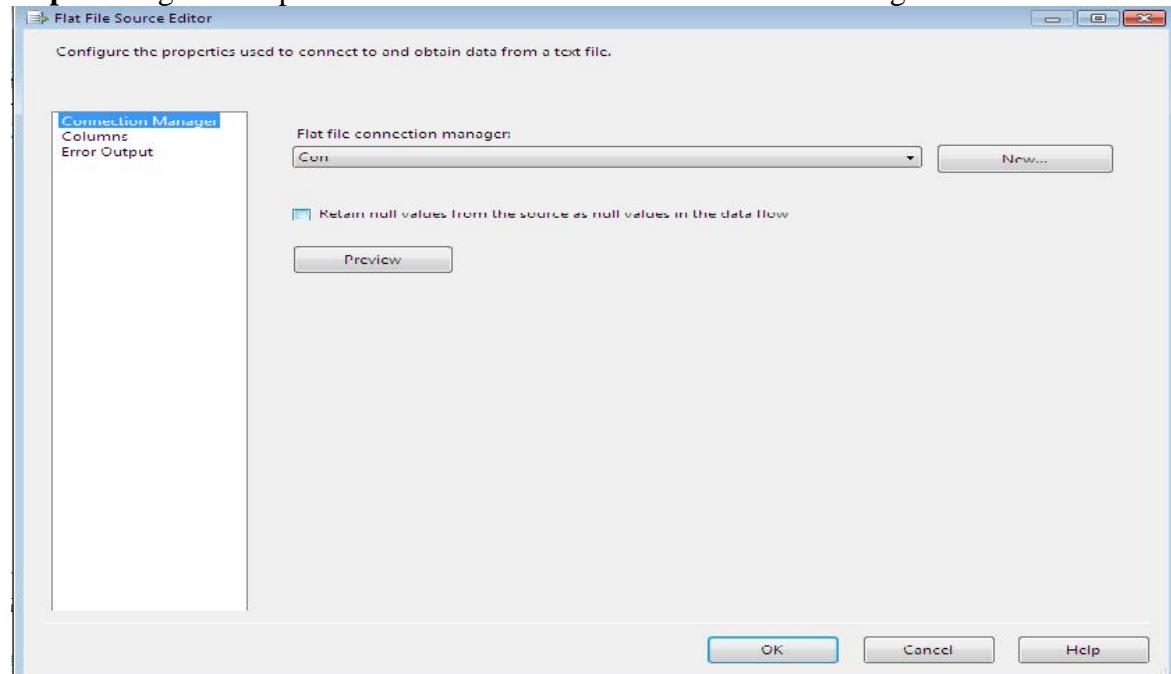


Click on NEW and select Configdb



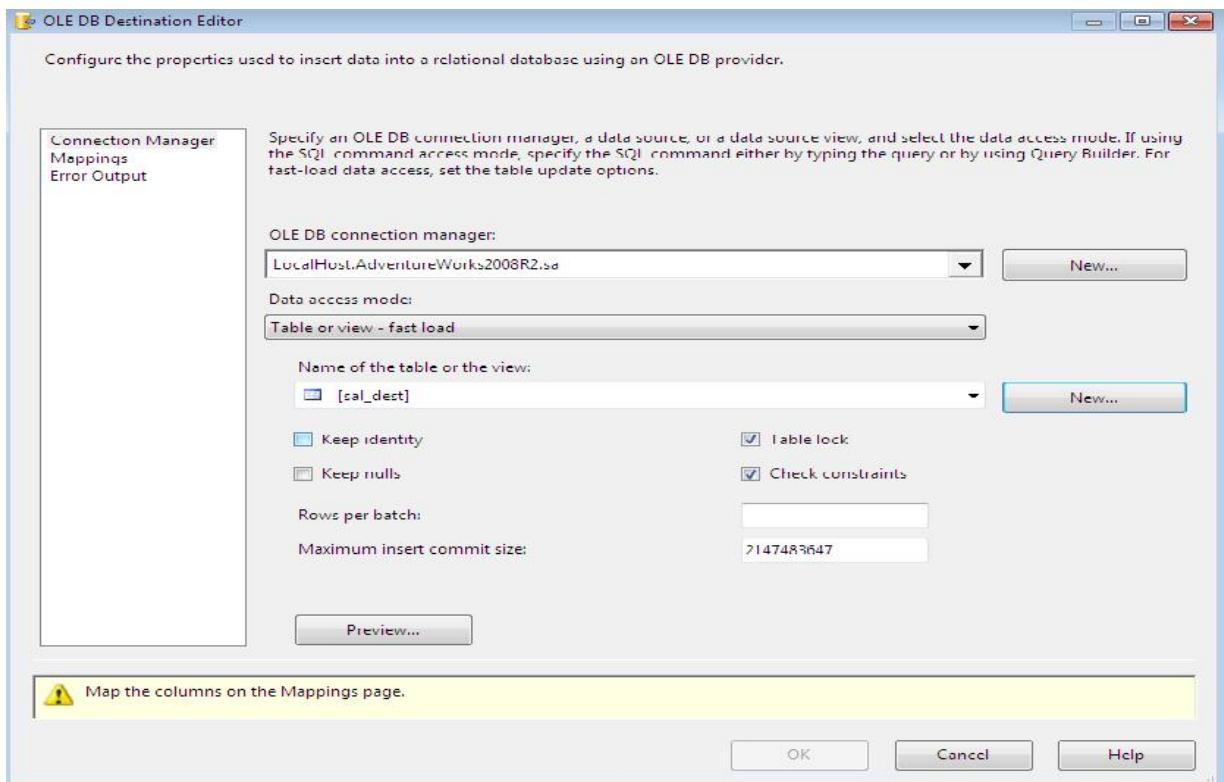
And then click “OK”

Step :5 Drag and drop the Flat file source and double click on it and give the connection.



Then click on **columns** and then “OK”

Step :6 Drag and drop the Dataflow task and double click on Dataflow task and give Adventure work data base connection and then create the **sal_dest** table

