Informatica® Multidomain MDM
10.3 HotFix 3

Provisioning Tool Guide

Informatica Multidomain MDM Provisioning Tool Guide
10.3 HotFix 3
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Preface

Use the Informatica® *Multidomain MDM Provisioning Tool Guide* to learn how to use the Provisioning tool to configure business entities, business entity views, transformations, Informatica Data Director applications, tasks, relationships, and full-text search. You can create a Data Director application and design pages and views to display master data.

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CHAPTER 1

Introduction

This chapter includes the following topics:

Provisioning Tool Overview

You can use the Provisioning tool to define business entity models, tasks, and transformations, and design the user interface for Data Director.

Define

You can create and edit the following definitions:

Business entities

Define business entity models. Business entities represent entities with significance to an organization. Organizations commonly define business entity types to represent customers, suppliers, employees, products, and accounts.

Business entity views

Define business entity view models. Business entity views represent a condensed version of a business entity.

Reference Entities

Define reference entities. Reference entities are business entities that are associated with lookup base objects.

Relationships

Define the relationships between the base objects in the business entities.

Transformations

Define structural transformations and data transformations.

Task configurations

>Define who can accept tasks, define who can launch business processes, and define the default task properties.

Extensions

>Define SOAP services and WSDL URLs.

Design

You can create and design the following user interface items:

Applications

>Create an application for use in Data Director.

Components

>Create user interface components to manage business entities.

Layouts

>Design user interface layouts.

Architecture

The Provisioning tool reads schema information from an Operational References Store (ORS) in the MDM Hub. You use the Provisioning tool to configure business entities based on the schema information and then publish the configuration. The configuration XML file is saved in the C_REPOS_CO_CS_CONFIG repository table.

As you work on the configuration files, you save your changes to a temporary workspace. The changes are not applied until you publish the changes. If multiple users change the business entity configuration for an ORS simultaneously, the repository is updated with the most recently published configuration.

The Provisioning tool runs on the same application server as the Hub Server.

Prerequisites

To use the Provisioning tool, the Operational Reference Store (ORS) must contain a defined MDM schema. A defined schema contains base objects and constraints based on foreign key relationships between base objects.

Prerequisites when using business entities for web services or when using Data Director

To add nodes to a business entity, you must first define the base objects. Use the MDM Hub Console to define base objects.

To configure the business entity model, you must first define the relationship constraints between the base objects. Use the MDM Hub Console to define foreign key relationship constraints.

Key Concepts

To work effectively in the Provisioning tool, you need a basic understanding of business entities and Multidomain MDM concepts.

Business Entities

Business entities represent entities with significance to an organization. Organizations commonly define business entity types to represent customers, suppliers, employees, products, and accounts. For example, a business entity type might be Person. The customer John Smith is a business entity of type Person.

An organization can also define business entity types for data that is unique to the business. For example, a charity defines donors as a type of business entity. A medical device manufacturer defines unique device identifiers. Many organizations define more than one business entity type. The application developer controls which business entity types exist in a Data Director application.

In the MDM Hub Store, a business entity corresponds to a record in a base object table. The parent record contains identifying information for the business entity. The parent record has a relationship to child records that contain data related to the business entity, such as addresses and telephone numbers.

Reference Entities

Reference entities are business entities that are associated with lookup base objects.

A lookup base object is a table that contains a list of reference data. For example, a lookup table for a phone type field could contain the values Home, Work, and Mobile. The reference entity data can then be used to populate a list of values in Data Director.

Root Node

The root node is the uppermost node in the business entity model and defines the business entity type.

The root node is synonymous with the business entity. For example, a business entity model with a Person root node is considered to be a Person business entity. After you create the root node, you can then define the business entity model. The nodes in the business entity contain information about the attributes of the root node.

Logging In to the Provisioning Tool

To log in, you need the URL for the Provisioning tool and your user credentials. The URL contains the MDM Hub server host name and port number. If you do not have this information, contact your MDM administrator.

Tip: If you encounter issues, try the following solutions:

- If the application does not launch, contact your MDM administrator. The administrator might need to restart the application server.

- If you cannot log in to the application and you are already running another MDM application in the browser, open a new browser window to log in to the application. The issue occurs because the application server that runs the MDM Hub uses the same session ID for both applications.

1. Open a supported browser.

2. Enter the URL for the Provisioning tool. The URL has the following format:

    Secure connections. `https://<MDM Hub Server host name>:<MDM Server port number>/provisioning/`

    Non-secure connections. `http://<MDM Hub Server host name>:<MDM Server port number>/provisioning/`

    The **Log In** page opens.

3. Enter your user name and password.

4. Click **Log In**.

5. Select the Operational Reference Store for which you want to configure business entities.

    The Provisioning tool opens and displays the **Home** workspace.

CHAPTER 2

Configuring the Data Director Application

This chapter includes the following topics:

Configuring the Data Director Application Overview

An application is the main configuration and deployment unit for Data Director. The application is what business users see when they launch and log in to Data Director. Use the Application Editor in the Provisioning tool to add and modify the applications.

You can create an application for each database in the MDM Hub environment. You associate each application with a source system, which the application uses to track data changes. To create a source system, use the Systems and Trust tool in the Hub Console. Ensure that the source system that you use is configured to have the highest level of trust. The trust level guarantees that the changes made by the application users override any other contributing value and ends up in the master record.

You can configure the application to include the search box or query form, or both. You can also configure the business entity view that you want to use to display the results of a search or query.

When you add, modify, or delete an application, to see the changes in Data Director, publish the changes to the MDM Hub.

Note: If you upgraded from a version prior to 10.2, ensure that you create an application in the Provisioning tool with the same name as the existing Data Director application name. Configure all the application properties including the search options that you want to use.

Creating a Data Director Application

The user interface layout that you want to design must be associated with a Data Director application. To create a Data Director application, use the Application Editor.

1. In the Provisioning tool, from the **Database** list, select the database with which you want to associate the application.
2. Click **Configuration** > **Application Editor**.

   The **Applications** page appears.
3. Click **Create**.
4. In the application properties panel, specify the following properties:

Property	Description
Name	Name of the application that appears in the Applications panel.
Display Name	Name of the application that appears in Data Director.
Source System	Source system with which you want to associate the application.
Session Timeout (minutes)	Time in minutes to wait before an idle Data Director session can time out.
Display Default Record Views	Enables the default record views. The names of the default record views appear in the **View** list in Data Director.
Smart search	Enables the **Search** menu option in the Data Director navigation bar.
Queries	Enables the **Query** menu option in the Data Director navigation bar.
Queries dialog in application	This option appears when you enable both the **Smart search** and the **Queries** options. Enable the **Queries dialog in application** option to allow the use of queries to search for records within a record view, such as **Matching Records** or while using a component, such as **Related Records**. **Note:** Both the **Query** and the **Search** menu options appear in the Data Director navigation bar.

5. Click **Apply**.

   The application that you created appears in the **Tree View** panel and in the **Applications** panel.
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.

Hiding Business Entities from an Application (Optional)

By default, an application includes all the business entities that are defined for an Operational Reference Store. You can hide specific business entities that you do not want within an application. Users can add records and search for records of the visible business entities.

1. From the **Applications** page, select the application.
2. In the tree view panel, click the **Business Entities** node.
3. To create a configuration for a business entity within the application, click **Create**.
4. In the application properties panel, specify the following properties:

Property	Description
Business Entity	The business entity that you want to configure for the application. From the **Business Entity** list, select the business entity.
Visible	Specifies whether the business entity is visible from the **New** tab and the **Search** box. To hide a business entity in the current application, add the business entity to the application and clear the **Visible** check box.

5. Click **Apply**.

   The configuration is 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.

Configuring the Search or Query Results Display

If you use the Elasticsearch engine, for each application, configure the business entity view that you want to use to display the results of a search or query. If you do not configure a business entity view, the search or query results contain the full business entity.

Note: If you use the Apache Solr search engine, skip this task.

1. From the **Applications** page, select an application.
2. In the tree view panel, click the **Search Configuration** node.
3. In the **Search Configuration** panel, for each business entity, select the business entity view for the search or query results.
4. Click **Apply**.

   The search or query results configuration is saved to the temporary workspace.

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.

Configuring Date and Time Formats

When you create a Data Director application, you can configure custom date and time formats. The default date and time formats are yyyy-MM-dd and yyyy-MM-dd HH:mm:ss.

1. From the **Applications** page, select the application.

2. In the tree view panel, click the **Default Display Formats** node.

3. In the **Default Display Formats** panel, enter custom formats in the **Date Format** and **Datetime Format** fields.

4. Click **Apply**.

    The date and time formats are saved to the temporary workspace.

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.

After you configure the date and time formats in the **Applications** page, use the **Modeling** page to set the **Date** or **Datetime** format for business entity fields that display a date.

CHAPTER 3

Establishing a Root Node

This chapter includes the following topics:

Establishing a Root Node Overview

The root node is the uppermost node in the business entity model and defines the business entity type. When you use the Provisioning tool to create a business entity model, the first step is to create a root node.

After you establish the root node, you can configure the properties of the root node. After you create the root node, you can then define the business entity model according to your business entity model.

You can also configure reference entities. Reference entities are business entities that are associated with lookup base objects. After you establish a lookup root node, you can then configure the properties for the lookup root node.

If you want to use business entities with Data Director, you can generate business entities from subject areas in the IDD Configuration Manager. Business entities created directly in the Provisioning tool do not work in Data Director.

If you do not use Data Director, but use business entity services as web services to directly access business entities, you can use business entities created in the Provisioning tool. You can also use the Provisioning tool to edit business entities already defined in your MDM schema.

Example of Adding Root Nodes

You work in Human Resources for a large multinational corporation. You want to add all the employees in your organization. You want to add each employee as a "Person" business entity.

To add the root node for a Person business entity, you perform the following steps:

1. In the Provisioning tool, select **Business Entity** > **Modeling**.
2. Select **Business Entities**, and then click **Create**.
3. In the node properties panel, select **C_PARTY** in the **Base Object** field.

4. Enter `Person` as the name and label for the root node.

5. Define the model of the business entity in the business entity model pane.

6. Save your changes.

Because employees in your organization live in different countries, you then decide that you want to create the reference entity "LUCountry." This will be associated with the Country lookup base object in the MDM schema.

To add the root node for a LUCountry reference entity, you perform the following steps:

1. In the Provisioning tool, select **Business Entity** > **Modeling**.

2. Select **Reference Entities**, and then click **Create**.

3. In the node properties panel, select **C_LU_COUNTRY** in the **Base Object** field.

4. Enter `LUCountry` as the name and label for the root node.

5. Save your changes.

Prerequisites

To add nodes to a business entity, you must first define the base objects. Use the MDM Hub Console to define base objects.

For more information about defining base objects, see the *Multidomain MDM Configuration Guide*.

Root Node Properties

Use the Provisioning tool to configure the following properties for a root node.

Name

Name of the root node or the business entity model. The name appears only in the Provisioning tool.

Label

Label for the business entity that you want to appear within views in Data Director.

If you do not specify a label or a label format for the business entity, the name appears as the label for the business entity.

If you localize the metadata for Data Director and use the metadata bundle file, `besMetadata.properties`, the labels and label formats in the metadata bundle file take precedence over the labels and label formats configured in the node properties panel.

Description

Optional. Description of the root node.

State Management Enabled

Determines if state management is enforced among all nodes in the business entity.

Base Object

The base object in the MDM Hub with which you want to associate the root node.

Label Format

Optional. Label for the business entity that consists of field values instead of hard coded text. The label format that you configure appears in the views in Data Director.

Syntax of the label format is {<field name 1>}, {<field name n>}. For example, use {lastName}, {firstName} to display the values of the last name and the first name as the label.

If you specify a label format and a hard coded label, a label with the specified format appears in all the views in Data Director.

If you do not specify a label or a label format, the business entity name appears as a label for the business entity in the views in Data Director.

If you localize the metadata for Data Director and use the metadata bundle file, `besMetadata.properties`, the labels and label formats in the metadata bundle file take precedence over the labels and label formats configured in the node properties panel.

Establishing a Business Entity Root Node

To create a business entity, establish a root node for the business entity and then configure the root node properties.

Creating a Business Entity Root Node

To create a business entity model, the first step is to create the root node for the business entity. In this example, you want to create a **Person** business entity associated with the base object C_PARTY in the MDM schema.

1. On the modeling page of the Provisioning tool, select **Business Entities**.

2. Click **Create**.

   A new root node appears among the business entities.

3. In the **Name** field, enter a name for the business entity.
   For example, enter `Person`.

   Note: Avoid the use of spaces in business entity names.

4. In the **Label** field, enter a display name for the business entity.
   For example, enter `Person`.

5. Optionally, enter a description of the business entity.

6. Optionally, enable the **State Management Enabled** check box.

   When this check box is enabled, the Repository Manager validation checks that all base objects in the business entity are enabled for state management, except referenced lookups.

7. In the node properties panel, go to the **Base Object** field and select a base object from the MDM schema to associate with the business entity.
   For example, select the base object C_PARTY.

   Note: The base objects are created in the MDM Hub before you add root nodes to the business entity.

8. Click **Apply**.

   The changes are saved but are not published to the MDM Hub.

The following image shows an example of a Person business entity:
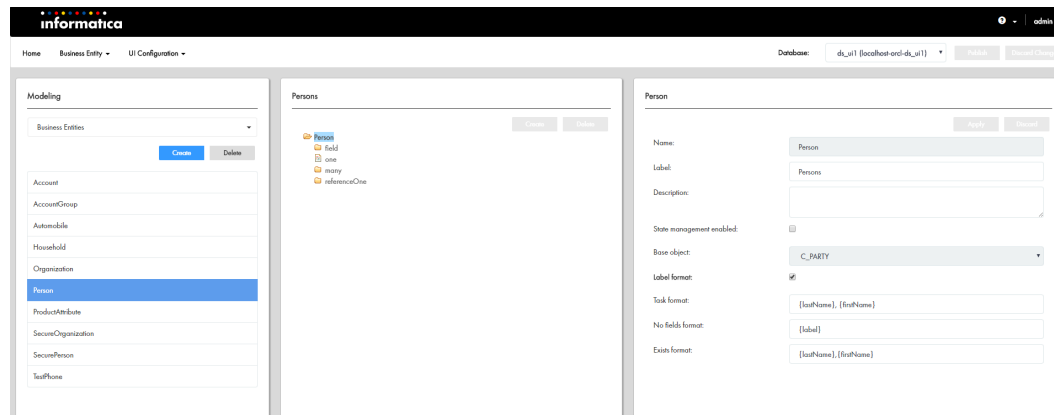
RELATED TOPICS:

- "Defining the Business Entity Model Overview" on page 25

Establishing a Reference Entity Root Node

To create a reference entity, establish a root node for the reference entity and then configure the root node properties.

Creating a Reference Entity Root Node

Reference entities are business entities that are associated with lookup base objects. As with a business entity, the first step is to create the root node for the reference entity. In this example, you want to create a reference entity associated with the lookup base object LUCountry in the MDM schema.

Before you begin, create the lookup base object in the MDM Hub Console. To avoid potential case sensitivity issues, ensure that all the codes and values in the lookup base object follow a consistent capitalization strategy. For example, all values start with an uppercase letter or all codes are in uppercase.

1. On the **Modeling** page, select **Reference Entities**.
2. Click **Create**.

   A new root node appears among the reference entities.
3. In the **Name** field, enter a name for the reference entity.
   For example, enter `LUCountry`.

   Note: Avoid the use of spaces in reference entity names.
4. In the **Label** field, enter a display name for the reference entity.
   For example, enter `LUCountry`.
5. Optionally, enter a description of the reference entity.
6. Optionally, enable the **State Management Enabled** check box.

   When this check box is enabled, the Repository Manager validation checks that all base objects in the reference entity are enabled for state management, except referenced lookups.

7. In the **Base Object** field and select a lookup base object from the MDM schema to associate with the reference entity.
   For example, select the base object C_LU_COUNTRY.

8. Click **Apply**.

   The changes are saved but are not published to the MDM Hub.

The following image shows an example of a LUCountry reference entity:
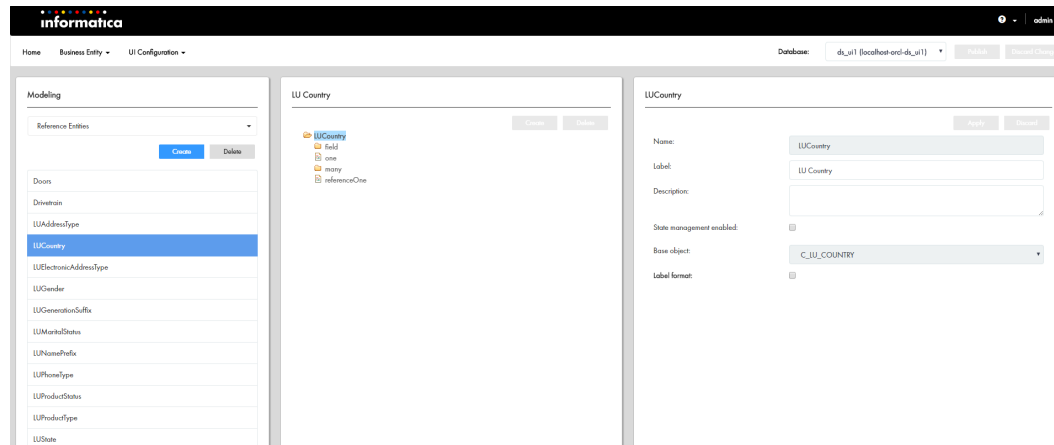
Enabling State Management Validation

To enable the Repository Manager to check that state management is enabled consistently for all base objects in a business entity, set the attribute `stateManagementEnabled` to `true` in the root element. The value of `stateManagementEnabled` is `false` by default.

In the Provisioning tool, you can enable state management through the **State Management Enabled** check box.

When `stateManagementEnabled` is `true` the Repository Manager validation checks that all base objects in the business entity are enabled for state management, except referenced lookups.

When `stateManagementEnabled` is `false` the Repository Manager does not verify that the base objects in the business entity are all state management enabled. The business entity can contain base objects that are state management enabled and base objects that are not state management enabled.

The value of `stateManagementEnabled` affects the Repository Manager validation check. The value of `stateManagementEnabled` does not affect run-time operations. When you change `stateManagementEnabled` from `true` to `false`, state management is not disabled for base objects.

Setting Strategies for Record Deletion and Record Checking

By default, the MDM Hub always identifies existing records by the ROWID_OBJECT value and by the primary key and source system. However, in the many field of the business entity root element, you can set additional strategies to determine how the MDM Hub deletes and identifies child base object records.

Delete strategy

Determines the behavior when you delete a child record.

When you enable the **Delete strategy** check box, select one of the following values:

DISASSOCIATE

Records remain active but the foreign key is set to null. Default is DISASSOCIATE.

SOFT_DELETE

Soft-deletes the record. The MDM Hub sets the HUB_STATE_IND to -1.

DELETE_PARENT

Deletes the record from the relationship table. The child record is not deleted.

Identifying strategy

Determines how the MDM Hub checks for an existing child record. When you add a child record to a business entity, the MDM Hub determines if the record is new or already exists.
When you enable the **Identifying strategy** check box, configure the following attributes:

oneRow

Determines the behavior when a record exists.

The `oneRow` attribute can have the following values:

ACCEPT

The MDM Hub does not create a child record. Default is ACCEPT.

CREATE

The MDM Hub creates a child record.

ERROR

The MDM Hub does not create a child record. An error occurs.

noRow

Determines the behavior when a record does not exist.

The `noRow` attribute can have the following values:

CREATE

The MDM Hub creates a child record.

ERROR

The MDM Hub does not create a child record. An error occurs.

CHAPTER 4

Defining the Business Entity Model

This chapter includes the following topics:

Defining the Business Entity Model Overview

The business entity model is a tree model of nodes. Each node corresponds to a base object table in the MDM Hub. Each field corresponds to a column of a base object table in the MDM Hub.

The business entity model is based upon a root node. The root node is synonymous with the business entity. For example, a business entity model with a Person root node is considered to be a Person business entity.

After the root node is established, you can use the tree panel in the Provisioning tool to create child nodes that have a one-to-one or one-to-many relationship with their parent nodes.

Example of Configuring the Business Entity Model

You are configuring the business entity model for the Person business entity. The Person business entity contains data for the employees in your company. Under the Person root node, you want to add nodes for the employee details such as gender, address, and phone.

The following image shows the model of the business entity example:
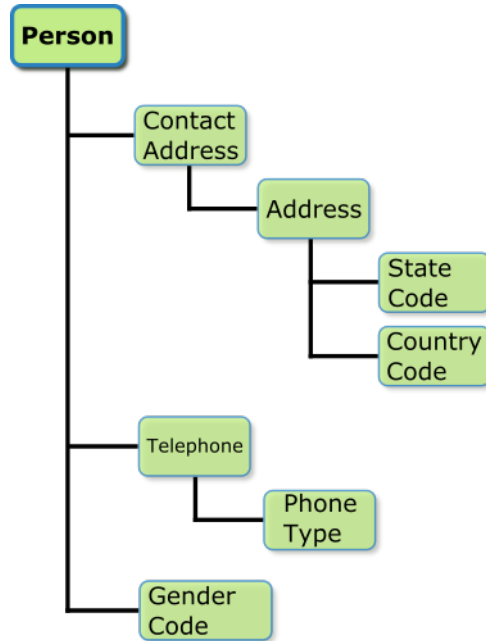
Prerequisites

To configure the business entity model, you must first define the relationship constraints between the base objects. Use the MDM Hub Console to define foreign key relationship constraints.

To add nodes to a business entity, you must first define the base objects. Use the MDM Hub Console to define base objects.

For more information about defining foreign key relationships and defining base objects, see the *Multidomain MDM Configuration Guide*.

Constraints

The MDM Hub uses foreign key constraints to maintain relationships between child objects and parent objects. When you create a node in the business entity model, you must specify the MDM Hub constraint that defines the relationship between the child node and the parent node.

A foreign key is a field in a relational table that matches the primary key column of another table. In a foreign key relationship, the child object has a foreign key column and the parent object has a primary key column.

The MDM Hub uses the keys to associate a parent record with a child record. The foreign key column of the child record contains the value of the associate parent primary key.

The following image shows a Phone child object linked to a Person parent object by a foreign key relationship:

Person Object
Base Object Name: C_PERSON

ROWID_OBJECT	Name
1	John
2	Mary
3	Tom
4	Jane

Phone Object
Base Object Name: C_Phone

Person_ID	Phone	ROWID_OBJECT
1	555-1111	101
2	555-2222	202
3	555-3333	303
4	555-4444	404
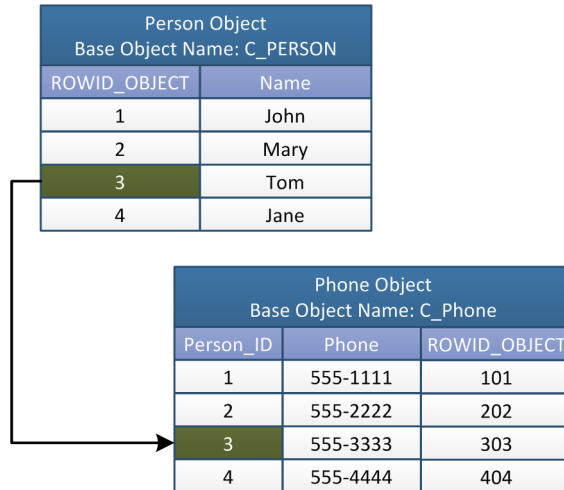
The Person object has a primary key column called ROWID_OBJECT and the Phone object has a foreign key column called Person_ID. The primary key value of 3 links the record for Tom to the record for the phone number 555-3333.

The constraint attribute requires the following syntax:

```
<child base object name>(<foreign key column name>).<parent base object name>(<zprimary
key column name>)
```

The following code shows the constraint attribute for the example:

```
constraint="C_PHONE(PERSON_ID).C_PERSON(ROWID_OBJECT)"
```

Node Types

You build the business entity model by adding nodes of different types. Each node type defines the nature of the relationship between the parent node and child node.

The business entity model can contain the following node types:

Business entity name

The name you give the business entity establishes the root node of the business entity.

one

Specifies a one-to-one relationship between a parent node and a child node.

For example, a one-to-one relationship between a Contact Address node and an Address node means that each contact address can only have one address associated with it. A person can have a home contact address and a work contact address, but only one address can be associated with the home contact address and only one address can associated with the work contact address.

many

Specifies a one-to-many relationship between a parent node and a child node.

For example, a one-to-many relationship between a Person node and a Telephone node means that a person record can have many telephone number records associated with it.

referenceOne

Specifies a one-to-one relationship between a parent node and a child reference entity node.

For example, a referenceOne relationship between a Person node and a Gender node means that a person record can be associated with only one gender value. The gender values reside in a lookup table.

The following image shows the node types for each node in the business entity example:
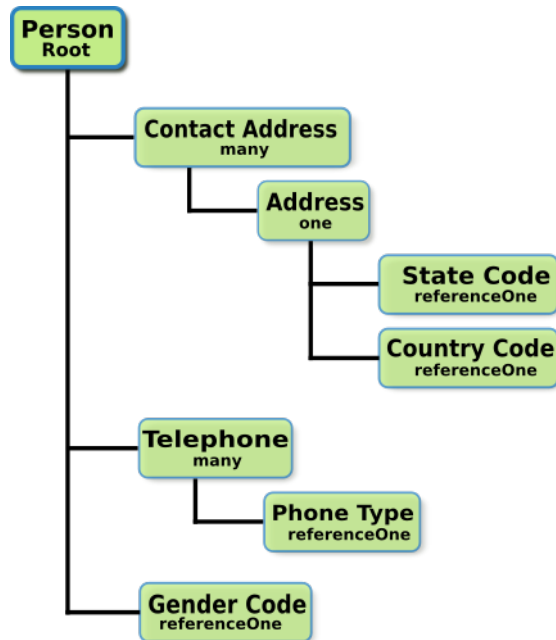
Creating a Node with a One-to-Many Relationship

To create a node with a one-to-many child relationship, in the tree view panel, select **One to Many** under the parent node and then click **Create**. For example, you create a telephone child node with a one-to-many relationship to a person node because one person can have more than one telephone number.

1. In the tree view, click the arrow of the parent node under which you want to create a child node.

   For example, expand the Person node.

2. Select **One to Many** under the parent node, and then click **Create**.

3. In the node properties panel, select the base object that contains the child node data.

   For example, select the base object C_PARTY_PHONE.

   Note: The base objects are created in the MDM Hub before you configure the business entity model.

4. Select the constraint reference that defines the MDM Hub relationship between the base object of the parent node and the base object of the child node.

   For example, select the constraint C_RL_PARTY_ADDRESS(ADDRESS_ID).C_ADDRESS(ROWID_OBJECT).

   Note: The constraints are created in the MDM Hub before you configure the business entity model.

5. Enter a node name and a node label name. Optionally, enter a node description.

   For example, enter `Telephone` for the node name and node display name.

6. In the **Lookup Display Field** list, select a field name to display for the lookup table in Data Director.

   For example, select the lookup table display name **genderDisp.**

   Note: The lookup field and the lookup display field name are created in the Provisioning Tool.

7. Click **Apply**.

   The changes are saved but are not published to the MDM Hub.

Creating a Node with a One-to-One Relationship

To create a child node with a one-to-one relationship to a parent node, in the tree view panel, select **one** under the parent node and then click **Create**. For example, you create an address child node with a one-to-one relationship to a contact address node because one person can only have one address that is a home contact address.

1. In the tree view, expand the parent node under which you want to create a child node.

   For example, expand Contact Address.

2. Select **One to One** under the parent node, and then click **Create**.

3. In the node properties panel, select the base object that contains the child node data.

   For example, select the base object C_ADDRESS.

   Note: The base objects are created in the MDM Hub before you configure the business entity model.

4. Select the constraint reference that defines the MDM Hub relationship between the base object of the parent node and the base object of the child node.

   For example, select the constraint C_RL_PARTY_ADDRESS(ADDRESS_ID).C_ADDRESS(ROWID_OBJECT).

   Note: The constraints are created in the MDM Hub before you configure the business entity model.

5. Enter a node name and a node display name. Optionally, enter a node description.

   For example, enter `Address` for the node name and node label name.

6. Click **Apply**.

   The changes are saved but are not published to the MDM Hub.

Creating a Lookup Node with a One-to-One Relationship

To create a child lookup node with a one-to-one relationship to a parent node, in the tree view panel, select **Lookup Fields** under the parent node and then click **Create**. You must associate the lookup node with a

lookup base object. For example, you create a child reference node for a gender lookup with a one-to-one relationship to a person.

Before you begin, in the MDM Hub, ensure that you configured the lookup base object and the relationship between the base object of the parent node and the lookup base object.

1. In the tree view, expand the parent node under which you want to create a child node.

   For example, expand the Person node.

2. Select **Lookup Fields**, and then click **Create**.

3. In the node properties panel, enter a node name and a label.

   For example, enter `Gender` for the name and label.

4. From the **Object** list, select the base object that contains the lookup child node data.

   For example, select the lookup base object `LUGender`.

5. From the **Constraint** list, select the relationship between the base object of the parent node and the base object of the lookup node.

   For example, select the constraint `C_PARTY(GENDER_CD).C_LU_GENDER(GENDER_CODE)`.

6. Optionally, configure default values for user roles.

   Note: The picklist in Data Director defaults to this value for the specified user roles.

   a. Beside the **Default Value** heading, click the **Add** icon.

   b. Enter a default value that matches a value in the selected lookup base object. When entering dates, use the GMT format, such as `2018-06-06T09:34:25.801-04:00`.

      Note: The Provisioning tool does not validate the values. You can test the default values from Data Director.

   c. From the **User Role** list, select user roles and then click the **Add** icon. To specify all user roles, select the asterisk (*).

      The selected user roles appear. To remove a user role, click the **Delete** icon beside the role.

   d. Optionally, to use this default value with the user roles that have no other default values configured for this field, select **Apply this value to the user roles that have no default value assigned**.

   e. To configure more default values, repeat these substeps.

7. Click **Apply**.

   The changes are saved but are not published to the MDM Hub.

Copying a Business Entity

After you define a business entity, you can copy the business entity and use it as a template to quickly create a similar business entity.

1. In the **Modeling** page, select the business entity and click **Copy**.

   The **Copy Business Entity** dialog box appears.

2. Enter a unique name.

3. Select the nodes to copy and click **Save & Publish**.

   A copy of the business entity is created and the changes are published to the MDM Hub.

4. To change the business entity, in the tree view panel, edit the fields and child nodes as required.

CHAPTER 5

Configuring Business Entity Properties

This chapter includes the following topics:

Configuring Business Entity Properties Overview

Configure the business entity properties in the right-hand panel of the Provisioning tool.

