TIBCO Omni-Gen®

MDM - Basic Edition
User's Guide

Version 3.16.0
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Contents

Chapter 1

Introducing TIBCO Omni-Gen® MDM - Basic Edition

This section provides an overview of TIBCO Omni-Gen® and introduces TIBCO Omni-Gen® MDM - Basic Edition..

Note: As of Version 3.16, Omni-Gen™ for Customer has been renamed to TIBCO Omni-Gen® MDM - Basic Edition.

In this chapter:

What is Omni-Gen?

Omni-Gen is an enterprise solution that accelerates the deployment of complete master data management (MDM), data quality (DQ), and data integration applications. It can be thought of as master data or data quality in a box, and allows for traditional integration and big data integration.

Omni-Gen automates best practices associated with multi-domain MDM implementations. These processes involve data integration, cleansing, and mastering, and are usually implemented manually, with months spent on specification, design, coding, and testing.

Omni-Gen, by contrast, enables organizations to rapidly develop the models and golden records they require for a result, and then automatically generates the processes needed to complete the job. By default, Omni-Gen provides change history and cross-domain references management. This ensures a better and more comprehensive result on the very first cut of a project.

Key features and components that are provided by Omni-Gen include:

- Omni Designer provides a visual (business-centric) model-driven and agile-enabled environment for the definition of multiple interrelated MDM domains (for example, golden records), along with reference data and rules for cleansing, validating, and mastering records.
- Omni Governance Console (OGC) allows business users to view, monitor, compare, and report on mission-critical data; identify and rectify faulty information; and create a complete, historical web-based view of mastered golden records.

- Data Quality Workbench allows you to analyze data and create rules for data standardization and enrichment without any previous knowledge of DQ products. You can access Data Quality Workbench through the OGC.
- Data Quality Monitor provides information about the data quality of records in your system and its impact on business. This information can be used for further analysis and provides a basis for business decisions. You can access Data Quality Monitor through the OGC.
- Omni-Gen Server maintains auditable history, reconciliation of master data references, remediation processing, enhanced application logging, and more.

Omni-Gen is available in the following editions:

- Data Quality Edition, which includes data profiling and integration projects, and adds technology for data cleansing and remediation.
- Master Data Management Edition, which includes everything in the Data Quality Edition and adds technology, such as automated match/merge, for data mastering.

Omni-Gen MDM - Basic Edition

Omni-Gen MDM - Basic Edition is a prepackaged solution for mastering the Customer domain. It provides all of the required components including a predefined model, DQ rules, and OGC perspectives. This all-in-one prepackaged mastering solution can also be extended to meet specific client requirements and demands.

Chapter 2

Installing Omni-Gen MDM - Basic Edition

This section describes how to install Omni-Gen MDM - Basic Edition.

In this chapter:

Omni-Gen MDM - Basic Edition Components Configuration Overview

Omni-Gen MDM - Basic Edition can be installed on Windows (64-bit) platforms.

The Omni-Gen installer is developed using InstallAnywhere and follows common installer models.

First, installation information is collected from the user through a series of prompts. Then, an image is installed to the file system specified by the user, and finally, the contents of the image are configured based on the collected information.

Omni-Gen Installation Prerequisites

Before Omni-Gen MDM - Basic Edition, which includes Omni-Gen Server (OGS) and the Omni Governance Console (OGC), are installed, ensure that the following prerequisites are configured on your environment:

1. One or two empty database schemas must be built and ready for use.

   Note: The creation of the database is generally the responsibility of a database administrator.

   - A database administrator's user name and password for the database(s) must also be available.

     Omni-Gen uses the following logical sets of tables to perform MDM and OGC functions:

     - **Mastering (Database) Tables.** This is automatically created in the same database, specified in the prompts for the Remediation Database of the OmniGen Installer.
     - **Remediation Tables.** This is automatically created in the same database, specified in the prompts for the Remediation Database of the OmniGen Installer.

- ❑ **Data Quality Repository Tables (commonly referred to as the "repo" database).** This is created in the location specified in the prompts for the Data Quality (DQ) Database of the OmniGen Installer. When configuring the two (Remediation and DQ) database locations, you can configure two separate locations for Remediation and DQ, or you can configure one location for all the tables. The example in this document uses two different database names, one for Remediation tables and the other for DQ tables.

2. Java Development Kit (JDK) Version 1.8.121 or higher.

   Note: Omni-Gen Server (OGS) and Omni Governance Console (OGC) requires Java Development Kit (JDK) version 8.

   a. Verify that the JAVA HOME environment variable is defined properly.

   b. Verify that %JAVA HOME%\bin is the first element in your PATH.

3. Acquire the required DBMS specific JDBC .jar files for use by OGC and ensure these files are available on the machine where OGC will be installed.

   - ❑ **DB2**: db2jcc4.jar, db2jcc_license_cu.jar
   - ❑ **Oracle**: ojdbc7.jar
   - ❑ **Postgres**: postgresql-9.3-1102.jdbc4.jar
   - ❑ **SQL Server (Microsoft)**: sqljdbc42.jar
   - ❑ **SQL Server (Open Source)**: jtds-1.3.1.jar

4. Ensure that the database server is configured to allow TCP connections and that the TCP ports are active.

5. Ensure that you have the proper administrative rights to modify the Java CA certificate (cacerts) store and add files to the following directory:

   ```
   JAVA_HOME/jre/lib/security
   ```

   Modifying *cacerts* is required for interacting with the WSO2 Identity Server (WSO2 IS).

6. Source Management (Software Versioning and Revision Control System)

   A source management system, such as Apache Subversion (SVN) or Git must be installed on a local or remote system. The Data Quality Server (DQS) design-time environment must be updated with the proper plug-in to source manage the DQS-related components in the configured source management system. You can obtain the required plug-in for the Eclipse-based environment from the source management system provider or a third-party.

7. GBG Loqate Address Verification

   Loqate is used to facilitate address cleansing operations and must be installed on the system where Omni-Gen MDM - Basic Edition is running.

   The recommended installation location (destination folder) is `C:\loqate`, which matches the default location that is specified in the Data Quality (DQ) cleansing plans that are prepackaged with Omni-Gen MDM - Basic Edition. If you choose a different installation location, then you will have to manually update the Loqate step in each DQ cleansing plan with your specific path.

   For more information on downloading Loqate and obtaining a required license, contact Customer Support.

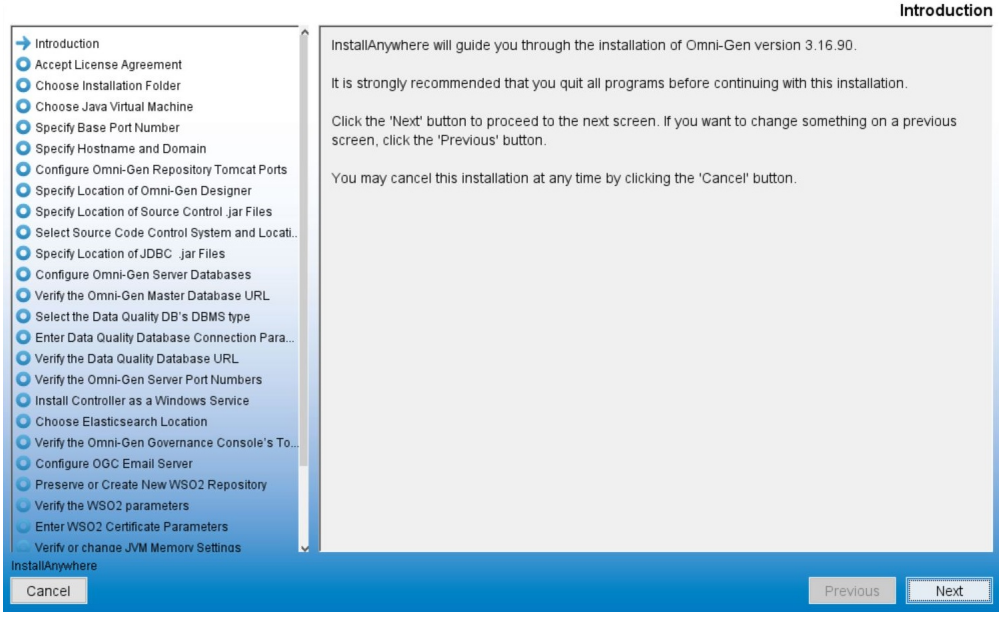
Install Omni-Gen Server and Omni Governance Console on Windows

This procedure assumes that a database server (for example, an MS SQL Server), a Repository Server (for example, SVN), and Data Quality Suite (DQS), are already installed.

1. Verify that the JAVA HOME environment variable (for Java Development Kit version 8) is defined properly and that %JAVA HOME%\bin is the first element in your PATH.
2. Download the installer (*omnigen-installer-3.16.*-Windows-CUSTOMER.exe*).
3. In the File Explorer, right-click the downloaded *omnigen-installer-3.16.*-Windows-CUSTOMER.exe* file and select *Run as administrator*.

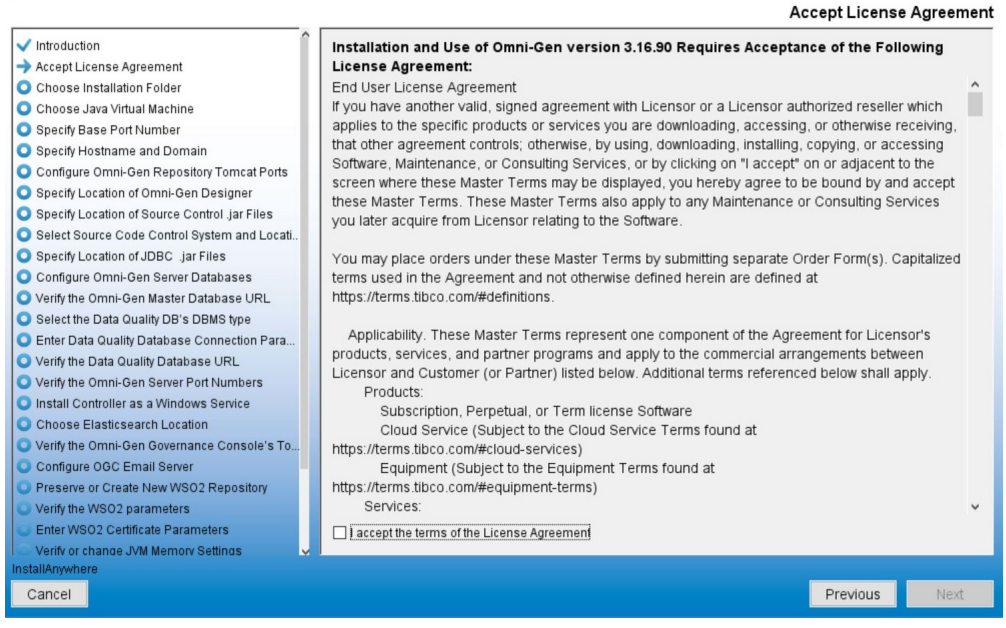
   The InstallAnywhere window appears.

When the install is ready to begin, the Introduction window opens, as shown in the following image.



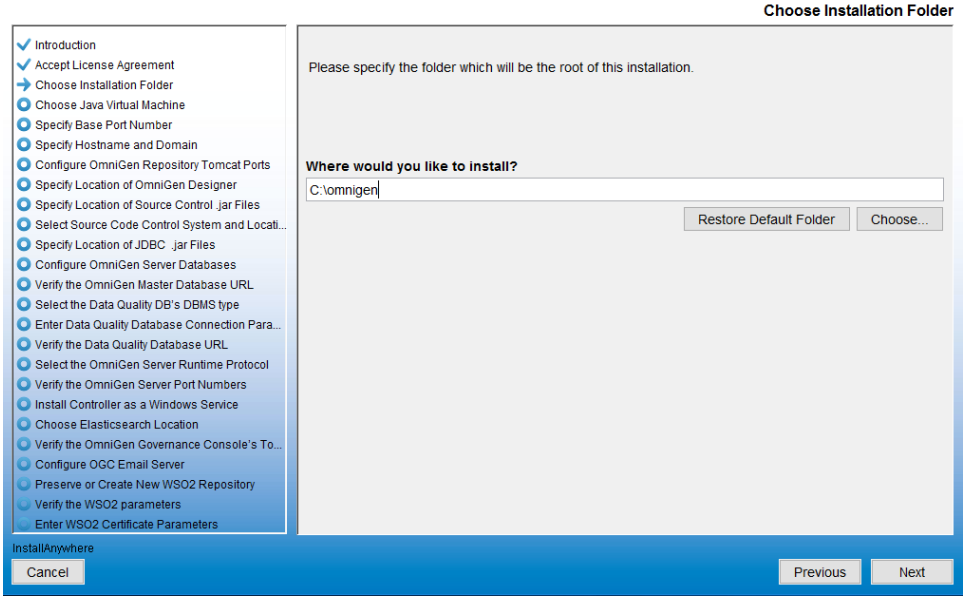
4. Click *Next*.

The Accept License Agreement dialog box opens, as shown in the following image.



5. Read the License Agreement, select the *I accept the terms of the License Agreement* check box, and then click *Next*.

The Choose Installation Folder dialog box opens, as shown in the following image.



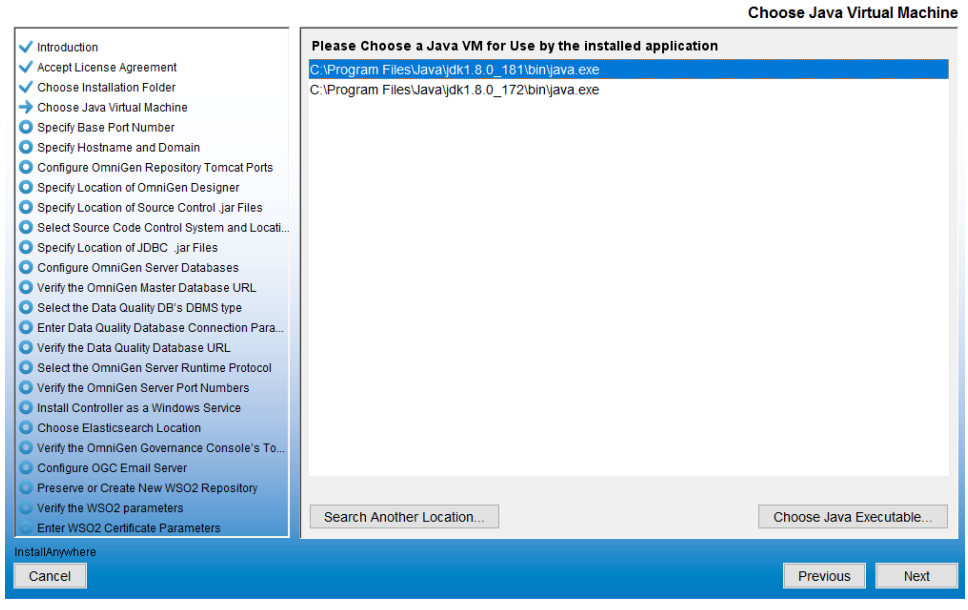
6. In the *Where would you like to install* field, type the location where you wish to install all of the required files for Omni-Gen.

   The installer will create a file tree named *OmniGen* in the location you have specified. For example, if you accept the default location as C:\, then the installer will install Omni-Gen to:

   ```
   C:\OmniGen
   ```

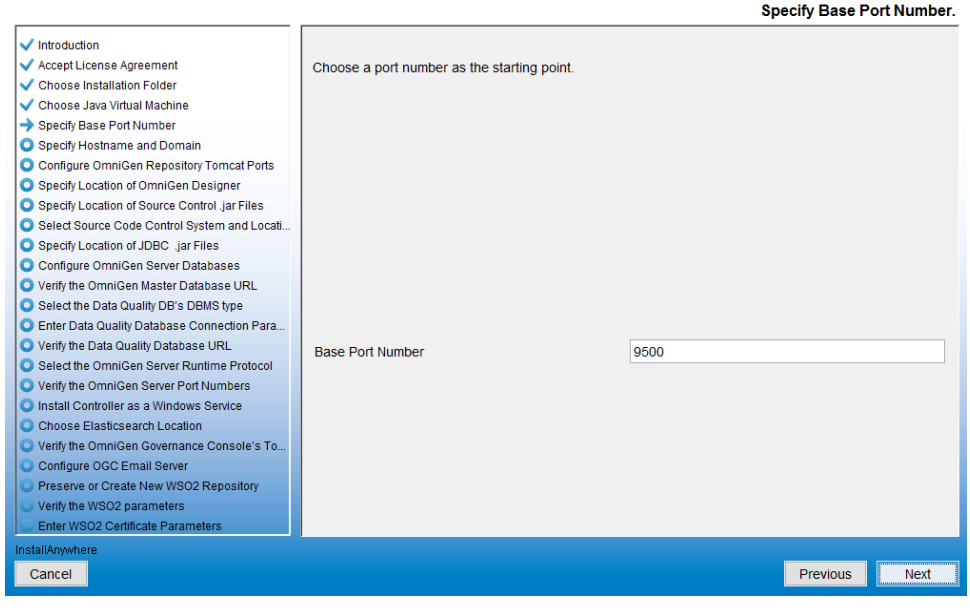
7. Click *Next*.

The Choose Java Virtual Machine dialog box opens, as shown in the following image.



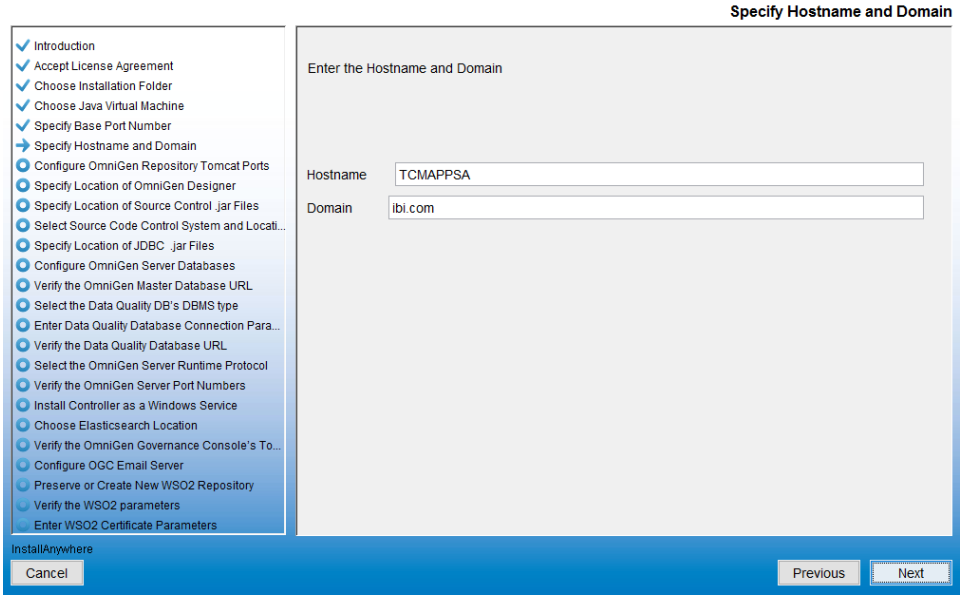
8. Ensure that the Java version located is version 1.8 or higher, and then click *Next*.

   The Specify Base Port Number dialog box opens, as shown in the following image.



9. Specifying a base port number automatically assigns a set of port numbers for use by Omni-Gen components, and is used when installing more than one instance of Omni-Gen on a single machine. If you are installing a second instance of Omni-Gen, or need to configure different ports to avoid conflicts with systems already deployed on your Omni-Gen host, then see your system administrator. Otherwise, click *Next* to continue.

