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# SQL Server Integration Services (SSIS) – Step by Step Tutorial

A Free SSIS eBook from Karthikeyan Anbarasan,  
Microsoft MVP, [www.f5Debug.net](http://www.f5Debug.net)

*I dedicate this eBook to my Parents and my Wife, who make it all worthwhile.*

— Karthikeyan Anbarasan(Karthik) [www.f5debug.net](http://www.f5debug.net)

www.f5debug.net

## ABOUT THE AUTHOR

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Microsoft Certified Professional

Microsoft Certified Application Developer

Microsoft Certified Solution Developer

Microsoft Certified Technology Specialist (Win and Web)

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I should also mention about my website [www.f5debug.net](http://www.f5debug.net), which has always inspired me to write more on .NET and related technologies.

A lot of thanks to my wife Janani, for all her support and encouragement. Without her it would have been impossible in accomplishing this.

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# Chapter 1

## BASICS OF SSIS AND CREATING PACKAGE

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### Introduction

In this chapter we will see what a SQL Server Integration Services (SSIS) is; a basic on what SSIS is used for, how to create a SSIS Package and how to debug the same.

### SSIS and DTS Overview

SSIS is an ETL tool (Extract, Transform and Load) which is very much needed for Data warehousing applications. Also SSIS is used to perform the operations like loading data based on the need, performing different transformations on the data like doing calculations (Sum, Average, etc.) and to define workflow of the process flow and perform some tasks on the day to day activities.

Prior to SSIS, Data Transformation Services (DTS) in SQL Server 2000 performs the tasks with limited features. With the introduction of SSIS in SQL Server 2005 many new features can be used. To develop your SSIS package you need to have SQL Server Business Intelligence Development Studio installed, which will be available as client tool when installing SQL Server Management Studio (SSMS).

### SSMS and BIDS

SSMS provides different options to develop your SSIS package starting with Import and Export wizard with which we can copy the data from one server to another or from one data source to another. With these wizards we can create a structure on how the data flow should happen and make a package and deploy it based on our need to execute in any environment.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

Business Intelligence Development Studio (BIDS) is a tool which can be used to develop the SSIS packages. BIDS is available with SQL Server as an interface which provides the developers to work on the work flow of the process that can be made step by step. Once the BIDS is installed with the SQL Server installation we can locate it and start our process as shown in the steps below.

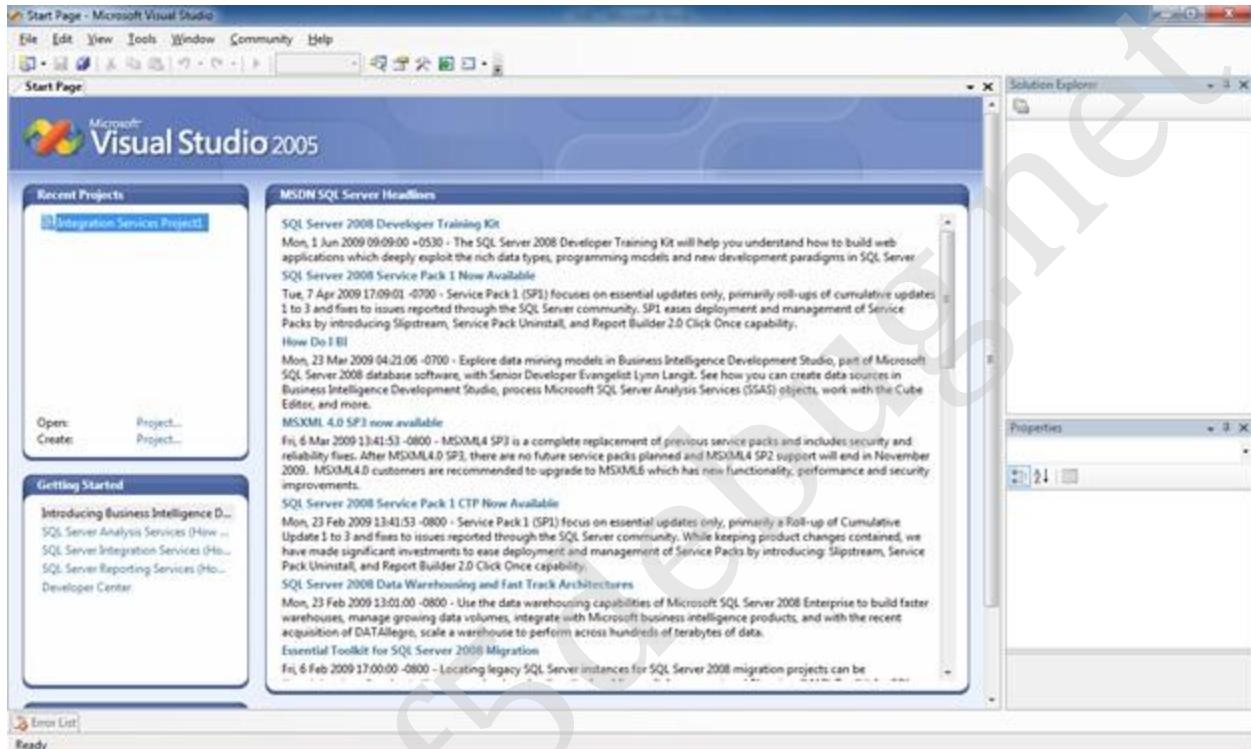
### Steps

We will take an example of importing data from a text file to the SQL Server database using SSIS. Let us see the step by step process of how to achieve this task using SSIS.

**Step 1** – Go to Start → Programs → Microsoft SQL Server 2005 → SQL Server Business Intelligence Development Studio as shown in the below figure.

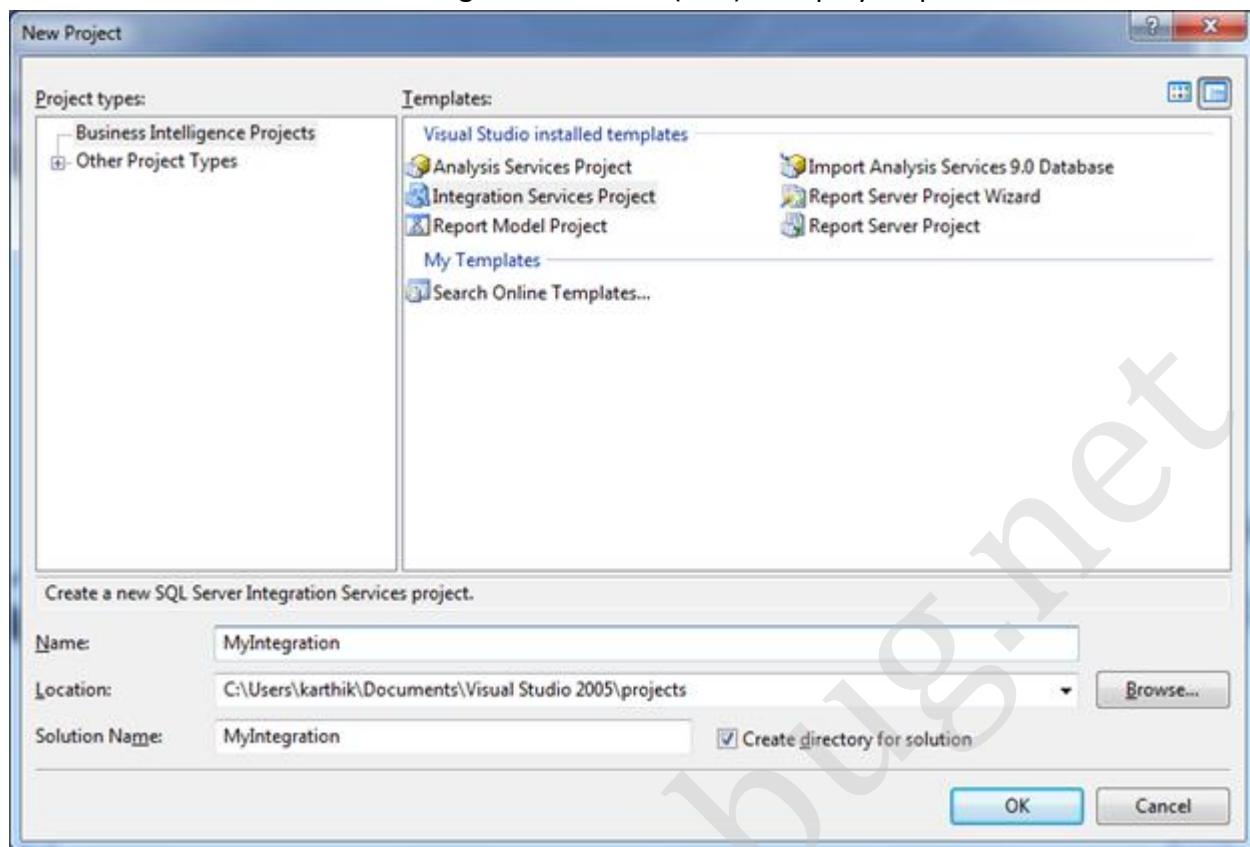


It will open the BIDS as shown in the screen below. This will be similar to the Visual Studio IDE where we normally do the startup projects based on our requirements.

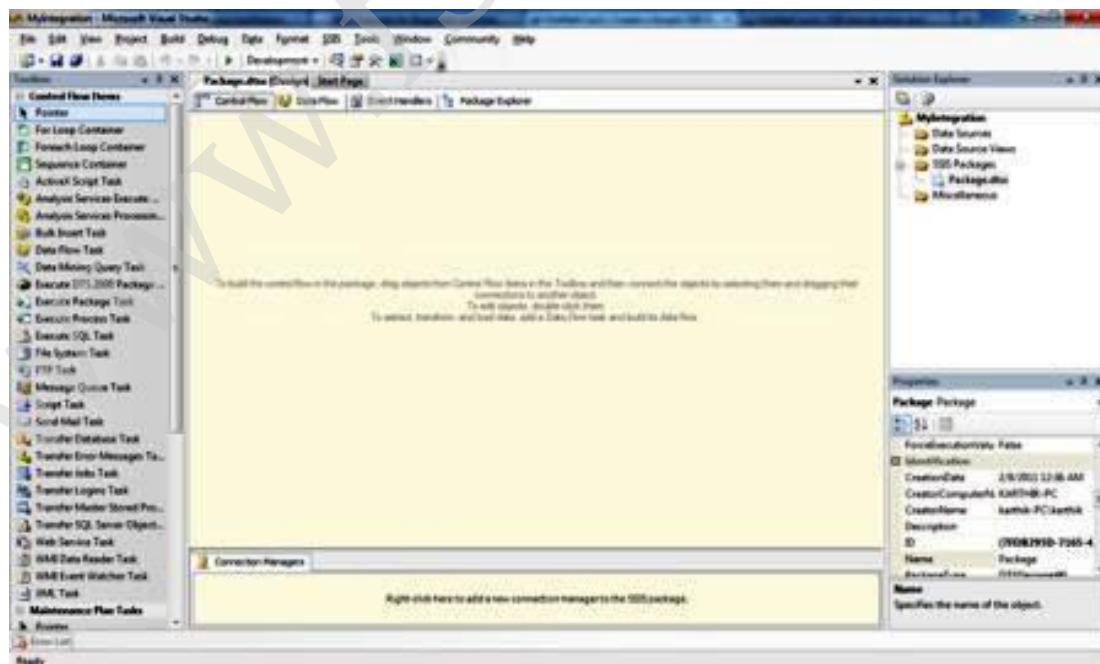


**Step 2** – Once the BID studio is open, now we need to create a solution based on our requirement. Since we are going to start with the integration services just move on to File → New Project or Ctrl + Shift + N It will open a pop up where we need to select Integration Services Project and give the project name as shown in the screen below.

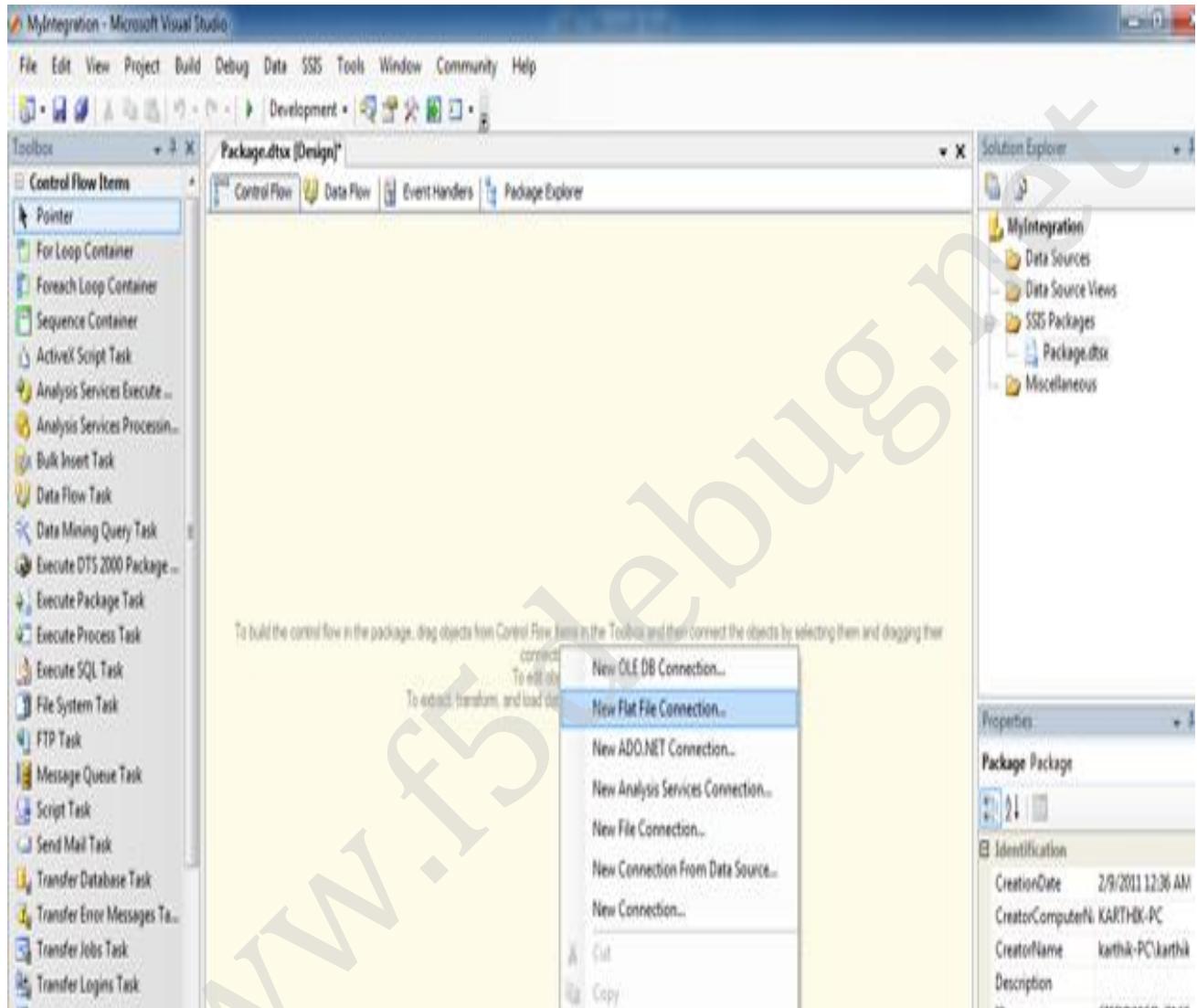
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



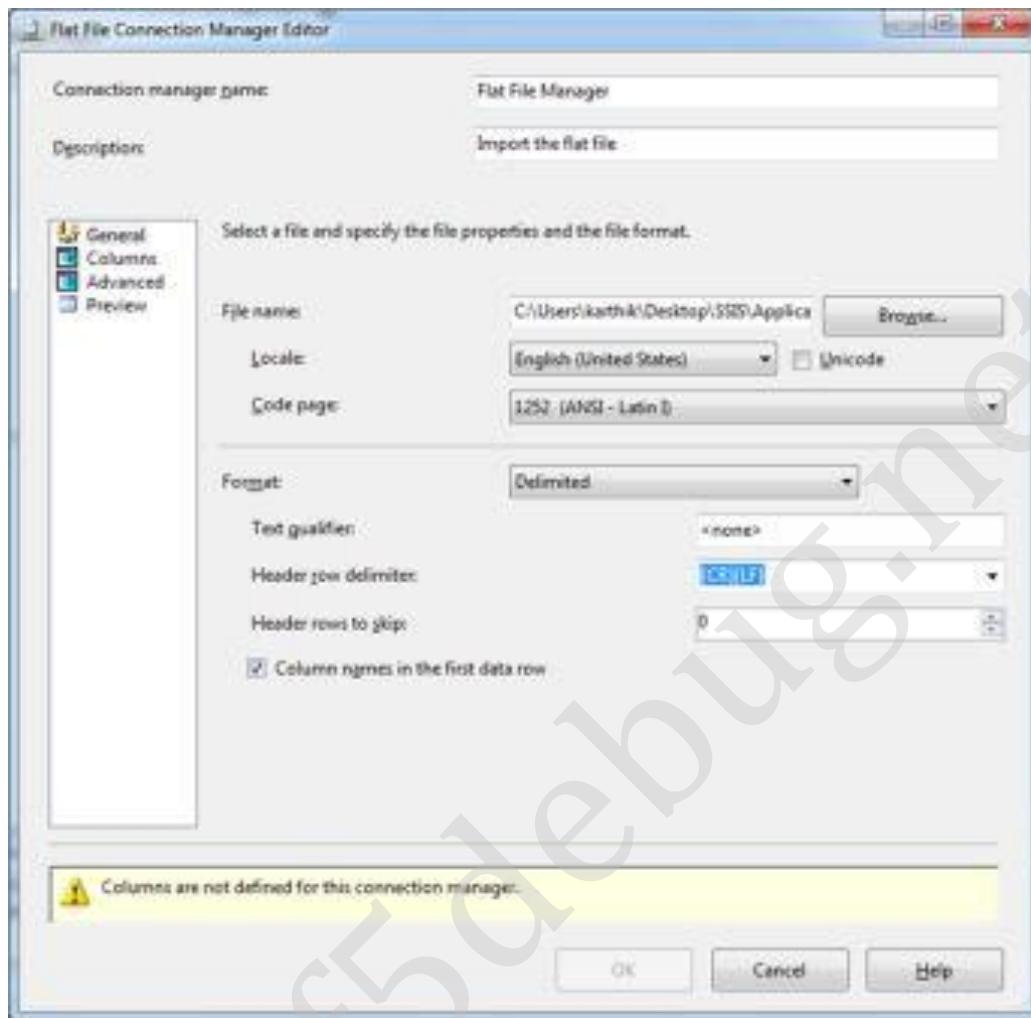
After creating this new project we can see that by default a new SSIS package is added (Package.dtsx). When you create an Integration Services Project; you can right click on it and rename it. Now the designer will show the empty workflow tabs as shown below.



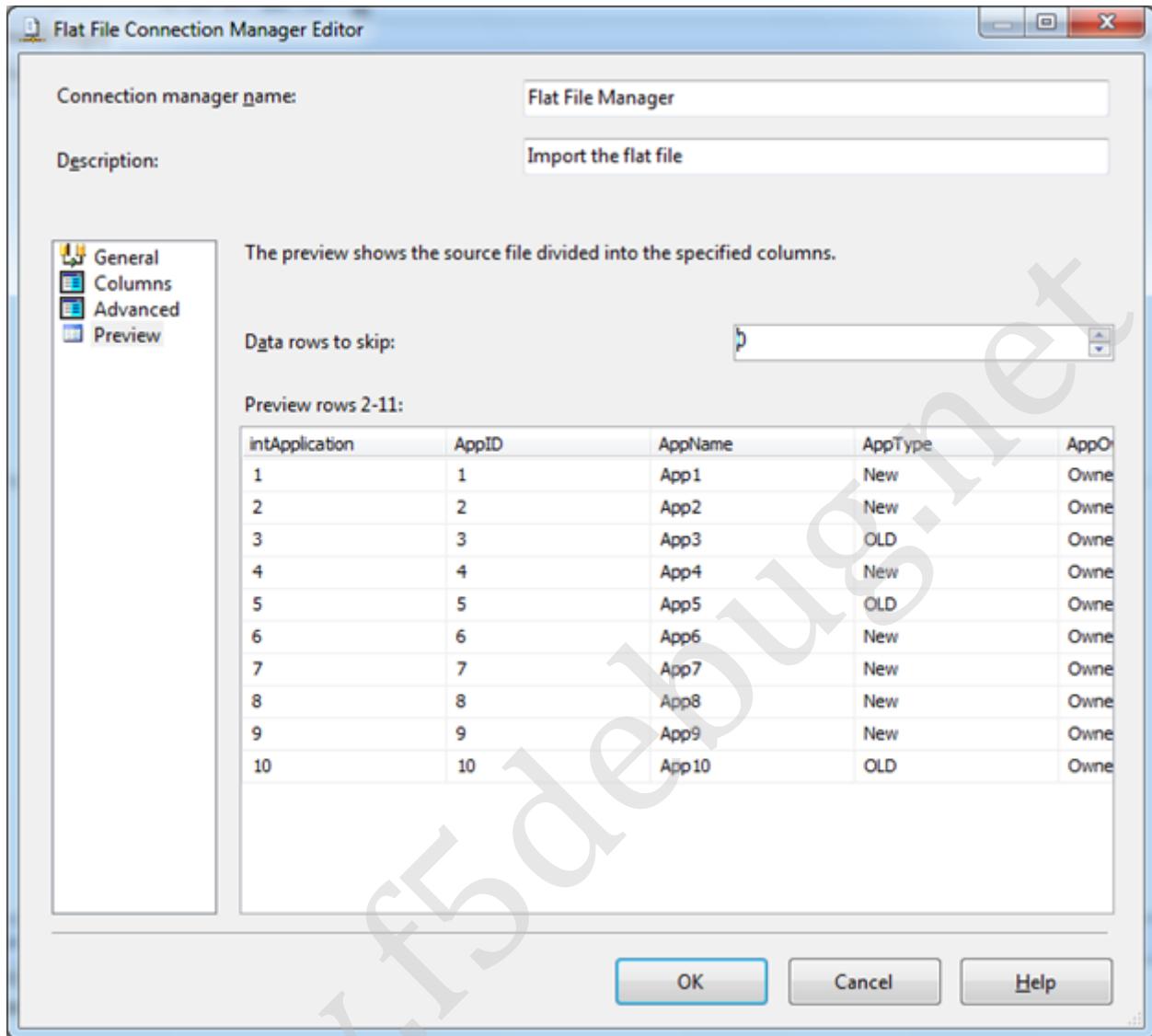
**Step 3** – Since our task is to load the text file into the database, we need to create a new data source. Right click on the connection manager pane and select “New Flat File Connection” as shown in the screen below.



**Step 4** – It will open a window as shown in the screen below. We need to fill in details like the path of the text file and Format of the text file. If the first row of the text file contains the columns, then we need to select the “Column names in the first data row” check box as shown in the screen below.

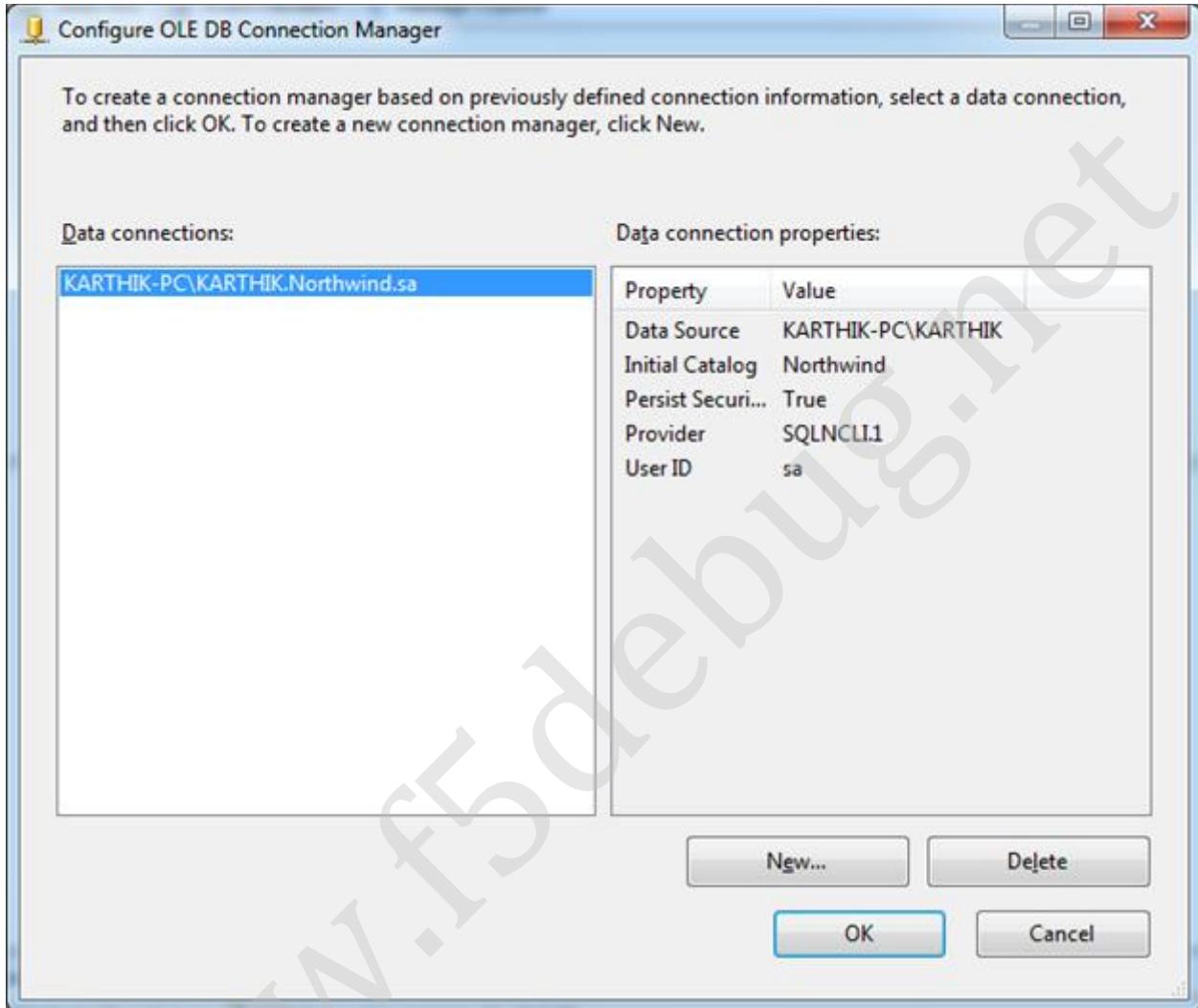


**Step 5** – You can see the columns which we are trying to import from the text file by going to the columns tab or the preview tab in the screen below. In the preview tab we can see the data as per our requirement. For example, say a huge amount of data is available in the source with 1 million records. In the preview tab it shows only 100 records at a time. To see the records from 500 to 600 you need to specify “Data rows to skip” = 500 in the preview tab. So we can see the records from 501 to 600. Click on the ok button to complete this task.

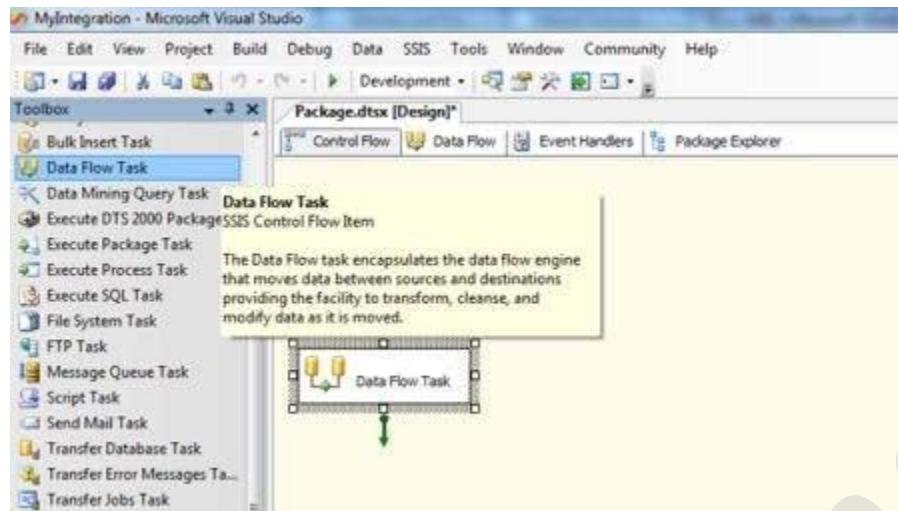


**Step 6** – Now we are done with defining the source section. We need to follow similar steps for defining the destination section. Now right click on the connection manager pane and select “New OLEDB Connection”. It will pop up a window to get the connection details as shown below. Fill in all the connection details and test the connection.

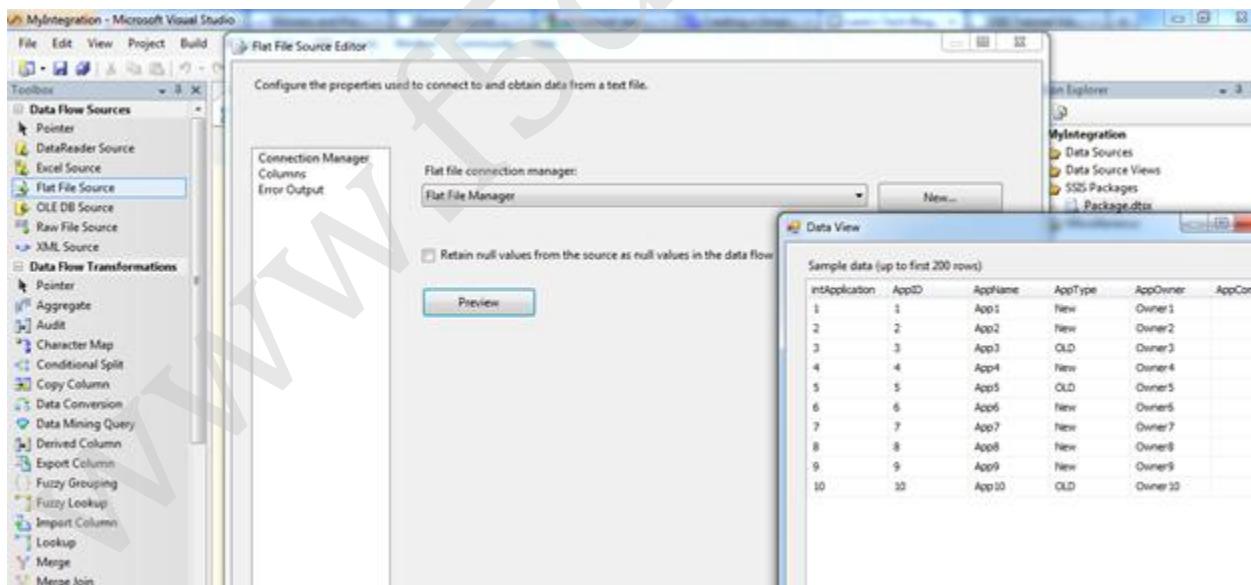
After clicking on Ok we will see the connection details in the connection manager as shown in the screen below.



**Step 7** – Now we need to create the data flow task in order to meet our requirement to import the data from the text file into the database. SSIS uses the work flow tasks in order to process the request as step by step process. Most of our tasks (from coding to packaging) will be completed here. So in the tool box at the left pane Click on the “Data Flow Task” item, and drag it to the screen. You’ll see an icon as shown in the screen below. Double-click on that icon to open it.

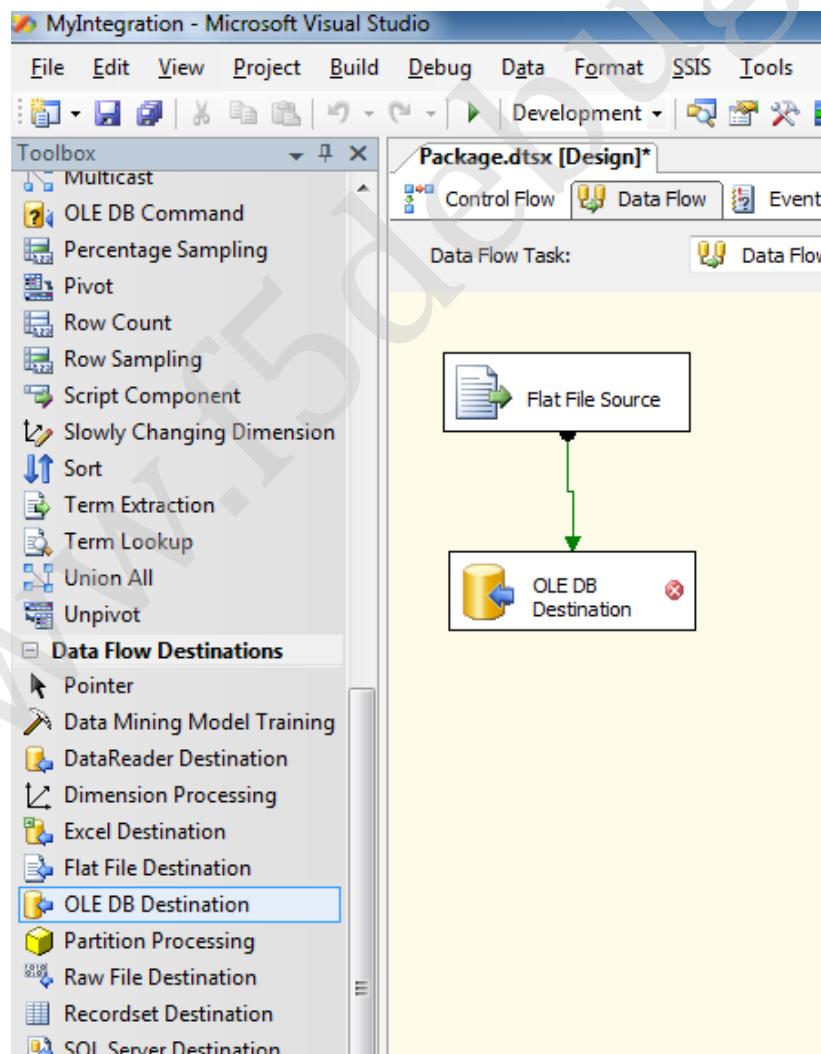


**Step 8** – Double click on the Data Flow Task, it will redirect to the Data Flow tab where we need to have our logic for data flow as per our requirement. Since our requirement is to import the text file, drag and drop the “**Flat File Source**” from the tool box to the data flow tab screen. Again double click on the Flat File Source task it will pop up a window which has the connection that we had set up at the initial stage as shown in the screen below.



The “Retain null values from the source as null values in the data flow” is disabled by default, which means that null values in the source defined will be treated as empty string. You can click on the Preview button to confirm your structure.

**Step 9** – Now we need to set the destination flow i.e. till now we read the data and now we need to insert it to the database as per our requirement. Go to the tool box and click on the data flow destination section and drag and drop the “OLE DB Destination”. We need to map the source and the destination in order to tell SSIS how the mapping works. So click on the Flat file Source and drag the green arrow to the Ole DB destination as shown in the screen below.

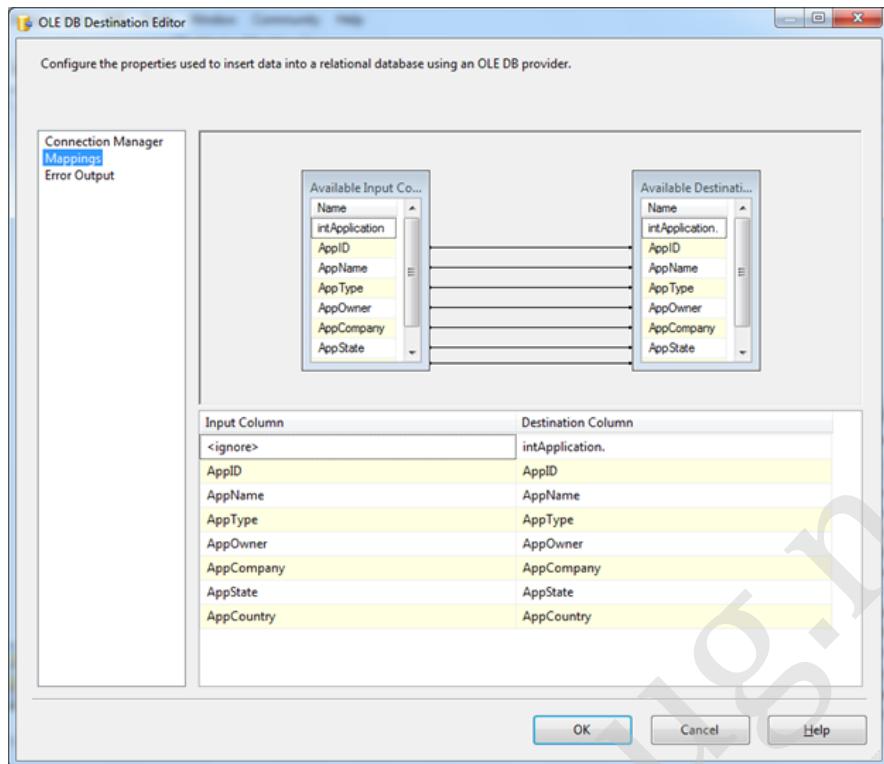


**Step 10** – Double click on the Destination task to configure it. Notice that this also allows you to keep null values. In our example, we are going to create a new table. But if you have a table already created, you can select it from the table drop-down menu available. A table has been created in the database already for this example with the structure below. This table name can be seen in the list as shown in the screen below.

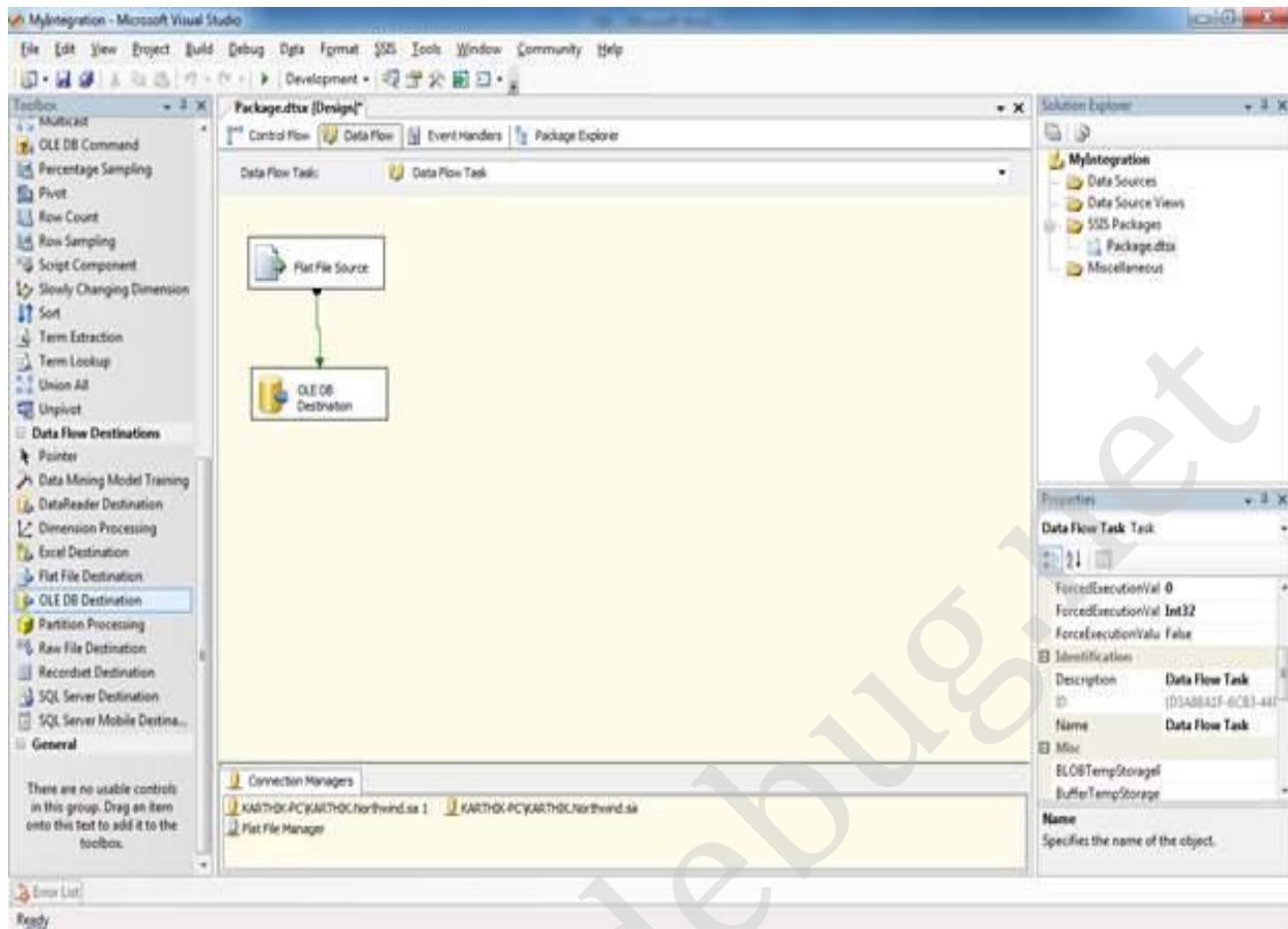
```
1 Create table New Application (
2
3     [intApplication.] int identity(1,1),
4
5     AppID uniqueidentifier default newid(),
6
7    AppName varchar(100),
8
9     AppType varchar(100),
10
11    AppOwner varchar(100),
12
13    AppCompany varchar(100),
14
15    AppState varchar(100),
16
17    AppCountry varchar(100)
18
19 )
20
21 GO
```

**Step 11** -- We need to map the columns from the Source (Flat File Schema) to the destination (DB Schema) as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



**Step 12** – Finally once everything is configured, click on Ok button. You should see a screen similar to the one below.



**Step 13** – Press F5 to start the execution of the SSIS package. We should see each step turn green as the data is read and written. And you can see the data that has been imported from the Text file to the Database.

## Conclusion

In this chapter we have seen the basics of the SQL Server Integration Services with the step by step process on how to create a basic integration services package used in our day to day activity.

# Chapter 2

## TRANSFORMING SQL DATA TO EXCEL SHEET

### Introduction

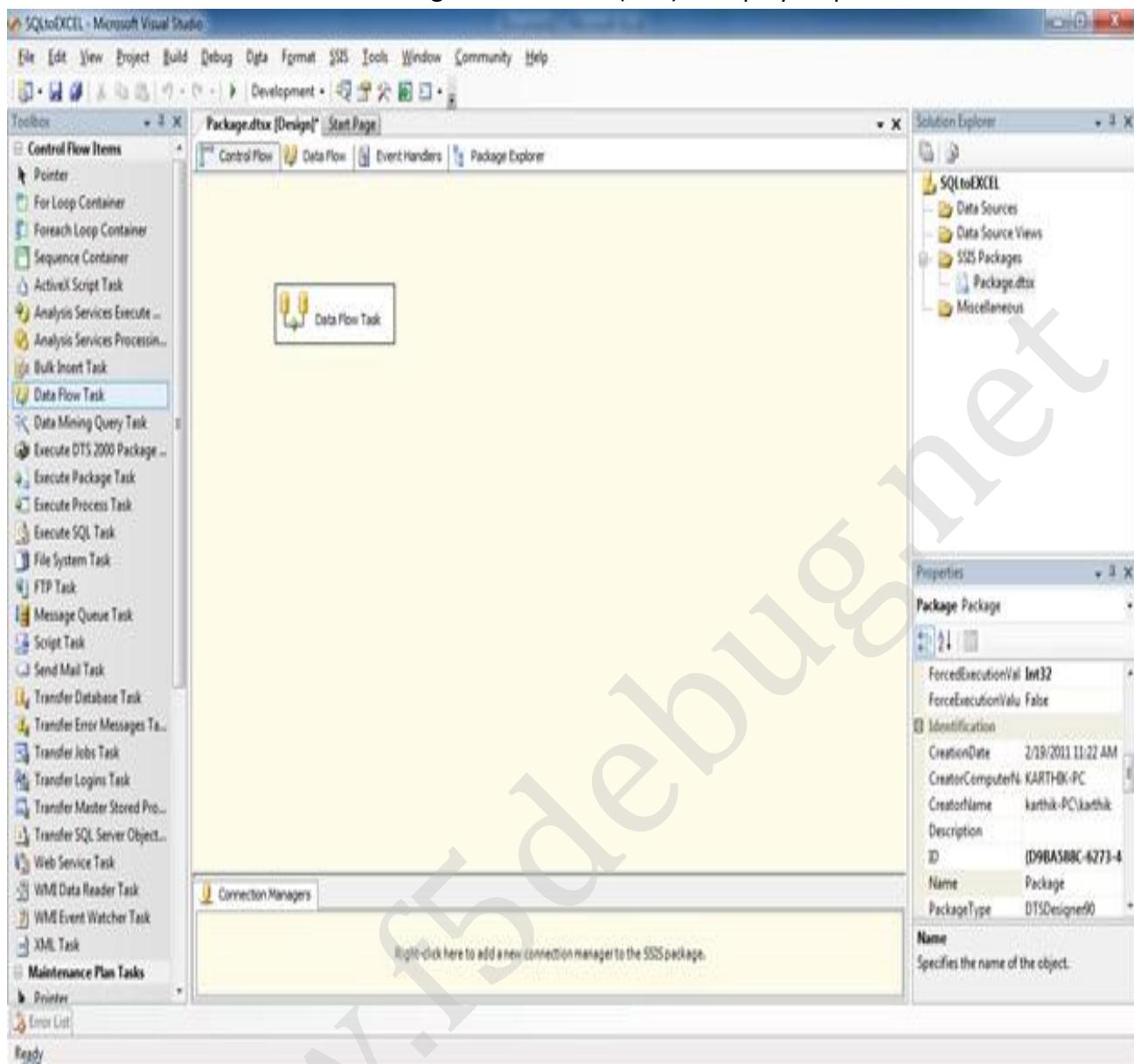
In this chapter we will see how data can be transferred from SQL Server DB to Excel sheet. This task is quite easy to perform and almost used in every SSIS package that will be created.

### Steps

**Step 1 and Step 2** – Refer to the first chapter on the steps by step process to open BIDS and select the correct project template to start developing the Integration package.

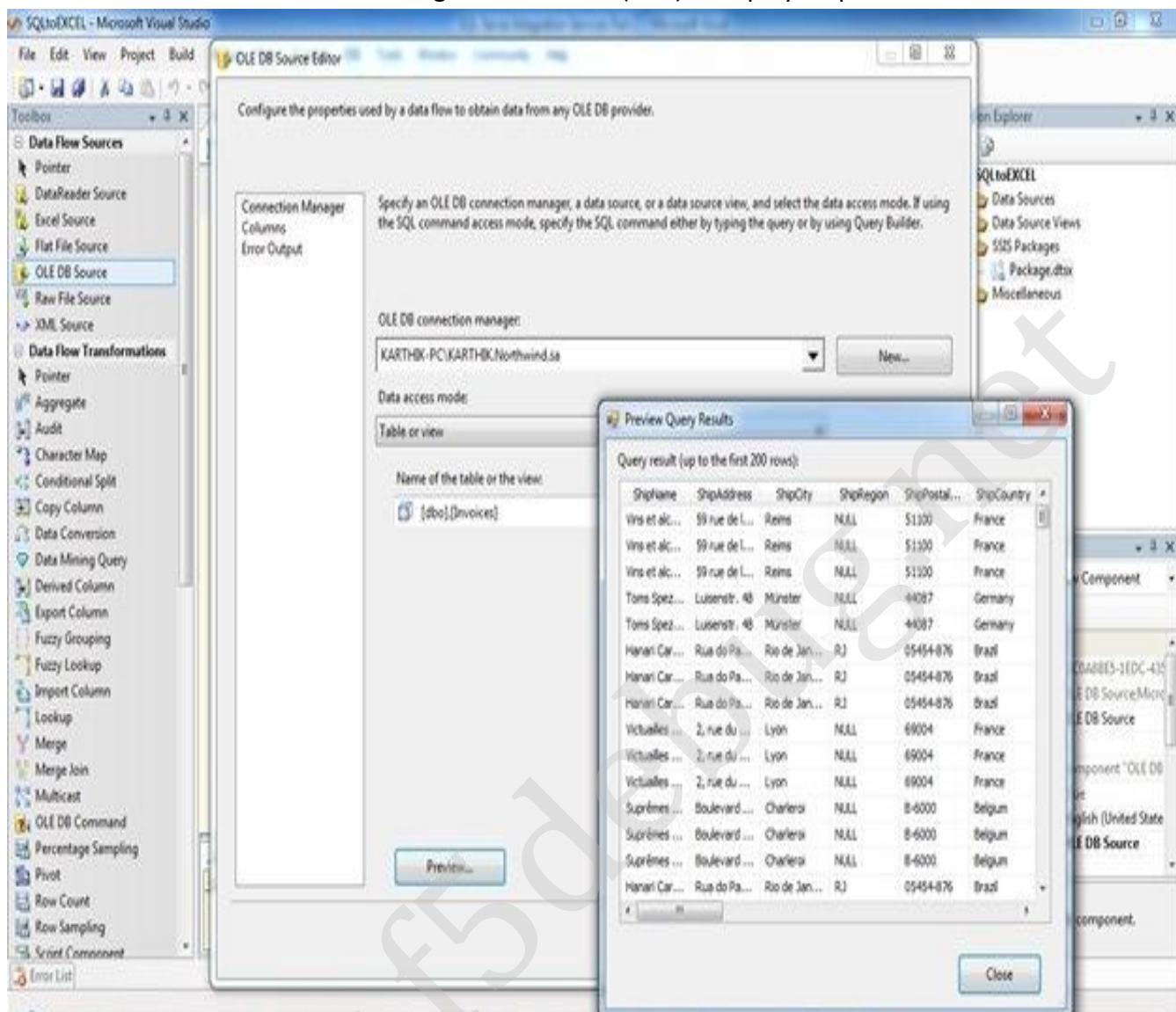
**Step 3** - Since our task is to transform the data from SQL Server DB to Excel sheet, add a Data Flow task in the control task tab of package.dtsx as shown in the screen below and double click on the task which will redirect to the Data Flow tab.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



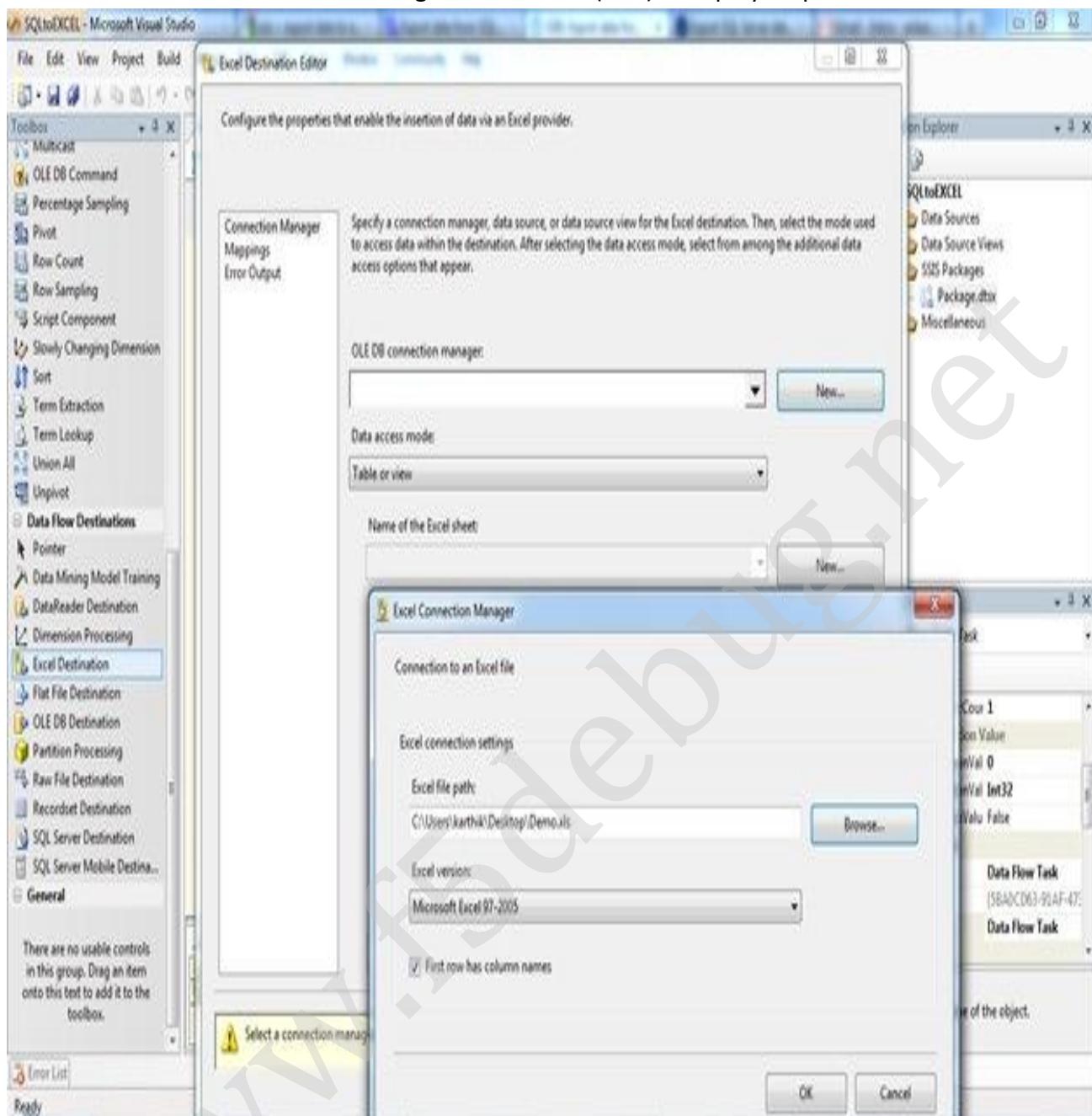
**Step 4** - In Data Flow tab add an OLE DB Source task and configure it to the database where we need to perform the transformations and also select the table as shown in the screen below. In order to follow the steps on how to configure the SQL DB configuration check my previous chapter as stated above.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

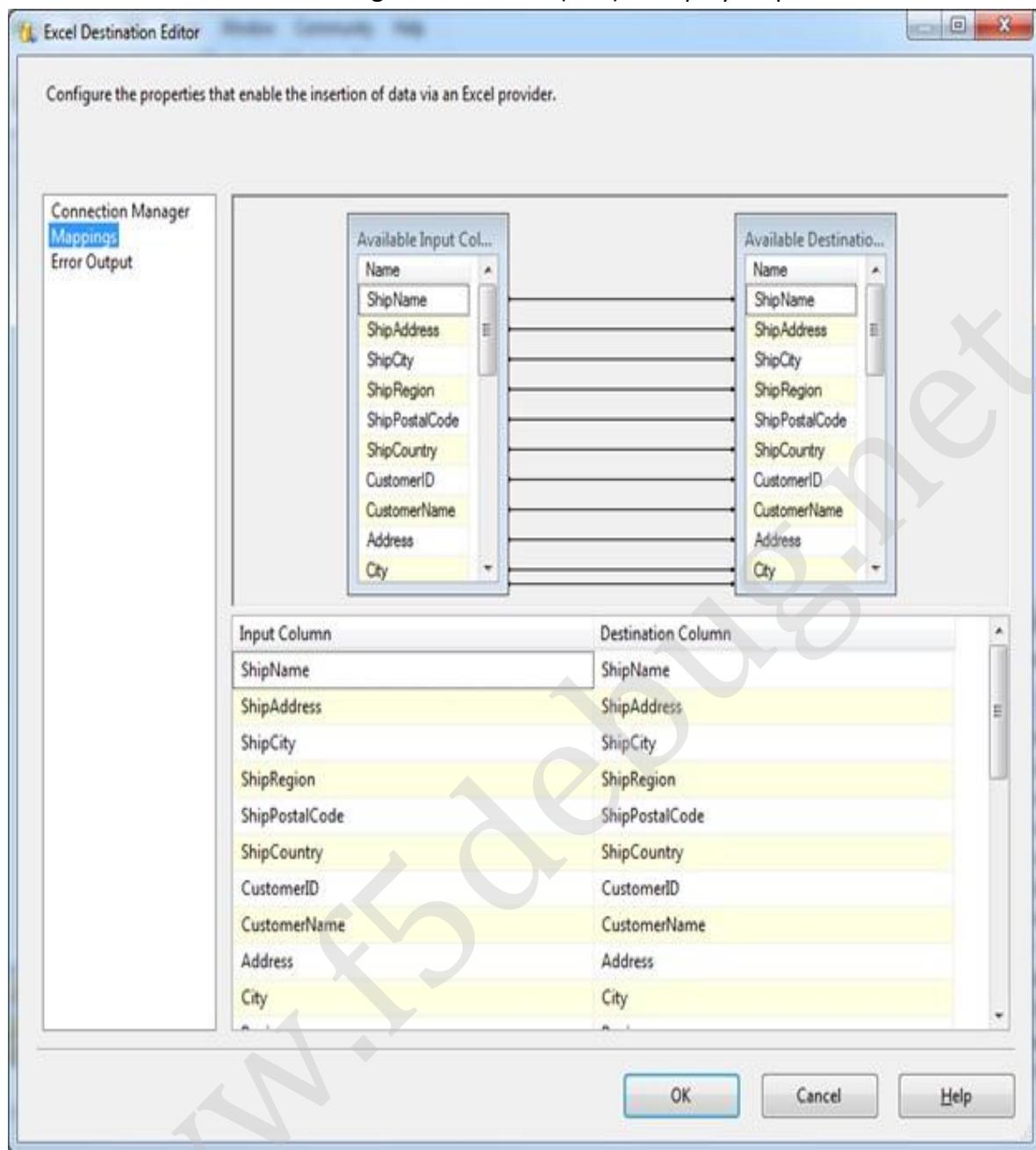


**Step 5** - Now add the destination source (Excel Data source) as shown in the screen below and make the configuration. To do the configuration, first drag the green arrow from SQL data source to the Excel destination tasks and then double click on the excel destination task. It will open the screen below for configuration.

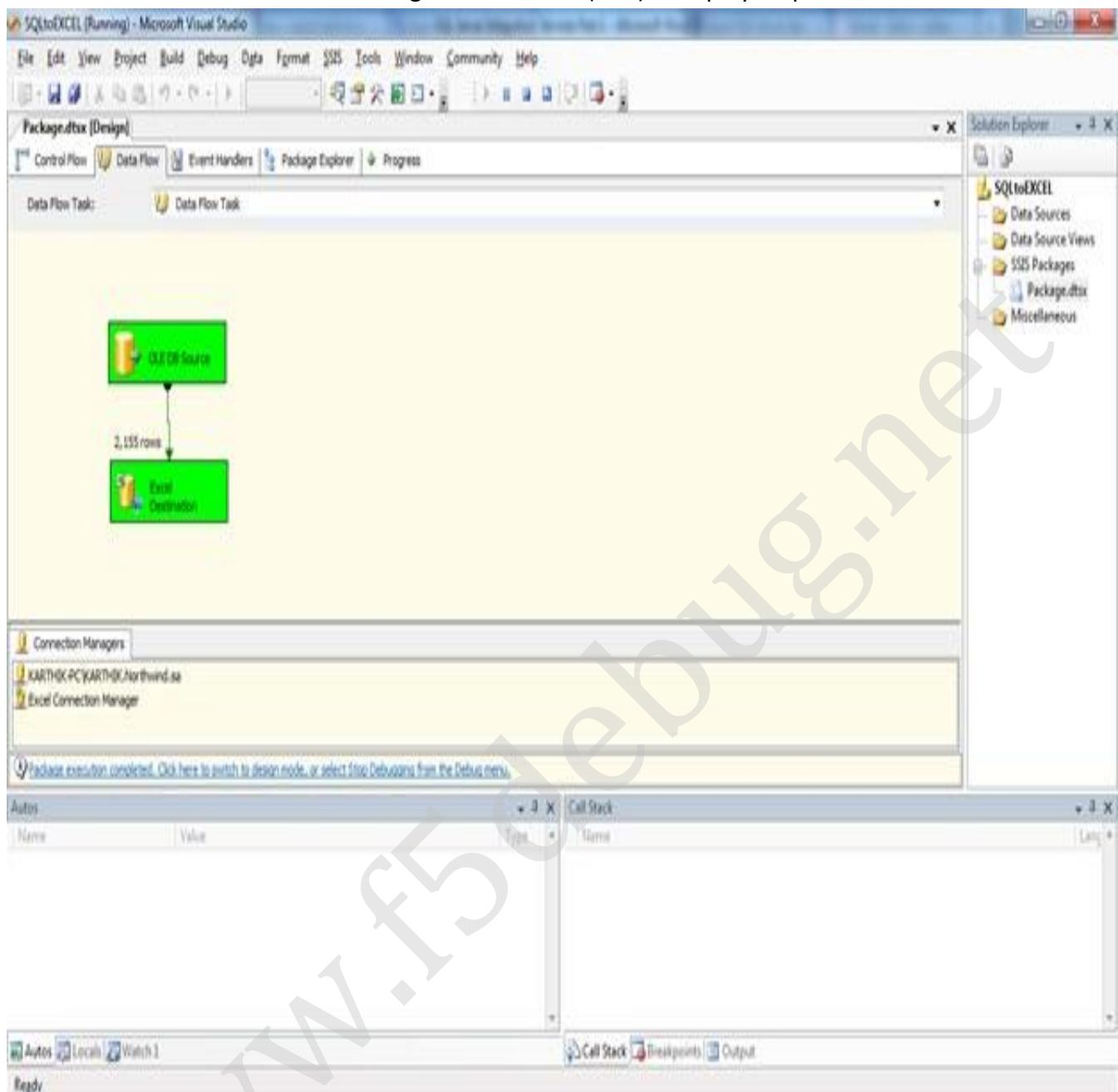
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



**Step 6 - Do the mapping of the columns from both the source and the destination tasks as shown in the screen below.**



**Step 7** - Once everything is configured (Source and destination) press F5 to execute the task and you can find the result at the path where we specified the excel sheet. Check the download section to see the excel sheet which is created with this project.



## Conclusion

In this chapter we have seen the step by step process on how to do the transformation of data from SQL Server database to the Excel sheet.

# Chapter 3

## EXPORT DATA USING WIZARD

### Introduction

In this chapter we will see how to export the data from SQL server using the wizard which is provided with the SSMS (SQL server Management Studio). Using SSMS we can perform many tasks like copying data from one server to another or from one data source to another in variety of formats.

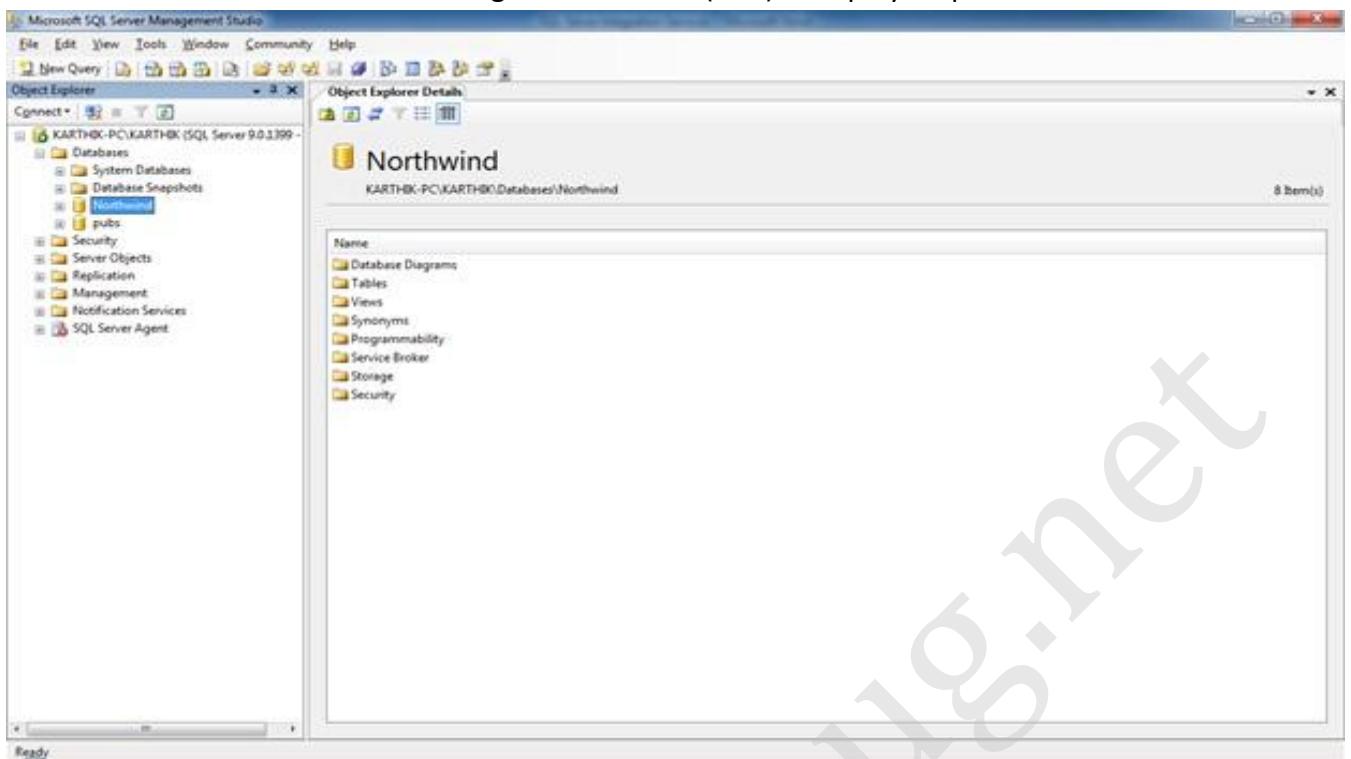
Here our task is to transform data from SQL server to Excel using the Wizard.

### Steps

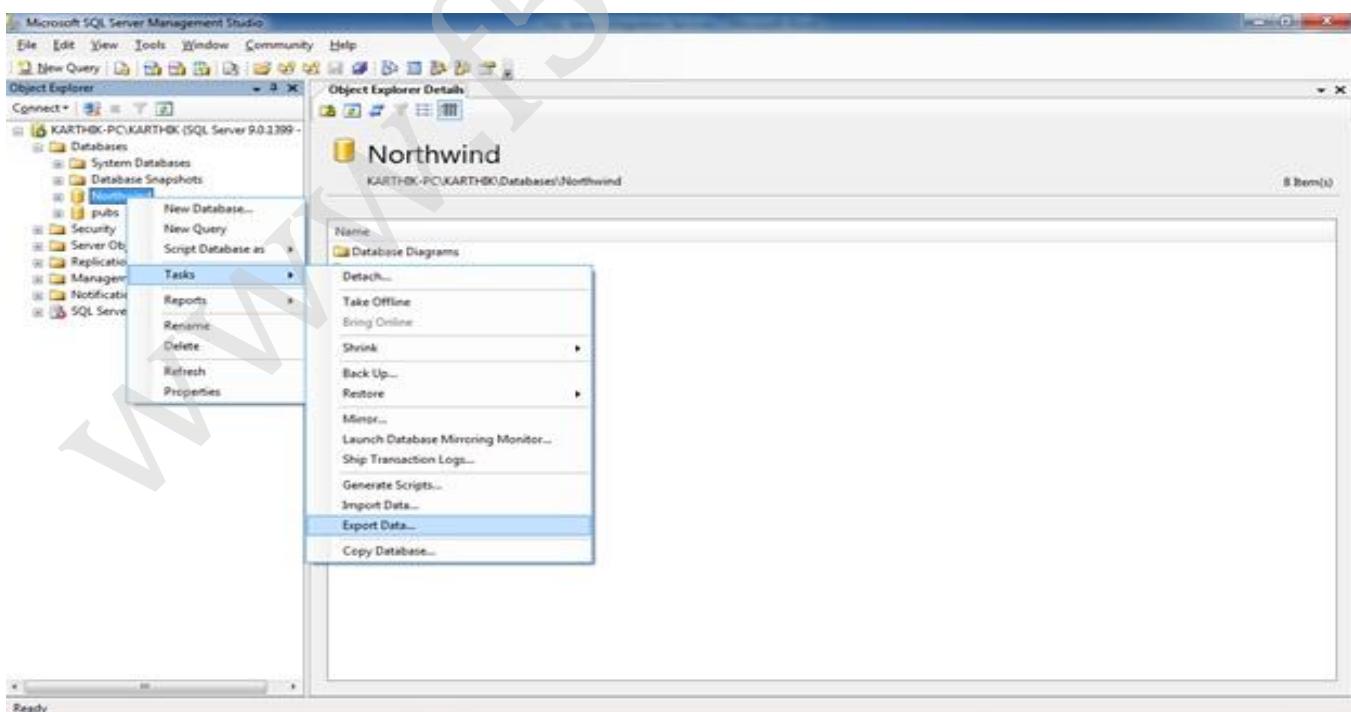
Let us see the step by step process on how to Export data using the inbuilt wizard with the SQL Server Business Intelligence Studio

**Step 1:** Go to Programs → Microsoft SQL Server 2005 → SQL Server Management Studio and connect to the list of server databases with which we have to perform the task, as shown in the screen below.

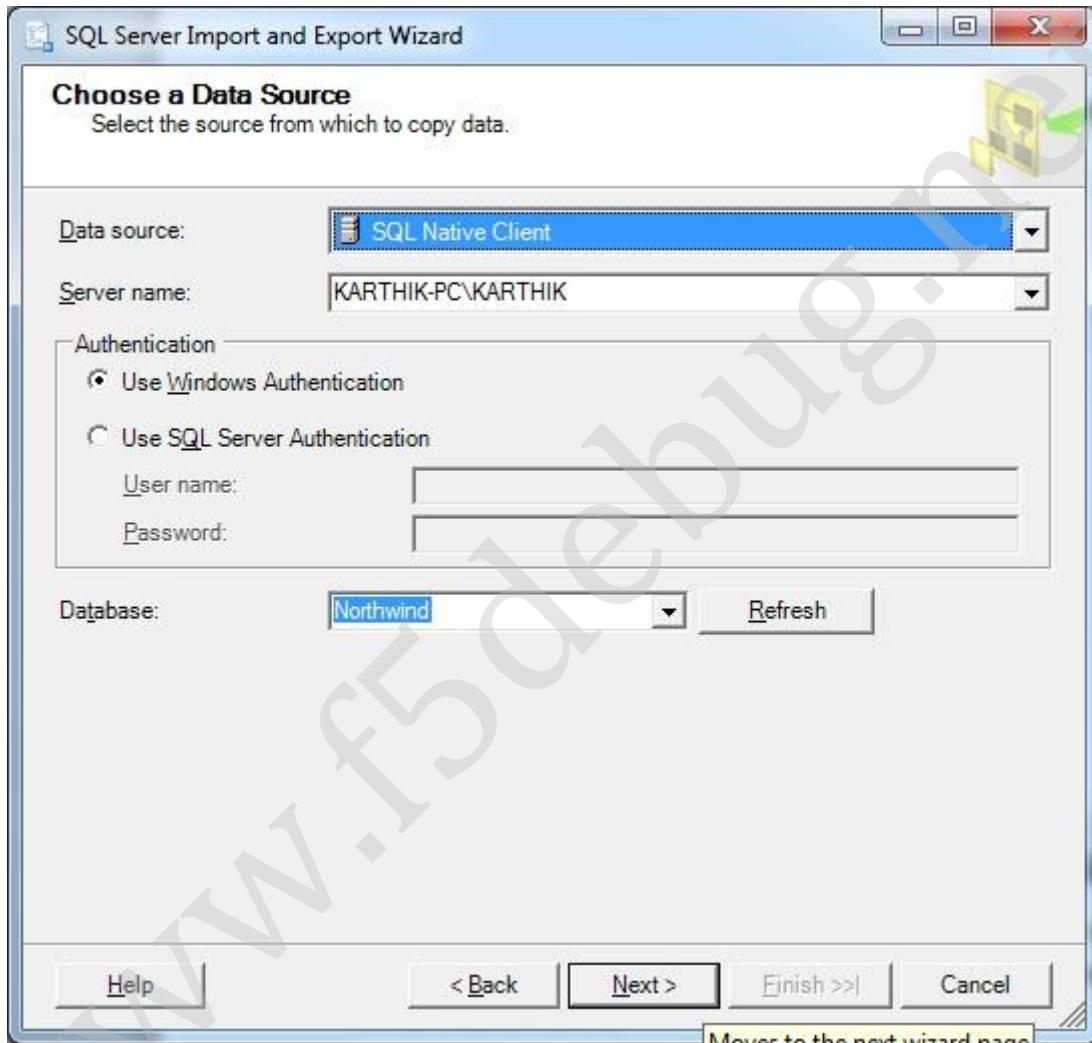
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



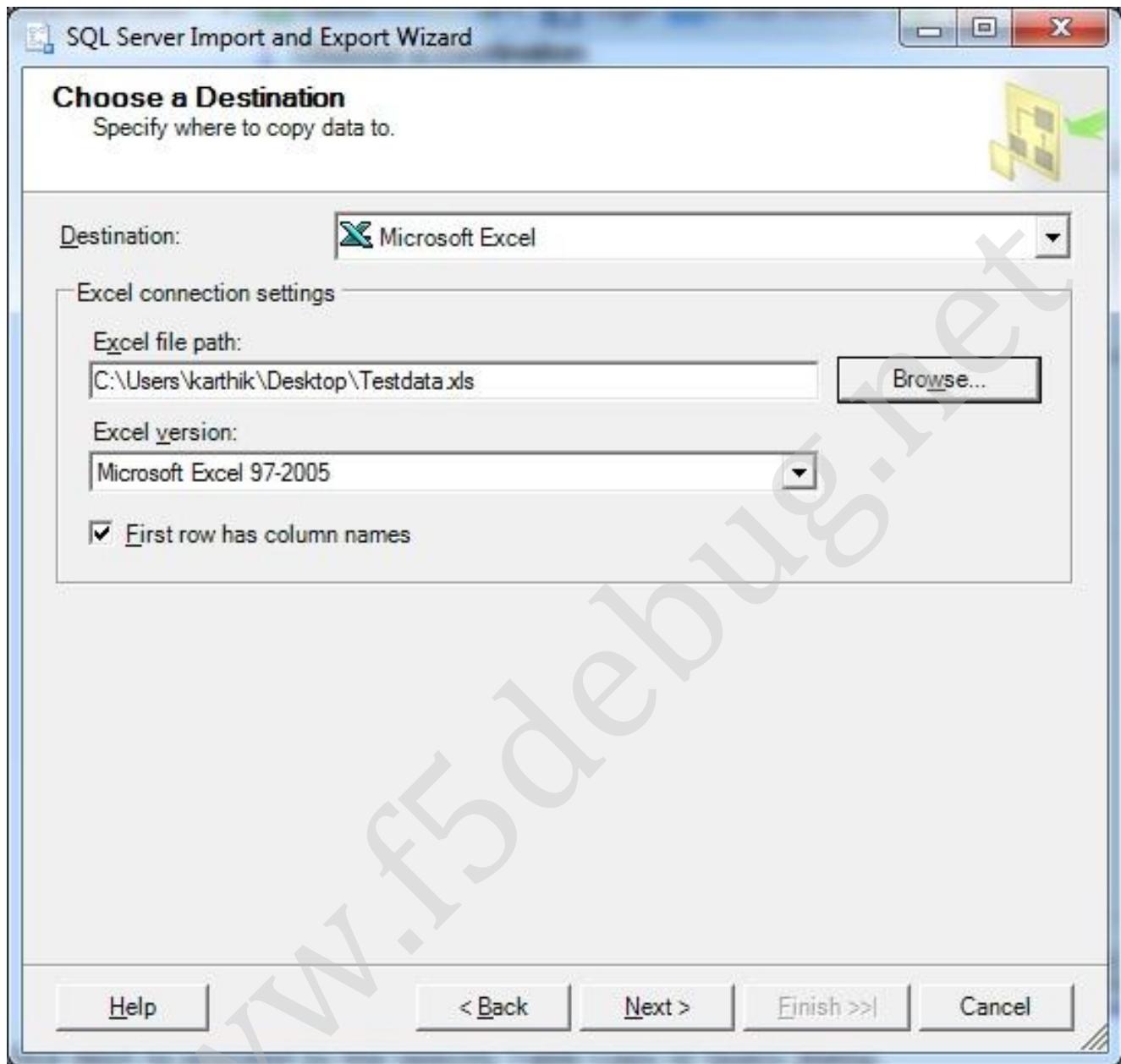
**Step 2:** Once you locate the Database where we need to perform the transformation, right click on the database, go to Tasks and select Export Data. It will open a welcome screen. Click Next and move to the Data source tab.



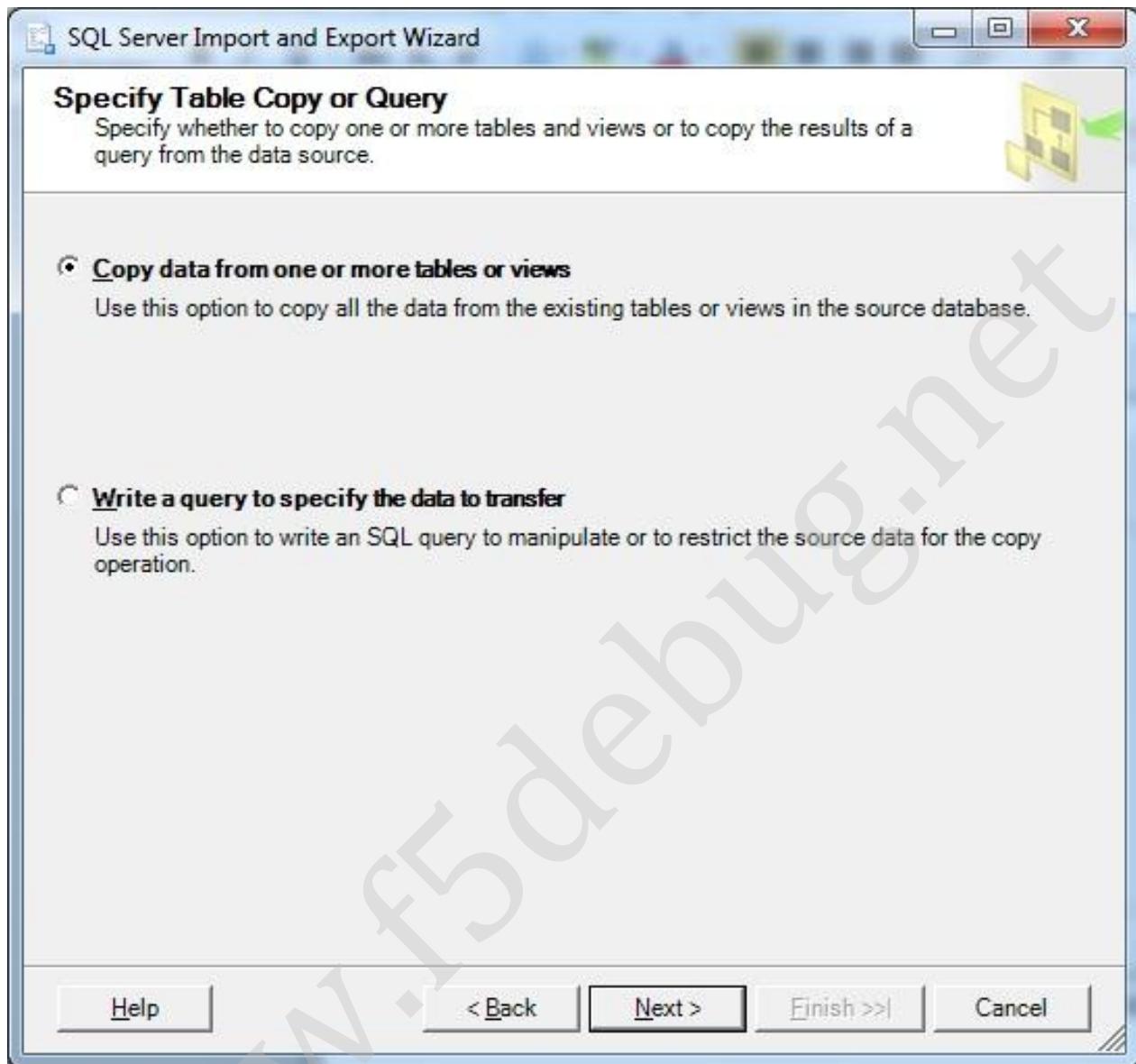
**Step 3 – ‘Choose a Data source tab’** helps to confirm the source of the data transformation selected initially. Once the required configurations are selected, click on next and it will ensure that select the destination source is selected.



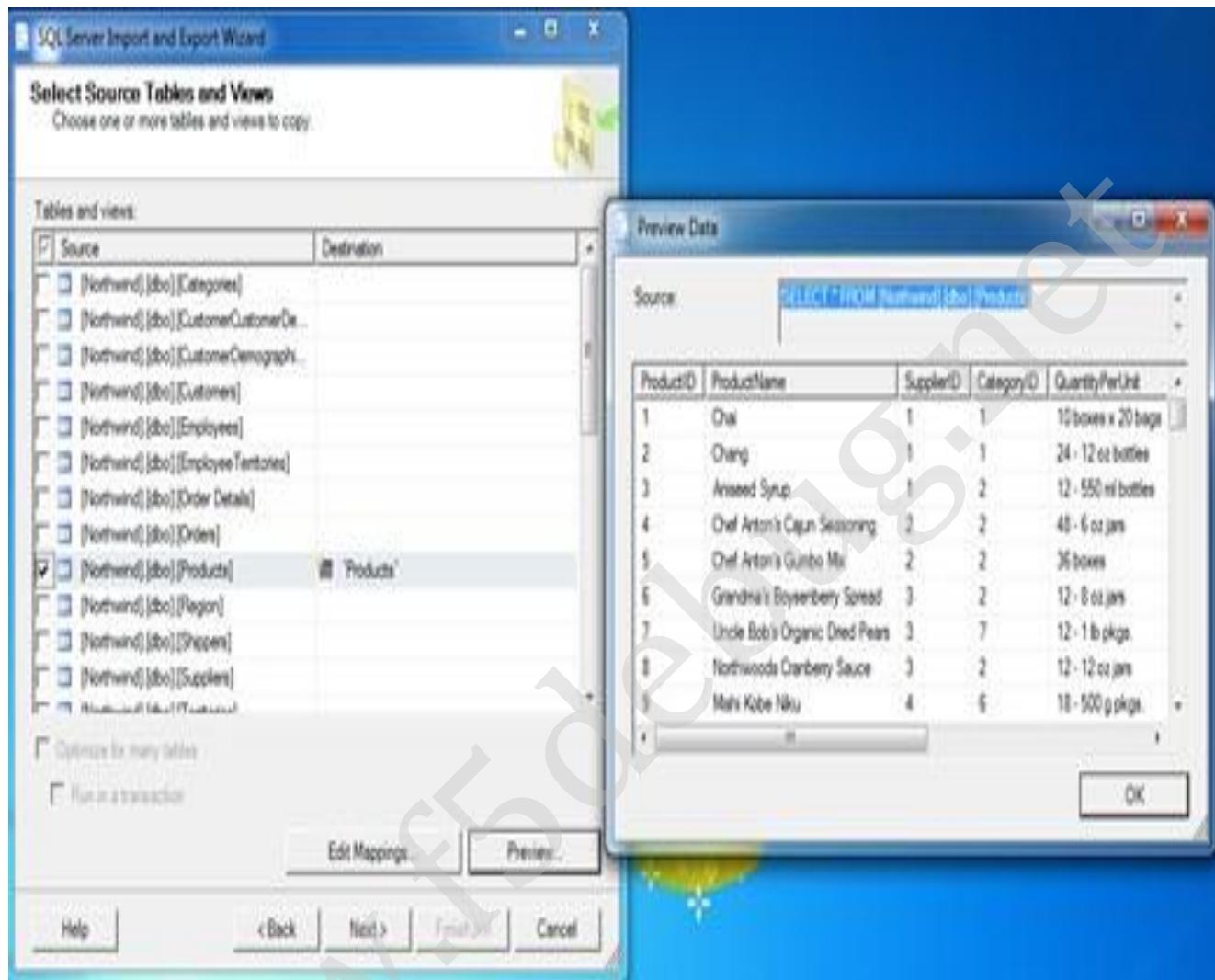
**Step 4:** The destination data source window will open in which the destination needs to be specified (In our example, the excel sheet). Select Microsoft Excel from the drop down and provide the path in which it should save the excel sheet.



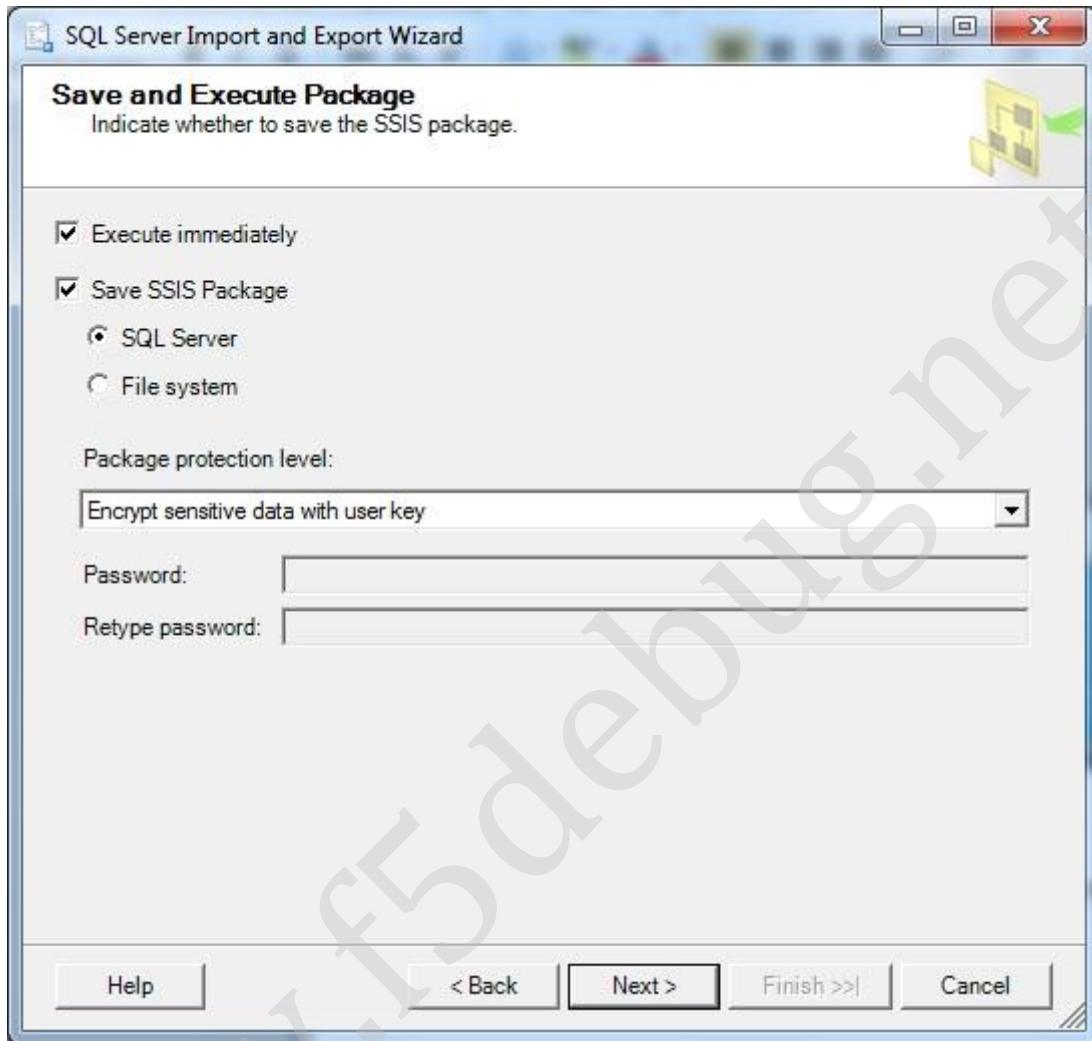
**Step 5** - Now we need to specify the table from which we need to transform the data or we can write our own query, based on which the data needs to be transformed. In this example we will specify the table, so mark that option and click on next as shown in the screen below.



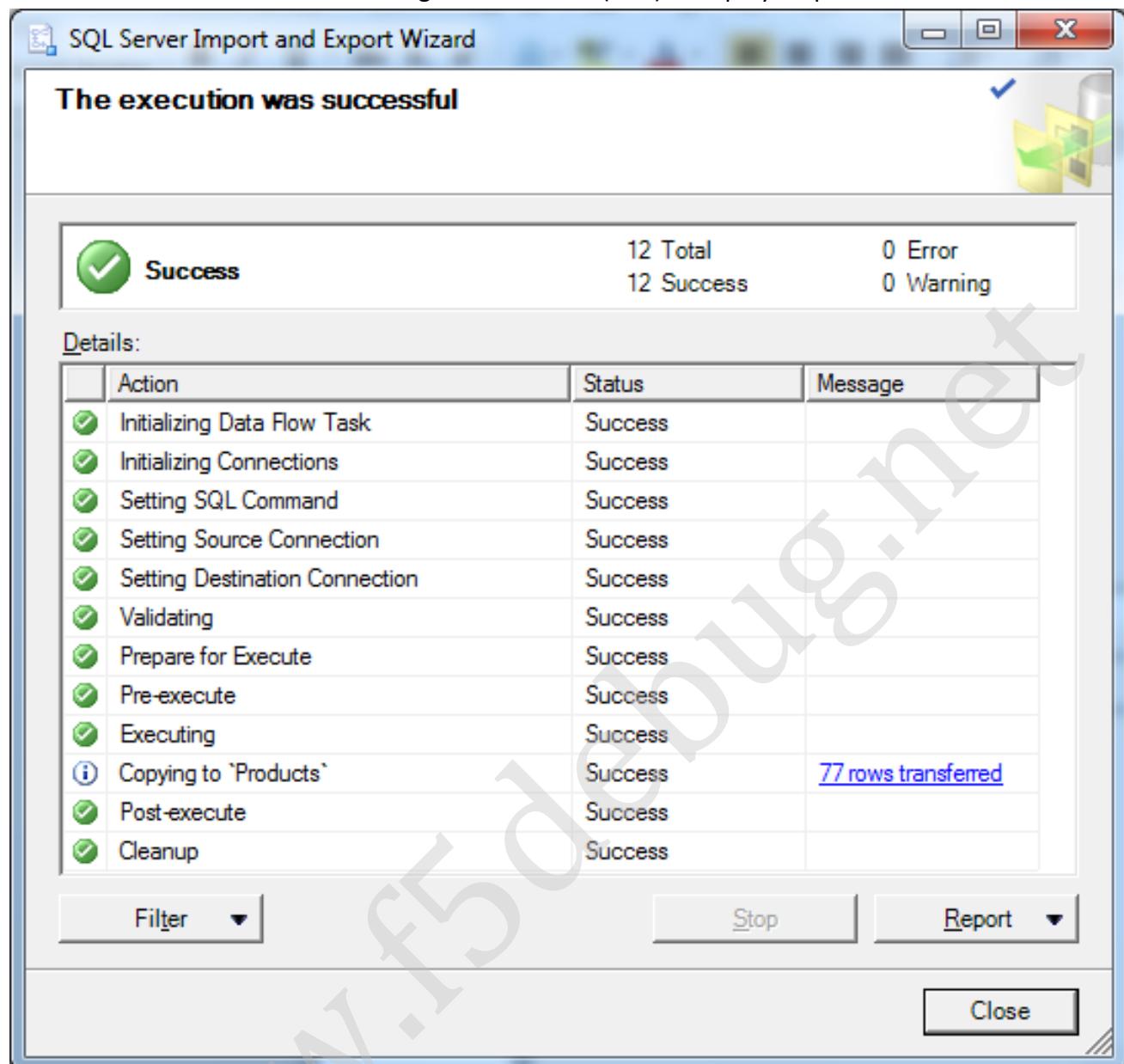
**Step 6** - Once we click on next button it will show the list of tables to be selected. Select the table on which we need to do the transformation and click on preview to verify the output as shown in the screen below and click on Next button.



**Step 7:** Once we are done with the source and destination it will ask to save and execute the package. Click Next and Finish to complete the transformation as shown in the screen below.



**Step 8:** Once we are done it will show the process on the how the task is carried over and the final result on the tasks completed. If it is completed without any error, it will create the excel sheet at the folder where we specified in the destination tab.



## Conclusion

In this chapter we have seen how to use the export wizard to make a transformation and to execute the package.

# Chapter 4

## IMPORT DATA USING WIZARD

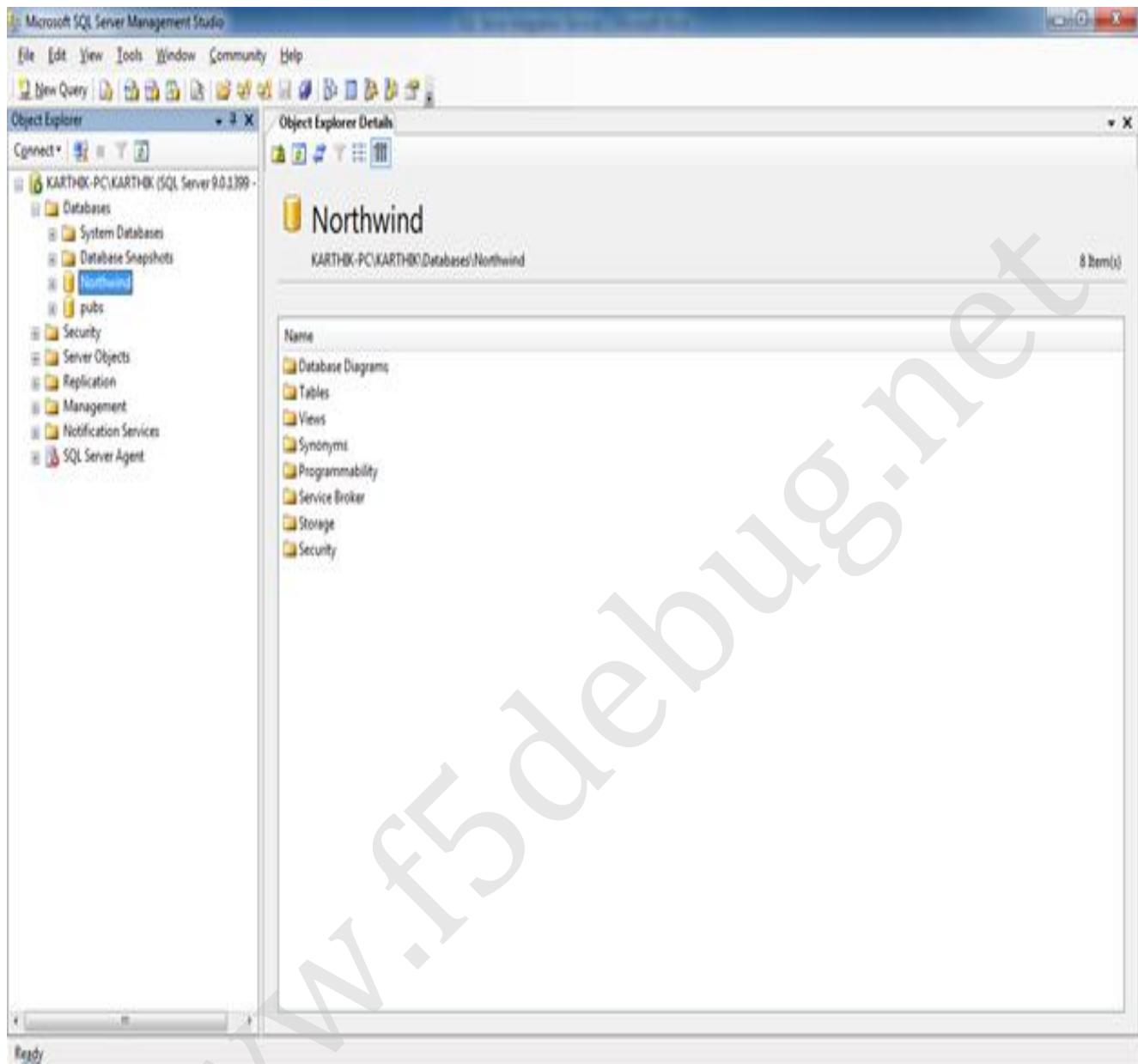
### Introduction

In this chapter we will see how to import data from SQL server using the wizard which is provided with SSMS (SQL server Management Studio). Using SSMS we can perform many tasks like copying data from one server to another or from one data source to another in variety of formats. Here our task is to import data from SQL server to Excel using the Wizard.

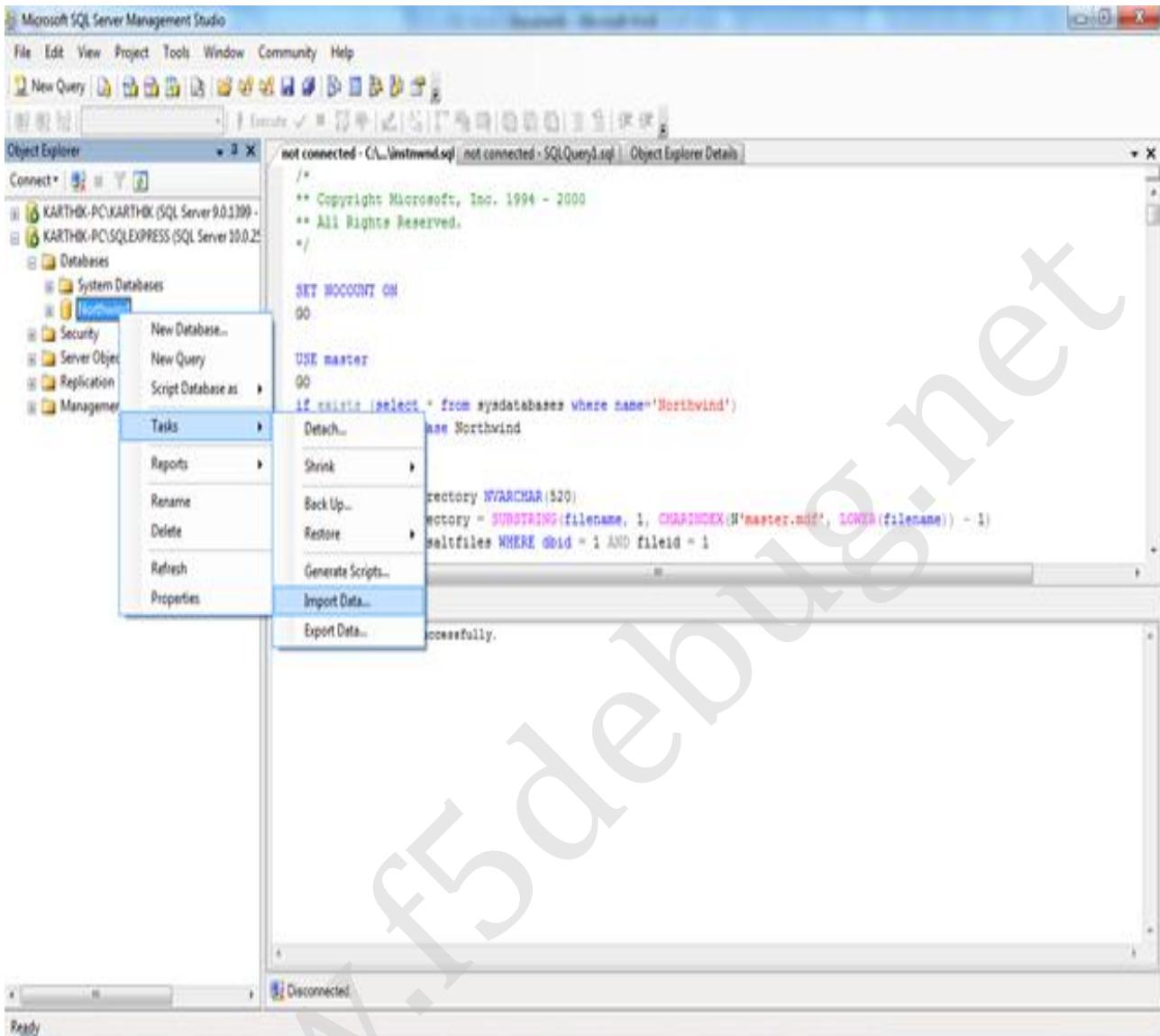
### Steps

Let us see the step by step process on how to Import data using the inbuilt wizard with the SQL Server Business Intelligence Studio.

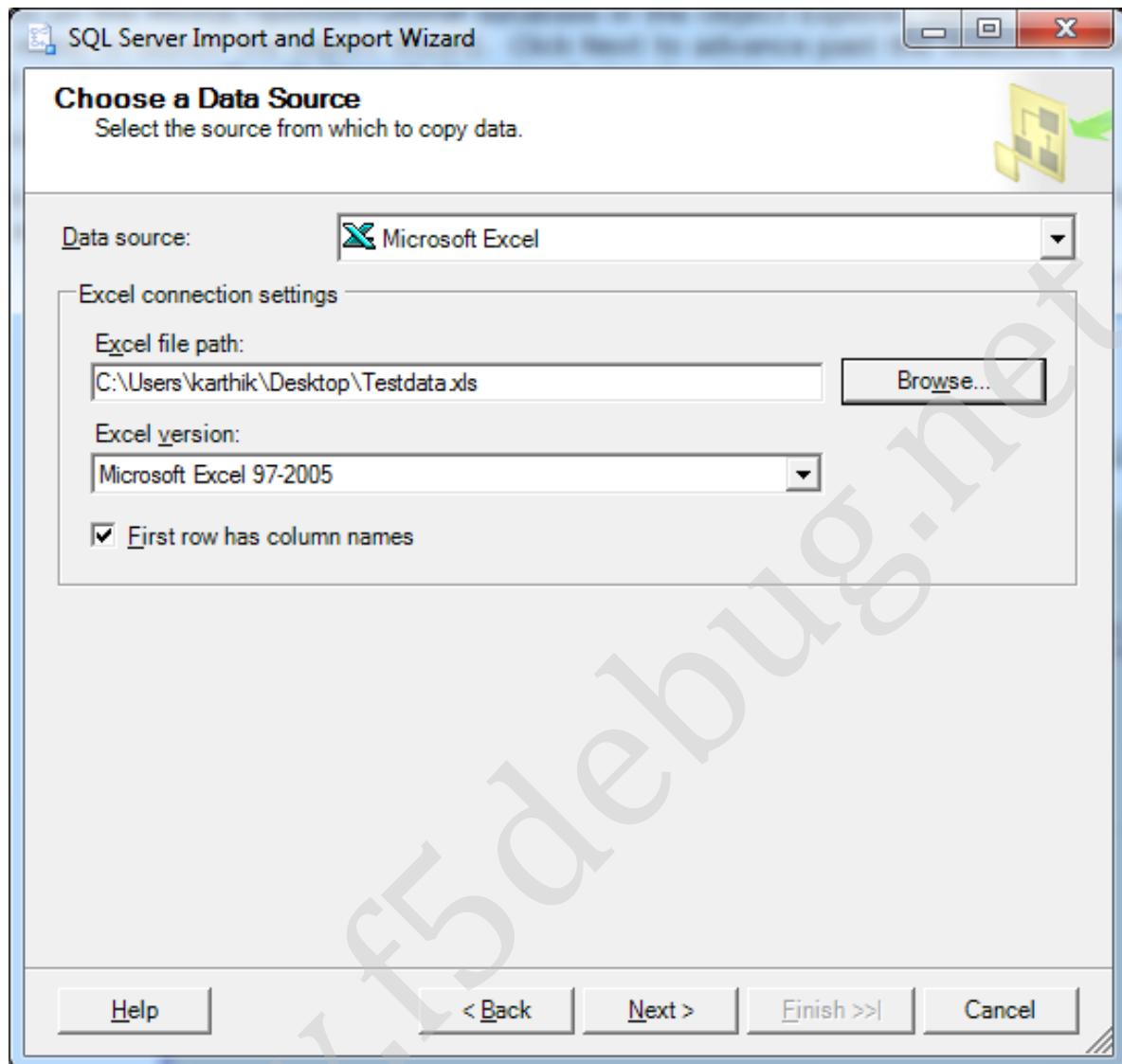
**Step 1** - Go to Programs > Microsoft SQL Server 2005 > SQL Server Management Studio and connect to the list of server databases with which we have to perform the task, as shown in the screen below.



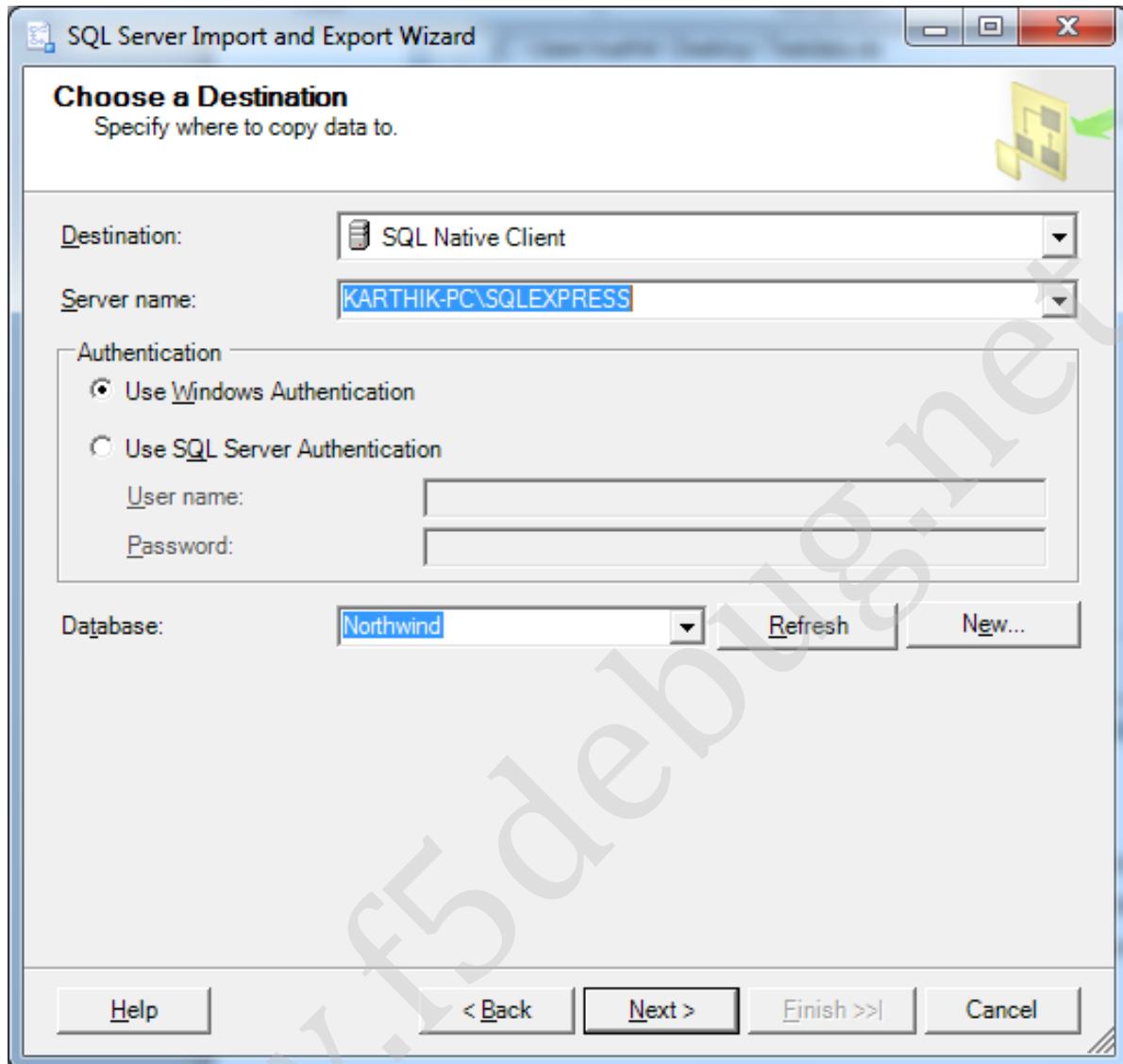
**Step 2** - Once you locate the database with which we need to perform the transformation, right click on the database, go to Tasks and select Import Data. It will open a welcome screen. Click Next and move to the Data source tab.



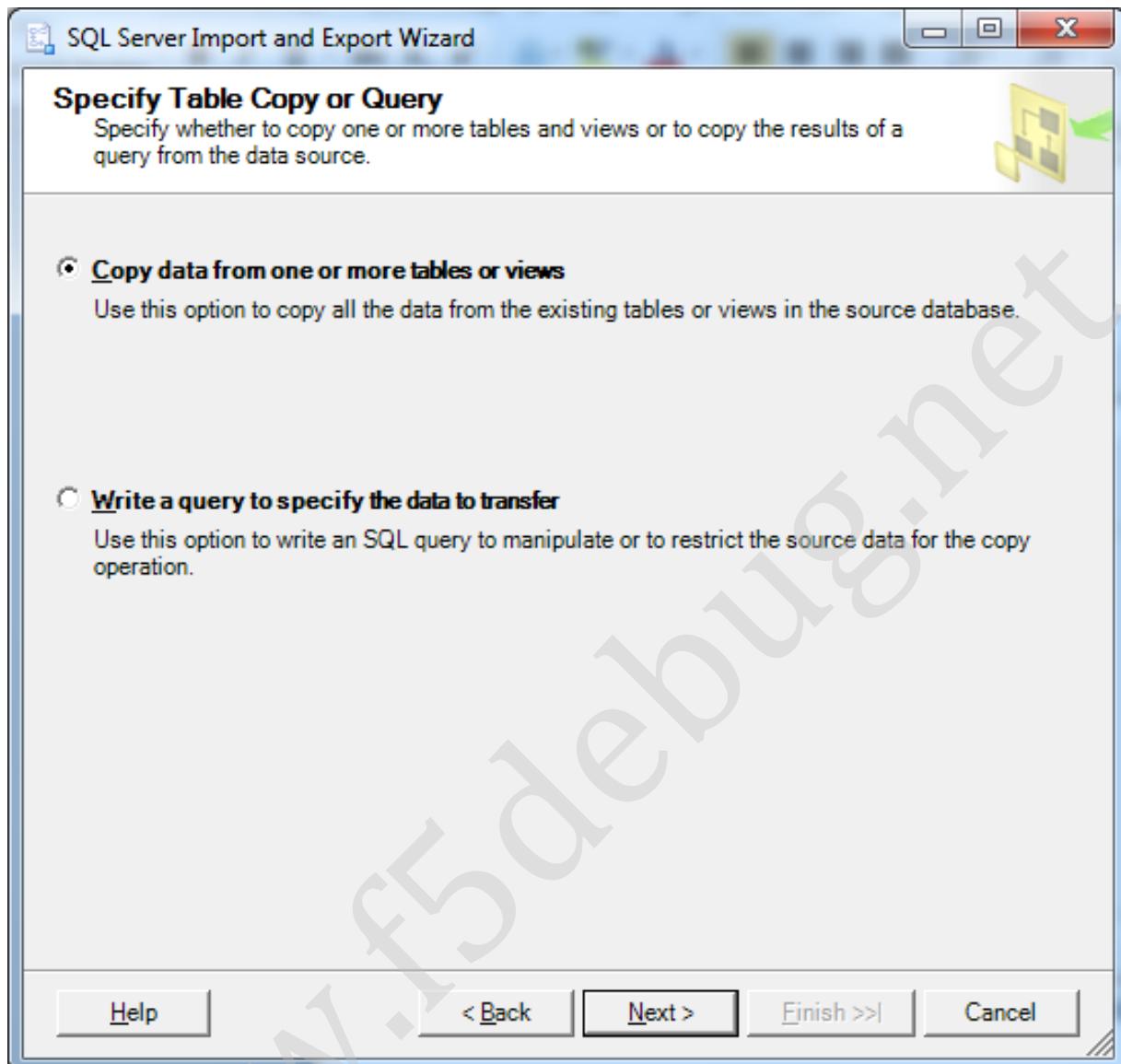
**Step 3 - 'Choose a Data source tab'** helps to confirm the source of the data transformation selected initially. Once the required configurations are selected click on next and it will ensure to select destination source. In this example, we will do the transformation from Excel to SQL DB. So select Microsoft Excel from the drop down list as shown below.



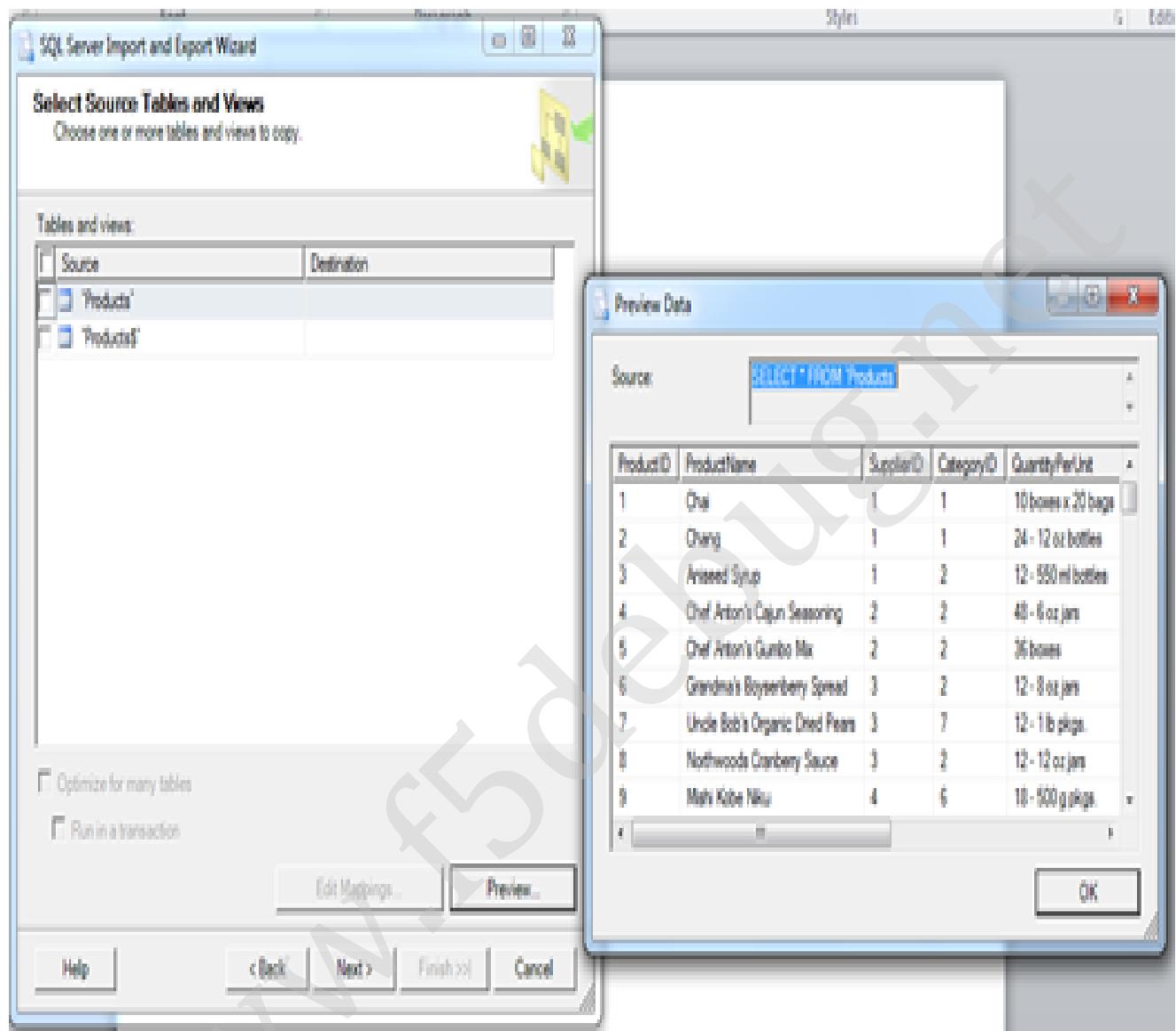
**Step 4:** Now the destination data source window will open up in which we need to specify the destination (In our example SQL, Server DB). Select SQL Native Client from the drop down and connection details to authenticate the connection as shown in the screen below.



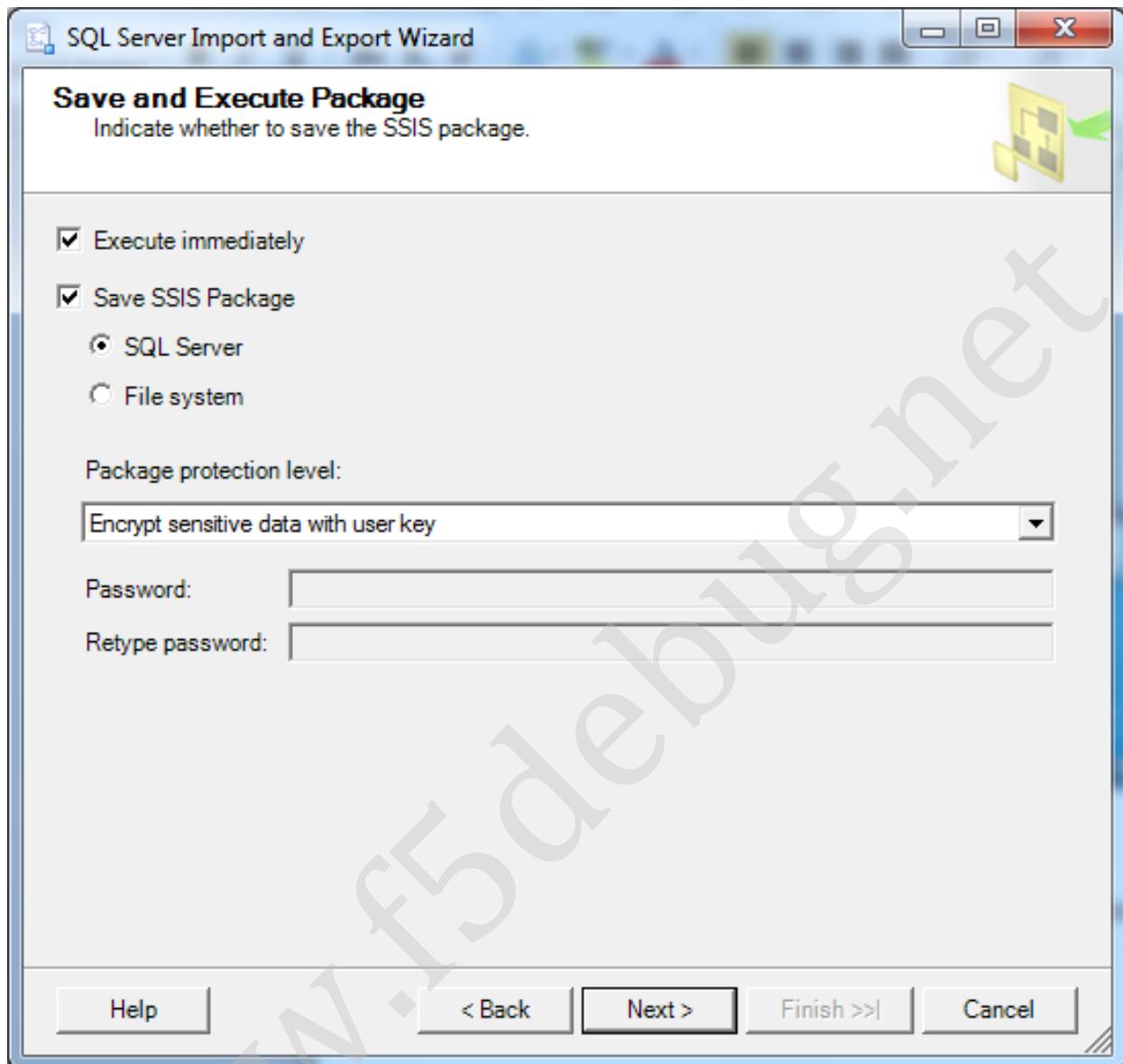
**Step 5** - We need to specify the table from which we need to transform the data or we can write our own query based on which the data need to be transformed. In this example, let us specify the table, so mark that option and click on next as shown in the screen below.



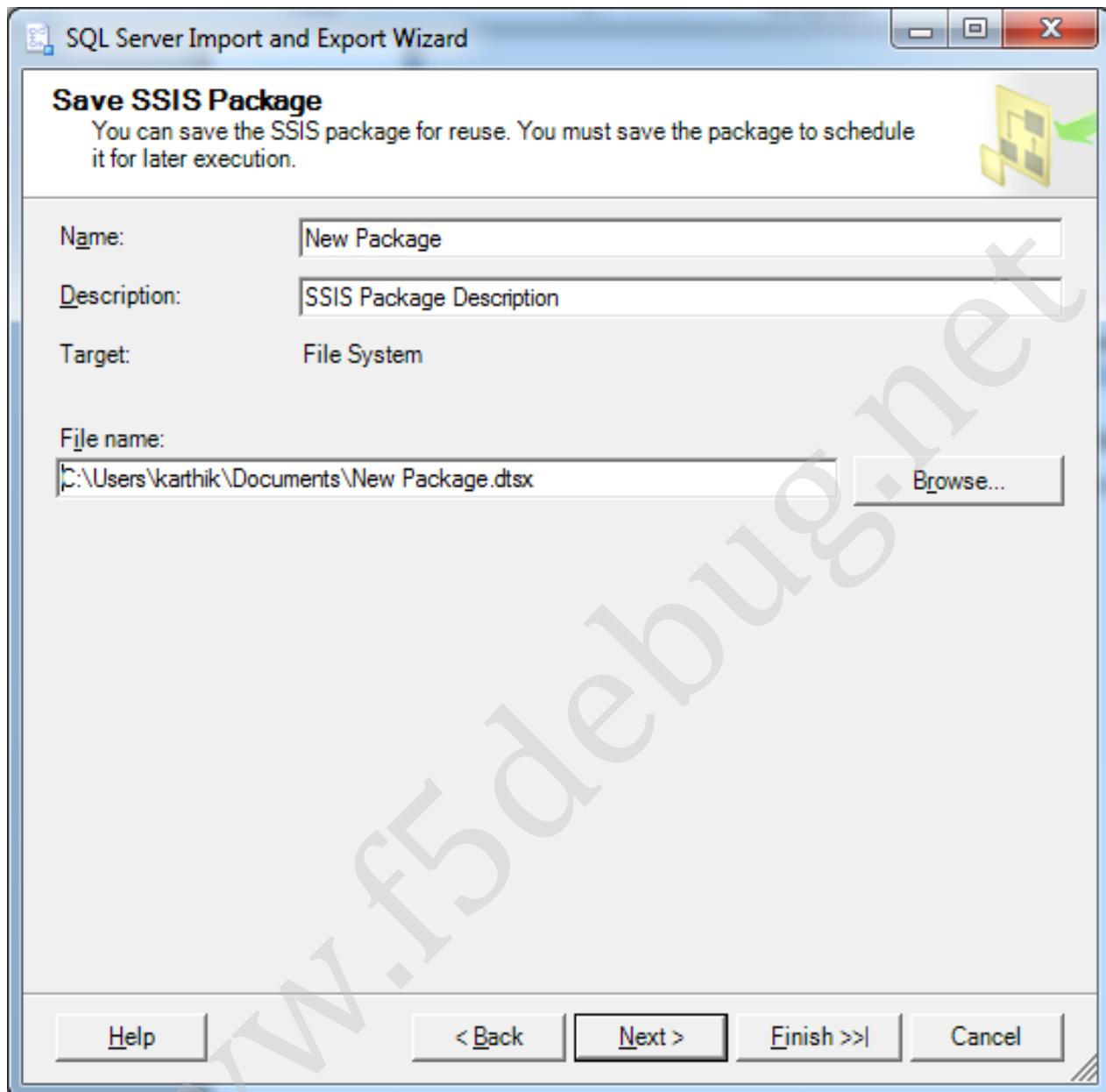
**Step 6** - Once we click on next button it will show the list of tables (from the excel sheet). Select the table with which we need to do the transformation and click on preview to verify the output as shown in the screen below and click on Next button.



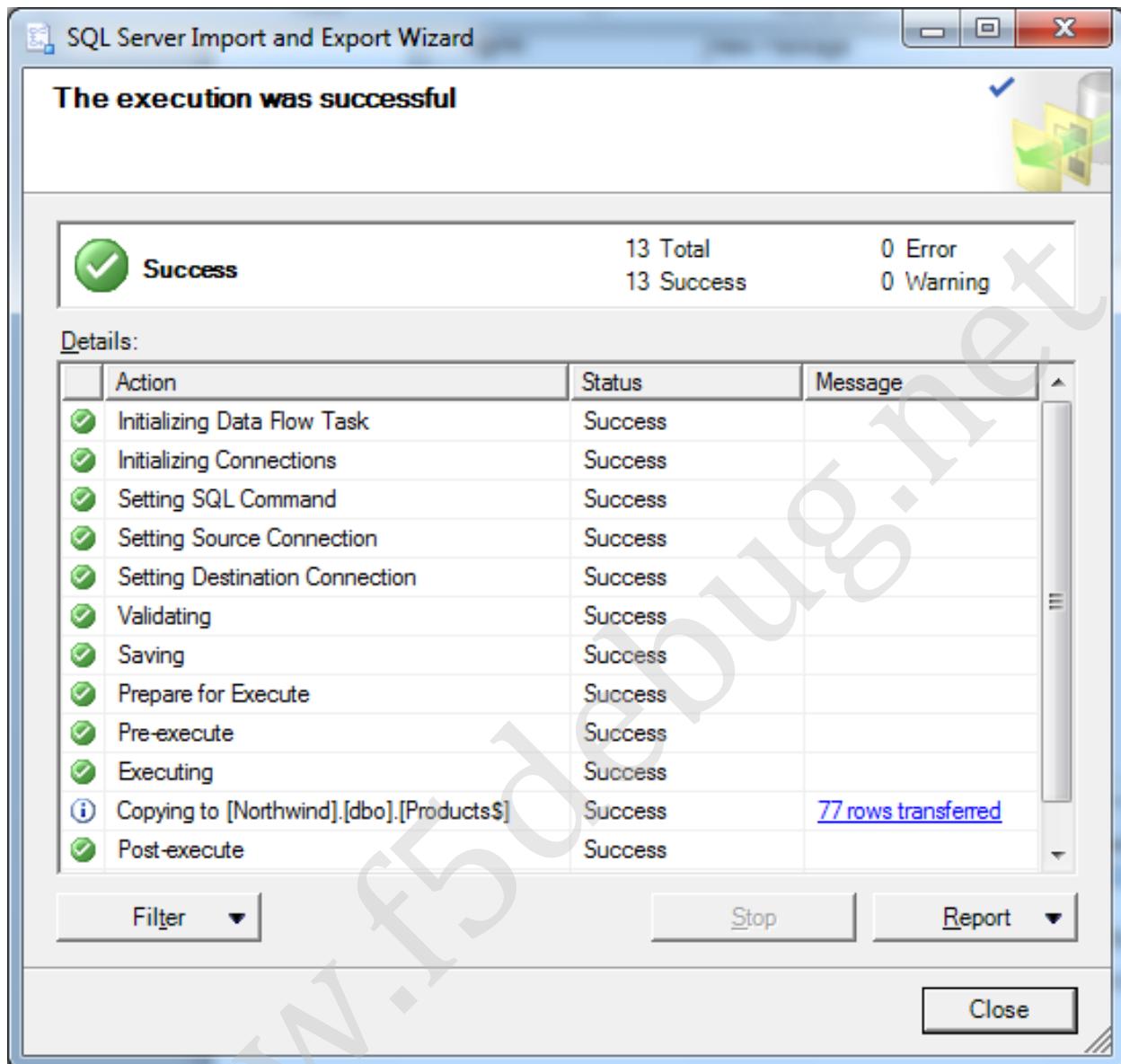
**Step 7** - Once we are done with the source and destination it will ask to save and execute the package. Click Next and Finish to complete the transformation as shown in the screen below.



**Step 8** - Since we are given the option to save the SSIS package it will ask for details on the server in which we need to save the SSIS. Or you can give a path to save the SSIS as shown in the screen below.



**Step 9** - Once we are done it will show the process on the how the task is carried over and the final result on the tasks completed. If it is completed without any error, it will copy the data to the SQL DB table.



## Conclusion

In this chapter we have seen how to use the Import Wizard to make a transformation and to execute the package.

# Chapter 5

## BUILDING AND EXECUTING A PACKAGE

### Introduction

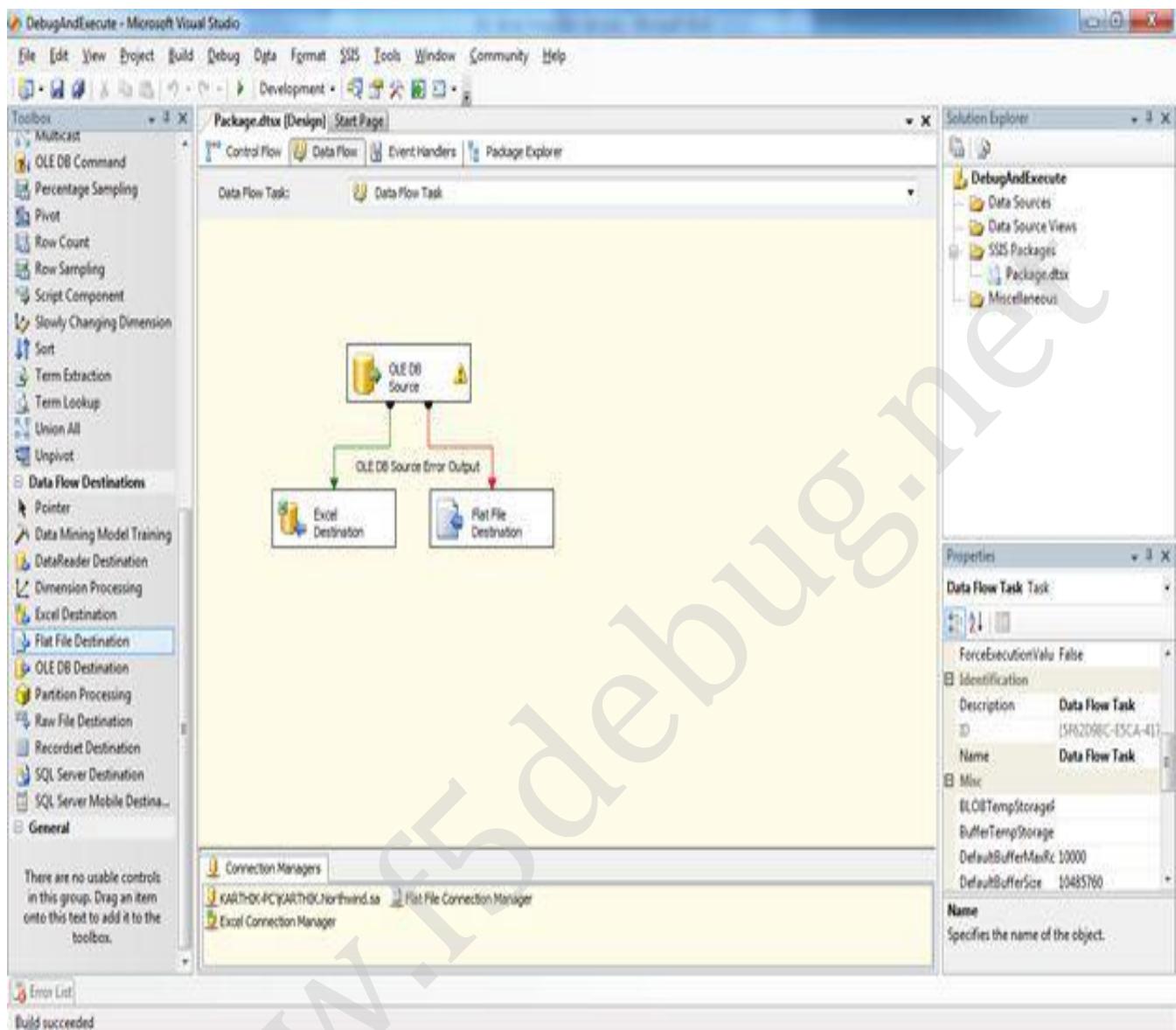
In this chapter we will look into building and executing a package in SSIS. The idea behind this chapter is that the reader should get familiar with the options available in executing the package to check for any errors, to see if the package is executed correctly. In the next chapter we will look into the deployment strategies for SSIS.

In order to look into the building and the execution process of SSIS, we are first going to create a solution (project) and do some tasks from Chapter 1 to Chapter 4 of this eBook.

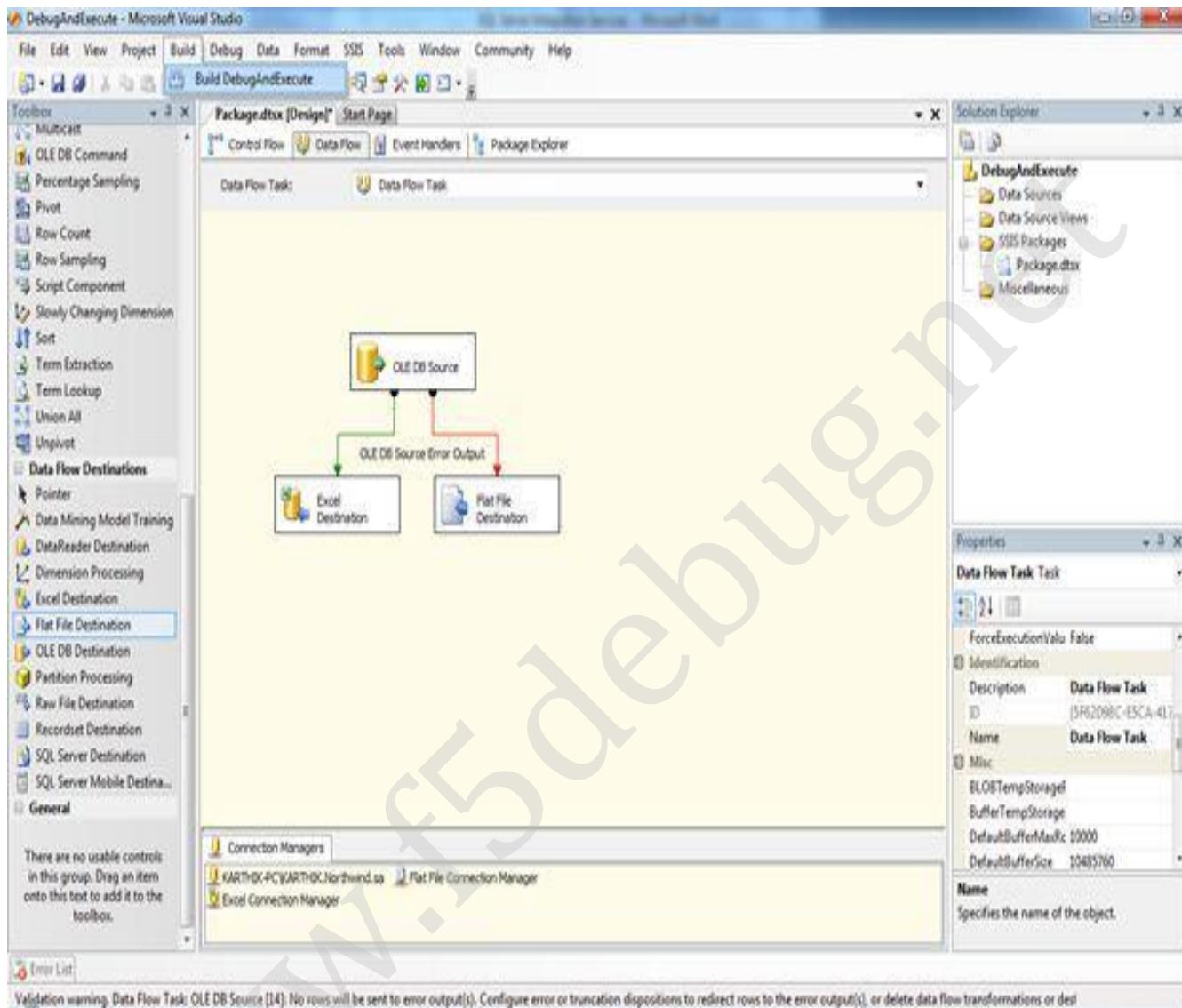
### Steps

Once we are ready with creating tasks and preparing a format to perform some tasks as shown in the screen below, we will see how to build and execute the SSIS packages.

**Step 1** - Drag and drop an OLEDB Connection source to fetch the data from the Northwind database Products table.

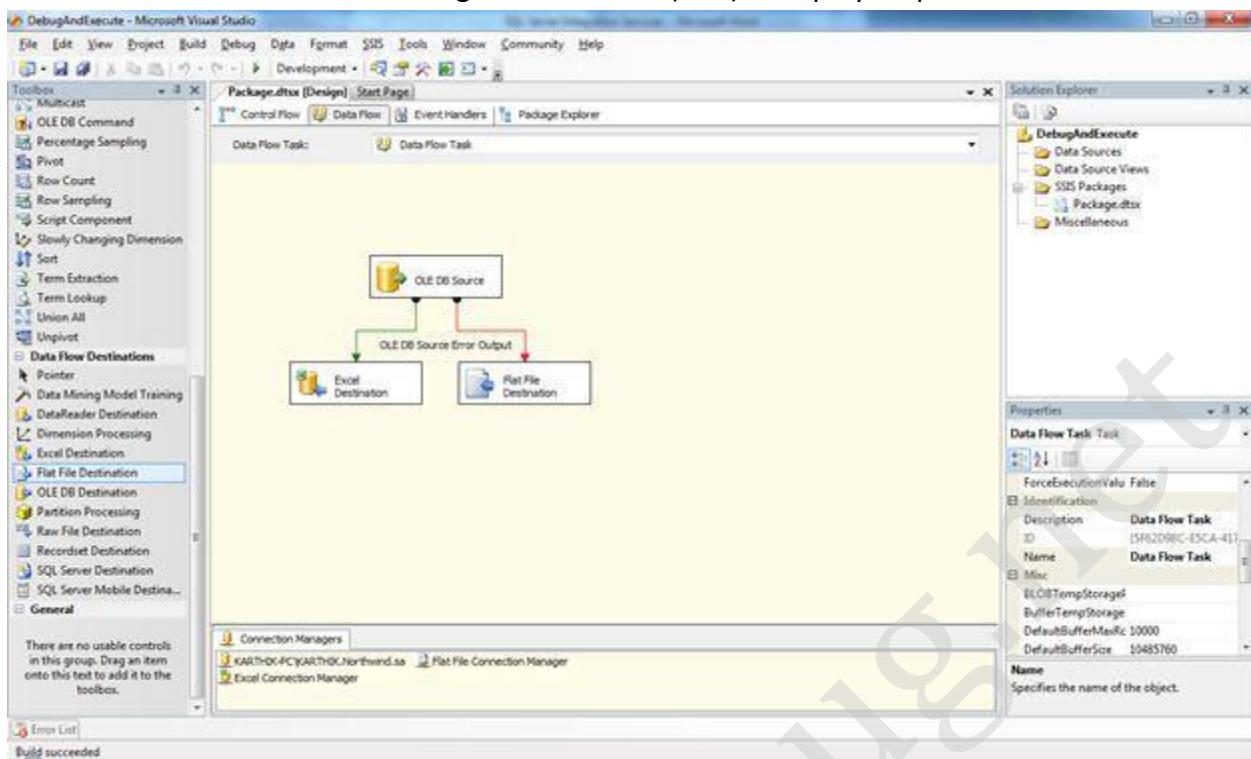


**Step 2** - Drag and drop an excel destination and Flat File destination to transform data based on the scenario, if the Product value is > 25 then we need to transform the data to an Excel sheet. If there is any problem with the transformation then we need to move the data to the Flat File Destination. Once we are ready with the project tasks, go to Build menu and click on BuildDebugandExecute.

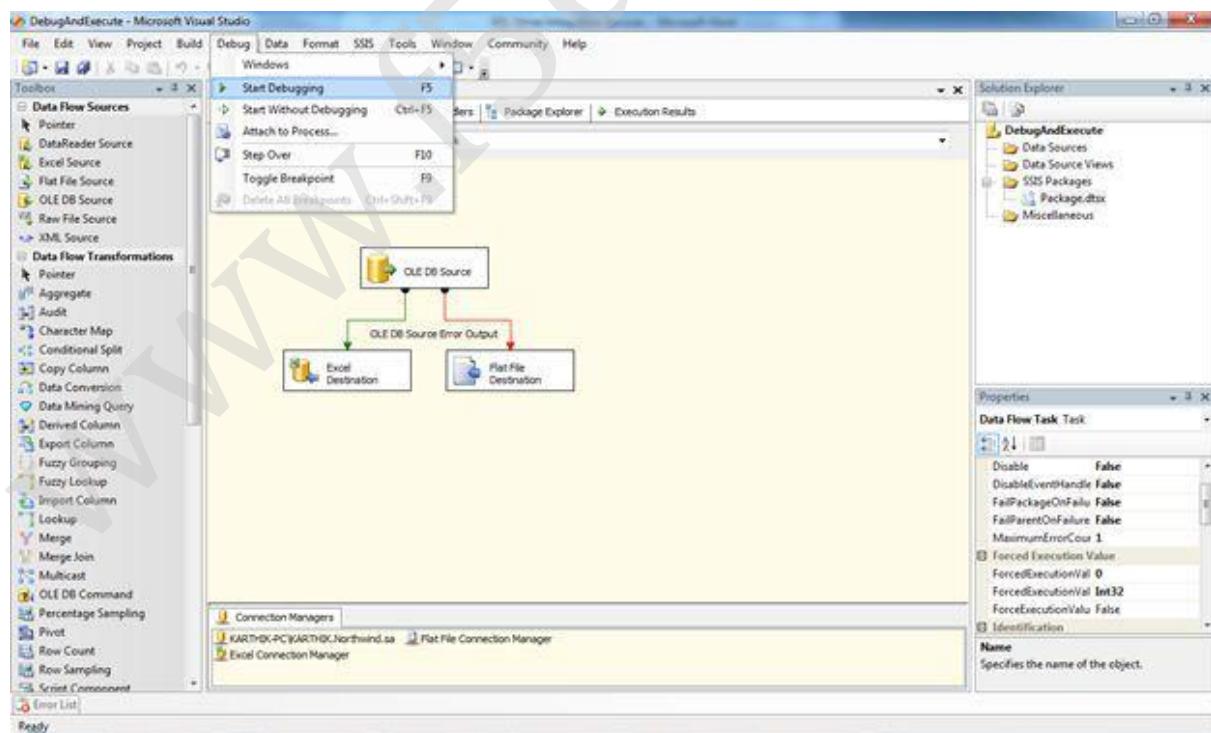


**Step 3** - At the bottom of the window (Status bar) you can see the build status as shown in the screen below.

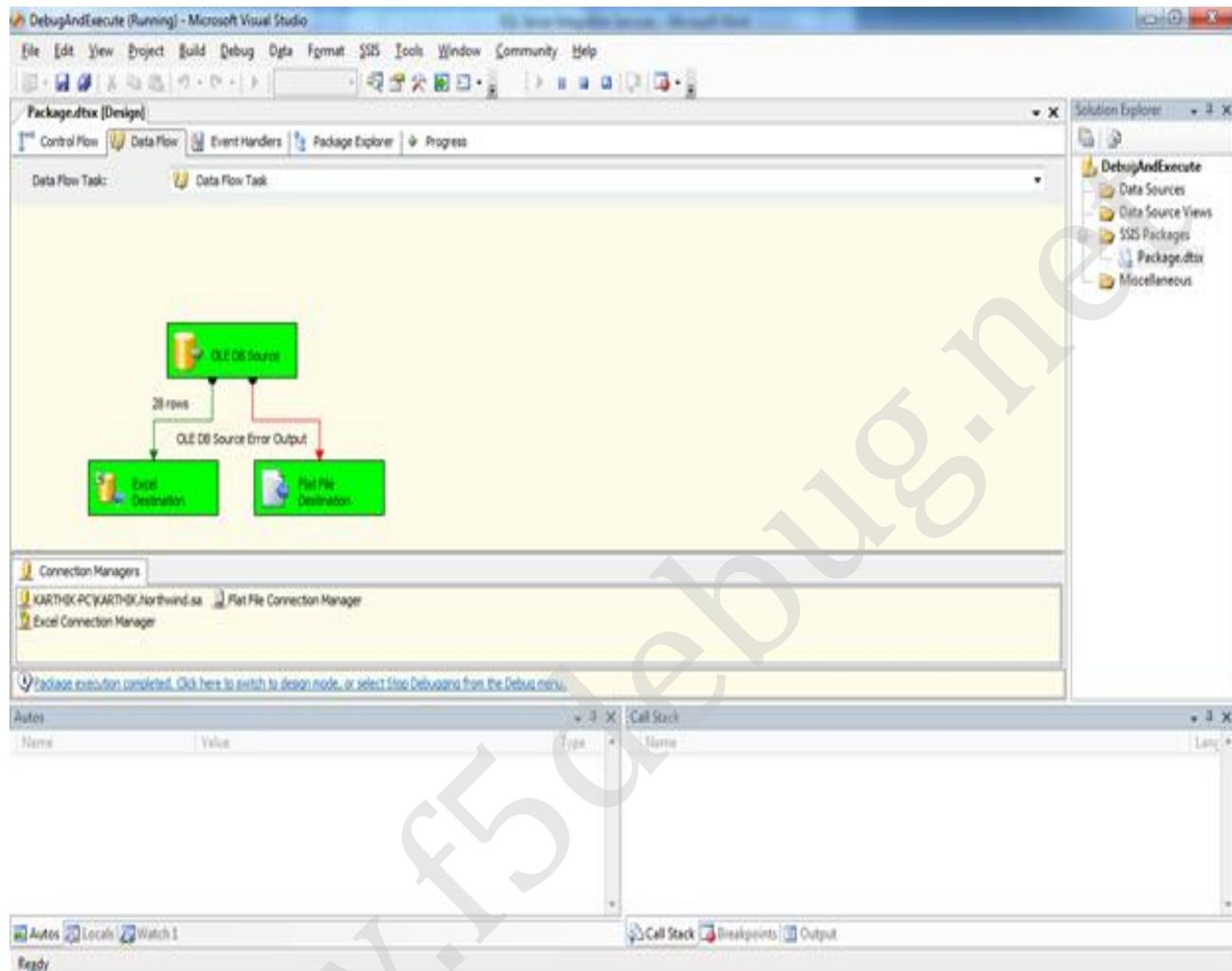
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



**Step 4** - In order to build and execute the package, go to Debug menu and click on Start Debugging or Press F5 directly as shown in the screen below.



**Step 5** - The execution process starts and the tasks will be executed step by step and the completed tasks will be shown in green color as shown in the screen below.



**Step 6** - If there is any error in the package execution then the respective task(s) will be shown in RED color.

## Conclusion

In this chapter we have gone over the process on how to build and execute a SSIS package. We will look into the deployment options and techniques in the upcoming chapters.

# Chapter 6

## OPTIONS TO EXECUTE A PACKAGE IN SSIS

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### Introduction

In this chapter we will see how to deploy a package once we are done with creating and building the package.

### Approaches

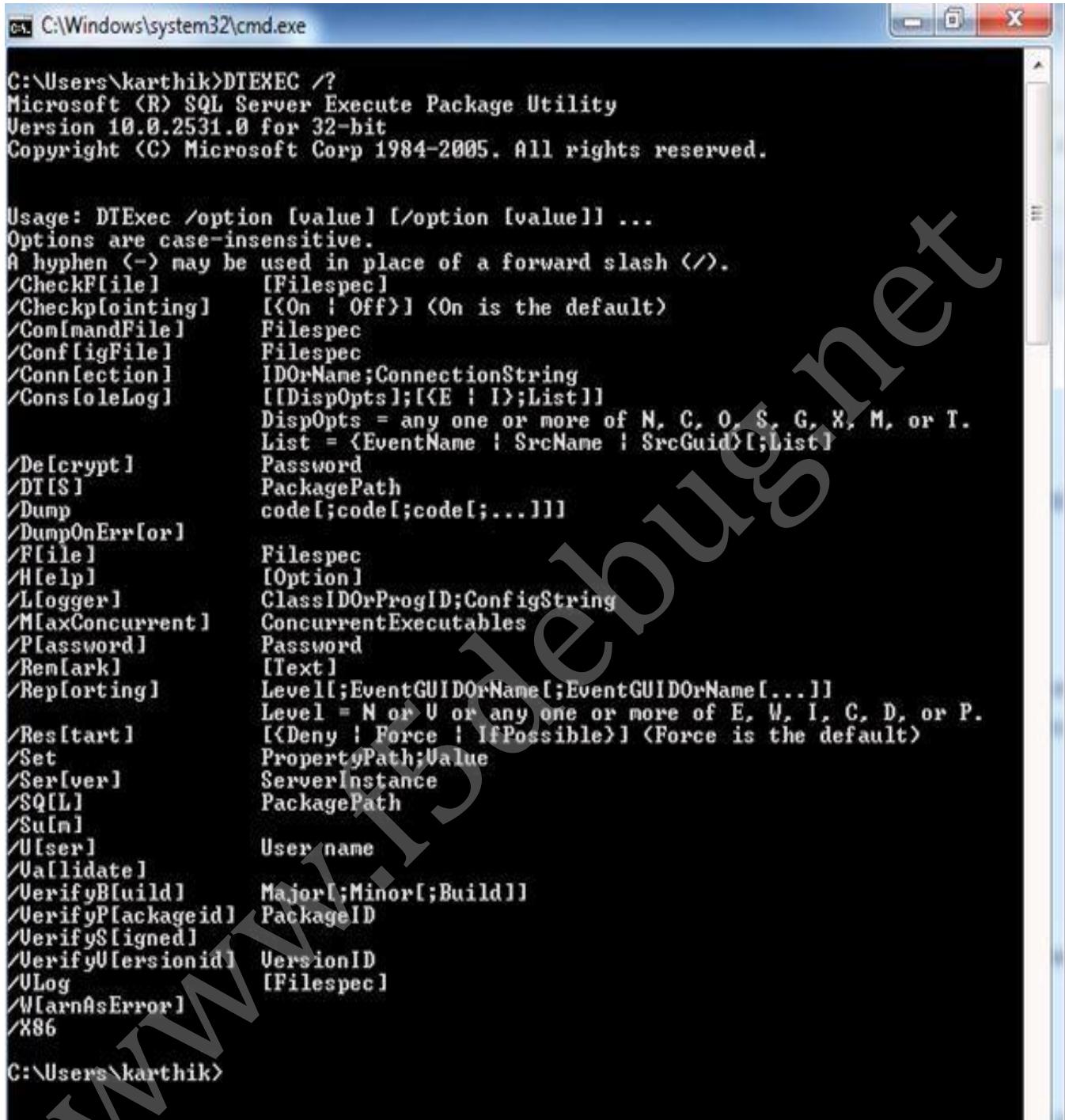
Once a package is created and built successfully, we have 3 options to make a deployment. We will look into each approach with an example.

#### Approach 1

DTEXEC command line utility

SQL Server provides a command line utility (DTEXEC.EXE) that helps the developers to execute the SSIS package. It can be directly used from the command prompt by moving around to the folder where the package is available and run the utility using this EXE.

DTEXEC /? Provides the list of available options to execute the package from the command prompt as shown in the screen below.



C:\Windows\system32\cmd.exe

```
C:\Users\karthik>DTEXEC /?
Microsoft (R) SQL Server Execute Package Utility
Version 10.0.2531.0 for 32-bit
Copyright (C) Microsoft Corp 1984-2005. All rights reserved.

Usage: DTExec /option [value] [/option [value]] ...
Options are case-insensitive.
A hyphen (-) may be used in place of a forward slash (/).
/CheckFile          [Filespec]
/CheckPointing      [{On | Off}] (On is the default)
/Com[mandFile]       Filespec
/Conf[igFile]        Filespec
/Conn[ection]        IDOrName;ConnectionString
/[ConsoleLog]        [[DispOpts];[{E | I};List]]
DispOpts = any one or more of N, C, O, S, G, X, M, or T.
List = {EventName : SrcName : SrcGuid}[;List]
/Decrypt            Password
/DT[S]              PackagePath
/Dump               code[;code[;code[;...]]]
/File               Filespec
/Help               [Option]
/Logger             ClassIDOrProgID;ConfigString
/MaxConcurrent      ConcurrentExecutables
/Password            Password
/Remark              [Text]
/Report[ing]         Level[;EventGUIDOrName[;EventGUIDOrName[...]]]
Level = N or U or any one or more of E, W, I, C, D, or P.
[] (Force is the default)
/Set                PropertyPath;Value
/Ser[ver]            ServerInstance
/SQ[L]              PackagePath
/Su[m]              User name
/U[ser]              User name
/Vallidate          Major[;Minor[;Build]]
/VerifyB[uild]       PackageID
/VerifyP[ackageid]   VersionID
/VerifyS[igned]      [Filespec]
/VerifyU[erversionid]
/ULog               [Filespec]
/W[arnAsError]
/X86

C:\Users\karthik>
```

To execute the package, go to the folder where the package is available and provide the syntax as shown in the screen below.

```
C:\Windows\system32\cmd.exe
C:\Users\karthik\Documents>DTEXEC /FILE New Package.dtsx
Microsoft (R) SQL Server Execute Package Utility
Version 10.0.2531.0 for 32-bit
Copyright (C) Microsoft Corp 1984-2005. All rights reserved.

Option "Package.dtsx" is not valid.

C:\Users\karthik\Documents>DTEXEC /FILE "New Package.dtsx"
Microsoft (R) SQL Server Execute Package Utility
Version 10.0.2531.0 for 32-bit
Copyright (C) Microsoft Corp 1984-2005. All rights reserved.

Started: 8:51:53 AM
Warning: 2011-02-21 08:51:53.74
  Code: 0x4020F42C
    Source: Package Format Migration Module
    Description: The Maximum insert commit size property of the OLE DB destination "Destination - Products$" is set to 0. This property setting can cause the running package to stop responding. For more information, see the F1 Help topic for OLE DB Destination Editor (Connection Manager Page).
End Warning
Warning: 2011-02-21 08:51:53.74
  Code: 0x80019316
    Source: Package Format Migration Module
    Description: The provider name for the connection manager "DestinationConnectionOLEDB" has been changed from "SQLNCLI" to "SQLNCLII10".
End Warning
Warning: 2011-02-21 08:51:58.02
  Code: 0x8001F300
    Source: New Package
    Description: Succeeded in upgrading the package.
End Warning
Error: 2011-02-21 08:52:01.42
  Code: 0xC002F210
    Source: Preparation SQL Task Execute SQL Task
    Description: Executing the query "CREATE TABLE [Northwind].[dbo].[Products$]
<
[Prod..]" failed with the following error: "There is already an object named 'Products$' in the database.". Possible failure reasons: Problems with the query, "ResultSet" property not set correctly, parameters not set correctly, or connection not established correctly.
End Error
DTExec: The package execution returned DTSSER_FAILURE (1).
Started: 8:51:53 AM
Finished: 8:52:01 AM
Elapsed: 8.44 seconds

C:\Users\karthik\Documents>
```

This is the result once we execute a package in SSIS Command line utility. This example shows an error stating the package is not executed properly and has some errors that need to be fixed.

For more details on DTEXEC utility refer to the below MSDN chapter.

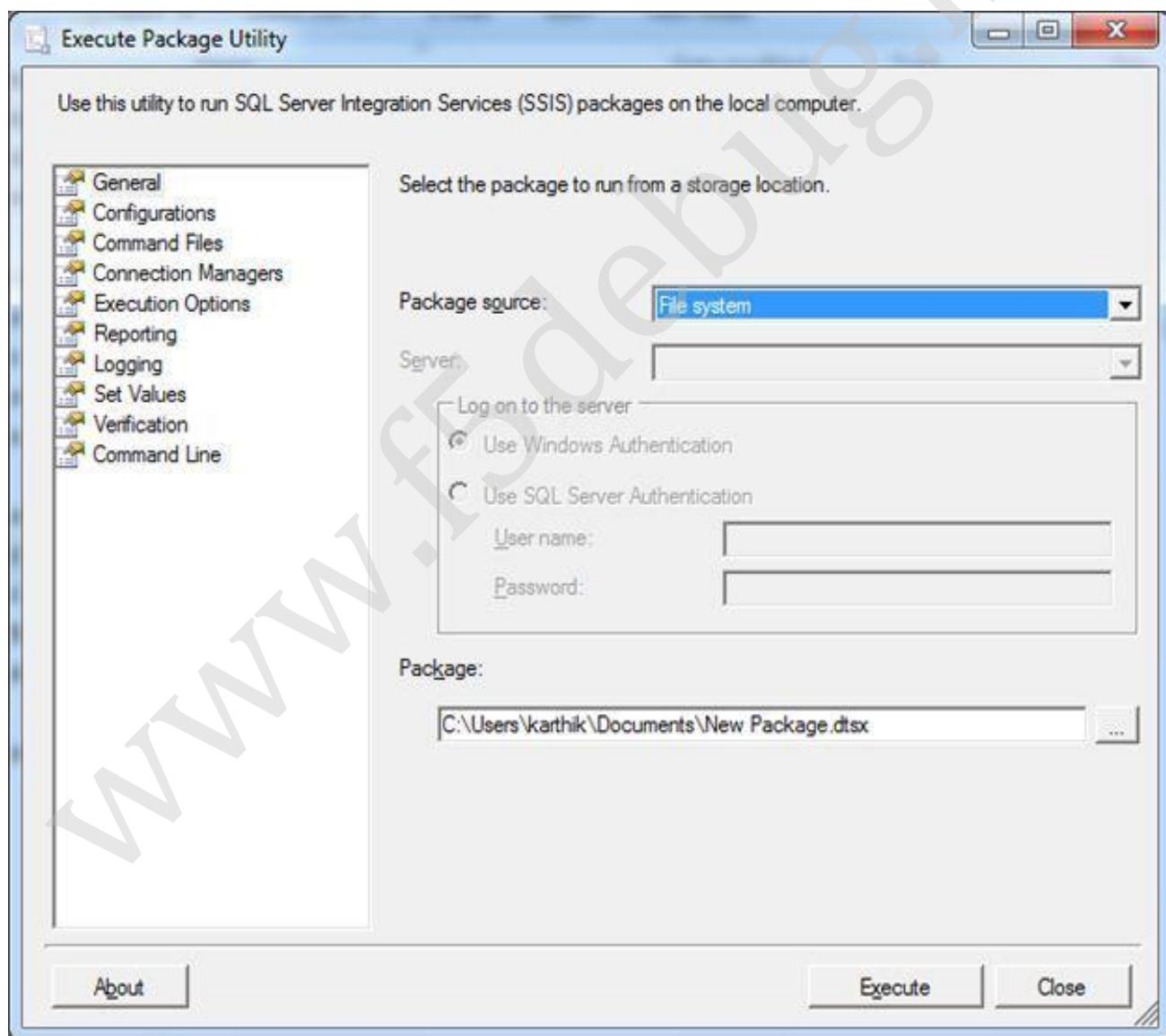
<http://msdn.microsoft.com/en-us/library/ms162810%28SQL.90%29.aspx>

## Approach 2

### SSIS Package Windows Application

This approach is a straight forward user interface option to execute a package. Microsoft has provided a user interface or we can say a tool kind of option to execute the SSIS packages. DTEXECUI.EXE is the executable for the user interface which performs the task of executing the package.

We can launch DTEXECUI.EXE by double clicking on the package itself directly (i.e. go to project folder and double click on \*.dtsx file). It will open the graphical user interface as shown below.



As we can see there are many options available in order to execute the package based on our needs. If we want to follow the standard format then directly clicking on EXECUTE button at the bottom will do the task. We can navigate through each option and customize the package based on our needs.

You can have a look at the MSDN Article on DTEXECUI.EXE utility at the below URL

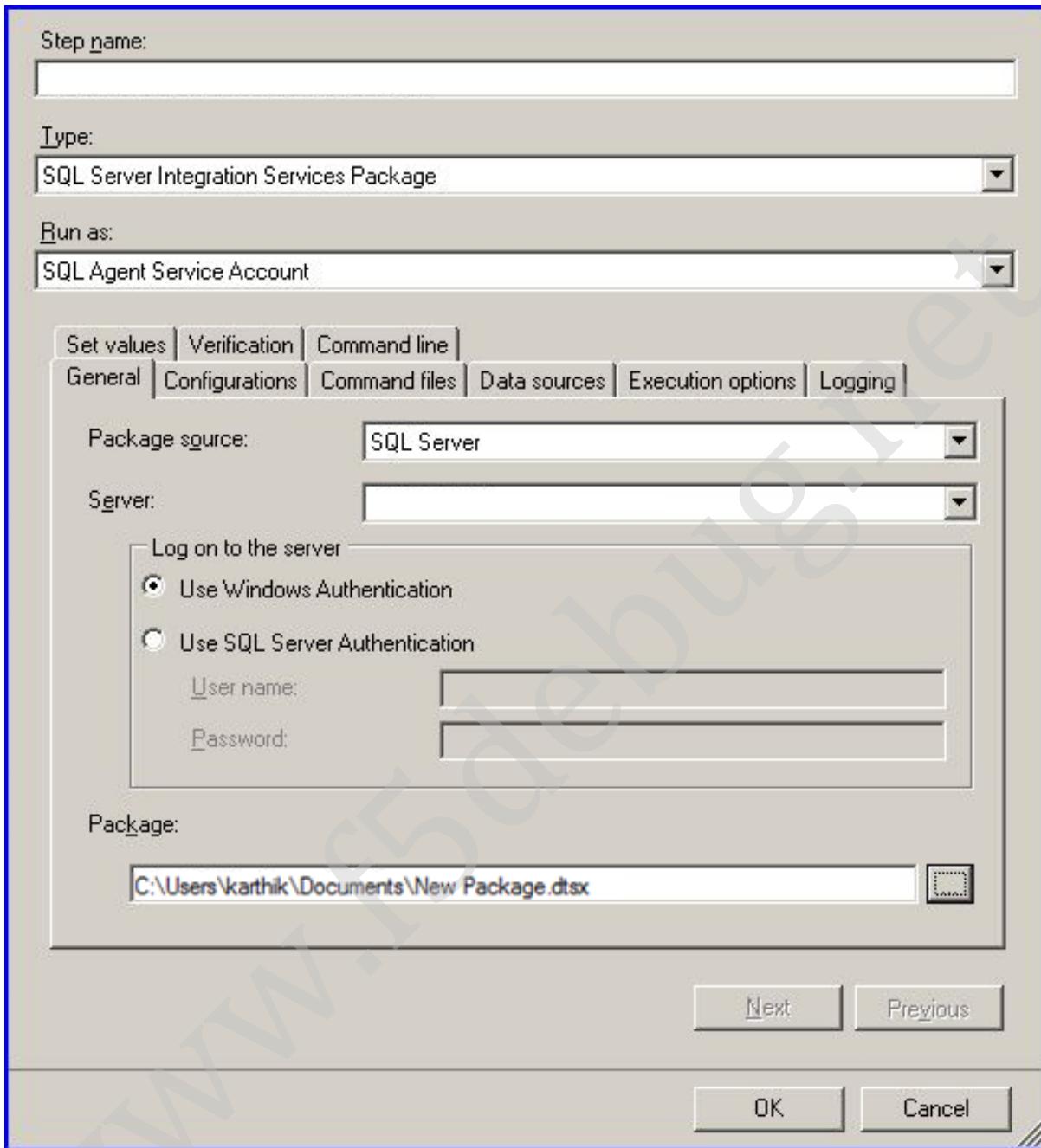
<http://msdn.microsoft.com/en-us/library/ms141707%28SQL.90%29.aspx>

### **Approach 3:**

#### **SQL Server Agent Scheduling**

The last and the final approach to execute the SSIS packages are the SQL Server Integration services Job step type which helps to schedule the package and execute it based on our needs. This is one of the easiest approaches since we have the UI to schedule the package and execute it without any user interactions.

In order to follow this approach, go to SQL Server Management Studio → Connect to the Database using the credentials → open object explorer and go to JOBS → Select New Job and fill in the details based on our needs



## Conclusion

In this chapter we have seen the different options to execute the SSIS packages. We will look into the deployment options in the upcoming chapters.

# Chapter 7

## OPTIONS TO DEPLOY A PACKAGE

### Introduction

In this chapter we are going to see how to deploy a SSIS package once we are done with developing, building and executing the package. Deploying an application is something which we have to take care since it executes based on the requirements like, when the package should execute, who should execute the package etc. We have 3 options available with deploying a SSIS package and the options are as follows

1. Deployment Utility
2. Command line Executable
3. SQL Server Management Studio

We will see details on each approach and the steps involved in deploying the package. You can refer to my previous chapters on SSIS to get some idea before going ahead with this chapter.

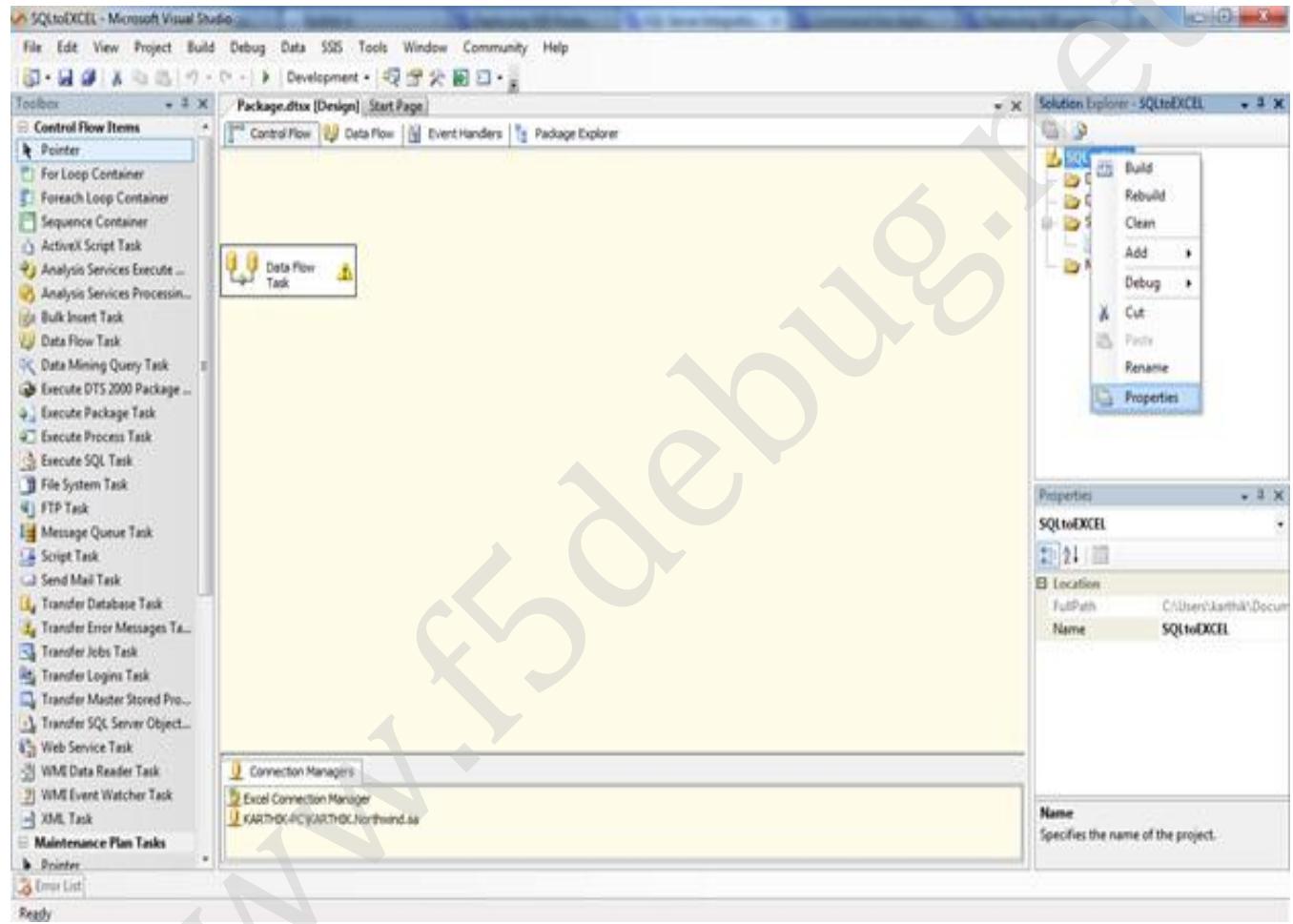
### Approaches

#### Approach 1: Deployment Utility

This approach is used to create an installer for the package and can be executed wherever it is required. This Utility is available by default to all the Integration projects; we will see the steps to make use of this utility.

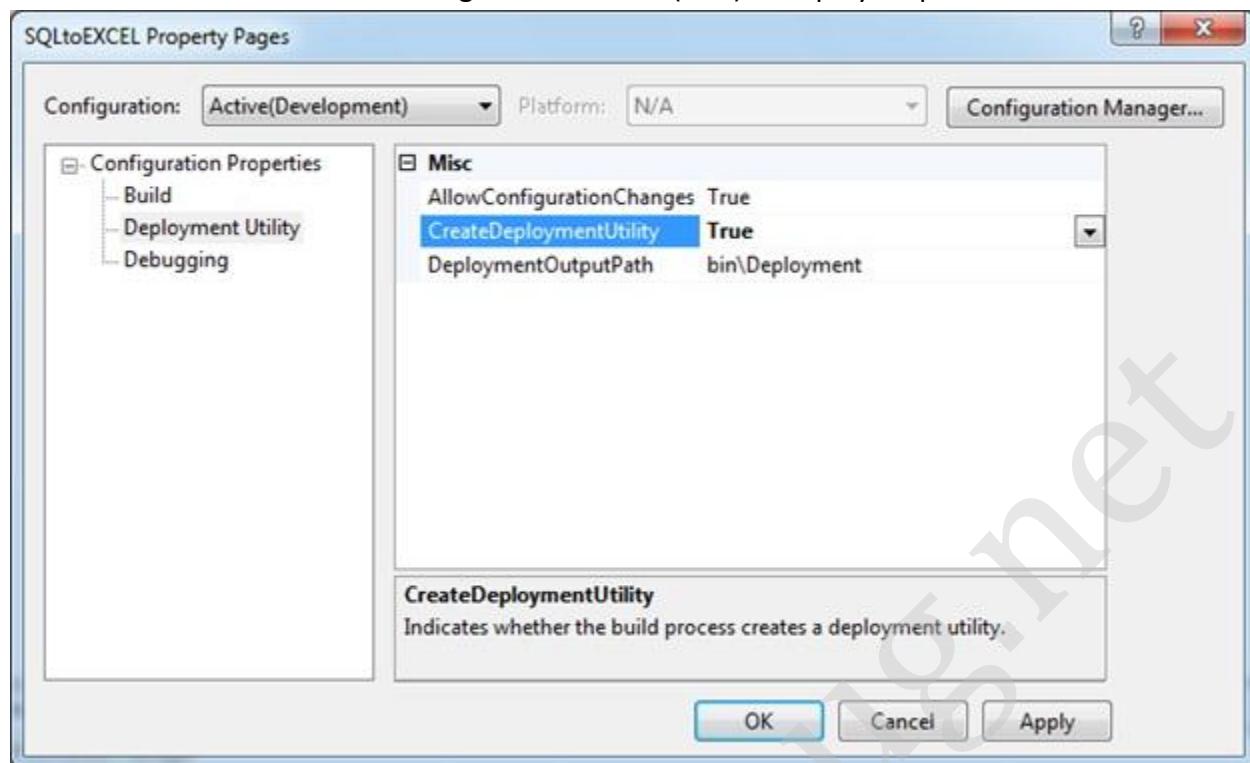
## Steps

Go to BIDS (Check my previous chapters on how to go to BIDS), open the package solution which you want to deploy, right click on the project and go to properties as shown in the screen below.

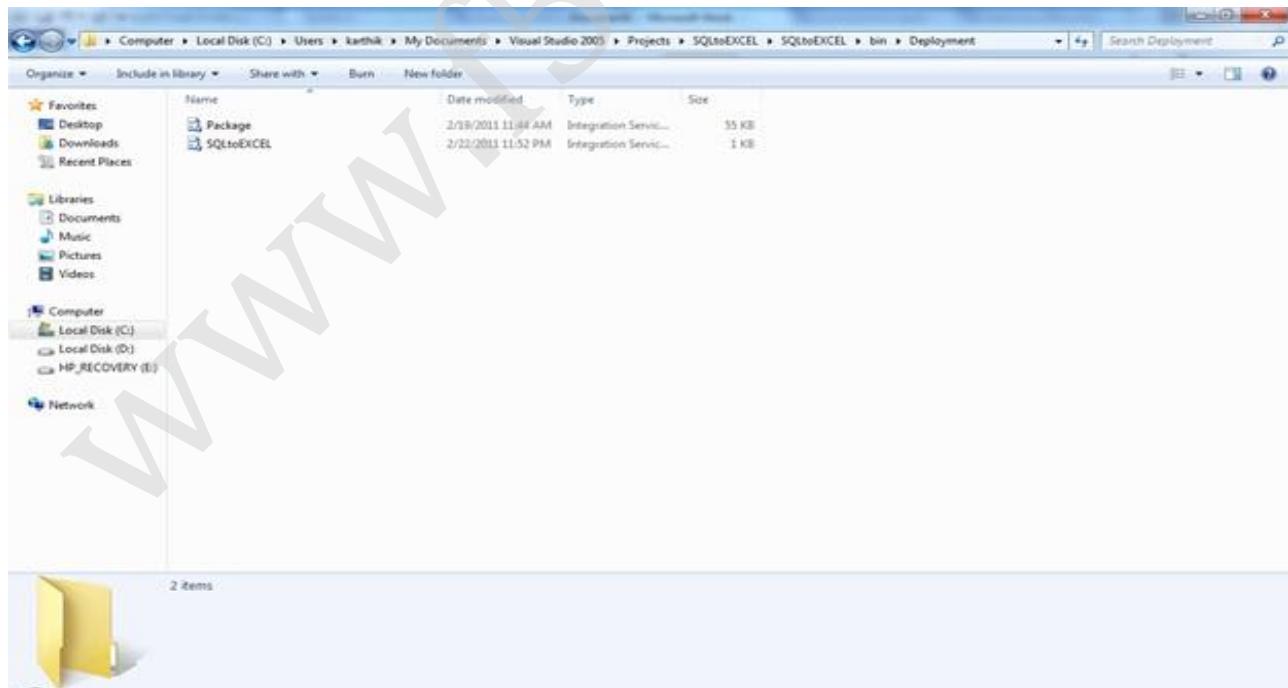


A dialog will open where you have the option as Deployment Utility. Clicking on that will show the options at the right side of the dialog box where we need to set the Create Deployment Utility to TRUE and give the path where the installer need to be created as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Once we are done, right click on the project and give BUILD. It will show result at the bottom of the page if the build is success or a failure. If it succeeded, it will create the deployment installer as shown in the screen below. You can copy these files to any location and double click to make use of it.



## Approach 2: Command Line Executable

Microsoft has provided an Executable DTUTIL.EXE that can be used to deploy SSIS packages. This command like utility is a good option to script the package. We can use this executable directly or can make use of it in the batch file.

To execute the package at the command prompt; check the below script. Go to the path of the package and execute the scripts below.

***DTUTIL /FILE Package1.dtsx***

***/COPY***

***SQL;SSISPackage1***

In order to deploy the package at the file system levels then use the script below.

***DTUTIL /FILE Package1.dtsx***

***/COPY***

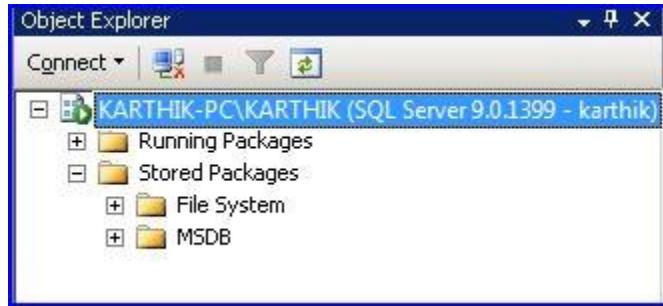
***FILE;C:\SSIS\SSISPackage1.dtsx***

For more options on this utility please check the below MSDN link.