In the business entity properties panel, you can perform the following tasks:

- Add filters to a field.
- Configure node labels.
- Associate a base object with a node. You configure the root node properties when you create a root node. For more information, see the chapter Establishing a Root Node.
- Associate a constraint with a child node. You configure the child node properties when you define the business entity model. For more information, see the chapter Defining the Business Entity Model.
- Enable fields to be searchable and configure search properties. For more information about configuring searchable fields and configuring search properties, see the chapter about search.
- Assign default values to fields and associate the default values with user roles.

Field Properties

You can configure the field properties to associate a field with a base object column, specify the data type, mark the field as read-only, mark the field as required, and make the field searchable.

You can configure the following field properties:

Name

The field name in the business entity configuration file.

Label

The field name as it appears in the Provisioning tool tree view.

Read Only

Defines if the field is editable. If this option is clear, end users can edit the field in a record view if they have create or update privileges for the base object field in the MDM Hub.

If the user has create or update privileges for the base object column in the MDM Hub, the field is editable in Data Director.

If the user does not have create or update for the base object column in the MDM Hub, an error occurs when the user tries to save changes in Data Director.

For information about configuring resource privileges, see the *Multidomain MDM Configuration Guide*.

Required

Defines if users must enter data in the field when a business entity is created or updated.

URI

Defines the namespace where custom data types are defined. Default is commonj.sdo.

Type

The data type of the field. By default, the data type is as close as possible to the data type of the lookup base object column that the field is associated with. You can define custom data types for business entity fields. For example, a string column in a base object might contain information for an image so you configure a custom Image data type for reference entity fields.

Display Format

The display format for the date fields. Before you specify the display format for the date fields, specify the URI and set the Type property to **Date**.

You can select the **Date** or **Datetime** format for business entity fields that display a date. The display format that you configure is applied to the date field in all the Data Director views.

If a display format is not set for a date field, the date format of the field is the same as the format of the associated base object column.

Column

The base object column associated with the field. You associate a field with a base object column when you add a field to the node.

Filter

Defines a static filter to regulate the data that users can or cannot enter in a field.

When you enable the Filter property, specify the following fields:

- **Operator**. Controls whether the specified values are allowed or not allowed in the field.

Option	Description
In	Displays the values to the user. If you add a list of comma-separated values as allowed values, Data Director users can choose a value from a lookup list.
	Note: If you also configure a field filter on the same field, the displayed values reflect the intersection of the static filter and the field filter. For more information about field filters, see "Field Filter Rules and User Roles" on page 86.
Not In	Does not display the values to the user.

- **Value**. Add values that match the data type of the field. To add multiple values, enter a comma-separated list of values. To allow users to leave the field blank, add empty quotes ("") as a value.

  Note: The Provisioning tool does not validate the values. If you add a value of the wrong data type, the value does not appear in Data Director.

Searchable

A search request searches only the fields that you configure as searchable fields. The scope of a search request increases with the increased number of searchable fields. Multiple searchable fields might affect the performance of the search requests, so configure only the significant fields as searchable fields. For example, configure fields that contain full names, organization names, or email addresses as searchable fields rather than fields that contain country codes, gender codes, or address types.

When you enable the Searchable property, select one or more of the following additional properties for search:

- Suggester
- Sortable
- Language
- Fuzzy
- Filterable
- Facet Range
- Facet
- Displayable

Optionally, specify the language for the field values. The default language is English. For information about the search properties, see the chapter about search in the *Multidomain MDM Configuration Guide*.

RELATED TOPICS:

- "Custom Data Types" on page 34

Adding a Field to a Node

After you create a node in the business entity model, you can add fields to the node. The fields correspond to columns in the base object that is associated with the node. For example, you want to add the City field to

the Address node. The Address node is associated with the C_ADDRESS base object, which has a CITY_NAME column.

1. In the tree view, expand the node to which you want to add a field.

   For example, expand the Address node.

2. Under the expanded node, select **Field**.

3. In the tree view, click **Create**.

4. In the properties panel, select the base object column to associate with the field from the **Column** list.

   For example, select `City_Name`.

   Note: You created the base object columns in the MDM Hub.

5. Enter a field name and a field label name.

   For example, enter `City` for the field name and field label name.

6. Optionally, configure the other field properties. See "Field Properties" on page 31.

7. Optionally, configure default values for user roles.

   Note: If you also configured a filter with allowed values, the picklist in Data Director defaults to this value for the specified user roles.

   a. Beside the **Default Value** heading, click the **Add** icon.

   b. Enter a default value that matches the data type of the field. If you configured filters with allowed values, the default value must match one of the allowed values. When entering dates, use the GMT format, such as `2018-06-06T09:34:25.801-04:00`.

      Note: The Provisioning tool does not validate the values. You can test the default values from Data Director.

   c. From the **User Role** list, select user roles.

      To select a user role, select the role and then click the **Add** icon.

      To select multiple user roles, hold the CTRL key, select the roles, and then click the **Add** icon.

      To specify all user roles, select the asterisk (*) and then click the **Add** icon.

      To remove a user role, click the **Delete** icon beside the role.

   d. Optionally, to use this default value with the user roles that have no other default values configured for this field, select **Apply this value to the user roles that have no default value assigned**.

   e. To configure more default values, repeat these substeps.

8. Optionally, configure field filters by user role. See "Adding Field Filters" on page 87.

9. Click **Apply**.

   The changes are saved. When you are done all your changes, remember to publish the changes.

Custom Data Types

By default, the data type for a field is the same as the data type of the base object column that the field is associated with. You can define custom data types for business entity fields. For example, a string column in

a base object might contain information for an image so you configure a custom Image data type for business entity fields.

You define custom data types in a namespace external to the Provisioning tool. When you associate a custom data type with a field, you must enter the location of the namespace where your custom data types are defined.

Predefined Custom Data Types

The MDM Hub includes some predefined custom data types. You can find custom data types from the `co-types.xsd` schema in the `urn:co-types.informatica.mdm` namespace.

You can use the following predefined custom data types:

ImageURL

Stores the URLs to access images.

FileAttachment

Stores the files that you attach to the records. The field that you associate with the FileAttachment data type shows a browse button to select the document.

You can update the following properties related to the FileAttachment data type in the `cmxserver.properties` file:

- `cmx.file.max_file_size_mb`. Maximum size of the file that you can attach in megabytes. Default is 20.
- `cmx.file.allowed_file_extensions`. Lists the extensions of the files that you can store. By default, you can store the .pdf and .jpg files.

For more information about the `cmx.file.max_file_size_mb` and `cmx.file.allowed_file_extensions` properties, see the *Multidomain MDM Configuration Guide.*

Adding a Custom Data Type to a Field

You can associate custom data types with business entity fields. When you associate a custom data type with a field, you enter the location of the resource where your custom data types are defined. For example, you might want to associate a FileAttachment or ImageURL data type with a field for the Person business entity.

1. In the tree view, expand the node to which you want to add a field.

   For example, you expand the **Person** node.
2. Under the expanded node, select **Fields**.
3. In the tree view, click **Create**.

   The **New Field** form appear in the node properties panel.
4. In the **New Field** form, enter a field name and a field label name.

   For example, enter `Picture` for an image, or `Document` for an attachment as the field name and field label name.
5. Select the URI where your custom data types are defined.
6. Select a custom data type.

   Note: The custom data types are created in the namespace before you add a data type to a field.
7. To associate the field with a base object column, select a base object column.

Note: The base object column is created in the MDM Hub before you add a field to a node.

8. Optionally, select the **Read Only**, **Required**, **Searchable**, and **Filter** check boxes based on your requirement.

   If you select **Searchable**, additional search properties appear. For information about the search properties, see the chapter about search in the *Multidomain MDM Configuration Guide*.

9. To save the changes, click **Apply**.

   Note: This action does not publish the changes to the MDM Hub.

Node Labels in Data Director

You can configure the node labels to define the business entity titles in Data Director.

By default, the node name is the value for the node labels. If you do not configure the node labels, the node name appears as the node label.

You can hard code text for the labels or you can display field values. To display field values, enter the field name in parenthesis. For example, use `{lastName},{firstName}` to display the values of the last name and first name in the title.

You can configure the following node labels:

Task format

The task title.

The following image shows the Task Manager with a red square around the portion of the task title that you can configure:
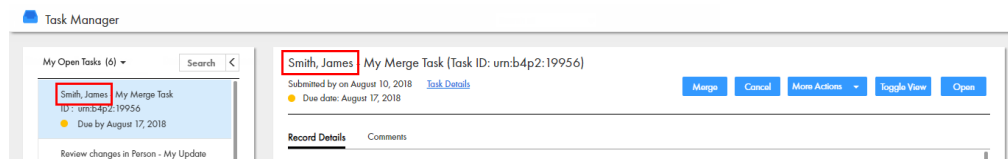
The task format value for this example is `{lastName},{firstName}`.

Exists format

The title to display if the field you configured for a title does not contain a value.

No fields format

The title of the page that appears when you create a new entity in Data Director.

The following image shows the entity creation page with a red square around the title:
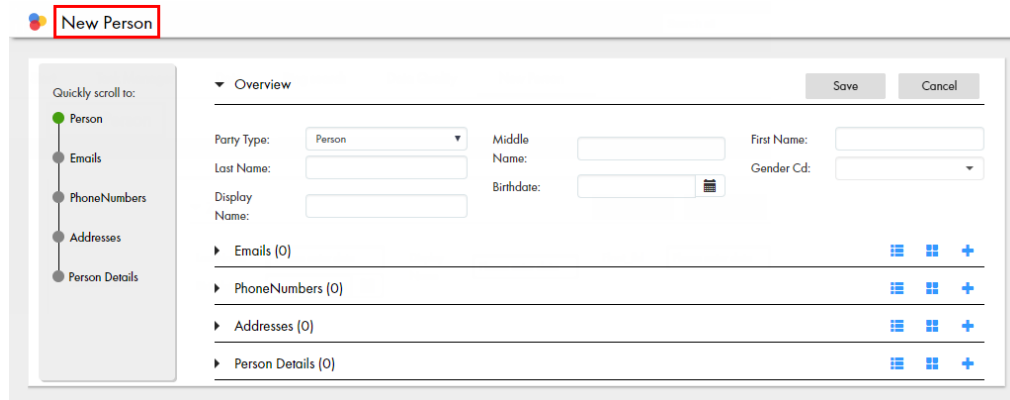
The new format value for this example is `New Person`.

Configuring Node Labels

To configure the labels for a node, configure the label formats in the node properties panel.

1. In the tree view panel, expand the node for which you want to configure node labels.

   For example, expand the Person node.

2. In the node properties panel, select the **Label Format** check box.

3. Enter the node labels.

   a. Enter the task title in the **Task Format** field.

      For example to display the last name followed by the first name in the task title, enter `{lastName}`, `{firstName}`. The values in these fields are displayed in the task title separated by a comma.

   b. Enter the format of the title if you specified a field value for a title but the field does not contain a value in the **Exists Format** field.

      For example, enter `Person`.

   c. Enter the title that appears when you create an entity in the **No Fields Format** field.

      For example, enter `New Person`.

4. Click **Apply**.

   The changes are saved but are not published to the MDM Hub.

CHAPTER 6

Configuring Reference Entity Properties

This chapter includes the following topics:

Configuring Reference Entity Properties Overview

Configure the reference entity properties in the right-hand panel of the Provisioning tool.

For many users, reference entities are synonymous with lookups.

In the reference entity properties panel, you can perform the following tasks:

- Associate a lookup base object with a node. You configure the root node properties when you create a root node. For more information, see the chapter Establishing a Root Node.

- Enable fields to be searchable and configure search properties. For more information about configuring searchable fields and configuring search properties, see the chapter about search.

Lookup Types

A lookup is a predefined list of values that are available for selection in a user interface. Within the Entity 360 framework, a regular lookup is linked to a lookup base object that contains a list of reference data. For example, a gender lookup is associated with the C_LU_GENDER base object.

Dependent lookups are used when a dependency exists between two lookup tables. A typical example of this is a type table and subtype table. The list of values that display in the subtype table depends on the selection in the type table. Another example of a dependent lookup is where the list of values for state or province is populated based on the selected country.

Field Properties

You can configure the field properties to associate a field with a lookup base object column, specify the data type, mark the field as read-only, mark the field as required, and make the field searchable.

You can configure the following field properties:

Name

> The field name in the reference entity configuration file.

Label

> The field name as it appears in the Provisioning tool tree view.

Read Only

> Defines if the field is editable. If this option is clear, end users can edit the field in a record view if they have create or update privileges for the base object field in the MDM Hub.
>
> If the user has create or update privileges for the base object column in the MDM Hub, the field is editable in Data Director.
>
> If the user does not have create or update for the base object column in the MDM Hub, an error occurs when the user tries to save changes in Data Director.
>
> For information about configuring resource privileges, see the *Multidomain MDM Configuration Guide*.

Required

> Defines if users must enter data in the field when a business entity is created or updated.

URI

> Defines the namespace where custom data types are defined. Default is commonj.sdo.

Type

> The data type of the field. By default, the data type is as close as possible to the data type of the lookup base object column that the field is associated with. You can define custom data types for business entity fields. For example, a string column in a base object might contain information for an image so you configure a custom Image data type for reference entity fields.

Display Format

> The display format for the date fields. Before you specify the display format for the date fields, specify the URI and set the Type property to **Date**.
>
> You can select the **Date** or **Datetime** format for reference entity fields that display a date. The display format that you configure is applied to the date field in all the Data Director views.
>
> If a display format is not set for a date field, the date format of the field is the same as the format of the associated base object column.

Column

> The lookup base object column associated with the field. You associate a field with a base object column when you add a field to the node.

Filter

> Defines a static filter to regulate the data that users can or cannot select in a field.

When you enable the Filter property, specify the following fields:

- **Operator**. Controls whether the specified values are allowed or not allowed in the field.

Option	Description
In	Display the values to the user. If you add a list of comma-separated values as allowed values, Data Director users can choose a value from a picklist.
Not In	Do not display the values to the user.

- **Value**. Add one or more values that exist in the selected lookup base object. To add multiple values, enter a comma-separated list of values. To allow users to leave the field blank, add empty quotes ("") as a value.

  Note: The Provisioning tool does not validate the values. If you add a value that is not in the lookup base object, the value does not appear in Data Director.

Searchable

A search request searches only the fields that you configure as searchable fields. The scope of a search request increases with the increased number of searchable fields. Multiple searchable fields might affect the performance of the search requests, so configure only the significant fields as searchable fields. For example, configure fields that contain full names, organization names, or email addresses as searchable fields rather than fields that contain country codes, gender codes, or address types.

When you enable the Searchable property, select one or more of the following additional properties for search:

- Suggester
- Sortable
- Language
- Fuzzy
- Filterable
- Facet
- Displayable

Optionally, specify the language for the field values. The default language is English. For information about the search properties, see the chapter about search in the *Multidomain MDM Configuration Guide*.

Adding a Field to a Node

After you create a node in the reference entity structure, you can add fields to the node. The fields correspond to columns in the lookup base object that is associated with the node. For example, you want to add the Gender Code field to the LU Gender node. The LU Gender node is associated with the C_LU_GENDER lookup base object, which has a Gender_Code column.

1. In the tree view, expand the node to which you want to add a field.

   For example, expand the LU Gender node.

2. Under the expanded node, select **Field**.

3. In the tree view, click **Create**.

4. In the node properties panel, select the base object column to associate with the field from the **Column** list.

   For example, select `Gender_Code`.

   Note: You created the base object columns in the MDM Hub.

5. Enter a field name and a field label name.

   For example, enter `Gender Code`.

6. Optionally, configure the other field properties. See "Field Properties" on page 39.

7. Optionally, configure field filters by user role. See "Adding Field Filters to a Reference Entity" on page 41.

8. Click **Apply**.

   The changes are saved but are not published to the MDM Hub.

Adding Field Filters to a Reference Entity

To control which values appear in a lookup list by user role, create a field filter on the reference entity that contains the list. Field filters are case insensitive. Field filters affect lookups, but not dependent lookups.

Note: If you implement field filters on a reference entity, and then in the business entity you add a field filter on a field that uses that reference entity, the field filter on the business entity takes precedence.

1. In the **Modeling** page, select the reference entity.

2. In the tree view, select **Field Filters**, and then click **Create**.

   A **[New fieldFilter]** option appears under **Field Filters**, and a form opens in the properties panel.

3. In the properties panel, enter a name for the filter.

4. Select a field.

   a. Beside the **Field** field, click the **Browse** button.

      A dialog box displays a list of fields.

   b. Select the field, and then click **Select**.

      The selected field appears in the **Field** field.

5. To define the filter in terms of who *cannot* see values, create deny rules.

   a. Beside the **Deny** heading, click the **Add** icon.

   b. In the **Value** field, enter a value that is in the lookup list.

      Note: When you enter dates, use the date format that your database environment requires.

   c. From the **User Role** list, select the user roles, and then click the **Add** icon.

   d. To make this rule a default for any unassigned user roles in the **Deny** section, select **Apply this rule to the user roles that are not specified in any Deny rule**.

   e. Repeat to configure more filter rules.

   f. Add user roles to the **Remaining Values** rule.

6. To define the filter in terms of who *can* see values, create allow rules.

   a. Beside the **Allow** heading, click the **Add** icon.

   b. In the **Value** field, enter a value that matches the data type of the field.

      Note: When entering dates, use the date format required by your database environment.

    c.   From the **User Role** list, select the user roles, and then click the **Add** icon.

    d.   To make this rule a default for any unassigned user roles in the **Allow** section, click **Apply this rule to the user roles that are not specified in any Allow rule**.

    e.   Repeat to configure more filter rules.

    f.   Add user roles to the **Remaining Values** rule.

7.   Click **Apply**.

    The field filter is saved but not published to the MDM Hub.

Configuring a Lookup

To configure a lookup, create a new reference entity in the tree view panel and then associate the root node with a lookup base object. For example, you create a gender lookup reference entity related to the C_LU_GENDER lookup base object.

1.   In the tree view, expand the parent node under which you want to create a child node.

    For example, expand the LU Gender node.

2.   Under the expanded node, select **field**.

3.   In the tree view, click **Create**.

4.   From the New Field form in the node properties panel, select the lookup base object column to associate with the field from the Column list.

    For example, select `Gender_Code` from the Column list.

    Note: The lookup base object column is created in the MDM Hub before you add a field to a node.

5.   Enter a field name and a field display name.

    For example, enter `Gender Code` for the field name and field label name.

6.   Create another field. In this example, select `Gender_Disp` from the Column list.

7.   Enter a field name and a field display name. In this example, enter `Gender Disp` for the field name and field label name.

8.   Optionally, configure the Read only, Required, Type, URI, Searchable, and Filter properties for the field you created.

    If you enable the Searchable property, additional search properties appear. For information about the search properties, see the chapter about search in the *Multidomain MDM Configuration Guide*.

9.   Click **Apply**.

    The changes are saved but are not published to the MDM Hub.

Configuring a Dependent Lookup

To configure a dependent lookup, create a new reference entity in the tree view panel and then associate the root node with a lookup base object. Then to create a one-to-many relationship within the lookup, in the tree view panel, select **many** under the parent node and then click **Create**. For example, you create a country lookup reference entity related to the C_LU_COUNTRY lookup base object.

1.   In the tree view, expand the parent node under which you want to create a child node.

    For example, expand the LU Country node.

2. Under the expanded node, select **field**.

3. In the tree view, click **Create**.

4. From the New Field form in the node properties panel, select the base object column to associate with the field from the Column list.

   For example, select `Country_Code` from the Column list.

   Note: The base object column is created in the MDM Hub before you add a field to a node.

5. Enter a field name and a field display name.

   For example, enter `Country Code` for the field name and field display name.

6. Create another field. In this example, select `Country_Name_Disp` from the Column list.

7. Enter a field name and a field display name. In this example, enter `Country Name Disp` for the field name and field label name.

8. Optionally, configure the Read only, Required, Type, URI, Searchable, and Filter properties for the field you created.

   If you enable the Searchable property, additional search properties appear. For information about the search properties, see the chapter about search in the *Multidomain MDM Configuration Guide*.

9. Select **many** under the parent node, and then click **Create**.

10. In the node properties panel, select the base object that contains the lookup child node data.
    For example, select the lookup base object C_LU_State.

11. Select the constraint reference that defines the MDM Hub relationship between the base object of the parent node and the base object of the child node.
    For example, select the constraint C_LU_STATE(COUNTRY_CODE).C_LU_COUNTRY(COUNTRY_CODE).

    Note: The constraints are created in the MDM Hub before you configure the business entity structure.

12. Optionally, enter a node name, a node label name, and a node description.
    For example, enter LU State for the node name and node label name.

13. Click **Apply**.

    The changes are saved but are not published to the MDM Hub.

CHAPTER 7

Transforming Business Entities and Views

This chapter includes the following topics:

Transforming Business Entities and Views Overview

A business entity represents a comprehensive, universal definition of an entity for your organization. However, users and departments in your organization might only require a condensed version of the business entity. You can transform a business entity into a condensed version called a business entity view.

If Data Director or a web applications reads from or writes to a business entity view, the read or write service performs the transformation. If you use business entity views in Data Director or a web application, you must configure business entity to view transformations for read operations, and view to business entity transformations for write events.

You can configure cleanse transformations to validate and cleanse the data during a transformation. You can also configure transformations to leverage DaaS to enrich the data in a business entity.

The following image shows two business entities transformed into two business entity views that have a simpler structure:
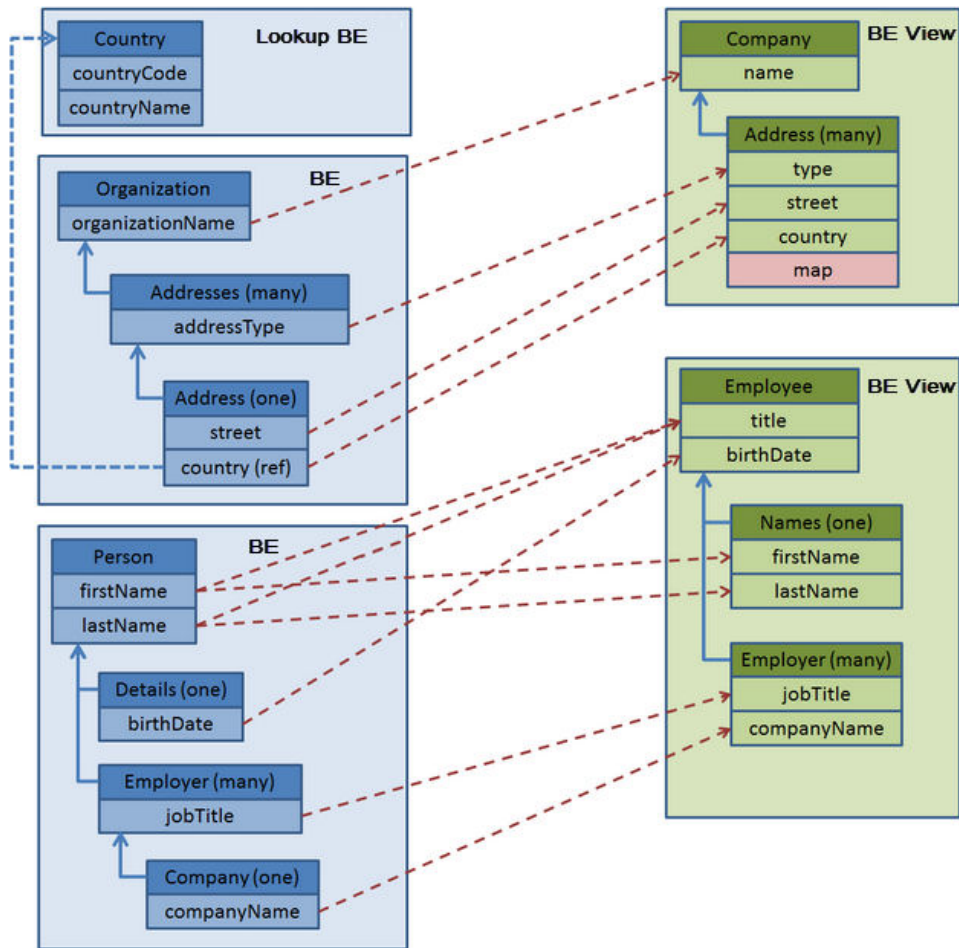
To configure a business entity to business entity view, first create the business entity view, and then map the transformations. To create a business entity to a view, model the structure of the view. After you model the view, map the transformations from the business entity to the business entity view.

Transformation Sources and Targets

You can configure the transformations for the following source-to-target combinations in the Provisioning tool:

Business Entity to View

For configuring a condensed version of a business entity as a business entity view to create an object that is easier to consume. For example, you can configure a view that only includes the fields required by a business process, user, or department. The business entity to view transformation is required when you search for and access a business entity.

View to Business Entity

For configuring business entity view to business entity transformation to make data updates to a view. The data is stored in the business entity, so the view to business entity transformation propagates any data changes made to the view. The view to business entity transformation is required when you create a business entity.

Business Entity to Business Entity

For configuring validation and data cleansing for a business entity. For a business entity to business entity transformation, the cleanse transformations on the fields in the Fields branch are applied during the write process.

Note: The cleanse transformations do not apply to the fields in the One to Many branch or the Lookup Fields branch of the business entity.

Business Entity to XML

For DaaS configuration.

XML to Business Entity

For DaaS configuration.

Cleanse Transformations

You can configure a cleanse-type transformation to use a cleanse function to cleanse, standardize, and validate data.

The following examples show just a few ways that you can use cleanse transformations:

- Concatenate a given name and a surname name
- Standardize all instances of Doctor to Dr.
- Validate a postal address

For more information about cleanse functions, see the *Multidomain MDM Configuration Guide*.

Transformations in Read and Write Processes

The business entity to view and business entity to business entity transformations participate in the business entity read process. View to business entity and business entity to business entity transformations participate in write processes.

During a read process when a business entity view is displayed, the following process occurs:

1. Data is read from the Operational Reference Store
2. The business entity is transformed to a business entity view

The following image shows the transformations in the business entity Read process:
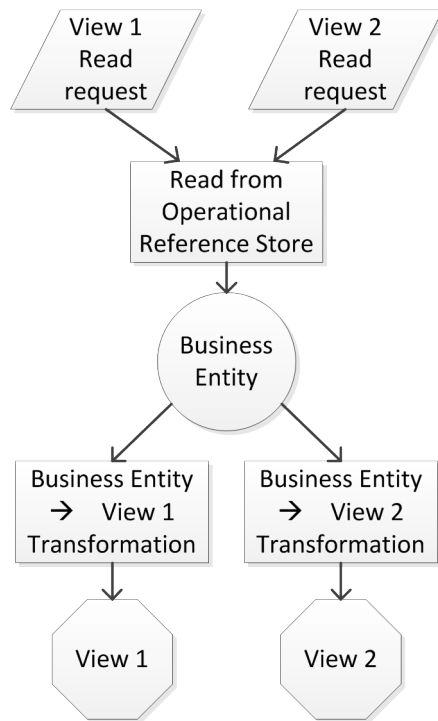
During a write process when a data change is made, the following process occurs:

1. A view is transformed into a business entity
2. The data is validated and cleansed by the business entity to business entity transformation
3. The data is written to the Operational Reference Store

The following image shows the transformations in the business entity Write process:
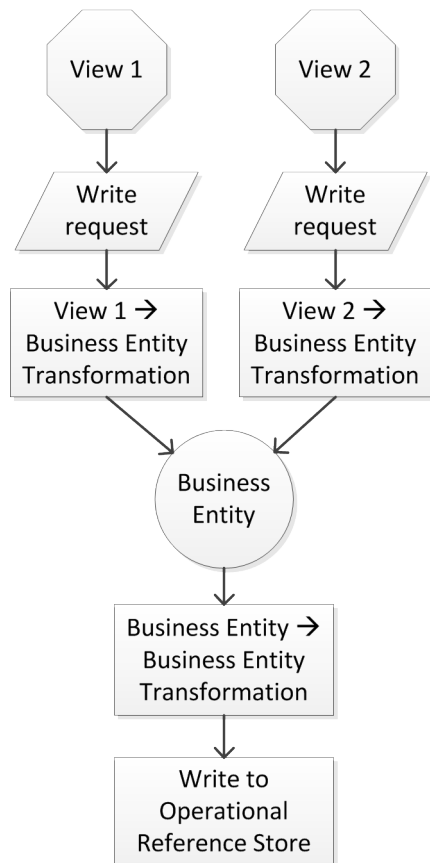
Modeling Business Entity Views

Before you configure transformations, you must create and configure business entity views. To model a business entity view, use the Provisioning tool to define the structure.

Perform the following steps to configure a business entity view:

- Create the business entity view root node
- Create the child nodes
- Add the fields to the root and child nodes

Establish the Business Entity View Root Node

When you create a business entity view, you first establish a root node.

1. In the Provisioning tool, select **Business Entity** > **Modeling**.
2. Select **Business Entity Views** from the list in the root node panel, and then click **Create**.

A root node for a business entity view appears in the root node panel.

3. In the node properties panel, enter a view name and label, and then select a business entity to associate with the view.

   The business entity you select is the entity that you will transform into the view.

4. Click **Apply**.

Add Fields

After you establish a root node, add the root node fields from the business entity that you want to transform into the view.

1. In the tree view, expand the root node.

2. Select **Fields** under the root node, and then click **Create**.

3. In the properties pane, enter a field name.

   All other fields and selections are optional. For more information, see "Field Properties" on page 31.

4. Click **Apply**.

Add Child Nodes

You can add a child node that has a one-to-one or one-to-many relationship with the parent.

1. Select the type of relationship the child node has with the parent node.

   - To add a child with a one-to-one relationship, expand **viewOne**, and then click **Create**.
   - To add a child with a one-to-many relationship, expand **viewMany**, and then click **Create**.

2. Enter a name, and optionally a label for the child node.

3. Click **Apply**.

4. Add fields to the child node in the same way that you added fields to the root node.

Copying a Business Entity View

After you define a business entity view, you can copy the business entity view and use it as a template to quickly create a similar business entity view.

1. In the **Modeling** page, select the business entity view and click **Copy**.

   The **Copy Business Entity View** dialog box appears.

2. Enter a unique name.

3. Select the nodes to copy and click **Save & Publish**.

   A copy of the business entity view is created and the changes are published to the MDM Hub.

4. To change the business entity view, in the tree view panel, edit the fields and child nodes as required.

Configuring Business Entity to View Transformations

Configure transformations to map business entity fields to business entity view fields.

Perform the following steps to map the transformations:

- Create the transformation groups to contain the one-to-many child transformations.
- Add direct transformations to map the business entity fields to the business entity view fields.

Configure Transformations for One-to-Many Child Nodes

To configure transformations for child nodes, add the node to a group, and then configure the transformations.

1. In the tree view, expand the folder for the transformation.
2. Select the **Groups** folder, and then click **Create**.
3. In the properties panel, enter a name for the node as you want it to appear in the group folder.
4. In the **Source** field, select a business entity child node, and in the **Target** field, select the child node of the view.
5. Repeat step 1 to step 4 for each child node.
6. Click **Apply**.

