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Oracle Data Integrator 11g Case Study

"Customer Correspondence Data Model"

Description:

This is another document from "ODI Case Studies Series". The Document focuses how to convert transactional normalized data model to star schema. It also demonstrates the implementation of factless fact table in order to build star schema. The case studies show the data movement from Source→Staging→Target.

History:

Version	Description Change	Author	Publish Date
0.1	Initial Draft	Anil Patel	5-April-2012
0.1	Initial Draft	Amit Sharma	5-April-2012

BISP

Oracle Data Integrator - Customer Correspondence Data Model

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BISP

1. Introduction to Customer Correspondence Data Model :-

Introduction: Customer Correspondence Data Model is a repository for customer contact details. This information is required in various business events in order to communicate to the customers. This model is part of CRM application. The document shows you step by step way that how did we convert the transaction Customer Correspondence model to Dimension model required for Business Intelligence Reporting. The CC dimension model will be used for BI reporting tools to identify various trends and analysis related to customer contact details. i.e Business wants to identify customer demographics based on the customer location. Business may like to know revenue based on customer's location. There are such many analysis business wants to find however, such kinds of analysis can't be directly build on top of transaction model.

The below diagram shows the final output transformation of transaction model to star schema. Fact_Customer_Correspondence is a factless fact table.

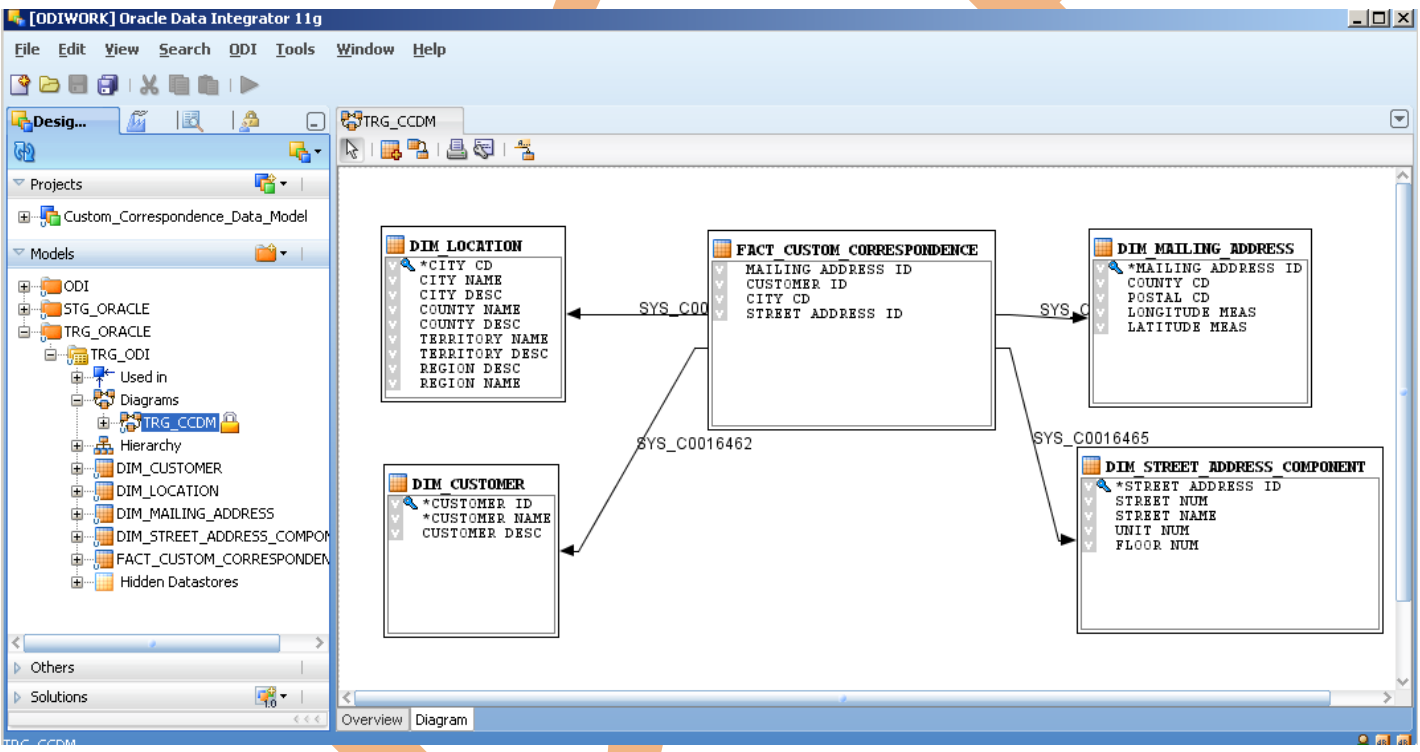


Fig.01 : Customer Correspondence Data Model :OLAP(Target)

2. Custom Correspondence Data Models of Source, Staging & Target :-

Source Data Model: This is source data which represent OLTP data model. This consists of Tables, keys, constraints, joins.

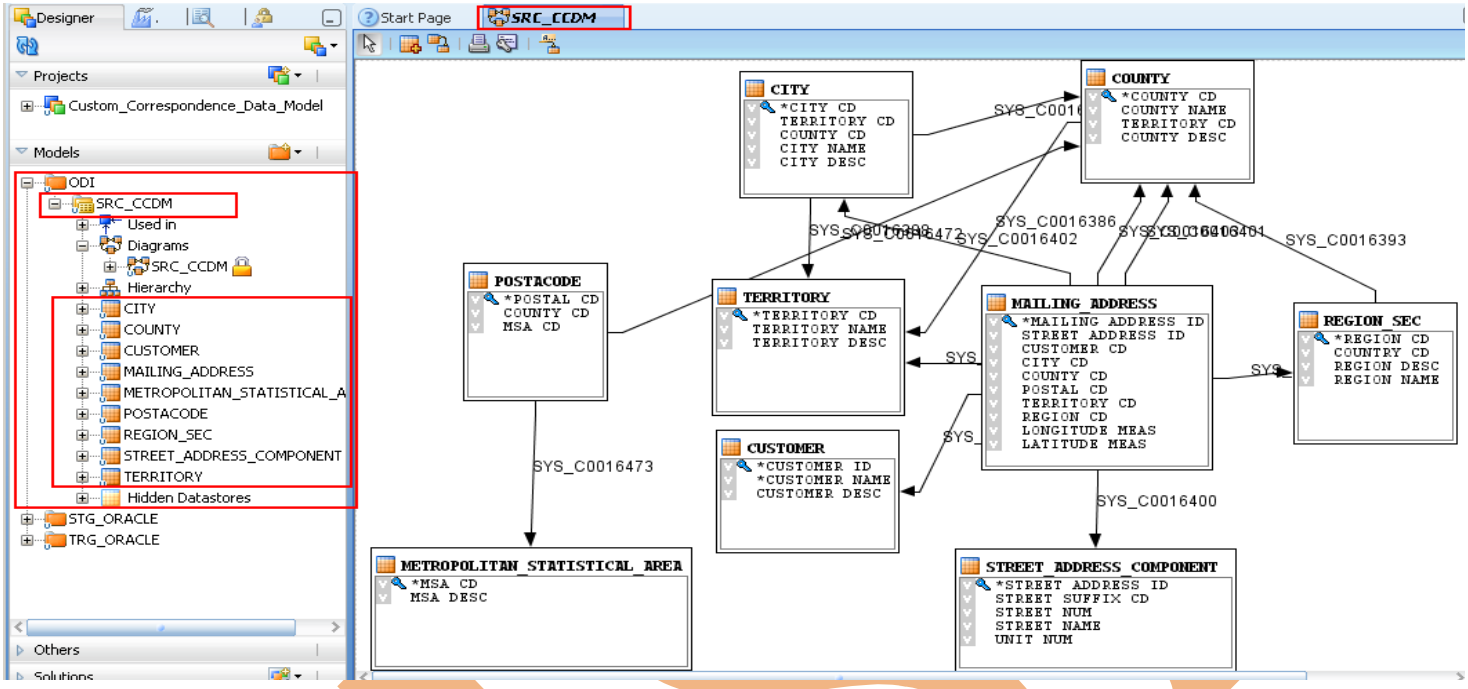


Fig.02: Customer Correspondence Data Model: OLTP (Source)

Staging Data Model: The below model shows the staging area, where we de-normalized multiple transaction tables to stg_location table. Also, shows Table to Table mapping i.e Customer table to Stg_Customer.

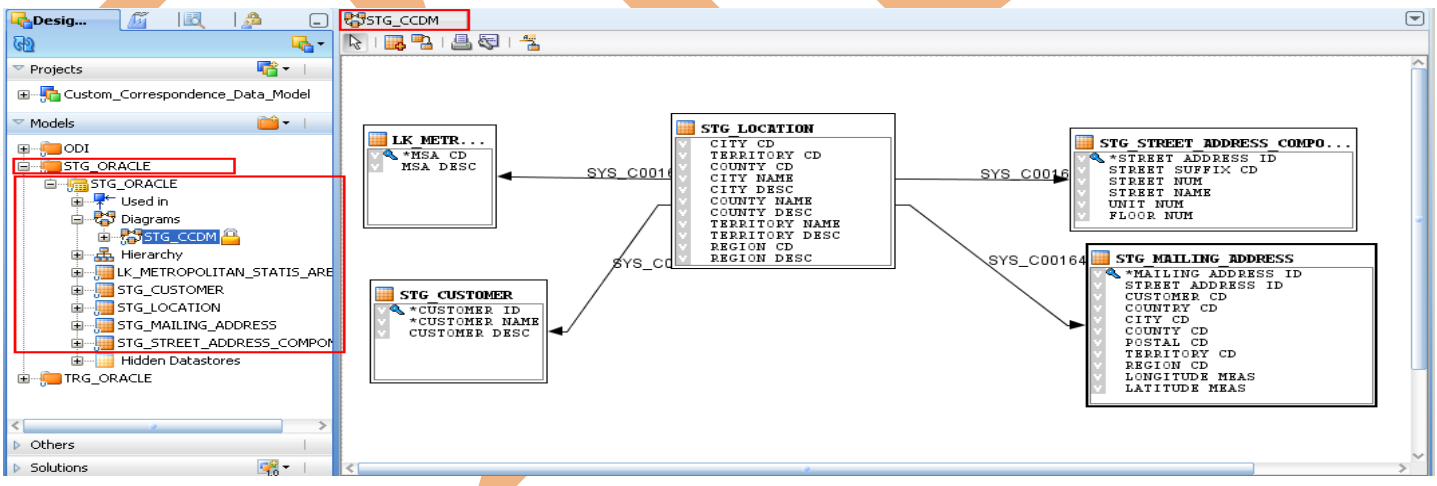


Fig.03: Customer Correspondence Data Model (Staging)

Target Data Model: The below one is Target data model. It is clearly visible in the model that the tables are now representing in Dimension and Facts.

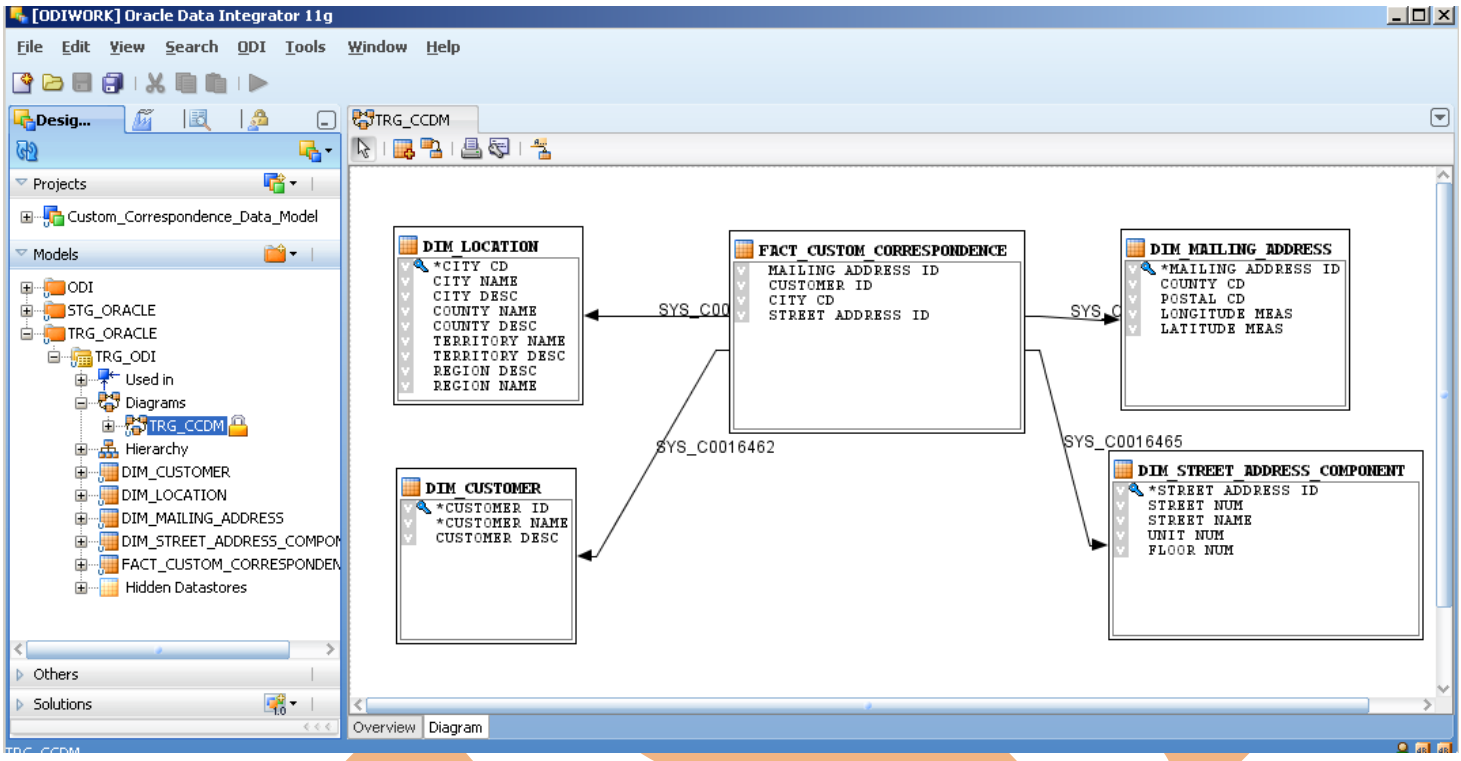


Fig.04: Customer Correspondence Data Model :OLAP (Target)

3. Setting up Dataserver, Physical schema& Logical schema in ODI :-

2.1) Create Data Server for Source Database:

