Informatica® MDM - Customer 360
10.3 HotFix 1

Installation and Configuration Guide

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Preface

This guide is intended for database administrators, system administrators, and implementers who are responsible for installing and setting up Informatica Informatica MDM - Customer 360. For more information about configuring the underlying Multidomain MDM environment, see the *Multidomain MDM Configuration Guide*.

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CHAPTER 1

Introduction to Informatica MDM - Customer 360

This chapter includes the following topics:

Overview of Informatica MDM - Customer 360

Informatica MDM - Customer 360 provides clean, consistent, and connected information about customers. Business managers use the master customer data to make better business decisions about customers and manage customer relationships. You can get a single trusted view of a customer.

With Customer 360, business users can achieve the following goals:

- Streamline the customer onboarding and qualification process.
- Centralize the data about customers in a master database.
- View the relationships between customers, parent companies, subsidiaries, and related organizations.
- Design campaigns based on customer preferences and behavior.
- Improve customer service.
- Connect customer data to the product catalogs and view the buying patterns.
- View customer-to-product relationships.

Customer 360 is based on Multidomain MDM. Business users connect to master customer data through a business-friendly user interface. The user interface displays an enterprise-level dashboard as well as 360 degree customer views that are customized for different business users.

The Customer 360 environment integrates with Informatica Product 360, which is a product information management system.

Use Customer 360 to access the master data that is stored in the Hub Store. Master data is organized by business entities. Business entities are the type of top-level data that has significance for an organization. Business entities include persons and organizations.

Business users use Customer 360 to perform the following activities:

- Add records.
- Search for and edit records.
- Manage relationships between records.
- Participate in review processes for new and changed records.
- Import records in bulk to create new customers.

Architecture

Customer 360 requires Multidomain MDM and the embedded Informatica ActiveVOS® Server. For product information, you need integration with Product 360.

The following diagram shows the architecture for Customer 360:
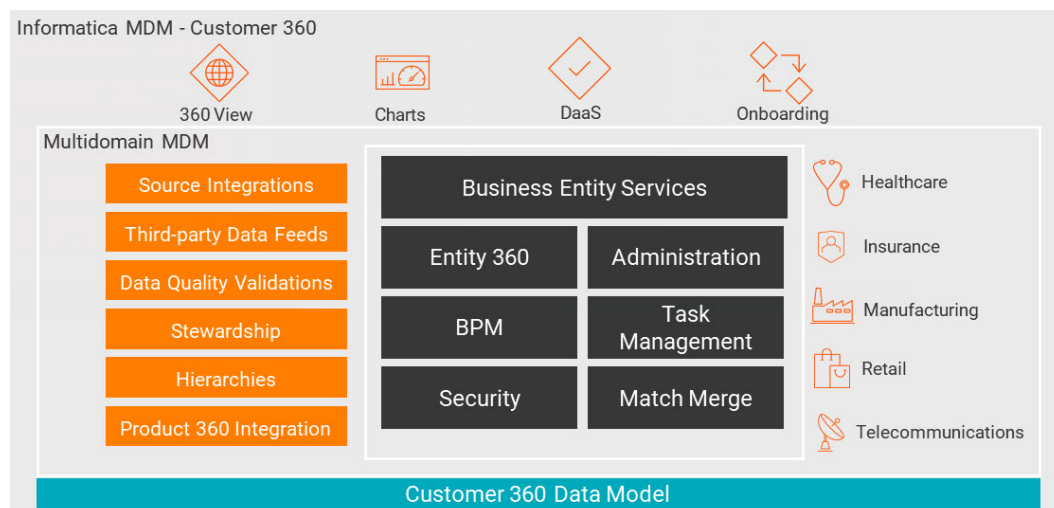
Customer Data Management

Customer 360 adds additional features to the Informatica MDM environment, such as a database schema for customer data, business processes for customer management, and an interface that the business users can use to access customer data.

Customer data management includes onboarding of a customer and customer profile management.

Informatica Multidomain MDM

Customer 360 includes the standard Multidomain MDM components:

Hub Store

Databases that store and consolidate business data. The Multidomain MDM consists of an MDM Hub Master Database and Operational Reference Stores. The application ships with a database schema that you use to create an Operational Reference Store for customer master data.

Hub Server

A J2EE application that you deploy on an application server. The Hub Server processes data within the Hub Store and integrates the MDM Hub with external applications. The Multidomain MDM is the run-time component that manages core and common services for the MDM Hub. It also manages user authentication across all components.

Process Server

A J2EE application that you deploy on an application server. The Process Server cleanses and matches data and performs batch jobs such as load, recalculates best version of the truth, and revalidates. The Process Server interfaces with cleanse engines to standardize the data and to optimize the data for match and consolidation.

ActiveVOS Server

Business process management software that automates business processes. The application ships with business processes that help you to manage the customer lifecycle. These processes ensure that authorized business managers review customer profiles and review internal updates to master data.

Data Director

A browser-based interface that business managers use to view and manage data. The Application ships with Customer 360, which contains an enterprise-level workspace focused on customers and views designed for business managers.

Hub Console

A browser-based interface that administrators use to manage the MDM Hub and data stewards use for managing records and batch processing of records.

Informatica MDM - Product 360

Informatica MDM - Product 360 creates a single repository for all product data. In Customer 360, MDM - Product 360 is an optional component.

Product 360 supplies the product data and the purchase history of a customer. You can view the data in the customer dashboard.

User Roles

The MDM Hub user roles control read and write privileges of the Operational Reference Store (ORS) that contains the customer master data.

Customer 360 uses the following MDM Hub user roles:

User roles for system users

The ApplicationAdministrator role is for a super user, who has full privileges.

User roles for business users

User roles for the business users control the data privileges in the ORS and also the review privileges in the business processes. Each business user who is authorized to participate in customer data management receives one or more role assignments. Many users can have the same role.

Customer 360 includes the following predefined roles for the business users:

- Sales Operation Analyst
- Sales Operation Manager

Data as a Service Validation

Use the integration of Customer 360 with Informatica DaaS for data verification and correction. You can verify customer contact information and store accurate data.

You can analyze, verify, correct, and format addresses according to the local postal standards. You can ensure that the email addresses are valid and formatted correctly. You can find email domains involved with spam networks, traps, and other malicious threats and verify that the email address is valid, not valid, or malicious. You can verify the phone numbers of your customers.

CHAPTER 2

Before You Install

This chapter includes the following topics:

Read the Release Notes

Read the *MDM - Customer 360 Release Notes*. You can also find information about the known limitations for the release.

Software Requirements

Set up the Informatica Multidomain MDM environment before you install Informatica MDM - Customer 360.

Perform the following tasks:

1. Review the Product Availability Matrix for Customer 360 to discover the system requirements and supported versions for products, databases, and application servers. You can find all Product Availability Matrices at
   https://network.informatica.com/community/informatica-network/product-availability-matrices.

2. Install a supported version of Multidomain MDM and the embedded version of Informatica ActiveVOS® Server.

3. If you plan to use Informatica MDM - Product 360, install a supported version.

Extracting the Customer 360 Application Archive File

You receive the Customer 360 application as an archive file. Create the following directory structure and extract the contents of the Customer 360 archive file into it:

```
<MDM Installation Directory>/app/tcr
```

The extracted content contains the following files and folders:

- `bin/`. Contains installation, upgrade, and database schema validation utilities.
- `bpm/`. Contains the ActiveVOS default business process in a deployable format.
  - `InfaCustomer360Workflow.bpr`. Contains the default business process for the data model based on the Party table.
  - `pre_c360_10.2_hf2/`. Directory that contains the default business processes for the data model based on the Party Role table.
- `cleanse/`. Contains custom Java cleanse functions.
- `config/`. Contains configuration properties files.
- `data/`. Contains the scripts for inserting lookup or reference data.
- `datamodelmigration/`. Contains the scripts and the change lists required to migrate from the data model based on the Party Role table to the data model based on the Party table.
- `docs/`. Contains the data dictionary.
  - `C360_102HF2_DataDictionary_en.pdf`. Data dictionary for the data model based on the Party table.
  - `pre_c360_10.2_hf2`. Directory that contains the data dictionary for the data model based on the Party Role table.
- `hub/`. Contains the subdirectories that contain the database schema and the configuration files to deploy.
  - `cocs-config-xml/`. Contains configuration files for the business entities and business entity services.
  - `entity360config-xml/`. Contains copies of the Entity 360 component instance definitions that ship with Multidomain MDM.
  - `change-xml`. Contains the MDM Hub metadata including components, such as landing tables, lookup tables, staging tables, base objects, and match and merge rules, cleanse functions, component instances, business entities, and business entity services.
- `idd/`. Contains IDD application archive to support Hierarchy Manager interface.

- `lib/`. Directory for the external libraries. Copy the JDBC driver files for your database to the `lib` directory.
- `localizationScript`. Contains the scripts for localizing labels and error messages.
- `lookuplocalization/`. Contains the localized lookup data.
- `notices/`. Contains the legal copyright file.
- `reporting/`. Contains the data mart service, the chart configurations, the Highcharts editor, and the Highcharts projects.
  - `datamart/`. Contains the database service and the chart configurations. The `pre_c360_10.2_hf2/` directory contains the data mart service for the data model based on the Party Role table.
  - `highcharts-editor/`. Contains the Highcharts editor and the Highcharts projects.
- `resources/`. Contains the resource `bundle.properties` files for each of the supported locales.
- `upgrade/`. Contains the supporting files for the upgrade utility.
- `user_exit/`. Contains the MDM Hub user exit archive.
- `bundleLocalization.jar`. JAR file for localization.
- `customer360view-ear.ear` and `uiwebapp-ear.ear`. Files for the Customer 360 user interface.
- `Customer360.war`. File that contains the Task Manager, My Records, Timeline, File Import, Charts, and Linkage-related services for the data model based on the Party table.
- `productversion.jar`. JAR file for the product version.
- `provisioning-ear.ear`. File for the Provisioning tool user interface.
- `store-credentials.jar`.

Creating the Operational Reference Store

Create an Operational Reference Store (ORS) for Customer 360.

For more information about how to create an ORS, see the *Multidomain MDM Installation Guide*.

Importing the Metadata

After you create the Customer 360 Operational Reference Store, import the metadata into the Operational Reference Store.

For more information about how to import the metadata, see the *Multidomain MDM Installation Guide*.

Registering the Operational Reference Store

Register the Customer 360 Operational Reference Store.

1. Log in to the MDM Hub Console.

2. In the Configuration workbench, click **Databases**.

3. On the **Write Lock** menu, click **Acquire Lock**.

4. Click **Register database**.

   The **Informatica MDM Hub Connection Wizard** appears.

5. Follow the online instructions to specify the same parameters that you specified when you created the Operational Reference Store.

6. On the **Summary** page, click **Test Database**.

   The Wizard tests the database connection parameters.

7. Ensure that you select **Create datasource after registration**.

8. Click **Finish**.

9. When prompted, enter the user credentials for the application server.

   The wizard creates a data source.

Importing the Application Metadata from a Change List

The metadata for the Customer 360 database schema resides in an MDM Hub change list. You import the change list into the Hub Store. The metadata change list creates components, such as landing tables, user exits, lookup tables, staging tables, base objects, and match and merge rules. The created tables are empty.

Before you import the application metadata, you must start the Hierarchy Manager in the MDM Hub Console. For more information about starting the Hierarchy Manager, see the *Multidomain MDM Data Steward Guide*.

1. In the **Configuration** workbench of the Hub Console, click **Repository Manager**.

2. On the **Import** tab, click the button next to the **Source** field.

   The **Open Repository** dialog box appears.

3. On the **File Repository** tab, browse to the following directory:

   `<MDM Installation Directory>/app/tcr/hub/change-xml`

4. Select the `TCR_HUB.change.xml` file, and click **OK**.

5. In the **Target** list, select the Customer 360 Operational Reference Store.

6. Select all the schema components, and click **Apply**.

   The Repository Manager imports the selected components from the change list to the Customer 360 Operational Reference Store.

Inserting Reference Data

After you import the metadata, you can populate the tables with some reference data. By using reference data, you can complete the configuration steps faster because you do not have to manually insert the rows into the tables.

Before you insert the reference data, you must configure a Process Server. The Process Server is a servlet that cleanses data and processes batch jobs. For more information about configuring a Process Server, see the *Multidomain MDM Configuration Guide*.

1. Open a command prompt, and navigate to the following directory:

   `<MDM Installation Directory>/app/tcr/data/reference-data`

2. Run one of the following scripts based on the database you use:

   - **For Oracle.** `C360_lookup_script_oracle.sql`

   - **For Microsoft SQL Server.** `C360_lookup_script_MSSQL.sql`

   - **For IBM DB2.** `C360_lookup_script_DB2.sql`

3. To verify whether the lookup records are loaded successfully, perform the following tasks:

   a. In the Hub Console, in the Utilities workbench, click **Batch Group**.

   b. Expand **BG_All_Lookup_Load**, and select **Control & Logs**.

   c. In the Logs for each job table, review the **Status** column to verify that the load is successful. The **Total records** column shows the number of records added. The columns to the right of the **Total records** column displays zeros if all the records load successfully.

   d. If the load is unsuccessful, try running the load. Select **BG_All_Lookup_Load** and click **Execute**.

Importing and Deploying the Customer 360 Application

Import the `Customer360.zip` file as an IDD application, and then deploy it.

1. To start Data Director Configuration Manager, perform the following tasks:

   a. Open a supported web browser.

   b. Enter the following URL:

      `https://<Home name:<Port number>/bdd/config`

   c. Enter the user name and password, and then click **Log In**.

   The Data Director Configuration Manager starts and the applications page appears.

2. Click **Import** > **Import complete IDD application (Zip)**.

3. Click **Browse**, and navigate to the following directory:

   `/app/tcr/idd/config`

4. Select `Customer360.zip`, and click **Open**.

5. Click **Import**.

6. Under **Bind Logical ORS**, select Operational Reference Store (ORS) from the list.

   You must select the ORS that you created for Customer 360 when you installed Multidomain MDM.

7. Click **Save**.

   Data Director imports and validates the IDD application. The process might take some time.

8. Ignore any validation errors.

9. With the application selected, click **Application State** > **Full Deployment**.

   Data Director deploys the IDD application.

Informatica Data as a Service

Informatica Data as a Service (DaaS) cleanse functions are available to validate and verify postal addresses, email addresses, and phone numbers. To use a validation service, add the mandatory parameters for the service in the MDM Hub.

Each service contains default values for the optional parameters. If required, change the default values in the Hub Console.