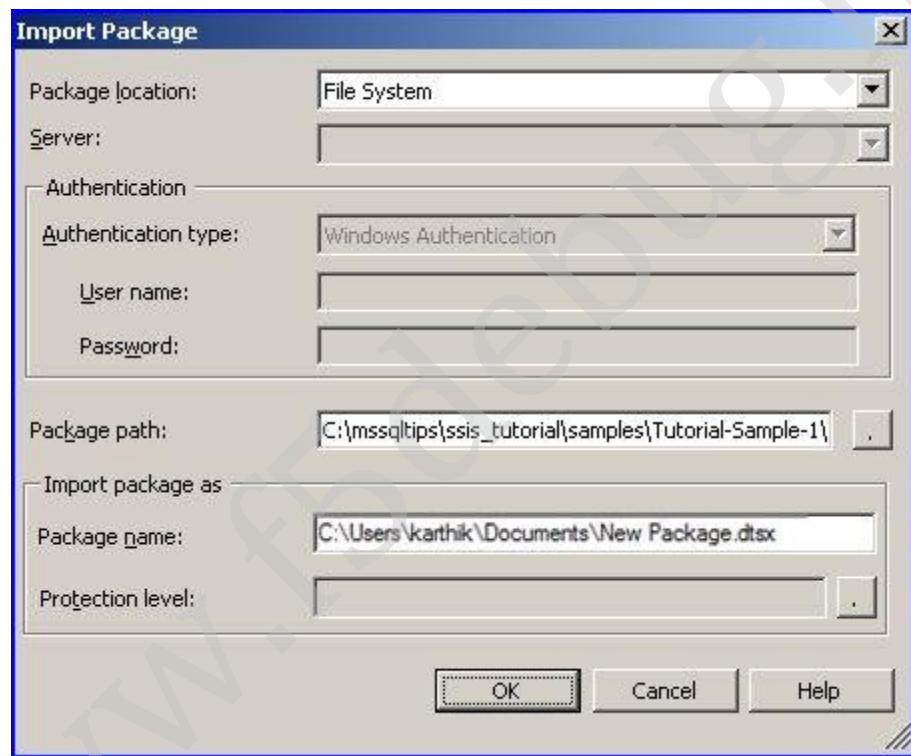
<http://msdn.microsoft.com/en-us/library/ms162820%28SQL.90%29.aspx>

## Approach 3: SQL Server Management Studio

This approach requires integration services to be connected and in running mode in order to use this deployment option. In the object browser you can see something like the screen below.



To deploy our package, right click on the File system and select the Import Package from the menu. Fill the details as shown in the screen below.



Clicking on OK will deploy the package.

## Conclusion

In this chapter we have seen the different options available to deploy the SSIS packages to different environments.

# Chapter 8

## SCRIPTING IN SSIS PACKAGES

### Introduction

In this chapter we are going to see the scripting option available with SSIS, which is nothing but the Script Task component in SSIS. The very cool feature available in SSIS packaging is the Script Task, to justify many task components are available which performs a single operation as per the nature of the task.

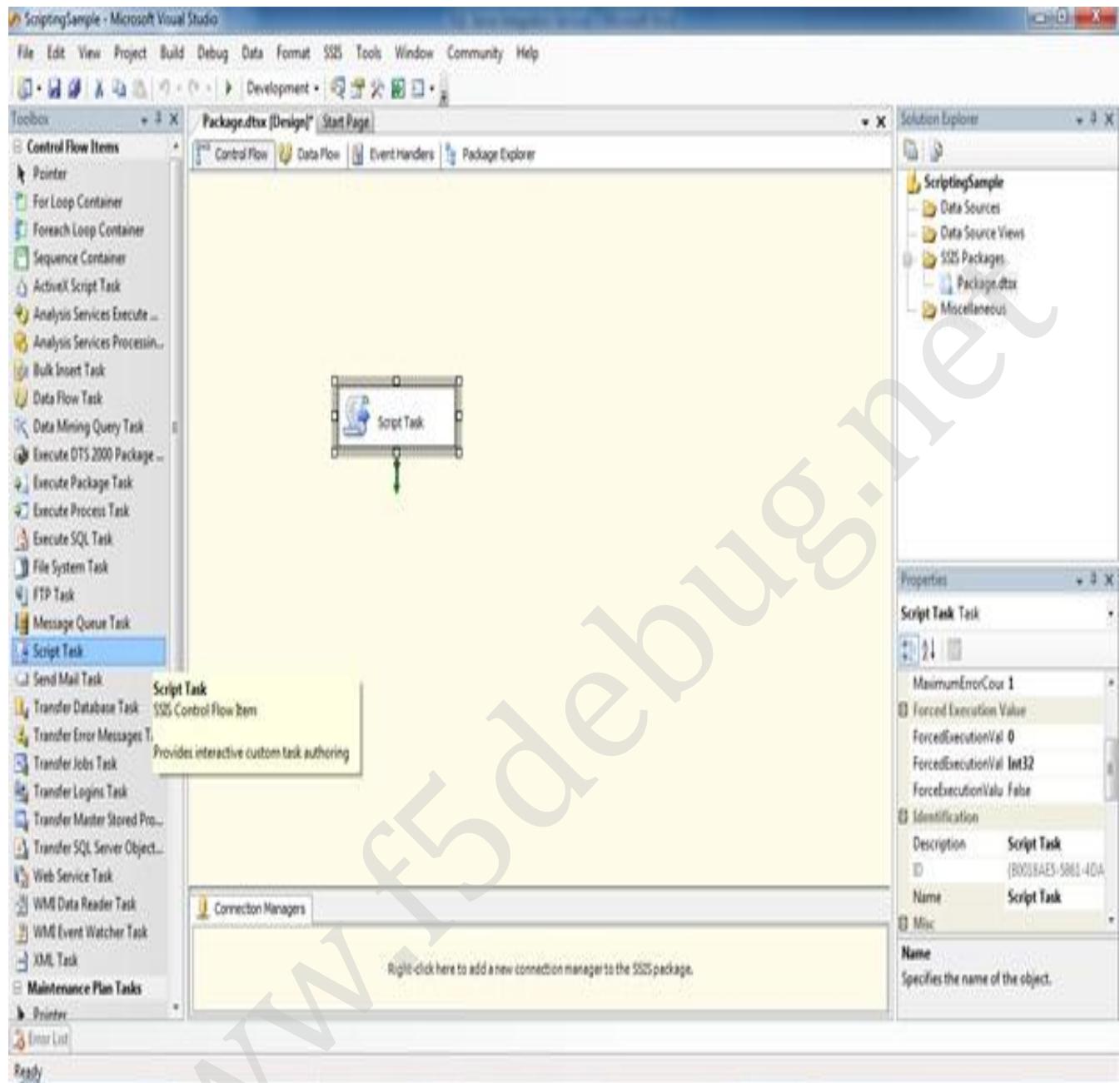
With this Script task we can perform our own custom task on how the process should happen as per the business. We will see the step by step process on how to use this task.

### Steps

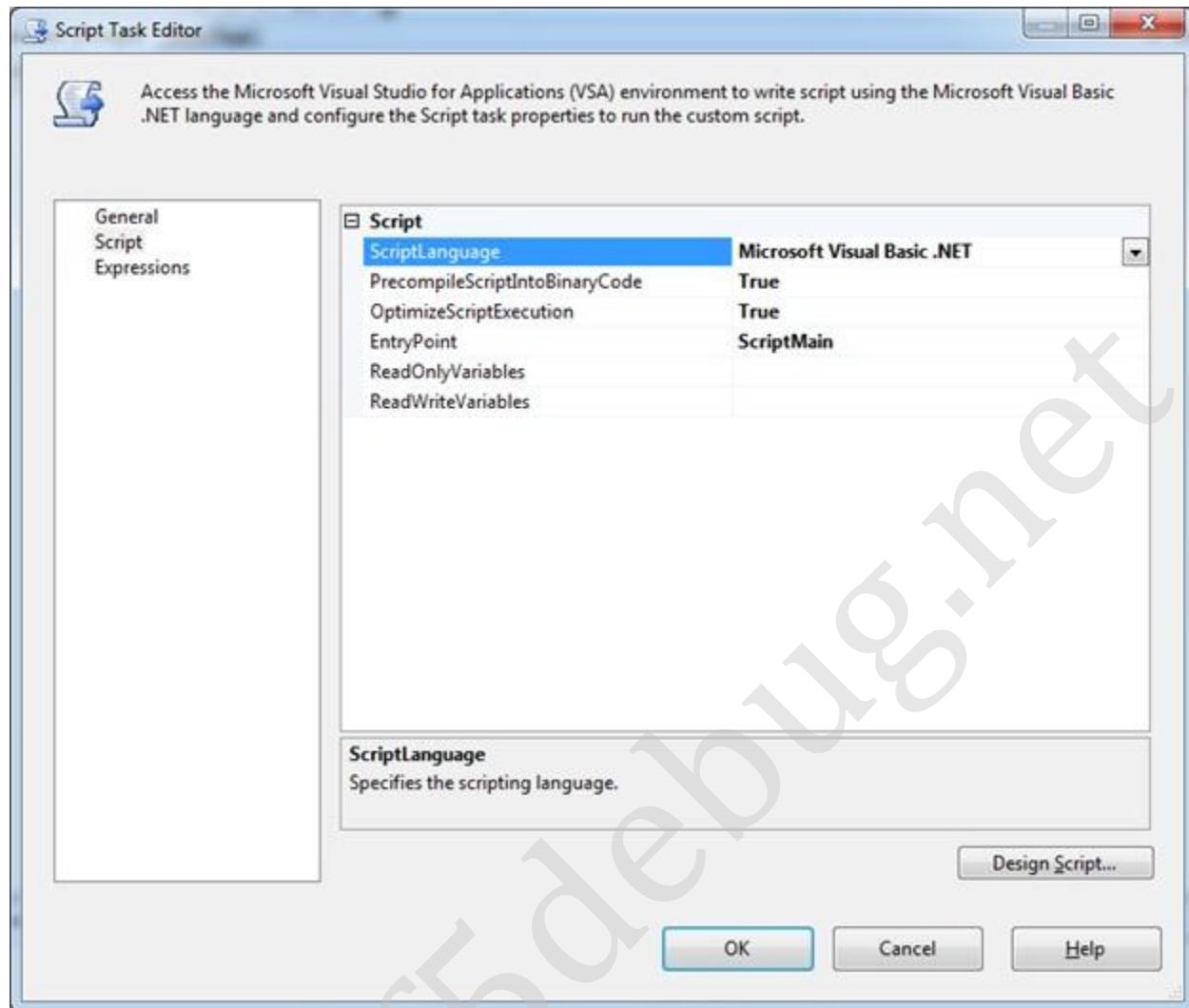
Follow steps 1 to 3 of first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Script Task component.

On the Tool box available in the right side pane, select the Script Task component as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Right Click on the Script Task and select edit or double click on the task component in order to go through the properties of the task as shown in the screen below.



In the Script Pane, we have option as Script Language which points to Microsoft Visual Basic .Net. We have only this option in SSIS 2005 version, if we have installed with SSIS 2008 then we have option for C#.Net as well. Entry Point option is the place which we need to specify the main method for the script which we are going to write. Readonlyvariables and Readwritevariables are the options where we can use it for specifying the variables which are used at the script. We can specify the variables in comma separated format in order to use more than a single variable.

At the bottom of the pane we can find Design Script option which is the main window where we are going to put the script code. Clicking on that button will open the window as shown in the screen below.

The screenshot shows the Microsoft Visual Studio for Applications interface. The title bar reads "Microsoft Visual Studio for Applications". The menu bar includes File, Edit, View, Project, Debug, Tools, Window, Community, Help. The toolbar has standard icons for file operations. The Project Explorer on the left shows a project named "ScriptTask\_852e64ba262480cad1" with references to System, System.Data, System.Math, and Microsoft.SqlServer.Dts.Runtime. The main window displays the "ScriptMain" code:

```
' Microsoft SQL Server Integration Services Script Task
' Write scripts using Microsoft Visual Basic
' The ScriptMain class is the entry point of the Script Task.

Imports System
Imports System.Data
Imports System.Math
Imports Microsoft.SqlServer.Dts.Runtime

Public Class ScriptMain
    ' The execution engine calls this method when the task executes.
    ' To access the object model, use the Dts object. Connections, variables, events,
    ' and logging features are available as static members of the Dts class.
    ' Before returning from this method, set the value of Dts.TaskResult to indicate success or failure.
    ' To open Code and Text Editor Help, press F1.
    ' To open Object Browser, press Ctrl+Alt+J.

    Public Sub Main()
        ' Add your code here
        ' ...
        Dts.TaskResult = Dts.Results.Success
    End Sub
End Class
```

In the screen above we can see that, ScriptMain is the main method which is going to act as the entry point. This window helps to put our own custom logic as per the business using all the Visual Basic references and build a complete useful task.

## Conclusion

So in this chapter we have seen on how to create a Script task and write a custom code as per our requirement.

# Chapter 9

## BREAKPOINTS IN SSIS PACKAGES

### Introduction

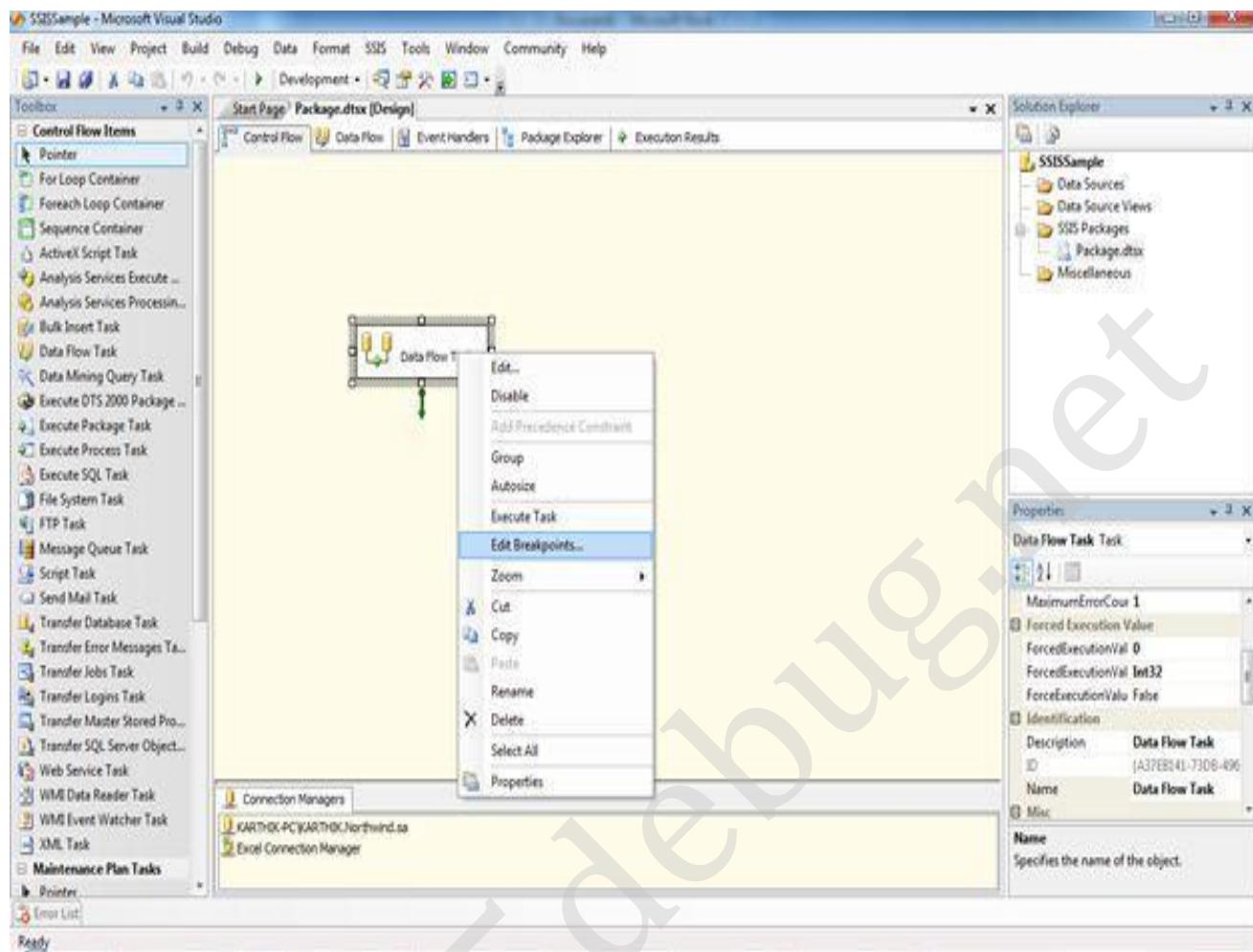
In this chapter we are going to look into the options to debug the SSIS package, mainly on the Break point options available with SSIS. As you all know breakpoints are nothing but a point where the developer can hold off and see the how the code executes at that particular point. In SSIS similar break point options are provided to check the status of the task at that particular point.

SSIS breakpoints are provided with some events based on which we can track the execution plan and see how the process flows. We will see the step by step process on how to enable breakpoints and how to use the windows available in order to analyze the breakpoint execution.

### Steps

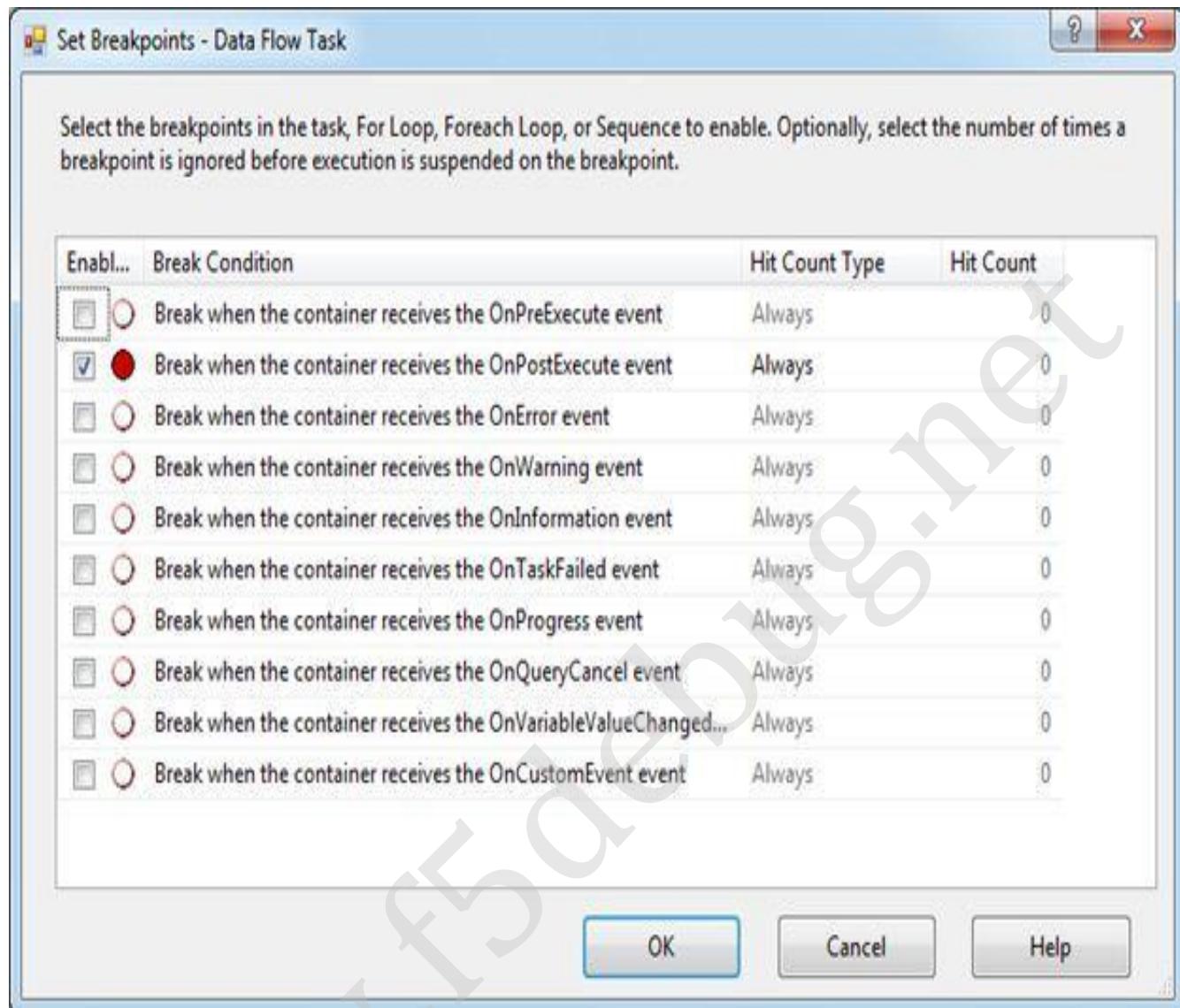
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use breakpoint options available with SSIS.

We have created a project here which will copy the data from SQL dB to Excel sheet from the Northwind database. We need to create a Dataflow task along with OLEDB Source and Excel destination tasks to make the flow perfect. Now in order to activate the Break points just right click on the DataFlow task and select “Edit Breakpoints” as shown in the screen below.



It will open a window which has the list of events available for the SSIS process execution. We need to select our exact needed break point to check the process at that particular point. There are about 10 events available as listed below.

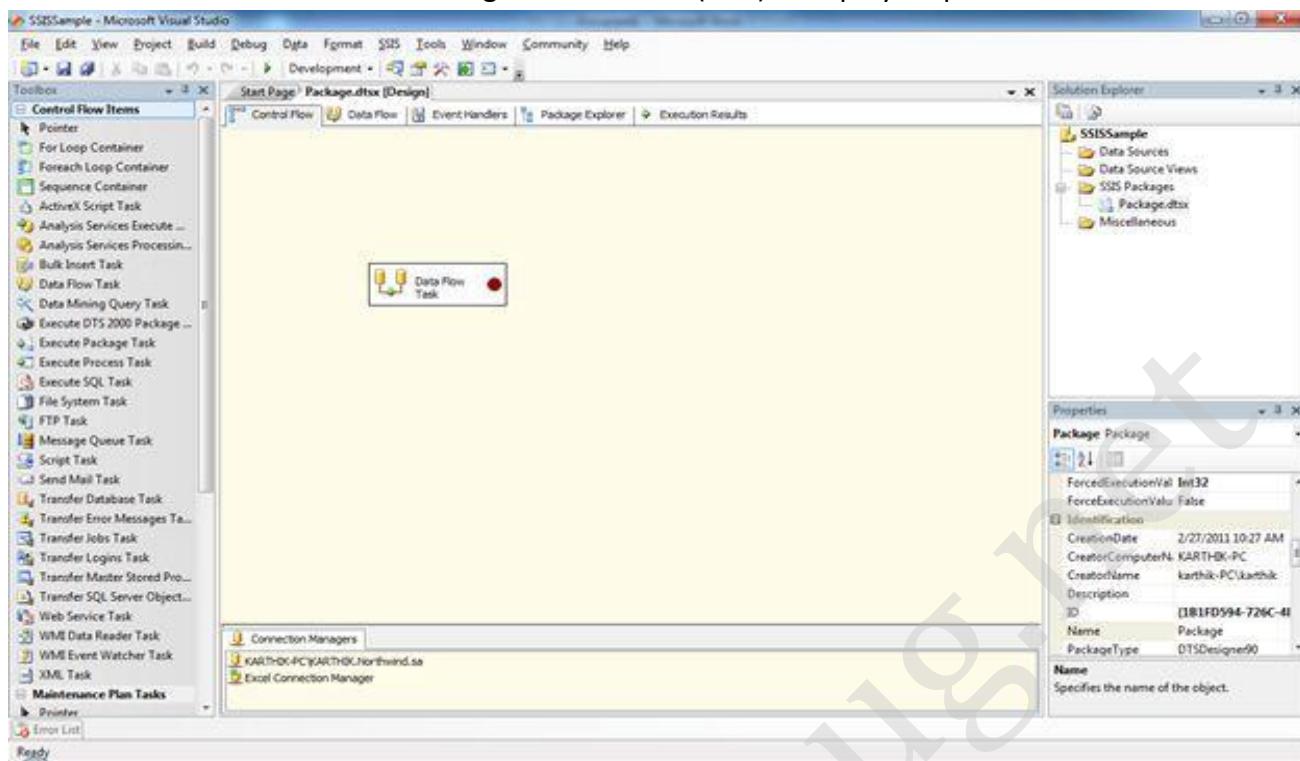
- **OnPreExecute:** Triggered when task is about to Execute
- **OnPostExecute:** Triggered when task is executed
- **OnError:** Triggered when error occurred with the Task
- **OnWarning:** Triggered when task just throws a warning
- **OnInformation:** Triggered when task is about to provide some information's
- **OnTaskFailed:** Triggered by task host when it fails to execute.
- **OnProgress:** Triggered to update progress about task execution.
- **OnQueryCancel:** Triggered in task processing when you can cancel execution.
- **OnVariableValueChanged:** Triggered when the variable value is changed
- **OnCustomEvent:** Triggered by tasks to raise custom task-defined events.



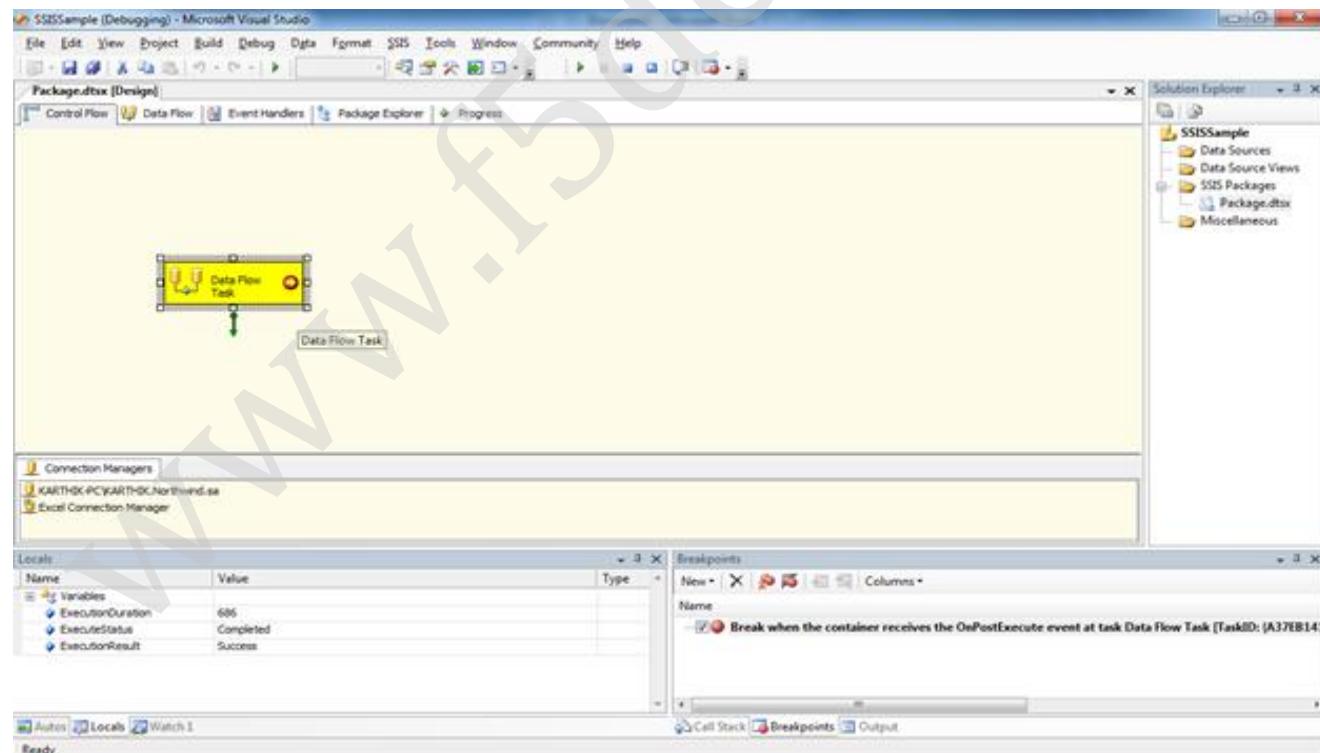
Here we have selected OnPostExecute event, so in my project once the task is execute this break point will be triggered and we can check the execution process at that point.

Let's now see on how the breakpoint execution works. If you have noticed, after selecting the break point a red dot will appear in the task as break point notification as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



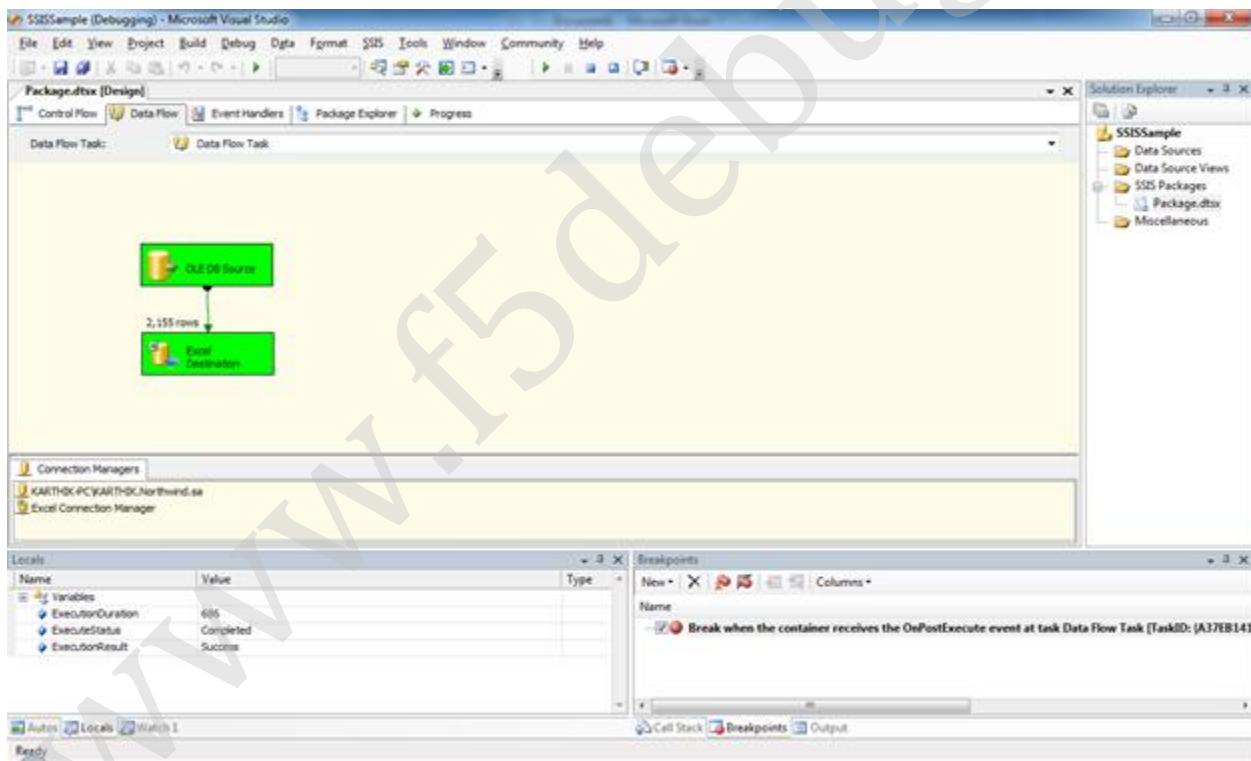
Now go ahead and press F5 to run the application. It will process the task and shows the execution after the tasks completed as shown in the screen below.



In the above image we see that it points to the RED dot with an arrow symbol which indicates that the execution is waiting at this breakpoint to get completed. If we see the below pane in the IDE there are some windows which tells the execution process of this task.

The LOCALS windows at the bottom tells you exactly on the execution status if its success or failure, and the duration of the execution process and the execution status. Similar wise on the right hand side we can see the Breakpoints window which shows the complete list of breakpoints available not specific to the task but to the whole application.

OUTPUT window shows the execution process on the steps done and shows what is available at the current section. If we go to the data flow tab it shows the execution in green color which confirms that the execution is completed and then the process breakpoint triggered.



## Conclusion

So in this chapter we have seen on the break point essentials in SSIS Packaging and the execution plan status available in order to check the process flow.

# Chapter 10

## CHECK POINTS IN SSIS PACKAGES

### Introduction

In this chapter we will look into the Check point's usage in SSIS package. Check points are nothing but a structure where we can restart the package at the point where it fails without having to restart from the first step. This feature is an added advantage for SSIS packaging which provides a better performance in order to achieve complex tasks. Check point saves the configuration details in a XML file which acts as the source for the later execution section. The package once restarted the default point is restored by the check points by referring to this xml file only.

Check point configuration is by default false in SSIS, we need to manually configure in order to use this feature. We will see here on how to configure and use the check points feature in SSIS packaging. Before enabling the check points we need to know the properties available with check points in order to use it effectively. It has 3 main properties as shown below

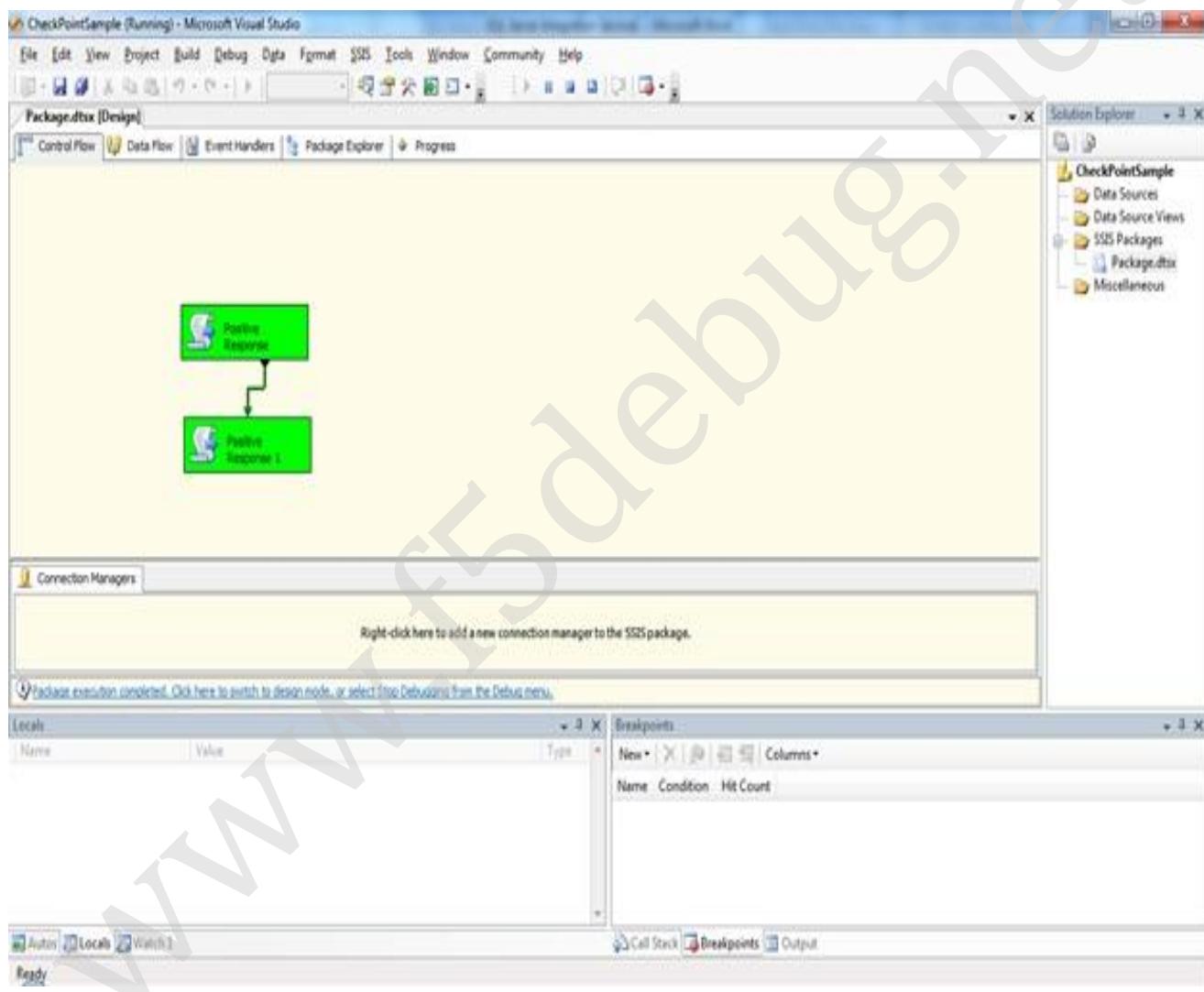
- **CheckpointFileName** – Automatically created XML file for configuration
- **CheckpointUsage** – Shows if the check point is in Use or not
- **SaveCheckpoints** – Shows if the check points saves or not in the packaging.

Let's jump into the step by step process on how to configure check points and how to use it for our packages.

## Steps

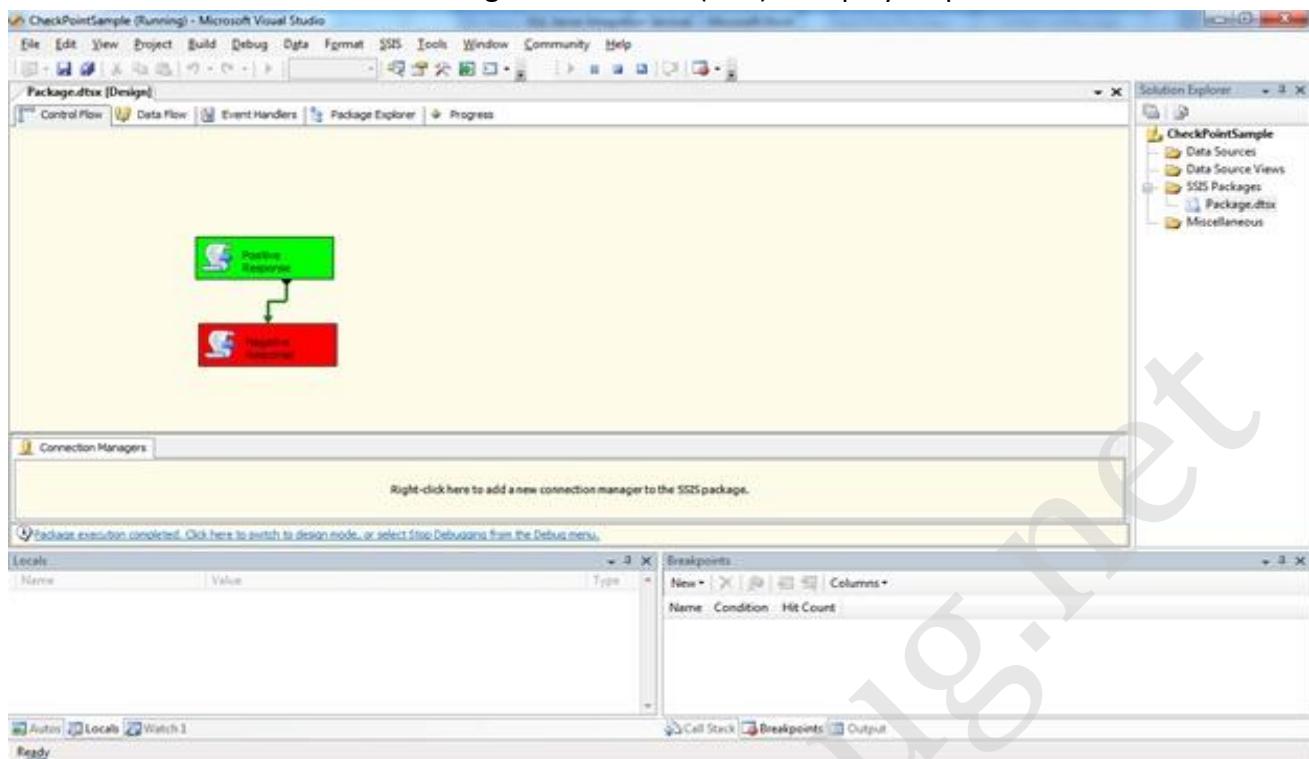
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to configure Check points.

We have created a project here which has 2 tasks, both the tasks returns a positive response as success. At this point we will not see the properties and the tasks are executed perfectly as shown in the screen below.

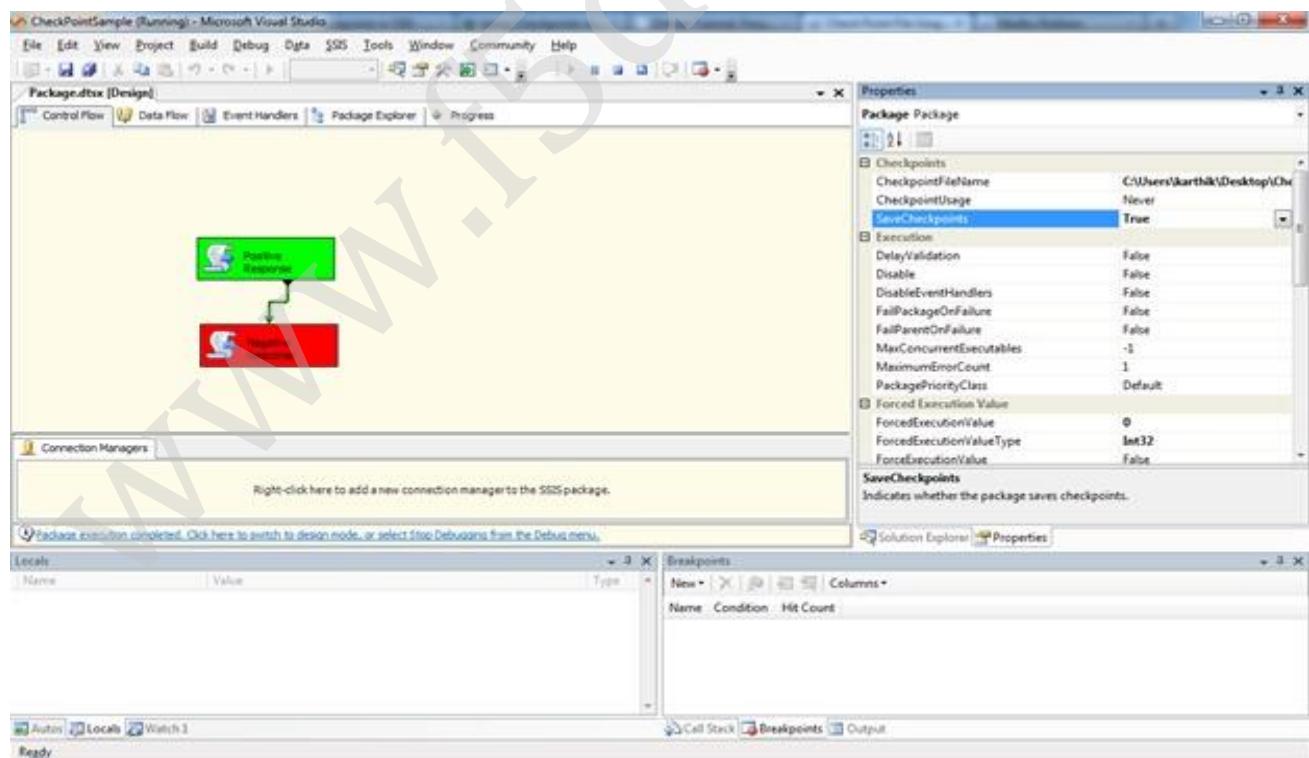


In order to enable the check points we will make the second task a negative task and try to run the project. It will display result as shown in the screen below.

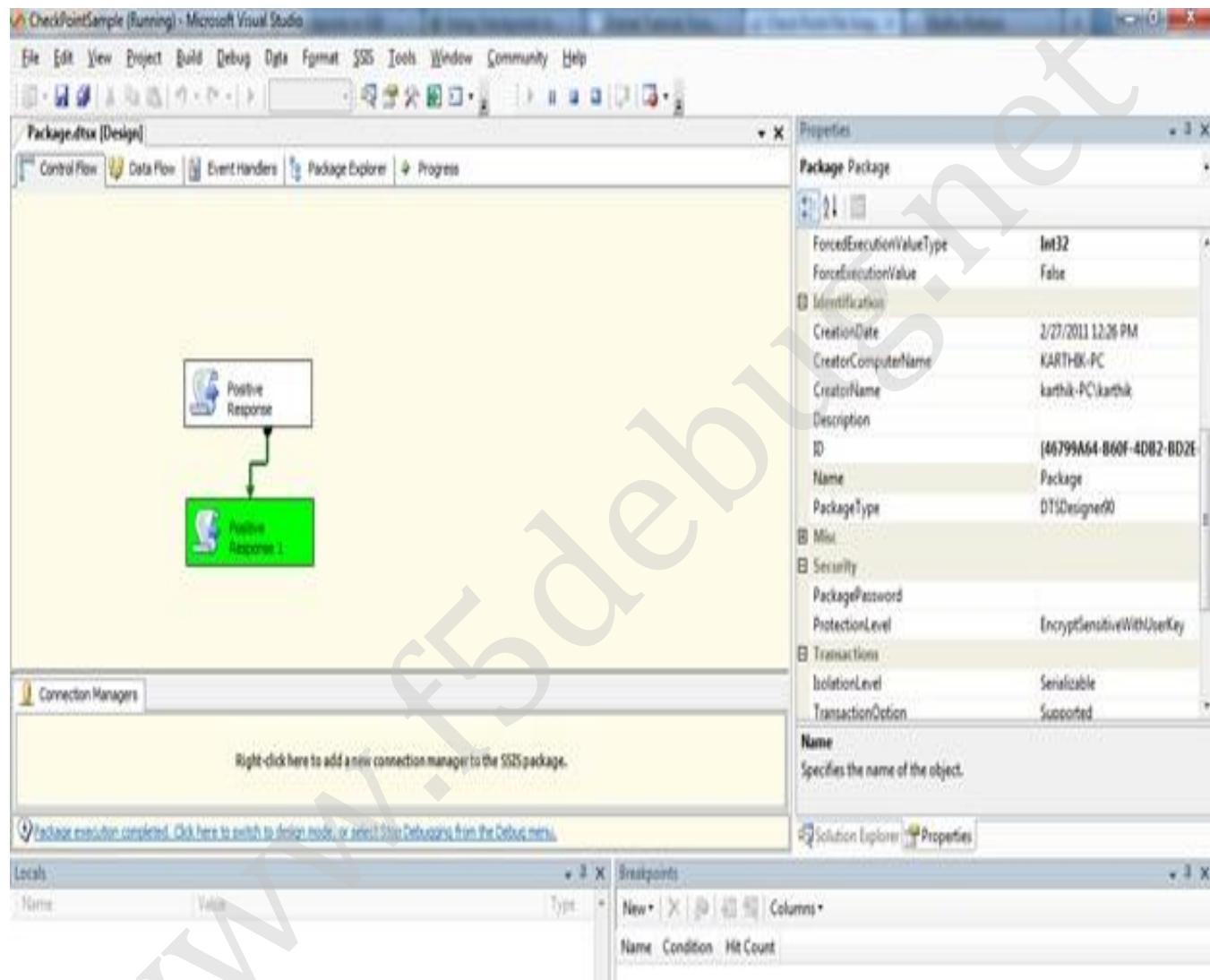
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we can see the Check point properties in the property window of the package list as shown in the screen below. Here we need to configure the settings to save the check point and to use it with in the project.



Now the check points are configured and in order to use it now make the negative response to respond as positive and run the package again and see how it going to take it.



## Conclusion

So in this chapter we have seen the usage of check points and how to make the configuration and how to use the check point as per the requirements.

# Chapter 11

## SEND MAIL IN SSIS PACKAGES

### Introduction

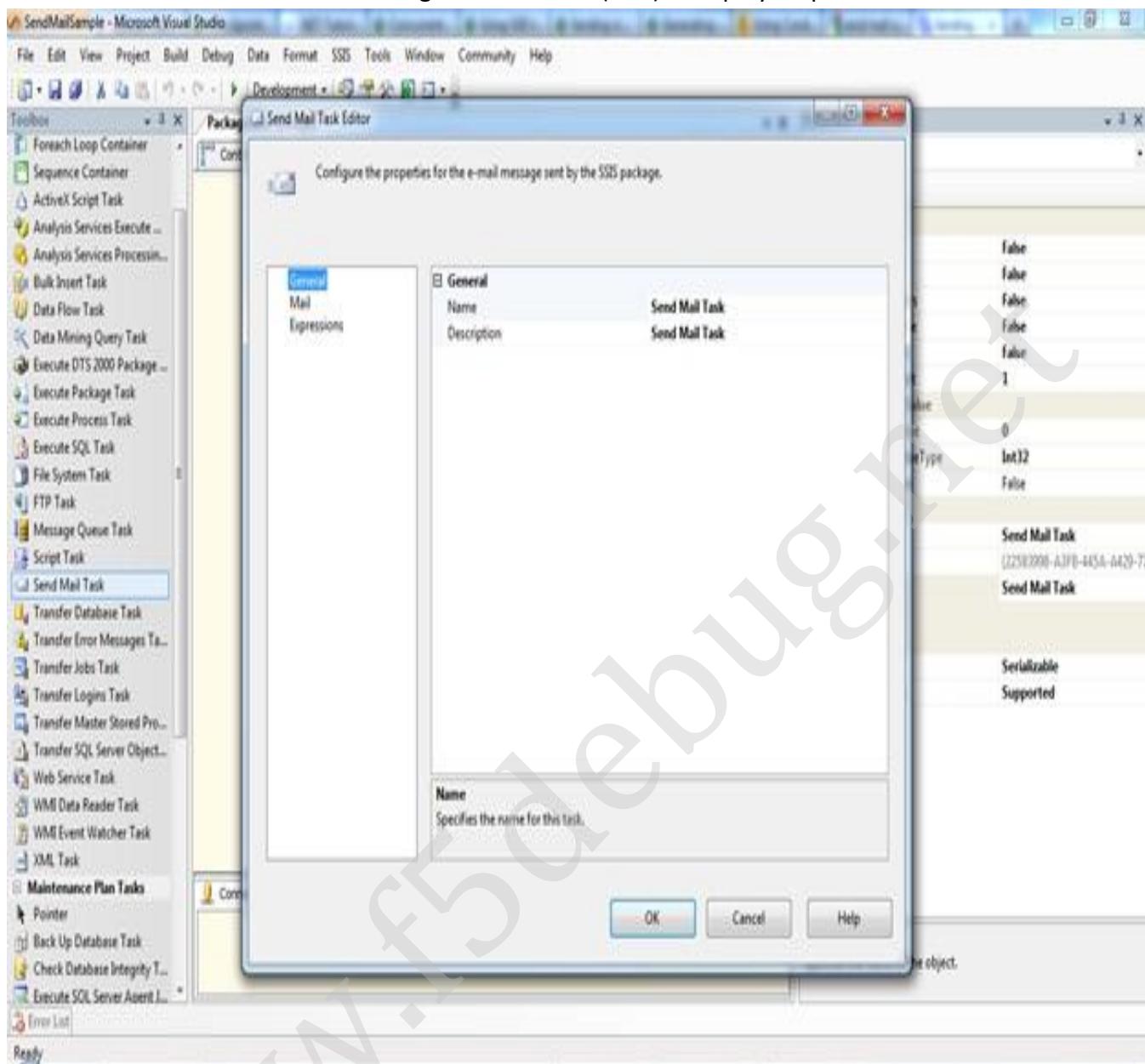
In this chapter we are going to see on how to send a mail from SSIS using the SMTP services. This send mail concept is used in real time when the packages are automated and to notify the end user at certain circumstances about the execution process or also about any failure in process or any things need to be skipped as the business needs. We have an option here as send Mail Task which is used to perform the task which has been discussed. Let's discuss in detail about this task.

This chapter will explain on how to set the configuration properties for the send mail option and send a test mail to the end user.

### Steps

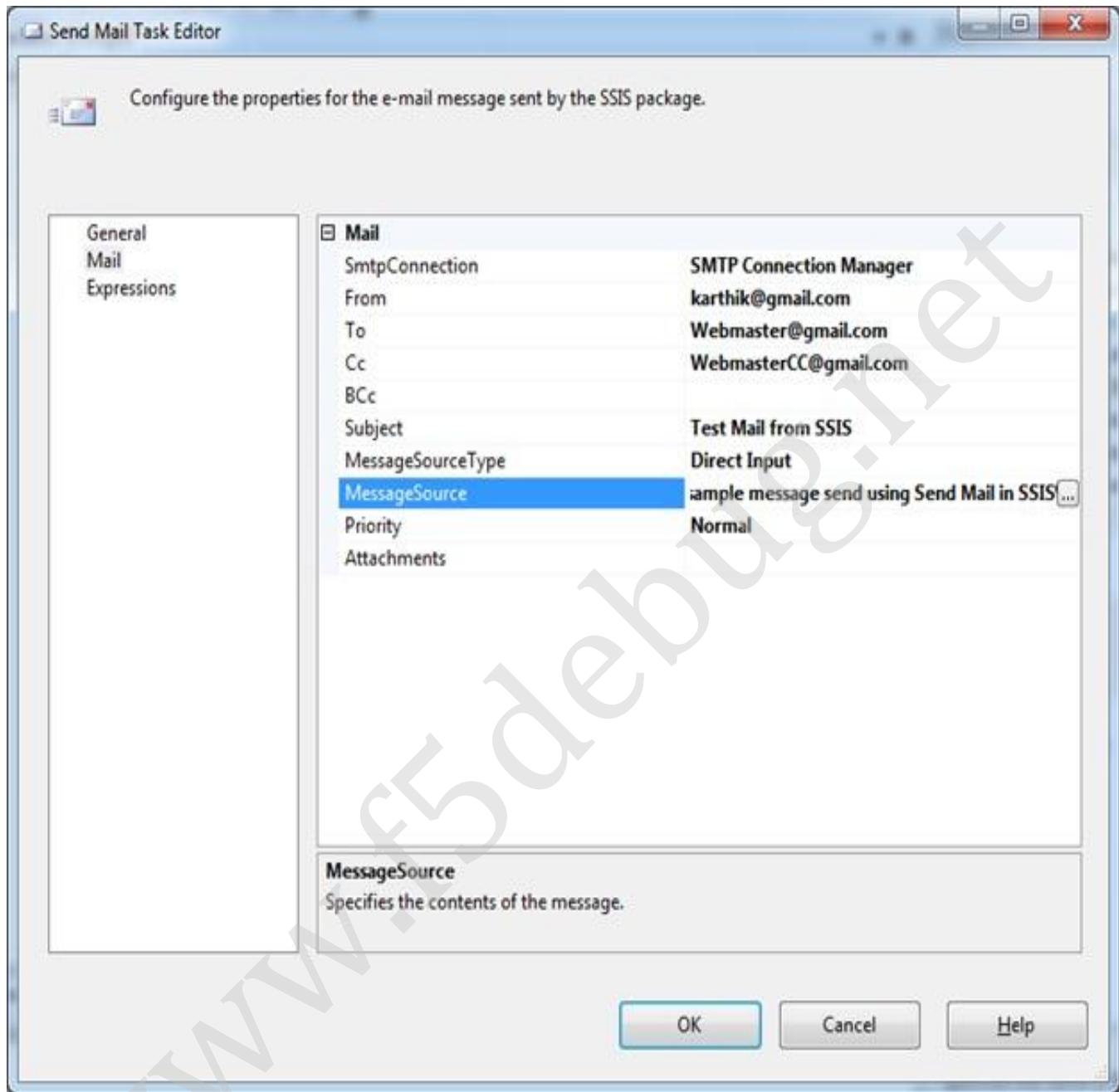
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use Send Mail Task available with SSIS.

Once you created the project drag and drop the Send Mail Task from the tool box. It will open a pop up as shown in the screen below. It has 3 sections on to that and we will see on how to configure using the options available.



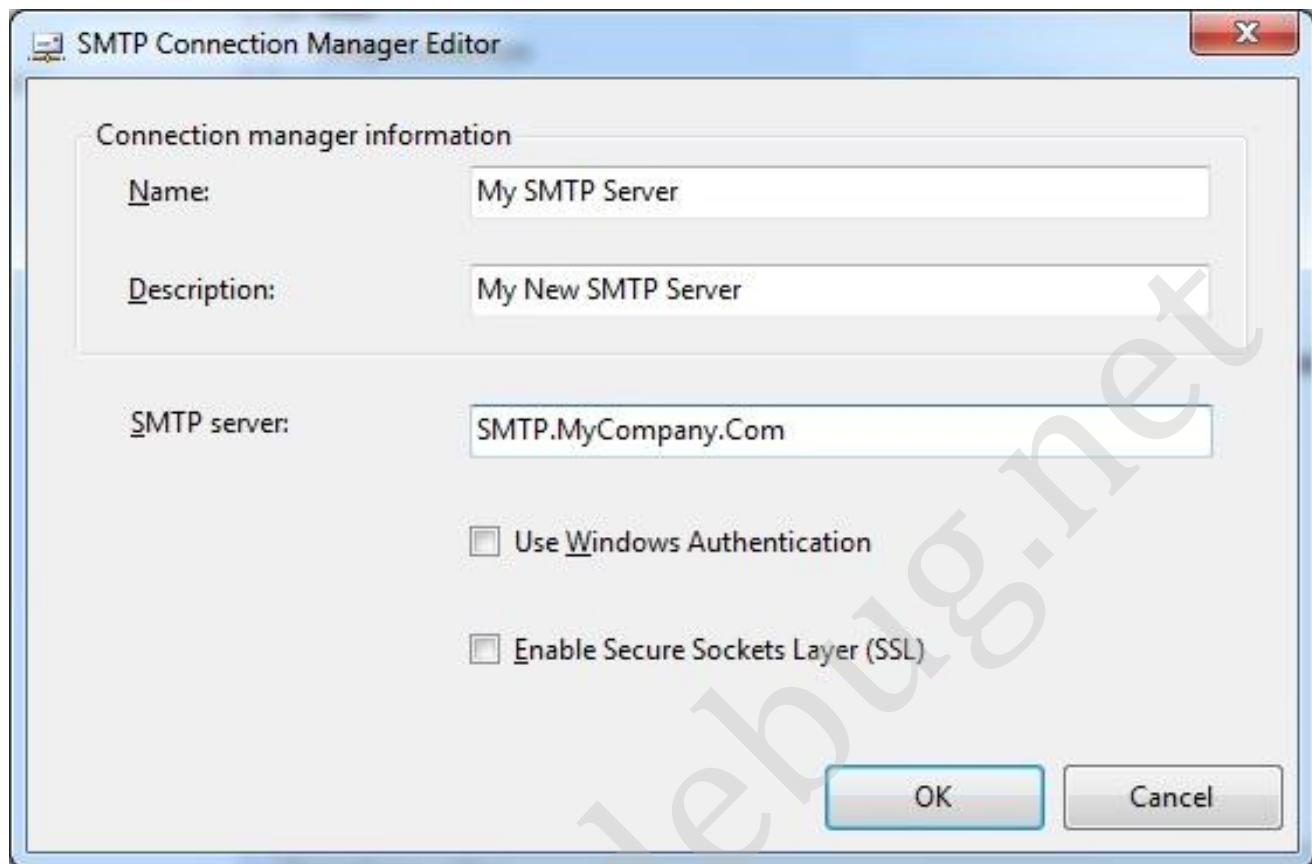
**General tab** – This section has options to give a name and description for the task similar to the one available common across all the tasks.

**Mail tab** – This is the very important section in configuration, here we have many options which we need to configure in order to make use of sending mails from the SSIS packages. Check the screen below for example.



We need to input our systems SMTP Server details and from, to and cc mail ids to whoever a mail has to be sent from this package.

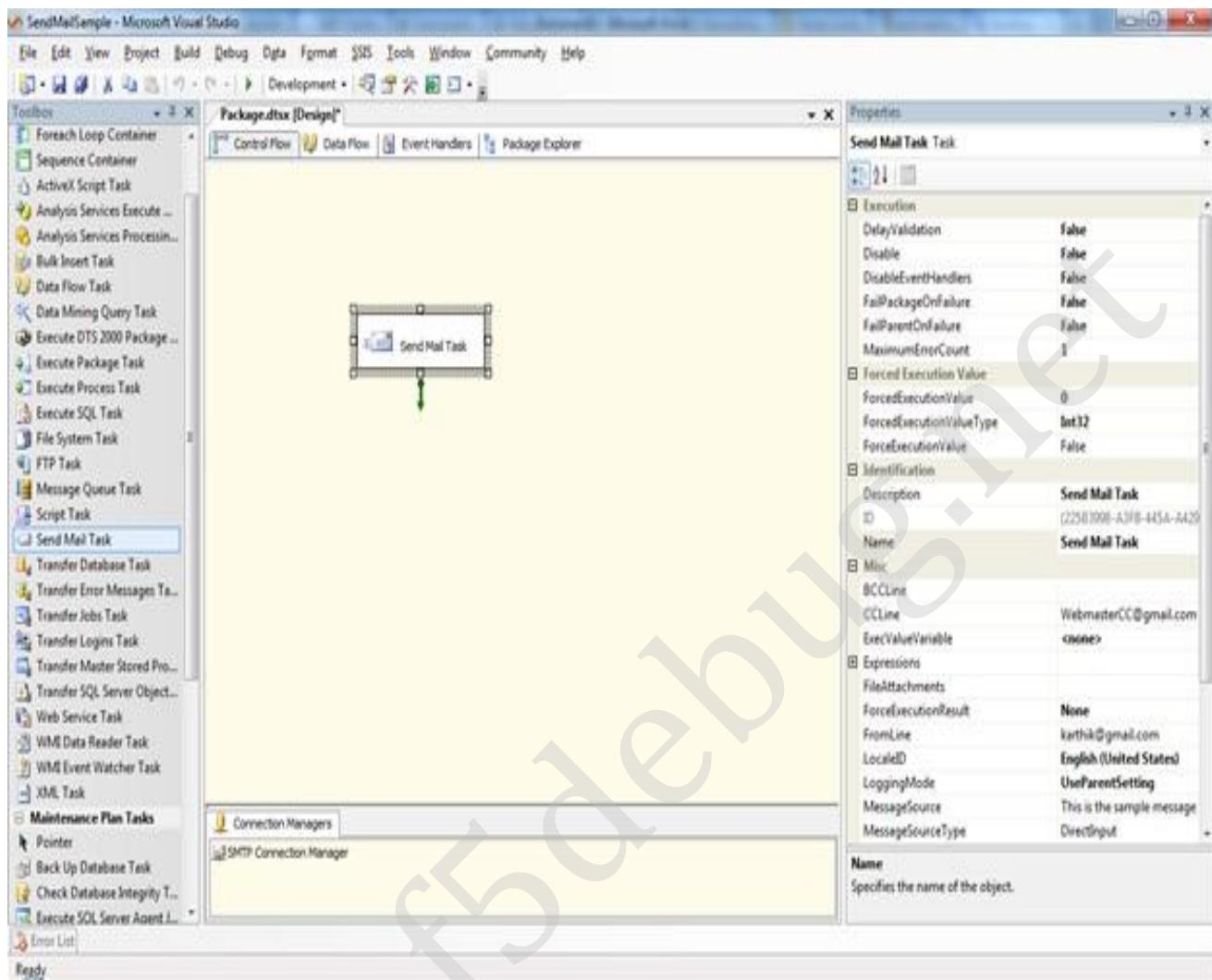
When you click on the SMTP new server configuration you will see a window as shown below in order to input the new server details.



**Expression tab** - This page is used to edit property expressions and to access the Property Expressions Editor and Property Expression Builder dialog boxes.

Once we have configured then we can run the application and see how the mail is sent using SSIS package as shown in the below figure. Running the package will send a mail to the recipients and execute the package successfully.

F



## Conclusion

So in this chapter we have seen on how to do a send mail task which is very much necessary for a package to execute automatically and send a result to the end users.

# Chapter 12

## FOR LOOP TASK IN SSIS PACKAGES

### Introduction

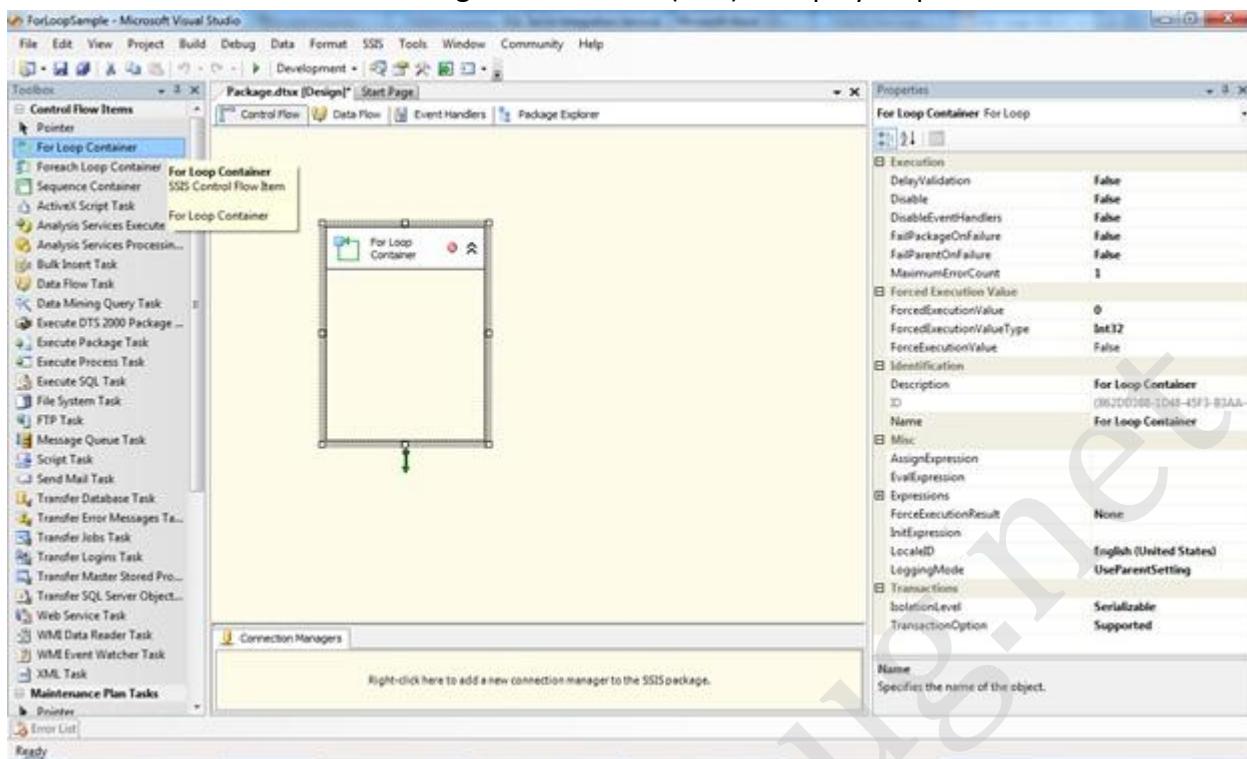
In this chapter we are going to see on how to use a For Loop container task in SSIS packaging. For loop task is the looping implementation of a task by which the task will evaluate an expression and loops through the process and until the evaluation goes to False. We will see through the steps on using this container and how to configure the properties associated with this task.

### Steps

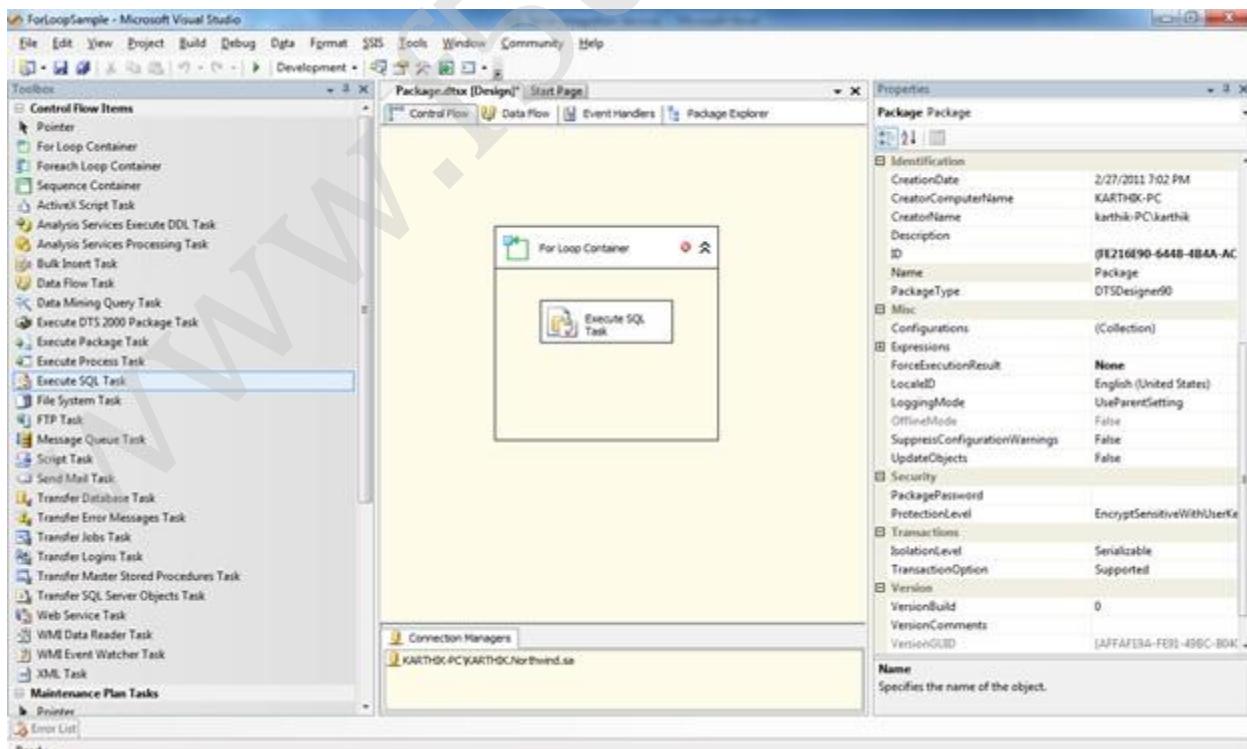
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use For Loop Container task options available with SSIS.

Once the project is created, just drag and drop the For Loop Container as shown in the screen below.

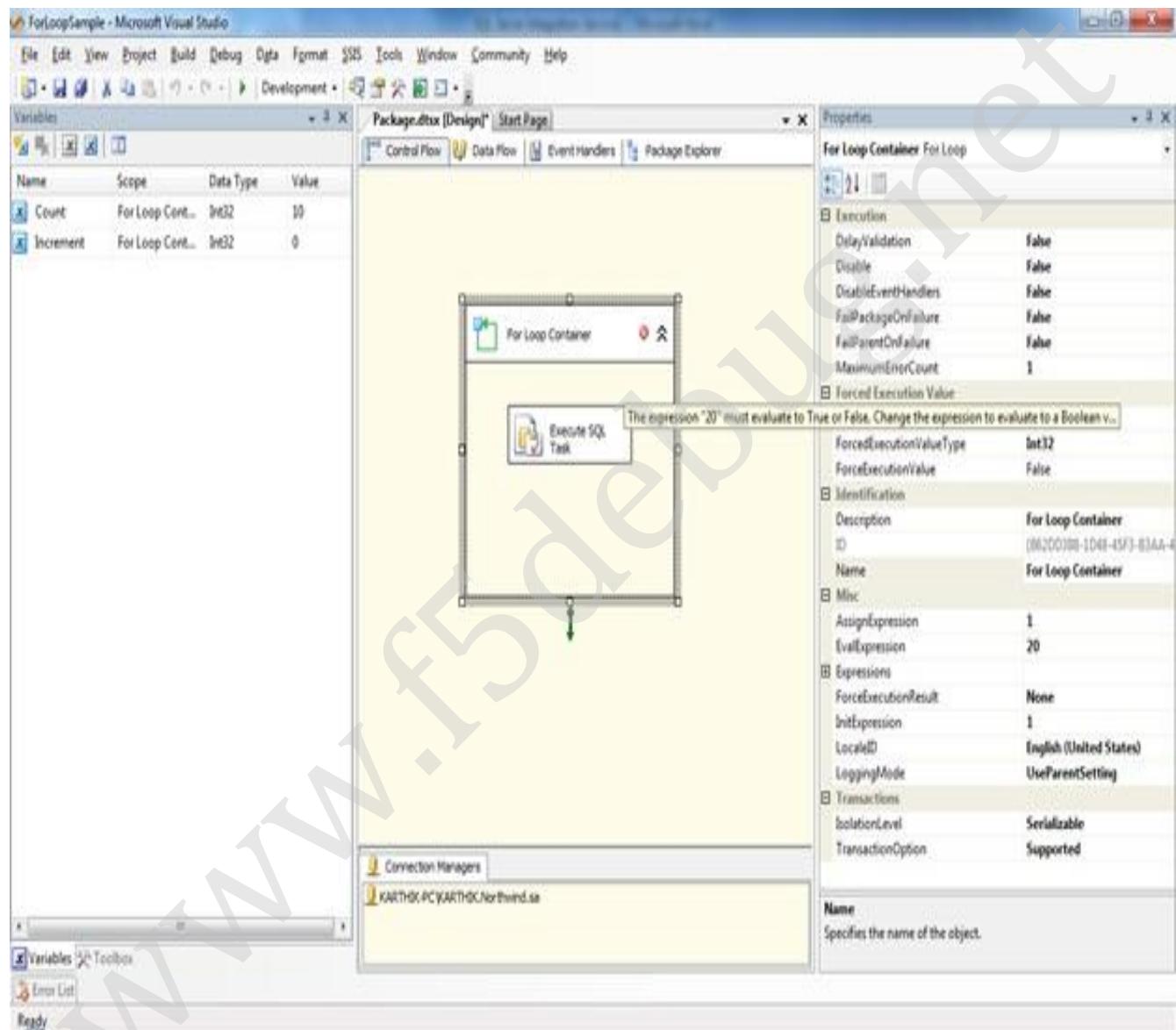
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



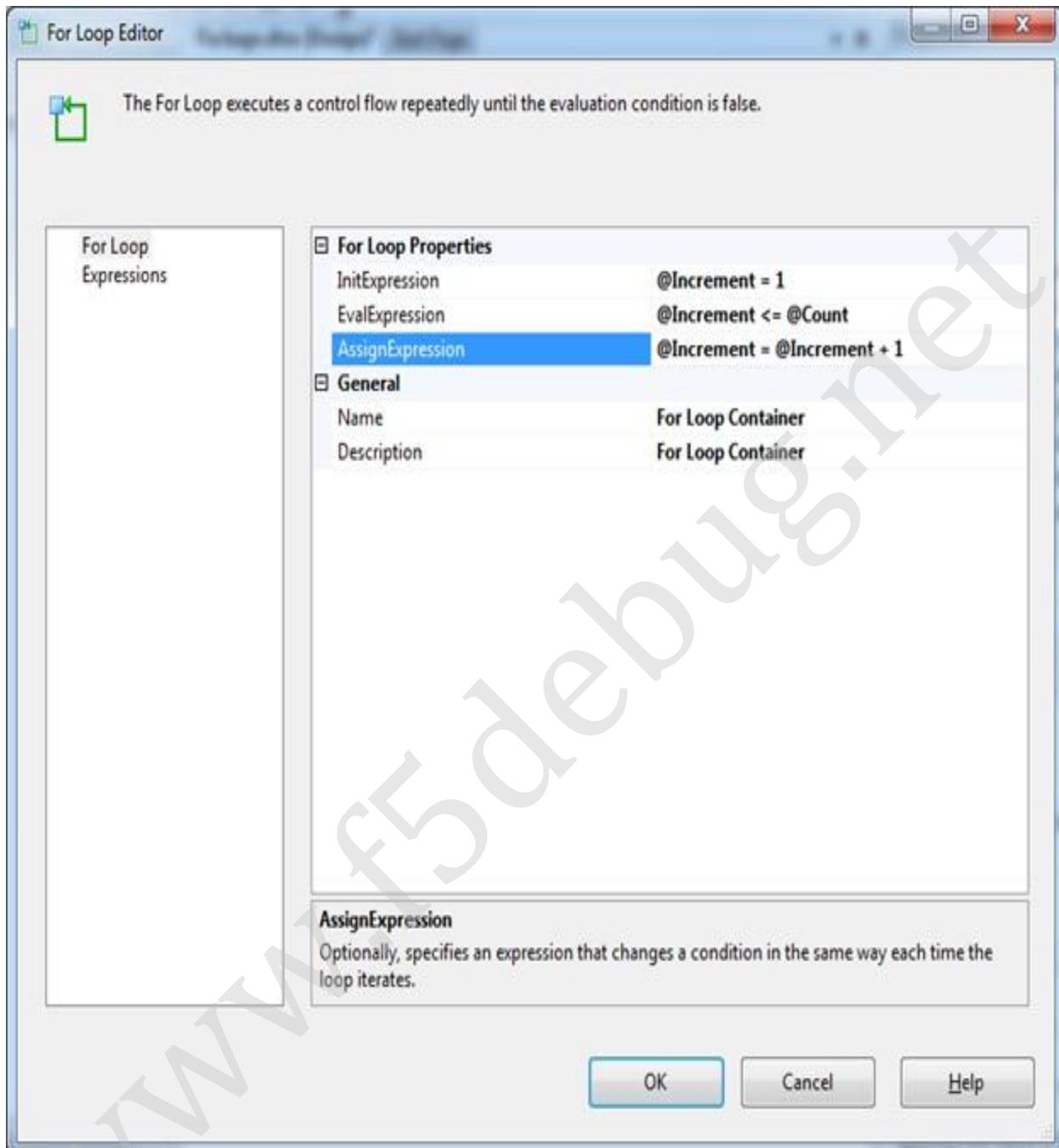
Here we have placed an Execute SQL task to insert some records to a table. We are going to make use of the Loop container and insert to the table when it loops through. See the screen below once we have inserted the Execute SQL task inside the for loop container.



Now we need to configure the For Loop Container, before proceeding we are going to set 2 variables which we are going to use in the loop process. To create a variable go to View → Other windows → Variable and assign values as shown in the screen below.



Once the variable is created, go to for loop container and double click on it will open the container configuration as shown in the screen below. Just follow the configuration as shown in the screen below.



Here we have given the count as 10 so it will loop through the process 10 times and insert the same record 10 times into the table. To proceed further create a table as per the script shown in the screen below. Once we execute the package we can see the data which is inserted.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

The screenshot shows the Microsoft SQL Server Management Studio interface. In the top-left pane, there is a query window with the following T-SQL code:

```
use northwind
go

Create table tForLoop
(AppName varchar(50),
AppType varchar(50))

insert into tForLoop values ('APP1', 'APP1')

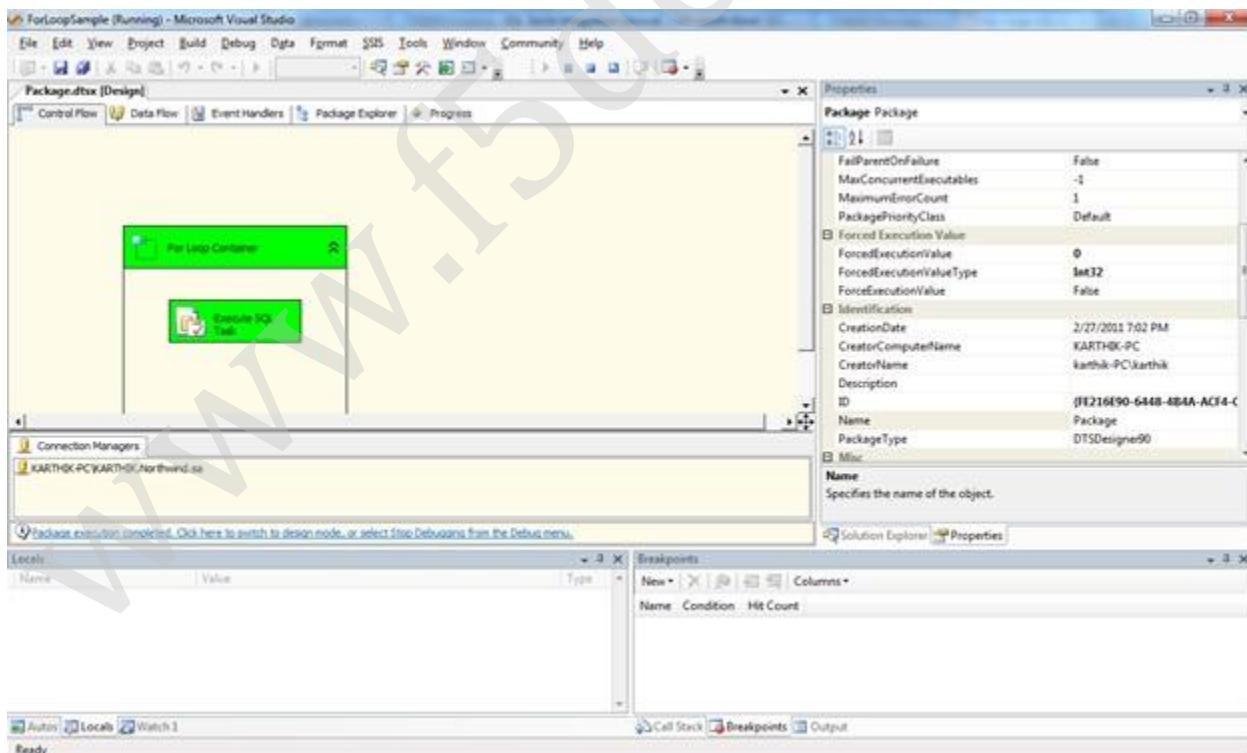
Select * from tForLoop
```

In the bottom-left pane, the 'Results' tab is selected, displaying the output of the query:

AppName	AppType
APP1	APP1

At the bottom of the screen, a status bar shows the message "Query executed successfully." and other details like the session ID and number of rows affected.

Once the package is executed the result designer view will be similar to the screen below.



To check if the Package is executed properly or not go to the query analyzer and we can see the result as shown in the screen below.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the top-left corner, it says "Microsoft SQL Server Management Studio". The menu bar includes File, Edit, View, Query, Project, Tools, Window, Community, Help. Below the menu is a toolbar with various icons. The title bar shows "KARTHIK-PC\KARTHIK - SQLQuery1.npl [Object Explorer Details]". The main area contains a query window with the following T-SQL code:

```
use northwind
go

Create table tForLoop
(AppName varchar(50),
AppType varchar(50))

insert into tForLoop values ('APP1', 'APP1')

Select * from tForLoop;
```

Below the code, there are two tabs: "Results" and "Messages". The "Results" tab displays the following data:

	AppName	AppType
1	APP1	APP1
2	APP2	APP2 Type
3	APP2	APP2 Type
4	APP2	APP2 Type
5	APP2	APP2 Type
6	APP2	APP2 Type
7	APP2	APP2 Type
8	APP2	APP2 Type
9	APP2	APP2 Type
10	APP2	APP2 Type
11	APP2	APP2 Type

At the bottom of the results pane, it says "Query executed successfully." and "11 rows". The status bar at the bottom right shows "KARTHIK-PC\KARTHIK (9.0 RTM) sa (52) Northwind 00:00:00 11 rows".

So we are good with the package execution process.

## Conclusion

In this chapter we have seen the step by step process on how to use the For Loop Container to execute the batch of data by looping.

# Chapter 13

## **BACKUP DATABASE TASK IN SSIS AND SEND MAIL**

### **Introduction**

In this chapter we are going to see on how to use a Backup Database task to create an execution plan in SSIS to take a database backup. This task will be very helpful for the DBA's to maintain the database automatically by creating the package and using it across the servers.

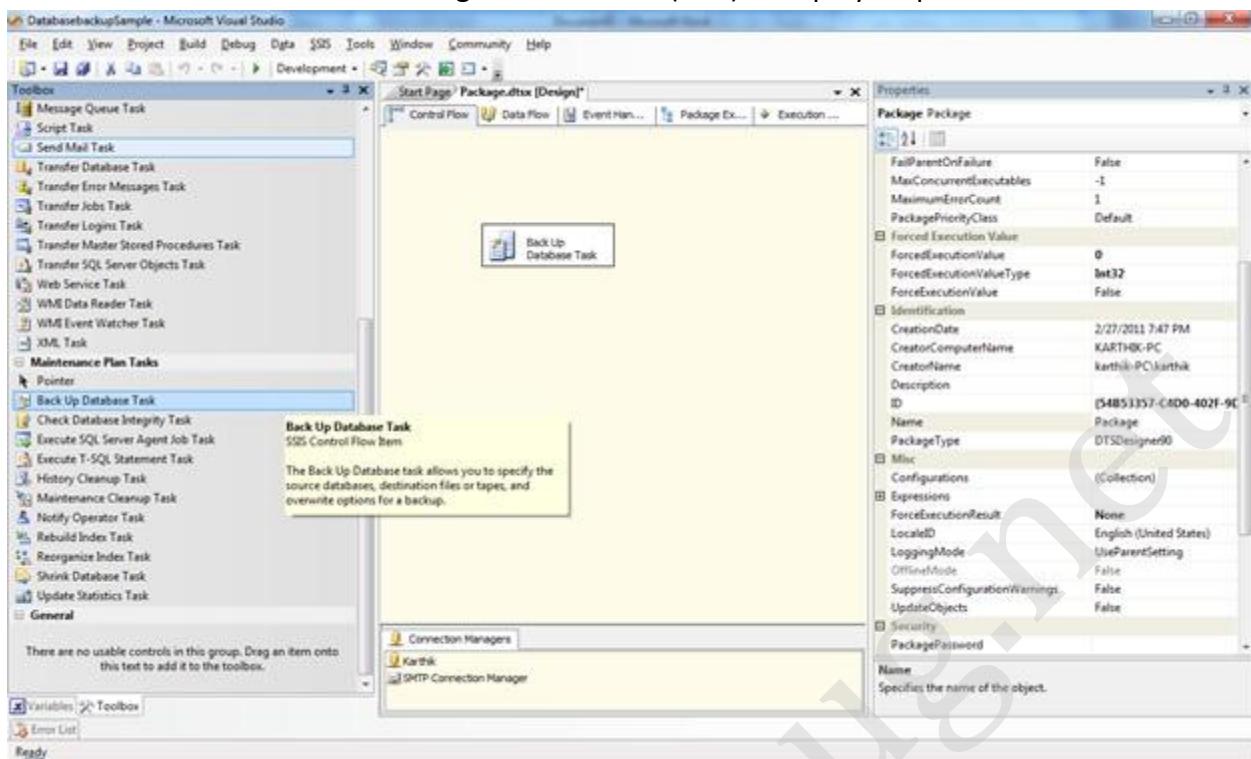
This task has many options to do a Full, Differential backups based on our requirement we can go ahead and use the respective option. Let's jump into the steps on how to create and use the backup database task.

### **Steps**

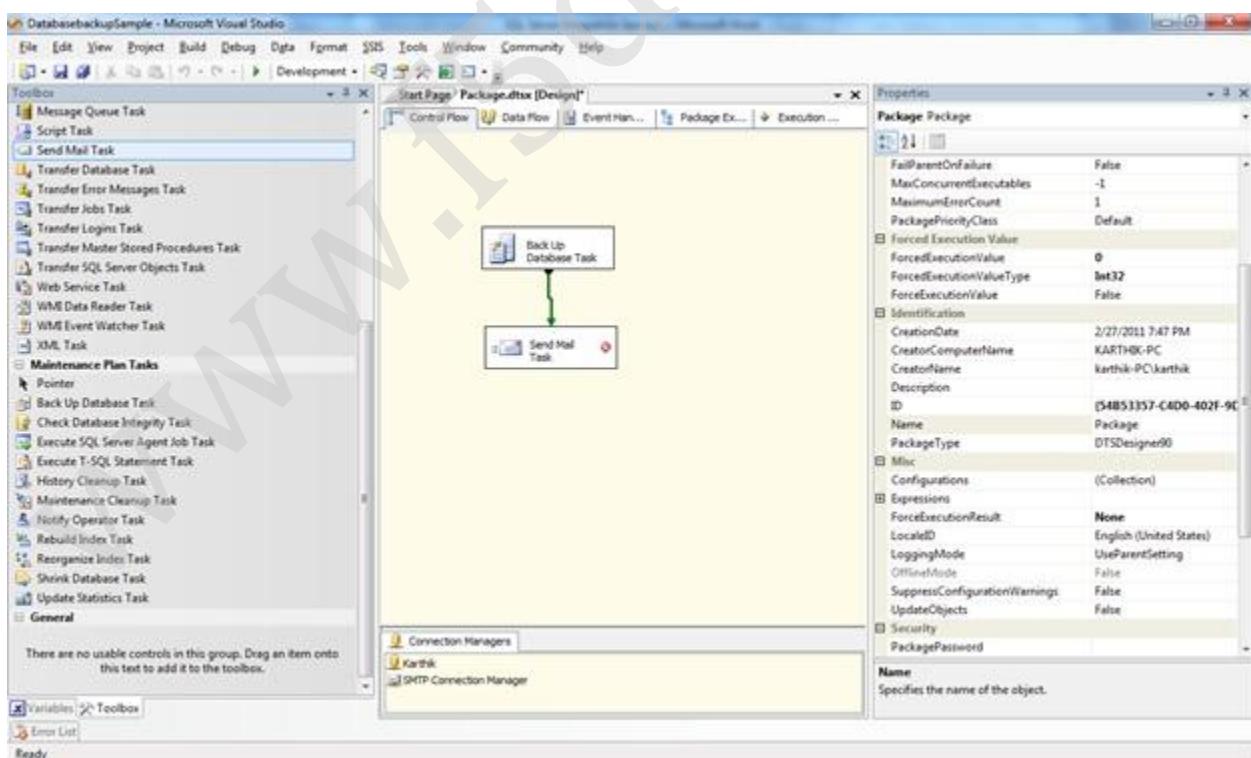
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use Backup Database task options available with SSIS.

Once we are into the project drag and drop the Backup Database Task from the tool box as shown in the screen below..

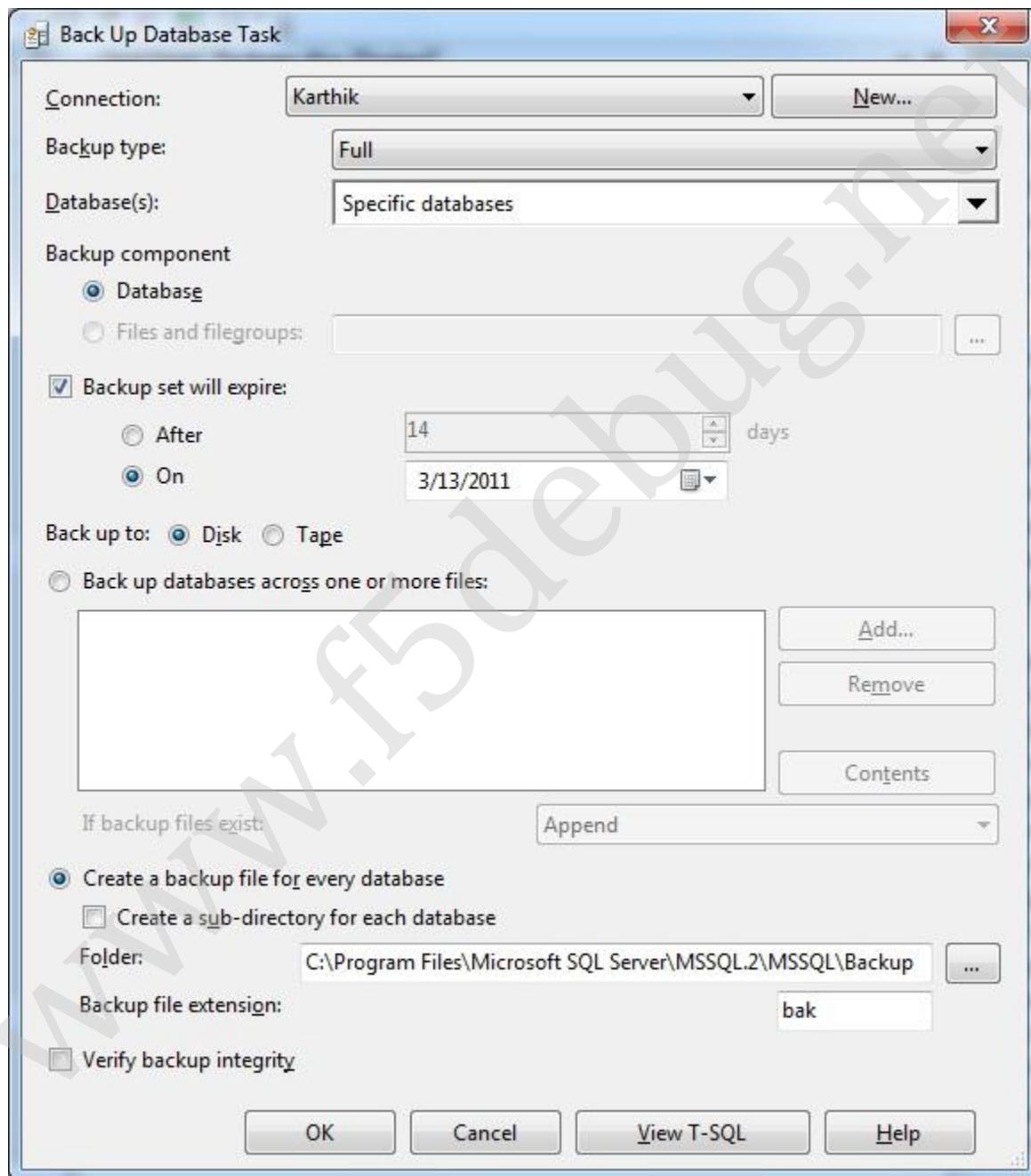
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



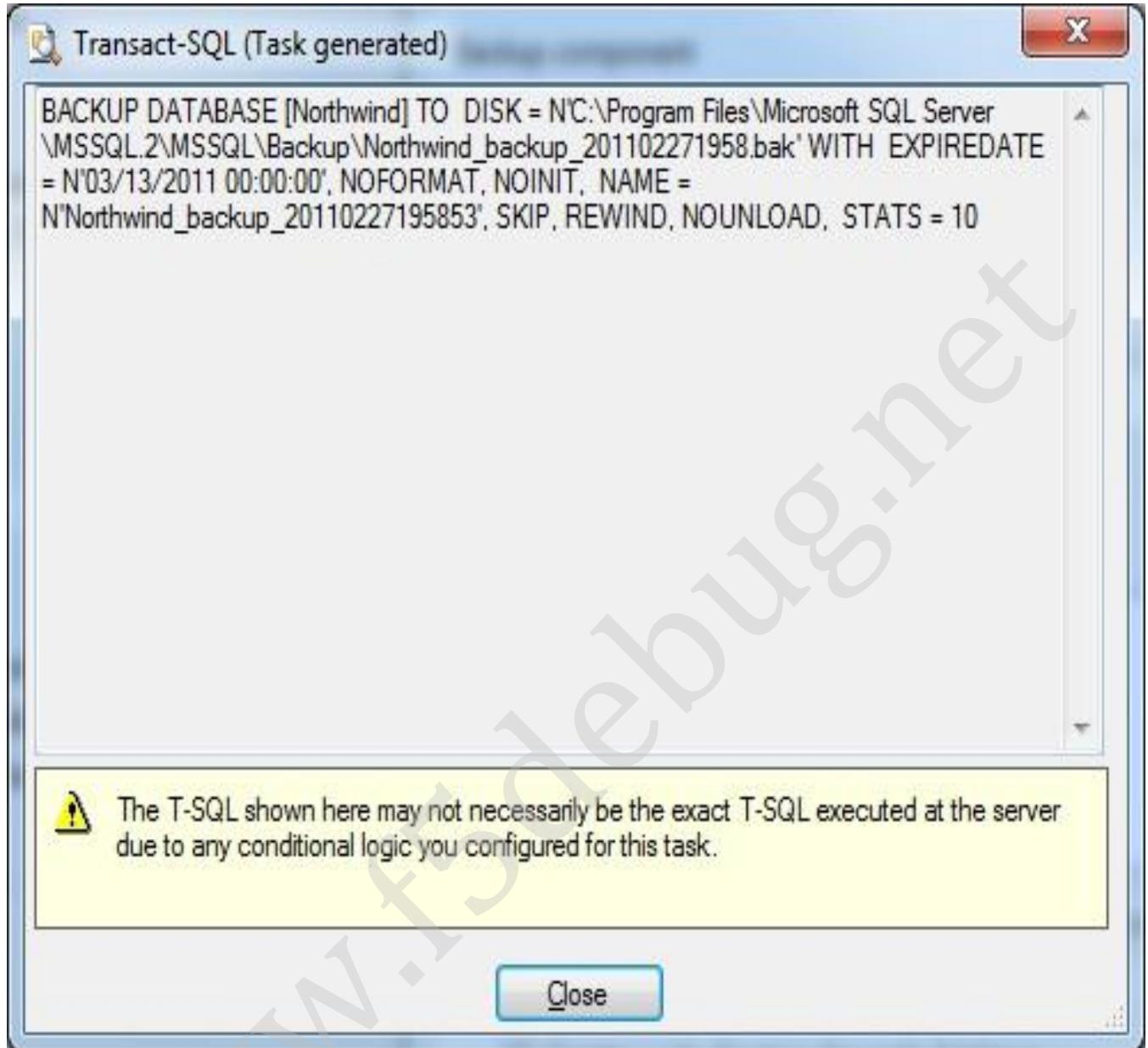
Now drag and drop the Send Mail task, so here our task is to do a backup and send a mail to the DBA that the backup has been done successfully. Once you drag and drop the Send mail task then your project will look like the screen below.



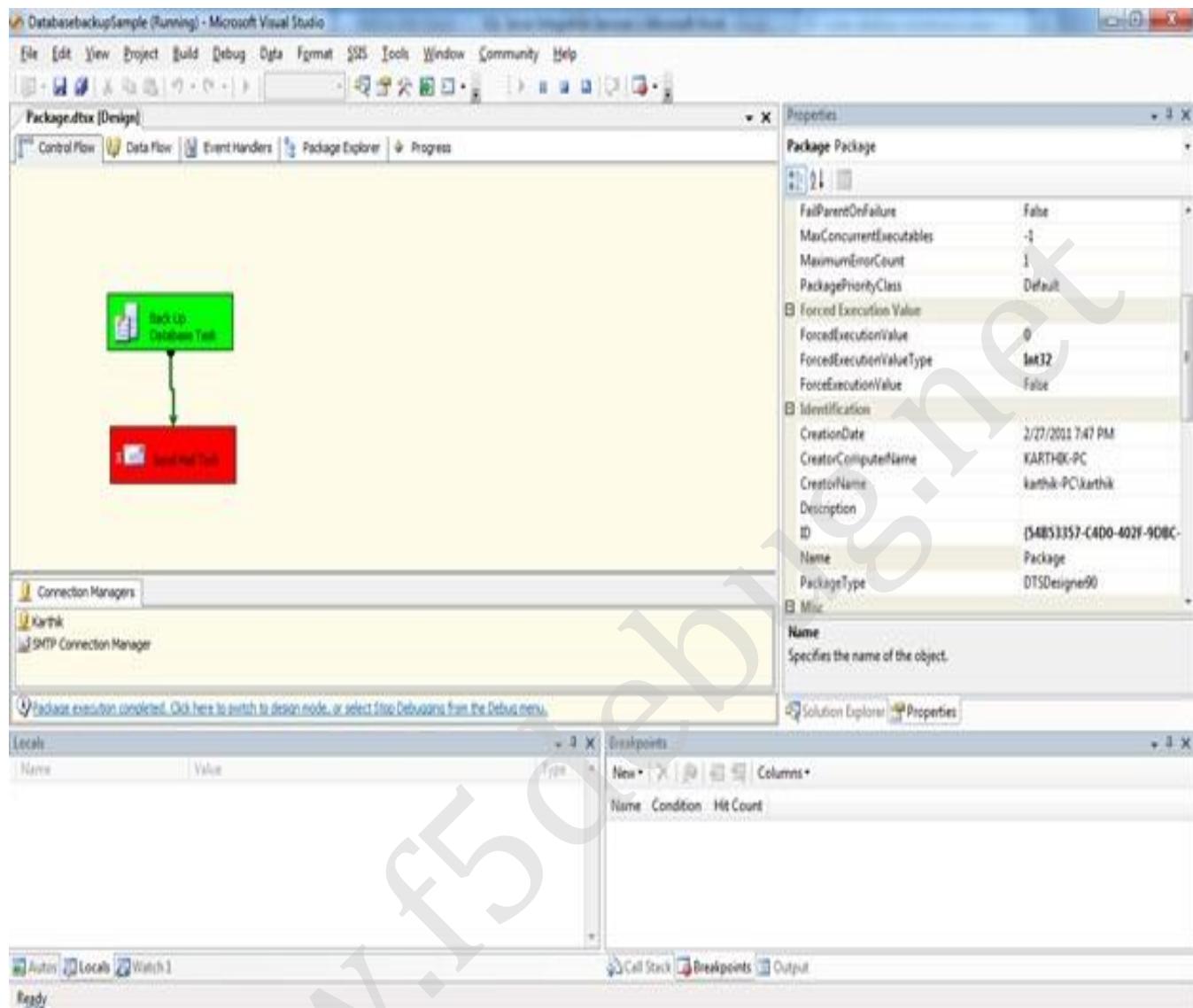
Now let's step into the configuration section of the Backup Database task and do the configuration for a full backup database. Just double click on the backup database task it will open a window as shown in the screen below. We need to do the configuration as shown below. It's self-explanatory on the options available.



Clicking on the View T-SQL button will open a popup as shown in the screen below



Now configure the Send mail task (Check my previous link on how to configure Send Mail task in SSIS). Now press F5 to execute the package to make a Full database backup. Once everything is ready and executed your screen will look like below.



Send Mail task shows red color which means there is an error in the task. It's a known error; since it's executed in my local system SMTP is not configured.

## Conclusion

In this chapter we have seen how to do a backup of database using SSIS package and send a mail to the DBA on success of executing the package.

# Chapter 14

## FOLDER STRUCTURE IN SSIS

### Introduction

In this Chapter we are going to see on the folder structure used in deploying the SSIS package and the usage of those folders.

### SSIS Folder Structure

Whenever we create a SSIS package and we completed with our development task and finally to deploy the package we need to follow some folder structure which normal we used to follow. Let's go in depth and see the different folders used and the purpose of each one.

Normally all the folder should reside under a single folder which can be of any custom name. Under this root folder we can have number of sub folders as below.

**Packages:** All the packages can be placed in this folder. This will be the main folder.

**Project:** This is the sub folder of Packages, which contains all the SSIS package files and Configuration files for each project deployed.

**Work Files:** This is a temporary folder, the file which are used to import or export or any log files can be placed in this folder.

**Project:** This is the subfolder of Workfiles folder which is used for the same purpose as above and also they can have any logs, data received for import, or data exported.

**Archive:** This is the subfolder of Project folder, after a file has been imported that file will be dated and placed in this folder.

**Logs:** This is the subfolder of Project folder, Log files generated for SSIS package and SQL Agent jobs are placed here.

**Response:** This is the subfolder of Project folder, Rejected process of data imported file will go to this folder.

**Temporary:** This is the subfolder of Project folder, Raw files generated during the package execution will be placed in this folder.

## Conclusion

In this Chapter we have seen on the purpose of the different folders used in the deployment of SSIS package and how to use them effectively.

# Chapter 15

## CONDITIONAL SPLIT TASK IN SSIS

### Introduction

In this Chapter we are going to see on how to use a Conditional Split task based on the decision. Conditional tasks transformation will be used to split the data based on some condition and save the result set in different destinations.

This task will be very useful at cases like to insert some passed test cases data to Database and the failed test cases data to the text file or sending a mail to the administrator.

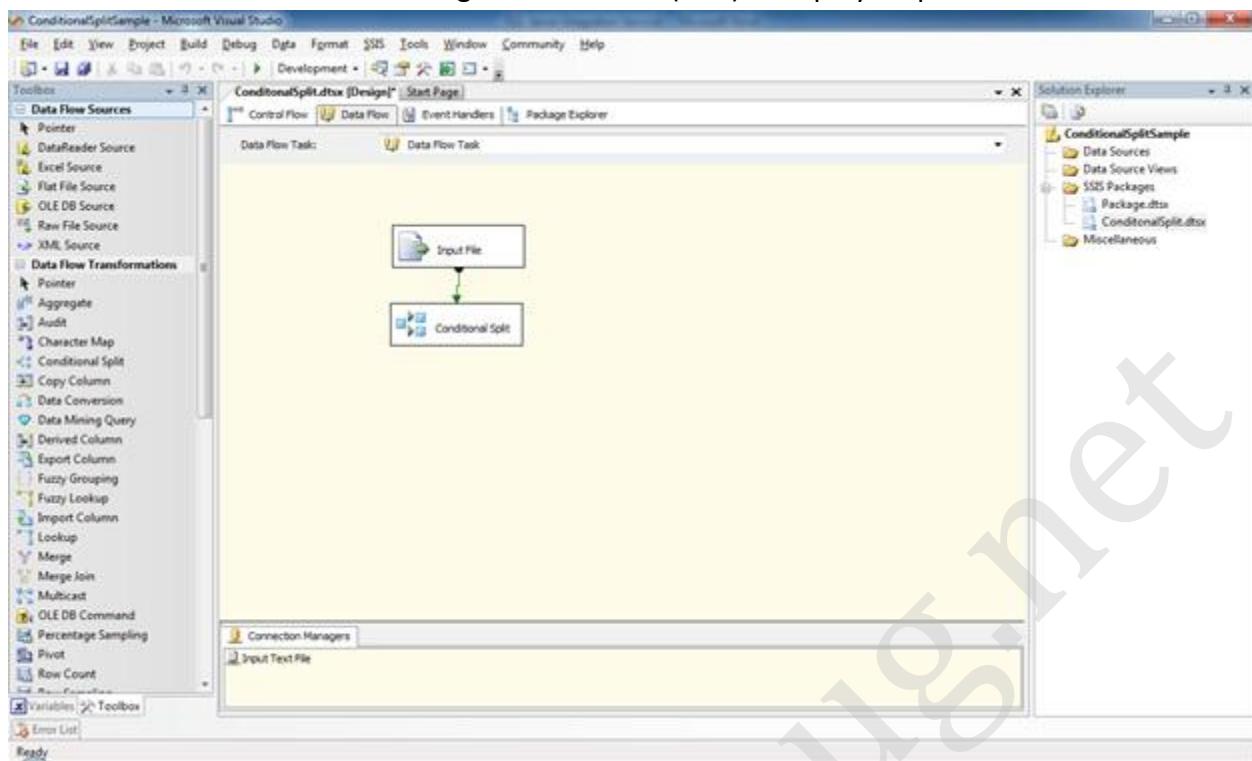
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use Conditional Split transformation task options available with SSIS.

Once the project is opened, now we can proceed to the steps on how to create a conditional split and see how to configure the task.

Drag and drop a Data Flow Task and double click on the same will open the Data Flow tab as shown in the below figure add a Flat File source which is going to be an input for the package. We need to configure the Flat File source (Refer to previous chapters on how to configure the Flat File Source) for fetching the input data's from the file.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

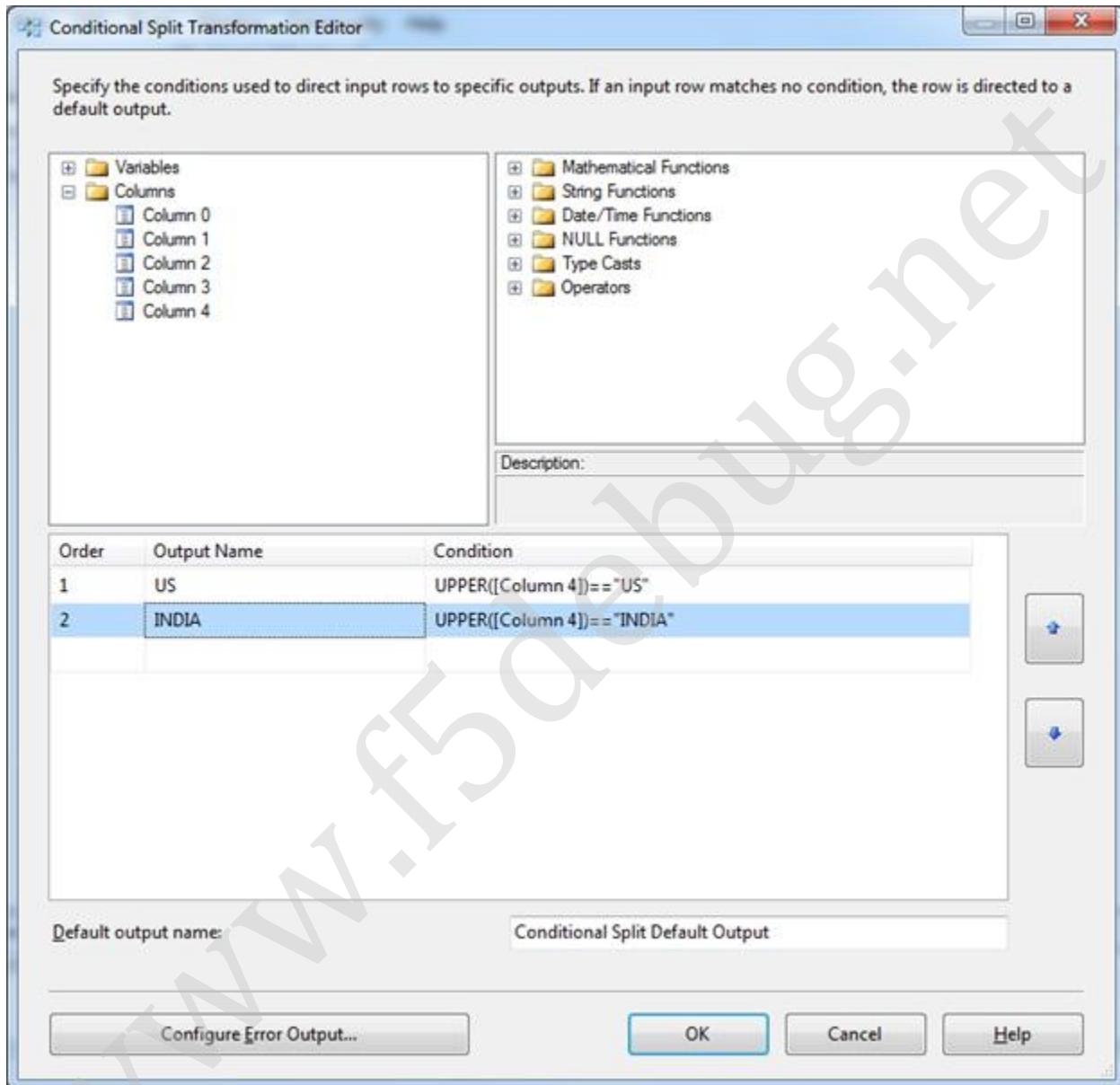


Input file for the Flat File source will be like the screen below.

The screenshot shows a Windows Notepad window titled 'InputFile - Notepad'. The window contains the following text:

```
1,Application1,NEW,IT,India
2,Application2,NEW,Finance,India
3,Application3,OLD,HR,India
4,Application4,OLD,Security,US
5,Application5,NEW,Development,US
```

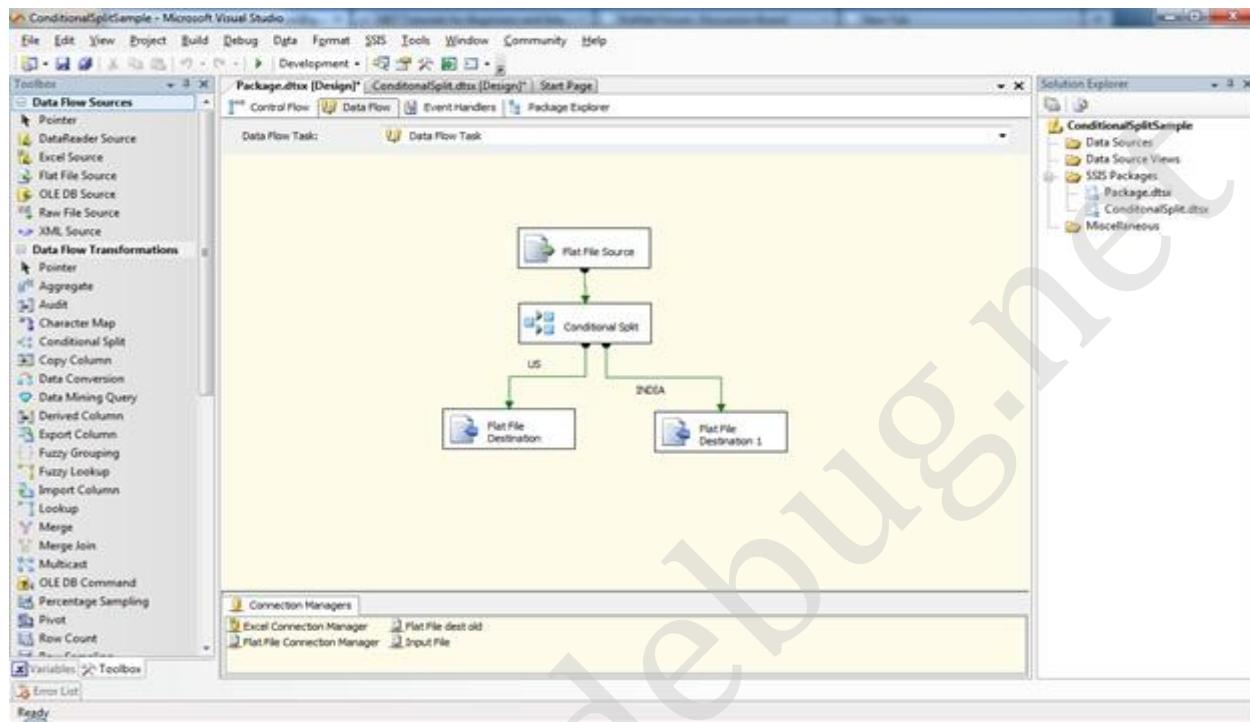
Here we are going to save the application name into different destination files based on the Country (US or India). To achieve this task I just dragged and dropped the Conditional Split task as shown in the above image. Now in order to configure it just double click on the Conditional Split task.



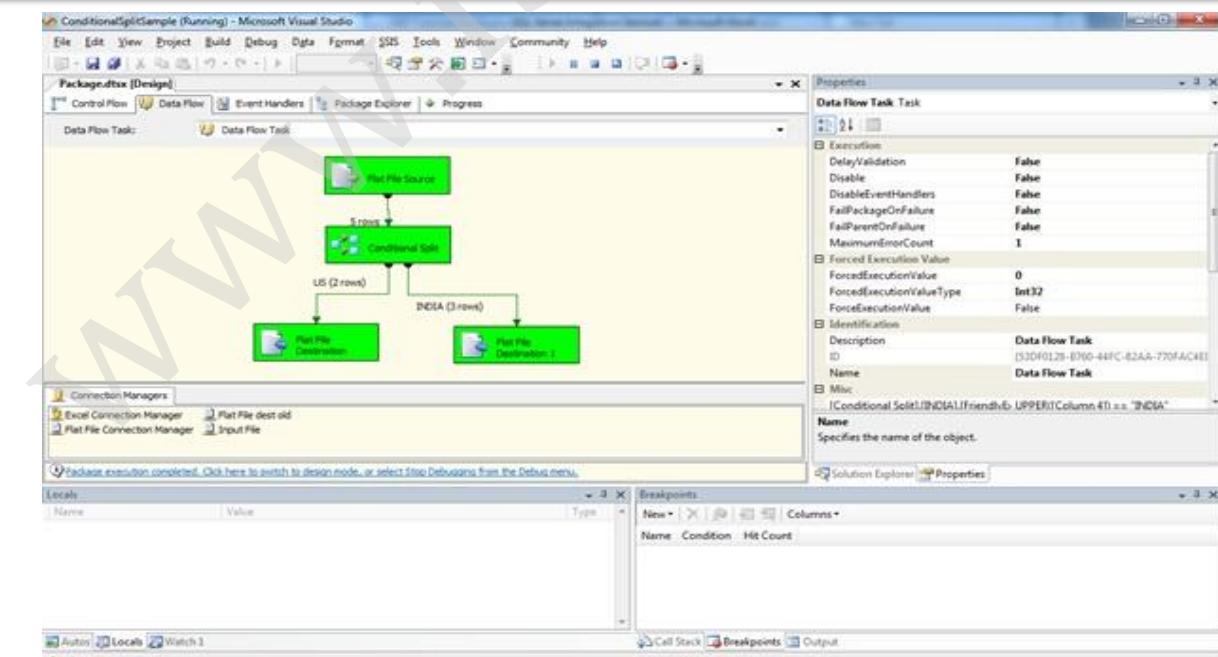
To make this configuration as shown in the above image just drag and drop the Column which u are going to make it as a condition here in this example we need to drag and drop Column 4 to the bottom pane and give the condition(both) as shown in the screen above.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

Once above configuration is done click on the OK button. Now we need to make the destination configure. Here we need to save the destination data to a different Flat File as FILEUS and FILEINDIA. So drag and drop 2 flat file destinations and configure as shown in the screen below.



Once configured now click on the F5 button to build and execute the package. We will see the screen below once the execution is completed.



As a result we can see 2 new files created for US and INDIA countries as shown in the screen below.



## Conclusion

In this chapter we have seen using the Conditional Split task on how to configure and use the same in order to achieve multiple destination output based on the condition.

# Chapter 16

## SEQUENTIAL CONTAINER TASK IN SSIS

### Introduction

In this chapter we are going to see on how to use a Sequential Task container. This container is used in areas where the process needs to follow certain tasks sequentially. Sequential Task groups the tasks into multiple control flows and executes the process sequentially.

We can use this task widely based on our requirement like, disabling a sequence when it should not process, use it when managing multiple tasks at a same time in one location.

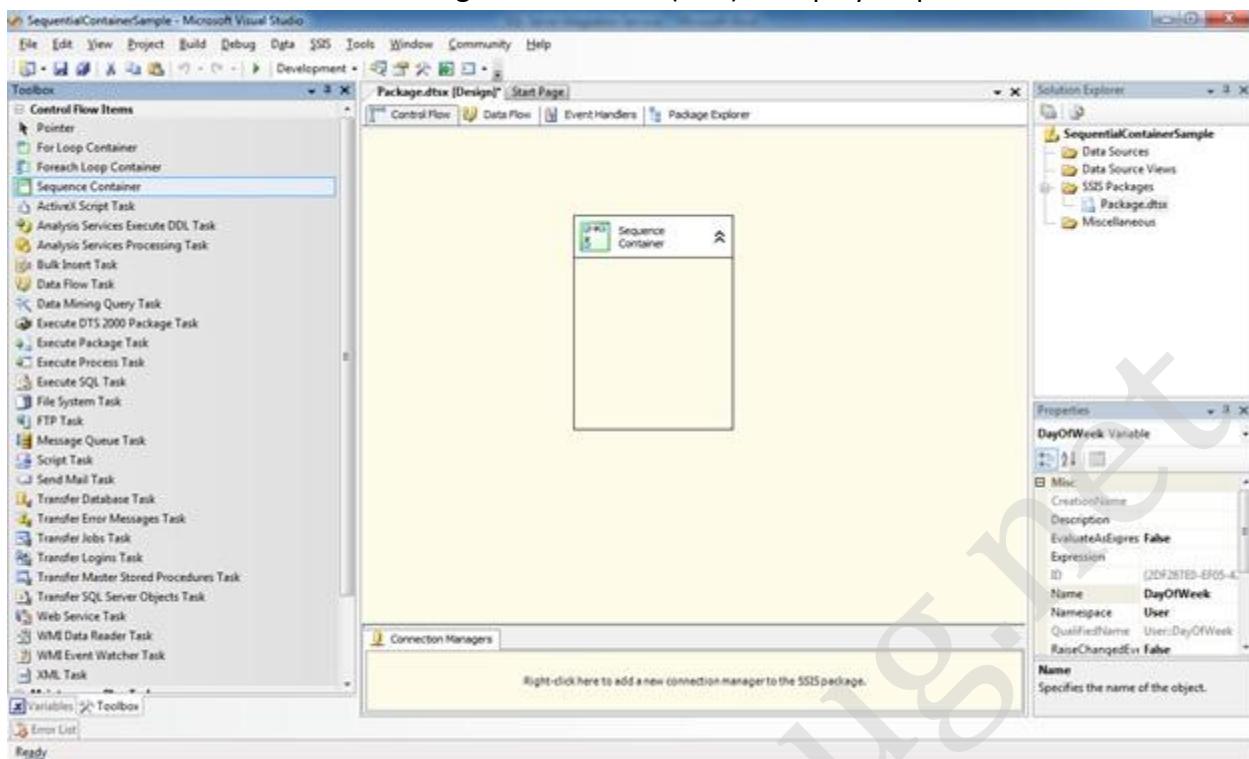
We can easily disable a set of tasks under sequential task by disabling the sequential task alone which is straight forward. If there are many tasks in our package we can group them based on their sequence and used to collapse and expand them and also to enable and disable them easily.

### Steps

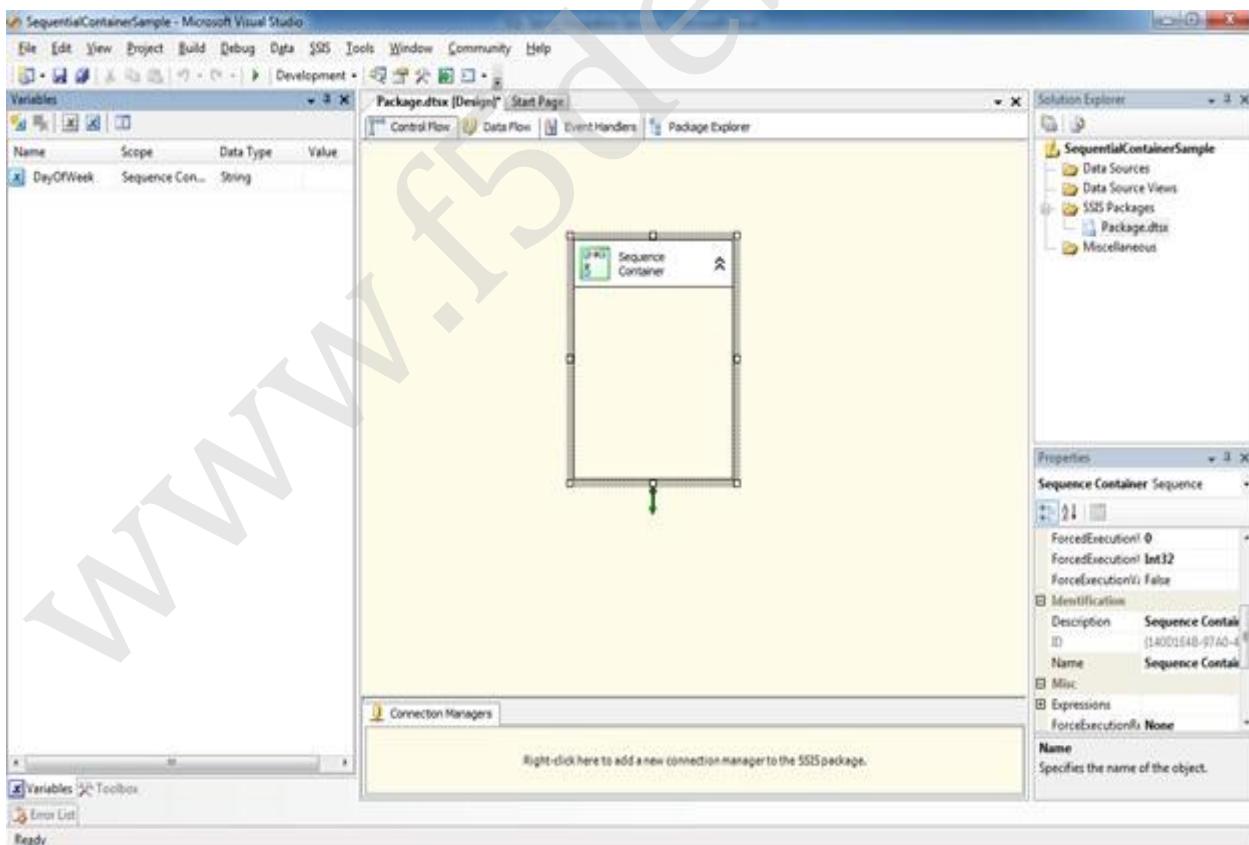
Follow steps 1 to 3 of the Chapter 1 to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use Sequential Container Task in SSIS packaging.

Once we are into the BIDS, now we will start with drag and dropping a sequential container task on to the designer view as shown in the screen below

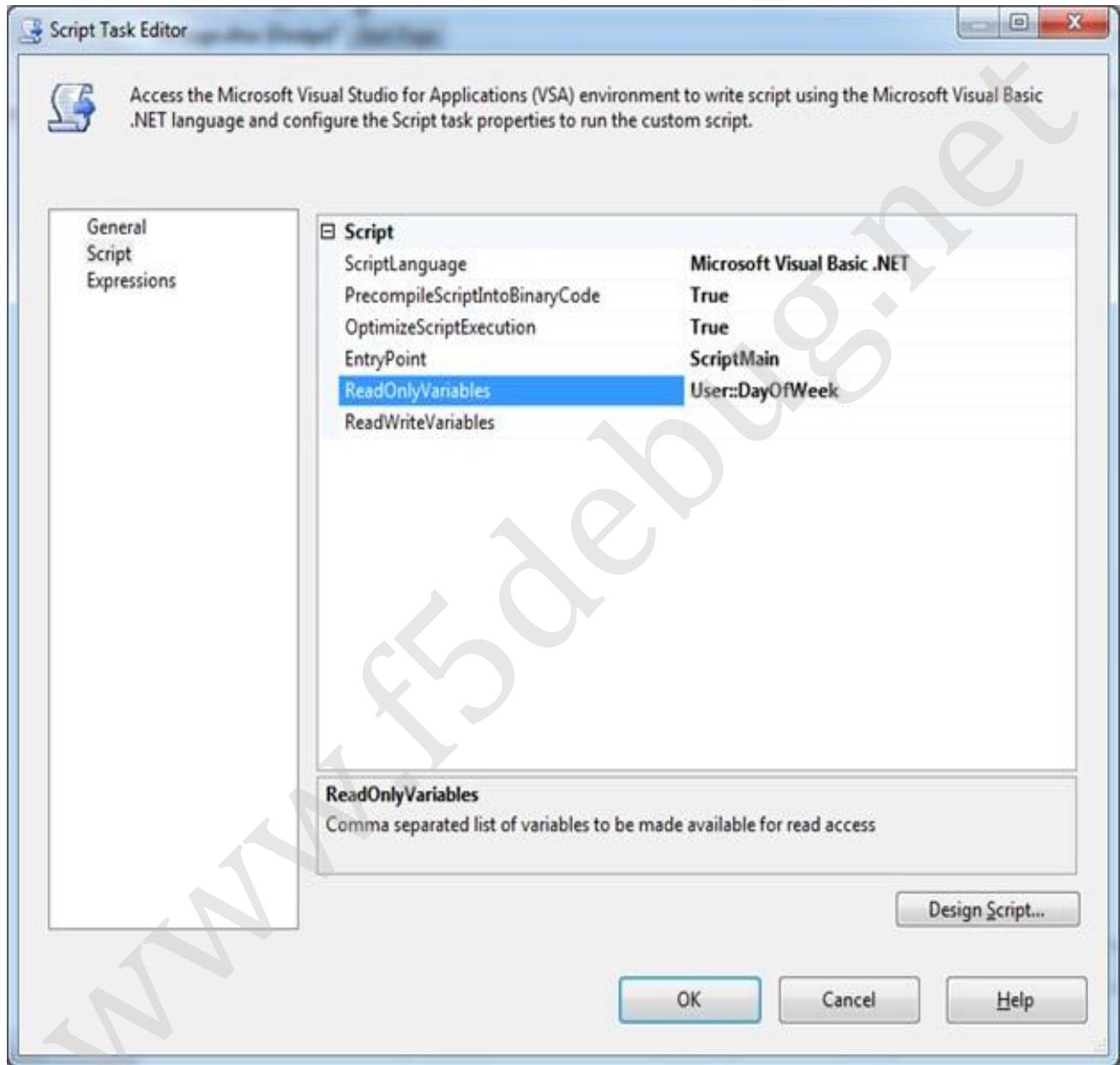
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now add a variable (Local to the package) as shown in the screen below.



Now we need to create a scrip task by drag and dropping it and double click on it will open the screen below. Here we need to add the variable to the Readonlyvariable as shown below.



Now click on the Design Script button, which will open the below window where we need to write script as shown below in the main method.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

The screenshot shows the Microsoft Visual Studio interface for a SQL Server Integration Services (SSIS) project named "ScriptMain". The main window displays the "ScriptMain.cs" file under the "ScriptTask\_4eabb0a5eb2439c8B" node in the Project Explorer. The code is written in Microsoft Visual Basic and defines a class named "ScriptMain" which implements the "Microsoft.SqlServer.IntegrationServices.ScriptTask" interface. The "Main" method retrieves the current day of the week from the system and sets it to a variable named "User::DayOfWeek". The "Dts.TaskResult" is then set to "Success". The code includes comments explaining the execution context and how to use the object model.

```
Microsoft.SqlServer.IntegrationServices.ScriptTask
    Write scripts using Microsoft Visual Basic
    The ScriptMain class is the entry point of the Script Task.

Imports System
Imports System.Data
Imports System.Math
Imports Microsoft.SqlServer.Dts.Runtime

Public Class ScriptMain

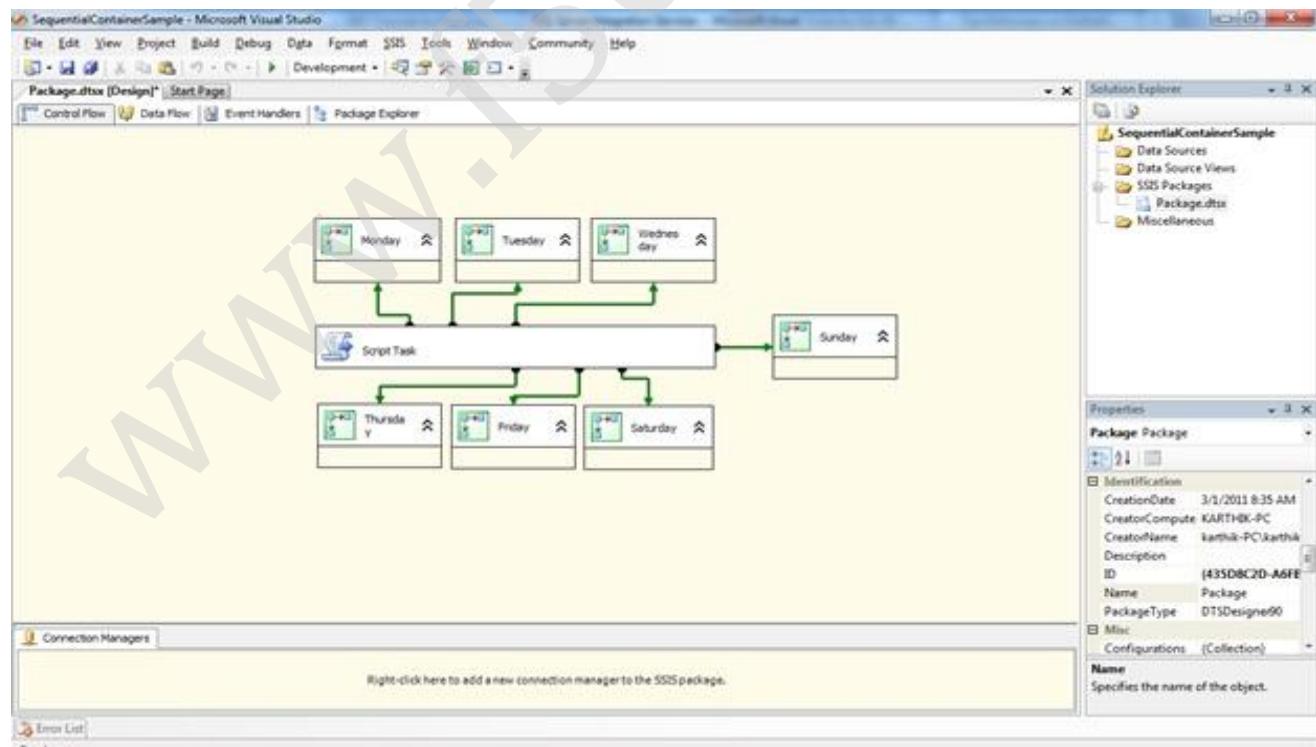
    ' The execution engine calls this method when the task executes.
    ' To access the object model, use the Dts object. Connections, variables, events,
    ' and logging features are available as static members of the Dts class.
    ' Before returning from this method, set the value of Dts.TaskResult to indicate success or failure.

    ' To open Code and Text Editor Help, press F1.
    ' To open Object Browser, press Ctrl+Alt+J.

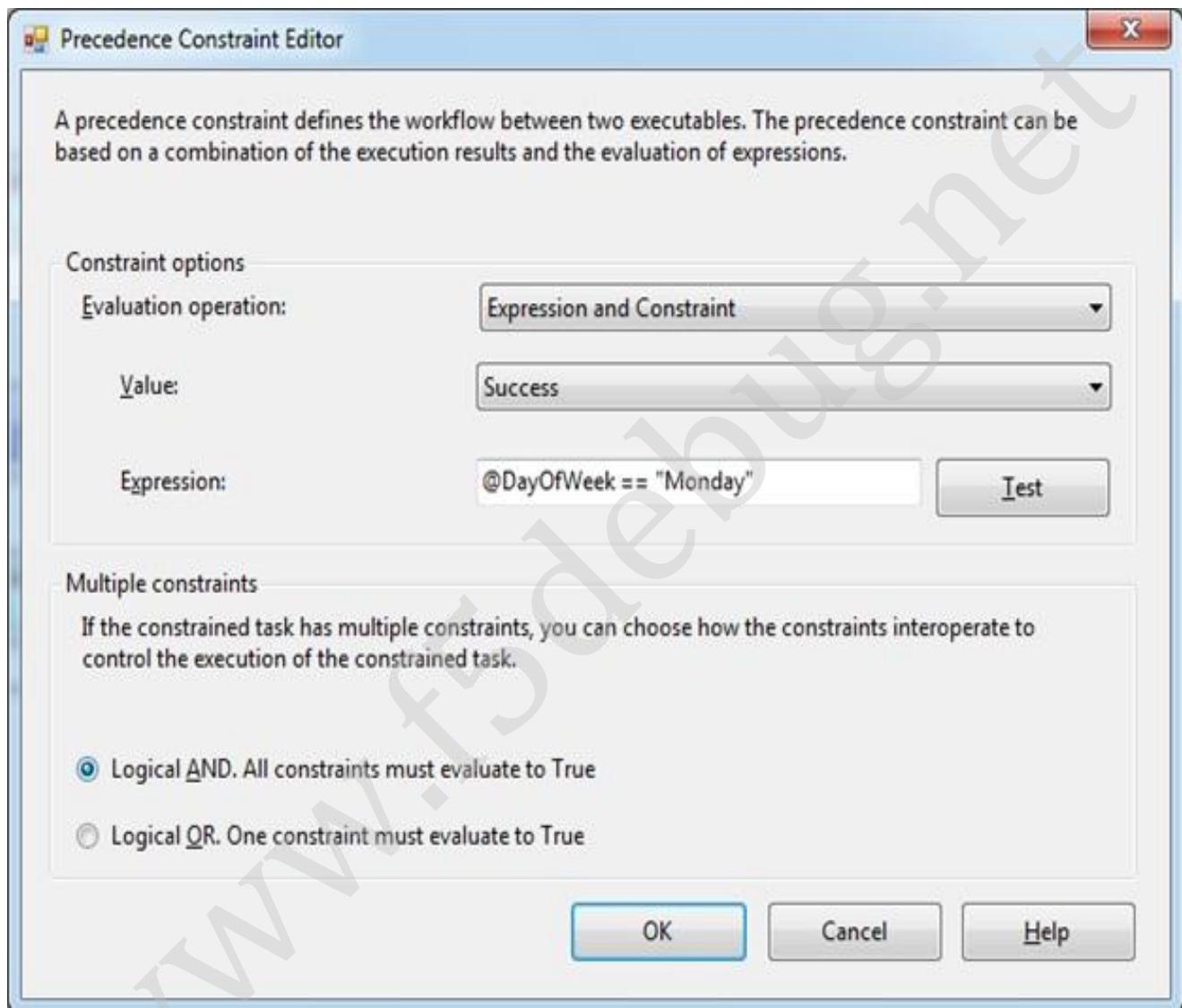
    Public Sub Main()
        Dim dayofweek As String = String.Format("(0:ddd", DateTime.Now)
        Dts.Variables("User::DayOfWeek").Value = dayofweek
        Dts.TaskResult = Dts.Results.Success
    End Sub

End Class
```

Now add a sequential container flow for each day of week as shown in the screen below and connect to the script task.

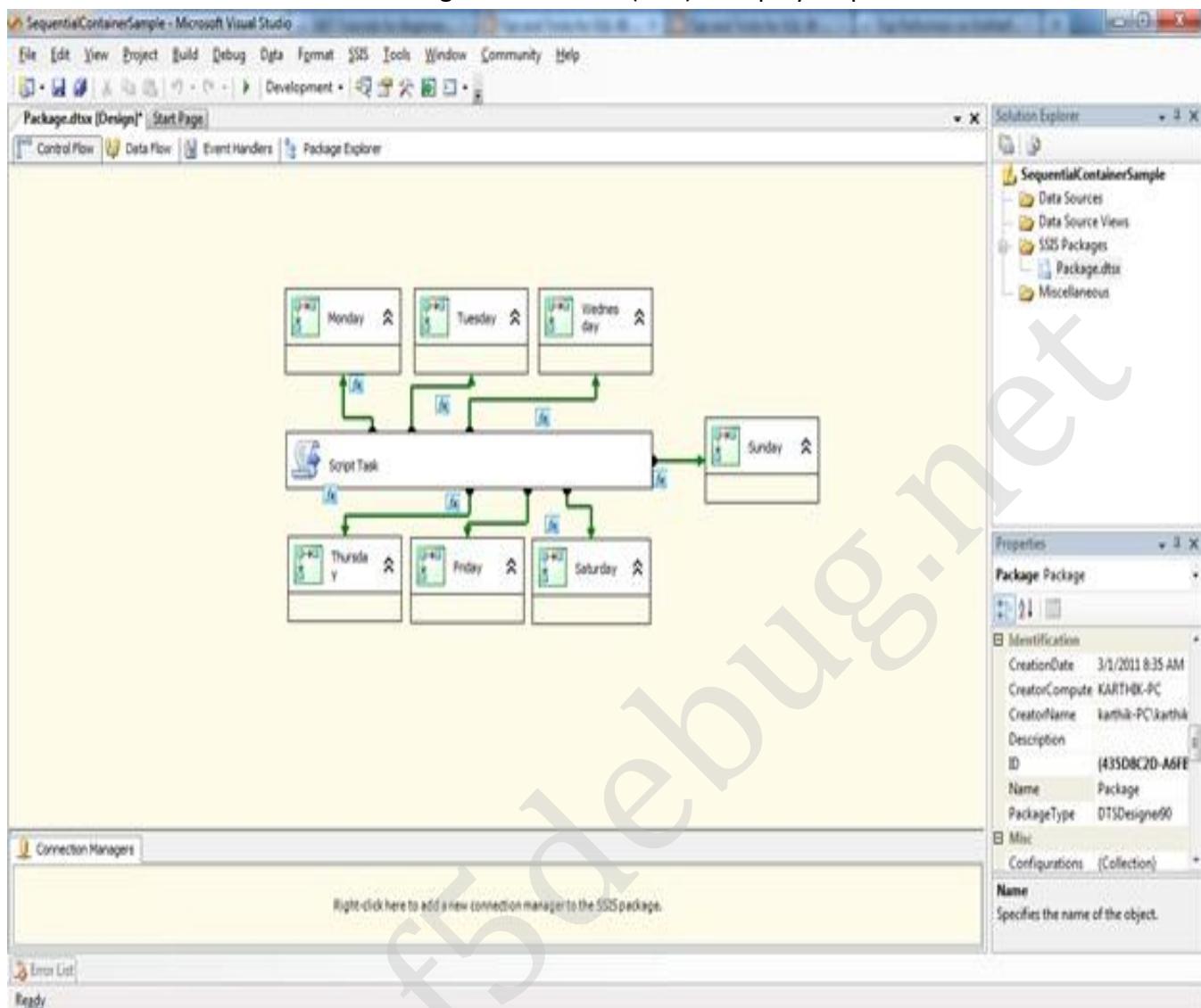


Now click on the green arrow of each task and do the same as shown in the screen below shot for different days.



Once the respective expressions are assigned to each and every task we can see the screen looks like the below screen.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now right click and execute the package Or Press F5 Function key directly to execute the package.

## Conclusion

In this chapter we have seen on how to use a Sequential container task and how to configure and use the same appropriately.

# Chapter 17

## CREATE / DELETE A TABLE IN SQL USING SSIS

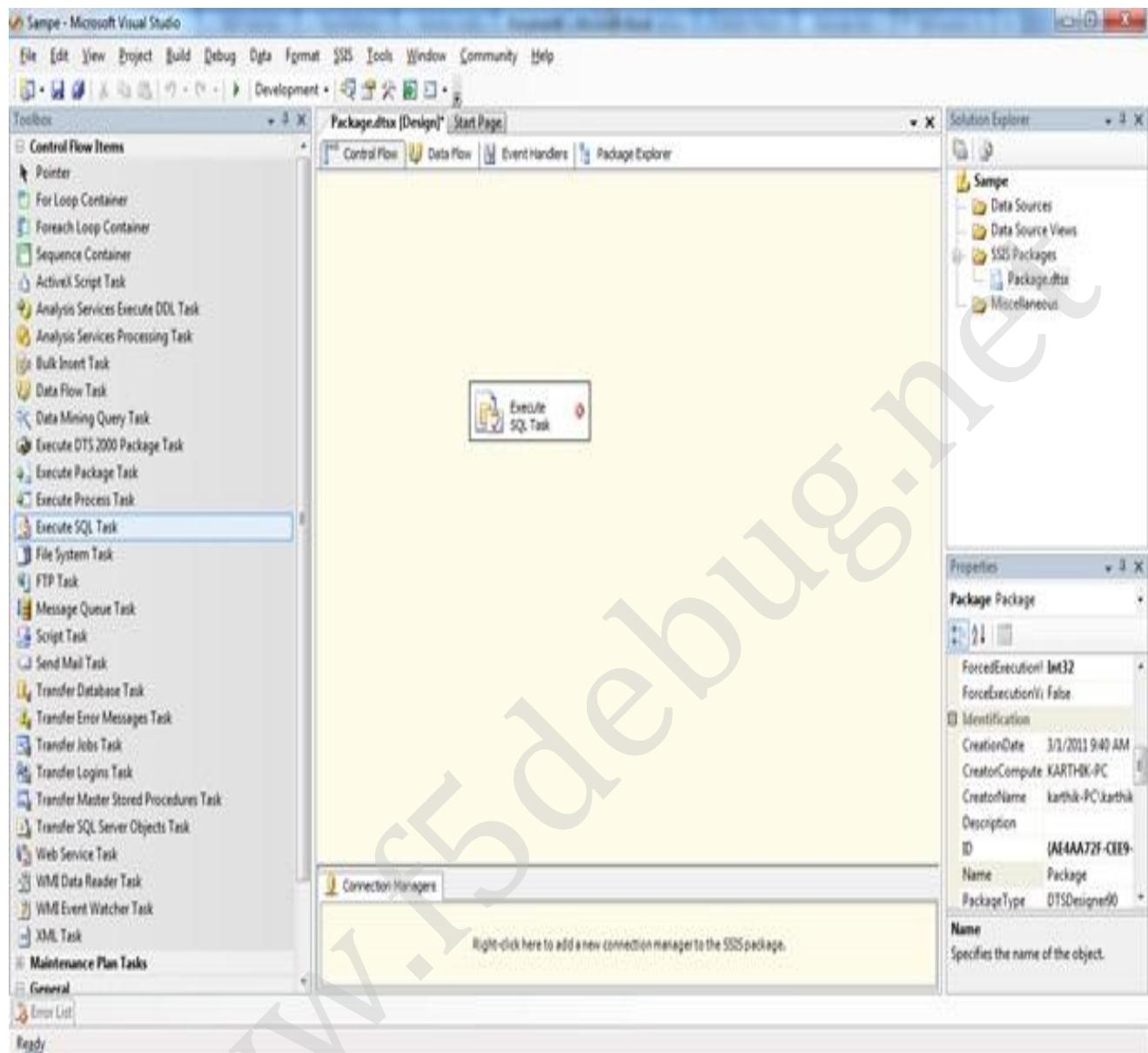
### Introduction

In this chapter we are going to see on how to run a query from SSIS. Mainly create or delete a table from SSIS package. We have a task called Execute SQL Task in SSIS which helps us to do this task.

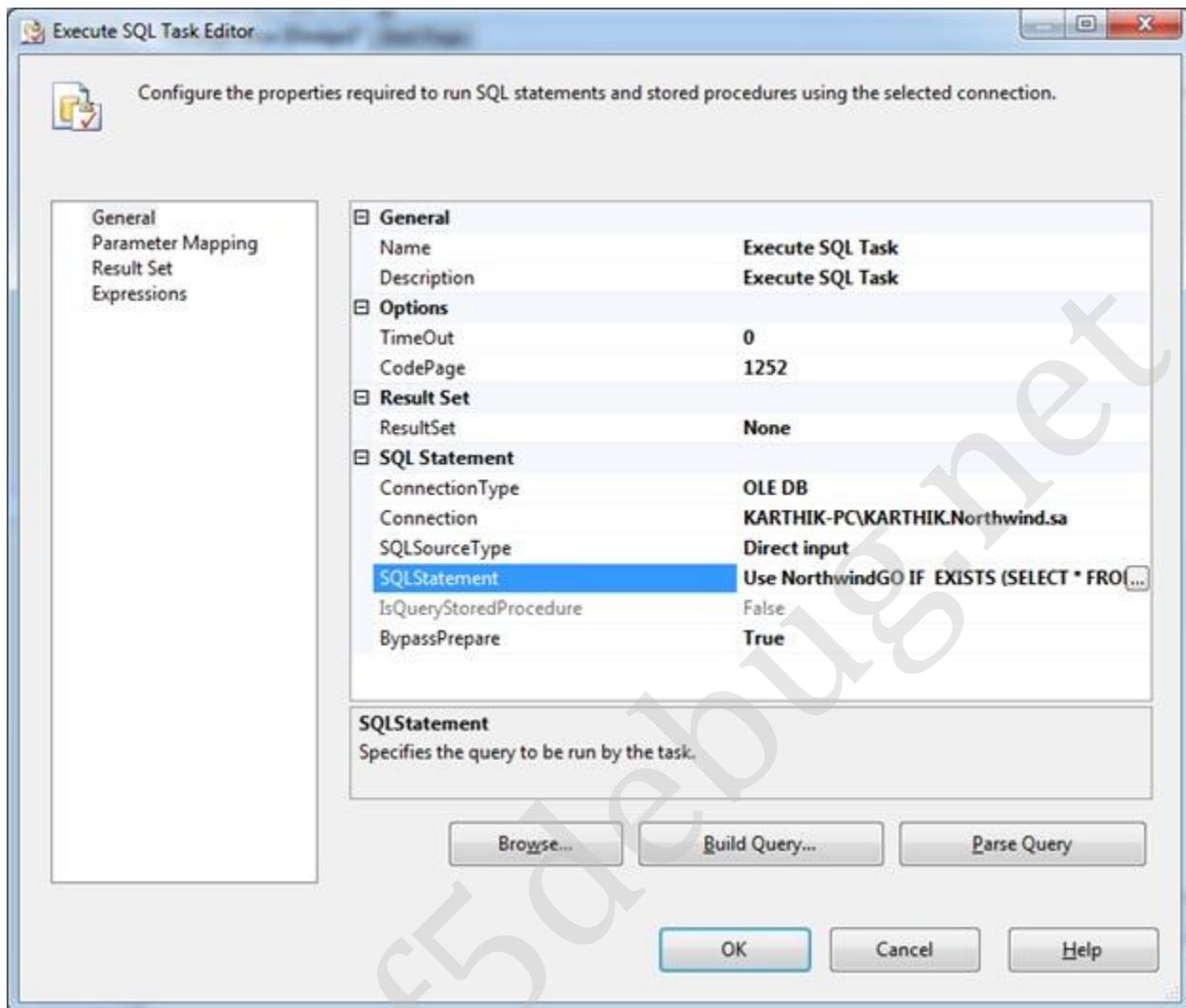
Let's see how to use this task and create a table using SSIS. This task will be mainly used in scenario like if at all we need to check if table exists or not and to create a table using this task.

### Steps

Follow steps 1 to 3 of the first Chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use Execute SQL task and create a table using the same.



Just drag and drop the execute SQL task as shown in the above image. Double click on it will open the configurations tab as shown below.



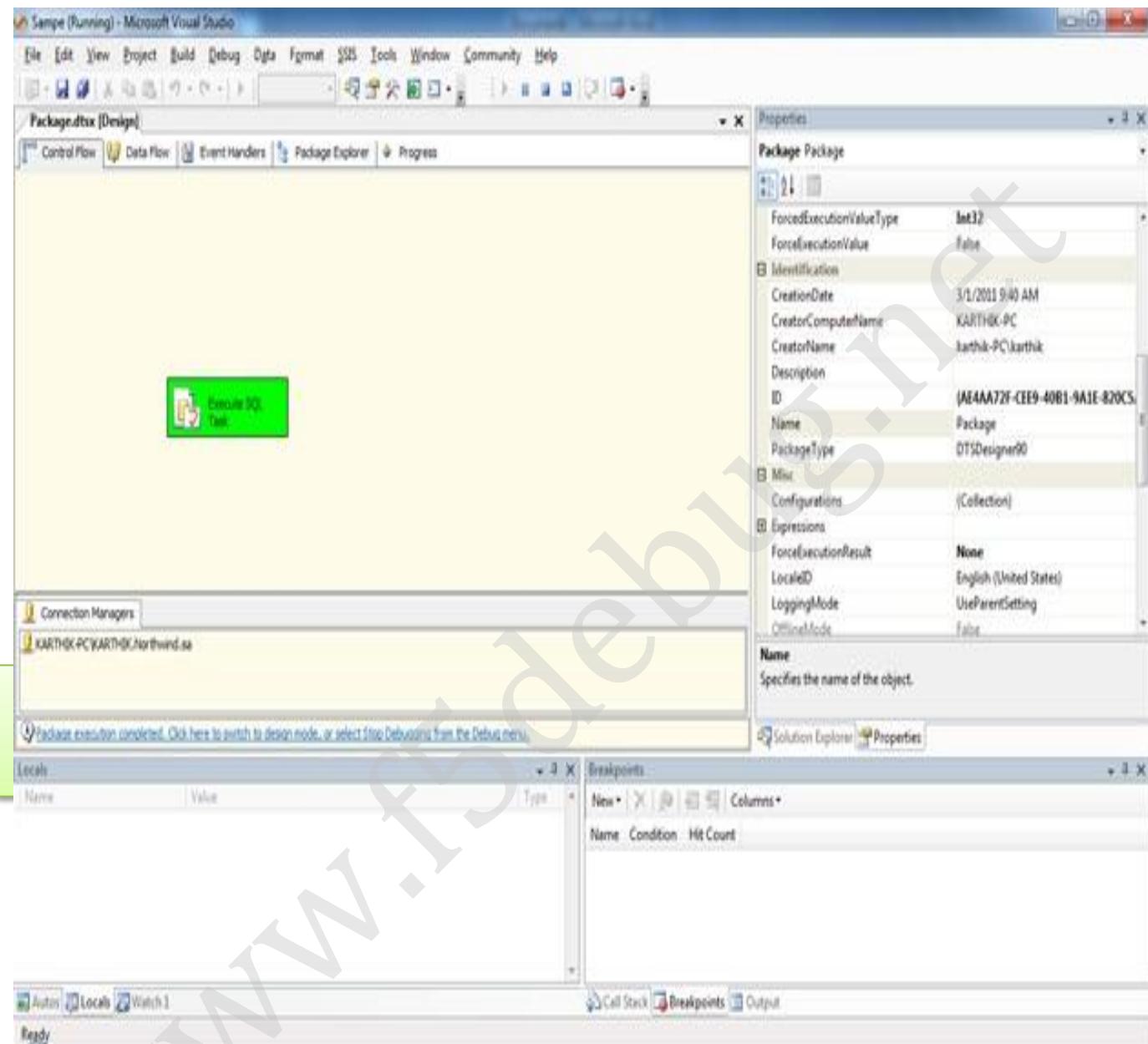
Here we need to configure the connection and the SQLStatement. Here the statement we are going to execute is a create table statement as shown in the below code.

**Script:**

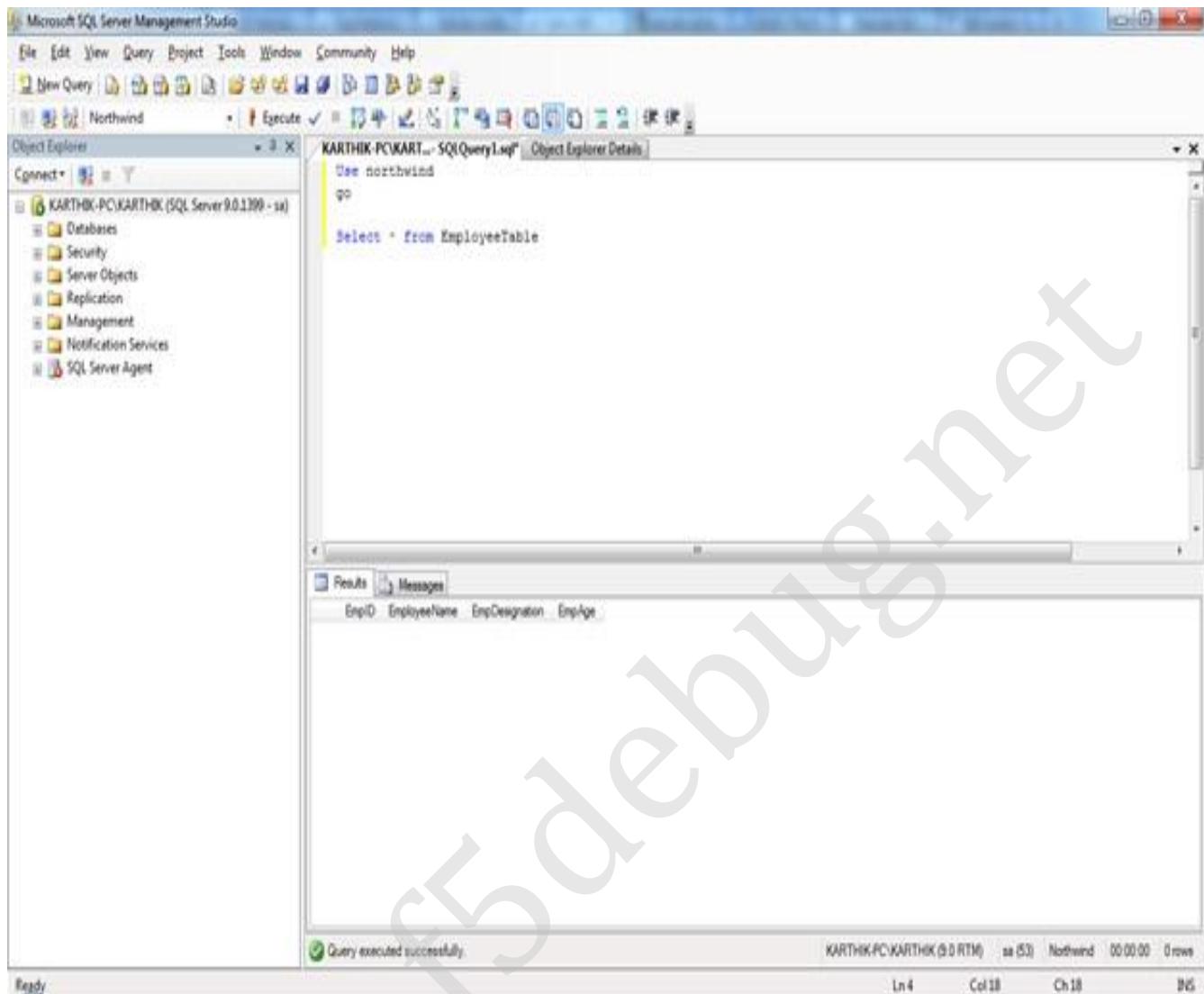
```
CREATE TABLE [dbo].[EmployeeTable]([EmpID] [int] NOT NULL, [EmployeeName]
[nvarchar](100) NULL, [EmpDesignation] [nvarchar](100) NULL, [EmpAge] [int]
NULL,) ON
[PRIMARY] GO
```

Now we are confirmed that the configuration is done and ready to run the package.

Press F5 will build and execute the package as shown in the screen below.



The output of the package is the creating of table Employeetable in Northwind Database. Just go to the SSMS and query the table **Select \* from Employeetable** we will see the table with no records as shown below.



Similar way we can create an Execute SQL task in order to delete the table with the same structure.

### Conclusion

In this Chapter we have seen how to use the Execute SQL task container to create or Delete a table from SSIS packaging.

# Chapter 18

## BULK INSERT TASK IN SSIS

### Introduction

In this chapter we are going to see on how to use Bulk Insert task in SSIS, This task as name specifies uses the BULK insert of the values to the destination. Destination can be any of the data source as we have like OLEDB, excel, etc.

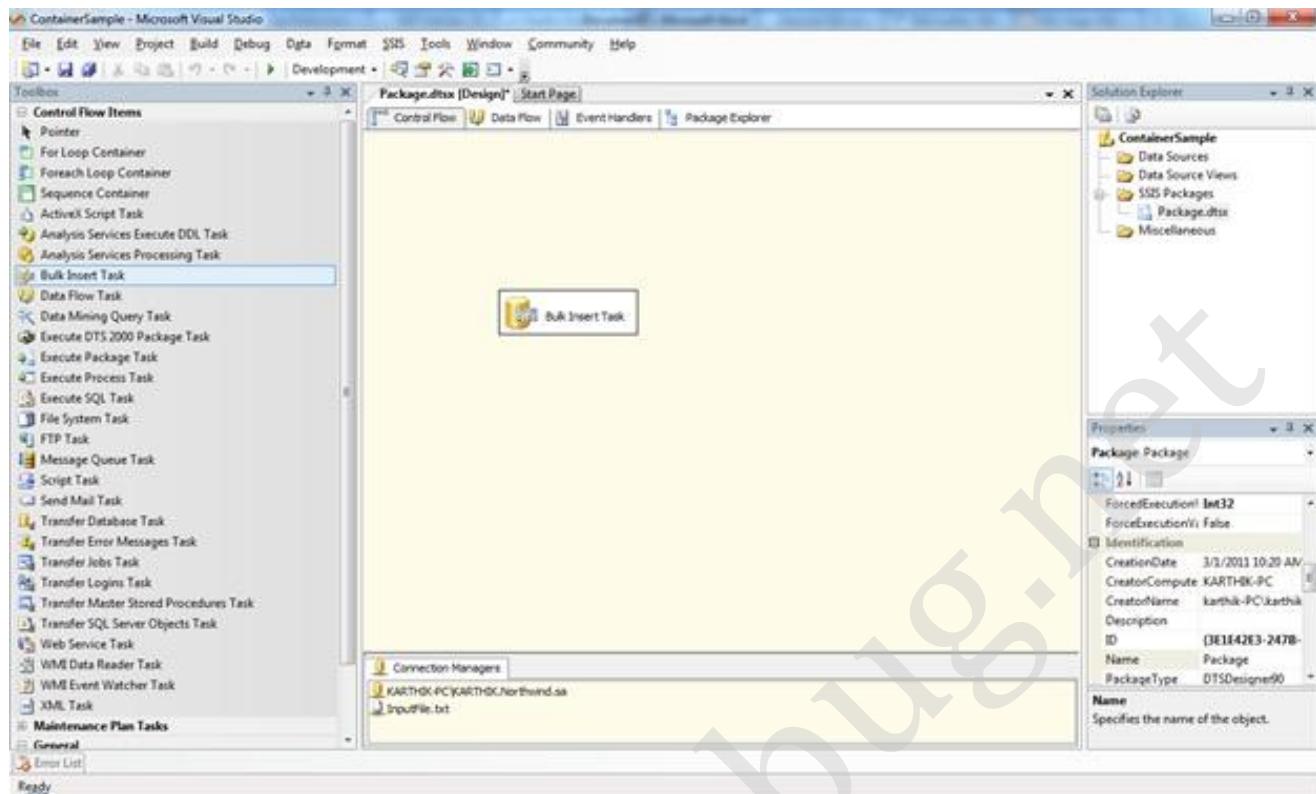
Let's jump into this and see on how to use this task and how to configure the same using SSIS packaging.

### Steps

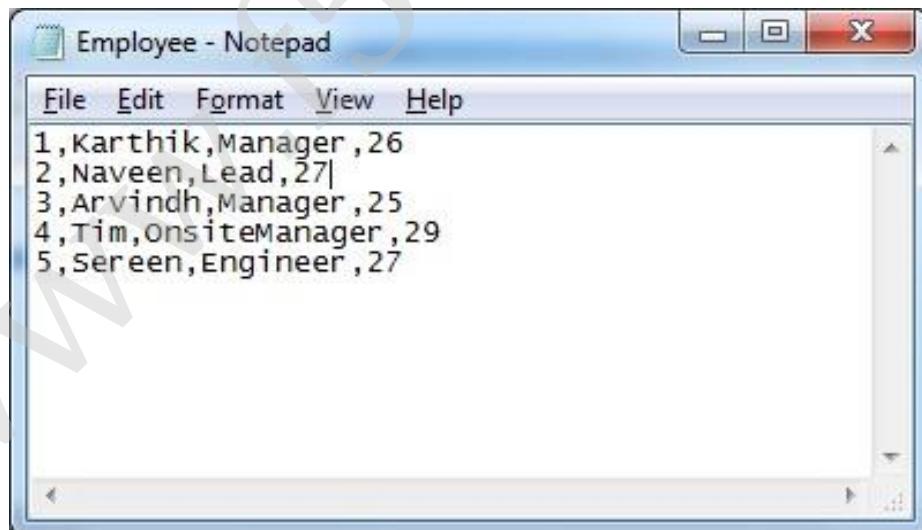
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use Execute SQL task and create a table using the same.

Drag and drop a Bulk Insert task from the tool box to the designer window as shown below.

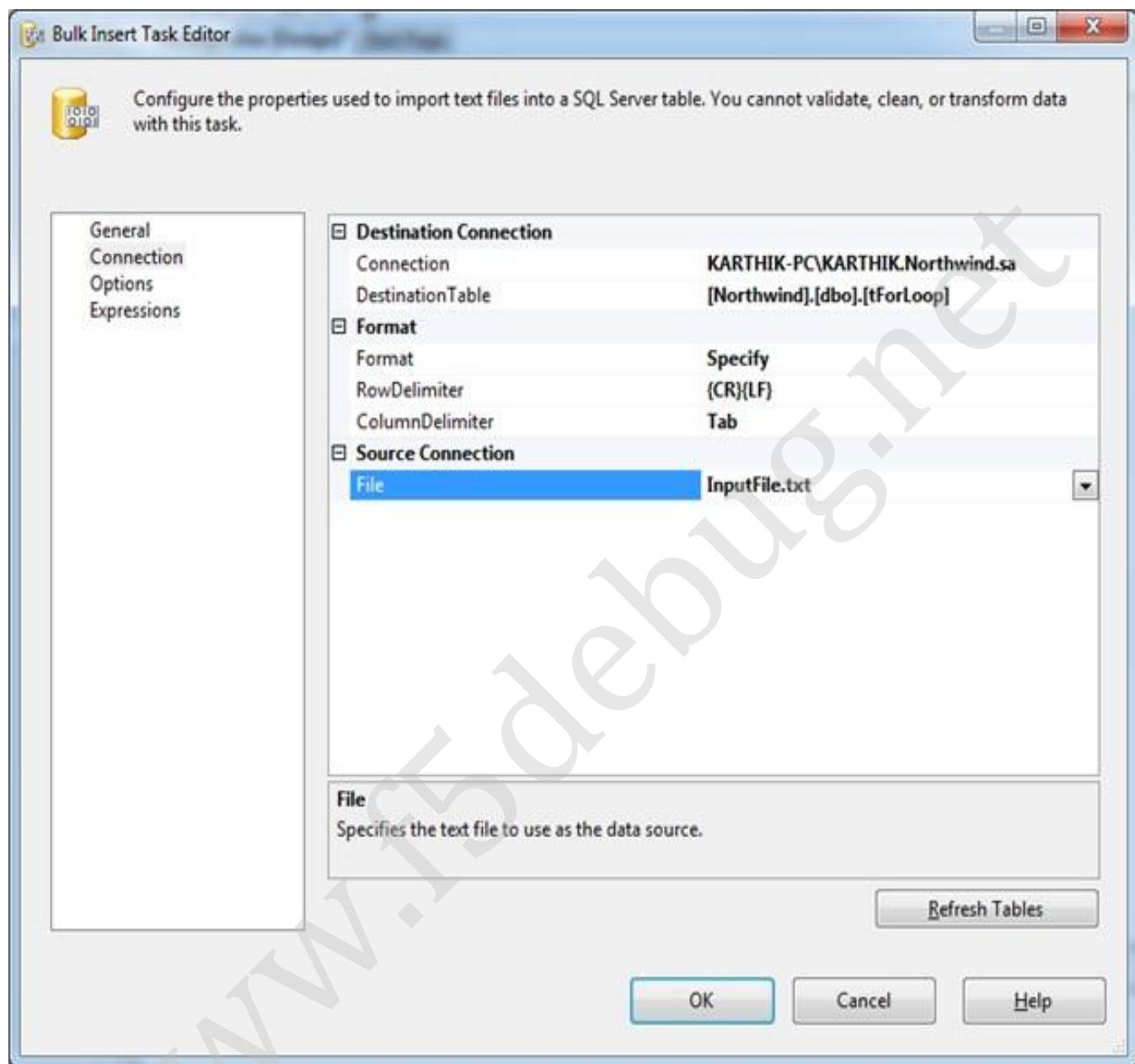
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



The input file which has the bulk data to upload to the SQL Server will look like the screen below.



Now double click on the Bulk Insert task to make the configuration. It will open the window as shown in the screen below.



Here in the source we need to select the file and in the destination we need to select the respective table.

In the table at present we have the list of records as shown in the screen below. Our expected output can be seen after executing the package in the respective table.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, a connection to 'KARTHIK-PC\KARTHIK (SQL Server 9.0.1390 - sa)' is selected, with the 'Northwind' database expanded. The 'SQLQuery1.sql' file is open in the main pane, containing the SQL command:

```
use northwind  
go  
select * from employeestable
```

The Results pane displays the schema of the 'employeestable' with columns: EmpID, EmployeeName, EmpDesignation, and EmpAge. A message at the bottom of the results pane states 'Query executed successfully'. The status bar at the bottom right shows the session details: KARTHIK-PC\KARTHIK (9.0 RTM) sa (52) Northwind 00:00:00 0 rows.

Now we will execute the project by pressing F5 directly or clicking on the Execute button from the tool box. Once the executing is completed we can see the expected result as shown in the screen below.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the Northwind database is selected. A query window titled 'SQLQuery1.sql' is open, displaying the following T-SQL code:

```
use northwind
go
select * from employeeTable;
```

The results pane shows the output of the query:

	EmpID	EmployeeName	EmpDesignation	EmpAge
1	1	Karthik	Manager	26
2	2	Naiveen	Lead	27
3	3	Anvindh	Manager	26
4	4	Tin	OnsiteManager	29
5	5	Sreen	Engineer	27

At the bottom of the results pane, it says 'Query executed successfully'. The status bar at the bottom right indicates 'Ln 4 Col 1 Ch 1 BG'.

We can see the result data copied to the destination table in bulk as shown in the screen above with the help of the Bulk Insert Task Transformation.

## Conclusion

In this chapter we have seen on how to use Bulk Insert task in SSIS with a step by step example of data insert to the respective tables.

# Chapter 19

## ACTIVEX SCRIPT TASK CONTAINER

### Introduction

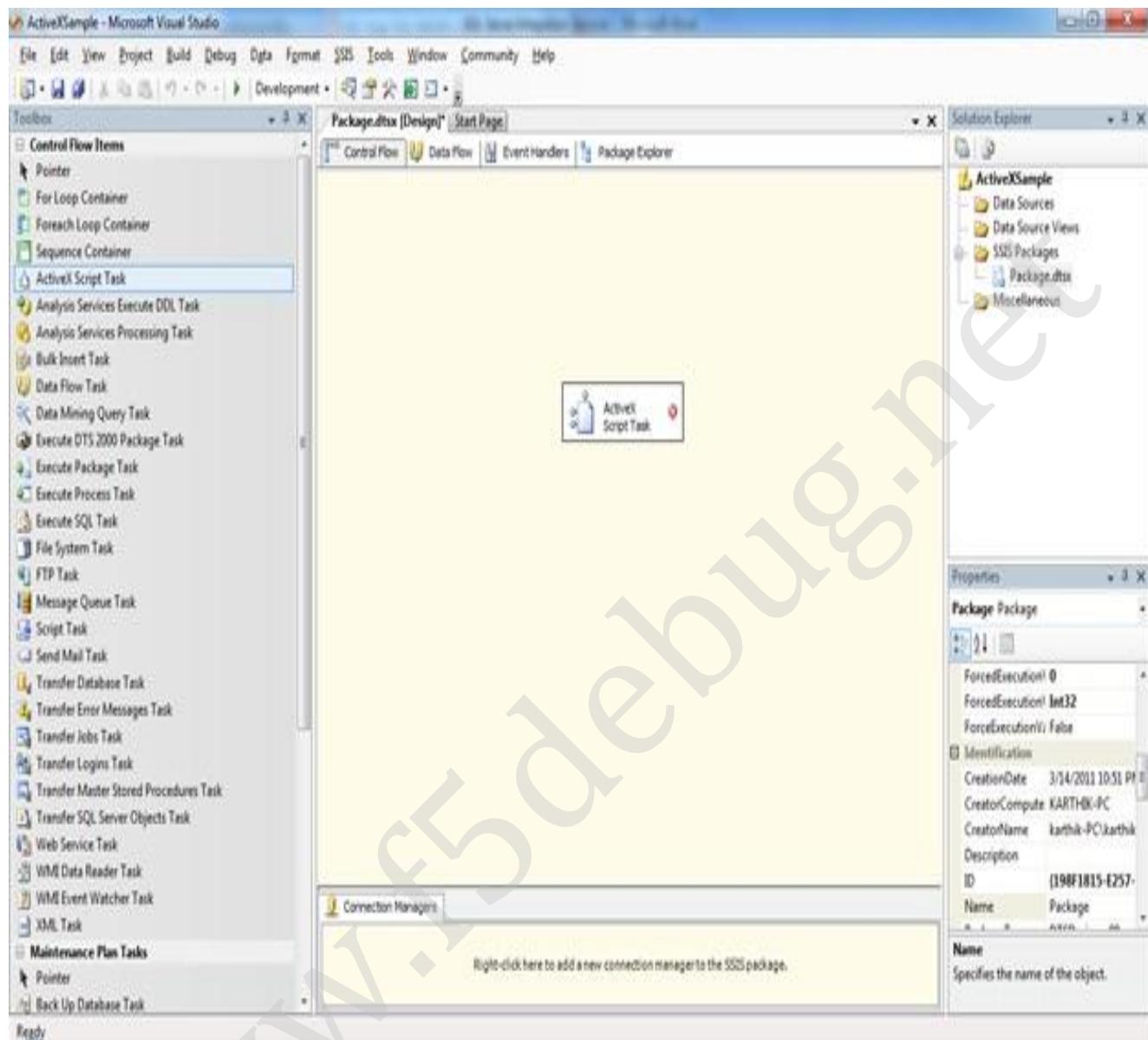
In this chapter we are going to see on how to use ActiveX Script task container in SSIS packaging. Here we take some simple example of executing a VB Script at runtime using the ActiveX Script task container.

This task container is mostly used on when we move the SQL 2000 DTS objects to SSIS packaging. So this task container is used to customize our process of writing script and executing those scripts at runtime. Let's see a simple example of how to use this task and execute a script.

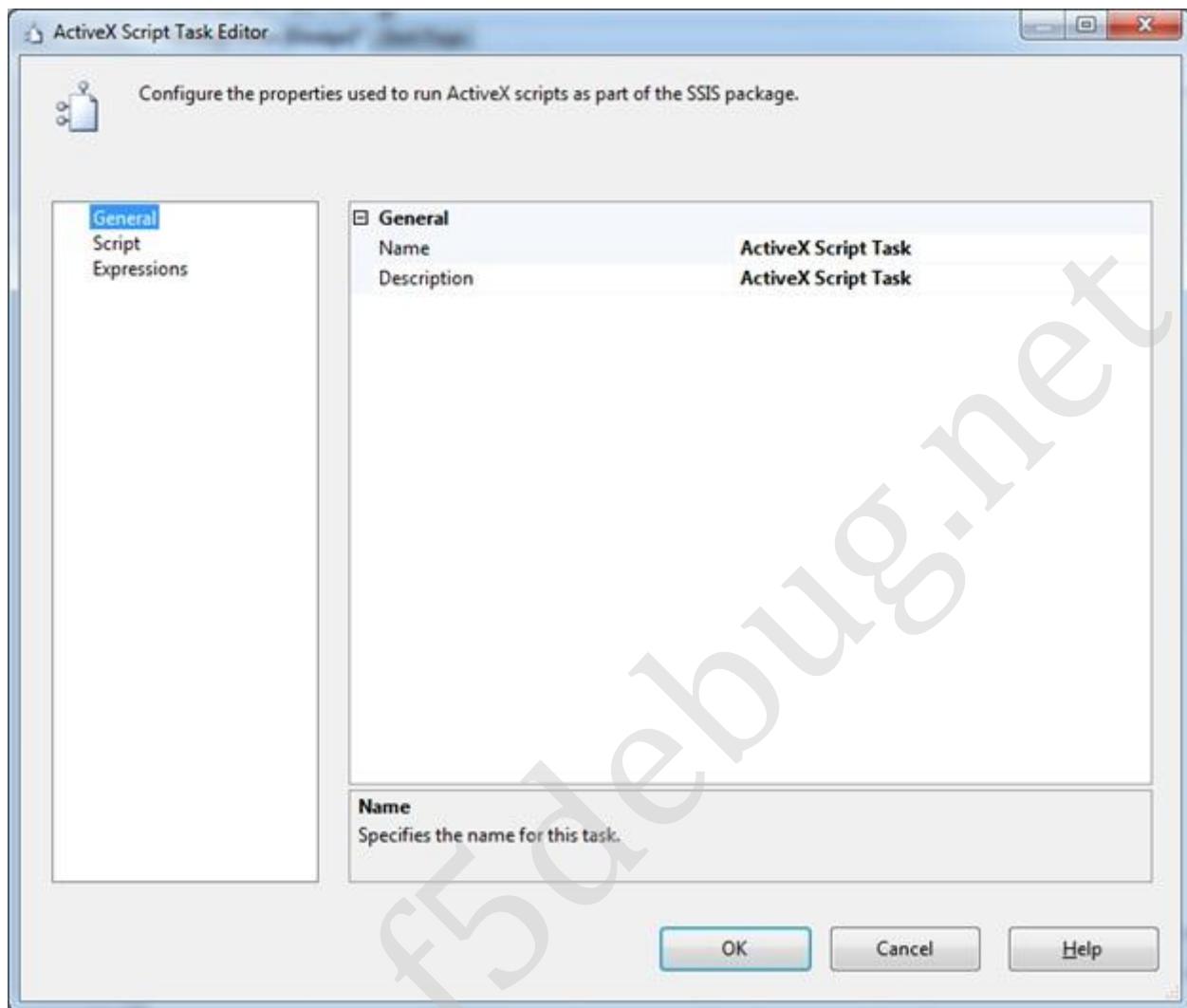
### Steps:

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use ActiveX Script task container and execute a script.

Drag and drop the ActiveX script task container to the SSIS designer windows as shown in the screen below.



Now in order to execute a script at the start of the SSIS Package we need to provide the startup script to the script container. To provide the script right click on the ActiveX script task and select Edit. It will show a window as shown in the screen below.

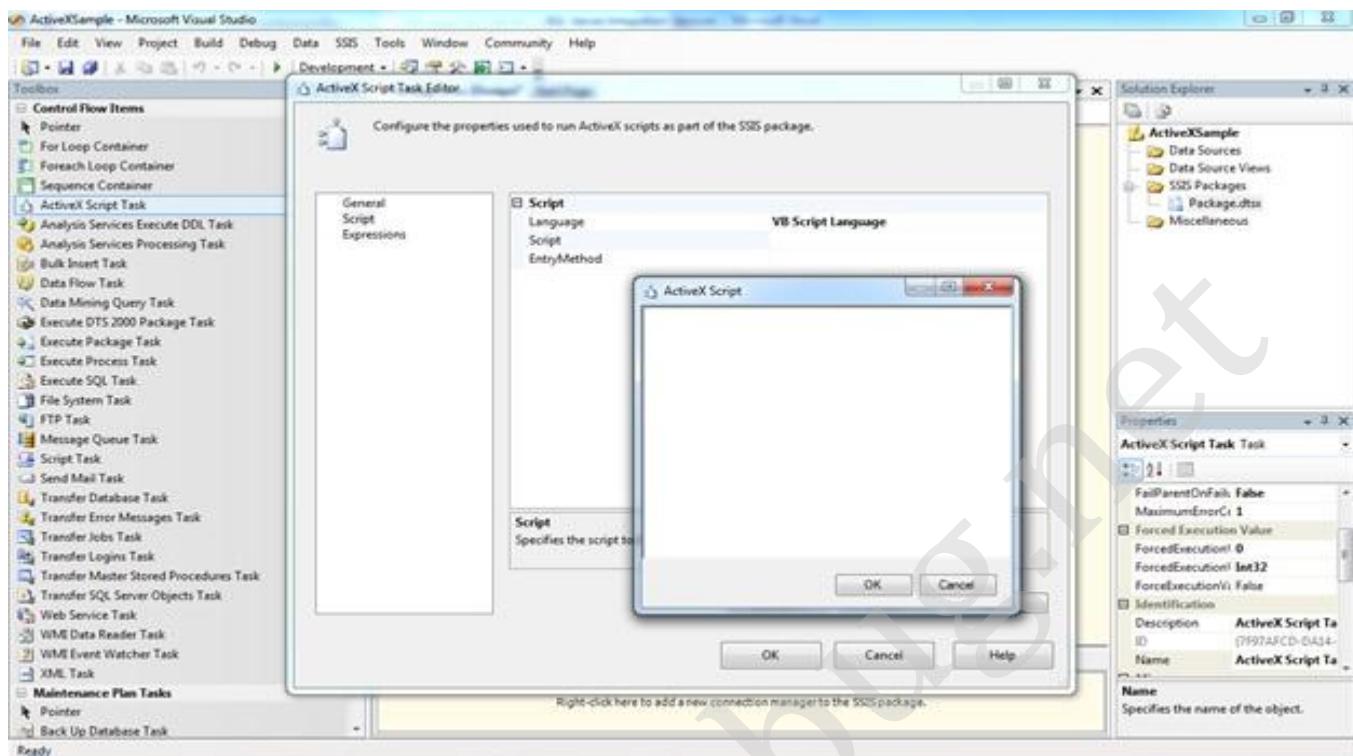


Move on to the SCRIPT tab, which is the main section we need to concentrate since we are going to write the script in this section. Here we have 2 sections as below.