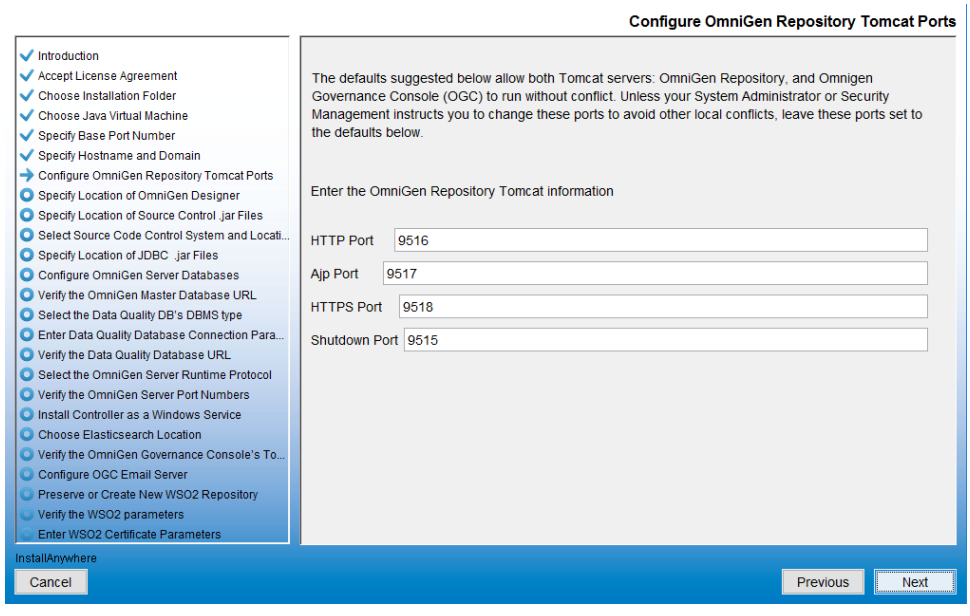
   The Specify Hostname and Domain dialog box opens, as shown in the following image.



   The default host name is the machine on which you are currently installing.

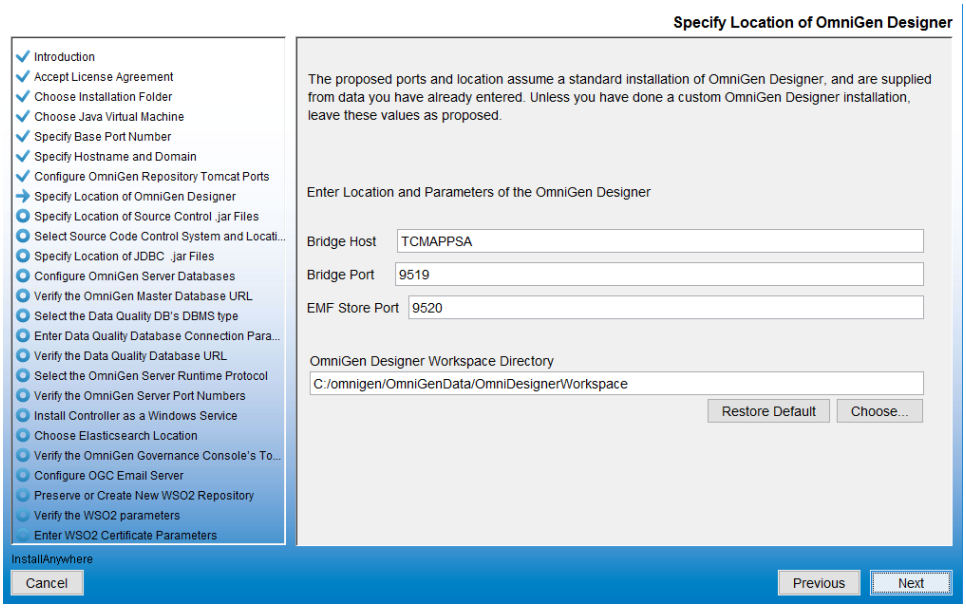
10. In the Domain field, type the host domain, and then click *Next*.

The Configure OmniGen Repository Tomcat Ports dialog box opens, as shown in the following image.



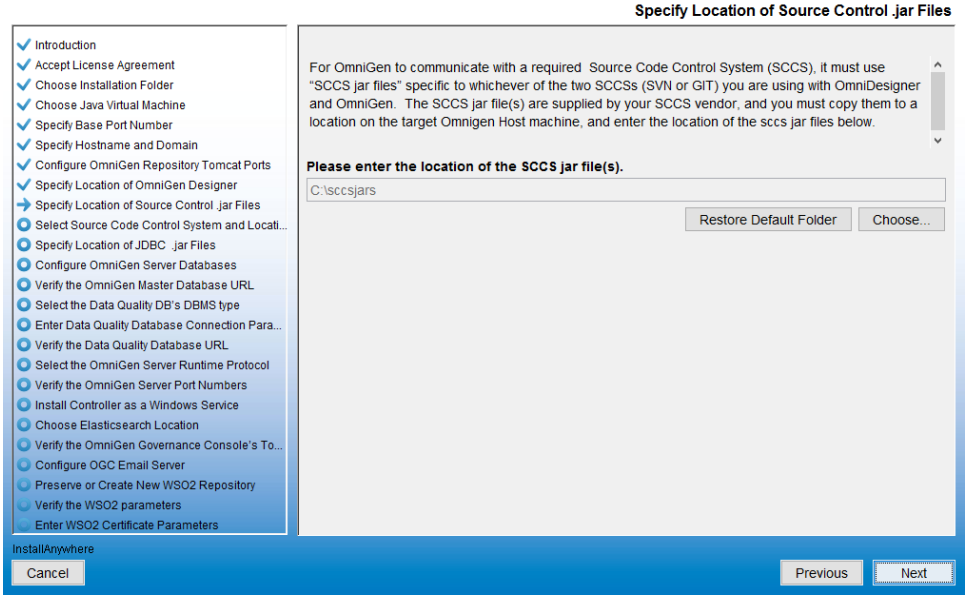
11. Verify the ports that are indicated by default and modify accordingly, if required.
12. Click *Next*.

The Specify Location of OmniGen Designer dialog box opens, which prompts for the parameters that define the location of Omni Designer, as shown in the following image.



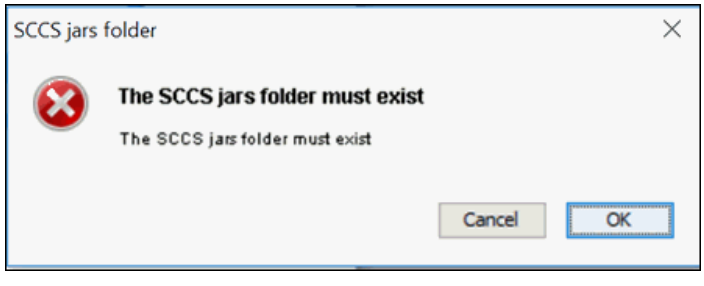
13. Accept the default parameters, and then click *Next*.

The Specify Location of Source Control .jar Files dialog box opens, which prompts you to select a folder containing the Source Code Control System (SCCS) .jar files, as shown in the following image.



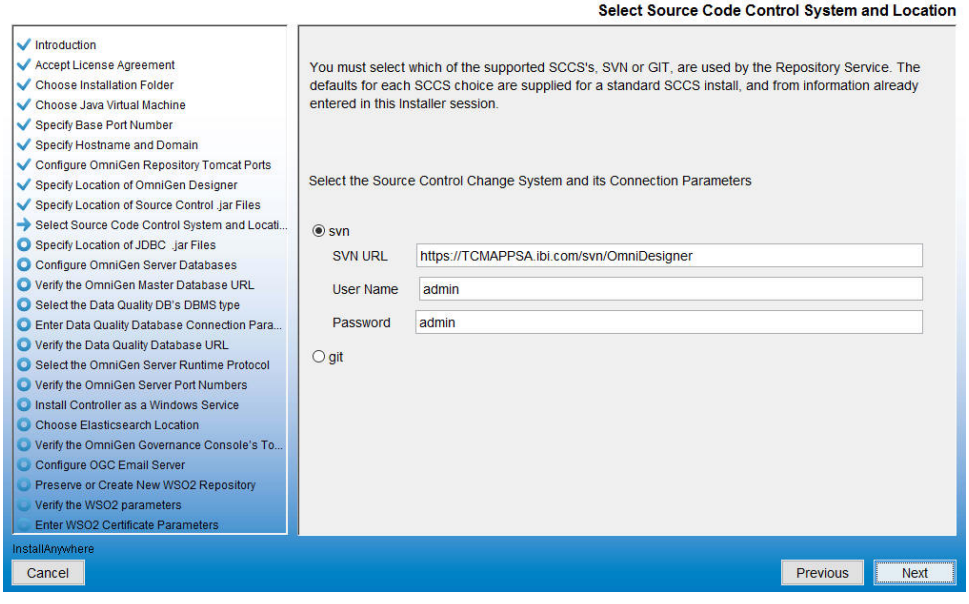
14. Change the location of the SCCS .jar files, if necessary, and then click *Next*.

    If you have not created a folder for the SCCS .jar files, then the following message displays:



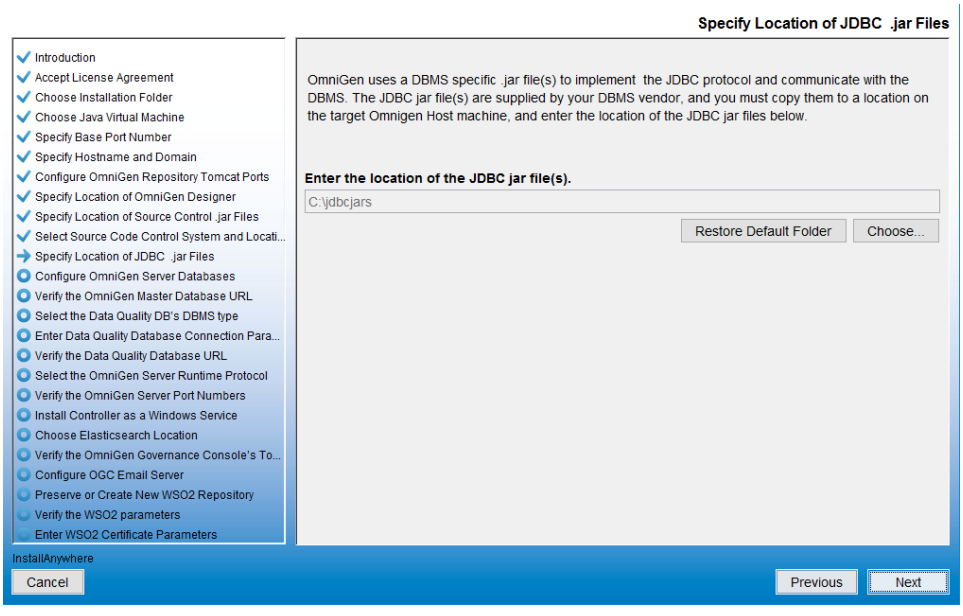
    If you receive this message, click *Cancel* and then create a new folder. Place the SCCS .jar files in that folder and click *Choose* in the Specify Location of Source Control .jar Files pane to navigate and select that new folder.

The Select Source Code Control System and Location dialog box opens, as shown in the following image.



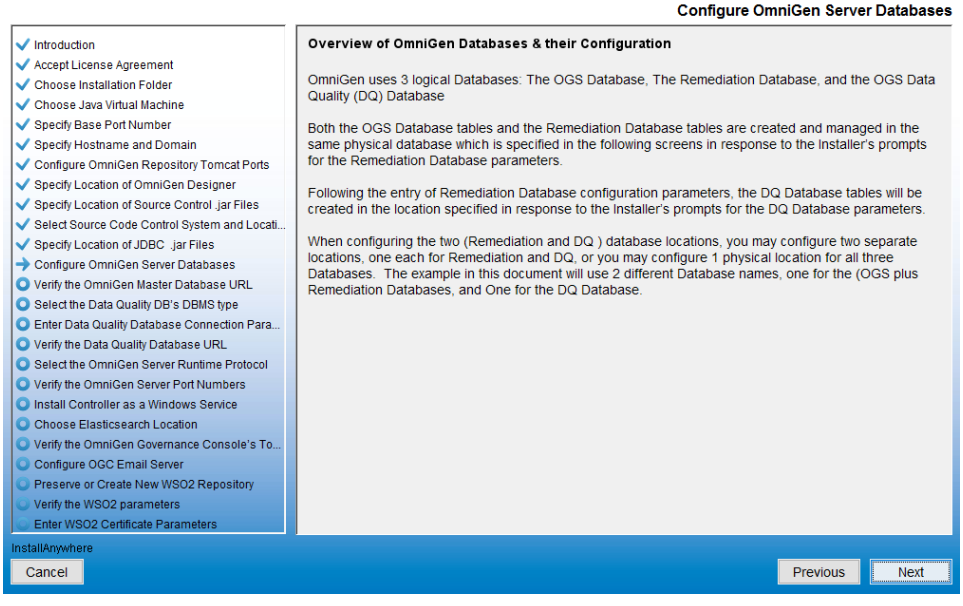
15. Define the location and credentials for your source control repository by selecting either *svn* or *git*.
16. Click *Next*.

The Specify Location of JDBC .jar Files dialog box opens, as shown in the following image.



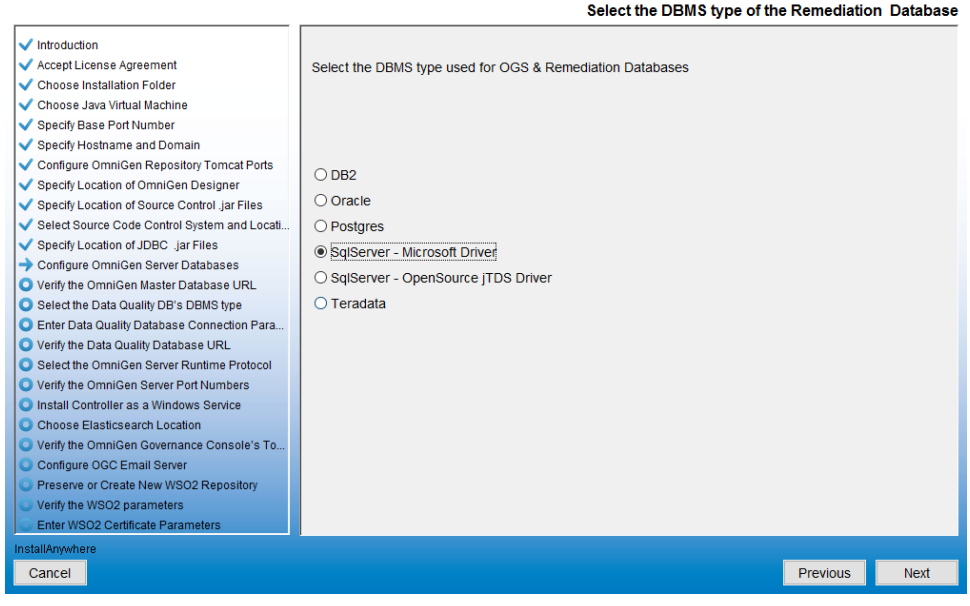
17. Specify the location of your JDBC .jar files, and then click *Next*.

The Configure OmniGen Server Databases dialog box opens, which provides an overview regarding Omni-Gen databases and configuration parameters, as shown in the following image.



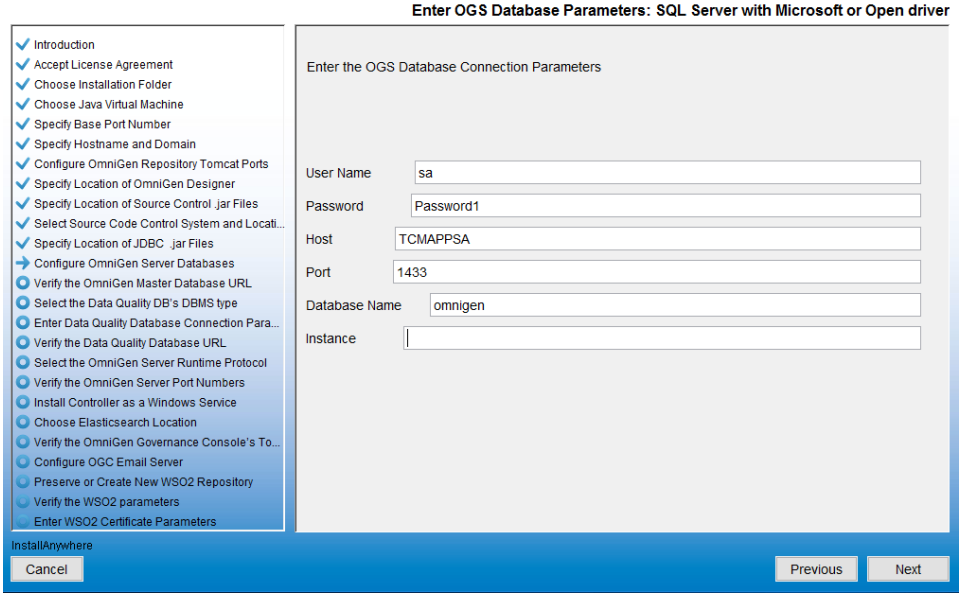
18. Review this information, and then click *Next*.

The Select the DBMS type of the Remediation Database dialog box opens, as shown in the following image.



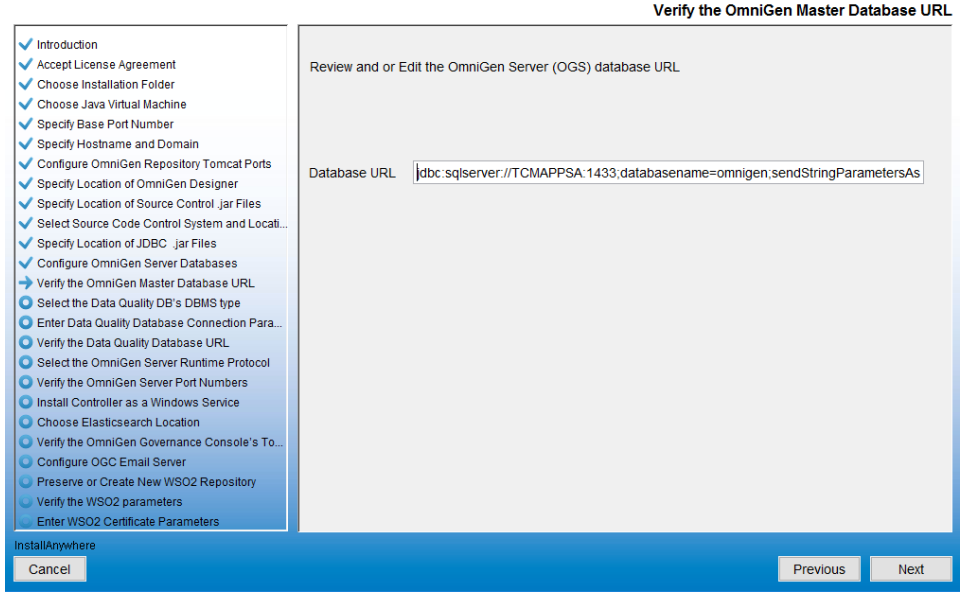
19. Specify the database that you want to use for Omni-Gen Server (OGS) and the Remediation database.
20. Click *Next*.

The Enter OGS Database Parameters: SQL Server with Microsoft or Open driver dialog box opens, as shown in the following image.



21. Specify the DBMS-specific parameters for the combined OGS and Remediation database, and then click *Next*.

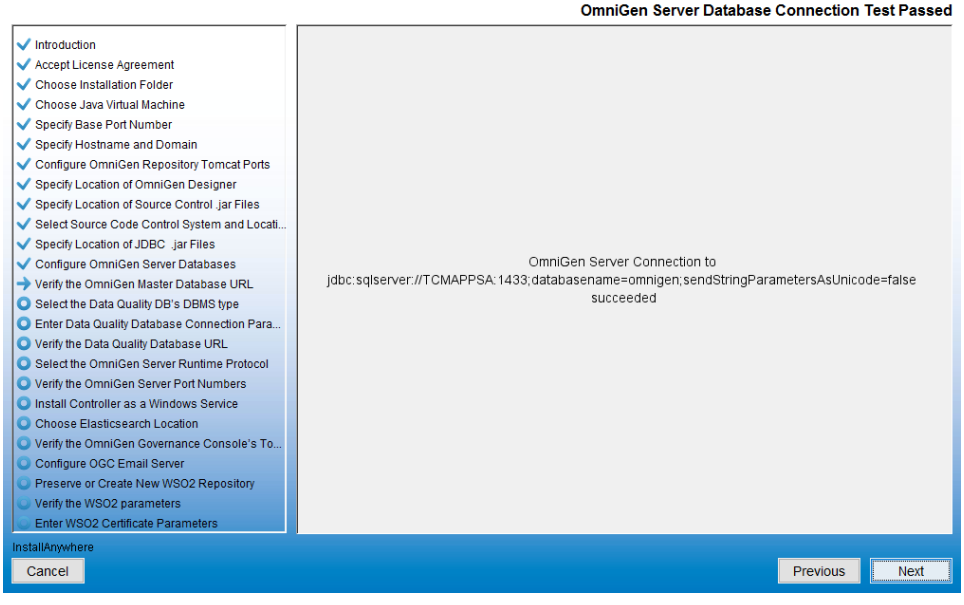
The Verify the OmniGen Master Database URL dialog box opens, as shown in the following image.