Use the following rules for the validation service parameters:

- Address validation. Prepend the parameter names with `ADV5_`.

- Email address verification. Prepend the parameter names with `EMV6_`.

- Phone number validation. Prepend the parameter names with `GPV15_`.

The following table lists the mandatory parameters for the DaaS validation services:

Service	Mandatory Parameter
Address validation	`LOGIN` `PASSWORD`
Country type	`COUNTRYTYPE`. Set the parameter value to ISO2.
Email address verification	`LICENSE_KEY`
Phone number validation	`LICENSE_KEY`

Specifying the Mandatory Parameters for DaaS Validation

Configure the mandatory parameters for DaaS validation in the Hub Console.

1. Log in to the MDM Hub Console.

2. Select the Customer 360 ORS.

3. In the Model workbench, click **Cleanse Functions**.

   The Cleanse Functions tool appears.

4. On the **Write Lock** menu, click **Acquire Lock**.

5. Click **Informatica Data as a Service**.

6. Click the **Add** button.

7. Specify the parameter name and value.

8. Repeat steps 6 and 7 to add the other mandatory parameters.

9. Save the changes, and click **Refresh**.

Creating a JCEKS Keystore

Create a JCEKS keystore to store the Informatica MDM - Product 360 credentials.

1. Run the following command:

```
<JAVA_HOME>\bin\keytool.exe" -genseckey -alias <aliasname_for_keystore> -keyalg
<Encryption Algorithm> -keysize <KEY_SIZE> -storetype jceks -keystore
<name_of_keystore>.keystore
```

   Note: Recommended encryption algorithm is AES and key size is 256.

   The following sample command uses AES encryption algorithm and key size of 256:

```
C:\Program Files (x86)\Java\jdk1.8.0_91\bin\keytool.exe" -genseckey -alias test -keyalg
AES -keysize 256 -storetype jceks -keystore test.keystore
```

2. When prompted, provide a keystore password.

   Note: For future use, note the password.

3. When prompted for key password, press **Enter**.

4. To confirm that the key is generated, run the following command:

```
JAVA_HOME\bin\keytool.exe" -list -v -storetype jceks -keystore
<name_of_keystore>.keystore
```

   The first entry with the given alias name appears.

Creating an ApplicationAdministrator User

The ApplicationAdministrator role is a role with all the privileges.

1. Create an MDM Hub user.

2. Assign the ApplicationAdministrator role to the user.

Creating a User in the MDM Hub

Create an MDM Hub user before you assign a role to the user.

1. In the Hub Console, in the Configuration workbench, click **Users**.

2. Acquire a write lock.

3. On the **Users** tab, click the **Add user** button.

   The **Add User** dialog box appears.

4. Enter the first, middle, and last names for the user.

5. Enter the user name for the user. The user must use the user name logs in to the Hub Console.

6.   Enter the default database for the user, which is the Operational Reference Store that contains the customer master data.

7.   Enter and verify a password for the user.

8.   Click **OK**.

Assigning the ApplicationAdministrator Role

After you create the user, assign the ApplicationAdministrator role to a user.

1.   In the Hub Console, connect to the Operational Reference Store for Customer 360.

2.   Acquire a write lock.

3.   In the Security Access Manager workbench, click **Users and Groups**.

     The Users and Groups tool opens. You can use the role-first approach or user-first approach.

4.   If you want to follow the role-first approach, on the **Assign Users/Groups to Role** tab, perform the following steps:

     a.   Select the **ApplicationAdministrator** role.

     b.   Click the **Edit** button.

          The **Assign Users to Role** dialog box appears.

     c.   Select the user that you created earlier.

     d.   Click **OK**.

5.   If you want to follow the user-first approach, on the **Assign Roles to User/Group** tab, perform the following steps:

     a.   Select the user you created earlier.

     b.   Click the **Edit** button.

          The **Assign Users to Role** dialog box appears.

     c.   Select **ApplicationAdministrator**.

     d.   Click **OK**.

Configuring the Application Properties File

In the `application.properties` file, configure the properties related to file import, JMS queue, and ActiveVOS.

1.   Navigate to the following directory:

     `/app/tcr/config`

2.   Open the `application.properties` file in an editor, and configure the following properties:

     activevos.datasource.url

          Specifies the JNDI name of the ActiveVOS data source.

     bulkimport.fileupload.directory

          Specifies the directory to which you want to upload the import files.

bulkimport.fileupload.cleanupMinutes

Optional. Manually add the `bulkimport.fileupload.cleanupMinutes` property. Specifies the number of minutes to persist the import file in the specified directory after the import process is completed. The import process deletes the file after the specified time period. Default is 1 minute.

3. Save the file.

Configuring the Keystore Properties

Specify the properties related to the keystore in the `c360-config.properties` file.

1. Navigate to the following directory:

   `/app/tcr/config`

2. Open the `c360-config.properties` file in an editor.

3. Specify the following properties:

Property	Description
keystore.file.path	Path to keystore.
keystore.pass.property.path	Path to the keystore password file, which is `keystore-pass.properties`.
application.admin.user	Name of the ApplicationAdministrator user that you created earlier.
base.url	Base URL for the business entity services. For example, `http://<Host>:<Port>`

4. Save the file.

Configuring the Keystore Password

Specify the keystore password in the `keystore-pass.properties` file.

1. Navigate to the following directory:

   `/app/tcr/config`

2. Open the `keystore-pass.properties` file in an editor.

3. Specify the `keystore.password` parameter.

4. Save the file.

Configuring the Log File Path

Specify the path of the log file in the `c360-log4j.properties` file.

1. Navigate to the following directory:

   `/app/tcr/config`

2. Open the `c360-log4j.properties` file in an editor.

3. For the `log4j.appender.FILE.File` property, specify the path of the log file.
   You must specify the log file name in the path. For example, `log4j.appender.FILE.File=/opt/applog/c360/tcr01.log`

4. Save the file.

Editing the Resource Bundle Files

The resource bundle files contain the locale specific validation messages. If required, you can edit the files to add custom validation messages.

1. Navigate to the following directory:

   `/app/tcr/resource`

2. Open the locale specific file that you want to edit.

3. Edit the file as required.

4. Save the file.

Copying the JDBC Drivers

Before you install Customer 360, copy the JDBC driver for your database to the following directory: `/app/tcr/lib`

CHAPTER 3

Installing MDM - Customer 360

This chapter includes the following topic:

Installing MDM - Customer 360

After you perform the pre-installation tasks, you can install MDM - Customer 360.

1. Navigate to the following directory:

   `/app/tcr/bin`

2. Run one of the following scripts:

   - On Windows. `install-tcr.bat`
   - On Linux. `install-tcr.sh`

3. At the prompts, enter the following parameters:

Parameter	Description
MDM Hub installation directory	Fully qualified path to the directory where you installed MDM Hub.
MDM - Customer 360 installation directory	Fully qualified path to the directory that contains the Customer 360 files.
Application Server	Name of the application server in lowercase.
avos console username	ActiveVOS Console user name.
avos console password	ActiveVOS Console password.
PIM portal username	Product 360 user name. If you do not want to enable the Product 360 service, press **Enter**.
PIM portal password	Product 360 password.

   Note: If you use a Weblogic application server, you are prompted to enter the Weblogic console password.

CHAPTER 4

After You Install

This chapter includes the following topics:

Adding User Accounts and Assign Roles

User roles for the business managers control the data privileges in the MDM Hub and review privileges in the business processes. Each data steward or business user who is authorized to participate in customer data management receives one or more role assignments. Many users can have the same role.

1. If the business users who need to use the Customer 360 do not have the MDM Hub user accounts, add a user account for each business user.

2. Assign roles to the users.

For more information about users and roles, see the *Multidomain MDM Security Guide*.

Adding User Accounts

If some business users do not have the MDM Hub user accounts, create the user accounts.

Before you begin, you can review an existing MDM Hub user account to see which authentication type is used in the Informatica MDM environment.

1. In the Hub Console, in the Configuration workbench, click **Users**.

2. Acquire a write lock.

3. On the **Users** tab, click the **Add user** button.

   The **Add User** dialog box appears.

4. Enter the first, middle, and last names for the user.

5. Enter the user name for the user. The user must use the user name to log in to the Hub Console.

6. Enter the default database for the user, which is the Operational Reference Store that contains the customer master data.

7. Enter and verify a password for the user.

8. Choose the type of authentication.

   - If your MDM Hub implementation uses authentication through a third-party security provider, select **Use external authentication**.

   - If you want to use the internal authentication in the MDM Hub, clear **Use external authentication**.

9. Click **OK**.

   The Users tool adds the user to the list of users.

Role Privileges

The following table lists the user roles and their privileges:

Role	Add or edit a customer profile	Review and Approve customer profiles or profile updates
ApplicationAdministrator	Yes	Yes
Sales Operation Analyst	Yes	No
Sales Operation Manager	Yes	Yes

Assigning Roles to Business Users

You need to assign user roles to the business users who are responsible for reviewing the new customer profiles and the edited customer profiles.

Use the Hub Console to assign user roles. You can follow the role-first or user-first approach. For a role-first approach, you select a role and then select the users and user groups that you want to associate with the role. For a user-first approach, you select a user or user group and then select the roles for the user or user group.

1. In the Hub Console, connect to the Operational Reference Store of Customer 360.

2. Acquire a write lock.

3. In the Security Access Manager workbench, click **Users and Groups**.

   The Users and Groups tool opens.

4. If you want to follow the role-first approach, on the **Assign Users/Groups to Role** tab, perform the following steps:

   a. Select a workflow role.

   b. Click the **Edit** button.

      The **Assign users to Role** dialog box appears.

   c. Select the users and user groups to whom you want to assign the role.

   d. Click **OK**.

   e. Repeat the steps for other workflow roles.

5. If you want to follow the user-first approach, on the **Assign Roles to User/Group** tab, perform the following steps:

   a. Select a user or user group.

   b. Click the **Edit** button.

      The **Assign users to Role** dialog box appears.

   c. Select the workflow roles suitable for the user or user group.

   d. Click **OK**.

   e. Repeat the steps for other users and user groups.

Configure the Operational Reference Store

Before you start the Customer 360 application, configure the Operational Reference Store that contains customer data. You must disable a trigger, truncate the data in a repository table, and review the value of the GETLIST Limit property.

Truncating a Repository Table

If you imported the Oracle database dump, the repository table C_REPOS_RPT_DETAILS contains sample data. You must truncate the data.

1. In a database tool, connect to the Operational Reference Store for C360.
2. Run the following command:

   ```
   truncate table C_REPOS_RPT_DETAILS
   ```

Populate Customer 360 Charts with Data

The Home page of Customer 360 displays charts with metrics or data about customers and tasks. The data for all charts come from the data mart service.

The data mart service retrieves data from the Operational Reference Store and stores the results in a repository table. When the Home page loads, the page queries the data mart service for the data and populates the charts.

Note: In the data mart service and configuration files, the term *report* refers to the chart configuration.

To populate the charts, perform the following tasks:

1. Import the chart configurations into a repository table.
2. Configure a database connection between the data mart and the database that contains the Operational Reference Store.
3. Configure the report parameters to include the database name.
4. Populate the data mart with report data.

Charts and Graphs

The **Home** page contains charts that are predefined for Customer 360. The charts display information about customers and tasks.

The following table lists the predefined charts that the Home page displays:

Chart	Description
Customers Added By Year	Displays the number of customers added in each year.
Customer By Onboarding Time	Displays how long it took to qualify customers.
Source Systems	Displays the percentage of customer data that comes from each source system in each year.
Tasks Overview	Displays the total number of tasks and breaks down the tasks by status and priority.
Assigned Tasks By Users	Displays the total number of tasks assigned to each user.
Closed Tasks By Users	Displays the total number of tasks closed by each user.
Open Tasks By Task Type	Displays the total number of tasks that are open for each task type.
Assigned Tasks By User Roles	Displays the total number of tasks assigned to each user role.

Importing Customer 360 Chart Configurations

To import the chart configurations, run an insert script on the Customer 360 Operational Reference Store (ORS). The script imports the chart configurations into the C_REPOS_RPT_CONFIG repository table.

1. Open a command prompt.
2. Navigate to the following directory:

   `<MDM installation directory>/app/tcr/reporting/datamart/chart-config`

3. Use a database tool to run the `insert_c_repos_rpt_config.sql` script.

   For example, log in with the ORS user name and password and the service name and then run the script.

   ```
   .../chart-config> sqlplus <C360 ORS>/password@service
   SQL> @insert_c_repos_rpt_config.sql
   ```

   The script inserts the charts into the C_REPOS_RPT_CONFIG repository table.

Configuring the Data Mart Database Connection

Before you can generate reports or populate charts, you must configure the data mart database connection.

1. Navigate to the following directory:

   `<MDM Installation Directory>/app/tcr/reporting/datamart/lib`

2. If the directory is empty, copy the following files from the `<MDM installation directory>/hub/server/lib` directory to the `<MDM installation directory>/app/tcr/reporting/datamart/lib` directory:

- `log4j-1.2.16.jar`
- `ojdbc7.jar`
- `siperian-common.jar`
- `commons-validator-<version number>.jar`

3. Navigate to the following directory:

   `<MDM installation directory>/app/tcr/reporting/datamart`

4. Extract the contents of the `populate_datamart.jar` file.

5. Open the following file in an editor:

   `<Directory containing extracted files>/META-INF/MANIFEST.MF`

6. To the `Class-Path` parameter, add the following value:

   `lib/commons-validator-<version number>.jar`

7. Save the file.

8. Open a command prompt.

9. Run the following command:

   ```
   java -jar populate_datamart.jar config
   ```

10. At the prompt, type **C** to configure the database connection.

11. Answer the prompts described in the following table:

Prompt	Description
Connection Name	Enter a unique name for the connection. If the name exists, the connection is overwritten.
Type of Connection	Enter the type of connection to the data mart. Currently only DB is supported.
Database vendor	Enter the database to connect with, such as Oracle, IBM DB2, or Microsoft SQL Server.
User	Enter the database user.
Password	Enter the database password.
Token	Reserved for future use.
Host Name	Enter the database host name.
Port	Enter the database port.
Database Name	Enter the database name/SID.

12. When prompted to finish the configuration, enter **Y**.

    The connection information is saved in the following file: `<MDM installation directory>/app/tcr/reporting/datamart/config/mart-population-config.xml`

Configuring the Chart Parameters

Before you can populate the data mart, you must configure the parameters related to the charts.