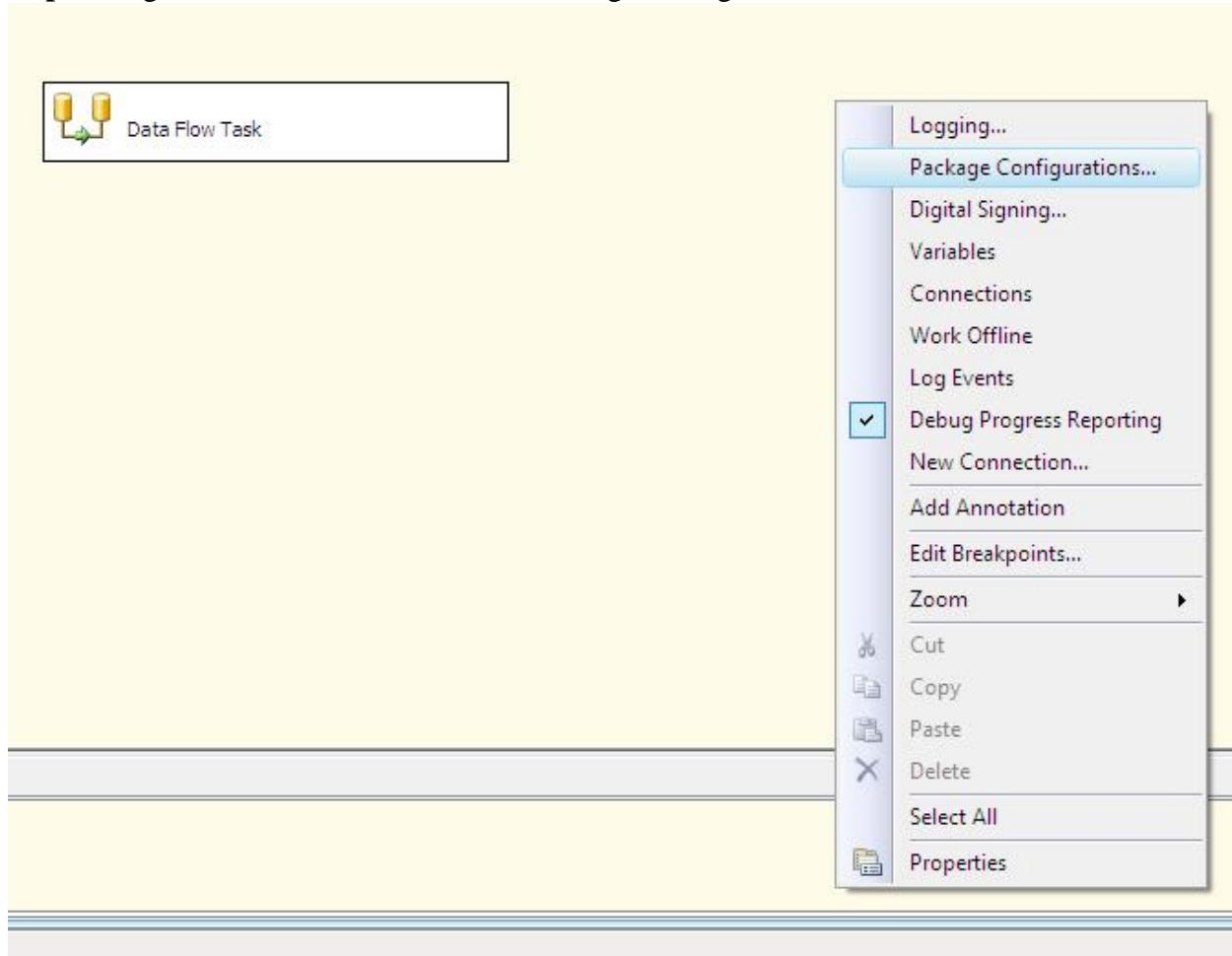


And clicking on the **mapping** tab and then click **ok**.

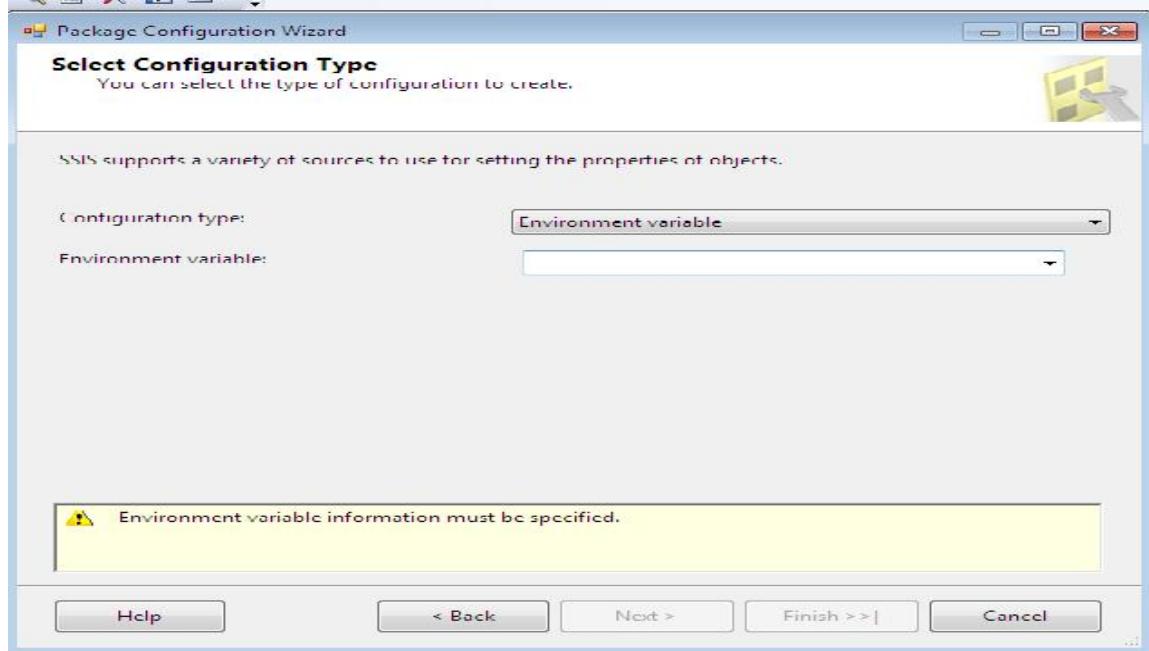
Step: 7 create the new table which structures same as **sal_dest** table structure.

```
CREATE TABLE [Sal_dest] (
    [SalesOrderID] varchar(50),
    [SalesOrderDetailID] varchar(50),
    [CarrierTrackingNumber] varchar(50),
    [OrderQty] varchar(50),
    [ProductID] varchar(50),
    [SpecialOfferID] varchar(50),
    [UnitPrice] varchar(50),
    [UnitPriceDiscount] varchar(50),
    [LineTotal] varchar(50),
    [rowguid] varchar(50),
    [ModifiedDate] varchar(50)
)
```

Step : 8 Right click on the control flow → Package Configuration



and Enable the package Configurations. And click on add



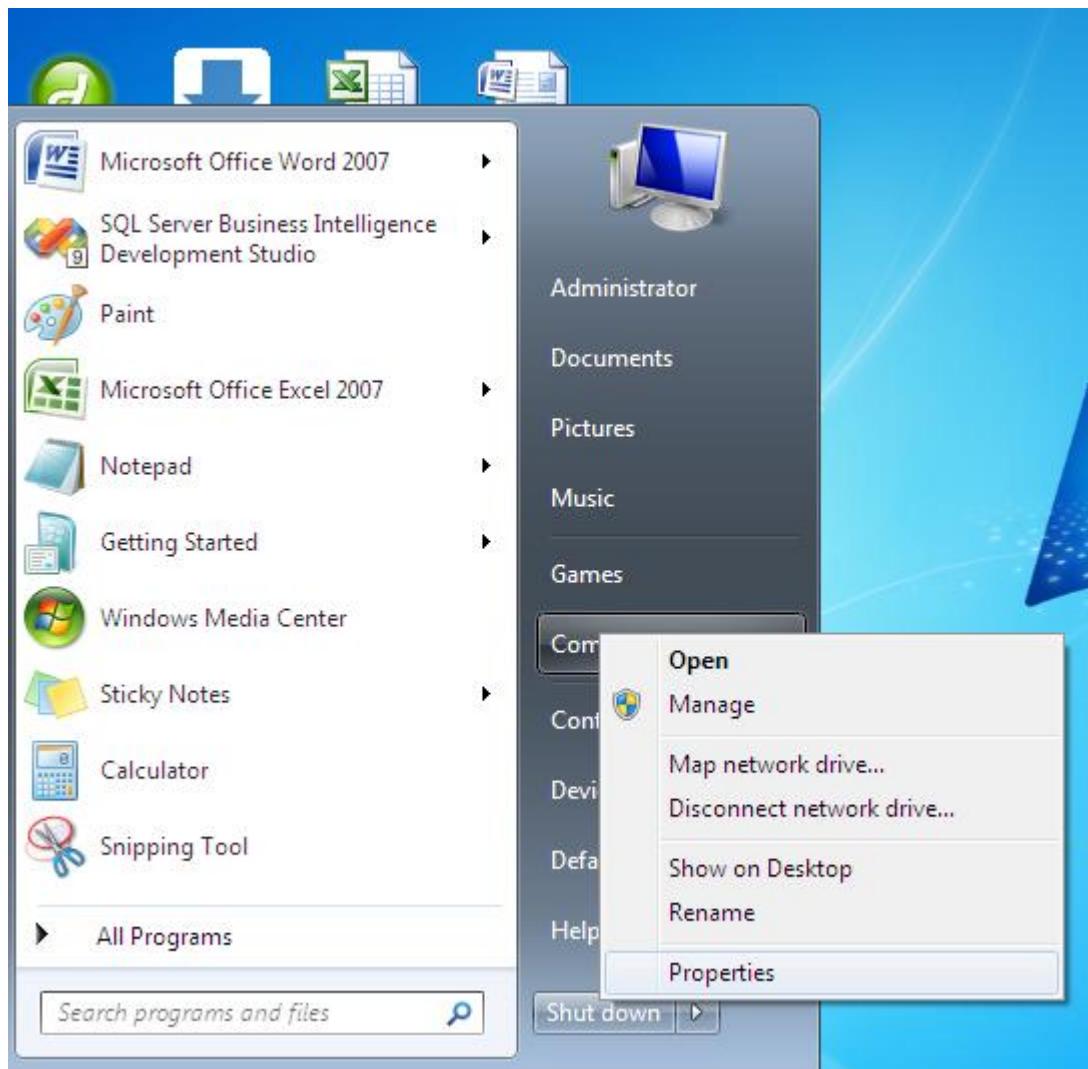
Before going to select the environment variable first right click on the My computer → Properties → Environment variable → New