**LANGUAGE** – this section we need to provide which scripting language we going to write the script.

**SCRIPT** – this section we are going to right the click, just click on the button at the right side will open a window to write the script as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Write below code to the script task transformation as shown in the screen below.

A screenshot of the "ActiveX Script" dialog box. The code is written in VBScript and defines a function named "Main". It uses the "Scripting.FileSystemObject" (FSO) to write a string to a file named "Task.txt" located at "D:\Task.txt".

```
function Main()
    Dim Stuff, myFSO, WriteStuff, dateStamp
    dateStamp = Date()

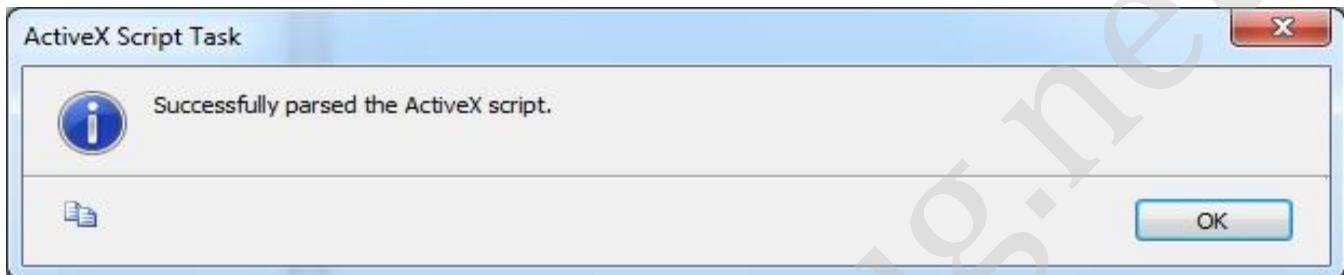
    Stuff = "ACTIVEX Script task sample"

    Set myFSO = CreateObject("Scripting.FileSystemObject")
    Set WriteStuff = myFSO.OpenTextFile("D:\Task.txt", 8, True)
    WriteStuff.WriteLine(Stuff)
    WriteStuff.Close
    SET WriteStuff = NOTHING
    SET myFSO = NOTHING

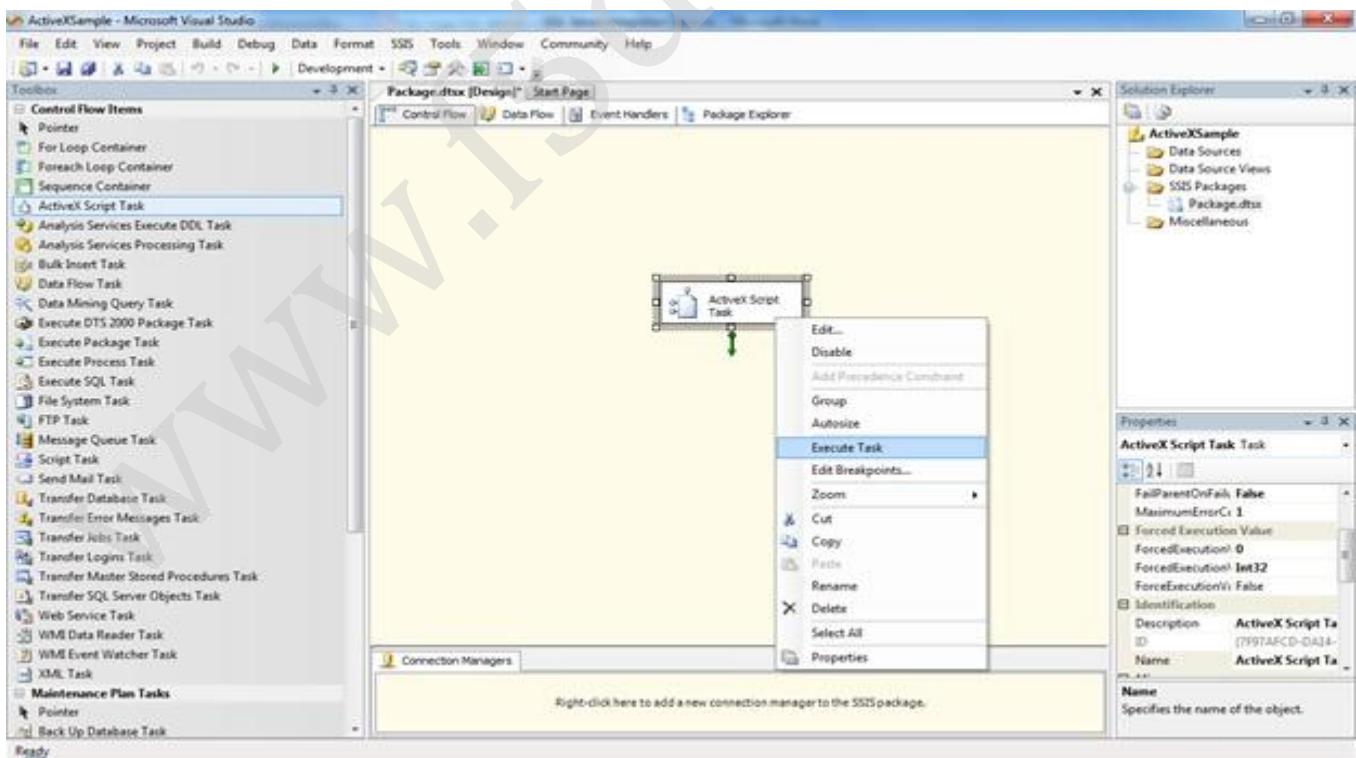
End function
```

**ENTRY POINT** – You need to provide which is the entry point for the script, in our case you need to give it as MAIN().

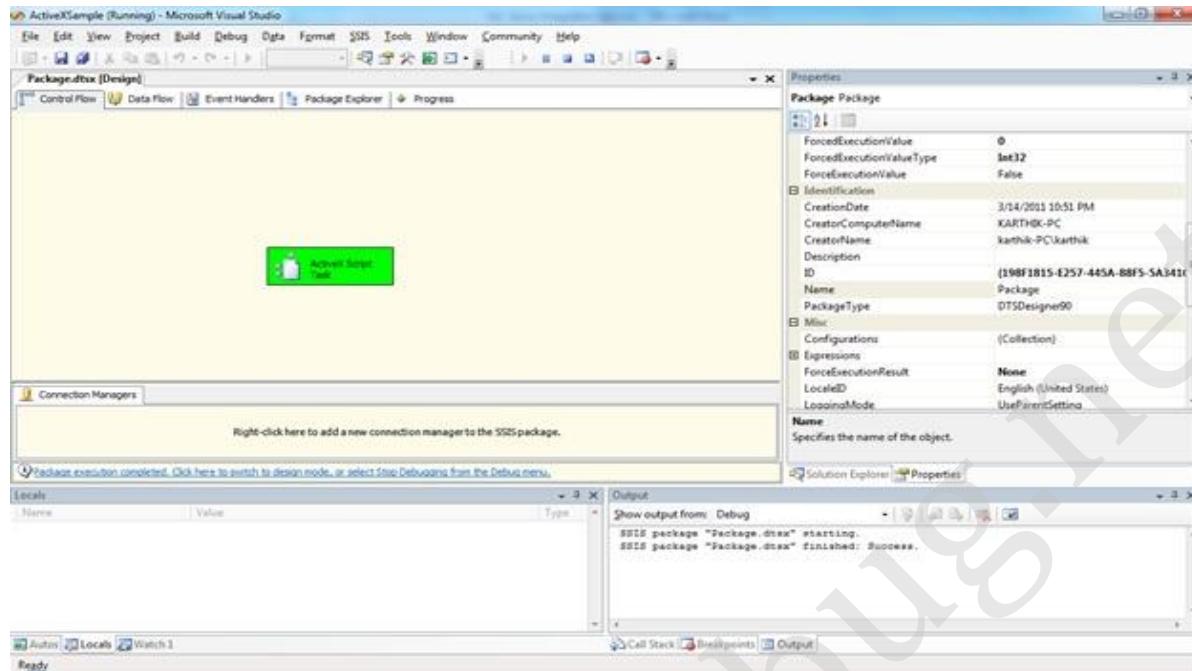
Once we wrote the script now click on OK will move back to the previous screen. In that screen at the bottom you can see an option like PARSE. Clicking on that button will check the syntax and give the result as shown below.



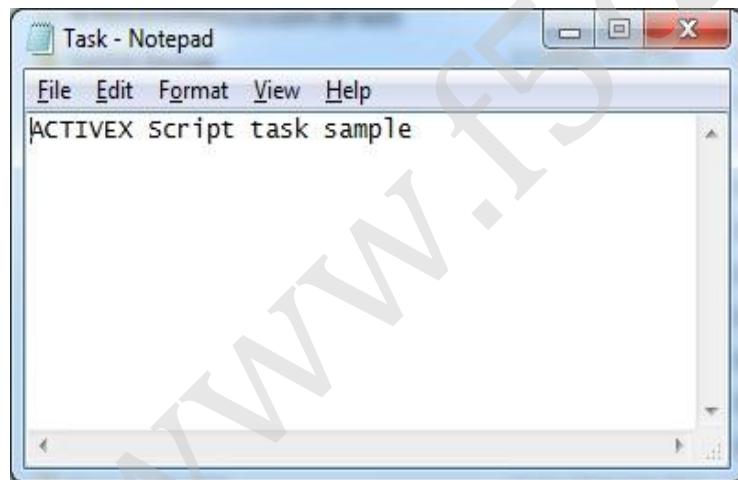
Once all the configurations are over, now we need to execute the package and see if the script has been execute perfectly. To do that right click on the ActiveX Script task and give execute task as shown in the screen below.



It will show the result as shown in the screen below.



And the result, a file will be created at the location specified as shown in the screen below.



## Conclusion

In this chapter we have seen Activex Script task Container with step by step process on executing the script.

# Chapter 20

## EXECUTING SSIS PACKAGE FROM STORED PROCEDURE

### Introduction

In this chapter we are going to see how to execute a SSIS package inside a stored procedure. This chapter demonstrates the much needed option for the enterprise users of executing the SSIS Package which has stored procedure holding the core business execution.

Let us see the step by step procedure on how to do this task using the SQL Server Business Intelligence Studio.

### Steps

In this chapter since we are going to see on executing the SSIS package using a stored procedure. We need to carry out some basic configuration. Go to SQL Server Surface area Configuration and select the Surface Area Configuration for features as shown in the below images.



Now go to xp\_cmdshell tab and select the checkbox Enable xp\_cmdshell.



Here we have enabled this in order to execute our SSIS Package using this procedure. We will use one our package which we have created as sample in our existing chapters. Now we are going to create a stored procedure to execute the package with passing some input variables to be used in the connection string as follows.

## Script

```

CREATE PROCEDURE USP_ExecuteSSIS
    @strLocationVARCHAR(500),
    @strServerVARCHAR(500),
    @strDbNameVARCHAR(500),
    @EmailAddressVARCHAR(500)
AS
SET NOCOUNT ON

DECLARE
    @CmdVARCHAR(4000),
    @ReturnCode INT,
    @MsgVARCHAR(1000)

SELECT @EmailAddress = QUOTENAME(@EmailAddress, '')
SELECT @strServer = QUOTENAME(@@servername, '')
SELECT @Cmd = 'DTexec /FILE "' + @strLocation + 'MyProject.dtsx"
/MAXCONCURRENT 1 /CHECKPOINTING OFF /REPORTING EW'
    + ' /SET
\Package.Variables[User::varSourceSQLServer].Properties[Value];' +
@strServer
    + ' /SET
\Package.Variables[User::varErrorNotifyEmail].Properties[Value];' +
EmailAddress

EXEC @ReturnCode = xp_cmdshell @Cmd

IF @ReturnCode<> 0
BEGIN
    SELECT @Msg = 'SSIS package execution failed - ' + @strLocation +
'Instance Name: ' + @strServer + '.' + @strDbName
    EXEC msdb.dbo.sp_send_dbmail @recipients = @EmailAddress , @body =
@Msg, @subject = 'SSIS Execution Failure'
END

RETURN @ReturnCode
GO

```

We can call the stored procedure to execute the package as shown below.

```
EXEC USP_ExecuteSSIS 'C:\Packages\', 'KARTHIK-PC/Karthik',
'MyProject' 'MyMail@gmail.com';
```

# Chapter 21

## FTP TASK OPERATIONS IN SSIS PACKAGE

### Introduction

In this Chapter we are going to see on the different FTP Task operations available in SSIS package. Before starting with the operations we will see on why are using the FTP Task operation.

FTP task downloads and uploads some data file and manages servers on the remote server or even in the local server.

### Steps

FTP Operations here means the list of operations the task supports in order to achieve some tasks like sending the file, receiving the file, looping through folder and selecting some files, looping through the folder and deleting some files, managing a directory etc.

Below table shows the list of operations available.

<b>Task Operation</b>	<b>Task Operation Description</b>
Send Files	This operation is used to send some files to remote location.
Receive files	This operation is used to download some files from remote location.
Create local directory	This operation create a new folder on a local server.
Create remote directory	This operation create a new folder on the remote server.
Remove local directory	This operation delete a folder in the local server.
Remove remote directory	This operation delete a folder on the remote server.
Delete local files	This operation delete a file in the local server.
Delete remote files	This operation delete a file on the remote server.

So based on these task operations we need to select the best which suits our requirement and make use of it based on the configuration. The dynamic operation properties available for each of these task operations are as follows.

Task Operation	Dynamic Properties
Send Files	LocalVariable, LocalPathRemoteVariable and RemotePath
Receive files	LocalVariable, LocalPathRemoteVariable and RemotePath
Create local directory	LocalVariable and LocalPath
Create remote directory	RemoteVariable and RemotePath
Remove local directory	LocalVariable and LocalPath
Remove remote directory	RemoteVariable and RemotePath
Delete local files	LocalVariable and LocalPath
Delete remote files	RemoteVariable and RemotePath

## Conclusion

In this Chapter we have seen on the list of operation available for the FTP task and the properties of each operation.

# Chapter 22

## RECEIVE FILE USING FTP TASK IN SSIS PACKAGE

### Introduction

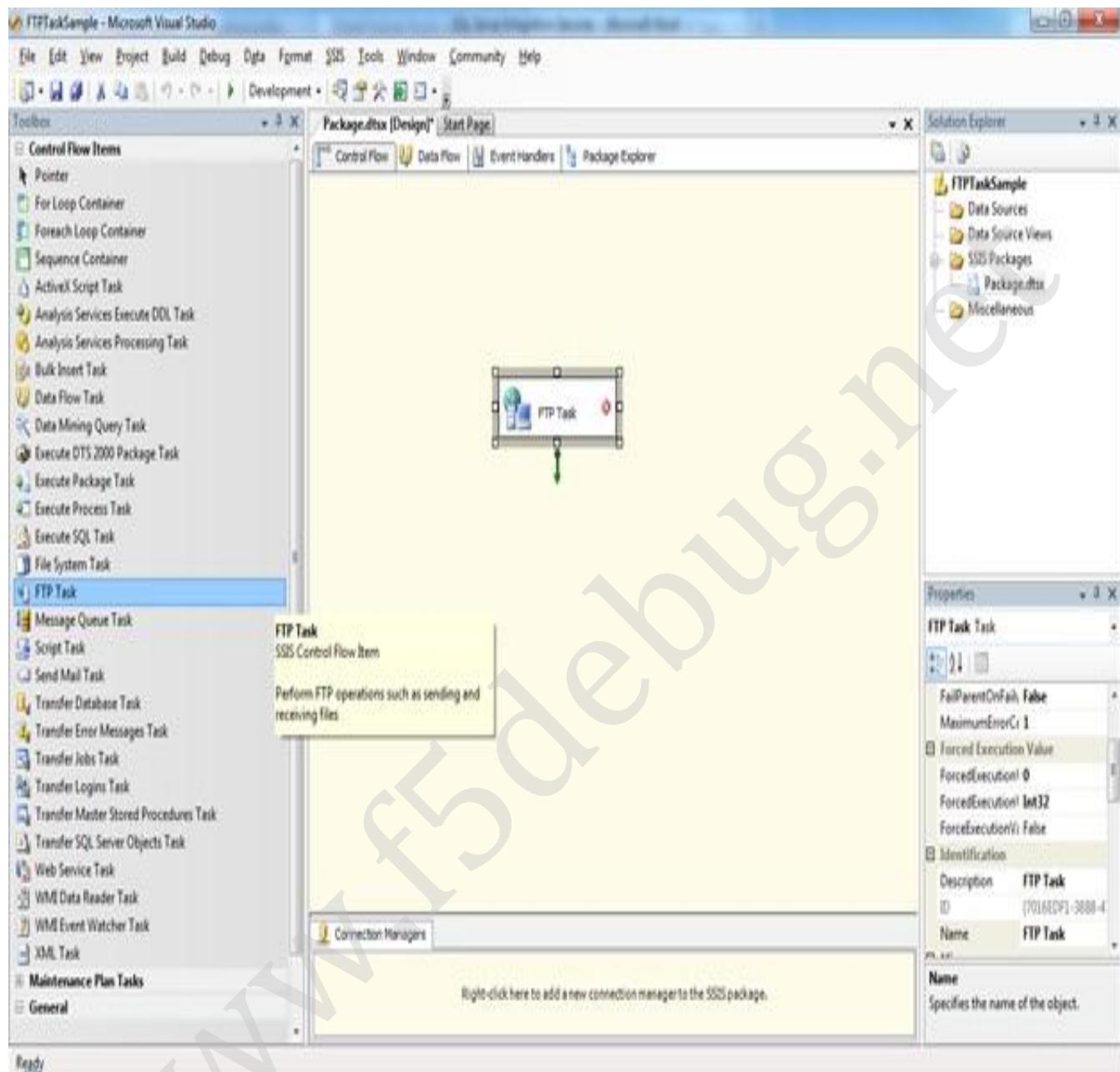
In this chapter we are going to see on how to use a FTP task in SSIS package to receive a file. FTP task is mainly used to do a file transfer using FTP. SSIS provides an inbuilt task container to do a FTP of a file.

Let's jump start to see the on how to use the task in real time. Here we are going to see an example on how to configure a FTP task and receive a file.

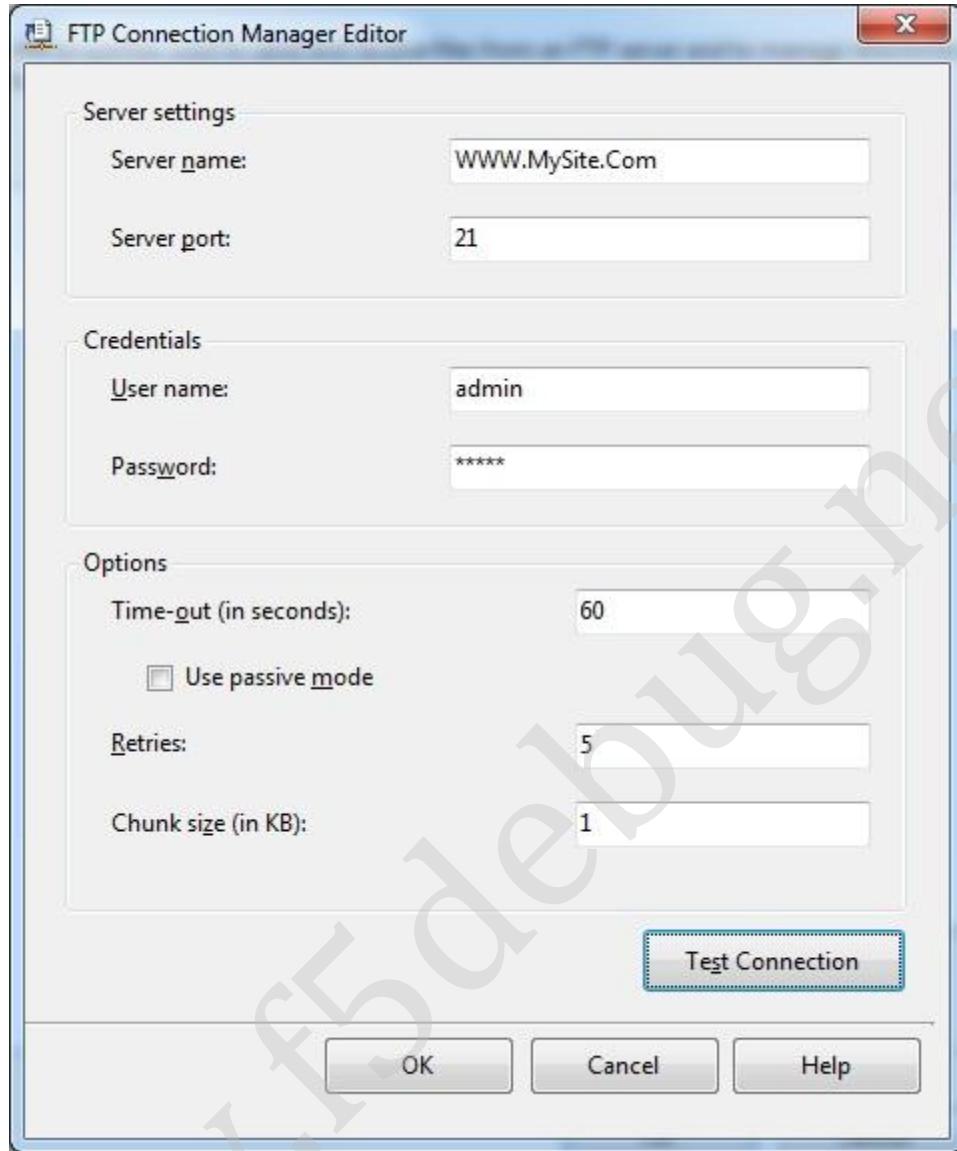
### Steps:

Follow steps 1 to 3 of first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

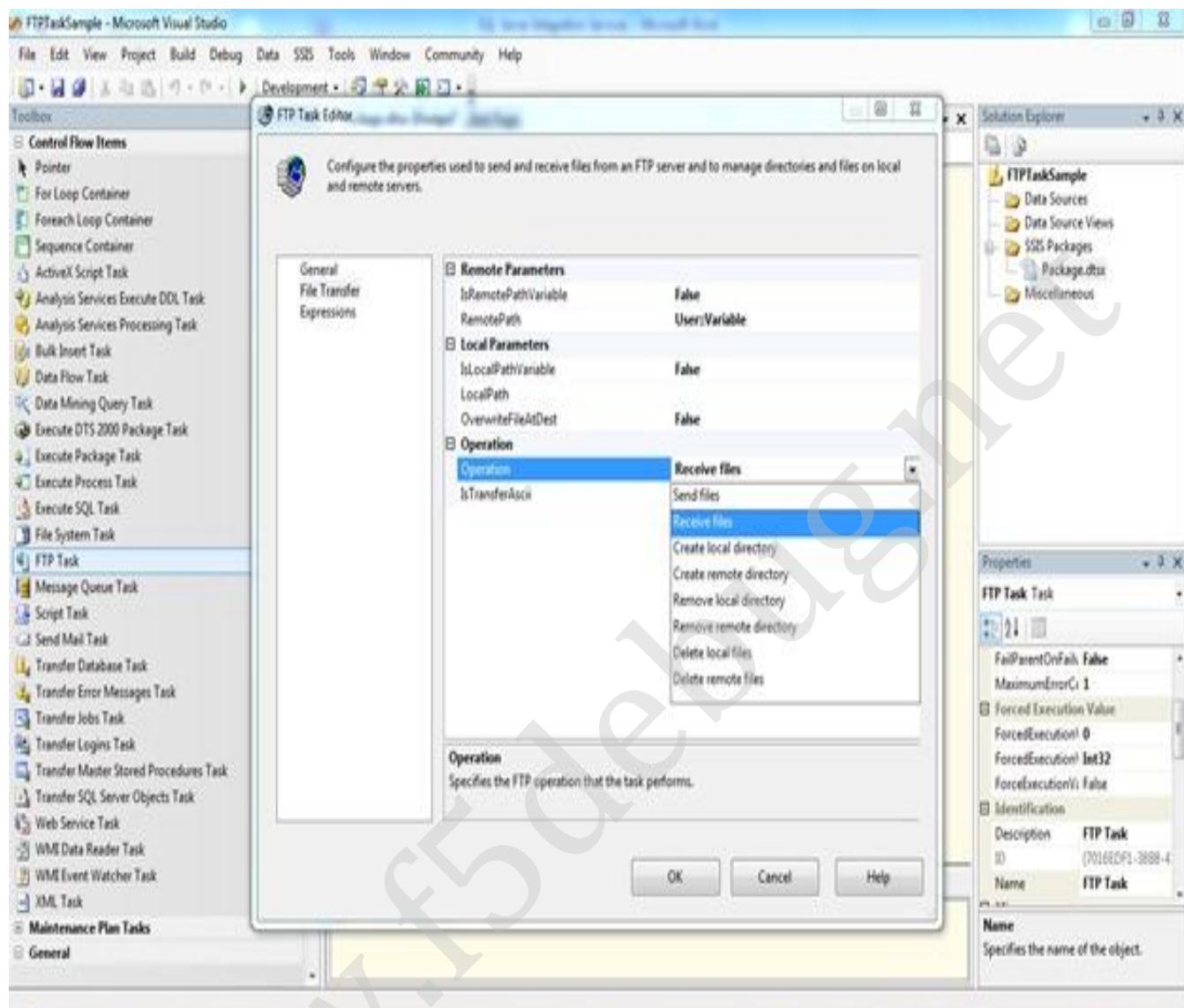


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection, end user need 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 receive the file from FTP we need to set as below. Here input variable is used to get the path where we need to save the file.



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

## Conclusion

In this chapter we have seen on how to use the FTP task to receive a file from a site and save it in a local folder.

# Chapter 23

## SEND FILE USING FTP TASK IN SSIS PACKAGE

### Introduction

In this chapter we are going to see on how to use a FTP task in SSIS package to send a file. FTP task is mainly used to do a file transfer using FTP. SSIS provides the inbuilt task container to do a FTP of a file.

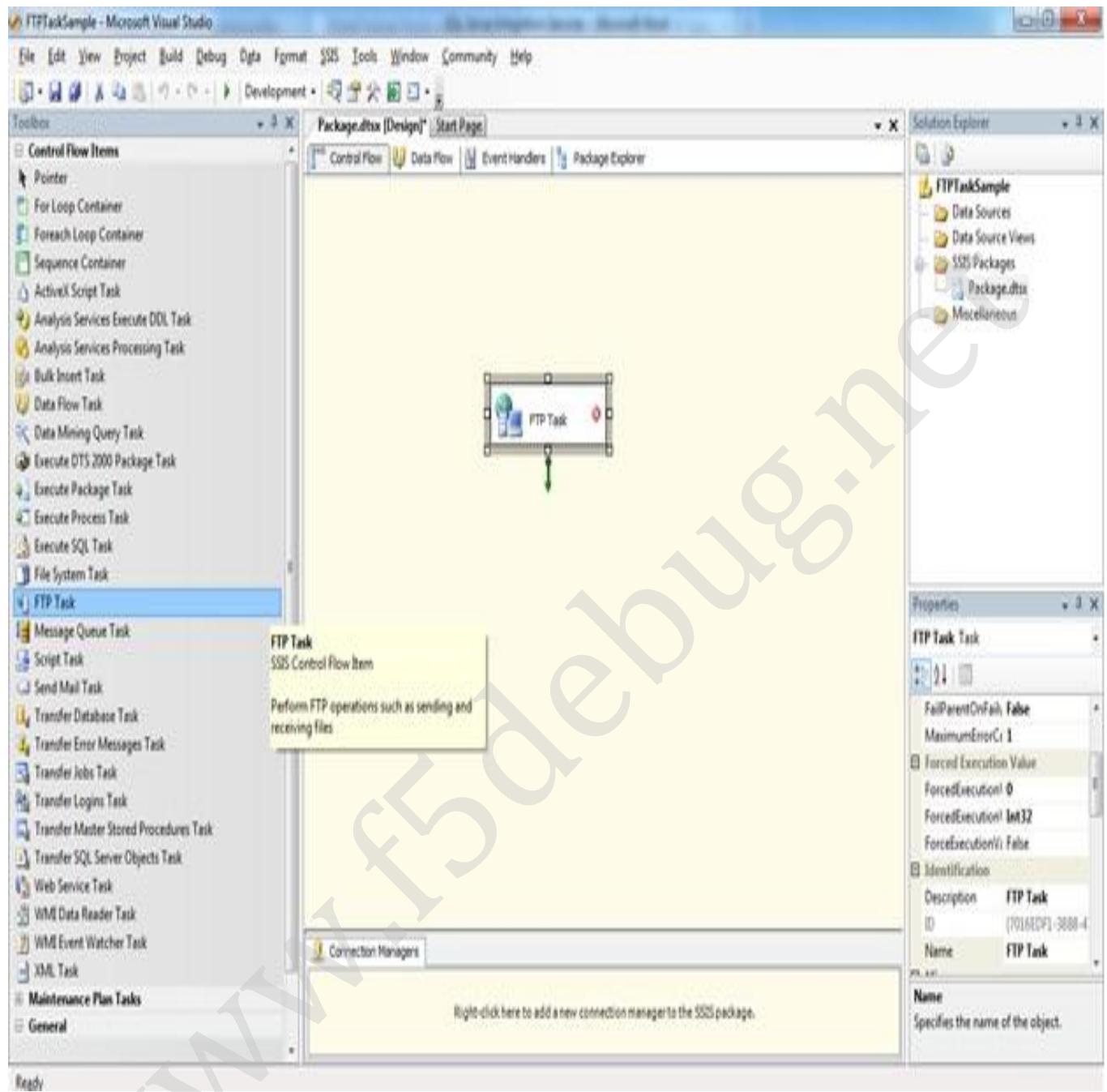
Let's jump start to see on how to use the task in real time. Here we are going to see an example on how to configure a FTP task and Send a file to the remote host.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

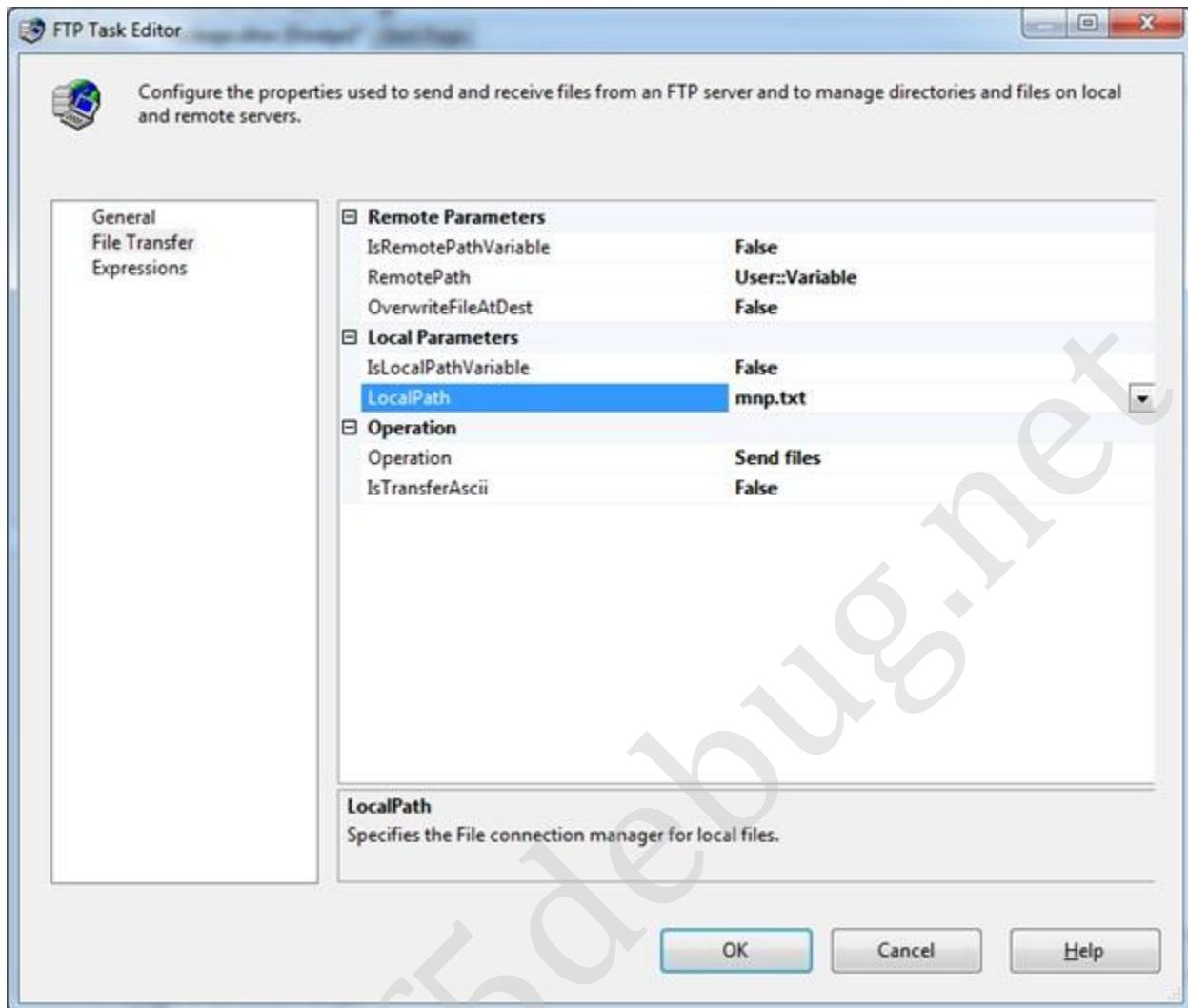


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection, end user need 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 in 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 file to the remote location.

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

## Conclusion

In this chapter we have seen on how to use the FTP task to send a file from a local to a remote site.

# Chapter 24

## DELETE REMOTE FILE USING FTP TASK IN SSIS PACKAGE

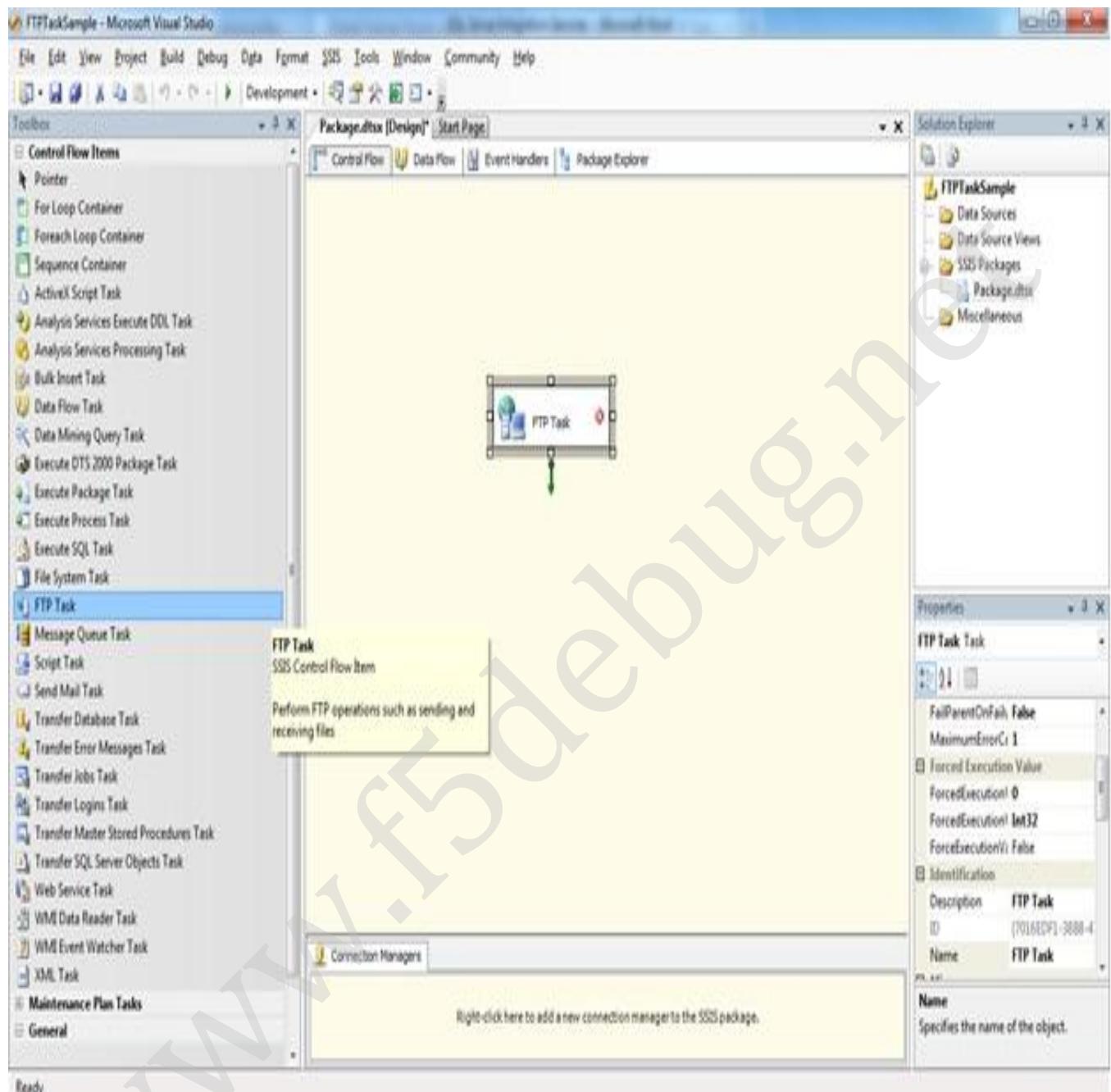
### Introduction

In this chapter we are going to see how to use a FTP task in SSIS package to delete a remote file using FTP Task transformation using the SQL Server Business Intelligence Studio with SSIS Packaging.

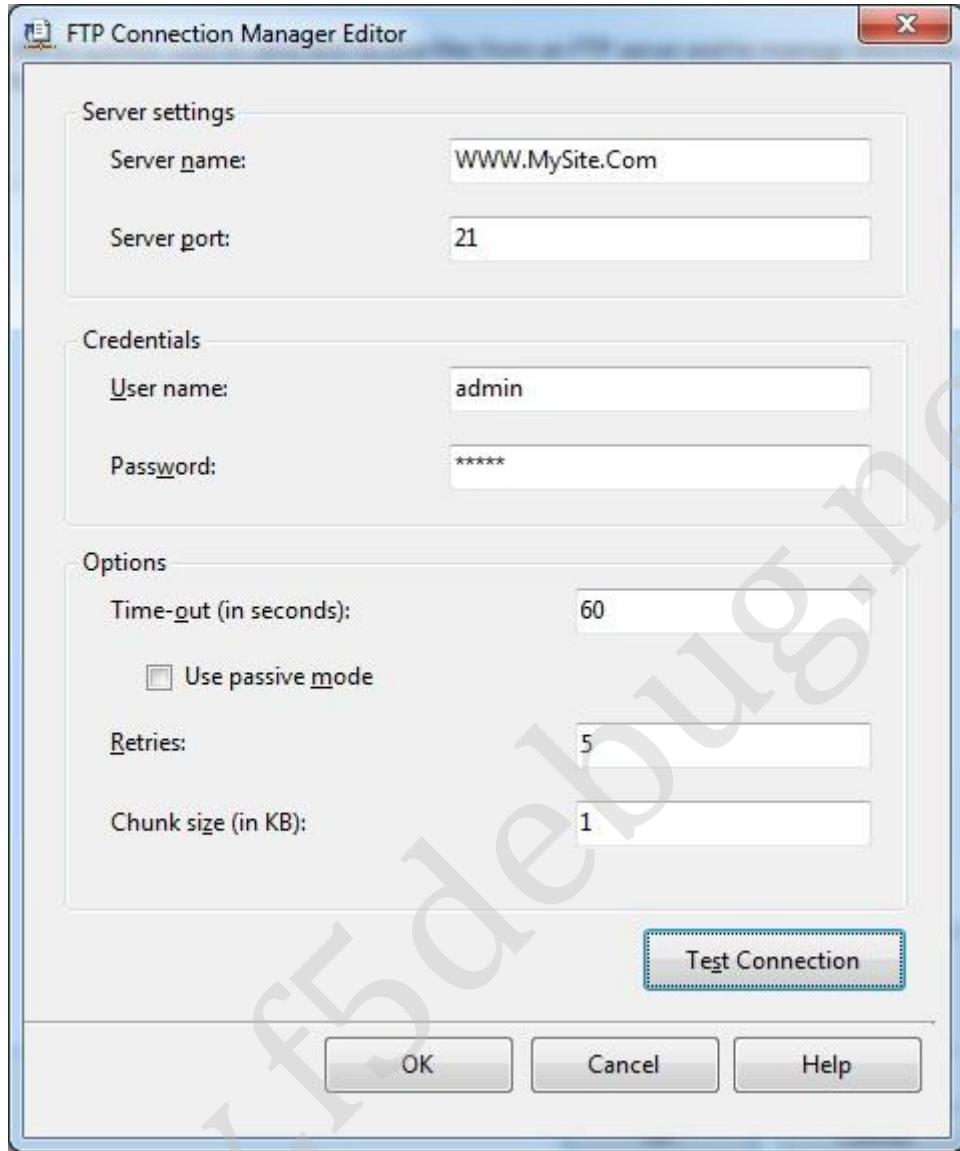
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

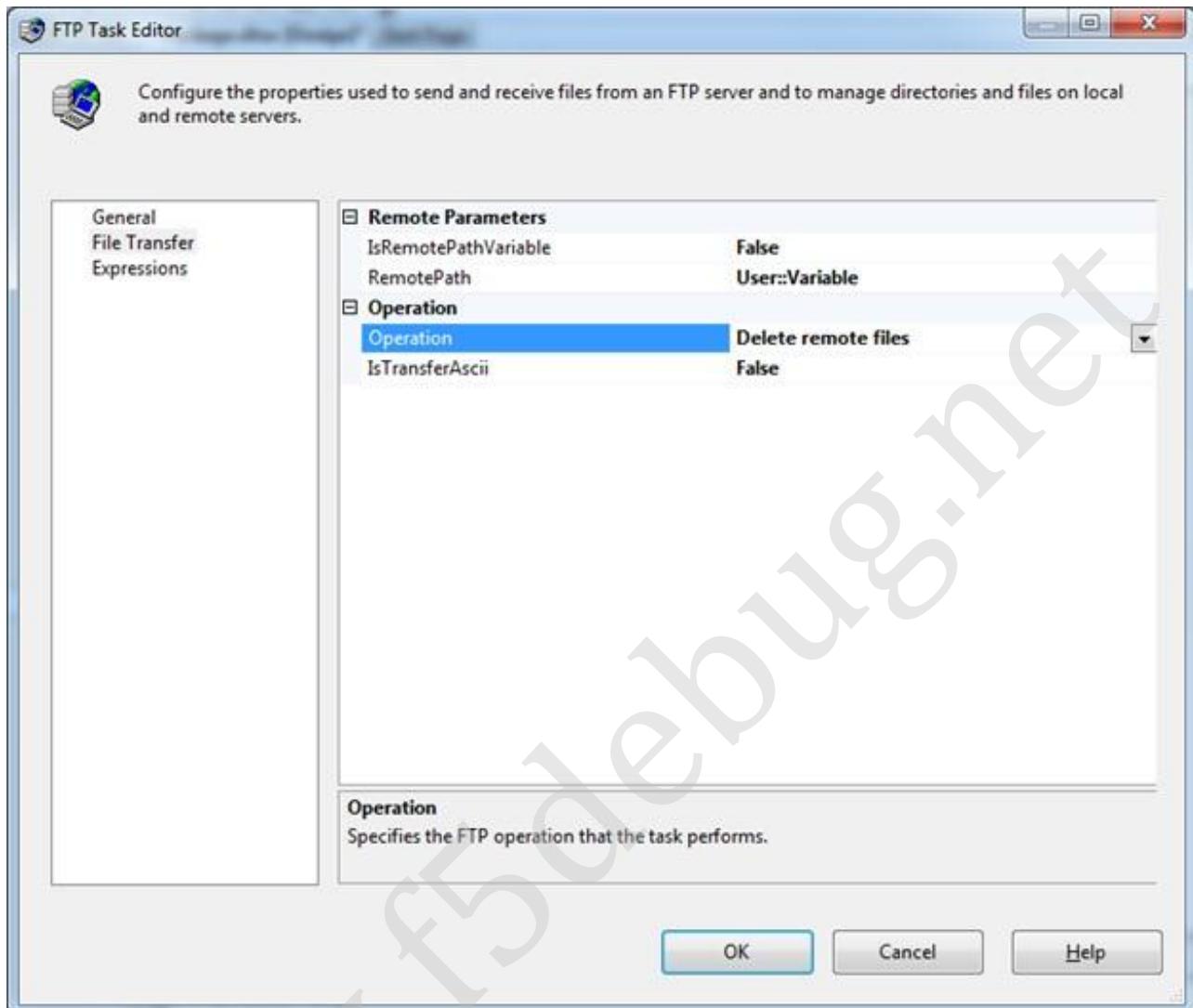


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection, end user need 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 delete some file in the remote server we need to set as below. Here input variable is used to get the path where we need to delete the files remotely.



Here once you have given valid credentials by running directly the package will do the necessary steps of deleting the files in the remote server using the FTP Task.

## Conclusion

In this chapter we have seen on how to delete the files in the remote server using the FTP file task transformation using the SQL Server Business Intelligence Studio.

# Chapter 25

## **DELETE LOCAL FILE USING FTP TASK IN SSIS PACKAGE**

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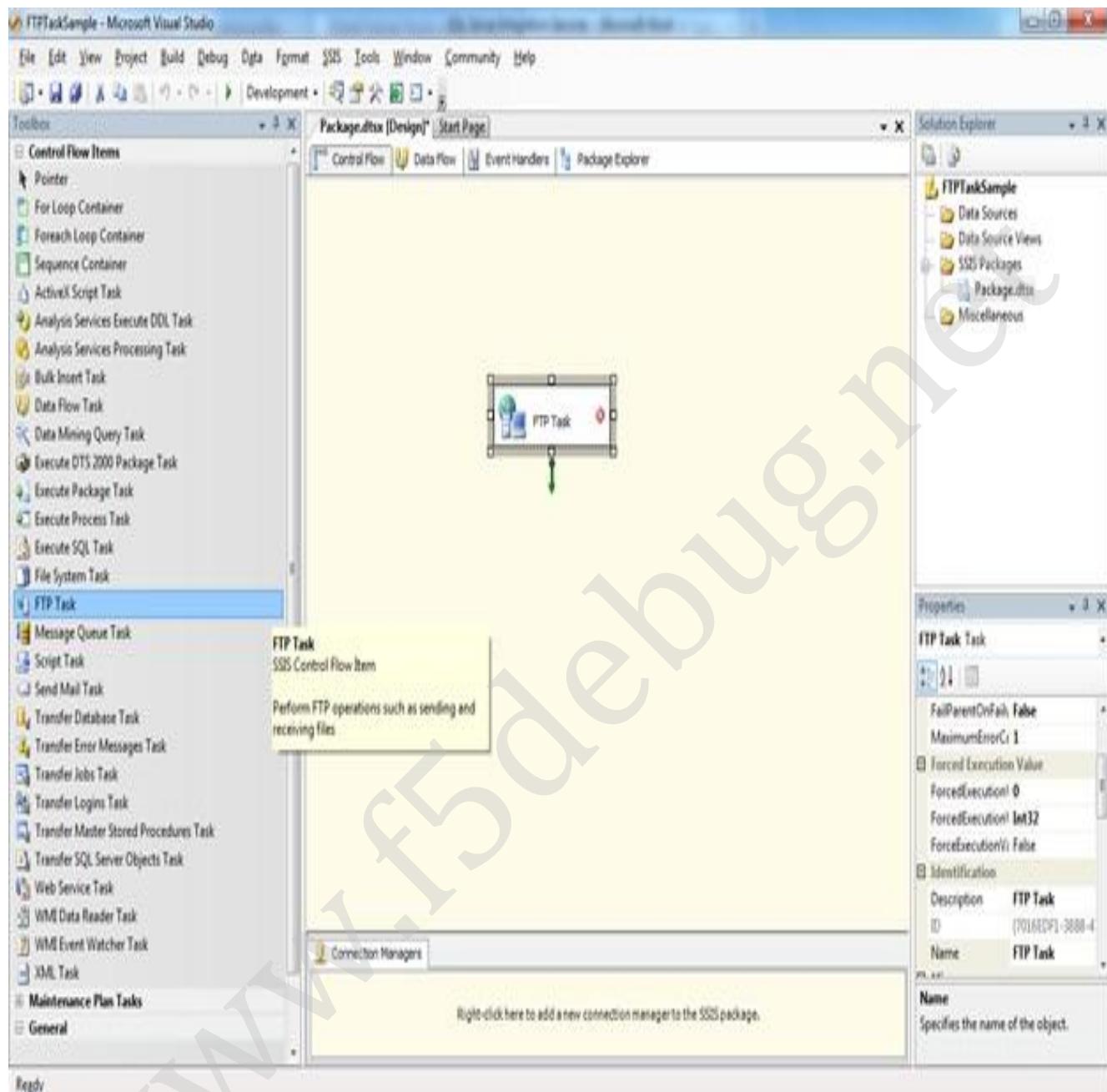
### **Introduction**

In this chapter we are going to see on how to use a FTP task in SSIS package to delete a local file using FTP Task transformation using the SQL Server Business Intelligence Studio with SSIS Packaging.

### **Steps**

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

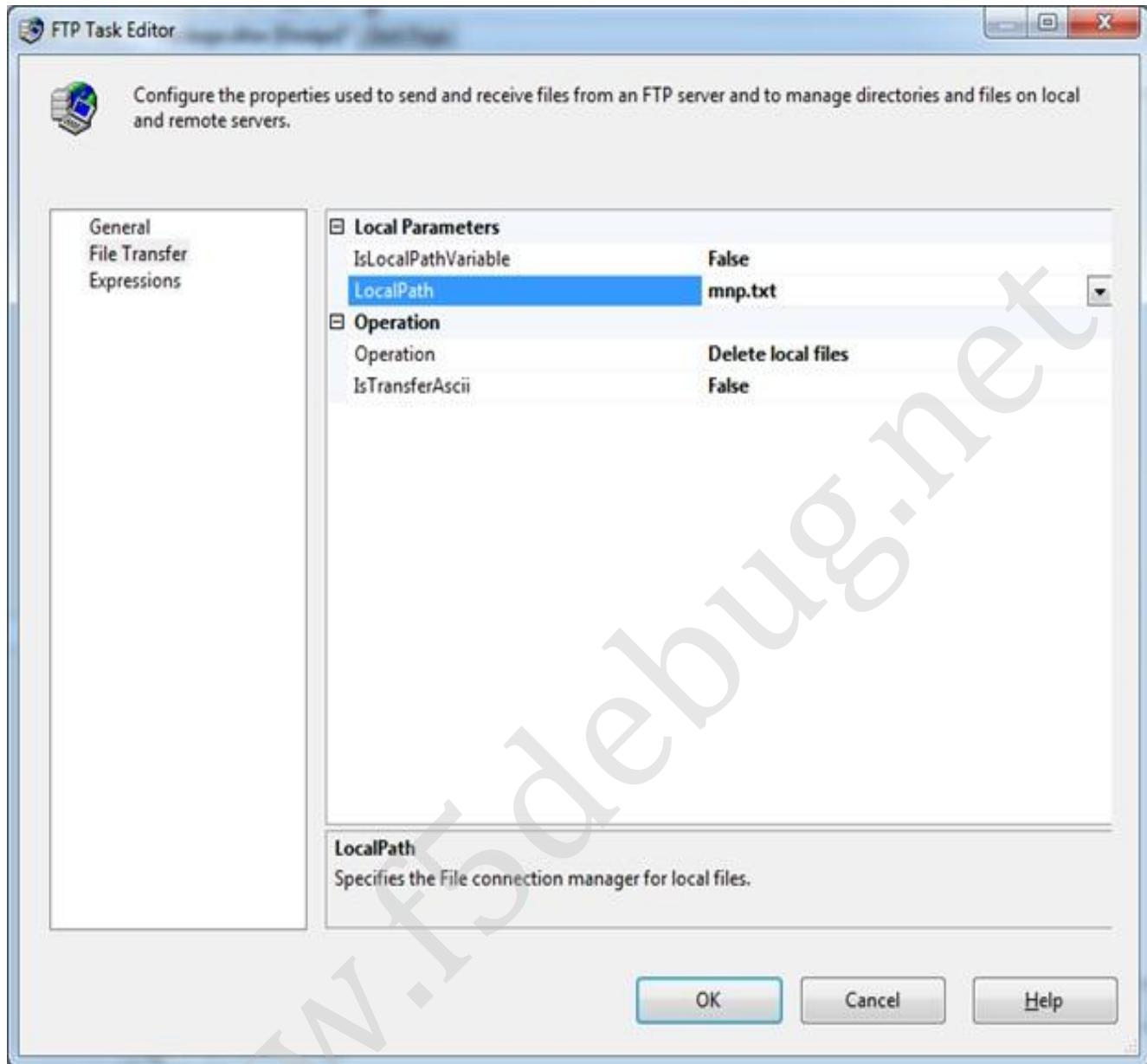


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection. End user need 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 delete some file in the local box we need to set as below. Here input variable is used to get the path where we need to delete the files locally.



Here once you have given valid credentials, running the package directly will do the necessary steps of deleting the files in the local server using the FTP Task.

## Conclusion

In this chapter we have seen on how to delete the files in the local server using the FTP Task transformation using the SQL server Business Intelligence Studio.

# Chapter 26

## **DELETE REMOTE FOLDER USING FTP TASK IN SSIS PACKAGE**

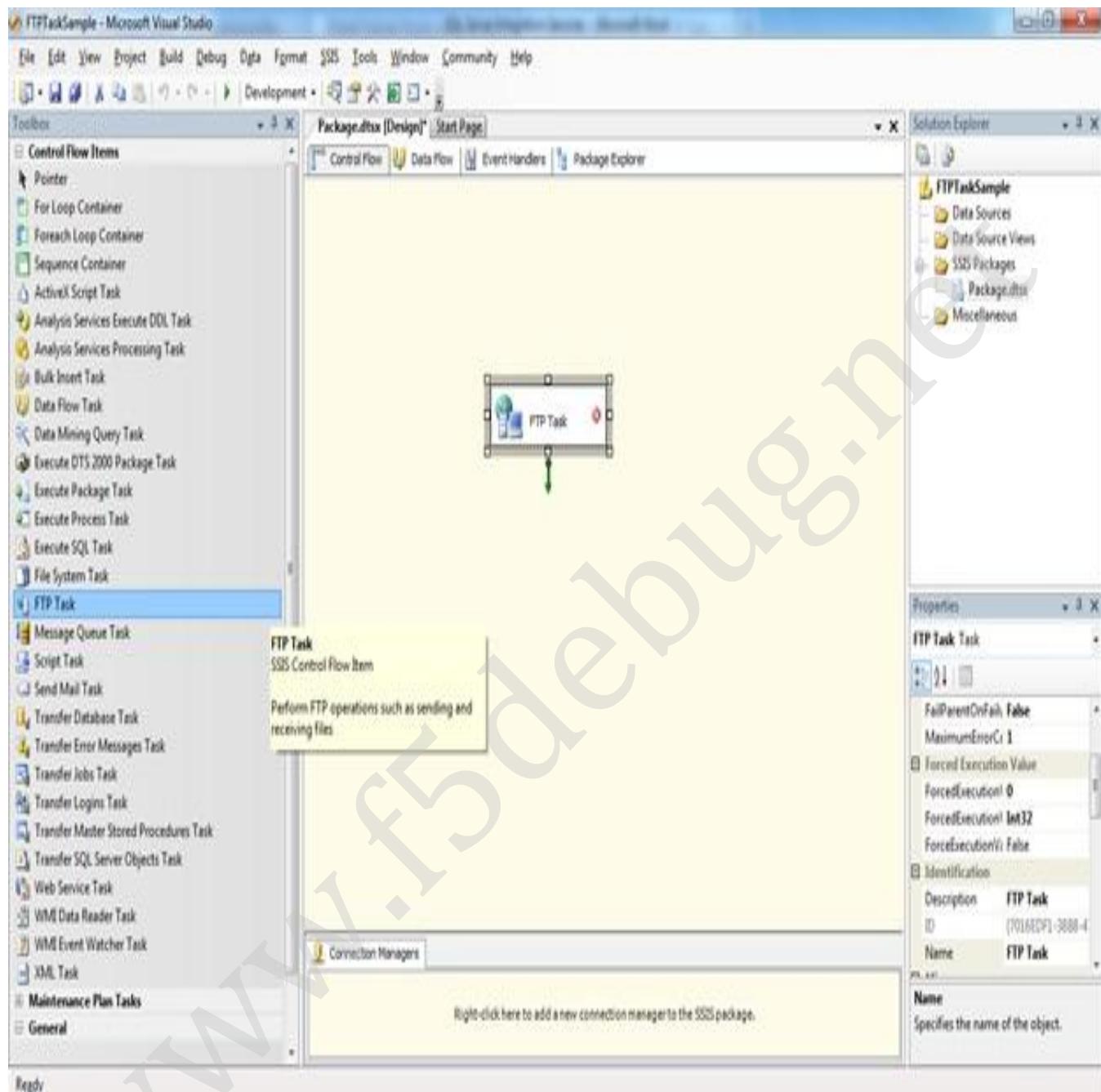
### **Introduction**

In this chapter we are going to see on how to use a FTP task in SSIS package to delete a remote folder using FTP Task transformation using the SQL Server Business Intelligence Studio with SSIS Packaging.

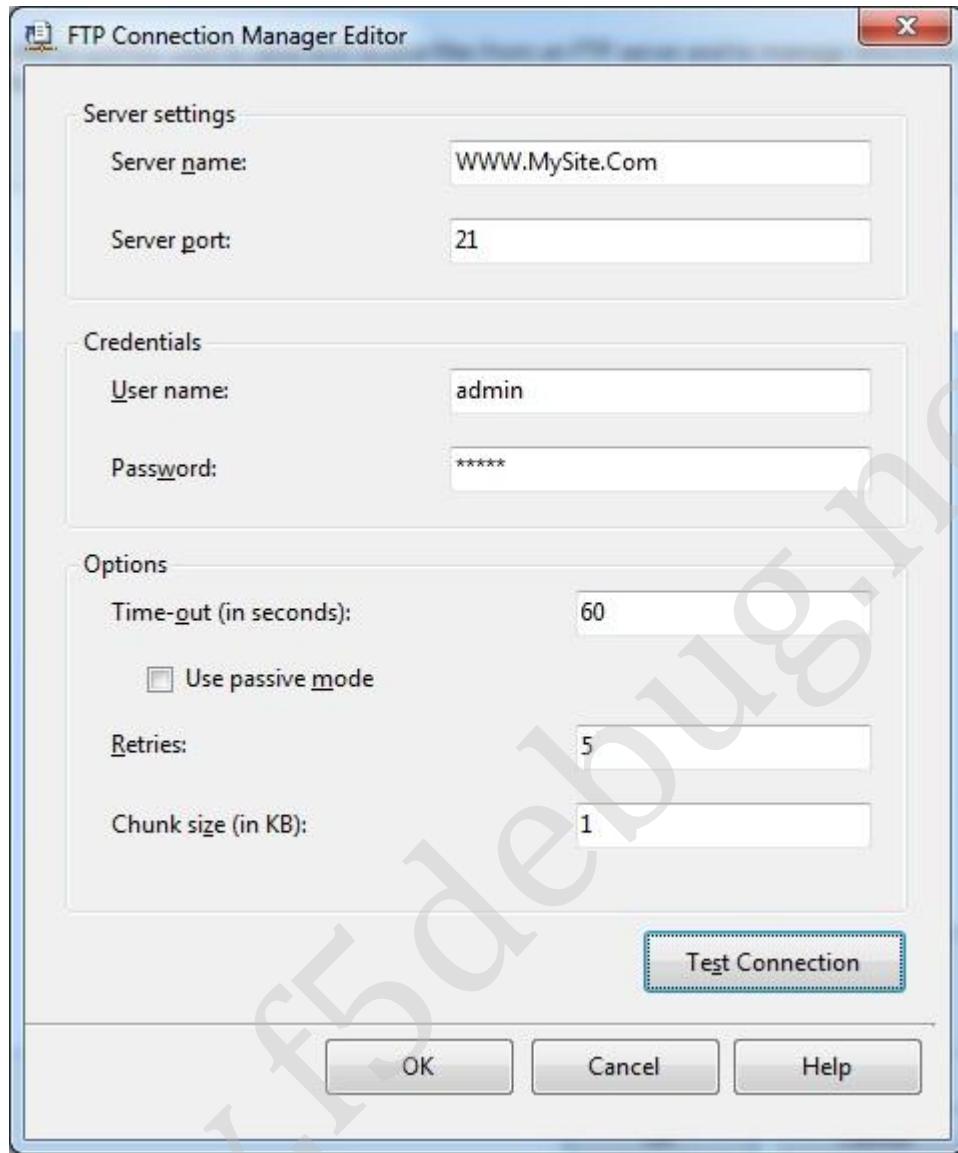
### **Steps**

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

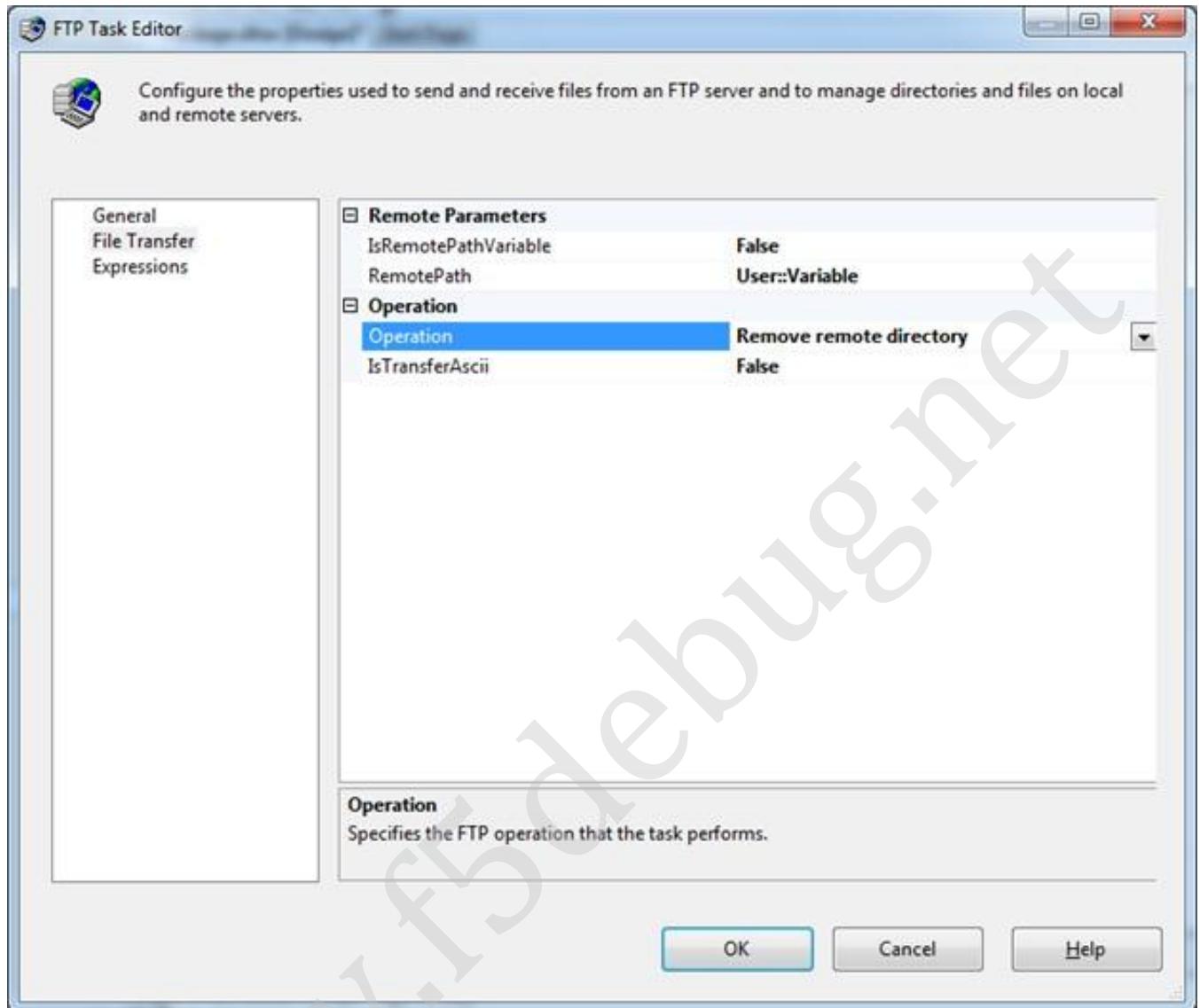


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection, end user need 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 delete a folder in the remote server we need to set as below. Here input variable is used to get the path where we need to delete the folders remotely.



Here once you have given valid credentials by running directly the package will do the necessary steps of deleting the folder in the remote server using the FTP Task.

## Conclusion

In this chapter we have seen how to delete the folder in the remote server using the FTP Task transformation using the SQL Server Business Management Studio.

# Chapter 27

## **DELETE LOCAL FOLDER USING FTP TASK IN SSIS PACKAGE**

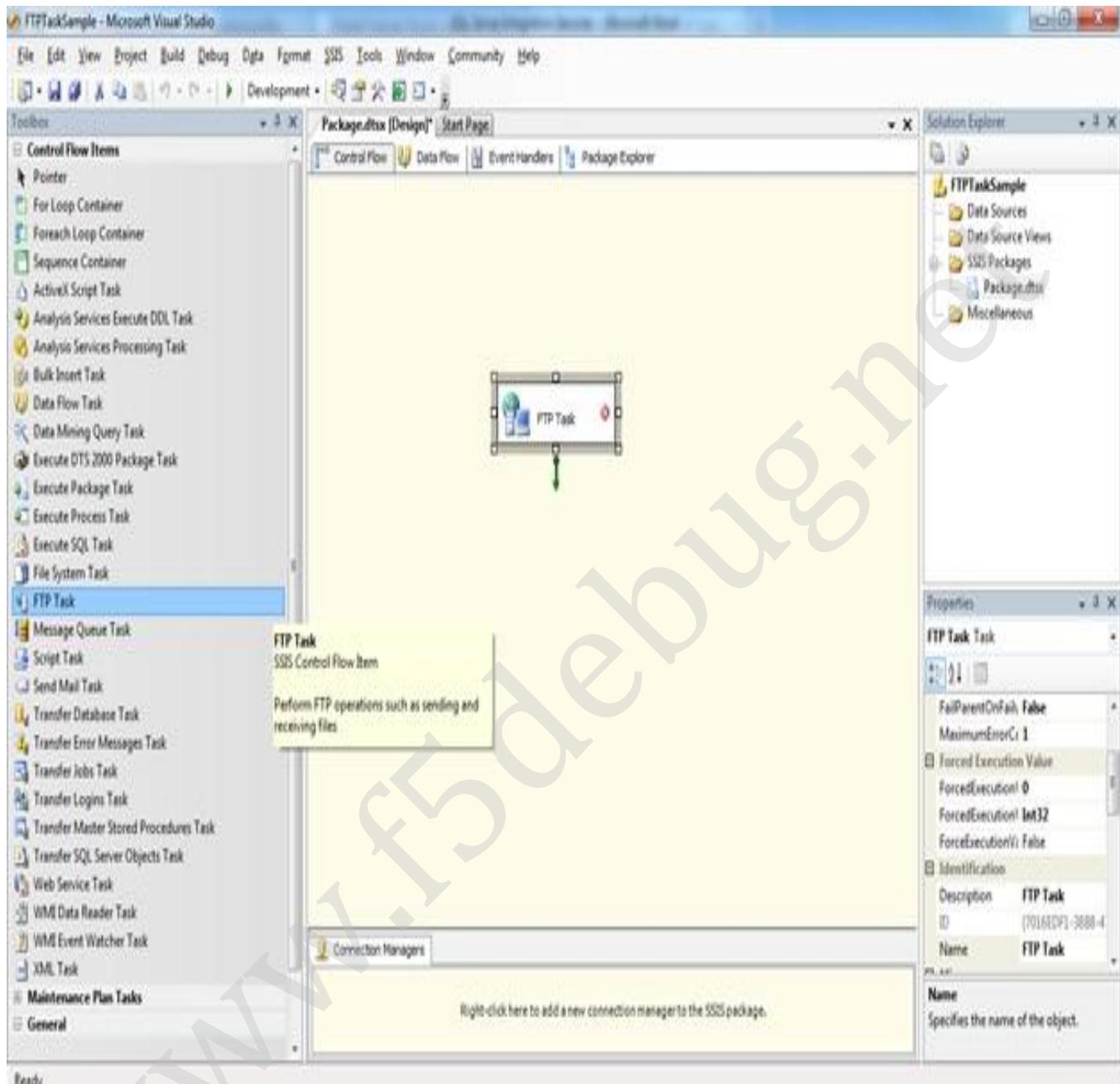
### **Introduction**

In this chapter we are going to see on how to use a FTP task in SSIS package to delete a local folder using FTP Task transformation using the SQL Server Business Intelligence Studio with SSIS Packaging.

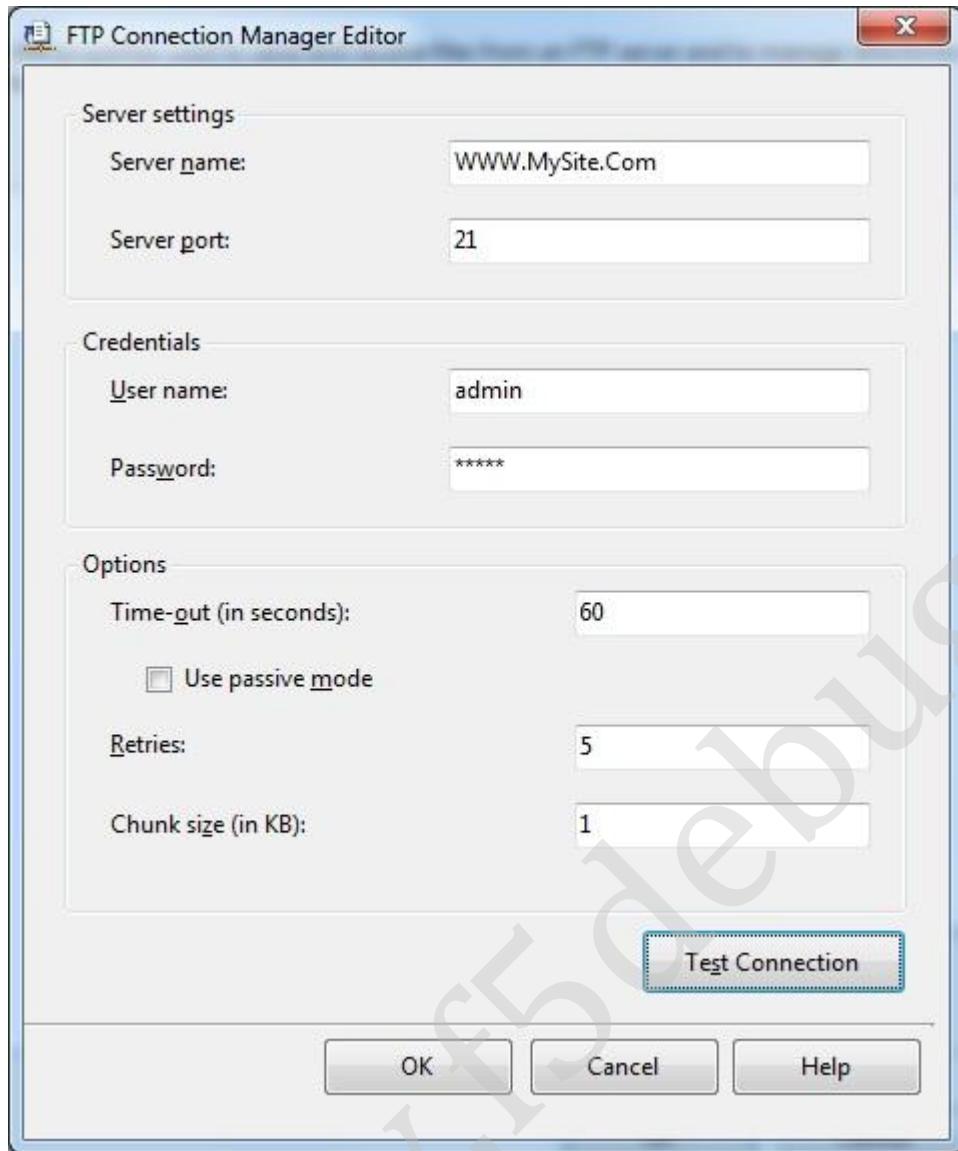
### **Steps**

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

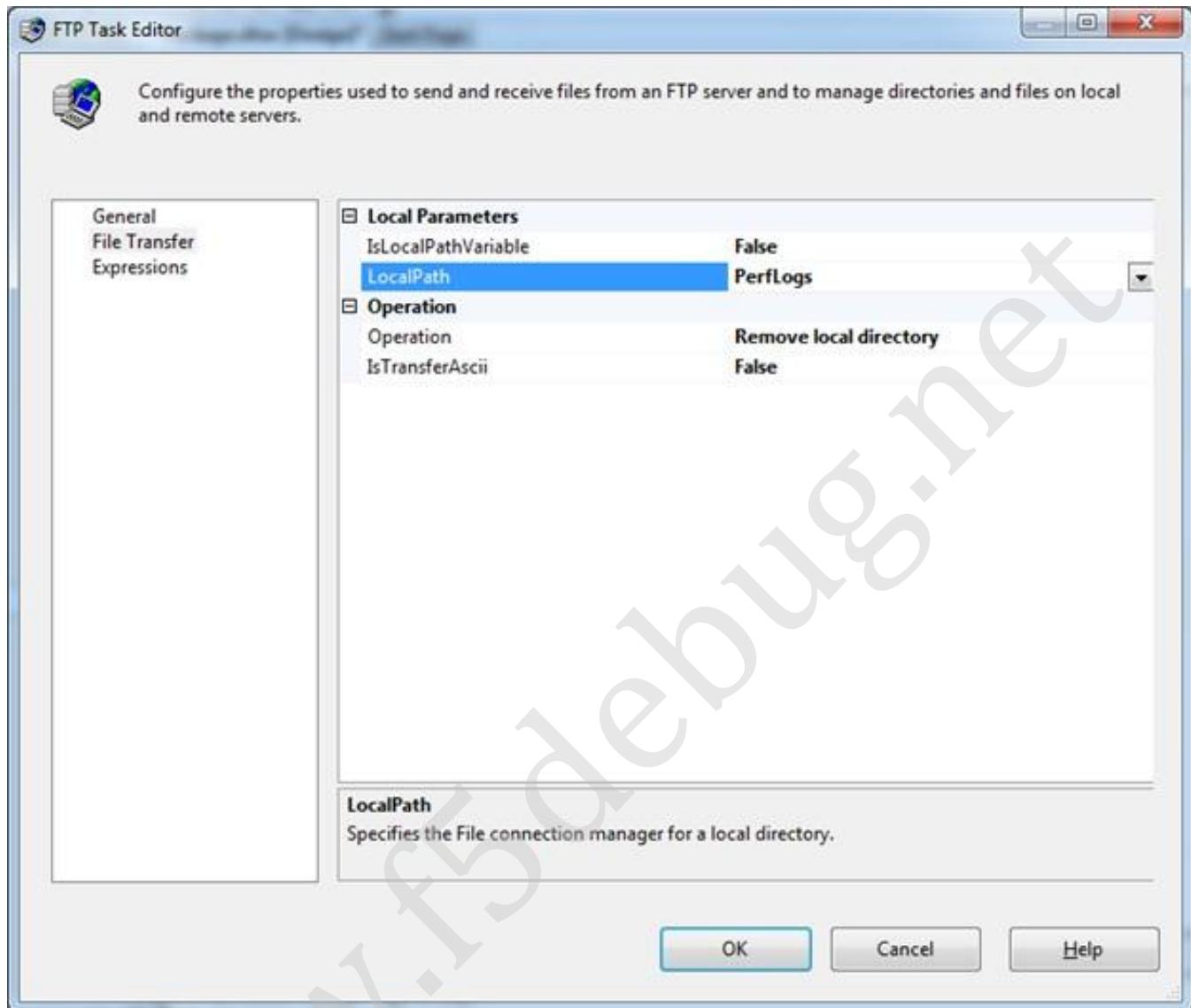


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection, end user need 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 delete a folder in the local box we need to set as below. Here input variable is used to get the path where we need to delete the folders locally.



Here once you have given valid credentials by running directly the package will do the necessary steps of deleting the folder in the local box using the FTP Task.

## Conclusion

In this chapter we have seen on how to delete the folder in the local machine using the FTP Task Transformation using the SQL Server Business Intelligence Studio.

# Chapter 28

## CREATE REMOTE FOLDER USING FTP TASK IN SSIS PACKAGE

### Introduction

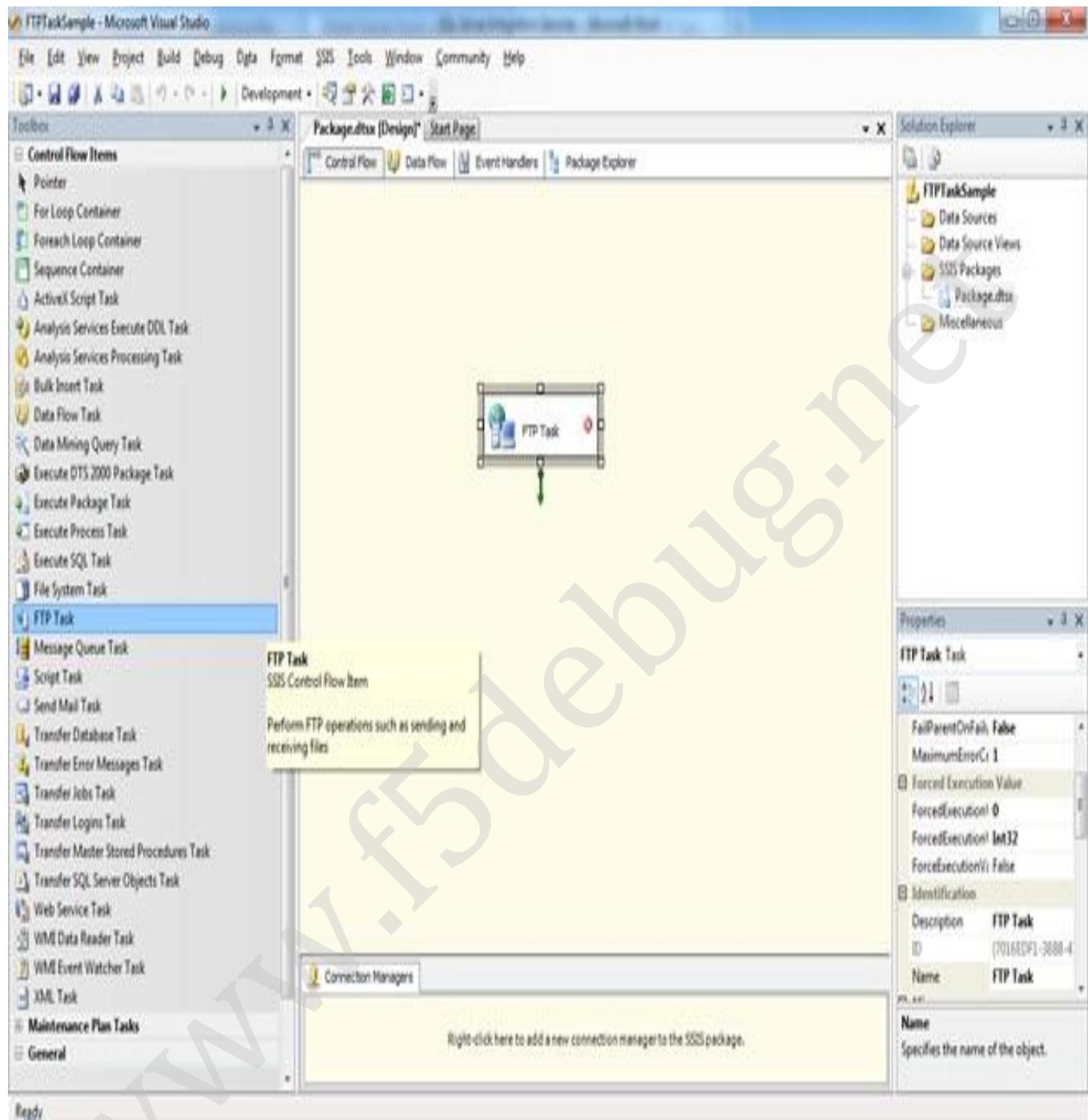
In this chapter we are going to see on how to use a FTP task in SSIS package to create a remote folder using FTP Task transformation using the SQL Server Business Intelligence Studio with SSIS Packaging.

### Steps

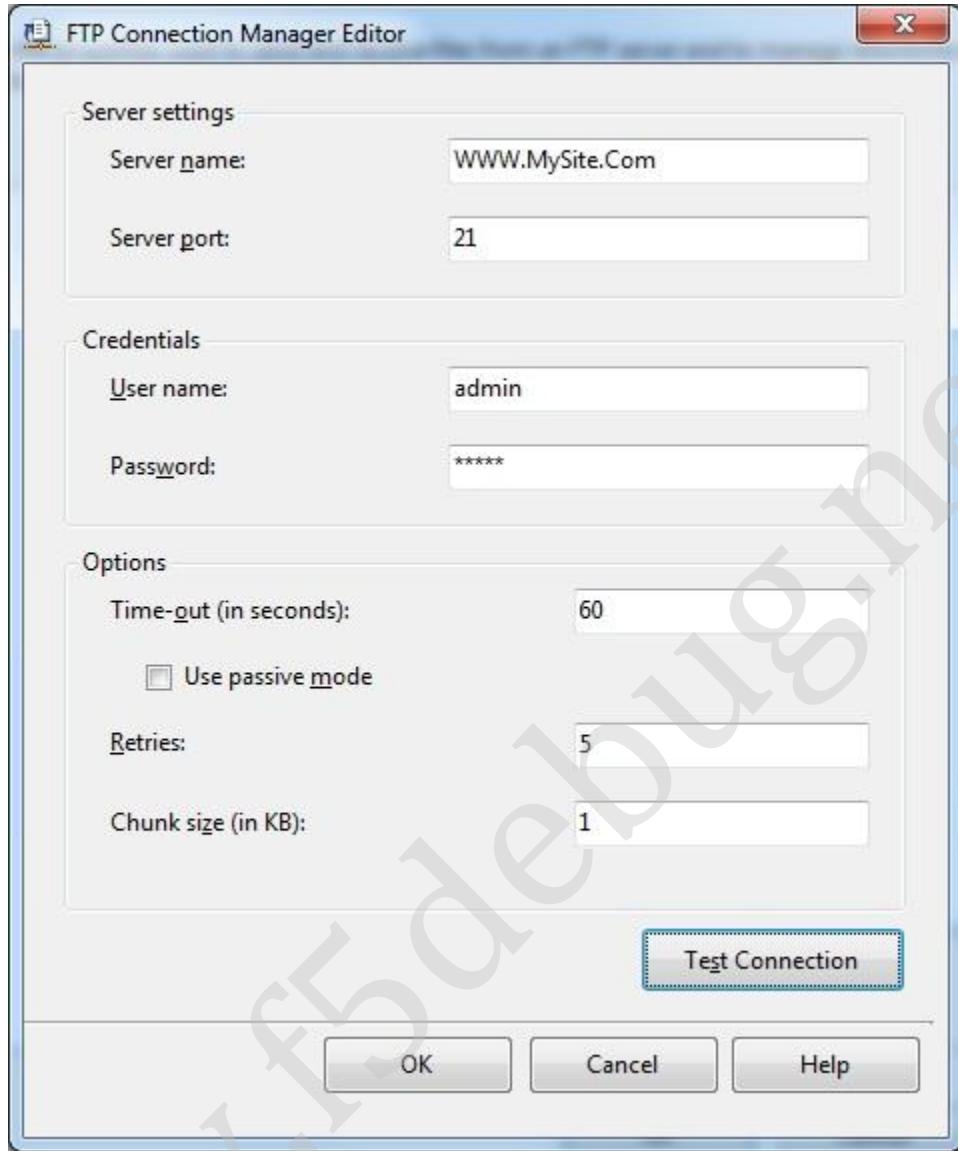
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

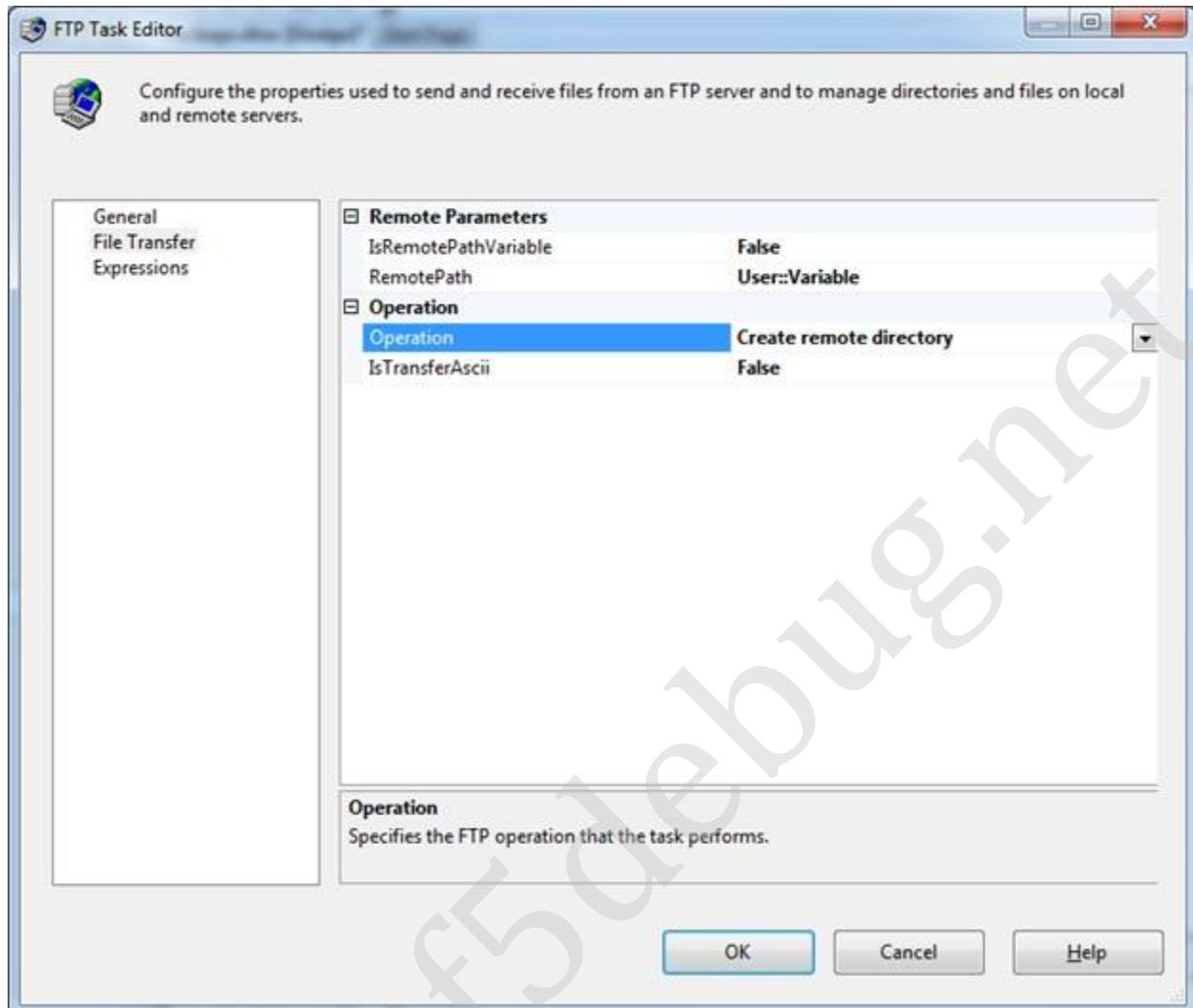


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection, end user need 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 create a folder in the remote server we need to set as below. Here input variable is used to get the path where we need to create the folder in the remote server.



Here once you have given valid credentials by running directly the package will do the necessary steps of creating a new directory in the remote server using the FTP Task.

## Conclusion

In this chapter we have seen on how to create the folder in the remote server using FTP Task with the SQL Server Business Intelligence Studio.

# Chapter 29

## CREATE LOCAL FOLDER USING FTP TASK IN SSIS PACKAGE

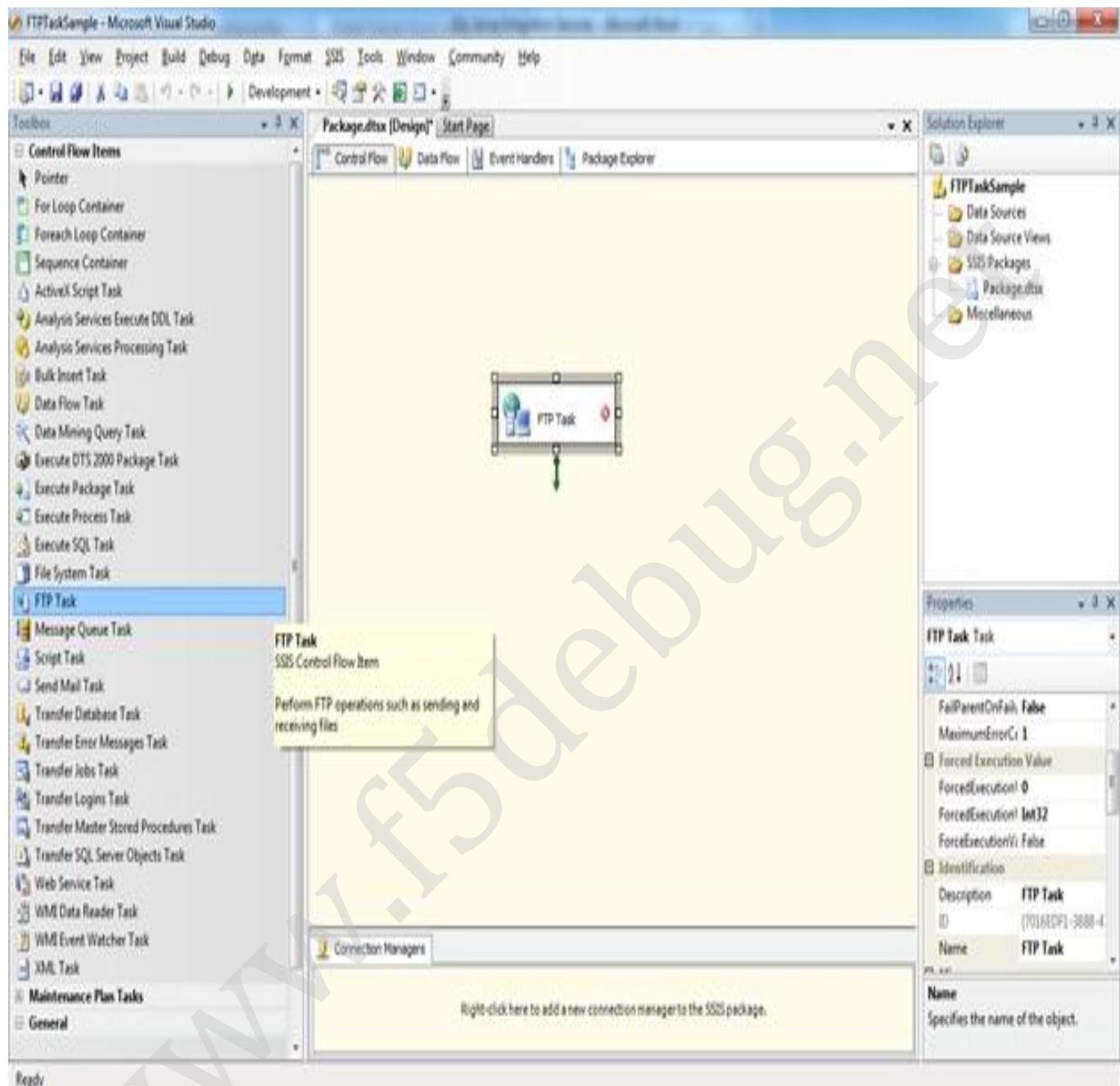
### Introduction

In this chapter we are going to see on how to use a FTP task in SSIS package to create a local folder using FTP Task transformation using the SQL Server Business Intelligence Studio with SSIS Packaging.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use FTP task container.

Drag and drop the FTP task as shown in the screen below.

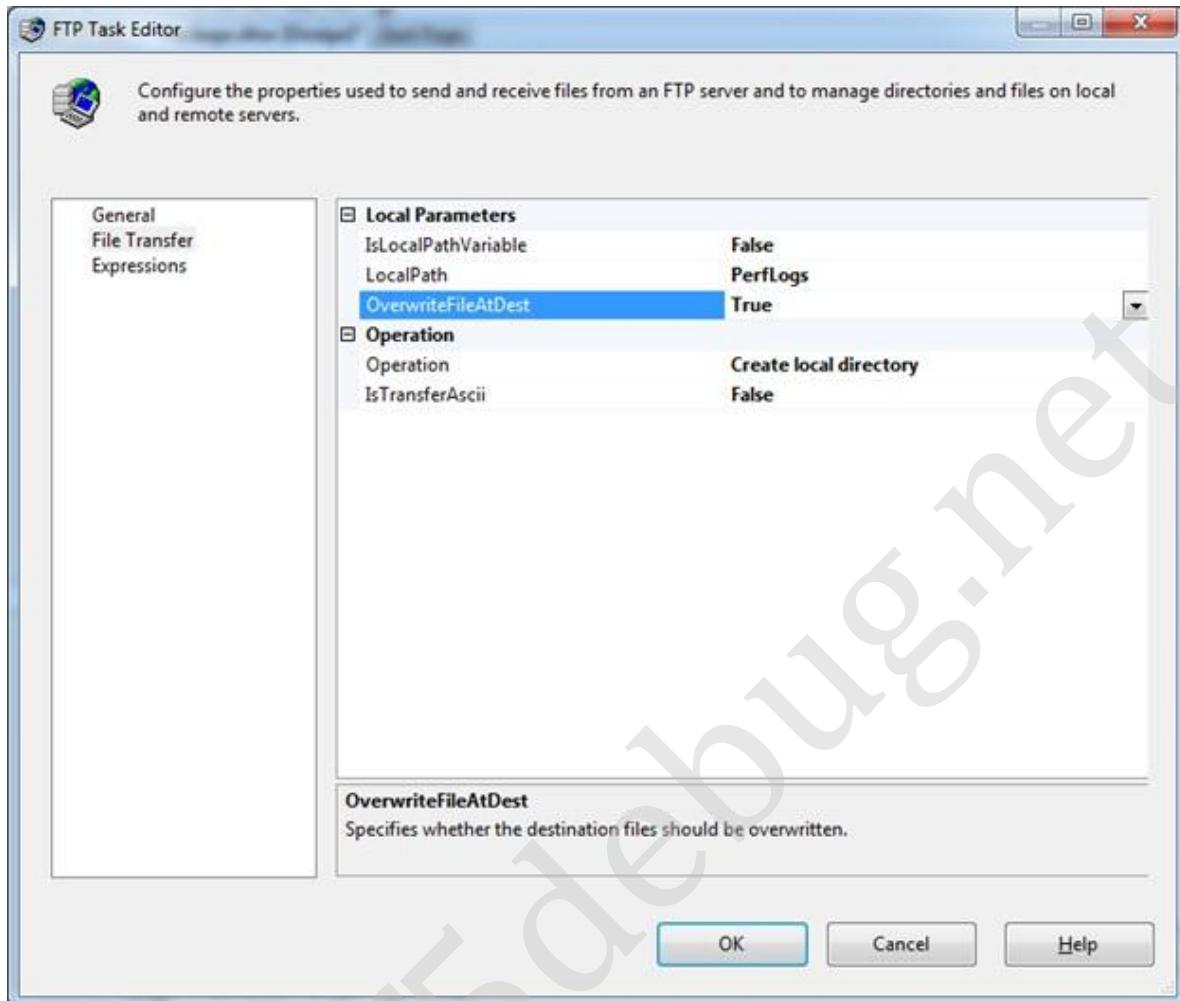


Now double click on the task to open the property window and set the properties as shown in the screen below.



The above screen shows the configuration used for setting the FTP Connection, end user need 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 create a folder in the local box we need to set as below. Here input variable is used to get the path where we need to create the folder in the local machine.



Here once you have given valid credentials by running directly the package will do the necessary steps of creating a new directory in the local server using the FTP Task. Here if you could see an option **OverwriteFileAtDest = true**, we need to set this option so that if there is an existing folder it will over write else it will create a new directory.

### Conclusion

In this chapter we have seen how to create the folder in the local machine using FTP Task Transformation using the SQL Server Business Intelligence Studio.

# Chapter 30

## DATA FLOW TRANSFORMATIONS IN SSIS

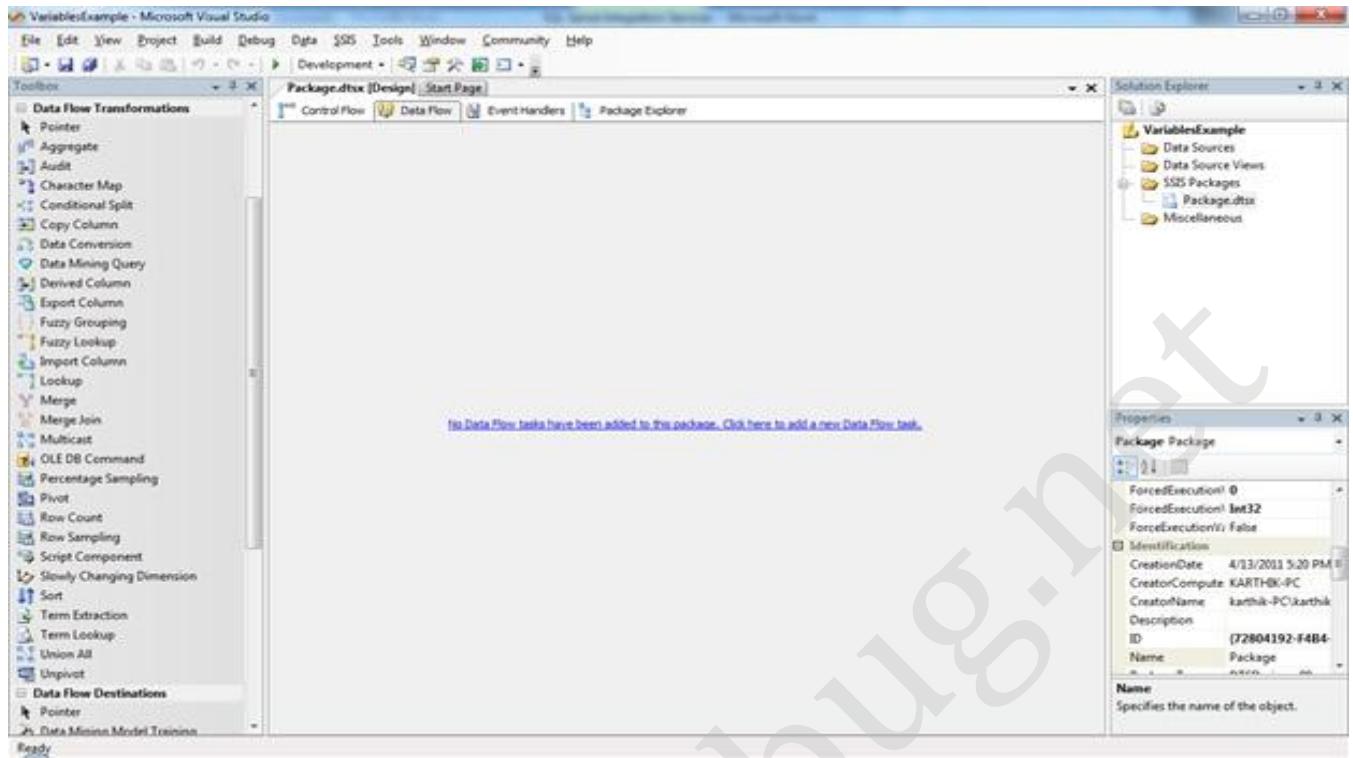
### Introduction

In this chapter we are going to see on what Data Flow Transformations in SSIS and the list of controls that are provided in the data flow transformations followed by the series of chapters on each of the control and the usage of the controls.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on what exactly the data flow transformations are and where to locate the controls under this transformation and the usage of those transformations.

After opening a new project just move to the Dataflow tab in the designer window and you can see the list of Data Transformations as shown in the screen below.



**Data flow transformations** are helpful to do any type of manipulations across the data which are to be transferred and used in the package.

There are 28 data flow transformation controls and the list of them are as below with a small description on what for the control is used for.

S No	Transformation	Description
1	Aggregate	Aggregates and groups values
2	Audit	Adds audit information
3	Character Map	Applies string operations to character data
4	Conditional Split	Evaluates and splits up rows
5	Copy Column	Copies a column
6	Data Conversion	Converts data to a different data type

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

7	Data Mining Query	Runs a data mining query
8	Derived Column	Calculates a new column from existing data
9	Export Column	Exports data from a column to a file
10	Fuzzy Grouping	Groups rows that contain similar values
11	Fuzzy Lookup	Looks up values using fuzzy matching
12	Import Column	Imports data from a file to a column
13	Lookup	Looks up values in a dataset
14	Merge	Merges two sorted datasets
15	Merge Join	Merges data from two datasets by using a join
16	Multicast	Creates copies of a dataset
17	OLE DB Command	Executes a SQL command on each row in a dataset
18	Percentage Sampling	Extracts a subset of rows from a dataset
19	Pivot	Builds a pivot table from a dataset
20	Row Count	Counts the rows of a dataset
21	Row Sampling	Extracts a sample of rows from a dataset
22	Script Component	Executes a custom script
23	Slowly Changing Dimension	Updates a slowly changing dimension in a cube
24	Sort	Sorts data
25	Term Extraction	Extracts data from a column

26	Term Lookup	Looks up the frequency of a term in a column
27	Union All	Merges multiple datasets
28	Unpivot	Normalizes a pivot table

## Conclusion

In our upcoming chapters we are going to see on each of the major control and the purpose of them in details with some working samples.

# Chapter 31

## AGGREGATE (AVERAGE) TRANSFORMATION CONTROL

### Introduction

In this chapter we are going to see on how to use an Aggregate data flow transformation control in SSIS packaging. Aggregate functions are used to do a list of needed activities like Sum, Average, and Group by etc., on to a transformation output. To follow my series of chapters on SSIS packages refer to my profile.

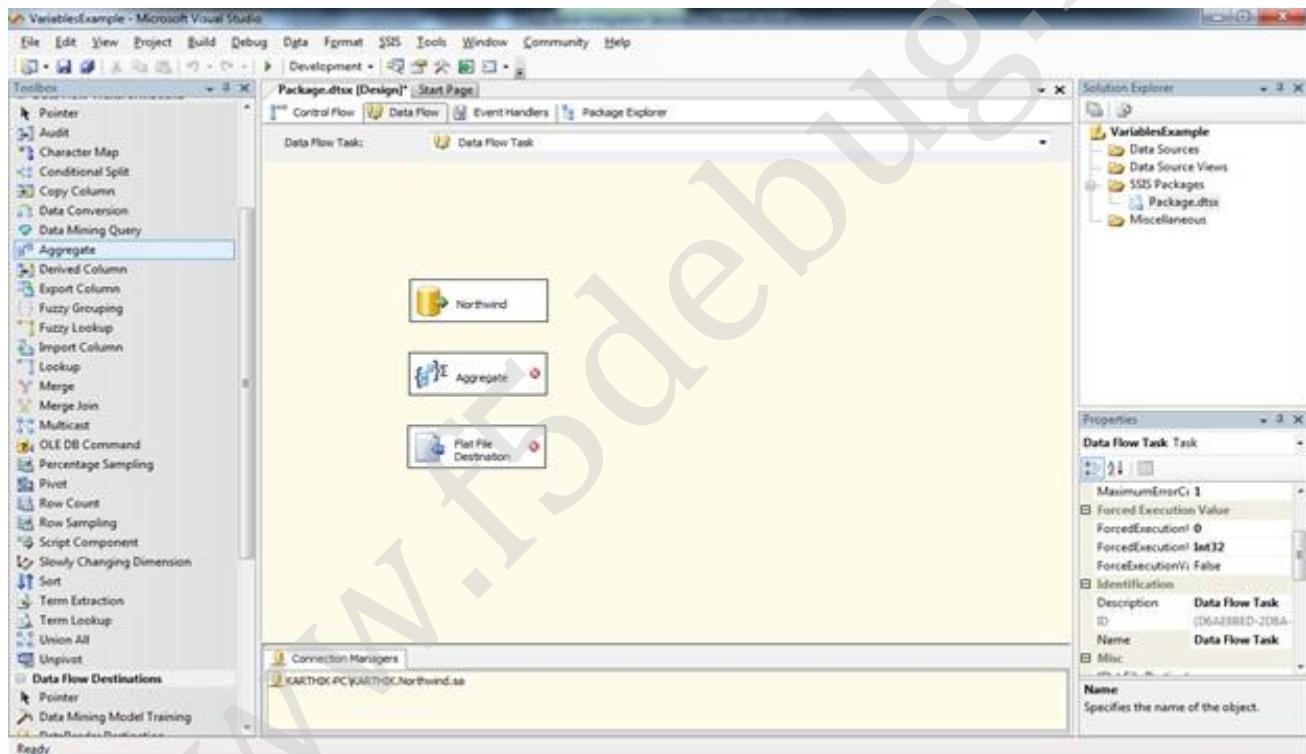
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an aggregate control along with the list of available operations. The lists of available aggregate functions are as follows.

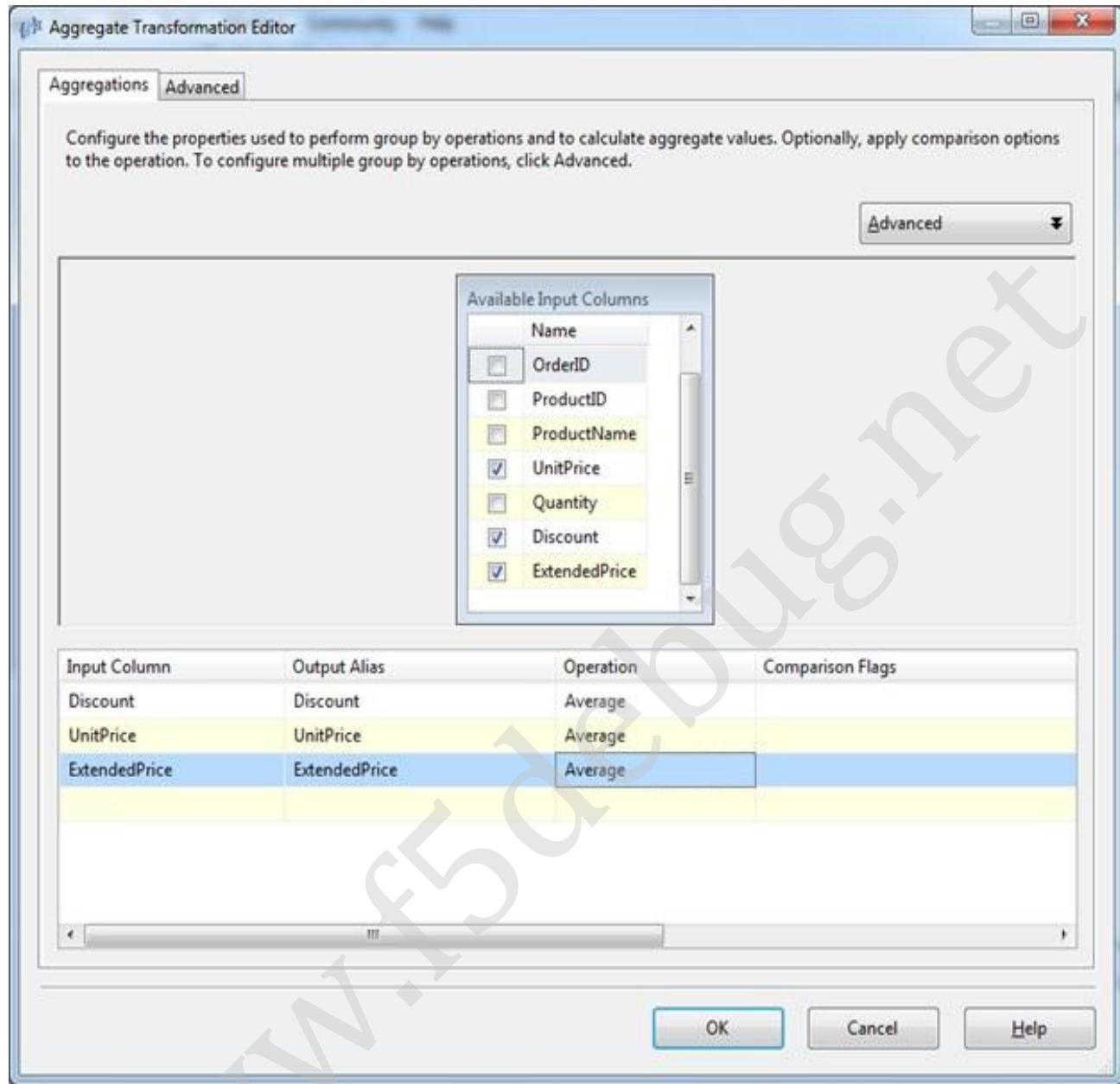
Aggregate Operation	Description
Average	Gives the average values of column values
Group by	Divides the dataset into groups
Sum	Sums the columns into a value, data types with integers are only taken into account
Count	Gives the number of items in a group
Count distinct	Gives the number of unique non null number of items

	in a group
Minimum	Gives the minimum number in a group
Maximum	Gives the maximum number in a group

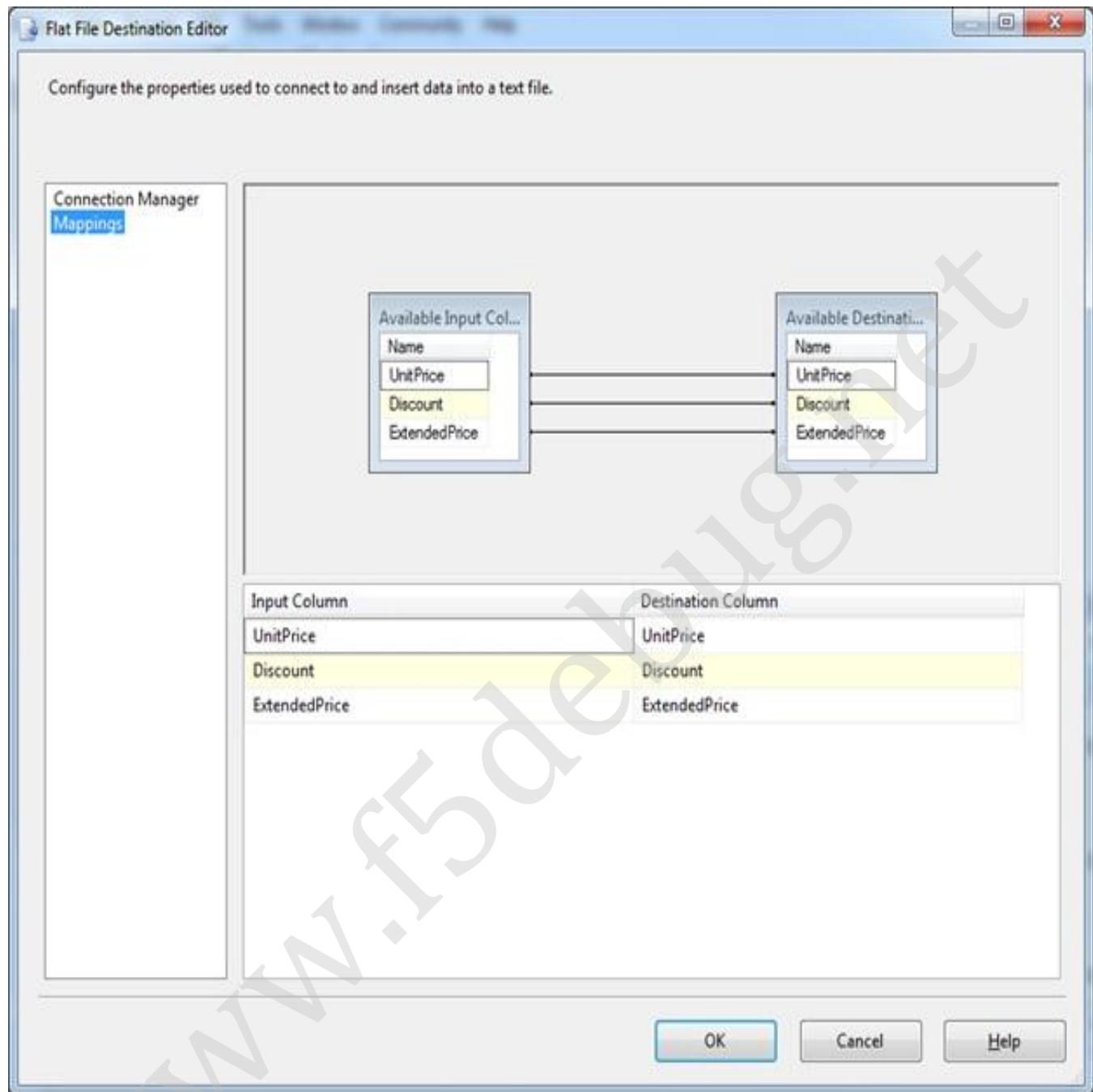
Here we will see on the AVERAGE operation in the aggregate control. Here we have added an OLEDB connection which fetches the data from the database upon which we are going to do some manipulations and then pass it to a file destination as shown in the screen below.



Here last 2 controls shows a red mark inside the control indicating that it is not configured. We step forward and configure the same. Now double click on the Aggregate function will open a pop-up window as shown in the screen below.

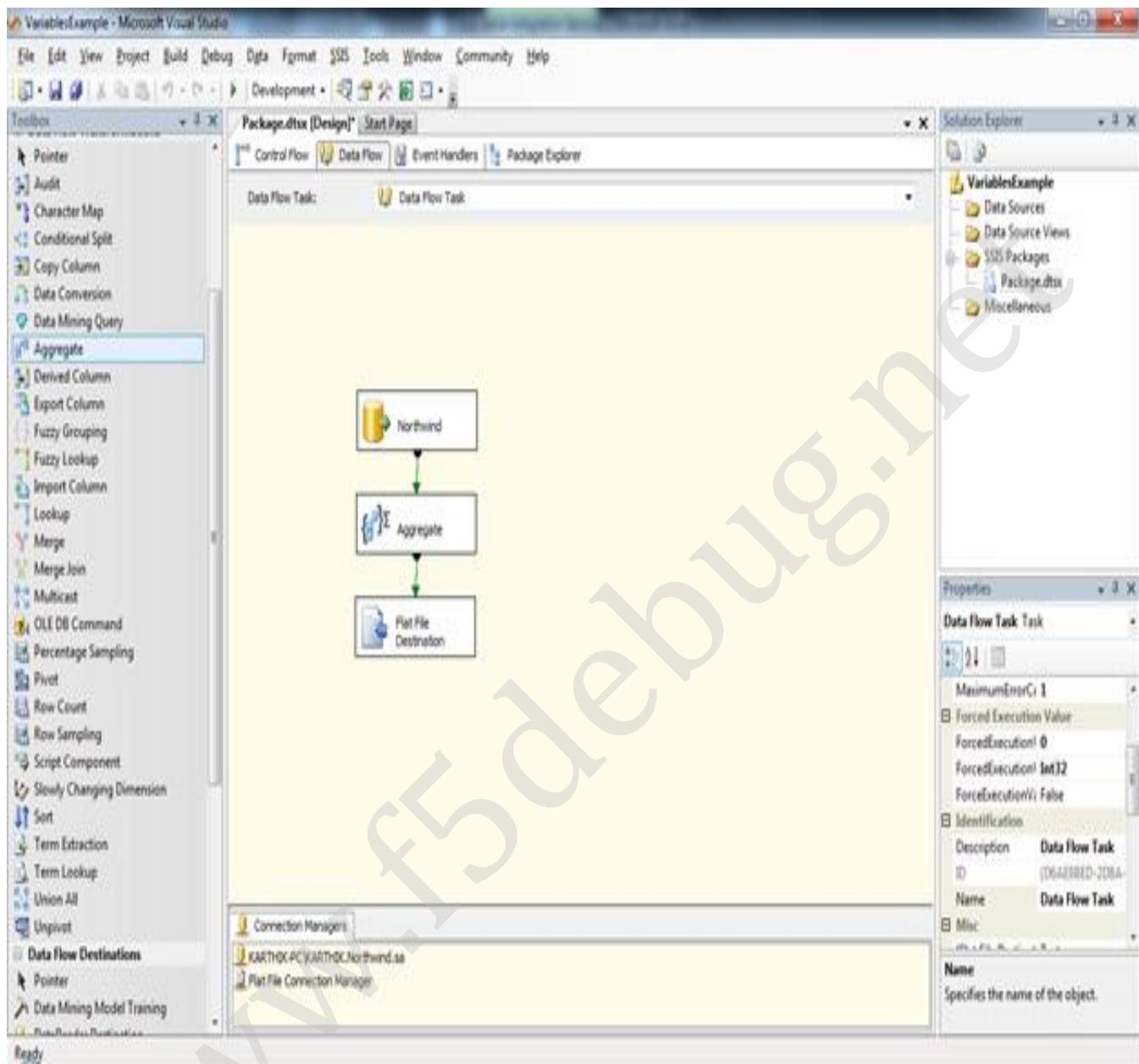


Here we are selecting the columns on which we need an average of as shown in the screen. And after selecting the number of columns for the aggregate then click on the OK button to get configured. Now configure the Flat File Destination as shown in the screen below.



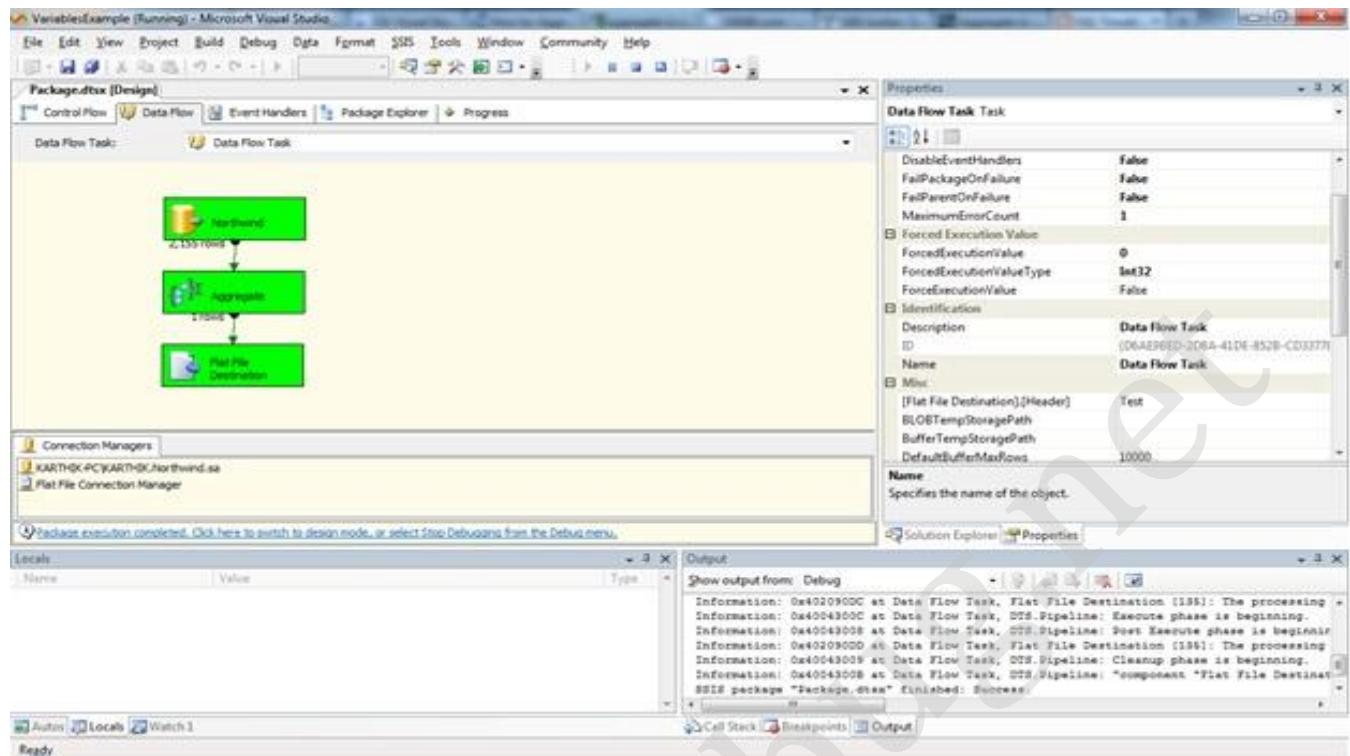
Once we are done with the configuration setting we can see our screen look as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

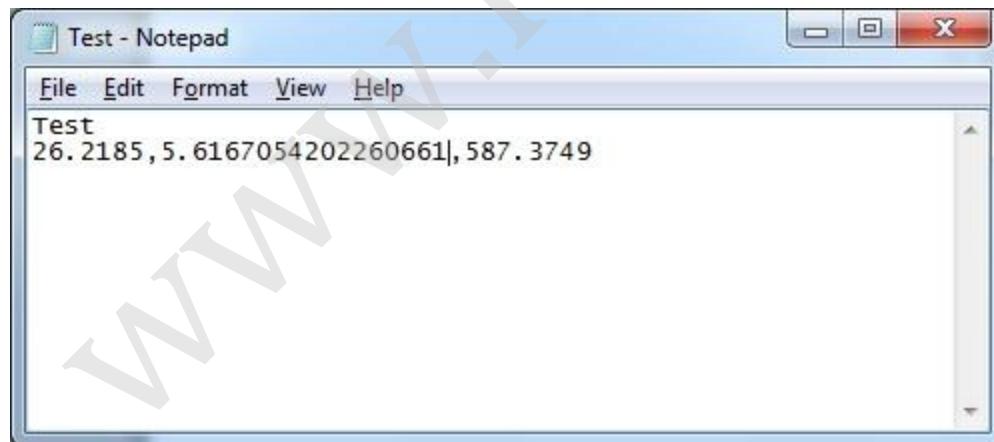


Now Press F5 or Execute button from the tool bar will run the application and show the output as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Here the numbers of rows are indicated at the bottom of the each control as shown in the above screen. And finally the results (AVERAGE of the columns) are loaded to flat file destination which looks like below.



### Conclusion:

In this chapter we have seen on how to do an average of a number of columns using an Aggregate function with the SQL Server Business Intelligence Studio.

# Chapter 32

## AGGREGATE (GROUP BY) TRANSFORMATION CONTROL

### Introduction:

In this chapter we are going to see on how to use an Aggregate (Group by) data flow transformation control in SSIS packaging. With this function operation we can get a list of grouping necessary to get result in desired format.

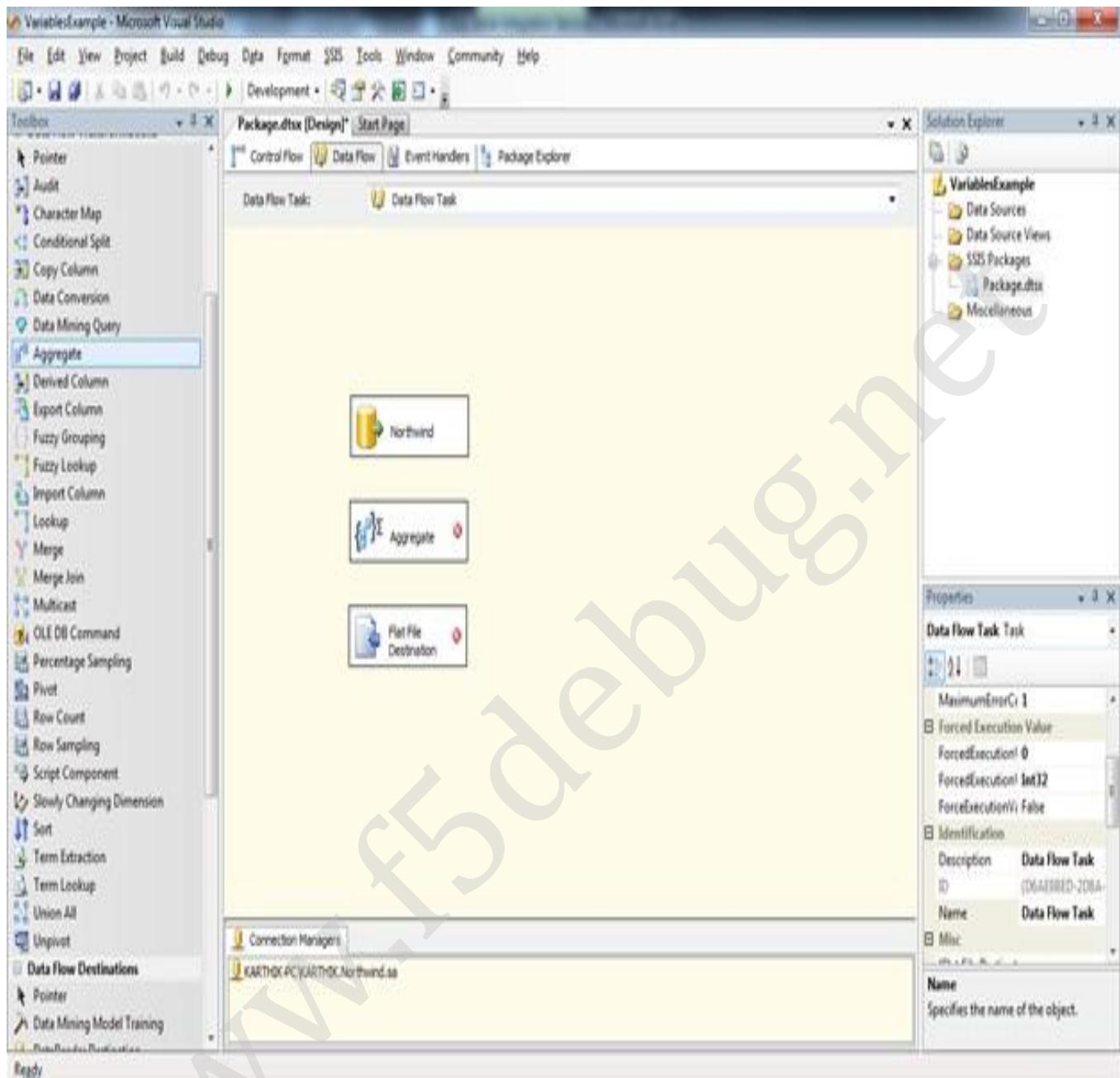
Let's jump into to the example on how to use this control in real time.

### Steps

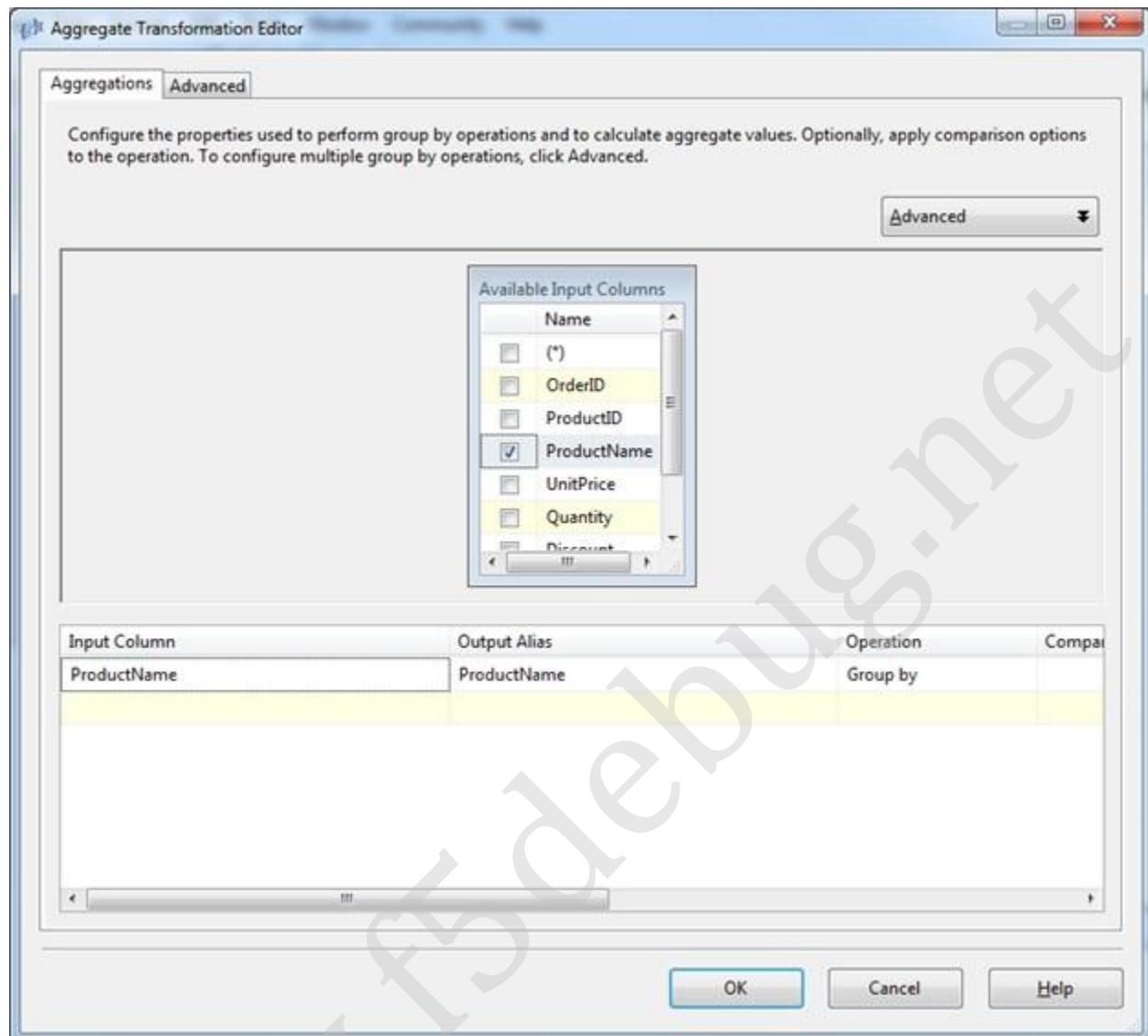
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an aggregate control for grouping the columns.

Here we will see on the Group By operation in the aggregate control. We need to add an OLEDB connection data source which fetches the data from the database upon which we are going to do Grouping manipulations and then pass it to a file destination as shown in the screen below.

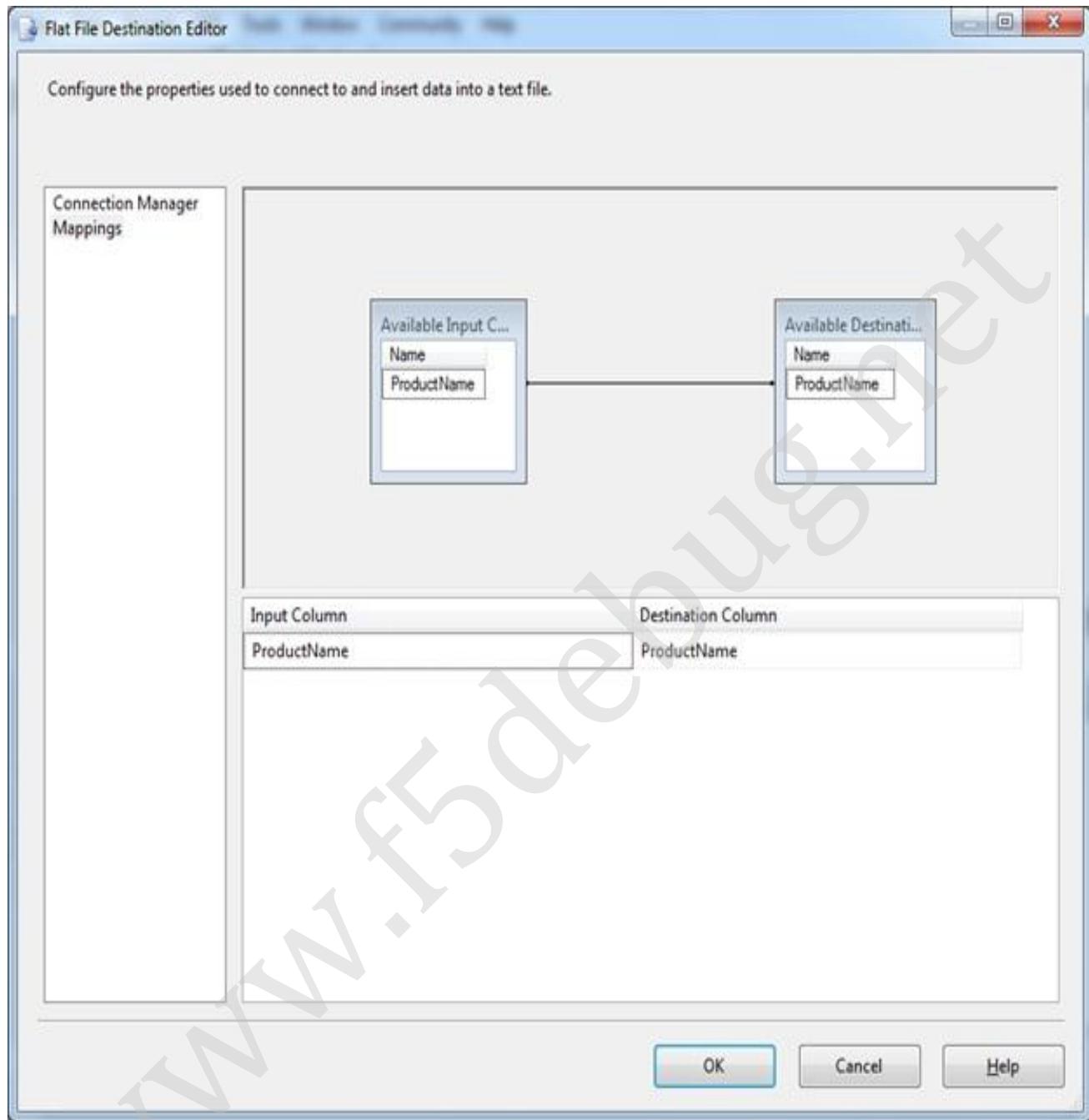
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Here last 2 controls shows a red mark inside the control indicating that the control is not configured. We step forward and configure the same. Now double click on the Aggregate function will open a pop-up window as shown in the screen below.

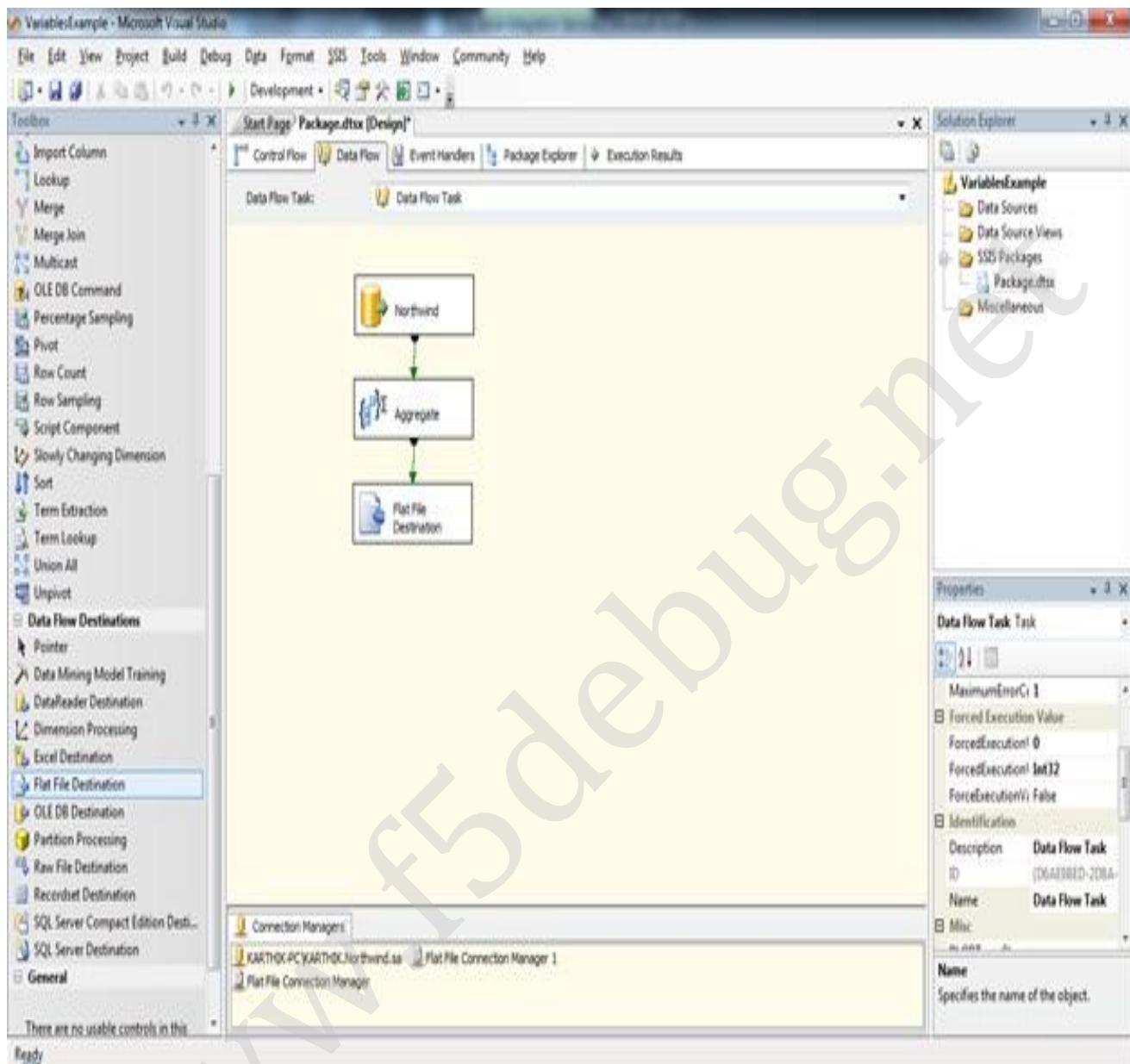


Here we are selecting the columns on which we need a Grouping of data as shown in the screen. And after selecting the number of columns for the group then clicks on the OK button to get configured. Now configure the Flat File Destination as shown in the screen below.

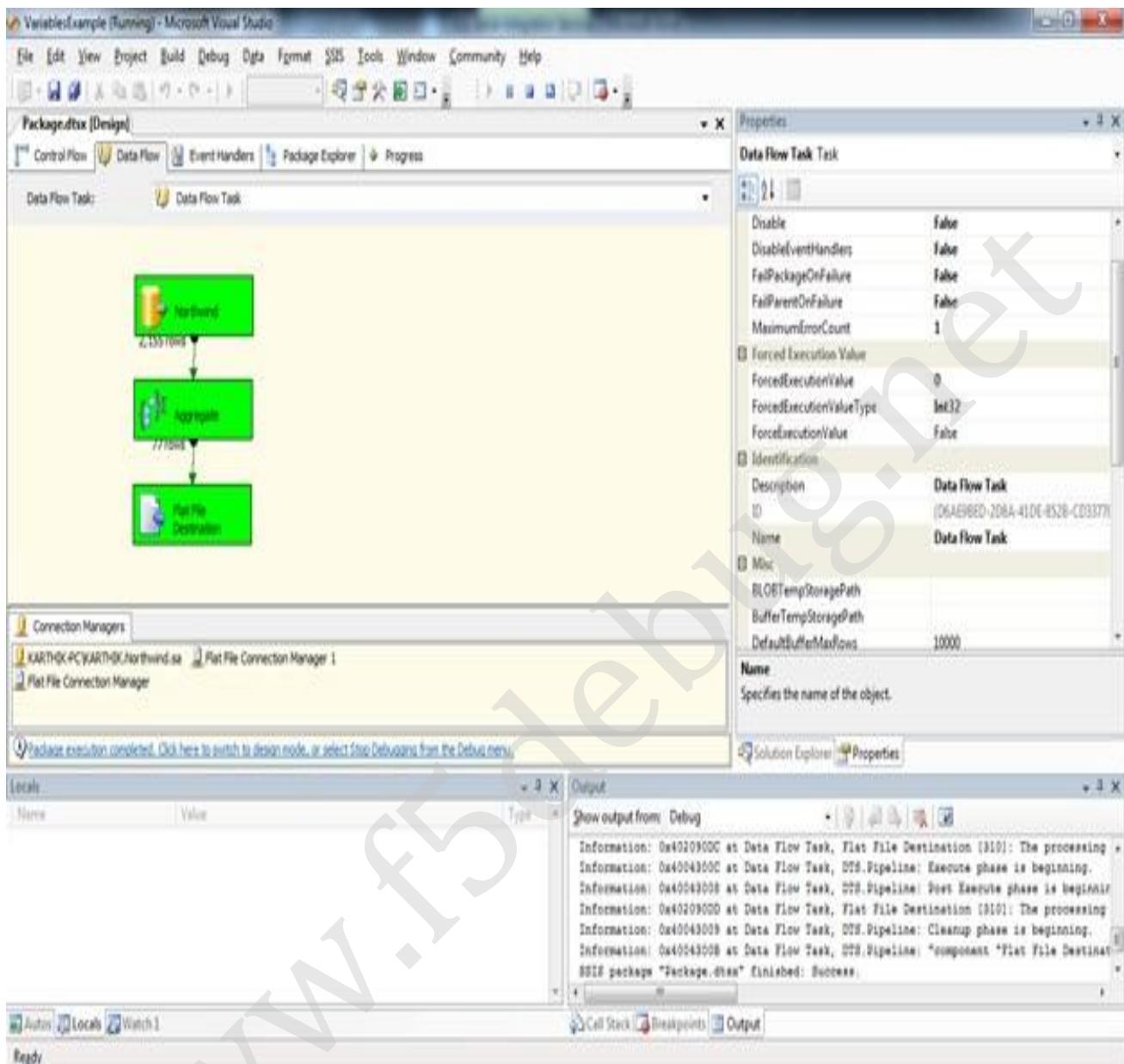


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now Press F5 or Execute button from the tool bar will run the application and show the output as shown in the screen below.



Here the numbers of rows are indicated at the bottom of the each control as shown in the above screen. And finally the results (Grouping of the columns based on product) are loaded to flat file destination which looks like below.



## Conclusion

In this chapter we have seen on how to do a grouping of a number of columns using an Aggregate function transformation in data flow tab.

# Chapter 33

## AGGREGATE (SUM) TRANSFORMATION CONTROL

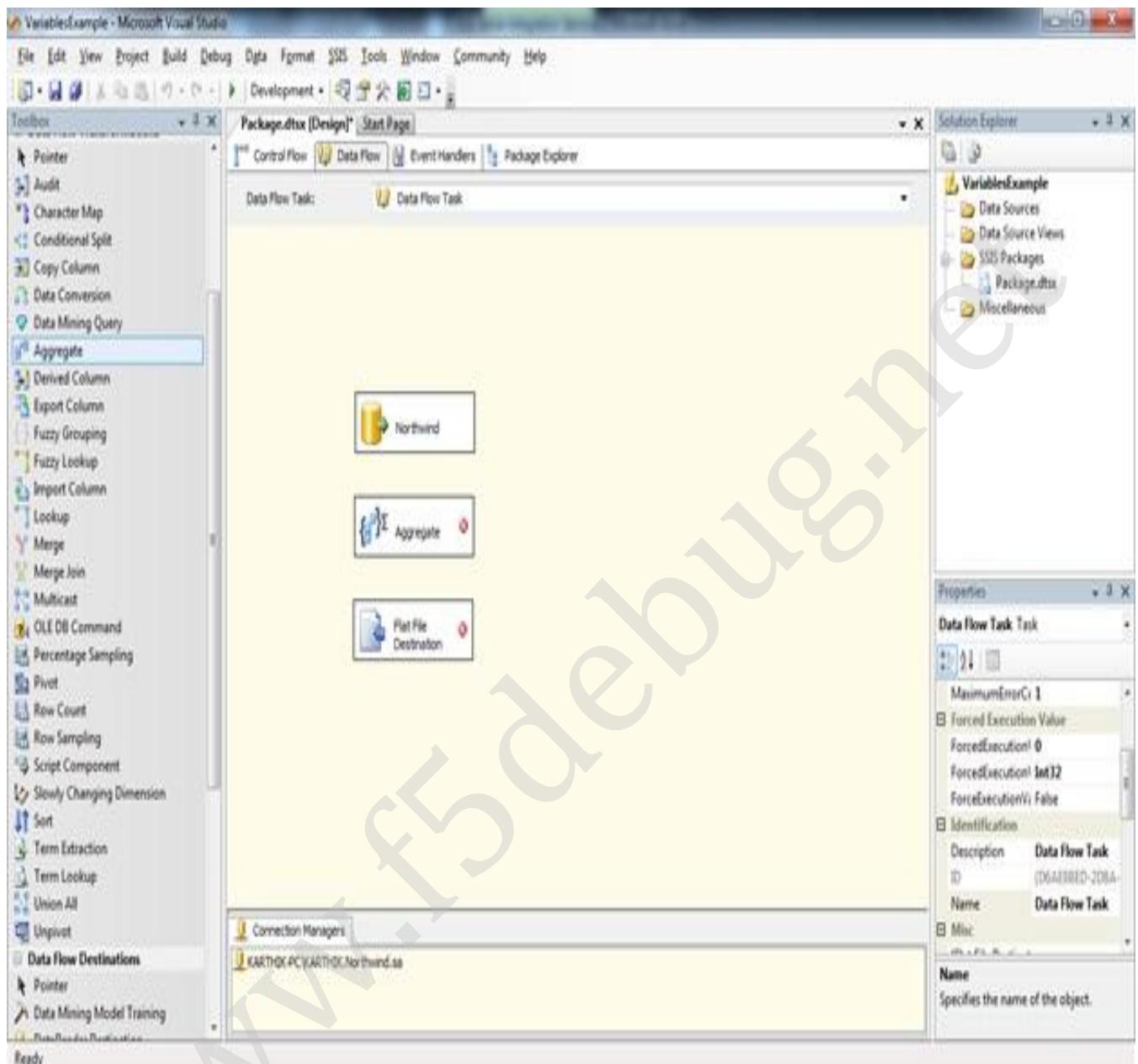
### Introduction

In this chapter we are going to see on how to use an Aggregate (SUM) data flow transformation control in SSIS packaging. With this function operation we can get a Summation of a number of rows necessary to get result in desired format. Let's jump into to the example on how to use this control in real time.

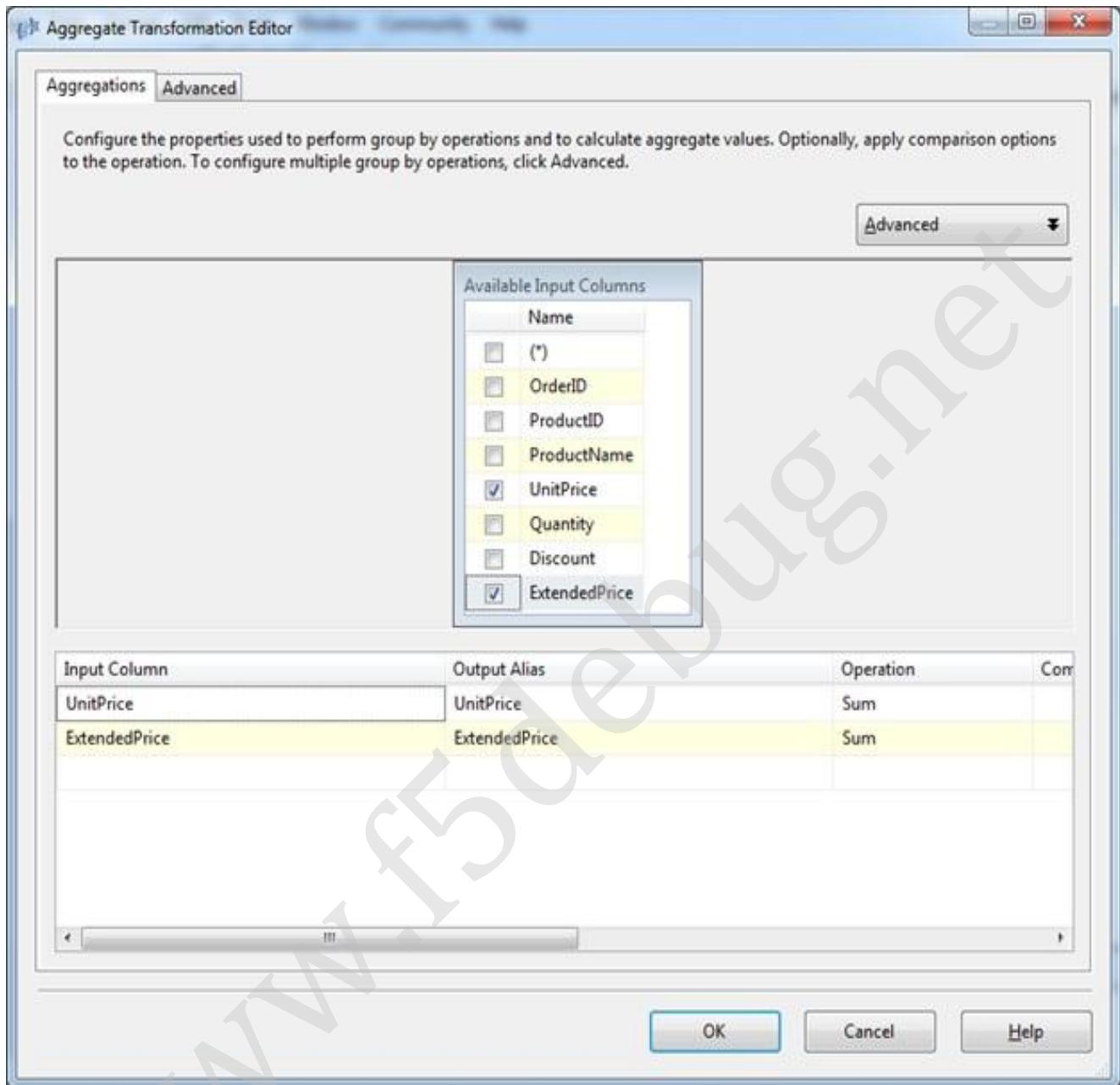
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an aggregate control for summing the rows and give as a single column.

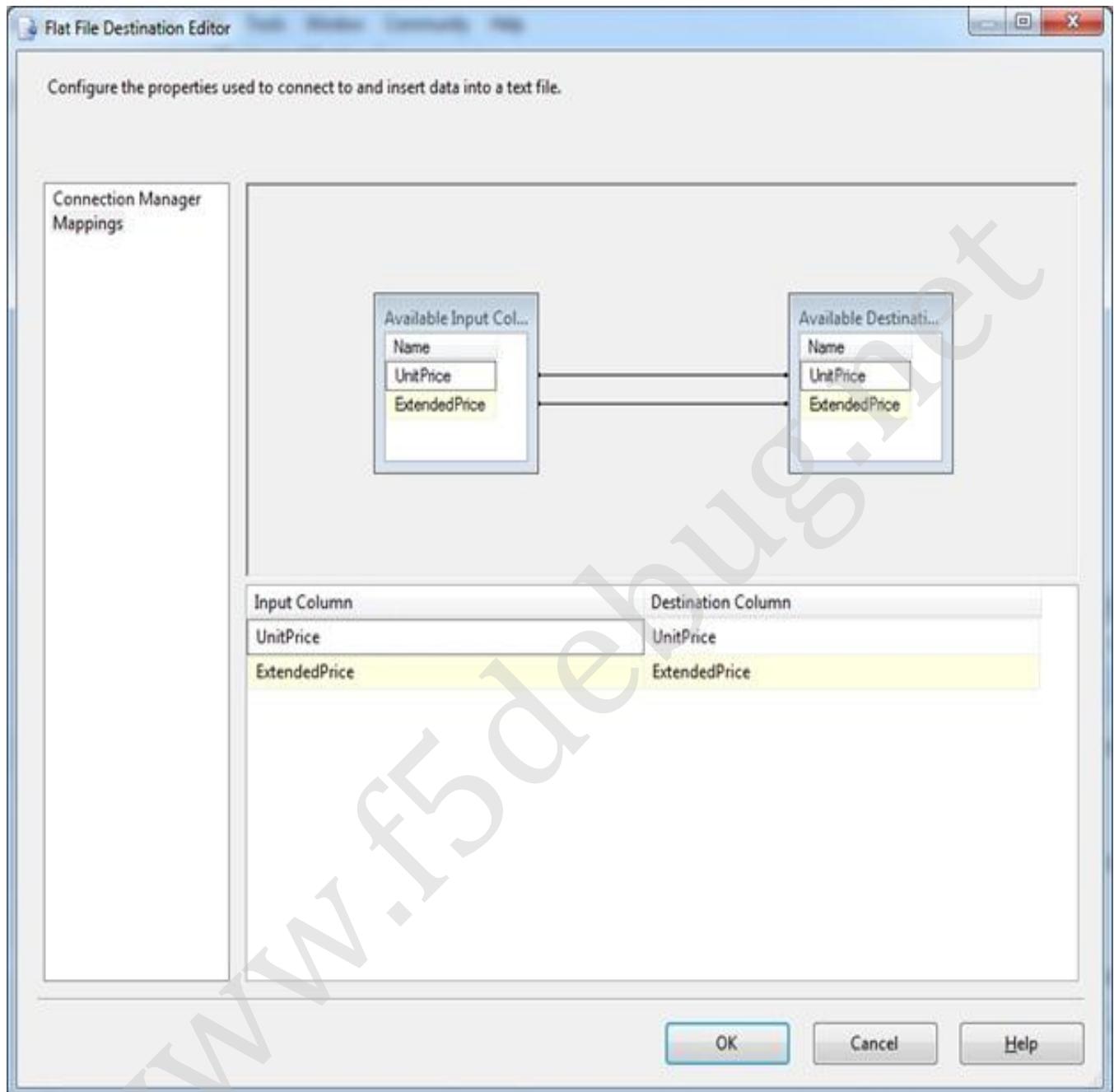
Here we will see on the SUM operation in the aggregate control. We need to add an OLEDB connection data source which fetches the data from the database upon which we are going to do summation of number of rows and then pass it to a file destination as shown in the screen below.



Here last 2 controls shows a red mark inside the control indicating that the control is not configured. We step forward and configure the same. Now double click on the Aggregate function will open a pop-up window as shown in the screen below.

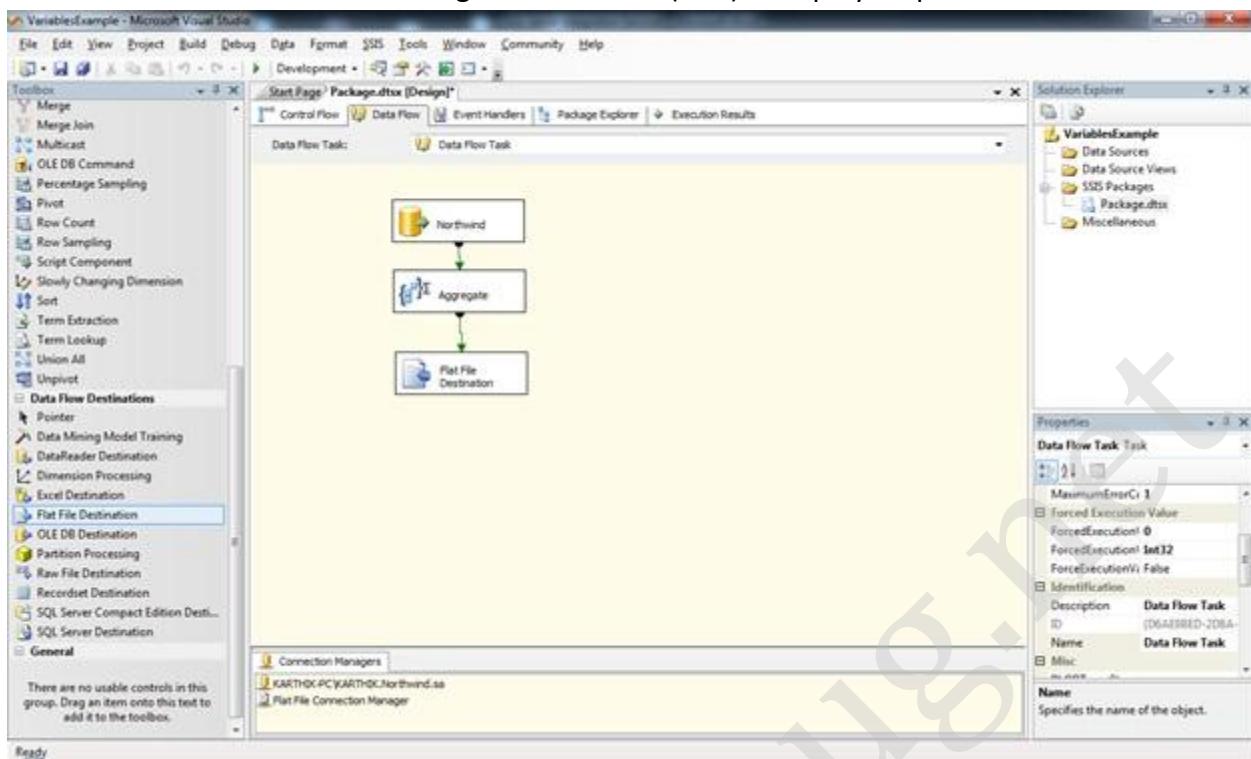


Here we are selecting the columns on which we need a SUM as shown in the screen. And after selecting the numbers of columns for summation then click on the OK button to get configured. Now configure the Flat File Destination as shown in the screen below.

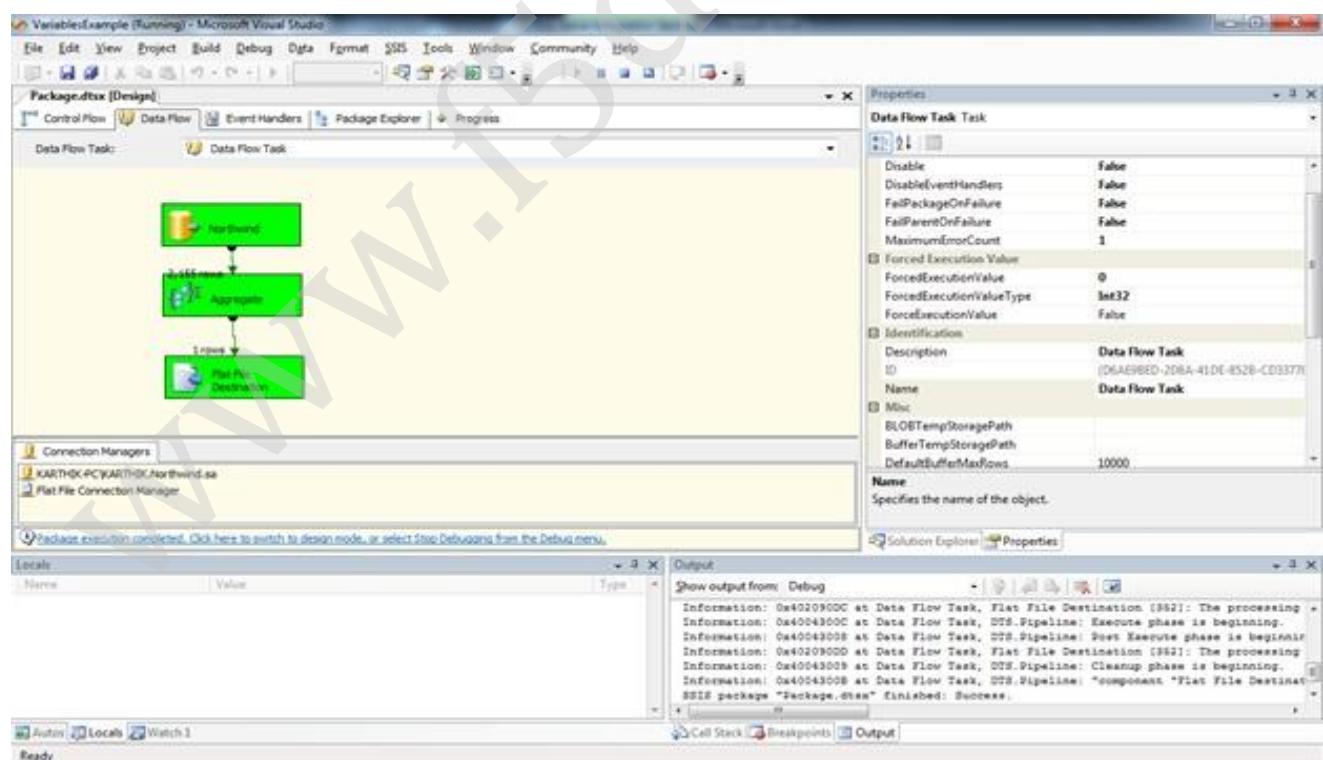


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

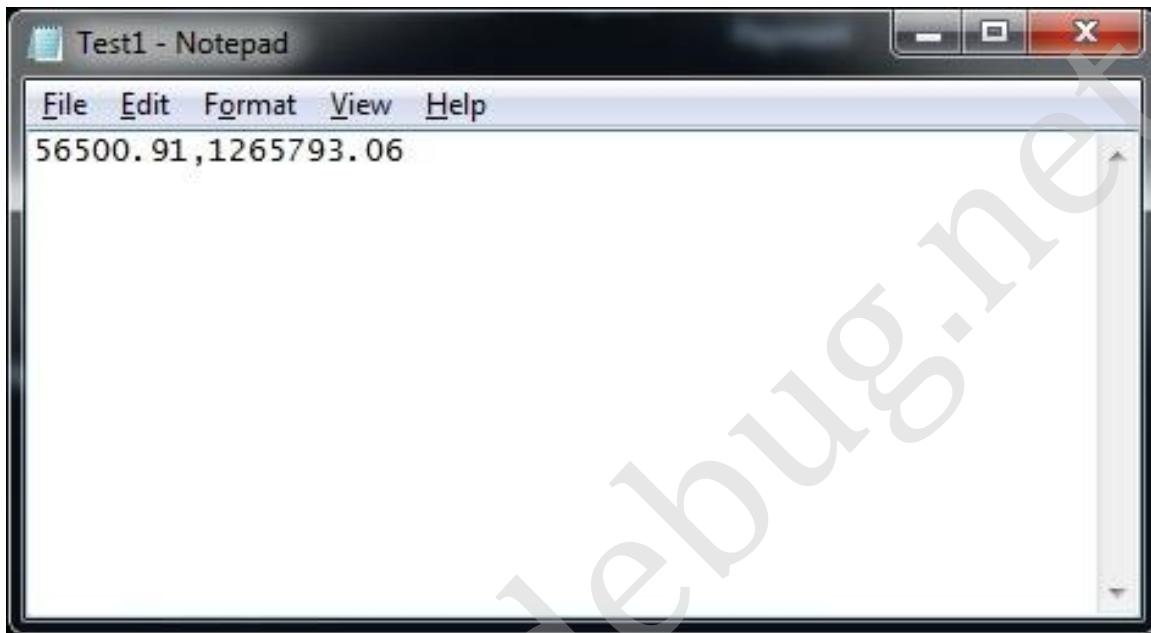
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now Press F5 or Execute button from the tool bar will run the application and show the output as shown in the screen below.



Here the numbers of rows are indicated at the bottom of the each control as shown in the above screen. And finally the results (SUM of rows resulting in a single column) are loaded to flat file destination which looks like below



## Conclusion

In this chapter we have seen on how to do a Summation of the rows using an Aggregate function transformation in data flow tab.

# Chapter 34

## AGGREGATE (COUNT) TRANSFORMATION CONTROL

### Introduction

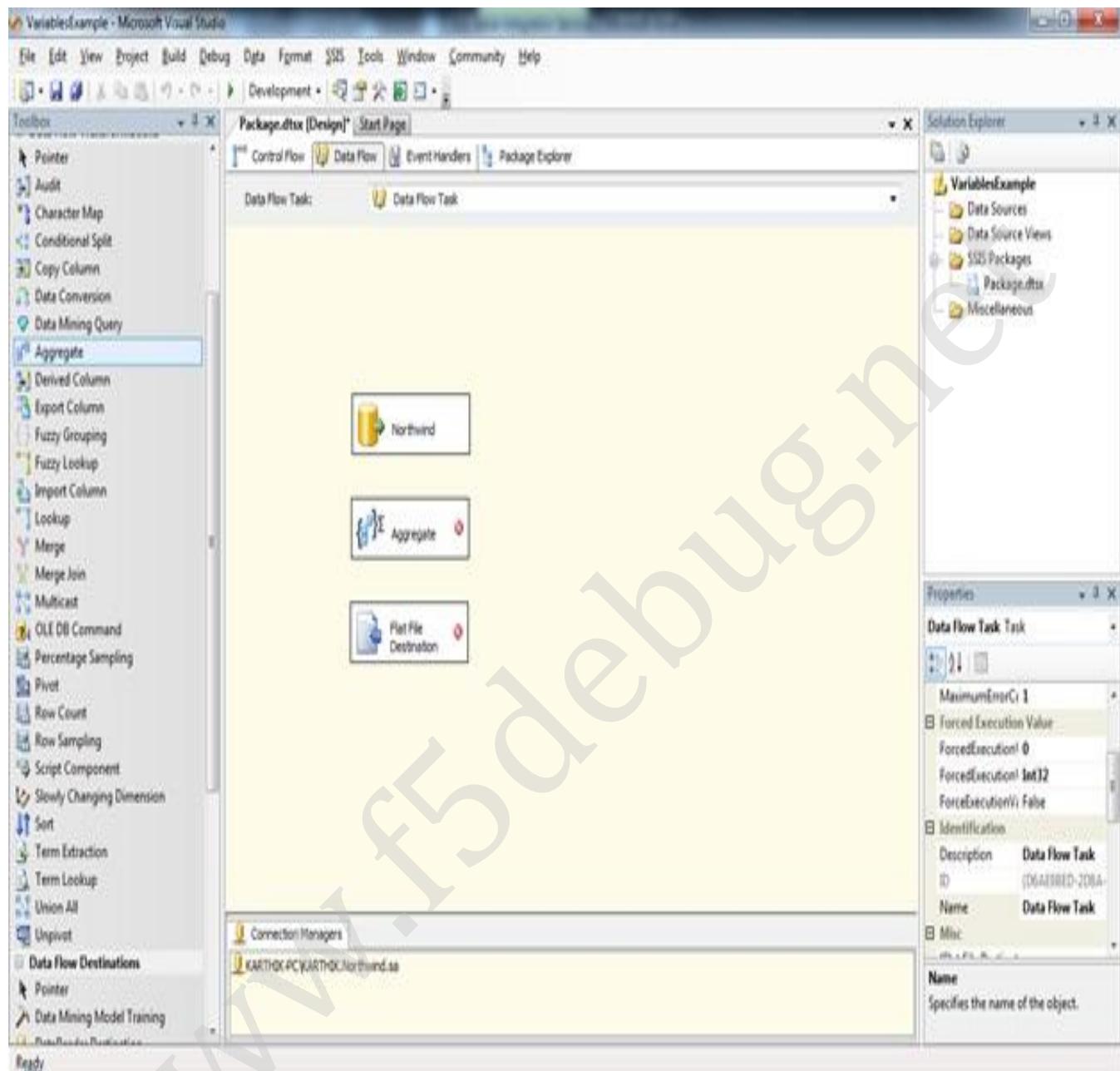
In this chapter we are going to see on how to use an Aggregate (COUNT) data flow transformation control in SSIS packaging. With this function operation we can get a Count on the number of rows necessary to get result in desired format.

Let's jump into to the example on how to use this control in real time.

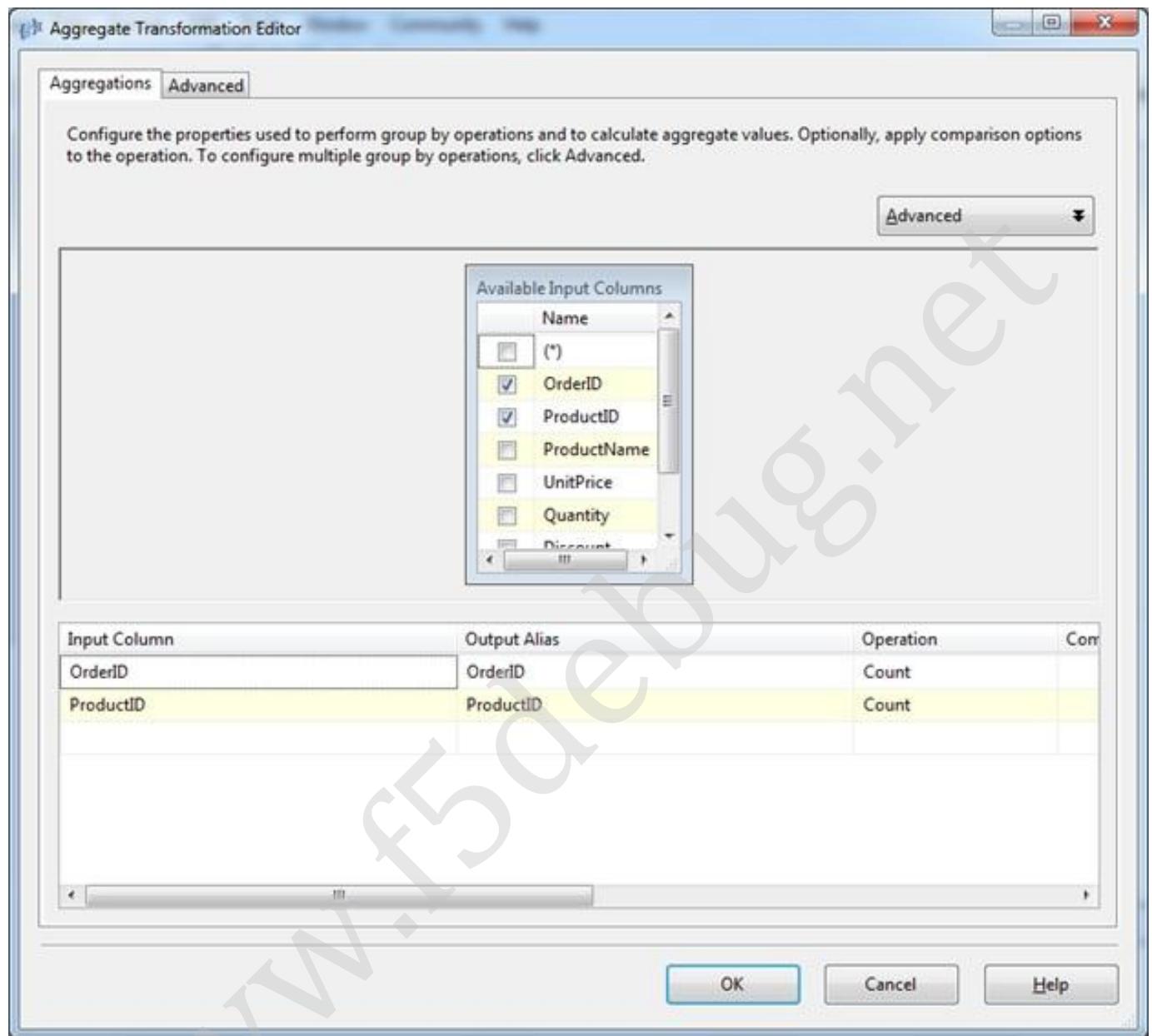
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an aggregate control for getting the count of the rows of a particular column or a list of columns.

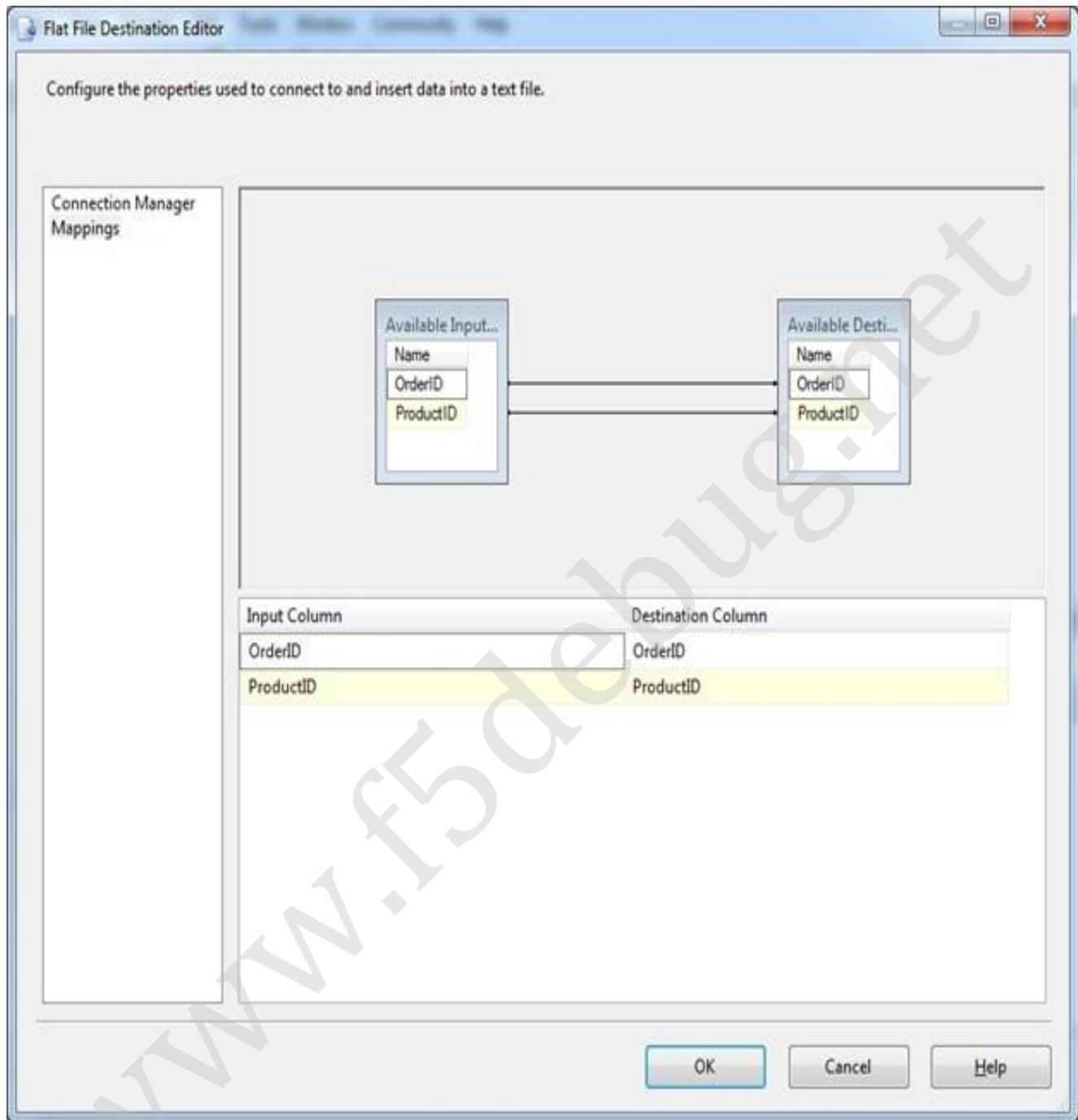
Here we will see on the COUNT operation in the aggregate control. We need to add an OLEDB connection data source which fetches the data from the database upon which we are going to do get the Count of number of rows and then pass it to a file destination as shown in the screen below.



Here last 2 controls shows a red mark inside the control indicating that the control is not configured. We step forward and configure the same. Now double click on the Aggregate function will open a pop-up window as shown in the screen below.