1. Open a command prompt.
2. Navigate to the data mart directory.

    `<MDM installation directory>/app/tcr/reporting/datamart`
3. Run the following command:

    ```
    java -jar populate_datamart.jar config
    ```
4. Type **P** to configure the report parameters.
5. Enter appropriate values for the chart.

    The following table lists the parameters to configure for the chart:

Prompt	Description
Report Name	Name of the chart as specified in the following file: `/app/tcr/reporting/datamart/config/report-class-mapping.properties`
Report Configuration ID	Unique chart identifier as specified in the C_REPOS_RPT_CONFIG repository table.
Mart Connection Name	Connection name for the data mart to connect with the Operational Reference Store (ORS). Use the connection name defined for the ORS that contains the customer data.
Query Connection Name	Connection name for the database to be queried. - For reports that include the word Tasks, specify the connection name defined for the ActiveVOS database. - For all other reports, specify the connection name defined for the ORS that contains the customer data.

6. When prompted to finish the configuration, enter **N**.
7. Repeat the steps for other charts.
8. After you enter all tables, exit the configuration tool.

    The parameters are saved in the following file: `<MDM installation directory>/app/tcr/reporting/datamart/config/mart-population-config.xml`.

Populating the Data Mart with Data

Run a `java` command to populate the data mart with data for all charts or for a specific chart. If you want to specify a chart, use its report name.

1. Open a command prompt.
2. To populate the data mart with data for all the available reports, run the following command:

    ```
    java -jar populate_datamart.jar exec
    ```
3. To populate the data mart with data for a specific report, run the following command:

    ```
    java -jar populate_datamart.jar exec <report name>
    ```

If the MDM Hub contains data, the C_REPOS_RPT_DETAILS repository table is populated with report data. The ROWID_RPT_CONFIG column links the data to the report configuration that requested the data.

Configuring Default Hierarchy for the Customer Dashboard

In the customer dashboard, the Hierarchies panel displays how a record is related to other records in a hierarchical format. A record can belong to multiple hierarchies. If you define a default hierarchy for the hierarchy component, the Hierarchies panel loads the default hierarchy for the record. Otherwise, the Hierarchies panel loads the list of hierarchies to which the record belongs.

1. In the Provisioning tool, click **Configuration** > **Component Editor**.

   The **Component Editor** appears.

2. In the **Components** list, select **C360 Hierarchy Widget** > **HierarchyComponent**.

   The **Properties** panel appears.

3. Edit the XML code as required.

   The following sample code sets Customer Hierarchy as the default hierarchy:

   ```
   <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
   <cutomerHierarchy>
   <defaultHierarchyName>Customer Hierarchy</defaultHierarchyName>
   </cutomerHierarchy>
   ```

4. Click **Apply**.

5. Publish the changes to the MDM Hub.

   a. Click **Publish**.

   A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

   - To publish without a review, click **Publish**.

   - To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

Verifying the Process Server Property for Ad Hoc Match

You can perform an ad hoc match before importing data into the Customer 360 database. To identify duplicate records, the ad hoc match process uses a match rule set that you configure in the MDM Hub Console. If the value of the `cmx.server.match.exact_match_fuzzy_bo_api` property is set to 0, the match rules with the exact match strategy do not participate in the match process. If the value is set to 1, the match rules with the exact match strategy participate in the match process. Default is 0.

You can find the `cmx.server.match.exact_match_fuzzy_bo_api` property in the following file: `<MDM Hub installation directory>/hub/cleanse/resources/cmxcleanse.properties`.

Note: If you configure the `cmx.server.match.exact_match_fuzzy_bo_api` property, restart the application server.

Importing the Localized Lookup Data

Customer 360 installation files include the localized lookup data. If you use a localized environment, import the localized lookup data into the database before you use Customer 360.

1. Copy the following files from the `<MDM installation directory>/hub/server/lib` directory to the `<MDM installation directory>/app/tcr/lookuplocalization/lib` directory:

   - `log4j-1.2.16.jar`
   - For Oracle. `ojdbc7.jar`
   - For IBM DB2. `db2jcc.jar`
   - For Microsoft SQL Server. `sqljdbc4.jar`

2. Go to the following directory:

   `<MDM installation directory>/app/tcr/lookuplocalization/bin`

3. Run the following command:

   - On UNIX. `./lookup_localization.sh`
   - On Windows. `lookup_localization.bat`

4. At the prompts, enter the following parameters:

Parameter	Description
Database type	Type of database that you use. Use one of the following values: - Oracle - DB2 - MSSQL
User name	User name to access the Operational Reference Store database.
Password	Password for the user name.
Operational Reference Store database host name	Name of the host that runs the Operational Reference Store database.
Operational Reference Store database port number	Port number that the database listener uses.
Database name	For IBM DB2 and Oracle only. Name of the IBM DB2 database or Oracle service.

   The localized lookup data is imported into the staging tables.

5. In the Utilities workbench of the Hub Console, click **Batch Group**.

6. Expand **Localized Lookup Data Load**, and select **Control & Logs**.

7. Click **Execute**.

   The localized lookup data is imported into the base objects.

Configuring the Product 360 Connection Parameters

Configure the Product 360 server connection parameters to display the product data from the party role product table in the dashboard view of a customer.

1. In the Provisioning tool, click **Configuration** > **Component Editor**.

   The **Component Editor** appears.

2. In the **Components** list, select **C360 Product Widget**, and then select **ProductComponent**.

3. In the **Properties** panel, specify the values in the XML code for the following parameters:

Parameter Name	Description
productHost	Name of the Product 360 server.
productPort	Port on which the host listens.

4. Optionally, edit the `structureSystem` parameter value to remove the default Heiler Standard structure system, and specify the new structure system.

5. Optionally, edit other default parameter values in the code.

   Note: The `contentType` parameter does not support the TIFF image format.

6. Click **Apply**.

7. Publish the changes to the MDM Hub.

   a. Click **Publish**.

      A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

      - To publish without a review, click **Publish**.

      - To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

Integrating Informatica MDM - Relate 360

You can integrate Relate 360 with Customer 360 to view the relationship graph. A relationship graph displays all the related records of a Person record and its relationships with the related records.

You must create a custom view to display the relationship graph for a Person record. You can also create a graph component to display an aggregate view of the related records in the Person dashboard.

To integrate Relate 360 with Customer 360, perform the following tasks:

1. Create an external resource for the relationship graph.

2. Design a layout for the Person business entity view to display the relationship graph.

3. Create an external resource for the aggregate view of the relationship graph.

4. Edit the layout of Person dashboard to include the aggregate view of the relationship graph.

Before you integrate Relate 360 with Customer 360, use Relate 360 to process the Customer 360 data and other data related to the customers.

For more information about Relate 360, see the Informatica MDM - Relate 360 documentation set.

Creating an External Resource for the Relationship Graph

An external resource is a custom component that you can add to a layout. For the relationship graph, configure an external resource that you can add to the Person business entity view.

For more information about external resource, see the *Multidomain MDM Provisioning Tool Guide*.

1. In the Provisioning tool, click **Configuration** > **Component Editor**.

   The **Component Editor** appears.

2. In the **Components** list, select **External Resources**, and click **Create**.

   The **Properties** panel appears.

3. Specify a name for the external resource.

4. Add the following XML code format for the external resource:

   ```
   <iframe src="http://<Host>:<Port>/<Relationship Graph UI WAR Name>/noshell/graph/
   <Source>/Customer/{{rowidObject}}/network" width="100%" height="800px"></iframe>
   ```

   The XML code format uses the following parameters:

   Host

   Host name or IP address of the machine on which you deploy the Relate 360 relationship graph user interface WAR file.

   Port

   Port on which the host listens.

   Relationship Graph UI WAR Name

   Name of the relationship graph user interface WAR file that you deploy on the host.

   Source

   Source name of the records. If you do not have the source name for the records, use the source name that you used in Relate 360 to process the customer data.

   The following sample XML code creates an external resource for the relationship graph:

   ```
   <iframe src="http://10.12.128.71:8080/bdrm-ui/noshell/graph/MDM/Customer/
   {{rowidObject}}/network" width="100%" height="800px"></iframe>
   ```

5. Click **Apply**.

6. Publish the changes to the MDM Hub.

   a. Click **Publish**.

      A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

      - To publish without a review, click **Publish**.

      - To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

Design a Layout for the Person Business Entity View

After you create an external resource for the relationship graph, design a layout to include the external resource for the Person business entity view .

1. In the Provisioning tool, click **Configuration** > **Layout Designer**.

   The **Layout Designer** appears.

2. Click **Create** > **Entity View**.

   The **Define Layout Properties** page appears.

3. Define properties for the layout that you want to design.

   a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the layout name appears in the **Layout Categories** panel.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.

   b. To assign the layout to the Person business entity view, select **Person** > **CustomPersonView**.

4. Click **Next**.

   The **Define Purpose** page appears.

5. Specify the purpose of the layout that you want to design.

   a. Select the user roles that can access the layout.

      The user roles that appear on the **Define Purpose** page are configured in the MDM Hub environment.

   b. Select **Edit entities**.

6. Click **Next**.

   The **Select a Template** page appears.

7. Select **Template 1**, and click **Next**.

   The **Design** page appears.

8. Drag the external resource that you created for the relationship graph into the workspace.

9. Click **Save**.

   The changes are saved to the temporary workspace.

10. Publish the changes to the MDM Hub.

    a. Click **Publish**.

       A confirmation dialog box appears that prompts you to publish or review the changes.

    b. Review the changes or publish without a review.

       • To publish without a review, click **Publish**.

       • To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

Creating an External Resource for the Aggregate View

Configure an external resource for the aggregate view of the relationship graph. The aggregate view displays an aggregated view of the related records for a Person business entity.

1. In the Provisioning tool, click **Configuration** > **Component Editor**.

   The **Component Editor** appears.

2. In the **Components** list, select **External Resources**, and click **Create**.

The **Properties** panel appears.

3. Specify a name for the external resource.

4. Add the following XML code format for the external resource:

```
<iframe src="http://<Host>:<Port>/<Relationship Graph UI WAR Name>/noshell/graph/
<Source>/Customer/{{rowidObject}}/aggregate" width="100%" height="800px"></iframe>
```

The XML code format uses the following parameters:

Host

Host name or IP address of the machine on which you deploy the Relate 360 relationship graph user interface WAR file.

Port

Port on which the host listens.

Relationship Graph UI WAR Name

Name of the relationship graph user interface WAR file that you deploy on the host.

Source

Source name of the records. If you do not have the source name for the records, use the source name that you used in Relate 360 to process the customer data.

The following sample XML code creates an external resource for the aggregate view:

```
<iframe src="http://10.12.128.71:8080/bdrm-ui/noshell/graph/MDM/Customer/
{{rowidObject}}/aggregate" width="100%" height="800px"></iframe>
```

5. Click **Apply**.

6. Publish the changes to the MDM Hub.

   a. Click **Publish**.

      A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

      - To publish without a review, click **Publish**.

      - To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

Edit the Layout of Person Dashboard

After you create an external source for the aggregate view of the relationship graph, edit the layout of Person dashboard to include the aggregate view.

1. In the Provisioning tool, click **Configuration** > **Layout Designer**.

   The **Layout Designer** appears.

2. Expand the **CustomerPerson** layout category, and select **layout2**.

3. Click **Edit**.

   The **Design** page appears.

4. Drag the external resource that you created for the aggregate view into the workspace.

5. Click **Save**.

   The changes are saved to the temporary workspace.

6. Publish the changes to the MDM Hub.

   a. Click **Publish**.

      A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

      - To publish without a review, click **Publish**.

      - To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

CHAPTER 5

Business Processes for Customer Management

This chapter includes the following topics:

Workflows

Business processes automate some common customer lifecycle management workflows.

Customer 360 ships with ActiveVOS business processes for the following workflows:

- Create a customer person or customer organization.
- Update a customer profile.

User Roles

User roles control the write privileges. User roles for business users control the data privileges in the ORS and also the review privileges in business processes. Each business user who is authorized to participate in reference data management receives one or more role assignments. Many users can have the same role.

Customer 360 has the following user roles:

- Sales Operation Analyst
- Sales Operation Manager
- ApplicationAdministrator

Role Privileges

The following table lists the user roles and summarizes the role privileges:

Role	Add or edit a customer person or customer organization	Approve customer person or customer organization or profile updates
ApplicationAdministrator	Yes	Yes
Sales Operation Analyst	Yes	No
Sales Operation Manager	Yes	Yes

Task Types

By default, workflows are triggered when a user with the Sales Operation Analyst role creates or updates a record. When a user with the Sales Operation Manager role creates or updates a record, no workflows are triggered.

The Customer 360 default configuration includes the following tasks:

Predefined Tasks	Description
DraftState	Triggered when a creator creates or updates a record and chooses to keep the change in draft state.
Notification	Triggered when an approver approves or rejects a record.
Update	Triggered when an approver sends back a record for resubmission.
FinalReview	Triggered when a creator sends a new record or an updated record for approval.

The following steps summarize what happens when a user with the Sales Operation Analyst role creates or updates a record and a user with the Sales Operation Manager role approves the record:

Task	Task Owner	Possible Actions	Result
DraftState	Creator	Submit	Record is submitted for approval. Record is assigned to the users with the Sales Operation Manager role.
		Discard	Record is deleted.
FinalReview	Approver	Claim	User claims the tasks. Record appears in the task inbox of the user.
		Disclaim	Record is assigned back to the users with the Sales Operation Manager role.

Task	Task Owner	Possible Actions	Result
		Approve	Record is promoted. Notification sent to the creator.
		Reject	Record is deleted. Notification is sent to the creator.
		Send Back	Record is sent back to the creator with comments.
Update	Creator	Submit	Record is resubmitted for approval. Moves to the FinalReview workflow.
		Discard	Record is deleted.
Notification	Creator	Ok	Closes the workflow.

CHAPTER 6

Customizing Customer 360

This chapter includes the following topics:

Customizing Customer 360 Overview

After you configure Customer 360, you can customize some of the features to suit your environment. The customization includes extending the data model, modifying the layout for the dashboard view of a customer, modifying the Home page, and adding custom charts and user interface components.

Customizing the Layout

The Customer 360 user interface consists of multiple components. Each component displays data related to a record. You can configure some of the components that appear in a Customer 360 view.

You can customize the following three user interfaces:

Home page

The default page you see when you log in to Customer 360.

Person dashboard

When you open a customer profile, you see the customer dashboard. If the customer is a person, the page you see is the Person dashboard.

Organization dashboard

If the customer is an organization, the page you see is the Organization dashboard.

The default Customer 360 layout comes with preconfigured components. The configuration is present in the `C_REPOS_COMPONENT_INSTANCE` table.