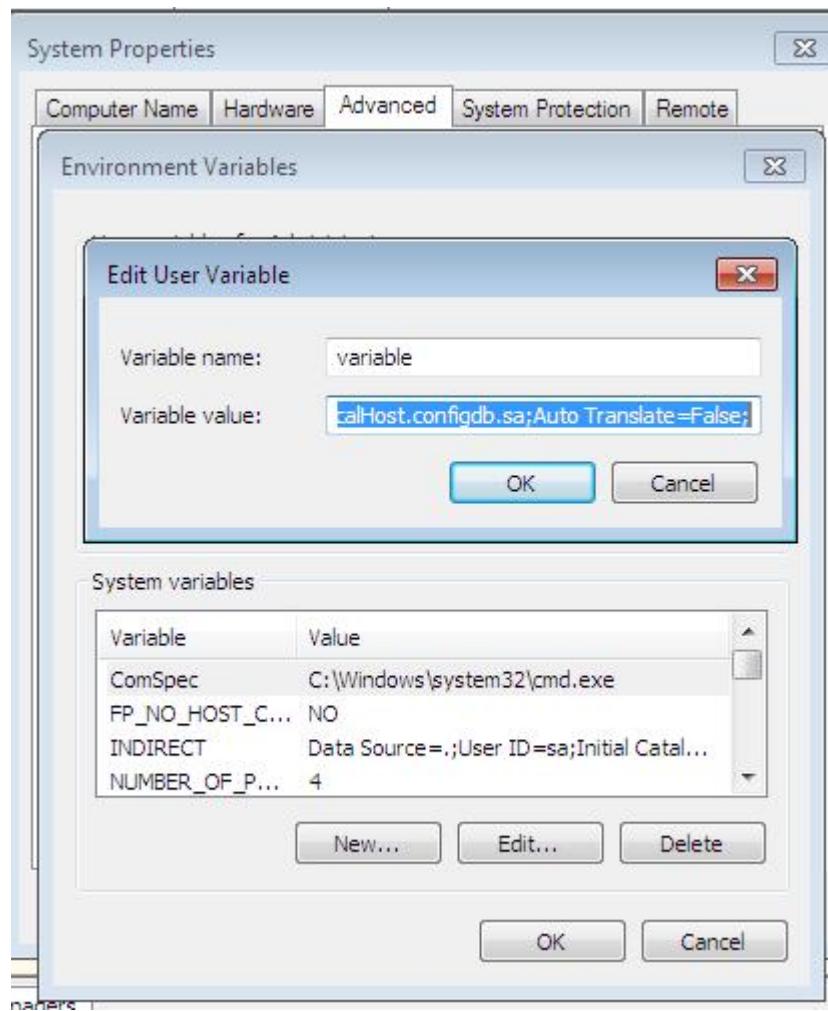
Variable : indirect

Variable values : Data Source=.;User ID=sa;Initial

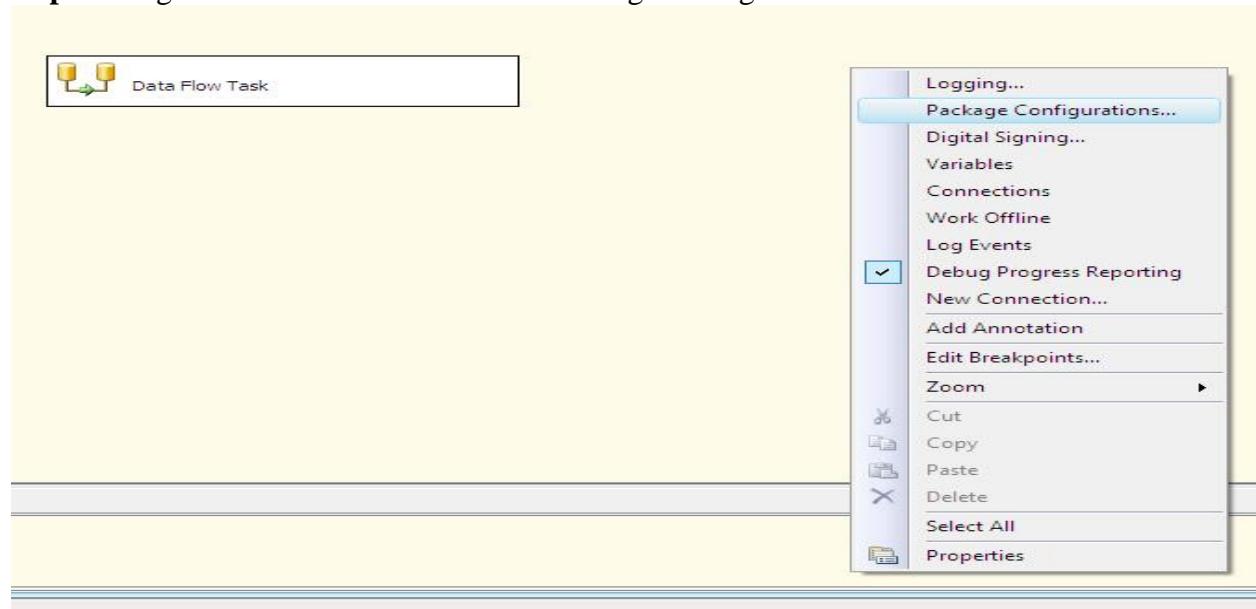
Catalog=configdb;Provider=SQLNCLI10.1;Persist Security Info=True;Application Name=SSIS-

Package18-{B1EA7DBE-1DE7-467D-8187-23428BEA165C}LocalHost.configdb.sa;Auto
Translate=False;

