

Overview of SSIS Project

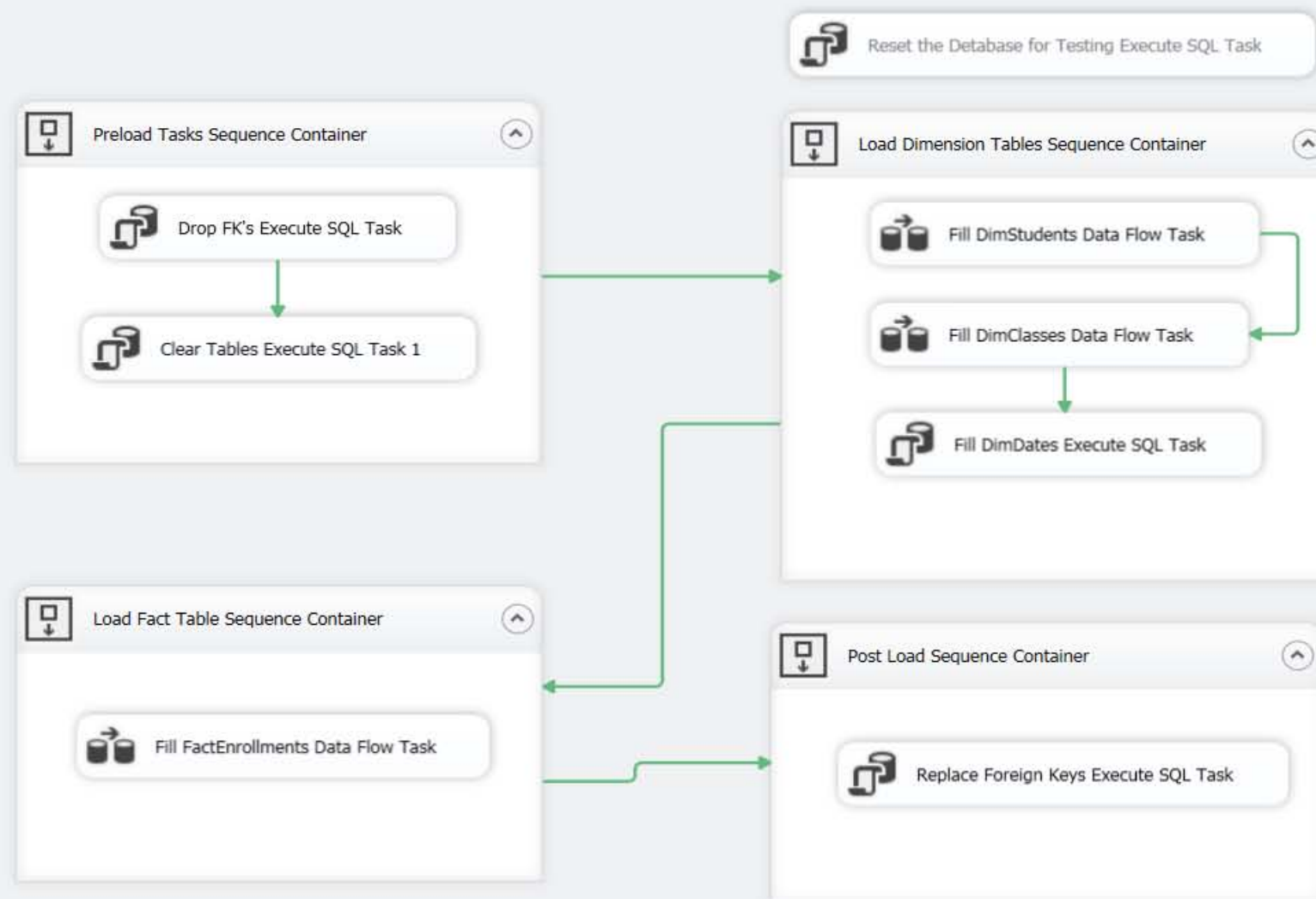
By: Christopher Singleton 06-17-2015

Bellevue College BUSIT 110 Final SSIS Project

SSIS Toolbox  
Server Explorer  
SQL Server Object Explorer

Package.dtsx [Design]

Control Flow Data Flow Parameters Event Handlers Package Explo...



Connection Managers

(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

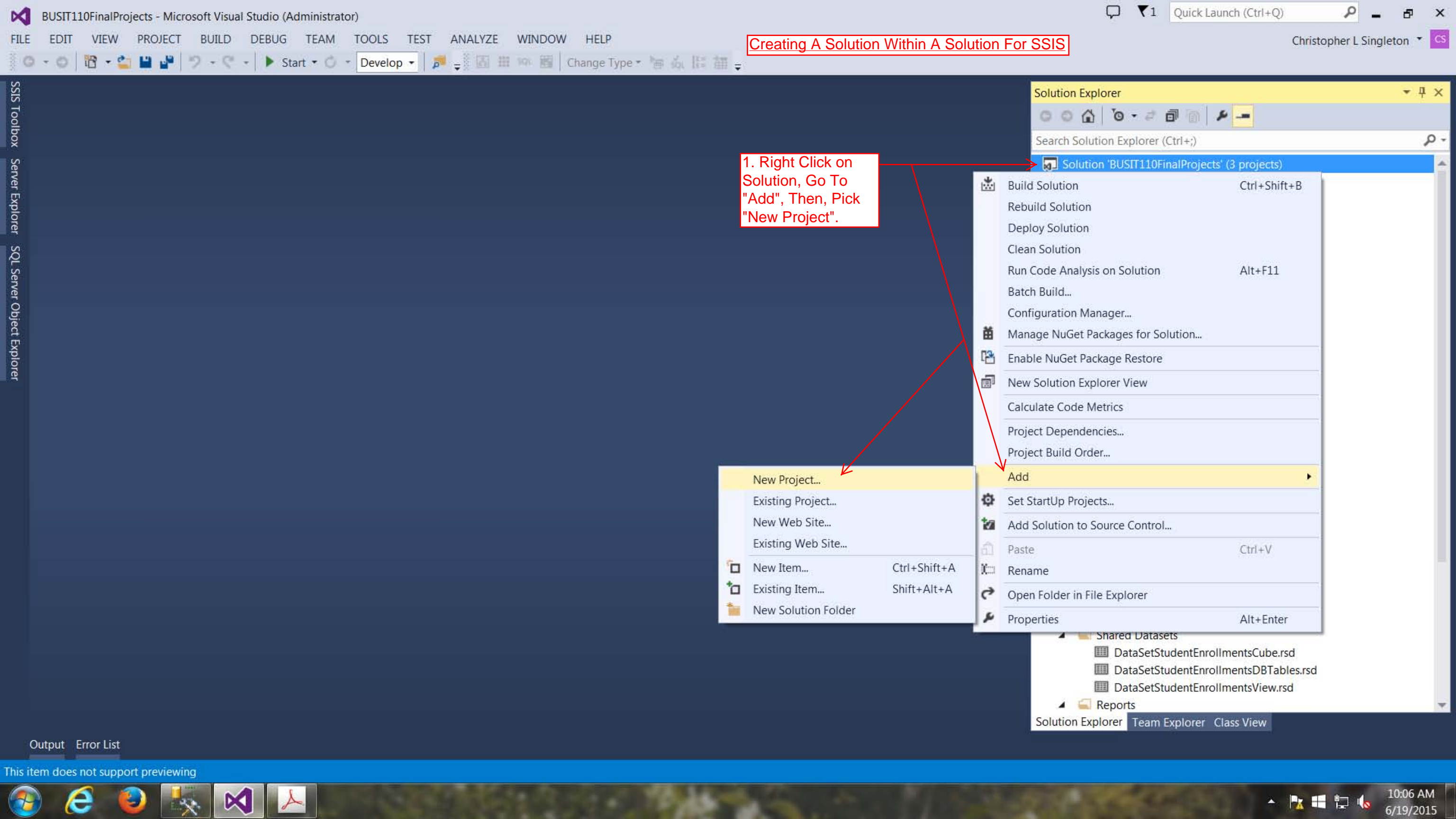
Output Error List

Solution Explorer

Search Solution Explorer (Ctrl+;)

- Solution 'BUSIT110FinalProjects' (3 projects)
  - DatabaseFiles
    - DWBUSIT110FinalDB.sql
    - DWBUSIT110FinalDB\_ETL\_Code.sql
  - ExcelReports
    - DWBUSIT110DB-Excel-Reports.xls
  - SolutionDocuments
    - FinalBISolutionWorksheets.xls
  - DWBUSIT110Final\_SSAS\_Cube
    - Data Sources
      - DWBUSIT110FinalDBDataSource.ds
    - Data Source Views
      - DWBUSIT110FinalDBDataSourceView.dsv
    - Cubes
      - DWBUSIT110FinalDB.cube
    - Dimensions
      - DimClasses.dim
      - DimStudents.dim
      - DimDates.dim
    - Mining Structures
    - Roles
    - Assemblies
    - Miscellaneous
  - DWBUSIT110Final\_SSRS
    - Shared Data Sources
      - DataSourceBUSIT110FinalCube.rds
      - DataSourceDWBUSIT110FinalDB.rds
    - Shared Datasets
      - DataSetStudentEnrollmentsCube.rsd
      - DataSetStudentEnrollmentsDBTables.rsd
      - DataSetStudentEnrollmentsView.rsd
    - Reports
      - StudentEnrollmentsCube.rdl
      - StudentEnrollmentsDBTables.rdl
      - StudentEnrollmentsView.rdl
  - DWBUSITFinalDB\_SSIS\_ETL
    - Project.params
    - Connection Managers
      - localhost.BUSIT110FinalDB.conmgr
      - localhost.DWBUSIT110FinalDB.conmgr