   You can now configure the transformations for the child nodes.

Configuring a Direct Transformation

You can directly map data from a business entity field to a view field without changing the data.

1. In the tree view, expand the folder for the transformation.
2. Select **Transformation**, and then click **Create**.
3. In the properties pane, in the **Name** field, enter a name for the transformation.
4. In the **Type** field, select **direct**.
5. In the **Input Fields** column, select the business entity fields that you want to map to the view.
6. Optional: Enter a input constant in the **Value** field when the input field or output field are not defined.
7. In the **Output Fields** column, select the view fields to which the business entity fields map.
8. Click **Apply**.

Configuring View to Business Entity Transformations

Configure transformations to map a business entity view to a business entity.

You can configure a transformation so the data maps to the view unchanged. You can also transform the data with a cleanse function so that the data that was entered into a business entity view can be cleansed and validated before moving to the business entity.

Perform the following steps to map the transformations:

- Create the transformation groups to contain the one-to-many child transformations.

- Add transformations to map the view fields to the business entity fields. You can configure the following types of transformations:

  - Direct transformations to move the data unchanged.

  - Cleanse transformations to transform the data before it populates the business entity.

Configure Transformations for Child Nodes

To configure transformations for child nodes, add the node to a group, and then configure the transformations.

1. In the tree view, expand the folder for the transformation.

2. Select the **Groups** folder, and then click **Create**.

3. In the properties panel, enter a name for the node as you want it to appear in the group folder.

4. In the **Source** field, select the child node of the view, and in the **Target** field, select the child node of the business entity.

5. Repeat step 1 to step 4 for each child node.

6. Click **Apply**.

   You can now configure the transformations for the child nodes.

Configuring a Direct Transformation

You can directly map data from a view field to a business entity field without transforming the data.

1. In the tree view, expand the folder for the transformation.

2. Select **Transformation**, and then click **Create**.

3. In the properties pane, in the **Name** field, enter a name for the transformation.

4. In the **Type** field, select **direct**.

5. In the **Input Fields** column, select the view fields that you want to map to the view.

6. Optional: Enter a input constant in the **Value** field when the input field or output field are not defined.

7. In the **Output Fields** column, select the business entity fields to which the business entity fields map.

8. Click **Apply**.

Configuring a Cleanse Transformation

When you map a business entity field to a view field, you can choose to cleanse the data with a cleanse transformation. The cleanse transformation cleanses data for write operations on that particular business entity view.

1. In the tree view, expand the folder for the transformation.

2. Select **Transformation**, and then click **Create**.

3. In the properties pane, in the **Name** field, enter a name for the transformation.

4. From the **Type** list, select **cleanse**.

5. From the **Cleanse Library** list, select the cleanse library that contains the cleanse function you want to use to transform the data.

6. If required by the cleanse function, enter a message in the **Status Success** and **Status Output** fields.

7. From the **Function** list, select the cleanse function to transform the data.

8. In the **Input Parameters** section, select the view field to use as an input to a business entity field.

9. Optional: Enter a input constant in the **Value** field to enter the value separator when you use functions such as **Concatenate**.

10. In the **Output Parameters** section, select the business entity field to receive the transformed data.

11. Click **Apply**.

Configuring Business Entity to Business Entity Transformations

Configure business entity to business entity transformations to cleanse the entity data.

Perform the following steps to configure business entity to business entity transformations:

- Create the transformation groups to contain the one-to-many child transformations.
- Add cleanse transformations to map the business entity fields to the business entity fields.

Configure Transformations for Child Nodes

To configure transformations for child nodes, add the node to a group, and then configure the transformations.

1. In the tree view, expand the folder for the transformation.

2. Select the **Groups** folder, and then click **Create**.

3. In the properties panel, enter a name for the node as you want it to appear in the group folder.

4. In the **Source** field, select the child node of the business entity and in the **Target** field, select the same child node of the business entity. Repeat for each child node.

5. Click **Apply**.

   You can now configure the transformations for the child nodes.

Configuring a Cleanse Transformation

You can apply a cleanse transformation to a business entity field that you map to itself. The cleanse transformation cleanses data for write operations to all business entity views.

1. In the tree view, expand the folder for the transformation.

2. Select **Transformation**, and then click **Create**.

3. In the properties pane, in the **Name** field, enter a name for the transformation.

4. From the **Type** list, select **cleanse**.

5. If required by the cleanse function, enter a message in the **Status Success** and **Status Output** fields.

6. From the **Cleanse Library** list, select the cleanse library that contains the cleanse function you want to use to transform the data.

7. From the **Function** list, select the cleanse function to transform the data.

8. In the **Input Parameters** section, select the business field to use as an input.

9. Optional: Enter a input constant in the **Value** field to enter the value separator when you use functions such as **Concatenate**.

10. In the **Output Parameters** section, select the business entity field to receive the transformed data.

11. Click **Apply**.

Deleting Transformations

You can delete transformations. If you delete a transformation on which components or extensions are based, the components and extensions are deleted.

Managing Many-to-Many Relationships

This chapter includes the following topics:

Business Entity Relationships Overview

Relationships describe the affiliation between two business entities. The MDM Hub supports one-to-many and many-to-many relationships between business entities, in addition to hierarchical relationships between records in the same business entity. If a user role has the necessary permissions, the user can view, add, edit, and manage relationships between a business entity and the records related to the business entity.

You configure the many-to-many relationships in the Provisioning tool. You design the Data Director user interface layout and create a record view. Add a Related Records component to view the records that directly relate to the record that is open in the record view.

Related Records

The Related Records component is a secondary component that you can add to a record view layout and configure. The component lists records that are directly related to the record that is open in a record view. Each related record in the component is a link that you can open in a record view.

Note: The Related Records component shows only the records that the user has permission to view. To be able to add, edit, and delete relationships, the user must have these permissions for the types of business entities that they want to relate. To set permissions, you use the Security Access Manager in the MDM Console. For more information, see the *Multidomain MDM Configuration Guide*

You can use the Related Records component in the view mode or the edit mode. In the view mode, users can only view the records. In the edit mode, users can add, edit, and delete relationships for records that appear in the Related Records component.

Before you add the Related Records component to a record view layout, create the component in the Component Editor. After you create the component, the component appears in the Layout Designer.

To display related records, ensure that relationships are defined for the business entity model on which you base the record view. You can create business entity models and define relationships between business entities in the Modeling page.

The following image shows a sample Related Records component in the edit mode with records related to a person record in a record view:

Additional Attributes Associated with a Relationship

Business entity relationships might have additional attributes associated with the relationships. For example, a relationship between an organization and person can have an additional attributes, such as salary and designation of employee. A relationship between a person and automobile can have attributes, such as purchase date, mileage, and price.

You can specify what additional attributes you require when you configure a relationship. The user interface displays these attributes when you create the relationship. When you configure business entity relationships in the Provisioning tool, you can specify the additional attributes. You can edit these attributes when you edit the relationship between a business entity and the related record.

Note: The base object that maintains the relationship must have the columns that correspond to the attributes you want to add.

Prerequisites

Before you configure the business entity relationships, perform the following prerequisite tasks:

1. Create base objects in the MDM Hub.
2. Define the business entity structure.
3. Create the relationship types that you want to manage.
4. If you want to add additional attributes for a relationship, ensure that the required columns are present in the base object that maintains the relationship.

Configuring Many-to-Many Relationships

Configure the business entities relationships in the Provisioning tool.

Note: If you use Data Director to display business entities, you can generate the business entities from a subject area configuration. When you generate the business entities, if relationships exist between the business entities, the process also generates the relationships.

To view, add, edit, and delete the relationships between a business entity and related records, perform the following steps in the Provisioning tool:

1. Configure the relationship between the business entities.
2. Configure a Related Records component to display the relationship in a record view. If required, create multiple related records components, one for each type of relationship.
3. If you want to filter the related records by a business entity or a relationship type, add filters to the Related Records component.
4. Design an record view layout and add the Related Records component for the business entity and publish the configuration to the MDM Hub.

Configuring a Relationship

When you configure a relationship between business entities, you create a relationship between two base objects. Create a relationship between two business entities in the Provisioning tool.

1. Log in to the Provisioning tool and select the ORS.
2. Click **Business Entity** > **Modeling**.
3. From the **Modeling** list, select **Relationships**, and then click **Create**.

   The fields that you must configure appear in the **Properties** panel.
4. In the Properties panel, specify the following relationship properties:

Property	Description
Name	Unique name for the relationship.
Label	Label for the relationship that appears in the Data Director user interface.
Description	A meaningful description for the relationship.
Display name	Name that appears in the Entity layout.
Bi-directional	Indicates whether the direction of the relationship goes both ways.
State Management Enabled	Indicates whether state management is enabled.

5. From the **Base object** list, select a base object from the MDM schema that will maintain the relationship between the two base objects.
6. In the **Parent Business Entity** list, select the base object, which is the first entity in the relationship.
7. In the **Parent Constraint** field, select the column to which the foreign key points.
8. From the **Child Business Entity** list, select the base object, which is the second entity in the relationship.

The **Parent Business Entity** and the **Child Business Entity** specify the direction of the relationship.

9. In the **Child Constraint** field, select the column to which the foreign key points.

10. Optionally, if you want to show the labels on the UI, select the **Label Format** check box and specify the following properties:

Property	Description
Exists format	Title that appears when you view the relationship.
No fields format	Title to display when all the fields in the Exists Format have NULL values.

11. Click **Apply**.

The relationship appears in the root node panel.

12. To add additional attributes for the relationship, specify the fields that will appear in the user interface when creating or viewing the relationship:

   a. Select **Fields** under the tree node, and click **Create**.

   b. Specify the following properties:

Property	Description
Name	Name for the field.
Label	Display name for the field in the user interface.
Read Only	Indicates whether the field is read only.
Required	Indicates whether you must specify the field when you create a relationship.
URI	URI for where your custom data types are defined, if you want to associate a custom data type with the business entity field,
Type	Name of the custom data type that you define in the URI. Used with the URI property.
Column	Business entity field.
Searchable	Indicates whether the field is searchable. **Note:** If you enable the Searchable property, the Searchable Configuration fields appear.
Filter	Regulates the data that users can enter in the field. **Note:** If you enable the Filter property, the properties related to filter behavior appear. Specify the filter behavior property and the filtered value.
Operator	Specify `IN` to ensure that filter values are the only values allowed in the field. Specify `NOT_IN` to ensure that filter values are not allowed in the field.
Value	Filter value.

   c. Click **Apply**.

   d. Repeat Steps a to c for each field you want to add as additional attribute to the relationship.

The following image shows a sample business entity relationship configuration with fields for additional attributes:

Creating the Related Records Component

Create the Related Records component in the Component Editor. After you create the Related Records component, the component appears in the Layout Designer.

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

    The **Component Editor** appears.

2. Create a Related Records component.

    a. From the component type list, select **Related Records**, and click **Create**.

    b. In the **Properties** panel, specify the following Related Records component properties:

Property	Description
Name	Name of the Related Records component that appears in the Components panel.
Label	Label of the Related Records component that appears in the component list for the component in the Layout Designer workspace.
Honor Direction	Specifies whether the Related Records component honors the direction of the relationship between records. To configure the component to honor the direction of the relationship between records, enable the property.
Read Only	Specifies whether users can edit related records from the Related Records component. To configure the component as a non-editable component, enable the property.

    c. Click **Apply**.

    The Related Records component that you created appears in the **Components** panel and in the **Tree View** panel.

3. Create filters for the business entities that appear in the Related Records component.

    a. In the Related Records component tree, click **Filter**, and then click **Create**.

        The filter properties appear in the **Properties** panel.

    b. Enter a name for the filter.

    c. From the Object Type list, choose one of the following filter types:

Filter Type	Description
Relationship	Filter based on a relationship type.
Business Entity	Filter based on a business entity.

   If you select the Relationship filter type, the relationship names appear in the Value list. If you select the Business Entity filter type, the business entity names appear in the Value list.

    d. Select an item from the **Value** list, and click **Apply**.

    You can create multiple filters for the business entities in the Related Records component.

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.

    The Related Records component that you create and publish appears in the Components panel.

Designing a Record View Layout with Related Records

You can design a record view in the Layout Designer. Design a record view layout to display a record with the related records in Data Director.

RELATED TOPICS:

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CHAPTER 9

Configuring Search

This chapter includes the following topics:

Configuring Search Overview

You can use the Data Director application or a custom application to search for data within a specific business entity. You must configure search with Elasticsearch.

Elasticsearch is an open-source, full-text search engine. You can set up Elasticsearch as a single node cluster or as a multi-node cluster to provide distributed indexing and search. Before you configure search in the Provisioning tool, install and set up Elasticsearch and configure the MDM Hub properties for search.

To configure search, perform the following tasks:

1. Configure the Elasticsearch cluster.
2. Optionally, create custom Elasticsearch index settings.
3. Configure the searchable fields.
4. Configure the search and query results display.
5. Optionally, configure the layout to display similar records.

After you configure search, you must validate the Operational Reference Store (ORS) and index the search data.

For information about tasks that you must perform before and after you configure search in the Provisioning tool, see the *Multidomain MDM Configuration Guide*.

Configure the Elasticsearch Cluster

Use the Provisioning tool to configure the Elasticsearch cluster for the MDM applications. The search APIs use the configuration. The Data Director application and any custom applications use the search APIs.

Note: When you configure the Elasticsearch cluster, only master nodes of the cluster must be specified.

1. Open a supported browser, and enter the following URL:

    ```
    https://<MDM Hub Server host name>:<MDM Hub Server port number>/provisioning/
    ```
    The **Login** page appears.

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

3. Select the Operational Reference Store (ORS) for which you want to configure the Elasticsearch cluster.

4. Click **Configuration** > **Infrastructure Settings**.

    The **Infrastructure Settings** page appears.

5. Select **Elastic Search Cluster** from the list, and click **Create**.

6. To configure an Elasticsearch cluster node, from the **ESCluster** tree view, select **esNode**, and click **Create**.

7. Specify the following properties of the configured Elasticsearch cluster:

Property	Description
Name	Name of the master node in the Elasticsearch cluster.
URL	URL of the master node in the Elasticsearch cluster. The URL format is `https://<host name>:<port>`.

8. Click **Apply**.

9. If you want to create additional master nodes, repeat steps 6 through 8.

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.

Configure the Search Result Views

You can use the Provisioning tool to configure the business entity views that you want to use for search. A search result includes only the fields that are part of the business entity view that you configure for search results.

Before you configure the searchable views, create the business entity views that you want to use for the search results.

Note: To display child record fields of a business entity in the search results, use a business entity view that is transformed from a business entity. Ensure that the view includes child record fields at the root record level.

1. Open a supported browser, and use the following URL to log into the Provisioning tool:

   ```
   https://<MDM Hub Server host name>:<MDM Server port number>/provisioning/
   ```

2. From the **Database** list, select the database with which your application is associated.

3. Click **Configuration** > **Application Editor**.

   The **Applications** page appears.

4. From the **Applications** list, select the application for which you want to configure search.

   If you do not have an application, create one before you can configure search.

5. In the tree view panel, click the **Search Configuration** node.

6. In the properties panel, for each business entity, select the search view.

   If you do not select a search view, the search results contain the full business entity.

7. Click **Apply**.

   The search views configuration is saved to the temporary workspace.

8. 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.

Configure the Searchable Fields

You can use the Provisioning tool to configure a field as a searchable field and set the field properties. A search request searches only the fields that you configure as searchable fields.

Multiple searchable fields might affect the performance of the search requests, so configure only the significant fields as searchable fields. For example, configure fields that contain full names, organization names, or email addresses as searchable fields rather than fields that contain country codes, gender codes, or address types.

1. Open a supported browser, and use the following URL to log into the Provisioning tool:

   ```
   https://<MDM Hub Server host name>:<MDM Server port number>/provisioning/
   ```

2. From the **Database** list, select the database for which you want to configure the fields.

3. Click **Business Entity** > **Modeling**.

   The **Modeling** page appears.

4. Select **Business Entities** from the list, and select the business entity for which you want to configure the searchable fields.

5. In the tree view, under the business entity, select **Fields**, and click **Create**.

6. Configure the following properties based on your requirement:

Name

Name that appears in the Provisioning tool tree view for the field.

Label

Label for the field that you want to appear within views in Data Director.

Read Only

Optional. Indicates whether you can edit the field in the Entity View. To configure the field as a non-editable field, select the property.

Required

Optional. Indicates whether the field is a required field. To configure the field as a required field, select **Required**. By default, the field is not a required field.

URI

Optional. Namespace where custom data types are defined. Default is commonj.sdo.

Type

Optional. Data type of the field. By default, the data type of the field is the same as the data type of the base object column that you associate with the field.

Column

Name of the base object column that you want to associate with the field.

7. Select **Searchable**.

Additional field properties appear.

8. Based on your requirement, select one or more of the following properties:

    -   Suggester
    -   Sortable
    -   Language
    -   Fuzzy
    -   Filterable
    -   Facet

9. Optionally, specify the language for the field values.

    You can specify one of the following languages:

    -   chinese
    -   japanese
    -   korean
    -   english

    Default is english.

10. Optionally, if you select **Facet**, in the **Facet Range** field, specify the range for the numeric or date fields that you configure as facets in the following format:

    ```
    <Start Value>,<End Value>,<Frequency>
    ```

    For example, `1000,2000,50`

    Note: The facet ranges are not visible in the Data Director application. When you use the REST web service to perform the search, the response can return the facet ranges.

11. Click **Apply**.

12. 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.

Searchable Field Properties

To configure the searchable field properties, you can use the Provisioning tool or apply a change list to the repository.

When you enable a searchable reference entity field as a filterable facet, the Data Director record view displays the filter field label in the following format:

<Business entity lookup field label> - <Reference entity lookup field label>

If you configure the Filterable property for a reference entity, for filtering to work, ensure that you configure the Filterable property for all the dependent reference entities.

The following table describes the searchable field properties:

Property	Description
Searchable	Indicates whether a search request can search the field for a search string. To include the field in search requests, enable the property. If you do not want to include the field in search requests, disable the property. When you enable the Searchable property, you can configure additional properties for search. The following additional properties are available for configuration: - Suggester - Sortable - Language - Fuzzy - Filterable - Facet Range - Facet - Displayable
Suggester	Indicates whether you want to suggest the values of the field as the search string in the Data Director application. To suggest the values of the field as the search string, enable the property. If you do not want to suggest the values of the field as the search string, disable the property. **Important:** To ensure data security, do not enable the Suggester property for fields that contain sensitive data.
Sortable	Do not use this property.
Language	Indicates the language of the field values. You can set one of the following languages: - Chinese - Japanese - Korean - English You must specify a language. You can use the search string in any of the configured languages. A search request searches the fields that match the language of the search string.

Property	Description
Fuzzy	Indicates whether you want to perform exact search or fuzzy search on the field values. An exact search returns values that match the search string. A fuzzy search returns values that match the search string and values that are similar to the search string. To perform fuzzy search on the field values, enable the property. If you want to perform exact searches on the field values, disable the property.
Filterable	Indicates whether you want to enable filtering on a field. The Data Director application displays the filterable fields as filters in the Search workspace. To configure the field as a filter, enable the property. If you do not want to configure the field as a filter, disable the property.

Facet Range	Indicates the range for the numeric or date fields that you configure as facets. Use the following format to specify the range:
	
	`<Start Value>,<End Value>,<Frequency>`
	
	The start value is inclusive, and the end value is exclusive in the range. For example, if you set the facet range to `1000,2000,500` for an integer field, a search request returns the following ranges:
	
	`[1000 to 1500]`
	`[1500 to 2000]`
	
	The range `1000 to 1500` includes the values from 1000 to 1499, and the range `1500 to 2000` includes the values from 1500 to 1999.
	
	Ensure that you set a valid minimum and maximum value for the range and an offset that limits the number of ranges to 10.
	
	Facets cannot be configured for negative numbers, but a search request still displays negative values.
	
	For a date field, suffix `Y|M|D` to the frequency, where `Y` indicates year, `M` indicates month, and `D` indicates day. For example, `2M` indicates 2 months.

Facet	Indicates whether you want to set the field as a facet. A facet field groups the search result values and shows the count of each group. The Data Director application displays the facet fields, the field values grouped based on the search results, and the count of each group in the Search workspace. When a child record field is set as a facet field, the Data Director application displays a tooltip for the facet field. The format of the tooltip text is <Child record name>/<Child record field name>. The Facet property functions in conjunction with the Filterable property, so enable the Filterable property if you want to configure the field as a facet. If you do not want to configure the field as a facet, disable the Facet property.
Displayable	Do not use this property.

Configure the Layout to Display Similar Records (Optional)

When you enter data in the Data Director application to create a record, you can view similar records that are retrieved based on the data that you enter. To view the similar records, you must configure the layout to define the fields based on which you want to search for the similar records.

1. Open a supported browser, and use the following URL to log into the Provisioning tool:

    `https://<MDM Hub Server host name>:<MDM Server port number>/provisioning/`

2. From the **Database** list, select the database for which you want to configure the application.

3. Click **Configuration** > **Component Editor**.

   The **Component Editor** appears.

4. From the Component type list, select **Similar Records**, and click **Create**.

   The property fields appear in the Properties panel.

5. Enter a name for the Similar Records component.

6. In the **XML** field, enter an XML configuration that includes a list of fields to search for similar records:

   The following table describes the XML elements that you can use to configure the Similar Records component:

Element	Description
searchableFields	Specifies one or more fields on which you want to base the search. The `searchableFields` element is the parent of the `field name` element.
field name	Specifies the name of a field on which you want to base the search for similar records. The `field name` element is a child of the `searchableFields` element. You can configure multiple `field name` elements.
searchType	Specifies the type of search to perform. The `searchType` element can contain the following child elements: - `smartSearch` - `searchMatch`
smartSearch	Specifies that you want to use search to find similar records.
searchMatch	Specifies that you want to use queries to find similar records. The `searchMatch` element can contain the following child elements: - `fuzzy` - `matchRuleSet`
fuzzy	Specifies whether you want to perform a fuzzy search. To perform a fuzzy search, set to `true`. The `fuzzy` element is a child of the `searchMatch` element. If you do not add this element, exact search is performed.
matchRuleSet	Specifies the name of the match rule set to use for finding similar records. The `matchRuleSet` element is a child of the `searchMatch` element.
label	Specifies the label format for the search field values. To configure the label format, use the `existsFormat` attribute.
column	Specifies a single column to use in the label format. To configure the column for the label, use the `columnUid` attribute, which is the unique identifier of the column. The `column` element is a child of the label element. You can specify more than one column for the label.

   For sample configurations, see the *Multidomain MDM Provisioning Tool Guide*.

7. Click **Apply**.

   The Similar Records component that you created appears in the **Components** panel and in the **Tree View** panel.

8. 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 10

Configuring Workflow Tasks and Triggers

This chapter includes the following topics:

Task Configuration Overview

You can configure tasks to meet your business needs. You can define the default task properties, workflow triggers, and task types.

You can configure the following task properties in the Provisioning tool:

Configure the task template

You can configure task templates so that a task is created with specific properties. For example, you can specify that when a trigger launches a workflow, the tasks have a particular title, priority, due date, and task status.

Configure the workflow triggers

You configure workflow triggers so the appropriate ActiveVOS® workflow is launched after certain events in Data Director. You can configure whether users must add comments or attachments when they trigger workflows.

Configure the task types

You can configure task types so that specific user roles can claim or be assigned tasks. You can create task action configurations for each task type. You can configure whether users must add a comment, attach a file, or reassign tasks when they perform task actions.

Configuring Task Templates

To configure a task template, set the default task properties. When tasks are created, the task template establishes such task properties as the task title, due date, and priority.

1. Click **Business Entity** > **Tasks**.

2. In the Tasks panel, select **Templates**, and then click **Create**.

3. In the properties panel, enter the template properties.

   a. In the **Name** field, enter the template name.

   b. In the **Title** field, enter the title format for task title.

   Title Example 1

   You want the task title to be `<business entity name>: <source record display name><source record row ID> merges to <target record display name><target record row ID>`.

   Enter the following value for title: `Merge {taskRecord[1].label} into {taskRecord[0].label}`.

   Where

   - `taskRecord[N]` is the (N+1)[th] business entity node in the TaskData.getTaskRecords() list
   - `taskRecord[1]` is the source record
   - `taskRecord[0]` is the target record
   - `label` is the value of the task format in the business entity label format configuration.

   Title Example 2

   You want the task title to be `Review changes in <record label>`.

   Enter the following value for title: `Review changes in {taskRecord[0].label}`.

   Where

   - `taskRecord[0]` is the target record.
   - `label` is the value of the task format in the business entity label format configuration.

   c. Select a task priority.

   The following table describes the possible task priorities:

Priority	Description
HIGH	The task has a high priority.
NORMAL	The task has a medium priority. Default is NORMAL.
LOW	The task has a low priority.

   d. In the **Due Date** field, enter the amount of time from the day that the task is created that the task is due.

The following table describes the due date syntax:

Type of Parameter	Description	Values
sign	Determines if the due date is set to a date after the task is created or before the task is created.	If +, the due date is determined by adding time to the date the task is triggered. If −, the due date is determined by subtracting time from the date the task is triggered.
number	The amount of units to add or subtract from the current date when establishing the due date.	Any integer value.
unit	The number of days, weeks, or months that the due date is from the date the task is triggered.	If d, the specified number of days determines the due date. If w, the specified number of weeks determines the due date. If m, the specified number of months determines the due date.

e. Optional: In the **Comment** field, enter the text that populates the task comment field.

f. Optional: In the **Status** field, select the status of the task.

The following table describes the possible task statuses:

Status	Description
OPEN	The task status is Open. Default is OPEN.
CLOSED	The task status is Closed.

4. Click **Apply**.

Configuring Workflow Triggers

Workflow triggers determine which task workflows are launched after create, update, or merge events.

Note: If you configure a role to trigger an unmerge task, do not assign the same user role as reviewer.

To configure workflow triggers, perform the following actions:

1. Create a workflow trigger, and configure whether users must add a comment or attachment to the triggered task.

2. Configure events for the workflow trigger.

3. Configure which roles and business entities trigger workflows.

1. Create a Workflow Trigger

To create a trigger to launch a workflow, specify a name for the trigger, the workflow to start, and the trigger properties. If you use Data Director with business entities, you can also specify whether users are prompted for comments or attachments.

1. Click **Business Entity** > **Tasks**.

2. In the Tasks panel, select **Triggers**, and then click **Create**.

3. In the properties panel, enter the trigger name.

    The Repository Manager refers to the name when reporting trigger validation errors.

4. Select **Start Workflow** so that the event trigger launches a workflow. If you do not select **Start Workflow**, changes are made directly to the data without first going through a review process.

5. Configure the following parameters:

Parameter	Description
Template	The name of the task template to use when the task is created.
Task Type	The first People Activity in the workflow.
Task Kind	Can be MERGE, UMMERGE, or REVIEW.
Process	The name of the ActiveVOS service. Corresponds to the Partner Links Service property in the ActiveVOS PDD file. The following tables shows the service names for the default business entity workflows: | Business Entity Workflow	Service
BeMergeWorkflow	BeMergeTask
BeUnmerge	BeUnmergeTask
BeOneStepApproval	BeOneStepApprovalTask
BeTwoStepApproval	BeTwoStepApprovalTask
BeUpdateWithApproval	BeUpdateWithApprovalTask	

6. To control whether users must add a comment and whether users are prompted for comments, select one of the following options from the **Comment** field:

Option	Description
Optional - Do not prompt users (Default)	Users are not prompted for comments. To add a comment, users can open the **Task Details** dialog box.
Optional - Prompt users	Users are prompted for comments, but they can choose whether to add a comment.
Required - Prompt users	Users are prompted for comments and must add a comment.

Note: When using Data Director with subject areas, users are never prompted for comments.

7. To control whether users must attach a file and whether users are prompted for attachments, select one of the following options from the **Attachment** field:

Option	Description
Disabled - Do not prompt users (Default)	Users are not prompted for attachments. Attachments are disabled.
Optional - Prompt users	Users are prompted for attachments, but they can choose whether to attach a file.
Required - Prompt users	Users are prompted for attachments and must attach a file.

Note: When using Data Director with subject areas, users are never prompted for attachments.

8. Click **Apply**.

2. Configure Events for a Workflow Trigger

Associate the event in Data Director with the workflow trigger. You can configure more than one event for a trigger.

1. In the tree view, expand the trigger.
2. Select **Event**, and then click **Create**.
3. From the **Name** list, select one of the following events:

Event name	Description
CreateBE	Occurs when a user creates a record.
UpdateBE	Occurs when a user updates a record.
MatchedBE	Occurs when the MDM Hub identifies two records as a match.
MergeBE	Occurs when a user merges records.
UnMergeBE	Occurs when a user unmerges records.

4. Click **Apply**.
5. Repeat step 2 to step 4 for additional events.

3. Configure Roles for a Workflow Trigger

The trigger that applies to events depends on the role of the user who performs the triggering action.

1. In the tree view, expand the trigger.
2. Select **Role**, and then click **Create**.
3. From the Name list, select the MDM Hub role.
4. Click **Apply**.
5. Optionally, configure additional roles.

Configuring Task Types

You can create task types and configure which user roles can claim or be assigned tasks. For each task type, you can create task action configurations. Task action configurations control whether users must add a comment, attach a file, or reassign the task when performing a task action. Also, you can configure custom messages for task actions that appear when task actions are triggered.

To configure task types, perform the following actions:

1. Create a task type, and configure whether users can attach files when they edit the task details.

2. Configure the user roles that can claim or be assigned tasks.

3. Create task action configurations, and configure the comment, attachment, reassignment settings, and custom message for the task action.

1. Create a Task Type

Create a task type and configure whether users can add an attachment when they edit the task details.

1. Click **Business Entity** > **Tasks**.

2. In the **Tasks** panel, select **Task Types**, and then click **Create**.

3. In the properties panel, enter the name of an ActiveVOS task in the **Name** field.

    The name must match the `mdmavxsd:name` value defined in the `mdmavxsd:taskType` expression of the setup script that is before a People Activity in the workflow `.bpel` file.
    The following table describes the task names for the default business entity workflows:

Task Name (mdmavxsd:name)	People Activity Description	Associated Workflows
AVOSBeMerge	Data steward reviews the candidates and either merges the records or cancels the action.	Merge
AVOSBeUnMerge	Data steward reviews the candidate and either unmerges the record or cancels the action.	Unmerge
AVOSBeNotification	If approved, the record is flagged for promotion and the data steward is notified.	Update with approval One step approval Two step approval
AVOSBeReviewNoApprove	Manager reviews an update and either rejects it or sends it on for Final Review.	Update with approval Two step approval
AVOSBeFinalReview	Senior manager reviews the update and either rejects it or approves it.	Update with approval One step approval Two step approval
AVOSBeUpdate	Data steward reviews the update and either cancels the update or sends it through a two-step approval process.	Update with approval One step approval Two step approval

4. Optionally, in the **Label** field, enter a label for the task type.

5. To support attachments when users edit the task details, select the **Enable File Attachments in Task Details** check box.