22. Verify the database URL and click *Next*.

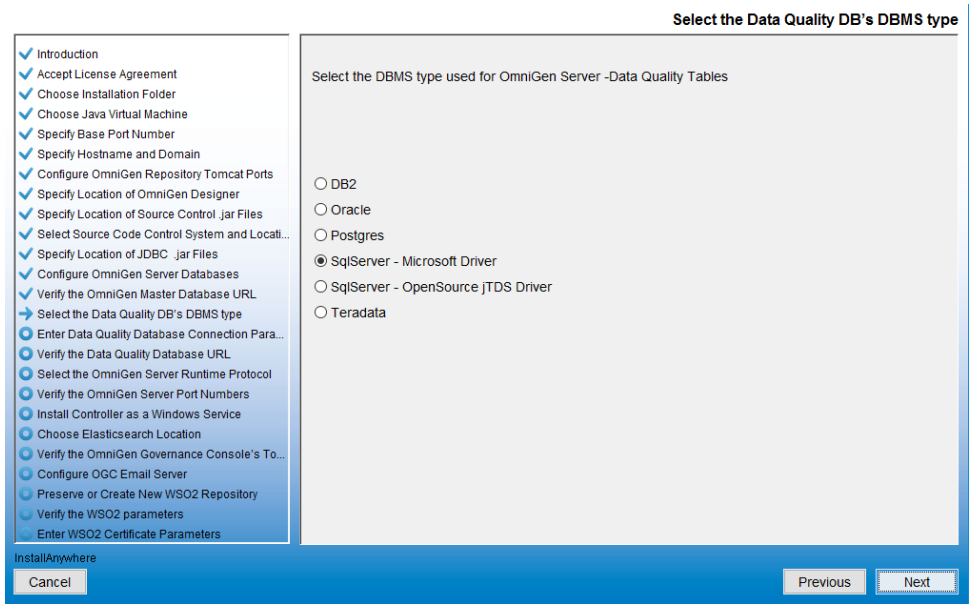
    If you receive a message indicating that your connection test failed, verify that your database name exists in SQL (or the DBMS you are using).

When your database exists and the user name, password, and host are correct, the following message appears, indicating that your connection test passed for the specified database.



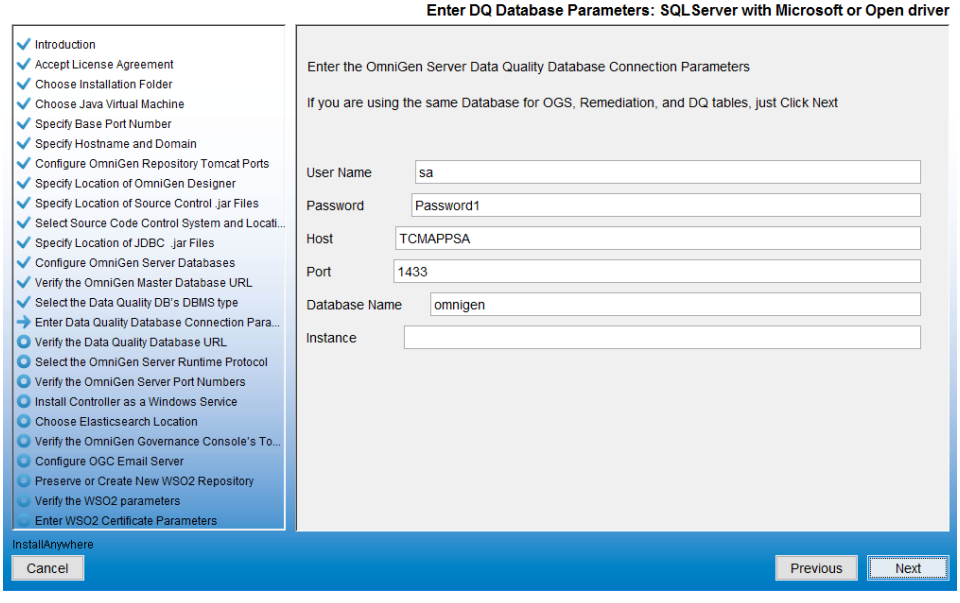
23. Click *Next* to continue.

The Select the Data Quality DB's DBMS type dialog box opens, as shown in the following image.



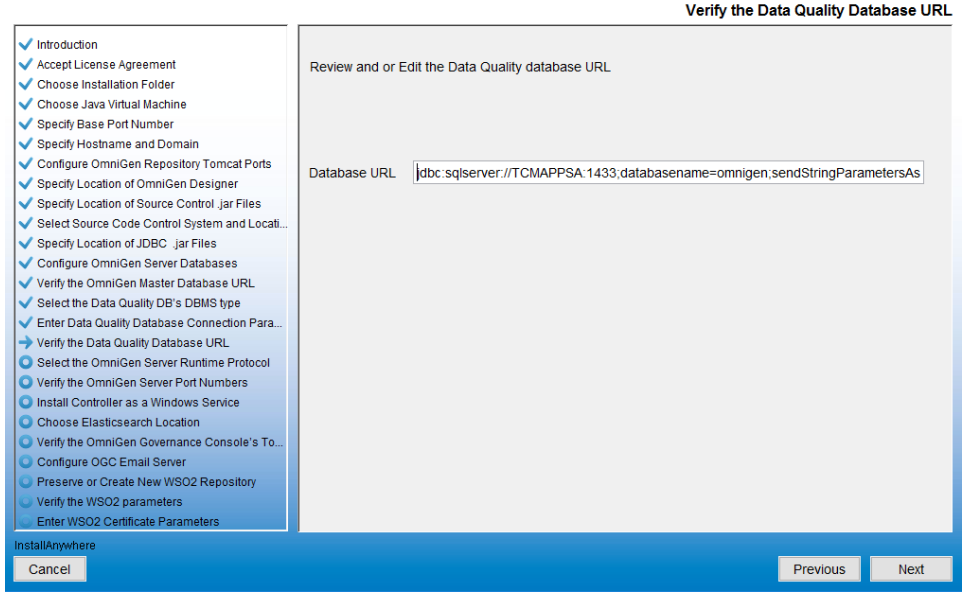
24. Select the DBMS type used for the Data Quality (DQ) database, and then click *Next*.

The Enter DQ Database Parameters: SQL Server with Microsoft or Open driver dialog box opens, as shown in the following image.



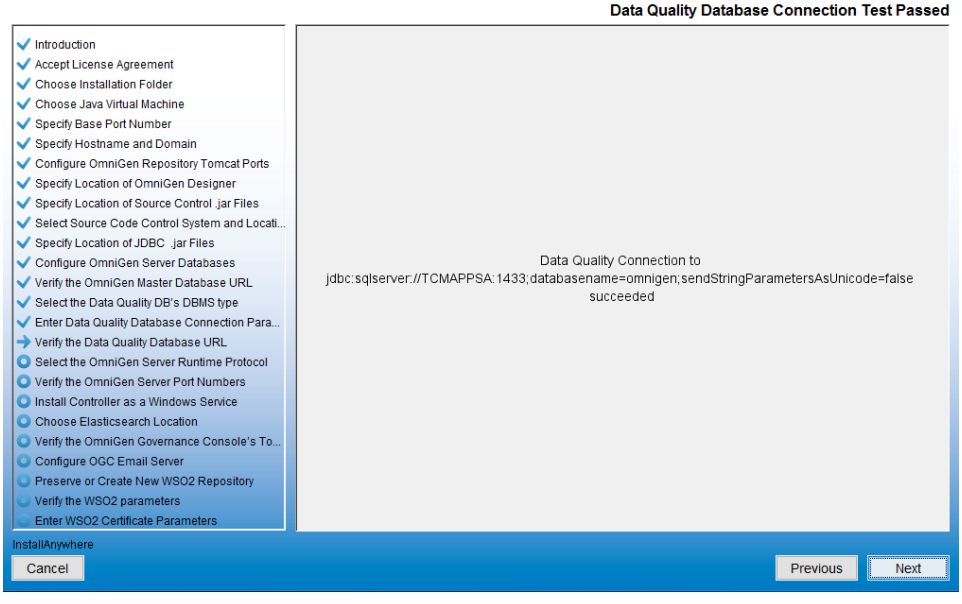
25. If you are using the same database for OGS, click *Next*, or type new parameters for the DQ database, and then click *Next*.

The Verify the Data Quality Database URL dialog box opens, as shown in the following image.



26. Verify the database URL, and then click *Next*.

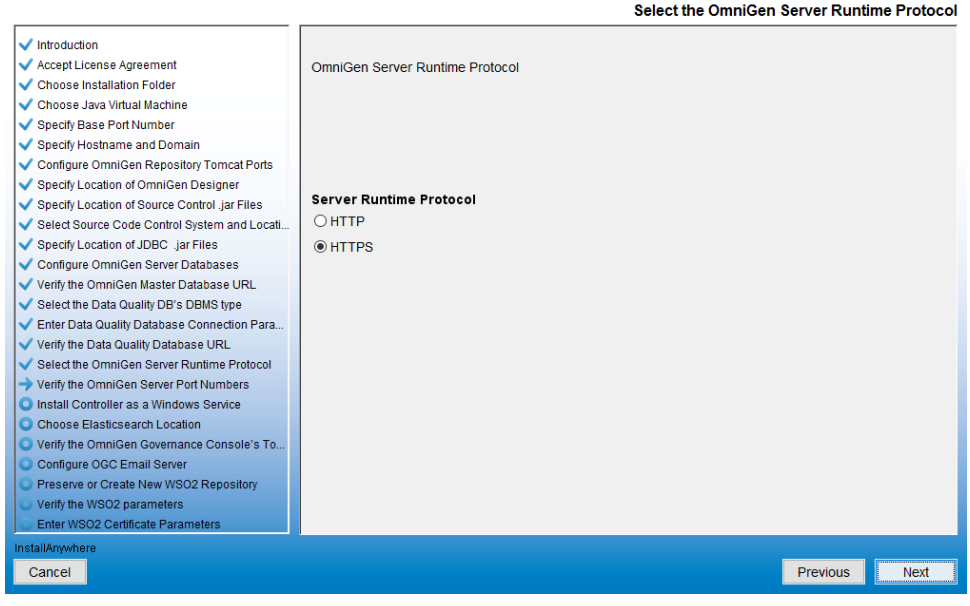
If the test is successful, then the Data Quality Database Connection Test Passed dialog box opens, as shown in the following image.



If the test is not successful, click *Previous* twice, correct the connection parameters, and retest the URL.

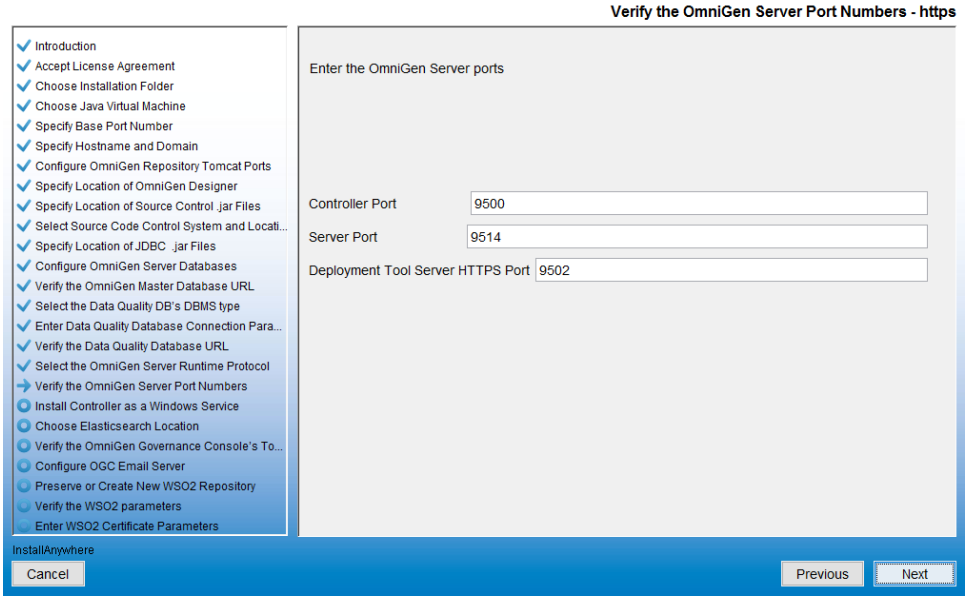
27. Click *Next*.

The Select the OmniGen Server Runtime Protocol dialog box opens, as shown in the following image.



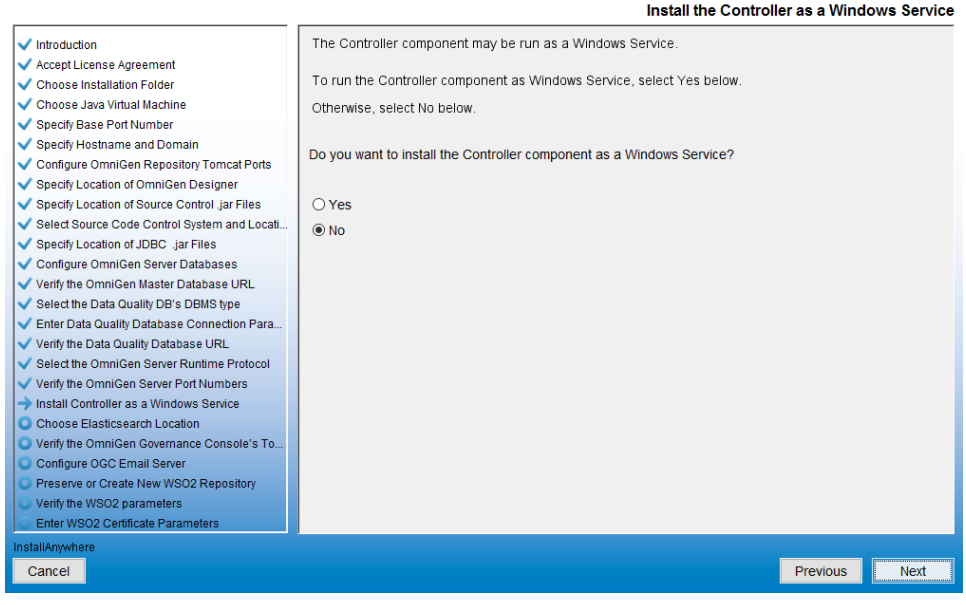
28. Select the desired server runtime protocol, and then click *Next*.

The Verify the OmniGen Server Port Numbers dialog box opens, as shown in the following image.



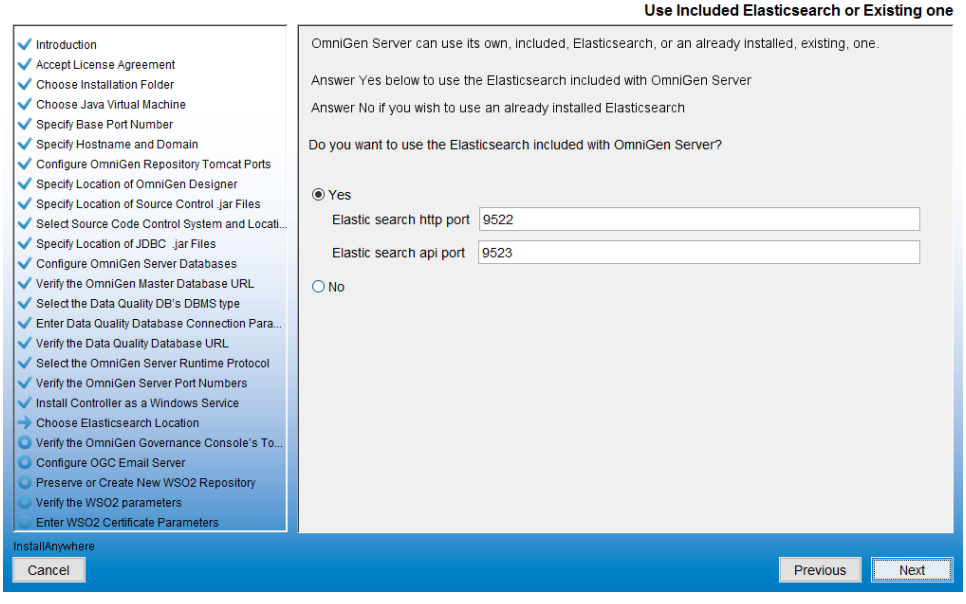
29. Accept the default values, but change them if the infrastructure manager informs you of a conflict and recommends changes to alternate available ports.
30. Click *Next*.

The Install the Controller as a Windows Service dialog box opens, as shown in the following image.



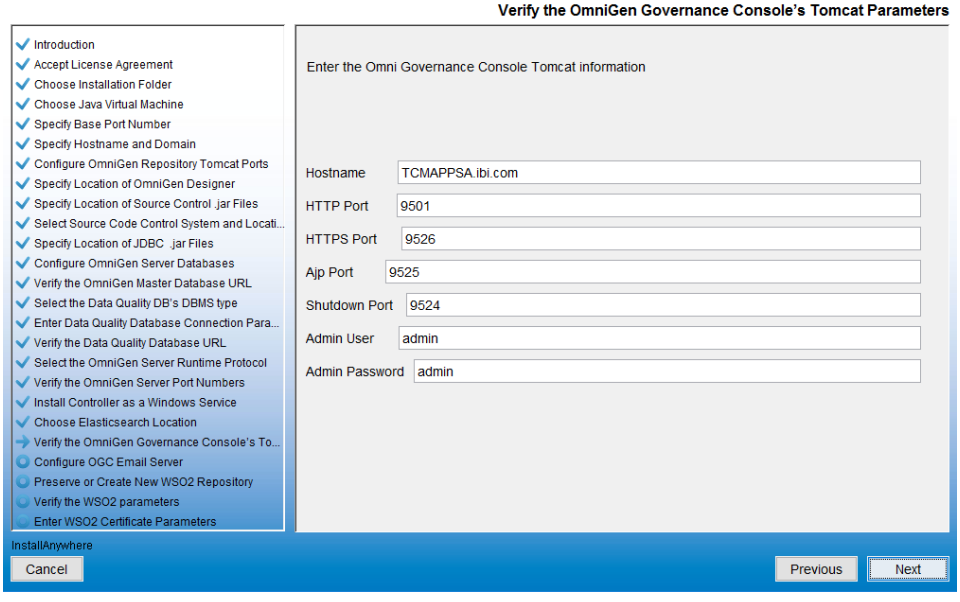
31. Accept the default or modify, as required, and then click *Next*.

The Use Included Elasticsearch or Existing one dialog box opens, as shown in the following image.



32. Accept the default or modify, as required, and then click *Next*.

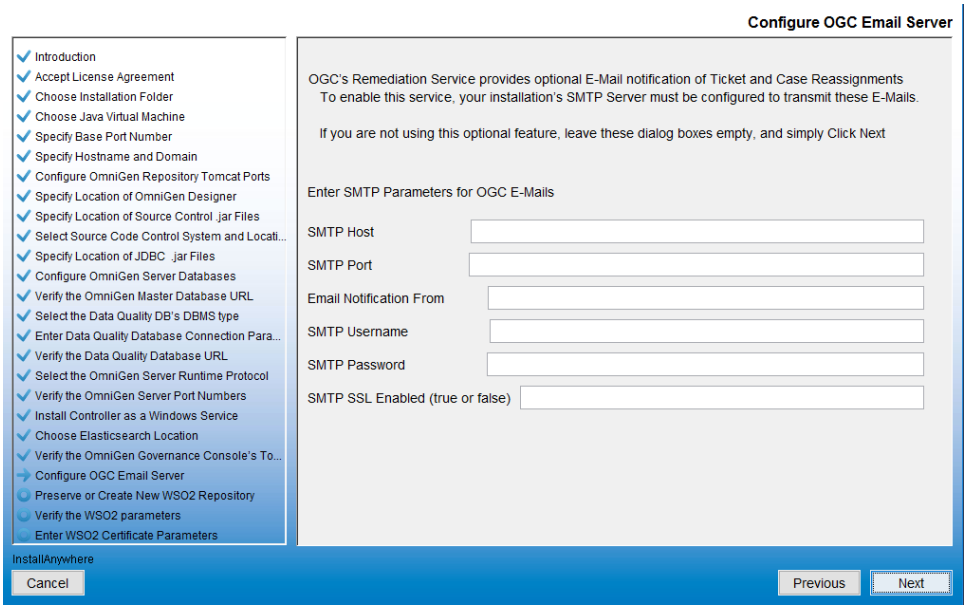
The Verify the OmniGen Governance Console's Tomcat Parameters dialog box opens, as shown in the following image.