Properties Solution Explorer Team Explorer Class View



## Creating A Solution Within A Solution For SSIS

1. Right Click on Solution, Go To "Add", Then, Pick "New Project".

- Build Solution (Ctrl+Shift+B)
- Rebuild Solution
- Deploy Solution
- Clean Solution
- Run Code Analysis on Solution (Alt+F11)
- Batch Build...
- Configuration Manager...
- Manage NuGet Packages for Solution...
- Enable NuGet Package Restore
- New Solution Explorer View
- Calculate Code Metrics
- Project Dependencies...
- Project Build Order...
- Add
- Set StartUp Projects...
- Add Solution to Source Control...
- Paste (Ctrl+V)
- Rename
- Open Folder in File Explorer
- Properties (Alt+Enter)

- New Project...
- Existing Project...
- New Web Site...
- Existing Web Site...
- New Item... (Ctrl+Shift+A)
- Existing Item... (Shift+Alt+A)
- New Solution Folder

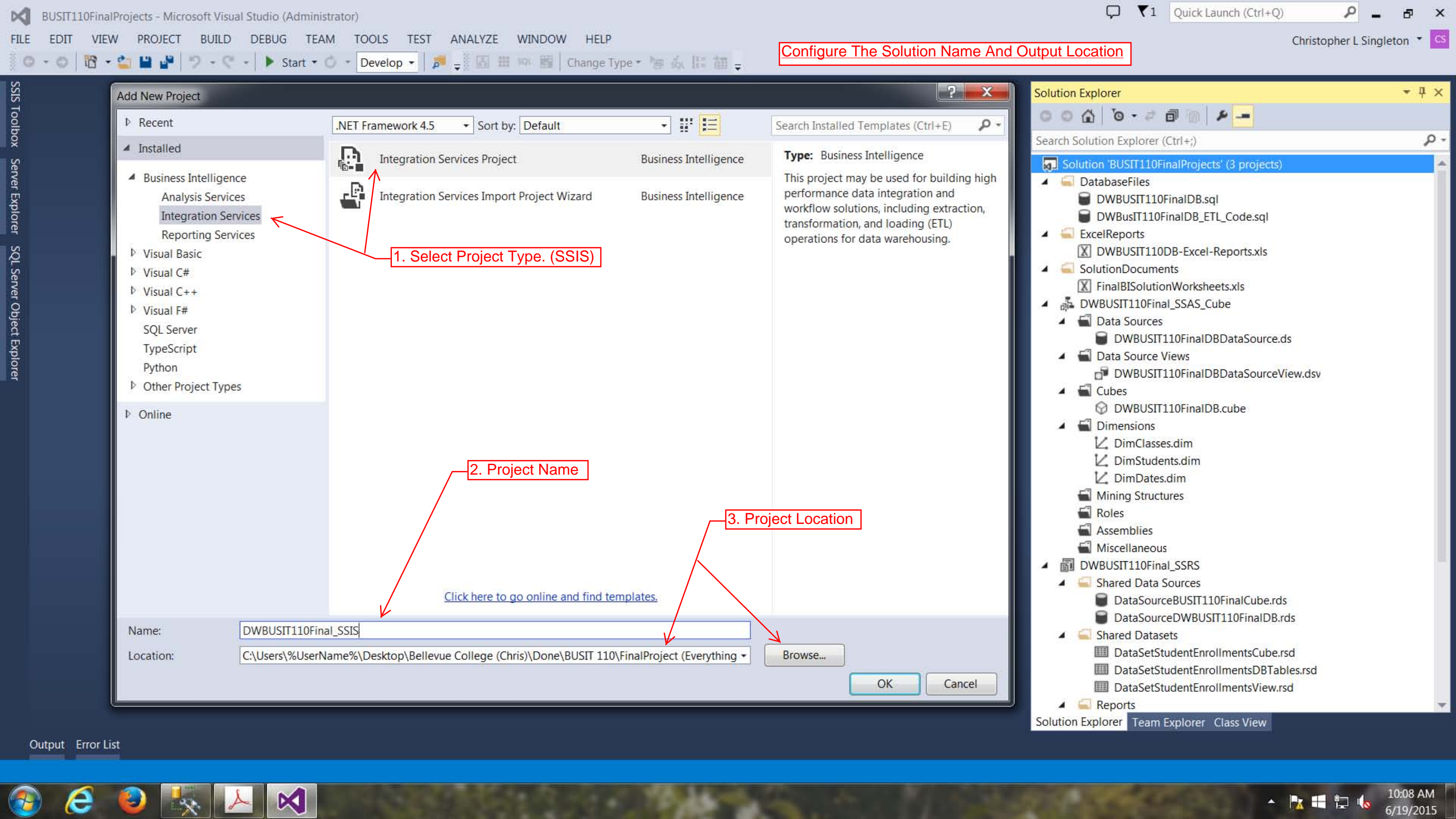
- Shared Datasets
  - DataSetStudentEnrollmentsCube.rsd
  - DataSetStudentEnrollmentsDBTables.rsd
  - DataSetStudentEnrollmentsView.rsd
- Reports

Solution Explorer Team Explorer Class View

Output Error List

This item does not support previewing





Configure The Solution Name And Output Location

1. Select Project Type. (SSIS)

2. Project Name

3. Project Location

SQL Server 2013 Developer Edition with BI Data Tools

By: Christopher Singleton 06-17-2015

Bellevue College BUSIT 110 Final SSIS Project

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM FORMAT SSIS TOOLS TEST ANALYZE WINDOW HELP

Start Develop

Package.dtsx [Design]

Control Flow Data Flow Parameters Event Handlers Package Explo...

SSIS Toolbox

F5 Initiates ALL Enabled Sequence Containers.

Note: Cntrl + F5 Initiates Through DOS.

Reset the Database for Testing Execute SQL Task

Completely Resets The Database Without The Data. (Disabled)

Preload Tasks Sequence Container

Drop FK's Execute SQL Task

Clear Tables Execute SQL Task

Load Dimension Tables Sequence Container

Fill DimStudents Data Flow Task

Fill DimClasses Data Flow Task

Fill DimDates Execute SQL Task

Load Fact Table Sequence Container

Fill FactEnrollments Data Flow Task

Post Load Sequence Container

Replace Foreign Keys Execute SQL Task

Connection Managers

(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

(OLTP Normalized) (OLAP De-Normalized)

Connection Managers

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'BUSIT110FinalProjects' (3 projects)

DatabaseFiles

DWBUSIT110FinalDB.sql

DWBusIT110FinalDB\_ETL\_Code.sql

ExcelReports

DWBUSIT110DB-Excel-Reports.xls

SolutionDocuments

FinalBISolutionWorksheets.xls

DWBUSIT110Final\_SSAS\_Cube

Data Sources

DWBUSIT110FinalDBDataSource.ds

Data Source Views

DWBUSIT110FinalDBDataSourceView.dsv

Projects Project Container SSIS SSAS SSRS

Properties

Package Package

ID {5FE4D220-F263-4F6D-998A-9BEB6}

Name Package

PackageType DTSDesigner100

Misc

Configurations (Collection)

Expressions

ForceExecutionResult None

HasExpressions False

LocaleID English (United States)

LoggingMode UseParentSetting

OfflineMode False

SuppressConfigurationWarnings False

Name

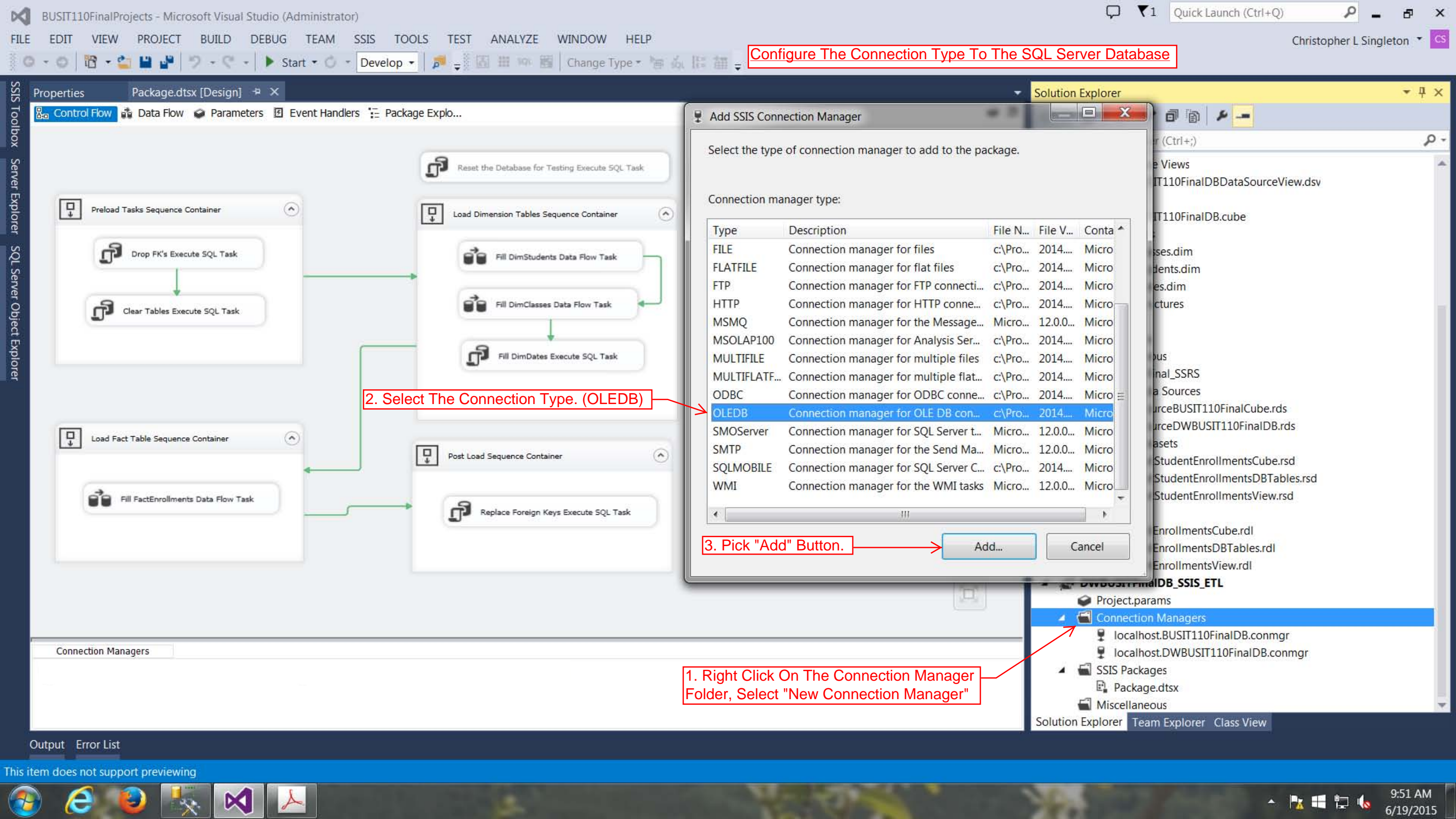
Specifies the name of the object.