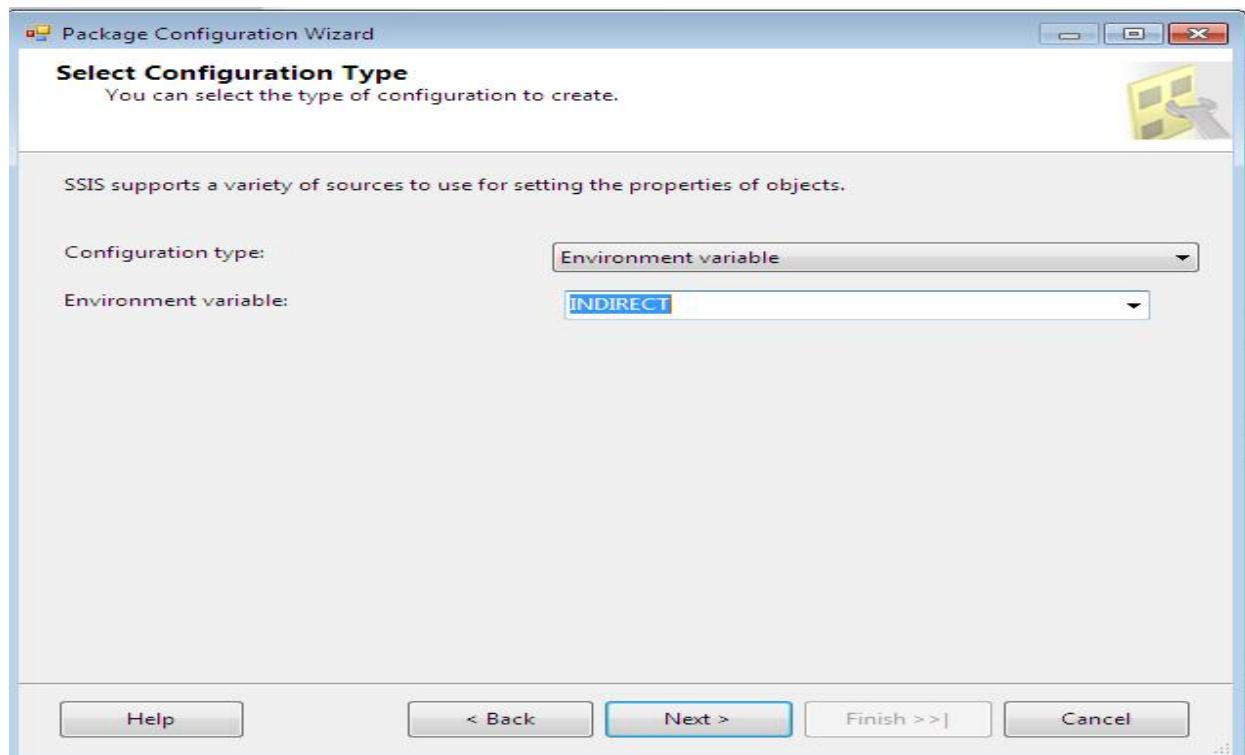




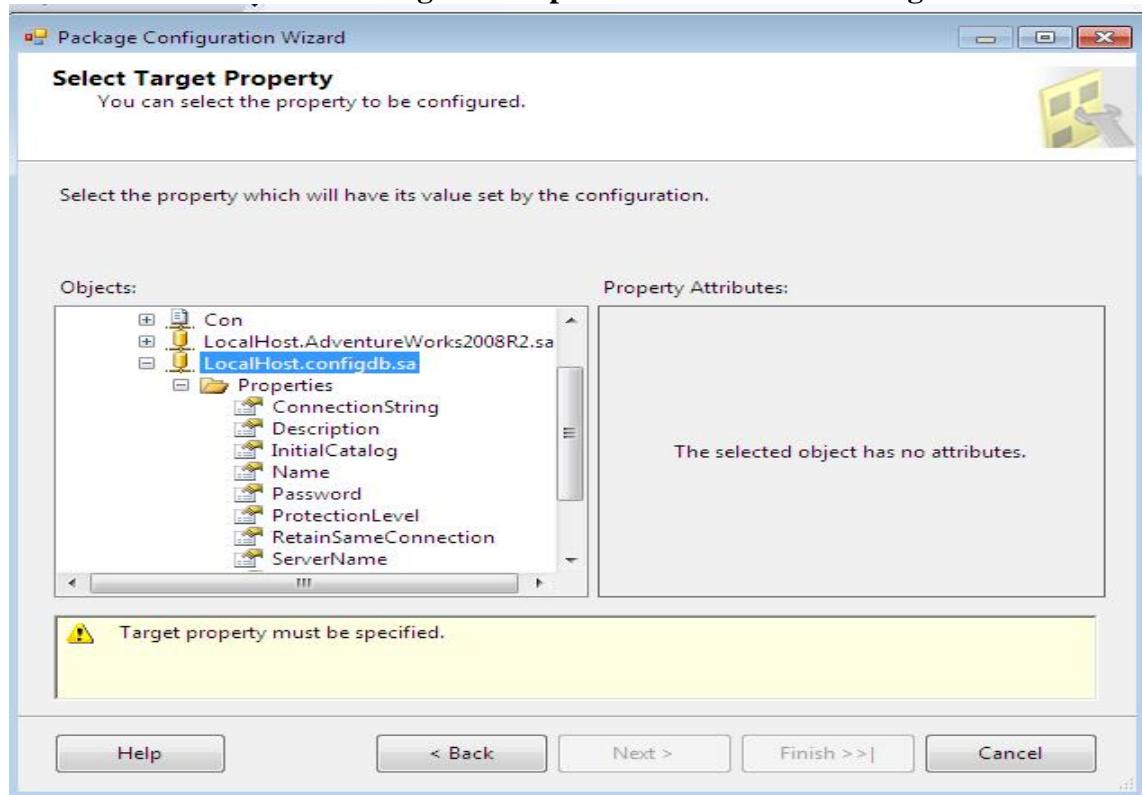
Step : 9 Right click on the control flow → Package Configuration



and Enable the package Configurations. And click on **add**

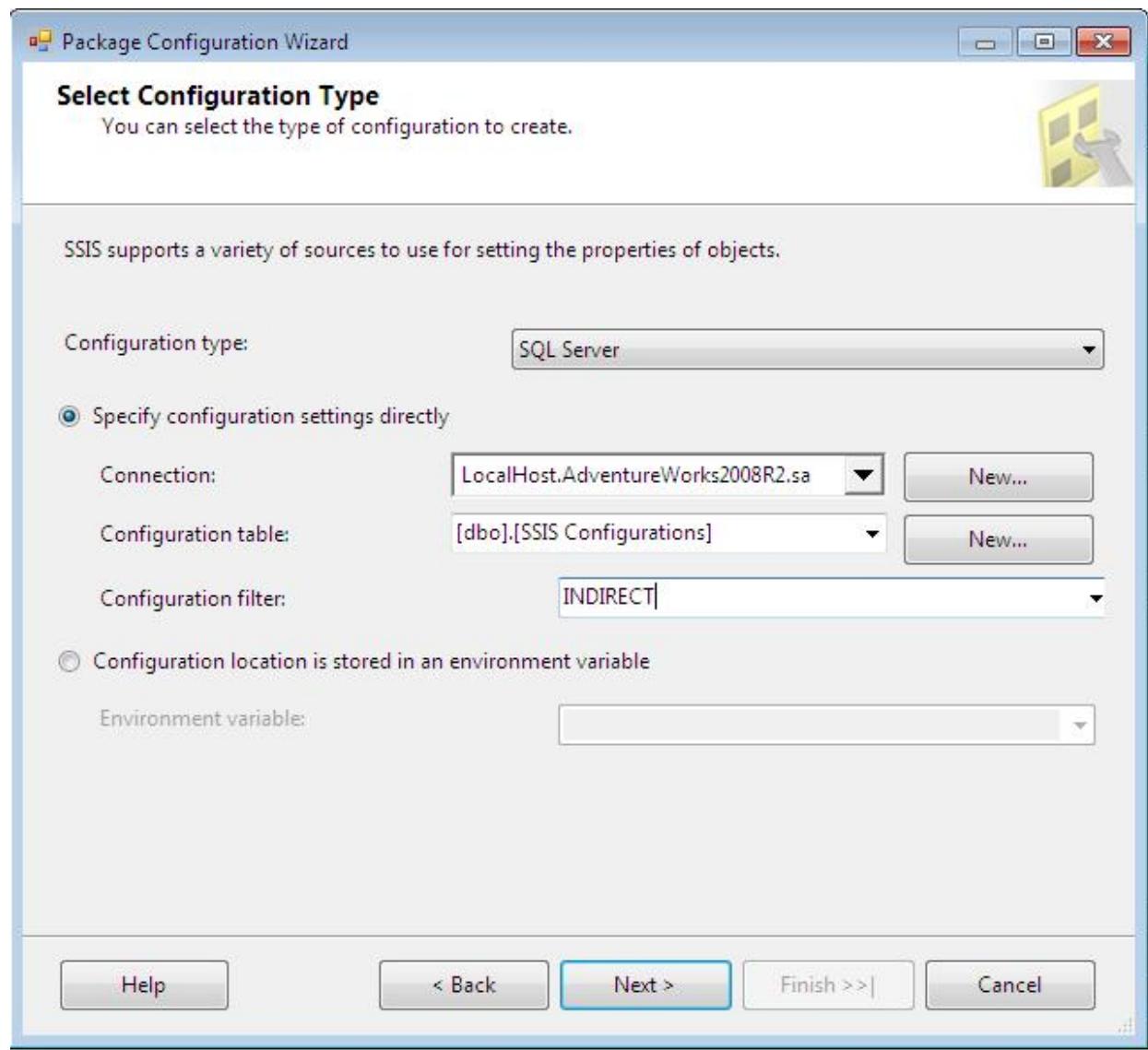


Click NEXT→localhost.Cinfigdb→Properties→Connection Steing→Next→finish



Step :10: Click on add →Next→ Connection type : SQL Server

And select the Specify Configuration setting directly. And create the table SSIS Configurations and select the INDIRECT



```
CREATE TABLE [dbo].[SSIS Configurations]
(
    ConfigurationFilter NVARCHAR(255) NOT NULL,
    ConfiguredValue NVARCHAR(255) NULL,
    PackagePath NVARCHAR(255) NOT NULL,
    ConfiguredValueType NVARCHAR(20) NOT NULL
)
```

And then click "OK" and then click next.

Then go to SSMS open Config DB and edit the table and change the Catalog="Adventure works".

Project deployment model:

In this article we are going to learn a **New way of deployment model in SSIS 2012**. It's always been a challenge & a difficult thing for SSIS developers at the time of package deployment. It's a **brand new feature** in SSIS coming with **MS SQL Server 2012**. Prior to this version, it was a tedious process to deploy SSIS packages in **Legacy model**. We can call this new deployment model in SSIS 2012 as "**Project Deployment Model in SSIS**".

Why we call this as Project deployment model in SSIS and what is the reason behind this?

In the new deployment model in SSIS, we don't have any option & we are unable to deploy the packages individually. Just we have deployment option at **Project level** only, that's why we can call this as "**Project Deployment Model**". The new Project Deployment Model in SSIS includes Project/Package Parameters, Environments, Environment variables and Environment references.