The Hostname parameter defaults to the machine on which you are currently installing Omni-Gen.

33. Accept the default values, and then click *Next*.

The Configure OGC Email Server dialog box opens, as shown in the following image.



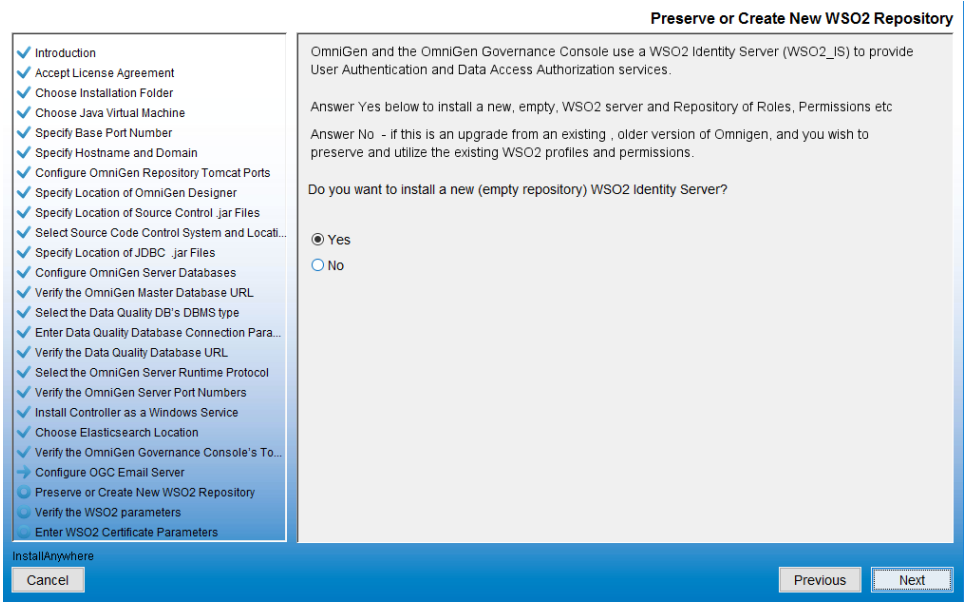
34. Unless you are adding the email option, leave the parameter values blank, click *Next*, and proceed to the Preserve or Create New WSO2 Repository pane in the installer (skip to Step 36).
35. To enable the email option, provide values for the following parameters as they apply to your SMTP, email server:

    - **SMTP Host.** Host name of your SMTP server (for example, *smtp.ibi.com*).
    - **SMTP Port.** SMTP port on that server (usually port 25).
    - **Email Notification From.** Email address from which the Assignment emails will originate (for example, *OmniGen_Remediation@ibi.com*).
    - **SMTP Username**. User name for accessing the email server.
    - **SMTP Password.** Password associated with the user name for accessing the email server.
    - **SMTP SSL Enabled (true or false).** Specify *true* if your email server supports or requires SSL authentication.

In addition, each user who will receive email notifications must have a valid email address in their WSO2 user profile.

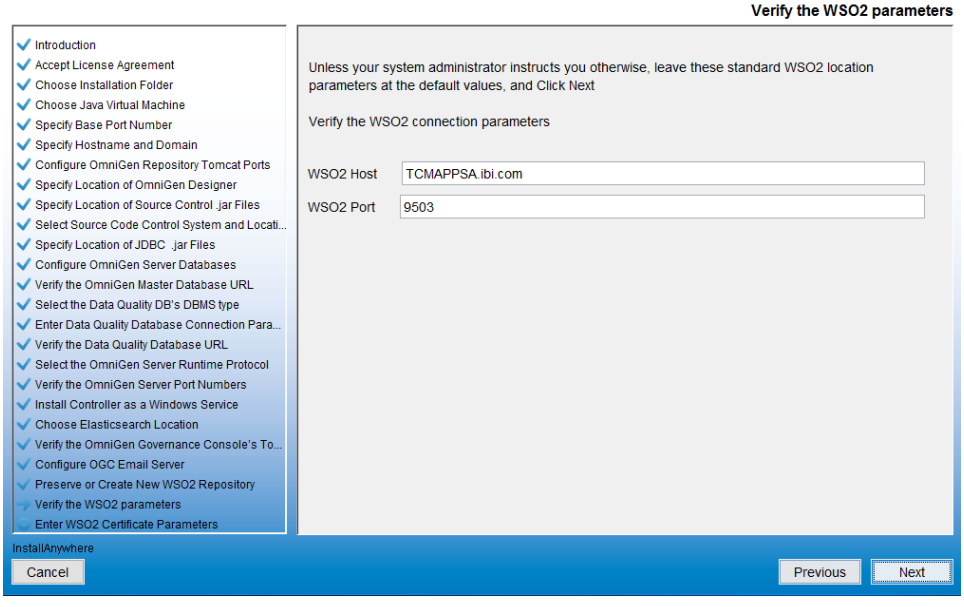
- Each LDAP user with the Data Steward or Data Supervisor role, and who will receive Assignment emails, must have a valid email address in their Active Directory profile. When it makes the LDAP connection, WSO2 will bring back those email addresses to its Local User Store profile of the user.
- Each hardcoded user in the WSO2 *Primary* domain must have an email in their WSO2 user profile.

Following the Configure OGC Email Server dialog box, the Preserve or Create New WSO2 Repository dialog box opens, as shown in the following image.



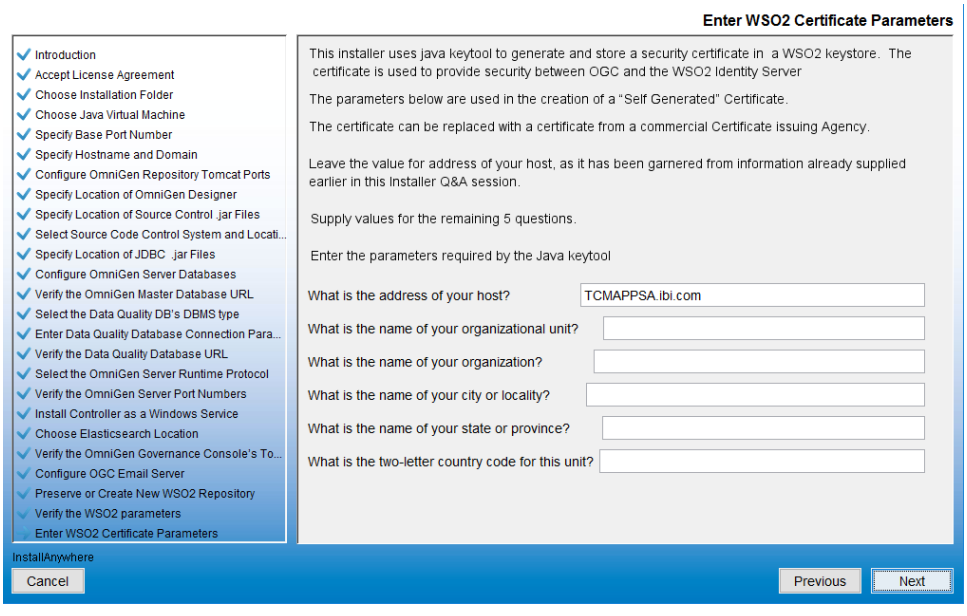
36. For new Omni-Gen installations, ensure that *Yes* is selected, and then click *Next*.

The Verify the WSO2 parameters dialog box opens, as shown in the following image.



37. Confirm the WSO2 parameters, and then click *Next*.

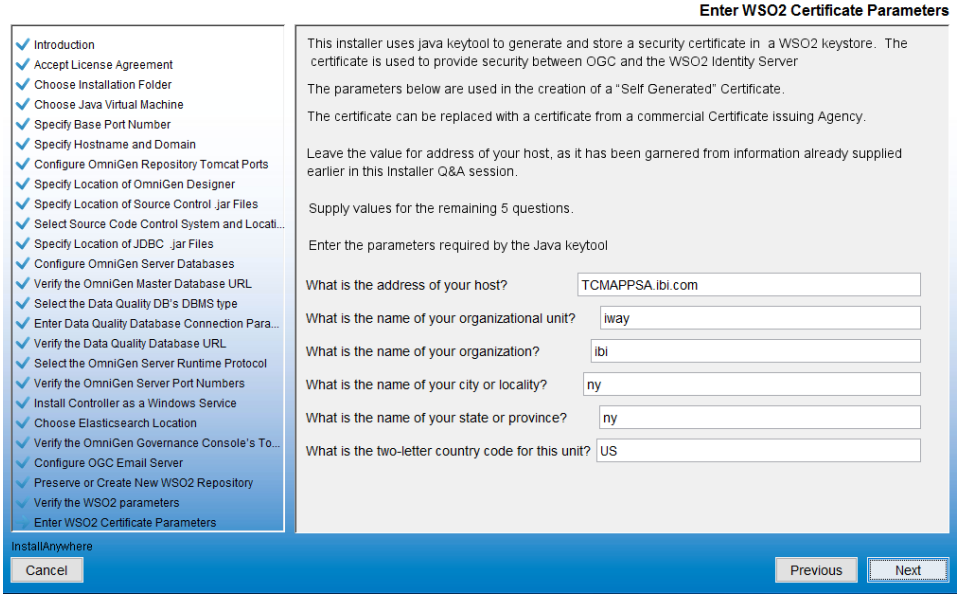
The Enter WSO2 Certificate Parameters dialog box opens, as shown in the following image.



38. Collect the parameters to generate the certificate for WSO2.

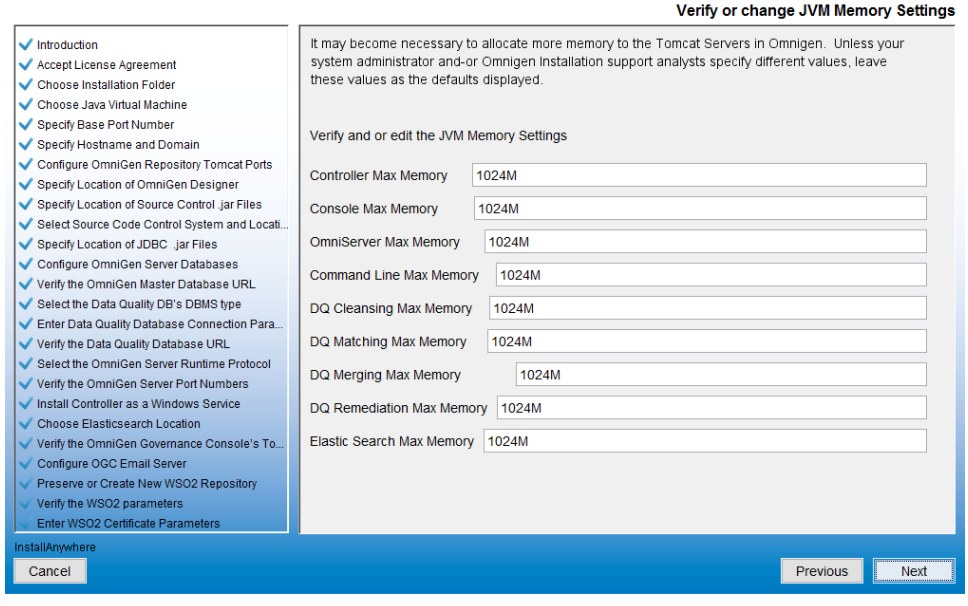
    The parameters are used to build a unique certificate to secure the Omni Governance Console to the WSO2 communication.

39. Ensure that the address of your host is correct (not *localhost*), and then type values for the other parameters. For example:



40. Click *Next*.

The Verify or change JVM Memory Settings dialog box opens, as shown in the following image.



41. Change the values only if you are instructed by Customer Support, otherwise, click *Next*.

    The Pre-Installation Summary dialog box opens.

42. Review all of the settings in the Pre-Installation Summary pane, and then click *Next*.

    The Ready To Install dialog box opens, indicating that the configuration for installation is complete.

43. Click *Install* to proceed with the installation.

    The progress of the installation is shown.

    The Omni-Gen installation is complete when the Install Complete dialog box displays.

44. Press *Done* to exit the Omni-Gen installer.

    You are now ready to configure Omni-Gen MDM - Basic Edition. For more information, see *Configuring Omni-Gen MDM - Basic Edition* on page 41.

Chapter 3

Configuring Omni-Gen MDM - Basic Edition

This section describes how to configure Omni-Gen MDM - Basic Edition.

In this chapter:

Configuring Omni-Gen MDM - Basic Edition

This section describes how to configure Omni-Gen MDM - Basic Edition to quickly get started with using the product. For more information on detailed use of the related product areas, see the corresponding documentation for Omni-Gen Master Data Management (MDM) and Data Quality (DQ) Editions.

Note: Omni-Gen services can be managed from a command line prompt that has been launched using the *Run as Administrator* option or from the Omni Console. Using the Omni Console to manage Omni-Gen services is highly recommended. However, during certain points of the configuration process, Omni-Gen services must be managed (for example, started or stopped) from a command line prompt. In addition, during the configuration process, specific Omni-Gen services must be running (started) while other services are stopped. Please follow the management of Omni-Gen services (for example, starting and stopping) as described in this documentation.

1. Open a command line prompt window using the *Run as Administrator* option.

   The `omni start-xx` and `omni stop-xx` commands are accessible from the following folder:

   `<omni_install>\omnigen\OmniServer`

2. Change your current directory to \OmniServer as follows:

   ```
   cd <omni_install>\omnigen\OmniServer
   ```

3. Execute the following command:

   ```
   omni start-controller
   ```

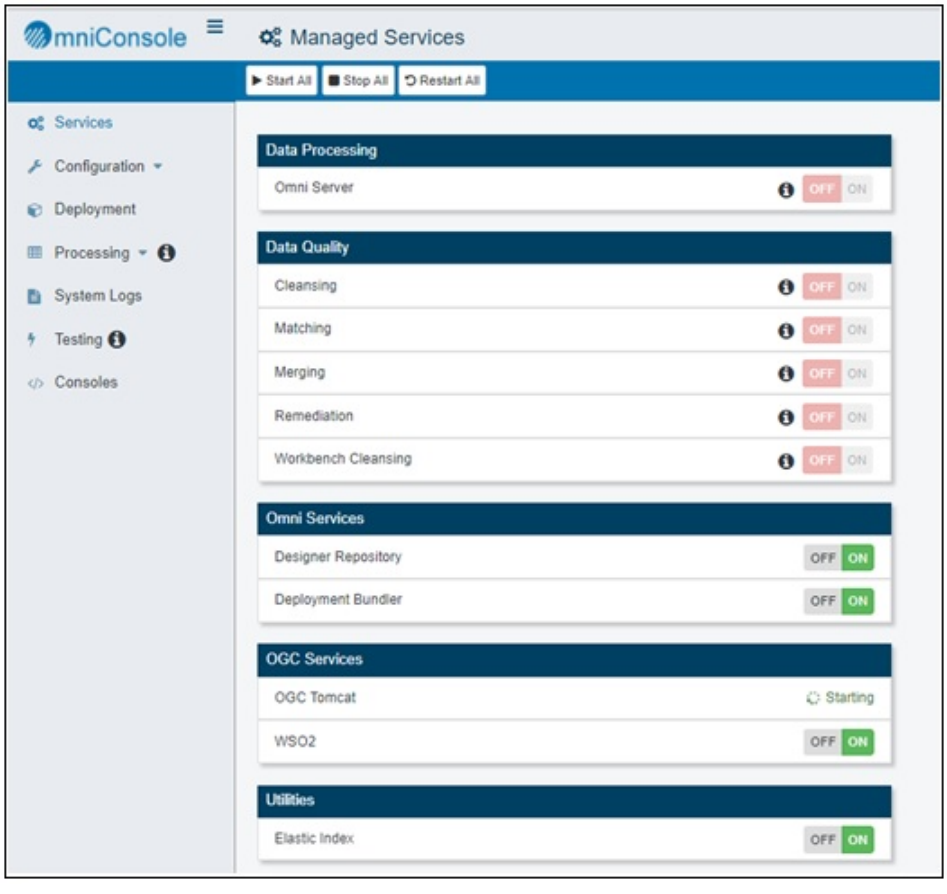
   Note: The controller will take a minute or two to start as it has to initialize the underlying components. It is recommended to start the controller only for the development environment, instead of all of the services using the `omni start-all` command.

4. Use a browser to login to the Omni Console, which can be accessed using the following default URL:

   `https://host.domain:9500/`

   Where the *host* is the host of your machine and the *domain* is the domain for your machine. The default user ID and password is *ibi / ibi*.

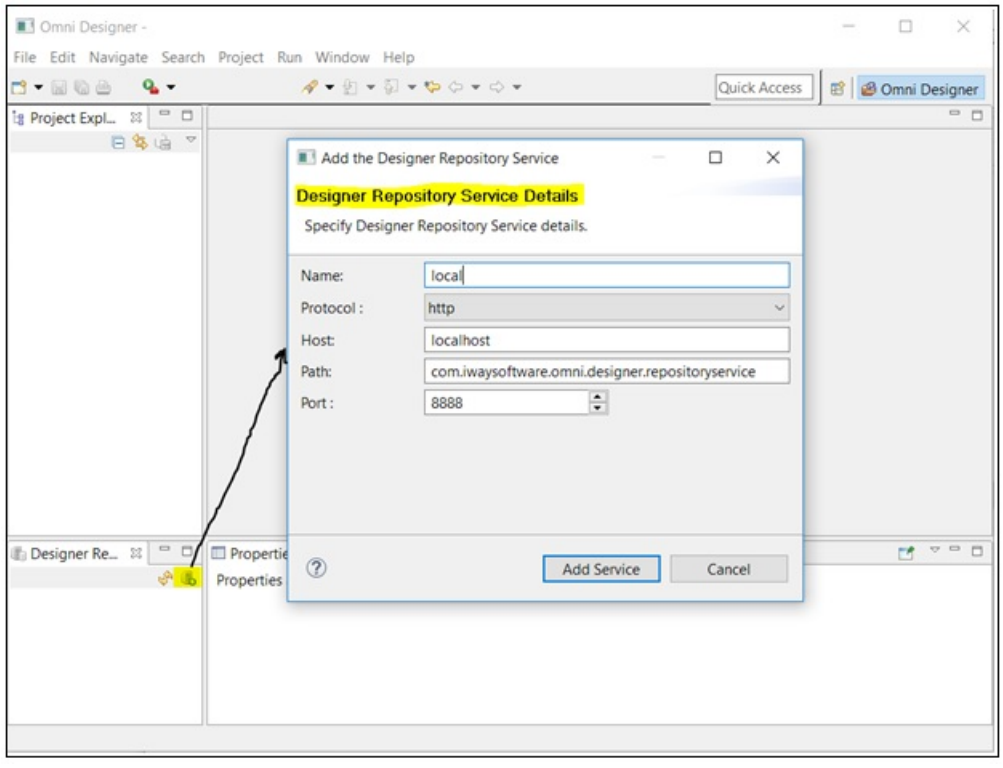
5. Start all of the services if they were not started already. You can start each service one at a time to give them time to start.



   Note: Since there is no bundle currently deployed, you are not able to start the service for Omni Server (under Data Processing) and the five services listed under Data Quality. These services will be started after a deployed bundle is available.

6. Open Omni Designer by navigating to `C:\omnigen\OmniDesigner` and executing `OmniDesigner.exe`.

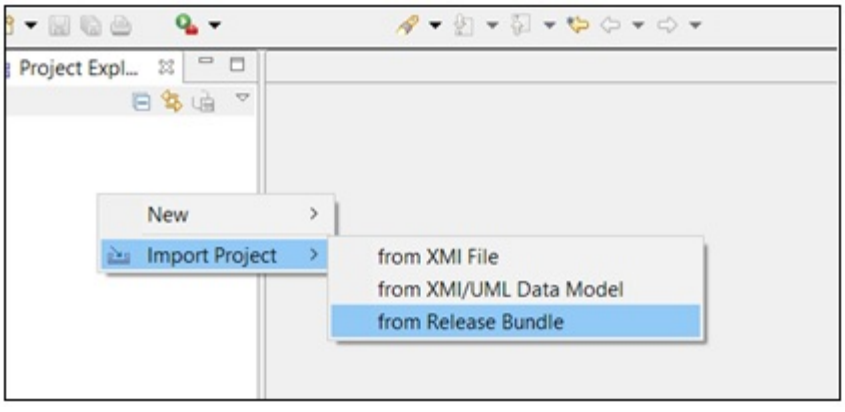
7. Create a new repository.