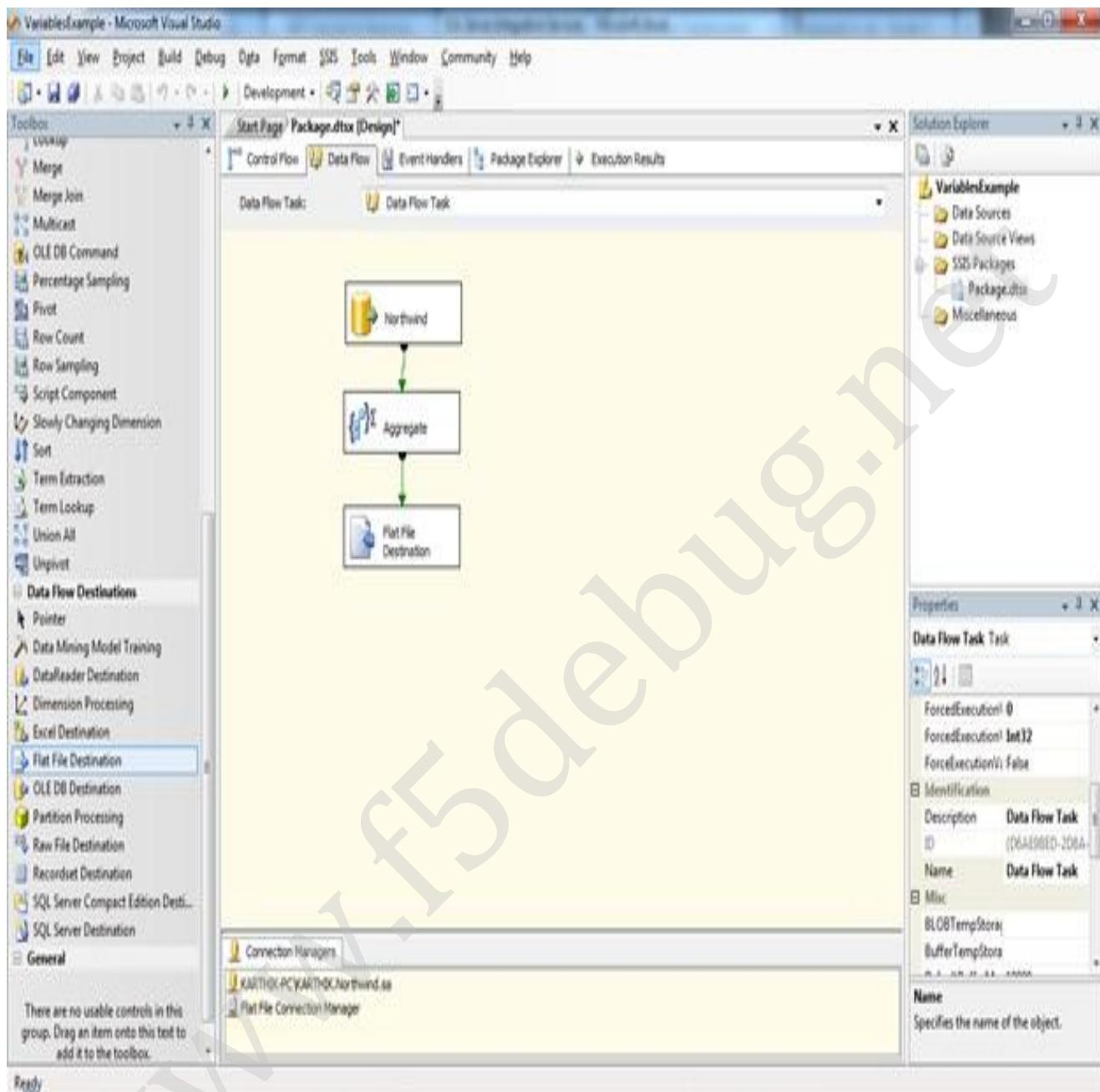


Here we are selecting the columns on which we need a Count as shown in the screen. And after selecting the numbers of columns for getting the count now click on the OK button to get configured. Now configure the Flat File Destination as shown in the screen below.



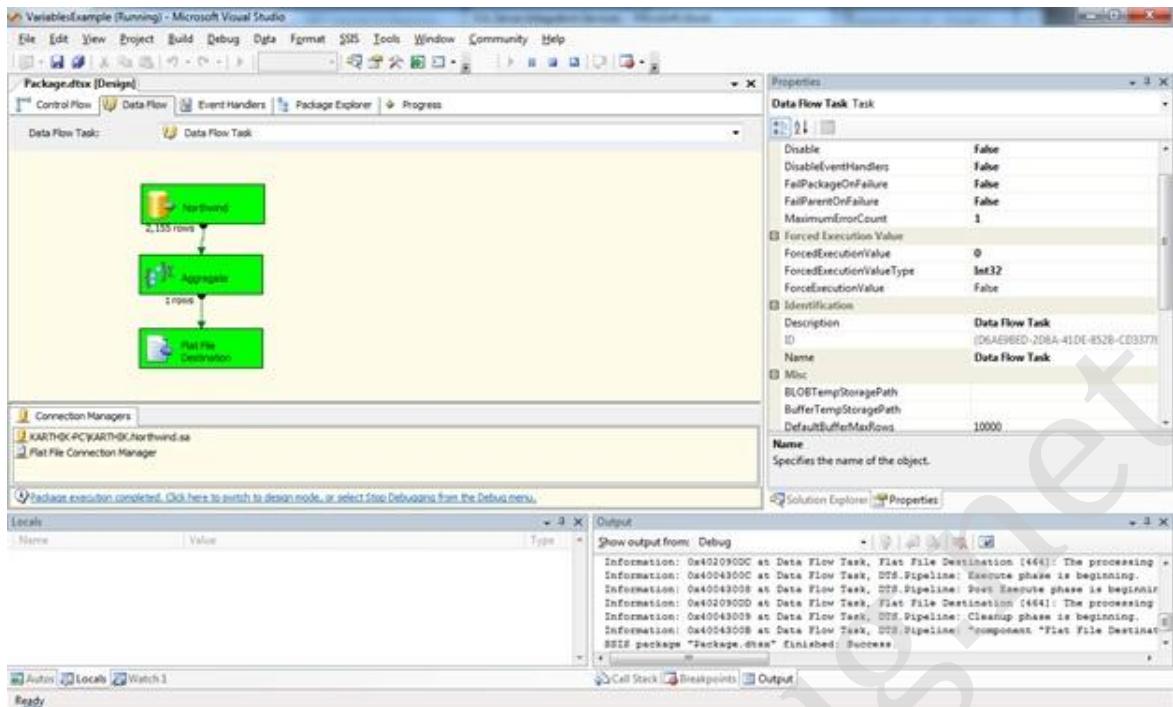
Once we are done with the configuration setting we can see our screen look as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

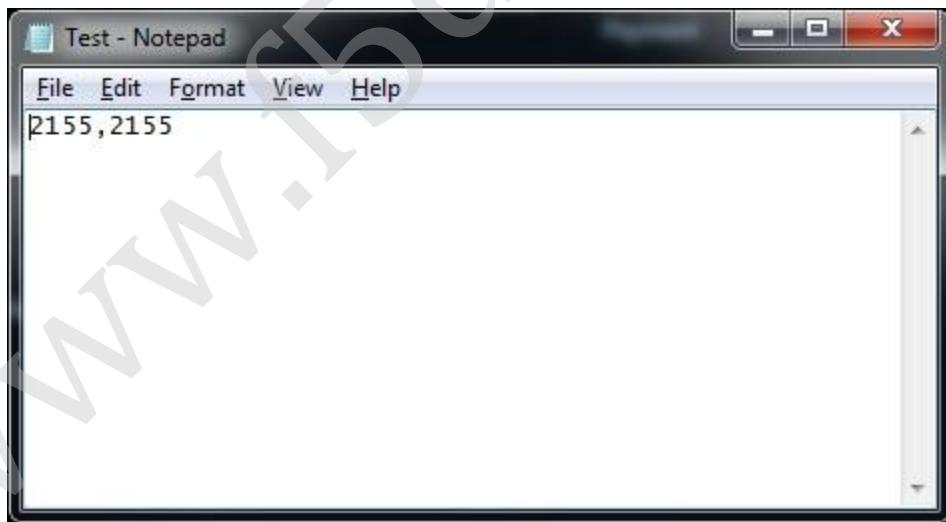


Now Press F5 or Execute button from the tool bar will run the application and show the output as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Here the numbers of rows are indicated at the bottom of the each control as shown in the above screen. And finally the results (COUNT of rows) are loaded to flat file destination which looks like below.



## Conclusion

In this chapter we have seen on how to get a count of number of rows using an Aggregate function transformation in data flow tab.

# Chapter 35

## **AGGREGATE (COUNT DISTINCT) TRANSFORMATION CONTROL**

### **Introduction**

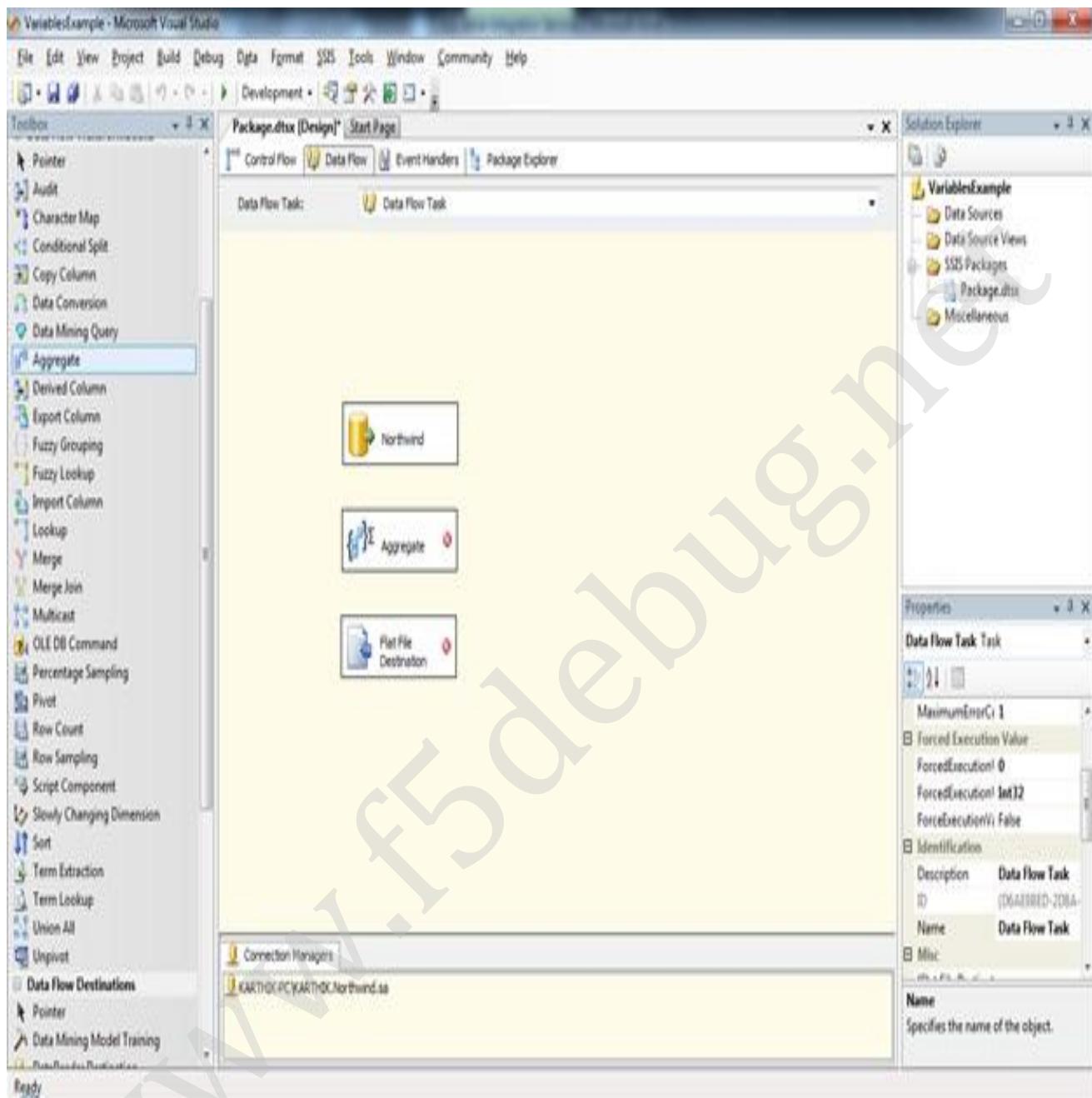
In this chapter we are going to see on how to use an Aggregate (COUNT DISTINCT) data flow transformation control in SSIS packaging. With this function operation we can get a Count on the number of distinct rows which are unique and not null and to get result in desired format.

Let's jump into to the example on how to use this control in real time.

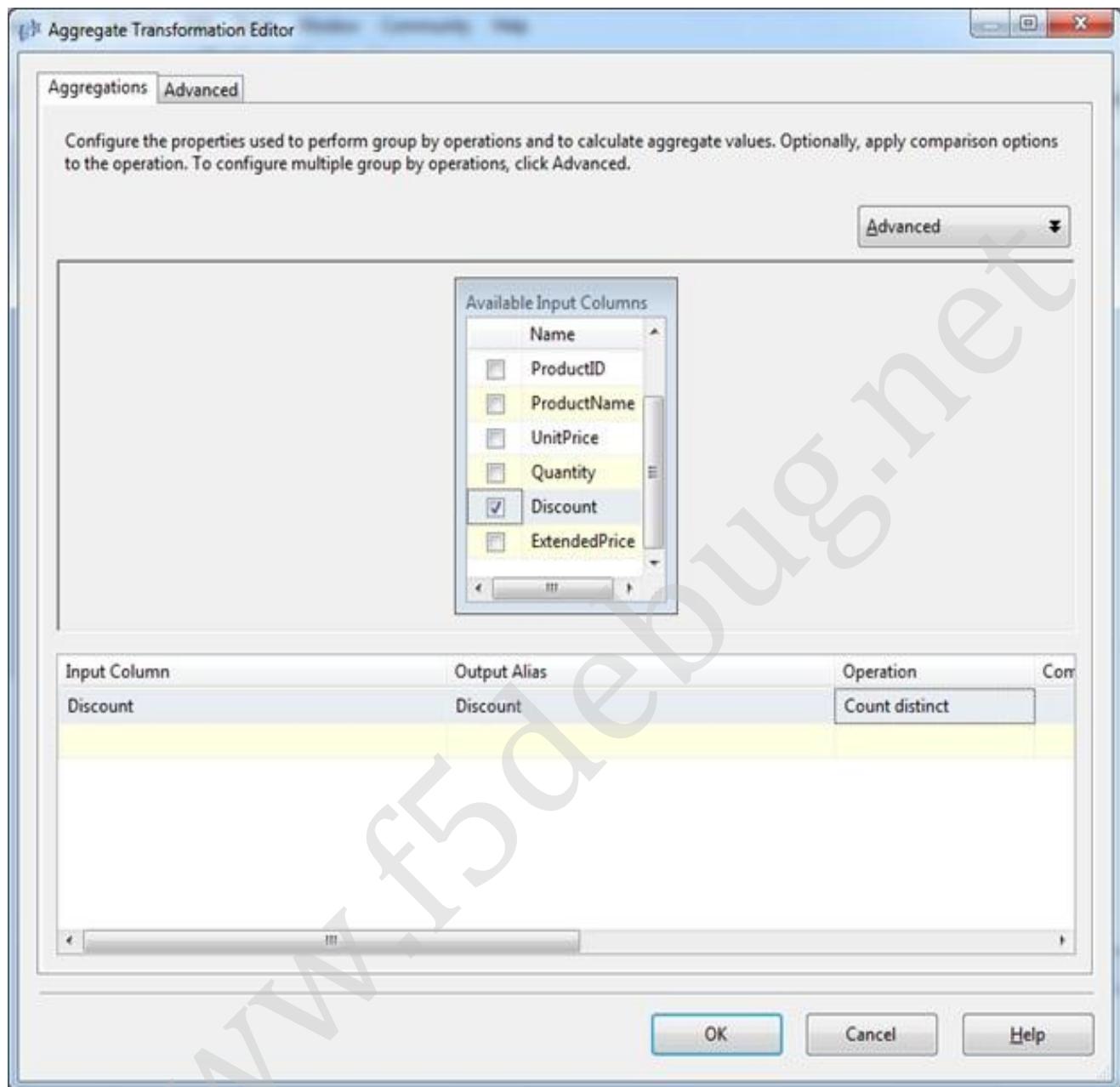
### **Steps**

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an aggregate control for getting the count of the distinct rows of a particular column or a list of columns.

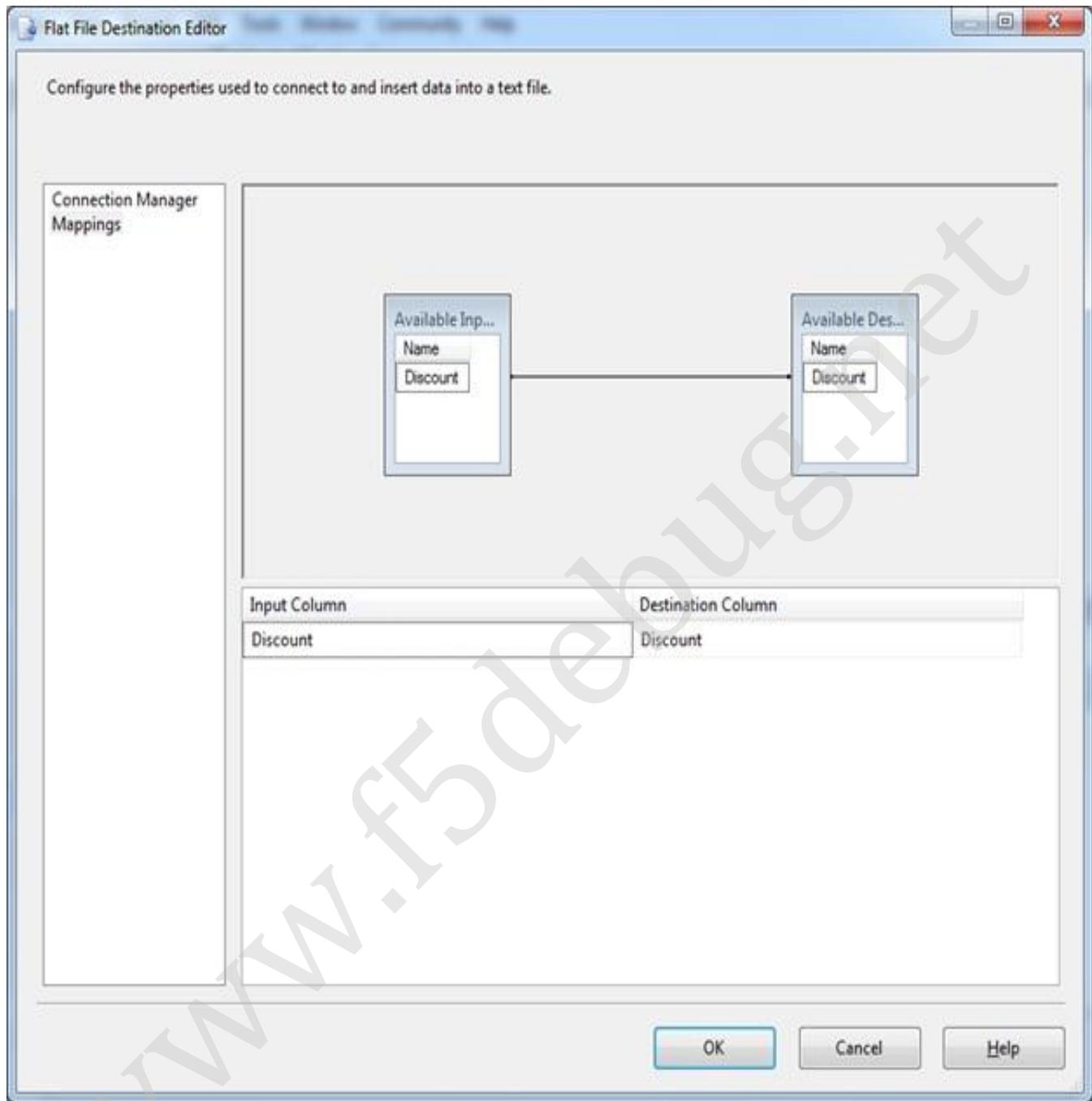
Here we will see on the COUNT DISTINCT operation in the aggregate control. We need to add an OLEDB connection data source which fetches the data from the database upon which we are going to do get the Count of the distinct number of rows and then pass it to a file destination as shown in the screen below.



Here last 2 controls shows a red mark inside the control indicating that the control is not configured. We step forward and configure the same. Now double click on the Aggregate function will open a pop-up window as shown in the screen below.

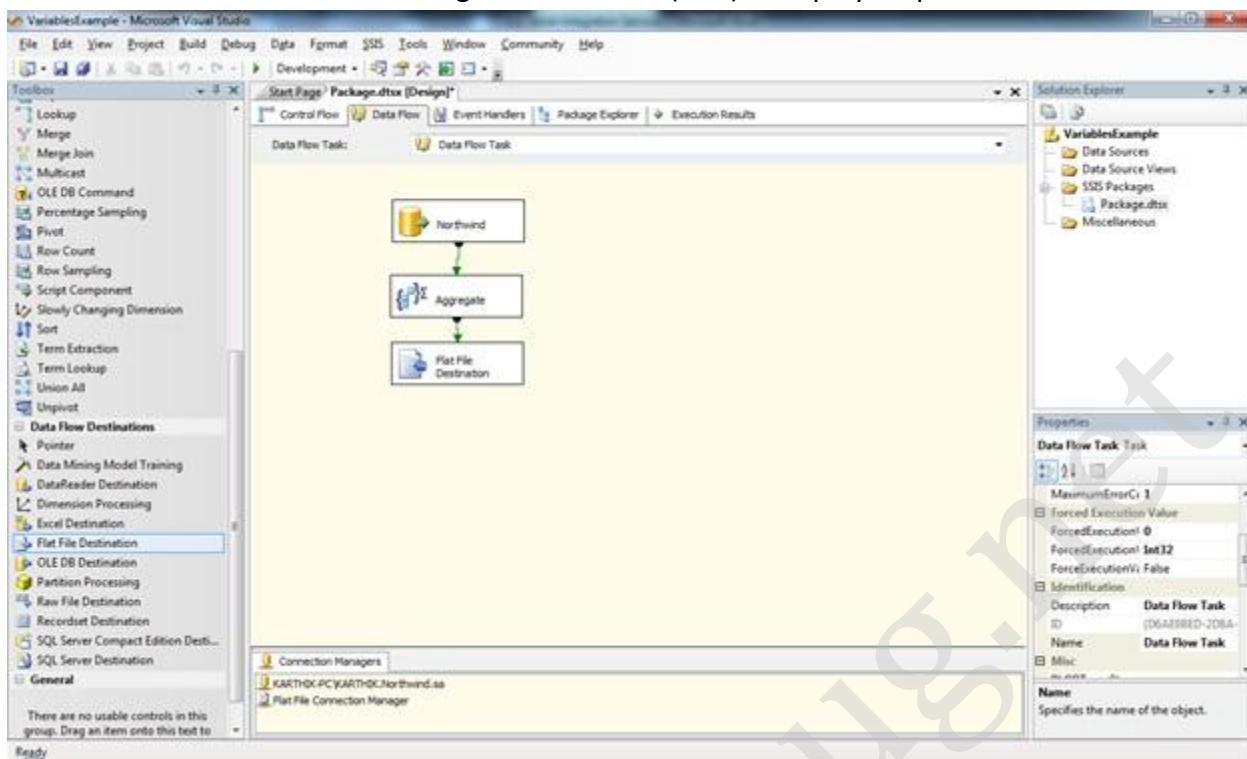


Here we are selecting the columns on which we need a distinct Count as shown in the screen. And after selecting the numbers of columns for getting the distinct count now click on the OK button to get configured. Now configure the Flat File Destination as shown in the screen below.

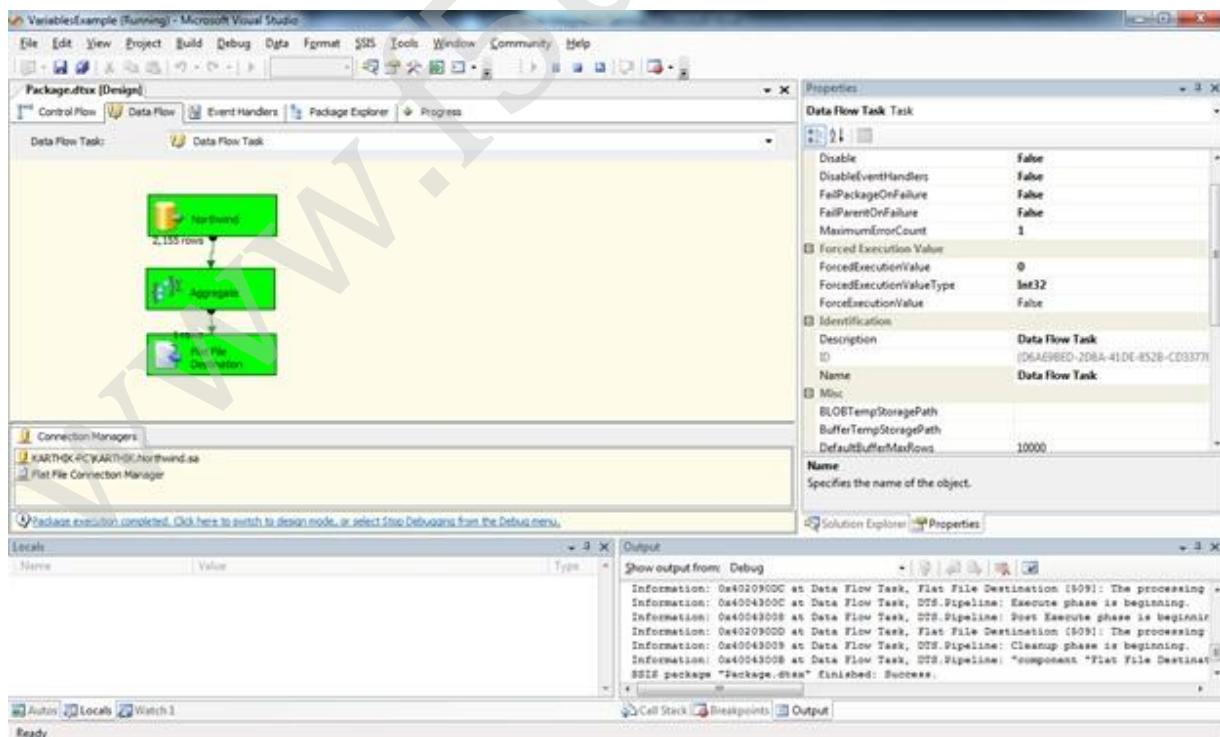


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

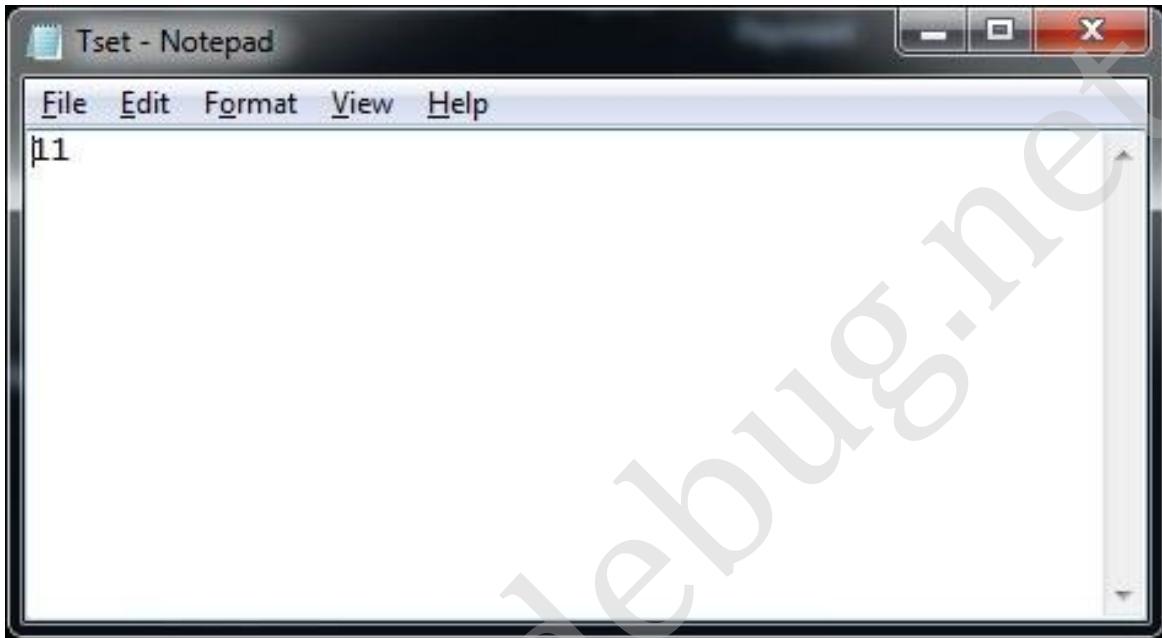
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now Press F5 or Execute button from the tool bar will run the application and show the output as shown in the screen below.



Here the numbers of rows are indicated at the bottom of the each control as shown in the above screen. And finally the results (Distinct COUNT of rows) are loaded to flat file destination which looks like below.



## Conclusion

In this chapter we have seen on how to get a distinct not null count of number of rows using an Aggregate function transformation in data flow tab.

# Chapter 36

## AGGREGATE (MAXIMUM) TRANSFORMATION CONTROL

### Introduction

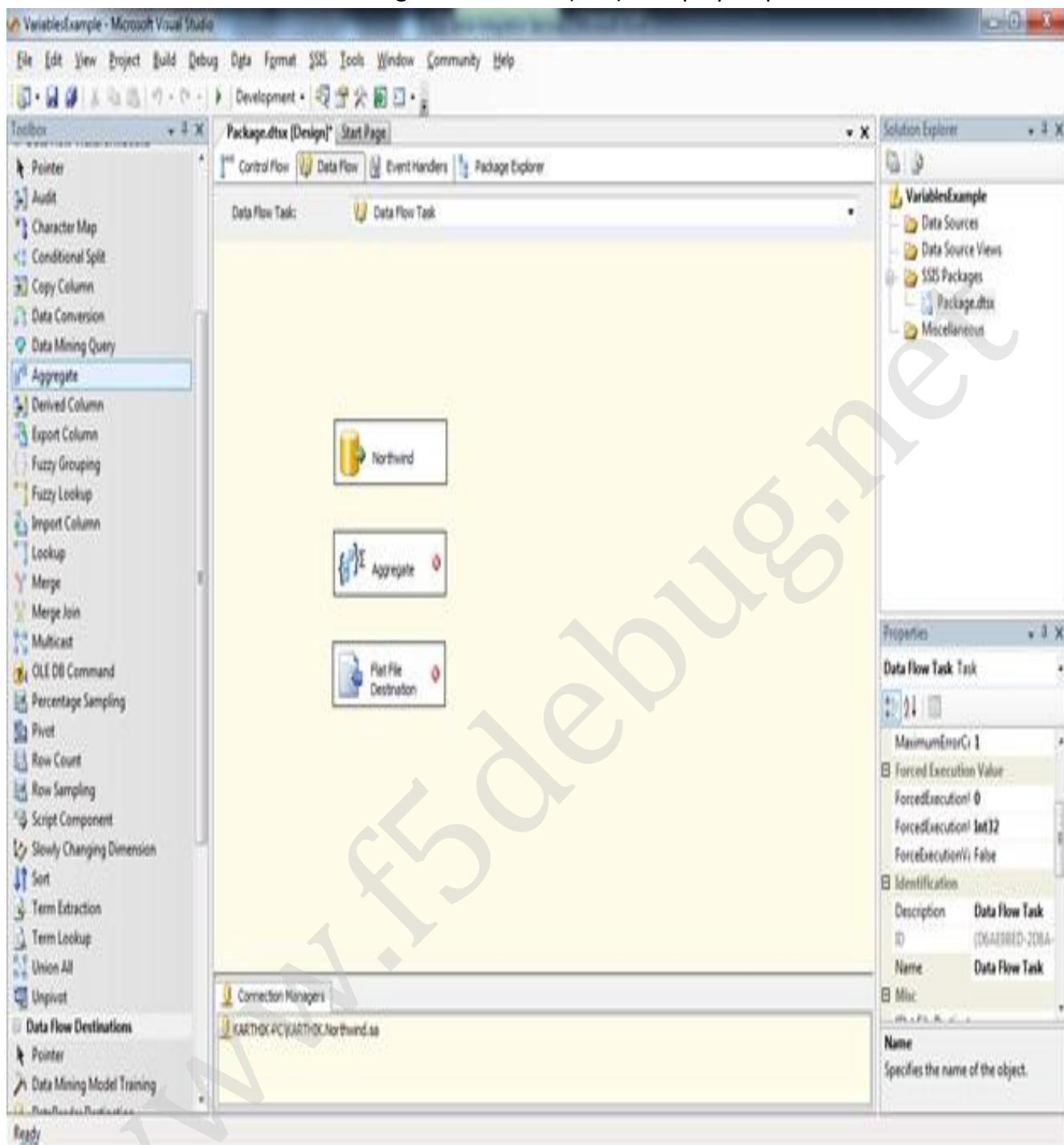
In this chapter we are going to see on how to use an Aggregate (Maximum) data flow transformation control in SSIS packaging. With this function operation we can get a number which is a maximum of a column.

To start with this we should have the column to be of integer data type as specified in order to get the maximum. Let's jump into to the example on how to use this control in real time.

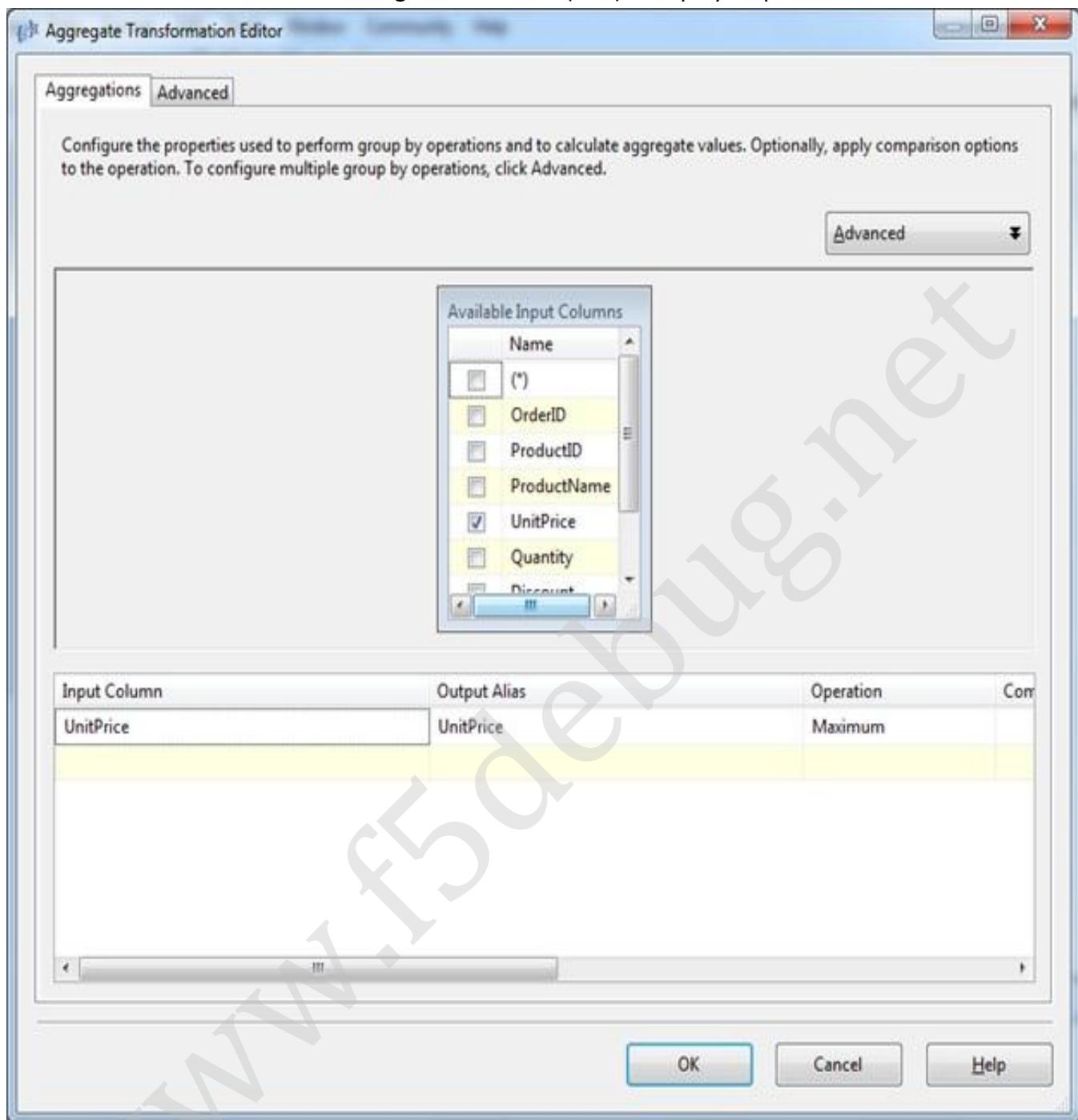
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an aggregate control for getting the maximum number in a particular column.

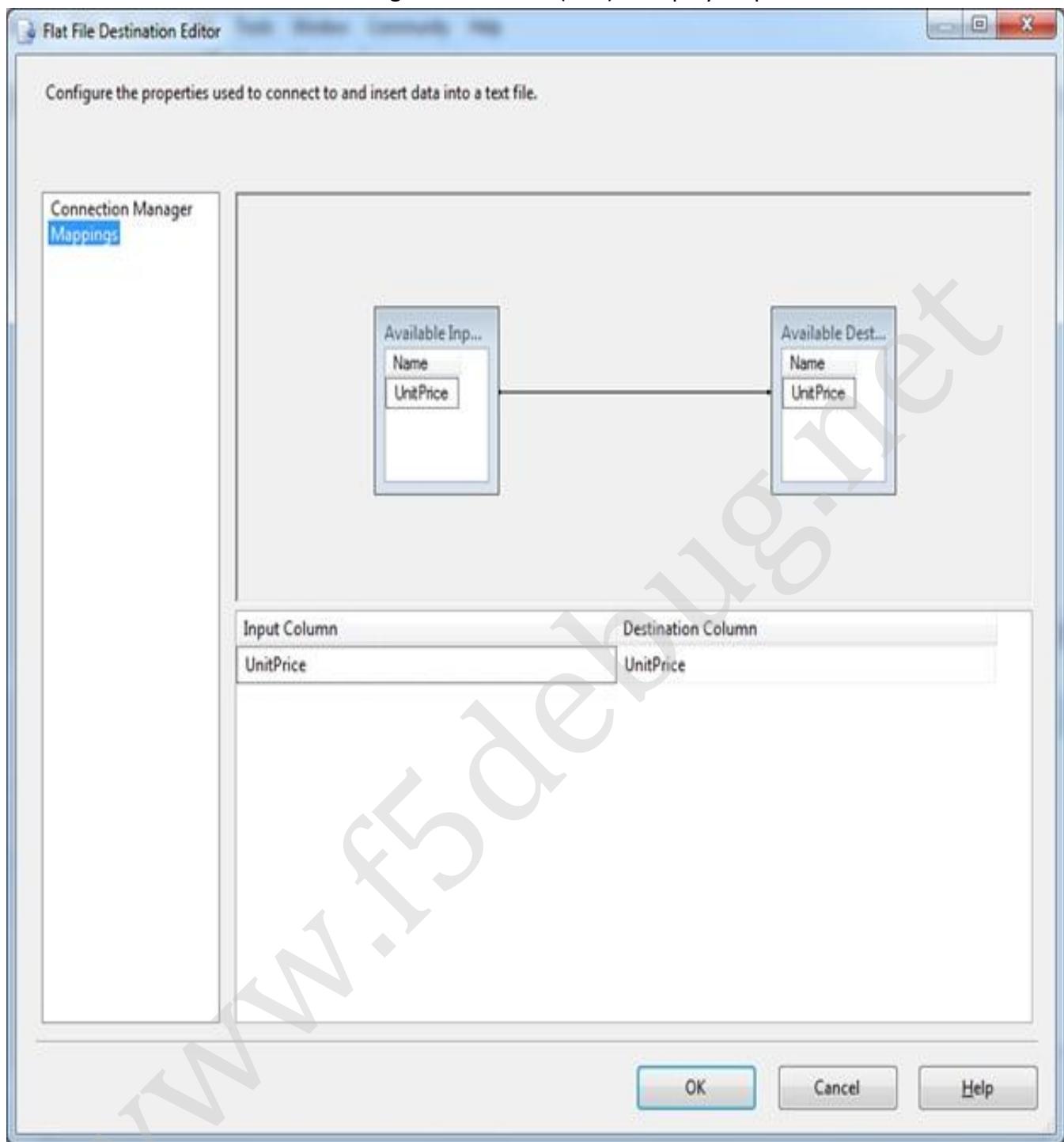
Here we will see on the Maximum operation in the aggregate control. We need to add an OLEDB connection data source which fetches the data from the database upon which we are going to do get the maximum of the rows and then pass it to a file destination as shown in the screen below.



Here last 2 controls shows a red mark inside the control indicating that the control is not configured. We step forward and configure the same. Now double click on the Aggregate function will open a pop-up window as shown in the screen below.

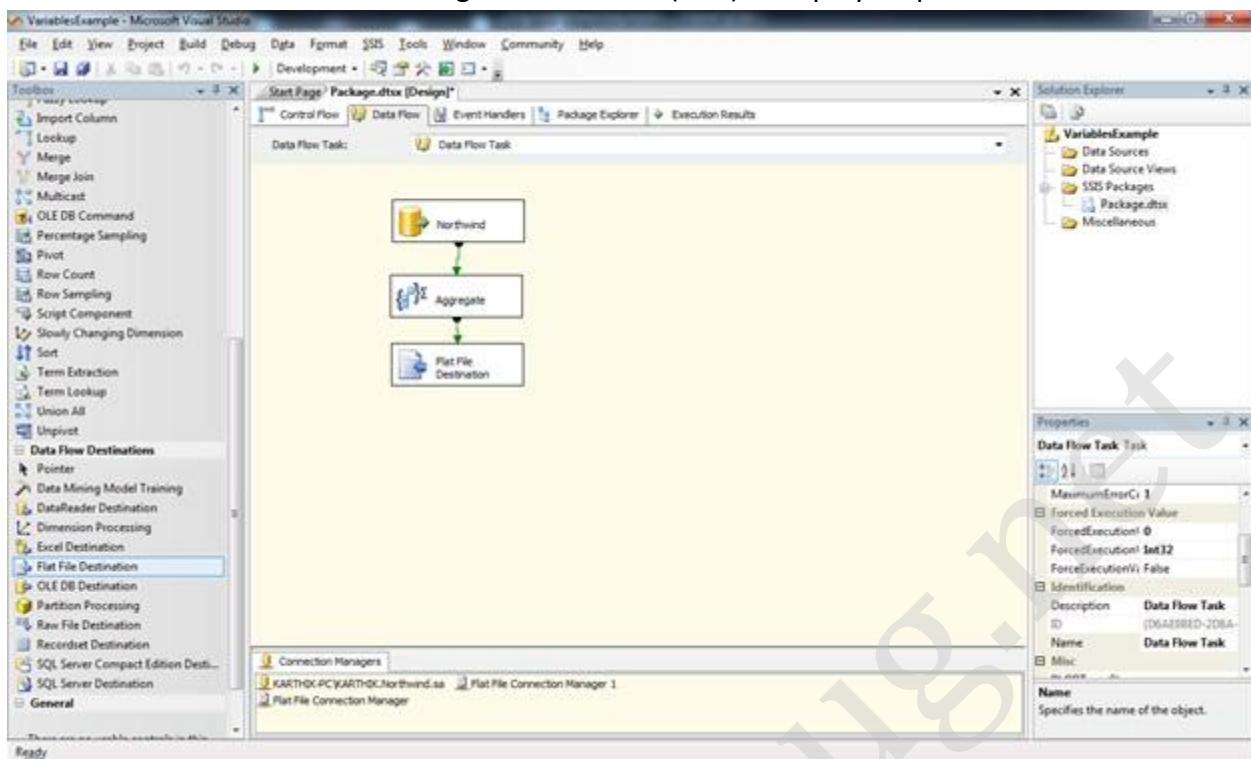


Here we are selecting the columns on which we need a maximum as shown in the screen. And after selecting the numbers of columns for getting the maximum number now click on the OK button to get configured. Now configure the Flat File Destination as shown in the screen below.

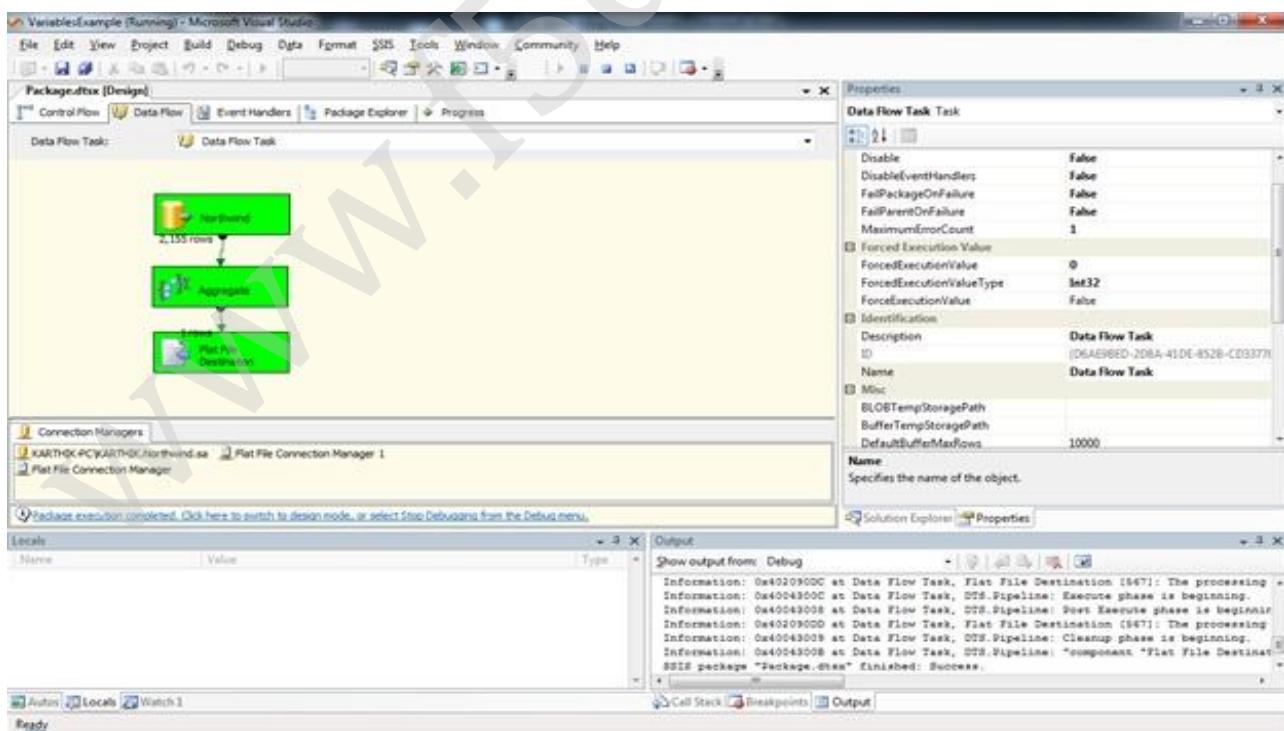


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

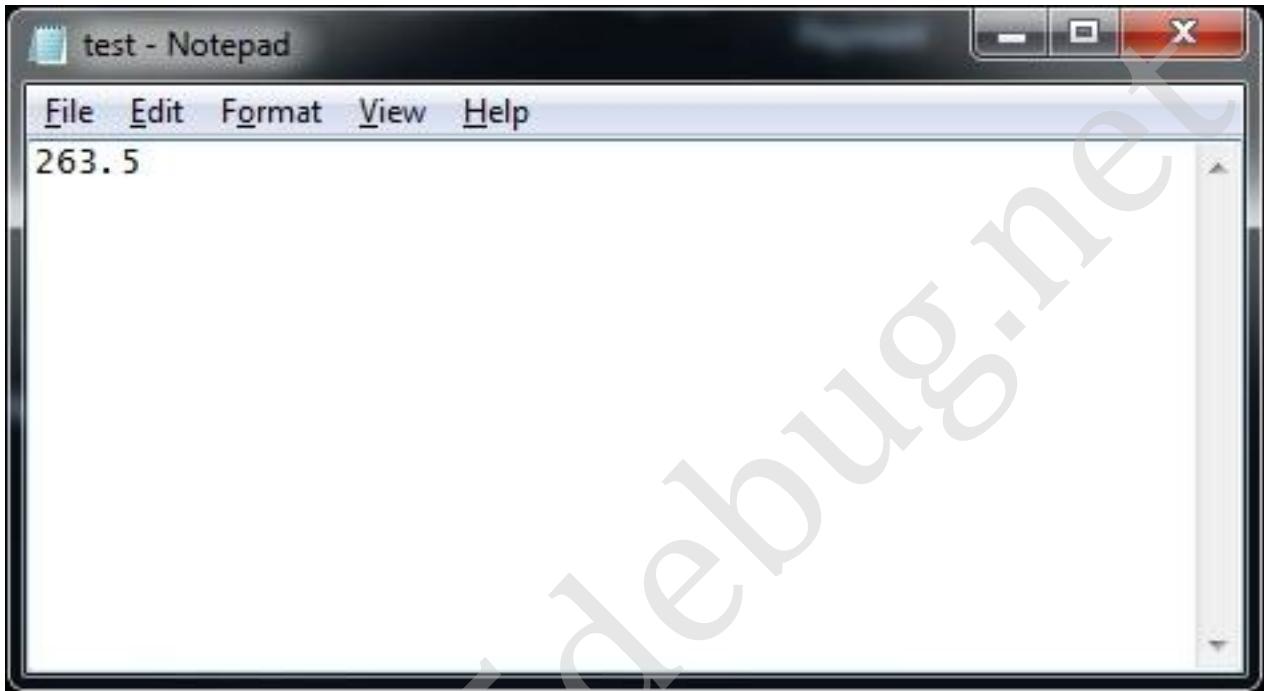
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now Press F5 or Execute button from the tool bar will run the application and show the output as shown in the screen below.



Here the numbers of rows are indicated at the bottom of the each control as shown in the above screen. And finally the results (Maximum number in a column) are loaded to flat file destination which looks like below.



## Conclusion

In this chapter we have seen on how to get a maximum number in a row using an Aggregate function transformation in data flow tab.

# Chapter 37

## AGGREGATE (MINIMUM) TRANSFORMATION CONTROL

### Introduction

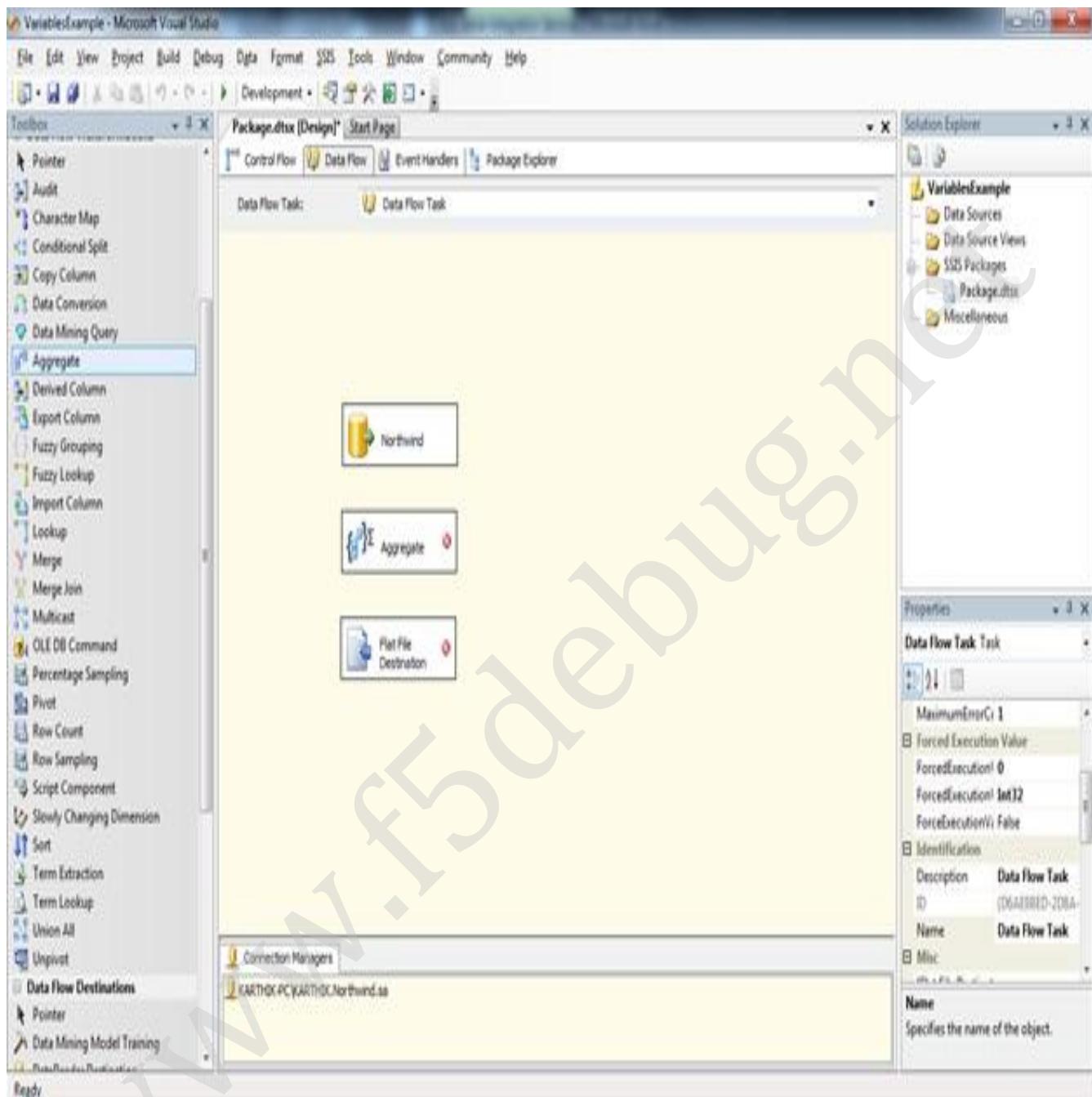
In this chapter we are going to see on how to use an Aggregate (Minimum) data flow transformation control in SSIS packaging. With this function operation we can get a number which is a minimum of a column.

To start with this we should have the column to be of integer data type as specified in order to get the minimum. Let's jump into to the example on how to use this control in real time.

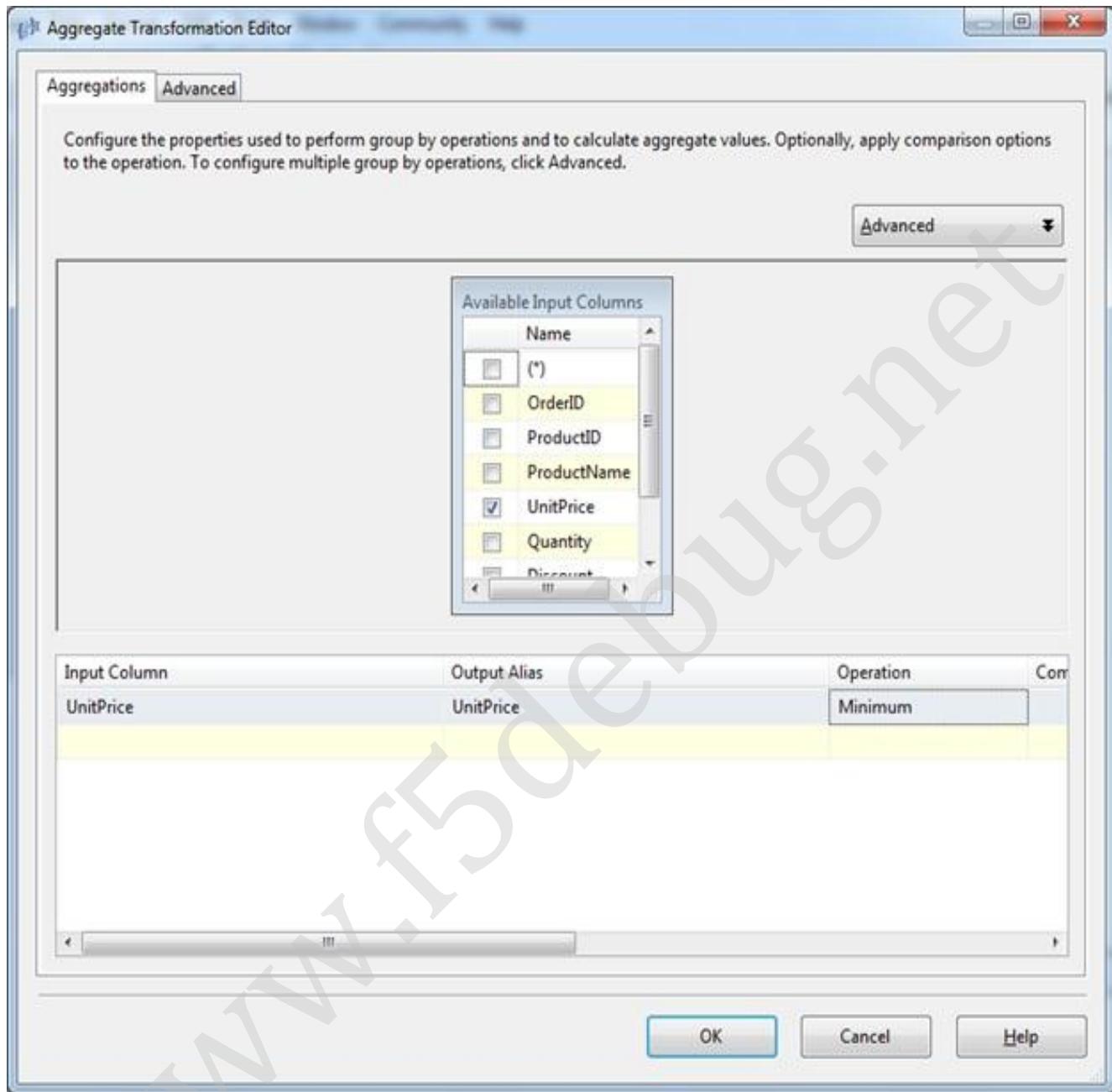
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an aggregate control for getting the Minimum number in a particular column.

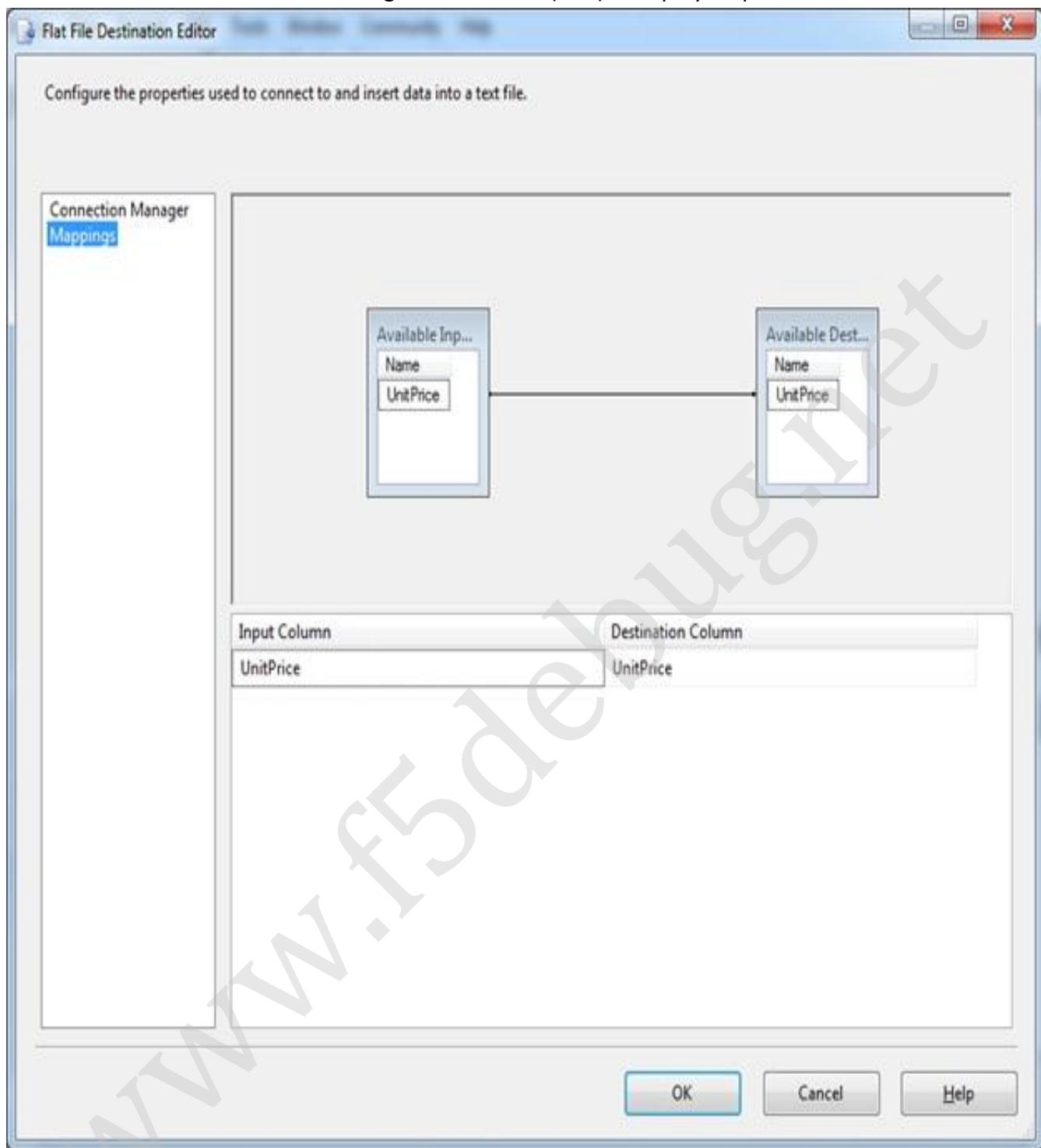
Here we will see on the Minimum operation in the aggregate control. We need to add an OLEDB connection data source which fetches the data from the database upon which we are going to do get the minimum of the rows and then pass it to a file destination as shown in the screen below.



Here last 2 controls shows a red mark inside the control indicating that the control is not configured. We step forward and configure the same. Now double click on the Aggregate function will open a pop-up window as shown in the screen below.

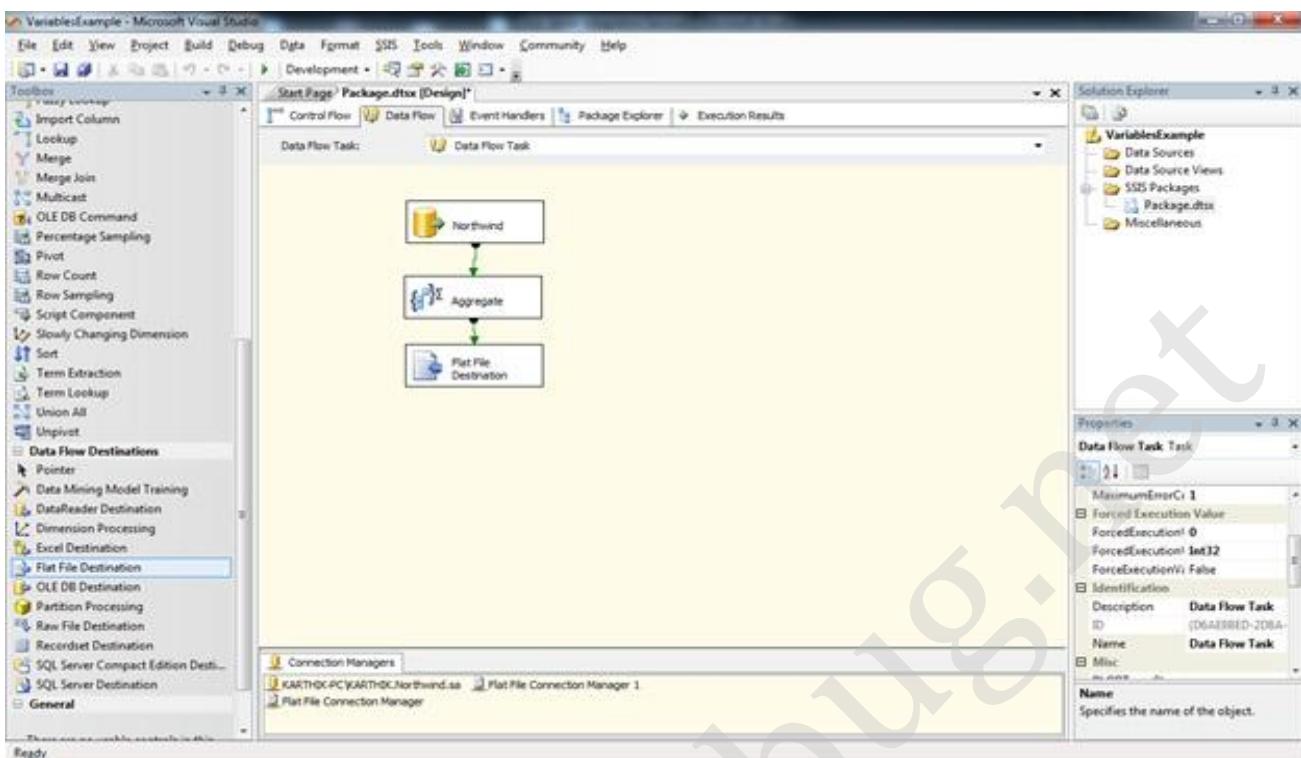


Here we are selecting the columns on which we need a minimum as shown in the screen. And after selecting the numbers of columns for getting the minimum number now click on the OK button to get configured. Now configure the Flat File Destination as shown in the screen below.

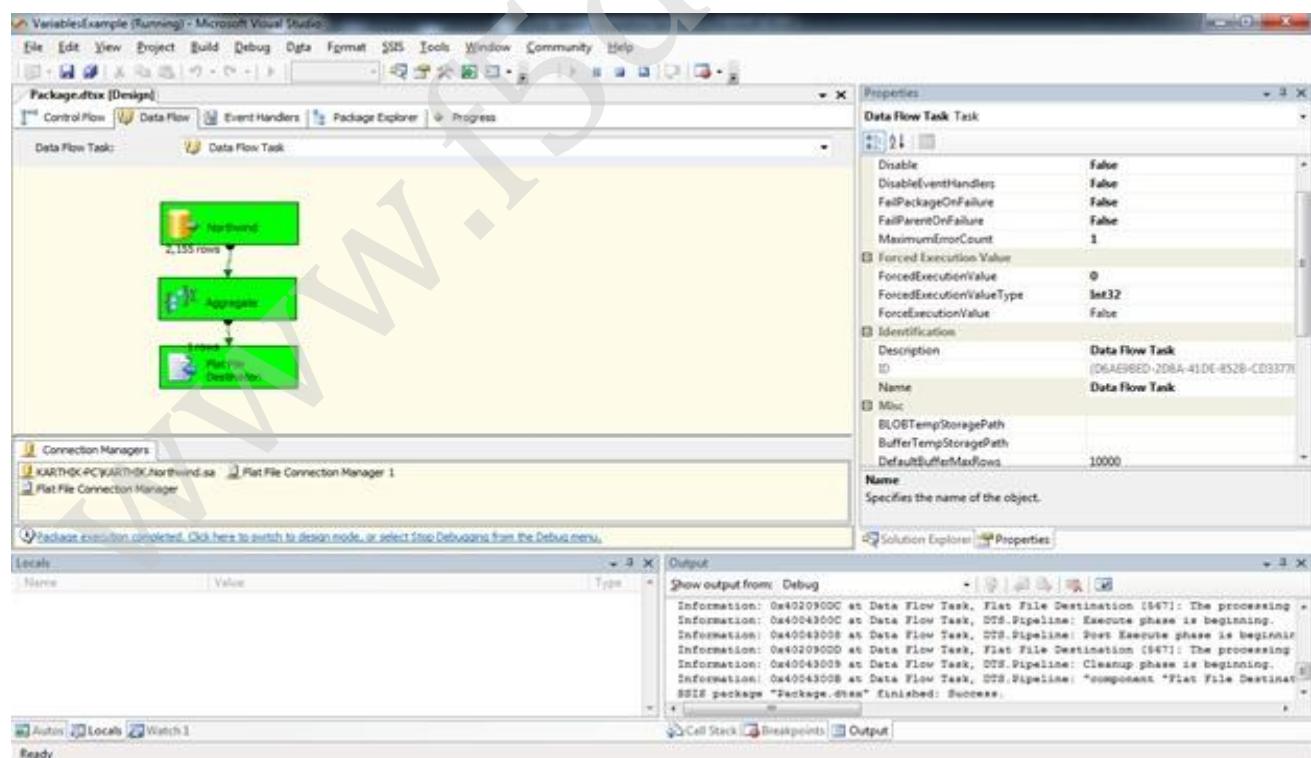


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now Press F5 or Execute button from the tool bar will run the application and show the output as shown in the screen below.



Here the numbers of rows are indicated at the bottom of the each control as shown in the above screen. And finally the results (Minimum number in a column) are loaded to flat file destination which looks like below.



## Conclusion

In this chapter we have seen on how to get a minimum number in a row using an Aggregate function transformation in data flow tab.

# Chapter 38

## AUDIT TRANSFORMATION CONTROL IN SSIS

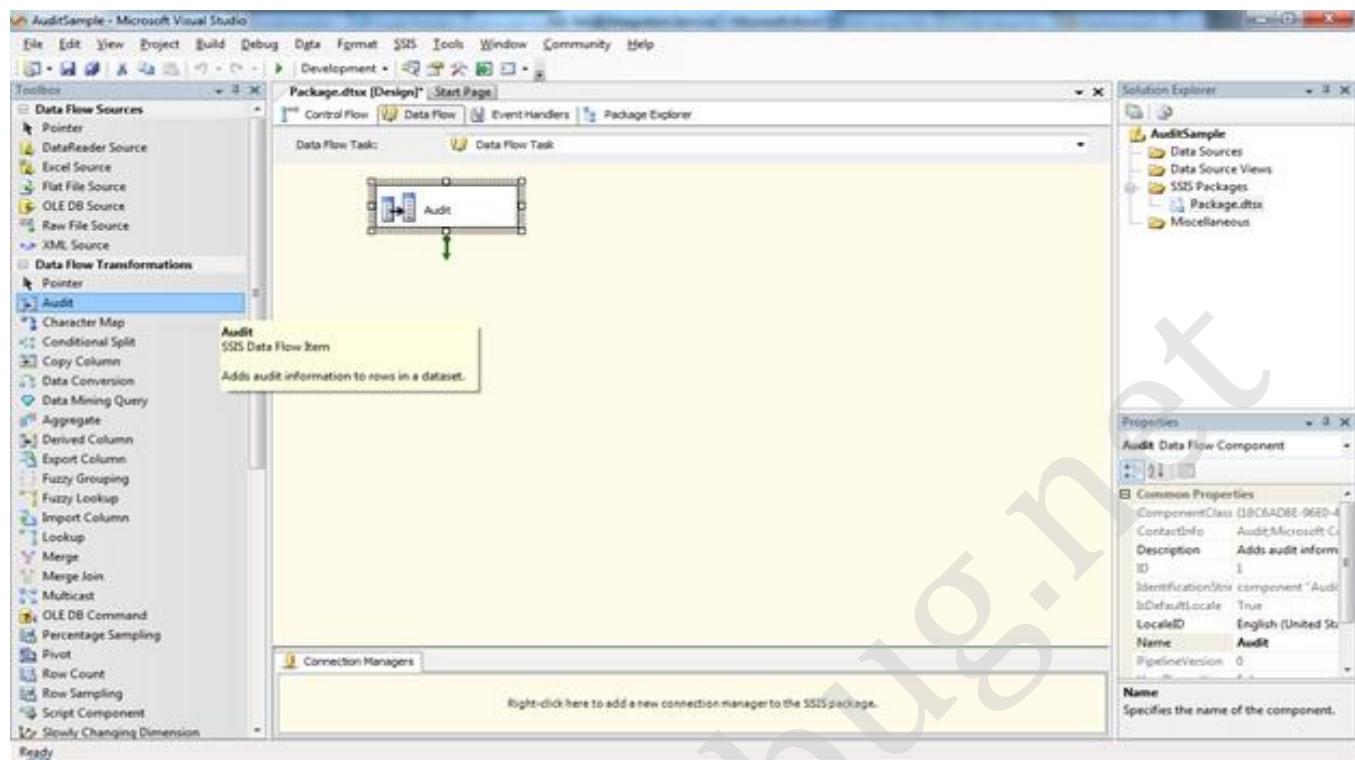
### Introduction

In this chapter we are going to see on how to use an Audit transformation control. Audit transformation helps the uses to build a package which requires about the environment on which the package runs like the computer name, the path where the package is running, name of the package and the operator by using the system variable available with these functions.

Let's jump start into the example to see on how to use this control.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use an audit control. Now drag and drop an audit control as shown in the screen below.

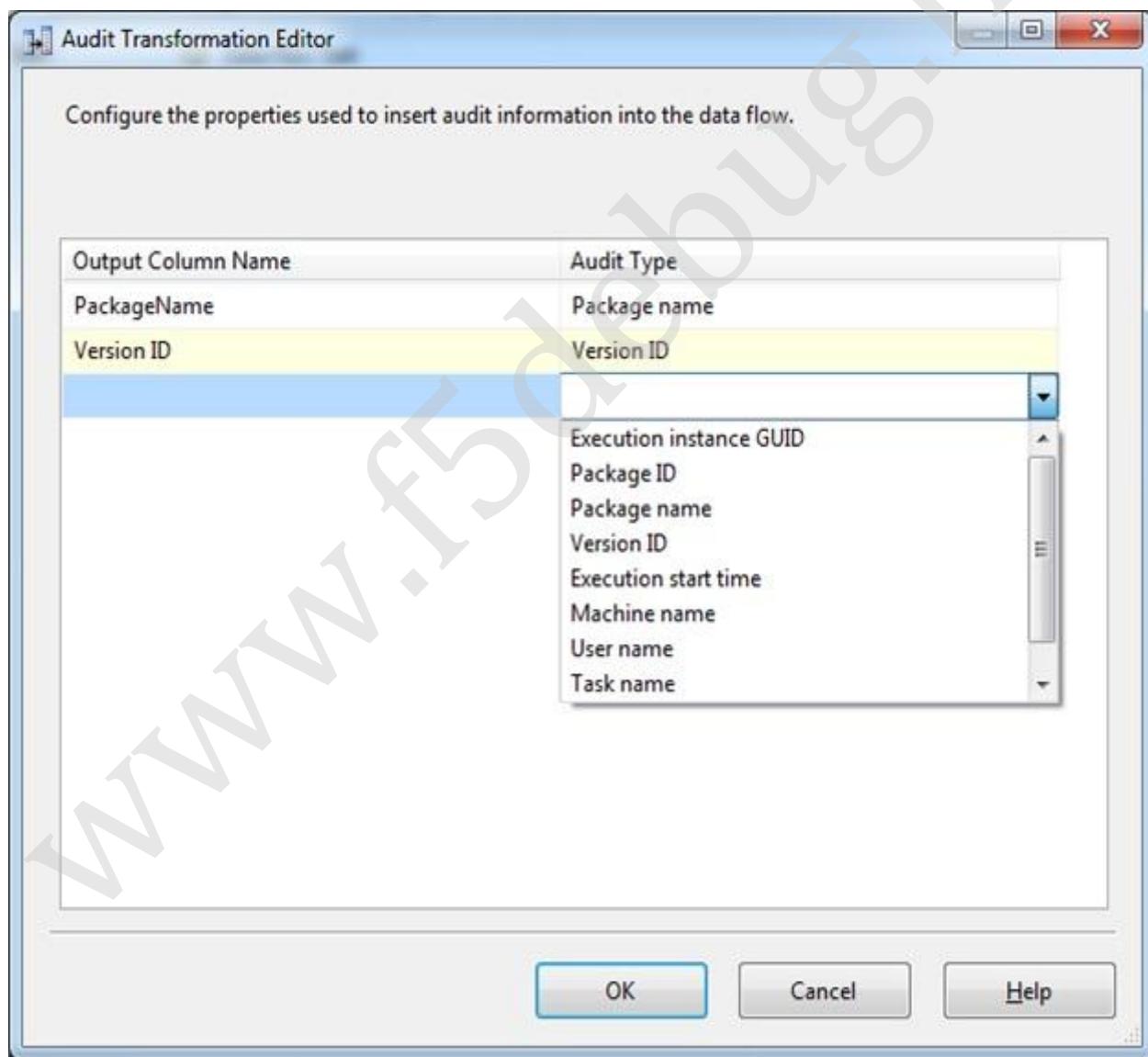


To configure the audit transformation, as mentioned earlier it uses some of the system variables to be used across the packaging process. The list of system variables used is as follows.

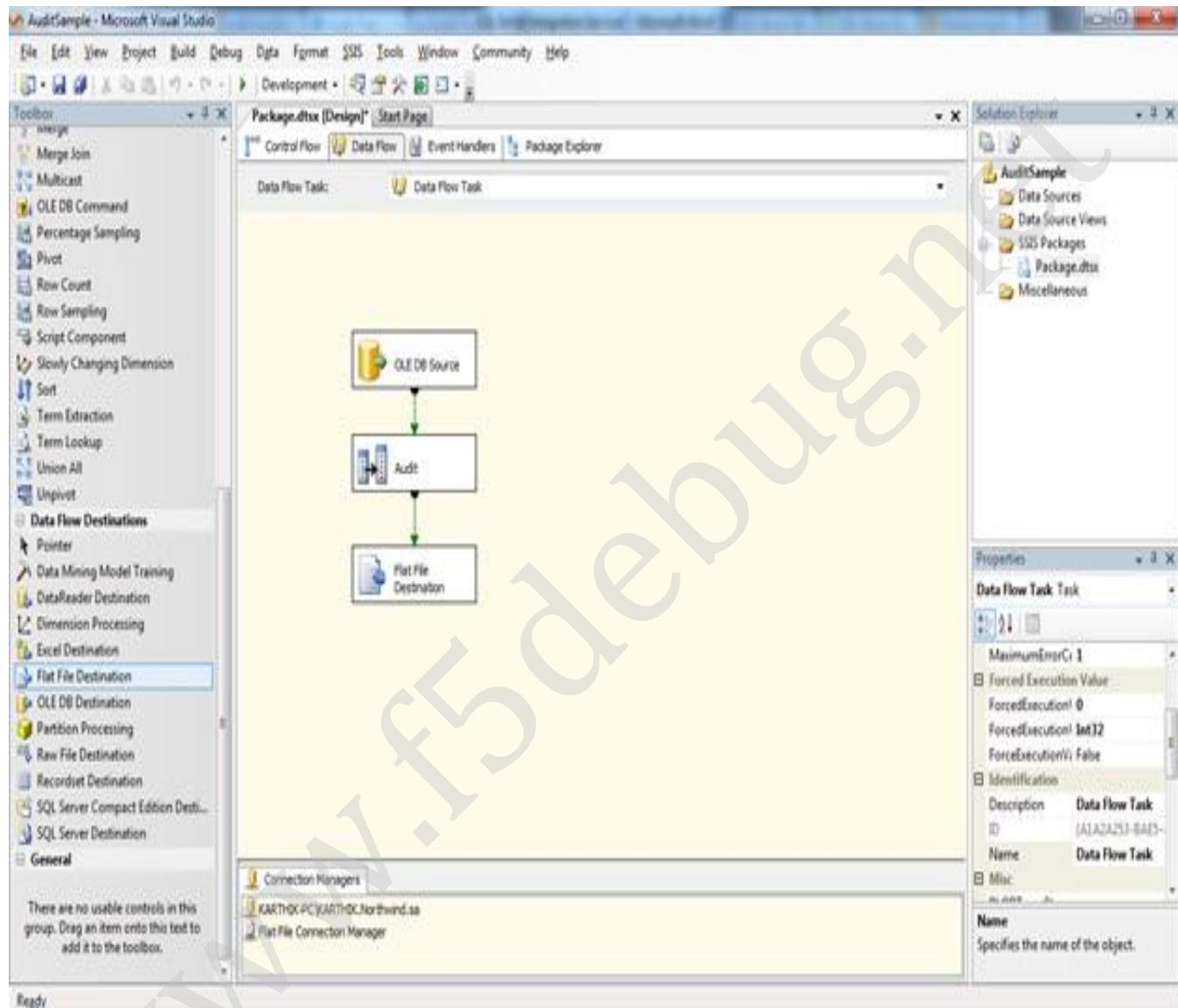
Value	Variable Name	Description
0	ExecutionInstanceGUID	GUID that identifies the instance running
1	PackageID	Unique identifier od the package running
2	PackageName	Name of the package
3	VersionID	Version ID of the package
4	ExecutionStartTime	Time when the package is started
5	MachineName	Computer Name on which package running

6	UserName	User Name under which package running
7	TaskName	Name of the task which is running
8	TaskId	Unique identifier of the task running

Now to start configuring the Audit task, just double click on the control will open the popup where we need to select the process which we need to carry on as shown in the screen below.

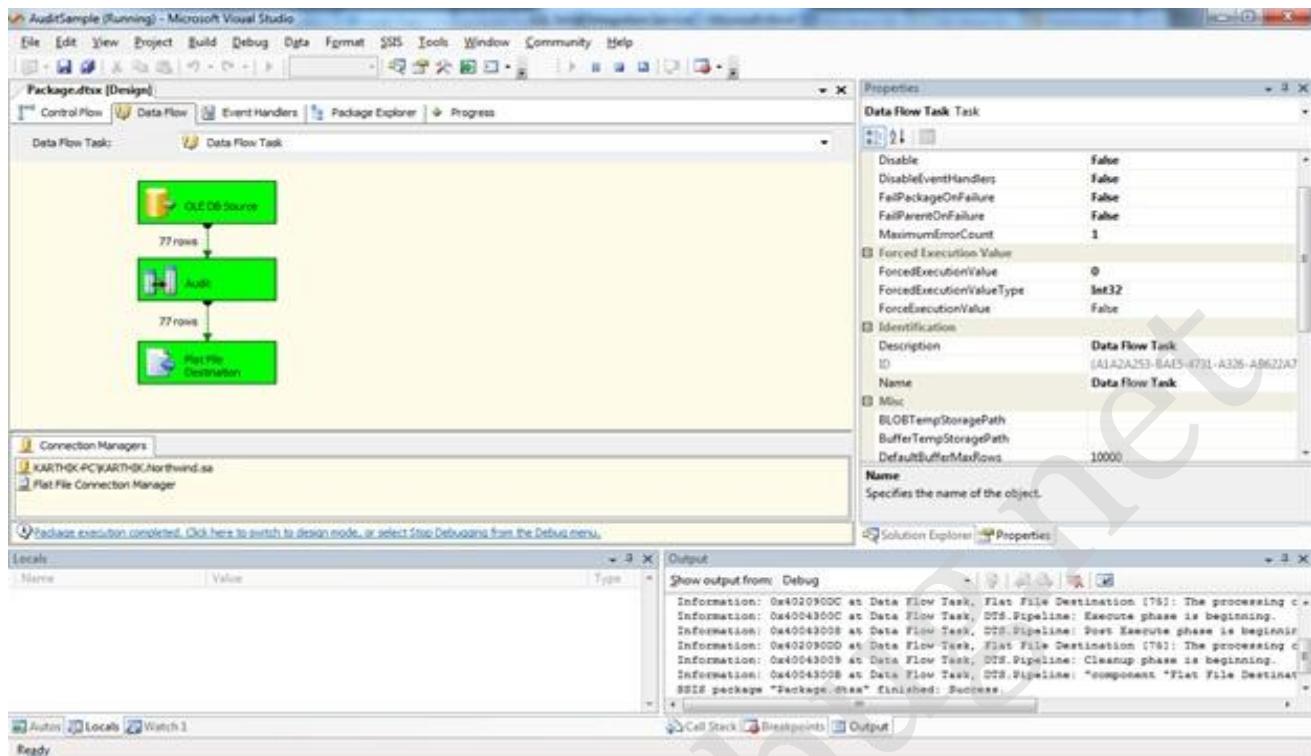


Here we are collecting the information and going to store in a file, so add a flat file destination as shown in the screen below.



Now press F5 to build and execute the package. It will run the package we can see the result as shown in the screen below.

SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now navigate to the path where we gave for the output folder and open the file. We can see the output as below.

Here you can find the packageName and the VersionID at the right end for all the records which satisfied the condition.

## Conclusion

In this chapter we have seen on how to use the AUDIT transformation control to make some audit for the process happening inside the package.

# Chapter 39

## CHARACTER MAP (UPPER TO LOWER) TRANSFORMATION

### Introduction

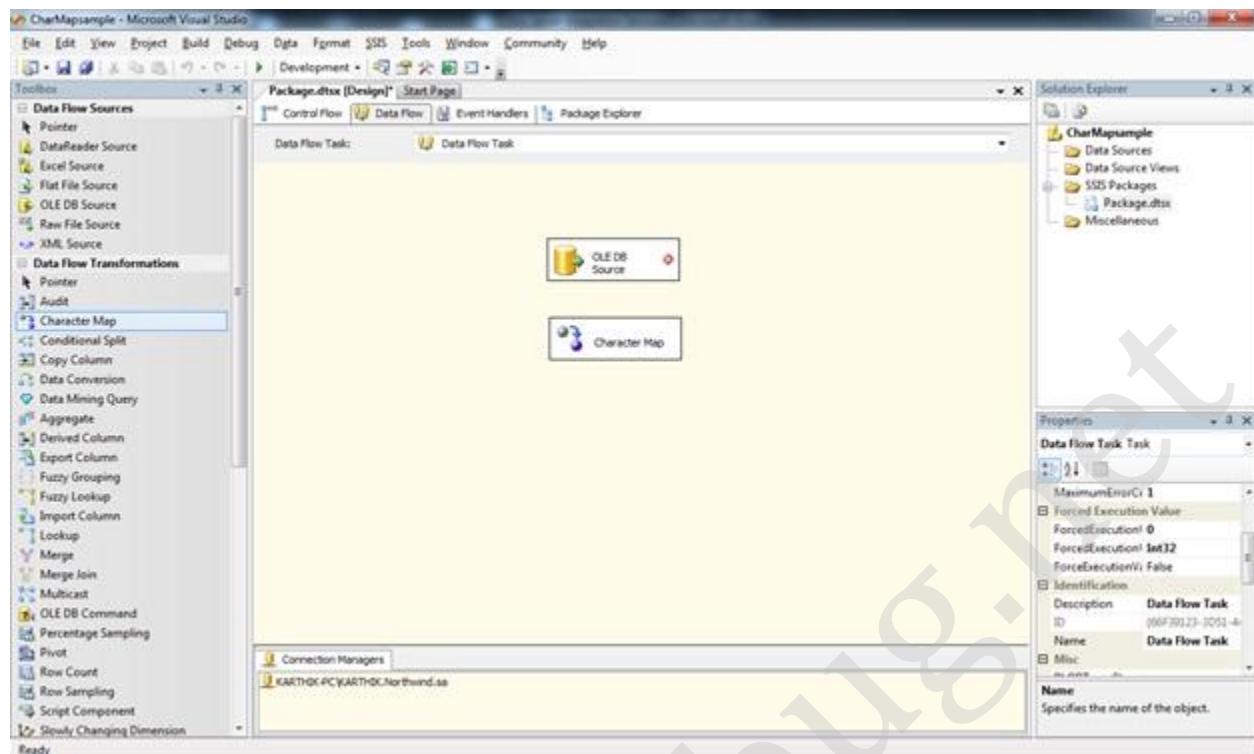
In this chapter we are going to see on how to use the Character Map transformation control in SSIS Packaging. Character Map transformations are used to do some formatting for the columns based on users selection. The formatting can be like transforming Lower to upper case, Upper to lower case, Byte reversal, half width, Full Width etc.

These transformations are used in the data flow process to maintain some standards across the application and to save some issues in the log based on the application name search.

Let's jump start into the example to see on how to use this control.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Character Map control. Once you open the project just drag and drop the Character map control as shown in the screen below.



Before configuring the controls we need to make sure on which process we are going to follow to do the transformation. Here we are going to take 2 tables as source and destination in the same database and do some transformations to check how exactly the process is used for.

We need to create a table as shown in the script below

### Script

```

CREATE TABLE EmpTable
(
EMPID INT,
EMPFnameVARCHAR (50),
EMPLnmaeVARCHAR (50)
)
Go

INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae) VALUES
(1, 'KARTHIK', 'KARTHIK')
INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae) VALUES
(1, 'KARTHIK', 'KARTHIK')

```

The screenshot shows the Microsoft SQL Server Management Studio interface. In the Query Editor window, a T-SQL script is run against the Northwind database. The script creates a temporary table #EmpTable with columns EMPID, EMPFname, and EMPLnmae, then inserts two rows with values (1, 'KARTHIK', 'KARTHIK') each. Finally, it selects all rows from #EmpTable. The Results pane displays the following data:

	EMPID	EMPFname	EMPLnmae
1	1	KARTHIK	KARTHIK
2	1	KARTHIK	KARTHIK

At the bottom of the screen, a status bar indicates "Query executed successfully." and "Ready".

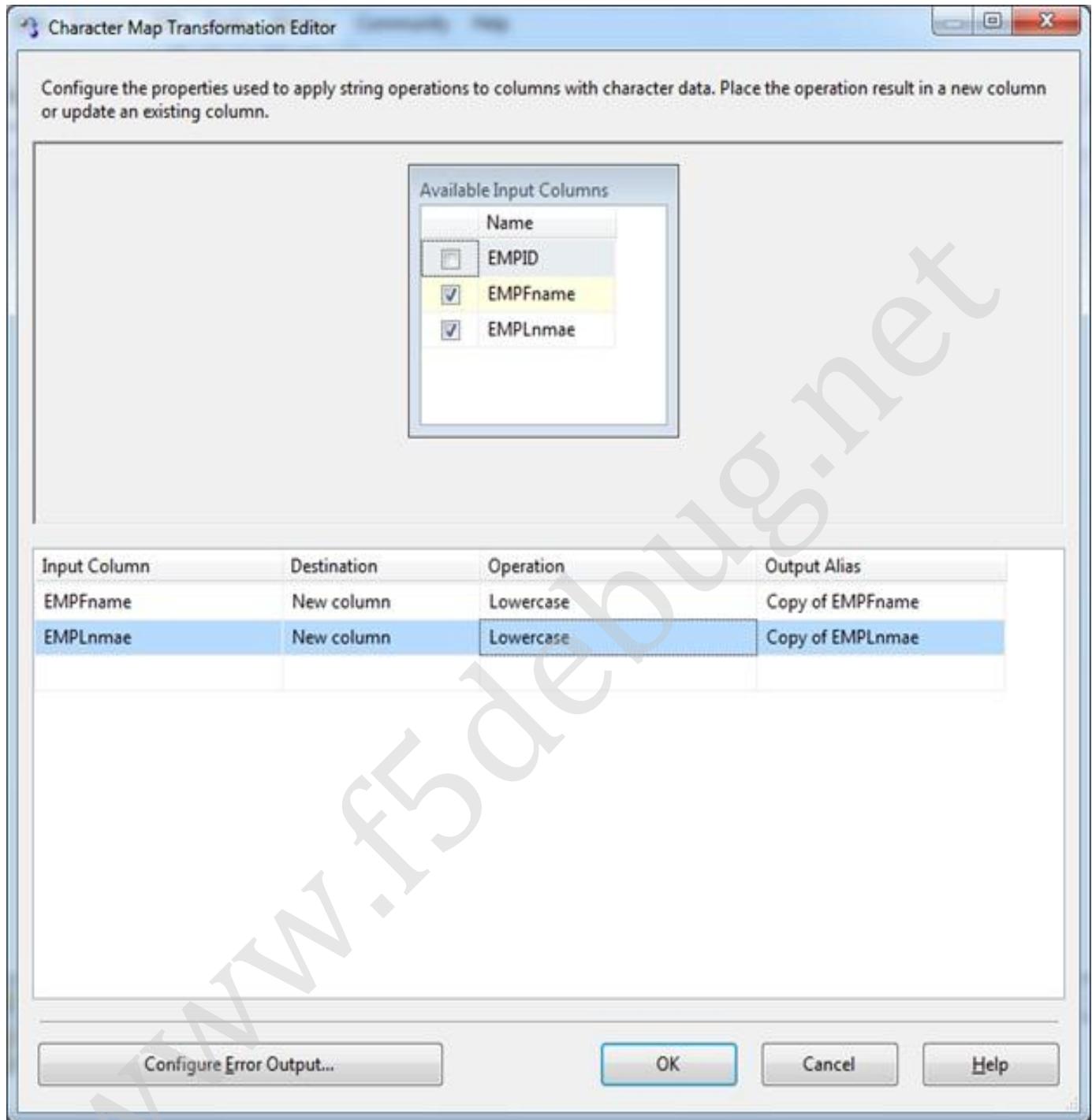
Now a new destination folder should be created as shown in the screen below.

### Script

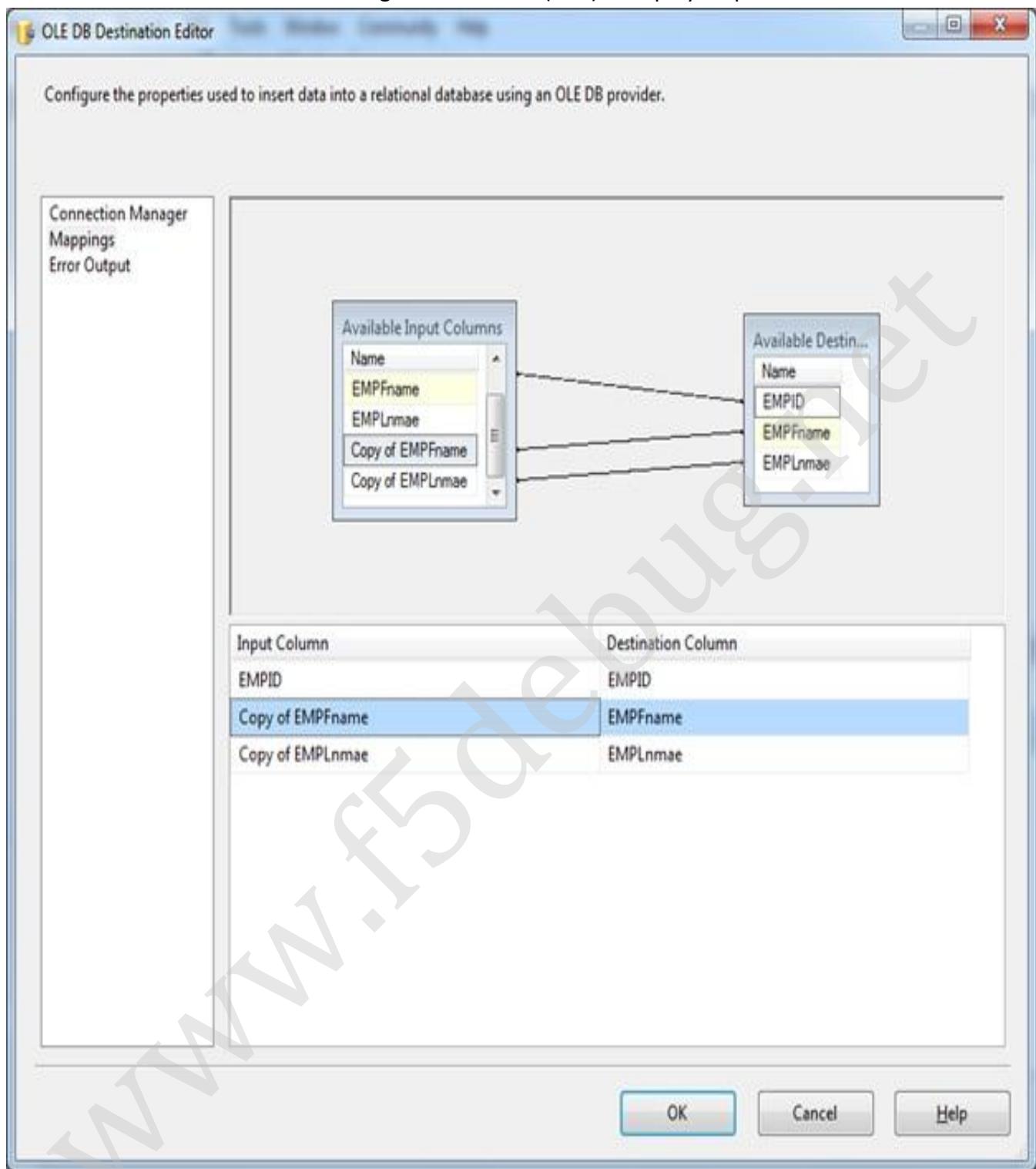
```
CREATE TABLE EmpDestination
(
    EMPID INT,
    EMPFnameVARCHAR (50),
    EMPLnmaeVARCHAR (50)
)
```

Now our process we are going to make a transformation on converting the upper case to lower case, let's see on how to do that.

To configure the Character Map just double click on the control and select the columns to be added for the transformation and select the necessary transform as shown in the below image.

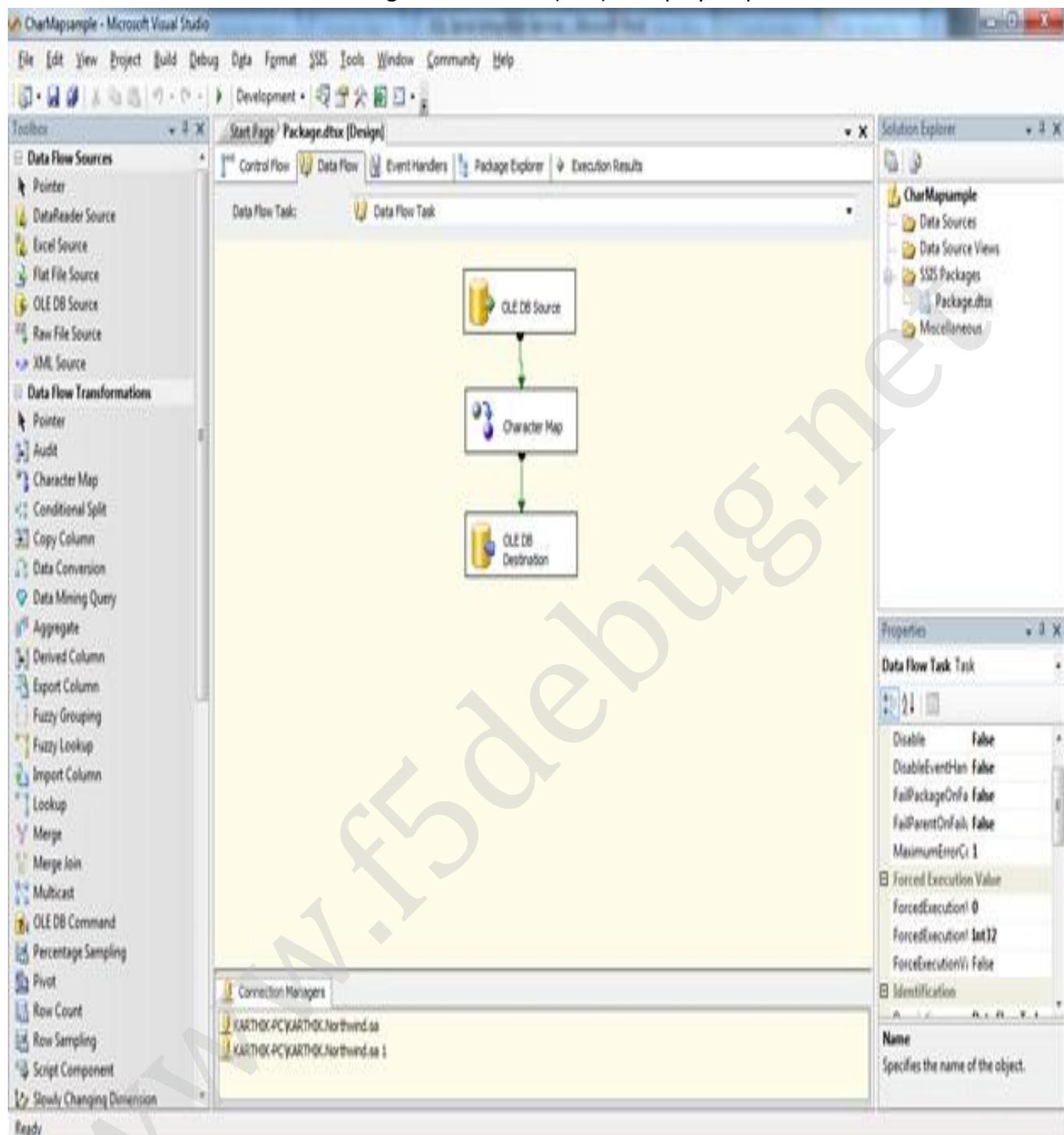


Now drag and drop a destination OLEDB provider and connect to the destination table and map it as shown in the screen below.



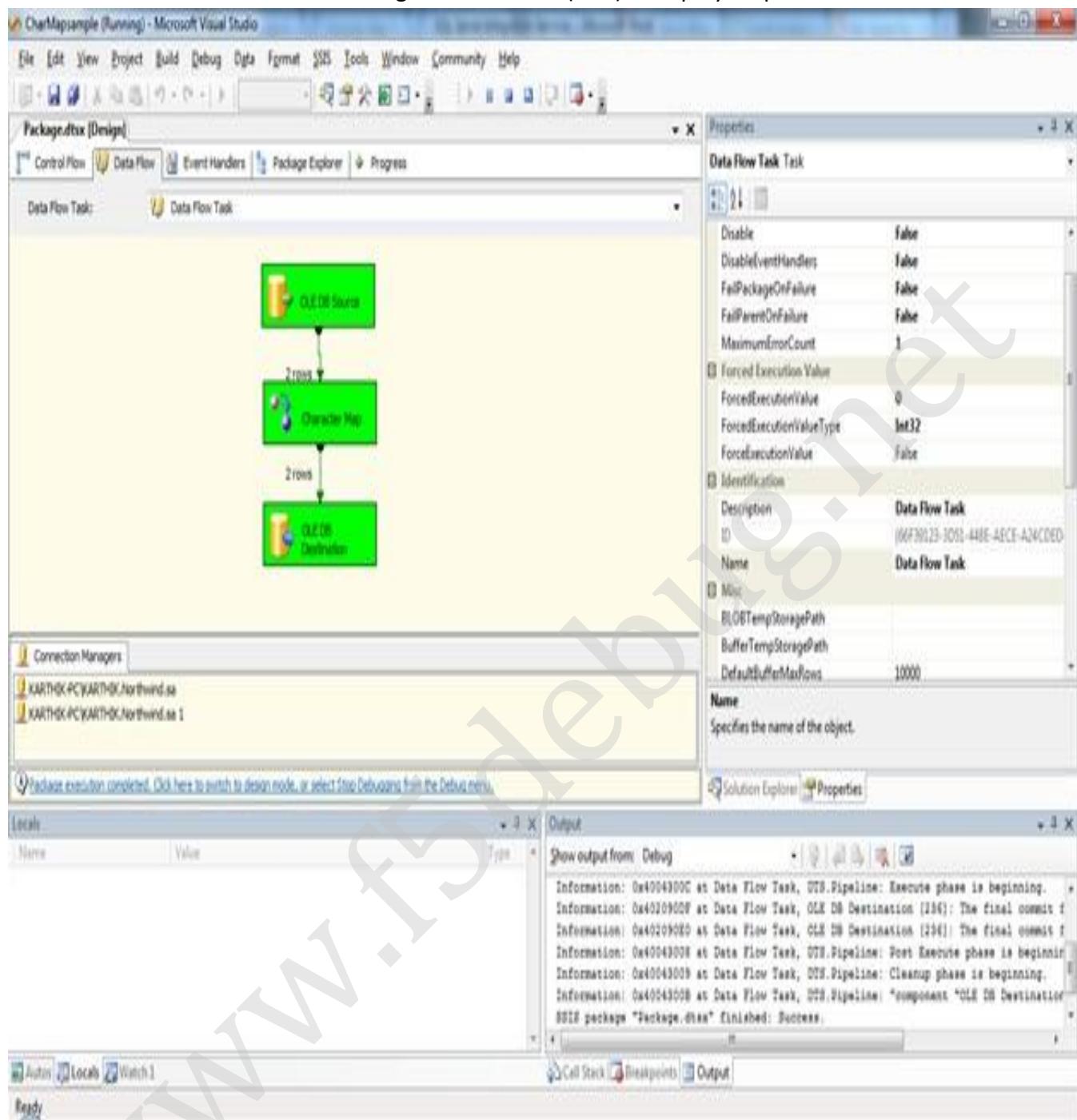
Once we are done with the entire configuration we can see our package look like the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now press F5 to run the package. Once the package gets executed it will look like the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now the package is executed successfully, to check the transformations are completed successfully go to the query analyzer and run the query as shown in the screen below.

The screenshot shows the Microsoft SQL Server Management Studio interface. A query window is open with the following content:

```
Select * From DepDestination
```

The results grid displays the following data:

	EMPID	EMPFname	EMPLname
1	1	karthik	karthik
2	1	karthik	karthik

Below the grid, the status bar shows "Query executed successfully." and "Ready".

## Conclusion

In this chapter we have seen on how to use the Character Map to transform characters from Upper to Lower case for particular columns in a table.

# Chapter 40

## **CHARACTER MAP (LOWER TO UPPER) TRANSFORMATION**

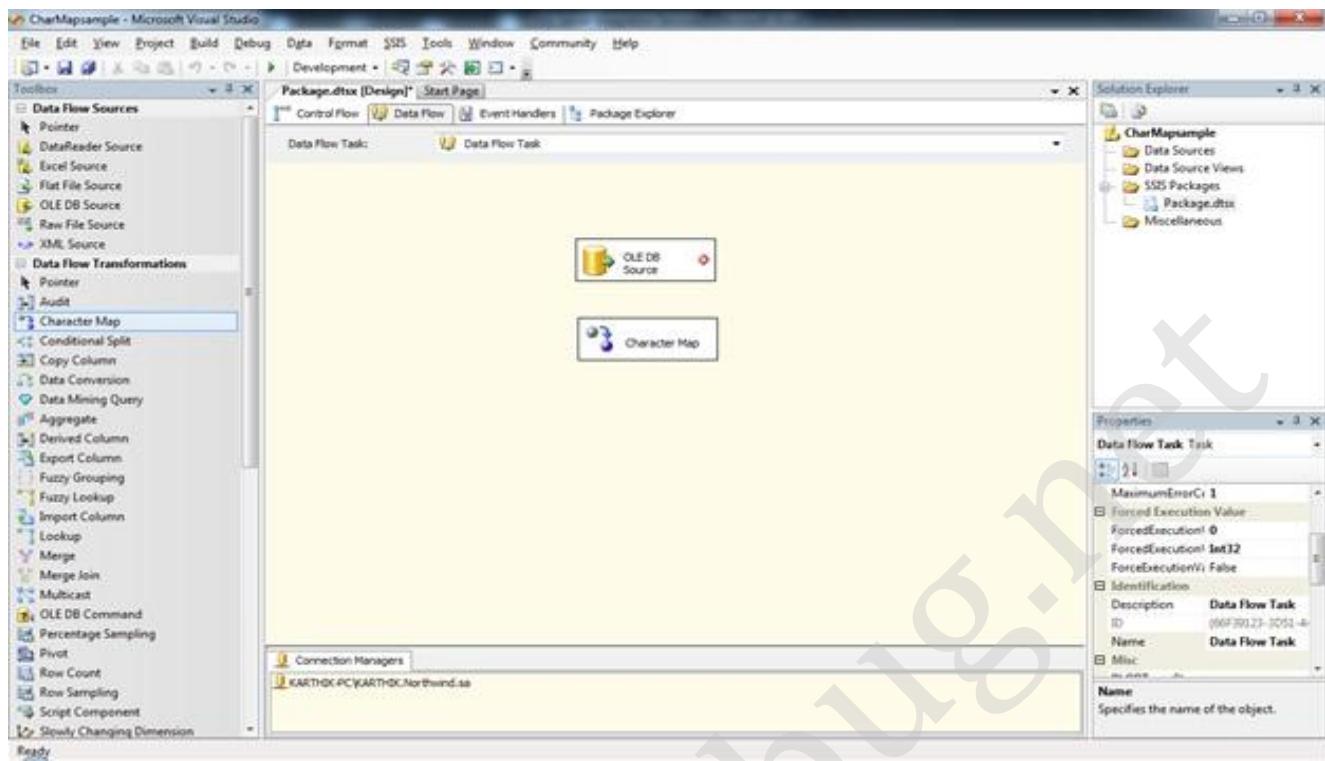
### **Introduction**

In this chapter we are going to see on how to use the Character Map transformation control in SSIS Packaging. We are going to see an example on how to do a transformation of Lower to upper case of a column using the character map transformation control.

Let's jump start to the section on how to do that using a sample package.

### **Steps**

Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Character Map control. Once you open the project just drag and drop the Character map control as shown in the screen below.



Before configuring the controls we need to make sure on which process we are going to follow to do the transformation. Here we are going to take 2 tables as source and destination in the same database and do some transformations to check how exactly the process is used for.

Now we need to create a table with the scripts below

### Script

```

CREATE TABLE EmpTable
(
EMPID INT,
EMPFnameVARCHAR(50),
EMPLnmaeVARCHAR(50)
)
Go

INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae) VALUES
(1,'karthik','karthik')
INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae) VALUES
(2,'arun','arun')
INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae) VALUES
(3,'mani','mani')

```

```

Microsoft SQL Server Management Studio
File Edit View Query Project Tools Window Community Help
New Query | Northwind Execute
KARTHIK-PC\KARTHIK - SQLQuery1.sql [Object Explorer Details]
Go
INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae)VALUES (1,'karthik','karthik')
INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae)VALUES (2,'arun','arun')
INSERT INTO EmpTable (EMPID, EMPFname, EMPLnmae)VALUES (3,'mani','mani')
Select * From EmpTable;
Results Messages
EMPID EMPFname EMPLnmae
1 karthik karthik
2 arun arun
3 mani mani
Query executed successfully.
KARTHIK-PC\KARTHIK (3.0 RTM) sa (52) Northwind 00:00:00 3 rows
Ln 13 Col 1 Ch 1 ING
Ready

```

Now we need to create a destination folder with the script below.

## Script

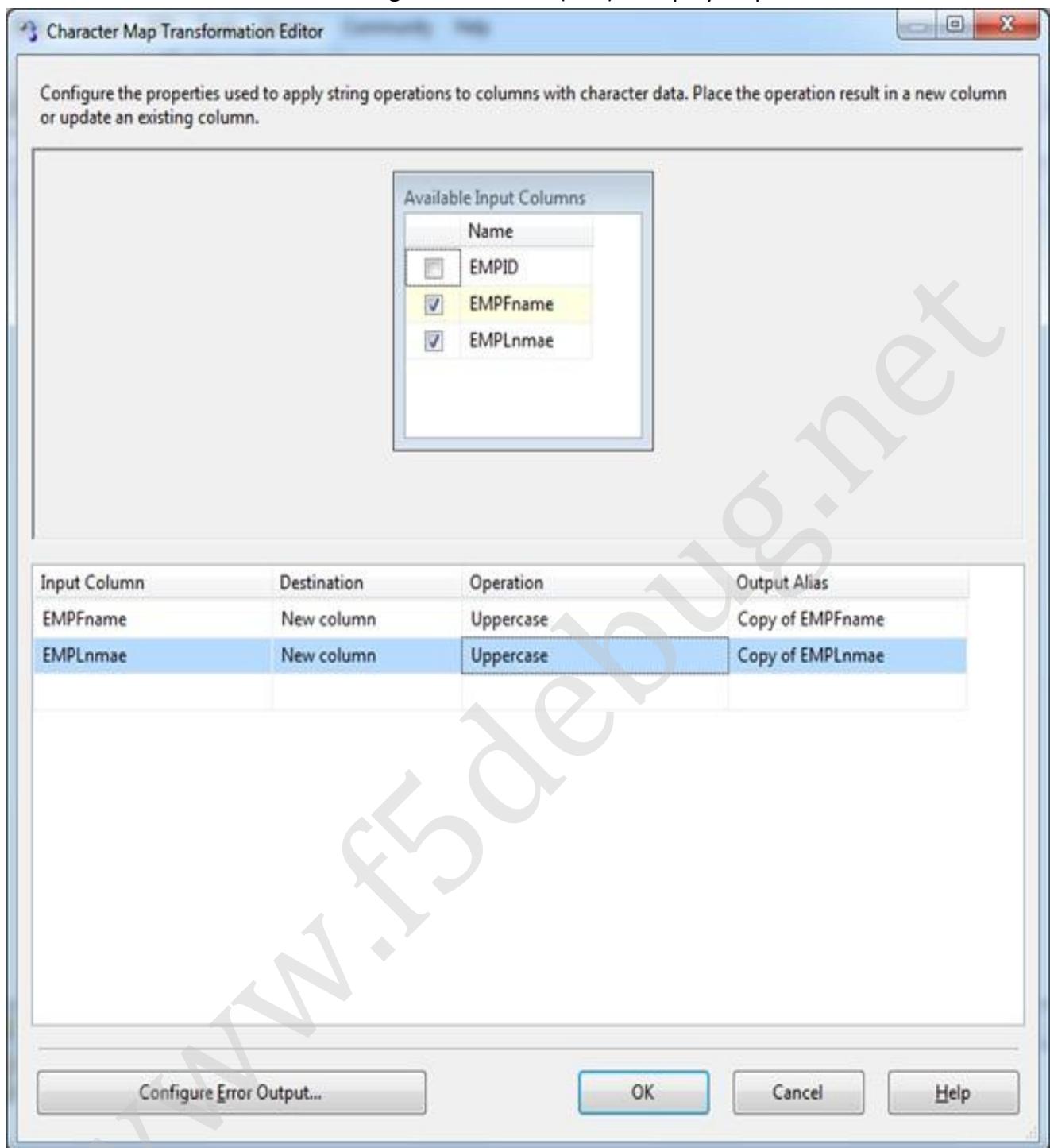
```

CREATE TABLE EmpDestination
(
EMPID INT,
EMPFnameVARCHAR (50),
EMPLnmaeVARCHAR (50)
)

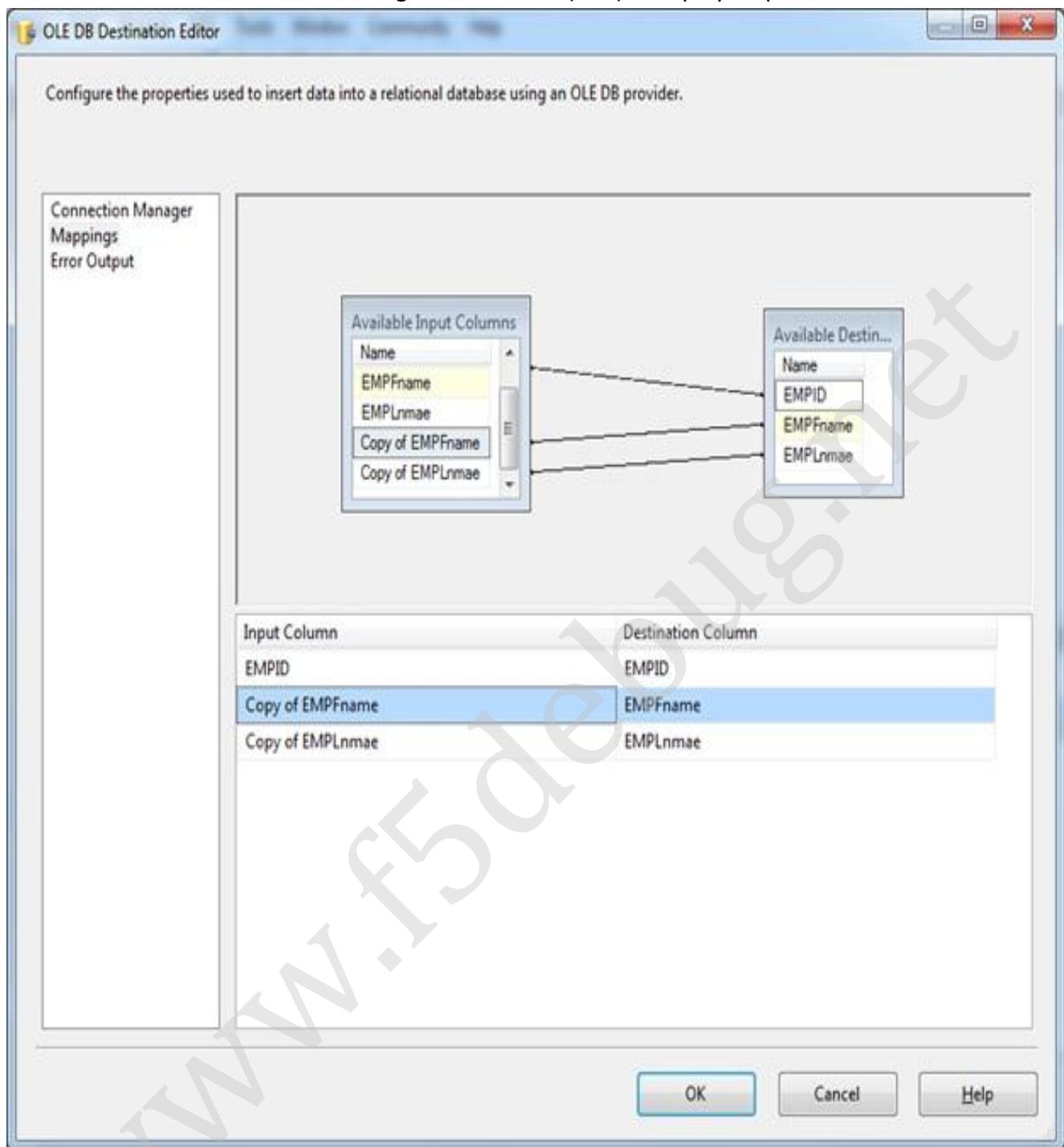
```

Now our process we are going to make a transformation on converting the Lower case to Upper case, let's see on how to do that.

To configure the Character Map just double click on the control and select the columns to be added for the transformation and select the necessary transform as shown in the below image.

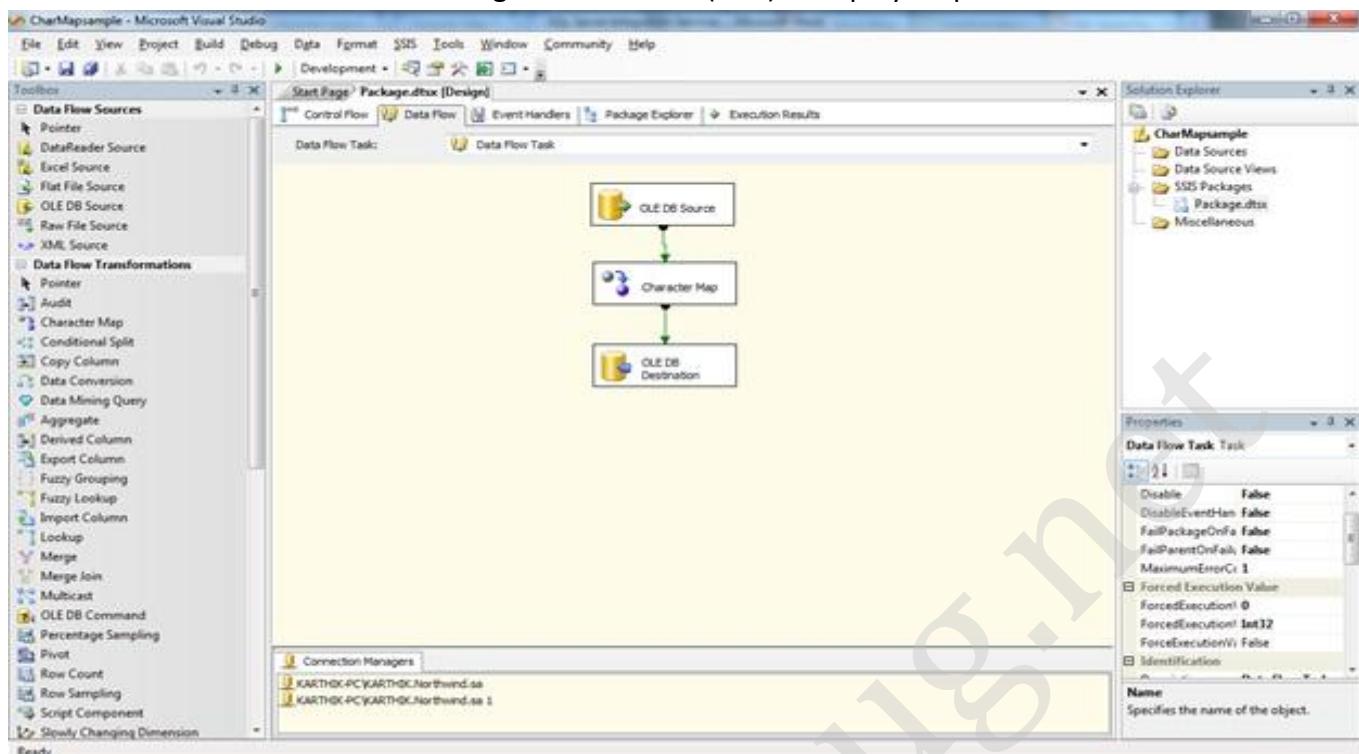


Now drag and drop a destination OLEDB provider and connect to the destination table and map it as shown in the screen below.

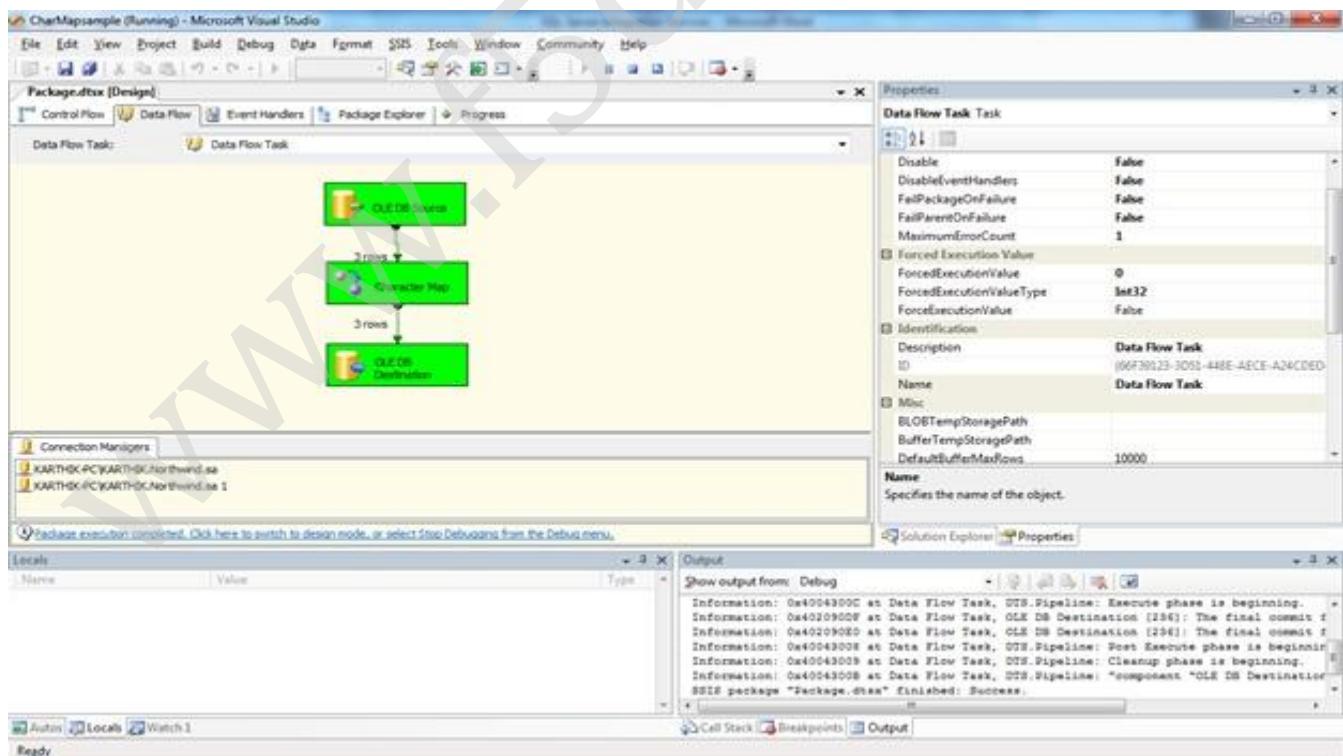


Once we are done with the above configurations we can see our package looks like the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now press F5 to run the package. Once the package gets executed it will look like the screen below.



Now we can see that the package is executed successfully. To check if the transformations are completed successfully go to the Query Analyser and run the below query as shown in the screen below.

The screenshot shows the Microsoft SQL Server Management Studio interface. The top menu bar includes File, Edit, View, Query, Project, Tools, Window, Community, Help, and a toolbar with various icons. Below the menu is a ribbon tab bar with 'New Query', 'File', 'Edit', 'View', 'Query', 'Project', 'Tools', 'Window', 'Community', and 'Help'. The main window displays a query in the 'Query' tab:

```
USE Northwind
GO
SELECT * FROM Employees
```

The results pane shows the output of the query:

EMPID	EMPLname	EMPLmame
1	KARTHIK	KARTHIK
2	ARUN	ARUN
3	MANI	MANI

At the bottom of the results pane, a message says "Query executed successfully." and provides details: KARTHIK-PC\KARTHIK (9.0 RTM) sa (52) Northwind 00:00:00 3 rows. The status bar at the bottom right shows "Ln 22 Col 1 Ch 1 B6".

## Conclusion

In this chapter we have seen on how to use the Character Map to transform characters from Lower to Upper case for particular columns in a table.

# Chapter 41

## COPY COLUMN TRANSFORMATION

### Introduction

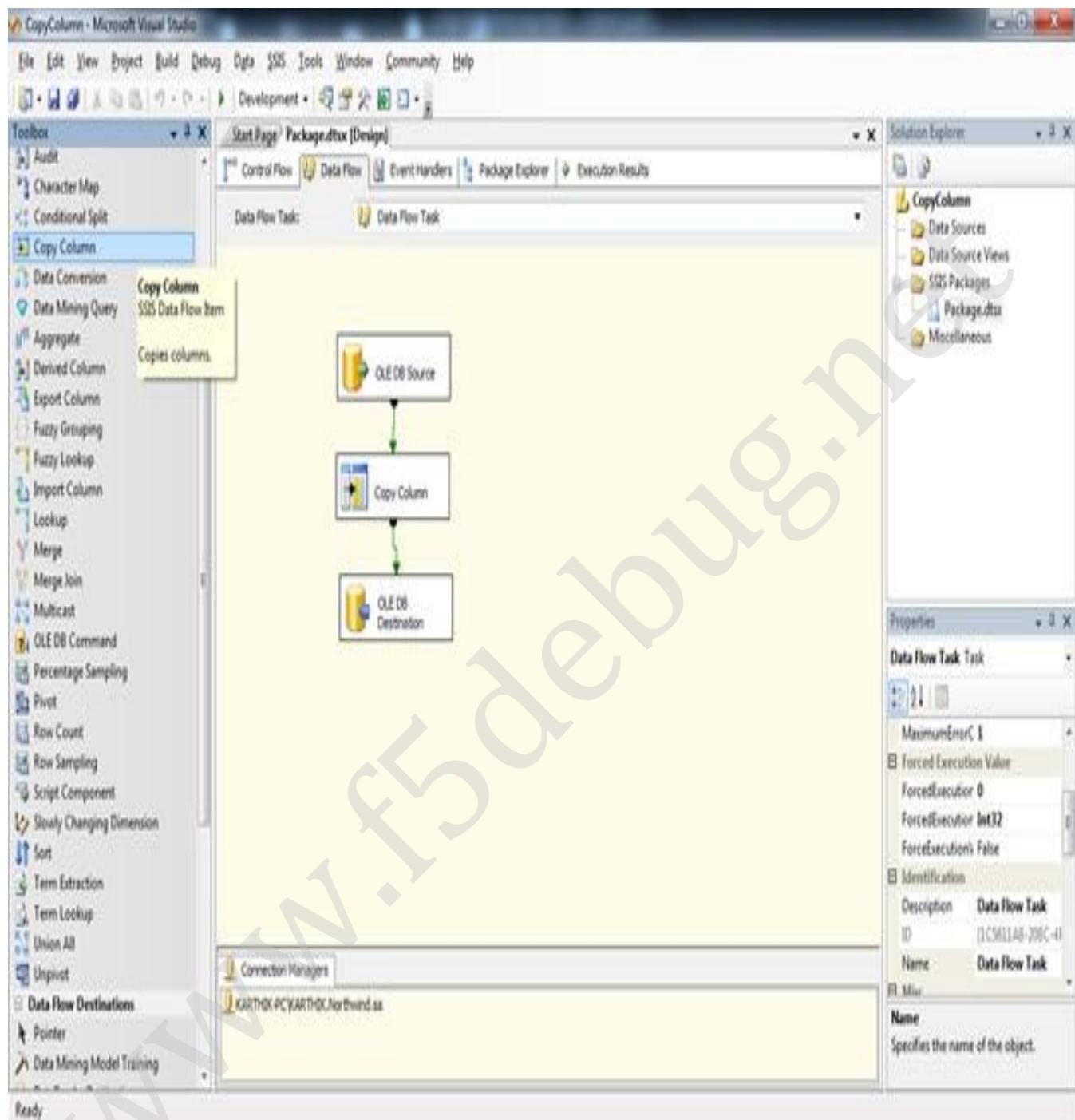
In this chapter we are going to see on how to use the Copy Column transformation inside a package. Copy Column task help to copy a column to a destination as and when required to have sync across the environments.

Let's jump start to the section on how to do that using a sample package.

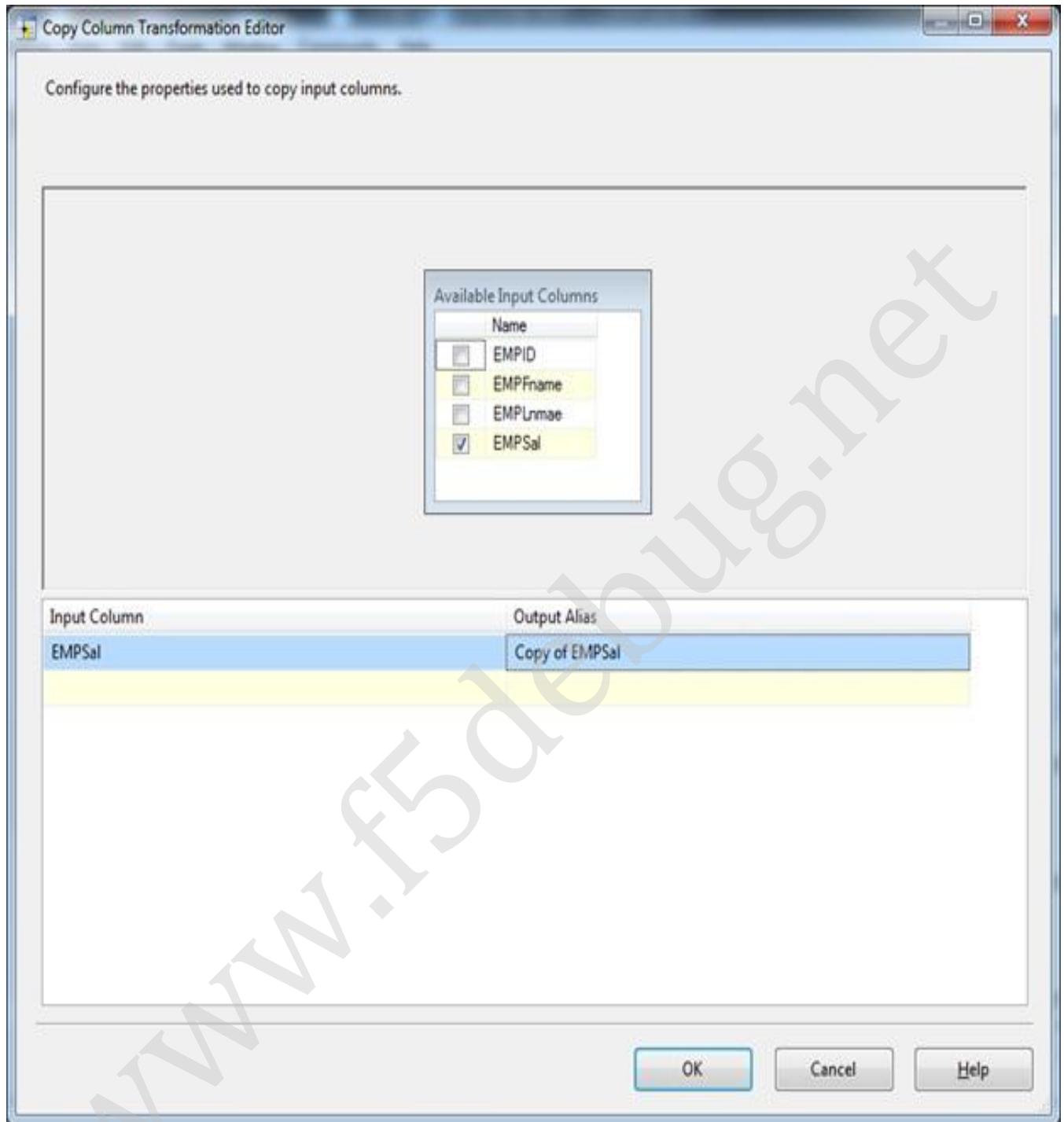
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Copy Column control.

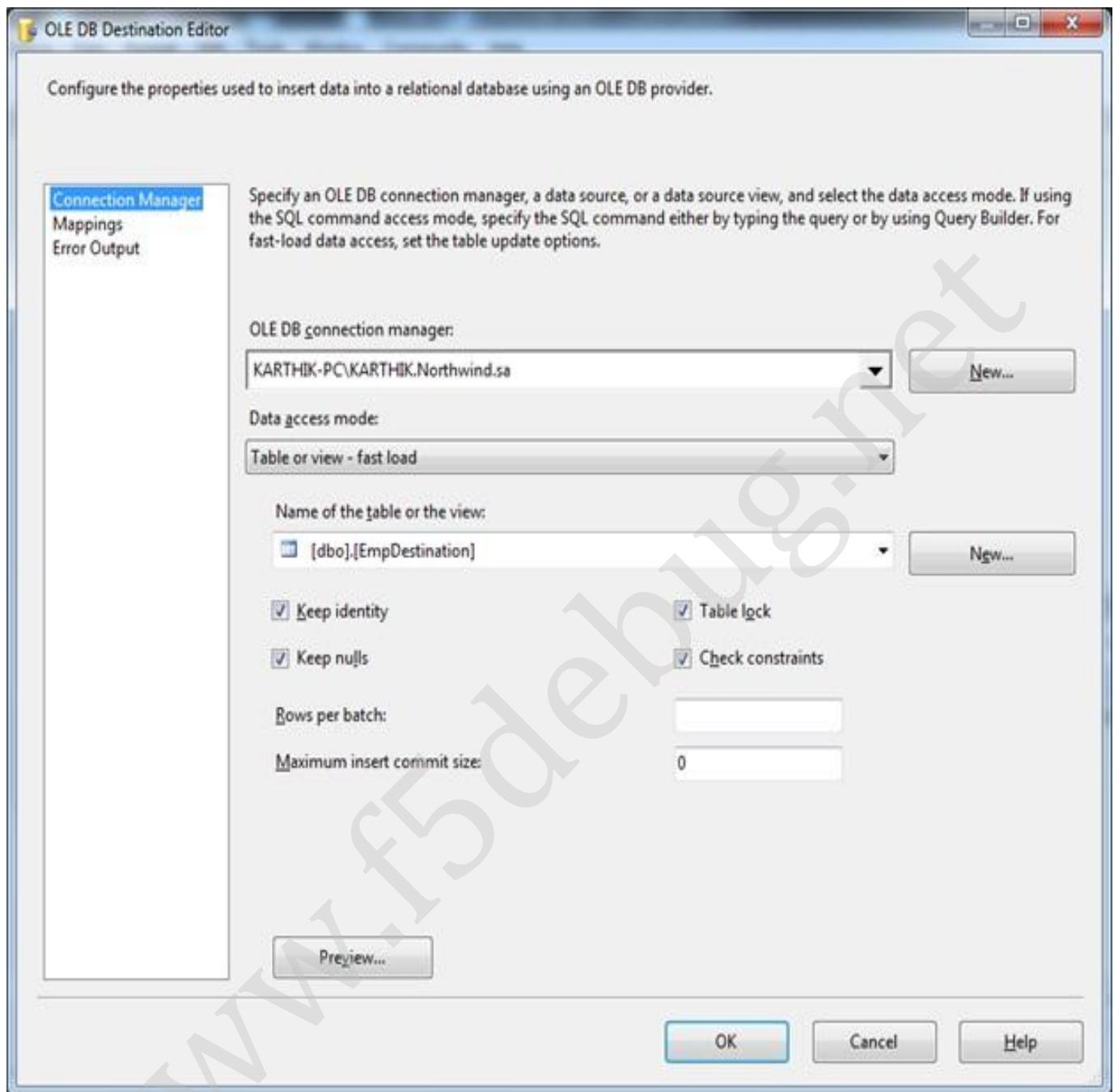
Once you open the project just drag and drop the Copy Column control and a source and destination OLEDB provider control to get and update the column as shown in the screen below.



We have configured the OLEDB Source to fetch the data which we are going to make a copy. Now let's configure the Copy Column as shown in the screen below.

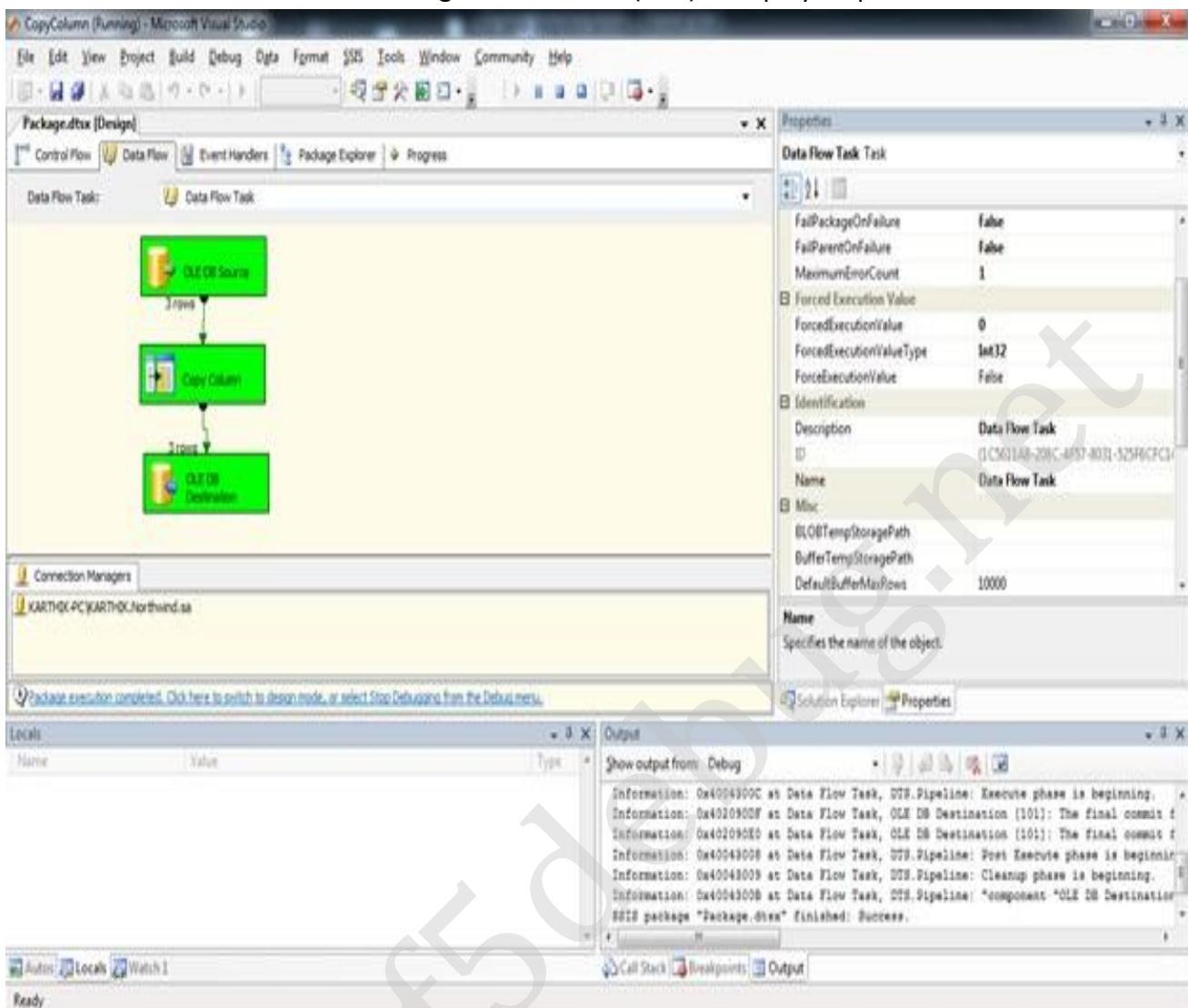


Clicking on OK will do the configuration of the copy column control. Now go to the OLEDB Destination control and configure to the correct Column as shown in the screen below.



Once we are done with the configuration Press F5 to build and execute the package. Once the package gets executed successfully your screen looks like below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



## Conclusion

In this chapter we have seen on how to use the Copy Column to transform a copy of column to the destination for particular columns in a table.

# Chapter 42

## DATA CONVERSION TRANSFORMATION

### Introduction

In this chapter we are going to see on how to use the Data Conversion transformation inside a package. Data Conversion task mainly used in large transformations where the data compatibility should be checked in order to update back to the database.

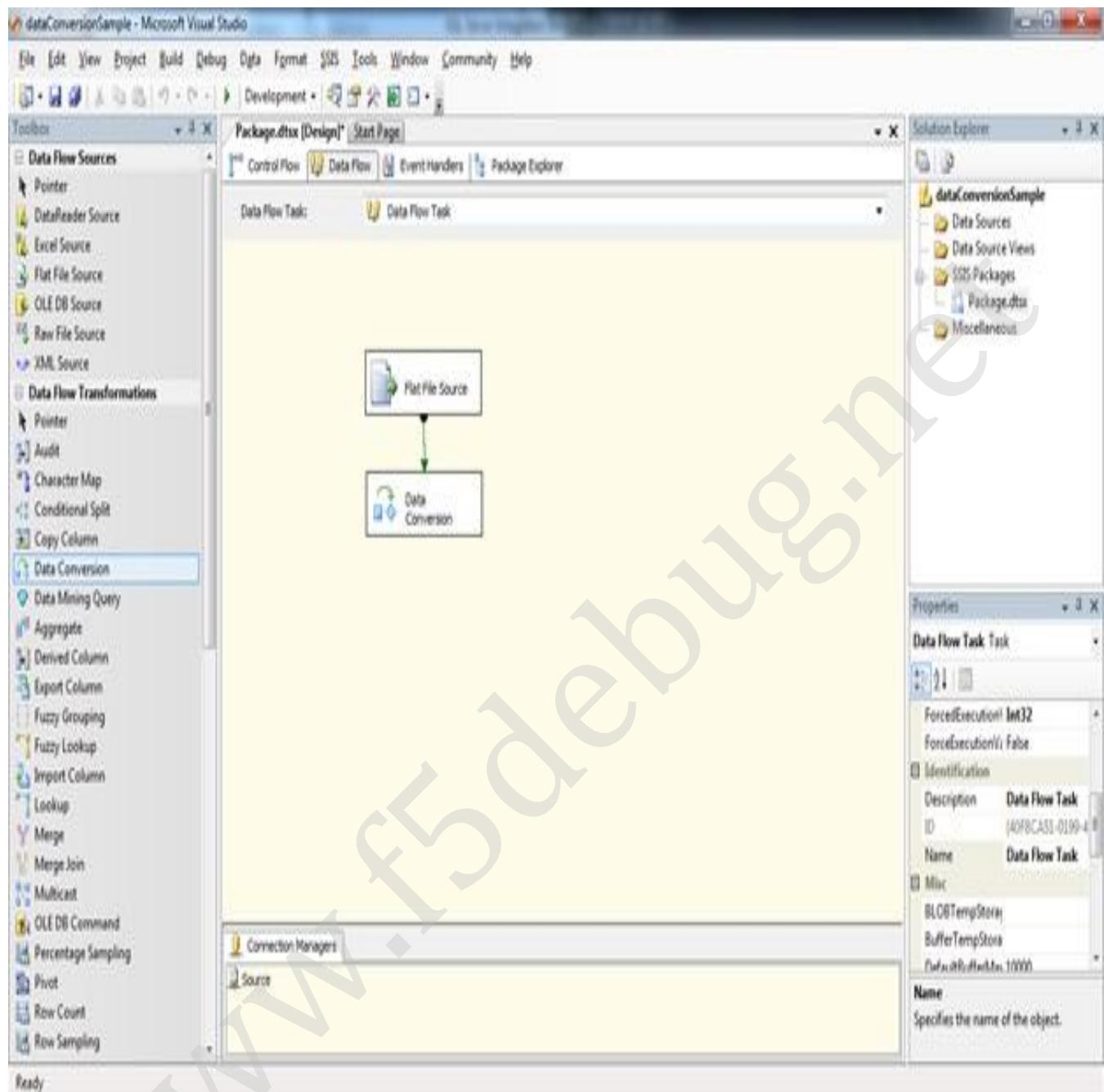
Say for example we get some daily morning loads as some file and in that file we can see some data type wrong which needs to be altered from string to integer in that case this task can be used.

Let's jump start to the section on how to do that using a sample package.

### Steps

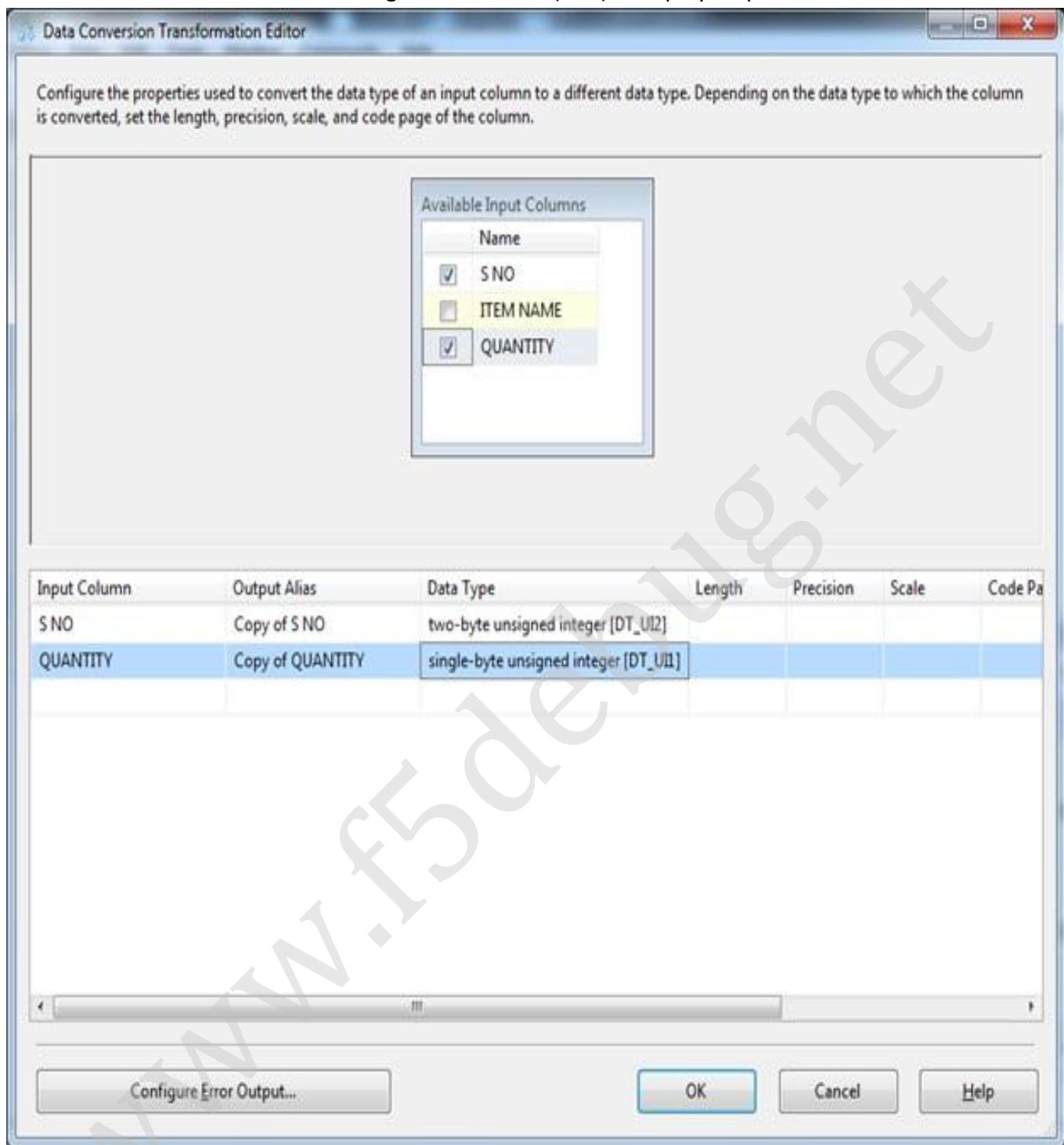
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Data Conversion control.

Once you open the project just drag and drop the Data Conversion control and a source and destination provider as shown in the screen below.

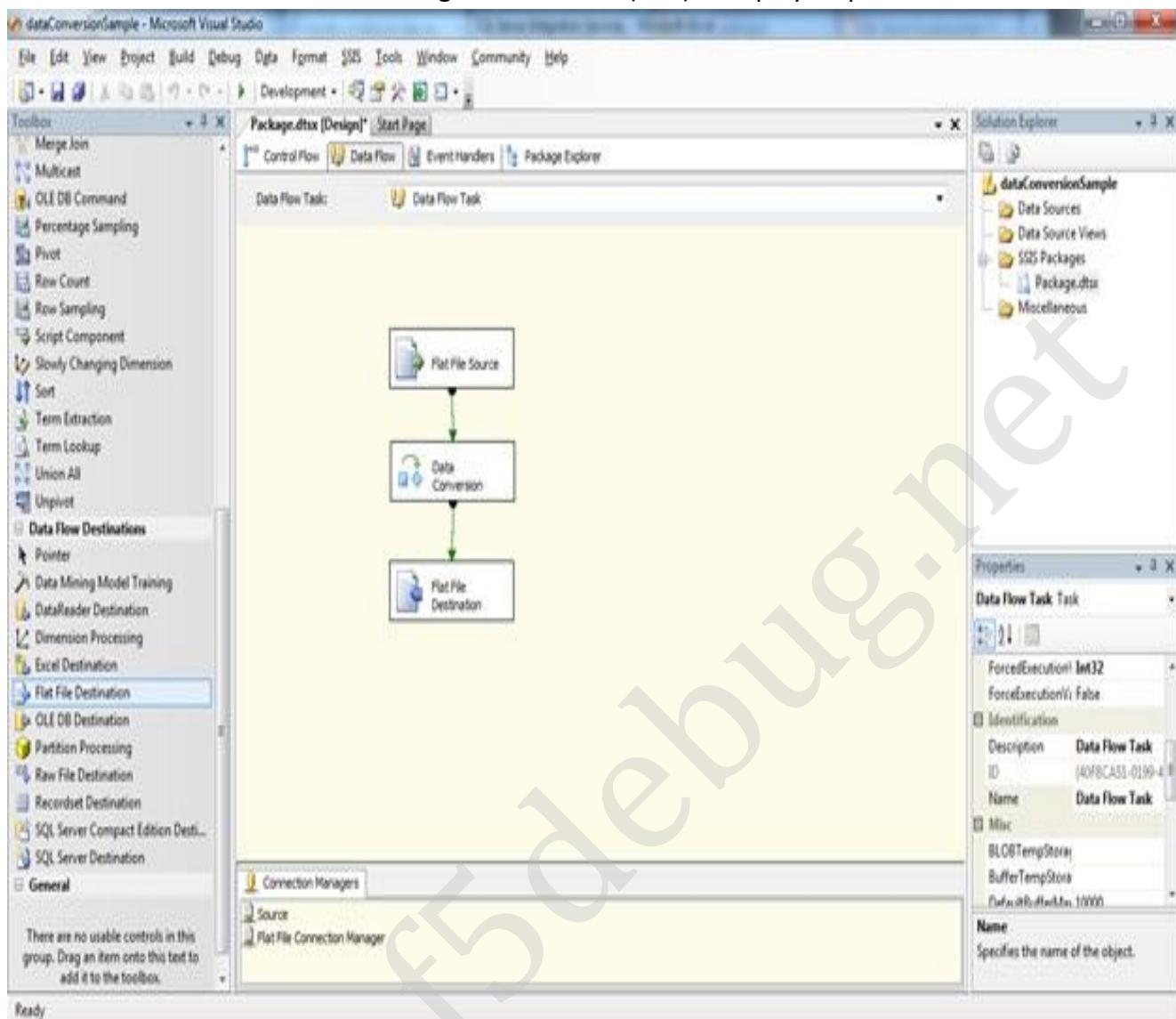


Here we are using a Flat file data source which has 3 columns as string. Out of the 3, we need to convert the data type of 2 columns. Let's see on how to do that using this sample.

Double click the Data Conversion control will open a window to do the configuration. Follow as it shows in the below image.



Here we can select the data type based on our need, like we can select a Currency Data type if an amount filed is found. Now click on the OK button to complete this step. Now we need to drag and drop a destination file task and configure as shown in the below image.



Now press F5 to run the task and you can find the data type converted. To have it used in real time we need to use to update to the database where it has constraints on having only numeric or a string based on the business.

## Conclusion

In this chapter we have seen on how to use the Data Conversion Transformation to transform a data of different type.

# Chapter 43

## DERIVED COLUMN TRANSFORMATION

### Introduction

In this chapter we are going to see on how to use the Derived Column transformation in SSIS packaging. Derived column transformation is used in cases where we do some manipulations and get the desired result in a separate column.

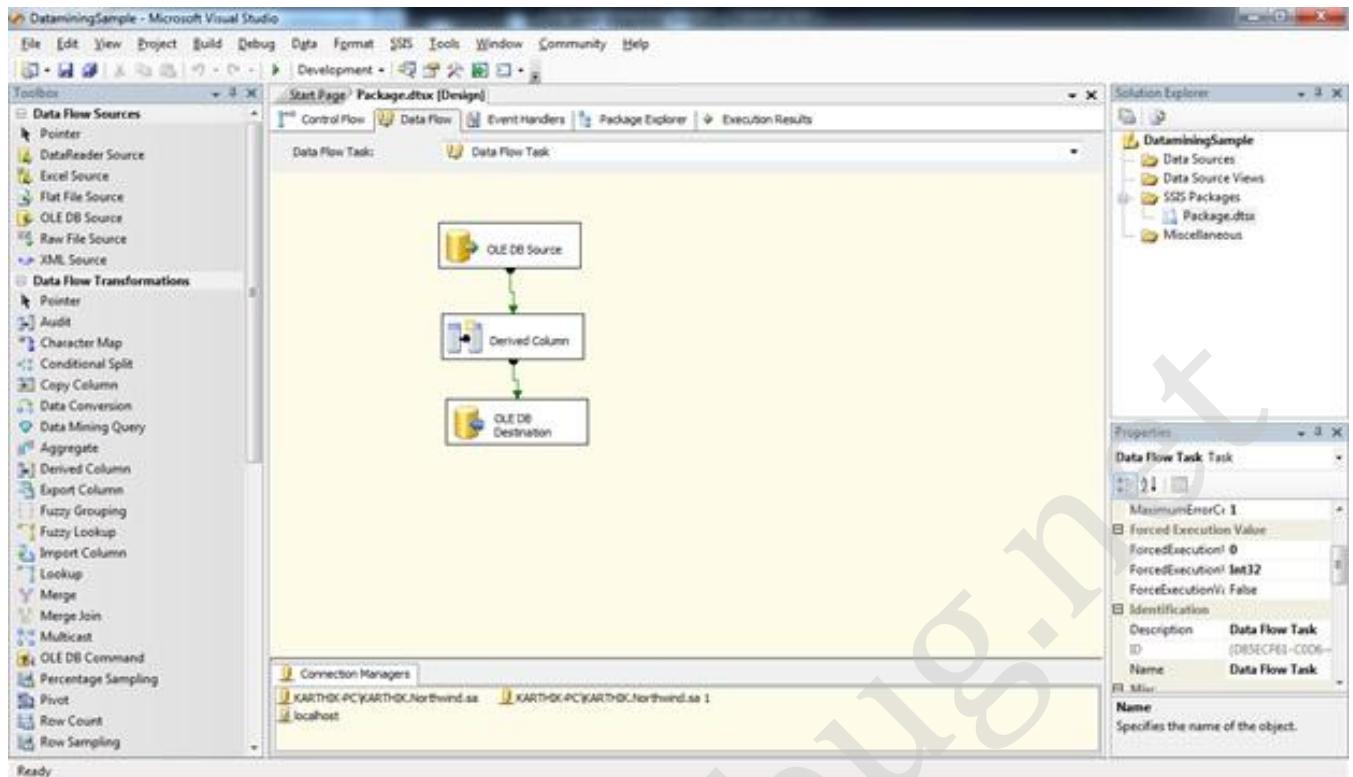
Say for example we need to do some transformations based on calculating the salary with some perks and have it in a separate column then we can go with the derived columns.

Let's jump start to the section on how to do that using a sample package.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Derived Columns control. Once you open the project just drag and drop the Derived Column control and a source and destination provider as shown in the below image.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we need to do the configuration for each of the tasks, first we will start with Source. In our example we are going to create a table as shown in the below scripts

### Script

```
CREATE TABLE EmpDetails(EMPID int, EMPFName varchar(10), EMPLName  
varchar(10),
```

```
EMPDOB Datetime, EMPSal int, EMPHra int)
```

```
GO
```

```
INSERT INTO EmpDetails (EMPID, EMPFName, EMPLName, EMPDOB, EMPSal,  
EMPHra)VALUES(1,'Karthik','Anbu','01/01/1980', 10000,1500)
```

```
INSERT INTO EmpDetails (EMPID, EMPFName, EMPLName, EMPDOB, EMPSal,  
EMPHra)VALUES(2,'Arun','Kumar','02/02/1981', 8000,1200)
```

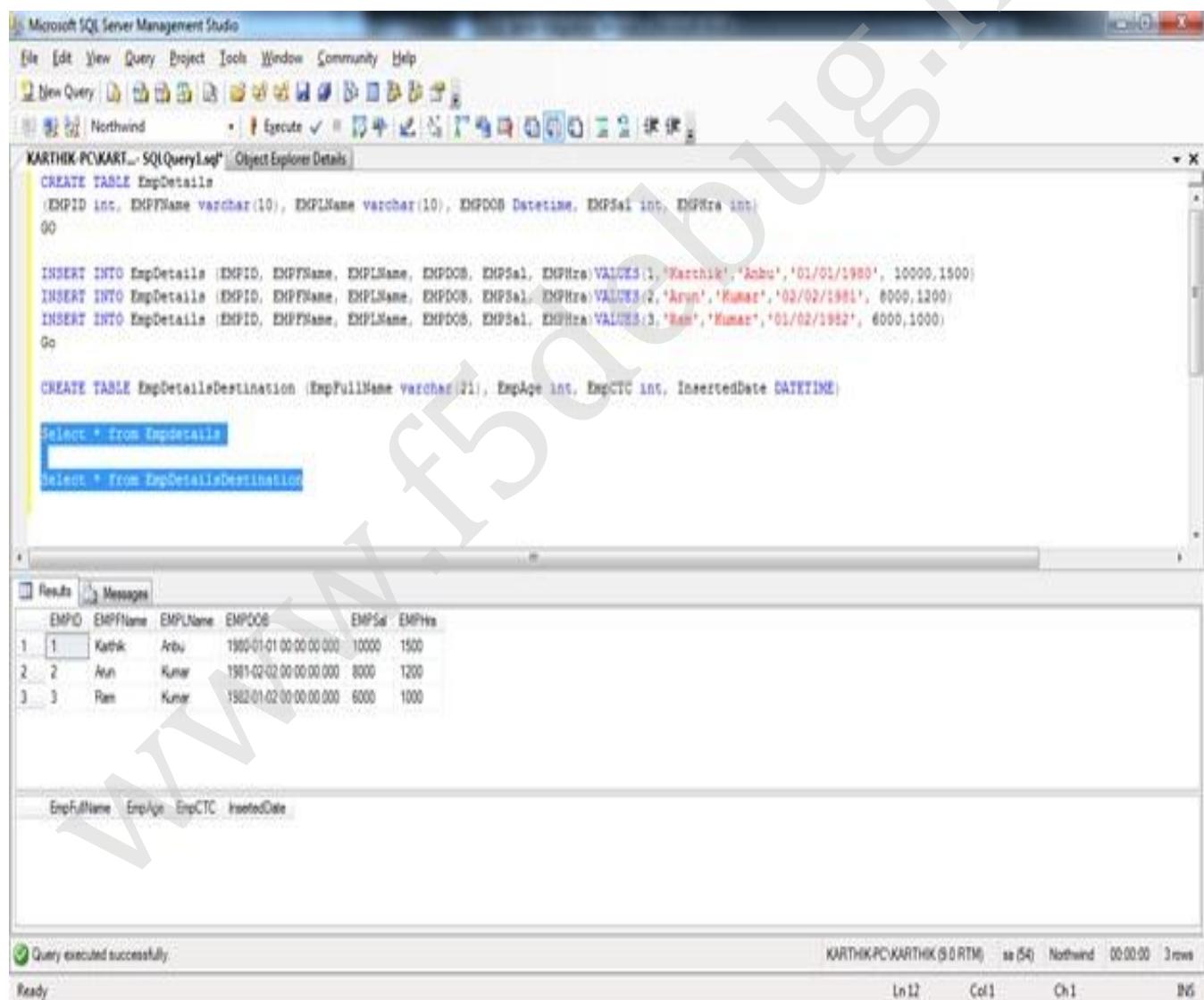
```
INSERT INTO EmpDetails (EMPID, EMPFName, EMPLName, EMPDOB, EMPSal,  
EMPHra)VALUES(3,'Ram','Kumar','01/02/1982', 6000,1000)
```

```
Go
```

Now configure the source to get the details from the table above. Once the source is configured now we need to do the configuration for the destination section. So here we are going to create a new table as shown in the below script.

***CREATE TABLE EmpDetailsDestination (EmpFullNamevarchar(21), EmpAgeint, EmpCTCint, InsertedDate DATETIME)***

Now the records in both the source and destination tables are shown in the screen below.



```

Microsoft SQL Server Management Studio
File Edit View Project Tools Window Community Help
New Query Object Explorer Details
KARTHIK-PC\KARTHIK - SQLQuery1.sql Northwind Execute ✓
CREATE TABLE EmpDetails
(EMPID int, EMPFName varchar(10), EMPLName varchar(10), EMPOOB Datetime, EMPSal int, EMPSra int)
GO

INSERT INTO EmpDetails (EMPID, EMPFName, EMPLName, EMPOOB, EMPSal, EMPSra)VALUES(1, 'Karthik', 'Anbu', '01/01/1980', 10000, 1500)
INSERT INTO EmpDetails (EMPID, EMPFName, EMPLName, EMPOOB, EMPSal, EMPSra)VALUES(2, 'Arun', 'Kumar', '02/02/1981', 8000, 1200)
INSERT INTO EmpDetails (EMPID, EMPFName, EMPLName, EMPOOB, EMPSal, EMPSra)VALUES(3, 'Ran', 'Kumar', '01/02/1982', 6000, 1000)
Go

CREATE TABLE EmpDetailsDestination (EmpFullName varchar(21), EmpAge int, EmpCTC int, InsertedDate DATETIME)

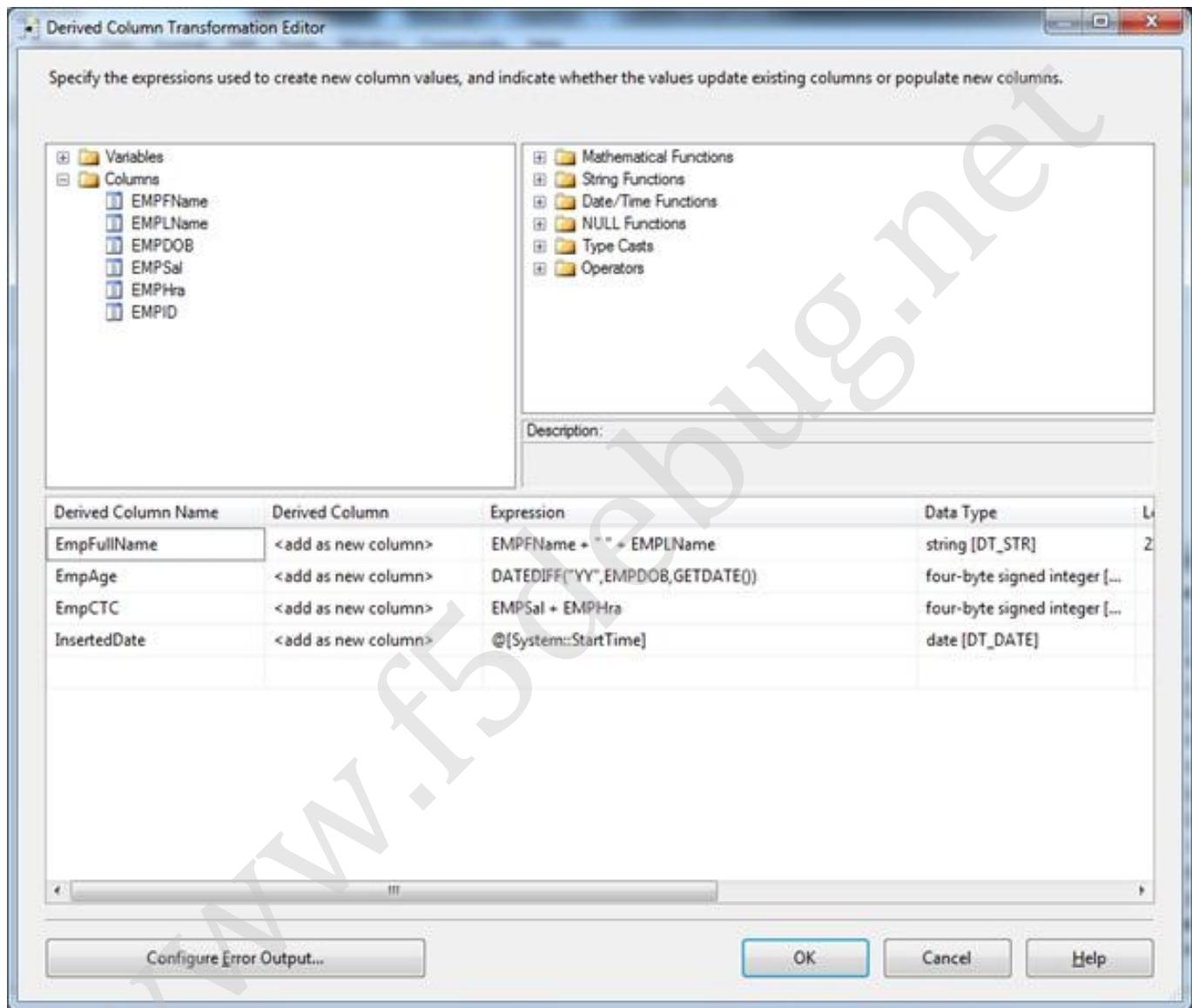
Select * From EmpDetails
Select * From EmpDetailsDestination

```

The screenshot shows the Microsoft SQL Server Management Studio interface. In the query window, a CREATE TABLE statement for 'EmpDetails' is executed, followed by three INSERT statements adding three rows of data. Then, a CREATE TABLE statement for 'EmpDetailsDestination' is executed. Finally, two SELECT statements are run to show the data in both the source and destination tables. The results pane displays the data from the 'EmpDetails' table:

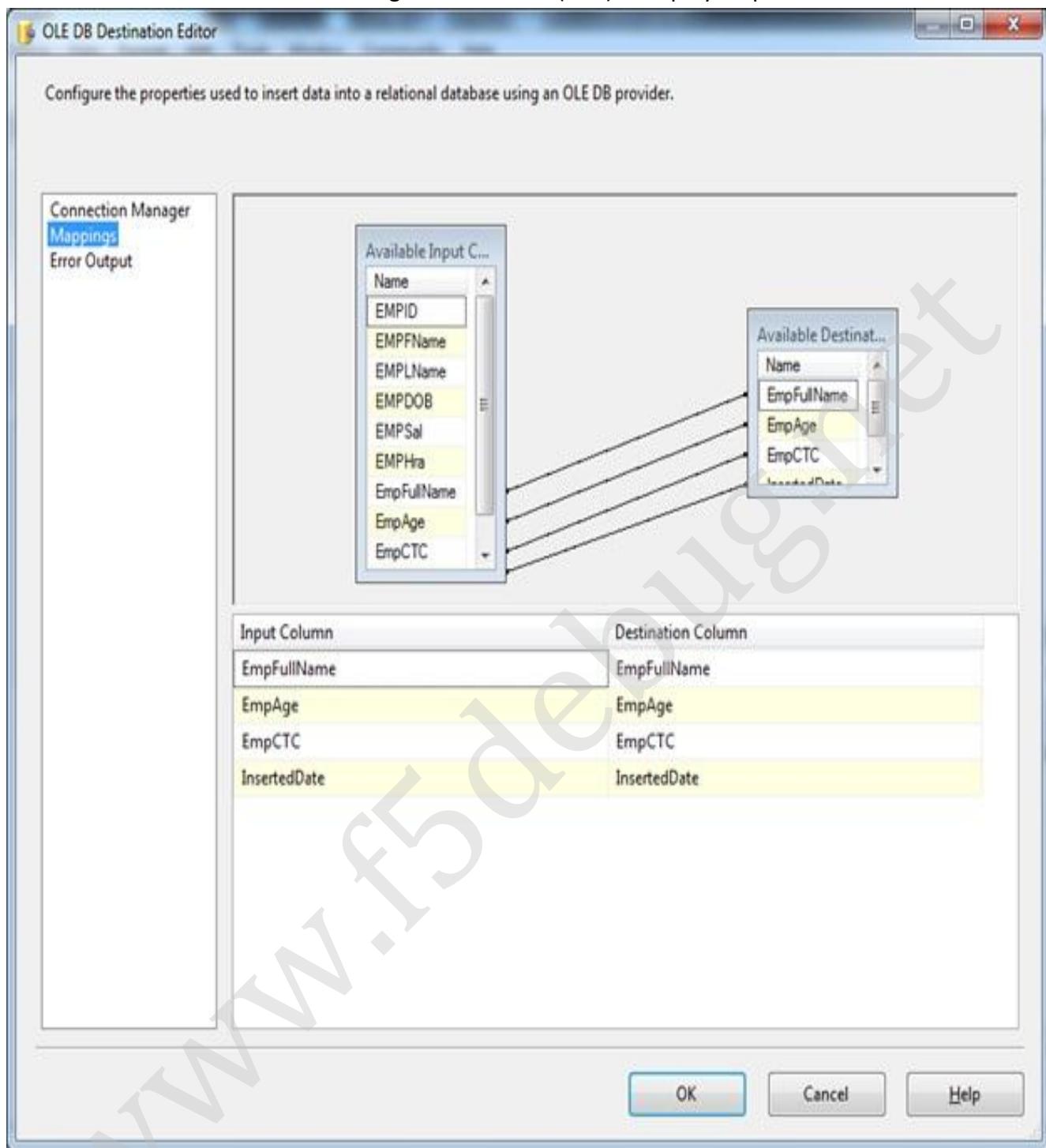
	EMPID	EMPFName	EMPLName	EMPOOB	EMPSal	EMPSra
1	1	Karthik	Anbu	1980-01-01 00:00:00.000	10000	1500
2	2	Arun	Kumar	1981-02-02 00:00:00.000	8000	1200
3	3	Ran	Kumar	1982-01-02 00:00:00.000	6000	1000

Our primary goal is to do some manipulations using the derived column task and save it in a separate table. So we are configuring the Derived Column by double clicking the control will open the window for configuration as shown in the screen below.



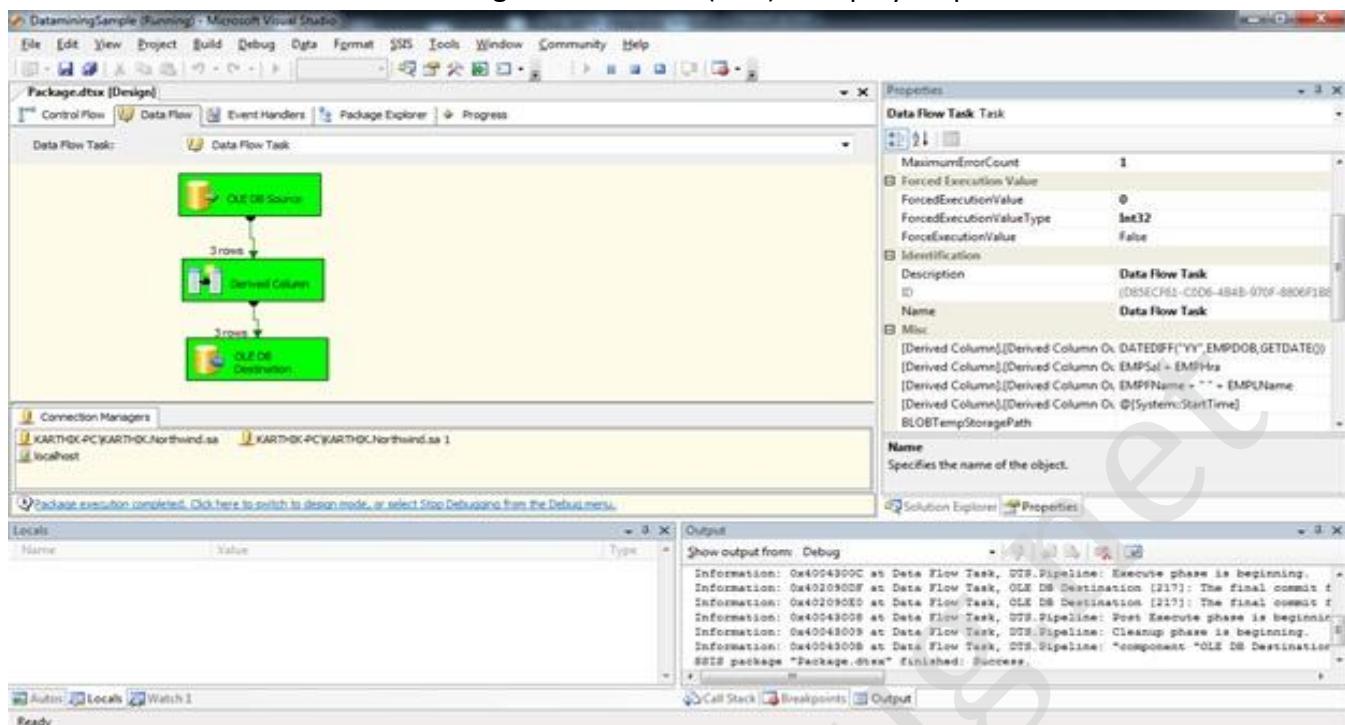
In the expression section if you see we have created some expressions to do some manipulations as per our requirement.

Now we need to do the same configuration for the destination as well by mapping the columns as shown in the screen below.