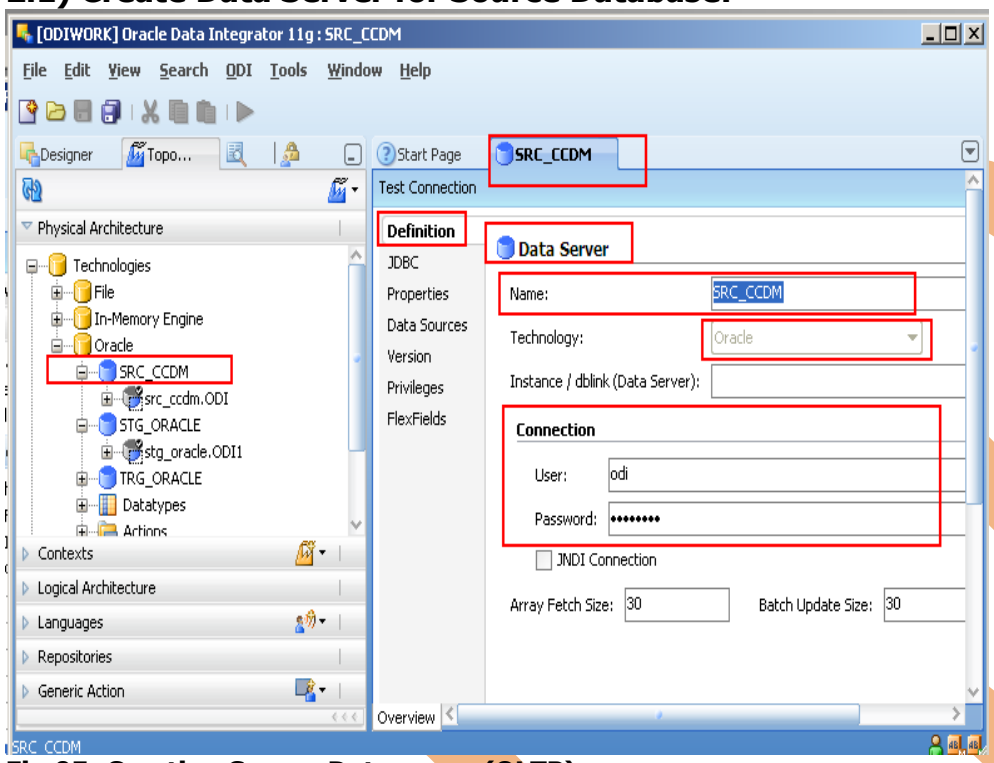


Fig.05: Creating Source Dataserver (OLTP)

Creating Data Server

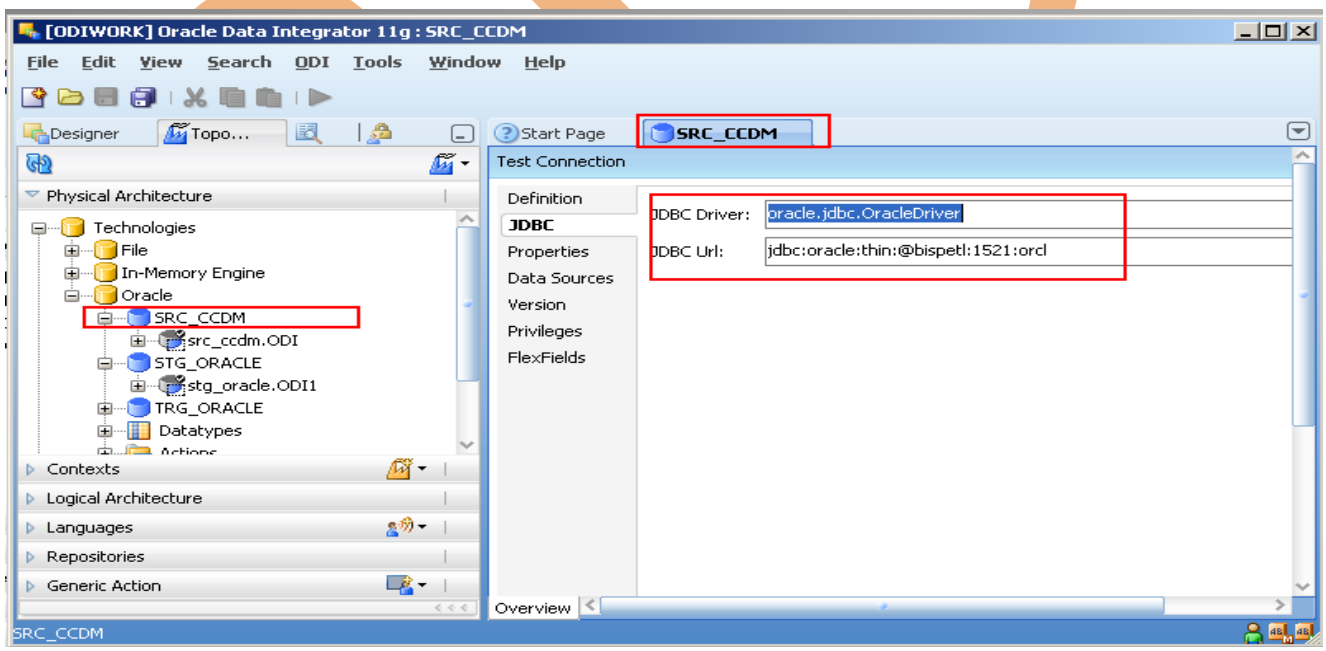
1.Create Data Server for Source

2.Right click on technology & click create new data server then insert information like dataserver name,DB username and password

3.insert information in JDBC driver

4.Test connection

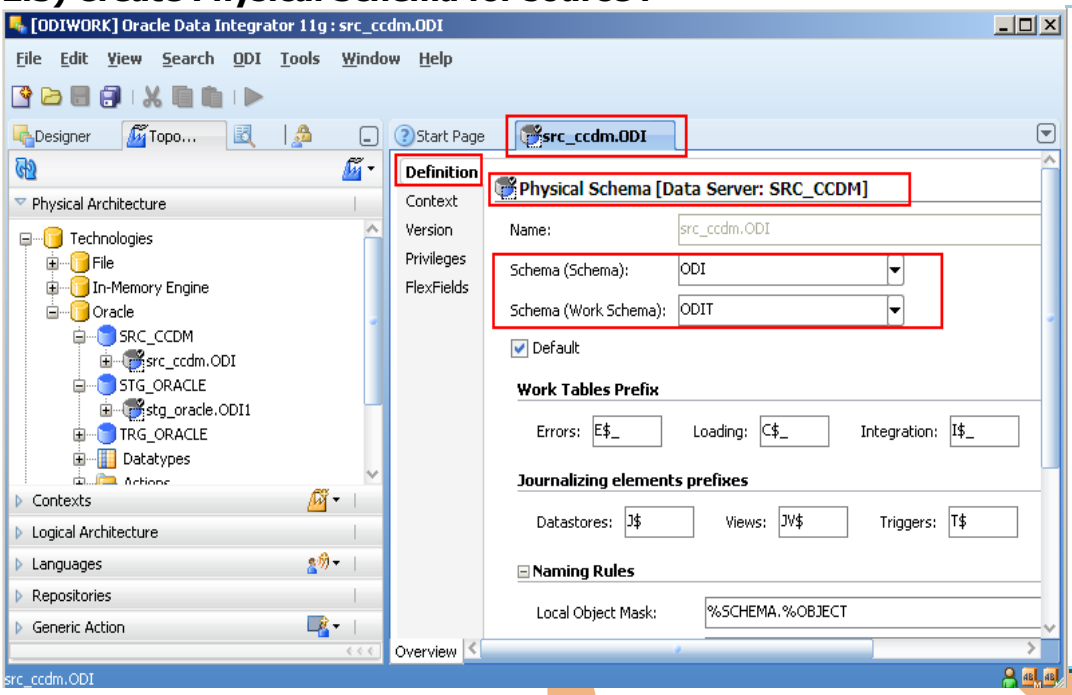
2.2) Specify JDBC Driver and URL:



2.3)

Fig.06: Specify JDBC Driver & URL

2.3) Create Physical Schema for source :



Creating Physical Schema

1.Create physical schema

2.Right click on data server and click create new physical schema

3.Then scroll down schema and select correct user schema & work schema also where temporary table will store during execution.

Fig.07: creating Physical schema for source

2.4) Create Data Server for Staging Database:

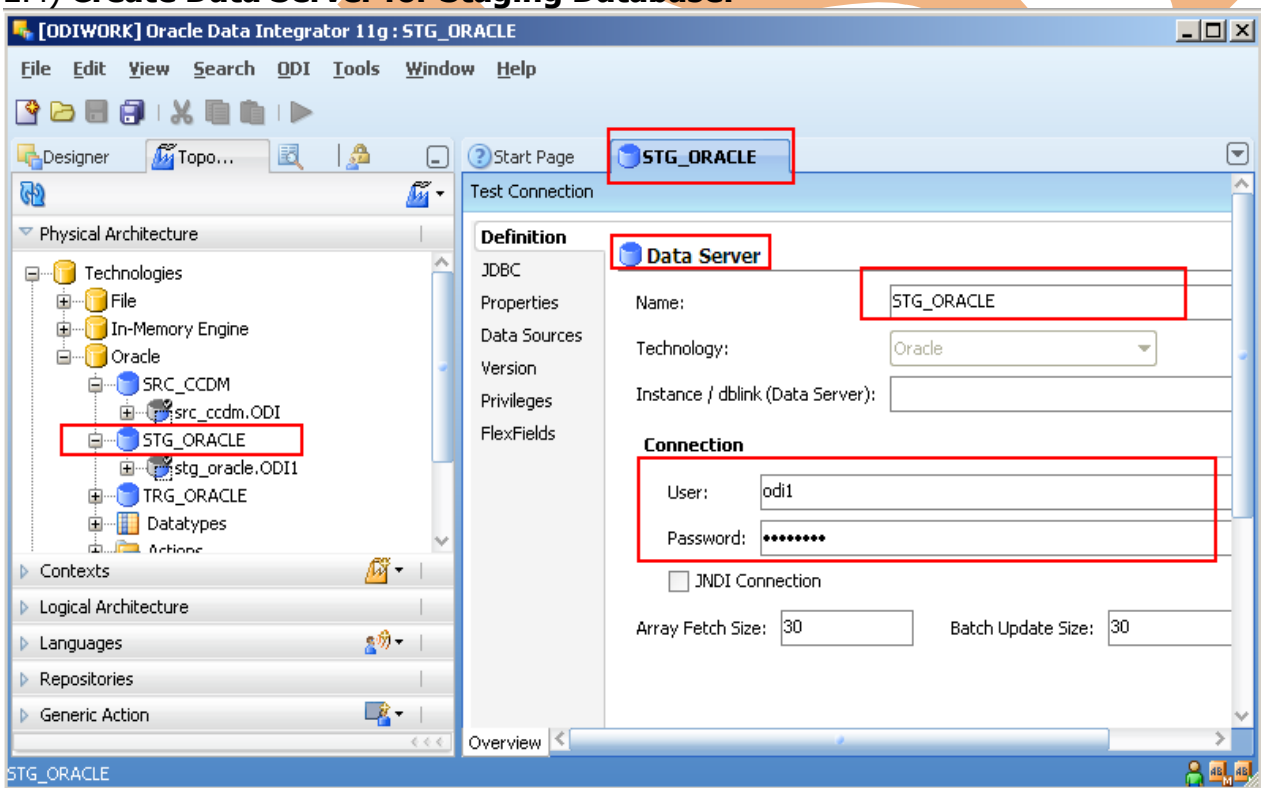


Fig.08: Creating Data Server for staging

2.5) Specify JDBC Driver and URL:

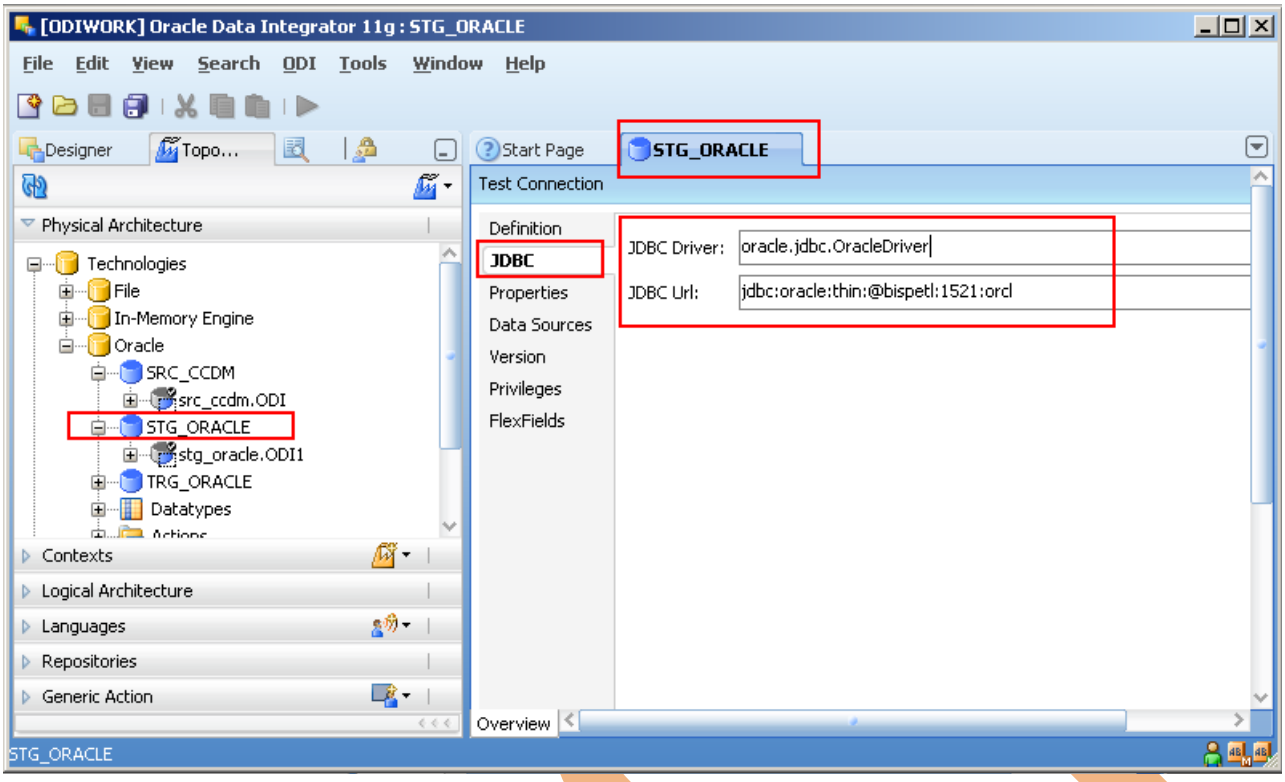


Fig.09: JDBC Driver & URL

2.6) Create Physical Schema for staging:

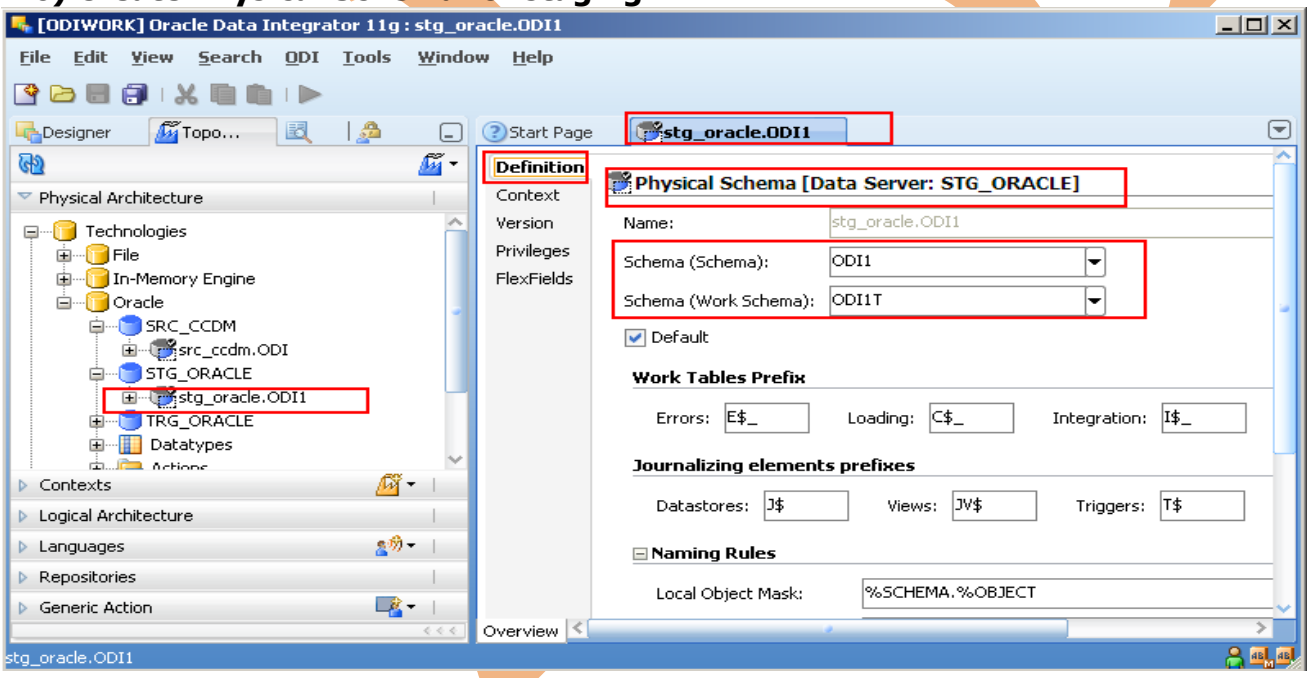


Fig.10: creating Physical schema for staging

2.7) **Create Data Server for Target Database:**

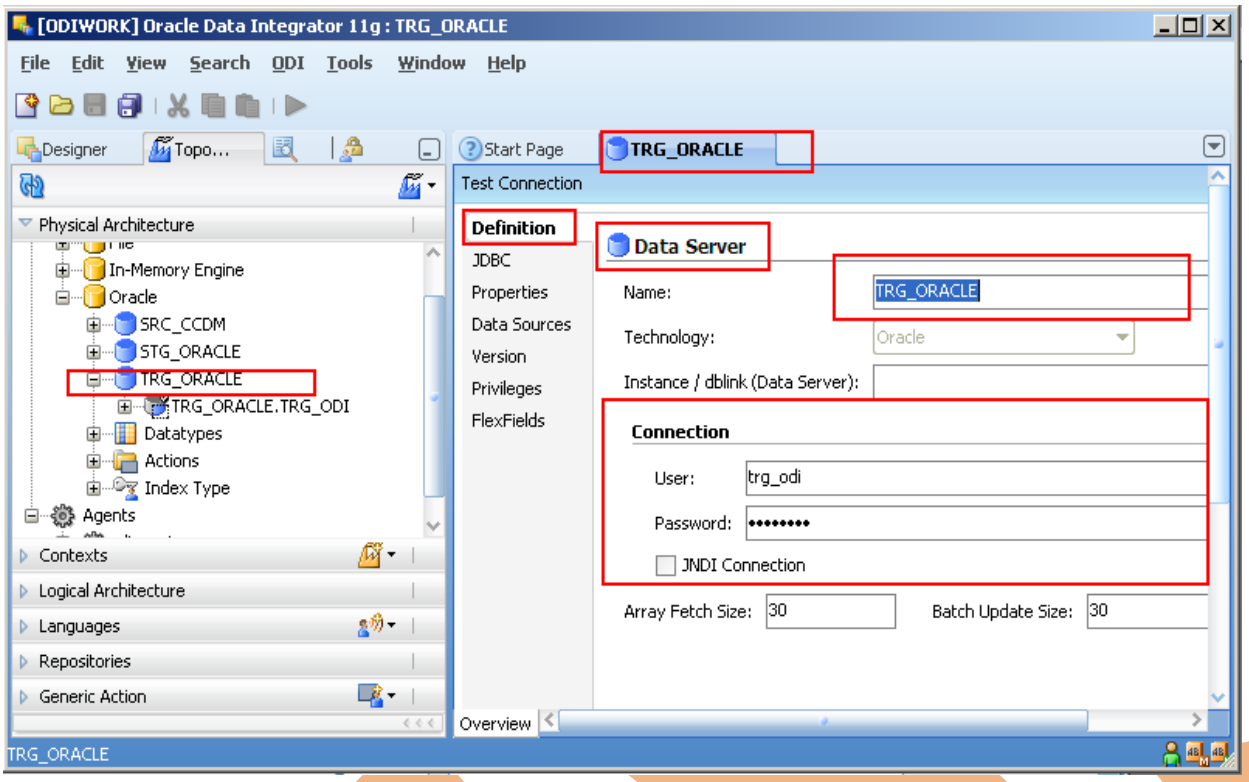


Fig.11: Creating Dataserver for Target (OLAP)

2.8) Specify JDBC Driver and URL:

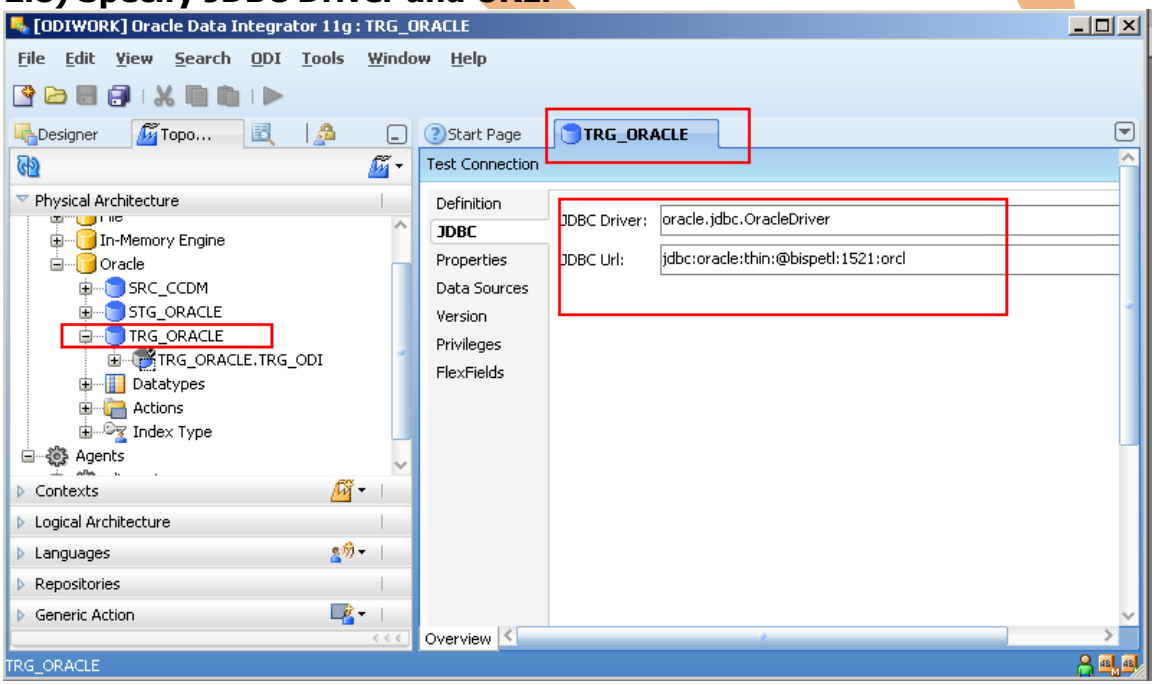


Fig.12: JDBC Driver & URL

2.9) Create Physical schema for Target:

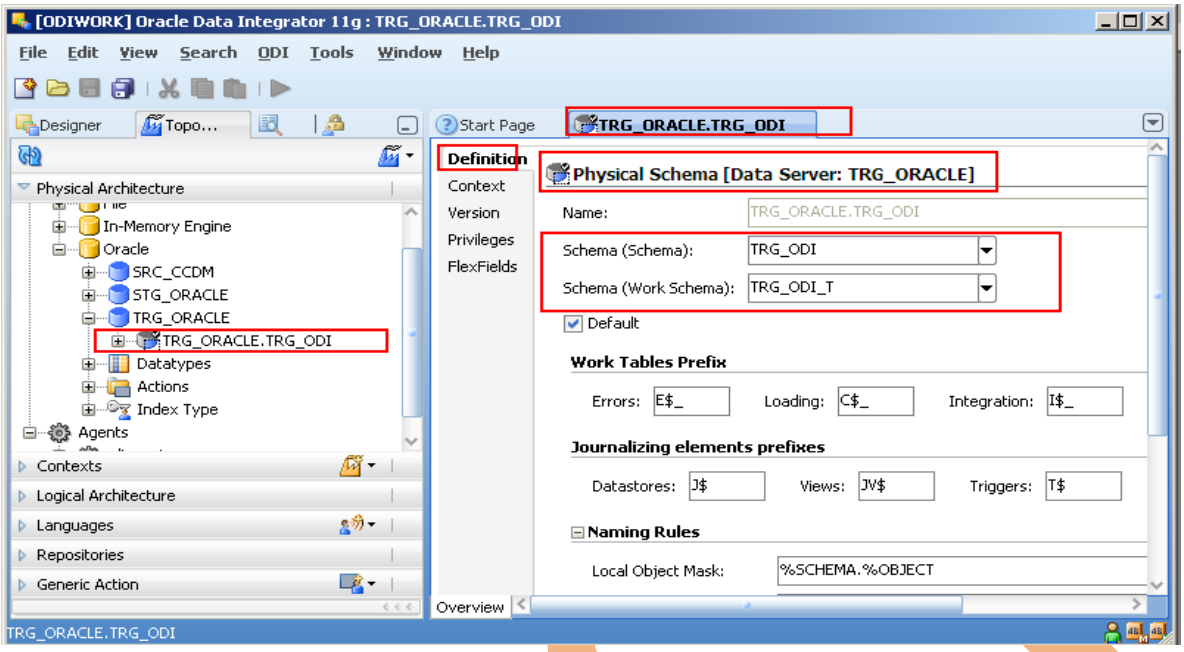


Fig.13: creating Physical schema for Target

2.10) Contexts in ODI which we'll use for physical schemas:

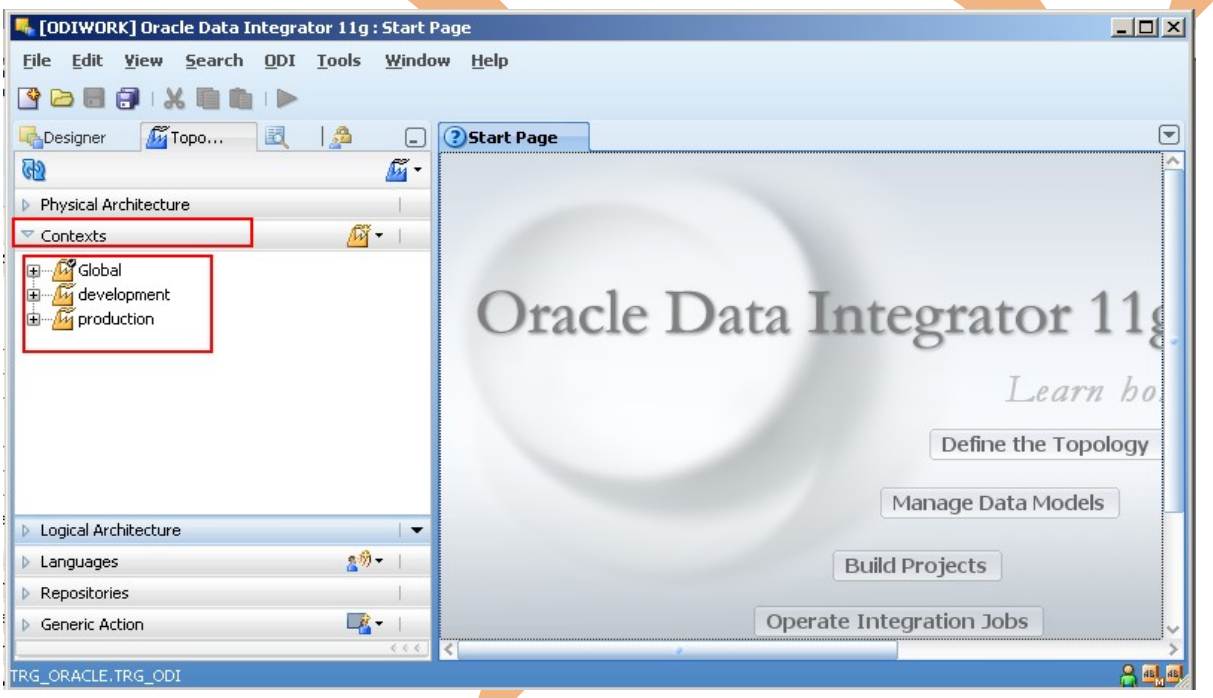


Fig.14: Contexts

2.11) Create logical schema for source, staging and target (Data servers):

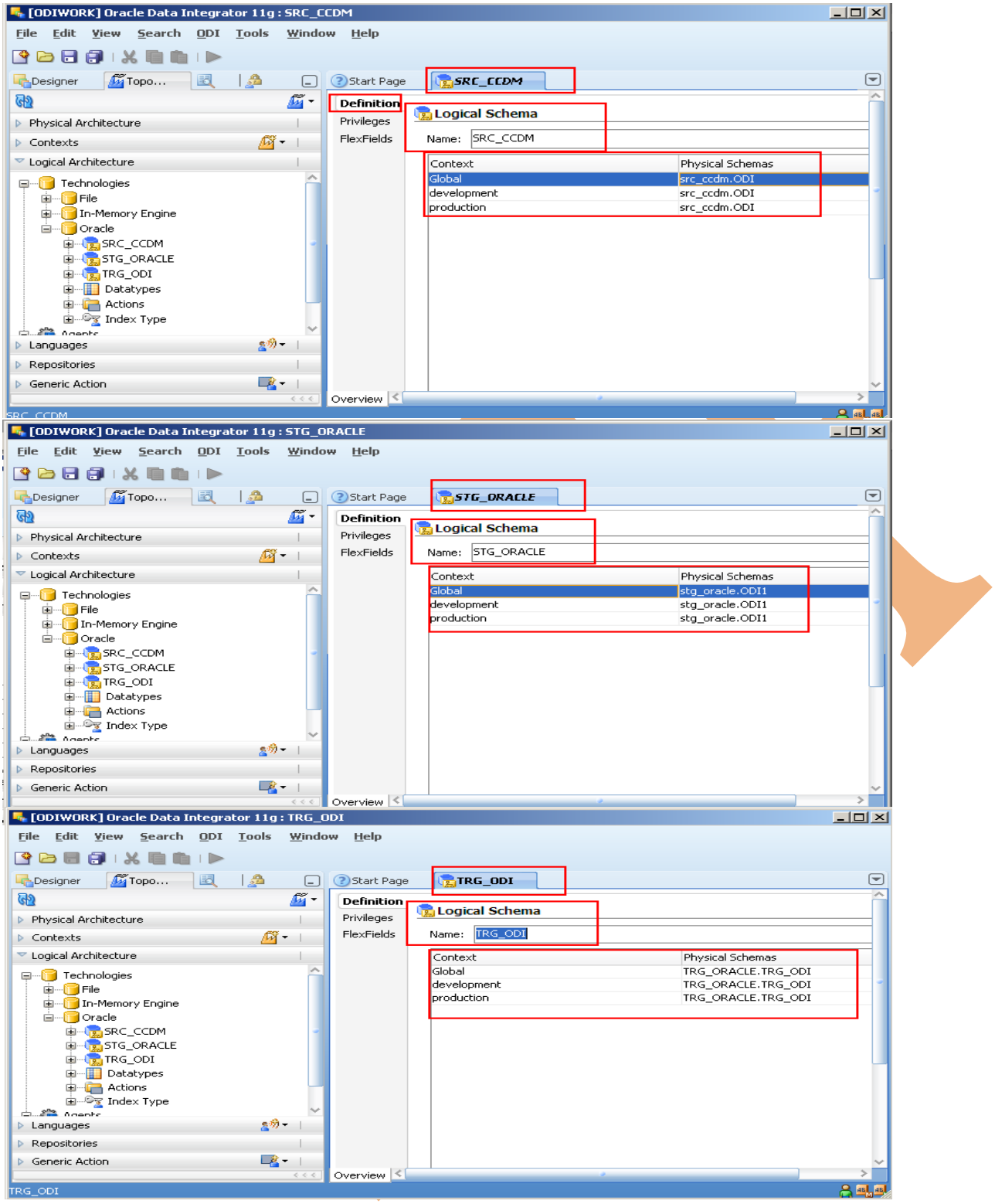


Fig.15: Creating Logical schema for Source,Staging & Target

4. Organizing Model in ODI of Source, Staging & Target :-

4.1) Organizing Model of Source :