Project/package parameters: - In this new deployment model, we can declare project parameters/package parameters. The major difference between these two parameters is "**scope**". You can create project parameters at project level and package parameters at package level. We can use project parameters to any package in the project, package parameters can only use to that package only. These parameters allow us to assign values to the properties within at the time of package execution. Project parameters are used to supply any external input the project receives to one or more packages in the project.



In the above screen shot you can clearly observe project parameters option. Once you click and open it appears like left side image. The best part of these parameters is that you can mark any of them as sensitive and it will be stored in an encrypted form in the catalog.

There can be three default values for these parameters :-

- **Design Default** value is assigned and used in BIDS.
- **Server Default** value is assigned when project comes in the catalog and overwrites the Design Default value.
- **Execution** value is assigned in reference to a specific environment variable during execution.

Environments and Environment variables:-

We have different type of environments like **Development, Test and Production**. It is a place for environment variables which are used to apply different groups of values to the properties of package components by means of environment reference during runtime. An environment reference is the mapping between an environment variable to pass a value to a property of a package component. A project can have multiple environment references.

Integration services catalog :-

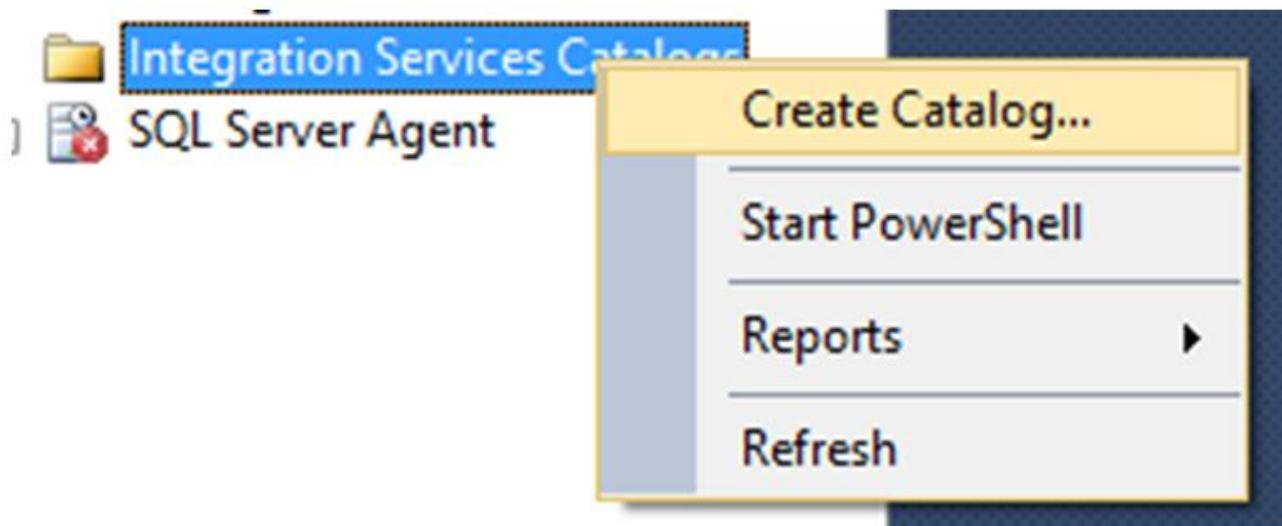
In the below theoretical part we will frequently use "catalog" term. Now we are going to discuss what is integration services catalog, where it exists?

This is the **brand new feature** in MS SQL Server 2012. It comes with SQL Server Management Studio(**SSMS**). It stores the data about deployed projects including packages, variables and environments. We must know one mandatory thing i.e. "**we can create only one catalog per instance**". When you create a catalog you need to provide a password which will be used to create a database master key for encryption and therefore it's recommended that you back up this database master key after creating the catalog.

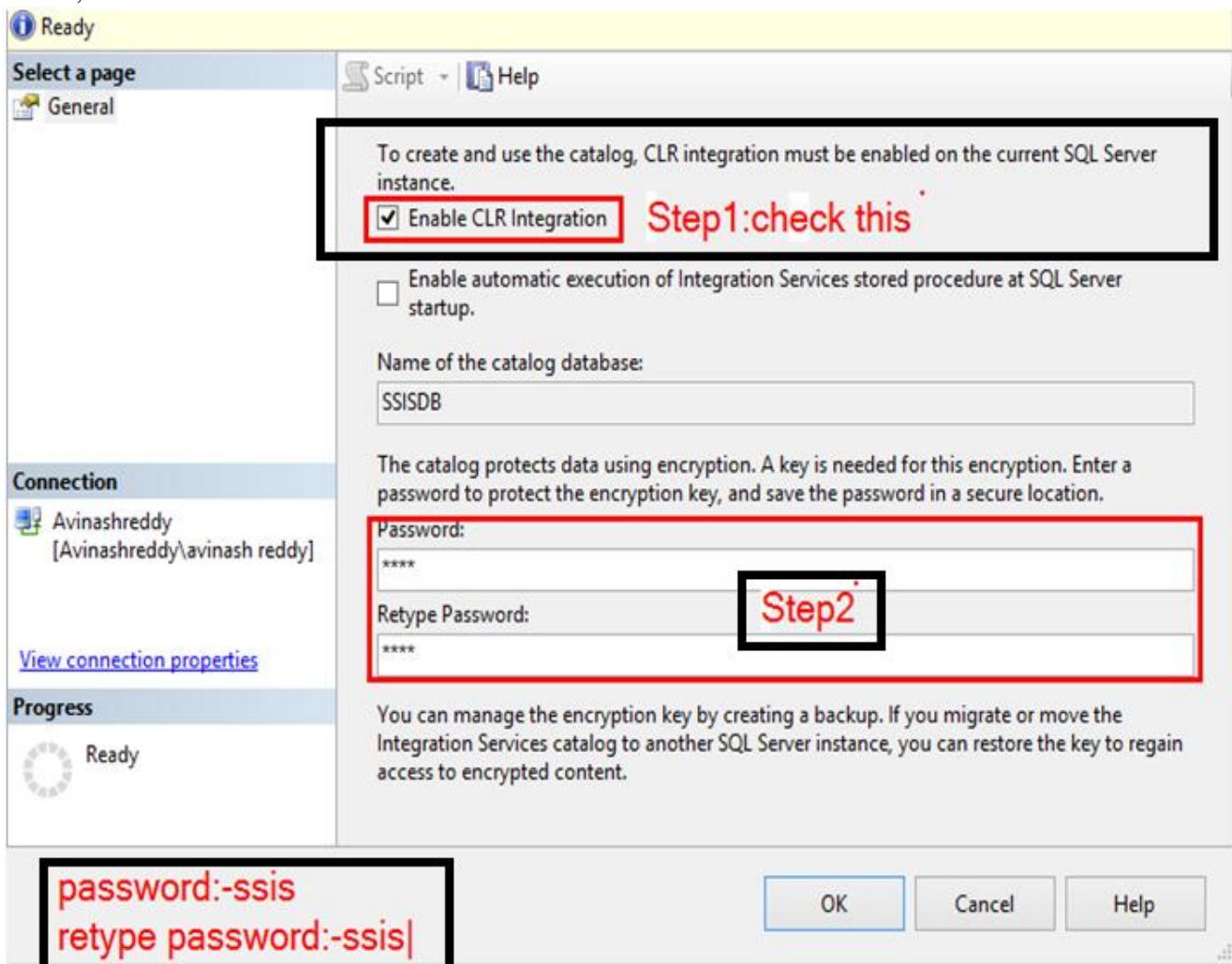
The catalog uses **SQLCLR** (the .NET Common Language Runtime (CLR) hosted within SQL Server), so you need to enable CLR on the SQL Server instance before creating a catalog. Finally let's jump into practical session with example – My best part of any article.

STEP 1. Create integration services catalog.