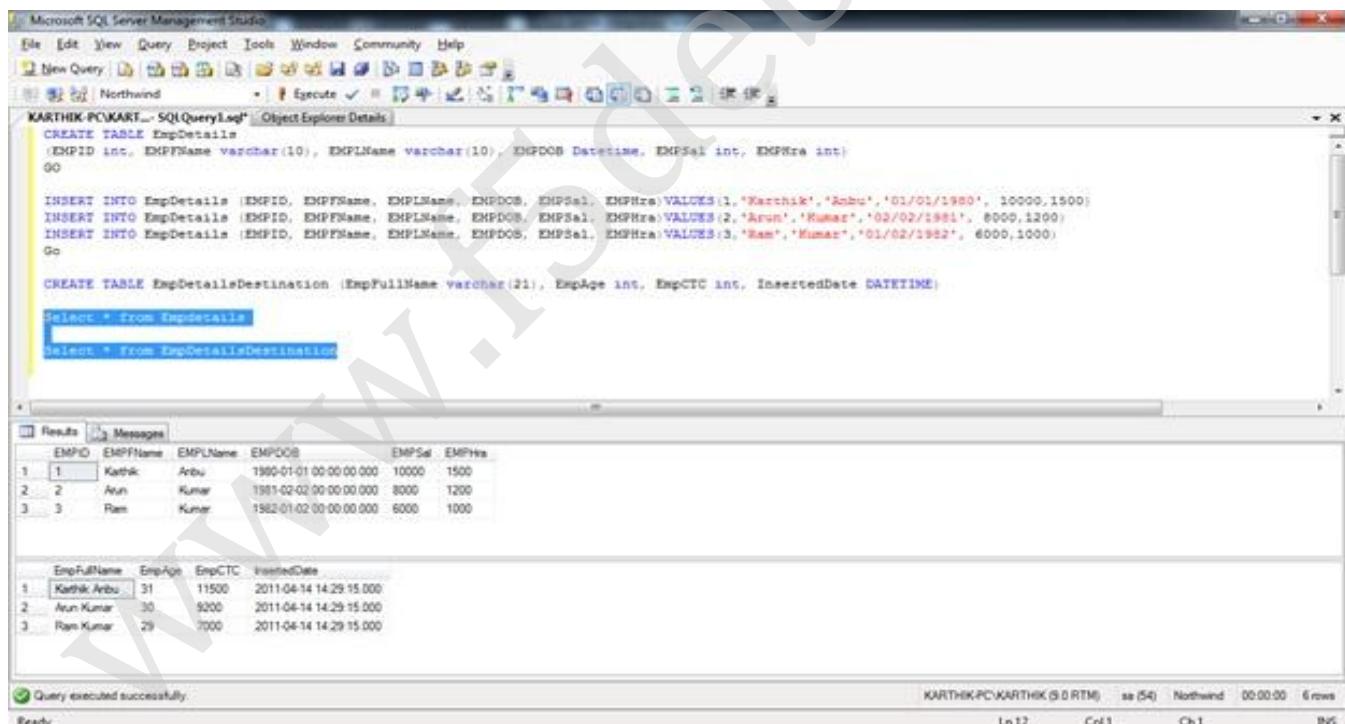


Now once all the task steps are configured press F5 to build and execute the package. Once your package is executed we can see our screen look like the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



We can see the output in the destination table as shown in the screen below.



## Conclusion

So in this chapter we have seen on how to use the Derived Column Transformation to do some manipulation and transform data to a new column.

# Chapter 44

## EXPORT COLUMN TRANSFORMATION

### Introduction

In this chapter we are going to see on how to use the Export column transformation in SSIS packaging. Export column transformation task is used in cases where we need to read the data from the data flow in the package and save the information to a file.

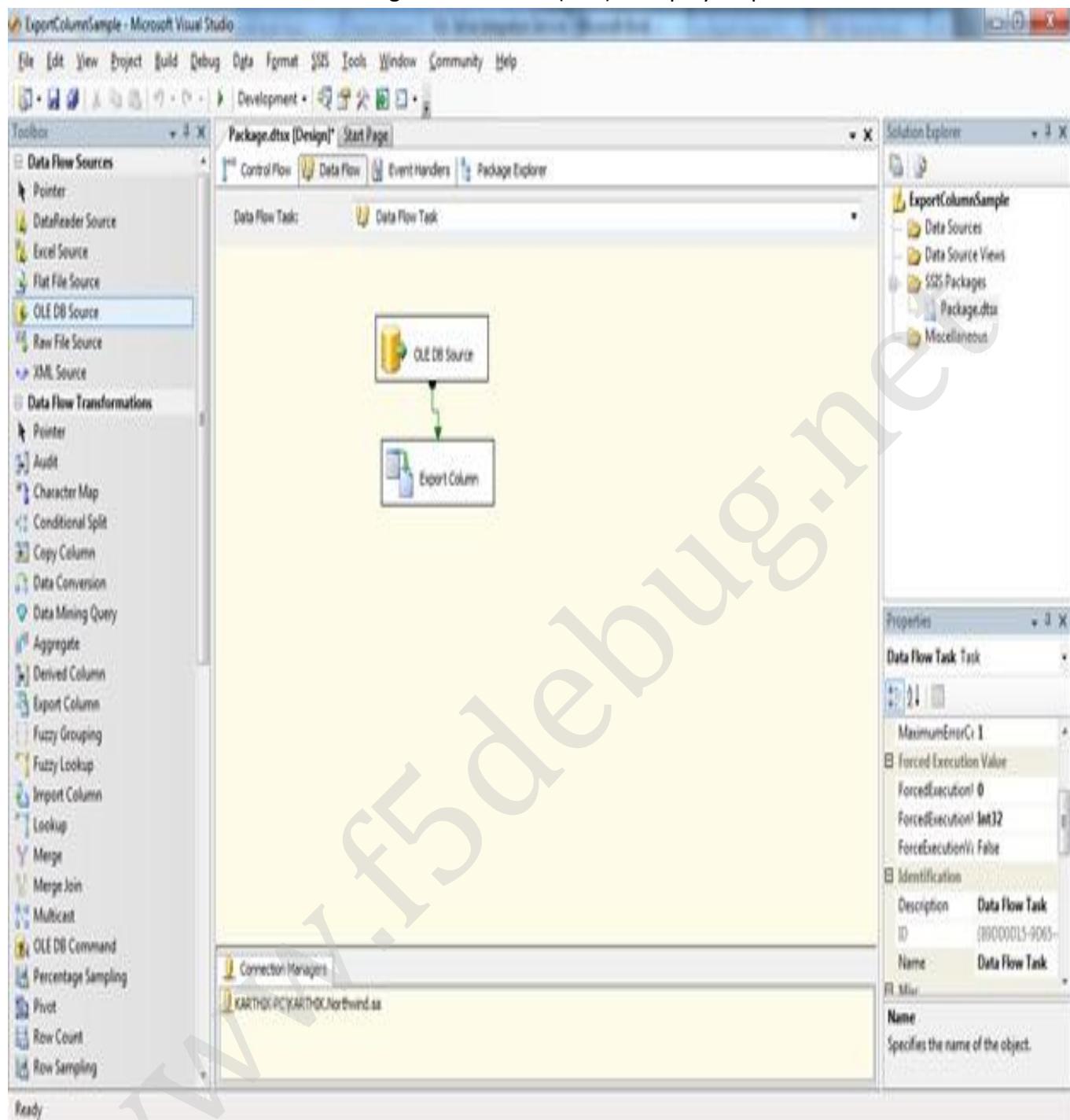
Say for example if we want to get some information of a product or an order to be saved in a file, like product image for sending mail to the user we can use this task. Unlike the other transformations this task does not require a destination task to create a file.

Let's jump start to the section on how to do that using a sample package.

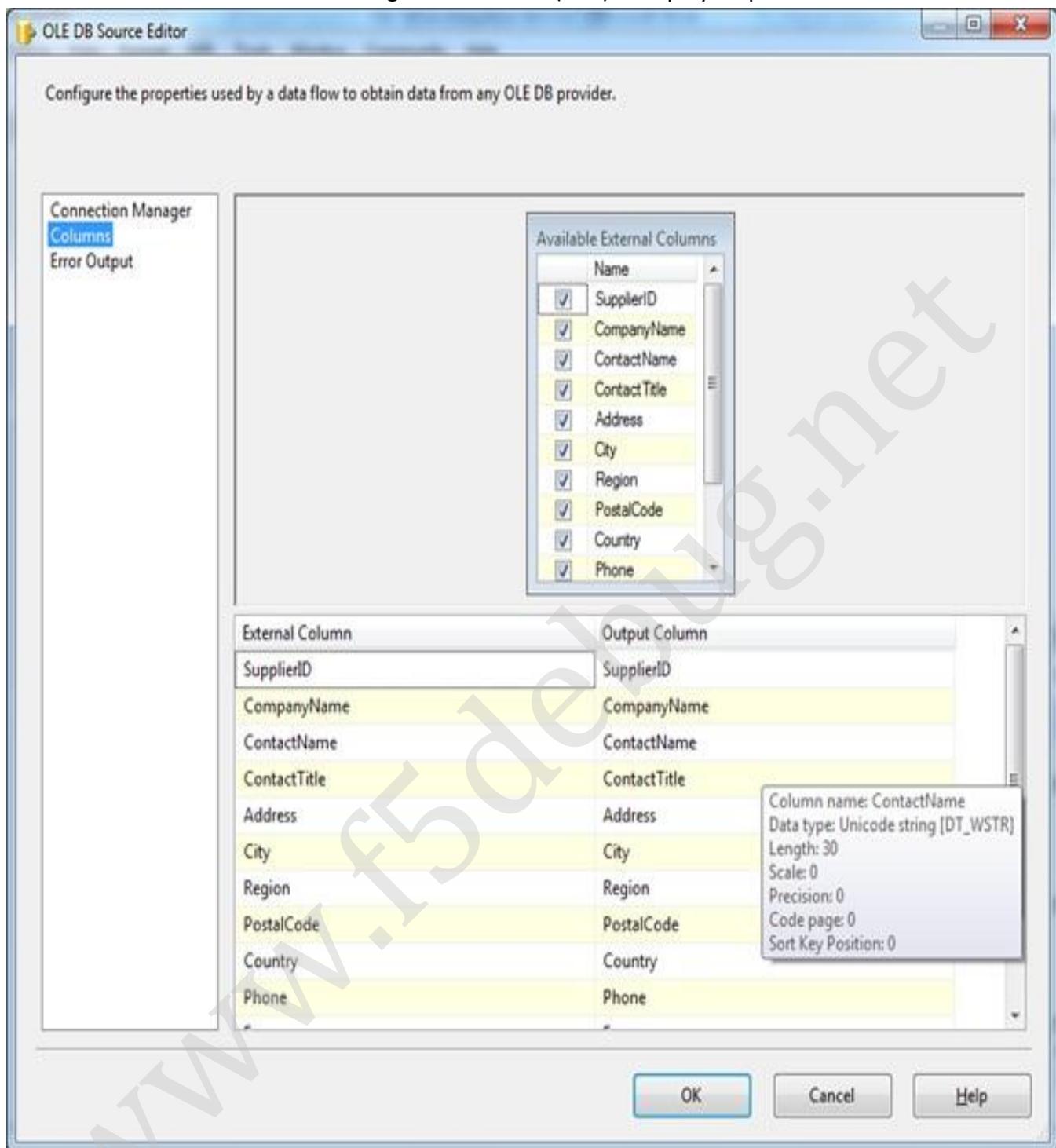
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Export Columns control. Once you open the project just drag and drop the Export Column control and a source provider as shown in the below image.

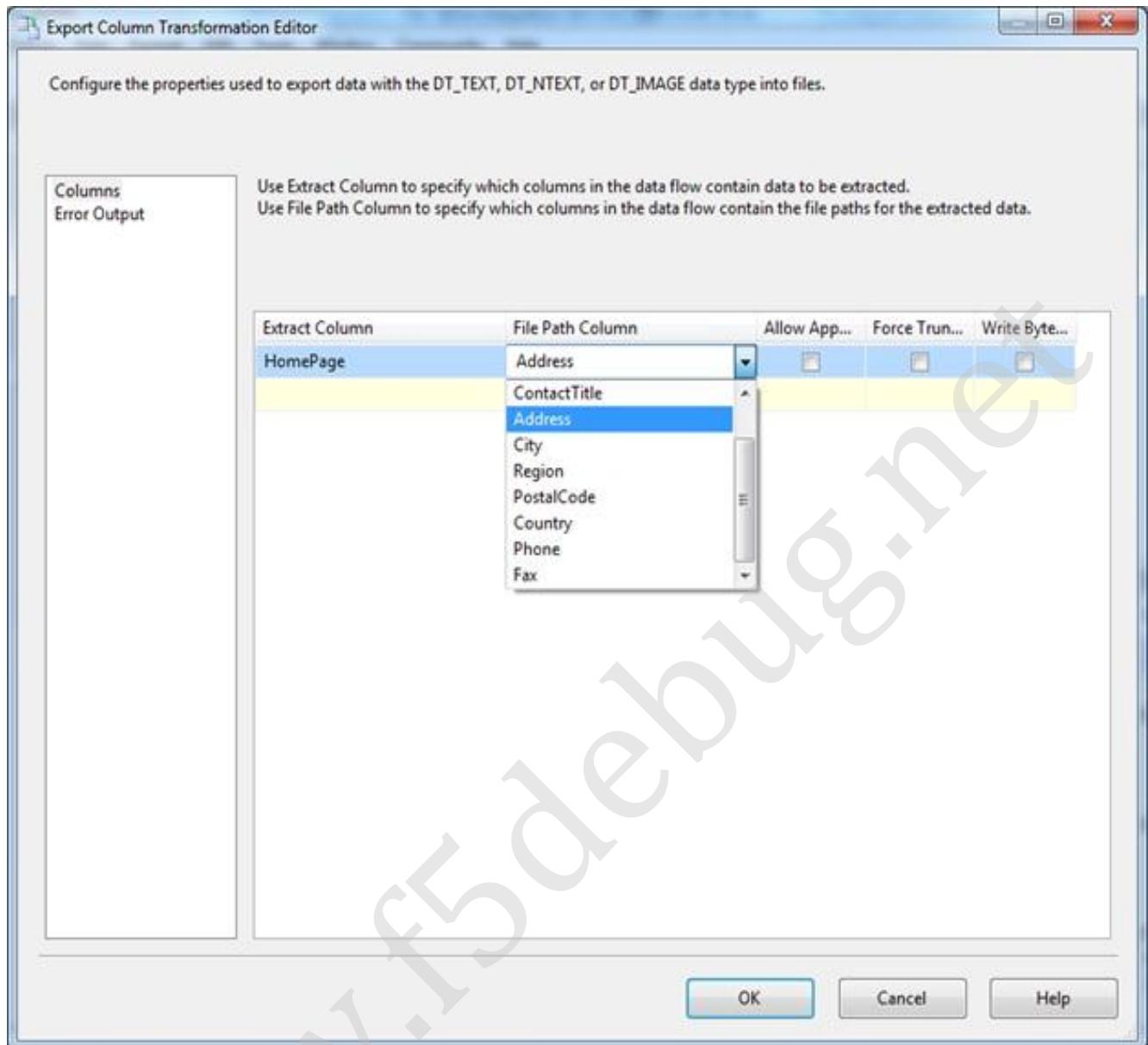
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now configure the source provider by mapping to the correct database and the table as shown in the screen below.



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

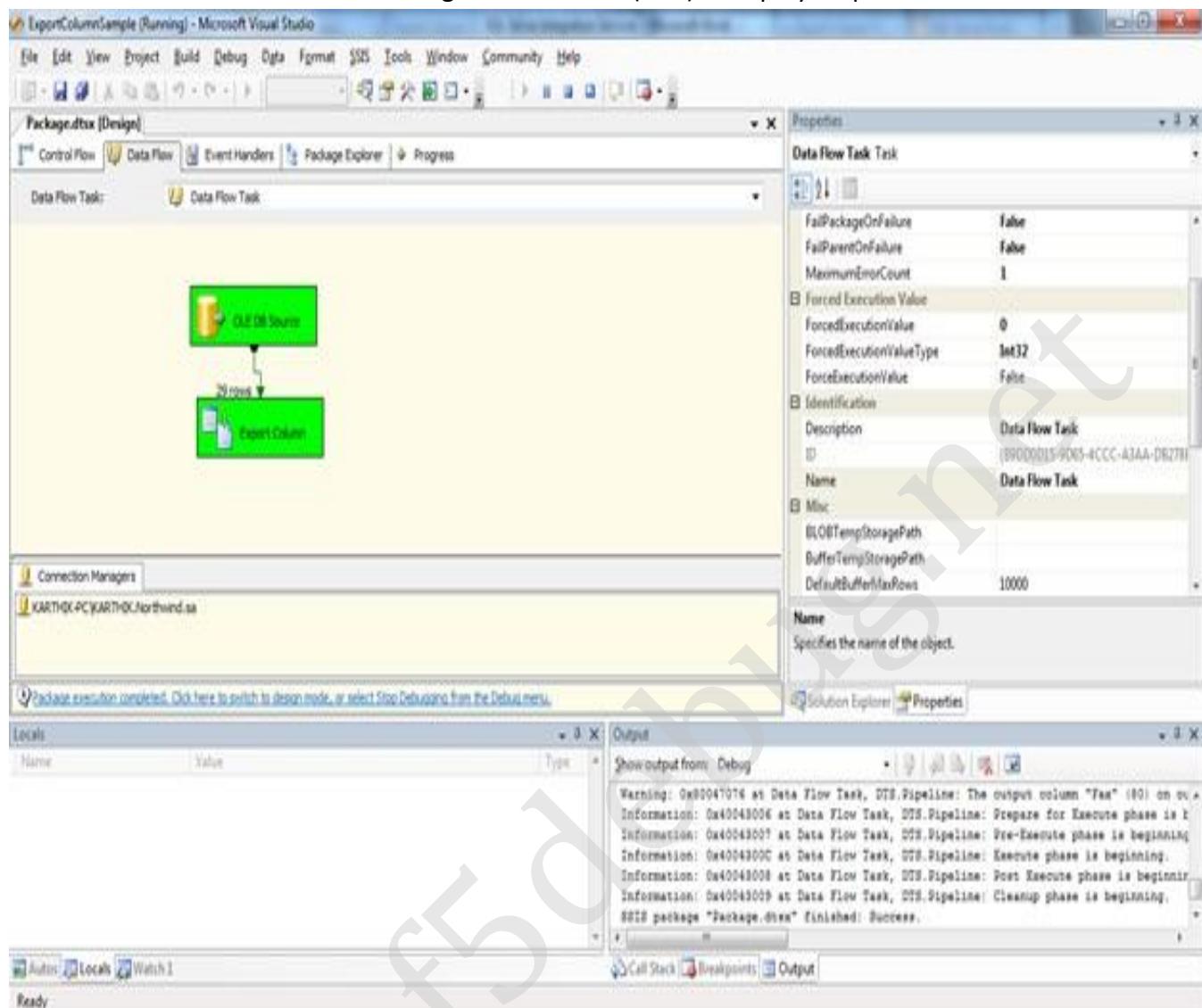


Here we have option to select the column where the path to be places as. We can also find checkboxes at the right side.

- Allow Append – 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 screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



## Conclusion

In this chapter we have seen on how to use the Derived Column Transformation to do some manipulation and transform data to a new column.

# Chapter 45

## FUZZY GROUPING TRANSFORMATION

### Introduction

In this chapter we are going to see on how to use the Fuzzy Grouping task. This task is mainly used to group some similar data in a row and cleaning the duplicates to maintain a standard of the table.

This task requires a connection to the SQL database that the transformation algorithm requires to.

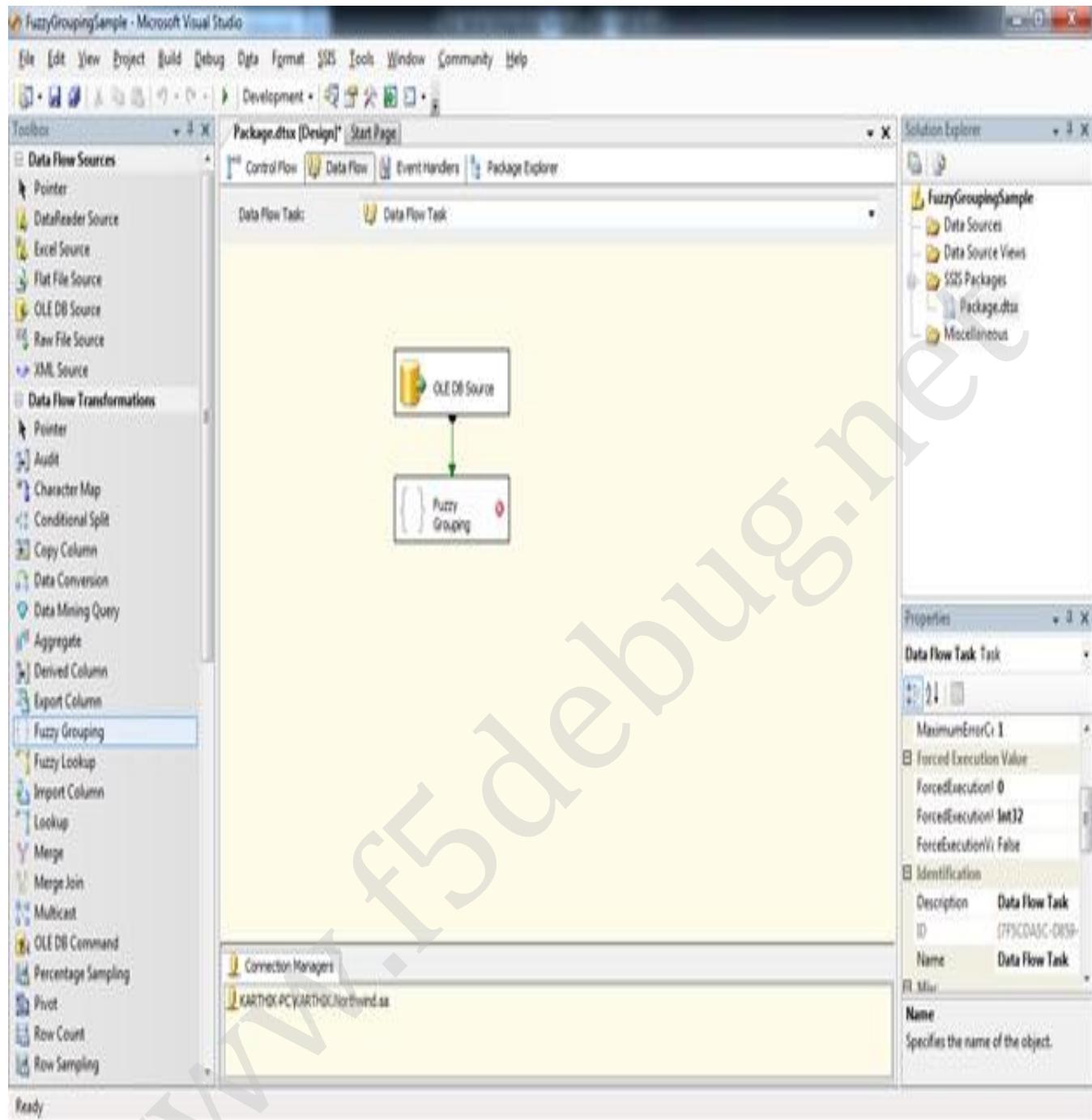
Let's jump start to the section on how to do that using a sample package.

### Steps

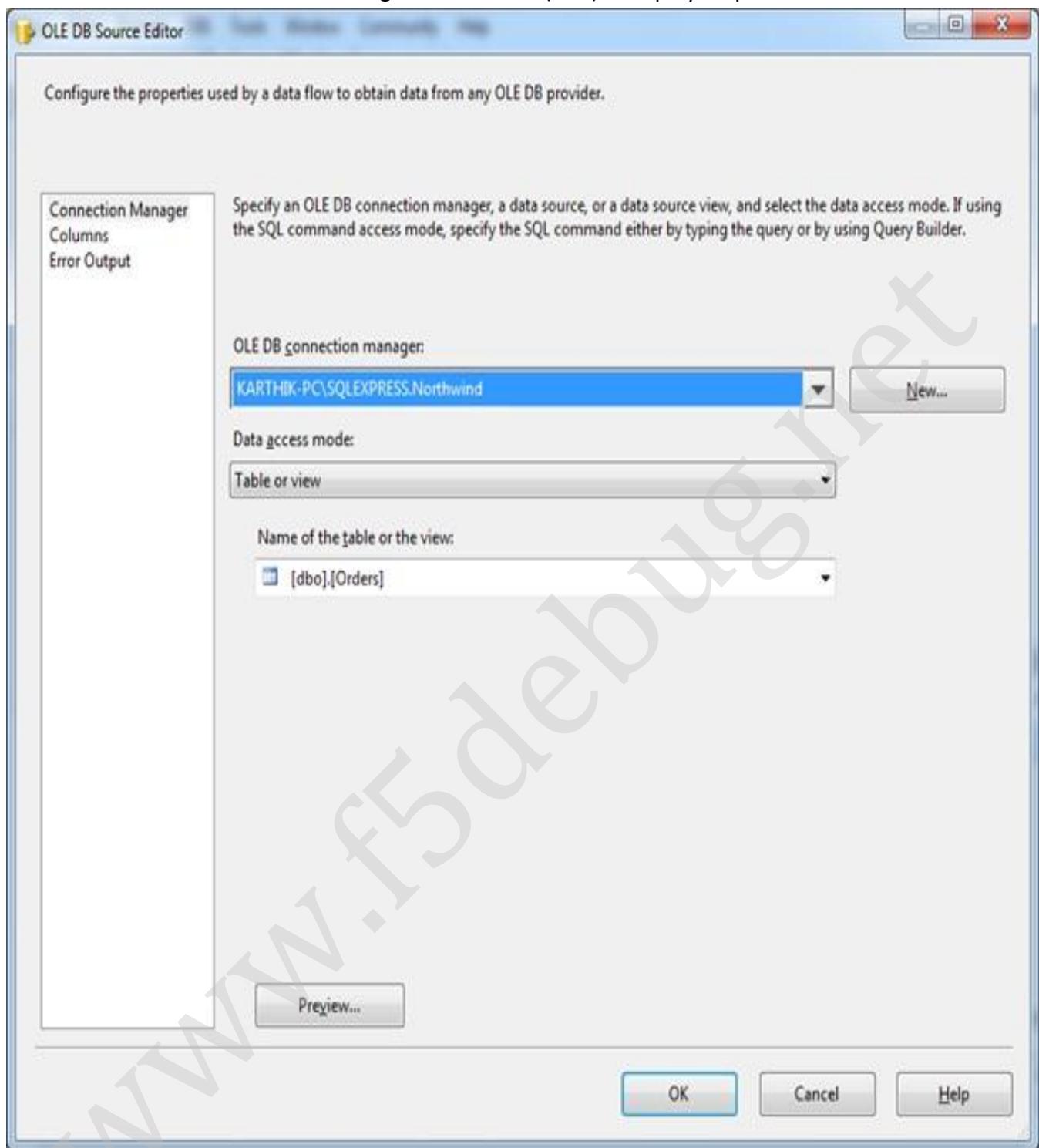
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Fuzzy Grouping control.

Once you open the project just drag and drop the Fuzzy Grouping control and a source provider as shown in the screen below.

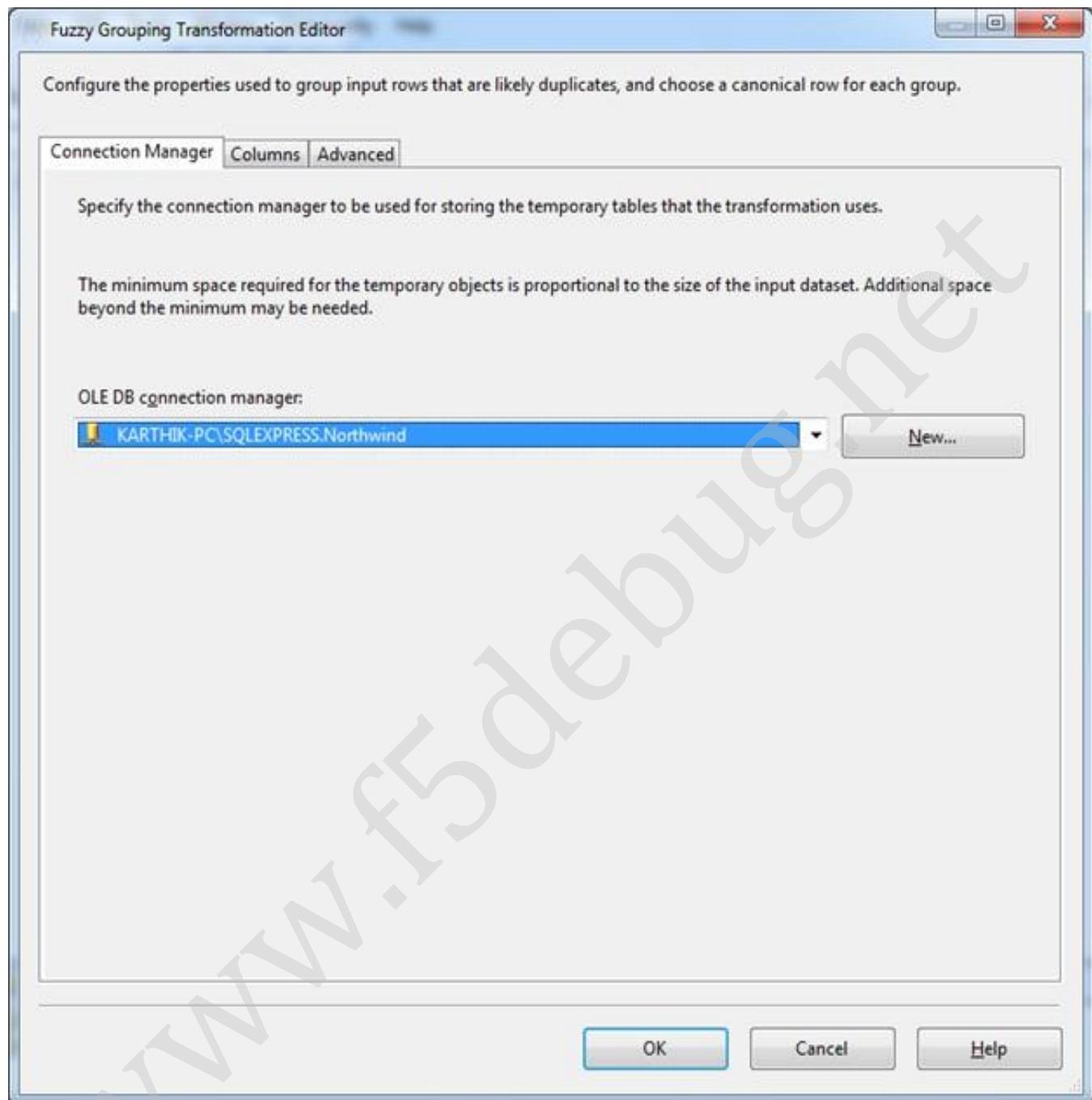
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



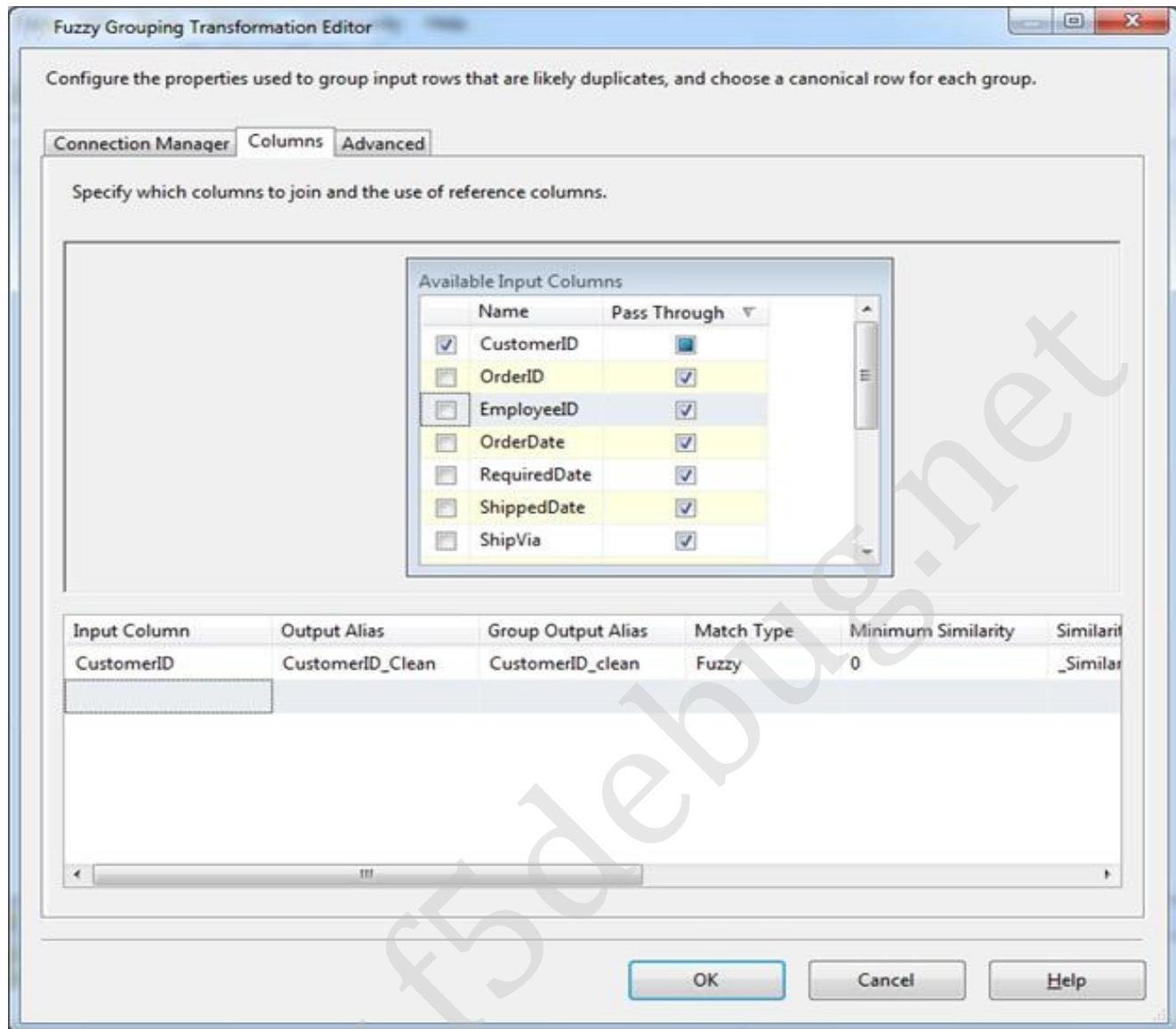
Now we need to configure the OELDB source by selecting Order tables from Northwind database as shown in the screen below.



Now we need to configure the Fuzzy Grouping, double click on the task and it will open the window as shown in the screen below.



We need to do the configuration as shown in the screen below. Now we will see on how the fuzzy grouping transformation works out. Go to the Columns tab and select the row which we need to exact do the full search of the reduplicating and applying the fuzzy algorithm.



CustomerID is the value which we are going to do a fuzzy grouping using the in-build algorithm; here we have different options to search for the conditions.

Match Type has 2 values as EXACT and FUZZY. Exact do the exact match for the specified column and give the result only if it matches the exact value. Fuzzy do a similar search and checks for some particular value and uses it to do the transformation like

(Example a column employee name has Karthik A and Karthik B if the type is Fuzzy then it takes this value into account where in Exact it will not take since last name A and B changes).

## How exactly the algorithm works

Step 1 – It transforms and loads the data to a temporary table.

Step 2 – Fuzzy algorithm takes into account and searches for the matched one's.

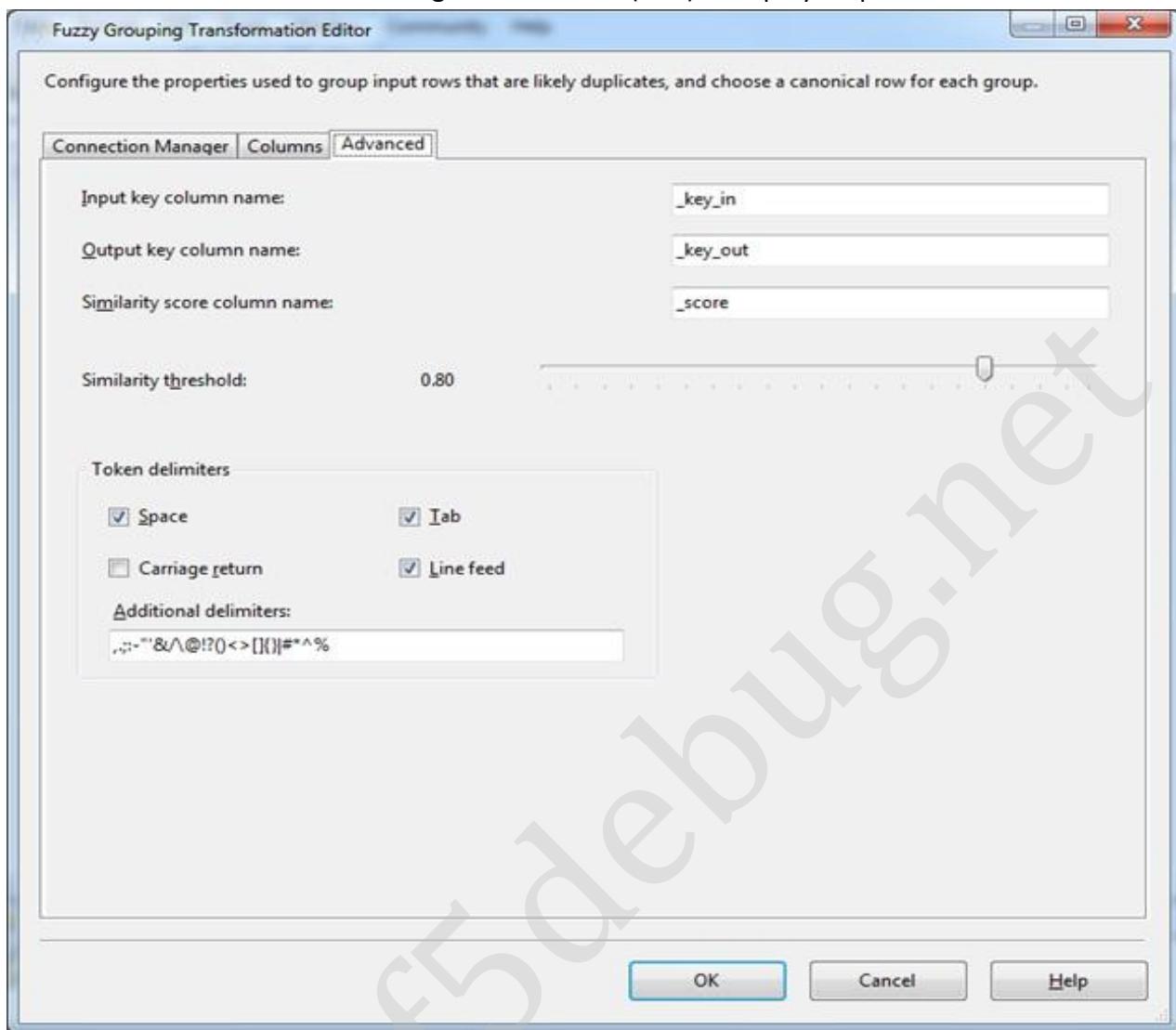
Step 3 – For each row the transformation conditions checks for the match above the threshold and created an exact match.

Step 4 – Applies the resulted output to the packages to proceed further.

## The columns available for the fuzzy grouping logic are as follows

- Input Column – Selected columns.
- Output Alias – This value comes as output for the fuzzy inputs.
- Group Output Alias – This value holds the best value match.
- Match Type – Exact or Fuzzy selection.
- Minimum Similarity – Has the minimum similarity value.
- Similarity Output Alias – Has the similarity score for that column.
- Numerals – Handles the matched data in number.
- Comparison Flags – Checks for the comparison string handling.

Now move to the next tab **Advanced** as shown in the screen below.



Here we update the global values which are used across the package to handle the fuzzy transformation can be applied here. The main feature here we need to look is the similarity threshold where we need to specify the minimum threshold match that should be accepted in the transformation.

## Conclusion

In this chapter we have seen on how to use the Fuzzy Grouping transformation task and the key configurations used in order to use this task handy.

# Chapter 46

## FUZZY LOOKUP TRANSFORMATION

### Introduction

In this chapter we are going to see on how to use the Fuzzy Lookup transformation in SSIS. Fuzzy lookup transformation uses an equi join to do a check for the matching records across the tables. Fuzzy lookup can be used in place where we have a large number of corrupted data and we need to consider doing a cleanup and processing the data to be available across the systems.

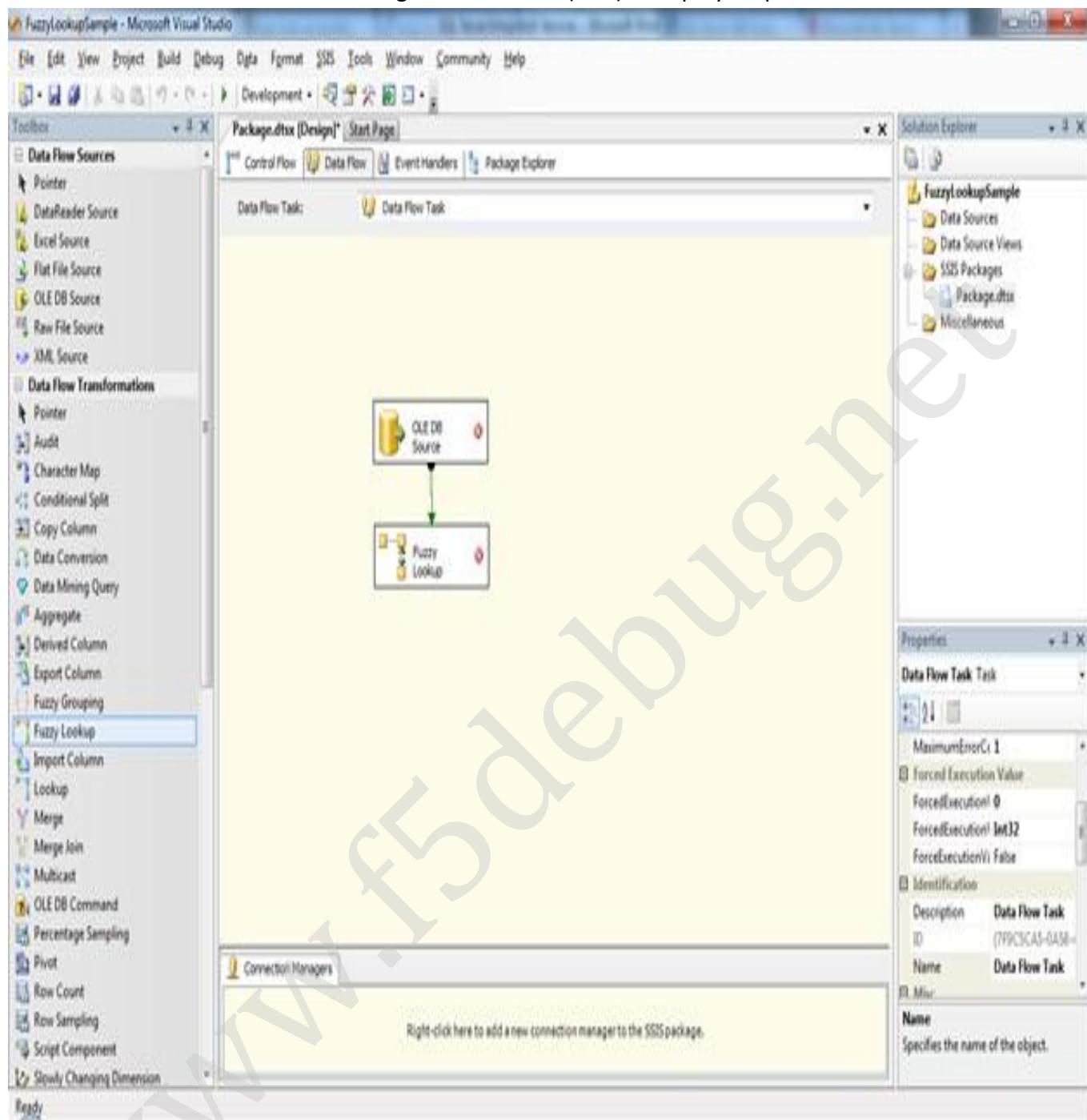
Take an example when we need to write a package which fetches the details from the customer table and process the data to some systems, in that case if there is some mismatch in the name then also we need to process the data at that situation we can have this fuzzy lookup which takes the matchup as per the threshold and process the missing records so that the accuracy comes into picture.

Let's jump start on how to use this task in real time and see the steps to do the configurations.

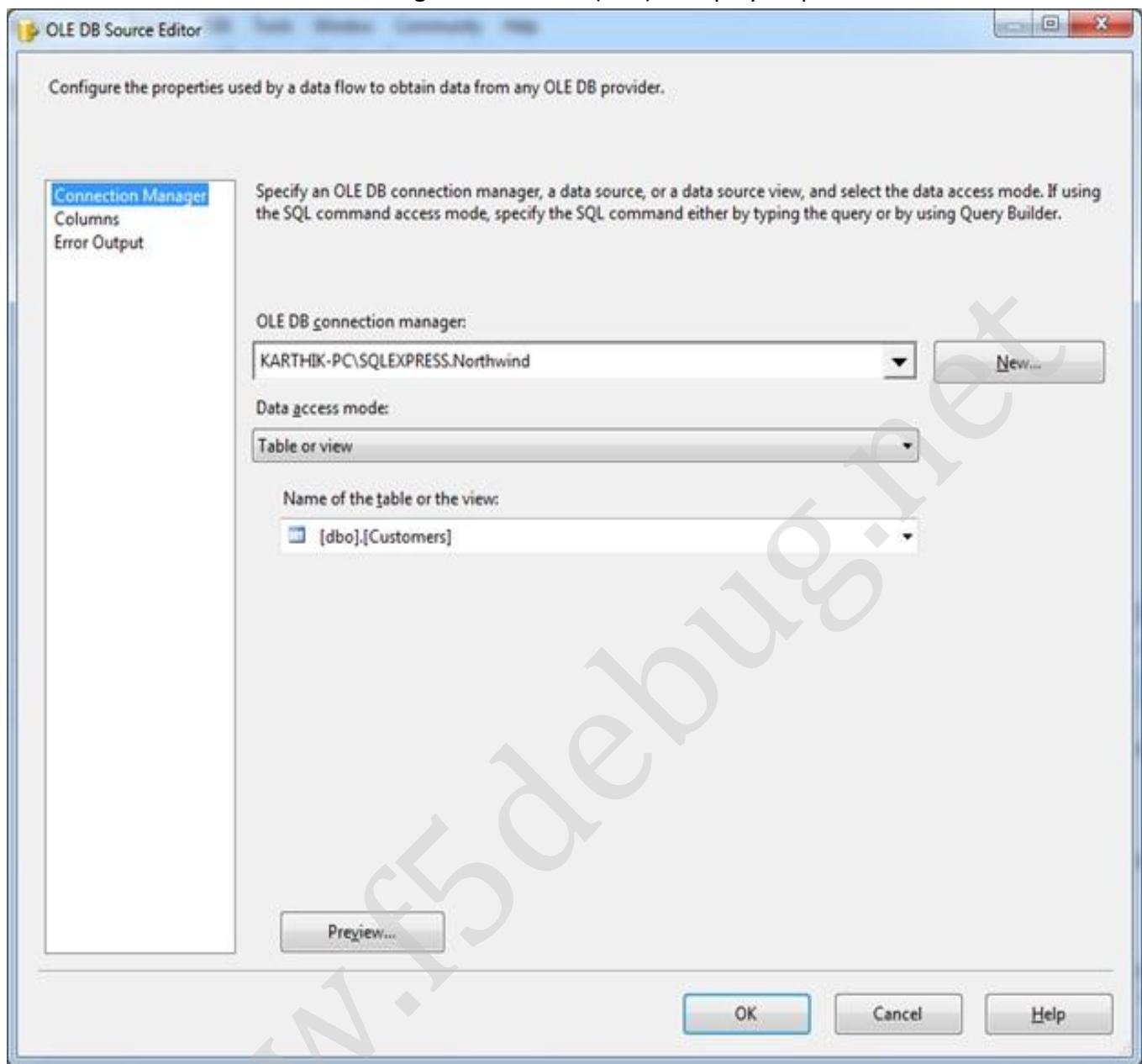
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Fuzzy Lookup control. Once you open the project just drag and drop the Fuzzy Lookup control and a source provider as shown in the below image.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

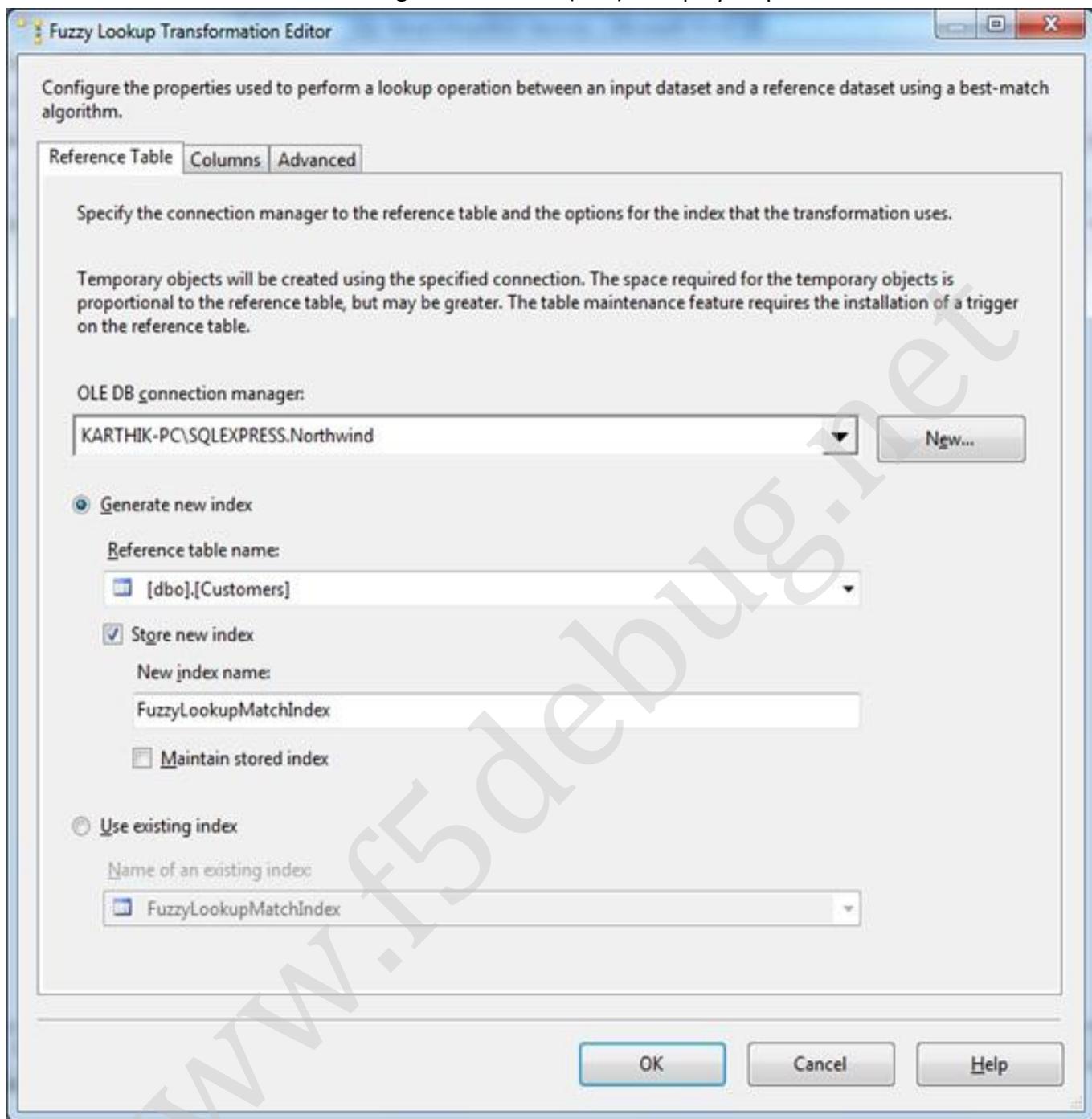


There are some Red Cross icons on the tasks which indicate that the controls are not configured yet. Now let's start to configure the controls in the coming sections. First configure the Source provider as shown in the below task.

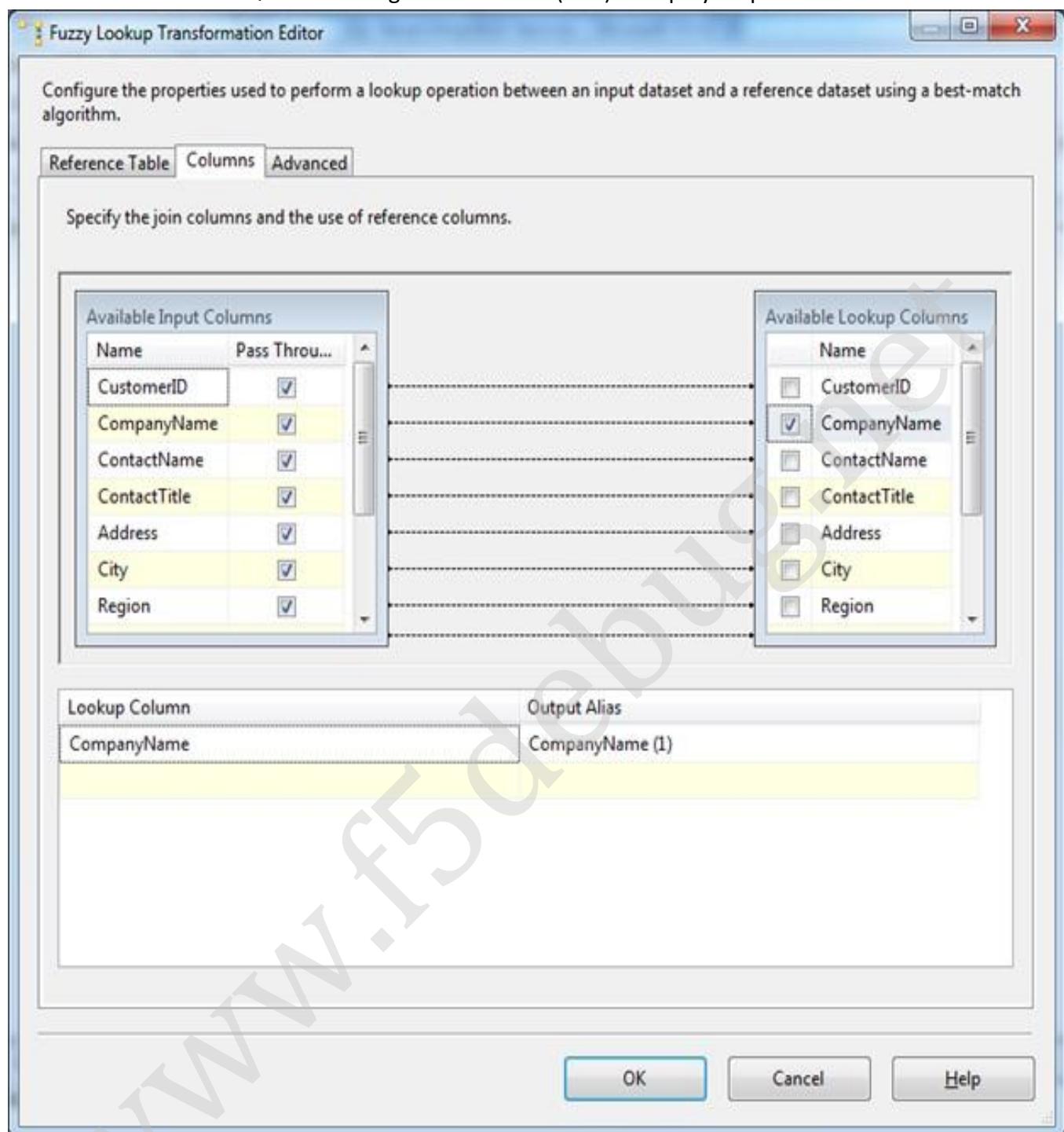


Now the Source provider is configured, which mean we have the data to process in our package, here we need to see the corrupted data that is like any data repeated and anything against the policy for the business. Now let's configure the Fuzzy Lookup as shown in the screen below.

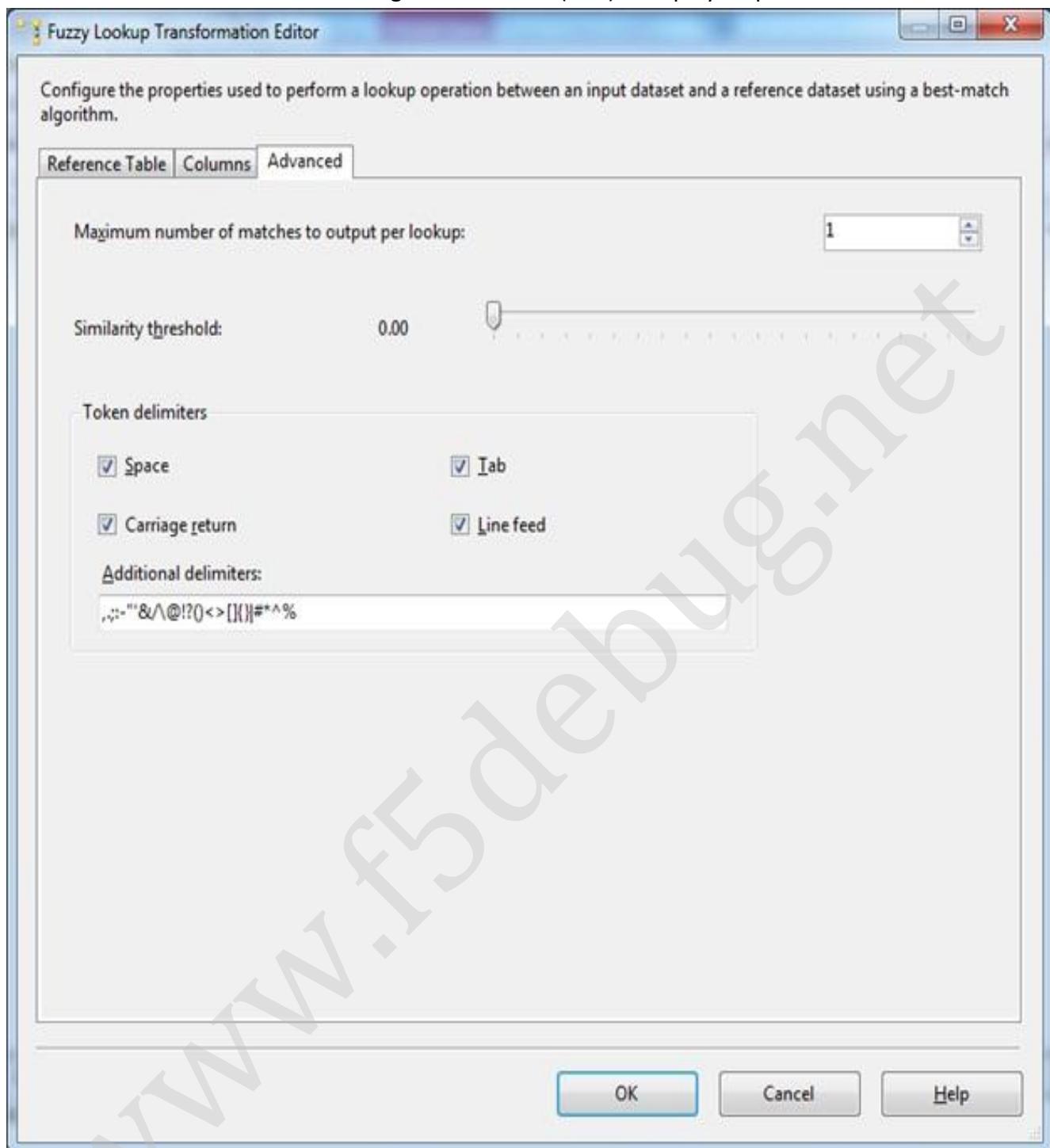
Configure each tab as shown in the screen below.



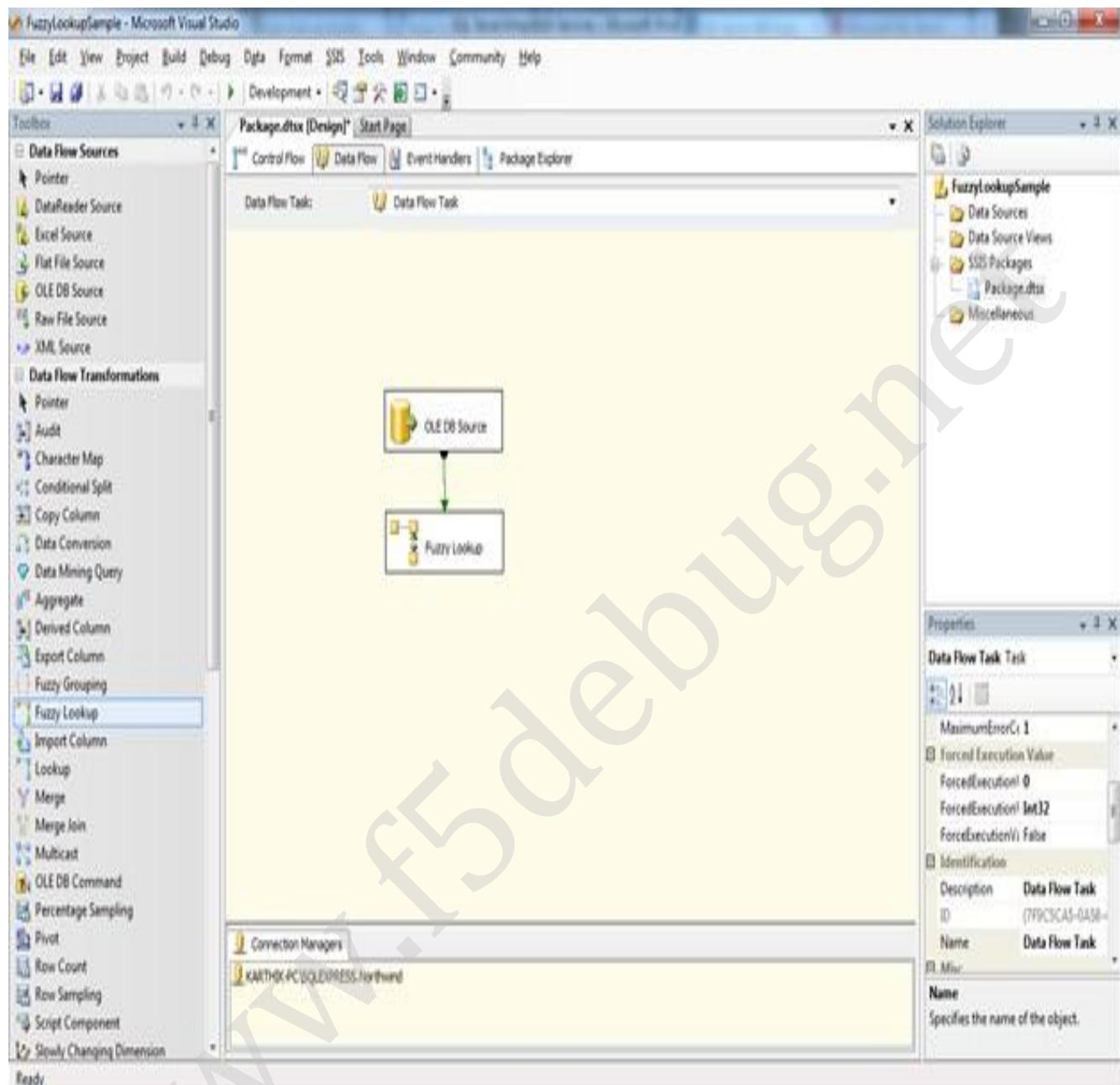
Here we have an option to create a new index or use an existing index, normally Fuzzy lookup creates an index to do the check for the sorting and do the transformation for checking the duplication of values accordingly. If we have an existing index on the table then we have option to use the same instead of creating a new one to maintain the performance of the table.



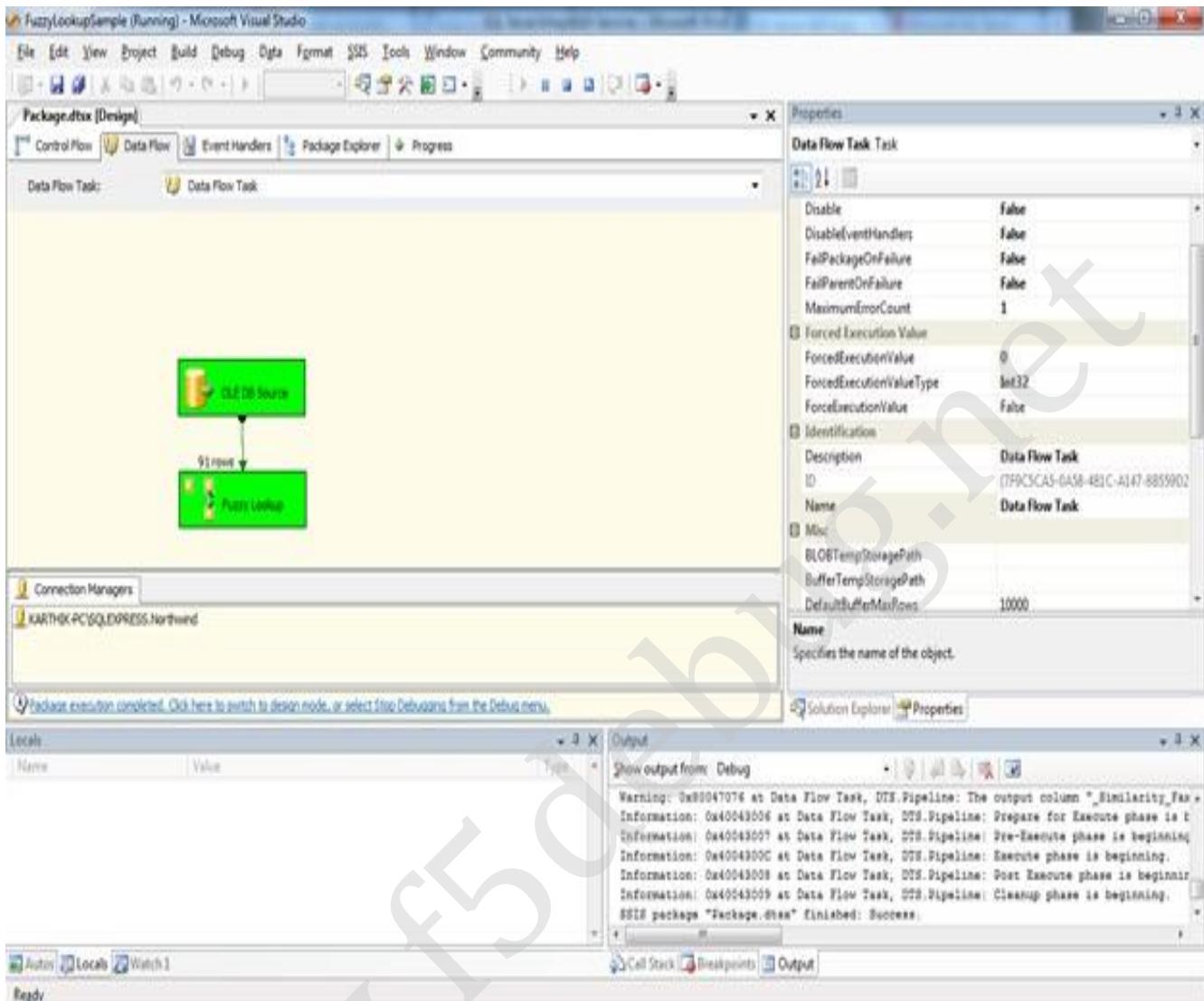
The above screen shows which column we should map and which column holds the responsibility of doing the column check.



The above screen shows the advanced setting on to use the fuzzy lookup transformation like providing the threshold and giving the exact match for the fuzzy transformation. After finishing the configuration your screen looks like below image



Press F5 will execute the package and we can see the screen looks like below. This indicates that the package is executed perfectly.



## Conclusion

In this chapter we have seen how to use the Fuzzy Lookup transformation task and the key configurations used in order to use this task handy.

# Chapter 47

## IMPORT COLUMN TRANSFORMATION

### Introduction

In this chapter we are going to see on how to use Import Column transformation in SSIS. Import column is used in order to import some data from a file to the data flow and do some manipulations and then forward the data to the destination, here the data includes a binary file, an image, a media, or any sort of document which is huge to handle across. If we want to move a huge file from one location to the other using the package we can use this to import them using this transformation.

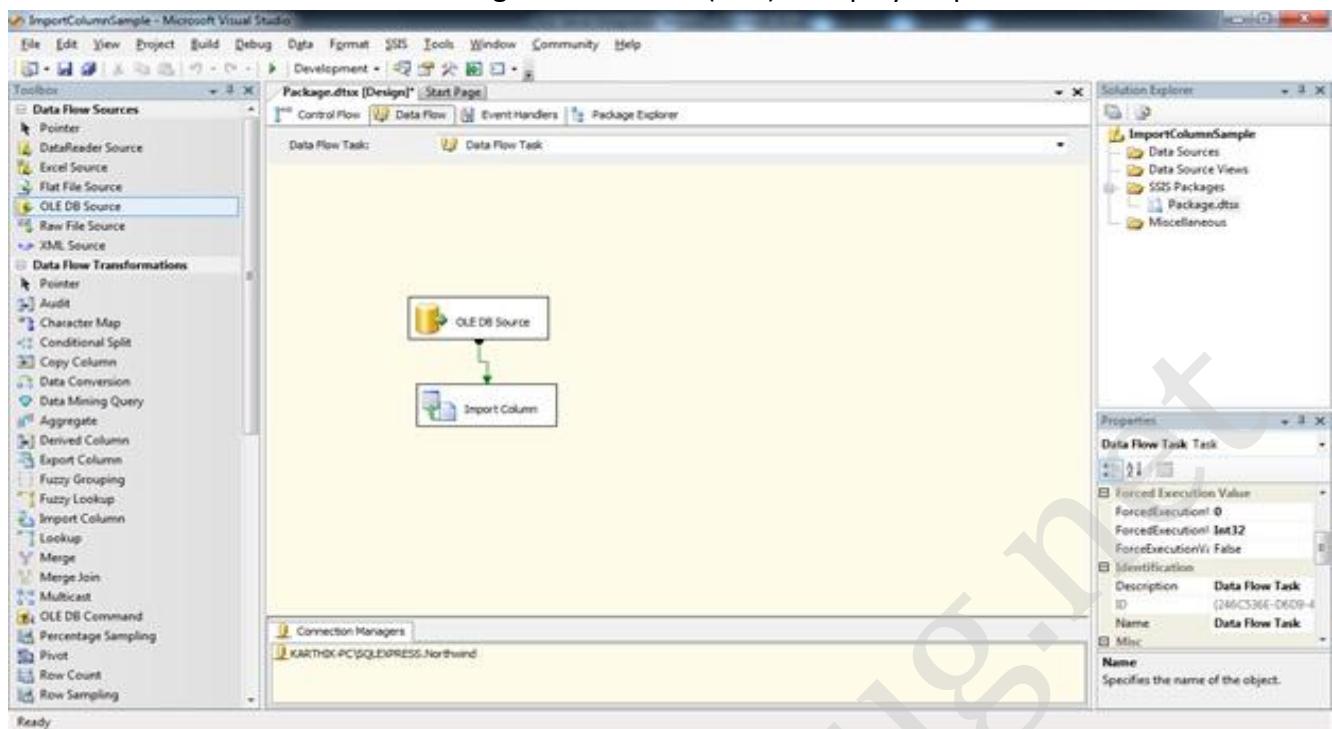
A practical exposure to this transformation is, say you have a product with some customer reviews, when we need to archive the product (include product image) with the customer reviews then we can go with this task.

Let's jump start on how to use this task in real time and see the steps to do the configurations.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Import Column Transformation task. Once you open the project just drag and drop the Import Column control and a source provider as shown in the below image.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we need to create a table which has the file location. We need to create a table as shown in the below script with a record having the file path.

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. In the Object Explorer, a connection to 'KARTHIK-PC\SQLEXPRESS.Northwind' is selected. In the 'Scripting' pane, a T-SQL script is displayed:

```
use northwind
go

Create table ImportColumnSample
(
    PhotoName Varchar(50),
    Photolocation varchar(200)
)

Insert into ImportColumnSample values('File1','D:\Books\Book1.pdf')

Select * from ImportColumnSample
```

The 'Results' tab at the bottom shows the output of the 'Select \*' query, displaying one row:

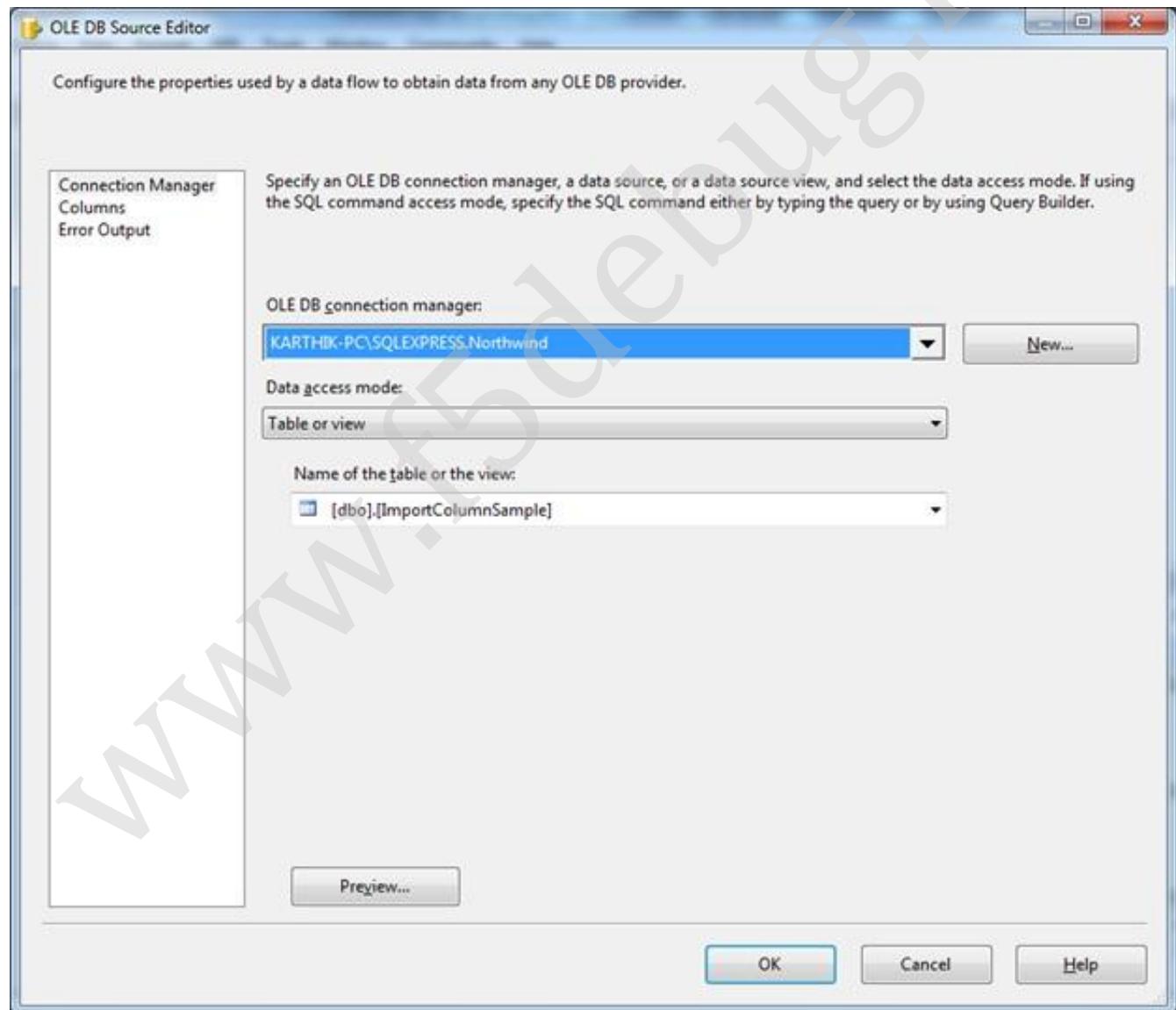
	PhotoName	Photolocation
1	File1	D:\Books\Book1.pdf

At the bottom status bar, it says 'Query executed successfully.'

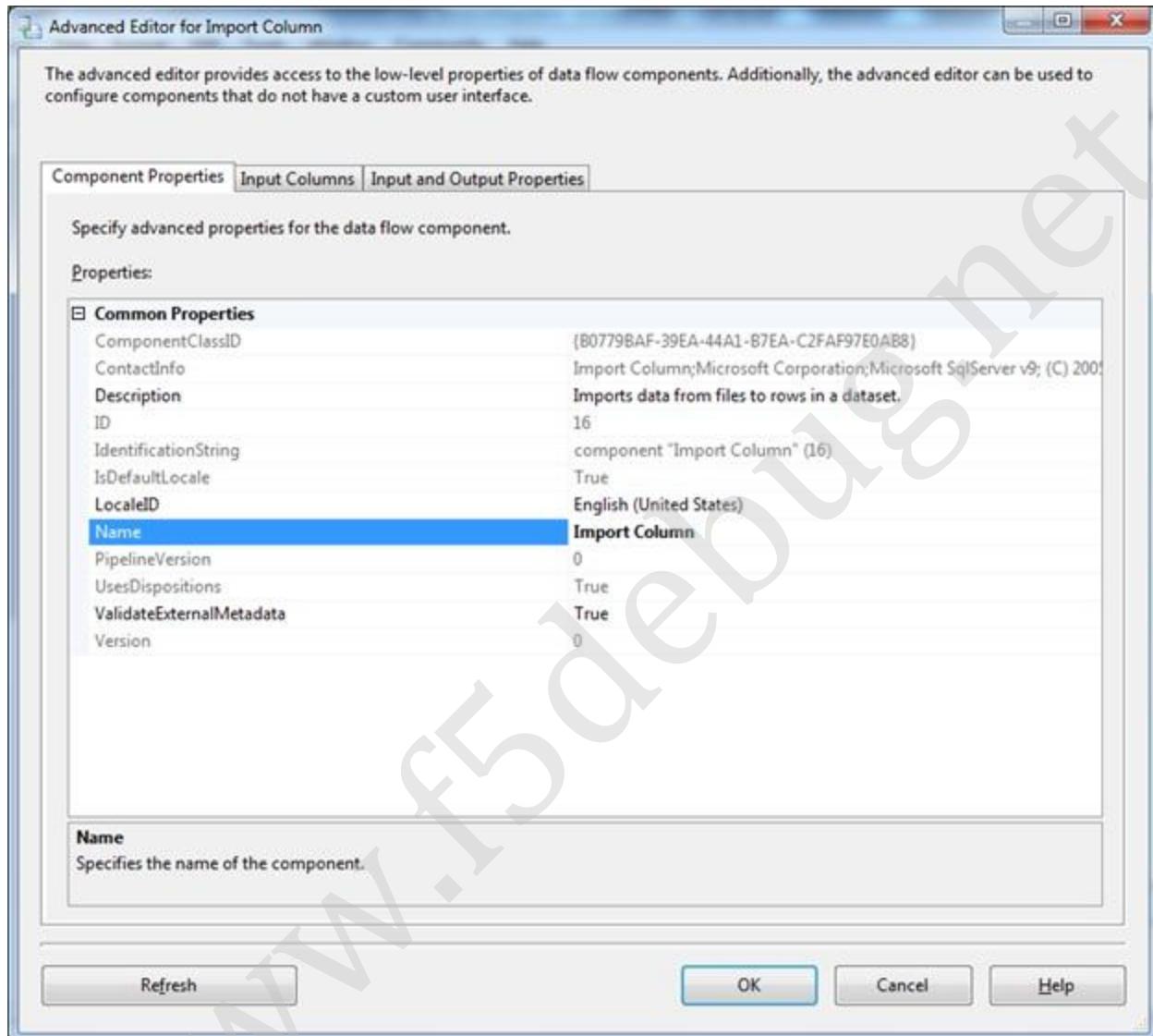
## Script

```
CREATE TABLE IMPORTCOLUMNSAMPLE (
PHOTONAME VARCHAR(50),
PHOTOLOCATION VARCHAR(200) )
INSERT INTO IMPORTCOLUMNSAMPLE VALUES('FILE1','D:\BOOKS\BOOK1.PDF')
SELECT * FROM IMPORTCOLUMNSAMPLE
```

Now we need to configure the source provider as shown in the screen below.



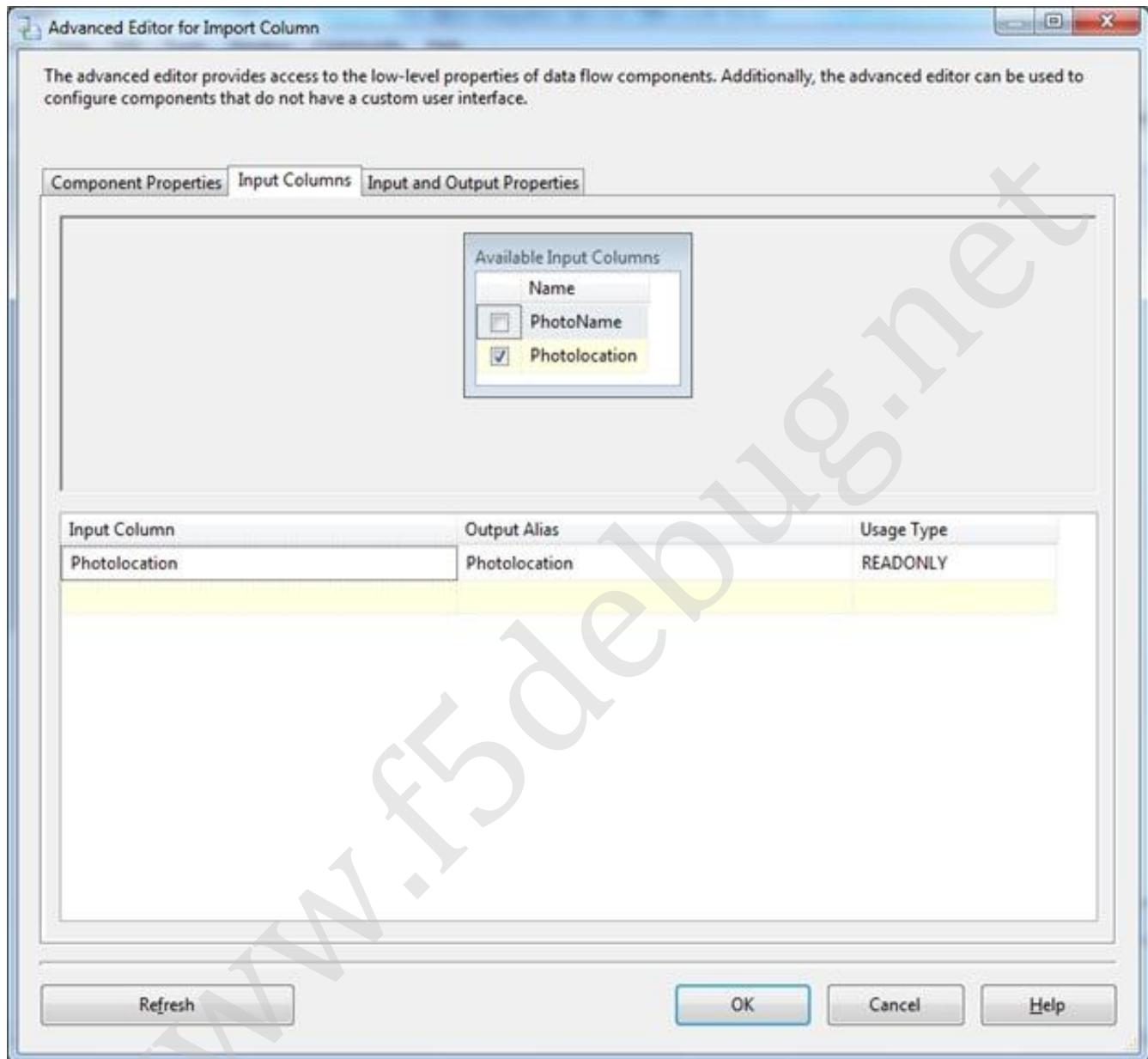
Once the source is configured we are now in place to handle the import. Now we need to configure the import column transformation. To configure that double click on the control will open the configuration window as shown below.



There are 3 different tabs we need to configure. Let's see the different sections on how to configure each and the import sections that should be taken care when we configure.

The first tab has the basic information on about the transformation on having a unique id for the transformation; name and description which we no need to take care of.

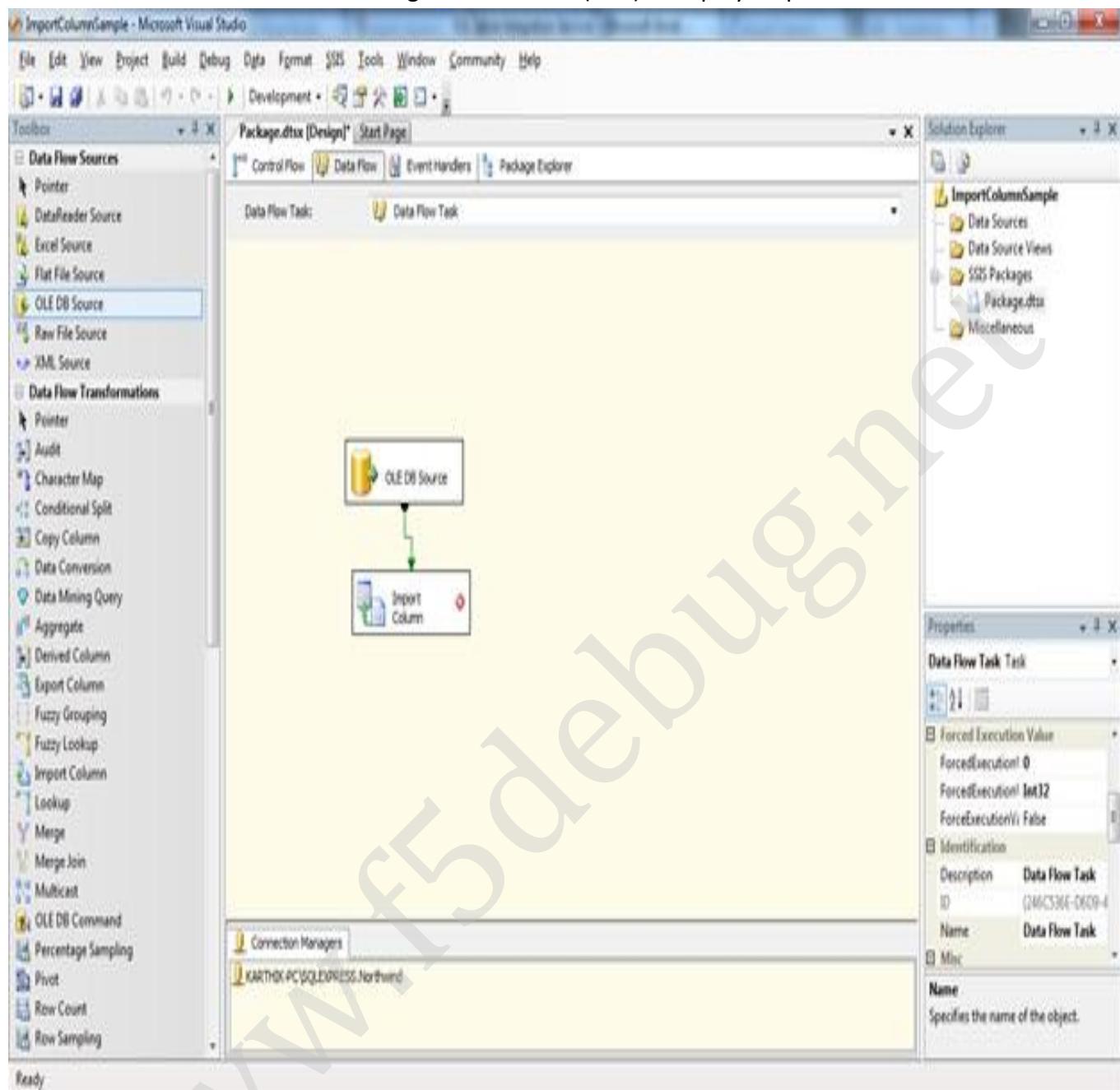
Second tab looks like below.



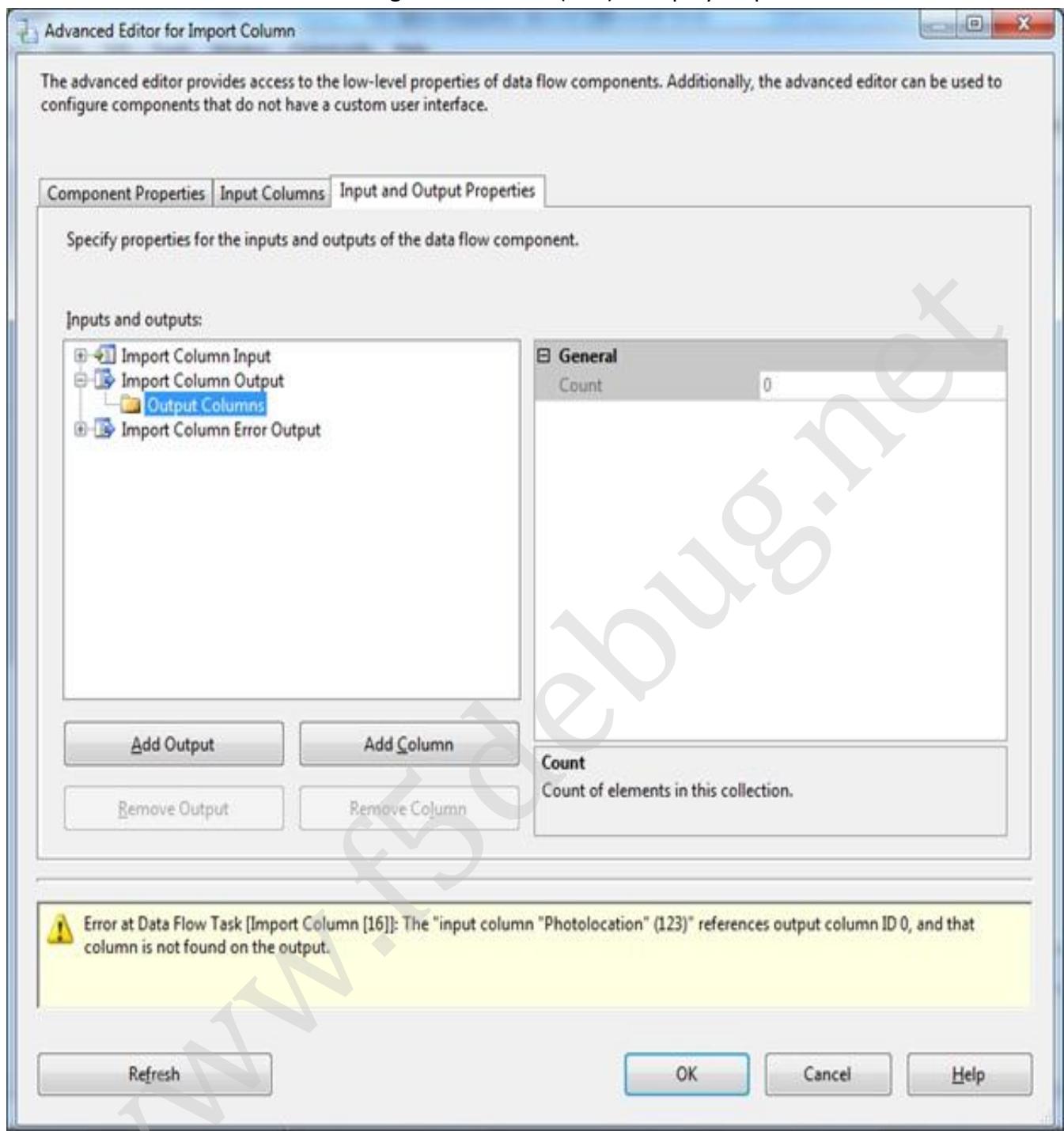
This is the most important configuration where we need to select the path where the file is exactly located. Here Photolocation is the file path where the file is located.

Now if you see the main screen it will show as if an error is there in the package as shown in the screen below.

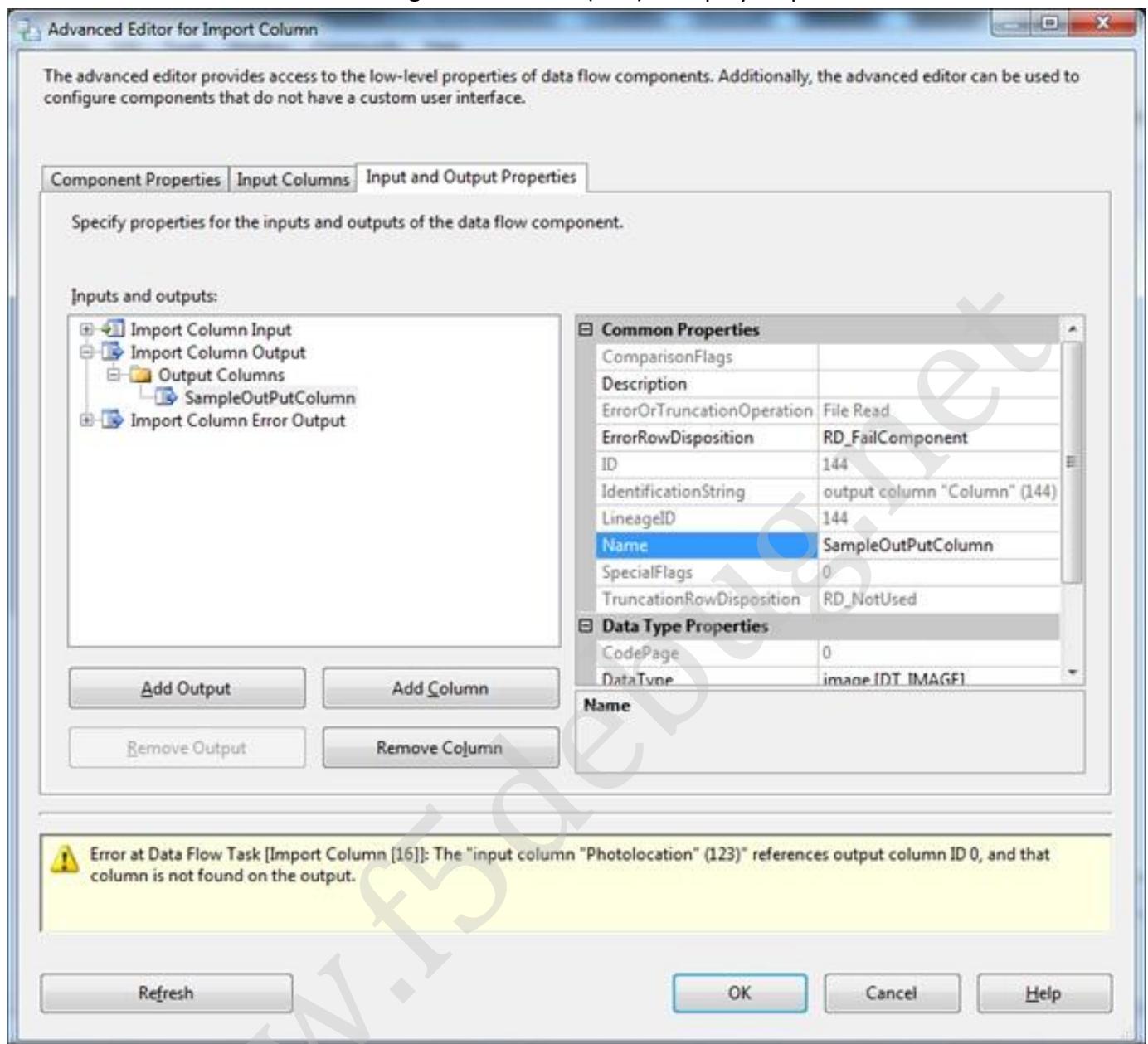
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



This is mainly because we have not configured the output column upon which the transformation has to happen. So double click once again the Import column transformation. It will open the same window; now navigate to the 3<sup>rd</sup> tab as shown in the screen below.

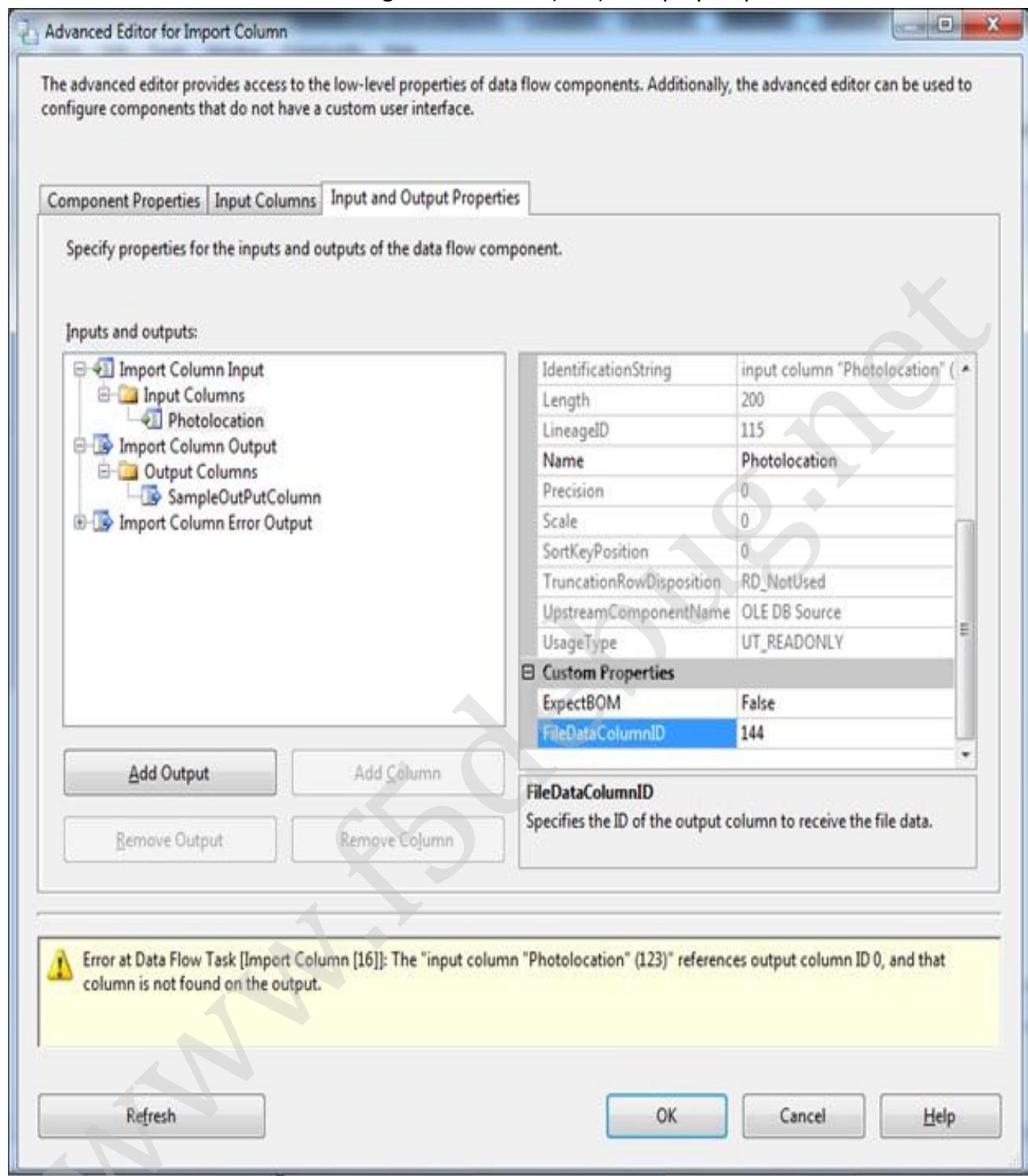


Here navigate to the Import Column Output in the tree view and select Output Columns and then click on Add Column. This is the configuration where we need to create an output column as shown in the screen below.



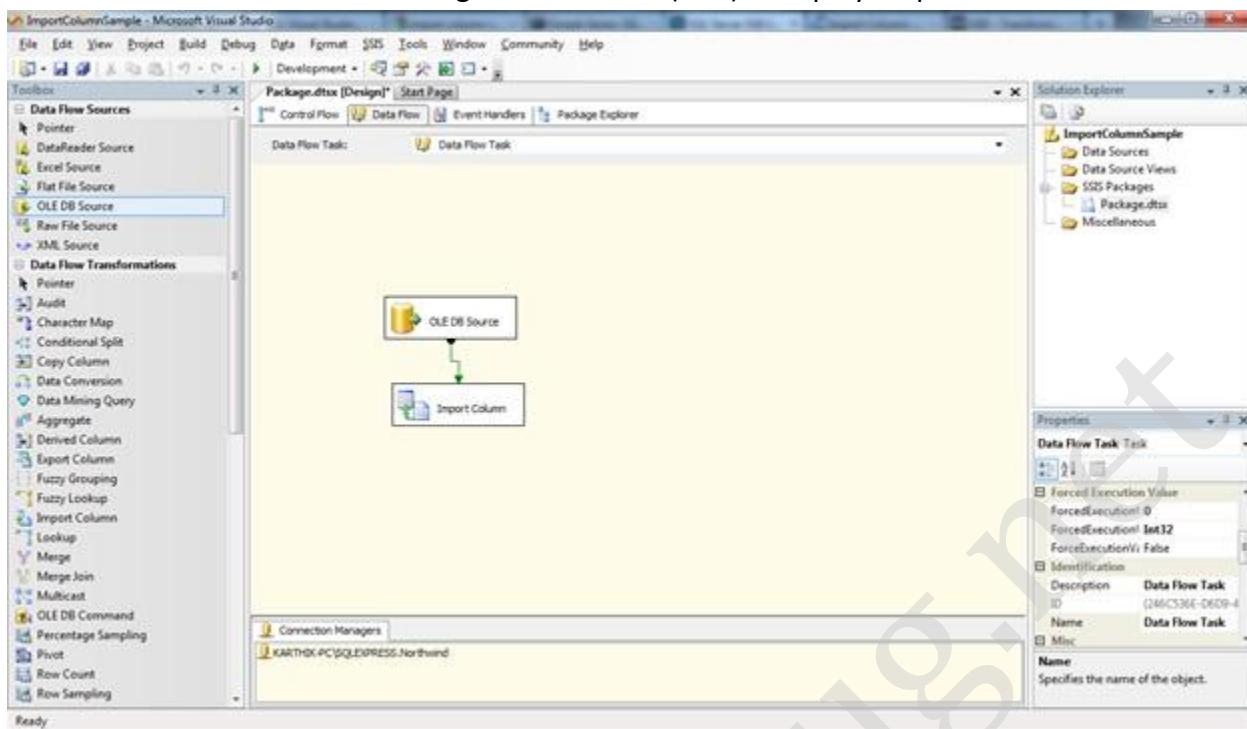
We need to note down 2 things in the above image, LineageID this is auto generated in our example it generated it as 144 and the Name which we have given it as sampleoutputcolumn.

Now move to the ImportColumnInput and navigate to the path as shown in the screen below and we can find a property FileDataColumnId and give the value 144 which its generated in the output column as shown in the screen below.

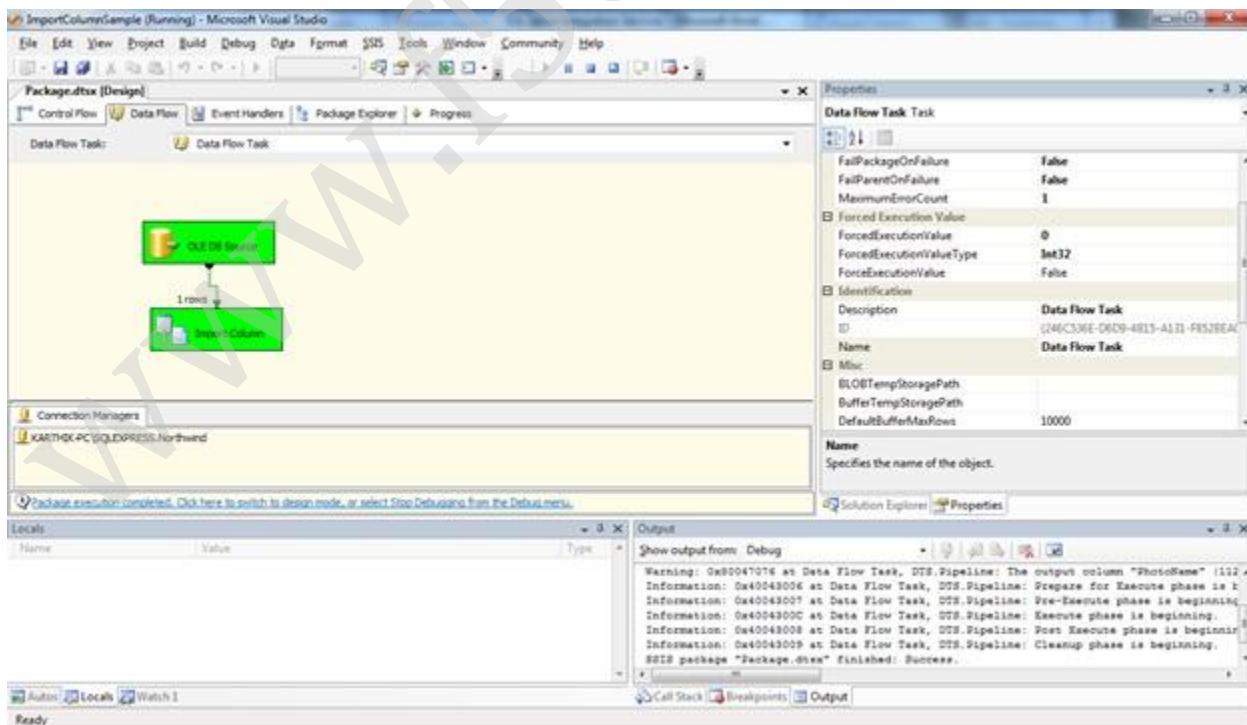


Once this configuration is over, we need to be ready with the data flow which has the file and the location where it resides. Now we can see our screen looks like below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



We can use any destination as per our business requirement to access the file and do the necessary transformations across the project flow. If we run the process it will execute the package and show the output as shown in screen below.



## Conclusion

In this chapter we have seen on how to use the Import Column task and the key configurations used in order to use this task handy.

# Chapter 48

## LOOKUP TRANSFORMATION

### Introduction

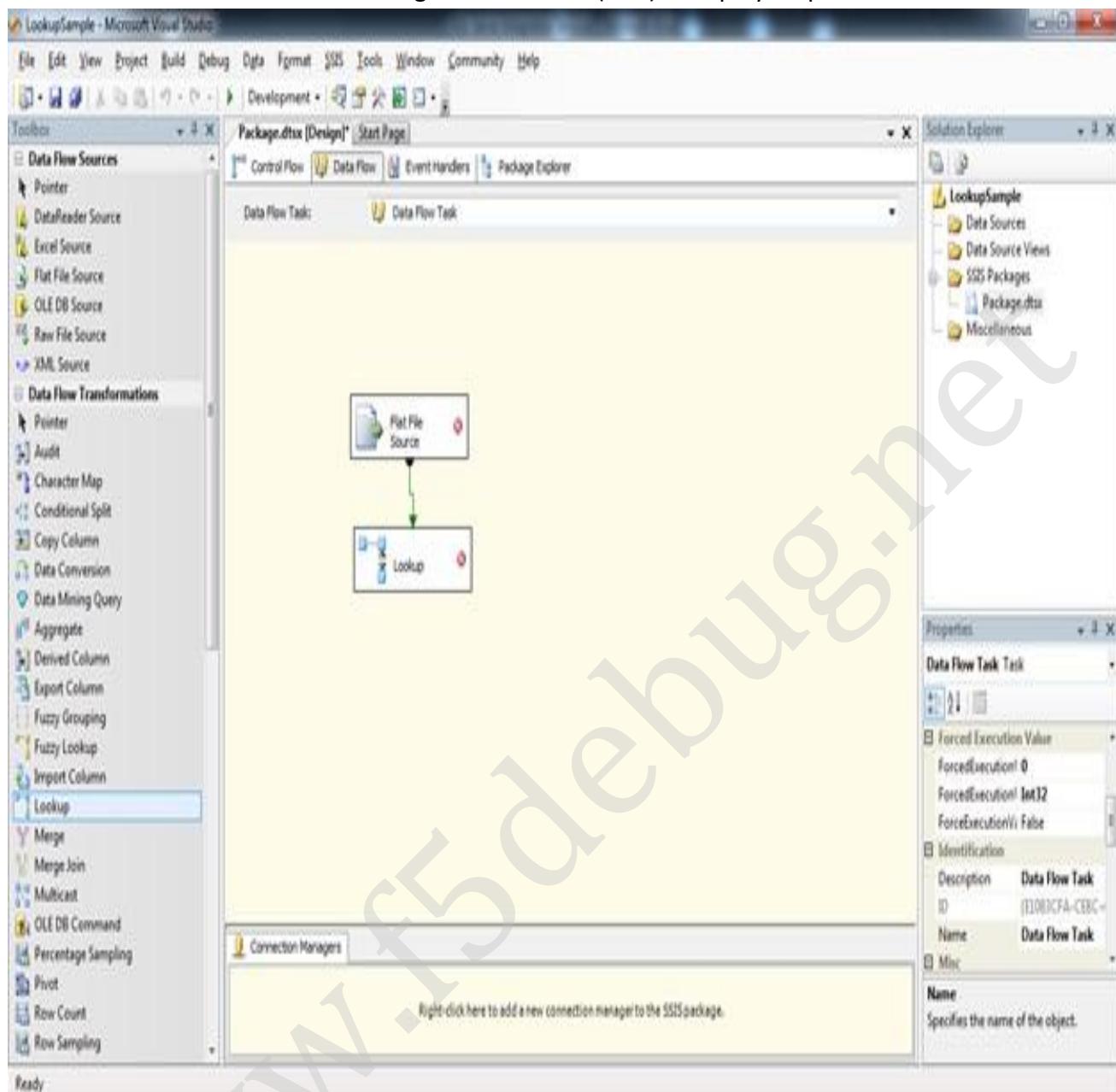
In this chapter we are going to see on how to use Lookup Transformation in SSIS Packaging. Lookup transformations are mainly used to provide a join with some other source with the current source and fetch the result in a much needed format.

Joining source can be any one of the following: cached objects, a table, a destination file source, a result from a query etc. Lookup transformations are available for the below data sources only SQL, Oracle and DB2.

Let's jump start on how to use this task in real time and see the steps to do the configurations.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Lookup Transformation task. Once you open the project just drag and drop the Lookup control and a source provider as shown in the below image.

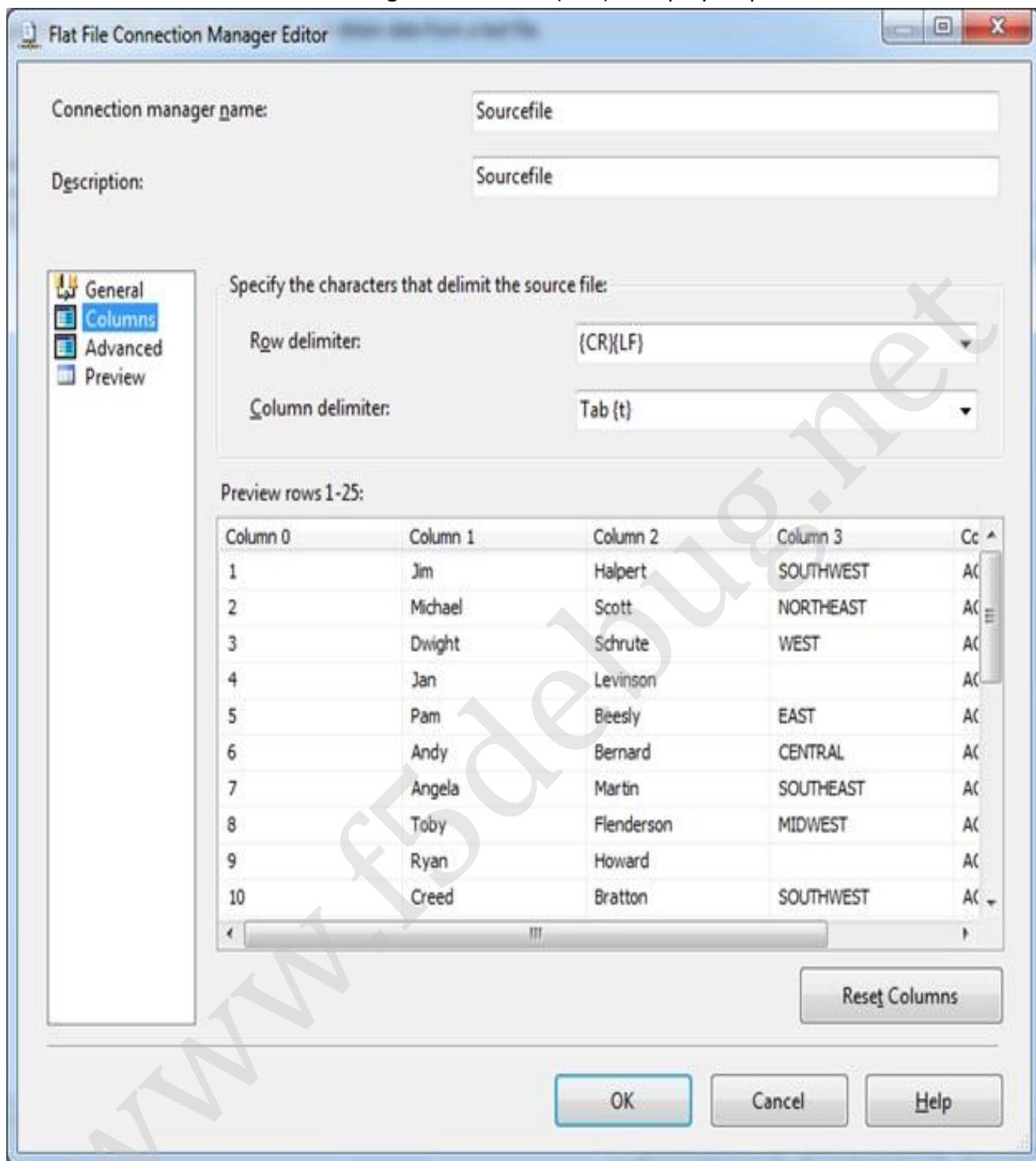


We can see the red marks on the control which indicates that the configuration is not done with the controls. Let's do the configuration one by one so that it's easy for the readers to get it done practically.

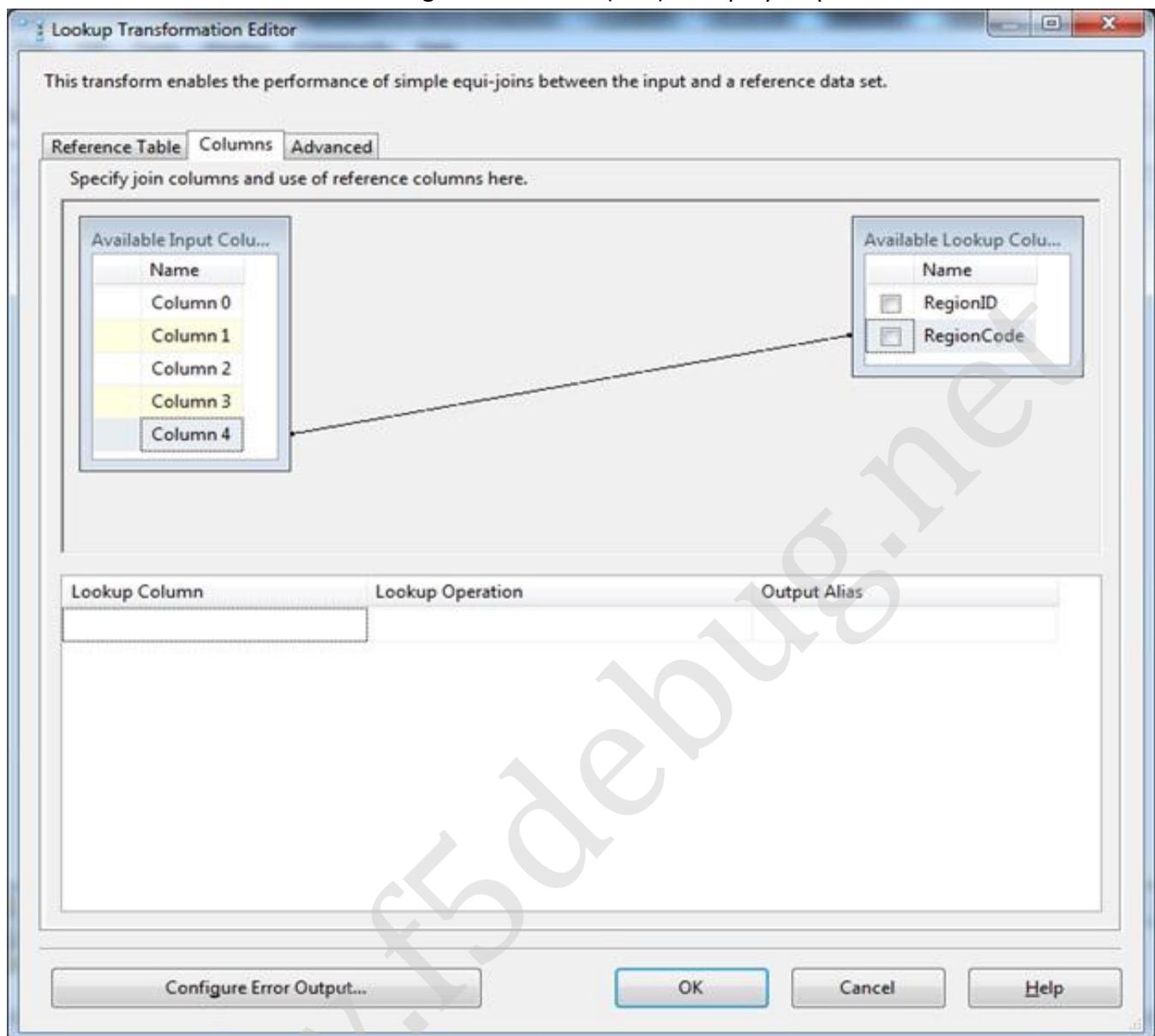
The scenario which we are going to take and create a package is we have a sample text file which has the customer details we are going to make use of that as source and do a lookup with the database and the finally send it to the destination db.

1	Jim	Halpert	SOUTHWEST		ACTIVE
2	Michael	Scott	NORTHEAST		ACTIVE
3	Dwight	Schrute	WEST	ACTIVE	
4	Jan	Levinson			ACTIVE
5	Pam	Beesly	EAST	ACTIVE	
6	Andy	Bernard	CENTRAL	ACTIVE	
7	Angela	Martin	SOUTHEAST		ACTIVE
8	Toby	Flelderson		MIDWEST	ACTIVE
9	Ryan	Howard			ACTIVE
10	Creed	Bratton	SOUTHWEST		ACTIVE
11	Kevin	Malone	NORTHEAST		ACTIVE
12	Phyllis	Lapin	WEST	ACTIVE	
13	Darryl	Philbin	EAST	ACTIVE	
14	Oscar	Martinez		CENTRAL	ACTIVE
15	Kelly	Kapoor	SOUTHEAST		ACTIVE
16	Meredith		Palmer	MIDWEST	ACTIVE
17	Stanley	Hudson	NORTH	ACTIVE	
18	Karen	Filippelli		NORTH	ACTIVE
19	Bob	Vance			ACTIVE
20	David	Wallace	NONE	ACTIVE	
21	Josh	Porter	CENTER	ACTIVE	
22	Holly	Flax	SOUTHWEST		ACTIVE
23	Todd	Packer	NORTHEAST		ACTIVE
24	Carol	Stills	CENTRAL	ACTIVE	
25	Jim	Halpert	SOUTHWEST		ACTIVE

Now configure the source file with the source provider as shown in the screen below.

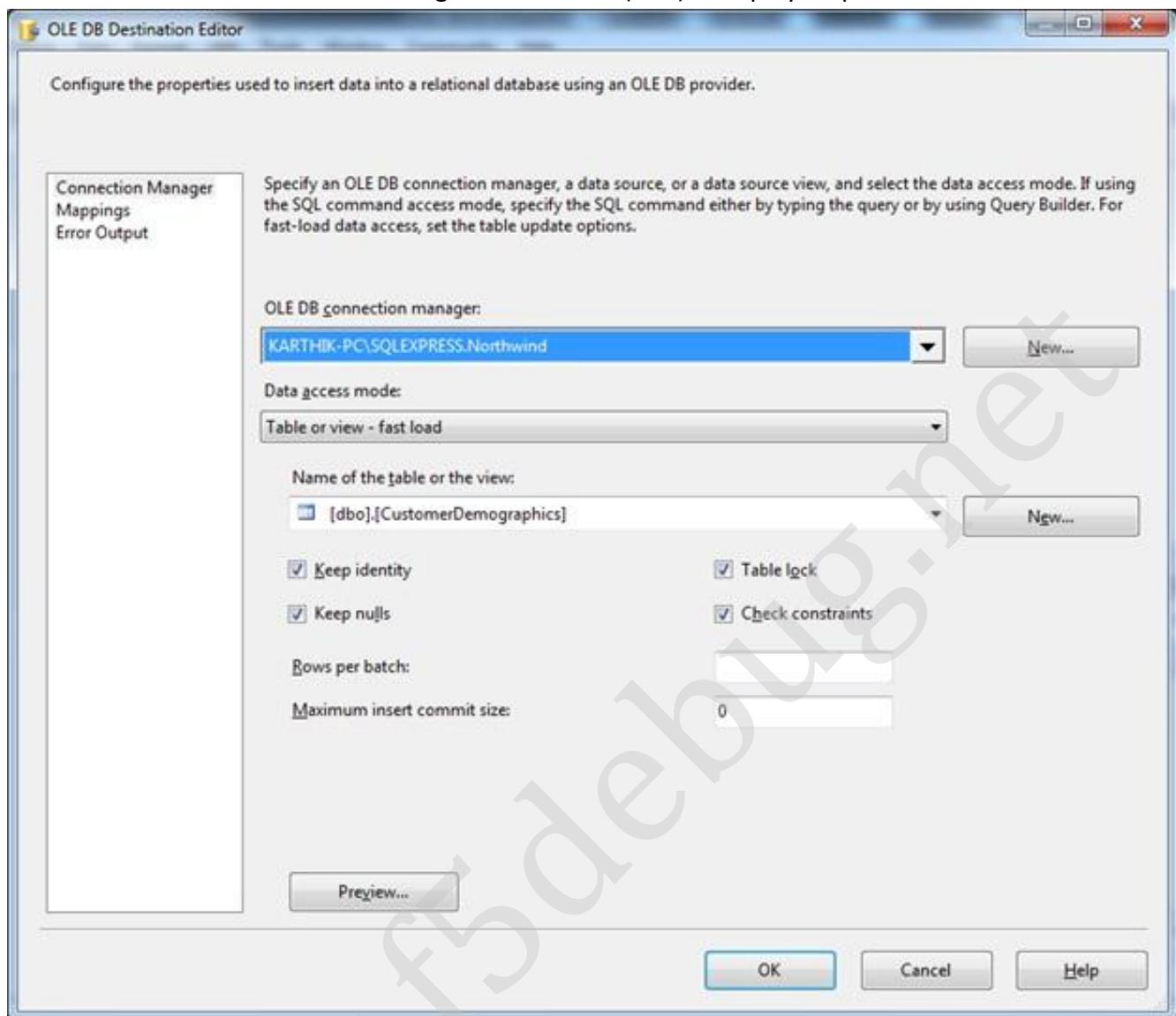


Now we need to configure the lookup transformation as shown in the screen below. Here we need to select the table where the lookup should happen and select the mapping correctly as shown in the screen below.



Here using the region code only we are going to do the lookup and do the mappings and get the desired result based on the flat file and the source.

Once we are done with the configuration of the source and the lookup transformation we need to specify the destination. Please take care of the mapping as the priority. Here in this example since we don't have the desired table as output we need to map it with some other destination table for time being shown an output as shown in the screen below.



## Conclusion

In this chapter we have seen on how to use the Lookup transformation task and the key configurations used in order to use this task handy.

# Chapter 49

## REAL TIME EXAMPLES OF DATA FLOW TRANSFORMATION

### Introduction

In my series of chapters there are few scenarios where we need to take care of some real time samples and examples to explain the task to reach it to the end users. So I can up with this chapter on to show some real time scenarios for each and every transformation.

There are 28 data flow transformations and I grouped them below to give some real time idea on my working experience with those controls.

### List of 28 Transformations:

S No	Transformation	Real Time Examples
1	Aggregate	Summing / Averaging a total of the products purchased by a customer online to produce the final amount.
2	Audit	For audit purpose, when we need to audit the logs to send to DBA's for weekly or monthly auditing.
3	Character Map	For sending mails (do some manipulations) to the end users to do some formatting we can use this task.
4	Conditional Split	Morning feeds which we get from different systems need to be transferred to different tables based on the feed which we get so we can use this task to do some condition check.

5	Copy Column	Morning feeds which needs to be transferred to tables need to be scanned under for cleaning spaces, empty values etc then we can go with this task
6	Data Conversion	Daily monitoring of the input files and data to have proper datatype before mapping it to the table then we can use this task.
7	Data Mining Query	Evaluating the input data against the analysis model to get a proper set.
8	Derived Column	Adding a title of courtesy (Mr., Mrs., Dr, etc) before the name and removing the trailing and ending spaces.
9	Export Column	When we get the normal files/pdf files/image files from different systems and save it under a particular folder and map it to the table master
10	Fuzzy Grouping	Matching the name of a customer with master and child table and use it to group and get the desired set
11	Fuzzy Lookup	Matching the name of a customer with master and child table and use it to group and get the desired set
12	Import Column	When we get the normal files/pdf files/image files from different systems and save it under a particular folder and map it to the table master
13	Lookup	Employee table information saved in a master file and the region wise data available across the table which can be mapped and joined to perform a joined querying operation
14	Merge	Combine data from multiple data source like master and child employee table and get result in single dataset.
15	Merge Join	Combine data from multiple data source like master and child employee table and get result in single

		dataset. Can use any type of join like inner, outer, left, right etc
16	Multicast	Similar to the conditional split but this splits across all the parts
17	OLE DB Command	Used when we need to do updates to all the rows of a table like update If a message sent to the entire customer who have made a payment today.
18	Percentage Sampling	Can be used in cases like the package should have access to only limited data.
19	Pivot	When data fetched from the table and do some formatting to show in the front end we can use it.
20	Row Count	Any point to log the count of the number of customers so we can get the count using this
21	Row Sampling	Same as Percentage Sampling.
22	Script Component	Used for places where we need to use framework specific assemblies.
23	Slowly Changing Dimension	When we need to use some historic dimensions of data
24	Sort	To make some sorting to get the desired result. Sorting like customer who made the highest payment in a particular day.
25	Term Extraction	Used to get a data from a large set of data and get the extracted output in a formatted set.
26	Term Lookup	Used to get a data from a large set of data and get the extracted output in a formatted set.
27	Union All	Used to get data from different data sources and get in a single dimensional format.
28	Unpivot	Restructuring the format of the data for normalizing

	the input prior to loading.
--	-----------------------------

## Conclusion

In this chapter we have seen some real time examples where we use the transformations; these are some of the real time usage which we came across in day to day business.

# Chapter 50

## MERGE TRANSFORMATION

### Introduction

In this chapter we are going to see on how to use Merge transformation in SSIS Packaging. Merge transformation is used in cases where we need to get data from 2 different data source and merge in order specified and send the result to the destination.

Merge transformation can be very effective when we need to do manipulation across the data sets or the data source.

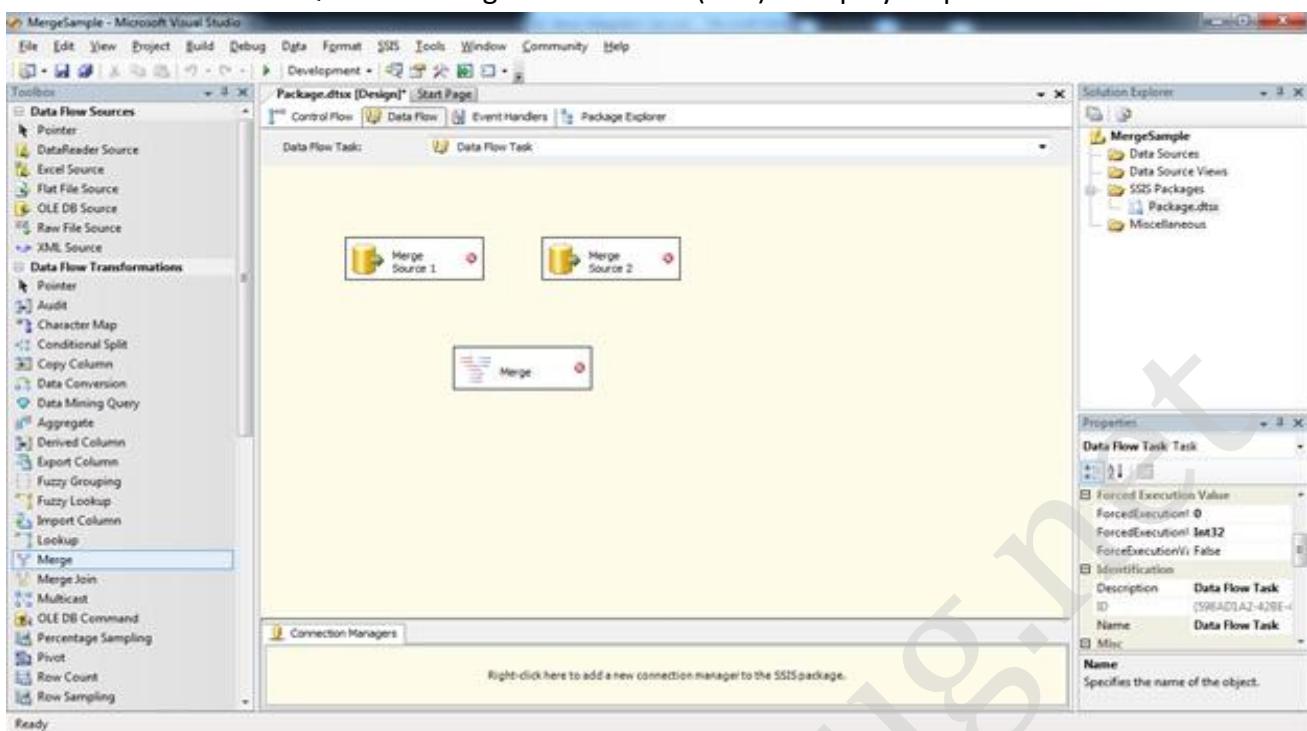
Let's jump start on how to use this task in real time and see the steps to do the configurations.

### Steps

Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Merge Transformation task.

Once you open the project just drag and drop the Merge transformation control and a source provider as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we need to start configuring the transformation. Let us start with configuring the source data, for that we need to create table as shown in the screen below.

```
Microsoft SQL Server Management Studio
File Edit View Query Project Tools Window Community Help
Object Explorer Details KARTHIK-PC\SQLEXPRESS - vs44A2.asp
Create table Merger1 Empid int,EmpName Varchar(50)
Create table Merger2 Empid int, EmpName Varchar(50)
Insert into Merger1 values (1,'Arun')
Insert into Merger1 values (3,'Karthik')
Insert into Merger1 values (4,'Amit')
Insert into Merger1 values (6,'Vinodh')
Insert into Merger2 values (2,'Vijay')
Insert into Merger2 values (3,'Karthik')
Insert into Merger2 values (5,'Ruthesh')
Insert into Merger2 values (7,'Ruthra')
Select * from Merger1
Select * from Merger2
```

Results

Empid	EmpName
1	Arun
3	Karthik
4	Amit
6	Vinodh

Empid	EmpName
2	Vijay
3	Karthik
5	Ruthesh
7	Ruthra

Query executed successfully.

KARTHIK-PC\SQLEXPRESS (10.0 SP1) karthik-PC\karthik (S3) Northwind 00:00:00 8 rows

## Script

```
CREATE TABLE MERGER1( EMPID INT,EMPNAME VARCHAR(50))

CREATE TABLE MERGER2( EMPID INT, EMPNAME VARCHAR(50))

INSERT INTO MERGER1 VALUES (1,'ARUN')

INSERT INTO MERGER1 VALUES (3,'KARTHIK')

INSERT INTO MERGER1 VALUES (4,'AMIT')

INSERT INTO MERGER1 VALUES (6,'VINOTH')

INSERT INTO MERGER2 VALUES (2,'VIJAY')

INSERT INTO MERGER2 VALUES (3,'KARTHIK')

INSERT INTO MERGER2 VALUES (5,'RUTHESH')

INSERT INTO MERGER2 VALUES (7,'RUTHRA')

SELECT * FROM MERGER1

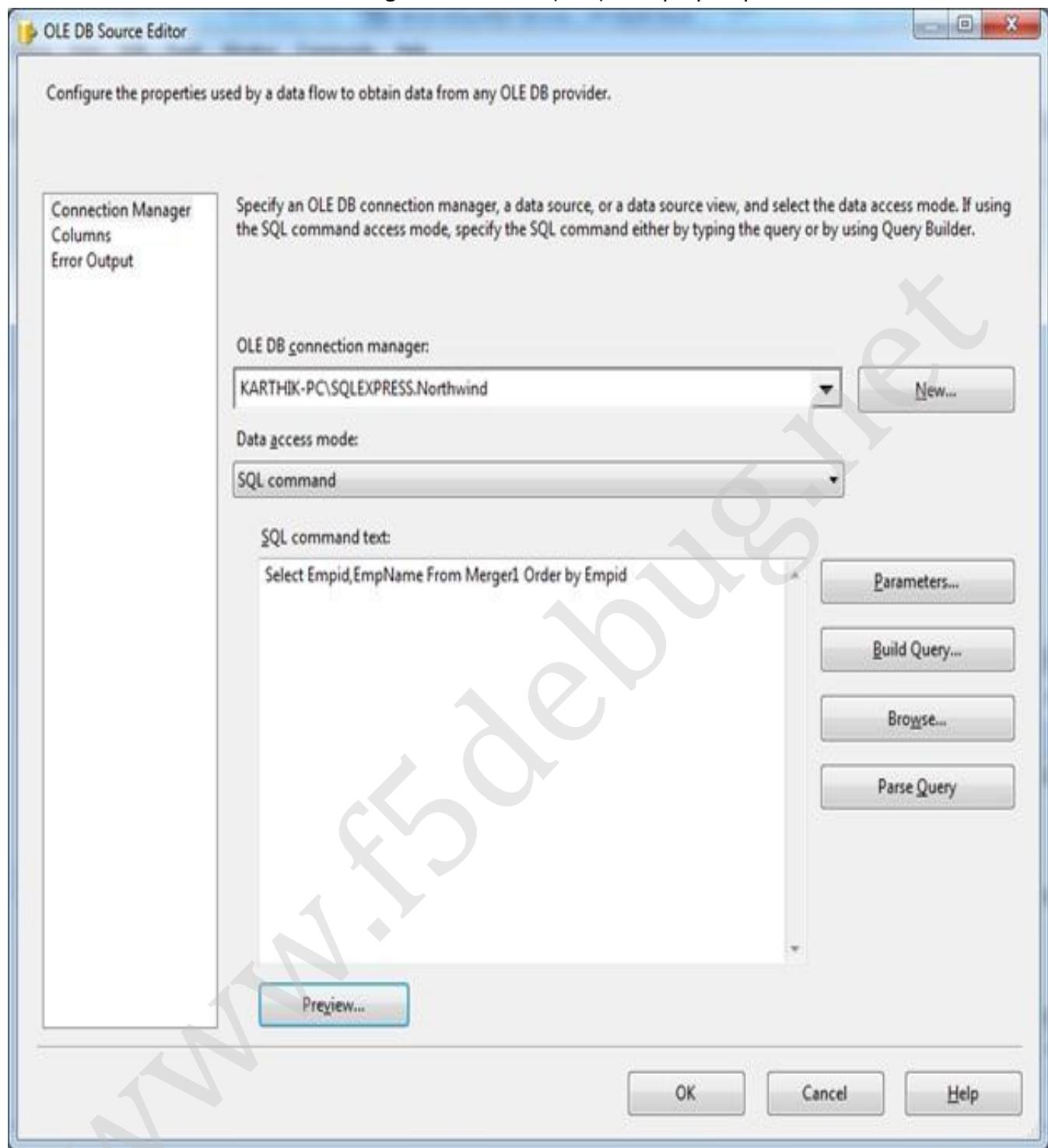
SELECT * FROM MERGER2
```

To configure the sources we need to do the below steps. Here we are going to use a query to fetch the data as shown in the screen below.

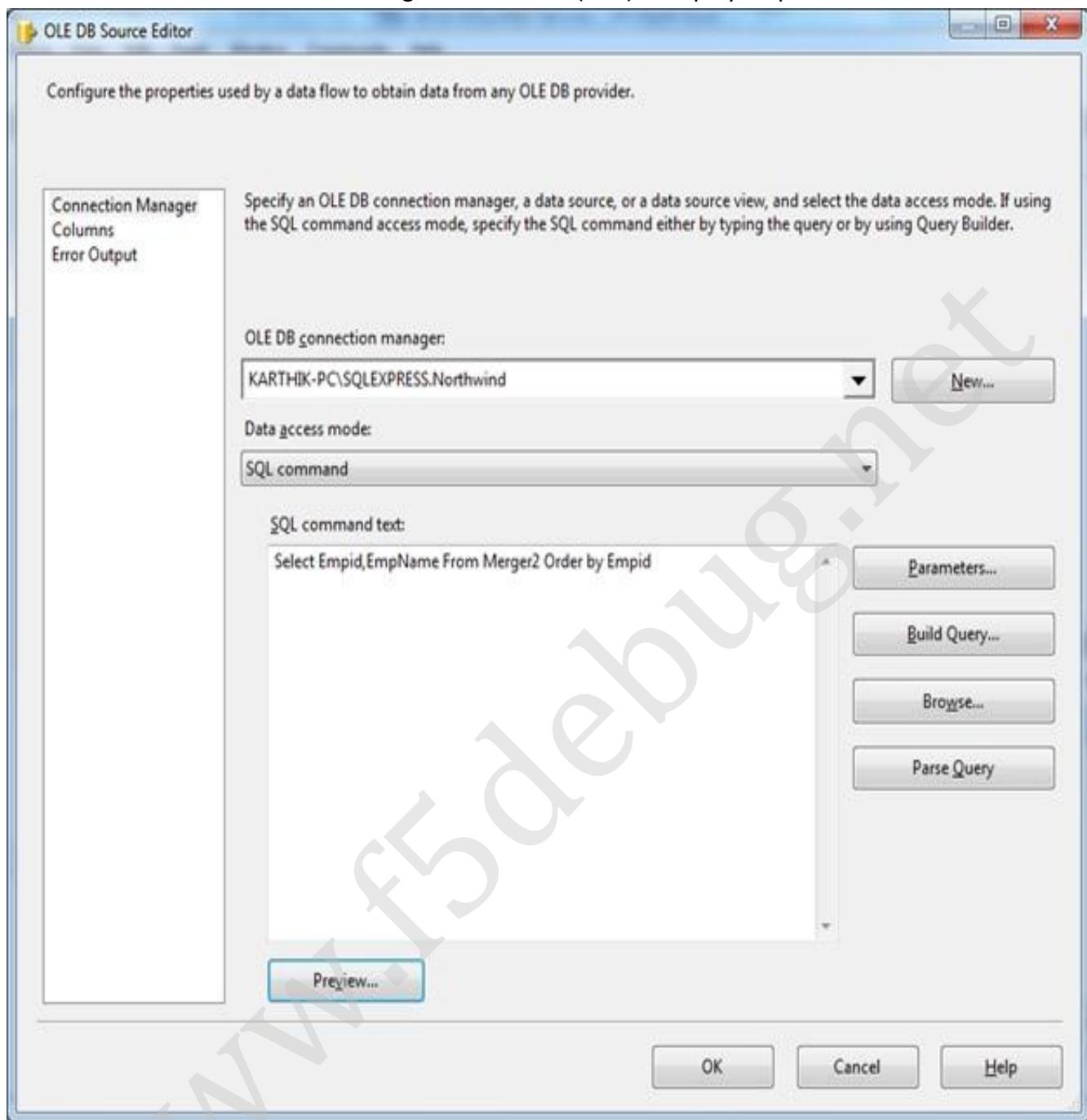
```
SELECT EMPID,EMPNAME FROM MERGER1 ORDER BY EMPID

SELECT EMPID,EMPNAME FROM MERGER2 ORDER BY EMPID
```

We can see the screen looks like below after we configure the first data source as shown in the screen below.

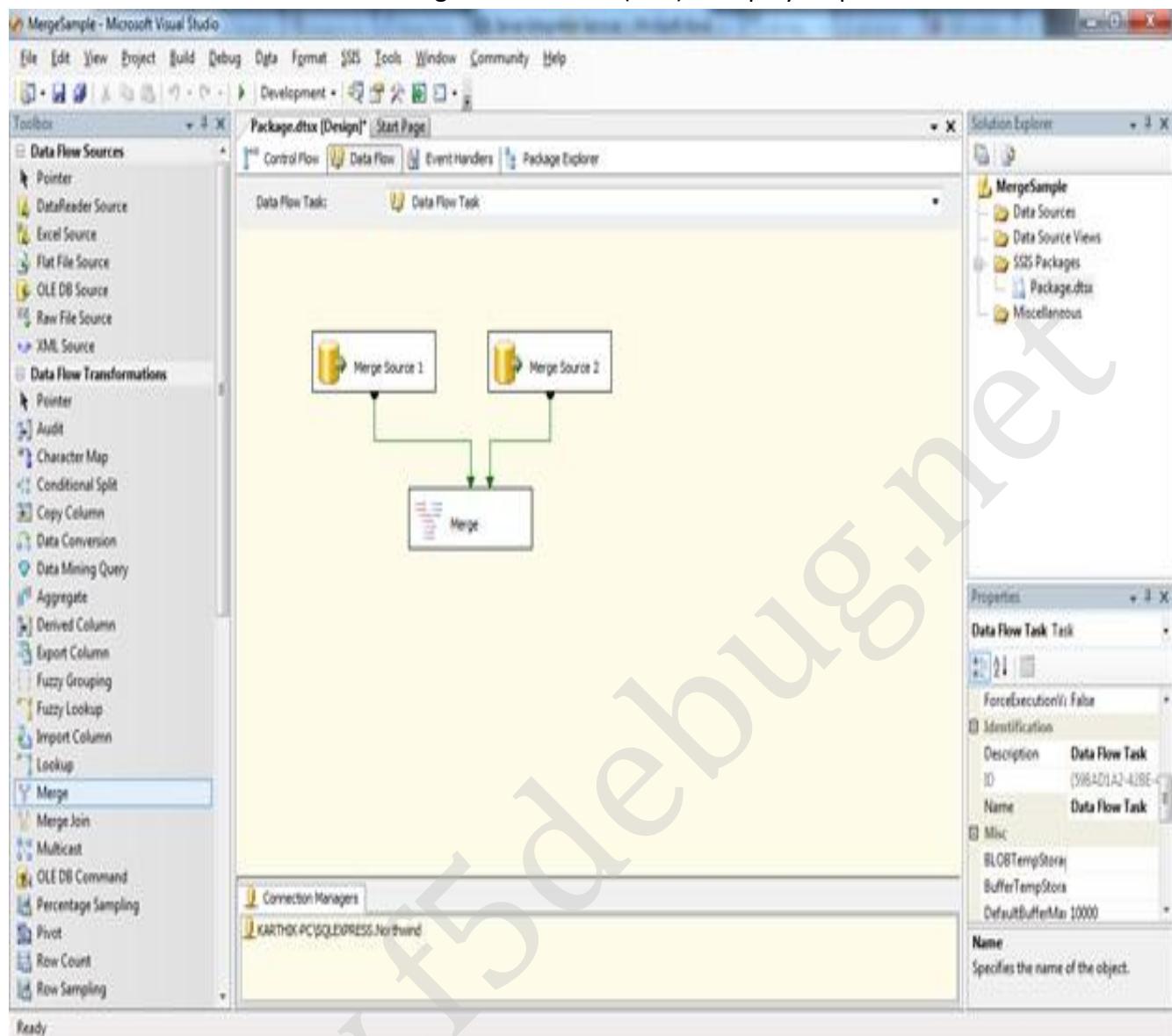


Similarly we need to do the same for the second data source as well as shown in the screen below.



Now once we are done with configuration of the source, we need to configure the Merge transformation task by mapping both the merger source with the merge as shown in the screen below.

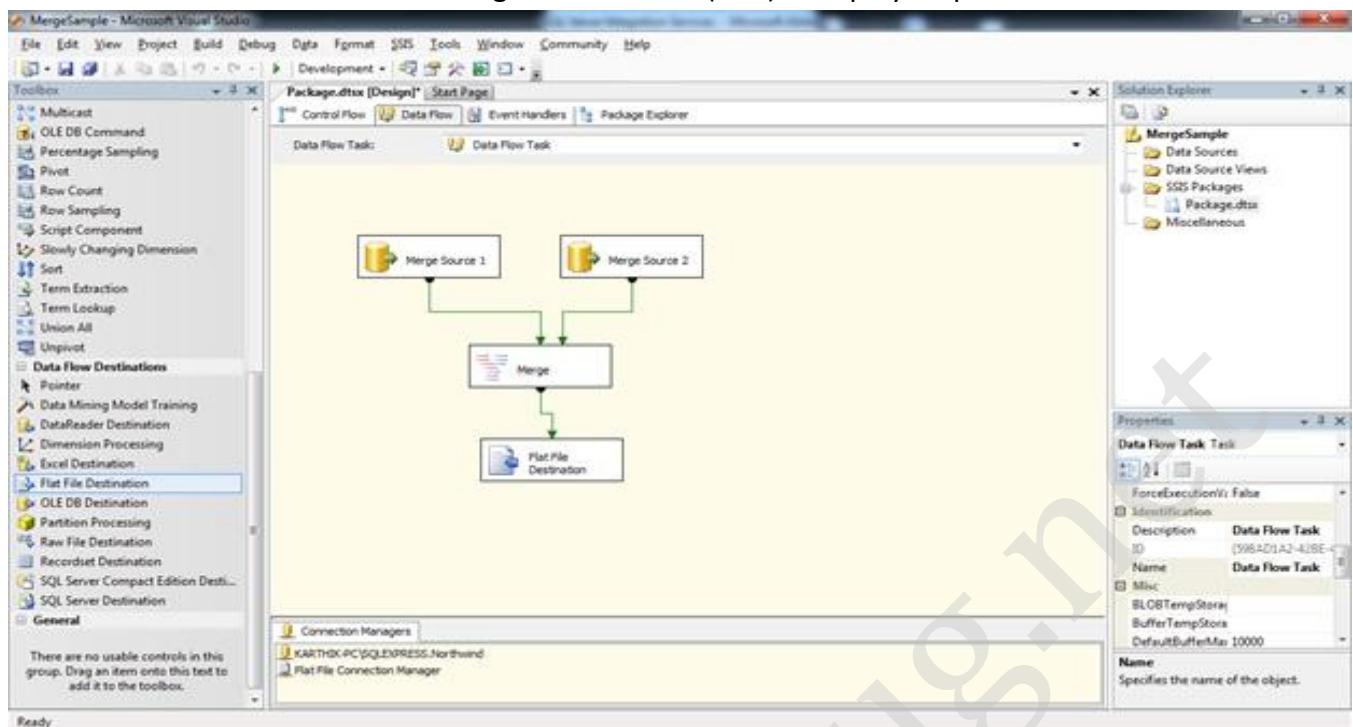
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



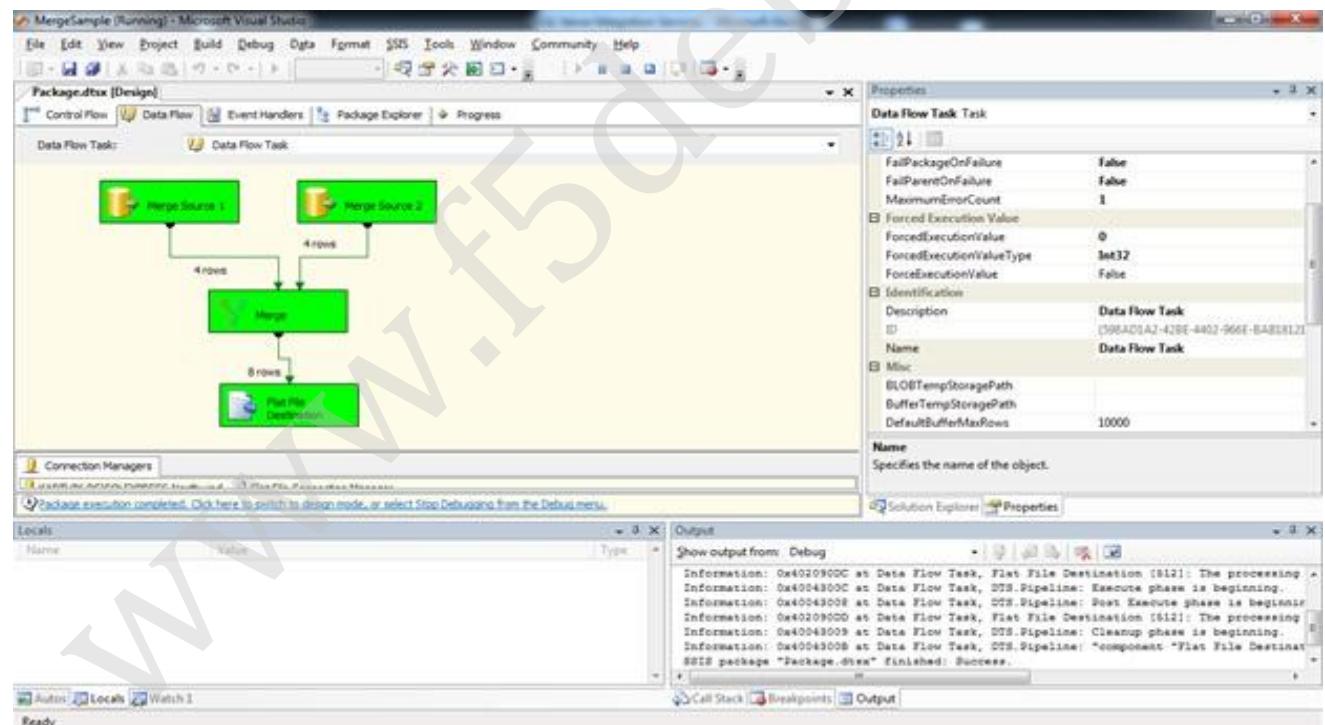
Here we need to do some steps to take the Merge task accept the sources, for this we need to give the sorting to true. Since the task by itself will not make the sorting to merge the data. For that you need to right click on the sources task and select "Show advanced editor" and select the input output properties tab and click on the OLEDB Source output. Then change the IsSorted property to True on the output.

Now we are done with configuration of the sources and the merge task. Now we need to get the output for that we can use a flat file destination as shown in the screen below.

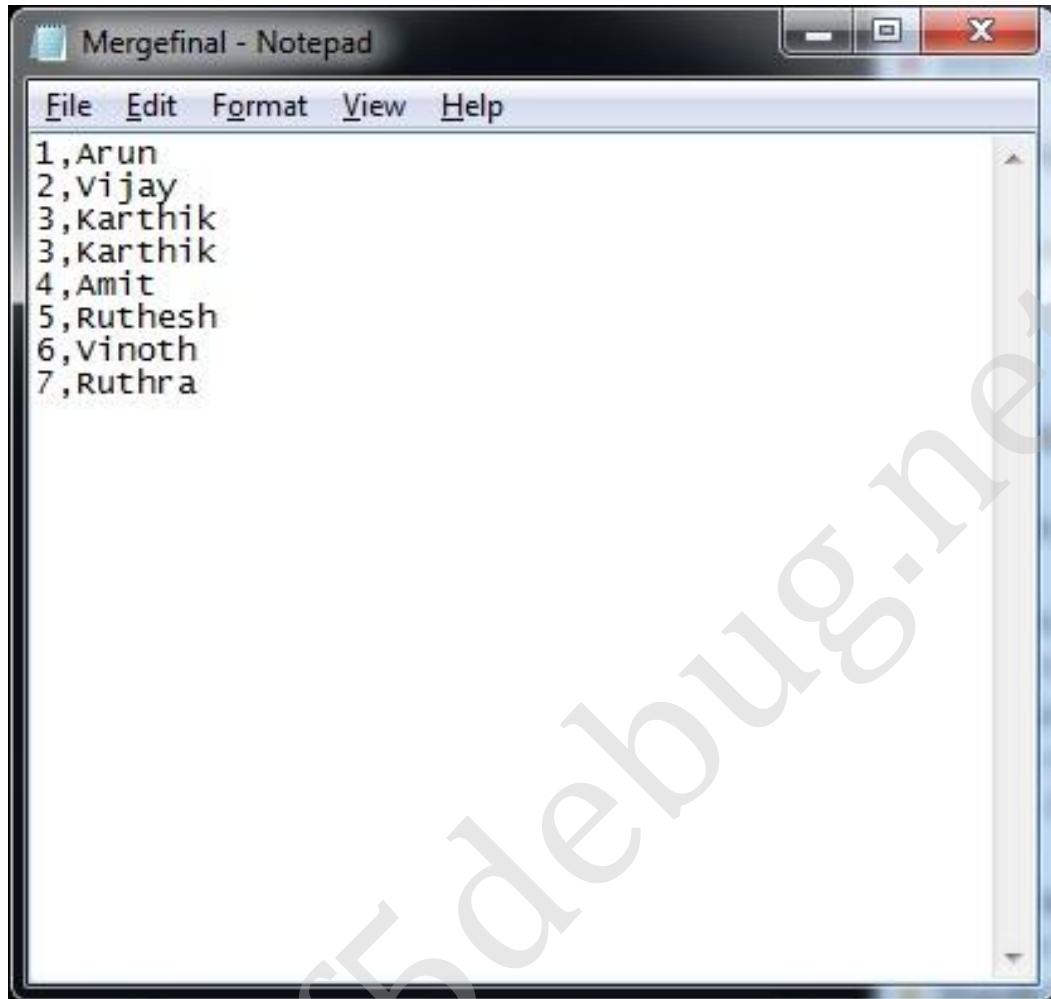
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now execute the task (Press F5), we will get the desired output as shown below.



The output we can see in the file which we specified at the configuration of the destination task.



## Conclusion

In this chapter we have seen on how to use the Merge transformation task and the key configurations used in order to use this task handy.

# Chapter 51

## MERGE TRANSFORMATION (SETTING SORTING)

### Introduction

In this chapter we are going to see on how to set the sorting properties of the merge transformation. In my previous chapter you can see the steps on how to use the merge transformation. To set the transformation merge we need to follow some setting which should be taken in the Source data source.

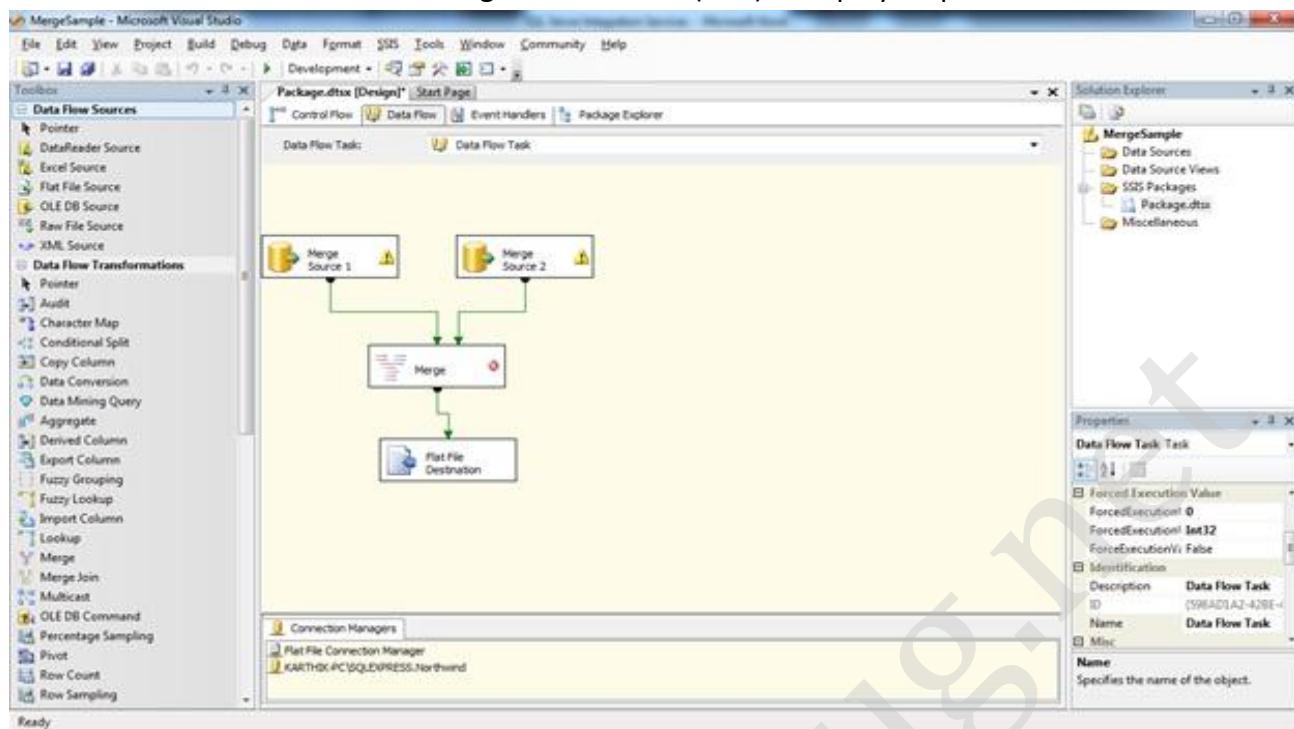
Let's jump start to see this sample on how to set the properties of the sorting.

### Steps

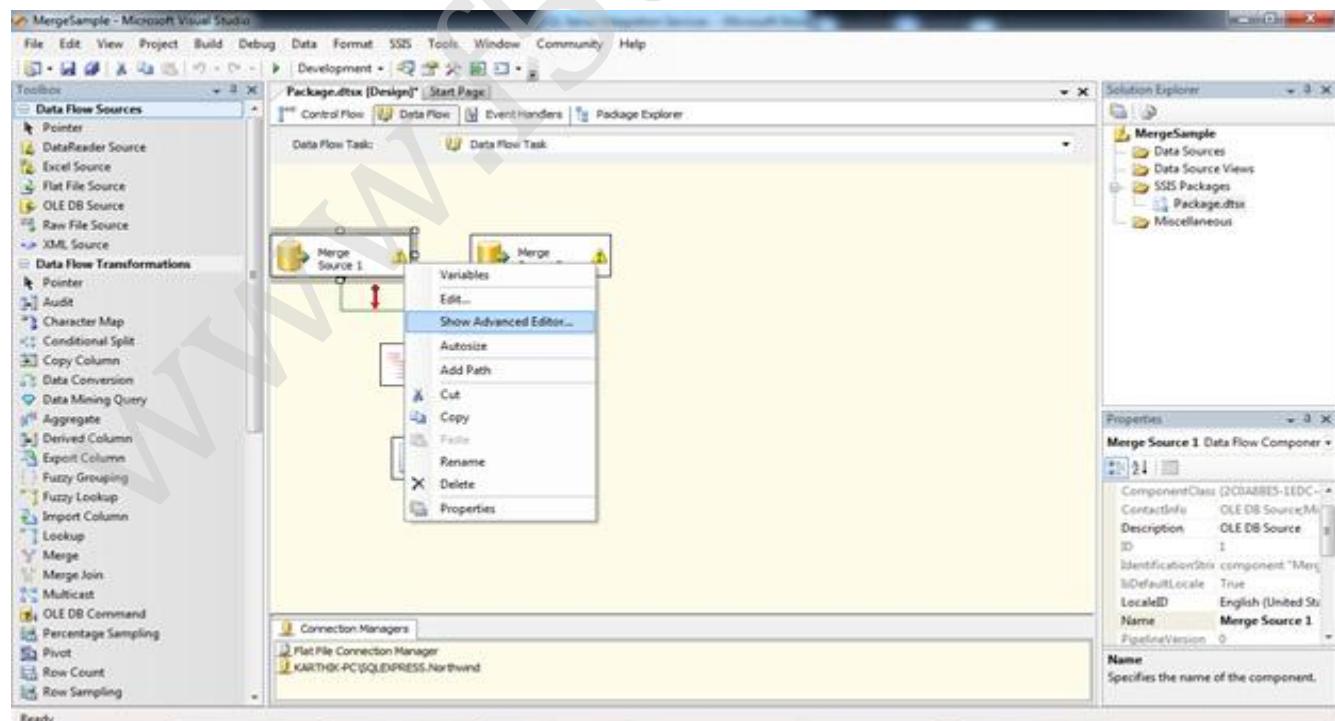
Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Merge Transformation task.

Once you open the project just drag and drop the Merge transformation control and a source provider as shown in the previous chapter. Follow the steps till adding the merge control with the input data sources. We can see the screen look like the screen below.

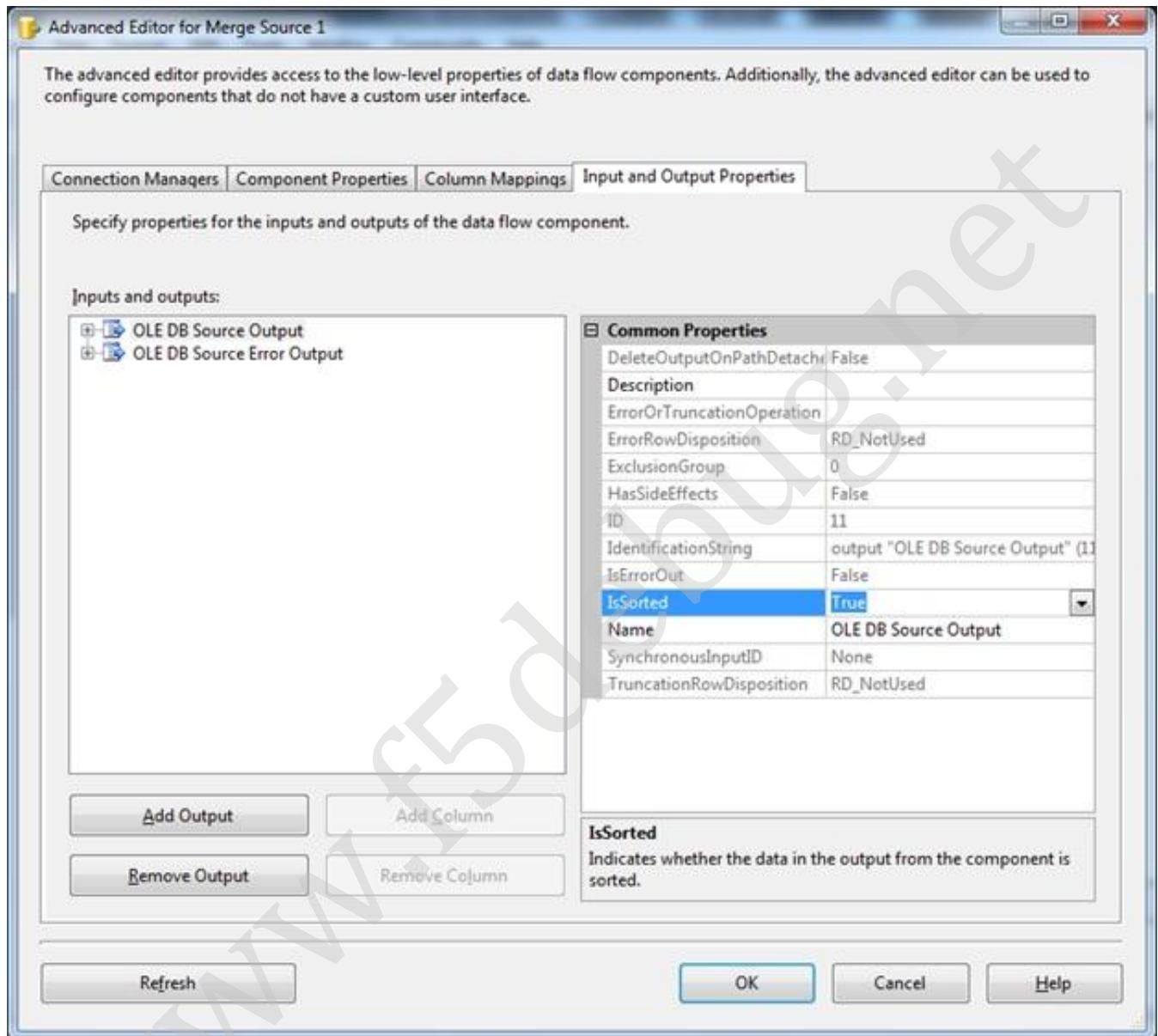
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



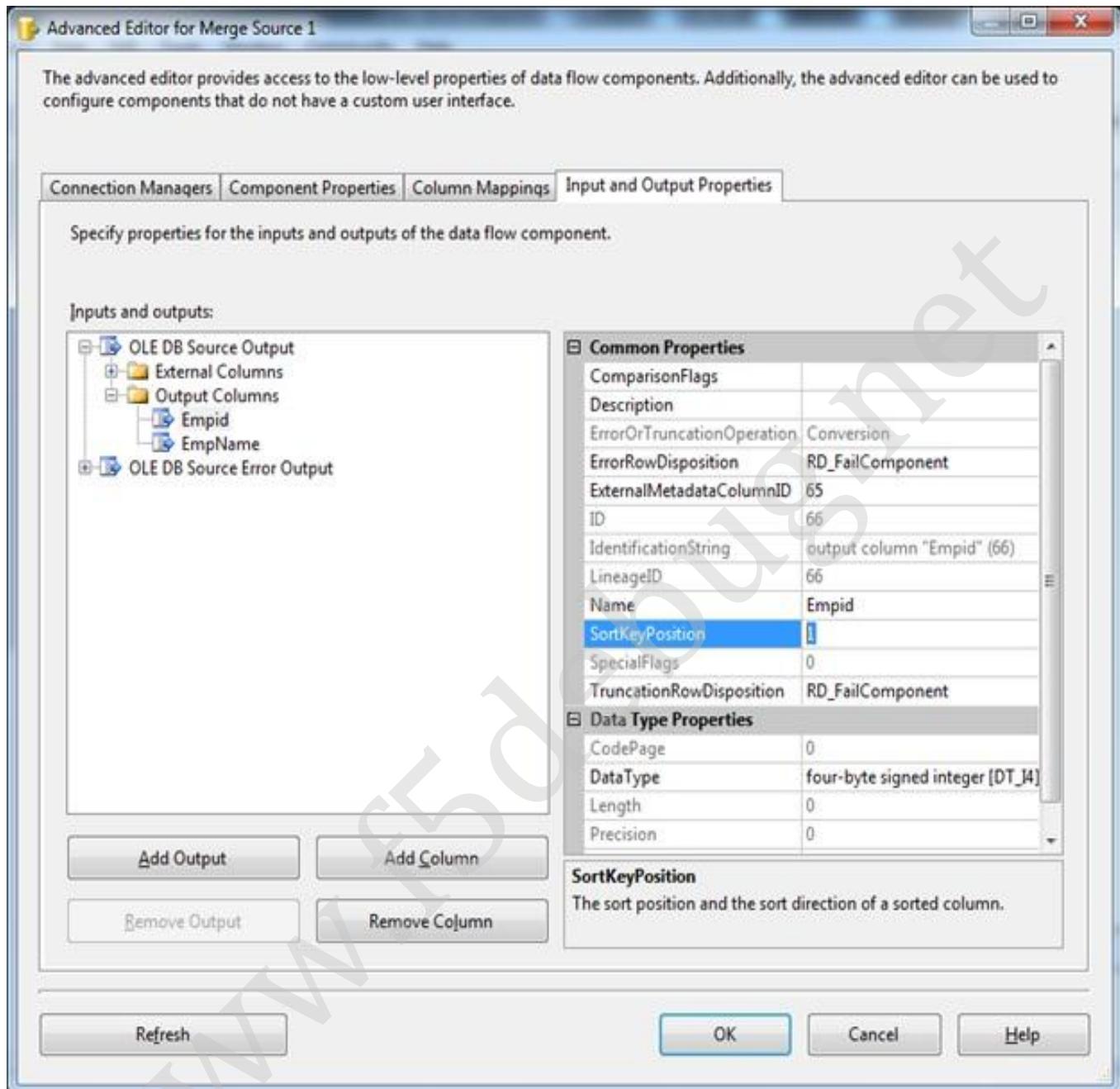
We can see some executing symbol shows on the data source as shown in the above screen and in the merge transformation we can see its showing the failed execution process. Now right click on the data source (Merger Source 1) and select "Show Advanced Editor" as shown in the screen below.



Now move to the Input and output properties as shown in the screen below and select the IsSorted = true as shown below.

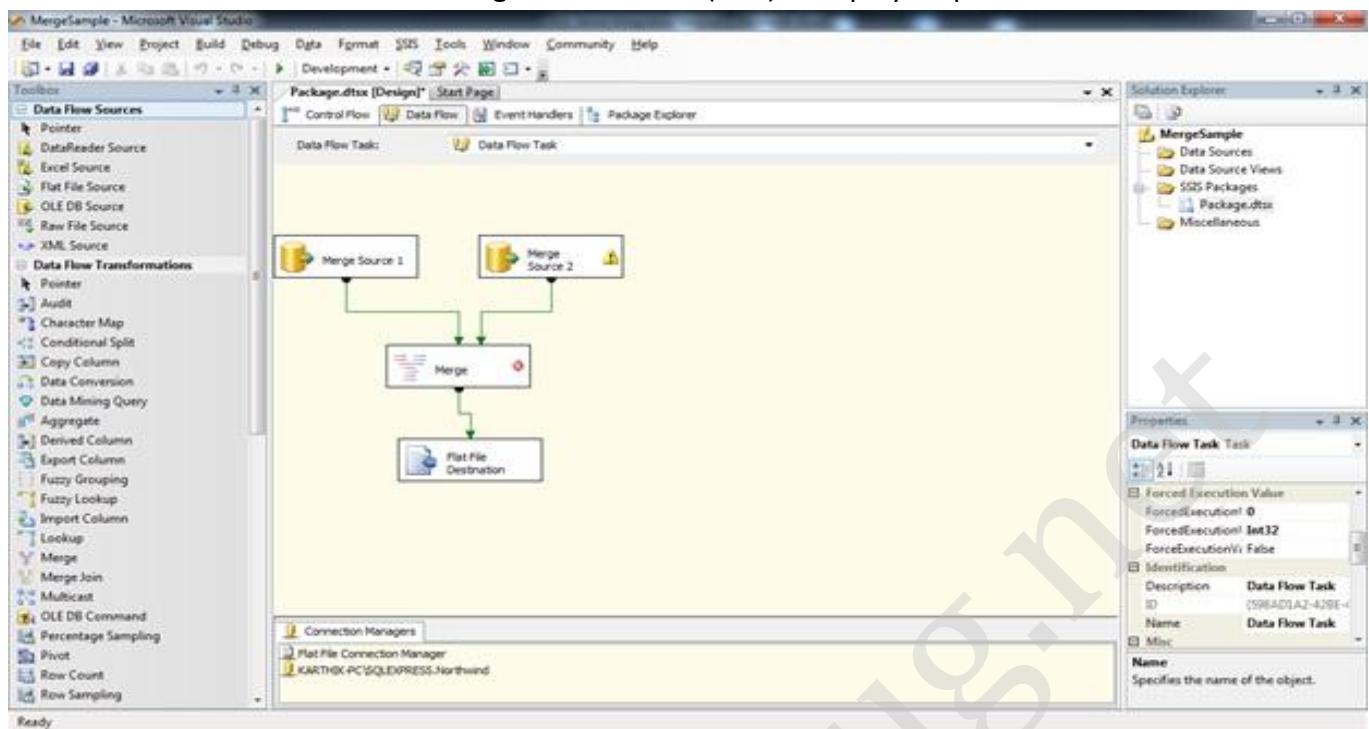


Now click on the + symbol and go to Output columns and select SortkeyPosition to 1 as shown in the screen below.

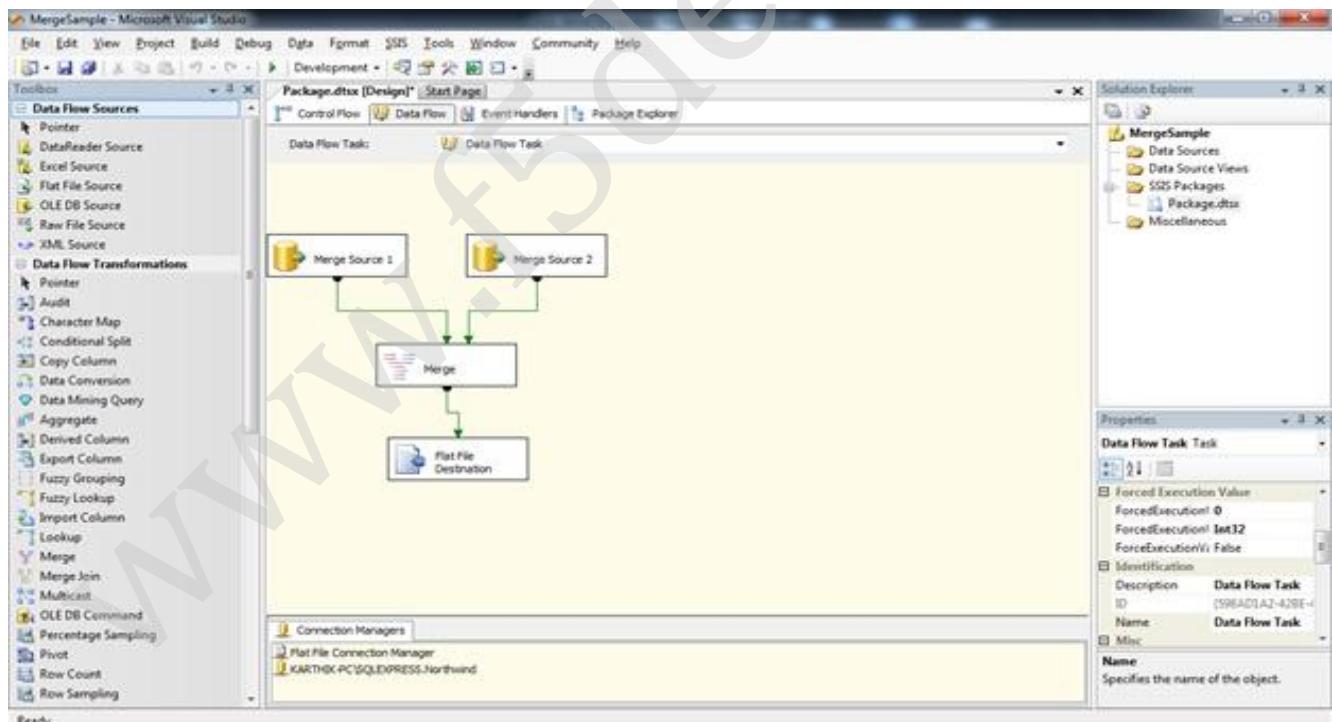


Now click on ok and go to the main screen, you can see Data Source 1 is configured correctly and the second one still showing the execution failure fail as shown below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Do the configuration steps which we did for Data source 2 as well and we can see the result set as shown in the screen below.



Now we are completed with the configuration steps, we need to enable the sorting properties to get ready for the execution of the project.

## Conclusion

In this chapter we have seen on how to use the Merge transformation (Sorting properties) task and the key configurations used in order to use this task handy.

# Chapter 52

## MERGE JOIN TRANSFORMATION

### Introduction

In this chapter we are going to see how to use the Merge Join Transformation in SSIS packaging. Merge Join Transformation is similar to merge transformation as it handles multiple data from different source and merges into one process and handles it as if it came from a single source.

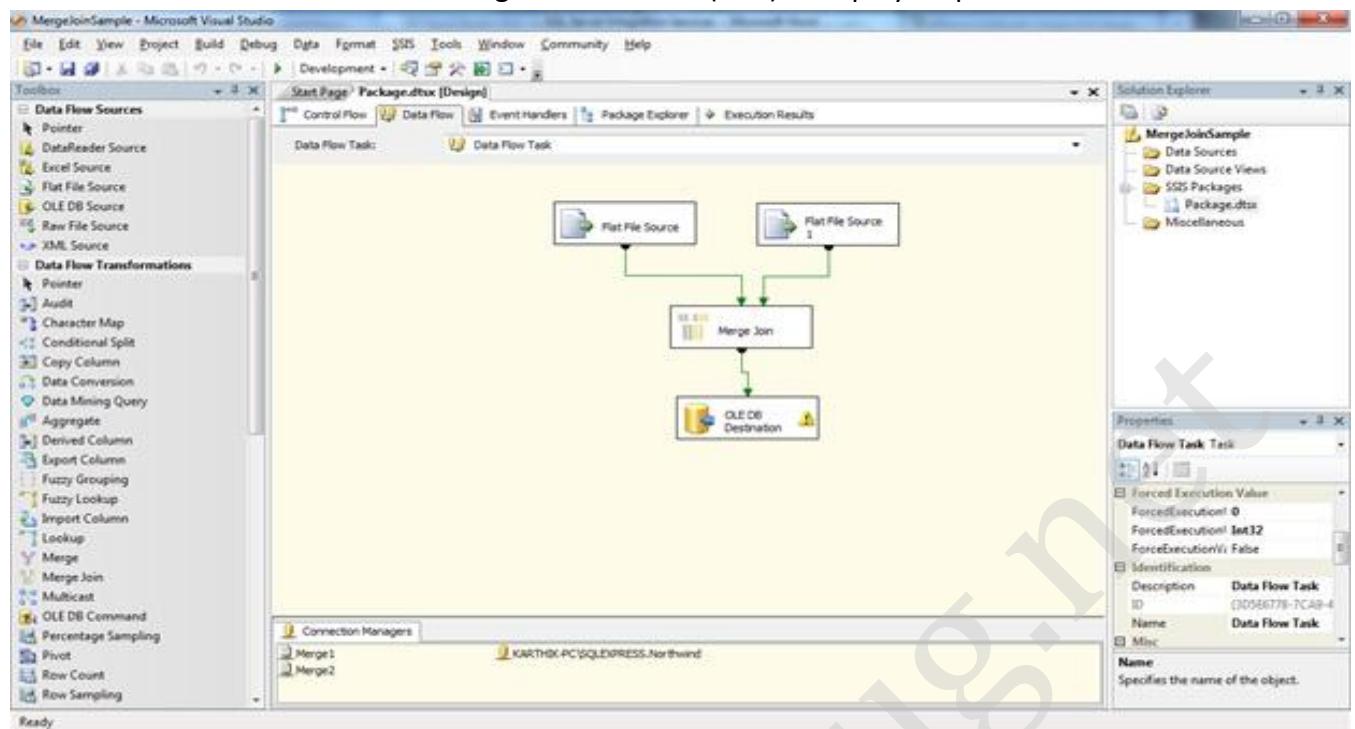
Also Merge simply recombines portions of the data flow without changing the shape of the buffer, much like a UNION but which maintains the sort order. Merge Join adds elements to the buffer which will change its shape, similar to an INNER, LEFT OR RIGHT OUTER JOIN.