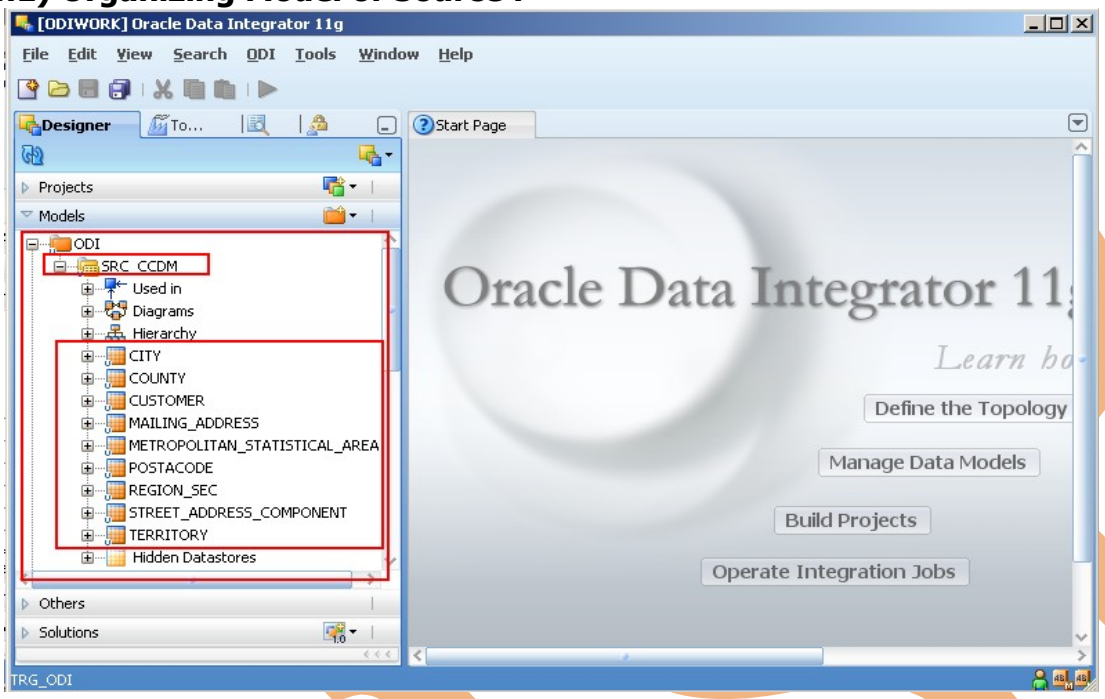


Fig.16: Creating Model & validate datastores (Tables) [Source]

4.2) Organizing Model of Staging :

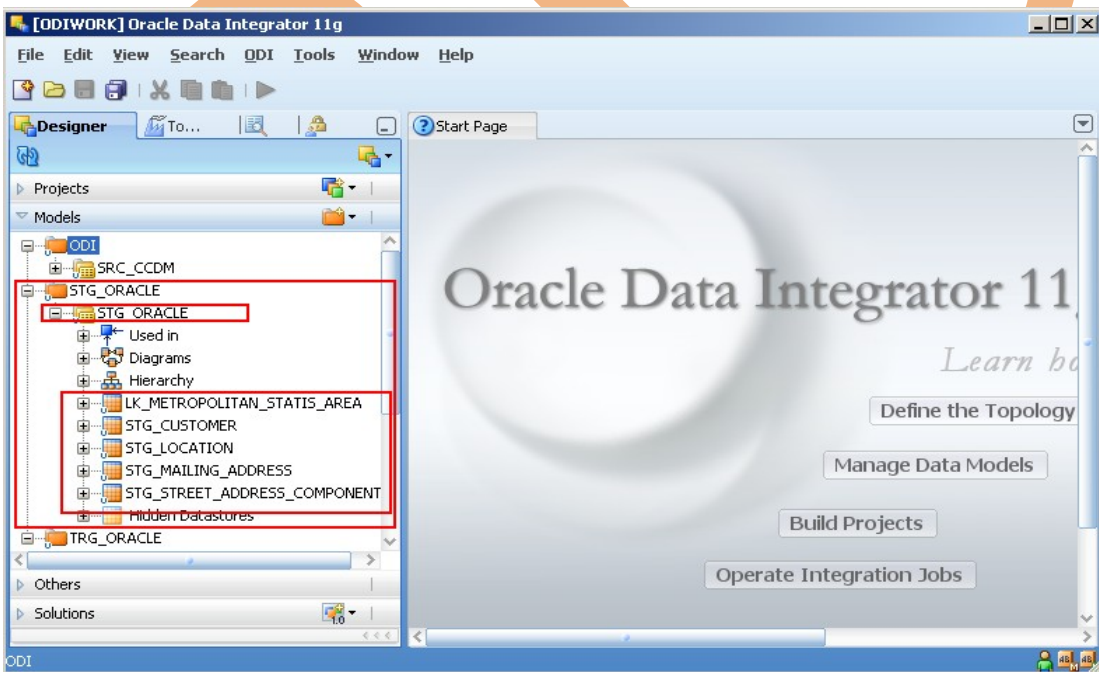
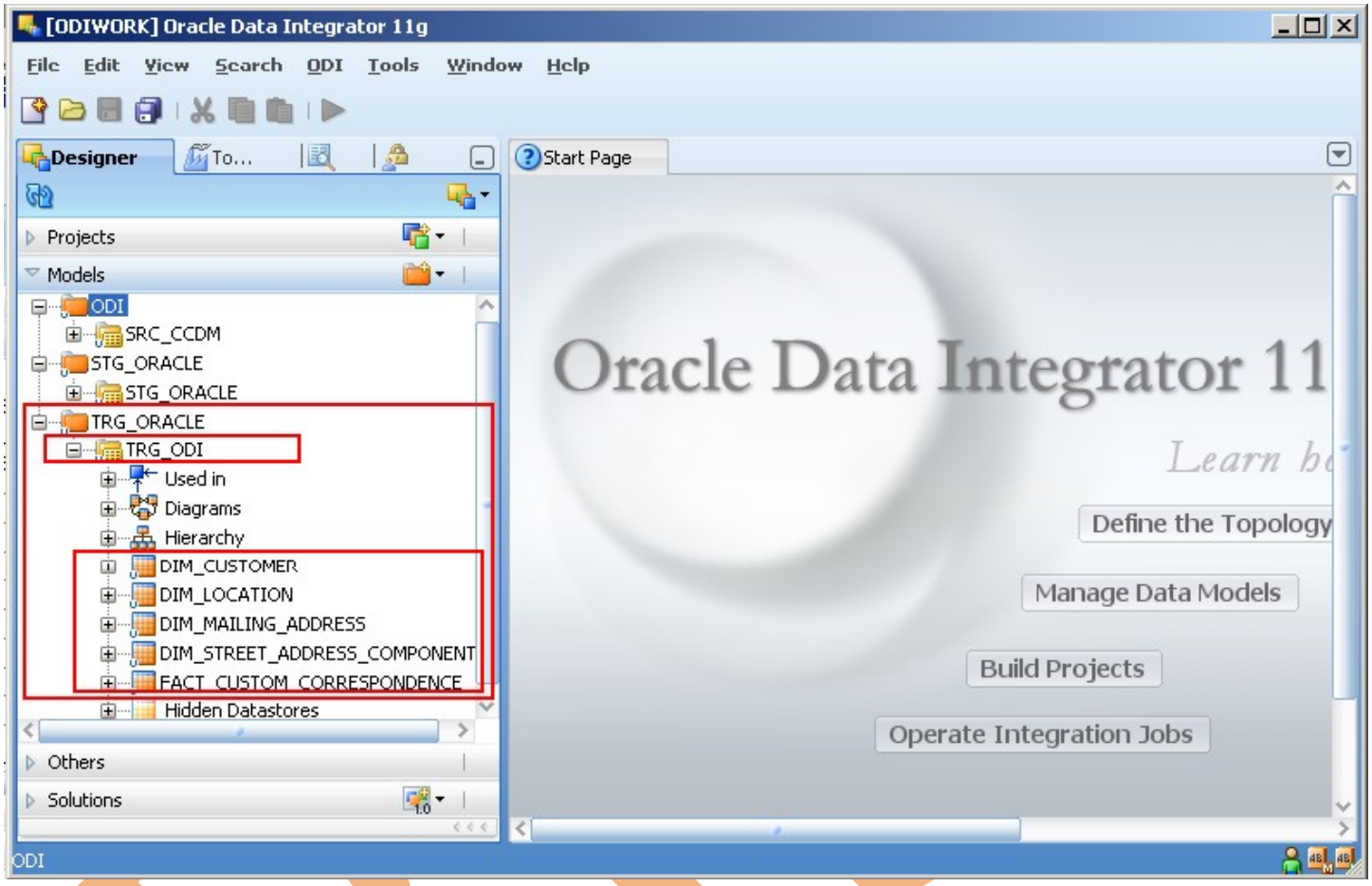


Fig.17: Creating Model & validate datastores (Tables) [Staging]

4.3) Organizing Model of Target: We create model for source ,staging and target and validate each datastores(Table) their columns , datatypes and length etc. for further operations

Fig.18: Creating Model & validate datastores(Tables) [Target]



5. Creating Interface to move data from Source table to Staging -

5.1) The requirement of project : That to move data from source table to staging & for that we need to create interface to transform data and flow.

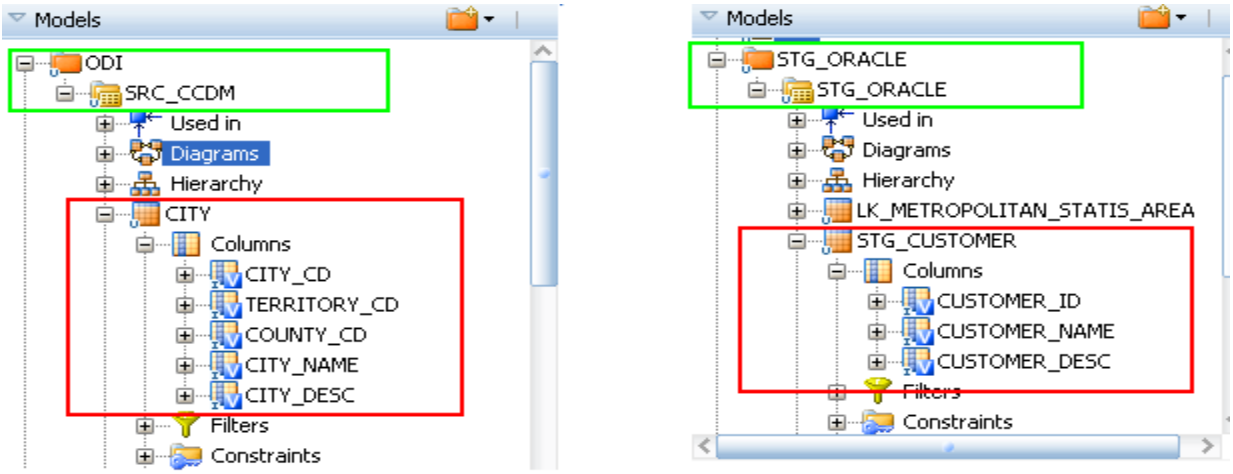


Fig.19: Creating Model & validate datastores(Tables) [Target]

5.2) Create Interface for Customer:
Where source is <source(Table:Customer)→Staging(Table:Stg_Customer)>

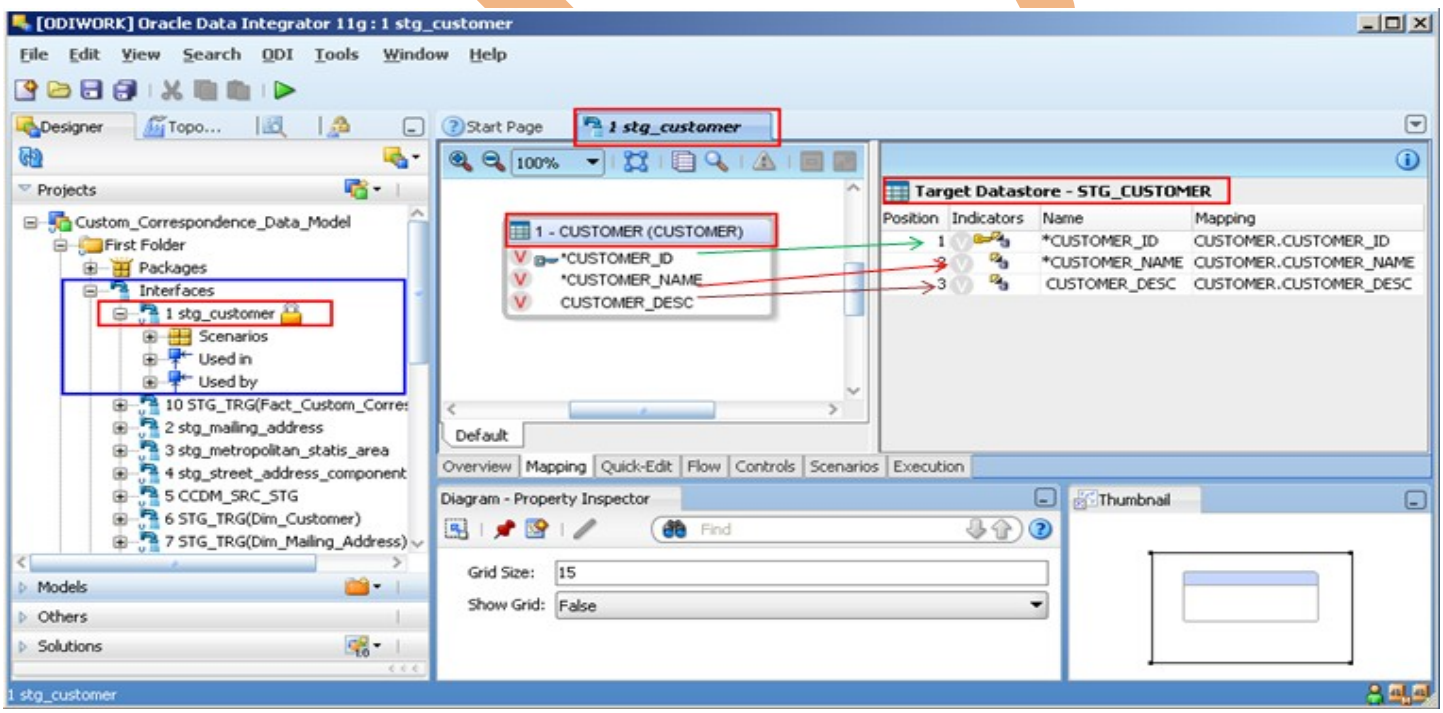


Fig.20: Interface (Source to Staging for Table Customer 1:1 Mapping)