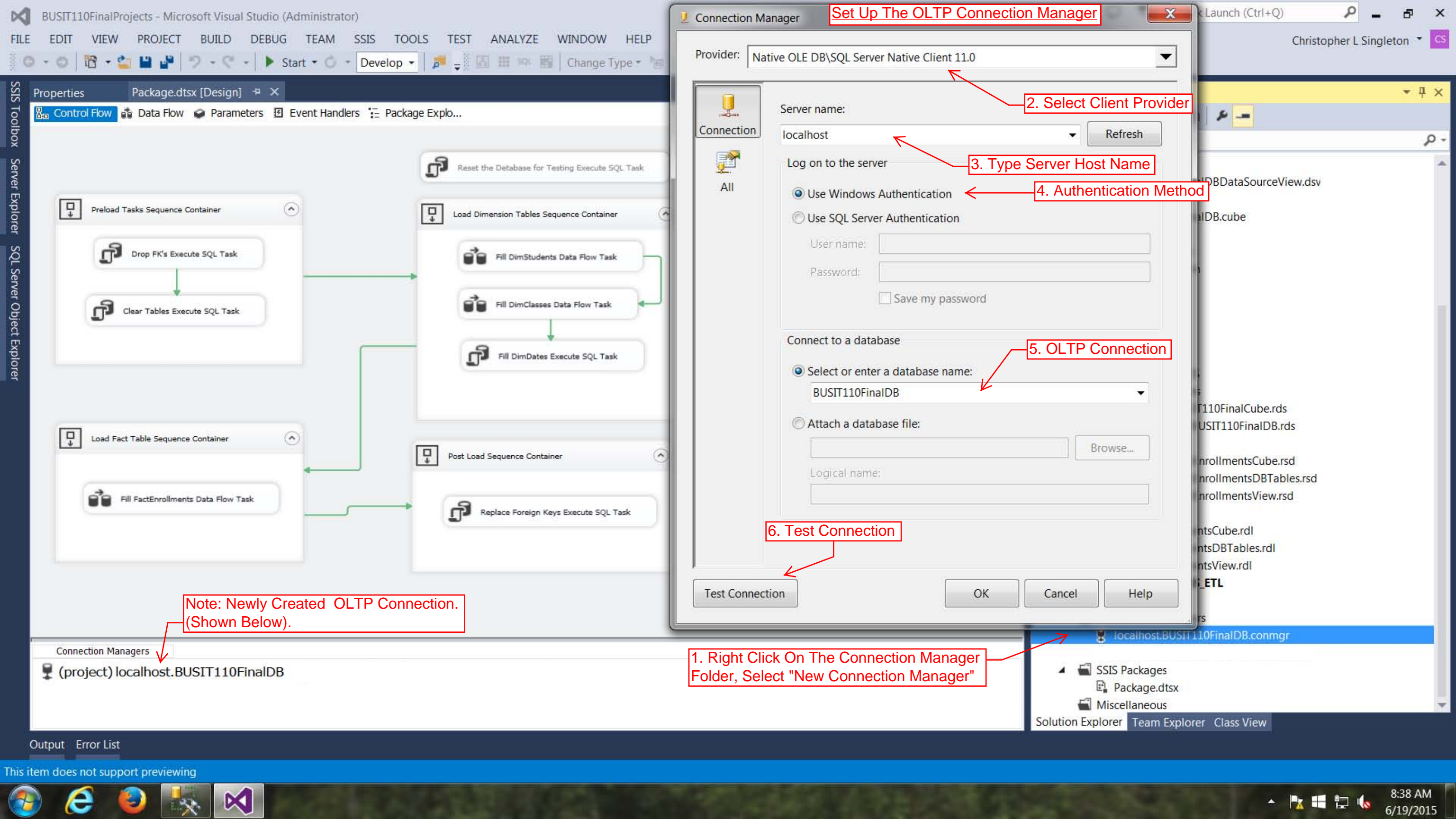
Output Error List

Item(s) Saved

2:11 AM 6/18/2015







## Set Up The OLTP Connection Manager

Provider: Native OLE DB\SQL Server Native Client 11.0

Server name:

localhost

Refresh

Log on to the server

☒ Use Windows Authentication

☐ Use SQL Server Authentication

User name:

Password:

☐ Save my password

Connect to a database

☒ Select or enter a database name:

BUSIT110FinalDB

☐ Attach a database file:

Logical name:

Browse...

Test Connection

OK

Cancel

Help

1. Right Click On The Connection Manager Folder, Select "New Connection Manager"

Note: Newly Created OLTP Connection. (Shown Below).

Connection Managers

(project) localhost.BUSIT110FinalDB

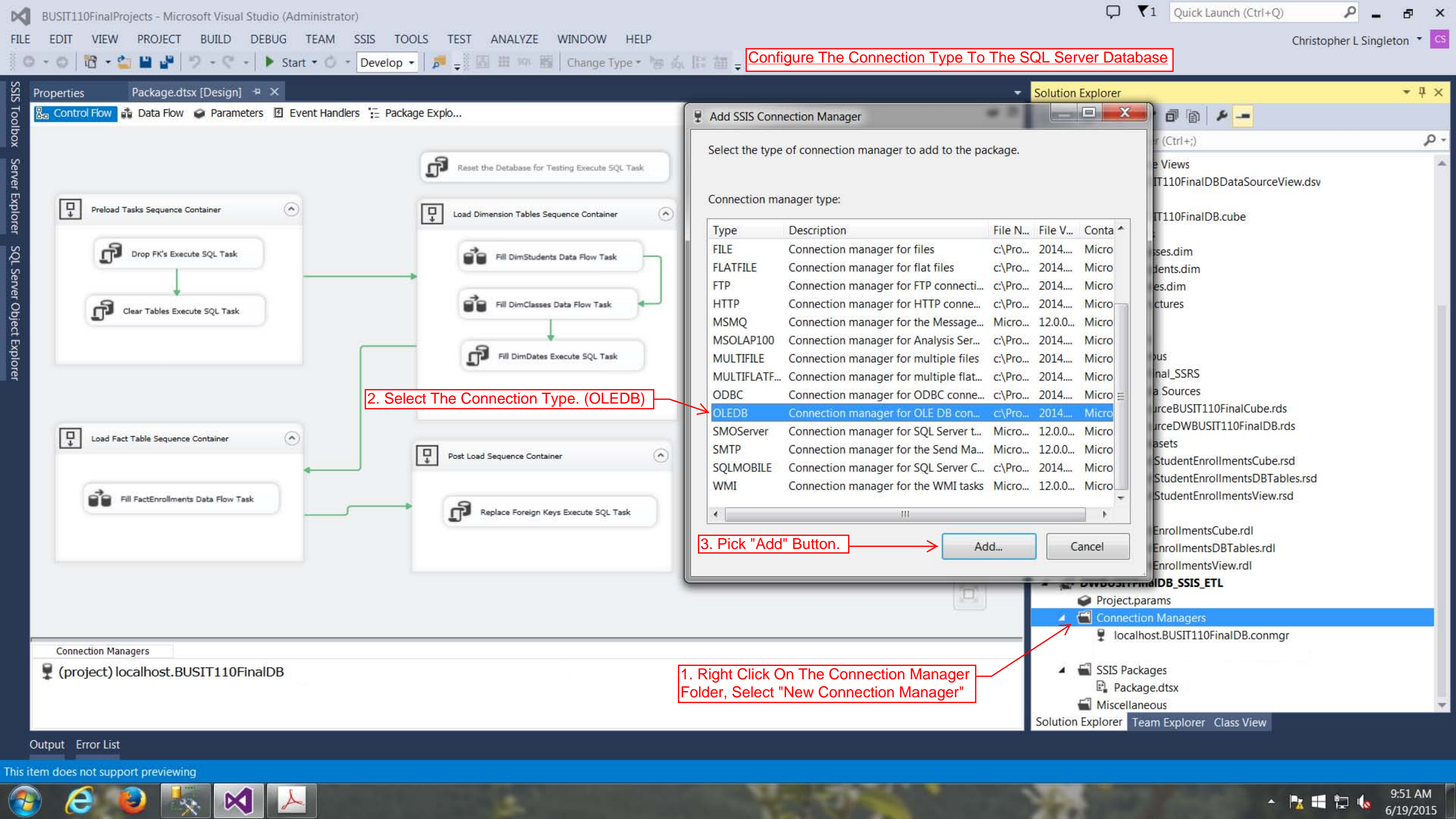
SSIS Packages  
Package.dtsx  
Miscellaneous

Solution Explorer Team Explorer Class View

Output Error List

This item does not support previewing





BUSIT110FinalProjects - Microsoft Visual Studio (Administrator)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SSIS TOOLS TEST ANALYZE WINDOW HELP

Start Develop

Properties Package.dtsx [Design]

Control Flow Data Flow Parameters Event Handlers

Note: You can use just a period (.) for local host also, or you can use "localhost".