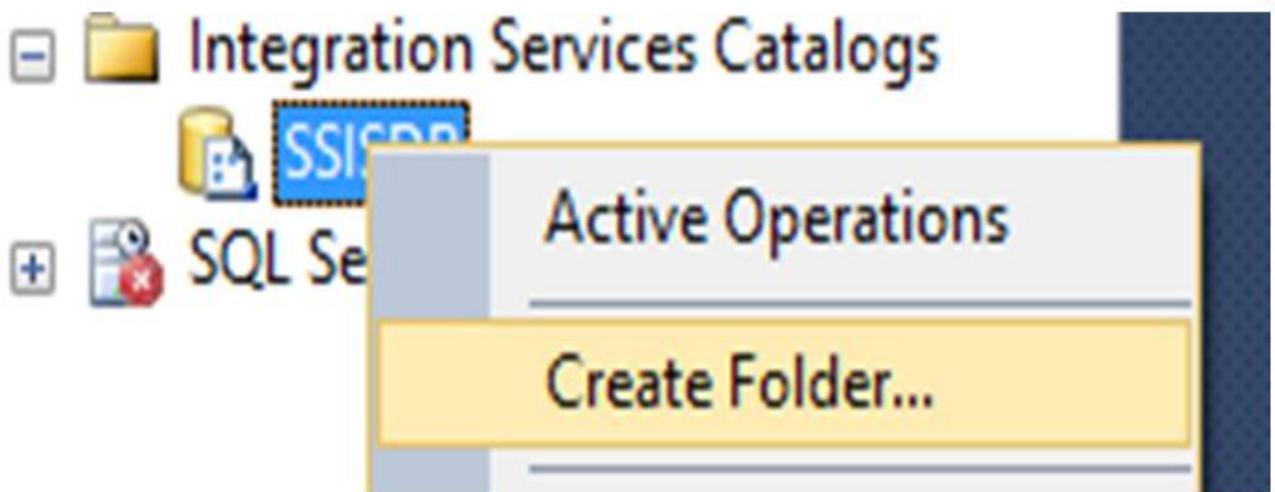
- Open SSMS and Go to **Integration Services Catalog**. Right click on that and choose **Create catalog**.



- Once you click on **Create catalog** option, below window will pop up. After filling the desired values, Click **OK** button.



- Once you click on **OK** button, One “ssisdb” database is created.
- It's time to **create one folder** inside ssisdb database. When we are going to deploy our project than that total content is deployed in this folder only.
- To **create a folder**, Just click on **ssisdb**. Right click on ssisdb and **choose create folder** option.



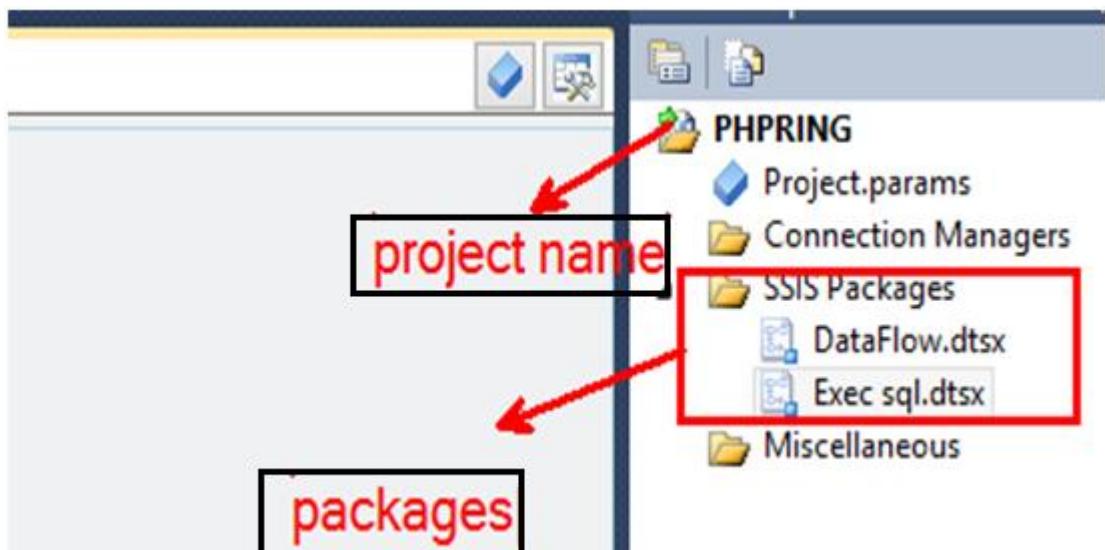
- Once we click on **Create folder**, the below window will appear.



STEP 2. Create Integration services project in BIDS.

- Once we create a folder named "**Test**", it's time to go and create 1 Integration Services project in **BIDS**.
- Open BIDS and Create Integration Services project, name it as say "**PHPRING**".
- Create Couple of **packages** inside this project "**PHPRING**".

I hope you all are aware of how to create integration project in BIDS and how to create few sample packages inside that project. Now I don't want to go and create all those things now. Already I have few packages existed in PHPRING.

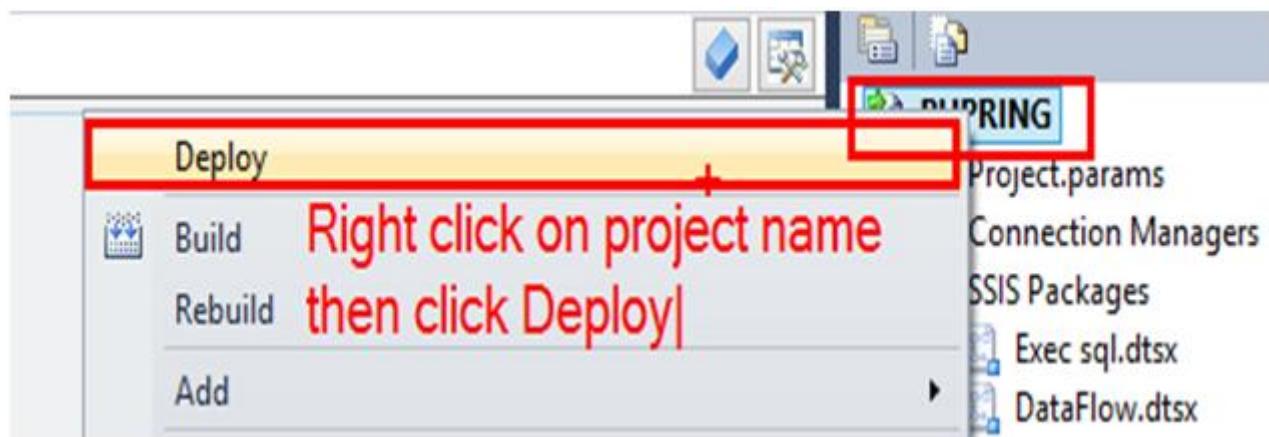


My First package name is "**DataFlow Task**". The internal operation of this task is to extract the data from Flat file. After extracting data it applies sorting on those columns by using soft transformation. Finally, we can load that sorted output into Flat file destination.

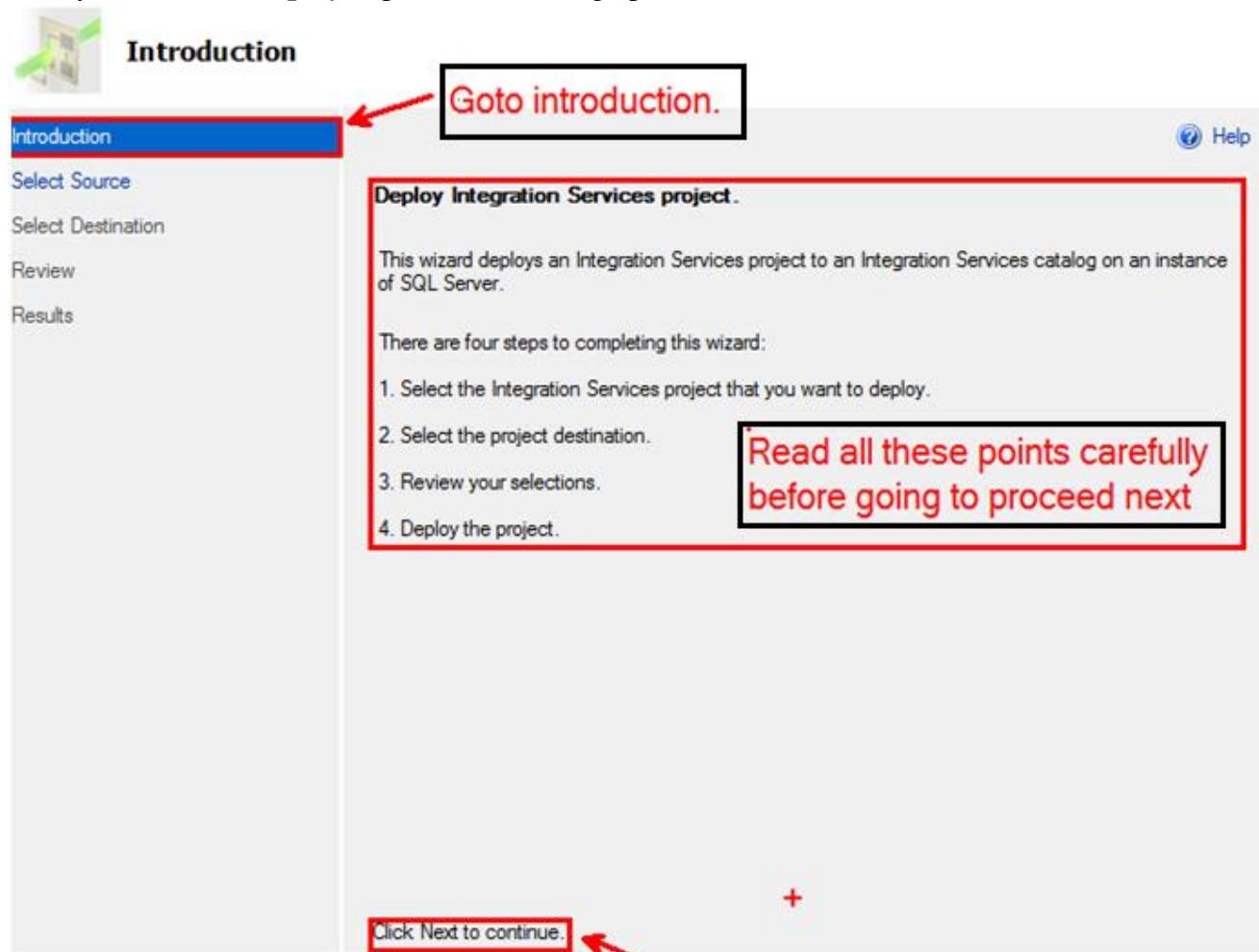
My second package name is "**Execsql**". It contains 1 Execute SQL Task. I issued one Select statement in this package.