Simply provide a repository name and keep default values for the remaining parameters.

8. Connect to your repository using the credentials *super / super*.
9. Import the project that contains the Customer Model and required artifacts into Omni Designer.

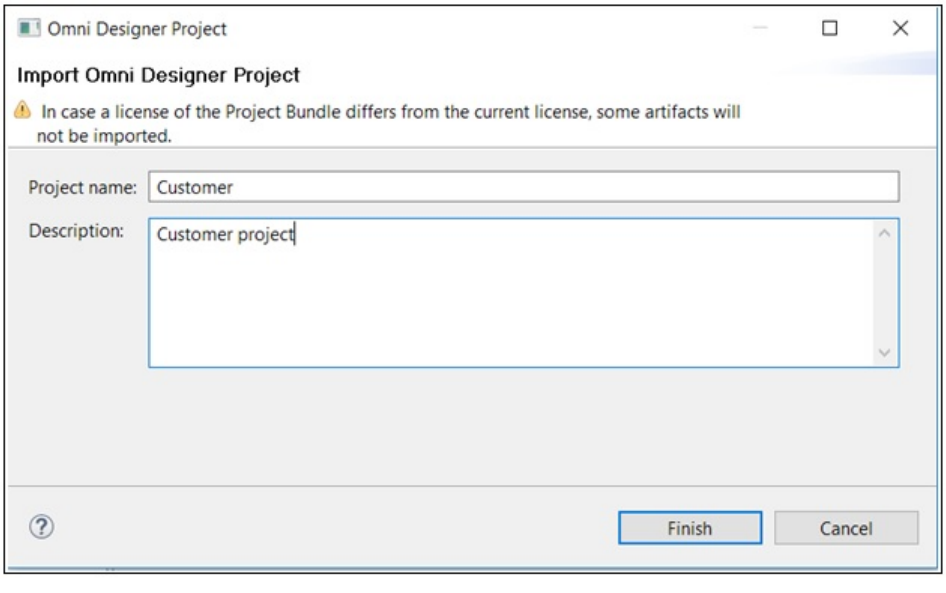
Right-click in the Project Explorer area, select *Import Project*, and then click *from Release Bundle*, as shown in the following image.



10. Select your local repository into which the project will be imported. Browse to the Customer project located in:

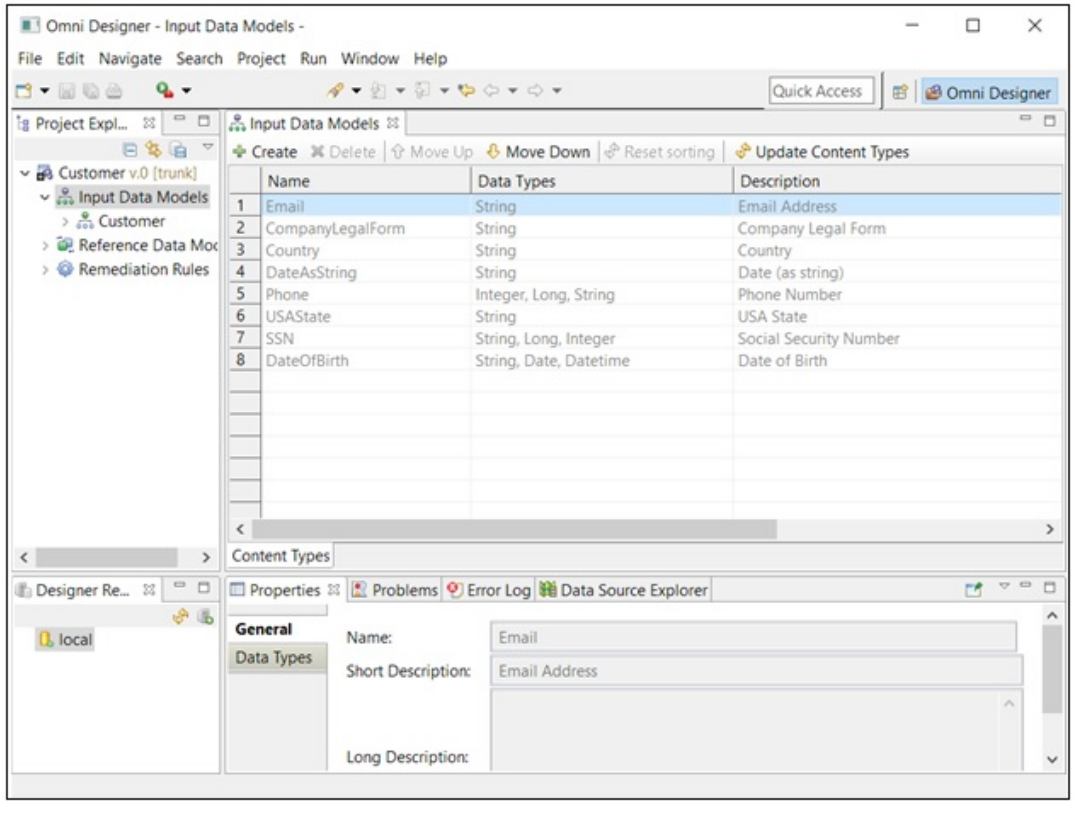
    `C:\omnigen\OmniGenData\OmniCustomer\OmniGenForCustomer.zip`

11. Provide a project name (for example, Customer) and then click *Finish*, as shown in the following image.

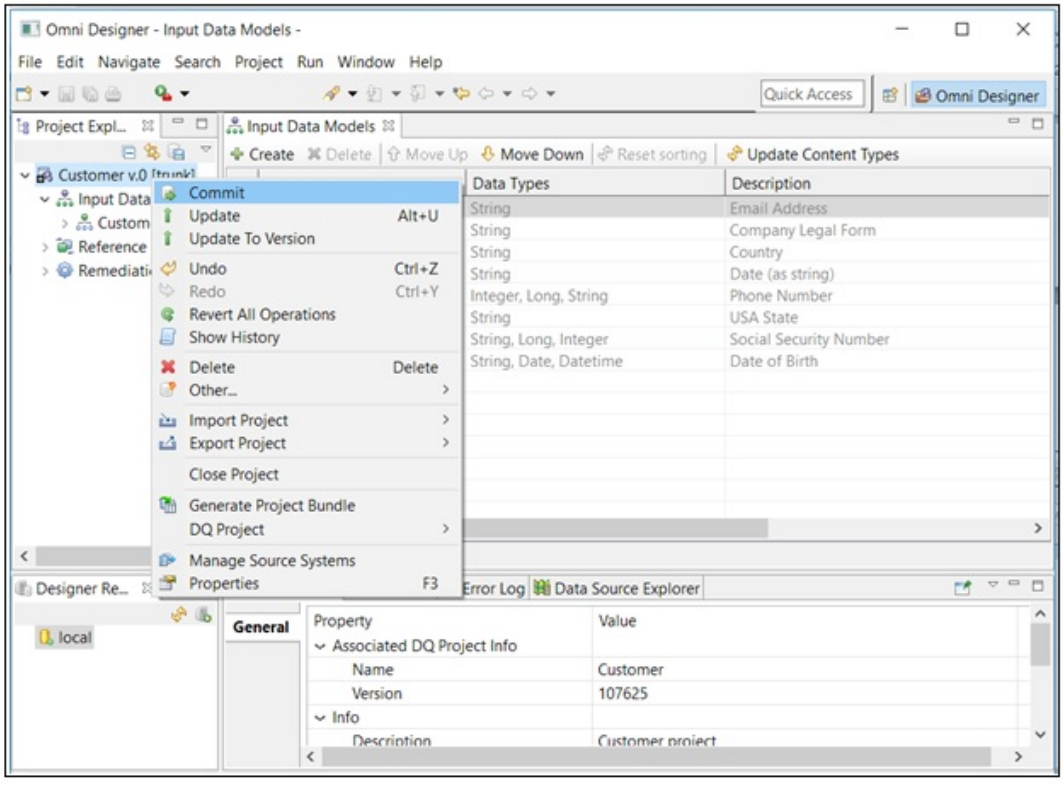


Please wait a minute until the system loads all of the artifacts.

After the project is imported, you will see the model load and can review it, as shown in the following image.



If any changes are made to this project, right-click the *Customer* project and select *Commit*, as shown in the following image.

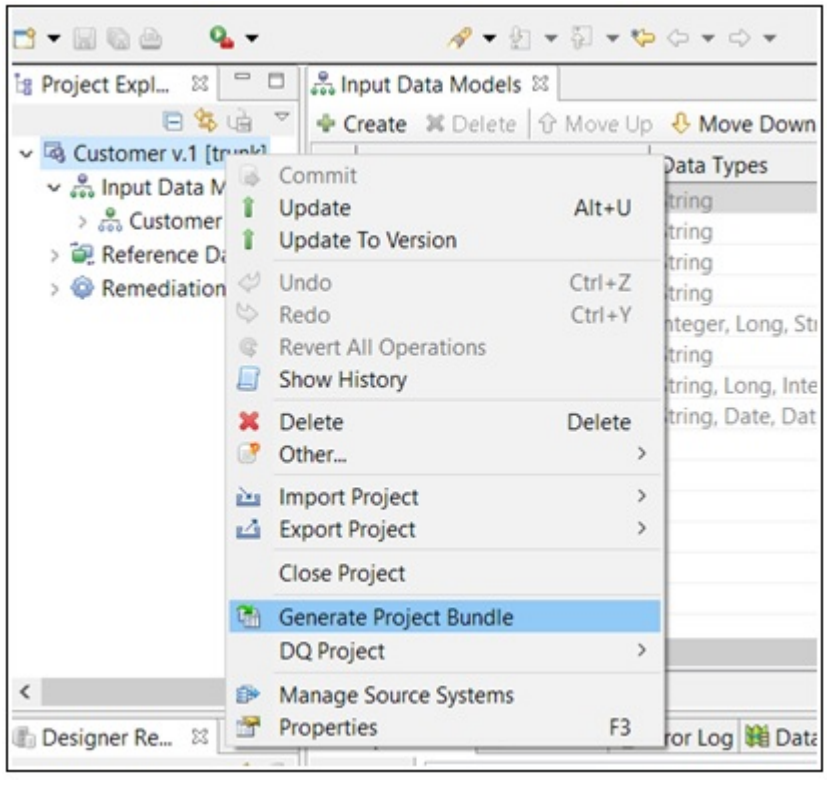


Note: The Commit option is available only if the project has been updated.

This will commit changes to the source management system.

You can now generate a project bundle for deployment.

12. Right-click the *Customer* project and select *Generate Project Bundle*, as shown in the following image.



13. Provide a description (optional) and select the proper bundle versioning.

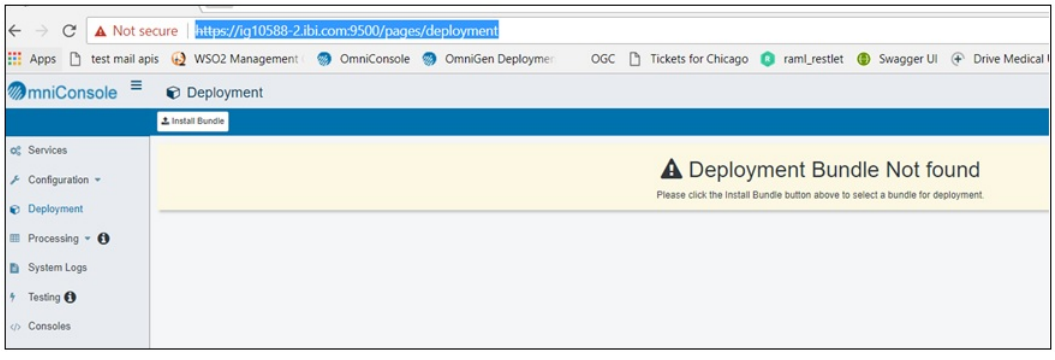
    Please wait a minute for the project bundle to generate.

14. Once this process has finished, close Omni Designer and navigate to `http://localhost:8090/` to create the deployable project bundle.

    This process gathers all of the artifacts for DQ, Remediation, Model, OGC, and others, and packages them for deployment into runtime. A deployable project bundle is written to disk as a .zip file.

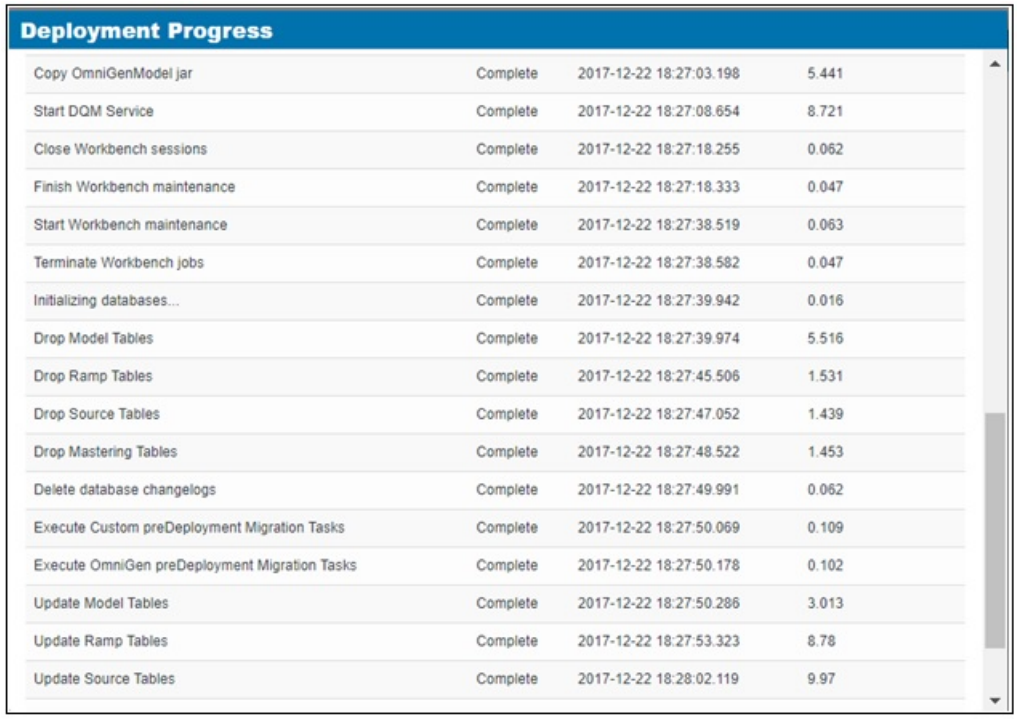
15. Click the green run icon to generate a deployment bundle.
16. Return to the Omni Console at `https://host.domain:9500/pages/deployment`, where you are taken directly to the Deployment page.
17. Click *Install Bundle* and browse to the project bundle that you recently generated, which is located in the following directory by default:

    `C:\omnigen\deploymentbundle`

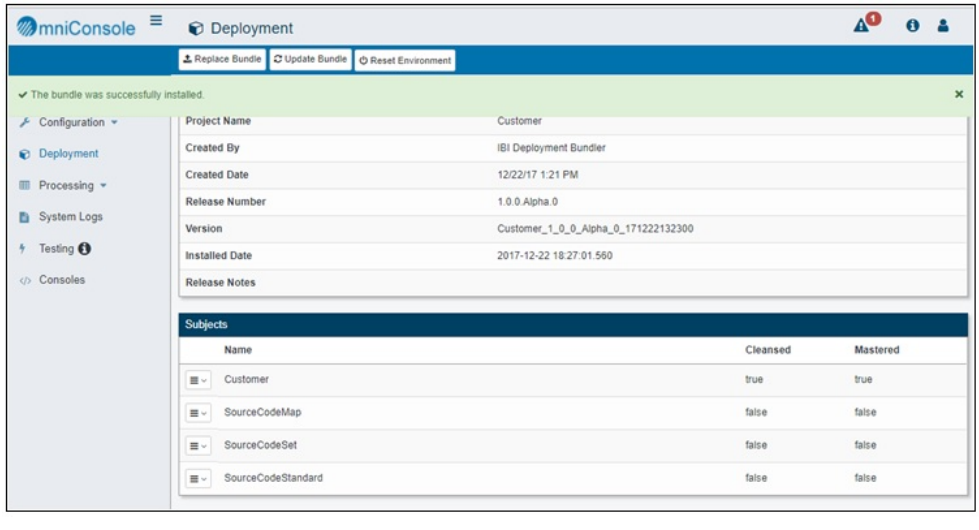


Please wait a minute to install as the system must load all of the artifacts and establish all of the repositories.

You will see the deployment steps as they are being executed, as shown in the following image.



18. Upon completion, the system will be configured for the given domain mastering.



Now it is time to start the services.

19. Navigate to *Services* and start all of the remaining services for data processing.

    After all of the services up and running, the system is ready for data load, processing, and data access.

Loading Metadata (MData) Using the Omni Governance Console

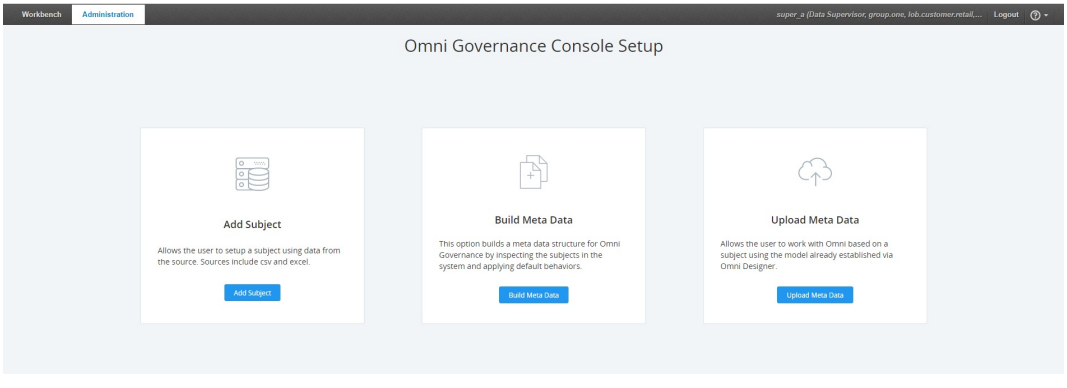
1. Access the Omni Governance Console (OGC) by using the following URL:

   `http://localhost:9090/ogc/`

   Login with your credentials based on your policy access. The default credentials are:

   - **User name:** super_a
   - **Password:** supera123

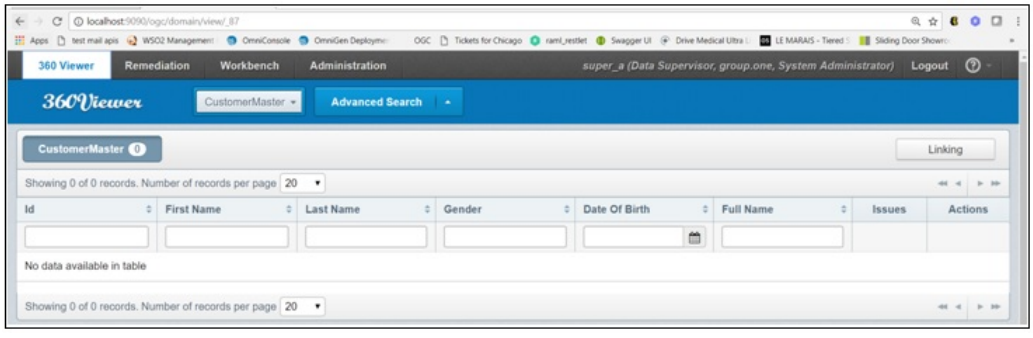
2. In the Administration tab, click *Upload Meta Data* on the Omni Governance Console Setup screen to load the predefined set of metadata, which defines the layout of the screens in OGC.



Note: You can customize this view and you can also export or import the definition for sharing. The Mdata file is located in the following directory:

`C:\omnigen\OmniGenData\mdata`

3. Once the MData is loaded, you can navigate the various console components. If you had loaded sample data, then you would see this data populated throughout the console. Otherwise, you will see only column layouts with no data, as shown in the following image.