User Interface Components

The Customer 360 user interface consists of default components and external link components. You can edit the default configuration of Customer 360 user interface components.

You can edit the configuration of the following components:

- Task Manager
- My Records
- Data View
- File Import

You can edit the configuration of the following external link components:

- Social
- Overview
- Financials
- Identifiers
- Indicators
- Twitter

You can also add custom external link components and charts.

Components and Parent Elements

The following table lists the parent XML elements for each of the default components:

Element	Description
components	Top level element that contains the component configuration. The element contains `taskManager`, `myRecordsManager`, `bulkImport`, and `dataView`.
taskManager	Name of the component for Task Manager. Contains the configuration for the Task Manager. The element contains `taskTypes`.
myRecordsManager	Name of the component for My Records. Contains the configuration for My Records. The element contains `taskTypes`.
bulkImport	Name of the component for File Import. Contains the templates for file import.
dataView	Name of the component for the display of the **Draft** check box when you create or update a record. The element contains `draft`.

Customizing the Dashboard Components

To customize the dashboard components, use the Application Editor of the Provisioning tool.

1. In the Provisioning tool, click **Configuration** > **Application Editor**.

   The **Application Editor** appears.

2. In the **Applications** list, select **C360 Application Configuration**, and then select **C360WidgetConfiguration**.

3. In the **Properties** panel, update the values in the XML code as required.

   For example, the following sample XML code adds a text field to the dashboard:

   ```
   <field>
       <label translate="true">C360_B2C_OVERVIEW_CUSTPRVNAME</label>
       <type>text</type>
       <coValue>prvsNm</coValue>
       <defaultValue>-</defaultValue>
       <filterAs />
   </field>
   ```

4. Click **Apply**.

5. Publish the changes to the MDM Hub.

   a. Click **Publish**.

      A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

      • To publish without a review, click **Publish**.

      • To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

XML code for the My Records Component Configuration

The following table lists the sub-elements of the `myRecordsManager` parent elements:

Element	Description
taskTypes	Parent element for all the task types. The element contains `taskType`.
taskType	Contains the configuration for a task type. For example, UpdateWithApproval or FinalReview. You configure the task types in `Tasks` configuration as part of the COCS configuration. The `Tasks` configuration is present in the `C_REPOS_CO_CS_CONFIG` repository table. Has the `name` attribute which specifies the name of the task.
role	Role of the user for which you configure the workflow. **Note:** You specify the configuration for a task type and a user role. The element contains `enableEditRecordDetails`, `enableAssignTo`, and `actions`.
enableAssignTo	Indicates whether the `assign to a user` option is available for the task type and user role. Set to `true` to make the option available to the user with the role and set to `false` to make the option unavailable.

Element	Description
actions	Set of actions that are available for each task. Each task type has a set of possible actions that you can perform in the task context. The element contains `action`.
action	An action, such as submit, approve, reassign, or reject, that you can perform on a task. Has the `name` attribute, which specifies the name of the action. The element contains `enableCommentOnAction`, `enableAssignTo`, `isCommentMandatory`, and `actionMessage`. `enableAssignTo`: Applicable to the task action that has the manual reassign set to true.
enableCommentOnAction	Indicates whether you have the option to add a comment when you perform a task action. Set to `true` to make the option available. Set to `false` to make the option unavailable. If set to true, specify `isCommentMandatory`.
isCommentMandatory	Indicates whether you must add a comment when you perform the action. If set to `true`, specify the `actionMessage` element.
actionMessage	Message to display when you perform the action.

If you want to edit the XML code for the configuration, ensure that you follow the XML example.

The following sample code shows the configuration of the My Records component.

```
<myRecordsManager>
    <!-- Tasktypes as configured in Tasks in CO CS Config -->
    <taskTypes>
        <taskType name="AVOSBeDraftState">
            <role name="SalesOperationAnalyst">
                <enableAssignTo>false</enableAssignTo>
                <!-- Action of task as configured in BPR(ActiveVOS Workflow) -->
                <actions>
                    <action name="Submit">
                        <enableCommentOnAction>false</enableCommentOnAction>
                    </action>
                    <action name="Discard">
                        <enableCommentOnAction>true</enableCommentOnAction>
                        <isCommentMandatory>false</isCommentMandatory>
                        <actionMessage><![CDATA[All the unsaved changes to the record will be
lost]]></actionMessage>
                    </action>
                </actions>
            </role>
        </taskType>
    </taskTypes>
</myRecordsManager>
```

XML Code for the File Import Component Configuration

The File Import component configuration is used to specify the templates that you can use to import data into Customer 360. Ensure that you follow the XML example to write the XML code for the configuration correctly.

The following table lists the sub-elements of File Import element:

Element	Description
templates	Top-level element. Contains: `template`
template	Name of the import template. Has the `name` attribute.

The following sample code shows the File Import component configuration:

```
<bulkImport>
    <templates>
        <template name="CustomerPersonView" />
        <template name="CustomerOrgView" />
        <template name="ContactView" />
    </templates>
</bulkImport>
```

XML Code for the Data View Component Configuration

The Data View component configuration specifies the record for which the **Draft** check box must be displayed.

The following table lists the sub-elements of the Data View element:

Element	Description
draft	Parent element. Contains: `draftCoName` and `draftDefault`
draftCoName	Record name for which the **Draft** checkbox must be displayed.
draftDefault	Indicates whether the **Draft** check box must be selected by default.

The following sample code shows the Data View component configuration:

```
<dataView>
    <draft>
        <draftCoName>draftInd</draftCoName>
        <!-- CO name of the draft fieldl which is to be rendered -->
        <draftDefault>true</draftDefault>
        <!-- Default value of the field -->
    </draft>
</dataView>
```

XML Code for the External Link Components

The `widgets` element contains the configuration for the external link components.

The following table lists the sub-elements in the `widgets` section:

Element	Description
widget	Parent element that contains the configuration for a widget or external link.
social	Contains the URLs for social media. For example, `<Facebook>http://www.facebook.com</Facebook>`. Ensure that you use the same format in the implementation configuration. The element contains `Facebook`, `Twitter`, and other social media URLs.
b2b	Contains the configuration for a business-to-business customer profile.
overview	Title of the overview section. The element contains `title` and `section`.
title	Title of a section in the user interface.
section	Contains the configuration for a column in the widget. The element contains `field`.
field	Contains the configuration for a field in the user interface. Has the following attributes: - `group`. Indicates whether the fields must be displayed as a group. - `view`. Can be set to `horizontal` to show the field labels and values in the same line. Else, the value appears below the field. The element contains `label`, `type`, `coValue`, `defaultValue`, `defaultKey`, `defaultKeyValue`, `getStrategy`, `coFieldValues`, `concatenateWith`, and `filterAs`.
label	Text that appears for the field in the user interface.
type	Specifies the data type of the field. Has the following data types: - `img`. Indicates image. - `text`. Indicates text. - `address`. Indicates address. - `phone`. Indicates phone number. - `email`. Indicates email address. - `social`. Indicates social. - `currency`. Indicates currency. - `textWithIcon`. Indicates text with an icon. Replace with CSS class.
coValue	Record child or field, including the path.

Element	Description
getStrategy	Determines how a value is selected when the field has multiple values. Use the element only for child records. Has the following values: - `defaultOrFirstOne`. Default value or the first value in the list is selected. You can either specify the default value or specify the business entity field that contains the value. When you have multiple child records, you need to specify which of the record to select. Specify the name of the field and the value in the field. - `getOne`. Get the first available value. - `all`. Get all values. - `getByEffectiveStartDate`. Effective start date. If the effective start date is not available, then the last updated date is used to select the value.
defaultValue	If the desired value is not found, the value to be displayed for the field in the user interface.
defaultKey	If you specify the default strategy as `defaultOrFirstOne`, specify the name of the business entity field. For example, default indicator.
defaultKeyValue	If you specify the default strategy as `defaultOrFirstOne`, specify the value of the default key.
coFieldValues	Contains the business entity fields that contain the value you want to display on the user interface. Follow the parent-child relationships until you reach the required element of field.
concatenateWith	Specifies how to concatenate the fields. For example, comma-separated or space.
filter	Reserved for future use.

The following sample code shows the configuration of the `identifiers` external link component:

```
<identifiers>
    <title>Identifiers</title>
    <section>
        <field>
            <label>DUNS</label>
            <type>text</type>
            <coValue>CustomerOrgRole_item_0_CustomerOrgIdentifiers</coValue>
            <defaultValue>-</defaultValue>
            <defaultKey>dfltInd</defaultKey>
            <defaultKeyValue>1</defaultKeyValue>
            <getStrategy>getByEffectiveStartDate[effStrtDt]_altIdTyp_idTyp[DUNS]</
getStrategy>
            <coFieldValues>altIdVal</coFieldValues>
            <concatenateWith />
            <filterAs />
        </field>
    </section>
    <section>
        <field>
            <label>ParentDUNS</label>
            <type>text</type>
            <coValue>CustomerOrgRole_item_0_CustomerOrgIdentifiers</coValue>
            <defaultValue>-</defaultValue>
            <defaultKey>dfltInd</defaultKey>
            <defaultKeyValue>1</defaultKeyValue>
            <getStrategy>getByEffectiveStartDate[effStrtDt]_altIdTyp_idTyp[ParentDUNS]</
getStrategy>
            <coFieldValues>altIdVal</coFieldValues>
```

```
            <concatenateWith />
            <filterAs />
        </field>
    </section>
    <section>
        <field>
            <label>NAICS</label>
            <type>text</type>
            <coValue>CustomerOrgClassification</coValue>
            <coFieldValues>Classification_classifVal</coFieldValues>

<getStrategy>getByEffectiveStartDate[effStrtDt]_Classification_classifTyp_classifTyp[NAIC
S]</getStrategy>
            <defaultValue>-</defaultValue>
            <concatenateWith />
            <filterAs />
        </field>
    </section>
    <section>
        <field>
            <label>SIC</label>
            <type>text</type>
            <coValue>CustomerOrgClassification</coValue>
            <coFieldValues>Classification_classifVal</coFieldValues>

<getStrategy>getByEffectiveStartDate[effStrtDt]_Classification_classifTyp_classifTyp[SIC]
</getStrategy>
            <defaultValue>-</defaultValue>
            <concatenateWith />
            <filterAs />
        </field>
    </section>
</identifiers>
```

The sample code shows the configuration of four identifiers, SSN, TIN, Driver License Number, and Passport Number.

The following image shows the Identifiers section in the user interface:
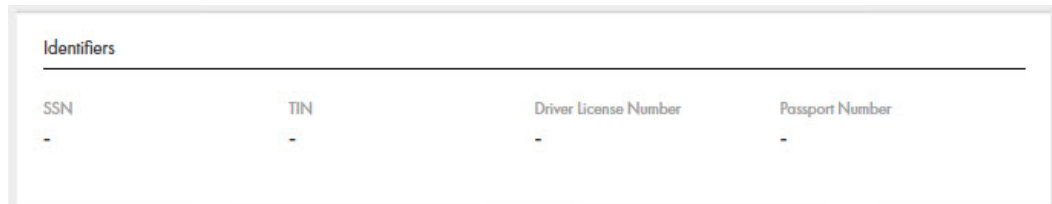
XML Code for the Twitter Component

The configurable parameter in the Twitter component configuration is the number of tweets.

The following sample code shows the Twitter configuration:

```
<twitter>
    <numberOfTweets>5</numberOfTweets>
    <section>
        <field>
            <label>Social</label>
            <type>social</type>
            <coValue>CustomerOrgRole_item_0_CustomerOrgSocialHandle</coValue>
            <defaultValue>-</defaultValue>
            <defaultKey>dfltInd</defaultKey>
            <defaultKeyValue>1</defaultKeyValue>
            <coFieldValues>sclMdaVal</coFieldValues>
            <concatenateWith>_</concatenateWith>
            <getStrategy>getOne_sclMdaTyp_sclMediaTyp[Twitter]</getStrategy>
            <filterAs />
```

```
            </field>
        </section>
    </twitter>
```

Use the `numberofTweets` element to specify the number of tweets that you want to display in the user interface. All other XML elements are standard elements that you use in an external link configuration.

Customizing or Creating a Chart

The Home page displays charts that are predefined for Customer 360. You can customize a chart to change the chart characteristics or the information the chart shows. You can also create charts and add them to the Home page.

Use the Highcharts editor to customize or create a chart. The Highcharts editor generates code for the chart that you customize or create. Use the generated code in the Provisioning tool when you create an external resource component for the chart.

Customizing a Chart

Use the Highcharts project to customize a chart. You can change the chart type, the chart coordinates, and the chart characteristics, such as color, font, and labels.

Customer 360 installation files include the Highcharts projects for the following predefined charts:

- Assigned Tasks By Users
- Closed Tasks By Users
- Open Tasks By Task Type
- Assigned Tasks By User Roles

You can access these projects and customize the charts based on your requirement. To customize other charts, manually create the charts in the Highcharts editor and then save the chart as a Highcharts project.

To customize a chart, perform the following tasks:

1. Open the Highcharts editor.
2. Customize the chart in the Highcharts editor.
3. Add the customized chart to the Home page.

Opening the Highcharts Editor

Customer 360 installation files include a customized version of the Highcharts editor that you can use to customize the charts.

1. Go to the following directory:

   `<MDM installation directory>/app/tcr/reporting/highcharts-editor`

2. Based on the operating system, select a .zip file, and extract the files.
3. Open a command prompt, and go to the directory that contains the extracted files.
4. Run the following command:

   - On UNIX. `./mdm-highcharts-editor`
   - On Windows. `mdm-highcharts-editor.exe`

The Highcharts editor opens.

Customizing a Chart in the Highcharts Editor

After you customize a chart, the Highcharts editor generates the code for the chart. Use the code in the Provisioning tool when you update the external component of the chart.

1. In the **Start** page of the Highcharts editor, click the **Settings** icon, and then select **Load Project**.

2. Browse to the project file, and click **Open**.

    You can find the project files in the following directory: `<Highcharts directory>/resources/app/OOTB-Charts`

3. Click the **Next** icon.

    The **Import** page displays the preview of the chart and the configuration of the chart in the JSON format.

4. To update the chart configuration, perform one of the following tasks:

    *   Select appropriate coordinates.

        Note: When you change the coordinates, the Highcharts editor resets the chart properties, so change the coordinates with caution. To retrieve the chart properties, load the project again.

    *   Update the JSON, and click **Apply**.

    The preview of the chart reflects the changes.

5. Click the **Next** icon.

    The **Select Chart** page appears.