6. Click **Apply**.

   The **Roles** and **Task Action Configuration** folder appears in the tree view panel.

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.

2. Configure Roles for a Task Type

You can configure the user roles that are allowed to review tasks and the type of business entity records that a role can review.

User roles must have the proper MDM Hub privileges to allow users to process tasks. For more information about granting privileges to roles, see the *Multidomain MDM Security Guide*.

Note: If you configure a role to trigger an unmerge task, do not assign the same user role as reviewer.

1. Select roles that can claim or be assigned the task.

   a. In the tree view panel, select **Roles**, and then click **Create**.

   b. In the properties panel, from the **Role** list, select an MDM Hub user role.

   c. Optionally, create additional roles.

   d. Click **Apply**.

      The roles appear in the tree view panel.

2. Configure the type of business entity records that a role can access.

   a. In the tree view panel, select a role.

   b. Select **Business Entities**, and then click **Create**.

   c. In the properties panel, from the **Business Entity** list, select a business entity.

   d. Optionally, configure additional business entities for the role.

   e. Click **Apply**.

      The business entities appear in the Roles folder.

3. 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.

3. Create Task Action Configurations for a Task Type

You can configure whether users must add a comment, attach a file, or reassign the task when they perform a task action. You can create multiple task action configurations with different comment, attachment, and reassignment settings for each configuration.

1. Specify a name for the task action configuration and configure whether users are prompted for comments or attachments.

   a. In the tree view panel, select **Task Action Configuration**, and then click **Create**.

   b. In the properties panel, enter a name for the task action configuration in the **Name** field.
   For example, to design a task action configuration for the Disclaim action, enter `Disclaim`.

   c. To control whether users must add a comment and whether users are prompted for comments, select one of the following options from the **Comment** field:

Option	Description
Optional - Do not prompt users (Default)	Users are not prompted for comments. To add a comment, users can open the **Task Details** dialog box.
Optional - Prompt users	Users are prompted for comments, but they can choose whether to add a comment.
Required - Prompt users	Users are prompted for comments and must add a comment.

   d. To control whether users must attach a file and whether users are prompted for attachments, select one of the following options from the **Attachment** field:

Option	Description
Disabled - Do not prompt users (Default)	Users are not prompted for attachments. Attachments are disabled.
Optional - Prompt users	Users are prompted for attachments, but they can choose whether to attach a file.
Required - Prompt users	Users are prompted for attachments and must attach a file.

   e. To enable users to reassign tasks, select the **Manual Reassign** check box.
   For example, you might want users to reassign the task when they disclaim it.

   f. Click **Apply**.

   The subfolder for the task action configuration appears in the tree view panel.

2. Optionally, configure task actions.

   Note: If you do not configure task actions, the task action configuration applies to all task actions.

   a. In the tree view panel, select the subfolder for the task action configuration.

   The **Business Entities**, **Roles**, and **Task Actions** nodes appear.

   b. Select **Task Actions**, and then click **Create**.

c. In the properties panel, enter the name of a task action in the **Task Action** field. The name must match the task action names defined in the ActiveVOS workflow.

For example, to associate the Disclaim action with the task action configuration, enter `Disclaim`.

The following table describes task actions for the default task types:

Task Actions	Description	Task Type
Approve	User agrees with the proposed changes.	AVOSBeFinalReview
Cancel	User disagrees with the proposed changes.	AVOSBeMerge AVOSBeUpdate AVOSBeUnMerge
Disclaim	User can no longer work on the task.	AVOSBeFinalReview AVOSBeMerge AVOSBeReviewNoApprove AVOSBeUpdate AVOSBeUnMerge
Escalate	User agrees with the proposed changes and wants to send them for approval.	AVOSBeReviewNoApprove
Merge	User agrees with the merge preview.	AVOSBeMerge
Reject	User disagrees with the proposed changes.	AVOSBeFinalReview AVOSBeReviewNoApprove
Submit for Approval	User agrees with the proposed changes and submits the proposed changes for approval.	AVOSBeUpdate
Unmerge	User agrees with the unmerge preview.	AVOSBeUnMerge

d. Optionally, in the Action Message field, enter a message that appears when the task action is triggered.

If you do not enter a message, the default message associated with the task action appears when the task action is triggered.

The default messages have the following format:

You are about to <task action name> this task.

Example: You are about to cancel this task.

e. Optionally, configure additional task actions.

f. Click **Apply**.

The task action node appears.

3. Optionally, select business entities to associate with the task action.

Note: If you do not select business entities, the task action configuration applies to all types of business entity records.

a. In the tree view panel, select **Business Entities**, and then click **Create**.

b. In the properties panel, from the **Business Entity** list, select a type of business entity.

    c.   Optionally, select additional types of business entities.

    d.   Click **Apply**.

        The business entity node appears.

4.   Optionally, select user roles to associate with the task action.

    Note: If you do not select roles, the task action configuration applies to all roles.

    a.   In the tree view panel, select **Roles**, and then click **Create**.

    b.   In the properties panel, in the **Roles** list, select a role.

    c.   Optionally, select additional roles.

    d.   Click **Apply**.

        The role node appears.

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.

Descriptive Task Titles

You can configure descriptive task titles for each business entity on the Modeling page.

For example, you can configure a task title that displays the business entity type, the display name of the business entity record, and the task type. Data stewards and business managers can more easily differentiate between tasks when the tasks have a descriptive task title.

The following image shows generic task titles for the Organization business entity and descriptive task titles for the Person business entity:
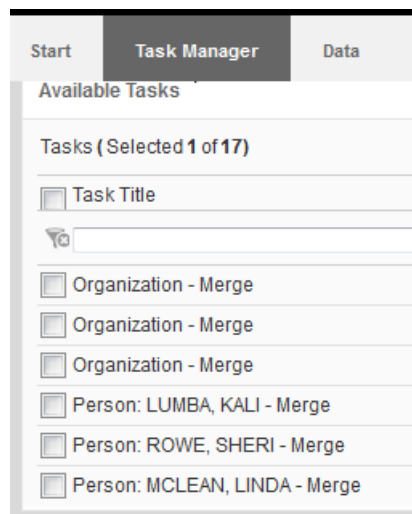
Configuring Descriptive Task Titles

To configure descriptive task titles, edit the `Task Format` business entity attribute.

1. In the Provisioning Tool, click **Business Entity** > **Modeling** .

2. In the Business Entities panel, click the root node of the business entity.

    For example, click **Person**.

3. In the tree view, expand **labelFormat** and then click **LabelFormatType**.

4. In the node properties panel, enter the descriptive task title in the **Task Format** field.

    For example, enter `{label}: {lastName}, {firstName}`.

5. Click **Apply**.

    The changes are saved but are not published to the MDM Hub.

Default Task Configuration

A default task configuration is generated if you do not create a task configuration in the Provisioning tool. You might want to modify the default task configuration to meet your business needs.

The following task configuration is generated by default:

Task type configuration

The following table describes the default comment and attachment settings and roles assigned to process each task type:

Task Type	Role	Comment	Attachment
AVOSBeUnMerge	DataSteward	Optional - Do not prompt users	Disabled - Do not prompt users
AVOSBeMerge	DataSteward	Optional - Do not prompt users	Disabled - Do not prompt users
AVOSBeFinalReview	SrManager	Optional - Do not prompt users	Disabled - Do not prompt users
AVOSBeNotification	DataSteward	Optional - Do not prompt users	Disabled - Do not prompt users
AVOSBeUpdate	DataSteward	Optional - Do not prompt users	Disabled - Do not prompt users
AVOSBeReviewNoApprove	Manager	Optional - Do not prompt users	Disabled - Do not prompt users

Trigger configuration

The following table describes the default triggers:

Trigger	Event	Role	Other Information
DefaultApproval	CreateBE and UpdateBE	All roles	-
Default Merge	MergeBE	All roles	-

Trigger	Event	Role	Other Information
Default UnMerge	UnMergeBE	All roles	-
Matched	UnMergeBE	System	start workflow process: BeMergeTask task kind: MERGE task template: MergeTaskGenerator first task type: AVOSBeMerge

Task template configuration

The following table describes the configuration for the default task templates:

Task Type	Title	Priority	Due Date	Comment	Status
DefaultApproval	Review changes in {taskRecord[0].label}	Normal	+7d	-	Open
MergeTaskGenerator	{taskRecord[0].label} - Merge	Normal	+7d	Merge task autogenerated by Hub.	Open

Changing the Approver for Tasks

If you change the role of the approver for tasks, the change is applied to new tasks only. To process existing tasks, configure a default trigger for the previous approver.

1. In the Provisioning tool, select **Business Entity** > **Tasks**.

2. In the Tasks panel, select **Triggers**, and then click **Create**.

3. In the properties panel, enter `DefaultApproval` in the **Name** field, and then click **Apply**.

4. Create an event.

    a. In the tree view panel, expand the **DefaultApproval** node.

    b. Select **Events**, and then click **Create**.

    c. In the properties panel, select an event from the **Name** field, and then click **Apply**.

5. Associate the previous role with the DefaultApproval trigger.

    a. In the tree view panel, expand the **DefaultApproval** node.

    b. Select **Roles**, and then click **Create**.

    c. In the properties panel, select the role from the **Name** field, and then click **Apply**.

6. Optionally, specify the business entities to which the trigger applies.

   a. In the tree view panel, expand the **Role** node.

   b. Expand the node for the previous role.

   c. Select **businessEntity**, and then click **Create**.

   d. In the properties panel, select the business entity to which the trigger applies from the **Name** field.

   e. Repeat steps 4 to 5 for any other business entities to which the trigger applies.

7. Click **Publish**.

CHAPTER 11

Configuring Security and Data Filters for Business Entities

This chapter includes the following topics:

Security and Data Filters for Business Entities Overview

You can control access to business entity records by implementing the MDM Hub user roles.

You can control access to records at the following levels:

- Entity-level security. Controls whether users have access to all or none of the records for a business entity.
- Field-level data filters. Controls whether users have access to a record based on the value that appears in a field in the record.
- Node-level data filters. Controls whether users have access to a parent record when a node has no child records.

Tip: Start by granting role privileges at the entity level, and then you can use field filters and node filters to refine that access.

A business entity view contains a subset of nodes and fields from a business entity. The view inherits the data filters from the business entity. Consider implementing business entity views to hide some fields from users. For more information, see the "Transforming Business Entities and Views" chapter.

The Data Director user interface adapts to the user role privileges. For example, if a user role cannot create a record based on the Person business entity, the user cannot select the business entity type when creating a record.

GDPR Example

Your organization has customers in the European Union and other countries. You must implement the General Data Protection Regulation (GDPR) to ensure that only EU data stewards have access to the records of European Union citizens. You have other data stewards who have access to the records of non-European Union citizens. In this example, the customer data includes a GDPR field.

The following table summarizes the requirements for role access based on the value of the GDPR field:

GDPR Value in Data	DataSteward-EU Role	DataSteward-NonEU Role
GDPR="true"	Allow access	Deny access
GDPR="false"	Deny access	Allow access

The following process outlines one way to implement the GDPR example:

1. In the Hub Console, create the following user roles: DataSteward-EU and DataSteward-NonEU.
2. Grant all permissions to each role for the Customer base object tables, child tables, lookup tables, and cleanse functions.
3. In the Provisioning tool, open the Customer business entity.
4. Create a field filter for the GDPR field.
5. Create a deny rule, and set the value to true and the role to DataSteward-NonEU.
   This rule translates to "When GDPR is selected, don't allow the non-EU data stewards to access the records."
6. In the Remaining Values rule, set the role to DataSteward-EU.
   This rule translate to "When GDPR is not selected, don't allow the EU data steward to access the records."
7. Publish the changes.

Entity-level Security

You can allow or deny user access to all the base object tables and other resources on which a business entity is based. For example, you might assign all permissions to a data steward user role, but assign only read and update permissions to a manager user role.

To assign privileges to user roles, use the Security Access Manager in the Hub Console.

Managing Access to Business Entity Records

Ensure that the user role has permission to the root base object for the business entity and any related resources. In the Provisioning tool, find the root base object and other resources, such as lookup tables. In the Hub Console, verify the user role permissions for the root base object and resources.

1. In the Provisioning tool, click **Business Entity** > **Modeling**.
2. From the list, select **Business Entities**.
3. Select the business entity.

   The business entity opens with the root of the tree selected in the tree view panel.

4. Make a note of the name of the table that appears in the **Base Object** field of the properties panel.

The following image shows a Person business entity that is based on the C_B_PARTY table:
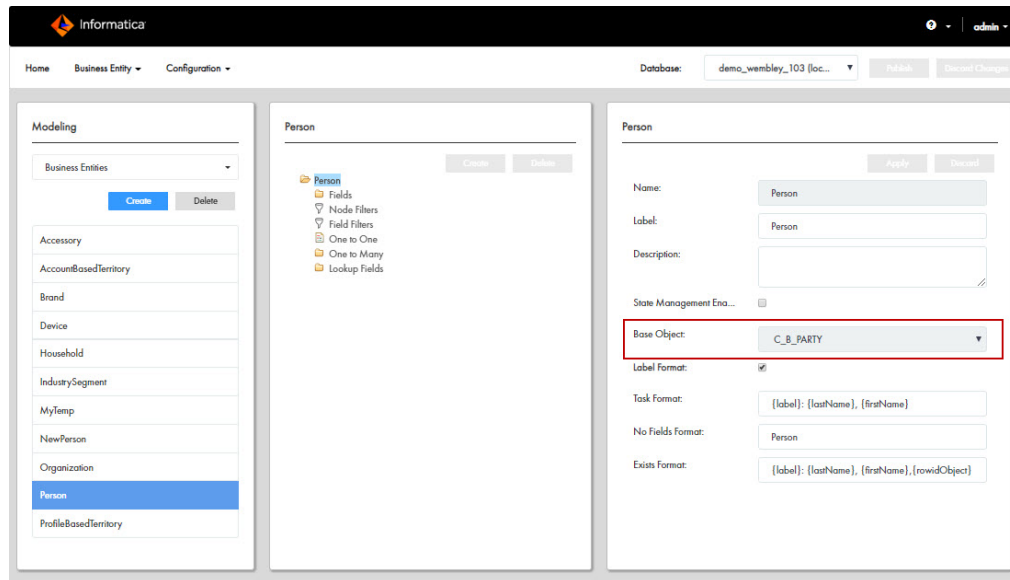
5. Log in to the Hub Console.

6. Acquire a write lock.

7. From the **Security Access Manager** workbench, click **Roles**.

8. For each user role that requires access to the business entity, ensure that the role has appropriate permissions to base objects and other resources. For a summary of permissions, see "Role Privileges for a Business Entity" on page 84.

   a. Select a role that requires access to the business entity.
      For example, select Data Steward.

   b. In the **Resource Privileges** tab, find the base object with the name that you noted in the Provisioning tool.
      For example, look for Party.

   c. Set the permissions for the business entity by selecting the corresponding permissions for the base object.
      For example, if you want the Data Steward role to have full access, select all the permissions for the Party base object.

      The following image shows the Hub Console with the Data Steward role selected and the Party base object highlighted:
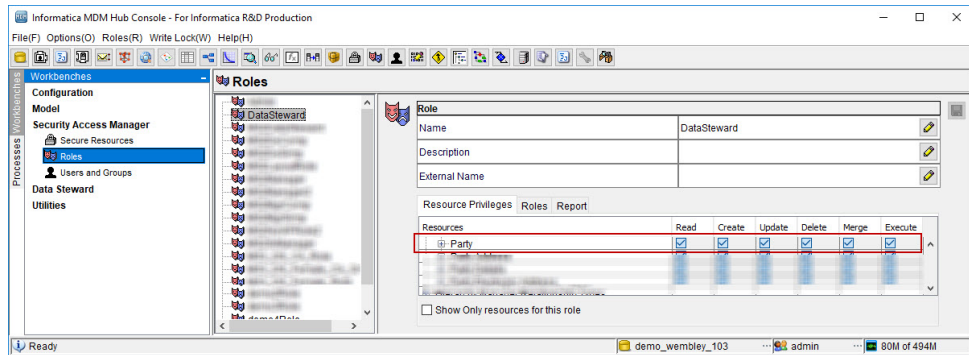
d. Set the permissions for any related resources, such as child records, lookup tables, and cleanse functions.

9. Click **Save**.

Role Privileges for a Business Entity

To gain access to a business entity, your user role must have the correct resource privileges on the base objects and other resources.

For example, to be able to create a record for a Person business entity, a user role requires the create and read privileges on the root base object, the read privilege on the lookup base objects, and the execute privilege on the cleanse functions.

The following table lists the actions that you can perform for a business entity and the minimum privileges that are required on the ORS resources:

Business Entity Actions	ORS Resources	Resource Privilege
Create a record	Root base object	Create and Read
	Lookup base objects	Read
	Cleanse functions used in transformations	Execute
Read a record	Root base object	Read
	Lookup base objects	Read
Update a record	Root base object	Read and Update
	Lookup base objects	Read
	Child: many	Create, Update, or Delete
	Child: one	Update
	Cleanse functions used in transformations	Execute
Delete a record	Root base object	Delete
	XREF object	Delete

Business Entity Actions	ORS Resources	Resource Privilege
Merge records	One or more nodes	Update and Merge
Start a merge task	One or more nodes	Read and Update
Unmerge a record	One or more nodes	Merge
Start an unmerge task	Root base object	Read
	One or more nodes	Read
Search	One or more searchable fields	Read

Note: If a role is allowed to perform an action without going through a workflow, remember to set a matching workflow trigger for that role.

Role Privileges for a Business Entity View

A business entity view is a subset of nodes in a business entity. To create a business entity view, you create a transformation from the business entity to the business entity view. The business entity view inherits the role privileges from the business entity.

The following table lists the actions that you can perform for a business entity view and the minimum privileges that are required on the nodes in the business entity:

Actions in the Business Entity View	Privileges on the Nodes in the Business Entity
Create a record	All nodes that appear in the view must have the create privilege.
Read a record	When at least one node that appears in the view has the read privilege, then the entire view can be read.
Update a record	When at least one node that appears in the view has the update privilege, then the entire view can be updated.
Delete a record	All nodes that appear in the view must have the delete privilege.
Merge records	All nodes that appear in the view must have the merge privilege.
Unmerge a record	All nodes that appear in the view must have the unmerge privilege.

RELATED TOPICS:

- "Modeling Business Entity Views " on page 48

Field-level Data Filters

You can control access to records based on a value in a field. For example, for compliance with the General Data Protection Regulation (GDPR), you want only the EU data stewards to access records that have an address within the European Union.

You can create field filters on business entities. In a field filter, you define access permissions in terms of deny rules, allow rules, or a mix of both types of rules. A rule is made up of a value for the field and the applicable user roles. For example, you might create a field filter on a GDPR field. Create an allow rule on the field with the value of true and select the DataSteward-EU role. Use the Remaining Values rule to assign false to all other user roles.

The field filters on a business entity override the field filters on a reference entity. A user role might be allowed to see a subset of lookup values based on the field filter in the reference entity, but if a field filter on the business entity denies access to some of those values, the user role cannot see the records with those values.

Field Filter Rules and User Roles

When you create a field filter for a business entity, the records that a user can see are constrained by the rules in the field filter and the assigned user role.

Before you create field filters, decide how you want to manage rules. You can define rules in terms of who is denied access, who is allowed access, or both. Familiarize yourself with the behaviors of each approach and create an overall plan. For maintenance purposes, it can be more straightforward to use only one type of rule.

Important: Avoid creating an excessive number of field filters. The more filters, the longer it takes to process API requests. If you have performance issues after adding field filters, consider reducing the number of field filters.

Deny rules only

Deny rules are joined by a logical OR operator. If you create at least one deny rule, you must also fill in the Remaining Values rule in the Deny section. If the Remaining Values rule is empty, and records contain a value that is not covered by the other rules, users can see the records with the other values.

If you define only deny rules for a field filter, the following behaviors apply:

- When a user role is not assigned to any deny rules, the user can see all records.
- When a user role is assigned to all the deny rules, the user cannot see any records.
- When a user role is assigned to one deny rule, and a record satisfies the rule, the user cannot see the record.
- When a user role is assigned to multiple deny rules, and a record satisfies **any** of the rules, the user cannot see the record.
- When a user role is not assigned to any deny rules, but one or more deny rules have the **Apply this rule…** option selected, and a record satisfies any of these rules, the user cannot see the record.

Allow rules only

Allow rules are joined by a logical AND operator. If you create at least one allow rule, you must also fill in the Remaining Values rule in the Allow section. If the Remaining Values rule is empty, and records contain a value that is not covered by the other rules, users cannot see the records with the other values.

If you define only allow rules for a field filter, the following behaviors apply:

- When a user role is not assigned to any allow rules, the user cannot see any records.
- When a user role is assigned to all the allow rules, the user can see all records.
- When a user role is assigned to one allow rule, and a record satisfies the rule, the user can see the record.
- When a user role is assigned to multiple allow rules, and a record satisfies **all** the rules, the user can see the record.
- When a user role is assigned to multiple allow rules, and a record does not satisfy all the rules, the user cannot see the record.
- When a user role is not assigned to any allow rules but one or more allow rules have the **Apply this rule...** option selected, and a record satisfies all of these rules, the user can see the record.

Both deny and allow rules

If you define both deny rules and allow rules for a field filter, the following behaviors apply:

- If a user role is not assigned to any deny rules or allow rules, the user cannot see any records.
- If a user role is assigned to one or more deny and allow rules, and a record satisfies any of the deny rules, the allow rules are ignored and the user cannot see the record.
- If a record does not satisfy a deny rule, the allow rules are processed as described in the *Allow rules only* section.

Multiple field filters exist for the same business entity

When a user role is assigned to more than one field filter, the following behaviors apply:

- If a record satisfies a deny rule in any of the field filters, the user cannot see the record. If an allow rule is assigned to the same user role, the allow rule is ignored.
- If a record does not satisfy any deny rules, the allow rules are processed as described in the *Allow rules only* section.

Adding Field Filters

Before you begin, create the business entities. To allow or deny access to records based on a value in a field, create field filters.

Note: Field filters are case insensitive.

1. Click **Business Entity** > **Modeling**.
2. From the list, select **Business Entities**.
3. Select an entity.

   The structure opens in the tree view.
4. In the tree view, select **Field Filters**, and then click **Create**.

   A **[New fieldFilter]** option appears under **Field Filters**, and a form opens in the properties panel.
5. In the properties panel, enter a name for the filter.

6. Select a field.

    a. Beside the **Field** field, click the **Browse** button.

        A list of fields opens in a dialog box.

    b. Select the field, and then click **Select**.

        The selected field appears in the **Field** field.

7. To define the filter in terms of who *cannot* access the business entity when the data matches the value, create deny rules.

    a. Beside the **Deny** heading, click the **Add** icon.

    b. In the **Value** field, enter a value that matches the data type of the field.

        Note: When you enter dates, use the date format that your database environment requires.

    c. From the **User Role** list, select the user roles, and then click the **Add** icon.

    d. To make this rule a default for any unassigned user roles in the **Deny** section, select **Apply this rule to the user roles that are not specified in any Deny rule**.

    e. Repeat to configure more filter rules.

    f. Add user roles to the **Remaining Values** rule.

        Caution: If the Remaining Values rule is empty, and a record contains a value that is not covered by the other rules, users can see the records.

8. To define the filter in terms of who *can* access the business entity when the data matches the value, create allow rules.

    a. Beside the **Allow** heading, click the **Add** icon.

    b. In the **Value** field, enter a value that matches the data type of the field.

        Note: When you enter dates, use the date format that your database environment requires.

    c. From the **User Role** list, select the user roles, and then click the **Add** icon.

    d. To make this rule a default for any unassigned user roles in the **Allow** section, select **Apply this rule to the user roles that are not specified in any Allow rule**.

    e. Repeat to configure more filter rules.

    f. Add user roles to the **Remaining Values** rule.

        Caution: If the Remaining Values rule is empty, and a record contains a value that is not covered by the other rules, users cannot see the records.

9. Click **Apply**.

    The field filter is saved but not published to the MDM Hub.

Role Privileges for Field Filters

For each user role that you assigned in a field filter, ensure that the user role has the required privilege on the base object column.

The following table lists the actions that you can perform for a business entity field and the minimum privileges that are required on the ORS resource:

Business Entity Field Action	ORS Resource	Resource Privilege
Create a value	Base object column	Create
Read a value	Base object column	Read
Update a value	Base object column	Update

Node-level Data Filters

If you added field filters to fields in child nodes, you can add node filters. The node filters define what to do when the child node has no child records. By default, an empty child node does not affect access to the parent record. If you want to restrict access to the parent record, configure node filters to deny or allow access to the parent record.

Node Filter Rules

When you create a node filter for a business entity, you control access to the parent record when the node has no child records. For example, if a customer record has no address associated with it, you might allow users with the DataSterward-Global role permission to view the parent record, but all other data steward roles cannot view the parent record.

Before you create node filters, decide how you want to manage rules. You can define rules in terms of who is denied access, who is allowed access, or both. Familiarize yourself with the behaviors of each approach and create an overall plan. For maintenance purposes, it can be more straightforward to use only one type of rule.

Important: Avoid creating an excessive number of filters. The more filters, the longer it takes to process search requests. If you have performance issues after adding filters, consider reducing the number of filters.

Deny rules only

Deny rules are joined by a logical OR. If you define only deny rules for a node filter, the following behaviors apply:

- When a user role is not assigned to any deny rules, the user can see all parent records.
- When a user role is assigned to all deny rules, the user cannot see any parent records.
- When a user role is assigned to one deny rule, and there is no child record for the node, the user cannot see the parent record.
- When a user role is assigned to multiple deny rules, and at least one child record exists that satisfies the rule, the user cannot see the parent record.
- When a user role is not assigned to any deny rules, but one or more deny rules have the **Apply this rule...** option selected, the user cannot see the parent record if a record satisfies any of these rules.

Allow rules only

Allow rules are joined by a logical AND. If you define only allow rules for a node filter, the following behaviors apply:

- When a user role is not assigned to any allow rules, the user cannot see any parent records.
- When a user role is assigned to all allow rules, the user can see all parent records.
- When a user role is assigned to one allow rule, and there is no child record for the node, the user can see the parent record.
- When a user role is assigned to multiple allow rules, and **all** the rules are satisfied, the user can see the parent record.
- When a user role is assigned to multiple allow rules, and any of the rules are not satisfied, the user cannot see the parent record.
- When a user role is not assigned to any allow rules, but one or more allow rules have the **Apply this rule...** option selected, the user can see the record if all the rules are satisfied.

Both deny and allow rules

If you define both deny rules and allow rules for a node filter, the following behaviors apply:

- If a user role is not assigned to any deny rules or allow rules, the user cannot see any parent records.
- If a user role is assigned to one or more deny and allow rules, and a record satisfies any of the deny rules, the allow rules are ignored and the user cannot see the parent record.
- If a deny rule is not satisfied, the allow rules are processed as described in the *Allow rules only* section.

Multiple node filters exist for the same business entity

When a user role is assigned to more than one node filter, the following behaviors apply:

- If a deny rule is satisfied in any of the node filters, the user cannot see the parent record.
- If a deny rule is not satisfied among the node filters, the allow rules are processed as described in the *Allow rules only* section.

Adding Node Filters

To allow or deny access to the parent record when the node has no child records, create node filters.

Tip: To make your configuration easier to understand and maintain, avoid mixing allow and deny rules. If you decide to create both types of rules, and the rules result in a conflict for a user role, the deny rule wins.

1. Click **Business Entity** > **Modeling**.
2. From the list, select **Business Entities**.
3. Select a business entity.

   The business entity structure opens in the tree view.
4. In the tree view, select **Node Filters**, and then click **Create**.

   A **[New nodeFilter]** option appears under **Node Filters**, and a form opens in the properties panel.
5. In the properties panel, enter a name for the filter.
6. Select a node.

   a. Beside the **Node** field, click the **Browse** button.

   A list of nodes opens in a dialog box.

b.   Select the node, and then click **Select**.

The selected node appears in the **Node** field.

7.   To define the filter in terms of who *cannot* access the parent record when the node record is empty, create deny rules.

a.   Beside the **Deny Access to <parent record>** heading, click the **Add** icon.

b.   From the **User Role** list, select the user roles, and then click the **Add** icon.

c.   To make this rule a default for any unassigned user roles in the **Deny** section, click **Apply this rule to the user roles that are not specified in any Deny rule**.

d.   Repeat to configure more filter rules.

8.   To define the filter in terms of who *can* access the parent record when the node record is empty, create allow rules.

a.   Beside the **Allow Access to <parent record>** heading, click the **Add** icon.

b.   From the **User Role** list, select the user roles, and then click the **Add** icon.

c.   To make this rule a default for any unassigned user roles in the **Allow** section, click **Apply this rule to the user roles that are not specified in any Allow rule**.

d.   Repeat to configure more filter rules.

9.   Click **Apply**.

The node filter is saved but not published to the MDM Hub.

Role Privileges for Nodes Filters

Ensure that the user role has the necessary permissions on the objects and other resources.

The following table lists the actions that you can perform for a business entity node and the minimum privileges that are required on the ORS resources:

Business Entity Node Action	ORS Resources	Resource Privileges
Create a record	Object	Update
	Base object	Create
	Lookup base objects	Read
	Cleanse Functions used in transformations	Execute
Read a record	Base object	Read
	Lookup base objects	Read
Update a record	Object	Update
	Base object	Update
	Lookup base objects	Read
	Cleanse Functions used in transformations	Execute
Delete a record	Object	Update

Business Entity Node Action	ORS Resources	Resource Privileges
	Base object	Delete
	XREF object	Delete
Merge records	Base object (with merge task)	Update
	Base object (without merge task)	Merge
Unmerge a record	One or more nodes	Merge

Security and the Data Director User Interface

Security and data filters affect the Data Director user interface.

The following table summarizes how the permission to perform an action affects the behavior of the user interface:

Business Entity Action	Data Director Behavior
Create records	In the **New** menu, you can see only the types of business entities for which you have permission to create records.
Read records	You can view the records for the business entities that you have permission to read. Other records are inaccessible.
Update records	In a record view, the **Edit** button is enabled when you have permission to edit business entity records. Otherwise, the **Edit** button is not visible.
Delete records	The **Delete** icon is enabled when you have permission to delete business entity records.
Search for records	When searching for business entities by using smart search, search filters and search results contain only the business entity types that you have permission to view.
Merge and unmerge records	In the **Matching Records** view, the **Merge** button and the check boxes at the top of each record are enabled when you have permission to merge and unmerge records. If you add records to the view, the search filters and search results contain records only for the business entities that you have permission to view.