Let's jump start to see this sample on how to set the properties of the sorting.

### Steps

Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Merge Join Transformation task. Once you open the project just drag and drop the Merge Join transformation control and a source provider as shown in the below screen.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

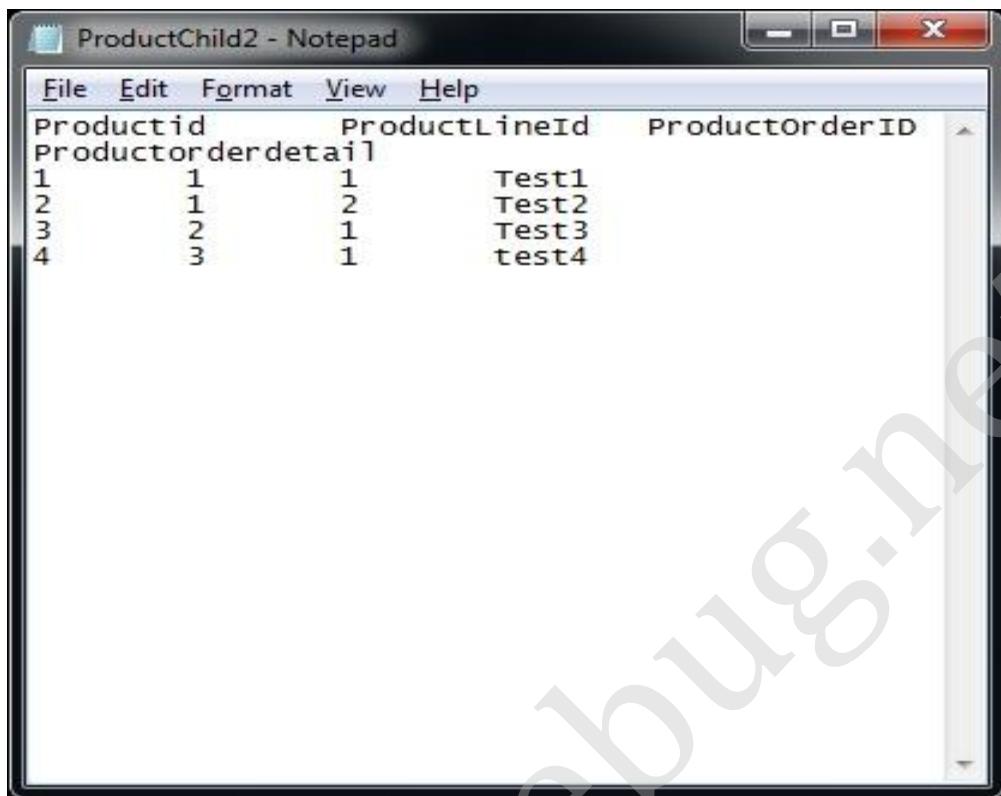


Here we configured the source data source from 2 different files as shown in the screen below.

### Source 1

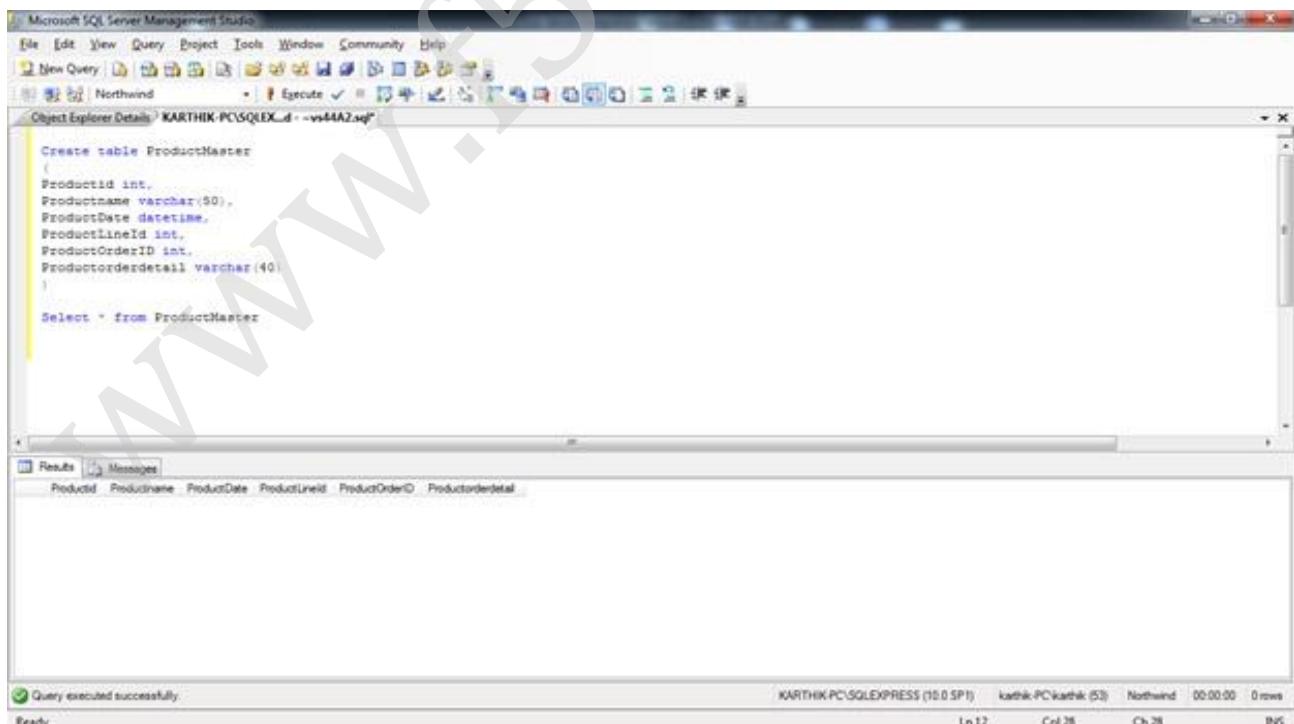
Productid	Productname	ProductDate
1	Silver	1/1/2010
2	Gold	1/2/2011
3	Titanium	2/2/2011

## Source 2



```
Productid ProductLineId ProductorderID
1 1 Test1
2 1 Test2
3 2 Test3
4 3 test4
```

Now we need to create a table in the database and host it as the destination database as shown in the screen below.



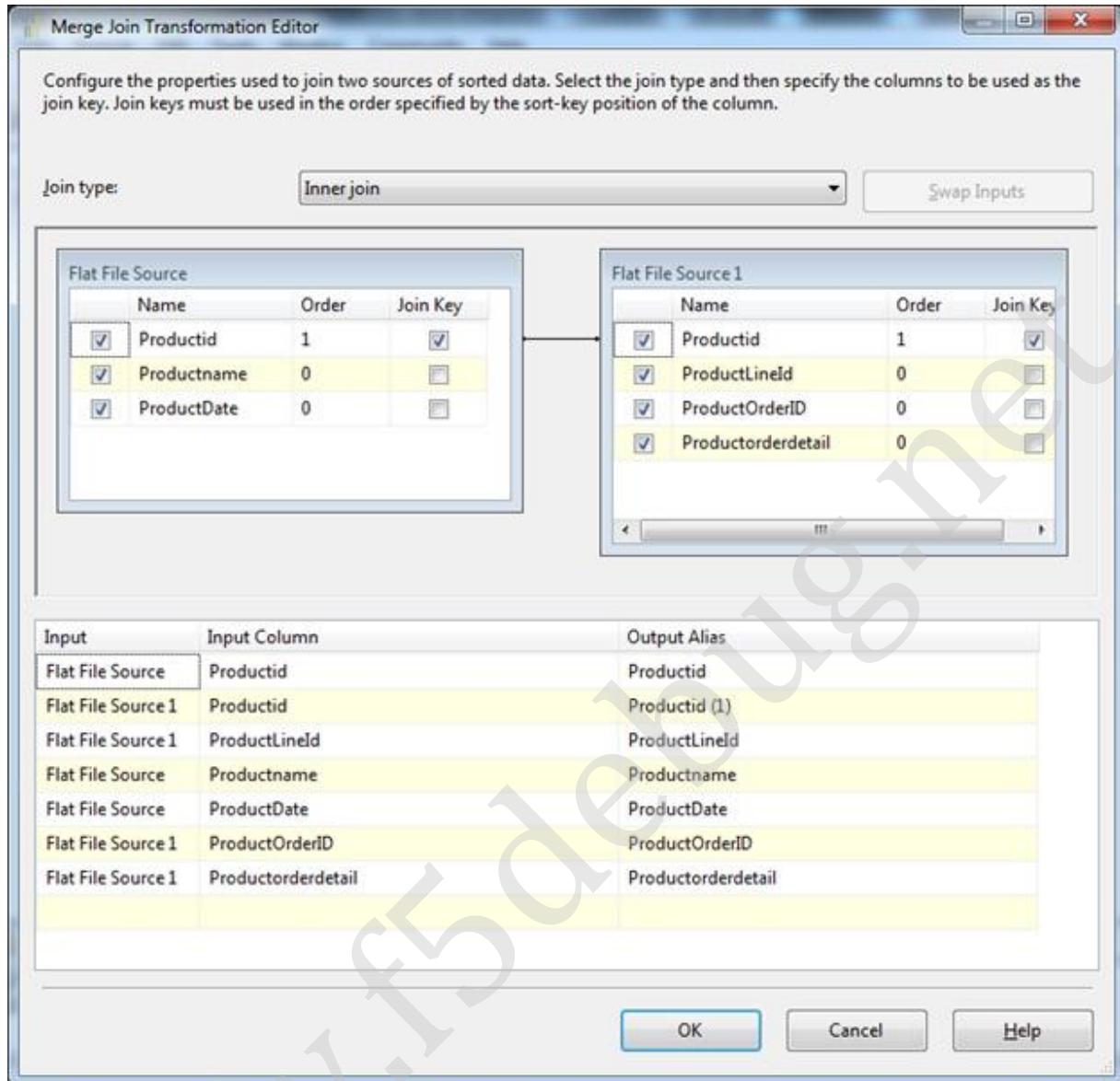
```
Create table ProductMaster
(
    Productid int,
    Productname varchar(50),
    ProductDate datetime,
    ProductLineId int,
    ProductOrderID int,
    Productorderdetail varchar(40)
)

Select * from ProductMaster
```

## Script

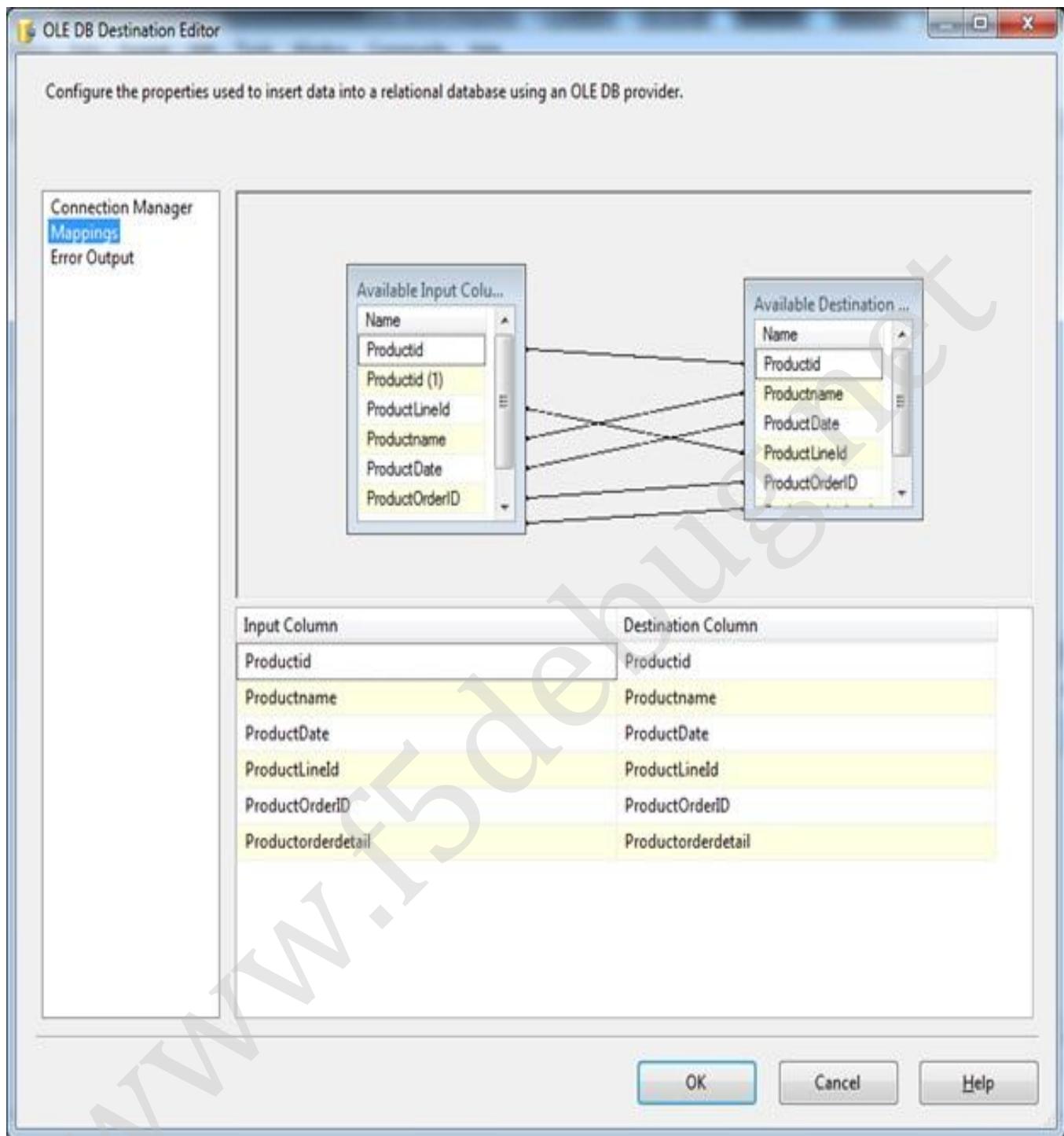
```
CREATE TABLE PRODUCTMASTER  
(  
    PRODUCTID INT,  
    PRODUCTNAME VARCHAR(50),  
    PRODUCTDATE DATETIME,  
    PRODUCTLINEID INT,  
    PRODUCTORDERID INT,  
    PRODUCTORDERDETAIL VARCHAR(40)  
)  
  
SELECT * FROM PRODUCTMASTER
```

Now the source files are configured and the sorting properties are enabled as shown in my previous chapter. Now let us configure the Merge join task as shown in the screen below.



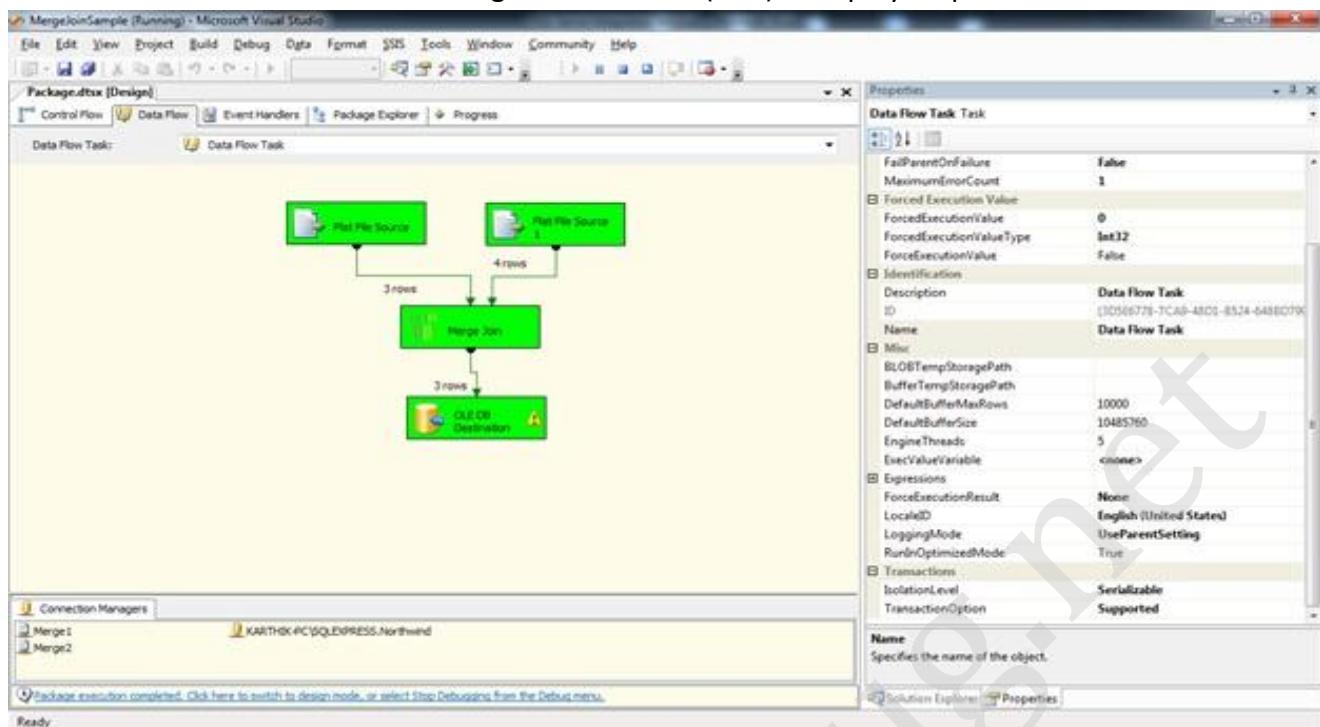
Here we mapped an inner join to perform the task and we need to select productid as the primary key and select the list of columns that the destination table should have to be updated as shown in the above image.

Now the task is configured and ready to have data. Now we need to have a destination system to update the data so we will have the OLEDB destination provider as shown in the screen below and we configure it with the exact mapping.



Now the complete package is ready to build and execute. Press F5 to start executing the project and we can see the screen looks like the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now let's see the end result of the package after execution, to check that we need to go to the destination database and run the destination query and we can see the result as shown in the screen below.

```
Microsoft SQL Server Management Studio
File Edit View Query Project Tools Window Community Help
New Query Execute
Object Explorer Details: KARTHIK-PC\SQLEXPRESS.d - vs44A2.sql
Create table ProductMaster
(
    Productid int,
    Productname varchar(50),
    ProductDate datetime,
    ProductLineId int,
    ProductOrderID int,
    Productorderdetail varchar(40)
)
Select * from ProductMaster
```

Productid	Productname	ProductDate	ProductLineId	ProductOrderID	Productorderdetail
1	Silver	2010-01-01 00:00:00.000	1	1	Test1
2	Gold	2011-01-02 00:00:00.000	1	2	Test2
3	Titanium	2011-02-02 00:00:00.000	2	1	Test3

Query executed successfully.

KARTHIK-PC\SQLEXPRESS (10.0 SP1) karthik-PC\karthik (53) Northwind 00:00:00 3 rows

## Conclusion

In this chapter we have seen on how to use the Merge Join transformation task and the key configurations used in order to use this task handy.

# Chapter 53

## MULTI CAST TRANSFORMATION

### Introduction

In this chapter we are going to see how to use the Multicast transformation in SSIS packaging. Multi cast transformation is used when a portion of the data needs to be transferred to some other flow which is something similar to Conditional task which do the same process.

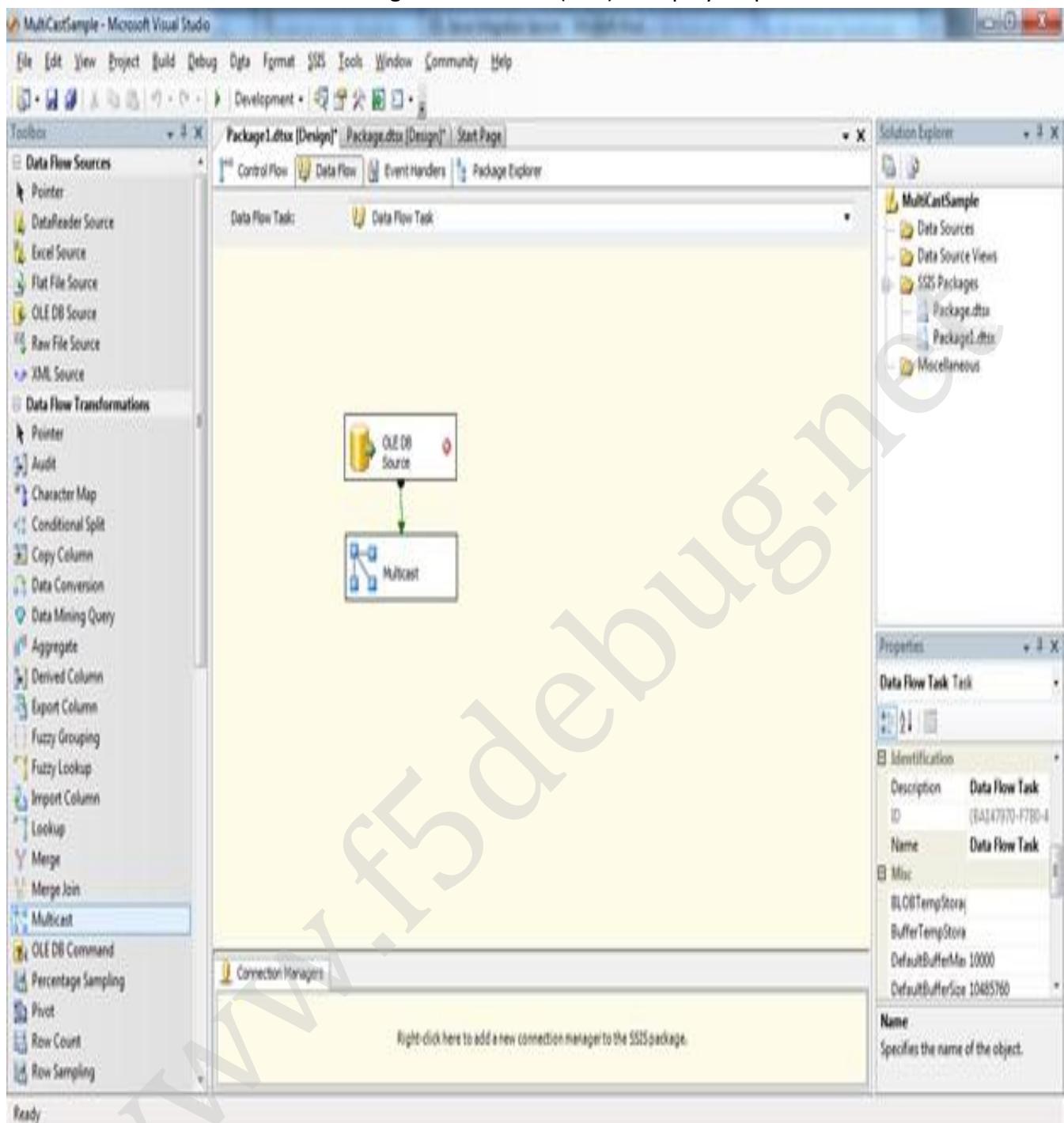
The difference between the Multicast and the conditional split transformations are multicast direct each row of the source to the every output where as in the conditional split it directs a row to a single output. So using the multicast we can create data of separate logic and try to have it secured across the flow. This transformation can have a single input with multiple outputs across to pass the data.

Let's jump start to see this sample on how to set the properties of the control.

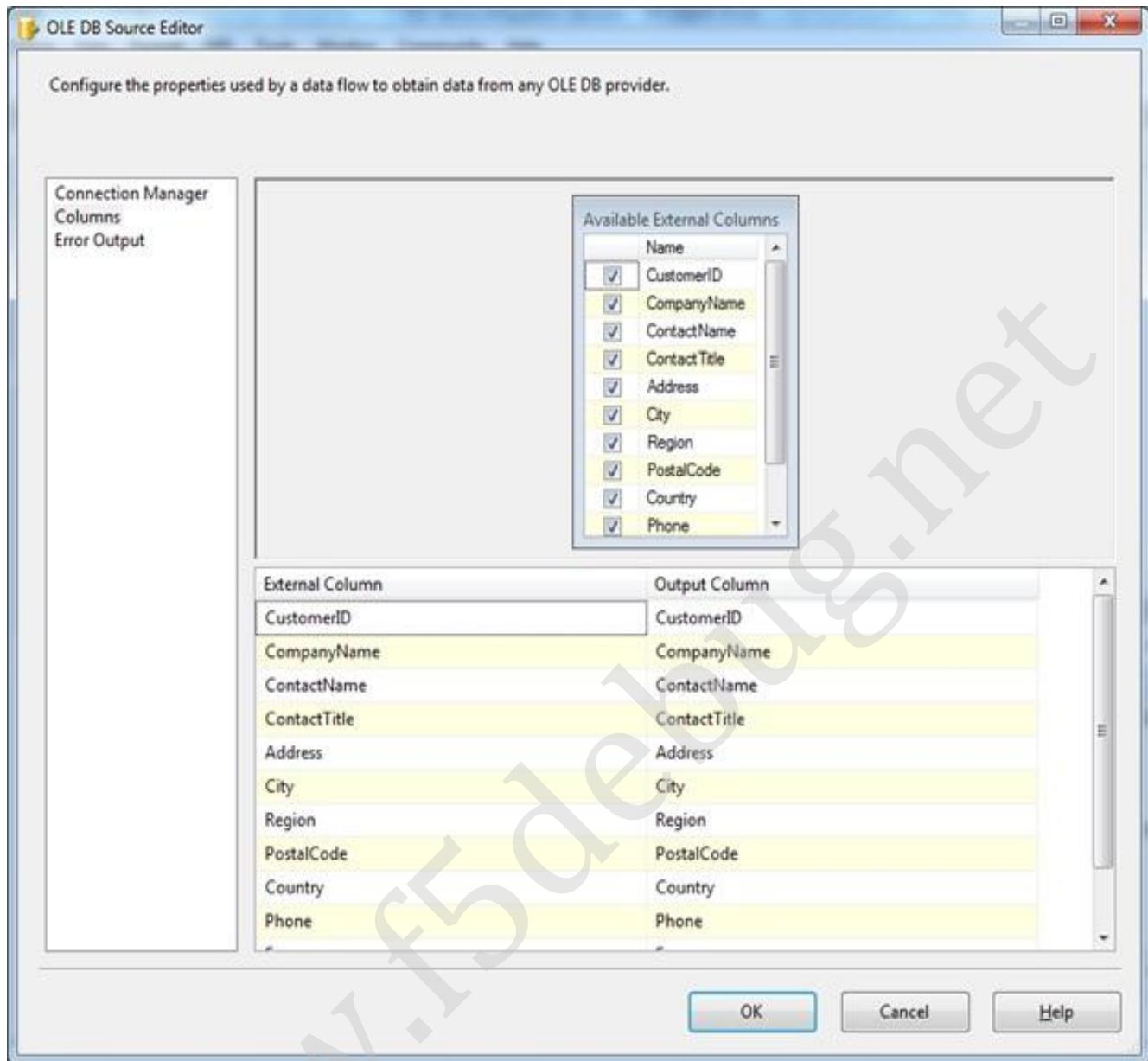
### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the Multi Cast Transformation task. Once you open the project just drag and drop the Multi Cast transformation control and a source provider as shown in the below image.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



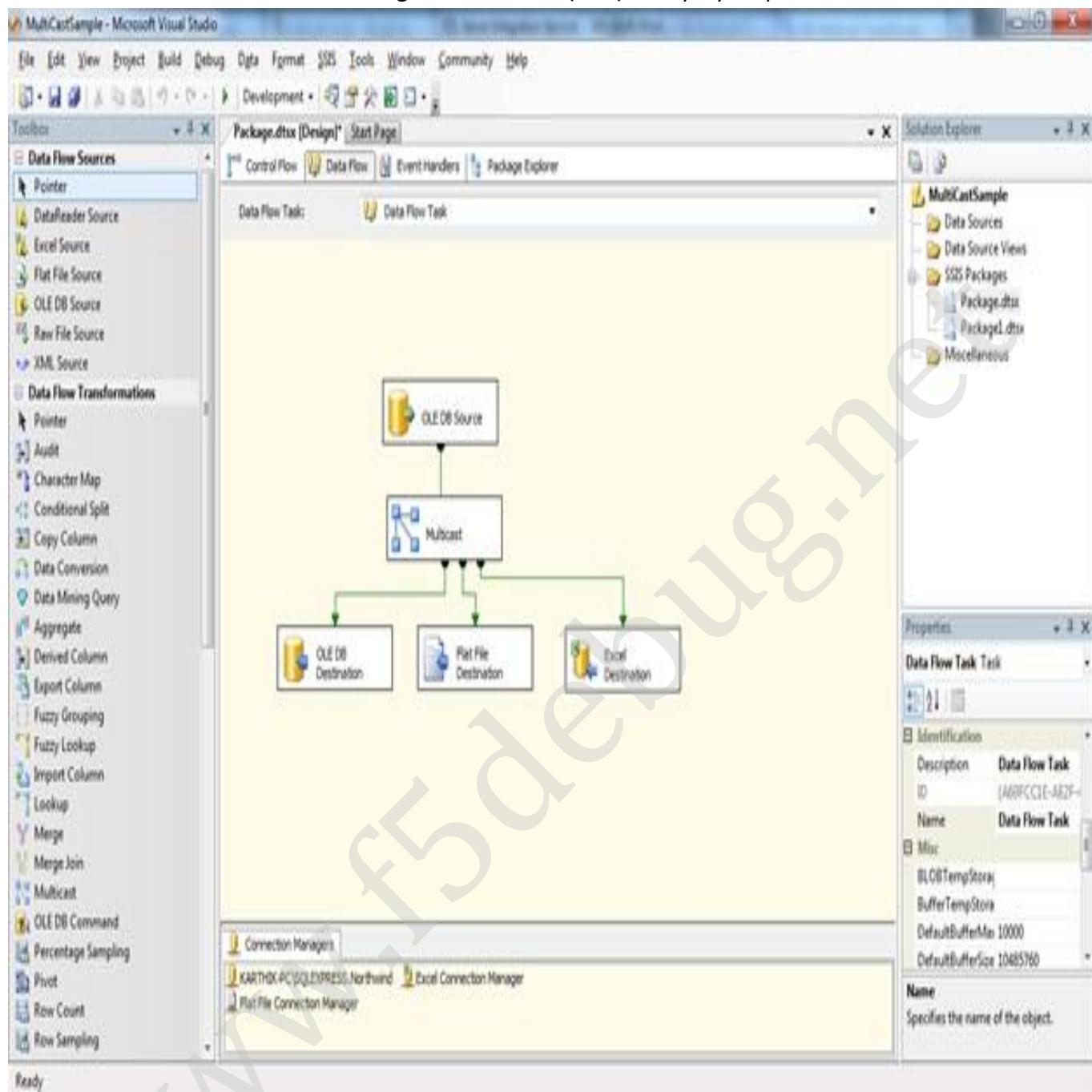
Now we need to configure the source OLEDB data source as shown in the screen below.



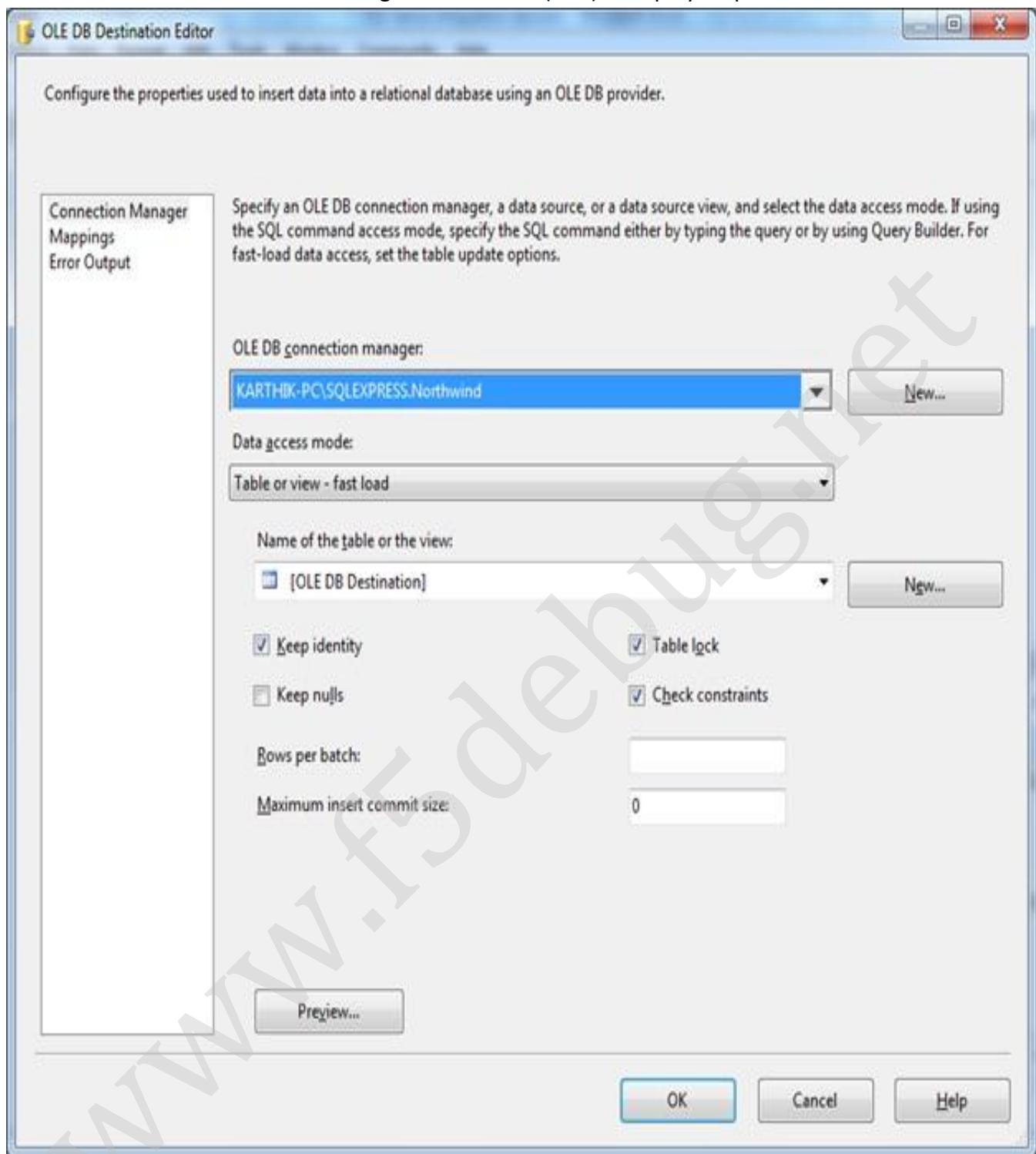
Once the source is configured now drag and drop 3 destinations providers as shown in the screen below.

- 1 – OLEDB provider task to update the table.
- 2 – Flat file provider to update a file.
- 3 – Excel provider to update to an excel file.

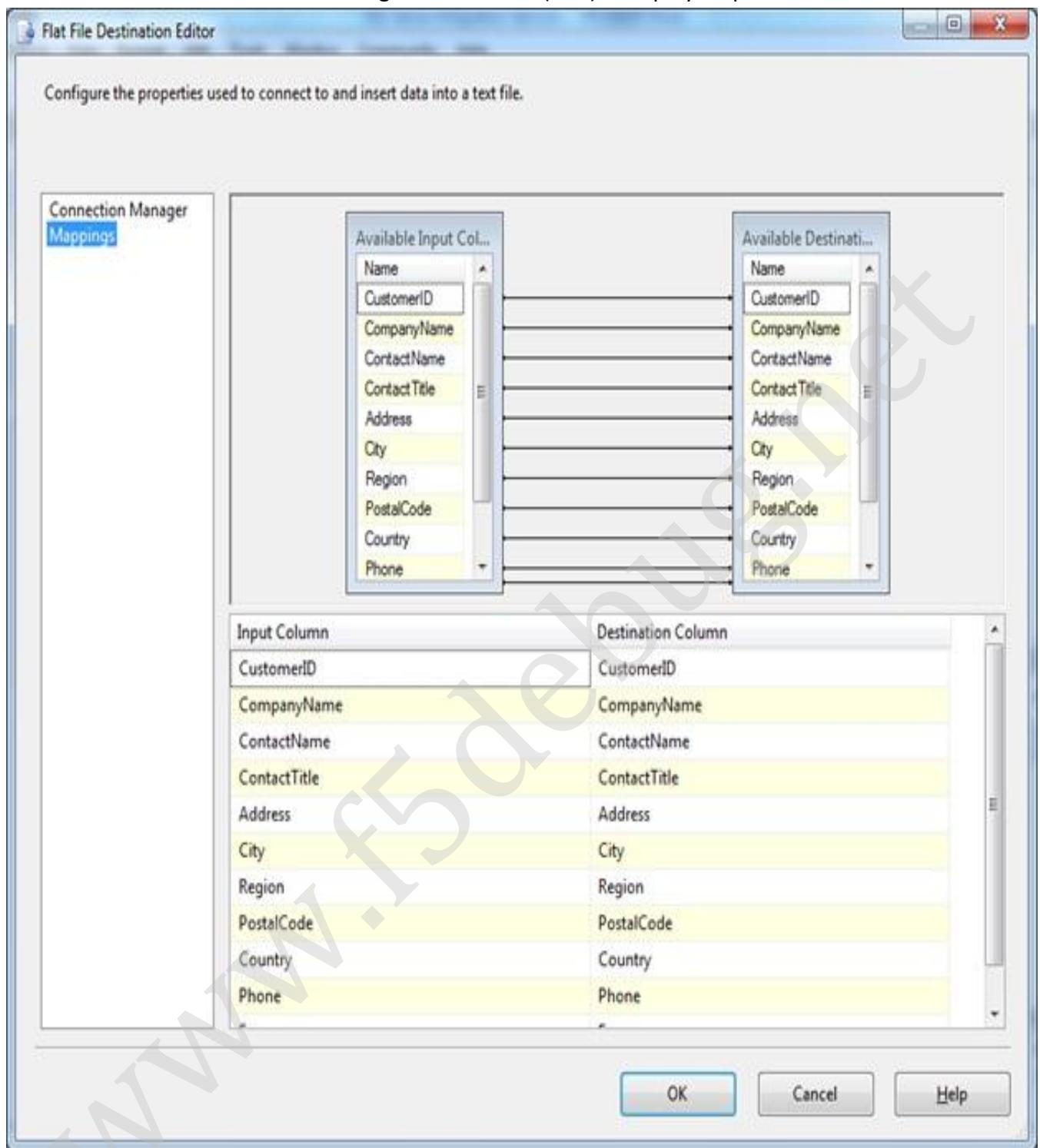
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



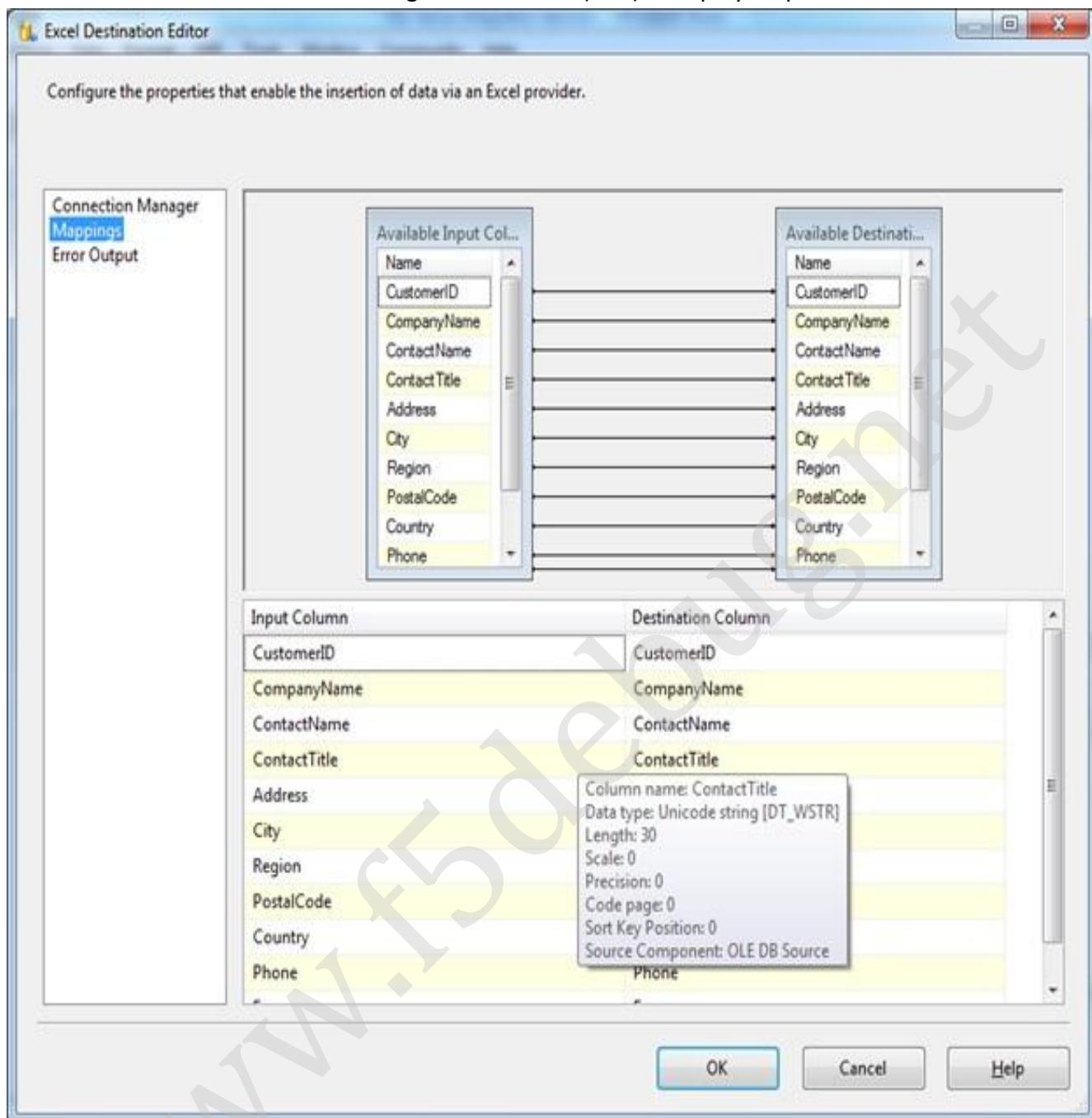
Now let's configure each destination based on the requirement as shown in the screen below. Here we created a new table where it will copy the complete dataset to the destination table using the multicast provider.



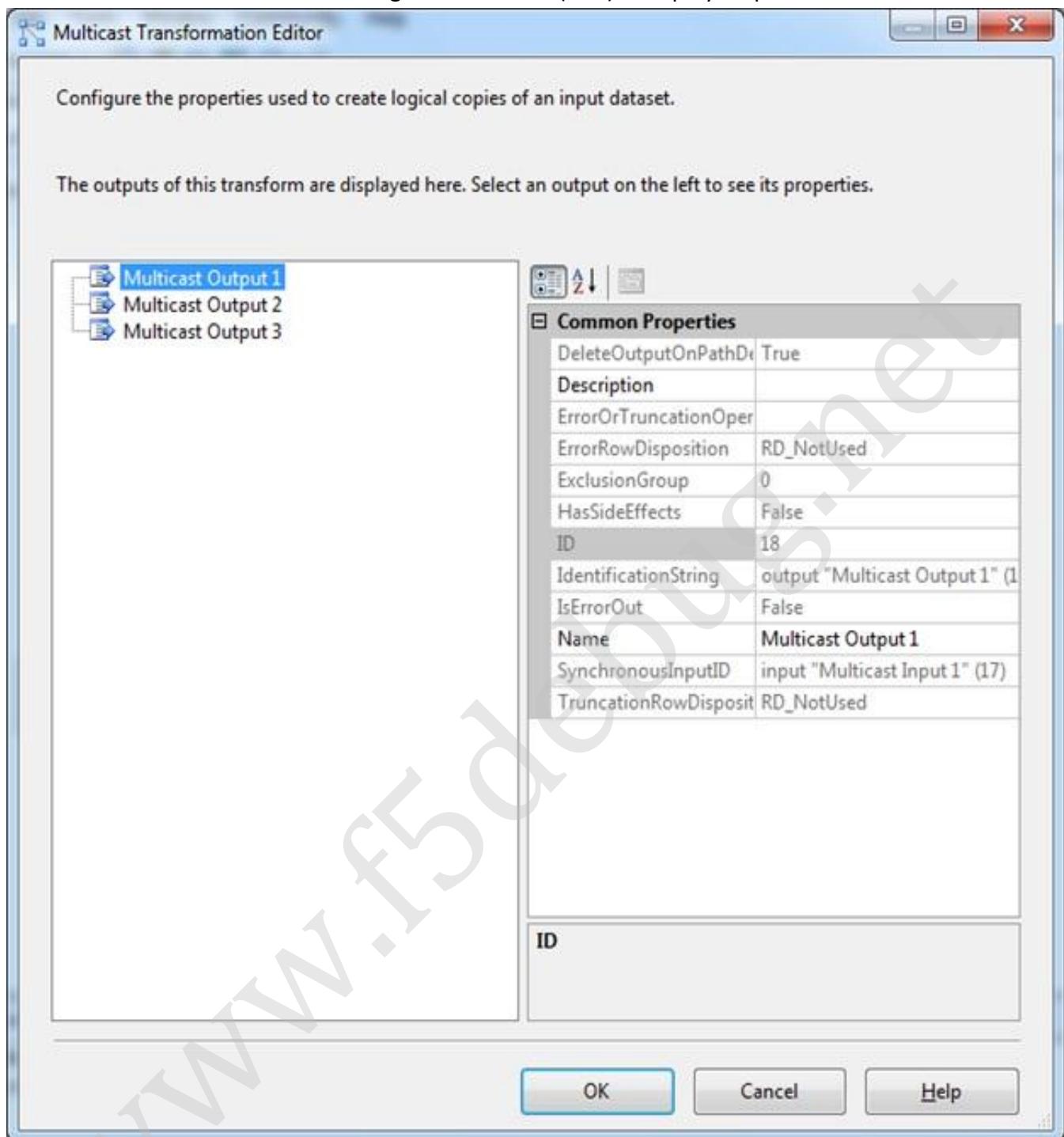
Now let's configure the flat file destination provider as shown in the screen below.



Now let us configure the excel destination provider as shown below.

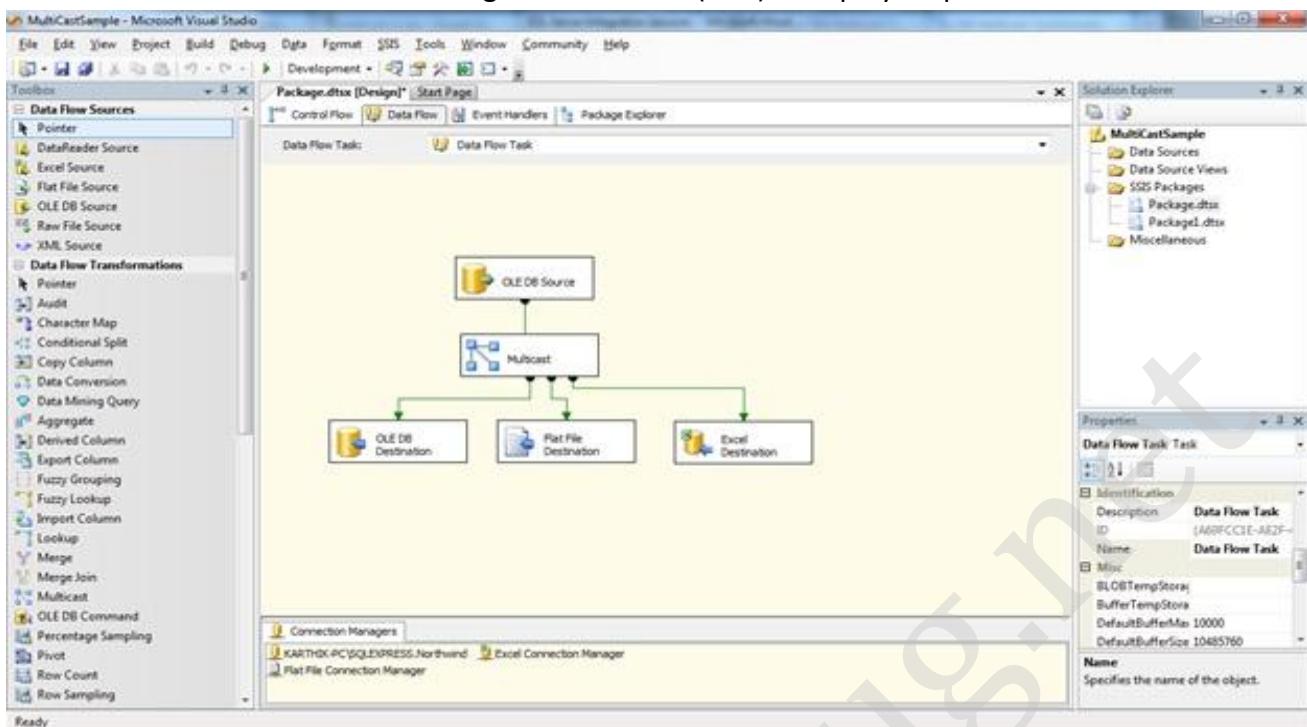


Now all the destination providers are configured. Now go back to the Multicast provider and double click to see the configuration as shown in the screen below.



Once everything is configured we can see our screen look like the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now the package is ready to execute. Press F5 and we can see the screen looks like below which indicates that the execution is completed.

CustomerID	CompanyName	ContactName	ContactTitle	Address	City	Region	PostalCode	Country	Phone
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57	Berlin	NULL	12209	Germany	030-0...
ANATR	Ana Trujillo Emparedados y helados	Ana Trujillo	Owner	Avda. de la Constitución 2222	México D.F.	NULL	05021	Mexico	(5) 55...
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312	México D.F.	NULL	05023	Mexico	(5) 55...
AROUT	Around the Horn	Thomas Hardy	Sales Representative	122 Hanover Sq.	London	NULL	WA1 1DP	UK	(171)
BERGS	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsvägen 8	Luleå	NULL	9658 22	Sweden	0321...
BLAUS	Blaauw Bedrijfsvolk	Hanna Moes	Sales Representative	Fonterstr. 57	Mannheim	NULL	68306	Germany	0621...
BLONP	Blondel père et fils	Félix Leclerc	Marketing Manager	24, place Kéber	Strasbourg	NULL	67000	France	88 60
BOLID	Bólido Comidas preparadas	Martín Sommer	Owner	C/ Aragón, 37	Madrid	NULL	28023	Spain	(91) 5...
BONAP	Bon app'	Laurence Lebihan	Owner	12, rue des Bouches	Marseille	NULL	13008	France	91.24 ...

To see the output of different destinations we can go ahead to the respective sections as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

### Output1: Table

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for 'KARTHIK-PC\SQLEXPRESS (SQL Server 10.0.253)'. The 'Tables' node under 'Northwind' contains several tables like 'Categories', 'CustomerDemographics', 'Customers', etc. The central pane displays the results of a query named 'Select \* from Customers'. The results grid shows 9 rows of data with columns: CustomerID, CompanyName, ContactName, ContactTitle, Address, City, Region, PostalCode, Country, and Phone. The data includes entries for customers like ALFKI, ANATR, ANTON, AROUT, BERGS, BLAUS, BOLID, BONAP, and many others. At the bottom, a message says 'Query executed successfully.'

CustomerID	CompanyName	ContactName	ContactTitle	Address	City	Region	PostalCode	Country	Phone
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obernstr. 57	Berlin	NULL	12209	Germany	030-0...
ANATR	Ana Trujillo Emparedados y helados	Ana Trujillo	Owner	Avda. de la Constitución 2222, México D.F., 05021, Mexico,(5) 555-4729,(5) 555-3745	Mexico D.F.	NULL	05021	Mexico	(5) 55...
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312, Madrid, Spain	Madrid	NULL	05020	Mexico	(5) 55...
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hanover Sq.	London	NULL	WA1 1DP	UK	(171)...
BERGS	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsgatan 8	Luleå	NULL	958522	Sweden	0521...
BLAUS	Bauer See Delikatessen	Hanna Moos	Sales Representative	Forsterstr. 57	Mannheim	NULL	68306	Germany	0621...
BLONP	Bon app'	Frédéric Coteaux	Marketing Manager	24, place Kléber	Strasbourg	NULL	67000	France	8860...
BOLID	Bólido Comidas preparadas	Martín Sommer	Owner	C/ Aragó, 67	Madrid	NULL	28023	Spain	(91) 5...
BONAP	Bon app'	Laurence Lebihan	Owner	12, rue des Bouchers	Marseille	NULL	13008	France	9124...

### Output 2: Flat file

The screenshot shows a Notepad window with a large amount of text representing a flat file. The text consists of approximately 900 lines of comma-separated values (CSV) representing customer data. The columns correspond to the ones in the previous screenshot: CustomerID, CompanyName, ContactName, ContactTitle, Address, City, Region, PostalCode, Country, and Phone. The data is presented in a single column of text, where each row represents a customer record.

## Output 3: Excel destination file

A screenshot of Microsoft Excel showing a data grid. The title bar reads "test [Compatibility Mode] - Microsoft Excel". The ribbon menu includes File, Home, Insert, Page Layout, Formulas, Data, Review, View, Load Test, Team. The Home tab is selected, showing tools for Cut, Copy, Paste, Format Painter, Font, Alignment, Number, Conditional Formatting, Styles, Cells, and Editing. The data grid contains 30 rows of customer information from the Northwind database, with columns for CustomerID, Company, ContactName, ContactTitle, Address, City, Region, PostalCode, Country, Phone, and Fax. The data includes various companies like ALFKI, ANATR, ANTON, AROUT, BERGS, BLAUS, BONAP, BOTTM, BSBEV, CACTU, CENTC, CHOPS, COMM, CONSH, DRACD, DUMON, EASTC, ERNSH, FAMA, FISSA, FOLIG, FOLKD, FRANK, FRANS, FRURB, GALED, and GONNS, located across different countries like Germany, Mexico, Spain, France, UK, Argentina, Brazil, and Switzerland.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Customer	Company	ContactName	ContactTitle	Address	City	Region	PostalCode	Country	Phone	Fax								
2	ALFKI	Alfreds Futterkiste	Markus Rödel	Sales Rep	Obere Str. 57	Berlin		12209	Germany	(030) 0076545									
3	ANATR	Anatolio António Trujillo	Owner	Analyst	Ave. de la México 24	D.F.		05021	Mexico	(5) 555-472	(5) 555-3745								
4	ANTON	Antonio M. Antonio	Owner	Manager	Matalecos 22	México D.F.		05023	Mexico	(5) 555-3932									
5	AROUT	Around the Horn	Christine E. Damm	Sales Rep	120 Hanover	London		WA1 1DP	UK	(171) 555-1717	(171) 555-6750								
6	BERGS	Berglunds	Christina E. Berglund	Sales Rep	Berguvsväg 8	Luleå		S-958 22	Sweden	0921-12 34	0921-12 34 67								
7	BLAUS	Blauer See Handelsbolag	Michael S. Roth	Manager	Forsterstr. 37	Mannheim		68306	Germany	(0621) 0846	(0621) 08924								
8	BLONP	Blondel's Frédérique Marketing	Frédérique Blondel	Marketing	24, place St. Omer	Strasbourg		67000	France	88 60 15 3	88 60 15 32								
9	BOLID	Bólido Comercio Exterior	Francisco J. Pérez	Owner	C/ Aragón, 30	Madrid		28023	Spain	(91) 555-22	(91) 555-91 99								
10	BONAP	Bon app!	Laurence Oberto	Owner	12, rue des Rosiers	Paris		75008	France	91 24 45 41	91 24 45 41								
11	BOTTM	Bottom-Dob Elizabeth	Elizabeth	Accountant	23 Tsawwassen	BC		T2F 8M4	Canada	(604) 555-4	(604) 555-3745								
12	BSBEV	B's Beverages	Victoria Adler	Sales Rep	Feuerherdstr. 33	Leipzig		EC2 5NT	UK	(171) 555-1212									
13	CACTU	Cactus Comercio Exterior	Pedro M. González	Sales Rep	Avda. Corrientes 2220	Buenos Aires		1010	Argentina	(11) 135-551	(11) 135-4892								
14	CENTC	Centro cor Francisco	Francisco	Marketing	Siemersstr. 54	México D.F.		05022	Mexico	(5) 555-33	(5) 555-7293								
15	CHOPS	Chop-suey Yang	Wen	Owner	Haus der Musik	Berlin		3012	Switzerland	0452-076545									
16	COMM1	Comércio Pedro Alto	Pedro Alto	Sales Ass.	Av. dos Luís de São Paulo	SP		05432-043	Brazil	(11) 555-7647									
17	CONSH	Consolidate Elizabeth	Elizabeth	Sales Rep	Berkshire	London		WX1 6LT	UK	(171) 555-1	(171) 555-9199								
18	DRACD	Drachenblut	Sven Ottie	Sales Rep	Adm. Walserweg	Aschen		52066	Germany	0241-0391	0241-059428								
19	DUMON	Du monde	Jeanne	Owner	67, rue des Rosiers	Paris		40000	France	40 67 88 81	40 67 89 69								
20	EASTC	Eastern Cl. Ann Devol	Ann Devol	Sales Rep	Age. 35 King	Gt. London		WX3 6PW	UK	(171) 555-4	(171) 555-3373								
21	ERNSH	Ernest Hand Roland	Hand Roland	Sales Rep	Kirchgasse 5	Graz		8810	Austria	7675-3425	7675-3425								
22	FAMA	Famila Ar. Axa Cruz	Axa Cruz	Marketing	Rua Orós, 500	Sao Paulo		05442-030	Brazil	(11) 555-9857									
23	FISSA	FISSA	Fátima	Marketing	Rua Orós, 500	Sao Paulo		28034	Spain	(91) 555-94	(91) 555-55 93								
24	FOLIG	Folies grecs	Martine	Re. Assistant	184, boulevard Lille			58000	France	20 16 10 11 20	16 10 17								
25	FOLKD	Folk och f. Maria Larsson	Maria Larsson	Owner	Åkergatan 24	Bräcke		8-844 67	Sweden	0635-34 67	21								
26	FRANK	Frankenvers Peter	Peter Franken	Marketing	Berliner Platz	München		80095	Germany	089-08773	089-0877451								
27	FRANR	France et Céaine	Céaine	Marketing	54, rue Ro	Nantes		44000	France	40 32 21 2	40 32 21 20								
28	FRANS	Franchi S.p.A.	Pietro	Sales Rep	Riva di Solto	Torino		10100	Italy	011-49882	011-4988261								
29	FRURB	Funchal Luso	Luso	Sales Rep	Rua Jordão da Lisboa			1675	Portugal	(1) 354-25	(1) 354-2535								
30	GALED	Galerie de Eduardo	Eduardo	Marketing	Rambla de	Barcelona		08022	Spain	(33) 203 46	(33) 203 4561								
31	GONNS	Görgen	Görgen	Owner	C/ Inés Park	Santander		41101	Spain	(965) 656-82	87								

## Conclusion

In this chapter we have seen how to use the Multi Cast transformation task and the key configurations used in order to use this task handy.

# Chapter 54

## TRANSFORMATION CATEGORIZED

### Introduction

In this chapter we are going to see on the different transformation on how they are categorized to use it across the package. This categorization is based on the usage of the transformation and the process on how it can be used across. The brief descriptions of each transformation are available in my previous chapters.

We can partition the transformation into 7 types as shown below.

1. Row Transformations
2. Rowset Transformations
3. Split and Join Transformations
4. Quality Transformations
5. Mining Transformations
6. Synchronous and Asynchronous Transformations
7. Other Transformations

Now these transformations are further sub categorized as below.

**Row Transformations** – Used to update column values and is applied to each row in the input dataset.

- Character Map
- Copy Column
- Data Conversion

- Derived Column
- Script Component
- OLE DB Command

### **Rowset Transformations** – Used to create a new Rowset

- Aggregate
- Sort
- Percentage Sampling
- Row Sampling
- Pivot
- Unpivot

### **Split and Join Transformations** – Used to distribute rows to different outputs, create copies of the transformation inputs.

- Conditional Split
- Multicast
- Merge
- Merge Join
- Union All
- Lookup

### **Data Quality Transformations** – Used to perform data quality operations

- Fuzzy Lookup
- Fuzzy Grouping

### **Data-Mining Transformations** – Used to perform data-mining operations

- Data-Mining Query
- Term Extraction
- Term Lookup

### **Synchronous and Asynchronous** – Used to determine how rows are processed.

- Synchronous transformations
- Asynchronous transformations
- Partially blocking transformations
- Blocking transformations

## Other Transformations – Some extra transformations

- Export Column
- Import Column
- Audit
- Row Count
- Slowly Changing Dimension

## Conclusion

In this chapter we have seen on the different transformation and the subcategories of each section to get familiarize with the different transformations available and the best can be selected for the business requirement.

# Chapter 55

## CONNECTION MANAGERS

### Introduction

In this chapter we are going to see on the different connection managers available in SSIS packaging and the purpose of each transformation. We have 17 different connection managers across the SSIS packaging in order to use it for different purposes.

### List of Connection Managers

S No	Name	Short Description
1	ADO	Used to connect to ActiveX Data Objects (ADO) objects, like a recordset.
2	ADO.NET	Used to access data sources by using a .NET provider and Microsoft SQL Server and XML
3	Cache	Used to read data from the cached server or from a cache file(.caw) so that the data is stored in the memory.
4	Excel	Used to connect to an existing Microsoft Excel workbook file for both Source and Destination processing of package
5	File	Used to connect to an existing file or to create a new file and use as a source or a destination.
6	FlatFile	Used to connect to a Flat file which acts like a source or a destination for the package to access and process the data

		across the platform.
7	FTP	Used to connect to a File Transfer Protocol Server to fetch the data or to update the data to the server.
8	HTTP	Used to access the webserver using the Hyper text transfer protocol to send and receive files across the servers
9	MSMQ	Used to connect to the Microsoft Message queuing server to access the messages as a source or to update the message as a destination
10	MultiFile	Used to reference to the existing file or folders or to create a new file and use it as a reference at runtime.
11	MultiFlatFile	Used to access the file using the flat file as multiple data source like using inside a loop container to loop through the file and access the data
12	OLEDB	Used to connect to the different data source using the OLEDB provider specifically used to connect to Microsoft SQL Server.
13	ODBC	Used to connect to different relational database system using the open connectivity provider
14	SMServer	Used to connect to a SQL Management server objects to access for as a source or to update as a destination
15	SMTP	Used to connect to a Simple Mail transfer Protocol server to access and send mail or to receive mails
16	SQL Compact	Used to connect to SQL Server Compact database for light weight accessing of the server.
17	WMI	Used to connect to the Windows Management Instrumentation (WMI) in order to connect to the enterprise server for management.

## Conclusion

In this chapter we have seen on the different connection managers used in the SSIS Packaging using SQL Server Business Intelligence Studio

# Chapter 56

## DATA VIEWERS

### Introduction

In this chapter we are going to see on how to use the Data viewers in SSIS packaging. Data viewers are used as one of the debugging option for the developers to check the data between the processes of a packaging.

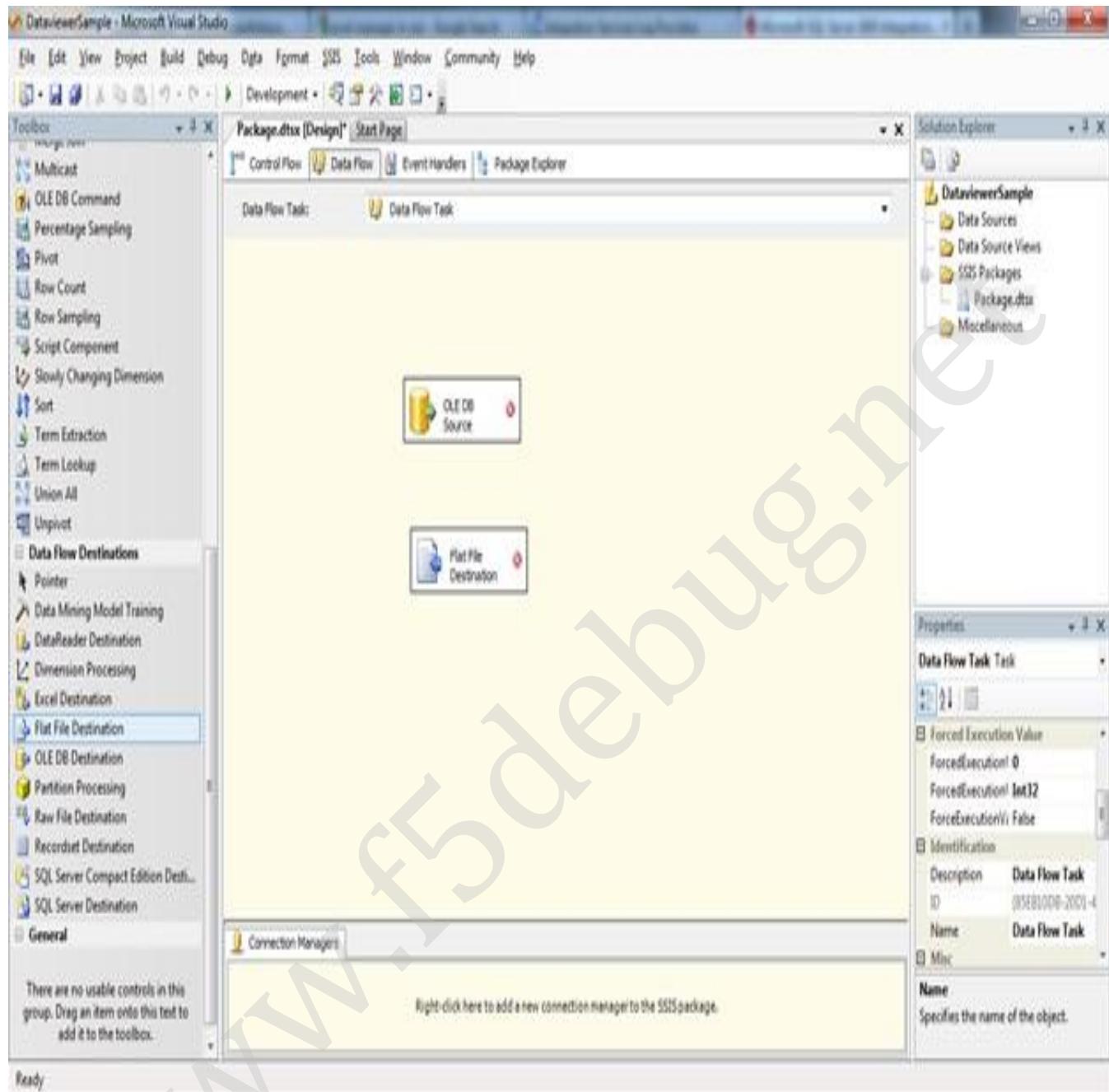
Data viewers are good at places where we have a minimum data to analyze and then executing the package at the development stage to see the changed took place in the prior task and proceed to the next task.

Let's jump start to see this sample on how to set the properties of the control.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the data viewers to see the data flow.

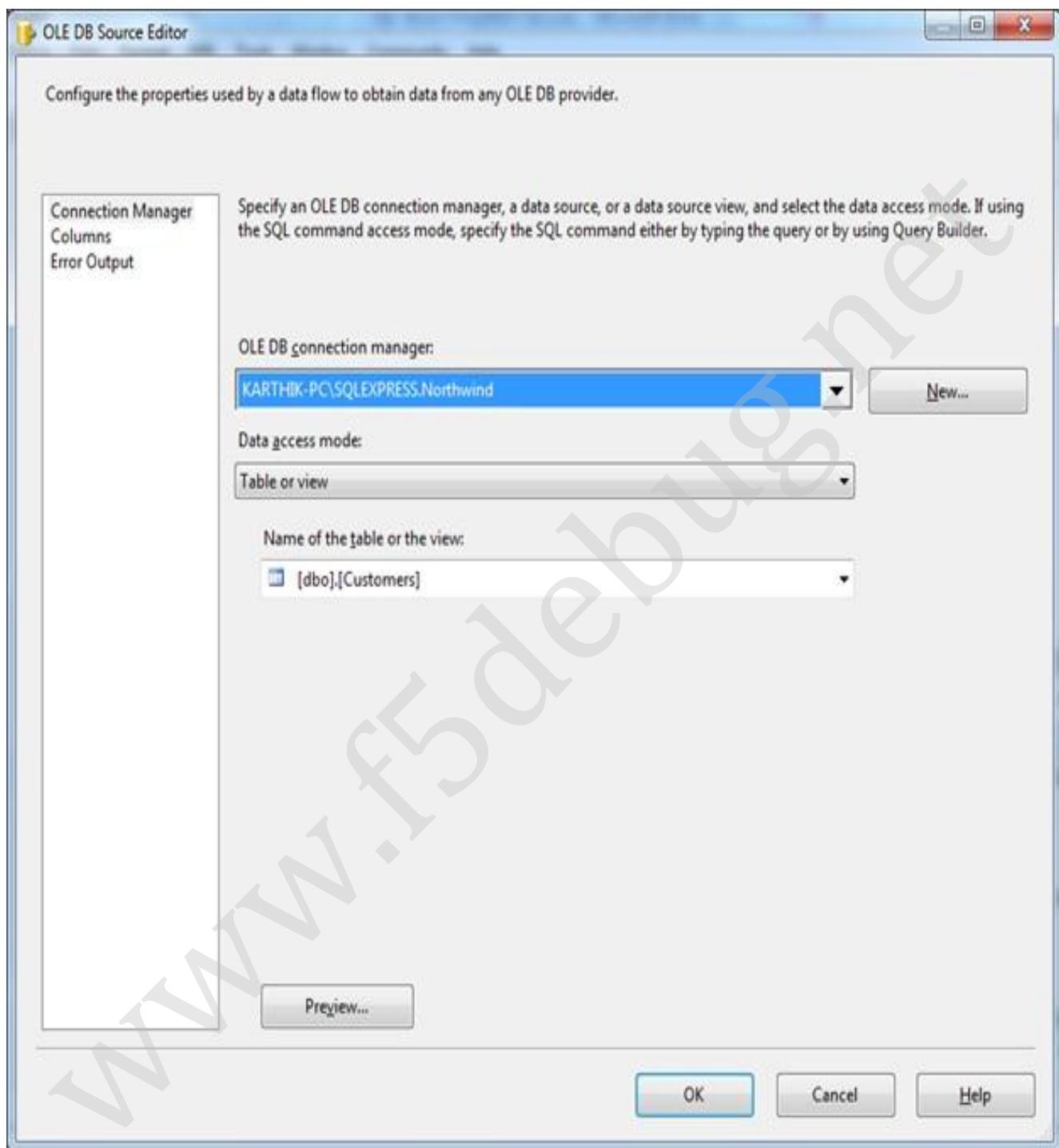
Now once the project is opened drag and drop a source and a destination task along with a dataflow to do some manipulation as shown in the screen below.



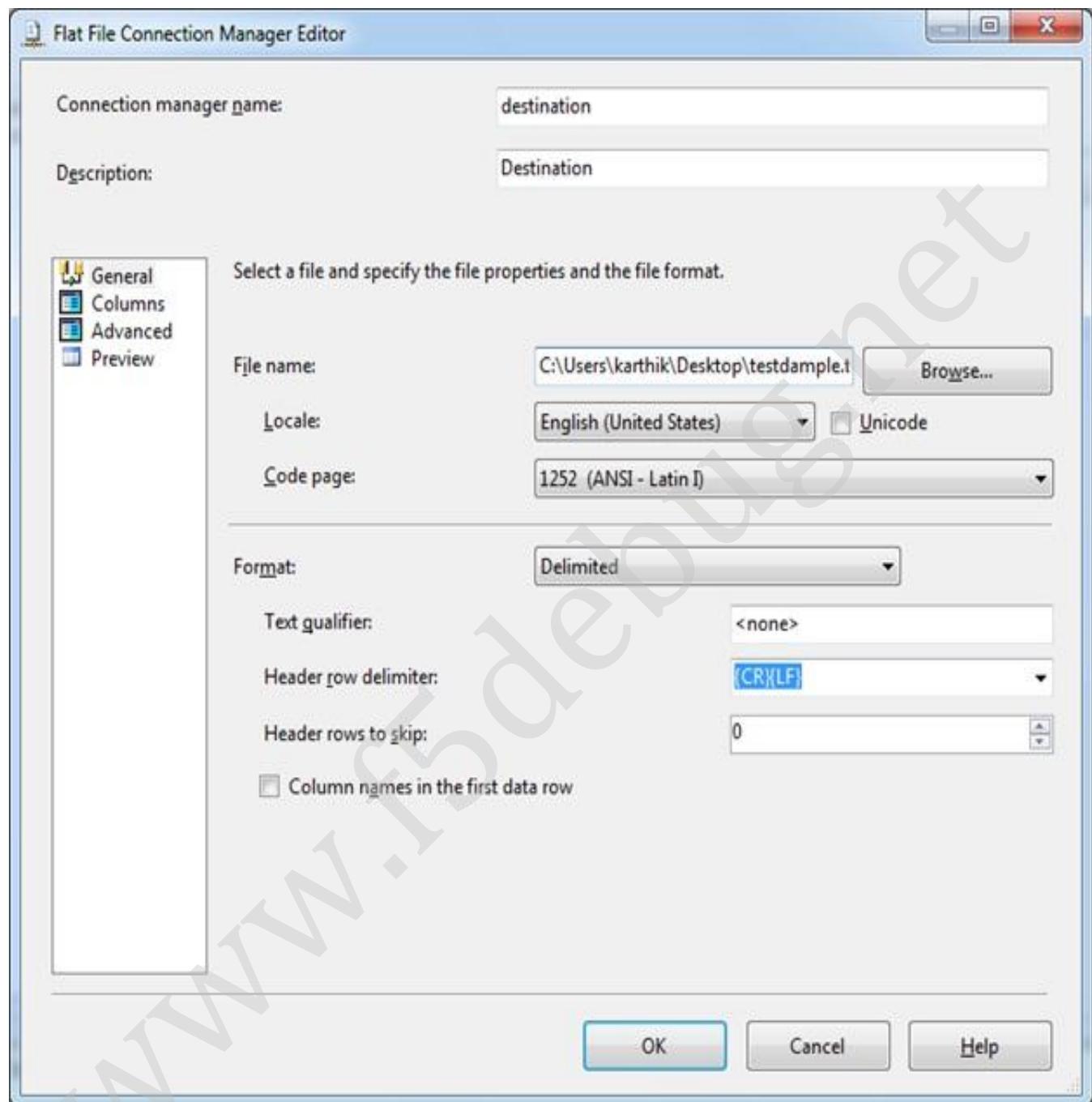
Now we will do a small task on copying the data from the source table to a destination file using the OLEDB source and Flatfile destination as shown above.

Now let's configure both the tasks to make a flow as shown below.

## Source Configuration:

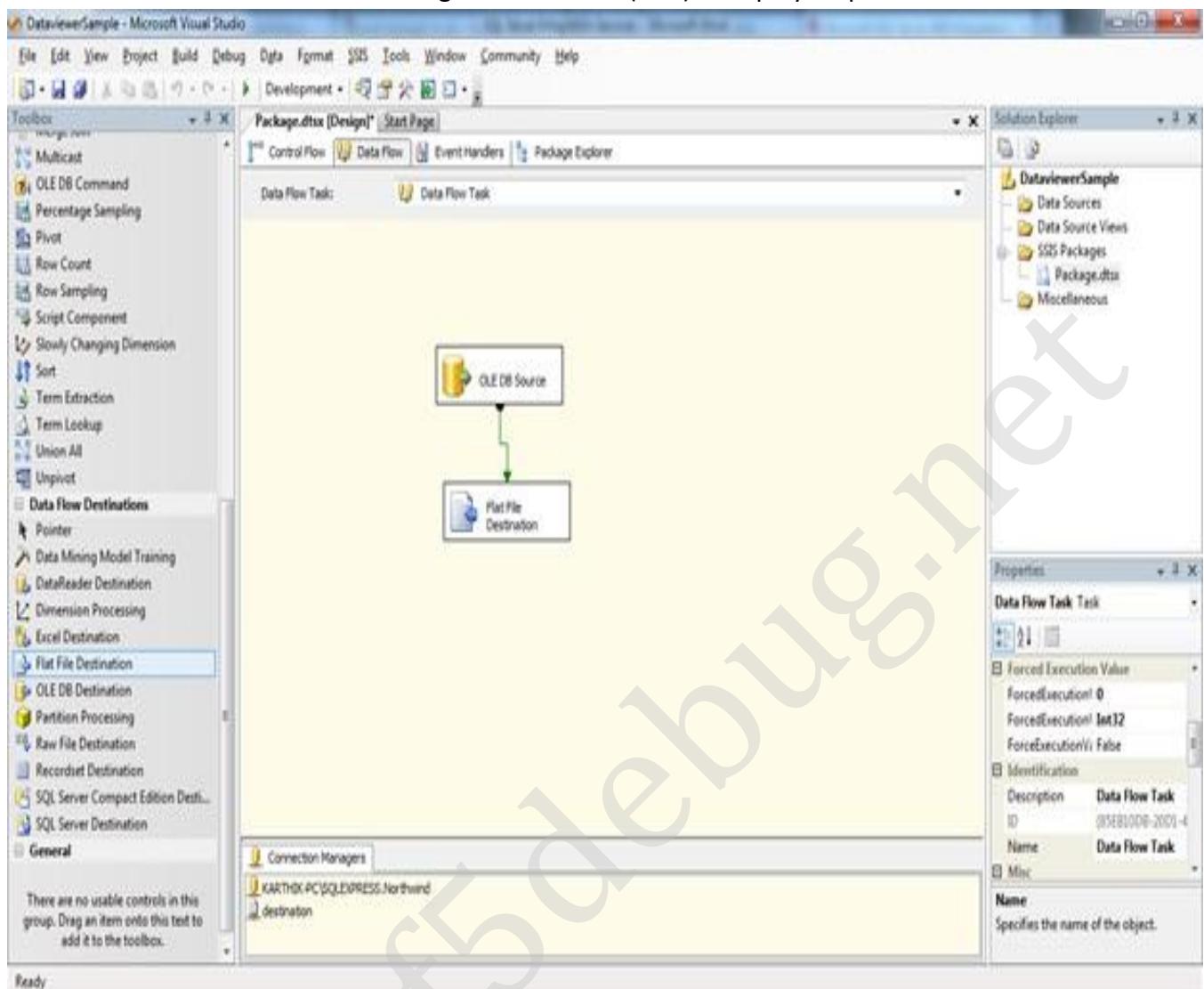


## Destination Configuration:



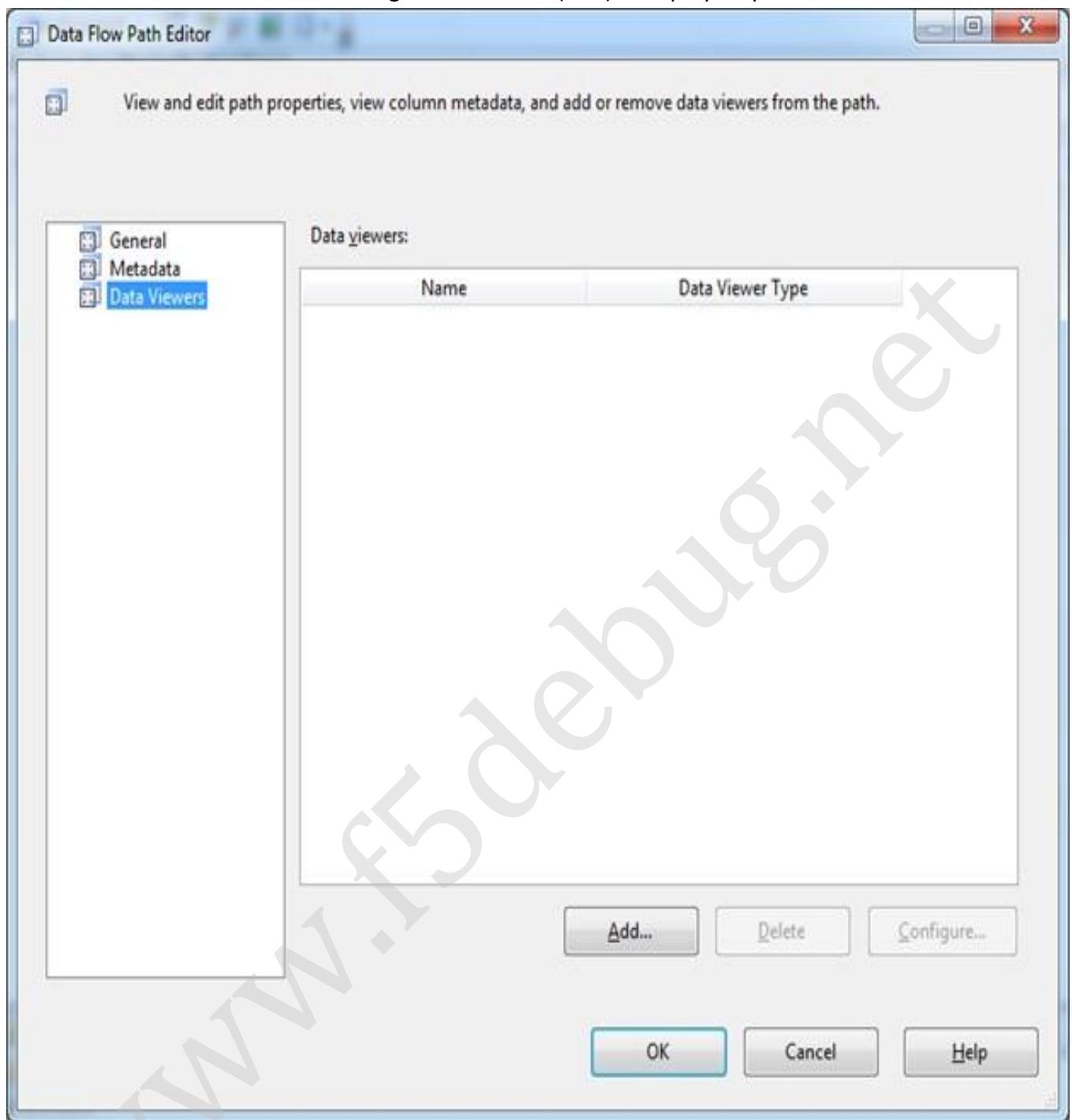
Once we are done with the configuration setting we can see our screen look as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

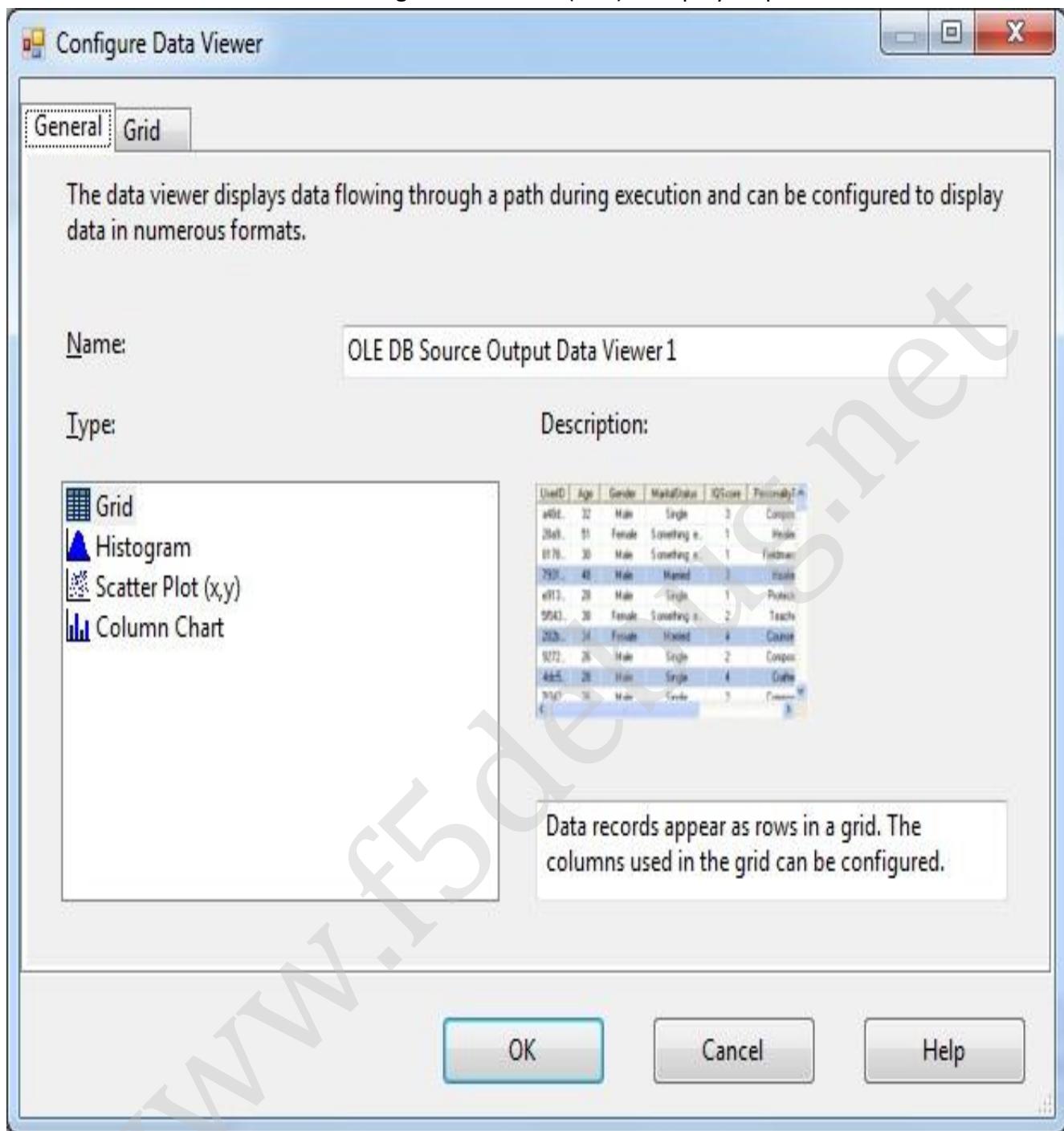


Now when we execute the package it will do the execution but we are not sure at what point what happens. So in order to see the transformation between the source and the destination we can use a data viewer browser.

Data viewer provides different options to view the data, the types are: **Grid, Histogram, Scatter Plot, and Chart Format**. To start the data viewer Right click on the green arrow which connects the source and destination and select the data viewer. It will open the window as shown below.

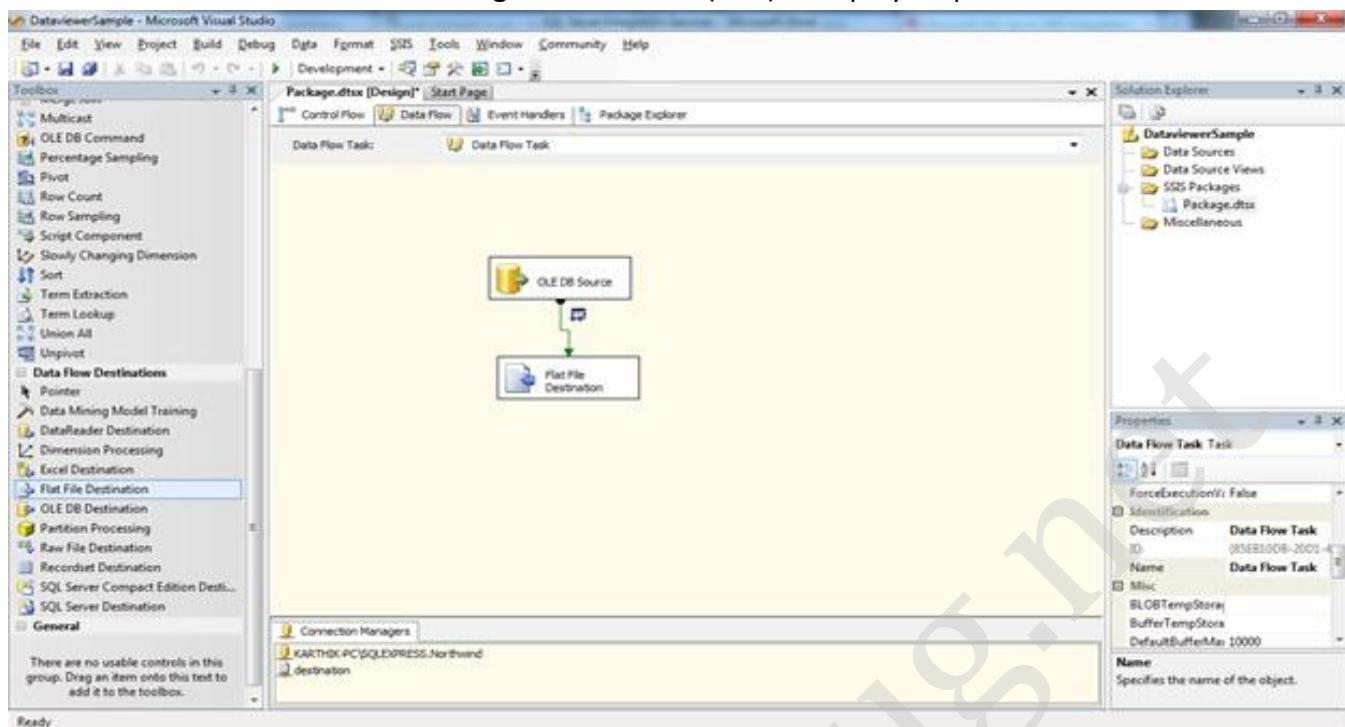


Now click on Add button to do the configuration of our required data viewer. It will open the window as shown in the screen below.

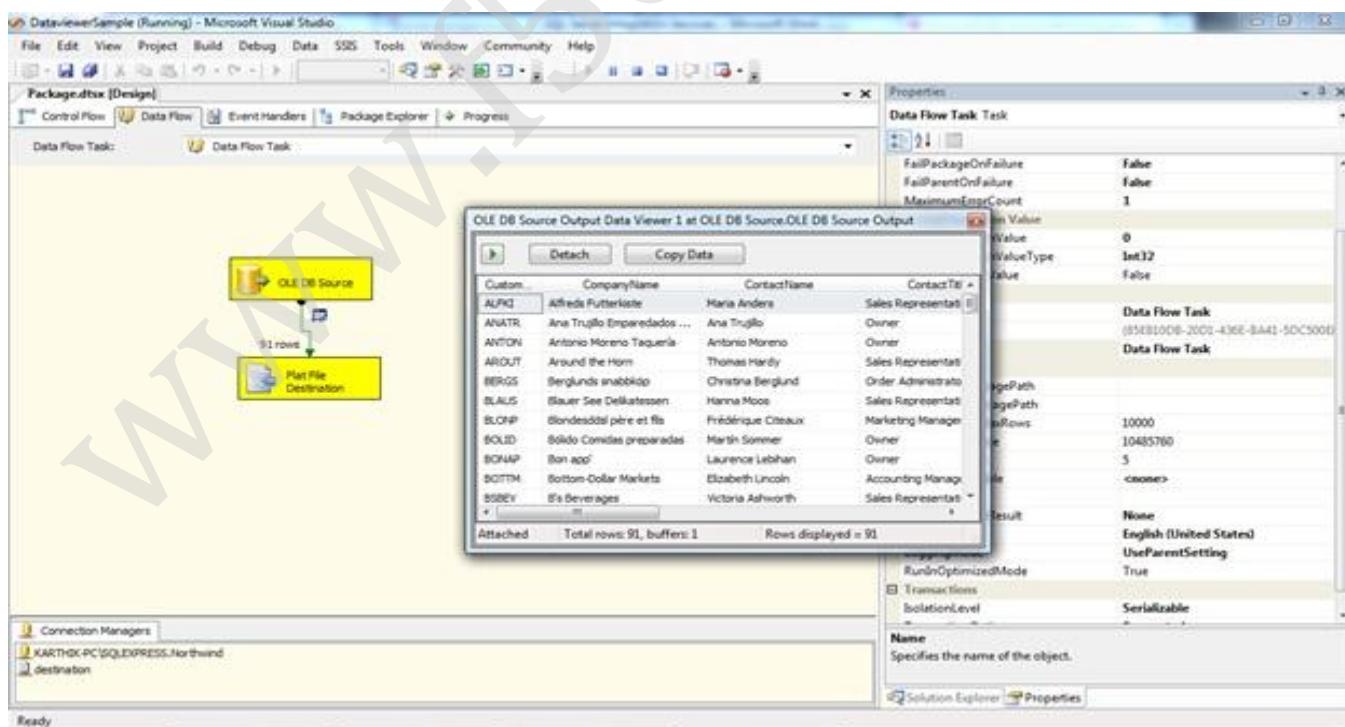


Now click on ok will take the Grid view. Now we are done with the configuration and ready to execute the package. We can see a viewer icon next to the arrow as shown in the screen below which indicates that the viewer is active to view.

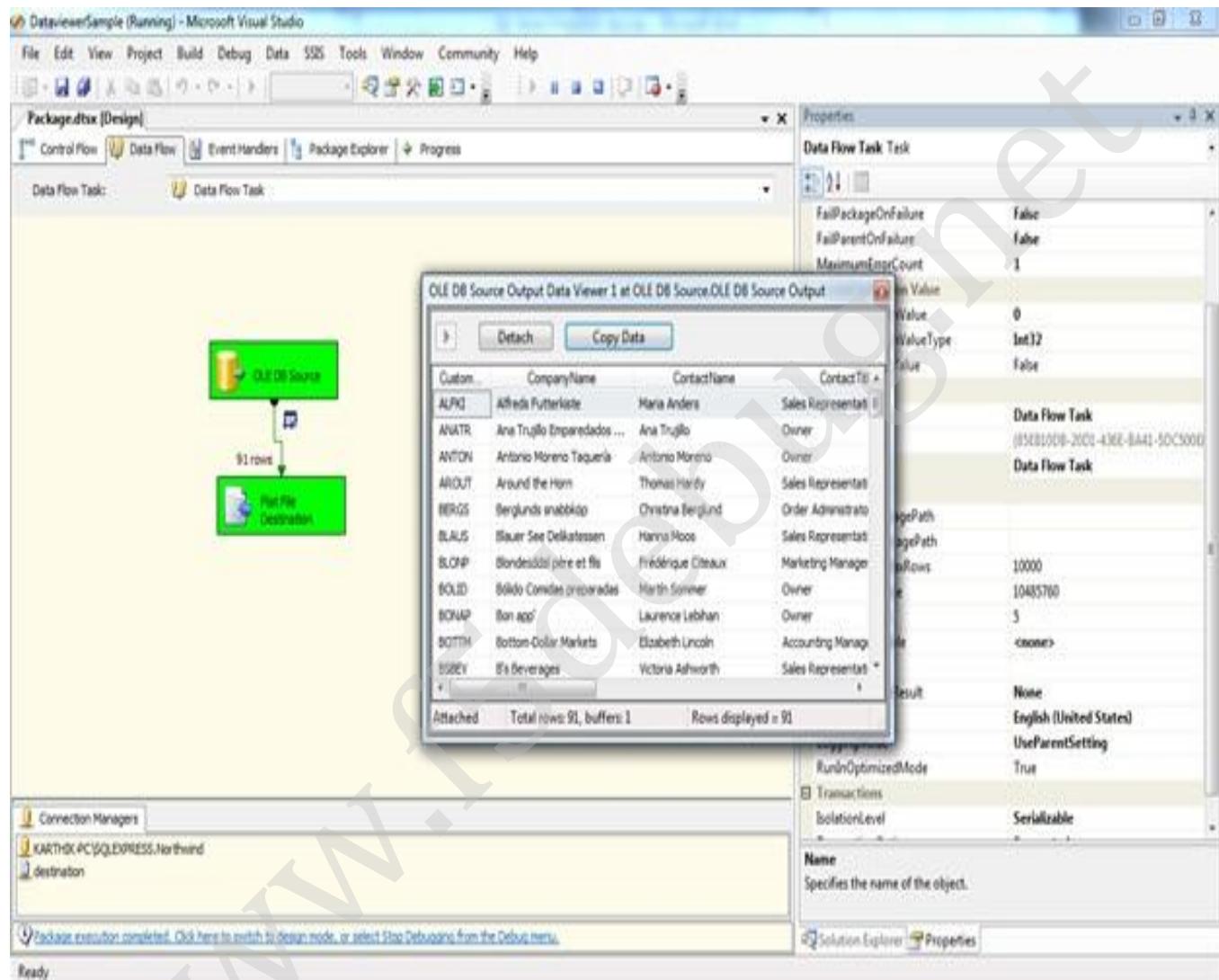
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we will execute the package and see the data viewer browser. Press F5 to execute the package and we can see the data viewer browser as shown in the screen below.



We have an arrow button in the browser, once we are done with our analysis we can click on the button to proceed. Once we click that button the execution start and proceed further and the final screen will appear as shown in screen below.



## Conclusion:

In this chapter we have seen how to use the data viewer to analyze the data and to proceed further which acts like a debugging portion for SSIS packaging.

# Chapter 57

## DATA VIEWERS (HISTOGRAM)

### Introduction

In this chapter we are going to see how to use the Data viewers (Histogram) in SSIS packaging. Data viewers are used as one of the debugging option for the developers to check the data between the processes of a packaging.

Data viewers are good at places where we have a minimum data to analyze and then executing the package at the development stage to see the changed took place in the prior task and proceed to the next task.

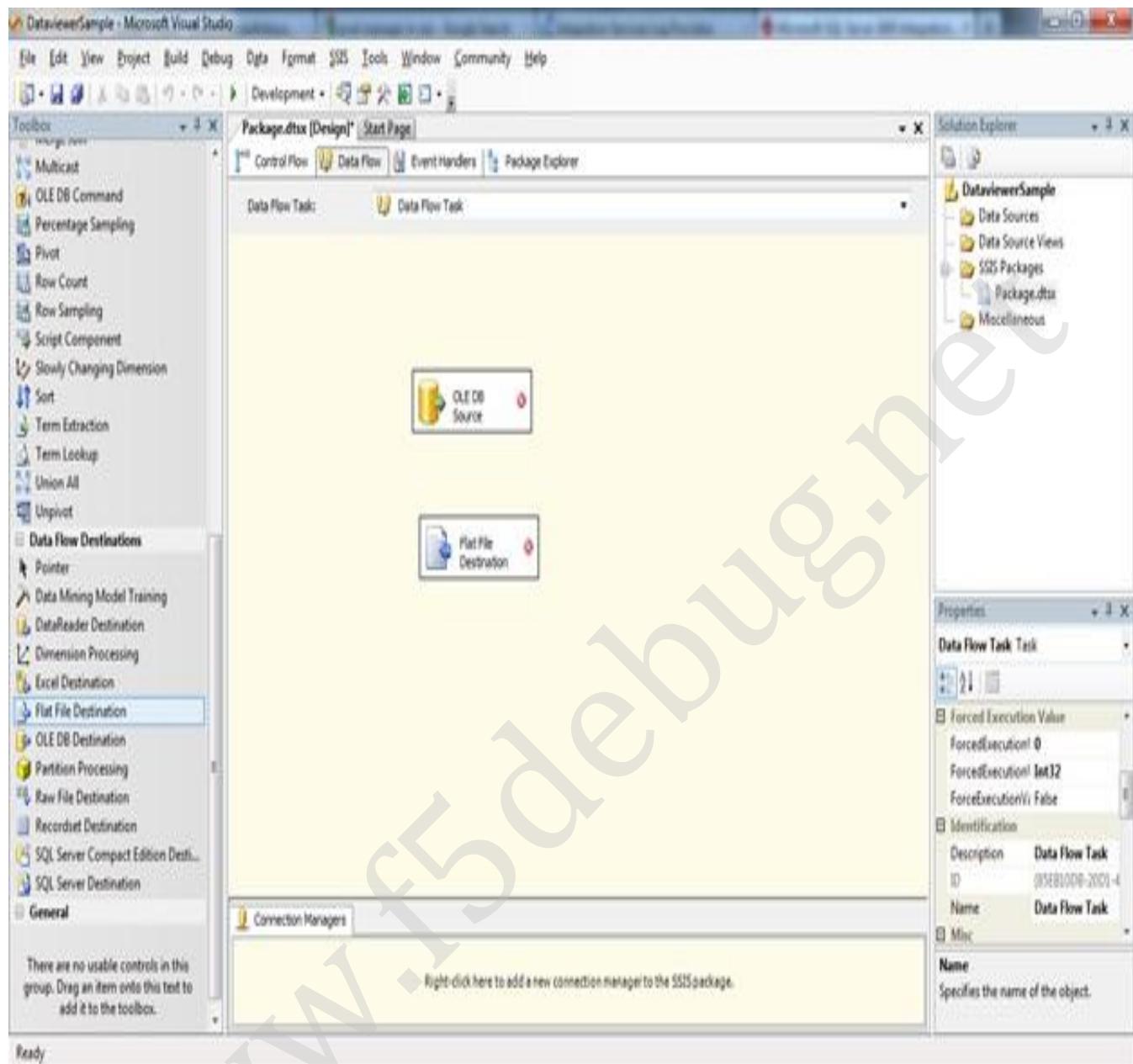
Let's jump start to see this sample how to set the properties of the control.

### Steps

Follow steps 1 to 3 of the first chapter 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 the data viewers to see the data flow.

Now once the project is opened drag and drop a source and a destination task along with a dataflow to do some manipulation as shown in the screen below.

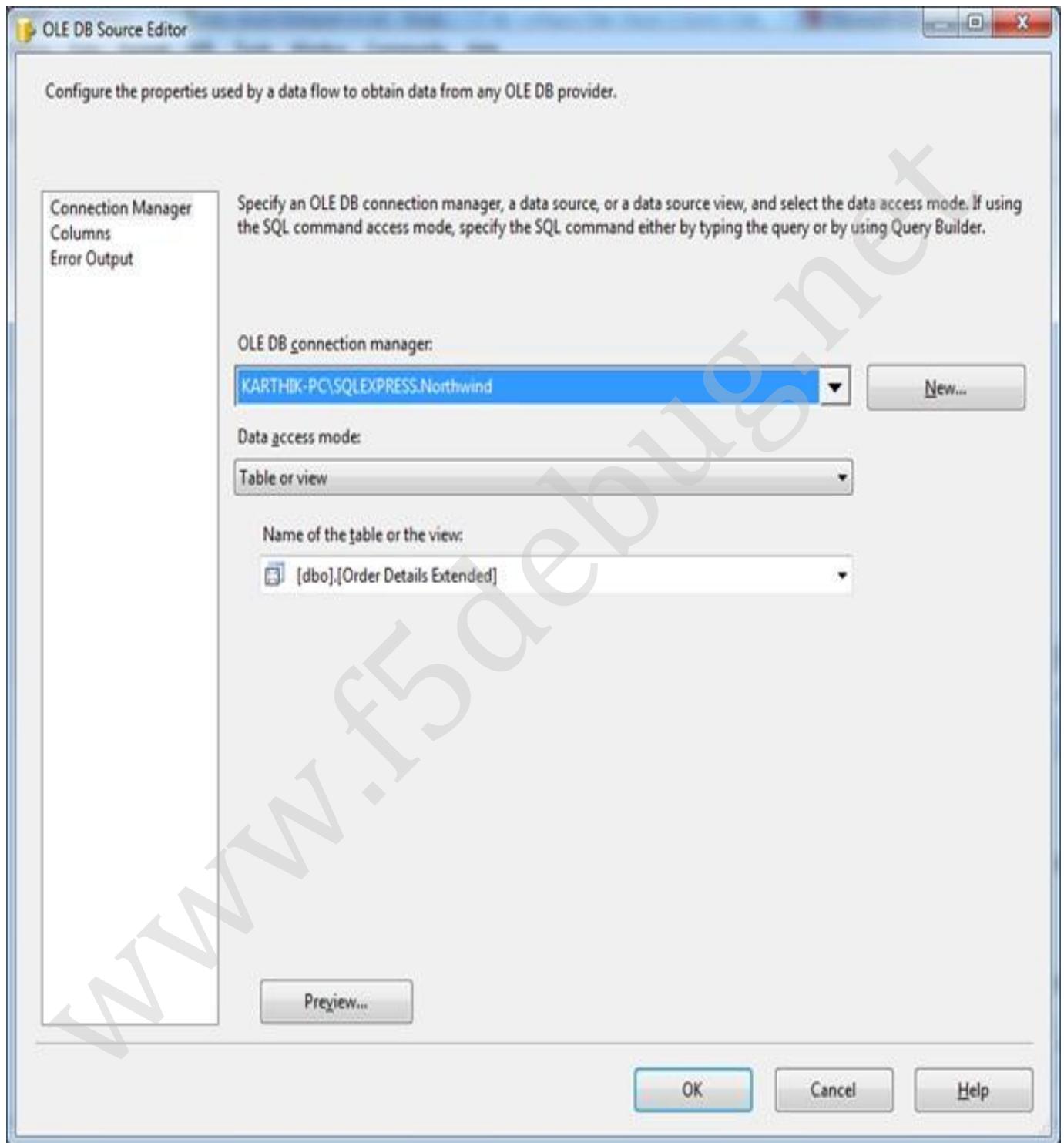
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



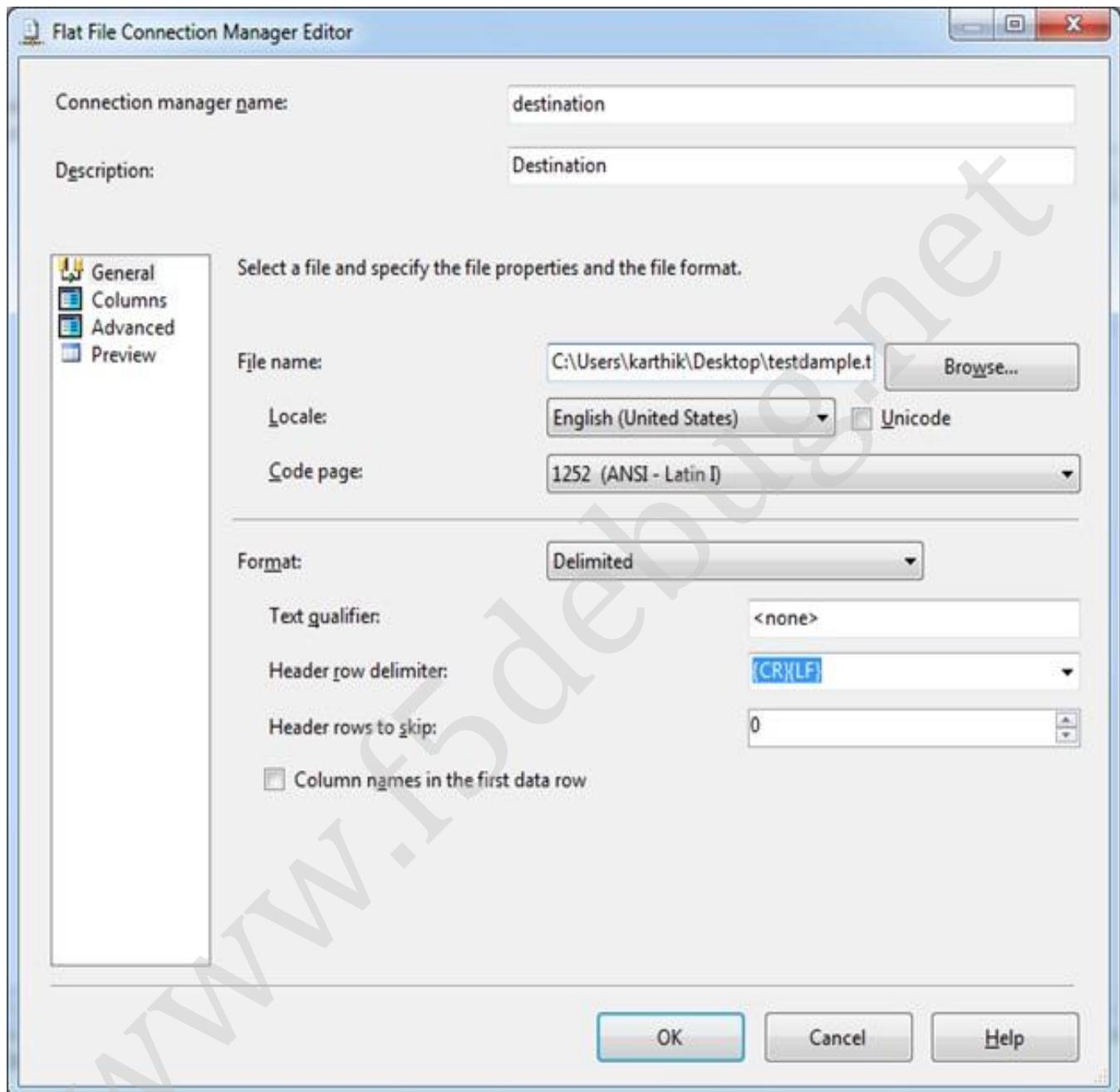
Now we will do a small task on copying the data from the source table to a destination file using the OLEDB source and Flatfile destination as shown in the screen above.

Now let's configure both the tasks to make a flow as shown in the screen below.

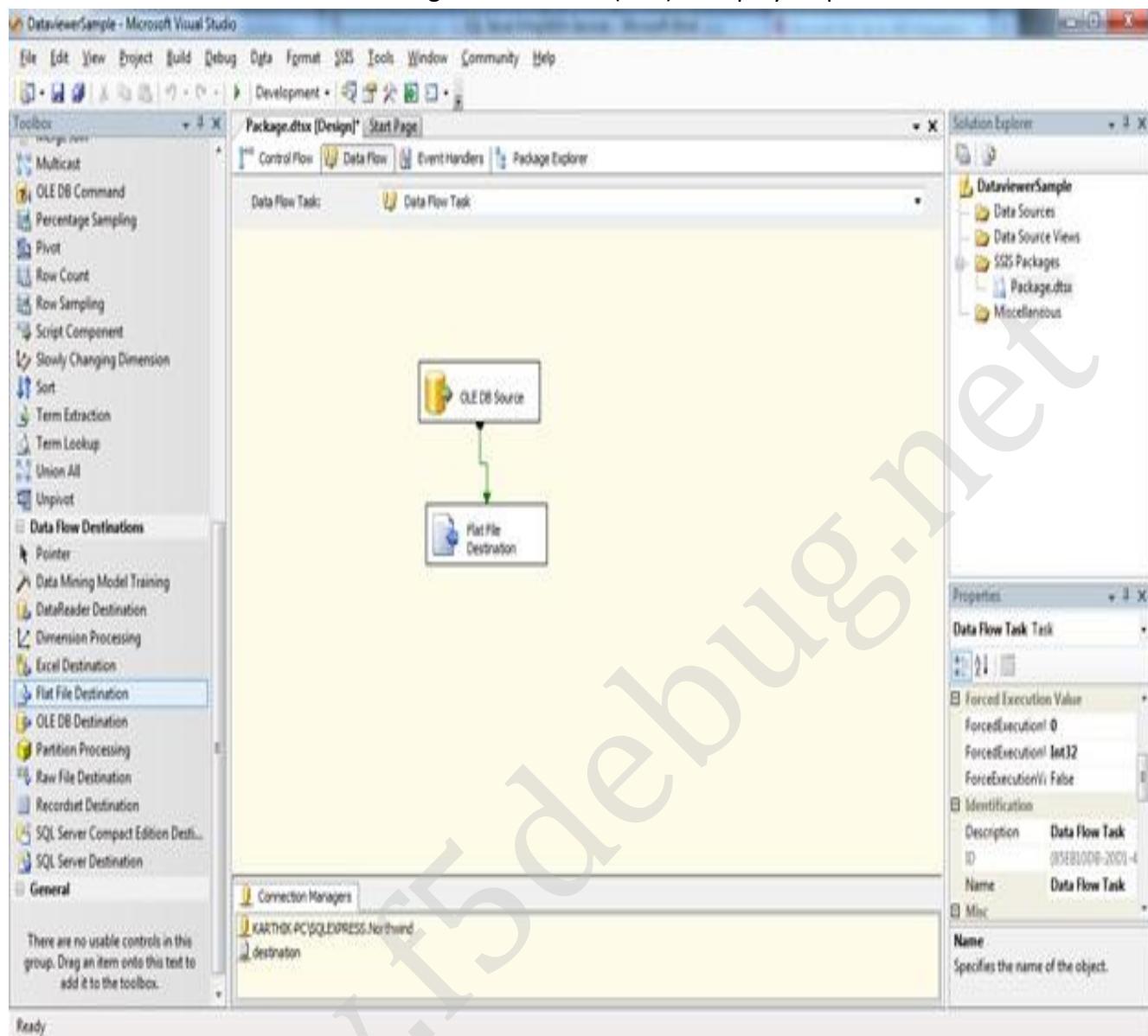
## Source Configuration:



## Destination Configuration:

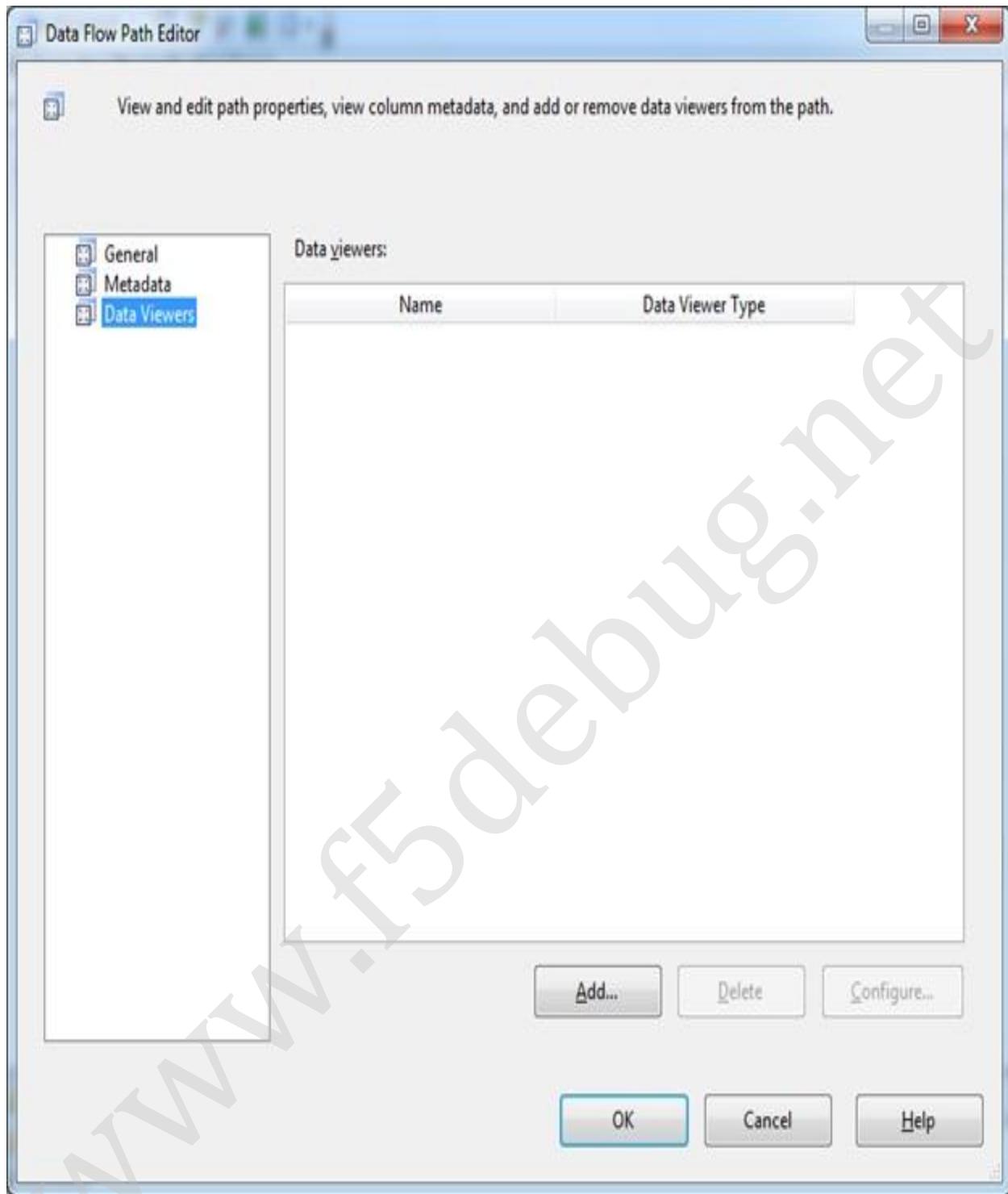


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

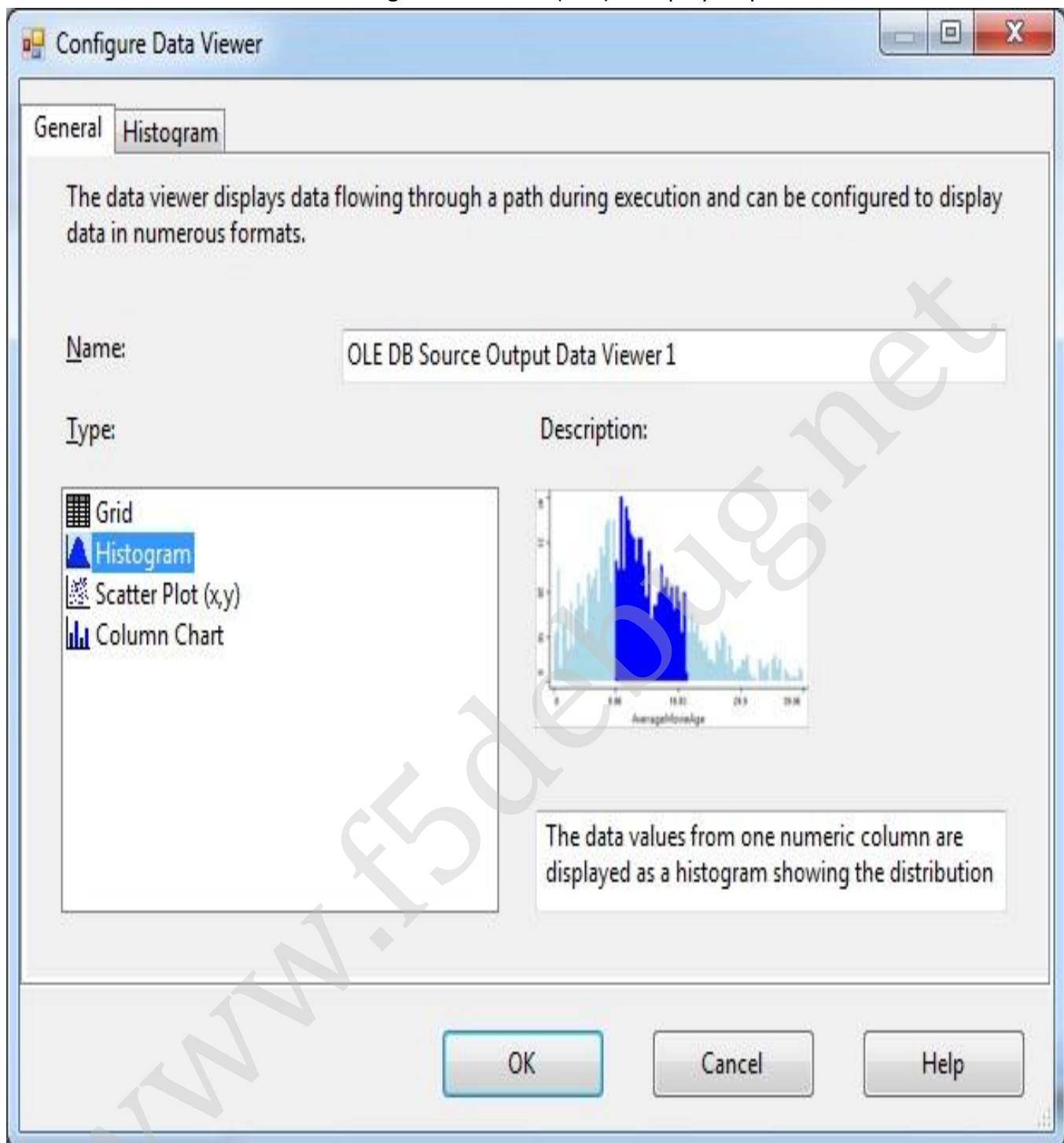


Now when we execute the package it will do the execution but we are not sure at what point what happens. So in order to see the transformation between the source and the destination we can use a data viewer browser.

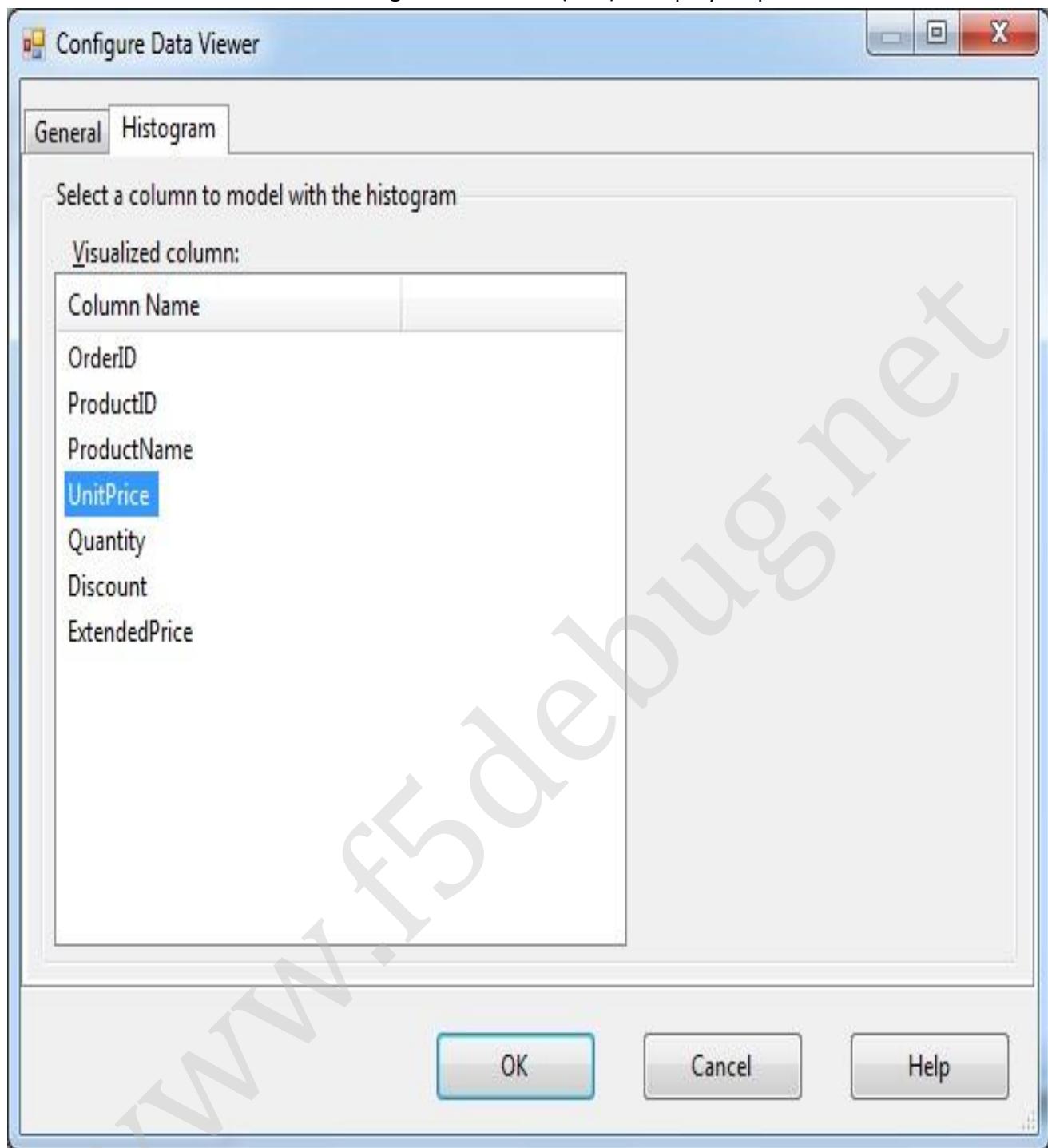
Data viewer provides different options to view the data, the types are: Grid, Histogram, Scatter Plot, and Chart Format. In this sample we will see how to use the Histogram option to view. To start the data viewer Right click on the green arrow which connects the source and destination and select the data viewer. It will open the window as shown below.



Now click on Add button to do the configuration of our required data viewer. It will open the window as shown below.

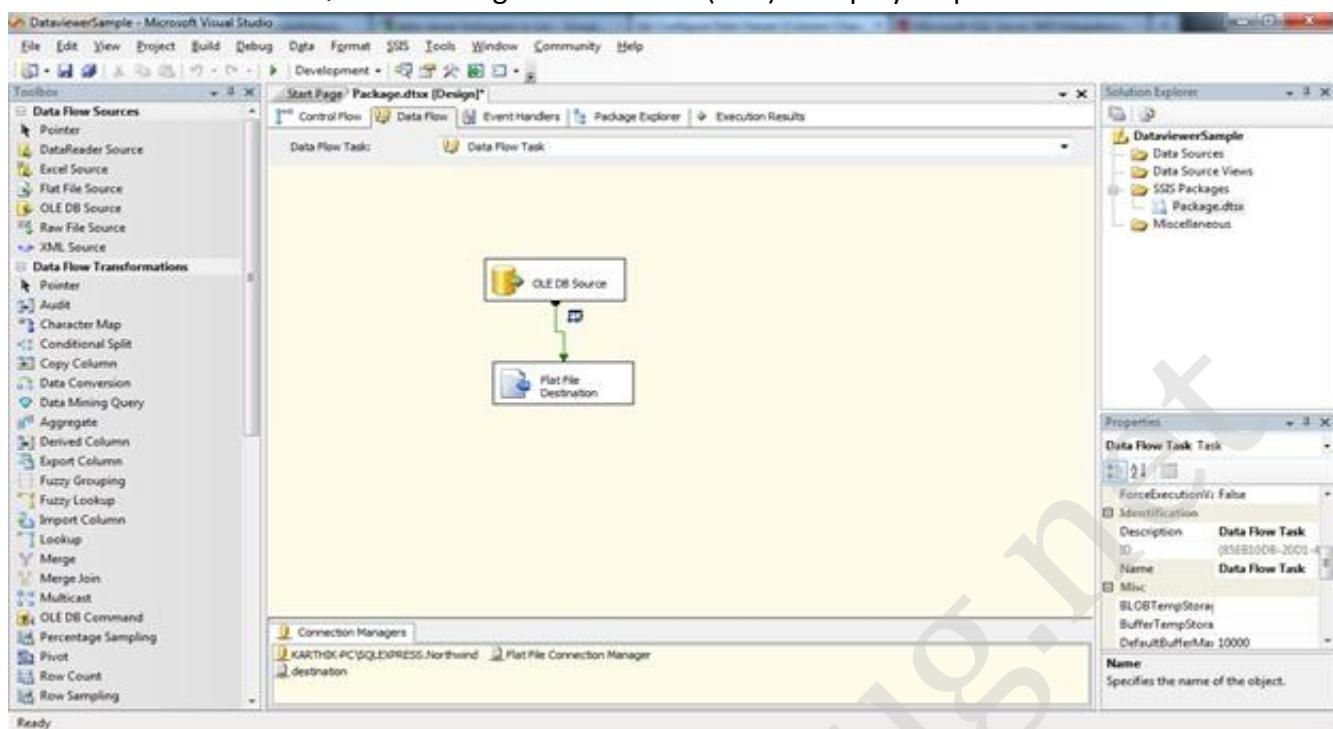


Now we will select the Histogram since we are going to see how to use the Histogram. We have a tab Histogram just navigate to that tab and select the column as shown below.

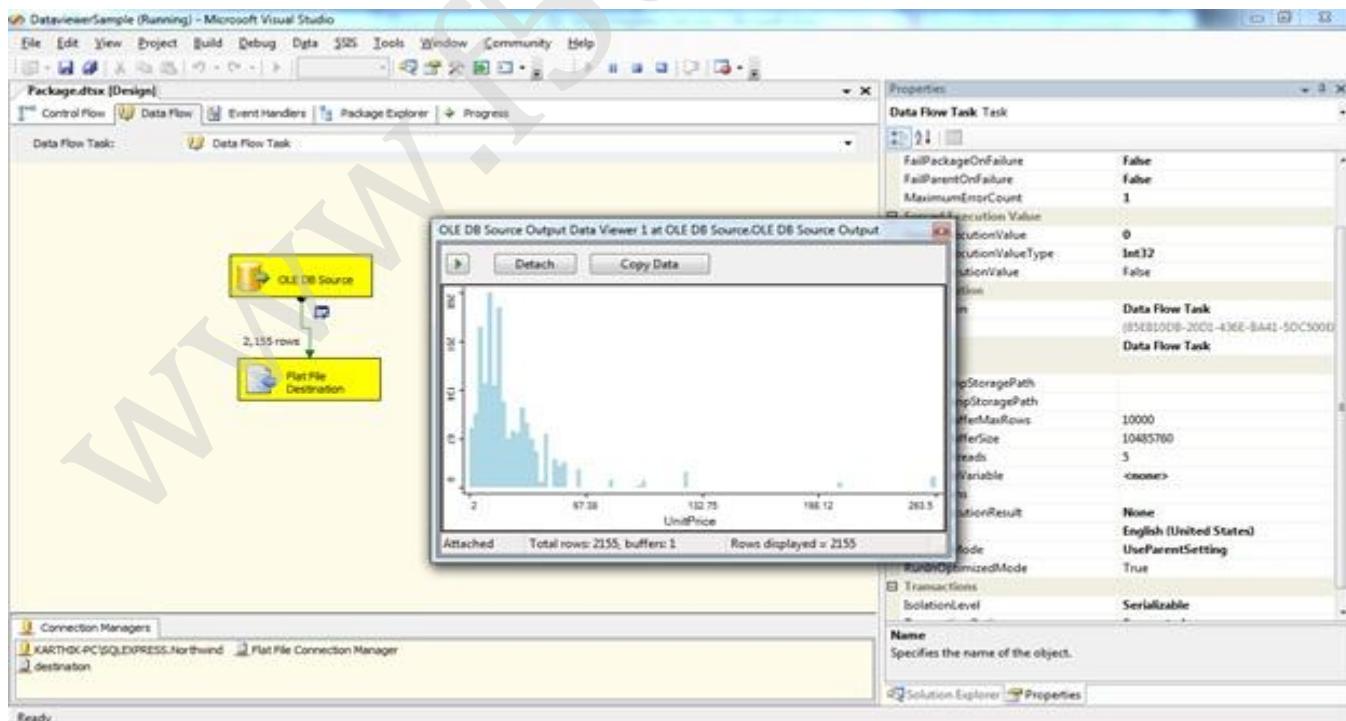


Now we are done with the configuration and ready to execute the package. We can see a viewer icon next to the arrow as shown below which indicates that the viewer is active to view.

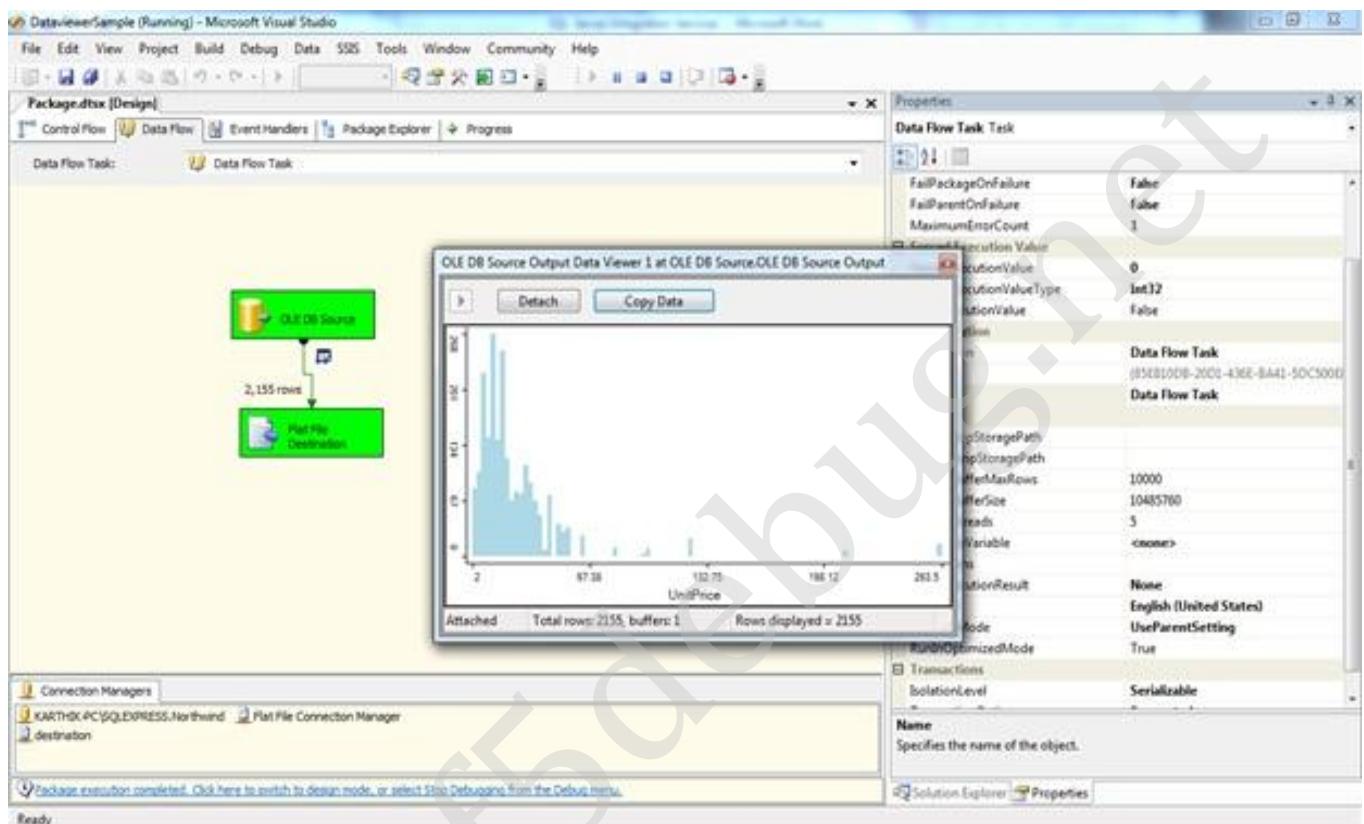
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we will execute the package and see the data viewer browser. Press F5 to execute the package and we can see the data viewer browser as shown in the screen below.



We have an arrow button in the browser, once we are done with our analysis we can click on the button to proceed. Once we click that button the execution start and proceed further and the final screen will appear as below.



## Conclusion

In this chapter we have seen how to use the data viewer (Histogram) to analyze the data and to proceed further which acts like a debugging portion for SSIS packaging.

# Chapter 58

## DATA VIEWERS (SCATTER PLOT)

### Introduction

In this chapter we are going to see on how to use the Data viewers (Scatter Plot) in SSIS packaging. Data viewers are used as one of the debugging option for the developers to check the data between the processes of a packaging.

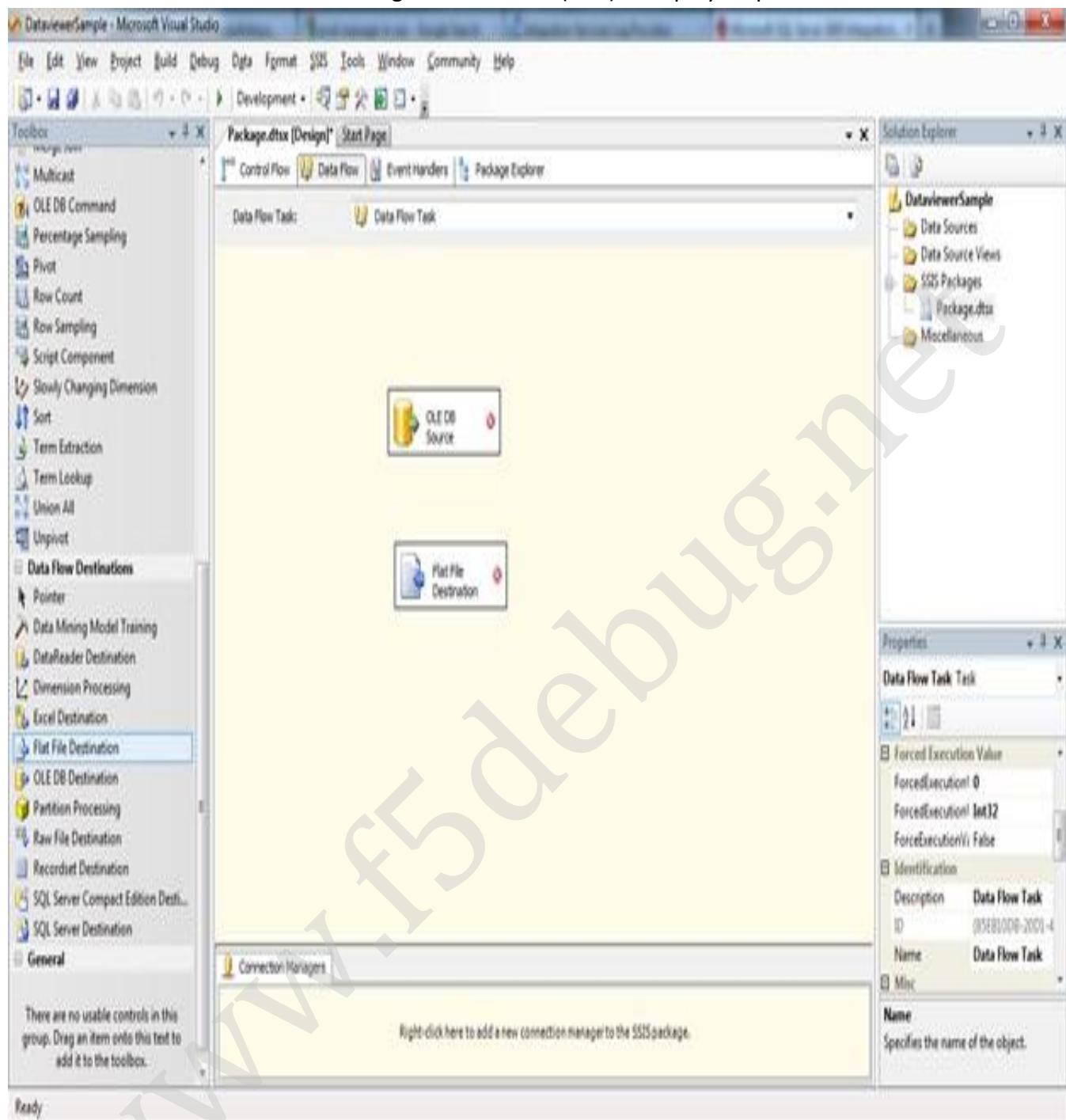
Data viewers are good at places where we have a minimum data to analyze and then executing the package at the development stage to see the changed took place in the prior task and proceed to the next task.

Let's jump start to see this sample on how to set the properties of the control.

### Steps

Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the data viewers to see the data flow.

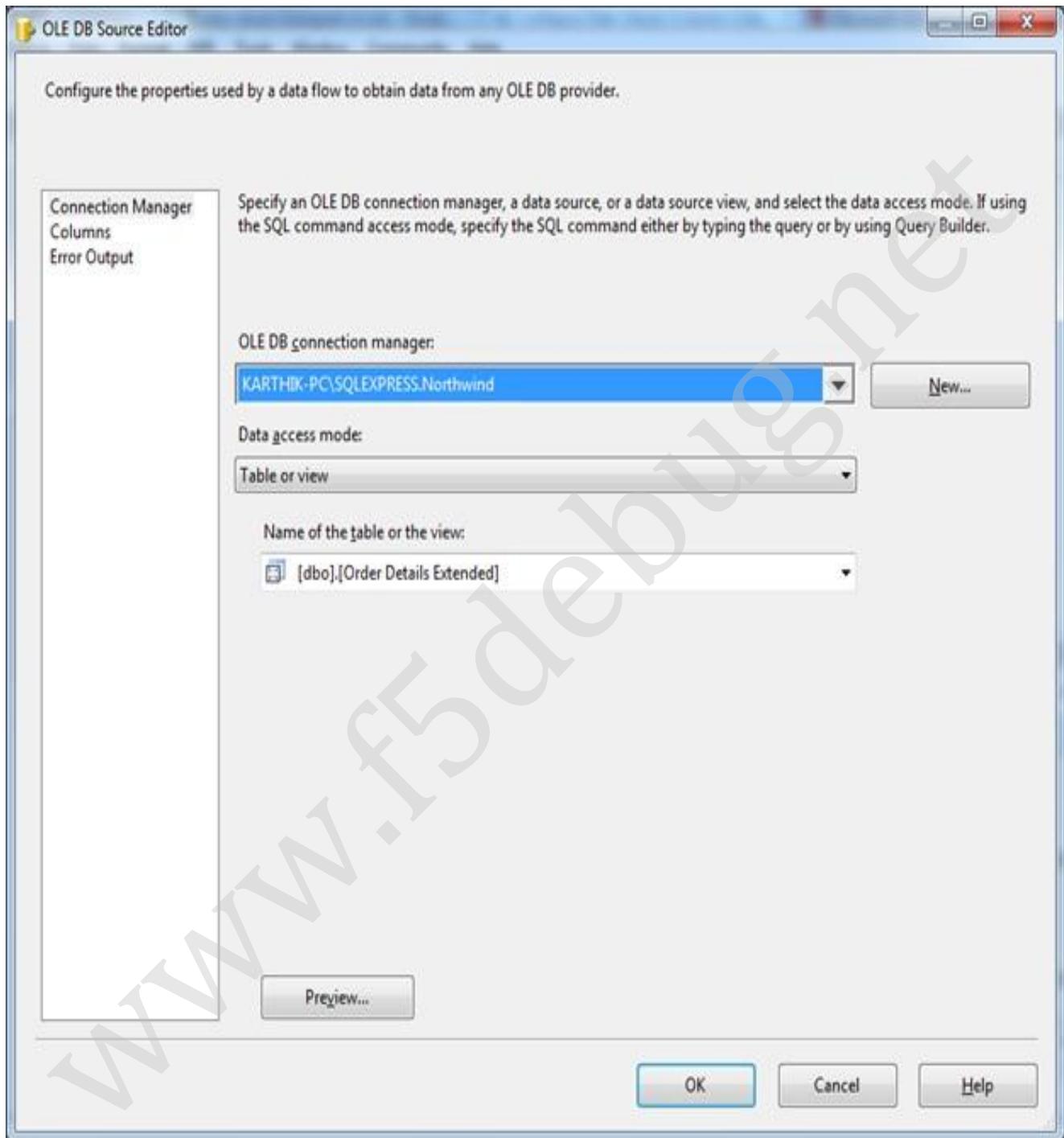
Now once the project is opened drag and drop a source and a destination task along with a dataflow to do some manipulation as shown in the screen below.



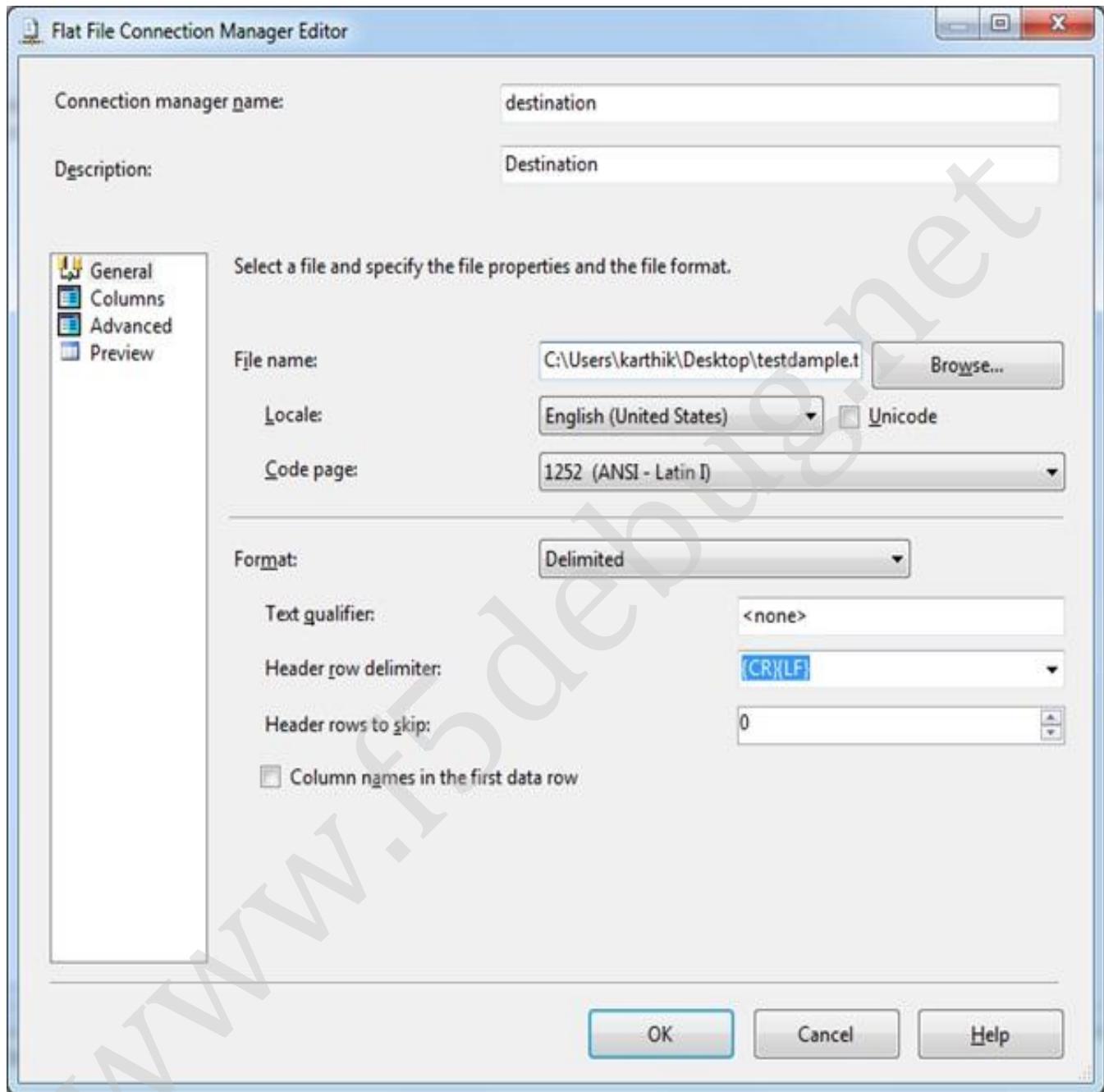
Now we will do a small task on copying the data from the source table to a destination file using the OLEDB source and FlatFile destination as shown above.

Now let's configure both the tasks to make a flow as shown below.

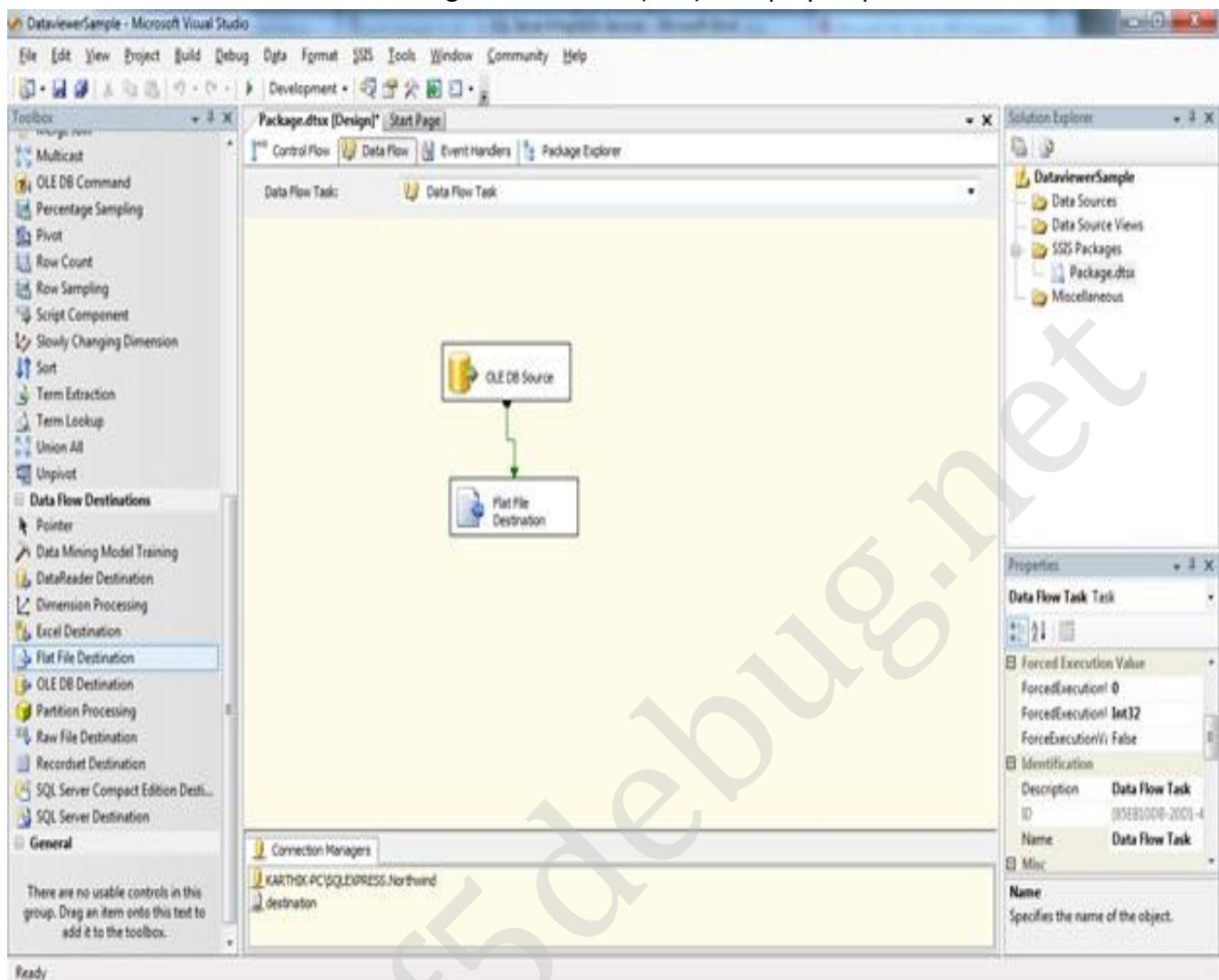
## Source Configuration:



## Destination Configuration:

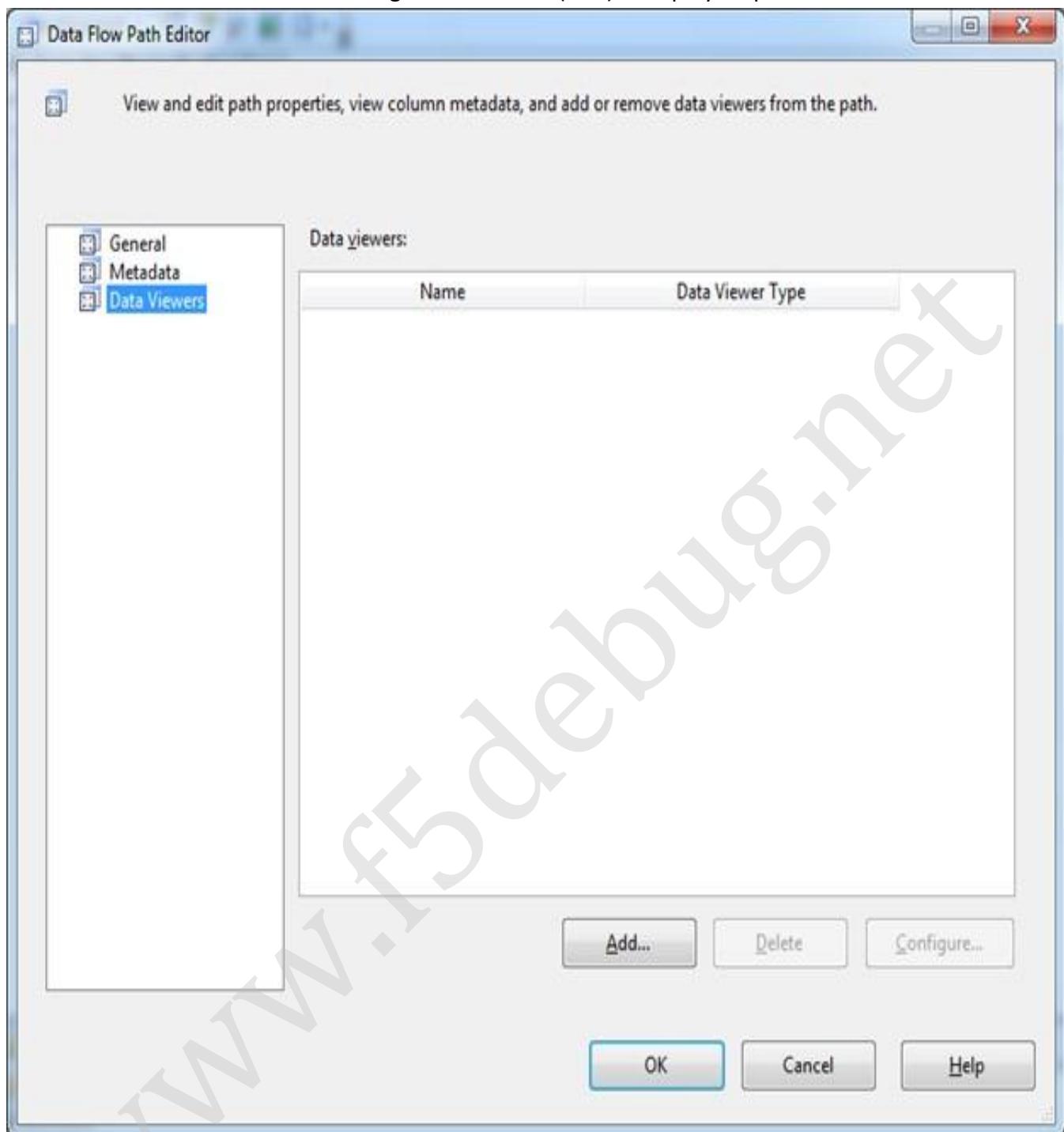


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

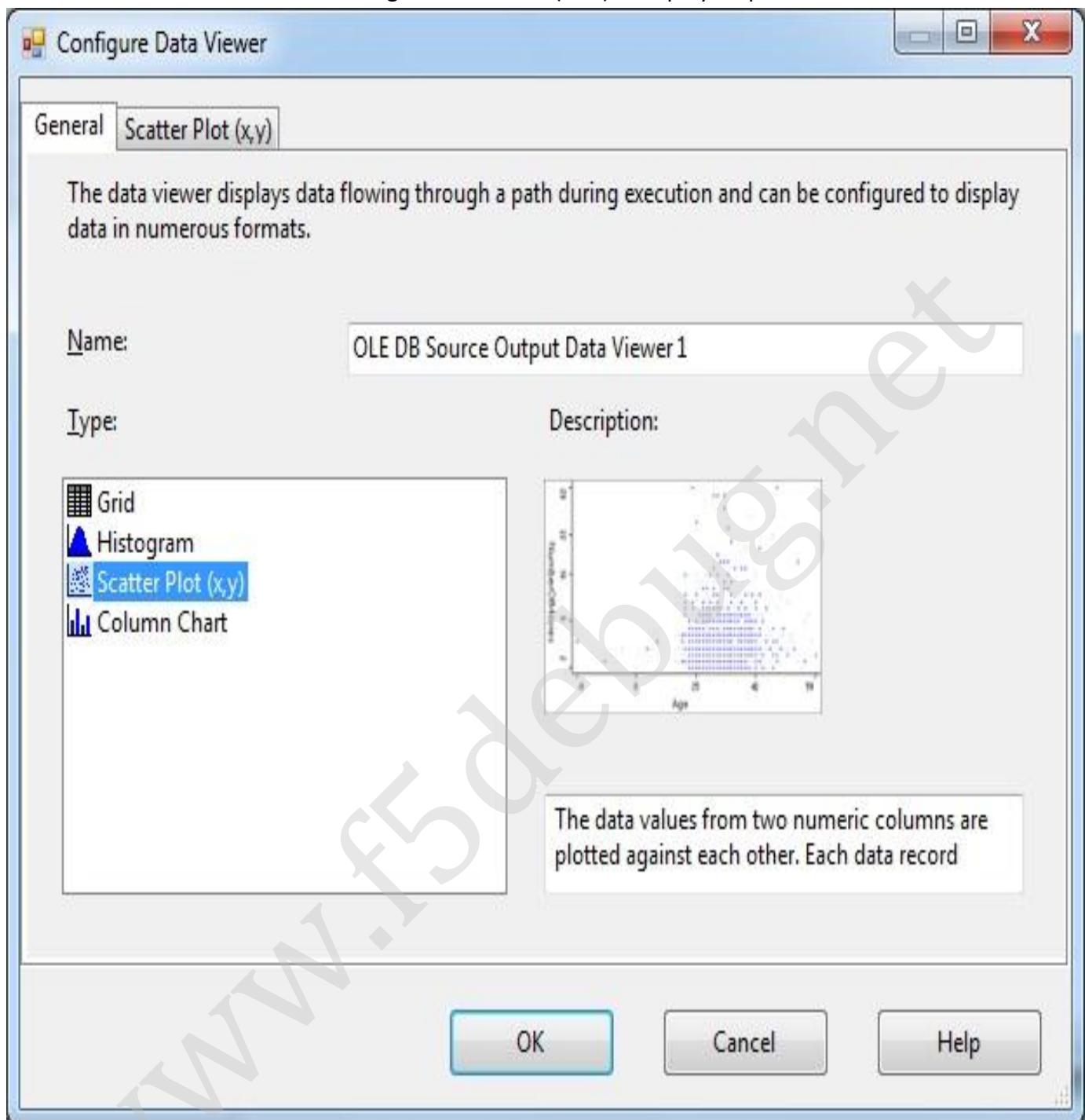


Now when we execute the package it will do the execution but we are not sure at what point what happens. So in order to see the transformation between the source and the destination we can use a data viewer browser.

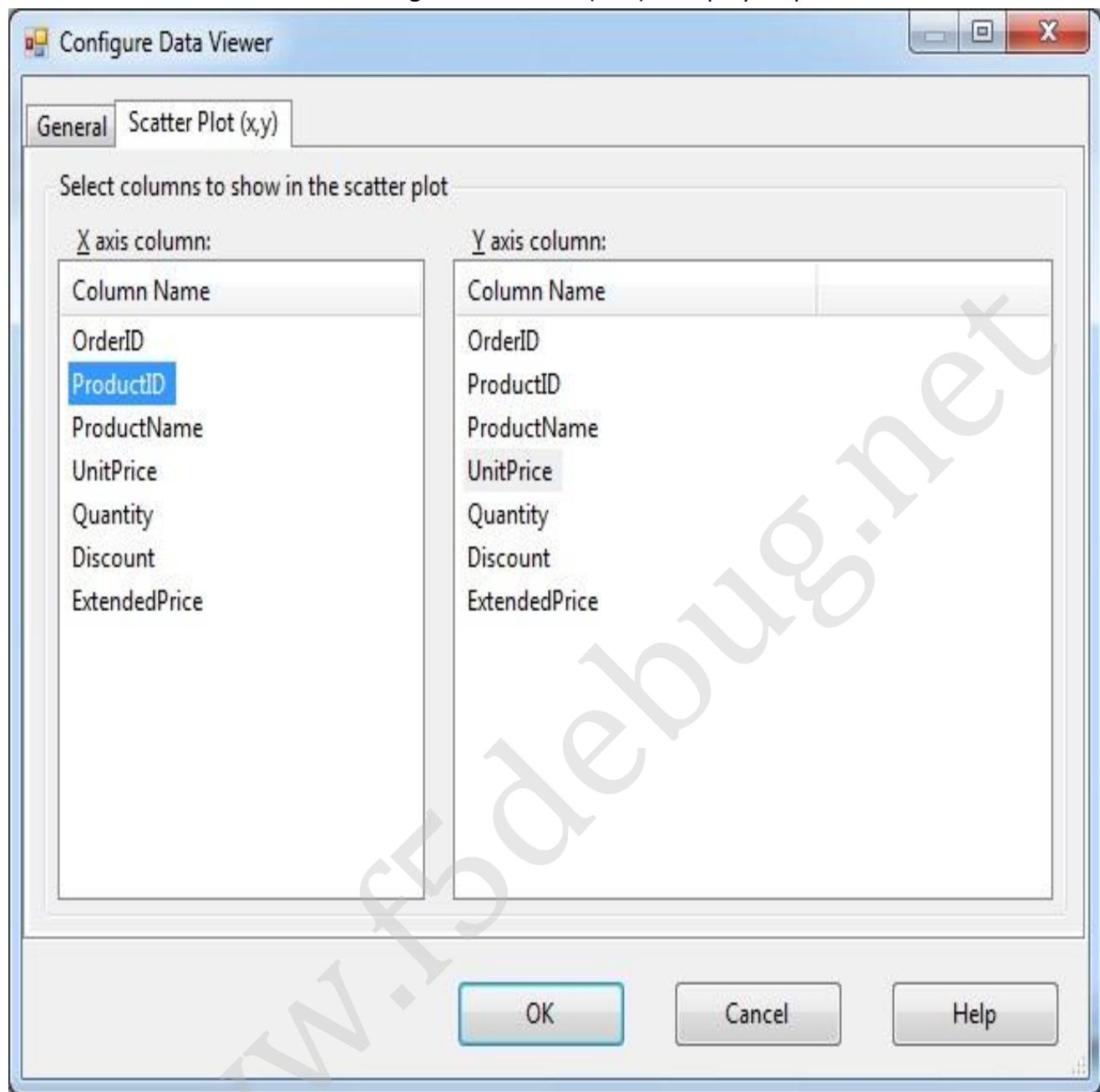
Data viewer provides different options to view the data, the types are: Grid, Histogram, Scatter Plot, and Chart Format. In this sample we will see on how to use the Scatter Plot option to view. To start the data viewer Right click on the green arrow which connects the source and destination and select the data viewer. It will open the window as shown below.



Now click on Add button to do the configuration of our required data viewer. It will open the window as shown in the screen below.

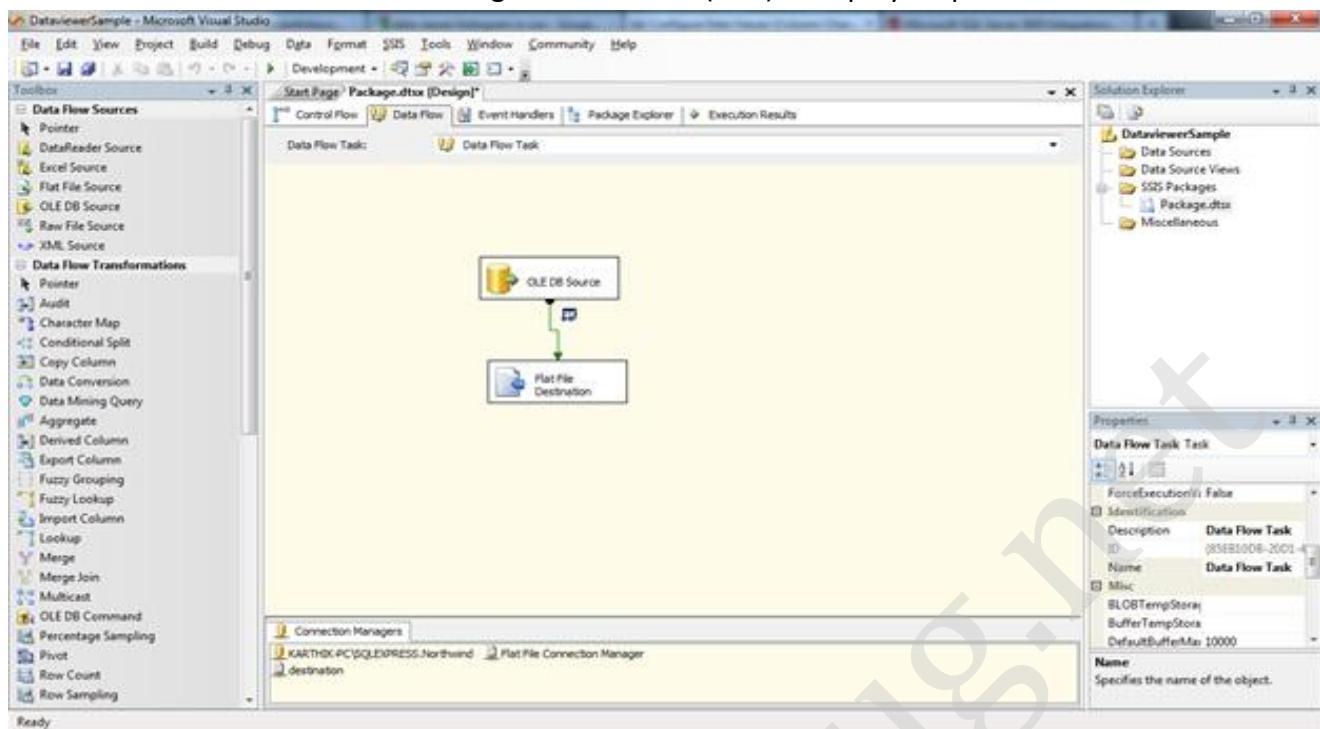


Now we will select the Scatter plot(x,y) since we are going to see on how to use the Scatter plot. We have a tab Scatter Plot just navigate to that tab and select the column as shown below.

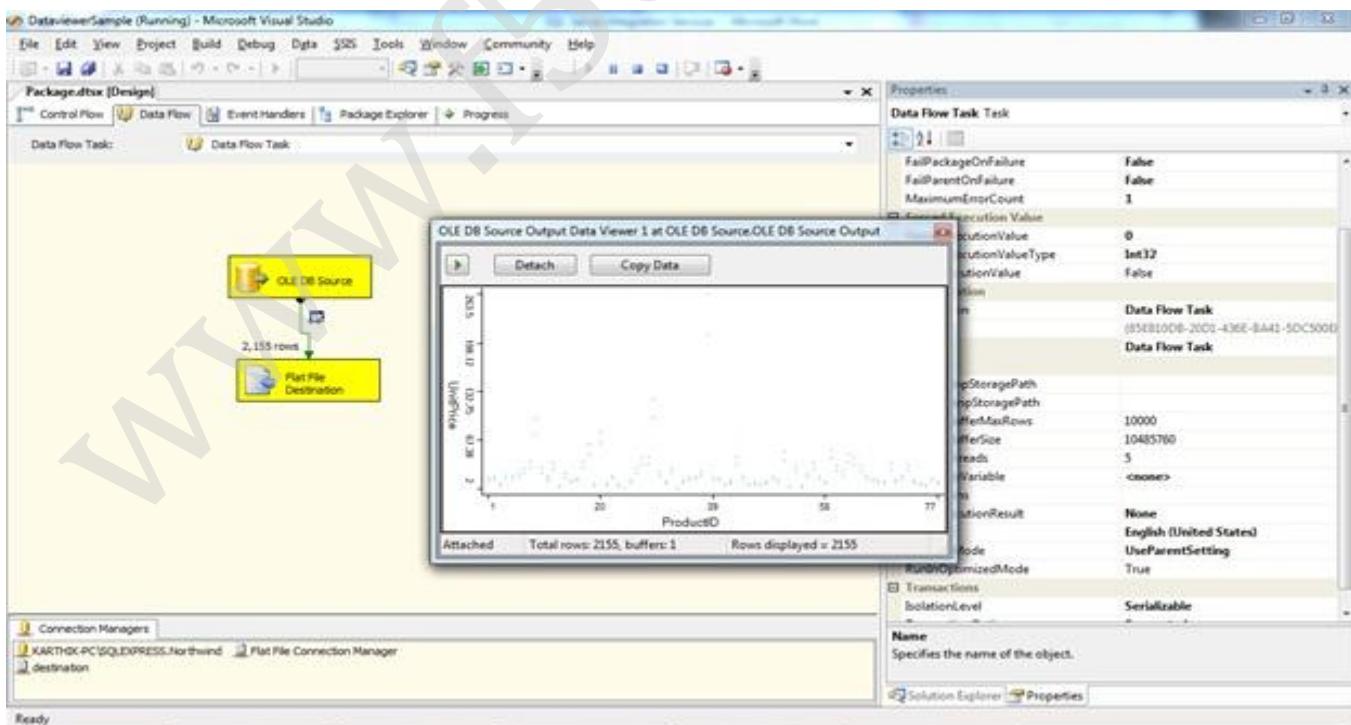


Now we are done with the configuration and ready to execute the package. We can see a viewer icon next to the arrow as shown below which indicates that the viewer is active to view.

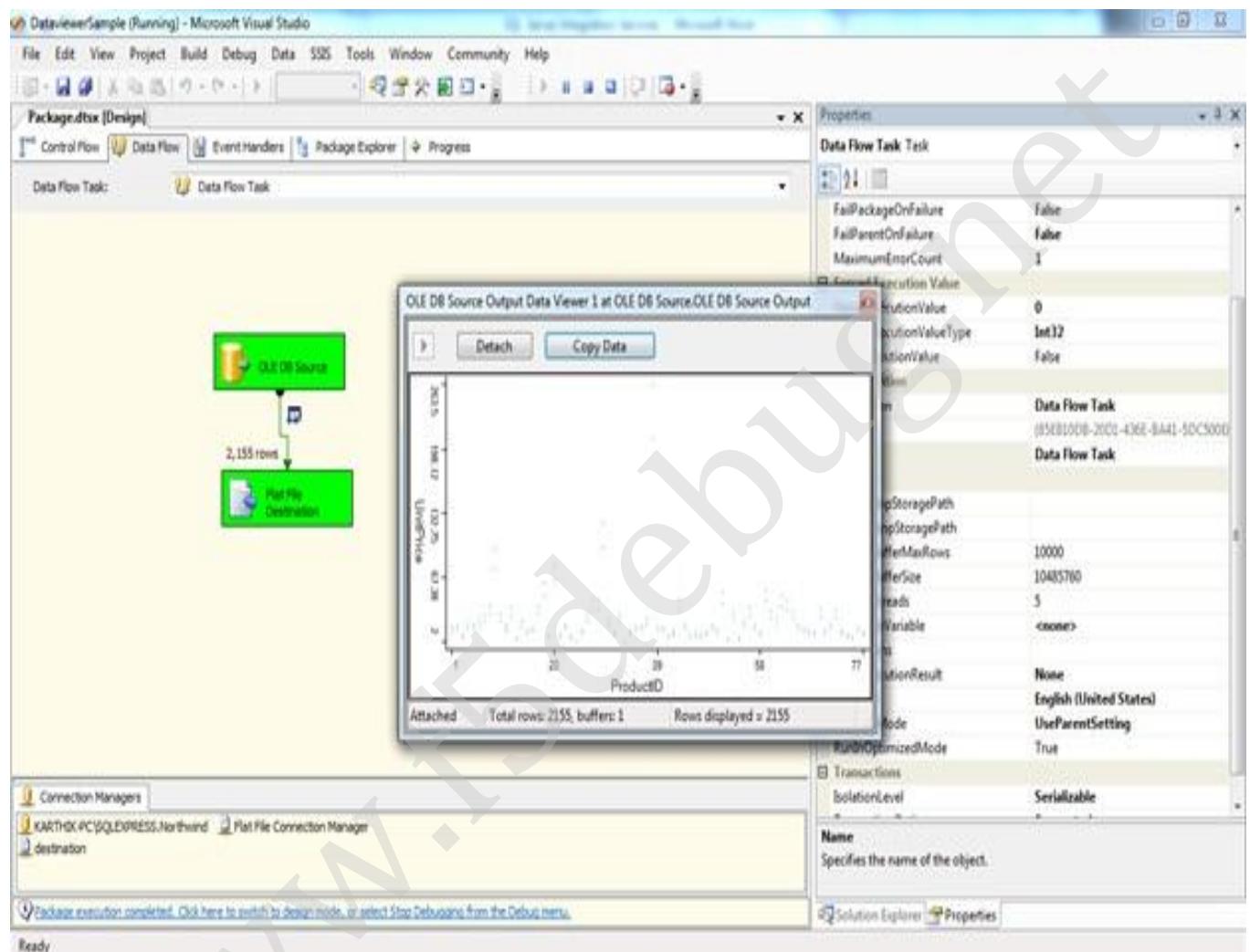
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we will execute the package and see the data viewer browser. Press F5 to execute the package and we can see the data viewer browser as shown in the screen below.



We have an arrow button in the browser, once we are done with our analysis we can click on the button to proceed. Once we click that button the execution start and proceed further and the final screen will appear as shown in the screen below.



## Conclusion

So in this chapter we have seen on how to use the data viewer (Scatter Plot) to analyze the data and to proceed further which acts like a debugging portion for SSIS packaging.

# Chapter 59

## DATA VIEWERS (COLUMN CHART)

### Introduction

In this chapter we are going to see on how to use the Data viewers (Column Chart) in SSIS packaging. Data viewers are used as one of the debugging option for the developers to check the data between the processes of a packaging.

Data viewers are good at places where we have a minimum data to analyze and then executing the package at the development stage to see the changed took place in the prior task and proceed to the next task.

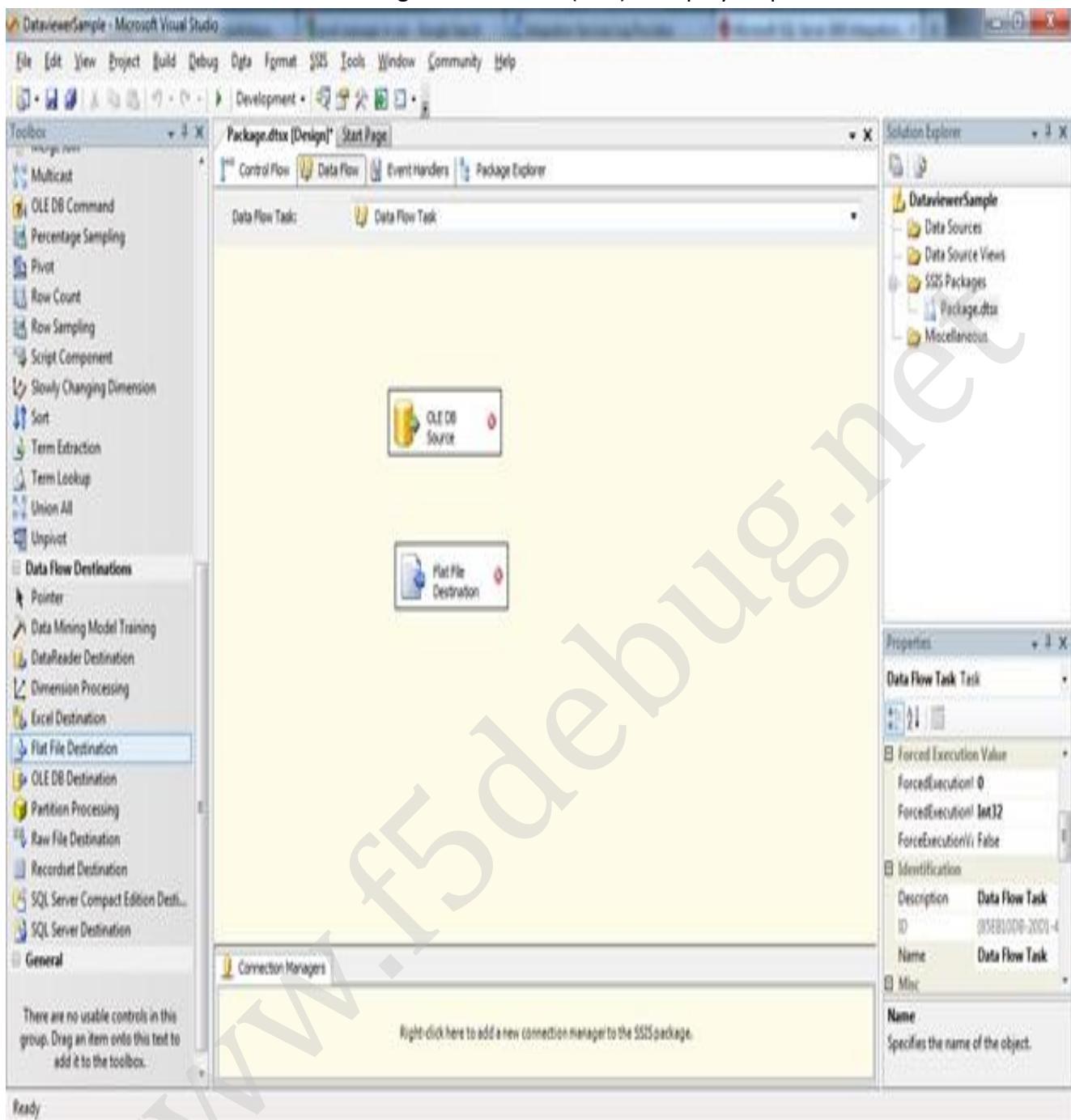
Let's jump start to see this sample on how to set the properties of the control.