6. To change the chart type, select the type of chart that you want to use.

7. Click the **Next** icon.

    The **Customize** page appears.

8. Based on your requirement, customize the chart properties.

    For information about any property, click the help icon of the property.

9. Click the **Next** icon.

    The **Export** page appears and displays the chart code.

10. To save the chart code as a Highcharts project, perform the following tasks:

    a. Click the **Settings** icon, and then select **Save Project**.

    b. Browse to the location where you want to save the project.

    c. Specify a name for the project, and then click **Save**.

11. To export the chart code as a .txt file, perform the following tasks:

    a. Click **Export Code**.

    b. Browse to the location where you want to save the .txt file.

    c. Specify a name for the file, and then click **Save**.

Adding the Customized Chart to the Home Page

After you generate the chart code in the Highcharts editor, create an external resource component in the Provisioning tool for the customized chart. You can then replace the existing chart in the Home page layout with the customized chart.

1. In the Provisioning tool, click **Configuration** > **Component Editor**.

    The **Component Editor** appears.

2. In the **Components** list, select **External Resources**, and click **Create**.

   The **Properties** panel appears.

3. Specify a name for the chart.

4. Add the chart code generated from the Highcharts editor.

5. Click **Apply**.

6. Click **Configuration** > **Layout Designer**.

   The **Layout Designer** appears.

7. Expand the **Start Page** layout category, and then select **layout1**.

8. Click **Edit**.

   The **Design** page appears.

9. Drag the external resource that you created for the chart into the workspace.

10. Delete the external resource component of the chart that you customized.

11. Drag the external resource component of the customized chart into workspace.

12. Click **Save**.

    The changes are saved to the temporary workspace.

13. Publish the changes to the MDM Hub.

    a. Click **Publish**.

       A confirmation dialog box appears that prompts you to publish or review the changes.

    b. Review the changes or publish without a review.

       • To publish without a review, click **Publish**.

       • To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

Creating a Chart

If the Highcharts projects file is not available for a chart or you want a new chart, create the chart in the Highcharts editor. After you create the chart, you can save the chart as a Highcharts project. In future, you can use the project to customize the chart.

1. Define the chart configuration in the C_REPOS_RPT_CONFIG repository table.

2. Extend the data mart service for the chart.

3. Map the chart name to the class that you create to extend the data mart service in the `report-class-mapping.properties` file.

4. Configure the chart parameters.

5. Open the Highcharts editor.

6. Create the chart in the Highcharts editor.

7. Add the chart to the Home page.

Defining the Chart Configuration

Define the chart configuration in the C_REPOS_RPT_CONFIG repository table. Access the repository table, and insert the details of the chart, such as report configuration ID and coordinates.

Extending the Data Mart Service

Customer 360 stores data for the charts in the C_REPOS_RPT_DETAILS repository table. To use the data mart service to load data into the repository table, extend the data mart service to include the chart defined in the C_REPOS_RPT_CONFIG repository table.

Customer 360 installation files include the source code to extend the data mart service as a Java project. You can find the Java project file in the following directory: `<MDM installation directory>/app/tcr/reporting/datamart/source/CustomerDataMart`

To extend the data mart service, create a class for the chart and extend the ReportPopulationService class.

Mapping the Chart Name

After you extend the data mart service, add an entry in the `report-class-mapping.properties` file to map the chart name with the class that you created for the chart.

You can find the `report-class-mapping.properties` file in the following directory: `<MDM installation directory>/app/tcr/reporting/datamart/config`

Configuring the Chart Parameters

After you map the chart name with the data mart class name, map the chart name with the report configuration ID defined in the C_REPOS_RPT_CONFIG repository table.

1. Open a command prompt, and go to the following directory:

   - For the Party table-based data model. `<MDM installation directory>/app/tcr/reporting/datamart`

   - For the Party Role table-based data model. `<MDM installation directory>/app/tcr/reporting/datamart/pre_c360_10.2_hf2`

2. Run the following command:

   ```
   java -jar populate_datamart.jar config
   ```

3. Type **P**, and press **Enter**.

4. Enter appropriate values for the chart.

   The following table lists the parameters to configure for the chart:

Prompt	Description
Report Name	Name of the chart as specified in the following file: `/app/tcr/reporting/datamart/config/report-class-mapping.properties`
Report Configuration ID	Unique chart identifier as specified in the C_REPOS_RPT_CONFIG repository table.
Mart Connection Name	Connection name for the data mart to connect with the Operational Reference Store (ORS). Use the connection name defined for the ORS that contains the customer data.
Query Connection Name	Connection name for the database to be queried. - For reports that include the word Tasks, specify the connection name defined for the ActiveVOS database. - For all other reports, specify the connection name defined for the ORS that contains the customer data.

5. When prompted to finish the configuration, enter **Y**.

   The parameters are saved in the following file: `<MDM installation directory>/app/tcr/reporting/datamart/config/mart-population-config.xml`.

Opening the Highcharts Editor

Customer 360 installation files include a customized version of the Highcharts editor that you can use to customize the charts.

1. Go to the following directory:

   `<MDM installation directory>/app/tcr/reporting/highcharts-editor`

2. Based on the operating system, select a .zip file, and extract the files.

3. Open a command prompt, and go to the directory that contains the extracted files.

4. Run the following command:

   - On UNIX. `./mdm-highcharts-editor`

   - On Windows. `mdm-highcharts-editor.exe`

   The Highcharts editor opens.

Creating a Chart in the Highcharts Editor

If the Highcharts project file is not available for a chart, create the chart in the Highcharts editor. Before you create the chart, ensure that you define the chart configuration in the C_REPOS_RPT_CONFIG repository table.

1. In the **Start** page of the Highcharts editor, click the **Settings** icon, and then select **New Chart**.

   The **Import** page appears.

2. Specify the URL to access the MDM Hub.

   Use the following format for the URL:

   `https://<Host name>:<Port>[/<Tenant>]`

3. Enter the user credentials to access the ORS.

4. Enter the ORS name of Customer 360.

5. Enter the report configuration ID of the chart that you plan to create.

   You can find the report configuration ID of the charts in the C_REPOS_RPT_CONFIG table.

6. Click **Import Configuration**.

   The **Import** page displays the preview of the chart and the configuration of the chart in the JSON format.

7. To update the chart configuration, perform one of the following tasks:

   - Select appropriate coordinates.

   - Update the JSON, and click **Apply**.

   The preview of the chart reflects the changes.

8. Click the **Next** icon.

   The **Select Chart** page appears.

9. Select the type of chart that you want to use.

10. Click the **Next** icon.

    The **Customize** page appears.

11. Based on your requirement, configure the chart properties.

   For information about any property, click the help icon of the property.

12. Click the **Next** icon.

   The **Export** page appears and displays the chart code.

13. To save the chart code as a Highcharts project, perform the following tasks:

   a. Click the **Settings** icon, and then select **Save Project**.

   b. Browse to the location where you want to save the project.

   c. Specify a name for the project, and then click **Save**.

14. To export the chart code as a .txt file, perform the following tasks:

   a. Click **Export Code**.

   b. Browse to the location where you want to save the .txt file.

   c. Specify a name for the file, and then click **Save**.

Adding a Chart to the Home Page

You can add a chart to the Home page of Customer 360. To add a chart, create an external resource component for the chart, and then add the component to the Home page layout.

1. In the Provisioning tool, click **Configuration** > **Component Editor**.

   The **Component Editor** appears.

2. In the **Components** list, select **External Resources**, and click **Create**.

   The **Properties** panel appears.

3. Specify a name for the chart.

4. Add the chart code generated from the Highcharts editor.

5. Click **Apply**.

6. Click **Configuration** > **Layout Designer**.

   The **Layout Designer** appears.

7. Expand the **Start Page** layout category, and then select **layout1**.

8. Click **Edit**.

   The **Design** page appears.

9. Drag the external resource that you created for the chart into the workspace.

10. Click **Save**.

   The changes are saved to the temporary workspace.

11. Publish the changes to the MDM Hub.

   a. Click **Publish**.

   A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

   • To publish without a review, click **Publish**.

   • To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

REST Web Services for Charts and Reports

Use REST Web Services to extract data from the C_REPOS_RPT_DETAILS table and display the data in the charts.

You can use the following REST web services:

- **Report Details**. Retrieves data for a particular report. The web service also returns the metadata information about the report. You can retrieve data based on filters.
- **Report Facet**. Retrieves the unique values present in any column of the `C_REPOS_RPT_DETAILS` table. Use the values as filters to retrieve data from the table.

Report Details Web Service

The web service returns the data from the `C_REPOS_RPT_DETAILS` table for a specific report. The web service uses the GET method.

Report Details URL

The Report Details URL has the following format:

```
http://<host>:<port>/Customer360/services/<database ID>/reports/details
```

where `database ID` is the ID of the ORS that is registered in the Databases tool in the Hub Console.

Query Parameters

The following table lists the query parameters for the Report Details web service:

Parameter	Description
reportId	ID of the report.
qryParamString	Optional. Filter condition that can be added as a part of a WHERE clause. If you include Date data type as filter, date must be provided in milliseconds. For example, 1400092200000.

Sample request with no filters specified

The following sample request returns the details of a report with ID 4:

```
http://localhost:8080/Customer360/services/localhost-orcl-TCR_HUB/reports/details?
reportId=4
```

Sample response

The following sample response shows the details of the report with ID 4:

```
{
  "metadata": {
    "ROWID_RPT_CONFIG": "4 ",
    "DIMENSION_NAME_1": "Subject area",
    "DIMENSION_NAME_2": "null",
    "TIMEPERIOD_NAME": "Year",
    "RPT_NAME": "MDM Business Entity Growth Trends",
    "METRIC_NAME": "Number Of Records",
    "RPT_DESC": "MDM Business Entity Growth Trends",
    "RPT_TYPE": "null"
  }
},
{
  "data": [
    [
```

```
            "Organization",
            "null",
            "2011-JAN-10",
            "450"
          ],
          [
            "Organization",
            "null",
            "2012-JAN-10",
            "266"
          ],
          [
            "TCR",
            "null",
            "2013-JAN-10",
            "450"
          ],
          [
            "Customer",
            "null",
            "2014-JAN-10",
            "12903"
          ]
        ]
      }
```

Sample request with filters

The following sample request returns the details of a report based on the specified filter and ID 4:

```
http://localhost:8080/Customer360/services/localhost-orcl-TCR_HUB/reports/details?
reportId=4&qryParamString={"filterCondition":
[{"colName":"TIMEPERIOD_VALUE","type":"range","dataType":"date","value":
["1294621200000","1389292200000"]}],"qryOperator":"AND"}
```

The following sample response shows the details of the report with ID 4:

```
{
  "metadata": {
    "ROWID_RPT_CONFIG": "4 ",
    "DIMENSION_NAME_1": "Subject area",
    "DIMENSION_NAME_2": "null",
    "TIMEPERIOD_NAME": "Year",
    "RPT_NAME": "MDM Business Entity Growth Trends",
    "METRIC_NAME": "Number Of Records",
    "RPT_DESC": "MDM Business Entity Growth Trends",
    "RPT_TYPE": "null"
  }
},
{
  "data": [
    [
      "Organization",
      "null",
      "2012-JAN-10",
      "266"
    ],
    [
      "TCR",
      "null",
      "2013-JAN-10",
      "450"
    ]
  ]
}
```

Report Facet Web Service

The Report Facet web service returns the list of unique values for the specified column for the specified report. You can use the values as filters. Use the GET method for the web service.

Report Facet URL

The Report Facet URL has the following format:

```
http://<host>:<port>/Customer360/services/<database ID>/reports/facets
```

Query Parameters

The following table lists the query parameters for the Report Facet web service:

Parameter	Description
reportId	ID of the report.
facetType	Any column of the C_REPOS_RPT_DETAILS table.

Sample request

The following sample request returns the unique values in the DIMENSION_VALUE_1 column for the report with ID 4:

```
http://localhost:8080/Customer360/services/localhost-orcl-TCR_HUB/reports/facets?
reportId=1&facetType=DIMENSION_VALUE_1
```

Sample response

```
{
  "DIMENSION_VALUE_1": [
    "Close 1",
    "Close 5",
    "Close 4",
    "Overdue",
    "Close",
    "Close 2",
    "Open"
  ]
}
```

Extending the Data Model

You can extend the Customer 360 data model by changing the physical schema or by adding types and values to some of the existing tables. You can also add new tables and attributes.

To extend the data model, perform the following steps:

1. Compare your business requirements with the existing schema.

2. List the tables and columns that you want to add.

3. Take a backup of the existing schema.

4. Review the guidelines to extend the data model.

5. Add the tables and columns.

Guidelines for Extending the Data Model

You can modify the definitions of tables or add new tables to the database.

Consider the following guidelines when you extend the data model:

- Check if you can use an existing child base object.
- Do not add a root base object to store the person or organization information.
- Do not define tables with names greater than 24 characters.
- Do not delete existing base objects.
- Do not delete existing columns.
- Do not modify the physical names of existing base objects. However, you can modify the display names.
- Do not modify the data type of an existing column.
- Do not decrease the length of an existing column.
- Prefix the names of the new base object tables to distinguish the tables from the existing tables. The prefix indicates the type of table. Use the following naming convention when you create a base object:

Prefix	Table
C_XO_	Root or child record base object.
C_XR_	Relationship base object.
C_XT_	Lookup base object.

- If you add a column to an existing table, prefix the name of a column with X_.

For more information about adding tables and columns, see the *Multidomain MDM Configuration Guide*.

Guidelines for Adding Base Objects

You can add base objects to extend the data model. You can add root or child base objects, lookup base objects, and relationship base objects.

Consider the following guidelines when you add a base object table:

- **Child base object with one-to-many relationship**. Add a Party Role foreign key in the table to relate the table to the Party Role table.
- **Child base object with many-to-many relationship**. Use the relationship base object to relate the table to the Party Role table.
- **Lookup base object**. Set the LookupIndicator to true.

Extending the Customer 360 Resources

Based on the business requirements, you can extend the Customer 360 resources. For example, to extend business entities, you can create a business entity or a lookup business entity. After you create a business

entity, you can add a business entity view. You can also add a child, field, or reference fields to an existing business entity.

Guidelines for Extending the Customer 360 Resources

When you extend the Customer 360 resources, follow the naming guidelines so that you can distinguish the custom resources from the predefined Customer 360 resources.