Chapter 4

Understanding the Omni-Gen MDM - Basic Edition Data Model

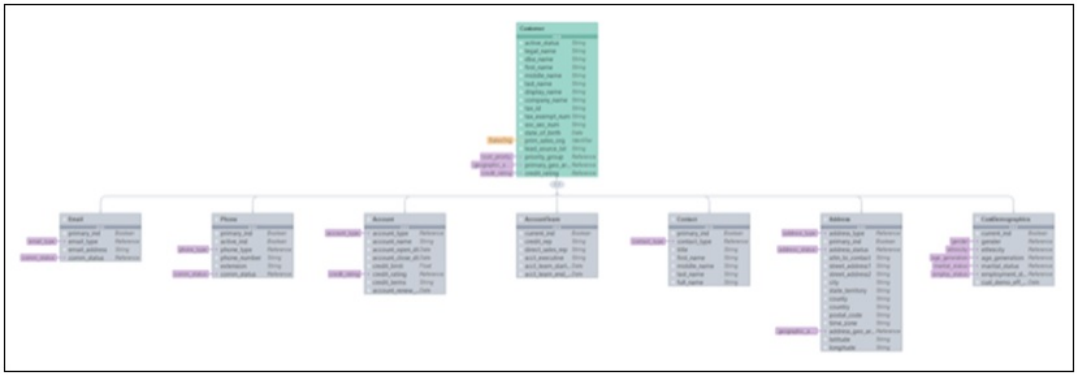
This section provides reference information for the Omni-Gen MDM - Basic Edition data model.

In this chapter:

Understanding the Omni-Gen MDM - Basic Edition Data Model

The Omni-Gen MDM - Basic Edition data model includes the following subjects:

- **Customer**
- **Address**
- **SalesOrder**
- **SalesOrderLine**
- **Phone**
- **Email**
- **Account**
- **AccountTeam**
- **Contact**
- **CustDemographics**
- **Item**
- **SalesOrg**



Customer

The **Customer** subject identifies basic master data about customers, such as name, date of birth, and tax identification number (TIN) / Social Security Number (SSN).

The data on the **SalesOrder** and **SalesOrderLine** can be used as the basis for calculating metrics for year-to-date comparisons between perfect order, on-time delivery, and fill rate percentages. Selected demographics from the **CustDemographics** subject can also be used to further enrich the calculation and metrics, such as sales by product group by ethnicity, returns by age generation, or product group upsell by marital status.

Customer subject attributes include:

Name	Data Type	Reference Table	Description
active_status	String		A Y/N indicator identifying whether the customer is active.
legal_name	String		The legal name used by a customer.
dba_name	String		The *doing business as* name used by a customer.
first_name	String		The first name for a customer.

Name	Data Type	Reference Table	Description
middle_name	String		The middle name for a customer.
last_name	String		The last name for a customer.
display_name	String		The textual name that appears for a customer.
company_name	String		The company name used by a customer.
tax_id	String		The tax identification number for a customer.
tax_exempt_num	String		The tax exemption number for a customer.
soc_sec_num	String		The social security number for a customer.
date_of_birth	Date		The date of birth for a customer.
prim_sales_org	Identifier	SalesOrg	The primary sales organization assigned to a customer.
lead_source_txt	String		The original source of information on a customer.
priority_group	Reference	Customer Priority Types	The priority of a customer. For example, customers in a high priority may have their orders expedited ahead of other lower priority customers.

Name	Data Type	Reference Table	Description
primary_geo_area	Reference	Geographic Area Types	The primary geographic area (for example, region, branch, store, or sales region) assigned to a customer.
credit_rating	Reference	Credit Rating Types	The overall credit rating assigned to a customer.

Address

The **Address** subject identifies address data including address type, time zone and geographic area. The geographic area can represent a company's division, branch, department, or other geographical grouping used for reporting purposes.

Address subject attributes include:

Name	Data Type	Reference Table	Description
address_type	Reference	Address Type	The primary type of use for an address such as corporate, sold to, ship to, or bill to.
primary_ind	String		A Y/N indicator identifying the primary address for the customer.
address_status	Reference	Address Status	The current status for an address.
attn_to_contact	String		The contact name to include in the *Attention To* portion of the address.
street_address1	String		The first line of the street, house, building, or parcel portion of an address.
street_address2	String		The second line of the street, house, building, or parcel portion of an address.

Name	Data Type	Reference Table	Description
city	String		The city portion of an address.
state_territory	String		The state or territory portion of an address.
county	String		The county portion of an address.
country	String		The country portion of the address.
postal_code	String		The zip or postal code portion of an address.
time_zone	String		The time zone in which the address is located.
address_geo_area	Reference	Geographic Area Types	The geographic area (for example, branch, store, region, or sales area) associated to an address.
latitude	Float		The geospatial latitude for an address.
longitude	Float		The geospatial longitude for an address.

SalesOrder

The **SalesOrder** subject identifies general master data about the sales order, such as the ordering customer, sales order date, and order priority. Several attributes are available for comparative reporting such as requested ship to address, ship date, or ordered quantity compared to the actual ship date, ship to address, or shipped quantities. Metrics can be computed with the available data on this subject and the **SalesOrderLine** subject, such as for the order fill or return rates.

SalesOrder subject attributes include:

Name	Data Type	Reference Table	Description
ord_cust_id	Identifier	Customer	The unique identifier for the ordering customer on the sales order.
sales_order_dt	Date		The date the sales order was placed.
sales_order_type	Reference	Order Types	The type of sales order, such as blanket, standing, or standard.
req_st_street	String		The customer requested ship to street address.
req_st_city	String		The customer requested ship to city.
req_st state	String		The customer requested ship to state/territory.
req_st_zip	String		The customer requested ship to zip/postal code.
req_st_country	String		The customer requested ship to country.
act_st_street	String		The actual ship to street address used for shipment of goods from a sales order.
act_st_city	String		The actual ship to city used for shipment of goods from a sales order.
act_st_state	String		The actual ship to state/territory used for shipment of goods from a sales order.

Name	Data Type	Reference Table	Description
act_st_zip	String		The actual ship to zip/postal code used for shipment of goods from a sales order.
act_st_country	String		The actual ship to country used for shipment of goods from a sales order.
req_ship_dt	Date		The requested ship date of a customer.
cmt_ship_dt	Date		The ship date committed to by the sales order goods provider.
act_ship_dt	Date		The actual date that goods shipped for the sales order.
req_delivery_dt	Date		The requested delivery date of the customer.
cmt_delivery_dt	Date		The committed delivery date for a sales order.
act_delivery_dt	Date		The actual delivery date for the sales order.
order_priority	Reference	Order Priority Types	The priority set to an order such as Top 10, Expedite, Normal, or Low.
order_status	Reference	Order Status	The status of the sales order. For example, it may be partially shipped and still have a few line items in backorder.
sold_sales_org	Identifier	SalesOrg	The sales organization that will receive credit for the sales order.

SalesOrderLine

The **SalesOrderLine** subject identifies general data about the lines on a sales order, such as item quantity. Several attributes are available for comparative reporting, such as requested item, quantities, or delivery dates compared to the actual delivered item, quantities, or delivery date. Metrics can be computed with the available data on this subject and the **SalesOrderLine** subject, such as for the sales order line fill or return rates.

SalesOrderLine subject attributes include:

Name	Data Type	Reference Table	Description
requested_item_id	Identifier	Item	The product requested on a sales order line.
requested_item_qty	Integer		The requested quantity of a product.
committed_item_id	Identifier	Item	The product committed to be provided for a sales order line. This can differ from the requested product.
committed_item_qty	Integer		The committed quantity of a product.
requested_delivery_dt	Date		The date requested for delivery.
committed_delivery_dt	Date		The committed date for delivery.
actual_delivery_dt	Date		The actual date of the delivery.
delivered_item_id	Identifier	Item	The product actually delivered on a sales order line. This can differ from the committed product.
delivered_item_qty	Integer		The delivered quantity of a product.

Name	Data Type	Reference Table	Description
returned_item_id	Identifier	Item	Any returned product applied against this line item. Dependent on the return process, this product may differ from the delivered product.
returned_item_qty	Integer		The returned quantity of a product.
sales_order_ln_uom	Reference	Unit of Measure	The unit of measure for quantities on the sales order line.
unit_pri_amt	Float		The unit price expected for the requested product.
invoiced_unit_pri_amt	Float		The invoiced unit price amount.
paid_unit_amt	Float		The amount actually paid per unit for an item.
r_sales_org_id	Identifier	SalesOrg	The sales organization responsible for the sales order line.
sales_order_ln_dt	Date		The creation date for a sales order line.
order_ln_status	Reference	Order Line Status	The status of the sales order line such as pending, partially shipped, backorder or closed.

Phone

The **Phone** subject identifies the phone numbers for the customer such as home, office, FAX or mobile.

Phone attributes include:

Name	Data Type	Reference Table	Description
primary_ind	Boolean		A Y/N flag indicating if this is the primary phone number for a customer.
active_ind	Boolean		A Y/N flag identifying whether a phone number is active.
phoneType	Reference	Phone Types	The phone type code for a phone such as home, office, or FAX.
phone_number	String		The set of digits that represents the phone number of the customer.
extension	String		Any appropriate extension for a phone number.
comm_status	Reference	Communication Status	This is the status of the phone number such as unconfirmed, invalid, opt-in, opt-out or unsubscribe.

Email

The **Email** subject identifies the email address for a customer, such as personal or business.

Email attributes include:

Name	Data Type	Reference Table	Description
primary_ind	Boolean		A Y/N indicator used for identifying the primary email for a customer.
email_type	Reference	Email Types	The email address type for the email of a party, such as home, office, or personal.

Name	Data Type	Reference Table	Description
email_address	String		The value for the email address of a party.
comm_status	Reference	Communication Status	A Y/N flag indicating is this is the primary email address for a customer.

Account

The **Account** subject identifies the accounts related to a customer.

Account attributes include:

Name	Data Type	Reference Table	Description
account_type	Reference	Account Type	The type of account such as customer or vendor.
account_name	String		The name of an account.
account_open_dt	Date		The date on which the account was opened.
account_close_dt	Date		The date on which the account was closed.
credit_limit	Float		The monetary credit limit for a given account.
credit_rating	Reference	Credit Rating Types	The credit rating assigned to a given account.
credit_terms	String		The credit terms assigned to a given account such as Net 60, COD, Prepaid, or 2/10 Net 30.
account_renew_dt	Date		The next renewal date for an account.

AccountTeam

The **AccountTeam** subject identifies the names of the team assigned to a customer.

AccountTeam subject attributes include:

Name	Data Type	Reference Table	Description
current_ind	String		A Y/N indicator identifying whether the account team is the most current.
credit_rep	String		The name of the assigned credit manager.
direct_sales_rep	String		The name of the assigned direct sales representative.
acct_executive	String		The name of the assigned account executive or manager.
acct_team_start_dt	Date		The start date for the account team assignment.
acct_team_end_dt	Date		The end date for the account team assignment.

Contact

The **Contact** subject identifies the contacts related to a customer.

Contact subject attributes include:

Name	Data Type	Reference Table	Description
primary_ind	String		A Y/N indicator identifying whether this is the primary contact for a customer.

Name	Data Type	Reference Table	Description
contact_type	Reference	Contact Types	The primary type assigned to the contact such as buyer, accounts receivable, or delivery receipt.
title	String		The title for the contact such as Dr., Mr., or Mrs.
first_name	String		The first name of the contact.
middle_name	String		The middle name of the contact.
last_name	String		The last name of the contact.
full_name	String		The full name of the contact. Usually including the first, middle, and last names.

CustDemographics

The **CustDemographics** subject identifies demographics assigned to a customer.

CustDemographics subject attributes include:

Name	Data Type	Reference Table	Description
current_ind	Boolean		A Y/N indicator identifying whether the customer demographics are currently in effect.
gender	Reference	Gender Types	The gender for a customer.
ethnicity	Reference	Ethnicity Types	The ethnicity for a customer.
age_generation	Reference	Age Generation	The age generation for a customer such as Greatest Generation or Baby Boomer.

Name	Data Type	Reference Table	Description
marital_status	Reference	Marital Status Types	The marital status for a customer.
employment_status	Reference	Employment Status Types	The employment status for a customer.
cust_demo_eff_dt	Date		The effective date for a set of customer demographics.

Item

The **Item** subject identifies information pertaining to product, services, or equipment.

Item subject attributes include:

Name	Data Type	Reference Table	Description
item_name	Boolean		The commonly used name for an item.
item_short_desc	String		The short textual description for an item.
item_long_desc	String		The long textual description for an item.
key_item_ind	String		A Y/N flag identifying whether a product is included in the major products tracked by the company.
item_base_uom	Reference	Unit of Measure	The standard/base unit of measure for an item.
item_base_price	Float		The base price for a base unit of measure for an item.
item_sku	String		The stock keeping unit for an item.
item_barcode	String		The bar code for an item.

Name	Data Type	Reference Table	Description
item_gtin	String		The global trade item number for an item.
item_eff_dt	Date		The effective date for an item.
item_eol_dt	Date		The end of life date for an item.
item_base_cost	Float		The base cost amount for an item.

SalesOrg

The **SalesOrg** subject identifies the sales organization of the enterprise.

SalesOrg subject attributes include:

Name	Data Type	Reference Table	Description
sales_org_name	String		The textual name for a sales organization.
sales_org_desc	String		The textual description for a sales organization.
sales_org_start_dt	Date		The start date for a sales organization.
sales_org_end_dt	String		The end date for a sales organization.
primary_geo_area	Reference	Geographic Area Types	The primary geographic area assigned to a sales organization.

Reference Tables

Omni-Gen MDM - Basic Edition also includes the following reference tables.

These reference tables contain the acceptable list of values for the codes that appear on the Customer and SalesOrder tables.

- **Account Type.** Identifies the possible types of accounts, such as customer or vendor.
- **Address Status.** Identifies the possible status for an address, such as pending, active, or expired.
- **Address Types.** Identifies the acceptable values for the customer's address type, such as sold to, ship to, bill to, and corporate.
- **Age Generation.** Identifies the acceptable values for the customer's generation as derived from their date of birth, such as Greatest, Silent, Baby Boomer, Gen X, Gen Y, or Gen Z generations.
- **Communication Status.** Identifies the status for a given email or phone number, such as unconfirmed, opt-in, opt-out, or unsubscribed.
- **Contact Types.** Identifies the primary type for a contact, such as buyer, planner, account payable, or delivery receipt.
- **Credit Rating Types.** Identifies the acceptable values for the customer's credit rating, such as Prime, High, Speculative, Default Imminent, or In Default.
- **Customer Priority Types.** Identifies the acceptable values for the customer's assigned priority, such as Top 10, High, Medium, Normal, or Low.
- **Email Types.** Identifies the acceptable values for the customer's email address, such a home, office, or personal.
- **Employment Status Types.** Identifies the acceptable values for the customer's employment status, such as Full time, Part time, Unemployed, or Retired.
- **Ethnicity Types.** Identifies the acceptable values for the customer's ethnicity, such as Asian, Black/African American, Caucasian, Hispanic, or American Indian.
- **Geographic Area Types.** Identifies the acceptable values for the customer's geographic area or region as derived from their address, such as the Southern, Western, Eastern, or Northern.
- **Gender Types.** Identifies the acceptable values for the customer's gender, such as Male, Female, Non-binary, or Other.
- **Marital Status Types.** Identifies the acceptable values for the customer's marital status, such as Never married, Married, Divorced, Separated, Domestic Partner, or Widowed.

- **Order Priority Types.** Identifies the acceptable values for the customer's order priority, such as Top 10, Customer Expedited, High, Standard, or Low.
- **Order Line Status.** Identifies the possible status for a line item on a sales or vendor purchase order.
- **Order Status.** Identifies the possible status for a sales or vendor purchase order.
- **Order Types.** Identifies the possible types of sales orders, such as blanket or standing.
- **Phone Types.** Identifies the acceptable values for the customer's phone number, such as home, office, FAX, or mobile.
- **Unit of Measure.** Identifies the available units of measure for quantities of an item.

Data Quality Rules

This section provides a reference for the applicable Data Quality (DQ) rules (Cleansing, Matching, Merging, and Remediation).

Cleansing

- Names

  If name parts are populated, then you can populate full name. If full name is populated, then parse full name to populate name parts.

  Requirements

  - None

  Tags

  - ERR_NAME_BLANK
  - ERR_LAST_NAME_BLANK

- Social Security Number

  Standardize SSNs to *xxx-xx-xxxx*. You can tag invalid or questionable values.

  Requirements

  - None

  Tags

  - ERR_SSN_NO_9_DIGIT

- ERR_SSN_ZEROS_IN_GROUP
- ERR_SSN_UNACCEPTED_NUMBER
- ERR_SSN_USED_FOR_ADVERT
- ERR_SSN_BLACKLISTED
- ERR_SSN_ZEROS_ADDED
- ERR_SSN_NOT_A_SSN

- Email

  Validate email addresses.

  Requirements

  - None

  Tags

  - ERR_EMAIL_INVALID
  - ERR_EMAIL_TLD_MISSING
  - ERR_EMAIL_DOMAIN_ONLY
  - ERR_EMAIL_AT_SIGN_MISSING
  - INF_EMAIL_SUSPICIOUS
  - INF_EMAIL_CLEANSED
  - ERR_EMAIL_WEB_ADDRESS

- Phone

  Validate phone numbers and standardize to *(xxx) xxx-xxxx* format.

  Requirements

  - None

  Tags

  - ERR_PHONE_NOT_A_NUMBER
  - ERR_PHONE_TOO_SHORT
  - ERR_PHONE_BLACKLISTED

- ERR_PHONE_AREACODEINVALID
- ERR_PHONE_CO_CODE_INVALID

- Date of Birth

  Requirements

  - None

  Tags

  - ERR_DOB_BLACKLISTED
  - ERR_DOB_IN_FUTURE

- Country

  Standardize to the ISO3 country code.

  Requirements

  - None

  Tags

  - ERR_UNRECOGNIZED
  - ERR_AMBIGUOUS

- Address

  Cleanse, enhance, standardize, and geocode addresses.

  Requirements

  - Loqate for address cleansing and verification

  Tags

  - ERR_ADDRESS_INVALID

Matching

Matching is performed based on the following attributes:

- SSN
- DOB

- Full Name and Name Parts
- eMail
- Phone Number
- Address

Each attribute has a weight assigned, based on the uniqueness of the attribute. Attributes may have reduced weighting where values do not have exact matches or contain transpositions. Attributes unique to the subject may have negative weighting when the values are completely or somewhat different.

It is considered a *Strong* match when the total combined score of the match is greater to or equal 200 and a *Potential* match when greater to or equal to 130 but less than 200.

Records considered as a *Potential* match have a matching ticket created so as to have an individual manually review the low-quality match for accuracy.

Merging

Merging is performed differently based on the subject. The mastered subjects are merged to create a representative view of the entity. The child subjects are sometimes merging the instances to create a representative view of the entity, while other times preserving all records in the subject.

- **Customer**. Instance records are merged to form a single, representative view of the Customer. The most recent, non-blank values are selected.
- **Email**. For each email type, select the non-blank value with the least ERR_, WRN_, or INF_ tags associated.
- **Phone**. For each phone type, select the non-blank value with the least ERR_, WRN_, or INF_ tags associated.
- **Account**. All unique account records create golden accounts.
- **Account Team**. All unique account team records create golden account teams.
- **Contact**. All unique contacts create golden contacts.
- **Address**. All unique addresses create golden addresses.
- **CustDemographics**. The customer demographics record with the most complete data create the golden customer demographics.

Remediation

Remediation creates the following two types of tickets:

- **Cleansing**. Cleansing tickets are created whenever the tag begins with ERR_. For a complete list of potential tags generated, see *Cleansing* on page 69.
- **Matching**. Matching tickets are created when the match quality is only considered to be a *Potential* match. For more information on match quality, see *Matching* on page 71.

Chapter 5

Loading Sample Data

This section describes how to load sample data for Omni-Gen MDM - Basic Edition.

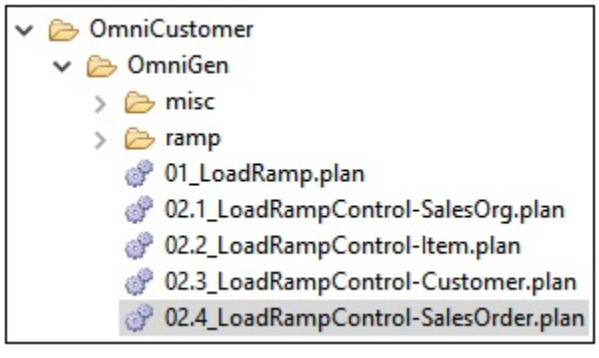
In this chapter:

Accessing the Sample Data

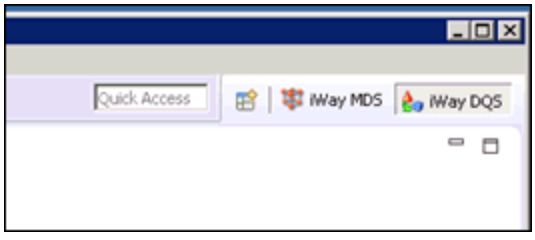
After Omni-Gen MDM - Basic Edition is installed, sample data, including Data Quality (DQ) plans that you can edit and run, is available in the following location:

`C:\omnigen\OmniGenData\OmniCustomer\OmniGen`

The following image shows the contents of this folder.