Reset the Database for Testing Execute SQL Task

Preload Tasks Sequence Container

- Drop FK's Execute SQL Task
- Clear Tables Execute SQL Task

Load Dimension Tables Sequence Container

- Fill DimStudents Data Flow Task
- Fill DimClasses Data Flow Task
- Fill DimDates Execute SQL Task

Load Fact Table Sequence Container

- Fill FactEnrollments Data Flow Task

Post Load Sequence Container

- Replace Foreign Keys Execute SQL Task

Note: Newly Created OLAP Connection Manager. (Shown Below)

Connection Managers

- (project) localhost.BUSIT110FinalDB
- (project) localhost.DWBUSIT110FinalDB

Output Error List

This item does not support previewing

Connection Manager Set Up The OLAP Connection Manager

Provider: Native OLE DB\SQL Server Native Client 11.0

Connection

Server name: localhost Refresh

Log on to the server

- ☒ Use Windows Authentication
- ☐ Use SQL Server Authentication

User name: Password: Save my password

Connect to a database

- ☒ Select or enter a database name: DWBUSIT110FinalDB
- ☐ Attach a database file: Browse...

Logical name:

Test Connection OK Cancel Help

1. Right Click On The Connection Manager Folder, Select "New Connection Manager"

2. Select Client Provider

3. Type Server Host Name

4. Authentication Method

5. OLAP Connection

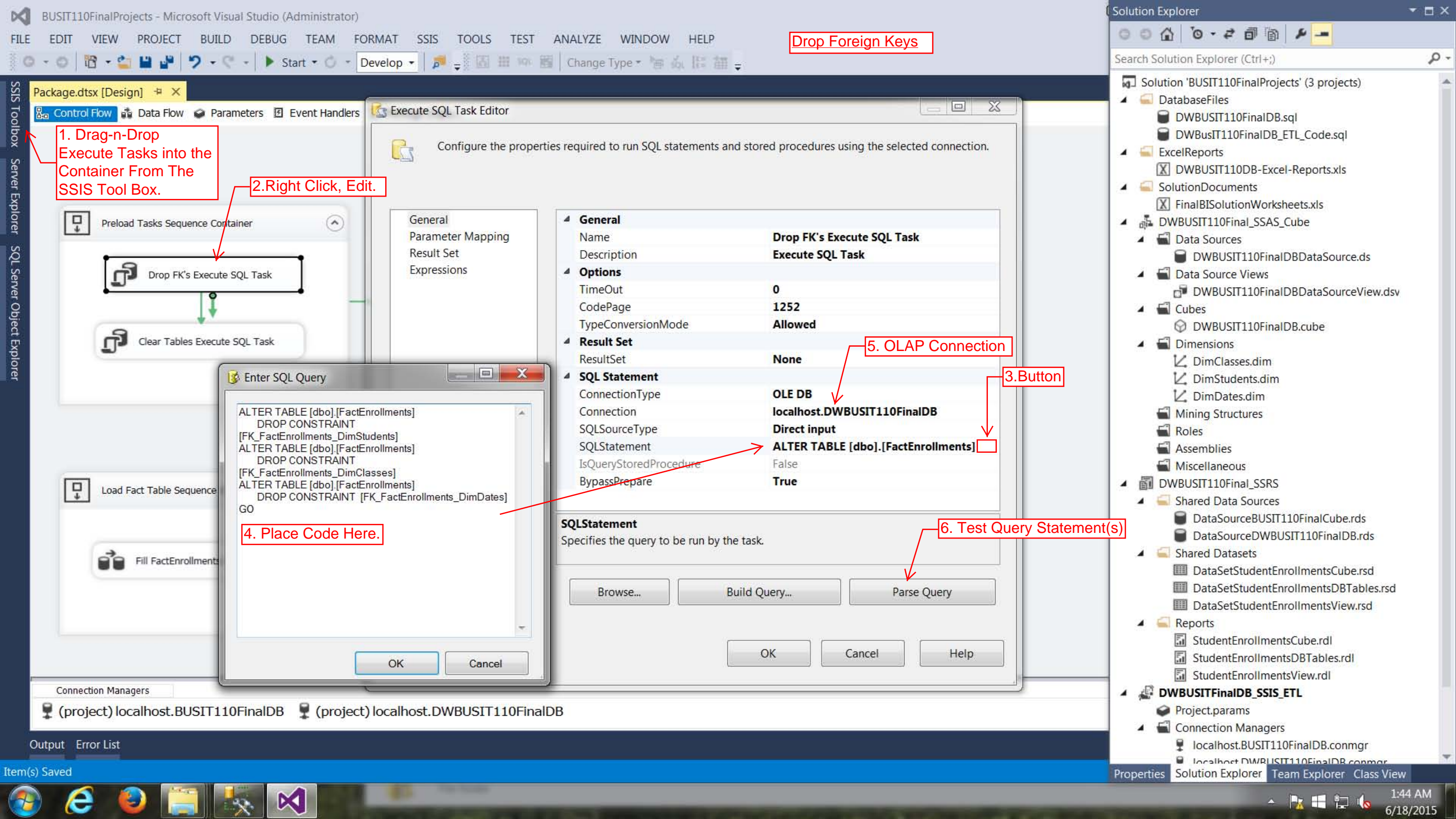
6. Test Connection

Project.params

- Connection Managers
  - localhost.BUSIT110FinalDB.conmgr
  - localhost.DWBUSIT110FinalDB.conmgr
- SSIS Packages
  - Package.dtsx
- Miscellaneous

Solution Explorer Team Explorer Class View







FILEEDITVIEWPROJECTBUILDDEBUGTEAMFORMATSSISTOOLSTESTANALYZEWINDOWHELP

StartDevelopChange Type

Package.dtsx [Design]

Control FlowData FlowParametersEvent Handlers

Preload Tasks Sequence Container

Drop FK's Execute SQL Task

Clear Tables Execute SQL Task

Load Fact Table Sequence Container

Fill FactEnrollments Data

Connection Managers

(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

OutputError List

Clear Tables

Execute SQL Task Editor

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

GeneralParameter MappingResult SetExpressions

General

NameDescriptionClear Tables Execute SQL TaskExecute SQL Task

Options

TimeOut0

CodePage1252

TypeConversionModeAllowed

Result Set

ResultSetNone

SQL Statement

ConnectionTypeOLE DB

Connectionlocalhost.DWBUSIT110FinalDB

SQLSourceTypeDirect input

SQLStatementTRUNCATE TABLE [DWBUSIT110Fin

IsQueryStoredProcedureFalse

BypassPrepareTrue

SQLStatement

Specifies the query to be run by the task.

Browse...Build Query...Parse Query

OKCancelHelp

Enter SQL Query

TRUNCATE TABLE [DWBUSIT110FinalDB].dbo.DimStudents

TRUNCATE TABLE [DWBUSIT110FinalDB].dbo.DimClasses

TRUNCATE TABLE [DWBUSIT110FinalDB].dbo.DimDates

TRUNCATE TABLE [DWBUSIT110FinalDB].dbo.FactEnrollments

3. Place Code Here

OKCancel

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'BUSIT110FinalProjects' (3 projects)