The following table lists the naming guidelines for different Customer 360 resources:

Resource	Guidelines
Business entity and business entity view	- Add the prefix `Ex` to the names of the new business entities or lookup entities. For example, `Ex<Business Entity Name>`. - Add the prefix `Ex` to the names of the new child, field, or reference field. For example, `Ex<Business Entity Child Name>`. - Do not add a new view to an existing business entity. Create a new business entity, and then add the business entity view.
Relationship type, queries, packages hierarchy, and hierarchy code	Add the prefix `X`.
Staging tables	Add the prefix `C_X`.
Business entity relationships, transformations, business entity service extensions, and component instances, such as layouts and external links	Add the prefix `Ex`.

Extending the ActiveVOS Business Process

You can extend the ActiveVOS business process to include additional steps in the workflow. Customer 360 installation files include the source code to extend the ActiveVOS business process as an ActiveVOS project.

You can find the ActiveVOS project file in the following directory: `<MDM installation directory>/app/tcr/bpm/source/InfaCustomer360Workflow`

Extending the User Exit

The data model based on the Party Role table uses the post-merge user exit. You can extend the user exit to perform custom processing. Customer 360 installation files include the source code to extend the user exit as a Java project.

You can find the Java project file in the following directory: `<MDM installation directory>/app/tcr/user_exit/hub/source/CustomerUserExit`

Localizing Customer 360

All elements of the user interface in Customer 360 are localized in the supported languages. You can localize the Customer 360 resources and custom resources in a language other than the supported languages. The customer 360 resources are menus, buttons, navigation links, labels, error messages, and metadata. The custom resources are the business entities, business entity fields, lookup tables, error messages, and labels that you add to customize Customer 360.

Localizing Metadata

The business entity metadata refers to the resources related to the data model, such as business entity names, menu names, field names, and task types.

1. In the Provisioning tool, click **Configuration** > **General Settings.**

2. Select **Metadata Localization**.

3. Click **Metadata Localization**.

   The **Tree View** and **Metadata Localization** panels display the localization options.
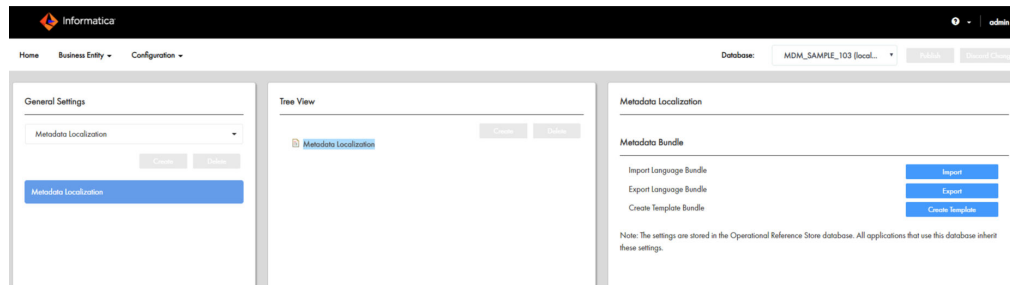
4. In the **Metadata Localization** panel, under **Metadata Bundle**, click **Create Template**.

5. Save the `besMetadata.zip` file to a location on your local drive.

6. Extract the `besMetadata.zip` file to your local drive.

   The properties files for the selected languages appear.

7. If you want to add a language other than the supported language, save a copy of the `besMetadata.properties` file with the corresponding language code and country code.
   For example, to create the Canadian French version, save the file as `besMetadata_fr_CA.properties`.

8. In a text editor, open the corresponding localized file.

9. For each metadata value, add the localized value in the following format:

   `<Metadata value>=<Localized value>`

   For example, the following property shows a French translated value for the first name:

   `Person.firstName=prénom`

10. Save the changes.

11. Compress the localized properties files to a .zip file named `besMetadata`.

12. In the **Metadata Localization** panel, under **Metadata Bundle**, click **Import**, and then browse to the `besMetadata.zip` file.

13. Click **Open**.

    The language metadata bundle is imported.

Localizing Task Actions, Types, and Messages

Task actions, task types, and task action messages are part of the metadata. Define the task metadata in the `besMetadata.properties` file.

1. In the **Metadata Localization** panel, under **Metadata Bundle**, click **Export**. The `besMetadata.zip` template file downloads.
2. Unzip the file, and open the `besMetadata.properties` file in an editor of your choice.
3. Add the task action and task action message properties. Edit the task type properties.

    Use the following syntax for the task properties:

Property Type	Syntax	French Localization Example
Task action	`taskaction.<Task action>=<Localized task action>`	`taskaction.Cancel_Task=Annuler la tâche` **Note:** Replace white spaces in task action names with an underscore. In the example, the white space in `Cancel Task` is replaced with an underscore, `Cancel_Task`.
Task type	`tasktype.<Task type>=<Localized task type>`	`tasktype.AVOSBeMerge=Fusionner` **Note:** To know which task name to add, you must be aware of the predefined MDM workflows that are deployed to the ActiveVOS server as processes.
Task action message	`taskactionmessage.<Task action configuration>.<Task action>=<Localized message>`	`taskactionmessage.TypicalConfig.Escalate=Vous êtes sur le point de transmettre la tâche à votre responsable.`

4. Save the properties file with the appropriate language code and country code suffix.

    For example, to localize metadata in Canadian French, the language code is `fr` and the country code is `CA`. Save the file as `besMetadata_fr_CA.properties`.

5. Compress the properties file.
6. In the **Metadata Localization** panel, under **Metadata Bundle**, click **Import**. The `besMetadata.zip` template file is imported.

Localizing Lookup Table

A lookup table is a reference table that contains a list of supported values for a column in a base object table. You can localize the lookup tables in any language you want. To localize the lookup tables, create a properties file with the localized values, and then import the localized file into the database.

1. Go to the following directory:

    `<MDM Installation Directory>/app/tcr/lookuplocalization/resources`

2. Save a copy of the `lookup.properties` file with the language code and country code for the language you want to use.
   For example, to create the Canadian French version, save the file as `Lookup_fr_CA.properties`.

3. In a text editor, open the localized file you create.

4. For each lookup table value, add the localized value in the following format:

   `<lookup table value>=<Localized value>`

5. Save the file.

6. Go to the following directory:

   `<MDM Installation Directory>/server/lib`

7. Copy the following files:

   - `log4j-1.2.16.jar`
   - `ojdbc7.jar`. If you use Oracle database.
   - `db2jcc.jar`. If you use IBM DB2 database.
   - `sqljdbc4.jar`. If you use Microsoft SQL Server database.

8. Paste the copied files into the following directory:

   `<MDM Installation Directory>/app/tcr/lookuplocalization/lib`

9. Open a command prompt, and go to the following directory:

   `<MDM Installation Directory>/app/tcr/lookuplocalization/bin`

10. Run the following command:

    - On UNIX. `lookup_localization.sh`
    - On Windows. `lookup_localization.bat`

11. At the prompts, enter the following parameters:

Parameter	Description
Database type	Type of database that you use. Use one of the following values: - Oracle - DB2 - MSSQL
User name	User name to access the Operational Reference Store database.
Password	Password for the user name.
Operational Reference Store database host name	Name of the host that runs the Operational Reference Store database.
Operational Reference Store database port number	Port number that the database listener uses.
Database name	For IBM DB2 and Oracle only. Name of the IBM DB2 database or Oracle service.

The localized lookup data is imported into the staging tables.

12. In the utilities workbench of the Hub Console, click **Batch Group**.

13. Expand **Localized Lookup Data Load**, and select **Control & Logs**.

14. Click **Execute**.

The localized lookup data is imported into the base objects.

Mapping the Lookup Tables with the Localized Lookup Tables

All lookup tables support localization. To localize lookup tables, you must map the lookup table to the corresponding lookup localization table. For example, to localize a list of gender codes, map the Lookup Gender lookup table to the Lookup Gender Localized table.

1. In the Provisioning tool, click **Business Entity** > **Modelling.**

   The **Modelling** page appears.

2. Select **Reference Entities**, and then select a lookup entity reference to localize.
   For example, select **LookupGender.**

3. In the properties panel, select **C_BT_GNDR** from the **Base Object** list.

4. Select **Localization**.

   Additional database properties and values appear based on your database table setup.
   The following table contains example values for the properties related to the C_BT_GNDR_LCL localized table:

Property	Value
Base Object	C_BT_GNDR_LCL
Key Column	GNDR_CD
Country Column	CNTRY_CD
Language Column	LANG_CD
Value Column	LOC_STRNG

   Note: When you localize lookup tables, do not configure the same table column as key and value columns. The value column displays the localized value.

5. Publish the changes to the MDM Hub.

   a. Click **Publish**.

      A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

      - To publish without a review, click **Publish**.

      - To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

Localizing Labels and Error Messages

Labels and error messages are the static texts in the Customer 360 and Provisioning tool user interface. The text cannot be localized through the Provisioning tool interface. To localize the labels and error messages, edit the Customer 360 localization bundle files.

1. Go the following directory:

   ```
   <MDM Installation Directory>/app/tcr
   ```

2. Copy the following files:
   - `customer360view-ear.ear`
   - `provisioning-ear.ear`
   - `uiwebapp-ear.ear`

3. Paste the copied files into the following directory:

   `<MDM Installation Directory>/app/tcr/localizationScript`

4. Open a command prompt, and go to the following directory:

   `<MDM Installation Directory>/app/tcr/localizationScript`

5. Run the following command:

   `ant extract_all`

   The command extracts the i18n directories containing the localized bundle files for the user interface of Customer 360 and Provisioning tool.

6. If you want to add a language other than the supported language, go to the following directories, and then save a copy of the `bundle.properties` files in the respective directories with the corresponding language code and country code:
   - `<MDM Installation Directory>/app/tcr/localizationScript/i18n/c360/com.informatica.tools.mdm.client/res/i18n` . For localizing the user interface of the Customer 360 application.
   - `<MDM Installation Directory>/app/tcr/localizationScript/i18n/uiwebapp`. For localizing the user interface of the Customer 360 components.
   - `<MDM Installation Directory>/app/tcr/localizationScript/i18n/provisioning`. For localizing the user interface of the Provisioning tool.

   For example, to create the Canadian French version, save the file as `bundle_fr_CA.properties`.

7. In a text editor, open the corresponding localized bundle files, and then update it.

8. From the command prompt, run the following command:

   `ant generate_all`

   The command generates the JavaScript/JSON files for the bundle files.

9. To update the .ear files with the updated localization bundle files, from the command prompt, run the following command:

   `ant update_all`

10. Copy the updated .ear files from the `<MDM Installation Directory>/app/tcr/localizationScript` directory, and then paste the files in the following directory:

    `<MDM Installation Directory>/app/tcr`

11. Go to the following directory:

    `<MDM Hub installation directory>/app/tcr/bin`

12. Run the following command:
    - **On Windows.** `redeploy.bat`
    - **On UNIX.** `redeploy.sh`

13. At the prompts, enter the following parameters:

Parameter	Description
MDM Hub installation directory	Fully qualified path to the directory where you installed the MDM Hub.
MDM - Customer 360 installation directory	Fully qualified path to the directory that contains the Customer 360 files.
Application server	Name of the application server in lowercase.

The command redeploys the `customer360view-ear.ear` file with the updated bundle files.

Customizing the Product 360 Component

In the dashboard view, the Product 360 component displays the product purchase history of a customer. You can customize the fields in the product details page that opens when you click a product.

To add or remove fields in the product details page, create a custom component, and then replace it with the existing component in the layout.

1. To create a component, perform the following steps:
   a. In the Provisioning tool, go to **Configuration** > **Component Editor**.
      The **Component Editor** appears.
   b. Select **layoutProductComponent**.
   c. Based on the business entity for which you want to customize the Product 360 component, select one of the following components:
      - **ProductComponentForPerson**. For a person business entity.
      - **ProductComponentForOrg**. For an organization business entity.
   d. From the properties panel, copy the XML code of the Product 360 component.
   e. In the **Components** panel, click **Create**.
   f. In the **Properties** panel, specify a name for the component, and paste the copied XML code.
   g. Edit the XML code as required.

The XML code uses the following parameters:

Parameter Name	Description
complexProductField	Lists the fields that you want to concatenate based on the specified expression. For example, in the following XML sample code, PRODUCT_GROSS_WEIGHT is a complex field. The field concatenates the values of the ArticleLogistic.GrossWeight and ArticleLogistic.GrossWeightUnit fields. <pre>\<complexProductField expression="%p1 %p2"\ntitle="PRODUCT_GROSS_WEIGHT"\>\n \<productField fieldName="ArticleLogistic.GrossWeight"\nid="%p1"\>\n \<fieldIdentifier\>countryIdentifier\</fieldIdentifier\>\n \</productField\>\n \<productField displayParam="label"\nfieldName="ArticleLogistic.GrossWeightUnit" id="%p2"\>\n \<fieldIdentifier\>countryIdentifier\</fieldIdentifier\>\n \</productField\>\n\</complexProductField\></pre>
expression	Lists the Product 360 field IDs in the order that you want to concatenate. For example, in the sample code, %p1 and %p2 are the field IDs that the expression concatenates.
id	ID for the Product 360 field that you want to concatenate. For example, in the sample code, %p1 is the ID for the ArticleLogistic.GrossWeight field.
productField	Lists the details of a field, such as the name, title, and identifier of the field. For example, in the following XML sample code, the details of the long description field for a product is listed in the productField parameter: <pre>\<productField fieldName="ArticleLang.DescriptionShort"\ntitle="PRODUCT_NAME"\>\n \<fieldIdentifier\>languageIdentifier\</fieldIdentifier\>\n\</productField\></pre>
fieldIdentifier	Identifier of the field in Product 360.
fieldName	Name of the Product 360 field that you want to add to the product details page.
displayParam	Parameter of the field that you want to display.
title	Identifier for the Product 360 field in Customer 360.

    h.   Click **Apply**.

2. To configure the display names for the Product 360 fields in Customer 360, perform the following steps:

    a.   Go to the following directory:

```
<MDM installation directory>/app/tcr/resources/
com.informatica.tools.mdm.web.entity360view.c360.productsWidget
```

    b.   In a text editor, open the `bundle.properties` file.

c. Add the display name of the Product 360 field in the following format:

```
<title>=<Display name>
```
For example, `PRODUCT_GROSS_WEIGHT=Gross Weight (kg)`.

3. To replace the existing component with the component that you created, perform the following steps:

   a. In the Provisioning tool, go to **Configuration** > **Layout Designer**.

   The **Layout Designer** appears.

   b. Expand the **Home Page** layout category, and then select **layout1**.

   c. Click **Edit**.

   The **Design** page appears.

   d. Remove the existing Product 360 component.

   e. Drag the Product 360 component that you created into the workspace.

   f. Click **Save**.