STEP 3. Package Deployment time.

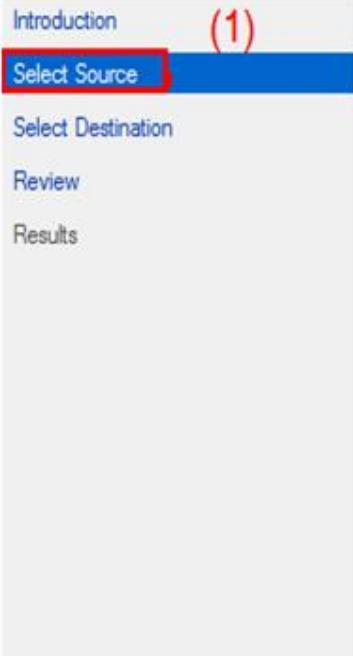
- Go to Project name, in our case it is “**PHPRING**”.
- Right click on the project name and click on **deploy**. If you have any doubt follow the below screenshot.



- Once you click on “Deploy” option, it will bring up the below window.



- Once we click on **Next**, it will bring up next window i.e. “**Select source**”.



Select the Integration Services project that you want to deploy.

- Project deployment file (2)
 Integration Services catalog

Path:

C:\Users\avinash reddy\documents\visual studio 2010\projects\PHPR| [Browse...](#)

This path is automatically selected once we choose project deployment file

click on next

- Once we click on **Next**, it will jump to 3 option i.e. “Select destination”.

Enter the destination server name and where the project will be located in the Integration Services catalog.

Server name: (local) 2 Give servername as (local)

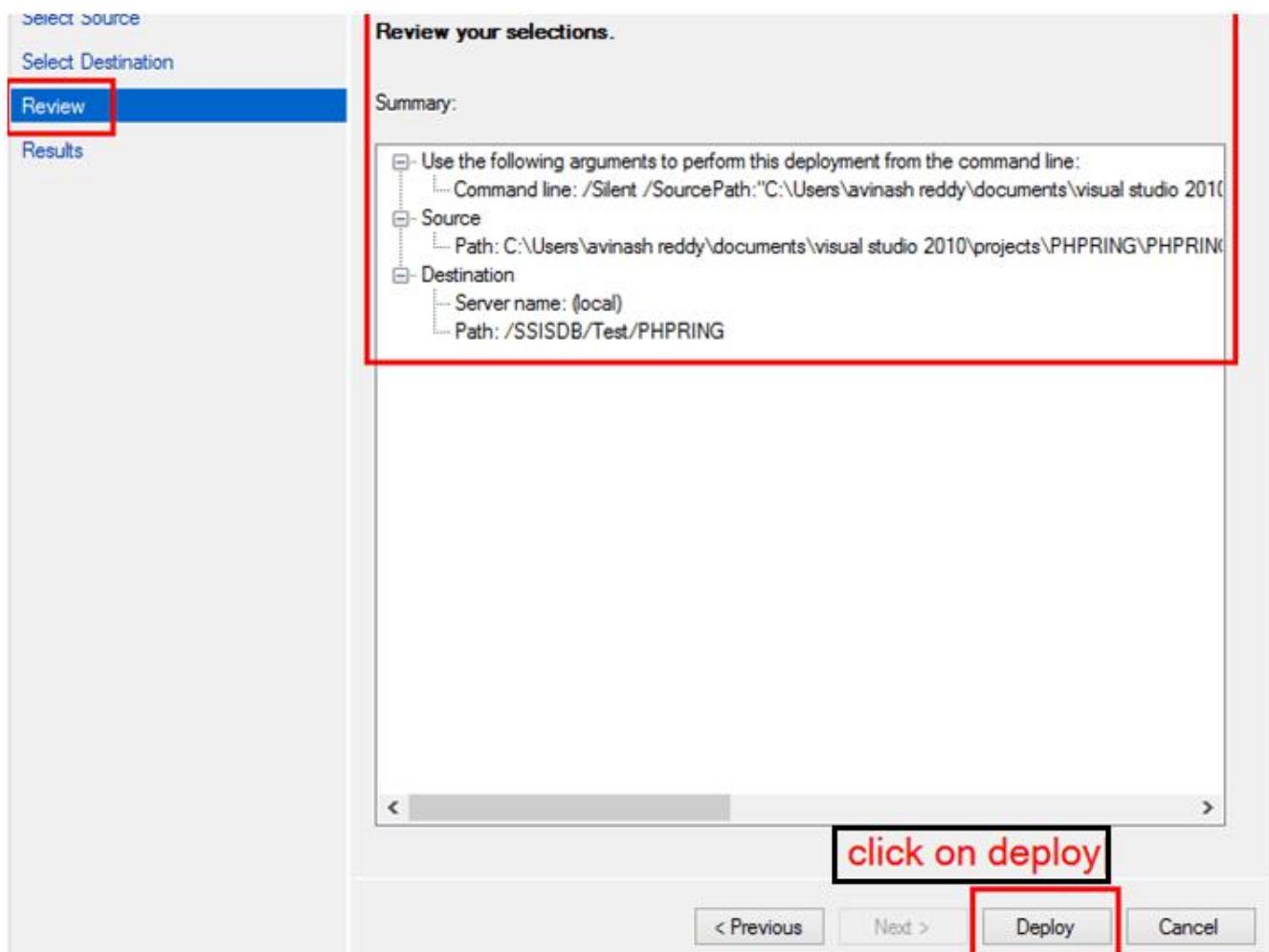
Path: /SSISDB/Test/PHPRING [Browse...](#)

4 once we select our folder "Test" the path come like this. This path includes database name/folder name/project name.

3 click on browse and select folder "Test"

5 Finally click on next

- Once we click on **Next**, we will get a “Review window”. In this window, we can know all the information in – Select source, Select destination tabs.



- Once we click on **Deploy** option, immediately “Results window” will pop up.