CHAPTER 12

Integrating Data as a Service

This chapter includes the following topics:

Overview

You can enrich and augment your business entity data with the data from third-party data providers. You can integrate with Data as a Service (DaaS) providers to access data that is reliable, accurate, and complete. You can request a DaaS provider for relevant business entity information, such as revenues, parent-child or corporate linkages, detailed company profiles, and D-U-N-S numbers. You can use the data from the DaaS providers to create and update business entity records.

You can enable or disable the access to the DaaS providers. You can configure access to the DaaS services based on the user roles and the operations that a user performs. For example, you might enable a service only when a user creates a record. You can specify the business entities that you want to enrich with the DaaS data. You can select the business entity fields that you want to populate with the data from the DaaS provider. You can request data from the DaaS provider, compare the search results, and select the records that you want to convert and merge into a business entity record.

To integrate with a DaaS service, you must first register with the DaaS provider. In the Provisioning tool, you must create the required configurations, create a DaaS component, and add the component to a Data Director record view layout. When you open the record view for a business entity record, the DaaS providers appear in the DaaS panel.

WSDL File for a DaaS Service

The DaaS services are web services that support the Simple Object Access Protocol (SOAP) for the requests and responses from client applications. To use a DaaS service, you must upload the Web Services Description Language (WSDL) file for the service. A WSDL file describes a web service.

A WSDL file contains the following information:

- XML descriptions of the available web services.
- Location of the web service.
- Methods that the service uses.
- Parameters that the service takes.
- Formats of the SOAP requests and responses.

Transformations

When you integrate with a DaaS provider for data enrichment, you must match some of the business entity information you have with the information from the DaaS provider. Send a request to the DaaS web service with some minimum required information about a business entity. Based on the information, the DaaS provider sends a response that you can use to enrich the business entity data.

Use the SOAP protocol for requests and responses. The request to and the response from the DaaS service is an XML structure. A business entity service accepts some business entity data as input and maps it to fields in an XML document. The service calls the DaaS web service with this information and receives the response in the form of an XML document. The service converts the XML document to the business entity fields and saves the information as business entity data. You must configure transformations and map the business entity fields to the XML request fields and the XML response fields to the business entity fields .

Use the Provisioning tool to configure the following transformations for DaaS:

- **Business entity to XML**. Mapping required to send a request to a DaaS service.
- **XML to business entity**. Mapping required to read and convert a response from a DaaS service.

Transformation of Business Entity to XML

When you send a request to a DaaS service, you must send the request in an XML format. You must transform the data in the business entity into an XML document. You must map the business entity fields to the XML fields that the DaaS service requires in the request. Use the Provisioning tool to configure the transformation of a business entity to an XML format.

Note: Before you configure the transformation, ensure that you upload the WSDL for the DaaS service that you plan to use. The WSDL file specifies the parameters that the service requires.

Transformation of XML to Business Entity

The DaaS service sends the response in a XML format. You must parse the XML response. You have to map the fields in the XML document to the business entity fields. Use the Provisioning Tool to configure the transformation of XML document to a business entity.

Note: Before you configure the transformation, ensure that you upload the WSDL for the DaaS service you plan to use.

The corporate linkage service from Duns & Bradstreet (D&B) returns the parent and the related entities of a requested organization. If you want to import the linkage information, you must develop a custom application that can use the linkage service. You must configure a transformation of an XML document to business entity and expose it as a service. When you expose a XML to business entity transformation as a service, the process creates the DaaS Import and DaaS Update business entity services. Use the DaaS Import and DaaS Update services to import business entity data and update changes to business entity data.

For more information about how to use the linkage service, see the Supporting Corporate Linkage Service chapter in the *Multidomain MDM Business Entity Services Guide*.

SOAP Services

The data enrichment DaaS services are a suite of web services that support the SOAP protocol. You must integrate with the DaaS services and make SOAP calls to access the information to enrich your business entity data.

You must register the external SOAP services. If a service requires authentication information for calls, provide the information in the SOAP header when you configure the SOAP service.

DaaS Providers

Communication with a DaaS provider is through SOAP requests and responses. Send a request to the DaaS provider with the minimum required information about a business entity. The DaaS provider responds with information that you can use to expand the business entity view and enrich the business entity data.

You must configure a DaaS provider as an extension in the Provisioning tool. A DaaS provider configuration combines a web service call with business entity to XML format and XML format to business entity transformations. You must specify the metadata, such as required fields and the type of the service, such as READ or SEARCH. For example, if you specify the name of an organization, the DaaS service searches for the name and returns a list of records with matching names. If you specify a unique value, such as the D-U-N-S number, the DaaS service performs a direct match, and returns the details of the organization. You can configure multiple DaaS providers.
Note: Every DaaS provider must have at least one required field. Specify the required fields when you configure a DaaS provider.

Communication with a DaaS service is through the DaaS component that you add to a record view layout.

DaaS Providers Component

The DaaS Providers component is a component that you can add to a record view layout. The component lists the DaaS providers that you configure for the record that is open in a record view.

You can use the DaaS Providers component to request a DaaS provider for data. You can search for records, compare the results, and select the records that you want to convert and merge into a business entity record. Create the DaaS Providers component in the Components Editor of the Provisioning tool. After you create the component, the component appears in the Layout Designer. Use the Layout Designer to create a record view layout and add the component to the layout.

The following image shows a sample DaaS Providers component configuration:
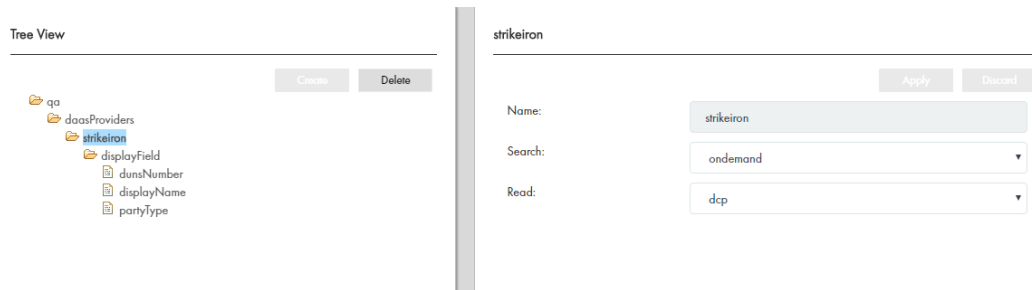
Integrating a DaaS Provider

To integrate a DaaS provider, create the required configurations and DaaS Provider component. Design a record view layout and add the DaaS Provider component in it.

Perform the following tasks to integrate a DaaS Provider with the MDM Hub:

1. Upload the WSDL for the DaaS service.

2. To transform a business entity to XML format, map the business entity fields to the input for the SOAP service request.

3. Transform the XML response from the SOAP service and map the XML elements to the fields in the business entity.

4. Register the SOAP service.

5. Configure a DaaS provider by bringing together the WSDL, SOAP service, and transformations, and then publish the configuration to the MDM Hub.

6. Create a DaaS Providers UI component.

7. Design a record view layout, add the DaaS Providers component to the layout, and publish the configuration to the MDM Hub.

Uploading a WSDL File

Upload the WSDL file for the DaaS web service you want to use. The WSDL file describes the operations along with the format and data types of the requests and responses.

1. Log in to the Provisioning tool and select the ORS.

2. Click **Business Entity** > **Extensions**.

   The **Extensions** page appears.

3. From the **Extensions** list, select **WSDL**, and then click **Create**.

4. In the **Properties** pane, specify the following properties:

Property	Description
Name	Name for the WSDL file.
URL	URL of the WSDL file for the web service. For example, `http://ws.strikeiron.com/` `OnDemandEntityID1?wsdl.`

5. Click **Apply**.

    The details of the WSDL appear in the tree view.
    The following image shows a WSDL file for a DaaS service:
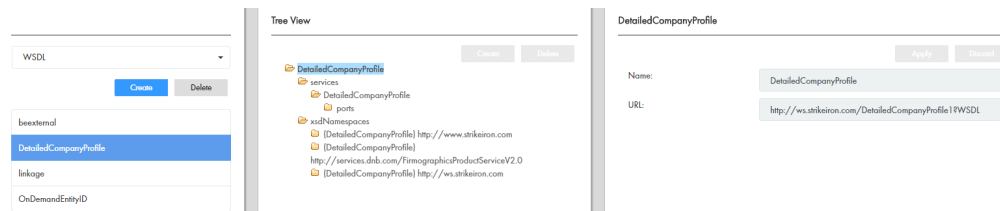
Transforming a Business Entity to XML Format

A request to the web service requires inputs in XML format. You must define the mappings for the service request. To transform a business entity into an XML format, map the business entity fields to the input fields of a service request.

1. Log in to the Provisioning tool and select the ORS.

2. Click **Business Entity** > **Transformations**.

    The **Transformations** page appears.

3. From the **Transformations** list, select **Business Entity to XML**, and then click **Create**.

4. In the **Properties** panel, specify the following properties:

Property	Description
Name	Name for the transformation.
URI	Identifies the namespace where the SOAP operation is defined.
Business Entity	Business entity for which you request the service.
Type	Type in the namespace.
Target	Request element. Click the **Browse** button ( ) and select the root element.

5. Click **Apply**.

6. To configure the transformation for the root node, select **Transformations** in the Tree View panel, and then click **Create**.

7. In the Properties panel, specify the following properties:

Property	Description
Name	Name for the transformation.
Status Output	Name of the cleanse output parameter. Used in cleanse transformations. Not applicable to transformations for DaaS.
Status Success	A regular expression. When the cleanse operation successfully completes, it returns a value in the cleanse output parameter that matches the regular expression. Not applicable to transformations for DaaS.
Type	Type of transformation to map data from a business entity field to the XML field. Direct transformations keep the data unchanged.

8. Map the business entity fields to the fields in the request:

   a. In the **Input Fields** column, click the **Browse** button.

   b. Select the business entity field that you want to map, and then click **Select**.

   c. In the **Output Fields** column, click the **Browse** button.

   d. Select the field in the request, and then click **Select**.

   Note: If you specify a field, the value is taken from the Service Data Object (SDO), from the business entity or the XML data. For some output fields, you might specify constant values, and need not map the values to any input fields. For example, you can specify the maximum number of candidates that the service can return or the country code. You do not map such values to any input field. Specify the value in the **Value** field and map it to an Output Field.

   e. To map additional information, click the **Add** icon, and then follow Steps a to d.

   f. Click **Apply**.

   The following image shows a sample mapping of fields for the root entity:

Transforming XML Data to Business Entity

To use the DaaS services, you must define the mappings for the response that the service returns. Map the fields in the response to the business entity fields. Specify which fields from the XML output of the service you would like to store in your business entity.

1. Log in to the Provisioning tool and select the ORS.
2. Click **Business Entity** > **Transformations**.

    The **Transformations** page appears.
3. From the **Transformations** list, select **XML to Business Entity**, and then click **Create**.
4. In the **Properties** panel, specify the following properties:

Property	Description
Name	Name for the transformation.
URI	Identifies the namespace where the SOAP operation is defined.
Type	Type in the namespace.
Business Entity	Business entity you want to transform.

Property	Description
Expose as Service	If set to true, the transformation is exposed as two business entity services, Import and Update. These services accept XML data, transform it into business entity data, and save it as a business entity record.
Source	Element in the response object. Click the **Browse** button (⋯) to search for the element.

5. Click **Apply**.

The following image shows a sample XML data to business entity transformation:
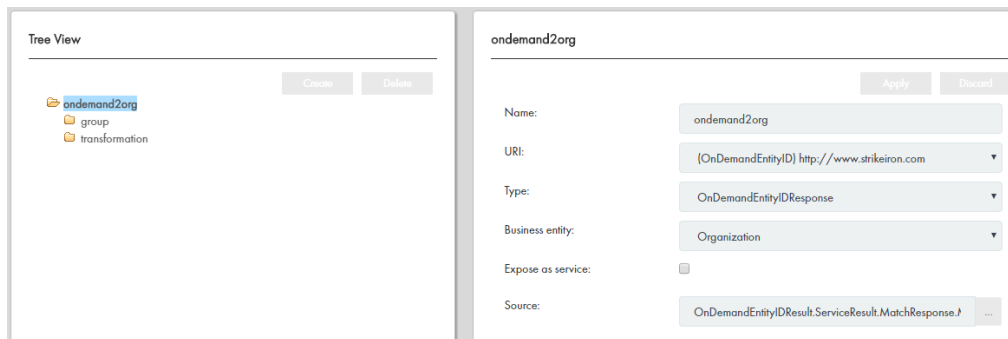
6. To configure the transformation for the root node, select **transformation** in the Tree View panel, and then click **Create**.

7. In the Properties panel, specify the following properties:

Property	Description
Name	Name for the transformation. For example, transformation for root.
Status output	Name of the cleanse output parameter. Used in cleanse transformations. Not applicable to transformations for DaaS.
Status success	A regular expression. When the cleanse operation successfully completes, it returns a value in the cleanse output parameter that matches the regular expression. Not applicable to transformations for DaaS.
Type	Type of transformation to directly map data from a business entity field to the XML. Direct transformations keep the data unchanged.

8. Map the XML elements in the service response to the business entity fields:

    a. In the **Input Fields** column, click the **Browse** button.

    b. Select the field, and then click **Select**.

    c. In the **Output Fields** column, click the **Browse** button.

    d. Select the business entity field to which you want to map, and then click **Select**.

    e. To map additional information, click the **Add** icon, and then follow steps a to d.

    f. Click **Apply**.

The following image shows a sample mapping of fields for the root node:
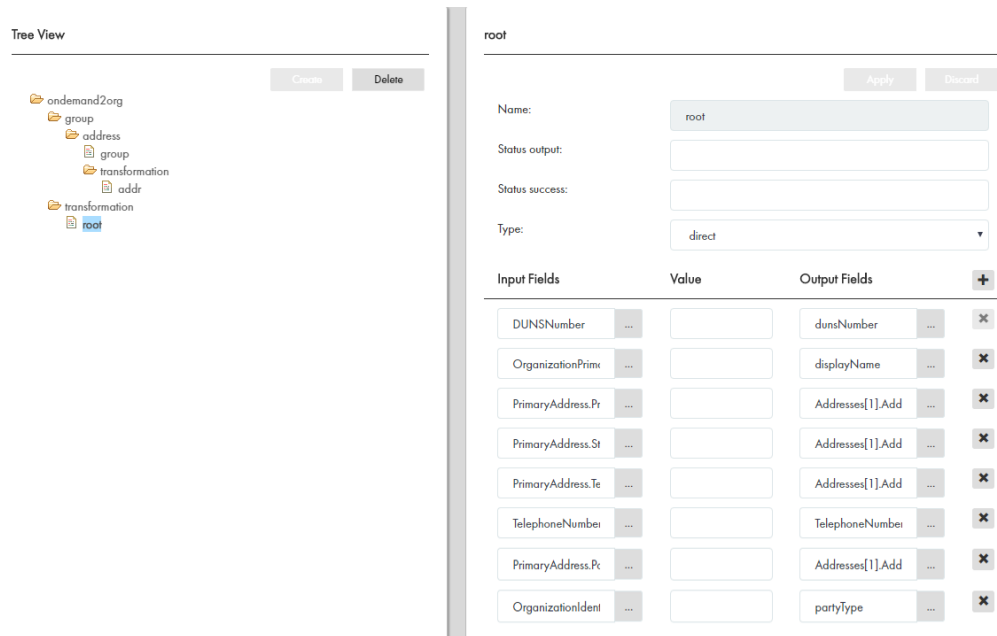
9. To configure the transformation for child nodes of the business entity, add the node to a group, and then configure the transformations:

   a. Select the **Groups** folder, and then click **Create**.

   b. In the **Properties** panel, enter a name for the node as you want it to appear in the group folder.

   c. In the **Source** field, select a field, and in the **Target** field, select the child node in the business entity. Repeat for each child node.

   d. Click **Apply**.

   e. Expand a **child node**, select **Transformations**, then click **Create**.

   f. In the **Properties** panel, enter a name for the transformation.

   g. From the **Type** list, select **Direct**.

   h. In the **Input Fields** column, click the **Browse** button.

   i. Select the field, and then click **Select**.

   j. In the **Output Fields** column, click the **Browse** button.

   k. Select the business entity field to which you want to map, and then click **Select**.

   Note: You can specify Service Data Object (SDO) XML path directly in a `field` attribute. When a field contains `/`, it indicates the XPath of the SDO. If you use a cleanse transformation before you populate the business entity with the XML data, you might require some parent XML elements in the child node mappings. However, parent XML elements are not available for selection in the transformation of child nodes. You must manually type the path to the required parent XML element in the **Field Name**. Use the Service Data Object (SDO) XPath expression to access a parent element, where `/` represents the root element. For example, when you configure the transformation of the address child node, you might concatenate the `dunsNumber` element with the `city` element. Because the `dunsNumber` element is a parent element, it is not available for selection. To access the `dunsNumber` element, use the path `/OrderCompanyProfileResult[1]/ServiceResult[1]/OrderProductResponseDetail[1]/InquiryDetail[1]/DUNSNumber[1]`

   l. Repeat Steps `h` to `k` for other fields.

m. Click **Apply**.

10. Repeat Step 9 for each child node.

The following image shows a sample transformation and mapping of fields for a child node:
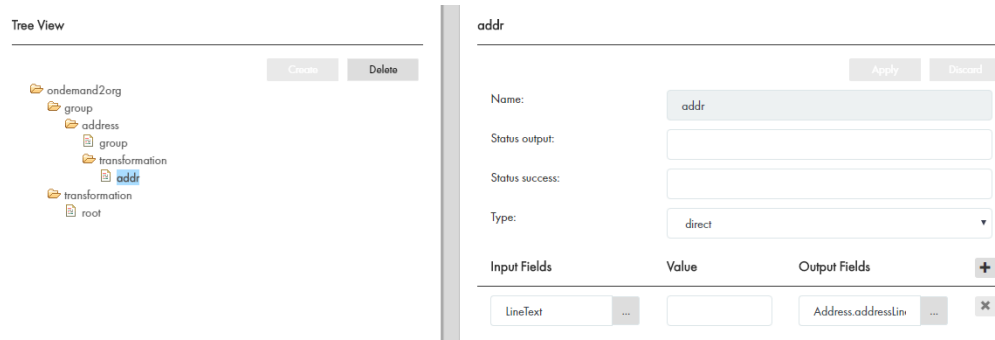
Registering a SOAP Service

To make SOAP calls to the DaaS services, you must first register the required SOAP service. After you upload a WSDL file, register the SOAP service and the operations that the WSDL file describes.

1. Log in to the Provisioning tool and select the ORS.

2. Click **Business Entity** > **Extensions**.

The **Extensions** page appears.

3. From the **Extensions** list, select **SOAP Services**, and then click **Create**.

4. In the **Properties** panel, specify the following properties:

Property	Description
Name	Name of the SOAP service.
WSDL	URL of the WSDL file for the SOAP service.
SOAP Header	Additional application-specific information, such as authentication. For example, the service might require that each call to an operation has a valid user name and password in the SOAP header.
Namespace	Namespace associated with the SOAP service.
Service	Name of the service.
Port	Port name through which a client application can access the SOAP service.
Endpoint	URL or address where a client application can access the SOAP service.

5. Click **Apply**.

    The following image shows a sample SOAP service configuration:
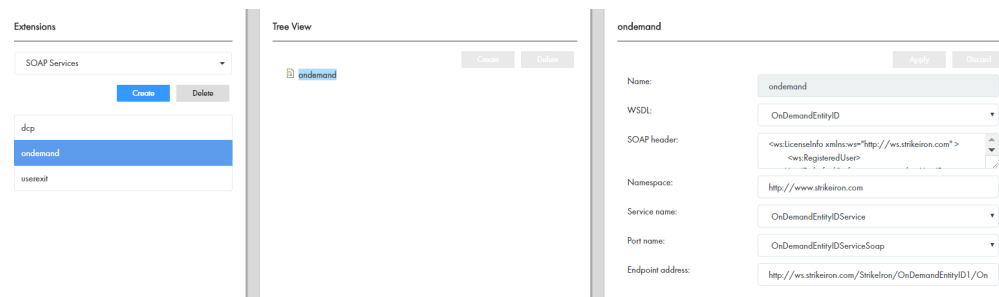
Configuring a DaaS Provider

To make service call to a DaaS provider to enrich the business entity data, configure a DaaS provider in the Provisioning tool.

1. Log in to the Provisioning tool and select the ORS.
2. Click **Business Entity** > **Extensions**.

    The **Extensions** page appears.
3. From the **Extensions** list, select **DaaS Providers**, and then click **Create**.
4. In the **Properties** panel, specify the following properties:

Properties	Description
Name	Name for the DaaS provider.
Type	Type of service that the provider uses, whether READ or SEARCH.
BE to XML	Business entity to XML transformation that you want to use.
XML to BE	XML to business entity transformation that you want to use.
SOAP Service	SOAP service that you want to use.
SOAP Operation	SOAP operation that you want to perform.
Business Entity	Business entity for which you want to request data from the DaaS provider.
Score Field	Additional information for each row in the search results. You map a field of the incoming XML data to this field.
Label Format	Format that will appear in the search result. Not applicable to DaaS.
System Name	Source system name, such as Sales Force Automation system (SFA).

5. Click **Apply**.
6. In the Tree View panel, expand the folder for **requiredField**, and then click **Create**.

    Note: Each DaaS provider must have at least one required field. If you do not specify the required field or fields, the DaaS provider is disabled in the DaaS Providers component in the Data Director record view.

7. In the **Properties** panel, select the required field.

   When you make a service call, the DaaS provider performs a search based on the value in the required field.

8. Click **Apply**.

The following image shows a sample DaaS provider configuration:

Creating a DaaS Providers Component

Create a DaaS Providers component in the Component Editor. After you create the DaaS Providers component, the component appears in the Layout Designer.

1. Log in to the Provisioning tool and select the ORS.
2. Click **UI Configuration** > **Components Editor**.

   The **Components Editor** appears.
3. From the **Components** list, select **DaaS Providers**, and click **Create**.
4. In the **Properties** panel, enter a name for the component, and then click **Apply**.

   The DaaS Providers component that you created appears in the **Tree View** panel.
5. In the DaaS Providers component tree, click **daasProviders**, and then click **Create**.

   The DaaS Provider properties appear in the **Properties** panel.
6. In the **Name** field, enter a name for the DaaS provider.
7. From the **Search** list, select the DaaS provider that you configured for a search operation.
8. From the **Read** list, select the DaaS provider that you configured for a read operation.
9. Click **Apply**.

The following image shows a sample DaaS Provider configuration:
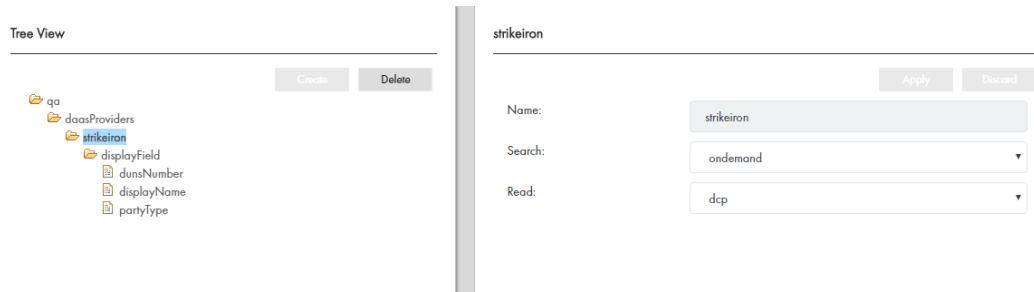
Designing a Record View Layout with DaaS

You design a record view layout to display a record with the DaaS Provider. You can design the record view in the Layout Designer and add the DaaS Provider component to it. You can request the DaaS provider for data for the record that is open in the record view.

Related Topics:

- "Designing a Business Entity View Layout" on page 139

Deleting Transformations

You can delete transformations. If you delete a transformation on which components or extensions are based, the components and extensions are deleted.

Deleting WSDL files, SOAP Services, and DaaS Providers

You can delete the extensions, such as WSDL file, SOAP service, and DaaS provider.

If you delete an extension on which components or extensions are based, the components and extensions are deleted.

CHAPTER 13

Configuring External Calls

This chapter includes the following topics:

Overview

External providers provide web services for cleansing, analysis, and transformation of business entity data. You can use the external web services for custom validation, such as checking if the address field is empty when you add a business entity. You can use the external web services to apply custom logic when you transform business entity data. For example, when you merge two business entity records, you can merge addresses, but you cannot merge telephone numbers.

You can configure calls to the external web services for certain steps in the business entity execution logic. You must configure the business entities and the events for which you want to call an external service. You must configure external calls as extensions to business entity services. Use the XML Schema Definition (XSD) for the external web services to get the request and response types. An external web service operation must use the request and response types for the input and output elements. Based on the logic you implement, requests go to the external services for analysis or transformation of business entity data.

The XSD file is in the following location: `<infamdm installation directory>\hub\ server\lib\mdm-spi.jar`

Use the sample WSDL file in the Resource Kit to understand the external services, operations, methods, and the data types that the service methods exchange. The sample `custom-logic-service.wsdl` file for the external web services is in the following location: `<infamdm installation directory>\hub\resourcekit \samples\BESExternalCall\source\resources\webapp\WEB-INF\wsdl\`

You must develop and deploy the external web services. Use the Ant build file, `build.xml` in the folder `<infamdm installation directory>\hub\resourcekit\samples\BESExternalCall\` to build the `bes-external-call.ear` file. You must deploy the EAR file on the application server and use the Provisioning tool to configure the calls to the web services.

Configuring External Calls

Configure the calls to the external services for custom logic and validation of business entity data.

To configure external calls, perform the following tasks:

1. Use the XML Schema Definition (XSD) to get the request and response types for external calls. Use the request and response types as the input and output elements for an external web service operation. Refer to the `bes-external-call.xsd` file in the `mdm-spi.jar` file.

2. Develop and deploy the external web service.

3. Upload the WSDL file for the web service.

4. Register the SOAP service.

5. Configure an external call and bind the WSDL, the SOAP service, and the SOAP operation. Publish your configuration to the MDM Hub.

For more information about WSDL files and SOAP calls to the web service, see the Integrating Data as a Service chapter.

For more information about the steps in the business entity services for which you can use external web services, see the *Multidomain MDM Business Entity Services Guide.*

Uploading a WSDL File

Use the Provisioning tool to upload the WSDL file for the web service that you want to use.

The following image shows the WSDL file uploaded in the Provisioning tool:
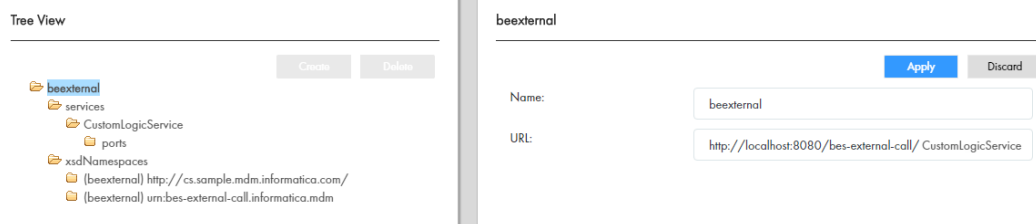
Related Topics:

- "Uploading a WSDL File" on page 96

Registering a SOAP Service

You must make SOAP calls to the external providers to access the web services for custom validation and logic to process the business entity data.

Use the Provisioning tool to register the SOAP service.

The following image shows a sample SOAP service configuration:
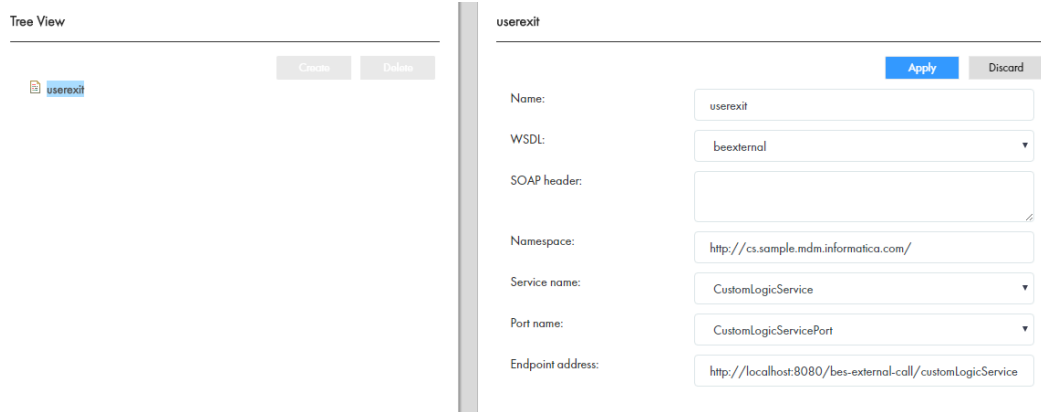
RELATED TOPICS:

- "Registering a SOAP Service" on page 102

Configuring an External Call

External calls are extensions to the business entity services. Use the Provisioning tool to bind the WSDL, SOAP Service, and SOAP operation and configure an external call.

1. Log in to the Provisioning tool and select the ORS.
2. Click **Business Entity** > **Extensions**.

   The **Extensions** page appears.
3. From the **Extensions** list, select **External Calls**, and then click **Create**.
4. In the **Properties** panel, specify the following properties:

Properties	Description
Name	Name for the external call.
SOAP Service	SOAP service that you want to use.
SOAP Operation	SOAP operation that you want to perform.

5. Click **Apply**.
6. Publish your changes.

The following image shows a sample external call configuration:
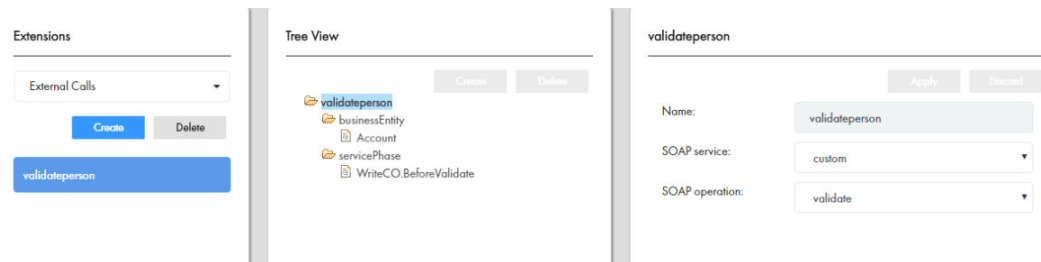
CHAPTER 14

Designing the Data Director User Interface

This chapter includes the following topics:

Designing the Data Director User Interface Overview

You can design the Data Director user interface to add, edit, and manage records and to manage tasks. To design the user interface, create an application and user interface components, and then assemble the components into layouts.

When you design the Data Director user interface, you design layouts for the **Home** page and record views. If the user interface requirements change, you can update the layouts that you created.