### Steps

Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see on how to use the data viewers to see the data flow.

Now once the project is opened drag and drop a source and a destination task along with a dataflow to do some manipulation as shown below.

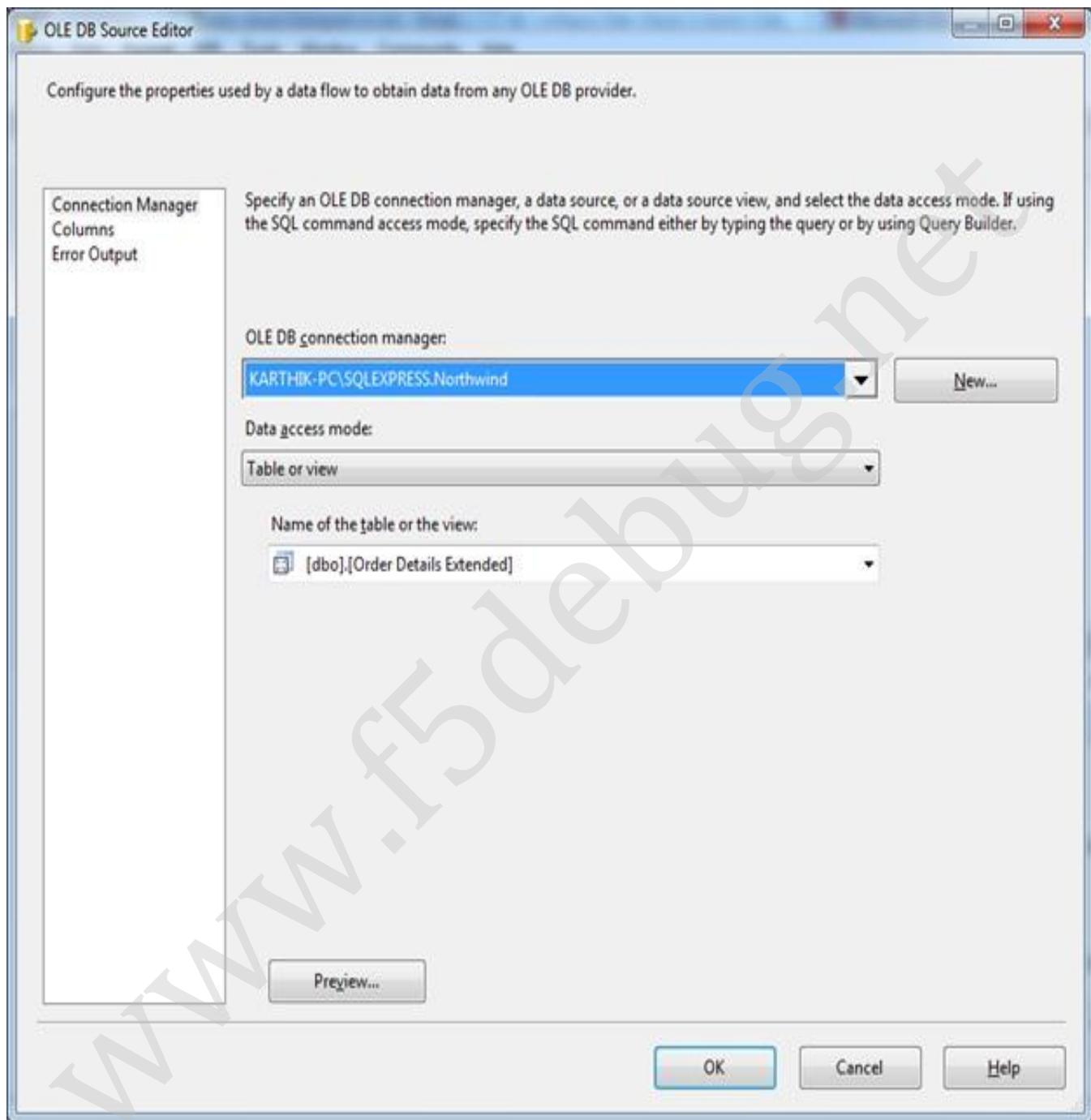
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



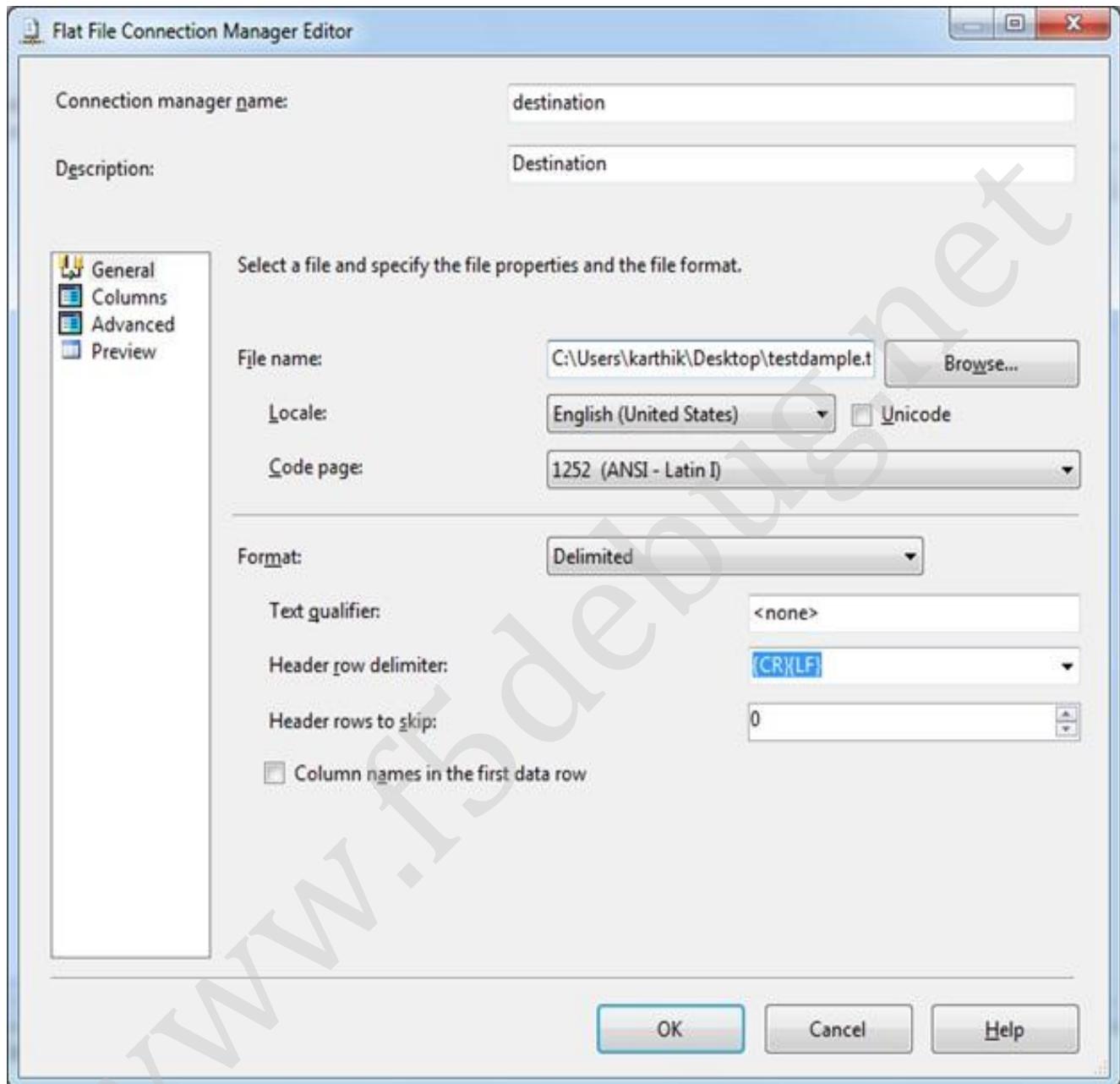
Now we will do a small task on copying the data from the source table to a destination file using the OLEDB source and FlatFile destination as shown in the screen above.

Now let's configure both the tasks to make a flow as shown in the screen below.

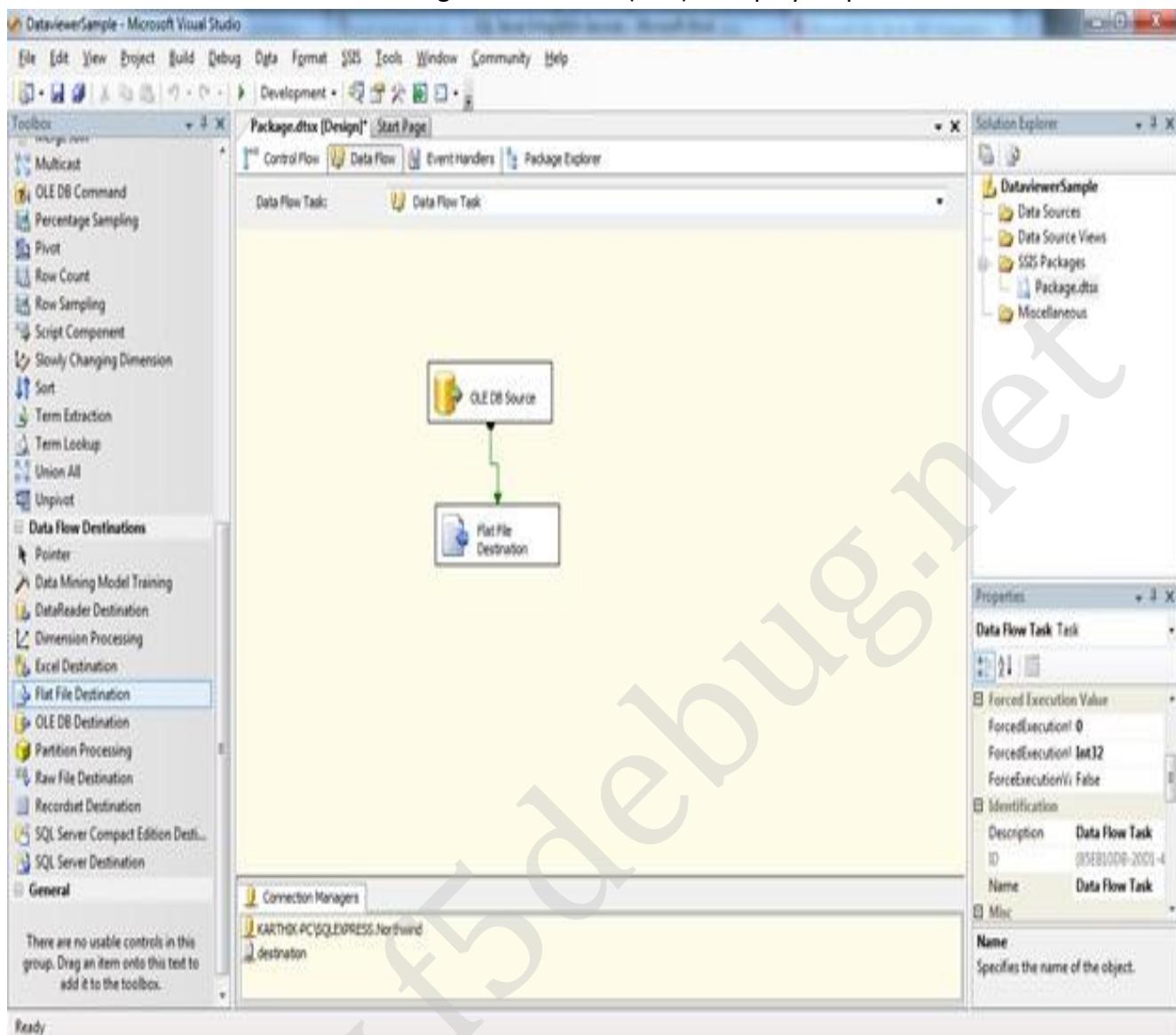
## Source Configuration:



## Destination Configuration:

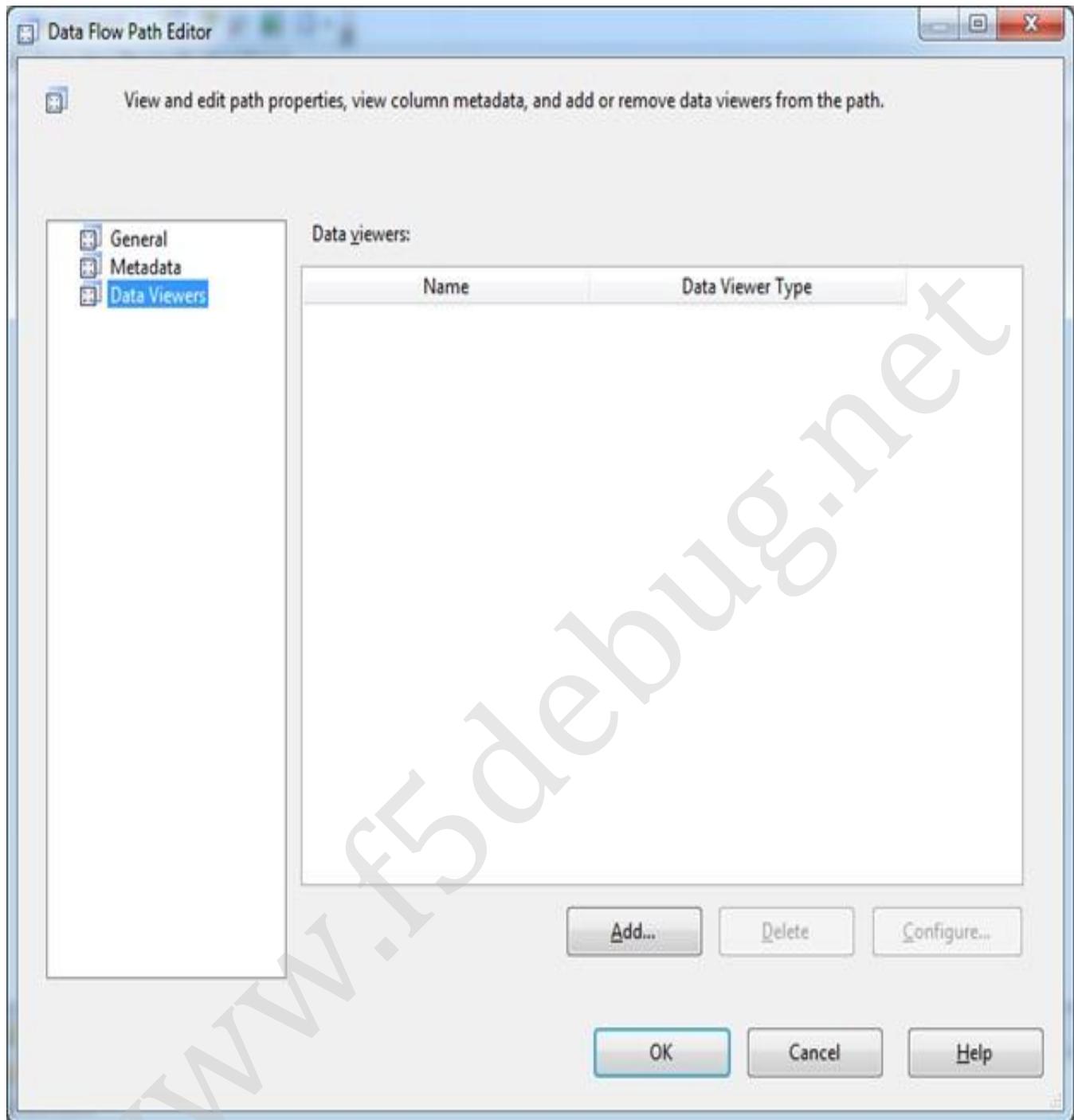


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

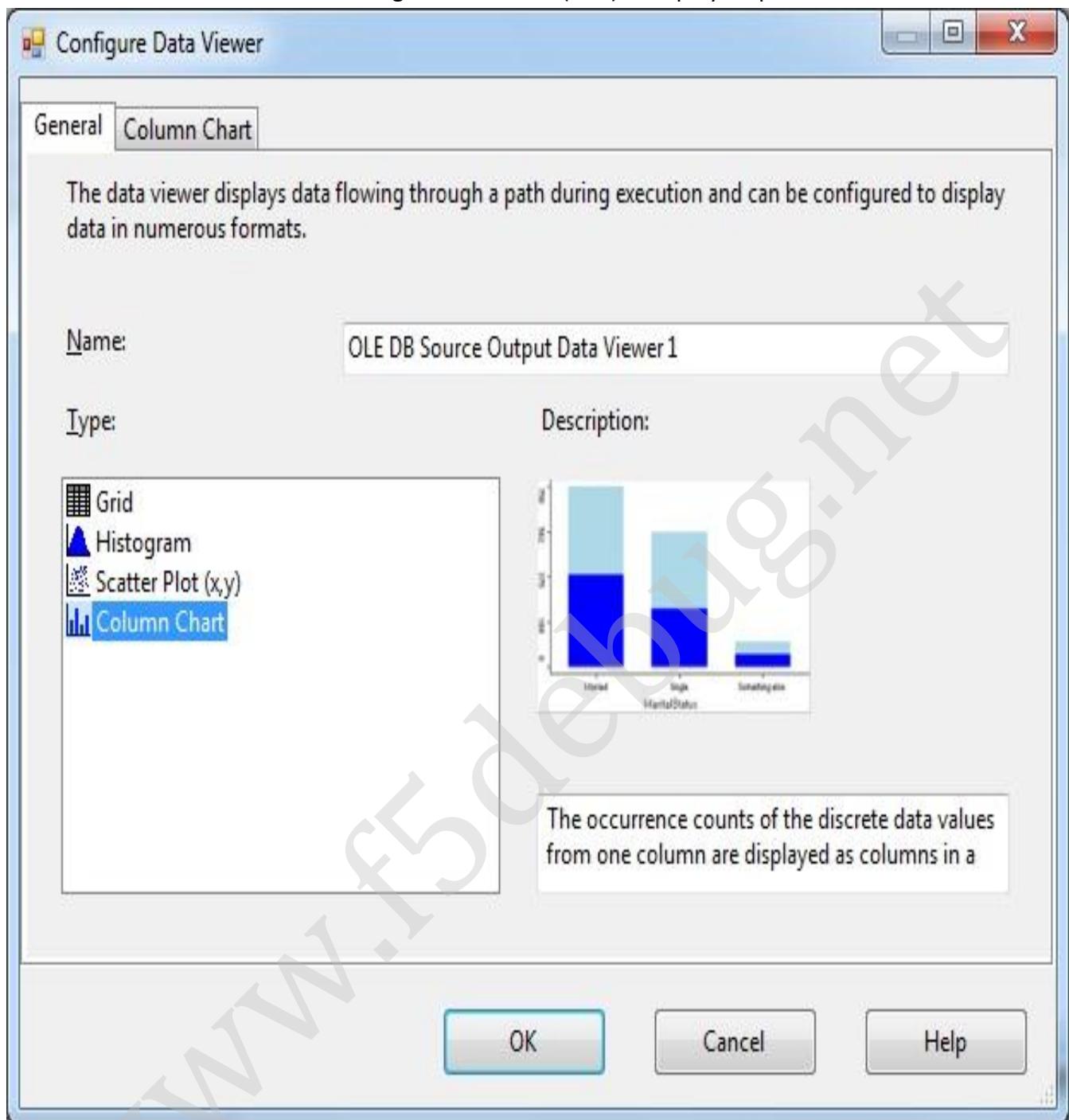


Now when we execute the package it will do the execution but we are not sure at what point what happens. So in order to see the transformation between the source and the destination we can use a data viewer browser.

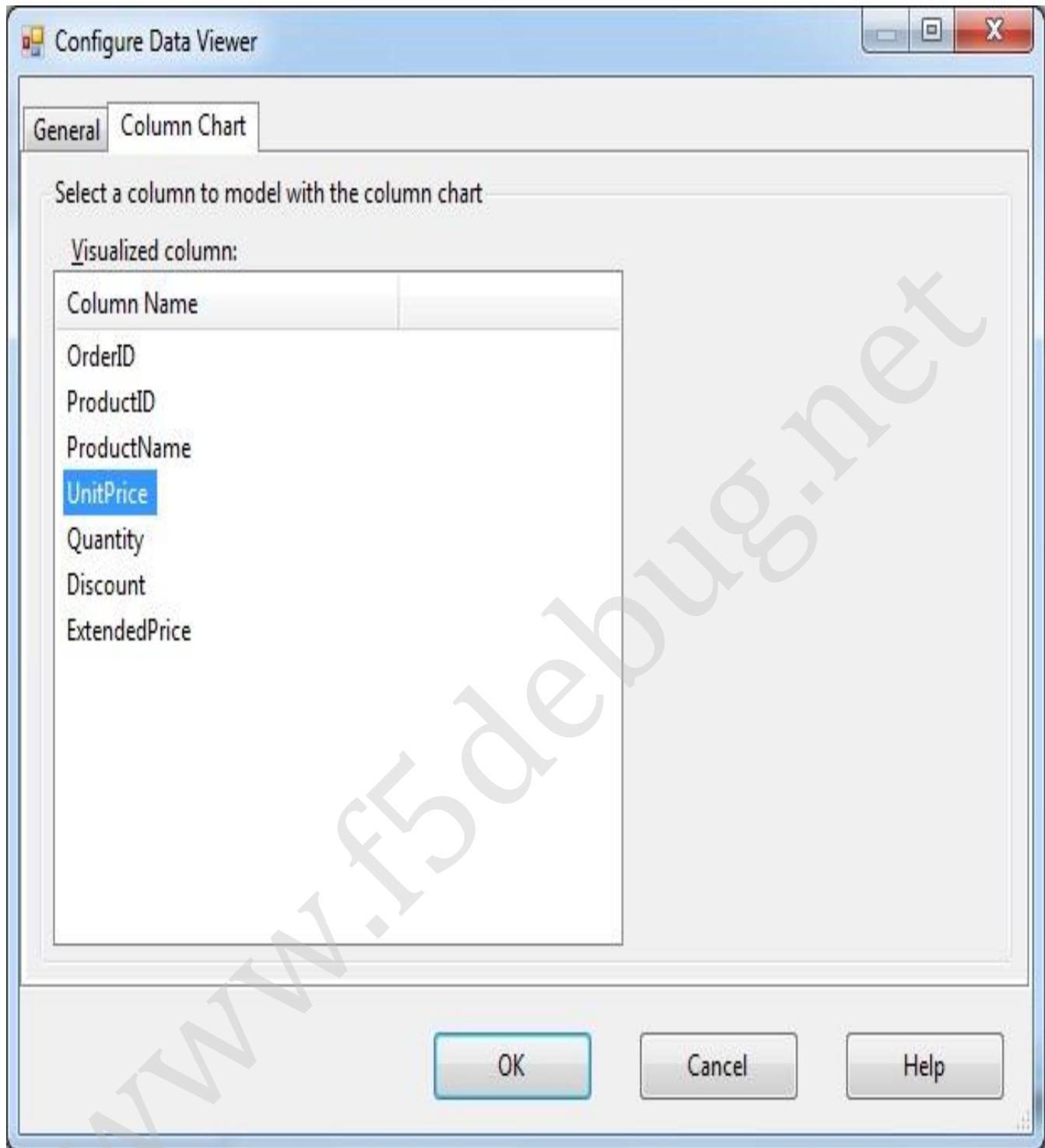
Data viewer provides different options to view the data, the types are: Grid, Histogram, Scatter Plot, and Chart Format. In this sample we will see on how to use the Column Chart option to view. To start the data viewer Right click on the green arrow which connects the source and destination and select the data viewer. It will open the window as shown below.



Now click on Add button to do the configuration of our required data viewer. It will open the window as shown in the screen below.

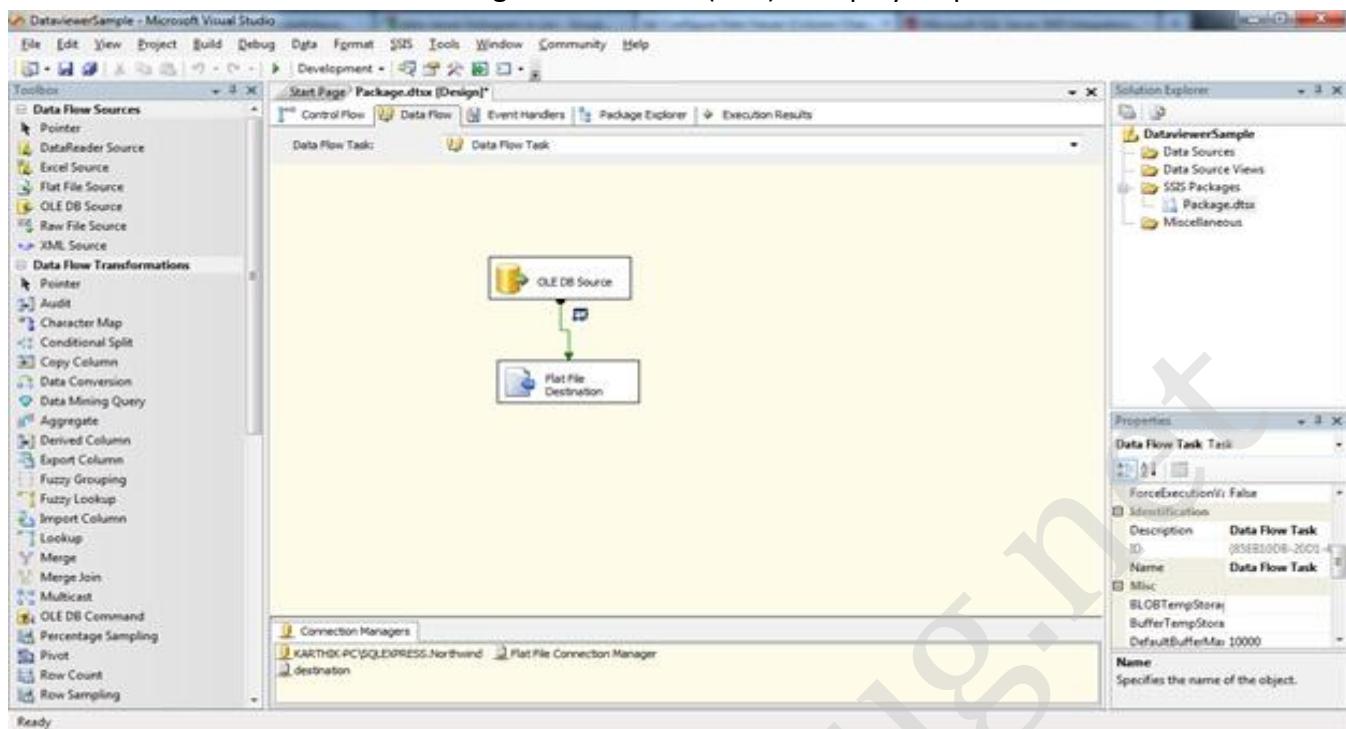


Now we will select the Column Chart since we are going to see how to use the Column Chart. We have a tab Column Chart just navigate to that tab and select the column as shown below.

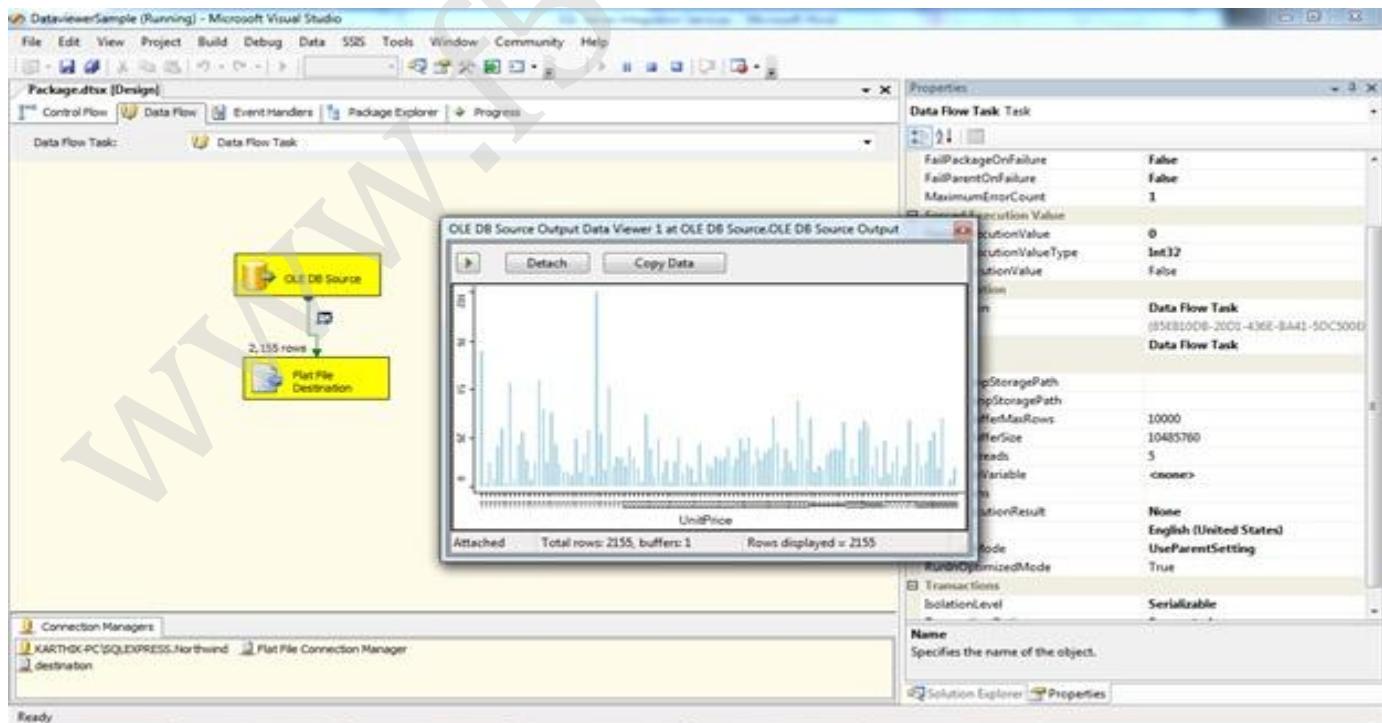


Now we are done with the configuration and ready to execute the package. We can see a viewer icon next to the arrow as shown below which indicates that the viewer is active to view.

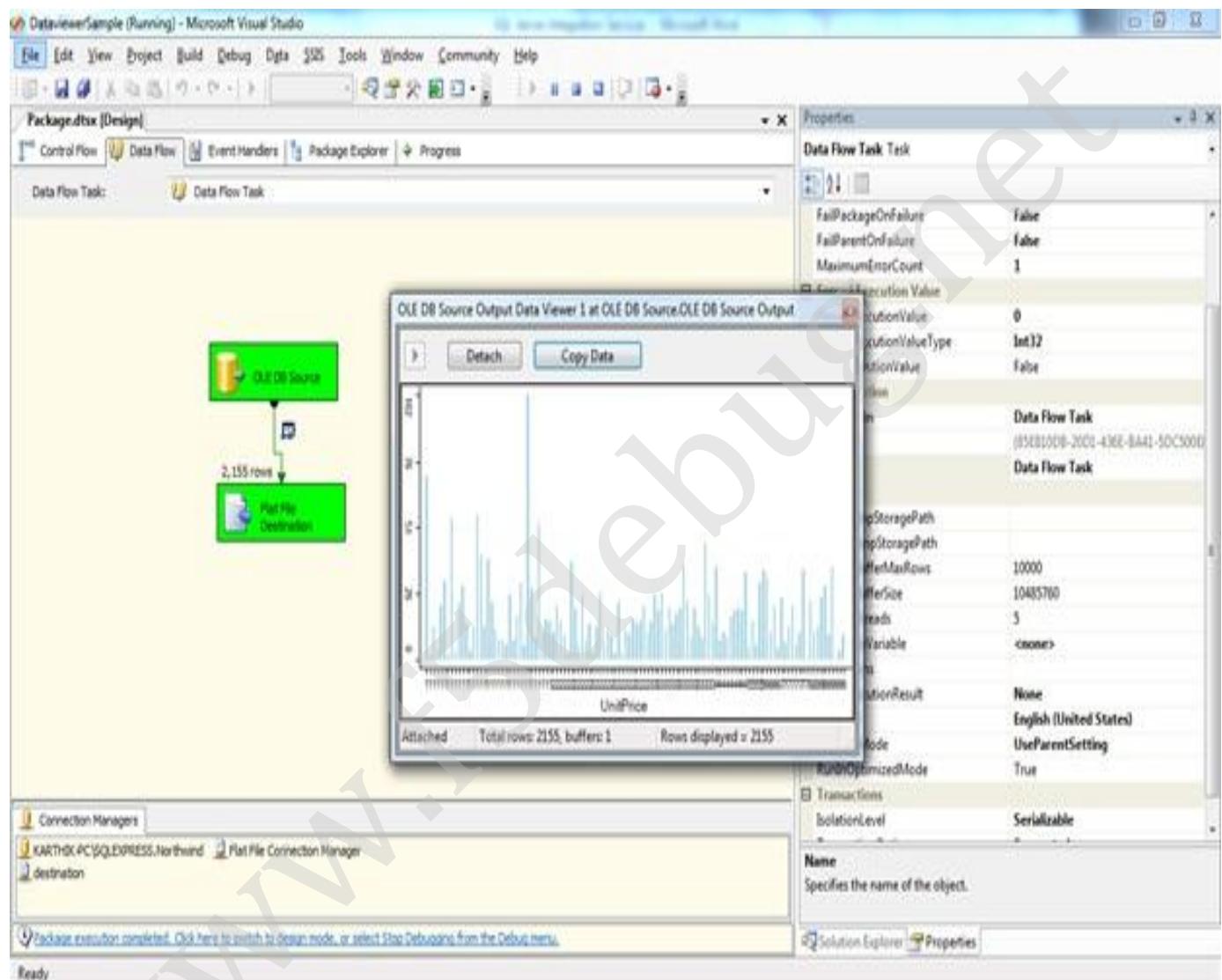
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we will execute the package and see the data viewer browser. Press F5 to execute the package and we can see the data viewer browser as shown in the screen below.



We have an arrow button in the browser, once we are done with our analysis we can click on the button to proceed. Once we click that button the execution start and proceed further and the final screen will appear as shown in the screen below.



## Conclusion

In this chapter we have seen on how to use the data viewer (Column Chart) to analyze the data and to proceed further which acts like a debugging portion for SSIS packaging.

# Chapter 60

## OLE DB COMMAND TASK

### Introduction

In this chapter we are going to see how to use the OLE DB Command Task in SSIS packaging. OLE DB Command task is mainly used for set of transformation that happen on each row of the SQL command which will be executed using this task.

Basically the executed SQL Statements are handled as parameters which will be mapped to the table as an external source.

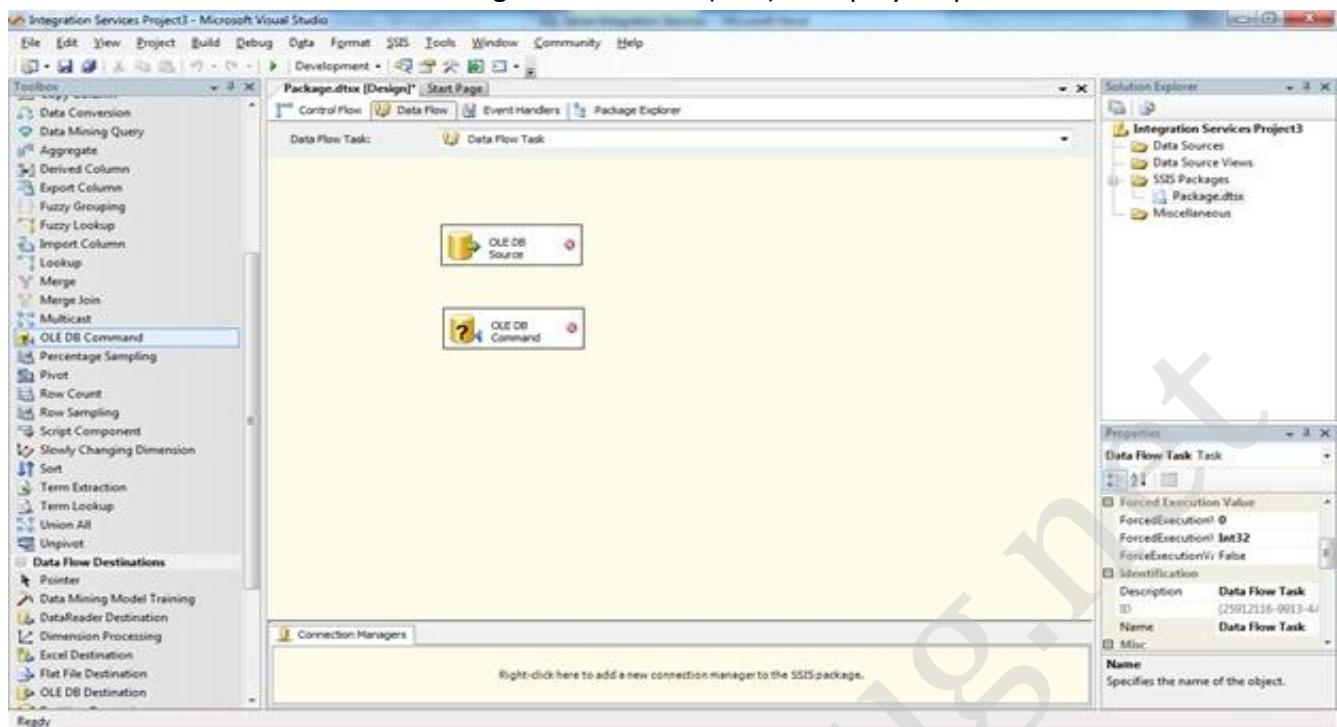
Let's jump start to see this sample how to set the properties of the control.

### Steps

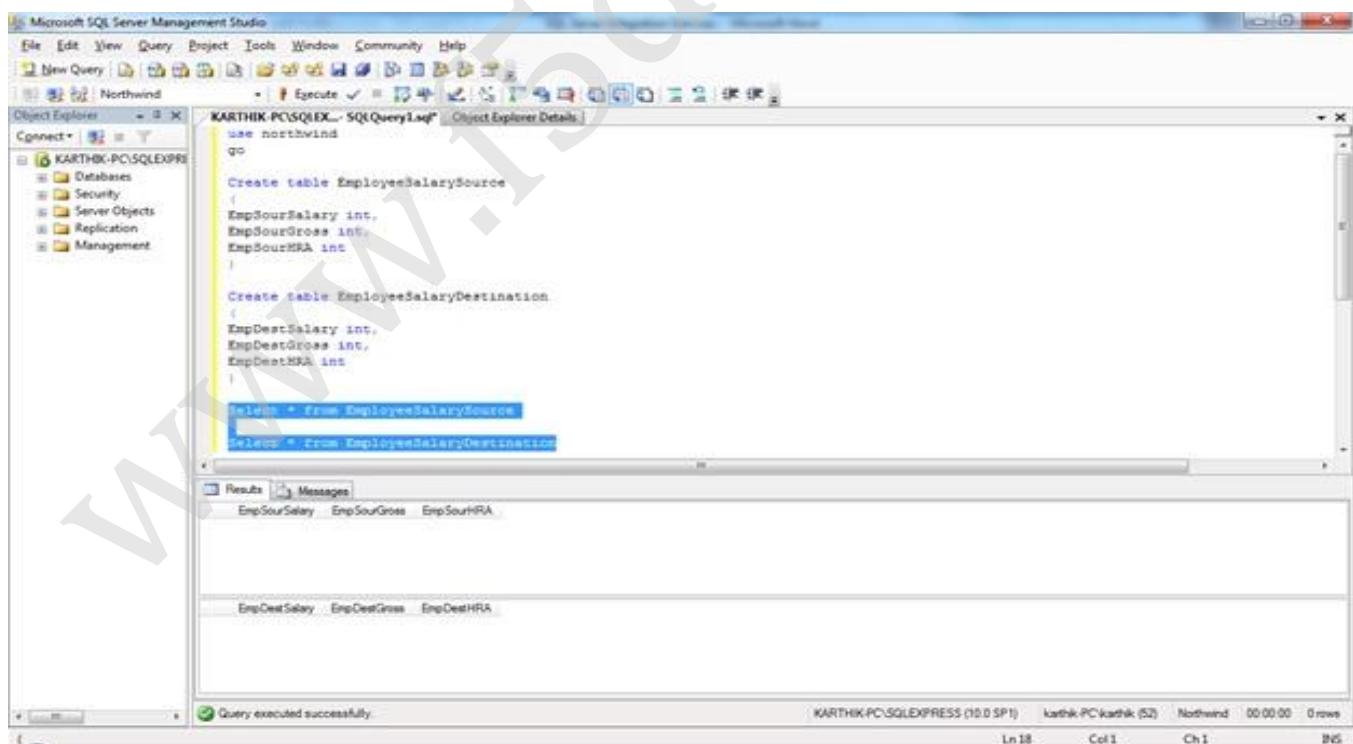
Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see how to use the OLE DB Command to see the flow.

Now once the project is opened drag and drop a source and an OLE DB Command task as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



We can see some red marks on each task which indicates that the tasks are not configured. We need to configure each task so that while execution we can have a smooth process. In our example we need two tables as source and destination. So we have created 2 tables as shown in the screen below.



## Script

```
Create table EmployeeSalarySource
(
EmpSourSalaryint,
EmpSourGrossint,
EmpSourHRAint
)

Create table EmployeeSalaryDestination
(
EmpDestSalaryint,
EmpDestGrossint,
EmpDestHRAint
)

Select * from EmployeeSalarySource
Select * from EmployeeSalaryDestination
```

Now we will insert some data to the source table so that we will see a real time example on the same as shown in the screen below.

The screenshot shows the Microsoft SQL Server Management Studio interface. The title bar reads "Microsoft SQL Server Management Studio". The menu bar includes File, Edit, View, Query, Project, Tools, Window, Community, Help. The toolbar has various icons for querying, executing, and managing databases. The Object Explorer on the left shows a connection to "KARTHIK-PC\SQLEXPRESS" with nodes for Databases, Security, Server Objects, Replication, and Management. The main query window titled "KARTHIK-PC\SQLEXPRESS - SQlQuery1.sql - Object Explorer Details" contains the following T-SQL code:

```

-- EmpDestHRA int
Select * from EmployeeSalarySource
Select * from EmployeeSalaryDestination
Insert into EmployeeSalarySource
Values (10000, 5000, 2000)

```

The Results pane shows the output of the last insert statement:

	EmpSourSalary	EmpSourGross	EmpSourHRA
1	10000	5000	2000

The status bar at the bottom indicates "Query executed successfully", "KARTHIK-PC\SQLEXPRESS (10.0 SP1)", "karthik\PC\karthik (S)", "Northwind", "00:00:00", "1 rows", "Ln 17", "Col 1", "Ch 1", and "B6".

Now we have a source data table and a destination data table with some sample data in the source table, in order to proceed with our transformation using OLE DB task we need to create a stored procedure which takes 3 values as input and process a simple insert statement in the destination table with small manipulation. So we will create a stored procedure as shown in the screen below.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the Northwind database is selected. A query window titled 'KARTHIK-PC\SQLEXPRESS - SQlQuery1.sql' is open, displaying the following T-SQL code:

```

Create procedure dbo.usp_CalculateEmpSalary
@intEmpSourSalary int,
@intEmpSourGross int,
@intEmpSourHRA int

AS

SET NOCOUNT ON

Insert into EmployeeSalaryDestination (EmpDestSalary, EmpDestGross, EmpDestHRA)
Values
(
    @intEmpSourSalary * 10,
    @intEmpSourGross * 5,
    @intEmpSourHRA * 2
)

```

The 'Results' tab shows the message: 'Command(s) completed successfully.' Below the results, the status bar indicates: 'Query executed successfully.', 'KARTHIK-PC\SQLEXPRESS (10.0 SP1)', 'karthik-PC\karthik (S)', 'Northwind', '00:00:00', '0 rows', 'Ln 39', 'Col 23', 'Ch 20', and '395'.

## Script

```

Create procedure dbo.usp_CalculateEmpSalary
@intEmpSourSalary int,
@intEmpSourGross int,
@intEmpSourHRA int

AS

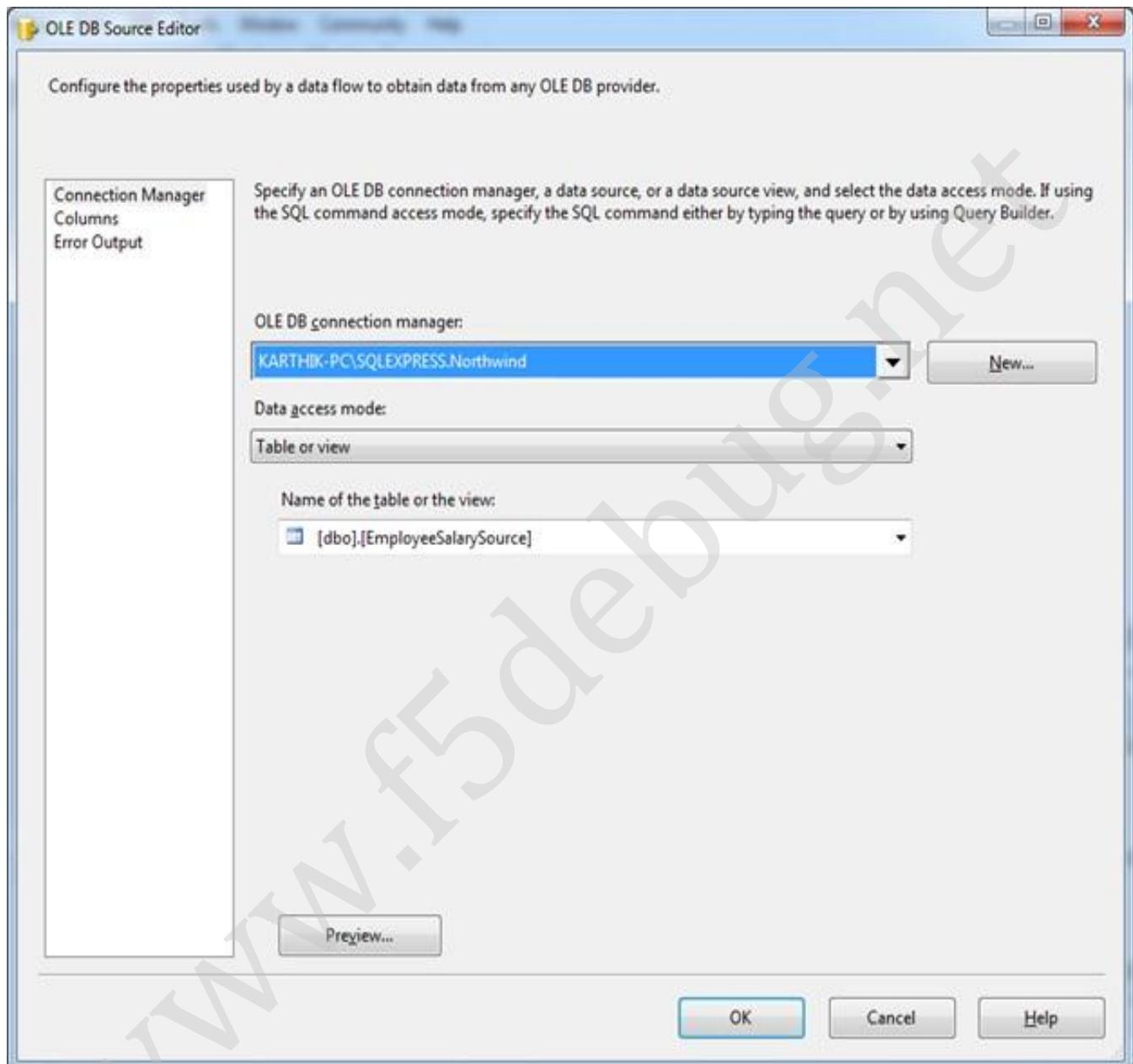
SET NOCOUNT ON

Insert into EmployeeSalaryDestination (EmpDestSalary, EmpDestGross, EmpDestHRA)
Values
(
    @intEmpSourSalary * 10,
    @intEmpSourGross * 5,
    @intEmpSourHRA * 2
)

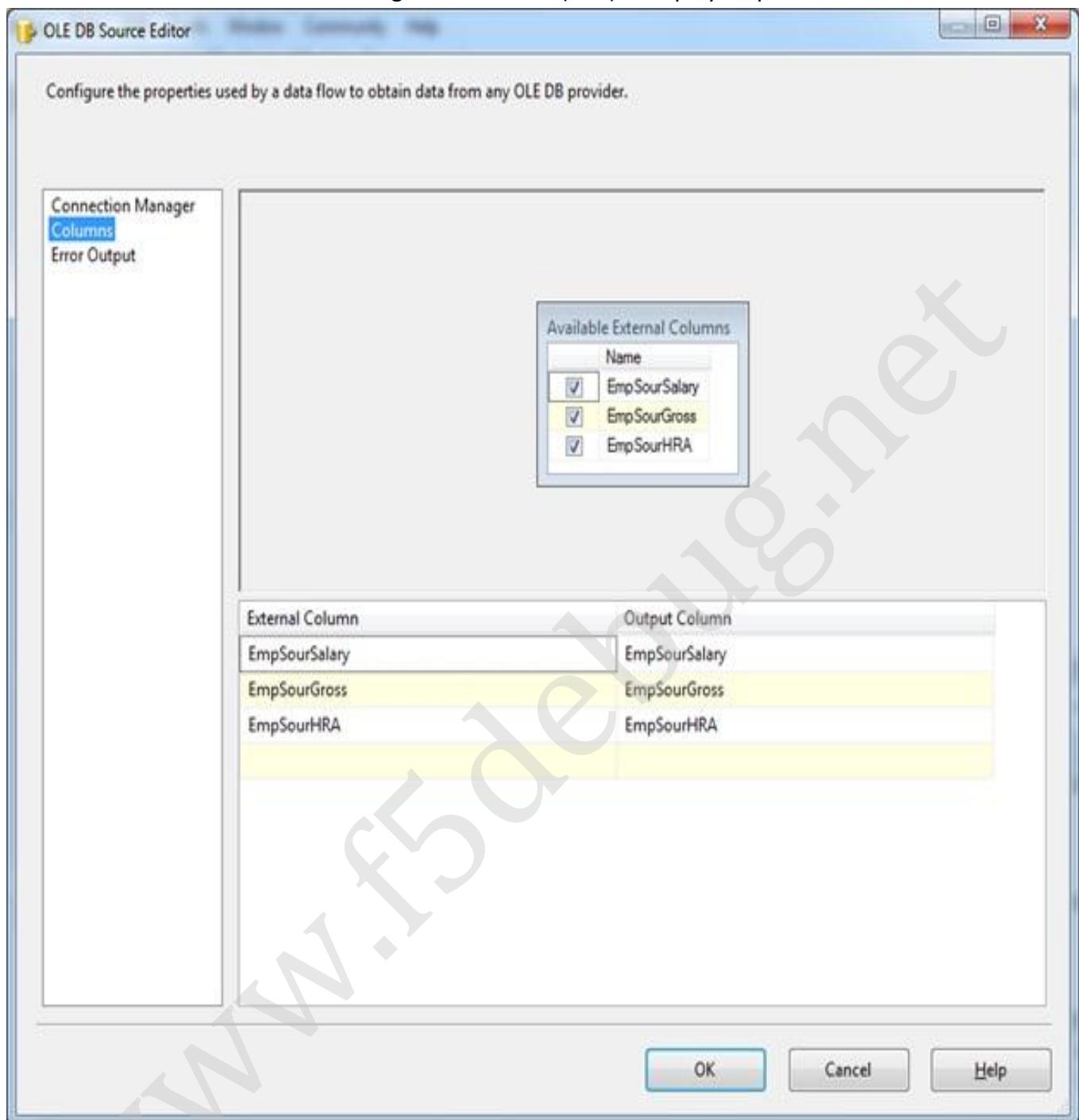
```

Now we are ready with the source and destination table with a stored procedure which prepares the transformation steps. Now let's configure the task step by step as shown in the screens below.

First we are going to configure the OLEDB Source, in this we need to specify our source table as shown in the screen below.

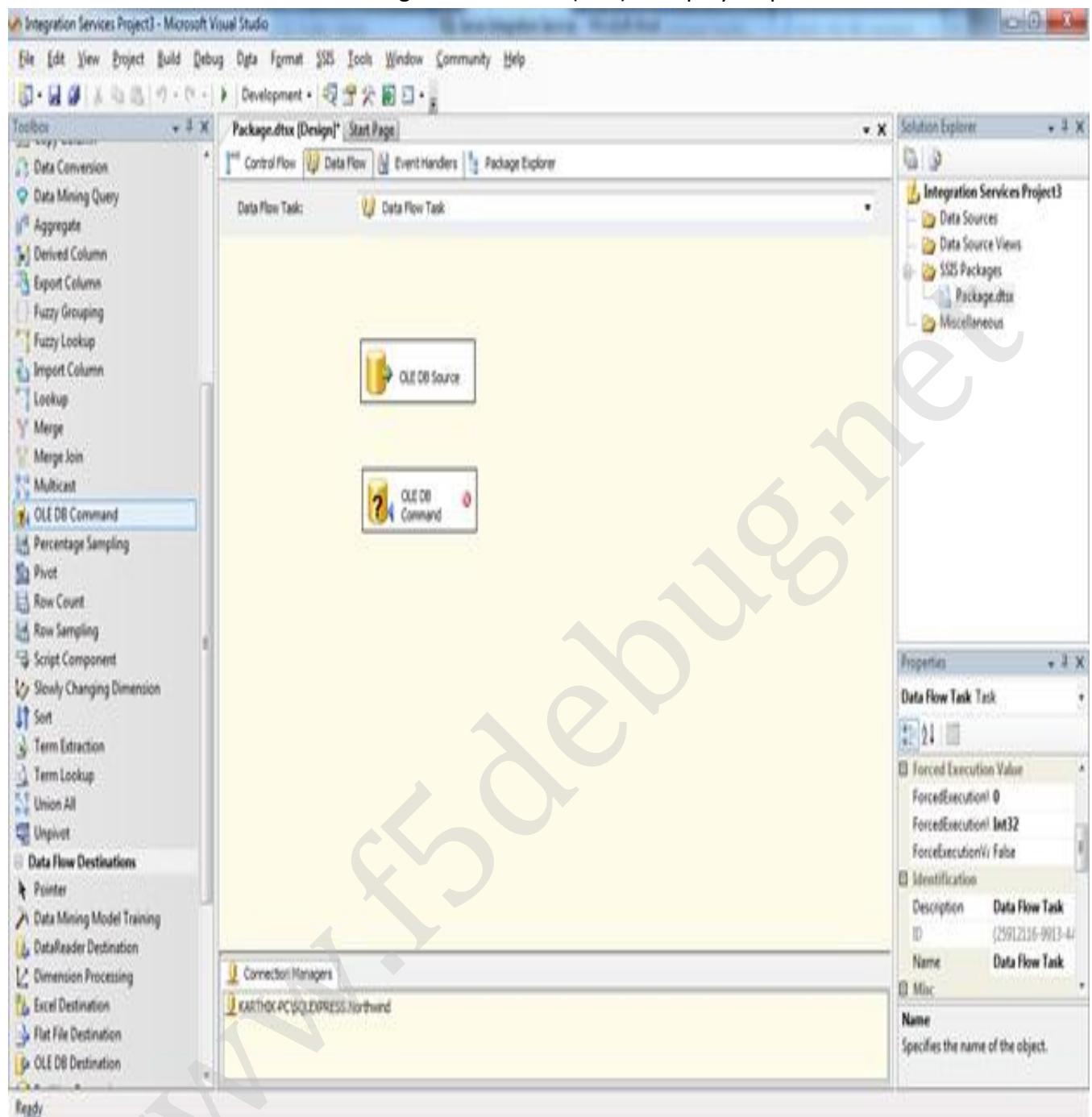


We can see the mapping table column names by navigating to the tab Columns at the right side menu as shown in the screen below.

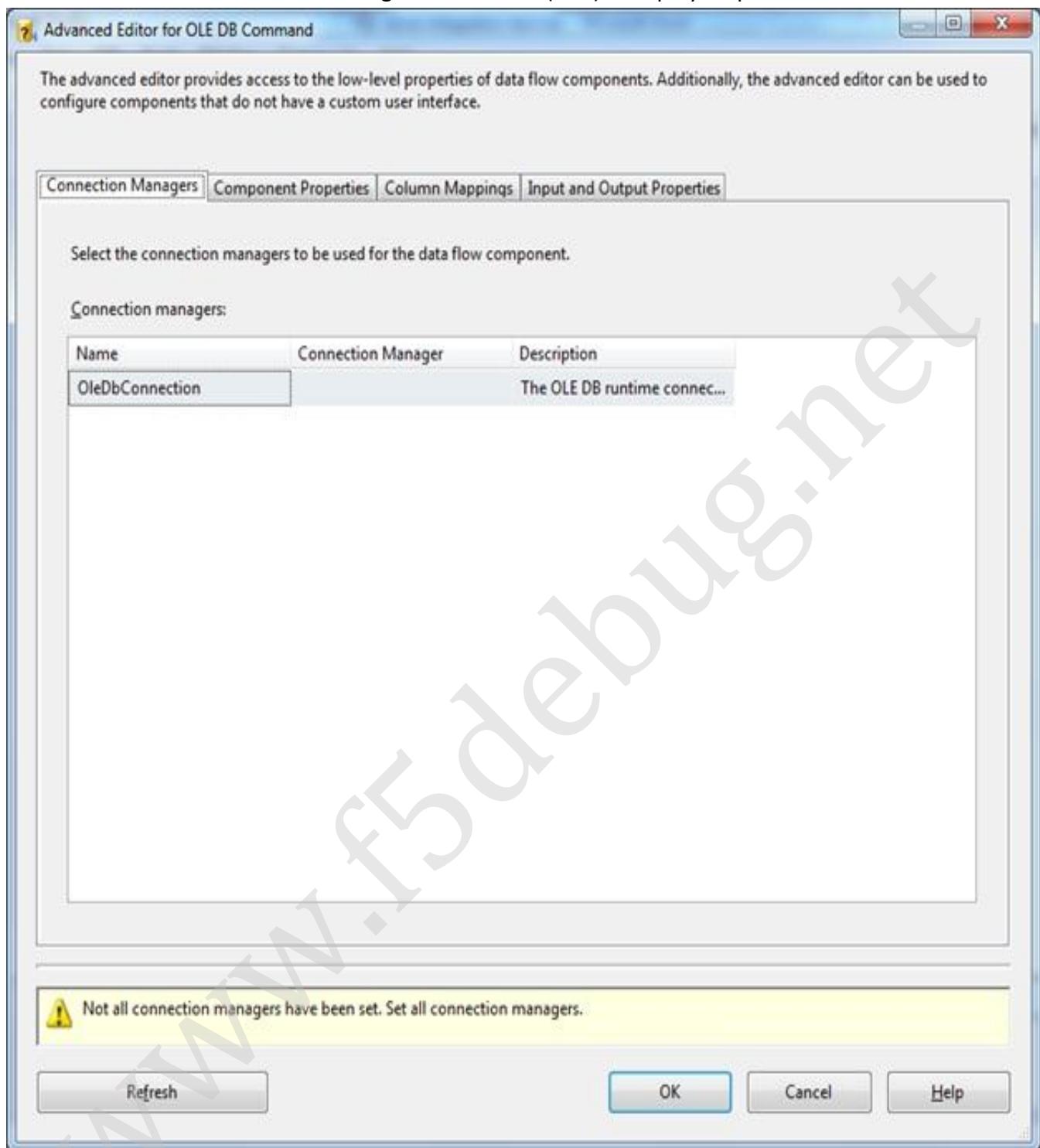


Now once we are done with the configuration for the Source tables we can see the red mark is removed as shown in the screen below.

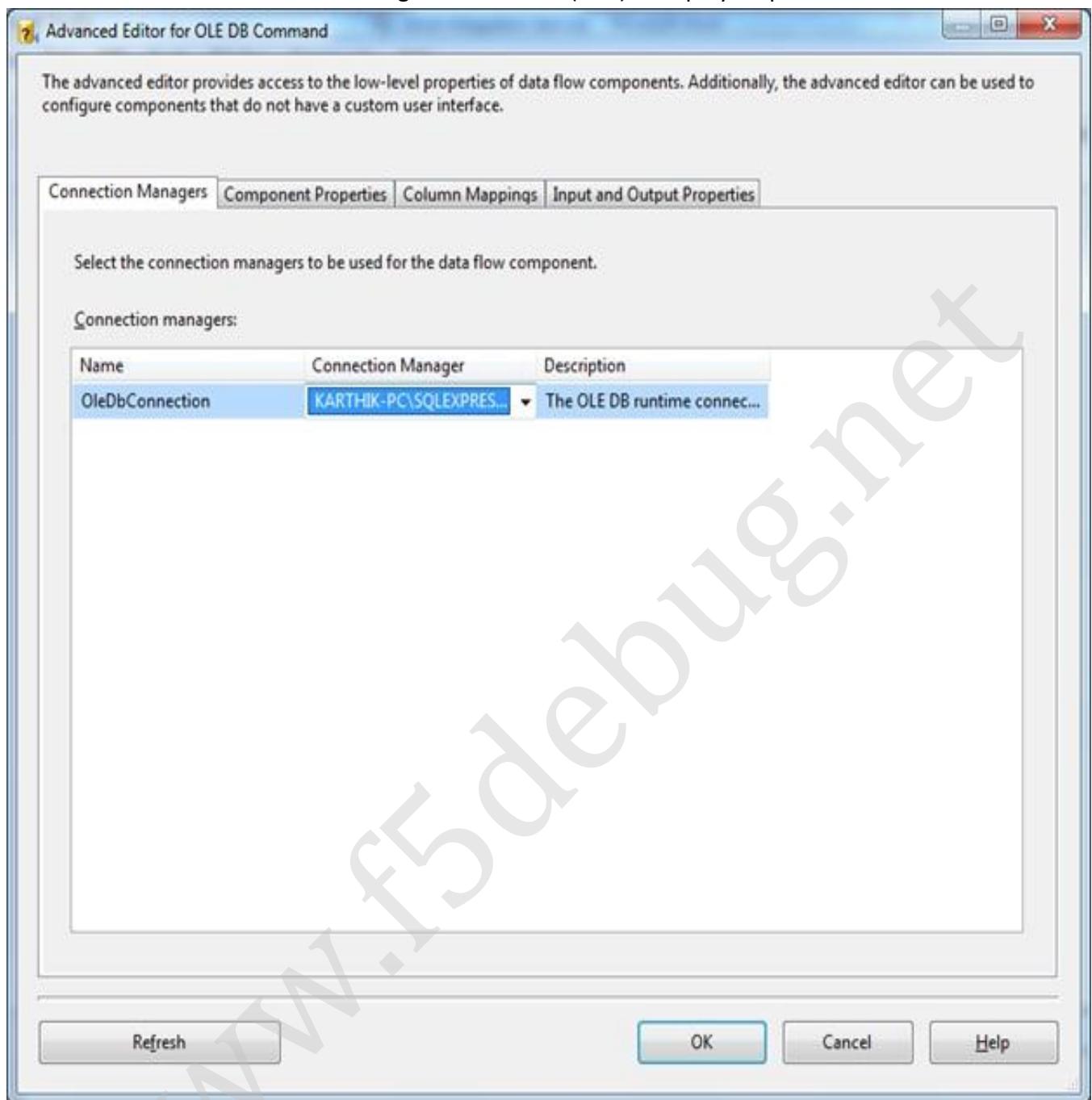
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we will configure the OLE DB Command task, we need to double click the same to go the configuration window. Once we double click we will see the window as shown in the screen below.

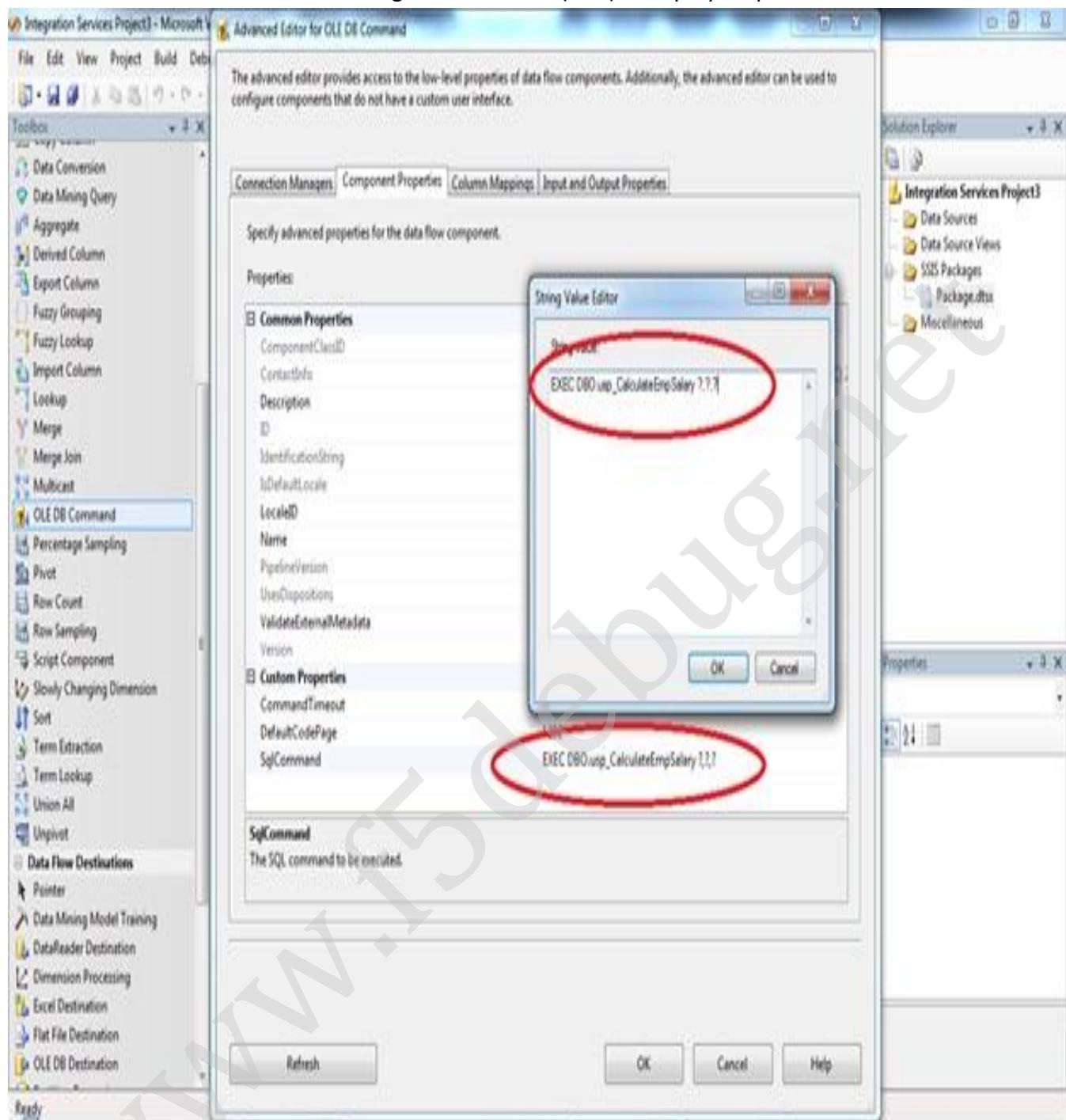


Now we will see how to configure this task. First select the connection manager name using the drop down as shown in the screen below.

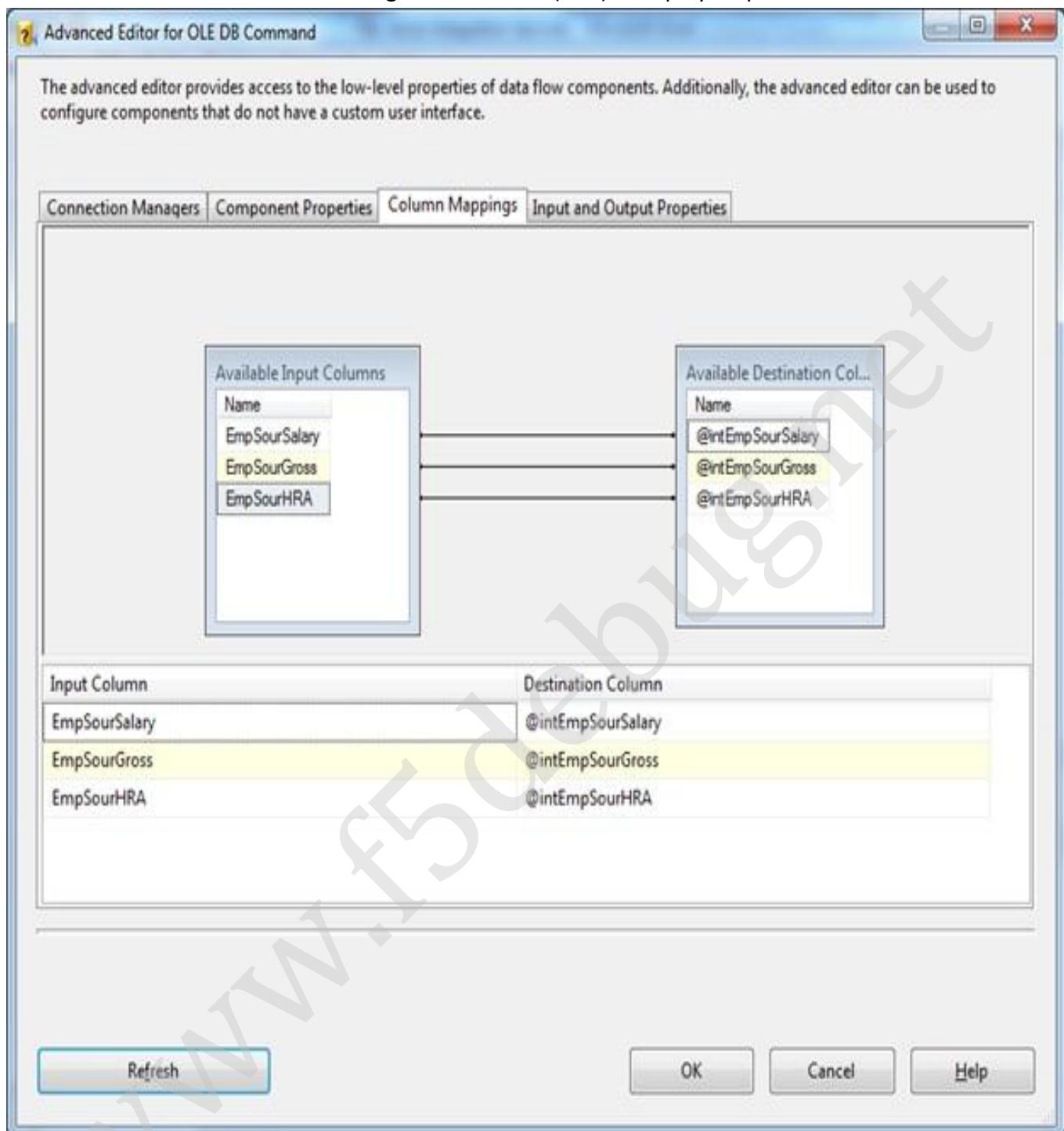


Now move to the next tab Component properties. Here we need to specify the source command that is to be executed across each row on the component. Since in our case it's going to be the stored procedure we should select the procedure as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

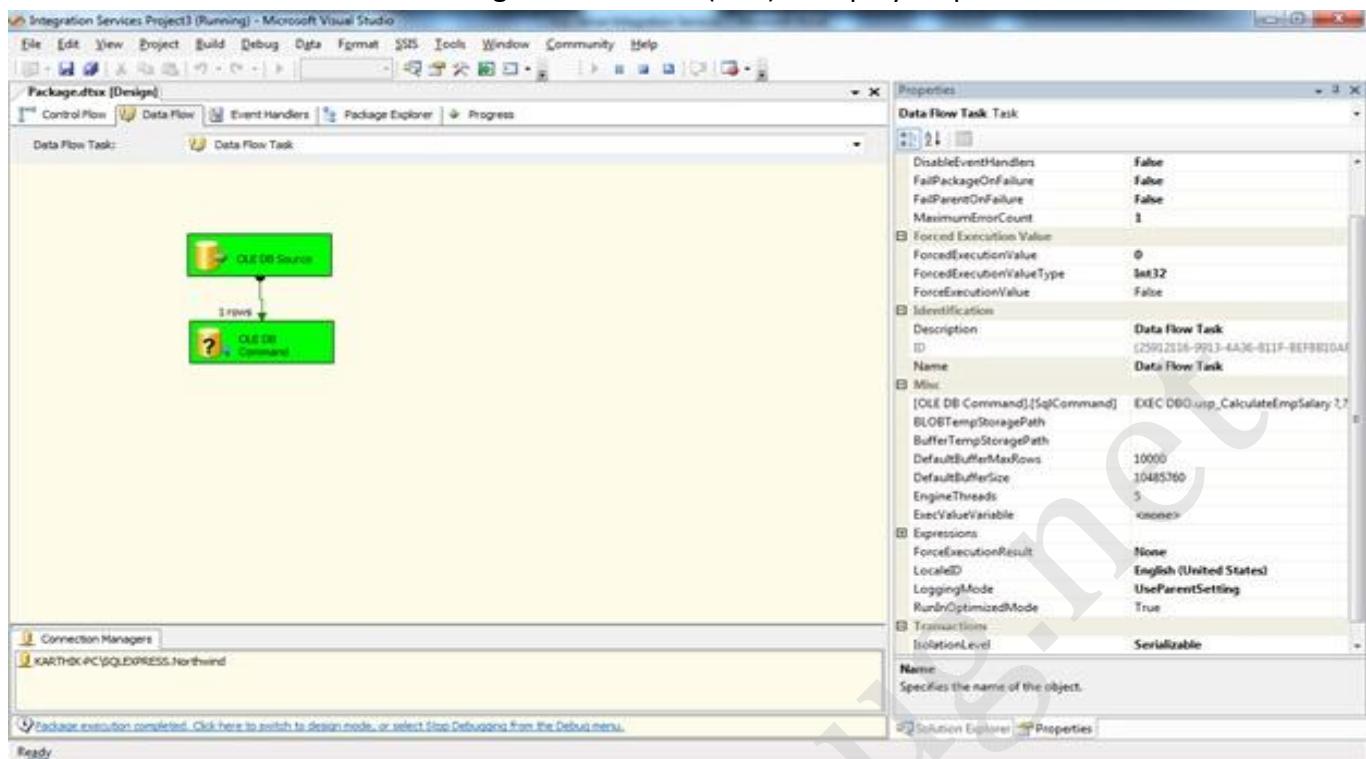


Now we need to move to the next tab Column Mapping. Here we are going to map the respective columns from the stored procedure to the table so that each will be mapped and the respective columns take care of execution as shown in the screen below.

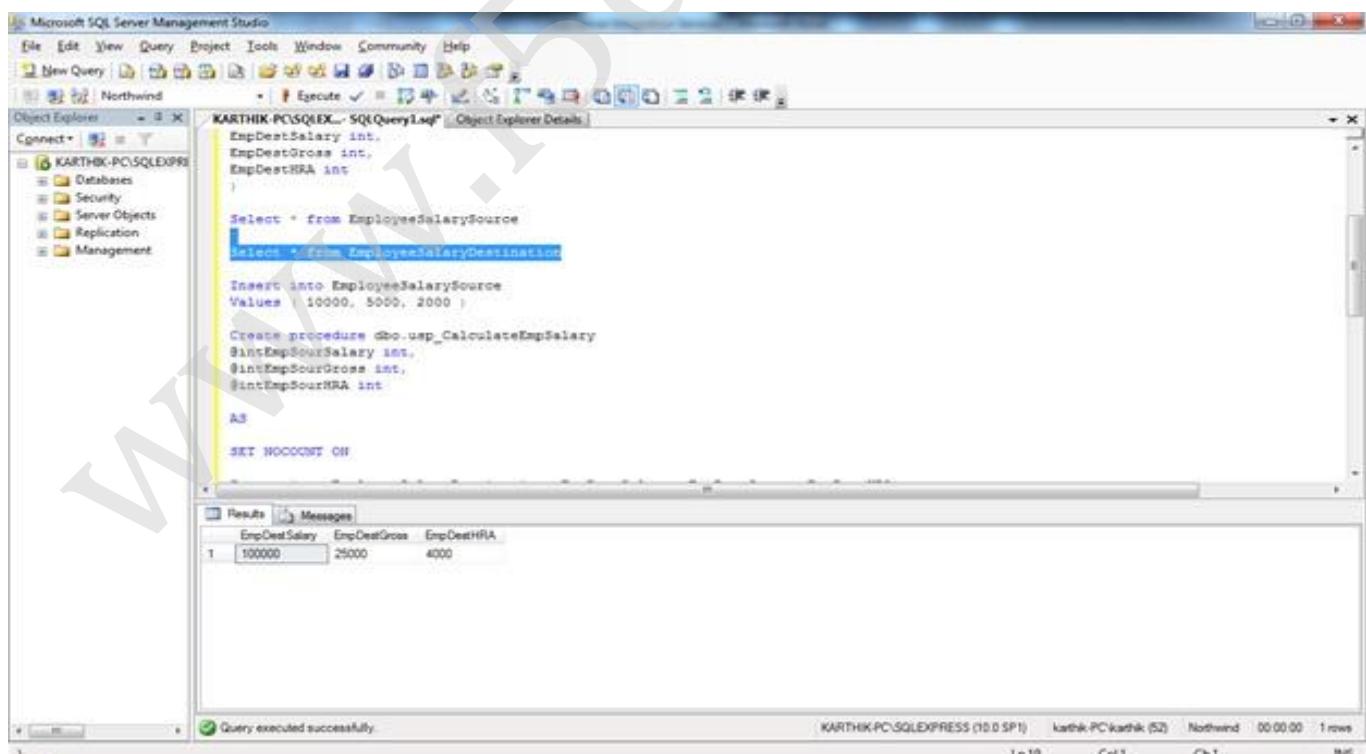


Now we are ready with our package to build and execute it. Press F5 to build the package and execute the same. You can see the screen looks like below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



This indicates that the execution is completed and we can see the desired output in the table destination as shown in the screen below.



## Conclusion

In this chapter we have seen how to use the OLE DB Command task to execute a statement on each row set by set and to get the desired result after manipulation.

# Chapter 61

## PERCENTAGE SAMPLING (SELECTED OUTPUT)

### Introduction

In this article we are going to see how to use Percentage Sampling transformation in SSIS Packaging. Percentage sampling transformation is used to split the data set into separate outputs based on the percent and send it to different transformations for processing the data set.

This task is specifically used for data mining; we can divide the data and send it across as per our requirement.

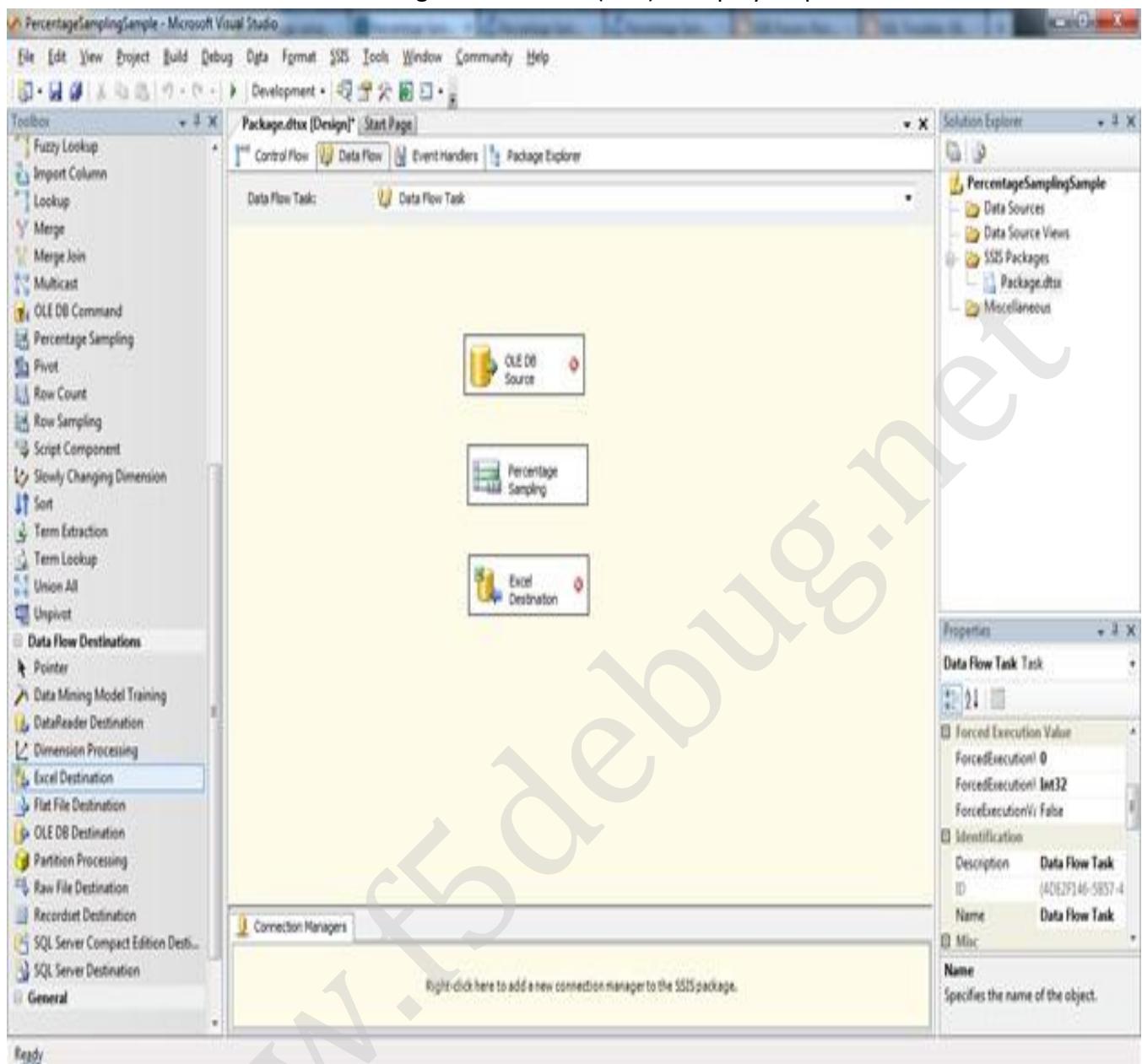
Let's jump start to see this sample how to set the properties of the control.

### Steps

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 the Percentage sampling to see the flow.

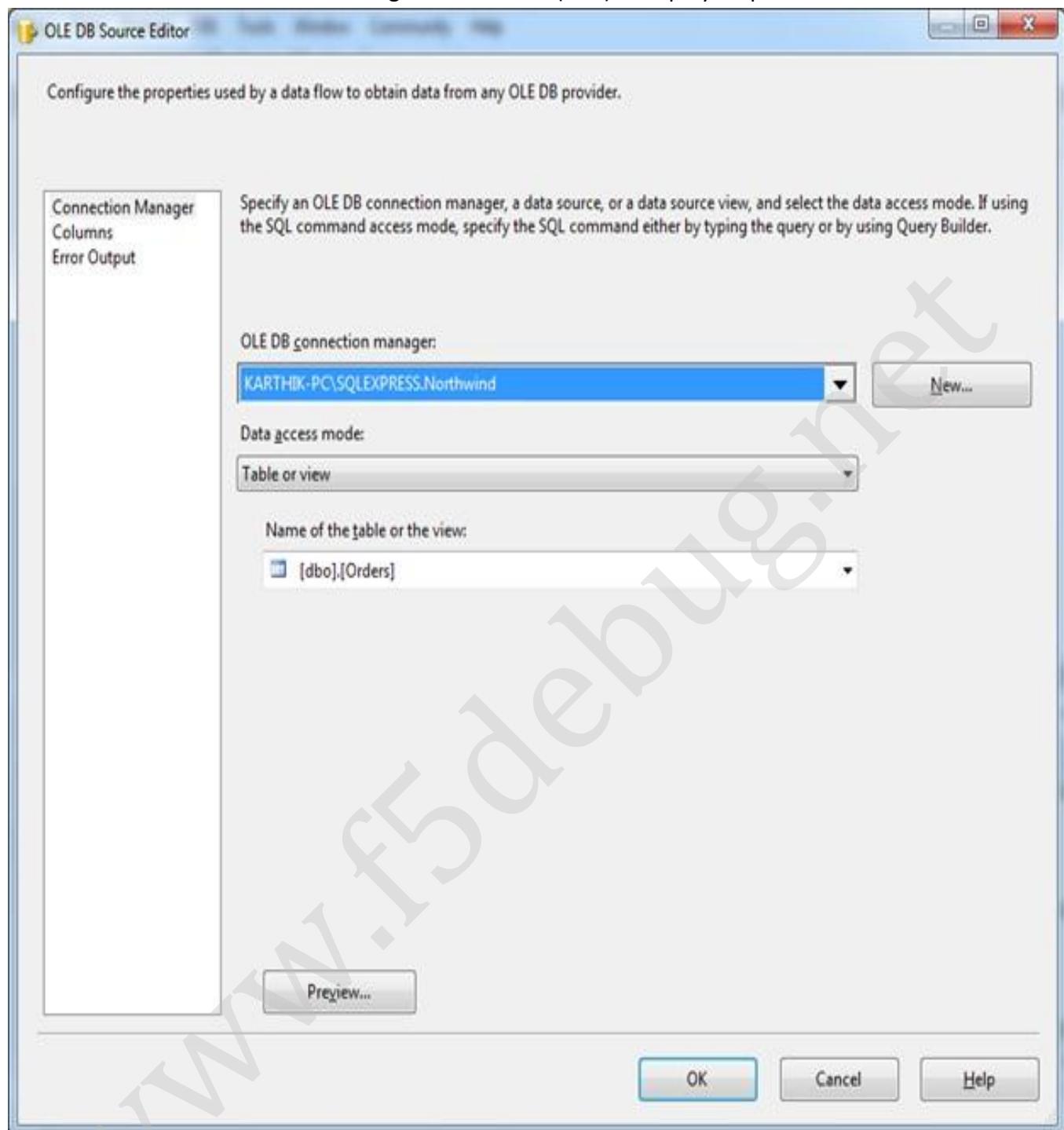
Now once the projects is opened drag and drop a source and a Percentage sampling task as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

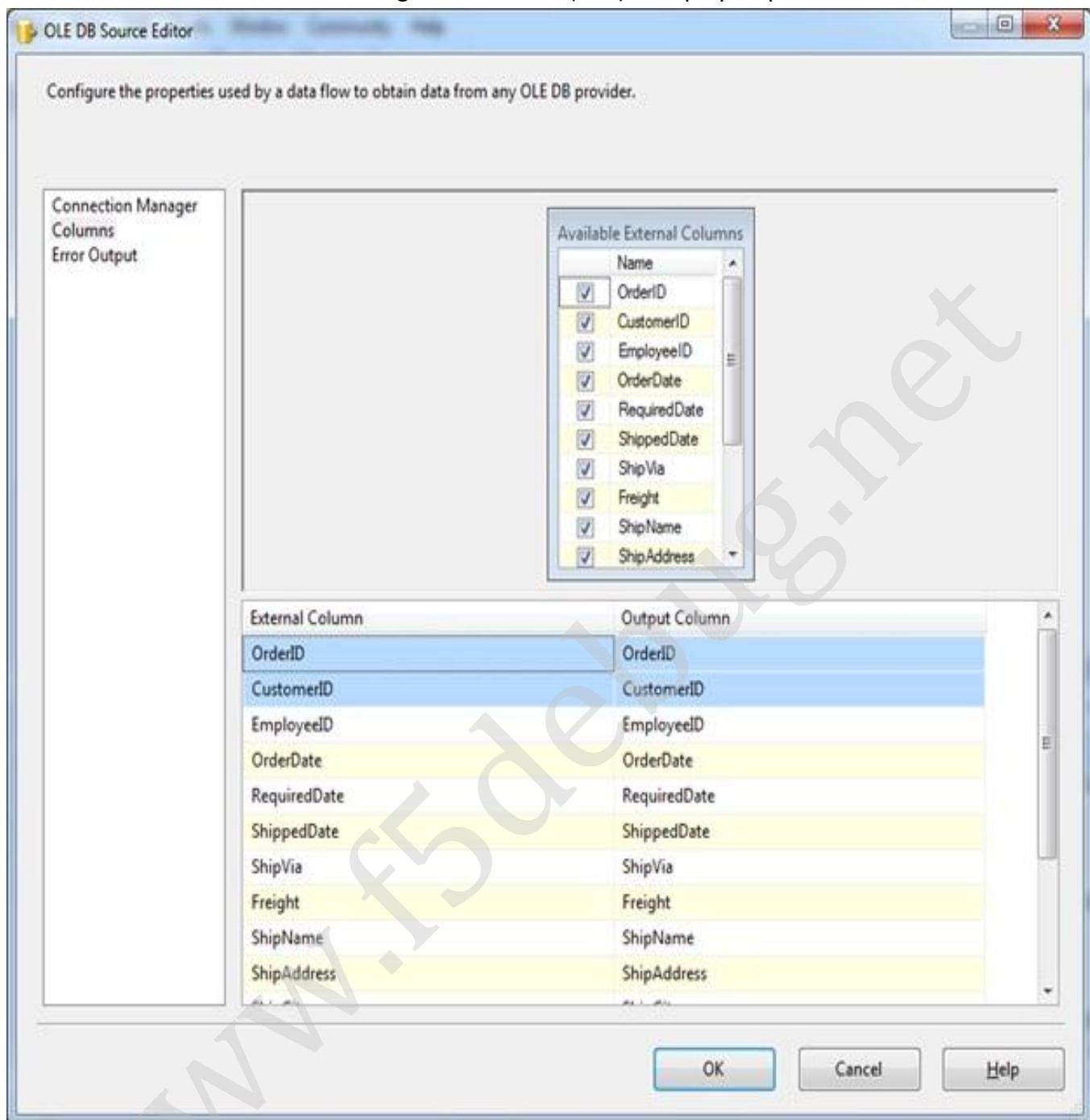


We can see some red marks on each task which indicates that the tasks are not configured. We need to configure each task so that while execution we can have a smooth process.

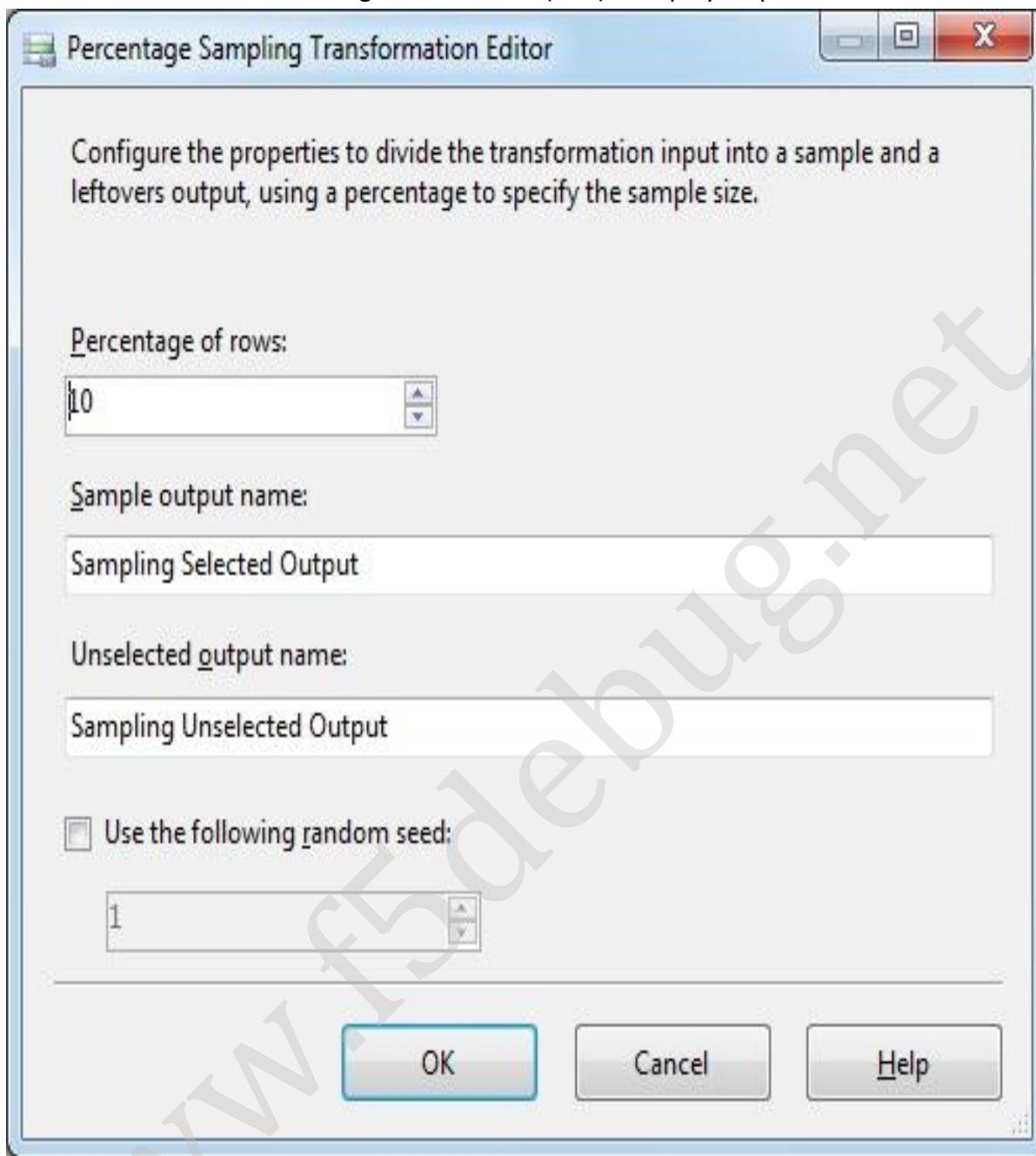
Now let's configure each and every task to execute the package. First let us start with the OLEDB Source as shown in the screen below.



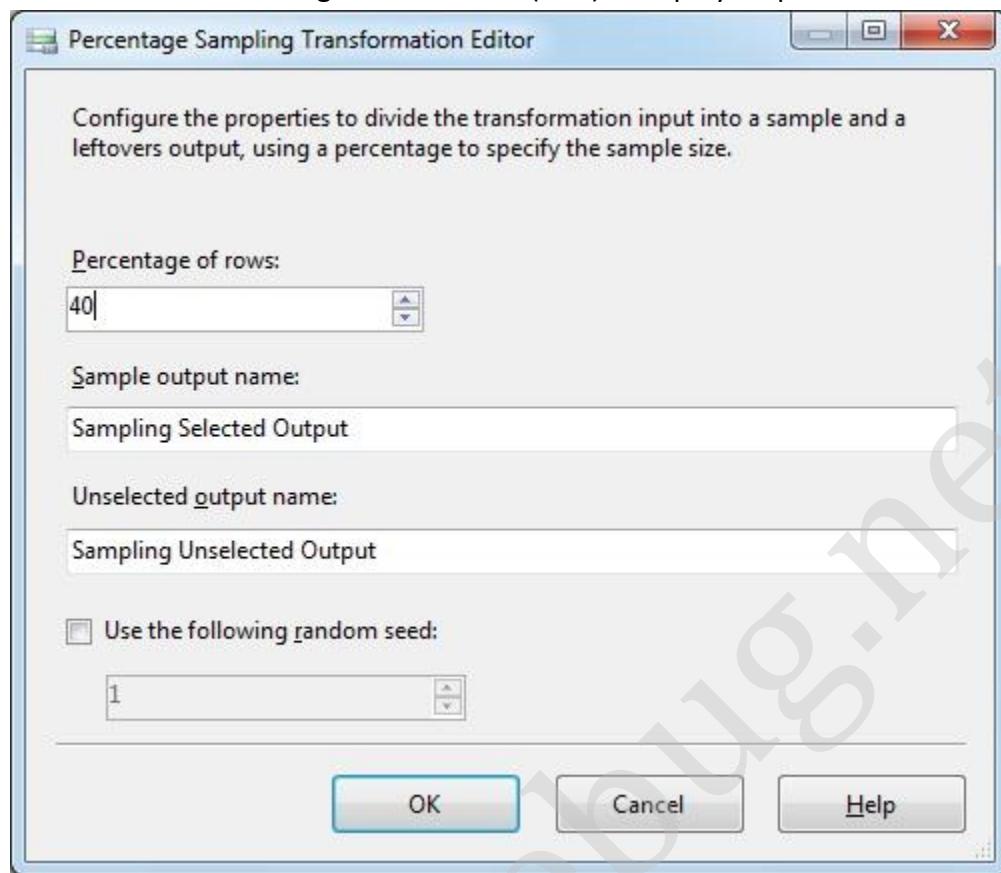
Now go to the mappings tab and see the list of columns in the source table which are mapped correctly as shown in the screen below.



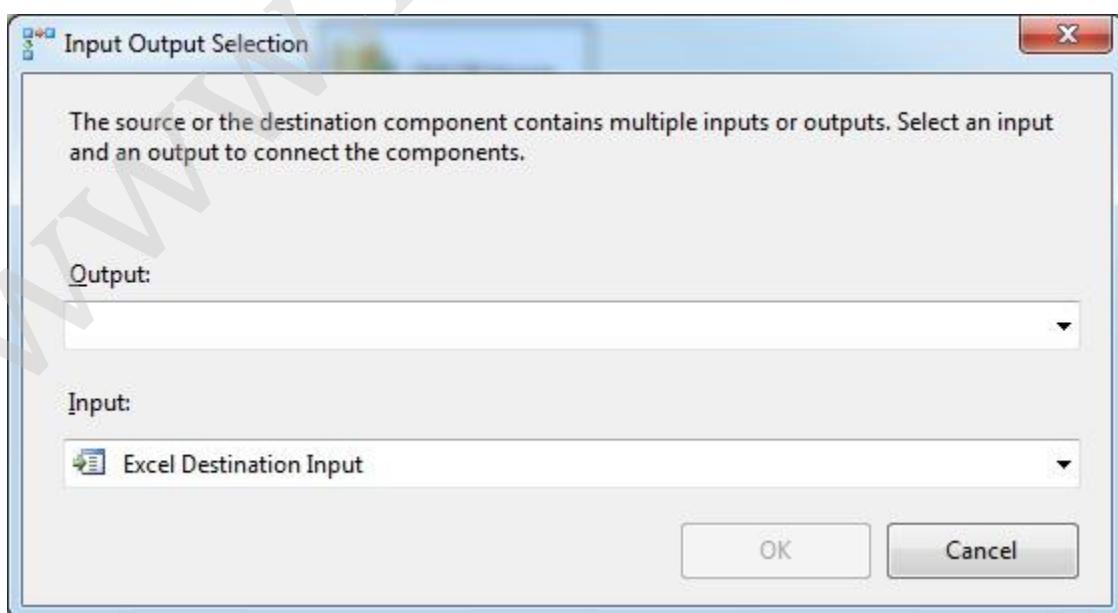
Now we are done with the source, we need to configure the percentage sampling task now. To do that double click on the task will open the window as shown in the screen below.



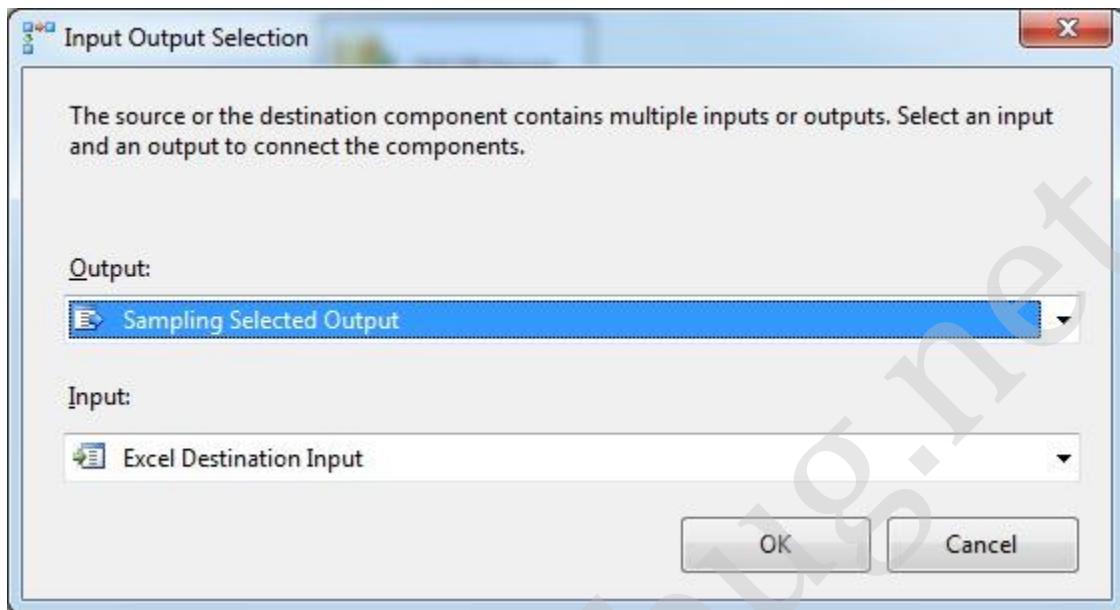
Here we need to specify the percentage of rows to be affected in this transformation and to proceed further. In our sample we are going to select as 40 as shown in the screen below.



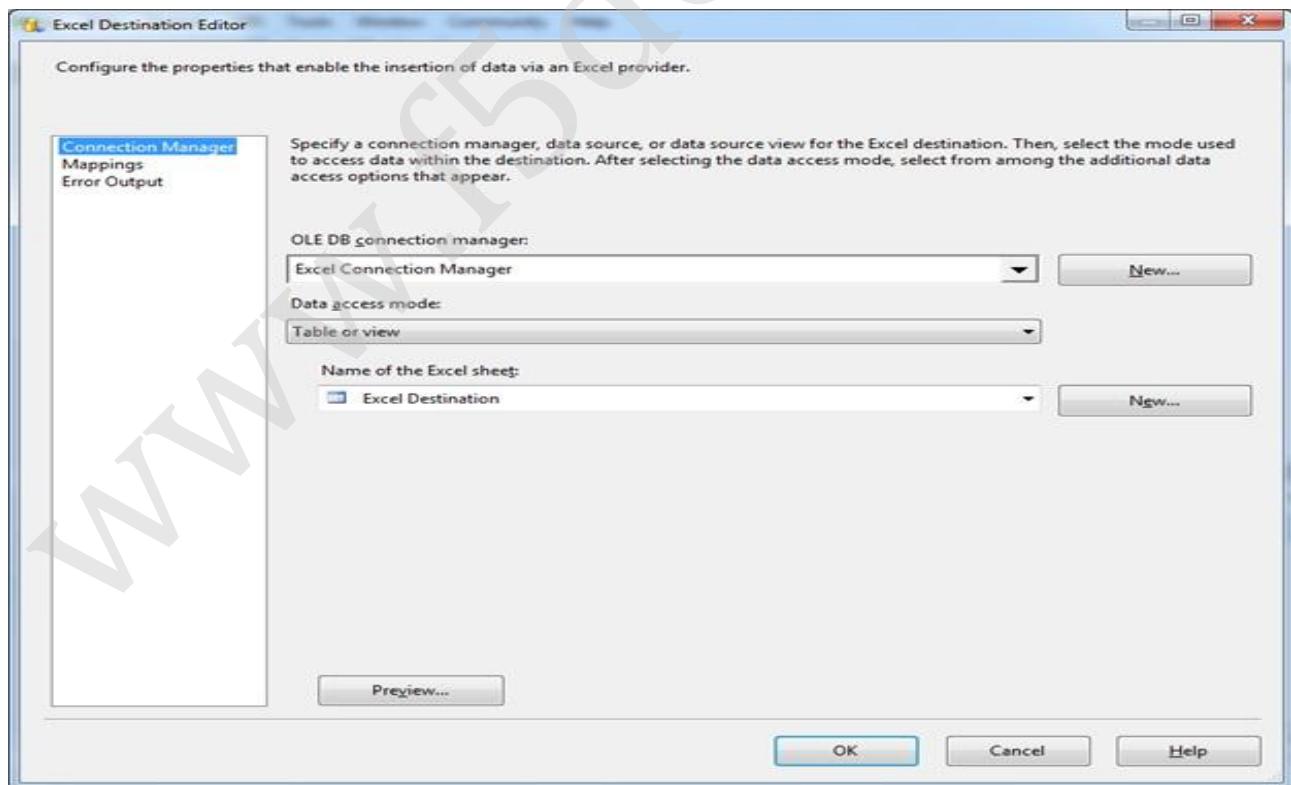
Now we are done with the Percentage sampling task, we need to configure the destination section where the results are expected. To do that drag and drop the green arrow to the destination task which we created earlier. It will open a configuration window to select the output name from the percentage sampling task as shown in the screen below.

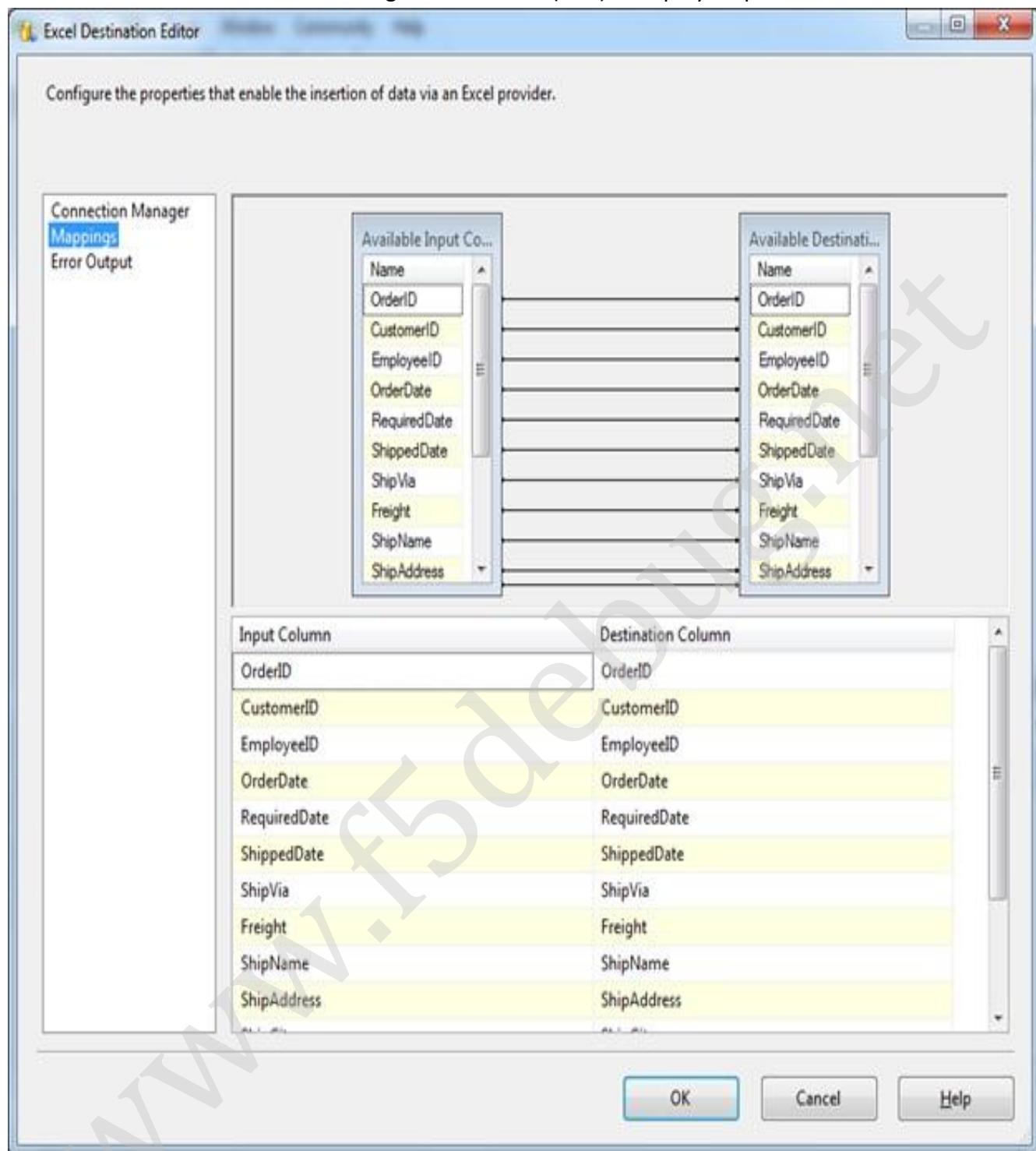


Now we need to select out of the 2 properties which one exactly we require based on our requirement. Here we are going to select as shown in the screen below.



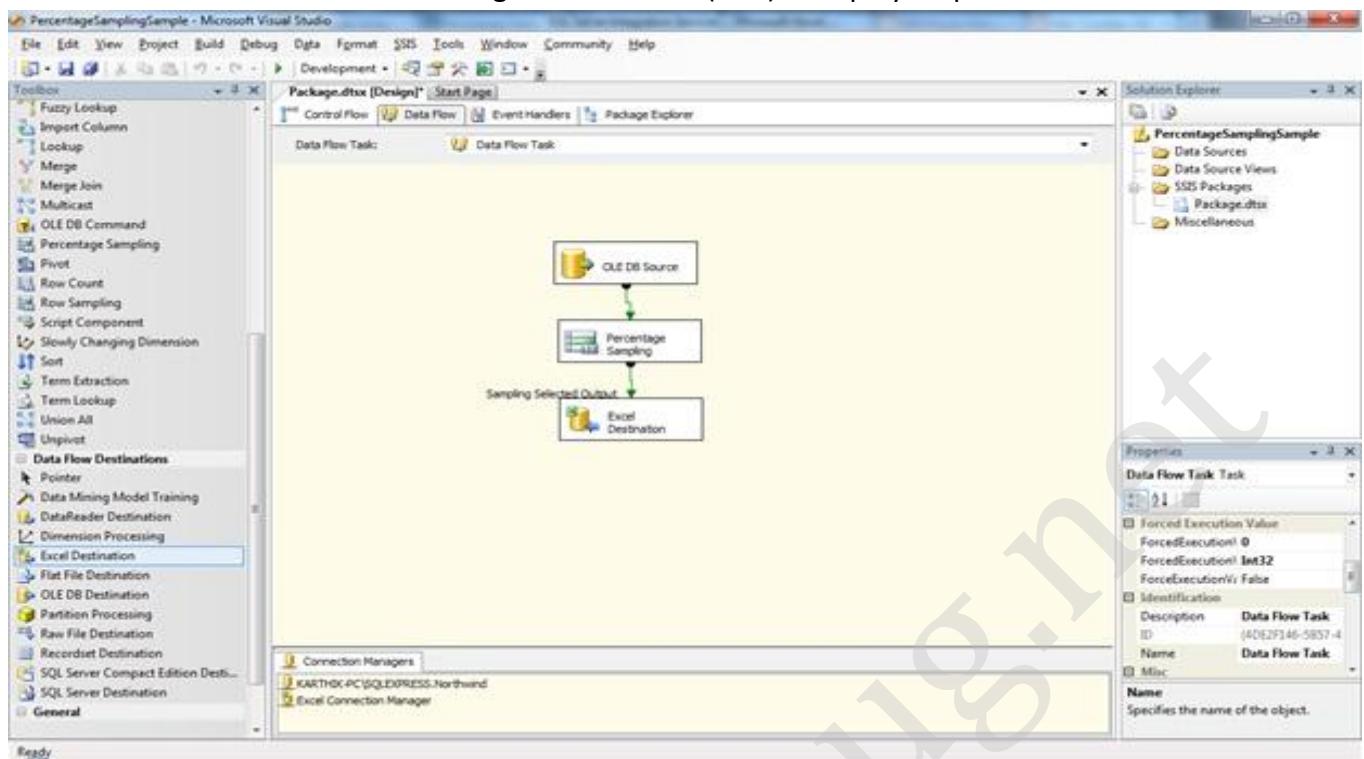
Now we need to configure the destination excel as shown in the screens below which is self-explanatory.



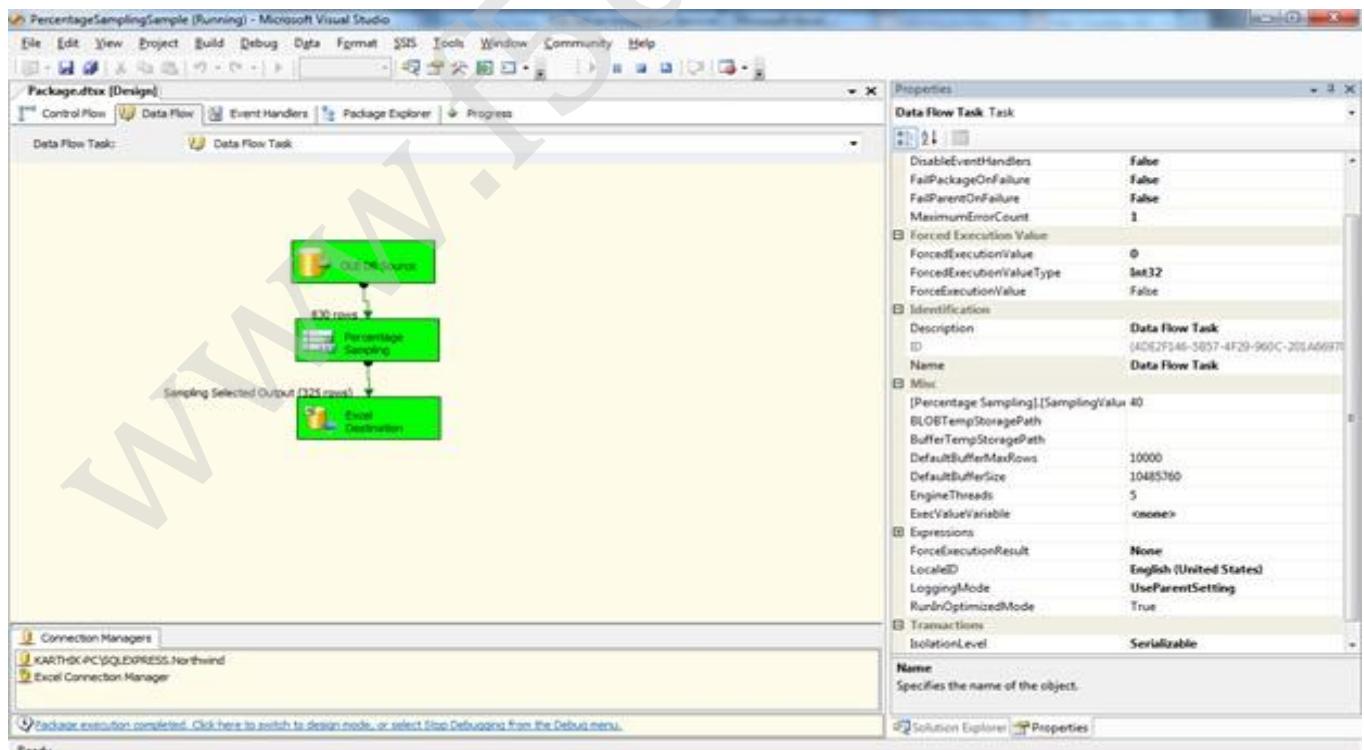


Now we are ready with our package. We need to build and execute it to see the desired result. So our screen will look like below.

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Now to build and execute press F5 and we can see the result window as shown in the screen below.



We can see the number of rows affected and used across. To see the result in the excel navigate to the path where we configured our destination and open the excel, we can see the result as shown in the screen below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	ShippedDate	ShipVia	Freight	ShipName	ShipAddress	ShipCity	ShipRegion	ShipPostalCode	ShipCountry					
2	10249	VINET	5	7/4/1996	8/1/1996	7/16/1996	3	\$32.38	Vins et alcools Léon	59 rue de l'Étoile	Paris	51100	France						
3	10249	TOMSP	6	7/5/1996	8/1/1996	7/10/1996	1	\$11.61	Toms Speise	Luisenstr. 49	Münster	44087	Germany						
4	10250	HANAR	4	7/8/1996	8/5/1996	7/12/1996	2	\$65.83	Hanen Cia	Rua do Pr Rio de Janeiro	RJ	05454-876	Brazil						
5	10251	VICTE	3	7/8/1996	8/5/1996	7/15/1996	1	\$41.34	Victuailles à la Belle	2, rue du Commerce	Lyon	69004	France						
6	10252	SUPRD	4	7/8/1996	8/6/1996	7/11/1996	2	\$51.30	Suprêmes Boulevards Chevalier	Boulevard Chevalier	Bruxelles	B-1000	Belgium						
7	10253	HANAR	3	7/10/1996	7/24/1996	7/16/1996	2	\$58.17	Hanen Cia	Rua do Pr Rio de Janeiro	RJ	05454-876	Brazil						
8	10256	WELLI	3	7/15/1996	8/12/1996	7/17/1996	2	\$13.97	Wellington	Rua do Mi	Resende	SP	08737-363	Brazil					
9	10257	HILAA	4	7/16/1996	8/13/1996	7/23/1996	3	\$81.91	HILARION	Comerio 225 San	Óstia Tâches	50221	Venezuela						
10	10258	EPINSH	1	7/17/1996	8/14/1996	7/23/1996	1	\$140.51	Emst Henk Kirchgass	Graz	8010	Austria							
11	10259	CENTC	4	7/18/1996	8/15/1996	7/25/1996	3	\$3.25	Centro cor Siewes de México D.F.			05022	Mexico						
12	10260	OTTIK	4	7/19/1996	8/16/1996	7/29/1996	1	\$55.09	Öttilies Kä	Mährchen	Köln	50739	Germany						
13	10261	QUEDE	4	7/19/1996	8/16/1996	7/30/1996	2	\$3.05	Que Delicia	Rua do Pr Rio de Janeiro	RJ	02389-673	Brazil						
14	10263	ERPNH	3	7/23/1996	8/20/1996	7/31/1996	3	\$146.06	Ernst Henk Kirchgass	Graz	8010	Austria							
15	10264	FOLKO	6	7/24/1996	8/21/1996	8/23/1996	3	\$3.67	Folk och Fjälkinge	Bröcke	56046	Sweden							
16	10265	BLONP	2	7/25/1996	8/23/1996	8/12/1996	1	\$55.28	Blondel p/24	place Strasbourg	Strasbourg	67000	France						
17	10270	WARTH	1	8/1/1996	8/23/1996	8/2/1996	1	\$136.54	Wartens H	Torkku	Ölde	30110	Finland						
18	10272	RATTC	6	8/2/1996	8/30/1996	8/6/1996	2	\$98.03	Reitessens	2817 Milton	Albuquerque	NM	87110	USA					
19	10273	QUICK	3	8/5/1996	9/2/1996	8/12/1996	3	\$76.07	QUICK-St	Teuchert	Cunewalde	01307	Germany						
20	10274	VINET	6	8/6/1996	9/3/1996	8/16/1996	1	\$6.01	Vins et alcools	59 rue de l'Étoile	Paris	51100	France						
21	10277	MORGK	2	8/3/1996	9/6/1996	8/13/1996	3	\$125.77	Morgenst Heineit	24 Leipzig		04179	Germany						
22	10278	BERGS	8	8/12/1996	9/9/1996	8/16/1996	2	\$92.69	Berglund	Berguvet	Luleå	95522	Sweden						
23	10283	LILAS	3	8/16/1996	9/13/1996	8/23/1996	3	\$84.81	LILA-Supr	Comerio 52 Barquisimeto	Lara	3508	Venezuela						
24	10284	LEHMS	4	8/19/1996	9/16/1996	8/27/1996	1	\$76.56	Lehmenn Magazin	Frankfurt	o.M.	60528	Germany						
25	10285	QUICK	1	8/20/1996	9/17/1996	8/26/1996	2	\$76.03	QUICK-St	Teuchert	Cunewalde	01307	Germany						
26	10288	QUICK	8	8/21/1996	9/18/1996	8/30/1996	3	\$229.28	QUICK-St	Teuchert	Cunewalde	01307	Germany						
27	10291	QUEDE	6	8/21/1996	9/24/1996	9/4/1996	2	\$6.40	Que Delicia	Rua do Pr Rio de Janeiro	RJ	02389-673	Brazil						
28	10292	TRADH	1	8/20/1996	9/25/1996	9/2/1996	2	\$1.35	Tradigao	Av. Inés de São Paulo	SP	05634-030	Brazil						
29	10294	RATTC	4	8/30/1996	9/27/1996	9/5/1996	2	\$147.25	Reitessens	2817 Milton	Albuquerque	NM	87110	USA					
30	10297	BLONP	5	9/4/1996	#####	9/10/1996	2	\$5.74	Blondel p/24	place Strasbourg	Strasbourg	67000	France						
31	10299	RICAR	4	9/6/1996	10/4/1996	9/13/1996	2	\$29.76	Ricardo A	Av. Copac Rio de Janeiro	RJ	02389-090	Brazil						
32	10310	THEBI	8	9/20/1996	#####	9/27/1996	2	\$17.52	The Big C	89 Jeffers Portland	OR	97201	USA						
33	10310	THAIW	7	9/21/1996	#####	10/3/1996	3	\$80.97	Thailand	Adidas	Chennai	600009	India						

## Conclusion

In this article we have seen how to use the Percentage Sampling to execute data set and split based on the percent and uses it across the requirement.

# Chapter 62

## PERCENTAGE SAMPLING (UN SELECTED OUTPUT)

### Introduction

In this chapter we are going to see how to use Percentage Sampling transformation (Un-Selected Output) in SSIS Packaging. Percentage sampling transformation is used to split the dataset into separate outputs based on the percent and send it to different transformations for processing the dataset.

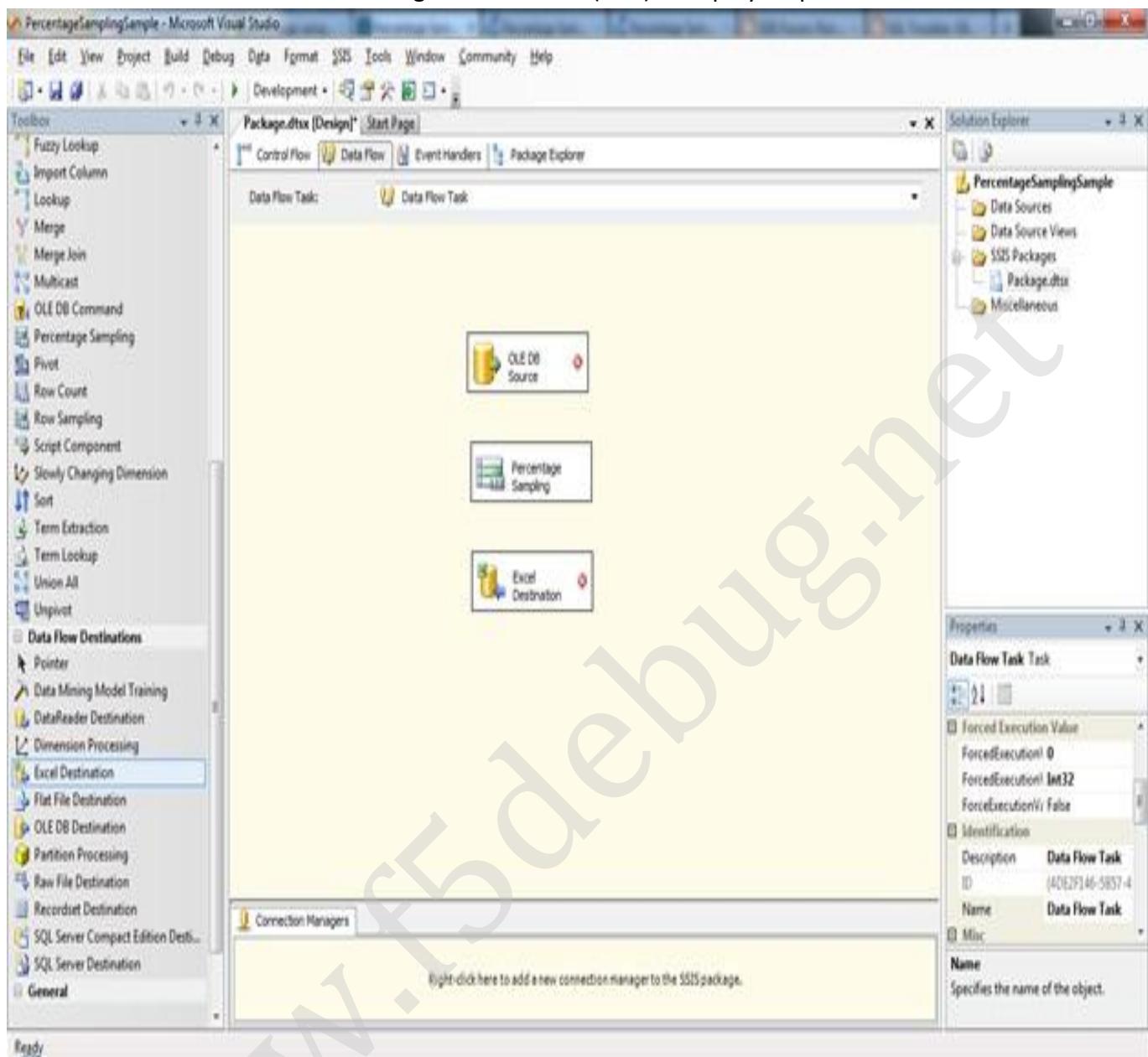
This task is specifically used for data mining; we can divide the data and send it across as per our requirement.

Let's jump start to see this sample how to set the properties of the control.

### Steps

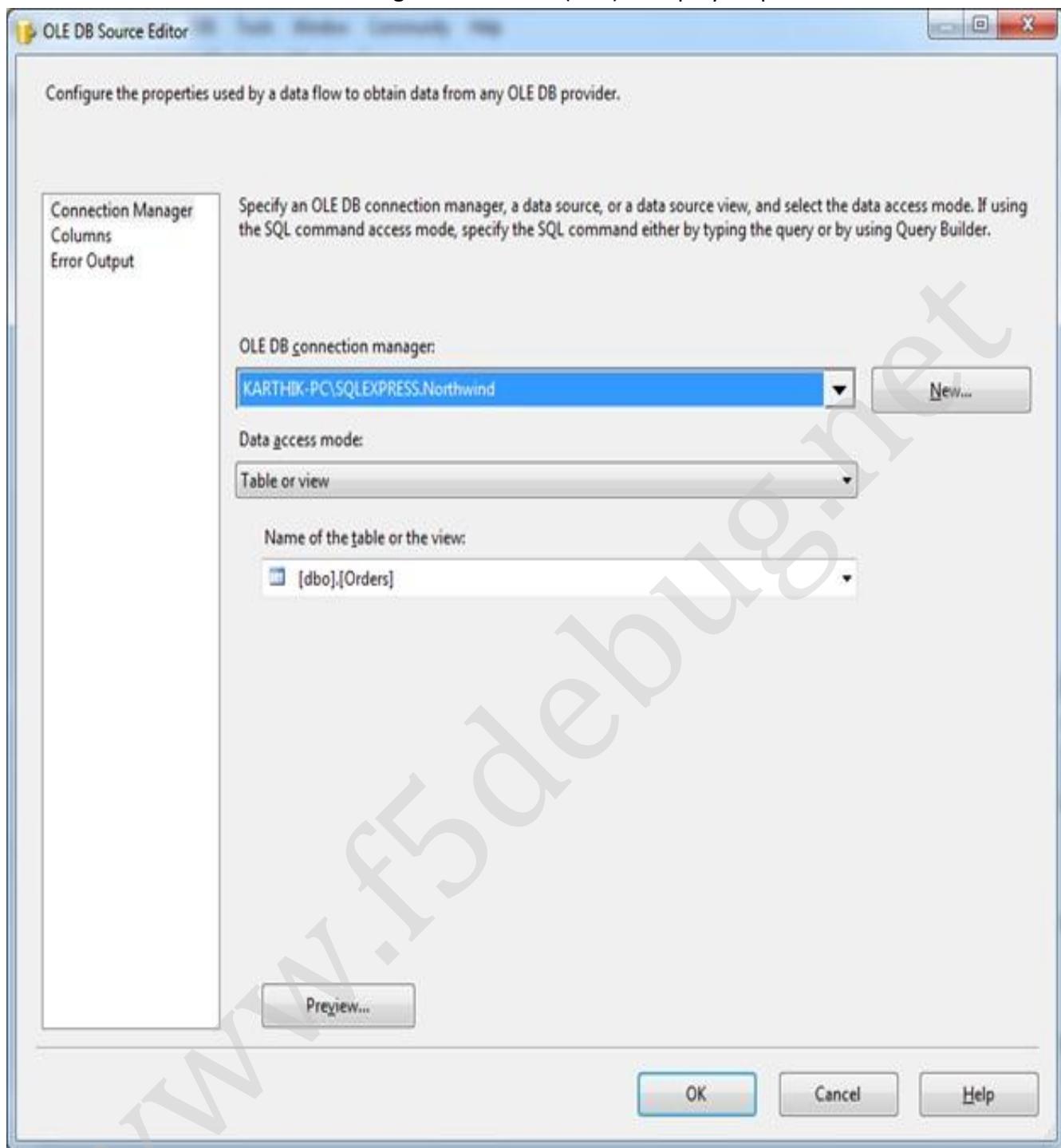
Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see how to use the Percentage sampling to see the flow.

Now once the projects is opened drag and drop a source and a Percentage sampling task as shown in the screen below.

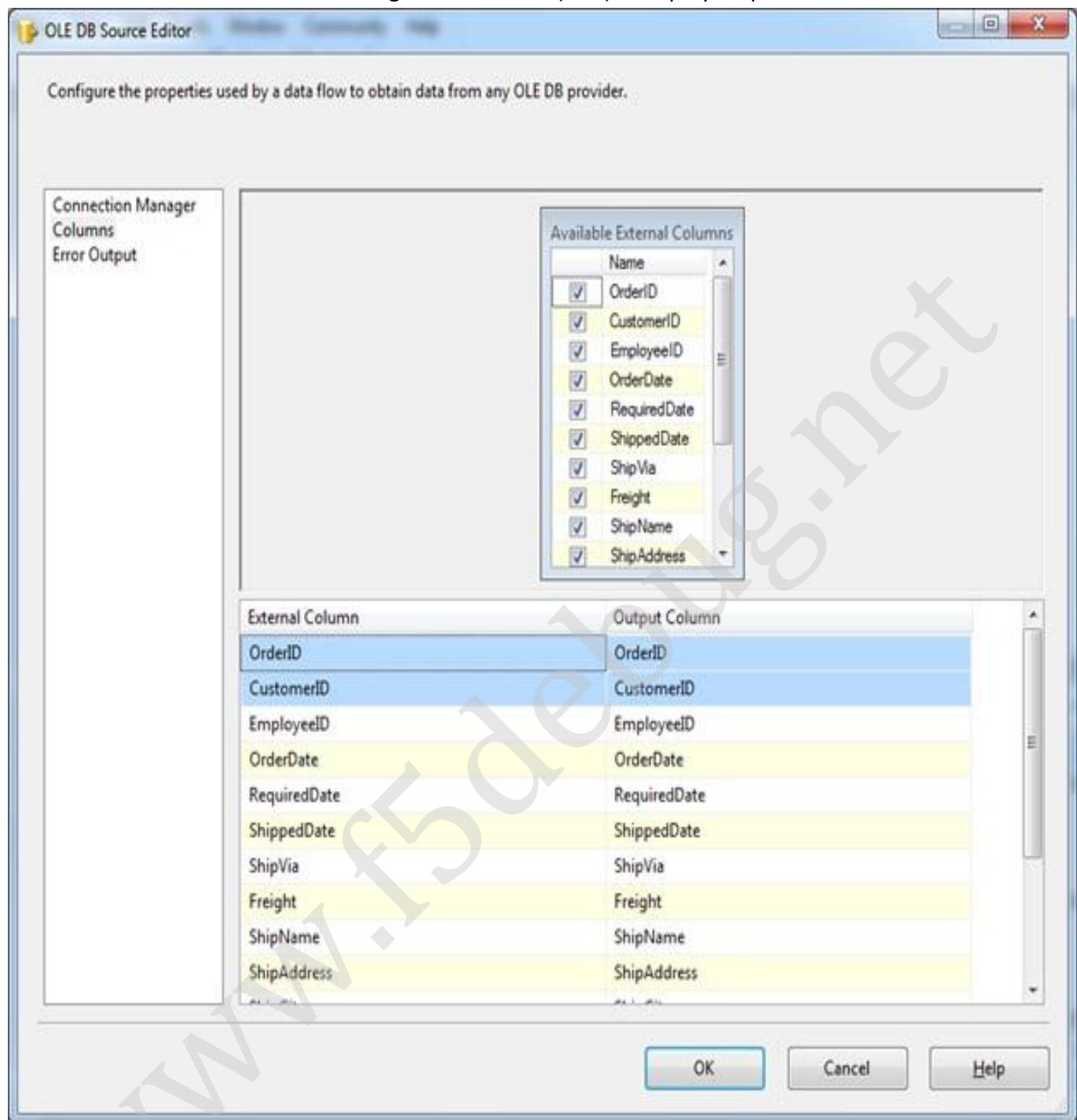


We can see some red marks on each task which indicates that the tasks are not configured. We need to configure each task so that while execution we can have a smooth process.

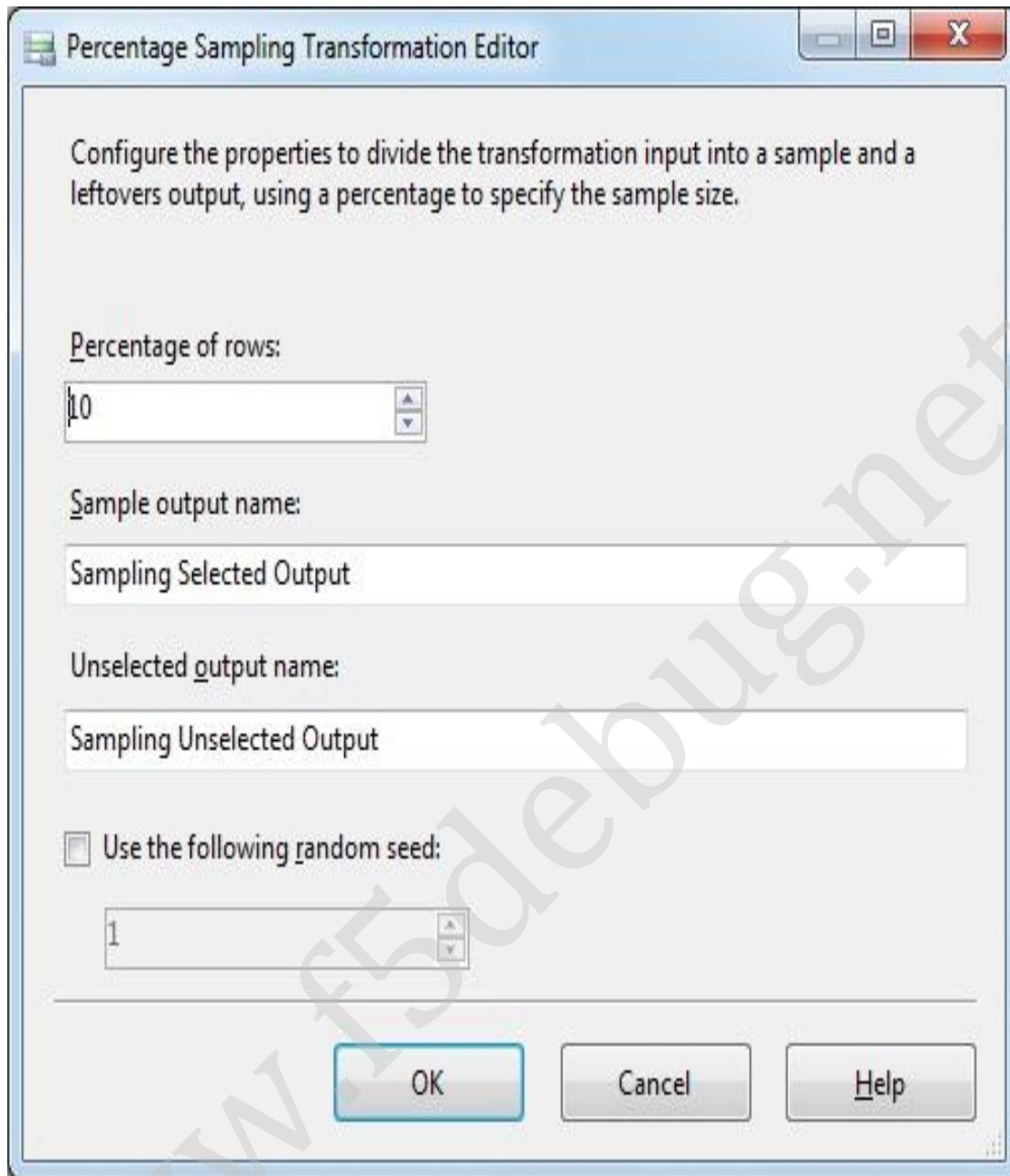
Now let's configure each and every task to execute the package. First let us start with the OLEDB Source as shown in the screen below.



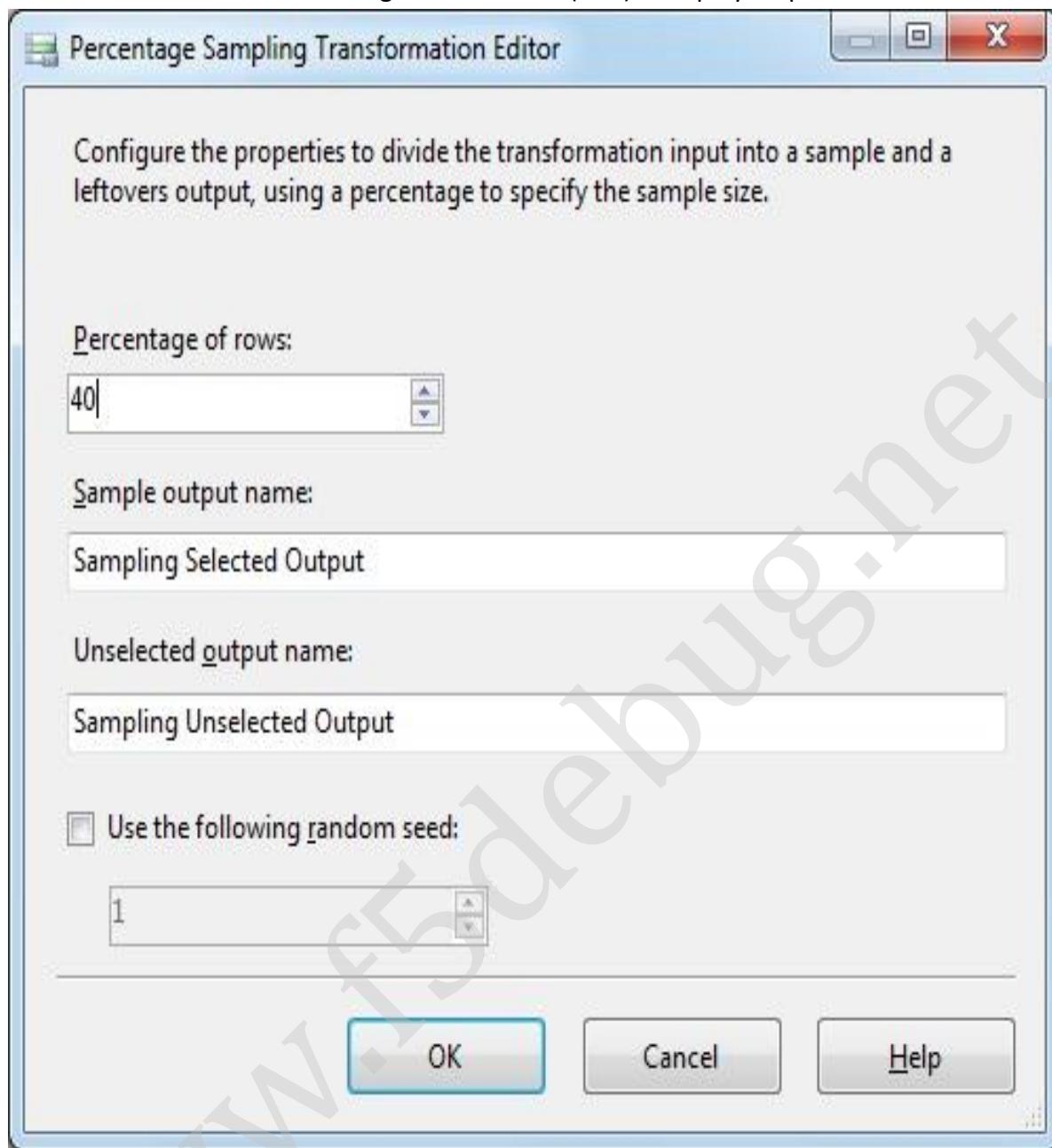
Now go to the mappings tab and see the list of columns in the source table which are mapped correctly as shown in the screen below.



Now we are done with the source, we need to configure the percentage sampling task now. To do that double click on the task will open the window as shown in the screen below.

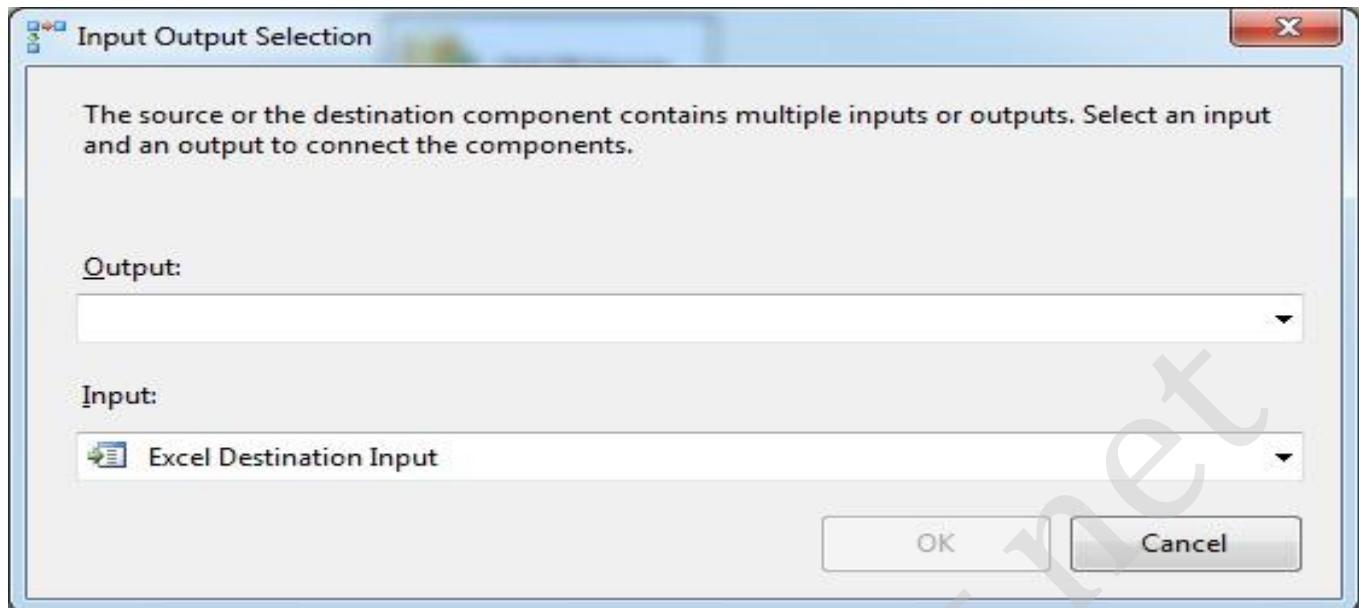


Here we need to specify the percentage of rows to be affected in this transformation and to proceed further. In our sample we are going to select as 40 as shown in the screen below.

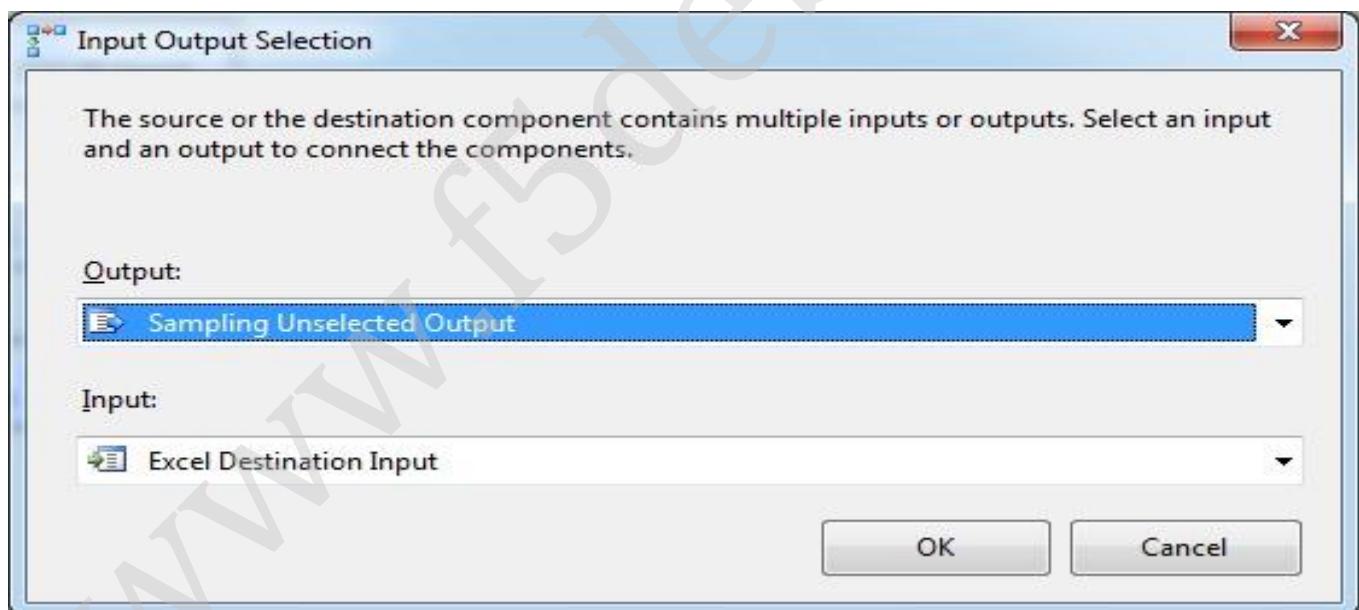


Now we are done with the Percentage sampling task, we need to configure the destination section where the results are expected. To do that drag and drop the green arrow to the destination task which we created earlier.

It will open a configuration window to select the output name from the percentage sampling task as shown in the screen below.

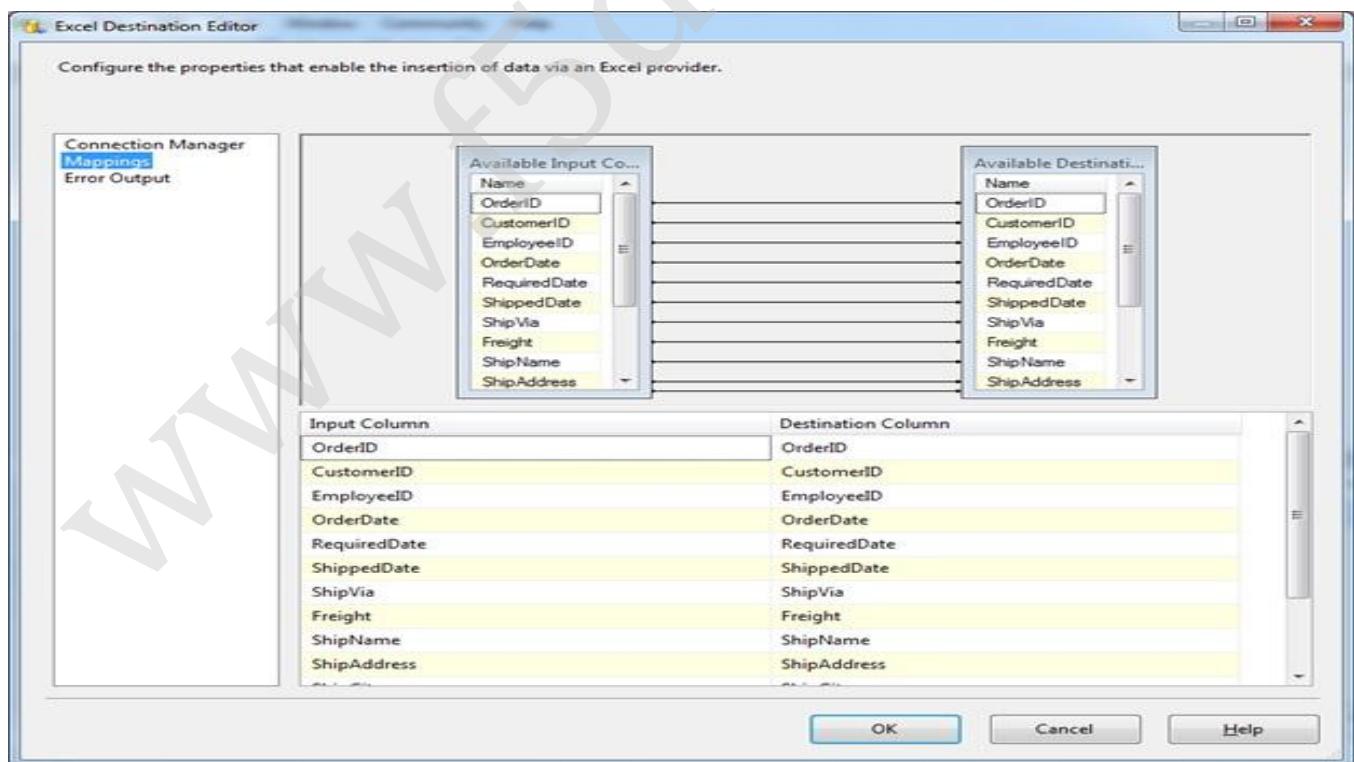
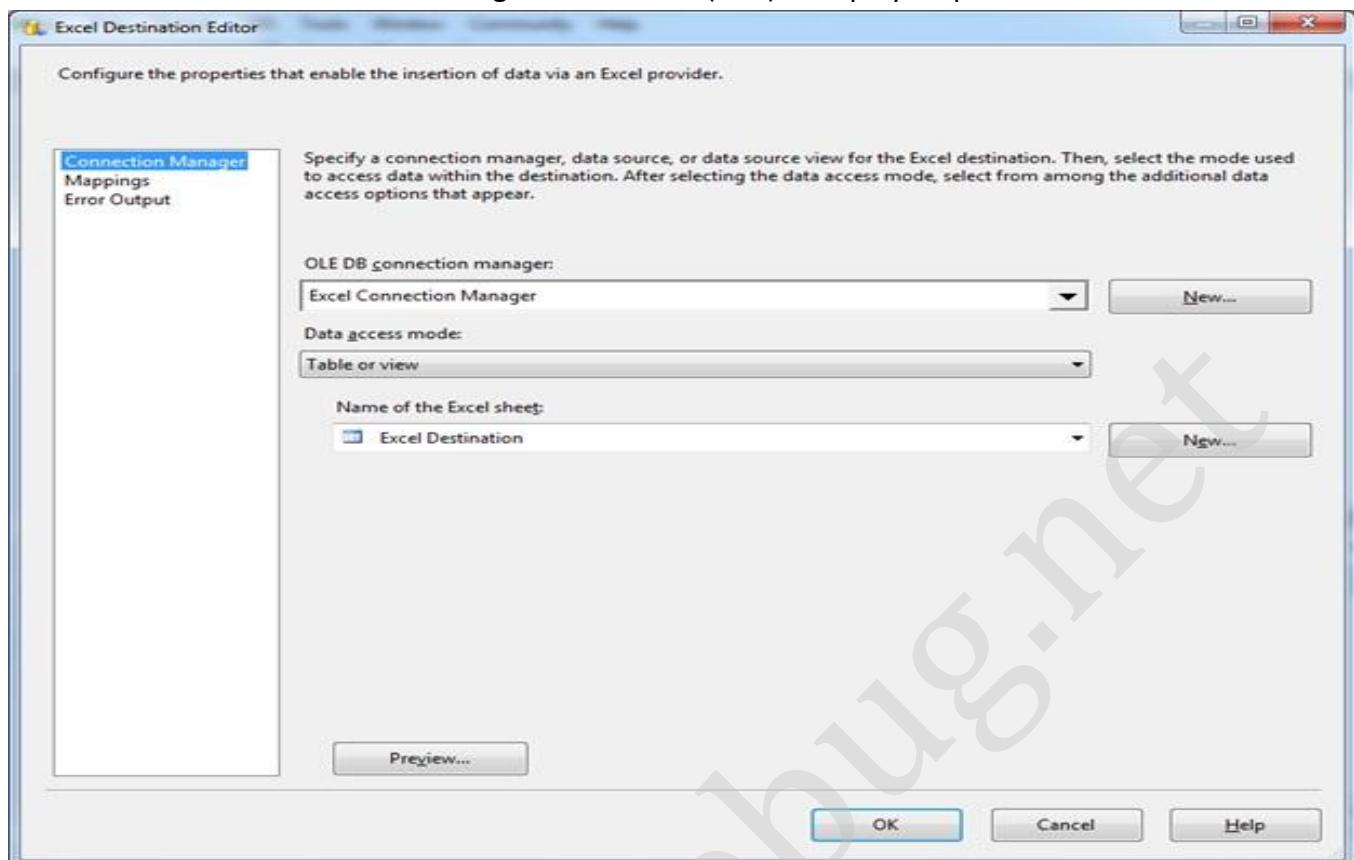


Now we need to select out of the 2 properties which one exactly we require based on our requirement. Here we are going to select as shown in the screen below.

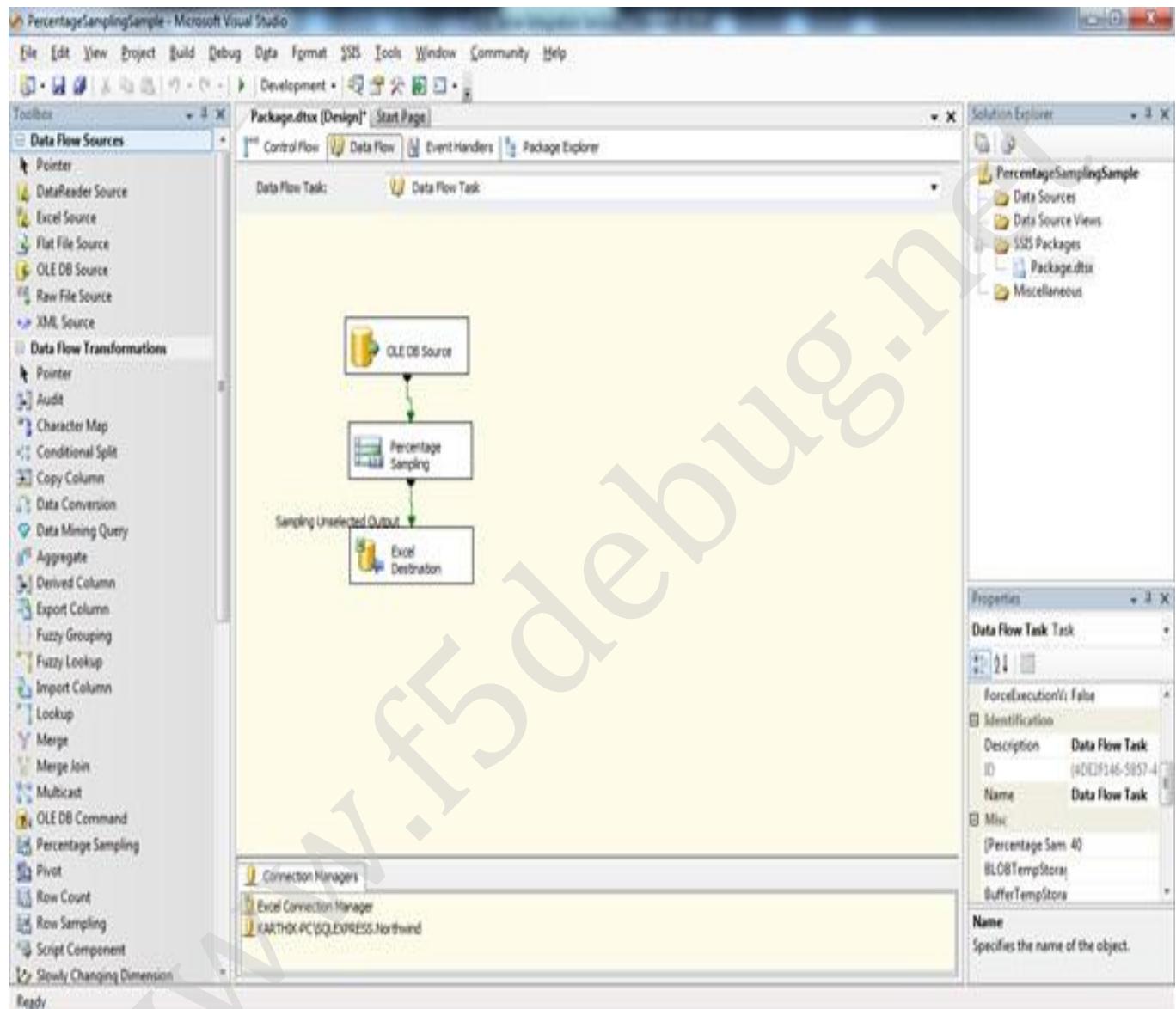


Now we need to configure the destination excel as shown in the screens below which is self-explanatory.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

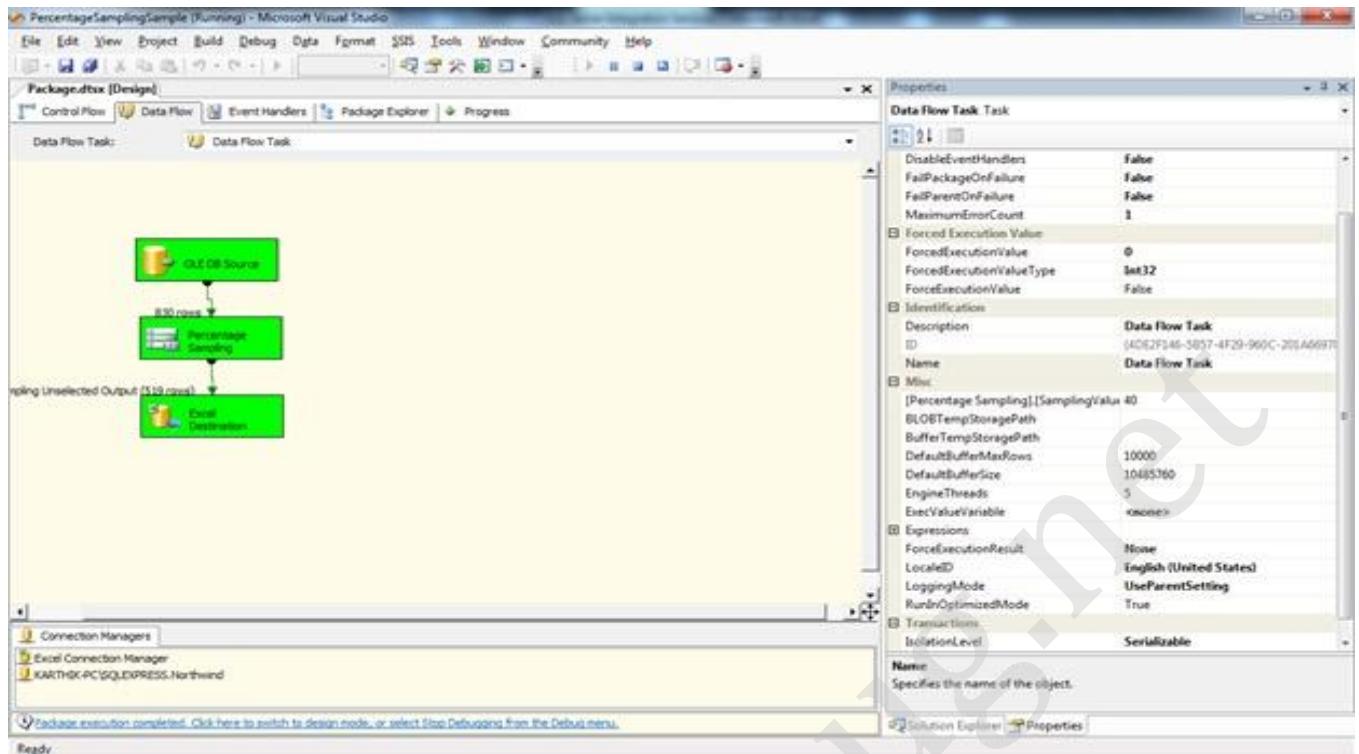


Now we are ready with our package. We need to build and execute it to see the desired result. So our screen will look like below.



Now to build and execute press F5 and we can see the result window as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



We can see the number of rows affected and used across. To see the result in the excel navigate to the path where we configured our destination and open the excel, we can see the result as shown in the screen below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	OrderID																		
1	OrderID	Customer	Employee	OrderDate	RequiredDate	ShippedDate	ShipVia	Freight	ShipName	ShipAddress	ShipCity	ShipRegion	ShipPostalCode	ShipCountry					
2	10248	VINET	5	7/4/1996	8/1/1996	7/16/1996	3	\$32.80	Vins e licois	59 rue de la Reims	51100	France							
3	10249	TOMSP	5	7/5/1996	8/1/1996	7/10/1996	1	\$11.61	Toms Spezialitäten	-Münster	44087	Germany							
4	10250	HANAR	4	7/8/1996	8/5/1996	7/12/1996	2	\$65.83	Hanai Ca	Rua do Pr.Rio de Jar RJ	0545-876	Brazil							
5	10251	VICTE	3	7/8/1996	8/5/1996	7/15/1996	1	\$41.34	Victuilles 2	rue du C.Lyon	69004	France							
6	10252	SUPRD	4	7/9/1996	8/6/1996	7/1/1996	2	\$51.30	Suprêmes	Boulevard Charleroi	B-6000	Belgium							
7	10253	HANAR	3	7/10/1996	7/24/1996	7/16/1996	2	\$58.17	Hanai Ca	Rua do Pr.Rio de Jar RJ	0545-876	Brazil							
8	10256	WELLI	3	7/15/1996	8/12/1996	7/17/1996	2	\$13.97	Wellington	Rua do M.Ressende	SP-08737-363	Brazil							
9	10257	HILAA	4	7/16/1996	8/13/1996	7/22/1996	3	\$81.91	HILARION	Carreira 22 San Cristó Téchira	5022	Venezuela							
10	10258	ERNSH	1	7/17/1996	8/14/1996	7/23/1996	1	\$140.51	Ernst Henk	Kirchgasse 15	8010	Austria							
11	10259	CENTC	4	7/18/1996	8/15/1996	7/25/1996	3	\$32.55	Centro cor	Sierpes de Mexico D.F.	05022	Mexico							
12	10260	OTTIK	4	7/19/1996	8/16/1996	7/26/1996	1	\$55.09	Ottilies Kä	Mehlheim/Köln	50739	Germany							
13	10261	QUEDE	4	7/19/1996	8/16/1996	7/30/1996	2	\$3.05	Oue Delici	Rua do Pr.Rio de Jar RJ	02389-673	Brazil							
14	10263	ERNSH	3	7/23/1996	8/20/1996	7/31/1996	1	\$146.06	Ernst Henk	Kirchgasse 15	8010	Austria							
15	10264	FOLKO	5	7/24/1996	8/21/1996	8/23/1996	3	\$13.67	Folk och f	Älvängen Bräcke	S-644 67	Sweden							
16	10265	BLONP	2	7/25/1996	8/22/1996	8/12/1996	1	\$55.28	Blondel pi	24, place F.Streusberg	57000	France							
17	10270	WARTH	1	8/1/1996	8/25/1996	8/2/1996	1	\$136.54	Wartens H	Torkatu 31/Oulu	90110	Finland							
18	10272	RATTG	6	8/2/1996	8/30/1996	8/6/1996	2	\$88.03	Raffensel	2817 Milto/Albuquerque NM	87110	USA							
19	10273	QUICK	3	8/5/1996	8/16/1996	8/2/1996	3	\$76.07	QUICK-St	Teuchert Cunewalde	01307	Germany							
20	10274	VINET	6	8/6/1996	8/17/1996	8/6/1996	1	\$6.01	Vins e licois	59 rue de la Reims	51100	France							
21	10277	MORGK	2	8/9/1996	8/19/1996	8/13/1996	3	\$125.77	Morgens H	Heerstr 22 Leipzig	04179	Germany							
22	10278	BERGS	8	8/12/1996	9/3/1996	8/16/1996	2	\$92.69	Bergunds Berguvsvt Luleå	S-955 22	Sweden								
23	10283	LILAS	3	8/16/1996	9/13/1996	8/23/1996	3	\$84.81	LILA-Supe	Camera 52 Berquinum Lera	3508	Venezuela							
24	10284	LEHMS	4	8/17/1996	9/16/1996	8/27/1996	1	\$76.56	Lehmens Magazin	W Frankfurt a.M.	60529	Germany							
25	10285	QUICK	1	8/20/1996	9/17/1996	8/26/1996	2	\$76.03	QUICK-St	Teuchert Cunewalde	01307	Germany							
26	10286	QUICK	8	8/21/1996	9/18/1996	8/30/1996	3	\$223.24	QUICK-St	Teuchert Cunewalde	01307	Germany							
27	10291	QUEDE	6	8/27/1996	9/24/1996	9/4/1996	2	\$6.40	Oue Delici	Rua do Pr.Rio de Jar RJ	02389-673	Brazil							
28	10292	TRADH	1	8/30/1996	9/25/1996	9/2/1996	2	\$1.35	Tradigo I Av. Inds do Sao Paulo SP	05634-030	Brazil								
29	10294	RATTC	4	8/30/1996	9/27/1996	9/5/1996	2	\$147.26	Raffensel	2817 Milto/Albuquerque NM	87110	USA							
30	10297	BLONP	5	9/4/1996	*****	9/10/1996	2	\$5.74	Blondel pi	24, place F.Streusberg	57000	France							
31	10299	RICAR	4	9/6/1996	10/4/1996	9/13/1996	2	\$29.76	Ricardo A.Av.	Copac Rio de Jar RJ	02389-090	Brazil							
32	10310	THEBI	8	9/20/1996	*****	9/27/1996	2	\$17.52	The Big Cl	89 Jeffers Portland OR	97201	USA							
33	10320	FRANC	7	9/21/1996	*****	10/20/1996	2	\$40.75	Pauline	13th Floor, Adressen-Chambers	54063	Germany							

## Conclusion

In this chapter we have seen how to use the Percentage Sampling (Un-Selected Output) to execute dataset and split based on the percent and uses it across the requirement.

# Chapter 63

## PERCENTAGE SAMPLING TRANSFORMATION

### Introduction

In this chapter we are going to see how to use Percentage Sampling transformation (Selected and Un-Selected Output) both at a same time in SSIS Packaging. Percentage sampling transformation is used to split the dataset into separate outputs based on the percent and send it to different transformations for processing the dataset.

This task is specifically used for data mining; we can divide the data and send it across as per our requirement.

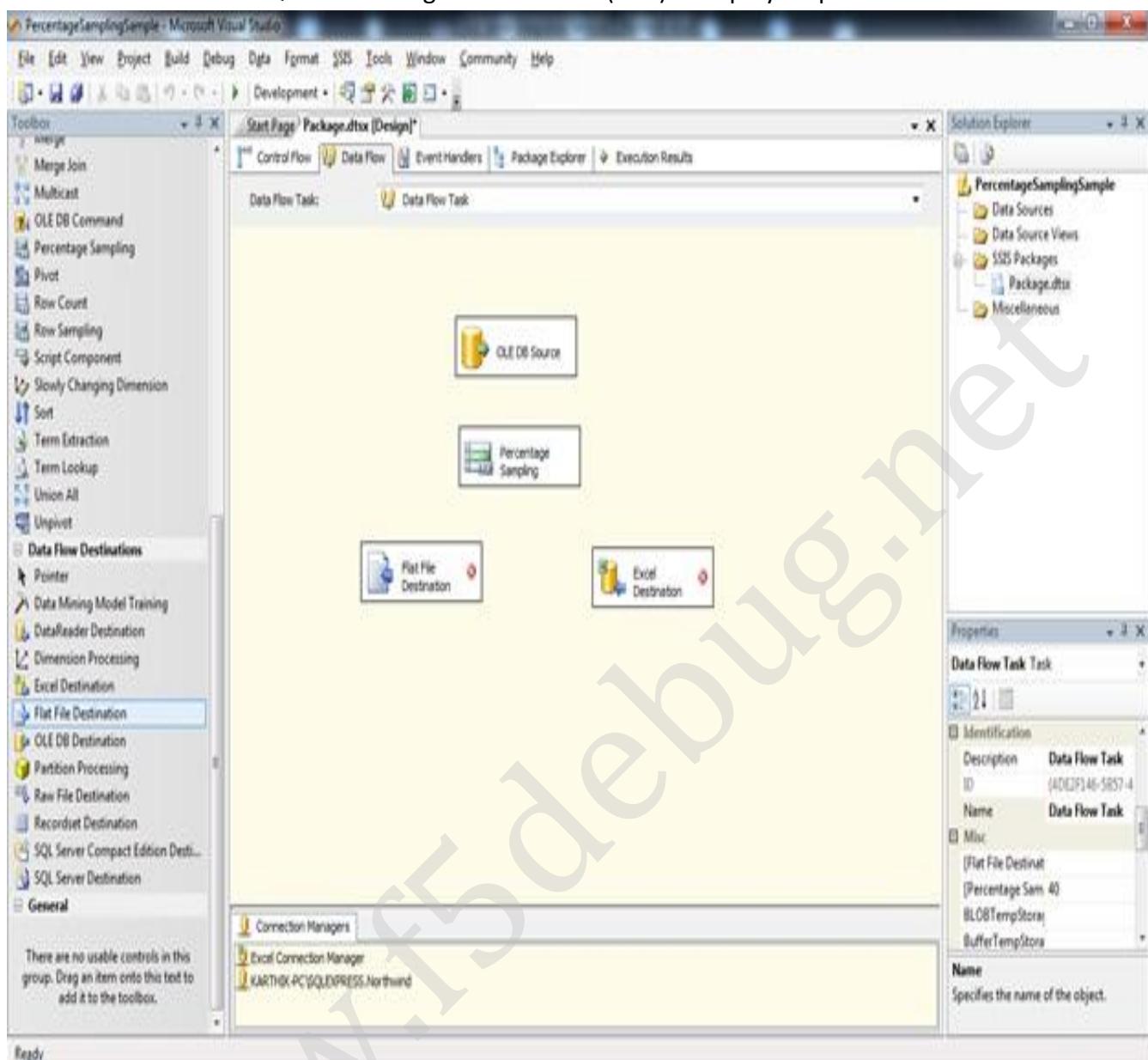
Let's jump start to see this sample how to set the properties of the control.

### Steps

Follow steps 1 to 3 on my first chapter 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 the Percentage sampling to see the flow.

Now once the projects is opened drag and drop a source and a Percentage sampling task as shown in the screen below.

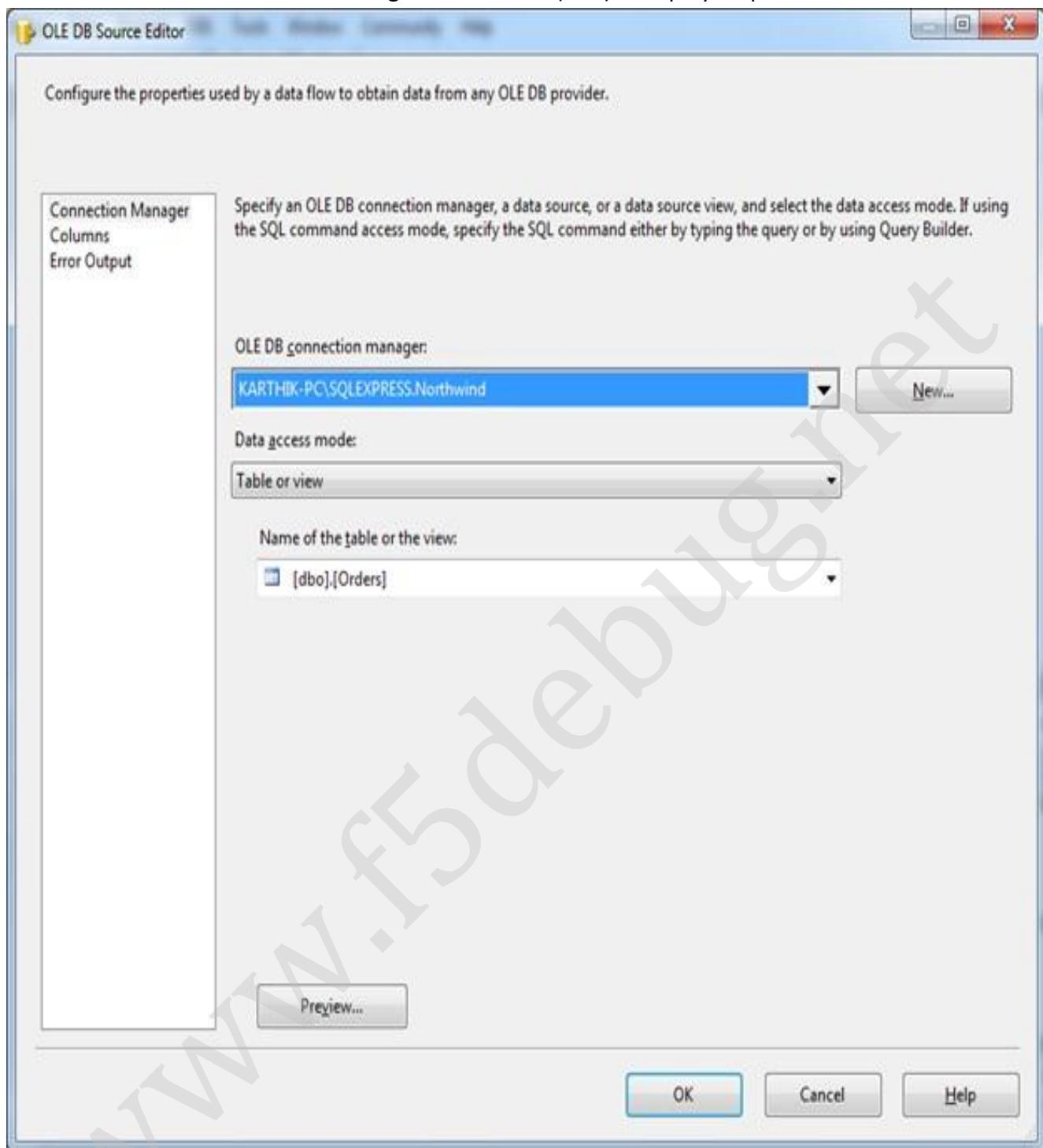
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



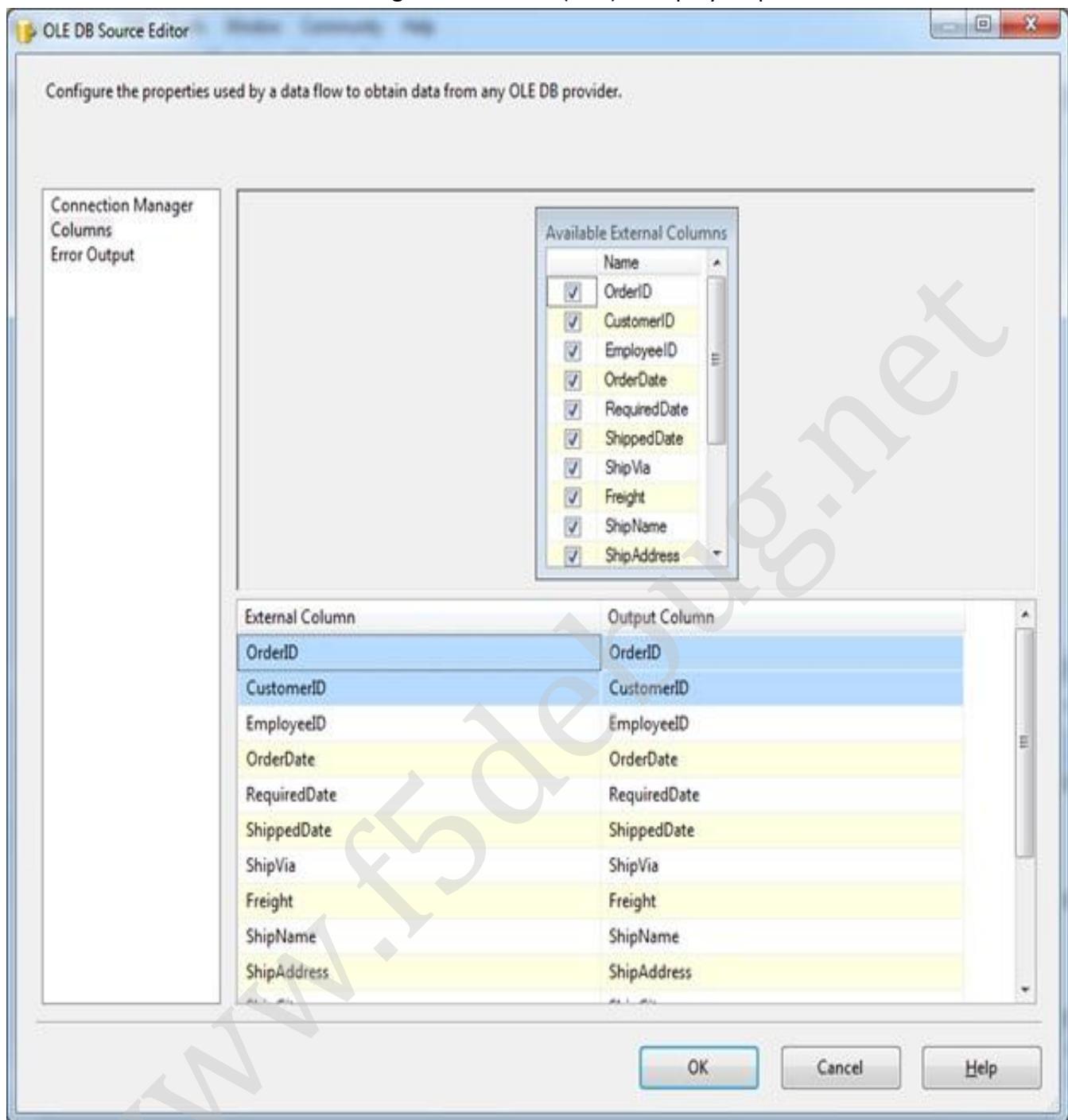
We can see some red marks on each task which indicates that the tasks are not configured. We need to configure each task so that while execution we can have a smooth process.