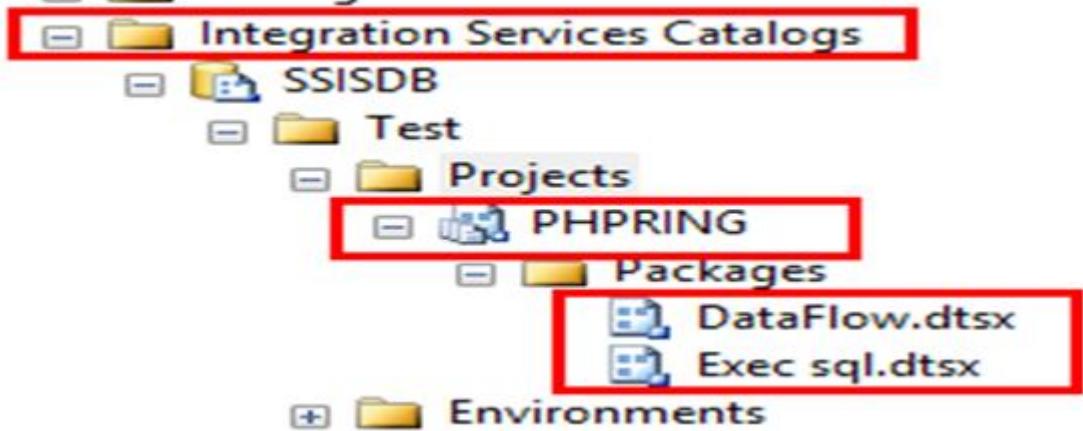
Action	Result
Loading project	Passed
Connecting to destination server	Passed
Changing protection level	Passed
Deploying project	Passed

Once our **Deployment** is over, simply click on **Close** button.

STEP 4. Checking whether Project deployment is Successful or not?

Once we complete the above process, we can jump into **SSMS** (SQL Server Management Studio) and see whether our project “PHPRING” is deployed in “Test” folder or not.

- Go to **SSMS** and expand **Integration Services catalogs**.
- Now, Expand **ssisdb**. Expand folder **Test** and then Expand **Projects**.
- Expand **PHPRING** (our project name) and then expand **Packages**.

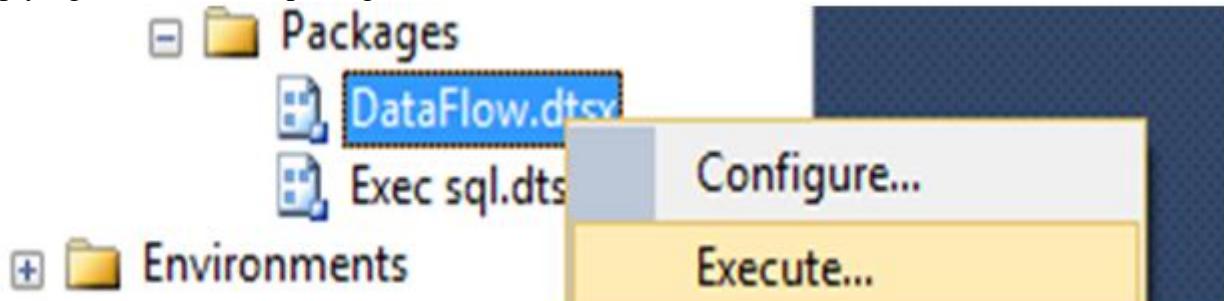


By observing the above screen shot, we can conclude that our project “**PHPRING**” with two packages were deployed successfully into **SSISDB**.

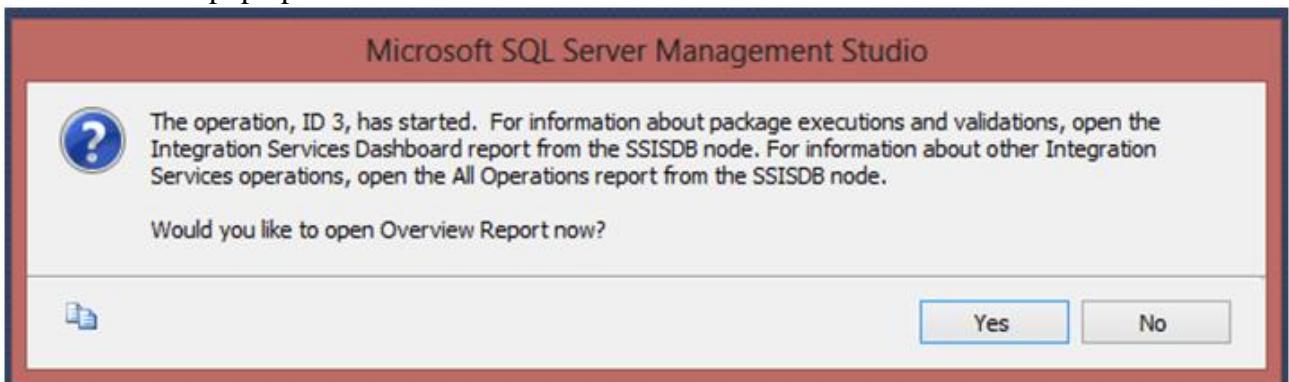
STEP 5. Executing our Package.

In this step we are going to run our first Package i.e. “**DataFlow.dtsx**” from “**Integration Services Catalog**”. It is very simple to run packages from here.

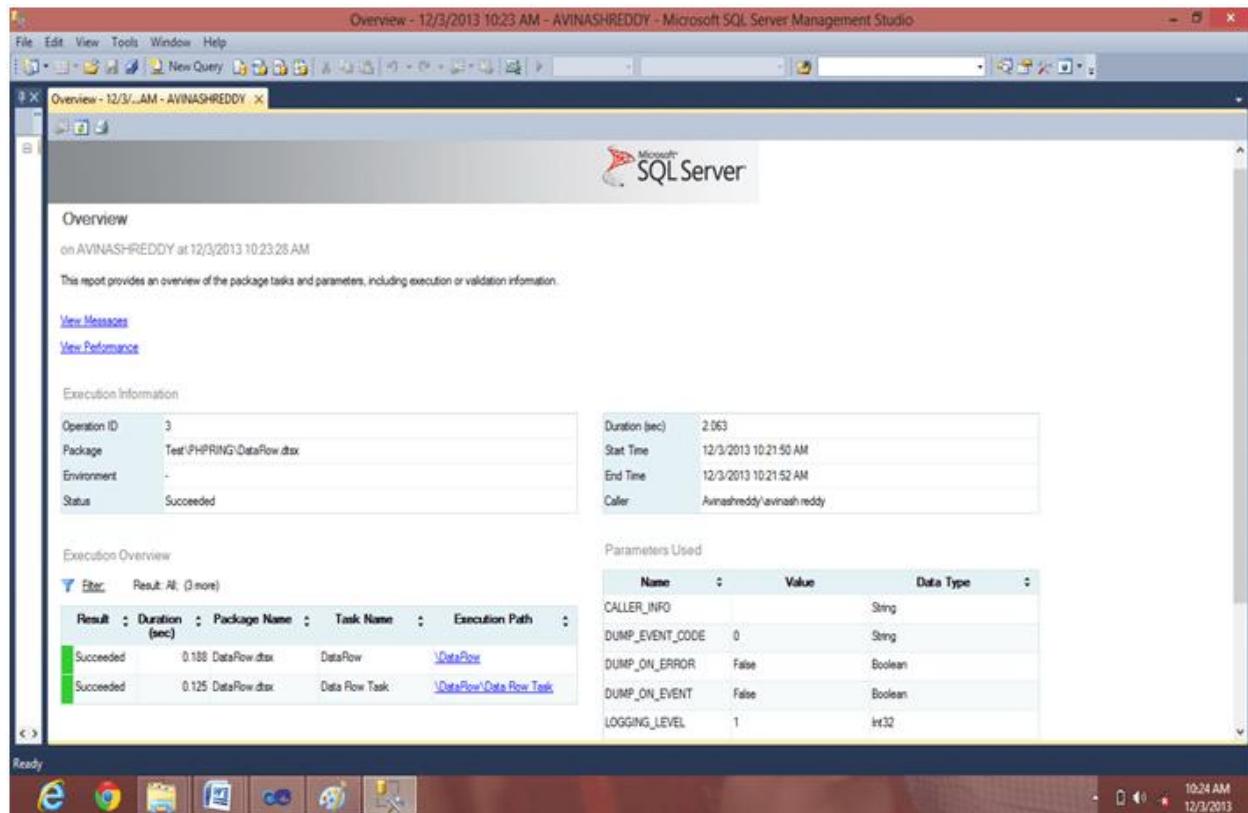
- Simply right click on first package “**DataFlow.dtsx**”. Click on “**Execute**”.



- Once we click on **Execute**, it will bring up one window. Here simply click on “**OK**”.
- After that it will pop up below window. Just read the information and then click on “**Yes**”.



- Once we click on “**YES**” it will bring up a window with the following information.



STEP 6. Output in Flat file Destination.

In this step we are going to see our package “**DataFlow**” is executed successfully or not. To do this, simply go to flat file destination path and see the data. Preety simple right?

By observing above screen shot we can concluded that first package i.e. “**DataFlow**” is executed successfully and we can also observe the data is in **Flat file destination**.