To design the user interface, use the Application Editor, the Component Editor, and the Layout Designer in the Provisioning tool. The user interface can contain primary, secondary, and custom components. You can create custom components in the Component Editor. After you create the custom components, use the Layout Designer to select a layout template, and then drag and assemble the components that you want in the layout.

User Interface Design Examples

You have a request to design a **Home** page and some custom record views for Account Managers.

To design a layout for a **Home** page or a record view, perform the following steps:

1. Gather user requirements.
2. Visualize the design.
3. Create the components.
4. Select a layout.
5. Add components to the layout.
6. Publish the page or view.
7. Get feedback from your users and adjust the page or view as necessary.

User Interface Design Prerequisites

Before you design theData Director user interface, perform the following prerequisite tasks:

1. Install and configure the MDM Hub.
2. Create user roles that need access to the user interface layouts. You create user roles in the MDM Hub Console.
3. Create a source system with which you want to associate the application. You create source systems in the MDM Hub Console.
4. Create a Data Director application.
5. Define the business entity models.
6. If you want to use the user interface to manage business entity relationships, create the relationship types that you want to manage.
7. If you want to design the user interface to display a view of a business entity, create business entity views.

User Interface Layouts

The Data Director user interface includes a **Home** page and record views. Design **Home** pages that meet the needs of your end users. For the record views, you can either enable the default record views or design custom record views.

When users access a Data Director application, the **Home** page appears. The **Home** page can contain a task inbox, charts, and reports.

Record views help users add, view, and manage records and review tasks. The default record views use preconfigured layouts that consist of a single panel. Custom record views can consist of multiple panels with primary, secondary, and custom components.

You can design multiple **Home** page and record view layouts. You can create layouts that are applicable to multiple user roles or applicable to unique user roles. You can configure actions that users can perform using

the record view, such as creating a record or reviewing tasks. When users log in to Data Director, layouts that are applicable to their user roles appear in the application.

If you choose to design custom record views, enable the default record views. Users can manage records using the default record views while you design the custom record views. If enabled, the names of the default record views appear in the **View** list. After you design custom record views, you can hide the default record views.

Note: If you upgraded from a version prior to 10.2, layouts might not appear properly in the Provisioning tool. Verify that the layouts appear properly in the Data Director application. If required, you can edit the layouts in the Provisioning tool.

Home Page Layouts

A **Home** page appears when you log in to Data Director. You can design **Home** page layouts to contain a task inbox and custom resources such as charts and social media feeds.

When you design a **Home** page, select a template that can display the components that you want. For example, to display data reports in the **Home** page, the template must have a panel that is big enough to display the reports.

The following image shows a typical **Home** page:
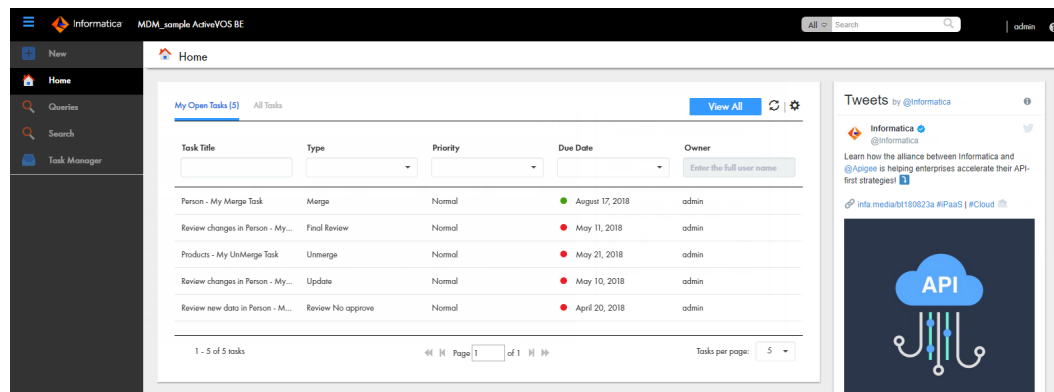
Record View Layouts

Record views appear in an entity tab when users create or manage records or when users manage tasks in the Task Manager. You can add primary components to layouts to manage records. Add secondary or custom components to display the information related to records, such as matched records and social media feeds.

You can design the following types of record view layouts: Record View and Review Task, Merge Task, and Unmerge Task. The layout type determines the primary components that you can add to the layout and the actions that users can perform. For example, if you design an Unmerge Task layout, only the primary components that help users to unmerge records are available.

When you design a record view, select a template that can display the components that you want. For example, to display data in a record, the template must have a panel that is big enough to display the record details.

The following image shows a record view with the Record Details component in the main panel and secondary components that display related information in the sidebar:
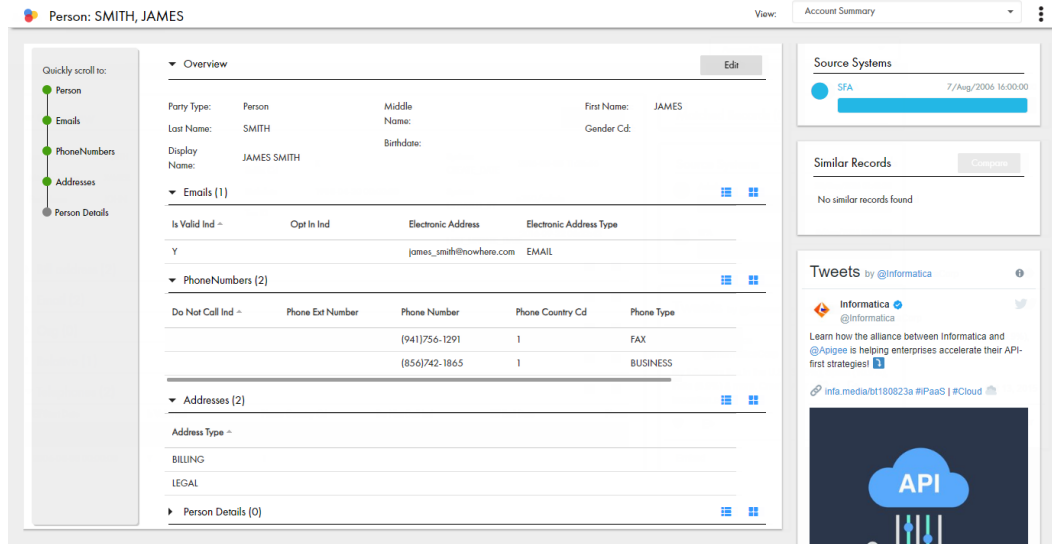
Tip: If you do not want to design record view layouts, enable the default record views. The default record views contain a primary component, but do not contain any secondary or custom components.

Record View and Review Task Layout Type

The Record View and Review Task layout type is the most flexible type of record view layout that you can design. You can use the same layout to manage both records and tasks. Or, you can create separate layouts for records and review tasks.

Record View Layout Type

You can design custom record views to create or view records. You can also design views to merge duplicate records, unmerge merged records, view record history, or view hierarchical relationships between records.

To design custom record views that can replace the default record views, select the same purpose and use the same primary component as the default record views. Then add the secondary and custom components that you want.

The following table lists the default record views and the selections to make on the **Purpose** page and **Design** page:

Default Record View	Purpose Page	Design Page
Business Entity view	Create records View or edit records	Record Details component
Matching Records view	View or edit records	Matching Records (Advanced) or Matching Records component
Cross-reference Records view	View or edit records	Cross-reference Records component

Default Record View	Purpose Page	Design Page
History view	View or edit records	History component
Hierarchy view	View or edit records	Hierarchy Manager component

Tip: To use the same layout for the Business Entity view and Review Tasks, select all options on the **Purpose** page of the Layout Designer.

The following image shows an example of a custom Matching Records view layout:
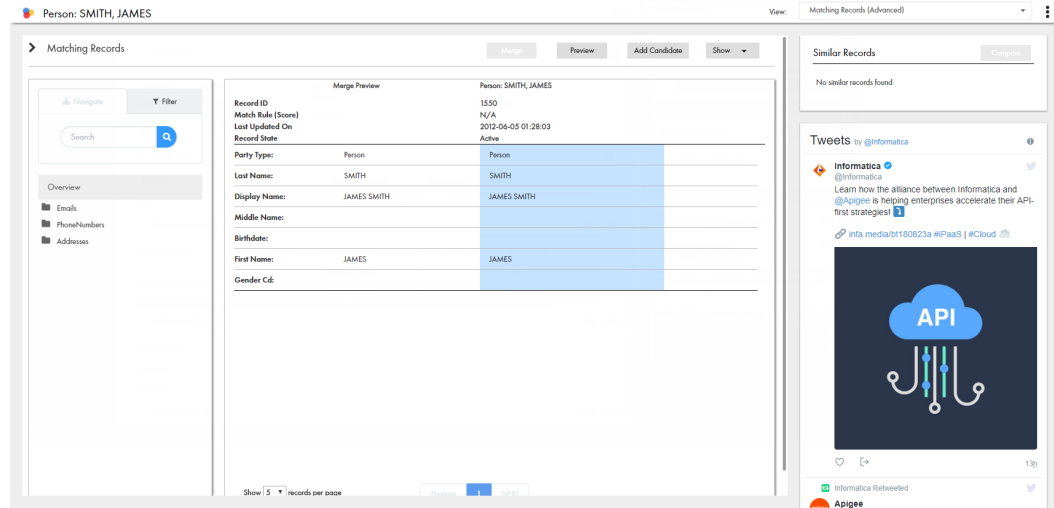
Review Task Layout Type

You can design a record view layout to manage review tasks in the Task Manager, such as reviewing new records or edited records. A typical review task layout contains the Record Details component and any secondary or custom components that you want.

The following image shows an example of a custom review task layout:

Related Topics:

- "Designing a Business Entity View Layout" on page 139
- "Designing a Cross-reference Records View Layout" on page 144
- "Designing a Matching Records View Layout" on page 142
- "Designing a History View Layout" on page 146
- "Designing a Hierarchy View Layout" on page 148
- "Designing a Review Task Layout" on page 150

Merge Task Layout Type

You can design a record view layout with the Merge Task layout type. Use Merge Task layouts to manage merge tasks in the Task Manager. A typical merge task layout contains the Matching Records (Advanced) component or the Matching Records component and any secondary or custom components that you want.

The following image shows an example merge task layout in the Task Manager:

- "Designing a Merge Task Layout" on page 152

Unmerge Task Layout Type

You can design a record view layout with the Unmerge Task layout type. Use Unmerge Task layouts to manage unmerge tasks in the Task Manager. A typical unmerge task layout contains the Cross-reference Records component and any secondary or custom components that you want.

The following image shows an example unmerge task layout in the Task Manager:

RELATED TOPICS:

- "Designing an Unmerge Task Layout" on page 154

Default Record Views

The default record views use preconfigured layouts that contain a primary component, but do not contain any secondary or custom components. The default record view names appear in the **View** list in Data Director.

You might want the default record views to appear when you begin designing layouts so that users can view and manage records. After you design custom record views, you can hide the default record views to reduce confusion for your end users.

The following set of default record views can be hidden or shown as a group:

Business Entity view

Displays the details of a record in a form layout. End users can view or edit records based on their user role permissions. This record view layout contains the Record Details component.

Cross-reference Records view

Displays the source data that contributed to the master record and unmerge records. This record view layout contains the Cross-reference Records component.

History view

Displays past changes to a record. This record view layout contains the History component.

Matching Records view

Displays a merge comparison panel to find and add potential duplicate records, select values you want to override or promote, view the merge preview, and merge the open record with the duplicate records. This record view layout contains the Matching Records (Advanced) component.

RELATED TOPICS:

- "Hiding the Default Record Views" on page 159

Primary User Interface Components

You can add primary components to layouts. Primary components help users manage records.

The following table describes the primary components that appear when designing **Home** page layouts in the Layout Designer:

Primary Component	Description
Task Inbox	Displays task notifications that the review process generates.
Dashboard Reports	Displays a Jaspersoft report. Use the component if you already have Jaspersoft reports configured for subject areas in Data Director.

The following table describes the primary components that appear when designing record view layouts in the Layout Designer:

Primary Component	Description
Record Details	Displays the data in a record. Use the component to create, view, and edit records.
Matching Records (Advanced)	Displays an advanced merge comparison panel with an updated look and feel. Use the component to find duplicate records and merge the open record with the duplicate records. You can select root or child values in the records to override or promote, and preview the merged record.
Matching Records	Displays a merge comparison panel. Use the component to find duplicate records and merge the open record with the duplicate records. You can select root values in the record to override or promote and preview the merged record.
Cross-reference Records	Displays the source data that contributed to the master record. Use the component to unmerge merged records.

Primary Component	Description
History	Displays past changes to a record. Use the component to investigate data changes.
Hierarchy Manager	Displays a diagram that shows how a record is related to other records. Use the component to view hierarchical relationships.

Note: When designing record view layouts, the layout type you select determines the primary components available.

RELATED TOPICS:

- "Configuring the Task Inbox Component" on page 132

Task Inbox

The task inbox component is a primary component that you can configure and add to a **Home** page layout. The component displays task notifications that the review process generates. You can use the task inbox to organize, claim, and resolve tasks.

The following image shows a sample task inbox in a **Home** page:

You can configure the fields and filters that the task inbox component displays for the users.

The following table describes the fields that the task inbox component can display as columns:

Field	Description
Task Title	A link that displays a short description of the review task. To review the record and take action on the task, click the task title. The task opens in the Task Manager and displays the associated record in the review panel. If your role permits it, you can edit the record from this view before taking action on the task.
Type	Name of a people activity within the process.
Priority	Priority of the task. The task priority can be Low, Normal, or High. When generating tasks, the review process assigns the same priority to all tasks of the same type.

Field	Description
Due Date	Date the task is due. The review process calculates a default due date based on the task creation date plus a predefined time period. The due date of each task is prefixed with one of the following colored dots: - Green. Indicates that the task is not overdue. - Red. Indicates that the task is overdue. - Amber. Indicates that the task will be overdue in the next 24 hours.
Owner	Name of the signed-in user.
ID	Instance ID of the review process that generated the task.
Status	Status of the task can be Open or Closed. When the task status is Open, you can view the record associated with the task.
Creator	Name of the user who created the task.
Creation Date	Date on which the user created the task.

The following table describes the filters that the task inbox can display:

Filter	Description
My Open Tasks	Shows your open tasks.
My Closed Tasks	Shows the tasks that you closed.
All Tasks	Shows all the closed, claimed, and unclaimed tasks that are assigned to your user group.
All Unclaimed Tasks	Shows all the unclaimed tasks that are assigned to your user group.
All Closed Tasks	Shows all the tasks that the users in your user group closed.
All Claimed Tasks	Shows all the tasks that the users in your user group claimed.

Dashboard Reports

The Dashboard Reports component is a primary component that you can add to a **Home** page layout. If you use the business intelligence tool Jaspersoft to develop and analyze reports, use this component to add a Jaspersoft report to the layout.

Note: This component is for Jaspersoft reports only. To display charts from other business intelligence tools, do not use this component. Create a custom component instead.

Use the Dashboard Reports component if you already have Jaspersoft reports configured for subject areas in Data Director. The component acts as an inline frame for all reports configured in the IDD configuration file.

Note: If you want to display the Dashboard Reports component in a **Home** page, use Template 1 to design the **Home** page layout.

The following image shows a sample Dashboard Reports component in a **Home** page:
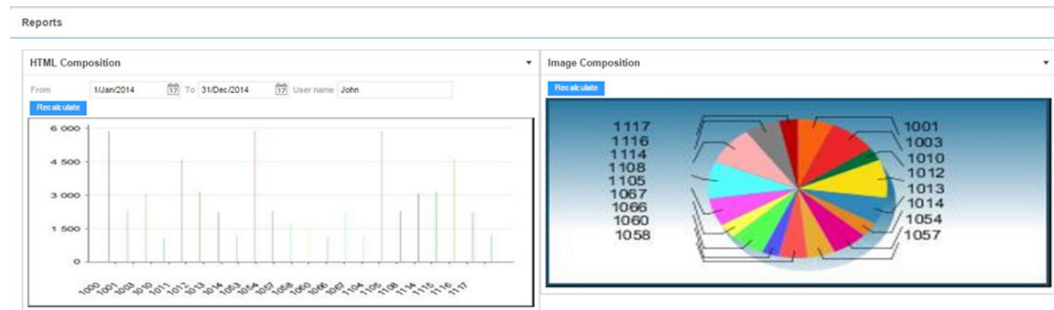
Record Details

The Record Details component is a primary component that displays data in a business entity record. Add the Record Details component to a custom Business Entity view layout or review task layout.

The Record Details component appears in the Layout Designer after a business entity model is created in the Modeling page. When you design a layout, you can configure the Record Details component to display the information you want, such as telephone numbers, emails, and addresses. If you display multiple child records that contain large amounts of information, you might want to enable the business entity menu to help users navigate among the child records.

The following image shows a sample Record Details component with the business entity menu in Data Director:
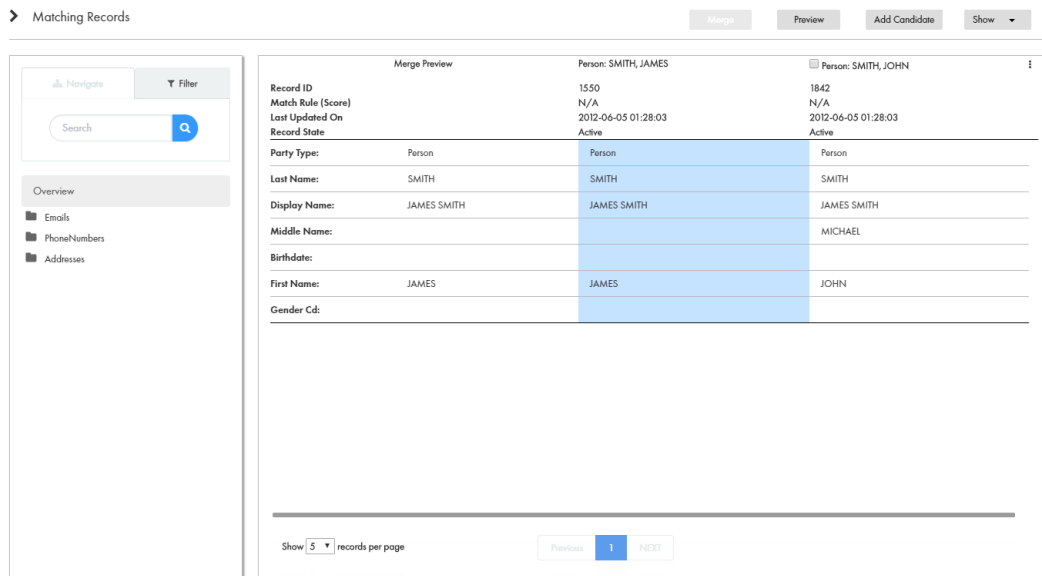

Matching Records (Advanced)

The Matching Records component with advanced features is a primary component that displays a merge comparison panel. Add the Matching Records (Advanced) component to a custom Matching Records view layout or merge task layout.

Data Director users use the Matching Records (Advanced) component to add potential duplicate records or override or promote values to contribute to the master record. Then preview the master record and merge the open record with the duplicate records.

The advanced features allow users to view, override, and promote values at the root and child levels of the record. To only allow users to promote values in the root levels, use the Matching Record component.

The following image shows a sample Matching Records (Advanced) component in Data Director:

Matching Records

The Matching Records component is a primary component that displays a merge comparison panel. Add the Matching Records component to a custom Matching Records view layout or merge task layout.

Data Director users use the Matching Records component to add duplicate records and override or promote values to contribute to the master record. Then preview the master record and merge the open record with the duplicate records.

Data Director users use the component to override and promote values at the root level of the record. To allow users to view, override, and promote values in the child levels, use the Matching Records (Advanced) component.

The following image shows a sample Matching Records component in Data Director:

	JAMES SMITH	JOHN SMITH	Merge Preview
Record Type	Target Record	Manually Added	0 Candidates
Party Type	Person	Person	Person
Last Name	SMITH	SMITH	SMITH
Display Name	JAMES SMITH	JAMES SMITH	JAMES SMITH
Middle Name		MICHAEL	
Birthdate			
First Name	JAMES	JOHN	JAMES
Gender Cd			
▶ Emails	1	0	1
▶ PhoneNumbers	2	0	2
▶ Addresses	2	2	2
▶ Person Details	0	0	0

Cross-reference Records

The Cross-reference Records component is a primary component that displays the source data that contributes to the master record. Add the component to a custom Cross-reference Records view layout or unmerge task layout. Data Director users use the component to adjust how data is consolidated and to unmerge merged records.

The following image shows a sample Cross-reference Records component in a record view:

History

The History component is a primary component that displays past changes to a record. Add the History component to a custom History view.

The following image shows a sample History component in a record view:
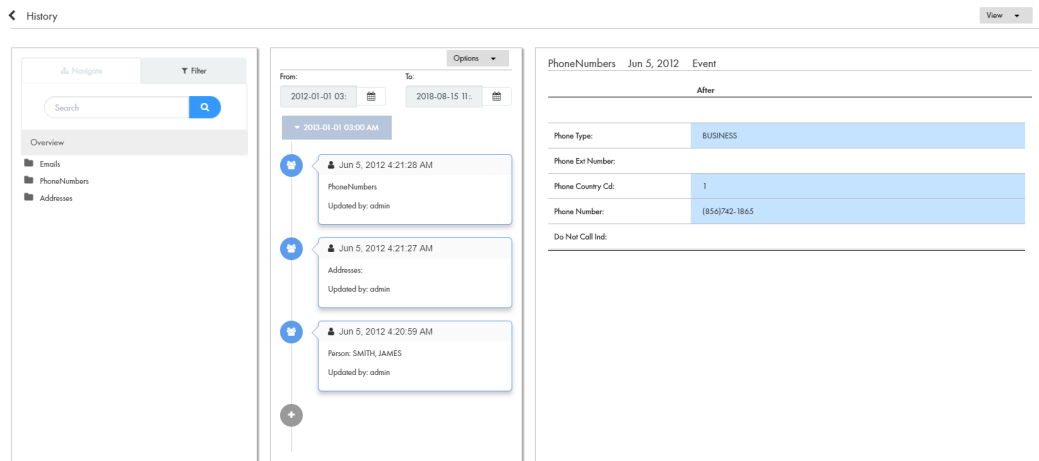
Hierarchy Manager

The Hierarchy Manager component is a primary component that displays a diagram that shows how a record is related to other records. Add the Hierarchy Manager component to a custom Hierarchy view.

To display related records, ensure that relationships are defined for the business entity model on which you base the record view layout. You create business entity models and define relationships between business entities in the Modeling page.

The following image shows a sample Hierarchy Manager component in a record view:
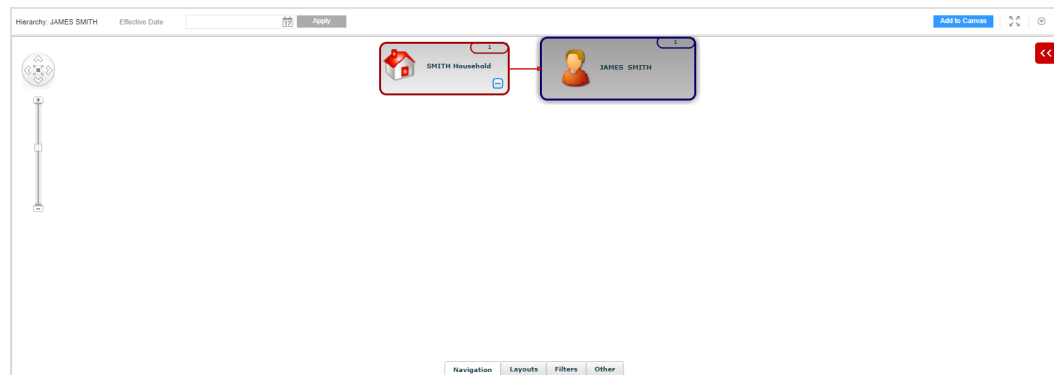
Secondary User Interface Components

You can add secondary components to layouts. Some secondary components require configuration to use in the Layout Designer. To configure the secondary components, use the Component Editor.

The following table describes the secondary components that appear in the Layout Designer:

Secondary Component	Description	Requires Configuration
Matched Records	Displays the records that match the selected record.	No
Source Systems	Displays the source systems that contributes to the selected record.	No
Related Records	Displays the records that are related to the selected record. Based on the configuration, the Data Director users can use the component to add, edit, or delete relationships.	Yes
Related Tasks	Displays all tasks that are related to the selected record. Only tasks created in the BE-AVOS adapter appear.	No
Similar Records	Allows users to search for similar records before they create one. Displays records that are similar to the record that you create.	Yes

Matched Records

The Matched Records component is a secondary component that you can add to a record view layout. The component lists the records that are potential matches of the record that is open in the record view. Each matched record in the component is a link that you can open in a record view.
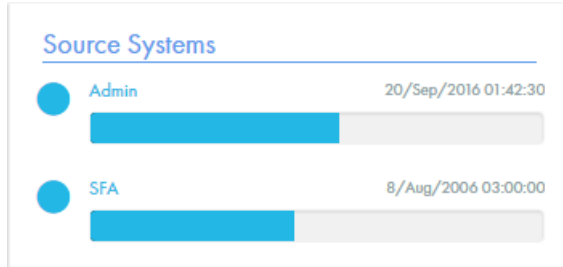
The following image shows a sample Matched Records component that appears for John E. Smith in an record view:
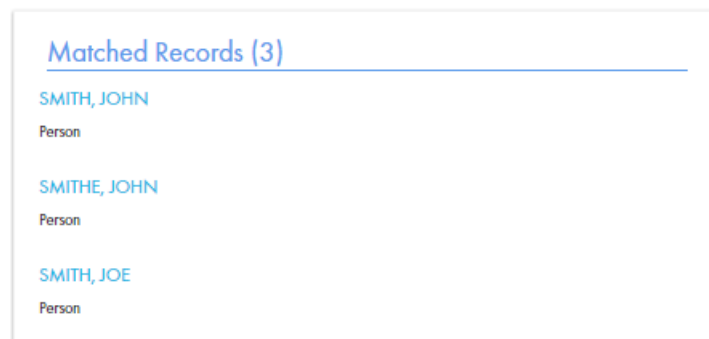
Source Systems

The Source Systems component is a secondary component that you can add to a record view layout. The component displays a horizontal bar graph of the source systems that contributed to the record. The source systems appear in order from the largest to the smallest contributor of cross-reference records.

The following image shows a sample Source Systems component that appears in a record view:

Related Records

The Related Records component is a secondary component that you can add to a record view layout and configure. The component lists records that are directly related to the record that is open in a record view. Each related record in the component is a link that you can open in a record view.
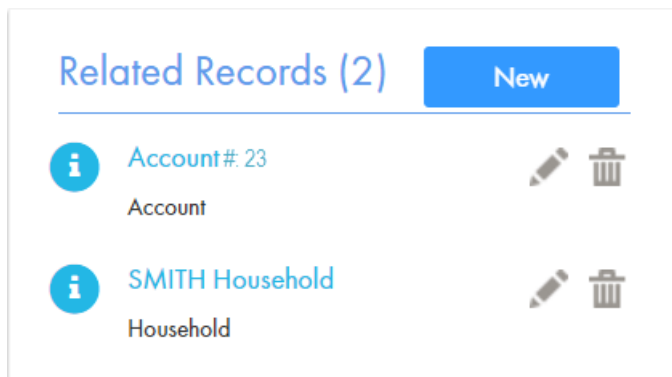
Note: The Related Records component shows only the records that the user has permission to view. To be able to add, edit, and delete relationships, the user must have these permissions for the types of business entities that they want to relate. To set permissions, you use the Security Access Manager in the MDM Console. For more information, see the *Multidomain MDM Configuration Guide*

You can use the Related Records component in the view mode or the edit mode. In the view mode, users can only view the records. In the edit mode, users can add, edit, and delete relationships for records that appear in the Related Records component.

Before you add the Related Records component to a record view layout, create the component in the Component Editor. After you create the component, the component appears in the Layout Designer.

To display related records, ensure that relationships are defined for the business entity model on which you base the record view. You can create business entity models and define relationships between business entities in the Modeling page.
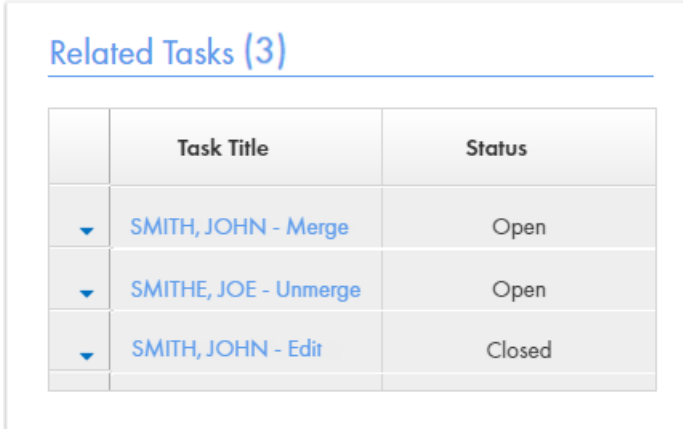
The following image shows a sample Related Records component in the edit mode with records related to a person record in a record view:

Related Tasks

The Related Tasks component is a secondary component that you can add to a record view layout. The component lists all the tasks that are related to the record that is open in the record view. Each task in the component is a link that you can open to view the task details.

The following image shows a sample Related Tasks component that appears in a record view:

Similar Records

The Similar Records component is a secondary component that you can add to a record view layout. When you create a record, the component displays records that are similar to record that the you create. You can review the records that appear in the component to ensure that the records you create are not duplicates.

In the Similar Records component, the records are displayed as a link with an information icon. To preview a record, you click the information icon. To open a record, click the record link.

Before you can add the Similar Records component to a record view layout, create the component in the Component Editor. After you create the component, the component appears in the Layout Designer.

You can configure the Similar Records component to use one of the following search options:

Search

Use to find and display similar records by using search. Ensure that search is configured in the MDM Hub environment. Also, you must configure the search to include only the business entity fields that are identified as searchable. For more information about configuring search, see the *Multidomain MDM Configuration Guide*. For more information about searchable fields, see the *Multidomain MDM Provisioning Tool Guide*.

Queries

Use to find and display similar records by using queries. Queries are based on match rules. Ensure that the match rule sets that you want to use for querying similar records are configured in the MDM Hub environment. For more information about queries and match rule sets, see the *Multidomain MDM Configuration Guide*.

You can configure the Similar Records component for a business entity or a business entity view.

When you configure the Similar Records component for a business entity view, consider the following guidelines:

- Base the search on fields that are part of the business entity view.

- Do not base the search on child record fields, such as Address and Email, that are transformed to appear as the parent record fields.