Open Data Quality Server (DQS) and verify or change the perspective in the upper-right corner to *iWay DQS*, as shown in the following image.



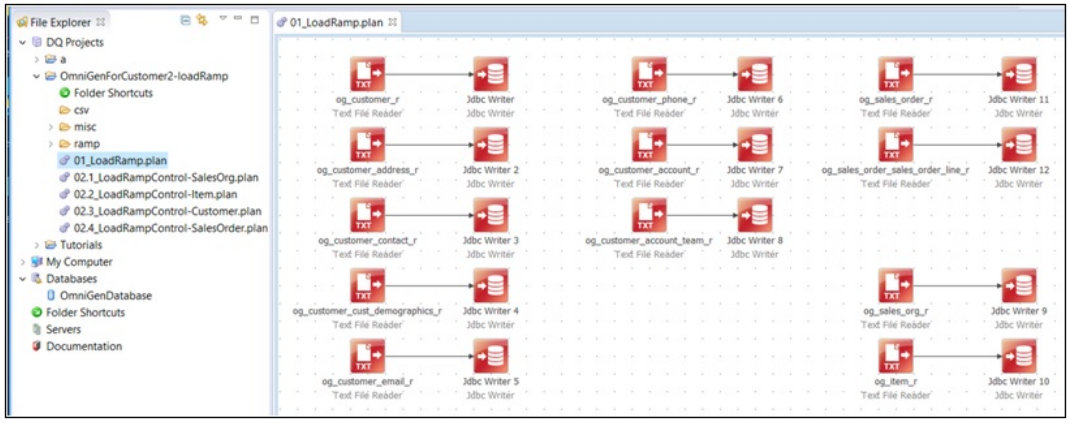
There are two ways you can access the sample data for Omni-Gen MDM - Basic Edition:

1. Using the File Explorer tab.

   Simply browse to the following folder in the File Explorer tab:

   `C:\omnigen\OmniGenData\OmniCustomer\OmniGen`

   Double-click *01_LoadRamp.plan*, which opens the selected plan as a tab in your workspace area, as shown in the following image.



   You can modify, save, and run the sample DQ plans as required.

2. Importing the \OmniGen folder into your workspace.

   a. Right-click *DQ Projects* in the File Explorer tab and select *Import* from the context menu.

      The Import dialog opens.

   b. Expand *General*, select *Existing Projects into Workspace*, and then click *Next*.

      The Import Projects pane opens.

c. Ensure *Select root directory* is selected and click *Browse* to the right of this field.

d. Browse to the following folder:

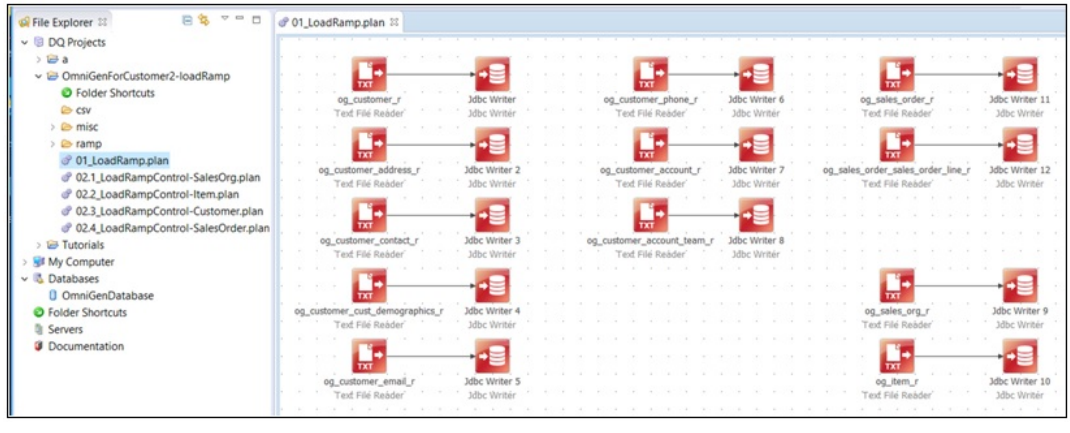
`C:\omnigen\OmniGenData\OmniCustomer\OmniGen`

e. Ensure the *\OmniGen* folder is selected and then click *Finish*.

The project is loaded as *OmniGenForCustomer-loadRamp*, which contains a subfolder called data, and five DQ plans:

- 01_LoadRamp.plan
- 02.1_LoadRampControl-SalesOrg.plan
- 02.2_LoadRampControl-Item.plan
- 02.3_LoadRampControl-Customer.plan
- 02.4_LoadRampControl-SalesOrder.plan

f. Double-click *01_LoadRamp.plan*, which opens the selected plan as a tab in your workspace area, as shown in the following image.



You can modify, save, and run the sample DQ plans as required.

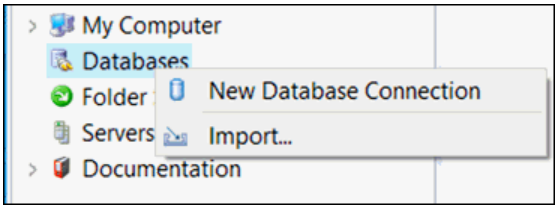
Create the Database Connection

You must now create a database connection, which is used by the Data Quality (DQ) plans.

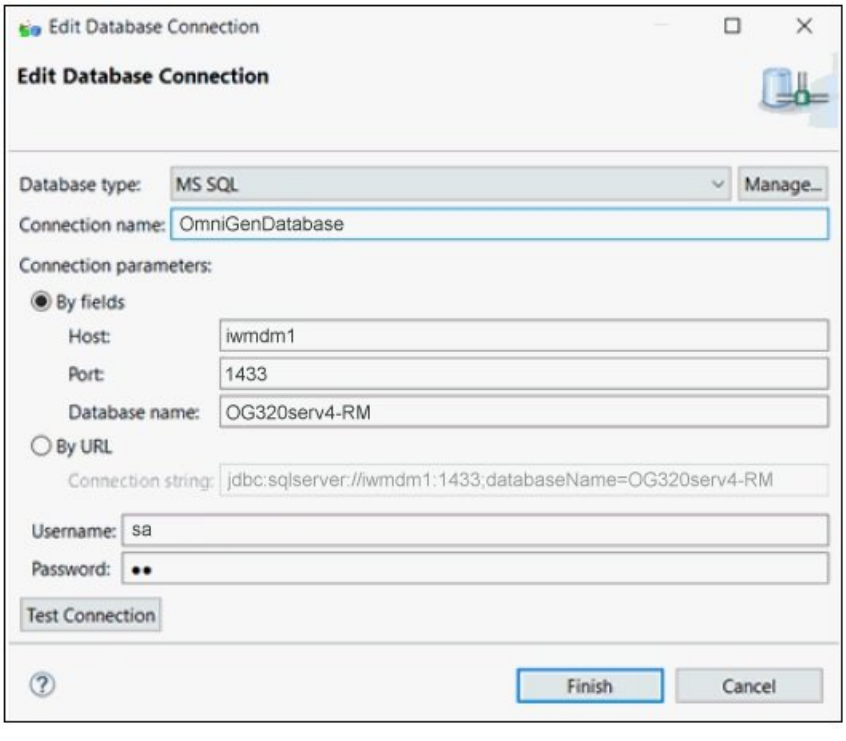
Note: The database connection you create in DQS must match the database properties that you defined for the combined Omni-Gen Server (OGS) and Remediation database during the Omni-Gen MDM - Basic Edition installation. For example, the database name must match in both areas. To review the installation, see Step 20 in *How to Install Omni-Gen Server and Omni Governance Console on Windows* on page 9.

To create a database connection:

1. Right-click *Databases* and select *New Database Connection* from the context menu, as shown in the following image.



The Edit Database Connection dialog opens, as shown in the following image.



2. From the Database type drop-down list, select the same database you specified to use for the combined Omni-Gen Server (OGS) and Remediation database during the Omni-Gen MDM - Basic Edition installation.
3. Enter *OmniGenDatabase* as the connection name followed by the connection parameters (including your user name and password).

   All of the connection parameters (including the database name) must match the database properties you defined for the combined Omni-Gen Server (OGS) and Remediation database during the Omni-Gen MDM - Basic Edition installation.

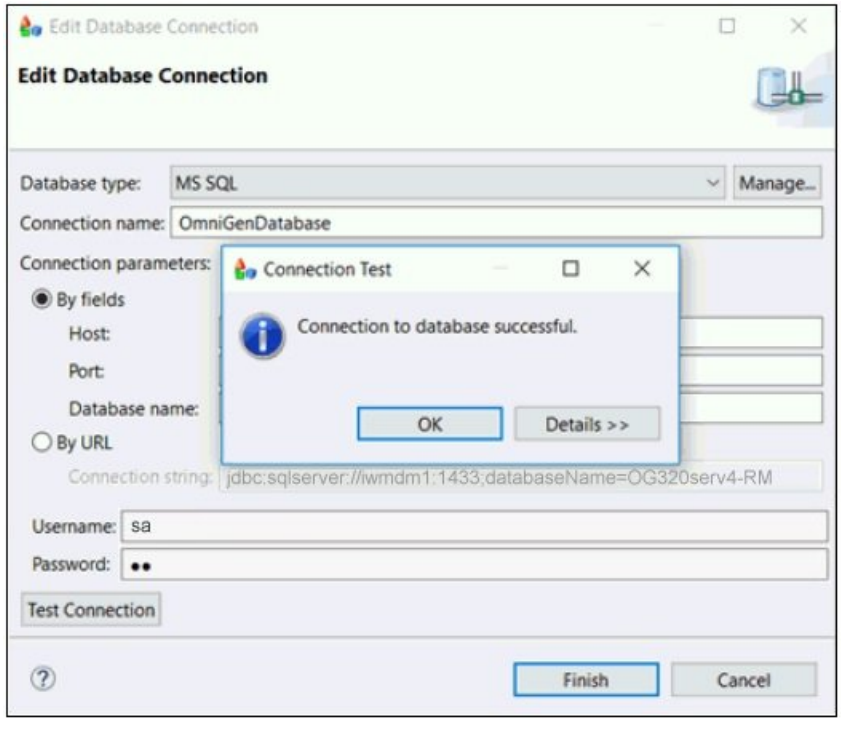
   If your database type is not available in the drop-down list, create it by:

   a. Clicking *Manage*.

   b. Selecting your database type (for example, MS SQL).

   c. Clicking *Add*.
4. Click *Test Connection* to verify your connection parameters.

   A success message is displayed if your database is accessible and all of your connection parameters are valid, as shown in the following image.



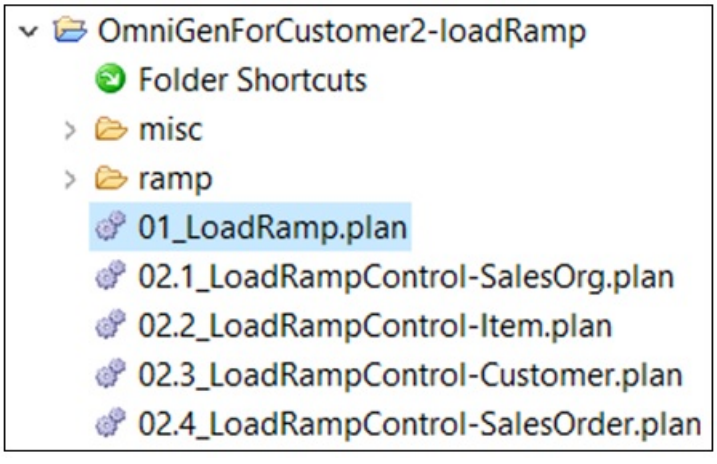
5. Click *OK* and then *Finish* to complete the process of adding a database connection.

Load the Omni-Gen Relational OnRamp Tables

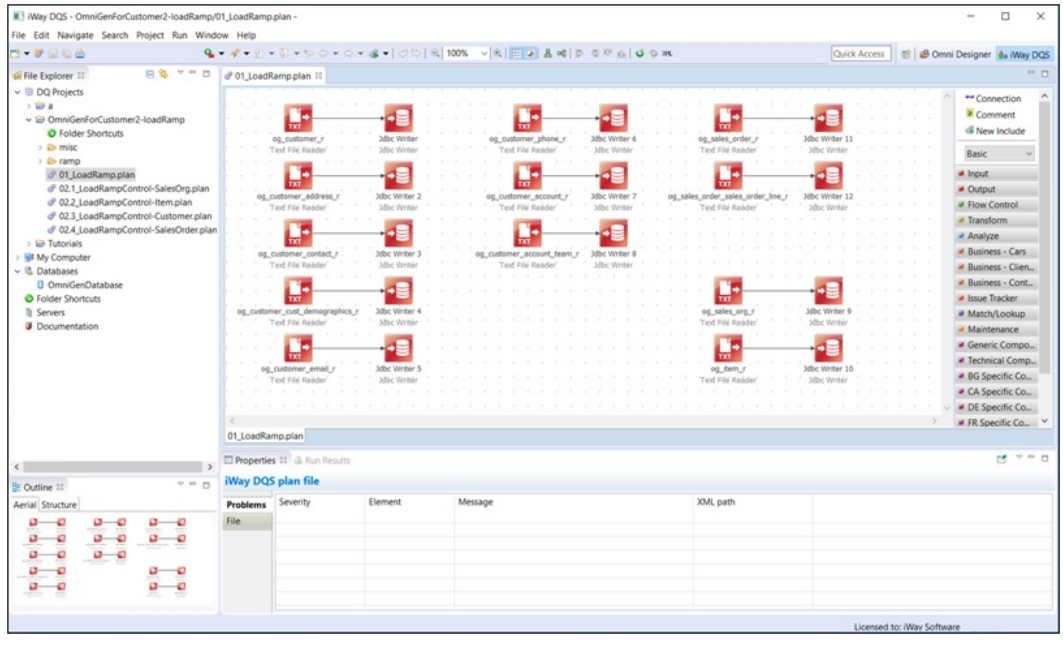
You must now load the sample data to the Omni-Gen Relational OnRamp tables and execute the job to process the data using Omni-Gen.

To load the Omni-Gen Relational OnRamp:

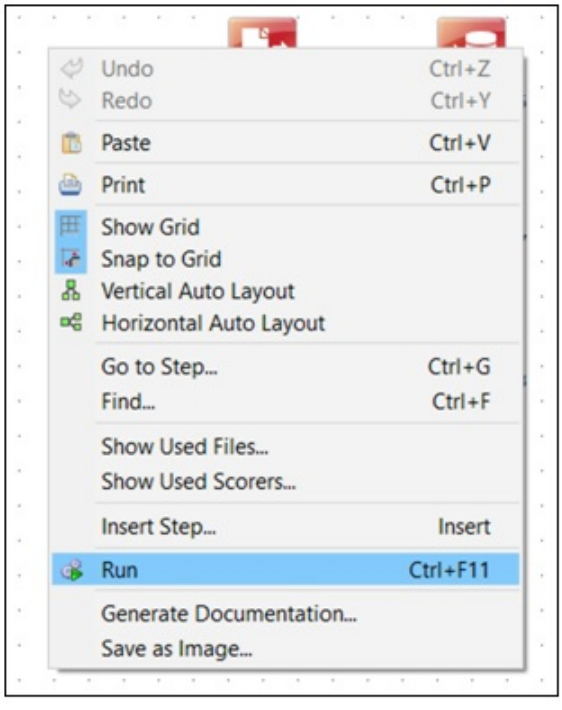
1. In the File Explorer tab, double-click *01_LoadRamp.plan*, as shown in the following image.



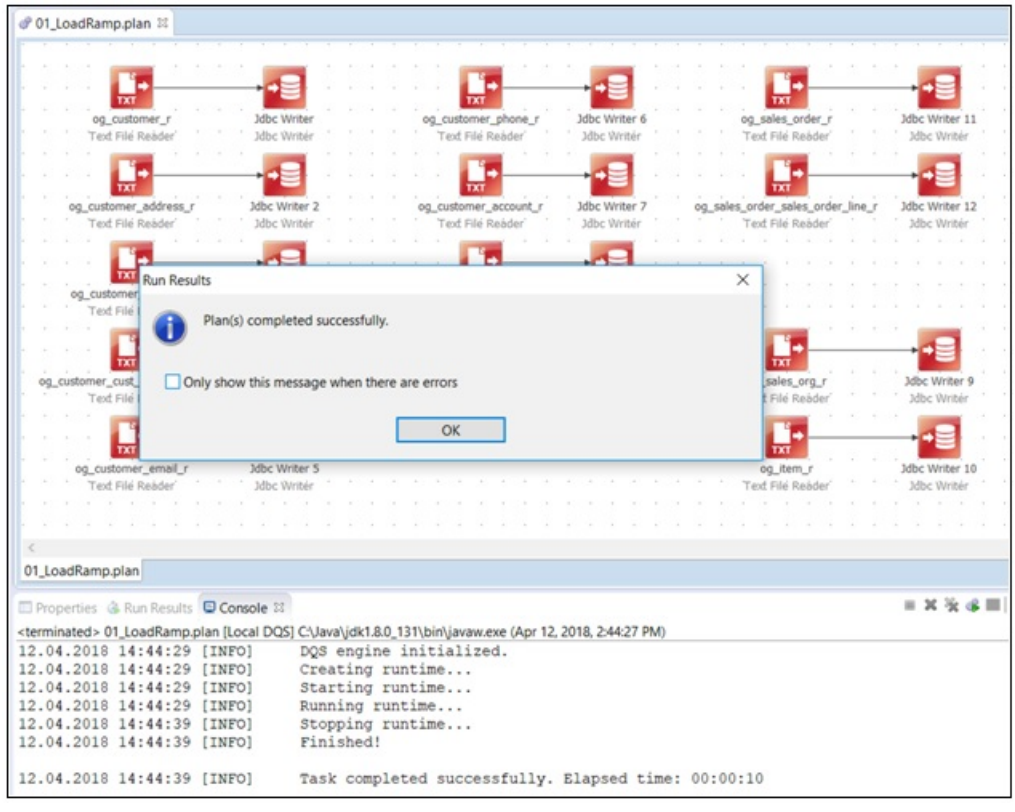
The 01_LoadRamp.plan opens as a tab in your workspace area, as shown in the following image.



2. Right-click anywhere in the white space area of the opened plan and select *Run* from the context menu, as shown in the following image.



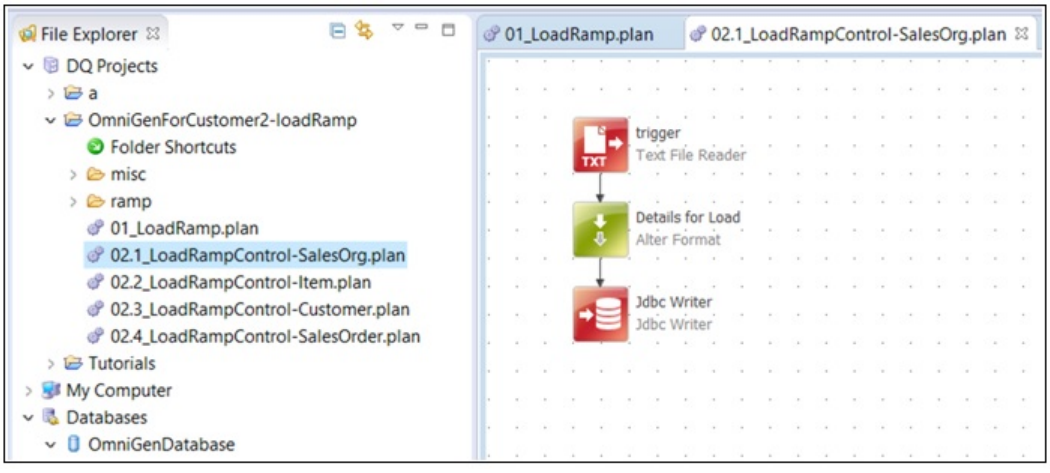
Once the process is complete, a success message is displayed, as shown in the following image.