5.3) Create Interface for Mailing_Address:
Where source is <source(Table:Mailing_Address)→Staging(Table:Stg_Mailing_Address)>

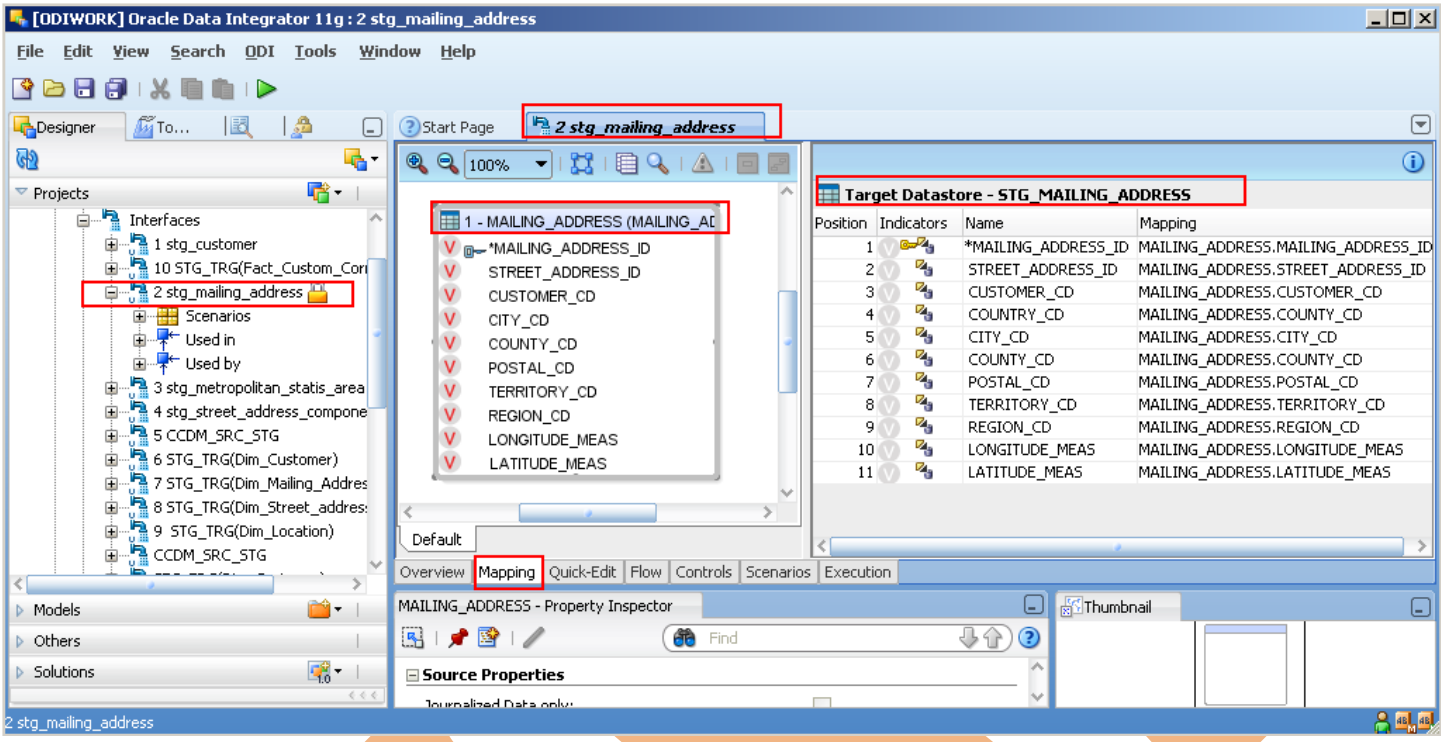


Fig.21: Interface (Source to Staging for Table Mailing_Address 1:1 Mapping)

5.4) Create Interface for Metropolitan_Statical_Area: Where source is <source(Table: Metropolitan_Statical_Area →Staging(Table:Lk_ Metropolitan_Statical_Area)>

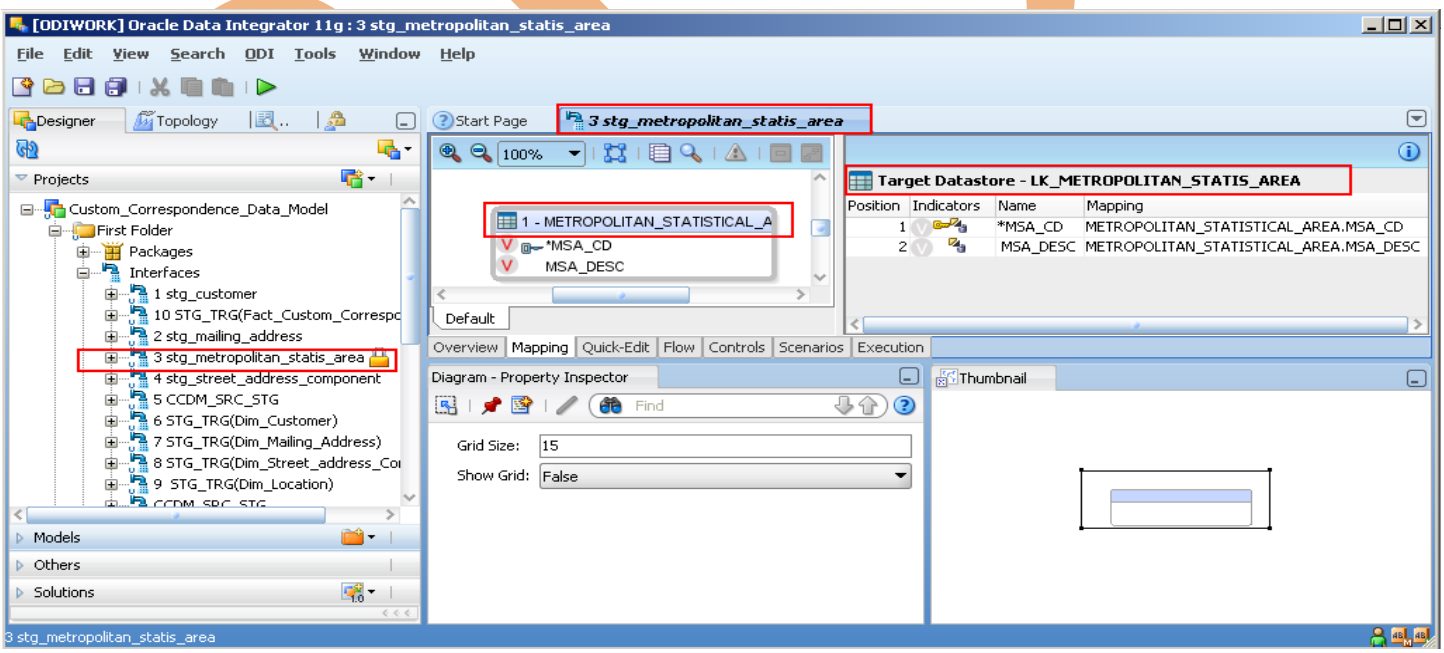


Fig.22: Interface (Source to Staging for Table Metropolitan_Statical_address 1:1 Mapping)

5.5) Create Interface for Street_Address_Component: Where source is <source(Table: Street_Address_Component →Staging(Table:STG_Street_Address_Component)>

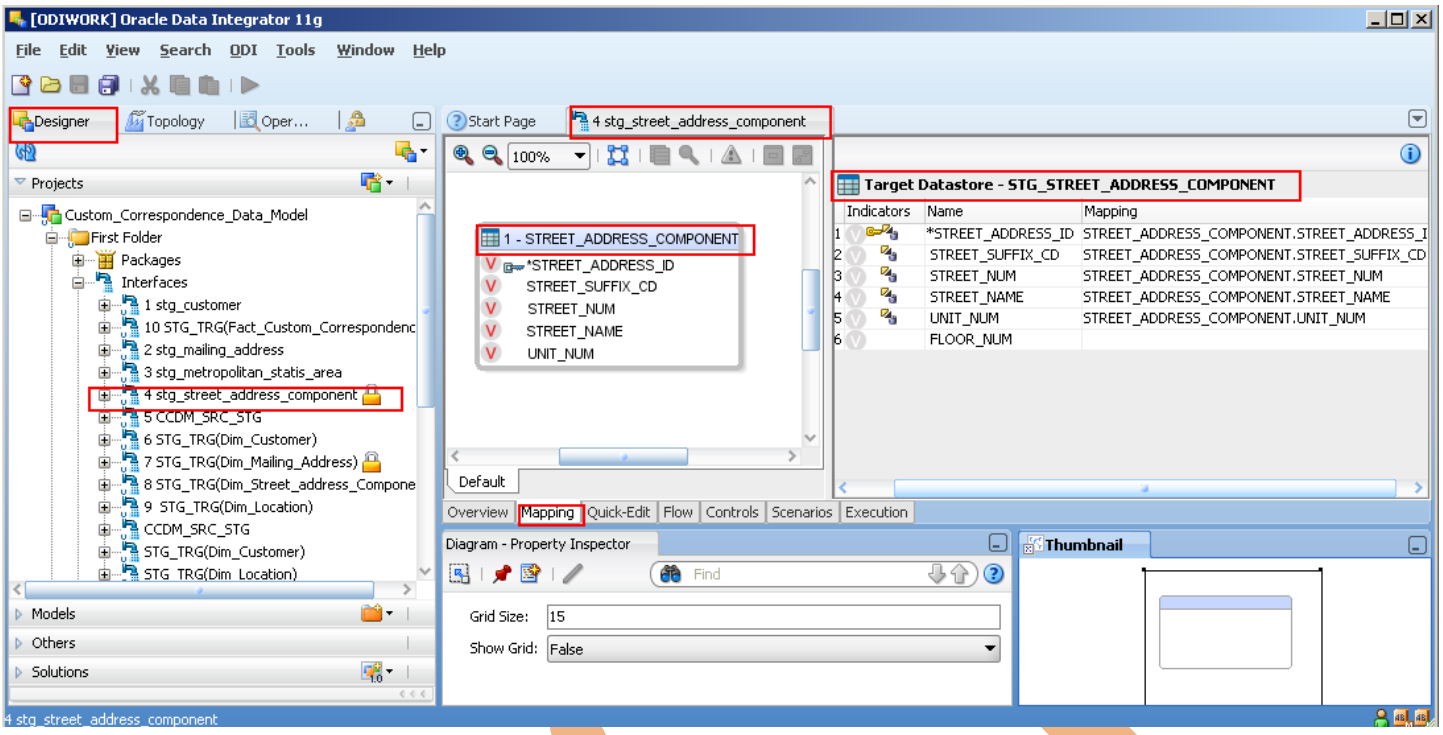


Fig.23: Interface (Source to Staging for Table Street_Address_Component 1:1 Mapping)

5.6) Create Interface for STG_Location: Where source is <source(Table: As shown in diagram →Staging(Table:STG_Location)>

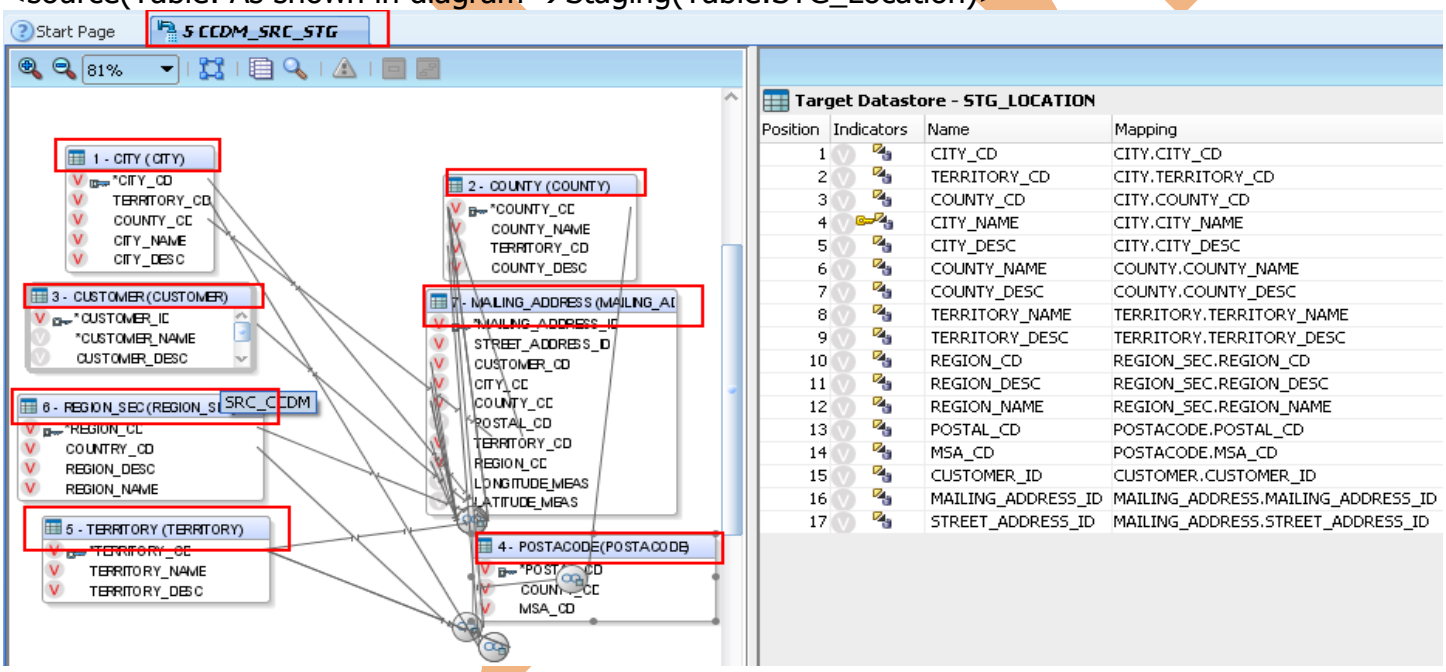


Fig.24: Interface (Source to Staging for Table STG_Location Many to once 7:1 Mapping)

6. Creating Interface for move data from Staging table to Target:-

6.1) Create Interface for Dim_Customer: Where source is <Staging(Table: STG_Customer →Target(Table:TRG_Customer)>