   The changes are saved to the temporary workspace.

4. Publish the changes to the MDM Hub.

   a. Click **Publish**.

   A confirmation dialog box appears that prompts you to publish or review the changes.

   b. Review the changes or publish without a review.

   - To publish without a review, click **Publish**.
   - To publish after a review, click **Review Changes** and follow the instructions that appear on the screen.

CHAPTER 7

Upgrading Customer 360

This chapter includes the following topics:

Upgrade Overview

A Customer 360 environment can include a development environment, a test environment, and a production environment. You must upgrade each of these environments. As a best practice, upgrade your development environment first. Identify and resolve any upgrade issues. After you successfully upgrade the development environment, you can upgrade the test and production environments with a high degree of confidence.

Before you upgrade Customer 360, ensure that you upgrade your Customer 360 environment to version 10.2 HotFix 2, 10.2 HotFix 3, or 10.3.

To learn about changes to the system requirements, review the Product Availability Matrix. You can find the Product Availability Matrix on Informatica Network:
https://network.informatica.com/community/informatica-network/product-availability-matrices/overview

Before You Upgrade

Before you upgrade Customer 360, upgrade the Multidomain MDM installation and back up the Customer 360 installation files.

1. Upgrade the Multidomain MDM installation to a supported version.
2. Back up the Customer 360 Operational Reference Store.
3. Back up the Customer 360 library and configuration files.

4. Extract the latest Customer 360 application archive file.

5. Copy the Customer 360 configuration files to the `tcr` folder.

6. Configure the application properties file.

7. Configure the base URL for the business entity services.

8. Optionally, if you use the data model based on the Party Role table, migrate to the data model based on the Party table.

9. Validate the Customer 360 database schema.

Upgrading Multidomain MDM

Upgrade the Multidomain MDM environment to a supported version.

For more information about upgrading Multidomain MDM, see the *Multidomain MDM Upgrade Guide*.

Note: When you upgrade Multidomain MDM, ensure that the date and time match in the database server and the Hub Server.

Backing Up the Customer 360 Operational Reference Store and Database

Before you upgrade Customer 360, ensure that you perform the following tasks:

- Back up the Customer 360 Operational Reference Store.

- Export the Customer 360 database to a change list XML file. After you upgrade Customer 360, use the change list XML file to restore the extended data model objects. Use the Repository Manager tool to export the database.

Backing Up the Customer 360 Library and Configuration Files

Before you back up the Customer 360 library and configuration files, ensure that you close the Customer 360 user interface and the Provisioning tool.

1. Go to the following directory:

   `<MDM Installation Directory>/app`

2. Rename the `tcr` folder.

   For example, rename the folder to `tcr_backup`.

Extracting the Customer 360 Application Archive File

You receive the Customer 360 application as an archive file. Create the following directory structure and extract the contents of the Customer 360 archive file into it:

`<MDM Installation Directory>/app/tcr`

The extracted content contains the following files and folders:

- `bin/`. Contains installation, upgrade, and database schema validation utilities.

- `bpm/`. Contains the ActiveVOS default business process in a deployable format.

  - `InfaCustomer360Workflow.bpr`. Contains the default business process for the data model based on the Party table.

- `pre_c360_10.2_hf2/`. Directory that contains the default business processes for the data model based on the Party Role table.

- `cleanse/`. Contains custom Java cleanse functions.

- `config/`. Contains configuration properties files.

- `data/`. Contains the scripts for inserting lookup or reference data.

- `datamodelmigration/`. Contains the scripts and the change lists required to migrate from the data model based on the Party Role table to the data model based on the Party table.

- `docs/`. Contains the data dictionary.

   - `C360_102HF2_DataDictionary_en.pdf`. Data dictionary for the data model based on the Party table.

   - `pre_c360_10.2_hf2`. Directory that contains the data dictionary for the data model based on the Party Role table.

- `hub/`. Contains the subdirectories that contain the database schema and the configuration files to deploy.

   - `cocs-config-xml/`. Contains configuration files for the business entities and business entity services.

   - `entity360config-xml/`. Contains copies of the Entity 360 component instance definitions that ship with Multidomain MDM.

   - `change-xml`. Contains the MDM Hub metadata including components, such as landing tables, lookup tables, staging tables, base objects, and match and merge rules, cleanse functions, component instances, business entities, and business entity services.

- `idd/`. Contains IDD application archive to support Hierarchy Manager interface.

- `lib/`. Directory for the external libraries. Copy the JDBC driver files for your database to the `lib` directory.

- `localizationScript`. Contains the scripts for localizing labels and error messages.

- `lookuplocalization/`. Contains the localized lookup data.

- `notices/`. Contains the legal copyright file.

- `reporting/`. Contains the data mart service, the chart configurations, the Highcharts editor, and the Highcharts projects.

   - `datamart/`. Contains the database service and the chart configurations. The `pre_c360_10.2_hf2/` directory contains the data mart service for the data model based on the Party Role table.

   - `highcharts-editor/`. Contains the Highcharts editor and the Highcharts projects.

- `resources/`. Contains the resource `bundle.properties` files for each of the supported locales.

- `upgrade/`. Contains the supporting files for the upgrade utility.

- `user_exit/`. Contains the MDM Hub user exit archive.

- `bundleLocalization.jar`. JAR file for localization.

- `customer360view-ear.ear` and `uiwebapp-ear.ear`. Files for the Customer 360 user interface.

- `Customer360.war`. File that contains the Task Manager, My Records, Timeline, File Import, Charts, and Linkage-related services for the data model based on the Party table.

- `productversion.jar`. JAR file for the product version.

- `provisioning-ear.ear`. File for the Provisioning tool user interface.

- `store-credentials.jar`.

Copying the Customer 360 Configuration Files

To retrieve the existing Customer 360 configuration, copy the backed up Customer 360 configuration files to the newly created `tcr` folder.

1. Copy all the files in the following directory:

   `<MDM Installation Directory>/app/<renamed tcr folder>/config`

2. Paste the files in the following directory:

   `<MDM Installation Directory>/app/tcr/config`

   Note: You must replace the existing files.

Configuring the Application Properties File

In the `application.properties` file, configure the properties related to file import and ActiveVOS.

1. Navigate to the following directory:

   `/app/tcr/config`

2. Open the `application.properties` file in an editor, and configure the following properties:

   activevos.datasource.url

   > Specifies the JNDI name of the ActiveVOS data source.

   bulkimport.fileupload.cleanupMinutes

   > Optional. Manually add the `bulkimport.fileupload.cleanupMinutes` property. Specifies the number of minutes to persist the import file in the specified directory after the import process is completed. The import process deletes the file after the specified time period. Default is 1 minute.

3. Save the file.

Configuring the Base URL for the Business Entity Services

If the base URL is not previously configured, configure the base URL for the business entity services to access the Hub Server.

1. Open the following file in a text editor:

   `<MDM Installation Directory>/app/tcr/config/c360-config.properties`

2. Configure an appropriate URL for the `base.url` property to access the Hub Server.

   Use one of the following formats for the base URL based on your environment:

   - `http://<Host>:<Port>`
     `Host` indicates the host name or the IP address of the machine on which you deploy Customer 360 and `Port` indicates the port number on which the host listens.

   - `http://<Domain name>`
     `Domain name` indicates the fully qualified domain name of the machine that hosts Customer 360.

Migrating to the Data Model Based on the Party Table

Customer 360 versions 10.2 HotFix 2 and later use the data model based on the Party table. If you upgraded to 10.2 HotFix 2 or use Customer 360 version 10.2 HotFix 1 or 10.2, then Customer 360 uses the data model

based on the Party Role table. You can now migrate from the data model based on the Party Role table to the data model based on the Party table.

Note: If you do not want to migrate to the data model based on the Party table, you can continue to use the data model based on the Party Role table.

1. Promote the `update_foreign_keys.change.xml` change list.

2. Validate the Customer 360 Operational Reference Store.

3. Update foreign keys and recalculate the best version of truth for the records.

4. Validate the Customer 360 Operational Reference Store.

5. Promote the `party_updates.change.xml` change list.

6. Validate the Customer 360 Operational Reference Store.

7. If you extended the data model, import the data model extensions.

8. Reindex the data.

9. Deploy the updated Customer 360 components.

10. Reconfigure the values for the Full Name row in the Hierarchy Manager.

11. Remove the post-merge user exit.

12. Delete the shards and the ZooKeeper data directory.

Step 1. Promote the update_foreign_keys.change.xml Change List

The `update_foreign_keys.change.xml` change list contains information about the foreign keys for the data model based on the Party table. Use the Repository Manager tool to promote the change list.

1. In the **Configuration** workbench of the Hub Console, click **Repository Manager**.

2. On the **Promote** tab, click **Change List**.

3. Select the Customer 360 Operational Reference Store as the target repository.

4. Click **Open**, and browse to the following directory:

   `<MDM installation directory>/app/tcr/datamodelmigration/hub/change-xml`

5. Select the `update_foreign_keys.change.xml` file, and click **Open**.

   The Repository Manager tool loads the list of changes that the change list contains.

6. Click **Apply Changes**.

   The Repository Manager tool prompts you to select a rollback strategy in the event of a failure.

7. Select the rollback strategy that you want to use, and click **OK**.

   A confirmatory message appears.

8. Click **Yes**.

Step 2. Validate the Customer 360 Operational Reference Store

After you apply the `update_foreign_keys.change.xml` change list, validate the Customer 360 Operational Reference Store.

1. In the **Configuration** workbench of the Hub Console, click **Repository Manager**.

2. On the **Validate** tab, select the Customer 360 Operational Reference Store.

3. Click **Validate**.

   The **Select Validation Checks** dialog box appears.

4. Select the validation checks to perform, and click **OK**.

   The Repository Manager tool validates the repository and displays any issues in the **Issues Found** pane.

5. To fix a repairable issue, perform the following tasks:

   a. Select the issue that you want to repair, and click **Repair**.

      A warning message appears.

   b. Click **OK**.

Step 3. Update Foreign Keys and Recalculate Best Version of Truth

After you apply the `update_foreign_keys.change.xml` change list, update the foreign keys and recalculate the best version of truth for the records. After you recalculate the best version of truth, verify whether the best version of truth is successfully calculated for all the records.

1. Open a command prompt, and go to the following directory:

   `<MDM installation directory>/app/tcr/datamodelmigration/bin`

2. To update the foreign keys, run the following command:

   - On Windows. `migrate_to_party_model.bat update_foreign_keys`

   - On UNIX. `migrate_to_party_model.sh update_foreign_keys`

3. To recalculate the best version of truth for the records, run the following command:

   - On Windows. `migrate_to_party_model.bat update_BVT`

   - On UNIX. `migrate_to_party_model.sh update_BVT`

4. To verify whether the best version of truth is calculated for all the records, perform the following steps:

   a. Run the following command:

      - On Windows. `migrate_to_party_model.bat verify_data_update`

      - On UNIX. `migrate_to_party_model.sh verify_data_update`

   b. Open the following log file:

      `<MDM installation directory>/app/tcr/datamodelmigration/log/verify_data_update.log`
      The log file displays the number of records that failed the best version of truth calculation for each base object. The value 0 indicates that the best version of truth is calculated for all the records.

      The following sample log entry indicates that the best version of truth is calculated for all the records in the C_BO_PRTY_RLE_STCK_EXCH table:

      ```
      0 rows affected
      TABLE_NAME,COUNT(1)
      C_BO_PRTY_RLE_STCK_EXCH,0
      ```

5. To delete the configuration details that are irrelevant to the data model based on the Party table, run the following command:

   - On Windows. `migrate_to_party_model.bat delete_configuration`

   - On UNIX. `migrate_to_party_model.sh delete_configuration`

Step 4. Validate the Customer 360 Operational Reference Store

After you recalculate the best version of truth, validate the Customer 360 Operational Reference Store.

1. In the **Configuration** workbench of the Hub Console, click **Repository Manager**.

2. On the **Validate** tab, select the Customer 360 Operational Reference Store.

3. Click **Validate**.

   The **Select Validation Checks** dialog box appears.

4. Select the validation checks to perform, and click **OK**.

   The Repository Manager tool validates the repository and displays any issues in the **Issues Found** pane.

5. To fix a repairable issue, perform the following tasks:

   a. Select the issue that you want to repair, and click **Repair**.

      A warning message appears.

   b. Click **OK**.

Step 5. Promote the party_updates.change.xml Change List

The `party_updates.change.xml` change list contains changes related to the data model based on the Party table. Use the Repository Manager tool to promote the change list.

1. In the **Configuration** workbench of the Hub Console, click **Repository Manager**.

2. On the **Promote** tab, click **Change List**.

3. Select the Customer 360 Operational Reference Store as the target repository.

4. Click **Open**, and browse to the following directory:

   `<MDM installation directory>/app/tcr/datamodelmigration/hub/change-xml`

5. Select the `party_updates.change.xml` file, and click **Open**.

   The Repository Manager tool loads the list of changes that the change list contains.

6. Click **Apply Changes**.

   The Repository Manager tool prompts you to select a rollback strategy in the event of a failure.

7. Select the rollback strategy that you want to use, and click **OK**.

   A confirmatory message appears.

8. Click **Yes**.

Step 6. Validate the Customer 360 Operational Reference Store

After you apply the `party_updates.change.xml` change list, validate the Customer 360 Operational Reference Store.

1. In the **Configuration** workbench of the Hub Console, click **Repository Manager**.

2. On the **Validate** tab, select the Customer 360 Operational Reference Store.

3. Click **Validate**.

   The **Select Validation Checks** dialog box appears.

4. Select the validation checks to perform, and click **OK**.

   The Repository Manager tool validates the repository and displays any issues in the **Issues Found** pane.

5. To fix a repairable issue, perform the following tasks:

   a. Select the issue that you want to repair, and click **Repair**.

      A warning message appears.

   b. Click **OK**.

Step 7. Import the Data Model Extensions

If you extended the data model, manually import the extended objects. To identify the extended objects, use the change list that you generated after exporting the Customer 360 database. Use the Repository Manager tool to import the change list.

Step 8. Reindex the Data

To reindex the data, run the Initially Index Smart Search Data batch job on all the base objects that contribute to each business entity.

Use the Hub Console to run the Initially Index Smart Search Data batch job. For more information about running the Initially Index Smart Search Data batch job, see the *Multidomain MDM Configuration Guide*.

Step 9. Deploy the Updated Customer 360 Components

After you reindex the data, deploy the updated Customer 360 components.