DatabaseFiles

DWBUSIT110FinalDB.sql

DWBUSIT110FinalDB\_ETL\_Code.sql

ExcelReports

DWBUSIT110DB-Excel-Reports.xls

SolutionDocuments

FinalBISolutionWorksheets.xls

DWBUSIT110Final\_SSAS\_Cube

Data Sources

DWBUSIT110FinalDBDataSource.ds

Data Source Views

DWBUSIT110FinalDBDataSourceView.dsv

Cubes

DWBUSIT110FinalDB.cube

Dimensions

DimClasses.dim

DimStudents.dim

DimDates.dim

Mining Structures

Roles

Assemblies

Miscellaneous

DWBUSIT110Final\_SSRS

Shared Data Sources

DataSourceBUSIT110FinalCube.rds

DataSourceDWBUSIT110FinalDB.rds

Shared Datasets

DataSetStudentEnrollmentsCube.rsd

DataSetStudentEnrollmentsDBTables.rsd

DataSetStudentEnrollmentsView.rsd

Reports

StudentEnrollmentsCube.rdl

StudentEnrollmentsDBTables.rdl

StudentEnrollmentsView.rdl

DWBUSITFinalDB\_SSIS\_ETL

Project.params

Connection Managers

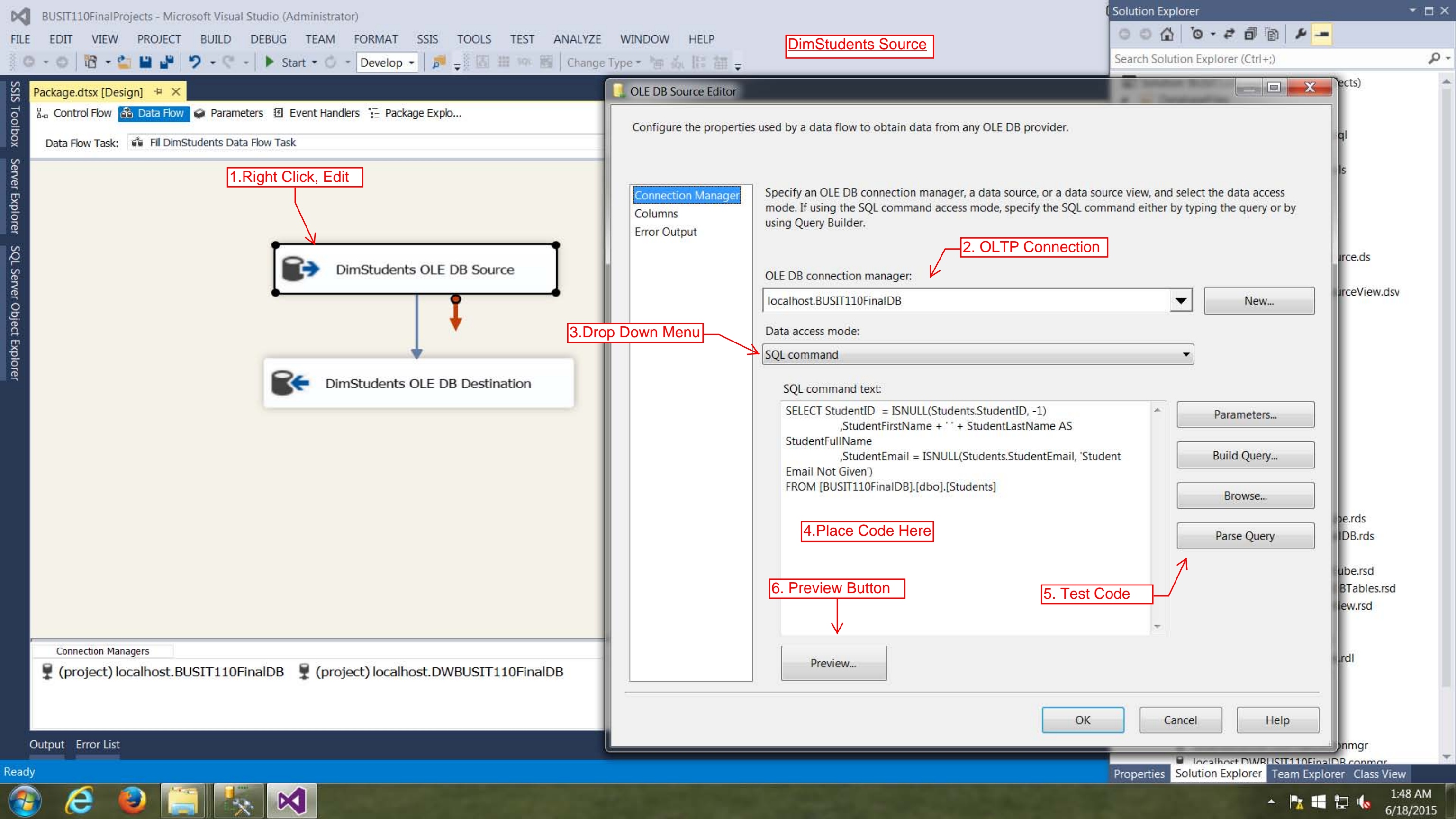
localhost.BUSIT110FinalDB.conmgr

localhost.DWBUSIT110FinalDB.conmgr

PropertiesSolution ExplorerTeam ExplorerClass View

1:46 AM 6/18/2015





DimStudents Source

1. Right Click, Edit

2. OLTP Connection

3. Drop Down Menu

4. Place Code Here

6. Preview Button

5. Test Code

FILEEDITVIEWPROJECTBUILDDEBUGTEAMFORMATSSISTOOLSTESTANALYZEWINDOWHELP

StartDevelopChange Type

Package.dtsx [Design]

Control FlowData FlowParametersEvent HandlersPackage Explo...

Data Flow Task: Fill DimStudents Data Flow Task

DimStudents OLE DB Source

DimStudents OLE DB Destination

Connection Managers

(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

OutputError List

DimStudents Destination

OLE DB Destination Editor

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

Connection Manager

Mappings

Error Output

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

OLE DB connection manager:

localhost.DWBUSIT110FinalDB

New...

Data access mode:

Table or view

Name of the table or the view:

[dbo].[DimStudents]

New...

To View Columns And Existing Data.

View Existing Data...

OK

Cancel

Help

5. Connect This Blue Arrow To The Other Container.

1. Right Click, Edit

3. Drop Down Menu

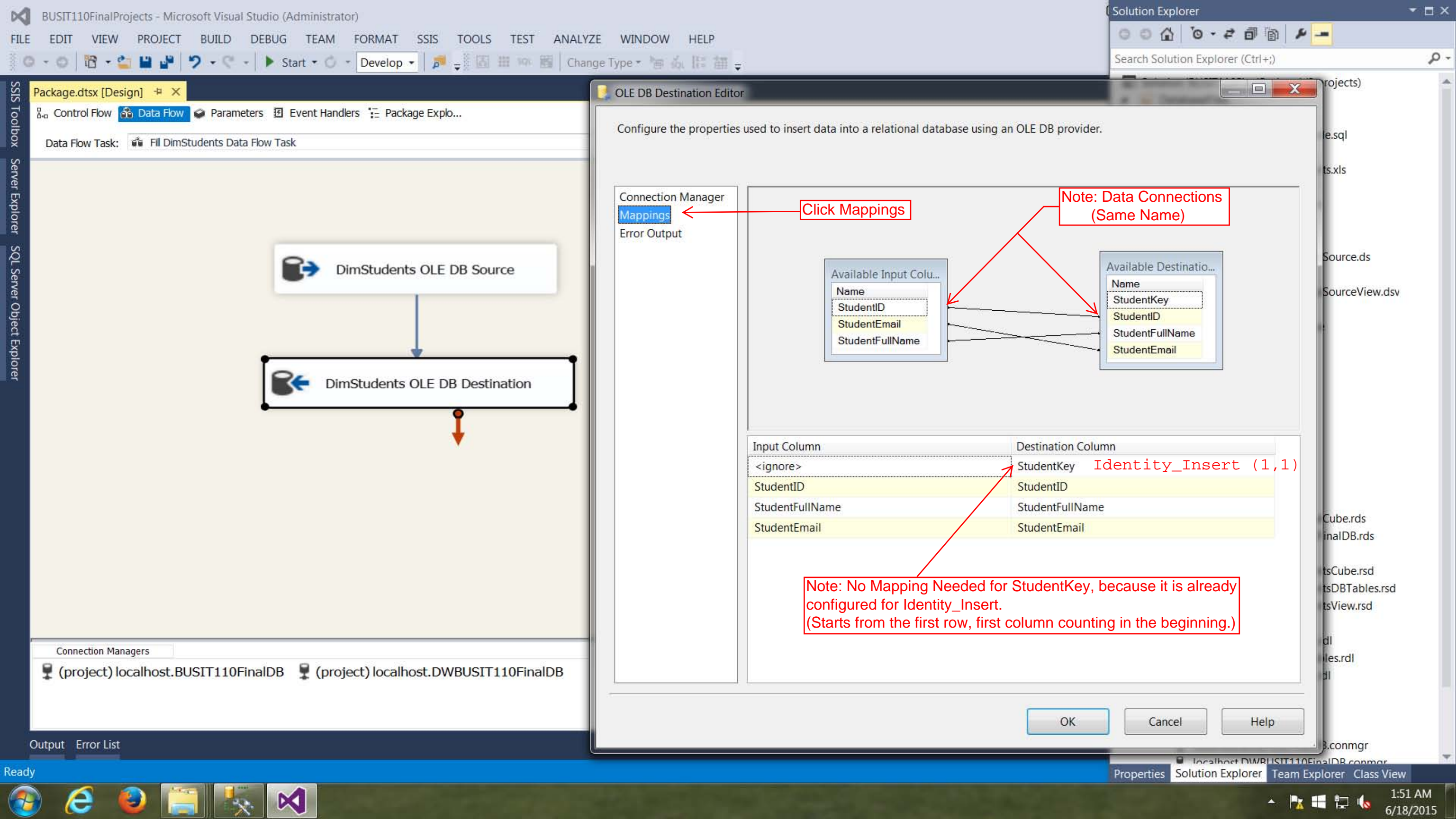
2. OLAP Connection

4. DimStudents Table

Ready

1:50 AM 6/18/2015

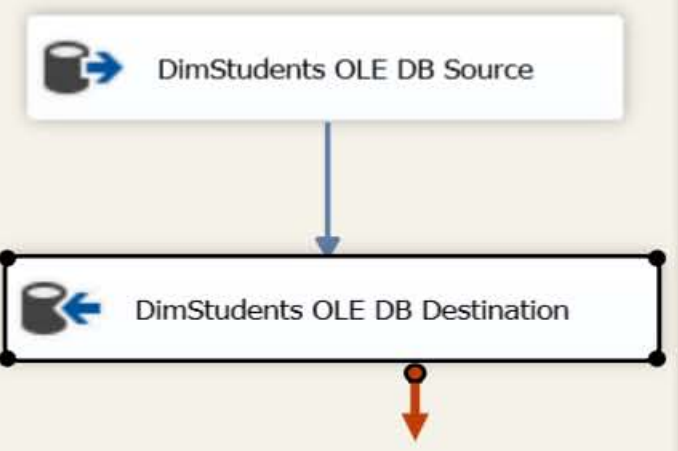




Package.dtsx [Design]

Control Flow Data Flow Parameters Event Handlers Package Explo...