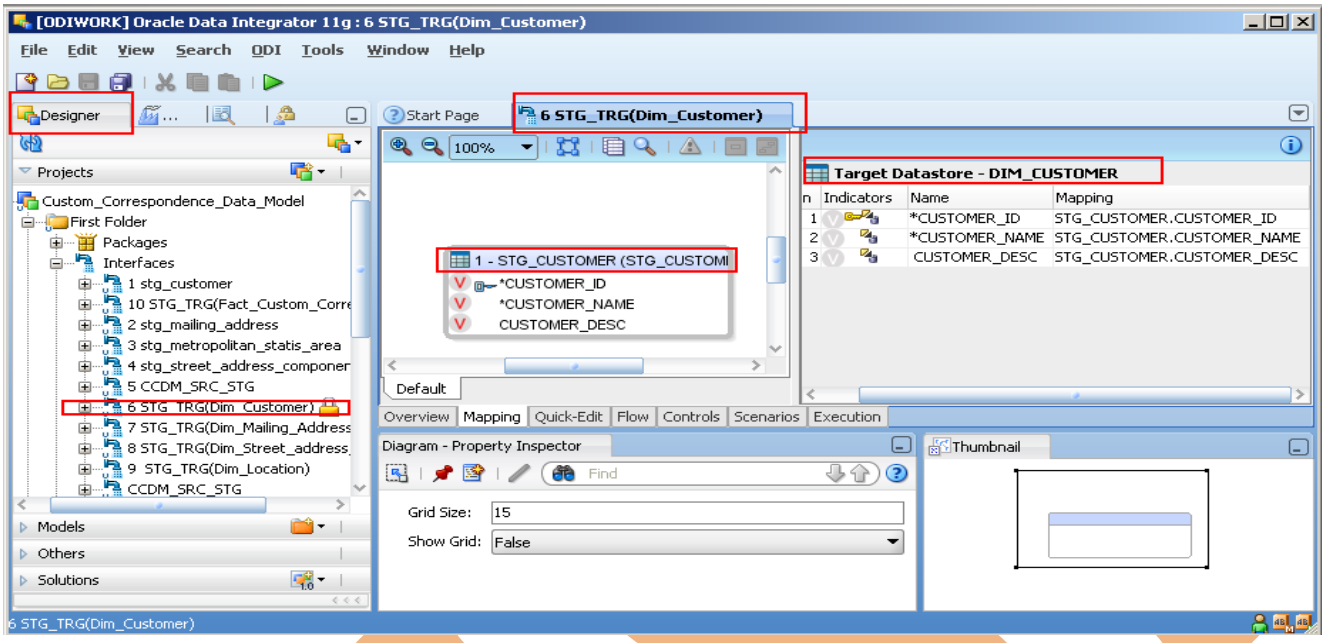


Fig.25: Interface (Staging to Target for Table Dim_Customer 1:1 Mapping)

6.2) Create Interface for Dim_Mailing_Address: Where source is <Staging(Table: STG_Mailing_Address →Target(Table:DIM_Mailing_Address)>

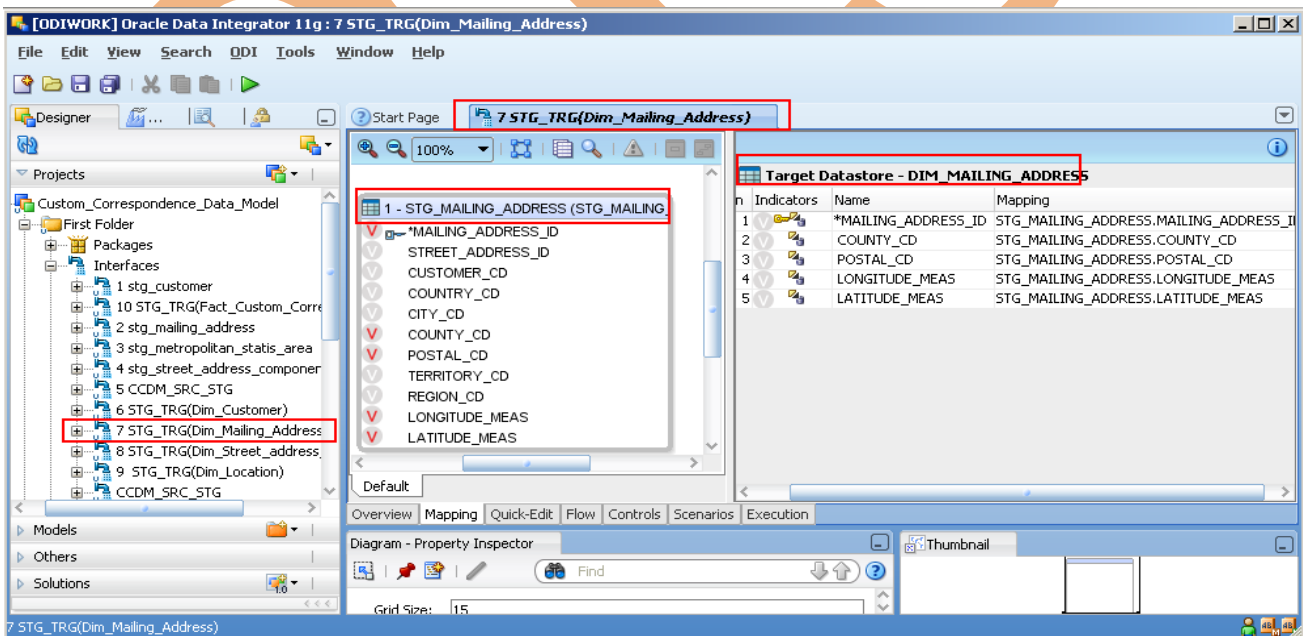


Fig.26: Interface (Staging to Target for Table Dim_Mailing_Address 1:1 Mapping)

6.3) Create Interface for Dim_Street_Address_Component: Where source is

<Staging(Table: STG_Street_Address_Component →Target(Table:DIM_ Street_Address_Component)>

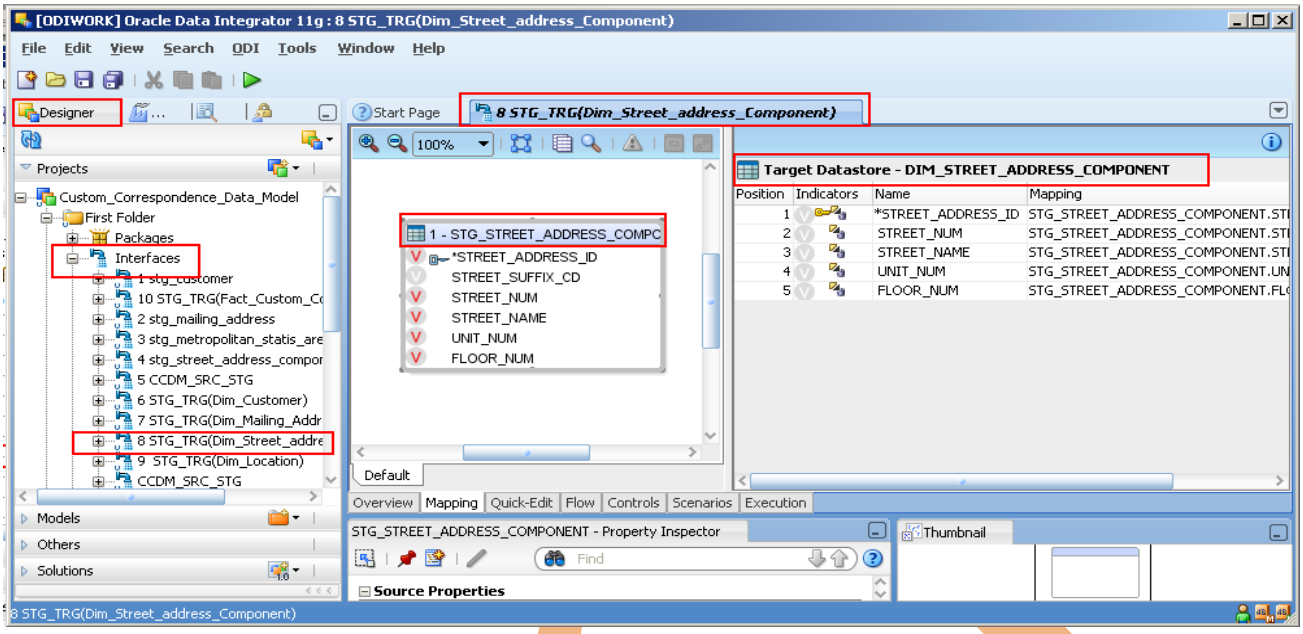


Fig.27: Interface (Staging to Target for Table Dim_Street_Address_Component 1:1 Mapping)

6.4) Create Interface for Dim_Location: Where source is

<Staging(Table: STG_Location →Target(Table:DIM_Location)>

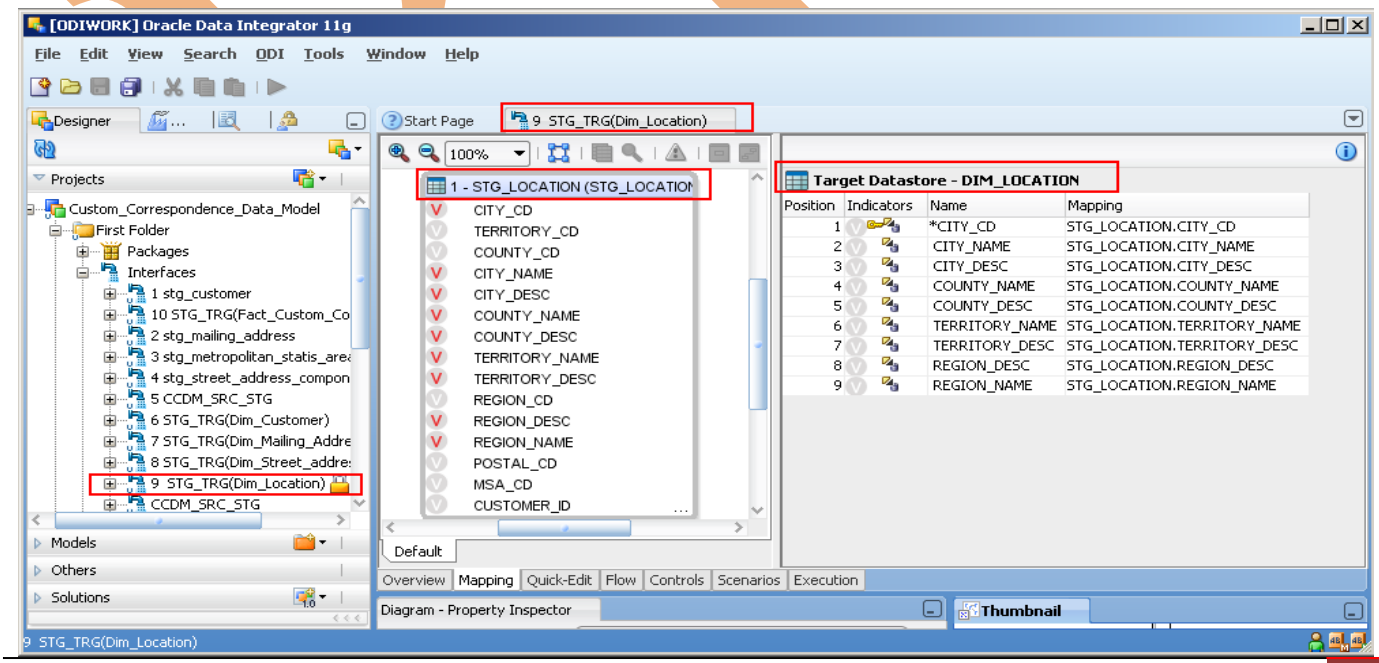


Fig.28: Interface (Staging to Target for Table Dim_Location 1:1 Mapping)

6.5) Create Interface for Fact_Customer_Correspondence: Where source is <Staging(Table: STG_Location & STG_Customer →Target(Table: Fact_Customer_Correspondence)>

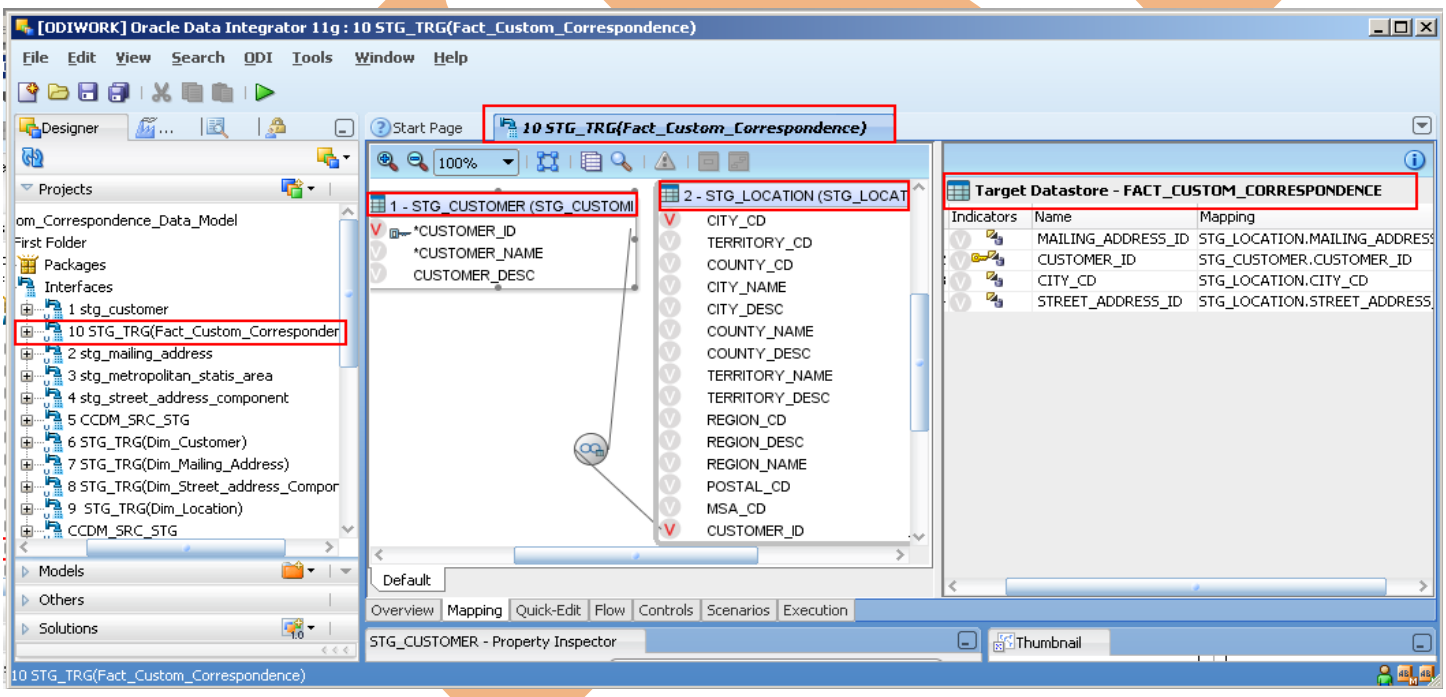
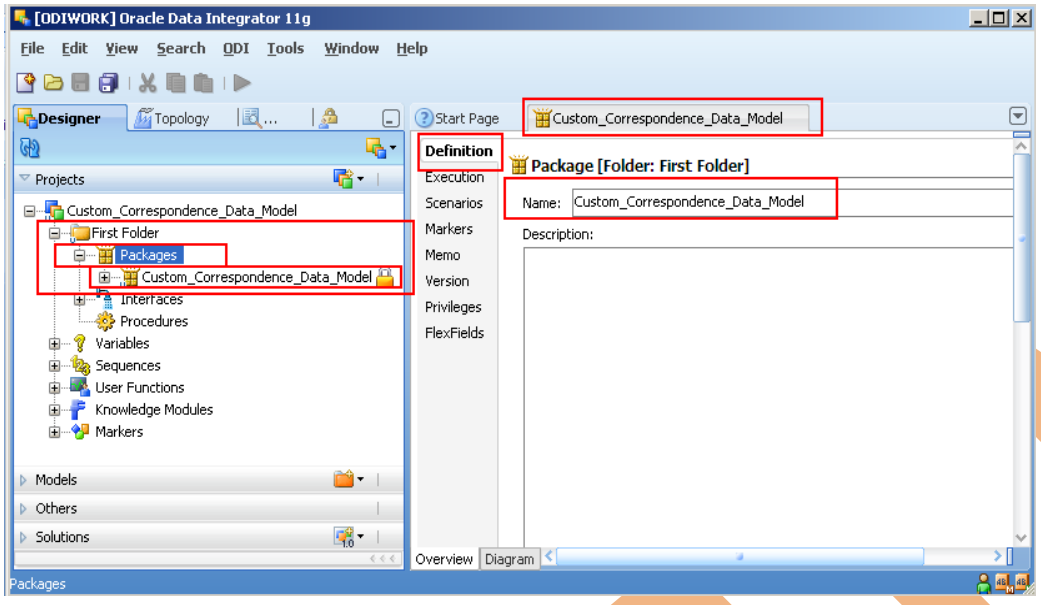


Fig.29: Interface (Staging to Target for Table Fact_Customer_Correspondence **2:1 Mapping)**

7. Creating Package to make system automatic execution:-

7.1) Create Package for operation Customer_Correspondence_Data_Model:



Creating Package

1.Right Click on Package & select create new package

2.Enter name , then go to diagram part of package(top down you can see diagram tab),

3.Drag & drop interfaces step by step and arrange with correct sequence according to need as shown in below diagram.