1. Open a command prompt, and go to the following directory:

    `<MDM installation directory>/app/tcr/datamodelmigration/bin`

2. Run the following command:

    - On Windows. `migrate_to_party_model.bat deploy_c360_components`
    - On UNIX. `migrate_to_party_model.sh deploy_c360_components`

    The command deploys the updated Customer 360 components.

3. To verify whether all the components are successfully deployed, perform the following tasks:

    a. Use a text editor to open the following file:

        `<MDM installation directory>/hub/server/conf/c360-versioninfo.xml`

    b. Check the value of the `variant` parameter.

        The value `party` indicates that all the components are successfully deployed. If you do not find the `variant` parameter, then one or more components are not properly deployed. Run the command again to redeploy all the components.

Step 10. Reconfigure the Values for the Full Name Column in the Hierarchy Manager

After you deploy the Customer 360 components, reconfigure the label and tooltip values for the Full Name column of the Person and Organization business entities.

1. In the Model workbench of the Hub Console, click **Hierarchies**.

2. Acquire a write lock.

3. In the navigation pane of the Hierarchies tool, select **Profiles** > **Default** > **Entity Objects** > **Party** > **Organization**.

4. In the **HM Packages** section, reset the **Label** and **Tooltip** values to 0 for the **Full Name** column.

5. In the navigation pane of the Hierarchies tool, select **Profiles** > **Default** > **Entity Objects** > **Party** > **Person**.

6. In the **HM Packages** section, reset the **Label** and **Tooltip** values to 0 for the **Full Name** column.

7. Click **Save**.

Step 11. Remove the Post-Merge User Exit

The data model based on the Party table does not use the post-merge user exit, so you must remove it.

1. In the **Utilities** workbench of the Hub Console, click **User Object Registry**.

2. Acquire a write lock.

3. In the navigation pane, select **User Exits**.

   The **User Exits** page appears.

4. Based on the listed user exit, perform one of the following tasks:

   - If the listed user exit is **Post Merge User Exit**, click **Remove**, and then click **OK**.

   - If you see any other user exit, perform the following tasks:

     1. Browse to the JAR file that contains the user exits.

     2. Extract the JAR file, and remove the `PostMergeImplementation.class` file from the JAR file.

     3. Export the remaining user exit classes to a JAR file.

     4. In the **User Exits** page, click **Add**.

        The **Add User Exit** dialog box appears.

     5. Click **Browse**, browse to the updated JAR file that contains the user exits, and click **Open**.

     6. Optionally, enter a description.

     7. Click **OK**.

Step 12. Delete the Shards and the ZooKeeper Data Directory

After you remove the post-merge user exit, delete the shards and the ZooKeeper data directory. When you configure the Process Server for search, you specify the path to the ZooKeeper data directory.

You can find the shards in the following directory: `<MDM installation directory>/hub/cleanse/solr`

Validating the Database Schema

Use the schema validation utility to validate the database schema for any errors. The utility identifies the customized Customer 360 resources and the custom objects that do not conform to the naming guidelines. Manually fix the errors before you upgrade Customer 360.

1. Open a command prompt, and go to the following directory:

   `<MDM installation directory>/app/tcr/bin`

2. Run the following command:

   - On Windows. `validate-schema-tcr.bat`

   - On UNIX. `validate-schema-tcr.sh`

3. At the prompts, enter the following parameters:

Parameter	Description
MDM Hub installation directory	Fully qualified path to the directory where you installed MDM Hub.
MDM - Customer 360 installation directory	Fully qualified path to the directory that contains the Customer 360 files.
Customer 360 Operational Reference Store	Database ID of the Customer 360 Operational Reference Store.
MDM Hub user name	MDM Hub user name to access the Customer 360 Operational Reference Store.
Password	Password for the user name.

Note: If you use a WebLogic application server, you are prompted to enter the WebLogic console password.

The utility validates the database schema. You can find the validation report as an HTML file in the following directory: `<MDM installation directory>/app/tcr/upgrade/report`

4. To validate another database schema, press **y**, and enter the following parameters:

Parameter	Description
Customer 360 Operational Reference Store	Database ID of the Customer 360 Operational Reference Store.
MDM Hub user name	MDM Hub user name to access the Customer 360 Operational Reference Store.
Password	Password for the user name.

5. If you do not want to validate another database schema, press **n**.

Upgrading Customer 360

The upgrade utility first validates the database schema that you specify. If the utility finds any errors in the database schema, Informatica recommends that you fix the errors and run the upgrade script again.

After you validate a database schema, upgrade the database schema. You can validate and upgrade multiple database schemas. After you upgrade all the required database schemas, the utility upgrades Customer 360.

1. Open a command prompt, and go to the following directory:

   `<MDM installation directory>/app/tcr/bin`

2. Run the following command:
   - **On Windows.** `upgrade-tcr.bat`
   - **On UNIX.** `upgrade-tcr.sh`

3. At the prompts, enter the following parameters:

Parameter	Description
MDM Hub installation directory	Fully qualified path to the directory where you installed MDM Hub.
MDM - Customer 360 installation directory	Fully qualified path to the directory that contains the Customer 360 files.
Application Server	Name of the application server in lowercase.
avos console username	ActiveVOS Console user name.
avos console password	ActiveVOS Console password.
PIM portal username	Product 360 user name that you entered in the previous installation. If you do not want to enable the Product 360 service, press **Enter**.
PIM portal password	Product 360 password that you entered in the previous installation.
Customer 360 Operational Reference Store	Database ID of the Customer 360 Operational Reference Store.
MDM Hub user name	MDM Hub user name to access the Customer 360 Operational Reference Store.
Password	Password for the user name.

Note: If you use a WebLogic application server, you are prompted to enter the WebLogic console password.

The utility validates the database schema. You can find the validation report as an HTML file in the following directory: `<MDM installation directory>/app/tcr/upgrade/report`

4. To upgrade the database schema, press **y**.

The database schema upgrade starts.

5. To validate and upgrade another database schema, perform the following steps:

a. Press **y**.

b. Enter the following parameters:

Parameter	Description
Customer 360 Operational Reference Store	Database ID of the Customer 360 Operational Reference Store.
MDM Hub user name	MDM Hub user name to access the Customer 360 Operational Reference Store.
Password	Password for the user name.

The database schema validation starts.

c. To upgrade the database schema, press **y**.

The database schema upgrade starts.

d. To validate and upgrade another database schema, perform steps a through c.

6. If you do not want to validate and upgrade another database schema, press **n**.

7. To start the Customer 360 upgrade, press **y**.

Customer 360 upgrade starts.

8. After you successfully upgrade Customer 360, restart the application server.

Verifying the Version Information File

After you successfully upgrade Customer 360, verify the version information in the following file: `<infamdm installation directory>/hub/server/conf/c360-versioninfo.xml`.

If you use party role data model, in the `c360-versioninfo.xml` file, ensure that the value of the `variant` property is `partyRole`.

Updating the Reference Data

After you update Customer 360, update the reference data in the tables.

1. Open a command prompt, and navigate to the following directory:

   `<MDM installation directory>/app/tcr/data/reference-data`

2. Run one of the following scripts based on the database you use:

   - For Oracle. `C360_lookup_script_oracle.sql`
   - For Microsoft SQL Server. `C360_lookup_script_MSSQL.sql`
   - For IBM DB2. `C360_lookup_script_DB2.sql`

3. To verify whether the lookup records are loaded successfully, perform the following tasks:

   a. In the Utilities workbench of the Hub Console, click **Batch Group**.

   b. Expand **BG_All_Lookup_Load**, and select **Control & Logs**.

   c. In the Logs for each job table, review the **Status** column to verify that the load is successful.

   d. If the load is unsuccessful, try running the load. Select **BG_All_Lookup_Load** and click **Execute**.

Importing the Localized Lookup Data

Customer 360 installation files include the localized lookup data. If you use a localized environment, import the localized lookup data into the database before you use Customer 360.

1. Copy the following files from the `<MDM installation directory>/hub/server/lib` directory to the `<MDM installation directory>/app/tcr/lookuplocalization/lib` directory:

   - `log4j-1.2.16.jar`
   - For Oracle. `ojdbc7.jar`
   - For IBM DB2. `db2jcc.jar`
   - For Microsoft SQL Server. `sqljdbc4.jar`

2. Go to the following directory:

   `<MDM installation directory>/app/tcr/lookuplocalization/bin`

3. Run the following command:

   - On UNIX. `./lookup_localization.sh`
   - On Windows. `lookup_localization.bat`

4. At the prompts, enter the following parameters:

Parameter	Description
Database type	Type of database that you use. Use one of the following values: - Oracle - DB2 - MSSQL
User name	User name to access the Operational Reference Store database.
Password	Password for the user name.
Operational Reference Store database host name	Name of the host that runs the Operational Reference Store database.
Operational Reference Store database port number	Port number that the database listener uses.
Database name	For IBM DB2 and Oracle only. Name of the IBM DB2 database or Oracle service.

The localized lookup data is imported into the staging tables.

5. In the Utilities workbench of the Hub Console, click **Batch Group**.

6. Expand **Localized Lookup Data Load**, and select **Control & Logs**.

7. Click **Execute**.

The localized lookup data is imported into the base objects.

Updating the Charts

After you upgrade Customer 360, you can update a specific chart or all the charts.

1. Open a command prompt, and go to the following directory:
    - **For the data model based on the Party table.** `<MDM installation directory>/app/tcr/reporting/datamart`
    - **For the data model based on the Party Role table.** `<MDM installation directory>/app/tcr/reporting/datamart/pre_c360_10.2_hf2`

2. To update a specific chart, run the following command:
    ```
    java -jar populate_datamart.jar exec <Report name>
    ```

3. To update all the charts, run the following command:
    ```
    java -jar populate_datamart.jar
    ```

Importing the Latest Online Help

After you upgrade Customer 360, import the latest online help into the Customer 360 application.

1. Extract the following file:

    `<MDM installation directory>/app/tcr/idd/config/Customer360.zip`

    The extracted files include the `BDDHelp.zip` file that contains the latest online help files.

2. Log in to the IDD Configuration Manager.

3. Select **Customer360**.

4. Click **Import** > **Import to existing IDD application**.

    The **Import to existing IDD application** dialog box appears.

5. In the **Configuration type** list, select **BDD Help**.

6. Click **Browse**, and select the `BDDHelp.zip` file from the directory that contains the extracted files of the `Customer360.zip` file.

7. Click **Import**.

    The import process updates Customer 360 with the latest online help.

CHAPTER 8

Troubleshooting

This chapter includes the following topics:

Troubleshooting the Customer 360 Installation

If you encounter any issues when you install Customer 360, use the following information to troubleshoot the issues.

The installer does not update the JNDI path for JBoss.

During reinstallation of Customer 360, if you change the installation directory, the JNDI path in the JBoss application server does not reflect the change.

Restart the JBoss application server to get the changed installation directory path.

Troubleshooting the Customer 360 Upgrade

If you encounter any issues when you upgrade Customer 360, use the following information to troubleshoot the issues.

The Customer 360 upgrade fails.

When you run the upgrade script, the upgrade fails with the following error:

```
Error Message ---> Object 'RESOURCE.HM_RELATIONSHIP_TYPE.ContactEmployee' already
exists. Object cannot be added.
```

To resolve this issue, perform the following tasks:

1. Go to the following directory:

   `<MDM installation directory>/app/tcr/hub/delta_change_xml/10.2 HF3 EBF1/pre_c360_10.2_hf2`

2. Delete the `TCR-2737.change.xml` file.

3. Run the upgrade script.

Troubleshooting the Customer 360 Configuration

If you encounter any issues when you configure Customer 360, use the following information to troubleshoot the issues.

I accidentally generated business entity schema for Customer 360.

In the Informatica Data Director Configuration Manager, if you accidentally generate business entity schema for Customer 360, the Configuration Manager overwrites your business entity configuration. After you generate the business entity schema, Customer 360 does not function as expected. For example, the task inbox and the Task Manager does not display any tasks even though you have valid tasks.

To resolve this issue, perform the following tasks:

1. In the Configuration workbench of the Hub Console, click **Repository Manager**.

   The Repository Manager tool opens.

2. To select the source repository, perform the following tasks:

   a. On the **Promote** tab, click **Visual**.

   b. Click the **Select** button next to the **Source** list.

      The **Open Repository** dialog box appears.

   c. On the **File Repository** tab, browse to the following directory:

      - For Party table-based data model. `<MDM installation directory>/app/tcr/hub/change-xml`

      - For Party Role table-based data model.`<MDM installation directory>/app/tcr/hub/change-xml/pre_c360_10.2_hf2`

   d. Select the `TCR_HUB.change.xml` file, and click **Open**.

      The Repository Manager tool loads and validates the repository from the selected file.

   e. Click **OK**.

      The Repository Manager tool displays the source repository as a hierarchical tree.

3. To select the target repository, in the **Target** list, select the ORS of Customer 360.

4. In the hierarchy tree of the source repository, select **Business Entity/Business Entity Services Configurations**.

5. To promote the selected object, perform one of the following tasks:

   - Right-click the selected object, and select **Promote**.

   - Click the **Promote** icon.

   - Drag the selected object from the source repository to the target repository.

   The **Promotion** dialog box appears.

6. Select **Replace the target objects with source objects**, and click **OK**.

   The **Impact Analyser** dialog box appears.

7. Click **OK**.

8. Click the **Apply Changes** icon.

9. If you have extended your business entities, restore or reconfigure the extended objects.

10. On the **Validate** tab, select the ORS of Customer 360, and click **Validate**.

11. Reopen a browser, and log in to Customer 360.

Import of the IDD ZIP file fails in IBM DB2.

In a WebSphere and IBM DB2 environment, when you import an IDD application in the Zip format, the import might fail.

To resolve the issue, use one of the following options:

- Increase the size of BLOB_DATA column to 30 MB in the CMX_SYSTEM.C_REPOS_DS_CONFIG table with the following IBM DB2 command:

  ```
  ALTER TABLE CMX_SYSTEM.C_REPOS_DS_CONFIG ALTER COLUMN BLOB_DATA SET DATA TYPE
  BLOB(31457280);
  ```
- Import and deploy the `BDDConfig.xml` file.

The Provisioning tool does not respond.

In the `C_REPOS_CO_CS_CONFIG` repository table, if the `TASKS` configuration contains the `LookupSegmentValue` business entity for a trigger, the Provisioning tool does not respond.

To fix this issue, remove the `LookupSegmentValue` business entity from the `TASKS` configuration. However, after you remove the `LookupSegmentValue` business entity from the `TASKS` configuration, you cannot add a new tag to a business entity.

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