The following table describes the XML elements that you can use to configure the Similar Records component:

Element	Description
searchableFields	Specifies one or more fields on which you want to base the search. The `searchableFields` element is the parent of the `field name` element.
field name	Specifies the name of a field on which you want to base the search for similar records. The `field name` element is a child of the `searchableFields` element. You can configure multiple `field name` elements.
searchType	Specifies the type of search to perform. The `searchType` element can contain the following child elements: - `smartSearch` - `searchMatch`
smartSearch	Specifies that you want to use search to find similar records.
searchMatch	Specifies that you want to use queries to find similar records. The `searchMatch` element can contain the following child elements: - `fuzzy` - `matchRuleSet`
fuzzy	Specifies whether you want to perform a fuzzy search. To perform a fuzzy search, set to `true`. The `fuzzy` element is a child of the `searchMatch` element. If you do not add this element, exact search is performed.
matchRuleSet	Specifies the name of the match rule set to use for finding similar records. The `matchRuleSet` element is a child of the `searchMatch` element.
label	Specifies the label format for the search field values. To configure the label format, use the `existsFormat` attribute.
column	Specifies a single column to use in the label format. To configure the column for the label, use the `columnUid` attribute, which is the unique identifier of the column. The `column` element is a child of the label element. You can specify more than one column for the label.

The following image shows the Similar Records component with three records that are similar to the record for John Smith:

Similar Business Entities (3)

JOHN ANDREW SMITH

JOHN ANDY SMITH

JOHN SANDERS SMITH

Similar Records with Search Example

You want to configure the Similar Records component with search. You want to base the search for similar records on the searchable fields first name and last name. You specify `smartSearch` as the `searchType`.

To configure the Similar Records component with search, you use the following code:

```
<config>
    <searchableFields>
        <field name="firstName"/>
        <field name="lastName"/>
    </searchableFields>

            <searchType>
            <smartSearch>
            </smartSearch>
            </searchType>

    <label existsFormat="{1} {2} {3}">
        <column columnUid="firstName" />
        <column columnUid="middleName"/>
        <column columnUid="lastName" />
    </label>
</config>
```

Similar Records with Queries Example

You want to configure the Similar Records component with queries. You want to base the search for similar records on the searchable fields first name and last name. You specify `searchMatch` as the `searchType`.

To configure the Similar Records component with queries, you use the following code:

```
<config>
    <searchableFields>
        <field name="firstName"/>
        <field name="lastName"/>
    </searchableFields>

    <searchType>
            <searchMatch>
            <fuzzy>true</fuzzy>
            <matchRuleSet>WS</matchRuleSet>
            </searchMatch>
    </searchType>

    <label existsFormat="{1} {2} {3}">
        <column columnUid="firstName" />
        <column columnUid="middleName"/>
        <column columnUid="lastName" />
    </label>
</config>
```

In the example, a fuzzy search is configured. If you want to configure an exact search, remove the following element from the code: `<fuzzy>true</fuzzy>`

Custom User Interface Components

You can add custom components to layouts, such as charts and social media feeds. You can configure custom components that you need in the Component Editor. After you configure the custom components, the components appear in the Layout Designer.

The following table describes the custom components that can appear in the Layout Designer when designing **Home** pages or record views:

Custom Component	Description
External Links	Displays custom external resources such as a Twitter feed and web page.

Important: Make sure that the component names that you configure are not the same as any business entity name. For example, if you have a Person business entity in your environment, do not name any custom component Person.

External Links

The External Links component is a custom component that you can add to **Home** page layouts and record view layouts. You can create multiple External Links components. The component can display external web pages and RSS feeds.

You can display external resources, such as a Bing search page or Twitter feeds, related to records. If you use Jaspersoft, which is a business intelligence tool to develop and analyze reports, you can display the reports as external resources.

Before you add the External Links component to a layout, create the components in the Component Editor. When you create the External Links component, use an inline frame to embed an external web page or use HTML code and Javascript. After you create the component, the component appears in the Layout Designer.

Related Topics:

- "Creating the External Links Component" on page 137

Web Page Embedding Example

You want to configure an inline frame to display a Bing search page that populates with the display name from the business entity.

The following sample code shows the inline frame configuration that you need for the Bing search page to appear in an Entity view:

```
<style>
  #box {
        height: 500px;
        overflow: auto;
        }
</style>
<div id="box">
        <iframe src="http://www.bing.com/search?q=Informatica+{{displayName}}"
            allowtransparency="true" frameborder="0" scrolling="no"
            style="border:none;overflow:auto;height:100%;width:100%" >
        </iframe>
</div>
```

The following image shows the Bing search page that appears in the Entity view:
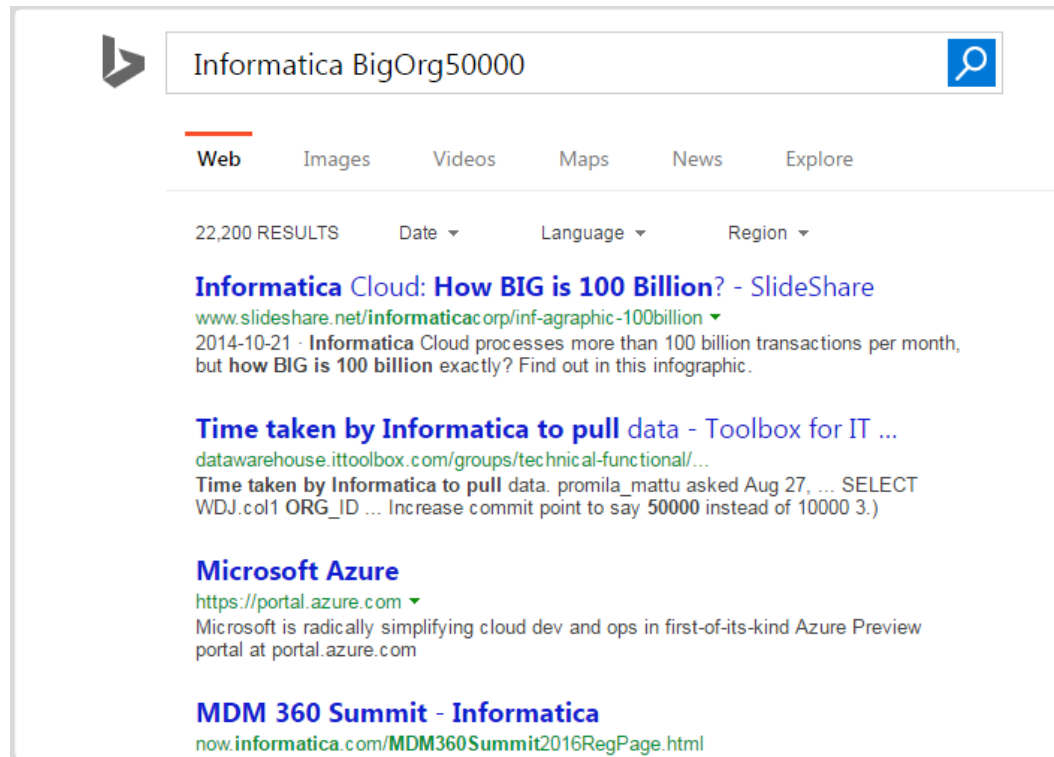

RSS Feed Configuration Example

You want to display the Twitter feed that belongs to a business entity. You use HTML and Javascript to configure how the Twitter feed appears.

The following sample code shows the HTML and Javascript code that you need for the Twitter feed to appear in an Entity view:

```
<div>
    <a target='_blank' class="twitter-timeline" href="https://twitter.com/{{taxID}}"
       data-screen-name="{{taxID}}" data-tweet-limit="5" data-show-replies="false"
       data-widget-id="473181088752222208">Tweets by {{displayName}}
              </a>
    <script>!function(d,s,id){
            var widgetElem = d.getElementById(id);
            if (widgetElem) {
                var widgetParent = widgetElem.parentNode;
                widgetParent.removeChild(widgetElem);
            }
            var js,
            fjs=d.getElementsByTagName(s)[0],
            p=/^http:/.test(d.location)?'http':'https';
            js=d.createElement(s);
            js.id=id;
            js.src=p+"://platform.twitter.com/widgets.js";
            fjs.parentNode.insertBefore(js,fjs);
          }(document,"script","twitter-wjs");
    </script>
</div>
```

The following image shows the Twitter feed that appears in the Entity view:
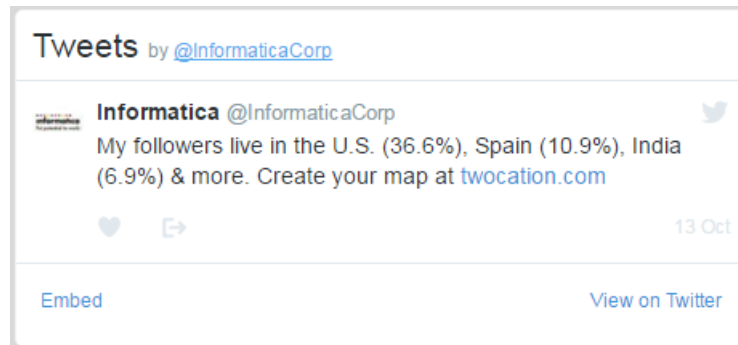
For more information about the Twitter API code in the example, see the Twitter documentation regarding embedded timelines.

How to Design the Data Director User Interface

Design and update Data Director user interface layouts for the **Home** page and record views.

Perform the following tasks to design and update layouts:

1. If you need custom components to display data related to records, create the custom components.

2. Design a layout, add components to the layout, and then publish the changes.

3. If the layout needs further changes to meet requirements, you can update the layout and publish the changes.

Creating a Data Director Application

The user interface layout that you want to design must be associated with a Data Director application. To create a Data Director application, use the Application Editor.

1. In the Provisioning tool, from the **Database** list, select the database with which you want to associate the application.

2. Click **Configuration** > **Application Editor**.

   The **Applications** page appears.

3. Click **Create**.

4. In the application properties panel, specify the following properties:

Property	Description
Name	Name of the application that appears in the Applications panel.
Display Name	Name of the application that appears in Data Director.
Source System	Source system with which you want to associate the application.

Property	Description
Session Timeout (minutes)	Time in minutes to wait before an idle Data Director session can time out.
Display Default Record Views	Enables the default record views. The names of the default record views appear in the **View** list in Data Director.
Smart search	Enables the **Search** menu option in the Data Director navigation bar.
Queries	Enables the **Query** menu option in the Data Director navigation bar.
Queries dialog in application	This option appears when you enable both the **Smart search** and the **Queries** options.
	Enable the **Queries dialog in application** option to allow the use of queries to search for records within a record view, such as **Matching Records** or while using a component, such as **Related Records**.
	Note: Both the **Query** and the **Search** menu options appear in the Data Director navigation bar.

5. Click **Apply**.

   The application that you created appears in the **Tree View** panel and in the **Applications** panel.

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.

Configuring the Task Inbox Component

Create the task inbox component in the Component Editor. After you create the task inbox component, the component appears in the Layout Designer. You can configure the fields that you want to display as columns and the predefined filters for the task inbox.

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

   The **Component Editor** appears.

2. From the component type list, select **Task Inbox**, and click **Create**.

   The Properties panel displays **Basic** and **Advanced** tabs. To configure the task inbox in the user interface, use the **Basic** tab. To configure the task inbox with the XML code, use the **Advanced** tab. See "XML Code to Configure a Task Inbox" on page 134.

3. On the **Basic** tab, enter a name for the task inbox component.

4. To configure the fields for the task inbox component, perform the following tasks:

   a. In the **Display Fields** field, click **Edit**.

      The **Table Settings** dialog box appears.

   b. To add or remove a field, select the field and drag it to the required section.

   c. To set the order for a field, move the field up or down.

d. Click **OK**.

5. To configure the filters for the task inbox component, perform the following tasks:

    a. In the **Display Filters** field, click **Edit**.

        The **Table Settings** dialog box appears.

    b. To add or remove a filter, select the filter and drag it to the required section.

    c. To set the order for a filter, move the filter up or down.

    d. Click **OK**.

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.

The task inbox component that you create and publish appears in the Components panel.

- "Primary User Interface Components" on page 117

XML Code to Configure a Task Inbox

On the **Advanced** tab of the task inbox configuration page, use the XML code to configure the task inbox.

The following table lists the elements that you can use in the XML code to configure the task inbox:

Element	Description
displayFields	Name of the field that you want to display in the task inbox. Use one of the following fields: - `TASK_TITLE`. A short description of the review task. - `TYPE`. Name of a people activity within the process. - `PRIORITY`. Priority of the task. - `DUE_DATE`. Date the task is due. - `OWNER`. Name of the signed-in user. - `TASK_ID`. Instance ID of the review process that generated the task. - `STATUS`. Status of the task. - `CREATOR`. Name of the user who created the task. - `CREATION_DATE`. Date on which the user created the task.
displayFilters	Filter that you want to display in the task inbox. Use one of the following filters: - `MY_OPEN_TASKS`. Shows your open tasks. - `MY_CLOSED_TASKS`. Shows the tasks that you closed. - `ALL_TASKS`. Shows all the closed, claimed, and unclaimed tasks that are assigned to your user group. - `ALL_UNCLAIMED_TASKS`. Shows all the unclaimed tasks that are assigned to your user group. - `ALL_CLOSED_TASKS`. Shows all the tasks that the users in your user group closed. - `ALL_CLAIMED_TASKS`. Shows all the tasks that the users in your user group claimed.
excludeTaskTypes	Task type that you do not want to view in the task inbox.

The following sample XML code includes all the fields and filters and excludes the draft and merge tasks in the task inbox:

```
<dataViewLayout xmlns="http://www.informatica.com/mdm/TaskInbox">
    <taskInboxConfig>
        <displayFields>TASK_TITLE</displayFields>
        <displayFields>TYPE</displayFields>
        <displayFields>PRIORITY</displayFields>
        <displayFields>DUE_DATE</displayFields>
        <displayFields>OWNER</displayFields>
        <displayFields>TASK_ID</displayFields>
        <displayFields>STATUS</displayFields>
        <displayFields>CREATOR</displayFields>
        <displayFields>CREATION_DATE</displayFields>
        <displayFilters>MY_OPEN_TASKS</displayFilters>
        <displayFilters>MY_CLOSED_TASKS</displayFilters>
        <displayFilters>ALL_TASKS</displayFilters>
        <displayFilters>ALL_UNCLAIMED_TASKS</displayFilters>
        <displayFilters>ALL_CLOSED_TASKS</displayFilters>
        <displayFilters>ALL_CLAIMED_TASKS</displayFilters>
        <excludeTaskTypes>AVOSBeDraftState</excludeTaskTypes>
        <excludeTaskTypes>AVOSBeMerge</excludeTaskTypes>
    </taskInboxConfig>
</dataViewLayout>
```

Creating the Related Records Component

Create the Related Records component in the Component Editor. After you create the Related Records component, the component appears in the Layout Designer.

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

   The **Component Editor** appears.

2. Create a Related Records component.

   a. From the component type list, select **Related Records**, and click **Create**.

   b. In the **Properties** panel, specify the following Related Records component properties:

Property	Description
Name	Name of the Related Records component that appears in the Components panel.
Label	Label of the Related Records component that appears in the component list for the component in the Layout Designer workspace.
Honor Direction	Specifies whether the Related Records component honors the direction of the relationship between records. To configure the component to honor the direction of the relationship between records, enable the property.
Read Only	Specifies whether users can edit related records from the Related Records component. To configure the component as a non-editable component, enable the property.

   c. Click **Apply**.

   The Related Records component that you created appears in the **Components** panel and in the **Tree View** panel.

3. Create filters for the business entities that appear in the Related Records component.

   a. In the Related Records component tree, click **Filter**, and then click **Create**.

   The filter properties appear in the **Properties** panel.

   b. Enter a name for the filter.

   c. From the Object Type list, choose one of the following filter types:

Filter Type	Description
Relationship	Filter based on a relationship type.
Business Entity	Filter based on a business entity.

   If you select the Relationship filter type, the relationship names appear in the Value list. If you select the Business Entity filter type, the business entity names appear in the Value list.

   d. Select an item from the **Value** list, and click **Apply**.

   You can create multiple filters for the business entities in the Related Records component.

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.

The Related Records component that you create and publish appears in the Components panel.

Creating the Similar Records Component

Create the Similar Records component in the Component Editor. After you create the Similar Records component, the component appears in the Layout Designer.

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

    The **Component Editor** appears.

2. From the Component type list, select **Similar Records**, and click **Create**.

    The property fields appear in the Properties panel.

3. Enter a name for the Similar Records component.

4. In the **XML** field, enter the following XML configuration that includes a list of fields to search for similar records:

    ```
    <config>
        <searchableFields>
            <field name="<field name 1>"/>
            <field name="<field name 2>"/>
                            ...
            <field name="<field name n>"/>
        </searchableFields>

            <searchType>
                            ...
            </searchType>

        <label existsFormat="{1} {2} {3}">
            <column columnUid="<field name 1>" />
            <column columnUid="<field name 2>"/>
            <column columnUid="<field name 3>" />
        </label>
    </config>
    ```

    Where `<field name>` is the name of the field on which you want to base the search for similar records. You can base the search for similar records on field names in the business entity model that are configured as searchable. Also, you need to specify the format in which the search field values must appear.

5. Click **Apply**.

    The Similar Records component that you created appears in the **Components** panel and in the **Tree View** panel.

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.

RELATED TOPICS:

- [" Similar Records" on page 126](#)

Creating the External Links Component

Create the External Links components in the Component Editor. After you create the External Links components, the components appear in the Layout Designer.

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

   The **Component Editor** appears.

2. From the Component type list, select **External Links**, and click **Create**.

   The property fields appear in the **Properties** panel.

3. Specify the following component properties:

Property	Description
Name	Name of the External Links component that appears in the Components panel.
Code	Code to display the external resource. You can use an inline frame to embed an external web page, or use HTML code and Javascript. **Note:** If the external resource for which you want to create a component does not have a predefined height, specify the height of the component in the code.

4. Click **Apply**.

   The External Links component that you created appears in the **Components** panel and in the **Tree View** panel.

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.

Designing a Home Page Layout

You can design multiple **Home** pages for Data Director. You can configure which roles can access the **Home** pages. For example, you might design a **Home** page layout for Account Managers that displays the task inbox and data reports.

Note: If you do not design a Home page, a Data Director application displays the legacy Start page.

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

   The **Layout Designer** appears.

2. Click **Create** > **Home Page Layout**.

   The **Properties** page appears.

3. 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.

4. Click **Next**.

   The **User Roles** page appears.

5. Select the user roles that can access the **Home** page.

   The user roles that appear on the **User Roles** page are configured in the MDM Hub.

6. Click **Next**.

   The **Template** page appears.

7. Select a template that supports how users will interact with the **Home** page, and click **Next**.

   The **Design** page appears.

8. Drag the components that you want in the **Home** page layout into the workspace.

   For example, drag the **Task Inbox** and the **Dashboard Reports** components into the workspace.

The following image shows the **Design** page with the **Task Inbox** component and the **Dashboard Reports** component in the workspace:
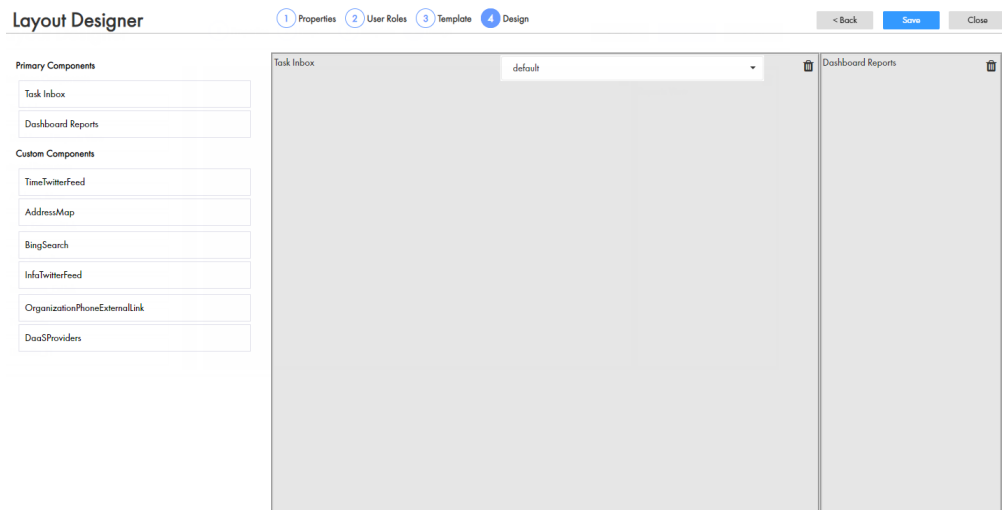
9. Click **Save**.

    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.

The layout appears in **Layout Categories** panel. When users log in to Data Director, the **Home** page designed for their user role appears.

Related Topics:

•   "Home Page Layouts" on page 111

Designing a Business Entity View Layout

You can design a custom record view layout to replace the default Business Entity view. Add the Record Details components, and add any secondary or custom components that you want.

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

    The **Layout Designer** appears.

2. Click **Create** > **Record View Layout**.

    The **Properties** page appears.

3. From the **Layout Type** menu, select **Record View and Review Task**.

4. Define the properties of the layout.

   a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

   b. Choose the business entity or business entity view for which you want to design the layout.

      For example, choose **Person**.

5. Click **Next**.

   The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

   Tip: To create user roles, use the MDM Hub Console.

   The **Purpose** page appears.

7. Select the actions that users can perform using the record view layout.

- To create records, select **Create records**.
- To view or edit records, select **View or edit records**.
- To create, view, or edit records, select **Create records** and **View or edit records**.

   Tip: To use the same layout for the Business Entity view and Review Tasks, select all options on the **Purpose** page of the Layout Designer.

8. Click **Next**.

   The **Template** page appears.

9. Select a template that supports how users will interact with the record view layout, and click **Next**.

   Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

   The **Design** page appears.

10. Drag components into the workspace.

   a. Drag the **Record Details** component into the workspace.

      Note: Drag only one primary component into the workspace.

   b. To display related information, drag secondary or custom components into the workspace.

The following image shows a **Design** page with the Record Details component, the Related Records component, and the Address Map component in the workspace:
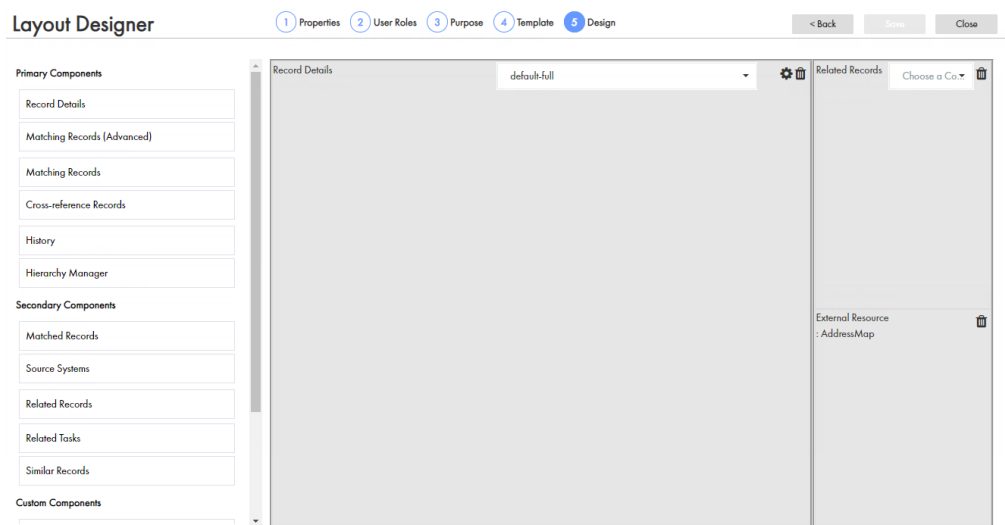
11. If you want selected fields of the **Record Details** component to appear in the record view, configure the component.

   a. From the component configuration list, select a configuration.

   You can select a default or a custom configuration.
   The following default configurations are available:

   - default-full. Configuration of the business entity that includes the root node and all the child nodes.

   - default-root. Configuration of the root node of the business entity.

   b. Click the **Configure** icon of the component in the workspace.

   The **Data Component Designer** appears.

   c. In the **Configuration name** field, enter a configuration name.

   Important: Ensure that the configuration name is not the same as any business entity name. For example, if you have a Person business entity in your environment, do not name the configuration Person.

   d. If you want to use a vertical menu to access the business entity details, enable **Navigation pills**.

   e. From the **Attributes** section, drag the business entity attributes that you want to display in a record view into the **Attributes layout** section.

   For example, drag the First Name, Middle Name, Last Name, Birth Date, and Tax ID into the **Attributes layout** section.

   f. From the **Child nodes** section, drag the child business entities that you want to display in a record view to the **Child nodes layout** section.

   For example, drag Bill address, Ship address, Telephones, and Email into the **Child nodes layout** section.

The following image shows a **Data Component Designer** with the layout of attributes and child nodes defined:
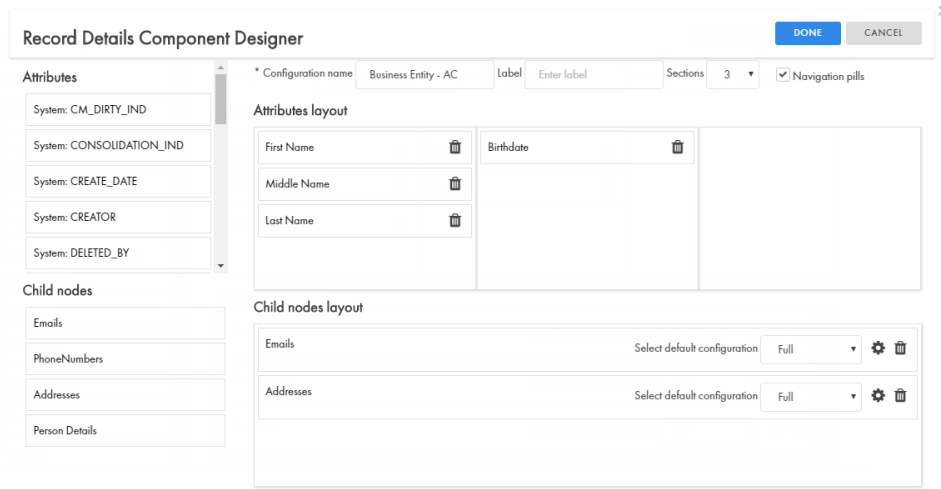
g. If you want selected fields of the child business entities to appear in the record view, click the **Configure** icon next to the child entity.

The **Data Component Designer** appears where you can design the child entity.

h. Click **Done**.

The **Design** page appears.

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.

The layout appears in the **Layout Categories** panel. When users create or open records in Data Director, the record view layouts designed for their user role appear in the **View** list.

Related Topics:

-

Designing a Matching Records View Layout

You can design a record view layout to replace the default Matching Records view. Add the Matching Records (Advanced) component or the Matching Records component, and add any secondary or custom components that you want.
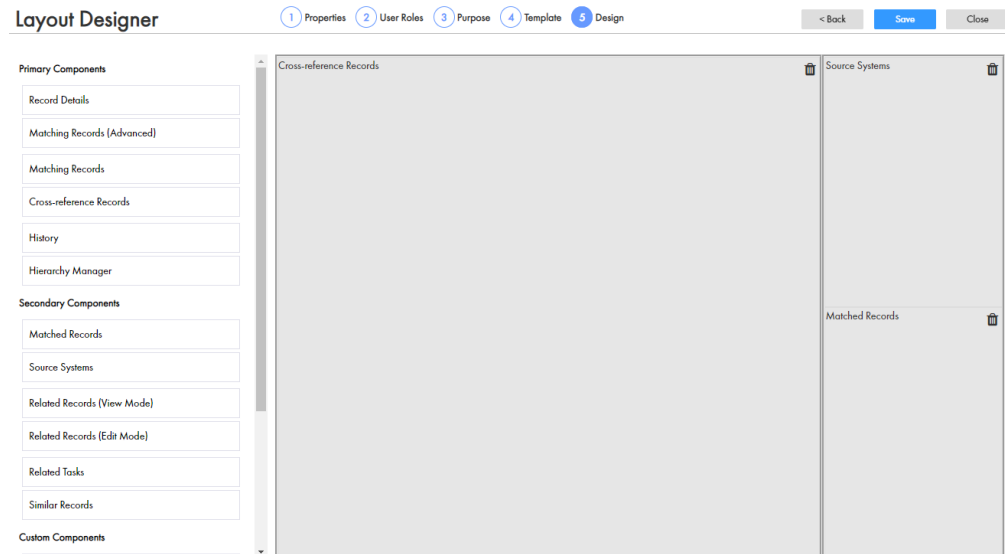
1. In the Provisioning tool, click **Configuration** > **Layout Designer**.

The **Layout Designer** appears.

2. Click **Create** > **Record View Layout**.

The **Properties** page appears.

3. From the **Layout Type** menu, select **Record View and Review Task**.

4. Define the properties of the layout.

   a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

   b. Choose the business entity or business entity view for which you want to design the layout.

      For example, choose **Person**.

5. Click **Next**.

   The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

   Tip: To create user roles, use the MDM Hub Console.

   The **Purpose** page appears.

7. Select the **View or edit records** option, and click **Next**.

   The **Template** page appears.

8. Select a template that supports how users will interact with the record view layout, and click **Next**.

   Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

   The **Design** page appears.

9. Drag one primary component into the workspace.

   - To merge records using the merge comparison panel with advanced features, drag the Matching Records (Advanced) component into the workspace.
     Use the Matching Records (Advanced) component to override and promote root and child values in records.

   - To merge records using the merge comparison panel, drag the Matching Records component into the workspace.
     Use the Matching Records component to override root values in records.

   Note: Drag only one primary component into the workspace.

The following image shows the **Design** page with the Matching Records (Advanced) component, the Similar Records component, and the Twitter Feed component in the workspace:

10. Optionally, drag secondary or custom components into the workspace.

11. Click **Save**.

    The changes are saved to the temporary workspace.

12. 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.

The layout appears in **Layout Categories** panel. When users open records in Data Director, the record view layouts designed for their user role appear in the **View** list.