Fig.30: Creating Package

7.2) Package :

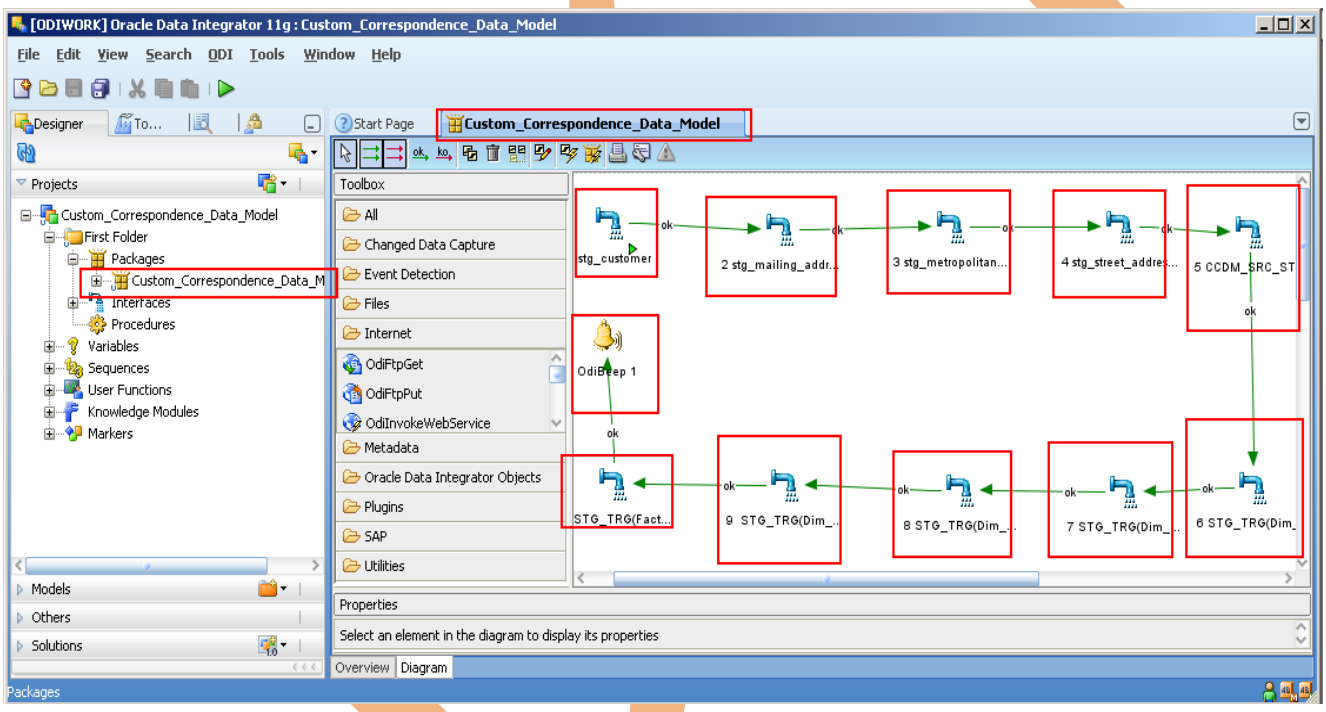


Fig.31 : Package (Diagram) Contains all interfaces with sequence of execution

7.3) Generating Scenario:

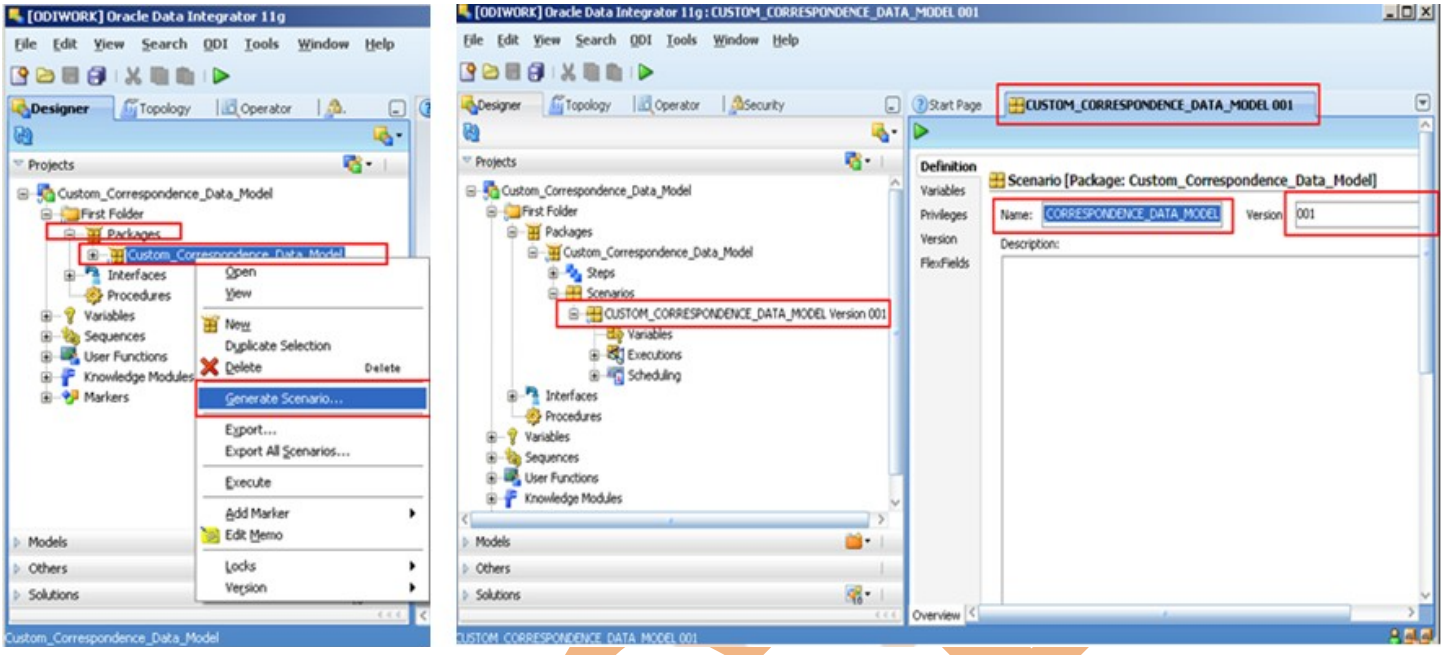


Fig.32 :Generating Scenario

7.4) Apply Scheduling for timely automatic operation :

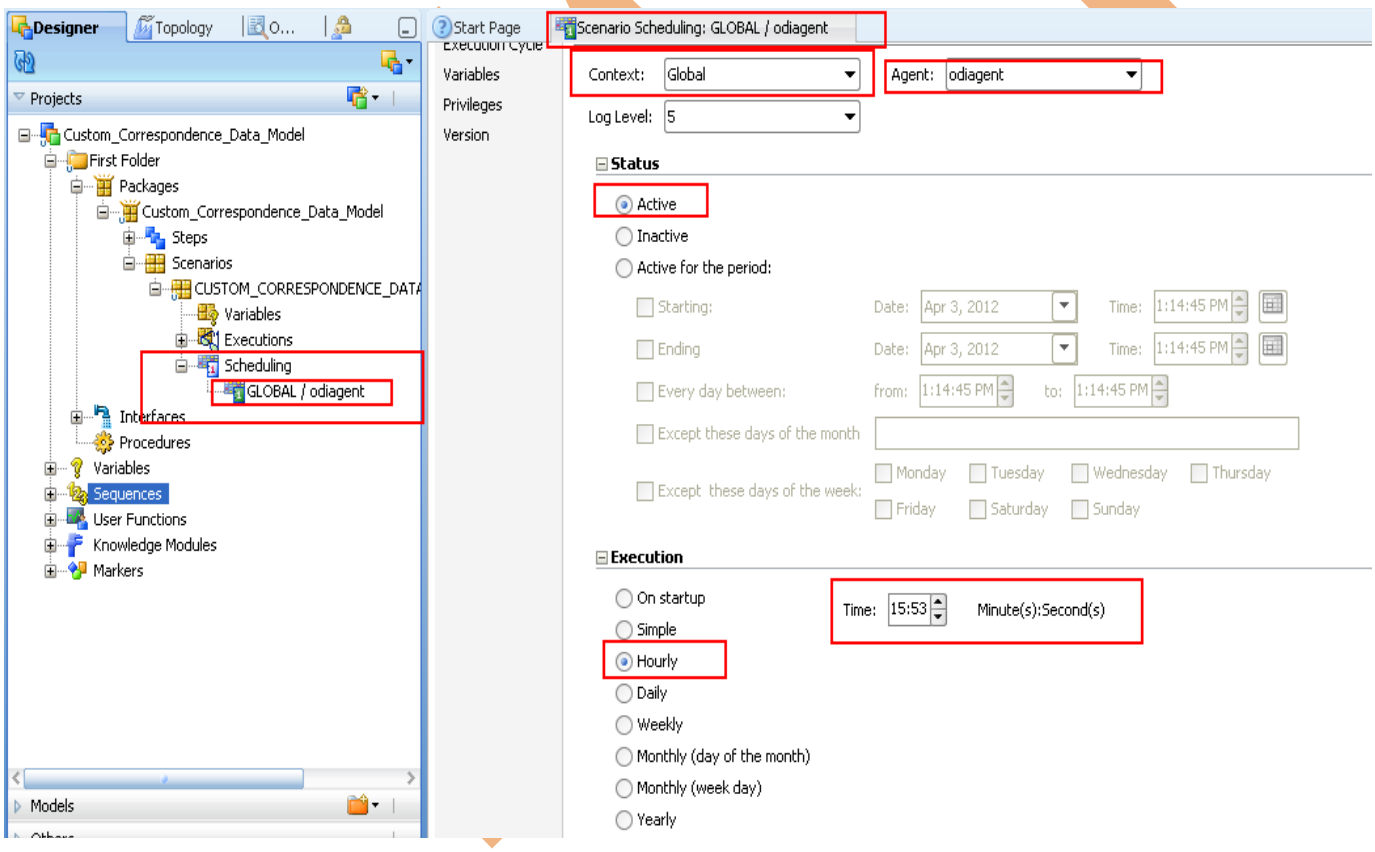
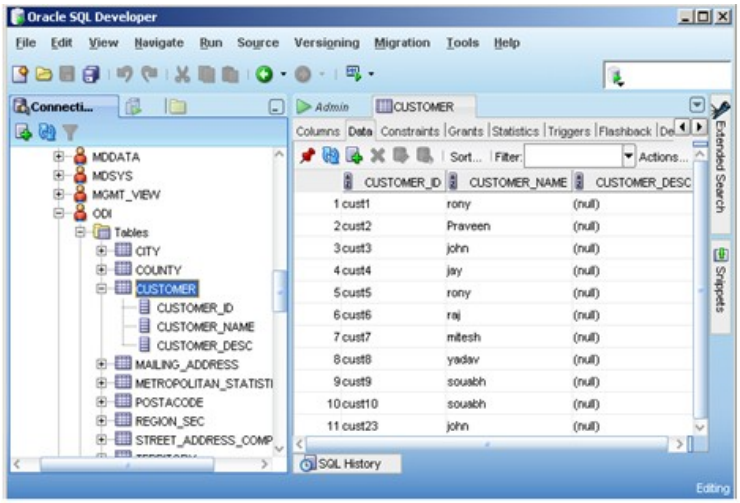


Fig.33: Apply scheduling and setting up timings ,agent etc..

7.5) Tables before Execution (Data):-

(i)Source:-



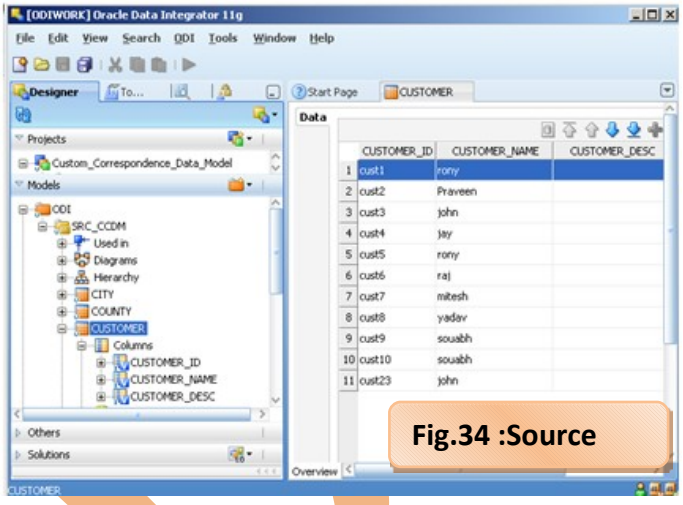
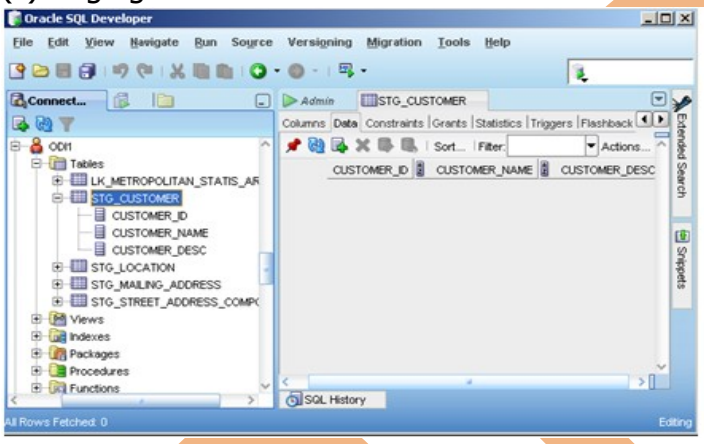