Data Flow Task: Fill DimStudents Data Flow Task



Connection Managers  
(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

OLE DB Destination Editor

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

Connection Manager  
Mappings  
Error Output

Click Mappings

Note: Data Connections  
(Same Name)

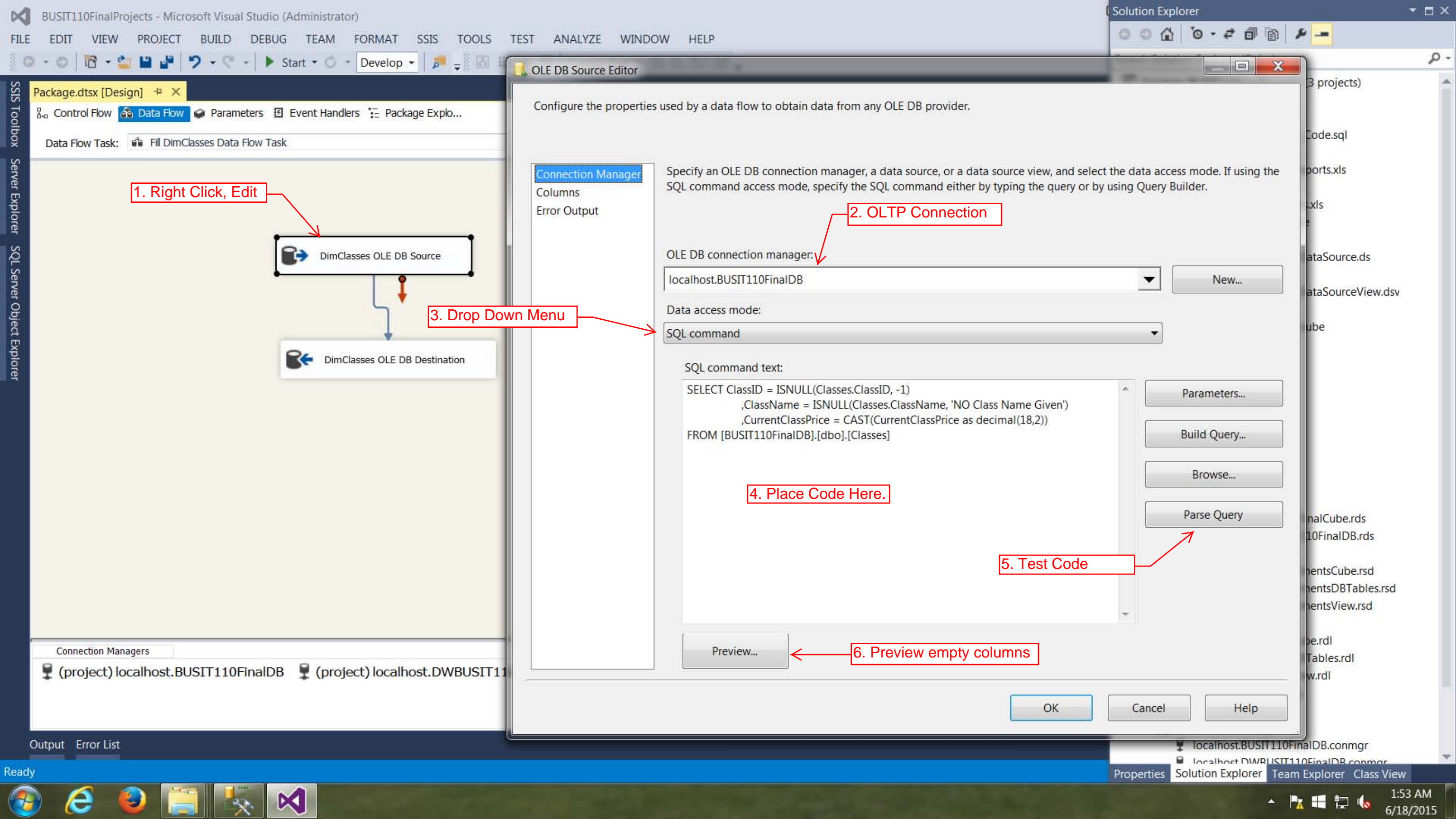
Available Input Colu...  
Name  
StudentID  
StudentEmail  
StudentFullName

Available Destinati...  
Name  
StudentKey  
StudentID  
StudentFullName  
StudentEmail

Input Column	Destination Column
<ignore>	StudentKey Identity_Insert (1,1)
StudentID	StudentID
StudentFullName	StudentFullName
StudentEmail	StudentEmail

Note: No Mapping Needed for StudentKey, because it is already configured for Identity\_Insert.  
(Starts from the first row, first column counting in the beginning.)

OK Cancel Help



Package.dtsx [Design]

Control Flow Data Flow Parameters Event Handlers Package Explorer

Data Flow Task: Fill DimClasses Data Flow Task

1. Right Click, Edit

DimClasses OLE DB Source

3. Drop Down Menu

DimClasses OLE DB Destination

OLE DB Source Editor

Configure the properties used by a data flow to obtain data from any OLE DB provider.

Connection Manager

Columns  
Error Output

Specify an OLE DB connection manager, a data source, or a data source view, and select the data access mode. If using the SQL command access mode, specify the SQL command either by typing the query or by using Query Builder.

2. OLTP Connection

OLE DB connection manager:

localhost.BUSIT110FinalDB

New...

Data access mode:

SQL command

SQL command text:

SELECT ClassID = ISNULL(Classes.ClassID, -1)  
      ,ClassName = ISNULL(Classes.ClassName, 'NO Class Name Given')  
      ,CurrentClassPrice = CAST(CurrentClassPrice as decimal(18,2))  
FROM [BUSIT110FinalDB].[dbo].[Classes]

4. Place Code Here.

Parameters...

Build Query...

Browse...

Parse Query

5. Test Code

Preview...

6. Preview empty columns

OK

Cancel

Help

Connection Managers

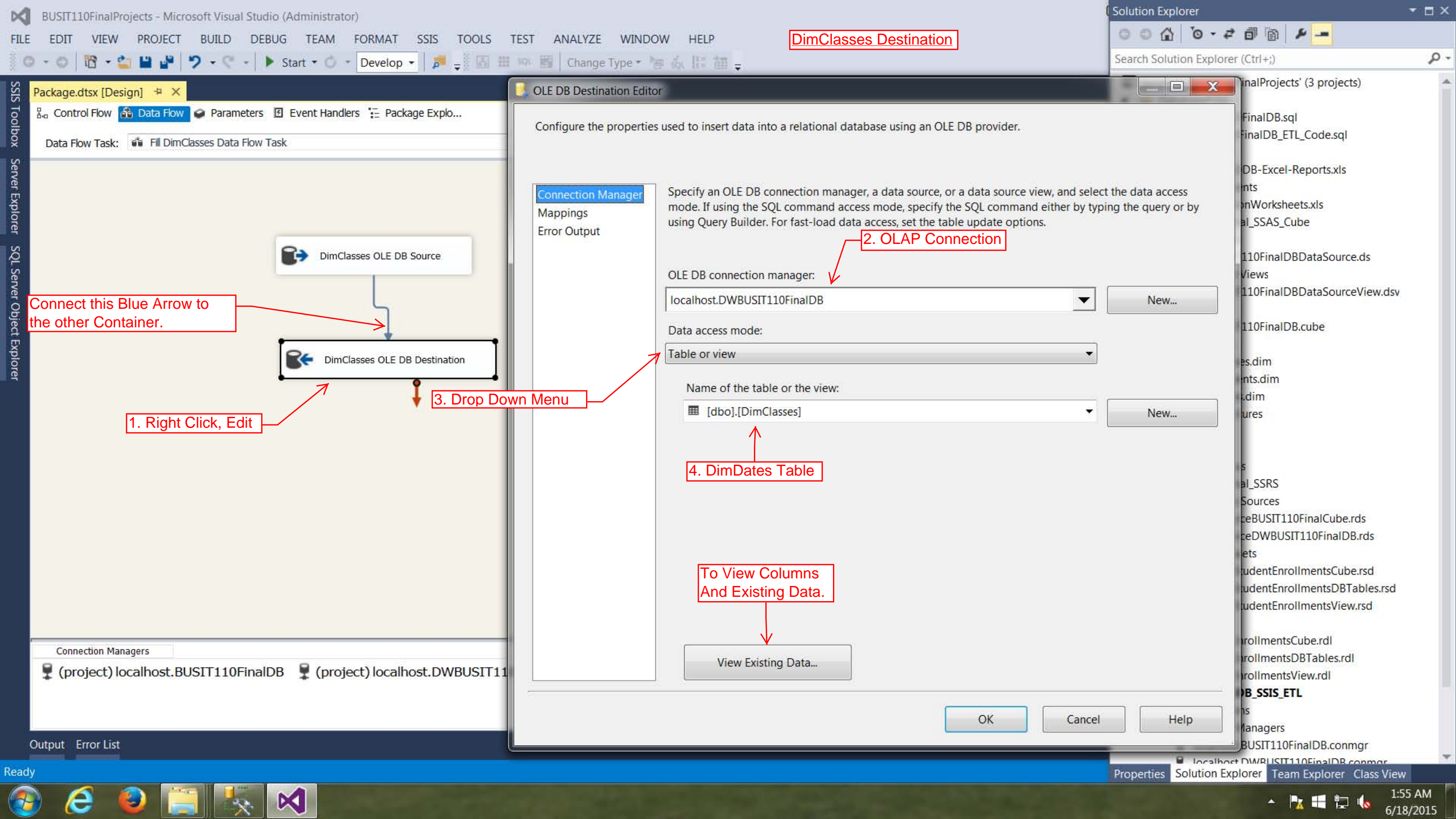
(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

Output Error List

Properties Solution Explorer Team Explorer Class View

1:53 AM  
6/18/2015

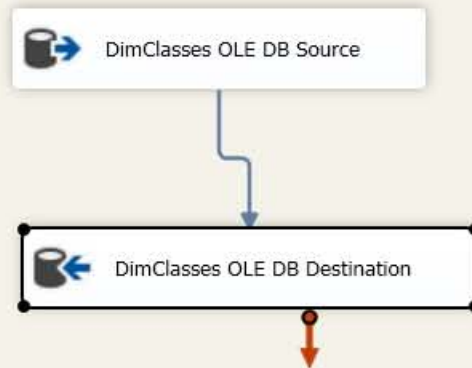




Package.dtsx [Design]

Control Flow Data Flow Parameters Event Handlers Package Explo...