RELATED TOPICS:

• "Record View and Review Task Layout Type" on page 112

Designing a Cross-reference Records View Layout

You can design a record view layout to replace the Cross-reference Records view. Add the Cross-reference Records component, and add any secondary or custom components that you want.
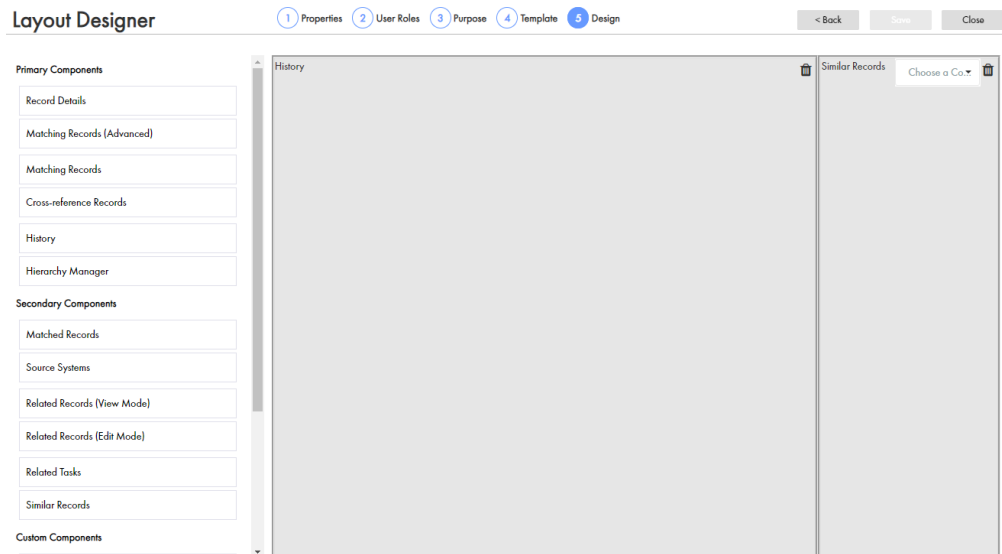
1. In the Provisioning tool, click **Configuration** > **Layout Designer**.

   The **Layout Designer** appears.

2. Click **Create** > **Record View Layout**.

   The **Properties** page appears.

3. From the **Layout Type** menu, select **Record View and Review Task**.

4. Define the properties of the layout.

   a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

   b. Choose the business entity for which you want to design the layout.

      For example, choose **Person**.

5. Click **Next**.

   The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

   Tip: To create user roles, use the MDM Hub Console.

   The **Purpose** page appears.

7. Select the **View or edit records** option, and click **Next**.

   The **Template** page appears.

8. Select a template that supports how users will interact with the record view layout, and click **Next**.

   Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

   The **Design** page appears.

9. Drag components into the workspace.

   a. Drag the Cross-reference Records component into the workspace.

      Note: Drag only one primary component into the workspace.

   b. To display related information, drag secondary or custom components into the workspace.

The following image shows the **Design** page with the Cross-reference Records component, the Source Systems component, and the Matched Records component in 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.

The layout appears in **Layout Categories** panel. When users open records in Data Director, the record view layouts designed for their user role appear in the **View** list.

Related Topics:

- "Record View and Review Task Layout Type" on page 112

Designing a History View Layout

You can design a custom record view layout to replace the History view. Add the History component, and add any secondary or custom components that you want.

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

   The **Layout Designer** appears.

2. Click **Create** > **Record View Layout**.

   The **Properties** page appears.

3. From the **Layout Type** menu, select **Record View and Review Task**.

4. Define the properties of the layout.

    a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

    b. Choose the business entity or business entity view for which you want to design the layout.

        For example, choose **Person**.

5. Click **Next**.

    The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

    Tip: To create user roles, use the MDM Hub Console.

    The **Purpose** page appears.

7. Select the **View or edit records** option, and click **Next**.

    The **Template** page appears.

8. Select a template that supports how users will interact with the record view layout, and click **Next**.

    Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

    The **Design** page appears.

9. Drag components into the workspace.

    a. Drag the History component into the workspace.

        Note: Drag only one primary component into the workspace.

    b. To display related information, drag secondary or custom components into the workspace.

The following image shows the **Design** page with the History component and the Similar Records component in 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.

The layout appears in **Layout Categories** panel. When users open records in Data Director, the record view layouts designed for their user role appear in the **View** list.

Designing a Hierarchy View Layout

You can design a custom record view layout to replace the default Hierarchy view. Add the Hierarchy Manager component, and add any secondary or custom components that you want.

Note: Before you can add the Hierarchy Manager component to a layout, configure the Hierarchy Manager for Data Director application. For more information, see the *Multidomain MDM Data Director Implementation Guide*.
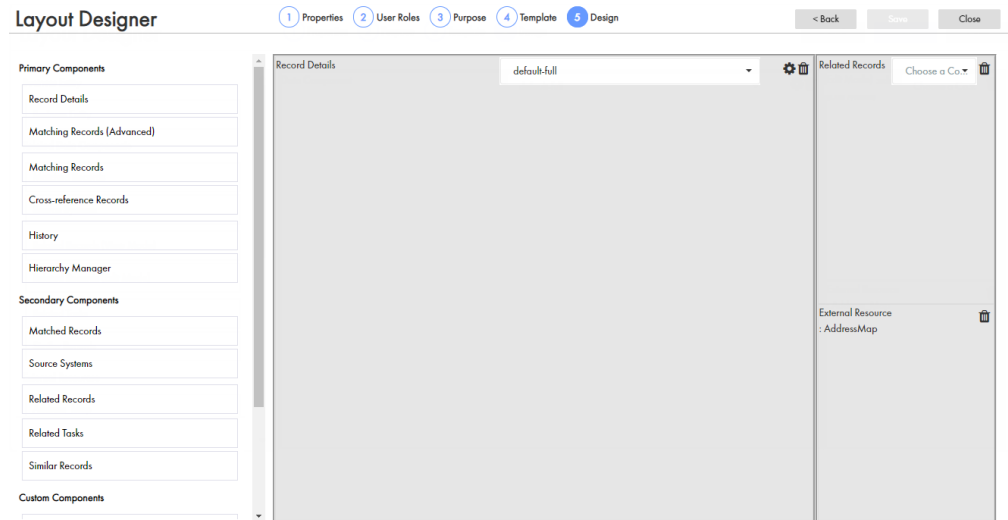
1. In the Provisioning tool, click **Configuration** > **Layout Designer**.

 The **Layout Designer** appears.

2. Click **Create** > **Record View Layout**.

 The **Properties** page appears.

3. From the **Layout Type** menu, select **Record View and Review Task**.

4. Define the properties of the layout.

    a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

    b. Choose the business entity or business entity view for which you want to design the layout.

        For example, choose **Person**.

5. Click **Next**.

    The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

    Tip: To create user roles, use the MDM Hub Console.

    The **Purpose** page appears.

7. Select the **View or edit records** option, and click **Next**.

    The **Template** page appears.

8. Select a template that supports how users will interact with the record view layout, and click **Next**.

    Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

    The **Design** page appears.

9. Drag components into the workspace.

    a. Drag the Hierarchy Manager component into the workspace.

        Note: Drag only one primary component into the workspace.

    b. To display related information, drag secondary or custom components into the workspace.

The following image shows the **Design** page with the Hierarchy Manager component and the Similar Records component in the workspace:
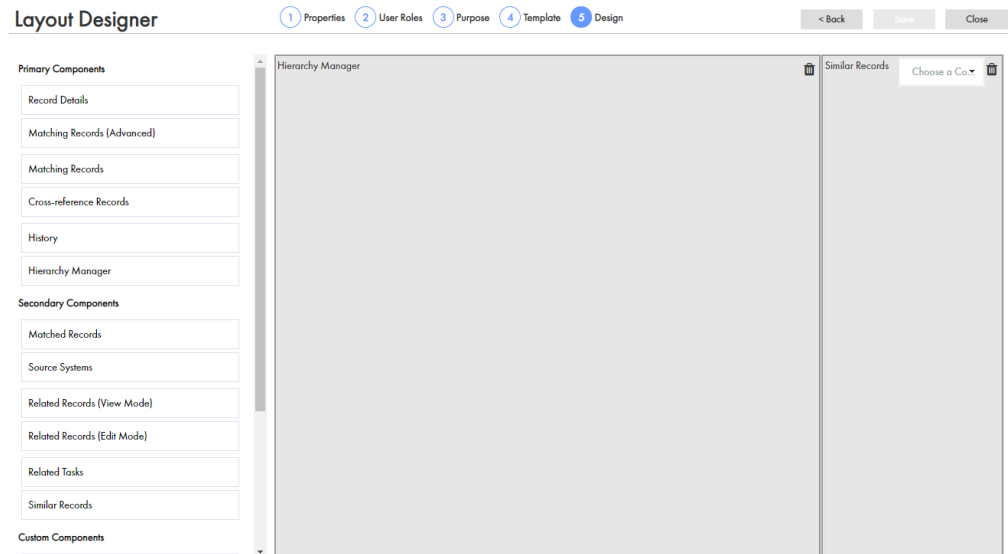
10. Click **Save**.

    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.

The layout appears in **Layout Categories** panel. When users open records in Data Director, the record view layouts designed for their user role appear in the **View** list.

Designing a Review Task Layout

You can design a custom record view layout to manage review tasks in the Task Manager. Add the Record Details component, and add any secondary or custom components that you want.

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

   The **Layout Designer** appears.

2. Click **Create** > **Record View Layout**.

   The **Properties** page appears.

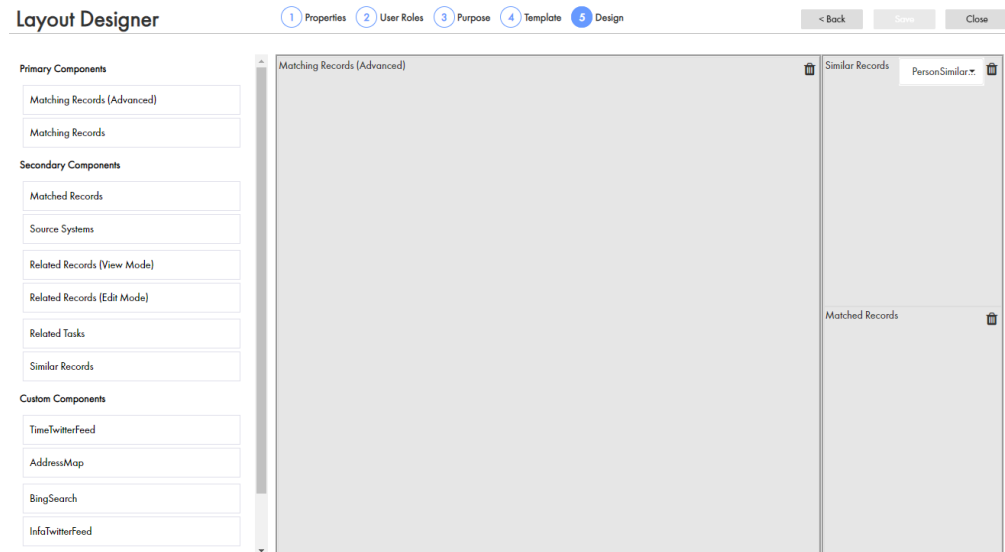3. From the **Layout Type** menu, select **Record View and Review Task**.

4. Define the properties of the layout.

   a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

   b. Choose the business entity or business entity view for which you want to design the layout.

      For example, choose **Person**.

5. Click **Next**.

   The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

   Tip: To create user roles, use the MDM Hub Console.

   The **Purpose** page appears.

7. Select the **View or edit records** option, and click **Next**.

   The **Template** page appears.

8. Select a template that supports how users will interact with the record view layout, and click **Next**.

   Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

   The **Design** page appears.

9. Drag components into the workspace.

   a. Drag the Record Details component into the workspace.

      Note: Drag only one primary component into the workspace.

   b. To display related information, drag secondary or custom components into the workspace.

The following image shows the **Design** page with the Record Details component, the Related Records component, and the Address Map component in 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.

The layout appears in **Layout Categories** panel. When users manage review tasks in the Task Manager, the record view layout designed for their user role appears in the review panel.

Designing a Merge Task Layout

You can design a custom record view layout to manage merge tasks in the Task Manager. Add the Matching Records (Advanced) component or the Matching Records component, and add any secondary or custom components that you want.

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

2. Click **Create** > **Record View Layout**.
   The **Properties** page appears.

3. Click **Layout Type** > **Merge Task**.

4. Define the properties of the layout.

    a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

    b. Choose the business entity or business entity view for which you want to design the layout.

    For example, choose **Person**.

5. Click **Next**.

    The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

    Tip: To create user roles, use the MDM Hub Console.

    The **Purpose** page appears.

7. Select the **View or edit records** option, and click **Next**.

    The **Template** page appears.

8. Select a template that supports how users will interact with the record view layout, and click **Next**.

    Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

    The **Design** page appears.

9. Drag one primary component into the workspace.

    - To manage merge tasks using the merge comparison panel with advanced features, drag the Matching Records (Advanced) component into the workspace.
      Use the Matching Records (Advanced) component to override and promote root and child values in records.

    - To manage merge tasks using the merge comparison panel, drag the Matching Records component into the workspace.
      Use the Matching Records component to override root values in records.

    Note: Drag only one primary component into the workspace.

The following image shows the **Design** page with the Matching Records (Advanced) component, the Similar Records component, and the Matched Records component in the workspace:

10. Optionally, drag secondary or custom components into the workspace.

11. Click **Save**.

    The changes are saved to the temporary workspace.

12. 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.

The layout appears in **Layout Categories** panel. When users manage merge tasks in the Task Manager, the record view layout designed for their user role appears in the review panel.

RELATED TOPICS:

Designing an Unmerge Task Layout

You can design a record view layout to manage unmerge tasks in the Task Manager. Add the Cross-reference Records component, and add any secondary or custom components that you want.

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

    The **Layout Designer** appears.

2. Click **Create** > **Record View Layout**.

    The **Properties** page appears.

3. Click **Layout Type** > **Unmerge Task**.

4. Define the properties of the layout.

   a. Specify the following properties:

Property	Description
Layout Name	Label for the layout that you design. After you design and publish the layout, the label appears in the **Layout Categories** panel in the Layout Designer.
Layout ID	Label used for generating a system ID.
Description	Optional. A meaningful description to identify the layout.
View Name	Label for the option. The view name appears in the **View** list in Data Director.
List Option Icon	Optional. Icon for the list option. The list option icon appears in the **View** list in Data Director.
List Order	Optional. Placement of the view name in the **View** list in Data Director.

   b. Choose the business entity for which you want to design the layout.

   For example, choose **Person**.

5. Click **Next**.

   The **User Roles** page appears.

6. Select the user roles that can access the record view layout, and click **Next**.

   Tip: To create user roles, use the MDM Hub Console.

   The **Purpose** page appears.

7. Select the **View or edit records** option, and click **Next**.

   The **Template** page appears.

8. Select a template that supports how users will interact with the record view layout, and click **Next**.

   Tip: Primary components require more horizontal space than other components. When designing record view layouts, select a template with a panel that is big enough to display a primary component.

   The **Design** page appears.

9. Drag components into the workspace.

   a. Drag the Cross-reference Records component into the workspace.

   Note: Drag only one primary component into the workspace.

   b. To display related information, drag secondary or custom components into the workspace.

The following image shows the **Design** page with the Cross-reference Records component and the Source Systems component in the workspace:
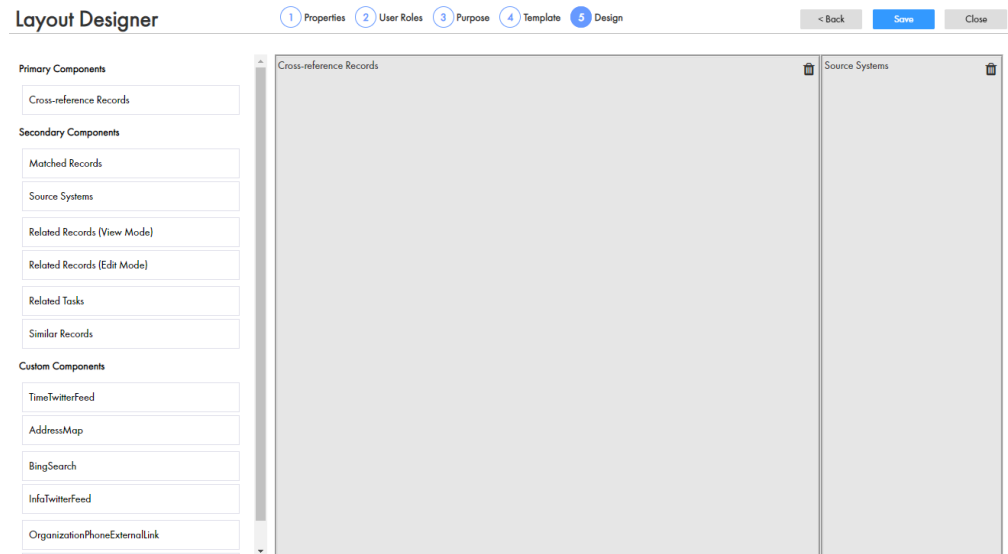
10. Click **Save**.

    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.

The layout appears in **Layout Categories** panel. When users manage unmerge tasks in the Task Manager, the record view layout designed for their user role appears in the review panel.

RELATED TOPICS:

• "Unmerge Task Layout Type" on page 116

Updating Home Page Layouts

You can update **Home** page layouts for Data Director in the Layout Designer. For example, you can update the **Home** page layout to display additional components.

Troubleshooting Tip: After you update a layout, the layout name in the View list is **Untitled Layout**. The issue occurs with layouts created in a version prior to 10.2. You can change the name in the **Properties** page. To hide the name from the View list, use the **Purpose** page.

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

   The **Layout Designer** appears.

2. To select a layout that you want to update, expand the **Home Page** layout category, and select the **Home** page layout that you want to update.

3. Click **Edit**.

   The **Design** page appears.

4. Drag the components that you want in the **Home** page into the workspace.

   For example, drag the **Task Inbox** and the **Dashboard Reports** components into the workspace.

5. If you want to add a component to the **Home** page layout, drag the component into the workspace.

6. If you want to remove a component from the **Home** page layout, click the **Delete** icon of the component.

7. If you want to update the layout properties, purpose, or template, click **Back** to navigate to the page and make the changes.

8. Click **Save**.

   The changes are saved to the temporary workspace.

9. 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.

Updating Record View Layouts

You can update a record view layout in the Layout Designer. For example, you can update a record view layout to display additional components or remove a component that you do not require.

Troubleshooting Tip: After you update a layout, the layout name in the View list is **Untitled Layout**. The issue occurs with layouts created in a version prior to 10.2. You can change the name in the **Properties** page. To hide the name from the View list, use the **Purpose** page.

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

   The **Layout Designer** appears.

2. To select a layout that you want to update, expand the layout category related to the record view layout, and select the record view layout.

3. Click **Edit**.

   The **Design** page appears.

4. If the layout contains a Record Details component and you want to add or remove fields, configure the component.

   a. Click the **Configure** icon of the data component in the workspace.

      The **Data Component Designer** appears.

   b. If required, enable or disable **Navigation pills**.

      Enables or disables the vertical menu to access the business entity details.

   c. If you want to add specific business entity attributes to the record view layout, from the **Attributes** section, drag the business entity attributes to the **Attributes layout** section.

   d. If you want to remove specific business entity attributes from the record view layout, click the **Delete** icons of the business entity attributes in the **Attributes layout** section.

e. If you want to add child business entities to the record view layout, from the **Child nodes** section, drag the child business entities to the **Child nodes layout** section.

f. If you want to remove specific child entities from the record view layout, click the **Delete** icons of the child entities in the **Child nodes layout** section.

g. If you want selected fields of the child entities to appear in the record view, click the **Configure** icon next to the child entity.

   The **Data Component Designer** appears where you can design the child entity.

h. Click **Done**.

   The **Design** page appears.

5. If you want to add a component to the record view layout, drag the component into the workspace.

6. If you want to remove a component from the record view layout, click the **Delete** icon of the component.

7. If you want to update the layout properties, purpose, or template, click **Back** to navigate to the page and make the changes.

8. Click **Save**.

   The changes are saved to the temporary workspace.

9. 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.

Configuring Task Manager

The Task Manager displays task notifications and details of the associated records for which the review process generates the task notifications. You can select the fields that you want to display in the task panel of the Task Manager.

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

2. Select **Task Manager Configuration**.

3. Perform one of the following tasks:

   • To configure the Task Manager for the first time, click **Create**.

      Note: You cannot create more than one Task Manager for an Operational Reference Store.

   • To edit the Task Manager configuration, select **TaskManagerConfiguration**.

   The Properties panel displays **Basic** and **Advanced** tabs. To configure the Task Manager in the user interface, use the **Basic** tab. To configure the Task Manager with the XML code, use the **Advanced** tab. See "XML Code to Configure the Task Manager" on page 159.

4. On the **Basic** tab, in the **Display Fields** field, click **Edit**.

   The **Table Settings** dialog box appears.

5. To add or remove a field, select the field and drag it to the required section.

6. To set the order for a field, move the field up or down.

7. Click **OK**.

8. Click **Apply**.

9. 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 to Configure the Task Manager

On the **Advanced** tab of the Task Manager configuration page, use the XML code to configure the Task Manager.

The following table lists the elements that you can use in the XML code to configure the Task Manager:

Element	Description
displayFields	Name of the field that you want to display in the task panel of the Task Manager. Use one of the following fields: - TASK_TITLE. A short description of the review task. - TYPE. Name of a people activity within the process. - PRIORITY. Priority of the task. - STATUS_DUEDATE_FILTER. Status of the task and the date the task is due. - OWNER. Name of the signed-in user. - TASK_ID. Instance ID of the review process that generated the task. - SUBMITTED_CREATOR_FILTER. Name of the user who created the task, and the date on which the user created the task.
excludeTaskTypes	Task type that you do not want to view in the task panel of the Task Manager.

The following sample XML code includes all the fields and excludes the draft and merge tasks in the task panel of the Task Manager:

```
<taskManager
    xmlns="http://www.informatica.com/mdm/TaskManager">
    <displayFields>TASK_TITLE</displayFields>
    <displayFields>TYPE</displayFields>
    <displayFields>PRIORITY</displayFields>
    <displayFields>STATUS_DUEDATE_FILTER</displayFields>
    <displayFields>OWNER</displayFields>
    <displayFields>TASK_ID</displayFields>
    <displayFields>SUBMITTED_CREATOR_FILTER</displayFields>
    <excludeTaskTypes>AVOSBeDraftState</excludeTaskTypes>
    <excludeTaskTypes>AVOSBeMerge</excludeTaskTypes>
</taskManager>
```

Hiding the Default Record Views

After you design custom record views, hide the default record views to reduce confusion for your end users.

Note: The default record views cannot be individually hidden.

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

   The **Application** page appears.

2. Click the IDD application you want to configure.

    The IDD application details appear in the **Tree View** panel and the **Properties** panel.

3. In the **Properties** panel, clear the **Display Default Records Views** check box.

4. Click **Apply**.

The names of the default record views do not appear in the **View** list in Data Director.

RELATED TOPICS:

- "Default Record Views" on page 116

Localizing Data Director

This chapter includes the following topics:

Localizing Data Director Overview

You can display all elements of the Data Director user interface in another language. All elements of the user interface are localized in the selected language. The localized elements are menus, buttons, navigation links, labels, error messages, and metadata.

Data Director users can select their preferred language when they log in to your Data Director application. The selected language becomes the default language for that user.

You can select a language to localize Data Director from a list of ten languages. The MDM administrator can add new languages not available in the list to your Data Director application.

Localizing Metadata

You can localize all metadata in Data Director. Metadata provides additional information about data. For example, metadata for a Person business entity includes first name, last name, birth date, and tax ID.

1. In the Provisioning tool, click **Configuration** > **General Settings.**
2. In the **General Settings** panel, select **Metadata Localization** from the list.
3. Click **Metadata Localization**.

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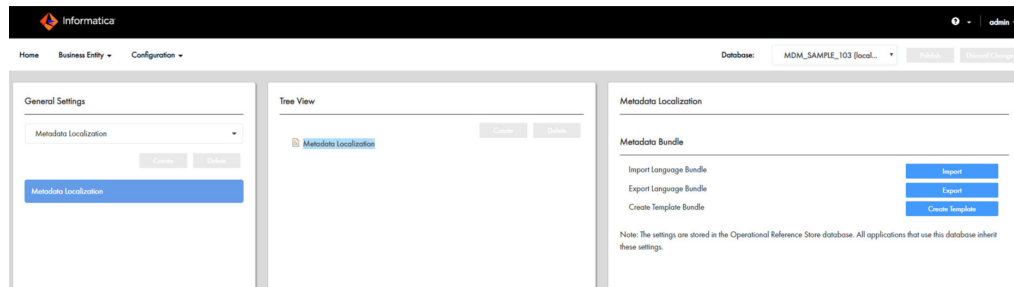
4. In the **Metadata Localization** panel, under **Metadata Bundle**, click **Create Template**.

   The `besMetadata.zip` file downloads.

   Note: If you created a template bundle, click **Export** to download the `besMetadata.zip` file, edit the file, and click **Import** to import the language metadata bundle.

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

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

   The `besMetadata.properties` file appears.

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

8. Open the localized file in a text editor. For each property, add the language code in brackets followed by the translation.
   For example, the following property shows a French translation for first name:

   ```
   Person.firstName=(fr)prénom
   ```

9. Compress the localized properties file into a .zip file with the same name as the localized properties file. For example, create `besMetadata_fr_CA.zip`.

10. Import the localized .zip file. In the **Metadata Localization** panel, under **Metadata Bundle**, click **Import**.

    The language metadata bundle is imported.

    Note: To localize task actions, you must manually add a space between the task action name in the *besMetadata.properties* file using the *taskaction.<action name>* format. For example, change *taskaction.CancelTask* to *taskaction.CancelTask=(br)Cancel Task*.

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 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 LookupGender lookup table to the LookupGender lookup localization table.

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

   The **Modelling** page appears.

2. From the **Modeling** panel, select **Reference Entities**, and select a lookup entity reference to localize. For this example, select **LookupGender.**
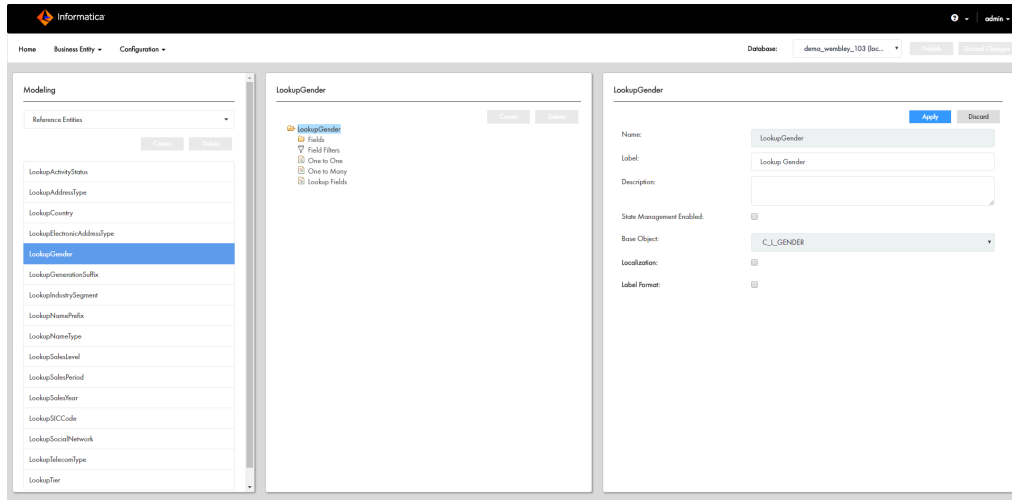
3. In the properties panel, select **C_L_GENDER** from the **Base Object** list.

4. Select the **Localization** checkbox.

   Additional database properties and values appear based on your database table setup. The following table contains example column names from the C_LOOKUP_GENDER_LCL base object tables:

Properties	Values
Base Object	C_LOOKUP_GENDER_LCL
Key Column	GENDER_CODE
Country Column	COUNTRY_CODE
Language Column	LANGUAGE_CODE
Value Column	LOCALIZED_STRING

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

5. Click **Apply** to localize the LookupGender entity.

6. Click **Publish.**

7. Review the changes and click **Confirm.**

Localizing Labels and Error Messages

Labels and error messages are the static text that make up the Data Director user interface. The text cannot be localized through the Provisioning Tool interface. You can localize labels and error messages by editing the Data Director localization bundles.

Important: Informatica provides ant scripts to help you modify the localization bundles. To request the localization script files, contact Informatica Global Customer Support. Before you begin, copy the `LocalizationScript` directory that you received to the `resourceKit` directory.

1. Navigate to the following directory:

    `<MDM Hub installation directory>/hub/server`

2. Copy the following files:

    -   entity360view-ear.ear
    -   provisioning-ear.ear
    -   uiwebapp-ear.ear

3. Navigate to the following directory:

    `<MDM Hub installation directory>/resourceKit/LocalizationScript`

4. Paste the copied files, and verify that the directory contains the following files and directory:

    -   entity360view-ear.ear
    -   provisioning-ear.ear
    -   uiwebapp-ear.ear
    -   build.xml file
    -   library directory
    -   ant.sh
    -   ant.bat

5. Run the following command from a command prompt:

    `ant generate_all`

    The command generates a `i18n` directory and the localization bundle files.

6. Open a localization bundle file in the command line or in an editor of your choice.

7. If required, edit the bundle file and save it in the following format `bundle_<language name>.properties`. For example, if you update the French localization file, save the file as `bundle_fr.properties`.

8. Generate an updated bundle file by running the following command:

    `ant generate_all`

9. Update the .ear files by running the following command:

    `ant update_all`

10. Copy the updated .ear files to the `<MDM Hub installation directory>/hub/server`.

11. Deploy the updated .ear files to the application server by running the `PostInstallSetup` script.

Provisioning Tool Frequently Asked Questions

This appendix includes the following topic:

Provisioning Tool Frequently Asked Questions

The following answers to frequently asked questions offer a good introduction to the Provisioning tool:

What does the Provisioning tool do?

You can use the Provisioning tool to define business entity models, tasks, and transformations, and design the user interface for Data Director.

Where should the Provisioning tool be installed?

The Provisioning tool must be running on the same application server as the Hub Server.

When I publish the configuration files to the MDM Hub, is the configuration validated?

Yes. The Repository Manager validates the configuration and reports any errors.

Can I use special characters such as '_' in name fields?

No. You cannot use special characters in names in the Provisioning tool. If you plan to generate a business entity schema from a subject area configuration, you must first remove the special characters from any names in the subject area configuration.

What happens when more than one person configures business entities for the same Operational Reference Store at the same time?

If the business entity configuration in the Operational Reference Store has changes that are not included in your configuration, the Provisioning tool notifies you. You can choose to publish your configuration and overwrite all configuration that is in the MDM Hub.

Caution: Because it is possible that one person can inadvertently overwrite the changes made by another person, Informatica recommends people co-ordinate with one another before using the Provisioning tool.

What happens when changes are made to the schema configuration in the MDM Hub while you are updating configurations?

As you work on the configuration files, you save your changes to a temporary workspace when you click Apply. The changes are not applied until you publish your changes. If multiple users change the business entity configuration for an ORS simultaneously, the MDM Hub is updated with the most recently published configuration.

Note: After you click Apply, you cannot edit your changes. Discard the changes, or publish the changes to edit them.

What is the maximum number of levels that a business entity model can have?

Unlike subject areas, which have a maximum depth of three, you are not limited in the number of levels the business entity model can have.

How do I create and configure base objects?

Use the Schema tool in the Hub Console to create and configure base objects.

How do I define constraints between base objects?

Use the Relationship tool in the Hub Console to define constraints between base objects.

I N D E X