Fig.34 :Source

(ii)Staging:-



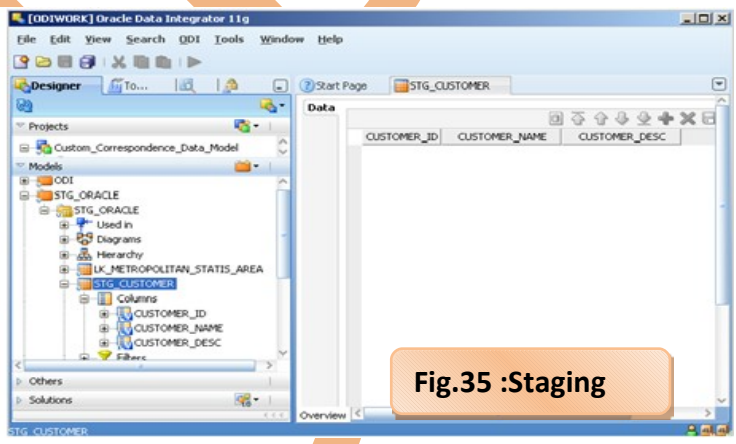
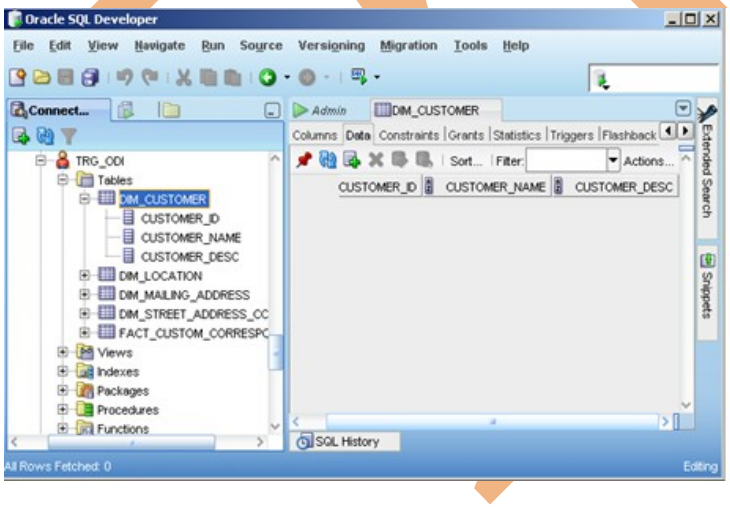


Fig.35 :Staging

(iii)Target:-



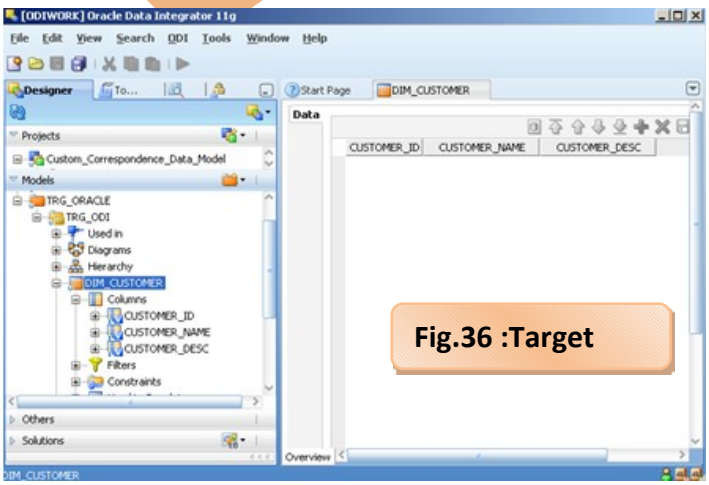


Fig.36 :Target

7.6) Execute Successfully:-

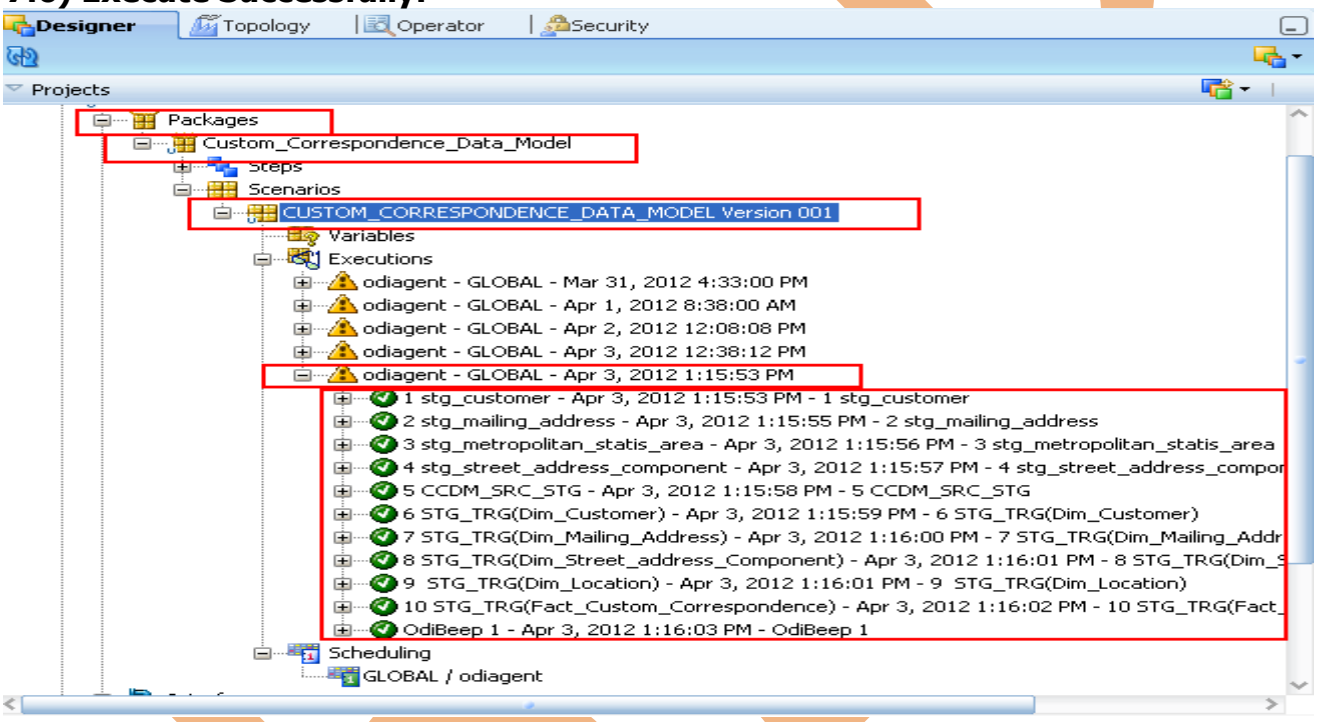


Fig.37 : Execution of scheduling & watch execution results

7.7)Execution Result for Table (Customer): Here I have shown result of 1 execution but you can see complete result of execution and know data movement and steps.

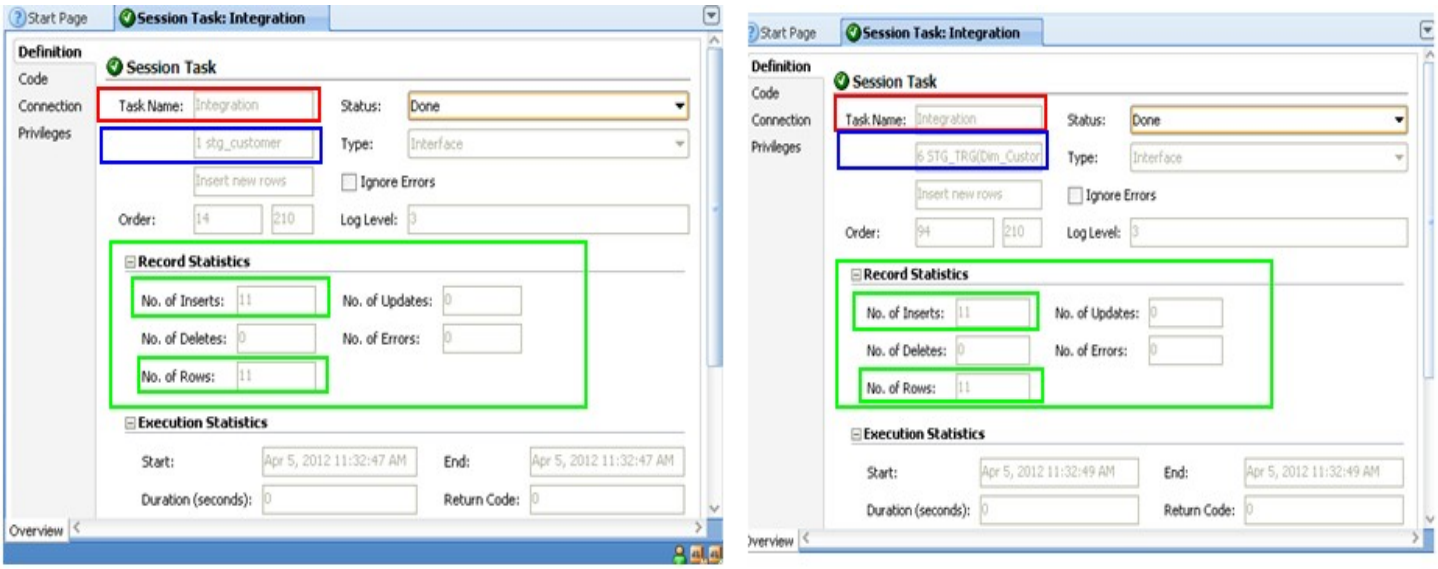


Fig.38 : Steps of Execution of Interface for table Customer

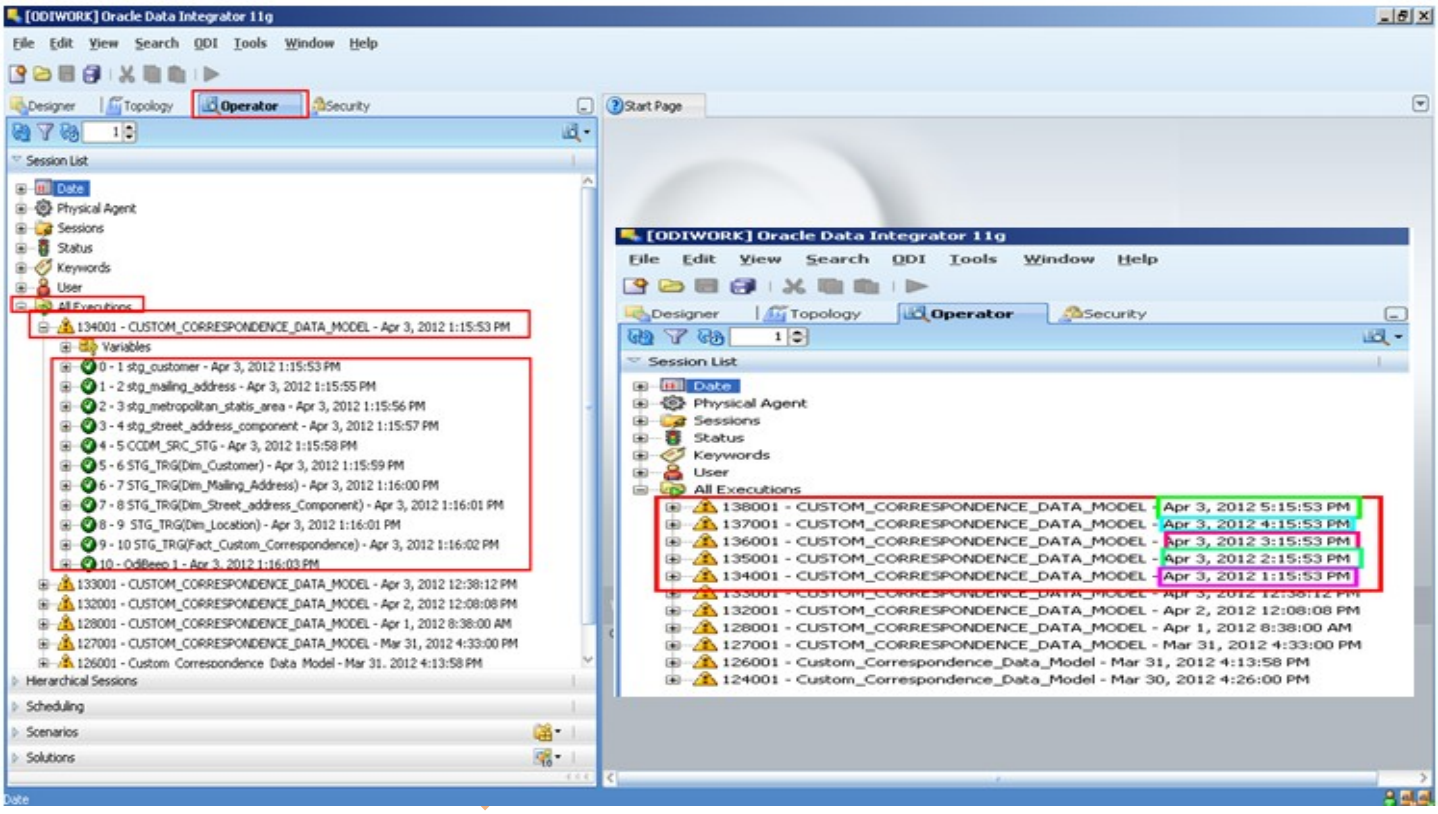


Fig.39: Steps of Execution of Interface for table Customer

7.8) Data Flow from Source → Staging →Target :-

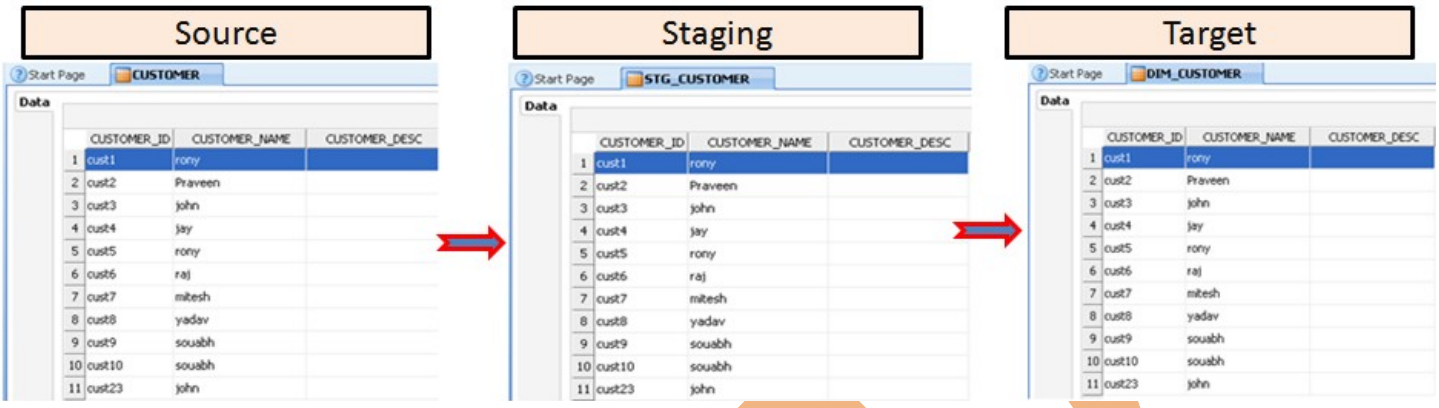


Fig.40: Data Movement from Source→Staging→Target

BISP