Data Flow Task:  Fill DimClasses Data Flow Task



## Connection Managers

(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT11

Output Error List

OLE DB Destination Editor

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

Note: Always Map the Data to the Columns, or the Task(s) may not run correctly.

## Connection Manager

Mappings ←

### Error Output

## Mappings

	Note: Data Connections (Same Name)
--	---------------------------------------

Available Input Colu...

Name
ClassID
ClassName
CurrentClassPri

Available Destination...

Name
ClassKey
ClassID
ClassName
CurrentClassPrice

Note: Mapping Matches

Input Column	Destination Column
<ignore>	ClassKey Identity_Insert (1,1)
ClassID	ClassID
ClassName	ClassName
CurrentClassPrice	CurrentClassPrice

Note: No Mapping Needed for ClassKey, because Table Column is already configured for Identity\_Insert.  
(ClassKey Starts from the first row, first column counting from the beginning.)

OK

Cancel

Help

Ready

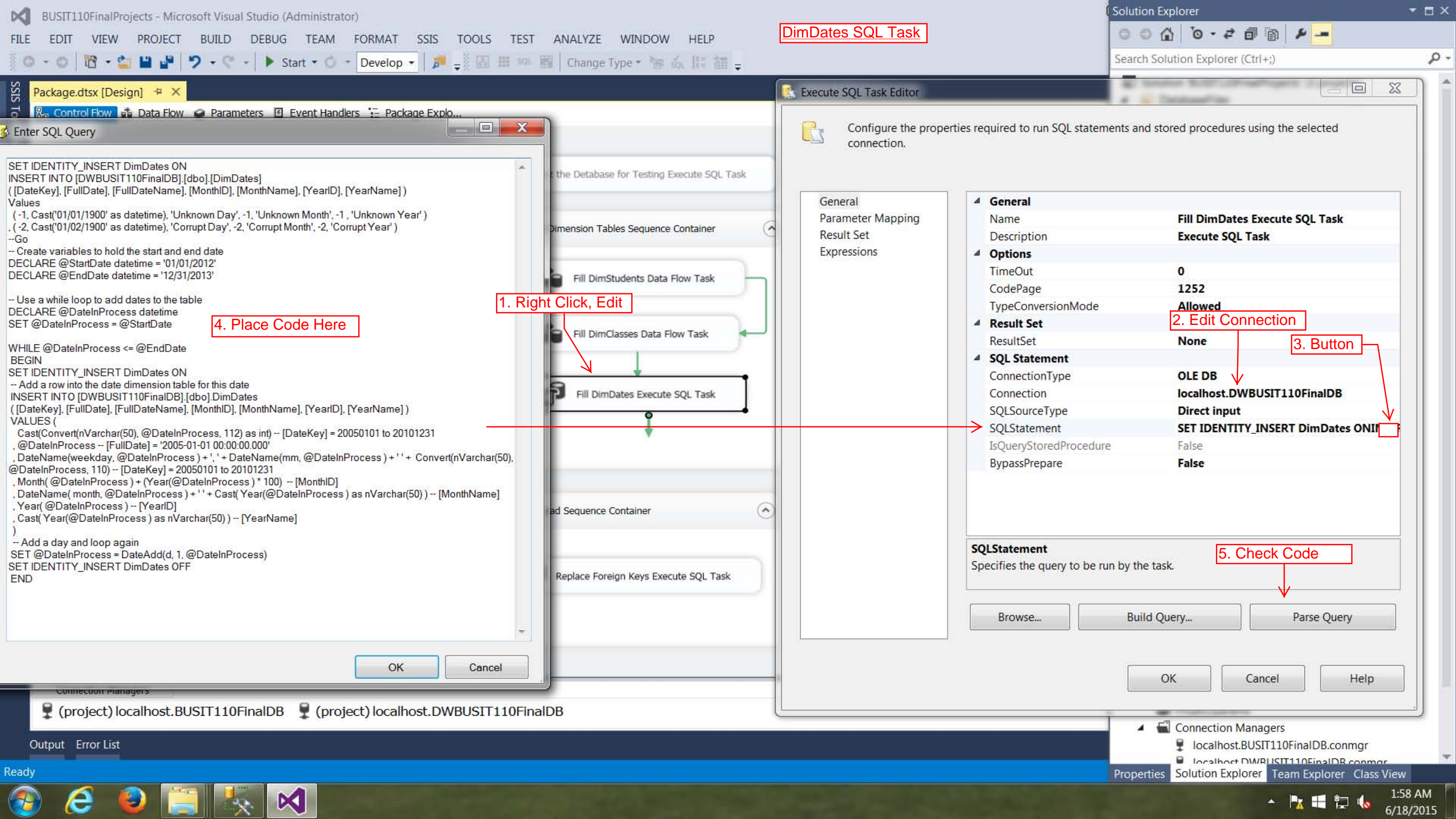
## Properties

Solution Explorer

Team Explorer Class View

1:56 AM  
6/18/2015





DimDates SQL Task

1. Right Click, Edit

4. Place Code Here

2. Edit Connection

3. Button

5. Check Code



BUSIT110FinalProjects - Microsoft Visual Studio (Administrator)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM FORMAT SSIS TOOLS TEST

Package.dtsx [Design] - X

Control Flow Data Flow Parameters Event Handlers Package Explo...

Data Flow Task: Fill FactEnrollments Data Flow Task

1. Right Click, Edit

6. Connect this Blue Arrow to the Destination Container.

FactEnrollment OLE DB Source

FactEntrollment OLE DB Destination

Connection Managers

(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

Output Error List

## Populating The FactEnrollment Table Using The Source Data (OLTP Enrollments)

Note: Fact Data Can Come From A Number of OLTP Source Tables And/Or Views.

### Connection Manager

Columns  
Error Output

Specify an OLE DB connection manager, a data source, or a data source view, and select the data access mode. If using the SQL command access mode, specify the SQL command either by typing the query or by using Query Builder.

OLE DB connection manager:

localhost.DWBUSIT110FinalDB

New...

Data access mode:

SQL command

SQL command text:

```
SELECT
  EnrollmentID = IsNull(Enrollments.EnrollmentID, -1)
, DimDates.DateKey
, DimStudents.StudentKey
, DimClasses.ClassKey
, ActualEnrollmentPrice = Cast(Enrollments.ActualEnrollmentPrice as decimal(18,2))
FROM DimClasses
INNER JOIN [BUSIT110FinalDB].[dbo].[Enrollments]
  ON DimClasses.ClassID = [BUSIT110FinalDB].[dbo].[Enrollments].[ClassID]
INNER JOIN DimStudents
  ON DimStudents.StudentID = [BUSIT110FinalDB].[dbo].[Enrollments].[StudentID]
INNER JOIN DimDates
  ON [dbo].[DimDates].[FullDate] = [BUSIT110FinalDB].[dbo].[Enrollments].[EnrollmentDate]
```

Parameters...

Build Query...

Browse...

Parse Query

4. Place SQL Code Here.

5. Check SQL Query

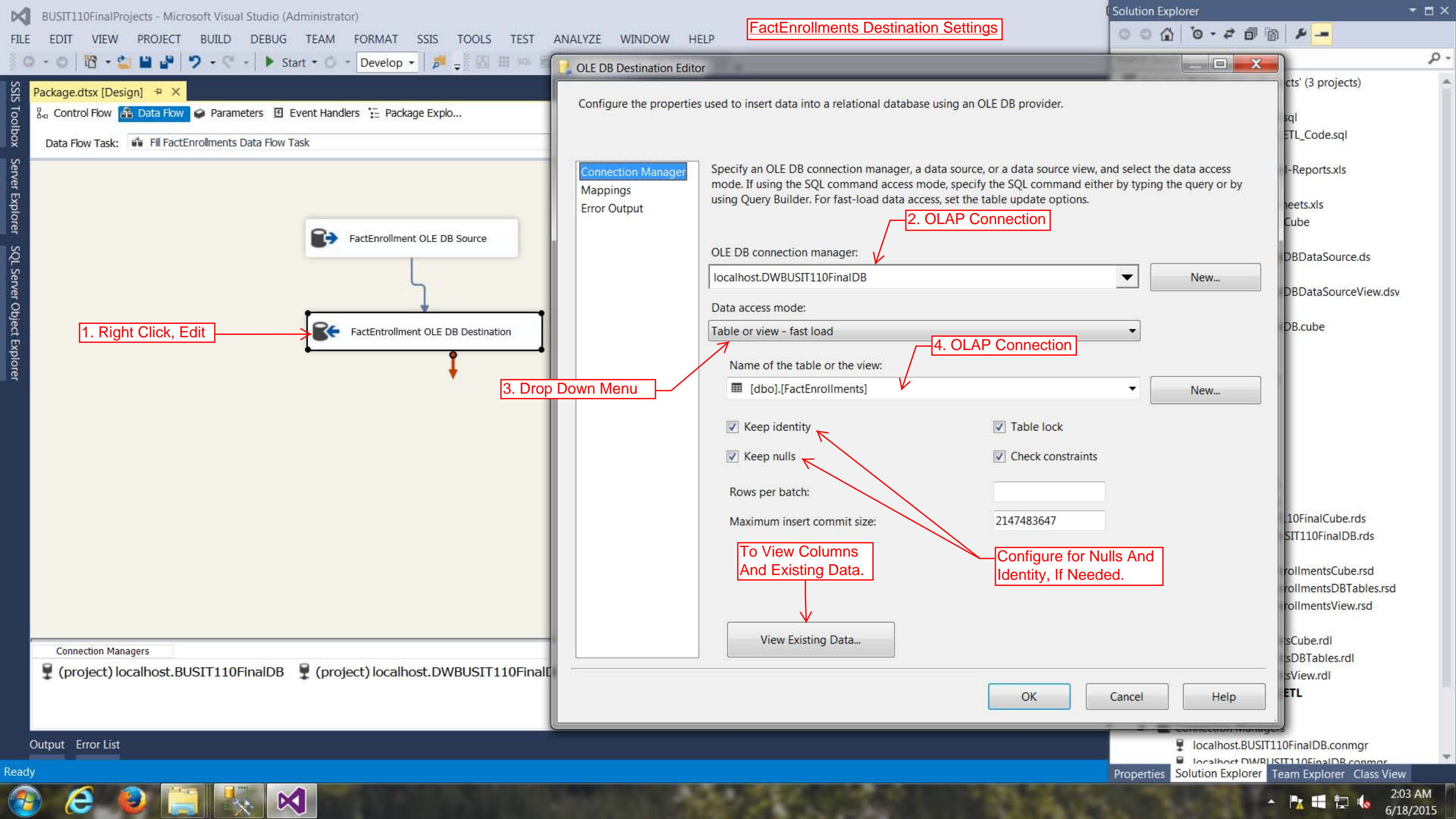
Preview...