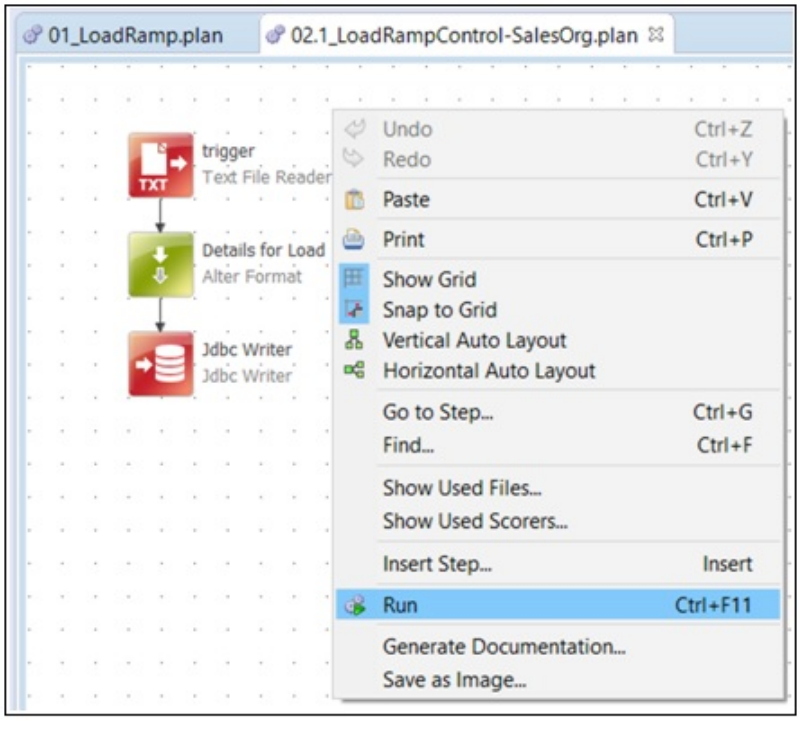
If you encounter any errors, then you must verify if you require a schema in your SQL statement by double-clicking on each of the JDBC Writer steps and changing the Table Name as required.

To process the data, continue in DQS to load the sample data from the ramp into Omni-Gen.

3. Double-click *02.1_LoadRampControl-SalesOrg.plan*, as shown in the following image.



4. Right-click anywhere in the white space area of the opened plan and select *Run* from the context menu, as shown in the following image.



Once the process is complete, a success message is displayed.

During the process, you can switch to the Omni Console (Processing –> Work Orders) to verify that the work order is set to ACTIVE.

5. Repeat steps 3 and 4 for the following remaining DQ plans:

   - 02.2_LoadRampControl-Item.plan
   - 02.3_LoadRampControl-Customer.plan
   - 02.4_LoadRampControl-SalesOrder.plan

Chapter 6

WSO2 Identity Server and MData Synchronization

This section describes how to synchronize internal data structures using Omni Governance Console (OGC) when adding a new subject.

In this chapter:

Functional Overview

WSO2 Identity Server and MData synchronization consists of two parts:

- **Interaction with OmniDomain.** To synchronize the internal data structure (referred to as MData) of OGC.
- **Interaction with WSO2.** To synchronize permissive mechanisms of the OGC application.

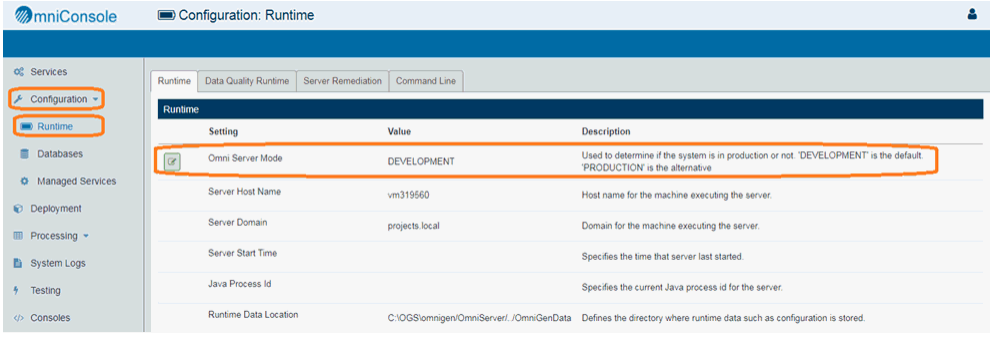
Using WSO2 Identity Server and MData Synchronization

This section describes the prerequisites and steps performed when using the WSO2 Identity Server and MData Synchronization projects.

Prerequisites

The synchronization functionality is intended for use only in OGS Development mode.

To set this mode, click the *Configuration* drop-down list, then click the *Runtime* option in the left pane. In the Runtime section that appears, select the *Omni Server Mode* setting and set the Value to *DEVELOPMENT* to enable the functionality, as shown in the following image.



Note: If OGS is unresponsive (because it is not started or in error), the sync function will be disabled.

Using Synchronization

When a new subject(s) is imported into the system, or when the structure of the current one is being altered, you will need to synchronize the updated data structure and the previously existing structure in OGC.

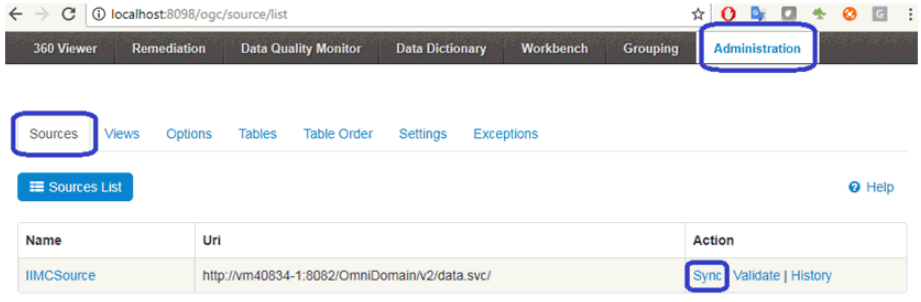
Initialization of the synchronization process can be performed by OGC and consist of the following parts:

- ❑ Analysis for the sync (and optional customization)
- ❑ Actual synchronization by the results of the previous action

The following is a sample synchronization process workflow of actions.

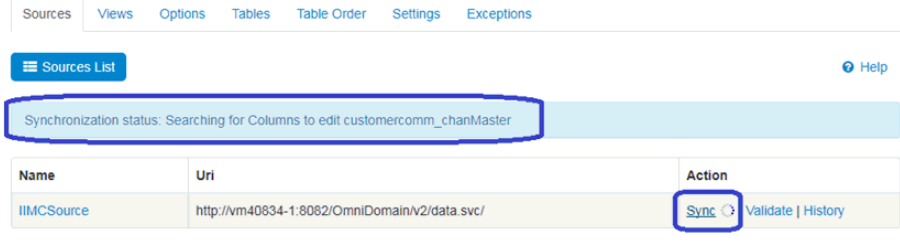
Step 1: Initialization of the Analysis for the Sync

From the OGC Application, click *Login*, select *Administration*, click the Sources tab, and then click *Sync*, as shown in the following image.



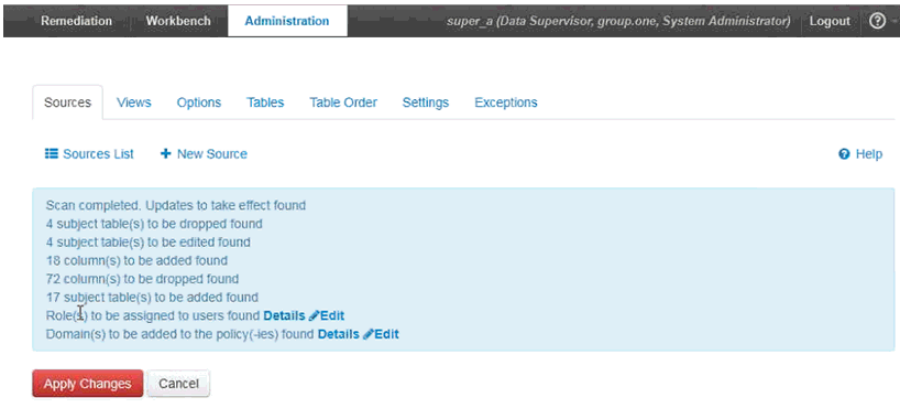
Step 2: Progressing the Analysis

The analysis for the synchronization process begins, and the status bar displays the dynamic progression status, as shown in the following image.



Step 3: Summarizing the Analysis

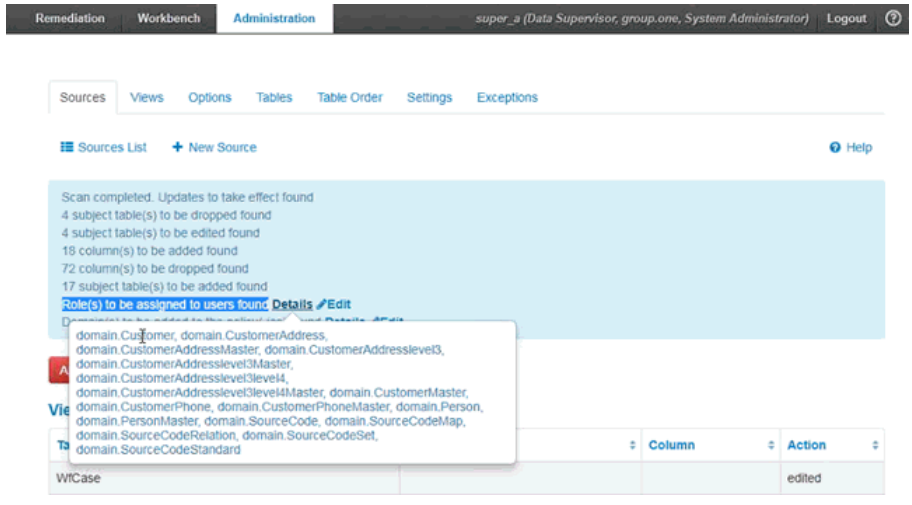
After the analysis is complete, a summary of the proposed synchronization appears, as shown in the following image.



Step 4: Viewing Analysis Details

Expand View Details to see the details of the potential update. View Details refers only to the actions modifying the OGC MData structure. To see the details for the WSO2 modifications, click the *Details* link by the respective summary items, as shown in the following image.

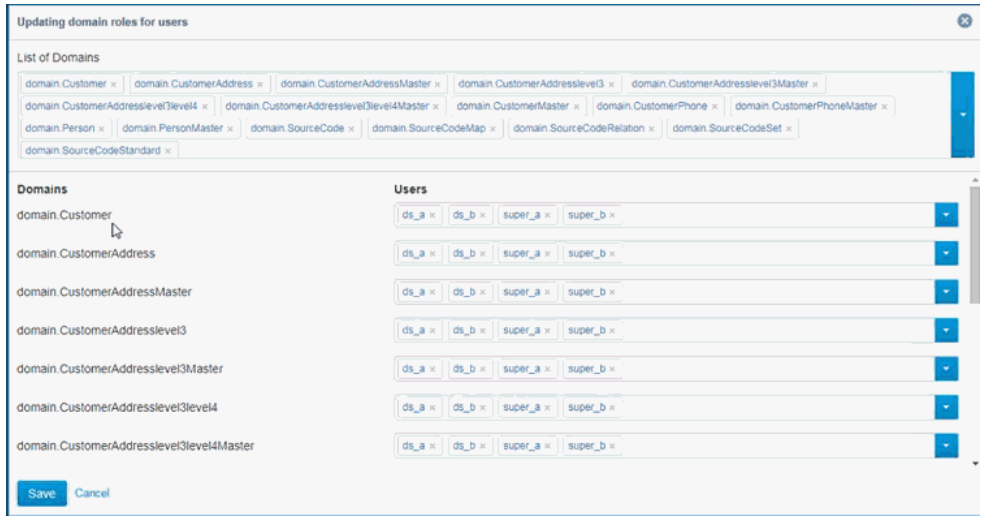
The following image shows the *Details* link for the *Role(s) to be assigned to users found* entry.



Step 5: Customizing Roles/Users to be Synchronized (Optional)

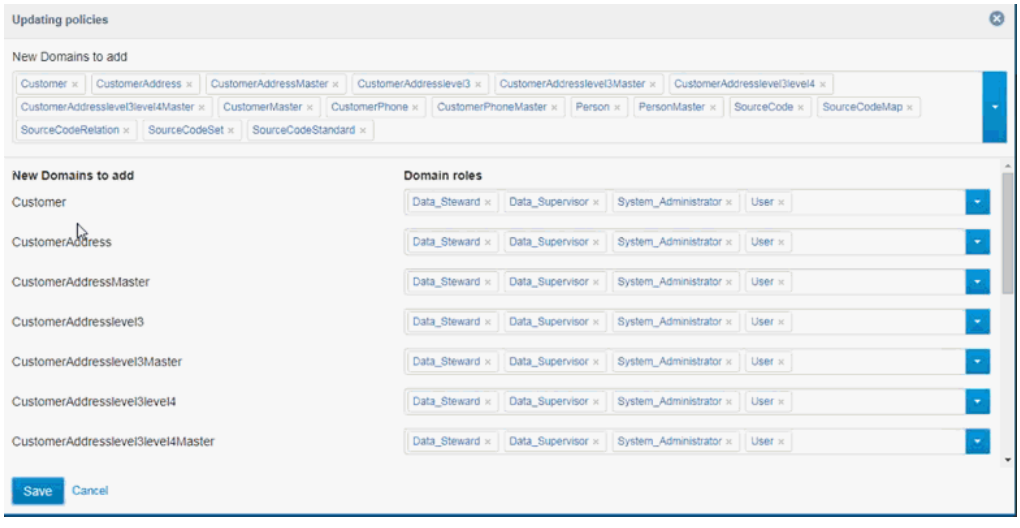
By default, four users (*ds_a*, *ds_b*, *super_a*, and *super_b*) are granted all the new domain roles (for example, permission to access the new Domains or Subjects). If you need to customize those defaults, click *Edit*.

A dialog appears, allowing you to refine the assigned domain roles. You can add/remove new domain roles and users, and the relations between them, as shown in the following image.



Step 6: Customizing Updated Policies

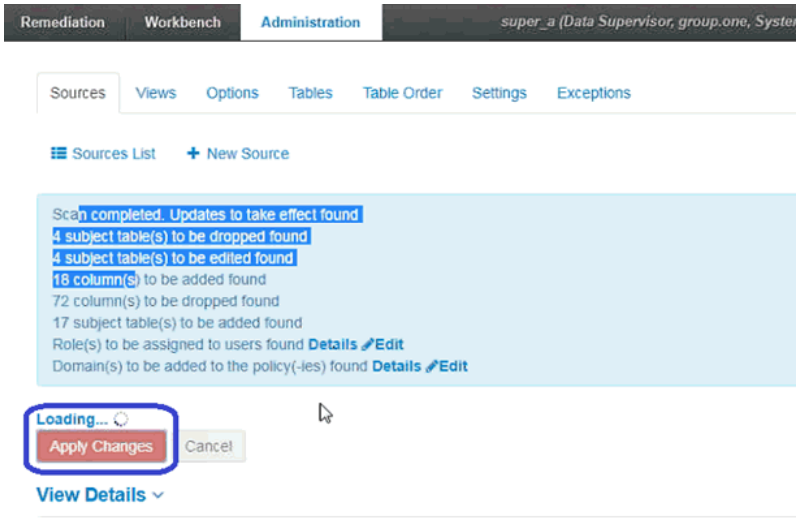
By default, new domain roles are added to all role sections in policies. If you need to change the default, click *Edit*. A dialog defining which domain roles refer to what role sections in all policies appears. You can match new domain roles to regular roles, as shown in the following image.



Step 7: Executing the Actual Synchronization

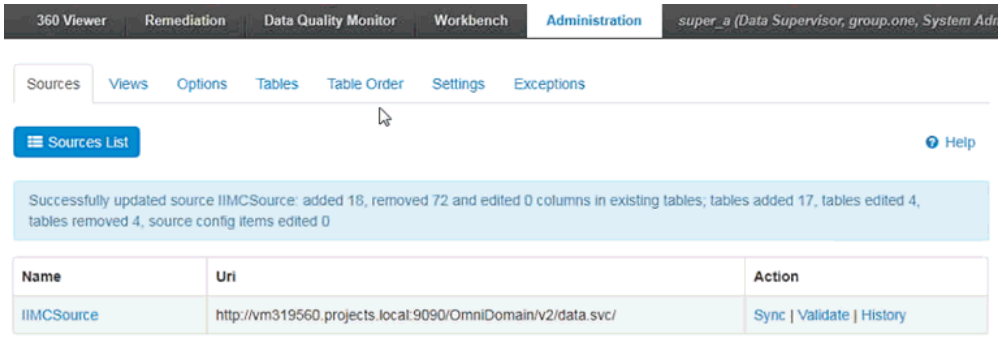
Click *Apply Changes* to start the actual synchronization process.

The Loading message appears, as shown in the following image.



Step 8: Summarizing the Synchronization

When the synchronization is complete, a summary appears displaying the synchronization details, as shown in the following image.



After all steps have been completed, the OGC application is completely in sync with the new OGS data structure, and fully functional in using the new data.

Configuring the Environment

The following SSL certificate setup occurs when using the synchronization functionality of your environment (for example, Intellij IDEA, Eclipse, and so on) with the OGS deployed on a secured gateway (HTTPS).

Note: Perform the following steps only if you are running it in your IDE.

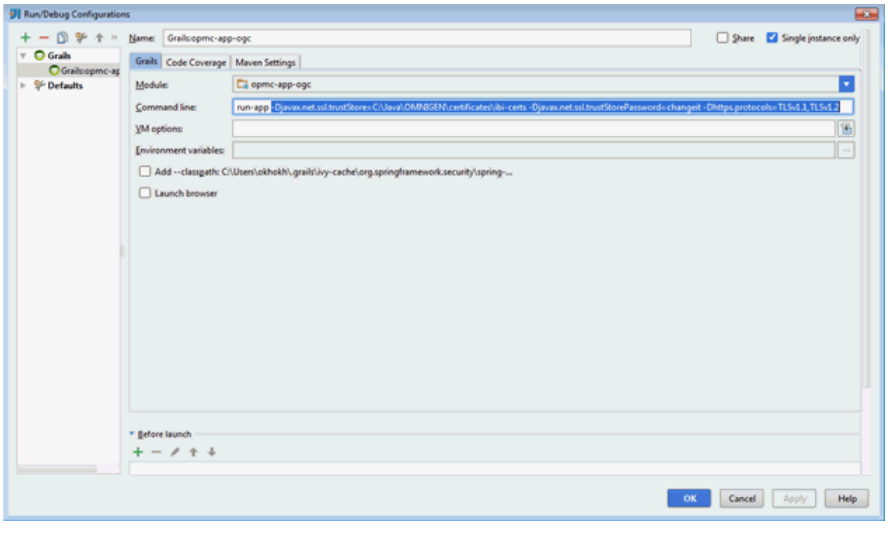
1. Add the new VM argument to your running configuration:

   ```
   -Djavax.net.ssl.trustStore=[path_to_certificates]\ibi-certs
   -Djavax.net.ssl.trustStorePassword=changeit -
   Dhttps.protocols=TLSv1.1,TLSv1.2
   ```

   where:

   ibi-certs
   Is the name of the key storage.

2. Open *Run\Debug Configurations* and append the new arguments to the Command line field, as shown in the following image.



3. Copy the required certificate from the OGS location to your computer. For example:

   ```
   ..\[OGS_HOME_DIR]\omnigen\OmniGenData
   ```

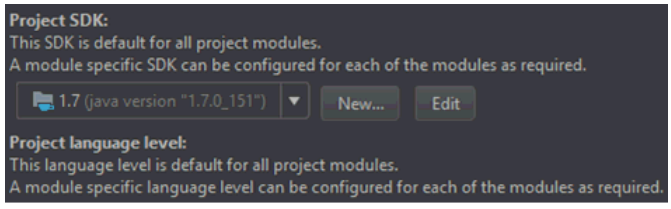
4. Copy the following files:

   - ibi-certs
   - omnigenstore
   - omnigenstore.pem

     Note: The certificate can change from time to time. If this happens, you will have to update them.

5. Install JDK 1.7 with an update numbered 99 or higher, otherwise requests will fail even with the correct certificates.

6. After installation is complete, click *File*, select *ProjectStructure*, and then link Project SDK to the proper location, as shown in the following image.



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