Now let's configure each and every task to execute the package. First let us start with the OLEDB Source as shown in the screen below.

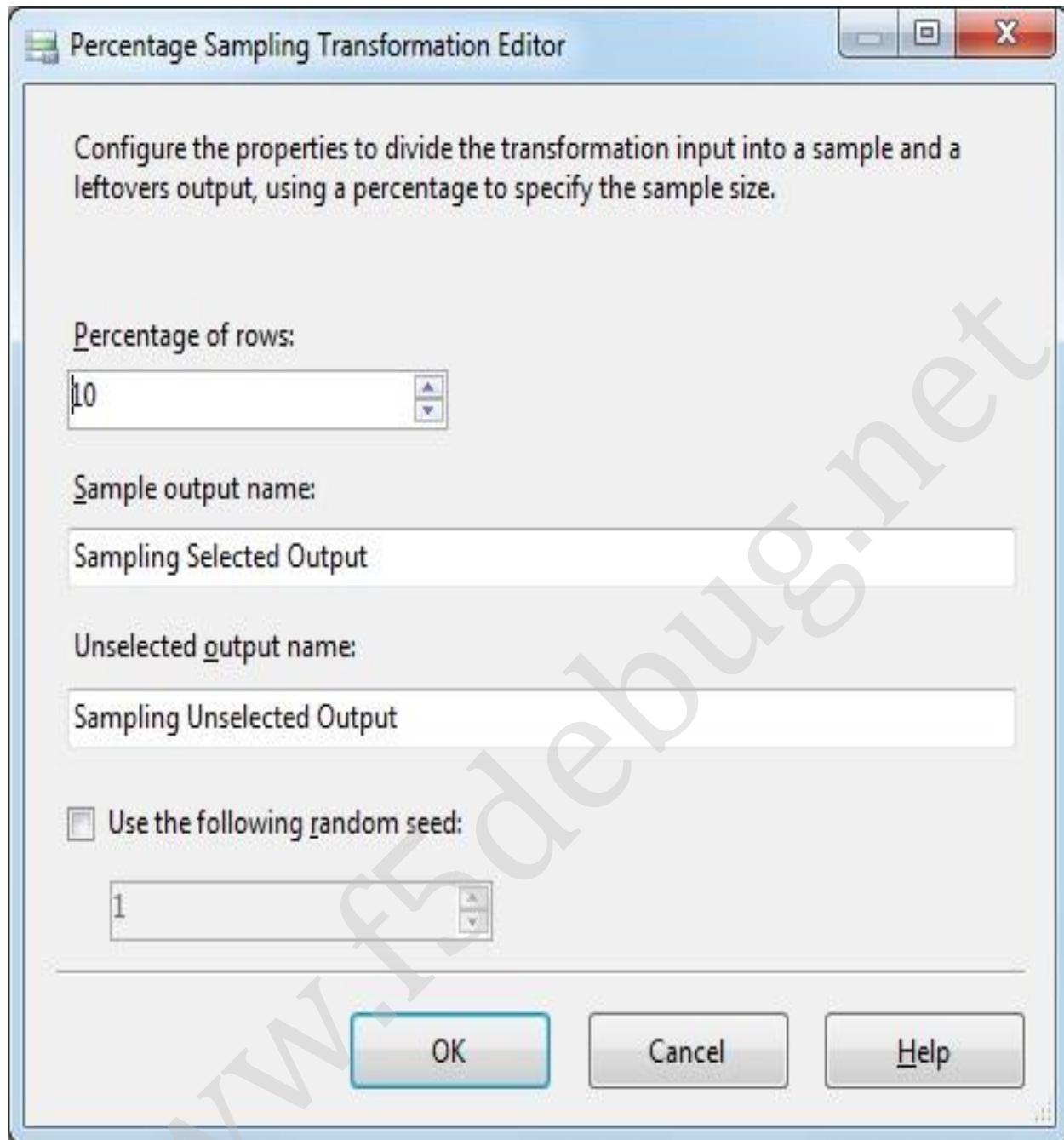
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



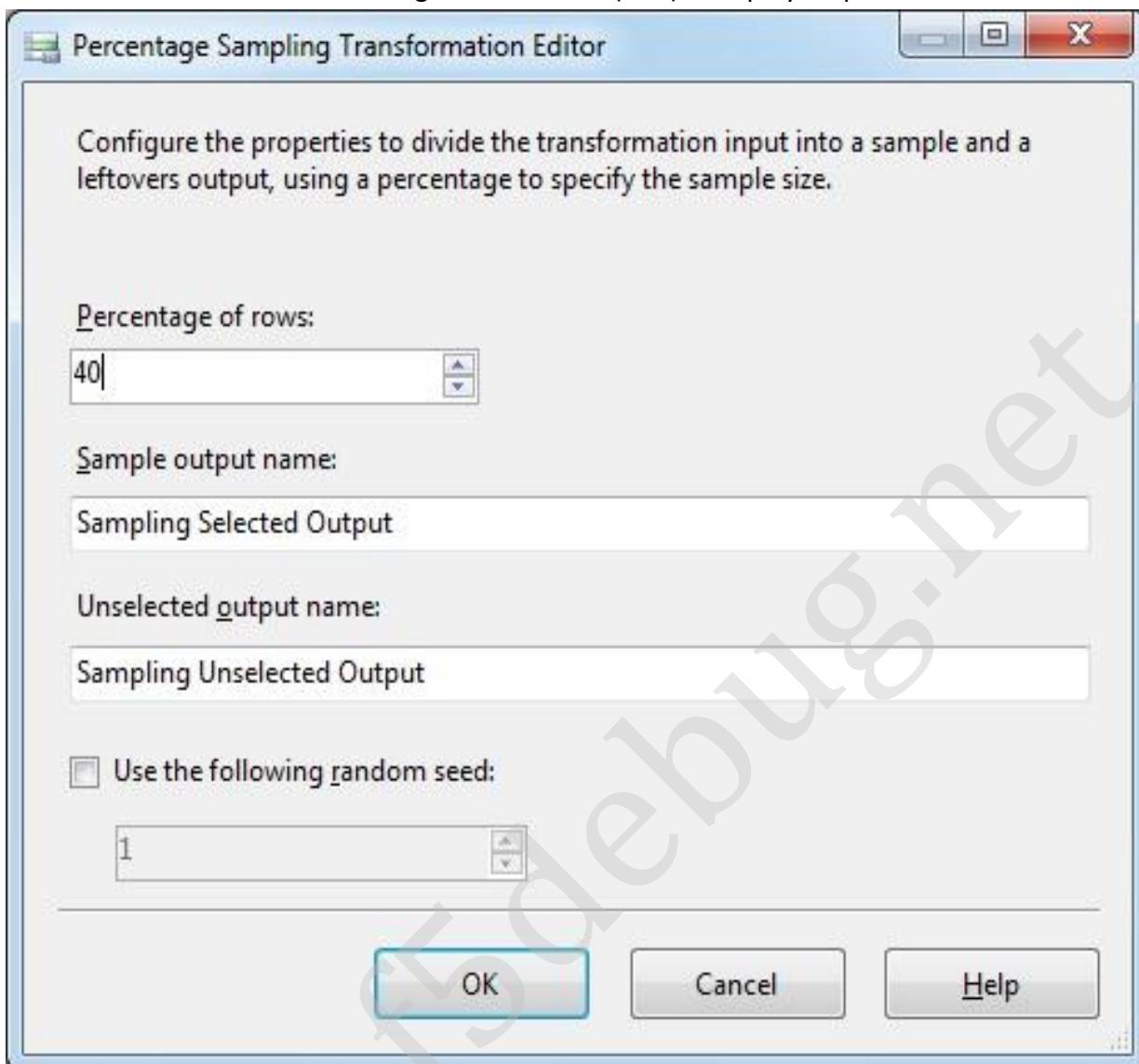
Now go to the mappings tab and see the list of columns in the source table which are mapped correctly as shown in the screen below.



Now we are done with the source, we need to configure the percentage sampling task now. To do that double click on the task will open the window as shown in the screen below.

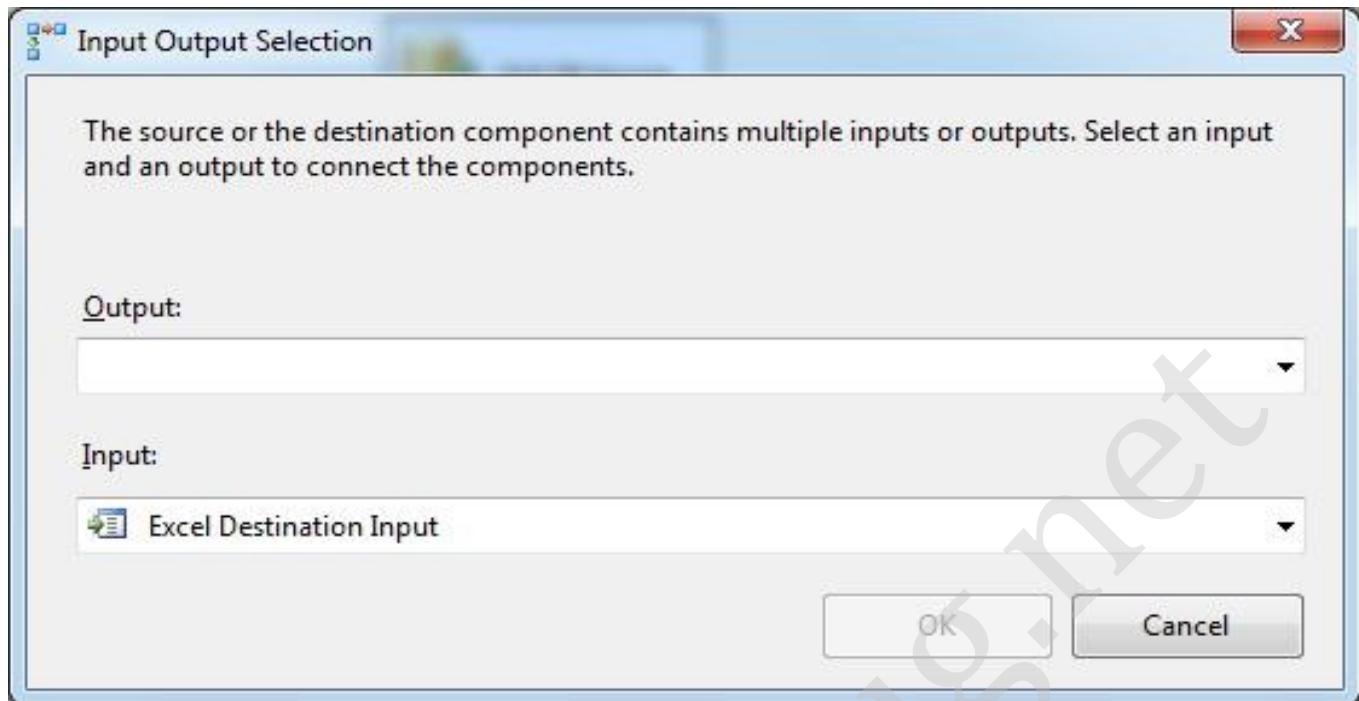


Here we need to specify the percentage of rows to be affected in this transformation and to proceed further. In our sample we are going to select as 40 as shown in the screen below.

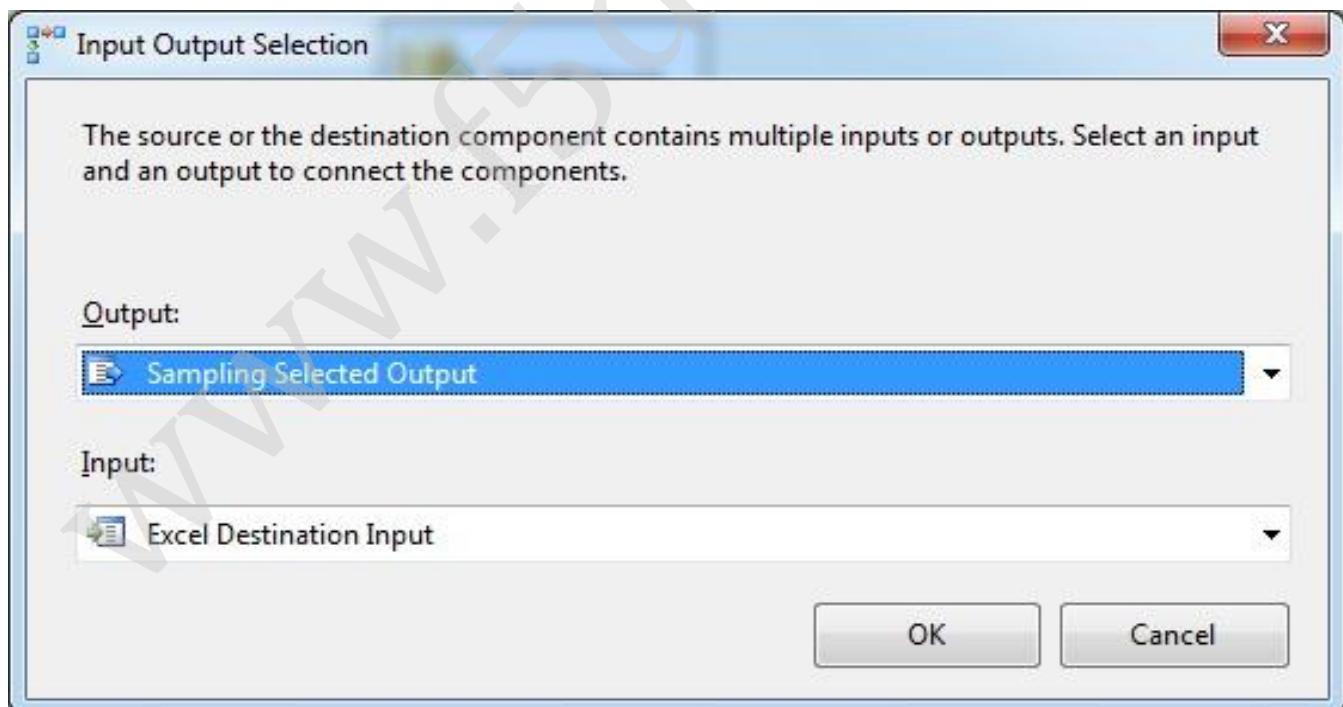


Now we are done with the Percentage sampling task, we need to configure the destination section where the results are expected. To do that drag and drop the green arrow to the destination task which we created earlier. It will open a configuration window to select the output name from the percentage sampling task as shown in the screen below.

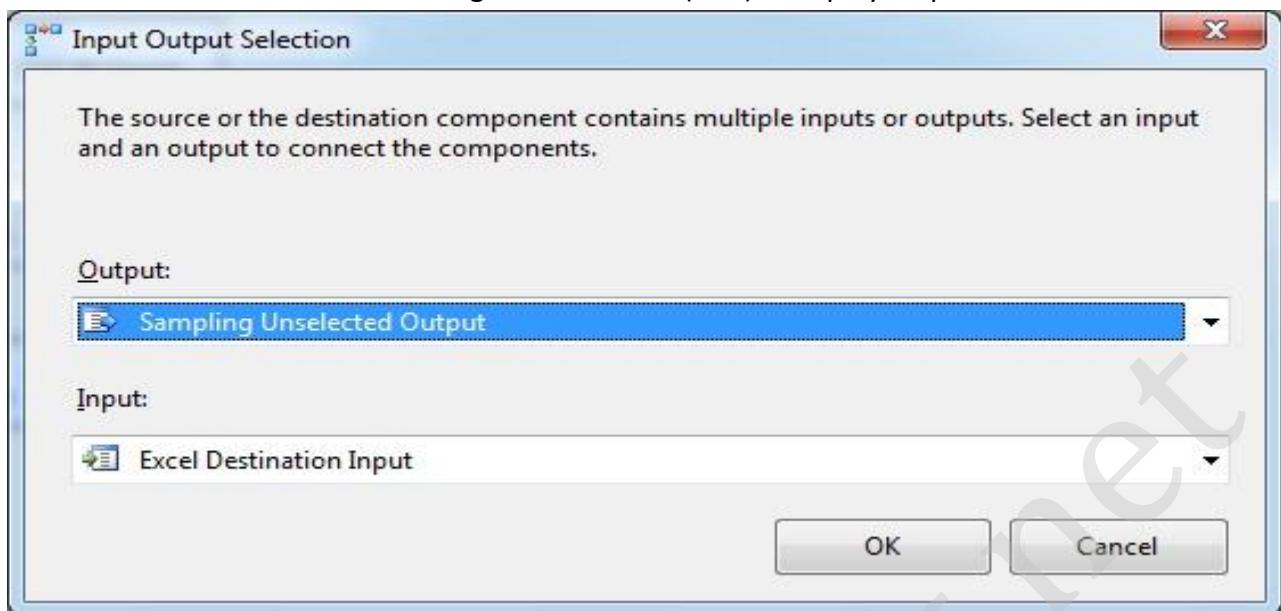
Since we have 2 destinations in our package now we will send across the Selected Output and the unselected output based on our requirement as shown in the screen below.



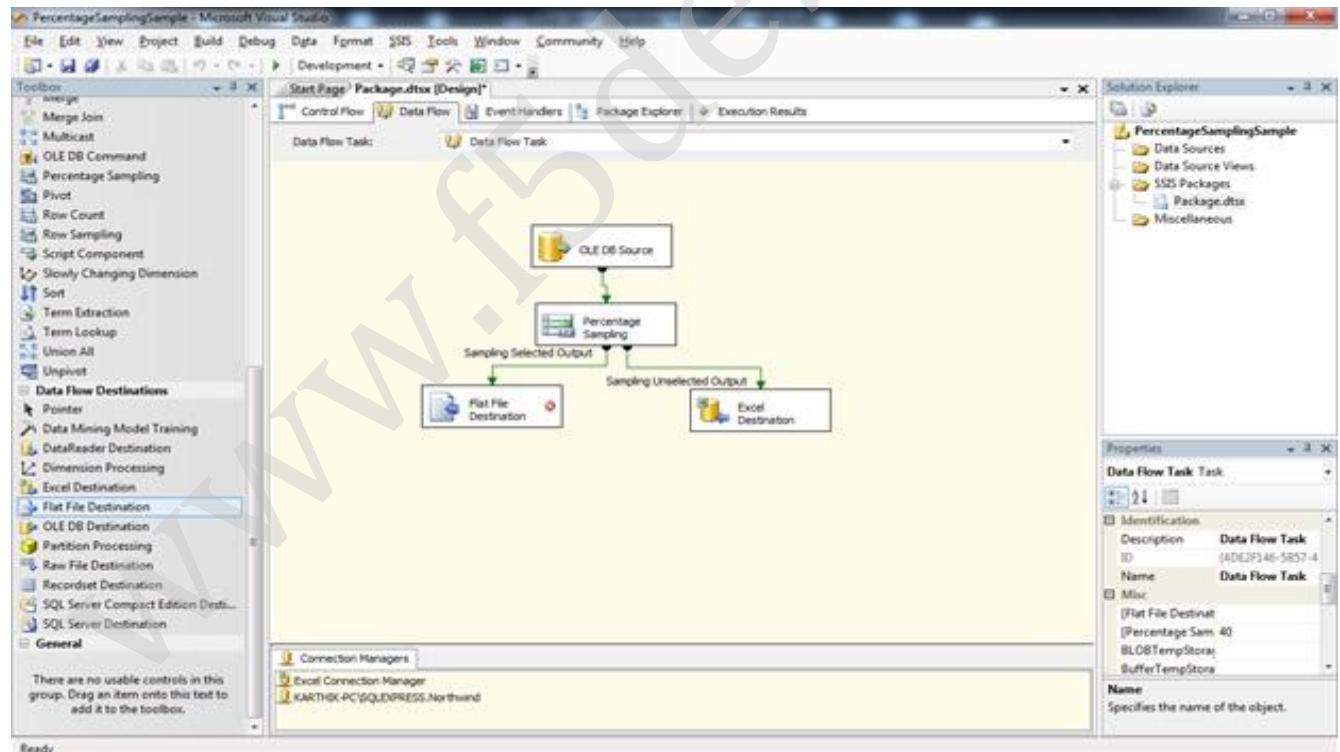
Now we need to select out of the 2 properties which one exactly we require based on our requirement. Here we are going to select as shown in the screen below.



## SQL Server Integration Services (SSIS) – Step by Step Tutorial

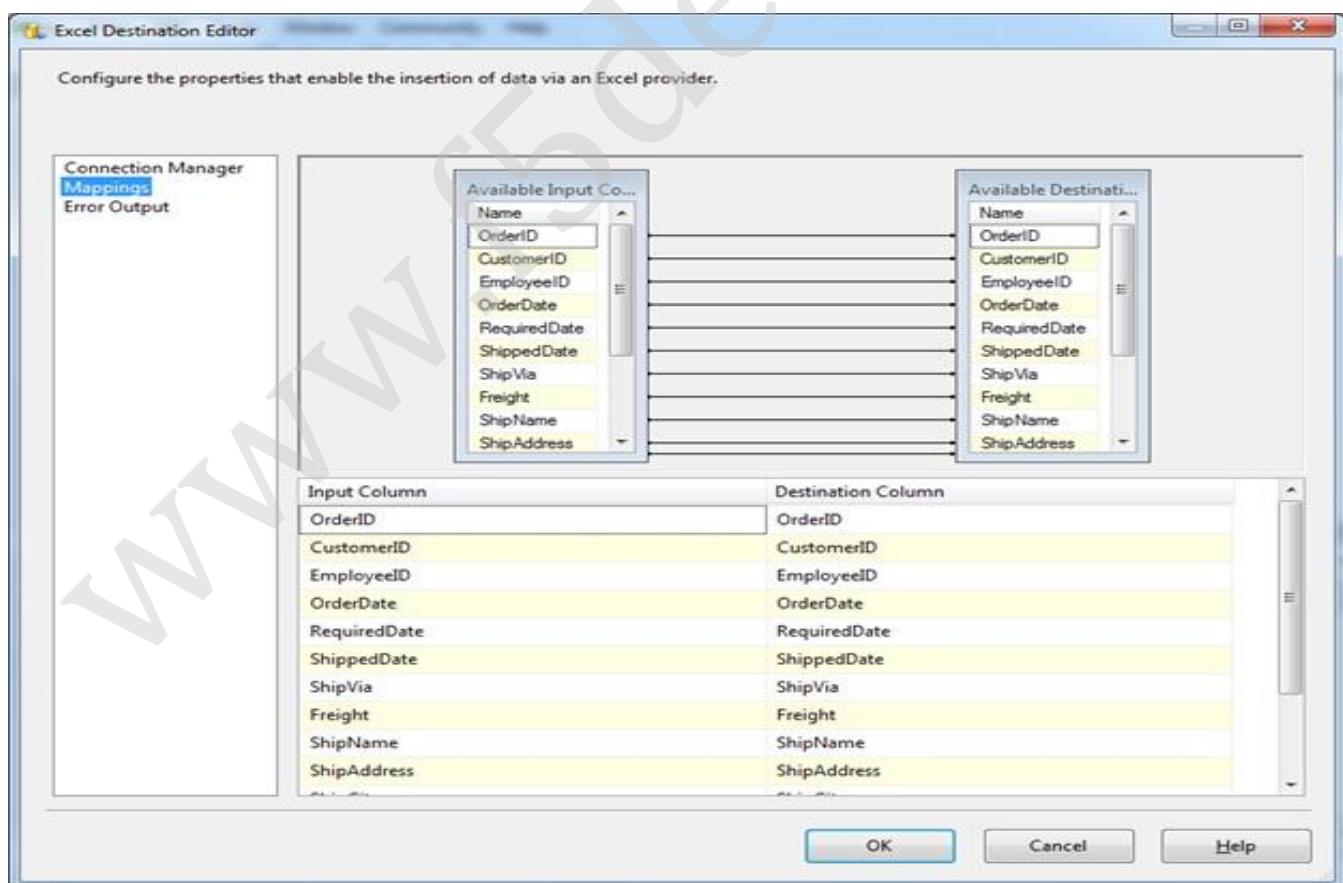
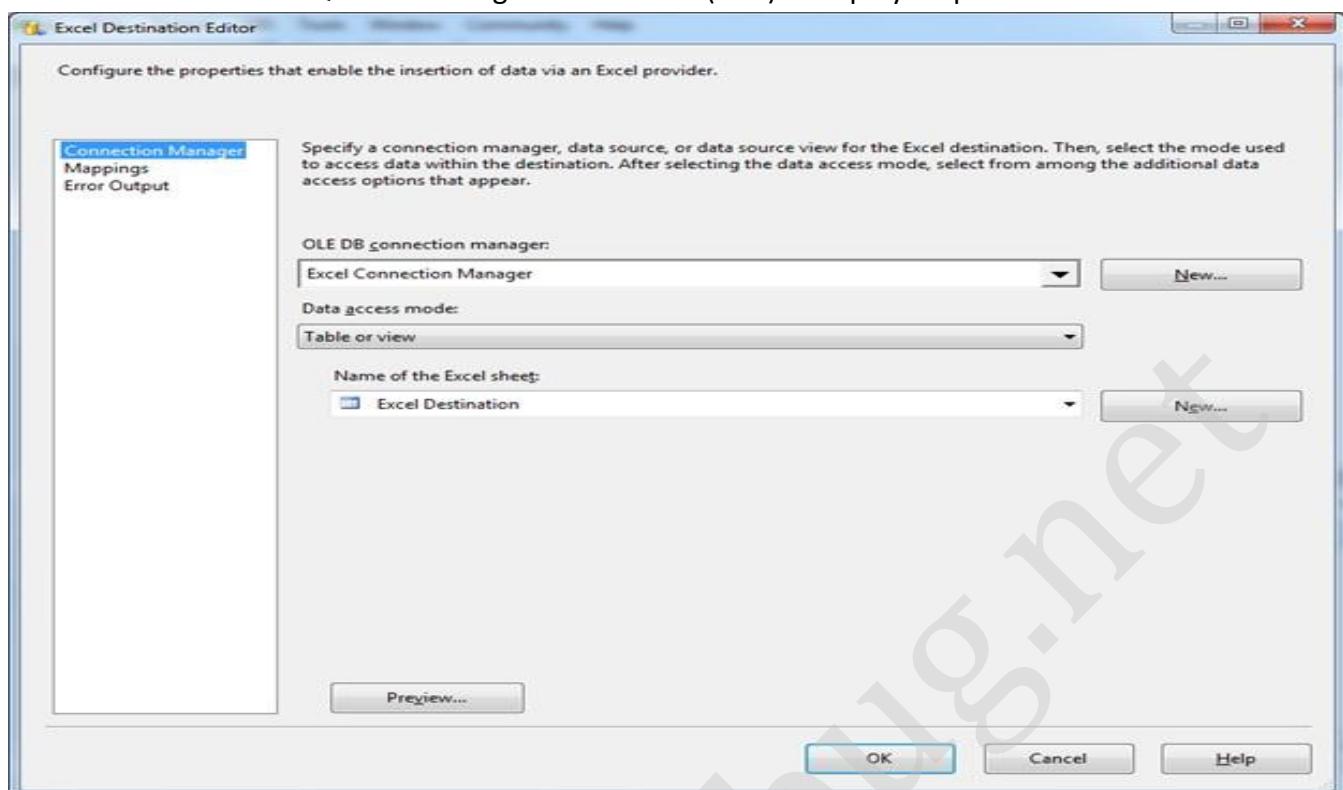


Now we can see the screen will have both the Selected and the unselected output as shown in the screen below.

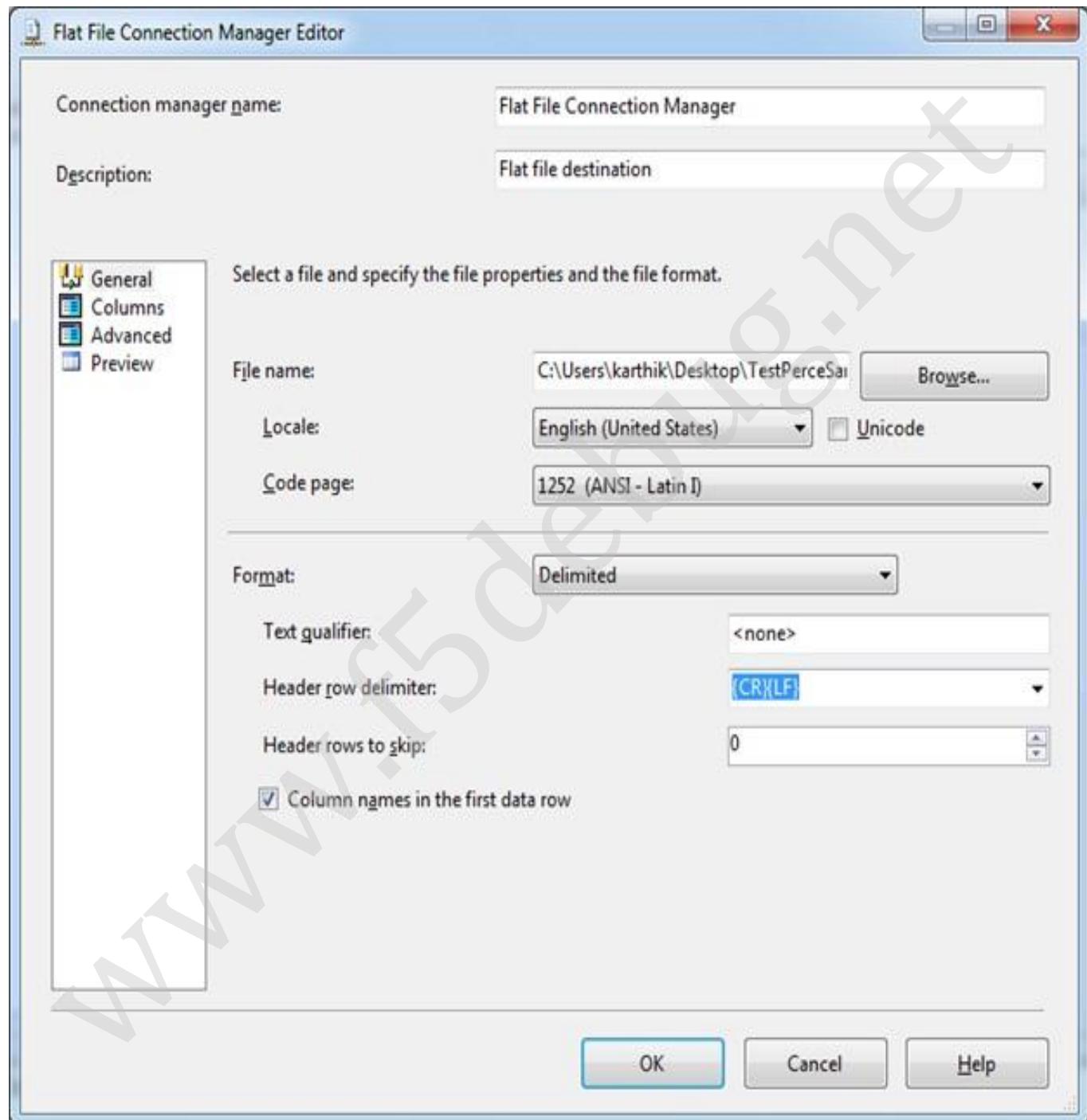


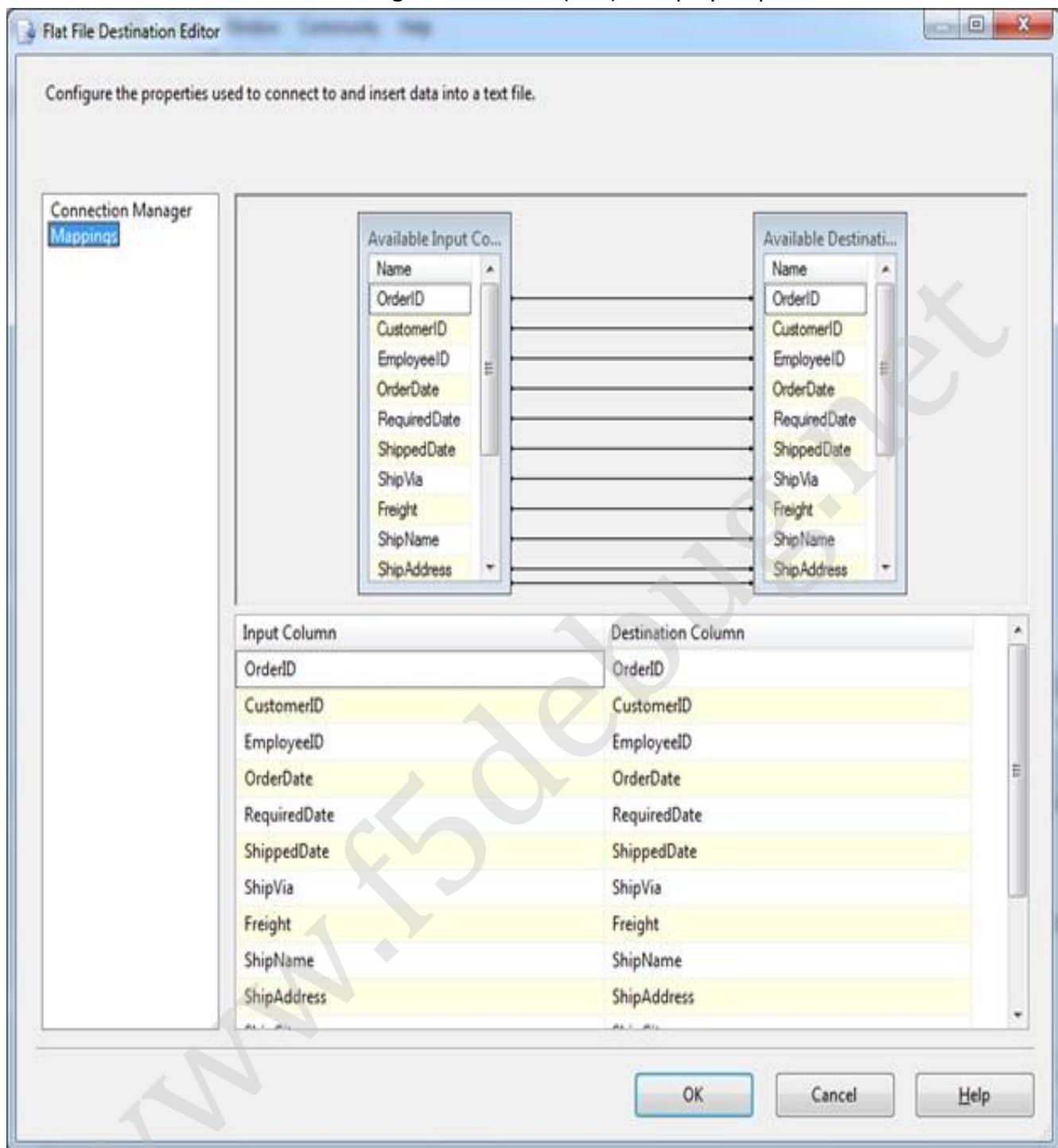
Now we need to configure the destination excel as shown in the screens below which is self-explanatory.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



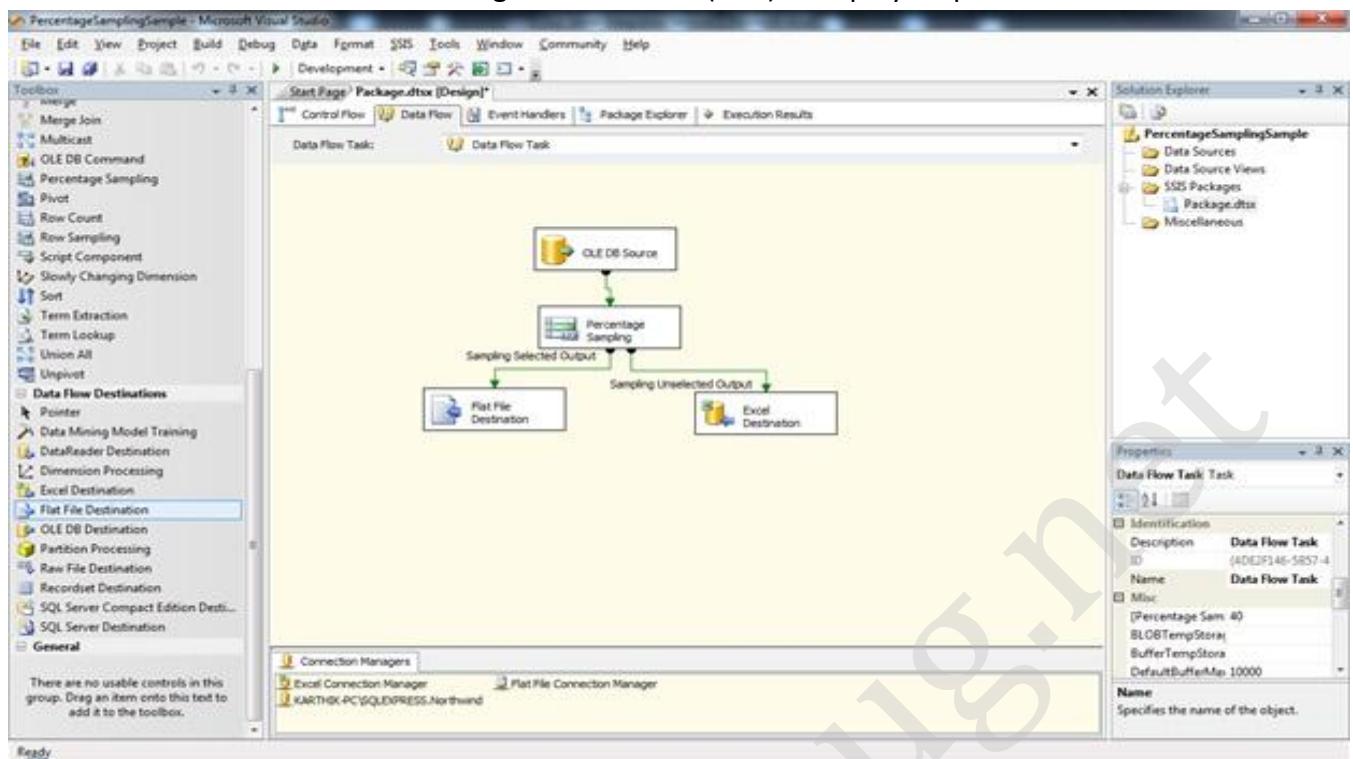
Since we have one more destination which is the Flat File destination we need to configure that as well as shown in the screen below.



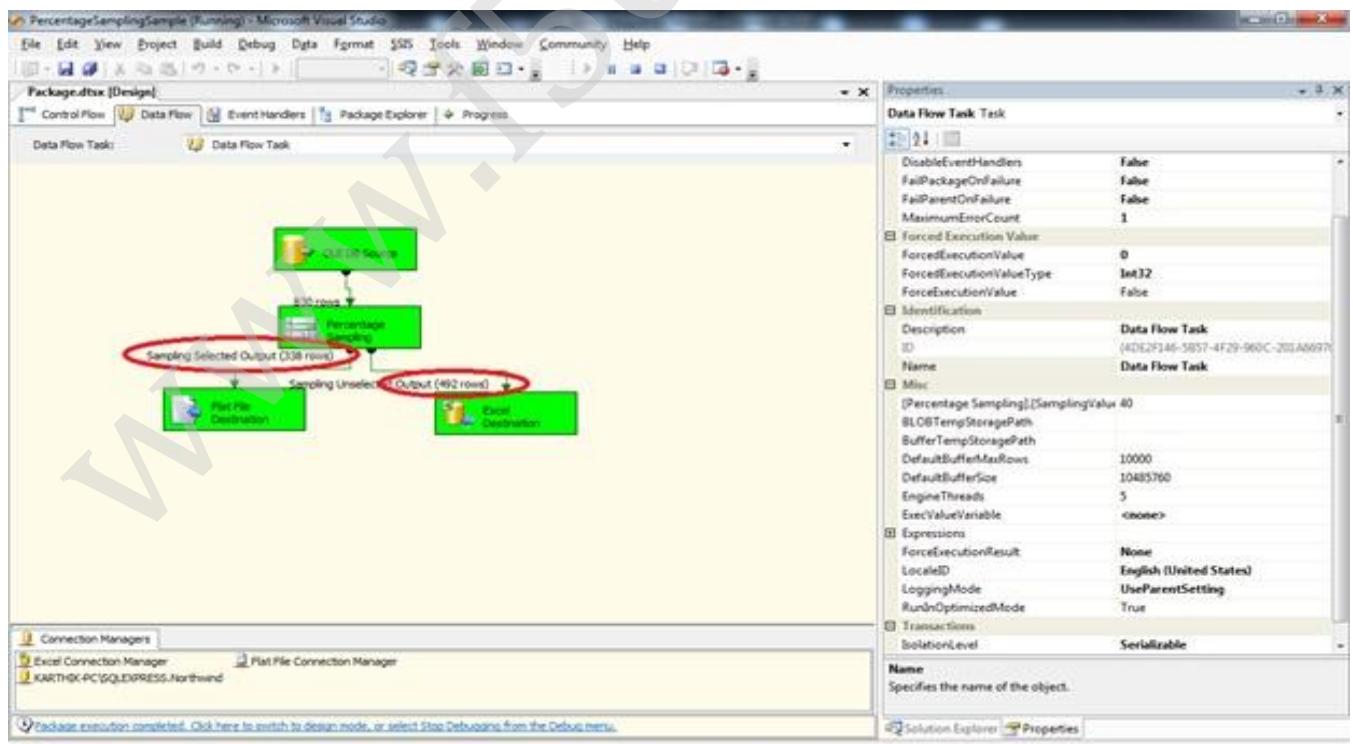


Now we are ready with our package. We need to build and execute it to see the desired result. So our screen will look like below.

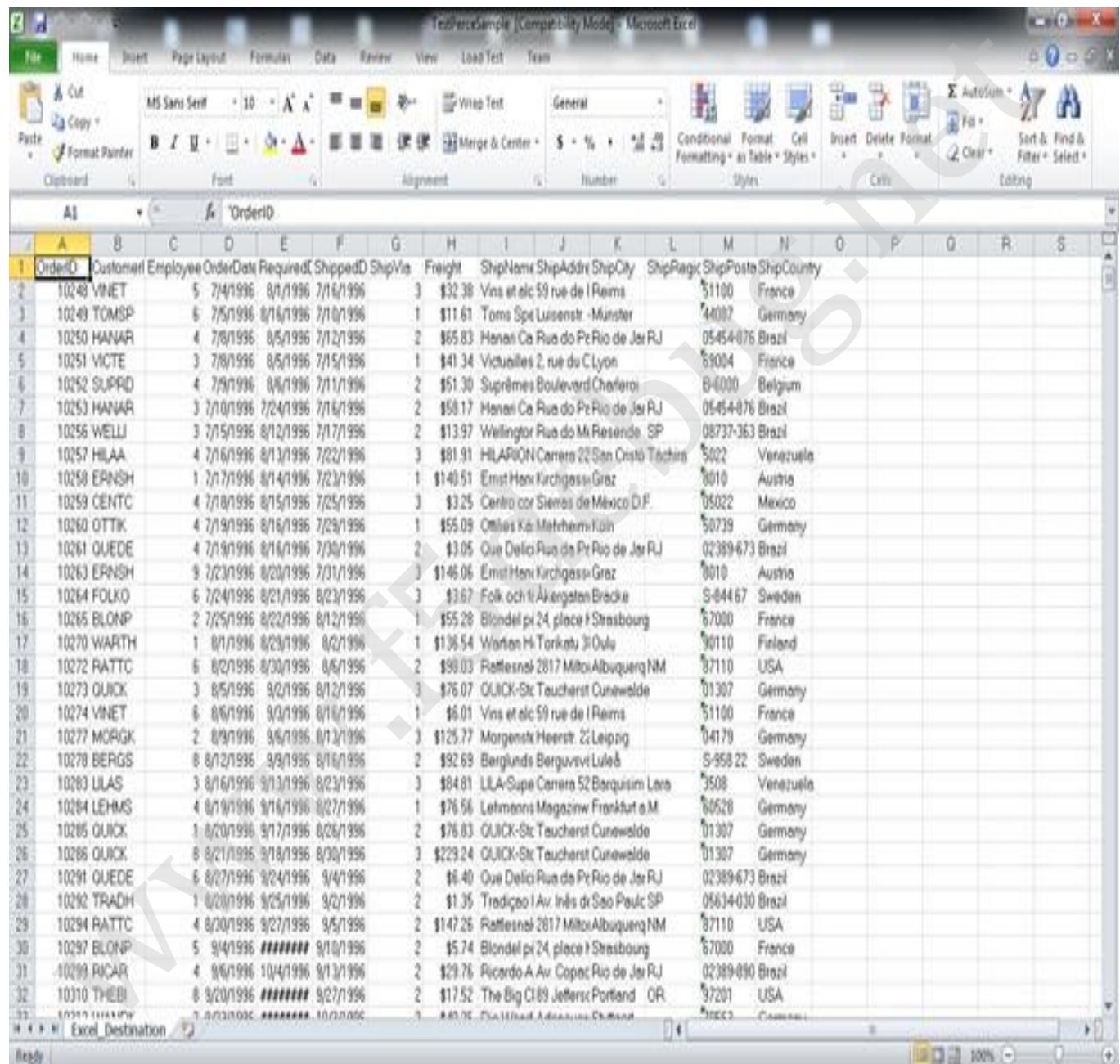
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now to build and execute press F5 and we can see the result window as shown in the screen below with the amount of rows affected for each destination's.



We can see the number of rows affected and used across. To see the result in the excel navigate to the path where we configured our destination and open the excel and the notepad, we can see the result as shown in the screen below.



The screenshot shows a Microsoft Excel spreadsheet titled "TestExcelSample [Compatibility Mode] - Microsoft Excel". The table contains 32 rows of data, each representing an order from the Northwind database. The columns are labeled A through S, and the data includes OrderID, CustomerID, EmployeeID, OrderDate, RequiredDate, ShippedDate, ShipVia, Freight, ShipName, ShipAddress, ShipCity, ShipRegion, ShipPostalCode, and ShipCountry. The data is as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	ShippedDate	ShipVia	Freight	ShipName	ShipAddress	ShipCity	ShipRegion	ShipPostalCode	ShipCountry					
2	10248	VINET	5	7/4/1996	8/1/1996	7/16/1996	3	\$32.38	Vins et alic 59 rue de l'Reims			\$1100	France						
3	10249	TOMSP	6	7/5/1996	8/1/1996	7/10/1996	1	\$11.61	Toms Spezialitäten	Münster		44087	Germany						
4	10250	HANAR	4	7/8/1996	8/5/1996	7/12/1996	2	\$65.83	Hanari Ca Rue do Pr Rio de Je RJ			05454-076	Brazil						
5	10251	VICTE	3	7/8/1996	8/5/1996	7/15/1996	1	\$41.34	Victuailles 2, rue du C Lyon			59034	France						
6	10252	SUPRD	4	7/9/1996	8/6/1996	7/11/1996	2	\$51.30	Suprêmes Boulevards Cheffre			60000	Belgium						
7	10253	HANAR	3	7/10/1996	7/24/1996	7/16/1996	2	\$58.17	Hanari Ca Rue do Pr Rio de Je RJ			05454-076	Brazil						
8	10256	WELLI	3	7/15/1996	8/12/1996	7/17/1996	2	\$13.97	Wellington Rue do M Resende	SP		08737-363	Brazil						
9	10257	HILAA	4	7/16/1996	8/13/1996	7/22/1996	3	\$81.91	HILARION Camara 22 San Cristó Tchim			5022	Venezuela						
10	10258	ERNSH	1	7/17/1996	8/14/1996	7/23/1996	1	\$140.51	Ernst Handel Kirchgass Gra			8010	Austria						
11	10259	CENTC	4	7/18/1996	8/15/1996	7/25/1996	3	\$32.25	Centro cor Sierras de México D.F.			05022	Mexico						
12	10260	OTTIK	4	7/19/1996	8/16/1996	7/29/1996	1	\$55.09	Ottilies Kä Mfrhheim Köln			50739	Germany						
13	10261	QUEDE	4	7/19/1996	8/16/1996	7/30/1996	2	\$3.05	Que Delici Rue do Pr Rio de Je RJ			02389-673	Brazil						
14	10263	ERNSH	9	7/23/1996	8/20/1996	7/31/1996	1	\$146.06	Ernst Handel Kirchgass Gra			8010	Austria						
15	10264	FOLKO	6	7/24/1996	8/21/1996	8/23/1996	3	\$3.67	Folk och I Åkersgatan Bräcke			5-84467	Sweden						
16	10265	BLONP	2	7/25/1996	8/22/1996	8/12/1996	1	\$55.28	Blondel pl 24, place Strasbourg			67000	France						
17	10270	WARTH	1	8/1/1996	8/20/1996	8/2/1996	1	\$136.54	Worten H-Torkku 3 Oulu			90110	Finland						
18	10272	RATTC	6	8/2/1996	8/30/1996	8/6/1996	2	\$88.03	Rafflesia 2817 MiltonAlbuquerque NM			87110	USA						
19	10273	QUICK	3	8/5/1996	9/2/1996	8/12/1996	3	\$76.07	QUICK-St Teuchernit Cunewalde			01307	Germany						
20	10274	VINET	6	8/6/1996	9/3/1996	8/13/1996	1	\$6.01	Vins et alic 59 rue de l'Reims			51100	France						
21	10277	MORGK	2	8/9/1996	9/6/1996	8/13/1996	3	\$125.77	Morgenth Heerstr 22 Leipzig			04179	Germany						
22	10278	BERGS	8	8/12/1996	9/9/1996	8/16/1996	2	\$92.69	Berglunds Berguvsvi Luleå			5-95822	Sweden						
23	10283	ULAS	3	8/16/1996	9/1/1996	8/23/1996	3	\$84.81	LILA-Supe Carrera 52 Barquisim Lera			3508	Venezuela						
24	10284	LEHMS	4	8/19/1996	9/16/1996	8/27/1996	1	\$76.56	Lehmenn Magazinw Frankfurt e.M.			50520	Germany						
25	10285	QUICK	1	8/20/1996	9/17/1996	8/26/1996	2	\$76.03	QUICK-St Teuchernit Cunewalde			01307	Germany						
26	10286	QUICK	5	8/21/1996	9/18/1996	8/30/1996	3	\$229.24	QUICK-St Teuchernit Cunewalde			01307	Germany						
27	10291	QUEDE	6	8/27/1996	9/24/1996	9/4/1996	2	\$6.40	Que Delici Rue do Pr Rio de Je RJ			02389-673	Brazil						
28	10292	TRADH	1	8/28/1996	9/25/1996	9/2/1996	2	\$1.35	Tredicão 1 Av. Inês de São Paul SP			05634-030	Brazil						
29	10294	RATTC	4	8/30/1996	9/27/1996	9/5/1996	2	\$147.25	Rafflesia 2817 MiltonAlbuquerque NM			87110	USA						
30	10297	BLONP	5	9/4/1996	9/10/1996	9/10/1996	2	\$5.74	Blondel pl 24, place Strasbourg			67000	France						
31	10299	PICAR	4	9/6/1996	10/4/1996	9/13/1996	2	\$29.76	Ricardo A Av. Copac Rio de Je RJ			02389-030	Brazil						
32	10310	THEBI	8	9/20/1996	9/27/1996	9/27/1996	2	\$17.52	The Big C189 Jeffers Portland OR			97201	USA						
33	10312	ULAS	7	9/23/1996	9/30/1996	10/3/1996	3	\$83.70	ELA-Milano Adressa Costruz			50023	Italy						

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	ShippedDate	ShipVia	Freight	ShipName	ShipAddress	ShipCity	ShipRegion	ShipPostalCode	ShipCountry	
10251	VICTE	3	1996-07-08 00:00:00	1996-08-05 00:00:00	1996-07-15 00:00:00	1	41.34	virtuailles en stock	2, rue du Commerce	Lyon		69004	France	
10253	HANAR	3	1996-07-10 00:00:00	1996-07-24 00:00:00	1996-07-16 00:00:00	2	58.17	Hanari Carnes	Rua do Paço, 67	Rio de Janeiro	RJ	05454-676	Brazil	
10254	CHOPS	5	1996-07-11 00:00:00	1996-08-08 00:00:00	1996-07-23 00:00:00	2	22.98	Chop-suey Chinese	Hauptstr. 31	Bern		3012	Switzerland	
10257	MILAA	4	1996-07-16 00:00:00	1996-08-13 00:00:00	1996-07-22 00:00:00	3	81.91	HILARION Abastos	carrera 22 con Ave. Carlos soublette #8-35, san	Criptóbal	Táchira	5022	Venezuela	
10258	ERNSH	1	1996-07-17 00:00:00	1996-08-14 00:00:00	1996-07-23 00:00:00	1	140.51	Ernst Handel	Kirchgasse 6	Graz		8010	Austria	
10263	ERNSH	9	1996-07-23 00:00:00	1996-08-20 00:00:00	1996-07-31 00:00:00	1	146.06	Ernst Handel	Kirchgasse 6	Graz		8010	Austria	
10270	WARTH	1	1996-08-01 00:00:00	1996-08-29 00:00:00	1996-08-02 00:00:00	1	130.54	Wartian Herkku	Torikatu 38	Oulu		90110	Finland	
10272	RATTI	6	1996-08-02 00:00:00	1996-08-30 00:00:00	1996-08-06 00:00:00	2	98.03	Rattlesnake Grocery	2817 Milton Dr.	Albuquerque	NM	87110	USA	
10274	VINET	6	1996-08-06 00:00:00	1996-09-03 00:00:00	1996-08-16 00:00:00	1	6.01	Vins et alcools Chevalier	39 rue de l'Abbaye	Reims		51100	France	
10278	BERGS	8	1996-08-12 00:00:00	1996-09-09 00:00:00	1996-08-16 00:00:00	2	92.69	Berglunds snabbköp	Berguvsvägen 8	Luleå		5-938	22, Sweden	
10280	BERGS	2	1996-08-14 00:00:00	1996-09-11 00:00:00	1996-09-12 00:00:00	1	8.98	Berglunds snabbköp	Berguvsvägen 8	Luleå		5-938	22, Sweden	
10281	ROMEY	4	1996-08-14 00:00:00	1996-08-28 00:00:00	1996-08-21 00:00:00	1	2.94	Romero y Tomillo	Gran Vía, 1	Madrid		28001	Spain	
10285	QUICK	1	1996-08-20 00:00:00	1996-09-17 00:00:00	1996-08-26 00:00:00	2	76.83	QUICK-Stop	Taucherstraße 10	Cunewalde		01307	Germany	
10287	RICAR	8	1996-08-22 00:00:00	1996-09-19 00:00:00	1996-08-28 00:00:00	3	12.76	Ricardo Adocados	Av. Copacabana, 267	Rio de Janeiro	RJ	02389-890	Brazil	
10289	BSBEV	7	1996-08-26 00:00:00	1996-09-23 00:00:00	1996-08-28 00:00:00	3	22.77	B's Beverages	Fauntleroy Circus	London		EC2	SNT, UK	
10290	COMMI	8	1996-08-27 00:00:00	1996-09-24 00:00:00	1996-09-03 00:00:00	1	1.79	7. Comércio Mineiro	Av. dos Lustadas, 23	Sao Paulo	SP	05432-043	Brazil	
10292	TRADH	1	1996-08-28 00:00:00	1996-09-25 00:00:00	1996-09-02 00:00:00	2	1.35	Tradição Hipermercados	Av. Inés de Castro, 414	Sao Paulo	SP	05634-030	Brazil	
10293	TORTU	2	1996-08-29 00:00:00	1996-09-26 00:00:00	1996-09-11 00:00:00	3	21.18	Tortuga Restaurante	Avda. Azteca 123	México D.F.		,05033	Mexico	
10295	VINET	2	1996-09-02 00:00:00	1996-09-10 00:00:00	1996-09-10 00:00:00	2	1.15	Vins et alcools Chevalier	39 rue de l'Abbaye	Reims		51100	France	
10296	LILAS	6	1996-09-03 00:00:00	1996-10-01 00:00:00	1996-09-11 00:00:00	1	0.12	LILA-Supermercado	carrera 52 con Ave. Bolívar #65-98 Llano	Largo	Barquisimeto	Lara	3508	Venezuela
10300	MAGAA	2	1996-09-09 00:00:00	1996-10-07 00:00:00	1996-09-18 00:00:00	2	17.68	Magazzini Alimentari Riuniti	Via Ludovico il Moro 22	Bergamo		24100	Italy	
10301	WANDK	8	1996-09-09 00:00:00	1996-10-07 00:00:00	1996-09-17 00:00:00	2	45.08	die wandernde Kuh	Adenauerallee 90	Stuttgart		,70563	Germany	
10302	SUPRD	4	1996-09-10 00:00:00	1996-10-08 00:00:00	1996-10-09 00:00:00	2	6.27	suprèmes délices	Boulevard Tirou, 255	Charleroi		,B-6000	belgium	
10303	OLWD	8	1996-09-11 00:00:00	1996-10-11 00:00:00	1996-10-09 00:00:00	3	237.62	Old World Delicatessen	2743 Berlin St.	Anchorage	AK	99508	USA	
10306	ROMEY	1	1996-09-16 00:00:00	1996-10-14 00:00:00	1996-09-23 00:00:00	3	7.56	Romero y Tomillo	Gran Vía, 1	Madrid		28001	Spain	
10313	QUICK	2	1996-09-24 00:00:00	1996-10-22 00:00:00	1996-10-04 00:00:00	2	1.96	QUICK-Stop	Taucherstraße 10	Cunewalde		01307	Germany	
10316	RATTI	1	1996-09-27 00:00:00	1996-10-25 00:00:00	1996-10-06 00:00:00	3	150.15	Rattlesnake Canyon Grocery	2817 Milton Dr.	Albuquerque	NM	87110	USA	
10318	ISLAT	8	1996-10-01 00:00:00	1996-10-29 00:00:00	1996-10-14 00:00:00	2	4.73	island trading	Garden House Crowther Way	Cowes	Isle of Wight	,PO31 7PJ	UK	
10319	TORTU	7	1996-10-02 00:00:00	1996-10-30 00:00:00	1996-10-11 00:00:00	3	64.5	Tortuga Restaurante	Avda. Azteca 123	México D.F.		,05033	Mexico	
10322	PERIC	7	1996-10-04 00:00:00	1996-11-01 00:00:00	1996-10-23 00:00:00	3	0.4	Pericles Comidas Clásicas	Calle Dr. Jorge Cash 321	México D.F.		,05033	Mexico	
10328	FURIB	4	1996-10-14 00:00:00	1996-11-11 00:00:00	1996-10-17 00:00:00	3	87.03	Furia Bacalhau e Frutos do Mar	Jardim das Rosas n. 32	Lisboa		,1675	Portugal	
10330	LILAS	3	1996-10-16 00:00:00	1996-11-13 00:00:00	1996-10-28 00:00:00	1	12.75	LILA-Supermercado	carrera 52 con Ave. Bolívar #65-98 Llano	Largo	Barquisimeto	Lara	3508	Venezuela
10331	BONAP	9	1996-10-16 00:00:00	1996-11-27 00:00:00	1996-10-21 00:00:00	1	10.19	Bon app'	12, rue des Bouchers	Marseille		,13008	France	
10333	WARTH	5	1996-10-18 00:00:00	1996-11-15 00:00:00	1996-10-25 00:00:00	3	0.59	Wartian Herkku	Torikatu 38	Oulu		90110	Finland	
10335	HUNGO	7	1996-10-22 00:00:00	1996-11-19 00:00:00	1996-10-24 00:00:00	2	42.11	Hungry Owl All-night Grocers	8 Johnston Road	Cork	Co.		Ireland	
10346	RATTI	3	1996-11-05 00:00:00	1996-12-17 00:00:00	1996-11-08 00:00:00	3	142.08	Rattlesnake Canyon Grocery	2817 Milton Dr.	Albuquerque	NM	87110	USA	
10347	FAMIA	4	1996-11-06 00:00:00	1996-12-04 00:00:00	1996-11-08 00:00:00	3	3.1	Família Arquibaldo	Rua Orós, 92	Sao Paulo	SP	05442-030	Brazil	
10349	SPLIR	7	1996-11-08 00:00:00	1996-12-06 00:00:00	1996-11-13 00:00:00	1	6.63	Split Rail Beer & Ale	P.O. Box 555	Lander	WY	82520	USA	
10352	FURIB	3	1996-11-12 00:00:00	1996-11-26 00:00:00	1996-11-18 00:00:00	3	1.31	Furia Bacalhau e Frutos do Mar	Jardim das Rosas n. 32	Lisboa		,1675	Portugal	
10353	PICCO	7	1996-11-13 00:00:00	1996-11-21 00:00:00	1996-11-25 00:00:00	3	360.63	Piccolo und mehr	Geislinger 14	Salzburg		,5020	Austria	
10354	PERIC	8	1996-11-14 00:00:00	1996-12-12 00:00:00	1996-11-20 00:00:00	3	53.8	Pericles Comidas Clásicas	Calle Dr. Jorge Cash 321	México D.F.		,05033	Mexico	
10355	AROUT	6	1996-11-15 00:00:00	1996-12-13 00:00:00	1996-11-20 00:00:00	1	41.95	Around the Horn	Brook Farm Stratford St. Mary	Colchester	Essex	C07 6XJ	UK	
10357	LILAS	1	1996-11-19 00:00:00	1996-12-17 00:00:00	1996-12-02 00:00:00	3	34.88	LILA-Supermercado	carrera 52 con Ave. Bolívar #65-98 Llano	Largo	Barquisimeto	Lara	3508	Venezuela
10359	SEVES	5	1996-11-21 00:00:00	1996-12-19 00:00:00	1996-11-26 00:00:00	3	288.43	Seven Seas Imports	90 Wadhurst Rd.	London		OX15 4NB	UK	
10361	QUICK	1	1996-11-22 00:00:00	1996-12-20 00:00:00	1996-12-03 00:00:00	2	183.17	QUICK-Stop	Taucherstraße 10	Cunewalde		01307	Germany	
10362	BONAP	3	1996-11-25 00:00:00	1996-12-23 00:00:00	1996-11-28 00:00:00	1	96.04	Bon app'	12, rue des Bouchers	Marseille		,13008	France	
10365	ANTON	3	1996-11-27 00:00:00	1996-12-23 00:00:00	1996-12-02 00:00:00	2	22	Antonio Moreno Taqueria	Mataderos	2312	México D.F.	,05023	Mexico	
10367	WAFFE	7	1996-11-28 00:00:00	1996-12-26 00:00:00	1996-12-02 00:00:00	3	13.55	vaffeljernet	smagsloget 45	Aarhus		,8200	Denmark	
10368	ERNSH	2	1996-11-29 00:00:00	1996-12-27 00:00:00	1996-12-02 00:00:00	2	101.93	Ernst Handel	Kirchgasse 6	Graz		8010	Austria	
10370	CHOPS	6	1996-12-03 00:00:00	1996-12-31 00:00:00	1996-12-27 00:00:00	2	1.17	Chop-suey Chinese	Hauptstr. 31	Bern		,3012	Switzerland	

## Conclusion

In this chapter we have seen how to use the Percentage Sampling to execute dataset and split based on the percent and uses it across the requirement.

# Chapter 64

## ROW SAMPLING (SELECTED OUTPUT) TRANSFORMATION

### Introduction

In this chapter we are going to see how to use Row Sampling transformation in SSIS Packaging. Row sampling is used to randomly select some rows and move it as output to the required process as and when required to divide the rows.

Example of using this transformation is say example if we want to select some randomly 10 users of a community for a random prize then we can use this transformation. In this process we are going to see an example on how to use this process for the selected output values.

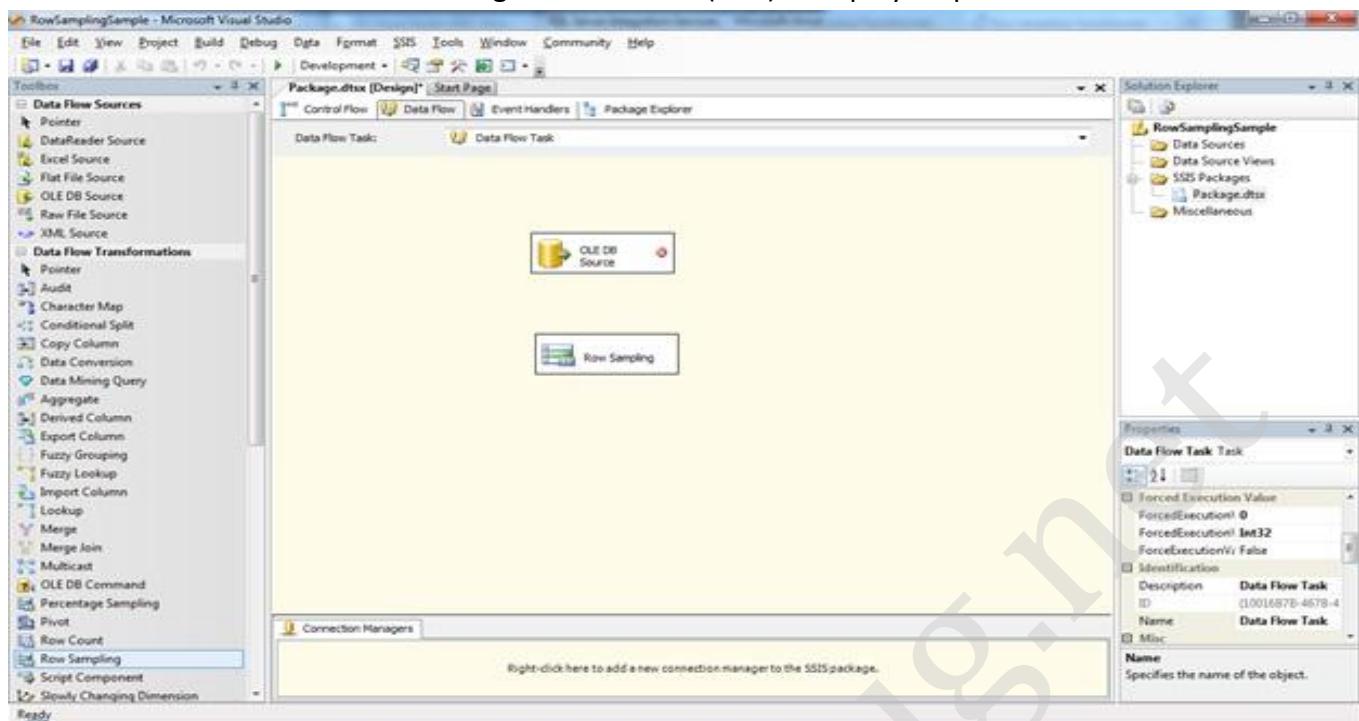
Let's jump start to see this sample how to set the properties of the control.

### Steps

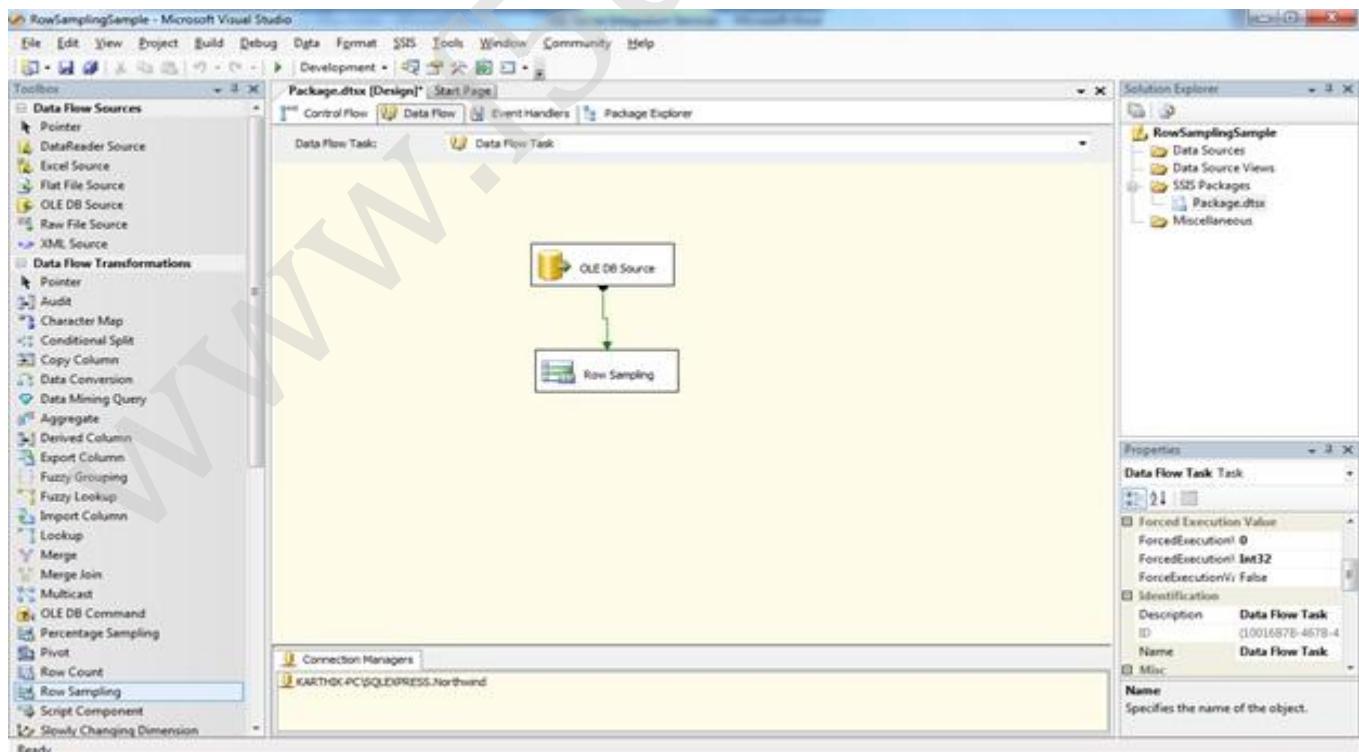
Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see how to use the Percentage sampling to see the flow.

Now once the projects is opened drag and drop a source and a Percentage sampling task as shown in the screen below.

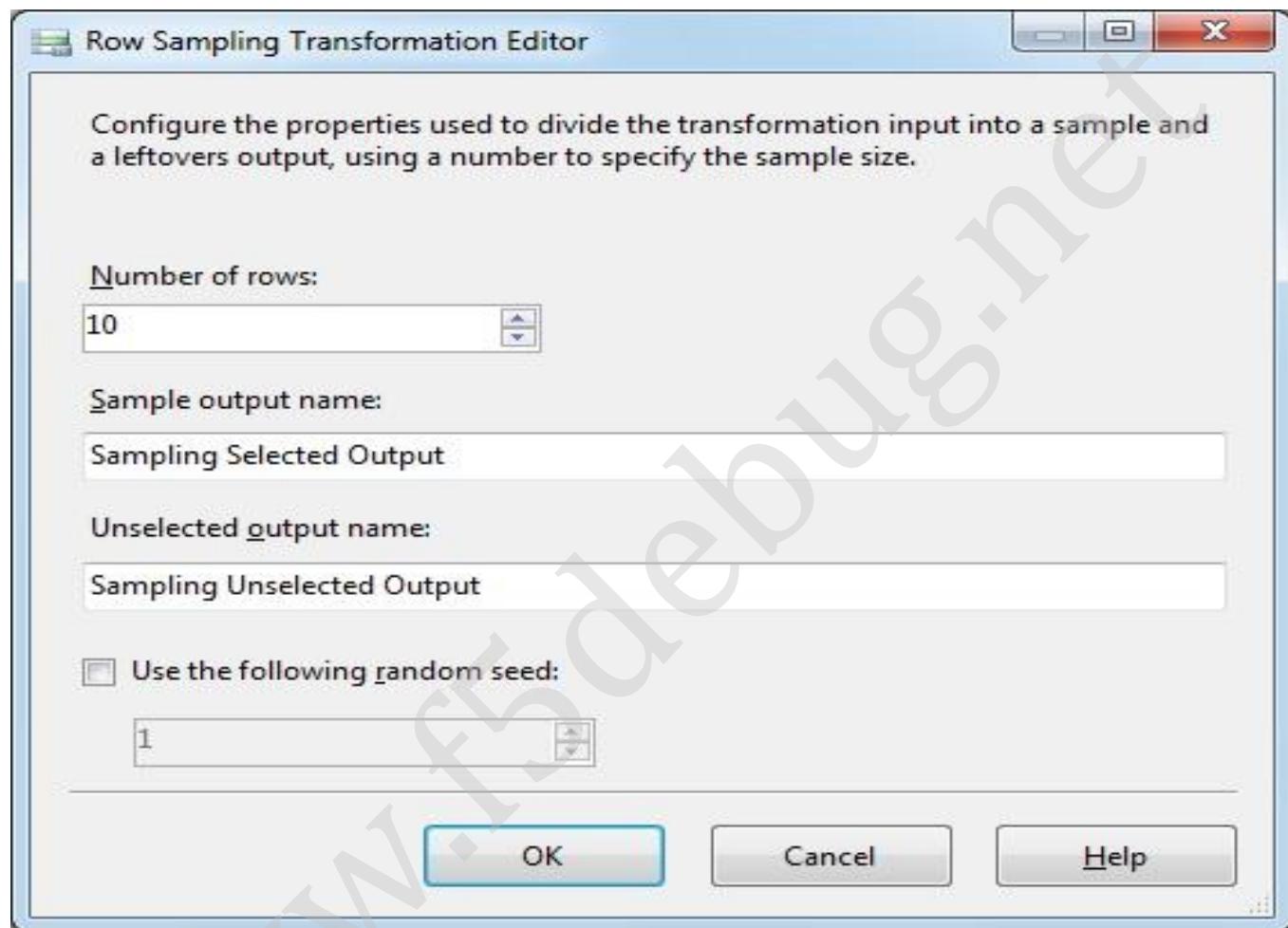
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we can see the red mark on to the control which indicates that the controls are yet to be configured. Now let us configure the source (refer to my previous chapters on how to configure OLEDB source) Now your output will look like below.



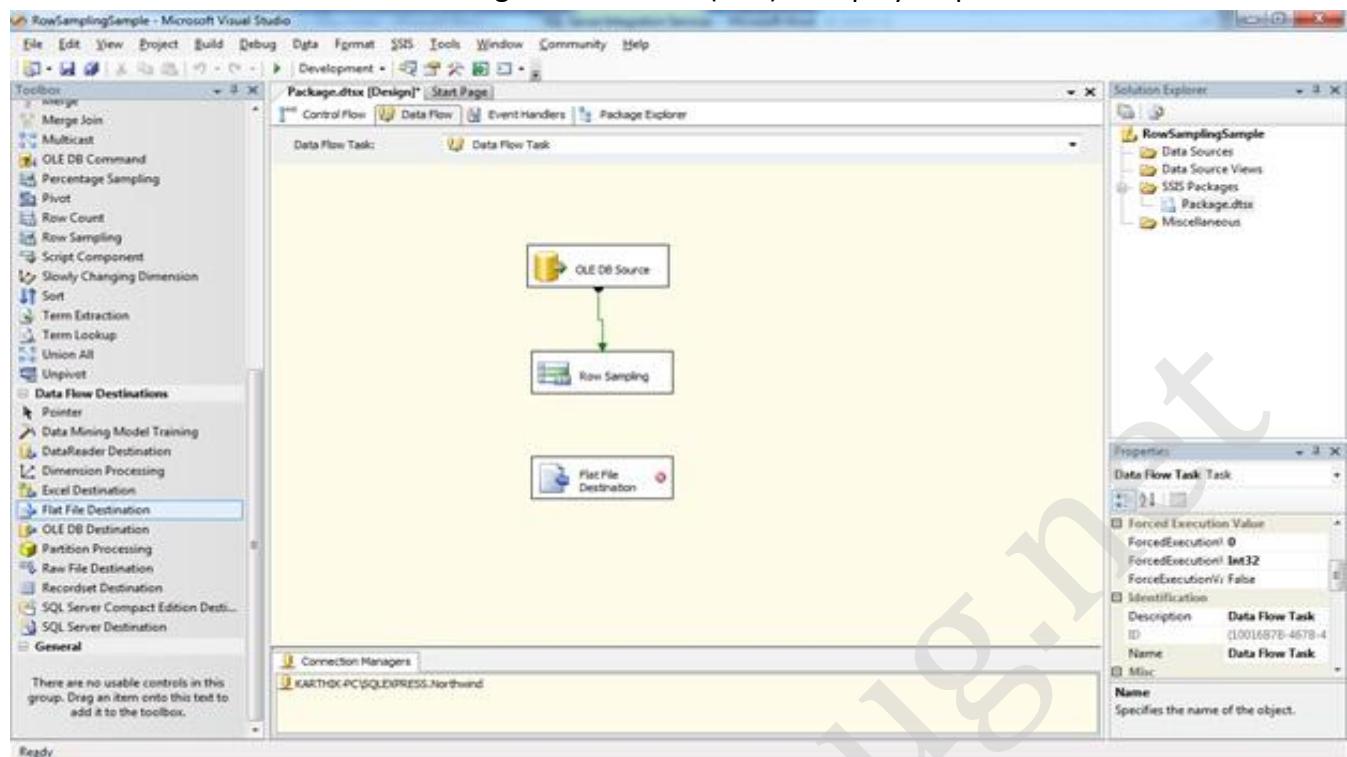
Now we need to configure the Row Sampling task, double click the task will open the screen as below.



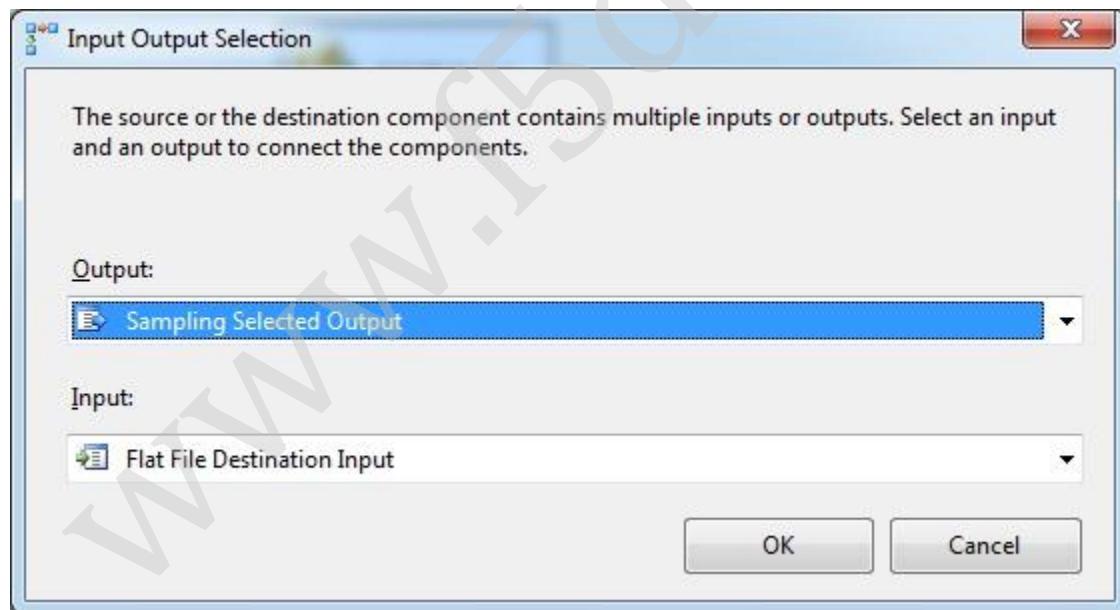
Here we can specify the number of random rows can be selected and the name for the Sample output selected and unselected. Since in our example we are going to see the Selected Output we will see on how to use it.

Now after specifying the number of rows just clicks on OK button. Now drag and drop the Flat File Destination as shown in the screen below.

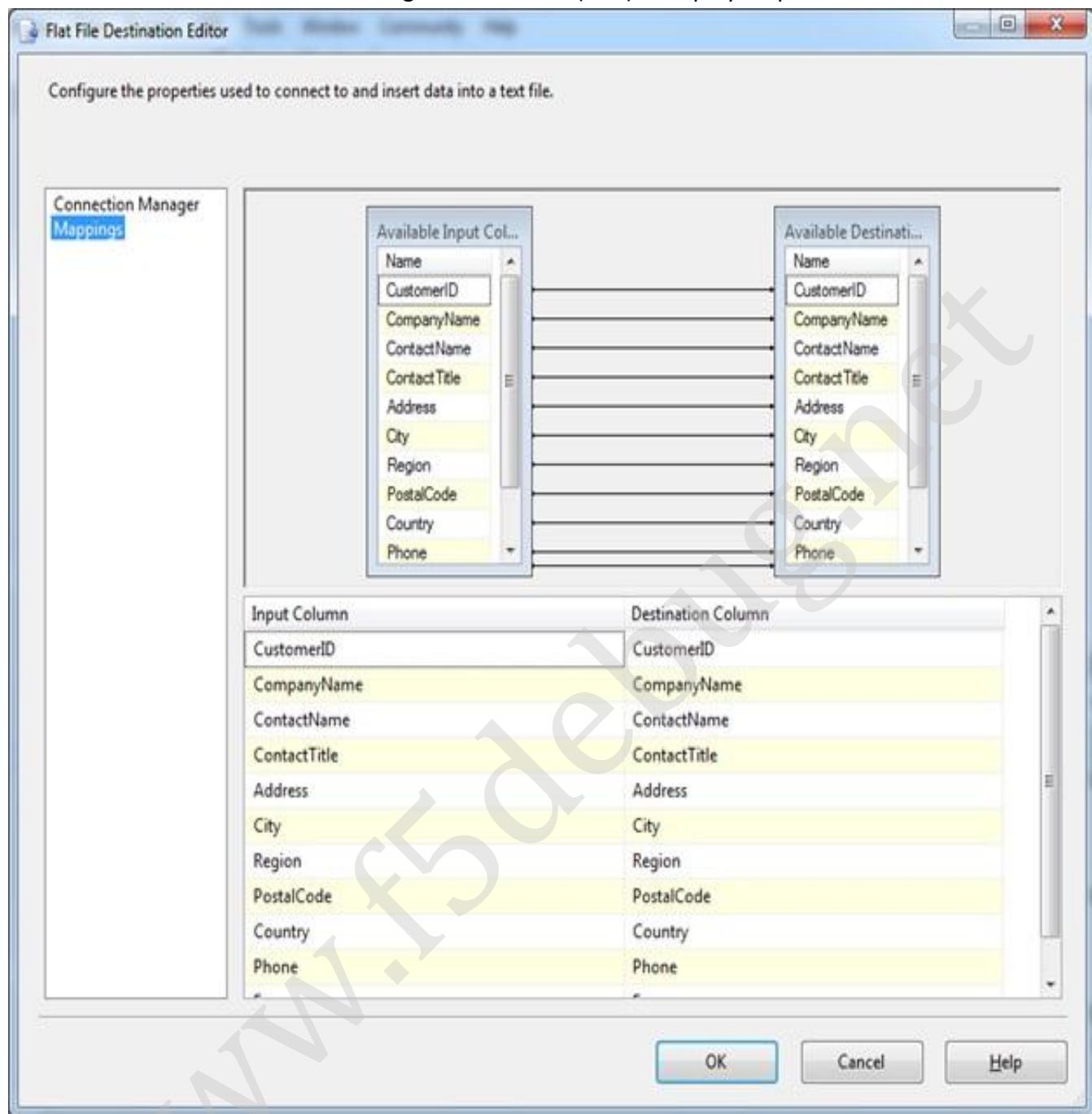
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now drag the green line from the Row Sampling to the Flat File destination task. It will open a window as shown in the screen below.

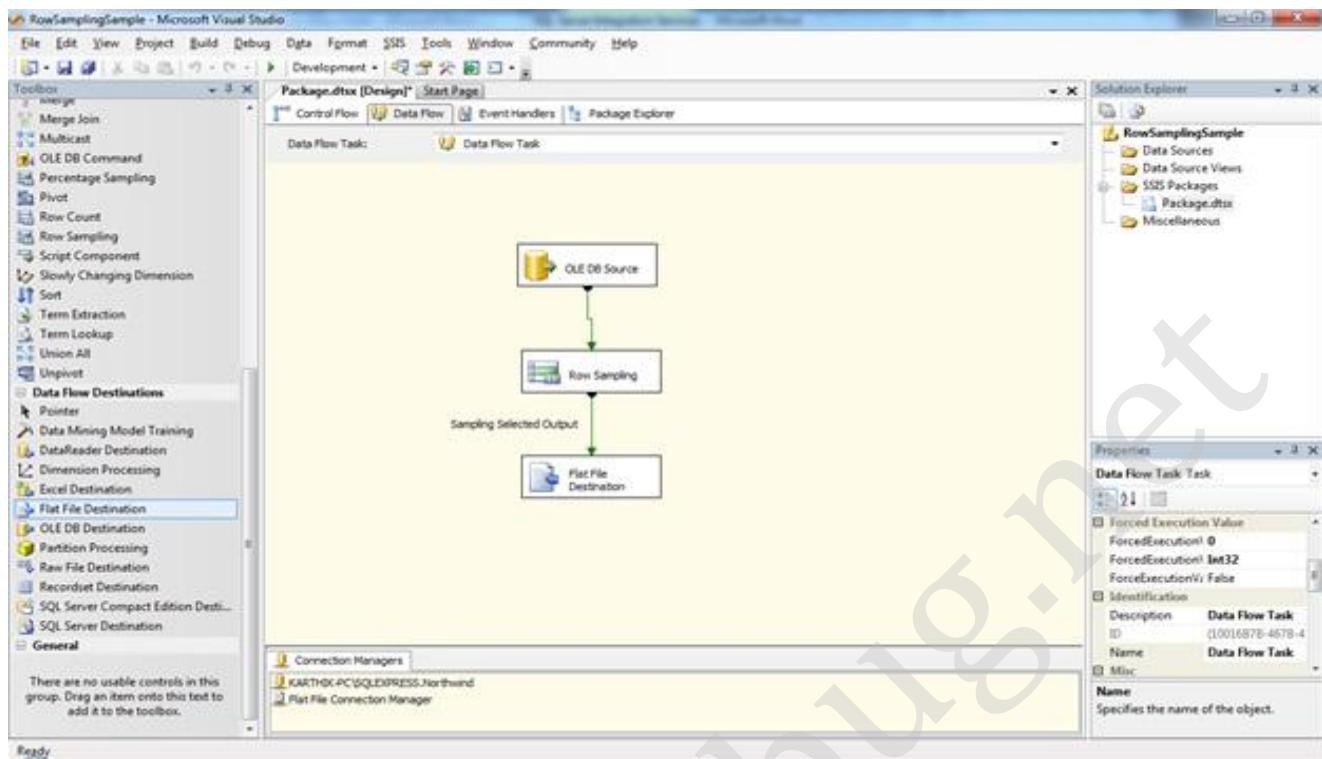


Here we have selected the Selected output as the Output to get the data as we can see in the screen above. Now click on OK to do the further configuration of the destination as shown in the screen below.

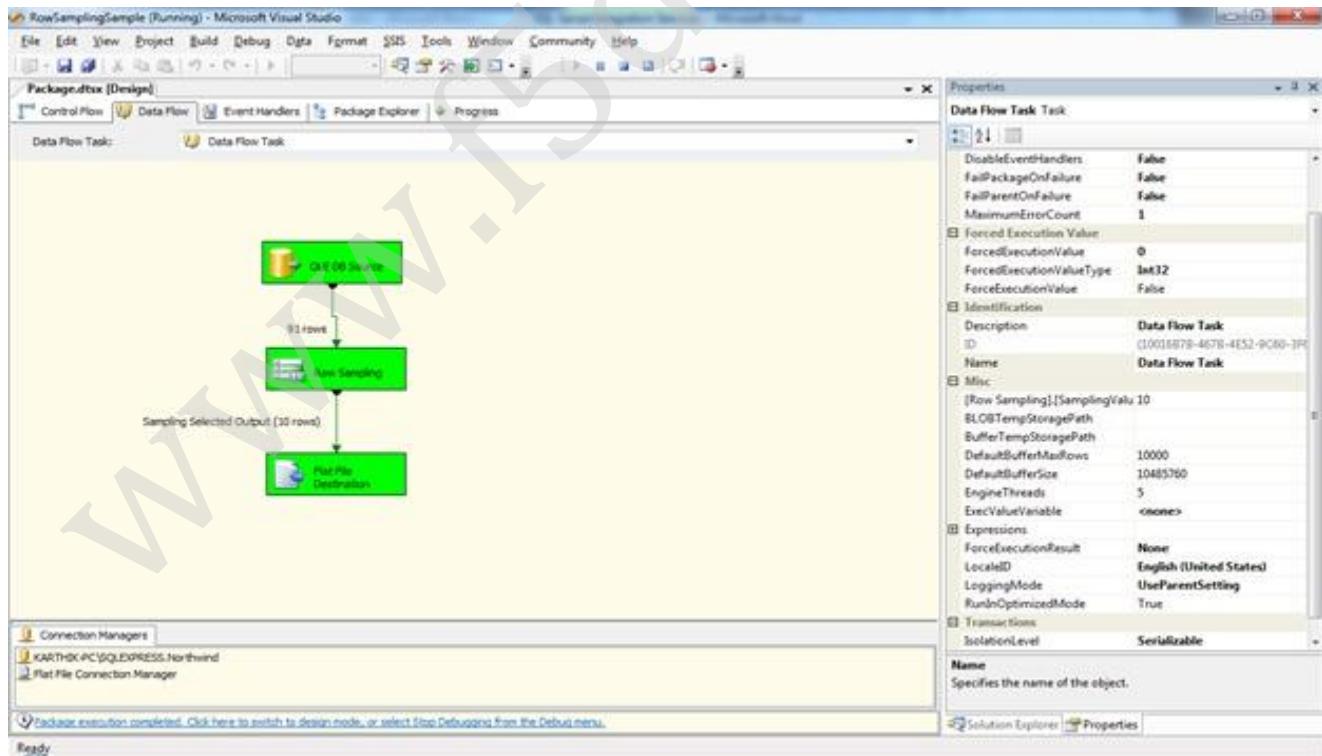


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now our package is ready to execute. Press F5 and execute the project we can see the screen as below which indicates that the package is executed successfully.



We can see only 10 rows are randomly selected and passed to the destination. We can see the output by opening the file which we gave in the destination configuration section. You can see the result as shown in the screen below.



The screenshot shows a Windows Notepad window displaying 10 rows of data from the Northwind database. The columns represent various fields such as CompanyName, ContactName, Owner, Address, City, Country, and Phone. The data includes entries like 'SANTG, Sante Gourmet' and 'BOTTM, Bottom-Dollar Markets'. The Notepad window has a standard menu bar with File, Edit, Format, View, and Help.

```

Notepad - Notepad
File Edit Format View Help
SANTG,Santé Gourmet,Jonas Bergulfsen,owner,Eriling skakkes gate 78,Stavern,,4110,Norway,07-98 92 35,07-98 92 47
KOENE,Königlich Essen,Philip Cramer,Sales Associate,Maubelstr. 90,Brandenburg,,14776,Germany,0555-09876,
ANTON,Antonio Moreno Taqueria,Antonio Moreno,owner,Mataderos 2312,México D.F.,,05023,Mexico,(5) 555-3932,
WHITE,white clover Markets,Karl Jablonski,owner,305 - 14th Ave. S. Suite 38,Seattle,WA,98128,USA,(206) 555-4112,(206) 555-4115
THECR,The Cracker Box,Liu Wong,Marketing Assistant,55 Grizzly Peak Rd.,Butte,MT,59801,USA,(406) 555-5834,(406) 555-8083
RANCH,Rancho Grande,Sergio Gutiérrez,Sales Representative,Av. del Libertador 900,Buenos Aires,,1010,Argentina,(1) 123-5555,(1) 123-5556
PERIC,Pericles Comidas Clásicas,Guillermo Fernández,Sales Representative,Calle Dr. Jorge Cash 321,México D.F.,,05033,Mexico,(5) 552-3745,(5) 545-3745
SIMOB,Simons bistro,Jytte Petersen,Owner,Virbaltet 34,København,,1734,Denmark,31 12 34 56,31 13 35 57
SPECI,Spécialités du monde,Dominique Perrier,Marketing Manager,25, rue Lauriston,Paris,,75016,France,(1) 47.55.60.10,(1) 47.55.60.20
BOTTM,Bottom-Dollar Markets,Elizabeth Lincoln,Accounting Manager,23 Tsawassen Blvd.,Tsawassen,BC,T2F 8M4,Canada,(604) 555-4729,(604) 555-3745

```

## Conclusion

In this chapter we have seen how to use the Row Sampling (Selected Output) to execute dataset and split based on the number of rows and uses it across the requirement.

# Chapter 65

## **ROW SAMPLING (UN-SELECTED OUTPUT) TRANSFORMATION**

### **Introduction**

In this chapter we are going to see how to use Row Sampling transformation in SSIS Packaging. Row sampling is used to randomly select some rows and move it as output to the required process as and when required to divide the rows.

Example of using this transformation is say example if we want to select some randomly 10 users of a community for a random prize then we can use this transformation. In this process we are going to see an example on how to use this process for the unselected output values.

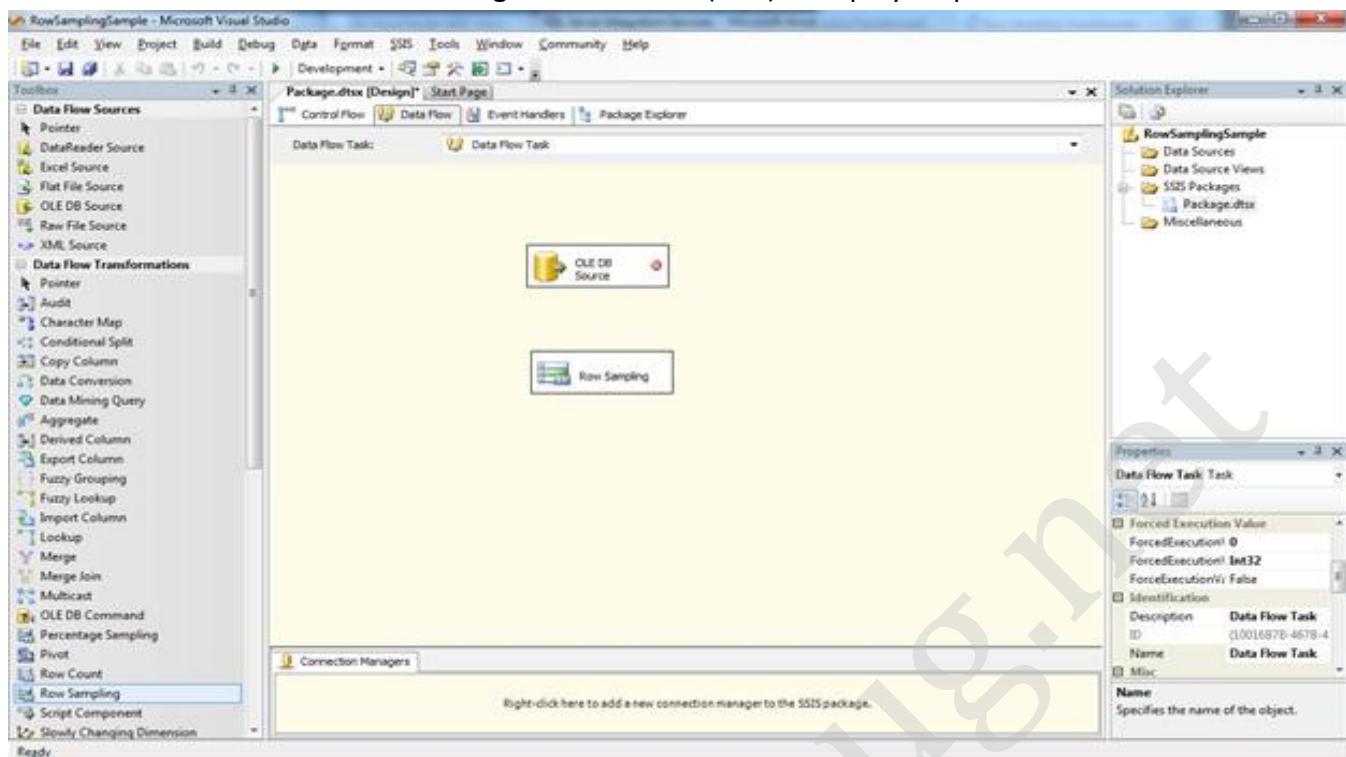
Let's jump start to see this sample how to set the properties of the control.

### **Steps**

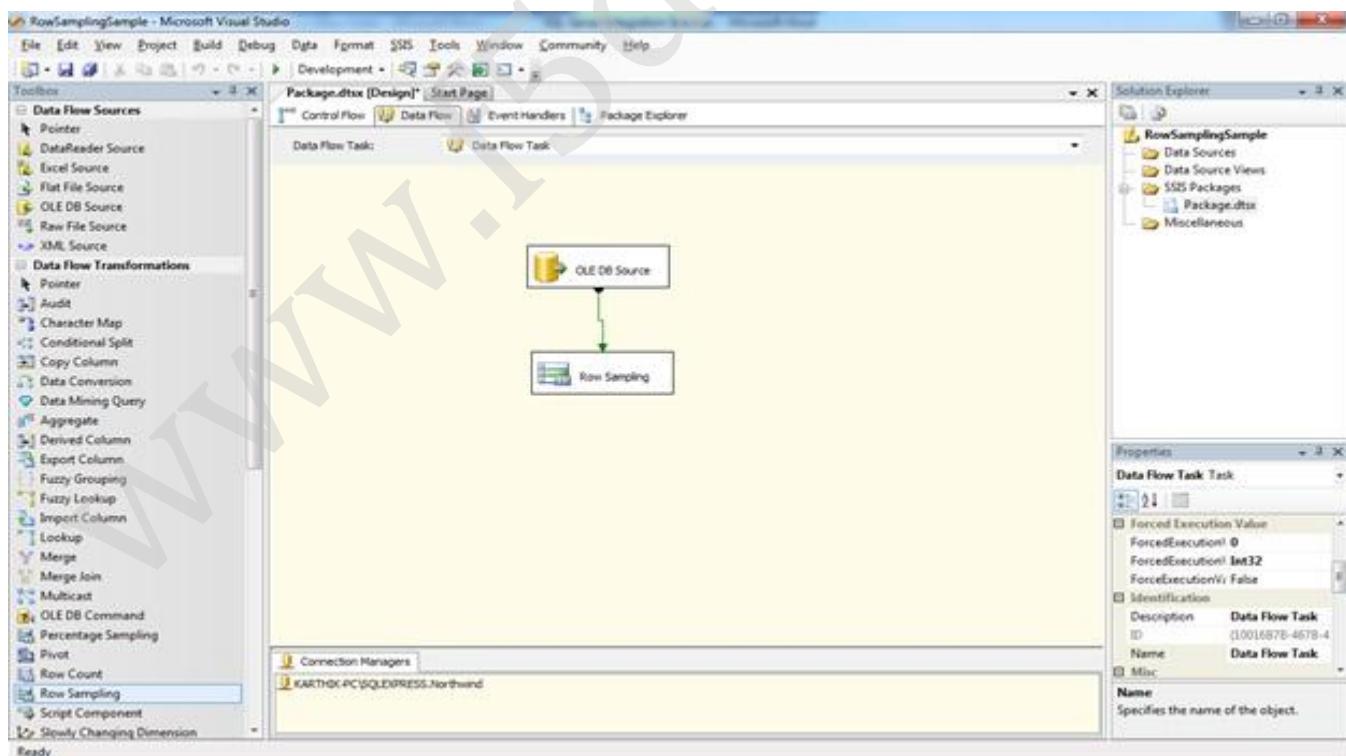
Follow steps 1 to 3 of the first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see how to use the Percentage sampling to see the flow.

Now once the projects is opened drag and drop a source and a Percentage sampling task as shown in the screen below.

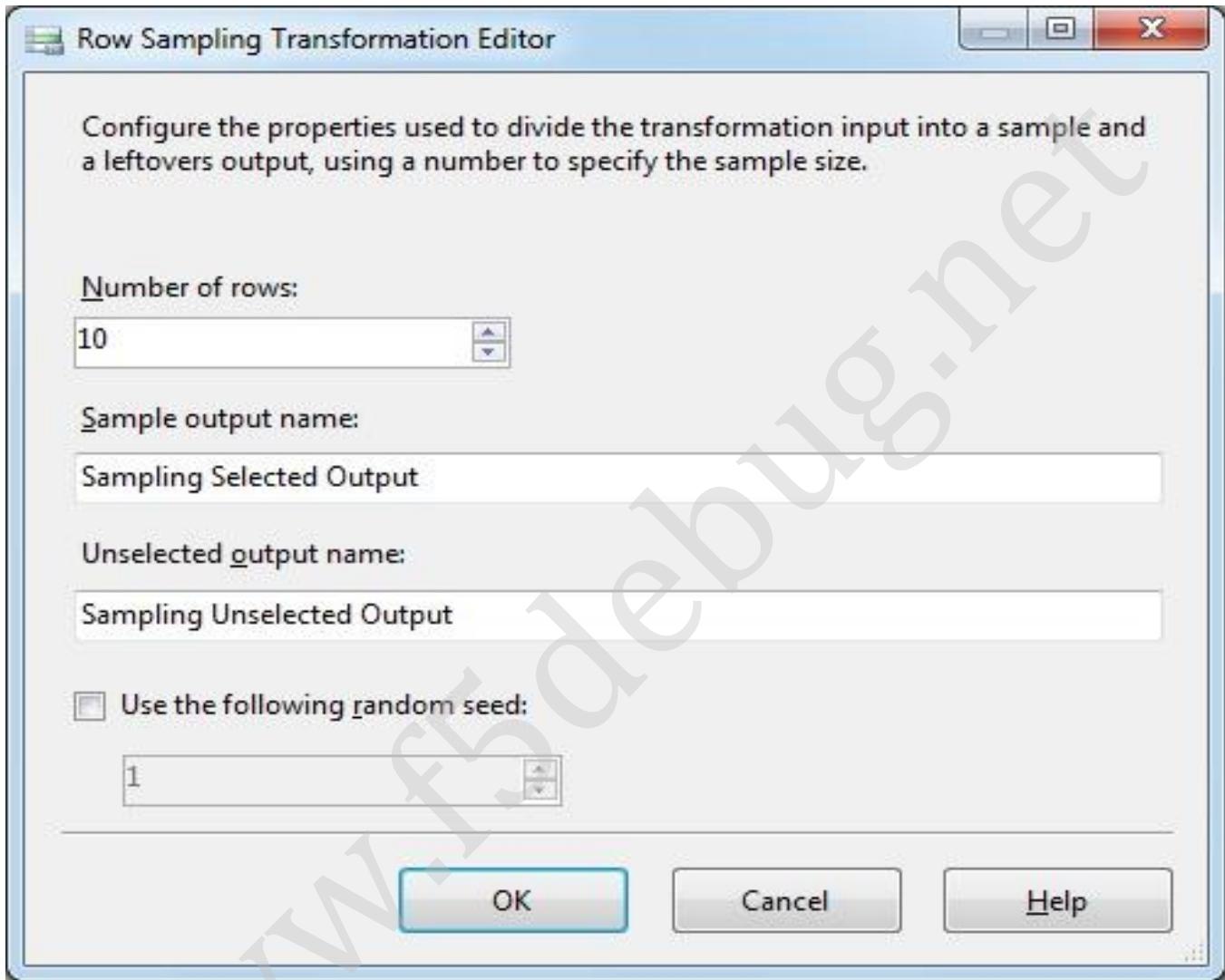
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we can see the red mark on to the control which indicates that the controls are yet to be configured. Now let us configure the source (refer to my previous chapters on how to configure OLEDB source) Now your output will look like before.



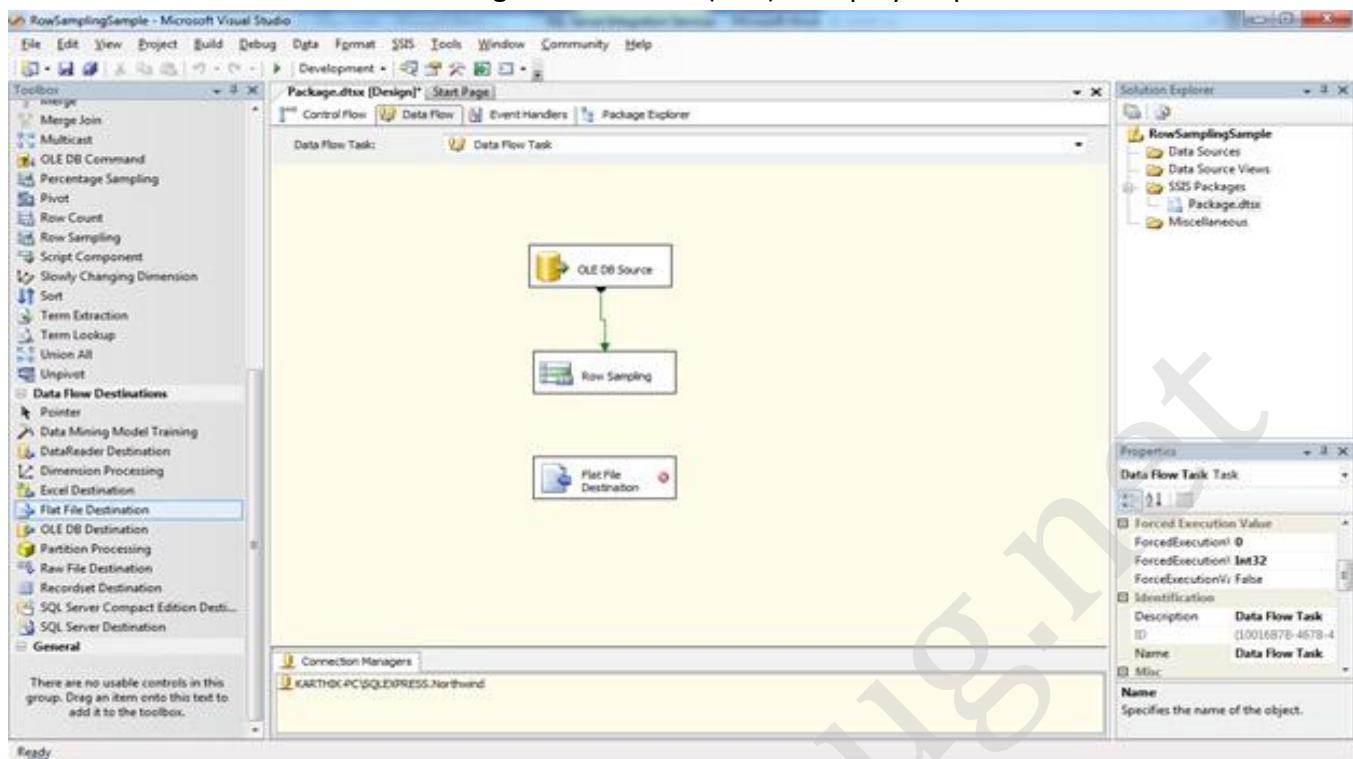
Now we need to configure the Row Sampling task, double click the task will open the screen as below.



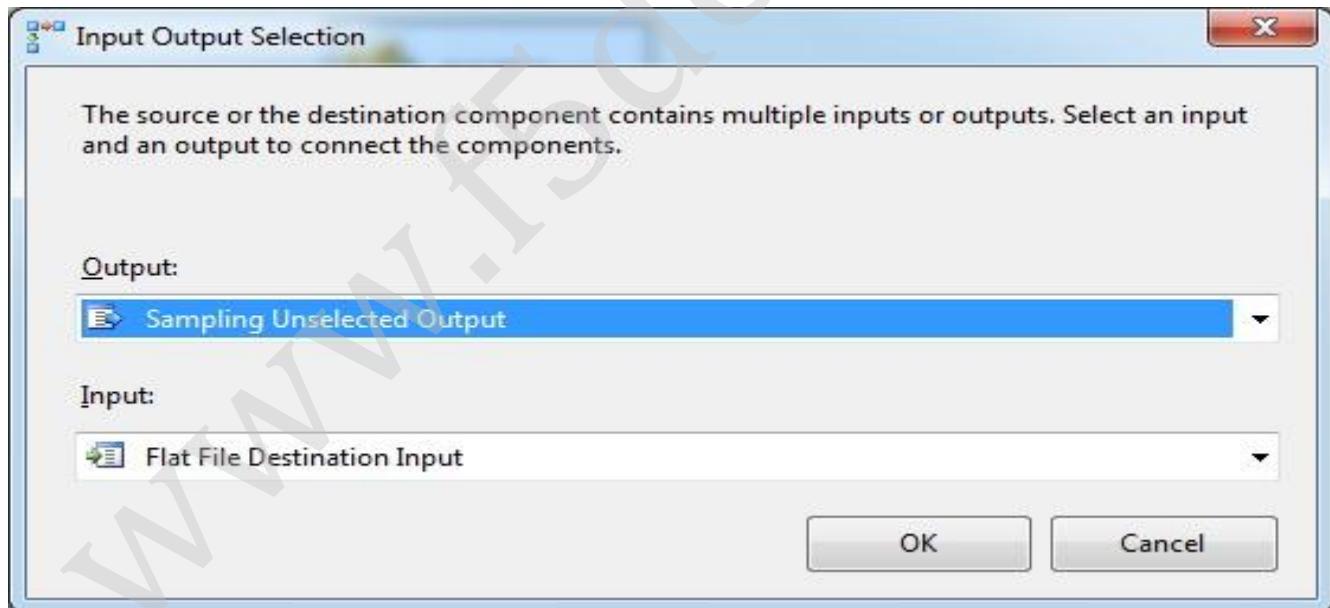
Here we can specify the number of random rows can be selected and the name for the Sample output selected and unselected. Since in our example we are going to see the Unselected Output we will see on how to use it.

Now after specifying the number of rows just clicks on OK button. Now drag and drop the Flat File Destination as shown in the screen below.

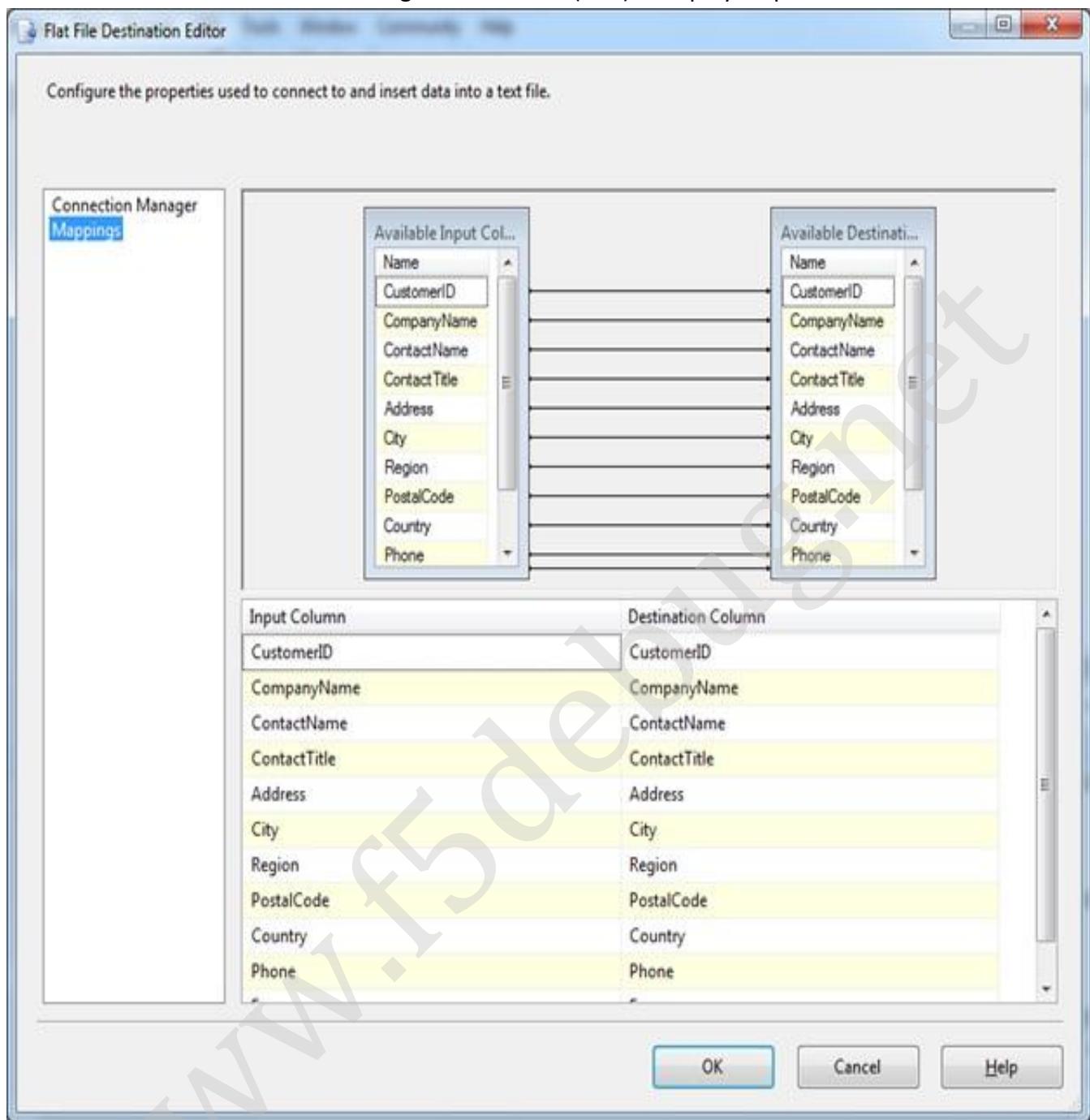
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now drag the green line from the Row Sampling to the Flat File destination task. It will open a window as shown in the screen below.

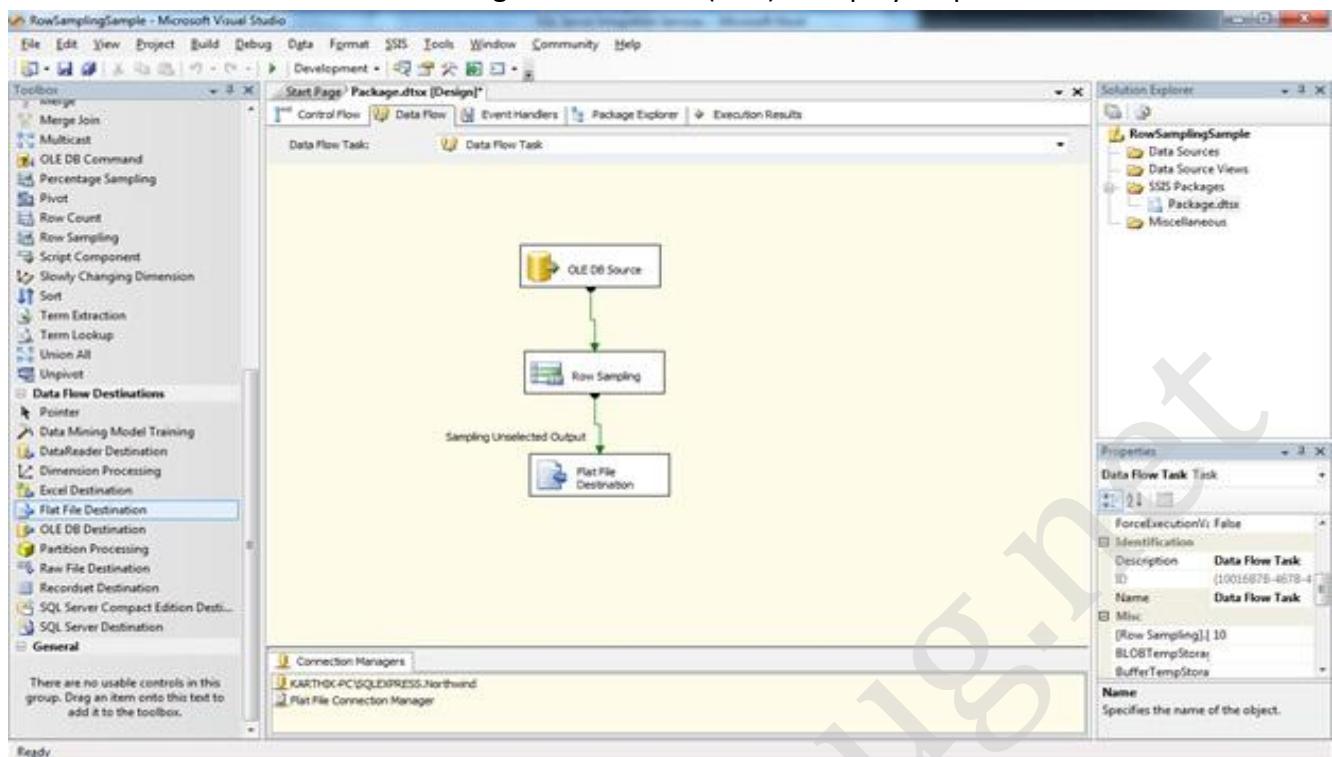


Here we have selected the Unselected output as the Output to get the data as we can see in the screen above. Now click on OK to do the further configuration of the destination as shown in the screen below.

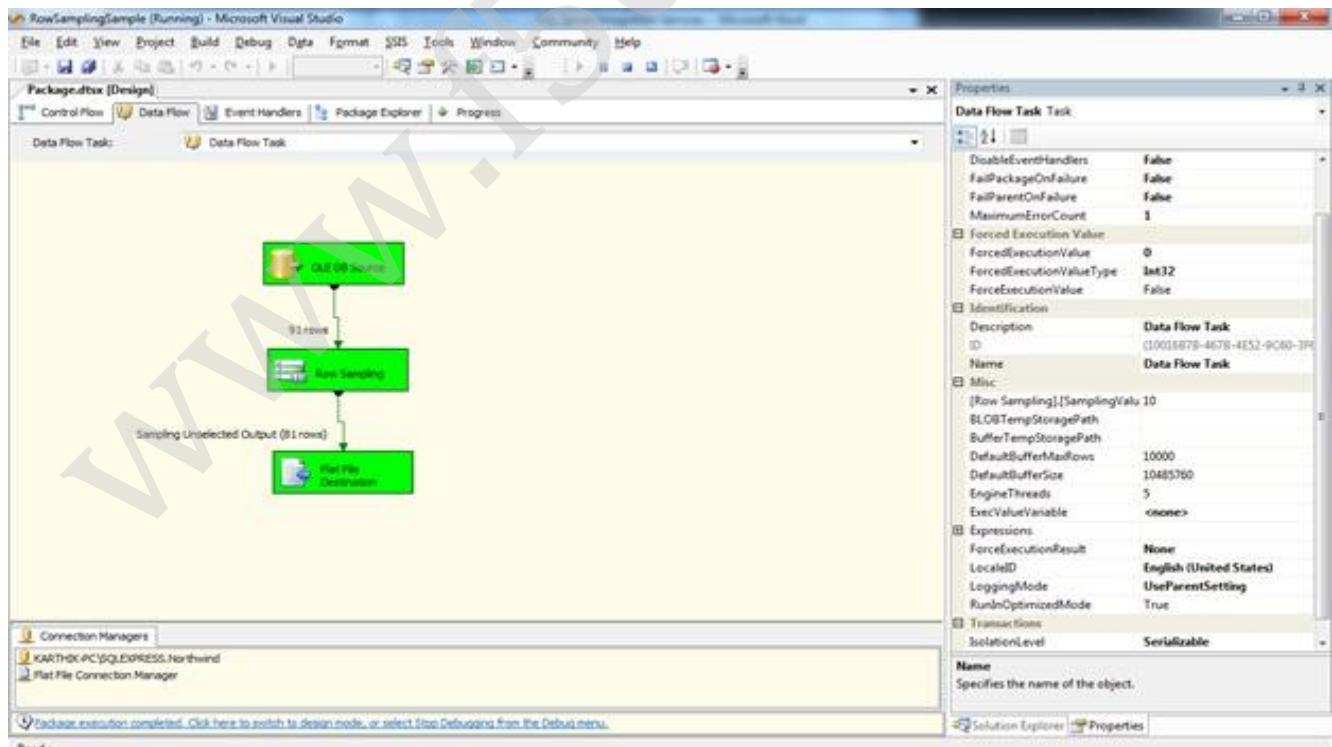


Once we are done with the configuration setting we can see our screen look as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now our package is ready to execute. Press F5 and execute the project we can see the screen as below which indicates that the package is executed successfully.



We can see only 81 rows are randomly selected and passed to the destination. Which means out of the 10 selected rows remaining 81 rows which are not selected have been processed. We can see the output by opening the file which we gave in the destination configuration section. You can see the result as shown in the screen below.

test - Notepad	
File	Edit
BERGS,Berglunds snabbköp,Christina Berglund,Order Administrator,Berguvsvägen 8,Luleå,,S-998 22,Sweden,0921-12 34 65,0921-12 34 67	
ABORT,Around the Horn,Thomas Hardy,Sales Representative,120 Hanover Sq.,London,W1A 1DP,UK,(171) 555-7788,(171) 555-6750	
BSEBV,B's Beverages,Victoria Ashworth,Sales Representative,Fauntleroy Circus,London,EC2 5NT,UK,(171) 555-1212,	
ANTON,Antonio Moreno Taqueria,Antonio Moreno,Owner,Mataderos 2312,México D.F.,05023,Mexico,(5) 555-3932,	
CHOPS,Chop-suey Chinese,Yang Wang,Owner,Hauptstr. 20,Bern,,3012,Switzerland,0452-076545,	
ANATR,Ana Trujillo Emparedados y helados,Ana Trujillo,Owner,Avenida de la Constitución 2222,México D.F.,05021,Mexico,(5) 555-4729,(5) 555-3745	
BOLID,Bólido Comidas preparadas,Martín Sommer,Owner,C/ Aragón, 67,Madrid,,28023,Spain,(91) 555 22 82,(91) 555 91 99	
DUMON,Du monde entier,Janine Labrune,Owner,67, rue des Cinquante Otages,Nantes,,44000,France,40.67.88.88,40.67.89.89	
EASTC,Eastern Connection,Ann Devon,Sales Agent,35 King George,London,WX1 6WW,UK,(171) 555-0297,(171) 555-3373	
CONSH,Consolidated Holdings,Elizabeth Brown,Sales Representative,Berkeley Gardens 12,Brentford,UK,081 2282,(171) 555-9199	
CENTC,Centro comercial Mótezuma,Francisco Chang,Marketing Manager,Sierras de Granada 9993,México D.F.,05022,Mexico,(5) 555-3192,(5) 555-7293	
CACTU,Cactus Comidas para llevar,Patricia Simpson,Sales Agent,Cerrito 333,Buenos Aires,,1010,Argentina,(1) 135-5555,(1) 135-4892	
FOLIG,Folies gourmandes,Martine Rancé,Assistant Sales Agent,184, chaussée de Tournai,Lille,,59000,France,20.16.10.16,20.16.10.17	
FOLKD,Folk och fa MB,Maria Larsson,Owner,Akersgatan 24,Bräcke,,5-844 67,Sweden,0695-34 67 21,	
FISSA,FISSA Fabrica Inter. Salchichas S.A.,Diego Roel,Accounting Manager,C/ Moralzarzal, 86,Madrid,,28034,Spain,(91) 555 94 44,(91) 555 55 93	
FRANR,France restauration,Caroline Schmitt,Marketing Manager,54, Rue Royale,Nantes,,44000,France,40.32.21.21,40.32.21.20	
FRANS,Franchi s.p.a.,Paolo Accorti,Sales Representative,Via Monte Bianco 34,Torino,,10100,Italy,011-4988260,011-4988261	
BONAP,Bon app',Laurence Lebihan,Owner,12, rue des Bouchers,Marseille,13008,France,93.24.45.40,93.24.45.41	
GALIO,Galería del gastrónomo,Eduardo Saavedra,Marketing Manager,Rambla de cataluña, 23,Barcelona,,08022,Spain,(93) 203 4560,(93) 203 4561	
BLOND,Blondesddsl père et fils,Frédérique Citeaux,Marketing Manager,24, place Kléber,Strasbourg,,67000,France,88.60.15.31,88.60.15.32	
GOURL,Gourmet Lachonetes,André Fonseca,Sales Associate,Av. Brasil,,442,Campinas,SP,04876-786,Brazil,(11) 355-9482,	
GODOS,Godos Cocina Tipica,José Pedro Freyre,Sales Manager,C/ Romero, 33,Sevilla,,41010,Spain,(95) 555 82 82,	
GROS,GROSELLA-Restaurante,Manuel Pereira,Owner,5º Ave. Los Palos Grandes,caracas,OF,1081,Venezuela,(2) 283-2951,(2) 283-3397	
HANAR,Hanari Carnes,Mario Pontes,Accounting Manager,Rua do Paço, 67,Rio de Janeiro,RJ,05454-876,Brazil,(21) 555-0091,(21) 555-8765	
HILAA,Milarion-Abastos,Carlos Hernández,Sales Representative,Carrera 22 con Ave. Carlos Soublette #8-35,San Cristóbal,Táchira,5022,Venezuela,(5) 555-1340,(5) 555-1948	
COMM,Comércio Mineiro,Pedro Afonso,Sales Associate,Av. dos Lusíadas, 27,Sao Paulo,SP,05432-043,Brazil,(11) 555-7647,	
HUNGO,Hungry Owl All-Night Grocers,Patricia McKenna,Sales Associate,8 Johnstown Road,Cork,Co. Cork,Ireland,2967 542,2967 3333	
FURIB,Furia Bacalhau e Frutos do Mar,Lino Rodriguez,Sales Manager,Jardim das Rosas n. 32,Lisboa,,1675,Portugal,(1) 354-2534,(1) 354-2535	
FAMIA,Família Argutbaldo,Aria Cruz,Marketing Assistant,Rua Ordó, 92,Sao Paulo,SP,05442-030,Brazil,(11) 555-9857,	
HUNG,Hungry Coyote Import Store,Yoshi Latimer,Sales Representative,City Center Plaza 12,Main St.,Elgin,IL,60187,USA,(503) 555-6874,(503) 555-2376	
LAMAT,La maison d'Asie,Annette Roulet,Sales Manager,1 rue Alsace-Lorraine,Toulouse,,31000,France,61.77.61.10,61.77.61.11	
LAUGB,Laughing Bacchus Wine Cellars,Yoshi Tannamuri,Marketing Assistant,1900 Oak St.,Vancouver,BC,V3F 2K3,Canada,(604) 555-3192,(604) 555-7293	
BOTTM,Bottom-Dollar Markets,Elizabeth Lincoln,Accounting Manager,1 Tsawassen Blvd.,Tsawassen,BC,T2F 8W4,Canada,(604) 555-4729,(604) 555-3745	
LEHMS,Lehmanns Marktstand,Renate Messner,Sales Representative,Magazinweg 7,Frankfurt a.M.,60528,Germany,069-0245984,069-0245874	
LETSS,Let's Stop N Shop,Jáime Yorres,Owner,87 Polk St. Suite 5,San Francisco,CA,94117,USA,(415) 535-5938,	
LILAS,LILA-Supermercado,Carlos Gonzalez,Accounting Manager,Carrera 52 con Ave. Bolívar #65-98,Llano Largo,Barquisimeto,Lara,3508,Venezuela,(9) 331-6954,(9) 331-7256	
LINDO,LINO-Delicateses,Felipe Izquierdo,Owner,Ave. 5 de Mayo Portamar,1,de Margarita,Nueva Esparta,4980,Venezuela,(8) 34-56-12,(8) 34-93-93	
LONLP,Lonesome Pine Restaurant,Fran Wilson,Sales Manager,89 Chiaroscuro Rd.,Portland,OR,97219,USA,(503) 555-9573,(503) 555-9646	
ALKKI,Alfreds Futterkiste,Maria Anders,Sales Representative,Obere Str. 57, Berlin,,12209,Germany,030-0074321,030-0076545	
MAISO,Matson Dewey,Catherine Dewey,Sales Agent,Rue Joseph-Bens 532,Bruxelles,,B-1180,Belgium,(02) 203 24 67,(02) 201 24 68	
ERNSH,Ernst Handel,Roland Mendel,Sales Manager,Kirchgasse 6,Graz,,8010,Austria,7675-3425,7675-3426	
MORG,Morgenstern Gesundkost,Alexander Feuer,Marketing Assistant,Heerstr. 22,Leipzig,,04179,Germany,0342-023176,	
NORTS,North/South,Simon Crowther,Sales Associate,South House 300 Queensbridge,London,SW7 1RZ,UK,(171) 555-7733,(171) 555-2530	
OCEAN,Oceano Atlántico ltda.,Yvonne Moncada,Sales Agent,Ing. Gustavo Moncada 8585 Piso 20-A,Buenos Aires,,1010,Argentina,(1) 135-5333,(1) 135-5335	
OLDW,Old World Delicatessen,Rene Phillips,Sales Representative,2743 Beech st.,Anchorage,AK,99504,USA,(907) 555-7584,(907) 555-2880	
OTTIK,Ottilies Käseladen,Henriette Pfalzheim,Owner,Mehrheimerstr. 369,Köln,,50739,Germany,0221-0644327,0221-0765721	
PARIS,Paris spécialités,Marie Bertrand,Owner,265, boulevard Charonne,Paris,,75012,France,(1) 42.34.22.66,(1) 42.34.22.77	
PERIC,Pericles Comidas clásicas,Guillermo Fernández,Sales Representative,calle Dr. Jorge Cash 321,México D.F.,05033,Mexico,(5) 552-3745,(5) 545-3745	
PICCO,Piccolo und mehr,Georg Pipp,Sales Manager,Geislaeng 14,Salzburg,,9020,Austria,6562-9722,6562-9723	
PRIMA,Princesa Isabel Vinhos,Isabel de Castro,Sales Representative,Estrada da saúne n. 58,Lisboa,,1756,Portugal,(1) 356-5634,	
QUEDO,Que Delicia,Bernardo Batista,Accounting Manager,Rua da Panificadora, 12,Rio de Janeiro,RJ,02389-673,Brazil,(21) 555-4252,(21) 555-4545	
QUEEN,Queen Cozinha,Lúcia Carvalho,Marketing Assistant,Alameda dos Canários, 891,Sao Paulo,SP,05487-020,Brazil,(11) 555-1189,	
QUICK,Quick-Stop,Horst Kloss,Accounting Manager,Taucherstraße 10,Cunewalde,,01307,Germany,0372-033188,	

## Conclusion

In this chapter we have seen how to use the Row Sampling (Unselected Output) to execute dataset and split based on the number of rows and uses it across the requirement.

# Chapter 66

## ROW SAMPLING TRANSFORMATION

### Introduction

In this chapter we are going to see how to use Row Sampling transformation in SSIS Packaging. Row sampling is used to randomly select some rows and move it as output to the required process as and when required to divide the rows.

Example of using this transformation is say example if we want to select some randomly 10 users of a community for a random prize then we can use this transformation. In this process we are going to see an example on how to use this process for the unselected output values.

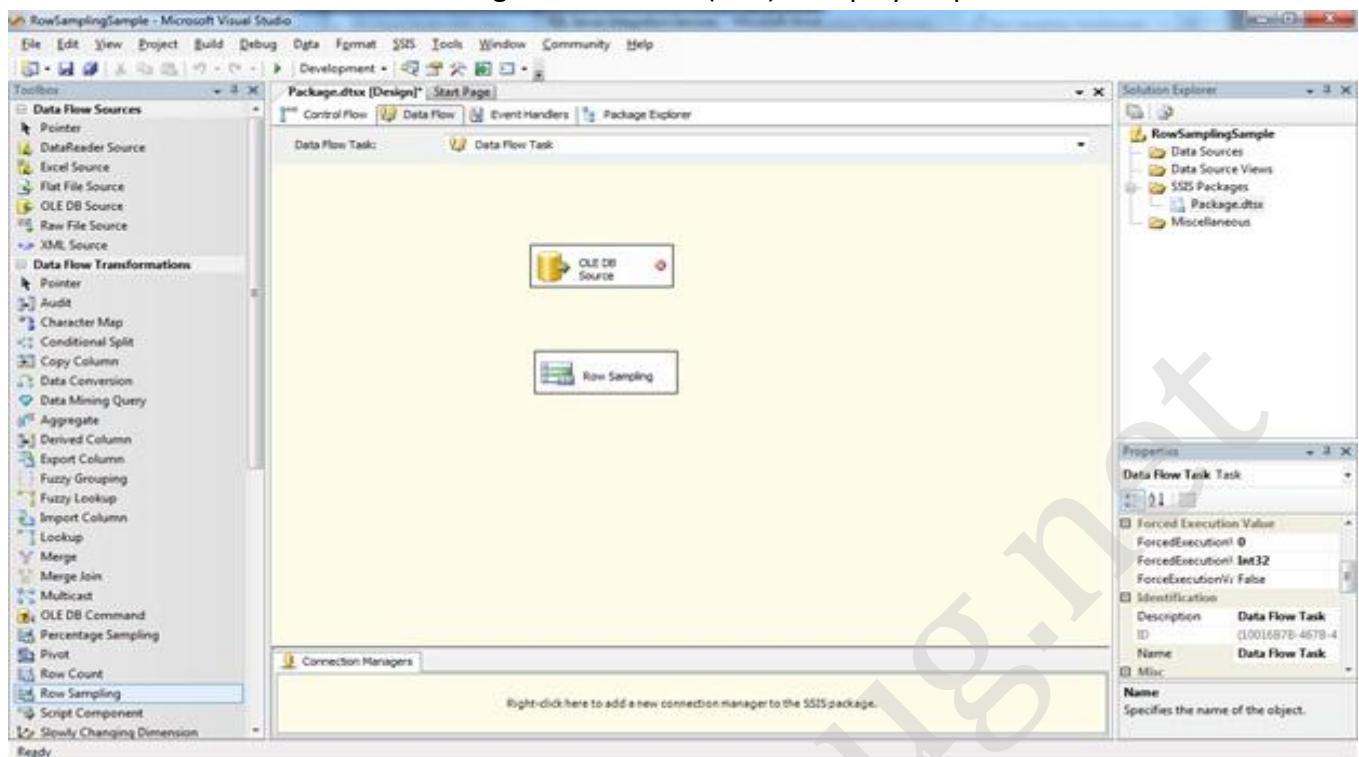
Let's jump start to see this sample how to set the properties of the control.

### Steps

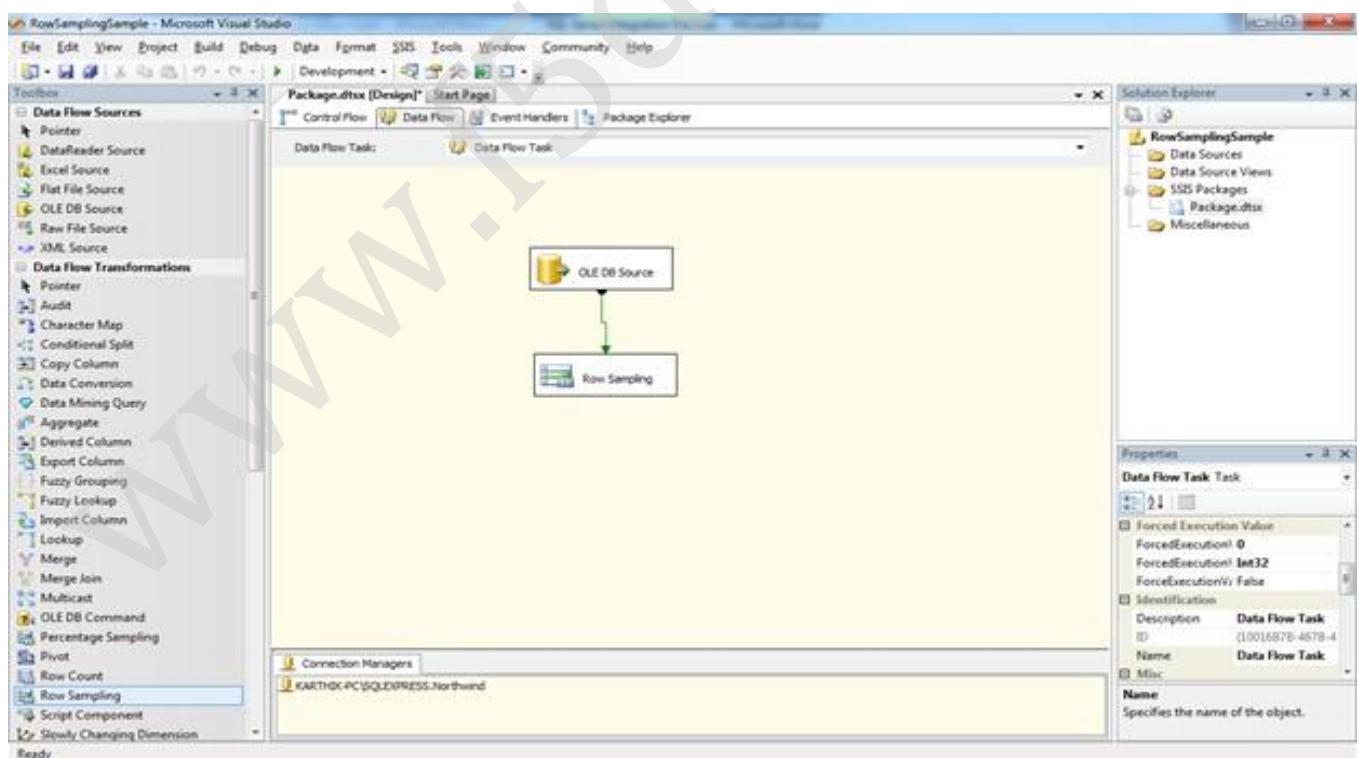
Follow steps 1 to 3 on my first chapter to open the BIDS project and select the right project to work on integration services project. Once the project is created, we will see how to use the Percentage sampling to see the flow.

Now once the projects is opened drag and drop a source and a Row sampling task as shown in the screen below.

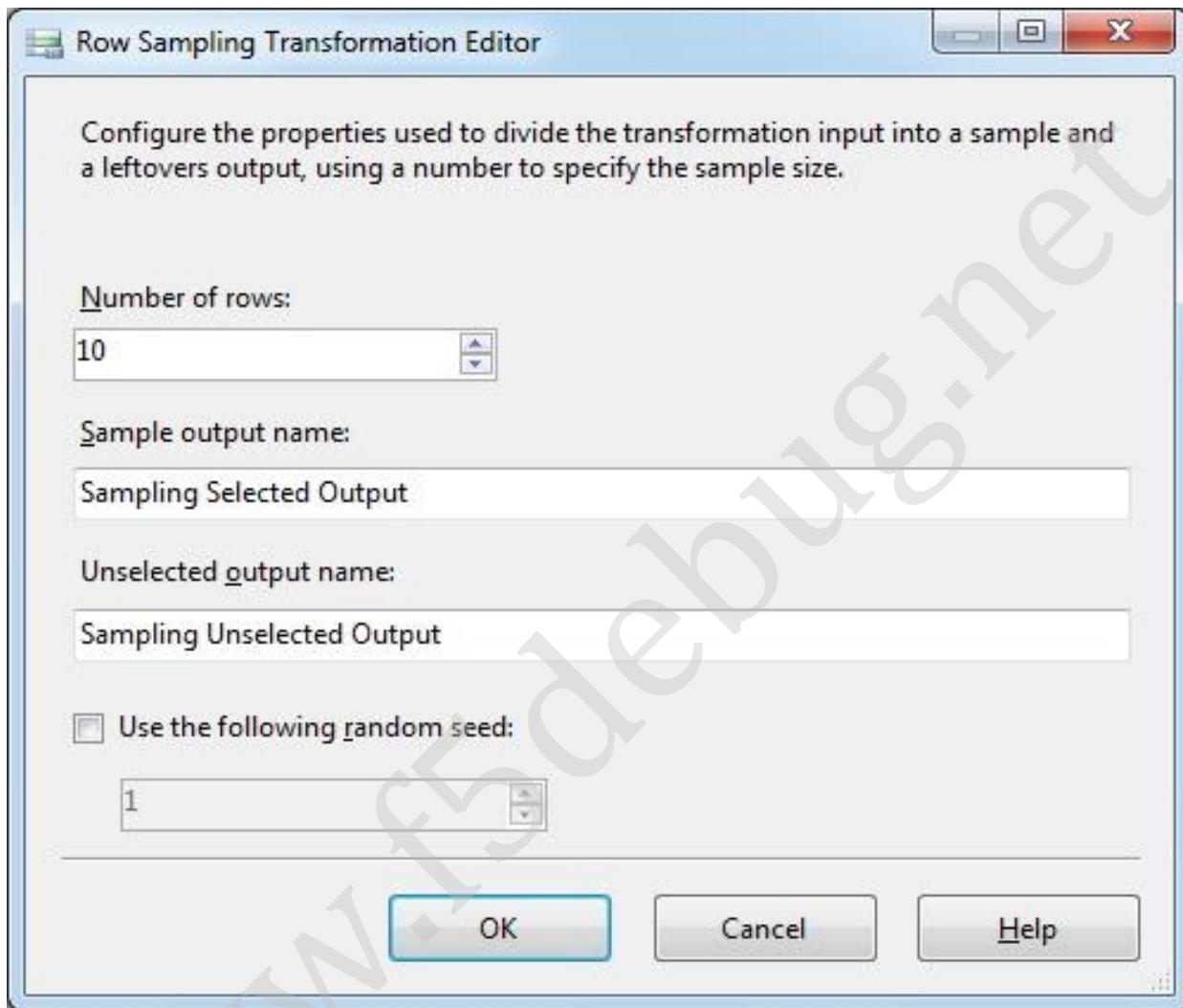
## SQL Server Integration Services (SSIS) – Step by Step Tutorial



Now we can see the red mark on to the control which indicates that the controls are yet to be configured. Now let us configure the source (refer to my previous chapters on how to configure OLEDB source) Now your screen will look like below.



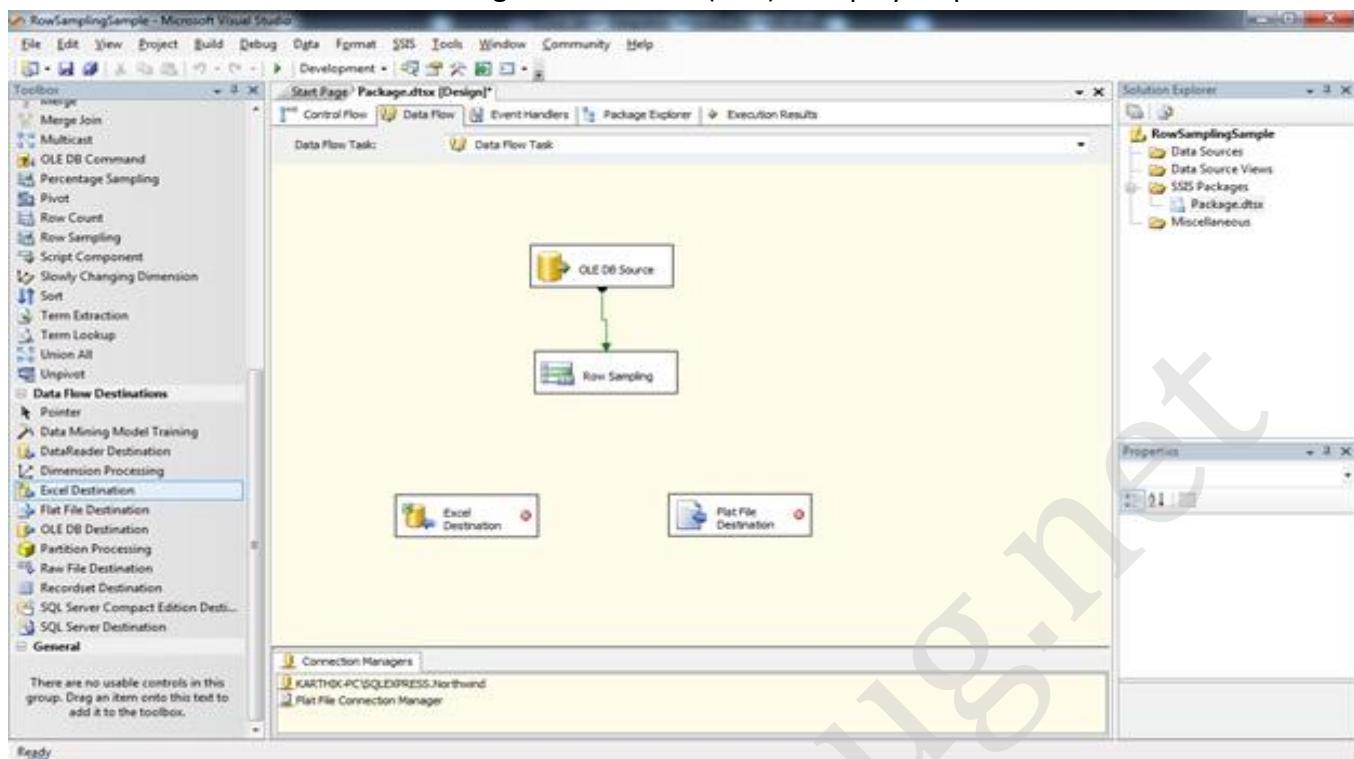
Now we need to configure the Row Sampling task, double click the task will open the screen as below.



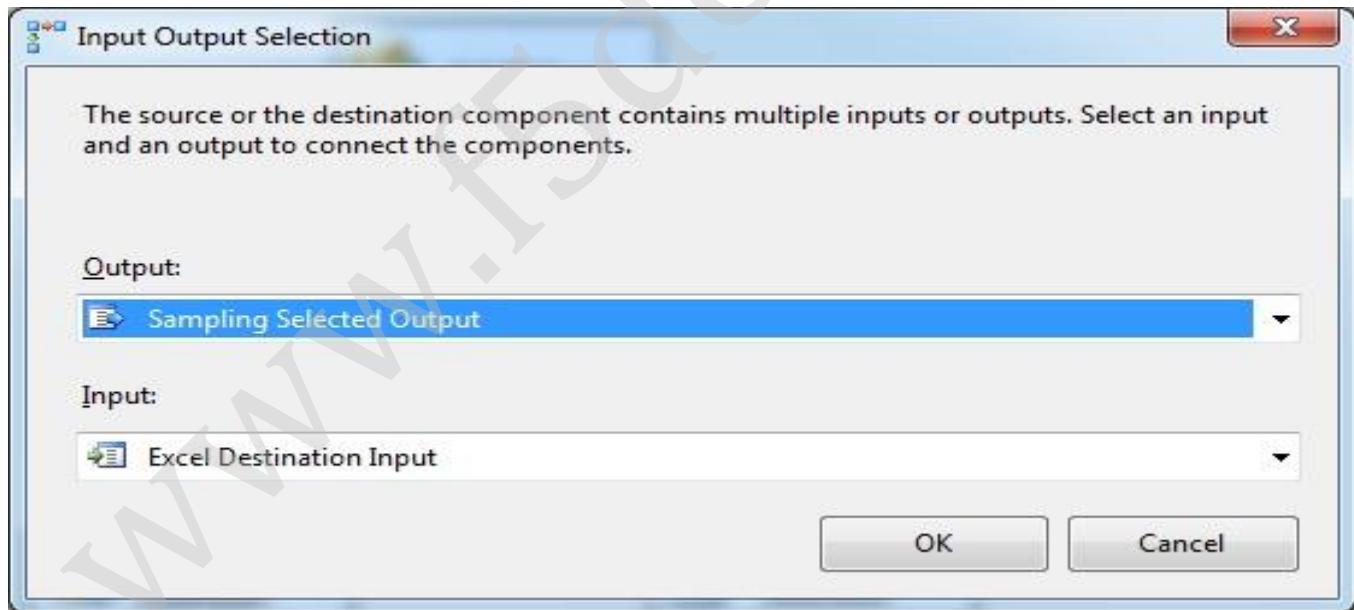
Here we can specify the number of random rows can be selected and the name for the Sample output selected and unselected. Since in our example we are going to see the Selected and Unselected Output we will see on how to use it.

Now after specifying the number of rows just clicks on OK button. Now drag and drop the Flat File Destination and an Excel destination as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

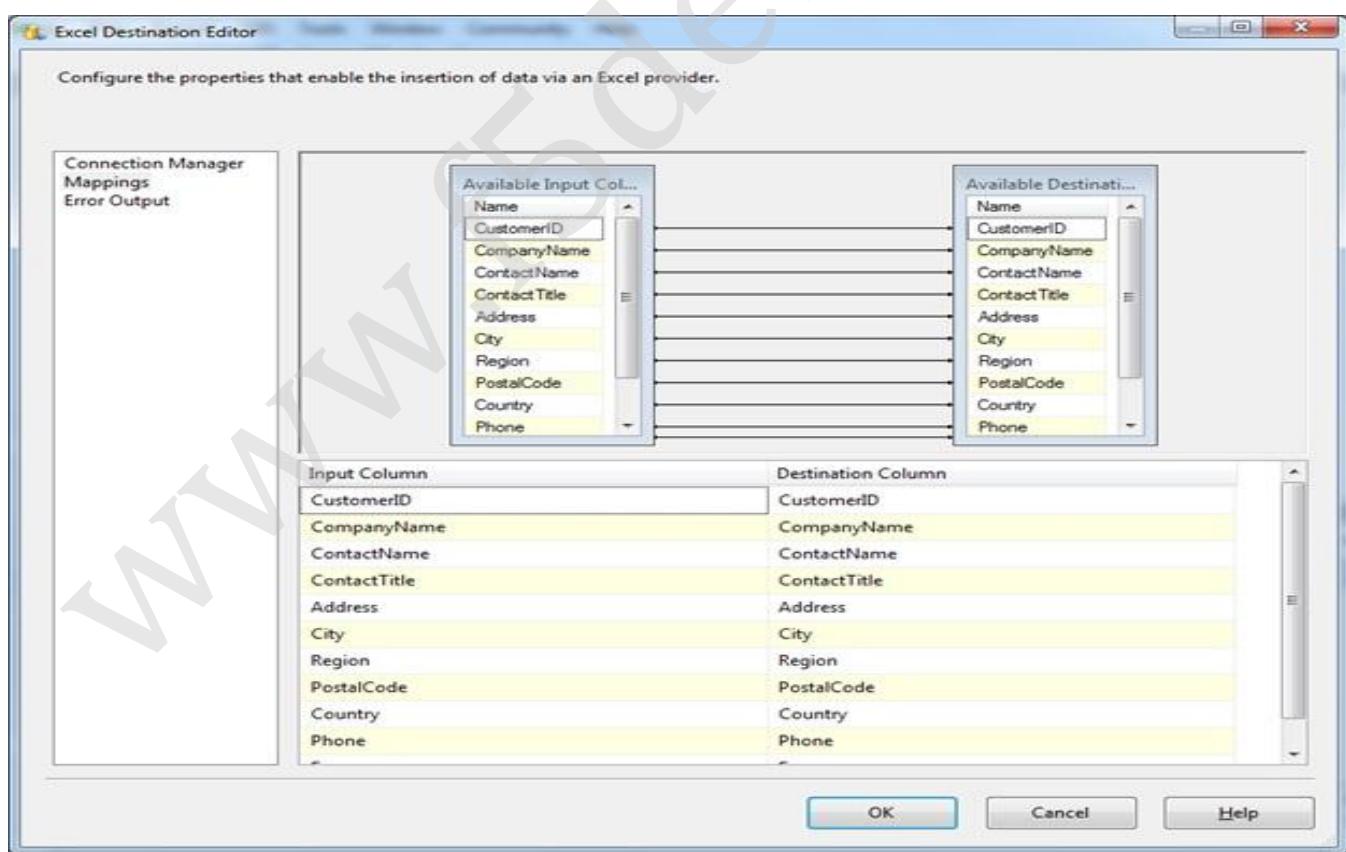
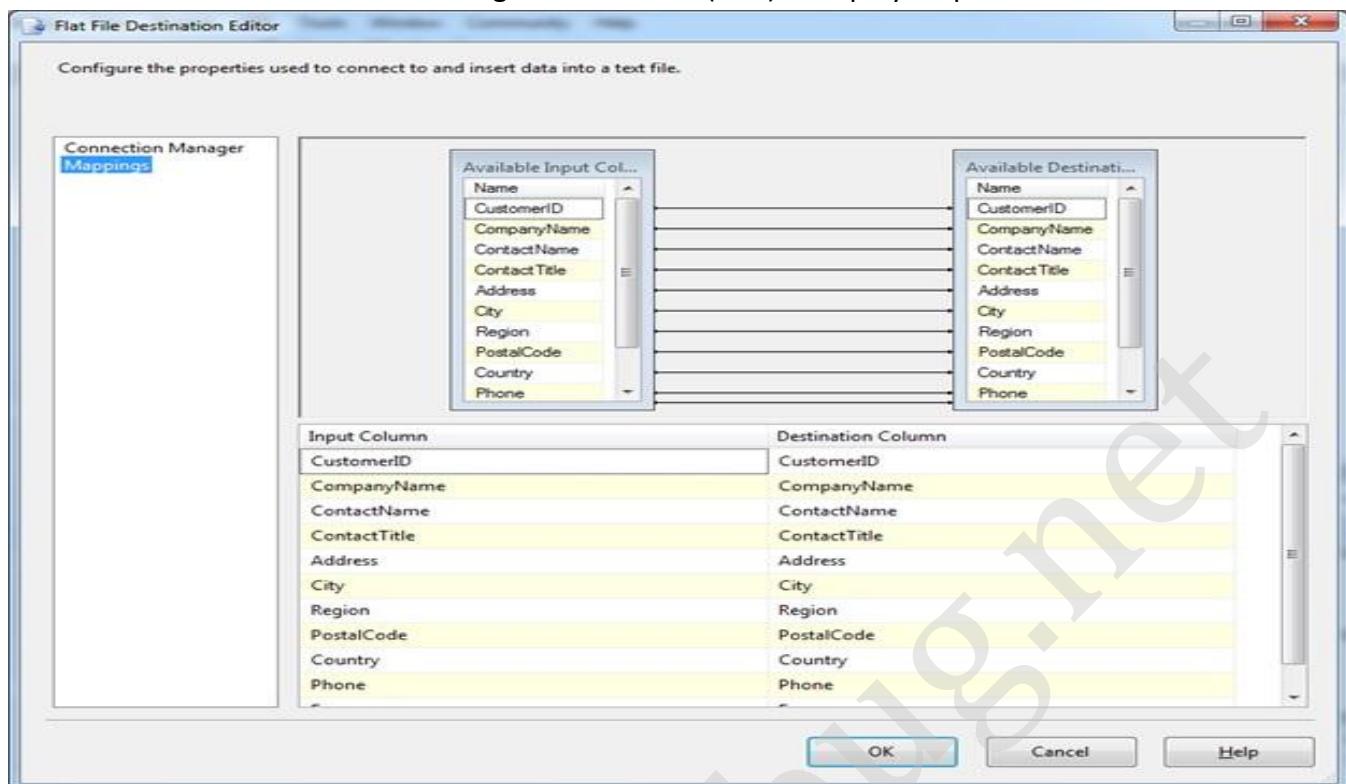


Now drag the green line from the Row Sampling to the Flat File destination and the Excel destination task. It will open a window as shown in the screen below.

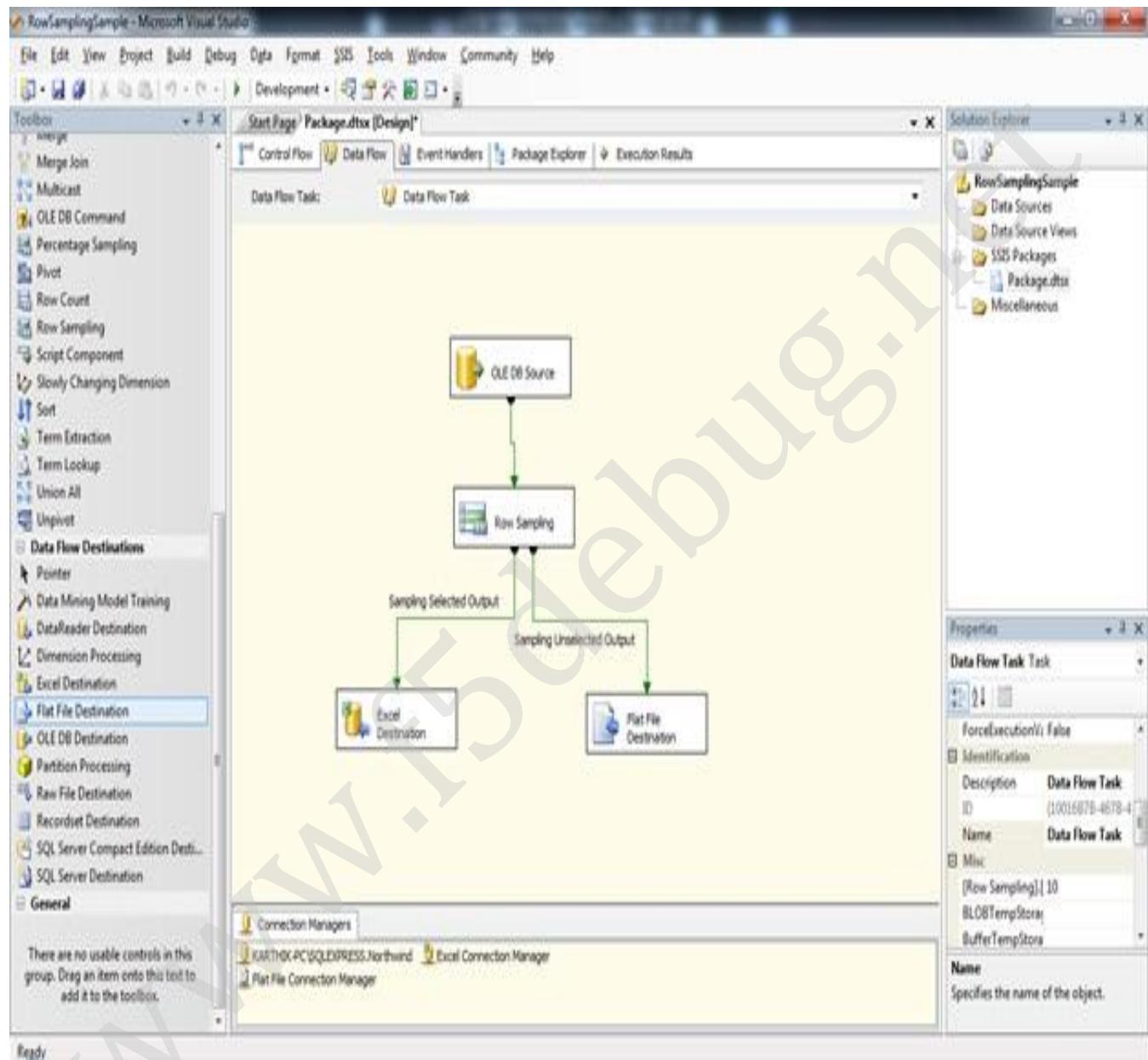


Here we have selected the Selected output for Excel destination and Unselected output for Flat file destination as the Output to get the data as we can see in the screen above. Now click on OK to do the further configuration of the destinations as shown in the screen below.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial

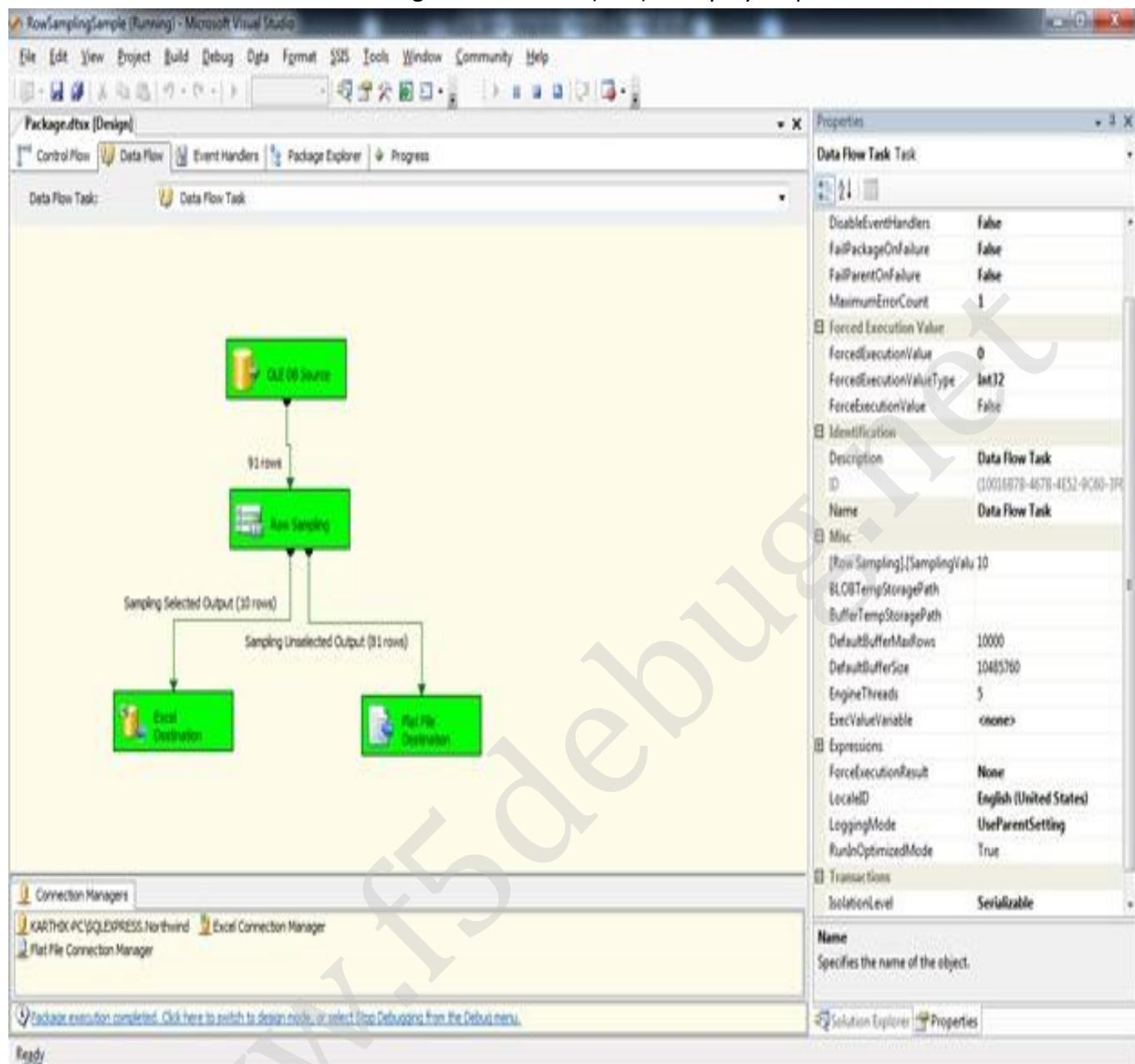


Once we are done with the configuration setting we can see our screen look as shown in the screen below.



Now our package is ready to execute. Press F5 and execute the project we can see the screen as below which indicates that the package is executed successfully.

## SQL Server Integration Services (SSIS) – Step by Step Tutorial



We can see out of 91 rows 10 moved randomly to one destination and 81 moved randomly to one destination as we selected the selected rows and the unselected rows as per our requirement.

You can see the result as shown in the screen below.

## Unselected Output:

Test - Notepad	
File	Edit
ANTON,Antonio Moreno Taqueria,Antonio Moreno,Owner,Mataderos 2312,México D.F.,05023,Mexico,(5) 555-3932,	
BOTTM,Bottom-Dollar Markets,Elizabeth Lincoln,Accounting Manager,23 Tsawassen Blvd.,Tsawassen,BC,T2F 8W4,Canada,(604) 555-4729,(604) 555-3745	
BOLIO,Bolido Comidas preparadas,Martin Sommer,Owner,C/ Araquistán, 67, Madrid,,28023,Spain,(91) 555 22 82,(91) 555 91 99	
ALFKI,Alfreds Futterkiste,Maria Anders,Sales Representative,Obere Str. 57,Berlin,12209,Germany,030-0074321,030-0076545	
BERGS,Berglunds snabbköp,Christina Berglund,Order Administrator,Berguvsvägen 8,Luleå,,95-958 22,Sweden,0921-12 34 65,0921-12 34 67	
COMMI,Comércio Mineiro,Pedro Afonso,Sales Associate,Av. dos Lusiadas, 23,São Paulo,SP,05432-043,Brazil,(11) 555-7647,	
DRACO,Drachenblut Delikatessen,Sven Ottlieb,Order Administrator,Walserweg 21,Aachen,,52066,Germany,0241-039123,0241-059428	
DUMON,Du monde entier,Janine Labrune,Owner,67, rue des Cinquante Otages,Nantes,,44000,France,40.67.88.88,40.67.89.89	
CONSH,Consolidated Holdings,Elizabeth Brown,Sales Representative,Berkley Gardens 12 Brewery,London,WC1 6LT,UK,(171) 555-2282,(171) 555-9199	
ERNH,Ernst Handel,Roland Mendel,Sales Manager,Kirchgasse 6,Graz,,8010,Austria,7675-3425,7675-3426	
FANZA,Família Arquivaldo,Aria Cruz,Marketing Assistant,Rua orós,,92,Sao Paulo,SP,05442-030,Brazil,(11) 555-9857,	
FISSA,FISSA Fábrica Inter.,Salchichas S.A.,Diego Roel,Accounting Manager,C/ Moralzarzal, 80,Madrid,,28034,Spain,(91) 555 94 44,(91) 555 35 93	
FOLIG,Folies gourmandes,Martine Rancé,Assistant Sales Agent,184, chaussée de Tournai,Lille,,59000,France,20.16.10.16,20.16.10.17	
CACTU,Cactus Comidas para llevar,Patricia Simpson,Sales Agent,Cerrito 333,Buenos Aires,,1010,Argentina,(1) 135-5555,(1) 135-4892	
BLAUS,Blauer See Delikatessen,Hanna Moos,Sales Representative,Forsterstr., 57,Mannheim,,68306,Germany,0621-08460,0621-08924	
EASTC,Eastern Connection,Ann Devon,Sales Agent,35 King George,London,,W3 6FW,UK,(171) 555-0297,(171) 555-3373	
BSBEV,B's Beverages,Victoria Ashworth,Sales Representative,Fauntleroy Circus,London,,EC2 5NT,UK,(171) 555-1212,	
FURIB,Furia Bacalhau e Frutos do Mar,Lino Rodriguez,Sales Manager,Jardim das rosas n. 32,Lisboa,,1675,Portugal,(1) 354-2534,(1) 354-2535	
GALED,Galería del gastrónomo,Eduardo Saavedra,Marketing Manager,Rambla de Cataluña, 23,Barcelona,,08022,Spain,(93) 203 4560,(93) 203 4561	
GODOS,Godos Cocina Típica,José Pedro Freyre,Sales Manager,C/ Romero, 33,Sevilla,,41001,Spain,(95) 555 82 82,	
GOURL,Gourmet Lanchonetes,André Fonseca,Sales Associate,Av. Brasil,,442,Campinas,SP,04876-786,Brazil,(11) 555-9482,	
FOLKD,Folk och fa HB,Maria Larsson,Owner,Akergatan 24,Bräcke,,5-844 67,Sweden,0695-34 67 21,	
GROSSE,Grosella-Restaurante,Manuel Pereira,Owner,5º Ave. Los Palos Grandes,Caracas,OF,1081,Venezuela,(2) 283-2951,(2) 283-0397	
HANAR,Hanari Carnes,Mario Pontes,Accounting Manager,Rua do Paço, 67,Rio de Janeiro,RJ,05454-876,Brazil,(21) 555-0091,(21) 555-8765	
HILAA,Hilarion-Abastos,Carlos Hernández,Sales Representative,Carrera 22 con Ave. Carlos Soublette #8-35,san cristóbal,Táchira,,5022,Venezuela,(5) 555-1340,(5) 555-1948	
HUNGP,Hungry Coyote Import Store,Yoshi Latimer,Sales Representative,City Center Plaza 316 Main St.,Elgin,OR,97827,USA,(503) 555-6874,(503) 555-2376	
CHOPS,Chop-suey Chinese,Yang Wang,Owner,Hauptstr. 29,Bern,,3012,Switzerland,0432-076545,	
ISLAT,Island Trading,Helen Bennett,Marketing Manager,Garden House Crowther Way,Cowes,Isle of Wight,PO31 7PJ,UK,(198) 555-8888,	
KOENE,Königlich Essen,Philip Cramer,Sales Associate,Maibelstr., 90,Brandenburg,,14776,Germany,0355-09876,	
LACOR,La corne d'abondance,Daniel Tonini,Sales Representative,67, avenue de l'Europe,Versailles,,78000,France,30.59.84.10.30.59.85.11	
FRANS,Franchi S.p.A.,Paolo Accorti,Sales Representative,via Monte Bianco 14,Torino,,10100,Italy,011-4988260,011-4988261	
LAUGB,Laughing Bacchus Wine Cellars,Yoshi Tannamuri,Marketing Assistant,1900 Oak St.,Vancouver,BC,V3F 2K1,Canada,(604) 555-3392,(604) 555-7293	
LAZYK,Lazy K Kountry Store,John Steel,Marketing Manager,12 Orchestra Terrace,Walla Walla,WA,99362,USA,(509) 555-7969,(509) 555-6221	
LEMS,Lehmans Marktstand,Renate Messner,Sales Representative,Magazinweg 7,Frankfurt a.M.,,60528,Germany,069-0245984,069-0245874	
LETSS,Let's Stop N Shop,Jáime Yorres,Owner,87 Polk St. Suite 5,San Francisco,CA,94117,USA,(415) 555-5938,	
LILAS,LILA-Supermercado,Carlos González,Accounting Manager,Carrera 52 con Ave. Bolívar #65-98 Llano Largo,Barquisimeto,Lara,3508,Venezuela,(9) 331-6954,(9) 331-7256	
FRANK,Frankenversand,Peter Franken,Marketing Manager,Berliner Platz 43,München,,80805,Germany,089-0877310,089-0877431	
LONLP,Lonesome Pine Restaurant,Fran Wilson,Sales Manager,89 chiaroscuro Rd.,Portland,OR,97219,USA,(503) 555-9573,(503) 555-9646	
MAGAA,Magazzini Alimentari Riuniti,Giovanni Rovelli,Marketing Manager,Via Ludovico il Moro 22,Mergozzo,,24100,Italy,035-640230,035-640231	
MAISD,Maison Dewey,Catherine Dewey,Sales Agent,Rue Joseph-Bens 512,Bruxelles,,B-1180,Belgium,(02) 201 24 67,(02) 201 24 68	
MERIP,Mère Paillarde,Jean Fresnière,Marketing Assistant,43 rue St. Laurent,Montréal,québec,H1C 1C3,Canada,(514) 555-8054,(514) 555-8055	
MOROK,Morgenstern Gesundkost,Alexander Feuer,Marketing Assistant,Heerstr., 22,Leipzig,,04179,Germany,0342-023176,	
NORTS,North/South,Simon Crowther,Sales Associate,South House 300 Queensbridge,London,,SW7 1RZ,UK,(171) 555-7733,(171) 555-2530	
OCEAN,Océano Atlántico Ltda.,Yvonne Moncada,Sales Agent,Ing. Gustavo Moncada 8585 Piso 20-A,Buenos Aires,,1010,Argentina,(1) 135-5333,(1) 135-5335	
OLDW,Old World Delicatessen,Rene Phillips,Sales Representative,2743 Bering St.,Anchorage,AK,99508,USA,(907) 555-5844,(907) 555-2880	
OTTIK,OTTIlik Käseladen,Henriette Pfälzheim,Owner,Mehrheimerstr., 369,Köln,,50739,Germany,0221-0644327,0221-0765721	
HUNG,Hungry Owl All-Night Grocers,Patricia McKenna,Sales Associate,8 Johnstown Road,Cork,Co. Cork,,Ireland,2967 542,2967 3333	
PERIC,Pericles Comidas Clásicas,Guillermo Fernández,Sales Representative,Calle Dr. Jorge Cañizares 321,México D.F.,05033,Mexico,(5) 545-3745,(5) 545-3745	
PICCO,Piccolo und mehr,Georg Pippits,Sales Manager,Geislweg 14,Salzburg,,5020,Austria,6562-9722,6562-9723	
PRINC,Princesa Isabel Vinhos,Isabel de Castro,Sales Representative,Estrada da saúde n. 58,Lisboa,,1756,Portugal,(1) 356-5634,	
QUEDO,Que Delicia,Bernardo Batista,Accounting Manager,Rua da Panificadora, 12,Rio de Janeiro,RJ,02389-673,Brazil,(21) 555-4252,(21) 555-4545	
QUEEN,Queen Cozinha,Lúcia Carvalho,Marketing Assistant,Alameda dos Canários,,891,Sao Paulo,SP,05487-020,Brazil,(11) 555-1189,	
QUICK,Quick-Stop,Horst Kloss,Accounting Manager,Taucherstraße 10,Cunewalde,,01307,Germany,0372-033188,	

## Selected Output:

A screenshot of Microsoft Excel showing a table of customer data. The table has 11 rows of data and 12 columns. The columns are labeled: CustomerID, Company, ContactName, ContactTitle, Address, City, Region, PostalCode, Country, Phone, and Fax. The data includes various companies like PARIS, ANATR, SIMOB, AROUT, FRANR, UNOD, BLONP, CENTC, BONAP, and GREAL, along with their respective details such as address, city, region, and contact information.

	CustomerID	Company	ContactName	ContactTitle	Address	City	Region	PostalCode	Country	Phone	Fax
1	PARIS	Paris sp&eacute;cialiste des vins et alcools	Marie Bert	Owner	265, boulevard Saint-Jacques	Paris	Ile-de-France	75012	France	(1) 42 34 22 22	(1) 42 34 22 22
2	ANATR	Andrea Trujillo	Andrea Trujillo	Owner	Ave. de la Constituci&on 900	M&lt;i>Xico D.F.&lt;/i&gt;	M&lt;i>Xico D.F.&lt;/i&gt;	05021	M&lt;i>Xico D.F.&lt;/i&gt;	(5) 555-4712	(5) 555-3745
3	SIMOB	Simons br&eacute;via	Jytte Petersen	Owner	Vibenshus Rovgade 22	Copenhagen	Nordjylland	1734	Denmark	31 12 34 51 31	13 35 57
4	AROUT	Around the Horn	Thomas H. C&lt;i>rean&lt;/i&gt;	Sales Rep	120 Hanoi, London		WA1 1DP	UK		(171) 555-7777	(171) 555-6750
5	FRANR	France & &lt;i>Co&lt;/i&gt;ne S&lt;i>ci&lt;/i&gt; Marketing	Laurent	Marketing Manager	54, rue Boissiere	Nantes	Loire-Atlantique	44000	France	40 32 21 22	40 32 21 20
6	UNOD	LINO-Deli	Felipe Izquierdo	Owner	Ave. 5 de Mayo, Nueva Espa&ntilde;a	Barquisimeto	Venezuela	4900	Venezuela	(0) 14-56-1	(0) 14-53-93
7	BLONP	Blondel Fr&eacute;dérique	Fr&eacute;dérique	Marketing	24, place du Commerce	Strasbourg	Alsace	67000	France	88 60 15 37	88 60 15 32
8	CENTC	Centro cor	Francisco Sierra	Marketing	Siem&lt;i>as de M&lt;/i&gt;xico D.F.		M&lt;i>Xico D.F.&lt;/i&gt;	05022	M&lt;i>Xico D.F.&lt;/i&gt;	(5) 555-3312	(5) 555-7293
9	BONAP	Bon app'	Laurence	Owner	12, rue de la Paix	Paris	Ile-de-France	75008	France	91 24 45 41	91 24 45 41
10	GREAL	Great Lakes Howard	Howard	Marketing	2732 Baker	Eugene	Oregon	97403	USA	(503) 555-7555	
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## Conclusion

In this chapter we have seen how to use the Row Sampling (Selected and Unselected Output) to execute dataset and split based on the number of rows and uses it across the requirement.