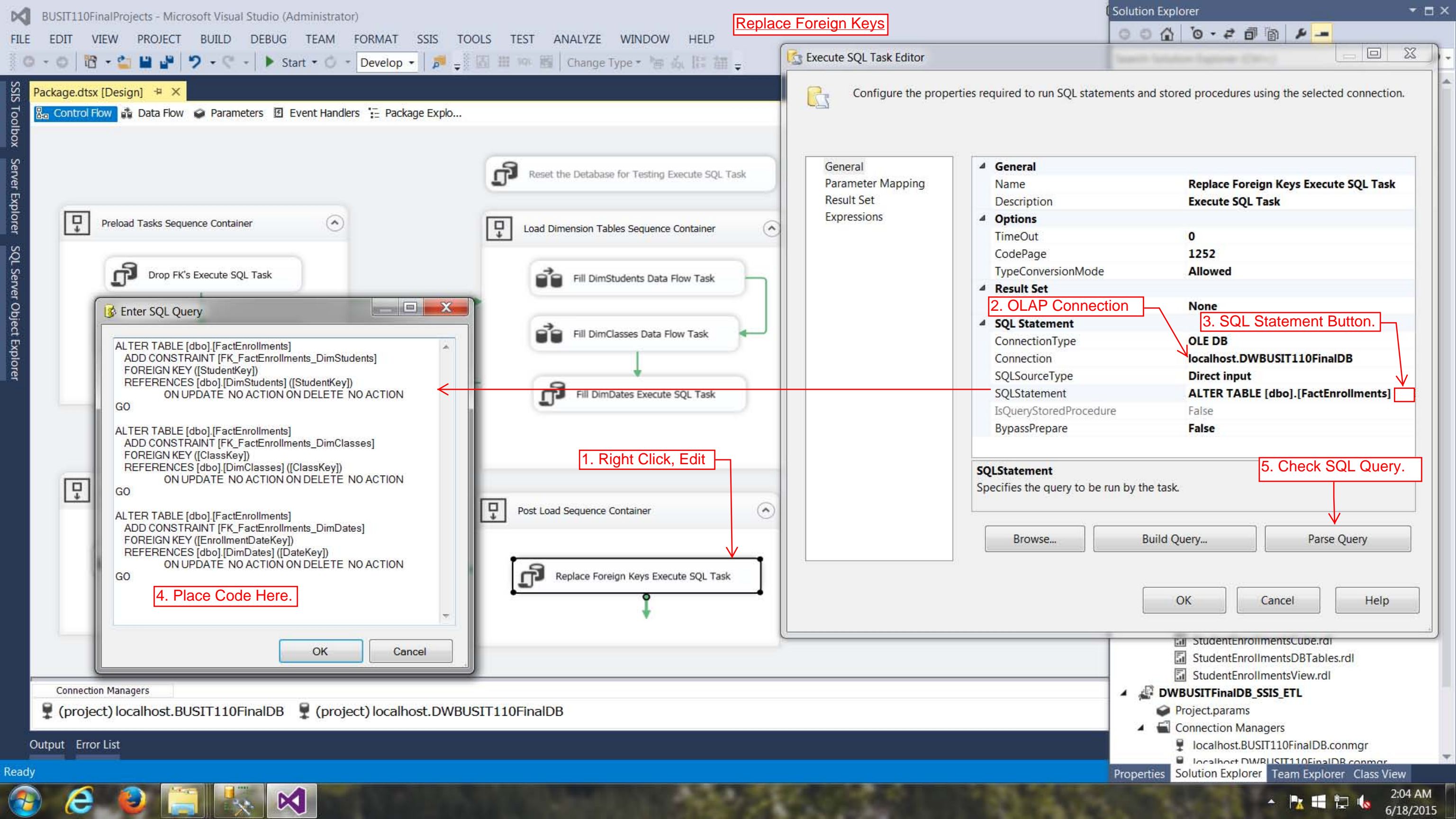
OK

Cancel

Help







Replace Foreign Keys

2. OLAP Connection

3. SQL Statement Button.

1. Right Click, Edit

4. Place Code Here.

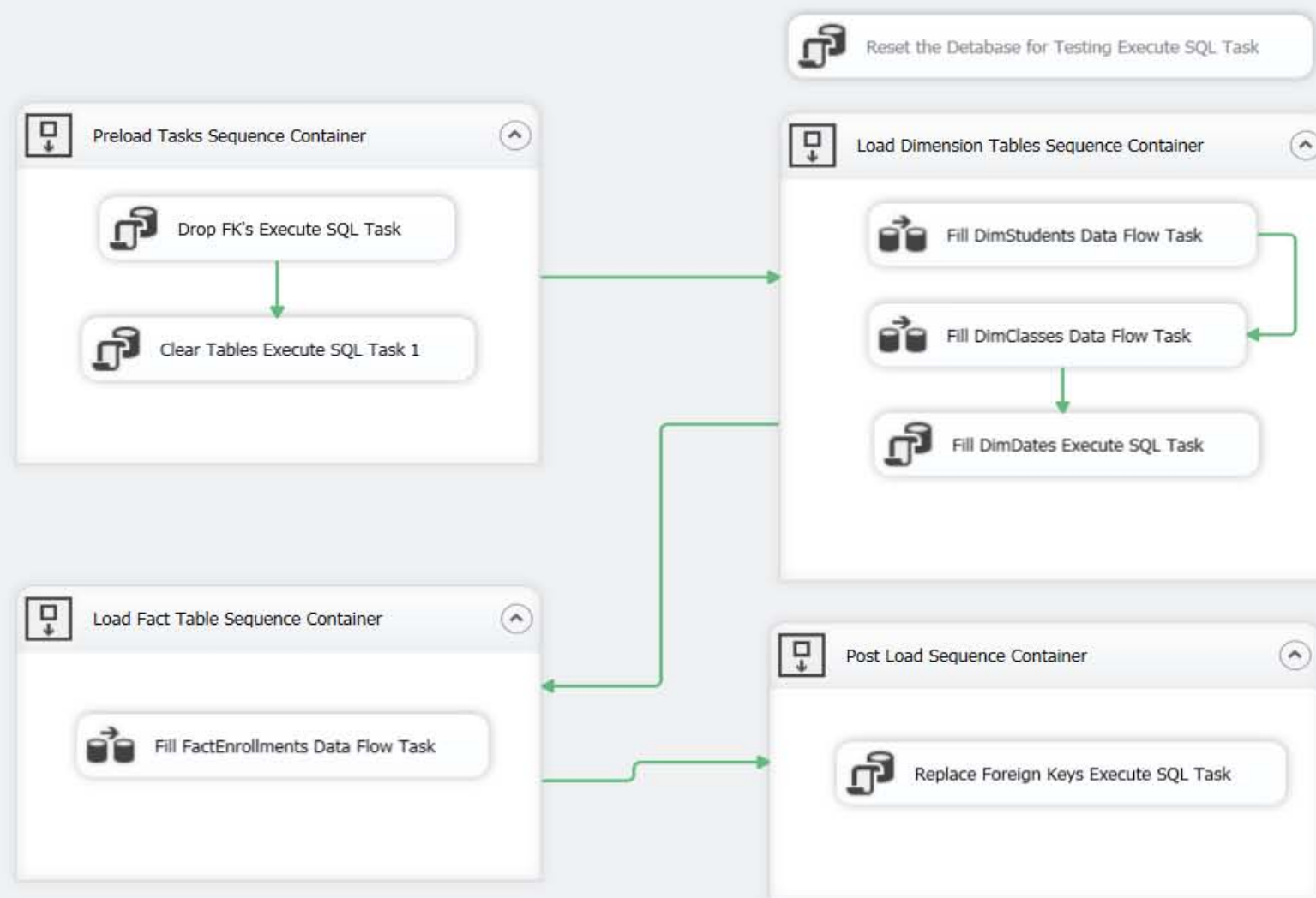
5. Check SQL Query.



Completed SSIS Project Results

Package.dtsx [Design]

Control Flow Data Flow Parameters Event Handlers Package Explo...



Connection Managers

(project) localhost.BUSIT110FinalDB (project) localhost.DWBUSIT110FinalDB

Output Error List

Ready

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'BUSIT110FinalProjects' (3 projects)

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    - DWBUSIT110FinalDBDataSourceView.dsv
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    - DWBUSIT110FinalDB.cube
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    - DimClasses.dim
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    - DataSetStudentEnrollmentsView.rsd
  - Reports
    - StudentEnrollmentsCube.rdl
    - StudentEnrollmentsDBTables.rdl
    - StudentEnrollmentsView.rdl
- DWBUSITFinalDB\_SSIS\_ETL
  - Project.params
  - Connection Managers
    - localhost.BUSIT110FinalDB.conmgr
    - localhost.DWBUSIT110FinalDB.conmgr

Properties Solution Explorer Team Explorer Class View